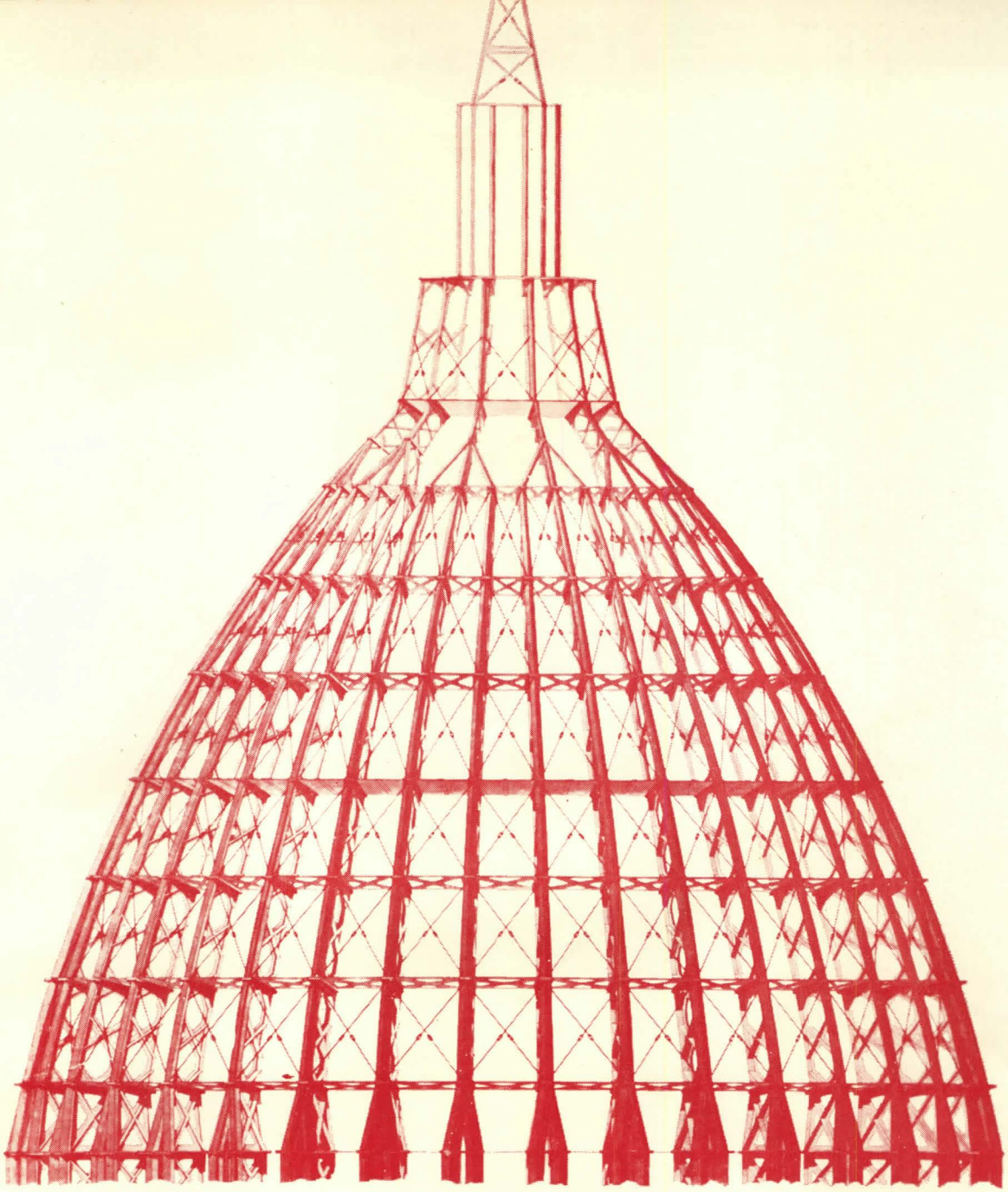
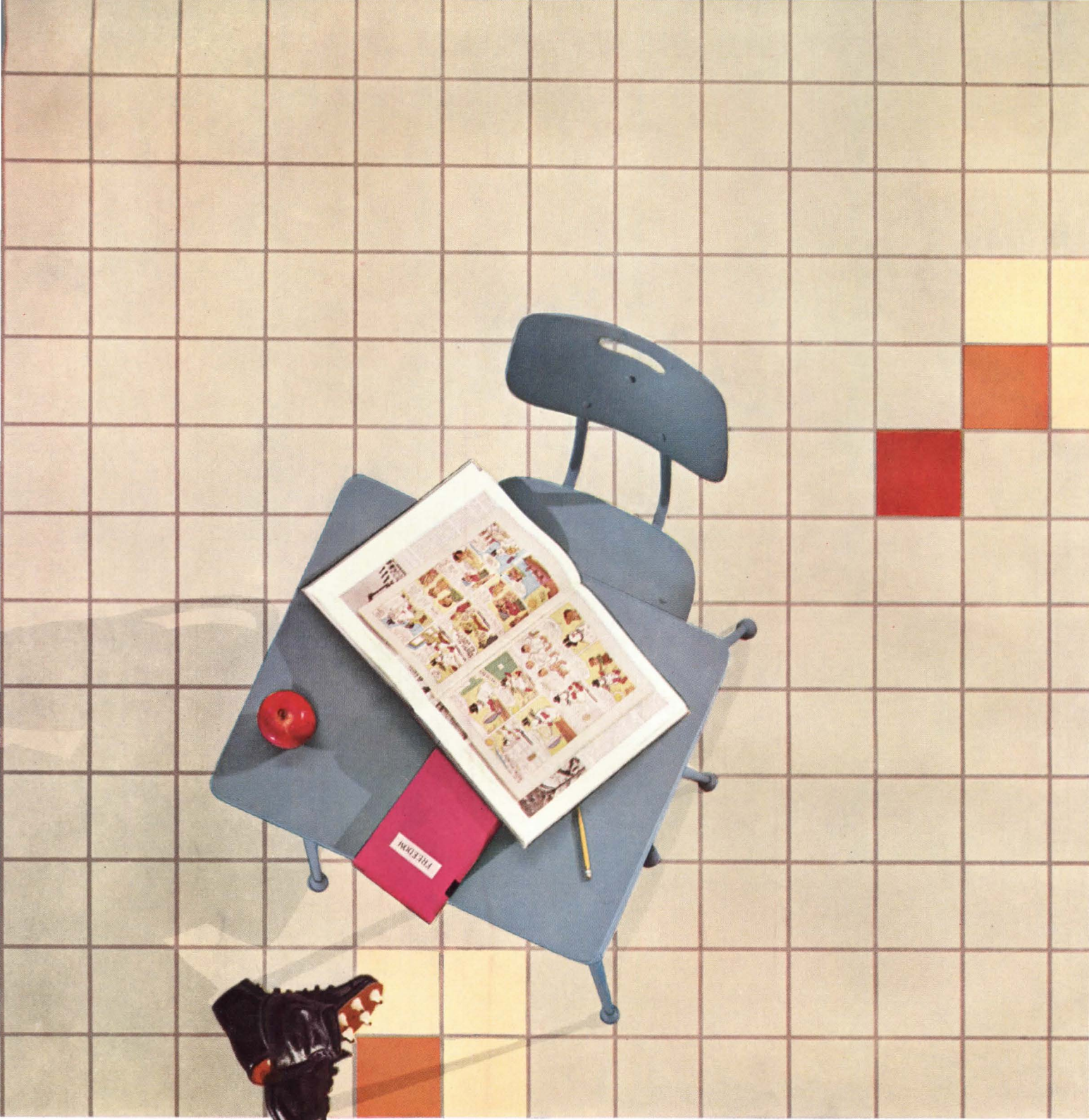


PROGRESSIVE ARCHITECTURE *December 1960*



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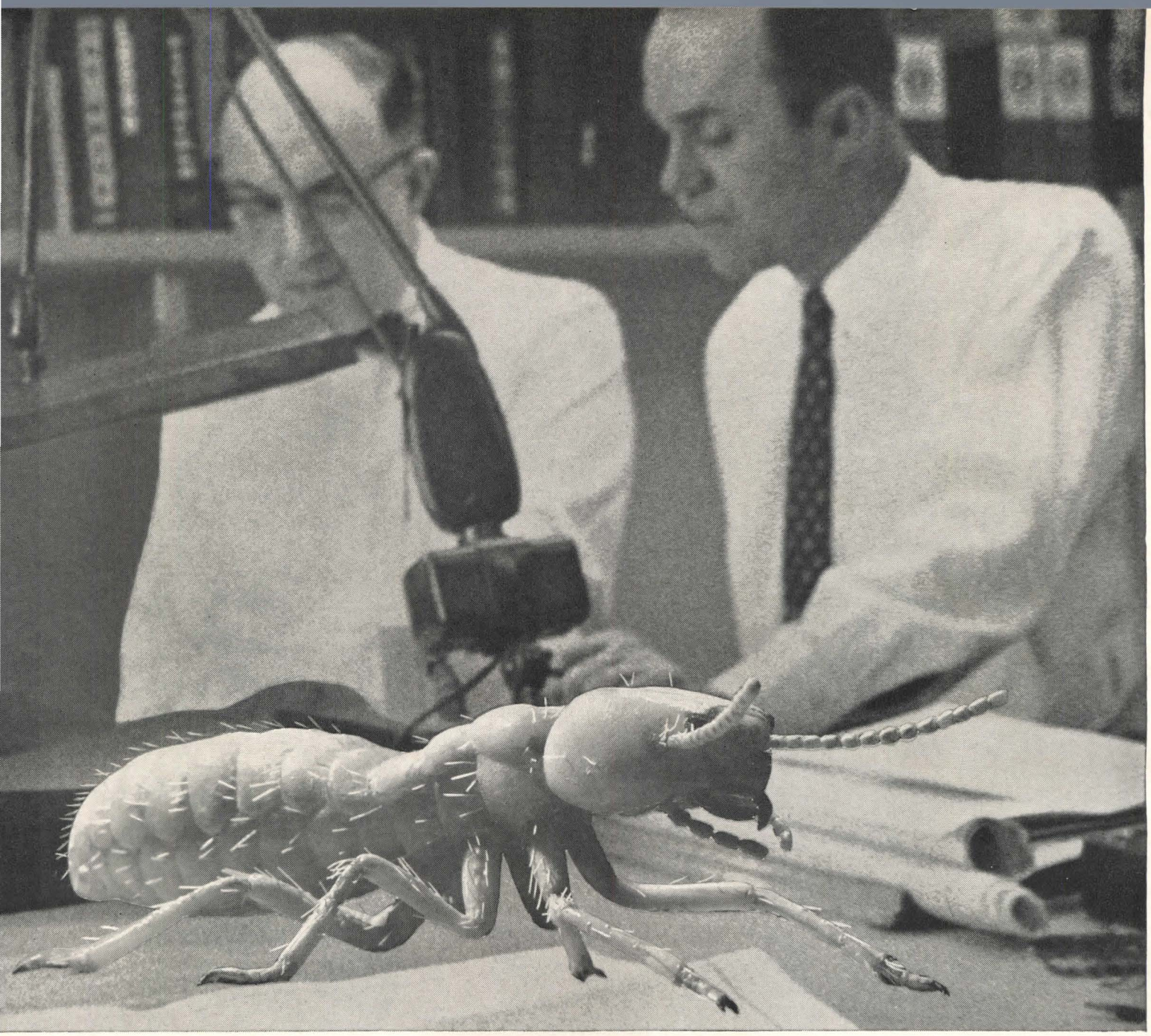

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3 New Projects For Century 21

Kirk, Price, Graham Create for Exposition

SEATTLE, WASH. Designs by Kirk, Wallace, McKinley & Associates, Robert Billsbrough Price, and John Graham & Company will join previously announced projects by Minoru Yamasaki, Paul Thiry, and Naramore, Bain, Brady & Johanson at Seattle's Century 21 Exposition scheduled to open April 21, 1962.

Kirk, Wallace, McKinley & Associates have designed an exhibit-banquet hall and small theater to form a permanent group with the existing civic auditorium (being remodeled by Chiarelli & Priteca). The three elements will be tied together by a 30-ft high colonnade, which will extend from the auditorium past the exhibit-banquet hall to the small theater. The same exterior material will be used for the auditorium and theater, probably neutral-colored brick. The exhibit-banquet hall will be separated from the auditorium by a 60-ft court, and from the theater by a 100-ft court which will command sweeping views of the fair. Its folded-plate roof will cover spaces for art shows, exhibitions and civic functions. The theater will be adaptable for proscenium and in-the-round performances.

Price's design for the World of Commerce and Industry Building provides a structure 277 ft long by 70 ft deep for the display of American achievements in commerce and industry in this century, and what they might be in the 21st Century. The roof will be a thin slab supported by shaped laminated members about 100 ft long. The roof will be pierced by plastic pyramids which will admit light during the day and cast a glow skyward at night. The north wall will be glass and plastic with special colored plastic panels designed by Price. The display area will extend outside on a platform to the north.

The most emphatic vertical element for the fair will be the 550-ft "Space Needle" designed by the Graham firm. This jazzy structure, to cost $2,500,000, will have an observation platform with a 200-seat, *revolving* restaurant at its pinnacle. Two high-speed elevators will carry passengers to the top, or to observation platforms at the 100- and 200-ft levels. After the exposition, the tower will be preserved as a tourist curiosity. Whirling those diners away.

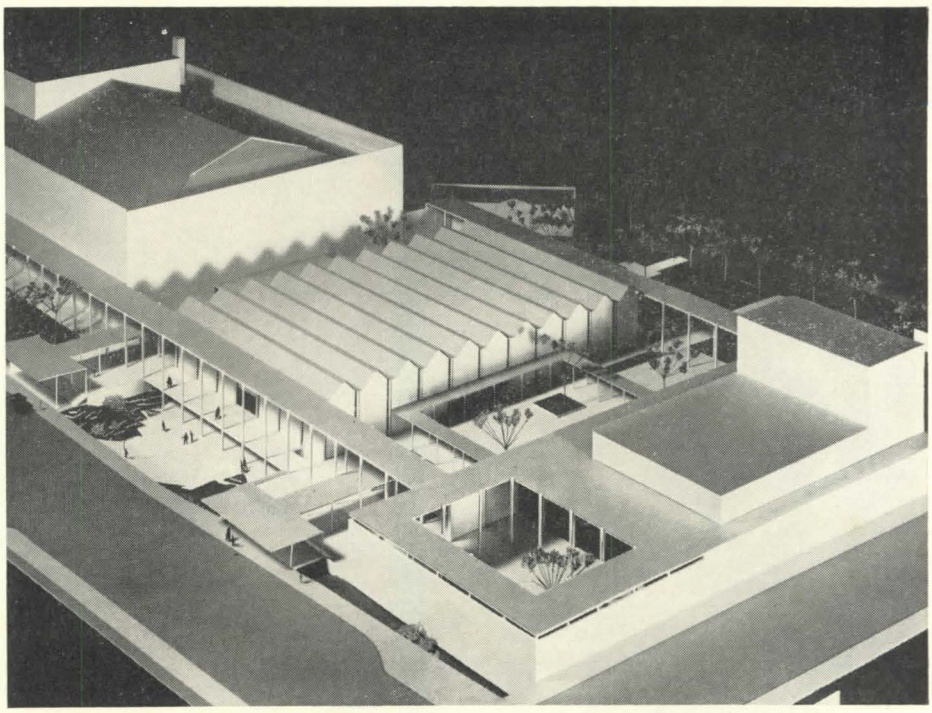
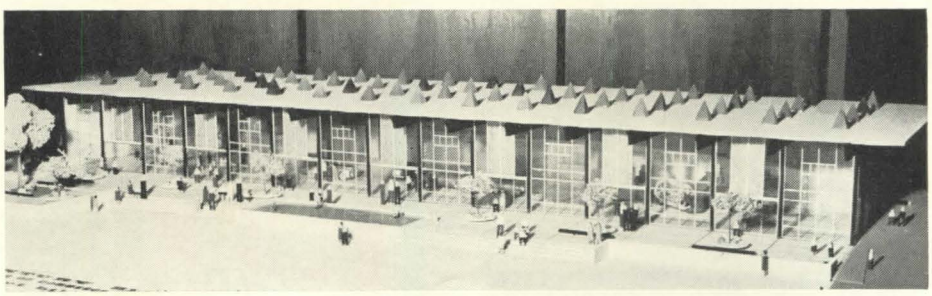
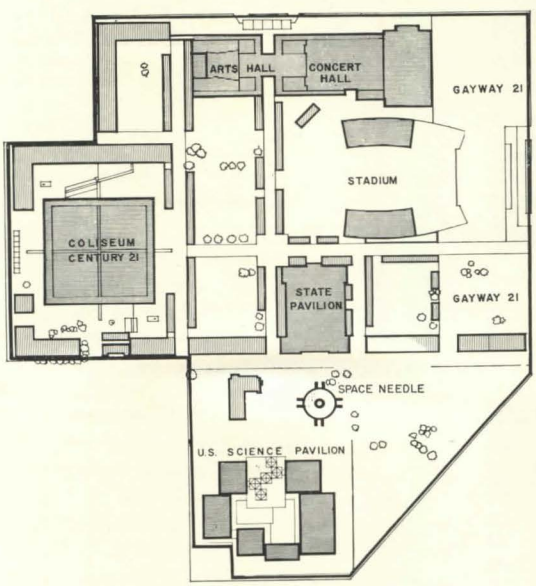
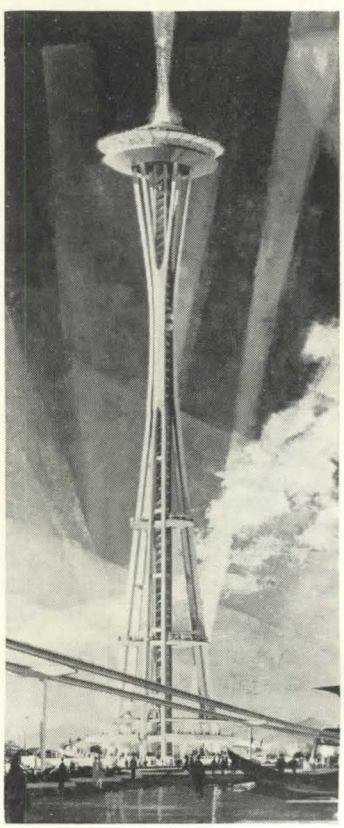


Exhibit hall and little theater by Kirk, Wallace, McKinley & Associates.

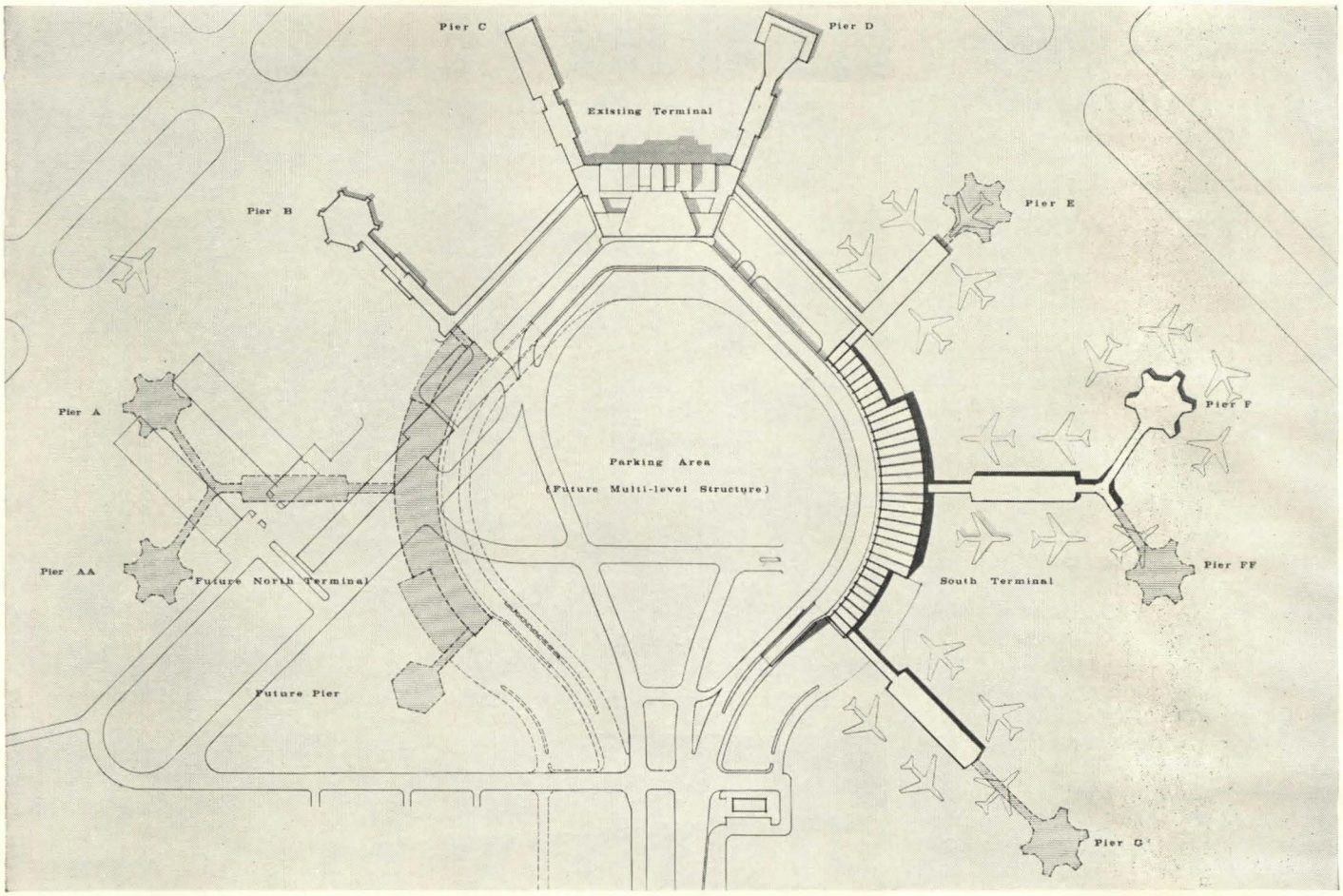


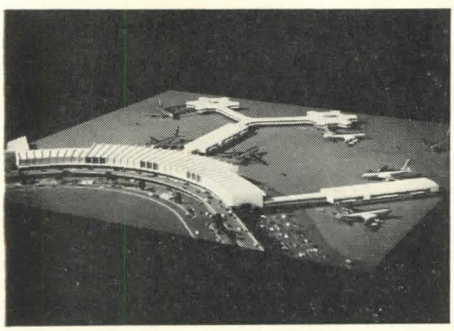
Robert Billsbrough Price's Century 21 Commerce and Industry Building.



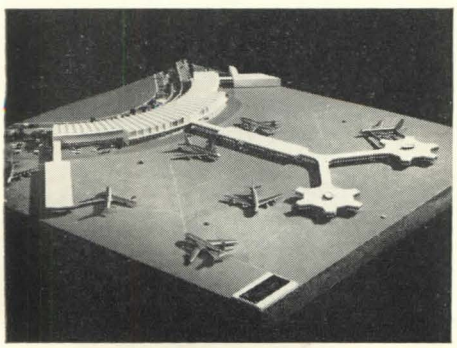


Fair plan (above) *shows Thiry's Coliseum at left and Yamasaki's U. S. Science Pavilion at bottom. Space Needle by John Graham & Associates* (right) *will rise above a major Fair plaza.*





Incoming and outgoing levels of terminal will be served by separate automobile ramps.



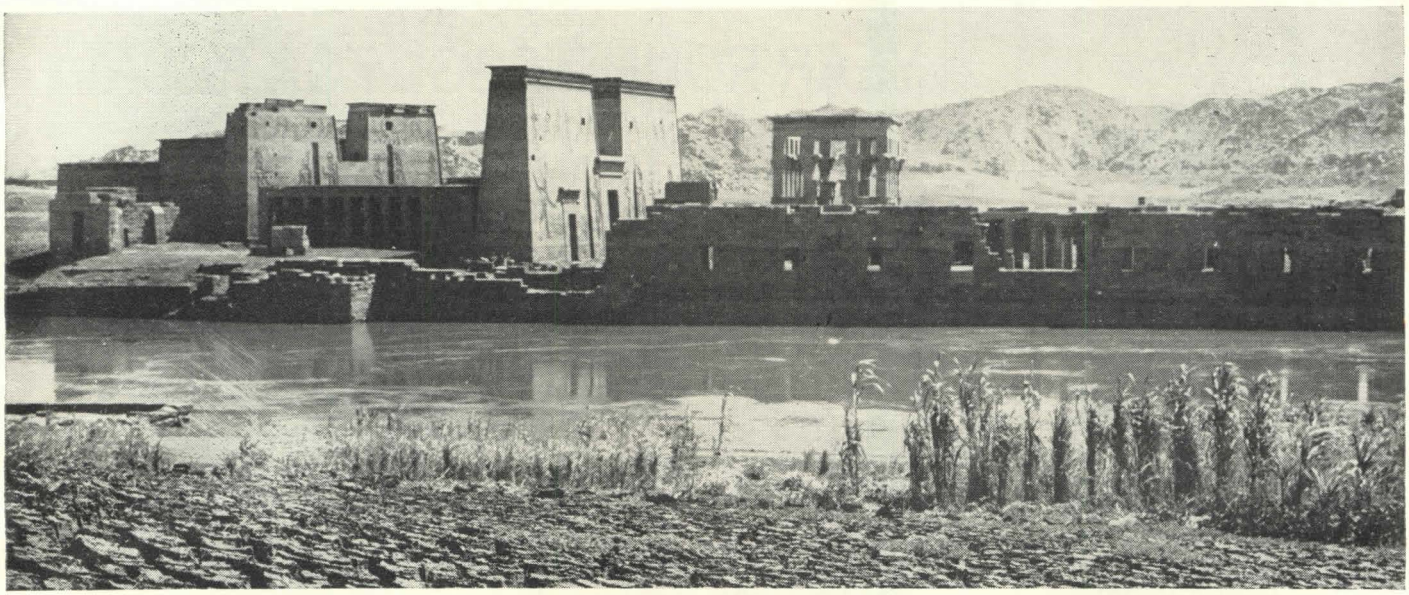
Field-side view of model shows piers with jet gate positions. Plan permits expansion to 22 positions.

CIRCULAR PLAN FOR SAN FRANCISCO AIRPORT

SAN FRANCISCO, CALIF. When completed, the master plan for the San Francisco International Airport will consist of two new terminals at either side of the present terminal, plus a centrally situated, multi-level parking garage. The plan (*above*), executed by Welton Becket & Associates will soon begin taking shape with the construction of the South Terminal.

Arriving and departing passengers in the new terminals will be separated, departing passengers being handled on the upper level and arrivals entering on the lower level. Motor vehicles servicing passengers will also be segregated on two different roadway levels. Space will be broken up into three different lobbies, subdivided into separate airlines ticketing and processing areas. The two end lobbies will have waiting lounges with views of the field, and the central lobby, which will lead directly to the passenger concourse, will connect with a restaurant and cocktail lounge. Each lobby will serve the lower level via a two-way escalator. A future mezzanine floor will be placed over the ticketing and office areas, and will have a gallery open to the main floor, plus additional space for shops and offices. Space for mechanical facilities will be located over the restaurant-cocktail lounge area, creating a lower ceiling there. Scheduled to serve American Airlines, Trans World Airlines, Pan American Airways, and various international airlines, the South Terminal will have, initially, five piers capable of handling 14 jets. The international concourse will lead to the Public Health, Immigration and U. S. Customs sections.

Structure will be concrete walls spaced with narrow strips of colored and clear glass and standing structural steel ribs (plaster covered) up and over the building. A marquee running the full length of the building will repeat the structural separation.



The Nubian Monuments: Can We Save Them In Time?

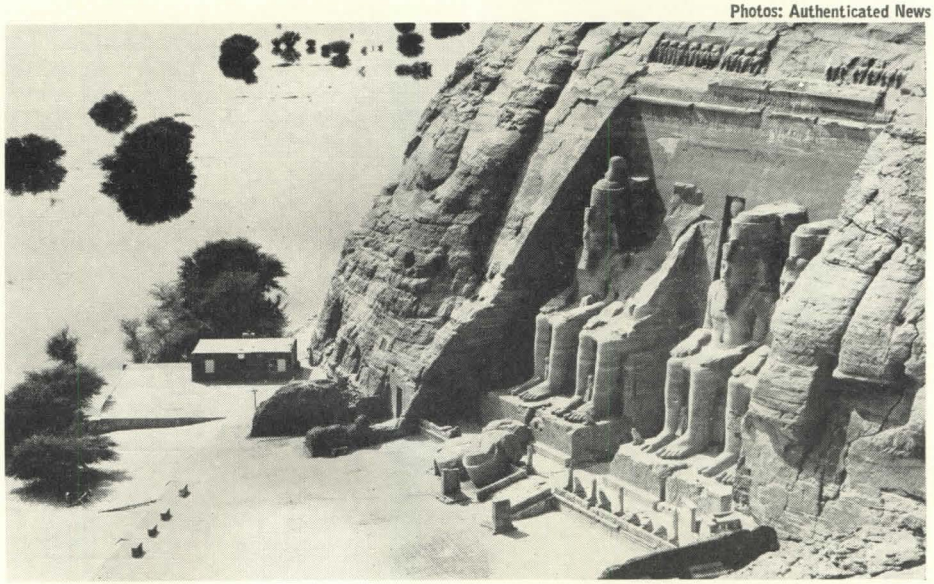
Photos: Authenticated News

With the advent of the new archeological season in the Near East, some 20 expeditions from different parts of the world are making their way to Nubia in the Nile Valley for explorations and excavations which will not be possible a decade from now.

For their targets are some 200 monuments, the earliest dating back more than three millenia, which are scheduled to be lost to the world forever with the completion in 1970 of Aswan High Dam. Lost, that is, unless present investigations for the removal or preservation of most of the monuments prove successful—and providing money is forthcoming.

Outstanding among these monuments are the two temples carved from living sandstone by Ramses II at Abu Simbel. The larger of the two (*right*) was consecrated by the pharaoh *c.* 1298 B. C. to Re-Harmakhis, the Sun; Amon, God of Thebes; Ptah of Memphis; and the deified Ramses II. The smaller temple (p. 49) is dedicated to his queen, Nefertari. According to Dr. John A. Wilson, Director of the Oriental Institute at the University of Chicago and Executive Secretary of the U. S. Commission for the Preservation of Nubian Monuments, protection of the Abu Simbel temples will be the largest single item in the preservation of the monuments. Present thinking indicates that a cofferdam will be raised to shield Abu Simbel from the oncoming flood.

Lying 175 miles north of Abu Simbel is the great temple of Isis at Philae (*above*), already the victim of annual flooding since the existing Aswan Dam was built in 1902. Dr. Wilson states that Philae "will . . . be protected by a cofferdam."



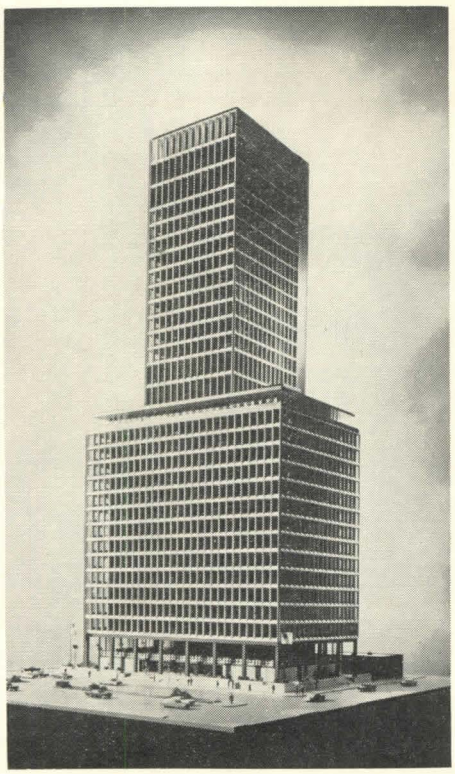
Ten years left to save Abu Simbel, existing for three millenia.

The temple at Kalabsha (detail *below*) is scheduled to be moved to higher ground within Egypt, perhaps next summer.

With the exception of Abu Simbel and Philae, the plan is to move all monuments away from the threatened inundation. In a declaration by the United Arab Republic to UNESCO, the reception and co-ordination of all offers for participation in the monument preservation are lodged with the international body.

Financing of the preservation being one of the greatest problems, Dr. Wilson notes that at least five monuments may be offered to foreign countries in return for their contributions to the work.

Carving of Isis at Kalabsha Temple.



Concrete on Park Avenue

NEW YORK, N.Y. Looking up the west side of New York's Park Avenue from 47th to 56th Street, one sees a row of eight metal-and-glass office structures, relieved by the low stone Racquet and Tennis Club. Now, a *concrete*-and-glass tower will be added at 280 Park. The 30-story, 412-ft-high building will have a façade of floor-to-ceiling windows framed in textured, buff-colored concrete with an aggregate of quartz or marble chips. These precast window units will be 6′ x 12′ and will extend a foot out from the window line.

The building design was created for Bankers Trust Company by Industrial Designer Henry Dreyfuss as part of his work in providing the company's corporate image. A terrace will be located at the first setback. Because the building will rise over tracks going into Grand Central Station, the ground floor will hold the elevator pits, bank vault, and a 120-seat auditorium. The building will stand on a 3-ft-high podium, and the first two stories will be recessed 8 ft behind a colonnade.

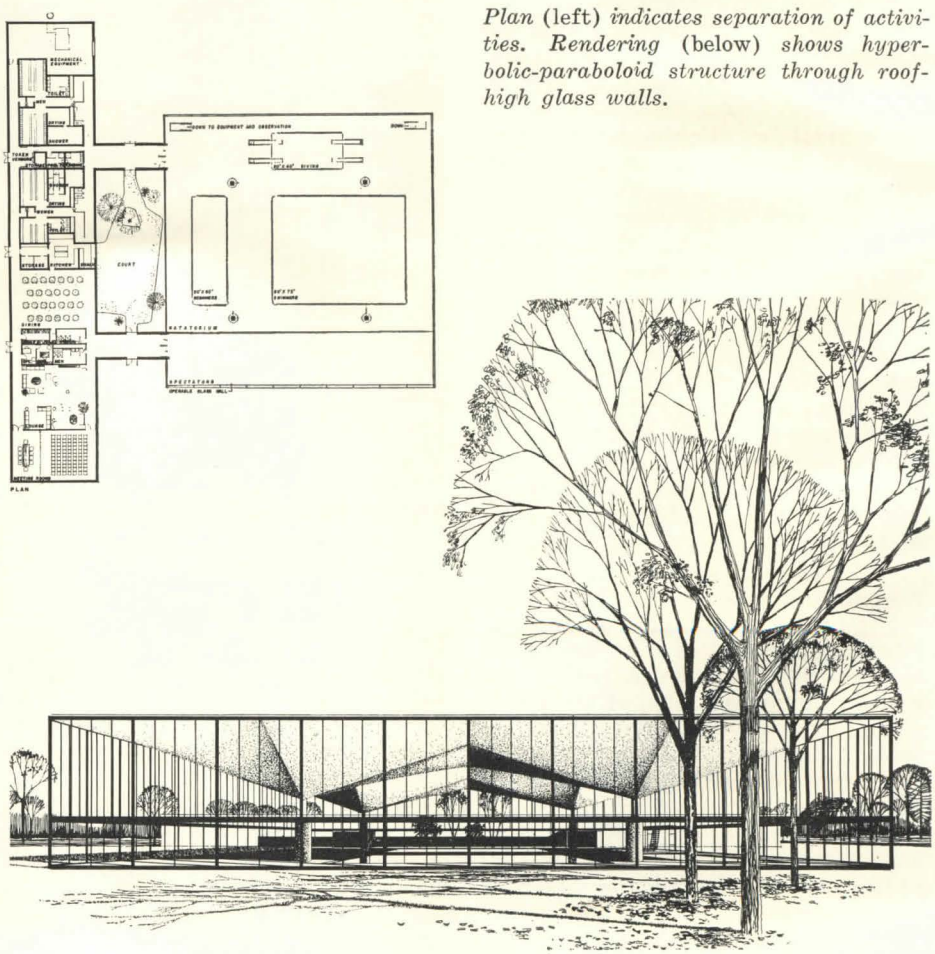
Owner-builder: David Rose & Associates; architects: Emery Roth & Sons; interior architects: Shreve, Lamb & Harmon Associates; structural engineer: James Ruderman; mechanical engineers: Jaros, Baum & Bolles; consulting structural engineers: Weiskopf & Pickworth.

YEAR-ROUND POOL FOR PEORIA

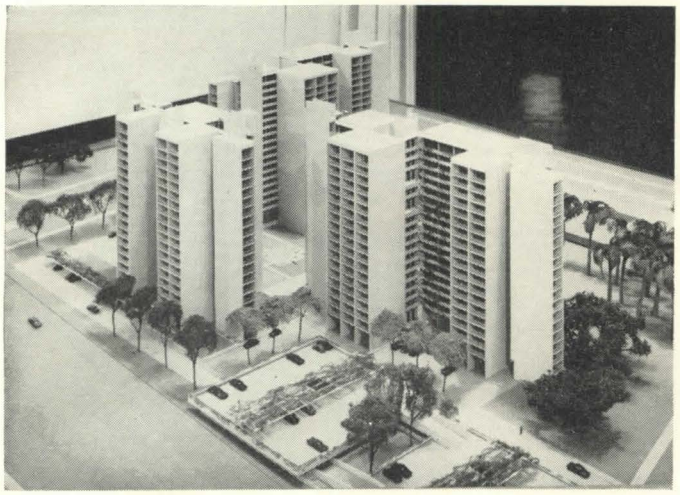
Swimming, Dining Areas To Be Separated

PEORIA, ILL. For some time, the public and parochial schools of Peoria, as well as Bradley University, have felt the need of large instruction and competition swimming pools. To answer this need, and also provide community swimming in warm weather, the local firm of Foley, Hackler, Thompson & Lee has designed a natatorium with related facilities which will function throughout the year.

The primary function of the project being for instruction and competition, the building will contain tanks and diving plunges with large pool-side deck spaces for drill, lecture, and viewing. When crowds increase in summer, an entire glass wall will be thrown open to an outdoor sunning area. The natatorium, which will be separated from all other elements, will be roofed by four concrete hyperbolic paraboloid umbrellas. This structure will permit minimum interference with activities at floor level, as well as placing the edge of the roof at its highest point (26 ft) on the periphery to admit the maximum amount of sunlight. Columns will be surrounded by ventilation ducts and lighting to accentuate the structural system. "HPs" will be 75 ft on centers, providing a 150-ft by 150-ft roof space. All four walls of the natatorium will be of insulated glass held in insulated aluminum sash. The wall facing the sunning area will open by means of 10-ft high vertically rising doors; a sliding glass screen inside this wall will form a draft stop. The pools will have underwater observation and photography ports. Adjoining facilities, approached through two passageways from the natatorium will contain a snack bar, dining areas, meeting rooms, and dressing rooms capable of handling large numbers of bathers. To emphasize the structure of the natatorium by day and night, this area will be enclosed in a practically opaque masonry envelope.



Plan (left) *indicates separation of activities. Rendering* (below) *shows hyperbolic-paraboloid structure through roof-high glass walls.*



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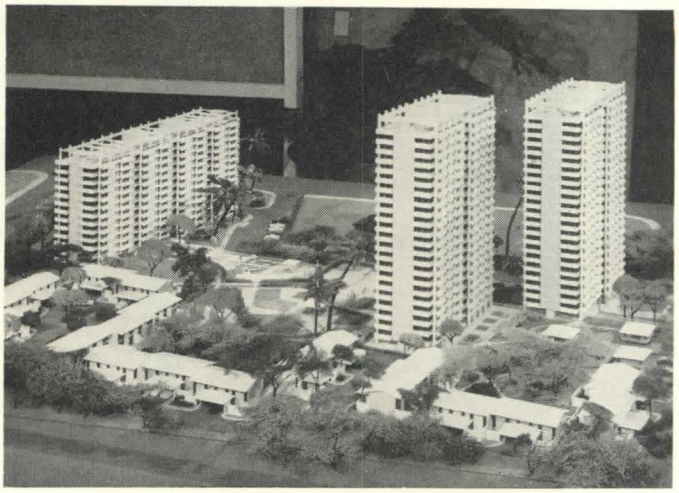

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Mainland, Island Architects Vie for Renewal Job

Queen Emma Project Award To Be Decided This Month

HONOLULU, HAWAII An important residential redevelopment project here will be awarded this month to one of the six architectural competitors. The site is an 8.4-acre area not far from Punch Bowl National Cemetery, about midway between Diamond Head and Pearl Harbor. The section is named for Queen Emma, wife of the 19th-Century King Kamehameha IV.

Proposal by I. M. Pei & Associates (*above left*) includes three 19-story apartment towers containing 630 units, with covered parking for 204 cars, and surface parking for 223. The structural research which went into Kip's Bay and Society Hill (OCTOBER 1960 P/A) is evident here.

Minoru Yamasaki's proposal (*above right*) contains three high-rise apartment buildings providing 536 units, and 44 garden apartments. Tenant parking for 580 cars would be all underground. Recreational facilities would include a swimming pool.

Daniel, Mann, Johnson & Mendenhall with Belt, Lemmon & Lo associated propose two elevator towers containing 497 apartments and a long, curved, three-story walk-up building containing 99 two-bedroom units. A recreation pavilion and swimming pool are included in the DMJM scheme.

Edward Sullam of Honolulu provides a basic plan of four towers and 590 units and an alternate plan of two 25-story towers over multi-level, covered parking garages. The alternate plan would contain 600 units.

Leo A. Daly & Associates of San Francisco and Merrill, Roehrig, Onodera & Kinder of Honolulu associated on a proposal to provide three 18- or 19-story apartment buildings and 29 garden apartments. The garden apartments would have 88 units, and the high-rise buildings would have 492 apartments. Covered parking for 375 cars and surface parking for 227 cars would be included.

Another mainland-island association —Adrian Wilson & Associates of Los Angeles and Ernest Hara of Honolulu —proposes 20 town houses containing three-bedroom apartments, and three high-rise buildings containing 540 units. Parking would be for 385 cars under cover and 209 in the open.

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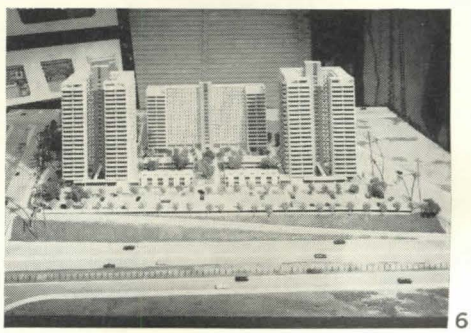
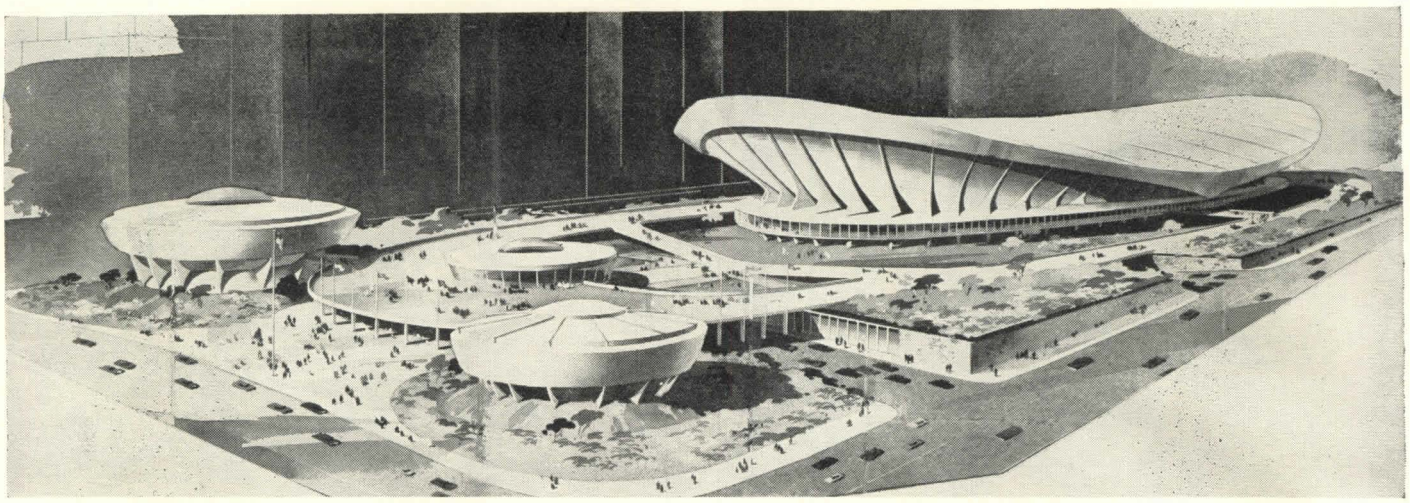


6

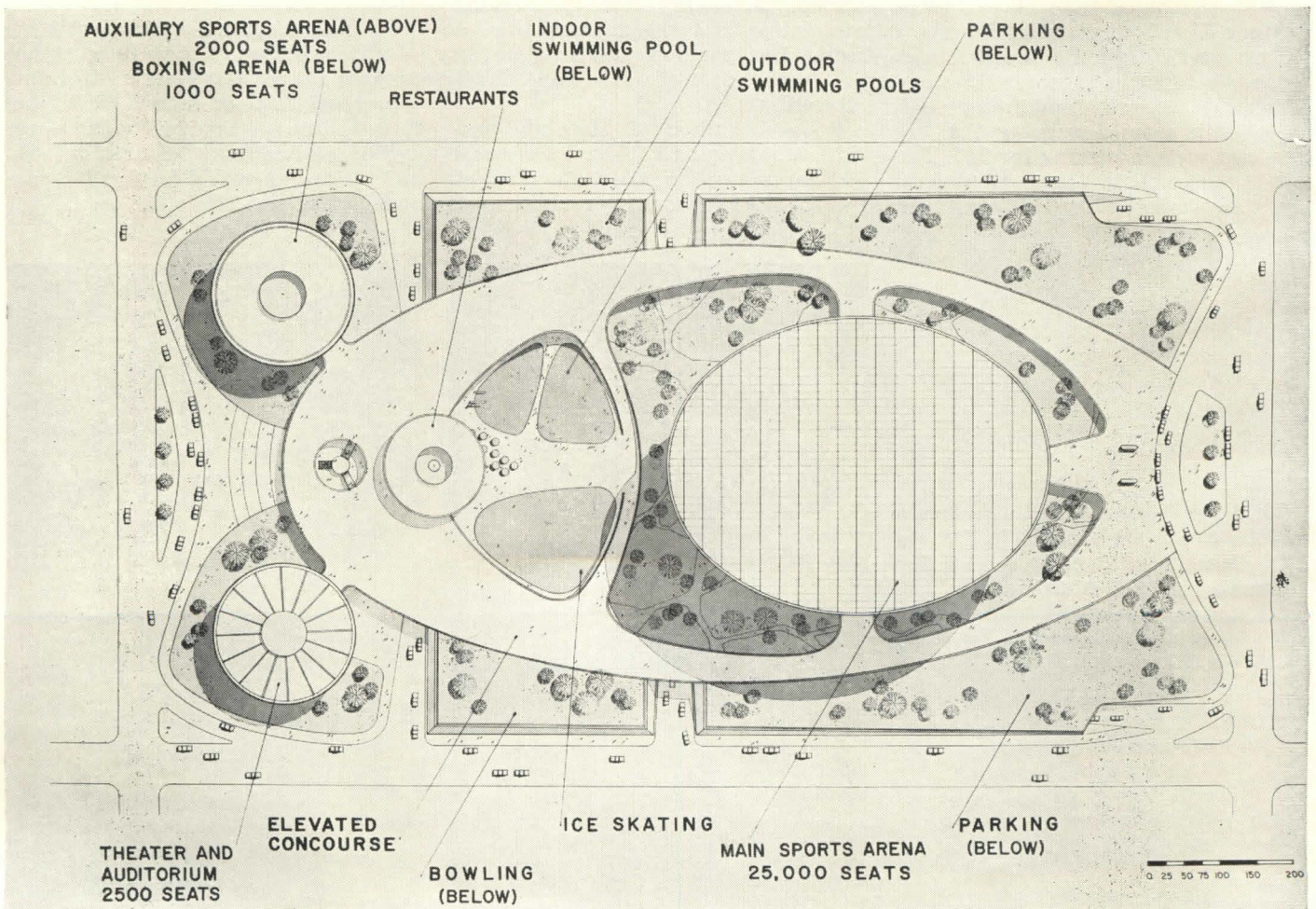
1 *I. M. Pei & Associates;* 2 *Minoru Yamasaki Associates;* 3 *Daniel, Mann, Johnson & Mendenhall and Belt, Lemmon & Lo;* 4 *Edward Sullam;* 5 *Leo A. Daly & Associates and Merrill, Roehrig, Onodera & Kinder;* 6 *Adrian Wilson & Associates and Ernest Hara.*



New York Sporting Set Plans to Move Headquarters

NEW YORK, N. Y. Owners of New York's Madison Square Garden — mecca of the U. S. indoor-sports world—have announced plans to move the Garden into a new, $38 millions sports and entertainment center (*above*) designed by Charles Luckman Associates. Site of the huge new center will probably be on Manhattan's upper West Side. This will be the 86-year-old Garden's third move and fourth home since it was started on Madison Avenue and 26th Street in 1874. Present plans call for completion in time for the New York World's Fair of 1964-65. Architects might beware attendance, however, since it was in the roof garden of the first permanent Madison Square Garden that Stanford White (designer of that structure) met his death at the hands of Harry K. Thaw.

Departing from the MSG tradition of one integrated arena structure, Luckman's preliminary plans (site plan *below*) call for at least six different activity areas, plus a generous pedestrian plaza. In addition to the major sports arena, expected to seat 25,000 spectators, there will be a two-level auxiliary sports arena, to be used mainly for boxing; a three-level structure for sports, theater, and auditorium activity; a two-level restaurant; an outdoor skating rink; and bowling alleys. Parking for 3000 cars will be provided on two levels under the central mall. Present plans call for a cable-suspended roof for the main arena.



PERSONALITIES

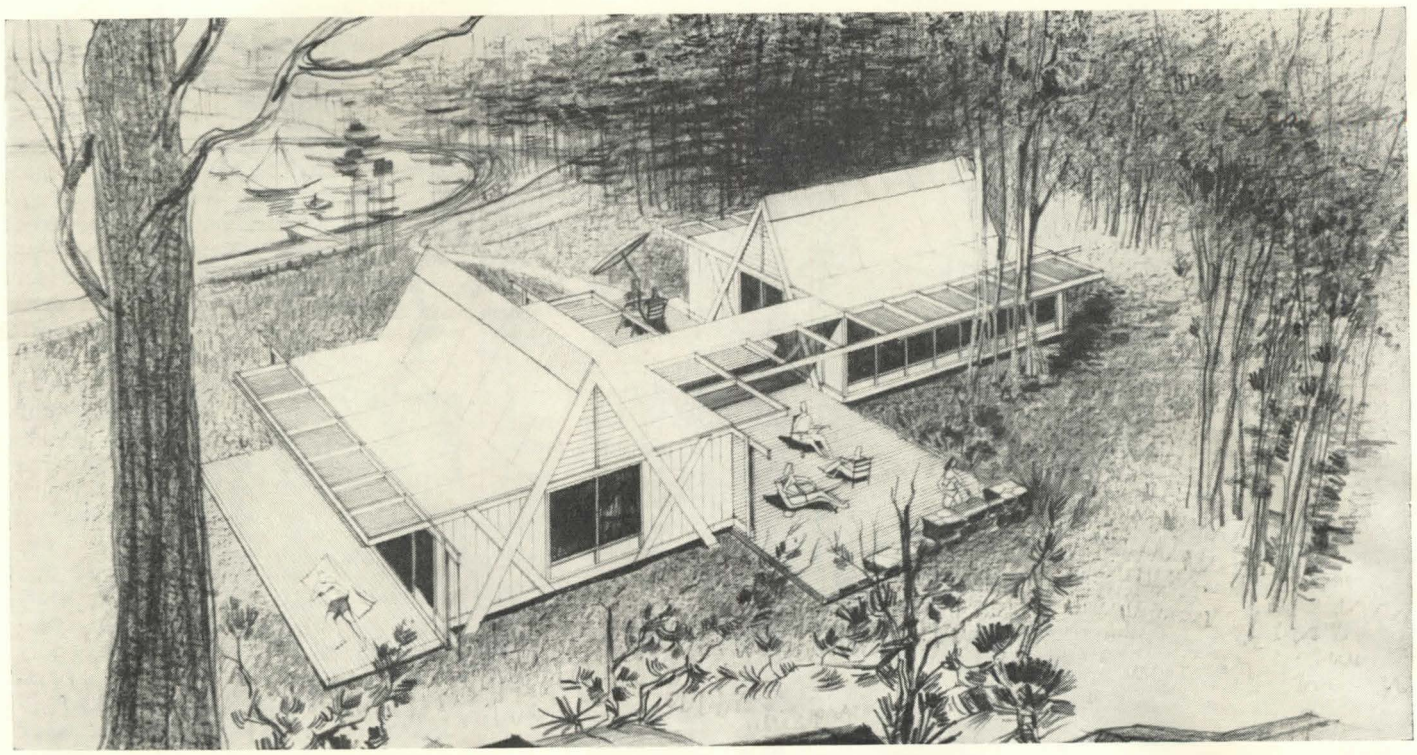
"We act as doctors to communities and as physicians to hospitals." So Isadore Rosenfield, father and senior partner of **Isadore & Zachary Rosenfield** describes the activities of the firm he operates with his son as architectural hospital consultants. Founded under its present name in 1949-50, when Zachary emerged from MIT with a Master's in Architecture, the firm has in the space of a decade distinguished itself as one of the leading "specialist" organizations in the U. S. *Research* is its watchword, and has produced significant advances in horizontal contiguity planning (as in projects in Palo Alto, Stanford University, and Tucson, Arizona), the pinwheel nursing unit (Worcester, Massachusetts), and what is probably the apotheosis of the fully-integrated medical-teaching center, the Puerto Rico Medical Center (AUGUST 1959 P/A, p. 78). Some months ago, the Rosenfields designed Clark Air Force Base Hospital in Manila. Shortly thereafter, they were asked to act as architectural consultants on Air Force hospitals. Since then, they have achieved the distinction of (1) being appointed for another term, and (2) receiving three more Air Force hospitals to do themselves—the latter with A. Quincy Jones and F. E. Emmons. Presently, both Rosenfields are teaching hospital design at the graduate level at Columbia University's School of Architecture—Isadore as full professor, Zachary as assistant professor. The basis they are preparing there is expected to lead to the fruition of a dream of Dean Charles Colbert's: the establishment of a Master's degree in Hospital Design and Planning emanating from a Bureau of Medical Facilities under the joint auspices of the School of Architecture and the School of Public Health and Administrative Medicine. This would be a unique course of study, with architectural students taking courses in hospital administration, and public health and administration students taking some of the non-drawing architectural courses. And it would fill, according to Isadore and Zachary Rosenfield, a long-standing need in providing more widespread technical knowledge of hospital design and planning here and abroad. Columbia could not have picked a better pair to pioneer the new program than the widely-published, heavily-awarded Rosenfields.

HAROLD SLEEPER, FAIA, noted architectural author and past president of New York chapter AIA, died in New York. He was serving, until his death, as a commissioner of the city's Board of Standards and Appeals.

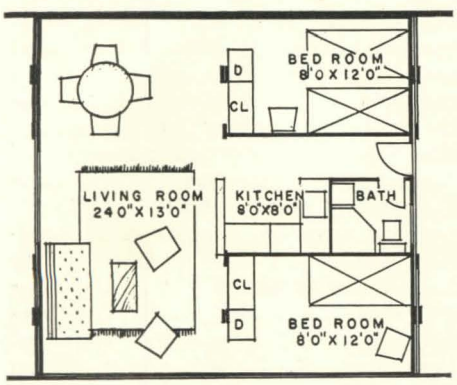
With the New York World's Fair just poised to plunge into the reception of projects and designs from all manner of countries and industries, ROBERT MOSES has announced the breakup of the Fair design board (WALLACE K. HARRISON, chairman, EDWARD D. STONE, industrial designer HENRY DREYFUSS, and engineer EMIL H. PRAEGER). Architect GORDON BUNSHAFT resigned some time ago. For background music on this development, see P/A for JUNE (p. 66) and SEPTEMBER (p. 56) . . . . Southern Illinois University is filming a series of lectures by R. BUCKMINSTER FULLER and will make the results available to students and professionals . . . . ROBERT N. SMITH of Temco, Inc., was made chairman of the board of Porcelain Enamel Institute, Inc. . . . Gold Medal of the Illuminating Engineering Society was presented to WILLARD C. BROWN, who recently retired as Manager of Lighting Eucation of General Electric . . . . The $10,000 Guggenheim International Award for 1960 went to the painting, "Woman with Ostrich," by KAREL APPEL.

Prefabrication. It has guided the career of **Carl Koch** for so long that Koch and prefabrication research are practically synonymous. After a short period in the office of Gropius & Breuer in the late thirties, Koch was Senior Architect of the wartime National Housing Agency, doing research on, among other matters, "prefabrication methods and materials." After Navy service, during which he was in charge of planning a $3,000,000 radar school in Key West, Koch established his Cambridge, Massachusetts, firm and almost at once got into a type of work which has characterized his practice ever since: research, development, and design for manufacturers. This first project was the well-known but ill-fated Lustron Corp. prefabricated house of steel and porcelainized steel. Concurrently with the Lustron work, Koch was working on his *own* prefabricated house, the Acorn House. "This was a complete factory fabricated house—the ultimate goal of all prefabrication," he says. He was president of Acorn, and is president of the even more renowned Techbuilt, Inc. Architects all over the world specify products which had their genesis on the Koch drawing board, for he has done and is doing product design and development for National Steel Corporation, Stran-Steel Corporation, Ferro Corporation (resulting in a research house), Armco Steel Corporation (to result in low-cost housing in Ohio), and Olin Mathieson Chemical Corporation. He has done a demonstration housing project for American Rolling Mills Company, and presently is looking forward to the results of a system of prefabricated panels for low-cost, multi-level structures designed for ACTION Housing, Inc.'s East Hills project in Pittsburgh. The field of architecture will continue to be benefited by the healthily inquisitive mind of Carl Koch and the foresight of building materials manufacturers who use that mind. "All endeavors on my part," Koch says, "have been in the design of factory fabricated components which can be combined in a number of ways, theoretically to create an infinite number of building types."

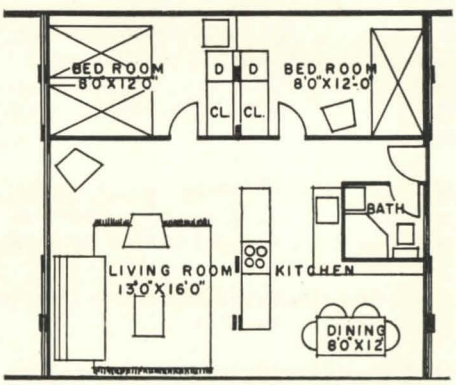
Sketches by Romeo Cobelletti



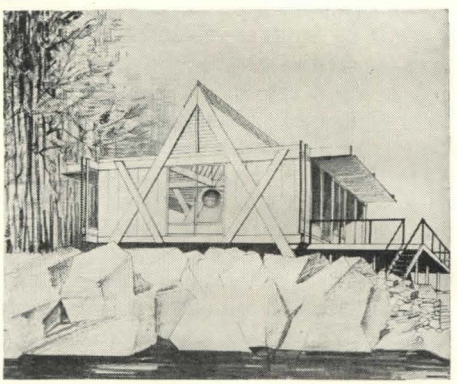
UP IN THE HILLS, DOWN ON THE SHORE WITH PREFAB HOUSE



Plan providing large living room.



Dining room included in this plan.



Unit is appropriate for mountains, shore.

CAMBRIDGE, MASS. An exceptionally versatile and flexible vacation house has been designed by Jack P. Gensemer of Cambridge for Puertofab, Inc., of Santurce, Puerto Rico. The prefabricated wooden structure is adaptable to practically all terrains and climates as a vacation cottage, and also can be used as a year-round residence in warm and tropical climates. Its great economic advantage is that it can be erected speedily without the need of skilled labor—an advantage which also helps in out-of-the-way areas.

Structure is basically a combination of an A frame with a cradle. A frames and cradles are spaced 12 ft on center and support wooden roof and floor, the latter being raised off the ground on foundation piers. This structure allows quite wide floor spans made of lightweight pieces of standard lumber. The unit, which comes in two basic sizes—25 ft by 25 ft and 25 ft by 37 ft, requires a minimum number of foundation piers: six for the smaller unit and eight for the larger. Additional units can be added easily to the basic unit, and connected by decking, walks, or covered passageways (*top*). Since both exterior and interior walls are non-load-bearing, a great deal of flexibility may be obtained (two plans for the smaller unit are shown *above*). Exterior walls are alternating fixed and sliding, wood-framed glass panels. Moving panels slide beyond ends of the house on cantilevered supports (see rendering of basic unit, *above, right*). To admit extra light and air into the house, a continuous ventilating skylight runs along the ridge of the roof, and large louvers are built into the peaks of the end A frames. A low ceiling for the bathroom under the high roof provides adequate storage space. Standard roofing can be supplied up to the ridge, if desired. Wide overhangs, supported by outriggers, project four ft from both sides of the house and act as sunshades. They are hinged to swing down and provide protection from severe storms and hurricanes. In addition, they close and protect the house when it is not in use.

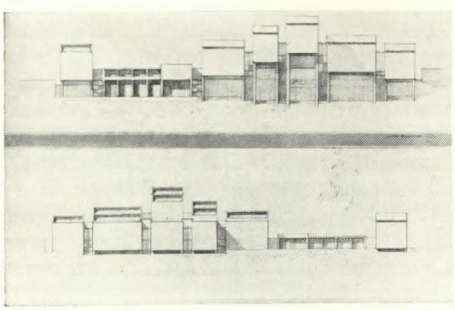
To facilitate erection, electric wiring is pre-installed so that the house can be wired up to the service box quickly. Plumbing pipes are located and concealed in the panels up to the point of connection with the sewage system. Puertofab is designed to take most types of heating systems.

NEW NEIGHBOR FOR ROCKEFELLER CENTER

A 43-story, curtain-walled office building will be erected on New York's Avenue of the Americas between 51st and 52nd Streets next door to Rockefeller Center. Joint owners will be Rockefeller Center, Inc., and Uris Buildings Corporation. The 552-foot building, "designed to harmonize with neighboring Rockefeller Center buildings," is scheduled for occupancy in early 1962. Structure will have about 1,700,000 sq ft of rentable space. Emery Roth & Sons are architects with Harrison & Abramovitz serving as consultants.

Koppers Announces Six Award Winners

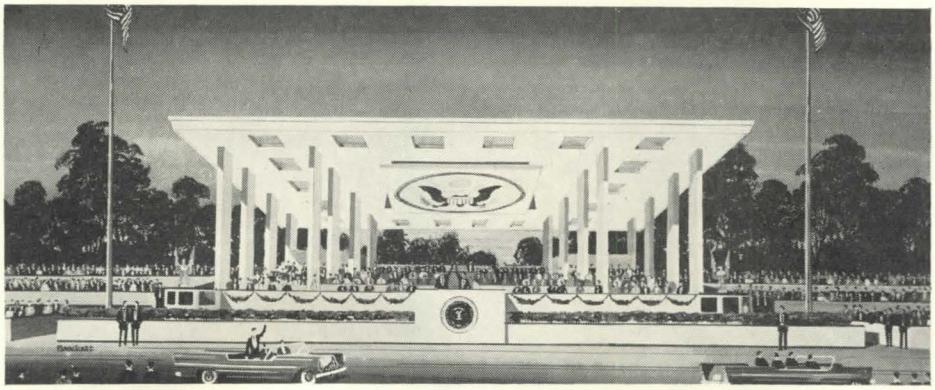
Scholarship awards of $1000 each have gone to six winners in recent Student Architectural Design Competition sponsored by Tar Products Division of Koppers Company, Inc. Jury was composed of Paul Schweikher, Paul Rudolph and Joseph Hazen. Winner shown is a museum design by J. T. Robertson of Yale, characterized by the jury as having "an intriguing and inviting appearance—a particularly admirable quality for a museum." Other winners were Richard Claybow, Washington University, for a housing project; Phillip T. Markwood, Ohio State, for an office building; W. C. Widdowson, University of Houston, for a municipal building; John M. Preston, Clemson University, for a school design; and Michael H. Spector, Syracuse University for a hospital. Schools participating in the Koppers competition are selected periodically on a geographical rotation basis in order to assure representation of members of Association of Collegiate Schools of Architecture.



