

ARCHITECTURAL RECORD

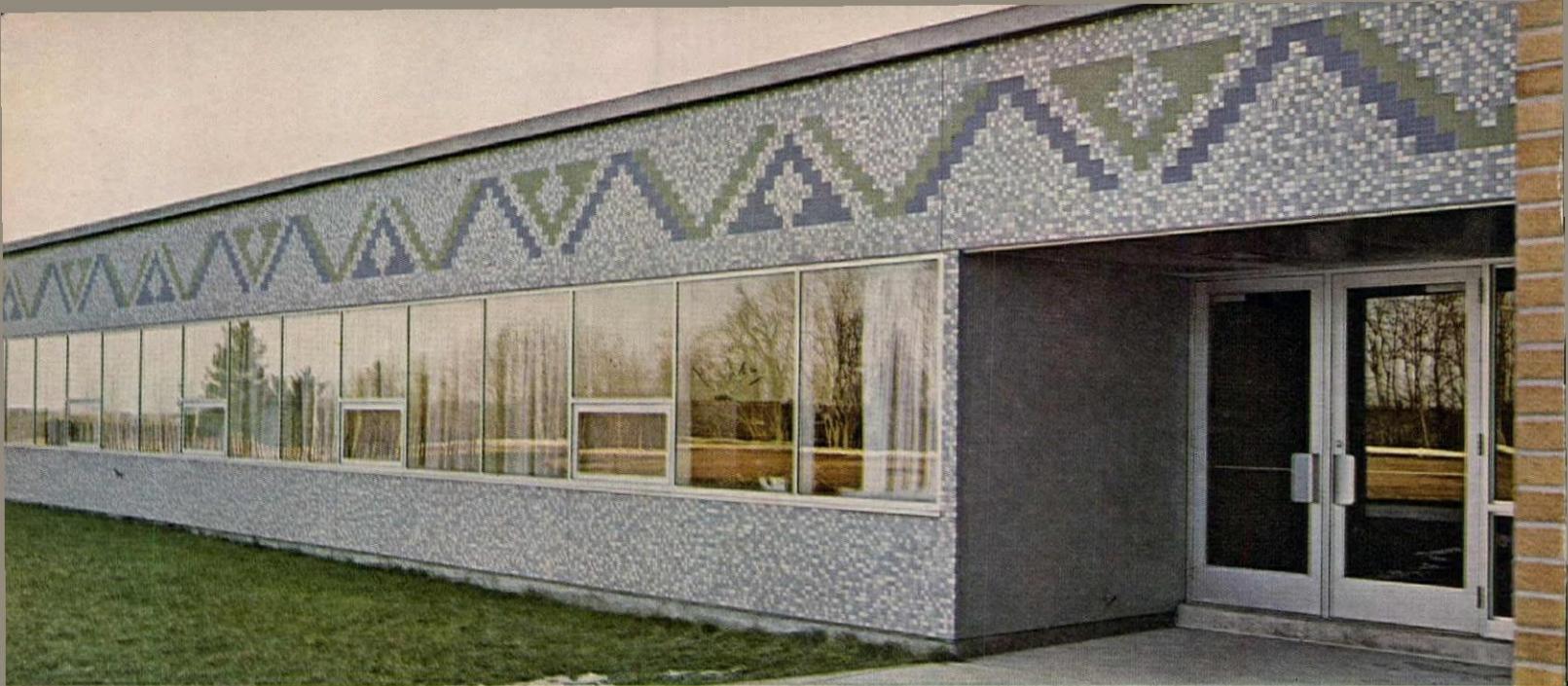
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BUILDING TYPES STUDY: APARTMENT BUILDINGS

NEW TOWNS: AND FRESH IN-CITY COMMUNITIES

ADMINISTRATION BUILDING BY SOM

FULL CONTENTS ON PAGES 4 & 5



This school cost less with ceramic tile

More than 13,000 sq. ft. of American Olean ceramic tile were used in this New York state school—in corridors, shower rooms, lavatories, kitchen and on the building exterior which features a colorful tile mural.

Expensive? Total construction cost per sq. ft. was only \$16.04—appreciably *below* the \$16.70 median for schools constructed in New York state during the same period.

This low cost is particularly significant since the extensive use of ceramic tile was accompanied by comparable high quality in other materials and systems used in the building.

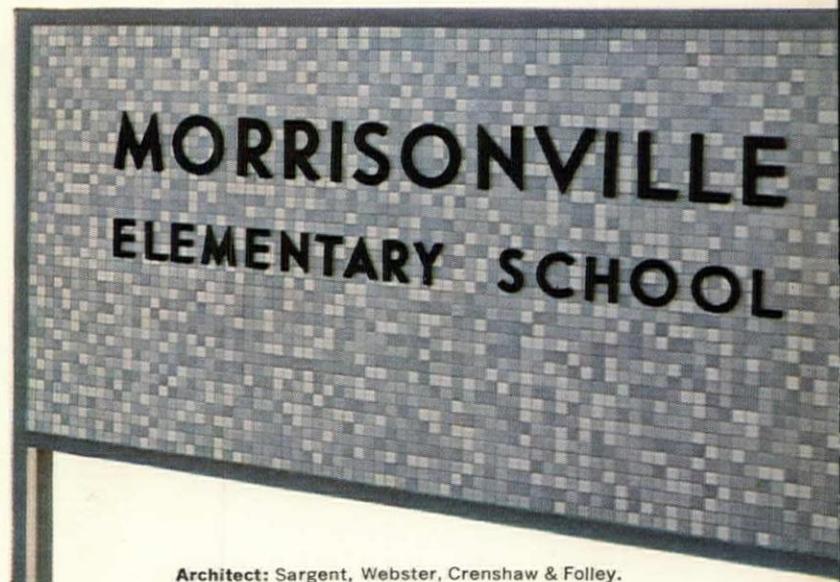
Write for informative color booklet 620, "Ceramic Tile for Schools."

Exterior walls (above) are 1" x 1" ceramic mosaics in assorted colors with mural design in Cobalt and Emerald. Plate 508.

Corridor walls (below): 4¼" glazed tile in 345 Cr. Cobalt, 42 Aqua Mist, 97 Gardenia, 76 Sage Gray, 52 Daffodil. Plate 509.

World's Fair—See American Olean tile in the House of Good Taste

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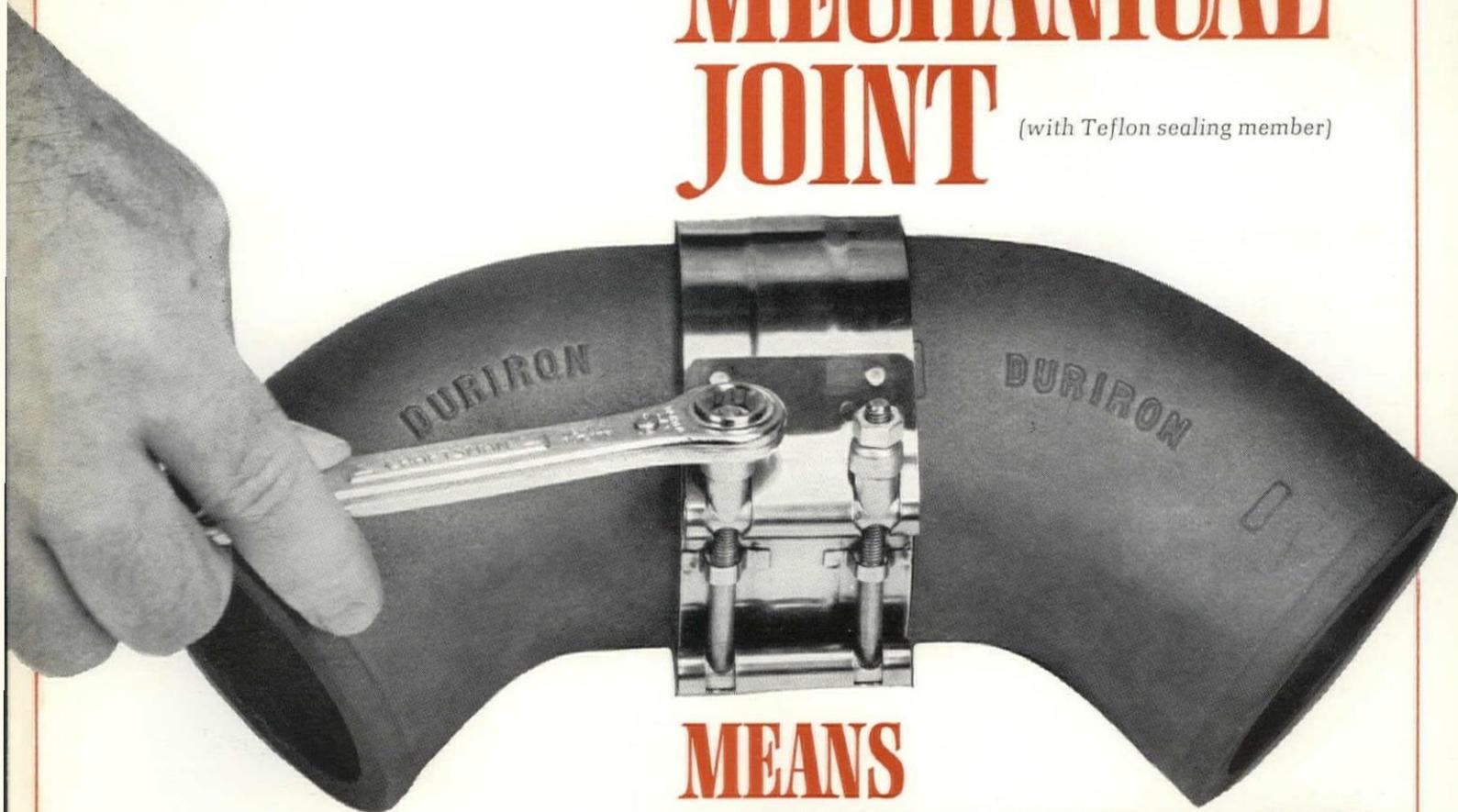
Architect: Sargent, Webster, Crenshaw & Folley.
Tile Contractor: Louis DiFabbio & Bertoli.

CERAMIC TILE
American Olean



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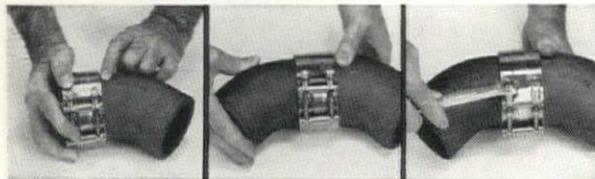
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All Luminaire components are available from one supplier. All components are supported by one grid. Installation is fast. Plenum and ballast are instantly accessible from below. Lamp replacement, even with shielded fixtures, is fast and uncomplicated. Compared with independent lighting, air-distribution and acoustical systems, initial savings of 30¢ to 50¢ per square foot are common.

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*CBS Laboratories, a Division of Columbia Broadcasting System, Inc., Stamford, Conn.

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Consulting Engineer: Werner-Jensen & Korst, Stamford, Conn.

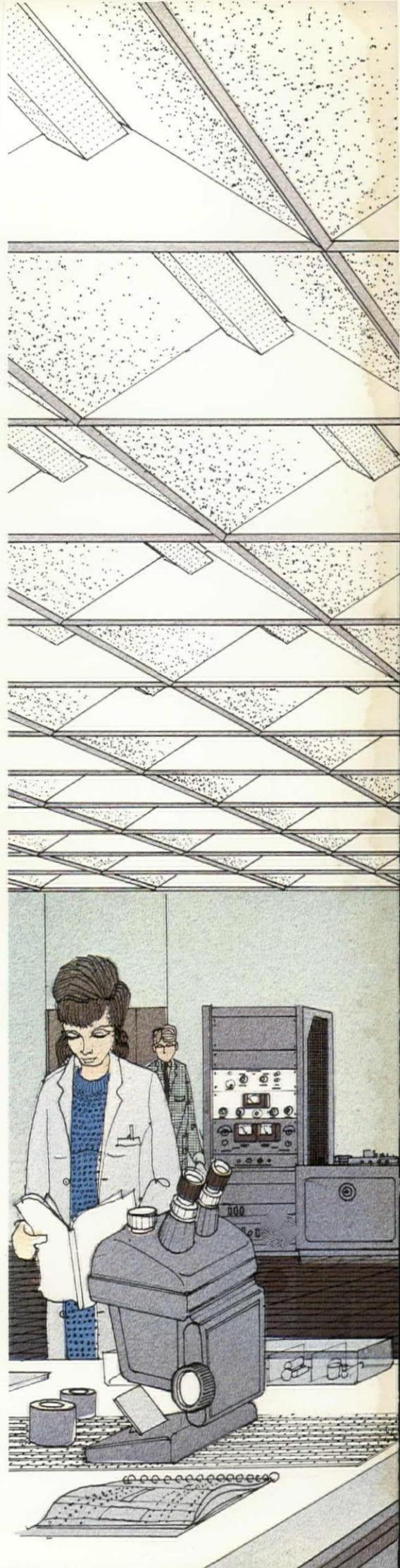
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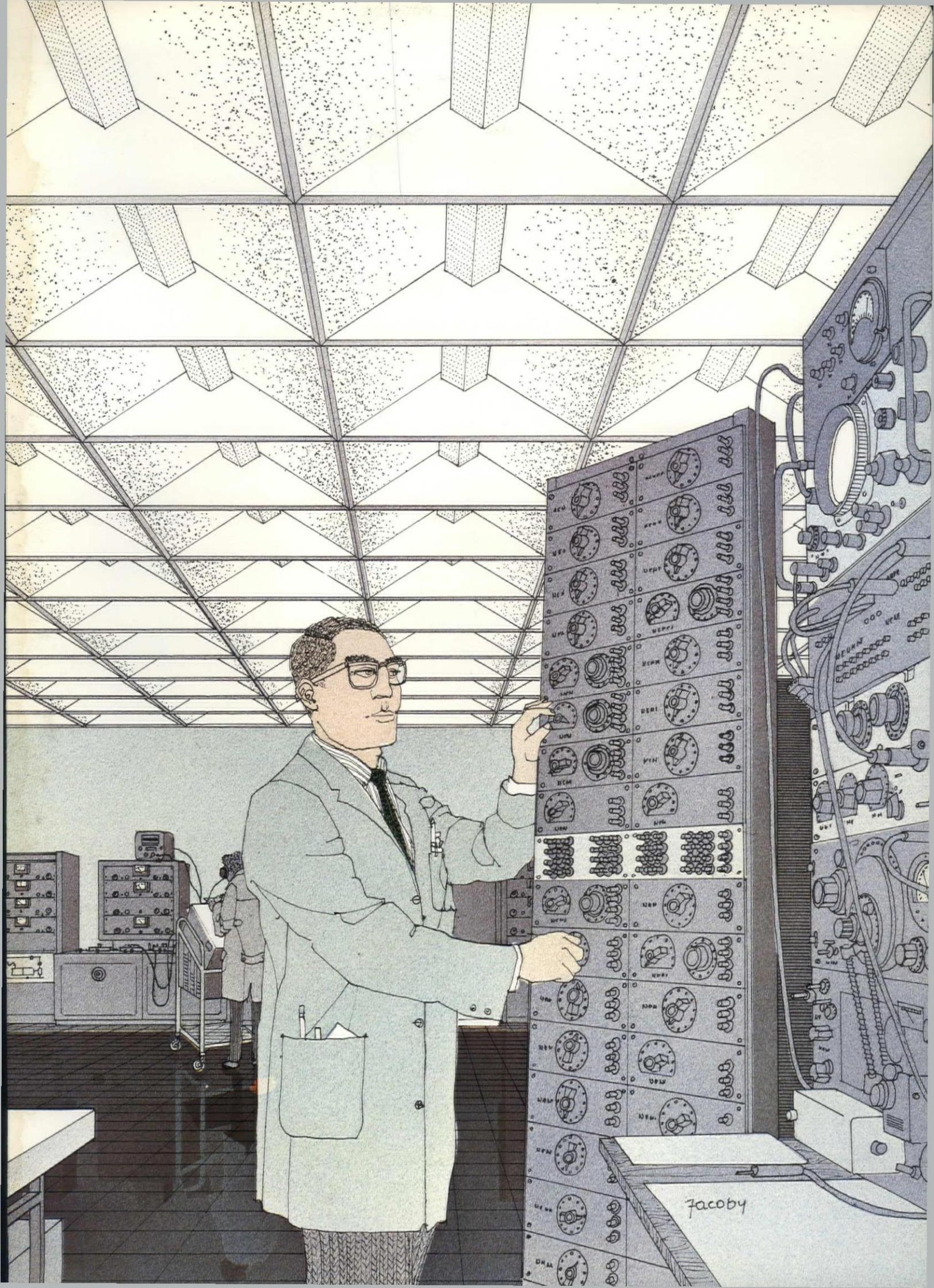
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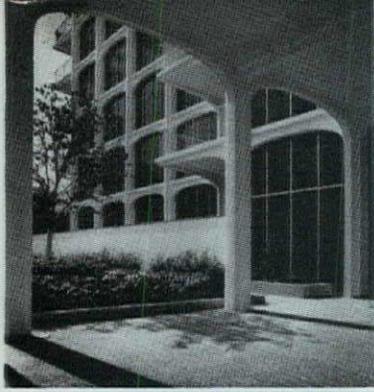
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Jacoby



Cover:

Inwood Manor, Houston, Texas. Architects: Neuhaus & Taylor. Photograph by Paul Peters

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SAARINEN'S CHURCH AND YAMASAKI'S SYNAGOGUE

Two highly individual responses to the problem of religious architecture, the late Eero Saarinen's North Christian Church in Columbus, Indiana, and Minoru Yamasaki's synagogogue for North Shore Congregation Israel in Glencoe, Illinois, are now complete. Their publication is sure to put them high on the list of buildings architects want to visit as significant achievements in contemporary architecture.

THE CHANGING PROBLEMS OF SCHOOL DESIGN

It seems likely that architects designing schools were never faced with a wider variety of programs and problems than now. Next month's Building Types Study will provide a survey of current trends, together with some observations on the outlook for the future.

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Pop Architecture?

If what is commonly called "pop art" can be accepted as a protest movement in painting, what about a protest movement in architecture? Perhaps that idea should be filed in the dismal-thought-for-the-day department, and summarily dismissed. But it has come up. The antennae have pulled in, from far-outer space, talk about the possibility of "pop architecture."

One supposes that if painters can reach such depths of despair as would crop out in pop art, architects can become equally cynical. One would know, of course, that their nihilism would be expressed in talk-talk. Pop architecture would be a phrase, a warning perhaps, but not a fact.

This observer (who confesses to the anachronism of a generally optimistic inclination) has long since lost patience with the latest meanderings of painters. I remember, all too vividly, a saunter through the artists' studios of the Yale Arts and Architecture Building, where, you know, the students protested rather vigorously about their south light. When I saw what they were painting I wondered what difference the light would make—north light, south light, or darkness. They had also protested the lack of private studios, and they had various contrivances of corrugated paperboard to screen little cubbyholes. If I were painting such subject matter I, too, would demand privacy.

There were some strictly representational paintings of nudes. But whenever the model had a nice figure, she seemed always to be painted from the rear, leaning over. Any model shown in front view was 60, fat and droopy. Why, I thought, do they study painting? Or, if their need to be negative was so great, why study anything? Study is supposed to have some positive purpose, beyond mere cleansing.

Well, one has to doubt that they feel such nihilism, at least as applied to the female figure. They are just caught in a fashionable posture, hell-bent to reach some *dermier cri* of vicarious degradation. It springs from a long-developing boredom with the proliferation of academies and

inventions and just plain gimmicks of the world of art, boredom too with self-analysis, self "expression."

Architecture, too, though inherently much more disciplined, has suffered from the same kind of proliferation. Architecture too can get bored with its own pronouncements about artistic theories. Bored first with its sins and extravagance, later with its virtue and poverty. But let us take to heart the warnings of the young "painters." There's a better cure for boredom than nudes, rear view.

A more cheerful line of thought is the efforts of the large proportion of architects now busy with new problems. Revitalizing cities, clearing slums, planning new towns, urbanizing our visual disciplines, improving housing, beautifying our surroundings. How about better schools, better hospitals, better beer halls? Don't tell me that we have had the function-form bit—we never even scratched the surface of it. How about science, engineering, mechanical systems, lighting, materials? And the now hopeful efforts toward better integration of such elements?

These are all design determinants. And the architect cannot affect boredom with them—he never knows enough about them—and there is so much to be done. The architect who is bored with recitations of intuitive inspiration need only look at the world around him to find plenty of energizers for his creative talents.

Smoke-filled rooms at the recent A.I.A. convention saw several serious discussions of the computer as a factor in design. There were differing ideas of what the computer type of inquiry might produce, but it was clear that many architects were hungry for true answers to many puzzles not commonly resolved in building design. And that they expected any new base of knowledge would have a direct relationship to esthetic design.

Naturally the young men at Yale would not buy any such prosaic ideas. They have also rejected communication as a purpose in painting. Or have they? They still have life classes—they just seem to get things backwards.

—Emerson Goble

A.I.A. IN ST. LOUIS ADOPTS NEW STANDARDS OF PRACTICE

Third largest A.I.A. convention ever is congenial scene for business; Odell and Ketchum head new board

Although it was the scene of a consolidated effort of decisive action to steer the architect's profession more realistically along the path of increasing responsibilities, the 96th Annual Convention of the American Institute of Architects, June 14-18 in St. Louis, seemed a most harmonious affair. The reason may be that the significant changes embodied in the new Standards of Professional Practice, which were overwhelmingly adopted this year, had been the subject of intensive study and discussion by architects all over the country since their informal presentation at last year's meeting in Miami.

Architects present at this year's convention, the A.I.A.'s third largest ever, seemed fully prepared to accept the new standards which, as incoming President Arthur Gould Odell Jr. says, "recognize the comprehensiveness of architectural practice involving all facets of environmental design" and "reaffirm with stronger language that the entire practice of architecture should be under the control of architects."

One Profession?

The consolidation of forces in St. Louis appeared to augur even further-reaching changes in the A.I.A.'s approach to the architect's role in today's complexly organized society. A number of observations at the convention suggested that the next area to receive concentrated attention from the Institute would be the important questions of collaboration among the various design disciplines and a new approach to the coordination of education of all those involved with these disciplines.

At the annual dinner, J. Roy Carroll Jr., the outgoing president of the A.I.A., called for "teamplay in education, in practice, and in the ongoing battle against community ugliness." Mr. Carroll stated that "preparation for the complexities of modern architectural practice requires

the most complete coordination of the multitude of our professional courses and the most effective teamplay by our architectural faculties. Recognizing the present academic fragmentation of our design disciplines, your Commission of Education has proposed the establishment of new schools of environmental design, and the grouping under a single academic control for most effective teaching, all of our design disciplines. . . . The result of such teamplay in our educational processes should be teamplay in the practice of architecture. . . . Quality will result not only from improved educational methods, but also from the proper collaboration, in practice, of the various design disciplines."

These thoughts received strong emphasis in the report by Robert F. Hastings, A.I.A. treasurer, to the final session of the annual meeting of the Association of Collegiate Schools of Architecture, held just prior to the A.I.A. convention. Commenting on the present diversified system of education and practice and the need for more comprehensive inter-relationships, he spoke of the Institute's interest in a "single profession, single practice, single education and single registration for those involved with the planning of buildings and spaces between them."

The increasing importance of this concept of collaboration in the Institute may even have been reflected in the choice of Pier Luigi Nervi of Italy to receive the A.I.A.'s highest award, the Gold Medal. Mr. Nervi, a master of the art of building, was the first engineer to be so honored.

