November 1964 **PROGRESSIVE ARCHITECTURE**

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Architect:
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and Haible,
Boston.
Floor shown:
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THIS MONTH IN P/A

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VOLUME XLV, No. 11

VIEWS

"P/A Observer" Applauded

Dear Editor: I sat down and read an architectural magazine for the first time in ages—specifically, the SEPTEMBER 1964 P/A—and was delighted to see the new section, "P/A OBSERVER." I think the article on Louis Kahn's work was thoughtfully done.

I also enjoyed the article on Mr. Birkerts, although I find it a little tiresome listening to all the same obvious things being mouthed over and over again with slight variations. It seems to me that Vitruvius said it all, and everything else has merely been minor elaboration on his principles. In any event, I think the real problem that confronts architecture today is how to raise the general level of competence among architects, rather than the continued emphasis on a handful of men. They actually perform only a small percentage of the work that is being done. Most of the architectural work is pretty mediocre, and I think that calling the work of younger people such as Birkerts to the public eye in an effort to raise standards is a useful objective and a real service on the part of an architectural publication.

LESTER J. MILLMAN
Providence, R. I.

Dear Editor: I was pleased to learn about the newly initiated P/A OBSERVER. Reading the articles in that section made an impression on me, and I sincerely believe it will be of contributive professional value. Its provocative approach will be a great stimulus to the practicing architect, educator, and student.

Congratulations to the entire staff of P/A; we all wish you continuing success with the P/A OBSERVER.

EDWARD J. ROMIENIEC
Chairman, School of Architecture
Texas A&M University
College Station, Tex.

Fan Letter

Dear Editor: It is seldom that I write a fan letter, but I felt I must tell you how much I enjoyed the SEPTEMBER 1964 P/A. Yours is the only professional magazine that I feel compelled to sit down and read from cover to cover. May I congratulate you on an excellent job.

More of the same—please.

JOSEPH T. VITULLO
Elizabeth, N. J.

Soul-Searching Time

Dear Editor: It was with considerable interest that I read your Editorials in the June, July, and August issues of P/A in which you were apparently lamenting the state of affairs into which the architectural profession had fallen or was about to fall.

In a previous letter to your column, I stated that if other professionals could acknowledge and condemn shortcomings within their ranks then we architects should not attempt to remain aloof from the same type of soul searching.

Please permit me to congratulate you for bringing these matters to the attention of your readers. Considering that one of your most formidable and affluent competitors recently saw fit to cease publishing, I only hope that you are not just a little too late in sounding these warnings to the

Continued on page 10

Modern Door Control by

LCN

Closers concealed in head frame

Physics and Astronomy Building
University of Michigan
Ann Arbor, Michigan

Albert Kahn Associated Architects
and Engineers

LCN CLOSERS, PRINCETON, ILLINOIS

Construction Details on Opposite Page

Graceful overhang provides shelter and shade for this Florida home. Pole construction withstands winds and water. Architect: Robert B. Browne, A.I.A., Miami, Fla.

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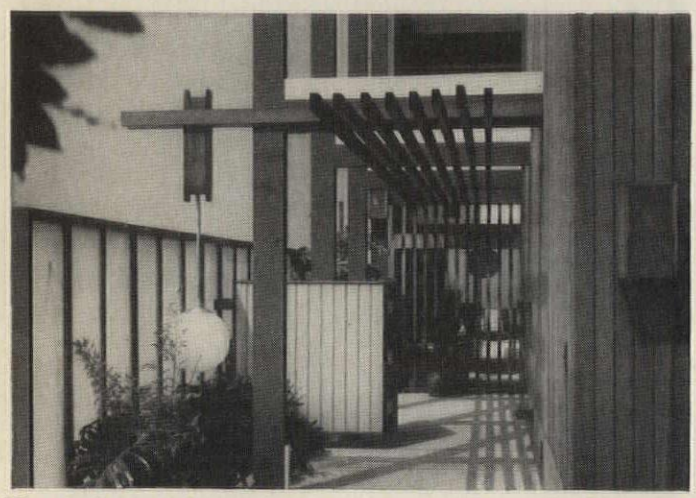

The dignity and charm of strong vertical and horizontal lines mark the entrance to this California beach residence. It's privacy, in good taste. Architect: Tucker Sadler & Bennett, A.I.A., San Diego.

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Attractive, geometric-design beam ceiling combines with walls of wood, stone and glass in this California home. Architects: Honnold & Rex, Los Angeles, Calif.

Continued from page 6

profession at large.

On the basis of many articles appearing in various publications, and from overheard conversations, I have formed the opinion that architects, to a great extent, have fallen short of the mark by being influenced by the promotional wiles of building materials manufacturers and the speculative builder, whose superior economic control of projects on which they have worked have made him the scapegoat of public condemnation for inferior design and any type of construction that seems to be detrimental rather than beneficial to the community's interest.

Has this been a justifiably formed opinion, and will your future Editorials have anything to say about such opinions, whether right or wrong?

The upsetting economic influences of recent years, as far as the architectural profession is concerned, seem to have been driving more and more of its clients into the orbit of the "package builders."

Perhaps guidance and a sense of purpose and direction by influential publications such as yours might still save the day for American architects in general.

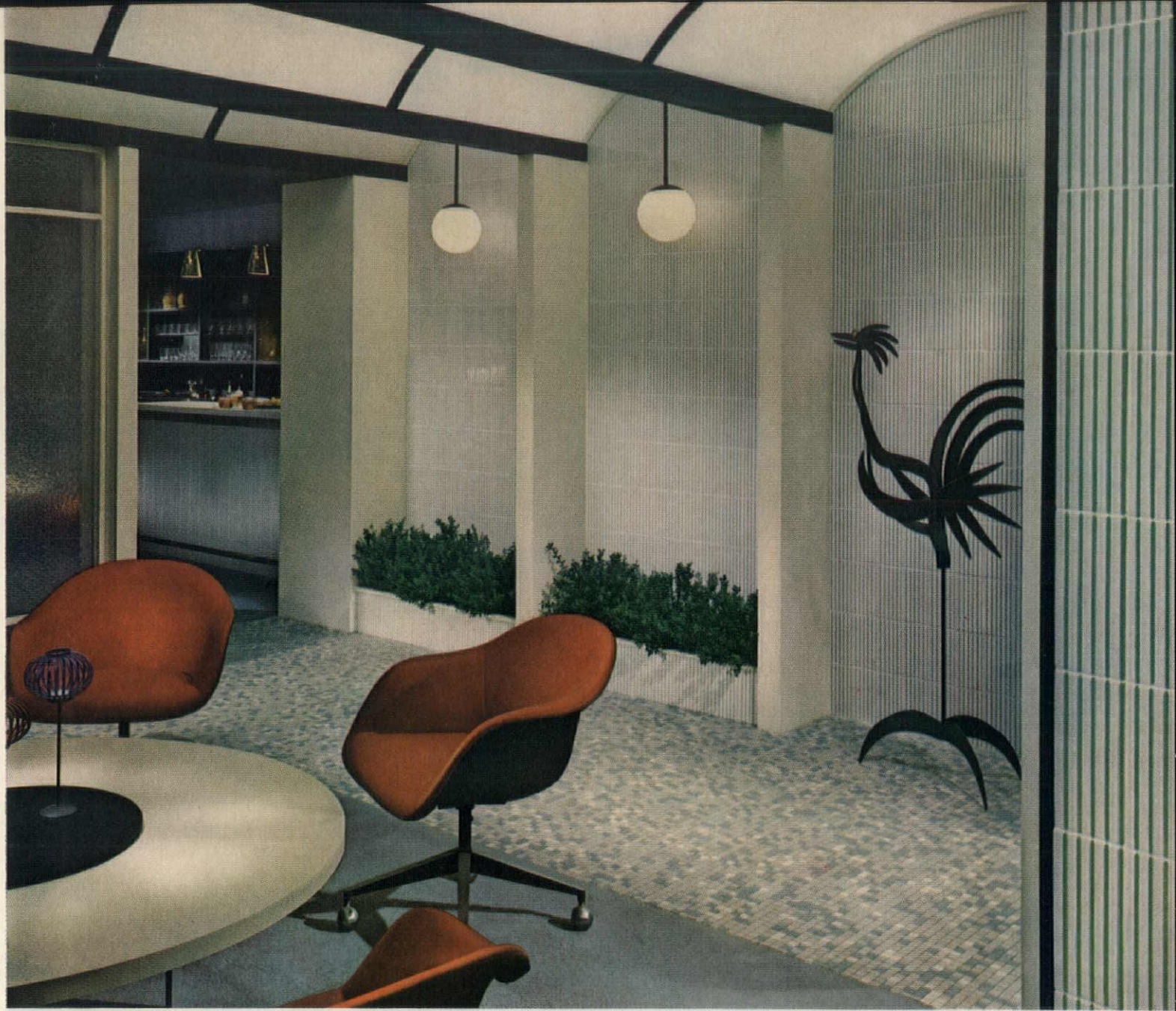
CREIGHTON AQUIN
Montreal, Quebec

Outer Display of Inner Beauty

Dear Editor: The article, " '20th Century Engineering'—Where is the Architect?" (p. 61, AUGUST 1964 P/A) seems to indicate that structure has no part in architecture, and that the Director of the Department of Architecture and Design of The Museum of Modern Art has slighted the architect in this exhibit. He was, I believe, merely recognizing and showing us the cause of a living architecture.

Without profound observance, and often unobserved, the engineer diligently works with the architect to create and place on this earth structures that outwardly display their beauty from deep within. It is these structures and their solid beauty that have an impact on our lives in the 20th Century, and will have for centuries to come, whether these structures be for human use or for the use of humans. This beauty evolves from a completed, thoughtful plan—one that equally considers requirement, structural form, architectural form, environment, and detail. To initiate this plan, to pursue and fulfill it, requires the understanding and contribution of the architect and the engineer.

Continued on page 16



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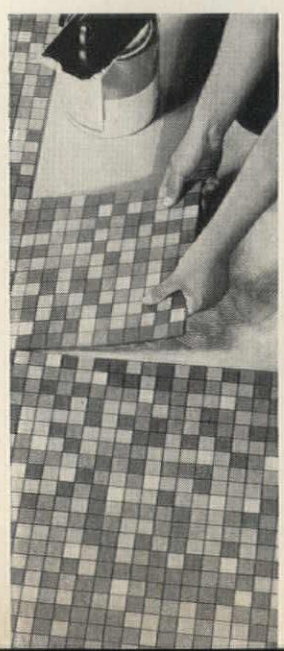

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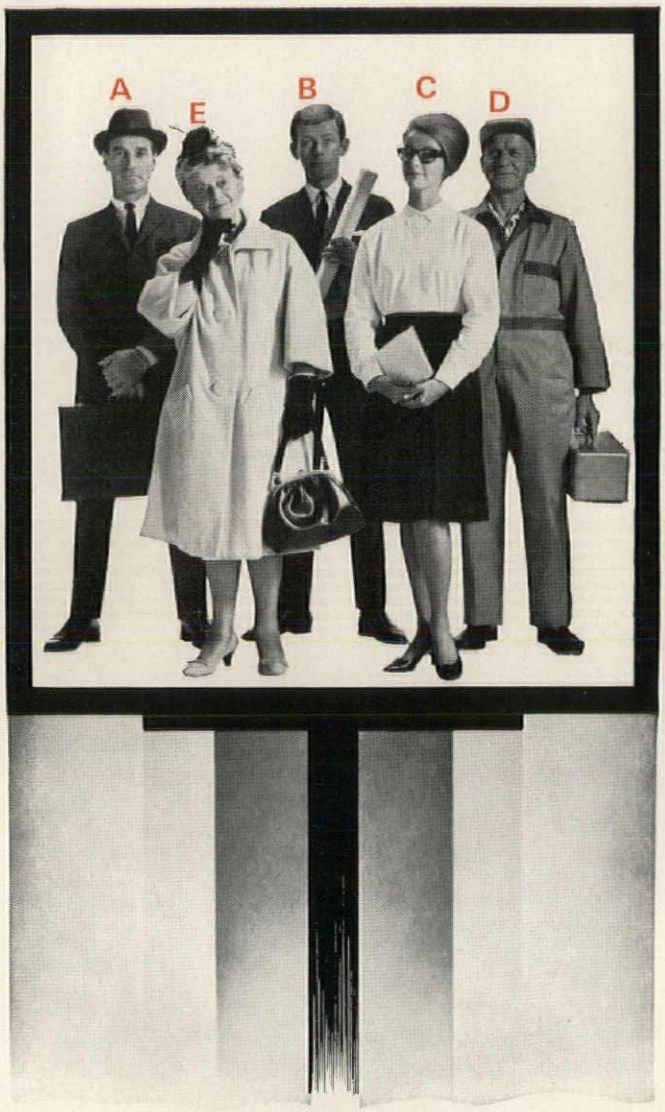

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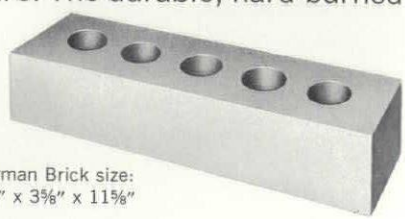
Architect—Victor Gruen Associates, Beverly Hills, California. General Contractor—Mellon-Stuart Company, Pittsburgh, Pennsylvania.

Natco Ceramic Glazed Brick beautifies Northway Mall store

Exterior walls of the new Joseph Horne Company Northway Mall store are constructed of Natco Norman Size Ceramic Glazed Face Brick. Its gleaming white ceramic finish creates a unique and colorful atmosphere that virtually dominates the suburban Pittsburgh shopping center, first of its kind in Pennsylvania. ■ However, beauty is only one advantage . . . Natco Glazed Norman Brick was also instrumental in the functional design. Its larger 2¼" x 11⅝" face size accentuates the sweeping horizontal design of the bi-level structure. The durable, hard-burned ceramic finish practically eliminates maintenance worries. ■ Why not include Natco glazed brick in your next construction project? You'll find a wide variety of attractive colors to choose from, in smooth, velour and speckled finishes . . . Standard, Norman and Jumbo sizes. Write for catalog CGB-50.



Norman Brick size:
2¼" x 3⅝" x 11⅝"

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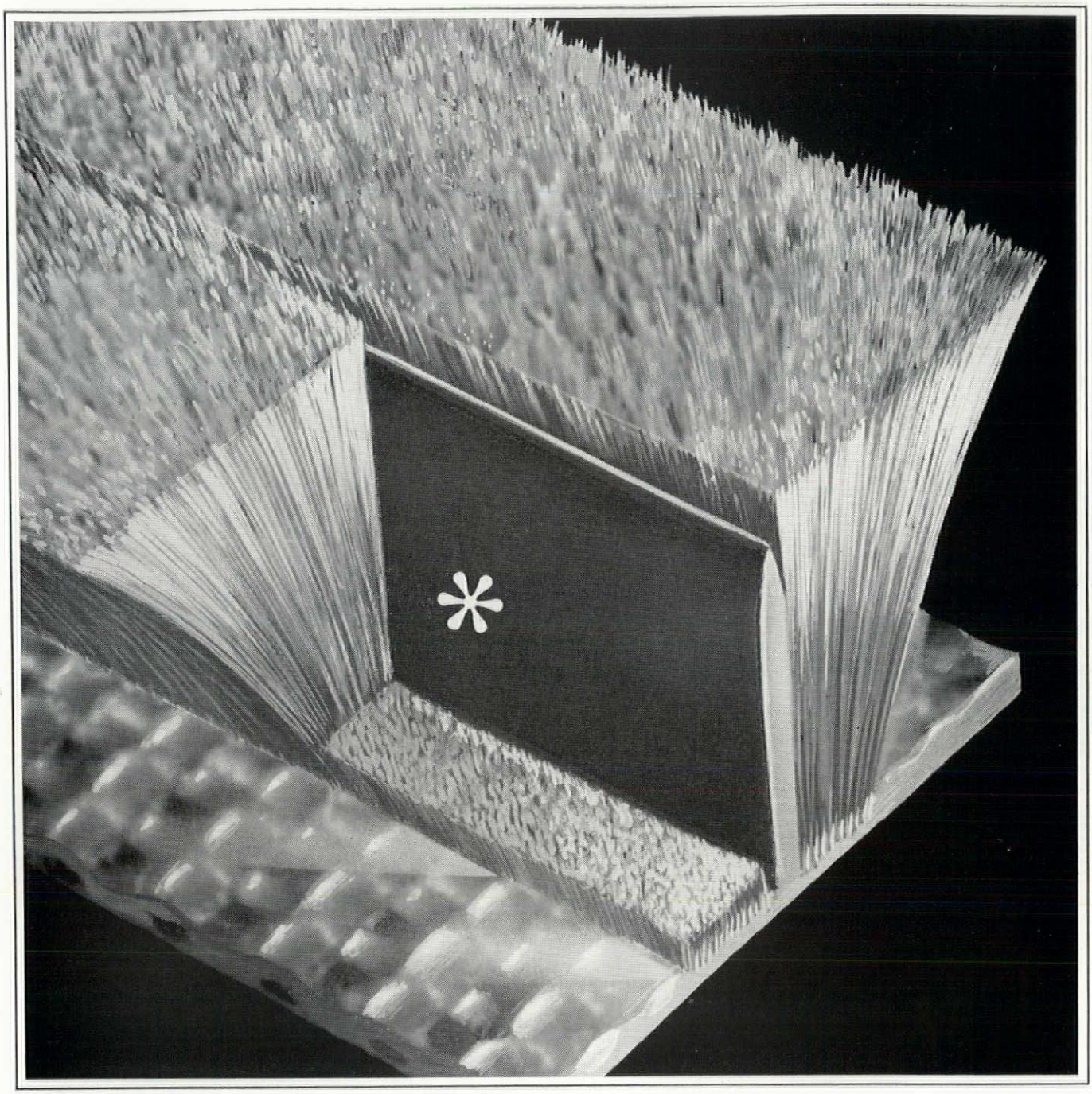

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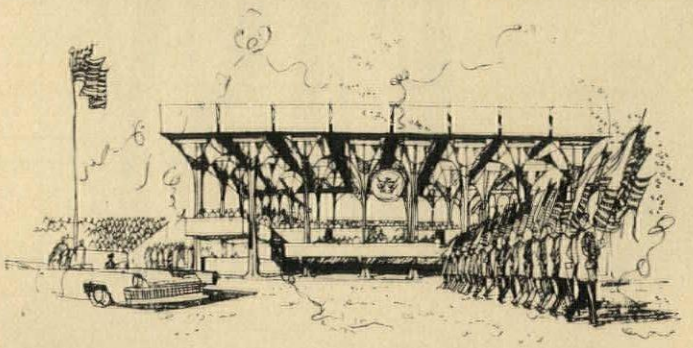
NEWS REPORT

Architecture's Monthly News Digest of Buildings and Projects, Personalities, New Products

Inaugural Pavilion Design Unveiled

WASHINGTON, D.C. A young Washington, D.C., architect, four years out of the University of Illinois architectural school, has won an award for his design of the Presidential Pavilion for the 1965 Inauguration. He is Peter M. Hasselmann, currently with the Washington architectural firm of Keyes, Lethbridge & Condon. In addition to a cash award of $750, Hasselmann will be asked to act as consulting architect to the Department of Buildings and Grounds of the District of Columbia in preparation of working drawings and construction.

Five jurors selected the design unanimously. They chose it for its "superior arrangement of plan and its pattern of circulation." For one thing, the design took into account the January weather in which the Inaugural Parade will be held. And for another, it had the dignity the jury felt a "Presidential Pavilion" should have. The jurors thought the provisions for natural illumination from within the roof structure particularly noteworthy. The Washington, D.C., chapter of the AIA conducted the competition for the Pre-Inaugural Committee.



More on World Trade Center

NEW YORK, N.Y. Now that the contract has been signed giving the go-ahead to the $350-million World Trade Center (two twin 110-story, Yamasaki-designed towers; see pp. 55–59, FEBRUARY 1964 P/A), the controversy that surrounds the construction of any important building in Manhattan, or anywhere else for that matter, is beginning to jell. One of the first groups to speak up is the Metropolitan Committee on Planning (METCOP), which describes itself as "a group of professionals concerned with major questions of regional development." According to their statement, "There is no evidence that any effort has been made to integrate the project with the total development needs of the City or Region or coordinate it with such groups as the Tri-State Transportation Committee, the New York or New Jersey State Planning programs, or the New York City Planning Commission and the Housing and Redevelopment Board.

"Furthermore, we are concerned that the project's location will require the acquisition of a vital business complex that supports some 300 businesses and 30,000 employees, the City's largest retail electronic center and many other unique retail services. Adhesiveness of this group of businesses and the marginal nature of many of the firms makes it likely that disruption and relocation will result in the loss of many jobs and much revenue to the City. It would seem unwise and unnecessary for the City to give up one set of vital economic activities for the sake of promoting another."

METCOP also urges a study of traffic and transit facilities in the vicinity, and questions the logic of installing in the center New York State government offices which have no functional relation to its vaunted international purpose.

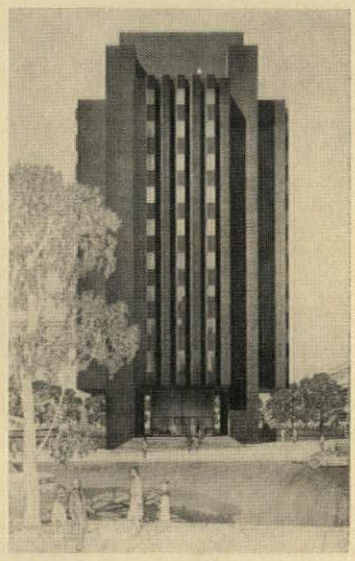
More Stone on the Park

NEW YORK, N. Y. Strong rumors are current that Edward Durell Stone will be commissioned to proceed with plans for the General Motors Building, which will replace the Savoy Plaza Hotel at the southeast corner of New York's Central Park (see p. 93, OCTOBER-1964 P/A). According to the rumor, Emery Roth & Sons will be associated with Stone on the project.

Stone, of course, designed the Gallery of Modern Art for Huntington Hartford at the south*west* corner of the park, and his designs for a Hartford café *in* the park are still under fire from various sources.

Research Center by Johnson

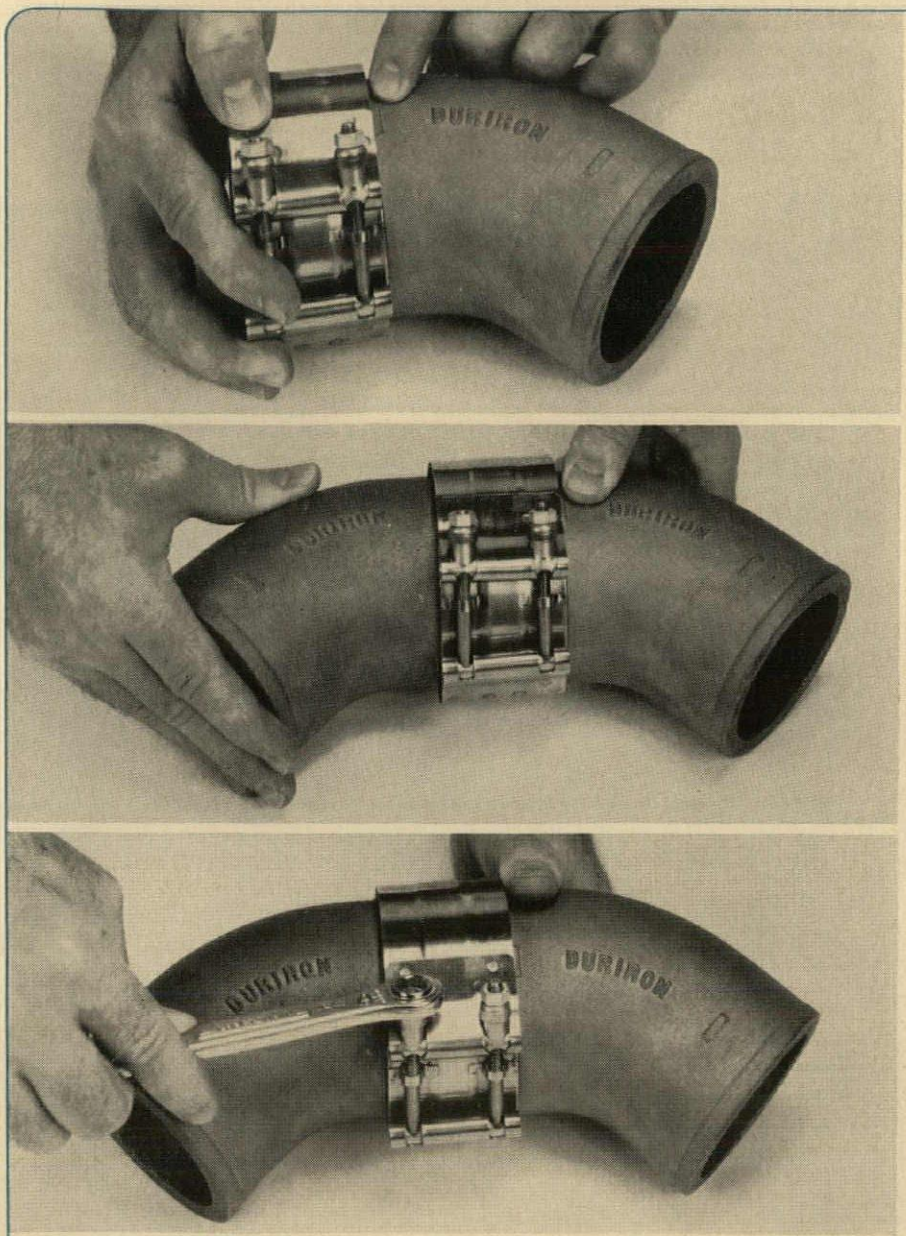
BRONX, N.Y. Philip Johnson & Associates has designed a 10-story research center now under construction in the Bronx. An addition to Montefiore Hospital, the center will provide laboratory space for basic research in medicine, psychiatry, and biochemistry.



The building will stand on four brick shafts, which rise from a 70′ x 143′ brick-paved plaza. Under one end of this plaza is a basement computer room. On the second floor, above the glassed-in lobby, will be a library, dining room, and conference rooms; the other eight floors will house laboratories. Johnson designated iron-spot Roman brick for the façade.

Youngest Pedagogue

EUGENE, ORE. At the age of 28, Donlyn Lyndon is probably the youngest architect ever to take command of a department of architecture. He is now in his first semester as



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Head of the Department of Architecture in the School of Architecture and Allied Arts at the University of Oregon. His academic appointment is as Associate Professor. Another new appointment at the University was George M. Hodge, a comparative graybeard of 40, who has been made Assistant to the Dean of the School, Walter Creese.

Lyndon's last name is well known in more ways than one, for he is the son of Los Angeles architect Maynard Lyndon. He has been a member of the faculty at the College of Environmental Design at the University of California in Berkeley, while at the same time functioning as a partner in the award-winning architectural firm of Moore, Lyndon, Turnbull & Whitaker and being active in the Los Angeles-based consulting firm of Lyndon Design Counsellors. He will remain with both firms, but will devote all his time this first year to becoming established at the university. A Princeton graduate (A.B., 1957; M.F.A., 1959), Lyndon states that "I owe special debts to Jean Labatut, Enrico Peressutti, and Louis Kahn, who was critic for my Master's Thesis. I've received a great deal of training from my father in Los Angeles. Worked with Victor Olgyay on his book, *Design with Climate*. Charles Moore has been, at various times, fellow student, design critic, employer, teaching colleague, and partner." Lyndon has served as American Editor of Ernesto Rogers' *Casabella* and correspondent of Britain's *Architectural Design*.

Back at Lyndon's *alma mater*, Ralph Rapson has been on leave of absence from his duties as Dean of the School of Architecture at the University of Minnesota to act as Visiting Critic at Princeton. This has led to rumors that Rapson may succeed retiring Princeton School of Architecture Dean Robert W. McLaughlin next year. Rapson told P/A in late October that no decision had been reached.

Coming in P/A

CAMBRIDGE, MASS. The towers shown below, which overlook the Charles River in Cambridge, Mass., are part of a recently completed $10,000,000 complex of housing for married students at Harvard University. Known as the Francis Greenwood Peabody Terrace, the complex opened this fall to 500 students and their families. Besides the

three 22-story towers, there are four lower buildings, stepped down from the towers from seven stories to five stories to three. The architects —Sert, Jackson & Gourley of Cambridge — have departed from the standard approach to residential architecture by beginning with small, standard building units and assembling these to form the completed structure; they have, in other words, reversed the usual procedure of beginning with a massive structural frame and fitting individual units into it. In arranging these units, they achieved workable interior spaces, and perhaps, more importantly, handsome exterior ones. Buildings are of reinforced concrete; they include facilities for recreation, parking, and limited shopping. The DECEMBER 1964 P/A will feature a 12-page presentation of the project.

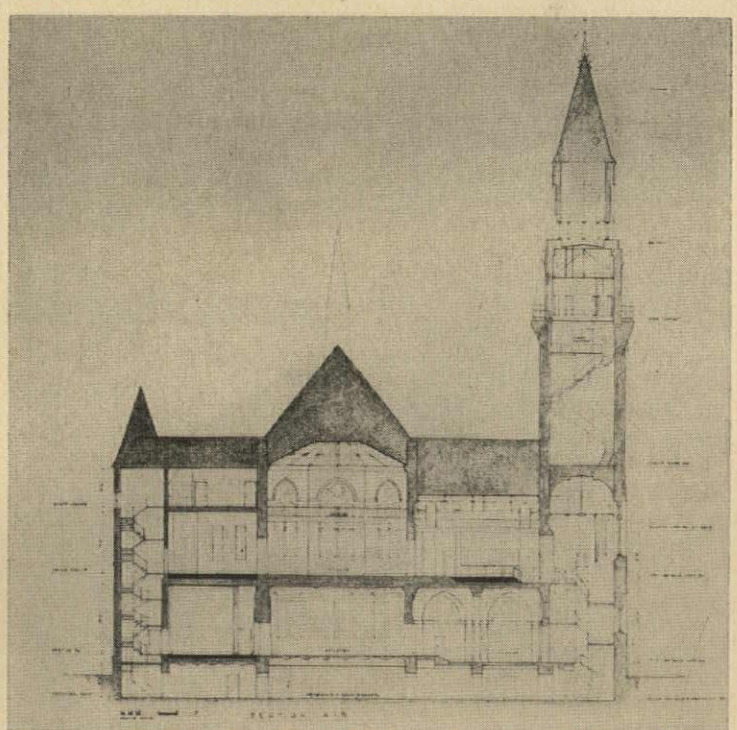
Photo: Courtesy The New York Times

Mr. Morris Lipsett, the wrecker, in *The New York Times*: "If anybody seriously considered [Penn Station] art, they would have put up some money to save it." Maybe Mr. Shelley said it better in "Ozymandias":

I met a traveller from an antique land
Who said: Two vast and trunkless legs of stone
Stand in the desert. Near them, on the sand,
Half sunk, a shattered visage lies, whose frown,
And wrinkled lip, and sneer of cold command,
Tell that its sculptor well those passions read
Which yet survived, stamped on these lifeless things,
The hand that mocked them and the heart that fed;
And on the pedestal these words appear:
"My name is Ozymandias, king of kings:
Look at my works, ye Mighty, and despair!"
Nothing beside remains. Round the decay
Of that colossal wreck, boundless and bare
The lone and level sands stretch far away.

Penn Station Winds Up as Land Fill

NEW YORK, N.Y. By an ironic circumstance, the columns that have been torn from the north and south porticos of New York's fast-disappearing Pennsylvania Station have met their end as land fill in the barren wastes of the New Jersey Meadows, where they can be seen by passengers riding by on the Pennsylvania Railroad. The obituary was read by a



Greenwich Village Salvation Saga

NEW YORK, N.Y. Saving an historic or even an aesthetically pleasing New York City building from the ravages of the wrecking crew is a little like defeating a thousand Philistines with the jawbone of an ass. It takes bravado, persever-

ence, divine inspiration, and gall. But it can be done. Indeed it *has* been done. At least once.

As the result of a seven-year effort by a group of determined Greenwich Village residents, the Jefferson Market Courthouse will become a branch of the New York Public Library. The building, a gaudy, flamboyant, and almost bizarre relic, was designed in 1875 by Frederick C. Withers and Calvert Vaux, who designed (with Frederick Law Olmstead) many of the original structures in New York's Central Park. Shortly after the Courthouse opened in 1876, it was voted one of the 10 most beautiful buildings in the U.S. Later on, it was deemed a hideosity. But today it has regained some regard as a wonderful example of High Victorian or Venetian Gothic. Its windows, doors, gables, and turrets are pointed and raced in the highly ornate manner popular in 14th-Century Venice. In converting the building to a library, Architect Giorgio Cavaglieri will maintain the exterior with only slight refurbishing. Bricks will be cleaned, stained-glass windows repaired, and where windows were sashed and of ordinary glass they will be fitted with solid tinted panes, framed in bronze-colored aluminum. The entrance door, while retaining its original shape, will be changed from wood to bronze-colored aluminum and glass. Inside, only functional changes will be made—those needed to suit the workings of a modern library, such as a walkway across the 37-ft-high reading room to connect staff lounges with the elevators. Because of the vast interior spaces (18- to 20-ft ceilings) and unknown structural details (no complete plans exist) conversion will be costly. One spokesman pegs the needed amount at $1 million "at least." But to city officials, who have given their blessing to the project, and, of course, to many residents of the Village for whom the Courthouse is a landmark, the project is worth it.

Back in 1958, a determined band of neighbors had set out to call attention to the building's plight by raising funds to electrify its clock. At the end of two years, they had raised $3000 dollars and had lit up the clock face to serve as much as a beacon of hope

as a timepiece. Recognition of the building's historic value by city officials followed, and plans to save the structure by converting it to a library were worked out. Now all that remains is to push the actual renovation work forward through the bureaucratic jungle.

The success of these concerned Villagers, like Sampson's, is remarkable. Commenting in *The New York Times*, Ada Louise Huxtable observed, "It is also a study in organized public interest, dogged persistence, practical sentimentality and civic savvy —or how to make a determined group of citizens an effective force for the achievement of an objective generally considered hopeless. They could not have worked with a landmark more widely regarded by the general public as a monster. If New Yorkers saved this one, they can save anything." One doubts they will, but one would certainly like to think so.

Theater Survey

NEW YORK, N.Y. To provide a working reference file of contemporary theaters, the U.S. Institute for Theater Technology (USITT) is conducting a survey of all theaters and auditoriums built in this country since 1960. All types of theaters will be included, from movie houses to school lecture rooms, from concert halls to town halls. Architects to whom the data will eventually be available are asked to assist the project by notifying the USITT of all theater projects they have completed in the past five years. Write USITT, Box 866, Radio City Station, New York 19, N.Y., to obtain a checklist data card for each theater to be listed.

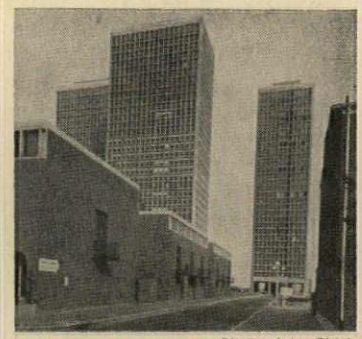
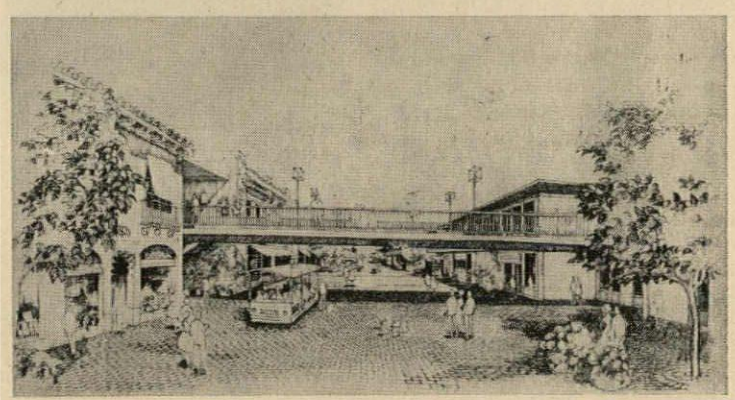


Photo: Jules Shick

SOCIETY HILL OPENS

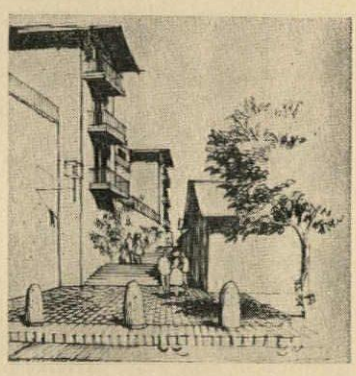
PHILADELPHIA, PA. The three, 31 - story, concrete - and - glass towers (*see* pp. 142–145, JANUARY 1961; pp. 170–175, OCTOBER 1960 P/A) that are the focal points of I. M. Pei's redevelopment program at Society Hill in Philadelphia have been opened, completing the complex of high- and low-rise buildings that won the job for Webb & Knapp, Inc., when a competition among four developers was held in 1958. Alcoa Residences, Inc., eventually succeeded Zeckendorf's firm as sponsor of the project. Each building contains 240 apartments in studio, one-bedroom, and two-bedroom units. Preparation of a 1½-acre, cobbled central plaza and a 3½-acre park is being completed. The low-rise buildings, which opened earlier (*see* pp. 53–55, MARCH 1964 P/A) are single-occupancy town houses.



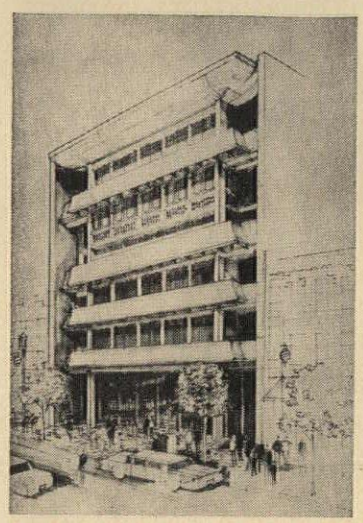
Renewal Near Cannery Row

MONTEREY, CALIF. Monterey, long one of California's most picturesque fishing villages, tourist attractions, and troop training centers (the latter not too picturesque), will get a 45-acre face-lifting under a contract between the city's Urban Renewal Agency and a group called Custom House Associates, which will work on this project in partnership with the National Land & Investment Co. Composed of 26 Monterey Peninsula residents, Custom House Associates submitted a renewal proposal by Wurster, Bernardi and Emmons, Architects; Lawrence Halprin & Associates, Landscape Architect; Milton Schwartz & Associates, Associated Architects; and Harold Wise, Planning Consultant.

Their proposal, selected by Monterey's City Council over two others, will transform much of Monterey's waterfront area, now run down, into a shopping area with open parks and covered malls. The initial contract calls for the purchase and conversion of 16 acres. All buildings on the existing site will be razed to make way for a commercial shopping area of about 400,000 sq ft, enclosed parking space for 1500 cars, and, close to the waterfront, motel and apartment units. According to



present plans, one of the area's prominent features will be a four-level parking garage topped by a 200-unit motel, a theater, and a bevy of small shops, all of which are joined to the rest of the project by a pedestrian bridge over a pedestrian mall. The City Fathers hope the renewal will heighten Monterey's already substantial magnetism as a tourist lure. And they expect that the project will transform an area now bringing $27,000 in annual taxes to the city to one producing over $100,000.



Chinoiserie in Concrete

Grant Avenue Arcade, a new project for San Francisco's Chinatown, will blend the section's traditional architectural themes with a contemporary concrete version. Entire structure will be of poured concrete except for the curved balcony rails, which will be precast. Arcade will have six stories on Grant Avenue and seven facing Portsmouth Square park. A multilevel pedestrian arcade featuring shops of all sorts will connect Grant Avenue and the park. Top three floors will include a restaurant and banquet room. Architect: Chan-Rader & Associates.

Encouraging Urban Design

A laudable new program has been instituted by the city of Manchester, N.H., to encourage superior design of value to the community. An "Award of Merit" is presented semi-annually "to parties or individuals who have made outstanding contributions to the community development in urban design." First award was made by the Office of the Mayor and the Manchester Planning Board to local architects Koehler & Isaak for their design of the Chancery Building, Diocese of Manchester. The Planning Board hopes that the award will help stimulate further contributions in urban design, and notes that such a program might be adopted by cities and towns across the nation striving for buildings of civic excellence. A highly commendable aim.

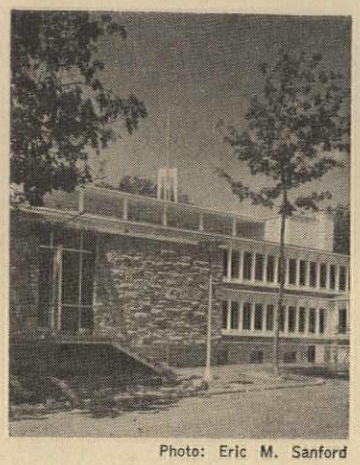


Photo: Eric M. Sanford

Photo: Robert Galbraith

Pollock and Morgan

Paris Prize, 50th Anniversary

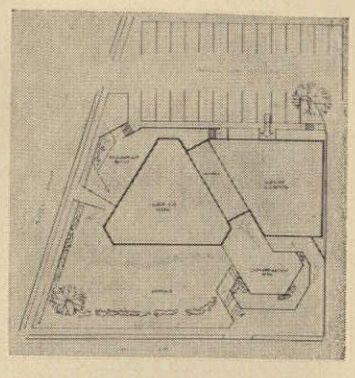
NEW YORK, N.Y. On the evening of October 3, the National Institute for Architectural Education (formerly the Beaux Arts Institute of Design) celebrated the 50th anniversary of the Lloyd Warren Fellowship–Paris Prize in Architecture at New York's well-known Lambs Club. The student who wins the competition (awards are now made each spring) on the basis of the best solution to a given design program receives $5000 to study abroad, with the proviso that he take one problem at L'école des Beaux Arts in Paris. Among the 350 people who attended the celebration were former Paris Prize scholars; members of the NIAE and AIA (both New York and National chapters); and invited guests. Guest of honor was Lloyd Morgan, recipient of the 14th Paris Prize. Highlight of the dinner was the bestowal of certificates of achievement on Morgan by Dr. Thomas C. Pollock, Vice President and Secretary of New York University (during 1928–29 and 1933–39, Morgan was a faculty member of the then Department of Architecture there); by Olindo Grossi, Dean of Pratt Institute's School of Architecture (Morgan matriculated at Pratt); and by Sidney L. Katz, Paris Prize Golden Jubilee Chairman representing the NIAE.

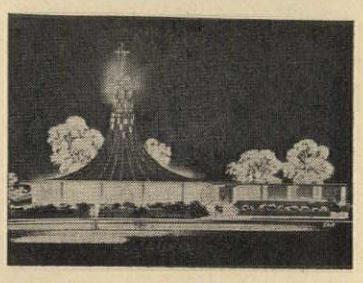
After dinner, Morris Lapidus presented several skits in the Lambs Club theater entitled, "A Divertisement—That Was the Way It Was." Champagne and dancing completed the evening's festivities.

All those who attended the Golden Jubilee received two journals commemorating the 50 years of the Paris Prize. One contained a compilation of thoughts, anecdotes, and remembrances of those scholars who won the Prize. The other gave a concise history of the Paris Prize and illustrated the winning designs of the past 50 years. The former is available for $2 and the latter for $5 from the NIAE, 115 East 40 St., New York, N.Y.

Social Religion

The social aspects of religious architecture these days seem to be crowding the ecclesiastical ones. This example, the Hackensack (N.J.) Methodist Church by Harsen & Johns of Tenafly, N.J., devotes almost as much square footage on the plot plan to the "conversation area" and "fellowship patio" as it does to the sanctuary. There is also provision, in the school and administrative wing, for a nursery, crying room, adult and teenage lounges, fellowship hall, and a large kitchen. The architect has at least managed to make the sanctuary the dominant architectural element by featuring a curving roof swooping up to a lighted lantern supporting a construction of crosses. Perhaps the increasing mixture of social and religious elements





will continue from now on—but it would be refreshing to see more structures where a shelter for worship is the only statement, such as Ronchamps.

Interior Design Note

The ultimate in personal Pop Art was shown last month at the Green Gallery in New York, when 28-year-old Greek-American artist Lucas Samaras reproduced at the gallery a faithful replica of the 15′ x 7½′ x 10′ room he has occupied in his parents' New Jersey apartment for the past 14 years. The whole effect is as though one of the Collyer brothers (or maybe both) had returned to life with an artis-

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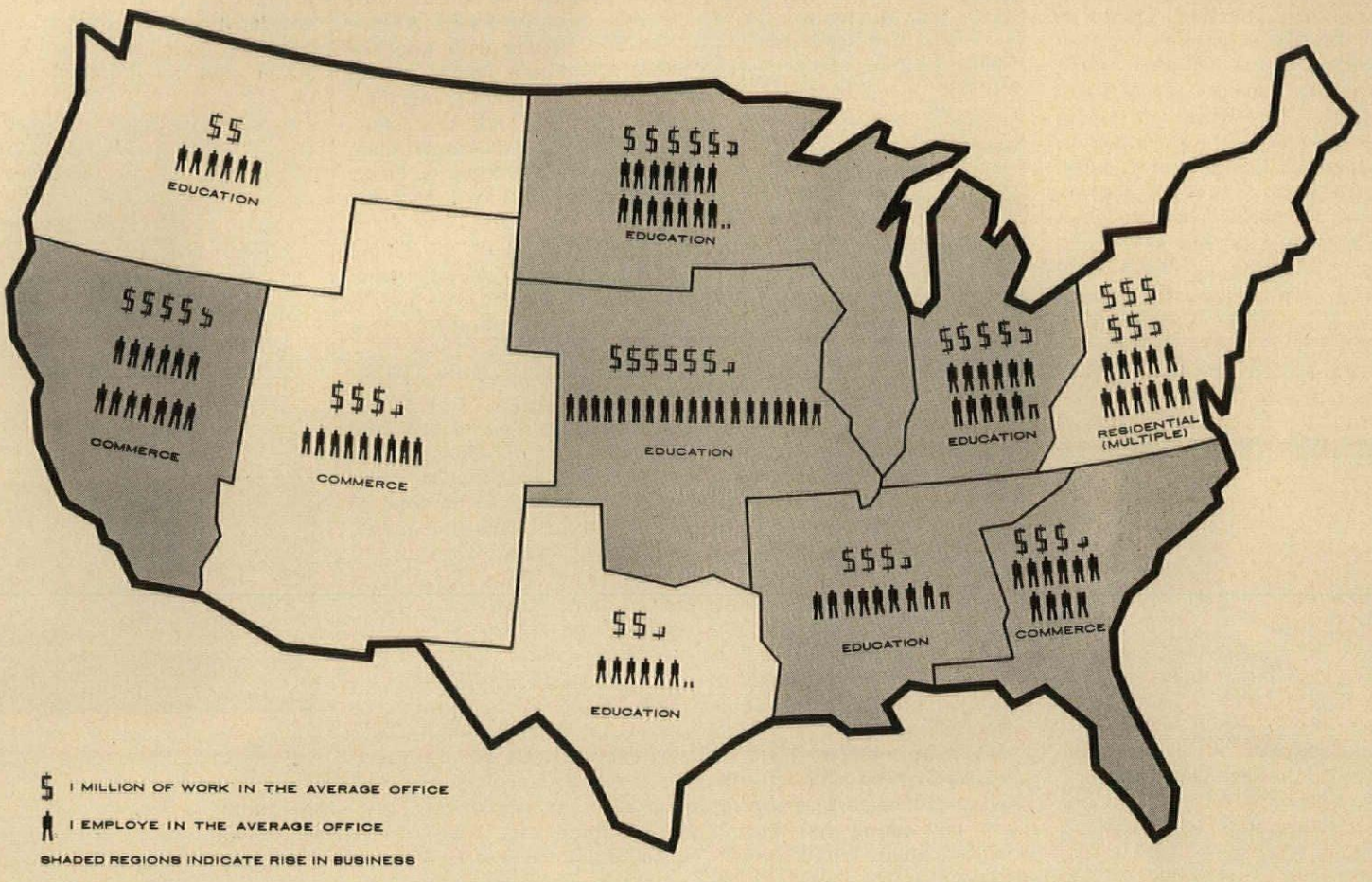
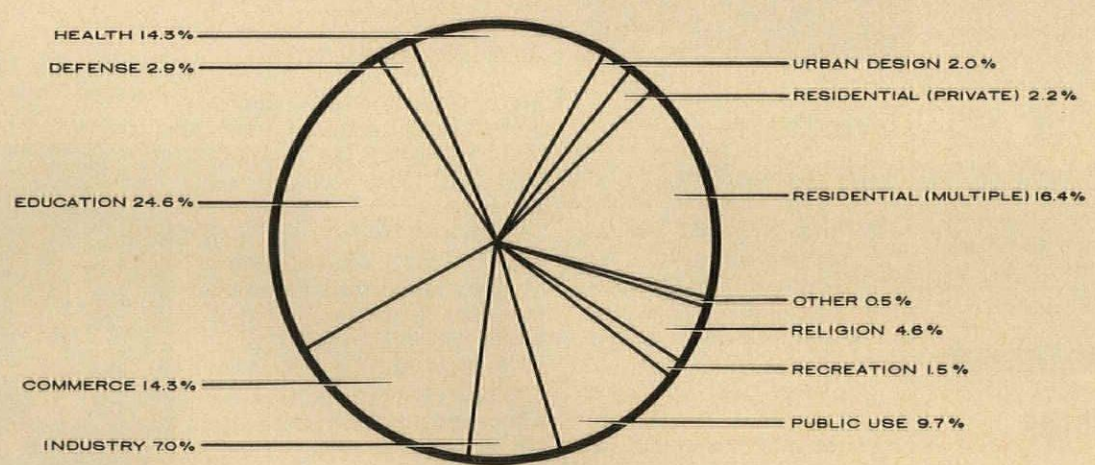


Architectural Work to Continue Strong in 1965



Distribution of work in average architectural firm for 1965.

The 1133 respondents in PROGRESSIVE ARCHITECTURE'S annual business survey—the only one of its kind in the architecturally designed construction field—report a total of $5.2 billion in work on the boards. Architects throughout the country will be just about as busy in 1965 as they were in 1964. Although the average dollar volume of business per office is down slightly to $4,602,952 (a drop of only 1.7%), six of the ten major geographical areas of the nation report gains. The average dollar volume per firm for 1965 is almost exactly the average per office over the past 10 years. The continued good health of this important bellwether for the American economy will be encouraging not only to architects but also to consultants and suppliers.

Education is still the leading breadwinner for architects, with the average firm reporting 24.6% of their work in this category (*Table 3*). But now, Residential (Multiple) (16.4%) has replaced Commerce (14.3%) in second spot, and the former should remain strong, with the marriage rate increasing and the growing interest in urban renewal. Defense (2.9%) has dropped below Religion (4.6%); while religious building has increased, the shift is probably more indicative of Government defense cost cutting than anything else. Dollar volume of work in Health, Industry, Private Residential, Religion, and Public Use have all increased.

The regions showing gains in the average dollar volume per office are the North Central, Great Lakes, Southeast, Gulf States, Central States, and California-Nevada (no returns were received from Alaska or Hawaii). In every region except the Northeast, either Education or Commerce will be the leading type of work. Perhaps because of increasing urbanization along the eastern seaboard, Residential (Multiple) will lead in the Northeast.

Percentage of work for public agencies fell off slightly, representing 37% against 63% for private clients. Decrease in public work is largely traceable to Defense, and increases in private business come mainly from Religion, Industry, and Private and Multiple Residential. Slightly more work than usual is in the preliminary design stage, which means that work should continue strong well into 1965. A reported 48.7% is in the working-drawing stage, indicating that the first half will also be busy.

Firms specializing in only one kind of work continue to decrease, as they have for the past three years (*Table 5*). Urban Design, in which no office specialized last year, is back on the list, and Defense has disappeared. The makeup of the majority of U.S. practices is indicated in Table 4, which shows *categories* of projects on the boards in percentage form, as opposed to those types responsible for largest average dollar volumes (*Table 3*).

Tabulation of offices according to number of employees remains about the same as in 1964 (*Table 6*), with a slight decrease in the smallest firms (up to 4 employees) and a slight increase in those employing from 4 to 9. Following the pattern set 10 years ago when this forecast was first reported in its present form, the typical architectural office (77.2%) will employ up to nine employees. Tabulated according to dollar volume of work in progress, almost all U.S. firms (90%) will be in the up-to-$10 million category.

Most architects see the tenor of the nation's economy during a post-election year as the factor most likely to influence architectural business in 1965. Costs of labor and materials, the availability of mortgage money, and taxes all remain uncertain.

Some respondents feel that increasing cost of labor and a decrease in its quality will lead to further use of prefabricated elements. And some feel that a decrease in availability of land and resulting increase in its cost will lead to more remodeling and less rebuilding. On the other hand, many see urban renewal as an increasing source of building.

A number of architects think that the influence of architectural journals will affect future design trends. Optimistically, many architects report an increased design awareness among both public and private clients. Confirming P/A's survey-finding that fewer firms are specializing in one type of work, many respondents look for an increasing emphasis, by small firms, in a comprehensive design service. And, as usual, new materials and techniques are expected to create opportunities for new concepts.

TABLE 1

Number of firms reporting and regional distribution

Region	No. of Firms	% of Firms
Northwest	67	5.9%
North Central	117	10.4
Great Lakes	101	8.8
Northeast	345	30.5
Southeast	124	10.9
Gulf States	83	7.4
Central States	76	6.8
Texas	71	6.2
Western Mountain	69	6.0
California-Nevada	80	7.0
Total	1133	100.0

Although regional distribution of returns remains about the same as in the past, the number of firms reporting from the Northeast increased slightly and the number from California-Nevada decreased by almost 50%. No returns were received from Hawaii, Alaska, or Puerto Rico.

TABLE 2

Average dollar volume by regions

Region	Average $ Volume
Northwest	$1,949,209
North Central	5,461,641
Great Lakes	4,636,272
Northeast	5,597,227
Southeast	3,421,653
Gulf States	3,331,843
Central States	6,447,316
Texas	2,348,887
Western Mountain	3,311,391
California-Nevada	4,824,600
National Average	$4,602,952

After two years in the Northeast, the regional dollar volume lead moves to the Central States.

TABLE 3

Dollar volume averages and % distribution of work by types of buildings in all regions

Type	% of All Firms' Work	$ Volume in Average Office
Education	24.6	$1,134,175
Residential (Multiple)	16.4	755,395
Commerce	14.3	659,515
Health	14.3	656,629
Public Use	9.7	445,111
Industry	7.0	321,773
Religion	4.6	210,819
Defense	2.9	132,475
Residential (Private)	2.2	100,088
Urban Design	2.0	92,667
Recreation	1.5	68,584
Other	.5	25,721
Total (average office, all regions)	100.0	$4,602,952

Industry, Health, Multiple Residential, Private Residential, Public Use, and Religion show gains for 1965. Industrial work shows the greatest gain; Defense, the largest decline.

TABLE 4

Activity of architectural firms in types of buildings

Types of Buildings	% of Firms Reporting Current Work
Commerce	51.0
Religion	41.0
Residential (Private)	40.6
Education	40.3
Residential (Multiple)	38.2
Health	29.5
Public Use	25.9
Industrial	22.7
Recreation	15.0
Urban Design	6.7
Defense	3.4
Other	3.2

Most U.S. firms always have work in more than one category, as percentages indicate.

TABLE 5

Specialization of architectural firms

Types of Buildings	% of Firms Doing Only This Type
Education	1.9
Residential (Private)	1.7
Commercial	1.6
Religious	1.0
Residential (Multiple)	.7
Industrial	.4
Health	.3
Public Use	.3
Other	.3
Recreation	.2
Urban Design	.1
Total	8.5

*Specialization has decreased in each area. None of the firms reporting specialize in **Defense**.*

TABLE 6

Sizes of architectural firms

Size of Firm by Number	% of National Total
Up to 4 employees	45.9
5–9 employees	31.3
10–19 employees	13.1
20–39 employees	5.3
40–100 employees	2.7
Over 100 employees	1.7
(Total Response: 1084)	100.0

Size of Firm by $ Volume of Work on Boards	% of National Total
Under $1 million	34.7
$1–10 million	55.3
$10–50 million	9.2
$50 million or over	.8
	100.0

Percentage of firms with over 40 employees is up slightly, while percentage with over $10 million in work is down.

Continued from page 51
tic bent. Art works, works in progress, *objets trouvés*, darts, postcards, and other memorabilia, artist's materials such as paints, plaster, and plastic, and various more esoteric impedimentia achieve the effect of an explosion in a souvenir shop. Mr. Samaras's gallery writes, with commendable candor, "The bed may well have been unmade for the last ten years."

Hail, Columbia

NEW YORK, N.Y. For 17 years, Columbia University and residents in its vicinity have tried to find a way, with the City's help, to stop the deterioration and begin restoration of Morningside Heights, the section of the city in which Columbia is located. (In the past year alone, at least four Columbia professors have been mugged there at night.) Although the area contains, besides the University, such prominent institutions as Riverside Church, Union and Jewish Theological Seminaries, St. Luke's Hospital, and the Cathedral of St. John the Divine, it also includes an appalling number of old-law tenements and seedy rooming houses. Now the city government has announced a 10-year plan for the coordinated preservation and renewal of Morningside Heights and adjacent areas. Called the Morningside General Neighborhood Renewal Plan, its proposals are unfortunately too general, with no clearly defined guidelines for achieving them. Still, it is a welcome step. Its major objectives are:

- General upgrading of the area by conservation, rehabilitation, and clearance and redevelopment where necessary to halt further deterioration: i.e., to improve existing housing and add new housing where feasible.
- Limited changes in patterns of land use to eliminate incompatible and undesirable land uses and to allow needed improvements.
- Addition of at least one public elementary school, two post office branches, a fire station, a public library branch, and a police station. Improvement of existing parks and addition of small park-like areas where possible. Improvements in existing schools, fire station, post office, etc.
- Improvement of through-traffic flow from north to south, with changes in existing street patterns as necessary.

The MGNRP proposes that action take the form of four urban renewal projects or areas. Working through these areas in stages would, it is hoped, ease the burden of relocating an estimated 6000 persons and limit the chaos of widening streets and building 4500 new apartment units. Although somewhat similar projects have been carried out with notable success by both the University of Chicago and the University of Pennsylvania, New York City poses redevelopment problems that are at best awesome in comparison. Not the least of these is the problem of assuring superior architectural design. Editorializing on the Morningside project, *The New York Times* pointed out last month: "The trouble, of course, is that new building is not always better. This is the crux of the renewal picture in New York. Until time, thought, and money are spent on the basic problem of design and production of a higher quality of housing for the city, the expensive and elaborate effort of renewal can only be a seriously flawed solution, at best. Equally important, a way must be found to get that kind of housing through the bureaucratic controls, legislative restrictions and departmental checks and requirements of the city government that form a mold for mediocrity."

Rye and Water

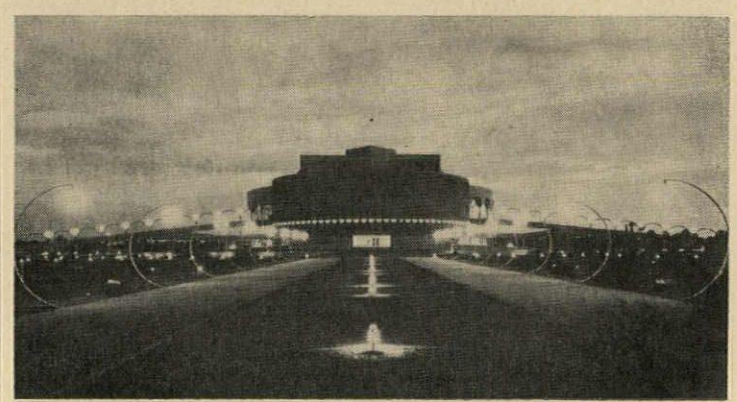
RYE, N.Y. Fill is being dumped on a harbor site off Long Island Sound in this New York City suburb to provide foundation space for an apartment development designed by Edward Durell Stone. The idea is to build up the land, formerly a shipyard site, until the basements, when dug, will be above the high water mark of hurricane tides. As a result of the fill, roadways, which will remain at their original level, will be about 4 ft below ground level and will be invisible from the first floor of the apartments. Stone's design for the apartments, to be called Milton Harbor House, fits the

Photo: Louis Checkman

stringent requirements of both a tight budget and the Rye zoning laws. These dictate that for every square foot of building there must be two of developed land, that the height of buildings be no more than 30 ft, and that parking space be provided for at least 1½ cars per apartment.

On a site of slightly more than 10 acres, only 20 per cent of the land will be covered by buildings. Much of the land is actually an island reached by a short causeway. Stone's solution is a four-story T-shaped building with an open plaza at the heart of the T. This plaza will form the roof of an underground garage. Surrounding this central building will be a concrete circle on whose outer perimeter will be six rectangular two-story buildings, each containing eight duplex apartments. On the mainland, near the island's entrance, will be three additional similar units. Two satellite islands will have a swimming pool and boat docks within easy walking distance of the apartments.

Getting people outdoors seems to be a main consideration in the design; instead of windows, all apartments are fronted and backed by pairs of sliding glass doors opening on extensions of the apartment's rooms. The masonry bearing walls will be a matte-finished gray glazed brick with white aluminum trim. Roofs will be covered with white marble chips. Construction is expected to begin sometime this month.



Another Wrightean Farewell Performance

TEMPE, ARIZ. On the day he died, Frank Lloyd Wright was working on preliminary drawings for the building shown above. It is the Grady Gammage Auditorium on the Arizona State University campus, and it opened last month (five years after Wright's death) with a concert by Eugene Ormandy and the Philadelphia Orchestra. Carrying on Wright's work, Taliesen Associated Architects, under William Wesley Peters, the group's chief architect, completed plans and supervised construction. Looking a little like a carousel, the circular auditorium is approached by two curving, flying ramps down which one expects Ruby Keeler and Dick Powell to prance at any moment. This carnival effect is furthered by the building's trim: gold circles, scalloped edges, and jewel-like strips of light. But much that seems fanciful is more than that: the ramps, for example, are functional, providing direct access to the balcony and serving as

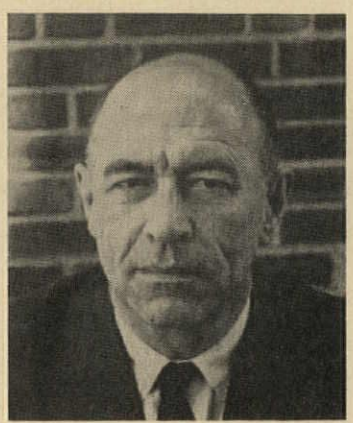
marquees over the side doors. In their curve, they reiterate the shape of the building, which consists of two overlapping circles, 300 ft long, 350 ft wide, and 80 ft high, covering about 95,000 sq ft. Inside is seating for 3000 persons, a complete theater workshop, a music school, choral rehearsal rooms, dressing rooms, and offices. And although the concert hall is larger (in size) than New York's Philharmonic Hall, total cost, including sunken parking lots and landscaping, was less than $3.5 million, against $17 million for Philharmonic. The auditorium will serve the Phoenix area as a cultural center. Yale University's Dr. George Izenour was stage design consultant, and the stage has both a telescoping 45-ton steel orchestra shell, which folds out of the way when not in use, and an elevated orchestra lift.

Arts & Sciences Wed in St. Paul

ST. PAUL, MINN. With considerable economy, if little aplomb, St. Paul is putting the Arts and the Sciences under one roof. A previous design, on which Ralph Rapson was associated with the present building's architect, Ellerbe & Company, gained a P/A Award Citation in 1961. Since then, the building has been almost completely redesigned. Scheduled for completion this month, the St. Paul Arts & Sciences Center is of Indiana limestone, with a base of Minnesota granite. Basically, it is a two-story structure, with some basement space and a large penthouse area that encloses a rooftop lounge. Wings of the building are separated by a block-long concourse entered from a small plaza. On the north side of the concourse are a 400-seat open-stage theater and a 300-seat multipurpose auditorium. On the south side, a half level below these, is the Art's Center and behind it a sculpture court. A science museum is above the Arts Center. The building space totals 123,000 sq ft and costs approximately $16 per sq ft, exclusive of architect fees and interior equipment furnishings.

Wright to Kansas State

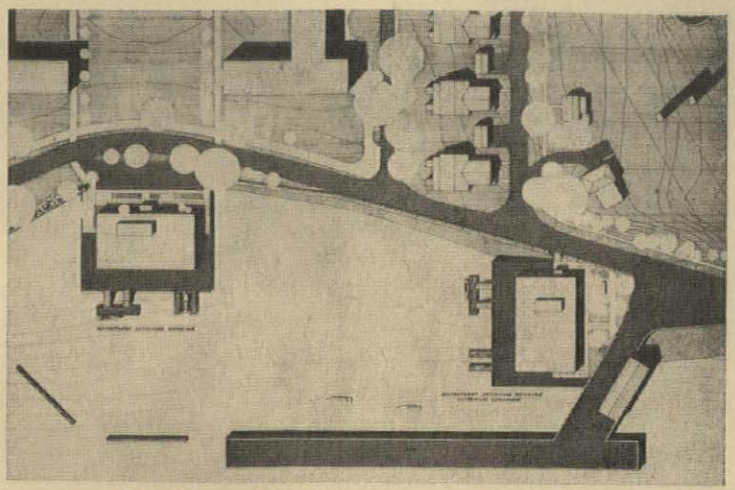
MANHATTAN, KANSAS Henry Wright, currently a visiting lecturer in architecture at Cornell University on leave from Columbia University, will become a "Regents Distinguished Professor" at Kansas State University in February. This will be the second such professorship held at Kansas State under a program established "to attract outstanding educators to Kansas institutions." He will teach advanced courses in environmental tech-



nology and advise on the academic program in architecture. In addition, he is expected to work closely with the university's Institute for Environmental Research.

Wright is noted for developing techniques that help produce better physical environments in all types of buildings —homes, schools, churches, and industrial plants.

His interest in environment led him to work on pioneer solar heating studies, and he invented the Thru-Vu Vertical Blind, the Draft/Stop system of school ventilation, and (with George Nelson) the Storage Wall. For 18 years, Wright was an architectural editor, including 6 years as managing editor of *Architectural Forum*. He is the son of noted community planner Henry Wright, and father of a budding architect, William Wright.



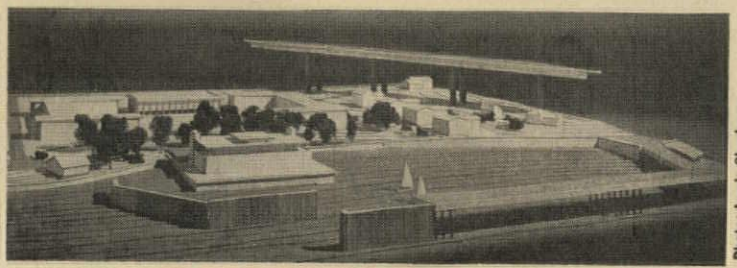


Photo: Louis Checkman

Sailing Center for Student Sailors

FORT SCHUYLER, N.Y. Part of the master plan for the New York State Maritime College at Fort Schuyler just north of Manhattan in the Hudson River is a unique student center. According to the architect, New Yorker William A. Hall, "the building will serve as the sailing center, where sailboats are boarded, launched, repaired, and maintained, and also where students are instructed in the handling, repair, and use of all equipment pertaining to sailing craft." On the second floor of the building, overlooking the boat basin, will be student center facilities including lounges, food service, and social areas. Administrative and instructional offices and classrooms will also be on this floor. Two possible sites for the building on the basin are being considered, as shown. In either location, the center will connect by road to the docked "Empire IV," the maritime college's training ship. Hall's master plan for the peninsular campus will be staged to meet the academy's needs in 1980. It is part of the New York State University Construction Fund Program.

Boost for Prefabs

WAYNE, PA. The Air Force has discovered that not all prefabrication leads to quonset huts. Last month it awarded a $7.5 million contract to the Madway Main Line Homes, Inc., and Day & Zimmermann, a Philadelphia engineering and construction firm, to put up 782 "relocatable" homes for servicemen. Madway does all manufacturing in its plant, then ships and assembles the completed home on a preselected site, where a concrete foundation has been precast. Besides relocatability, the Air Force was interested in Madway's price, reportedly $10 per square foot, and in ease of construction. (The home can be shipped in one truckload, then unfolded and erected by four men in two days). The home Madway is building was designed by the Air Force. It has six rooms in 1200 sq ft on one floor—three bedrooms, a living room, dining room, kitchen, and one-and-a-half baths. Its walls are plywood with outside siding covered by a vinyl film. To protect the hinged joints and the householders behind them, all joints are sealed with asphalt-saturated urethane foam. Twenty-four tongue-and-groove panels, 4 ft wide and 16 ft long, comprise the roof. One of the house's most distinguishing

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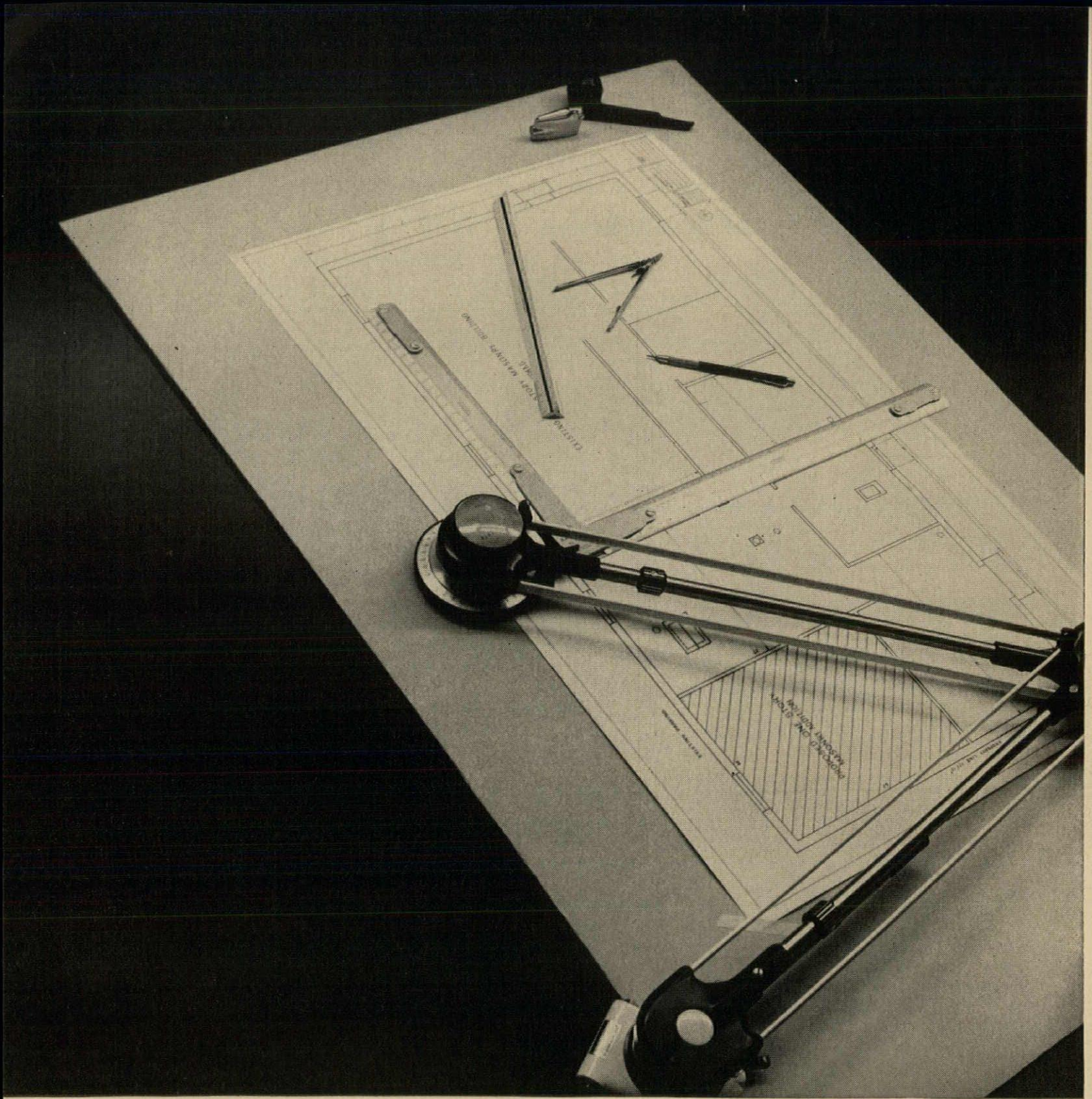

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DOW

Continued from page 55

features is the arrangement of its plumbing and wiring. It is literally "plugged" into its foundation. All utility lines are run from the street to a junction point in the foundation directly beneath the bathroom. Wiring and piping within the house all connect to a junction in the bathroom. Connections between the two junctions are made quickly by removing a trapdoor in the bathroom floor.

Awards for Everybody

WASHINGTON, D.C. Four Government administrative agencies released the names of award winners in four different architectural contests late last month in a flurry of lettered, numbered abbreviations—such as CAL 52-1. What these agencies have in common is that they are all under the bureaucratic wing of the Housing and Home Finance Agency. They are: the Community Facilities Administration (CFA); the Urban Renewal Administration (URA); the Public Housing Administration (PHA); and the Federal Housing Administration (FHA).

The Community Facilities Administration's first honor award winners, selected by a five-man advisory committee, were: Ridgeway Dormitories

1

at Western Washington State College, Bellingham, Washington, Bassetti & Morse, Architects, (Landscape Architect: Richard Haag Associates) (1); Student Union, University of California, Berkeley, Calif., Hardison & DeMars, (Landscape Architect: Lawrence Halprin & Associates); Southeast Branch Welfare Building, County of San Diego, San Diego, Calif., William S. Lewis. In addition, the jury awarded 6 Honor Awards, and, in a burst of largess, 21 Awards of Merit.

The Urban Renewal Administration's five-man advisory committee was seemingly more beneficent, granting 10 First Honor Awards, but only 6 Awards of Merit and 1 Special Award. The First Honor Awards were: Colonnade and Pavillion Apartments, Newark, N.J., Mies van der Rohe, (Landscape Architect: Alfred Caldwell); Washington Square East town houses, Philadelphia,

2

Pa., I.M. Pei & Associates, (Landscape Architects: Robert Zion, Harold Breen) (2); Lafayette Park Residential Redevelopment, Detroit, Mich., Mies van der Rohe, (Landscape Architect: Alfred Caldwell); Clemens Homes, Mount Clemens, Mich., Meathe, Kessler & Associates, (Landscape Architect: Eichstadt-Johnson Associates); Capitol Towers Garden Apartments, Sacramento, Calif., Wurster, Bernardi & Emmons, Edward L. Barnes, DeMars & Reay, (Landscape Architect: Lawrence Halprin & Associates); El Monte Apartments, Rio Piedras, Puerto Rico, Edward L. Barnes, Reed-Basora-Menendez, (Landscape Architect: Hideo Sasaki); One Charles Center Building, Baltimore, Md., Mies van der Rohe; Harry A. Conte Community School, New Haven, Conn., Skidmore, Owings & Merrill; New York University-Bellevue Urban Renewal Project, New York, N.Y., I.M. Pei & Associates; El Monte Urban Renewal Project, Rio Piedras, Puerto Rico, William V. Reed,

3

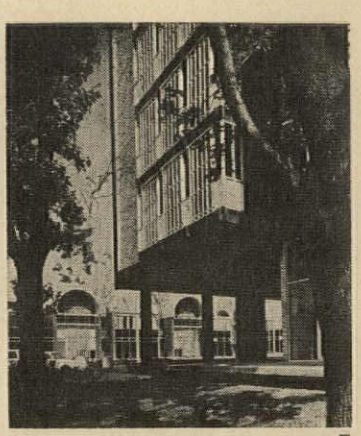
(Landscape Architect: Hideo Sasaki).

The jury for the Public Housing Administration awarded only three First Honor Awards and two Awards of Merit but gave out eight special commendations and made three special mentions. First Honor Award winners were: Low-rent housing, Marin City, Calif., Aaron G. Green and John Carl Warnecke (3), Elliot Twin Apartments, Minneapolis, Minn., Thorsen & Thorshov, Inc.; Westpark, Philadelphia, Pa., Harbeson Hough, Livingston & Larson.

The Federal Housing Administration, in this case the most generous award giver, bestowed nine First Honor Awards, followed by 10 Awards of Merit and 7 special citations. The First Honor Award winners were: Kips Bay Plaza, New York, N.Y., I.M. Pei & Associates, and S.J. Kessler & Sons, Associated Architects, (Landscape Architect: Leo A. Novick); Monter-

4

rey Homes, Hato Rey, Puerto Rico, Pablo Simon Felico (Landscape Architect: Gabriel Berriz); Residence at 1436 North Madison, Witchita, Kan., Charles F. McAfee; River Park, Washington, D.C., Charles M. Goodman Associates, (Landscape Architect: Eric Paepcke) (4); Wesley Manor Retirement Village, St. John's County, Fla., Broward & Warner, (Landscape Architect: Edward L. Daugherty); Bay Roc Apartments, Lake Oswego, Ore., Broome, Selig & Oringdulph, (Landscape Architect: Hunnington & Roth); Montclair West, San Jose, Calif., A. Robert Fisher, (Landscape Architect: Ernest Wertheim (5); Carmel Valley



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Manor, Carmel Valley, Calif., Skidmore, Owings & Merrill, (Landscape Architect: Sasaki, Walker & Associates); Residence at Irene Street, Bayside Heights, Arcata, Calif., William M. Van Fleet.

Hope for New York City Landmarks?

NEW YORK, N.Y. While historic buildings in New York are scheduled for destruction with almost daily regularity, a group has been at work collecting data on the city's architectural landmarks and drafting legislation that would preserve those still remaining. Known as the Landmarks Preservation Commission, it was set up by the Mayor in early 1962 and since then has compiled an impressive file of buildings throughout the city thought worth preserving for historic, aesthetic, or architectural reasons. "We want to insure that the threads of our past are woven into our patterns of the future," remarked Mayor Wagner in commenting on the project. Unfortunately, the commission has no official powers. But legislation it has proposed will hopefully make it possible for New York to join other cities, such as Boston, New Orleans, Providence, R.I., and Charleston, S.C., in preserving its landmarks. In New

Continued on page 62

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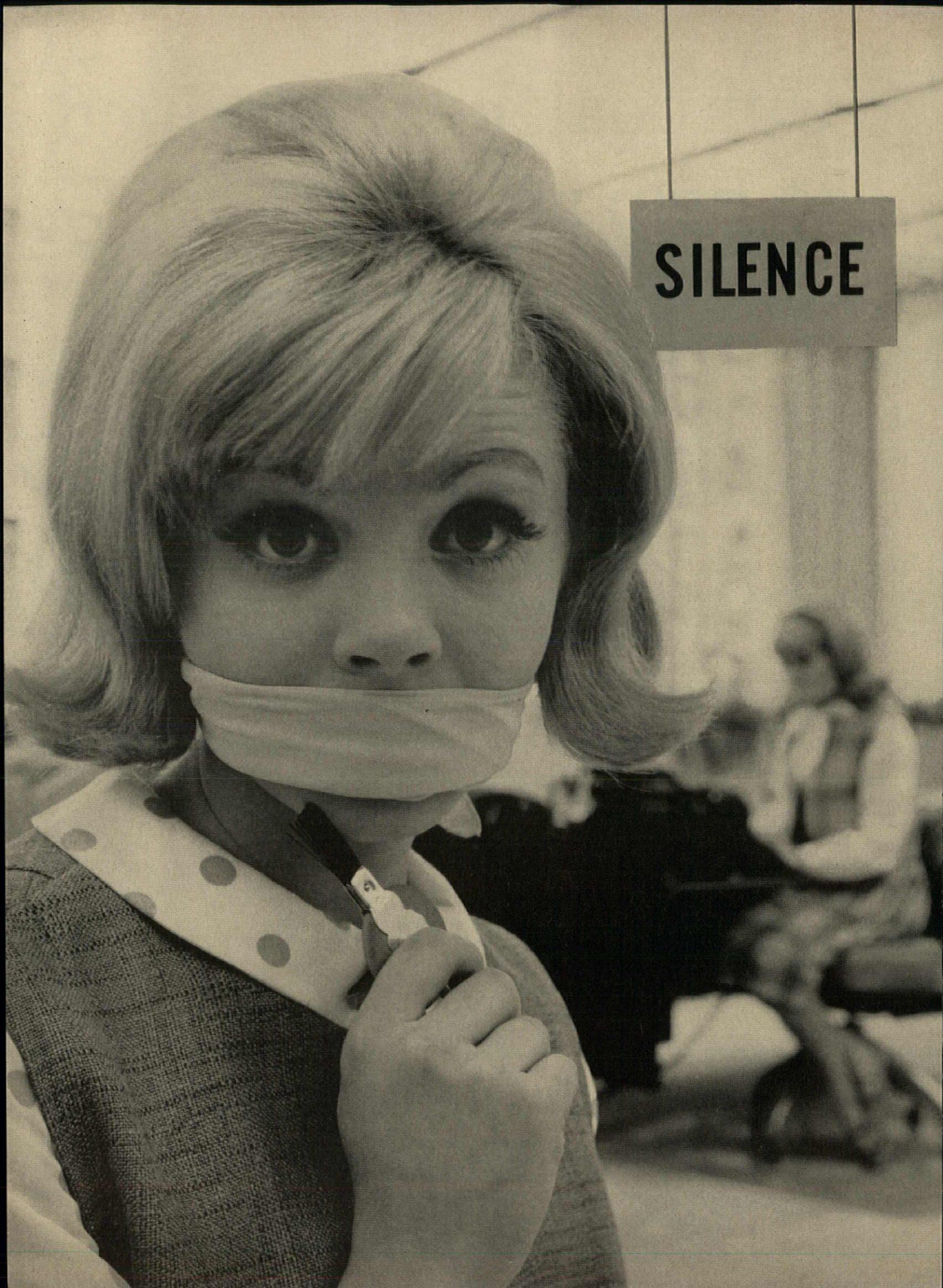
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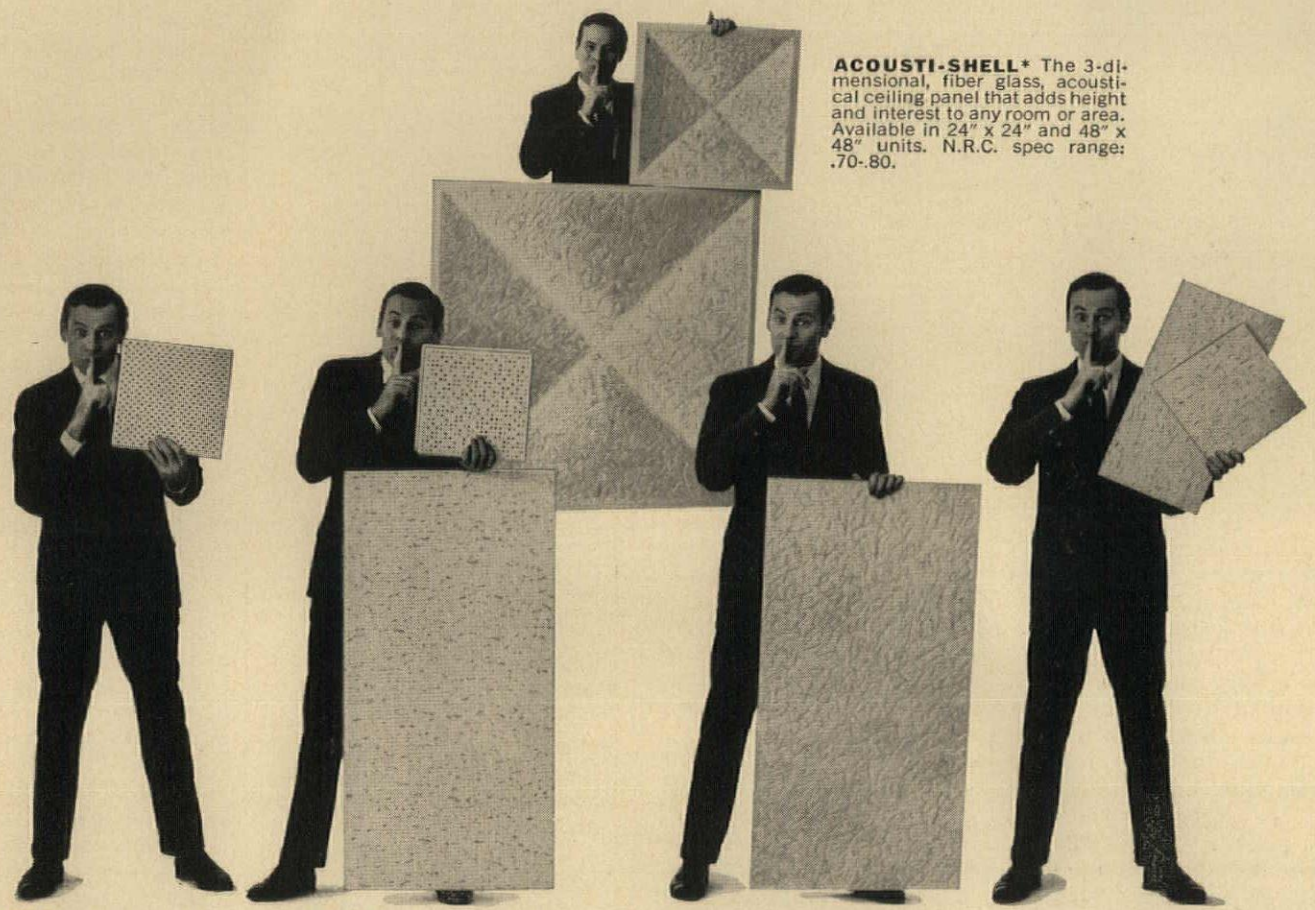

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SOLO-TILE* Made of incombustible perlite and faced with aluminum. 12" x 12" tile available with random or diagonal perforations in white, silver, gold and copper finish. Wash or paint without loss of acoustical efficiency. N.R.C. spec range: .50-.60.