HILTON HOTEL NEAR ROCKEFELLER CENTER

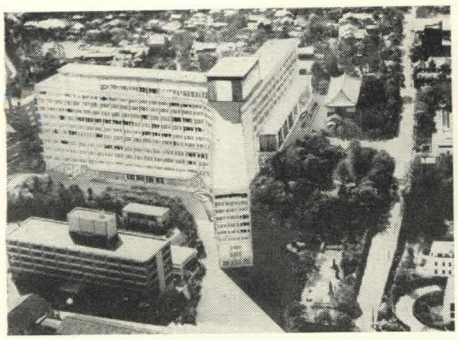
Construction will begin next spring on a 2200-room luxury hotel on the west side of New York's Avenue of the Americas between 53rd and 54th Streets. Above a four-floor base structure will rise a 41-story metal, glass, and masonry tower designed to provide all "outside" rooms. Banquet and convention facilities, said to be the largest of any hotel in the world, will include a main ballroom which will seat more than 4200 dinner guests and 5000 meeting attendants. There will be 34 additional dining and meeting rooms, with total capacity of 2500.

Public rooms will include restaurants, men's bar, cocktail lounge, and night club. An autolift capable of handling a fully-loaded truck will connect the loading dock with the main exhibit areas, eliminating double-handling of exhibits. A unique motorists' lobby will be located in the 350-car garage. Guests will be able to register in the garage lobby after leaving their rooms, eliminating a stop in the main lobby. Completion is expected by January 1963. Designed by William B. Tabler, noted for his many Hilton hotels; Harrison & Abramovitz, consulting architects. Associated in financing are Hilton Hotels Corp., Uris Buildings Corp., and Rockefeller Center, Inc.



Reviewing Stand Designed for Kennedy

Next month, President-elect John F. Kennedy will watch his inaugural day parade from a reviewing stand designed by Washington Architect Robert Paul Brackett. The design was winner in a competition sponsored jointly by the District of Columbia Inaugural Committee and the joint inaugural committees of the two major political parties, with the co-operation of the Washington Metropolitan chapter AIA. The stand will be constructed facing Pennsylvania Avenue on the sidewalk in front of the main entrance to the White House. The off-white wooden structure will have 16 columns supporting a roof pierced around the periphery by square openings (to be covered with clear plastic in case of rain or snow). The Great Seal of the United States will be hung from the roof. The stand will provide space for Kennedy and Johnson and their families, about 120 seats for dignitaries, a reception area, and facilities for press, radio and television. The stand on which the actual inaugural will take place is a standard structure of steel and wood, erected every four years. It is now under construction facing the new East Front of the Capitol.

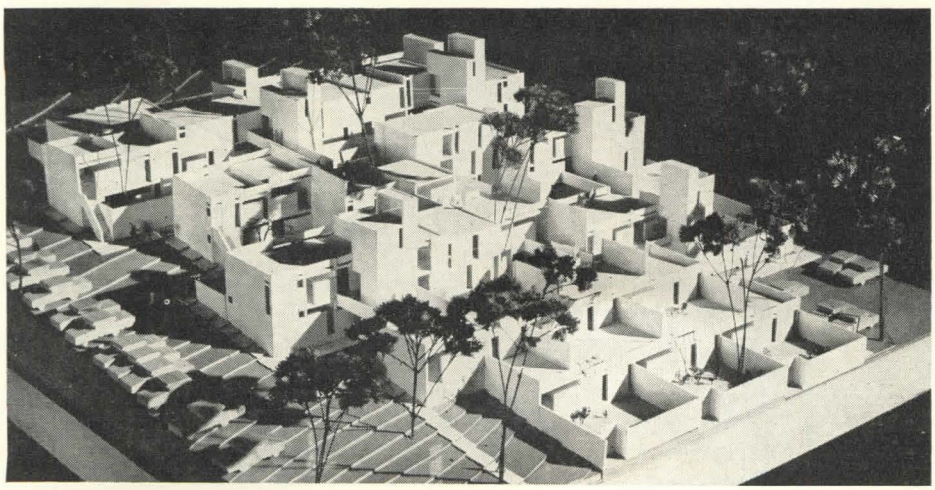


Tokyo Luxury Hotel Will Serve East and West

Hotel Okura, which aims to be "the finest in the Orient," will be built on Reinanzaka Hill across from the American Embassy. The ten-story structure, designed by Yoshiro Taniguchi, the architect for the Crown Prince's new palace, is expected to be completed by Spring 1962 and will contain 550 rooms, 30 of them in Japanese style. A roof-top cocktail lounge with a view of the city skyline, the harbor, and Mt. Fuji is expected to be the closest thing to the Top of the Mark that side of the International Date Line. Public facilities will include a Japanese garden, a swimming pool, parking for 500 cars, and a convention hall which will hold 1000 seated delegates or 2000 standing drinkers. Twenty-two individual banquet rooms will be available for private parties. There will be a shopping arcade on the main floor and a coffee shop, grill, continental restaurant, and Chinese restaurant.

Stainless Steel Designs Acclaimed in Canada

A new international competition for design in stainless steel has been established in Canada, and the winners of the first program announced. Sponsor of the Stainless Steel Award Program is the National Industrial Council of Canada—members of the Stainless Steel Awards Committee include Atlas Steels Ltd., International Nickel Company of Canada Ltd., and Union Carbide Canada Ltd. The competition has four categories: architectural, decorative, domestic, and institutional. Winners from the United States included Sculptors Gwen Lux (for "Vapor Trails" on the Aviation Trades High School, New York), Richard Lippold (for his lobby sculpture in Chicago's Inland Steel Building), and José Rivera (studio pieces); and Architects Mies van der Rohe (Barcelona and Brno chairs), Skidmore, Owings & Merrill (Inland Steel building), Harrison & Abramovitz (buildings for Pittsburgh's Gateway Center), Fletcher-Thompson, Inc. (Whitehead Metals office and warehouse, Syracuse, N. Y.), John Terrence Kelly (American Society for Metals Building), and the team of Carroll, Grisdale & Van Alen, Harbeson, Hough, Livingston & Larson, and Nolen & Swinburne (Philadelphia State Office Building). Winners represented designers from nine countries. A photographic exhibition of winning designs has been mounted and is touring Canada.



"Village" for Married Students by Rudolph

Construction should start in two months on Paul Rudolph's third project for Yale—the other two being the completed School of Forestry Laboratory and the soon-to-start Arts Building. The new project is a 52-apartment development for married students. Resembling in model form a hillside village on the Italian seacoast, the project will afford each apartment its own private courtyard or roof terrace. Only one existing tree on the site, which is at the rear of the International Student Center, will have to be removed. Structure will be concrete block exposed inside and out. Off-street parking will be provided.

More Mosts for Pan Am

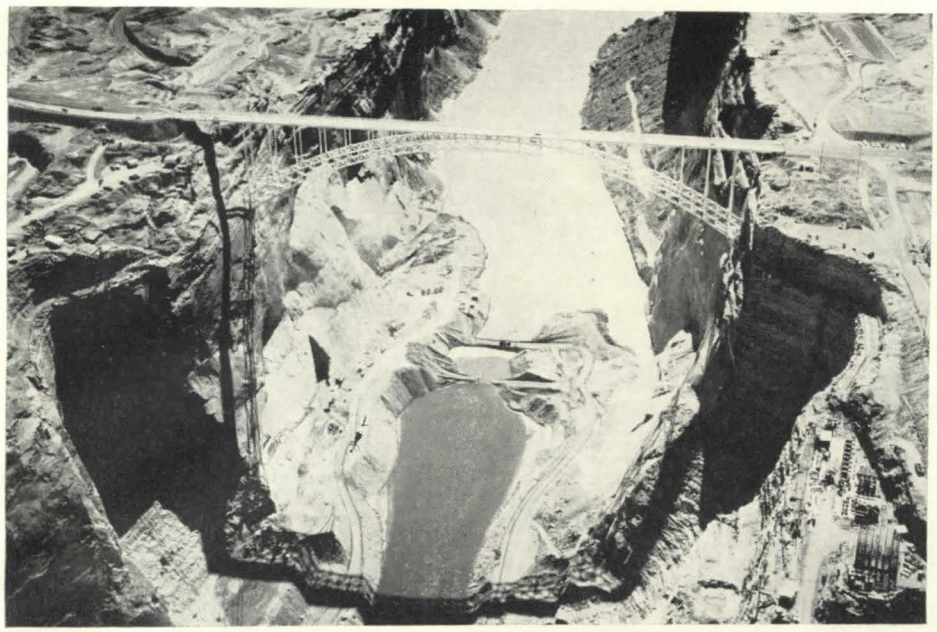
The world's largest air-conditioned commercial office building will boast another superlative: its 100-ton refrigeration equipment will be raised 775 ft to the roof. This is "the largest concentration of weight ever to be hoisted to such heights," according to Worthington Corporation, manufacturer of the three 3333-ton steam turbine-driven centrifugal refrigeration units. The building's equipment room will be located on the roof of the 59-story structure because the building will rise directly over the tracks and station platforms of the New York Central and New Haven railroads.

Columbia to Honor 20th Century Leaders

In the Spring of 1961, according to Dean Charles Colbert, Columbia University School of Architecture will sponsor a program honoring "The Four Great Makers": Walter Gropius, Le Corbusier, Mies van der Rohe, and Frank Lloyd Wright. Program will bring each to the University for a two-week session—Olgivanna Lloyd Wright taking her late husband's place. At the same time, retrospective shows of their work will be mounted at the Guggenheim Museum, exhibits being designed by such noteworthies as Philip Johnson, Paul Grotz, Costantino Nivola, and Gyorgy Kepes. James Marston Fitch is chairman of the program.

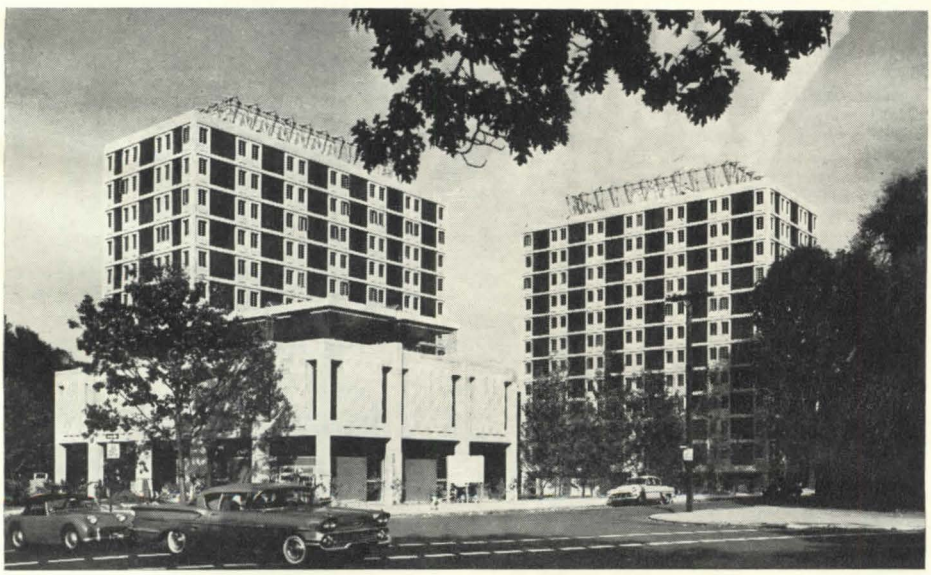
Landscape with Red Face

The American Society of Landscape Architects was inadvertently referred to as the American Society of Landscape Gardeners on page 80 of our October issue. P/A, which in recent issues has featured at length the work of landscape *architects* Sasaki, Halprin, Rose and Linn, and which in this issue presents a long-overdue appreciation of their great precursor, Jens Jensen, blushes.



CANYON SPAN WINS AISC AWARD

Glen Canyon Bridge, which spans the canyon at a breathtaking height near Page, Arizona, has won the award in Class I of the 32nd annual bridge design competition sponsored by the American Institute of Steel Construction. The bridge, designed by the U. S. Department of the Interior, Bureau of Reclamation, was praised by the jury as an "elegant, airy arch design that contrasts . . . beautifully with the grand brutality of the setting." Jury included AIA President Philip Will, Jr., Architects Karl Kamrath and L. Bancel LaFarge, Charles H. Sawyer, Director of the University of Michigan Museum of Art, and E. L. Erickson, Bureau of Public Roads.



HARVARD BUILDS HIGH

This Fall members of Leverett House moved into two new 12-story residence halls, Harvard's first venture in building high. Broad windows give the students sweeping views up and down the Charles River. The limestone and glass buildings and the new two-story limestone library building were designed by Shepley, Bulfinch, Richardson and Abbott, designer of the original Harvard Houses. They are set in a sunken court landscaped by Prof. Hideo Sasaki of the Graduate School of design. Each tower provides suites for 140 students and four faculty tutors. The library building houses tutorial offices for faculty associates of the house.

GOOD GRIEF! THEY'RE AT IT AGAIN

Razzle-dazzle will characterize "the world's largest hotel" (SEPTEMBER 1960 P/A, p. 52) even before it is opened. At the groundbreaking in New York last month, a "leading radio personality" began "living and broadcasting for an indefinite period in a 1961 station wagon suspended forty feet in the air from a giant construction crane." He's still there, we guess, perhaps to be followed by goldfish eaters and flag-pole sitters.

BIG CORK GETS BIG SIGN

From now on architects will have to complain about the "Pan Am Building" instead of "Grand Central City." In a deal recently consummated between co-owners Erwin Wolfson and Jack Cotton and future tenant Pan American Airways, the fly firm will take 613,000 sq ft in the structure. Since everything about this project is "the biggest yet" (including, undoubtedly, the traffic tangles when it is occupied), this is announced as "the largest single rental transaction ever closed for office space in New York City." In a spasm of gratitude, Wolfson and Cotton have renamed the building and pasted luminous signs to that effect on its top.

Continued on page 64

THE NEW PLAZA TOWERS in Little Rock, Arkansas, has 132 apartments, from one to three bedrooms.

Architects: William W. Bond, Jr., and Louis Ost, Jr., 4985 Summer Avenue, Memphis, Tennessee.

Structural Engineer: S. S. Kenworthy, Sterick Building, Memphis, Tennessee.

General Contractor: Harmon Construction Company, Oklahoma City, Oklahoma.

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Keycorner comes in easy-to-handle four foot lengths and goes up in a hurry. "But what I like most about Keycorner, it doesn't cut up my hands," says Carl Kennedy, one of Kirk's best workers.

A living room in one of the apartments of Plaza Towers. The owner, W. C. Mason of Little Rock says, "I shudder to think of what the upkeep on our apartments would be if the walls and ceiling weren't plaster. We chose it for its beauty, superior fire resistance and economy as well. And we're happy we did."

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Two Related Arts Aids For Architects

Architects wishing to integrate related arts into their designs now have two new sources for information and aid on painting, sculpture, and craftsmanship. New York's America House, recently moved to new quarters at 44 W. 53rd Street, has formed an Architectural and Interior Design Service. Service can act as liaison between architect and craftsman in any capacity from initial contact to completion of commission. Address inquires to Mrs. Martha H. Munster.

Information and consultation regarding muralists and sculptors may be had gratis from the National Guild of Mural Artists, Inc., 43 E. 22nd Street, New York. Guild maintains an extensive file of artists working in different media, and makes referral free of charge to architect or designer.

FOUR NEW FILMS

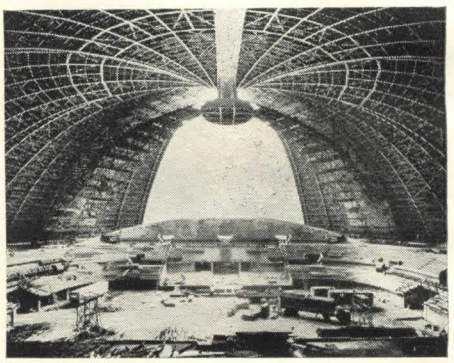
New industrial films of interest to the architectural audience have been announced by U. S. Steel, Portland Cement Association, Revere Copper and Brass, and Globe Hoist Company. The U. S. Steel film, "Curtain Time," examines design, fabrication, and erection of steel curtain walls. It may be borrowed for showings, free, from Market Development Division, U. S. Steel Room 2831, 525 William Penn Place, Pittsburgh 30, Pa. "Concrete Curtain Walls" portrays the use of precast concrete panels for sheathing structures. The 18-minute film may be had on loan from any of Portland Cement Association's 34 district offices. Good copper piping practice in construction is given a thorough treatment in Revere's film, "Copper Tube in Building Construction." It is available to distributors for showing to interested groups. "How to Harness a Ram" is Globe Hoist's look at use of oil-hydraulic powered ram in moving and heavy lifting operations in construction and industry. Showings may be arranged through Globe Hoist Company, E. Mermaid Lane at Queen Street, Philadelphia 18, Pa.

BENDINER LIMNS ORMANDY

AIA members have received an announcement of the gala performance of the Philadelphia Orchestra under Eugene Ormandy scheduled for April 25, the second evening of the forthcoming AIA Convention. The delightful drawing which embellishes the announcement is the work of Philadelphia Architect Alfred Bendiner, and is from his book, *Music to My Eyes* (National Publishing Company). Bravo, Signor Bendiner!

ANOTHER BY SOM AT YALE

Skidmore, Owings & Merrill's Rare Book and Manuscript Library project at Yale (NOVEMBER 1960 P/A, p. 66) has been joined by the Thomas J. Watson Computing Center, by the same firm. The building is being donated by Arthur K. Watson in memory of his father, the former head of International Business Machines Company. The one-story, curtain-walled center will house an IBM 7070 computer purchased by a $500,000 grant to Yale from the National Science Foundation. The computer will be used for complex computation in the sciences and social sciences and for instructional work in training graduate students and faculty in the use of the computing center. According to a Yale spokesman, the machine will be used in more than 30 fields of advanced research.



Pittsburgh Dome Receiving Sheathing

The framework of the dome of Pittsburgh's Public Auditorium was seen for the last time last October when it was shown to the press. At that time, acoustical panels of perforated steel were being applied to the inside of the eight leaves, while stainless steel sheathing was going up on the exterior to enclose the structure completely.

The open space in the seating tiers at center of the photograph will be occupied by a special section. This section, "hinged" at the top to the seats above it, will be raised hydraulically to form a canopy over the stage which is concealed beneath it. Eventually a parking area for more than 1000 cars will exist under the terraces of projected buildings to the east of the dome, and the dome will be surrounded on all sides by a park. Completion is set for next June. Architects: Mitchell & Ritchey.

Between Congressional Acts, D. C. Redevelopment

By E. E. Halmos, Jr.

In the political doldrums that now prevail in Washington (and they'll continue to prevail until the new Administration and new Congress get to work in January), there was time to consider some serious doubts about one of the nation's most prominent redevelopment programs—Washington's own Southwest redevelopment area.

What happens to this 552-acre former slum area is of major local concern, of course, but the implications are far larger than that. It is under the eye of legislators on Capitol Hill, and cannot be dismissed by the several million visitors who visit the city each year.

Criticism (aside from that aimed at the length of time—10 years—it has taken to get construction under way) seems to center on two main points of interest to planners and very particularly to architects: 1 high-price, luxury housing and other structures, placed cheek-by-jowl with low-cost public housing without valid separations; 2 use of low-budget construction, and vast quantities of fencing, by public agencies, such as the school system and the recreation department, to create fenced islands within the heart of what is hoped to be an attractive neighborhood that will bring many residents back to living within the city limits.

Robert J. Lewis, real estate editor for *Washington Star*—a major evening newspaper—called the chain-link fence "a symbol of the confusion" that could lead to "just another pitifully mediocre hodgepodge."

"The many hundreds of feet of it which the recreation department and Board of Education use," said Lewis, "are plunged to the bloody hilt in the heart of the new Southwest's neighborhood value.

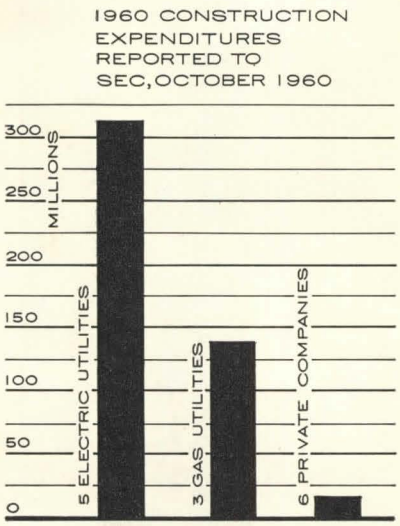
"There's more of it (in addition to that facing the handsome Capitol Park Apartments), across the street from the town houses bravely rising nearby, as well as close to the Town Center and Webb & Knapp Apartments. And there's more to come."

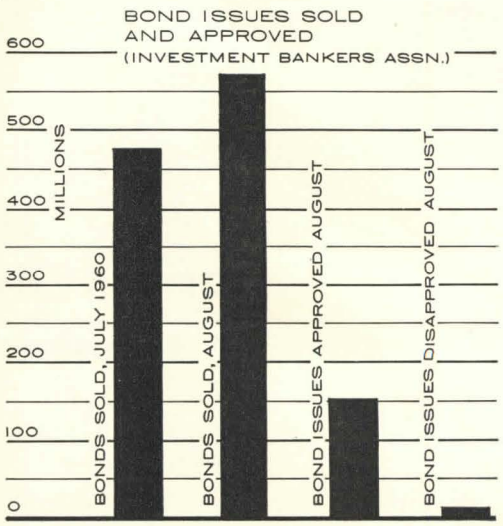
Recognizing the fact that the educational and recreational agencies work on limited budgets, and must do their work regardless of neighborhood esthetics, the newspaper editor called for decisions whether the city is powerless to create standards; co-ordination of the various agencies concerned, and "franker and fuller" discussion of the potential of the area, and of standards of desirability and taste that should be officially encouraged.

(The article, incidentally, brought a couple of hot "letters to the editor" from chain-link fence distributors and manufacturers. This drew a reply that the intention was not to criticize the fencing itself, but its symbolism in cutting up a neighborhood.)

Washington's Redevelopment Land Agency has taken no official position on the matter. Privately, however, RLA officials told P/A they are studying the probem of the fences, seeking some means of limiting their use to prevent cutting up the new neighborhoods being created.

Privately, again, the agency seems





BOND ELECTION RESULTS – AUG. 1960 BY USE OF PROCEEDS

USE OF PROCEEDS	APPROVED		DISAPPROVED	
	AMOUNT	NO	AMOUNT	NO
EDUCATION:				
ELEM. & SEC.	3,799,000	15	2,263,000	8
OTHER	350,000	1	—	0
ROADS & BRIDGES	7,320,000	3	5,208,000	5
WATER & SEWER	83,420,000	17	4,728,000	5
OTHER UTILITIES	30,844,000	4	—	0
HEALTH & WELFARE	2,099,000	7	1,100,000	3
RECREATION	2,305,000	5	262,000	3
PORTS & AIRPORTS	1,180,000	2	—	0
INDUSTRIAL	9,845,000	5	—	0
REFUNDING	—	0	9,000	1
FLOOD CONTROL	300,000	1	—	0
PUBLIC HOUSING	—	0	—	0
VETERANS AID	—	0	—	0
ADMIN. & OFFICE BLDG.	—	0	—	0
UNCLASSIFIED	8,700,000	2	160,000	1
TOTALS	$ 150,162,000	62	$ 13,730,000	26

BOND ELECTIONS SCHEDULED AS OF SEPT. 1, 1960

MONTH	AMOUNT
1960	
SEPTEMBER "	102,380,000
OCTOBER "	127,296,000
NOVEMBER "	1,678,814,000
DECEMBER "	13,420,000
FEBRUARY 61	50,400,000
MARCH "	70,000,000
APRIL "	12,700,000
NOVEMBER "	915,986,000
NO DATE SET	68,965,000
TOTAL	$ 3,039,961,000

USE OF PROCEEDS	AMOUNT
EDUCATION:	
ELEM. & SEC.	614,631,000
OTHER	220,560,000
ROADS & BRIDGES	233,195,000
WATER & SEWER	254,184,000
OTHER UTILITIES	928,998,000
HEALTH & WELFARE	188,985,000
RECREATION	34,962,000
PORTS & AIRPORTS	15,810,000
INDUSTRIAL	1,502,000
REFUNDING	2,000,000
FLOOD CONTROL	9,050,000
PUBLIC HOUSING	10,700,000
VETERANS AID	202,000,000
ADMIN. & OFFICE BLDG.	77,797,000
UNCLASSIFIED	245,587,000
TOTAL	$ 3,039,961,000

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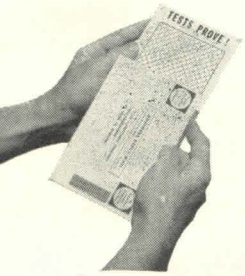

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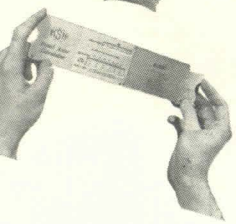

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☐ Do not ☐ Do have your representative call, we need immediate engineering help.

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to be of the opinion that the criticism of the lack of "buffer zones" between "high rent" and "low rent" housing is unjustified, and that the two areas will work well together, despite the disparity of income between the residents.

On the subject of the general redevelopment of the Southwest area, it began to appear that the long-range plans of Chloethiel Smith (Satterlee & Smith), Washington architect, will prevail in the redevelopment of the area's waterfront section.

Mrs. Smith wants to keep the existing Maine Avenue at grade in the waterfront area, so that water views will not be blocked, wants a 60-ft-wide promenade along the mile of river bank, with public plazas at regular intervals. Other plans under consideration by RLA contemplated reconstruction of the area by one major developer fairly well along with his plans, with the avenue elevated for connections with various bridges and freeway projects.

However, John R. Searles, executive director of RLA, said his staff has now accepted the principal features of Mrs. Smith's plan.

RLA is now in the process of re-approaching five prospective waterfront developers (one of them is Phillips Petroleum Co.) to see if they are interested in doing the job according to Mrs. Smith's concept. She has said she rather likes the idea of having the work done by several different developers, who would work to a general plan as to the type of buildings to be built.

Strike Prevention

Areas of construction labor and management are reported to be hard at work — under some pressure from Government—to see what really can be done about eliminating or at least cutting down on strikes.

In most cases—particularly in the steel industry—the emphasis is on finding new ways to negotiate, including closer communication between labor and management, for a better understanding of mutual problems and interests.

Behind the push for a better atmosphere is obvious public concern over strikes that appear to block essential national defense and other objectives. For example, according to tabulations of U. S. Chamber of Commerce, labor averaged one strike every four days at Air Force missile bases in the 12-month period ending last June. Complaints of delay in this construction work have focused attention on the labor aspects.

What's interesting, at least in so far as any public pronouncements have indicated, is that nobody has attempted to work on what many observers think could be the key to the problem: the archaic set-up of the unions, particularly the craft unions in the construction industry.

It has been pointed out several times that under construction-union organization, assignment of work is attempted by consideration of the materials used, rather than tools or skills. Thus, anything of wood is carpenter work, stone is masons' work, etc.

Problem is that materials are in use today that may be combinations of the traditional materials; or may be something entirely new (as plastics). Result of an attempt to segregate work by type of material almost inevitably fosters a jurisdictional dispute. (Architects are very familiar, for example, with the long-standing labor controversy whether tile-type ceiling

Continued on page 72

. . . brick starts clean, stays clean!

Structural Strength Affected?

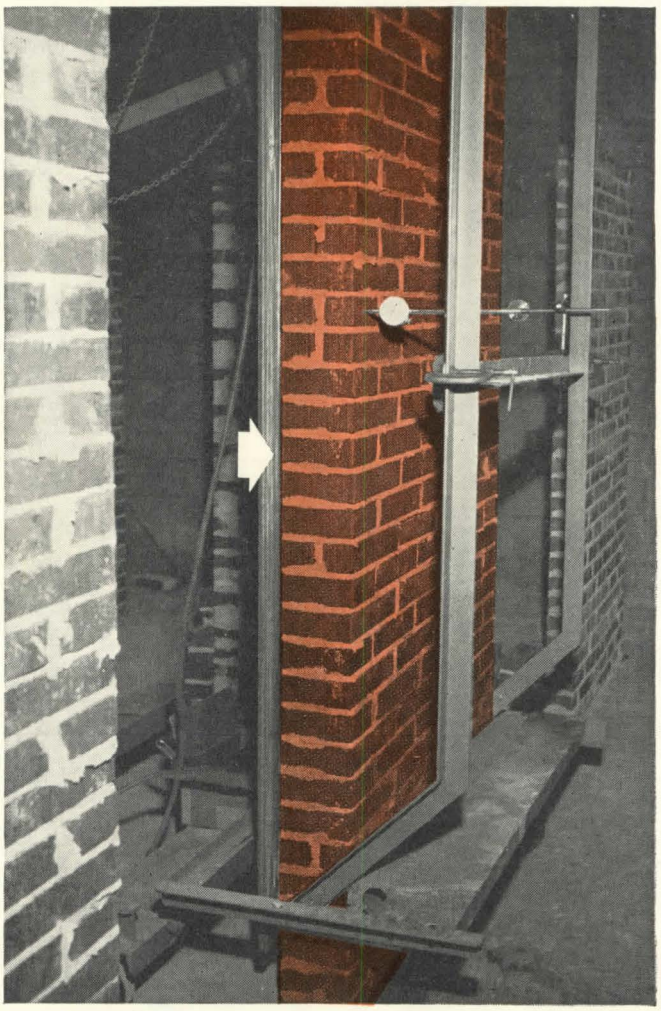
Silaneal is the *only* brick treating material proved safe in both field construction and SCPRF-prescribed wall tests. Over 100 walls have been built and tested under carefully controlled conditions to determine any effect Silaneal may have on structural strength. Photo at right shows test unit at work. These tests have proved that treating the bedding surfaces of brick with suction rates above 20 grams per minute improves wall strength, reduces rain penetration, and eliminates the need for wetting brick before lay-up.

Do ALL Brick Need Silaneal?

In accordance with the recommendations of the Structural Clay Products Institute for unreinforced masonry, brick having an initial rate of absorption or suction greater than 20 grams per minute should have the suction reduced to 20 grams or less for maximum bond strength and minimum water penetration. Brick with a suction above 20 grams should have all surfaces treated with Silaneal. Brick having a suction below 10 grams per minute *should not* be treated on the bedding surfaces to avoid any tendency to "float" during lay-up.

Silaneal Speeds Construction, Cuts Costs:

Brick with Silaneal treated bedding surfaces need no wetting before lay-up. Mortar joints stay workable longer; masons can spread mortar over greater distances, complete more courses before striking joints. Completed walls need only a brushing for clean-up.



Architectural Specifications for Silaneal

From Dow Corning Bulletin AIA File No. 3F.

To receive all the advantages of Silaneal protection, Dow Corning recommends that you use this specification. "Brick having suction above 20 grams per minute (per 30 sq. in. of bedding surface) shall be treated at the brick plant with Silaneal® (manufactured by Dow Corning Corporation). The Silaneal concentration shall be adjusted until the brick pass the following test:

Allow bricks to air-dry 24 hours after treatment. Weigh the brick and place bedding-side-down in ⅛-inch of water. Remove after 60 seconds and weigh again. The average increase in weight shall lie between ⅓ and ⅔ gram per square inch of surface tested (between 10 and 20 grams for a nominal 4 x 8 brick having a bedding surface of 30 square inches).

Brick having suction below 20 grams, but which may have a tendency towards efflorescence or other staining, shall be sprayed with Silaneal® on the face and two ends only. Treatment concentration shall be of sufficient strength to control efflorescence and staining."

CORPORATION MIDLAND, MICHIGAN

branches: ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.

Continued from page 68
materials should be installed by carpenters, plasterers or lathers.)

Of course, a realignment of the building-trades unions on the basis of tools used, or skills needed, would constitute a major upset in long-established precedents. But, so far as any information has been made available, there's been little or no serious discussion of this aspect of the problem.

FINANCIAL

With 1960 running toward its close, financial experts seemed just as confused as ever as to the state of the economy's health.

And probably the most confusing element was the behavior of the construction industry itself, as measured by various indicators.

By P/A's own indicators (*see charts*) there was little or no evidence of slackening of demand for construction, either by private industry or public utilities; and voters, on a nationwide basis (though the figures are somewhat behind the date) showed no indication that they would cut bond-supported public construction. The federal government's total construction appropriations (about $6.35 billions in all categories) would also contribute heavily to continuing support for the industry.

And, in the final quarter of the year, heavy-construction contracts—which reacted downward with business declines in two past "recessions"—are now seen to be rising sharply, which might indicate that any recession is already on the wane.

What keeps worrying the economists is evidence that, while national income has been rising this year, profits from current production are down slightly over the early part of this year, and about even with the rate for 1959. That would seem to indicate a slowdown in business expansion. Couple that with the announced drop of 20% in housing starts in September (to 103,400 units), and you have some disturbing factors to consider.

Yet even the housing picture is not clear—some observers are inclined to blame recent East Coast hurricanes for slowdown of starts in September. And there were at least isolated instances of immense demand: witness the amazing experience of Levitt & Sons at its new Belair development east of Washington, where 302 houses, with a price tag totalling $5.3 millions, were sold in the first seven days after the development was opened for business (3200 houses are planned).

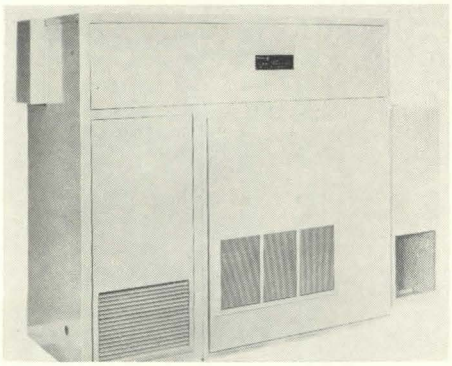
At the same time, the *U. S. Savings* & Loan League said that 1960 mortgage lending went up during September, indicating a brighter outlook for the housing market. (And FHA reported that its insured home mortgages are continuing to bring increasingly higher prices for immediate delivery on the secondary market, an indication of continued easing of money sources.)

Over-all, then, you have to come out with this picture, as 1960 winds up: there are some uncertainties in the economic picture, but they seem to be balanced out by more positive evidence of health.

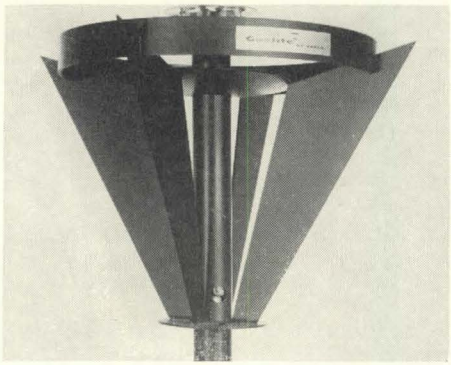
And for those engaged in any aspect of the construction industry, the prospect seems to be for continuing good business, for the short run ahead, anyway.

Later in the winter the effect of actions of the new Congress and new Administration will certainly have some effect on this picture. That's why the betting has to be confined to the short-run for the time being.

New Products Exhibited at Gas Convention



Gas-operated air-conditioning unit has outside installation.



Torch-shaped gas lights can give festive note to outdoors.

Gas-operated sign can be had in four models, including without sidelights.

The increasing use of gas was reflected in the number of new developments exhibited at the recent Atlantic City convention of the American Gas Association. Among these were three by Arkla Air Conditioning Corporation—two new products and one new light design.

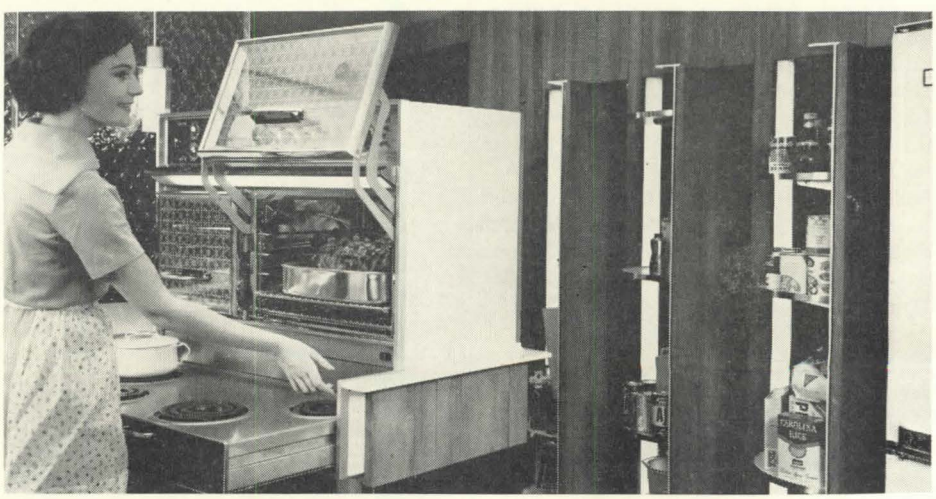
A year-round gas air-conditioning unit, the Arkla Sun Valley Model 500C, reportedly permits, for the first time, remote outside installation of a gas-operated combination cooling and heating system. The unit has a capacity of 42,000 Btu for cooling, and 96,000 Btu for heating. Its compact design combines the condensing unit, including the evaporative cooler, in one housing with the refrigeration and heating system. The unit, in addition to its conventional forced-air central air-conditioning system, makes possible individual room control, baseboard radiation, and ceiling or floor radiation. The new model differs from previous models by this company in that it circulates chilled or hot water to a fan-coil filter assembly in a specified interior location.

A new design in Arkla's line of outdoor gas lights is the "Waikiki," described as a "gas torch." The pole-supported light has a stainless-steel flame spreader for uniform gas flow, heavy steel construction, and a weather-proof, black finish. Dimensions are 11″ x 15½″.

In its continuing effort to insure part of the illuminating field for the gas industry, Arkla has introduced a gas-powered sign, "Gasign." The sign, which comes in four models, is believed to be the first commercial gas-lighted sign ever developed. It consists of two heat-tempered glass panels for the message mounted on a black steel frame, with a row of mantle-covered gas burners inside. Arkla Air Conditioning Corporation, 812 Main Street, Little Rock, Ark.

On Free Data Card, Circle **100**

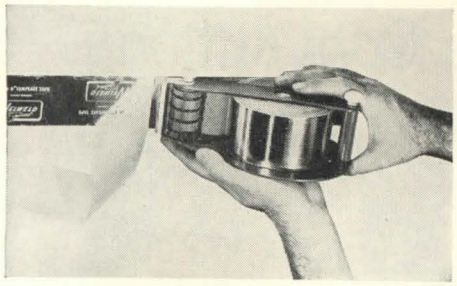
GM MOTORAMA SHOWS IDEAS FROM FRIGIDAIRE



NEW YORK, N. Y. Visitors to the General Motors 1961 Motorama at the Waldorf-Astoria here recently saw an interesting collection of "ideas for living" in the presentation of new products and concepts from GM's Frigidaire Division.

Advanced designs and uses of kitchen appliances included a pedestal-supported, two-oven range with swing-up oven doors; adjoining pantry and utility storage shelves that appear as a plain wall until made to pivot out at the touch of a button; handy dispensers for bleach, starch, soap, detergent, and blueing that are easily operated by controls; a mobile charcoal grill that can be rolled out of a niche in the countertop and onto the patio for outside cooking; another storage shelf system wherein the shelves can be raised and lowered like a dumbwaiter by button controls; and a housewife's "control center" consisting of desk, built-in intercom, telephone, recipe file, and vanity. A large Lazy Susan completes the latter area. Frigidaire Division, General Motors Corporation, Dayton 1, Ohio.

On Free Data Card, Circle **101**



TAPE SPEEDS CONSTRUCTION

Aluminum template tape speeds installation of aluminum siding and roofing on steel-framed buildings. Tape is applied easily to unpainted or painted steel members from specially-designed roll dispenser, prevents galvanic action between steel and aluminum sheeting. Premarked on 8-inch centers that accurately indicate locations for fasteners, tape eliminates need for bulky templates. Studs are end-welded through the tape, and aluminum sheeting is then impaled on the studs. Nelson Stud Welding Div., Gregory Industries, Inc., Toledo Ave. and East 28th St., Lorain, Ohio.

On Free Data Card, Circle **102**

Stainless-Clad Tubing For Supporting Members

Stainless-steel cladding on welded-steel tubing is now available in diameters up to 3½″, for applications where the surface qualities of stainless steel are desired at a cost considerably below that of stainless-steel tubing. The bond between the stainless and the carbon steel, is mechanically produced, and final polishing results in an excellent surface finish. Stainless-clad tubing serves as both structural and ornamental members in stanchions, railings, columns, handles, legs, and other supporting elements. The Standard Tube Company, 24400 Plymouth Rd., Detroit 39, Mich.

On Free Data Card, Circle **103**

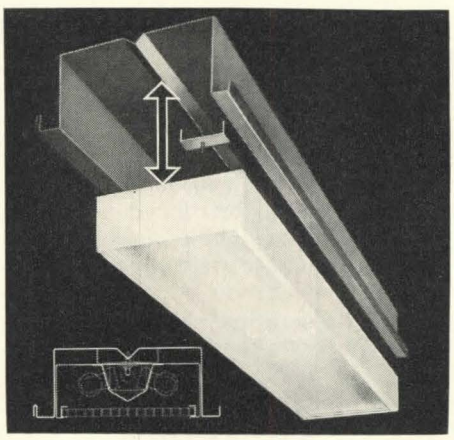
Steel Embedded in Translucent Sheets

New translucent glass-fiber panel, "Gardlite," has been designed for window use where maximum security is required. A criss-cross pattern of ¾″ expanded steel is embedded in the translucent sheets, insuring complete privacy and protection. Panels are ⅛″ thick, weighing approximately 18 ounces per sq ft. Standard lengths are 4′ and 8′, width is 48″. Waterproof and fade-resistant, Gardlite requires a minimum of care. It is available in three basic colors—clear, light green, and white—and transmits a soft, cool, glare-free light without shadows. Alsynite Division, Reichhold Chemicals, Inc., 4654 De Soto St., San Diego 9, Calif.

On Free Data Card, Circle **104**

Fluorescent Troffer Goes With Steel Roof Deck

New fluorescent troffer has been especially designed to combine with steel roof deck as ceiling and lighting system. Installation with self-aligning hangers is quite simple. Die-formed

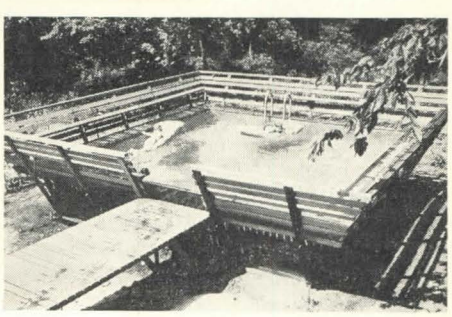


steel LPI troffers are UL-listed with CBM-certified, rapid-start ballasts; are wired and ready for installation. Wide choice of diffusers provides troffers for all applications. Adjacent roof deck cells are closed off with acoustical material. Lighting Products, Inc., Highland Park, Ill.

On Free Data Card, Circle **105**

Swim Above Ground In Family Pool

A family-size swimming pool which stands on, rather than in, the ground has been introduced. Designed to sell for as little as $999, the "Futura" is a vinyl-lined, steel-reinforced redwood pool complete with ladder and filter.



The 16′x16′ swimming surface is surrounded by a redwood deck, built-in benches, and a fence enclosure. The pool can be equipped with a vinyl "Solaroof" for use in cool weather (a built-in heater unit is also available). Larger sizes may be ordered, also. International Swimming Pool Corp., 188 East Post Road, White Plains, N. Y.

On Free Data Card, Circle **106**

Fused Glass Process Makes Striking Patterns

A process for handcrafted, highly individualized decorative glass, "Rodierglas," has been developed for application in windows, murals, panels, and room dividers. Sheets are made of chips of colored glass baked at high temperature between three or four layers of glass. Sizes up to 16″x20″ are possible, in any design or pattern. Small panels may be combined for larger compositions. List price: $15/sq ft. Leonard Rodier Company, 336 W. 71st St., New York 23, N. Y.

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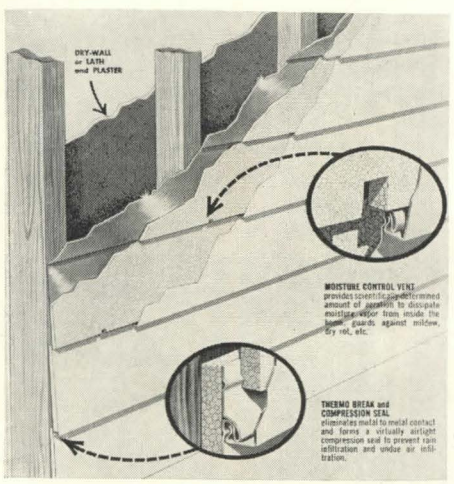


InsulatedAluminumPanels Apply Directly to Studs

"Rigid Bak-R-Foam" aluminum siding consists of a factory-enameled aluminum panel, a layer of polystyrene insulating foam, and a heavy covering of aluminum foil and craft-paper composition material bonded over the foam. The siding can be applied direct to the studding of new structures or the outside of present ones, without sheathing, building paper or any other material. Reports by Alsco Laboratory, Pennsylvania State University, and the University of Akron, are said to support the insulation rating value and exclusive thermal-break

claims made by the manufacturer. Alsco Aluminum, Inc., 260 South Forge St., Akron, Ohio.

On Free Data Card, Circle **108**

Long-Way Joist System Reduces Material Costs

According to recently-completed studies, framing floor joists to run the length of a building can considerably cut construction costs by reducing the the volume of lumber needed and by providing a base for economical sheetboard subflooring. Traditional joist installation has always been across the width of a house, to provide support for central load-bearing partitions over a longitudinal center beam, but the new study shows that an extra joist running the length of the structure will add adequate strength for this need. The long-way system allows the use of narrower joists, giving a lower silhouette as well as economy, and allows shorter joist lengths. In an example of a typical 28′x40′ house, conventional joist framing requires 1916 board feet of lumber; long-way joist framing can require as little as 1629 board feet. Western Pine Association, 510 Yeon Bldg., Portland 4, Ore.

On Free Data Card, Circle **109**

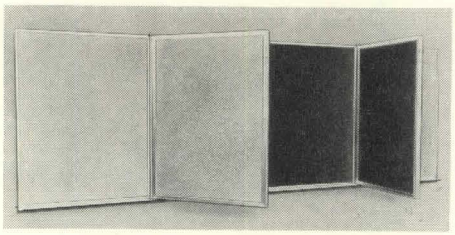
Interior Planters Are of Wood and Metal

Handsome planters for office and institutional interiors are finished in matched-grain walnut and Formica. Legs are either aluminum or brass, with adjustable gliders to compensate for uneven floors. Planters have galvanized-iron liners, vinyl-coated on both sides to resist corrosion. Available in three stock sizes: 14″x14″x18″, 18″x18″x16″, and 14″x20″x18″. Custom sizes are 18″x18″x48″ and 18″x 16″x60″. Special sizes can be made up on order. McDonald Products Corp., 252 Duk-It Building, Buffalo 10, N. Y.

On Free Data Card, Circle **110**

Panels Pivot to Provide Changing Surfaces

"Multi-View" wall-mounted, sectioned panel has sections that pivot to form chalkboard, tackboard, or combination of the two. A white, porcelain-enamel steel section to serve as projection screen is optional. Individual panels



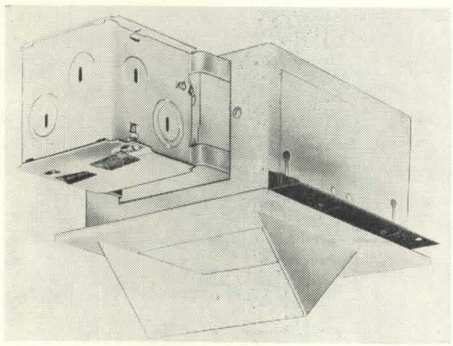
are available in a wide variety of matching or contrasting colors. Sections are 4′ high, may be ordered in varying widths to provide over-all dimensions of 12′, 16′, or 24′. Frame, trim, and chalk tray are fitted, anodized aluminum. Son-Nel Products Company, 900 19th Ave., Oakland 6, Calif.

On Free Data Card, Circle **111**

New Complete System For Central Cooling

Announcement has been made that "Jet-Cool," a complete air-conditioning system—not merely a "unit" that has to be connected to hand-fabricated ductwork on the job—will now be mass-produced. System uses flexible insulated tubing only 2″ in diameter to distribute air. Jet-Tubes, which can be strung easily through existing stud spaces, do not require major alterations and do not use valuable space for conventional ducts. The insulation effectively holds the cool air, and also prevents condensation. Another major advantage of the Jet-Cool system is that it has its own especially designed blower, to be operated with or without the heating furnace. Jet-Cool can be installed in the three ways: separately in homes with adequate steam, hot water, or electric heat; as an addition to the companion Jet-Heet system; or as an addition to a conventional warm-air heating system. Jet-Heet, Inc., Englewood, N. J.

On Free Data Card, Circle **112**



Fixture Washes Walls With Light

New 40° recessed, incandescent fixture is used to highlight planting areas, displays, paintings, and exhibits. Several luminaires used together can "wash" an entire wall with light. Die cast, one-piece frame size is 7½″ square with finish opening size of 6¾″ square. Housing size is 6⅝″x10¾″x4″. Sixty-watt bulbs recommended. Unit comes in standard matt white-baked enamel or aluminum finish. Prescolite Manufacturing Corp., 2229 Fourth St., Berkeley, Calif.

On Free Data Card, Circle **113**

New Product for Exposed Aggregate

A new product has been developed that is said to be a foolproof system of exposing aggregate independent of proper timing and skill of the finishers. "Aggretex," the result of two years of research in the Horn laboratories, gives a uniform texture and control of depth of penetration. Proper timing of the process is relatively unimportant, thereby insuring greater production with reduced labor costs. Two types are available—one for forms and one for horizontal surfaces. A. C. Horn Companies Division, Sun Chemical Corporation, 550 Third St., San Francisco 7, Calif.

On Free Data Card, Circle **114**

Liquid Treatment For Concrete Floors

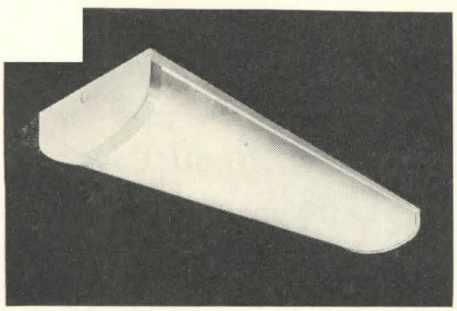
New liquid treatment for concrete floors prevents dusting, penetrates

deeply into surface, binds small particles together, and retards breakdown under traffic. "Radon 401" also fills surface capillaries with its tough, resilient plastic rubber, and acts as a deterrent to subsequent accumulation of dirt, dust, or cleaning solutions. Material is applied by pouring over a small area, then flow-coating with a *soft-bristled* floor sweep or lamb's-wool applicator. One gallon conditions 250 to 400 sq ft, depending upon porosity and texture. Floors are ready for use 3 hrs after application. Maintenance Inc., Wooster, Ohio.

On Free Data Card, Circle **115**

Tamperproof Fixture Ideal for Institutions

A fluorescent fixture which cannot be dismounted by unauthorized persons is suitable for both indoor and outdoor use at institutions and public buildings. The enclosure can be released only by unscrewing a retaining bolt at each end of the fixture with an Allen wrench. Fixture is 49½″ long, 12¼″ wide, and 5¾″ deep; is available in two or four 48″ rapid-start lamps. Enclosure is of curved Plexiglas. Gaskets are of pliable polyurethane foam in a flexible vinyl tubing impervious to effects of oil, grease,



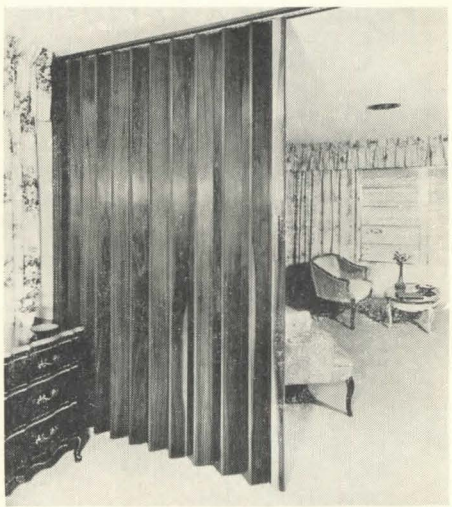
paint, light, or air. When enclosure is secured the resulting solid, compressed seal cannot be penetrated by moisture or sharp instruments. Globe Illumination Co., 2121 South Main St., Los Angeles 7, Calif.

On Free Data Card, Circle **116**

Volkswagen Showroom Has Cement-Base Wall Surface

Interior walls of Woodside, N. Y., Volkswagen showroom are protected by "Desco Vitro-Glaze," a spray-on, cement-base vitreous wall surfacing material. Composed of over 90% silica and cement in both base and color coats, Vitro-Glaze hides voids and imperfections in masonry, concrete block, brick and other rough-surfaced walls and presents a glazed, textured, nonglare surface. It withstands physical and thermal shock and is impervious to moisture, grease, most solvents, live steam, and acid and alkali fumes. No bonding agents are needed to fuse the material to the wall surface; it will not pull loose or discolor. It is available in many color combinations. Desco International Association, Box 74, Buffalo, N. Y.

On Free Data Card, Circle **117**



Folding Doors of Wood Give Rich Look

Wood-veneered folding doors are available in finishes of American walnut, mahogany, oak, birch, ash, and pine, with laminated - wood - block cores. Unique "memory" hinge causes quiet, even movement of panels to several positions. Doors are top-supported by heavy-duty, extruded aluminum track at the head and hangers of self-lubricating, all-nylon wheels on each panel. Stainless steel latch and jamb mould requiring no morticing of the jamb furnished with each door. Panelfold Doors, Inc., 1090 East 17th St., Hialeah, Fla.

On Free Data Card, Circle **118**

Treated Floors Resist Corrosion, Shock Damage

Floor installations employing linings and coatings by Ceilcote are corrosion proof and resist thermal shock, impact and spalling. Piers in picture (2) were treated with combination of reinforced glass cloth and "Ceilcrete 'B'," a thermosetting plastic. Hot well (3) was lined with Ceilcote acid-proof bricks set with "Corobond," a corrosion-resistant, resinous bonding cement used for brick and tile. Floor (1) was topped with "Corocrete 'A'," which is said to be four times stronger than concrete and several times more abrasion resistant and immune to effects of acids and alkalis. Ceilcote Company, 4832 Ridge Road, Cleveland 9, Ohio.

On Free Data Card, Circle **119**

New Densifier/Retarder Improves Concrete

"Symentard," a blend of chemicals in powder form, reduces water content and retards setting without increasing air content in concrete and mortar mixes, thus producing concrete or mortar of high quality and uniformity. Product reduces cement gel formation, densifies the mix, reduces segregation, provides excellent workability, speeds placement, reduces scum and laitance, combats concrete defects, consolidates better under vibration, and offers additional resistance to cracking throughout the life of the structure. It also accelerates the rate of bleeding from the ordinary 15 to 25%, in the first hour, to 75 to 80%, thus reducing honeycombing. A. C. Horn Companies Division, Sun Chemical Corporation, 2133 85th St., North Bergen, N. J.

On Free Data Card, Circle **120**

Fire-Detection Device Gives Immediate Alarm

An electronic tube smaller than a golf ball is capable of detecting fire by sensing its ultraviolet radiation. Called the "U-V Detector," the tube is insensitive to direct sunlight, normal illumination enclosed in glass, and cosmic or nuclear radiation. As a fire detector, it provides a nearly instantaneous alarm in response to the presence of flame. It can also be used, by an opposite reaction, to detect the absence of flames in boiler fire boxes, furnaces, and other combustion chambers. Several advantages of the U-V Detector over other methods are cited —with thermostatic controls or sprinklers, temperature must reach a certain degree before the alarm is sounded, and the fire already has a considerable head start; with sprinklers, water damage is often greater than that of a fire detected immediately. Device is operative over a temperature range of —75 F to 400 F. Its associated circuitry is simple. Instrument Division, McGraw-Edison Company, Thomas A. Edison Industries, 61 Alden St., West Orange, N. J.

On Free Data Card, Circle **121**

Permanently locks out dirt...

Never needs washing and only Eastern's Star has it! Ludox is DuPont's amazing colloidal silicate which permanently seals microscopic pores . . . forms an invisible film to shut out soil of every description . . . reduces maintenance to an occasional flick of a dust cloth.

Other exclusive Eastern's Star features include wider, stronger S-shaped slats which create the smart one-piece drapery effect . . . and provide greater visibility when open, total darkness when closed. For the ultimate in appearance, performance and maintenance-economy, specify Eastern's Star vertical and horizontal venetian blinds . . . custom-made by franchised manufacturers throughout the U. S. and Canada. Complete details yours for the asking!

** DuPont's registered trademark for its anti-soil compound.*

Eastern Products Corporation
1601 Wicomico St., Baltimore 30, Md.
Please send information on Eastern's Star Venetian Blinds

name

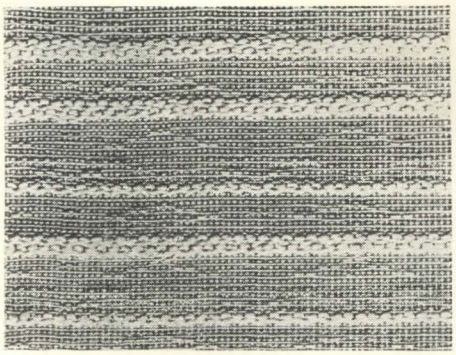
street

city zone state

See our catalog in Sweets 19d ea.

Makers of acoustical materials, drapery hardware, finished metal products for home and industry.

Eastern Products Corporation



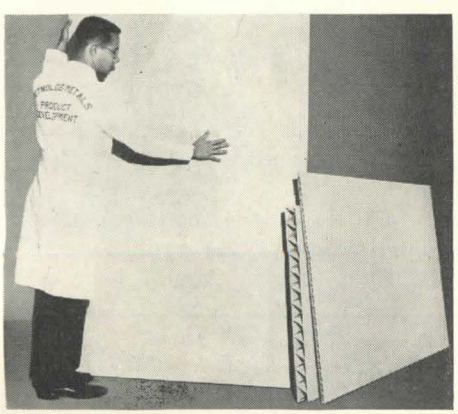
Inexpensive Draperies Are Flame Resistant

Rheims, the horizontal boucle shown, is part of the new Drapel collection of four synthetic drapery fabrics with a handsome textured appearance. The fabric is woven of Rovana saran microtape with a filling of Verel modacrylic and solution-dyed rayon fibers. In addition to flame resistance, the fabric is claimed to have excellent dimensional stability; to resist wrinkling, abrasion, and sunlight deterioration; to be non-allergenic and immune to moths and mildew. Available in pale gold, white, linen, and nutmeg, in 48″/49″-widths, fabric may be washed or cleaned; they retail from $3.98 to $5.49. Spectrum Fabrics Corporation, 261 Fifth Ave., New York, N. Y.

On Free Data Card, Circle **122**

Aluminum Sandwich Panel Is Load-Bearing

An aluminum structural panel has been introduced which is claimed to be the strongest yet. Product is a sandwich of two flat sheets of aluminum bonded by "Reynoweld" to a core of either corrugated or delta-formed aluminum sheet (see sections in photo-



graph). First use of the panels will be on the roof of Paul Thiry's Coliseum 21, theme structure of Seattle's Century 21 Exposition. More than 39,000 panels will go into the job. According to Reynolds, the interior surface of the panel, when perforated, can function as an acoustical panel without destroying the structural qualities. Manufactured in a variety of sizes as well as standard 4′x8′ in ½″, 1″, 2″, and 3″ thicknesses. Some panels may be had on special order in lengths up to 15′. A wide range of baked-enamel colors and embossed designs may be specified. Reynolds Metals Co., Richmond 18, Va.

On Free Data Card, Circle **123**

Stress-Skin Curtain Wall Is Economical, Insulated

A new prefabricated, insulating curtain-wall panel costs as little as $1.60 per sq ft installed, has a stressed-skin design which retains strength and rigidity of costlier panels. Panel skins are aluminum or galvanized steel between which occur glass-fiber bats and ventilated air spaces. Ribs on exterior skins are fluted, 1″ wide by ⅜″ deep on 4½″ centers. Interior skin ribs are V-type, ¼″ deep, spaced to match exterior ribs. Glass-fiber boards of 10½ lb density act as structural shear members between ribs. Panels are available in 2″, 3″, and 4″ thicknesses in a standard 32″ width, 4′ to 20′ length. Dresser-Ideco Co., 875 Michigan Ave., Columbus 15, Ohio.

On Free Data Card, Circle **124**

Pushbutton Operation For Thermostat

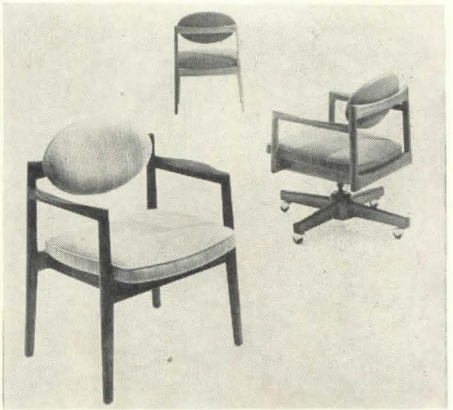
New thermostat offers selective push-button control of heating, cooling, and ventilating operation. Called "Push-Button," device has eight different switching combinations to satisfy the requirements of all heating-cooling systems, whether controlled from a single unit or by change-over to a separate heating thermostat. The compact unit is created by Designer Earl Claus and features "straight-line" styling. White-Rodgers Company, 1209 Cass Ave., St. Louis 6, Mo.

On Free Data Card, Circle **125**

Grout Is Resistant to Acids and Alkalis

A new grout that resists acids and alkalis promises simpler and faster installation of tile in food-processing plants, dairies, breweries, and other areas where acid or alkali conditions exist. Called "Epox-E-Set," the new material is a two-component mixture that can be prepared in large batches on the job. Tiles do not have to be waxed before setting, and priming of surfaces is not needed. Areas can be cleaned with plain water without affecting the bond. An ideal use is in regrouting eroded joints in existing tile floors. The Cambridge Tile Manufacturing Company, Box 71, Cincinnati 15, Ohio.

On Free Data Card, Circle **126**



New Office Furniture Is Introduced

A side chair, an arm chair, and an executive swivel chair each have a sculptured walnut frame holding a crown-shaped latex-foam cushion seat and back. Other new designs include: a series of handsome walnut file cabinets for the executive office; two round conference tables on wood or aluminum legs; new chairs; two-seat and three-seat sofas, with and without arms. Jens Risom Design, Inc., 49 E. 53 St., New York 22, N. Y.