In interviews at the convention, he acknowledged perhaps more poetically what future architecture must be. "The *real architect* with a capital A is the supreme professional—he must know all that human beings can know. He must have a wide-ranging knowledge of the entire field of build-

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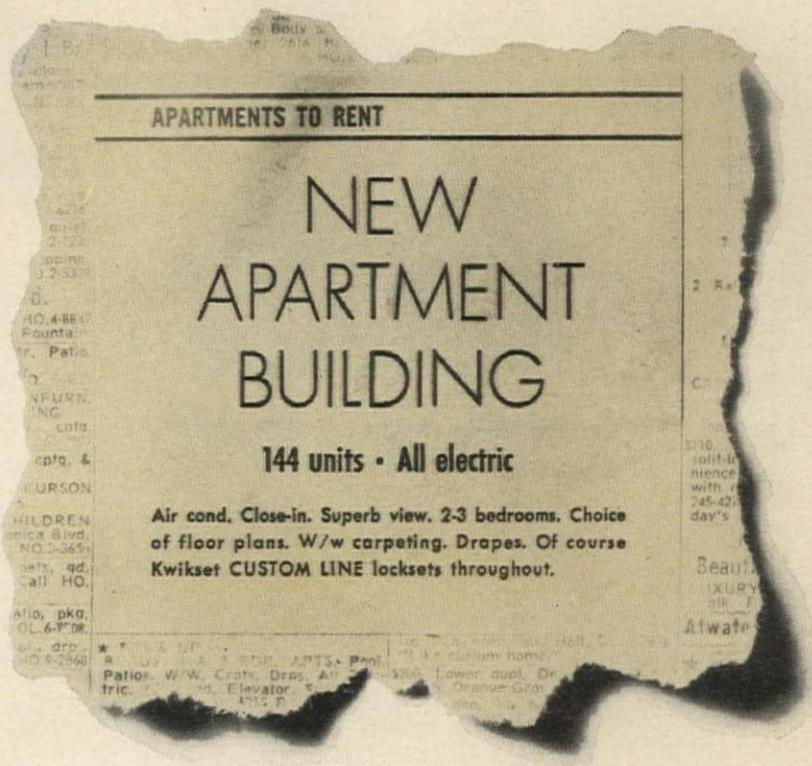
Pier Luigi Nervi of Rome as he heard President J. Roy Carroll Jr. read citation for award of Gold Medal, A.I.A.'s highest honor, never before awarded to an engineer



Another of convention's high moments came as Walter Gropius, himself a past recipient of Gold Medal, accepted Architectural Firm Award for The Architects Collaborative

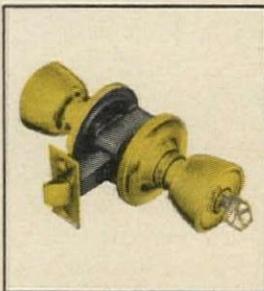


New A.I.A. president—first from the South—Arthur Gould Odell Jr., Charlotte, N.C.



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1

As audiences saw them (on the podium) in St. Louis: (1) program moderator Dean Samuel T. Hurst, School of Architecture and Fine Arts, University of Southern California; (2) George E. Kassabaum, host chapter president; (3) Director Humphry Osmond, New Jersey Neuro-Psychiatric Institute; (4) Chancellor Thomas H. Eliot, Washington University; (5) Surgeon General of the U.S. Public Health Service Dr. Luther L. Terry; (6) Dr. Jaroslav Jan Pelikan Jr., Yale professor of ecclesiastical history; (7) Kansas Governor John Anderson Jr.; (8) architect Francis D. Lethbridge, Washington, D.C.; (9) St. Louis Mayor Raymond Tucker; (10) architect Albert Mayer, New York City



2



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10



NEW BOARD at first meeting. Seated (from left): Treasurer Robert F. Hastings, Detroit; Vice President Rex W. Allen, San Francisco; First Vice President and President-Elect Morris Ketchum Jr., New York; President Arthur Gould Odell Jr., Charlotte, N.C.; Secretary Oswald Thorson, Waterloo, Iowa; Vice Presidents William W. Eshbach, Philadelphia, and Hugh Stubbins, Cambridge, Mass. Standing (from left): Executive Director William Scheick and Regional Directors Robert L. Durham, Northwest; Willis Mills, New England; Charles J. Marr, Ohio; Angus McCallum, Central States; Victor C. Gilbertson, North Central States; Donald Faragher, New York; W. E. Freeman Jr., South Atlantic; Charles M. Nes Jr., Middle Atlantic; Adrian L. Langius, Michigan; C. Day Woodford, California; James M. Hunter, Western Mountain; Willard S. Hahn, Pennsylvania; Robert H. Levison, Florida; G. Scott Smitherman, Gulf States; Walter Scholer, East Central States; and Llewellyn W. Pitts, Texas

ing in order to be better equipped than the specialists in each field. He must know what is possible, he must know the limits. Like the conductor of an orchestra, the architect does not have to know how to play each instrument, but must know the technical limits of each—for if you ask the impossible it is like asking for nothing. The architect must be aware of all technical possibilities, all services to be rendered, he must decide questions of proportion, and harmony, and add that indefinable element of art."

Referring to the teamwork involved in the design of airplanes and ships, Nervi felt that remarkable results emerge from "collaboration that starts at the beginning." Design and construction should be the result of "one organism directed by the architect who is the chief mind and imagination."

Nervi's presence at the convention was no doubt one of the many highlights of this meeting attended by 2,484 registrants, of which an unusually large number, 995, were architects.

Although the host chapter was at a loss to air-condition the warm and muggy climate of St. Louis, they did, under the chairmanship of Joseph D. Murphy, provide a welcome number of refreshing events for the convention-goers. The president's reception, under the vaults of Cass Gilbert's City Art Museum, was an elegant affair coinciding with the opening of an exhibition of five A.I.A. Gold Medalists. Tours of old and new St. Louis and the architects-at-home parties introduced visitors to the "gateway to the West." A visit to the construction site of Eero Saarinen's Gateway Arch was an exciting prelude to "An Evening on the Mississippi" aboard the riverboat "Admiral." The rhythms of Dixieland music accompanied dining and dancing from the river to Gaslight Square, a center of restaurants and night clubs furnished with the Victorian remnants of St. Louis' past.

Controversy Among Engineers

The major event at the business sessions on June 16 was the adoption of the Institute's new Standards of Professional Practice. Committed to the concept of comprehensive services, the Institute feels that these changes in the by-laws will not only recognize and help implement the program of expanding services but

also help "maintain the highest ethical standards for the profession of architecture," protecting both "the public and the profession." The new standards aim to uphold the architect's "professional integrity" in relations with the public, the client, the profession and with related professionals.

One of the most significant portions, article 3.10, has already come under heated debate in engineering circles. It states that "an architect shall not serve as an employe of unregistered persons who offer architectural services to the public, nor as an employe of an organization whose architectural practice is not under the control of a registered architect." Aimed mainly at the "package dealer," this section will not prevent an architect from working for whomever he chooses so long as, in the words of Clinton Gamble, retiring secretary, the architect is "in responsible control of the architecture he produces."

In relation to the client and the provision of "estimated probable costs," the new Standards attempt to make the architect face up to the fact that though he is not forced to "guarantee the final cost" he must "keep his client informed with competent estimates of probable costs."

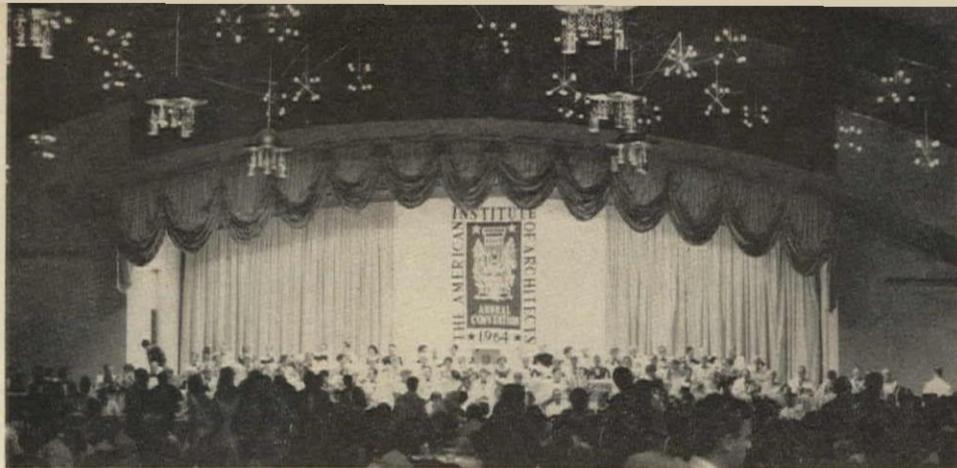
Most important of all these affirmations towards the provision of services, Mr. Gamble believes, is that the Standards call the architect to maintain the highest level of competence and give him "for the first time a reaffirmed faith in the profession."

Another bylaw change was adopted after some debate. It gives the Executive Committee or the Board of Directors authority to waive the membership requirement of citizenship "when fairness and the best interests of the Institute would best be served by so doing."

The convention unanimously adopted resolutions supporting the proposed plan for the redevelopment of Pennsylvania Avenue (July 1964, pages 23 ff), urging the preservation and restoration of the Old Post Office in St. Louis, and authorizing construction of the new headquarters building in Washington, D.C.

Salute to a Master Builder

Again the scene of the presentation of many awards, this year's convention bestowed its highest honor upon Pier Luigi Nervi at the annual din-



Annual dinner, followed by "Architects' Ball"—a convention innovation last year—was held, like all of the convention meetings, in the Khorassan Room of the Chase-Park Plaza. Gold Medal presentation and presidential addresses were highlights



Ten "workshops" on architectural practice were a highly successful innovation this year. Above: At the workshop on legal responsibilities: Washington, D.C., Insurance Counsel Victor O. Schinnerer; A.I.A. Legal Counsel Samuel Spencer; architects Fritz von Grossman and (moderator) Daniel Schwartzman; Robert Piper, A.I.A. staff



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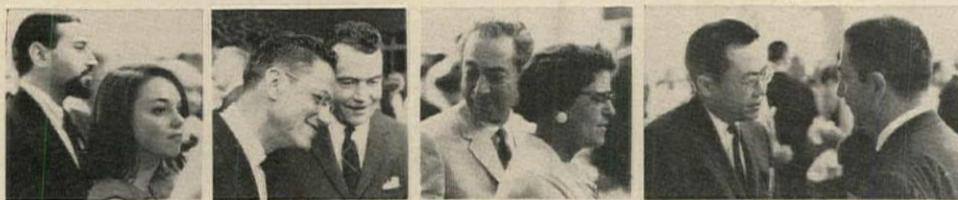
(1) Landscape architect Lawrence Halprin receiving Allied Professions Medal and (2) Balthazar Korab, Photography Medal; (3) new honorary members—Engineering Dean Emeritus S. C. Hollister, Cornell, and George McCue, St. Louis Post-Dispatch; (4) 1964 Reynolds Award is presented to Walter Netsch of Skidmore, Owings & Merrill, Chicago, by Alfred Williams, vice president, Reynolds Metals Company, sponsors of the \$25,000 annual award



Business sessions of the convention were smoothly organized and covered a vast amount of business, including adoption of the new Mandatory Standards of Practice, with remarkable harmony. At floor mike: Robert Elkington, St. Louis



(1) James M. Hunter, Boulder, Colo., with Detroit's Bruce Smith and Treasurer Robert F. Hastings; (2) Robert Marquis and Rex Allen, San Francisco; (3) Samuel Homsey of Wilmington, Del., and Nembhard Culin of New York



(1) Kenneth Alexander of Pratt Institute, Brooklyn, new president of the Association of Student Chapters, A.I.A., and Margaret Heinsohn of Syracuse, secretary-treasurer; (2) Frederick Roth of Philadelphia with Dean Harlan McClure of Clemson; (3) Mr. and Mrs. James Hunter; (4) Gyo Obata, St. Louis and Felix Candela, Mexico City



(1) RECORD Editor Emerson Goble and Mrs. Goble, President Donald C. McGraw of McGraw-Hill, Inc., Mrs. Wallace F. Traendly and F. W. Dodge President Mr. Traendly; (2) Dean Kenneth Smith, Columbia with New York's William Breger and George Nemeny



(1) Guests tried elephant-riding at Grant's Farm, Busch estate near St. Louis; (2) in hospitality lounge—A. J. Simberg, Miami, P. Kenneth Barnes, Cleveland, and Armand Brunet, St. Louis; (3) Dean Robert Bliss of Utah and A.I.A. Journal Editor Joseph Watterson; (4) President Carroll and J. Winfield Rankin, Institute Services head



(1) Blake Hughes, Assistant to the Publisher, and Eugene E. Weyeneth, Publisher, of the RECORD, with Mr. and Mrs. Paul Thiry of Seattle; (2) Dean Samuel T. Hurst, Southern California, Mrs. Hurst and the new President, Arthur Gould Odell Jr.; (3) Balthazar Korab, Detroit, and past President John Richards of Toledo



(1) John Stetson, Palm Beach, A. B. Ryan, Louisville, Ky., Vice President William Eshbach, Philadelphia, and James Clark, Lexington, Ky., retiring Gulf States regional director; (2) visitors Felix Candela of Mexico City and Pier Luigi Nervi of Rome; (3) Walter Netsch of Chicago

ner. The 1964 Gold Medal was presented as a salute to a "master builder." The citation honored "Nervi's own vision of the primary requirements for the architect of today" and further remarked: "It has been said before that the role of the master builder should never have been subdivided. Luigi Nervi has proven that engineer, architect and builder can be reassembled in one professional."

Also at the annual dinner, 59 members of the Institute were advanced to the rank of fellowship and eight honorary fellows were invested; Max Bill of Switzerland, Maxwell Fry of England, Luigi Moretti of Italy, Mario Pani of Mexico and Sir Arthur Stephenson of Australia in addition to Eugène Baudoin of France, Alejandro Prieto P. of Mexico and Alfonso Eduardo Reidy of Brazil, the last three in absentia.

Following the Awards luncheon on Monday, June 15, honorary memberships were bestowed upon: Dr. Anthony G. Adinolfi, manager of planning for the State University Construction Fund, New York; John L. Cameron, chief of the U.S. Office of Education's School Housing Section since 1959; Solomon C. Hollister, dean emeritus of Cornell's School of Engineering since 1947; George McCue, art critic of the St. Louis Post-Dispatch since 1956; and Henry Lee Willet, a prominent stained glass artist since 1920.

New York architect Daniel Schwartzman received the 1964 Edward C. Kemper Award for "significant contributions to the Institute and the architectural profession." This year's Citation of an Organization went to the Educational Facilities Laboratories, Inc. Medals in allied fields were given as follows: Architectural Photography—Baltazar Korab; Allied Professions—Lawrence Halprin, landscape architect; Industrial Arts—George Nelson; Craftsmanship—Jan de Swart; and Fine Arts—sculptor Henry Moore.

The Collaborative Achievement in Architecture Award was given to those firms and artists who participated in the creation of the Seagram Building, its plaza and the Four Seasons Restaurant. The Architects Collaborative received the Architectural Firm Award and Walter Gropius was present to accept it. The annual Awards luncheon was also the scene of the presentation of the 1964 A.I.A. Honor Awards.

Once business, elections and awards were taken care of, architects devoted the rest of their attention, during the final two days, to the professional program, "The City—Visible and Invisible," and to a series of workshops on the final afternoon devoted to important aspects of architectural practice. Almost half of the architects present, 450 in number, attended these panel discussions.

Chancellor Thomas H. Eliot of Washington University presented the keynote address of the program, declaring that architects should take the lead "in defining the values that make urban life worth living, and in translating them into physical form." Dean Samuel T. Hurst, F.A.I.A., of the University of Southern California was permanent moderator of the program, in which architects were out-numbered five to two.

In the final session, architects Francis D. Lethbridge, Washington, D.C., and Albert Mayer, F.A.I.A., New York City, took up the challenge to architects of their wide-ranging responsibilities. Mr. Lethbridge urged architects to view the "City in Time" in order to gain "a greater awareness of the history and the forces that have shaped the city and of the value of conserving the best of our inheritance from the past as a vital part of our designs for the future."

Mr. Mayer's urbane and witty lecture provided a fitting climax to the program's discussions and searches. He spoke of the specific elements of urban structure and anatomy—city centers, symbols and connectors—and the creative solutions architects can supply through the manipulation of scale of common elements, the provision of a "persuasive architectural texture," the understanding of self-discipline, counterpoint and drama, and through the formulation of programs. To achieve the Inspirational or Ethical City, Mr. Mayer admonished the architect not only to heed Burnham's grand dictum, but also to "make little plans which the citizen can grasp and energize, to which he feels intimate allegiance. Make little plans if you want the big ones to have meaning, impact, to be clothed in flesh and blood, in fact, to be truly executed." Mr. Mayer's concept of the Ethical City stirred his listeners to visualize "the inseparable oneness of man in his city: His City."



(1) James Sadler, former N.C.A.R.B. executive secretary, with R. J. Zandough of Charleston, W. Va., Mrs. Sadler and Mrs. Zandough; (2) New Yorkers Peter Webb, Mrs. Max Urbahn and Mr. Urbahn with Sam Krusé of Miami, 1963 convention chairman



(1) M. Elliott Carroll, administrator of A.I.A. Department of Professional Services, and Paul Thiry of Seattle; (2) Richard Aeck of Atlanta, Walter Sanders of Detroit and Dean Olindo Grossi of Pratt; (3) RECORD Publisher Eugene E. Weyeneth with Mrs. Joseph Passonneau of St. Louis and Ulrich Franzen of New York



(1) Speaker Francis D. Lethbridge, Washington, D.C., with Moderator Samuel T. Hurst of Southern California; (2) Past President Henry Wright, Los Angeles, with Retiring President J. Roy Carroll Jr., Philadelphia, and A. M. Young, P.C. president; (3) Ray Kastendieck, Gary, Ind., Mr. and Mrs. George Harrell, Dallas, and Mrs. Kastendieck



(1) Mrs. Wallace F. Traendly, Mrs. Emerson Goble, Henry Wright of New York and RECORD Editor Emerson Goble; (2) Charles H. Kann, North Carolina state with Mrs. Morris Ketchum of New York, Mr. Ketchum, first vice president, and Dean Henry Kamphoefner, North Carolina state



(1) Mr. and Mrs. Don Gunnerson, Newark, Ohio; Wallace Cleland, Detroit; Mr. and Mrs. Richard Albyn, Birmingham, Mich.; (2) Dean Esmond Shaw of Cooper Union; (3) Past President Henry Wright, Los Angeles, and Sylvio Barovetto, Sacramento



(1) Past President Glenn Stanton, Portland, Ore., and RECORD Publisher Eugene E. Weyeneth; (2) Kenneth C. Landry, administrator, A.I.A. Department of Public Services, with Mrs. Ketchie Brassail, A.I.A. staff, and Clinton E. Brush III, Nashville; (3) Dean C. P. Graves, Kentucky, Past President Clair Ditchy, Detroit, Joseph Clark, Louisville

The place:



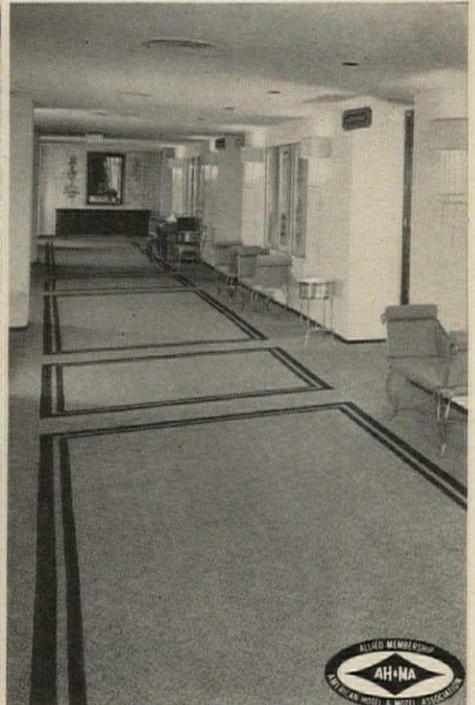
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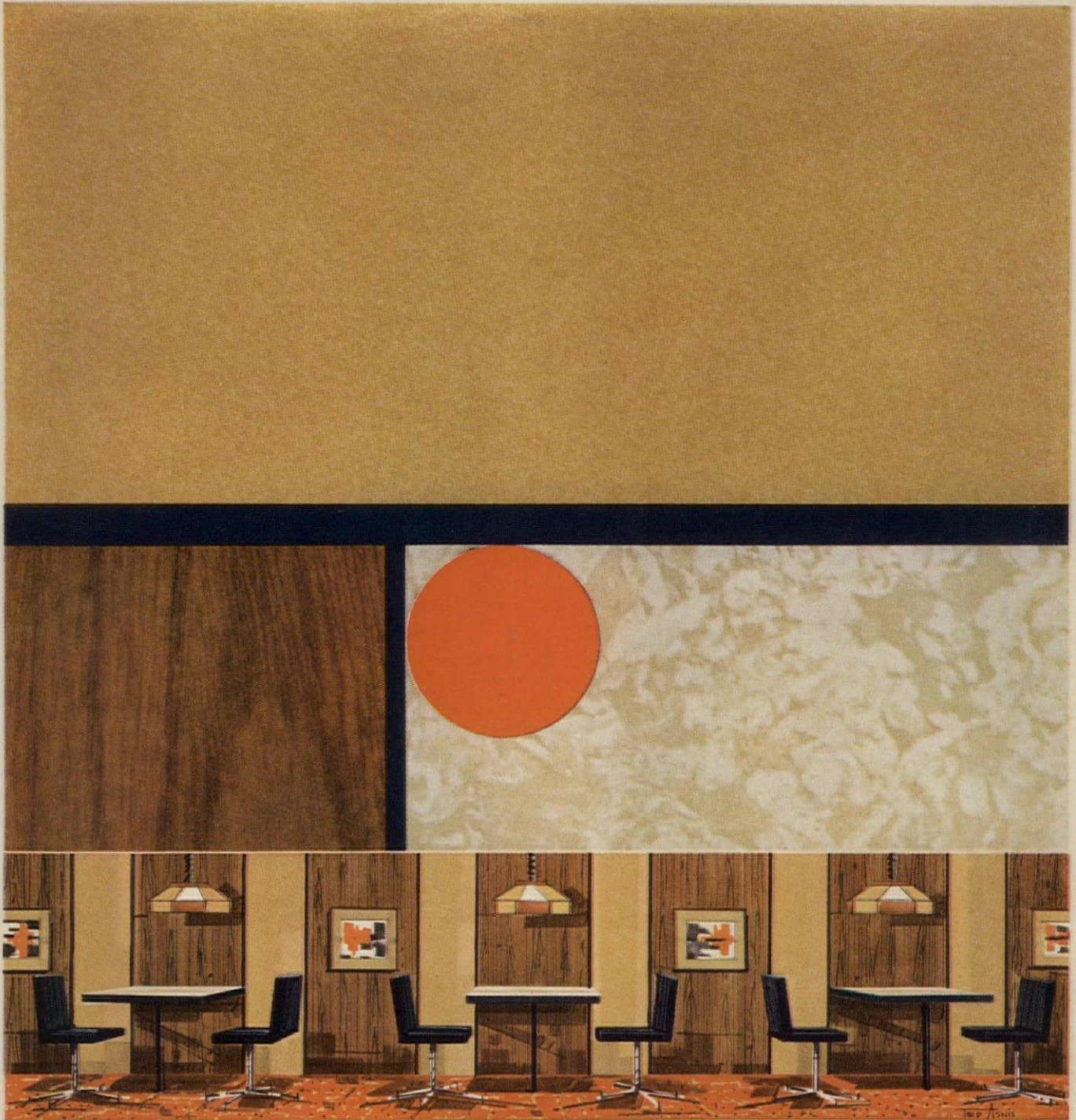
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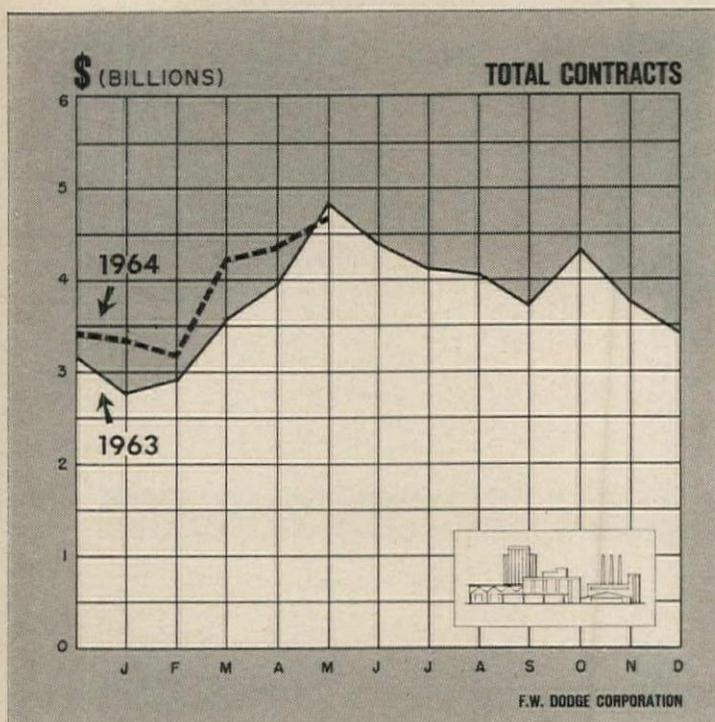


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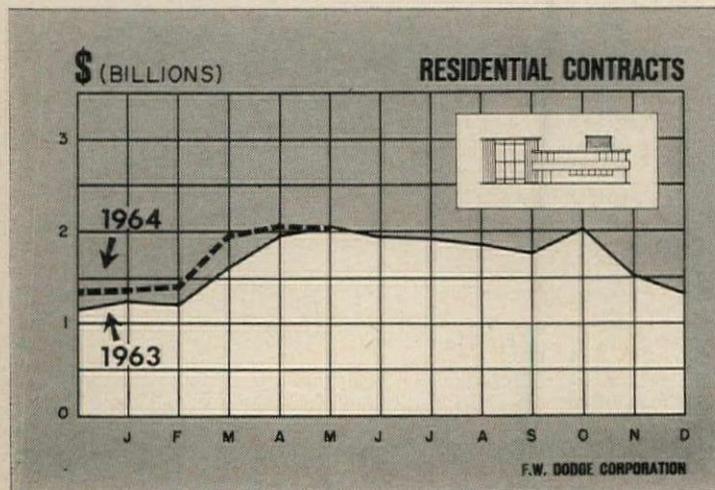
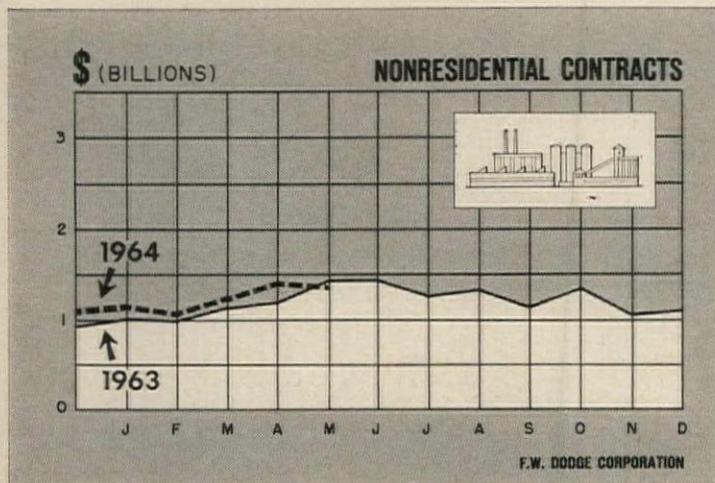
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SURVEYS SHOW MIXED MARKET FOR APARTMENTS



Total contracts include residential, nonresidential and non-building contracts



Architects design apartment buildings and builders build them, while mortgage lenders and real estate men worry about whether or not there aren't too many of them around already. That's the way it's been for the past few years as the nation has enjoyed an unprecedented wave of apartment building; and that's the way it was at mid-1964 when the rate of rental building, as measured by F. W. Dodge contract value, was running about 20 per cent ahead of last year's peak rate.