FIREDIKE* Qualifies as necessary components for 2-hour or 3-hour fire-retardant ceiling assemblies as tested by U.L. It is sold in 12" x 12", 24" x 24" and 24" x 48" units. N.R.C. spec range: .65-.80.

SPANGLAS* Made of strong glass fibers, it is available in large (24" x 24" and 24" x 48"), decorative, "lay-in" panels. Low initial cost and speedy installation make it economically ideal for even the tightest budget. N.R.C. spec range: .80-.90.

PERMACOUSTIC* Fissured, non-combustile tile made of fibers spun from stone. It has a white, factory-applied finish available in three styles: textured, fissured and striated. Choose 12" x 12" or 12" x 24" units. N.R.C. spec range: .65-.80.

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Continued from page 58

Photo: David Hirsch

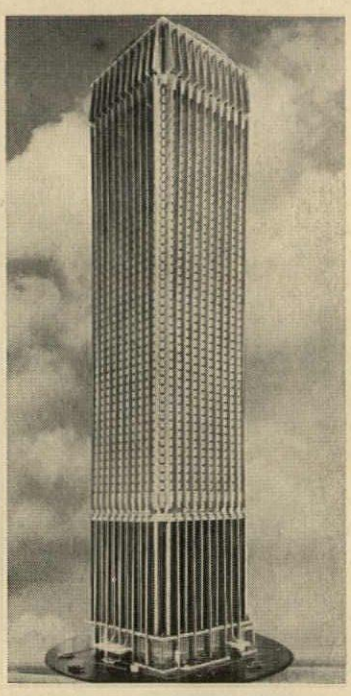
York, where land is often worth more than the buildings on it, the legislation is necessarily complex, and the factions it must satisfy numerous. Introduced to the City Council last month with much hoopla, it was promptly referred to committee and has not been heard of since.

If passed, the bill will authorize the commission to issue a list of buildings designated as landmarks and areas to be set aside as historic districts. In each individual case, the designation would be subject to a public hearing. The bill would end much controversy over what is and what is not a landmark, would lay a foundation for saving notable structures, and would limit the cries of doom whenever an old building is threatened with destruction. On the commission's list of landmarks are 750 buildings in the city's five boroughs. In addition, there are about 3500 structures in two landmark districts: Greenwich Village and Brooklyn Heights. "To reconstruct, alter, or demolish" any structure in these buildings or areas, builders and real estate interests would need a permit under the proposed legislation. The Landmarks Preservation Commission, currently under the executive guidance of James Grote Van Derpool, who is on leave as professor of the history of architecture from the Columbia University School of Architecture, would dictate what reconstruction, alteration, or demolition could be done, and would hold a public hearing on any proposed changes. To put teeth into the law, the commission would be empowered to obtain injunctions to prevent violations. According to architect Geoffrey Platt, present chairman of the commission, the bill "won't necessarily save buildings, but will give them breathing time while the commission tries to find alternate uses that would make them economically feasible." One solution might be to grant them partial tax exemption.

Whatever the measures, one hopes that the bill is passed quickly and that the commission is at least given a chance to search for solutions. In the meantime, beautiful old structures such as the Kingsland mansion (*above*) built in Flushing, Queens, in 1744, are threatened with extinction. One of eight structures in the city remaining from the 1700's, the Kingsland home was sold recently to a developer who plans to use the site for a shopping center.

Tallest Hotel?

NEW ORLEANS, LA. What its architect and builders believe to be the world's largest hotel may be built in—of all places—New Orleans. The 72-story hotel, to be known as the Place Vendôme, will rise from a 15-story parking garage with a 750-car capacity, and will contain 1170 guest rooms. The lobby will be at ground level under the parking areas. Four replicas of Paris's Vendôme Column will be situated in the



lobby; other allusions to Paris will be:

Naming four pedestrian plazas around the hotel Rue de Rivoli, Boulevard de la Madeleine, Boulevard des Capucines, and Avenue de l'Opéra;

Calling the swimming pool La Seine;

Applying the original name of Paris—Lutèce—to the 69th-floor restaurant;

Having a Salon de l'Étoile instead of a plain old grand ballroom;

Naming the two high-speed elevators to the 72nd-floor convention spaces the "Metro" system;

Featuring interior decoration ranging "from authentic French Provincial simplicity to the opulence of Empire, Regency, and Louis XIV periods."

If all these plans are carried out, the Place Vendôme may not be the tallest hotel in the world (actually, only about 45 floors will have guest rooms and suites; New York's Americana has 50), but it may well be the highest collection of *kitsch*.

Leonard Spangenberg, Jr., architect of the hotel, describes it as follows: "The structure will be built around a central elevator and service core which affords greatest possible efficiency with minimum use of valuable floor space . . . [structure will feature] a modular construction pattern in which the size of hotel rooms precisely reflects placement of supporting beams in the steel framework." William J. Mouton, Structural Engineer, elaborates further: "Precast, prestressed octagonal concrete pilings 18″ in diameter, having a 'design load' of 300 tons will support a 2-ft-thick concrete mat which will serve as a continuous pile cap 16 ft below grade. A concrete grillage system consisting of walls 2 ft thick and 14-ft deep will form a pattern encompassing all rows of piles.

"Steel columns, 12 ft on centers around the 130-ft-sq base, will rise the entire 750-ft height of the building. At every floor level, a 5½-ft deep floor truss attaches to the inside of the columns."

Glass window walls set back behind guest-room balconies are expected to aid in cutting the load on the air-conditioning system, according to Edward M. Alba, Mechanical and Electrical Engineer.

New Orleans seems to be undergoing a rash of high-rise buildings, including Stone's International Trade Mart Tower at the foot of Canal Street, a commercial skyscraper by Shaw-Metz of Chicago, and Spangenberg's 40-story office-apartment building (p. 66, AUGUST 1964 P/A). This is quite an achievement, given the swampy soil on which the city is built. One hopes, however, that the feeling of New Orleans as a low, gracious, "European" city—the only one with such an atmosphere in the United States—will not be lost in the heat of constructing thse cloud-toppers.

Fins Down Under

PERTH, AUSTRALIA This 16-story apartment building will rise 160 ft from Mount Eliza, which towers 200 ft above the ocean at the western end of

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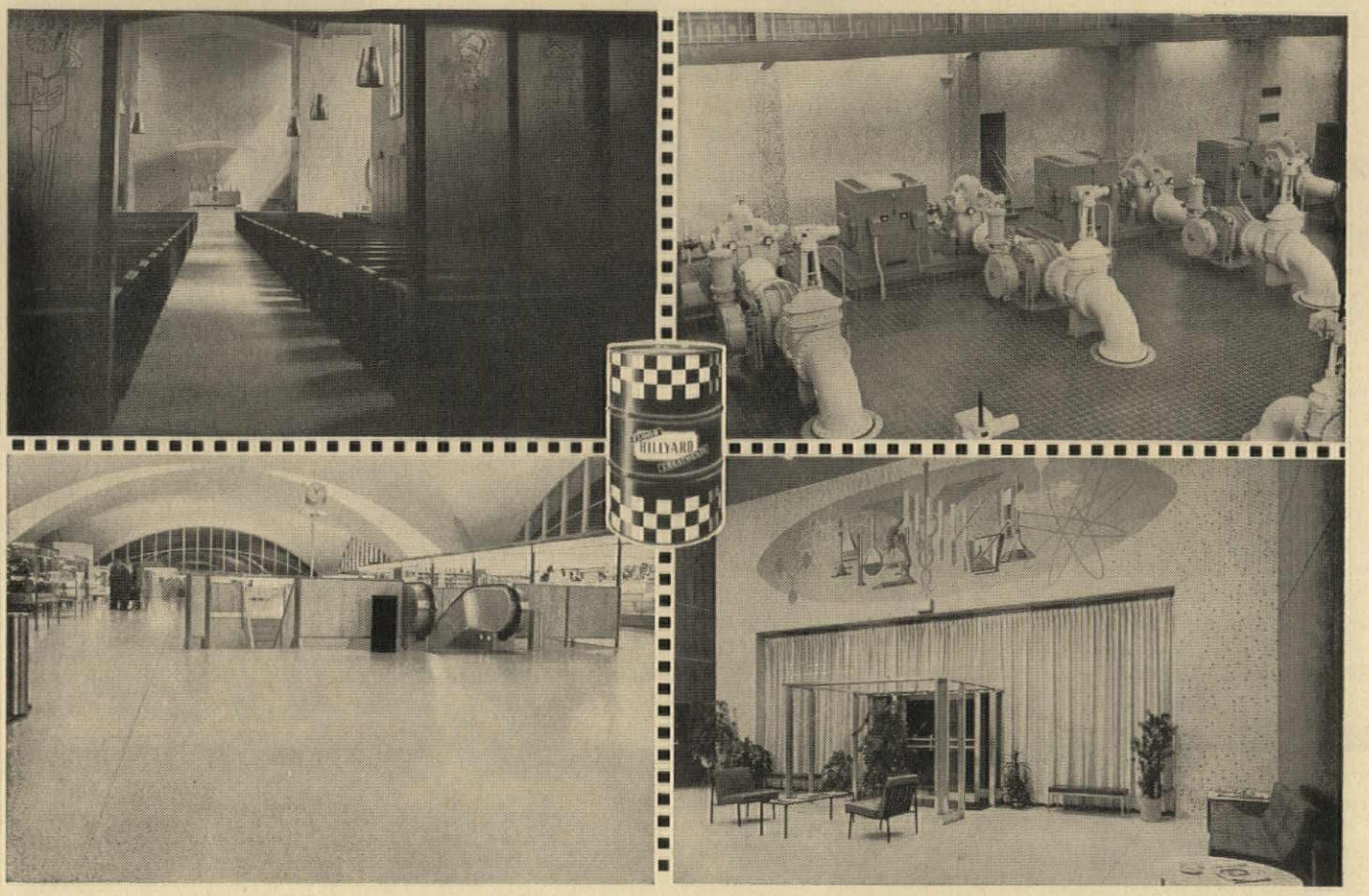

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Perth. Its most striking features are four fins running the height of the building at the four points of the compass. These are said to provide stability. Elevator penthouse, cooling tower, and water tanks are screened in an attempt to enhance the building's over-all appearance. Architect: Krantz and Sheldon.

Data Updating

NEW YORK, N.Y. The AIA is sponsoring a new, revised edition of Ramsey and Sleeper's respected reference book, *Architectural Graphic Standards*. The first of the five previous editions appeared in 1932 under the colophon of John Wiley & Sons, Inc. Suggestions for the sixth edition will be welcomed through the end of this month by Joseph N. Boaz, Editor, AIA Architectural Graphic Standards Project, 605 Third Avenue, New York, N.Y., 10016

Personalities

PHILIP JOHNSON, who has become the first architect to receive an *Art in America* Annual Award, was cited for the works of art commissioned in the New York State Theater and the New York State Exhibit at the World's Fair . . . The American Society of Industrial Designers has elected DON DAILEY, Evansville, Ind., as its new president . . . BERNARD L. BOUTIN, administrator of the General Services Administration, has been named Executive Vice President of the National Association of Home Builders . . . RALPH RAPSON has received the Honor Award of the Minnesota Society of Architects, AIA, in recognition of the University Office for the State Capitol Credit Union, St. Paul (*see* pp. 134–139, JULY 1964 P/A): "The building's great square concrete roof design and the interesting interior ceiling and wall treatment distinguished the project for excellence." . . . LLOYD MORGAN, architect-critic and architect of the Waldorf Astoria Hotel, was honored by the president, trustees, and faculty of Pratt Institute on October 3 (*see page 51*) . . . The Stained Glass Association of America has announced the winners of its seventh biennial competition for apprentices in stained-glass craftsmanship: DAVID WILSON, Rambush Studios, New York (First Prize); FRANK DEGRAFF, Duval Studios, New York (Second Prize); RONALD HEIN, Conrad Schmitt Studios, Milwaukee, (Honorable Mention); VINCENT SIRIANNI, Willet Studios, Philadelphia (Honorable Mention); and H. WILBUR CUMMINGS, Willet Studios, Philadelphia (Honorable Mention).

Calendar

"Architecture and the Computer," a conference sponsored by the Boston Architectural Center, is scheduled for Dec. 5, at the Sheraton-Plaza, Boston; potentials and limitations of the computer approach to design will be discussed by architects as well as nonarchitects working in related fields and using the computer. The program, to include informative presentations and panel discussions, will be introduced by Walter Gropius; Serge Chermayeff will give a luncheon talk. Registration and information material is available from The Boston Architectural Center Conference, 320 Newbury St., Boston, Mass. . . . The 20th Annual Reinforced Plastics Conference will take place in Chicago, Ill., on Feb. 2–4, 1965. Sessions will cover latest developments in materials for reinforced plastics as well as techniques of modeling and fabricating them. Information from the Reinforced Plastics Div., The Society of the Plastics Industry, 250 Park Ave., N.Y.

Obituaries

KENNETH KASSLER, of Princeton, N.J., died September 28. At the time of his death, Kassler was chairman of the Advisory Council of Princeton's School of Architecture.

GAMES SLAYTER, engineer and developer of Fiberglas and allied products, died October 15 at the age of 67.

LESLIE N. BONEY of Wilmington, N.C., died September 19 at the age of 83. Boney is survived by three architect sons: Leslie, Jr., William J., and Charles H.

DONALD E. WILCOX, vice-president of Charles Luckman Associates, died recently. Wilcox was senior associate on design of the United States Pavilion at the World's Fair.

CHARLES W. ATTWOOD of Wayne, Mich., died September 21. Attwood was the inventor and manufacturer of Unistrut, a system of metal frame construction.

Competitions

Deadline for nominations for the 1965 R. S. Reynolds Memorial Award is Dec. 31, 1964. An award will be made in March 1964 for "a significant work of architecture, in the creation of which aluminum has been an important contributing factor." An architect may nominate himself or be nominated by others; full information is available from The R. S. Reynolds Memorial Award, The American Institute of Architects, 1735 New York Ave., N.W., Washington, D.C. . . . Several prizes will again be sponsored by the National Institute for Architectural Education: The Lloyd Warren Fellowship–Paris Prize is open to students who will have obtained a degree in architecture by September 1, 1965; other available prizes include: several Pittsburgh Plate Glass Co. awards, two thesis awards, and awards for design of "A Children's Museum," "A Day Center for the Elderly," and "A Center for Research in Human Nature." Further information can be obtained from NIAE, 115 East 40 St., New York, N.Y., 10016. . . Josam, a manufacturer of plumbing products, is celebrating its 50th anniversary with a competition. Ideas on the design and fabrication of plumbing products may be submitted by architects, engineers, mechanical contractors, students; awards will range from $2000 to $100 plus royalty arrangements. Rules available from 50th Anniversary Competition, Josam Manufacturing Co., Michigan City, Ind.

WASHINGTON/FINANCIAL NEWS

BY E. E. HALMOS, JR.

Inadequate building codes, poor enforcement of existing codes, poor construction, and lack of knowledge about location of earthquake—prone areas were the real culprits in the vast building damage inflicted by the Good Friday earthquakes in Alaska.

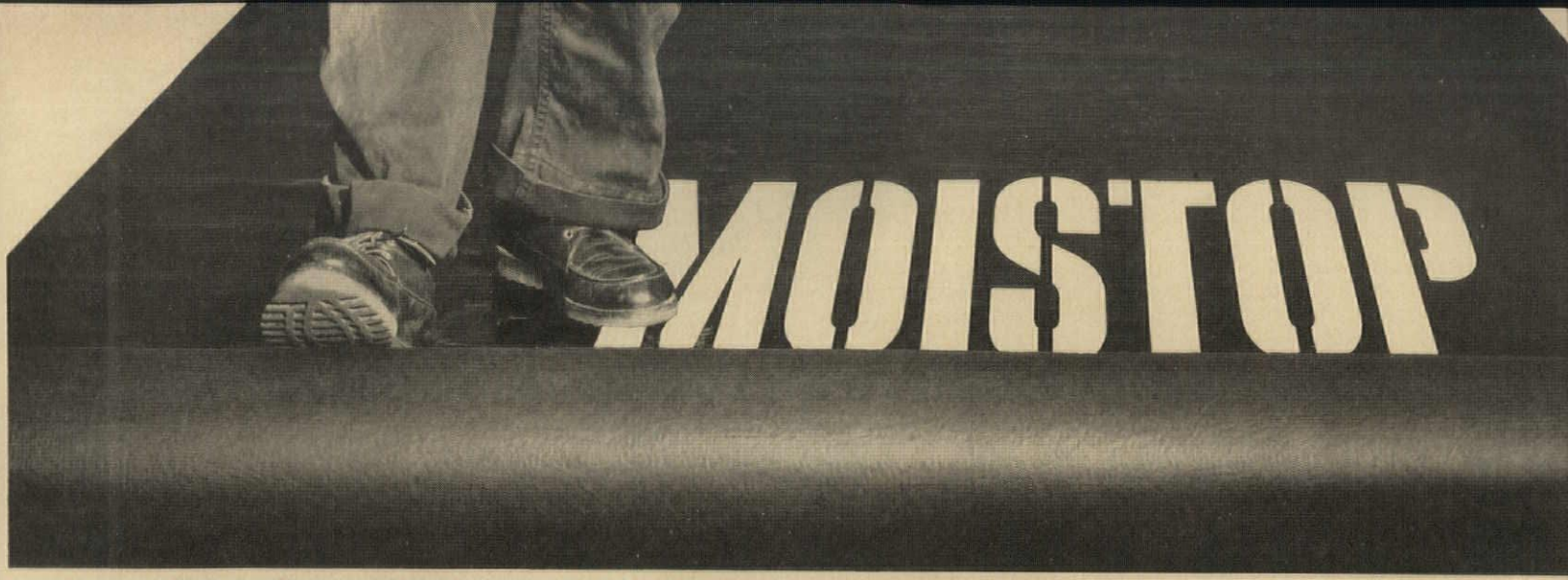
Although a special Presidential commission on the Alaskan catastrophe made haste to agree that other states in the Pacific Coast "earthquake belt" are equally poorly prepared, it said laxity on construction left the state "wide open" for disaster. It pointed out that at least 70 per cent of the building damage in Anchorage was the result of inadequate design or poor construction. Of very special concern, said Commission Chairman Senator Clinton P. Anderson (D.N.M.), is that cities and towns have been permitted to develop in areas known to be "precarious," and earthquake-resistant building codes have been "winked at."

Remedies suggested: broader Federally-sponsored studies of earthquake prediction techniques; establishment of a warning system centered in Hawaii, particularly for warnings of seismic sea waves such as those that smashed into Alaskan coastal communities; flat refusal to allow construction on ground known to be precarious; and insistence on use of consolidation techniques for foundations of all new structures in earthquake-prone areas.

Most important remedy: better building codes and strict enforcement of them.

The Subsidy Tangle

Confirming facts long apparent to municipal officials, a Rand Corporation survey of housing and transit problems reaches the conclusion that: (1) subsidized housing helps the city dweller—or at least the low-income city dweller (mostly Negro); (2) subsidizing transit helps the suburbanite (mostly white). It works that way, according to Harvard Economist John R. Meyer (whose study will soon be published in book form as *The Urban Transportation Problem*) because the low-income



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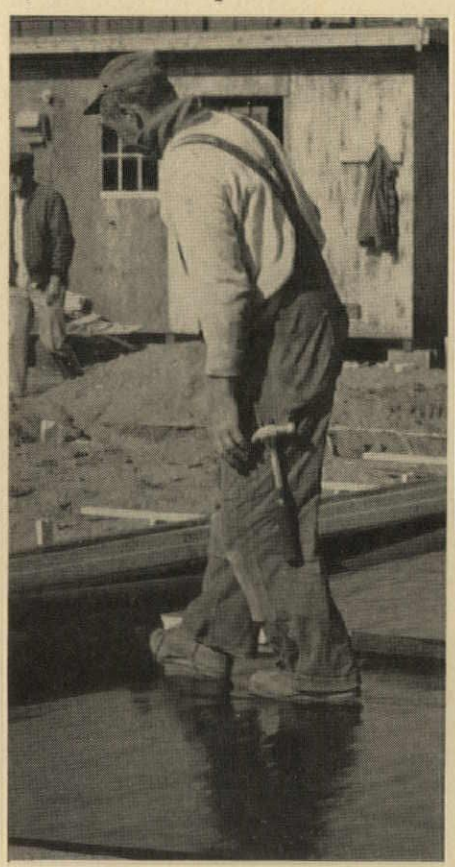

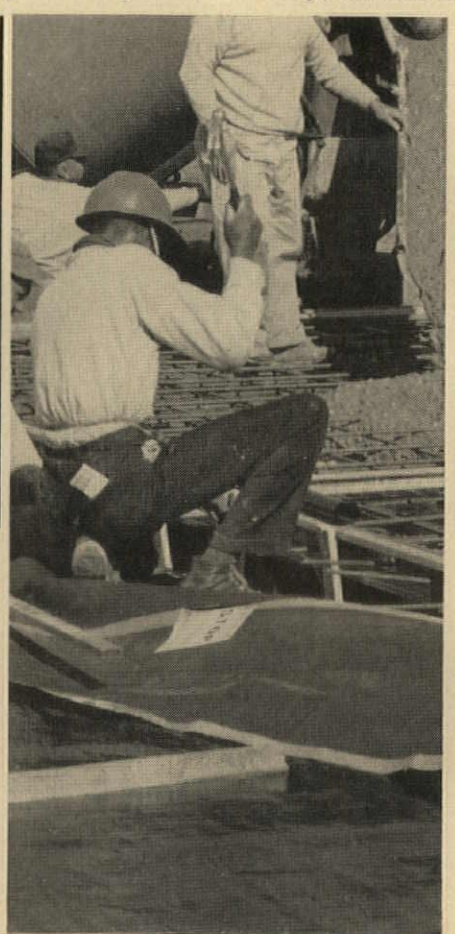

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city dweller usually pays more for housing, but can get to his job more cheaply; the suburbanite pays less for housing, more for transportation. Segregated housing patterns work to keep the suburban whites out of the central city, Negroes out of the suburbs.

The Rand Corporation findings are interesting in the light of proposals for subsidized transit that were put before this year's session of Congress (and didn't pass in any substantial aspect). They're also interesting in the light of Census Bureau figures, just released, which indicate that the long trend of a "flight to the suburbs" is slowing substantially. Said Census: in 1960–63, annual growth rate in suburban areas dropped from 4.0 to 2.8 per cent; central cities from 1.0 to 0.9.

Underpass Impass

Speaking of central cities, Washington's own Fine Arts Commission pushed strongly for "the same design attention" for road underpasses and freeways within cities as is lavished on buildings.

Fine Arts (often a sore boil to city architects) turned down a design for a freeway underpass (beneath the city's famous Mall) and demanded that city highway designers bring in a detailed report on materials, entrances, railings, and lighting before seeking further consideration.

New NAHB Head

Resignation of General Services Administrator Bernard L. Boutin from his $21,000-a-year Government job (to take over as Executive President of the National Assocation of Home Builders on Nov. 9), was well publicized in advance.

Industry sources knew of Boutin's plan at least two months ago—only thing in doubt was the date. Twice mayor of Laconia, N.H., Boutin had connections with the homebuilding industry before entering politics and coming to Washington.

Homework

Reading notes: "Dimensional Tolerances for Cast-in-Place Concrete," a Federal Construction Council Technical report, may be obtained for $2 from

Continued on page 70

New Products

Dry Chemical Fire Protection

Replacement of water by dry chemical fire-extinguishing agents that are used in conjunction with piped discharge systems at lower costs have been developed for many fixed fire-hazard areas. Recently, UL has approved (for Class B and C fires) an automatic fixed fire extinguishing system of sodium bicarbonate-base dry chemical for kitchen hoods and ducts in restaurants, where most fires originate due to excessive accumulation of fat and grease. "R-101" system is an adaption of 30-lb piped system widely used in industry that automatically discharges sodium bicarbonate-base dry chemical into hood and duct system when fire breaks out. UL approval results in reduced fire insurance rates for restaurants installing this system. It consists of cylinder containing 30-lbs of chemical, which is piped to nozzles in hood and duct. Nozzles prevent interference with discharge of dry powder. System is activated automatically by melting of fusable link, but it can also be activated manually. Installation is usually made in or behind the kitchen wall, in the attic or on the roof, depending on size and shape of flue and direction in which it turns. Cost is generally about one-half to one-third that of carbon dioxide, steam, or other systems, which do not have UL approval.

Other chemicals have been developed for effective use in fixed fire-hazard areas: (1) Mono-ammonium phosphate-base dry chemical, approved by UL, can put out all classes of fire. On a pound-for-pound basis, it extinguishes at least twice as much flame as same amount of water, without being subject to freezing. It is available in hand portable extinguishers ranging from 2½ to 25 lb capacities as well as in larger wheeled units. (2) Potassium bicarbonate-base dry chemical (known as "Purple K") can put out more flammable liquid fire than anything available and can do it faster. It is about twice as effective and fast as sodium bicarbonate-base dry chemical and about four times more effective than carbon dioxide. It is also available in hand portable extinguishers and larger wheeled units. Both chemicals are rapidly being developed for use with piped systems in fixed areas. Ansul Co., Marinette, Wis.

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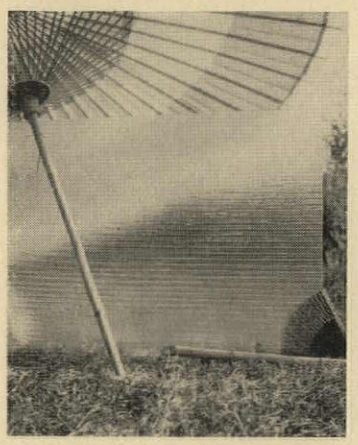
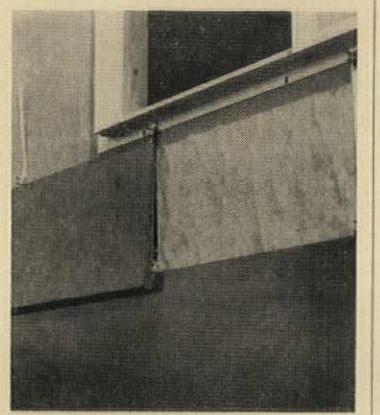
Construction



"Bamboo" Glass

Patterned glass line introduces two decorative patterns—"Grassweave" and "Bamboo" (*shown*). Entire line is made in widths 90″ to 96″ (previous patterned glass had maximum widths 48″ to 60″). Eight other basic patterns are offered. All regular 1/8″ and 7/32″ patterned glasses have approximate daylight transmission of 90 per cent, with exception of "Grey Stippled" glass, which has 50 per cent, as well as approximate solar heat transmission of 53 per cent. Also introduced is first American-produced (according to manufacturer) gray-patterned glass with heat-absorbing and glare-reducing characteristics. This gray glass allows architects to coordinate interior partitioning with exterior glass areas where "Parallel-O-Grey" polished plate glass is used. Libbey, Owens, Ford Glass Co., 811 Madison Ave., Toledo, Ohio.

On Free Data Card, Circle 101



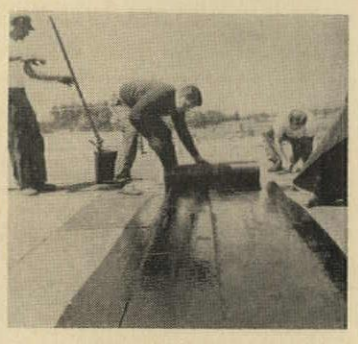
Prefinished Redwood Siding

Prefinished exterior siding, called "RG-5," is kiln-dried vertical-grain redwood. It is impregnated on all four surfaces with special wood stabilizer that gives wood uniform color. This treatment is followed with 7 mil coat of clear plastic finish, which forms a chemical bond with the stabilizer. Result is film permanently bonded to the substrate. According to manufacturer, RG-5 is guaranteed against blistering, peeling, cracking, or flaking for five years from date of installation. Siding is certified by California Redwood Association. Union Lumber Co., 620 Market St., San Francisco, Cal.

On Free Data Card, Circle 102

Two-Ply, Built-Up Roof

Two-ply, built-up roofing system can be applied wherever normal built-up roofing is specified and can be bonded for up to 20 years. System consists of "Bond-Ply" coated roofing sheet, an asphalt-impregnated felt sheet, factory coated on both sides with uniform layer of high grade roofing asphalt. It is applied either directly to bare deck or over insulation in two plies with hot mopped asphalt between plies.



Conventional poured asphalt and aggregate topping completes application to roof. Allied Chemical Corp., 40 Rector St., New York, N.Y.

On Free Data Card, Circle 103

Finishes/Protectors

Corrosion-Resistant Metal Coating

Metal coating provides permanent, low-cost corrosion and rust-resistant bond to exterior metal surfaces such as buildings and bridges. Material contains phenolics, vinyls, and metallic derivatives. It is bondable to all metals that have been cleaned by sand or vapor blast. Highly resilient coating, bonded to sheet metals, can subsequently be stamped, formed, or even welded. For existing structures, coating can be applied on site with gun-type drying units setting up bond as fast as coating can be sprayed. An-Cor Co., 162 San Lazaro Ave., Sunnyvale, Cal.

On Free Data Card, Circle 104

Nontoxic Surface Paint

Rust-inhibiting and nontoxic paint, called "All Surface Enamel," is said to prohibit corrosion as effectively as paints containing either lead or chromate pigments, both of which have toxic qualities. New pigment—molybdated zinc oxide—is harmless to people. It protects both metal and wood, indoors as well as outdoors. Paint resists chipping or cracking under heat, cold and heavy blows. It is applied by brushing, rolling, or spraying. Un-

Continued on page 77

6th Century Mosaic, Lady in Waiting, Court of Empress Teodora — Church of San Vitale, Ravenna, Italy.

BEAUTY THAT ENDURES

...in Lo-Tone ceiling products to help solve each of these nine problems.

1. Fire Protection. Lo-Tone Fire-Rated ceiling tile and board are listed by Underwriters' Laboratories, Inc. — provide extra fire protection.

2. Air Distribution. Lo-Tone Ventilating acoustical tile and board provide controlled air induction and proper mixing with room air for greatest efficiency and room comfort.

3. Sound Transmission Problems. Lo-Tone AF ceiling tile and board, with extra high attenuation factors, solve room-to-room noise transmission problems economically, beautifully.

4. Special Design Problems. The wide variety of Design Patterns and complete range of functionality in both Lo-Tone tile and board make it easy to solve design problems for special areas.

5. Lighting Problems. Polystyrene panels which cover lighting fixtures and blend with the over-all ceiling design are available.

6. Washability Problems. Lo-Tone Vinyl-Coated ceiling tile and board are ideal for kitchens, wash rooms and areas where having an acoustical ceiling that can be washed is desirable.

7. Economy. Normal installation economy can be further enhanced by using the larger lay-in panels. Initial cost is less, they go up faster.

8. Access to Utilities. Lo-Tone Suspended Ceiling Systems permit simple lift-out panels for repairs and inspection of service utilities.

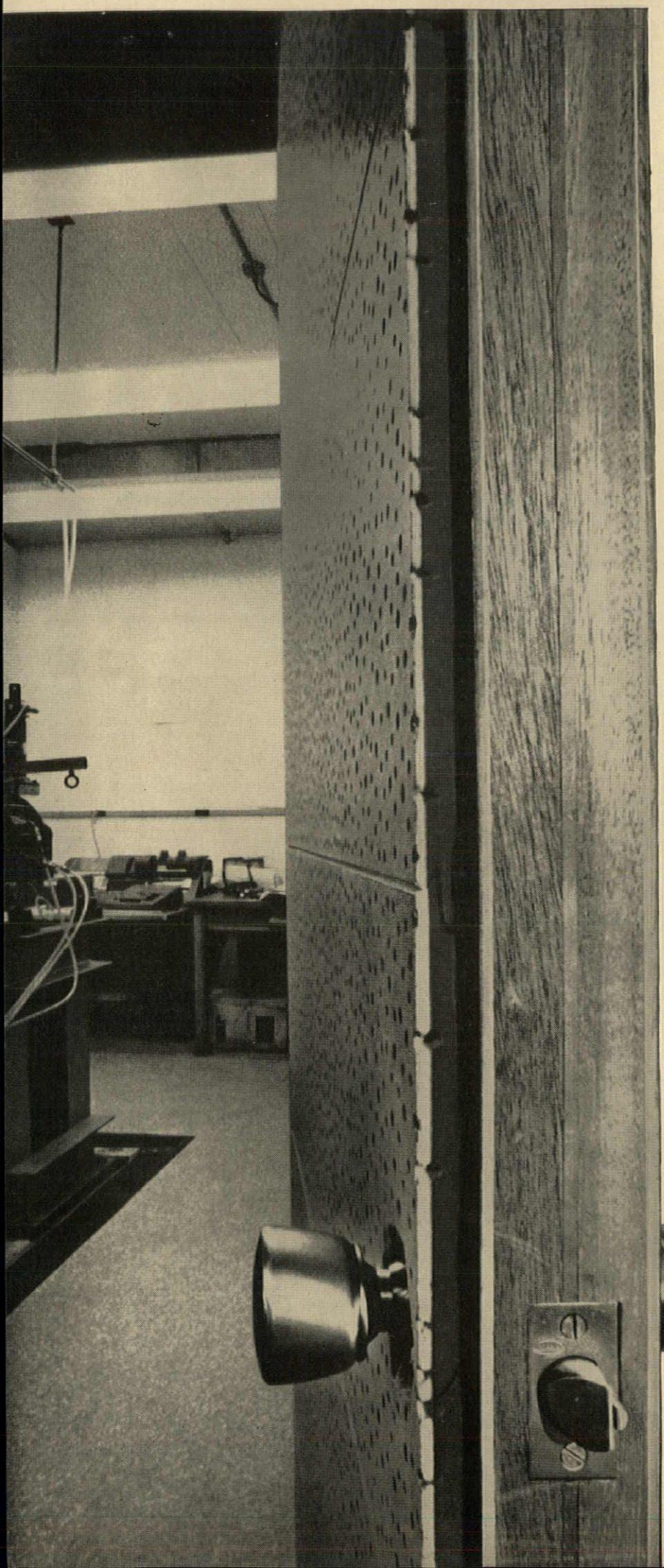
9. Appearance. Complete selection of patterns in ceiling tile and board. Latest addition is the Sandex pattern (see below) which hides the acoustical perforations in the textured surface.

Whatever your ceiling needs or problems, Lo-Tone has the answer. See AIA File No. 39-B in Sweet's Catalog. For product samples, consult the Yellow Pages for your local Lo-Tone Acoustical Contractor, or write to Wood Conversion Co., St. Paul 1, Minn.

LO-TONE®
ACOUSTICAL CEILINGS

Lo-Tone's Newest Enduring Beauty pattern — New Sandex — authentic sand finish, acoustical board that combines monolithic and a granular-textured surface for enduring beauty.

For more information, turn to Reader Service card, circle No. 353



The "Quiet Room" at the Franklin Institute Laboratories. Thin lead sheet in the walls added 13 decibels of quiet, permitting critical noise tests of "noiseless" bearings.

Quiet room, anybody?

Got a need for real quiet . . . and want it in a hurry? Thin lead sheets and some simple construction can as easily do for you the magic they performed at the Franklin Institute Laboratories in Philadelphia.

The Labs' assignment: Measuring noise created by "quiet" bearings.

Space available for the studies: A cubicle in a general-purpose research area, separated from others by 1/2″ plasterboard nailed to 2 x 4's.

Among sources of noise that had to be isolated from the critical bearing tests: Traffic and conversation of workers on nearby projects . . . some occasional light sheet metal work . . . air conditioning machinery, continuously running under test . . . once-in-a-while operation of a very large air compressor. Rather discouraging prospects!

But sheets of 1/16″ lead, spaced off from the plasterboard by 3/4″ furring strips gave the Institute the quiet room it needed . . . economically and in a matter of weeks. Actual noise reduction through the walls treated with lead (as measured by independent acoustical consultants) . . . 45 decibels. That's equivalent, roughly, to cutting down noise in the test room to one-third of its former level.

If you'd like details on how the job was done, we'll be glad to send you the full story. Also available to you, on any noise-proofing project of your own, is the same technical help we put at the disposal of Franklin Institute. For either or both address: Lead Industries Association, Inc., Dept. **N-11,** 292 Madison Avenue, New York, New York 10017. 1121

Look Ahead with Lead

For more information, circle No. 363

Continued from page 73

like red lead or zinc chromate, molybdated zinc oxide is pure white and therefore able to produce a rust-inhibiting enamel in wide range of sharp, clear colors including pure white. Paint line consists of four primers and 13 finish coats, all of which are nontoxic as dry film. Other nontoxic colors will be added later. Acme Quality Paints, Inc., Industrial Finishes Div., 8250 St. Aubin Ave., Detroit, Mich.
On Free Data Card, Circle 105

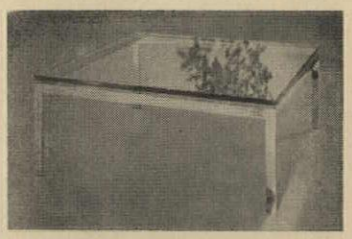
Furnishings

Expandable Table

Hidden lift-up leg extensions of 55″-long coffee table allow height transformation from 20½″ to 27″ for dining. Pull-out leaves can increase width from 23″ to 41″. Table was designed by Kai Kristiansen in teak or rosewood for Mills-Denmark, Inc., 27 E. 56 St., New York, N.Y.
On Free Data Card, Circle 106

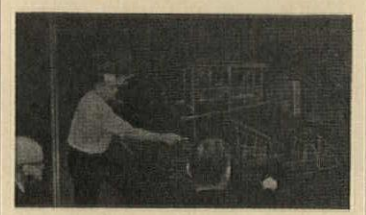
Coffee Table

Stainless-steel pegs mount ¾″ plate-glass atop base of invisably-jointed, highly polished, stainless steel. Table is 40″ square and 16″ high; variations



in shape, size, and top material are available. Designed by Jacob Epstein for Cumberland Furniture Corp., 40 E. 49 St., New York, N.Y.
On Free Data Card, Circle 107

Special Equipment



Chalkboard Designing

"PDT or Panoramic Design Techniques" employs blackboard, chalk, and photography to record ideas. Designers draw or sketch their concepts in chalk. These sketches are then photographed and reproduced from negatives either as photo or ozalid prints. Wall surfaces can be converted into blackboards by applying special blackboard paint. Module of spaced dots applied to blackboard surface serves as guide for free-hand drawing. Large scale models of all drawing instruments are used for final, finished drawings. Concepts can be stated, then reshaped or removed. System permits number of specialists or consultants to produce total concept on blackboard. Training course is offered. TAB Engineers Inc., 520 N. Michigan Ave., Chicago Ill.
On Free Data Card, Circle 108

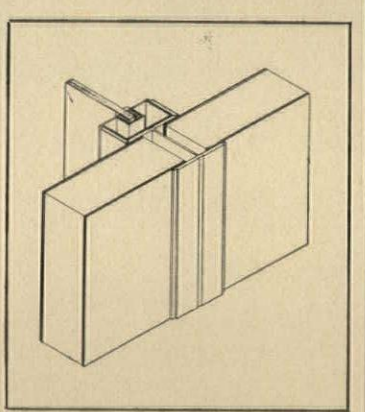
Pocket Paging

Recently introduced 5½ oz pocket paging system can be automatically tied in with hospital nurse/doctor call equipment. Special coded signals on pocket receiver notify nurse or doctor of emergencies. System permits page calls to originate from one central point or from many locations through intercom stations or internal telephones. System may be tied in with remote physiological/infusion monitoring systems and can also be used automatically to alert maintenance personnel of emergency in hospital heating or other apparatus. In-

dividual signals can be set to any number of receivers up to 20, 56, 90, and 380. Executone Inc., 47-37 Austel Place, Long Island City, New York.
On Free Data Card, Circle 109

Interchangeable Wall

Recently developed partition system call "Design Wall/6" is a movable wall. It consists of only six basic metal parts

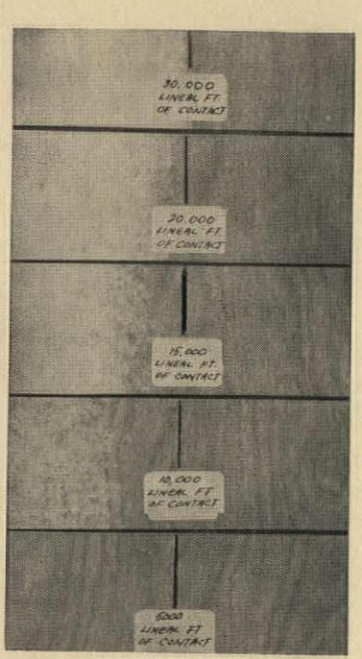


as framing members for wide range of stock panel materials. System enables simple interchange of faces for variety or repairs, 100 per cent salvage of panels, and completely reusable parts. The six parts are: H-shaped post; half-post used as ceiling channel, starter, or railing for low-rail bank screen; insert for glass; floor channel; panel support; and painted steel base covers. U.S. Plywood Corp., 777 Third Ave., New York, N.Y.
On Free Data Card, Circle 110

Surfacing

More Durable Laminates

For areas that require durable surfacing, two materials have been developed by General Electric which are treated with "Poly-Merit." (1) "Textolite

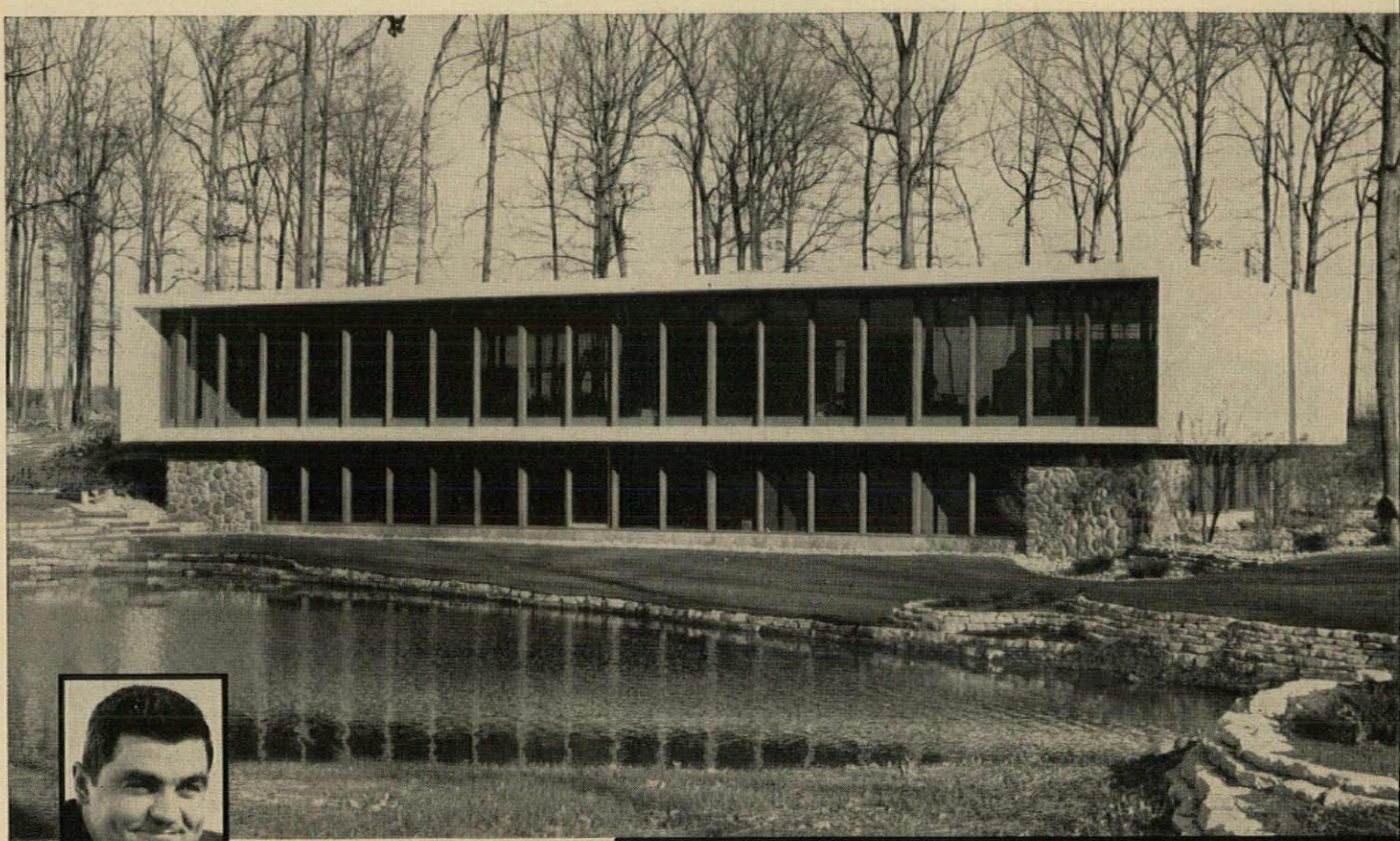


1

2

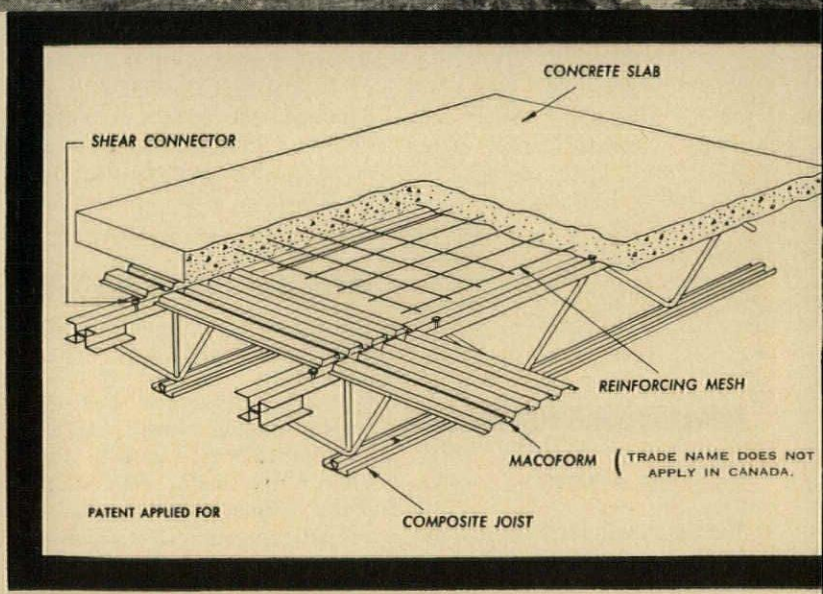
1000," a plastic laminate, is available as a furniture surfacing or as non-load-bearing wall panels; it comes in 9 woodgrain finishes, 35 solid colors, and satin or textured finishes. Test-photograph compares Poly-Merit treated laminate with ordinary laminate. (2) "Perma-Kleen" tile, a laminated plastic, is intended for raised flooring systems used in computer rooms and similar areas. Manufacturer claims it is non-porous, skid-proof, and produces no static electricity. Installation expense is said to be offset by ease of maintenance and durability. General Electric, 901 W. Burlington Ave., Western Springs, Ill.
On Free Data Card, Circle 111

When an architect designs his own building..



OFFICE BUILDING

Location: Fort Wayne, Indiana
Owner: Arch Development, Inc.
Architect: J. Douglas Lawrence
Schenkel & Lawrence
Contractor: Irmscher & Son



. . . or a realtor looks to the future

APARTMENT BUILDING

Location: Madison, Wisconsin
Owner: Hilldale Towers, Inc., Norman Nadler, President
Architect: Donald Allen Davis, A.I.A.

Low profile or high rise — Macomber's new composite system is considered a major architectural breakthrough

Since its introduction, only a few short months ago, Macomber's exciting new Composite System, which utilizes the strength and flexibility of open-web joists with the capacity of the concrete slab, has captured the imagination of leading architects and engineers and builders the nation over.

Those responsible for some of America's finest buildings feel that the Composite System is a major breakthrough. The inter-action of the joists and slab provides a more rigid unit than steel and concrete acting independently. Developed around a special Macomber open-web joist, the system permits longer spans with shallower depths, reducing height per floor. More efficient use of materials with a reduction in total dead weight and labor cost, results in decreased building costs.

Why not get all the facts on this revolutionary new system before you determine the framing for your next assignment or job? They are set down in a new brochure now available from Macomber Incorporated, Subsidiary of Sharon Steel Corporation, Canton 1, Ohio.

MEMBER AISC

MACOMBER INCORPORATED

CANTON 1, OHIO

SUBSIDIARY OF SHARON STEEL CORPORATION

For more information, turn to Reader Service card, circle No. 365

Manufacturers' Data

Acoustics

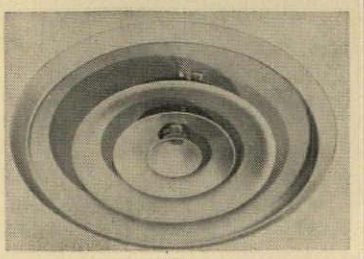
Noise Control Study

Manual, 60 pages, is entitled "Solutions to Noise Control Problems in the Construction of Houses, Apartments, Motels, and Hotels." Among topics covered are "Evaluating Noise Performance," "Stopping Airborne Noise Transmission (Walls)," "Fire Code Walls," "Stopping Structure-Borne and Impact Noise (Floors)," "Wall-Floor Connections," "Doors That Help Stop Noise," "Windows in Relation to Noise Problems," "Noise Control In Plumbing," "Control of Equipment Noise," "Duct Design for Noise Control," "Stopping Sound Reflections (Ceiling)." Charts, details, and descriptions are included. Owens-Corning Fiberglas Corp., 717 Fifth Ave., New York, N.Y.
On Free Data Card, Circle 200

Air/Temperature

Adjustable Air Diffuser

Circular, square, and perforated air diffusers are described in 64-page catalog. Featured is



circular "C-2" diffuser with adjustable discharge pattern: turning smallest cone raises or lowers third cone, varying discharge from draftless horizontal pattern to direct downward projection. Horizontal discharge (for general heating, cooling, or ventilating) is obtained when third cone is set flush with outer cone in flush-to-ceiling applications. With exposed ductwork, same pattern can be obtained by setting third cone in lowest position. For projection heating or spot cooling, third cone is raised to highest position. C-2 operates in cooling applications at temperature range of up to 30 F and supplies up to 20 air changes per hr. Anemostat Corp. of America, Subsidiary of Dynamics Corp. of America, Scranton, Pa.
On Free Data Card, Circle 201

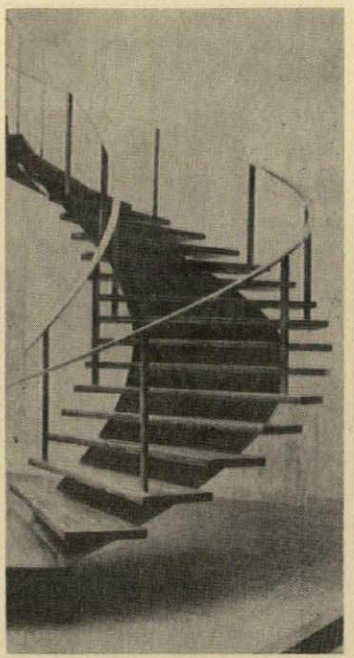
Construction

Gypsum Plastering Specs

Three booklets discuss procedure of plastering: (1) "Fire Resistance Design Data;" (2) "Performance of Lath and Plasterers;" and (3) Recommended Specifications-Gypsum Plastering." After determining building code requirements for fire resistance and sound isolation, architect refers to first booklet to select lath and plaster system that meets design criteria for fire protection and sound control. Second booklet determines how selected lath and plaster assembly performs to crack resistance. Last step in procedure determines recommended specs by using third booklet. Charts, illustrations, and details are given. Gypsum Assn., 201 North Wells St., Chicago, Ill.
On Free Data Card, Circle 202

Stainless-Steel Stairs/Flashing

Data sheets "No. 7" and "No. 8" deal with stainless-steel stairs and flashing, respectively. Former includes illustrations with design and structural details of five stairways, each utilizing different stainless-steel forms (bars, sheet, and strip, plate, tubing, and extru-



sions). Latter discusses column and wall, parapet, roof, and spandrel flashing. Details and photos of actual installations are given. American Iron and Steel Institute, Committee of Stainless Steel Producers, 633 Third Ave., New York, N.Y.
On Free Data Card, Circle 203

Colored Cements

Brochure, 4 pages, illustrates color cements. Shown are color reproductions of 40 samples that are representative of infinite color spectrum available. Also shown in color illustrations is how total effect of brick wall can be enhanced by varying color or mortar. Medusa Portland Cement Co., P.O. Box 5668, Cleveland, Ohio.
On Free Data Card, Circle 204

Acoustical Glass

"Acousta-Pane," an acoustical glass, is presented in an 8-page brochure. It is said to be a highly effective sound barrier in critical frequency ranges that most affect working and living environments. Solid panel consists of thin layers of sheet or polished plate glass, laminated with transparent plastic interlayers that are specially designed and formulated. Acousta-Pane has structural strength and rigidity as well as shatter-resistance of safety glass. It is said to exclude as much as 69 per cent of solar energy falling on face of glass. it is produced in standard sizes up to 48"x104" and in nominal thicknesses of $\frac{5}{32}$", $\frac{7}{16}$" and $\frac{5}{8}$". Glass is also available in amber-gray tint. Amereda Glass Corp., 3301 South Prairie Ave., Chicago, Ill.
On Free Data Card, Circle 205

Doors/Windows

Sliding Windows

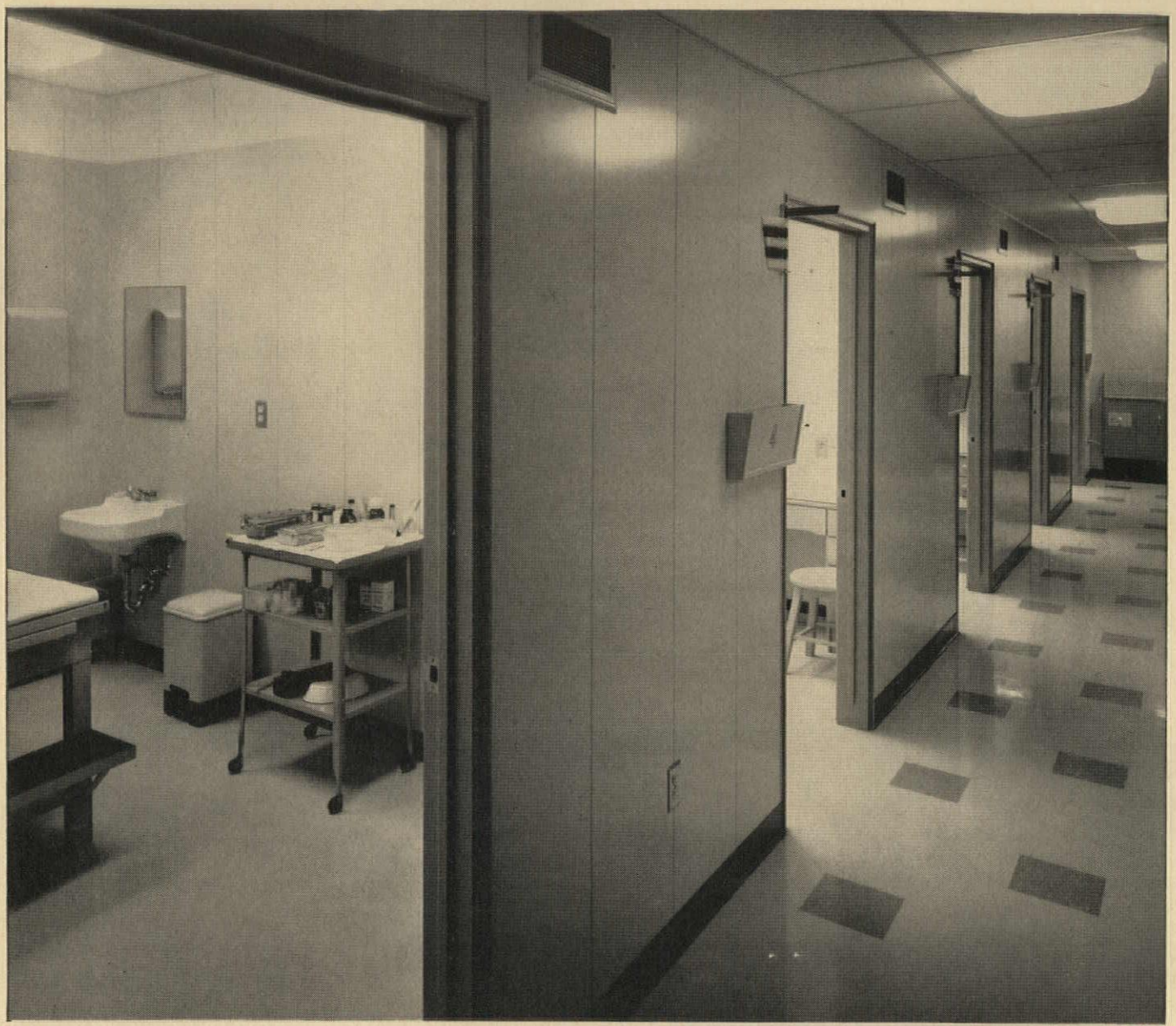
Sliding aluminum windows for high-rise and commercial installations are presented in 8-page brochure. Snap-in cover plate design prevents air and dust infiltration, holds fixed sash in place, and lifts out to permit removal of sash for cleaning. Full size ¼" size detail drawings show variety of installation and window wall arrangements keyed to elevations. Chart shows range of sizes available for two basic frame types and three sash types. Premier Aluminum Products, Inc., 607 Lairport St., El Segundo, Cal.
On Free Data Card, Circle 206

Soundproof Doors

Fully operating 1¾" thick soundproof hollow metal doors are described in 4-page brochure. Flush doors, called "Ultra-Sonic," have minimum sound transmission class rating of 51 db. Doors with glazed panel, called "Vue-Sonic," have minimum sound transmission rating of 42 db. Units consist of hollow metal frames and doors and special adjustable stops with "Pio-Seal" compression gaskets. Pioneer Industries Inc., Carlstadt, N. J.
On Free Data Card, Circle 207

Metal Doors

Booklet, 20 pages, describes metal doors and frames. Elevations, cutaways, and details of door and frame construction are depicted. Specs for stand-



6337

Marlite paneling is used throughout the new Akron Orthopedic Clinic designed by Wagner and Luxmore. The corridor features beige Plank; treatment rooms are paneled in various colors of Marlite Plank.

Specify Marlite for clean, modern interiors ...it's practically maintenance-free!

Any interior takes on a beautiful new look — and stays that way for years — when Marlite paneling is installed on the walls. That's because Marlite's soilproof baked finish resists heat, moisture, stains, dents. Marlite goes up fast, never needs painting or further protection . . . and most important, it wipes clean with a damp cloth . . . pushes maintenance costs to a new low! And Marlite gives your clients a wide choice of distinctive colors, patterns and authentic Trendwood® reproductions for creating beautiful wash-and-wear interiors—anywhere. For complete information, see your building materials dealer, consult Sweet's Files, or write Marlite Division of Masonite Corporation, Dept. 1114, Dover, Ohio.

Marlite® plastic-finished paneling

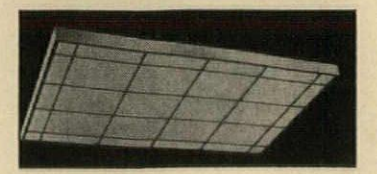
ANOTHER QUALITY PRODUCT OF MASONITE® RESEARCH

MARLITE BRANCH OFFICES AND WAREHOUSES: 1721 Marietta Blvd., N.W., Atlanta, Georgia • 57 Smith Place, Cambridge, Massachusetts • 4545 James Place, Melrose Park, Illinois (Chicago) • 8908 Chancellor Row, Dallas 7, Texas • P. O. Box 3398, 777-139th Avenue, San Leandro, California • 3050 Leonis Blvd., Los Angeles 58, California • 39 Windsor Avenue, Mineola, L.I. (New York) • 2440 Sixth Avenue So., Seattle 4, Washington

For more information, turn to Reader Service card, circle No. 366

ard metal doors and frames are listed. Amweld Building Products, 100 Plant St., Niles, Ohio.
On Free Data Card, Circle 208

Electrical Equipment



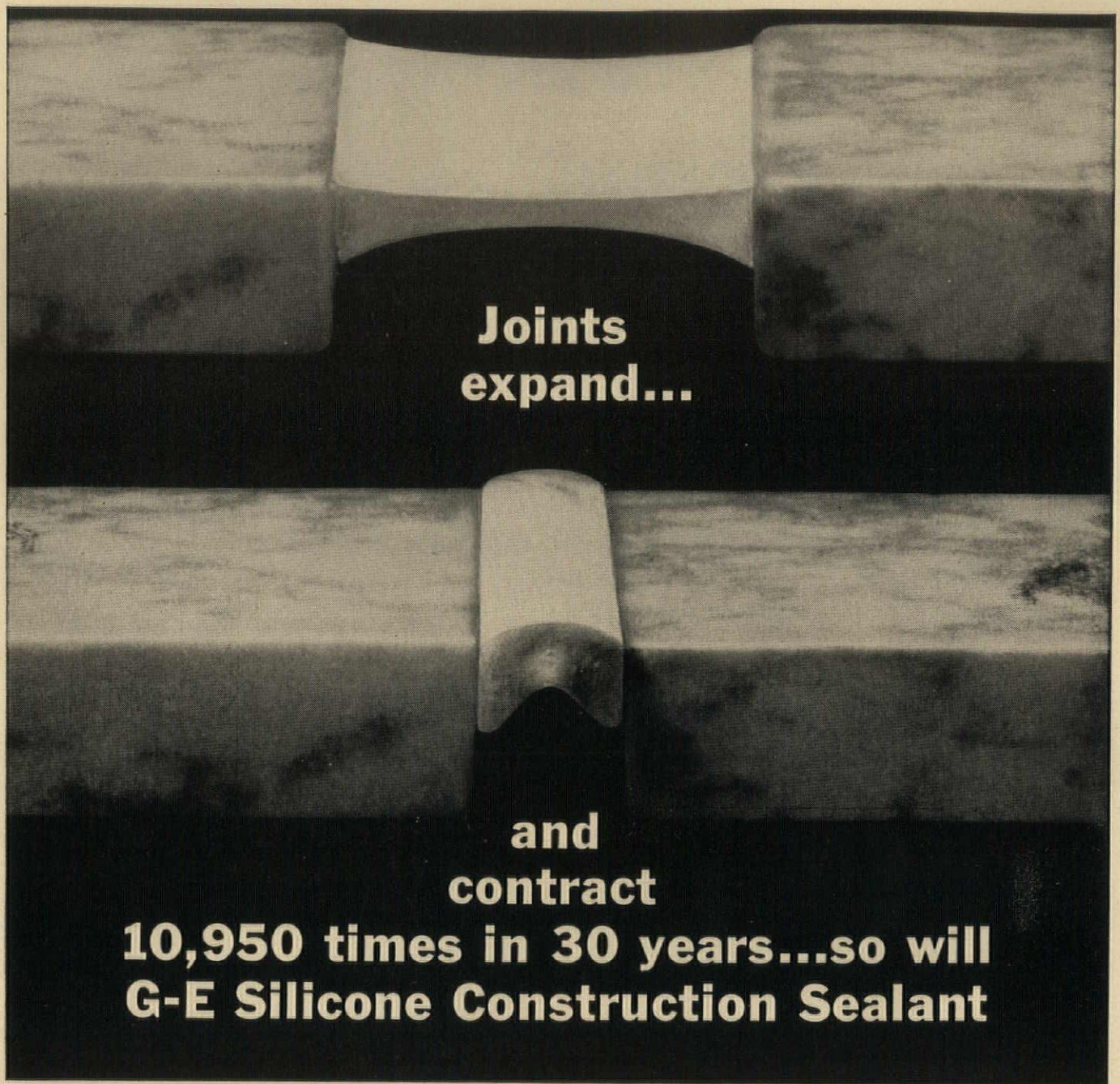
Surfacing Fluorescents

Surface-mounted fluorescent lighting is described in 24-page booklet. Optical shieldings include refractors for optimum efficiency in relation to balanced brightness control, diffusers for uniform distribution and pure white appearance, and louvers for low brightness direct-indirect illumination. Units inhibit dirt accumulation, have hinged shieldings that remain safely suspended during relamping, and use certified thermally protected ballasts (40-w units). Featured is "Diplomat" fixture with extra-shallow prismatic lenses, framed in satin bronzed anodized aluminum with matching grid. It is available in 30″, 42″, and 54″ sq sizes in 6 or 8 light versions as well as in 54″ x 16″ and 54″ x 32″ rectangular shapes in two or four light styles. Diplomat can be used individually or spaced in continuous rows or patterns. Photos, charts, and dimentional details are given. Lightolier, 346 Claremont Ave., Jersey City, N.J.
On Free Data Card, Circle 209

Furnishings

Carpet Costs and Acoustics

Two booklets have been introduced entitled "Sound Conditioning With Carpet" and "Cutting Costs With Carpet." Former describes various tests used to determine acoustical qualities of carpets and includes charts and figures obtained from these tests. Latter gives cost and maintenance comparisons among carpet, asphalt tile, vinyl tile, vinyl asbestos tile, and terrazzo.



Construction joints go through the expansion-contraction cycle at least once a day, and far more often in modern curtain wall buildings. This is the major cause of sealant failure. In the past, even the best elastomeric sealants have been subject to early failure under severe compression-extension conditions. Because these sealants take a "set" during compression, they put a severe strain on the bond during extension. G-E silicone sealant, with almost 100% recovery after severe compression, withstands repeated cycling while maintaining an effective seal.

General Electric Silicone Construction Sealant will take this punishment for years because silicone rubber doesn't lose its elastomeric properties through exposure to sunlight or ozone, the deadly enemies of organic rubber sealants.

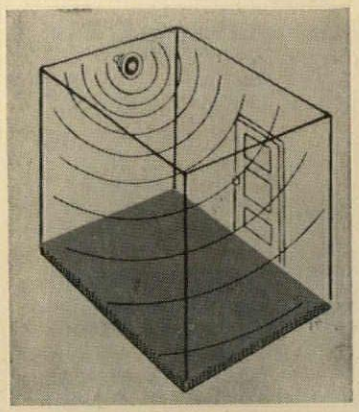
It is unaffected by ozone in any concentration over thousands of hours in accelerated aging tests. It withstands weathering, intense heat and sub-zero cold superbly. In fact, our tests support conservative estimates that it will last at least 30 years, much longer than *any* other type of sealant on the market.

G-E Silicone Sealant comes in a variety of non-fading, non-staining, non-bleeding colors including almost invisible translucent. It needs no pre-mixing or catalyst—bonds securely to all common building materials—can be applied easily, efficiently and quickly at any temperature.

For more information, check the listing of distributors. Or write, General Electric Company, Silicone Products Department, Section Q11118, Waterford, New York.

GENERAL ELECTRIC

For more information, turn to Reader Service card, circle No. 431

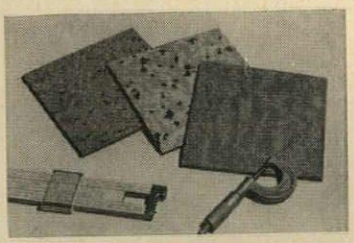


American Carpet Institute, 350 Fifth Ave., New York, N.Y.
On Free Data Card, Circle 210

Special Equipment

Rubber Flooring

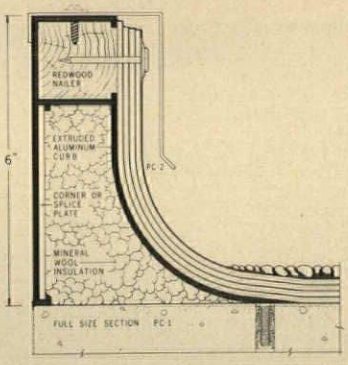
Highly resilient ⅜″ thick flooring tile, called "Tuflex," features vulcanized rubber underside. Nonslip tile resists burns and stains. It is available in 18 color patterns in either 9″ x 9″ tiles or 27″ x 27″ slabs. Also produced is feature strip in five solid colors and in widths of 3″ and 6″ strips. Tile color patterns are shown in bro-



chure. Rubber Products Inc., 4521 West Crest Ave., Tampa, Fla.
On Free Data Card, Circle 211

Prefab Curbs/Fascia

Extruded aluminum roof curbs and fascia, called "Prefabricurb," are shown in 4-page brochure. Featured are mitered and angle reinforced corners, predrilled holes, and rot- and termite-proof prime red-



wood nailer. Smooth radius integral cant prevents damage to roofing paper. Brochure includes ¼″ details of various types of roof curbs and fascia using Prefabricurb. O'Keeffe's Inc., 75 Williams Ave., San Francisco, Cal.
On Free Data Card, Circle 212

School Communications

Transistorized school communications system is described in 4-page brochure. Four models are available: (1) Dual channel system housed in desk- or rack-type console. Includes one 50-w program channel and one 10-w intercom channel. (2) Three channel system housed in rack- or desk-type console. It has two 50-w channels and one 10-w intercom channel. (3) Three channel system has two 50-w channels and private telephone intercom channel. (4) Three chan-

Continued on page 88

you specify
the space.....

NORRIS PRE-FABRICATED WALK-IN COOLERS, FREEZERS AND COOLER-FREEZER COMBINATIONS WILL FIT

Norris pre-fabricated walk-in coolers, freezers, and cooler-freezer combinations meet any space requirements. Available with or without floors, these versatile walk-ins are supplied in two- and three-foot wall sections, four-foot door sections (7½′ high), and can be set up quickly in virtually any space, any location. The only tool required for installation is a light hammer.

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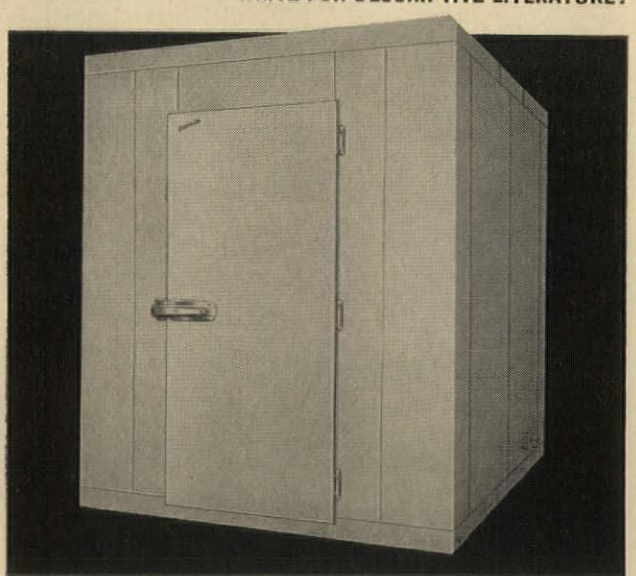

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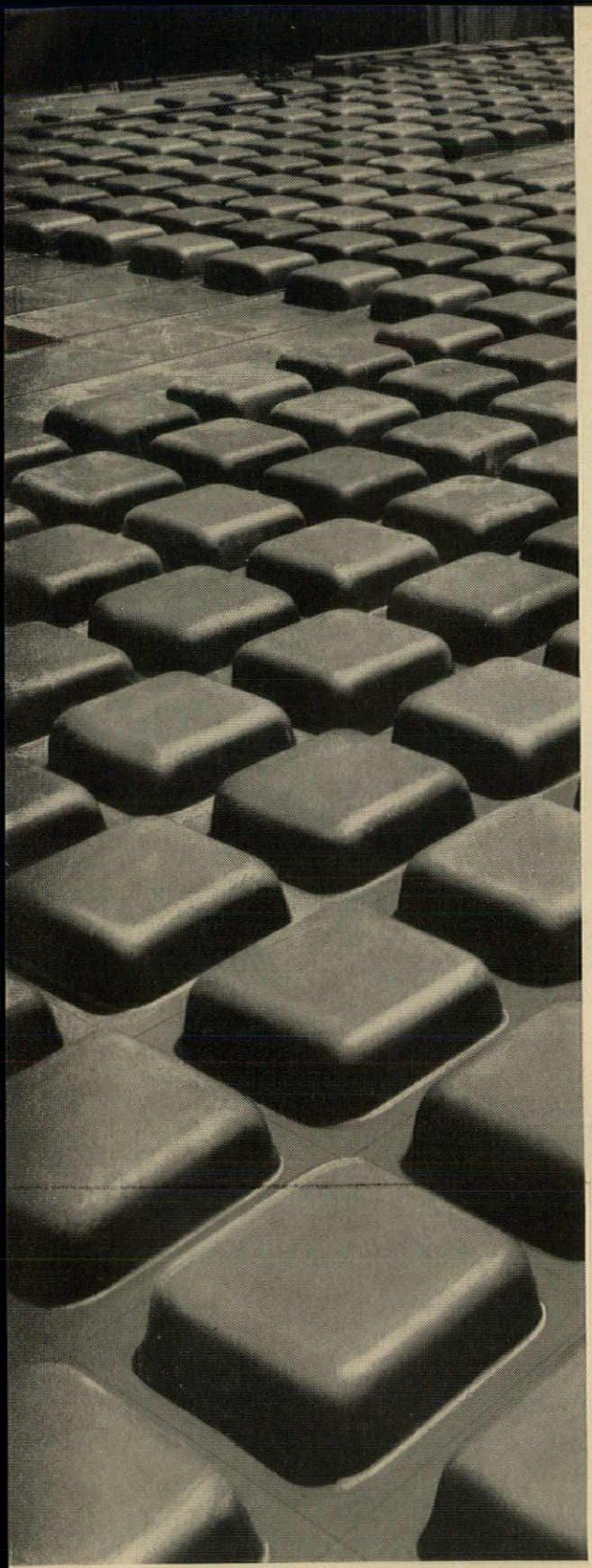
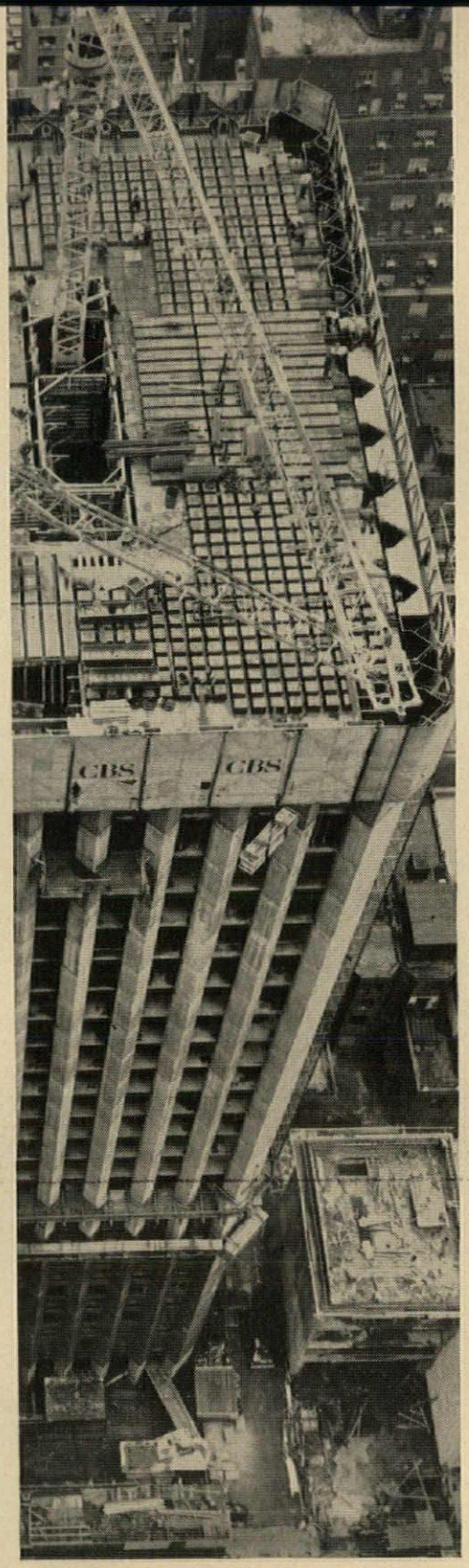
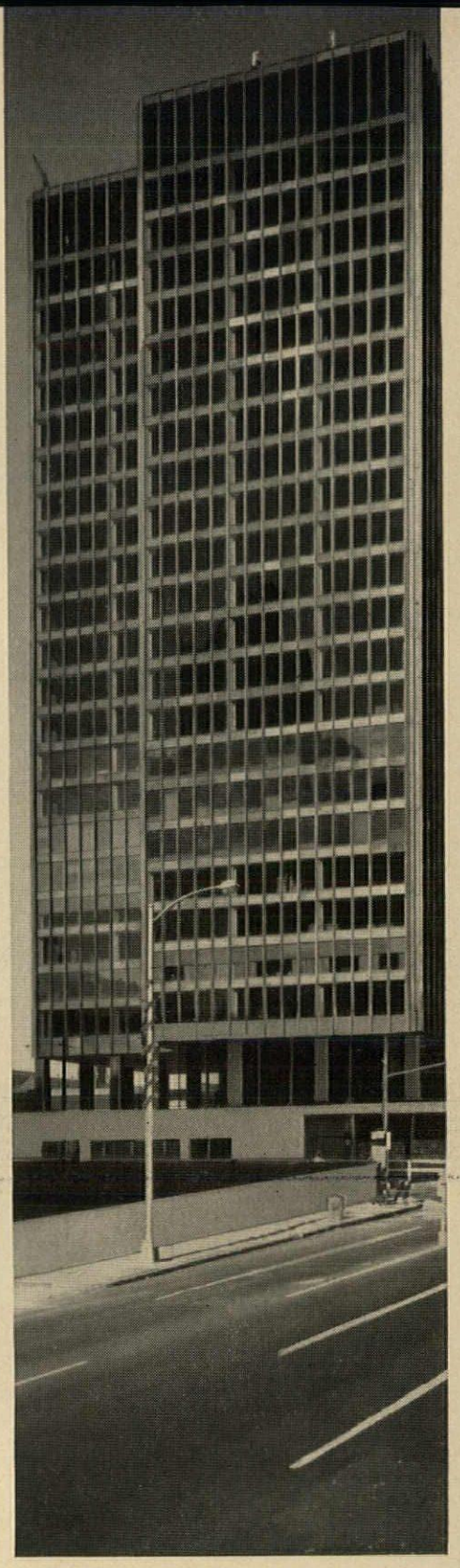


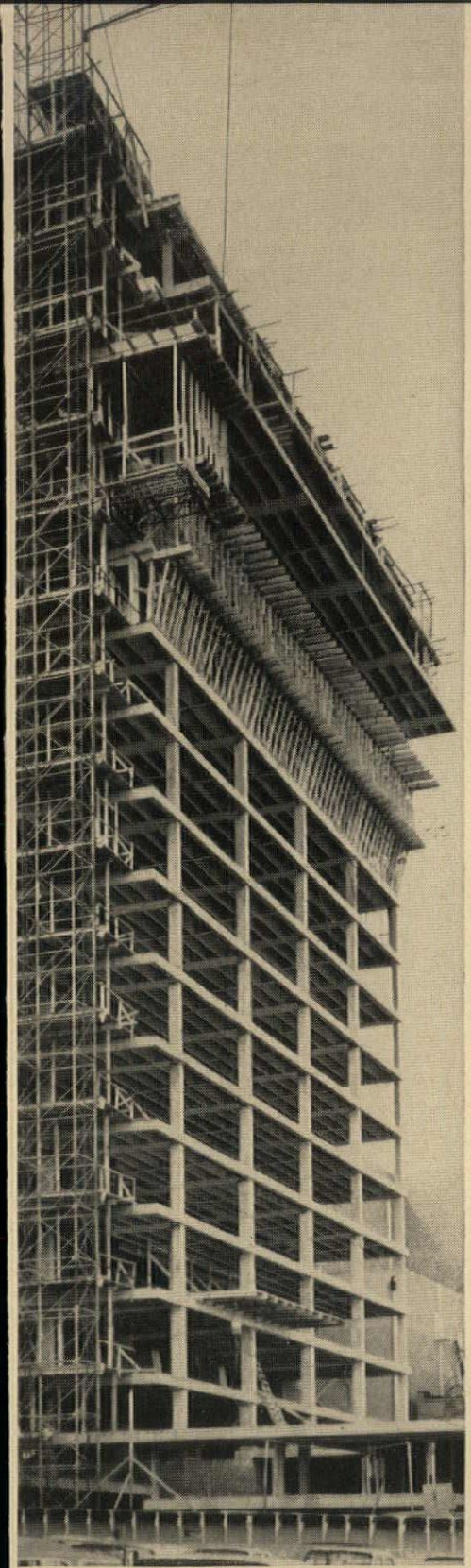
Ceco Steelform Service (Steeldomes illustrated) includes (1) furnishing, erecting and removing shores and open wood framing (centering), and (2) supplying the necessary Steelforms and labor for their erection and removal. Ceco Service takes the guesswork out of floor forming. The architect, engineer, contractor and owner know the final cost before the job starts. A firm quotation from Ceco takes the variables out of cost estimating.