On Free Data Card, Circle **127**

Exchanger Recovers 80% of Exhausted Heat

Claiming to recover over 80% of exhausted heat, with large heat and fuel savings, is new heat exchanger "Rotary-X-Changer." Unit is designed to recover heat from contaminated exhaust air or, conversely, to cool incoming air to air-conditioned space. It is engineered to fit into the intake and exhaust of a ventilation system; a rotary wheel within the unit, filled with heat-absorbing material, absorbs heat from the contaminated exhaust air and transfers it to incoming fresh air. Suggested applications are in hospitals, printing plants, industrial incineration, drying ovens. Heat Recovery Corporation, 671 Mt. Prospect Ave., Newark 4, N. J.

On Free Data Card, Circle **128**

AIR/TEMPERATURE

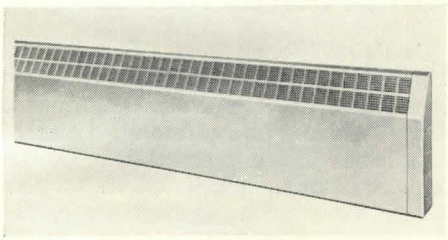
Computing Guide Itemizes Heat Loss

New *Heat Computer* helps to figure heat loss and heating requirements for electrically-heated rooms and buildings. The computer, 4 pages, is accompanied by a detailed booklet, 8 pages, that gives instructions for use. Heat loss in six ways—through windows, doors, walls, ceilings, floors, and by infiltration—is analyzed. Charts showing outside design temperatures throughout the country, and an annual degree-day map, aid in estimating annual cost of operation. Electric Heat Division, Arvin Industries, Inc., Columbus, Ind.

On Free Data Card, Circle **200**

New Fintube Radiation Of Compact Design

New "Sunnywall" type N finpipe radiation is designed to meet heating requirements of commercial, institutional, and industrial buildings where maximum heat output is necessary,



but where only a minimum amount of space is available. Catalog, 22 pages, illustrates a variety of easily-installed enclosures and accessories. Claiming to be one of the most complete lines of fintube radiation available, Sunnywall provides clean convection heating with either forced hot water or steam radiation. Crane Company, 836 S. Michigan Ave., Chicago 5, Ill.

On Free Data Card, Circle **201**

CONSTRUCTION

Load-Span Tables for Precast Channel

Catalog section covering precast-concrete roof and floor channels has been prepared. The 4-page section shows safe superimposed loads for standard 24″-wide channel, with nominal depth of 4″, 6″, 8″, and 12″. Each sheet is illustrated with a dimensional drawing of the channel cross-section. The formula used in figuring loadings is also included. The George Rackle & Sons Company, Newburg Station, Cleveland 5, Ohio.

On Free Data Card, Circle **202**

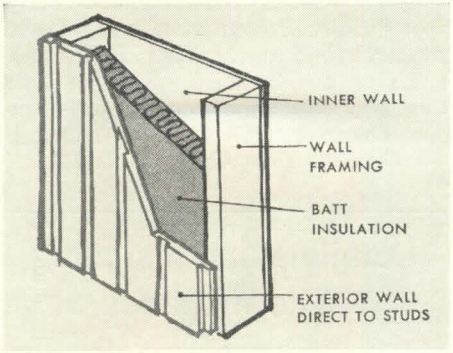
Lintels of Reinforced Masonry

A series of three consecutive *Technical Notes* considers the subject of reinforced masonry lintels. Part I is devoted to materials, properties, and design methods for reinforced brick and tile lintels. Part II contains a further discussion of reinforced brick lintels, which are widely used for their distinct advantages over structural steel lintels—savings due to steel reduction, elimination of painting, and additional safety through built-in fireproofing. Part III is devoted to reinforced tile lintels, which are often chosen for the ease with which they are constructed, since they are easily precast, as well as built in place. Each issue contains 4 pages. Recommendations are based on the *American Standard Building Code Requirements for Reinforced Masonry,* adopted in 1960 by the American Standards Association. Structural Clay Products Institute, 1520 18th St., N.W., Washington 6, D. C.

On Free Data Card, Circle **203**

Plywood Serves as Siding and Sheathing

An economical siding system, which combines siding and sheathing in the form of resin-overlaid, fir-plywood panels, is described in 12-page brochure. Advantages of various "Sturdi-wall" installations are outlined. Specifications cover Texture One-



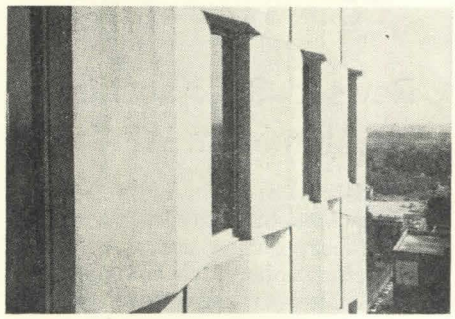
Eleven, board-and-batten style, and wide-lapped siding. Brochure also gives insulation factors for all areas of the U. S., details bracing-strength factors, and provides blank tables for computing comparative in-place costs. Douglas Fir Plywood Association, 1119 A St., Tacoma 2, Wash.

On Free Data Card, Circle **204**

Interior/Exterior Uses Of Masonite Products

1960 edition of *Masonite Construction Manual,* which contains data on interior and exterior uses of hardboard, has been released. Catalog, 28 pages, gives descriptions of the various products, tables of properties, list of available sizes, directions for working with "Presdwood," and application details. Complete product information is also included for two new interior products —the "Panelok" wall system and "Royalcote" cherry panels. Service Bureau, Masonite Corporation, 111 W. Washington St., Chicago 2, Ill.

On Free Data Card, Circle **205**



Curtain-Wall Panels Of Concrete

Handsome 32-page booklet, *Concrete Curtain Walls,* gives a comprehensive and colorful presentation of its subject. Several full-page spreads show prominent examples of concrete curtain walls; later sections of the booklet give information on choosing a curtain wall—considering factors of color, texture, pattern, panel shape, cost, availability, and maintenance. Typical attachment methods are clearly detailed. Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill.

On Free Data Card, Circle **206**

Revised Specification For Cold-Formed Steel

1960 edition of the *Specification for the Design of Light Gage Cold-Formed Steel Structural Members* replaces the previous edition published in 1956. This specification is accepted as the design standard for cold-formed steel structural members in the leading national building codes, as well as

in many municipal and state codes. It has received national and international recognition since its initial publication 14 years ago. The new edition reflects considerable research on the performance of structural members formed from steel sheet and strip. An increase in the basic design stress from 18,000 psi to 20,000 psi for steels having a yield point of 33,000 psi is one of the important revisions. The specification will now be applicable to the design of members formed from steel up to ¼" thick; previous editions applied only to material less than 3/16" thick. Contents of 32-page specification include design procedures, allowable design stresses, connections, bracing requirements, and tests for special cases. American Iron and Steel Institute, 150 E. 42 St., New York 17, N. Y.

On Free Data Card, Circle **207**

DOORS/WINDOWS

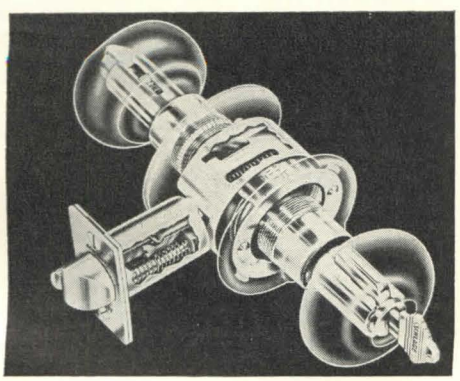
Revised Specifications For Aluminum Windows

1960 edition of *Aluminum Window Specifications*, 32 pages, has been published, incorporating many changes in the specifications since last published in 1958. New or expanded treatment has been given to such subjects as alloys, material thickness, fasteners, fin trim, tolerances, and protective coatings. Significant revisions have been made in the double-hung, awning, jalousie, horizontal and vertical sliding-window specifications. Aluminum Window Manufacturers Association, 630 Third Ave., New York 17, N. Y.

On Free Data Card, Circle **208**

School Locks For Every Purpose

Hardware for Schools, 12 pages, describes features and styles of various designs found suitable for schools.



Unique selector chart lists each area of a school, showing the locking mechanism required for each door, and indicating the appropriate model that meets these demands. Construction, finishes, and installation of locks are discussed. Schlage Lock Company, 2201 Bay Shore Blvd., San Francisco 19, Calif.

On Free Data Card, Circle **209**

Stainless-Steel Framing Can Be Estimated

Folder, 6 pages, with attached estimating sheet, helps to determine the cost of "Excel-Framing" stainless-steel doors and store fronts. Data attempts to refute the idea that stainless-steel framing is excessively expensive by showing actual costs of contemplated projects. Numerous cases are estimated. Folder does not give construction or installation details; rather it is intended as a working supplement to standard catalog. Schacht Associates, Inc., 1175 E. 156 St., New York 59, N. Y.

On Free Data Card, Circle **210**

Color-in-the-Glass Curtain-Wall Components

New catalog presents "Thinlite" curtain-wall system, which features new "color-in-the-glass." System is a complete, integrated, curtain wall, incorporating framing system, gasketing, and variety of panels. Panels include windows and spandrels of glass (or porcelain enamel over foam-glass core) in widths up to 5'. Additional units, up to 12" x 12", have ceramic or "solar-selecting" color. Catalog, 12 pages, includes dimensions, erection, and details of components. Further technical data discusses recommended strut spans, thermal insulation, and tests of strength and durability. Full specifications are included. Kimble Glass Company, Subsidiary of Owens-Illinois, Toledo 1, Ohio.

On Free Data Card, Circle **211**

Detailing and Installing Thermopane

Ordering and Installing "Thermopane", 8 pages, gives extensive information for detailers, specifiers, and builders. Data includes description of the two types of Thermopane, size limitations, suggested specifications, standard sizes, and list of sliding-door manufacturers. Details are shown for neoprene setting blocks and metal glazing clips. Glazing instructions insure a satisfactory installation and full warranty given by manufacturer. Installation of Thermopane in a simple wood frame is amply described, with cross-sectional details and sequence of steps. Libbey-Owens-Ford Glass Company, 811 Madison Ave., Toledo 3, Ohio.

On Free Data Card, Circle **212**

Reference Catalog On Residential Hardware

A new *Residential Hardware Reference Book*, 12 pages, is now available. It suggests the proper hardware for swinging, sliding, by-passing, bi-fold, and surface-mounted doors. A general reference guide on hinge sizing is included. Stanley Hardware Division, The Stanley Works, Dept. PD, 195 Lake St., New Britain, Conn.

On Free Data Card, Circle **213**

ELECTRICAL EQUIPMENT

Electrical Installations In Corrosive Areas

"Condulets" for Corrosive Locations is the title of new 20-page bulletin from manufacturer of electrical equipment that is used under many different conditions causing corrosion. Corrosive substances are listed in tabular form, along with appropriate corrosion-resistant metals and finishes used in Condulets. Booklet also contains listings of "Plast-A-Coat Condulets" for hazardous locations of electrical installations. Crouse-Hinds Company, Wolf & Seventh St. N., Syracuse 1, N. Y.

On Free Data Card, Circle **214**

Low-Impedance Bus Duct

Application data for low-impedance bus duct is contained in new 20-page booklet. The descriptions, drawings, dimensions, specifications, engineering and test data in the publication give specific information needed to design, specify, and install this type of bus duct, which is used to conduct large amounts of power over long distances with a minimum voltage drop. All features and fittings of the system are fully described. Westinghouse Electric Corporation, P. O. Box 2099, Pittsburgh 30, Pa.

On Free Data Card, Circle **215**

ARCHITECTS
Welton Becket and Associates,
Los Angeles and
San Francisco, Calif.
WALL CONTRACTOR
Kawneer Richmond
GENERAL CONTRACTOR
Robert E. McKee, Los Angeles

high, wide and watertight

Kawneer Split-Mullion curtain wall prevents leakage . . . Kawneer factory-fabrication minimizes on-site costs!

Magnificent design gives the new Kaiser Center office building's delicately curved facade lasting impact and beauty. . . Kawneer engineering makes it watertight for keeps.

Enclosing a 420-foot long, 390-foot high structural frame, the graceful, gold-colored wall was designed by Welton Becket & Associates and Kawneer Company, and fabricated in Kawneer's new Pacific Coast plant in nearby Richmond, Calif.

Over 600 tons of Kawneer aluminum products went into the great, new Kaiser Center buildings at Oakland, including the curtain wall, store fronts, doors, entrances, and concealed overhead closers, ornamental railings, interior paneling, and a variety of decorator's items.

Engineering, fabricating and erecting all materials supplied is typical of Kawneer's ability to handle large curtain wall jobs and related specialty items *anywhere*.

Kawneer responsibility begins with engineering aid to the architect, extends through the most complete guarantee in the industry.

If you have a curtain wall building in the planning stage—and would like it to be watertight—have your secretary mail the coupon below to have a Kawneer Curtain Wall Specialist call.

Serving Architecture and Industry
Kawneer
General Offices
NILES, MICHIGAN
ARCHITECTURAL PRODUCTS DIVISION
since 1906

West Coast Plant
600 Parr Boulevard, Richmond, Calif.

Kawneer materials available outside the U.S. through
Kawneer International Limited
Kawneer de Mexico S.A. de C.V.
Apartado 73 Naucalpan de Jaures Estando de Mexico, Mexico
Kawneer Company Canada Ltd., Toronto, Ontario
1460 Don Mills Road, Don Mills, Ont.

(tear out and mail)

*Your name*_____
*position*_____
*company*_____
*address*_____
*current project*_____
*information desired*_____

Lighting for Theatres Described in Detail

New catalog, *Theatre Lighting,* contains 101 pages of authoriative information on all types of stage lighting, and gives lighting layouts for 10 different types of performance areas, ranging from the simple lecture platform to the large outdoor amphitheatre.

Documentary articles on lighting, and comparative charts on the performance of various instruments, are presented. Extensive information is presented on lighting-control devices, including the latest electronic types. Architectural details show the requirements for installing stage-lighting instruments in wall and ceiling slots, booths, etc. Century Lighting, Inc., 521 W. 43 St., New York 36, N. Y.

On Free Data Card, Circle **216**

Industrial Lighting

Lighting units for industrial assembly, sign boards, and gymnasiums are presented in new *Industrial Incandescent Lighting* catalog. The 32-page catalog illustrates units for general lighting and specific industrial needs. Reflector holders, lampholders, lamp extensions, and reducers are shown. Detailed specifications are included, along with suggestions for using and installing particular units. Benjamin Division, Thomas Industries, Inc., 410 S. Third St., Louisville, Ky.

On Free Data Card, Circle **217**

FINISHERS/PROTECTORS

New Paints for Corrosion Resistance

Two bulletins on anti-corrosive paints each 1 page, have been published. *Technical Bulletin No. 5* is devoted to "Aluminox" and "HR" (heat resistant) paints, used where decoration is desired together with resistance to heat and chemicals. There are five different aluminum paints designed for specific interior or exterior purposes. Of special interest are two rust-inhibitive primers for high-temperature exposures, designed to triple the life of silicone-based, high-temperature paints. *Technical Bulletin No. 6* describes "Double Coat" paints, which yield a dry-film thickness equal to two standard coats, with a single brush or spray application. These paints are a result of new developments in resin technology that overcome previous weaknesses in the production of heavier coatings. Subox, Inc., Fairmount Plant, Hackensack, N. J.

On Free Data Card, Circle **218**

Epoxy Coating Protects Wall Surfaces

A new continuous tile-like wall material, "Armobond," has been developed for institutional and commercial interiors. This engineered system of odorless-epoxy protection is intended for any wall material—plaster, wood, metal, plastics, masonry, concrete, cinder block, cement block, wallboard, and particle board. It dries to a smooth glazed finish that is durable, waterproof, and uniquely resistant to abrasion and chemical corrosion. Armobond is also economical—approximately one-half the cost of tile and one-third the cost of vitrified block. Folder, 4 pages, contains complete details as to price, usage, specifications, and comparisons with other materials. Deerfield Coatings, Inc., South Deerfield, Mass.

On Free Data Card, Circle **219**

INSULATION

Expanded Polystyrene for Varied Insulation Uses

Details on expanded-polystyrene products, which provide an excellent insulative vapor barrier in a large variety of building uses, are contained in new 6-page brochure. Included in brochure are directions for use of "Cellulite" sheets and blocks as an insulating plaster base, as shingle backer, as cavity-wall insulation, roof insulation, perimeter insulation (to pass FHA requirements), and in flotation applications. Newest addition to the Cellulite line is flexible Cellulite, a soft material which is easily formed to shape for water-tank insulation or low-temperature pipeline wrapping. The Gilman Brothers Company, Gilman, Conn.

On Free Data Card, Circle **220**

Sound-Control Products For Unusual Problems

New 20-page catalog contains a complete listing of sound-absorptive, sound-isolating, and special-purpose acoustical materials. The catalog presents pictures of all products, coupled with general and technical descriptions. Products are grouped in accordance with their combustibility rating and method of application. Several pages are devoted to special acoustical products for unusual acoustical purposes in commercial and industrial construction. Acoustical Division, Elof Hansson, Inc., 711 Third Ave., New York 17, N. Y.

On Free Data Card, Circle **221**

Improved Duct Liner of Dual-Density Insulation

New "Micro-Bar" dual-density glass-fiber duct liner is described in 8-page brochure. Material is a resilient, semi-rigid blanket composed of a strong glass fiber bonded by a thermosetting resin to form two different densities of insulation—a tough, heavy density on the surface, to resist air erosion, and a lighter density underneath, to give greater sound absorption and thermal insulation. Bulletin contains illustrations of various application techniques, including formation of joints that eliminate use of coatings, sealers, or metal nosings at leading edges. Complete specifications for various thicknesses of Micro-Bar are included. Johns-Manville Corporation, 22 E. 40 St., New York 16, N. Y.

On Free Data Card, Circle **222**

SANITATION/PLUMBING

Group Facilities For Washing, Showering

New Directions in Contemporary Washrooms is a 4-page brochure on facilities which are able to accommodate several persons simultaneously. Fixtures described are circular, group washfountains, "Duo" washfountains; group showers (circular multistall, semi-circular multistall, column, and wall-mounted) for two to five persons; and multiple-head drinking fountains. Minimum clearances for these togetherness fixtures are indicated. Bradley Washfountain Company, 2203 W. Michigan St., Milwaukee 1, Wisc.

On Free Data Card, Circle **223**

Transite Pipe for Plant Fire Lines

The advantages of asbestos-cement "Transite" pipe for fire-protection systems in industrial plants are de-

scribed in new 8-page brochure. Product's performance properties—its dependable delivery of water at the pressure needed and at minimum cost—are outlined. Among the product's characteristics are corrosion resistance, high-flow capacity, excellent weight-strength ratio and tight joints that prevent leaks. Transite is recognized by the leading fire-underwriting agencies. Brochure illustrates a typical arrangement of a plant fire-protection system, from tank or well to connections to building supply and hydrants, including correct location of fittings and outlets. In addition, it includes complete design data with suggested procedure for laying out a loop, anchoring fire mains, and testing Transite fire lines. Guide specification is included. Johns-Manville Corporation, 22 E. 40 St., New York 16, N. Y.

On Free Data Card, Circle **224**

SPECIAL EQUIPMENT

Steel Shelving

Complete line of industrial and commercial steel shelving is published in new 36-page catalog. Booklet contains full information on boltless T-line shelving, angle shelving, tool-storage inserts, drawer-case units, bin units, custom-shelving arrangements, and truck shelving. Also included is a section on steel lockers, storage cabinets, and bookcase shelving. Typical applications are discussed, to aid in selecting the most suitable type of shelving for an economical and efficient installation. Specifications for each type are listed, as well as tables of dimensions

and capacities. All units are illustrated. Penco Division, Alan Wood Steel Company, 200 Brower Ave., Oaks, Pa.

On Free Data Card, Circle 225

Pocket Guide to Incinerator Selection

Pocket-size (4¼″ x 11¼″) "Incinerator Selector" simplifies the selection of appropriate incinerators for various installations. Operating like a slide rule, selector helps determine not only the type, but also the size, of incinerator for such diverse applications as apartment houses, snack bars, cafeterias and restaurants, clubs, department stores, hotels and motels, hospitals, institutions, supermarkets, office buildings, schools, and warehouses. Selector takes into account the variable factors (of types of waste, and number of meals, persons, beds, etc.) and eliminates complicated computing. Morse Boulger, Inc., 80 Fifth Ave., New York 11, N. Y.

On Free Data Card, Circle 226

Master TV Systems

Designing and Installing Master TV Systems is a 20-page manual giving comprehensive data for installing any number of outlets in one or more buildings. The various components which comprise a system, and their functions in a system, are fully described. Master TV systems are grouped into four basic categories, with listings of the components of each and the types of buildings into which they can be installed. Charts and tables simplify the calculation and design of any specific job. *Write* (enclosing $.75) to: Blonder-Tongue Laboratories, Inc., 9 Alling St., Newark 2, N. J.

Drafting Pencils

Comprehensive, 24-page catalog presents a wide variety of items for the execution of drawings with good reproducing qualities. Among products described are the new "Mars-Lumograph Duralar" pencils, especially designed for work on drafting film; the "Mars-Lumochrom" pencils, designed for color coding on tracings; nonreproducing pencils, for making temporary work notes on drawings; and a large selection of other drafting pencils, leads, and holders. J. S. Staedtler, Inc., 25 DiCarolis Court, Hackensack, N. J.

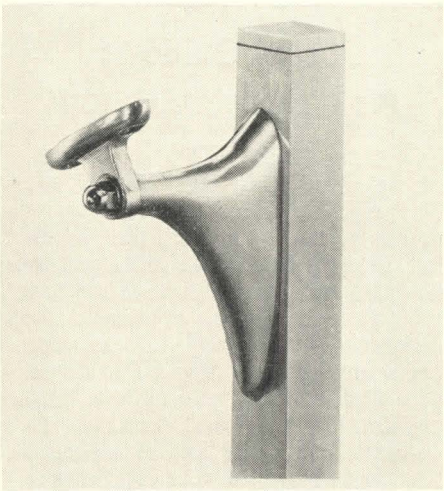
On Free Data Card, Circle 227

Electric Equipment For Commercial Kitchens

Food Service Magazine has announced publication of its 17th annual *Fact Book of Commercial Electric Kitchen Equipment.* The largest and most comprehensive edition to date, it includes the following features in its 84 pages: 445 product listings, illustrated and described in detail as to electrical specification, performance, and price; 97 leading manufacturers; and 21 major categories of equipment, including electric ranges, ovens, coffee makers, steam cookers, refrigeration equipment, waste disposals, etc. Book has long been recognized as an invaluable reference tool and buyer's guide. *Write* (enclosing $1.00) to: *Food Service Magazine,* 2132 Fordem Ave., Madison, Wisc.

Extrusions in Plastics

New 72-page booklet deals exclusively with custom extrusions of plastics. The booklet includes several articles on the design and application of extrusions, up-to-date property tables, short descriptions of materials, and over 700 cross-sectional diagrams of extruded moldings. *Write* (on letterhead) to Anchor Plastics Company, 36-36 36th St., Long Island City 6, N. Y.



Hand-Rail Brackets For Thin Posts

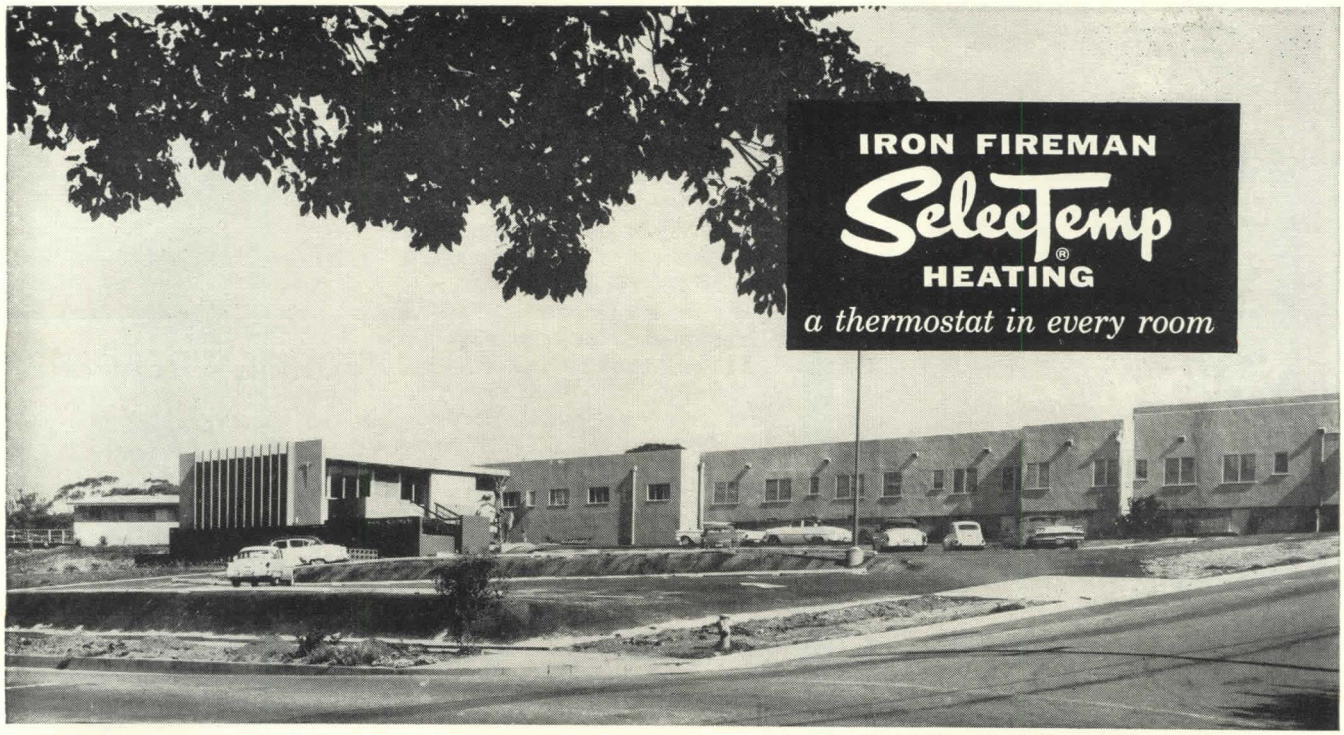
New hand-rail bracket for use on thin posts is described in 4-page folder. Featuring concealed mounting, the new product is known as "Ariston Thin-Line Bracket." It is adjustable on the surface of the post and can be used on posts as narrow as 1¼". The brackets are available in aluminum from stock, and in bronze on special order. Folder also includes photos and data on other models, all featuring concealed anchorage and all adjustable in any direction on the wall surface. Dept. AM, Michel & Pfeffer Iron Works, Inc., 212 Shaw Rd., South San Francisco, Calif.

On Free Data Card, Circle 228

SURFACING MATERIALS

Vinyl Surfacing for Computer Rooms

New 12-page booklet aids in the selection and maintenance of resilient surfacing for pedestal floors used with electronic computers. The pedestal—or raised-panel—floor has proven especially valuable in computer installations where heavy equipment and its complicated wiring can be easily and economically relocated. Special requirement, however, is a high-quality surfacing material, with good resistance to indentation under heavy equipment, excellent dimensional stability



Oceanside Hospital, Oceanside, California. (92 beds). Ellis C. Zahniser, co-owner and manager. SelecTemp installation by Baker Roofing and Sheet Metal Co.

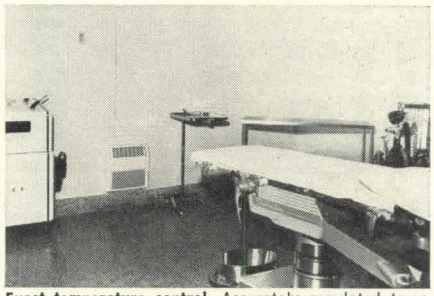
"Desired temperature immediately available in any room"

says Manager, Oceanside Hospital, Oceanside, Calif.

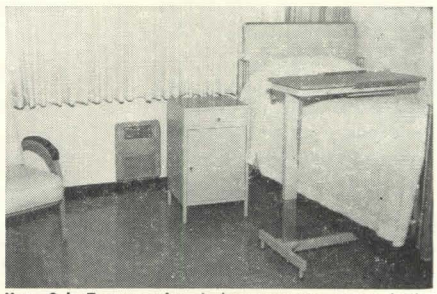
A modulating, air-circulating, steam heating system with individual room temperature control. Iron Fireman SelecTemp heating is a new and unique low pressure steam system in which each room is a separate heating zone. The room heating units circulate warm air throughout the room. The same steam that warms the air also drives the circulating fans. Fans and thermostats are non-electric—no wiring required. Both temperature and volume of the circulated air are automatically modulated to balance the heat loss from the room.

With this room-by-room zone control, SelecTemp heating does away with the imbalance that results when a cold wind strikes one side of a building while the other side is absorbing heat from the sun. Each room gets just the heat it needs.

Economical to install and operate. With all of its advantages, SelecTemp heating costs no more than many conventional systems that do not have room-by-room temperature control. Operating costs are extremely low. First, because no fuel is wasted through overheating. Second, because temperatures can be turned down in unoccupied rooms—with quick reheating when they are again needed. Third, because of the innate heating efficiency of the system itself.



Exact temperature control. Accurately regulated temperature is often critically important in the surgeries. The SelecTemp unit shown here maintains the temperature desired. A further important point in an operating room is that the unit is non-electric—spark-free and safe in rooms where inflammable gases are present.



How SelecTemp works. A low pressure steam boiler (which can be located anywhere in the building) supplies steam to each room heating unit. Each unit contains an all-copper heat radiator, air filter, steam-driven circulating fan, and an accurate, modulating non-electric thermostat. No wiring needed. Recessed in wall, units require no floor space.

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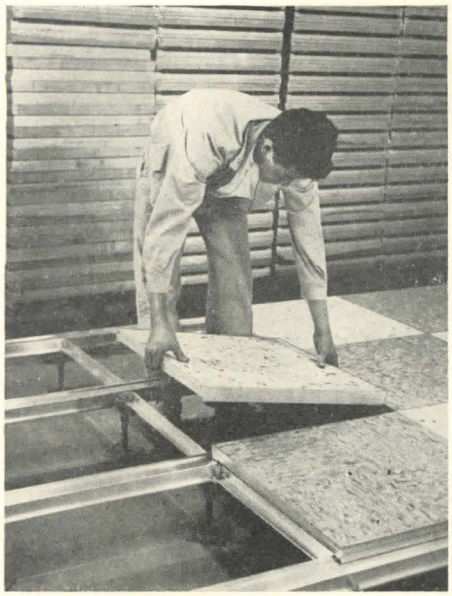

and uniformity, electrical insulative properties, and the ability to maintain its finish under heavy traffic. Booklet describes the physical characteristics of "Custom Corlon" homogeneous-vinyl tile in relation to the requirements of the panel-floor surfacing, gives sizes and patterns available, and provides installation data. Industrial Division, Armstrong Cork Company, Lancaster, Pa.

On Free Data Card, Circle **229**

Longer Life for Industrial Floors

The ability of "Masterplate" concrete floors to last six times longer than ordinary concrete floors is carefully detailed in new 24-page bulletin. Important features in the design of any heavily-used industrial floor are discussed: wear and corrosion resistance, economy, spark resistance, static dissemination, color, and non-slip, non-dusting, easy-to-clean surfaces. Facilities where Masterplate "iron-clad" concrete floors have been installed are shown with photographs, diagrams, and thorough explanations of installation procedures. The Master Builders Company, Cleveland 18, Ohio.

On Free Data Card, Circle **230**

Concrete-Block Units For Decorative Facing

New 8-page brochure on "Yucatan Stone Sculpture" illustrates each of 18 motifs and shows examples of their use as exterior and interior facing. Units are three-dimensional cast-concrete blocks, reinforced with heavy-gage metal mesh, and are approximately 12" x 12" x 1½" to 2" thick. Slots provided in top and bottom of each stone will receive galvanized-metal anchors for installation. Two or more motifs can be arranged in a variety of original and decorative combinations. Art for Architecture, Inc. 134-12 Atlantic Ave., Richmond Hill 19, N. Y.

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PROGRESSIVE ARCHITECTURE
NEWS REPORT

REINHOLD PUBLISHING CORPORATION
430 PARK AVENUE NEW YORK 22, N.Y.

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December 1960 **PROGRESSIVE ARCHITECTURE**

REINHOLD PUBLISHING CORPORATION
430 PARK AVENUE, NEW YORK 22, NEW YORK

CONTENTS

St. Joseph's Academy

ST. JOSEPH'S ACADEMY • BROWNSVILLE, TEXAS • CAUDILL, ROWLETT & SCOTT, ARCHITECTS-ENGINEERS • WILLIAM PENA, PARTNER-IN-CHARGE • CHARLES LAWRENCE, PROJECT ARCHITECT

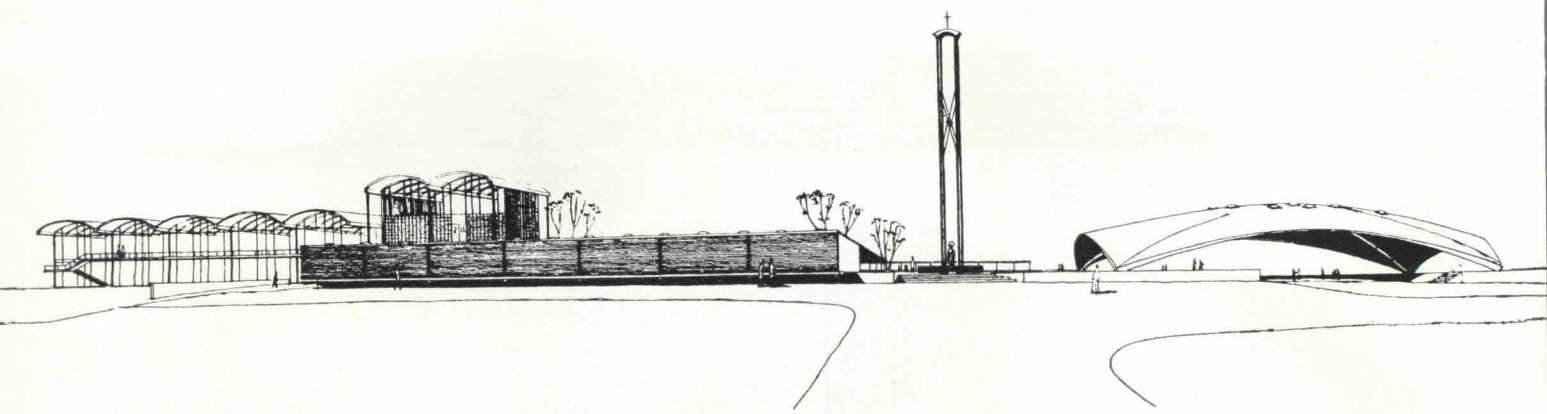
The architects were given no revolutionary educational program as a basis for the design of this academy. They were asked rather to create, within a limited budget, the finest possible setting for a conventional program. The client wanted the buildings to be technologically up-to-date and flexibly planned to meet possible future needs; but the primary design objective was to give the school a character "symbolic of a living religion and a dynamic education."

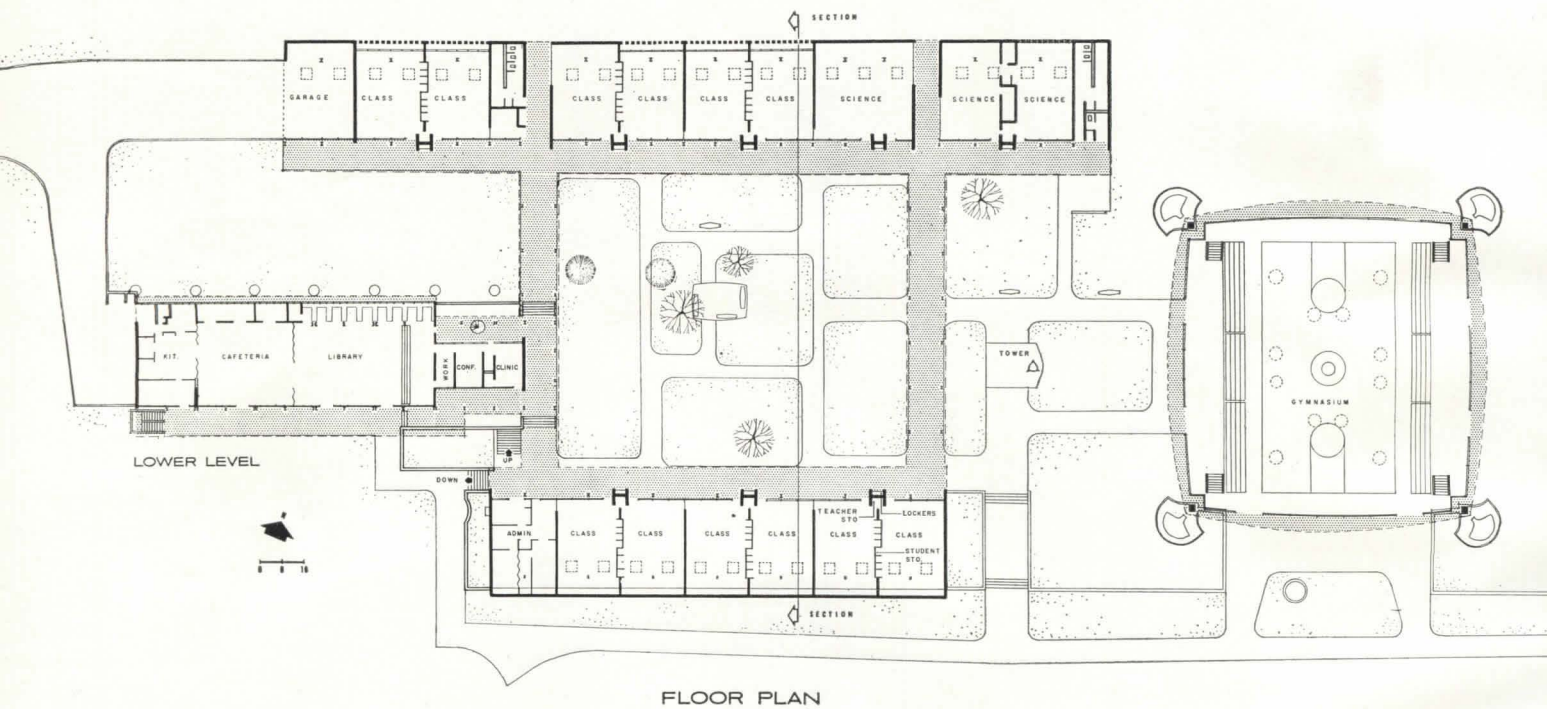
The program called for teaching and recreation facilities for 500 boys in grades seven through twelve, and living quarters for the teaching brothers. The site overlooks a park development along the Resaca River to the south. The main approach is by way of a bridge across the river. The road pattern includes a separate service drive and permits free access to the park from the school.

The functions of the academy are organized on three levels, making advantageous use of slight variations in elevation. Classroom wings flank the central court at the highest part of the site; the library-cafeteria and the gymnasium are a half-story below; the chapel and living quarters are a half-story above.

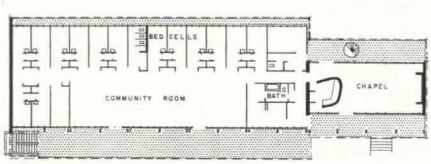
The spiritual character of the school is expressed in the cloister form of the court and the elevated position of the chapel at the end of it. A tower marks the position of the statue of St. Joseph at the crossing of the main axis and the axis of the approach. The curved silhouettes of the major elements—chapel, tower, and gymnasium—distinguish them from the flat-roofed classroom wings.

Photos: Roland Chatham



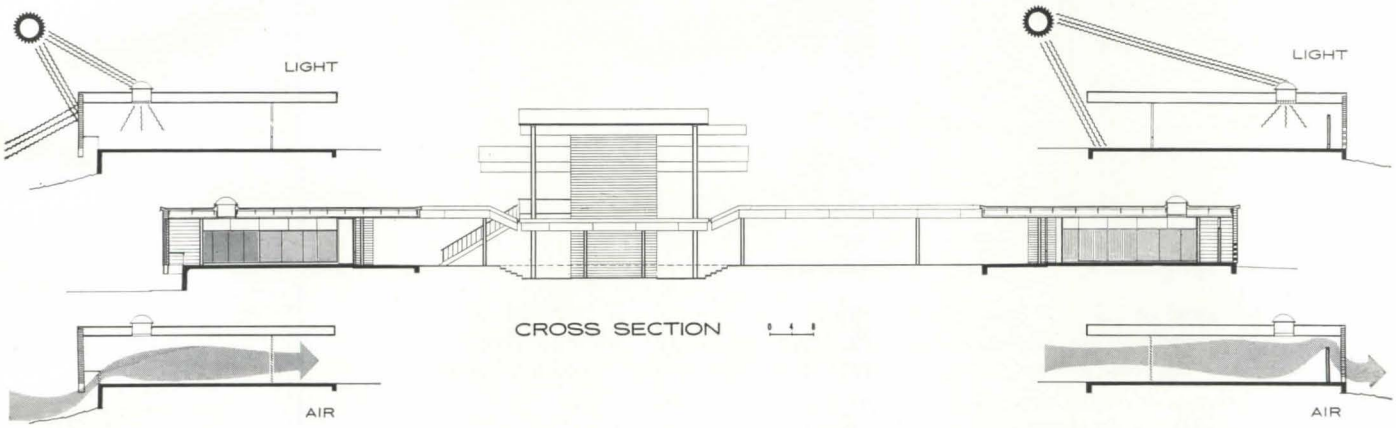


FLOOR PLAN



UPPER LEVEL

LEVELS DIAGRAM



The design of a comfortable environment without air conditioning in the subtropical climate required careful attention to natural ventilation and sun control. The two parallel classroom wings are one-room deep with open corridors, and are situated to take advantage of prevailing southeast breezes. To provide optimum conditions of lighting and ventilation, the traditional functions of the window—lighting, ventilation, and view—have been separated.

Provisions for natural lighting and ventilation of the classrooms are illustrated above. A windowless brick wall supported on a concrete beam protects the south wing from direct sunlight. Air passes under this wall and enters the rooms through operable metal louvers in a counter along the wall. Jalousies, mostly at seating level, permit the air to pass out to the open corridor. In the north wing, air is introduced through jalousies along the corridor and let out through operable opaque sash high on the north wall. An outer brick wall with perforations near the ground affords protection from rain and cool north winds.

The inner areas of the classrooms are lighted through plastic skylights, with louvers at the ceiling. Roofs over the covered walks eliminate direct sunlight from the glazed walls and reduce glare.

The view from the classrooms is directed inward to the court; the prospect of the football field to the north was considered uninspiring and that of the river and the parking area to the south, distracting. The inward view impresses the student with the unity of the school, and preserves his sensitivity to the broader outlook from other spaces.

The chapel and the library share the focal position between the classroom wings. Elevation above the court level gives prominence to the chapel and privacy to the adjacent living quarters, without reducing their accessibility. The library, the cafeteria, and the brothers' community room overlook the park and river.

Jalousies in the outside walls and louvers in the doors to the bed cells permit through ventilation of the living quarters. The 7′-high partitions between the cells preserve the visual form of the exposed wood vaults.

The chapel is enclosed with porcelain panels and glare-reducing glass; the interior walls are of brick, with glass mosaic on the altar wall.

Economies have been effected through the multiple use of spaces. A folding wall permits the library and the cafeteria to be combined as an assembly room, with a platform at the library end. The scheduled life of the brothers permits their community room to serve also as a corridor and work space.

In the classroom wings, low ceiling heights and open corridors yielded economies. The orientation of the rooms, with the narrow sides exposed, minimized the length of perimeter walls, reducing construction costs. The structure of these wings is simple and repetitive; exposed steel members and bar joists, with wood partitions between rooms.

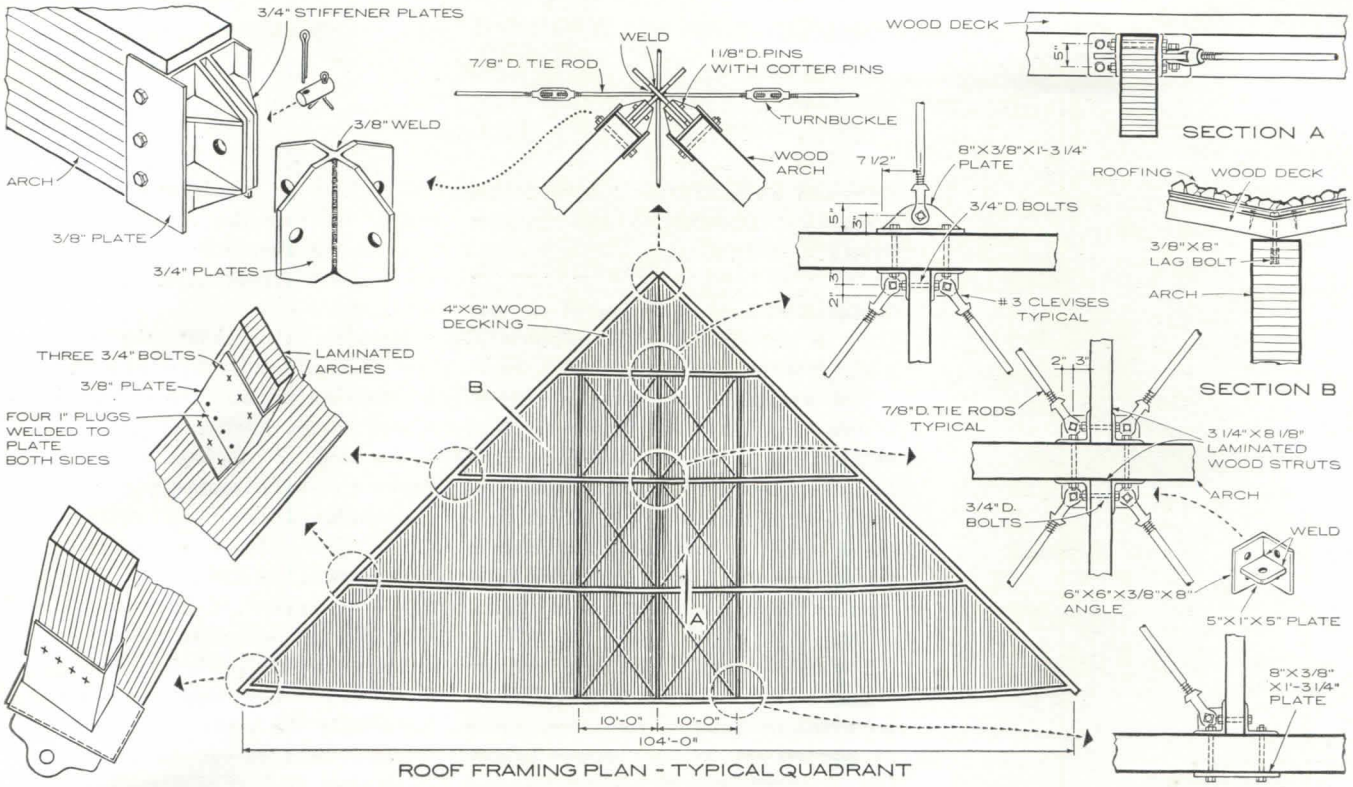
The entire project was constructed for $10.97 per sq ft, excluding the cost of furnishings and equipment, site, and fees. The academy can be expanded in the future by the construction of a third parallel wing to the north or by the eastward extension of the north wing to house additional classrooms and locker space for the gym.

The gymnasium is located at the end of the court opposite the living quarters, so that evening activities there need not disturb the brothers. Like the library-cafeteria, the gym is conceived as a multiple purpose space. It has bleachers seating 500 persons, with additional chairs stored behind them. It can be used for all large assemblies, including weekly masses for the entire student body.

Considerations that led to the form of the gymnasium were desires for minimum wall height, with a feeling of spaciousness; simplicity, through the repetition of components; and resistance to wind load (the airfoil shape allows wind to reduce gravity stresses).

In selecting materials for the structure, a concrete shell and steel arches were each investigated, but estimated costs were excessive. The laminated-wood arches give the necessary economy, plus ease of fabrication to the curve, structural adequacy in the desired size and proportions of members, and a warmth of tone and texture.

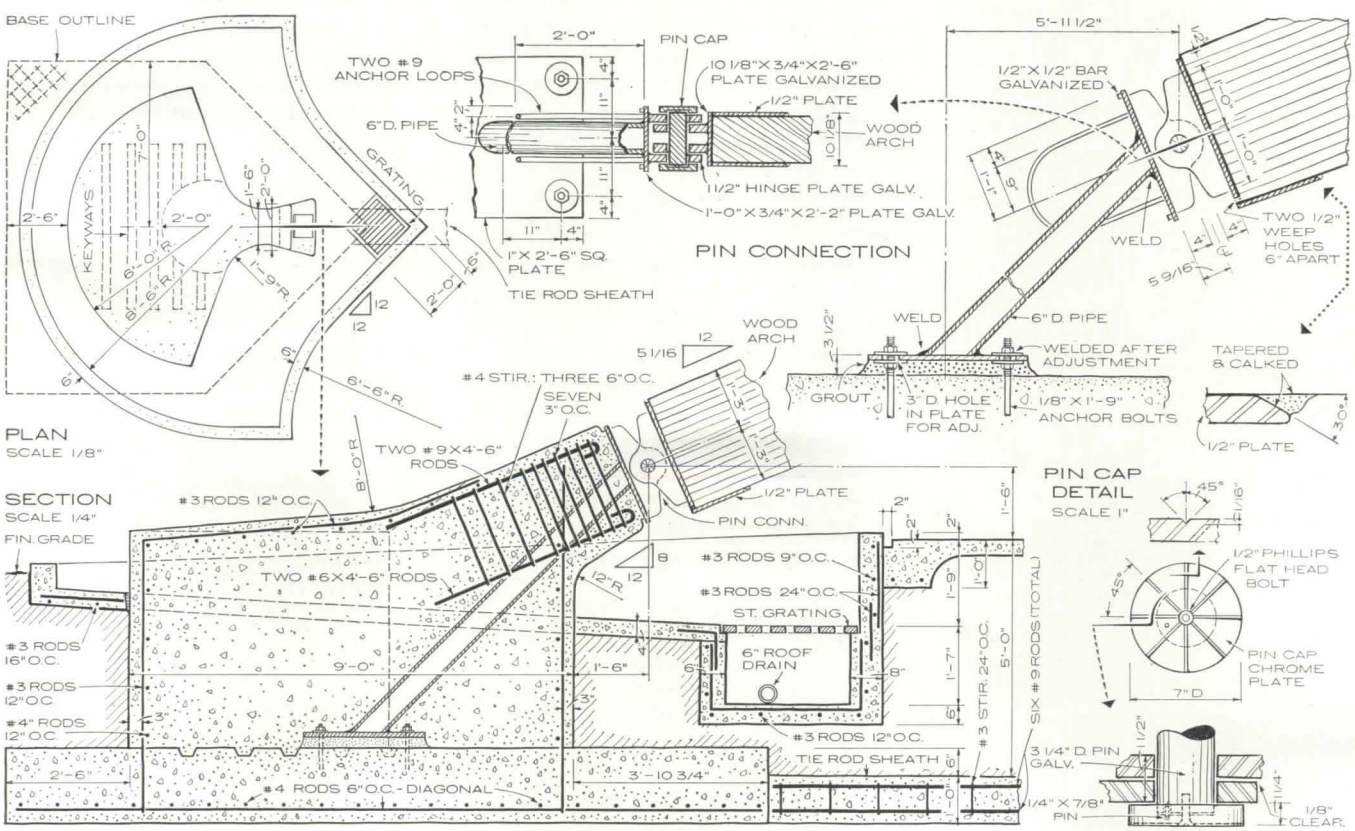
Diagonal arches are three-hinged; quadrant arches are two-hinged. Efficiency of the system was revealed by a reduction of bending in the diagonal arches (caused by horizontal thrust of quadrant arches), as compared to gravity loads alone on diagonal arches. Structural-design factors for the roof



were dead and live loads of 20 lb/sq ft each, and wind load of 25 lb/sq ft.

Combined gravity load and wind load on each buttress is 170 kips vertically, 300 kips horizontally. Because of the high horizontal thrust, underfloor ties are used. Reinforcing bars anchored across buttress footings are encased in concrete and extend diagonally under the floor. Spread footings are designed as retaining-wall foundations to resist vertical and overturning loads.

With the low rise of the arches, horizontal thrust is proportionately greater than for Saarinen's Kresge Auditorium dome at MIT. But since the total loading of the St. Joseph's buttresses is less than that at MIT, the buttress design is correspondingly lighter and simpler. (For a discussion of the MIT dome, see JUNE 1954 P/A.)



Environment for Art

LOUISIANA ARTS MUSEUM • HUMLEBAEK, DENMARK • JOERGEN BO AND VILHELM WOHLERT, ARCHITECTS

Louisiana is the realization of an idea that the arts can best be appreciated when they are shown together in a detached setting. It was with this concept in mind that Knut W. Jensen acquired an old villa on the coast of The Sound 18 miles north of Copenhagen and established the Louisiana Foundation. Jensen felt that visitors out for a drive in the country would be in a suitably carefree, receptive mood for the enjoyment of art.

The nobleman who had developed the estate over a century ago called it Louisiana in honor of the three women he married—all of them named Louise. Out of respect for such fidelity, the name was retained for the museum.

New construction was planned to make the most of the site without disfiguring it. The almost ascetic aspect of the exterior contrasts with the richness of the landscape. Walls of whitewashed brick stand out among the trees and yet harmonize with the original building.

Interiors were designed for the exhibition of paintings, sculpture, handicrafts, and furniture—shown together as related expressions of the same times and influences. The galleries are intended to reproduce conditions under which works would be seen in private homes.

The visitor enters the museum through the old villa; his first impression is of the estate in its original condition. The new portion is planned for variety—and an occasional surprise—in its sequence of spaces and outlooks.

Areas for relaxing between galleries were an important part of the program. In these the visitor may pause to reflect, proceeding to further exhibits with a refreshed mind. Furniture chosen for display is grouped in these spaces; the maintenance and replacement entailed were felt to be justifiable costs. At the end of his tour the visitor finds a library facing The Sound, with provisions for reading, conversation, or light refreshment.

Materials throughout the galleries are cheerful and unpretentious. The whitewashed brick of the exterior is repeated on the interior as an agreeable background for paintings. More delicate works are shown against panels of fine grasscloth. Natural-wood ceilings and dark clinker floors complement the brightness of the walls.

The prevalence of low ceilings and side lighting enhances the residential character of the galleries. Sunlight is introduced to the closed rooms through lanterns in the roof; this system concentrates light on vertical surfaces and emphasizes the form of three-dimensional objects. Direct overhead illumination is used rarely, and only for special effects. Curtains have been installed to keep out direct sunlight, but a glimmer on a painting here and there is permitted. One room is artificially lighted for the display of water colors.

The museum also provides for activities other than exhibits of visual art. Concerts, recitals, dramatic performances, lectures, films, and social gatherings can be accommodated, either in the library or out among the trees. There is a place where children may work with clay and paints while their parents visit the exhibits.

The "permanent" collection of modern Danish work is selective, rather than comprehensive; it can be continually updated under an unusual rule which allows the foundation to sell or exchange works. This collection is displayed during the summer so that visitors from abroad—who generally recognize only the applied arts of Denmark—may become familiar with the painting and sculpture. Loan exhibits from other countries replace part of the collection in the winter.

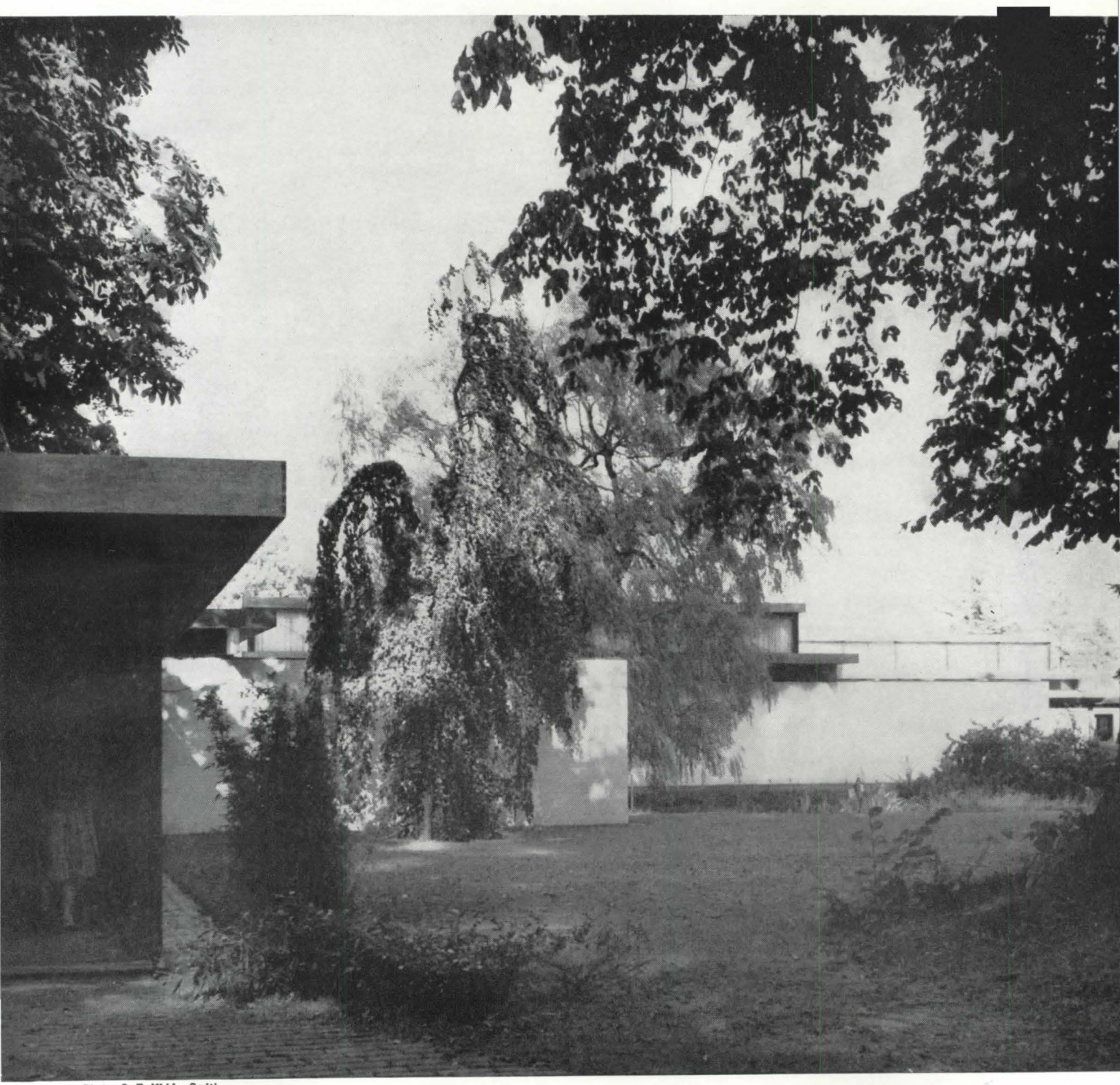
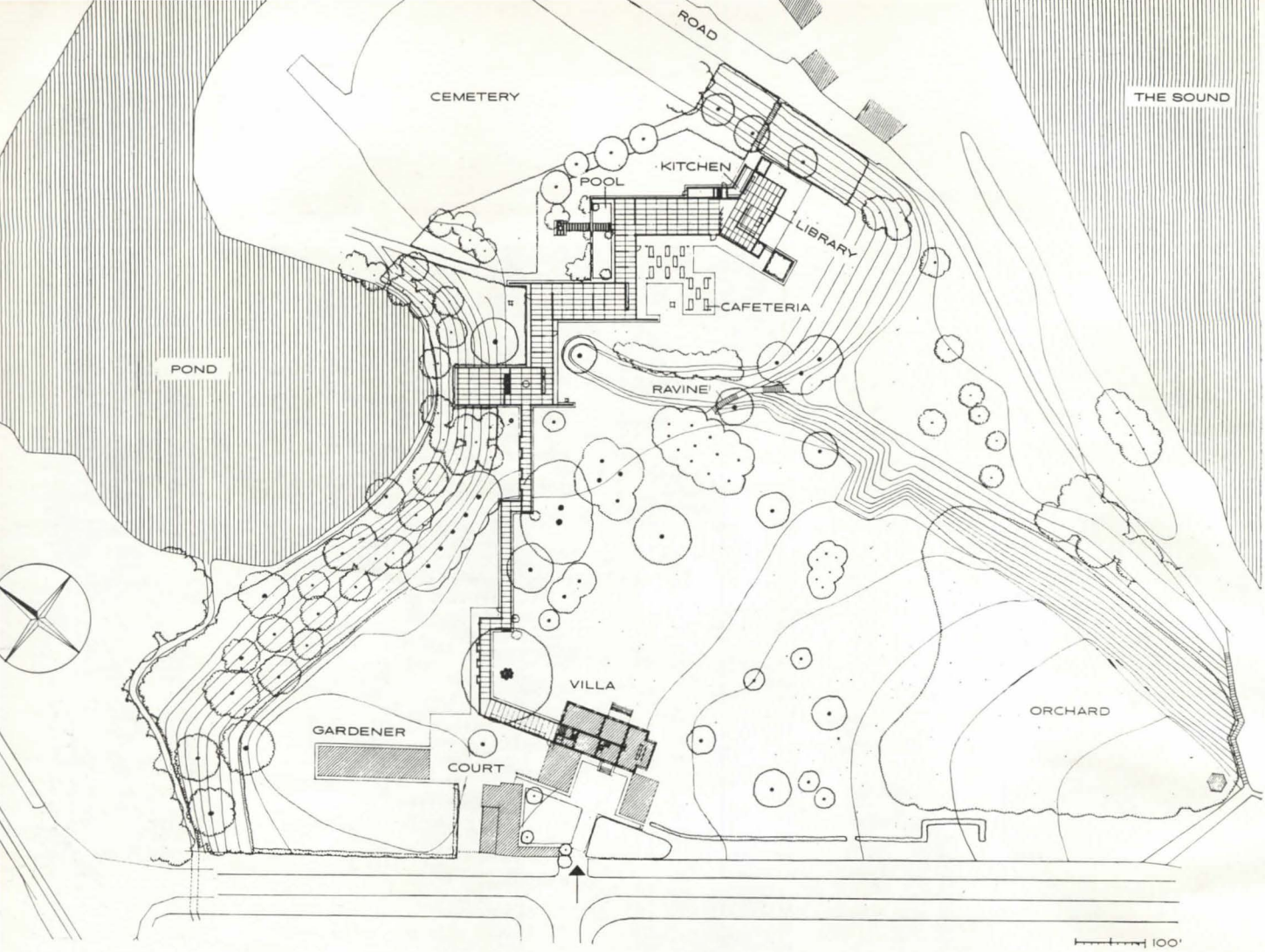
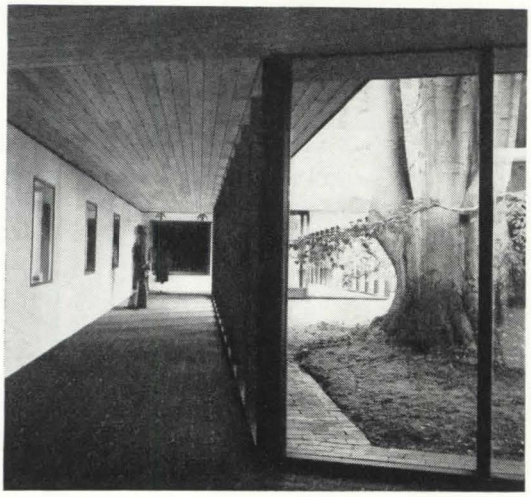


Photo: G. E. Kidder Smith



The situation of the museum among rare trees on an old estate, with views of the pond and The Sound, is meant to purge the mind of urban cares and free it for the enjoyment of art. The original villa, over a century old, has been used as an entrance pavilion. The visitor is given the feeling of being received in a private home.