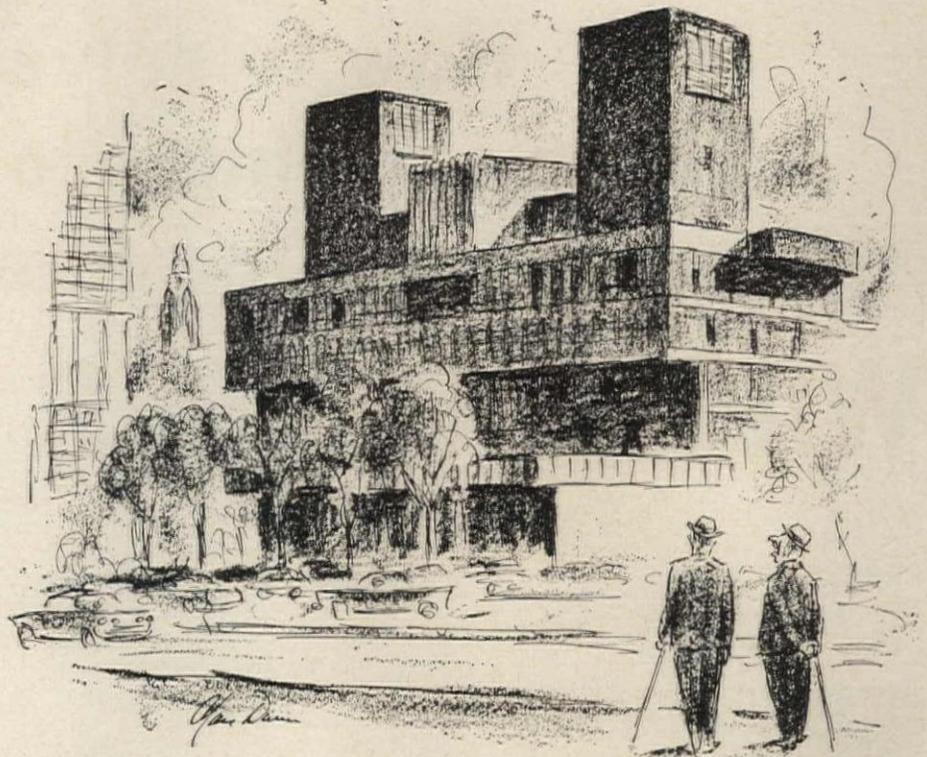
The broadest measure of apartment scarcity or overbuilding—the national vacancy rate—often tells too little, too late. Once the vacancy rate turns up significantly, there's no halting progress on those units already in the building or late planning stage, and they would only add to an already existing surplus of rentable space. Over several years of high volume apartment building, right up through the first quarter of 1964, the vacancy rate has held steady as a rock. But two organizations, on the lookout for some earlier straws in the wind, decided recently to survey the opinions of a sample of knowledgeable people in the field on the strength of the apartment market.

One group, the Economics Department of the Chase Manhattan Bank, tallied up 1,200 replies (about half the total membership) from members of the American Institute of Real Estate Appraisers and reached the conclusion that their greatest concern is with overbuilding of apartments. (Also looming high on their list of potential trouble spots in real estate markets was too-easy financing of rental projects.) Almost two-thirds of all the respondents to the survey felt that the supply of apartment space was in excess of the amount demanded, and in the West more than eight out of every 10 appraisers polled considered rental overbuilding a problem.

A somewhat more optimistic attitude—though guardedly optimistic, to be sure—was shown by the National Association of Real Estate Boards in a survey of its membership taken at about the same time that the bankers were questioning the appraisers. From the answers given by the smaller sample of realtors (149 of them, in all), NAREB concluded that dire predictions about overbuilding in general are less prevalent now than they were a year ago, and that it is clear from the comments on vacancies and on rental trends that a tremendous backlog of demand for rental housing existed and went unmet for many years.

While vacancies seem to be holding steady on the average, it's apparent that there is quite a bit of difference in rates from one place to the next, as well as by age and quality of building. In nearly a quarter of the areas surveyed by the realtor group, vacant multi-family units were only two per cent or less of the total, while in another 15 per cent of the areas, they reached 10 per cent or higher. More significantly, perhaps, older buildings of lesser quality will continue to lose tenants as the availability of newer, more desirable quarters, coupled with rising incomes, enable consumers to upgrade their housing standards.

George A. Christie, Senior Economist
F. W. Dodge Company
A Division of McGraw-Hill, Inc.



—Drawn for the RECORD by Alan Dunn

"I feel a little silly calling it 'the old alma mater'."

NEW YORK STATE PLANS FOR REGIONAL DEVELOPMENT

The Office for Regional Development of New York State, under Director Harold A. Jerry Jr., has set forth a 60-year development policy for the state in a 154-page report entitled, "Change—Challenge—Response: A Development Policy for New York State." It follows the outlines laid down almost 40 years ago in the "Report of the Commission of Housing and Regional Planning to Governor Alfred E. Smith" prepared by Clarence Stein and Henry Wright and published in 1926.

As a regional approach to state planning, the policy for New York State's development is of national significance. Mr. Stein views the present policy as important as "the basis of a plan growing out of the dictates of nature and man's changing activities." It is, in his words, "a policy program, illustrated by a basic plan that indicates broadly the location and form of major urban and rural and conservation areas. Comprehensive, although flexible," it recognizes that planning is "not invention but the discovery of the will of nature."

The present report states the pres-

ent challenge in this way: "Our challenge is to shape the underlying factors of burgeoning population, technology, industrialization and urbanization so that we may achieve our objectives. A regional basis for the necessary planning will promote cooperation between town and country, between local and state government, and between private and public interest. At the same time it will preserve and encourage the treasured diversity of life in New York State. It will depend heavily on New York State's tradition of effective local government."

Though a number of states already have master plans, Governor Nelson Rockefeller remarked that "New York is the first state in the Union to propose a comprehensive statewide development plan to be prepared on a regional basis."

The report proposes that the state be divided into 10 regions and that the Office for Regional Development, in cooperation with local agencies and local Regional Councils, prepare a comprehensive development plan for each region. These then would form the basis for a coordinated

plan for the entire state.

Regional plans will be prepared on a sequential basis, each one requiring between two and four years of study. The report suggests that they should analyze, estimate and determine the growth and development of land use, transportation, public facilities, urban development and renewal, open space and recreation areas and natural resources. Designated for primary consideration is the Nassau-Suffolk area, a sub-region of the Atlantic Region. In the fall, the Lake Champlain-Lake George Region will start its program, and the third area will be the Western Region.

The Report recommends the following steps to be taken by the state and local governments to achieve the policy goals:

- (1) The official designation of development regions and the creation of Regional Councils "with strong local representation."
- (2) The preparation of a comprehensive regional plan for each region.
- (3) The formulation of comprehensive statements of statewide development of factors and needs.
- (4) The integration of the regional plans

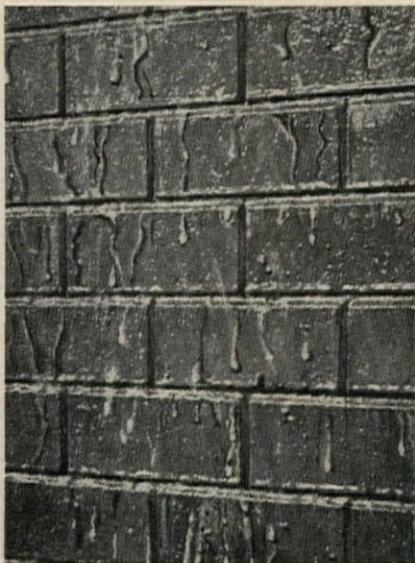
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How to solve Three flashing problems with just One flashing...

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PROBLEM

Wind and rain drives moisture through pin holes (1 to 5 mils diam.) in mortar joints.



QUESTION

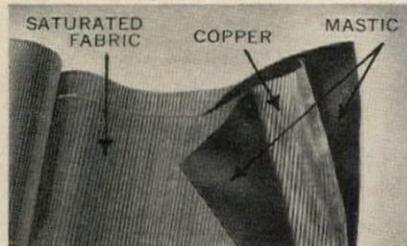
How do you halt penetration from reaching vital points?

ANSWER

Install WASCO Copper Fabric Flashing at all junctures to catch the moisture penetrating walls above, and direct it out through a series of weep holes installed 2' O.C. in the head course immediately above the flashing.

PROBLEM

The architect strives to prevent waterproofing problems during the life of his building (50 years or more). To accomplish this a permanent flashing is essential.



QUESTION

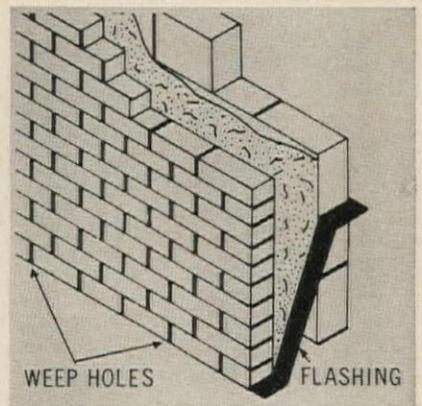
What is a permanent flashing?

ANSWER

A permanent flashing is one that contains metal. In masonry construction, copper is the metal that resists alkalis that are active in fresh mortar. A lightweight copper is recommended. Lightweight copper has the same tensile strength as heavyweight copper. With the addition of tough asphalt saturated fabric, both sides equalize the impact strength of heavyweight copper. Lightweight copper must be adequately protected from damage during installation. WASCO Copper Fabric, copper with tough fabric, is the ideal combination. It provides permanency of copper with excellent adhesive qualities of fabric.

PROBLEM

In masonry construction, a firm, lasting bond must be provided between flashing and mortar.



QUESTION

How do you provide a firm, lasting bond between flashing and mortar?

ANSWER

Use WASCO Copper Fabric Flashing. The rough textured fabric surface provides a superior bond with mortar. (Smooth copper flashing would not allow any bond.) The copper is not exposed to cause oxidation stains through weep holes or cause electrolysis. WASCO Copper Fabric is tough when it spans a cavity unsupported; it is flexible when formed on the job but stiff enough to hold its shape once formed.

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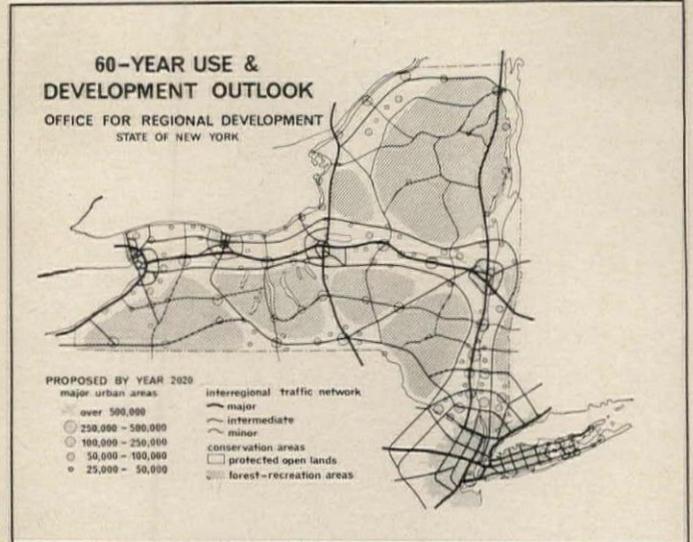
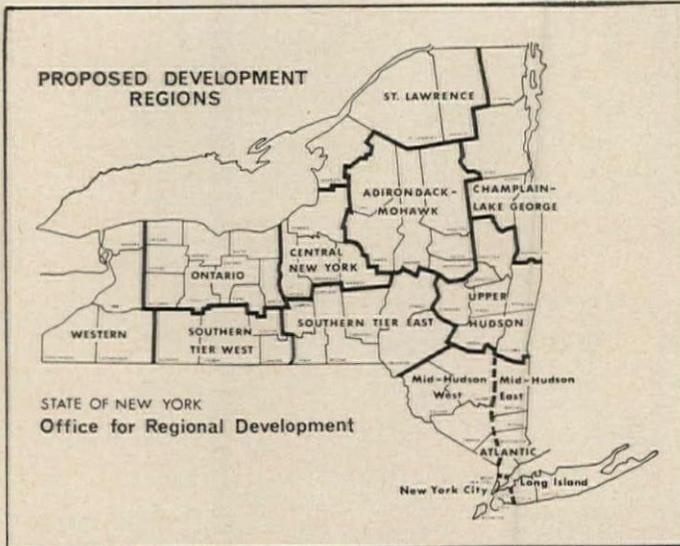
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continued from page 23

into a development plan for the entire state.

(5) The annual submission to the Governor or a physical and financial program for meeting immediate and long-term state needs.

(6) Periodic regional conferences attended by the Governor and state and local officials.

(7) Continued and expanded planning efforts by counties, cities, towns and villages.

(8) Recodification and clarification of existing local planning and zoning laws.

(9) The establishment of a state forecasting center to provide continuing population and economic projections.

(10) The stimulation of research and experimentation in problems of urbanization.

(11) A study of international and inter-

state forces.

(12) A major study of the "new cities" concept to determine its applicability to New York State.

(13) The use of area or regional agencies to assist in the development of new communities, water supply and sewage disposal systems, parks, transportation and other community services.

(14) The development of a proposal to establish a New York State Regional Development Fund to channel private investment into the financing of the regional development programs.

The report forecasts the growth of New York in three phases. Phase I will emphasize metropolitan core renewal and new suburban communi-

ties, new public facilities in the linking valley areas, and statewide rural development and the fostering of natural resources. Phase II will emphasize large-scale residential and social renewal in metropolitan areas, urbanization and high-speed transportation in linking valley areas and increased vacation use and preparation for urbanization in statewide areas. The third phase visualizes a stabilization of metropolitan development, a balance of growth and open space in valley areas and the full development of new communities in statewide areas.

REVISED FDR DESIGN GETS FINE ARTS APPROVAL

After more than three years of controversy, decisions and revisions, the winning design for a memorial to Franklin Delano Roosevelt has re-emerged, altered in scale and focus. Chosen from among 574 competitors, the original proposal was unveiled in January, 1962. In 1962, it was re-

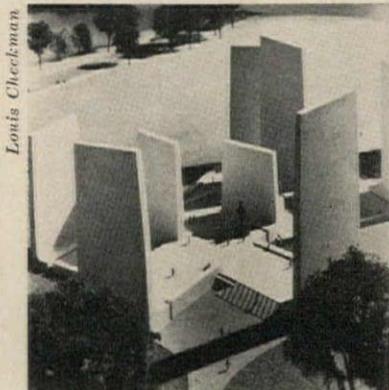
jected by the Fine Arts Commission.

Since January of this year, the FDR Memorial Architects—Pedersen, Tilney, Hoberman, Wasserman, Beer—have been preparing the redesign of their winning scheme. This past June, by a vote of 4-2, a largely new Fine Arts Commission gave its

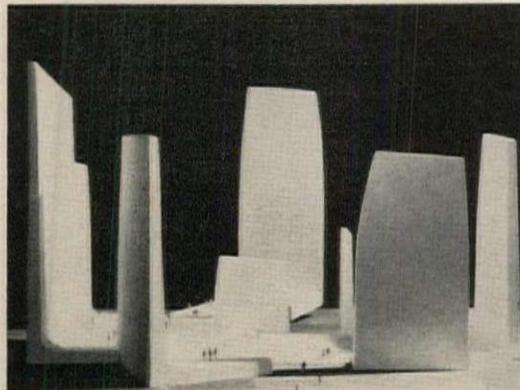
approval to the revised design which now incorporates, as its pivotal point, a larger-than-life-size statue of Roosevelt. The original proposal had eschewed the traditional focus on a physical likeness in favor of involving the spectator in a series of "memorable," open-ended spatial sequences.

The vertical elements, which now radiate from a central point, have been scaled down from a maximum of 167 to 130 feet in order to comply more faithfully with the horizontal lines of the nearby Lincoln and Jefferson Memorials.

However, the moment of realization is still not clearly in view in this commingling of architecture and politics. Led by Rep. James Roosevelt, the Roosevelt family still finds the design unacceptable and is hoping for Congressional disapproval.



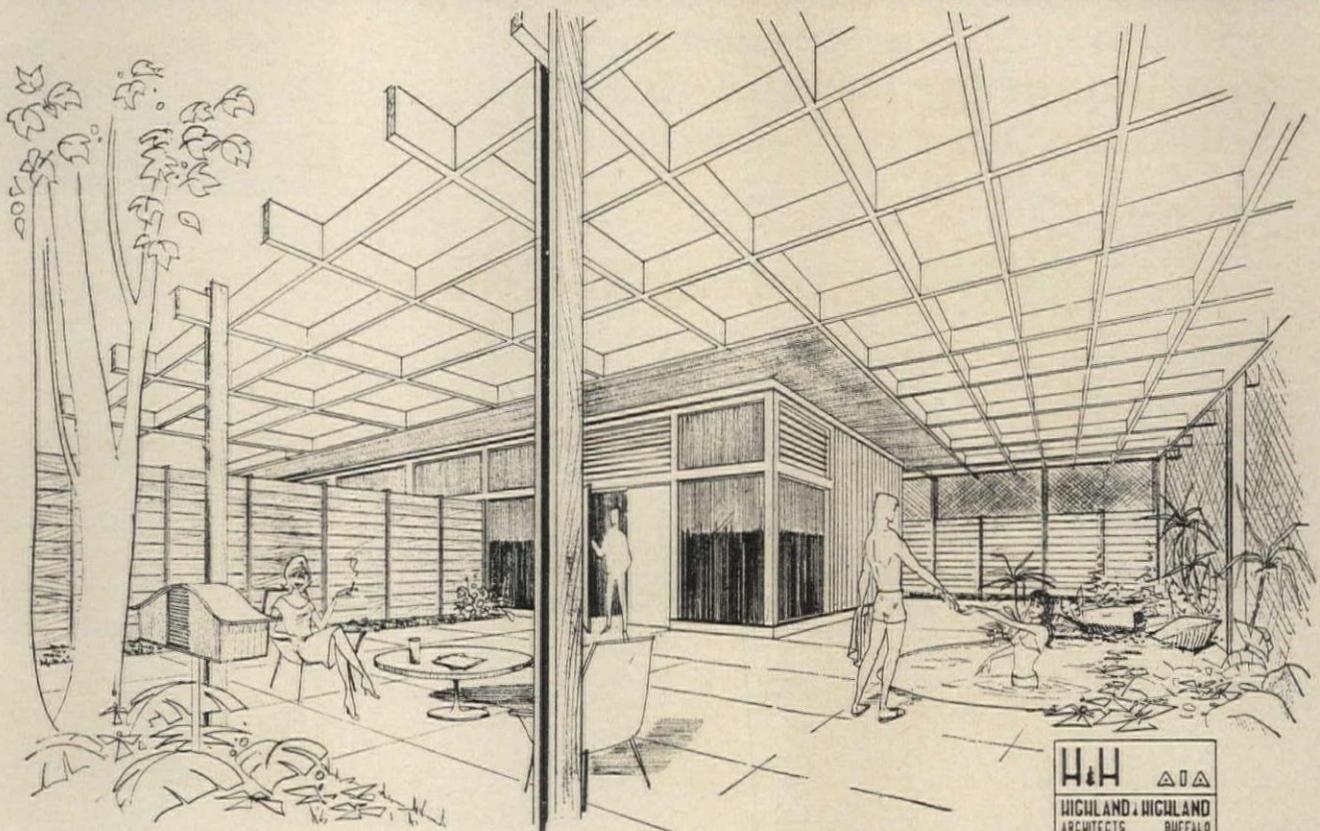
Revised FDR Memorial design



Original proposal, rejected in 1962

Louis Checkman

James R. Dunlop, Inc.



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HARVARD ADDS ITS 3rd SELECTOGRAPHIC

Honeywell Selectographics will control temperature and equipment for 162 buildings when the third unit is installed

Harvard is a prime example of how control of temperatures and mechanical equipment for an entire campus can be automated to increase efficiency and cut operating costs. Harvard's 3rd Honeywell Selectographic, which will be installed this year, will monitor the 2 units already in operation. From it, one man will actually be able to supervise 162 buildings.

THE STORY REALLY STARTS IN 1960, when Harvard decided to install its first Honeywell Selectographic Control Center. Before that time, operating and maintenance men were spending hours going from building to building to perform routine tasks: checking temperatures, starting, stopping and checking equipment.

A Honeywell analysis pointed out the "inordinate amount of time" required for these operations, and Selectographic Number 1 was installed.

This first unit controlled 67 buildings north of the Harvard Yard. From it, one man could:

1. view 37 schematic diagrams (projected from slides) representing systems for the 67 buildings.
2. start, stop, or listen to 42 fans up to 1/2 mile away.
3. operate 32 steam valves.
4. check temperatures at 100 points.
5. get warning of humidity changes in steam tunnels or library areas (which include, among other treasures, Oriental manuscripts).

Our study of estimated savings indicates that the new Honeywell equipment will pay for itself in less than 5 years.