Another Ceco high-rise project, under construction (Ceco Steeldome, Longform and Centering Service) / Columbia Broadcasting System, Administration Headquarters, New York City / Eero Saarinen & Associates, architects / Paul Weidlinger, structural engineer / George A. Fuller Company, general contractors / Brennan & Sloan, Inc., reinforced concrete construction / This 38-story project was erected on a tight schedule—a floor completely poured every four days.



Typical high-rise Steeldome project (Ceco Steeldome and Centering Service) / One Charles Center Building, Baltimore, Md. / Mies van der Rohe, architect / Farkas & Barron, structural engineers / Metropolitan Structures, Inc., general contractors / Bollinger-Leland Construction Company, concrete contractors / This waffle flat-slab design, with high-strength bars and lightweight concrete, cost 50¢ per square foot less than the alternate structural steel design.



In the Southwest, still another high-rise building (Ceco Flangeform and Centering Service) / Petroleum Club, Tulsa, Oklahoma / Kelley & Marshall, architects / T. C. Bateson Construction Company, general contractors / Ceco also formed the flush beams for the floor system, and the beams around elevator shafts and stair openings. Further, Ceco did the shoring for the roof overhang (illustrated). Call on Ceco for experienced forming service.

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with CECO Steelform Service

Look around the country at the new high-rise buildings. Everywhere you'll see monolithic concrete joist construction formed by Ceco Steelform Service. One Charles Center in Baltimore. CBS Headquarters in New York. The Petroleum Club in Tulsa. The Merchandise Mart in Atlanta. Kiewit Plaza in Omaha. Lamar Towers in Houston. These are only a few of the modern multiple-story buildings with floor systems formed by Ceco.

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firm _____

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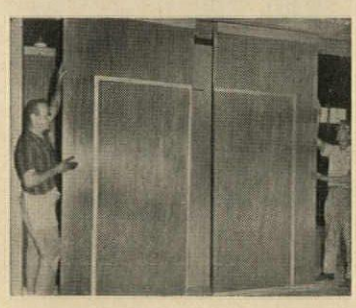
Continued from page 84

nel system housed in double-pedestal console has two 50-w program channels and one 10-w intercom/program channel: Intercom channel may be used for program distribution to about 15 speakers; Emergency/evacuation warning system alerts entire school with voice commands. Separate intercom or telephone system connects key administrative personnel. DuKane Corp., St. Charles, Ill.
On Free Data Card, Circle 213

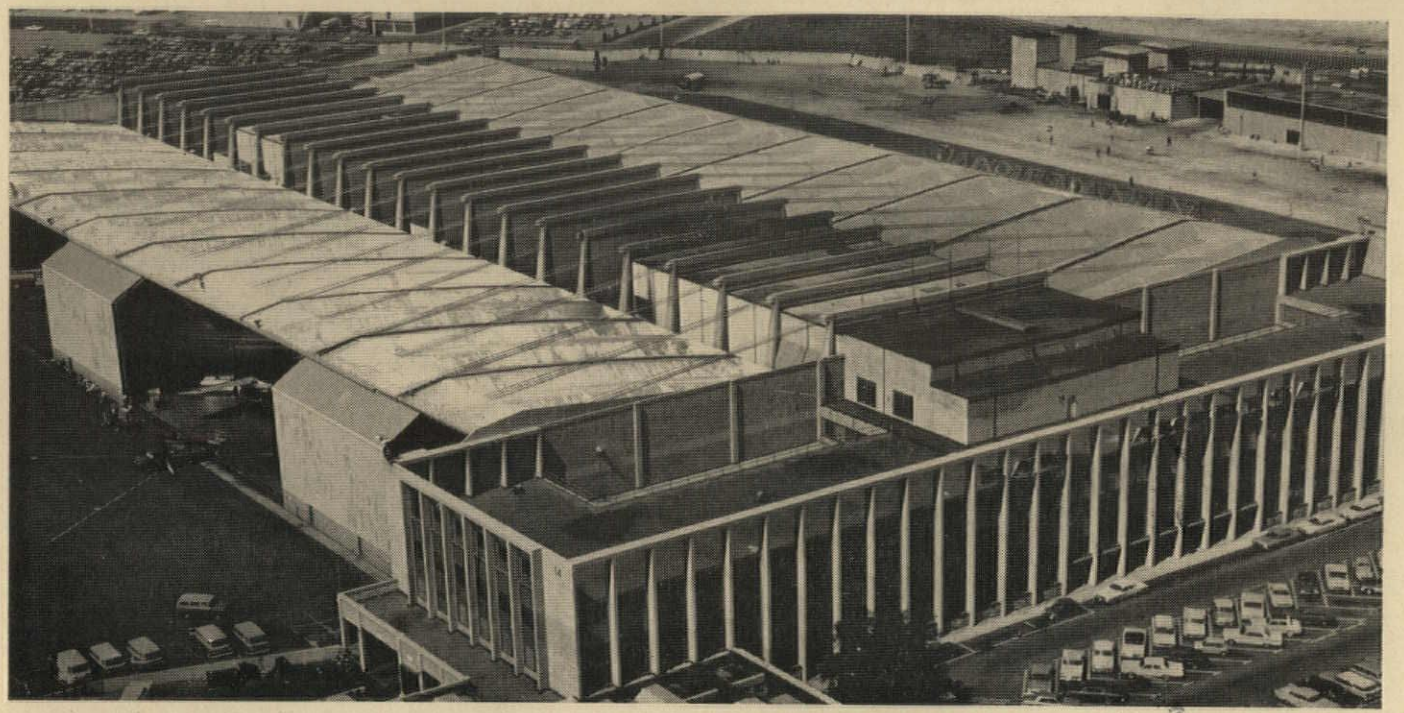
PVC Coated Grilles

Steel or aluminum sliding grilles coated in PVC are used for shopping centers, arcades, store fronts, parking lots, receiving areas. Coating cannot crack, fade, or deteriorate. Grilles are available in gold, green, black, or white chain link mesh curtains in combinations with silvery satin or gold anodized caps, rods, and vertical members. Specs, details, and photos are given. Cornell Iron Works Inc., 36 Ave. and 13 St., Long Island City, N.Y.
On Free Data Card, Circle 214

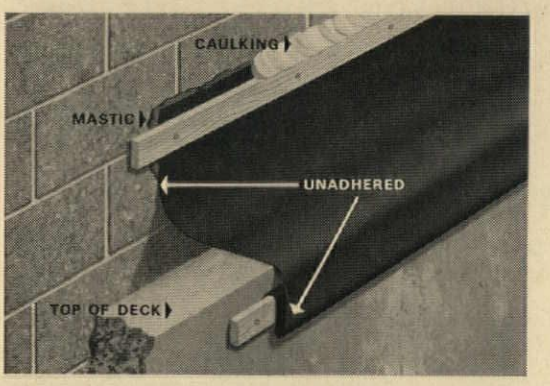


Portable Partition

Pneumatic movable partitions are described in 6-page brochure. Basic components consist of interchangeable filler panels that join to form portable wall in any desired lengths. They may be supplied with clear or translucent plastic panels. Doorway panels, with



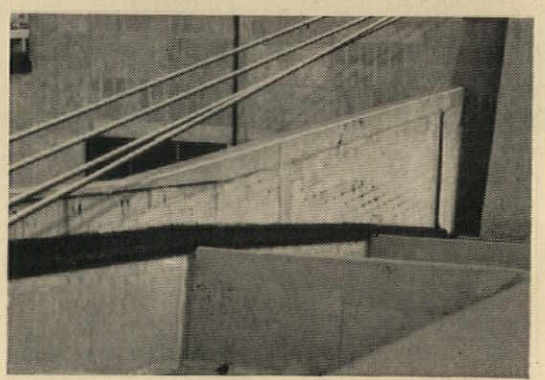
FLOATING ROOF CREATES WATERPROOFING PROBLEM...



TOP: Pan American Airways Hangar 14, John F. Kennedy International Airport, Jamaica, N. Y.

LEFT: Unadhered loop of BFG Flashing, mechanically fastened at top and bottom, spans gap between roof and wall to allow for movement.

RIGHT: The finished job . . . neatly installed and completely watertight regardless of movement.



BFG FLEXIBLE VINYL FLASHING SOLVES IT!

Shown here is one of Pan Am's Hangars at Kennedy International Airport. Its roof, covering nearly five acres, is of folded plate design, suspended by steel cables anchored to center columns. To accommodate anticipated movement, a six-inch opening was provided between deck ends and adjacent walls, creating a hard-to-flash area.

The original flashing, which failed after two years, was replaced with BFG FLEXIBLE VINYL FLASHING. This installation has been completely satisfactory and even now shows no evidence of deterioration. It's easy to understand because BFG Flashing is extra tough, flexible over a wide temperature range and weathers extremely well.

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hardwood threshold, can be used in any location in wall and are available in 48″ widths with pass door 36″ wide x 6′-8″ high. End panels include spring-loaded telescoping channel on one side to provide tight seal guaranteed for five years. Adjoining panels are abutted to special corner units to make twins of 90° or more. Portable walls are installed with no attachments to floor or ceiling. Hupp Corp., Airwall Inc. subsidiary, 8140 E. Rosecrans Ave., Paramount, Cal.
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Sun Exposure Study

"The Control of Sun Exposure" is an 88-page study presented in three sections. Headings for Part I are "Astronomy, Orientation, and Sun Exposure," "Scientific Data on Radiated Solar Heat," and "Sun and Light." Heading for Part II is "Experimental Measurements and Figured Out Values of the Effect of Protective Devices Against Sun Exposure." Headings for Part III are "Controlling Sun Exposure," "Application of the Protective Methods to Different Types of Buildings." Bibliography is also included. Charts and photos of various installations are given. Euroglass Corp., Suite 5312, 200 Park Ave., New York, N. Y.
On Free Data Card, Circle 216

Moving Sidewalks

"Speedwalk" and "Speedramp" moving sidewalks are described in 4-page booklet. Speedwalk is specialized form of horizontal belt conveyor. Each unit is endless belt capable of operating in either direction. Speedramp moves people in either direction in inclines up to 15°. Both sidewalks feature magnetic attachment that connects and holds on to shopping carts through entire route. Upon reaching exitway discharge point, cart is automatically released. Entrances and exitways utilize "floating comb" plate and grooved conveyor belt. Comb plate is comprised of tiny fingers that ride in grooves of special ribbed passenger conveyor belt and "comb out" any object that might become caught. Section details of both types are shown. Stephens-Adamson Mfg. Co., 45 Ridgeway Ave., Aurora, Ill.
On Free Data Card, Circle 217

Architectural Murals

Muralist Willard Bond's use of fired glass on refractory tile, ceramic stone, stained glass, and various metals is illustrated in 10-page booklet. Seven interior and two exterior installations, including sign for Eugene O'Neill Theater in New York, are shown. Palmer Slote Assoc., 106 Forsyth St., New York, N.Y.
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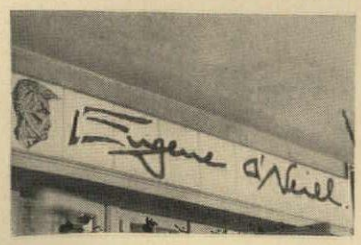

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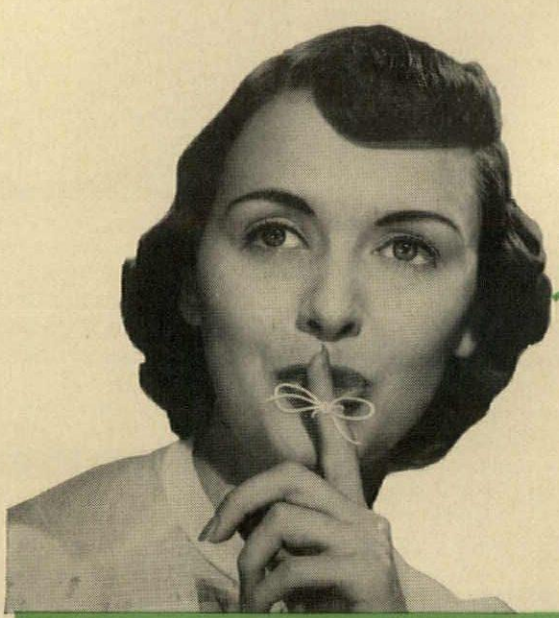

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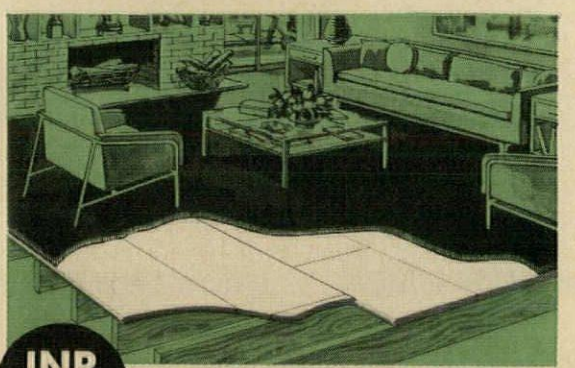

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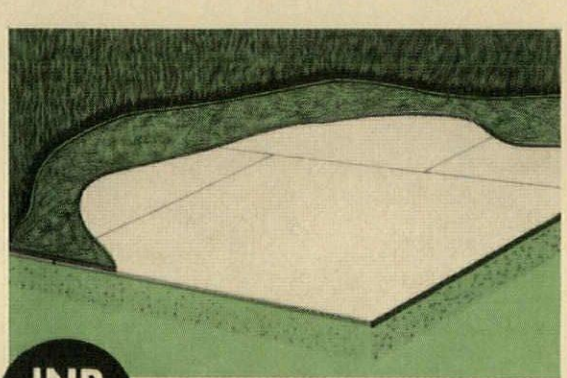

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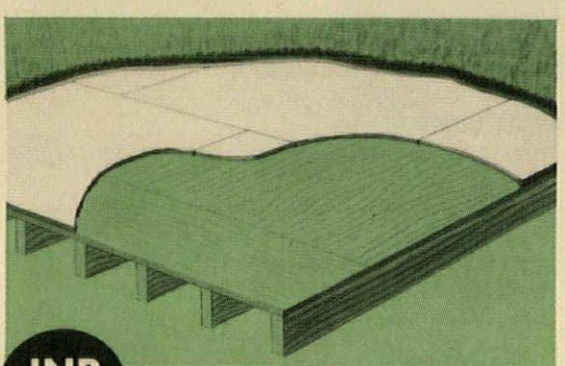

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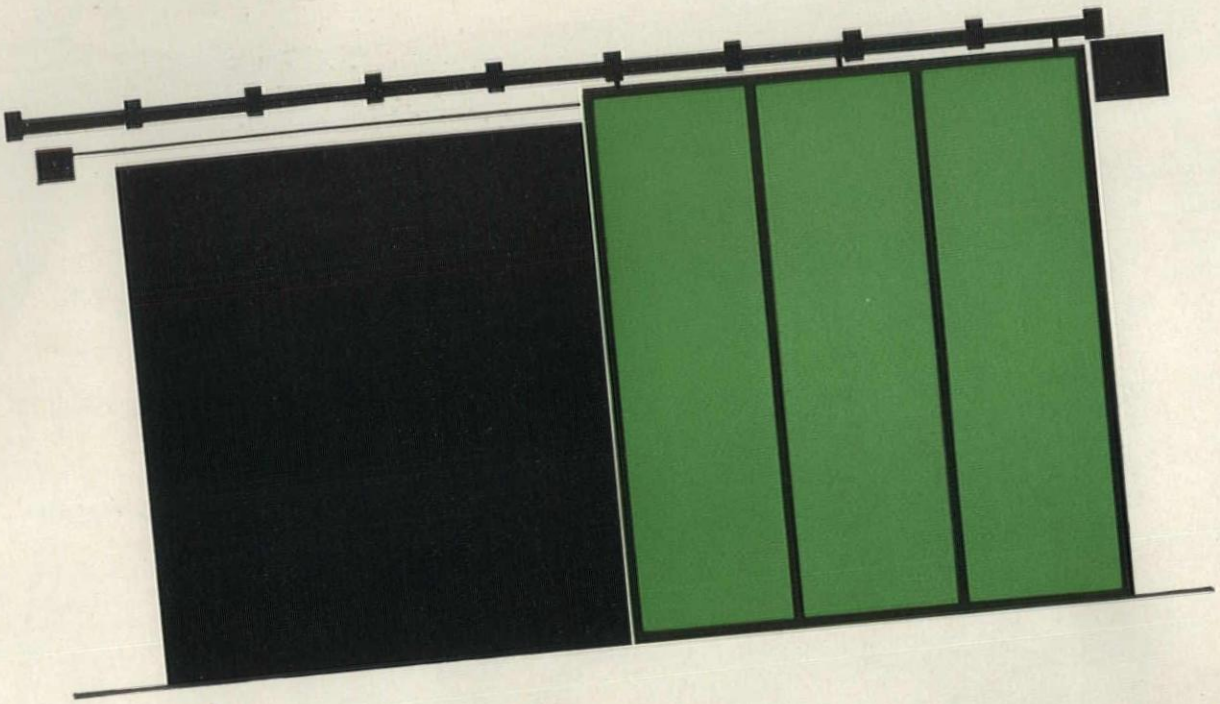

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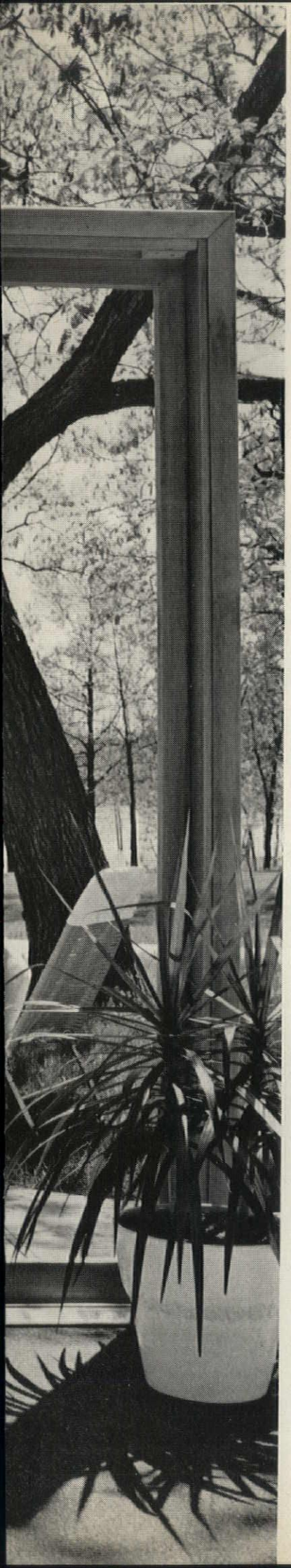

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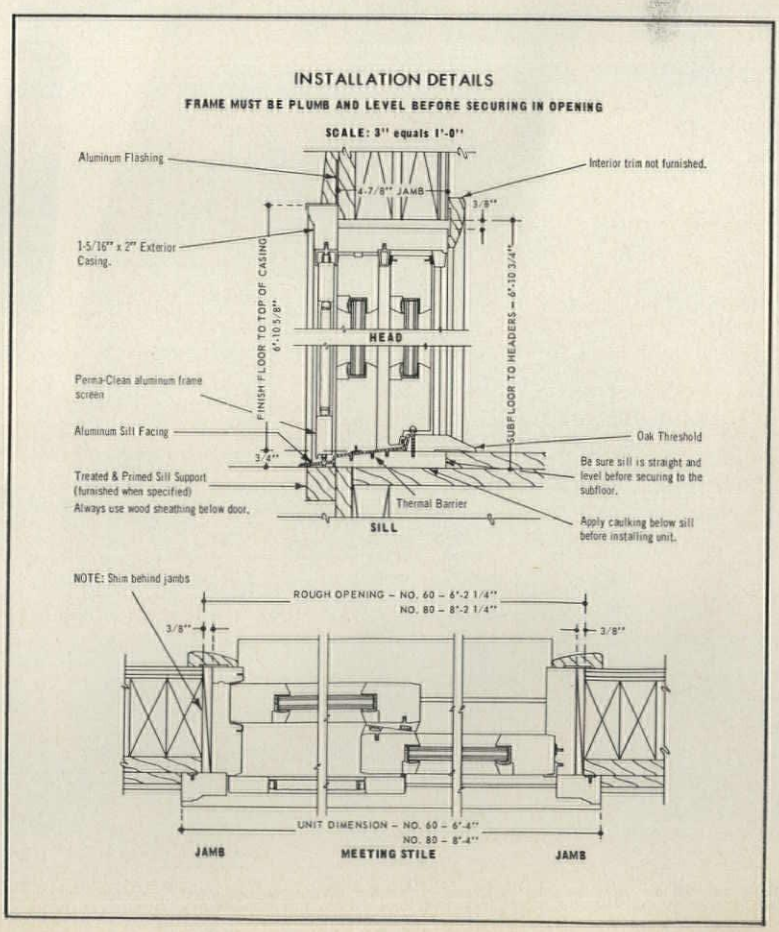

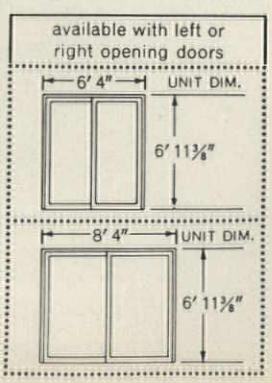

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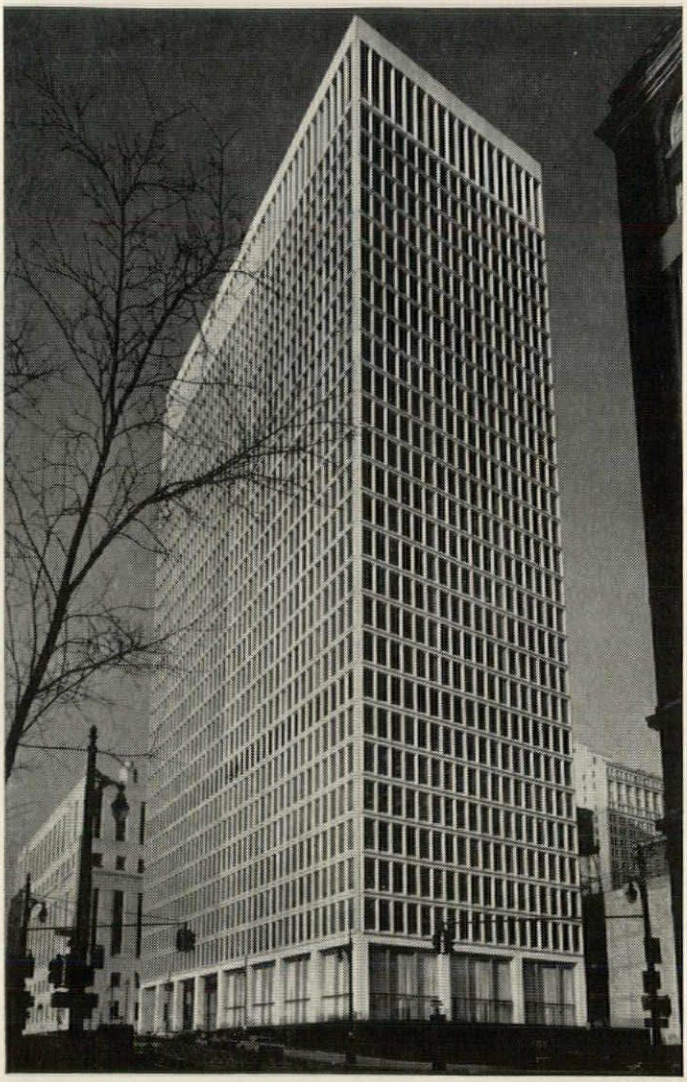
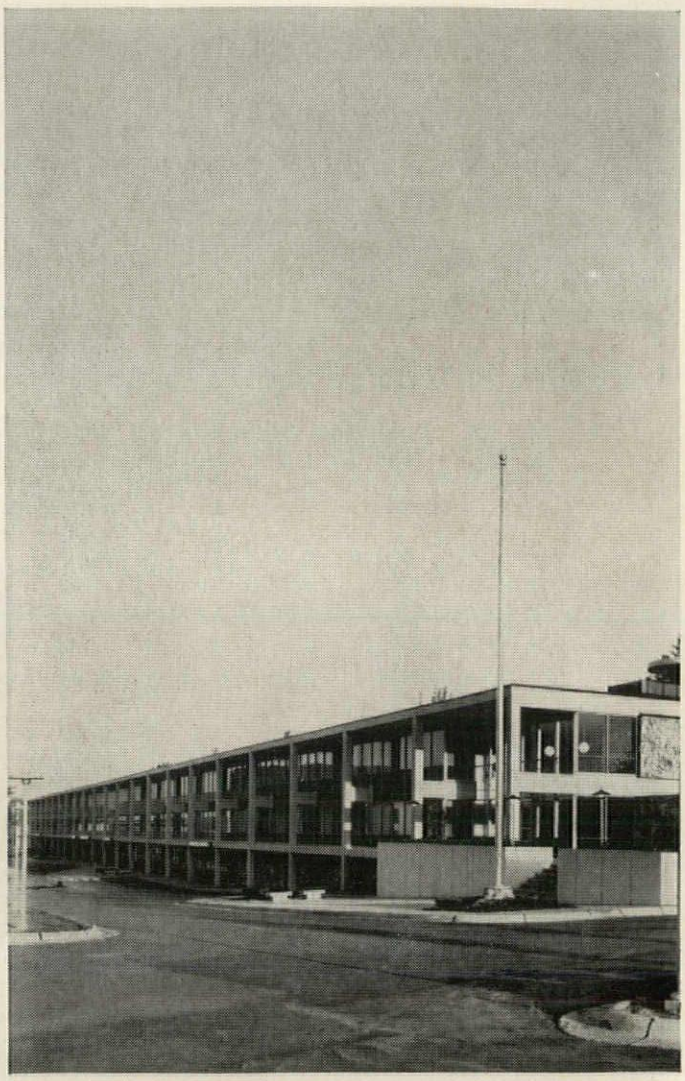


Detroit Bank & Trust Co., Detroit
Architect: Harley, Ellington, Cowin & Stirton
Building seals by Cadillac Rubber & Plastics, Inc.



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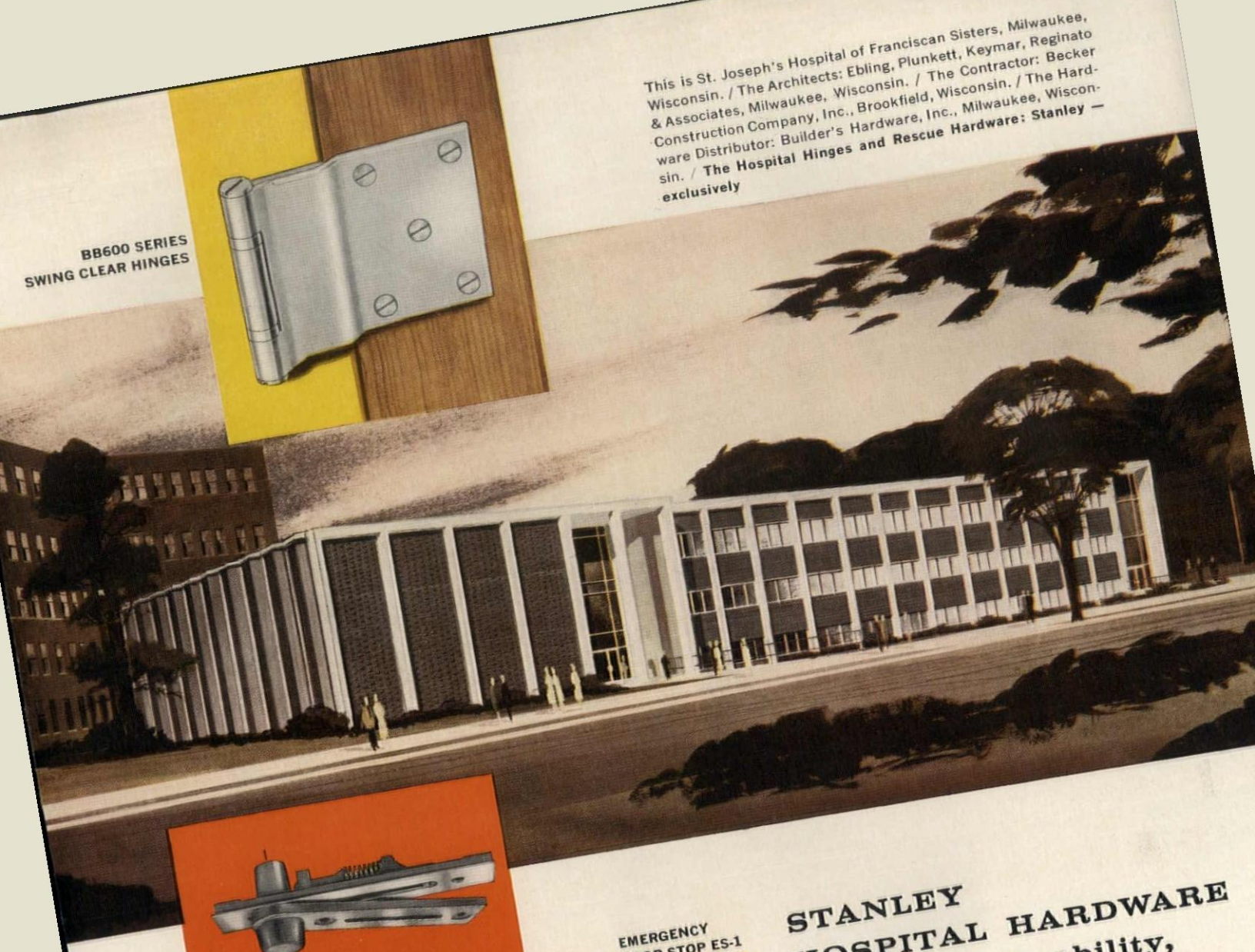

This is St. Joseph's Hospital of Franciscan Sisters, Milwaukee, Wisconsin. / The Architects: Ebling, Plunkett, Keymar, Reginato & Associates, Milwaukee, Wisconsin. / The Contractor: Becker Construction Company, Inc., Brookfield, Wisconsin. / The Hardware Distributor: Builder's Hardware, Inc., Milwaukee, Wisconsin. / **The Hospital Hinges and Rescue Hardware: Stanley — exclusively**

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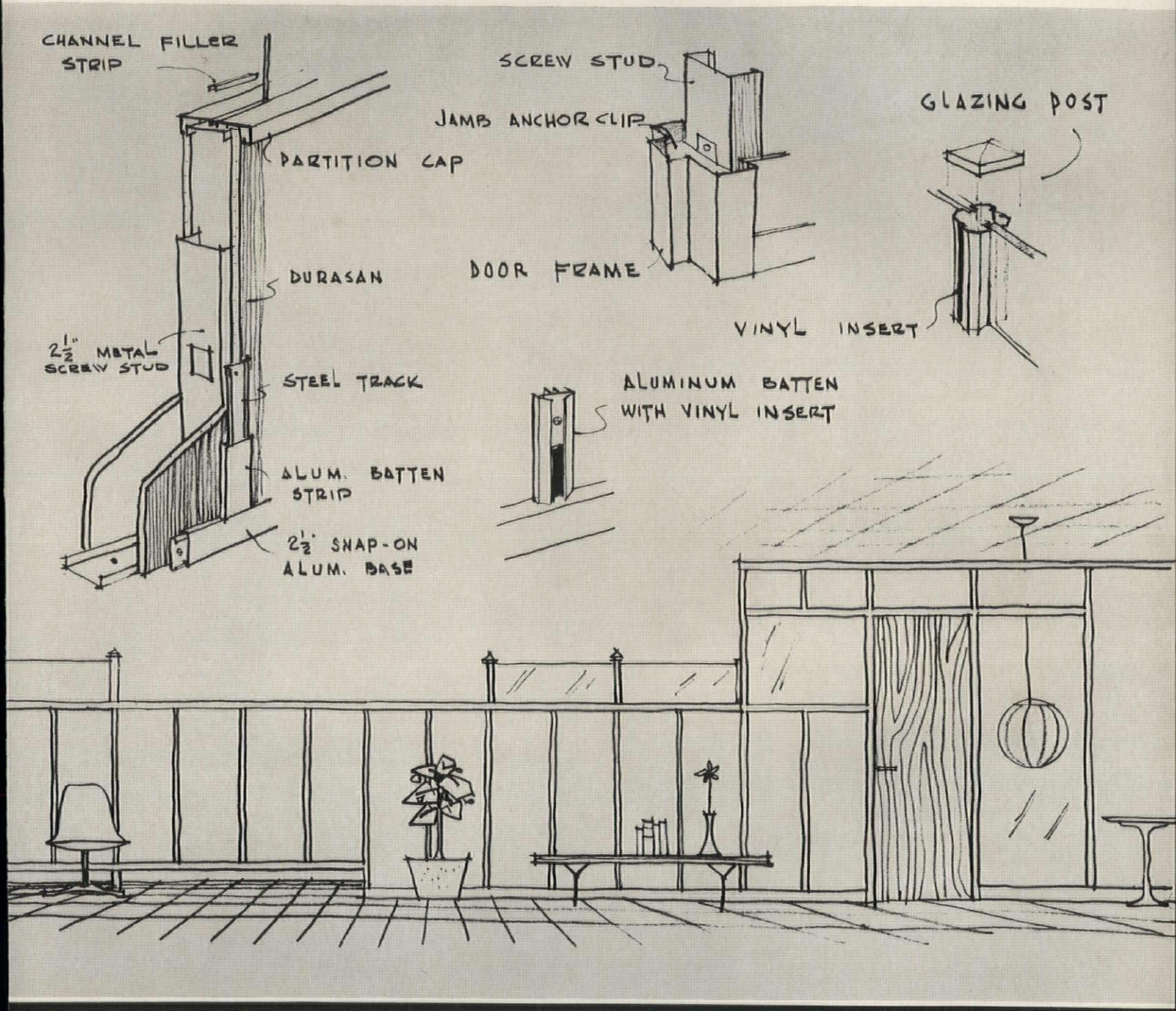

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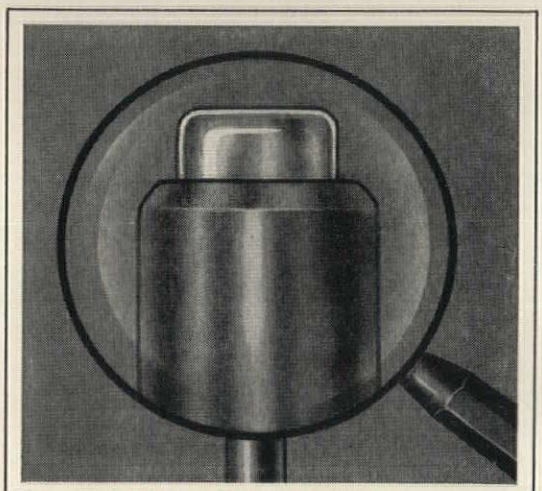

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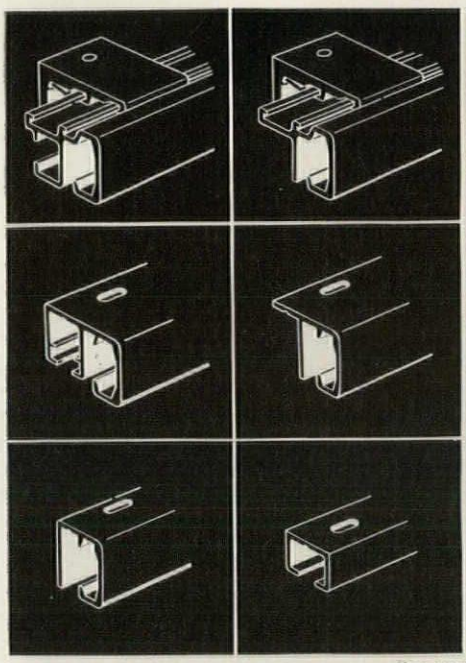

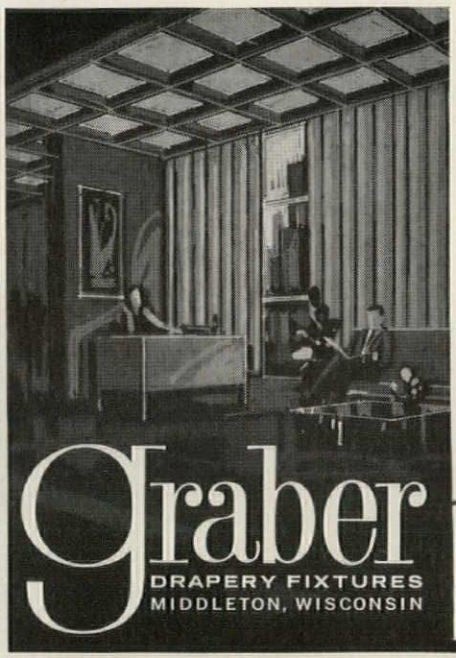

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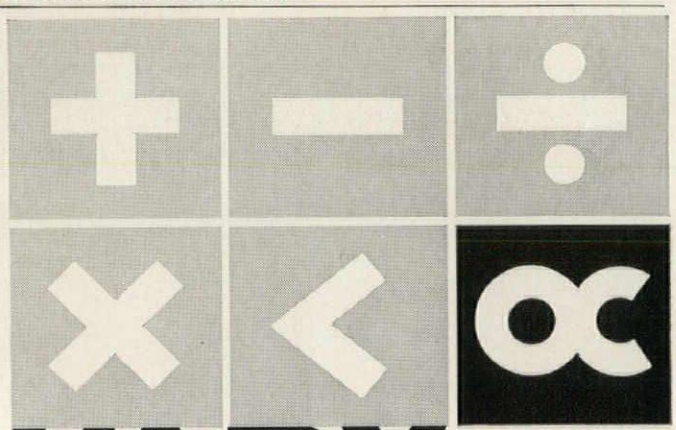

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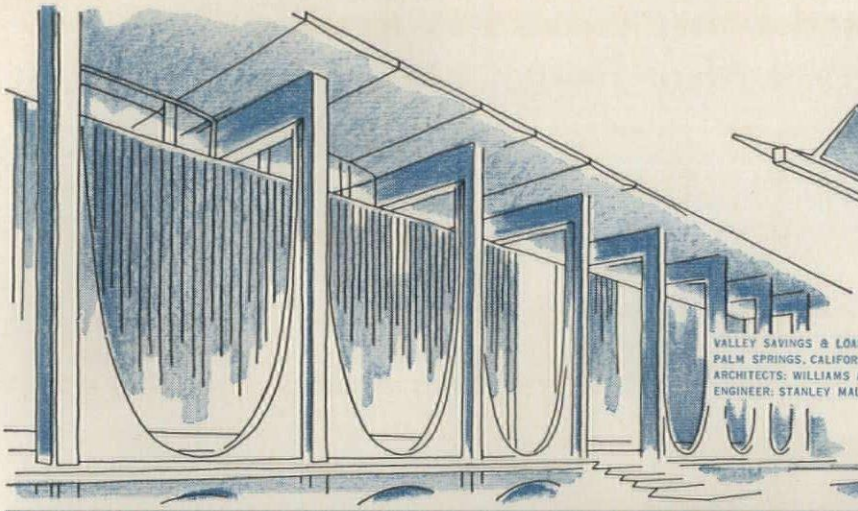
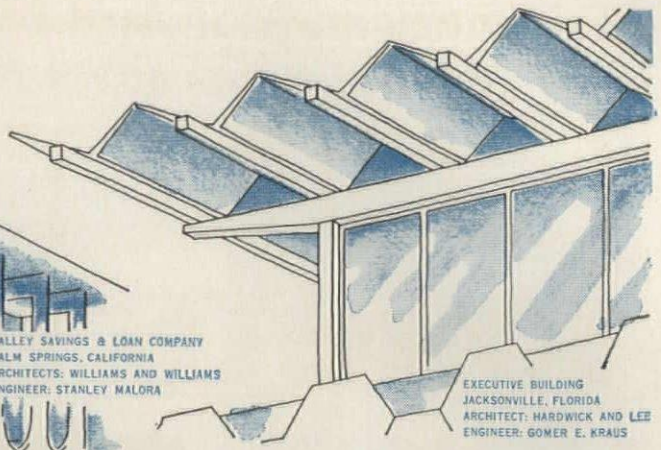


VALLEY SAVINGS & LOAN COMPANY
PALM SPRINGS, CALIFORNIA
ARCHITECTS: WILLIAMS AND WILLIAMS
ENGINEER: STANLEY MALORA



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JACKSONVILLE, FLORIDA
ARCHITECT: HARDWICK AND LEE
ENGINEER: GOMER E. KRAUS

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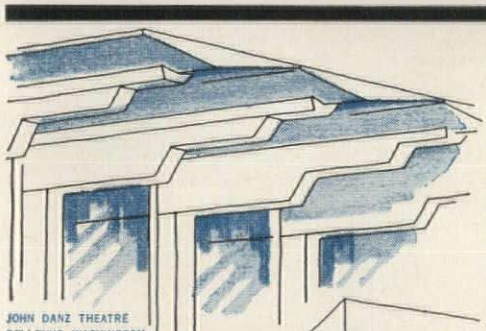

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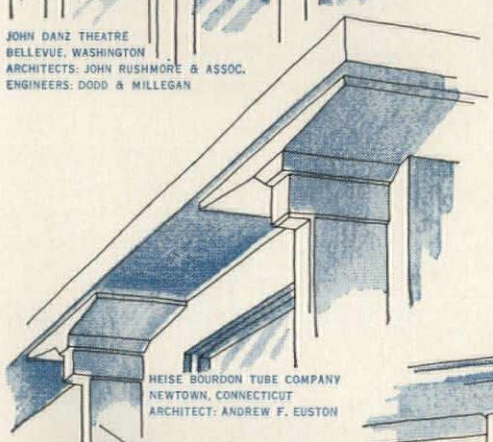
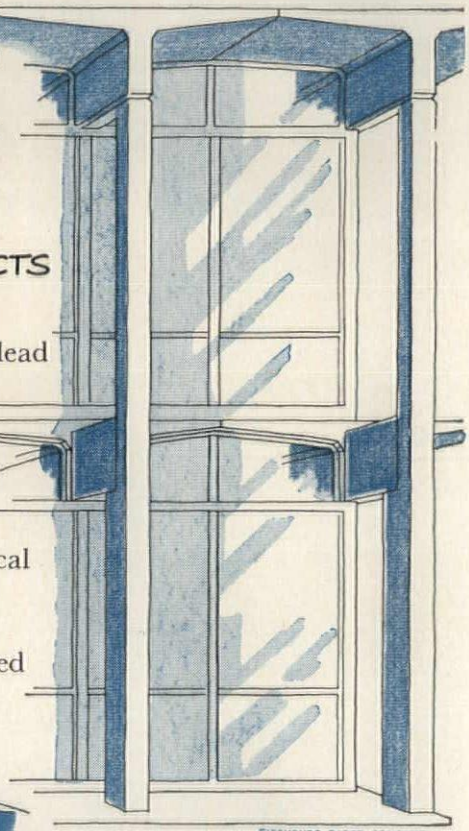


HEISE BOURDON TUBE COMPANY
NEWTOWN, CONNECTICUT
ARCHITECT: ANDREW F. EUSTON



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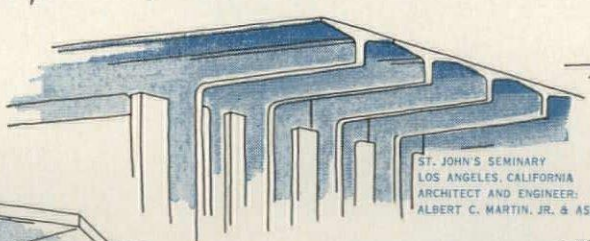
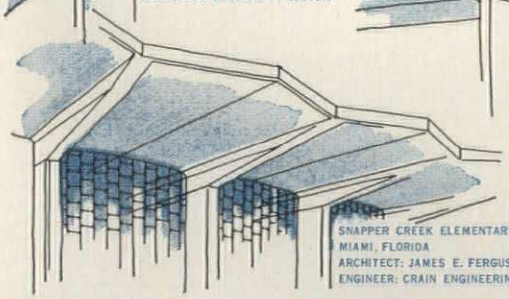
ENGINEER: SOUSA & TRUE



ST. JOHN'S SEMINARY
LOS ANGELES, CALIFORNIA
ARCHITECT AND ENGINEER:
ALBERT C. MARTIN, JR. & ASSOC.



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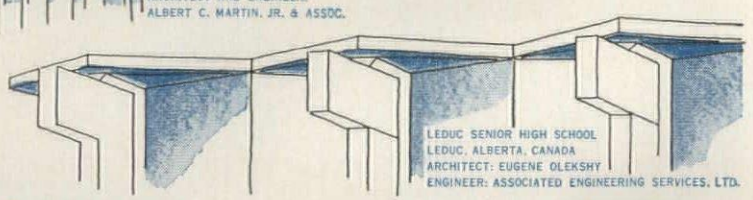

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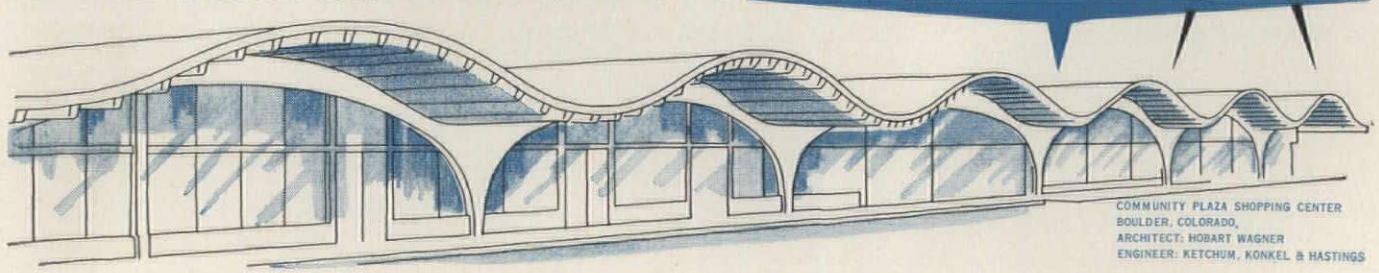

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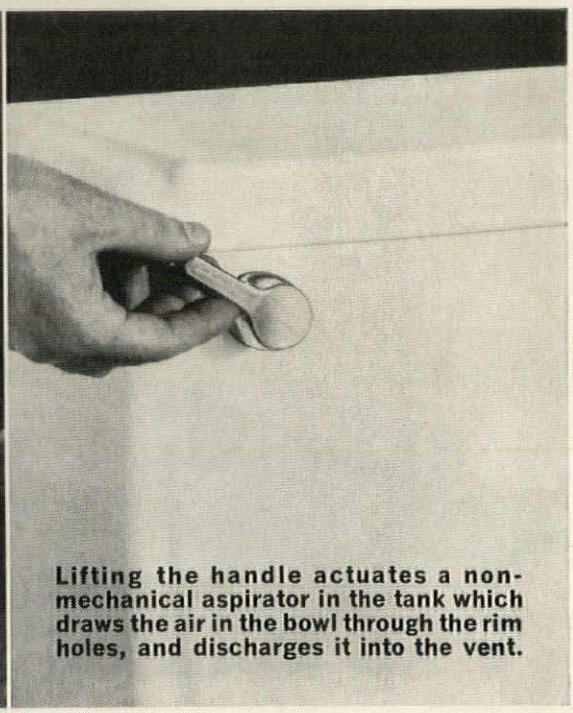

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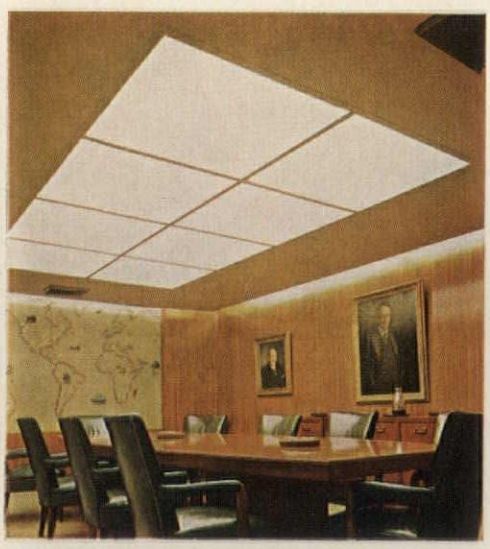

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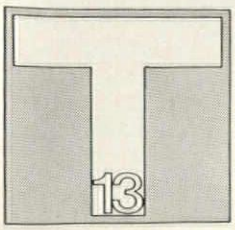

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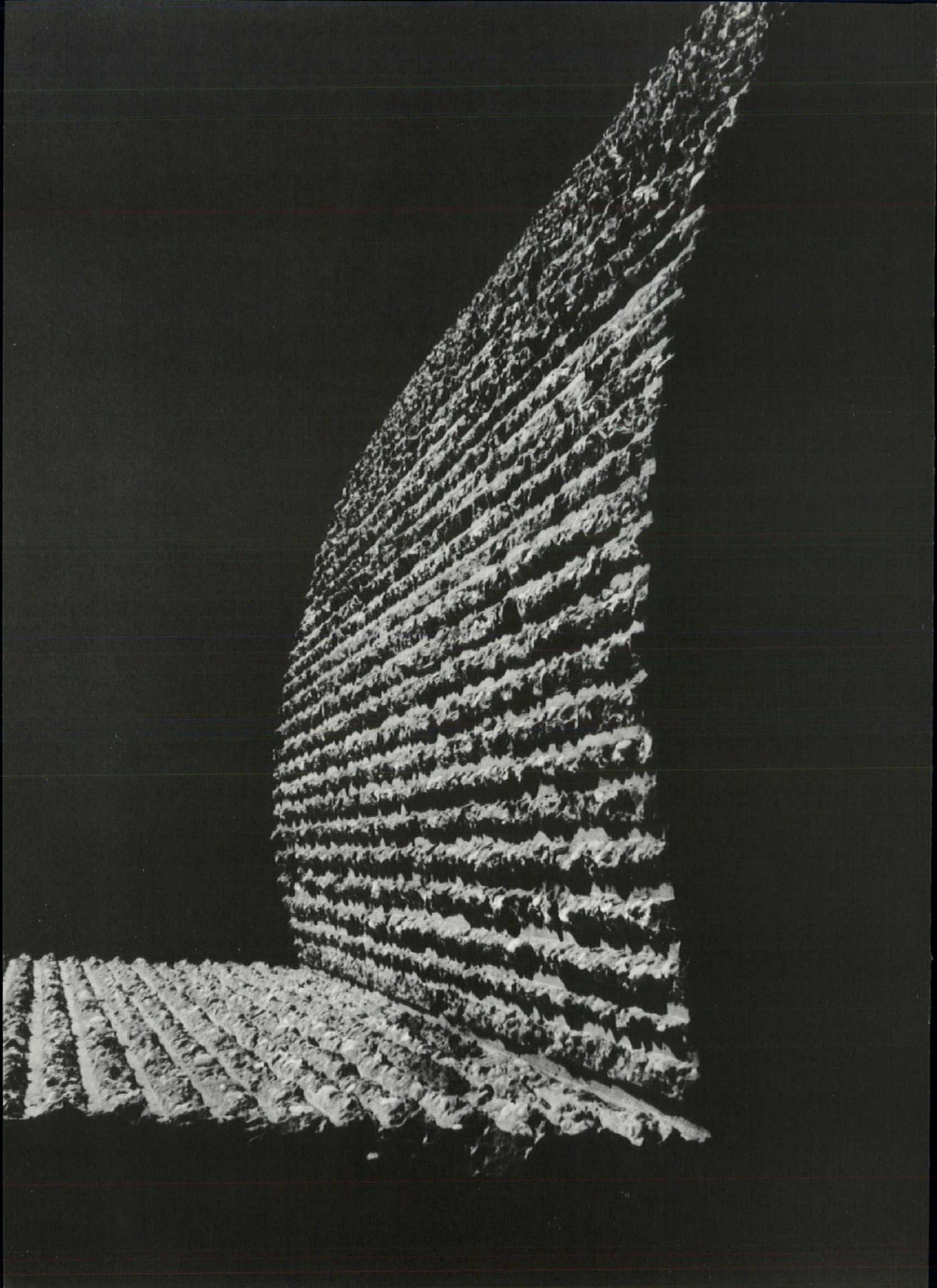


EDITORIAL

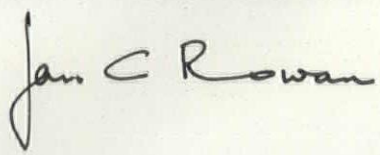
Censorship is a concept alien to our democracy. Freedom of the press is guaranteed in the Constitution, defended by the courts, and supported by practically all citizens.

It is therefore strange that some architects consider it perfectly proper to insist on acting as censors when it comes to the publication of their buildings. Although, admittedly, such cases are few, they are important because they concern some of the best known designers in the profession.

Recently, for instance, two architects of world-wide reputation quite bluntly demanded that we not use any photographs except the ones they "approved," and one even insisted that he must "check" the text before publication. Their argument follows the usual dangerous line: All we want is the truth to be known; you editors might distort the truth. The "truth" in this case is, of course, the one-sided picture as seen by the architect himself: the most favorable views of his building and the text that supports his design aim. Criticism is quite valid and welcome, they say. But when it appears, it is inevitably considered a distortion of facts, a misunderstanding of the program, and altogether an incompetent evaluation of their achievement. It is not the "truth," they say. In other words: criticism is fine, but lay off *my* building.

This Editorial is, therefore, an open letter to a handful of those who would like to be self-appointed censors:

Gentlemen, it is our belief that freedom of the press is a sacred value to the American people and we shall not let you tamper with it. It is far better that we do something that is imperfect, that we be even wrong at times, than it is for you to establish a censorship system. To us censorship is equally repulsive whether it comes from ambitious politicians, power-hungry militarists, well-heeled manufacturers, or prestigious architects. Although we are a specialized magazine reaching a limited audience, we are still part of the American press and all principles that apply to other communications media apply to us as well. We shall be more than happy to cooperate with you, for we obviously need information from you. But we shall not be intimidated by you—nor by anybody else. ■



The Architect's Role

The vast field of industrial construction is a unique one for the architect in one respect: most of it could be accomplished without his services. The extent of his participation, therefore, depends largely on his being able to convince the client of the value of his potential contribution.

During the construction boom of the 1950's, Vincent Kling points out, architects were generally too busy to be concerned about the industrial commissions they were missing. Recently, however, the profession, as represented by the AIA, has been campaigning vigorously to increase the proportion of industrial jobs in which architects are involved, and to broaden the scope of their services.

We have asked the architects whose work is presented in this issue to comment on the architect's role in the industrial field, both generally and with specific reference to their own practices. The comments, which follow, were in response to questions P/A put to them on the basis of excerpts from an address made by J. Roy Carroll, Jr., to the Industrial Development Research Council in May 1964, while he was President of the AIA.

Scope of Service

J. Roy Carroll: The day has long passed when the knowledgeable industrialist looked to the architect for cosmetic treatment. The day should have long passed when the knowledgeable industrialist looks to the architect only for the design of a building, regardless of its importance to the program.

Paul Rudolph: Good architecture can result only when one deals with the total problem. Poor massing and circulation can never be cured by any cosmetic treatment. For Endo (p. 168), we were retained to write the program and aided with budgeting, as the original budget did not meet the demands of the program. We laid out all the laboratories and production areas, as well as the administration and lobby areas. A three-story gravity-feed system of tablet manufacture was developed by the mechanical engineer and the plant's staff, thus saving manpower for the owner. For best results when solving technical problems, we worked directly with the mechanical engineer and the owner's staff.

John Carl Warnecke & Associates: No general rules can be laid down on scope of service, because "industry" ranges from very simple and elementary processes to extremely complicated and esoteric procedures. No general statements can be made, moreover, about what "the architect" can do. Some architects are by nature and training competent in analyzing a complicated program for the benefit of the client, and others are scarcely capable of cosmetic treatment. It is always dangerous to give the impression that "the architect" can do all of the new things that a few firms have truly prepared themselves to do. With these reservations, there is no area of service that the architect should stay out of; assistance in financing for the architect who is knowledgeable in this field can be extremely helpful to some clients. Good cosmetic treatment can never be good architecture.

Vincent G. Kling: The proper scope of service varies as widely as the commissions. Even a cosmetic treatment is legitimate where the program demands it, as in our work for the TVA (p. 165). But proper cosmetic treatment (architectural or otherwise) involves articulation and balancing of parts and expression of underlying functions. Hence it is necessary to study the process thoroughly, even to do a good cosmetic job. It is the architecturally untrained who are most likely to do an inappropriate cover-up job. One basic contribution only the architect is equipped to make is in the area of site selection and layout. The client must be guarded against inappropriate sites promoted by real estate interests. The architect must often urge siting of buildings for future needs, rather than initial savings on roads and utility lines.

Whittlesey & Conklin: Our contribution to the Alroll plant (p. 140) was not in the production facilities themselves, but rather in site planning, materials movement outside the plant, and location and design of secondary facilities. We had nothing to do with the financing of the plant. Although we have not solved any technical or production problems, I think it is quite possible for an architect to do so, if he has time to become knowledgeable about such processes. But there are clever engineers, too.

in Industrial Buildings

Objectives

J. Roy Carroll: In the end, the failure or success of an industrial building can, and indeed must, be measured by one factor — what it contributes to the productivity and profitability of the industrial process.

Paul Rudolph: One cannot challenge the fact that a building must work, and, in the case of a commercial building, show a profit at the end of the year. With Endo Laboratories, the owners' desire was for much more. They are very concerned about the welfare of their employees and of the image they present to their clients, their community, and the general public.

John Carl Warnecke & Associates: We would not agree that only **one** factor makes failure or success of any project. Of course, the productivity and profitability of the client's business needs must first be satisfied, but this is just the beginning of a full architectural and planning job. The type of commission, its purpose, its location, etc., determine the weights of other considerations. In the case of Ampex (p. 152), for instance, the site selected was in a rather unattractive industrial area; it was extremely important to do something that had a positive effect on the environment and might act as a spur for improvement of the whole area. In this case, it is also obvious that employee environment and facilities within the development itself must make up for a lack of facilities in the neighborhood. I suppose that the business of "image" of the client is always important in commercial and industrial commissions, but it is particularly so in this case, since the main building can be seen from the Bayshore Freeway.

Vincent G. Kling: Design affects productivity in many obvious ways, as in the problem of excluding dirt, which can destroy the product. The subtler effects of environment on productivity deserve more thought than they generally get in this country. How much of a worker's energy is wasted in coping with smoky air or extreme light contrast? How does environmental comfort affect his morale? We design industrial buildings primarily for the employee, the man who spends half his waking hours in the plant. We consider how he enters the plant, and how comfortable he is inside. Despite current rates of unemployment, industry finds it increasingly important to attract and hold qualified workers — partly because of ever-higher levels of technical training required and partly because current patterns of plant location, residential development, and transportation give the worker a wider choice of employment than ever. The client is often particularly concerned about the impression the plant will make on two groups the architect might not have considered: **prospective** employees and visiting customers.

Whittlesey & Conklin: I doubt that an architect could materially affect the profitability of a heavy industrial plant such as Alroll's. We were not hired with that in mind, but rather to contribute in the field of design — in the area of employee environment and in the total visual form of the complex. The architect's aesthetic objective is not something to be selected, but something to be understood. The nature of the process housed and the scale of the machines at Alroll are powerful, but smoothly controlled. Our aesthetic goal was to reveal and intensify, not to disguise.

Execution

J. Roy Carroll: Crash programming is, of course, the unfortunate norm in a great deal of industrial architectural work.

Paul Rudolph: It is difficult for the architect to compete with the package builder when considering the crash program. Yet are we comparing similar end products? I don't think so. Our Endo job was not done on a crash schedule and was competitively bid, with definite savings to the owner. The competing contractors were invited to bid only after careful investigation, so there was little risk involved.

John Carl Warnecke & Associates: We had a very rapid, concentrated time schedule on Ampex, but we would not consider it a "crash program." There were no particular problems: we simply needed an unusual degree of collaboration between client, contractor, and architect during the construction period.

Whittlesey & Conklin: Our first meeting with the client for the Alroll job occurred at the site, with the bulldozers already operating at full power in the background. We did not prepare the working drawings and specifications for the plant enclosure itself, but only basic designs, and then we reviewed subsequent drawings prepared by the engineers; for secondary structures we prepared normal drawings and specifications. No part of the job was let out for bids; it was all built on a construction cost basis plus a fixed fee.

Vincent G. Kling: Budget and schedule are real problems for the client, and we start out by taking them seriously. Otherwise, of course, we could not compete with the package dealer. We often find that we have to work at a much faster schedule than on other jobs, but we actually prefer it. The customary slow pace of architectural work is a disadvantage to the architect, involving much wasted effort, but most architects have been lulled into dependence on it. Speed of design and production also fits well with the characteristics we advocate in industrial buildings—generalized spaces with uniform provision of utilities, flexible for either expansion or rearrangement.

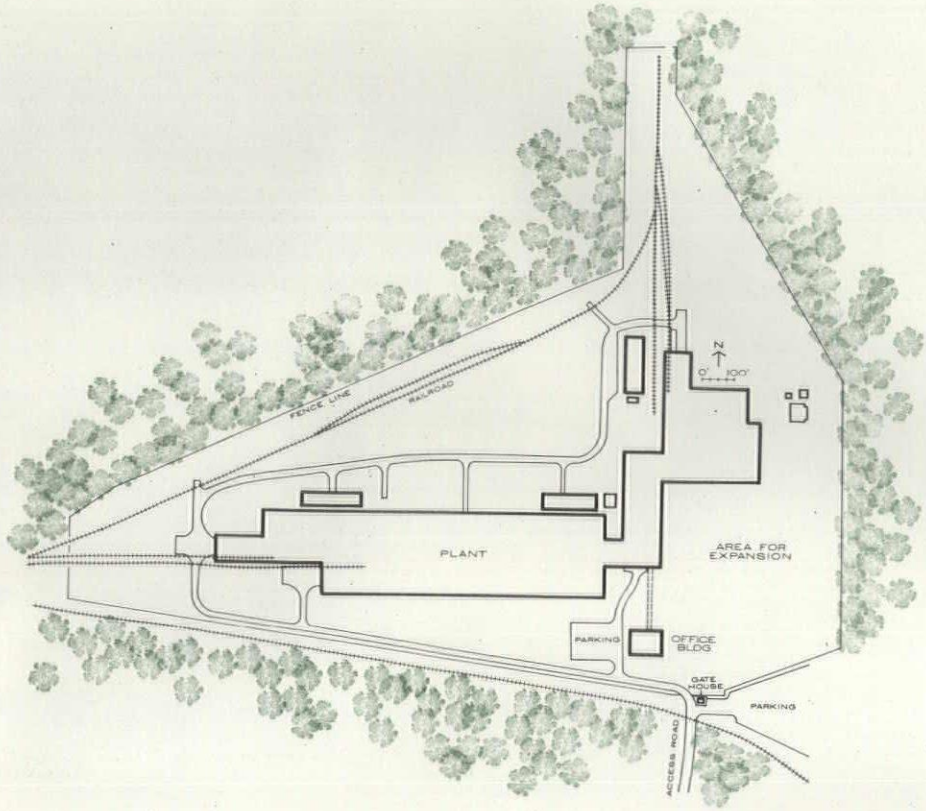
Aluminum-Wrapped Rolling Mill

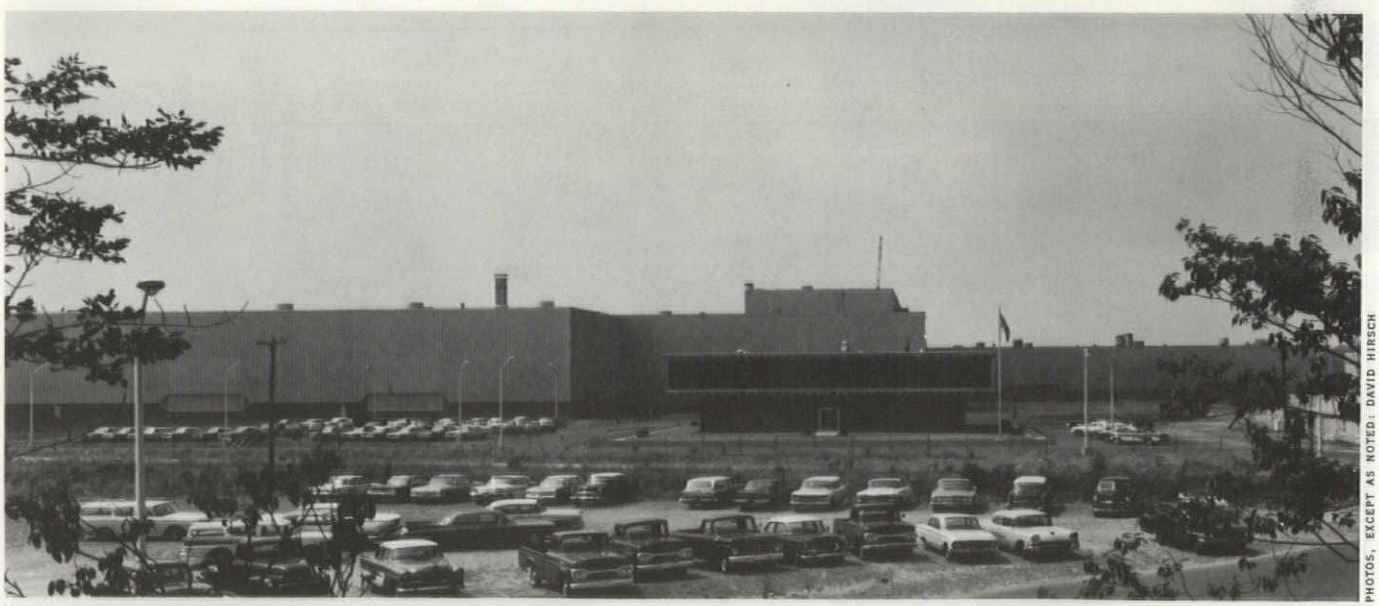
ALROLL ALUMINUM PLANT • OSWEGO, NEW YORK • WHITTLESEY & CONKLIN, ARCHITECTURAL CONSULTANTS FOR MILL, ARCHITECTS FOR OFFICE BUILDING AND GATE HOUSE

A half-mile-long swath was cut out of the woods east of Oswego to accommodate this plant, which covers an area of over 10 acres. Inside this vast enclosure (1), aluminum ingots imported from Canada (along with a few made within the plant from scrap) are heated and passed through massive, electrically-powered rolling mills (3) to produce aluminum plate and coiled sheet stock.

The process is a heavy industrial operation. The selection and layout of equipment for it is "entirely outside an architect's area of knowledge," says Bill Conklin, and is better left to engineers "who have spent many years, if not a lifetime, learning these processes."

The architects' services involved all elements outside of the production equipment itself: materials, colors, and lighting of the plant interior; exterior treatment of the plant; site layout; and complete design of the office building and gate house. The scope of their commission reflects the clients' concern for the im-





PHOTOS, EXCEPT AS NOTED: DAVID HIRSCH

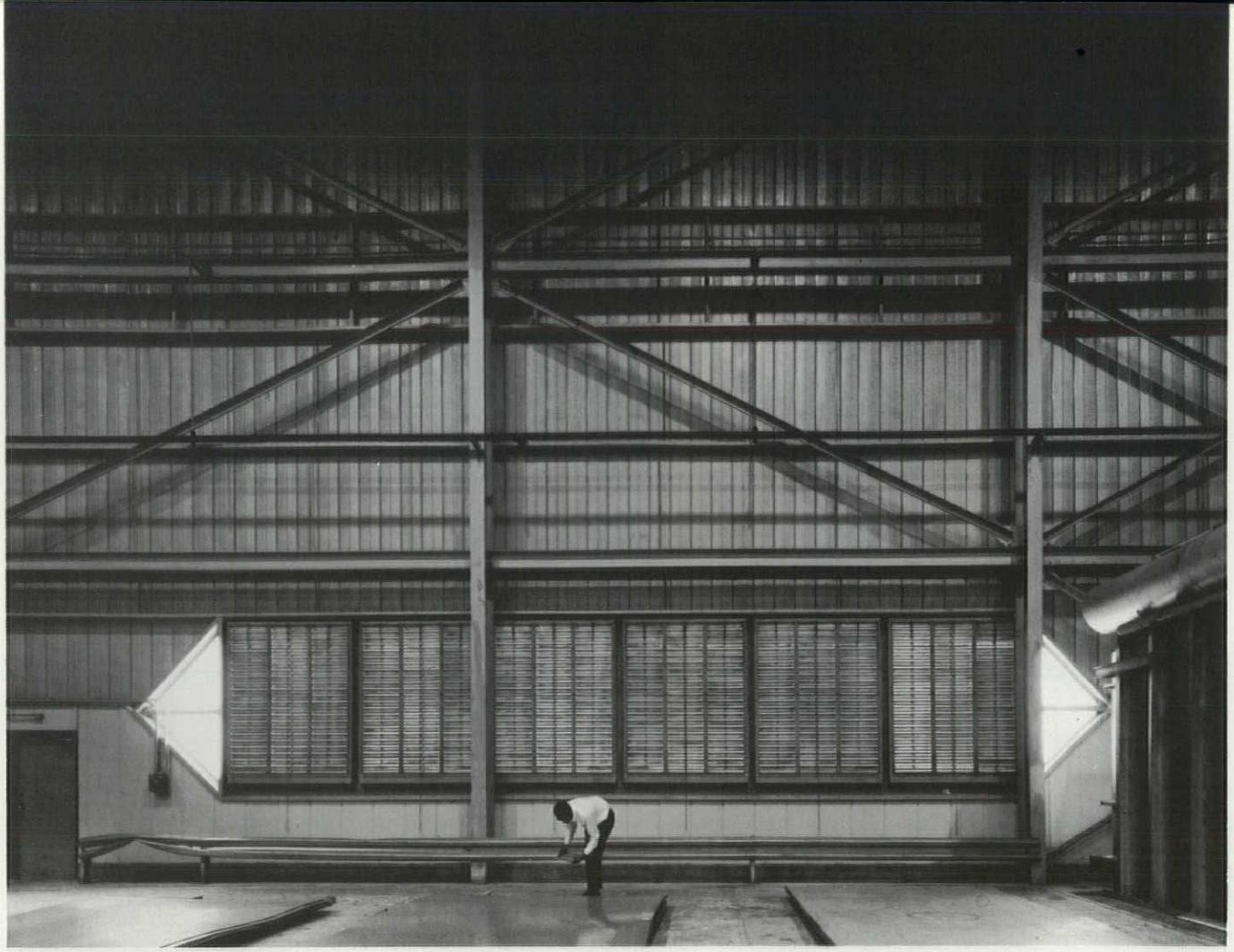
1

pression the project makes on customers and the public.

The architects designed a uniform exterior wall for the plant with aluminum-clad panels above a concrete wall of "man-door height"—originally to be cast-in-place but actually constructed of precast foamed concrete panels. This arrangement made it feasible to use panels sheathed in very thin, economical, corrugated aluminum on the upper wall. This aluminum skin, too thin for the hazards of most urban applications, performs well here. Its slightly pebbly texture reduces its reflectance and thus gives an illusion of greater solidity.

Openings at the intersection of the two wall materials (4), spaced according to ventilation requirements, admit outside air to replace air exhausted through roof-top fans. Small triangles of obscure glass at the ends of each opening admit some natural light (2). The triangles were intended to follow the lines of diagonal steel bracing, but changes in framing design obscured this relationship.

The office building (7) was an important element in the development, since it is the headquarters of the Alroll Company. The building has two clearly ex-



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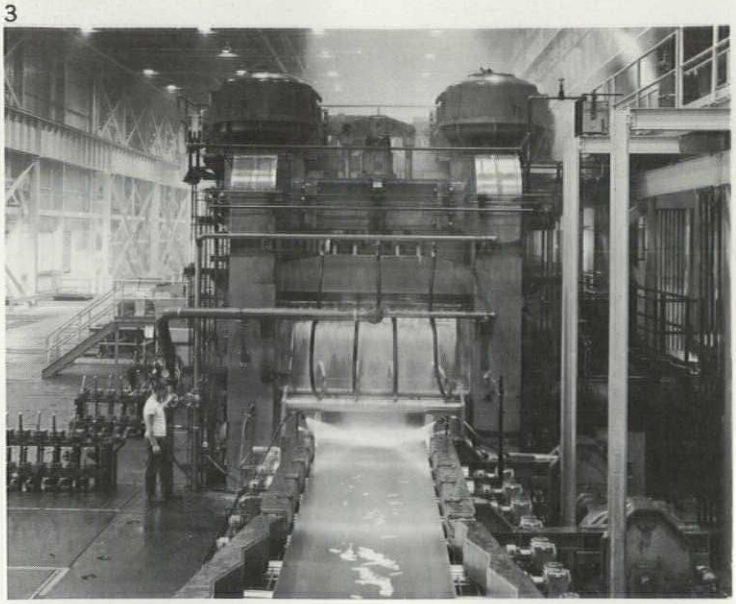
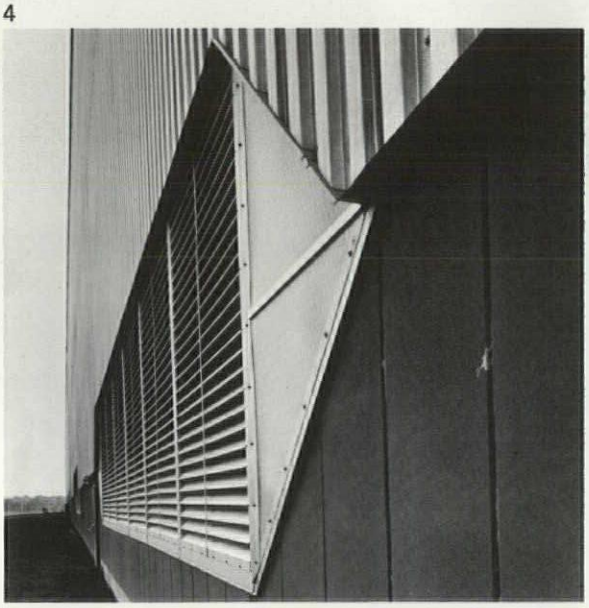


PHOTO: COURTESY OF ALROLL ALUMINUM CO.

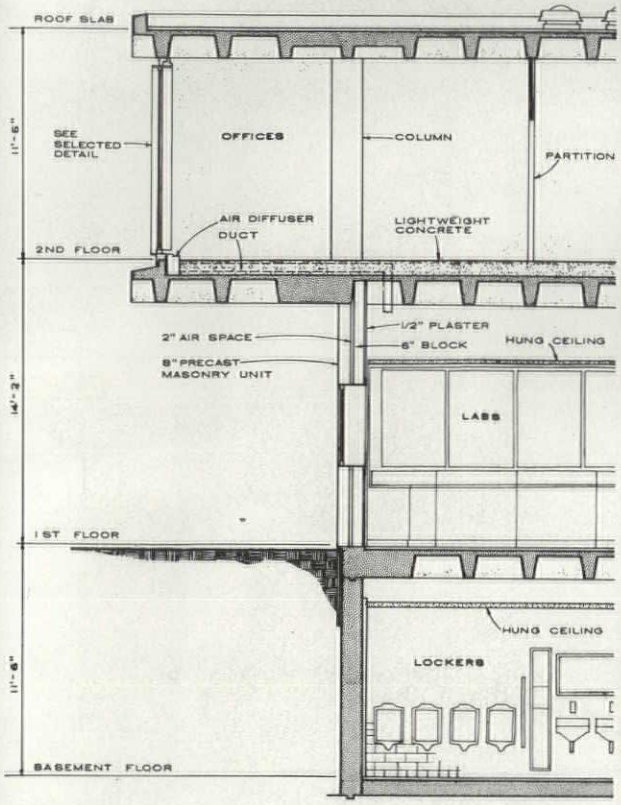
4

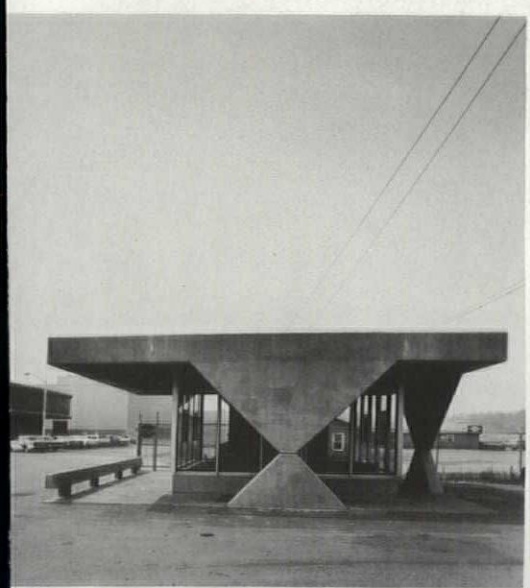


pressed layers: a floor of offices and drafting rooms with transparent walls **(6)**, elevated above the cars and trucks to afford a broad view of the plant and surrounding woods; a recessed lower floor — housing laboratories, services, and lobby—with small windows to minimize the problems of sunlight and dirt infiltration. A third layer, the submerged basement, contains mechanical spaces and employees' locker rooms, which communicate with the plant itself through a tunnel.

The walls of the lower floor are of concrete block between concrete columns. The upper floor has walls of dark gray glass in aluminum frames, set between the cantilevered "waffle" concrete slabs of the floor and roof. The clear-cut distinction between the wall and the concrete structure is due in part to the use of an air-floor system for heating and air-conditioning, which required only very low grilles at the base around the perimeter of the building. (See SELECTED DETAIL, p. 191.)

The architects found the design of the gate house **(5)** an interesting challenge. It is an infinitessimal structure compared to the rest of the plant, yet they wanted to express its importance as the first element of the plant that one reaches and as a control point for all persons and materials entering or leaving the plant (ex-





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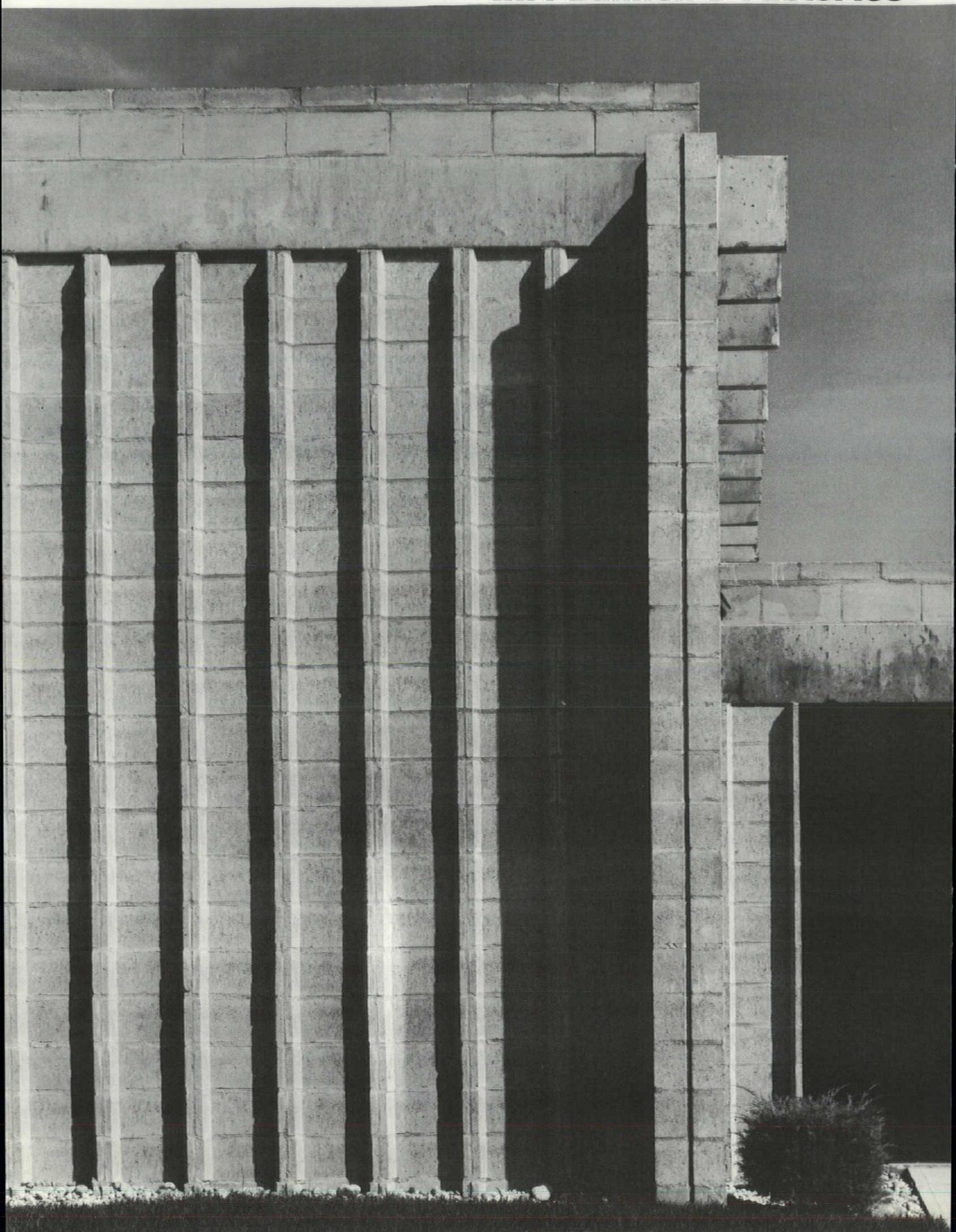
cept by rail). They chose to make it a canopy over a transparent enclosure, dramatizing its support on the minimum three points, yet giving it the impregnable solidity of a traditional guard house. The form of its supports is a variation on the shapes of openings in the wall of the mill itself.