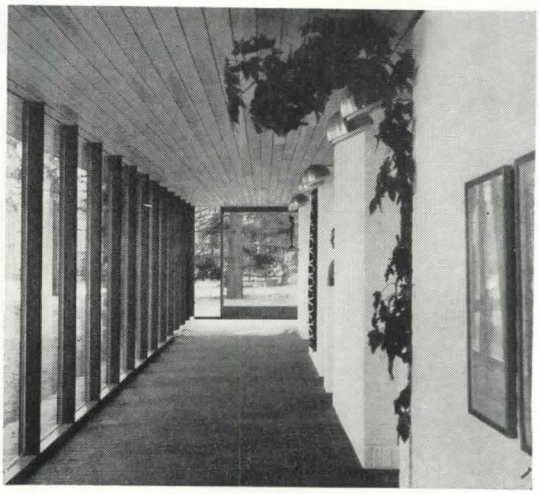
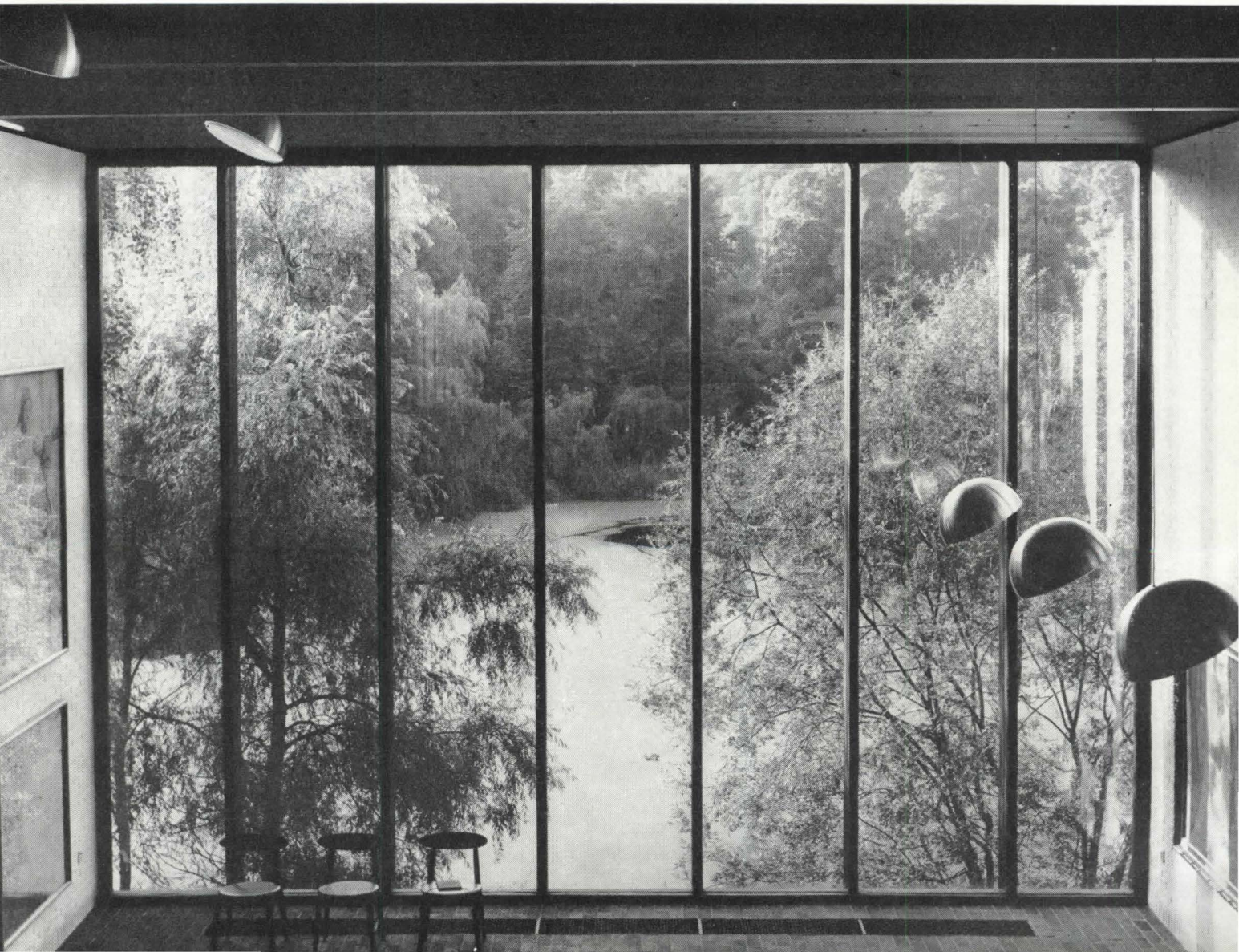


Photo: G. E. Kidder Smith

Extending from the old villa are corridor galleries where the visitor may observe works of art on one side or the natural beauty of the site on the other. At the end of these corridors there is an exhilarating change of pace: floor, ceiling, and wall planes recede, creating a dramatically enlarged space, and a tree-circled pond, hitherto unseen, fills the field of view.

Photos, except as noted: Jesper Hoem



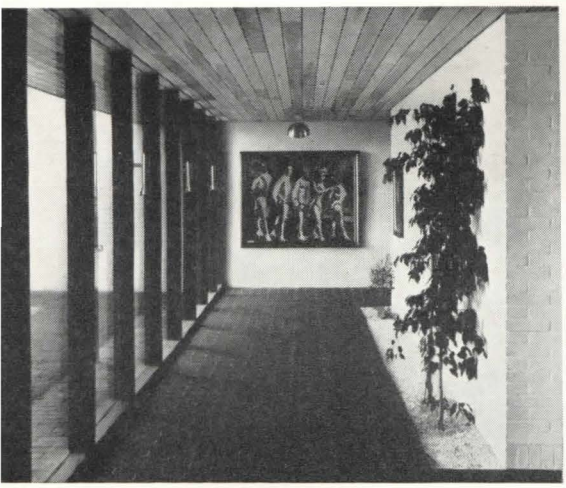
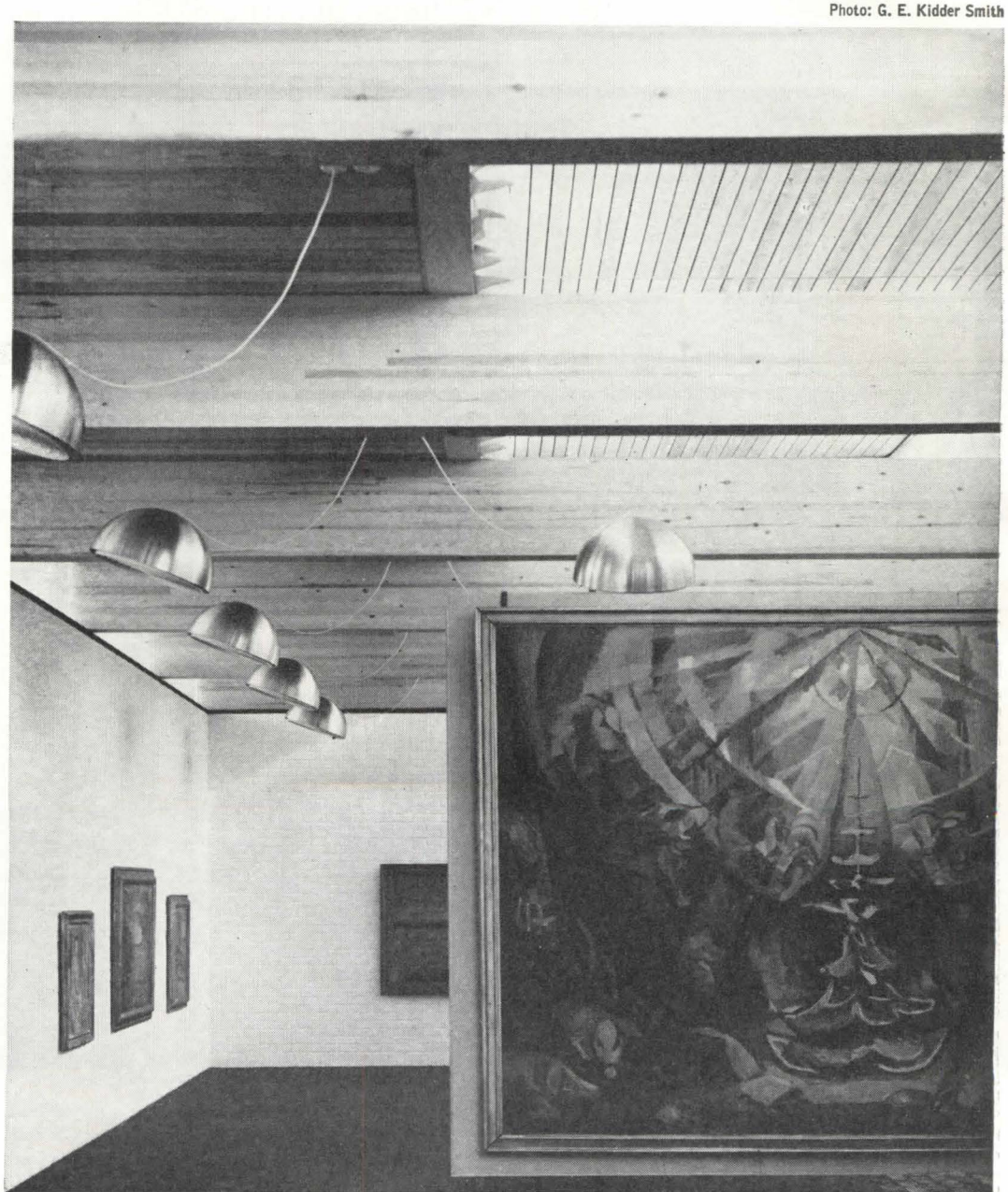
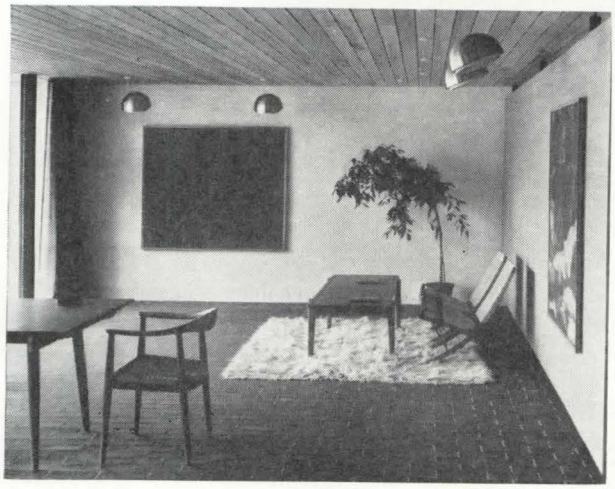


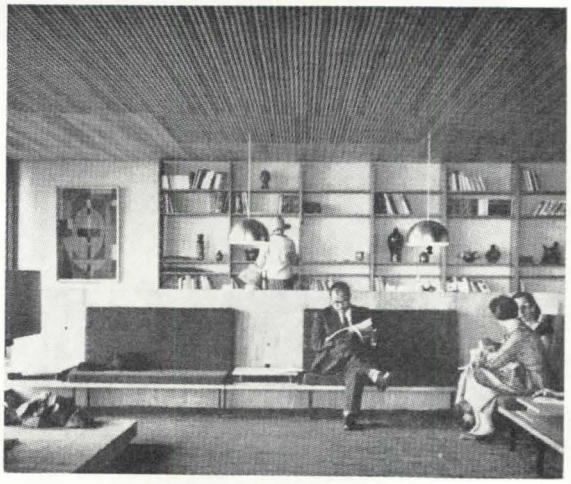
Photo: G. E. Kidder Smith

In some of the corridor galleries, paintings are shown in alcoves formed by screen partitions. Two large windowless rooms alternate with resting spaces which offer views of the landscape. Sunlight entering these galleries through lanterns emphasizes the brightness of walls and paintings as against dark tones of ceiling and floor. Representational works are generally hung in these rooms, so that their illusion of nature is not destroyed.

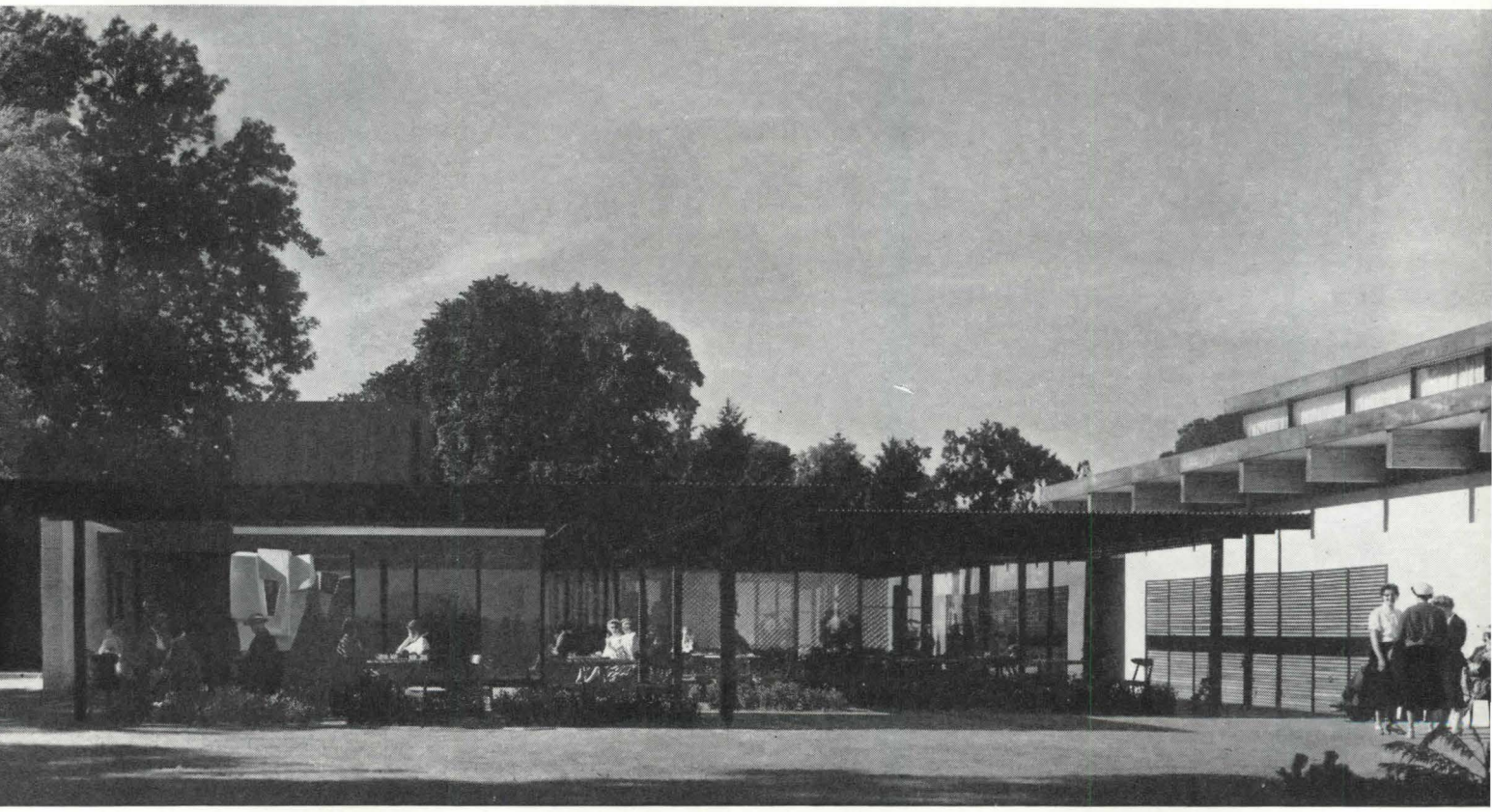
Photo: G. E. Kidder Smith



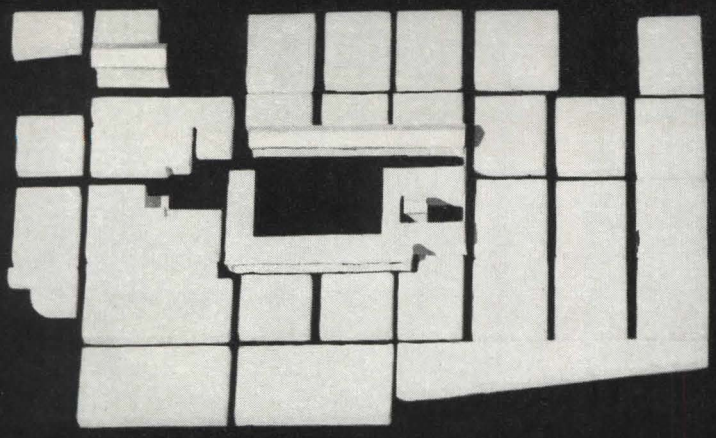




The resting and conversation areas, interspersed among the galleries, are furnished with pieces chosen for exhibition. In them visitors may smoke, talk, or peruse books about the artists represented. At the end of the wing is the library, where a wood fire burns on chilly days.



The visitor may end his tour of the museum with sandwiches and espresso, either in the library or out on the shaded terrace. From either place he can enjoy a sweeping view across The Sound towards Sweden.



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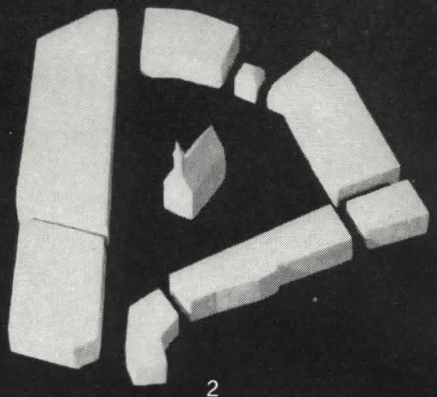

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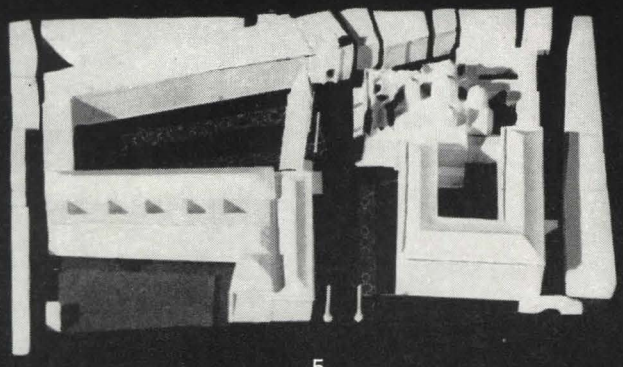
TEACHING URBAN DESIGN



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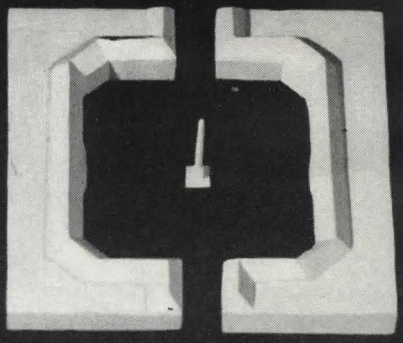

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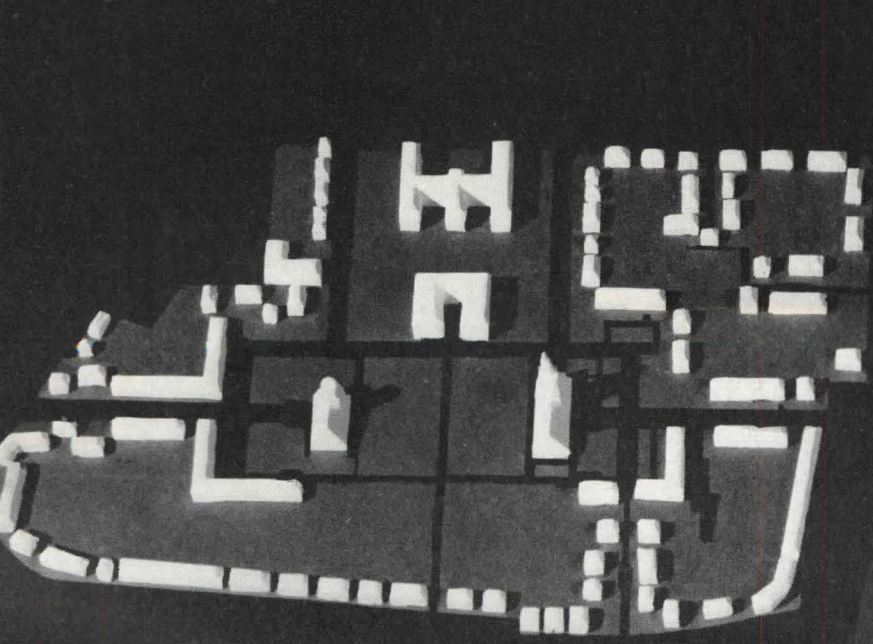

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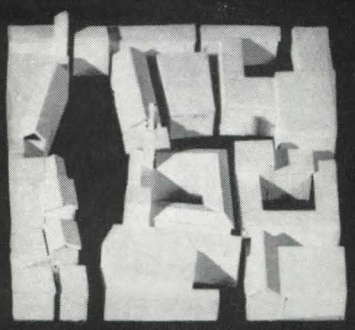

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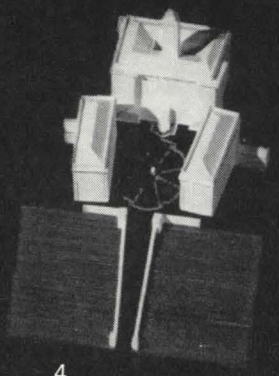

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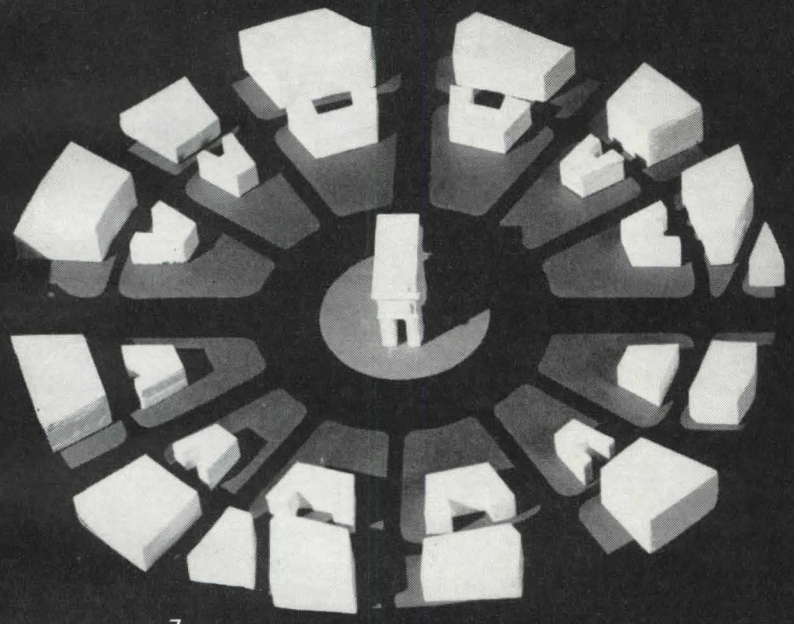

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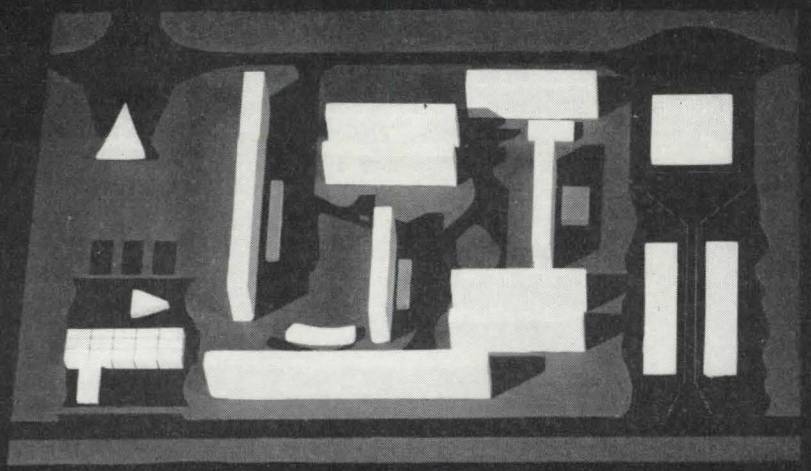


10

The recent acceleration of urban redevelopment activity and the increasing pressure for coherent city form have focused attention on the problem of educating the urban designer.

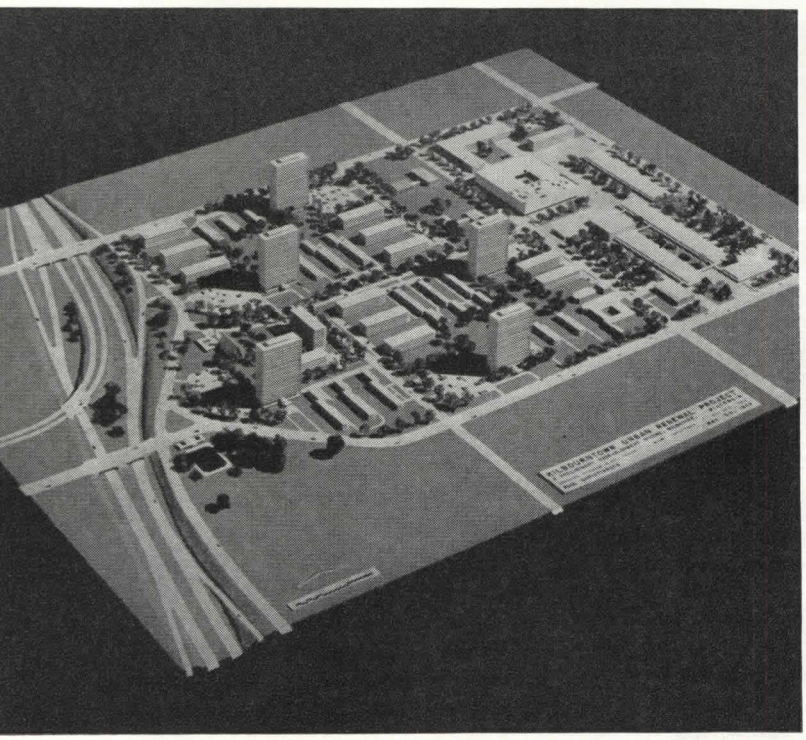
The shortcomings of conventional city planning courses have already been discussed at length among architects. Graduates of such courses have tended to be limited by the two dimensions of the land-use plan and more adept at research than its application. The attention that architects have given to urban design in the past decade has yielded many interesting three-dimensional proposals, but the economic and social weaknesses of such projects have often been reflected in their failure to materialize.

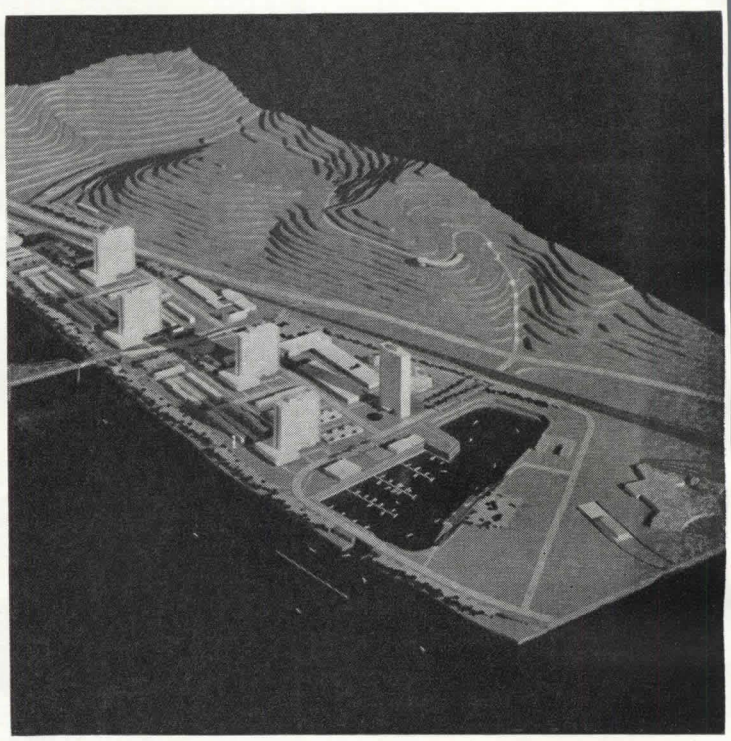
There now seems to be a realization among planners that mere embellishment of a land-use scheme is not urban design, but too many architects still seem to regard the design of cities as an abstract art.

On the following pages P/A presents projects from the City Design program at Miami University (Oxford, Ohio) and the School of Architecture at Pratt Institute (Brooklyn, New York). The object of the Miami course is to produce graduates with a thorough grasp of city design both as an art and as a science, who are capable of leading teams of other professionals. The program at Pratt is intended to give the student of architecture a conception of the context within which he must work and of the co-ordinated effort in which he may play a part.

Analyses of historical and modern city spaces prepared at Miami University include models at a uniform scale. Comparison of these models with each other—and with that of the central square at nearby Oxford, Ohio—illustrates the effect of urban scales and densities. Models shown left include: the Hellenic agora at Priene 1; *medieval squares at Gouda* 2 *and Pistoia* 3; *the Renaissance Campidoglio at Rome* 4, *Piazza San Marco at Venice* 5, *Place Vendôme at Paris* 6; *the 19th-Century Place de l'Etoile at Paris* 7; *and the 20th-Century residential complexes at Letchworth Garden City, England* 8, *Radburn, New Jersey* 9, *and Brasilia* 10.

Graduate Case Studies at Miami University





In 1955 Miami University inaugurated a one-year course leading to the degree of Master in City Design. Professor Rudolph Frankel established the course on the thesis that professional urban designers must be trained at the graduate level—that they must already have a substantial background in three dimensional design and must be given a thorough understanding of the other disciplines required for realistic planning.

Enrollment in the course is limited to eight students. Applicants must have degrees in architecture or city planning and a minimum of three months experience in a planning office.

Courses in transportation, sanitation, municipal government, and urban sociology are included in the program. Lectures and seminars deal with the historical development of the city and contemporary theories of urban design. The course in urban landscape includes design problems.

The core of the curriculum is the Problems of City Design course, to which the students devote about a third of their time. Two major problems are undertaken each year, a comprehensive plan for a small community and an urban renewal project. Smaller individual problems might deal with such aspects of city design as residential neighborhoods or urban open spaces.

All of these problems concern actual communities, generally near the university in Southwestern Ohio, but occasionally in neighboring states. Subjects are chosen for their value as case studies and the prospects of local co-operation which they offer. Care is taken not to conflict with the interests of private planning consultants. The procedures and organization of the group are intended to simulate those of professional offices.

Two representative projects illustrated above are an urban renewal project for Milwaukee, Wisconsin, and a design for the community of Russell, Kentucky. A recent proposal for Evansville, Indiana, is discussed on the following pages.

Evansville, Indiana, is a center for light industry, commerce, and transportation on the lower Ohio River. Its population has risen steadily in recent decades to approximately 140,000 and is expected to exceed 250,000 by 1975.

The 260-acre area under study includes the deteriorating commercial center and the neglected riverfront adjoining it.

Although a metropolitan core, the area has declined steadily while the fringes of the city have grown. It now consists largely of substandard and dilapidated buildings which are giving way one by one to the spread of the parking lot (above, right).

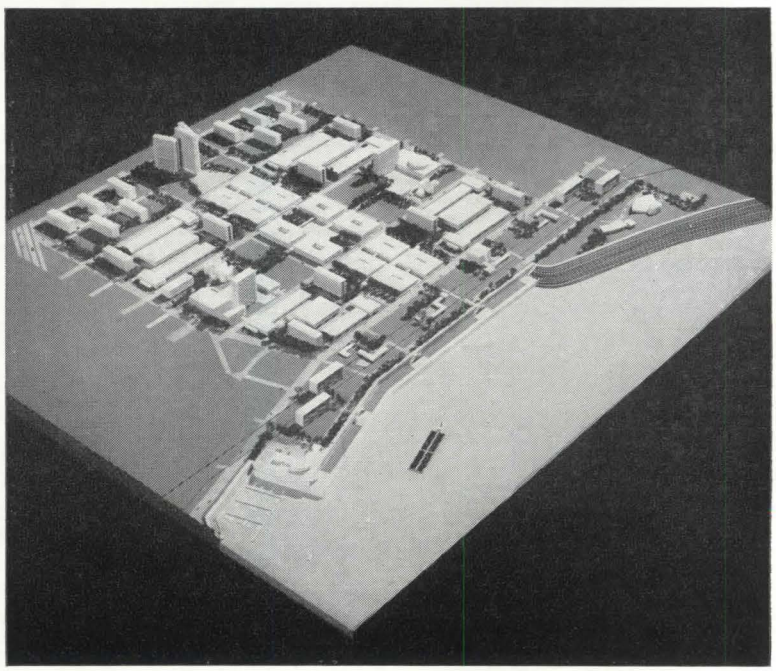
The object of this program was to reverse the trend towards decay and abandonment by replacing lost functions and creating an environment which would draw people and activities back to the center.

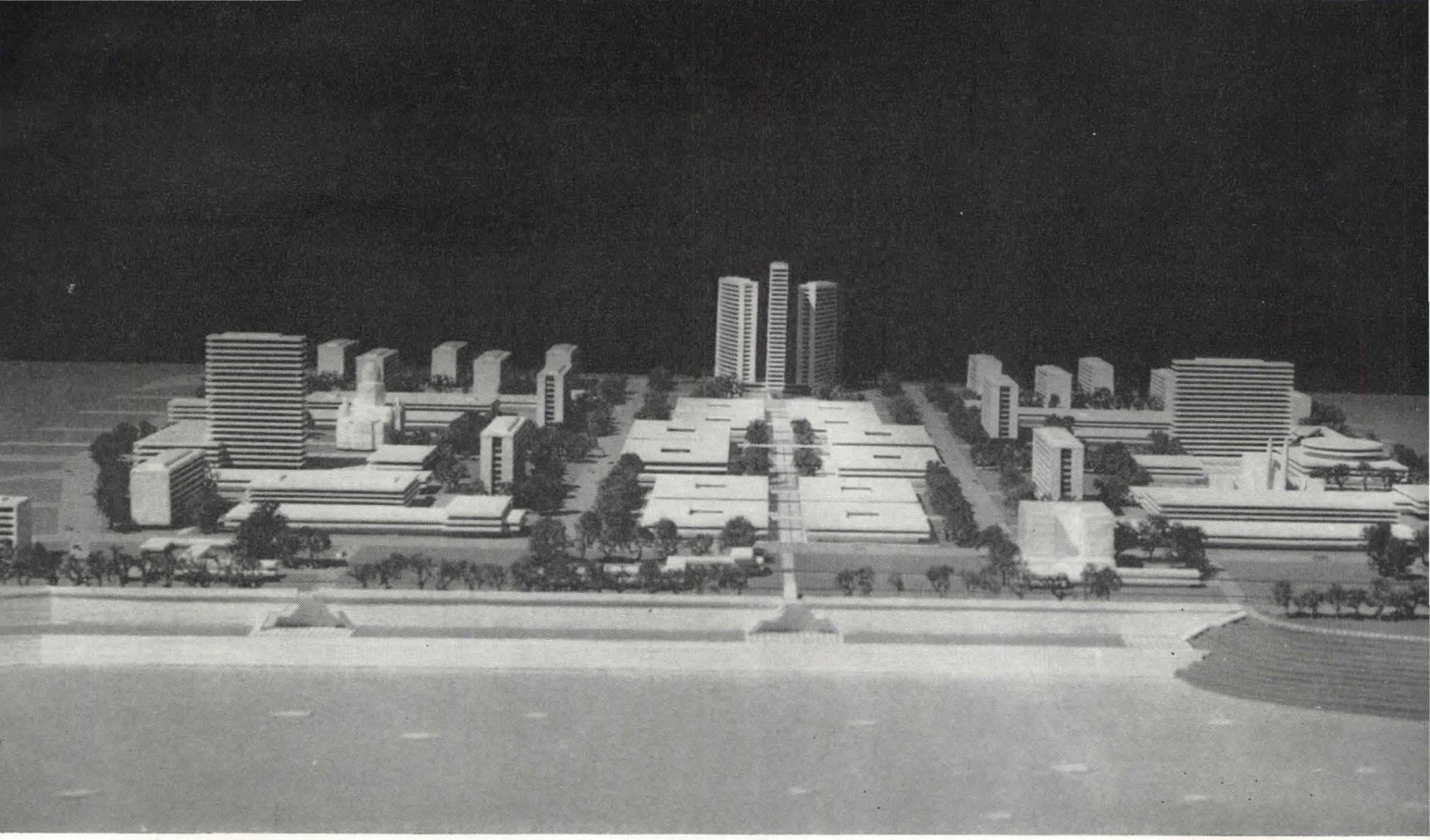
The proposed redevelopment would take place over a period of 40 to 50 years. Since complete replacement of downtown structures could normally be expected in that time, this proposal does not impose a burden on the community, but merely directs anticipated expenditures towards desirable ends.

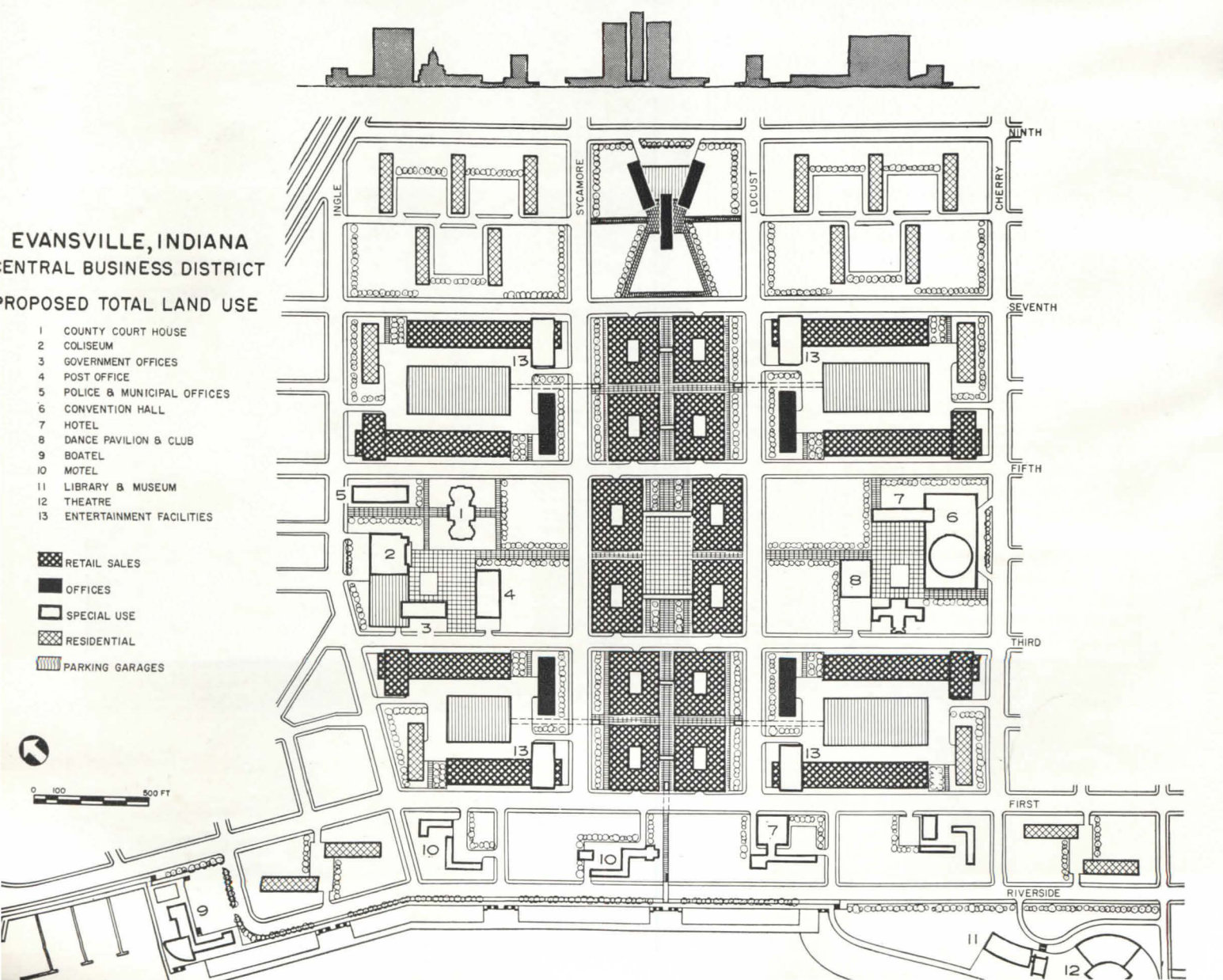
The scheme is not merely a super shopping center. The attraction of any urban area lies in its diversity of buildings and spaces serving a variety of functions—commercial, professional, cultural, recreational, and social. The task of the designer, according to Professor Frankel, is to discipline this diversity, creating a harmonious and comprehensible over-all composition.

This design is organized around four pivotal developments: the government complex, surrounding the existing County Court House; the visitors' center, including a hotel, a convention hall, and a bus terminal; a business group composed of three office towers; and the river front development, which restores the city's principal natural asset.

Four pedestrian promenades connecting these developments converge on a plaza at the center of the commercial area. The shops in this area are situated along promenades, plazas, and "one-sided" shopping streets which face landscaped open spaces. The result is an urbane organization of space, says Frankel, rather than "a maze of whimsical malls and coin-sized sunken plazas, decorated with underscaled flower boxes and pools."





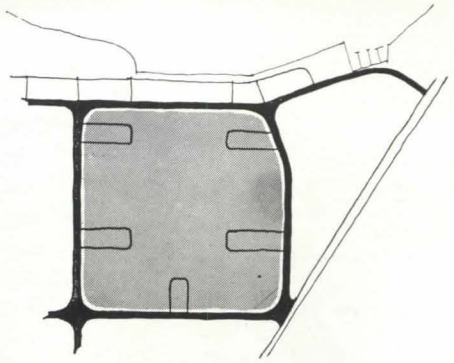

EVANSVILLE, INDIANA
CENTRAL BUSINESS DISTRICT
PROPOSED TOTAL LAND USE
1 COUNTY COURT HOUSE
2 COLISEUM
3 GOVERNMENT OFFICES
4 POST OFFICE
5 POLICE & MUNICIPAL OFFICES
6 CONVENTION HALL
7 HOTEL
8 DANCE PAVILION & CLUB
9 BOATEL
10 MOTEL
11 LIBRARY & MUSEUM
12 THEATRE
13 ENTERTAINMENT FACILITIES
RETAIL SALES
OFFICES
SPECIAL USE
RESIDENTIAL
PARKING GARAGES
0 100 500 FT
INGLE
SYCAMORE
LOCUST
CHERRY
NINTH
SEVENTH
FIFTH
THIRD
FIRST
RIVERSIDE

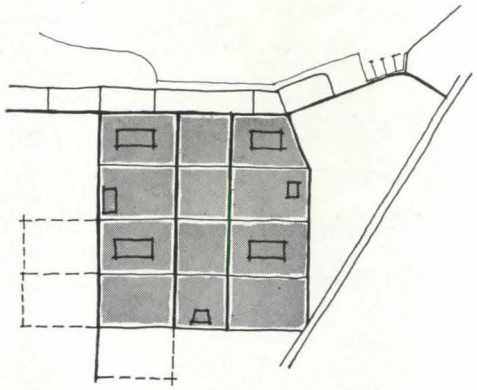
The new circulation pattern is an adaptation of the original street layout. The incorporation of four to six existing blocks in each new block reduces the number of traffic crossings and facilitates the movement of pedestrians. The relationship of this plan to the original layout allows it to be effected in stages and also allows the preservation of existing buildings.

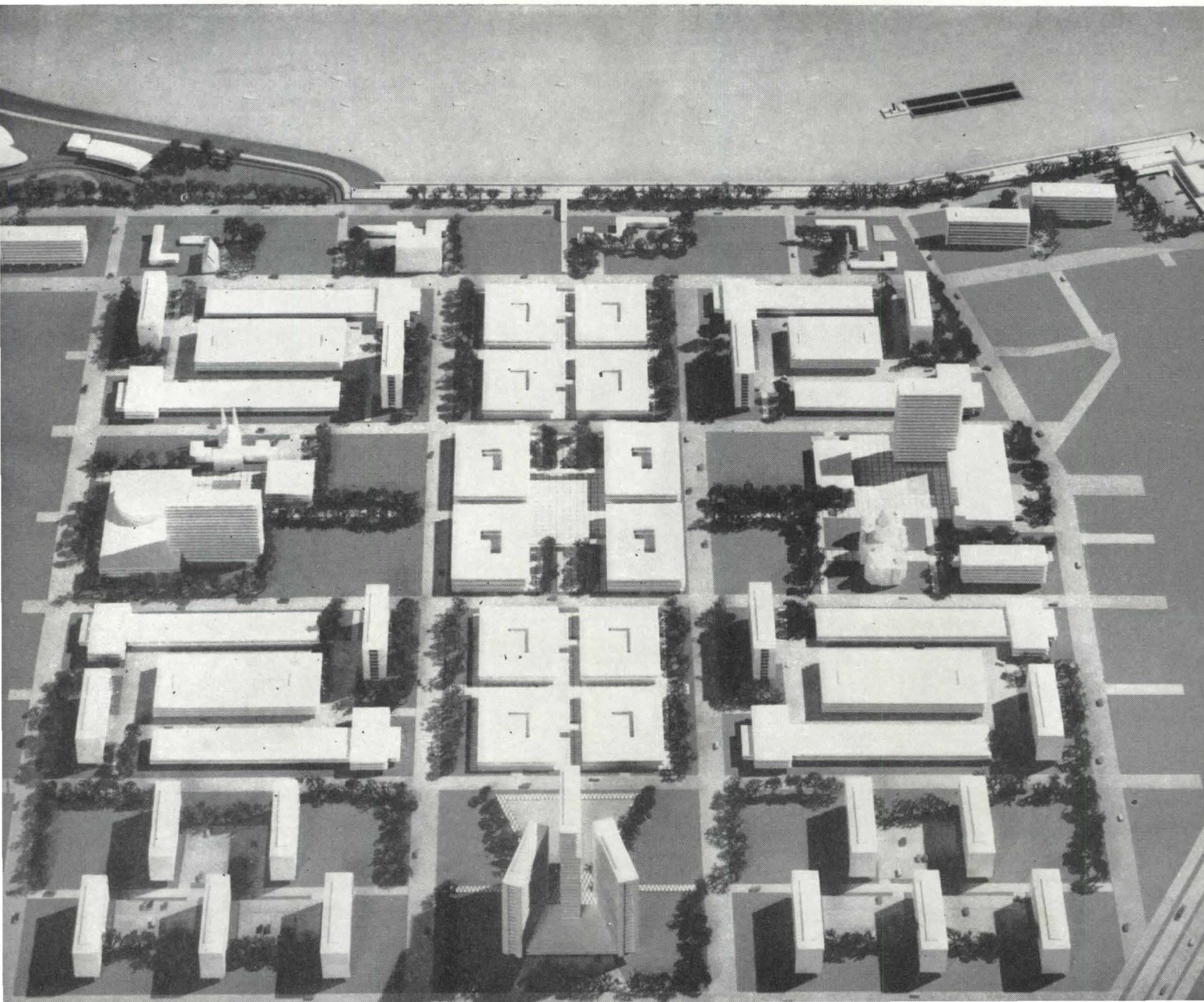
By contrast, Professor Frankel contends, the now-fashionable inner-loop scheme (above right) *requires immediate wholesale destruction and extensive construction. Its effect is to divorce the center from the remainder of the city, in the manner of a medieval wall, discouraging future growth.*

Along the riverfront, the nine-foot flood wall, a potential barrier, has been adapted as a promenade affording panoramic views of the city and the Ohio. The prominence thus given to the view of the skyline emphasized the need for a controlled and meaningful composition, without the clutter of competing slabs and towers so common today.

Residential facilities have been incorporated in the proposal in the belief that they are necessary to provide a stable nucleus of consumers and to reduce the daily movement of traffic in and out of the center. Such redevelopment, it is believed, would restore the advantages of urban living, attracting residents to the area in considerable numbers.







Undergraduate Planning Projects at Pratt Institute

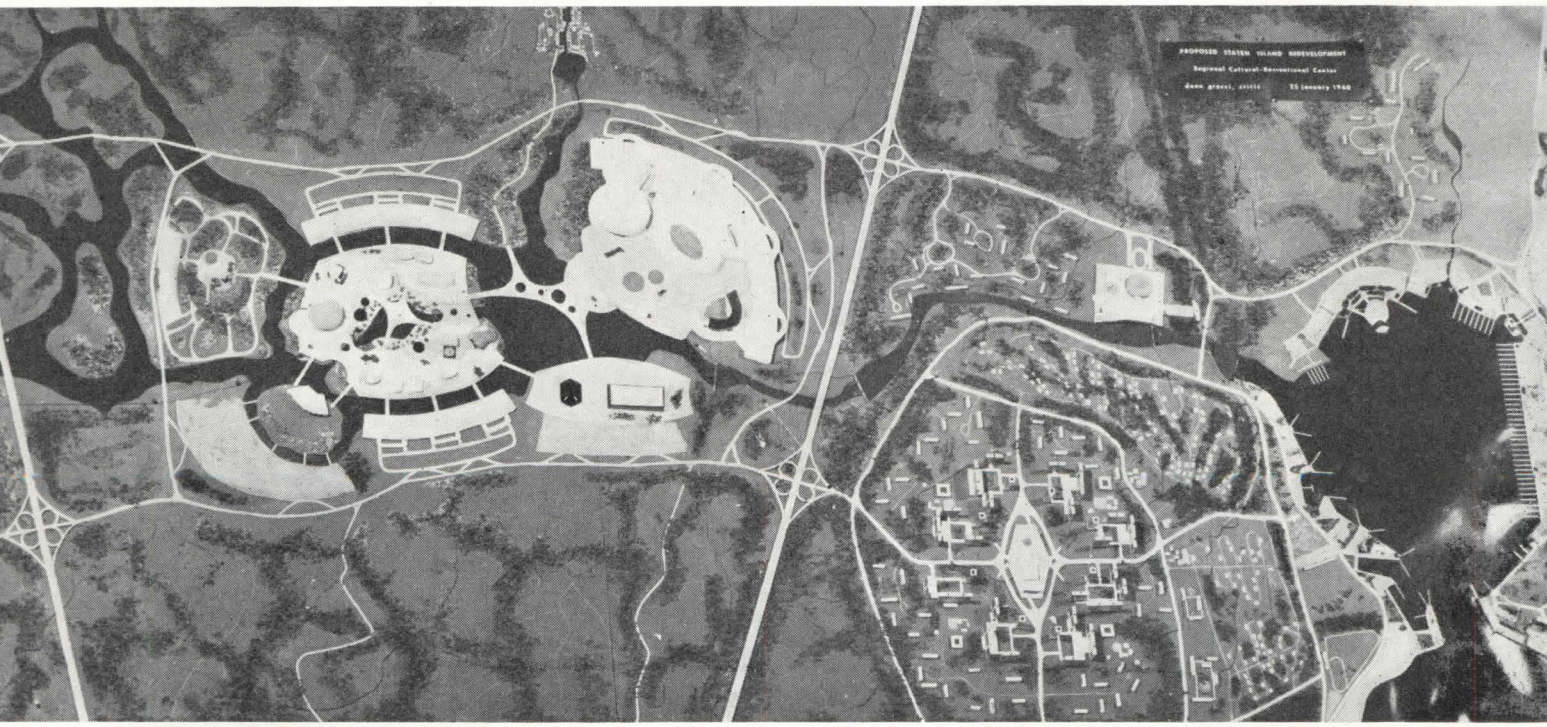
The entire Borough of Richmond in New York City—better known as Staten Island—was the subject of this senior design problem at Pratt Institute. The solutions were not expected to be working master plans, although concepts within them might find valid application in actual planning projects. The primary object was an educational one: to give the students an understanding of the larger sphere into which their buildings must fit. Concurrently, the class acquired a liberal background in housing, labor, government, transportation, and industry, and a grasp of such contemporary problems as urban renewal and conservation of open space.

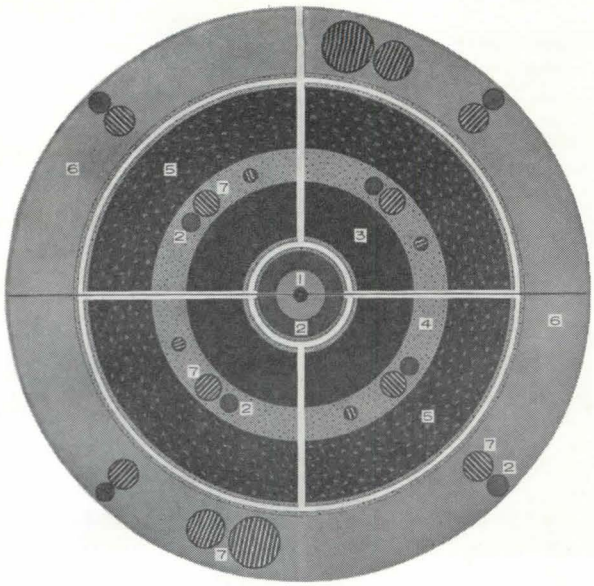
Staten Island was chosen for the study because it presents an unparalleled opportunity for the application of sound urban design, one which the New York Metropolitan Area cannot afford to overlook. This one borough, cut off from direct access to the rest of the city, has remained relatively undeveloped, its population of 221,000 making up less than three percent of the city total. The completion of a bridge to Brooklyn (now under construction), along with the pressure of population expansion, is certain to result in mushrooming growth during the next few decades. Although the emphasis of the study was on physical form and the integration of architectural elements within the plan, extensive use was made of available source materials on anticipated economic and population trends—on the local and the regional scale.

The 60 students were organized into four teams under the supervision of the Dean of the School of Architecture, Olindo Grossi, and faculty members Stanley Salzman, William Conklin, and Emanuel Turano.

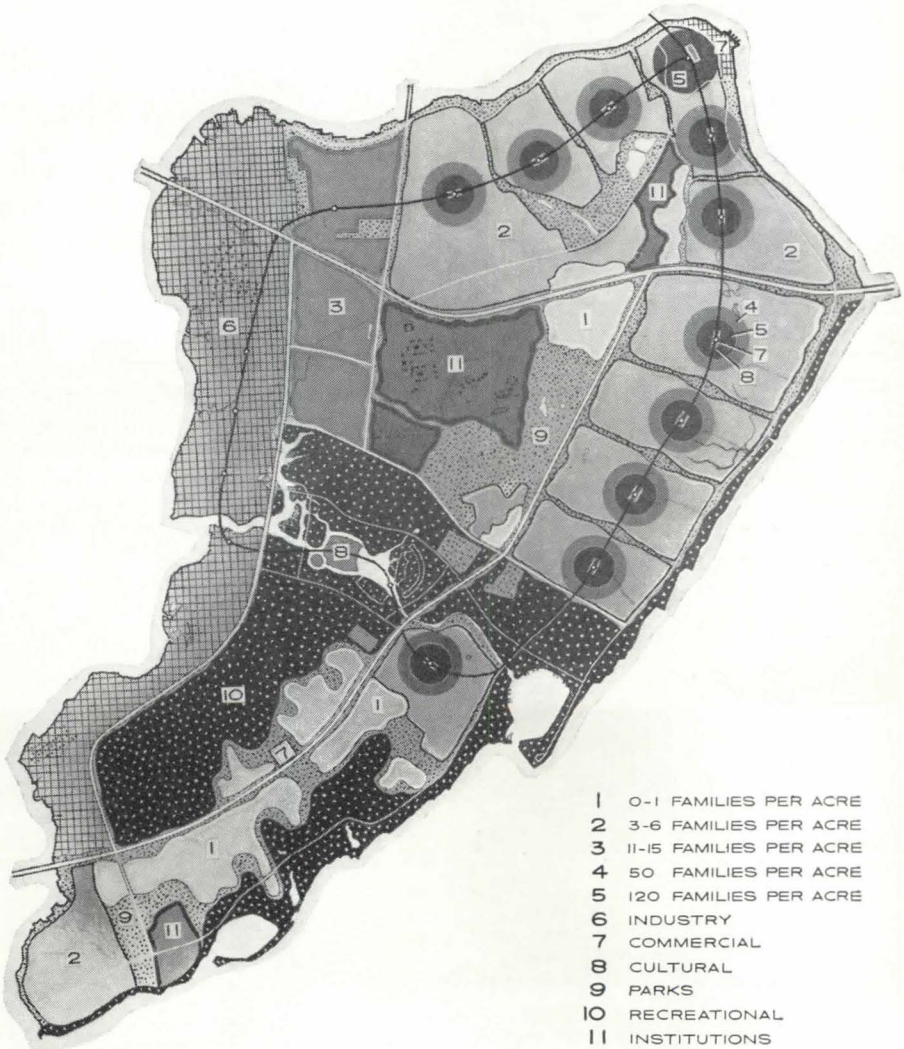
All four solutions include vastly expanded residential, industrial, and commercial facilities. The need to minimize the self-defeating role of the automobile by providing adequate rapid transit was recognized in all of them.

Presentation of the solutions to local groups attracted the attention of the public to the problem and gave the students valuable experience in facing a real client. An exhibition of the drawings was hung in the St. George Ferry Terminal, the present transportation hub of the island, where thousands of commuters could inspect it daily.





1 CULTURAL
2 COMMERCIAL
3 HIGH DENSITY
4 GREEN BELT
5 MEDIUM DENSITY
6 LOW DENSITY
7 INSTITUTIONS

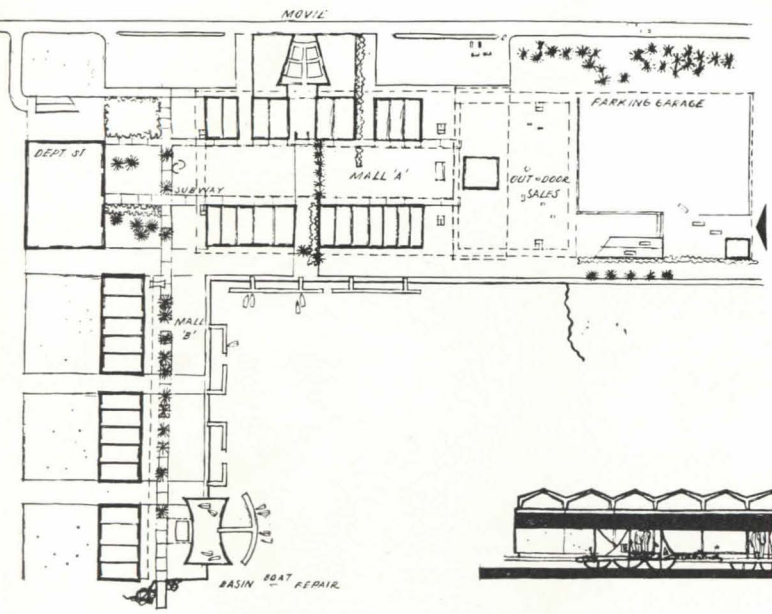


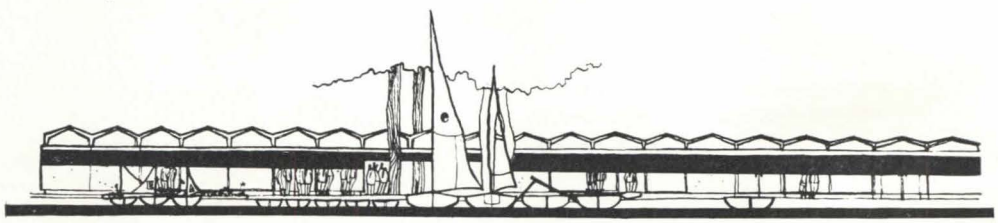
1 0-1 FAMILIES PER ACRE
2 3-6 FAMILIES PER ACRE
3 11-15 FAMILIES PER ACRE
4 50 FAMILIES PER ACRE
5 120 FAMILIES PER ACRE
6 INDUSTRY
7 COMMERCIAL
8 CULTURAL
9 PARKS
10 RECREATIONAL
11 INSTITUTIONS

In this scheme, eleven articulated residential communities are situated along a rapid-transit loop linking the island to Manhattan via New Jersey. The schematic plan for these communities (above) *shows a high-density core, housing 60,000 people within ¼ mile of the station, with rings of decreasing density around it. The specific form would vary depending on conditions* (acrosspage). *St. George, at the northeast tip of the island, would be redeveloped as a civic and commercial core, with housing for 100,000, advantageously situated in high terrain at the main transit junction.*

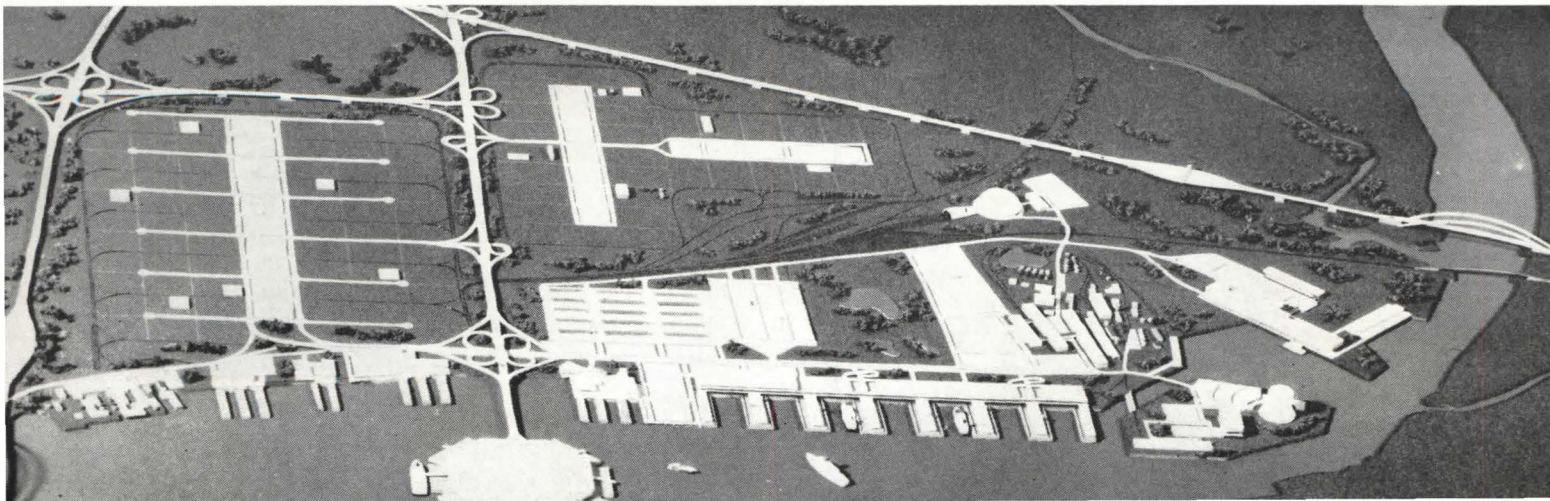
A 12-square-mile area at the southern end of the loop is set aside as a cultural-recreational center for the entire metropolitan region, with stadiums, theaters, an opera house, hotels, motels, etc.

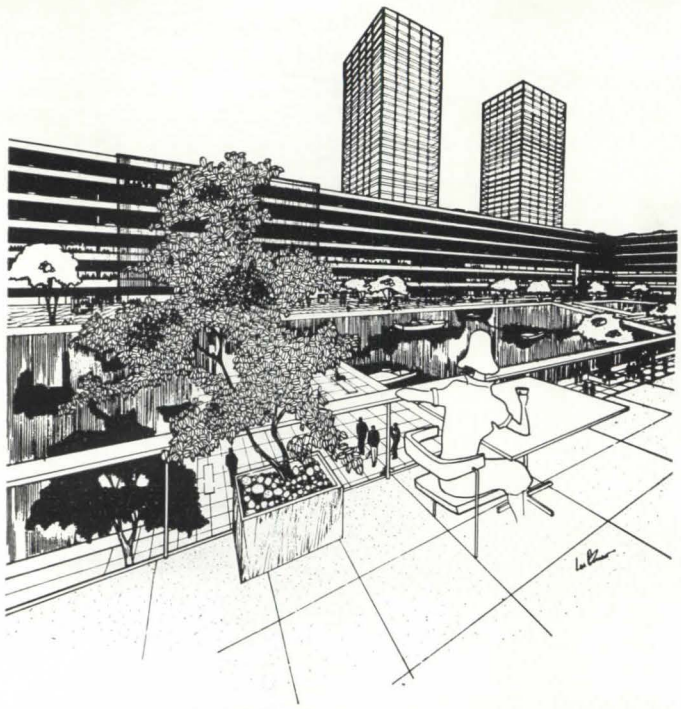
The industrial area along the western edge of the island, includes the sites of the existing facilities. Adjacent to it is a medium-density residential area.