The first installation improved service. Equipment now is being operated more efficiently because it is being started and stopped in just the right sequence at the proper time. Trouble is detected quickly . . . a big assist in preventive maintenance. Selectographic Number 2 was installed in 1962. This one controls 40 buildings in Harvard's South Yard.

Now, preparations are being made to install Selectographic Number 3, which will complete the job bringing the 55 buildings in the Harvard Yard under automated control. This third unit is being integrated with the first two, and will control them.

Once installed, it will be possible for one man to control all 162 buildings . . . to handle nearly anything but maintenance from his chair! Harvard will have a completely automated control system—one that can include new buildings as they're built.

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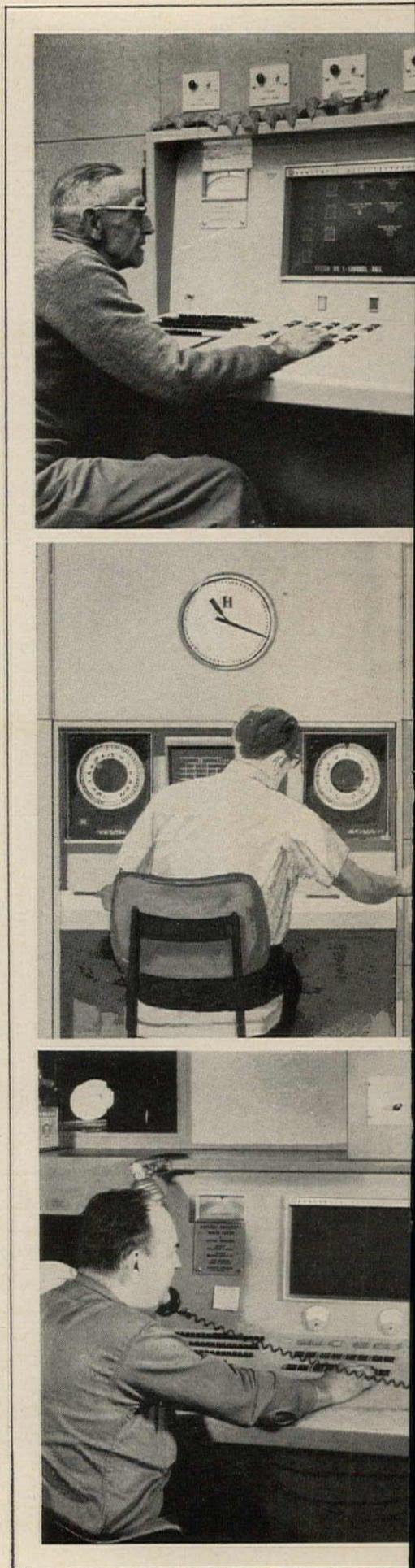
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How To Manage
Environment
From a Central
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the Harvard
Selectographic

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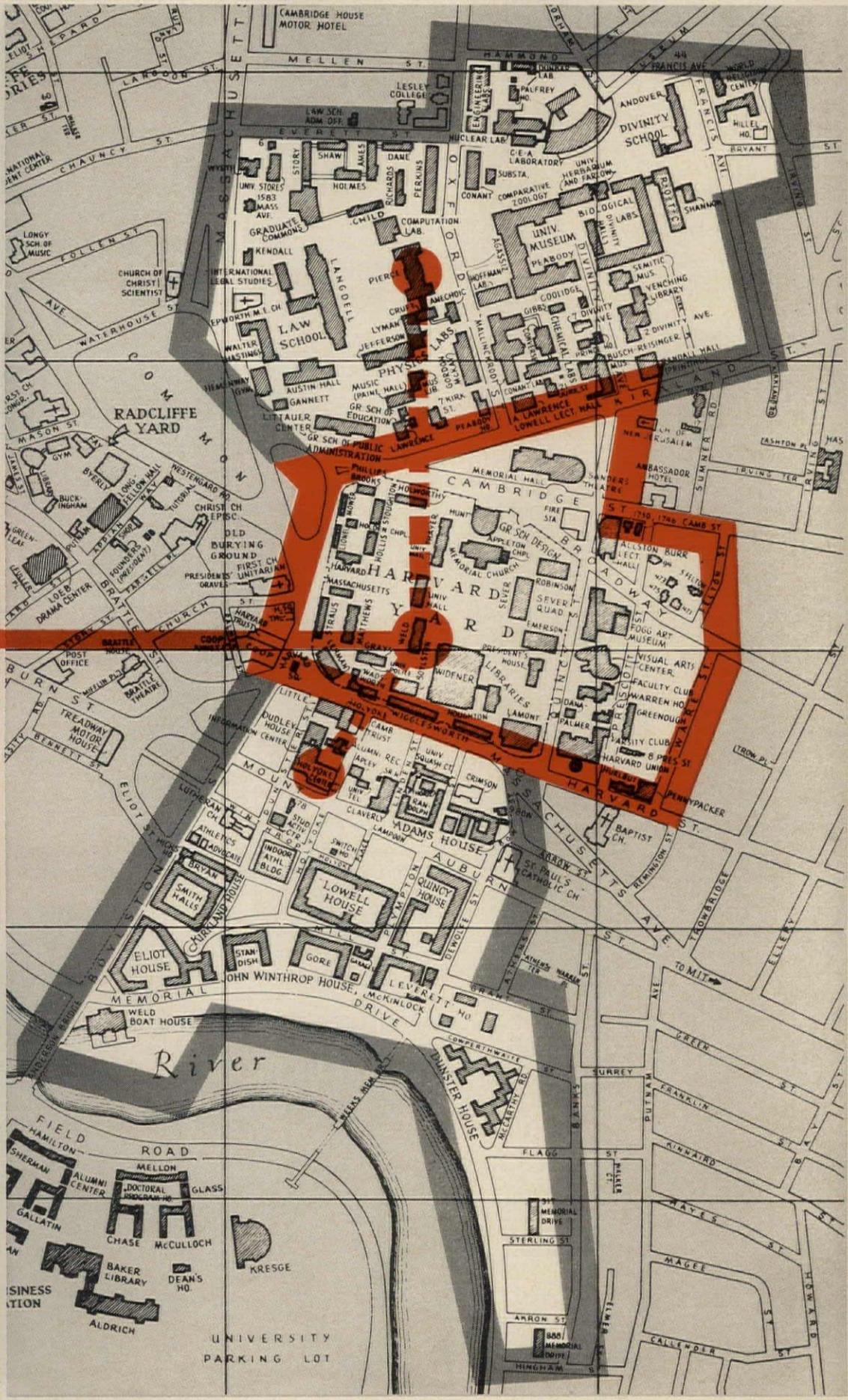
SIMPLIFIES BUILDING CONTROL



1960
67 buildings
controlled
by
Selectographic
Number 1

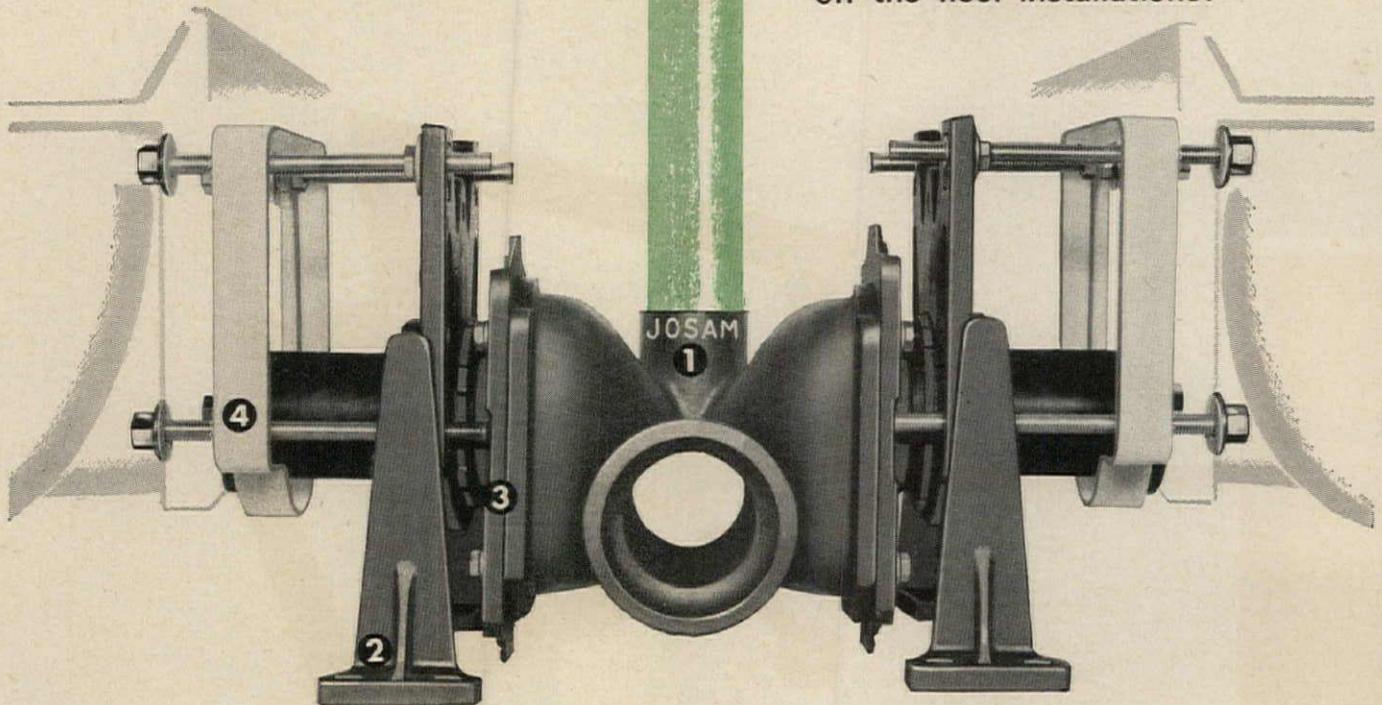
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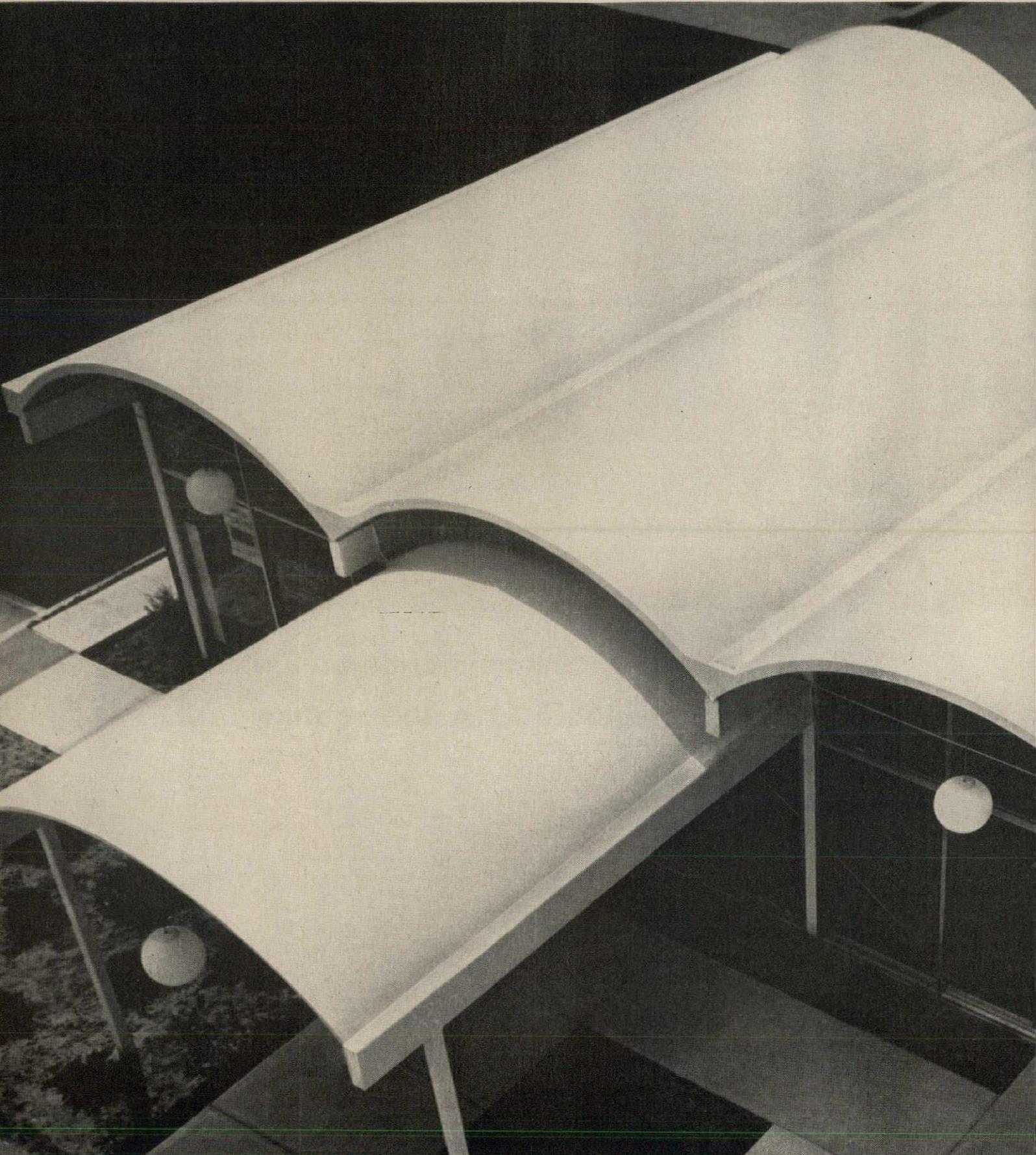
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Required Reading

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"Cities and Space: The Future Use of Urban Land" edited by Lowdon Wingo Jr. (Johns Hopkins Press, 1963: \$5.50) is a series of papers originally given at a forum sponsored by Resources for The Future, Inc. These nine thoughtful and readable essays cover opinions from a number of related fields on the na-

ture and scope of the city plan and the type of urban space the plan should seek to create.

Important changes in planning objectives must be accompanied by appropriate political and legal action. "Southern California Metropolis" by Winston W. Crouch and Beatrice Dinerman (University of California Press, 1963: \$7.50) describes the political institutions of a megalopolitan area, the prospects for change, and the methods by which some

changes might be brought about. "Law and Land: Anglo-American Planning Practice" edited by Charles M. Haar (Harvard and M.I.T. University Presses, 1964: \$7.50) grew out of a working seminar sponsored by the Joint Center For Urban Studies. The summary chapter by Mr. Haar is especially useful. It fills a long-felt need for a concise comparison of the legal bases of American and British planning.

Other comparisons can be found in three interesting books on urban conditions in various parts of the world. "Man's Struggle for Shelter in an Urbanizing World" (The M.I.T. Press, 1964: \$7.95) by the well-known housing consultant, Charles Abrams, is a far-reaching survey and discussion of the problems of housing in the developing nations. "The New Metropolis in the Arab World" (Allied Publishers, New Dehli, Paragon Book Gallery, N. Y. C., 1963: \$4.00) is a series of intelligent and informative essays. "Urban Renewal in European Countries: Its Emergence and Potentials" by Leo Grebler (University of Pennsylvania Press, 1964: \$5.00) describes policies and trends in this field in western Europe. Urban problems seem to be depressingly similar in every part of the globe.

Two other books on urban planning should be noted. One is a new edition of "The Urban Pattern" by Arthur B. Gallion and Simon Eisner (D. Van Nostrand, 1963: \$14.00), an updated version of a familiar text. The other is a collection of plans of fifty significant towns and cities, at the very abstract scale of 1:14400, published under the title, "The City, Form and Intent," by the Student Publication of the School of Design at North Carolina State.



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Books Received

BUILDING PRODUCTS REGISTER. By The American Institute of Architects. American Institute of Architects, 1735 New York Ave., N.W., Washington 6, D.C. 456 pp. \$20 each or \$15 each for 5 or more.

THE NEW EUROPE AND ITS ECONOMIC FUTURE. By Arnold B. Barach. The Macmillan Company, 60 Fifth Ave., New York, N.Y. 148 pp., illus. (Paperbound) \$1.95.

TROPICAL GARDENS OF BURLE MARX. By P. M. Bardi. Reinhold Publishing Corp., 430 Park
continued on page 86

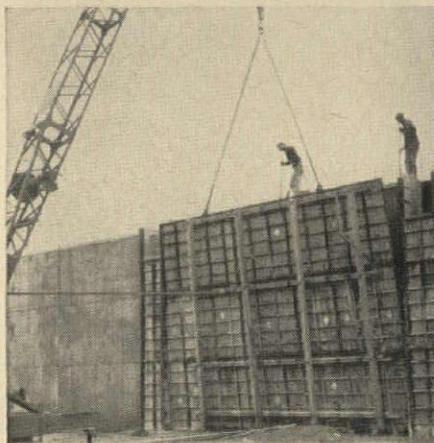
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Required Reading

continued from page 82

Ave., New York, N.Y. 160 pp., illus. \$15.

THE ARCHITECTURAL INDEX. *By Ervin J. Bell. P.O. Box 945, Sausalito, Calif. 65 pp. \$5.*

FIVE CITIES: *An Art Guide to Athens, Rome, Florence, Paris, London. By Blanche R. Brown. Doubleday & Company, Inc., 575 Madison Ave., New York 22. 632 pp., illus. \$6.95.*

ANGKOR, AN INTRODUCTION. *By George Coedes. Oxford University Press, Amen House, London E.C.4. 116 pp., illus. \$2.*

THE CHICAGO SCHOOL OF ARCHITECTURE. *By Carl W. Condit. The University of Chicago Press, 5750 Ellis Ave., Chicago, Ill. 238 pp., illus. \$8.50.*

HOUSING THE AGING. *By Wilma Donahue. University of Michigan Press, Ann Arbor, Mich. 280 pp. \$3.75.*

URBAN LANDSCAPE DESIGN. *By Garrett Eckbo. McGraw-Hill Book Company, 330 W. 42nd St., New York 36. 248 pp., illus. \$16.50.*

NEW FURNITURE. *By Karl Kasper. Frederick A. Praeger, Publisher, 64 University Place, New York 3. 172 pp., illus. \$12.50.*

INTERNATIONAL BIBLIOGRAPHY OF PREFABRICATED HOUSING. *By Phyllis M. Kelly and Caroline Shillaber. The M.I.T. Press, Cambridge, Mass. 96 pp. \$1.*

THE DESIGN OF HIGH BUILDINGS. *Edited by Sean Mackey. Oxford University Press, 417 Fifth Ave., New York, N.Y. 515 pp., illus. \$16.*

AGING AND THE ECONOMY. *By Harold L. Orbach and Clark Tibbitts. University of Michigan Press, Ann Arbor, Mich. 237 pp. \$7.50.*

THE NEW TOWNS, THE ANSWER TO MEGALOPOLIS. *By Sir Frederic J. Osborn and Arnold Whittick. McGraw-Hill Book Company, 330 W. 42nd St., New York 36. 376 pp., illus. \$12.50.*

BIBLIOGRAPHY ON ARCHITECTURE OF MENTAL HEALTH FACILITIES. *By Millard F. Penney. National Clearinghouse for Mental Health Information, National Institute of Mental Health, Bethesda, Md. 17 pp.*

HANDBOOK OF RIGGING. *By W. E. Rossnagel. McGraw-Hill Book Company, 33 W. 42nd St., New York 36. 333 pp., illus. \$12.50.*

LIGHT CLADDING OF BUILDINGS. *By R. Michael Rostron. The Architectural Press, 9-18 Queen Annes Gate, London SW 1. 359 pp., illus. 63s.*

THE ART CRITICISM OF JOHN RUSKIN. *Edited by Robert L. Herbert. Anchor Original, Doubleday & Company, Inc., 575 Madison Ave., New York 22. 434 pp. (Paperbound) \$1.45.*



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THE EMERSON COMPANY, Box 55218, Houston
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APARTMENTS

Federal Housing Agencies Encouraging Good Design

How new agency programs will stimulate and reward design excellence: articles by HHFA head Robert C. Weaver and four constituent commissioners

BY ROBERT C. WEAVER, Administrator—*Housing and Home Finance Agency*

For some years now, it has been almost axiomatic that esthetics and design of a high standard were elements, never, or almost never, found present in architecture in which the Federal Government had some financial involvement.

Conformity and a strictly pedestrian approach seemed to be the *sine qua non* of those entrusted with what turned out to be choice examples of "un-design." A "government" building was too often distinguished only by its monotony and template characteristics.

Fortunately, there were instances when architects were able to escape the dollar-oriented requirements and specifications, and produce a structure that rose above the banalities that had become the hallmark of Federal architecture.

Recently, however, there have been deliberate and commendable changes in the attitudes of those in Federal Government concerned with architectural and design practices. This first became apparent in 1961 with the advent of the Kennedy Administration, and has been continued by the Johnson Administration.

Washington has realized that the Federal Government, with the vast amount of building under its aegis, must not be content with sterile design and bland, innocuous architecture. Those in Government now responsible for administering programs influencing the structure, form and nature of our urban communities have demonstrated a determination to

infuse a fresh spirit into design practices as they concern Federal architecture, and the architecture its programs influence.

Let me emphasize, however, that the Federal Government cannot, and must not establish standards of taste or dictate design. But Government does have a responsibility to encourage local communities to strive for the best in planning and design, and in doing so, enlist the most creative talents in reshaping our cities.

Of course, we recognize that in Federal programs there are fixed legal and financial limits. Nonetheless, there are no cogent reasons why adherence to these limits should stifle creativity. Evidence of this wholesome attitude can be seen today in federally-aided housing and community development programs administered by constituents of the Housing and Home Finance Agency—the Federal Housing Administration, the Public Housing Administration, the Urban Renewal Administration and the Community Facilities Administration.

In the past few years these agencies have encountered considerable success in uplifting the quality of design in programs for which they have administrative and financial stewardship. They have done this by giving to the local communities involved considerable latitude and freedom of expression in design. They have stimulated and encouraged fresh approaches in order to achieve a sense of livability as well as a feeling for esthetics in public housing,

in urban renewal, in college housing, in private housing and in other federally-aided housing and community development programs.

Last year, for the first time in the history of the HHFA, one of its constituents, the FHA, sponsored a design competition which attracted well over 300 submissions. Awards were made to outstanding examples of multi-family structures, town houses and free-standing dwellings.

This year, we have broadened the scope of the design awards competition to include the URA, the PHA, and the CFA. Each of these agencies is instituting a program to recognize planning and design excellence in the programs it administers.

It is my sincere belief that the HHFA Honors Awards Program will give national and international prominence to those men and women who design and build to the highest professional standards—who point the way to the creation of the best kind of living environment in our communities.

BY MARIE C. McGUIRE

Commissioner, Public Housing Administration

We of the Public Housing Administration welcome the opportunity afforded by the PHA Honor Awards for Design Excellence to encourage and give recognition to low-rent housing developments of meritorious design. It is also a favorable time to evaluate the changes in design emphasis that have occurred throughout the history of the program and to illustrate the improvement in low-rent housing design in recent years.

In our long experience in creating large developments of other than single-family detached dwellings, site plans of low-rent housing have often anticipated land planning innovations and have served as proving grounds for new techniques. However, in pioneering developments accommodating large numbers of people, we soon discovered that there were many problems involved, such as: how to avoid an institutional, monotonous appearance; the difficulty of blending the housing with its neighborhood; the limitations to livability for large families in high-rise apartment buildings; the impersonal, overpowering scale of large developments; and others.

Another reason we have sometimes been among the first to try new techniques is that our sites generally remain under a single ownership. We do not have to consider many factors ordinarily involved in subdividing land into small parcels for resale. Within a large site, many code and zoning regulations relative to the size, setbacks and heights for small individual lots often do not apply. Therefore, by

working with unsubdivided single sites, we are able to use the number of dwellings and number of persons per acre as one yardstick of density rather than the size of the individual lots. The use of unsubdivided sites makes it easier to create developments containing a variety of housing types. Many recent projects contain both low- and high-rise buildings; others have varying combinations of two- and three-story apartments. Some have detached and semi-detached dwellings, town houses, quadruplexes, etc. Such combinations, appropriately related to particular site and area conditions, offer a great choice of living accommodations and also lend considerable architectural interest to a development.