Engineers for the mill were Auburn Associates. Cosentini Associates were the engineers for the office building ■

Mr. Bunnell's Factories



WILLOW PARK CENTER • FARMINGDALE, LONG ISLAND • WHITTLESEY & CONKLIN, ARCHITECTS • WIESENFELD & LEON, STRUCTURAL ENGINEERS

The uncommonly sophisticated concrete block factories of Willow Park Center were designed to make use of the end product of an industrial process—the manufacturing of concrete block—rather than to accommodate specific industrial processes. As such, the buildings represent the curious interconnection that architecture can make between the design of buildings for industry and the design of building components for industrial production. Architect William Conklin wryly explains this intriguing commission:

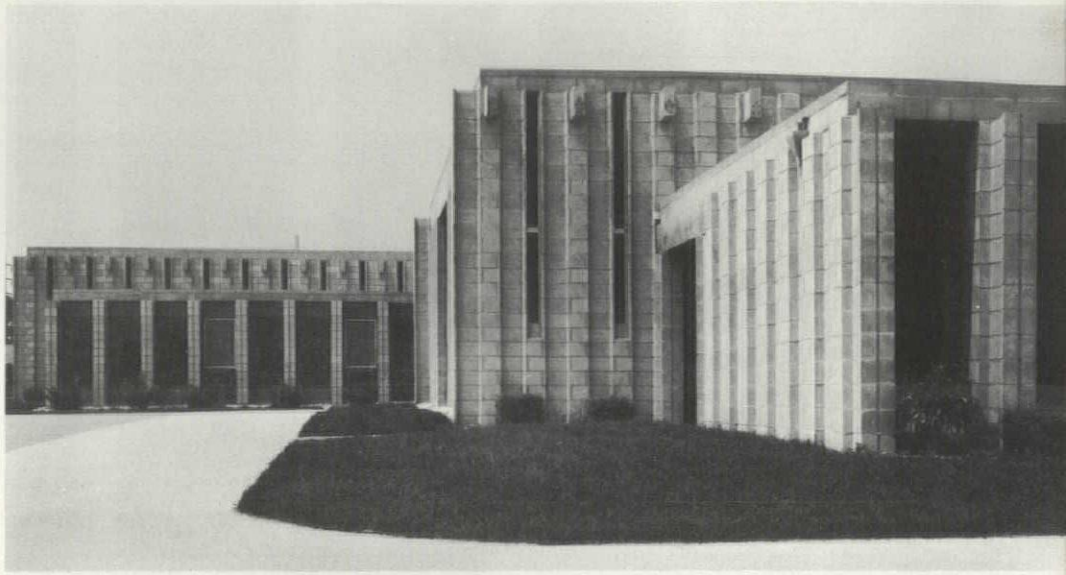
"Mr. Bunnell, the owner of a sand pit in the middle of Long Island, has been utilizing his sand for the fabrication of concrete blocks for the last few years, and his blocks have been widely distributed in the area. However, the sand is gradually running out of his sand pit, and he recognized that he must look forward to some other use for his land and his energies.

"He therefore conceived the idea of gradually filling in the sand pit and constructing small industrial buildings that could be rented. He also proposed constructing these buildings out of his own material—concrete block made of the sand from the site itself. The intention was that the first stage of construction —a prototype factory—serve to advertise both the concrete block and the buildings that would be built and leased.

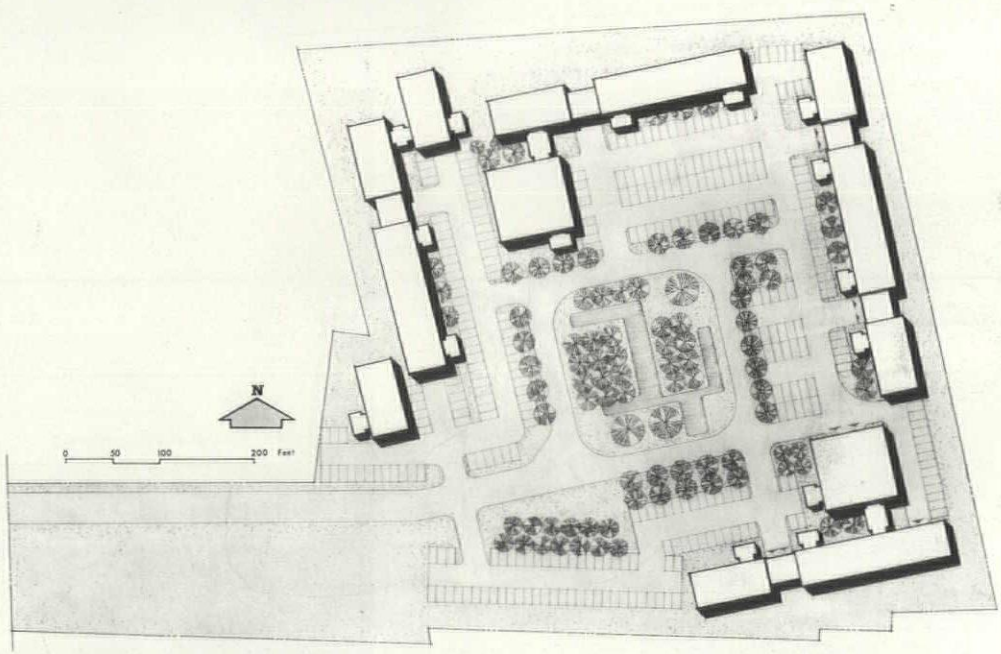
"Mr. Bunnell wanted, in addition, to use block in a new way or to use a new kind of block. He was both familiar with and interested in the history of concrete block in recent American architecture, including the blocks that Frank Lloyd Wright used in some of his houses and the grille-work units lately in vogue. He had even made a few experimental blocks of his own.

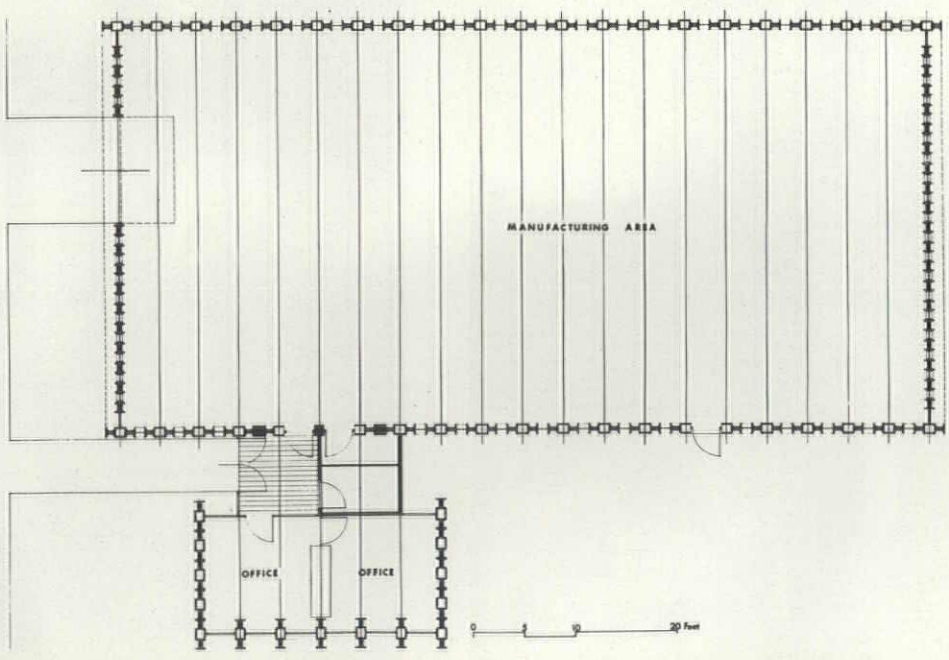
"We were requested to design a prototype building and the over-all site plan of his 10-acre industrial park with this program and with his processes and abilities in mind. We first tackled the block itself.

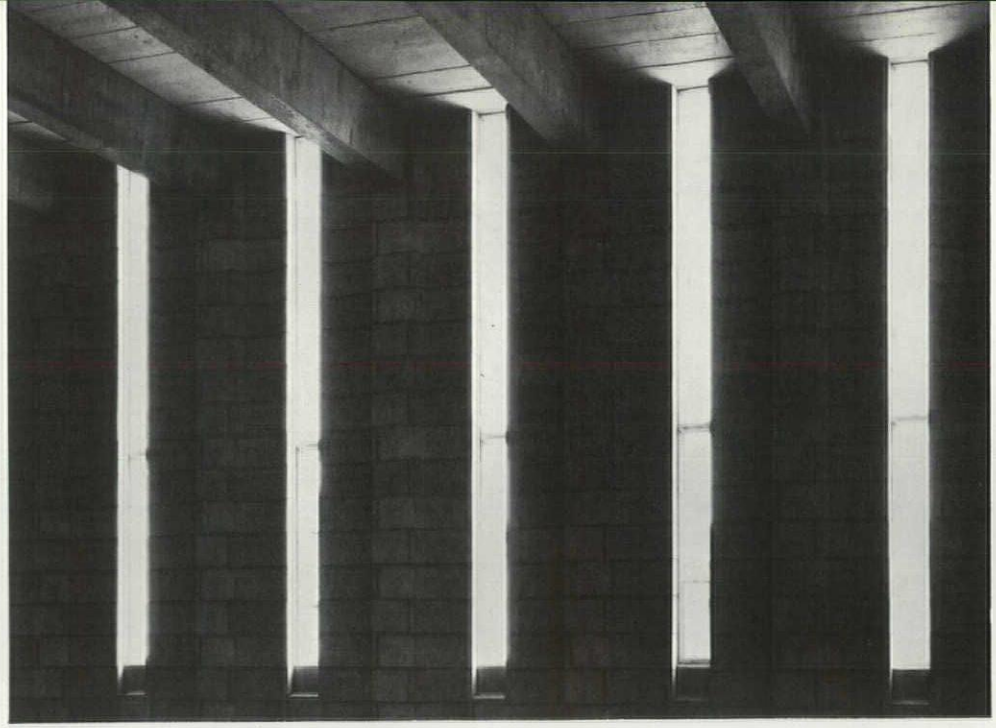
"Recognizing that a wall has many functions, we noted them separately: it has the function of carrying roof beams, of letting in light, and of in-filling the nonstructural areas of an exterior wall. The new block design that we developed for Mr. Bunnell to manufacture performs



PHOTOS: GEORGE CSERNA



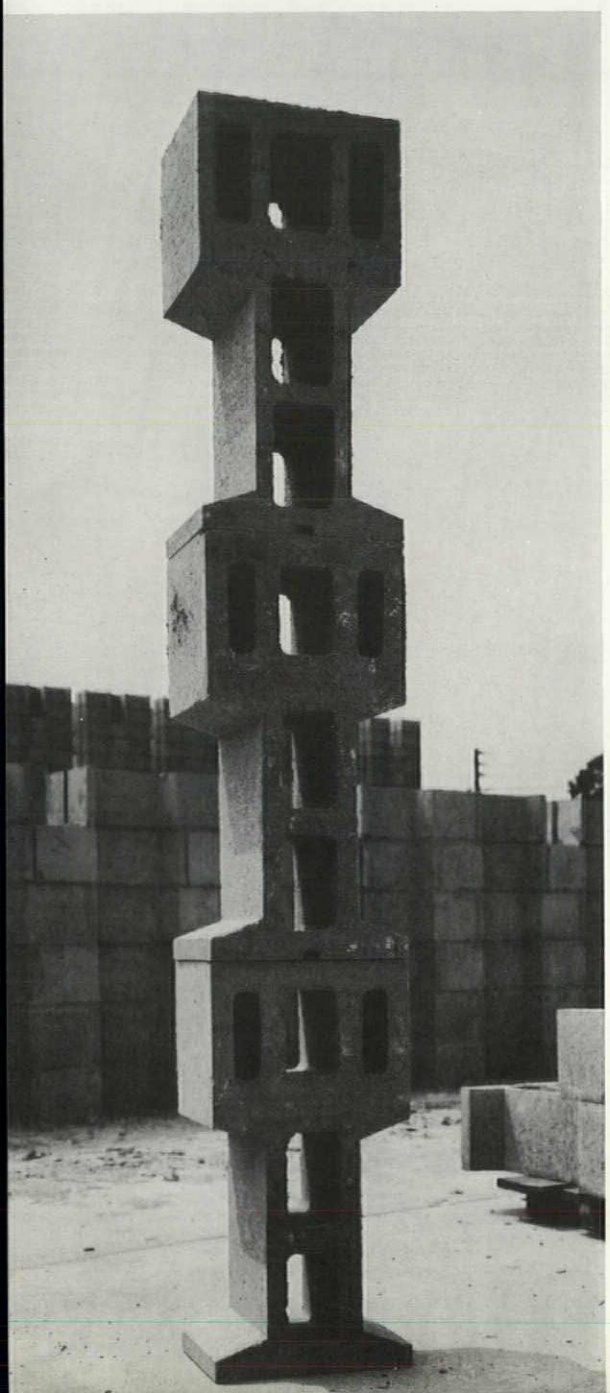


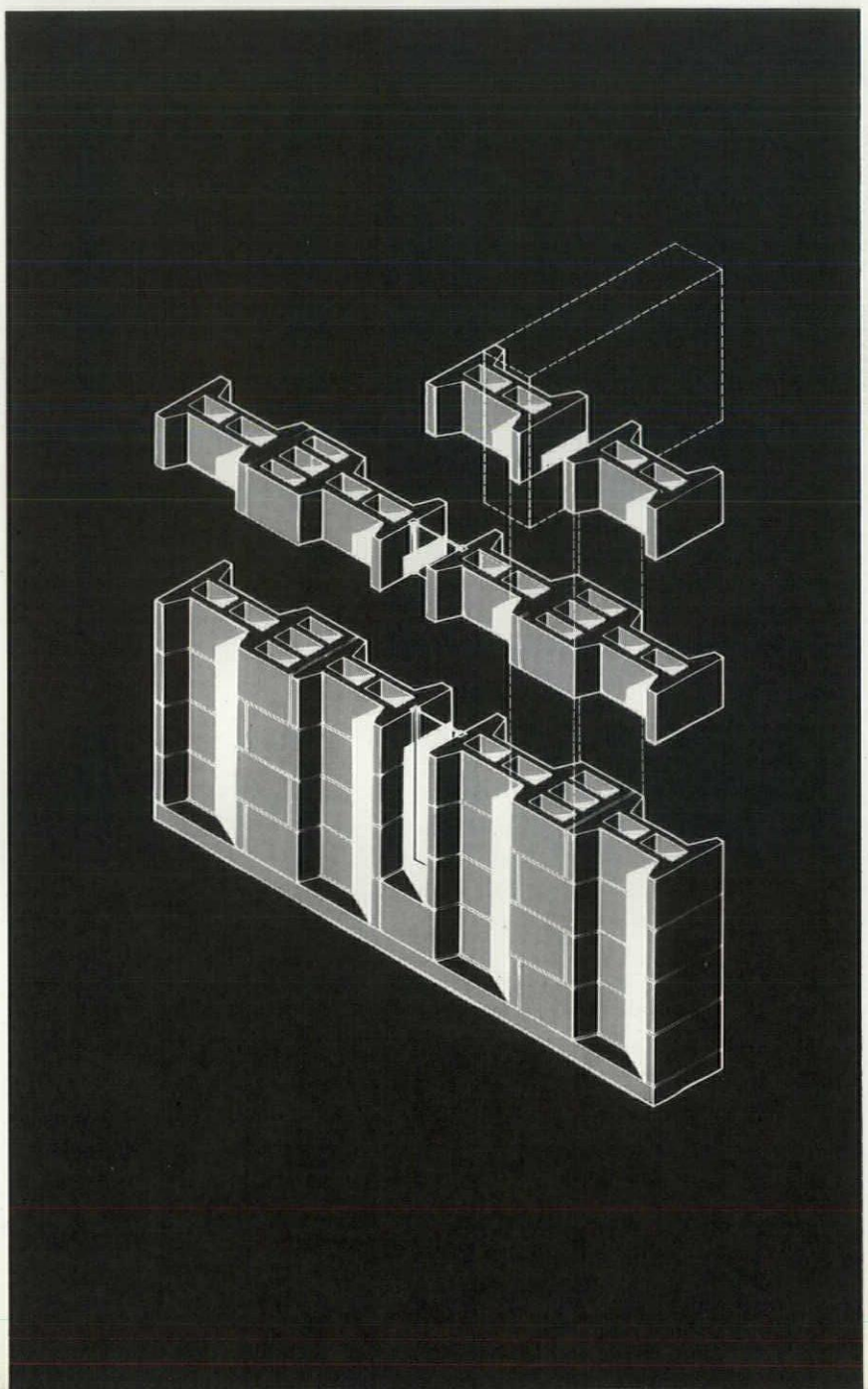


these functions and also expresses them visually, in a highly articulated form.

"The block consists of a load-bearing portion and a screen portion. When built into a wall, the load-bearing portion forms piers that carry roof beams. (We used precast, prestressed beams and lightweight concrete plank for the roof structure.) Only the load-bearing portions have staggered vertical joints for bond; the screen portions of the wall are recessed to show their lighter structural function and have no vertical joints. Aluminum-frame windows, which occur in a repeating vertical pattern, are installed into a reglet formed in the blocks. All conditions are met with a single block design and a half-block unit.

"The block is used universally through-



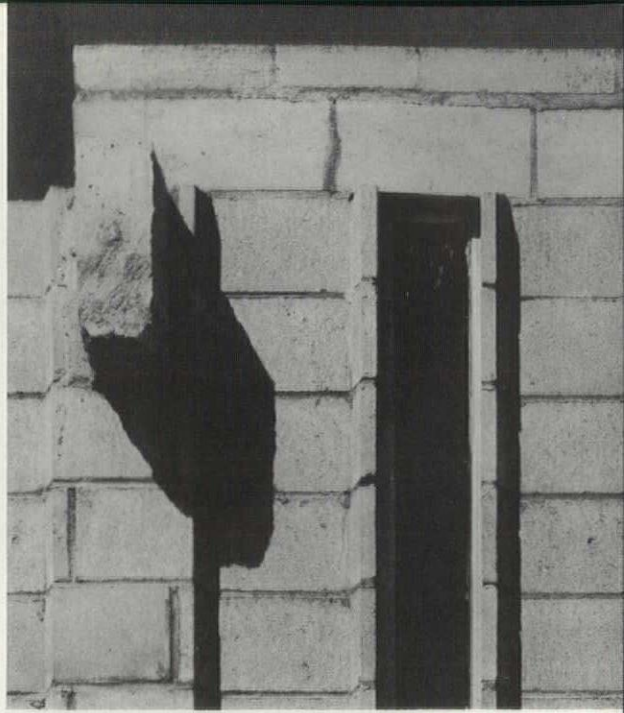


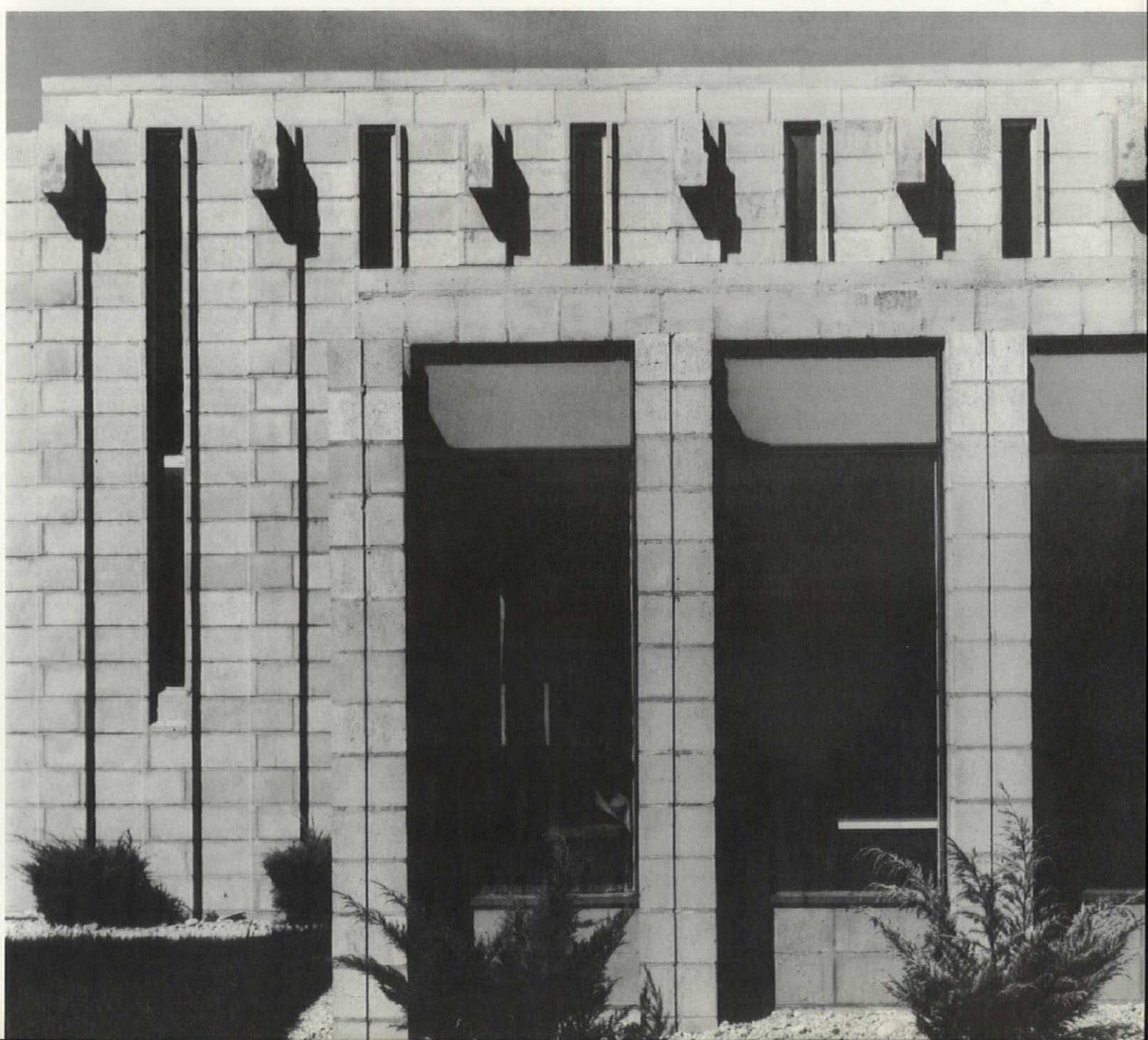
out the industrial park for office space as well as for industrial space. Since the buildings will be leased to tenants as they come along and since the industrial processes are, therefore, unknown in advance, each factory is simply a large, unobstructed space with a connected office structure that contains a waiting area, secretarial space, the managerial office, and basic utility provisions.

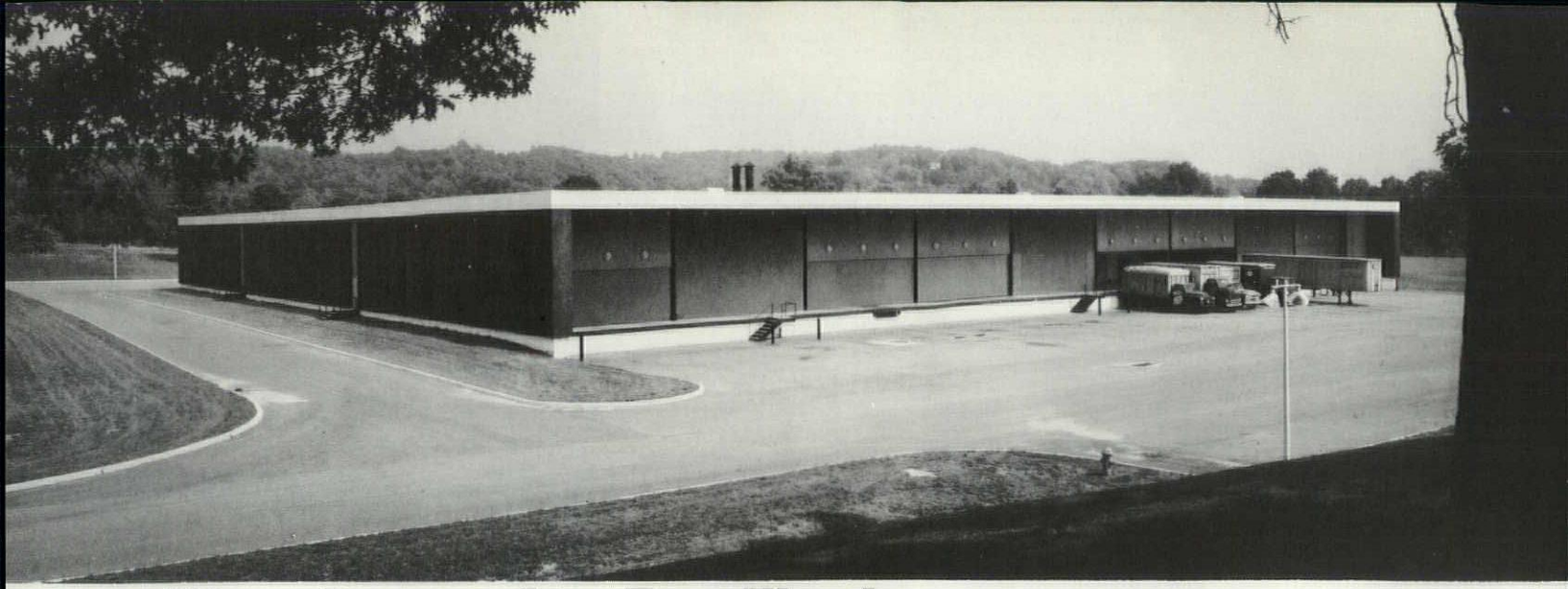
"With respect to the site plan, an existing gravel pit, located in the central portion of the property, made building practical only on the perimeter; therefore, we designed the central area as a small landscaped recreational space, and grouped the buildings around it, turning the 10-acre site into a true industrial park.

"In this instance, the design of the buildings has contributed to the success of the job: certain of the industrial renters have come into the project specifically because of the design quality of the buildings."

What Conklin cannot in all modesty say is that, although the blocks have not saved money comparable to the cost of the standard block, they have nevertheless provided handsome structures within the cost range of the most poverty-stricken buildings. The construction cost for unfinished factory space and office space throughout the project has not exceeded $4.50 per sq ft. And it can be wished that every square foot of every low-cost building were designed with the care and distinction that the strong sculptural walls of Mr. Bunnell's factories exhibit ■





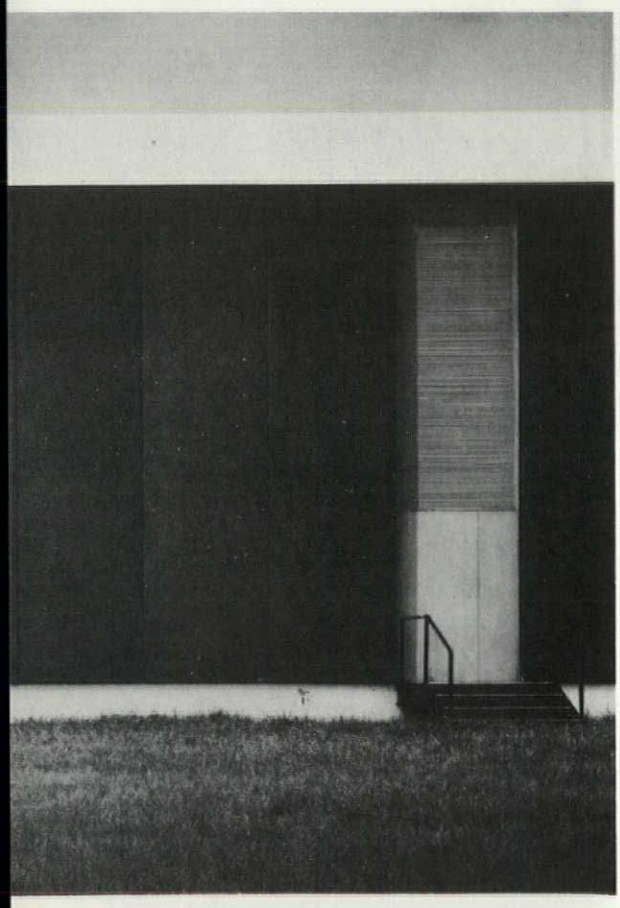


Warehouse for Emollients

WAREHOUSE, NOXZEMA CHEMICAL COMPANY • COCKEYSVILLE, MARYLAND • SKIDMORE, OWINGS & MERRILL, ARCHITECTS

When the Noxzema people asked SOM to design a warehouse for them, all their buildings in Baltimore were on a congested knoll where there was no place to park and no possibility of expansion. They did not have a warehouse of their own, and it had become clear that it would be better to build than to continue renting storage space, as they had been doing.

SOM looked at several sites with them, helped choose one north of Baltimore where a nursery had formerly been located, then drew up a master plan to show the company how it could profitably use all 80 acres of the available property. Besides the proposed warehouse, the master plan also located a facility for manufacturing, an office building, and a research and development building. Noxzema may have been dubious at first, but immediately after the warehouse had been completed, it was expanded to double the original 90,000 sq ft, and the unanticipated office building is now in the design stages. Thus the architects showed the need for increasing the scope of services originally required of them by demonstrating the necessity of planning for expansion.



PHOTOS: EZRA STOLLER ASSOCIATES

The warehouse itself, like the master plan, was also designed for expansion, and the experience of doubling the original structure has shown the facility of the system. The exterior wall, composed of insulated sandwich panels that are clipped into place at four points, is easily removable, and, when the second phase was constructed, one wall of panels was simply unclipped and moved out to the new line. In that process, exact fit of the panels and good matching of the granite and mica exterior finish were insured, since all the panels—each 6 in. thick by 5'-2" wide by 20'-7½" high—had been precast offsite where these factors could be controlled.

Like the wall system, most of the structure is dry assembled. Lally columns on a concrete floor and piles, along with exposed bar joists, support a gypsum roof that was poured onto an insulating formboard with an integral finish like acoustical tile. The steel roof structure has a porcelain enamel aluminum fascia that is also mechanically assembled. The engineers of this structure were Weiskopf & Pickworth.

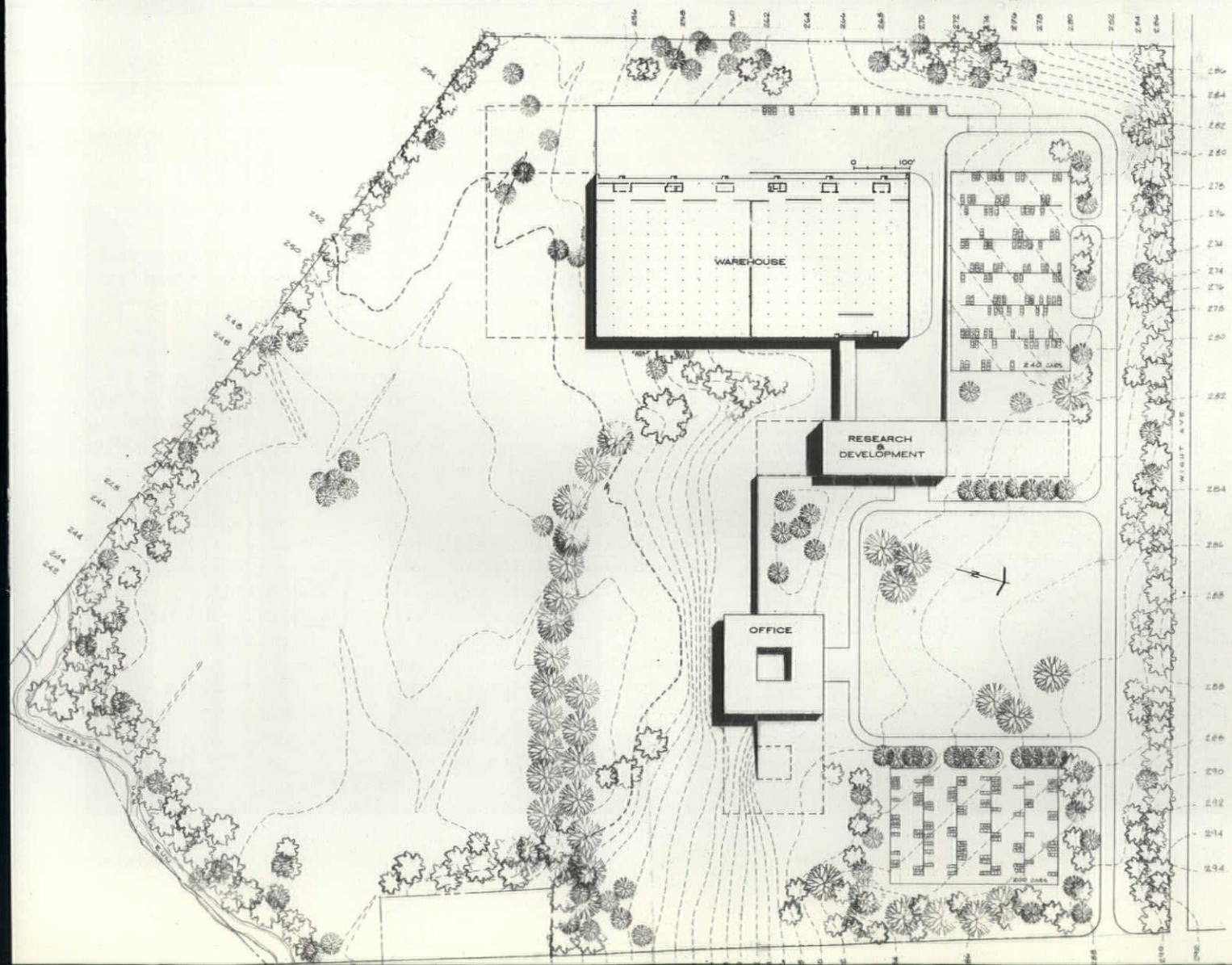
Interestingly, the potential for expansion, which was built into the structural system, accrued to the clients in their dealings with contractors: the drawings went out for the usual bidding when the first phase was executed, whereas the second stage of the structure was built under a contract negotiated with the original contractor.

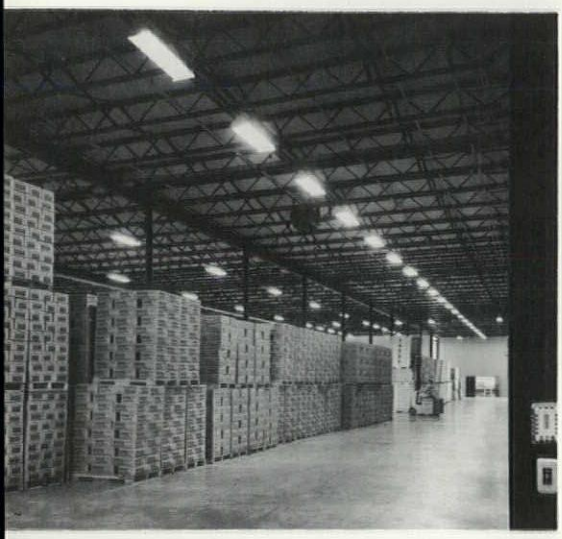
Foremost on the program, however, had been the basic functional requisite that the warehouse efficiently store Noxzema's products, all of which must be maintained at temperatures below 80 F. For reasons of economy, this had to be accomplished without air conditioning. The mechanical system devised to fulfill these requirements is composed of two elements. First, over each of the doorways is a set of louvers that are centrally operated and electrically interlocked with fans located on the roof; at night, when the louvers are opened, cooler air flows into the building as the roof fans draw hot air out. Second, a sprinkler system is installed on the roof to maintain the process of evaporation. In this system, sprinkler heads are located intermittently along a series of pipes that are elevated on short pegs above the white, heat-reflective roof. A thermostat control sets off the heads periodically. Jaros, Baum & Bolles were the mechanical engineers of the com-

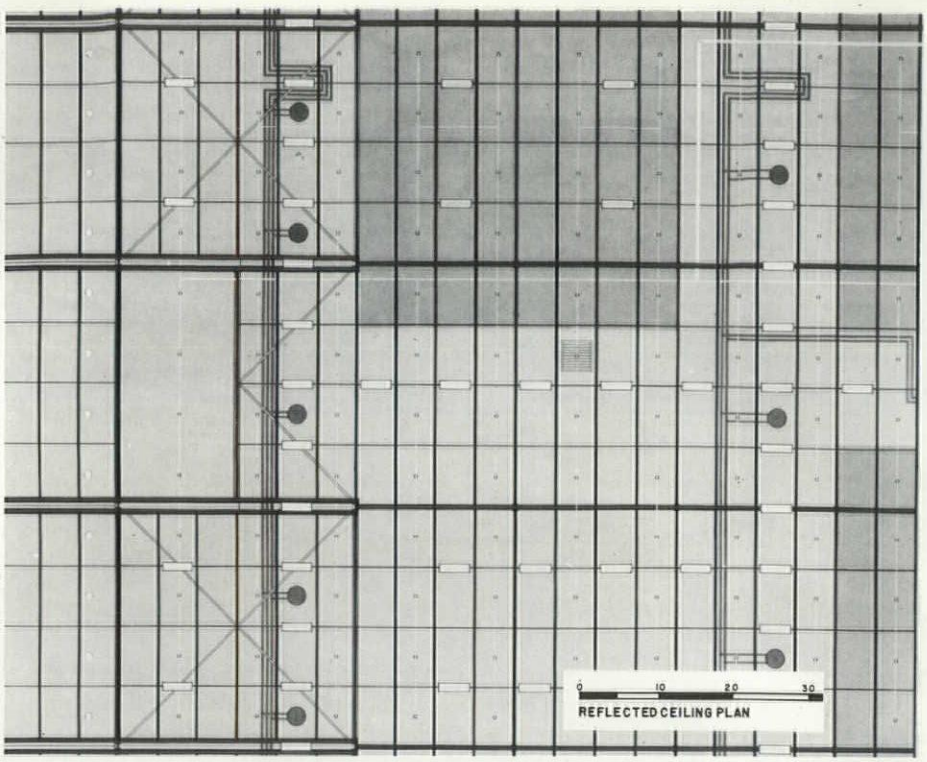
bined system.

Beyond these functional aspects, the architects have provided their clients a building that has a visual order of markedly satisfying clarity. The simplicity of the black and white exterior is enriched by the sparkling granite aggregate of the wall panels and enlivened by blue doorways—Noxzema blue. The elements on the interior, notably in the ceiling, are deftly disposed, and colors emphasize the articulation; the steel is black, the ceiling white; unit heaters and lines are blue; sprinklers and lines are yellow. The architects note that their clients had a feeling for a good-looking building, perhaps because they are in the cosmetics business; in any case, an award that the building has received from the Baltimore Chapter of the AIA may well be only the first of a series of kudos for this singularly handsome warehouse.

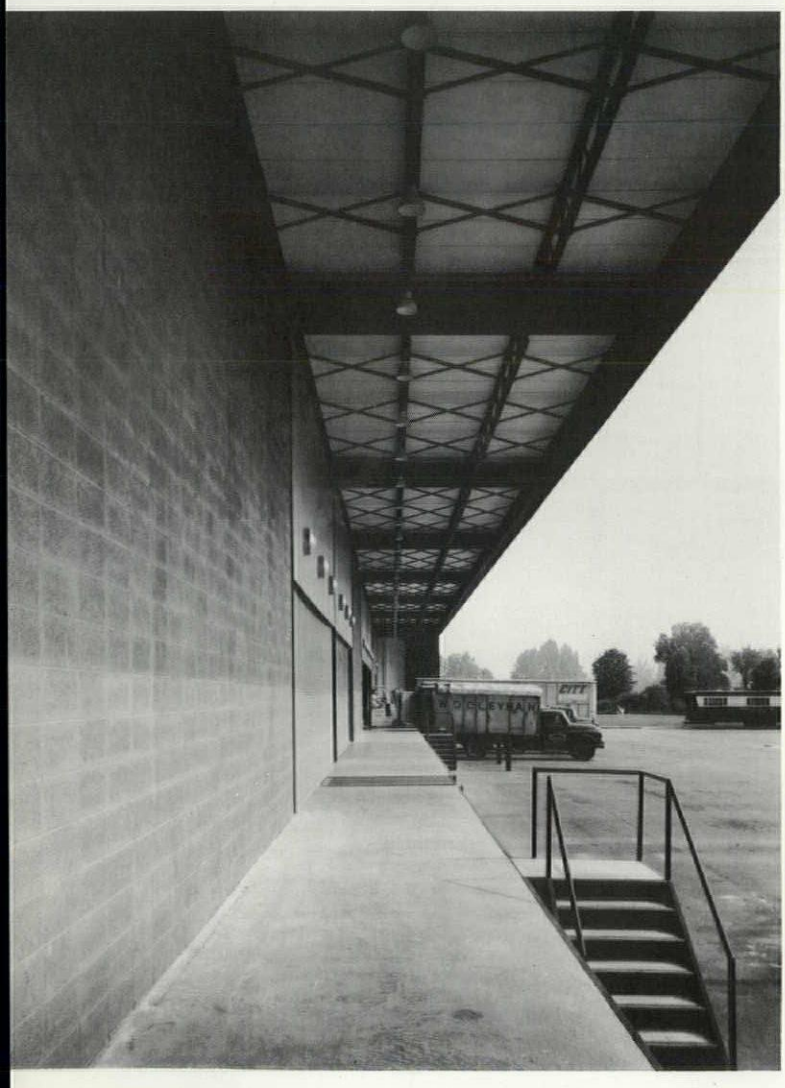
Skidmore, Owings & Merrill's team for the project was composed of William S. Brown, Partner-in-Charge; Frederick G. Gans, Project Manager; and Roger N. Radford, Project Designer ■

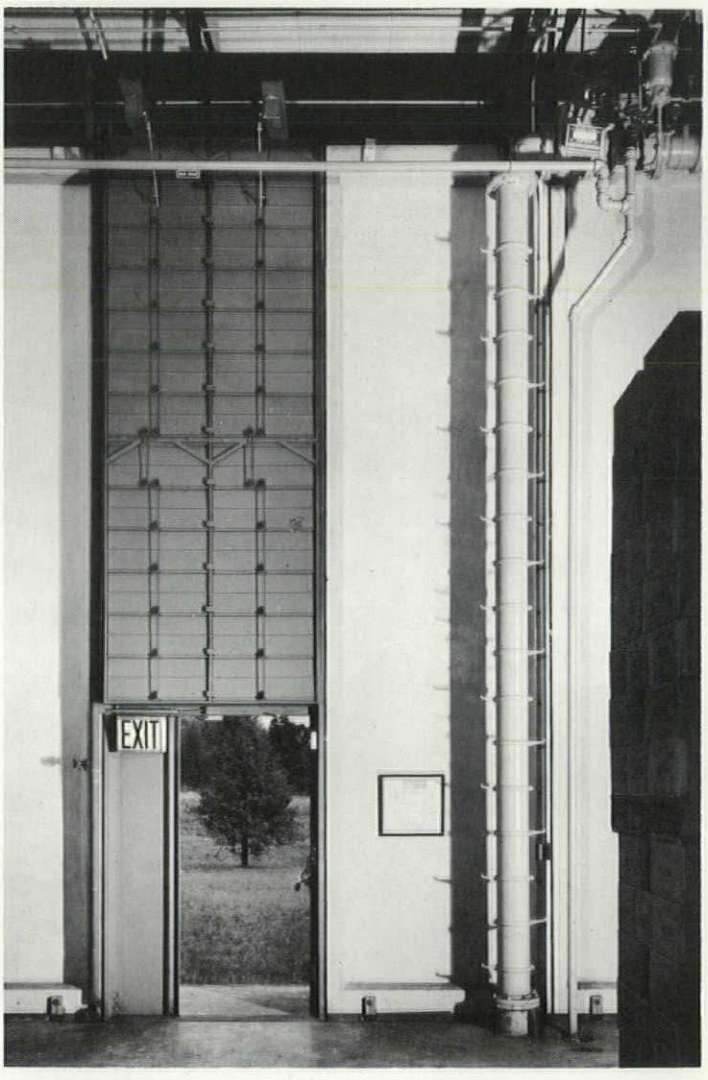


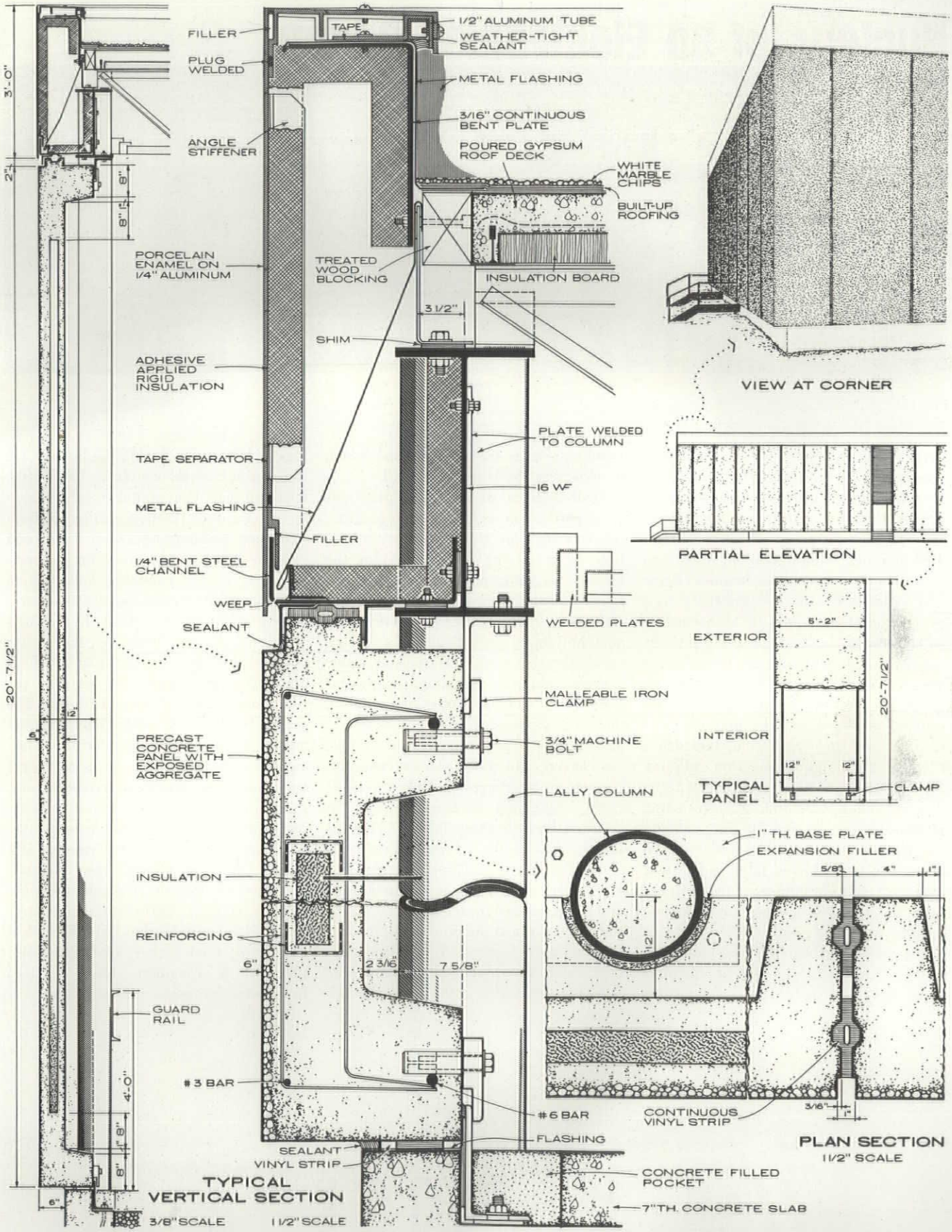




The suave, chaste character of the exterior surfaces changes on the interior to one of complex, almost delicate linear patterns. Ceiling elements have been meticulously arranged and color keyed to emphasize the visual order. Products stored in cardboard boxes are palletized three pallets high. Louvers over doors (below, right) *function with roof exhaust fans.*







WAREHOUSE, NOXZEMA CHEMICAL COMPANY: Cockeysville, Md. SKIDMORE, OWINGS & MERRILL, Architects	SELECTED DETAIL WALL SECTION

Nucleus of an Electronics Center

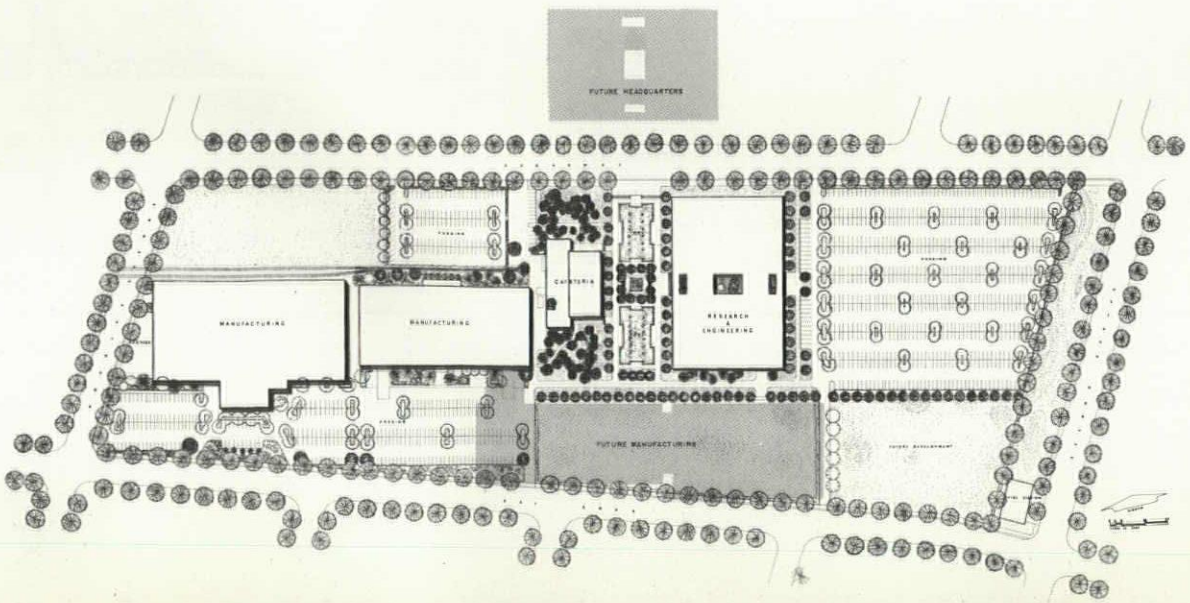
PHOTOS: MORLEY BAER, EXCEPT AS NOTED

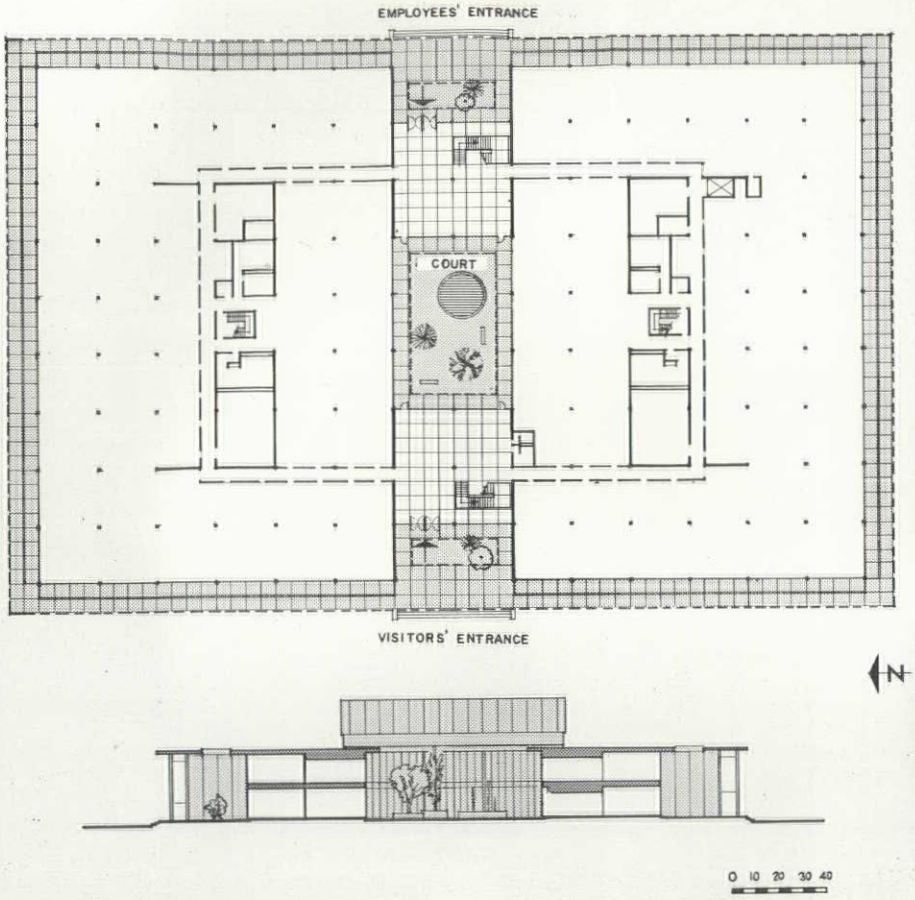
INTERNATIONAL HEADQUARTERS FOR AMPEX CORPORATION • REDWOOD CITY, CALIFORNIA • JOHN CARL WARNECKE & ASSOCIATES, ARCHITECTS AND PLANNING CONSULTANTS

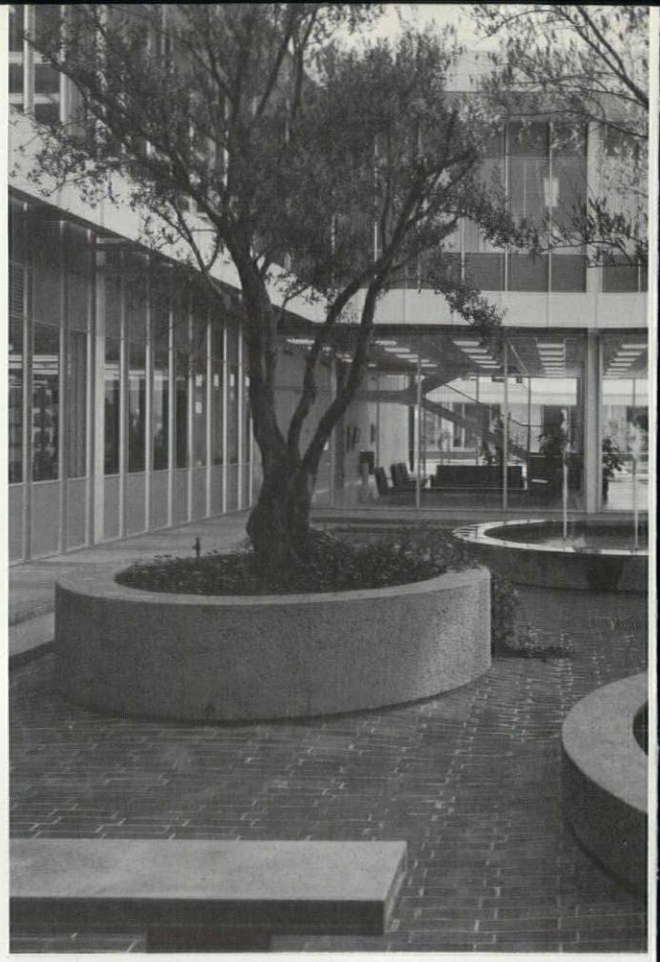
This manufacturing operation, which was started in the garage of the founder's home and within a decade had grown to such proportions that it had to be housed in 24 buildings in various parts of the industrial-warehouse district, is now in the process of consolidating its operations on a new 11-acre site according to a well-ordered master plan. The first phase of construction, now completed, includes a new research and engineering building for the development of various electronic devices and a cafeteria. Manufacturing operations are housed in two existing buildings to the west of the new complex. These are to be linked later to two new manufacturing buildings. Together, the four structures will serve an important function in visually closing the south side of the mall. This central space—and with it the whole complex—will be complete when the new corporate headquarters building is later erected at the north end, on axis with the landscaped mall.

Establishment of a master plan was all-important in resolving the program requirements for this growing corporation—it is serving as a guide for the various building phases; directing the re-use of existing buildings and ordering their incorporation into the network of new buildings; establishing the design vocabulary of color, texture, and scale; and governing the circulation patterns for pedestrians and cars. Most importantly, the project promises to have a beneficial effect on the larger neighborhood, at present choked with traffic and covered with temporary buildings—typical effects of rapid, unplanned expansion. Success of this well-coordinated master plan is largely due to the architects' early involvement in the building program and site selection. In addition to the normal architectural design services, the architects also planned the interiors of the first two buildings, provided the landscape plan, and supervised all construction. With the completion of the first two buildings and the central mall, the nucleus for the new industrial center is largely determined and the architectural vocabulary outlined for future construction. Both of the new buildings have steel frames and concrete floors; and, except for the service areas in the cafeteria, both adhere to a 24′ x 24′ structural module. Both have large glass areas, though in the research and engineering building these are shielded by sun screens that are both decorative and serve to reduce air-conditioning as well as wind loads. The central mall, too, is utilitarian and ornamental. While mainly intended for enjoyment of staff and visitors, it can also serve emergency vehicles; similarly, the pools, primarily decorative, can double as reservoirs for the fire protection system.

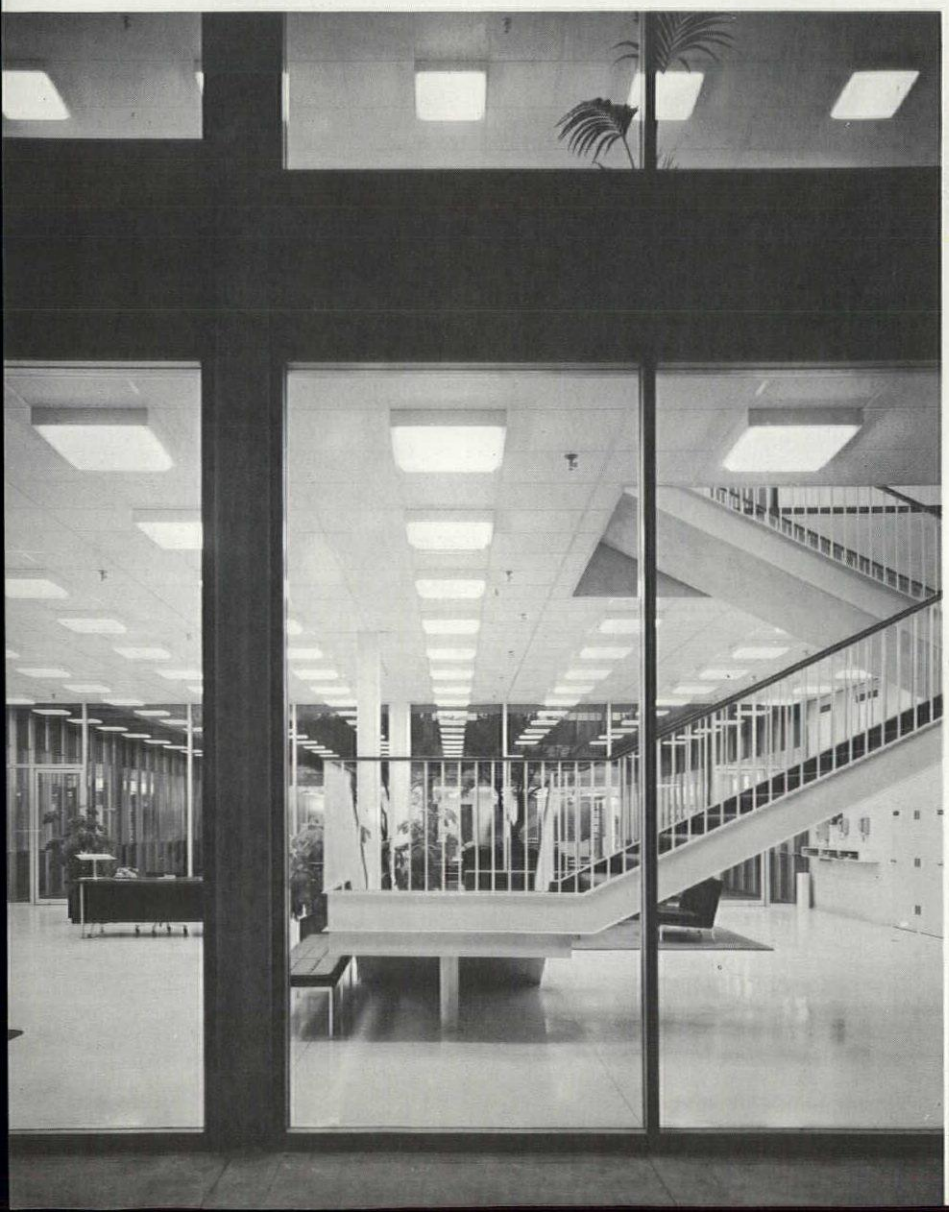
Michael Painter of the Warnecke firm did the Landscape Design; Jean Coblentz, the Interior Design. Consultants were Chin & Hensolt, Structural Engineers; Keller & Gannon, Mechanical & Electrical Engineers; Carl Kirker, Civil Engineer; Flambert & Flambert, Food Service; Robertson-Montgomery, Graphics ■







The research and engineering building (plan and section left) *is a two-story structure that accommodates 600 employees. Except for the lobby* (below left), *the interior space is entirely flexible; movable partitions permit offices and laboratories to be rearranged at will. A courtyard* (above) *introduces light, air, and greenery into the center of the 240' x 360' building. The two completed buildings face each other across the central mall* (below).



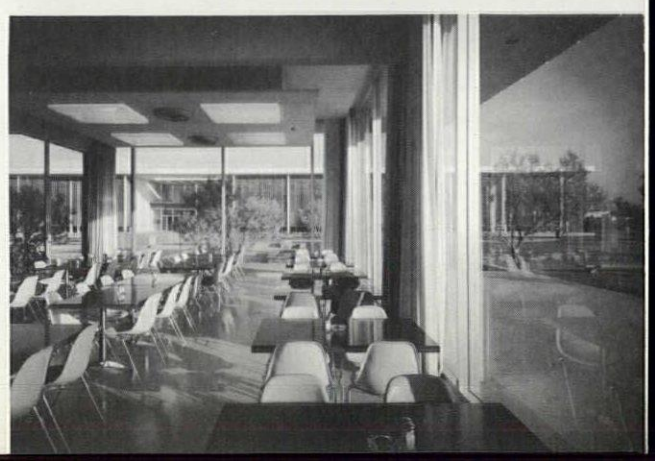
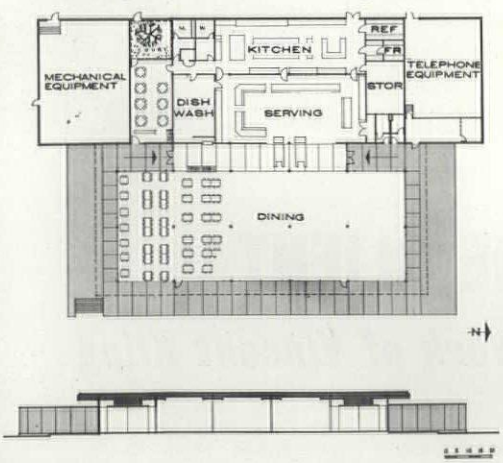
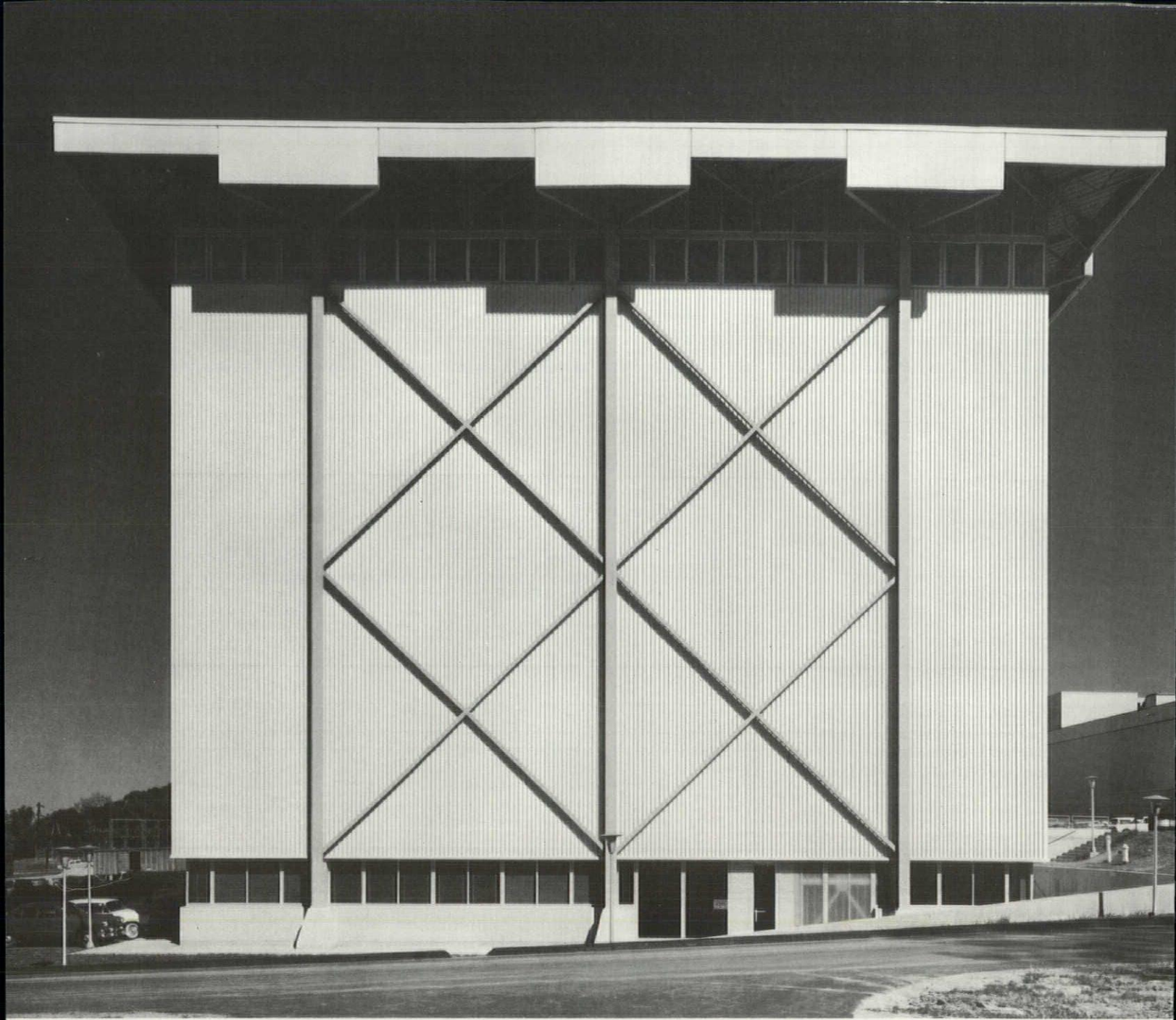


PHOTO: ALEX MYERS

Sun screen (right) *is assembled of factory-fabricated aluminum grid panels with a baked enamel finish. These panels, designed for manufacture by architects Robert A. Gelert and A. Quincy Jones, are engineered to provide 100 per cent shading of direct solar rays during normal occupancy hours, yet retain maximum visibility for outward views and natural illumination. Use of the sun screen also contributed to minimizing solar heat gain and helped to eliminate direct glare.*



The cafeteria building (plan and section above) *is a one-story structure composed of two parts: a dining pavilion* (left) *capable of serving 1600 employees at the rate of 400 persons per sitting, and a service wing that includes kitchen, telephone central, and boiler room. The dining area is also designed for professional society and community use. Ampex engineers have developed an advanced sound system for the building.*



VALUABLE SERVICE TO THE CLIENT

Industrial Work of Vincent Kling

On a shady street at the fringes of downtown Philadelphia stand three converted town houses and a carriage house that contain the 170-man organization of Vincent G. Kling. Since he started his practice 17 years ago in the attic of one of these houses, Kling has completed more than $250 million worth of commissions. The work has been broadly diversified—including schools, churches, office buildings, government buildings, college buildings, planning projects, and interior design commissions. Roughly 25 per cent of the firm's completed work— and 25 per cent of its present work—is in the industrial field.

The 124 architecturally trained personnel in the firm are organized into teams of 3 to 15 men each, depending on work loads, under the supervision of Project Architects. Each new job is assigned to a team that follows it all the way to completion. There is no specialization; the next industrial job might go to any one of the teams.

Having carried out such a large volume of industrial work within a much larger diversified practice, Kling has much to tell us about the distinctive characteristics of industrial commissions and how the architect can approach them to create effective working environments.

Kling's largest industrial commission to date was the $32,000,000 General Electric Space Technology Center at King of Prussia, Pennsylvania, designed in collaboration with Jackson & Moreland and United Engineers & Constructors, Architect-Engineers. The 900,000-sq-ft center was designed and completed for occupancy within 18 months. The plant's Space Environment Simulation Laboratory (facing page) *is a separate structure, 88 ft high and 104 ft square, with a space-frame roof. Inside the column-free volume is a large tank in which full-size space vehicles are tested.*

An addition to RCA's electron tube plant at Lancaster, Pennsylvania—now under construction—will be the first building in the world designed for a laminar-flow air-handling system. The new system (below), *designed by the Kling office with Robert J. Sigel, Inc., Consulting Engineers, involves a continuous shower of filtered air that will replace all air in the 23,000 sq ft room every 12 seconds. "Super-Clean" conditions, superior to those attainable with conventional air-conditioning systems, will be achieved without forcing employees to wear the usual clumsy clean-room outfits.*

"The big difference between industrial work and other fields is that the architect must prove his worth or the client will get along without one. The client must be convinced of the value of architectural services.

"Too often the industrial client demands too little; he is unaware of the advantages of good design and overly aware of the limitations of his schedule and budget. Hence he may be easy prey for the huckster who sells him acreage in a so-called 'industrial park' and the package dealer who puts up a mere enclosure, with no thought to improving the process layout or to color, acoustics, image, or future development. The results are the ugliest buildings in the world, but the client too often regards them as necessary evils, just as he does transformers on utility poles. He may also be pressed to put up a cheap enclosure because his competitors have done so, and he may be tempted by various leasing arrangements to consider only short-term objectives. Our best educational tool has been showing the potential client our completed industrial work, showing him the degree of order and human comfort possible, often at no greater cost than an ill-considered shelter.

"Design criteria for industrial plants have been strongly affected in recent decades by changes in the pattern of plant location. For the most part, they have moved from urban sites along waterways and railroad sidings to suburban or rural sites along the new high-speed highways. Since these highways are generally laid out on the highest available terrain for engineering reasons, a vast public often sees a new plant from higher elevations. The typical one-story plant on such a site is seen as a jumbled, ugly roofscape.

"The scale of new industrial sites, which generally include enough acreage for parking and expansion—and extra for contingencies—makes the problem of site layout an involved one. We often have to contend with the clients' and engineers' inclination to build the initial buildings as near the highway as possible in order to minimize roads and utility lines.

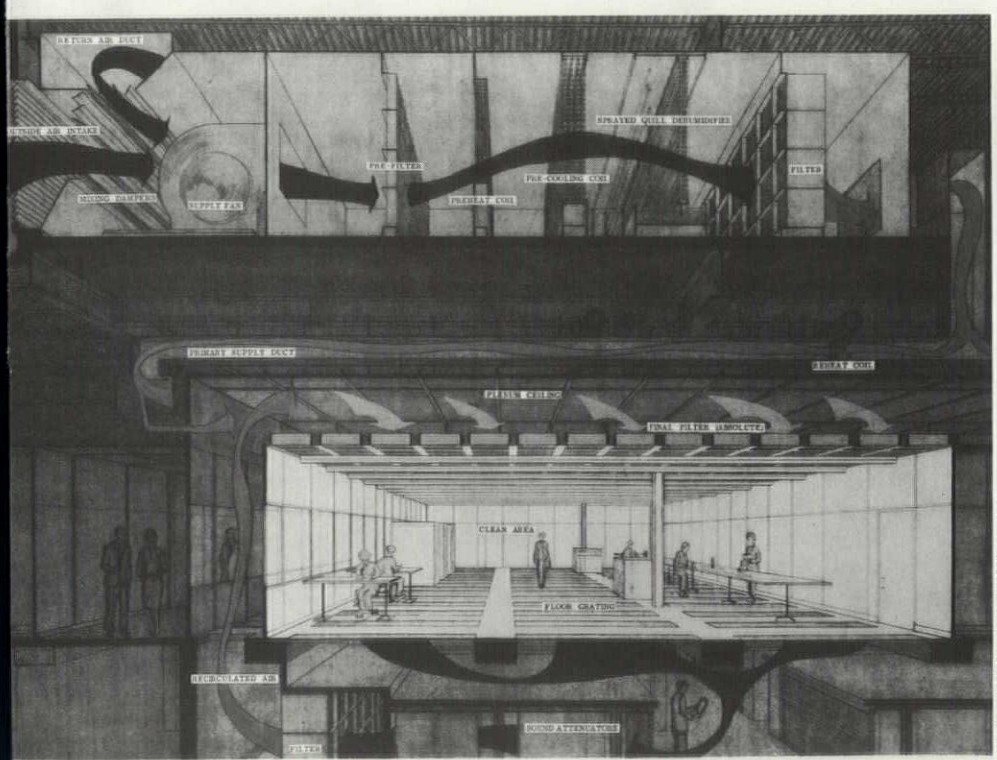
"The architecture of an industrial building should express the need for a comfortable, dignified human environment. It is desirable to express the processes carried on inside the plant in some instances, but I don't believe in the "bumps and breaks" approach, in which every incident in the process is articulated on the exterior. In the first place, the frequency with which most plant layouts have to be reorganized makes this approach unrealistic. In the second place, exposed mechanical and electrical equipment does not always make a symphonic composition, especially when it is on top of buildings.

"We do believe in separating certain elements of the plant—administration, research, and certain utilities—and giving them distinct forms to be played against the more neutral enclosure of the factory itself. We often find that the client must be talked out of placing all of these elements, with their disparate design requirements, into a single envelope.

"Our primary concern in the design of industrial buildings is the worker's environment. It is easy to demonstrate the connection between working environment and productivity—not only quantity of production, but quality too. (Perhaps the greater concern for the working environment apparent in Europe is related to greater concern there for the quality of the product and the reduction of wasteful rejects.) Air, acoustics, lighting, and color can be controlled to make the working environment as comfortable and comprehensible as possible. While there may be limitations on the worker's environment inside the plant, he can always be given a pleasant approach and parking area, and a dignified means of entrance to the plant itself.

"After all, the majority of working people spend one third of the waking hours in an industrial environment. It should be a designed environment — not merely happenstance."

—VINCENT G. KLING



PHOTOS: LAWRENCE S. WILLIAMS, INC.

Miniature Circuits

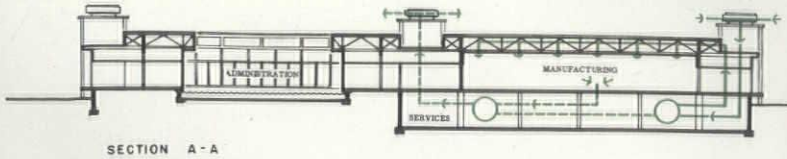
WESTINGHOUSE MOLECULAR ELECTRONIC LABORATORY • ANNE ARUNDEL COUNTY, MARYLAND • VINCENT G. KLING, ARCHITECT

The molecular electronic devices made in this plant are smaller than match-heads, but they can replace entire electronic circuits, including the transistors and other components connected to them. Production spaces for them have little traditional industrial character; the products are assembled under microscopes and passed on into typical office "in-boxes."

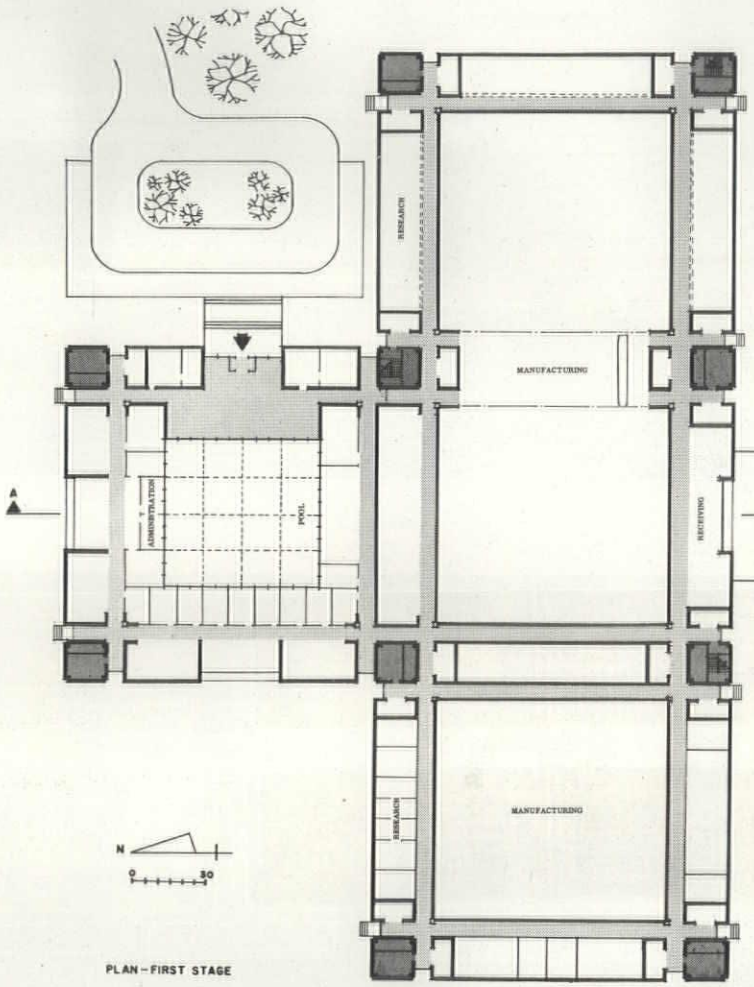
This building is the first to be built specifically for the manufacture of these devices. Rapid expansion of the market for them in the early 1960's led Westinghouse to consolidate its East Coast production facilities, previously scattered in makeshift quarters, into one permanent facility. Mushrooming demand also established two demanding design criteria: that the initial construction be completed only seven months after the architect received the commission, and that the plant be expandable to several times its initial size in small increments and without disturbing existing facilities. The nature of the product required that production be carried out in a super-clean atmosphere from which all particles over 0.3 microns in diameter have been eliminated.

The 70-acre tract chosen for the plant is situated on the Baltimore-Washington Expressway near Friendship Airport. One of the architects' objectives in site development was to preserve the pleasant rolling terrain and the many fine trees on it.

The plant has been designed as a cluster of modular structures, each one 137 ft square, with a central column-free production space 90 ft square and 14 ft high spanned by a steel space frame. The ceiling height was needed not for clearance, but to accommodate a large enough volume of air to offset the local heating effects of electrical furnaces and people.