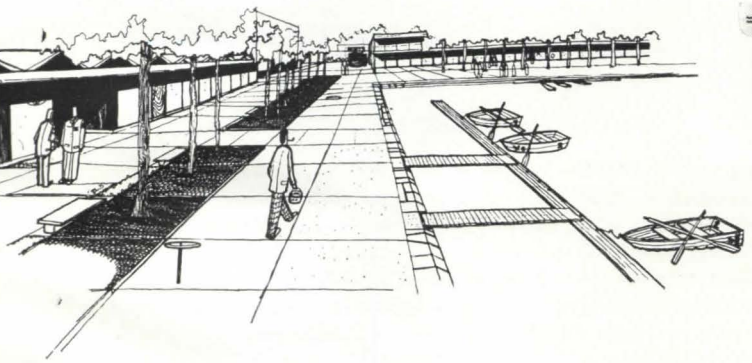


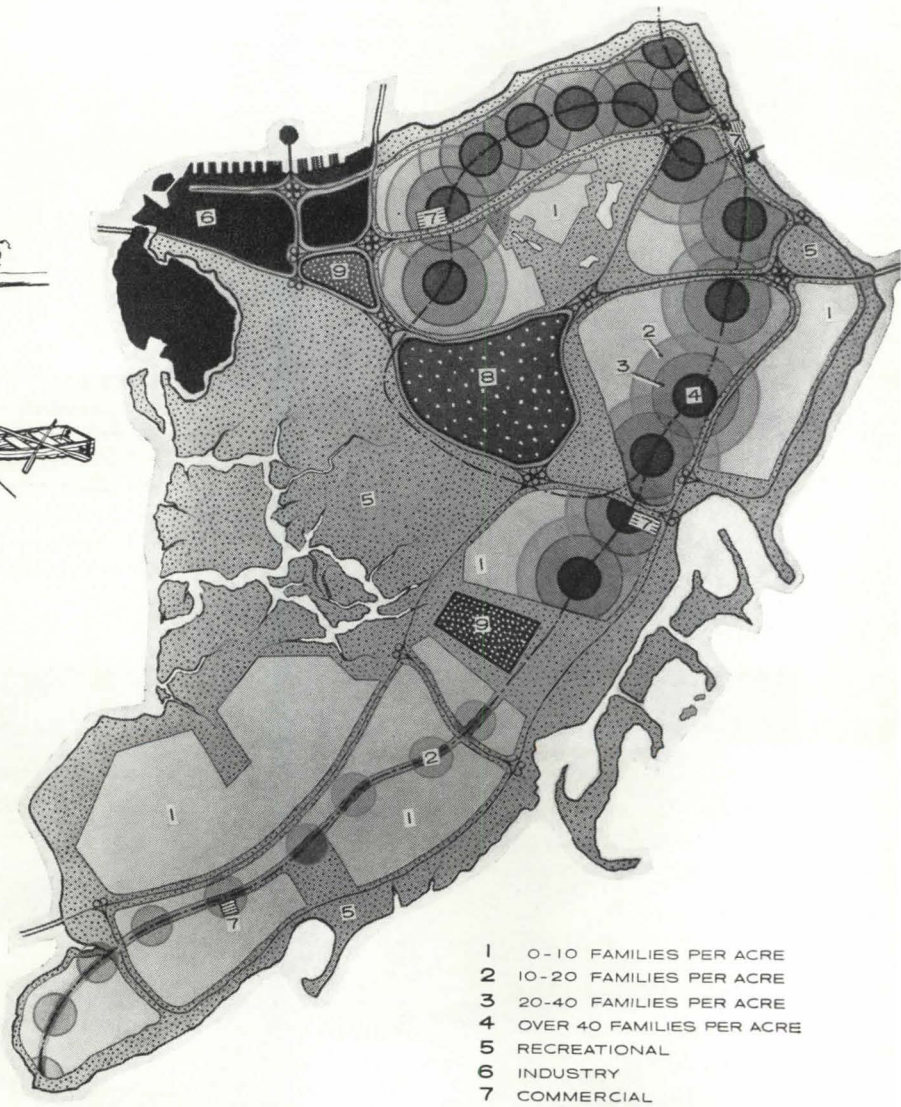
This solution proposes the construction of a direct transit tube to Manhattan. To exploit the potential of the tube and justify its expense, a population of 1,500,000 is anticipated. High-density communities in the northern part of the island, similar to those of the first scheme, would house 1,000,000 people. The remaining 500,000 would live in the medium-density centers to the south and in the low-

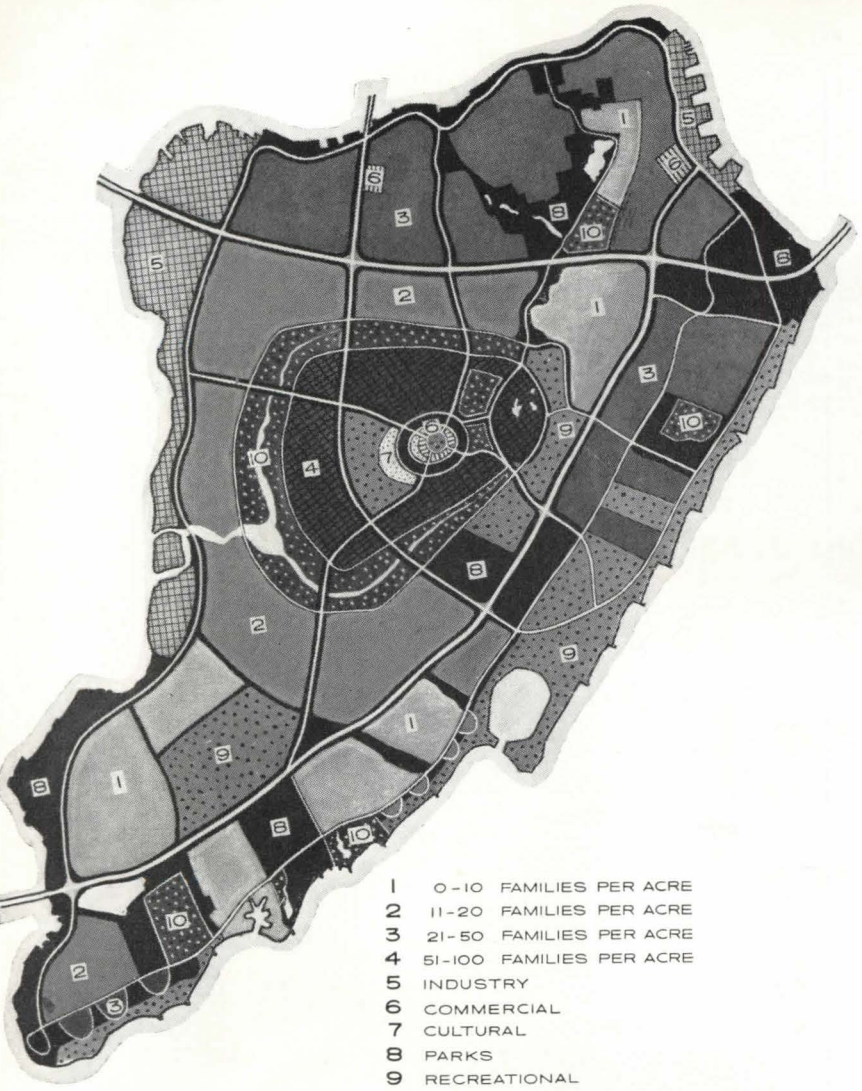




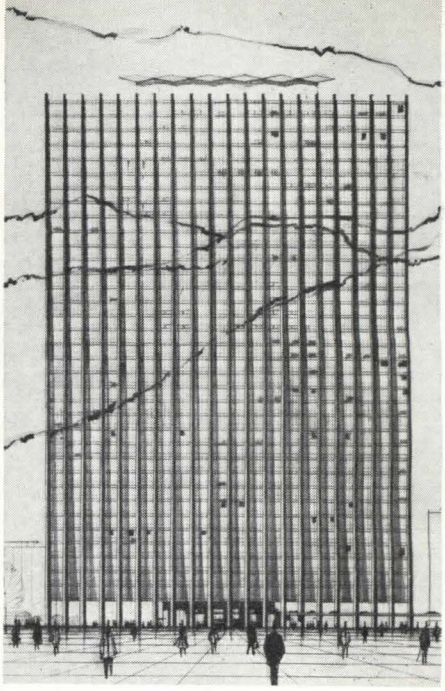
density areas between. Regional commercial centers (above) *would occupy a few strategic locations. Each medium-density community would have its shopping and recreation center* (left and below). *A five-square-mile medical complex at the center of the island would include education, research, and treatment facilities. Heavy industry would be concentrated at the northwest corner of the island adjacent to port facilities* (bottom left).

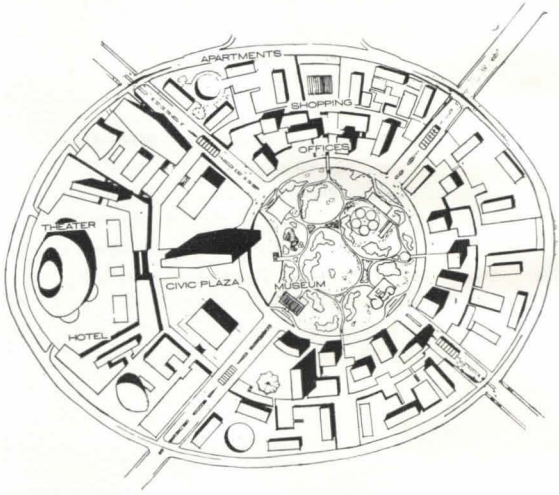






1 0-10 FAMILIES PER ACRE
2 11-20 FAMILIES PER ACRE
3 21-50 FAMILIES PER ACRE
4 51-100 FAMILIES PER ACRE
5 INDUSTRY
6 COMMERCIAL
7 CULTURAL
8 PARKS
9 RECREATIONAL
10 INSTITUTIONS

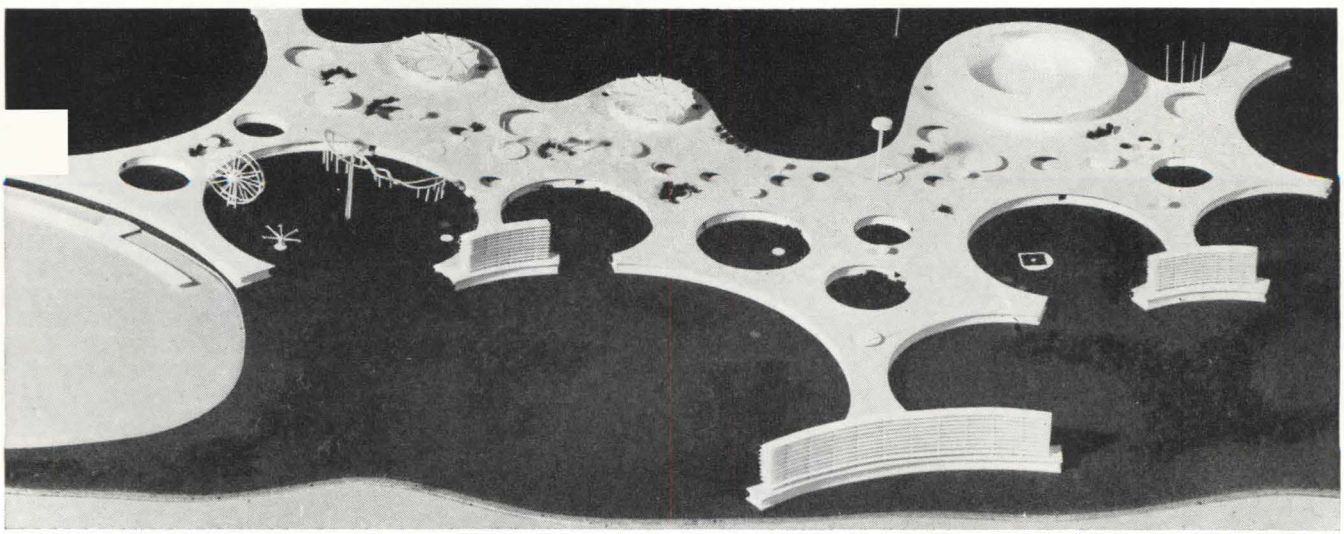


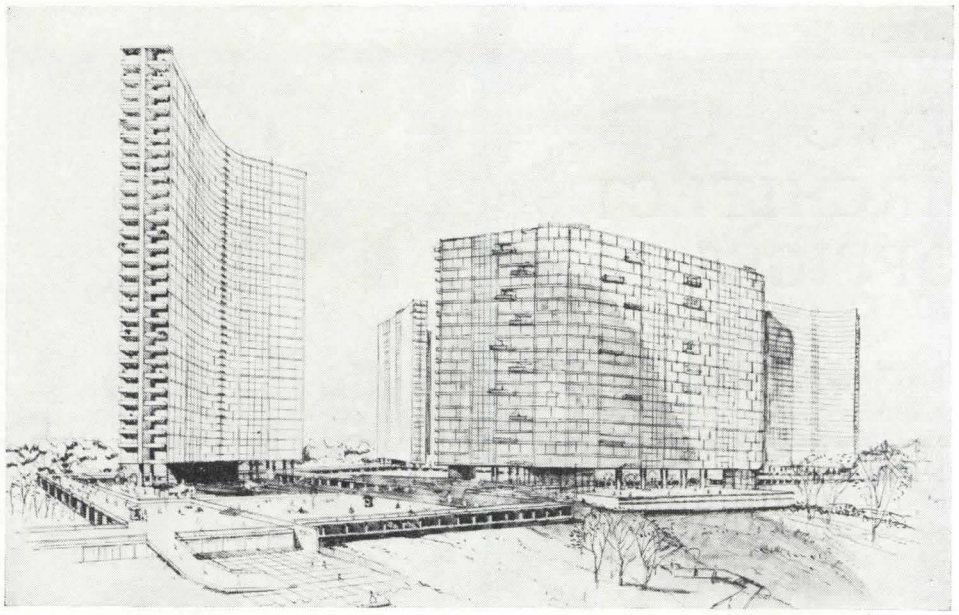


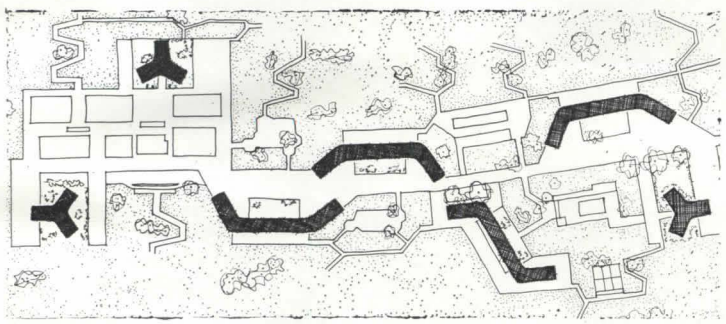
A World University with a student population of 200,000 is the principal feature of this scheme. The specialized schools for advanced studies and research which would comprise the university are situated in a greenbelt along a crescent-shaped waterway in the center of the island. Each school would have a complete suburban community related to it. At the focus of the university area is the commercial, cultural, and civic center for the island (above), *with housing for 250,000 surrounding it.*

A recreation center for the entire metropolitan region is located at Great Kills, on the southeastern shore (below). *One huge structure includes three stadiums (the largest seating 120,000) along with hotels, motels, shops, and amusement facilities.*

Industrial research plants would provide a labor market on the island and work in coordination with University laboratories.







Three rapid-transit loops determined the pattern of this plan. One links the island to Manhattan, Brooklyn, and Metropolitan New Jersey, one circles the island, and one serves only the high-density area at the northeastern corner.

The most striking physical feature of the solution is the band of high-rise apartment buildings (above) *which follows the ridge lines in the northern part of the island. This scheme provides for a high concentration of people in one area, with convenient transportation, and takes unique advantage of the island's topographical assets.*

Low-density residential areas are distributed throughout the island. The recreation area which occupies the center of the island includes a regional cultural center. Industrial developments along the western shore would provide a substantial part of the jobs required for an estimated 750,000 population.

TWO ARCHITECT'S OFFICES

TAMPA, FLORIDA • MARK HAMPTON, ARCHITECT

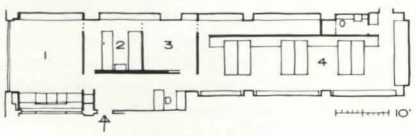
The downtown location, adequate space, and 12′-4″ ceiling height were desirable aspects of the unpartitioned ground-floor interior which Mark Hampton remodeled for his own offices. The major problem posed by the elongated narrow space, with its irregular column pattern and awkwardly-placed main entrance, was to achieve an efficient traffic flow.

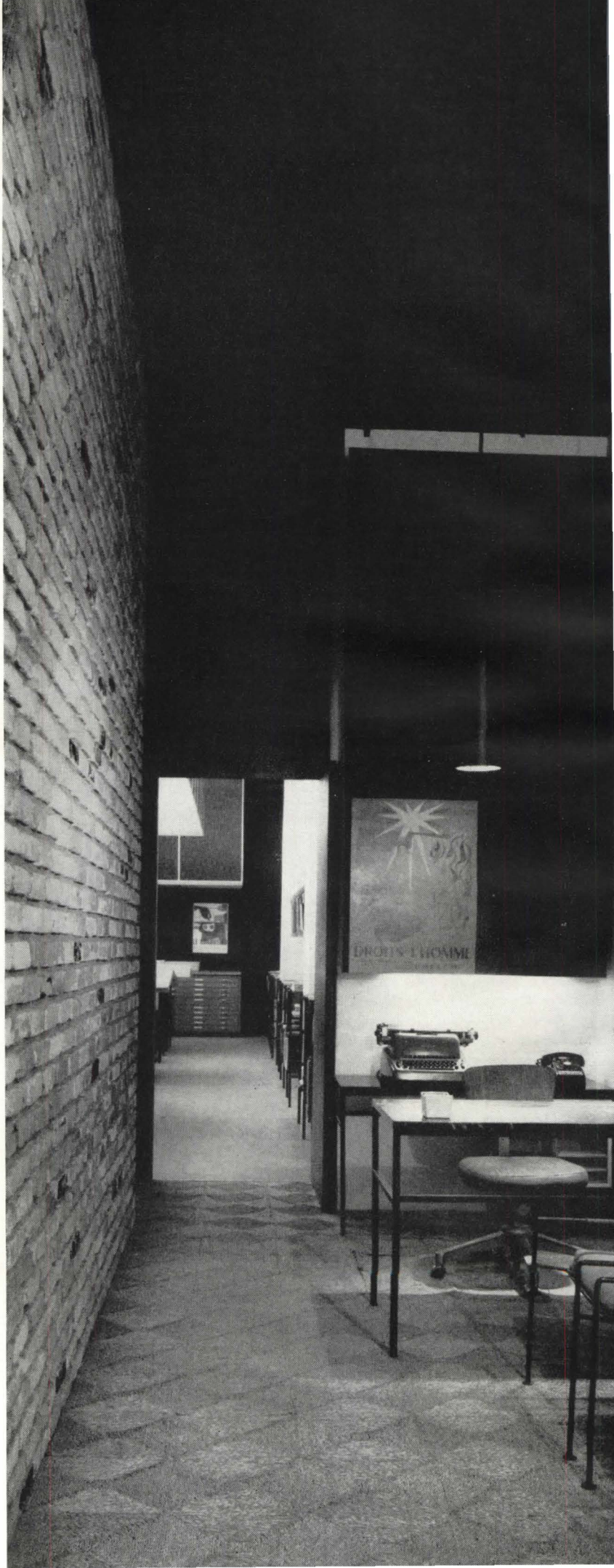
Three plaster walls were constructed to divide the space into the major areas requiring privacy: the architect's personal office 1, the specifications office 2 adjacent to it, the conference room 3 used by draftsmen for interviews and as a lounge, and the drafting room 4 (*see plan below*).

The entrances to these areas are controlled from the 7-ft-wide reception area. Private inner office circulation, an emergency "escape route" for each area, leads through three sliding doors to the service exit at the rear.

The existing plaster walls were stripped of baseboard and painted white, except for the rear wall of the drafting room, which was painted black (with the intention of reducing the length of the room), and one wall in the architect's office, which was paneled in walnut.

The original high ceilings—of plaster and acoustical tile (in the specifications office and conference room)—cluttered with exposed pipes, conduits, and sprinkler heads, were painted black. Luminous ceilings were added in the drafting room and specifications office, suspended at the same level as the new acoustical ceiling in the architect's own office to achieve continuity throughout. For the same reason, door openings were treated as continuous vertical elements: swinging walnut doors have fixed walnut panels above, and sliding doors are 12 ft high.





DATA: descriptions and sources of the major materials and furnishings shown.

CABINETWORK, PARTITIONS

Reception Area: plywood storage wall painted black/recessed lighting/architect-designed. **Office:** supplementary desk surface in wall-hung cabinets: walnut frame, fold-down doors/white plastic-laminate doors/architect-designed. **Drafting Room:** storage cabinets: ¾" black steel-tube frame/birch shelves/architect-designed. **Drafting Room Partition:** plywood stained gray/United States Plywood Corp., 55 W 44 St., New York 36, N.Y.

DOORS, WINDOWS

Doors and Panels Above: oiled walnut/architect-designed. **Vertical Window Blinds:** Sun Vertikal Blind Co., Box 112, Grand Rapids 4, Mich.

FURNITURE, FABRICS

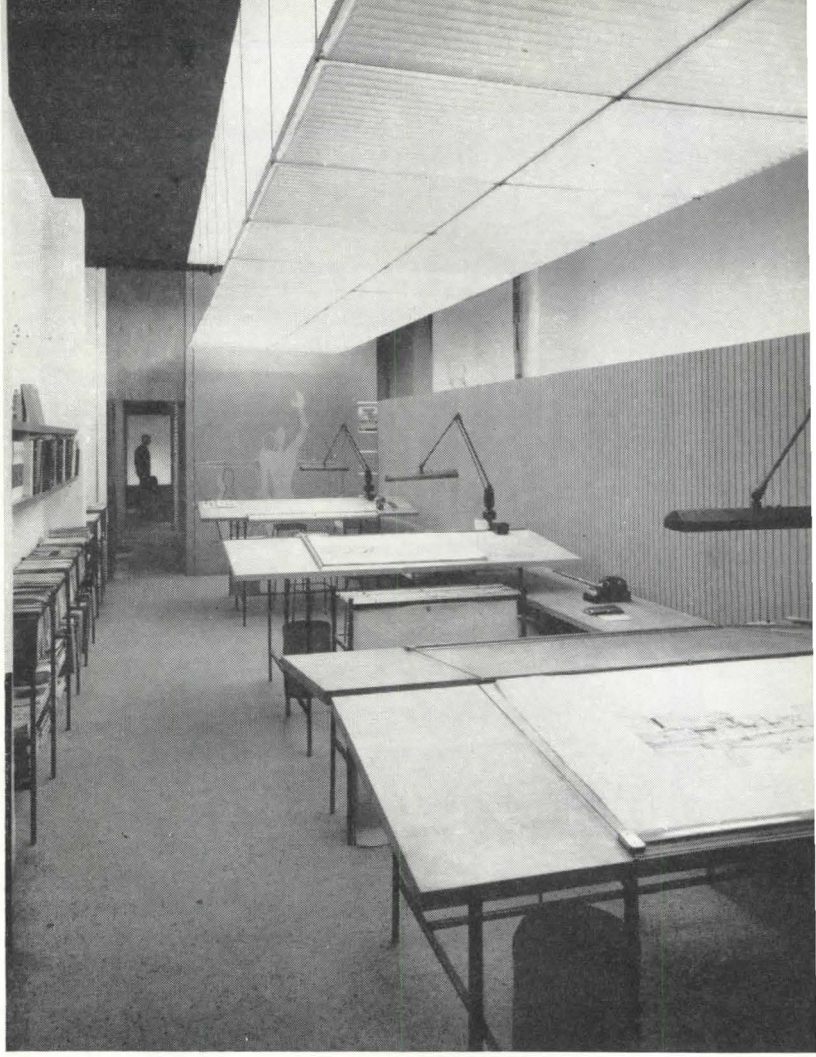
Reception Area: desk: black-and-white marble on ¾" black steel-tube frame/architect-designed; gray-tweed desk chair/Knoll Associates, Inc., 575 Madison Ave., New York, N.Y. **Conference Room:** white table, black chairs/Herman Miller Furniture Co., Zeeland, Mich. **Office:** white marble-top table/Knoll Associates, Inc.; chairs, sofa back/Herman Miller Furniture Co. **Drafting Room:** birch doors on ¾" black steel base/architect-designed.

LIGHTING

Reception Area, Conference Room: ceiling-hung fixtures/General Lighting Co., Inc., 248 McKibben St., Brooklyn 6, N.Y. **Office:** brass hanging fixtures/Finland House, 41 E. 50 St., New York, N.Y.; spots/General Lighting Co., Inc.; aluminum eggcrate at window/Columbia Electric & Mfg. Co., 2310 N. Fancher Way, Spokane, Wash. **Drafting Room:** fluorescents above 3-ft-sq plastic panels/Benjamin Div., Thomas Industries, Inc., Des Plaines, Ill.

WALLS, CEILING, FLOORING

Walls: in reception area: old white-sand brick; in conference room: plasterboard painted white, green, gold, mustard/United States Gypsum Co., 300 W. Adams St., Chicago 6, Ill.; in office: oiled walnut paneling/United States Plywood Corp., white plasterboard; in drafting room: plasterboard painted moss green/United States Gypsum Co. **Ceiling:** white acoustical tile/The Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill. **Flooring:** 12" rush squares; existing terrazzo in drafting room



Photos: Alexandre Georges

SAN FRANCISCO, CALIFORNIA • CAMPBELL & WONG, ARCHITECT

Appropriately enough, this pleasant branch office for Landscape Architects Eckbo, Dean & Williams is organized around two garden courts—a small forecourt and a larger, more private, back court. This was achieved by remodeling —and adding to—an existing building which originally housed two glass-faced stores with indented entrances.

Important considerations in planning the arrangement of required areas were: first, providing clients with a sense of exterior landscaping while, at the same time, separating them from the drafting areas, so that each would have privacy; and second, using the existing structure and substructure as much as possible.

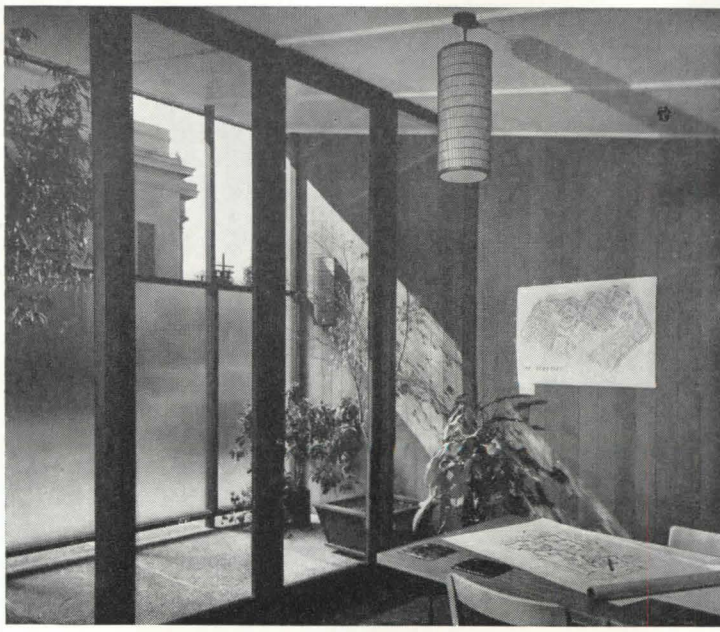
By setting the new building back from the property line, the structure rests on an existing concrete foundation wall and a small garden court is created. Clients enter the conference room 1 (see plan *acrosspage*) directly from the reception area close to the entrance. The conference room is opened, with floor-to-ceiling glass walls, to the court which is shielded from the street by an opaque-glass screen (photos *below*).

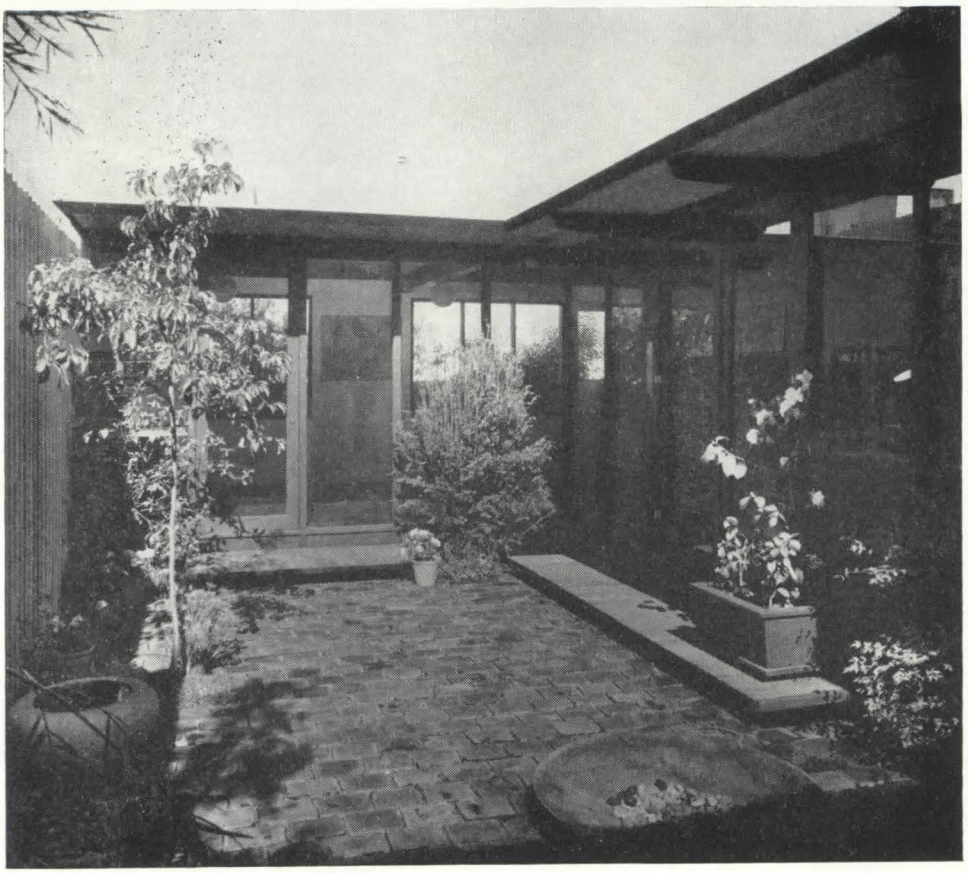
Drafting areas 2 are reached from the rear of the reception area. An L-shaped structure was built behind the existing building to provide additional drafting and storage space for seven men and to enclose the central landscaped court. The lounge 3 and the new drafting facilities open to this quiet garden (photos *acrosspage*).

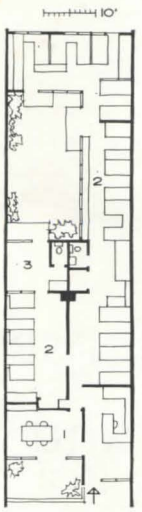
Materials and colors were chosen to form a background for the plant material and the stone and copper garden fittings. On the street façade, the redwood paneling on the upper face of the building is stained a dull green while the vertical redwood siding on the side walls is stained a dark charcoal. Redwood is also used for the planter boxes; the rectangular blocks, made from old railroad ties, of the garden floor; and the garden fence. All interior ceilings and walls are painted white; the wood floors are stained a warm black.

DATA: descriptions and sources of the major materials and furnishings shown.

CABINETWORK
All: vertical-grain Douglas Fir/perforated hardboard/custom-made.
DOORS, WINDOWS
Doors: vertical-grain Douglas Fir. **Window Mullions and Sills:** redwood stained charcoal gray.
LIGHTING
All: incandescent ceiling-hung fixtures/metal and glass/Prescolite Mfg. Corp., 2229 Fourth St., Berkeley, Calif.; Boyd Lighting Fixture Co., 56 12th St., San Francisco, Calif.
WALLS, CEILING, FLOORING
Walls, Ceiling: gypsum wallboard/Sheetrock/United States Gypsum Co., 300 W. Adams St., Chicago, Ill.
Flooring: existing hardboard stained warm black.

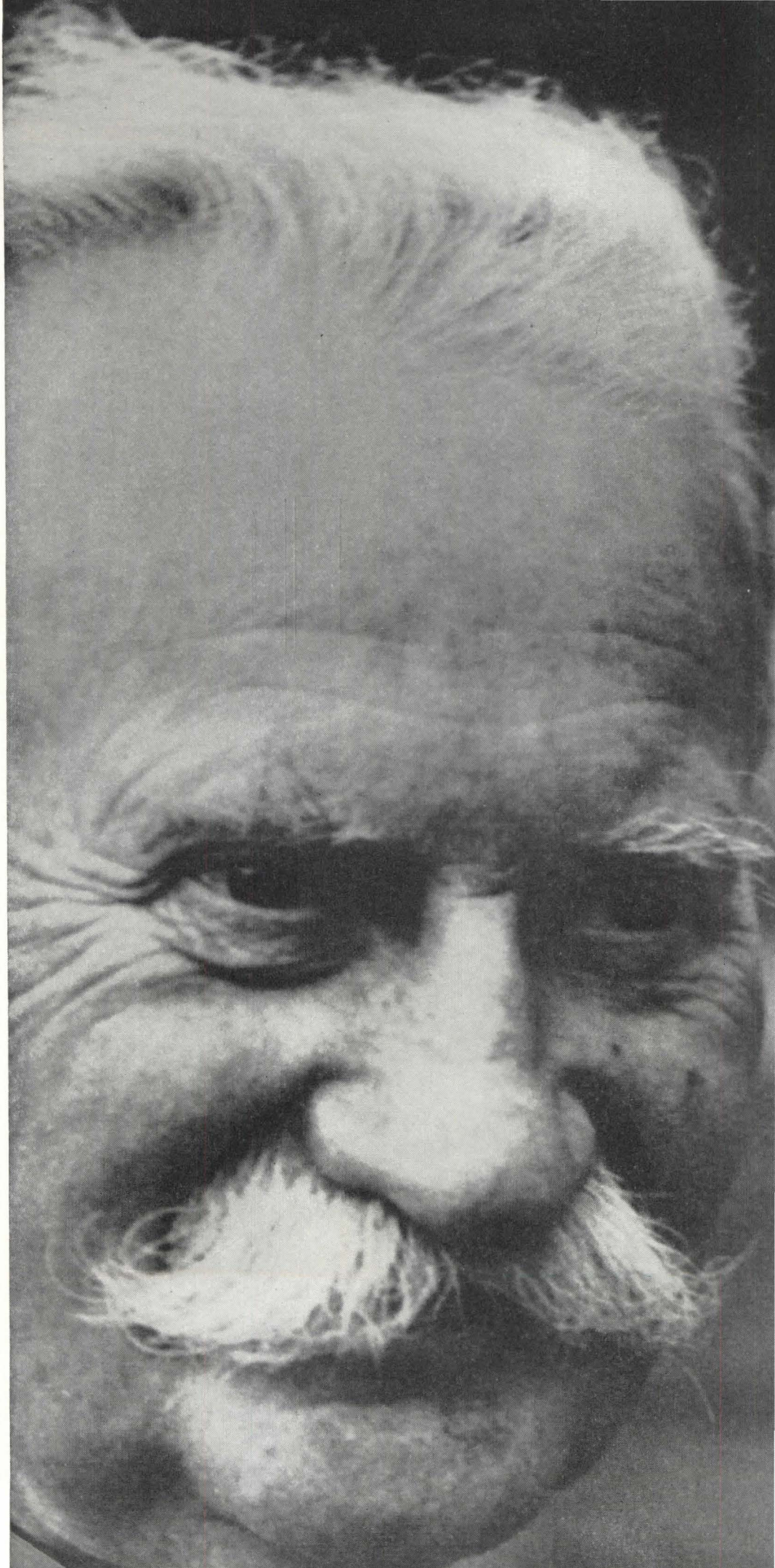






Photos: Phil Palmer

Jens Jensen and the Chicago School



BY LEONARD K. EATON

In this article an associate professor of architecture at University of Michigan pays tribute to an influential yet strangely little known artist.

Today, when landscape design is taking on a new lease on life, is a good time to observe the centennial of Jens Jensen, perhaps America's greatest landscape architect. In addition to being a superb artist in his own right, Jensen was active in Chicago at a time when the architects of that city were in an extremely creative phase, and his career shows a remarkable interaction between the arts of architecture and landscape design. It is no exaggeration to say that Jensen stood for most of the same qualities in landscape architecture that Sullivan and Wright represented in the building art; the relationship between these men is therefore of peculiar interest. Although Jensen deserves to be ranked among the outstanding American artists of his generation, his name is surprisingly little known. A brief biography is in order.

Born into a prosperous farming community in the Danish Province of Jutland on September 13, 1860, Jens Jensen was educated at the local agricultural college to take over a property which had been in his family for more than four hundred years. Dissatisfaction with the political conditions in his native province (it was frontier territory and Jensen had to serve in the German army) and personal reasons caused him to emigrate to the United States in 1884. After brief periods working in Florida and Iowa, he began in 1886 as a common laborer for the West Chicago Park System, rising in the course of the next fourteen years to superintendent of Humboldt Park. In 1900 he left the Park System to set up his own practice as a landscape designer, only to return in 1906 as landscape architect and general superintendent. Jensen served in these capacities until 1909, continuing in a consulting relationship until 1920, when political differences with Gov. Len Small forced his resignation. From 1909 until the early Thirties he enjoyed a large private practice, doing estates for Julius Rosenwald, Ogden Armour, Henry and Edsel Ford, and many others among the country's financial and industrial leaders. In 1935 Jensen retired to Ellison Bay, Wisconsin, to found a school, "The Clearing," which is still maintained on his principles by the Wisconsin Farm Bureau Federation. He died October 1, 1951.

When a young man in Europe, Jens Jensen had experienced both the formality of the French garden and the freedom of the English landscape park, but there is no evidence that he thought seriously of landscape architecture as a career until a few years after his arrival in Chicago. The prairie landscape around that city made a profound impression on him. In old age he recalled that on his first train ride into the city, the crabapple and the hawthorn, natives of the area, affected him strongly by their beauty; in time their branches came to symbolize the horizontal line of the prairie itself. He was also struck by the richness of the color at every season of the year, but especially in the autumn. Every weekend he botanized in the country, coming to know well all the plants which were indigenous to the region. In 1888 he planted, in a corner of Washington Park, what he called his "American Garden." It consisted mostly of perennial wild flowers, stock which he had gathered himself with a team and wagon. Nurserymen were unable to supply them since there had never been any demand. To Jensen's delight the transplantings flourished, and the garden was exceedingly popular with the public, which recognized the wild flowers as old friends. Over the next few years Jensen gradually developed the theory of the prairie garden, a form specifically adapted to the Midwest. Probably the most important aspects of his doctrine were his insistence on the use of native plant materials and his rejection of imported varieties. There was nothing new about these ideas; they were part of the teaching of the elder Olmsted, whose work Jensen undoubtedly encountered at the World's Fair of 1893. What *was* new was the consistency and skill with which Jensen applied them. They were concepts much needed at that time in Chicago. The city was full of newly affluent people who yearned to demonstrate their wealth in ostentatious gardens containing rare and exotic plants. To these individuals Jensen turned a deaf ear. He would, he declared bluntly to Wilhelm Miller, a writer for *Country Life in America*, "do nothing for show," and his practice bore out the truth of his claim.

Jensen was a great regional artist. So devoted was he to mid-America that he was actually reluctant to undertake a seaside estate for Edsel Ford on the coast of Maine for fear that he would be out of sympathy with the site. As it ultimately developed, the job was a great success, but Jensen was always happiest when working in his beloved Midwest.

Unlike Wright, with whom he is usually compared, Jensen never felt the necessity of world travel. Except for a single trip back to Denmark in 1929, he never returned to Europe, and it does not seem to have occurred to him to visit the Orient. Insofar as can be determined, all of his executed works are within the boundaries of the continental United States, and most of them are concentrated in Illinois and Michigan. Clearly he was not troubled by the rootlessness which characterizes so many 20th Century artists. On the contrary, his writings are filled with songs of praise to mid-America, and he was obviously quite content to work there. Like Wright he displayed, particularly at the end of his life, a pronounced dislike of city life and a bias in favor of rural living. This feeling is quite understandable when it is recalled that Jensen witnessed the progressive deterioration of an urban environment which he himself had struggled desperately hard to humanize. The wonder is that he stayed in Chicago so long and did not move to northern Wisconsin until 1935.

Photo: Chicago Park District

Meadow in Columbus Park in Chicago

Even more than with the architecture of Louis Sullivan and Frank Lloyd Wright, Jensen's design concepts grew directly out of the soil and owed nothing whatever to any Eastern or European precedent. Aside from the landscape itself, the chief influence acting upon Jensen during his formative years was musical. In speaking of one of the earliest prairie gardens, the Rubens estate at Glencoe, Illinois, he remarked that many things had gone into it. Particularly important were Schubert's "Unfinished Symphony" and a deepening knowledge of the native flora of Illinois. The "water feature" here was essentially an attempt to recreate an Illinois water system in miniature—spring, brook, cascade, river, and lake. Japanese iris and geraniums were used as stopgaps until wild iris and

prairie phlox could be established. Jens Jensen was a thoroughly original artist who drew his basic inspiration from the region which he made his own.

Small works such as the Rubens garden were the prelude for Jensen's first major undertaking, a tremendous remodeling job for the West Park System of Chicago. In 1906 conditions were especially favorable for this effort: the city was undergoing a civic renaissance remarkable in the history of American urbanism. At the new University of Chicago, on the Midway, the distinguished faculty assembled by Pres. William Rainey Harper was rapidly putting Chicago on the intellectual map; among its luminaries at this period were A. A. Michelson, John Dewey, and Thorstein Veblen. In the field of literature, Harriet Monroe was publishing in *Poetry* magazine the first verses of Carl Sandburg, Edgar Lee Masters, and Vachel Lindsay. Theodore Dreiser was working on his Chicago novels, built around the career of the traction magnate, Charles Yerkes. In architecture, while Louis Sullivan had already done his last great building for Chicago, a number of excellent firms were working in his tradition, and the famous Burnham plan was being formulated under the egis of the Commercial Club. Out in Oak Park, Frank Lloyd Wright was in the midst of his magnificent series of prairie houses, which changed the entire concept of American residential building. In politics the forces of righteousness appeared to have at least a fair chance of cleaning up the city; Lincoln Steffens, the well-known muckraker, reported that Chicago was at least half-free of graft and corruption—much further along the road to good government than most other American municipalities. It is not surprising, then, to find Jensen coming back into public service as general superintendent and landscape architect for the West Chicago Park System.

Jens Jensen was closely connected with many aspects of this revival of Chicago's civic consciousness. As a member of the Cliffdweller's Club he was well acquainted with the city's cultural elite. Carl Sandburg and Vachel Lindsay were good friends, and he knew the poetry of both men well. The sculptor, Lorado Taft, was likewise an intimate, and Jensen more than once showed his interest in the possibilities of sculpture in the landscape garden by staging exhibitions in the city parks. More important still were Jensen's connections with the business leaders of Chicago, who at this time were striving mightily to improve the physical fabric of their city. Jensen shared with these men an enormous willingness to serve on boards and commissions of all kinds and to agitate unceasingly for every variety of worthwhile civic project. Thus he took the lead in the struggle to set aside the lands now known as Cook County Forest Preserve, still the largest wilderness area contiguous to any major American city. Convinced that America's finest recreational lands were being misused, he devoted an unconscionable amount of time and energy to the cause of conservation. In all these activities he came into close contact with men like Ogden Armour and Charley Wacker, for both of whom he later did private estates. A sociologist would say that he had ready access to the power structure of Chicago. It could be added that Jensen was a public figure in the best sense of the term: a man who devoted a substantial portion of his time to work in the city's behalf.

Part of Jensen's appeal lay in his personality, unquestionably one of the most persuasive in Chicago. Well over six feet in height with ruddy complexion and flashing blue eyes, he automatically brought to mind the image of his Viking ancestors. In later years he was distinguished by a superb head of white hair and bristling white mustachios. Like many men of his day, he knew how to dramatize himself through his dress, and enjoyed doing so; he was always immaculately clothed in rough tweeds, which contrasted beautifully with the richly colored silken ascot scarves made for him by Mrs. Jensen. The scarves were drawn through a silver ring, cast in the form of a Danish sea wolf. All witnesses agree that he was really eloquent when speaking for a cause in which he believed, and while he dearly loved to hold the center of the stage, he could on occasion be an excellent listener. In general his conversation was much more pungent than his writings. To a wealthy client who wanted to build a French chateau on his estate in Lake Forest he growled, "You are an American. Why do you want to be a stuffed shirt?" Concerning a fountain which adorned a public park in Marquette, Michigan, he remarked to a group of local businessmen that it was "like a diamond stickpin in the necktie of a dirty bartender." For newspapermen, what Jens Jensen had to say was ordinarily excellent copy. After 1920 the deterioration of municipal politics in Chicago caused him to retire from work on the city's behalf and to concentrate on the establishment of state park systems. In this field his influence, not only in Illinois, but in other midwestern states as well, was far-reaching.

What, then, was Jens Jensen's reaction to the Chicago architecture of his day? We may begin by stating that he was a devoted admirer of Louis Sullivan and all he stood for. Jensen responded immediately to Sullivan's theories that America must have a new architecture, radically different from the outmoded forms of Europe and the East Coast. As Sullivan hated the Beaux Arts eclecticism of McKim, Mead & White, so Jensen scorned the formal French and Italianate gardens of the East. His relationships with American Society of Landscape Architects were surprisingly like those of Sullivan and Wright with AIA. Except for the Olmsteds, he had no regard whatsoever for his eastern colleagues, and again like Sullivan and Wright, he lost no opportunity to make his feelings abundantly clear. He was bound to Sullivan philosophically by their mutual, highly emotional response to nature. Although friendship with Sullivan was difficult, Jensen always felt close to the great defeated leader of the Chicago School. Jensen mourned Sullivan's descent into alcoholism, contributed to his support at the end of his life, and wept when he died.

With Wright, Jensen's relationship was more complex. Here again there was an obvious personal and professional kinship, since both men got their start in Chicago at approximately the same time and stood for approximately the same things in their respective arts. For many years the two were close friends. Jensen's secretary of 1918-20 recalls that Wright was a frequent visitor at the Jensen office and that there was much correspondence between them. Wright offered Jensen the hospitality of Taliesin and in later years even invited him to lecture to the Taliesin Fellowship. Few artists were so honored. Perhaps even more important was Jensen's vigorous defense of Wright during the Twenties, a difficult period for the great architect in most respects. Although he did not always approve of what Wright was doing, Jensen sensed in him a great creative imagination and therefore spoke up in his behalf at a time when it was not popular to do so.

In some respects the Wrightian imagination was very much at odds with the ideals for which Jensen himself was striving. Wright's enthusiasm for Japanese culture is well known. Jensen, in contrast, had an abiding distrust for the Japanese character and intensely disliked Japanese landscape gardening. On one occasion he observed, "The Japanese mind distorts and destroys the spirit of plants for its own pleasure. This is clearly an expression of selfishness. . . . The changing of

a flower, a tree, or any other life into a different shape than that of its own choosing deprives it of its birthright as a living thing. Such methods have nothing in common with the art of gardening." In a letter to a German editor in 1937, he wrote, rather picturesquely, "Frank Lloyd Wright is a dear friend of mine and a great architect, but Oriental, and here we part. When the last Anglo-Saxon has gone to his forefathers, the soul of Frank Lloyd Wright will halloo over his grave." In addition to his doubts about Wright's Japanophilia, Jensen had reservations about his friend's arrogance. A man of genuine humility himself, he could not stomach Wright's insistence on total virtue in his own work and complete incompetence in that of his fellow architects. It is not surprising that their one collaboration was a stormy affair, or that they finally broke off their friendship in 1946.

Jensen's attitude toward architecture in general was conditioned by his discovery that architects usually wanted to do their own landscaping. This, he said, was a vast mistake, since the two arts in reality are entirely different in character. In *Art Has Its Roots in the Soil* he wrote: "What comparison is there between the creating of a building, which fits into a narrow and limited space, and the creating of large pastoral meadows where the horizon is the boundary, ever changing in light and shadow with the clouds above, with the light of early morn, at eve when the rays of the setting sun cast their reflection upon the earth, in the silvery moonlight, and in the changing colors of spring and summer and fall and winter? Such are the keys to landscaping." If there is a typical Jensen landscape, it is probably the great meadow in Columbus Park, Chicago. It is beautifully adapted to catch and reflect the rays of the sun at every time of the day, and in addition, it conveys a limitless sense of space in the very heart of a great industrial city.

At the same time that Jensen was fighting for the professional integrity of the landscape architect, he was also pushing the West Park commissioners of Chicago toward an awareness of contemporary architectural design. It is largely due to him that some of the park structures in the City have real architectural interest. Typical of these is the light, airy pavilion structure in Humboldt Park by Hugh Garden (1907); resembling no historic building, it is distinguished by its strong lines and graceful proportions, and exhibits a remarkable integration with the landscape beyond. Cleverly conceived to allow for boat storage underground, this building was published in Hugo Koch's *Gartenkunst im Städtebau* (Berlin, 1914) a volume which did for Jensen what the Wasmuth publications of 1910 did for Wright. In fact, it is fair to say that Jensen had a larger European reputation than any American artist of his generation except Wright. His work was frequently seen in the pages of *Gartenkunst* and *Gartenschonheit*, and he was also well known in the Scandinavian countries.

Even more characteristic of the kind of structure which Jensen wanted for his parks was the boat-landing pavilion designed by John Van Bergen, a Wright disciple, for Columbus Park in 1920. With its long, low horizontal lines and powerful treatment of the structural elements, the building is a perfect example of the "prairie style." Unhappily, funds ran out and it was never built.

So strong was the prairie influence during Jensen's years with the West Parks that it even extended to the lighting fixtures. More than one visitor has noted that these look "Wrightian." In point of fact they are the work of Hugh Garden a prominent member of the Chicago School and a close personal friend of Jensen. Several of these fixtures adorned the entrance to the famous rose garden at Humboldt Park. This garden, today no longer planted with roses, was an excellent example of Jensen's painstaking attention to detail. For several years he planted it with zinnias to prepare the soil before the roses were ever set out. It was also notable as one of Jensen's few formal works, so conventionalized that it contained no prairie flowers. He did, nonetheless, put hawthorns at the entrance to symbolize the meeting of woods and prairie and he lowered the garden by two feet in order to place the flowers well below the level of the eye, as they are on the prairie in spring. In the later years of his long and phenomenally productive career Jensen condemned this garden as a bit of youthful folly, but it remains dear to the hearts of many Chicagoans. Hugh Garden, the designer of the fixtures, later helped Jensen with the architecture of his school buildings in northern Wisconsin. He recalls that Jensen was exceptionally easy to work with and adds thoughtfully, "I never in my life appreciated a man more than Jens Jensen."

No study of Jensen's contributions to the Chicago Park System would be complete without some mention of his plan for a Greater West Park System. In 1917 the West Park Commission, alarmed by the burgeoning growth of the City, asked Jensen to undertake a survey with a view to extending the system. He spent the entire winter of 1917-18 on the job and in the spring of 1918 presented the plan to the Commission. Essentially he proposed a belt of parks following the north and south branches of Chicago River and Des Plaines River to the west and, as connecting elements, a number of wide vehicular parkways, most of them following existing streets. These parkways were to be approximately 150 feet wide with a small park running between the two ribbons of traffic. Small service drives were to be provided for the houses which bordered the Parkways.

The qualities of Jensen's plan may be most clearly seen by comparing it with Daniel Burnham's park proposal of 1909. Burnham contemplated only three large parks: one to the south, one to the north, and one due west of his proposed civic center. These three parks were to be connected by a number of diagonal and radial streets which were to serve not only as articulating links for the system but also as "lifelines of the City." The whole scheme is much more arbitrary and geometric than Jensen's. Behind it, in fact, lies the concept of Baron Haussmann's Paris, from which Burnham never quite escaped. Whereas Jensen aimed to bring the out-of-doors within reach of the masses of working people on the West Side, Burnham wanted to satisfy the affluent membership of the Commercial Club. Hence his design stresses axiality and magnificence; Jensen's plan takes much more advantage of the contours of the land. It is one of the tragedies of American municipal history that it was never adopted. Unhappily it was stopped by the decline in Chicago's political life which began with the last election of Carter Harrison, Jr., and culminated in the era of Big Bill Thompson.

Jensen's actual working relationship with the two great leaders of the Chicago School, Sullivan and Wright, is of particular interest to architects. Where Sullivan is concerned, the great example is Jensen's landscaping of the Henry Babson house in Riverside, Illinois. This fine residence (1907), now unhappily destroyed, was located only a few blocks from Frank Lloyd Wright's great Coonley house. Its front, as Hugh Morrison notes, presents "... an appearance of comfortable amplitude, dignified privacy, and admirable adaptation to its site." The remarkable feature of this elevation was certainly the large balcony, projecting from the second story and executed entirely in wood. The garden façade reveals the same mastery of composition; historians now agree that much of the actual design was done by George Grant Elmslie, Sullivan's chief designer for fifteen

1

Details showing Jensen's approach to landscaping: a pool at Babson House 1 *which catches the reflection of the side portico; view of the meadow* 2, 5 *in front of Harley Clark House; Jensen's sugar maples planted across the front of Frank Lloyd Wright's Roberts House* 4 *and a view from its terrace* 3.

". . . he worked with plant material, rock, water and space;
tricks and gimmicks were anathema to him
and he scorned those who used them . . ."

2

Photo: Gates Priest

Photo: Carrol K. Eaton

3

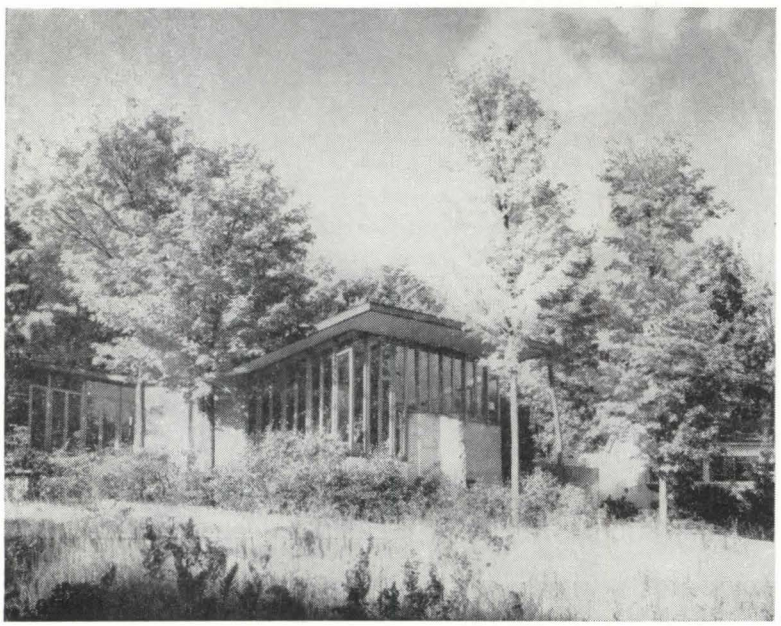


Photo: Ike Wood

4

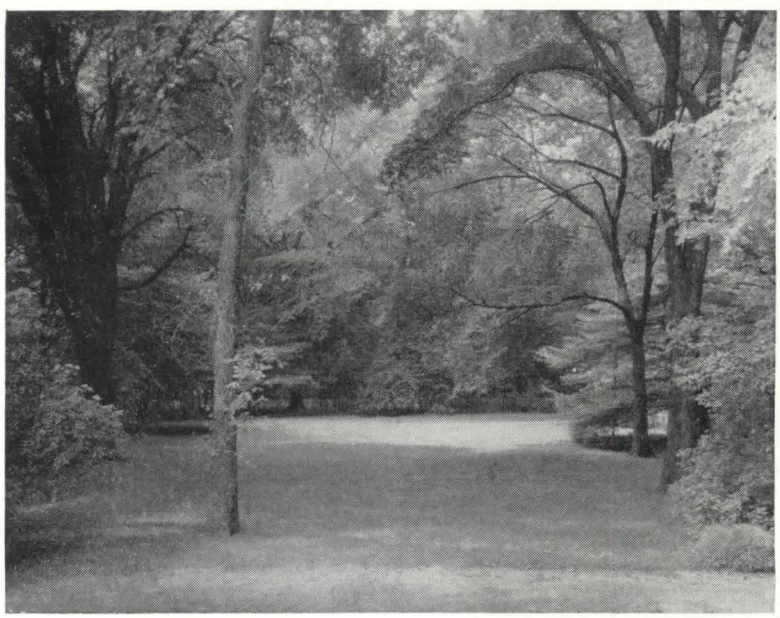


Photo: Gates Priest

5

years. After the completion of the house, Elmslie, with his partner, William Gray Purcell, did various other buildings for the estate and they were to have done the landscaping as well. Their plans, however, were put aside, and Jensen was called in. The result was a landscape scheme where planting accentuated the horizontal lines of the house. Jensen himself wrote that crabapples were intended to frame the view of the house and give an invitation to the prairie, which is not far away. Especially characteristic of Jensen was the water feature, a superbly handled pool which catches the reflection of the house's side portico most attractively. A great number of Jensen's compositions contain such features. Water was one of his favorite materials, and he inevitably used it with consummate skill. He was, in fact a remarkably pure landscape architect. Customarily he worked with plant materials, rocks, water, and space; tricks and gimmicks were anathema to him, and he scorned those who used them. Many of the fine prairie houses of the 1900-1914 period were spoiled by poor settings, but the Babson house was remarkable for its wonderful union of architecture and landscape.

In the Twenties Jensen was less fortunate in his collaborators. It is one of the paradoxes of American cultural history that while his patrons were willing to accept extremely original designs in landscape architecture, they demanded exceedingly conventional houses. Moreover, the vital impulse which animated the original Chicago School had failed, and Jensen therefore found himself not infrequently working with architectural nonentities. Hence the landscaping often dominates the total composition during these years. This tendency was abetted by Jensen's own enormous prestige, which usually enabled him to dictate the actual placement of the house on the site. Often clients would consult him before the purchase of land, and sometimes they asked him for advice on the selection of an architect. With the architectural design of the house itself Jensen never interfered; he did demand, and usually obtained, absolute control over its surroundings. Typical of his work in the Twenties is the Harley Clark estate at Evanston (Richard Powers, architect). With its magnificent lacy network of branches overhead, the exterior space created by Jensen has the breathtaking quality of a fine Gothic cathedral. The linear patterns are reminiscent of the vaulting ribs or window tracery of Chartres and Amiens. Jensen is usually described as a naturalistic landscape architect, but a space like this is naturalistic only in a very special sense. Nothing like it occurs in nature, but it

does represent a highly idealized and carefully ordered concept of nature. In every respect it is the work of a great artist. Appropriately enough, Jensen always thought of himself as carrying on the traditions of North European art in the New World. It is significant that he had vast respect for Gothic architecture. It is also important to note that he had very little regard for most of the architects with whom he worked and that on at least two important occasions he went so far as to mention the name of Frank Lloyd Wright to his clients. The Twenties were, however, as Lewis Mumford has remarked, "a sere decade" for the great architect, and a Wright-Jensen collaboration did not eventuate until 1936.

In that year, Wright was building a small country house for Mrs. Abby Longyear Roberts, a prominent citizen of Marquette, Michigan, whose daughter and son-in-law were members of the Taliesin Fellowship. Mrs. Roberts, a knowing and enthusiastic gardener, had a hilltop site with a northern orientation, and for it Wright designed a small house with a superb high-ceilinged living room overlooking a wonderful open meadow. She was not, however, satisfied with the relation of the house to the ground on which it stood, and so, at Wright's suggestion, Jensen was called in to do the planting. It speaks volumes for the closeness of the relationship between the two men that Wright would even mention another name; ordinarily he considered that his services were "inclusive," extending not only to landscaping, but also to the design of household furnishings. In any event, Jensen came over from his school at Ellison Bay, Wisconsin, and worked out the planting which is shown here. The effect of this landscaping was to relate the house much more closely to its site and also to screen it partially with the tall sugar maples which Jensen planted across the front. In addition, he took certain other measures on the estate. These included a change in the entrance road to make the house more easily accessible, the laying out of a charming flower garden for Mrs. Roberts, and the planting of evergreens around an existing pool to make it "more mysterious." Here Jensen wanted to create a water feature where the presence of Scandinavian trolls might be felt, but Mrs. Roberts forcefully replied that while trolls might be all right for Norway or Denmark, only Indian spirits were acceptable in Michigan's Upper Peninsula! There the matter rested. Neither of these measures bore any direct relation to the house, and their location is indicative of Jensen's feelings about this type of landscape element. Ordinarily he felt that flowers should play no part in the landscaping of the house itself but should be concentrated in another section of the grounds. In this case the form of the garden is a helix, and its contents can be varied according to the owner's wishes. Much the same theory applied to water features; they were usually placed to one side, as at the Babson House. Wright, in contrast, had wanted to place a pool directly in the center of the meadow. Jensen took the meadow as it existed (it was the kind of terrain which he might have created if it had not already been there) and emphasized its edges by planting evergreens along the sides. He also put in massed sumac for color in the fall.

The effect of all these innovations was to infuriate Wright. He demanded to know why Jensen had spoiled the elevation of his house with "those spindly trees." Jensen, with the long perspective of the landscape architect, replied that the trees would not always be spindly. Furthermore Wright objected to the alteration in the access road and demanded to see Jensen's planting plan. Here it developed that Jensen had simply walked about the estate with Mrs. Roberts dropping sticks in the ground and indicating to her where the different types of plant material should go. This procedure, incidentally, was quite characteristic of Jensen in the late period of his career. In the early period, his office customarily furnished detailed planting plans to clients; but after 1935, Jensen gradually withdrew from practice, literally carrying his office under his hat. Since Mrs. Roberts was in a position to be her own superintendent, their arrangement worked beautifully. It is easy to envision cases where this might not have been so.

The upshot of the entire affair was a decided strain on the relations between Wright and Jensen. Collaboration between two artists with such strong personalities was, after all, bound to be a tricky proposition. As always, Wright fought hard for his ideas, and Jensen, as might have been expected, fought with equal vigor for his concept of the appropriate landscaping. Who contributed most to the total achievement of house-and-landscaping is hard to say; partly because of Jensen's participation and partly because of later additions by the owner, Wright was for many years reluctant to acknowledge the house as his. The most recent listing of his works, *Frank Lloyd Wright: Writings and Buildings* (New York, 1960) states that it was "unsupervised" (despite the fact that much of the actual construction was done by the apprentices of the Taliesin Fellowship). It is good to know that the friendship between Wright and Jensen survived the harrowing experience of collaboration. The final break between them did not come until after World War II.