PHA has shown the way toward providing for relatively high densities with adequate, usable open space—which is a feature of some of the newer concepts of land use. PHA developments often have interior community-type spaces carefully related to exterior space. Such appurtenances are offered seldom by other than our low-rent program. They are justified by the inadequacy of neighborhood facilities, and provide space for recreational and social purposes. In addition, this space can be used by various agencies, services, and welfare groups to help project occupants adjust to urban living and become more independent citizens.

Like many thoughtful and forward-looking private developers, we encourage use of scattered sites where appropriate. By this means, a small project can be located advantageously in a sound neighborhood on a site which may have been passed over and may be relatively inexpensive. Use of some of these problem situations may tax a designer's abilities, but such sites are often small enough that the development can be readily merged architecturally and socially with the neighborhood.

We have a few (too few) examples of providing on a single site not only residential and recreational facilities, but also health and commercial facilities, thus making the living environment more nearly complete and fulfilling.

But low-rent housing certainly is not always characterized by such words as imaginative, pioneering, experimental or attractive. More than once the program has been accused of being insensitive to the values of good design. Agency policy for many years stressed economy and production and gave very little, if any, attention to architectural design. Much of the low-rent housing of this previous era can well be characterized as austere. Possibly the policy and the resulting design both stemmed from an attempt to avoid criticism, controversy—or even notice—in an effort to gain acceptance of this infant program. The Low-Rent Housing Manual evolved into a document containing many mandatory requirements in all phases of the program's operations—development, management, financing, etc. Supplements and bulletins were issued to fatten this

Morley Baer



CFA

University of California Student Union and Dining Commons, Berkeley, California; DeMars and Hardison, Architects

Gerald Ratto



PHA

Marin City Public Housing, California; John Carl Warnicke and Aaron Green, Associated Architects

basic operational document. Included in this supplementary material was such information provided to make project planning easier. The documents evoked much criticism as being unduly restrictive. Nonetheless, a number of outstanding developments were designed during this era.

In recent years, the manual has been revised so as to minimize mandatory standards and requirements. We are using guidelines, relying more upon the judgment of local authorities and the professional skills of their architects, thus affording greater opportunity for local creativity and design flexibility. In the past year, better site planning and dwelling unit design have been actively encouraged through six regional design seminars staged in major cities across the nation, in cooperation with the American Institute of Architects and the National Association of Housing and Redevelopment Officials. Also for promoting better design, we have established a nation-wide panel of consultants. This provides the agency with the counsel of over 40 architects, landscape architects, planners, and other specialists now in private practice. Other efforts towards better design include publication of an "Architect's Check List" as a pertinent reminder for designers of housing for elderly; a series of regional meetings on the design of low-income housing for the elderly conducted by PHA Consultant Professor Walter Vivrett of the University of Minnesota; and a complete revision of the agency's architect's contract, including an adjusted schedule of fees. This new schedule makes design fees more proportionate to the amount of service and study that we consider necessary to produce an attractive, livable environment.

Several other proposals relating to design will be initiated as time and funds permit, and we shall continue to re-evaluate our policies affecting architecture and land use. Our efforts in this direction cannot slacken, but must be sustained as part of a comprehensive program for achieving improved design in the low-rent program.

BY SIDNEY H. WOOLNER

*Commissioner, Community
Facilities Administration*

The Community Facilities Administration makes a direct and highly effective contribution to design excellence: it strongly encourages and permits almost complete architectural freedom.

CFA challenges the applicant and his architect to produce quality design in projects assisted under its major programs, and within the limits of reasonable cost, permits them to do it.

This positive approach to better design is producing striking results in communities all across the country. This is especially evident in the specialized housing programs administered by the agency: the College Housing program and the Senior Citizens' Housing direct loan program.

From its inception, the College Housing program has encouraged good and experimental design of the residence halls and college unions financed under its auspices. Recognizing the diversity of American colleges and universities with their wide range of size, educational objectives, geographical location, traditions and history, and always mindful of the fact that the buildings will be the property of the college to be lived with many years after the loan has been repaid, it has been the policy of the College Housing program to encourage the institutions to choose their own architect and work with him toward an appropriate architectural solution to the unique problem presented by the college's housing need.

"Design freedom, within obvious and necessary economic limits, appears to set the architectural context for the HHFA College Housing program," was the comment of the ARCHITECTURAL RECORD as early as January, 1955, when the program was only four years old. Today, nine years later, the same policy is maintained, and the diversity of American higher education is exemplified in the wide range of architectural solutions which have been found for residence halls and college unions in every state of the Union (except Wyoming) and in Puerto Rico and the Virgin Islands. There is no sterile uniformity or copying of prototypes directed from Washington; instead, the designs run the full architectural gamut, from the most traditional to the most advanced in modern design. Many of America's most noted architects have brought their talents and ideas to bear in finding new and ingenious solutions to the equation which involves moderate rentals, low maintenance and operation costs, gracious surroundings and imaginative design.

We believe that the College Housing program continues to fulfill its description in the ARCHITECTURAL RECORD of 1955: "An ably administered, highly-successful example of Federal aid."

Design creativity and freedom, with due regard for the special needs of older people, are given equal rein under CFA's Senior Citizens Housing loan program.

CFA encourages design variety and innovation in rental housing provided with its assistance for senior citizens of moderate income. The agency limits the architect's creative abilities only to design of a structure that insures the safety and well-being of its elderly occupants and is within their economic means.

This latitude has paid off. Senior Citizens' housing projects to date range the architectural spectrum

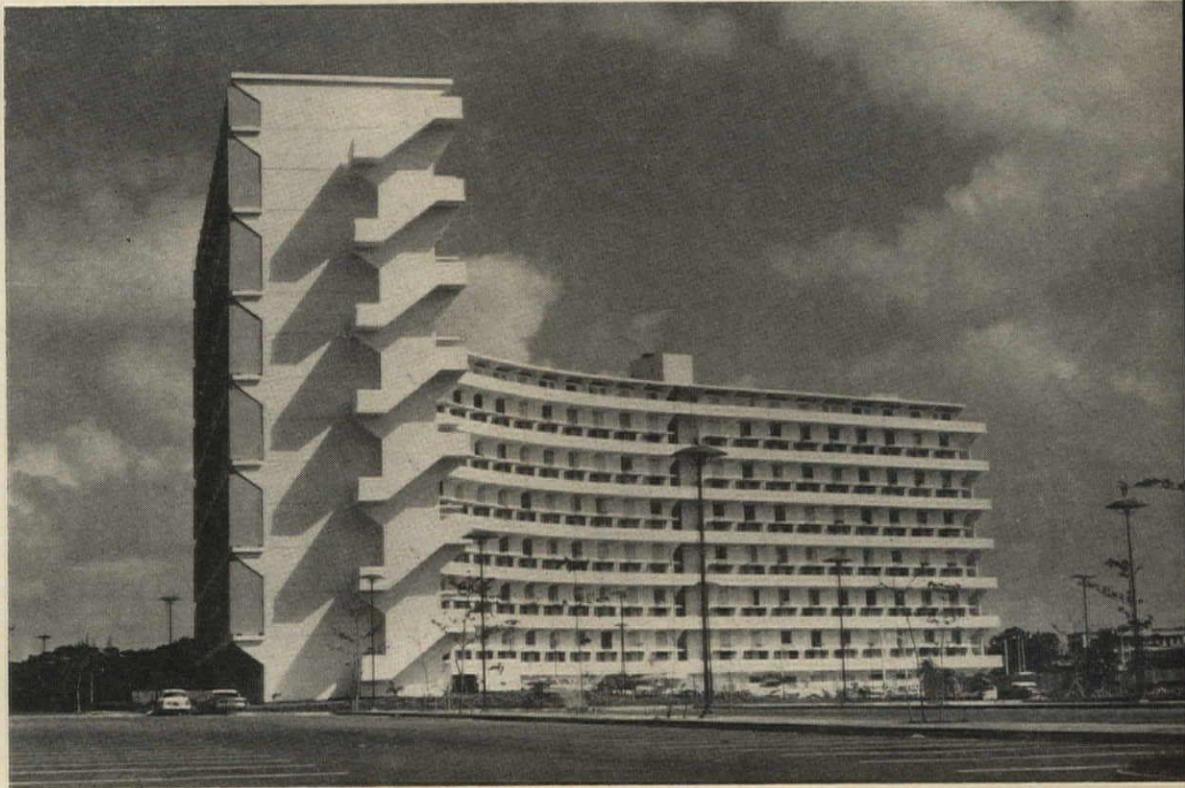
Balldazaz



URA

Arena Stage, Washington, D.C.; Harry Weese & Associates, Architects

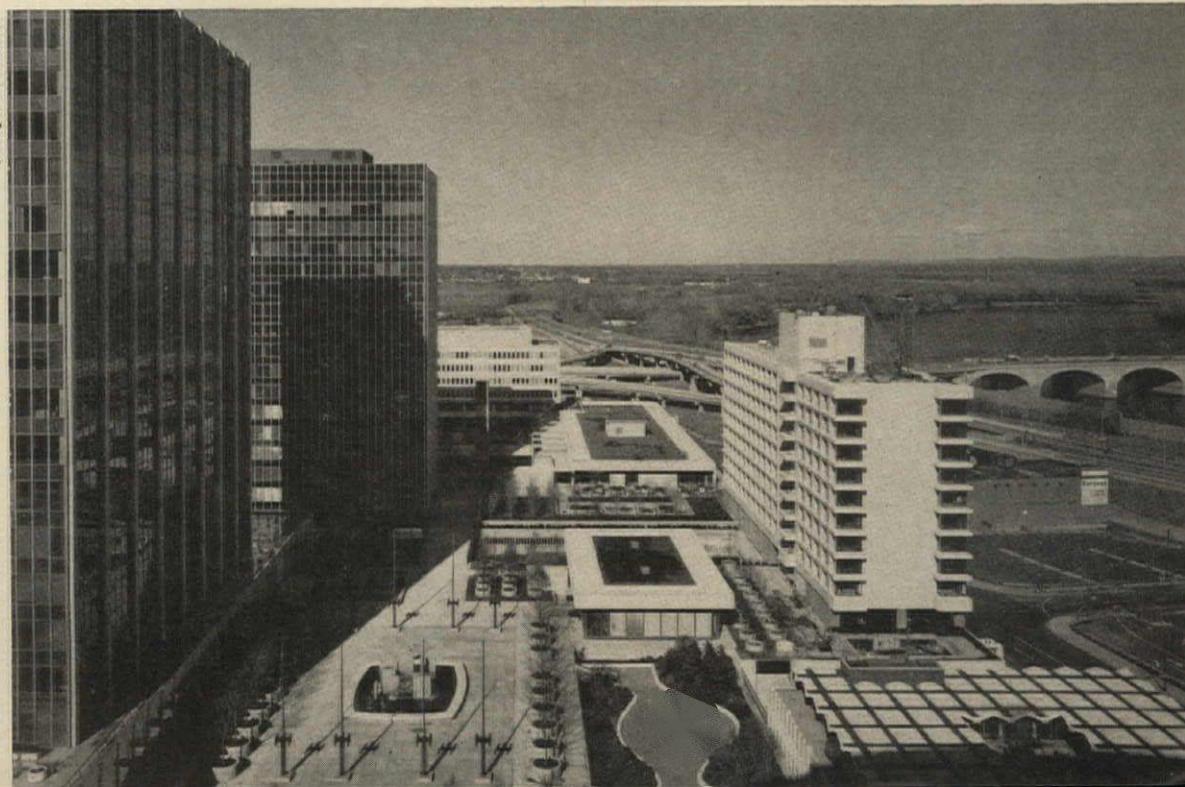
Richard P. Mojer



FHA

El Monte, Hato Rey, San Juan, Puerto Rico; Edward L. Barnes and Reed, Basora, Menendez, Architects

Joseph P. Mottior



URA

Constitution Plaza, Hartford, Connecticut; Charles DuBose, architect for basic design of over-all project and for general design coordination

from single-story, garden-type design to graceful high-rise, each of them products of imaginative planning, sensitive to the particular needs of elderly people.

Senior housing projects are not just housing. They are homes, with convenient access to all those facilities essential to satisfactory living. Their design is not based on government edict. It is created by the architect with a blend of skill, imagination and interpretation of local needs.

CFA's interest in design excellence also extends to the more conventional architecture of the public works field. This interest has been translated in a wide variety of projects aided under the agency's three public works assistance programs—well-designed, landscaped libraries, city halls, community centers and courthouses, integral parts of satisfying community environmental settings across the country.

Positive support to better design is provided in CFA's Program of Advances for Public Works Planning. Aided by interest-free advances under this program, states and localities are encouraged and given the time needed to incorporate good design in plans for their specific public works needs.

BY PHILIP N. BROWNSTEIN

Commissioner, Federal Housing Administration

The Federal Housing Administration, through its program of Honor Awards for Residential Design, recognizes the contributions made to housing by creative, imaginative architects and builders. This is recognition that is long overdue, and obliquely points to design deficiencies that also deserve attention. We hope that this program will sharpen the appreciation of the home-buying public for better design in housing and will stimulate industry to produce even better houses. The Honor Awards program was initiated by FHA in 1963. Twenty-eight properties received awards, half of them multi-family structures.

The 1964 program has been broadened by Administrator Robert C. Weaver of the Housing and Home Finance Agency to include programs of the Urban Renewal Administration, the Public Housing Administration and Community Facilities Administration. The awards this year will be made in the fall.

The industry response and approval in 1963 leads us to anticipate a good reception for this year's program.

The FHA is taking other steps towards a higher level of attainment in design for housing develop-

ment under its mortgage insurance programs. Because the design function deserves greater attention, FHA has established the position of Associate Director for Design in the Architectural Standards Division. Appointed to this position was William J. O'Connor, A.I.A. Through this office we hope to generate greater interest in good planning and design among those engaged in residential development. The office also will determine what improvements may be made in FHA procedures to stimulate progress in design excellence.

Our decision to make works of art eligible for inclusion in insured mortgages on multi-family projects is another significant step forward. The insured mortgage limit for art work is one per cent of the estimated cost of the project structure. We believe this added touch will enhance the appearance of our insured projects and will increase tenant pride in them.

Our Technical Studies Program is another effort to give thrust to improved residential design. We now have under contract nine separate studies relating to multi-family projects. For instance, we are trying to identify qualities that distinguish good housing projects, and we are examining the control of air-borne noise and structure-borne noise in multi-family dwellings.

These activities reflect new approaches to obtaining better design. One of our stock services—the establishment of minimum property standards—is an excellent vehicle with which to articulate our emphasis on design. The MPS permit FHA to exert its influence for improved design through the establishment of guidelines and requirements. The MPS for multi-family housing have been written with an eye to giving greater flexibility in the planning and design of comfortable, livable housing. The new standards are directed toward the goals of achieving construction economies wherever possible, while providing a property of lasting quality and value.

Among new features included in the MPS are:

1. A new land-use scale to replace density, land coverage and other standards previously classified into area types. The new standards encourage the use of varied building types on a site.
2. A provision for sound transmission limitations and impact-noise control. This calls for the use of new rating systems to measure sound deadening qualities of various types of construction.
3. Thorough specifications covering elevator design, equipment and installation—including comfort indices such as speed, safety factors, and other devices and controls.
4. A new provision permitting the use of fire-retardant treated wood in certain construction. Other fire protection standards covering height, area limitations, exits, and interior and exterior fire protection equipment are included.

An FHA service related to MPS is new Land

Planning Guides. These guides provide the benchmarks for the development of improved housing and neighborhoods. Early this year we published a new land planning bulletin, "Planned Unit Development with a Homes Association." Perhaps the bulletin's greatest potential lies in the emphasis it places on coordination of various design elements—preservation of natural site advantages, design of access and utility facilities and amenities, as well as of the residential structures themselves. Stress is placed on the need to secure the best professional assistance early in project development.

Of necessity, we cannot stop here. The aims of the housing industry and the FHA are directed jointly to raising the American standard of housing.

A greater opportunity for service lies before us, and good design will be a most important part of the progress to which we aspire for the future.

BY WILLIAM L. SLAYTON

Commissioner, Urban Renewal Administration

For the past three years we in the Urban Renewal Administration have been stressing the importance of good urban design. Now that 850 projects of the 1,500 total in the federally assisted program are in execution, the results are becoming visible in structures, neighborhoods, and communities all across the nation.

As for the buildings themselves, they embrace a wide variety of housing, for sale and for rent for all income ranges; stores, factories, shopping centers, office buildings, cultural centers, education facilities and institutional buildings. They are located in former slum and blighted areas, out of which are now arising revitalized and rejuvenated communities, sound from economic, social and architectural standpoints.

Many of the structures in urban renewal areas have been awarded honors for good design. Outstanding architects have been involved in designing buildings for urban renewal areas—and for designing entire areas.

Good urban design does not, of course, just happen. We in urban renewal have taken a number of steps to stimulate good design among local renewal agencies, as well as among the planners and architects involved in urban renewal.

First, we have been urging local renewal agencies to dispose of land through competition based on design, rather than on maximum price. This has proved to be very successful in a number of cities.

Next, we have issued several publications on the subject of design. One was a letter to all local re-

newal agencies in August, 1962, establishing the URA policy that high quality design is a basic objective of the urban renewal program. It covered the purpose of design in urban renewal, action to promote good design, design studies as a basis for action, and skills and resources for design services.

Now we have in process a series of four technical guides that will amplify the actions described in the letter of August 1962. We plan to publish them in the latter part of 1964, under the titles *Design Review in Urban Renewal*, *Design Objectives in Urban Renewal Documents*, *Design Competitions in Urban Renewal* and *Design Services in Conservation Areas*.

Last year we devoted a complete issue of our official publication, *Urban Renewal Notes*, July-August 1963, to "Design in Urban Renewal." Other issues have publicized design activities in urban renewal projects, such as the competition for the Allegheny Center project and the annual Ruberoid Design Competition. In addition, URA staff members have spoken at numerous meetings on the need for good design and we have also written articles on the subject, such as the one that appeared over my signature in the November 1963 ARCHITECTURAL RECORD.

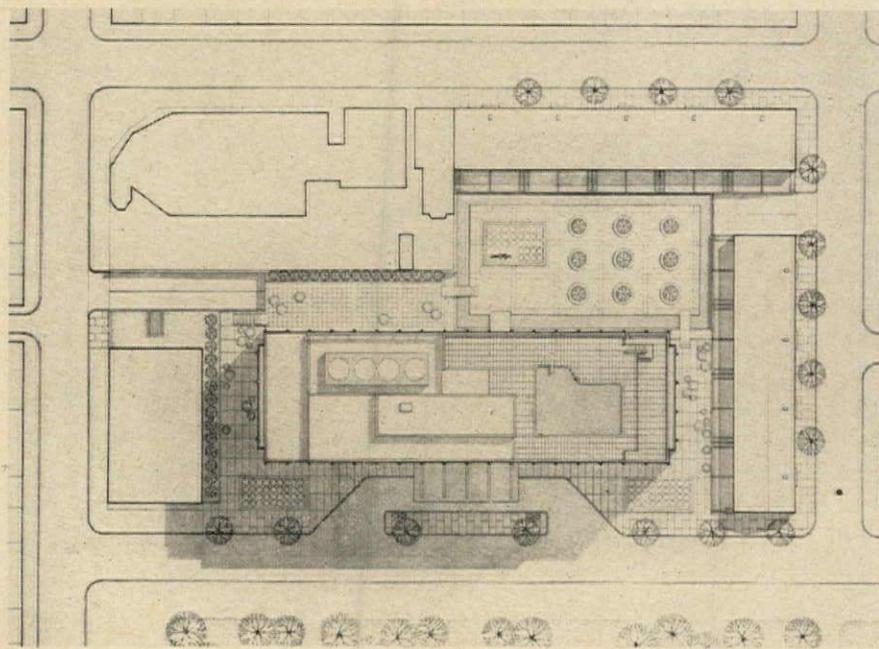
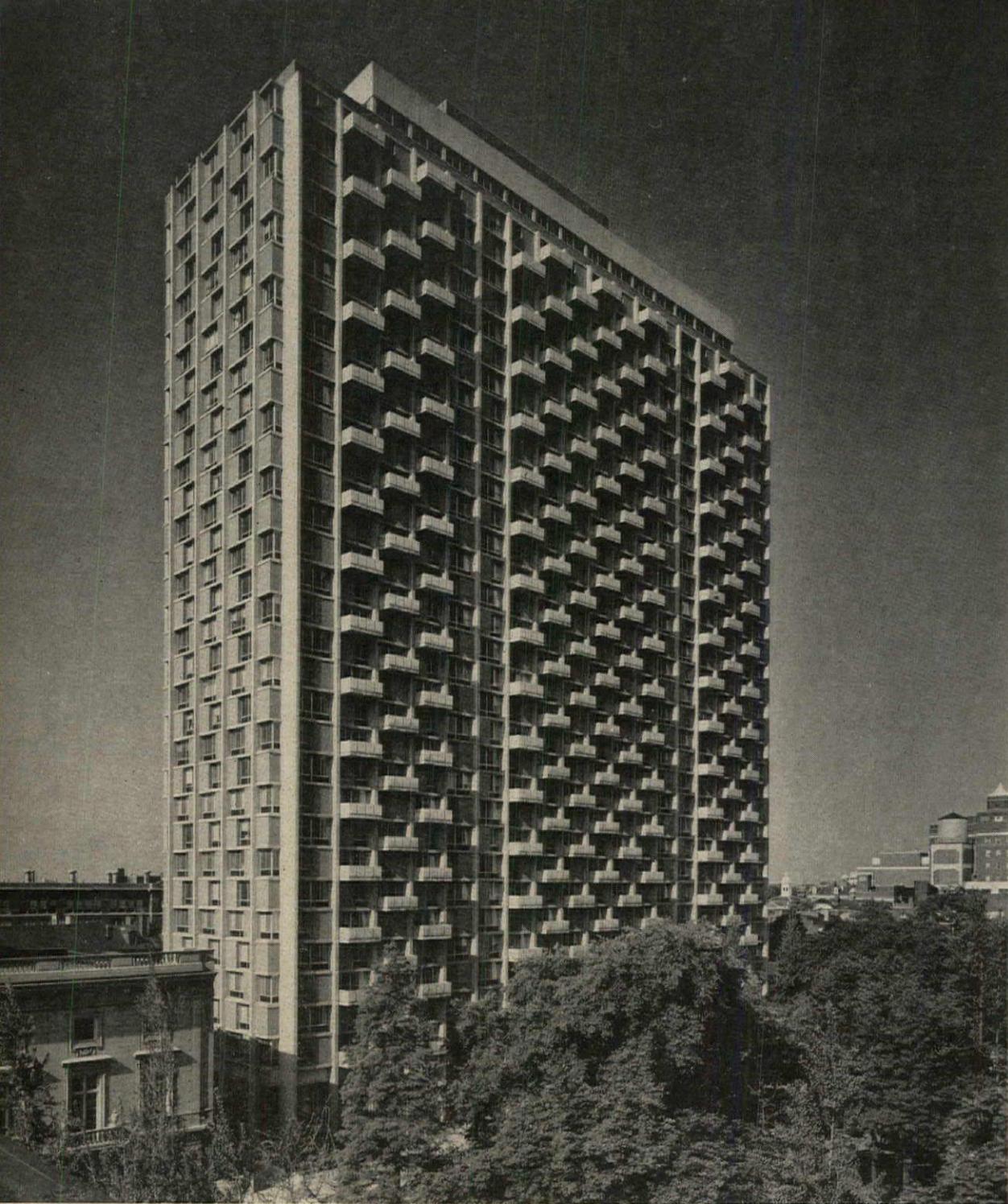
Now we are engaged in a new Honor Awards Program in Urban Renewal Design, along with the other design-conscious constituents of the Housing and Home Finance Agency.

Last year, seven of the 14 awards made by FHA for good multi-family residential design went to buildings in urban renewal projects. Among the features cited by the judges were: good planning, dramatic solutions to special problems, color effects, use of concrete as an exterior medium and effective landscaping.

In this program we have stressed excellence in urban design and site planning, and over-all architectural quality. Visual and compositional qualities, functional organization, and architectural and landscape quality are judged from a community or "urban" standpoint.

Landscape and urban design detail have received important consideration, particularly the specific provisions made for use and visual enjoyment of exterior spaces—including grading, planting, exterior lighting, paving, and the ways in which materials and textures are used outdoors.