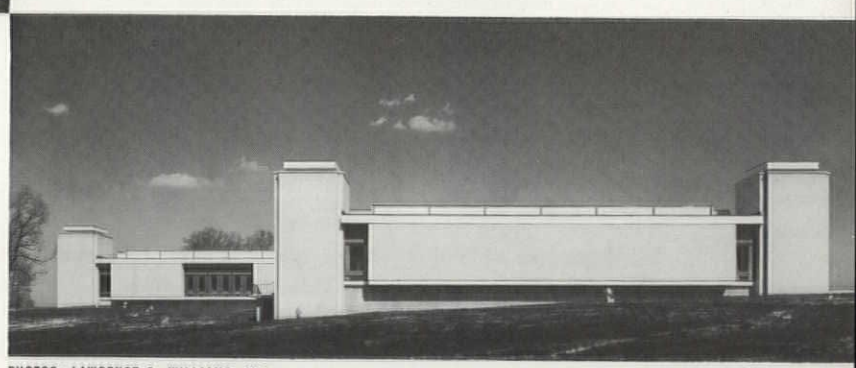


SECTION A-A

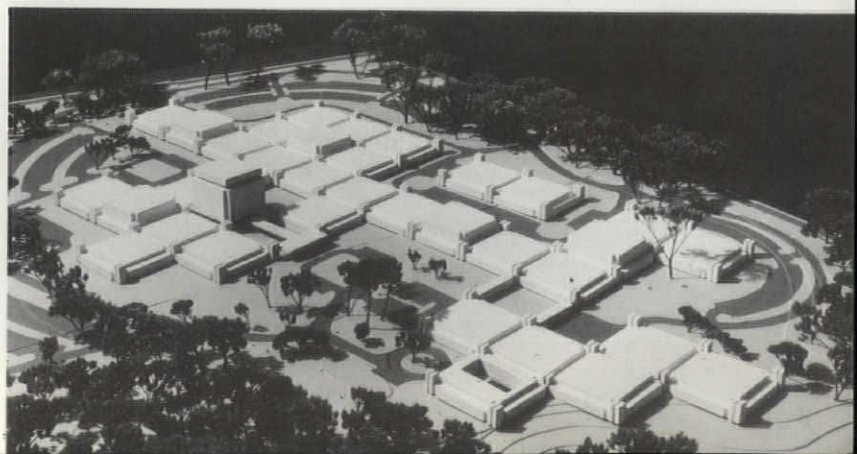


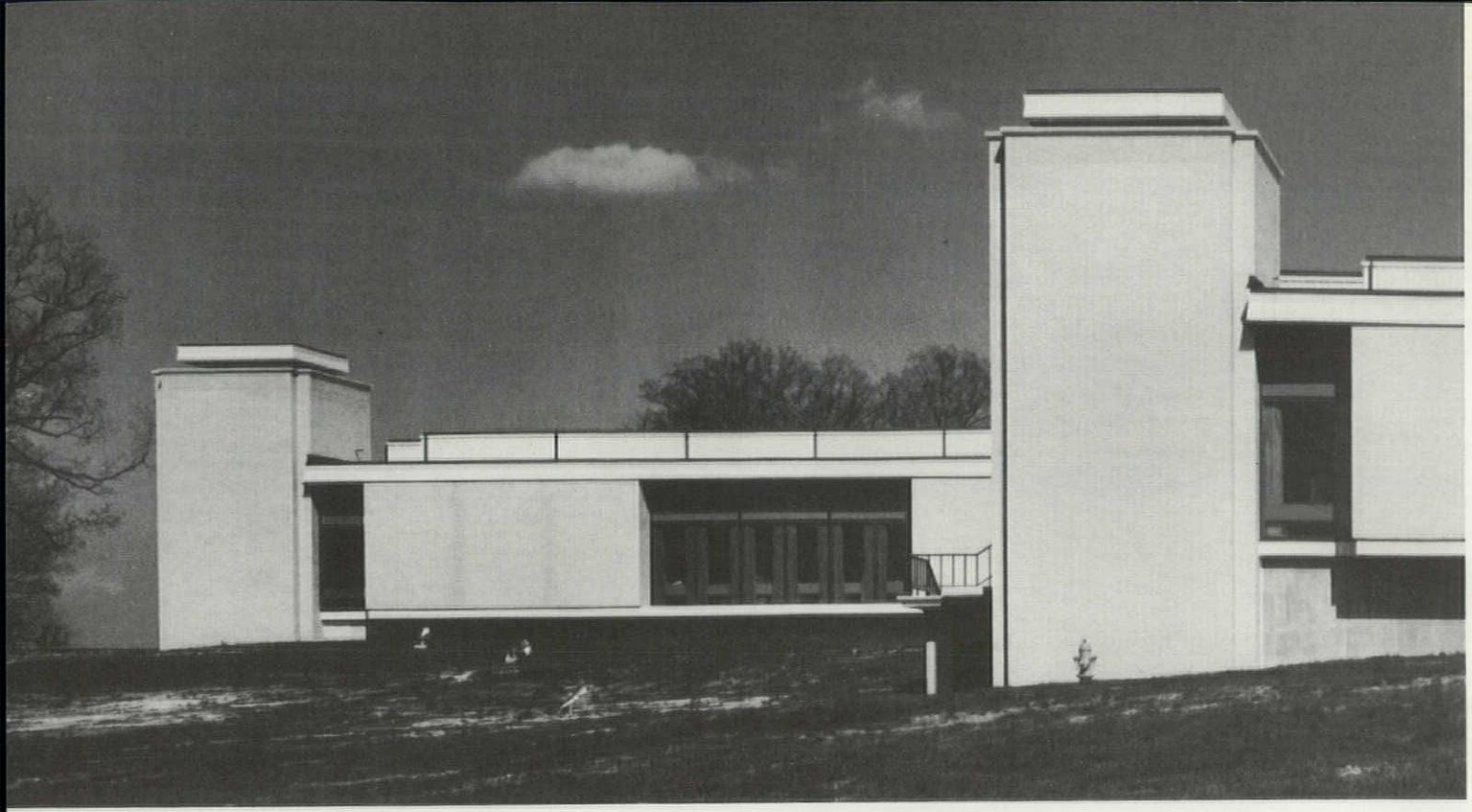
PLAN – FIRST STAGE

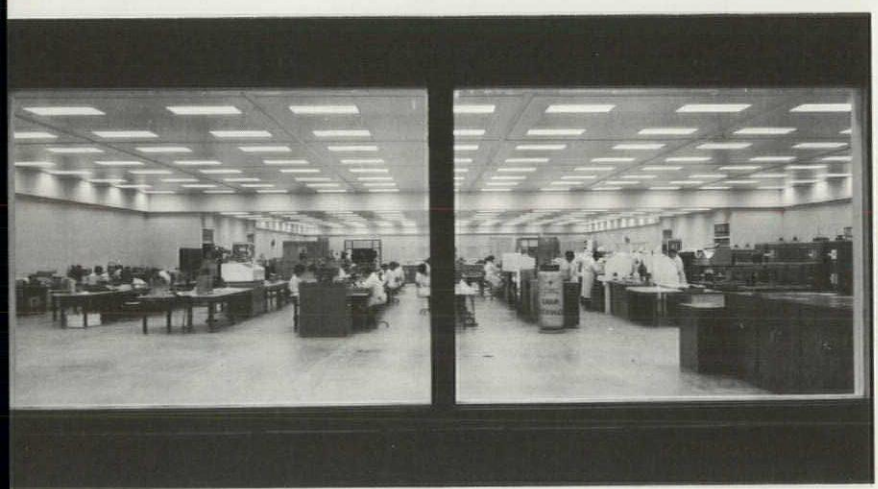
Perimeter spaces 24-ft deep, roofed by steel frames cantilevered from the central space-frame, house corridors and auxiliary laboratories, offices, stock rooms, etc. Towers at the four corners of the module contain washrooms and stairs at the main floor level and air vents above. (Exhaust and intake air are channeled through alternate towers to eliminate cross contamination.) Adjacent modules share the towers and the auxiliary spaces between them. New modules can be built adjoining existing ones without breaking through the walls, which are of vital importance in maintaining the continuity of super-clean atmospheric conditions.

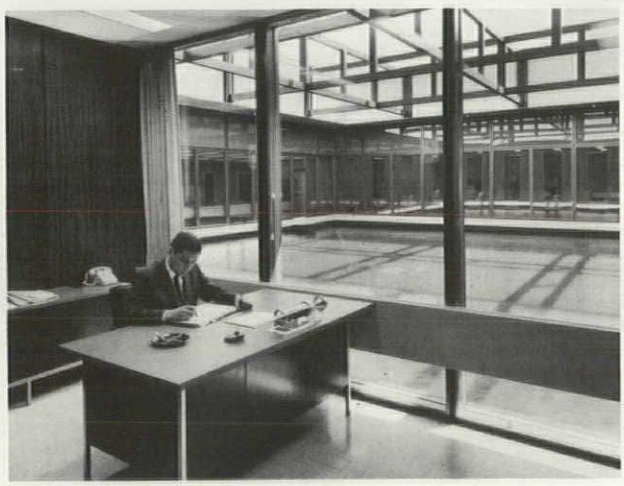


PHOTOS: LAWRENCE S. WILLIAMS, INC.









The master plan provides for some modules of greater height to house special processes and proposes a multi-story administrative tower occupying the area of a standard module. The initial phase of the development, which won a 1964 AIA Award of Merit, consists of only 4 modules out of the 35 on the master plan. Three of them are of standard design, but the fourth, which houses administrative offices, consists of a band of offices surrounding a central 60-ft-square reflecting pool (*above, right*). The pool provides economical storage for 50,000 gallons of water needed for fire protection, and its location in a central open court gives the offices around it natural light and a pleasant outlook. The structural space frame spans the pool, each member clad in a metal shell to protect it from the weather, so that it can be roofed and the module converted to other use if desired, after larger administrative facilities are built.

The typical modules are enclosed in masonry cavity walls, with off-white brick on the exterior, laid up in 30-ft panels between expansion joints. Air-conditioning and purification equipment for the production spaces (*above, left*) are housed in full basements and in plenum chambers within the space frame roof structures. Dust-free air at a uniform temperature of 74 F and a uniform 35 per cent relative humidity is supplied from basement equipment to the plenum chambers and returned to the basement through vents in the floor slab. Other utilities required —including power, vacuum and special gases — are supplied through special sleeves passing through the concrete floor slab at a spacing of 5 ft o.c. throughout.

Structural Engineers for the project were Allabach & Rennis; Charles S. Leopold was responsible for the Mechanical and Electrical Engineering ■

Space Equipment

PHOTOS, EXCEPT AS NOTED: BLACK-BAKER

DAYTONA BEACH FACILITY, GENERAL ELECTRIC COMPANY • DAYTONA BEACH, FLORIDA • RADER & ASSOCIATES, ENGINEERS AND ARCHITECTS • VINCENT G. KLING, CONSULTING ARCHITECT

One of the most difficult problems facing private corporations participating in the national space program is the threat that their facilities may suddenly become obsolete long before the buildings themselves are ready to be replaced.

General Electric's Command Systems Division faced this problem in planning new facilities near Cape Kennedy to handle its space contracts with NASA. The company could not predict whether its contracts would continue for 5 years or 15—whether space requirements would remain constant or increase tenfold. The initial requirement was for 165,000 sq ft and the company wanted to be able to expand to 1,000,000 sq ft—in varying increments, rapidly constructed without disturbing in any way the existing facilities.

G.E. management decided that it could cover all contingencies only by building highly flexible space that could be readily adapted for office, laboratory, or production functions, should the purposes for which it was originally built change.

A study of the company's requirements showed most of the operations programmed for these facilities could be housed in separate structures of 50,000 to 100,000 sq ft. The architects' master

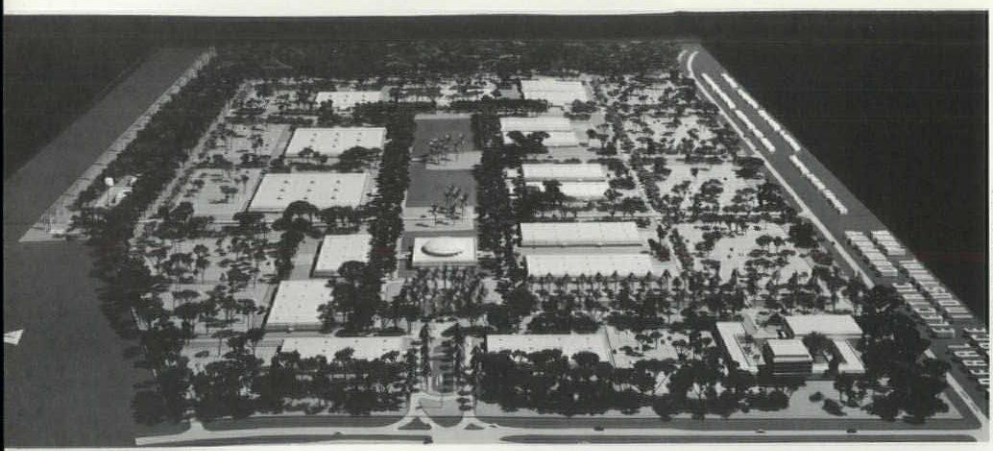
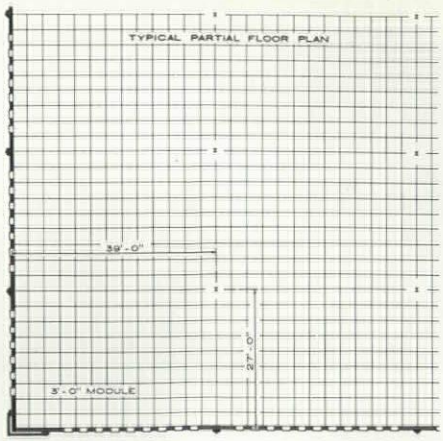


PHOTO: LAWRENCE S. WILLIAMS, INC.



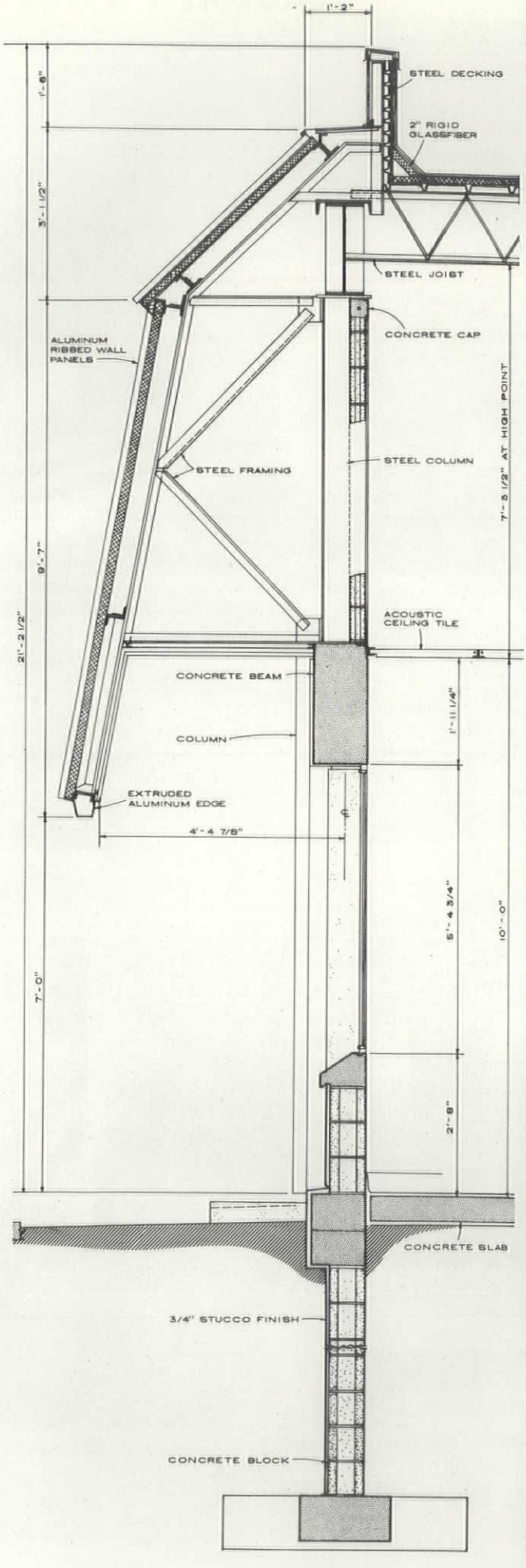
plan for the site, therefore, calls for a campus-type development, each building having its own plot, parking areas and entrance drive, and its own separable utilities services. Of the initial buildings, two are of 50,000 sq ft and the third of 65,000 sq ft.

The site is a level, wooded rectangle of 250 acres seven miles west of Daytona Beach. Since the water table is only about 2 ft below grade (as is typical in the area), the plan includes three artificial lagoons, the largest 2000 ft long, the excavations for which provided fill for compacting under foundations and parking lots. The lagoons are at the center of the development, with major buildings clustered around them and facing inward toward them, so that the campus character will survive whatever developments may take place on neighboring properties. Two specialized buildings are proposed as focal points for the complex—a central cafeteria between the main lagoons and a multi-story office building near the main entrance.

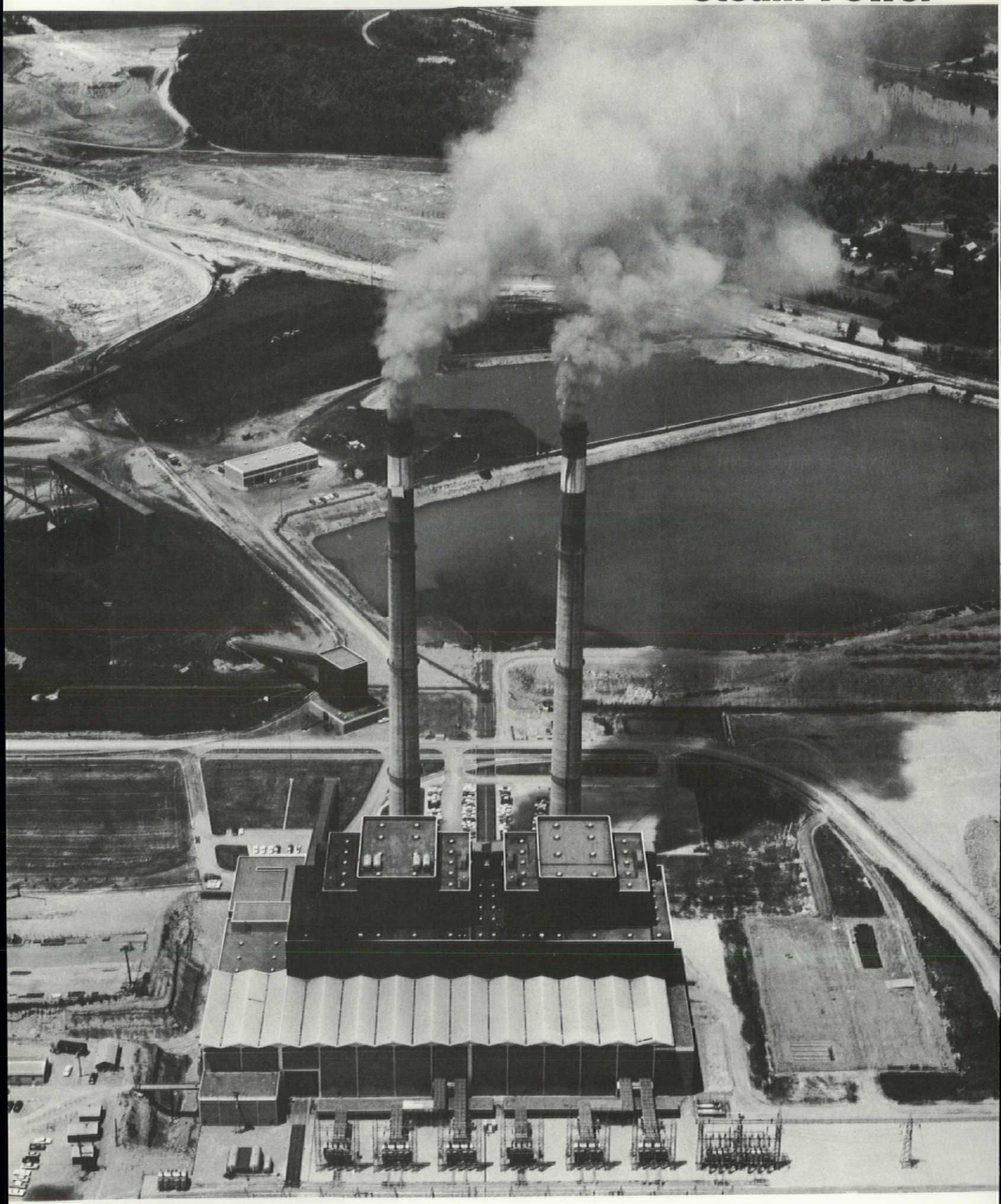
The typical buildings have steel frame structural systems, with 29-ft column spacing and a 17-ft clear height. The high roof permits the bulk of the individual package air-conditioning units (which are unevenly distributed to meet varying needs) to be recessed between the beams. In some areas the structure accommodates high-bay spaces for research or mezzanines for storage or office functions.

The overhanging roofs, projecting 42 in. beyond the exterior walls with their eaves below door-head height, shade the walls and windows and reduce the scale of the buildings to that of Florida bungalows. The ponderous two-pitched roofs make the buildings look more agricultural than industrial. The narrow windows are protected from low-angled sunlight by deep, splayed jambs in the stuccoed masonry walls.

The standing-seam aluminum of the roof overhangs has an off-white enamel finish similar in color to the stucco below. Aluminum trim is beige and plastered soffits are painted light blue. Windows are of bronze-tinted glass in brown duranodic aluminum sash ■


1'-2"
1'-6"
3'-1 1/2"
STEEL DECKING
2" RIGID GLASSFIBER
STEEL JOIST
CONCRETE CAP
ALUMINUM RIBBED WALL PANELS
STEEL FRAMING
STEEL COLUMN
7'-8 1/2" AT HIGH POINT
9'-7"
21'-2 1/2"
ACOUSTIC CEILING TILE
CONCRETE BEAM
1'-11 1/4"
COLUMN
EXTRUDED ALUMINUM EDGE
4'-4 7/8"
5'-4 3/4"
10'-0"
7'-0"
2'-8"
CONCRETE SLAB
3/4" STUCCO FINISH
CONCRETE BLOCK

Steam Power



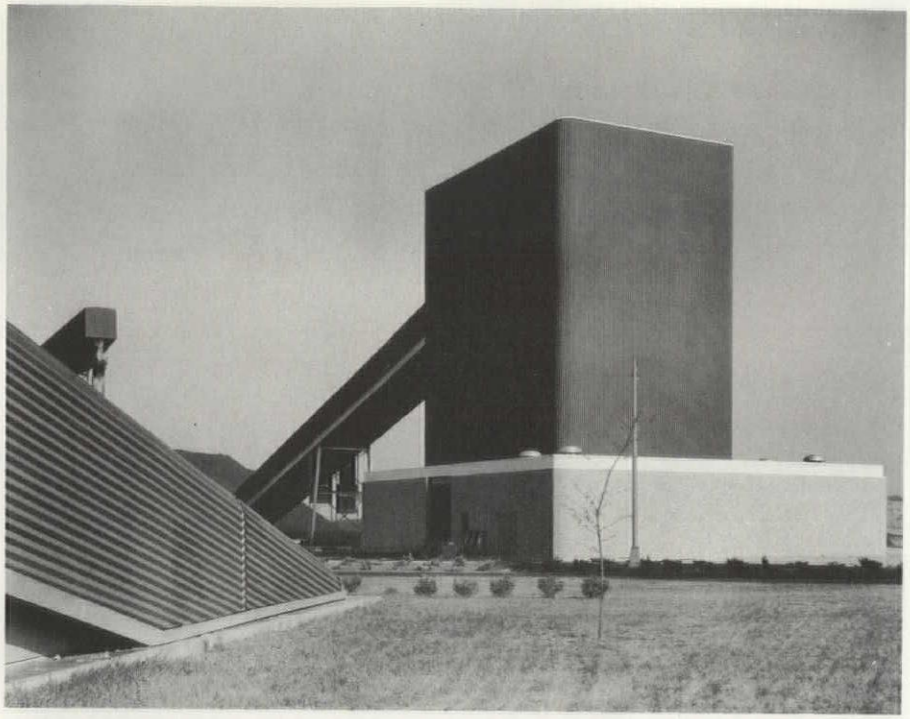
PARADISE STEAM GENERATING PLANT • MUHLENBERG COUNTY, KENTUCKY • TVA DIVISION OF DESIGN, ARCHITECTS • VINCENT G. KLING, CONSULTING ARCHITECT

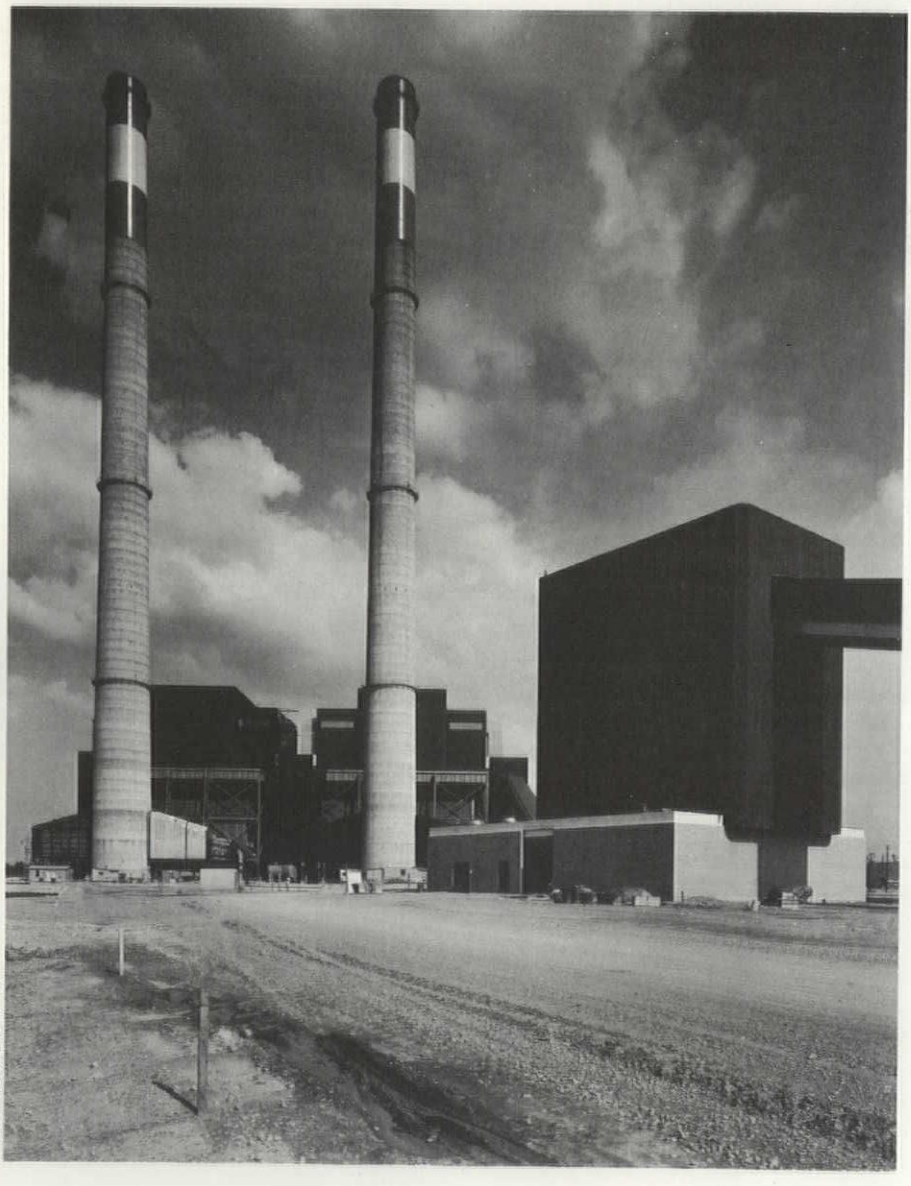
The Paradise Steam Electric Generating Plant in Western Kentucky is one of several projects Kling's office has worked on as architectural consultants for the TVA Division of Design. The plant is one of the world's largest steam generating plants, consisting initially of two 650,000 kw steam turbine units, with provisions for two additional units in the future. Auxiliary to the plant is an extensive system for storing and processing the fuel—coal that is strip-mined in the immediate vicinity.

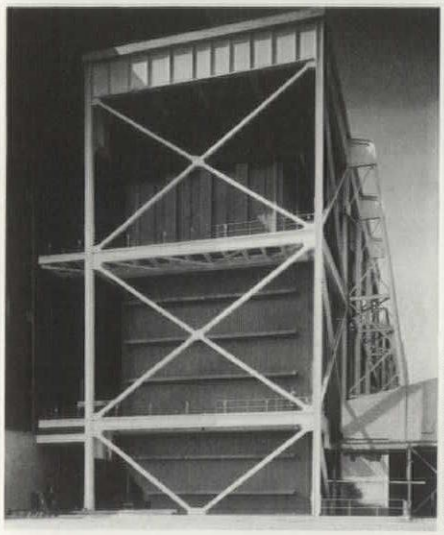
The design problem was one of organizing the huge masses of the plant to make their relationships clear and their scale comprehensible. The architect's area of concern included the exterior form, texture, and color of all elements, and the disposition of some of them.

Each of the high boiler masses and its related 600-ft stack is expressed as a unit, of which there will eventually be four in a row. The turbo-generator room flanking them (*bottom of photo, facing page*) is expressed as a single open space, its folded roof shape indicating both its interior clear span and its potential for expansion.

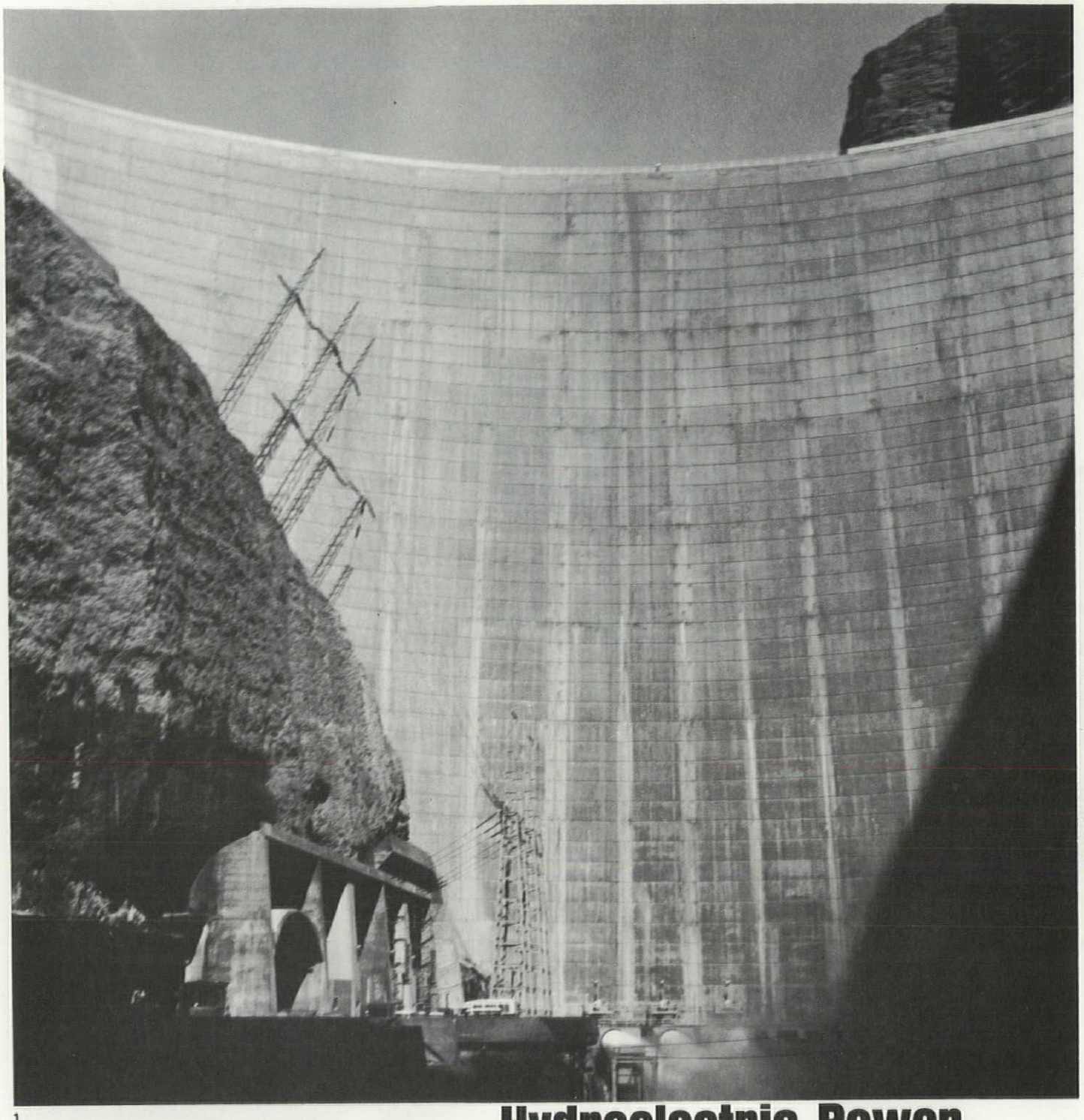
The exterior envelope is largely of insulated panels clad in sepia-colored coated steel sheet. Exposed steel elements are painted off-white and Indian red. Masonry walls are surfaced with buff brick. Orange is used as a visual accent for certain elements, including the tops of the stacks ■







PHOTOS: COURTESY OF TVA



1

Hydroelectric Power

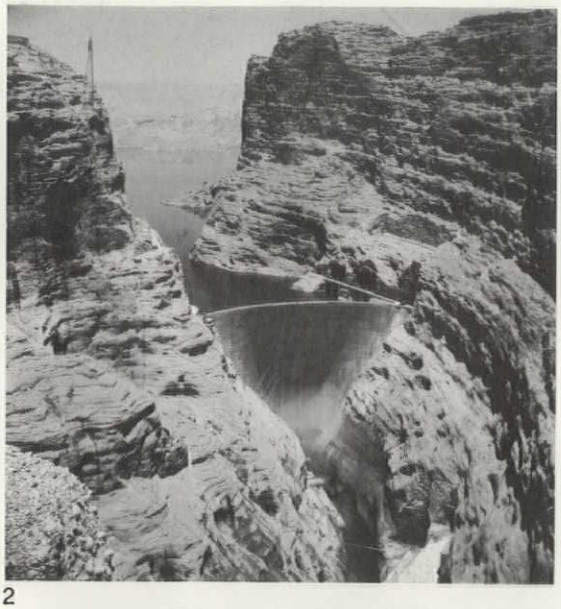
MOHAMMAD REZA SHAH PAHLAVI DAM • KHUZESTAN PROVINCE, IRAN • VINCENT G. KLING, CONSULTING ARCHITECT

This 647-ft-high double-arch concrete dam on the Dez River is the highest in the Middle East and one of the most significant public works in the history of modern Iran. Anticipating a heavy flow of visitors to the dam-site, the Iranian government commissioned Kling to design all elements of "architectural significance" in the public areas. His commission included the public lobby and control room at the top of the gorge (2), the subterranean power house, the transformer bank halfway down the slope, and smaller elements such as the railing at the top of the dam.

The power house interior (3)—actually a man-made cave—is made to seem larger than its minimal size by the use of indirect lighting, reflected from the tunnel liner through screens of native terra cotta.

The public overlook (1, 4) is reached through a concrete arch that will be at the center of the transformer bank in its final stage of development. The faithfulness of the completed project to Kling's renderings (5) is remarkable considering his remoteness from the job site.

Development and Resources Corporation of New York served as engineers for the entire project ■



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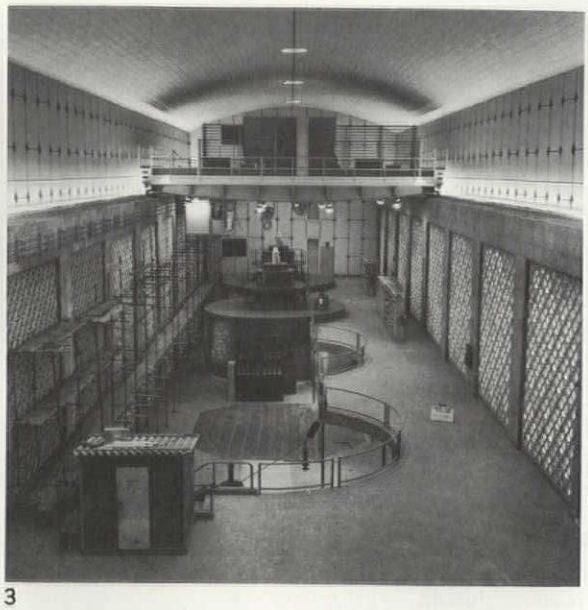

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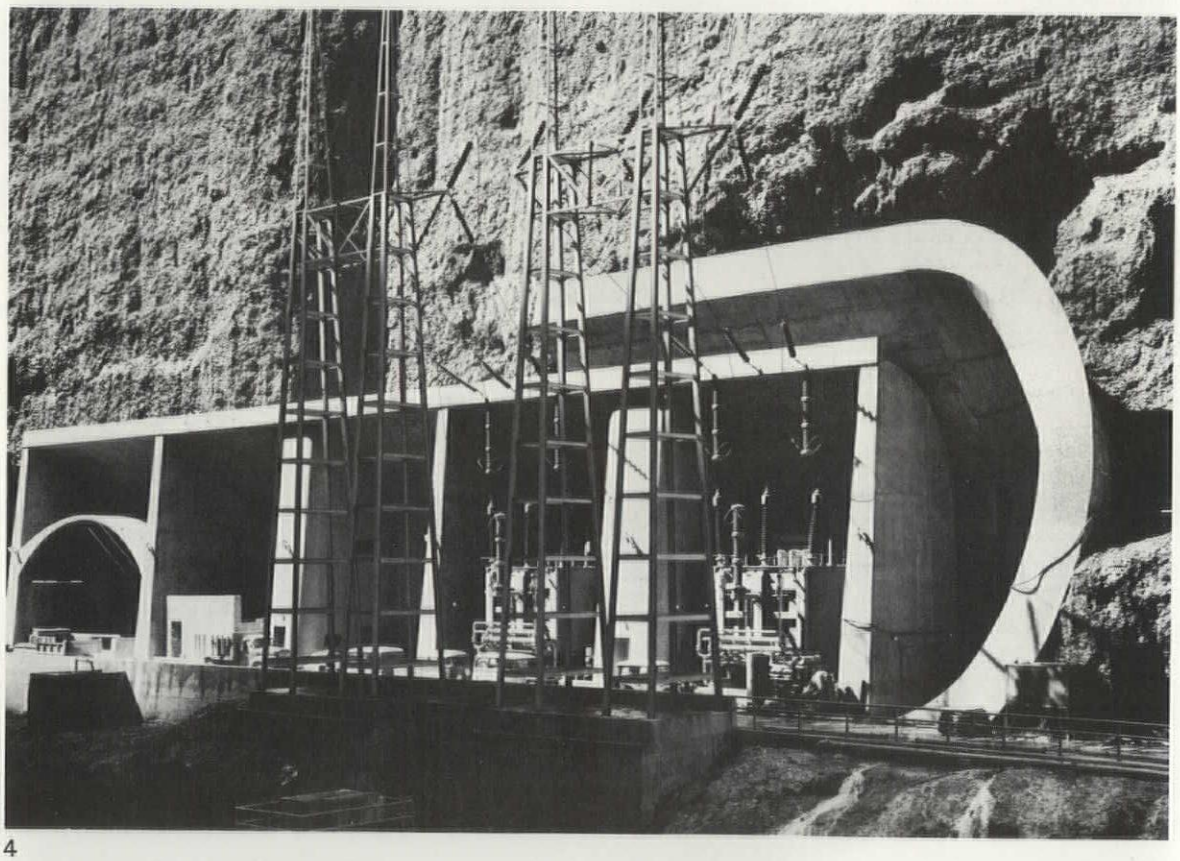
PHOTOS, EXCEPT AS NOTED: DEVELOPMENT AND RESOURCES CORPORATION



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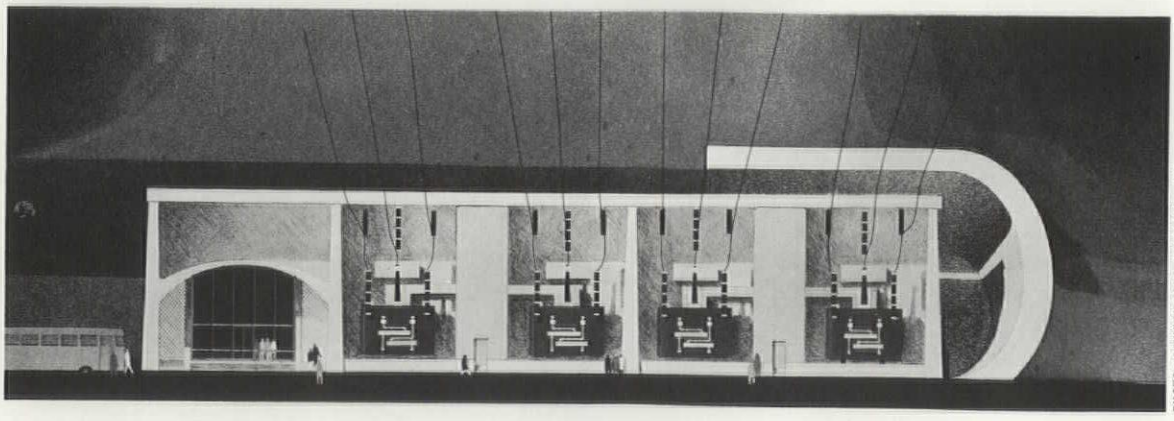
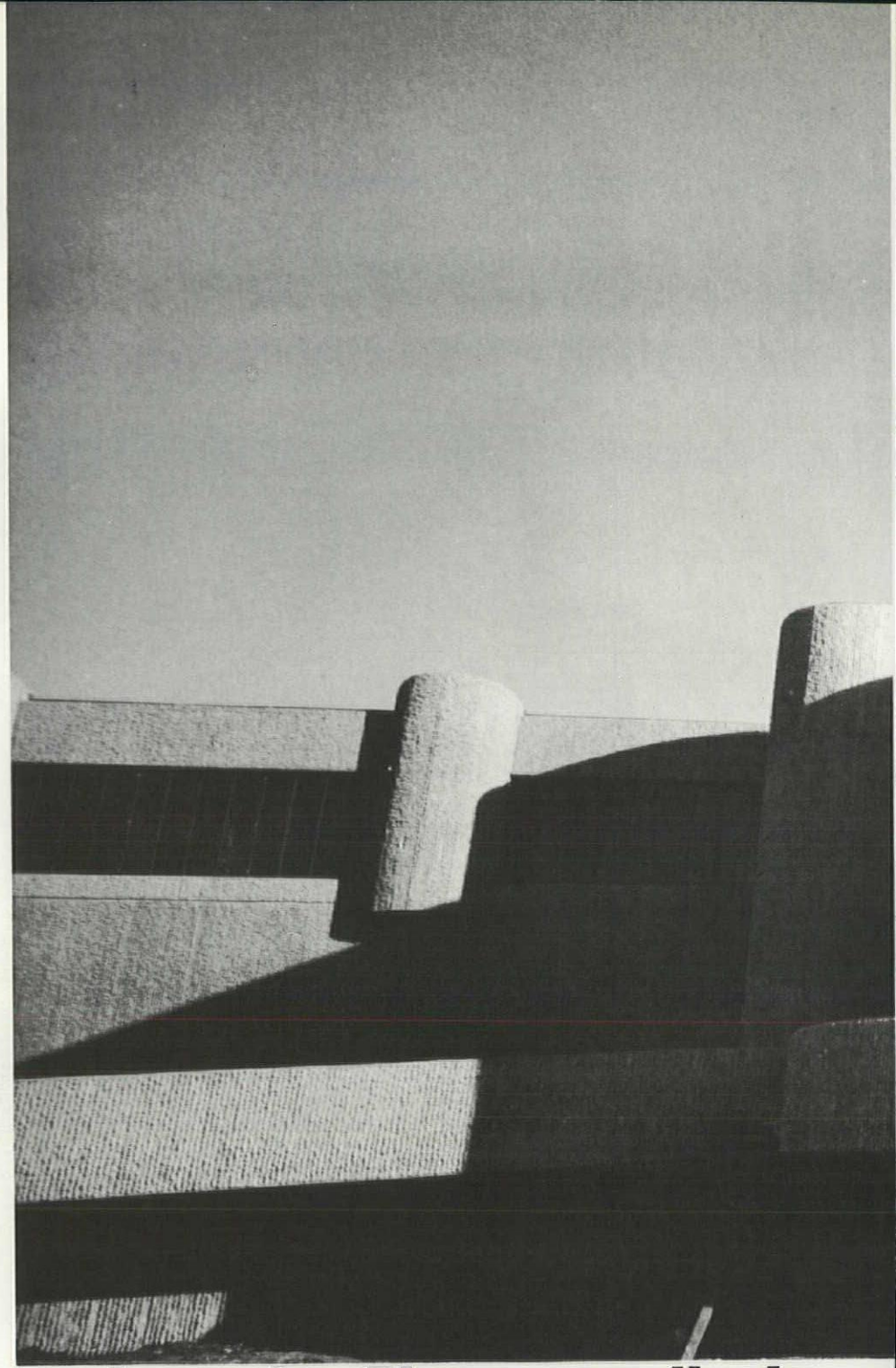


PHOTO: LAWRENCE S. WILLIAMS, INC.

ENDO LABORATORIES • GARDEN CITY, NEW YORK • PAUL RUDOLPH, ARCHITECT

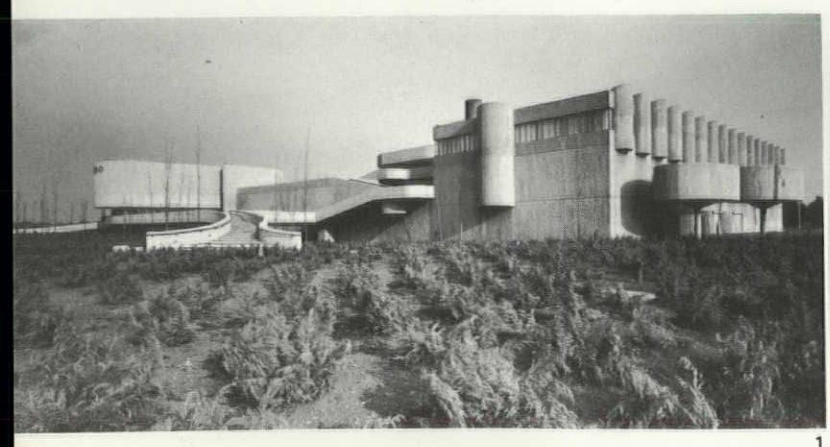


Fortress for Pharmaceuticals

Endo Laboratories manufactures prescription pharmaceuticals—small products of great value—using concentrated, valuable equipment. Space requirements for their production lines are complex and fixed; the plant may be expanded by adding new production lines, but any change in the initial ones is unlikely. The company is especially concerned about the attractiveness of the employee's environment, since they require highly trustworthy and meticulous workers to perform rather tedious operations. They also place considerable value on the public image of their plant-headquarters and its impression on visitors.

The building Rudolph has designed for them expresses all of these requirements. It is compact and precise in its internal organization but exuberant in its external form, in its public spaces and its employee facilities. (*See sequence of views around entire building,* **1, 2, 3, 4.**)

The building is divided into the three major blocks common to many industrial complexes: production, administration, and research. Quite conventionally, the production functions occupy an enclosure of no distinctive form, while the ancillary functions have well-articulated forms. Rudolph has reconsidered the relationship of these blocks (taking the limited area of the site into account) and arranged



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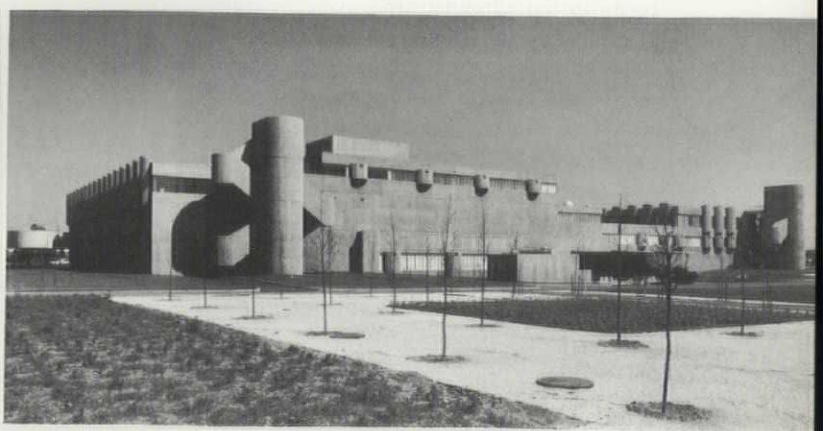

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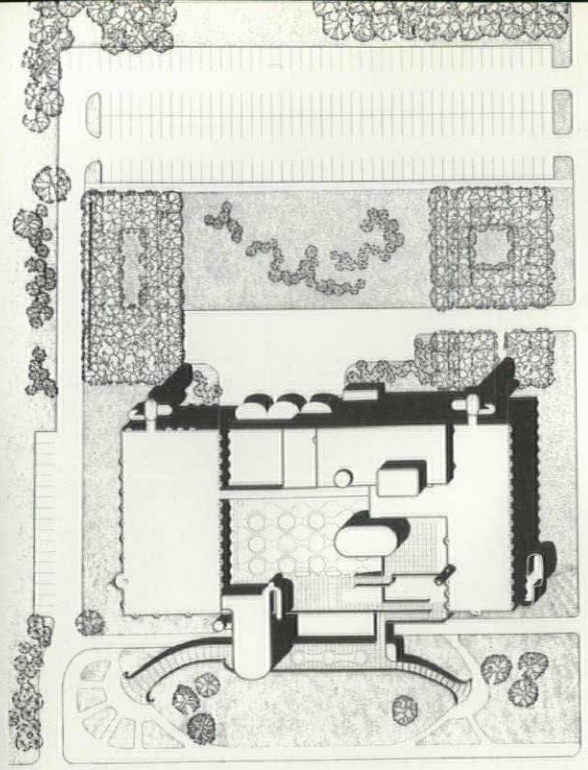
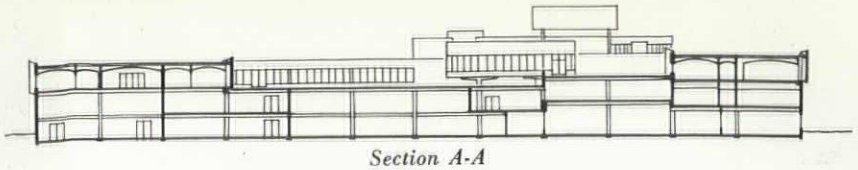
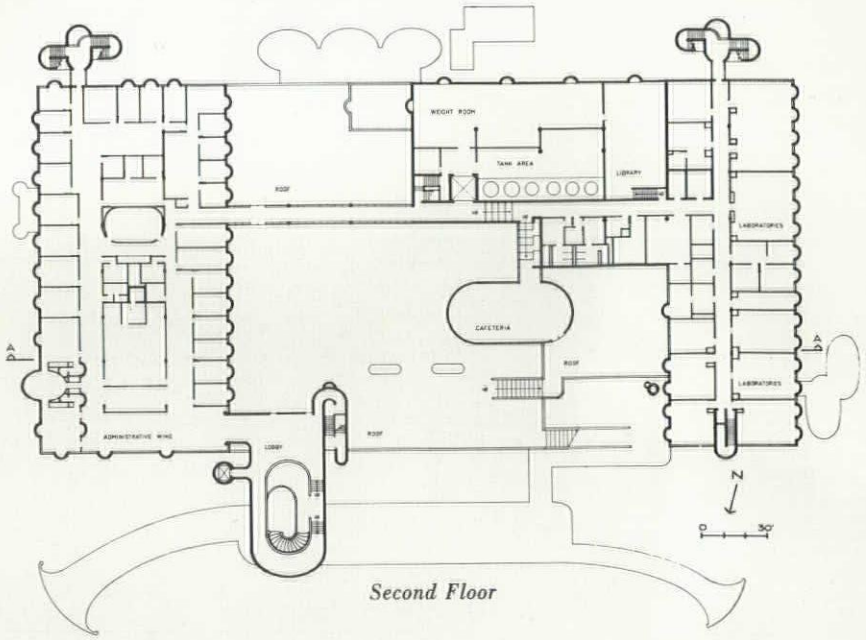
PHOTOS, EXCEPT AS NOTED: ROBERT PERRON

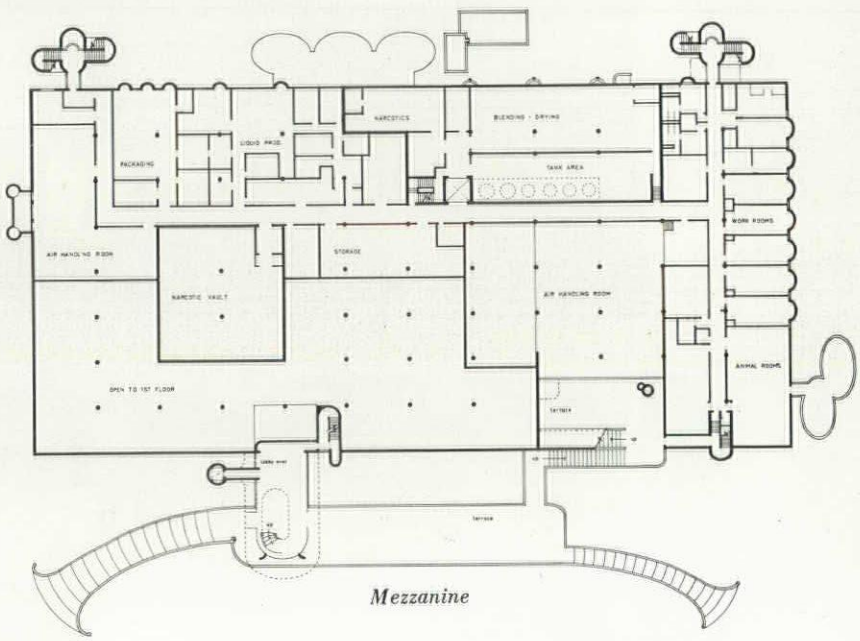




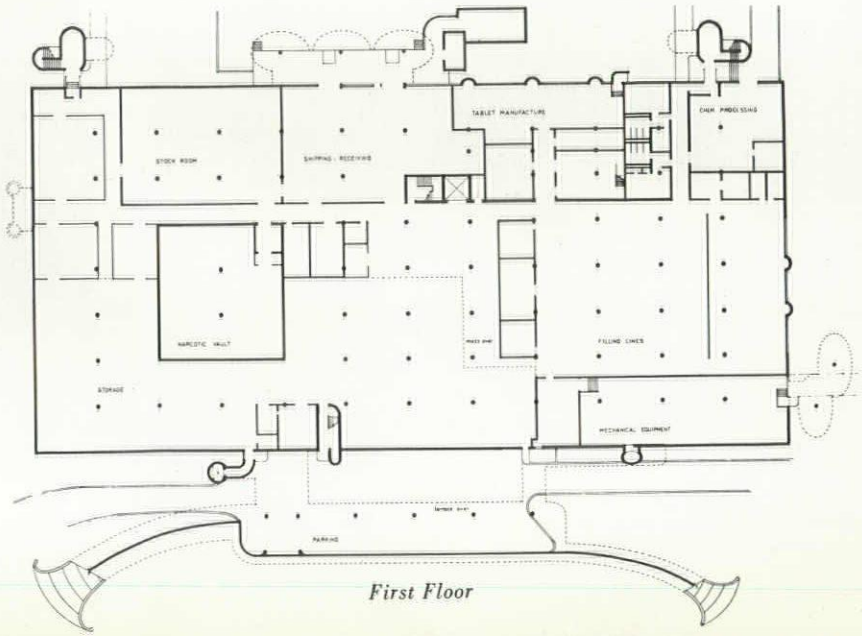
Section A-A



Second Floor



Mezzanine



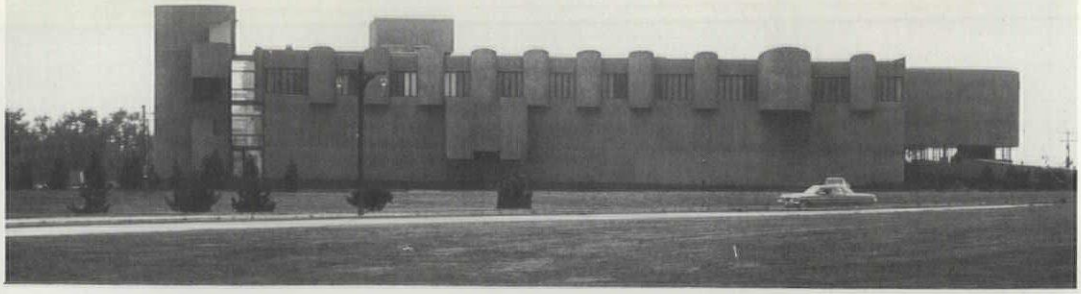
First Floor

them in a new way. Instead of placing the ancillary elements in front of the larger production block, he has placed them on top—arranging them on the landscaped rooftop like a village on a plateau.

The plant includes several different assembly lines (for tablets, syrups, ampules, etc.), which function independently except for the use of some common ingredients and the same final warehousing and shipping facilities. Instead of the generalized, flexible spaces sought for most production facilities, these processes require highly specialized spaces, of specific heights and areas, interrelated vertically as well as horizontally to fit gravity flow production lines. The result is an interior of interlocking volumes fitted together like the parts of a machine.

The clients' concern for the building's impression on visitors and the public is unmistakably expressed in all areas they might see. The sculptural forms of the building, standing on a promontory along the Meadowbrook Parkway **(5)**, have made it a landmark for multitudes of commuters and beach-goers.

The visitor enters the building and proceeds to the administrative area through a sequence of dramatic changes of level, each one revealing a hitherto concealed view. A stairway of Baroque sweep **(2, 6)**, which forces the visitor to alter his customary pace, leads to the reception lobby **(8)**, whose transparent walls reveal a terrace planted with flowers. Another imposing stair (or an alternative elevator reached through a narrow passage) leads to the upper lobby, where another rooftop terrace **(7)** comes into view—this one larger and more elaborately landscaped than the first, and more secluded from the drab suburban sprawl surrounding



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◀7

the site. Arriving in the administrative area itself **(11)**, one finds yet another withheld vista—back over the parkway.

Employees enter the building by a less dramatic route—through groves of trees **(4)** from the parking lot at the rear of the building. For meals and rest periods, however, they retire to one of the building's most dramatic places — a glass-enclosed pavilion hovering a few feet above the upper roof garden **(13)**.

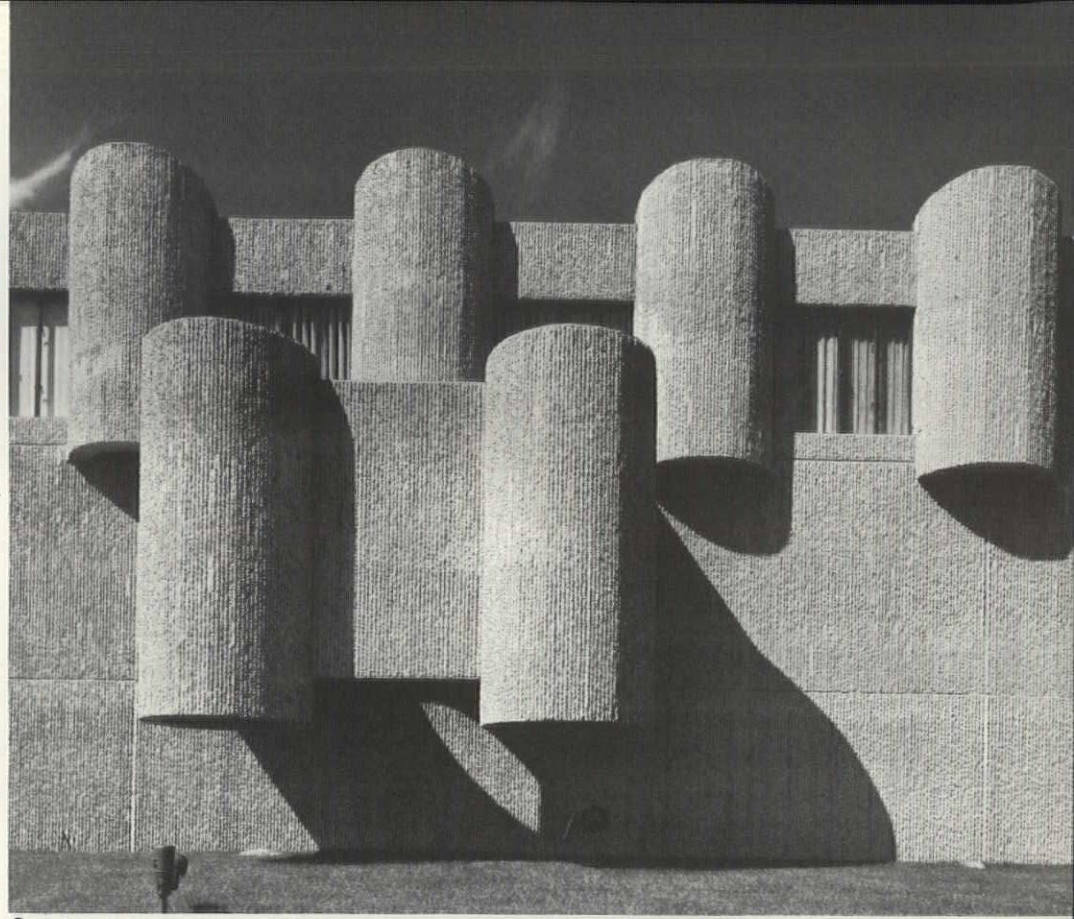
The concrete turrets that connect pairs of structural columns on the exterior walls of the building **(9)** provide recesses on the interior, which serve specific purposes in some areas. In the research laboratories, they form desk alcoves; in the administrative offices, they form chair alcoves behind the executive desks **(10)**. In this latter area, the turrets are topped by plastic dome skylights that illuminate the desk area. Other projecting concrete elements, housing air intakes and exhausts **(9)**, echo the forms of the turrets.

The basic material of the building is exposed cast-in-place concrete. On the exterior, the concrete has a ribbed exposed-aggregate finish identical to that of Rudolph's recent Art & Architecture Building at Yale (p. 112, FEBRUARY 1964 P/A). The same finish appears in the lobbies and administrative areas, along with other materials used in the "A&A" Building: bright orange carpet and sprayed asbestos fiber ceilings. In the administrative areas **(11)**, the fiber is applied to suspened ceilings that simulate the curves of concrete vaults; this device leaves room for air-conditioning ducts while allowing the full height to the structural slab to be utilized.

Rudolph's office was in charge of all interior design. They have chosen smooth, precise materials—walnut paneling and cabinetwork **(10, 12)** and white plastic laminate desk tops **(8, 11)**—to play against the ruggedness of the walls and softness of floors and ceilings. The tops of reception desks and executive desks have curvilinear shapes related to the plans of surrounding spaces.

The total cost of the building, including all installed equipment and services, was approximately $4 million, or about $26 per sq ft. No attempt has been made to determine the cost of the building alone, since the building and the production facilities were integrated in design and executed under a single contract.

Job Captain for the project was Bryant L. Conant; Structural Engineer was Henry A. Pfisterer; Mechanical Engineers and General Contractors, Walter Kidde Constructors, Inc.; Landscape Architects, Robert Zion-Harold Breen ■



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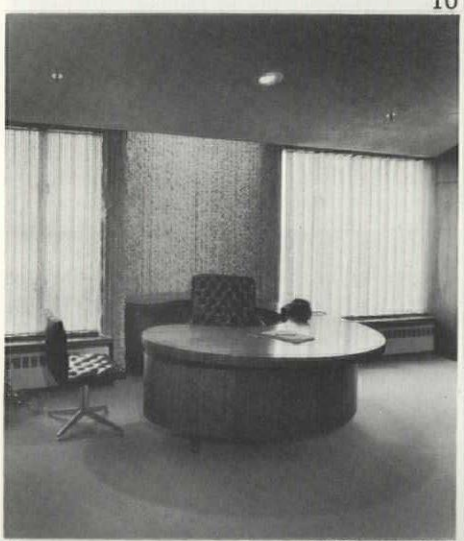

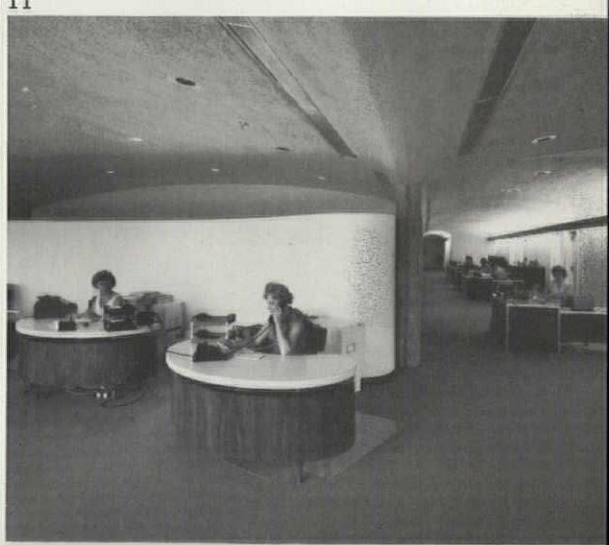

12 PHOTO: LOUIS REENS 13

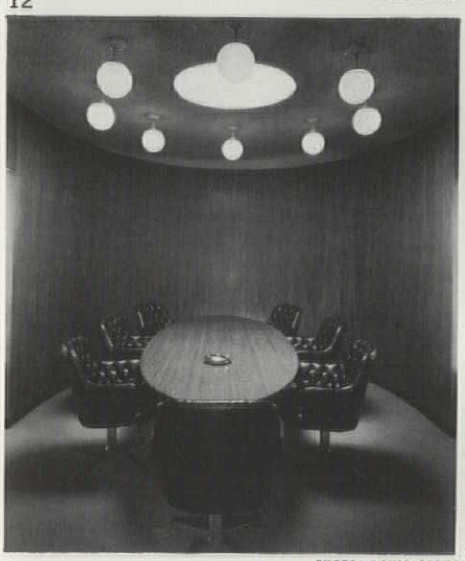

PHOTO: LOUIS REENS

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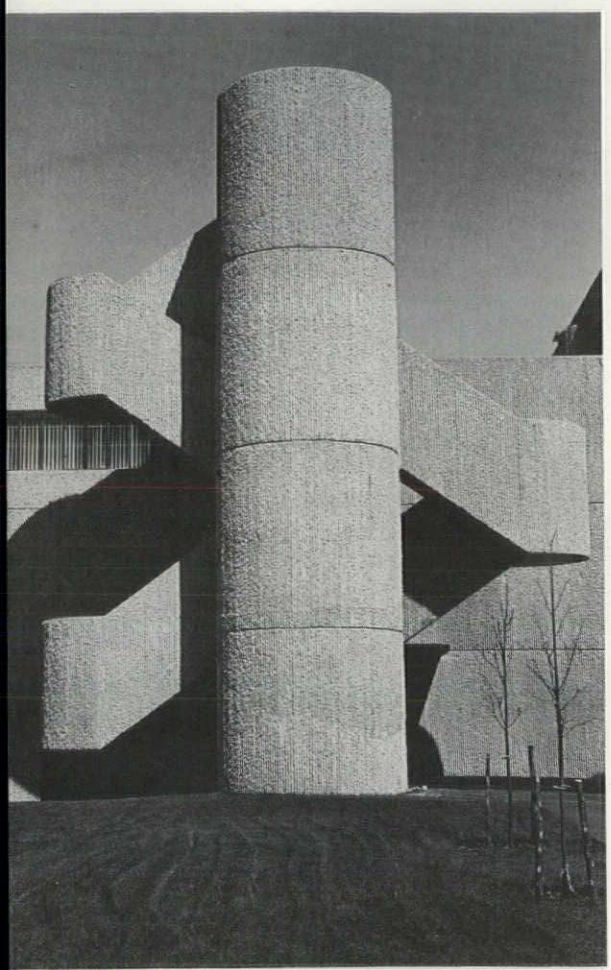

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Rudolph has organized the production functions of his pharmaceuticals laboratory like the parts of a living organism. Different processes occupy interlocking spaces — all but a few of them concealed from exterior view. As in a natural organism, the parts that do require contact with the external world are distinctly expressed. Even the external adornments, such as landscaping, are related to the body of the building like fur or plumage.

The outward and upward thrust of certain elements on the exterior is characteristic of Rudolph's recent work and follows his intention of "breaking out" of the "package" imposed by the Miesian aesthetic. Since this building was designed concurrently with the celebrated Art & Architecture Building at Yale (FEBRUARY 1964 P/A), it is interesting to see how he has treated this less prominent commission. Coincidentally, the thrusting elements of both buildings were subject to practical limitations — at Yale, a constricted site, and at Endo a 35-ft. height restriction. (This restriction, the result of proximity to Mitchell Air Force Base, was suddenly lifted when the base was closed, but too late to permit more than minor revisions in the design.)

While the forms of the Yale building are rectangular, the motif of this building is the vertical cylindrical surface. Early published studies of it suggested a return to the smooth cylinders and tangent planes of the early International Style, but Rudolph's use of vertically ribbed exposed-aggregate concrete, like that of the Yale building, erased that impression.

This technique is quite appropriate for cylindrical surfaces, but one wonders whether other textures might not have been preferable in some interior areas — particularly in the private offices **(10)** — where the fractured ribs seem too coarse. A suitable alternative treatment can be found in the building itself: inside the stair towers **(14, 15),** where a texture of narrow, flush vertical boards has been used. The turrets projecting from the offices could thus have had the pleasing differentiation of exterior and interior surfaces that one finds in sea-shells.

The execution of curved surfaces in exposed concrete raises problems that only the most meticulous (and expensive) workmanship could have overcome. Since the curves of the concrete could not be smoothed over with surface materials, one sees many sudden bends and flat places in curves intended to be fluid, producing an effect like that of halting calligraphy. This is particularly apparent in curves of large radius, like those of the main entrance stair **(6)** — for which large areas of flat formwork were used — and in small-scaled details like the nosings of the lobby stairs.

Aside from the control of concrete surfaces, there are features of the interiors that do not seem to contribute to the over-all concept. The hung ceilings of the administrative offices **(10, 11)** are particularly disconcerting (however ingeniously they may have solved mechanical problems) both because they simulate the forms of structural vaults and because they introduce horizontal cylindrical surfaces into a scheme otherwise limited to vertical cylinders and horizontal planes.

Smaller interior design elements that might have been reconsidered by the architects include the white plastic laminate desk tops **(8, 11)** (the kidney shapes of which look too much like mass-produced vanities) and some of the lighting fixtures, among them the overscaled globes crowded around the skylights of the conference rooms **(12).** Among the many well-chosen furnishings are the unusual vertical blinds of the administrative area **(10),** which are custom-designed and hand-made out of sisal rope.

The turrets that are so prominent in the exterior form of the building provide interesting, if somewhat theatrical, settings for the executive desks **(10).** In other parts of the building, they accommodate desks or ducts. In some areas they have no purpose except, of course, of serving as structural columns along the window walls. Where they occur below the top floor **(4),** they require elaborate sheet-metal detailing and cast-in-place concrete scuppers, often for roof areas of only 3 sq. ft.

The landscaping so essential to the design concept does not complement it as well as it might have. The use of ivy hanging over walls is so lavish along the front of the building that it may eventually obscure its strong forms. The layout of terrace planting in sinuous beds **(7)** represents a respectful nod to the architecture, but the wave-like repeating curves used are not in harmony with the circular arcs and spiral curves of the building plan.

Whatever flaws one might find in this building — in the construction difficulties the architect has generated, in his choice of some details, in his use of the turrets far beyond their positive contributions — one must respect the fertile intelligence that created it. Rudolph has succeeded, as few others could have, in giving the functions of such a building significant expression. Few others, moreover, could have created such a fascinating sequence of spaces and vistas to enrich the lives of those who work in or visit the building. —JMD

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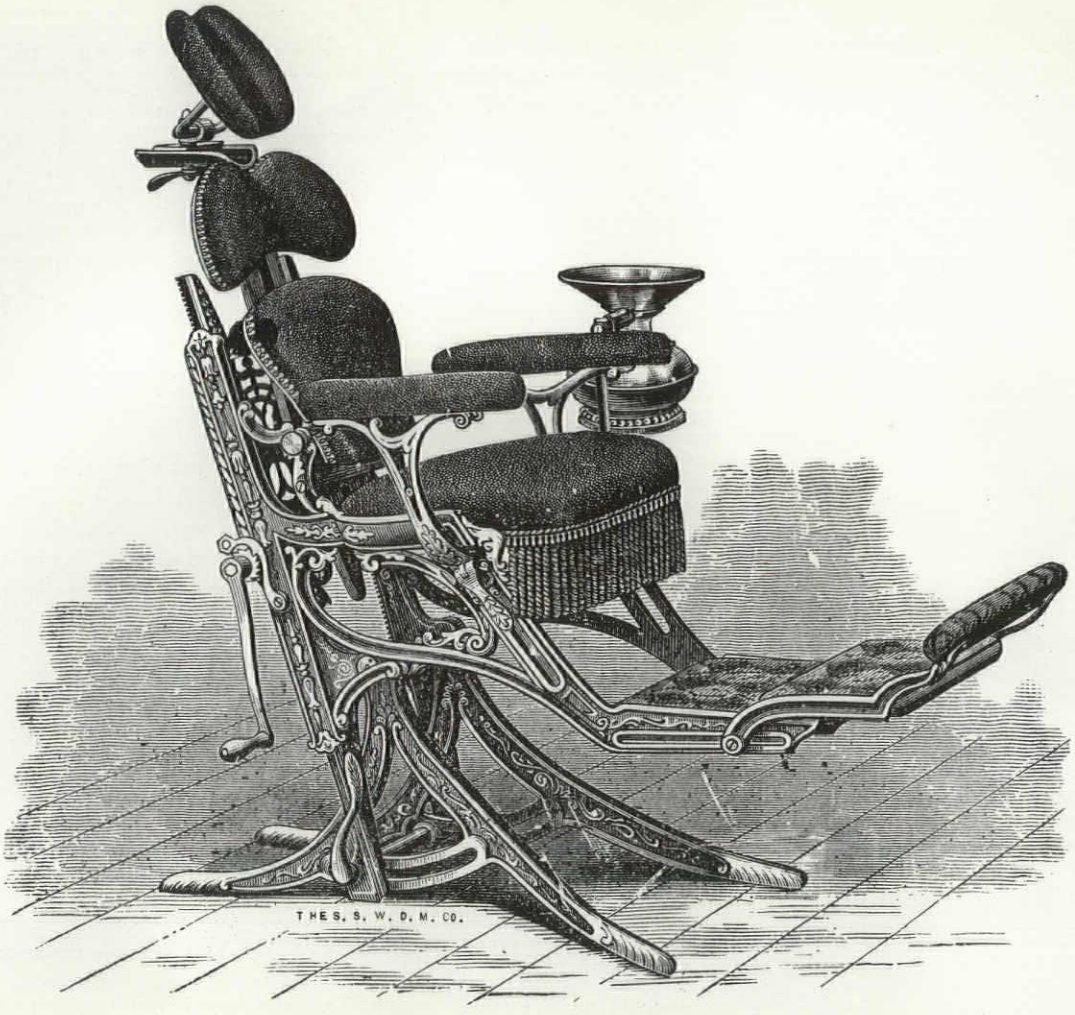
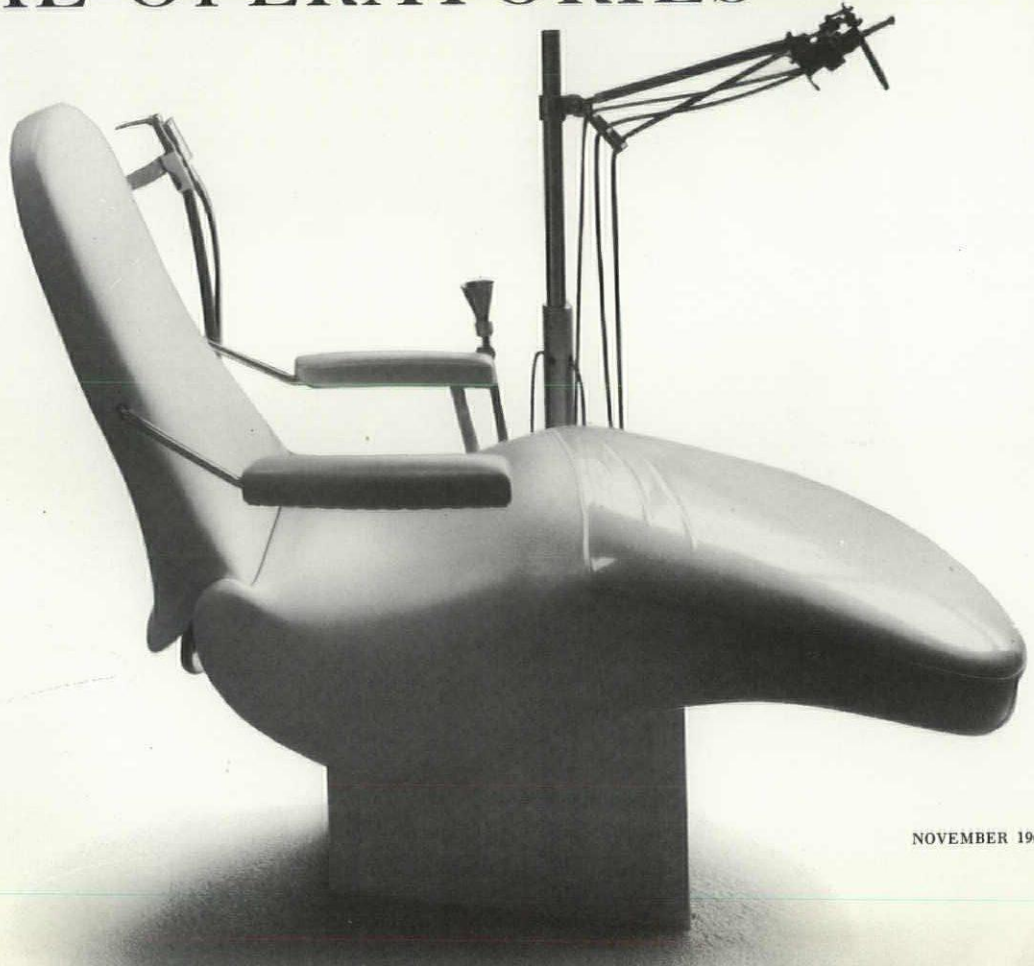


THE BETTMANN ARCHIVE

DENTAL OPERATORIES



The dental profession at the moment is undergoing enormous changes in both methods of practice and in equipment design that complicate the already complex mechanical problem of designing dental operatories.

For, each of these patient's rooms must be supplied not only with the usual lighting, air conditioning, and acoustical equipment, but also with gas, air, suction, water, X-ray, intercom, separate circuits for each major piece of equipment, and, frequently, stereo. Yet little real professional study has been made in this area of design.

Many dentists have personally undertaken to plan and design equipment to meet their individual requirements, but the results, although often thoughtful, have generally been Rube-Goldberg-like contraptions that are neither functional nor attractive. In addition, the large manufacturers of equipment have been commonly slow to market new models and do not seem well equipped to conduct extensive development programs. Furthermore, the distributors of equipment often contribute planning services without charge, and the majority of dentists—and even some architects—accept their equipment and layouts without challenge.

The frequent and familiar result of all this is an obsolete or ill-conceived room—not the least of a patient's horrors—and often an operatory inadequately supplied with the required raft of equipment at the precise location where the dentist needs it. The technical and architectural challenge of this situation is considerable and needs more attention from both the dental profession and architects.

One long-honored practice of dentists that still makes a strong aesthetic contribution to operatories, however, is that of giving patients a view with which to occupy their minds, or at least their eyes. Today, this standard procedure produces some pleasant—if contrasting—effects, in the form of small courtyard gardens and garden vistas (*right*).

New, among methods of practice that influence the design of equipment, is the thinking that a dentist can more efficiently perform his work when seated. Already adopted by many dentists and dental schools, this technique has had the most far-reaching effect on the profession. Since, in this method, the dentist works sitting on a low stool at the head of the patient, with an assistant seated opposite him, a new reclining dental chair (shown bottom, this page, as used in the Bellevue Medical-Dental Center, Bellevue, Washington, by Mithun Associates, Architects) has been developed to place the patient in a low enough position to facilitate the dentist's work. Several other modifications of previous dental procedures must also follow when this new method is adopted.

Another area of practice that influences the design of equipment is the operational procedure for instruments that is preferred by the dentist. Two procedures are current: one, the tray system, by which the dentist uses only instruments assembled in advance by his assistant onto a tray; the other, the drawer system, eliminates the advance gathering of instruments by making them all immediately accessible in cabinet drawers within fingertip reach. Clearly, both the design and the layout of the operatory are affected by such procedures.

Among recent innovations in equipment, several have helped improve the appearance of the operatory slightly. One is the sleek, if super-Hollywood-spaceship design of the new, reclining chair; another, the new, high-speed drills, which are a blessing to patient and dentist alike. A third is the elimination of the large, standing cuspidor and the substitution of the funnel-like cuspidor, which has only a hose connection for a base so as to make it accessible to patients on the new, lower chair. This new cuspidor, which is attached to the central vacuum system, is hooked to the side of the chair when not in use (note left arm of chair, *facing page, bottom*) and is held by the patient or by the dental assistant when needed. The aesthetic advantages of this smaller unit are immediately apparent.

Besides the modification of basic equipment (which would seem to be the province of the architect or designer until manufacturers give more attention to design), and besides the proper installation of mechanical equipment (which is assuredly the architect's responsibility), there is ample scope for design in the dental operatory, not the least of which is the elimination of such mechanical clutter as the cables and conduits that almost always litter the floor. Several dentists have recognized this, as the projects on these pages show, and several indicate that their architects have assisted them in their actual procedures by careful planning and design.

Both the projects shown in detail on the following pages are operatories for specialized practices, one orthodontia (the straightening of teeth and correcting of deformities), and the other prosthodontia (the addition of artificial elements to the teeth for both functional and cosmetic purposes). In both cases, the clients were fundamentally responsible for conceptual thinking and basic arrangement of equipment.

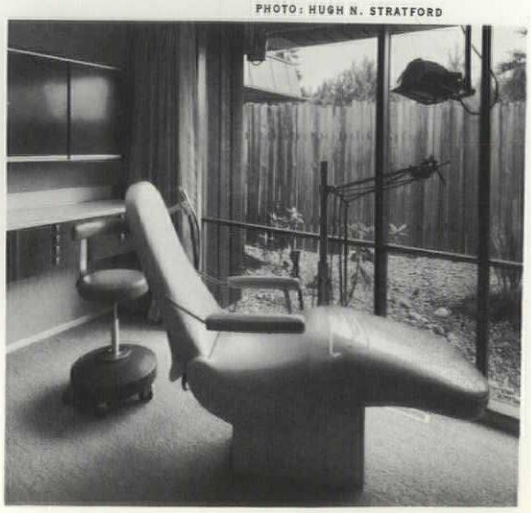
The orthodontist whose new building in Akron was designed by Harvey D. Stubsjoen and Karl F. Zintl has conceived an open-plan operatory with four chairs in a radial arrangement so that patients face away from one another. This arrangement shortens walking distances for the dentists and nurses and results, the client feels, in a more efficient over-all operation; furthermore, the radial plan seems to afford patients an adequate sense of isolation, on the one hand, and the company that misery loves, on the other.