In sum, Jens Jensen was a major American artist, one of the most distinguished this country has produced. His design concepts were as original and daring as anything developed by the Chicago School in architecture, and with that School he had an intimate connection. For thirty years he pushed what he understood to be contemporary architecture whenever he could. One result of his efforts was a number of interesting structures in Chicago's west parks; even more might have been built if funds had been available. It would be too much to say that the architects of the Chicago School turned to Jensen for inspiration; he has no more claim than anyone else to being the first to notice the long, low, horizontal line of the prairie. It would be more accurate to state that he and they profited from the new spirit of independence which was abroad in the Midwest during the early years of the 20th Century. Perhaps the central tenet of the new movement was a belief that the region had a cultural identity distinct from that of the rest of the nation. Wright, Sullivan, Purcell and Elmslie, Sandburg, Masters, and Jensen, all adhered to this notion, and from it they derived some of the finest works of art America has seen. The achievement of Jens Jensen, must, then, be understood in relation to the work of his contemporaries. In his best moments none of them surpassed him. In this, his centennial year, it is proper to pause for a tribute to Jens Jensen.

Notes on Liability Insurance: Part II

BY JOHN M. LAKE

In last month's P/A, an insurance consultant from Syracuse, N. Y., described some of the problems connected with contractor's liability insurance and suggested a more rigid system of inspection on the part of the architect. The second part of this article explains the proposal in more detail and suggests a new version of insurance specifications and of certificates of insurance.

The purpose of the "open sky" inspection plan can be simply stated: most contracts of casualty insurance, no matter how broad in concept and wording, are issued with forms, endorsements, and other supplementary qualifying verbiage, which tend to narrow the scope of protection either for a given class of insureds or for the specific contractor being insured. This depends upon loss experience and/or potentiality (in the area of frequency or severity, or both) and upon trade practices. Thus an excavation contractor may have excluded from his policy any damage done to underground wiring, conduits, piping, etc., as this is normally excluded from the excavating underwriting classification. It is usually (but not always) coverable for an additional premium, but many contractors do not carry it as a matter of course, preferring to consider underground damage a hazard of their vocation. While it might not always be necessary for an architect to concern himself with this particular aspect of coverage, if any excavation work is to be done where the possibility of chopping into a gas main exists, the damage potential to life, limb, and property need hardly be stressed. The point being made is that a certificate of insurance per se should never be relied upon for anything more than incidental intelligence regarding the insurance carried by a given contractor. The only certain way to nail down the insurance situation is to obtain a true copy of the coverage as it exists together with a certificate containing the assurance that coverage will not be cancelled or changed without proper written notice to the owner.

Our office believes that a standard certificate form should be drawn up and specified (something on the order of the certificate shown overpage) and obtained from the contractor in each instance; and that when this is done (as per suggested specifications, also shown overpage) the architect will have done everything reasonably possible to protect the owner's interest. This certificate must be obtained from every contractor who sets foot on the job, whether he is the general contractor, a prime contractor in the mechanical trades, or a subcontractor. Only in this way can one be sure that no contractor, subcontractor, or their employes can fall back on the owner because of lack of proper insurance on their part. Each contractor has his own liability and also has liability for the acts of others who do work for him (employes or subcontractors). Properly written insurance will provide financial backing for contractors who otherwise might be unable to defend themselves properly. This eliminates the need for a plaintiff attorney to turn to all other parties at interest to step in and fill the void.

We recommend that true copies of the policies be attached to the certificate. This applies whether the insured contractor has four different policies with four companies, or three policies (the minimum number) all with the same company. We also reqiure that a company shall not terminate or change the coverage in any way without first mailing, by an absolutely trackable system (a registered or certified letter), notice of such change ten days prior to its effective date. Naturally, if the policy should expire prior to the completion of the project, it would be incumbent upon the contractor to furnish a renewal certificate, or the necessary policy copy, to replace the one which had expired. There is every reason for doing this. Policy forms are known to be changed on an industry-wide basis, but are not usually put into operation until a policy is renewed. Under these circumstances, it is material that a policy which renews previously approved coverage be identical or broader, but never narrower or lower in amount, than the previously approved coverage. The registered or certified mail requirement is a bit more bother, to be sure, but the small additional expense and time involved are more than warranted in that any such item being received in the mail is automatically given preferred attention by the clerical help and is much more apt to receive the personal attention of the architect or a key technical employe. Also note that the certificate is always made out in favor of the owner, but for purposes of accountability of certificates, policies, and any cancellation notices, the owner is addressed c/o the architect, as the latter is, after all, responsible for seeing to these things. However, the trained eye of a consultant, well versed in insurance and qualified to spot the flaws in either the certificate or the policy, should carefully check all material received from the contractor's insurance carrier.

It is fairly certain that some negative reaction would be received from the insurance companies indicating an unhappiness to conform to any certificate not of their own design and to the hitherto seldom heard request for true copies of insurance policies. But the architects should remember that they have no qualms about specifying everything else in connection with the job, including the forms of surety bonds to be used. Therefore, there is little doubt that proper pressure can be brought in order to obtain a certificate of insurance designed to fit the owner's needs and not the convenience of the insurance company or the expediency of the contractor.

On the next two pages, our suggested forms of the insurance specification and of the certificate of insurance are shown and explained.

SUGGESTED SUPPLEMENTARY GENERAL CONDITION RELATING TO CONTRACTORS' AND SUBCONTRACTORS' LIABILITY AND EMPLOYE BENEFITS INSURANCE

A. **General:** No Contractor shall commence work under this contract until he has obtained all insurance required under this paragraph and such insurance has been approved by the owner, nor shall any contractor allow any subcontractor to commence work on his subcontract until the same insurance has been obtained by the subcontractor and approved by the owner. Each and every contractor and subcontractor shall maintain all required insurance under this section during the life of the contract, and for no less than one year thereafter.

B. **Form of Proof of Carriage:** True copies of all policies specified shall be filed with the owner, to which shall be attached certificate of insurance as per the form prescribed herein, from which no deviation will be allowed. Any certificate filed with the owner which shall be found to be incomplete or not according to form or to which true copy of policy is not attached will be returned as unsatisfactory.

C. **Types of Insurance:** (B.I. = Bodily Injury; P.D. = Property Damage; limits are shown in thousands of dollars.)

1. Comprehensive General Liability, including:	
A. Premises and Operations	100/300 B.I.; 50/100 P.D.
B. Elevator Liability	100/300 B.I.; 50/100 P.D.
C. Contractors' Protective Liability	100/300 B.I.; 50/100 P.D.
D. Products Liability, including Completed Operations Coverage	100/300 B.I.; 50/100 P.D.
E. Contractual Liability	100/300 B.I.; 50/100 P.D.
2. Comprehensive Automobile Liability, including:	
A. All Owned Automobiles	100/300 B.I.; 50 P.D.
B. Non-Owned Automobiles	100/300 B.I.; 50 P.D.
C. Hired Car Coverage	100/300 B.I.; 50 P.D.
3. Workmen's Compensation, including:	
A. Workmen's Compensation Insurance	Statutory
B. Employers' Liability	100/100 B.I. only
4. New York Disability Benefits Policy	Statutory

Bodily Injury coverage under both Comprehensive General and Comprehensive Automobile forms shall include the "Occurrence" basis wording, which means an event, or continuous or repeated exposure to conditions, which unexpectedly causes injury during the policy period.

No insurance required under this section of the contract shall be carried with an insurer not authorized to do business in New York State by the New York State Insurance Department.

SUGGESTED FORM OF CERTIFICATE OF INSURANCE

This is to certify that _____ Insurance Company of _____ has issued to _____, Contractor, the policy or policies listed below, the true copies of which in their entirety are attached to this Certificate and that coverage is in full force and effect as of the date of this Certificate, up to the several limits of liability hereinafter stated. Notice is hereby given that _____ Insurance Company will not, prior to completion of the project described below or any policy expiration date shown herein, whichever occurs first, terminate or change any coverage without first mailing by registered mail written notice of such action ten days prior to the termination or change, to the Principal at whose request this Certificate has been issued, addressing all correspondence, including any such notice, as follows:

_____, (Principal)
c/o_____, (Architect)
_____, (Architect's Address)

Project Name and/or Number:

Covered Yes/No	Type of Insurance	Limits of Liability	Policy Number	Expiration Date
	1. Comprehensive General Liability, including:			
	A. Premises & Operations Liability	100/300 BI 50/100 PD		
	B. Elevator Liability	100/300 BI 50/100 PD		
	C. Contractors' Protective Liability	100/300 BI 50/100 PD		
	D. Products Liability, including Completed Operations Coverage	100/300 BI 50/100 PD		
	E. Contractual Liability	100/300 BI 50/100 PD		
	2. Comprehensive Automobile Liability, including:			
	A. All Owned Automobiles	100/300 BI 50 PD		
	B. Non-Owned Automobiles	100/300 BI 50 PD		
	C. Hired Car Coverage	100/300 BI 50 PD		
	3A. Workmen's Compensation	Statutory		
	B. Employers' Liability	100/100 BI		
	4. N. Y. Disability Benefits Coverage	Statutory		

Liability assumed by the Insured in the Contract governing this Project (is) (is not) covered under the above mentioned Contractual Liability Section.

_____ Insurance Company
By: _____ Title: _____
Date: _____

On the certificate, a definite mention should be made of the project, because both the certificate and the policy copy are documents which may become important items of evidence should a lawsuit subsequently arise. Note that the certificate requires that the first form of policy be the so-called Comprehensive General (broad form) type of policy covering all of the contractor's operations other than automobile liability.

Item 1A—"Premises & Operations Liability" has to do with any and all premises and working operations carried on by the contractor in the conduct of his business, and refers to current operations as they are being performed.

Item 1B—"Elevator Liability" should be specified, because contractors use material hoists, install elevators, make use of elevators, etc.; should it at any time appear that elevator liability would apply to a given loss situation, the contractor has this coverage and the owner is partly protected because of the existence of this insurance on the contractor's behalf. If there is no exposure (that is, the contractor neither owned, constructed, installed, nor was otherwise responsible for elevators) no premium charge would be made because this coverage is written on an "if any" basis.

Item 1C—"Contractors' Protective Liability" coverage protects the contractor's interest for the acts of subcontractors whom he may employ. While the subcontractor is also being required to furnish insurance, it is for his interest only and not for the general contractor's interest. Therefore, every general contractor must carry Contractors' Protective Liability coverage as a matter of safety. This coverage is also provided on an "if any" basis; therefore, if there is no exposure there is no premium.

Item 1D—"Products Liability, Including Completed Operations" coverage, comes into play if a loss should arise from the project after a contractor has finished the job and has taken everything (tools, personnel, structures, etc.) and has left with no intention of returning. This coverage, although not written on an "if any" basis, must be included in the policy and a premium charge is made for it.

Item 1E—"Contractual Liability" is another hazard protected by the policy on a non-"if any" basis; therefore, this too will require that a premium charge be made at its inception date and that the wording of the "hold harmless" agreement specifically covered by the insurance be shown in the insurance policy as it relates to the job at hand. Otherwise, the insurance policy copy and its attendant certificate may not be accepted as fulfilling the owner's requirements.

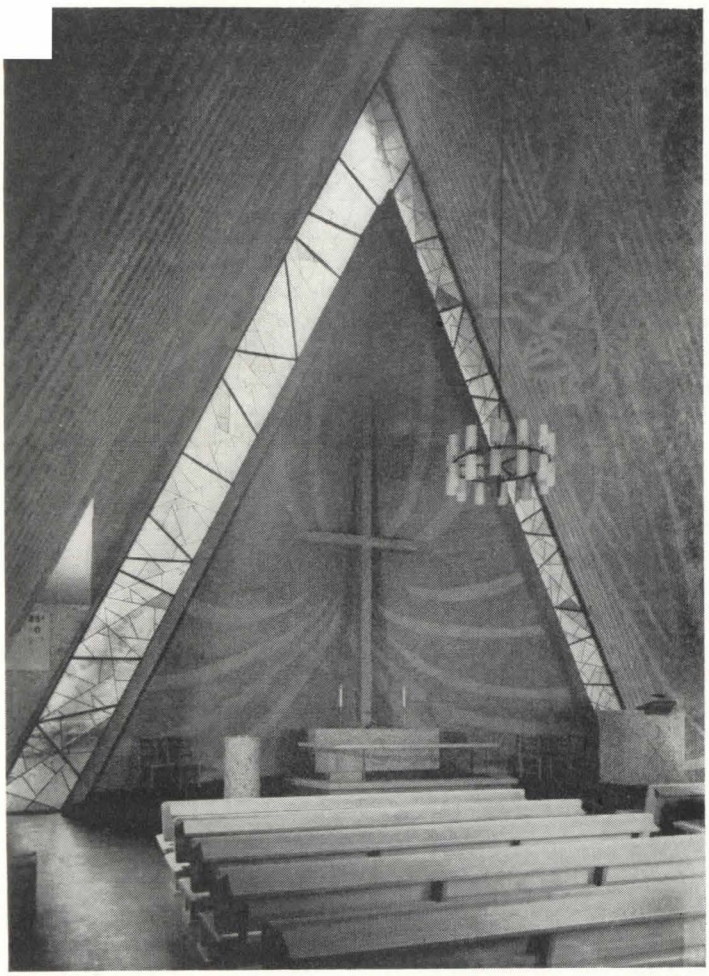
Item 2—"Comprehensive Automobile Liability" may seem to fall beyond the scope of the construction contract, but it is very commonly written in conjunction with general liability coverage under a so-called Comprehensive General Automobile Liability policy, because in many instances it is easier to include this in the policy copy (a matter of convenience to the insurance company) rather than to leave it out. However, there is a good reason for requiring that this insurance be carried by the contractor as stringently as the other forms of liability insurance mentioned above, because the other forms do not *protect the hazard of loading and unloading motor vehicles. The insurance industry long since has drawn the line on this subject, and it is the universal consensus that this type of liability insurance belongs with the automobile liability policy. Under the circumstances, the owner has a right to know whether or not the contractor has properly protected this considerable hazard to life, limb and property. Almost without exception, materials and equipment are delivered to the job site by truck and the loading and unloading hazard, while not as great as those hazards attendant to actual construction, certainly should not be allowed to go either unprotected or inadequately protected.*

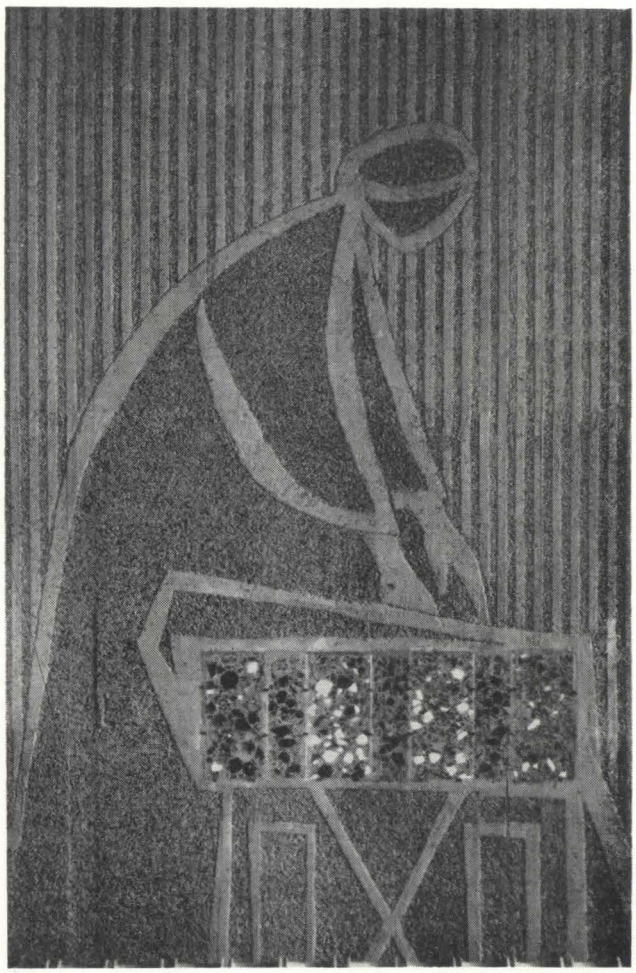
Item 3—"Workmen's Compensation" is carried almost universally since it is statutory in nature. However, Employers' Liability (which is written as part of the basic Workmen's Compensation Policy) is usually carried in the insufficient limit of $50,000. If one requires the contractor to carry stated minimum amounts of insurance, one should keep the Employers' Liability consistent with the other liability coverages. Nowadays, the contractor is very seldom allowed to walk on the job with less than $100,000 per person bodily injury coverage ($300,000 per accident), or less than $50,000 per accident property damage ($100,000 aggregate per policy year). By the same token Employers' Liability should be carried in $100,000 limits. The charge for increasing to this level the Employers' Liability portion of a Workmen's Compensation policy is nominal.

Item 4—This deals with the New York Disability Benefits Policy, which (effective January 1, 1961) is mandatory for any employer who has had two or more employes (other than domestic) on each of at least 30 days in any calendar year after June 30, 1960. As it is a fairly general practice to require the contractor to set up his shop properly regarding unemployment insurance and other collateral items of that nature, we feel that the owner's interest could not be damaged here by asking for proof of carriage of this mandatory coverage. Similar local requirements should be ascertained and proof of compliance required for jobs in other states.

Finally, the insurance company is specifically requested to make a positive statement that liability assumed by the insured contractor in the contract governing the project is covered by the Contractual Liability coverage in the certificated policy. This is a little frosting on the cake. However, should a claim be denied by the insurance company on some ground or other, this statement would be proof that the architect had intended to provide every possible protection for the owner and that the architect had required the insurance company to definitively state its position on the subject before any loss occurred. Naturally, any successful bidder would have to be furnished with an extra copy of the entire specification so that he could submit it to the insurance company for inspection and rating prior to obtaining the signature of a responsible company employee on such a certificate as this.

Since there is a segment of the specifying population that believes "hold harmless" agreements are inequitable and/or unenforceable, this paragraph may be used in the "is not carried" sense to point out, equally positively, that coverage is non-existent under the policy. In such a case the specifying architect should remove entirely (by Supplementary General Condition) the indemnity requirement imposed upon the contractor by Article 34 of the General Conditions.



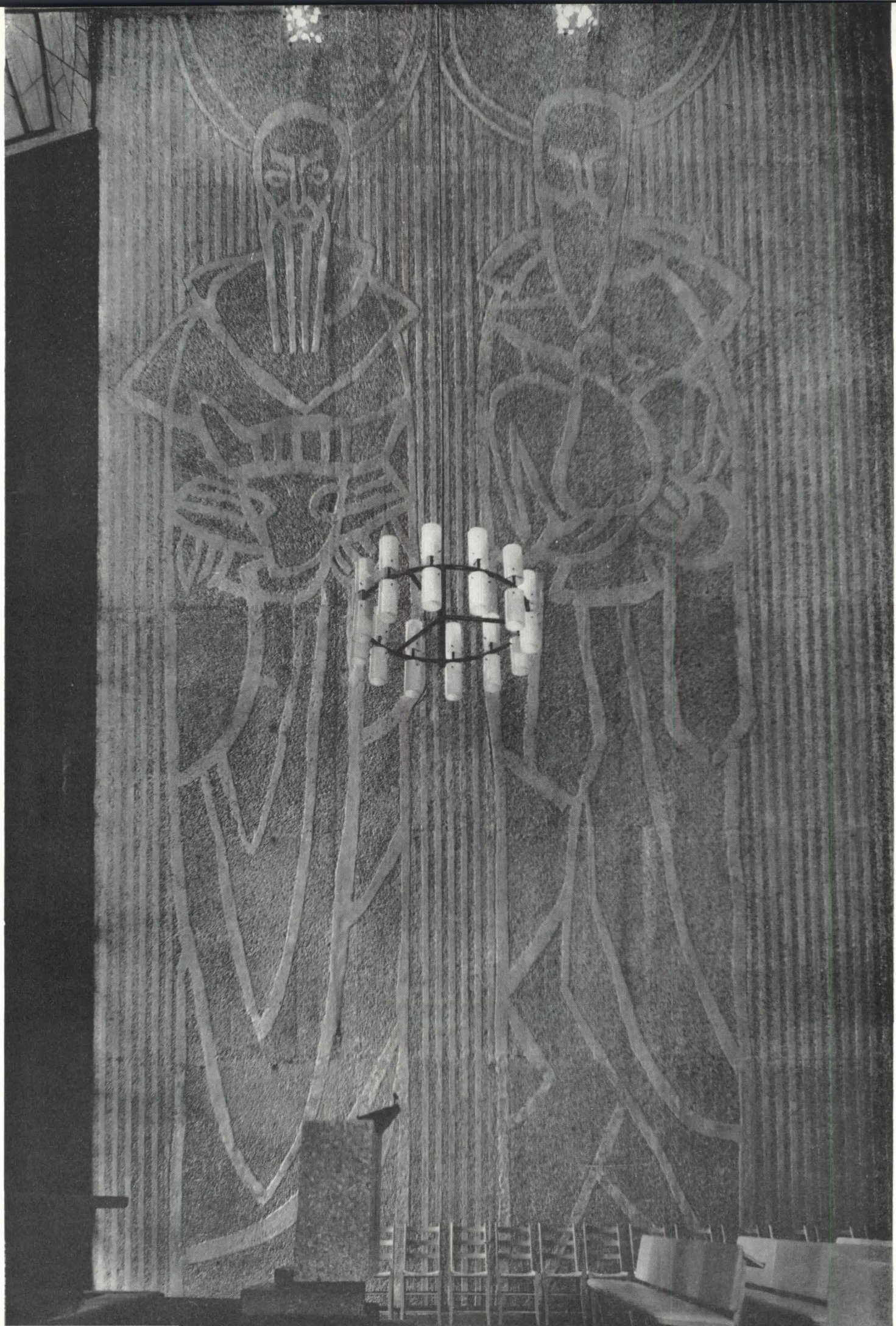


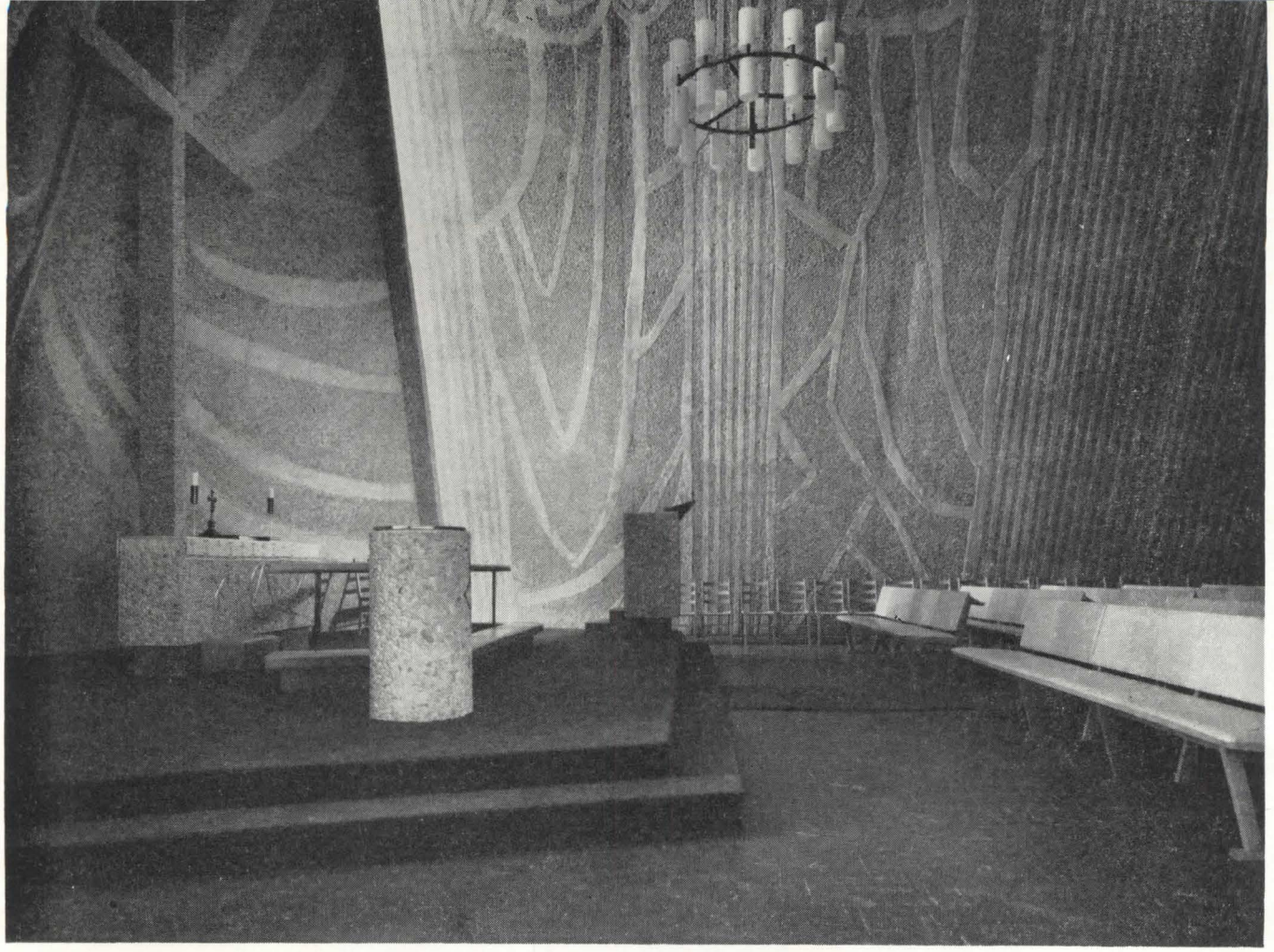
Photos: K. Teigen

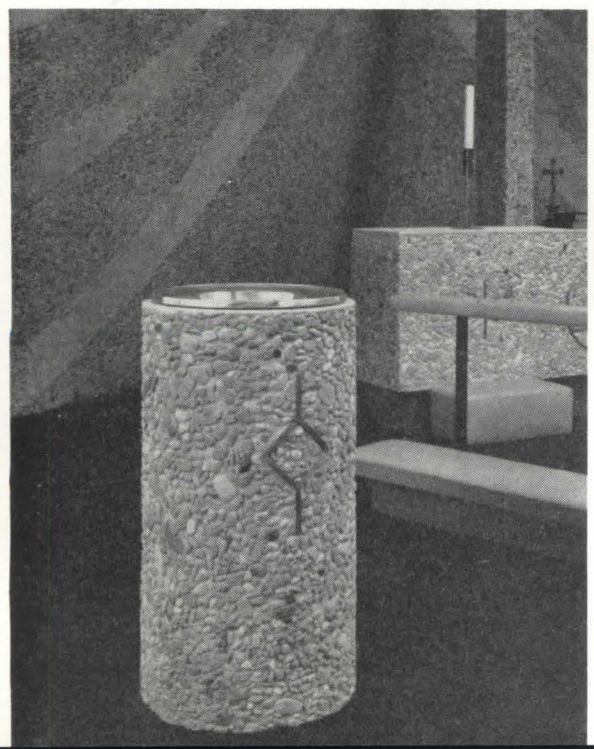
DRAWING BY SANDBLASTING

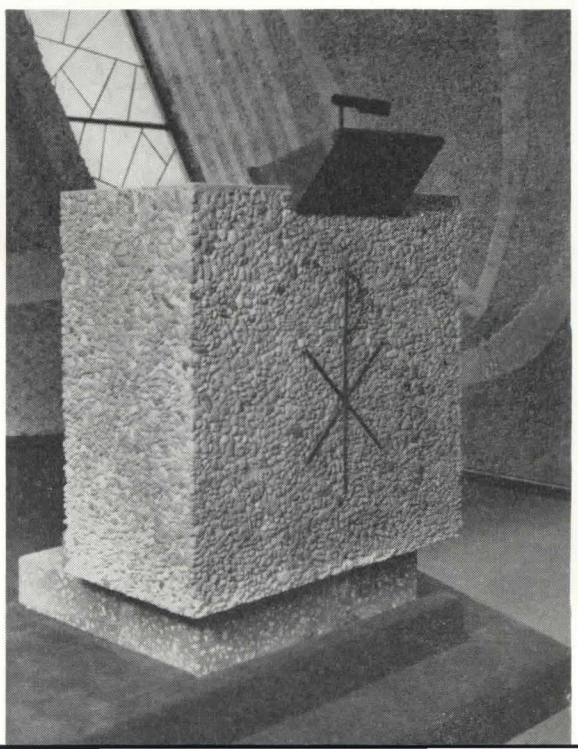
Architect Erling Viksjö's desire for a more satisfactory concrete surface led to the development of a new technique called *Naturbetong*. In the early experiments, ordinary concrete was sandblasted to expose the aggregate. Ordinary concrete, however, is not a uniform mass and sandblasting revealed the uneven distribution of the aggregate. Therefore, while working on the Government Building in Oslo, Viksjö and Civil Engineer Sverre Jystad developed a method of arranging the composition of concrete so that it would have a uniform mass and consequently a uniform surface pattern after sandblasting.

First, the forms are filled with thoroughly washed, graded aggregate over 5/8". (In his most recent work, Viksjö uses rounded granite aggregate of 3/4" to 1½".) This coarse aggregate is con-









solidated by tamping or vibrating. Then, the mortar (cement, water, fine grained sand, and various admixtures) is injected. One method of injection is through pipes placed in the form and pulled up as the mortar rises. The level of the mortar is checked by holes in the forms which are plugged as the mortar reaches them. The mortar is injected until all the voids in the coarse aggregate are filled and the form is fully poured. The mortar may be gray, white, or colored with iron oxide pigments.

The forms are removed after the mortar has set sufficiently but before it hardens. Timing is very important and should be between 8 to 30 hours after the mortar is injected, depending upon the temperature and humidity. When the forms are removed, the surface of the concrete is smooth and relatively soft. In the final step, the surface is removed by sandblasting.

The aggregate can be exposed in varying degrees, depending upon the force of the sandblasting. The surface which is revealed is more uniform and accurate than the sandblasted surface of ordinary concrete. The most important result of this method is that the outer surfaces of the coarse aggregate remain in one vertical plane, regardless of how much mortar is blasted off. Also the maximum amount of aggregate is exposed.

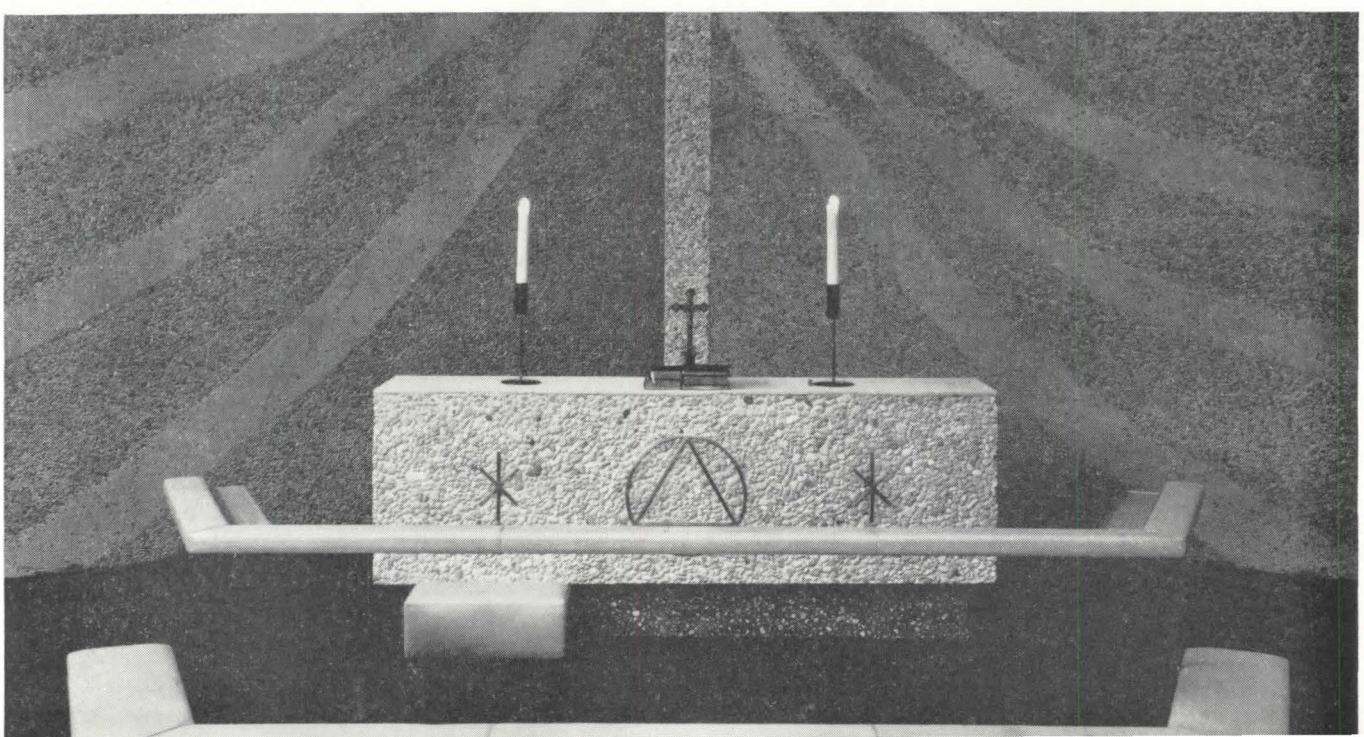
Naturbetong's compressive strength is especially satisfactory: it is higher than that of ordinary concrete when the same ratio of cement is used. Additional advantages are: all lift marks and construction joints can be erased; the possibility of voids and other irregularities is reduced to a minimum, and patching does not leave visible marks.

The richness of different surface textures—achieved by using aggregates which vary in coarseness, or by varying the depth of sandblasting, or by contrasting blasted and unblasted surfaces, —offers possibilities for a happy integration of art with architecture. In the Bakkehaugen Church in Oslo, Norway, here illustrated, Viksjö avoided the weaknesses of many contemporary examples of art in architecture: the murals are not extraneous, nor small in scale, nor added on as a token of decoration. In collaboration with artist Kai Fjell and interior designer Kjell Richardsen, he achieved a decorated surface integrated with the building.

The tent-like space of the interior is emphasized by the monumental evangelists, two on each side of the chancel, leaning toward each other over the pulpit. The evangelists, as they "speak" to the minister on the pulpit, Viksjö states, emphasize the central doctrines in the Lutheran creed: the word and the cross. The cross, also built of *Naturbetong*, is connected to the altar wall which, again, is decorated by sandblasting.

On the wall which shows Mary leaning over the crib, further richness is introduced. The crib is a mosaic of colored stone and glass through which daylight can filtrate. Similar backlighting is also employed to emphasize the evangelists' halos.

The baptismal font, the altar, and the pulpit are also constructed of *Naturbetong*. The brass symbols which contrast with the large, rough-textured aggregate were placed in the forms before pouring and then revealed by sandblasting.



High-Strength Steels for Buildings

BY WILLIAM J. McGUINNESS

Since 1901, rolled sections used in buildings have almost invariably been of single-quality steel designated as A7. There are now, however, various high-strength steels available—the latest, A36, was announced last summer—which may indicate a major breakthrough in steel-skeleton construction. In this report, the merits of A36 and other high-strength steels are compared with the long-time standards of A7. The author is Chairman, Department of Structural Design, School of Architecture, Pratt Institute, Brooklyn, New York; he is also a Fellow of American Society of Civil Engineers.

On July 28, 1960, American Institute of Steel Construction issued a press release announcing approval of a new high-strength steel, A36, especially suitable for buildings. *Engineering News-Record* on August 4 devoted one column to describing it, listing its chemical components and mechanical properties. In the same issue, a major steel company ran an advertisement offering it for sale.

These all appear as simple announcements of a new material, just one new material in the great profusion of improved modern products available for buildings. Yet this event may be the forerunner of a major breakthrough in the realm of steel-skeleton construction in buildings.

It is a fact that for many years the rolled sections used for buildings were made of a single quality of steel, a very suitable and adaptable material but one that had the persistent quality of remaining quite unchanged. If a structural designer became curious about the material, he could turn to page 326 (1958 edition) of *Steel Construction Manual* of American Institute of Steel Construction, where he would find that it was A7 steel with specifications adopted in 1901 and revised in 1936 and 1946. As far as buildings were concerned, the cases in which special steels were considered were few. The idea of an owner-architect committee sitting down to discuss which of several steels to use has not often been entertained. All of this will change considerably, and indeed, the change has already begun. In announcing A36 steel, the press-release foreword states in closing, "This supplement (for A36) is intended to serve until the Specification is revised to incorporate numerous advancements made possible through recent, intensive research. It is contemplated that the complete revision will be available within a year's time and will include, among other things, provisions for use of various grades of high-strength steel in addition to these provisions for the new A36 steel."

Other Structural Materials

It will be necessary, of course, to consider the merits of A36 and the other high-strength steels against the long-established standards of A7 (the specification and manufacture of which will continue). First, however, it is pertinent to compare the merits of steel construction—including its proposed quality improvements—with other structural materials.

The basic materials available for structural frames are limited to three: wood, reinforced concrete, and structural steel. The first two have always presented a great range of stress qualities to the designer. *National Design Specification for Stress Grade Lumber,* tabulating these for wood, includes some 20 species of wood, with more than 130 listings of individual stress assignments to the various grades. Selecting one *kind* of stress, namely allowable extreme-fiber stress in bending, a comparison can be made. The popular range lies between 1200 and 2150 psi, yet one grade (Norway Pine, Utility Structural) will sustain only 950 psi while the strongest (a special classification of Southern Pine, Dense Structural) is good for 3000 psi, a strength more than three times greater.

The current edition of *Building Code* of American Concrete Institute lists ultimate (failing) strengths of concrete upon which the allowed stresses are based. The range is from 2000 to 5000 psi, the strongest affording two and one-half times as much strength as the weakest.

What does this variety of strengths offer the designer? In the case of con-

crete, the closest competitor to structural steel, there are many advantages. Where bulk is not a consideration, a weak and cheaper concrete may be used. If a slim structure is desired, high-strength concrete is selected. A special advantage in multistory construction is the possibility of maintaining a uniform column dimension on all stories, achieved by using concrete of increased strength at the lower stories and by increasing the percentage of reinforcement at these locations.

Standard sections of structural steel for use in buildings may soon offer a similar stress selection, namely about a 3:1 ratio of strength. Whether comparative economics will permit the full use of this range remains to be seen, but structural consultants, expressing their initial opinions, are optimistic. Strangely enough, A36, now greeted as "high-strength steel" may largely replace A7 as the basic steel for buildings, with others—A242, A440, and T-1—offering even higher strengths.

A7 and A36

In January, 1957, AISC proposed to American Society for Testing Materials that consideration be given to increasing the yield point of A7 steel from 33,000 to 39,000 psi. (ASTM is responsible for the specifications for more than 300 ferrous metals.) The opinions of many people and organizations were sought. Those who were interested included American Iron and Steel Institute, American Railway Engineering Association, American Association of State Highway Officials, the builders of railroad cars, and consulting engineers and fabricators of steel for buildings.

The railway-car manufacturers whose products benefitted from the ductile qualities of A7 steel insisted that this specification remain. Eventually a new specification, A36, was formulated for a steel with a yield point of 36,000 psi. This received final approval of ASTM and AISC in the early months of 1960, culminating in the public announcement of last July through the office of T. R. Higgins, AISC's Director of Engineering and Research. The specification and use of

TABLE I

COMPARISON OF A7 AND A36 STEEL

BASIC QUALITIES	Previous and continuing specification A7	New specification A36
Tensile strength for shapes of all thicknesses, psi	60,000 to 75,000	60,000 to 80,000
Yield point, minimum, psi	33,000	36,000
Elongation in 8″, minimum, %	21	20
Elongation in 2″, minimum, %	24	23
EXAMPLES OF SOME ALLOWED STRESSES RECOMMENDED BY AISC, psi		
1 Tension		
Structural steel, net section	20,000	22,000
Butt welds, section through throat	20,000	22,000
Threaded parts, on nominal area of thread	20,000	22,000
2 Compression		
Columns, gross section, for axially-loaded columns with values of l/r not greater than 120	$17{,}000-0.485\frac{l^2}{r^2}$	$19{,}000-0.625\frac{l^2}{r^2}$
3 Bending		
Tension on extreme fibers of rolled sections, plate girders, and built-up members	20,000	22,000
Compression on extreme fibers of rolled sections, plate girders, and built-up members		
$\frac{ld}{bt}$ not in excess of 600	20,000	
$\frac{ld}{bt}$ in excess of 600	$\frac{12{,}000{,}000}{\frac{ld}{bt}}$	
$\frac{ld}{bt}$ not in excess of 545		22,000
$\frac{ld}{bt}$ in excess of 545		$\frac{12{,}000{,}000}{\frac{ld}{bt}}$

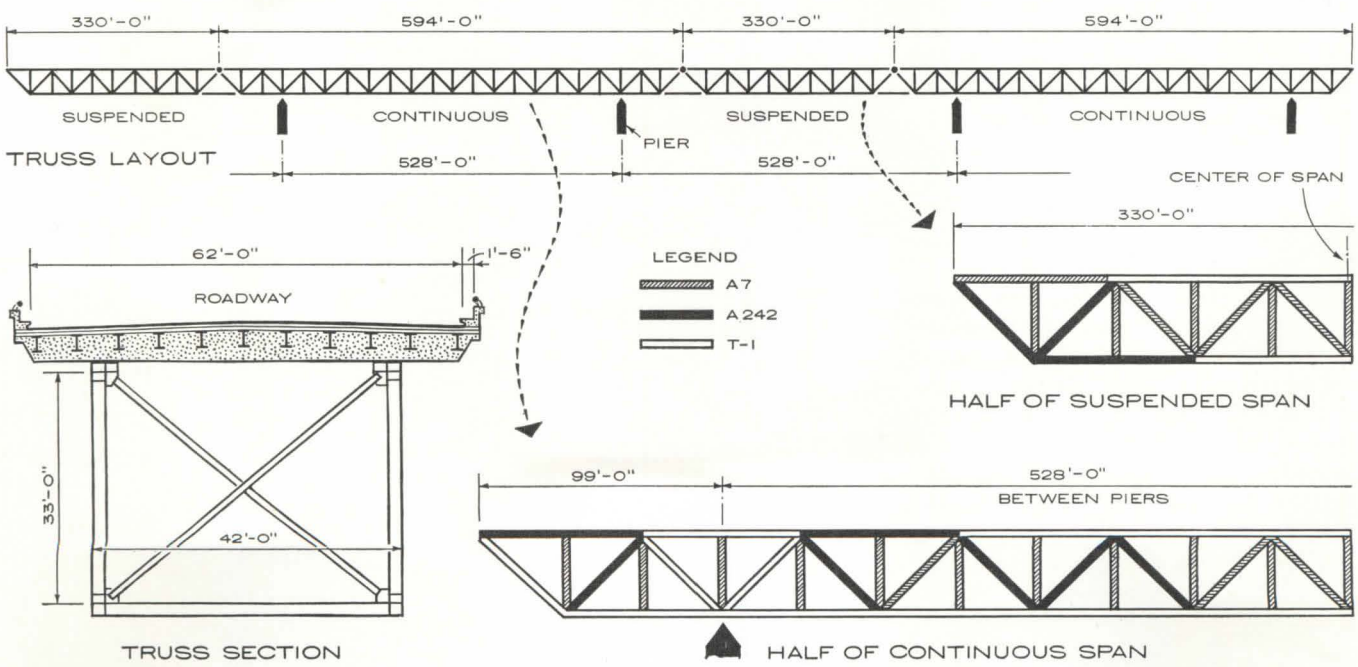
TABLE II

SOME GRADES OF STEEL AVAILABLE FOR USE IN BUILDINGS

Grade	Year introduced	Tensile strength (psi)	Yield point (psi)	Suggested tensile working stress for buildings* (psi)	Modulus of elasticity (psi)
A7 Steel for bridges and buildings	1901	60,000 to 75,000	33,000	20,000	30,000,000
A36 New specification steel for bridges and buildings	1960	60,000 to 80,000	36,000	22,000	30,000,000
A373 Structural steel for welding	1954	58,000 to 75,000	32,000	20,000	30,000,000
A242 High-strength, low-alloy structural steel	1941	70,000	50,000	30,000	30,000,000
A440 High-strength structural steel	1959	70,000	50,000	30,000	30,000,000
T-1 High-strength, quenched and tempered alloy steel	1953	115,000 to 135,000	100,000	60,000	30,000,000

* Subject to approval by supervising authorities and varying by thickness of member. These values are for general comparison only.

1 *Truss framing for the Benicia-Martinez Bridge. Steel selection relates to forces in the truss members.*



A7 will remain for those who prefer it.

From a comparison of the qualities of A7 and A36 (*Table I*), it will be seen that A36 has a slightly higher ultimate tensile strength. Its yield point is about nine percent higher and many of its recommended stresses ten percent higher. The elongation standards show A36 to be only slightly less ductile than A7; it should therefore perform satisfactorily when bent to special shapes. A36 is somewhat more adaptable to welding than A7 and in this respect resembles A373, the specification for which was written with welding in mind.

Probable Use

It is the guess of some experts in the steel industry that A36 will eventually replace A7 in almost all new buildings, and will find much use in bridges and other heavy construction.

Without a crystal ball, one can only look into the future through the opinions of those who are nearest to this new development, for an indication of its probable impact.

Paul Rogers of Paul Rogers & Associates, Inc., Consulting Engineers, Chicago, says, "I am very enthusiastic about the introduction of the new A36 steel. With the higher yield point and the allowable stresses increased by ten percent, structural steel could be really competitive with other materials in building construction. Of course, we have to bear in mind that Building Departments have to pass and approve the higher allowable stresses before they can be utilized. Consequently, any published information along this line would accelerate the adoption and approval of such increased allowable stresses."

Ira M. Hooper, Associate of Seelye, Stevenson, Value & Knecht, Consulting Engineers, New York, says, "I intend to use A36 steel on all new work where building codes permit its use. It is available, it has good welding characteristics, its cost is about one dollar per ton higher than A7, and it presents no problem in corrosion. One minor word of caution—the higher allowable stresses will result in proportionally higher deflections."

Milo S. Ketchum, of Ketchum, Konkel & Hastings, Consulting Engineers, Denver, writes, "I see no reason why we as consulting structural engineers should not accept the new steel stresses. As you know, beam members seldom fail because of direct tensile or compressive stresses in the members. They fail because of excessive overload, lateral buckling, or connections. What we need is a knowledge or feel for structural integrity in our designers. This, unfortunately, cannot be specified in a building code."

Leonard C. Hollister, Projects Engineer, State of California Department of Public Works, says, "It is my opinion that this new steel (A36) is a progressive step forward. It should be widely used in bridge construction assuming that it will not carry a much larger price tag than the present A7 steel." Shortly after Hollister's statement United States Steel Corporation issued price quotations. Compared with the prices of A7, the prices of A36 are as follows:

1 Structural shapes and wide-flange beams. *One dollar per ton more.*

2 Plates ¾″ thick and under. *One dollar per ton more.*

3 Bars ¾″ thick and under. *No change.*

4 Plates and bars from ¾″ thick to 4″ thick. *Seven dollars per ton more.*

(Items 1 and 2 above include most of the material used in buildings.)

Experience of Bridge Engineers

Bridge designers have made use of many high-strength steels also suitable for use in buildings and now being selected for that purpose. In a talk entitled "New Horizons for High-Strength Steel," delivered to the May, 1960, meeting of AISC in Denver, *Arthur L. Elliott,* Bridge Engineer, California Division of Highways, made the following statements: "There is nothing new about using high-strength steel in bridge structures. Since we have worked up progressively from cast iron, through wrought iron, then through ordinary A7 carbon steel, this next step into high-strength steel is a natural sequence. The only difference is that now, instead of another simple step waiting, there are literally dozens of steps. There are many different steels commercially available and untold numbers of other steels which could be made readily available if any demand showed up for them. Let's see how we got that way, what the rules of the game seem to be, and what the future may hold.

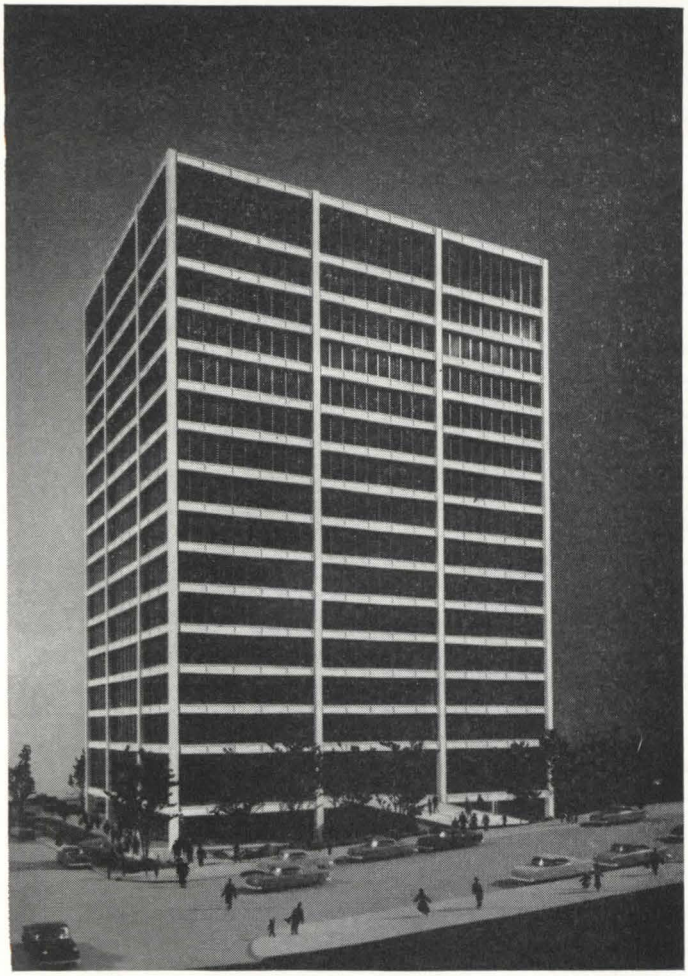
"The term high-strength steel is strictly relative. Cast iron was stronger than brass, wrought iron was better than cast iron, and A7 steel is considerably better than wrought iron. Now we have many steels which are better than A7. This slow improvement has been going on for centuries. Now within the space of a mere quarter century we are speeding forward at a rate hitherto undreamed of. What happened?

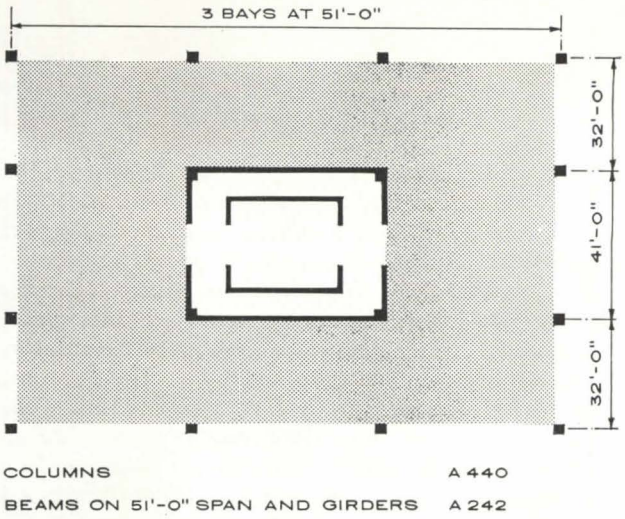
"First, steels are commercially available which have higher strength than ever before before used in structures; second, the steel is being joined by welding, and most important, the higher-strength steels make possible a saving in over-all cost.

"There is now a steady progression of steels available with yield points ranging upward from the old A7 yield point of 33,000 psi to a figure three times that amount. Metallurgists speak confidently of steels with yield points five times higher than A7 steel, but as yet there is no commercial demand for their production. It is amazing to note that these new high-strength steels are readily weldable.

"Progress in the use of high-strength steels has been a function of the connecting methods. The use of welding can make possible a savings of 15 to 20 percent in the gross steel weight of a bridge. Welding also offers an economical and efficient method of developing the full strength capabilities of these better-grade steels.

"The many new steels have received their origin and impetus from the recent wars and the present efforts to reach farther and farther out into space. Jet-powered airplanes, intercontinental missiles, and atomic reactors have created a demand for higher and higher strength steels. Books on metallurgy which were gathering dust on the shelf have been brought down and restudied; metallurgists have become busy and important people. As a byproduct of all this activity, many new steels have been devel-





2 *At Standard Insurance Company Building, Portland, Oregon, floor beams of A440 steel—spanning 51′ and having a 36″ depth—were fabricated by splitting 24 WF's and welding web plates between structural T's, forming a type of Vierendeel. Spandrel beams—28″ deep at mid-span and 20″ deep at ends—are welded tapered sections.*

oped which are of great interest to structural engineers." A comparison of some of the steels referred to by Elliott is shown (*Table II*).

Steel Selectivity In Bridge Design

The experience of the California Division of Highways is significant in the recent increase of high-strength steels for bridges. In the June, 1960, issue of *Civil Engineering*, Leonard C. Hollister and R. D. Sunbury discuss this trend. Carquinez Bridge, erected in 1958, was the first major structure in the state to use the new steels in large quantities, although individual steels (such as A242) had been used to some extent for about 20 years. Benicia-Martinez Bridge, presently under construction by this authority, illustrates very convincingly the efficiency and economy of the use of appropriate steels.

Three characteristics of the job are most significant.

1 All members were fabricated by welding, which resulted in a slimmer structure since no metal was lost by perforations in tension members.

2 For each member a steel was selected to maintain minimum plate thickness; that is, T-1 was used until minimum plate thickness governed, then A242, then A7, 1.

3 The high-strength steels saved tonnage and money. Quantities and bid prices submitted by the contractor were as follows:

Steel	Bid Price ¢/lb	Trusses lb	Girders lb
A7, A373	18.57	11,618,000	402,000
A242	21.74	3,610,000	3,095,000
T-1	34.48	7,168,000	27,000

Although the bid price of T-1 steel was more than 50 percent greater than that for A242, there was a net cash saving in its use. The 7,168,000 lb of T-1 steel in the trusses would have required 12,320,000 lb of A242 steel. Thus a saving of 5,152,000 lb of steel was affected, resulting in a lighter and less costly structure. Some of the design stresses used in the Benicia-Martinez Bridge were less than those listed in Table II.

High-Strength Steels In Buildings

Standard Insurance Company Building of Portland, Oregon, designed by Skidmore, Owings & Merrill and scheduled for construction during 1961, will employ at least two grades of high-strength steel, A440 and A242, 2. Others may also be used. Referring to this decision, John O. Merrill Jr. says, "From an architectural standpoint the principal benefit from the use of the higher-strength steel was that it reduced the column sizes somewhat and enabled us to achieve a finer scale than might otherwise have been possible with the relatively long spans that we are using. In summary, however, in this particular project the

decision to use high-strength steels was primarily one of cost, and we are trying to set up a bidding procedure which will clearly indicate whether significant savings are possible."

In response to a request for further details on this building, Roland S. Rosé of Cooper & Rosé, Structural Engineers, makes the following statements: "Essentially, the architect and consulting engineer primarily interested in providing the owner with the least expensive structural solution. Any type of steel framing which satisfies the facility and strength requirements should, therefore, be investigated for minimum cost. Use of high-strength steels (such as A242, A440, and others) is one such cost-saving system and is an effort by the steel industry to modernize its thinking along the lines of equal ability for less money."

Rosé goes on to say, "Our firm, as you know, pioneered the use of high-tensile, bolted, semi-continuous framing for tier buildings in the University of Oregon General Hospital (1953), in an attempt to obtain less expensive steel structures. Subsequent use of this type of framing in many buildings across the United States has proved the validity of this approach to more economical framing.

"More specifically, on this project we propose to utilize A440 steel for column sections and A242 for beam-and-girder sections. In selecting these materials, however, the plans and specifications will be so arranged that the steel fabricator may substitute other alloys of comparable strength and workability to produce the least expensive structure. In other words, we are proposing that the structural steel be furnished to performance criteria rather than specification criteria. Such an approach is primarily to the benefit of the owner.

"To illustrate the savings possible by using high-strength steels in the project, the following data pertaining to the structure are presented:

"1 Changing from A7 to A440 steel in columns reduces steel-tonnage requirements by 23 percent and erected cost by 18 percent.

"2 Changing from A7 to A242 steel in floor beam-and-girder construction reduces steel tonnage by 18.7 percent and erected cost by 7.3 percent.

"3 Total savings possible from use of high-strength steels in this project amount to 19.8 percent reduction in tonnage, and 10.1 percent reduction in erected cost.

"A word of caution should be voiced in regard to substituting A242 alloy steel for regular A7 steel in floor-framing members. Since "E" (modulus of elasticity) is the same for both members, deflection can often govern the design of flexural members. In cases of this nature, increased fiber stress is of no value and weight saving is not possible. To take advantage of the greater fiber-stress ability of high-strength steels, more depth and greater "I" (moment of inertia) must be obtained so that fiber stress, and not deflection, will govern the size of the member. In this project, split-WF or Vierendeel beams having holes in the webs for passage of mechanical and electrical equipment have been utilized. The depths of beams and girders in the floor system are not less than 1/16.67 of the span, whereas by the AISC code the depth of beams and girders in floors shall, if practicable, be not less than 1/24 of the span. Vibration characteristics must also be checked so that no unpleasant vibration is felt by the occupant."

Importance of Welding

All of the steels discussed are weldable in varying degrees. Because it is only by welding that the maximum values of high-strength steels can be developed, opinions were sought from Arthur N. Kugler and LaMotte Grover, Chief Welding Engineer and Structural Welding Engineer, respectively, of Air Reduction Sales Corporation. They qualified their initial statement that "anything can be welded but a broken heart," and proceeded to define the welding characteristics of the steels in Table II.

Ductility, weldability, and "notch-toughness" go hand in hand. Notch-toughness is resistance to brittle fracture especially at low temperatures and for thick sections. Buildings are generally warm and do not utilize very thick sections, and in these respects their situation is somewhat better than that of bridges. The most ductile and weldable steels are A7, A36, and A373. Greater strengths, as in A440, A242, and T-1, are generally associated with hardness, brittleness, poorer notch-toughness, and greater care needed for welding. A242 and T-1 may be welded under controlled conditions. A new specification for A242 assures improved notch-toughness for this manganese-vanadium, high-strength, low-alloy steel. A440 is not represented as a steel for welding. It is not considered practicable to weld it, especially in greater thicknesses and with the facilities and control usually available in structural-steel fabrication shops. Grover feels that A440, regardless of the method of fabrication (bolts or welding), should not be specified for conditions conducive to brittle fracture, i.e., bending or tension.

In general, shop conditions are better than those in the field, and shop fabrication of any steel by welding would be the prior consideration.

Engineers of bridges and other exposed structures have long been involved in discussions relative to basic steel chemistry. Designers of building structures will undoubtedly be drawn into these discussions if the best use of steel is to be realized.

Possibilities with the New Steels

Lighter Structures. The new steels may help to achieve the structural lightness so often sought by designers. Vulnerability of light structures to wind may call for shear walls or a reinforced-concrete core. (Standard Insurance Company Building of Portland will have the latter.)

Uniform Size of Members. Buckminster Fuller and others are continually presenting space structures whose members struggle for uniformity although stresses obviously vary. Steel choice may accommodate the variation, as in Benicia-Martinez Bridge.

Economic Savings. Structural steel may have a chance to regain certain building types now lost to reinforced concrete. In any event, competition is healthy.

Control of Deflection. As strengths increase, the modulus of elasticity remains exactly the same. Swayback floor framing can be avoided by moving the conduits, ducts, and pipes into deep trussed members that replace the relatively shallower rolled sections.

Corrosion. In ASTM specifications for A440, under the heading "Scope," the following statement is tucked away: "The atmospheric corrosion resistance of this steel is approximately twice that of structural carbon steel."

Welding. If steel is exposed, the joints become visible. Bolted connections are not as sightly as welded ones, and welding is almost expected in modern construction. High-strength steels, although generally weldable, offer some problems not encountered with A7 or A373.

Fire Resistance. Bulky fireproofing is an effective way of blanketing the beauty of slim steel structures with long, unbroken lines and attractive connections. T. R. Higgins of AISC thinks that building-code committees will give greater consideration in the future to permitting exposed steel on the exterior of multistory buildings.

Early Metal Space Frame Investigated

First Structural Repairs of U. S. Capitol Dome Made in 100 Years

BY FROHMAN PAUL DAVIS

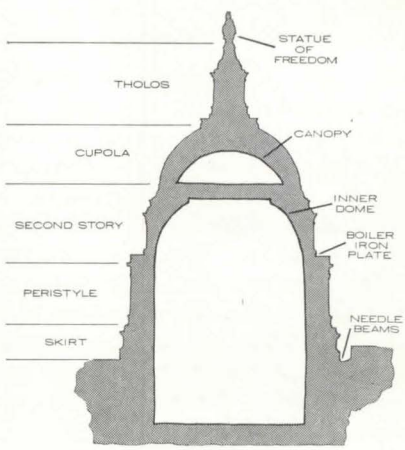
Practically completed are the investigation, repair, and improvements to the dome of the nation's Capitol in Washington—the first complete renovation after a century of existence. A review of this work is presented by an Associate Partner and Project Manager of Seelye, Stevenson, Value & Knecht, New York Consulting Engineers who were engaged for this commission. The late Elwyn E. Seelye, Senior Partner of SSVK, assisted by Partner Stephen D. Teetor, and Richard E. Dougherty, Consultant (and member of the commission renovating the White House), formed the supervisory board acting for the Consulting Engineers. Consultants for this work were in no way connected with alteration of the Capitol's East Front.

In 1955, J. George Stewart, Architect of the Capitol, in conjunction with the extension of the Capitol's East Elevation, retained the author's firm "to furnish all engineering services necessary for a complete structural-engineering study and survey of the dome of the United States Capitol Building, including a complete inspection of the existing construction, examination of the the existing drawings, and computation of stresses in the various members, with a view to determining the strength and safety of the dome, and to submit to the Architect of the Capitol a comprehensive report describing the exact conditions disclosed by the survey and study, including an opinion as to the safety of the construction and recommendations as to measures, if any, to improve its stability."

To the consultants, this was a particularly gratifying assignment: to turn back the pages of history to the infancy of metal-framed space structures, to reexamine the analytical approach of our engineering predecessors in the light of our latest theories, to measure their wisdom and foresight against the truths of nature and time, and finally to join with them across the decades in extending the longevity of this renowned symbol of our democracy.

The present construction of the great dome atop the Capitol started in 1856 and was completed in 1865, replacing the original, low, copper-covered wood dome of the Central Building of the Capitol which was erected in 1823. The addition of the present Senate and House Wings, completed in 1865, led to this replacement of the original dome, in order to maintain proper architectural scale.

The new dome was constructed from drawings made under the supervision of



Thomas U. Walter, Architect of the Capitol (1851-65), and his chief architectural draftsman, August Schoenborn. Handicapped by limitations of the technology, materials, and tools of their day, theirs was a remarkable achievement. The drawings were exemplary in draftsmanship, to an extent not often equaled today. Executed in ink and watercolor, on oaktag, they indicate a high order of delineation 1, 2, 3. Preparation of the drawings and the subsequent construction of the dome were carried on amid tumultous times for our nation. Planning and construction of the structure were marred by deep personal animosities, legislative wrangling, and the Civil War. An initial appropriation of $100,000 was finally passed by the House of Representatives on February 22, 1855, but only by virtue of a tie-breaking vote from the Chair. Antagonism between Architect Walter and M. C. Meigs (Captain of Engineers who was designated Superintendent of the Capitol Extension) involved Jefferson Davis, at that time Secretary of War. Eventually, President Buchanan resolved the dispute in favor of Walter, replacing Meigs with W. B. Franklin, Captain of Topographical Engineers, who continued the work in co-operation with Walter.