As I have pointed out, good urban design has been a goal of the Urban Renewal Administration for the past several years. Since the desires, needs, and preferences of many individuals, groups and agencies are involved, achievement has not been simple. We believe, however, that more and more good design has been achieved in numerous urban renewal projects, and that this new Awards Program is stimulating city officials and citizens generally to realize that good urban design contributes lasting benefits in value, livability and attractiveness.



TOWER AND TOWN HOUSES IN PHILADELPHIA

*Hopkinson House
Philadelphia, Pennsylvania*

OWNER:

Hopkinson House, Incorporated

ARCHITECTS:

Stonorov and Haws

CONSULTING ENGINEERS:

Garber & Cohen

STRUCTURAL ENGINEERS:

Garfinkle & Marenberg

LANDSCAPE ENGINEERS:

Sasaki, Walker & Associates

GENERAL CONTRACTOR:

R. M. Shoemaker Company

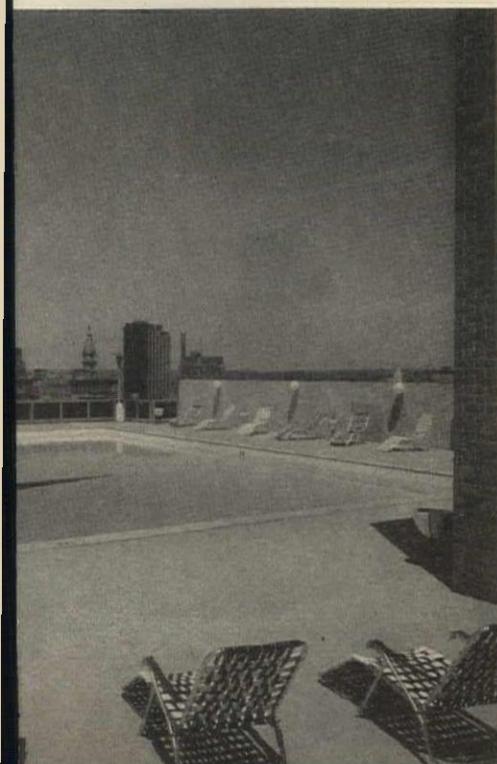
Concern for the preservation of the old Philadelphia city character led to the final program for this redevelopment in the Society Hill renewal area. The original concept for this property—a high-rise apartment plus a motel and commercial area—was opposed by local planners and historians, and revised. The final scheme—shown in these pages—consists of 18 town houses clustered about an apartment tower of 31 apartment floors. The picture below—showing the street facade of several of the town houses—points out in clear visual terms how well the new houses fit into the scale and character of the local scene, shown by the older building down the block.

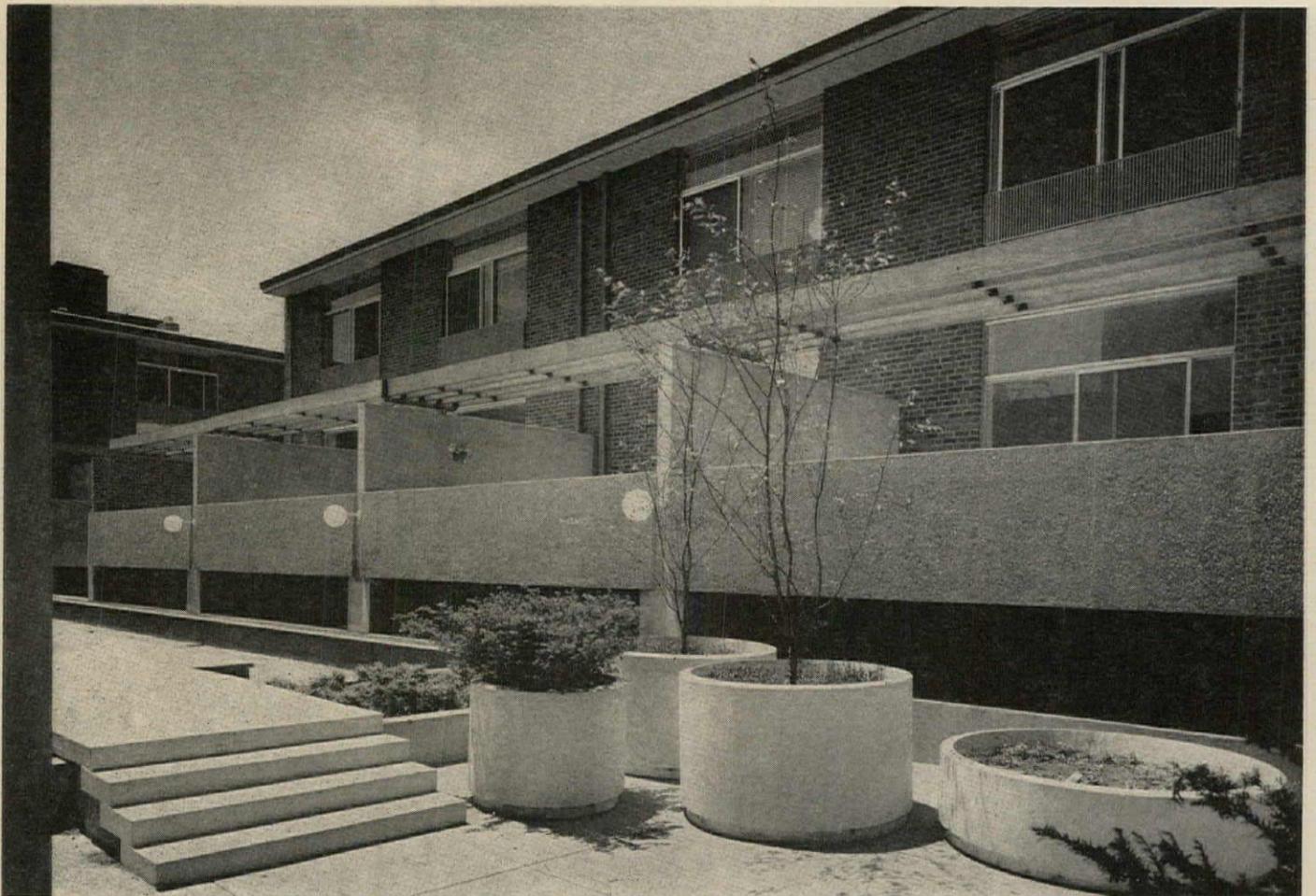
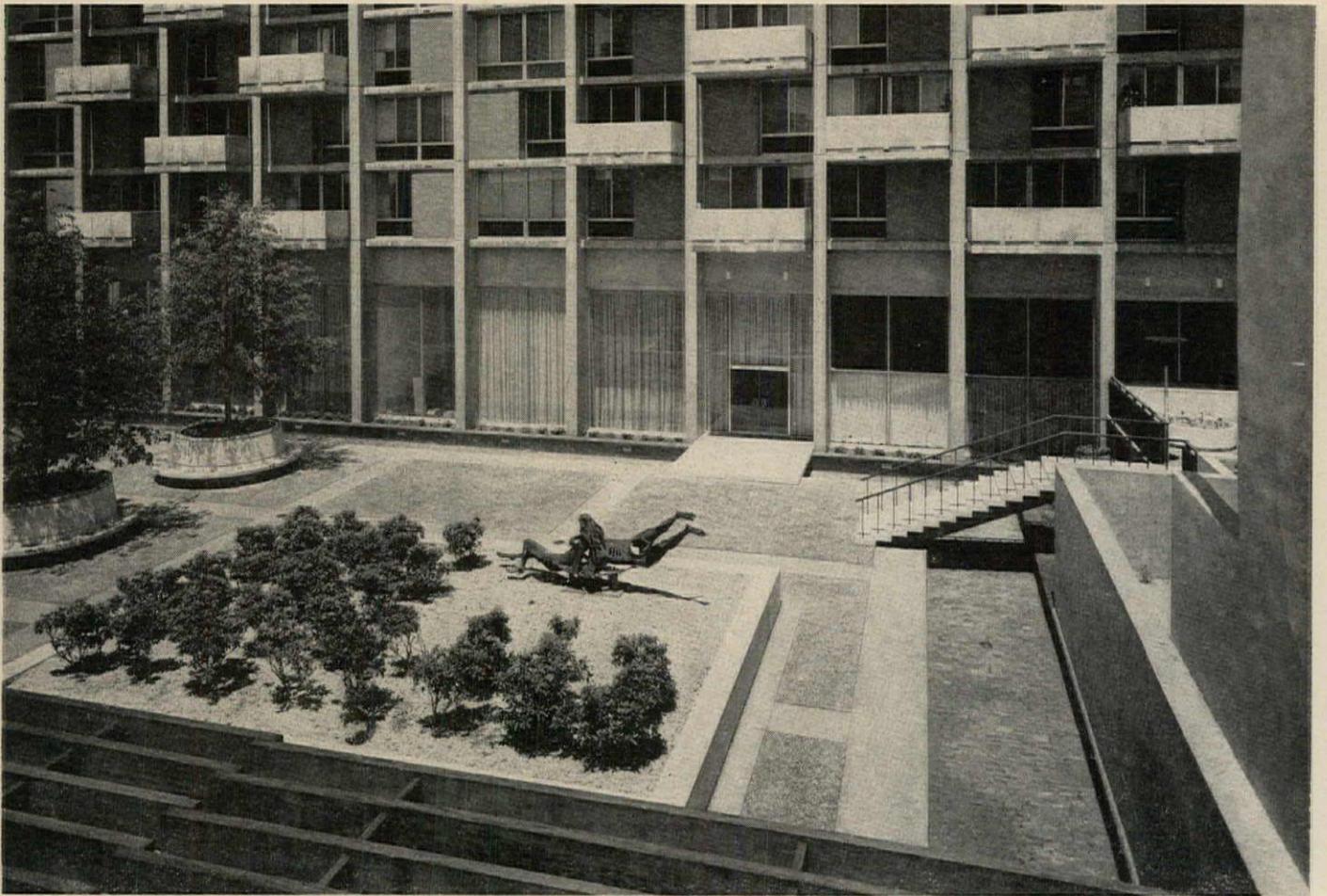
The 34-story high-rise unit was conceived as a tower on an east-west axis to face north to Washington Square (plot plan, across-page). Between the tower and the 18 town houses is a paved and landscaped tree court with sculpture and a reflecting pool. Parking for both the apartments and the town houses is underground.

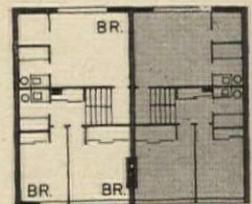
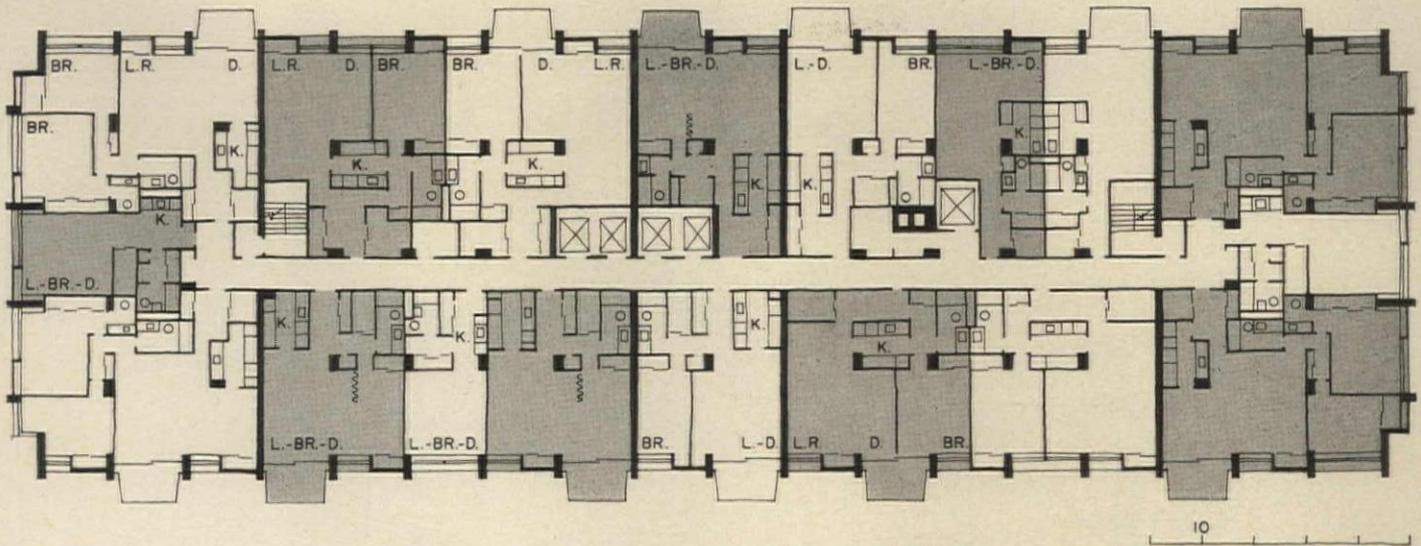
The interesting exterior wall of the tower was developed as the result of studies on the problems of wall leakage and window cleaning. Closets built of 4-inch brick—waterproofed inside—were made a feature of the facade; the glass line was inset by the depth of the closets, and full height sliding glass doors were used instead of windows.

Balconies were provided for 372 of the 536 apartments. The precast concrete balcony railing was designed to furnish exterior pattern and a look of strength from inside. The swimming pool—shown in the photograph below—is a very popular part of the tower roof recreational area.

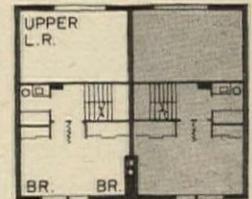
Joseph W. Molitor photos



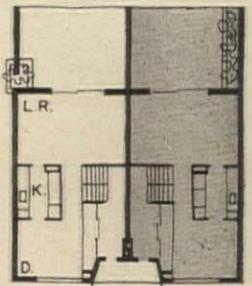




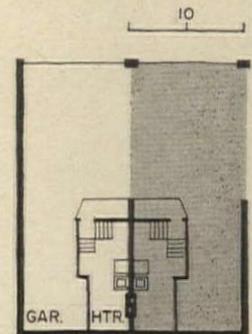
THIRD FLOOR



SECOND FLOOR



FIRST FLOOR



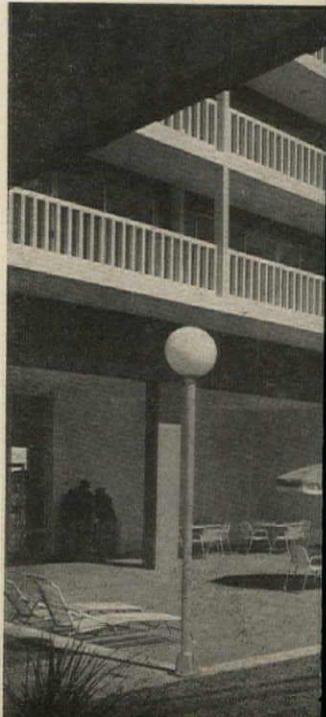
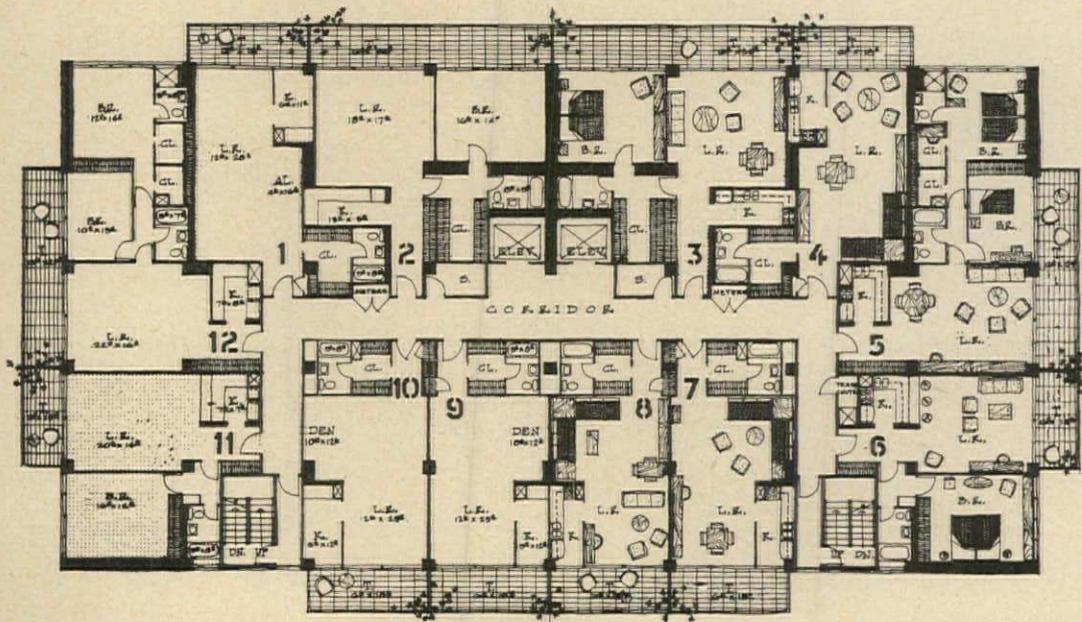
BASEMENT

Hopkinson House, Philadelphia

The photos (left) show two views of the courtyard connecting the high-rise building and the town houses. The rear elevation of the town houses can be seen in the lower photograph; note the manner in which the underground driveway and parking area is ventilated. Each town house has an individual parking stall immediately underneath it, arranged for easy access.

The plan (above) shows a typical floor in the high-rise apartment tower, which is 245 feet long and 67 feet wide. The structure consists of reinforced concrete columns and flat plate floor slabs; shear walls extend to the 20th floor. The foundation consists of a floating mat 90 by 254 by 4 feet thick—one of the largest continuous pours yet made. The building is centrally air conditioned, controlled by individual fan-coil units.

The plans (right) show the basement and three floors of a typical town house, which is 19 feet 8 inches wide and 34 feet long. Each of the 18 town houses contains a living-dining area, kitchen, four bedrooms, three baths, underground garage and storage, and an outdoor terrace. Party walls are of cinder block with brick or marble veneer; upper floors and roof are of frame construction. Each town house is equipped with a gas-fired furnace with a cooling coil, which provides individually metered heating and cooling



BALCONIES ORGANIZED AS FACADE PATTERN

*Sunset Heights Apartments
Los Angeles, California*

OWNER:

Bernard Block and Associates

ARCHITECTS:

Victor Gruen Associates

STRUCTURAL ENGINEER:

Bernhard Cardan

MECHANICAL ENGINEERS:

Ayers & Hayakawa

GENERAL CONTRACTOR:

*Boyar-Kessler
Construction Company*

The interesting facade pattern for this concrete apartment tower results from organizing the apartment balconies into a simple, rectangular panel on each elevation. The balcony railings are of precast concrete, fabricated only a short distance away within the building itself. The tower rises 13 stories, reaching the local height limit for concrete structures.

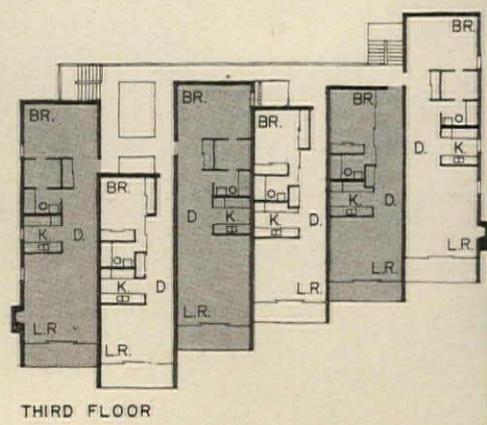
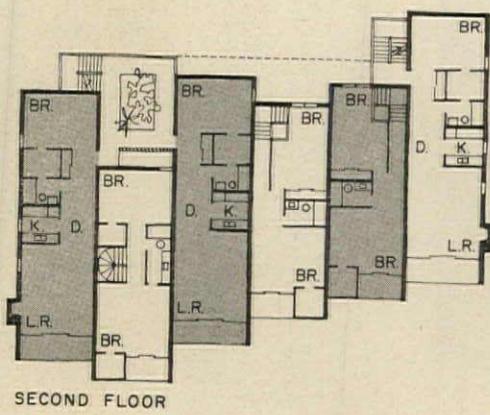
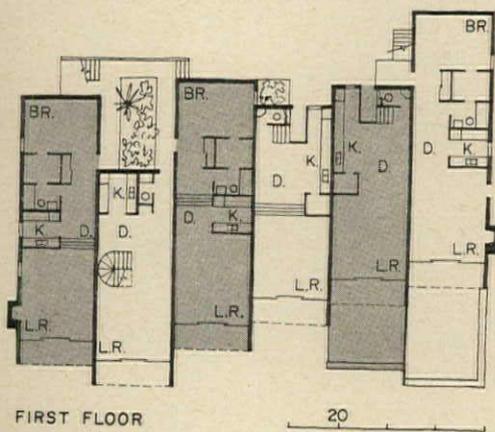
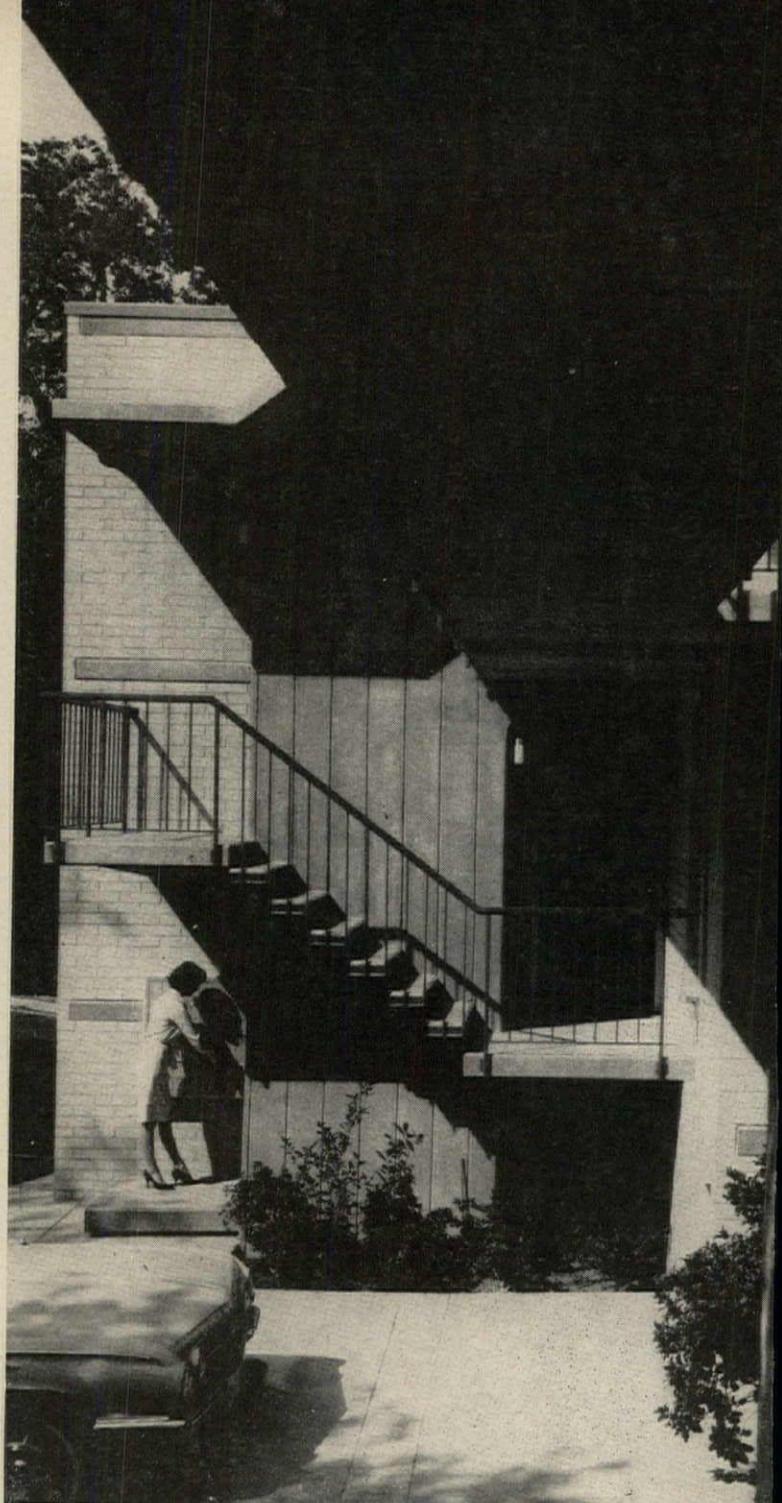
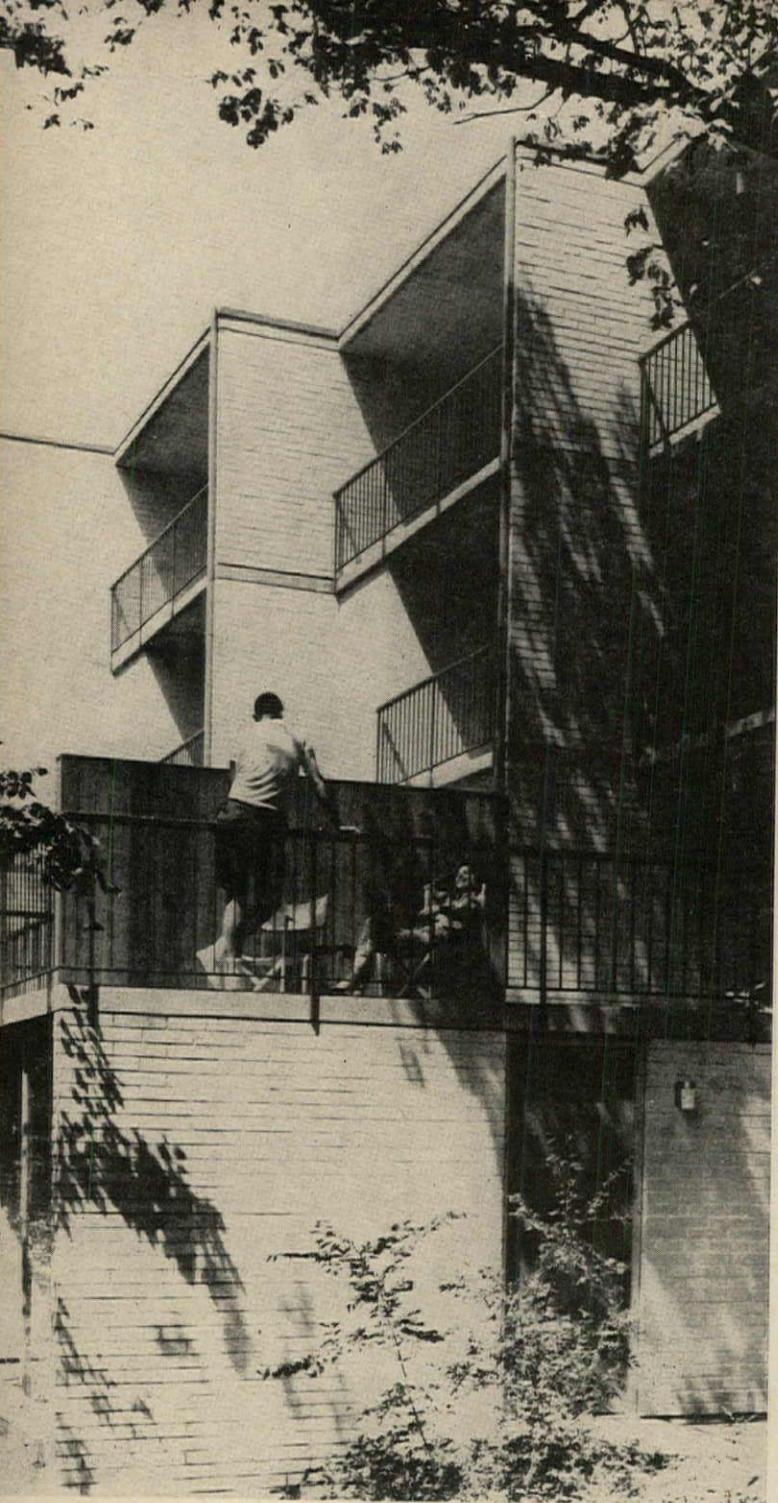
Below-grade construction was expedited by an unusual system of shoring, in which soldier beams at the perimeter of the excavation were braced by structural members driven diagonally below the buildings on adjacent properties. The contractor had, of course, obtained necessary encroachment leases from the neighboring landlords. The entire excavated space was thus completely free of any kind of bracing, and the work was thus able to proceed at a rapid rate. The concealed supports were merely left in place after the new work was done.