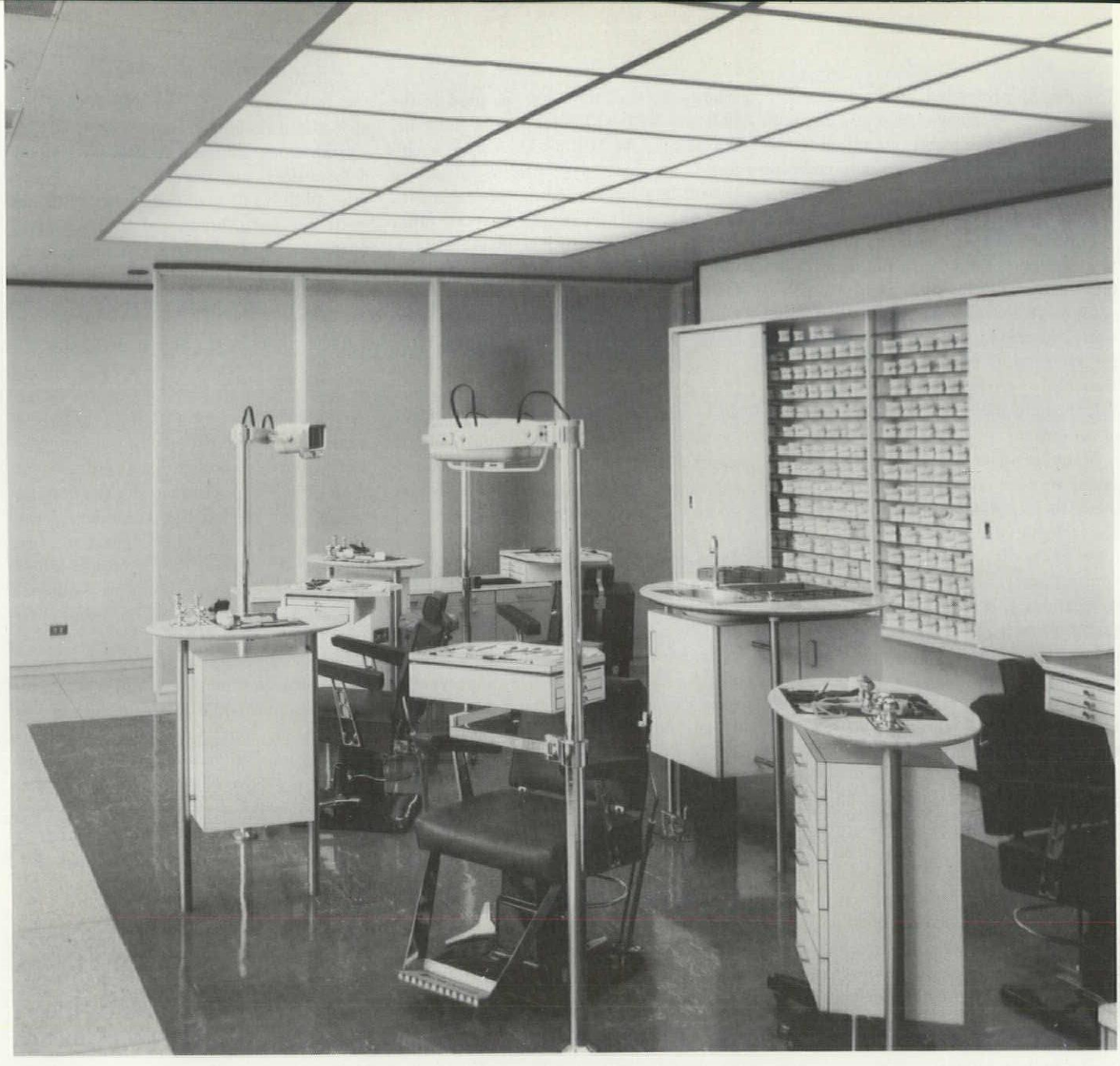
In this operatory, all four chairs are in use almost continually: a nurse will prepare one chair while a dentist and a nurse work at a second. Occasionally, a situation requires the dentist and his associate each to work two chairs at the same time. At such times, with about 10 persons present, the operatory is still found to function efficiently, and much of the credit for this must go to Stubsjoen and Zintl.

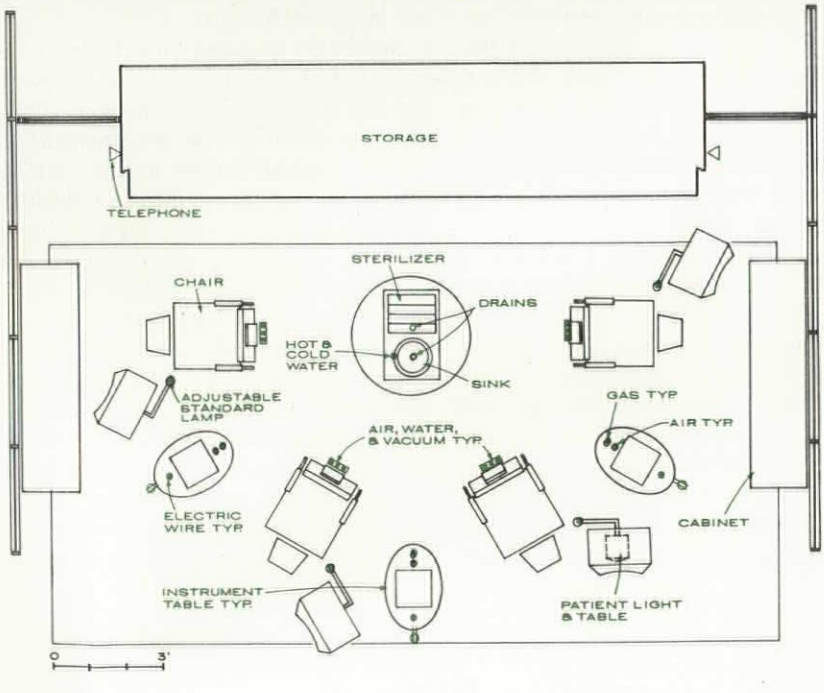
The prosthodontist whose operatory was designed by Lee Harris Pomeroy works seated, following the new method, and consequently makes use of the reclining chair for his patients. He also employs the drawer system, and, like most dentists, has developed his own arrangement of instruments. With these preconditions in mind, architect Pomeroy devised an elliptical plan that places all the needed instruments easily within his client's reach, while giving the room a feeling of spaciousness.

These operatories illustrate some successful results of directing design attention to this often neglected problem ■

PHOTO: HUGH N. STRATFORD






STORAGE
TELEPHONE
STERILIZER
CHAIR
DRAINS
HOT & COLD WATER
SINK
ADJUSTABLE STANDARD LAMP
GAS TYP
AIR TYP
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INSTRUMENT TABLE TYP
PATIENT LIGHT & TABLE
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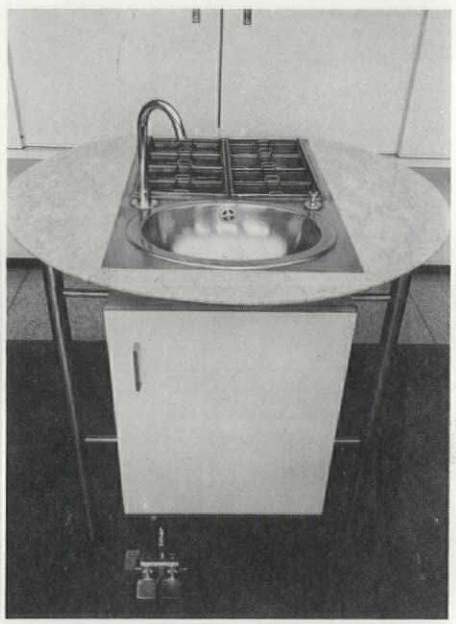
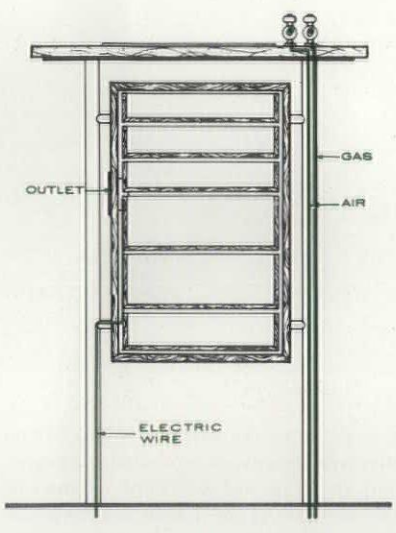


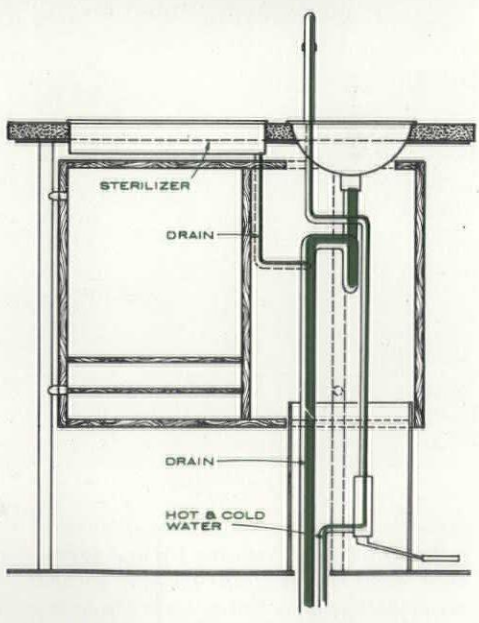
PHOTOS, THIS AND FACING PAGE: ROBERT FINE

The operatory designed by Harvey D. Stubsjoen and Karl F. Zintl for an orthodontics practice in Akron, Ohio, (these pages) *has four chairs arranged in a radial plan to expedite the dentists' work and at the same time to give the patients a sense of isolation by having them face away from one another. As they work, dentists and nurses refer frequently to the models of patients' teeth, which are visible to them on shallow rows of shelves in the wall cabinet behind the chairs. A central work island, containing a sterilizer, and a sink and towels for frequent washing of hands, is also a focal point.*

Equipment and supplies used throughout the day are kept in drawers under the elliptical tables, which are supplied with gas, air, and electricity, and which serve as work areas for each chair. The actual instrument set-up is made on the tray-like patients' tables that swivel from the light standards.

Except for the chairs and the lamps, as well as sink, pedals, and taps, all the equipment in this operatory was specially designed by Stubsjoen and Zintl—the lamp standard and elbow-supported table, the elliptical work tables and cabinets, the center island, and all other cabinetry and equipment. The lamp itself required some modification to adapt it to the lamp standard. The elimination of floor clutter and the incorporation of piping and cables in the work tables is exemplary.



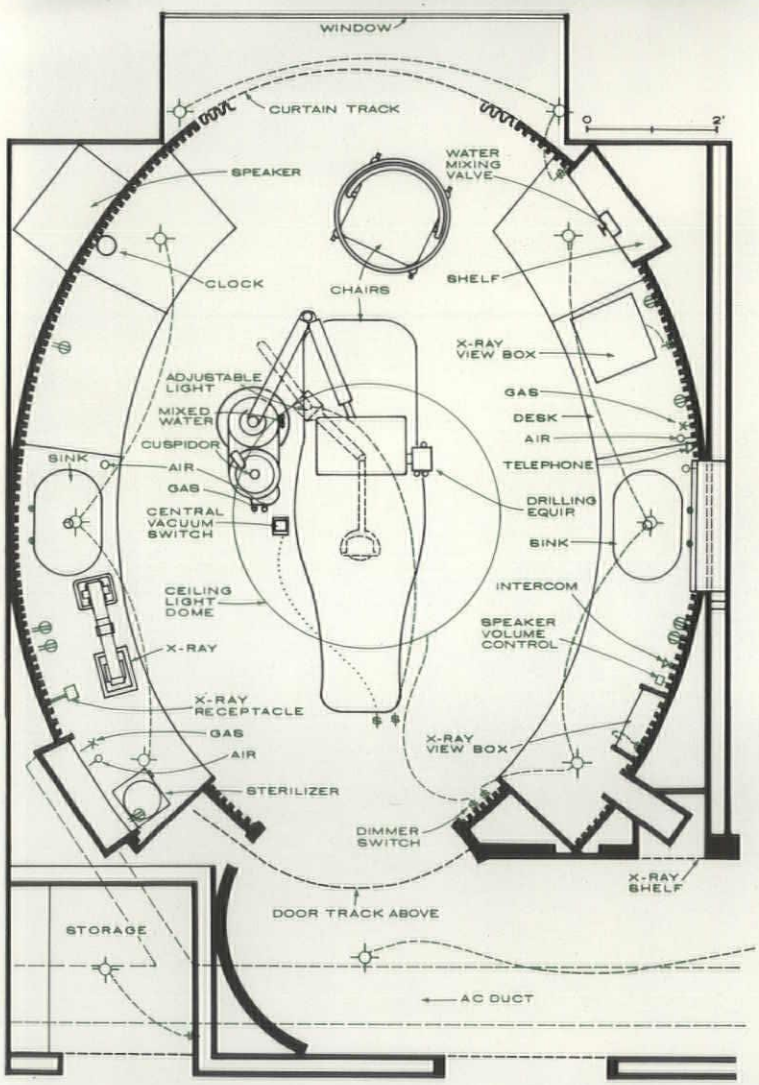


Since the prosthodontics practice of his client is concerned with improving physical appearance, Architect Lee Harris Pomeroy felt that the dental operatory had to convey "a feeling of professional competence, precision, and visual sensitivity."

"The elliptical shape of the room," Pomeroy says, "is not an arbitrary form, but an architectural expression of dental procedures, in that it brings all necessary instruments within the reach of the dentist and his assistant, even though they are seated on opposite sides of the room, and it still provides a feeling of spaciousness." The dentist works with the new method, seated on a low stool at the head of the patient, who is put in position by the new reclining chair.

"Standard dental cabinets," Pomeroy continues, "were found to be neither attractive nor efficiently planned, so we elected to design all cabinets and to modify equipment

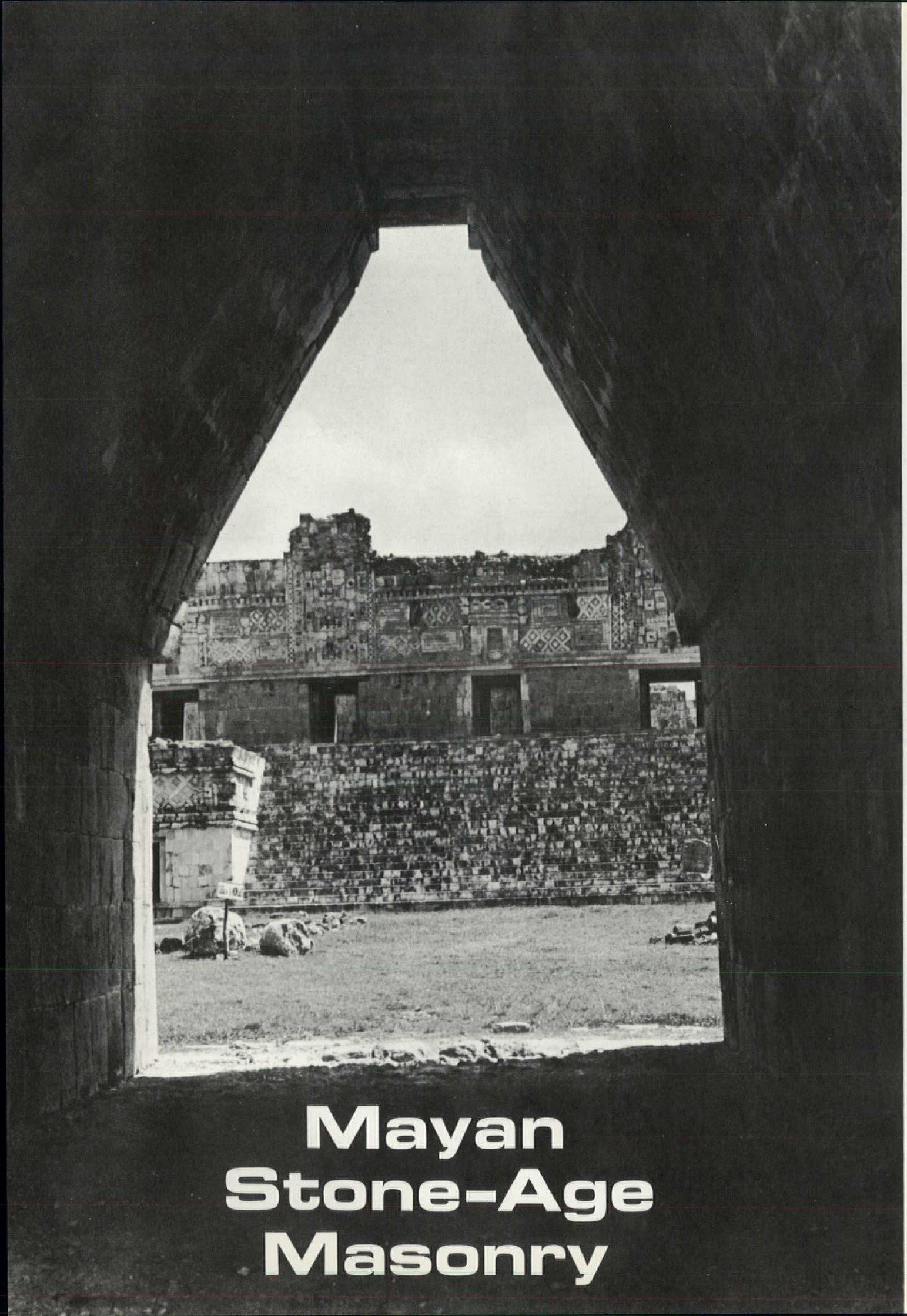
PHOTOS, THIS AND FACING PAGE: LOUIS REENS



where required. We see few advantages in the new cabinets of plastic laminates, which equipment manufacturers currently hail for efficiency and sanitation, so those here are of old-fashioned solid wood—walnut." Drawer arrangements of instruments, worked out by the client, were accommodated by the architect with evident precision. Several drawers contain electrically-operated equipment, the cables to which are concealed.

The lamp is ceiling-mounted to eliminate floor clutter. Oak battens over white plaster walls help to minimize the number of openings for equipment and stereo.

"This is a specific planning solution to a highly specialized dental practice and manner of working," Lee Pomeroy concludes. "As we see it, the architect's task begins with the conviction that a professional office is an expression of a man—how he thinks, works, and is equipped to serve others."



Mayan Stone-Age Masonry

"I do not think we can say that primitive art is a lower form of beauty than Greek art; although it may represent a lower kind of civilization, it may express an equal or even finer instinct for form."

HERBERT READ, The Meaning of Art

BY FORREST WILSON

Fundamental to the study of Mayan architectural history is its building technology. More particularly, Mayan masonry exhibits a refined sense of high craftsmanship among its builders. The author, Assistant Professor in the Department of Interior Design at Pratt Institute in Brooklyn, discusses and illustrates with his photos two of the more important Mayan building sites, with especial reference to Uxmal, both from a historical and technical point of view.

The magnificent Mayan formal sense has been recognized for well over a century. However, it is seldom noticed that, combined with their aesthetic sensibilities, the Mayas had developed a proficiency in stone joinery and construction techniques equaling their aesthetic accomplishments. This is particularly true in northern Yucatan, where the best-known examples of Mayan carved masonry and monolithic lime concrete construction are to be found. Among the most familiar are the sites of Uxmal and Kabah. Their accessibility, combined with recent restorations, have made them familiar to almost everyone visiting this part of Mexico.

Uxmal and Kabah typify a style of Mayan architecture that differs from that of Palenque and the southern lowlands in the use of carved mosaic sculptured masonry. Whether this basic difference in architectural style is attributable to a difference in time, or due to the Mexican influence, is an archaeological puzzle. In either event, the structures are a magnificent accomplishment—the more remarkable since they represent the work of a Stone Age culture.

Details are carefully planned and extremely well coordinated. The major areas of sculptured decoration are over the door openings and at the building corners. Different styles are often combined, the Puuc with the more decorative Chenes, but the similarity is such that it does not cause a design or detail discord. Most of the detailing is abstract and geometric; although at Uxmal, buildings have sculptures in the round set into the geometric motifs. Phallic sculpture, which is extremely rare in Mayan art and directly attributable to Mexican in-

PHOTOS, EXCEPT AS NOTED: FORREST WILSON

fluence, is also found at Uxmal. These latter works were incorporated utilizing the dominant Mayan construction techniques.

Situated among the ruins at Uxmal are the Nunnery Quadrangle, Palace of the Governors, and the House of the Magician **(1)**. The Nunnery Quadrangle is surrounded by four buildings fronting a central courtyard 260 ft long by 212 ft wide **(2,3)**. The west building is 175′-6″ long, 34 ft wide, and 27 ft high **(3)**. The south building forms a rectangular block 260 ft long by 29 ft wide **(4)**. The northern building, constructed on a platform 325 ft long, 65 ft wide, and 23 ft high, is reached by a stairway 88 ft wide and framed by two smaller buildings **(5)**. The building at the summit is about 263 ft long. The eastern building rests on a platform that is about 7′-7″ high. It is reached by a stairway from a central courtyard 152′-9″ wide. The building is 156 ft long, 34 ft wide, and 27 ft high **(6)**.

The Palace of the Governors, sited on a terrace, is a 65-ft-high, three-story structure, occupying an area of 23,920 sq yds **(7,8,9)**. A stairway with three landings and edged with ramps gives access to an upper platform whose dimensions are about 319 ft long, 39 ft wide, and 29 ft high.

The House of the Magician is composed of several superimposed structures built over different periods (page 183). The way in which detailing of architecture and sculpture has been integrated would do credit to a designer of any age —particularly the stairway of the House, where a row of 12 masks leads upward to a small temple at the stair landing **(10)**. The carved mosaic sculptures contrast with the flat masonry stair mass, accentuating the sculpture and lightening the architecture. This jewel-like carved mosaic temple appears suddenly and massively after the monotony of ascending the stairs. Its existence is only hinted at by the masks, because the steepness of the stair incline does not permit the temple to be seen until the top of the stairway has been reached. This careful detailing and sensitive arrangement of architectural and sculptural elements is typical of Mayan architecture in northern Yucatan **(11)**.

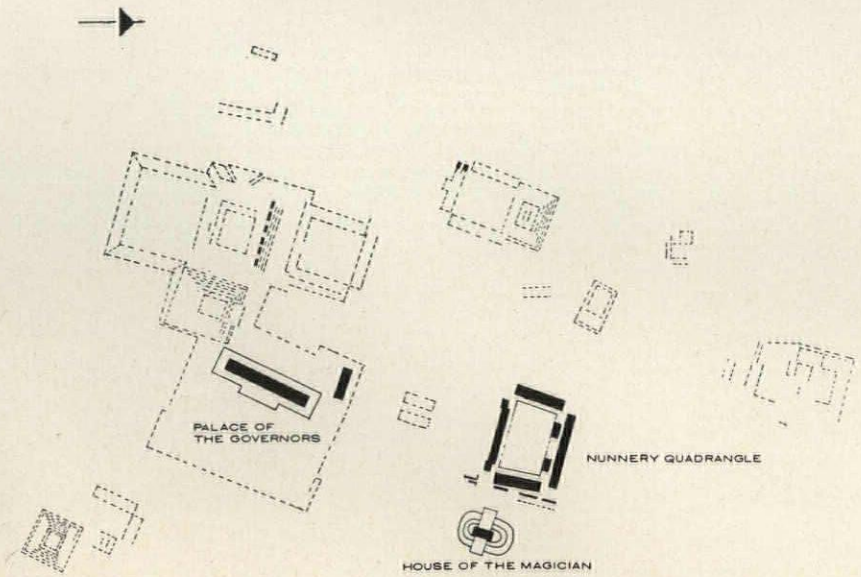
The primary function of Mayan building was not to enclose space. This was of minor importance compared to the sculptured building mass. Often, structural mass is greater by four times than that of the enclosed space. It was not unusual for the Mayan builders to fill an existing room with rubble in order to form a foundation for a new roof comb.

The structural principles underlying the buildings are uncomplicated. Except for the traditional form of the arch, which involved complicated shoring, the techniques employed were simple and direct. The total structure is one homogeneous lime-concrete mass faced with inset carved masonry. This was not the result of a limited primitive capability, for it would be difficult to invent a better, more economic use of materials. Limestone, the fundamental ingredient due to its abundance, was used in its two extremes: calcinated to produce concrete, and naturally for carved masonry. This development of the materials-potential has not altered appreciably during the intervening 1000 years.

Mayan stone carving and joinery, done with stone chisels, attained a perfection equal to any contemporary stonework employing steel tools and machinery. This laborious process made it uneconomic to dress stones on all sides for coursed masonry or corbelling. Instead, the faces were carefully carved and the backs were roughly chipped to fit into back-up masonry. The making of lime was comparatively simple. It was produced by burning crushed limestone in open circular kilns. Then, the lime was slaked and mixed with aggregates for the monolithic concrete. The carved facing stones formed a veneer and served as forms that were shored to contain the rubble mass until it set. The completed building was stuccoed with lime-stucco and then painted.

The buildings were carefully maintained, a fact noted by the Conquistadores, who wrote of the gleaming cities. This maintenance prevented the seepage of moisture into the lime-cement core. But when the cities were abandoned, the lime-stucco coatings washed away, allowing water to open passages; these were exploited by plant roots that forced the stones apart and demolished the wall sections.

The buildings present a section without a plane of weakness. The thick walls and steep incline of the arch throw the mass centroid onto the supporting walls. The arch was sometimes further counterbalanced by the extension of the outside walls beyond the roof level, thereby creating a false front. This extended mass



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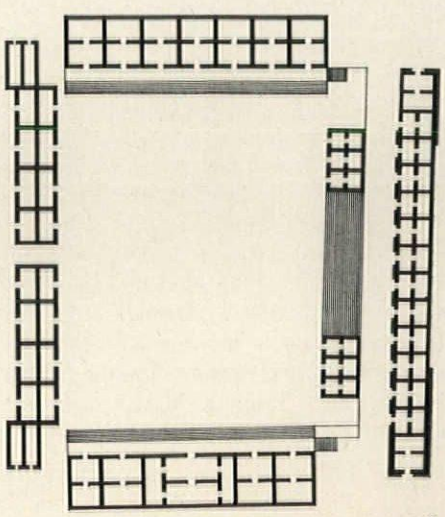

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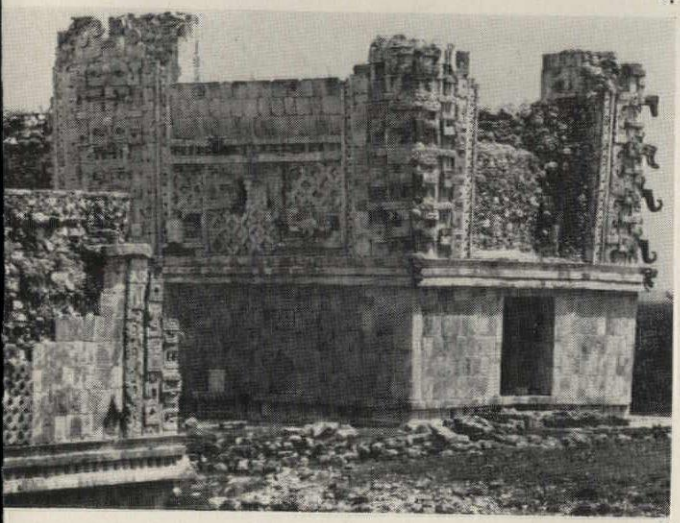

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PHOTO: COURTESY, INSTITUTO NACIONAL DE ANTROPOLOGIA E HISTORIA

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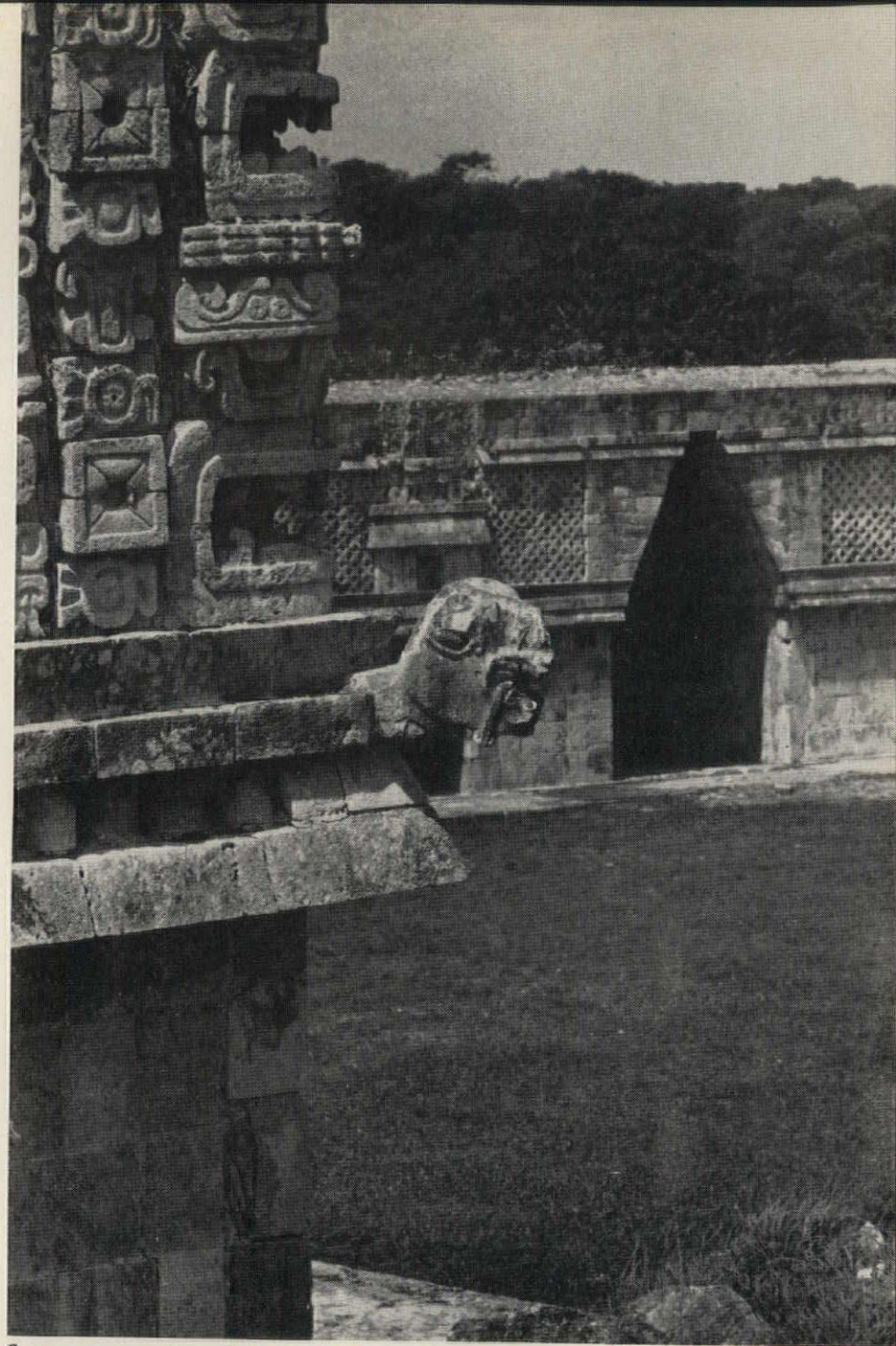

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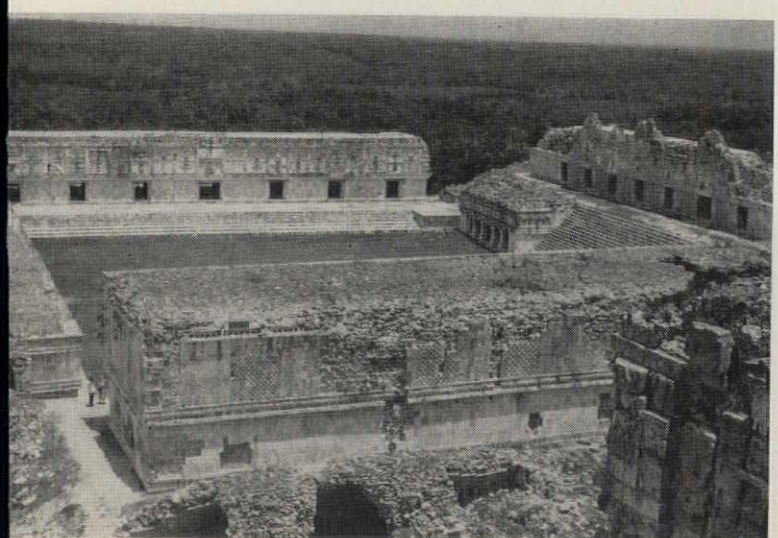
PHOTO: COURTESY, INSTITUTO NACIONAL DE ANTROPOLOGIA E HISTORIA



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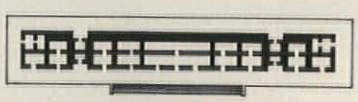

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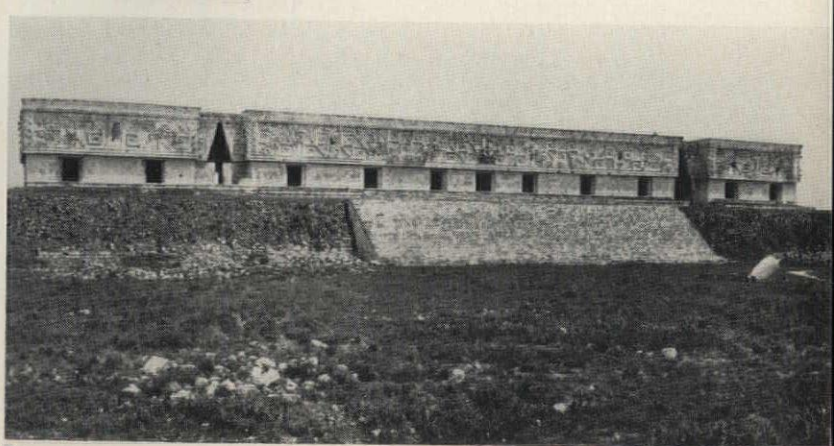

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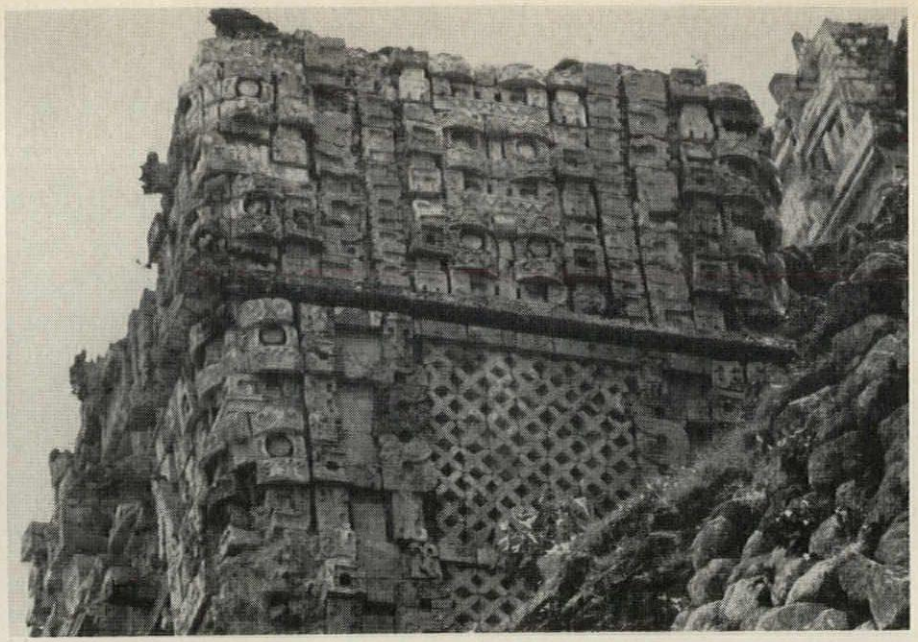

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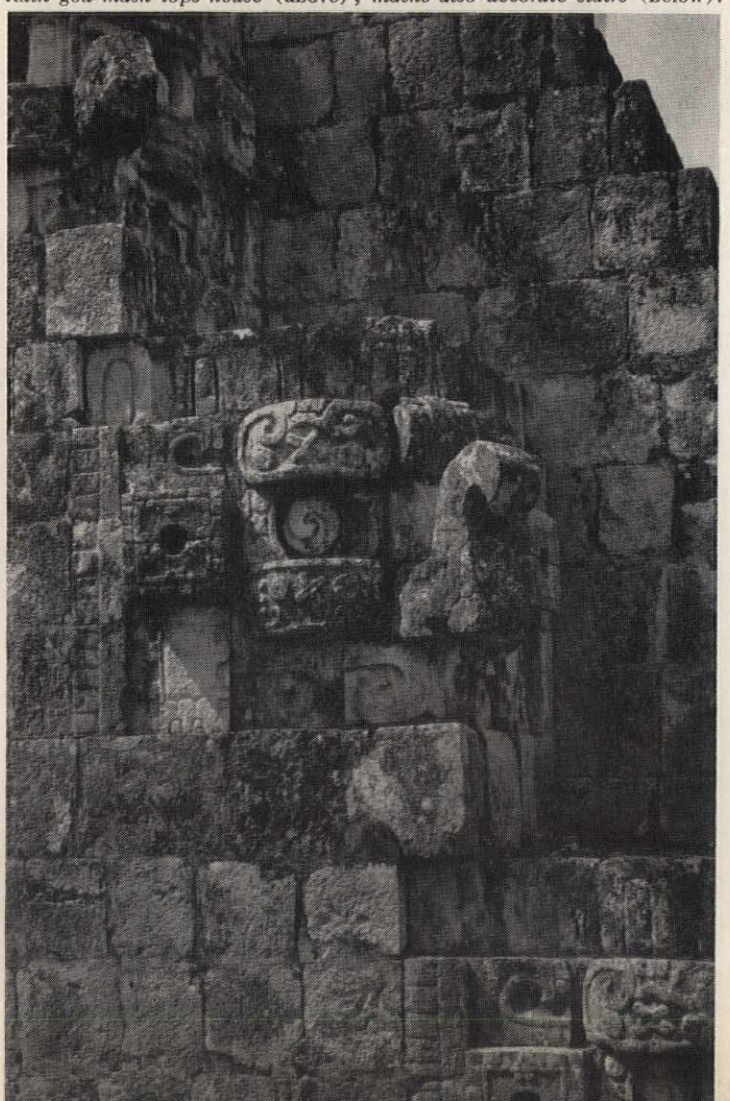
further counterbalanced the arch mass, serving a purpose not unlike the pinnacle in Gothic construction. Where time and voracious vegetation combined to demolish the exterior walls, the arches invariably fall inward, since they are no longer counterbalanced by the exterior walls. These typical Mayan arches are not corbelled, as the face stones would seem to indicate (page 182). They are toothed to fit into the rubble concrete back-up in a way similar to the carved masonry veneer facings **(12)**. The veneered wall facings do not have broken joints. This would be meaningless in an unbounded wall. The capstone of the arch was laid over the two arch segments and acted as a closure. The roofing at the crown of the arch is comparatively thin and adequately supported by the capstone, which usually does not span over 18 in.

The weakness of available limestone did not allow its economic use for lintels, which were constructed of hard native wood. Where these have decayed and fallen, the natural arching of the masonry preserved the walls. This natural arching action was a construction lesson ignored by the Maya, for it was never developed into the true arch.

The form of Mayan buildings was dictated by aesthetic considerations peculiarly their own. The distinctive style, together with the Mayan language, delineate the limits of this particular cultural period of the Mayan civilization. Mayan architecture is primarily a sculptor's art that grew out of a highly developed craftsmanship. Perhaps for this reason there is no word for artist in the Mayan language; the Mayan word for fine craftsmanship serves in its stead ■

Mexican influence is seen in man and serpent (above, below)

Rain god mask tops house (above); *masks also decorate stairs* (below).



FAIL-SAFE DESIGN

BY WILLIAM ZUK

How greater surety of structures can be obtained through the introduction of deliberate integrated topological multiplicities is discussed by a Professor of Civil Engineering at the University of Virginia.

Chisholm's Law exerts its daily influence on us all, in small ways and large, yet it is little known or appreciated. Concisely stated, it reads: "If anything can go wrong, it will." It also has a corollary, which reads: "If anything just can't go wrong, it will anyway." As examples, our car will not start on the very morning we have an important early meeting at the office; our pen bloops a blob of ink as we start signing a letter; the plumbing in the bathroom gets stopped up minutes before guests arrive for a party; a button pops off our shirt just as we are to deliver a speech.

The frustrating and embarrassing examples cited above are for the most part humorous. But to turn our attention to serious matters, how many lives have been lost due to structures that collapsed that should not have, and buildings that caught fire that should not have? Who gains when a community is leveled by a hurricane or a wall of water from a broken dam. Numerous cases can be noted where designers have taken their own lives in remorse for some tragic structural failure. For many others, such failure has meant a total obliteration of their professional career.

How good it would be if all things were made right in the first place, leaving minimum room for these failures to plague us. But to do so would require first an understanding, then an implementation, of the concepts of what we will call *fail-safe design.*

Topological Multiplicities

The essential principle of fail-safe design in structures is that of deliberate integrated topological multiplicities. To unscramble this apparent double talk, look at some examples drawn from nature. In the human body there exist two kidneys, two lungs, two eyes, two ears, etc. When one of these organs becomes disabled, the other tries to take over. Perhaps the full useful capacity is not totally restored, but the body does survive. Even the brain is so intercompartmentalized and interconnected that damage to one part results only in the activities being transferred to another part.

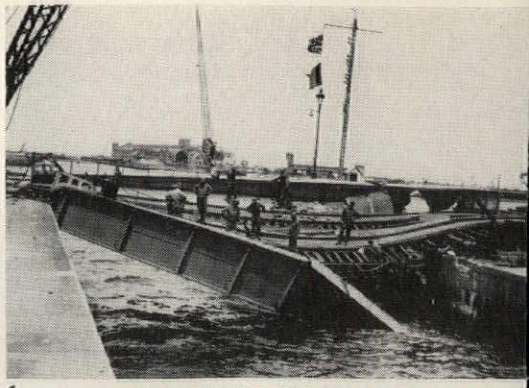
The high degree of interactivity in the human body is of a fantastic order of magnitude, defying all known methods of analysis. There are, of course, certain exceptions, notably the heart. One cannot help but wonder why, with all the other safety checks incorporated, nature did not see fit to equip us also with two hearts, one being a standby for emergencies. However, this may be a problem that transcends simple biological engineering, entering rather into ecological balance conditions relating to overpopulation of the earth should we all live too long.

But to cite another example of the integrated multiplicities of nature, closer to structure, consider the spider web. As any housewife knows, a cobweb cannot be brought down with a mere swoop of a broom handle. Even cutting half the strands will do no good, as the strands are so multiply interconnected that vast reserve strengths are available through reresolution of the stress flows. Similarly, you cannot completely collapse a coconut with one blow of an ordinary carpenter's hammer. At best, you only crack a small portion. Repeated blows must be administered before it is totally crushed. Again, the reason is that the shell form is so topologically integrated that when one portion is fractured, the remaining shell still functions as a stable whole.

Wartime Examples

The action of such a coconut shell is not unlike the many thin shells in Europe that were bombed during World War II and stood to tell the tale. Almost everyone is familiar with the huge Italian air-force hangar built by Nervi which was dynamited by the Germans. The supports were blasted away, causing the roof to fall; but despite the tremendous crash, the roof structure remained virtually intact.

World War II also dramatically demonstrated how an airplane, plinked and blasted full of holes from hostile fire power, so often made it back safely on a wing and a prayer. Again the reason lay in the integrated structural action of the airframe, wherein the forces could reroute themselves around damaged components in their attempt to remain stable. We also remember in that war how an air-force bomber accidentally rammed the Empire State Building, ripping out several floors: columns, beams, and all. Although not intentionally designed for such distress conditions, the building stood virtually as before, with the loads from the upper floors shunting the weakened sector, thanks to accidental structural redundancies in the frame and walls.

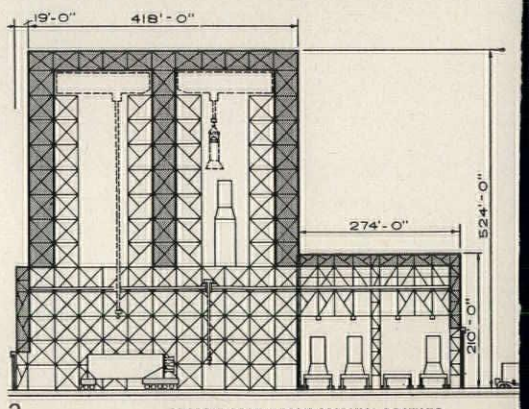


1 PHOTO: COURTESY OF U.S. ARMY, FORT BELVOIR, VA.

Even with extensive damage to one girder of the war-damaged bridge in Cherbourg, France, the structure still fights to stay up, using its aspects of girder continuity and its unexpected tridimensionality of lateral strength from the transverse members **(1)**. In the far background there is a badly damaged building still standing, which was later patched up and used again because of its having the fail-safe feature of interacting and multiple connections.

Vertical Assembly Building

A recent example of fail-safe design is the mammoth 524 ft vertical assembly building at the Kennedy Space Center for the Apollo lunar spacecraft **(2)**. The design is a steel space truss consisting of 45,000 members, 2840 of which are redundant. The redundant members were so introduced not only as overload safeguards, but also to provide for structural flexibility in anticipation of operational changes. Thus, the structure is so topologically multiple that no one member is so vital that it cannot be omitted.



2 ADAPTED FROM URSAM ORIGINAL DRAWING

In other fields of engineering, this concept of fail-safe design has also been put

into practice, although perhaps not always systematically. In such high-risk hardwares as manned nose-cones of missiles, various backup systems are employed to increase the reliability factor. Automatic systems often have a manual backup system; malfunction warning and ejection features are invariably incorporated; and key relays often have bypass relays to function in case of failure. The list can be extended indefinitely. In marine engineering, the hulls of warships are so cellularly compartmentalized within a framework of interlaced structural action, that damage by collision or torpedo to one section will not impair the water tightness and structural integrity of the vessel as a whole. Ships so damaged have been known to sail thousands of miles before being repaired.

Thus, high-risk structures can be made appreciably safer by utilization of fail-safe design. However, the few examples of fail-safe design mentioned were created to a large extent as afterthoughts, without benefit of any controlling basic principles that could be applied systematically. Admittedly, numerous safeguards and checks are often intuitively provided by designers, but lacking is a direct exposition of this principle. The traditional method employed to increase a structure's strength is simply to "beef up" the member sizes by adding more steel, generally to increase the factor of safety but still related to conventional design procedures. Thus, an overdesigned structure still looks like the same old structure, only more so due to the added bulk.

Integrated Multiplicities

In contrast, greater surety can be attained by completely formulating the design concept to incorporate integrated multiplicities. The concept may also be couched into a theorem of maximum redundancies, wherein the more alternate routes the stress flow lines have to travel, the more sure is the structure. The usual statically indeterminate structure is a nondeliberate example of this principle, although not carried to its ultimate limit. Here again, numerous examples of such bomb-damaged structures can be found to demonstrate this contention. When a normally critical corner column is destroyed in such a monolithic structure, only the local area is affected by slightly more deflection —with the structure on all sides, including above and below, otherwise behaving normally.

In a statically determinate pin-connected frame, one misbehaving member could easily send the whole frame down like a pile of junk. In Thomas McKaig's book *Building Failures—Case Studies in Construction and Design* (McGraw-Hill Book Co.), dozens of examples are described where a loose prop, an unexpected lateral force, or a weak joint has set up a chain reaction of failures, toppling buildings large and small. If such structures had some built-in redundancies, blocking this type of chain reaction, these tragedies could probably have been averted or at least minimized.

A tangible example might be a simple determinate frame **(3a)**. Let us assume

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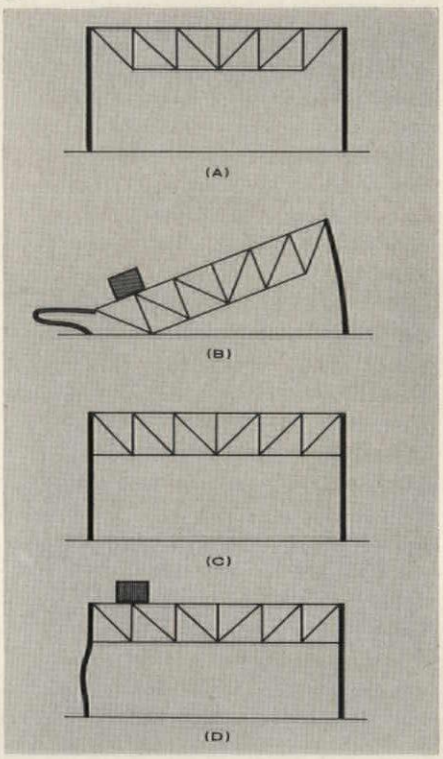

that, for overload reasons, the left column buckles. Collapse is absolutely unavoidable **(3b)**. However, should the frame have only a small degree of multiplicity **(3c)**, the frame would probably do no worse than bend a bit **(3d)**. The truss would tend to cantilever out from the right column, thereby reducing the force exerted on the left column. The chain reaction would stop, since the load on the previously overloaded column would then be relieved. The structure is thereby saved from total collapse by the addition of two short redundant members in the lower chord.

Many of us remember that very uncomfortable feeling in walking through an old building such as a warehouse, factory, or department store (heavily loaded with merchandise or equipment) on a floor undulating beneath our feet, humping around the columns, and sagging in between. The odds are that these are standing only because of some accidentally fail-safe feature. It may be stretching a point to say that some of the old colonial homes we are accustomed to preserving are held up only by the grace of their ivy and wallpaper—but the point does have a moral.

Ordinary Buildings

A great deal can consciously be done in ordinary buildings to achieve greater integrity by more judiciously using the miscellaneous partition walls, floors, and roofs as secondary fail-safe reserve elements. To do so would require more positive interconnection of these elements to the principal frame with both tension and shear ties, while making these secondary elements tensile and shear-resistant in themselves, much as in seismic quake design.

At the time of the earthquake in 1960 at Agadir, Morocco **(4)**, the total destruction of the Saada Hotel was the result of a pitiful lack of continuity between the floors and the columns. The columns simply slipped out from under, and the floors piled up on each other like a stack

4

PHOTOS: COURTESY OF AMERICAN IRON AND STEEL INSTITUTE

of waffles. Another damaged structure (5) probably would have collapsed, but did not because of the chance lateral bracing provided by the steel screen doors.

PHOTO: COURTESY OF AMERICAN IRON AND STEEL INSTITUTE 5

The recent earthquake in Alaska also dramatically demonstrated this point. Buildings employing precast elements, lift slab, and the like became "unstuck" at the joints and collapsed, while monolithic concrete and metal structures remained standing with little or no damage.

Fred Severud, in his book *The Bomb, Survival, and You* (Reinhold Publishing Corp.), describes a number of ingenious "fixes" which, in his opinion, could be applied to existing buildings to make them more fail-safe—especially from atomic attack. He particularly endorses the use of tension cables for bracing, for shock absorption, and for the prestressing of masonry walls. These uses all support the principle of employing deliberate multiplicities or redundancies in structures. Normally, these "secondary" members loaf along, letting the "primary" members do all the work; but in a crisis, these secondary members spring to life, fighting with all they have to defend the structure. The plea is to give them a little extra strength, through proper topological integration.

So much of common building practice permits inadequate joining by the grace of gravity and friction. In conditions such as exist during hurricanes and explosions, downward gravity forces are often overpowered by stronger upward forces, completely reversing the expected manner of loading. Roofs lifted off their supports are common reminders of these effects. Although theoretically desirable, it is not meant to imply that all buildings be designed to withstand atomic bombs, for obvious economic reasons. But with forethought, many fail-safe features can be so incorporated at little extra expense to function as insurance policies.

A metal building (6) tested under atomic bomb conditions in Nevada shows how the various extra bracing features

PHOTO: COURTESY OF OFFICE OF CIVIL DEFENSE 6

such as cables, struts, and sheet metal have kept the general frame intact.

Risk Factors

Man is really in a potentially hazardous environment almost everywhere under created conditions; but, as practical souls, we measure the hazard by degree or statistical probability rather than in absolute terms. The odds of having our heads bashed in by a collapsing roof of our office building is admittedly small. However, man is increasingly infringing on more and more hostile environments, as in the environs of speed and space—both subterrestrial and superterrestrial. The risk-factor of structures on the lunar surface (with their large thermal gradients, meteorite and radiation exposure), oceanographic structures at the bottom of the sea (subject to tremendous pressures), atomic defense structures (subject to great heat and overpressures) is obviously high. In such instances, fail-safe concepts must definitely be an integral part of design, perhaps radically altering the possible configurations. In high-risk machines such as aircraft and missiles, pilot models are repeatedly tested under controlled conditions to insure reliability. Yet in the building industry, all structures —no matter how unusual, even those at the World's Fair—are expected to stand the first time. The responsibilities of structural designers, therefore, cannot be minimized. Cases are known where structures have been deliberately and conspicuously designed with a factor of safety of less than one. After a roller coaster at an amusement park collapsed, the designer is reported to have said he built it with a safety factor less than unity "to give the people a thrill." Failure due to an Act-of-God is a common term, but in all fairness let us not blame our own shortcomings in design on anyone but ourselves.

To quantitatively illustrate the principle of multiplicities or redundancies, consider a simple rectangular beam (7a).

Let the maximum load that this simply supported beam can carry elastically be w. By adding redundants in the form of fixity at the ends (7b), the load can be increased to 1.5 w and still remain elastic. Finally, at a plastic collapse condition (7c), the load can be increased threefold, so that if these beams were used in a floor system, two out of three beams could fail and still provide a flat-out safety factor of one against collapse. Furthermore, the redundant beam could fail at any place

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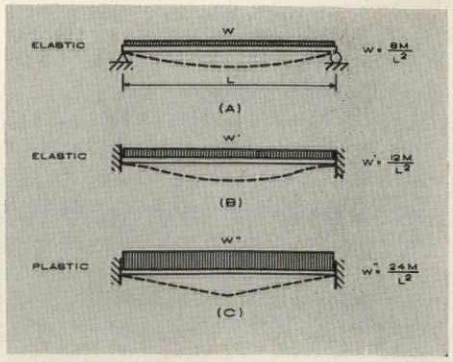


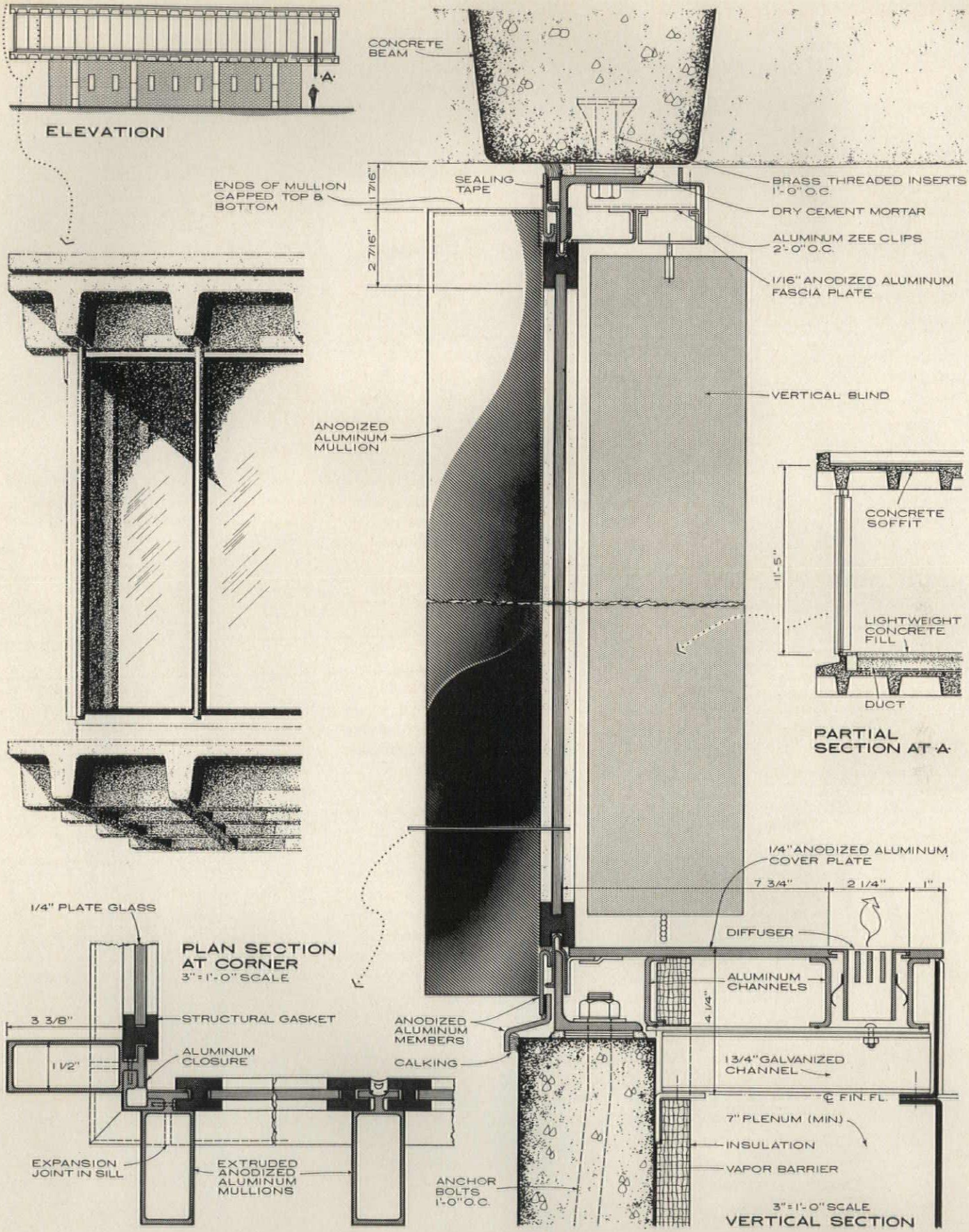
along its length and still remain stable, whereas the beam (7a) would obviously fail.

Deliberate Redundancies

The same principle of introducing deliberate redundancies can be extended to other examples to increase the fail-safe capabilities. Simple beams can be made continuous. If they are of reinforced concrete, they can be reinforced both at top and bottom. Floor systems with a parallel beam system can be transformed into a system of integrated cross grids. Redundant supports can be introduced to resist compression, tension, and moments. Separate foundation footings can be integrated into continuous systems. As an example of a more sophisticated three-dimensional and complex system, see the author's article on a super-roof of intertwined cables (SEPTEMBER 1963 P/A). The general rule to remember is that the greater the multiplicities, the greater the surety.

The thought of multiple redundancies (no matter how desirable) will no doubt send a shudder up the back of many an engineer, already working on too small a margin of time and profit, since redundancies mean the scrapping of prepared charts and handbooks with the attendant need for more time and involved mathematics. This is, of course, true, but the burden can be measurably eased if availability is made of improved techniques in model analysis and/or high speed programmed computers.

However, the final reward to both client and designer is to see their structure alive and well under all adversities and unforeseen events, perhaps when other buildings on all sides have been crushed by earthquakes, fire, wind, or water. Frank Lloyd Wright's finest hour was when his Imperial Hotel in Tokyo stood while others fell. Many others in our professions can also testify to this same reward ■



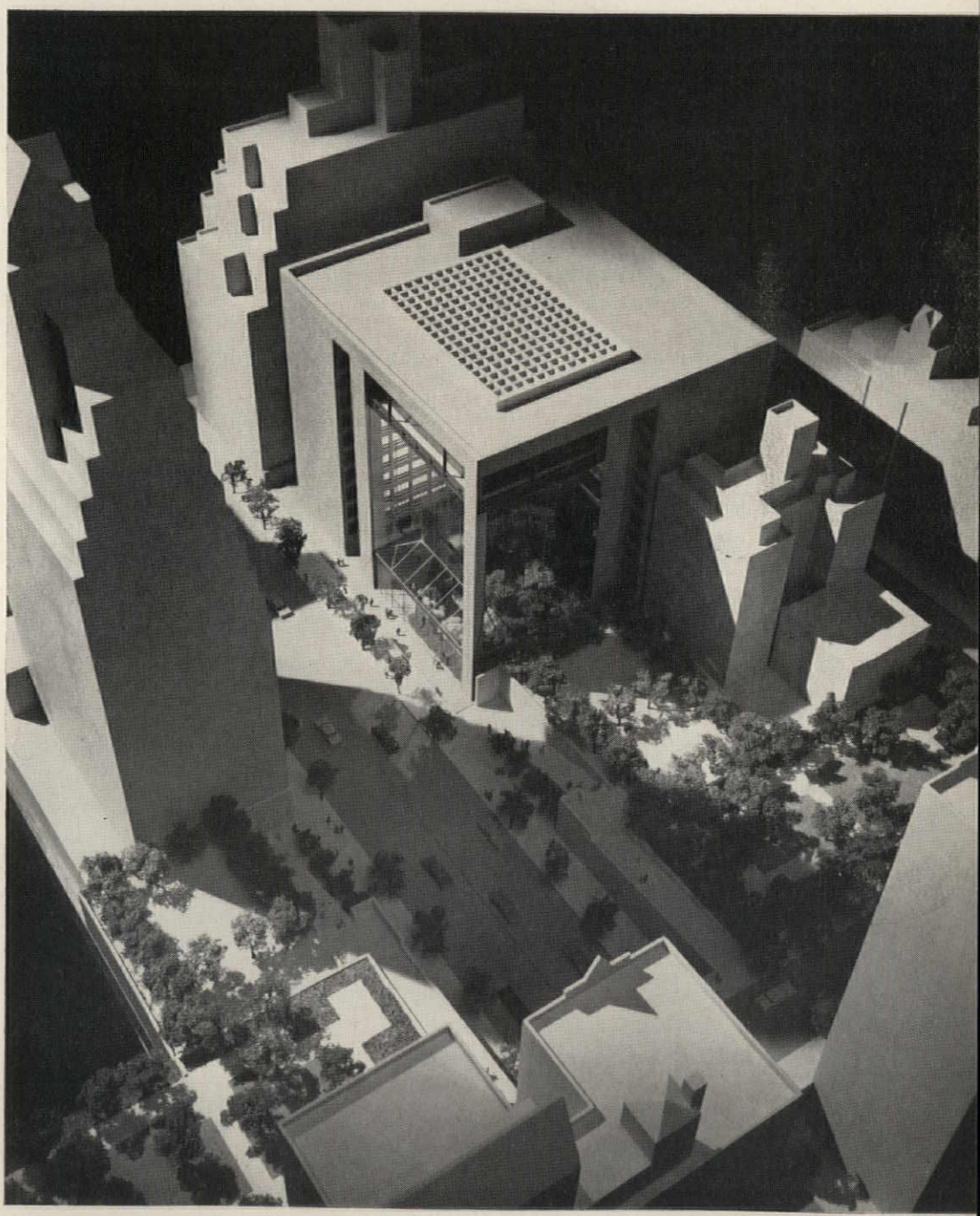
ALROLL ALUMINUM PLANT: Oswego, N. Y. WHITTLESEY & CONKLIN, Architects	SELECTED DETAIL CURTAIN WALL

Photos: Ezra Stoller Associates

A GREAT SPACE TAKING SHAPE IN NEW YORK

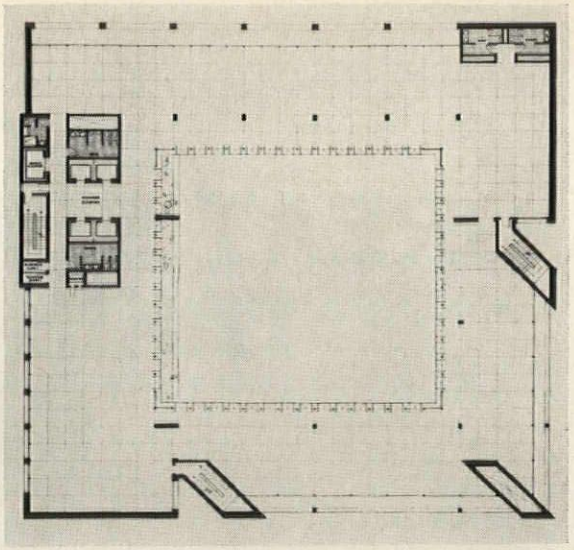
When an architectural giant passes, the eyes of architects turn to his legatees to see whether they will live up to the achievements of the master. In the case of the professional heirs of Eero Saarinen, speculation probably can now cease, for in projects gained since the death of Saarinen, Joseph Lacy, John Dinkeloo, and Kevin Roche of Eero Saarinen Associates have indicated that their firm will continue the dynamic search for superior, appropriate-to-the-problem design that produced such modern landmarks as GM Tech Center, Stiles-Morse Colleges, Dulles Airport, CBS Building, and many others. Although the only building completed so far by Lacy, Dinkeloo, and Roche is the much-admired IBM Pavilion at the New York World's Fair (with Charles Eames), the firm has a range of most promising projects either under construction or in design stages, including an art museum in California, a major high school in Connecticut, a university fine arts center in Massachusetts, and a college complex in New York.

Of all the Lacy-Dinkeloo-Roche projects currently under way, the new headquarters building for the Ford Foundation in Manhattan is one of the most interesting. Situated on East 42nd Street near Tudor City and the United Nations complex, the building posed unusual problems in creating the right environment for a unique group of people and in relating — and contributing — to a somewhat dichotomous cityscape. The street to the west of the site is generally dominated by run-of-the-mill office buildings; to the east, there is the fake-Elizabethan of the Tudor City complex with its tree-lined streets and parks, and beyond, the United Nations, which, although not adjacent in an architectural

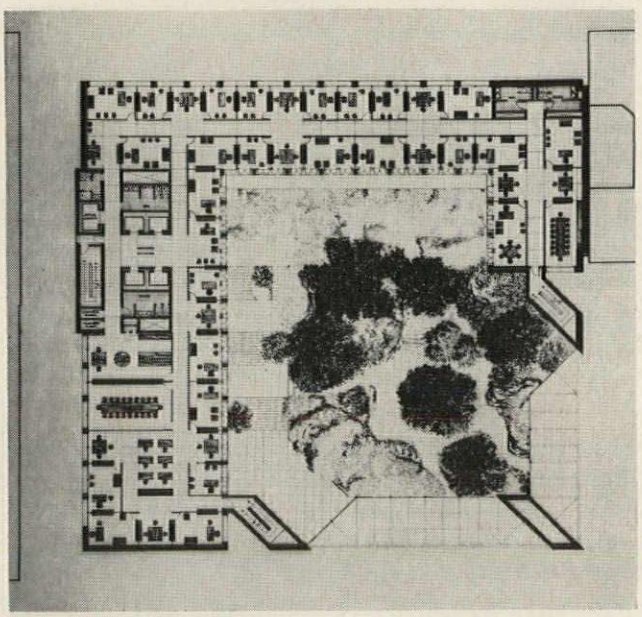


sense, figures significantly in the international activities of the Ford Foundation. Roche therefore considers the building a kind of dividing line between the commercial buildings to the west and the rather campus-like quality of Tudor City to the east—a quality likely to be appreciated by most Foundation workers recruited, as they frequently are, from colleges and universities.

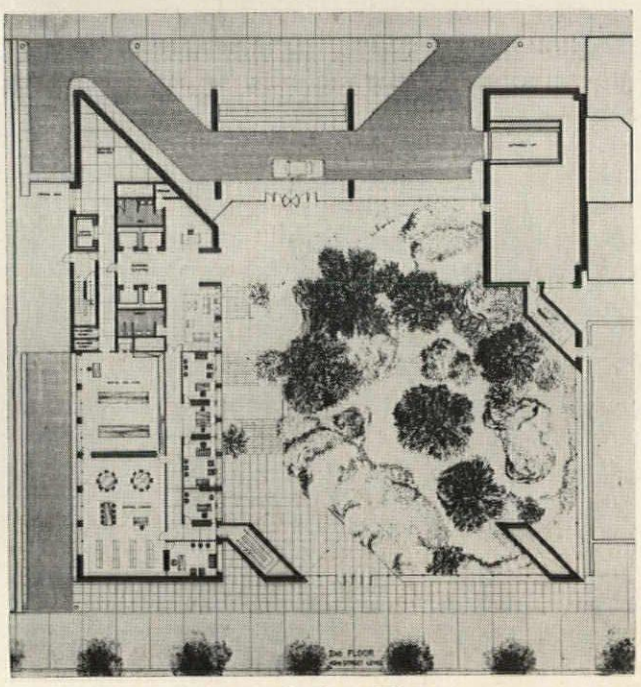
In determining the approach to take on this project, the architects rightly decided that this is *not* an office building. It is a building where people of unusually high academic calibre direct the 14 national and international programs of the Foundation. Each program is administered by a staff of from five to ten (including secretaries) which is autonomous, responsible only to the over-all directorship located, appropriately enough, on the top floor. Although these people work on different programs, the architects felt that somehow they should be made always aware of the total endeavor. Since their work does not result in a "visible" product as in a manufacturing company, it was necessary for the building to create the feeling of a community of common effort. Roche compares this to the usual office plan by contrasting the paralyzed man, who can see only things outside of himself, and the well man, who can observe his body and be aware of its workings. The imaginative solution to this problem is a roof-high court around which the offices bend in an angled C-shape. This dramatic form is the end result of the architects considering many combinations of buildings with differing orientations, with various plaza systems, and with interior courts. In addition to creating the atmosphere desired for its inhabitants, it will perform two important functions for the city: it will act as a terminus for the commercial strip on the north side of 42nd Street, and will, by being oriented toward a city playground and the Tudor City open spaces, create a sequence of opened and closed volumes and levels that will be unique in this country. Further, Foundation per-



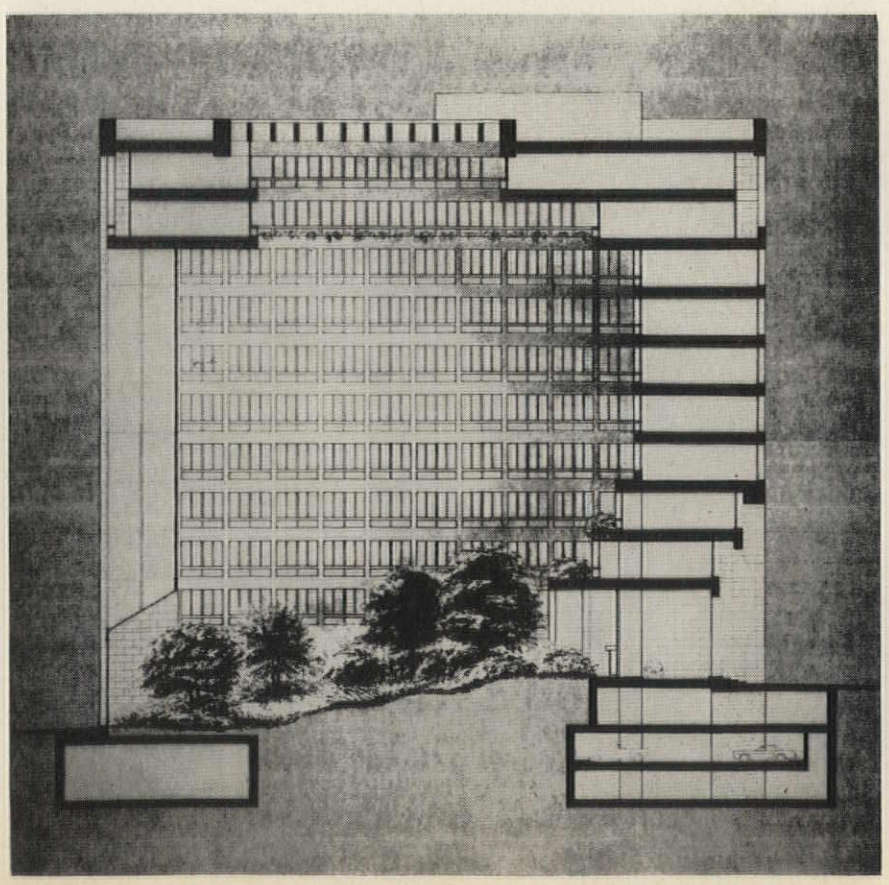
Eleventh Floor Plan



Typical Floor Plan



Second Floor Plan



Section from East

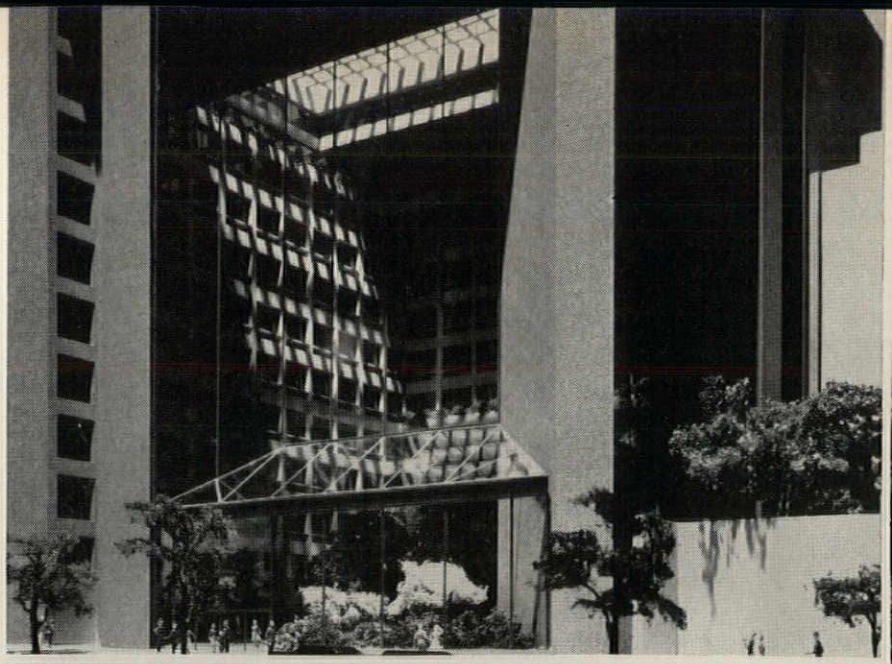
sonnel will face the most interesting views, and, needless to say, New York will get one of its rarest amenities, an outstanding contemporary building. A small demurrer might be made that the building perhaps turns its back *too* emphatically on its western neighbors, who need the prospect of an interesting building more than those to the east. The Foundation headquarters does tie in with its commercial neighbors in one way, however: the two upper floors, which ring the court on all four sides and contain executive office and dining areas, will carry on the "cornice" line of 12th-story setbacks of New York's old zoning code.

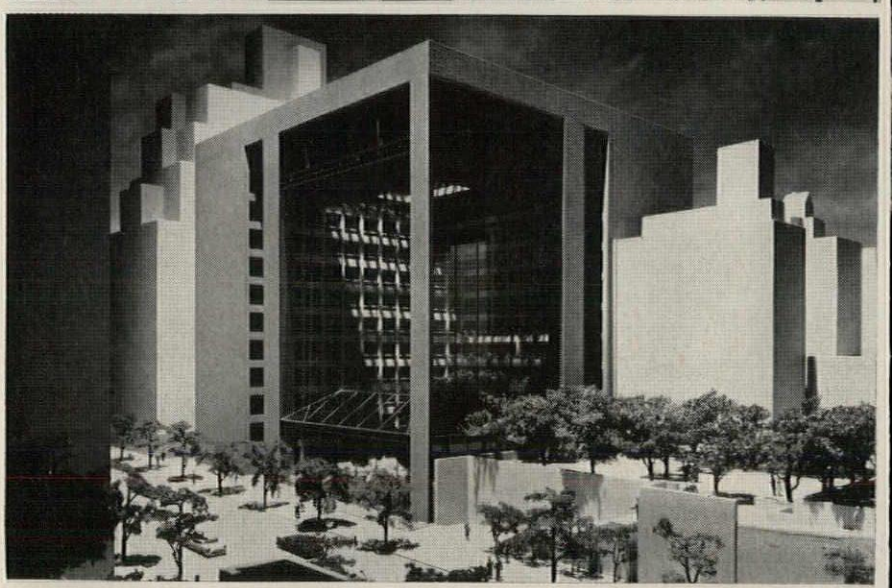
At the other end of the block-through building is a strongly-handled porte-cochère on 43rd Street that leads into a lobby overlooking the landscaping of the court (the architects hope that some of the exposed granite on which Manhattan sits can play a dramatic role here). The huge interior court will be glassed in from the ground to the tenth floor and skylighted above, enabling workers in small offices to open their sliding windows in all weather and become part of the great space outside. The relationship in scale is thus: man to the interior court, to the building as a whole, to the street outside, to the city itself. This is a relationship seldom experienced in other buildings, where man encounters an abrupt switch from the small scale of his office and elevator to the teeming street.

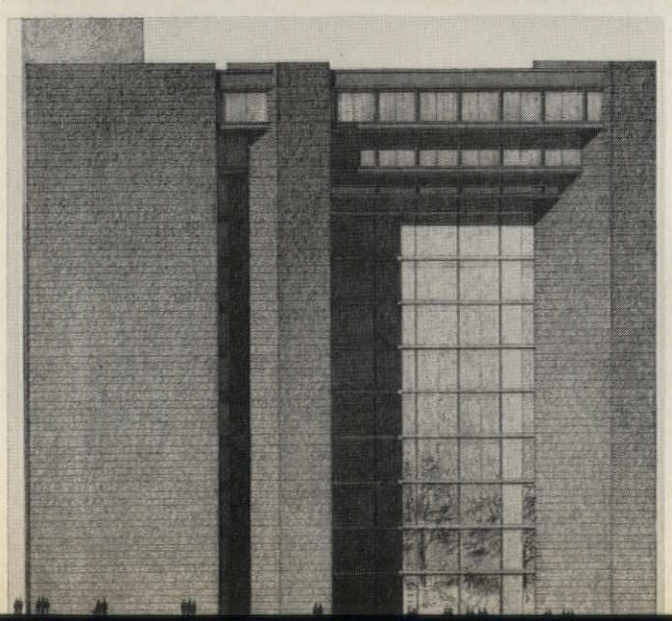
Undoubtedly, this building could not and would not have been built by a corporation—even a Seagram or Lever or CBS. The unyielding laws of economic return in the metropolis dictate against such a desirable circumstance. It is to be hoped that, as a nonprofit organization, the Ford Foundation will not be penalized with excessive taxes for contributing to fine architecture as was the Seagram Building.

Consulting Structural Engineer: Severud - Perrone - Fischer - Sturm-Conlin-Bandel; Landscape Architect: Dan Kiley; Consulting Mechanical Engineer: Cosentini Associates.

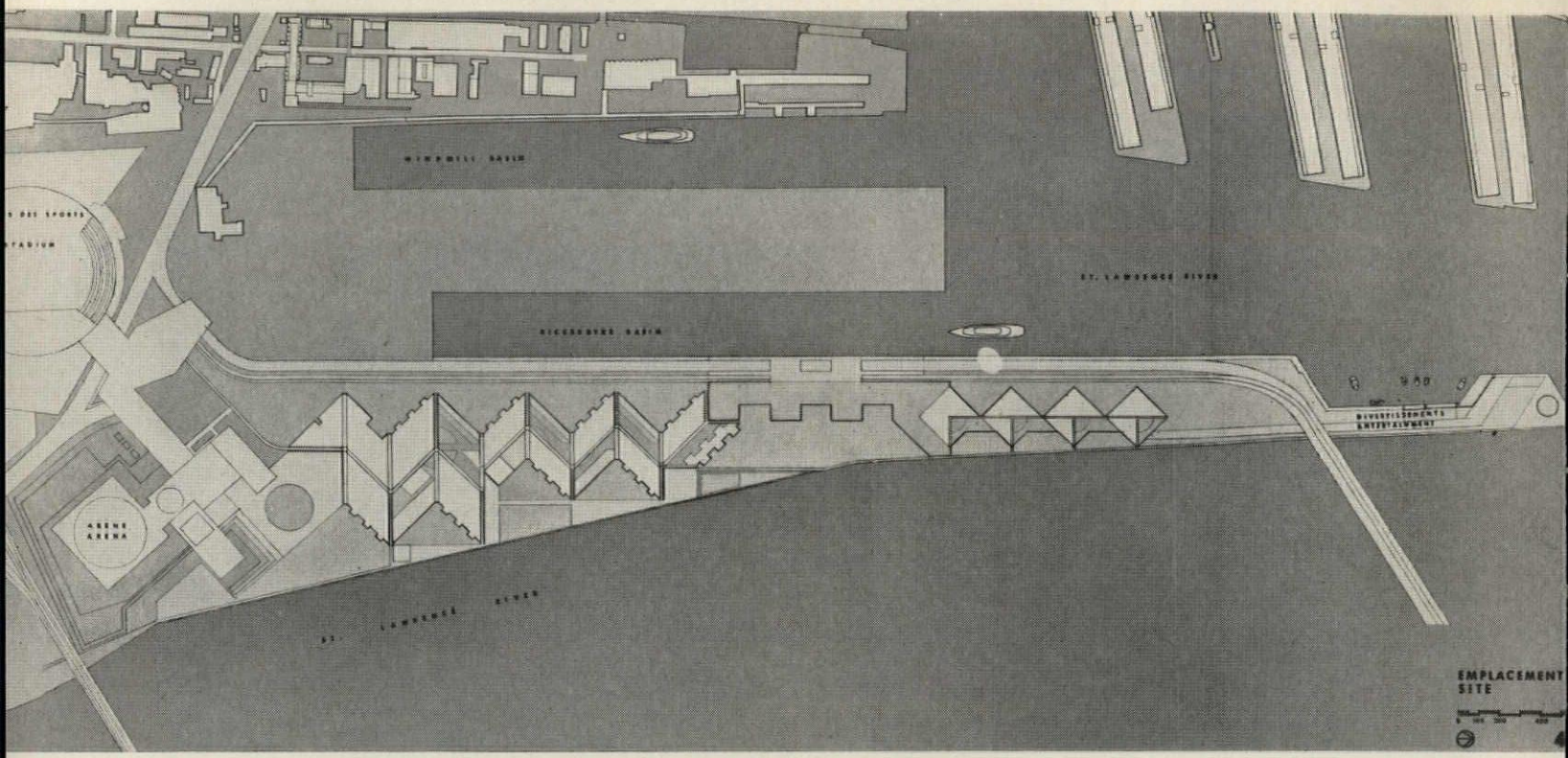
—JTB, Jr.