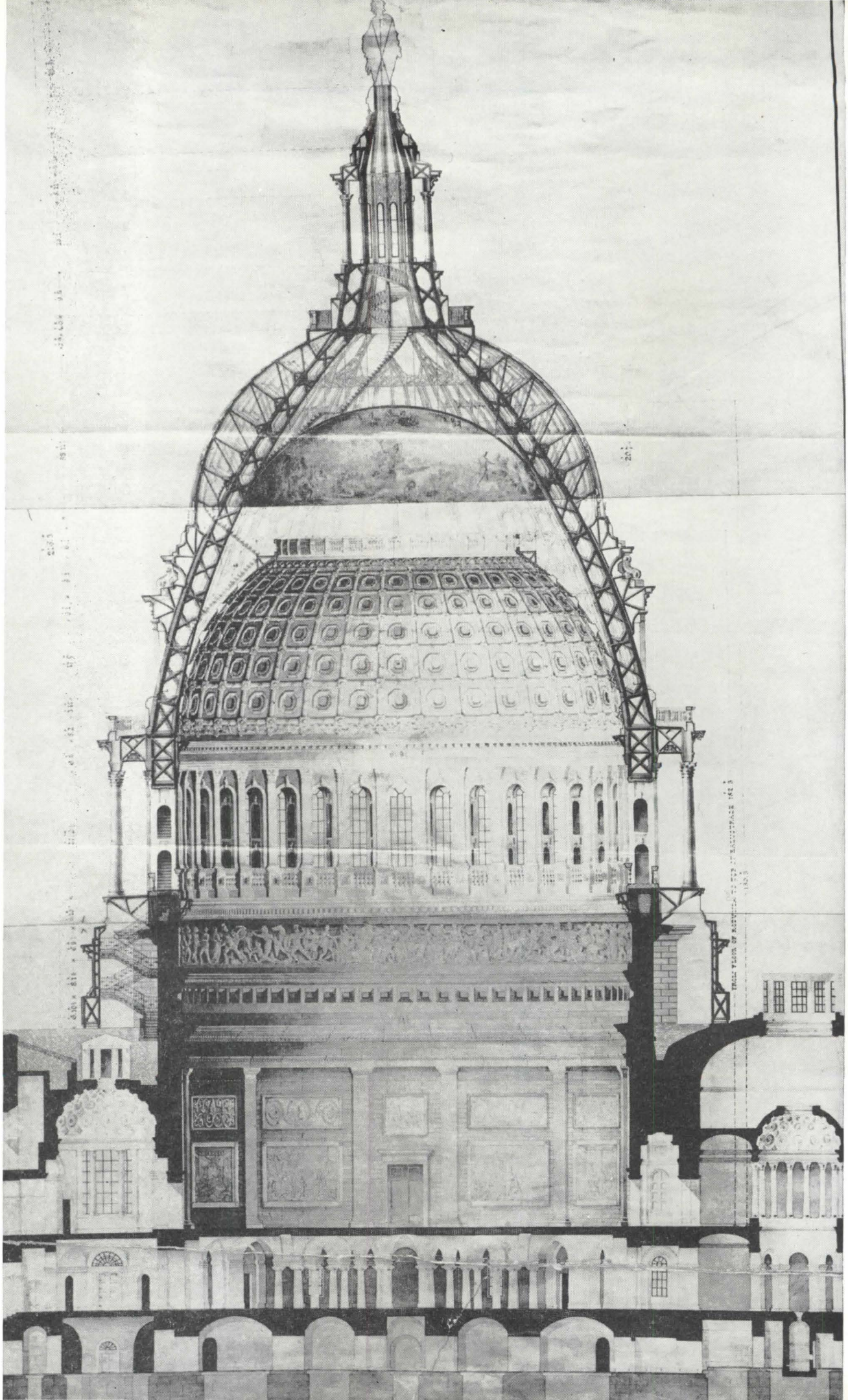
Construction was delayed during the Civil War due to a shortage of skilled workmen and materials which were diverted to the production of war vessels and firearms, and due to the withholding of appropriations. Questions were raised in the Senate concerning the safety and stability of the dome, and whether the continual delays were possibly related to deficiencies of this nature. President Lincoln, however, urged completion of the structure to demonstrate the stability and vitality of the Union. Finally, on December 2, 1865, amid the booming of cannons from a dozen forts surrounding Washington, the Statue of Freedom was raised to its commanding position atop the dome.

Structural Characteristics

Prior to the mid-19th Century, builders were restricted in their diversification of the domical form by the available building materials, which were principally masonry and wood. With the advent of improved ferrous technology, man's imagination soared anew in utilizing iron and steel to perpetuate this revered shape. Walter's concept was to create a dome of beauty comparable to St. Peter's and St. Paul's, using cast iron in place of heavy masonry or short-lived wood.

The diameter of the new structure conformed to that of the original, 108′-1½″, which was the span of the rotunda. Members of the congressional committee overseeing the work exerted their "owner's prerogative" in adopting the architect's alternate design, one calling for a height of almost 199′ from bearing plate to the top of the statue—somewhat higher than Walter's preferred plan.

The primary structural frame of the dome consists of 36 main elements, equal-



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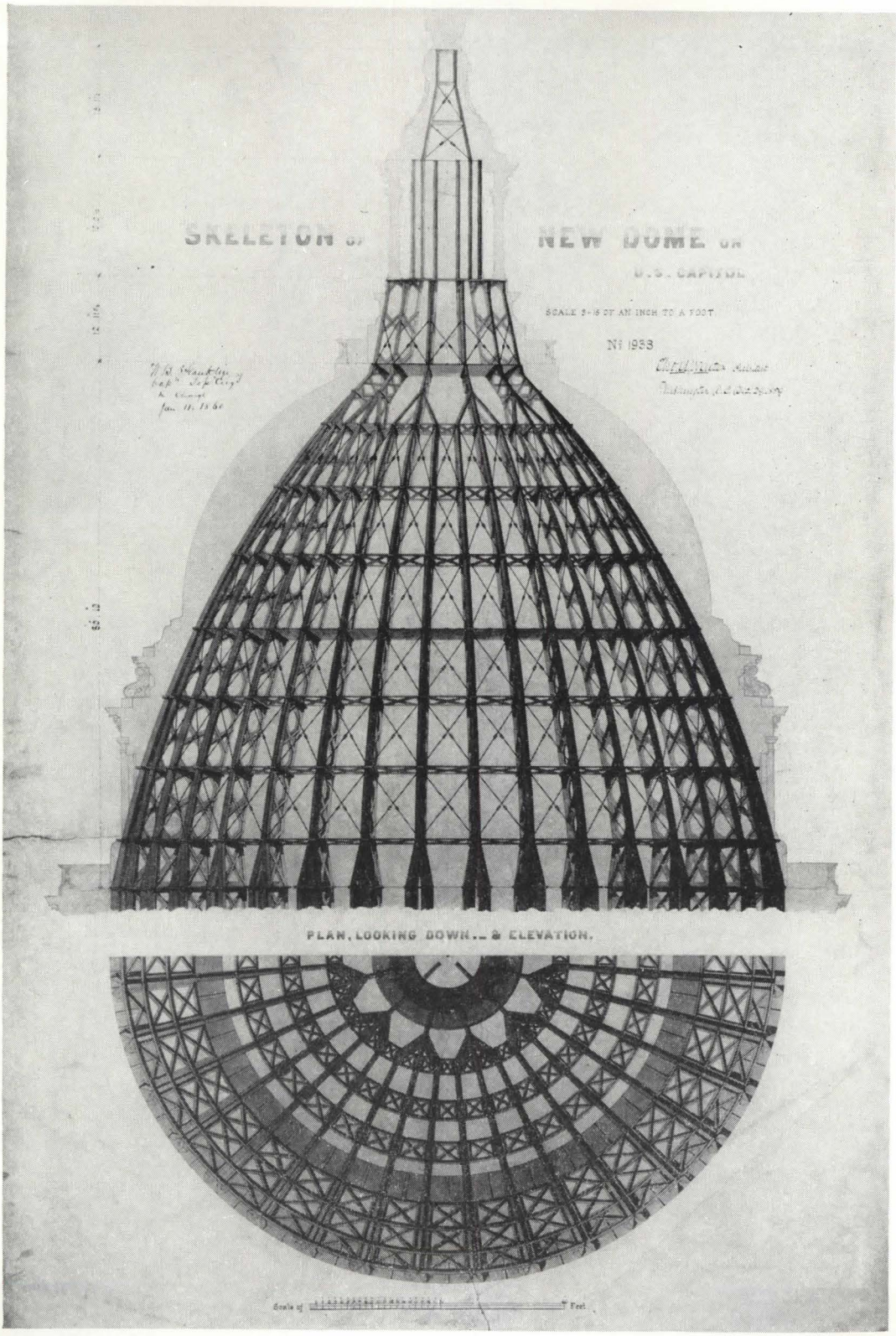

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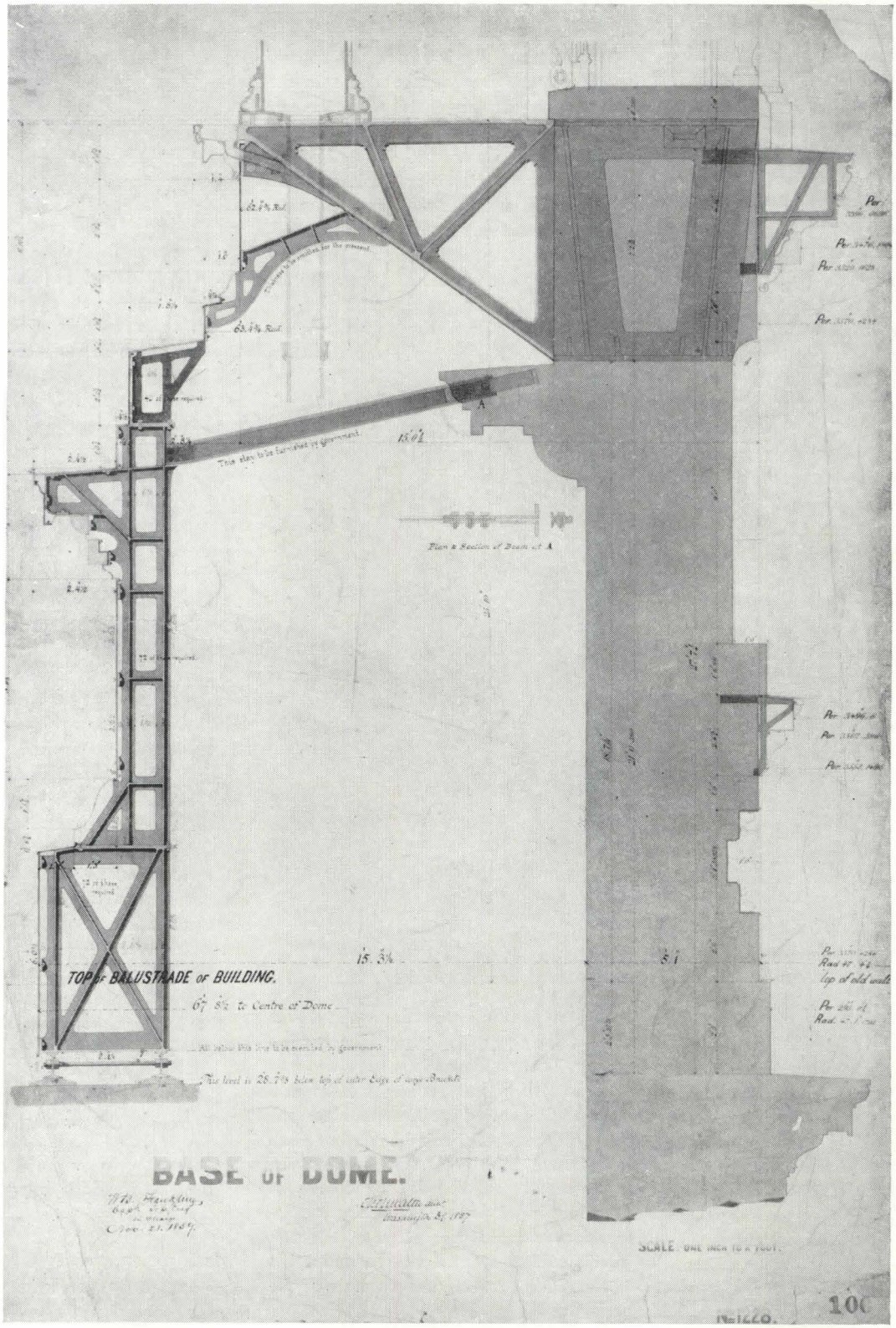

TOP of BALUSTRADE or BUILDING.
67' 8½" to Centre of Dome
BASE of DOME.
SCALE ONE INCH TO A FOOT.

3

ly spaced around the periphery of the structure 1, 2. Each element, composed of open-web cast-iron sections, ascends from huge cast brackets that rest on the existing bearing walls, in a vertical-spaced column arrangement, for the height of the peristyle. They soar semi-elliptically above the spring line at the "boiler-plate" level (where principal hoop tension forces are resisted), and converge at the lantern where two-thirds of the ribs are terminated. The remaining 12 ribs support an equal number of columns surrounding the tholos, which in turn receive the pedestal and Statue of Freedom.

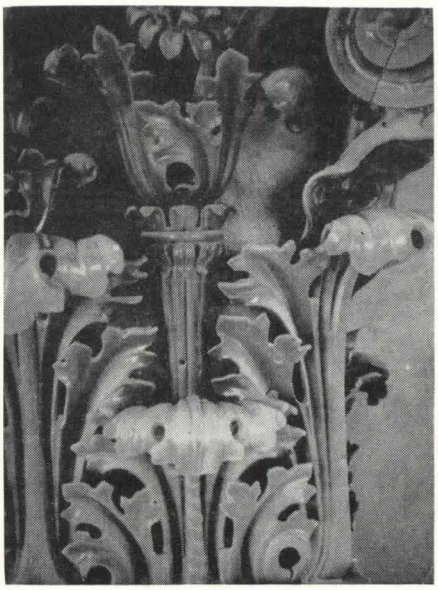
Each column of the peristyle, or drum, is composed of four individual sections along its length; each rib of the cupola roof is made up of eight sections; and each column of the tholos, two sections. The largest of these assemblies is approximately 1′-9″ x 5′-9″ in cross section, and 13′ high, weighing approximately 5000 lb. The heaviest casting used for the dome weighed 10 tons.

Hoop forces were resisted by cast frames and wrought-iron tie rods, placed horizontally, at each splice point (except for three elevations where built-up wrought-iron plate sections were used—at the boiler-plate level, tholos-floor level, and at the top of the fourth rib section). A 1″-thick, laminated and riveted plate tied the elements at the spring line of the canopy roof (boiler-plate level). Resistance to lateral forces was provided by cross bracing with tie rods, complete with turnbuckles, between alternate splice points on successive elements. All main connections were bolted with 1½″ hand-forged bolts. Successive sections of the primary frames were cast with a small surplus of metal, at bearing surfaces, to be turned or cut off in the field to facilitate accurate fitting and bearing.

Exterior-Interior Surfaces

The inner surfaces of the dome, i.e., the great mural ceiling under the lantern, and the intricate domed celing above the peristyle, were hung from the main ribs with iron hangers and supplementary framing members. The outer dome was framed with secondary trusses employing the main ribs as chord members. At the peristyle level, architectural considerations required the protrusion of a colonnade from the drum of the dome. The masonry frames, supporting the structure and resting on the old rotunda walls, were formed to permit this cantilever from the existing masonry walls. In order to maintain proper architectural proportion, a separate "skirt" structure was erected upon the main roof, also of cast-iron/trussed-rib frame construction and faced with cast-iron plates 3. Although it would appear to support the overhanging colonnade, the "skirt" is actually free-standing and provides no support for the dome proper.

Attesting to the intricate design and fine craftsmanship of the dome is the fact that few viewers of this structure can conceive that, in almost every detail, it is completely constructed of iron. All of its interior and exterior surfaces were formed of cast iron: the great columns of the colonnade, the balustrade, the intricate decorative assemblies and ornamentations that embellish the exterior surface, the rib covers and shingle roof of the cupola, even the coffered inner ceiling above the peristyle and the cast-iron lath plates supporting the plaster ground for the mural under the canopy ceiling. The few exceptions were wrought iron, including hand-wrought bolts and nuts, the needle beams supporting the skirt of the dome, and the boiler-plate iron forming the hoop ties at the three levels mentioned above. The Statue of Freedom is of bronze. Superior craftsmanship in mold production of the cast iron is evident from a close examination of the Corinthian column capitals of the peristyle 4.



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Cost

The total cost to the government for demolition of the original dome and construction of the new one, a century ago, was slightly less than $1 million. Contracts for the iron work—including casting, fabrication, and delivery to the site—averaged about six cents per pound; the total weight of iron used in the construction was approximately 8,909,200 lb. Erection of the iron work, under the direction of the government, was performed primarily by day laborers and was accomplished with use of a derrick mounted on a timber scaffolding tower on the rotunda floor. Power was furnished by donkey engines, which are small (usually portable), auxiliary engines.

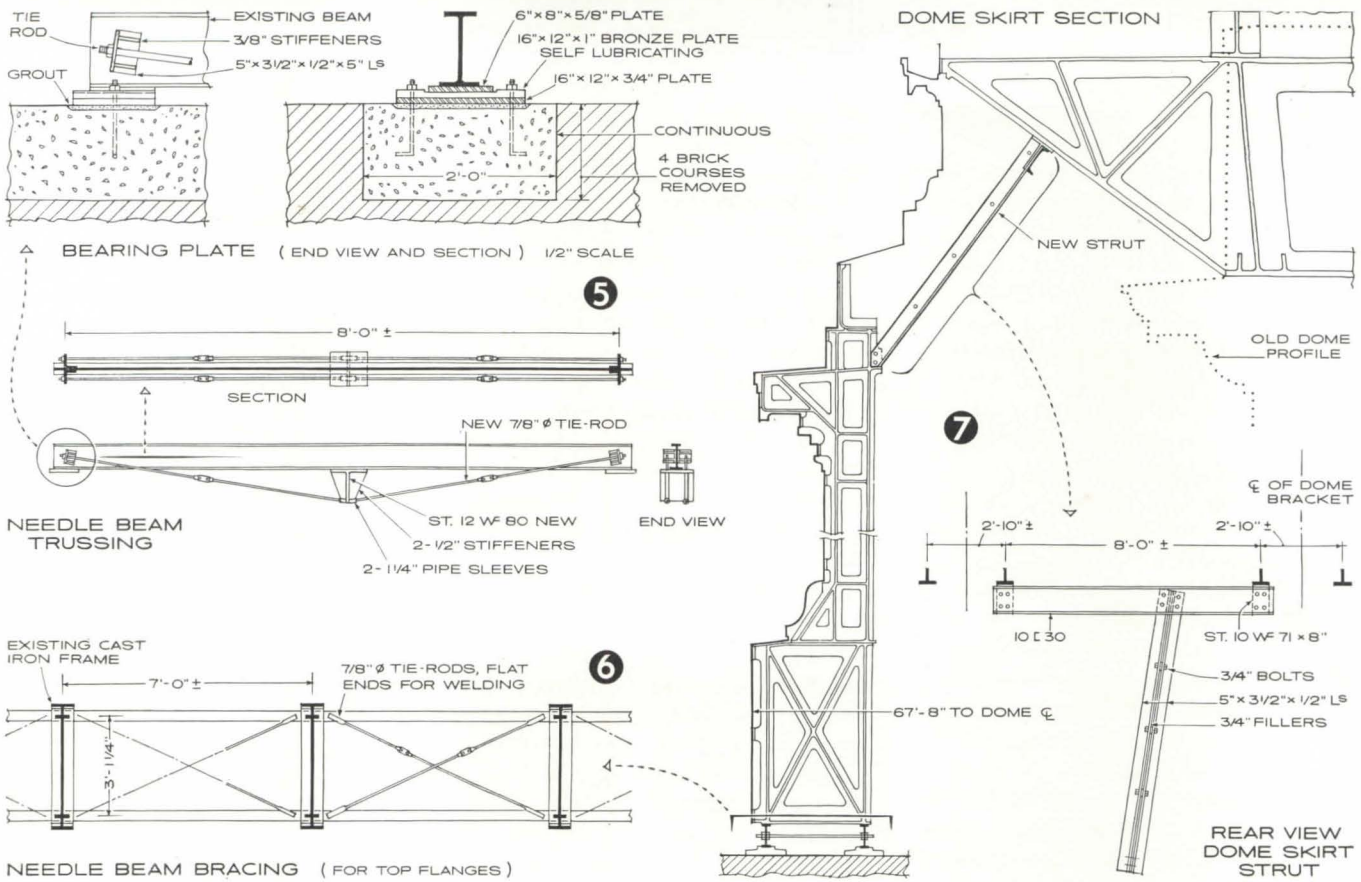
Stress Considerations

The quality of both the cast and wrought iron was excellent, particularly so when one considers the state of the art of producing them at that time. Laboratory tests indicated ultimate tensile strengths of 21,000 psi for samples of cast iron, and 45,000 to 60,000 psi for wrought iron.

A rigorous stress analysis of the dome's primary framing indicated that stresses for dead and wind loads are within safe values for the materials used. However, dead-load stresses in some of the wrought-iron needle beams supporting the "skirt" structure were found to be excessive, and reinforcement was indicated. Accordingly, the consultants recommended that stresses in these members be reduced by "trussing" the beams with rods applied to the underside of the beams, and bent around new split-tee bolsters 5. Rods were prestressed with the use of turnbuckles. Wind-stress analysis of the "skirt" indicated that this element of the structure was also unstable for modern code values of wind forces. It was therefore reinforced to meet present-day requirements by adding a tie-rod bracing system between the existing pairs of needle beams at the bottom 6, and by adding struts connected to the dome proper from the top of the "skirt" 7. The tie-rod bracing system combines with the existing needle beams to form horizontal trusses and deliver wind forces to the masonry bearings. The existing folded cast-iron cornice plates near the top of the "skirt" were found to be sufficient to transmit wind forces to the new braces.

Deterioration Due to Corrosion

In 1956, the consultants supervised a team of steel inspectors in a thorough examination of all accessible portions of the dome. Chief aim of this work was to determine what toll nature had taken during the dome's century-long existence. Areas which were inaccessible at that time were inspected during the subse-



quent repair work begun in January 1959.

Causes of the deterioration encountered were corrosion, and expansion and contraction due to temperature changes. Corrosion, which was found to have caused the principal damage to the structure, was attributed to one or more of the following causes: entry of rain water from the exterior, condensation on the inner surfaces of the skin plates, and the corrosive action of excrement in recesses populated by pest birds.

It is a tribute to the ability and ingenuity of Walter and his staff that far more serious damage by corrosion did not occur in so massive a metal-clad structure, prone to considerable expansion and contraction effects of severe daily and seasonal temperature changes. The designers had wisely provided flexibility at the connections between the multitude of sections forming the exterior surfaces, by the use of considerably oversized holes at bolt locations. This solution, which avoided severe damage of one sort, however, obviously aggravated the problem of watertightness. Walter was faced with the difficulty of preventing the intrusion of moisture between a multitude of skin plates, each of which had to be free to move and slide over adjoining surfaces. His solution was direct and simple, employing the old principle of shiplapping successive sections. Inspection indicated that although his efforts met with a high degree of success, despite the unavailability of modern elastic joint fillers, a relatively small intrusion of water had caused considerable damage to one of the principal elements of the structure, i.e., the boilerplate tie ring at the spring line of the dome.

On October 19, 1857, the Vulcan Works of Murray & Hazelhurst, located in Baltimore, Maryland, contracted to "furnish the tie ring of plate iron . . . riveted in its place . . . for six and one-fourth cents per pound, finished weight. . . . The iron of the plates is to be tested by strips cut off in shearing, which shall double down cold under the hammer without fracture. . . . It would be preferred that the plate iron shall be abbotts, puddled plate from the coal pig . . ." The tie plates were to be doubled, ½″ in thickness and 79⅞″ wide, with staggered joint splices approximately 24″ on centers.

More than 100 years later, the consultants discovered that corrosion had penetrated between the doubled plates along their outer periphery, had buckled the plates apart by as much as ¾″, and had started to spring rivets at the splices in the tie ring. Further, the 1½″-diameter main bolts, securing the main ribs to the tie ring, had suffered a loss of up to 75 percent of their cross-sectional area.

Structural Remedy

This "cancer" at the critical hoop tie (at the spring line) posed a substantial problem. Replacement of corroded plates would involve installation of temporary tension ties to bypass individual sections of corroded plates, and would result in prohibitive costs. Any scheme to apply conventional reinforcement directly to the plates would be vulnerable to further deterioration of the base metal of the boiler plate close to the rib connections. Complete cleaning of the corrosion between the laminated plates was not feasible. Furthermore, reinforcment of this type would not function until the existing boiler plate had suffered additional deformation. A separate system of conventional bracing applied directly between the bottoms of the ribs could be

prestressed. However, such an installation would impair the flexibility which was initially built into the structure and which permitted irregular expansion and contraction due to temperature changes without damage to the structure.

The solution adopted by the consultants was the application of a supplementary tension hoop, composed of twin cables, applied against sheave assemblies affixed to the bottoms of each of the 36 ribs 8. Two sheave boxes were constructed at each rib, each box containing a cast-steel sheave to engage and turn each cable around an arc of five degrees. Sheave boxes were fastened through the shoe of the rib sections (which had been monolithically cast with the rib) with 1½″ round stainless-steel bolts, and also fastened to the flanges of the rib sections above the boxes. Cables were each 1″ round, wire-core corrosion-resistant steel ropes (composed of six strands of 19 wires each), which were prestretched in the shop under the supervision of the consultant. In order to facilitate the installation of the cables with the extremely limited clearance present, each cable was composed of nine lengths, using swaged fittings at connections. (Swaged fittings are cable fittings which are permanently cold-fused on the wire rope, with terminal metal flowed around and between wires and strands. These were found, during the testing, to be as strong as the rope itself.) One and one-half in. turnbuckles were installed at six connection points on both cables to accommodate initial prestressing of each cable to 25,000 lb. Three traction dynamometers were installed on each cable to accommodate accurate and uniform prestressing, and to permit determination of tensions in the system at any time in the future. Samples of the cable and fittings, and the dynamometer, were tested by the Bureau of Standards. Minor modifications to the structure at these locations were necessary to facilitate the cable installation, in the extremely tight quarters where they were to be installed. These measures included cutting crescent-shaped recesses in the flanges of the ribs, shortening the doors leading to the exterior platform, cutting the exterior skin plates, and installing protruding cover boxes to provide clearances and coverage for cables and fittings.

Corrosion between the existing boiler-plate laminations was cleaned and the plates protected against further corrosion as much as possible. New flashing was introduced to deflect any condensation runoff at this critical area.

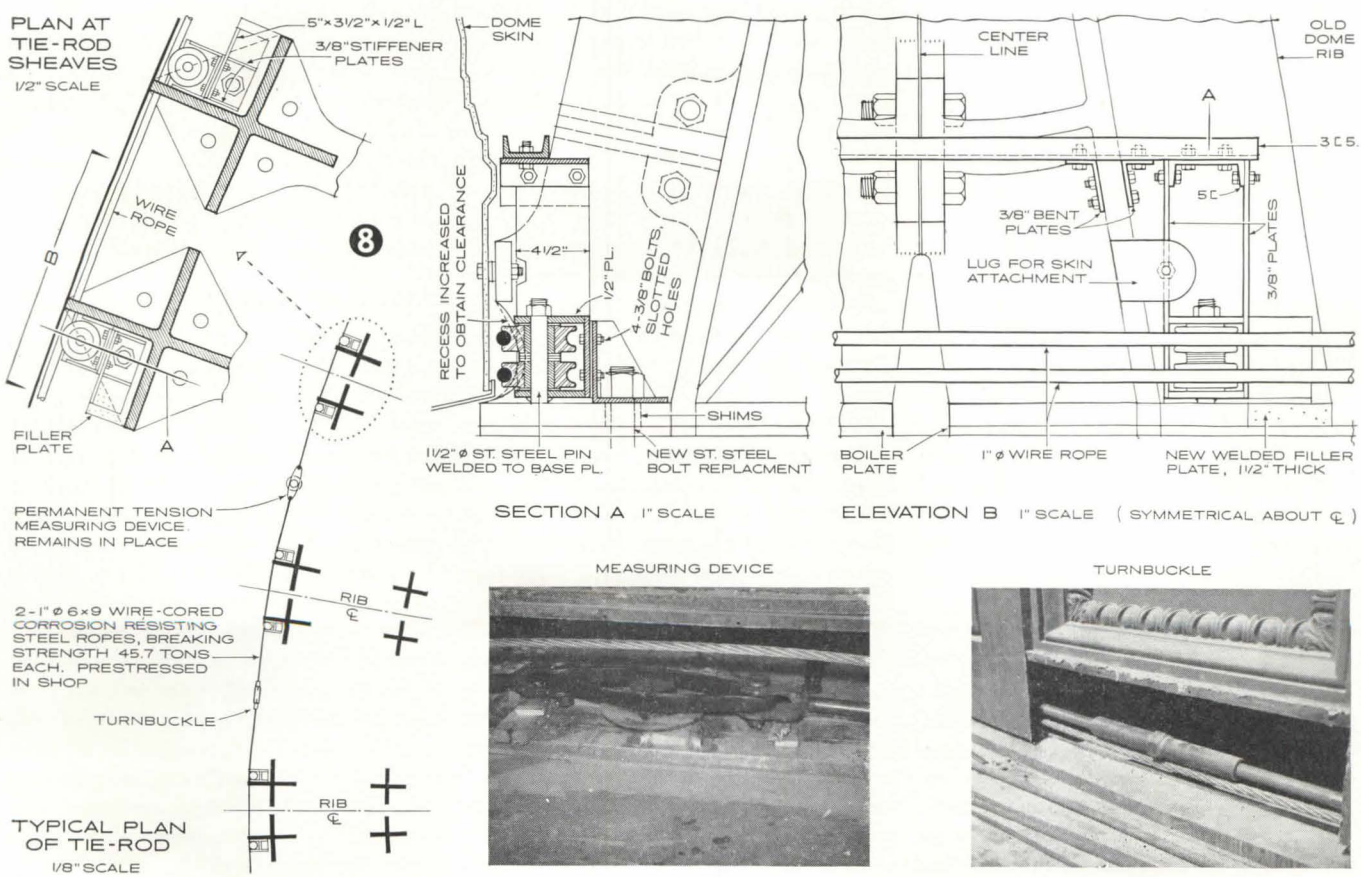
The corroded main bolts were replaced with new stainless-steel pieces of the same dimension, as were all corroded bolts encountered throughout the structure.

Other Replacements

Other manifestations of corrosion which required repair or replacement included:

1 Deterioration of tie rods bracing the Statue of Freedom, attributed to considerable condensation in the upper portion of the lantern. A new ceiling (including a vapor barrier) installed at the top of the tholos, plus the louvered sections of the new bronze replacement windows, is intended to alleviate this condition.

2 Corrosion of miscellaneous skin plates (in some cases aggravated by cracks from other causes) including those located at the tholos, the cornices at the boiler-plate level and above the second-story windows, and the stylobate and hung plates below the peristyle level. Where replacement was indicated, new plates were specified to be of corrosion-resistant steel. Although welding of cast iron is customarily considered of questionable structural value, the use of spe-



cial electrodes was devised so that welding could be used for watertightness.

3 Deterioration of anchorages for miscellaneous ornamental assemblies, including ornamentation at the windows of the cupola roof, between the second-story windows, and hung below or supported upon cornices at various levels. New anchorages were designed employing stainless-steel bolts and plates.

A birdproofing program has been initiated, including stainless-steel/wire-mesh enclosure of the accessible areas behind the "skirt," and an electronic bird-repellent system in the more conspicious areas of the peristyle. Major damage from this cause of corrosion was encountered at certain locations between the top of the peristyle and the main roof. The wire-mesh enclosure was applied to all openings above and below the "skirt" and contiguous with it, excluding birds from its confines. The consultants have recommended the installation of an electronic bird-repellent system at the peristyle where esthetic considerations severely limit the choice of other methods. The system consists of pulse generators and transformers that convert electric current to direct pulsating current of high voltage, but having an amperage of only a fractional part of a milliamp. Two closely paralleled copper wires, one positive and one negative, will be applied with porcelain insulators at locations prone to infestation. The pulsating current in the wires sets up a magnetic field within which the birds receive a mild shock.

Deterioration Due to Temperature

As mentioned above, Walter's design contemplated considerable movement in the structure due to seasonal and daily temperature variations. Tests made in co-operation with the Smithsonian Institute, during the summer of 1865, indicated that the dome oscillated a distance of 3″ to 4″ on an average, sunny, summer day. The motion was reported to be to the south, southwest, north, northwest, and east—returning to its original position in the evening. Similar studies are to be conducted under the supervision of the consulting engineers to corroborate these findings.

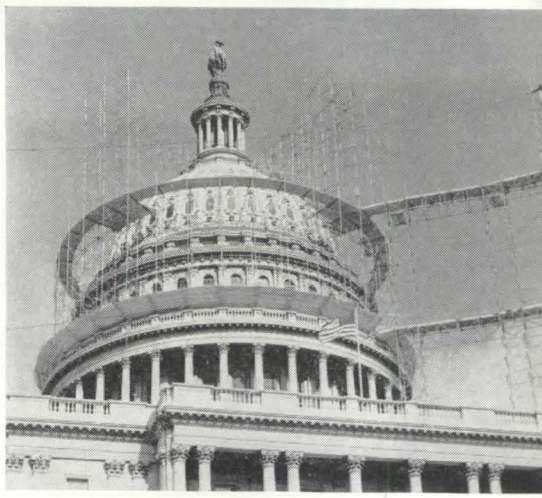
In general, the use of oversized holes at connections served well to avoid damage due to temperature stresses. At certain localized areas, however, this precaution was insufficient, and considerable distress was uncovered. The exterior balustrade at the boiler plate was found to have no expansion joints throughout its length. The top rail, acting as a hoop around the dome, and exposed to the elements, had buckled and cracked at many locations. Water had infiltrated, resulting in considerable corrosion of the rail. Repairs to the balustrade required dismantling and rebuilding the top rail, and replacing severely corroded parts. Expansion joints were provided at regular intervals and an elastic sealer applied to all joints.

Similar conditions were uncovered at the stylobate apron hung below the peristyle level, and at the cornice encircling the dome below the canopy roof. At these locations necessary repairs were made to the plates and connections. Additional flexibility was provided by cutting the plates at regular intervals to create expansion joints.

A myriad of minor repairs and replacements were made during the reconstruction. In addition to the work described earlier, these included the replacement of defective bolts, welding of cracked plates, rebuilding of masonry bearings, and replacement of corroded base plates, and the installation of self-lubricating expansion plates. Anchorages for many of the ornamental castings were renewed. Due to the inaccessibility of rib-cover anchorages of the cupola roof, several sections of these covers, some weighing up to 500 lb, were removed and replaced, for investigative purposes. Although no corrosion was found, fractures in certain of the connection pieces were observed. Some of the covers were subsequently secured with new anchorage systems.

Surface and Lightning Protection

Due to the accumulation of excess paint on the exterior surfaces (some locations indicated more than 30 coats), blistering and cracking of the paint film had reduced its effectiveness. The consultants recommended the removal of all paint on these exterior surfaces, by sandblasting, and the introduction of a synthetic-resin (alkyd) paint system, using basic lead-silico-chromate as the anti-corrosive pigment. Prior to sandblasting, chipping with automatic tools was performed until an optimum degree of paint removal had been achieved, requiring a minimum amount of sandblasting to complete the cleaning. Sandblasting proceeded with up to four nozzles operating simultaneously; special precautions were observed to minimize the loss of excess sand. Within six hours after completion of sandblasting, cleaned surfaces were treated with a wash primer to inhibit rusting. Final painting included three coats of the resinous paint for a total minimum dry-film thickness of approximately five mils, as measured from bare metal. A finish color for the dome was selected to match the newly cleaned marble wings of the Capitol Building.



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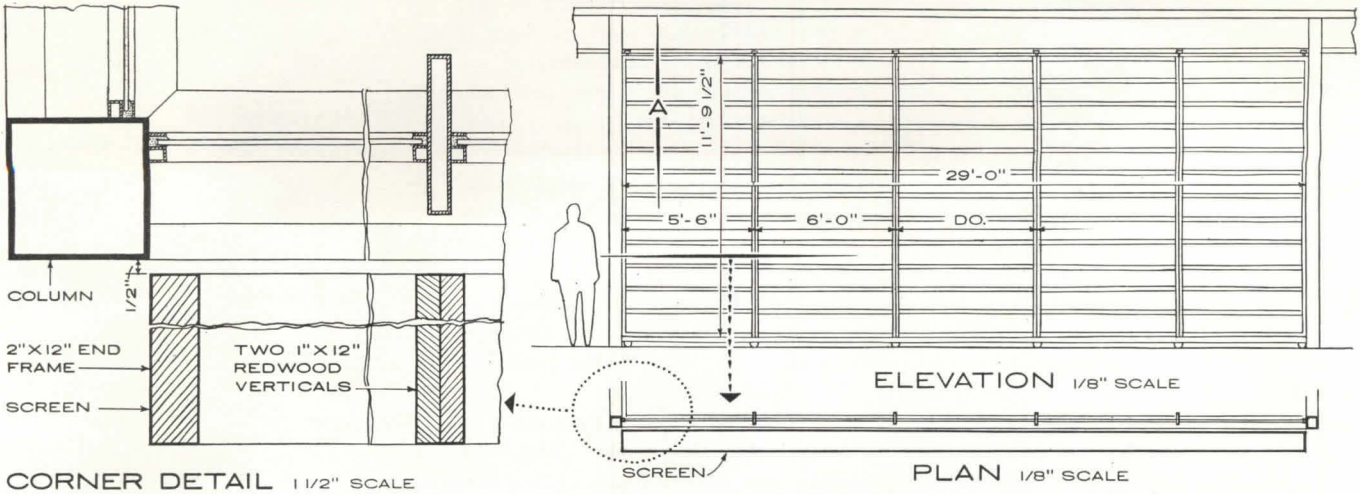
An improvement in lightning protection will be achieved by the installation of four "lines to ground" from the iron of the dome. Although platinum-tipped lightning rods were found in the headdress of the Statue of Freedom, and many lightning strikes had occurred, no ground lines from the dome were previously known to exist. Two of the lines to ground will be built into partitions of the new East Front. The remaining two will be located in the present light courts west of the dome.

Use of Scaffolding

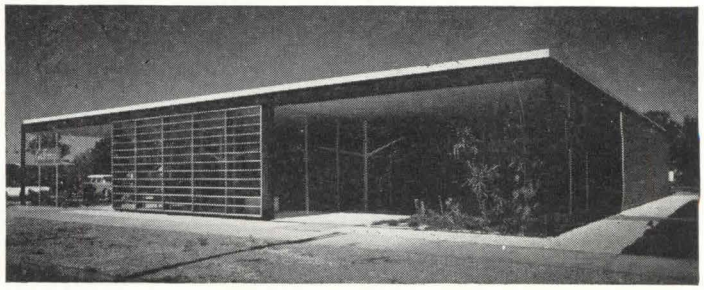
Exterior scaffolding to accommodate work on the outer surfaces of the dome was particularly complex, due to the desirability of limiting construction loads on the upper portions of the dome structure. Four equidistant towers were erected from the boiler-plate level 9. Trusses to the tholos level were hung from these towers by cables which also trussed the towers themselves. No vertical reactions were permitted at the tholos, where the connections accommodated only horizontal forces to stabilize the scaffolding towers.

A free-standing scaffold, composed of seven tied towers, was raised inside the rotunda to a height of 180′, in order to facilitate the cleaning and repair of the famous mural which adorns the underside of the canopy ceiling.

Others connnected with the repair project on the dome were Mario E. Campioli, Assistant Architect of the Capitol, and D. Stafford Kelley, Project Superintendent. General Contractor was J. F. Fitzgerald Construction Company, of Canton, Mass.

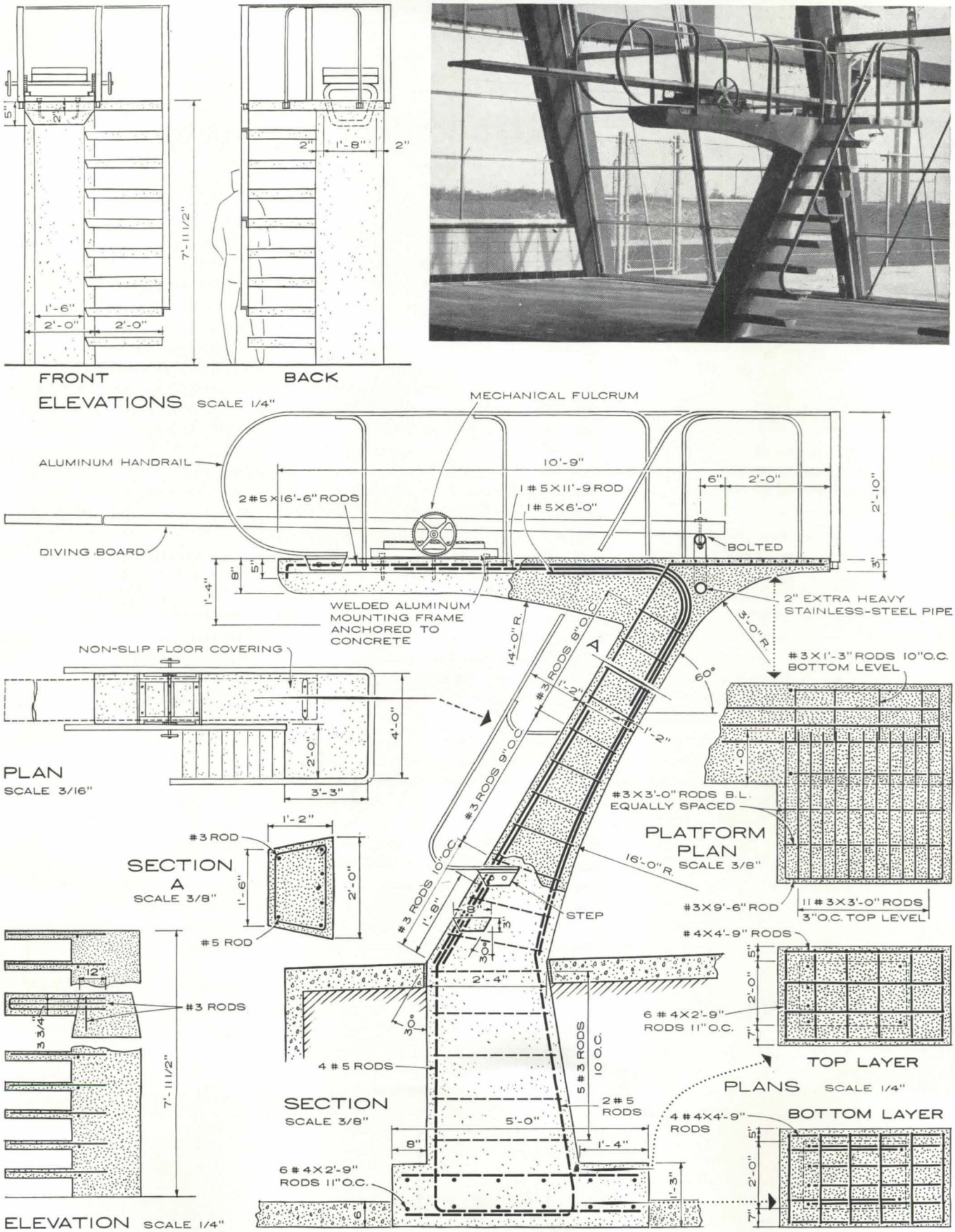


CORNER DETAIL 1 1/2" SCALE



ALEXANDRE GEORGES

GALLOWAYS FURNITURE SHOWROOM: Tampa, Fla. MARK HAMPTON, Architect	SELECTED DETAIL SUN SCREEN



NORTH BEND, OREGON SWIMMING POOL STEVENS & THOMPSON, Engineers	SELECTED DETAIL DIVING BOARD STAND

Design of Underfloor Convectors

BY WILLIAM J. McGUINNESS

Hot-water heating presents a problem for exterior-wall designs having glass from floor to ceiling—either fixed or sliding. A practicing mechanical engineer discusses this situation and suggests a contemporary solution.

In a recent visit to a farm residence, unchanged since the early years of this century, it was observed that the tall free-standing cast-iron radiators were located at interior walls. This arrangement brought them close together to be served by a compact tree-like system of steam pipes with a minimum of risers, and short, efficient runouts. An expanding economy and a wish to offset the chill near windows led to an extension of risers and runouts to perimetric locations. The radiators, now conspicuous below the window sills, were redesigned to be smaller for the same output. The evolvement of the one-story rambling house made forced-hot-water more suitable than steam heating, which does its best job in a vertical direction. With this change came fin-tube convectors in cabinets recessed in the wall, usually below windows. These were no longer "radiators"; heat was supplied by convection and for this reason they needed an air opening below and an enclosed air stack above, leading to an outlet grille. All of this had to be accommodated below the sill in a height not exceeding approximately 2′-6″.

Glass-to-the-floor has been a popular exterior wall treatment for several decades, and many changes have occurred in heating systems to adapt to this construction. It is more important than ever that heat be introduced at the floor line below the glass. Radiant slabs powered by hot water or electricity have been effective. Warm air in perimeter or crawl-space applications is readily adaptable, if floor grilles for warm-air delivery are placed at the glass.

More recently, designers have started to call for glass walls that slide, and function for circulation. A common stock item is a pair of 4′x8′ sliding glass doors in frames of aluminum or other metal. Radiant slabs and perimeter warm-air systems can remain without change, but it is obvious that even the lowest hot-water baseboard cannot be considered.

Since forced-hot-water is still a very popular and efficient method of heating, consideration has been given by some designers to setting a convector in a pit below the floor. Examples of this can be found in early applications, but too often the heating element was merely submerged into a box, and covered with a grille. It is only recently that these designs have reached a state of greater refinement, and there is still far to go.

Air warmed by convetor fins should rise in an enclosed space for the greatest possible height, and should not be made turbulent by the opposite flow of cold air. The sections in the illustration show how this is done. The 2′-deep construction is about as effective as some relatively low convectors, which are often about 20″ high. The baffle separates the hot and cold air streams. The position of the convector on the room side of the baffle assures a suction to draw in the cold air that slides down the glass surface. Insulation lines the colder surfaces of the enclosure.

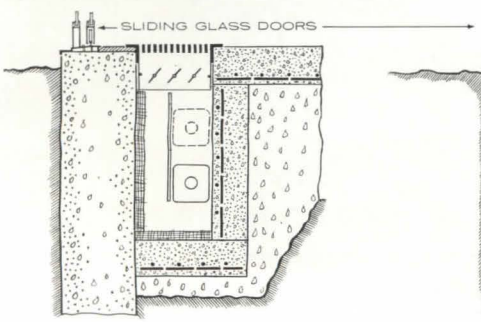
The grille must obviously be strong enough to support people, and have small enough openings so that it will not catch the heels of women's shoes, which have now approached pencil-thickness. A cast-aluminum grille of some depth and with "pencil-proof" ¼″ openings appears to be the answer. It should hinge or lift out for vacuum cleaning of the pit, since it does not appear practicable to permit access to the box from below, where the enclosure should be air-tight. It is likely that there will be many improvements on this scheme; for instance, a metal enclosure could well replace the somewhat bulky wood or concrete box.

Convector strips may be used in a by-pass one-pipe system, such as that shown in frame construction. Special diverting T's are necessary and control can be exercised by a subfloor valve, suitable for balancing, and by a key-operated damper accessible from the room. Vents are necessary at high points. The slab-on-grade type is most suitable for a continuous loop, since it would be difficult to provide valves and by-pass piping in the limited space accessible only from above. Venting problems must be solved. Room control is by damper adjustment.

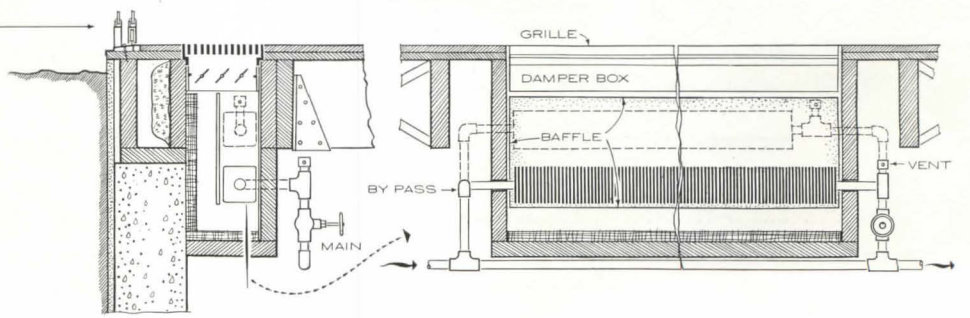
Because high-velocity water flow is possible in loops, the heat output is about seven percent greater in the loop system than in the by-pass system. Surprisingly, the addition of a second convector strip above the first one increases its output by only about 25 percent.

Ratings have been established for the conditions shown. They are for 215 F average temperature water flowing through 1¼″-diameter copper tube with 4″ square aluminum fins. The air downflow passage is 3″ wide and the grille 8″ wide.

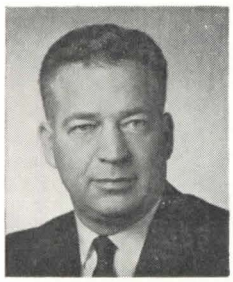
	Btu/hr/lin. ft of trench
One-finned convector strip	
By-pass	1570
High-velocity loop	1670
Two-finned convector strips	
By-pass	1930
High-velocity loop	2050



ALTERNATE FOR SLAB-ON-GRADE



CONVECTOR IN FIRST FLOOR FRAME CONSTRUCTION ABOVE BASEMENT OR CRAWL SPACE



A Plea for Standardization

BY HAROLD J. ROSEN

Lack of standardization among some proprietary materials makes it difficult for the specifications writer to prepare his specification. Here, the author—Chief Specifications Writer of Kelly & Gruzen, architects-engineers—makes an appeal for standards, or performance specifications, which he can utilize to best advantage.

There are several building materials currently being sold that, while purporting to accomplish somewhat similar results, are described by their manufacturers in such a manner as to make them appear to be completely different. The specifications writer often finds it difficult to assess the excellence of one of these products in comparison with another. There is no industry standard or specification which would ordinarily establish a minimum requirement which the specifications writer could utilize in specifying the material.

Occasionally a building material will be brought on the market by one manufacturer, and if proven to be a success will be produced by other manufacturers in varying composition. Thus the specifications writer is completely at a loss as to how to specify the material, or what to expect from "or equal" materials.

A case in point is the material known as vitreous wall coating, or glazed-cement coating, or cementitious wall coating which upon application hardens to form a tile-like glazed surface. This material has been used in Europe for about 40 years and was introduced in this country some 10 years ago. It is used generally in wet areas—in corridors, stairways, kitchens, and cafeterias. It can be applied over masonry, concrete, plaster, gypsum board, and hardboard.

At about this point in its description, the manufacturers express divergent views with respect to composition of the material, the number of coats to apply, the method of application and the performance characteristics.

If the specifications writer were to describe the material of one manufacturer, he would exclude others—since some indicate that organic hardening agents are incorporated in the material and others state that the use of epoxy, polyester, or other thermosetting resins will not be acceptable. If the specifications writer were to describe the number of coats to be used, he would find that there were variations with respect to the manufacturers' specifications. It the specifications writer were to use a performance type of specification, based upon the performance data developed through the testing of the materials of the several manufacturers, he would find very little correlation among them.

For one, I am reluctant to use this material, especially in public work, since I am not quite certain of what I am going to get from the contractor. It seems to me that the manufacturers of vitreous wall coating materials should get together and establish standards of minimum performance data based on:

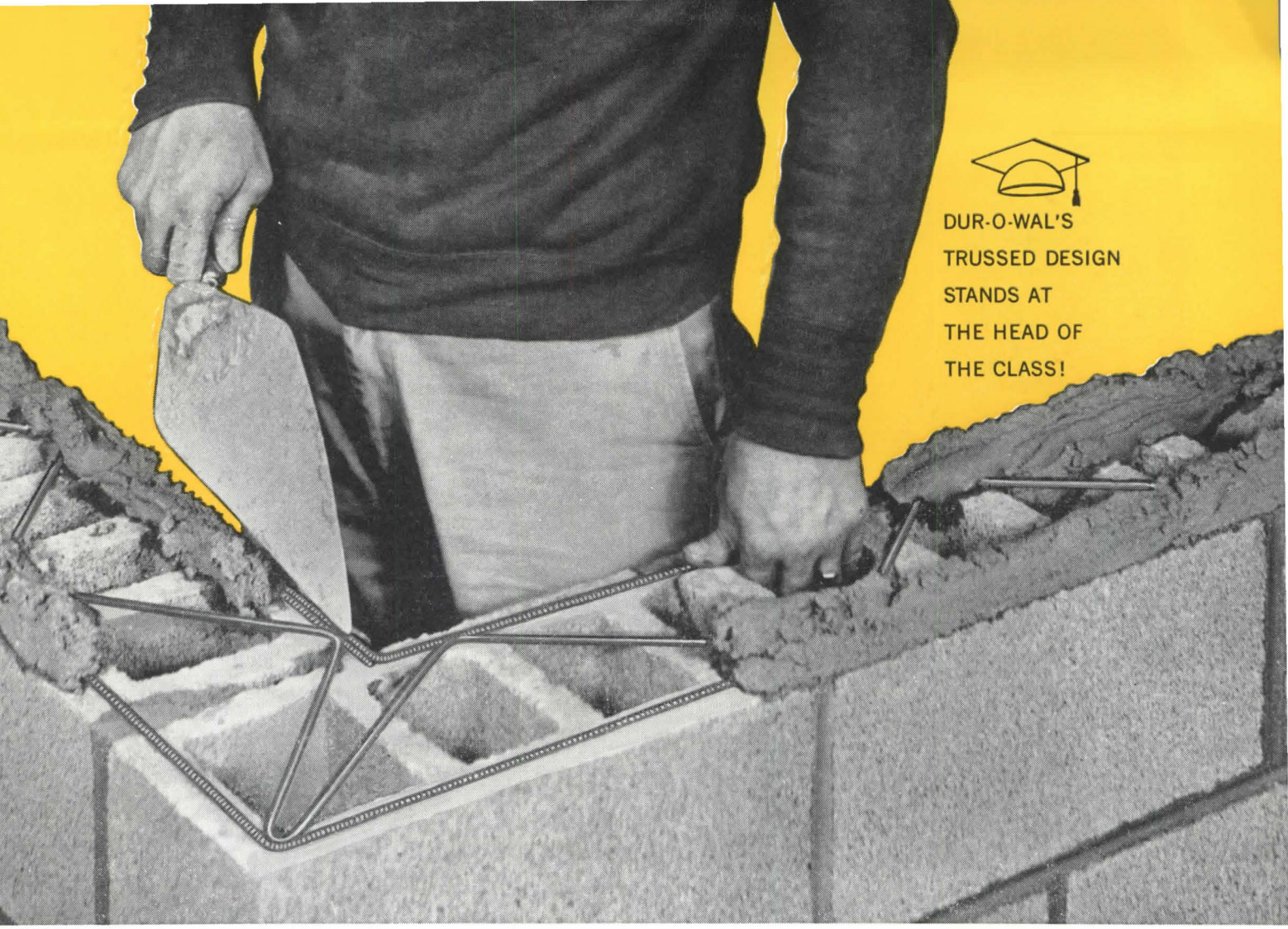
Taber Abrasion Resistance
Washability Tests
Hardness Tests
Impact Resistance Tests
Chemical Resistance Tests
Fire Tests
Weathering Tests.

Another area in which manufacturers should get together and standardize is in the field of chalkboards. Known in former years as blackboards (black slate being the only material used in the little red school house), these writing surfaces are today termed chalkboards, yet they comprise porcelain-enameled steel, resin-coated hardboards, and asbestos cement.

The porcelain-enamel steel chalkboard has many advantages, especially since magnets can be used to fix material to the writing surface so that it can double as a bulletin board. Originally, 18-gage enameling iron was necessary to provide the base metal for the procelain-enamel coats. However, with the advent of porcelain-enamel ground coats, or frits, which do not require the elevated temperature of 1500 to 1600 F for firing, the industry was enabled to utilize lighter-gage metals for porcelain-enamel finishes. This in turn brought on a good deal of experimentation with the lighter-gage metals, the number of coats, the inner core material, back-up sheets, adhesives, etc. Upon examination of the literature of the several chalkboard manufacturers, one finds porcelain-enamel steel chalkboards utilizing steel gages of 18, 20, 24, 25, and 28. The writing surfaces have either two or three porcelain-enamel coats. Sometimes the back of the face sheet is coated with porcelain enamel.

Upon reviewing the performance characteristics of the chalkboards of the various manufacturers, one finds different standards employed. There is very little correlation in the test methods referred to or used. Here, too, the industry would be well advised to get together and prepare a standard, or performance specifications, which can be utilized by the specifications writer. The physical characteristics which should be standardized in connection with porcelain-enamel steel chalkboards are as follows:

Wear Resistance
Light Reflectance
Hardness
Craze and Crack Resistance.



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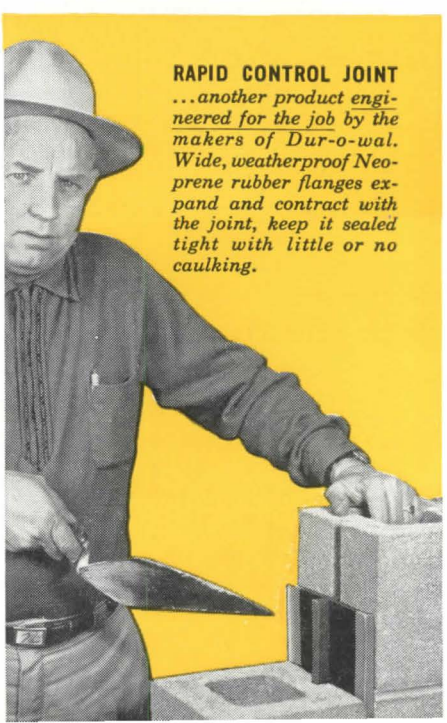

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Arbitration: Part I

BY JUDGE BERNARD TOMSON & NORMAN COPLAN

A recent U. S. Supreme Court decision upholding the grant of extensive powers to the arbitrators is discussed in the first part of a four-part article on arbitration.

The increasing importance of arbitration as a method of determining disputes is evidenced by several recent judicial decisions upholding the grant of extensive powers to the arbitrators. This column has often discussed the importance of arbitration as a method of determining disputes which might arise between owner and architect and owner and contractor. In particular, it has been suggested that consideration be given to extending the architect's role and status as an arbiter of disputes arising under the construction contract (*See* IT'S THE LAW, MAY 1956 P/A, NOVEMBER 1957 P/A, JULY 1958 P/A). We have also suggested that the arbitration procedure of American Institute of Architects be amended to provide professional panels from which arbitrators can be selected (*See* IT'S THE LAW, JUNE 1956 P/A, DECEMBER 1957 P/A). Although a more extensive grant of power to arbitrators in the construction field may be desirable, the exercise of such power creates its own problems which should be examined.

United States Supreme Court has, in recent months, considered the subject of arbitration in a series of cases involving management and labor. Although some of the issues ruled upon by the Supreme Court in these cases are peculiar to labor arbitration, other questions considered there are analagous to the problems which pertain to arbitration in the construction field. All of the cases are illustrative of the increasing significance of arbitration in various fields of business and professional endeavor.

The first of the recent United States Supreme Court decisions was *United Steel Workers of America* vs. *American Manufacturing Company*. (4 L. ed. 2d 1403). The suit in this case was instituted by United Steel Workers union to compel arbitration of a grievance that one of its members had filed with his employer. This employe had left his work due to an injury and instituted a suit for compensation benefits. The case was settled on the basis that the employe had sustained an injury which resulted in a 25% disablement. Subsequent to this settlement, the employe sought to return to his job by virtue of the seniority provision of the collective-bargaining agreement between his union and the employer which provided that the employer would follow the principle of seniority "where ability and efficiency are equal." The employer refused to rehire the employe, and the union demanded arbitration of this grievance. The union took an appeal to United States Supreme Court, after a lower court held that the grievance in question was "frivolous, patently baseless, one not subject to arbitration under the collective-bargaining agreement." This determination was reversed by the Supreme Court.

The collective bargaining agreement between the union and employer provided a detailed grievance procedure with a provision for arbitration of all disputes between the parties "as to the meaning, interpretation and application of the provisions of this agreement."

The Supreme Court, in considering the application of this provision stated:

"The collective agreement requires arbitration of claims that courts might be unwilling to entertain. Yet in the context of the plant or industry the grievance may assume proportions of which judges are ignorant. Moreover, the agreement is to submit all grievances to arbitration, not merely those that a court may deem to be meritorious. . . . The question is not whether in the mind of a court there is equity in the claim. Arbitration is a stabilizing influence only as it serves as a vehicle for handling every and all disputes that arise under the agreement.

"The collective agreement calls for the submission of grievances in the categories which it describes irrespective of whether a court may deem them to be meritorious. In our role of developing a meaningful body of law to govern the interpretation and enforcement of collective-bargaining agreements, we think special heed should be given to the context in which collective-bargaining agreements are negotiated and the purpose which they are intended to serve. . . . The function of the court is very limited when the parties have agreed to submit all questions of contract interpretation to the arbitrator. It is then confined to ascertaining whether the party seeking arbitration is making a claim which on its face is governed by the contract. Whether the moving party is right or wrong is a question of contract interpretation for the arbitrator. In these circumstances the moving party should not be deprived of the arbitrator's judgment, when it was his judgment and all that it connotes that was bargained for. . . . The agreement is to submit all grievances to arbitration, not merely those the court will deem meritorious. The processing of even frivolous claims may have therapeutic values of which those who are not a part of the plant environment may be quite unaware."

Thus, United States Supreme Court was of the opinion that widespread use of arbitration in labor disputes was a "stabilizing influence" having "therapeutic values." Undoubtedly, the appropriate use of arbitration in disputes in the construction field would have the same effect. It must be emphasized, however, that in the arbitration of construction contracts, as in those relating to collective-bargaining agreements, its "stabilizing influence" could easily be jeopardized by inappropriate selection of arbitrators or the inadequate enforcement of their determinations.

In next month's column, we will continue our review of recent decisions on this subject.

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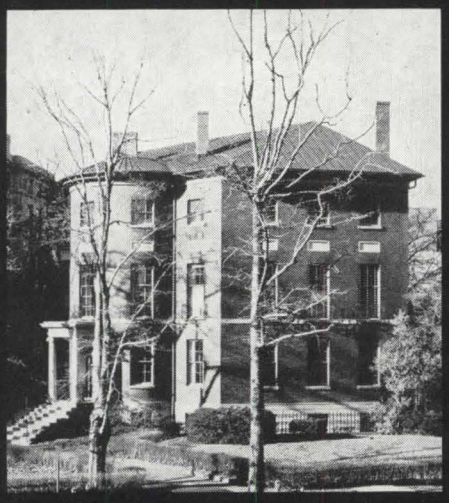
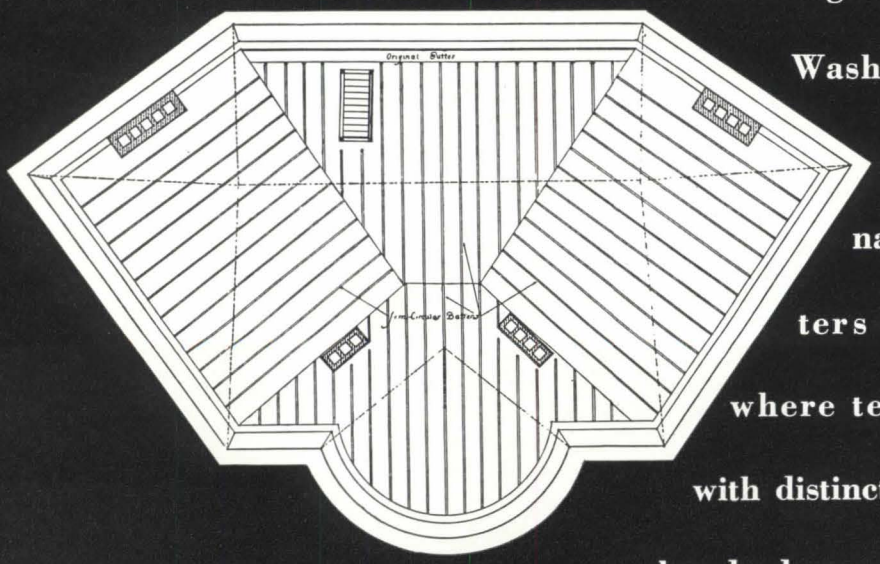
American Institute
of Architects,
Washington, D. C.