To gain maximum efficiency from floor-to-floor heights, all ducts and conduits were routed to obviate the need for suspended ceilings; for increased floor slab efficiency, most partitions were of solid gypsum.

The building is located on the eastern border of the Beverly Hills residential area, and is located only one-half block from the restaurants and shops on Sunset Boulevard. There are a total of 151 living units; the underground garage accommodates 154 cars on two and one-half levels. Laundry and drying facilities are located at roof level.

Gordon Sommers photos





STAGGERED FOR PRIVACY AND VIEW

3525 Congress Avenue
Dallas, Texas

OWNER:

Oak Lawn Properties

ARCHITECT:

Enslie Oglesby

MECHANICAL ENGINEER:

Dan Herndon

STRUCTURAL ENGINEERS:

Chappel & Taylor

LANDSCAPE ARCHITECTS:

Boyd & Hydrick

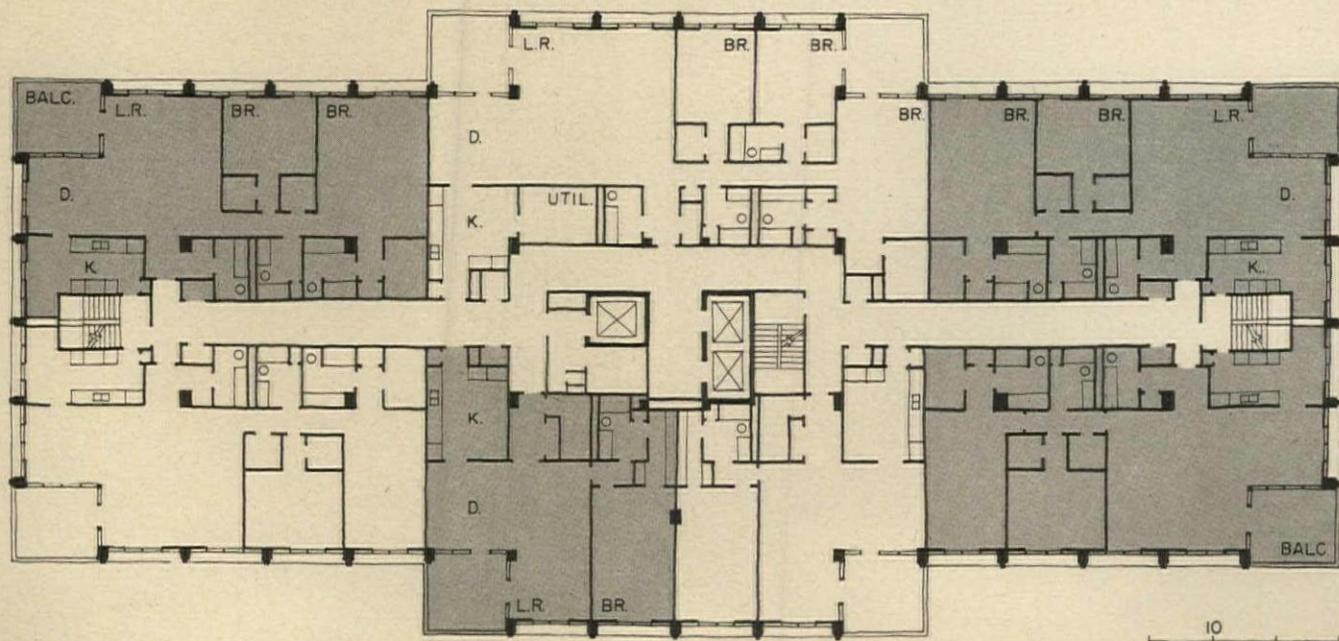
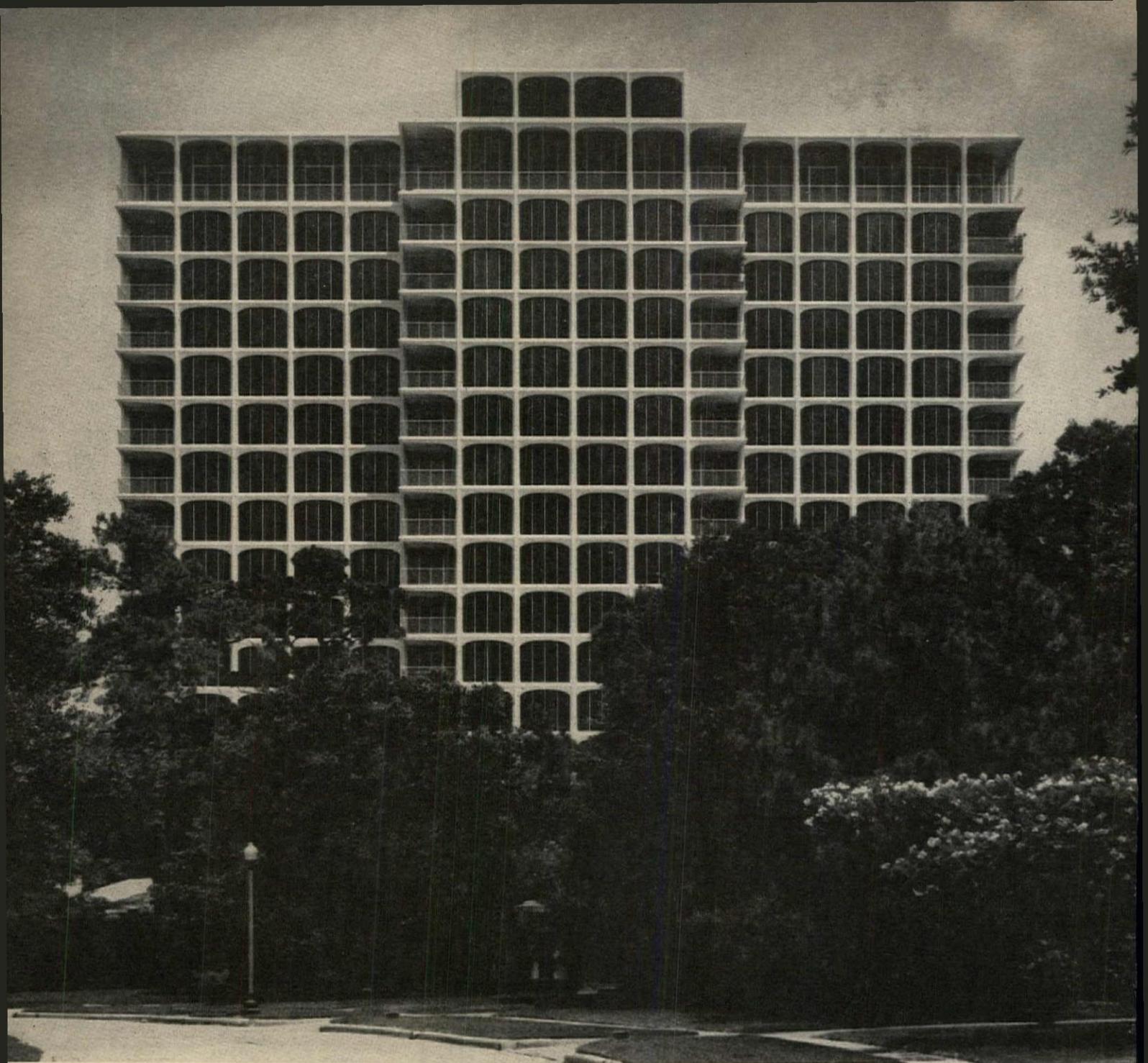
GENERAL CONTRACTOR:

Campbell Brothers Construction

This 16-unit row house—two and one-half stories in height—is staggered in plan for privacy, and offers access by way of stairs protected by balconies. Architect Enslie Oglesby explains: “The problem was to provide 16 living units on a small, undeveloped piece of property near a business district. Economical land use as well as a desire for a feeling of permanence and stability were basic considerations. Present zoning limits height to two and one-half stories, calls for set backs, and requires on-site parking of one and one-half cars per apartment unit.

“Our solution was to enclose and separate the apartments by a series of parallel masonry walls. Apartments penetrate through the building to give all units a view of the skyline and the natural beauty of the site to the south (bottom of plans at left); while also offering convenient entrance from the parking area (top of plans at left). Hollow masonry units—sand filled—form the total wall, and in combination with flat slab floors provide an unusually high degree of sound separation. Gypsum board panels applied to the interior provide effective temperature insulation. The load-bearing masonry walls are exposed both inside and outside; the flat slab concrete floors are carpeted; ceilings throughout are acoustical plaster.”





THE ARCH FORM AS A FACADE MOTIF

Inwood Manor
Houston, Texas

OWNER:

Dr. Earnest L. Wilkinson

ARCHITECTS:

Neuhaus & Taylor

STRUCTURAL ENGINEERS:

Vogt & Clouse

MECHANICAL ENGINEERS:

Lyons-Innocenti & Associates

INTERIOR DESIGNERS:

(public areas, model apartments)

Wells Design

ELEVATOR CONSULTANT:

Charles W. Lerch

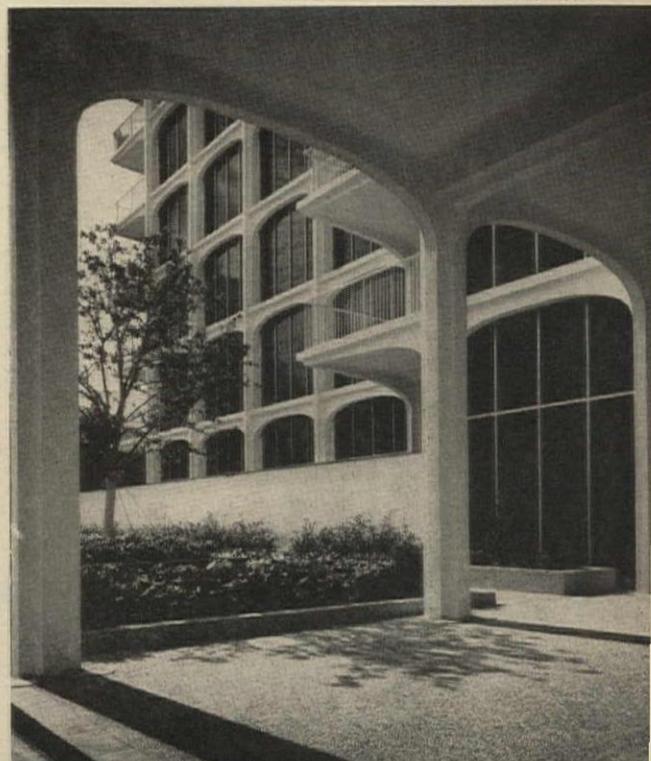
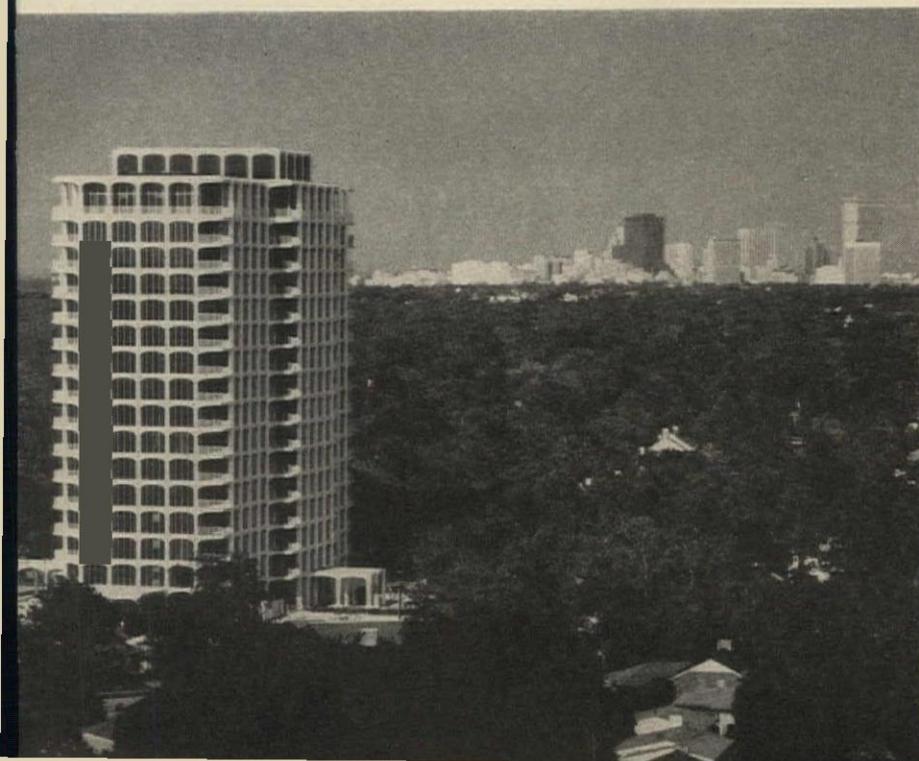
GENERAL CONTRACTOR:

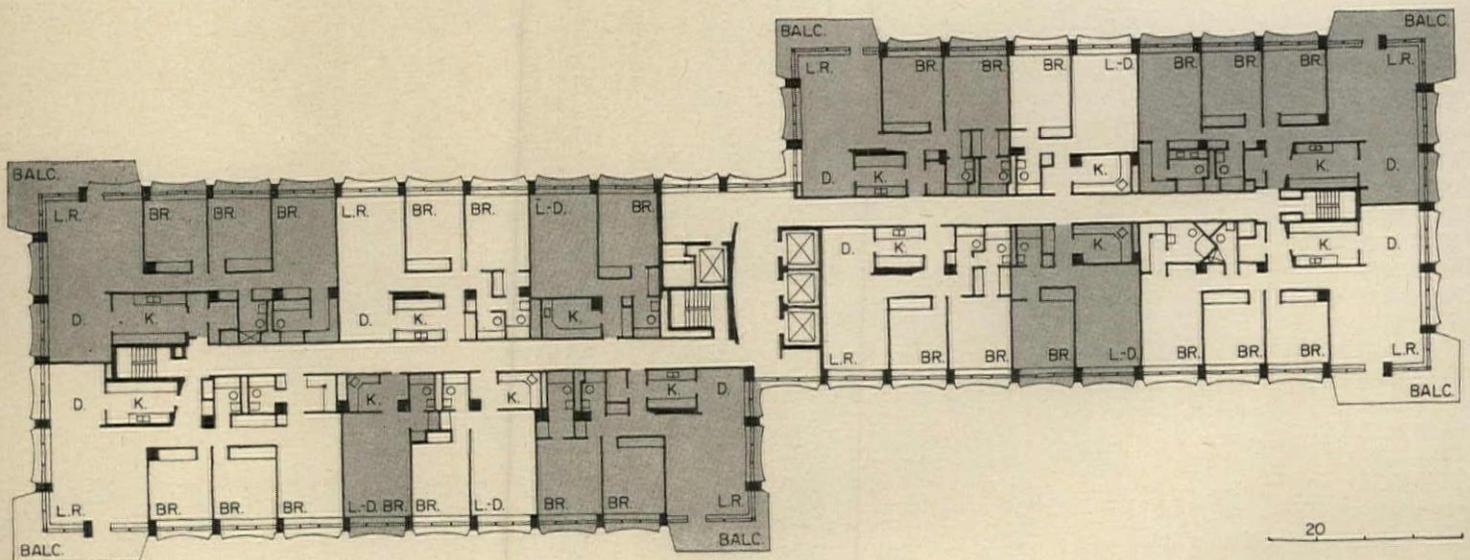
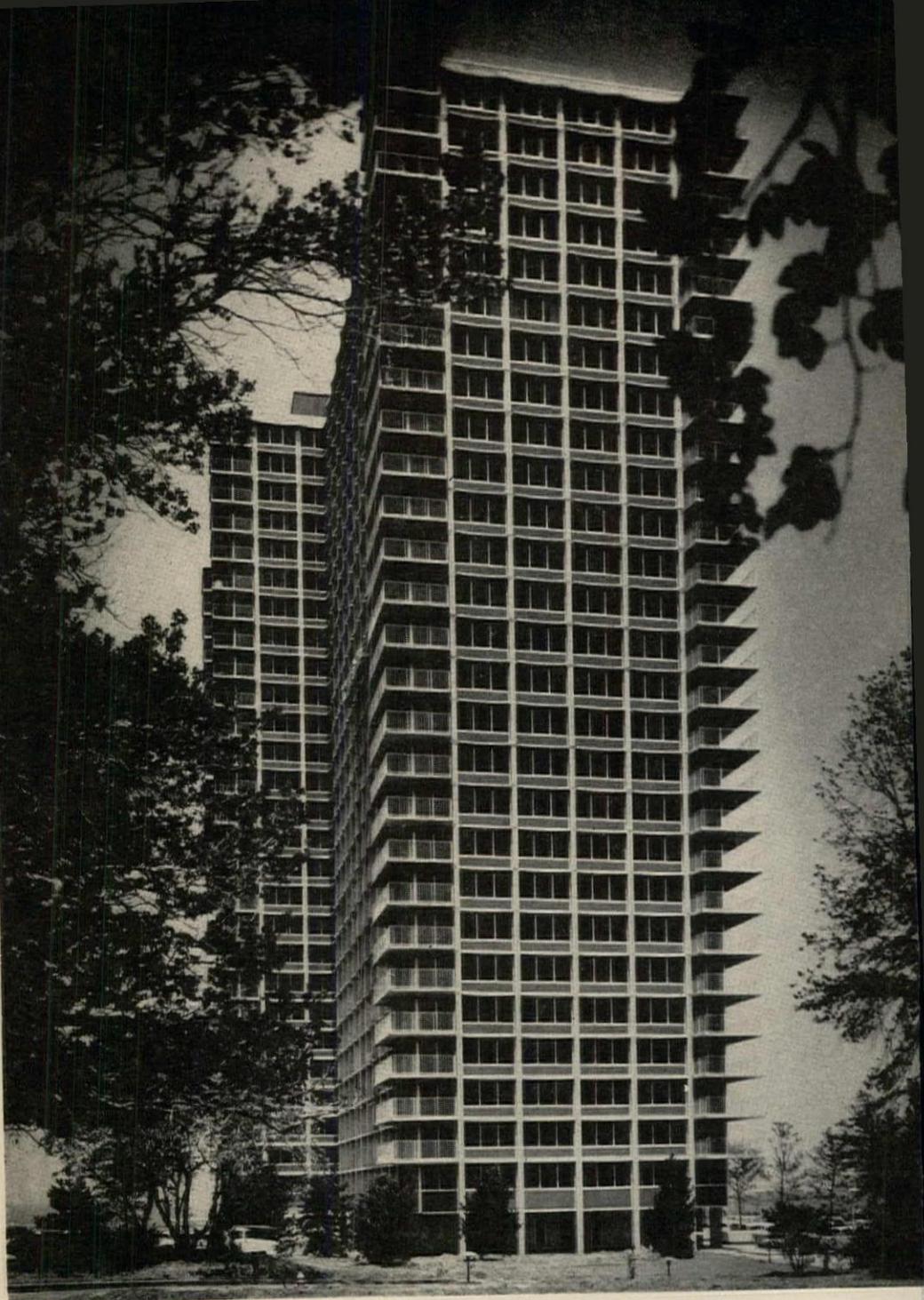
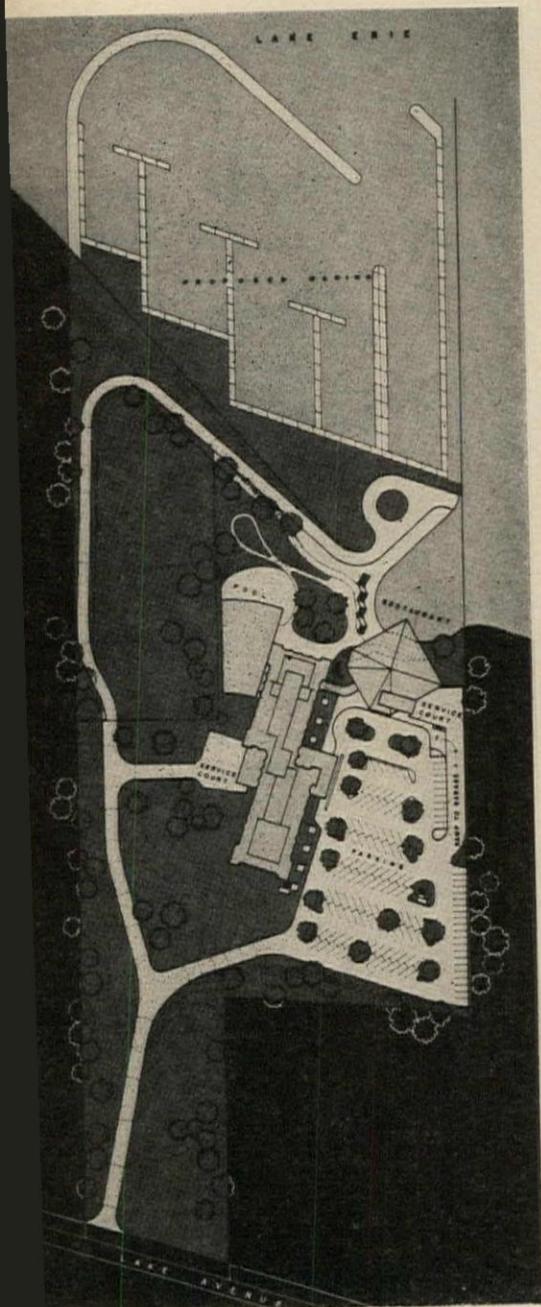
Manhattan Construction Co.