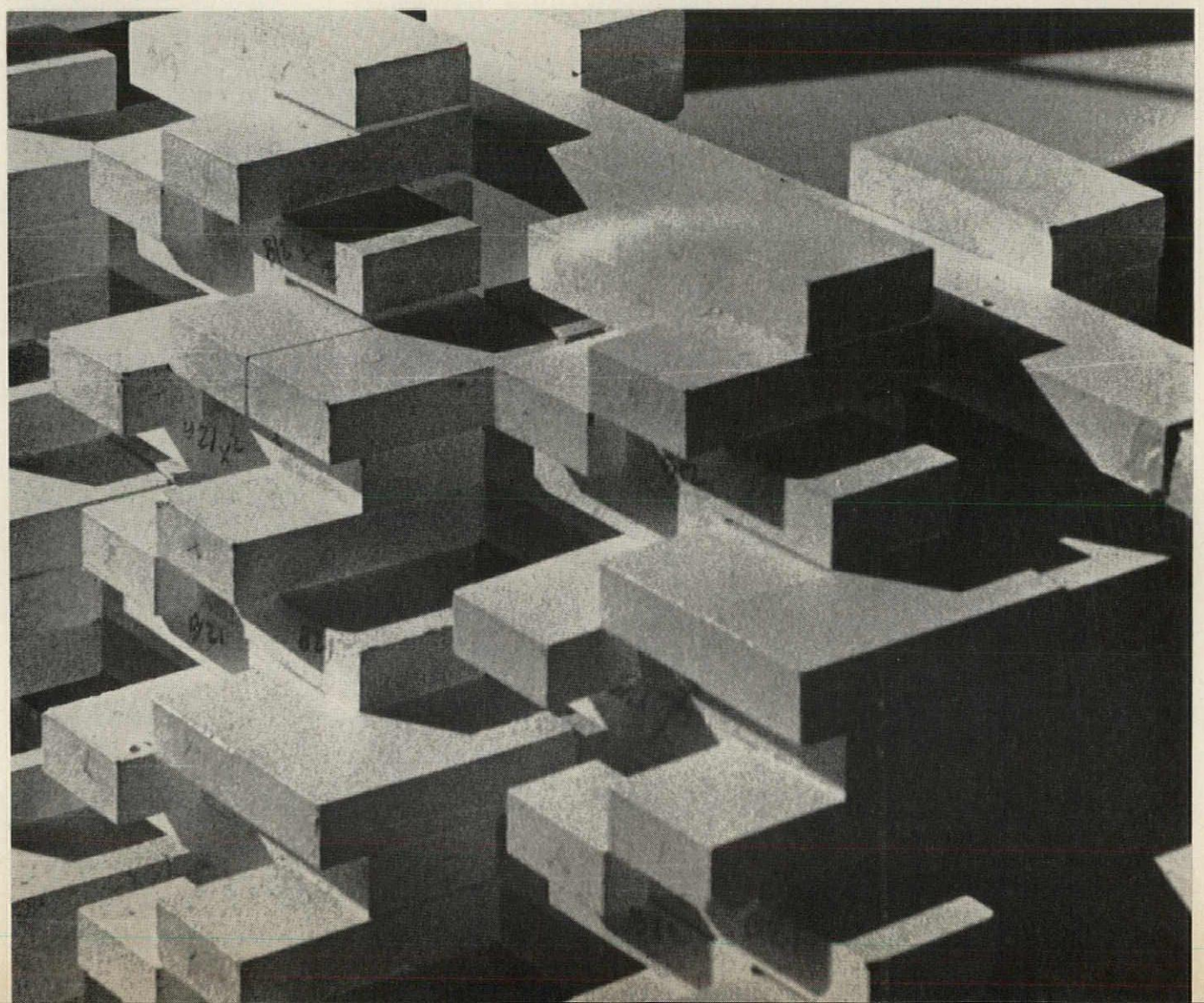


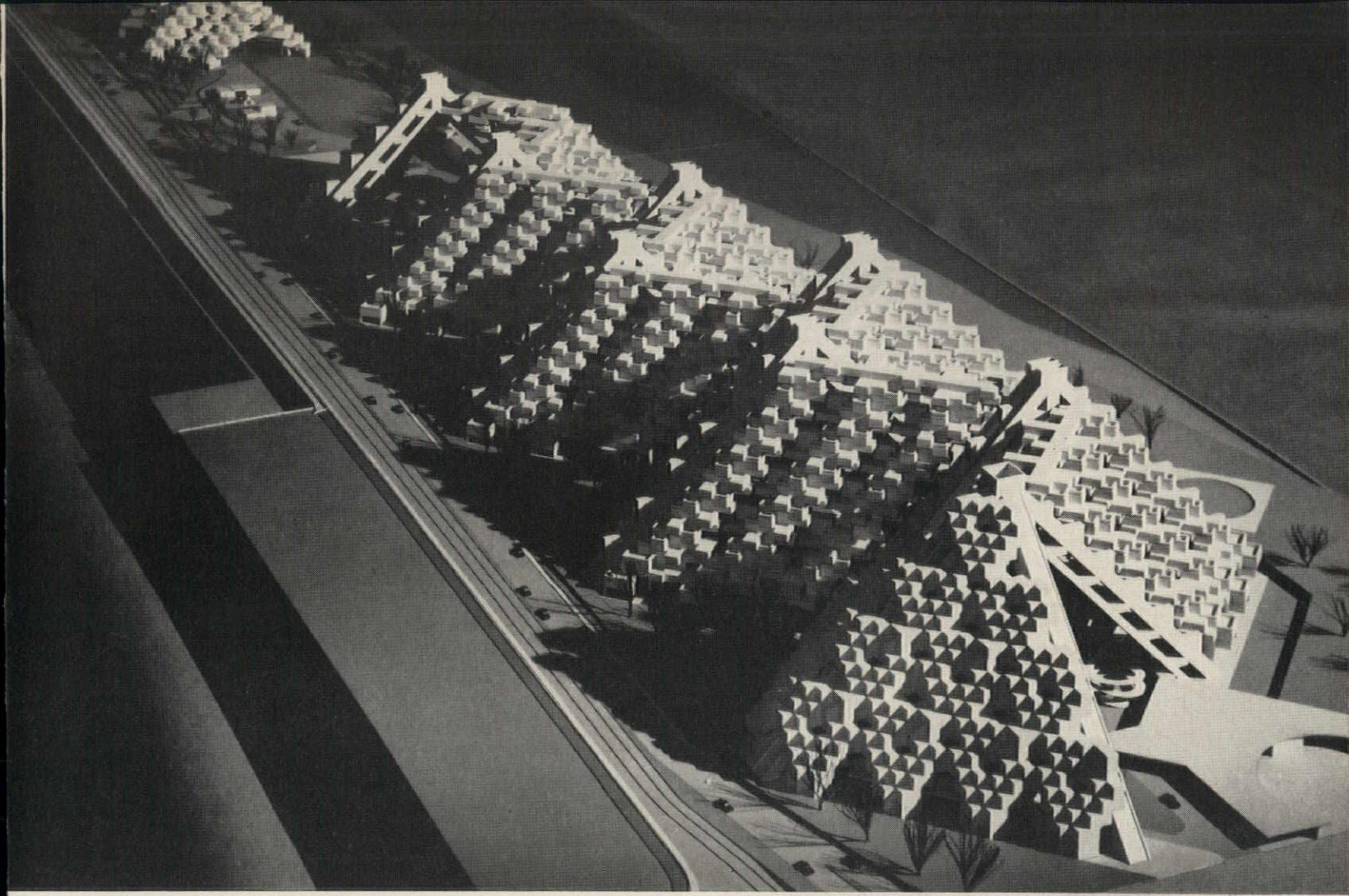


Last-minute word from Roche has it that framing of the building has been changed so that all horizontal structural members are steel and all vertical structurals are reinforced concrete clad with granite. Feasibility of constructing longer spans, especially the 85 ft ones on 42nd Street, was a factor in the change. Difficulty of cladding poured concrete beam fascias and soffits with granite was also a consideration. Revised 42nd St. façade is seen at left.



Man-Made Mountain for Canadian Exposition

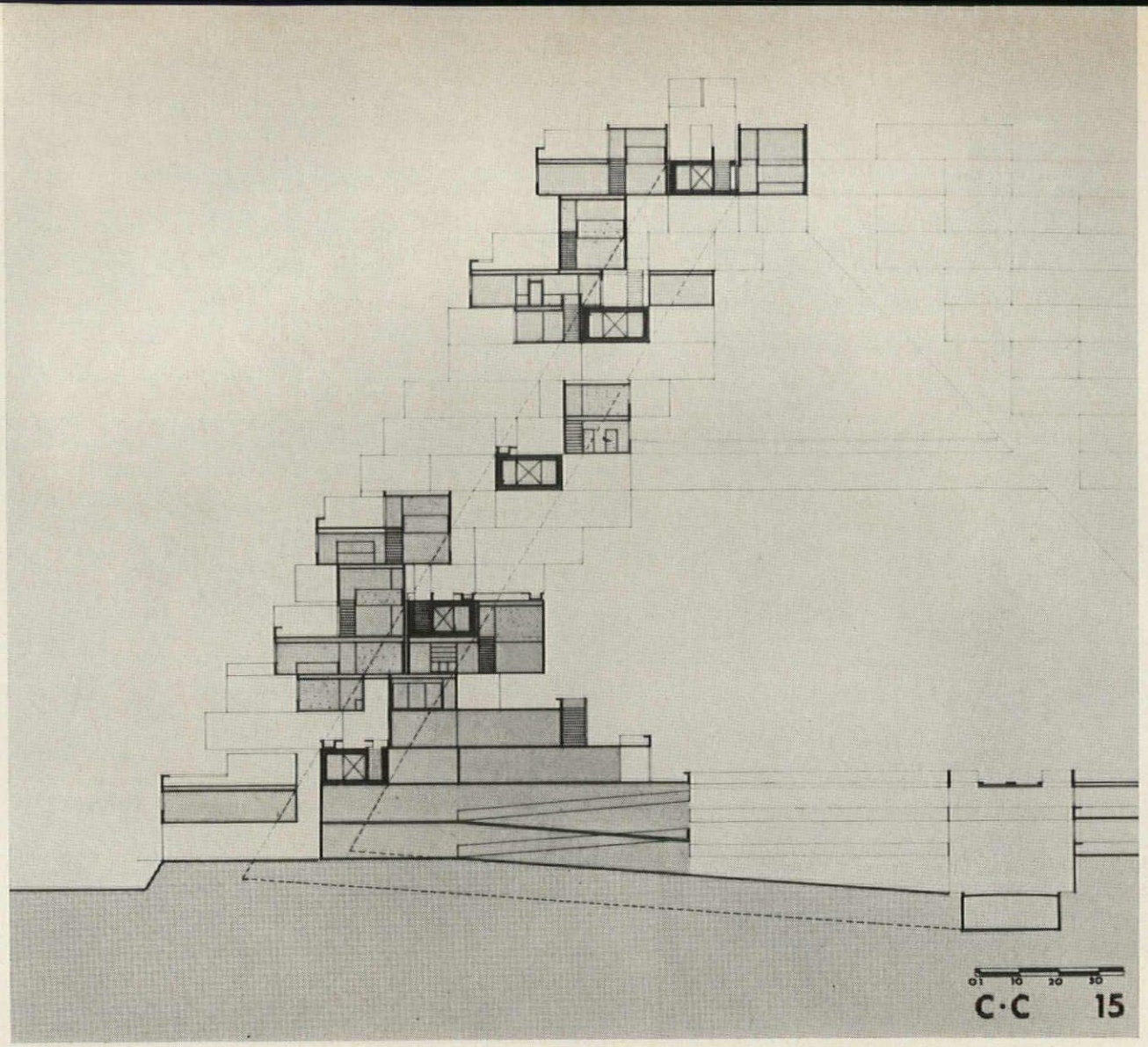




The creation of "man-made mountains" as housing developments integrating most of the facilities necessary for urban living has occupied the minds of a number of architects and planners in recent years (see proposals by Percival Goodman and William L. Pereira, pp. 143 and 145, OCTOBER 1961 P/A). While this may be considered a "visionary" concept dating back to Dürer's version of the Tower of Babel, in the second half of the 20th Century, building techniques and the promises of preassembly make such projects not only attractive drawing-board exercises (see MIT student problem, pp. 166–167, and Harvard student problem, pp. 188–189, OCTOBER 1964 P/A), but also proposals conceivable of construction.

Perhaps the first of these schemes actually to be built will be "Habitat '67," the brain child of Moshe Safdie, a young architect on the staff of Exposition '67, the Canadian World Exhibition to open in 1967 in Montreal. Safdie's plan would utilize Mackay Pier extending into the St. Lawrence River as the site of a high-density housing development containing between 1000 and 1500 units plus necessary shopping facilities, a school, an auditorium, and a hotel. Before becoming a unit for living, however, it would, according to Safdie, act as a large-scale entrance to the exposition and serve as a stimulus for the redevelopment of the St. Lawrence waterfront. This renewed use of the river for human habitation and recreation would, of course, continue after the fair.

Its structural system is perhaps the most interesting factor of Habitat '67, since that is what may permit the project to see the light. The structure is made up of connected rhomboidal planes, inclined 60° from horizontal, joined to each other so that the top planes of the rhomboids form a continuous saw-tooth path. Preassembled housing units are arranged within each rhomboidal panel in two layers, each layer being approximately 32 ft in depth and sloped about 52° from its vertical neighbor. Thus, the total depth of the rhomboidal plane is 64 ft; internally, it becomes somewhat stable in its own plane. External stability of the rhomboidal housing panel is obtained by providing edge members along the exterior inclined sides of the rhomboids in conjunction with a series of horizontal bridging mem-



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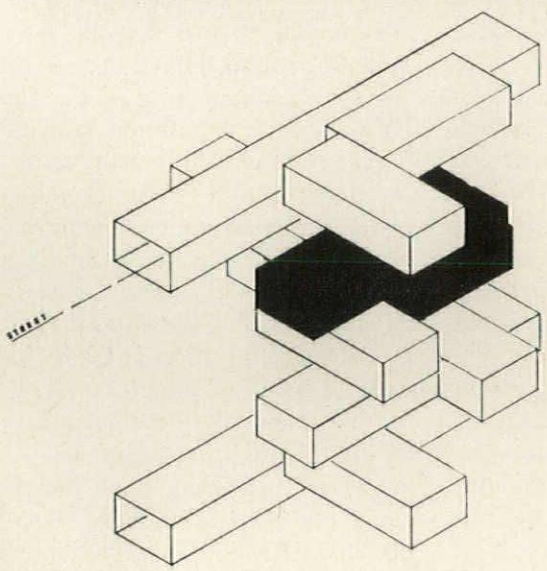


ARRANGEMENT OF APARTMENTS

bers that are framed into the edge members. In addition, these bridging members extend from the edge member into the adjacent rhomboid. Bridging components are located at every fourth-floor level and between the two housing layers.

Edge members of the adjacent rhomboids abut one another at their tops; their bases are anchored (vertically only) into the foundations of the ground-level plaza structure. In this manner, maximum safety and minimum lateral movement of the edge members are achieved.

Elevators, stairs, and mechanical facilities are contained within the

edge members, while the bridge members house not only lateral mechanical utilities but also act as "streets" linking the housing units of the rhomboid planes.

Housing units are precast, complete with window and door frames, electric wiring, and plumbing fixtures. Walls, roofs, and floors are insulated and made of especially dense and watertight concrete. Roof slabs are covered with an elastomeric sealant. Units are joined to one another and to bridging streets by a simple tensioning procedure.

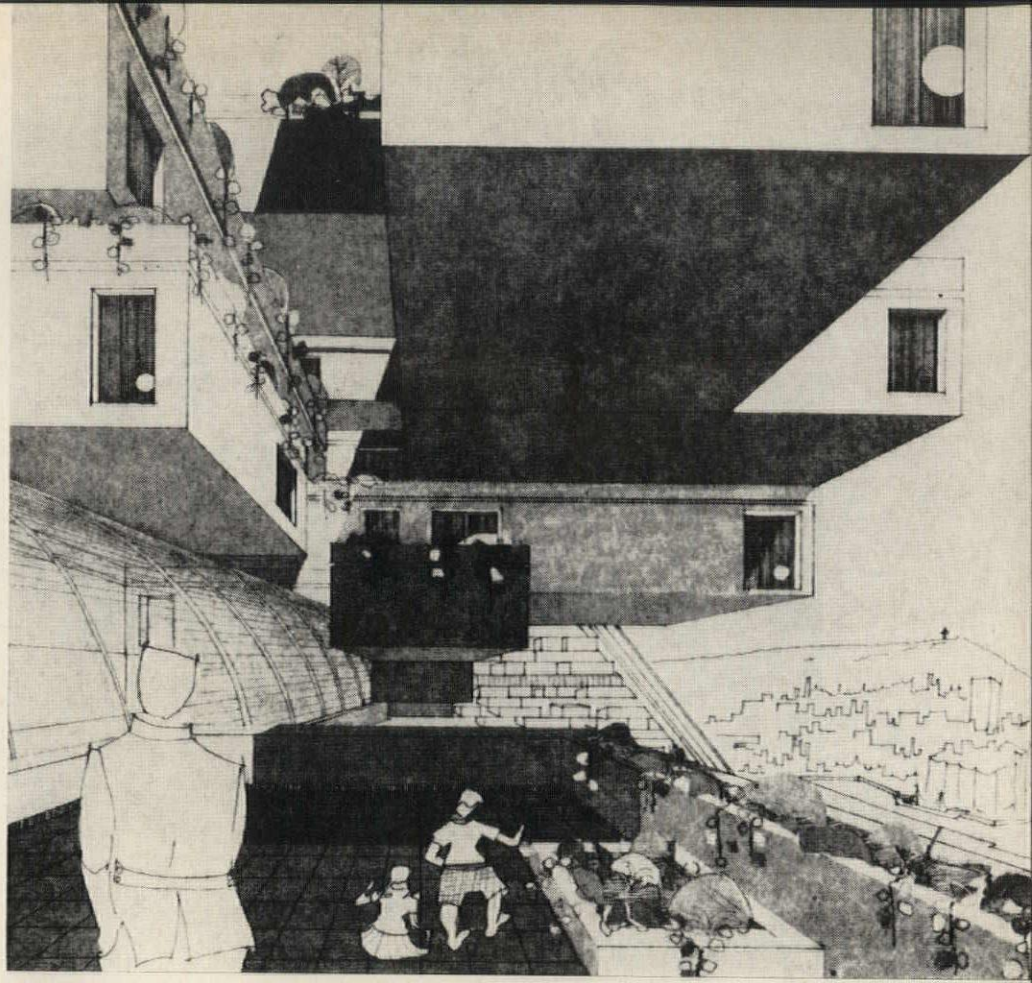
Edge members may be cast-in-place, post-tensioned concrete, or a rigid-steel-truss structure embedded in concrete and post-tensioned. Bridge members will be prefab concrete post-tensioned with strand cables, or a rigid-steel-truss embedded in concrete and post-tensioned.

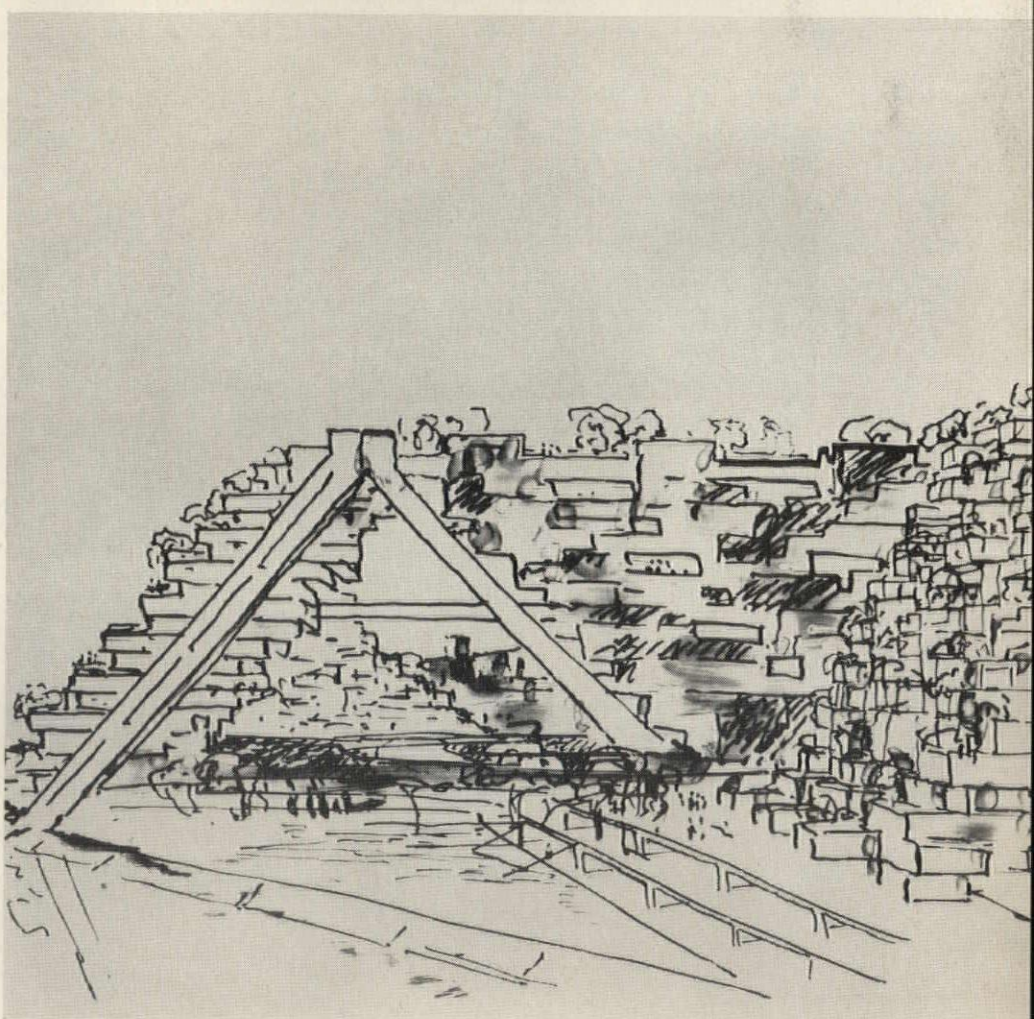
Air movement analyses have been made so that the design will allow a pattern of air movements, due to prevailing winds, that will allow uniform ventilation in each unit and in the public spaces below.

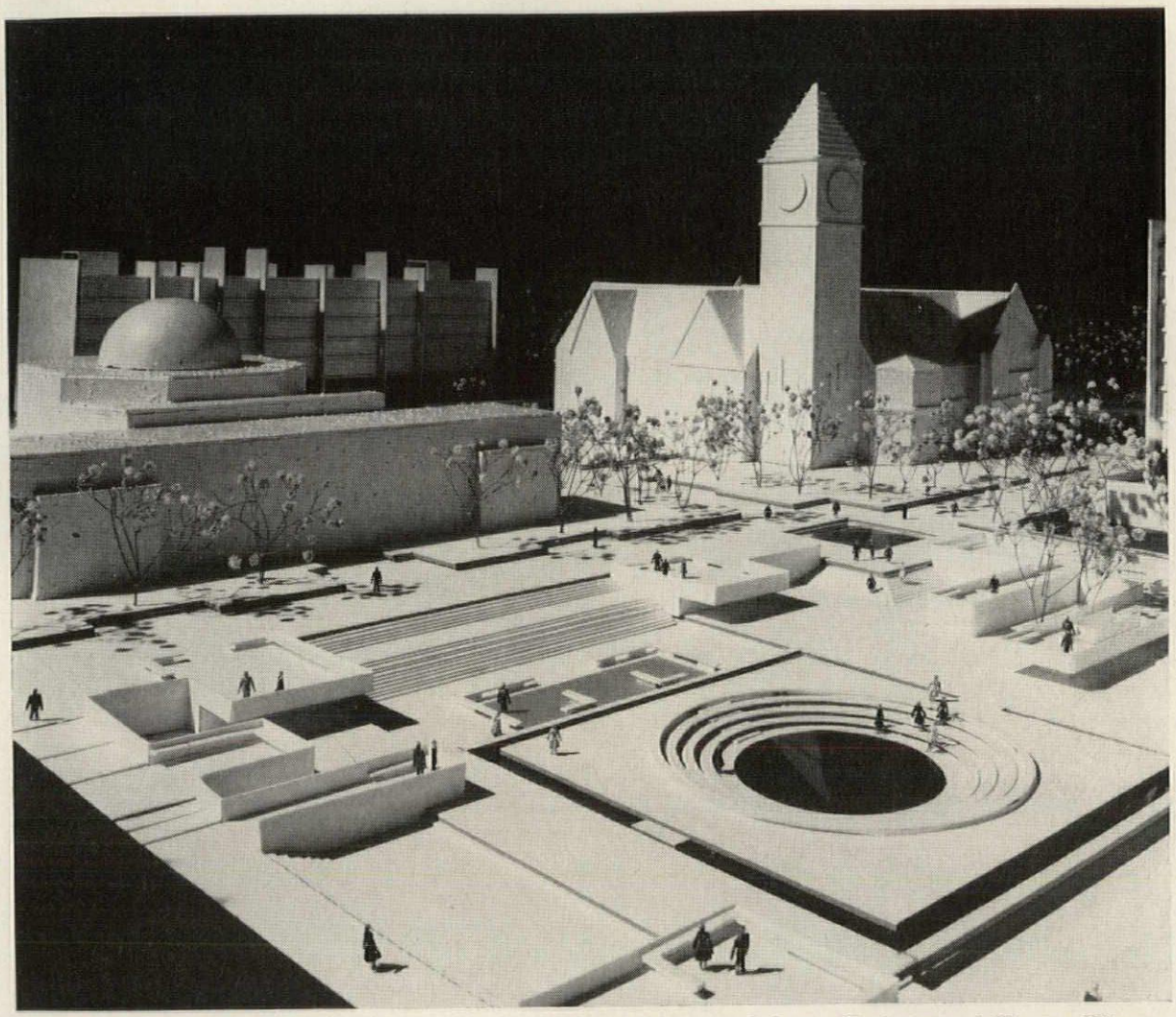
Architects will watch the development of this project with great interest, since this kind of imaginative approach shows that the architect can be the leader in the inevitable dominance of the construction field by preassembly and prefabrication discussed in detail in last month's issue of P/A. As Jan C. Rowan noted in his October Editorial, when the preassembly and prefabrication market finally emerges as the power it can be, architects must be ready for it. More architects thinking in Moshe Safdie's terms thus will help make a contribution not only to the profession, but also, and much more importantly, to mankind.

David, Barott & Boulva, Associated Architects; Dr. August E. Komendant, Structural Consultant; Community Development Consultants, Ltd., Development Consultants.

—BHH/JTB, JR







Allegheny Square Competition winner by William Breger with James Terjesen and Warren Winter

ARCHITECTURAL COMPETITIONS: Have They Lost Meaning?

The results of at least three "Class A" architectural competitions in the last few years have led many architects to question the value of such competitions for influencing architecture as a whole. The American Institute of Architects defines a Class A competition as one "leading to the erection of a definite project on a definite site."

The travails of the winners of the Franklin Delano Roosevelt Memorial Competition (Pedersen & Tilney and Hoberman, Wasserman & Beer) are too well known to need lengthy repetition here. After being subjected to the disapproving recommendations of a pre-Kennedy Fine Arts Commission, the revised design was finally accepted by the present FAC, only to run aground again on the shoals of criticism by FDR's family.

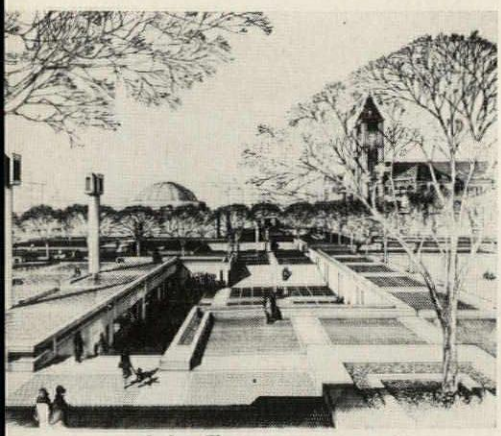
When the city fathers of Cincinnati thought it would be a good idea to have a riverside monument à la St. Louis to celebrate the opening of the West, a competition was announced and a prominent jury selected. After meeting, the jurors announced that *all* the entries were of such poor quality as to prohibit the awarding of a prize. (At least one juror said that part of the blame had to be shared by a program that was too broadly written.)

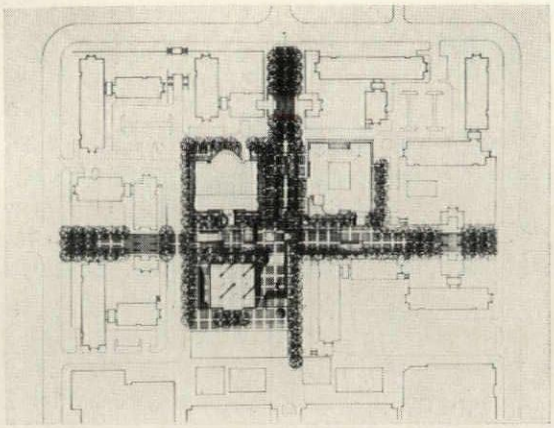
Most recently, the profession was surprised when the jury for the Allegheny Public Square Competition in Pittsburgh dismissed 304 out of 305 entries as inappropriate or incompetent and awarded the sole prize in what was planned as a two-phase competition to William Breger, Chairman of the Pratt Institute Department of Architectural Design, and his associates James Terjesen and Warren Winter, Pratt students. Allegedly under the strong influence of one of the jurors—the jury consisted of Architects Gordon Bunshaft, Dahlen K. Ritchey, Hector Mestre, Viljo Revell, and John B. Parkin; Landscape Architect Hideo Sasaki; and Pittsburgh businessmen Henry J. Heinz and Adolph W. Schmidt—the jury, after making its choice, issued a report stating, in part, that "Perhaps because of the unrestrictive nature of the program requirements, or perhaps because architects and designers are not yet able to formulate clear design goals necessary in achieving good urban design, of 305 submissions to the Allegheny Public Square Competition, the jury selected only one entry as being of high enough quality to receive an award." Although the group was entirely within its rights in taking such an action, many architects considered this a most unfortunate public slap in the face to the profession, obviating any good that will come of a well-intended competition.

In the past, national and international competitions have yielded results that have become part of contemporary architectural history and/or legend. The *Chicago Tribune* competition brought Eliel Saarinen to this country, even though he was not top winner. Years later, he was defeated by his own son, Eero, in St. Louis' Jefferson National Expansion Competition. More recent competitions whose winners have attracted world-wide attention have been those for the Toronto City Hall, the Sidney Opera House, and the Boston City Hall. San Francisco has been successful in establishing a system of competitions of a limited nature for housing and redevelopment programs. It remains to be seen what the result of the American Institute of Architects' own competition for its headquarters addition will produce. AIA is conducting *both* parts of an announced two-phase competition, unlike Pittsburgh.

Why, then, do some architectural competitions tend to fail? The crucial importance of a well-written program is an inescapable prerequisite to a successful competition, of course. The program that is too general, or, on the other hand, too restrictive, can lead to disaster. The client, public or private, who is not totally committed to seeing the project through completion can have a tragic effect on competitive programs. The jury that is not given enough time properly to assess each entry is likely to make some decisions it may later regret. (The lack of time is, of course, the besetting problem of all architectural juries.) Perhaps it is amazing that, considering all these pitfalls, architectural competitions actually produce, on occasion, a Boston City Hall or a Saarinen arch.

Using the Allegheny Public Square competition as a case in point regarding the value of such programs, we present on the next few pages a selection of some of the non-winners accompanied by observations on competitions in general and the Pittsburgh program in particular by unsuccessful entrants. —JTB, JR





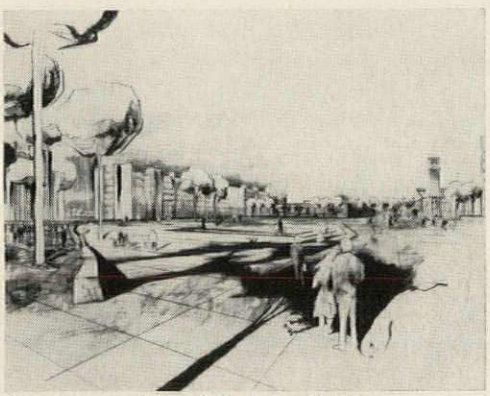
John Tatom

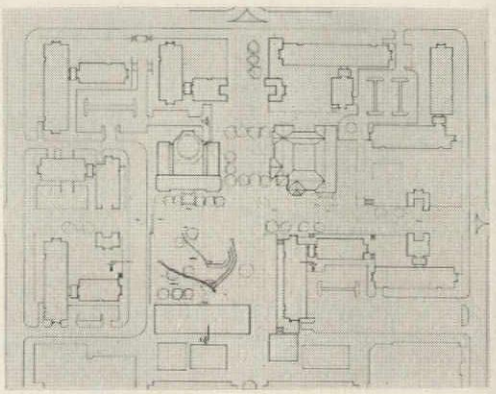
"[Our entry] was intended as a response to David L. Lawrence's challenge of 'a lasting and true expression of urban design in the 20th Century'. . . . Thoughtful criticism of the jury, and an opportunity to refine and expand our preliminary design in the second stage of the competition, would have been welcomed."

—JOHN TATOM
Honolulu

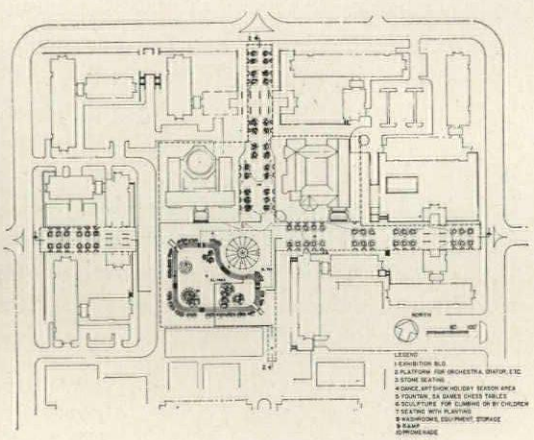
"A competition gives the profession as a whole the chance to research a problem. When the results are documented, the winner, the competitor, and those who just observe are all better off for having participated. To do it well is to win. The experience, development, highs and lows, and excitement generated while working are the property of the competitor. If the solution is right for himself, it is a success when he turns it over to the Railway Express man."

—NORMAN JAFFE
New York





Norman Jaffe and Robert Malkin



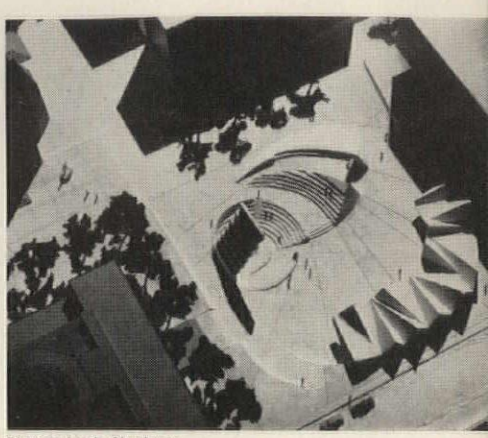
Seymour Rutkin

"The problem of relating any building well with the existing buildings was a great one. My entry pays respect to the existing structures, both facing them and looking away, and also says: this is new—we move on to new things while we still relate to the older."

—SEYMOUR RUTKIN
New York

"There was a 10-day spread between the date entries were to be received by the advisor and the required postmark on the entry; this latter date was not in the preliminary prospectus or in the beginning of the program but only at the very end. I was considerably more disturbed at items such as this, which reflect on the professional advisor, than by the action of the jury."

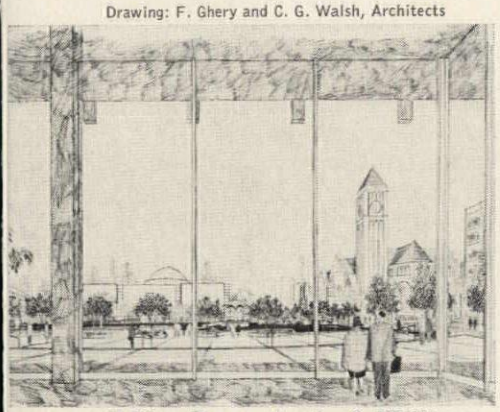
—NORMAN HOBERMAN
New York

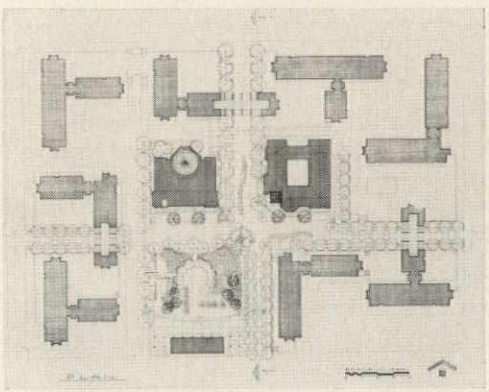


Hoberman & Wasserman

Photos: Louis Checkman

Drawing: F. Ghery and C. G. Walsh, Architects





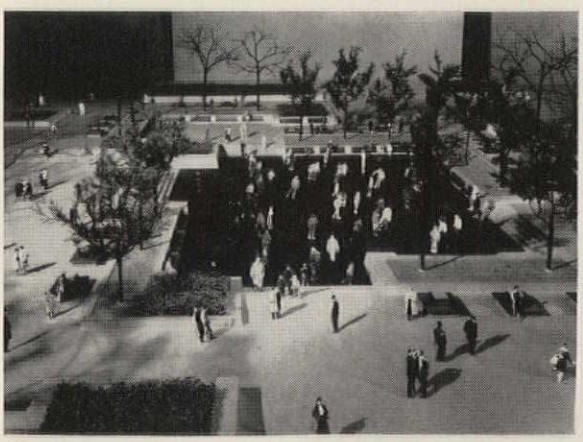
Eckbo, Dean, Austin & Williams

"The Allegheny Square competition demonstrated, just when opportunities for great and challenging civic design are expanding, a return to the security of the Beaux Arts womb and the axial symmetry, a retreat from the exciting potentialities of uninhibited design which have as yet had little impact on our landscape. The Establishment appears to be taking over. Design will no longer represent a threat to the status quo in the environment."

—GARRETT ECKBO
Pasadena

"The jury of the Allegheny Public Square Competition has done the profession a disservice by casting further aspersion on design competitions. . . . The jury must argue, of course, that all entries save the winner were incompetent. Although possible, this is statistically unlikely, and in this case at least partially untrue."

—ALDEN R. BERMAN
Hamden, Conn.

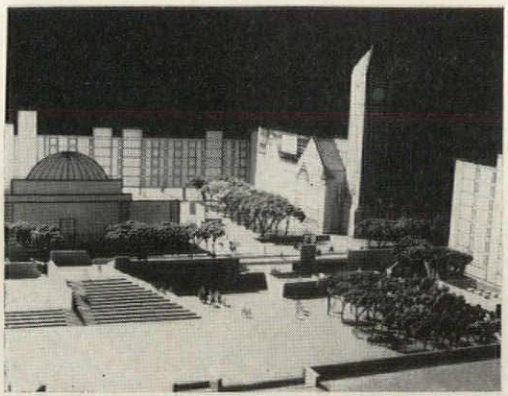


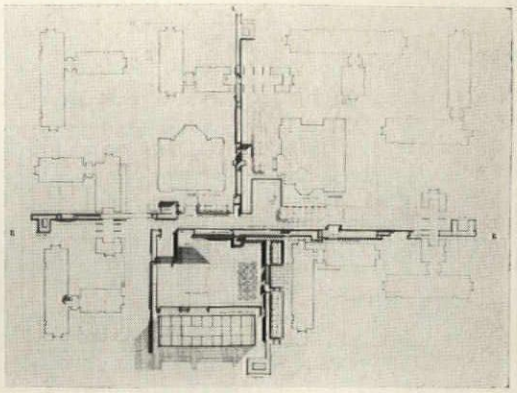
Alden Berman

"I don't think many architects would enter a competition in which there is only one prize.

"The only people who have the time and energy to enter competitions are the enthusiasts; to discourage enthusiasts in this way is to sponsor boring conventionality in design."

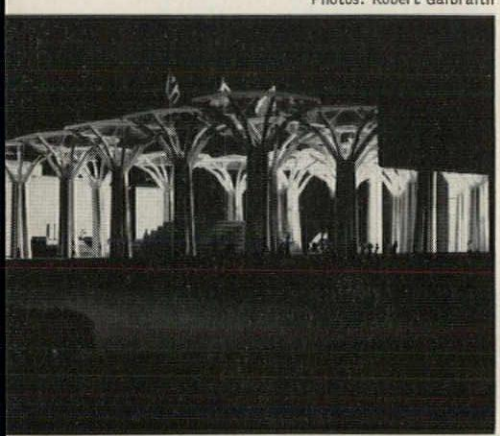
—MICHAEL ZIMMER
New York

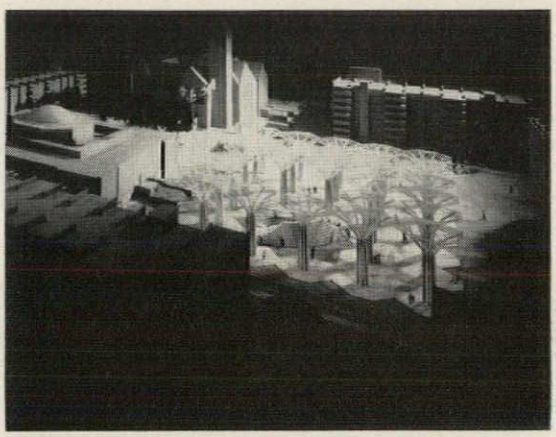




J. Max Bond, John C. Miller, and Michael J. Zimmer

Photos: Robert Galbraith

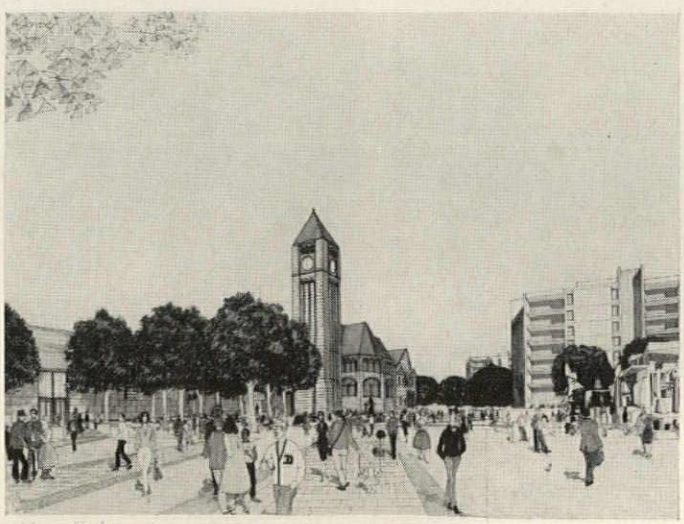


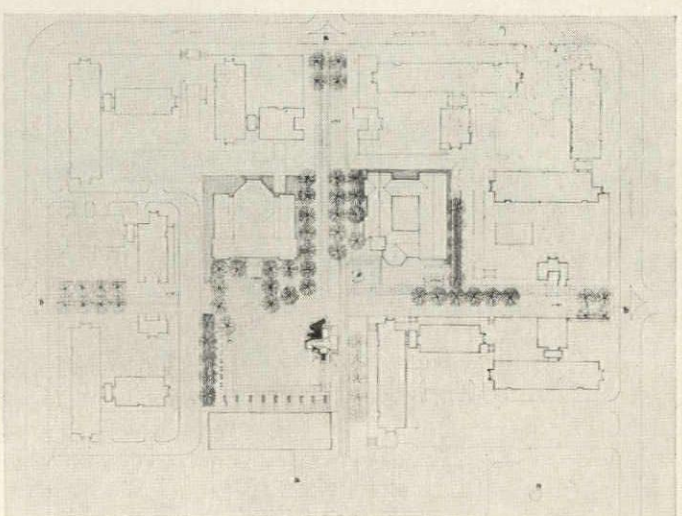


Celestyn J. Wisniewski

"By glibly discounting the work of 304 entrants, the jury and the Urban Redevelopment Authority (of Pittsburgh) have breached the tacit contract between the competitors and the City of Pittsburgh. The impetuousness of the jury and its professional advisor is an insult to the profession and reduces architectural competitions to a farce."

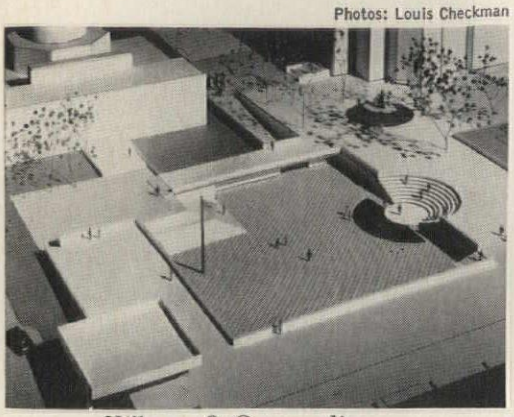
—CELESTYN J. WISNIEWSKI
New York

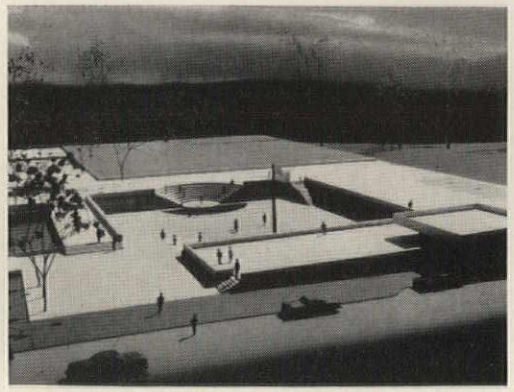




Alan Schwartzman

Photos: Louis Checkman





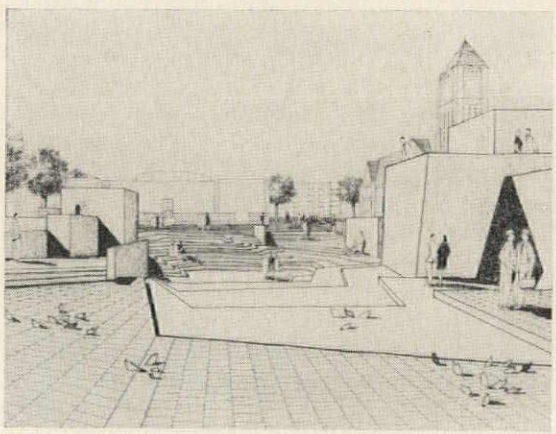
Hillman & Garmendia

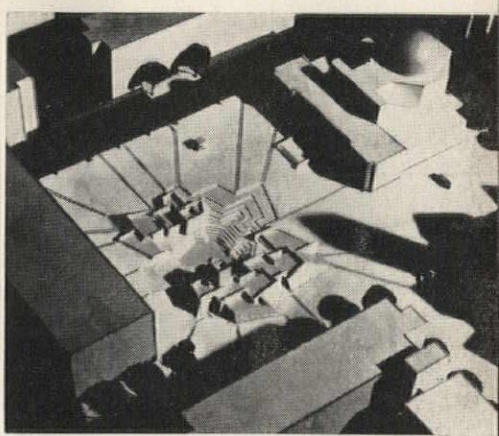
"[This was a] high-handed way to handle a competition.
Our scheme was an open space, paved almost entirely, but with a different approach treatment into the heart of the space from every approach. We really felt that this would not be a winner as a parti but rather some more 'self-conscious' structure would catch the jury's attention. But when this basic parti won out, we felt that the weakest part of the winning entry—that is, its complete inability to serve the function of 'pageantry'—would naturally lend itself to the further development for which a second-stage type of competition is intended. . . . The point is, that I think there must have been many schemes that would have benefitted from a second stage—including the winner."

—NESBITT GARMENDIA
New York

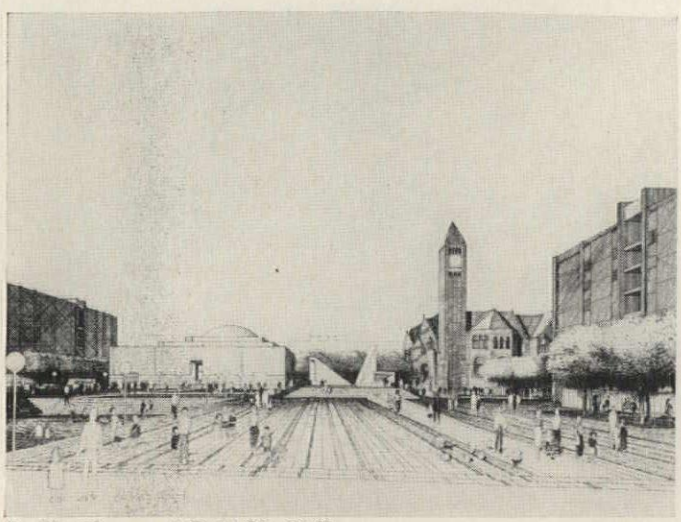
The architectural competition is one of the few avenues open to the young unestablished architect in acquiring commissions of any importance. It is discouraging indeed when these competitions become staffed with juries who find it difficult to see beyond their own noses as would sometimes appear to be the case. The rejection of all but one solution by the Pittsburgh jury is either an appalling comment on the quality of design of several hundred registered architects who submitted entries or upon the lack of imagination of the jury. In either case, surely the primary purpose of competitions is to encourage *creative work in our profession rather than to offer a display of the superior attitudes and lofty minds of the elderly gentlemen of the jury."*

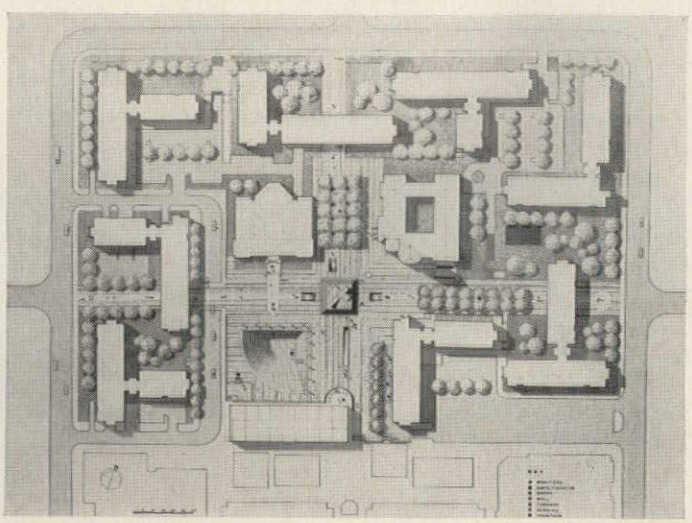
—JOHN J. DEANS
HANFORD YANG
New York





John J. Deans and Hanford Yang





Lo-Yi Chan and Rolf M. Ohlhausen

Heat-By-Light

BY WILLIAM J. McGUINNESS

A unique all-electric heating-lighting-cooling system for an office and administrative facility is reviewed by a practicing mechanical engineer.

It is now well established that high lighting intensities are here to stay. From the thermal effects of these, and the heat emitted by people and machinery, there is usually sufficient heat available to eliminate the use of conventional fuels for winter heating. Rapid strides are being made in heat redistribution and heat storage to create a thermal reservoir against unnecessary disposal of heat during peak occupancy and in mild weather. The equipment for redistribution is usually available at little difference in installation cost when there is present a system for summer cooling.

An unusual and well-engineered solution for this kind of heating is evident in the new administration building of Electronics Associates, Inc., at West Long Branch, N.J. Designed by Architect Bernard Kellenyi, this new facility contains 95,000 sq ft. As developers and manufacturers of electronic analog computers and similar equipment, the owner's interest in researching and solving the problems of climate control has had both interesting and efficient results.

Moving heat from the interior bays to the cooler perimeter is accomplished as follows: a refrigeration cycle, in this case operating as a winter heat pump, produces chilled water. This passes through central air-handling units. Cooler air from this source arrives at the low pressure induction units (*shown*). Here, warm air from the above-ceiling plenum is injected by the venturi principle into the cool air stream for temperature adjustment. This is a form of reheat. Air at a controlled temperature is delivered to the space below. The over-all function, however, at each interior zone (there are 40) is one of heat *removal* as well as temperature regulation.

Meanwhile, back at the refrigeration center, hot condenser water from the cooling cycle is not rejected to outdoors in the conventional manner. Instead, it is circulated, at a temperature of 120 F, through coils of air-handling units to heat exterior bays. The heat of luminaires is drawn directly into the ceiling plenum through the slotted openings of the Day-Brite Clymatron units (*shown*). The warm air in the plenum is drawn back to the central air-handling station for continuous cooling. Only a little is used for reheat at the induction units in each of the 40 zones.

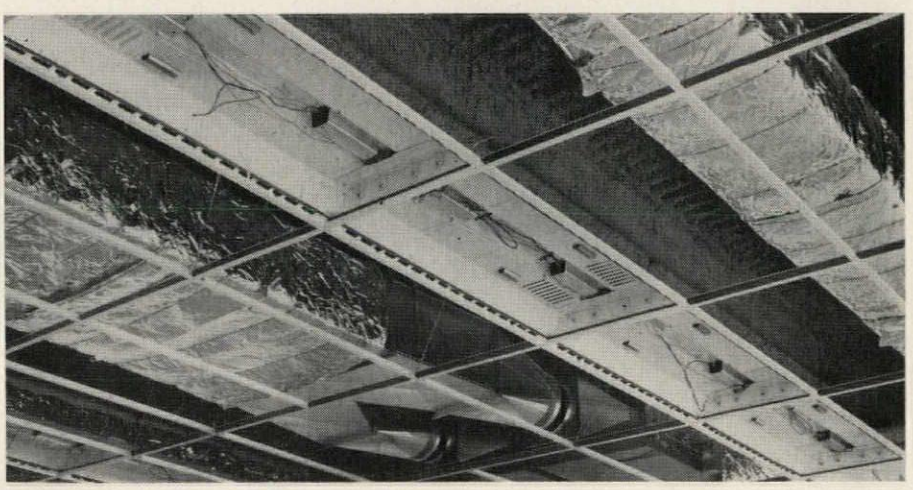
In other heat-by-light systems, it is usual to reject excess heat during mild weather. At this plant, however, the hot condenser water in excess of mild-weather requirements is pumped to a 150,000-gal underground tank for use during dark night hours when lights and people do not contribute, or during brief cold spells.

The installation balances at 15 F. Below this temperature, which occurs during less than 2 per cent of the heating season, electric resistance heating is used. Outdoor air, at a rate of about 15 per cent of the total circulated air, is warmed (and thus interior heat recuperated) by a heat exchange with an equal amount of exhausted indoor air. An anti-freeze solution circulated between a coil in the exhaust duct and one in the fresh air duct accomplishes the heat transfer.

For summer cooling, an outdoor spray pond cools the condenser water. A unique feature employs the underground tank for a special *summer* purpose. Chilled water is stored there by the night operation of a smaller-than-usual refrigeration plant. This utilizes favorable electric rates and avoids a high daytime peak electrical demand. This stored chilled water is used in conjunction with daytime operation of the cooling equipment, especially during hours of peak cooling requirement.

This all-electric heat-light-cooling installation operates for heating at only a fraction of the cost for other fuels and is as economical as any conventional cooling system in summer. Electric rate may prove to be less than 1¢ per kwh. Lighting intensity in this building is 125 ft-c, and the power use is 4w per sq ft or more, depending on the space-factors.

The mechanical design was a collaborative achievement of the Architect, Plant Engineer William Hennum, and Consulting Engineer Thomas Beers. Engineering contributions were also made by Jersey Central Power & Light Company, Barber-Coleman Co., Day-Brite Lighting, Inc., Worthington Corp., and ITE Circuit Breaker Co.



Heat-By-Light System. Insulated duct work and heat transfer lighting fixtures are shown in ceiling. New structure features an all-electric heat, light, and air-conditioning system. Induction units installed in ceiling cavity mix heated air produced by lights, people, and electrical equipment with chilled air to provide comfortable conditions throughout the building.

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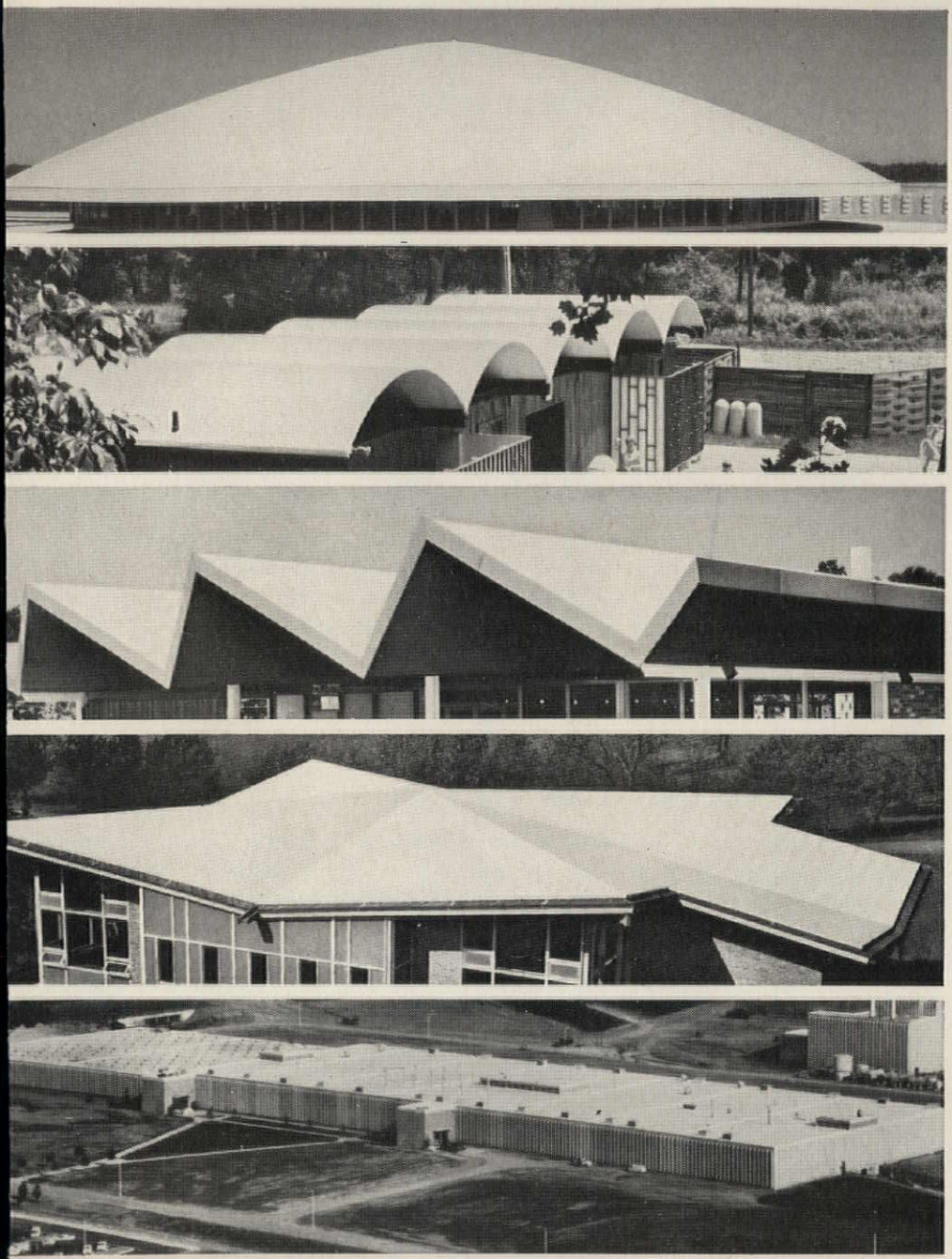

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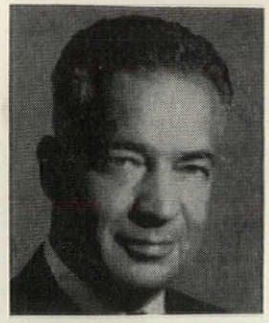

Teaching Specifications — Part I

BY HAROLD J. ROSEN

Recommendations for the education of a specifications writer at the college level are discussed by a Fellow of the CSI.

The eighth annual convention of the Construction Specifications Institute was devoted to CSI's Role in Education (see SPECIFICATIONS CLINIC, MARCH 1964 P/A). Primarily, it was an attempt to focus attention on the major role that specifications play as one of the contract documents, and further upon the education and development of competent specifications writers.

The need for such individuals was best described by D. Kenneth Sargent, Dean of Architecture at Syracuse University: "As a professional, I have only to survey the more recent charges of alleged negligence, errors, and omissions to recognize that improvement in professional education, generally, as well as in that required for the specifications writer is overdue. If I attempted to summarize the causes of cases that have resulted in litigation involving the architect or engineer, I would list them as follows: failure to know or utilize basic scientific principles, poor judgment, lack of adequate quality control, and improper instructions. Recognition by the design profession of the importance of the specifications as a key tool to correct these failures is essential."

When an architect is commissioned by an owner to design a structure, he develops two basic documents that are utilized by a third party, a contractor, in the construction of a building. These two basic documents are the drawings and the specifications. The drawings are graphic representations that illustrate (by means of lines, dots, and symbols) the size, form, location, and arrangement of the various elements. The specifications consist of a verbal description of the technical and legal requirements and describe the quality of materials, processes, and workmanship required to complete a structure. Here, then, are two documents, complementing one another, each fulfilling its proper function, each equally important. Yet, in many instances, we find that the courts have ruled that in the case of conflict between the two documents, the specifications generally govern.

Given the enormous pace at which the boundaries of human knowledge are constantly being expanded, we cannot expect an individual to be totally skilled in all phases of his profession. Increasingly, the architect must rely on individuals within his organization who have a more specialized knowledge of each of the disciplines.

The CSI Convention speakers, recognizing this need, felt that two avenues were available to strengthen and upgrade specifications and specifications writers: one through augmenting the content of architectural and engineering curricula at the undergraduate level; and the other through updating the knowledge and proficiency of practicing specifications writers.

Eight speakers endeavored to establish the role that the universities could play to provide students with a better understanding of materials, materials testing, trade practices, business law, construction sequences, and the mechanisms of the construction industry as it relates to specifications that are essential in developing competent specifications writers. Nine speakers discussed ways and means that could be made available to the practicing specifications writer to keep him abreast of current technological advances in building science.

Varying opinions were expressed by speakers concerned with the undergraduate student and the type of curriculum best suited to develop proficiency in specifications writing at this level. It is difficult to establish a consensus of opinion, if indeed there was one, but several suggestions merit serious consideration by the faculties of our educational institutions. A separate or special curriculum in construction specifications would lead to fragmentation of the architectural and engineering professions. The competent specifications writer must first be an architect or an engineer well versed in the basic philosophy and theory of either architecture or engineering. This approach would require additional courses in the present college curriculum for a degree in architecture or engineering. In the event that present programs do not permit additional courses, then graduate programs must be instituted that would accommodate these courses, or else specialization at the undergraduate level must be begun. Too many competent students flunk out of school or drop out because they cannot master design. Do they have to be lost to us forever? Surely they have the potential to fill another role in the architect's office—specifications writer, project administrator, construction supervisor—or they can contribute administrative skills.

Basic to the specifications writers' needs, it was generally agreed, is the requirement for courses in English. Communication is vital, and clarity of expression via the written word is imperative. Courses in building materials are the next prerequisite. A basic understanding of materials is a specifications writer's most valuable stock in trade. The classroom lecture on materials must be combined with field inspections so that fabrication and erection procedures can be visualized. Legal aspects of construction documents must also be studied. This course should include trade practices, building codes, insurance requirements, bonds, and contract forms. Finally, a course in the principles of specifications writing (which would include formats, techniques, and style of specifications writing) should be given.

What better way is there to upgrade specifications than by having competent specifications writers properly indoctrinated at the college level? The other method—updating the knowledge of practicing specifications writers—will be discussed in next month's column.

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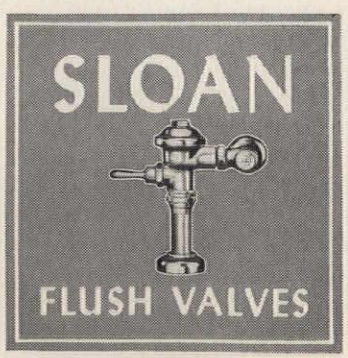

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Contractors' Claims

BY BERNARD TOMSON AND NORMAN COPLAN

P/A's legal team discusses the importance to the owner and architect of provisions in the construction contract that will relieve them of any liability for damages sustained by one prime contractor due to improper performance by another prime contractor.

There are several types of contractors' claims against an owner that commonly engender disputes and litigation. One of these is a contractor's claim for additional compensation for "extras" that have not been clearly authorized under relevant contractual provisions. Another type of claim is one for damages arising from alleged lack of coordination by owner or architect where there are several prime contractors working on the project. Both types of disputes were involved in a case determined by the Court of Claims of New York involving a contractor's suit against the New York State Thruway Authority (*Peter A. Camilli & Sons, Inc.* v. *New York State Thruway Authority*, 13 N.Y.S. 2d 521).

The claimant in this case was the general contractor for the construction of certain gas stations and restaurants on the New York Thruway. There were separate prime contractors for heating, plumbing, electrical, and site work. The general contractor had instituted suit against the owner for approximately $200,000, claiming compensation for extra services performed and for reimbursement of expenditures incurred and damages sustained in connection with the failure of the owner or architect to coordinate the work of the other prime contractors.

The construction contract in question provided that "Orders on Contract shall enumerate the work to be performed" and that "no change shall be made unless in pursuance of an Order on Contract." The contract also provided that "should any agreement or difference arise on any point concerning the character, acceptability or nature of the several kinds of work or materials . . . the decision of the . . . architect shall be final and binding upon all parties to the contract" and "the . . . architect shall decide all matters relating to the execution and progress of the work and his decision thereon shall be final."

The general contractor claimed substantial extra compensation for hauling of water to the construction site and for extra rock excavation. Although this work had not been authorized as an extra prior to its performance by the general contractor, the architect had issued an Order on Contract for the sum claimed by the contractor in the lawsuit after the completion of the work.

The owner resisted payment on the ground that the architect was without authority to issue the Orders on Contract, since the construction contract provided that such Orders were to be issued for "work *to be* performed" and not after the work had been completed. In rejecting this contention and upholding the contractor's claim, the Court said:

"It is inferred by the argument of the Attorney General that this provision should be strictly construed to protect the Authority against an unscrupulous or dishonest architect, its own agent selected by it and paid by it. There is no evidence of dishonesty in this record or fraudulent conduct on the part of anyone.

"It is suggested by the Attorney General that an underlying reason for strict adherence to the provisions of the contract requiring an 'Order on Contract' to be executed before the additional work is performed is that it gives the owner or principal an opportunity to check on the situation in advance. However, in view of the fact that the provisions of the contract provide that the decision of the Architect 'shall be final' on such matters and there being no provision enabling the principal or owner to overrule its agent, the Authority would be in no position to question the propriety or accuracy of the items allowed by the Architect, absent fraud or collusion, of which we find none in this case."

The contractor also claimed approximately $75,000 damages allegedly sustained through lack of coordination. He contended that, because of the owner's conduct, it took him 26 months to complete the project instead of an 11-month period provided by the construction contract. The claimant contended that "this delay was occasioned by the Authority's failure to properly coordinate the work of the various contractors and by its failure to insist upon reasonable and timely performance by the other contractors, so as not to unduly impede the operations of the claimant."

The Court found that the site contractor had been allowed to come on the site too early. As a consequence, the site contractor destroyed a diversion channel that the general contractor had constructed to avoid floods. Also, the Court found that the site contractor's blasting resulted in damage to forms and walls, requiring the general contractor to repair and duplicate the work. Finally, the Court found that the performance of the plumbing and electrical contractors had substantially delayed the general contractor, causing him additional expense. In substantially upholding the claim of the general contractor against the owner for damages, the Court held that the owner had failed in his duty to properly coordinate the work of the various contractors.

Construction contracts require careful and competent draftsmanship if the area of possible future disputes is to be narrowed. Where there are to be several prime contractors, the provisions relating to coordination are particularly important. Consideration should be given, for example, to the desirability and validity of contractual provisions that would relieve the owner and architect from any liability for damages sustained by one prime contractor due to the improper performance of another prime contractor, but that would provide a method of relief to the aggrieved contractor.

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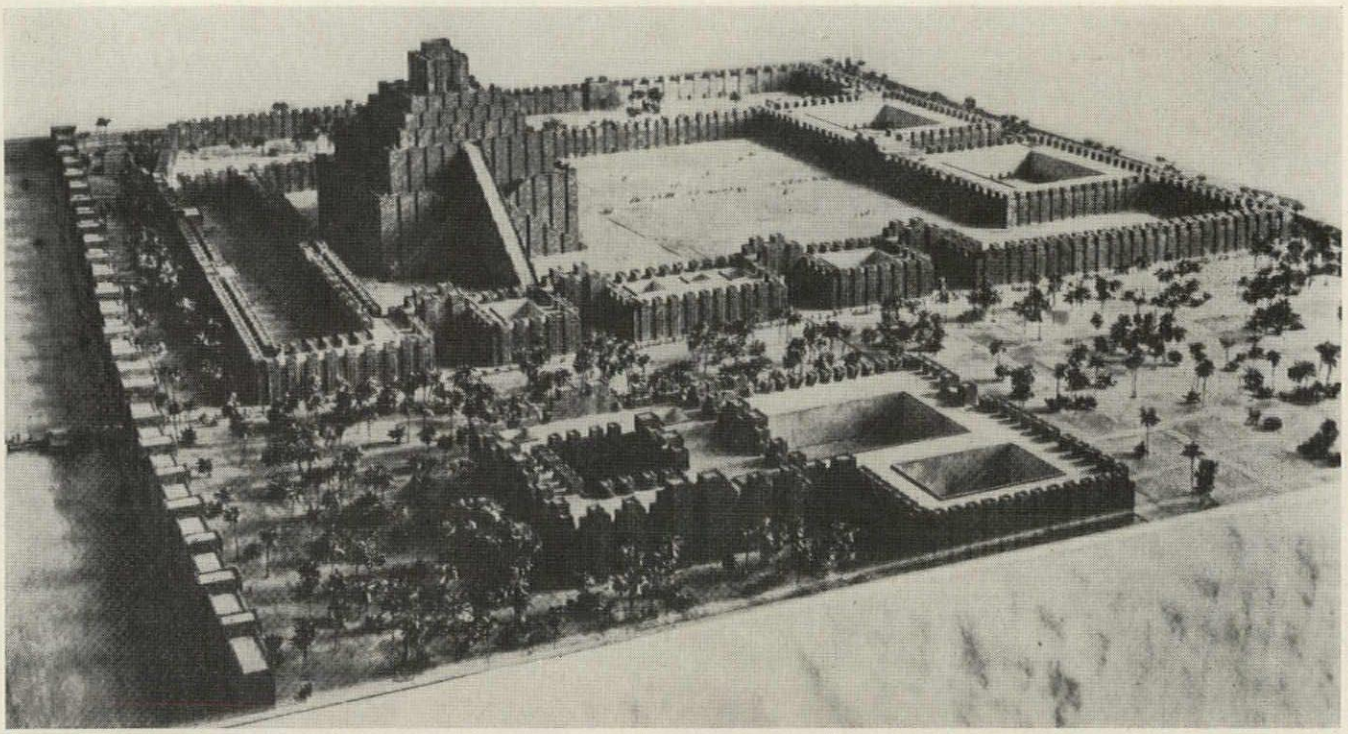

Reconstrutcion of Ur (2125–2025 B. C.). Burchard comments that "after a few glimpses at Ur . . . the cityscape seems to disappear."

BY JOHN E. BURCHARD

WORLD ARCHITECTURE: A PICTORIAL HISTORY *by H.R. Hitchcock, Seton Lloyd, Norbert Lynton, Andrew Boyd, Andrew Carden, Philip Rawson, John Jacobus. Published by McGraw-Hill Book Co., Inc., 330 W. 42 St., New York, N.Y. (1963, 348 pp., illus. $17.95). Reviewer is Dean of MIT's School of Humanities and Social Science. He has traveled widely, and a two-part article on some of his observations appeared in the November and December 1963 issues of P/A.*

The title of this book, subtitle included, offers an accurate description of what it principally is. It is large (14″x10½″x 1½″), heavy (almost 6 pounds), sumptuous, and handsome. It is also comprehensive, despite some important omissions. Sometimes, the color photographs go over the edge, in the manner of "Life Discovers Greece." The Parthenon is seen, for instance, flanked by glowing red columns, which must have been incidental to a performance of Son et Lumière, and this was a performance as false to the truths of Greek history and as much of an offense to the Acropolis as the Athens Hilton is. Surely a picture of Henry VIII's Chapel in Westminister ought to have concentrated attention on the vaults rather than on the banners of the Knights of the Bath, who did not get in there until 1725.

The black-and-white illustrations are generally quite good enough, but so many things have to be noticed that nothing can be noticed very much. So they are really better as memos for those who have been there than for those who have not. The range is, on the whole, excellent. They are well composed in combination with plans and other drawings. But the weight and bulk of the book, combined with the no doubt unavoidable necessity for turning backward and forward from the text to a referred picture, makes it hard to use, and one is tempted—and ultimately succumbs to the temptation—either to read the essays without reference, or, since the pictures are more interesting, to leave the essays alone and read only the pictures. This temptation is reinforced by the fact that the captions are generally interesting and that the uniformed reader may not be aware that they are not always right. Still, as I went along, I began to wonder whether the book would not have been better without the essays, and with an imaginative coupling of more extensive and more accurate captions to do what the essays attempt to do under trying limitations. What are you going to say about Classic Greek architecture, for example, in 4000 words?

Thus it seems clear that this book will be primarily a table book, and a handsome and pleasant one at that. And to call it primarily a table book is not intended in derogation. It may well lead some people to a more serious interest in architecture. The question is whether it is anything more than a table book.

Well, it is not a consequential addition to the serious study of architectural history once one has the interest. To the extent that Banister Fletcher is still use-

Continued on page 222

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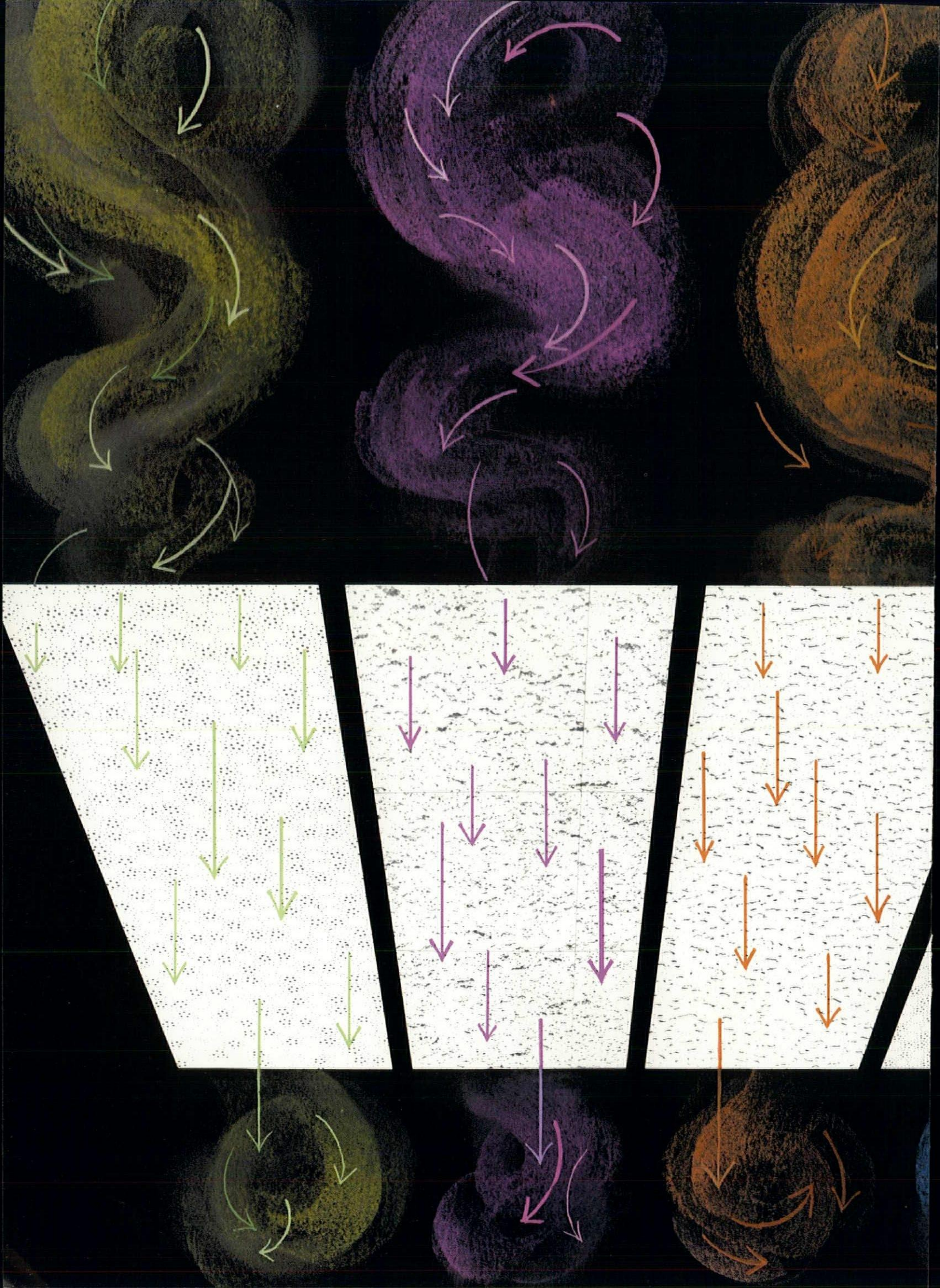

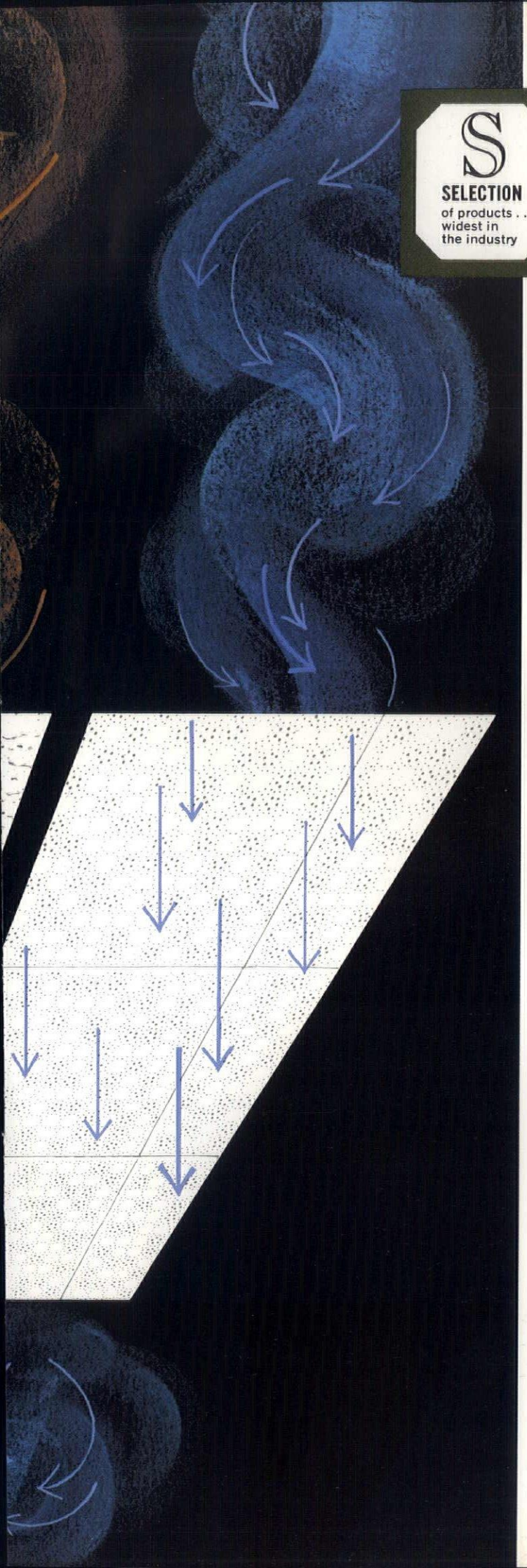

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ful in elementary history, the present work might offer a powerful supplement, for it is rich precisely where Fletcher is not. But it cannot replace Fletcher, whose systematic treatment and skillfully and consistently organized drawings are not matched here. It is, I suppose, a kind of encyclopedia of architecture, and in that sense and in most respects a rich addition to the literature. It covers the field as well as any collection of encyclopedic articles I know, a little weaker in text, stronger on illustration.

But if viewed as an encyclopedia (and I am not sure its publishers had this in mind at all), it has some defects. The absence of footnotes and a bibliography puts the innocent reader too much on his own, either for verification or extension of any of the statements made.

Then there are the inevitable omissions. There are the little ones any critic can always find. The Hittites are dismissed in a dozen contemptuous lines; Susa is mentioned only for its mosque; there are no illustrations of Nikko; the attention given the Mogul work in India is quite inadequate; German and Catalonian Romanesque are treated casually as compared, say, with English Romanesque. Some important things do not appear anywhere: Mont Saint Michel, Ypres, Azay-le-Rideau, Pont Valentié, Louvain, House of Jacques Coeur, Lübeck, Aigues Mortes, Speyer, and so on. Pre-Columbian work was evidently remembered as an afterthought, turning up on a single page of pictures and captions sandwiched between the Renaissance and the Modern.

There are strange emphases, most noticeable in the modern section, which has nine examples from Wright and eight from Le Corbusier, along with five from Mies, three from Gropius, two from Aalto (only one typical of his best), two from SOM, two from Perret (but not Raincy), one from Eero Saarinen (but TWA, not Dulles), and three from Philip Johnson, two from Behrens, while there are no illustrations and usually not even a verbal reference to the work of the Tauts, Hans Scharoun, Eliel Saarinen, Breuer, Tange, Pei, Rogers, Rudolph, or any of the leading Scandinavians. Meanwhile, however, the entirely unimportant Smithsons are illustrated.

This may be nit-picking, but there are some more serious things. There is no color illustration of medieval stained glass and the black-and-whites show neither the over-all effects nor the iconographic details. The treatment of military, mercantile, and civil Gothic, especially of the Low Countries and Germany, is almost nonexistent.