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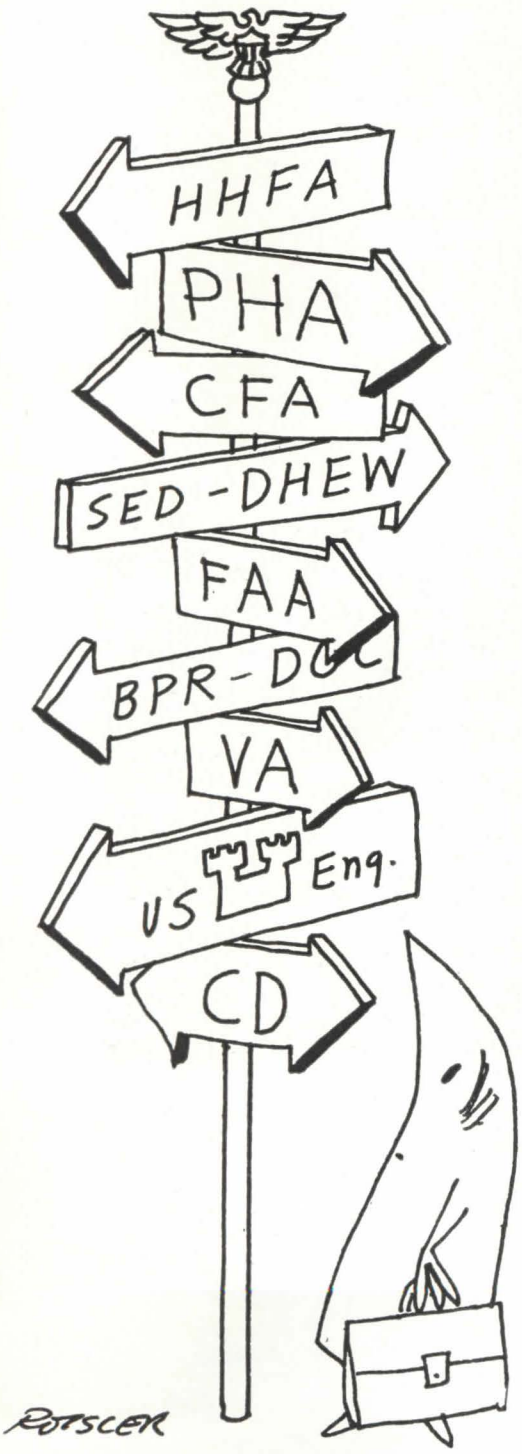

Department of Urban Affairs

Dear Editor: I believe Congressman Lindsay ("The Cries of Our Cities," SEPTEMBER 1960 P/A) has pointed out several good reasons for having a Cabinet-level department concerning Urban Affairs, and I've read and heard other arguments in favor of same, but there remains one obstacle: there is no assurance that, if such a department were established, the departments, agencies, bureaus, administrations, divisions, corps, offices, and other governmental *ad hocs* would relinquish all or any part of their "control" over the various "programs" now in force. From past experiences, it would be safe to say that these would continue practically unchanged, with only an additional department. The pressure groups would certainly work overtime to preserve the status quo.

I believe the problem that has to be resolved is how to create this department, which I agree is needed badly, and at the same time *transfer* those now working in this field instead of hiring additional employes. I hope Congressman Lindsay and the others who are interested in this urban affairs problem can evolve a solution. I believe their task is going to be like trying to cut down the size of the Department of Agriculture to match the number of farmers left! Who would advocate that and expect to be heard with intelligence in the Halls of Congress?

HARRY S. THAYER
Green Bay, Wis.

Concrete Contribution

Dear Editor: Just a short note to tell you how pleased we are with the October P/A. You and your staff should be congratulated for an excellent job.

I. M. PEI
New York, N. Y.

Dear Editor: The issue on concrete technology was excellent. The introduction by Jan Rowan and Ilse Reese's story on Mercer were most informative and inspiring.

The over-all quality and consistency of the entire issue—technical articles, book review, editorial—was convincing and meaningful.

Is it too much to ask that this high level of publishing, editing, criticism and observation be maintained?

Please try—and bravo to you and your staff.

SIDNEY L. KATZ
New York, N. Y.

Dear Editor: Congratulations on the issue on concrete technology. It is the finest.

V. S. ANDREWS
The Master Builders Co.
Cleveland, Ohio

Dear Editor: I must tell you how great your "Concrete Technology in the USA" is, having just now completed reading it. It is a tremendous contribution to good architecture. Keep up the good work.

LEONARD SCHEER
New York, N. Y.

Concrete Extravaganza

Dear Editor: After reading the article, "Dr. Mercer's Concrete Extravaganza," in OCTOBER 1960 P/A, I feel compelled to write a fan letter.

It was a remarkably fine piece on a subject which has fascinated the heck out of me for the past three months, ever since I first saw the Museum. Then, about a month ago, I visited Fonthill for the first time and realized that Mercer was more than a curio; here was a legitimate innovator of the first order.

Your article was particularly pleasurable to me because it said so effectively so many things I could only feel in a rush of sensations for which I lacked the words. The comparison of the Museum to Wright's Guggenheim may be questioned by some, I'm sure. But I would agree that Mercer's is by far the more interesting structure.

Wright's seems rather sterile in comparison with Mercer's bubbling, innocent outpouring of delight. Many, many thanks for perserving this delight in print.

DAVID E. LOYE
Tile Council of America
New York, N. Y.

Responsibilities: Architect vs. Contractor

Dear Editor: I have been reading with interest the comments of your legal team on Construction Contracts in JULY and AUGUST 1960 P/A. I must rise to the defense of general contractors and point out some facts from their side of the fence, lest you get the idea that all general contractors reading your magazine accept the opinion of your legal team in the absence of any objections.

In the July issue, it is recommended that the contractor be required to acknowledge his acceptance of the plans and specifications as being, in his opinion, appropriate and adequate for the

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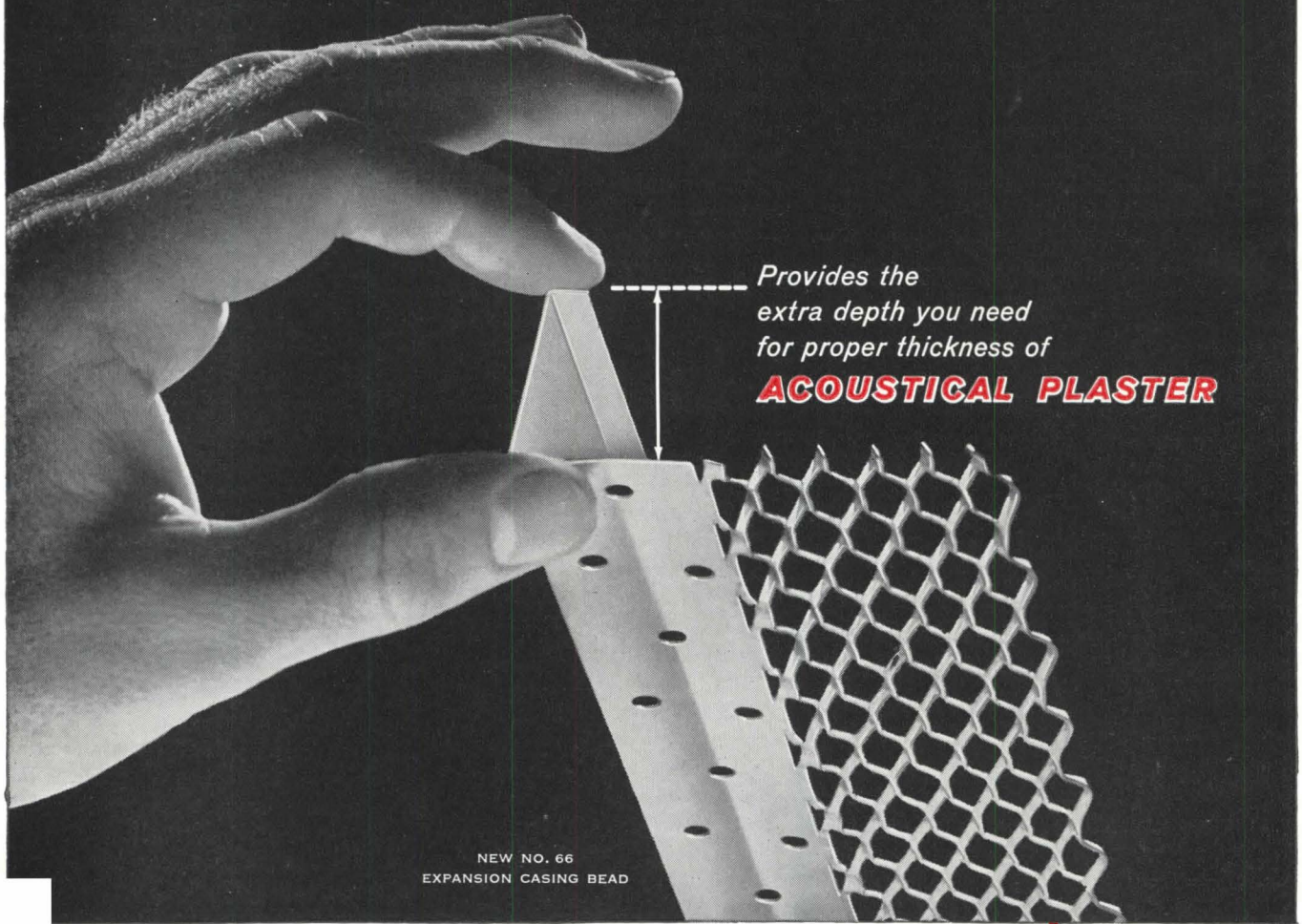

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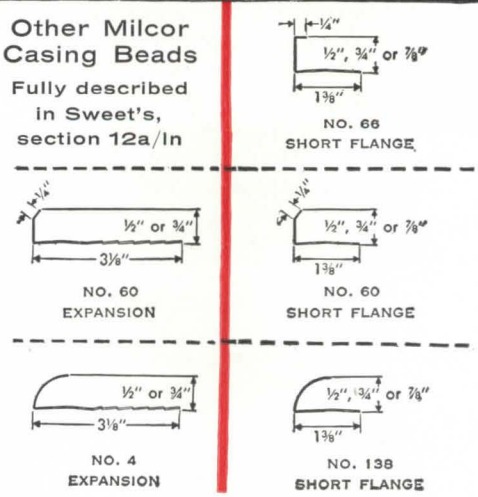

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ML-37

construction of a sound and suitable building. It has always been my understanding that it is the basic responsibility of an architect to design a sound building and achieve the owner's desires as to suitability. However, a contractor should be duty bound to point out *obvious* inadequacies, with the word "obvious" being an all-important qualifier. Unfortunately, defects in plans do not jump out and hit one in the eye all the time. The architect has spent perhaps a year working up the plans; the contractor has perhaps a month to become familiar with the plans and put a price on them.

Similar reasoning applies to the August article, in which it is suggested that the contractor be required to pay for all deficiencies of the plans if he has failed to find them before accepting the contract. What a boon to an inefficient architect! Once again, why should an architect, who has been developing a set of plans over a long period and is considered to be intimately familiar with them, be absolved of responsibility for omissions, errors, or conflict. In the contractor's anxiety to obtain a job, he doesn't disregard inadequacies—he just doesn't have the time to find them.

Let's keep the architect responsible, solely, for designing a sound and suitable building project and for correcting any damage or defects in the work caused by omissions, errors, or conflicts in the plans and specifications.

J. D. HANFT
Berwyn, Pa.

Dear Editor: I differ sharply with the general principle that the contractor should assume, at the time of submitting his bid, any substantial responsibility for the adequacy, consistency, or completeness of the plans and specifications. While it is true that such assumption of responsibility would generally be in the interest, financially speaking, of the architect and owner, it appears to be an attempt to "cover" them against errors and omissions, the avoidance of which is properly the function of and responsibility of the architect.

I might agree that the contractor should acknowledge that he understands the plans and specifications, and that he has all the abilities and facilities required to execute the project, although even these seem implicit in his bid and in his signature to the contract.

But, ordinarily, the period and circumstances of bidding are not such as to afford the contractor the opportunity to fully evaluate the quality of the architect's documents, or to determine and expose the existence of any but the most glaring omissions or inconsistencies. While his co-operation in doing so, where possible, before signing the contract is highly desirable, it is a definite shifting of responsibility to make this a requisite. In many cases, I believe, such a requirement would result in the need for contractors to add an excessive contingency or "cushion" factor to their bids.

The example given by the authors, in the second article, of the so-called typical or representative detail which they would call upon the contractor to assume and adapt as required to various parts of the project is an even broader attempt to shift responsibility. The architect has ample opportunity in the drawings to indicate where the detail is applicable, and in the specifications to define matters of quality.

It is my conviction that any trend toward shifting of architectural responsibilities to the contractor would, in the end, result in depreciation of the value and scope of architectural services and, in logical sequence, in pressure for lowered professional fees.

Public relations groups within the profession, from the national AIA level down to the Chapters, have spent the last ten years or so trying to advance the image of the architect and his services in the eyes of the lay public. Let us not back down on any progress we may have made in this direction by evading any of our functional obligations.

GERSON T. HIRSCH
Pleasantville, N. Y.

We agree that it is the basic responsibility of an architect to design a sound building. It is our point, however, that if a contractor is of the opinion that a sound or suitable project will not result from the plans and specifications he should not undertake its construction. Hidden reservations are not in the owner's interest, and he should be entitled, at least, to the assurance that the contractor who undertakes the project believes that the plans and specifications of the architect are appropriate and adequate.

From the architect's point of view, the situation too often arises where the contractor, in seeking to absolve himself from a claim of improper workmanship or materials, charges the architect with inappropriate plans or specifications. The owner, under these circumstances, being unsure of the true state of facts, may either suggest that both the contractor and architect are responsible for the defect in construction, or may simply "throw up his hands" and leave them to "fight it out." This is not a healthy situation and would be avoided by the approach we suggested in the July column.

The owner is also furnished additional protection if the contractor is obligated to inform the architect as to errors, omissions, or defects in the plans or specifications before accepting the construction contract. It has been suggested that the contractor should be required to point out only "obvious" inadequacies. It is our view, however, that a greater responsibility on the contractor in this respect will result in a more studied approach by the contractor to the plans and specifications to the benefit of all concerned.

BERNARD TOMSON
NORMAN COPLAN

A Professional *Magazine*

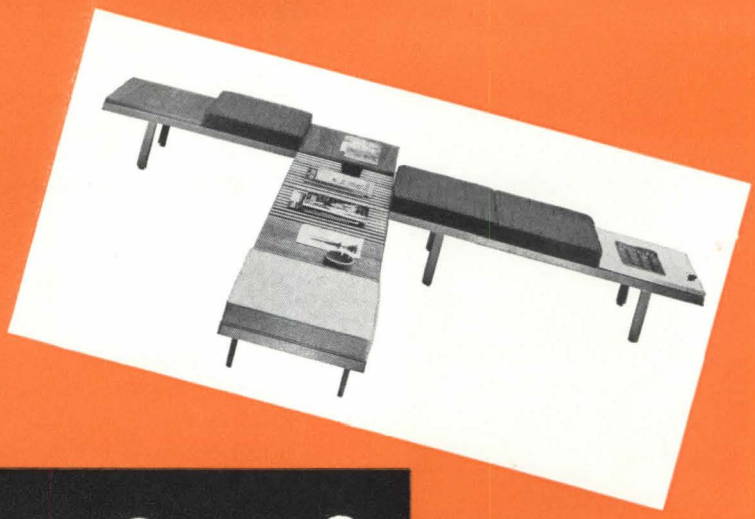
Dear Editor: I just wish to express my enthusiasm for the new P/A. Until recently, I had regarded P/A as one of the duller architectural publications with almost a mania for publishing uninteresting buildings. Your present magazine is *the* American architectural publication which I now enjoy above the others.

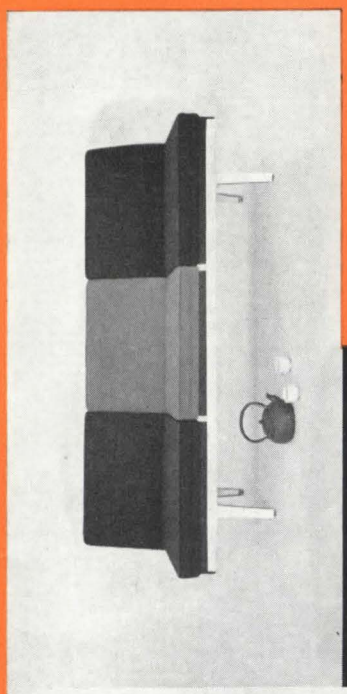
It seems to me that your new format, the presentation of articles, the articles themselves, bespeak forethought, a good deal of preparation and genuine architectural enthusiasm.

Consistently, your covers are a joy —almost up to Britain's *Architectural Review*. This in itself is quite a jump from the downright embarrassing "Mondrianas" of the past.

Above all, I appreciate a certain resistance to commercialism. There should be a difference between a professional journal and a trade magazine.

LEON GREENBERG
White Plains, N. Y.





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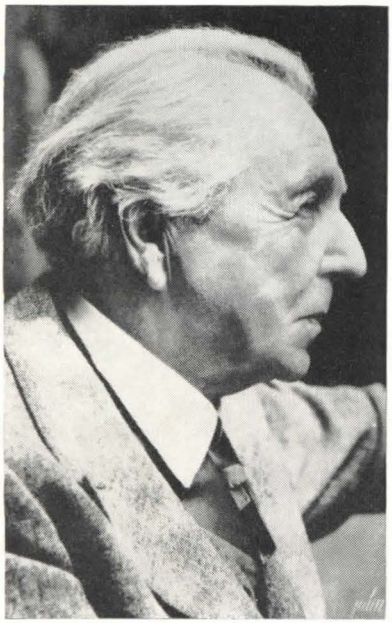

Outstanding Expression of the Master's Hand

BY EDGAR TAFEL

Architect of New York, N. Y., who was with Wright for nine years at Taliesin (among other projects, supervising construction of the Johnson Wax Building and "Falling Water"), acclaims Drawings for a Living Architecture. *Frank Lloyd Wright. Horizon Press, Inc., 156 Fifth Ave., New York 10, N. Y., 1959. 256 pp., illus. $35*

In the year since the death of Frank Lloyd Wright, it has become clearly evident that his published works should be classified in two categories: his theory of architecture and the architecture itself.

In the area of theory many fine and even less than fine works are available, but in the second category two volumes alone remain as the outstanding expression of the architect's hand—the *Wasmuth Monograph* of 1910 (published in Germany and now unavailable) and this recent book, *Drawings for a Living Architecture*. In my opinion, this latter book, in years to come, will remain the most important one relative to Wright's work; no architect's library will be complete without it. It is fortunate that Wright was alive during the preparation of the book and gave full access to his files; it is sad that no copy bears his original autograph.

The volume needs little explanation beyond the fact that it is faithful, comprehensive, exact, and beautiful. The 200 sketches and drawings are so accurately reproduced that when Wright saw the proofs he mistook one of them for the original. (It must be noted that the price of this volume, which was made possible by Bear Run Foundation, Inc. and Edgar J. Kaufmann Charitable Foundation, does not reflect its huge cost.)

Here is a book that needed no written interpretation, and the unnamed editor could not have done better by it. The accompanying text, consisting of an interpretive essay by Professor Samona (of the University of Venice) and a brief tribute by A. Hyatt Mayor (of the Metropolitan Museum of Art), are initially helpful to the stranger to Wright's work, but it is the master's hand that finally informs of his indisputable genius.

As an apprentice at Taliesin, I remember much of the excitement over the preliminary design of "Falling Water" for Edgar J. Kaufmann, Sr. Wright had gone to Bear Run to see the property and returned to Taliesin with a plot plan, showing the contours of the terrain, including the location of the waterfall and even the big boulder, which eventually became the hearth of the living room fireplace. Some time later, Kaufmann phoned from Pittsburgh and asked if the initial drawings were ready for him to see. Wright shouted his answer into the rural telephone, "We're ready for you. Come on out."

Although Wright had been formulating the design in his mind and talking about it each day, we apprentices were somewhat concerned, knowing that no drawings had yet been made, nor were there any when Kaufmann telephoned at 9:00 A.M. a day later from Milwaukee, two hours away. Again Wright said, "Come on out, E. J. We're ready for you." Only then did he start to draw.

By 11:00 A.M., when Kaufmann arrived, Wright had completed the three plans with sections through the building, including the unusually beautiful drawing in three colors of three different floors superimposed on each other. Perspectives were made later. Working drawings were done laboriously over a long period, with Wright in full charge of every detail.

Most of the work of Frank Lloyd Wright, in fact, was done under stress of urgent schedules, involving matters of time deadlines, locations, and even clients. But he was always capable of producing his initial designs with amazing speed. Never in his career did he employ assistants to start his design rolling; his own hand is apparent in everything that bears his name. It was merely part of his genius to be able to create with consummate artistry in a minimum of time. The Stanley Marcus house is another case in point. That design was made in his hotel room immediately after visiting his client and seeing the plot. In light of this, it is interesting to note that Wright never adopted anyone else's drawing style, but consistently has had his style adopted by others at Taliesin. The drawings, ranging from early in the century to shortly before his death, remain a permanent testament of this fact.

This book is also illustrated proof of Frank Lloyd Wright's, and our country's tragedy—the lack of public buildings, housing schemes, fairs, large religious works, and office buildings. He had always wanted to design these, but saw such buildings go, time and time again over the decades, to lesser men. Unfortunately, in architecture, there has been little "equal time" for the great; there is always more architectural opportunity for the socially accepted, "political," and "corporate" architects.

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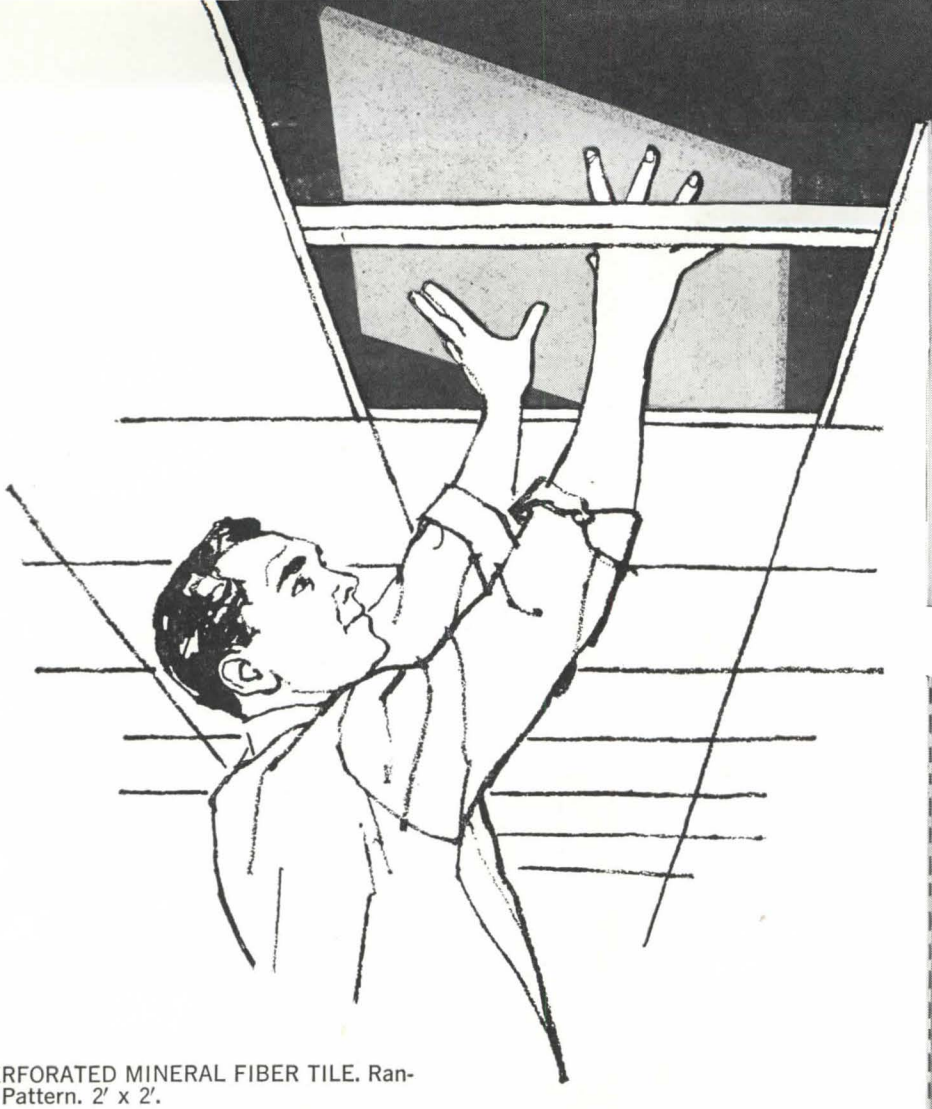

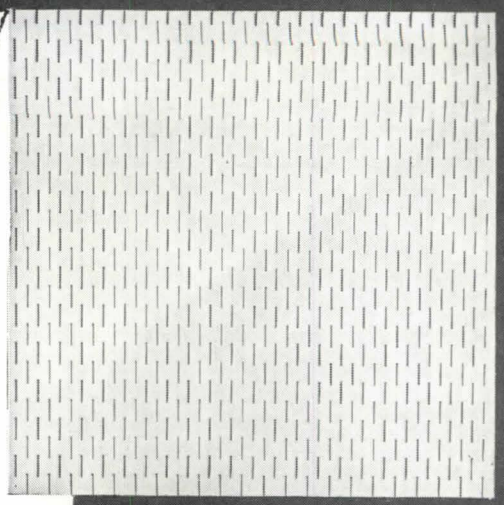

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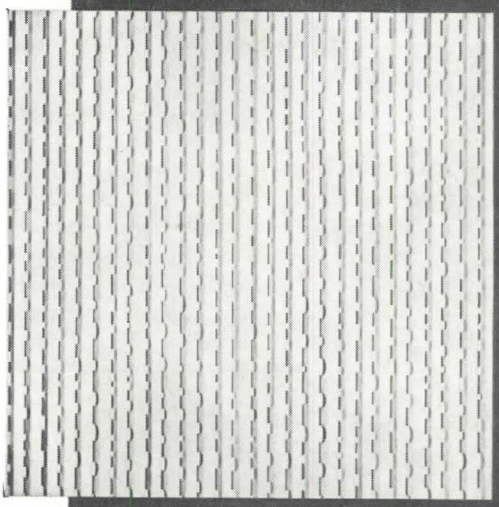

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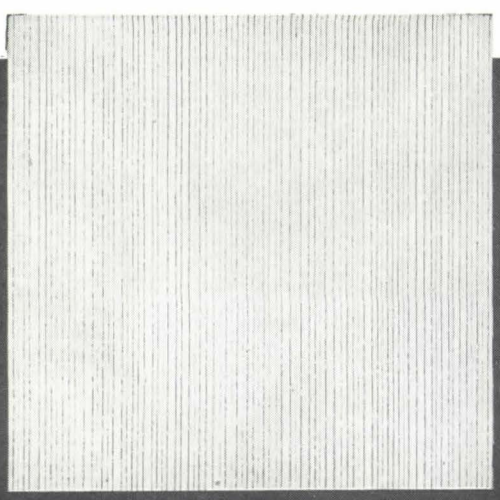

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Continued from page 184

Lewis Mumford, commenting on Wright in connection with the Guggenheim Museum, stated that "Architects who pursue their formal aims so intently without consideration of all the public functions they serve are really claiming the privileges of the painter and sculptor without fully accepting the responsibilities of their own profession." But it was Frank Lloyd Wright's great passion to remake the whole physical world, a professional responsibility he would cheerfully have accepted. The illustrations, sketches, and drawings, covering seventy years of Wright's contributions to the arts, lead one to believe that, given another seventy years of life and a more receptive architectural climate, he might well have done much toward effecting even that formidable task.

Clarification of Housing Policies

Housing Issues in Economic Stabilization Policy. *Leo Grebler. Occasional Paper 72, National Bureau of Economic Research, Inc., 261 Madison Ave., New York 16, N.Y., 1960. 129 pp., tables, charts, $1.50*

Professor Grebler gives us a detailed analysis of the relationships between national housing-credit policies and economic stabilization issues during the perod 1953-57. This is not for casual reading, but if one is concerned with the Government's sometimes encouraging new construction while at the same time its credit restrictions make it more difficult to build, this book will provide some clarification.

Among the volume's key points—regarding the essential difference between national housing policies (especially in mortgage financing) and over-all economic stabilization aims—is that the housing goals are long-range, while the results sought in economic stabilization are short-term. Therefore, the housing market is not readily adaptable for use as a tool in an economic program to stop a sudden recession or control an unwanted boom, because of the time that must elapse between stimulus and response.

Noted for his past studies in the operation of the housing market (particularly his deflation of the "filtering-down" concept in his study of housing-market behavior in New York's Lower East Side), Leo Grebler is well-equipped to draw instructive lessons from his two years of service with the President's Council of Economic Advisers. His readers may be somewhat less fortunately armed to cope with his analysis.

DAVID A. GROSSMAN
Advance Planning Associates
Cambridge, Mass.

An Expanding Chaos

The Landscape of Power. *Sylvia Crowe. Drawings by Michael Laurie. Architectural Press, London, 1958. Distributed by British Book Centre, Inc., 122 E. 55 St., New York 22, N. Y. 115 pp., illus. $4*

The crisis of the modern industrial world, as presented in this indictment, is the desecration of the landscape by constructions of huge scale—power stations, hydroelectric schemes, and airfields.

The first industrial revolution, confined to the railroads and coal fields, was also vociferous in its appetite for space, but it did not possess the autonomy of our present technology. The new industrial

Continued on page 196

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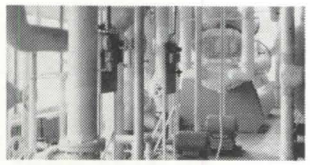

AIR CONDITIONING PENTHOUSE. This equipment in penthouse atop the building includes two gas-fired Bryant boilers, 300-ton capacity Carrier Absorption unit to chill water for the Carrier Weathermaster air conditioning system, and Carrier cooling towers, too. Roof-top installation frees basement area for other uses.

This new 3101 Euclid Avenue Building in Cleveland meets every modern requirement in the book. Attractive exterior, with glass and aluminum curtain walls. Most comfortable interior, with air conditioning by Gas-operated Carrier Absorption Refrigeration.

FOR HEATING & COOLING GAS IS GOOD BUSINESS

Continued from page 190

pattern, however, knows few boundaries. It is multidirectional, with no limits other than man's expanding technological ingenuity.

But Miss Crowe does not blame the industrialist, scientist, or engineer. The root of the present problem—an expanding chaos, a landscape scarred and denuded—rests with the environmental designers. It is they who have not kept pace with the energies of the engineers and scientists. The designers have passively abandoned responsibility by simply lamenting the loss of "human scale," and making little attempt to understand the new cosmic scale of fission and fusion, radio-telescope and radar.

We must recognize that our scale of endeavor today is more "universal" than "human." As a result, the chaotic landscape now developing not only reflects unresolved values and directions in our civilization, but also lacks a tradition of design capable of dealing with the new shapes. With this lack in mind, Miss Crowe creates her own philosophy of design, conceiving that building types in the landscape be either *humanized* or *elemental*. Humanized structures have a classical connotation, with modules related to the human dimension in size; elemental structures include dams, lighthouses, roads, and bridges. Elemental structures may disrupt a landscape through the very indifference that sets them apart from man's dimensions; but, because of this scale, Miss Crowe believes it more reasonable to divorce such structures from the land than to attempt concealment. With sketches, diagrams, and photographs, strategically placed adjacent to pertinent text passages, she presents solutions to some of the problems of relating these huge facilities to the landscape, and, hence, to the people. She points to particular projects as examples, defining their problems and scope, and suggesting alternate solutions.

The author shows ways that the surroundings may be modeled to link the man-dominated environment with unsullied nature. She explains how the landscape may be rhythmic, arrested from time to time by a focal point, but always remaining a *flowing continuum* and not a series of unrelated objects. She takes sharp issue with the prevalent notion that agricultural land is inexhaustible and may be forever encroached upon as a background for electrical substations or other power facilities.

Completeness in the landscape, she continues, may be obtained by pooling the needs for roads and ancillary structures, while combining resources for land reformation, planting, etc. The quality of completeness in high-density nations such as Holland and Denmark is largely a product of fitting together different areas of cultivation and woodland close to urban and industrial constructions. To achieve this end, a sincere collaboration between designer and engineer is necessary. Of even more importance is consultation between landscape advisors, administrative bodies, and construction, development, engineering, and architectural groups. And in addition to the need for landscape advice within each planning area, there is great need for consultation on a regional and national basis, to insure resource development and derelict redevelopment. With interaction on these many levels, the regenerative landscape may be built in from the beginning, doing much to prevent subsequent chaos and criticism.

Continued on page 198

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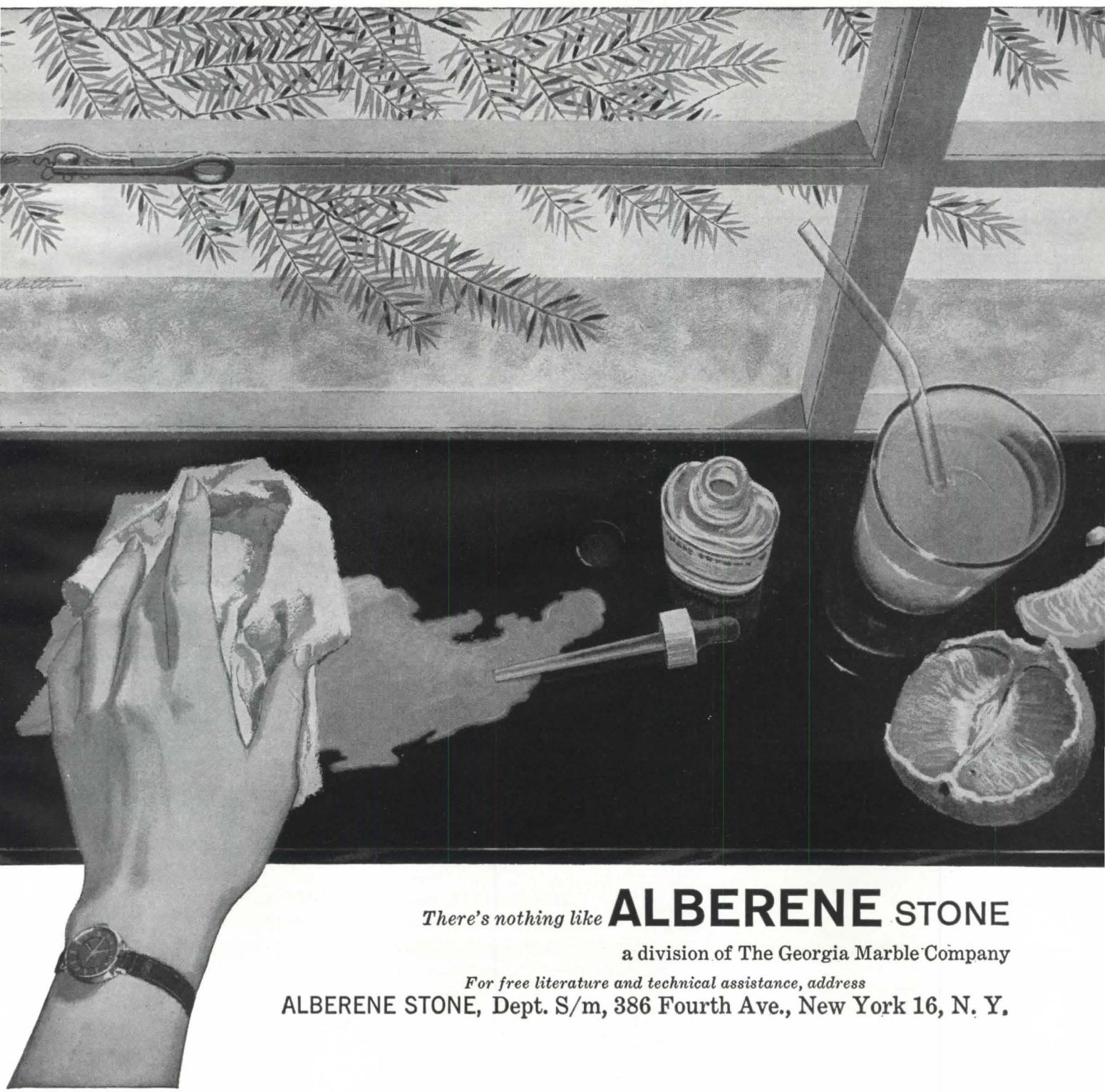

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Continued from page 196

Miss Crowe must be applauded for setting the stage for counterattack. Although many are undoubtedly aware of impending industrial encroachments, she is one of the few to come to print with criticisms of specific projects and directions towards renewal. (Many of her articles on this subject have been published by the *Architectural Review*, of which she is an editorial advisor.)

The book is parochial, in parts, belonging primarily to Britain, a small and highly-populated country where new frontiers for land expansion no longer exist. Nevertheless, the thesis touches home, for the problem of the "vanishing prairies" is as pertinent to Gary, Indiana, and Long Beach, California, as it is to Britain. The problem faces all nations, perhaps not with the same imminence as in Britain, yet by projection into the future it becomes inescapable unless there is guidance by sensitive designers. To translate Miss Crowe's thesis: in meeting regional and local differences, we must produce a design vocabulary rich and comprehensive enough to meet our challenges, and we must transform this into appropriate programs of action.

Quite obviously, the very subject of her book is beyond the scope of detailed treatment. The intermediate scale between her general philosophy and her specific examples is lost. There are discrepancies between her "big-picture" thinking and her single-action proposals, which are aimed only at the visual field and will probably rebound from planning and governmental groups (to whom I suspect this book is directed).

However, her philosophy is unique; it delineates a direction. By reading between the lines, the American landscape or building architect, engineer or planner, can see its application to this country. The philosophy remains to be implemented by redirecting it to fit our particular conditions.

JOHN B. FRAZIER
Assistant Professor
Department of Urban Planning
and Landscape Architecture
Michigan State University
East Lansing, Mich.

Sign Language

Lettering on Buildings. *Nicolete Gray. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1960. 191 pp., illus. $7.50*

Ten years ago the number of architects seriously concerned with graphics in and on their work was very small. Through the influence of the architectural press, however, this number has increased considerably; today, most architects are at least aware of building lettering, even though they may be unsure of what to do about it. The subject is one for which they are generally untrained. It has not been included in the architectural curriculum since the schools, too, have been unaware of the field until recently. Realistically, it is now apparent that architects need not go through years of concentrated study of graphics. Knowing the character they are trying to create in their buildings, they can employ a specialist in graphics to assist in the difficult job of integrating signs and structures. Such collaboration can eliminate the disastrous results inherent in indiscriminate design and placement of lettering.

But architects must be able to recognize the qualities of graphics, probably the most important of which is *appropriateness*. This does not underestimate beauty, taste, function, cost, balance, and harmony, but rather includes them all

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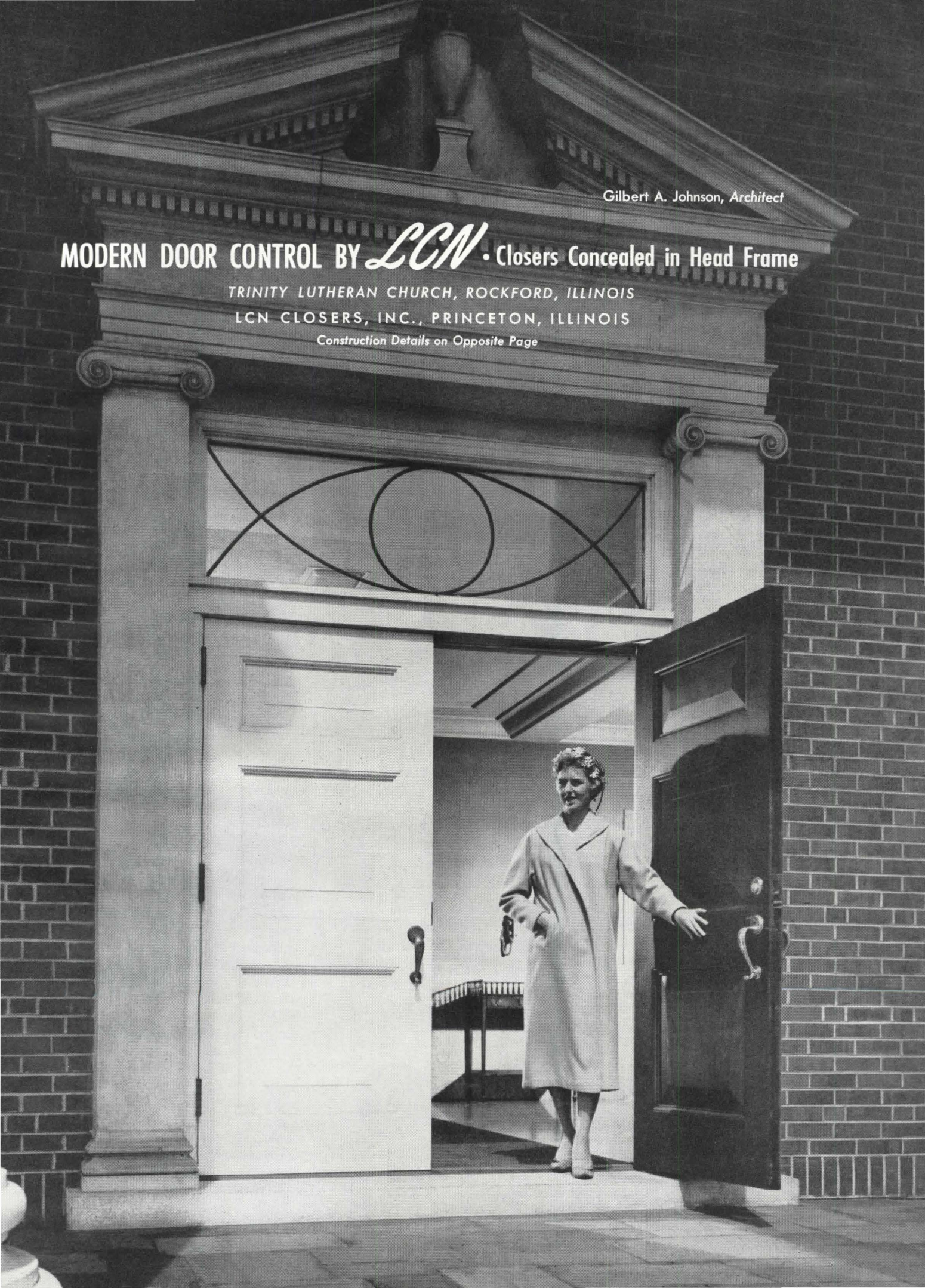

Gilbert A. Johnson, *Architect*

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Construction Details on Opposite Page

Continued from page 198

in a single criterion. As a guide for appropriateness, *Lettering on Buildings* by Nicolete Gray is now available (inside a jacket design by Gordon Cullen which must surely be his worst work). The reader of this small volume is more fortunate than he usually is with any single book. Mrs. Gray has prepared an outstandingly comprehensive study of graphic work on architecture, embracing lettering from the 1st Century B. C. to examples completed during the past year.

In the first of two main sections, the book gives an excellent, brief history of building lettering, explaining the spirit and substance of many well-selected illustrations. Mrs. Gray's penetrating comments are fascinating and instructive.

The second section considers lettering in a more immediate sense. Listing the author's chapter headings will indicate her intent:

1 Towards a Comprehensive Theory of Lettering.
2 Fitness and the Example of Street Lettering.
3 Expressionism in Lettering.
4 Material and Design: The Three-Dimensional Letter, Interaction.
5 Lettering and the Modern Movement.

Each chapter is short and to the point, and does not labor its subject. The photographs are so well chosen, so artfully and clearly described, that one *must* see architectural lettering in relation to its appropriateness (or, to use the author's word, fitness).

An unfortunate distraction is the location of photographs in a special section at the back of the book, requiring continual back-and-forth flipping between text and photos. Despite the trouble, however, the book is well worth attention. It is a volume unique in scope and scholarship.

DON PAGE
Head of Graphics Department
I. M. Pei & Associates
New York, N. Y.

Colonial Heritage

The 18th-Century Houses of Williamsburg. *Marcus Whiffen. Colonial Williamsburg. Distributed by Holt, Rinehart & Winston, Inc., 383 Madison Ave., New York 17, N.Y., 1960. 223 pp., illus. $10*

Two years ago Marcus Whiffen won an award for his book, *The Public Buildings of Williamsburg* (the annual award by the Society of Architectural Historians for the outstanding work of architectural history). He might well repeat the performance with this volume.

The 18th-Century Houses of Williamsburg is a carefully documented study of the domestic architecture of the period. The first (mainly textual) part of the work is devoted to an examination of the methods and materials in vogue at the time, as well as to the basic rules of construction and the legal restrictions confronting the 18th-Century builder. The second (primarily pictorial) section of the book is a survey of more than 30 of the original houses that have been restored in Williamsburg.

The book is not organized chronologically, but aims to create a comprehensive picture of the domestic architecture as it existed in Williamsburg in the 1700s. Whiffen emphasizes the common characteristics and shows the how and the why of Colonial Williamsburg's distinctive style. He indicates the city's English heritage while pointing to the distinctive developments that set it apart from its European ancestry. The history of any individual building is largely ignored, but this could hardly have been avoided since records concerning particular

Continued on page 204

View of the modern Ivanhoe Elementary School in Gary, Indiana, showing its walls of Natco Uniwall. The buff colored vertical walls show Uniwall's exterior rugg-tex finish. The light green panels under windows show a unique use of Uniwall's interior face installed in reverse. Architect: Jos. P. Martin & Assoc.

Inside and outside walls of this modern school were built with one unit in one operation

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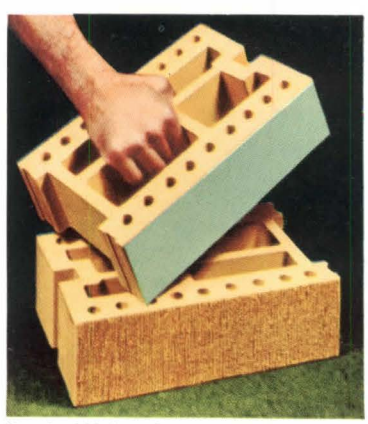

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Continued from page 200

houses are almost nonexistent.

An important gap in the literature of Colonial architecture has been filled with this volume. Most works, such as Whiffen's earlier book or Waterman's *Mansions of Virginia*, concentrate on the outstanding. Whiffen, however, deals here with the average, the daily architecture of Williamsburg. Thanks to the restoration, he has enough material for a study in depth. Thanks to his manner of presentation, the book will appeal both to the town's casual visitor and to the serious architectural historian.

FREDERICK HERMAN
Architect
College of William & Mary
Norfolk, Va.

New Entity: The Urban Scene

Town Design. *Frederick Gibberd. Frederick A. Praeger, Inc., 64 University Pl., New York 3, N. Y., 1959. 316 pp., diagrams, plans, photos. $15*

Gibberd's handsome volume was first published in Great Britain in 1953, but the revised edition is as timely as ever and will be of great interest to professionals whose concern is the appearance of the city or any of its elements.

The author defines town design as an art embracing architecture, landscape, and road design. The art is more than the sum of these parts, however, but results in a new entity, "the urban scene," that transcends the individual parts. The satisfactory interrelationships between the parts is the essence of town design. For instance, as Gibberd illustrates, the layout of a road affects architectural possibilities by determining the forms of the sites along that road; the natural physical scene also sets limits or presents possibilities for the forms of buildings. On the other hand, architectural requirements may dictate certain features of the road design, may give cause to alter or retain existing natural elements, or may indicate a need for new landscaping. Then again, the physical features of an area often determine the most feasible locations for roads and the most advantageous sites for buildings.

Although Gibberd is primarily concerned with the esthetics of town design, he does not consider visual qualities in the abstract but rather probes beyond the town's appearance to its functions and problems. Thus, quite properly, it is with a background of the practicalities involved in a town's existence that the esthetic problems are approached.

The book consists of four major sec-

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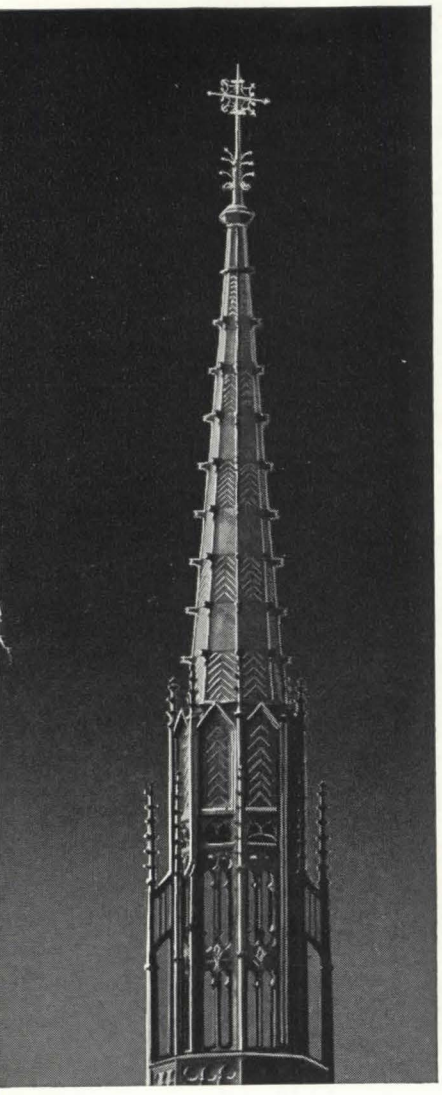

Spires to inspire crafted by Overly

Probably no architectural form has been the subject of more devoted effort through the ages than has the design of churches—the greatest minds of architecture and the most talented craftsmen used their skills to design and construct church edifices, appropriate for their day. Part of this design was the spire, standing proudly as a welcome to worship for the entire community.

Although churches of today may differ in outward form, spires still grace most church buildings as a symbol of faith, complementary to the church's architecture.

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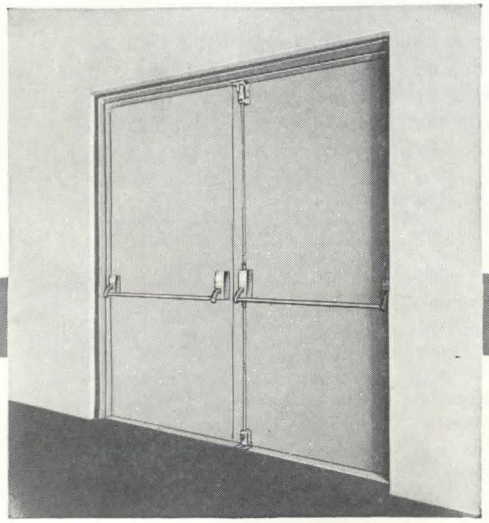

Overly U/L Labeled Fire Barrier with Exit Hardware

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Continued from page 204

tions: 1 design of the complete town, 2 central areas, 3 industry, and 4 housing. Each section abounds with maps and sketches and contains many fine photographs of urban scenes. Following each section are analyses of existing urban compositions that illustrate the theories of the preceding section. These analyses, well documented with numerous photographs, comprise an especially important feature of the work. It is here that enlargements and revisions upon the previous edition of *Town Design* are most in evidence, with special discussions of Lijnbaan, Rotterdam; Harlow Town Center; Vallingby, Stockholm; Stevenage Town Center; and St. Paul's Precinct.

Frederick Gibberd, an eminent British architect and city planner, is well qualified to have undertaken this study by virtue of his active career in designing British New Towns. There is a discernible English character to *Town Design*, yet the book is applicable enough to the general problems of urban esthetics to be of international interest to architects, city planners, and related professionals.

SANDRA G. STEIN
Providence, R. I.

OTHER BOOKS TO BE NOTED

The Arts of Man. Eric Newton. New York Graphic Society, Greenwich, Conn., 1960. 320 pp., illus. $5.95

Comments by an English essayist, critic, and presently Slade Professor of Fine Art at Oxford, on 174 works of art, selected from every medium and chosen for their enduring quality as great art.

The Rococo Age. Arno Schönberger and Halldor Soehner, with collaboration of Theodor Müller. Translated from the German by Daphne Woodward. McGraw-Hill Book Co., Inc., 330 W. 42 St., New York, N. Y., 1960. 392 pp., illus. $23.50

Design of Steel Structures. Boris Bresler and T. Y. Lin. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y., 1960. 712 pp., diagrams. $9.75

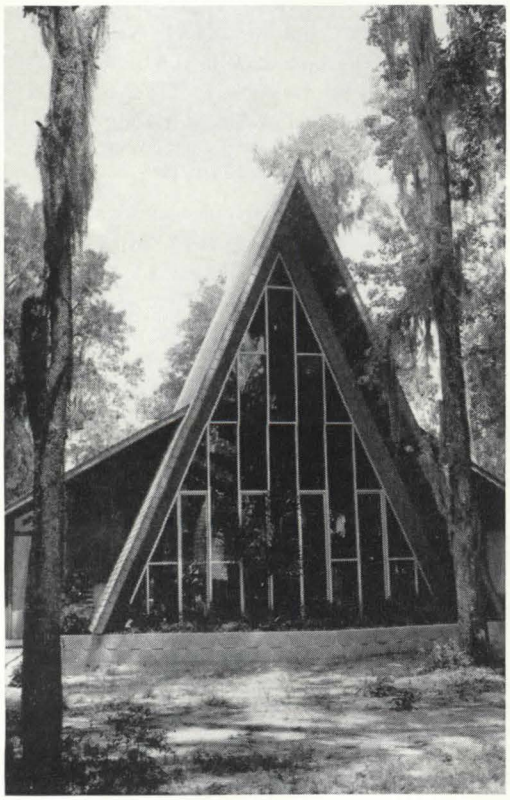
Housing Choices and Housing Constraints (ACTION Series in Housing and Community Development). Nelson N. Foote, Janet Abu-Lughod, Mary Mix Foley, Louis Winnick. McGraw-Hill Book Company, Inc., 330 W. 42 St., New York 36, N. Y., 1960. 450 pp., tables. $12.50

1961 Directory of Shopping Centers in the United States and Canada. National Research Bureau, Inc., 415 N. Dearborn St., Chicago 10, Ill., 1960. 500 pp., $29.50

Latest annual edition reflects phenomenal growth of shopping centers, giving information on almost 4000 centers. Data includes

Continued on page 212

. . . strong right hand to architectural design



Georgia Episcopal Conference Center Chapel
Camden County, Georgia
Blake Ellis, Architect
Valdosta, Georgia

Truly "wed to the site" is Architect Blake Ellis' award winning Episcopal Conference Center Chapel in Camden County, Georgia. As meticulously chosen is the type and design of the seating.

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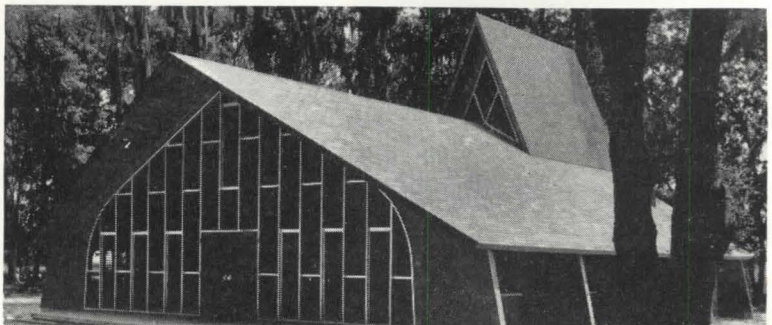

Continued from page 210

location, size, cost, gross sales, list of tenants and leading chain stores, rental area, and parking spaces.

Symposium on Durability and Weathering of Structural Sandwich Construction. (Special Technical Publication #270.) American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa., 1960. 72 pp., $3

Boston: A Topographical History. Walter Muir Whitehill. Belknap Press of Harvard University Press, Cambridge 38, Mass., 1959. 244 pp., illus. $4.95

The Book of Boston: Colonial Period. Marjorie Drake Ross. Hastings House Publishers, Inc., 151 E. 50th St., New York 22, N. Y., 1960. 128 pp., illus. $3.50

Israel: Ancient Mosaics. Meyer Schapiro and Michael Avi-Yonah. (Volume 14 of the UNESCO World Art Series.) New York Graphic Society, Greenwich, Conn., 1960. 96 pp., illus. $18 (boxed)

First publication of a remarkable group of mosaic floors recovered from synagogues and churches of the 5th and 6th Centuries. An example of UNESCO's program to publish little-known but important monuments of art of its member nations.

New York Metropolitan Region Study: Volume 7, One-Tenth of a Nation. Robert M. Lichtenberg. Harvard University Press, Cambridge 38, Mass., 1960. 326 pp., tables. $6.75

Arts of the United States: A Pictorial Survey. Edited by William H. Pierson, Jr., and Martha Davidson. McGraw-Hill Book Company, Inc., 330 W. 42 St., New York 36, N. Y., 1960. 452 pp., illus. $9.95

The Artist in his Studio. Alexander Liberman. Introduction by James Thrall Soby. The Viking Press, Inc., 625 Madison Ave., New York 22, N. Y., 1960. 144 pp., illus. $17.50

George Grosz. Edited by Herbert Bittner. Essays by Ruth Berenson and Norbert Muhlen, and Grosz. Arts, Inc., 667 Madison Ave., New York 21, N. Y., 1960. 160 pp., illus. $12.50

First comprehensive volume of the artist's work, including over 100 examples (mostly black-and-white drawings) of his brilliant draftsmanship.

The Master Builders: Le Corbusier, Mies van der Rohe, Frank Lloyd Wright. Peter Blake. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, N.Y., 1960. 400 pp., illus. $6.50

New Housing in Great Britain. Hansmartin Bruckmann and David L. Lewis. Universe Books, Inc., 381 Park Ave. South, New York 16, N. Y., 1960. 130 pp., illus. $9.50

National Fire Codes, 1960-61. Publications Department, National Fire Protection Assn., 60 Batterymarch St., Boston 10, Mass., 1960. 5614 pp., 7 volumes. $7 per volume ($40 per set)

Compilation of 181 standards developed by the purely advisory NFPA. Volumes 3, 4, and 5—on building construction and equipment, fixed extinguishing equipment, and electrical installations—will be of particular interest.

NOTICES

Name Changes

KIRK, WALLACE, MCKINLEY, AIA, & Associates, Architects, 2000 Fairview Ave., N., Seattle, Wash. Partners are: PAUL HAYDEN KIRK, FAIA, DONALD S. WALLACE, AIA, and DAVID A. MCKINLEY, JR., AIA. JERRY GEYER is an Associate.

JOHN R. SNELL ENGINEERS INC., 221 North Cedar St., Lansing, Mich. Formerly, MICHIGAN ASSOCIATES.

New Firms

PERKINS & WILL, Architects, have announced formation of a separate corporation for interior space design. The corporation will be known as I.S.D., INC. Officers for the corporation are BROCK ARMS, president; ROBERT BYERS, vice-president and chief designer; JOHN GOODALL, secretary-treasurer.

ROGER LEE ASSOCIATES, 2576 Shattuck Ave., Berkeley, Calif. Associated are ROGER LEE, WARD HIGGINS, LOIS LANGHORST.

New Addresses

BENJAMIN STEIN, AIA, Architect, 30 Elmwood Ave., Burlington, Vt.

PHILIP D. TOMASELLO, AIA, Architect, 3030 Bridgeway, Room 231, Sausalito, Calif.

I.S.D., INC., Interior Space Design division of Perkins & Will, Architects, 125 East 55th St., New York, N.Y.; and 309 W. Jackson Blvd., Chicago 6, Ill.

New Partners, Associates

KNOWLTON FERNALD, JR., joins the firm of CABOT, CABOT & FORBES, INC., Santa Ana, Calif., as co-ordinator of architecture.

L. S. LAITY, J. B. MAR AND D. C. ROWLAND named Associates of PARKIN ASSOCIATES, Architects-Engineers, Toronto, Ont., Canada.

Elections, Appointments

ROBERT T. DORMER, appointed Director of Urban Renewal Division of VICTOR GRUEN ASSOCIATES, New York, N.Y.

SANFORD KAUFMAN, appointed Director of Planning and Development, FREIDIN-STUDLEY, ASSOCIATES, 342 Madison Ave., New York.

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P.S.

This Is a Self-conscious Age. In all fields of endeavor, including the creative ones, practitioners seem to be working in a non-relaxed way, with studied poses and calculated moves. I've written before of the fact that action rather than contemplation is the order of the day. We are also in an era of intense competition, and an age in which everything and everyone seems to be in a hurry. Hurried, competitive action implies a drive and an ambition which are likely to result in self-conscious, advantageous attitudes.

The acceleration in political and social development, the fantastically rapid accumulation of new knowledge in the sciences, the population explosion —all these factors make for a feeling of *rush*; if we don't do today that thing that we have in mind doing, it isn't going to get done, or someone else will do it tomorrow. The world moves on to fresh accomplishments, and we move with it, and we don't have time to tarry and relax with a quiet job of work. I've seen several research buildings recently where the quiet thinker was recognized to the extent of having "think rooms" provided. I had the feeling in each case that somehow the implication was: "You get the hell in there and think, think, think; and if something doesn't come out of that thinking, someone else is going to get your nice, quiet, little room." It reminds me somehow of an architect I knew who, recognizing the need for rest in the middle of a long push, called his key men into his office on a Friday and told them: "We're all tired; we have a busy week coming up. I want you all to go home this weekend and *rest like hell!*"

One result of all this trying so hard, I believe, is that the relaxed individual is disappearing, to be replaced by the self-conscious minor master. None of us wants to be an anonymous member of the chorus; we are all prima donnas. I have just been reading a manuscript of Serge Chermayeff's in which he makes the fine comment that "never has there been such a quick turnover on Olympus!"

In architecture I have gotten used to the fact that the leaders in the profession are no longer smock-wearing, easy-going, designer types; they are public-relations-counsel-hiring, important-statement-making, monument-producing, status-seeking moulders of the environment. I ran across an old friend on the way to work this morning on Park Avenue—a character I used to spend evenings with, our feet on the table and a couple of bottles of beer between us—and he clicked his Homburg at me and waved his cane and went on to the press conference he conducted this noon to announce his newest important commission.

But I haven't accustomed myself yet to the newly set-up architect—the fairly recent graduate who is doing his first job, the man who, by the old standards, would still be somewhat modestly learning from those more experienced—also being an issuer of dicta and a producer of world-shaking projects. He is missing so much! There was so much fun in architecture when the coming generation could still kid itself and the profession a little; when self-consciousness had not yet stifled the kick of comparing notes and horsing around a bit.

The more relaxed approach to creation didn't imply lack of seriousness or of purpose, either. Before beatnickism became a profession in itself, the bohemian attitude toward the arts produced some great art—and some great criticism. Today every artist—painter and sculptor as well as architect—must self-consciously finish his latest creation because if he should rest to talk quietly about it to his colleagues, one of those colleagues might come out with it first, and then where would he be? How could he hold his press conference? How could he be featured in that big weekly?

Thinking about this, it once occurred to me that a certain prima-donnaism might be the influence of those architects and artists who came here from Europe during the middle years of modernism. But then I decided that that was unfair. Mendelsohn, Neutra, Gropius, Mies, Saarinen (in our field) were self-assured and confident persons when they came to us from abroad, but they were far from being self-consciously pompous. There is a great difference between self-confidence and self-consciousness. One implies sureness; the other indicates confusion. Apparent confusion in architecture is something that we are going to write more about in coming issues.