Most serious of all is that, after a few glimpses at Ur or Priene, the cityscape seems to disappear and very few buildings are shown in any context, preserving the delusion held even by many architects that buildings are justifiably viewed that way. (The picture of the Place des Vosges, for example, is of a few of the houses and not of the square, which is the important thing.) The treatment of the arts is strange. They are often mentioned, to be sure, but seldom illustrated, so that, in the end, this aspect seems parsimonious. But it may be intentional and a reflection of what is implied when one of the writers refers to the great iconography of the Burgundian Romanesque as "a tendency to include a sculptured decoration" and uses the word "ornamental" for such great sculpture as the Last Judgment of Autun. This, of course, is implicit in a book that takes its tone from Henry-Russell Hitchcock's attitude toward the

Continued on page 228

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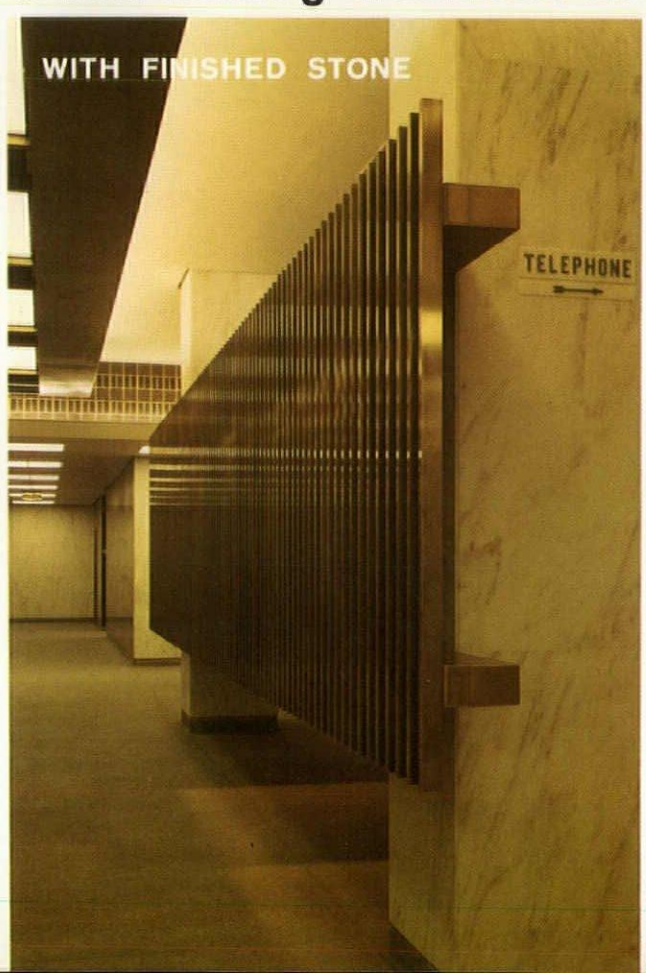

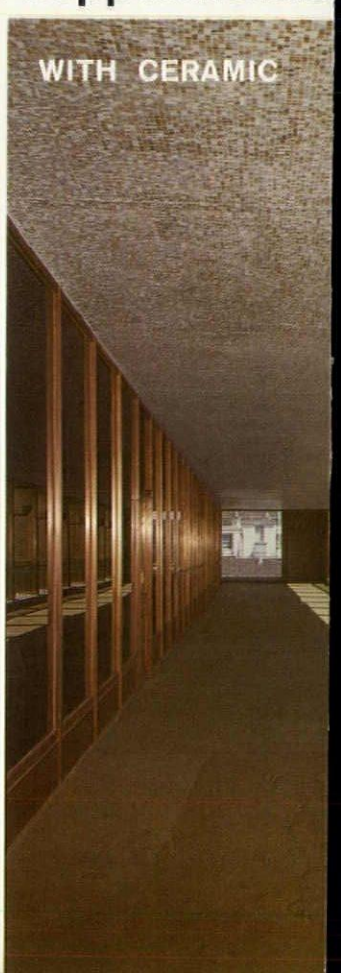

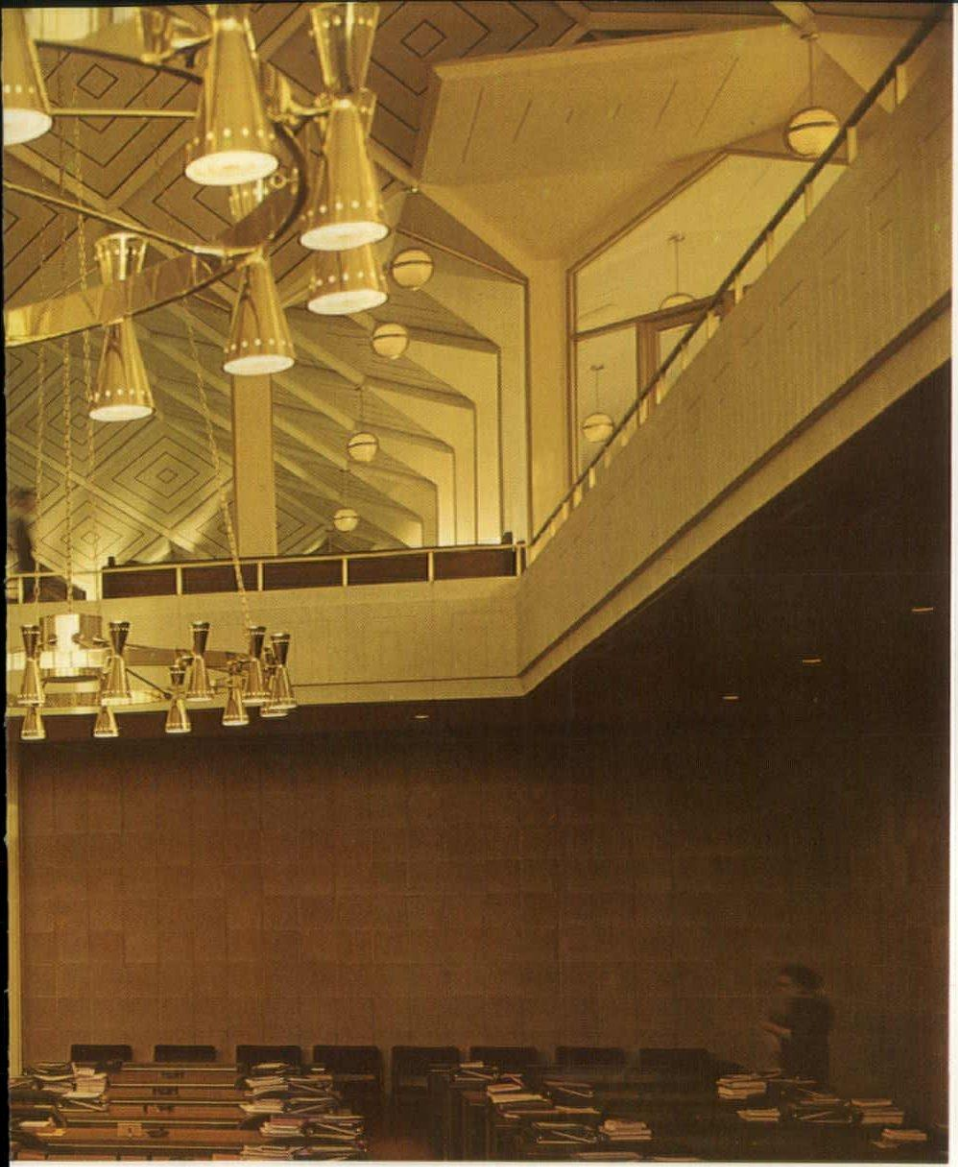

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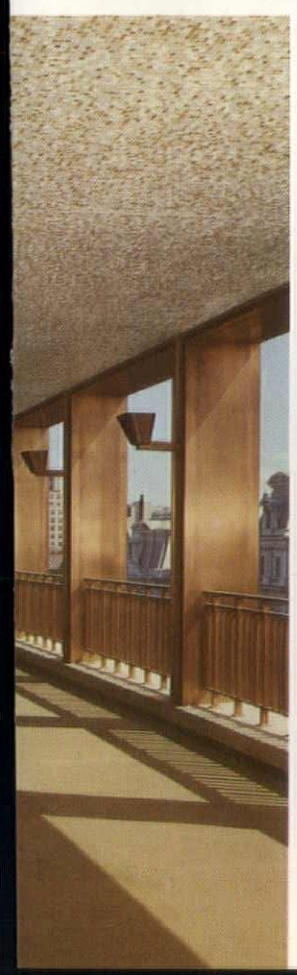

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Continued from page 222

social surrounding of architecture. There are not many people to be found using the buildings in this book—very little indication of why people wanted the buildings they wanted, although enough attention probably to materials and structural methods.

I regret also the lack of a serious section on indigenous and anonymous architecture. It all begins pretty well in Mesopotamia, but after that peters out and is dealt with only in another of those afterthought pages containing a few desultry examples and put at the end of the ancient and classical section. It is consistent with the precious definition of architecture to be found on p. 17: "The most elementary requirement of architecture is that a builder or designer shall have consciously contrived the form and appearance of a building in such a way as to provoke predictable [sic!] reactions in those who see or use it—reactions, that is, either of personal satisfaction or aesthetic pleasure." But even this stricture would not justify the omission of more than the most primitive sources, and for a book on world architecture to ignore the great wealth of the sophisticated indigenous vernacular stemming out of traditions more than self-conscious design is a serious fault.

The essays themselves are all satisfactory, if not brilliant. All but one are of British origin, but for once this has not in general resulted in an overstatement about the British achievement. The American John Jacobus has done an excellent and in some ways a fresh job in writing about the modern, but his examples, after the beginning of the Chicago School, are really excessively American, although inside America he is guilty of no greater parochialism. You would never guess from the text that the long-run influence of Gropius, and especially the Bauhaus, is bound to be at least as great as Wright's. But, as Hitchcock says, it is tricky to write contemporary history.

Hitchcock's own essay is sound, but not vintage Hitchcock. Aside from his attitude toward social architecture, I am disturbed by his view that somehow you can understand architecture better from pictures, diagrams, etc., than you can understand painting or sculpture. This is simply not so. To be sure, if you have stood in one great French cathedral, you may be able to intuit the experience in another one from pictures. But if you have never stood in one, you just cannot do it at all. It is like trying to sense what it would be like at the foot of Nanga Parbat from pictures. Hitchcock does say in this connection that you need many pictures and diagrams of the same building to come close to this, and such a full treatment is not present in this book for any building. I have tested the illustrations against a number of places I have experienced, and they cannot work this way either for the Treasury of Mycenae or Hagia Sofia or for the interior of Vierzehrheiligen (which, by the way, is not shown, although Wies is) or for the caves at Ellora.

The book does not try to do this for any architectural monument, and would, I think, have failed if it had. What it can do—and does brilliantly—is to make a lot of people want to go and see a lot of architecture they never heard of before, or at least never coveted to see. And it will send them to the right things. When they get there, and insofar as their eyes need help from books, it will have to be from other books (the Penguin series, for example, or the classic French and Italian texts). But getting them there is the first step.

Owner: Alroll, Inc. Engineer: Aluminium Laboratories, Ltd., Montreal. General Contractor: Ragnar Benson, Inc., Pittsburgh, Pa. Floor Contractor: Tomsio, Inc., Buffalo, N. Y. Concrete Testing: Pittsburgh Testing Laboratories, Buffalo, N. Y. POZZOLITH Ready-Mixed Concrete: Northern Ready-Mix, Inc., Fulton, N. Y. (Floor contractor & testing laboratory were hired directly by Alroll.)

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MASTERPLATE provided Alroll with an industrial concrete floor which will serve longer under heavy use and abuse, at lowest cost per year. For details on MASTERPLATE, call your Master Builders field man. The Master Builders Co., Cleveland, Ohio 44118.

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After the brilliant vicarious experience, many ought to hope to experience the real thing. So despite the reservations I have entered above, I do not want to fall into the trap that lures so many reviewers into criticizing the makers of books for not making a different book. This Was the Book That Was. Viewed that way, it is admirable, and I hope it will be widely distributed. I don't know any architect who would not gain pleasure and even benefit from owning it—if only to be reminded from time to time that there were brave men before Agamemnon. Also, I do not know many architects these days who cannot afford to own it. On a price measure, it is a considerable bargain.

How to Have a Fair

BY JAMES T. BURNS, JR.

CENTURY 21: THE STORY OF THE SEATTLE WORLD'S FAIR, 1962 *by Murray Morgan, with special photographs by Steven C. Wilson. Published by Acme Press, Inc., Seattle, Wash. Distributed by University of Washington Press, Seattle 5, Wash. (1963, 159 pp., illus. $12.50). The reviewer, who is P/A's News Editor, reported on the Seattle fair in the June 1962 issue.*

This is a history of the 1962 Seattle World's Fair, "Century 21." Starting as a vague scheme for memorializing the Alaska-Yukon-Pacific Exposition of 1909, the fair grew and gained support until, somewhat to the surprise of many, it opened on April 21, 1962, and went on to become a commercial success by the time it closed in October (thereby giving the lie to the New York World's Fair management, which says it can't do it in less than two years).

Among the reasons for the Seattle fair's success, not the least was that it paid more than lip service to professional surveillance of planning and design, under the watchful eye of Architect Paul Thiry. Another significant contribution was that, after the fair, Seattle received a permanent cultural, educational, sports, and entertainment center (practically everything but the—ugh—Unisphere and the Hall of Science will be ripped down after the New York fair).

This handsome book tells the Seattle story in straight forward reportage. It could be a procedural handbook for communities that are planning large-scale expositions and similar affairs. Of particular note are the imaginative photographs by Steven C. Wilson, which catch the atmosphere of a fair splendidly.

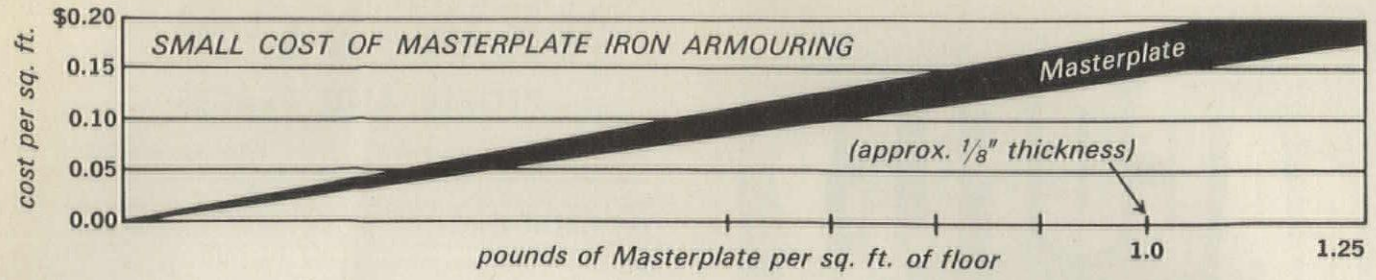
An Inventory

BY WALTER F. BOGNER

LIBRARY BUILDINGS OF BRITAIN AND EUROPE *by Anthony Thompson. Published by Butterworth & Co., Ltd., London. Distributed by Butterworth Inc., 7235 Wisconsin Ave., Washington 14, D.C. (1963, 326 pp., illus. $21). Reviewer is Professor of Architecture at Harvard University Graduate School of Design. As professional adviser, he prepared the competition program for Tufts University library last year.*

The marvelous accomplishment of storing an ever-growing avalanche of books so that any single item can be extricated for the enlightenment of one reader grew out of the history of experience in the planning and operation of libraries. The publication of new buildings and devices has contributed to the development of principles and procedures, and consequently to the continuing improvement of library architecture and services. Today in particular, with accelerated progress tending to revolutionize the design and operation

Continued on page 236



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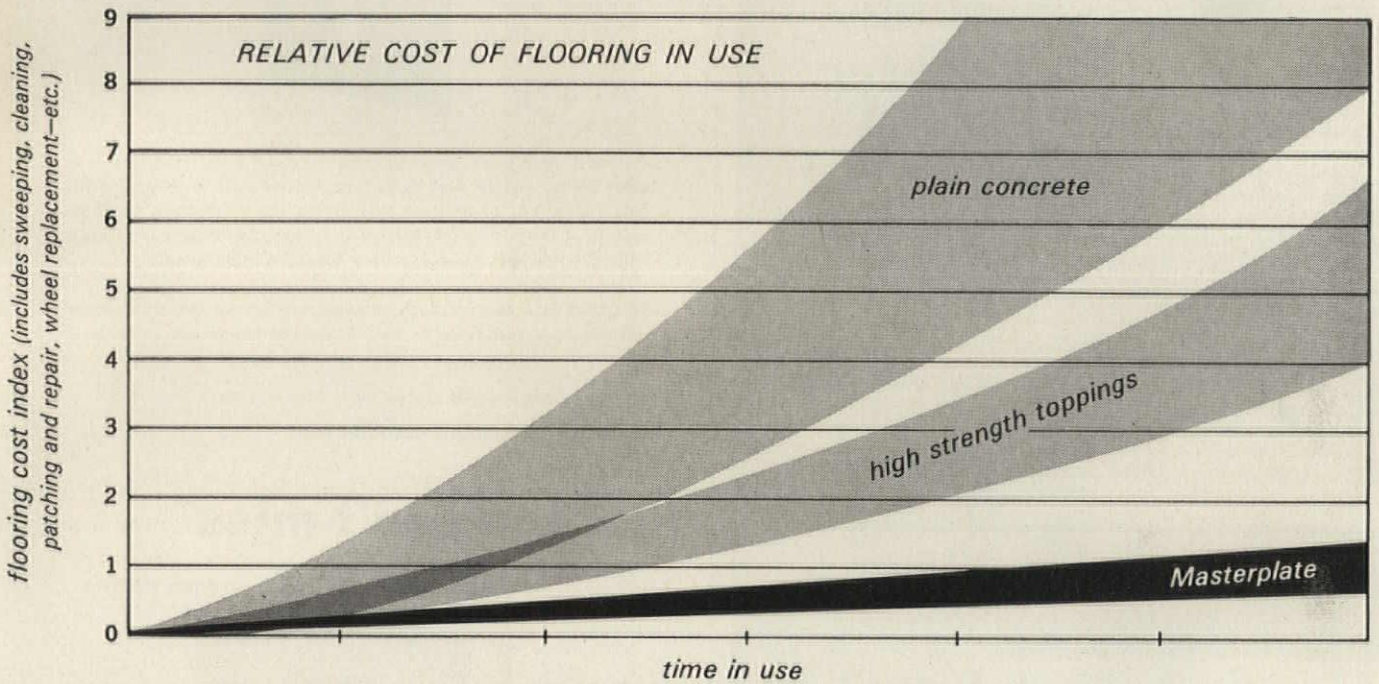

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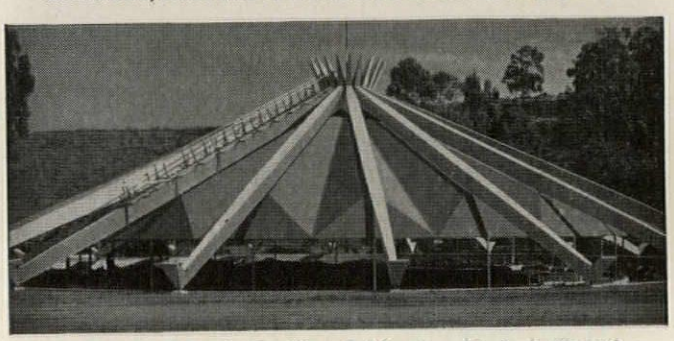

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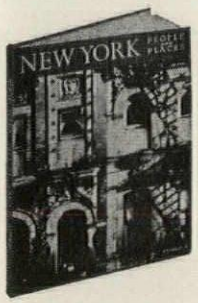
NEW YORK

PEOPLE AND PLACES

Photographs by Victor Laredo **Text by Percy Seitlin**

The illustrations are meticulously printed by sheet-fed gravure, the text is set in Monotype Perpetua and printed on antique paper. Carefully bound by interleaving the picture pages with the text pages, it all makes for a handsome piece of bookmaking.



For most people the enduring image of New York – derived from quick visits, picture post cards, and movies – is an imposing but coldly aloof city of towering skyscrapers and anonymous rush hour crowds. It is an image obviously not designed with the human scale in mind – one best observed from a comfortable distance.

This book is a quest through pictures and text for that other, more intimate New York found in its old neighborhoods and buildings – the city in which the human scale is still evident.

192 pages with over 200 photos, 8¼ x 10¼. $12.50t

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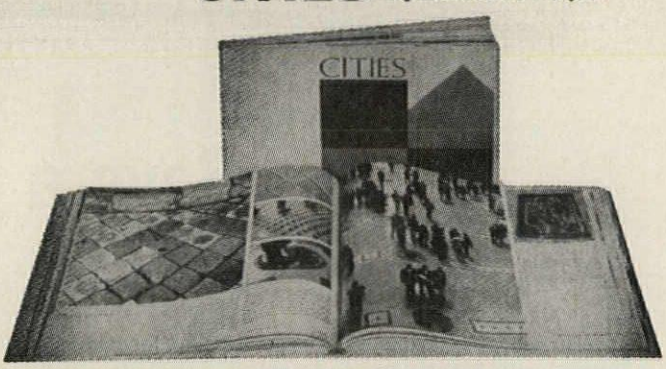

10¼ x 8¼ oblong. 224 pages. $15.00

"I think this is one of the finest books on the subject. Every page is an experience"—Edmund N. Bacon, Executive Director, Philadelphia City Planning Commission.

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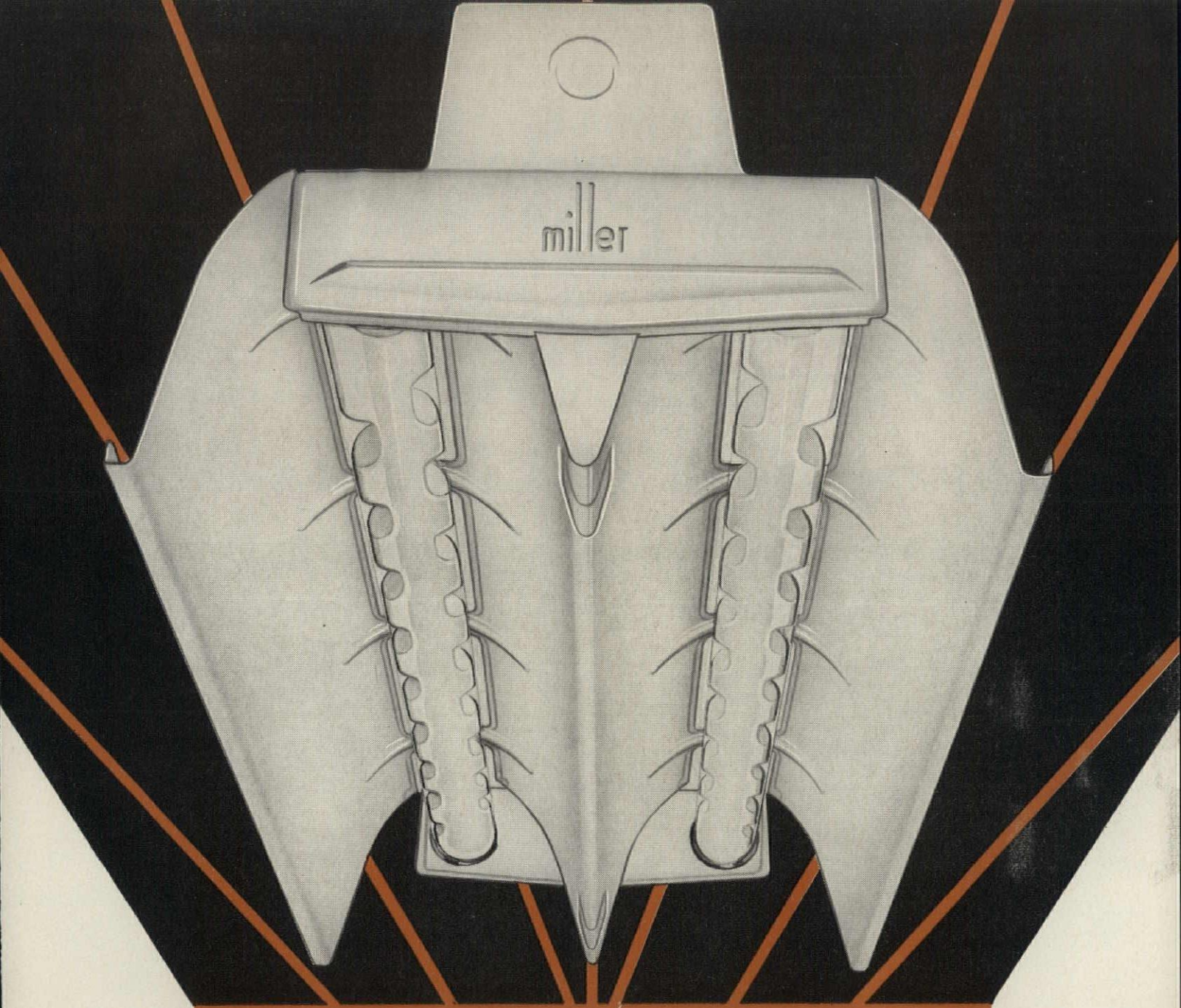

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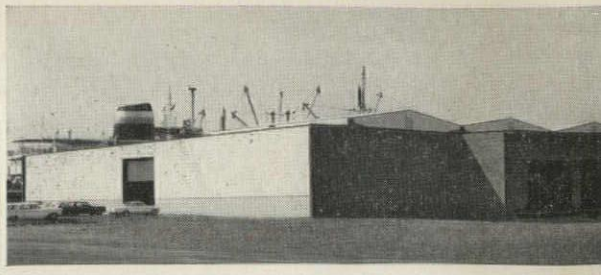

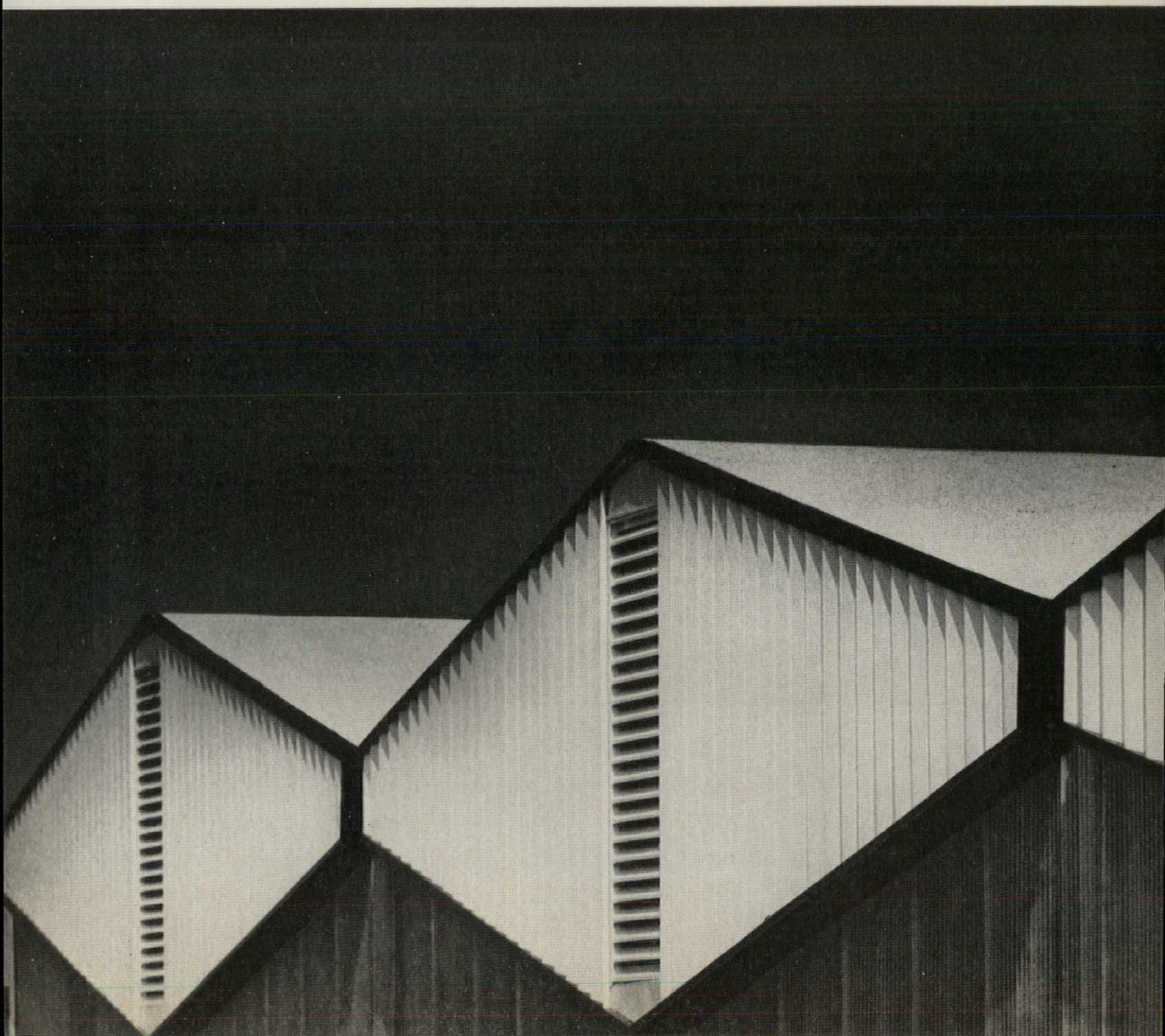

Despite its location on the shore of Lake Erie, exposed to extremes of weather, the siding on this new Transit Building will stay fresh and new-looking for many years. It's surfaced with a new and amazingly tough finish: TEDLAR* PVF film.

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The metal building panels, surfaced with TEDLAR, are made and erected by Elwin G. Smith Co. More and more architects are specifying TEDLAR as the finish on roofing and siding. Du Pont Film Dept., Box 115C, Wilmington, Delaware 19898.

Transit Building, Department of Port Authority, Cleveland, Ohio
Architect: Alexander A. Papesh, Cleveland, Ohio
Engineer: Osborn Engineering Co., Cleveland, Ohio
Contractor: Geo. A. Rutherford, Inc., Cleveland, Ohio

*Du Pont registered trademark for its polyvinyl fluoride film.

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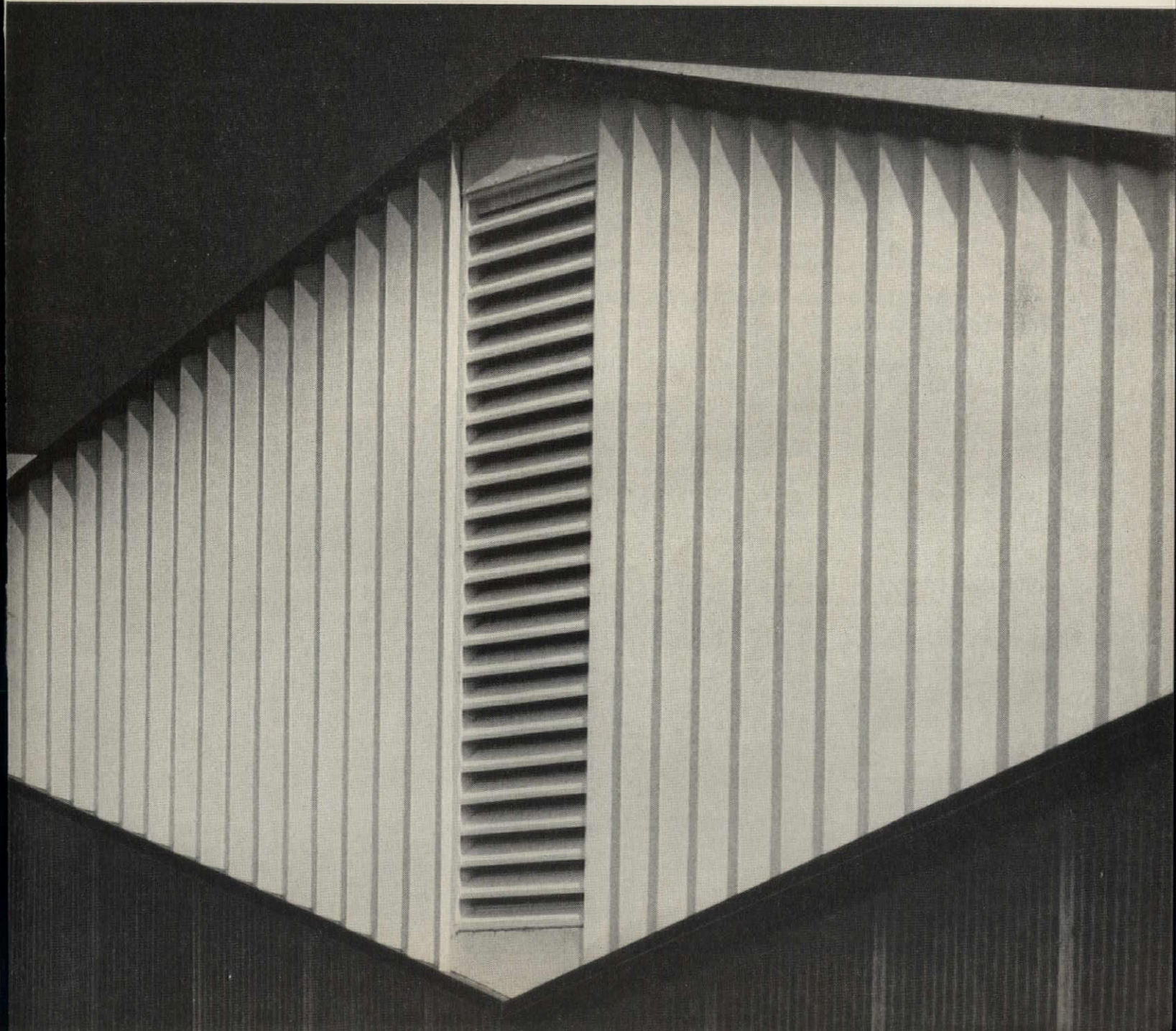


Continued from page 230

of libraries, the need for a comprehensive publication on this building type is indicated.

Anthony Thompson aimed at such a book in his *Library Buildings of Britain and Europe*. He succeeds in providing a compact listing of established methods for planning libraries followed by an extensive and highly detailed inventory of buildings. He understands librarians and their precise ways, for he is undeniably a librarian himself. The orderly format in which his information is presented and cross-referenced shows his experience in the routine of library practice. He is also versed in preparing texts for architects; his long experience with the documentation of buildings for the Royal Institute of British Architects is evident in his work.

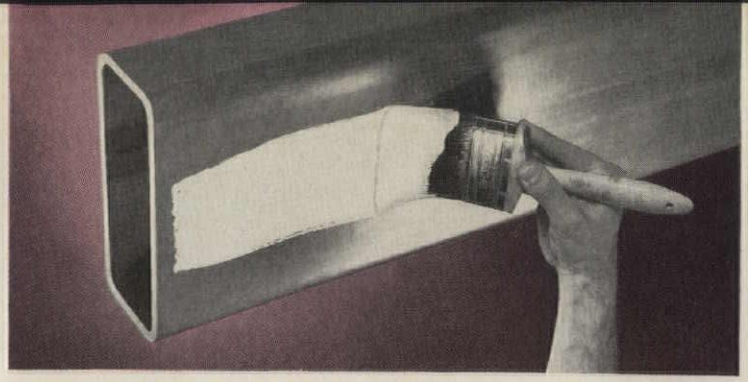
Thompson carries the record of library planning and practice forward for about a decade and a half beyond Wheeler and Githens' comprehensive study on libraries, *The American Public Library*, augmenting the American work by inclusion of European experiences. In spite of the geographic limitations implied by his title, he systematically documents in 316 tightly-packed pages significant public, university, and storage libraries on whatever continents they may occur.

Architects who merely assemble plans for new libraries from data on existing buildings will find Thompson's work helpful. Librarians, likewise, will gain a great deal of guidance in setting up a program for a new building, in reorganizing their facilities, or in learning about various standards and practices that became established in the first half of the 20th Century. Important changes that appeared in American university libraries after 1950 have escaped Thompson. One misses the new aim to enhance the use of books—an objective that led to the abandonment of the locked stacks and the distribution of book storage throughout reading rooms.

The creative architect who recognizes that libraries are not mere storehouses for books but demand a human quality to attract readers will only find a few illustrations to inspire him. Two are from Scandinavian countries. The first, designed by Alvar Aalto in 1935, is in Viipuri. The second is Sven Ahlbom's charming Västerås Library of 1953.

Anthony Thompson's *Library Buildings of Britain and Europe* has its place as an inventory of noteworthy libraries. Among its data one finds information on space requirements for readers and

Continued on page 244



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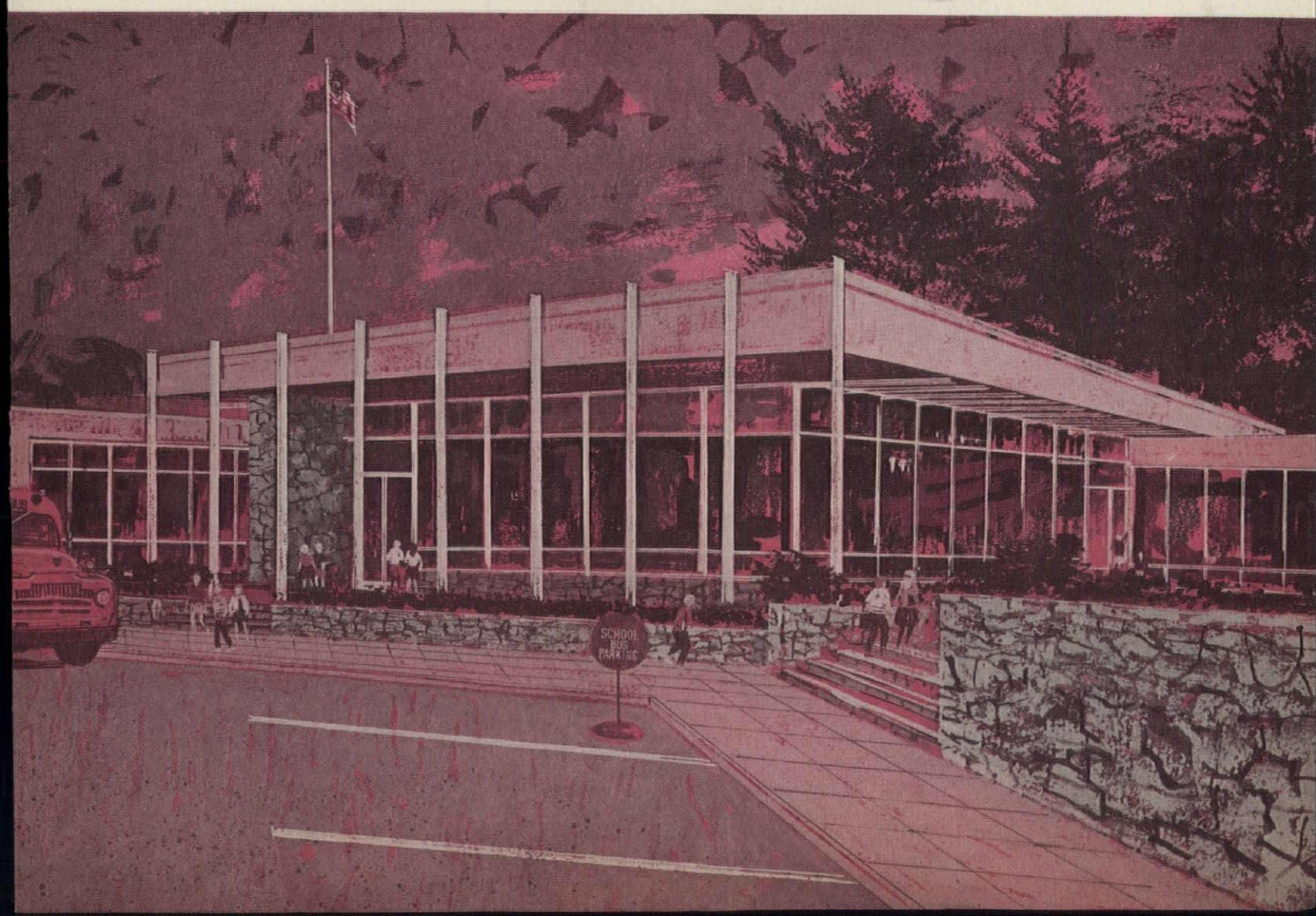

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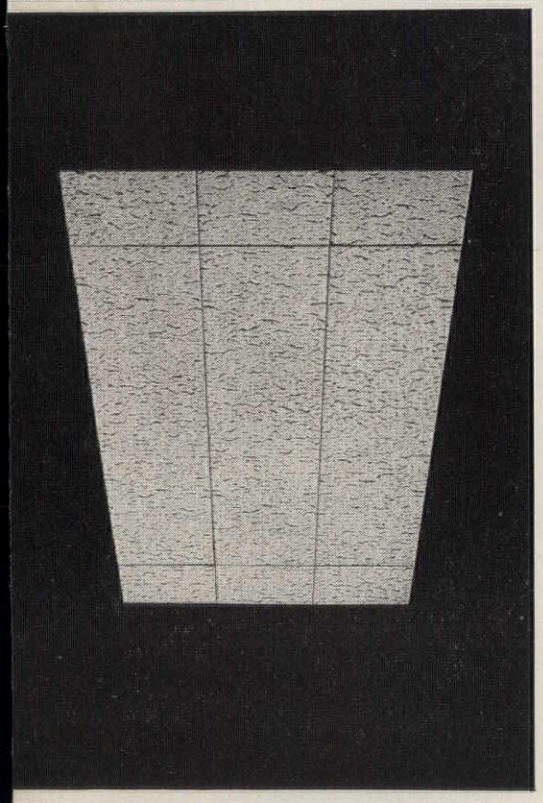

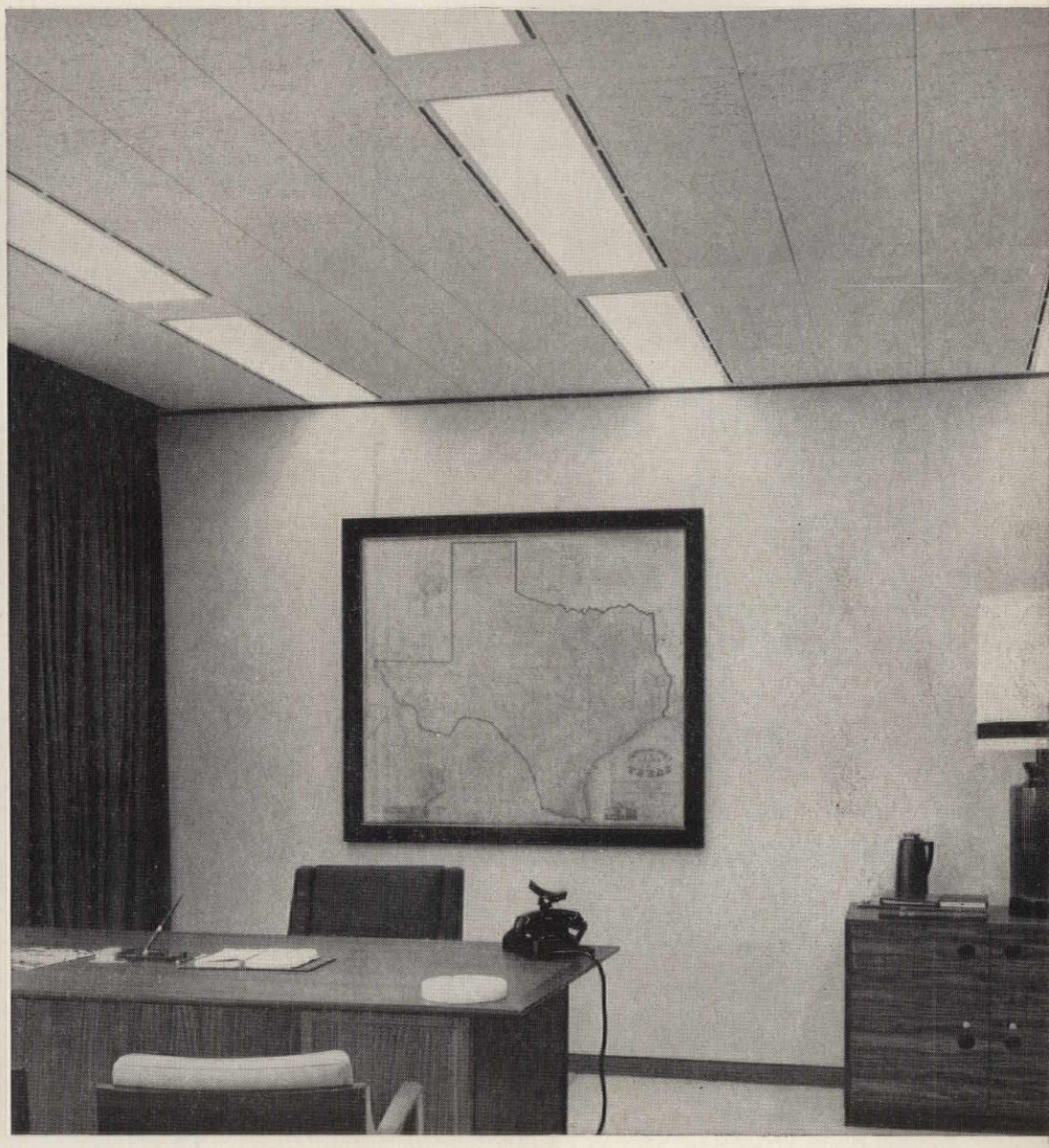

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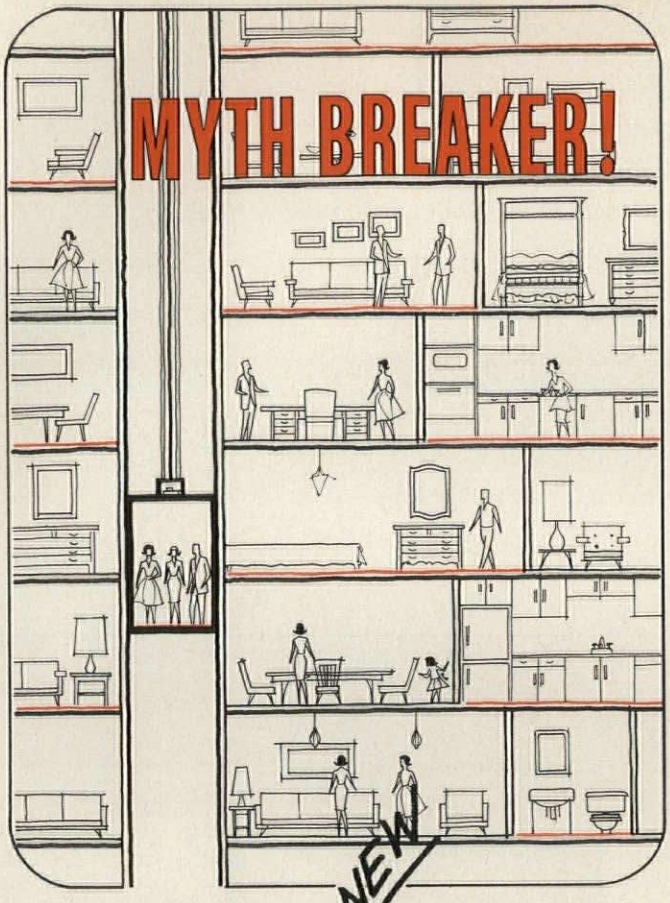

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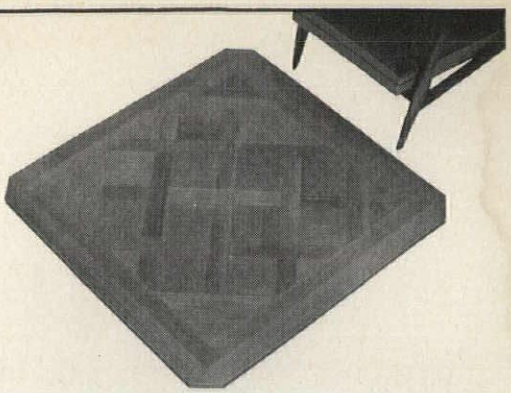

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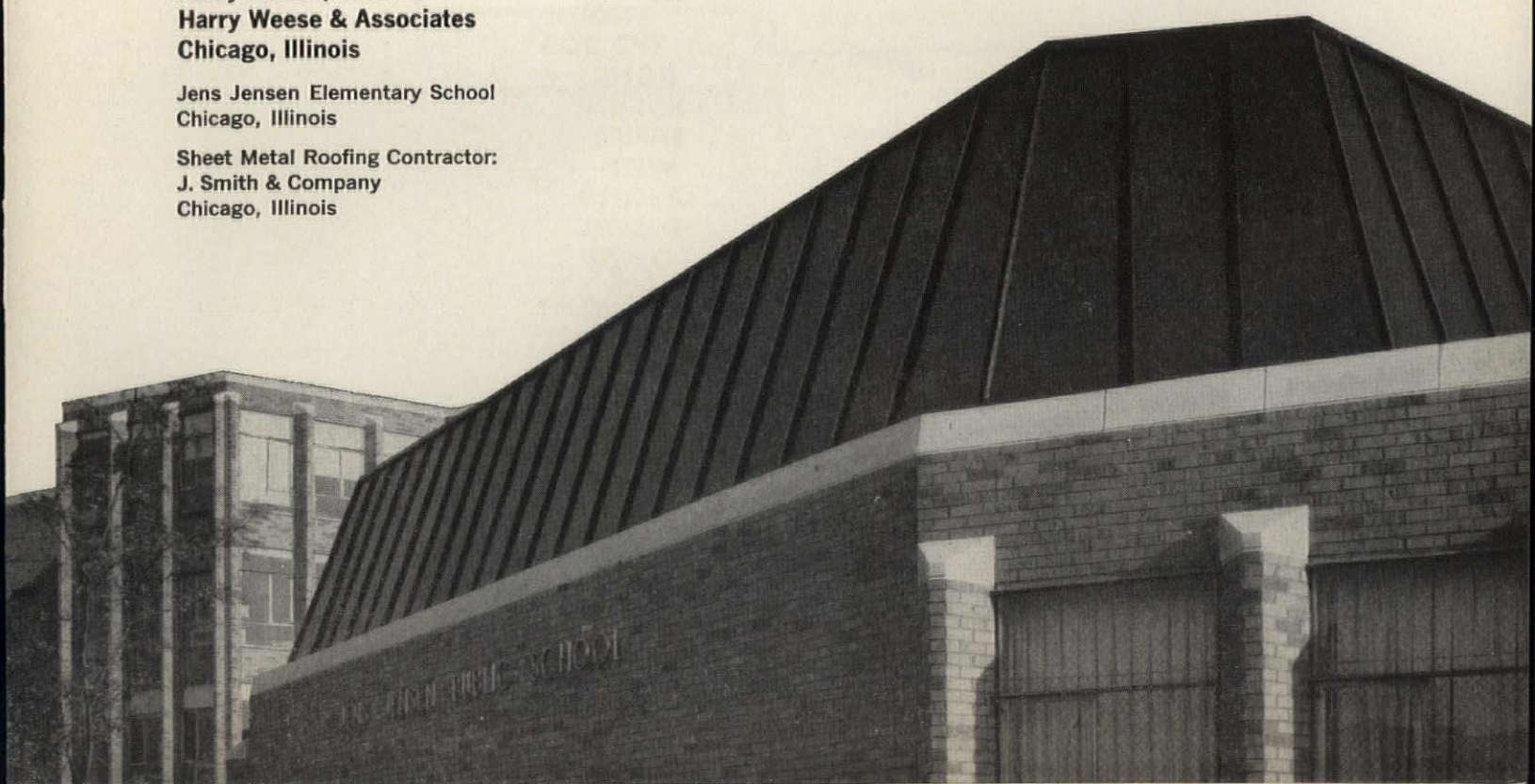
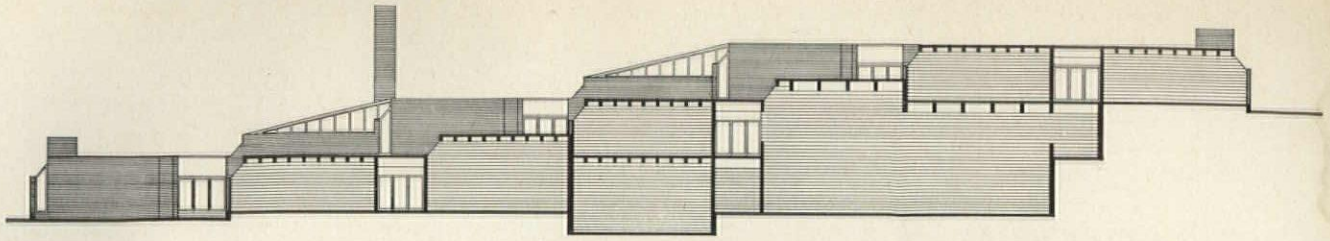
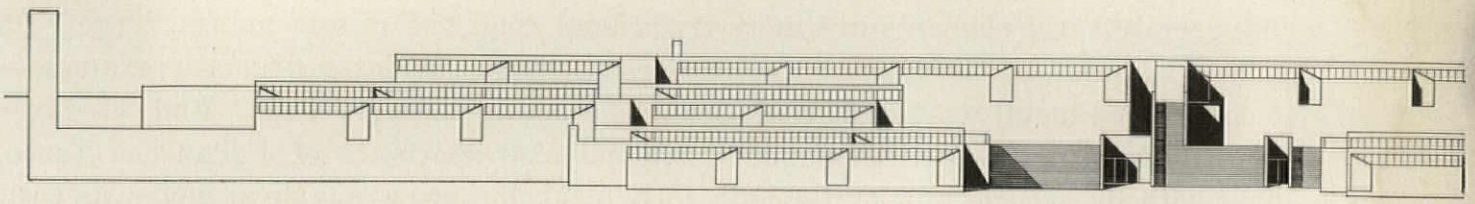
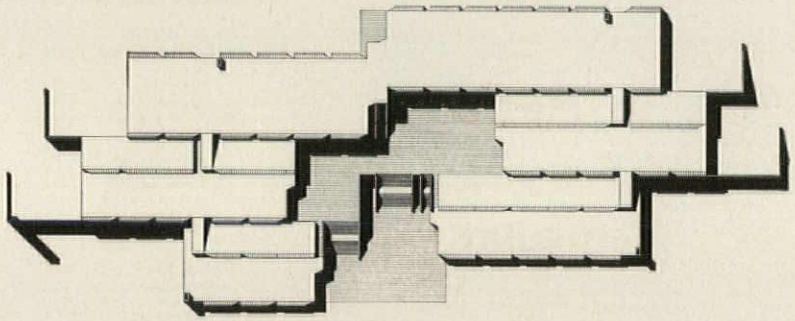
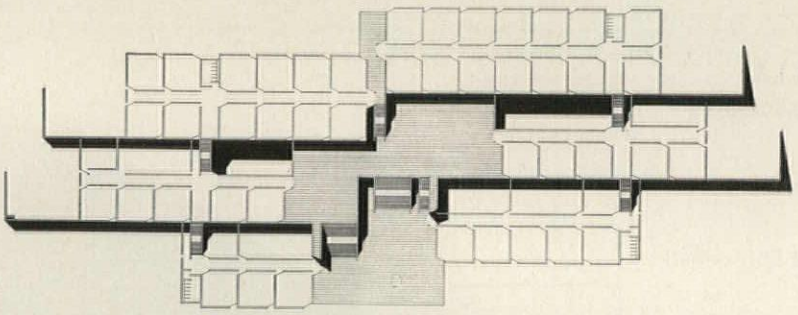


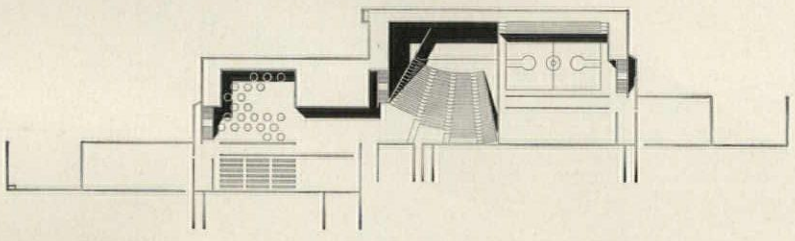
Zonolite prototype building #7: A high school

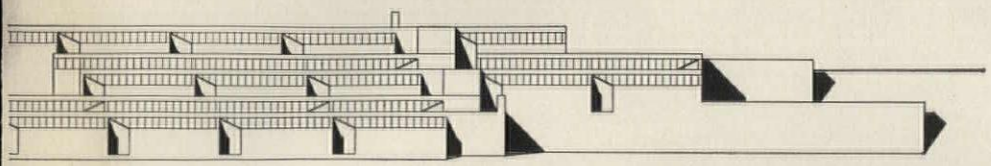












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approx. installed costs per sq. ft. of wall	6" block or 2½" cavity	8" block	12" block
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Additional facts worth investigating are contained in our Bulletin MF-83. Write Dept. PA-114, Zonolite, 135 South LaSalle Street, Chicago 3, Illinois.

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Design Conditions			Winter Heat Loss in BTU/Hr Assuming 70°F DB Indoor 0°F DB Outdoor		Summer Heat Gain in BTU/Hr Assuming 95°F DB, 75°F WB Outdoors 78°F DB, 50°RH Indoors	
	Without Masonry Fill	**With Masonry Fill**	Without Masonry Fill	**With Masonry Fill**	Without Masonry Fill	**With Masonry Fill**
Walls (above grade)	4" Face Brick Air Space 8" Concrete Block	4" Face Brick 2½" Fill 8" Concrete Block	495,000	**187,000**	120,000	**45,000**
Walls (below grade)	8" Poured Concrete		39,000	**39,000**	—	—
Roof	Roofing, 4" Concrete, 2" Insulation		600,000	**600,000**	345,000	**345,000**
Floor	4" Concrete on Grade		369,000	**369,000**	—	—
Glass: Solar & Transmission	¼" Clear, Single Plate		650,000	**650,000**	1,225,000	**1,225,000**
Ventilation	23,000 Cubic Feet per Minute		2,389,000	**2,389,000**	810,000	**810,000**
Lights	340 Kilowatt		—	—	1,150,000	**1,150,000**
People	1750		—	—	780,000	**780,000**
Totals			4,542,000	**4,234,000**	4,430,500	**4,355,000**
% Savings with Masonry Fill			$\frac{4,542,000-4,234,000}{4,542,000} \times 100 = \mathbf{6.8\%}$		$\frac{4,430,500-4,355,500}{4,430,500} \times 100 = \mathbf{1.7\%}$	

NOTES: FUEL: No. 6 oil @ 7.5¢ per gallon. DEGREE DAYS: 4989 per year. Total Loads Based on Maximum Simultaneous Usage.

For more information, turn to Reader Service card, circle No. 409

Continued from page 236

books; on functions and services of libraries under specific conditions; on equipment, costs, and reference material. For one who does not look to the future, it is a most useful handbook; but toward the planning of libraries that recognize the opportunities new architecture offers for creating a stimulating environment, and toward the new methods and procedures technological advance provides, the book does not fulfill its expectations. Thompson's achievement is one of providing a well-illustrated and systematically documented record of the plans and functional organizations of libraries.

The Statement of a Creed

BY PAUL ZUCKER

ARCHITECTURE IN TRANSITION *by Constantinos A. Doxiadis. Published by Oxford University Press, 417 Fifth Ave., New York 16, N. Y. (1963, 200 pp., illus. $7.50). Reviewer is Professor of Art at Cooper Union and the New School for Social Research. Among his writings is the recent book* Town and Square: From the Agora to the Village Green.

The best way to review this book, whose importance for the architect cannot be overestimated, would be to quote almost every sentence. It is this reviewer's conviction that Doxiadis' findings will be more decisive and in the long run more influential than those formulated by Le Corbusier.

It is difficult, if not impossible, to condense Doxiadis' ideas in logical sequence; for, exactly as Vitruvius' *De Architectura Libri Decem*, Doxiadis' *Architecture in Transition* offers such manifold and heterogeneous material that a systematic summary cannot be given. As Vitruvius writes about the aesthetics of architecture and with equal explicitness reports about the specific qualities of construction materials, about the archaeology of Greek temples, the classical orders of columns, and the function of all types of buildings, as well as about astronomy, literature, music, and fortifications, so Doxidadis touches almost every problem relevant to architecture and especially to city planning.

Doxiadis' fame and success as city planner and architect is worldwide, from Greece to Pakistan (with Islamabad, its metropolis of two million inhabitants, which he is now planning), from the United States (Philadelphia's Eastwick project) to Iraq, Iran, Jordan, Syria, Lebanon, India, and Ghana. Yet it should be remembered that Doxiadis is

Continued on page 248

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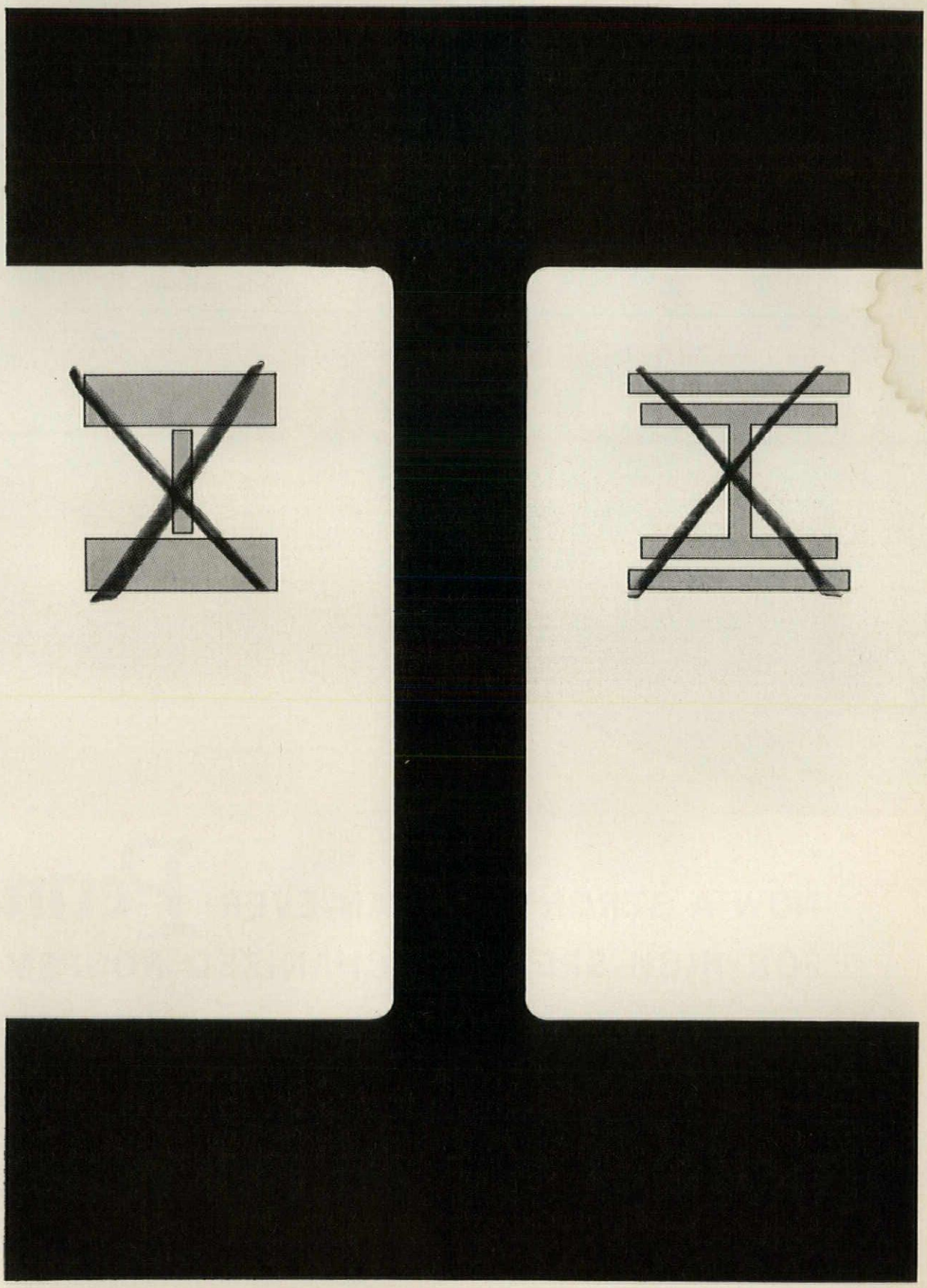

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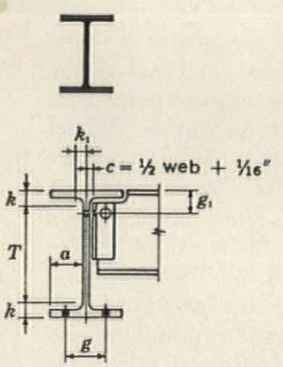
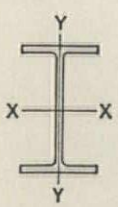
Tensile Strength, min. psi	58,000	67,000
Elon. in 2″, min. per cent	21	19

WF SHAPES—Dimensions for detailing



Nominal Size	Weight per Foot	Depth	Flange		Web		Distance						Usual Gage g
			Width	Thickness	Thickness	Half Thickness	a	T	k	k_1	g_1	c	
In.	Lb.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
14 x 16	730	22½	17⅞	4 15/16	3 1/16	1 9/16	7⅜	11⅜	5 9/16	2⅛	6⅞	1⅝	3-7-3
	665	21⅝	17⅝	4½	2 13/16	1 7/16	7⅜	11⅜	5⅛	2	6 7/16	1½	
	605	21	17⅜	4 3/16	2⅝	1 5/16	7⅜	11⅜	4 13/16	1⅞	6⅛	1⅜	3-5½-3
	550	20¼	17¼	3 13/16	2⅜	1 3/16	7⅜	11⅜	4 7/16	1 13/16	5¾	1¼	
	500	19⅝	17	3½	2 3/16	1⅛	7⅜	11⅜	4⅛	1 11/16	5 7/16	1 3/16	
	455	19	16⅞	3 3/16	2	1	7⅜	11⅜	3 13/16	1⅝	5⅛	1 1/16	

WF SHAPES—Properties for designing



Weight per Foot	Area	Depth	Flange		Web Thickness	$\frac{d}{A_f}$	AXIS X-X			AXIS Y-Y		
			Width	Thickness			I	S	r	I	S	r
Lb.	In.²	In.	In.	In.	In.		In.⁴	In.³	In.	In.⁴	In.³	In.
730	214.65	22.44	17.889	4.910	3.069	0.256	14371.4	1280.6	8.18	4716.8	527.3	4.69
665	195.51	21.67	17.646	4.522	2.826	0.272	12477.7	1151.7	7.99	4166.2	472.2	4.62
605	177.85	20.94	17.418	4.157	2.598	0.289	10842.3	1035.7	7.81	3680.9	422.7	4.55
550	161.75	20.26	17.206	3.818	2.386	0.308	9443.1	932.2	7.64	3256.7	378.6	4.49
500	146.95	19.63	17.008	3.501	2.188	0.330	8234.1	839.1	7.48	2882.7	339.0	4.43
455	133.73	19.05	16.828	3.213	2.008	0.352	7214.9	757.5	7.35	2561.2	304.4	4.38

Continued from page 244

also an archaeological scholar, who, with true intuition, has made thorough comparative studies of the Athenian Acropolis and other ancient city centers. The aesthetic principles that in his opinion underlie their schemes have been analyzed and clarified by him. The systematism of his thinking helps him in the recognition of the respective given conditions, a methodical procedure that Doxiadis summarizes under the heading *ekistics*, a term he coined for "the science of human settlements" with all its implications. He believes that ". . . architecture gives the final physical answer for minor units of the human habitat up to the human community. In this respect, architecture has to be seen as a part of ekistics, as regards the differentiation between conceiving the whole human habitat (ekistics) and giving expression to the smallest reasonable units of it (architecture)."

This concept is the starting point for Doxiadis' systematic new solutions in city planning and even for the design of individual houses. He interrelates the proportions of open spaces and masses and always considers the factor of time. Thus he connects space, time, and the number of people: "As time passes, architecture spreads to a broader regional and then international level after having begun first on the local and national level." The specific influence of the time factor on the creation of space is most persuasively visualized in a chart illustrating the continuously changing needs of the family and its living quarters.

Although the erstwhile positive form of space within our urban landscape has mostly vanished since car, airplane, and rocket define our completely changed relationship to architecture, the human scale in our architecture must be preserved. Yet, "the human scale of our cities has now been replaced by many scales, of which the human is the weakest."

As architects are inclined to overestimate their influence, Doxiadis is especially interested in proving how limited this influence is: "The fact that such a very small part of the total building activity throughout the world is under the direct influence of the architect may seem strange to us . . . In fact, the architect's influence over large areas of the globe is precisely nil. It is very small, too, in many developing countries, and reaches a maximum of only 40 per cent even in some areas like England."

The author divides the problem of architecture today into two categories:

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those which require an understanding of local environmental situations, and those in which architecture should become the consolidating and co-ordinating discipline in its special correlation to industry, art, government, and to the diverse forces of modern expanding society.

Specific aspects of city planning are elucidated through a series of examples taken from the architect's own activities, on four continents, in this field. Again, his schematic graphs are more convincing than any model or perspective rendering could be. The Temple of Ammon in Luxor, the Acropolis in Athens, the Capitol in Rome—all serve as examples for the concept that for Doxiadis is basic to all architecture and city planning: the perception of the moving human being.

Once more, this reviewer wants to stress that only very few of Doxiadis' ideas, those most essential and most original, are presented here. The term, "to study," so often misused and wrongly applied to the mere act of reading, certainly applies if one wishes to fully perceive the ideas of this book. The author himself calls it "not a textbook, but the statement of a creed, not a collection of statistics, but one man's personal point of view."

OTHER BOOKS TO BE NOTED

The Eternal Present, Volume II: The Beginnings of Architecture. (The A.W. Mellon Lectures in the Fine Arts, 1957) S. Giedion. Bollingen Foundation. Distributed by Pantheon Books, 22 E. 51 St., New York 22, N.Y., 1964. 583 pp., illus. $12.50

To be reviewed.

Greece. Drawings by Anne Poor. Text by Henry Miller. The Viking Press, Inc., 625 Madison Ave., New York 22, N.Y., 1964. 57 pp., illus. $6.95

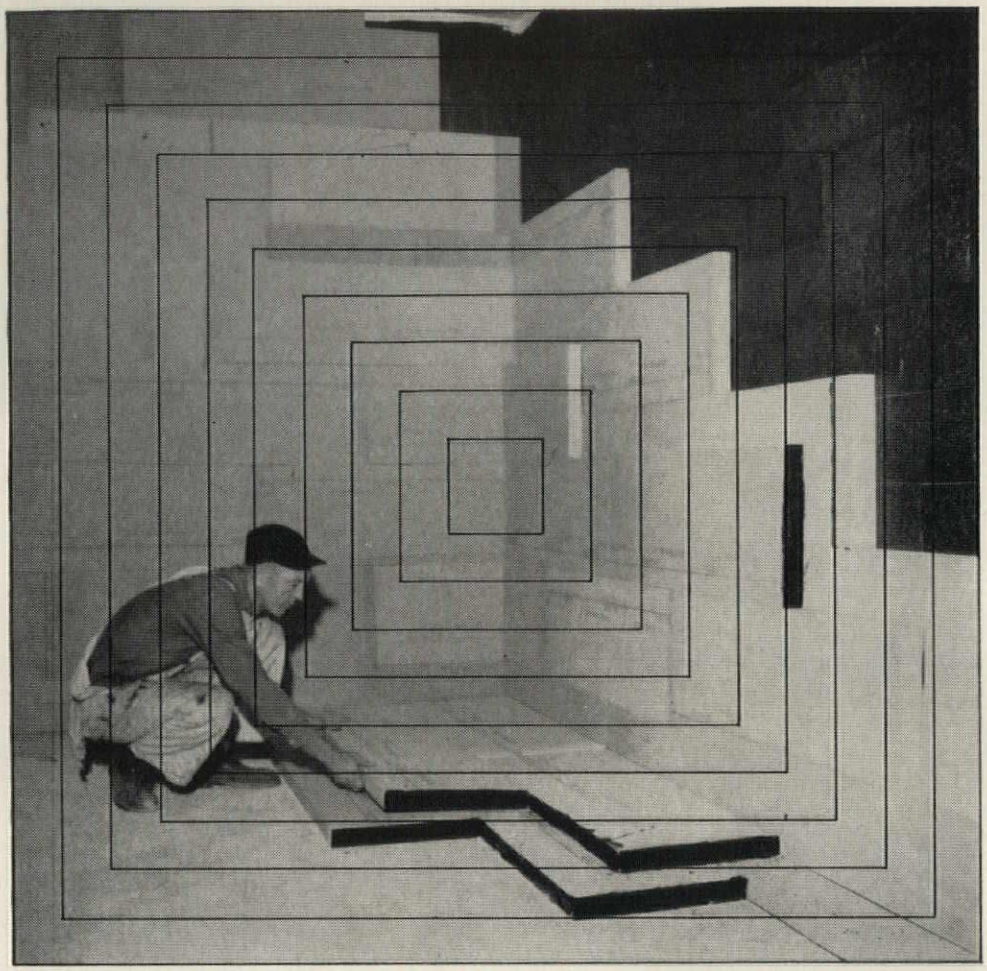
For those who have been to Greece, this will be a memorable collection of vignettes. For those who haven't been there, the sketches are evocative enough. Miller himself, who last reported his enchantment with ancient and modern Greece in The Colossus of Maroussi *(1941), now writes: "In one way or another, at some time or other, we have all been there, even if only in dream."*

Greek Temples, Theaters, and Shrines. Helmut Berve and Gottfried Gruben. Photos by Max Hirmer. Harry N. Abrams, Inc., 6 W. 57 St., New York 19, N.Y., 1963. 462 pp., illus. $30

This well-illustrated presentation contains a section on Greek religion, mythology, ceremonial and daily life by Berve, and a section on the historical development of Grecian architecture by Gruben.

Statically Indeterminate Structures (2nd Edition). Lawrence C. Maugh. John Wiley & Sons, Inc., 605 Third Ave., New York 16, N.Y., 1964. 441 pp., illus. $1275

Introduction to energy and deformation



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methods of analysis and their application to buildings, bridges, towers, cellular structures, and cables. Material from original edition of 1946 has been rewritten and new examples and problems included.

Taos Adobes: Spanish Colonial and Territorial Architecture of the Taos Valley. Bainbridge Bunting. Illustrations by Jean Lee Booth and William R. Sims, Jr. Fort Burgwin Research Center and Museum of New Mexico Press, Santa Fe, N.M., 1964. 80 pp., $4.95

A survey of rapidly disappearing adobe houses of New Mexico. The paradox in the use of this native material is that, while the historical continuity is strong, the individual buildings deteriorate quickly or lend themselves easily to remodeling. This catalog of 12 important houses includes plans, photos, drawings of all four elevations, detail drawings, and impressionistic sketches. The text distinguishes four periods from the past 700 years—Indian, Spanish Colonial, Territorial, and Later American—and discusses their plans, construction, interiors, ornamentation. Author is Associate Professor of Art History at the University of New Mexico.

Troy and the Trojans. Carl W. Blegen. Ancient Peoples and Places Series, Frederick A. Praeger, 111 Fourth Ave., New York 3, N.Y., 1963. 240 pp., illus. $6.95

A survey of all archeological work done at Troy—from Schliemann's pioneering discoveries in 1870, to Blegen's own excavations, 1932–38, which identified one of the eight superimposed layers as Homeric Troy. Blegen, who has been called "the Dean of American archeologists," has been excavating since 1952 at Pylos, itself a fascinating story that is only beginning to be revealed.

The Urban Complex. Robert C. Weaver. Doubleday & Co., Inc., 575 Madison Ave., New York 22, N.Y., 1964. 297 pp., $4.95

To be reviewed.

Thesaurus of Engineering Terms. Engineers Joint Council, 345 E. 47 St., New York, N.Y. 10017, 1964. 302 pp. $15 (paperbound)

A vocabulary reference for indexing and retrieving engineering literature for use by authors, editors, documentalists, librarians, indexers, and researchers. Over 10,500 terms are included and cross-referenced.

Urban Landscape Design. Garrett Eckbo. McGraw-Hill Book Co., 330 W. 42 St., New York 36, N.Y., 1964. 239 pp. plus index.

To be reviewed.

Urban Renewal in European Countries: Its Emergence and Potential. Leo Grebler. University of Pennsylvania Press, Philadelphia, Pa., 1964. 132 pp., $5.

Report on the status of urban renewal programs in Denmark, France, Great Britain, Greece, Italy, the Netherlands, Poland, Spain, Sweden, and West Germany deals extensively with the legal and financial tools employed in land assembly and disposition, and with the relocation of displaced residents and business firms.

Various Dwellings Described in a Comparative Manner. Richard Saul Wurman. Joshua Press, 322 S. Camac St., Philadelphia 7, Pa., 1964. 57 pp., illus. $6.65

Subtitle: "Being a collection of comparative descriptive drawings in perspective of 35

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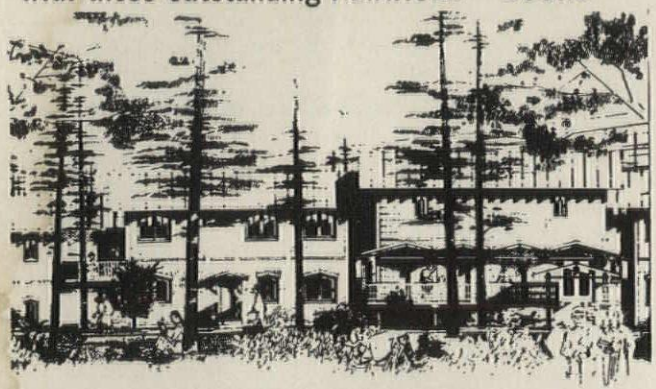

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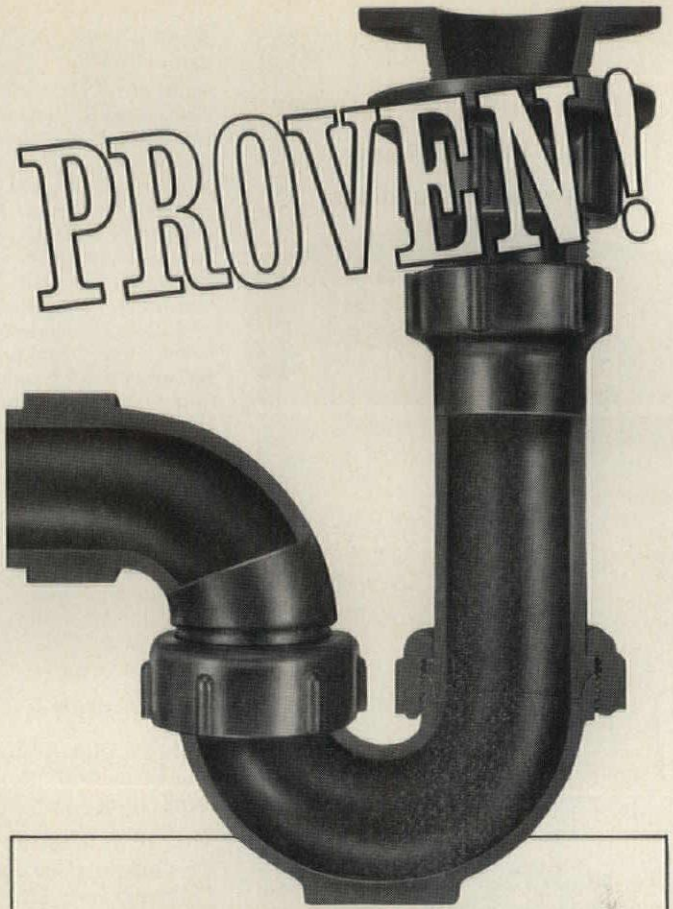

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dwellings of significance from around the world with an appendix of 15 additional plans, all to the scale of 1:384 which is one inch equals 32 feet, with an additional 7 site plans at 1:1200, drawn by 15 second year architectural students of the School of Design, North Carolina State of the University of North Carolina at Raleigh."

Wurman's intention with this interesting "pedagogical tool" was manifold: to give students a familiarity with the chosen dwellings, to introduce plan-space relationships, to teach a technique of building description and visualization, and finally to give a deeper understanding of buildings by studying them as a group. Examples go from Alhambra to the David Lloyd Wright house. The technique owes at least part of its effectiveness to the fine printing job, done by Gene Feldman of The Falcon Press in Philadelphia. Feldman and Wurman are responsible for a number of handsome books, among them The Notebooks and Drawings of Louis I. Kahn.

NOTICES

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JACK D. GILLUM & ASSOCIATES, Consulting Structural Engineers, 801 Central Bank Bldg., Denver, Colo.

THE M.W. KELLOG COMPANY, Engineering-Construction firm and division of Pullman, Inc., has a new Research and Development Center, New Market, N.J.

New Addresses

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DUFFY B. STANLEY, Architects, 308 Bassett Tower, El Paso, Texas.

EZRA STOLLER ASSOC., 222 Valley Place, Mamaroneck, N.Y.

New Firms

R. L. ANDERSON, Architect, Dark Hollow Rd., Upperco P.O., Md.

JOHN A. BLANTON, Architect, 1145 Artesia, Manhattan Beach, Calif.

WILLIAM L. SHENTON, Consulting Architect, 188–62 85th Rd., Holliswood, L.I., N.Y.

New Partners, Associates

JOHNSON & JOHNSON, Engineers-Architects, Inc., Chicago, Ill., announce that B.G. TWYMAN has joined the firm as manager of the Project Development section.

NAUHAUS & TAYLOR, Architects, Houston, Tex., have named CHARLES R. SIKES, JR. and BENJAMIN E. BREWER to full partnerships.

THE PERKINS & WILL PARTNERSHIP, Architects, have named ROBERT B. MALCOLM an associate.

ROCKRISE & WATSON, Architects, San Francisco, Calif., announce that ROBERT A. ODERMATT has been made an associate of the firm.

WILLIAM B. TABLER, Architect, New York, N.Y., has appointed WILLIAM C. MEAGHER, JR., and WILLIAM E. LOWRY associates.

ROBERT WENING and RUDOLPH M. ARSENICOS have formed a partnership for the practice of architecture, N. Palm Beach, Fla.

Elections, Appointments

A. EPSTEIN & SONS, INC., Chicago, Ill., has appointed EDWARD PAUL chief architect, and MELVIN KUPPERMAN assistant chief structural engineer.

FLANNERY & ASSOCS., INC., Industrial Designers, Planners and Merchandising Consultants, Pittsburgh, Pa., have elected J. ROGERS FLANNERY III president and chief executive officer. CHARLES J. GUZZO has been elected chairman of the board.

GOTHAM LIGHTING CORP. Long Island City, N.Y., has appointed the E.P. MCELENEY CO., Hyde Park, Mass., as sales representatives for New England (except Conn.).

VICTOR GRUEN ASSOCIATES, Architects, Beverly Hills, Calif., announces the following promotions to vice-president: FRANK HOTCHKISS, DANIEL BRANIGAN, and ROBERT LESNETT. ROLLAND D. THOMPSON was appointed associate, to work in the N.Y. office.

THE PRODUCERS' COUNCIL, a national association of building products' manufacturers, has elected CHARLES S. STOCK president.

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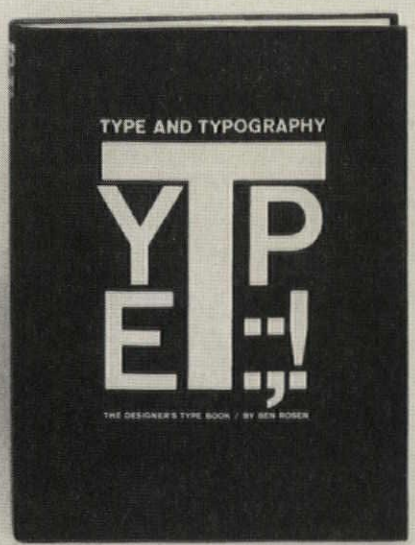

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