The handsome facades of this apartment tower result from a restrained interpretation of the traditional arch form, and from the delicate proportioning of columns and spandrels. The exposed concrete frame was poured in place, and brought to a notable degree of accuracy and finish by the use of steel forms and careful workmanship. Gray sheet glass and black spandrel glass—in aluminum settings—add contrast and visual interest to the elevations. Called Inwood Manor, the building was conceived and planned to fulfill the demand for prestige multi-story apartment units catering to tenants looking for gracious living quarters with appropriate attendant facilities and services.

The typical floor plan, as shown at left, has been designed so individual apartments can be enlarged or reduced in area and room number with a minimum of modifications to partitions and doors. The building as completed contains 134 living units. Public facilities, including a restaurant, lounges and private club, are located at ground floor level for minimum disturbance to tenants. All tenant parking—for about 200 cars—is located one-half story below street level with sheltering roofs landscaped to enhance the vistas from the lobby and from the apartments above. The site lies in a high class residential area, with convenient access to downtown Houston by way of connecting dual freeways.

Paul Peters photos





OFFSET PLAN PRODUCES SIX CORNERS

*Winton Place
Lakewood, Ohio*

OWNERS-DEVELOPERS:

*Winton Place, Incorporated
George N. Seltzer
Fred Parr Cox*

ARCHITECTS-ENGINEER:

Loebl, Schlossman & Bennett

STRUCTURAL ENGINEER:

Eugene A. Dubin

MECHANICAL AND ELECTRICAL
ENGINEER:

William Goodman

LANDSCAPE ARCHITECTS:

Franz Lipp & Associates

MARINE ENGINEER:

George B. Sowers

GENERAL CONTRACTOR:

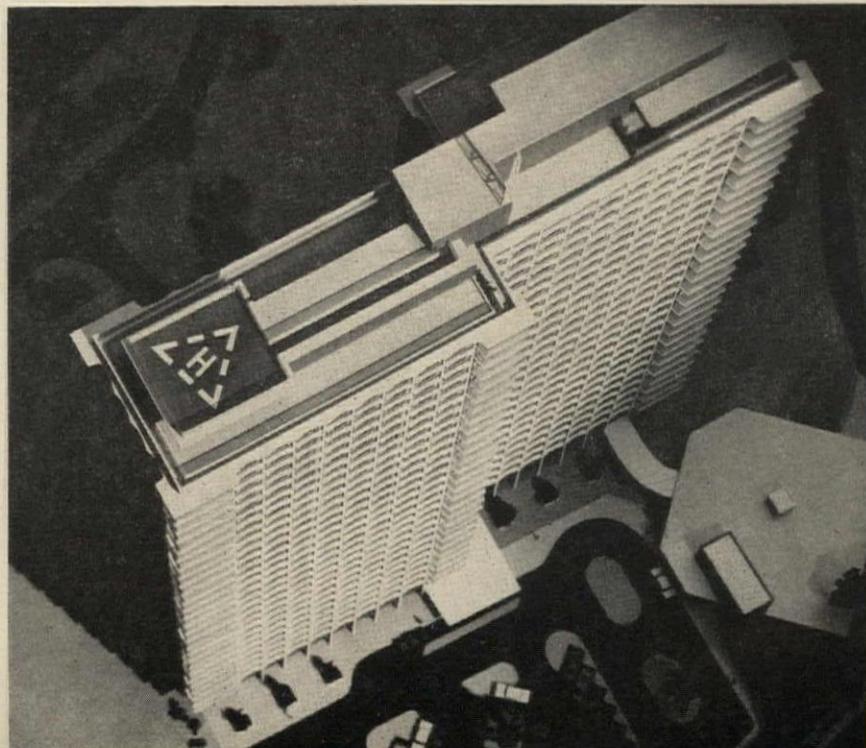
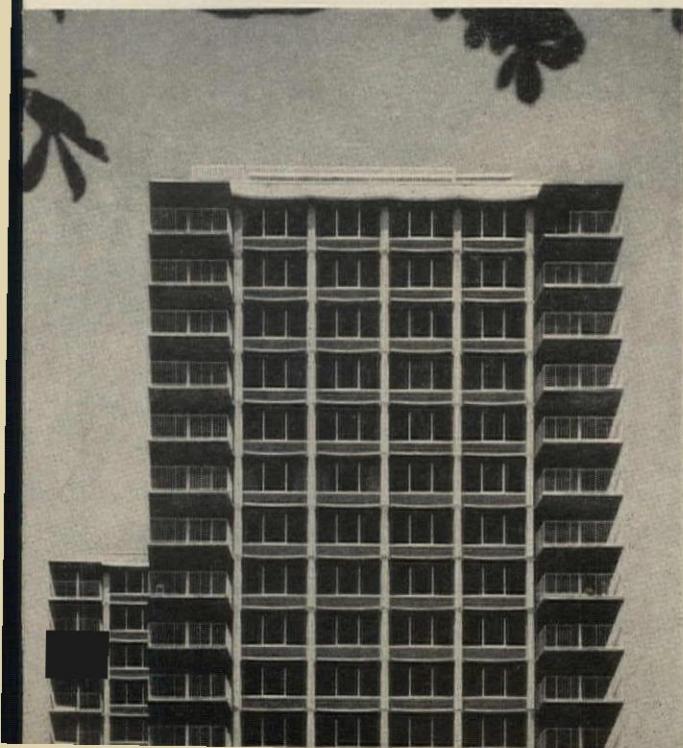
J. W. Snyder Company

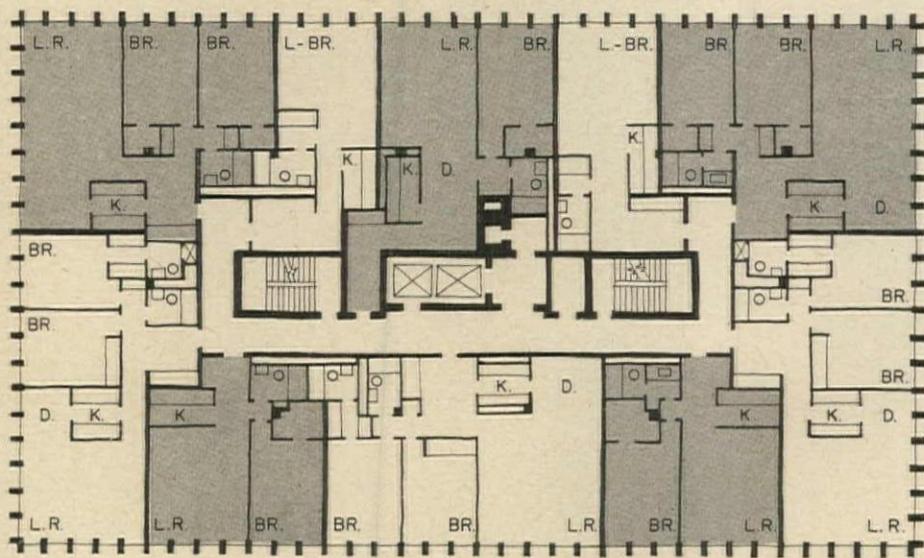
The plan of this 30-story apartment was offset to provide six instead of four corner suites, each of which were given wide, cantilevered corner balconies. The offset plan also shortens the apparent length of the double-loaded corridors, as well as daylighting them at the central point of each floor. The building—which is located on the shore of Lake Erie—has been carefully oriented so that every apartment has a view of the lake. The tree-dotted site also offers spectacular views to the south across the city. Property size and zoning made it improbable that any nearby development could ever rival this one for prominence and size, so the owners decided to create a luxury development commanding high rentals.

Architect Norman Schlossman says: "The plan provides for rental flexibility. By a simple rearrangement of doors a number of three-bedroom suites can be easily converted into the same number of two-bedroom and efficiency units. Also, many efficiency units can be combined with adjoining one-bedroom units, and, by removing the kitchen facilities, form two-bedroom, two-bath suites with dressing rooms.

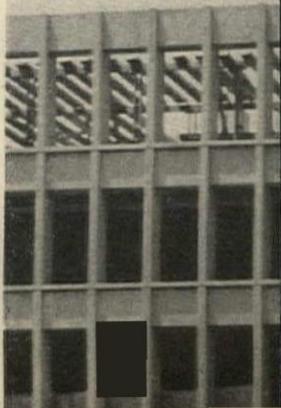
"Since land was ample, the obvious solution for parking was a two-level garage below grade with transient parking over it at grade. Placing the facility beside the building, not under it, cut cost and enabled columns to be spaced without regard for the plan of the apartments. Excavated material from the garage was used for lake fill at the foot of the bluff, where a marina will be built. A restaurant building and covered swimming pool will complete the project."

Ed Nano photos





10



PRECAST LOAD-BEARING EXTERIOR WALL

Dearborn Towers
Dearborn, Michigan

OWNER:

Dearborn Towers Co-Partnership

ARCHITECTS:

King & Lewis

STRUCTURAL ENGINEER:

Raymond C. Reese

MECHANICAL AND ELECTRICAL

ENGINEERING:

King & Lewis

LANDSCAPE ARCHITECTS:

Eichstadt & Grissom

GENERAL CONTRACTOR:

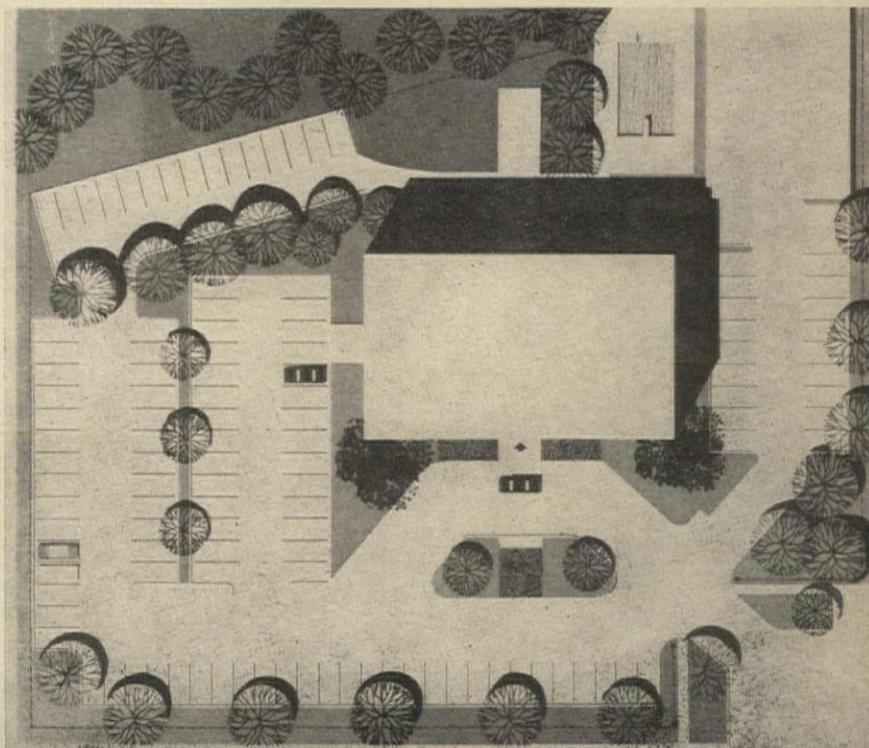
Barton-Malow

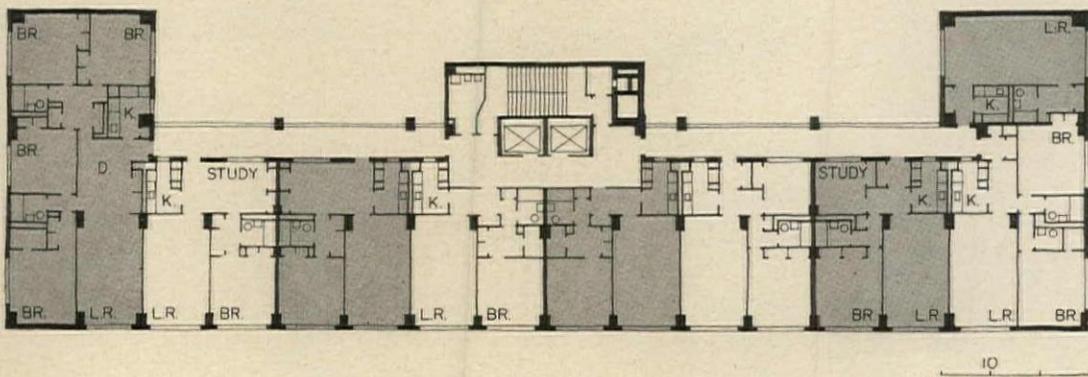
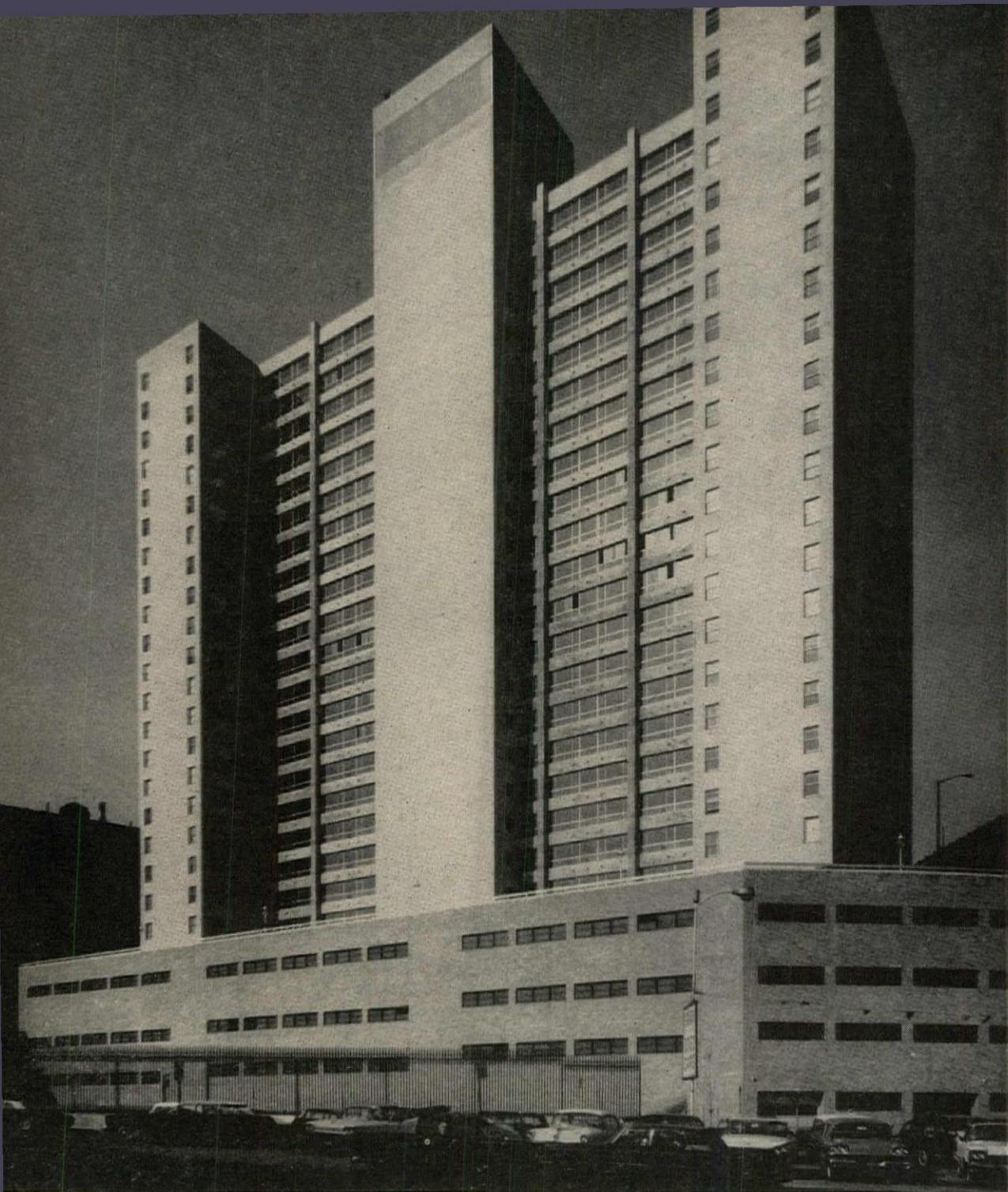
Concerning this 11-story apartment in a Detroit suburb, architect Harry S. King says: "The idea was to design a structure that would encompass a true philosophy of concrete and return to the wall-bearing structural technique of the past, thereby eliminating exterior columns and allowing full freedom in planning interior apartment divisions. With the use of the newest concrete technology—in both poured-in-place and precast types—this idea was carried out successfully.

"The exterior is of load-bearing precast wall panels, 18 feet 4 inches long and 8 feet 9 inches high, divided into five glazed openings. These panels provide both the form and support for the poured-in-place concrete edge beam of the flat slab floor system. The slab spans from the interior concrete shear walls and columns to the exterior bearing panels. The exterior wall panels and portico are of an exposed aggregate concrete; the exposed columns have a steel trowel finish. The lobby has a terrazzo floor and marble walls. The combined loads from the 10 floors of exterior wall are gathered by a spandrel beam and carried down to the ground by the columns."

This 100-unit apartment building is located on a two and one-half acre wooded site that overlooks the Rouge River and three private golf courses in Dearborn, a suburb of Detroit located northwest of the city. On site parking is provided in the ratio of one and one-half cars per apartment unit.

Balthazar photos





SINGLE-LOADED CORRIDOR FOR GOOD OUTLOOK

*Columbia Faculty Apartment
New York City*

OWNER:

*Dormitory Authority
State of New York*

ARCHITECTS:

Brown & Guenther

STRUCTURAL ENGINEER:

Harry Sadler

MECHANICAL ENGINEERS:

Kallen & Lemelson

GENERAL CONTRACTOR:

Faculty Construction Corp.

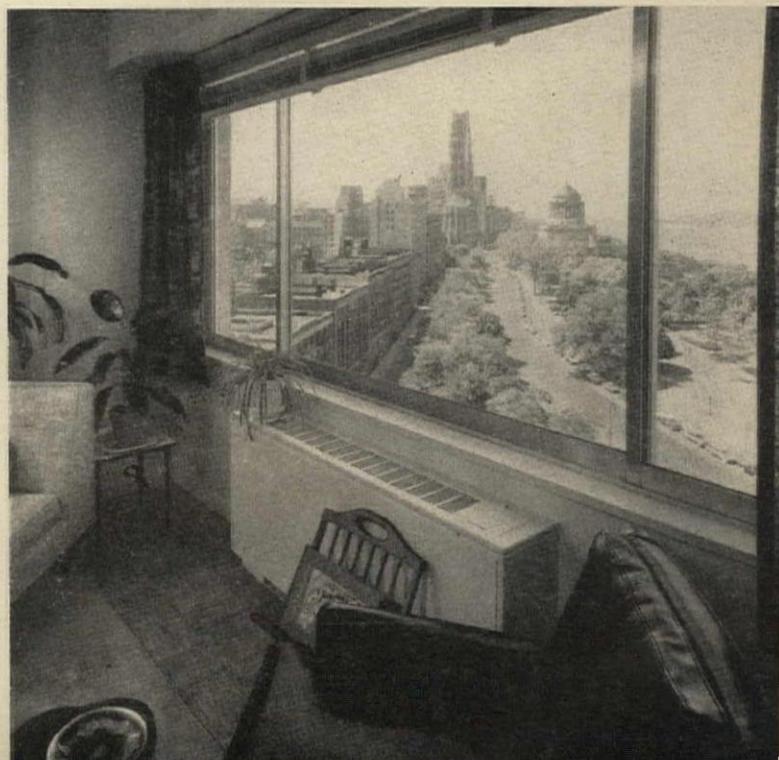
Two things lend architectural interest to the recently completed 21-story apartment building for Columbia University Faculty in New York: a single-loaded corridor plan, and the advantageous use of a four-story parking garage as the base of the building.

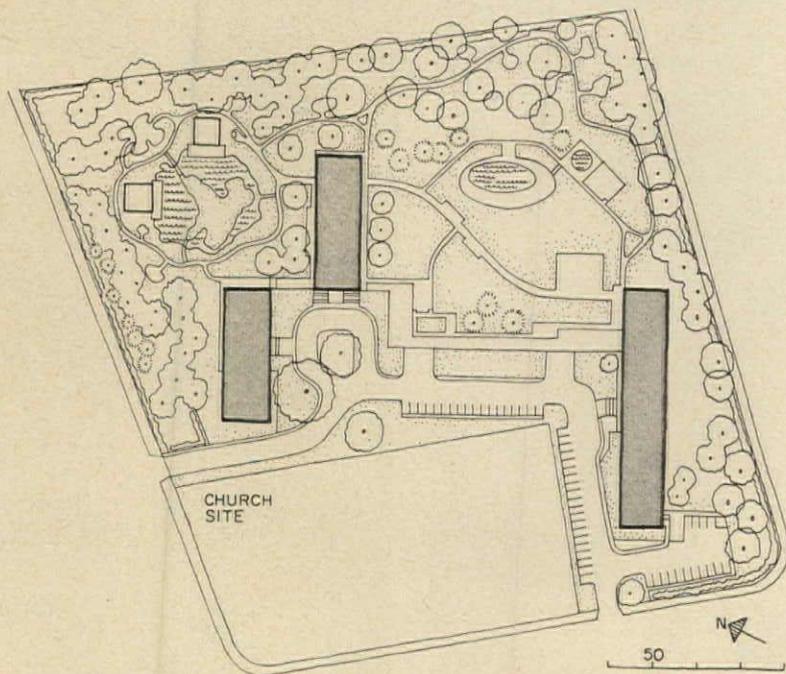
The single-loaded corridor—labeled an *ausgang* by the architects—made it possible to open all apartments to the spectacular view over the Hudson River valley and up or down Riverside Drive (photograph below). In addition, each apartment also has through ventilation.

The site posed a planning problem, due to a nearby viaduct that arose to about fourth floor level. To avoid this unpleasant outlook, the apartments were placed on top of a four-story parking garage. The garage handles 335 cars—more than enough for the 180 tenants—which means that Columbia University has additional parking space for commuting teachers and students. The picture (top left) shows the *ausgang* facade and garage base; the picture (below left) shows a close-up of the “view” facade and the entrance loggia.

The first floor of the residence building (roof of the garage) is largely an open terrace-loggia, but houses also a tenant lobby and other facilities, as well as apartments for the superintendent and concierge. Tenants can take an elevator down to the garage, but—for control—anyone coming from the garage must stop at the first floor before continuing. The only access to the entrance loggia from the street is by way of a ramped bridge.

Robert Galbraith photos





DESIGNED FOR SUN AND TRADE WINDS

*Queen Emma Gardens
Honolulu, Hawaii*

ARCHITECTS AND ENGINEERS:
Minoru Yamasaki and Associates

STRUCTURAL ENGINEERS:
Alfred A. Yee and Associates

LANDSCAPE ARCHITECT:
George S. Walters

GENERAL CONTRACTOR:
E. E. Black, Ltd.

OWNER:
*Queen Emma Gardens
Redevelopment Authority*

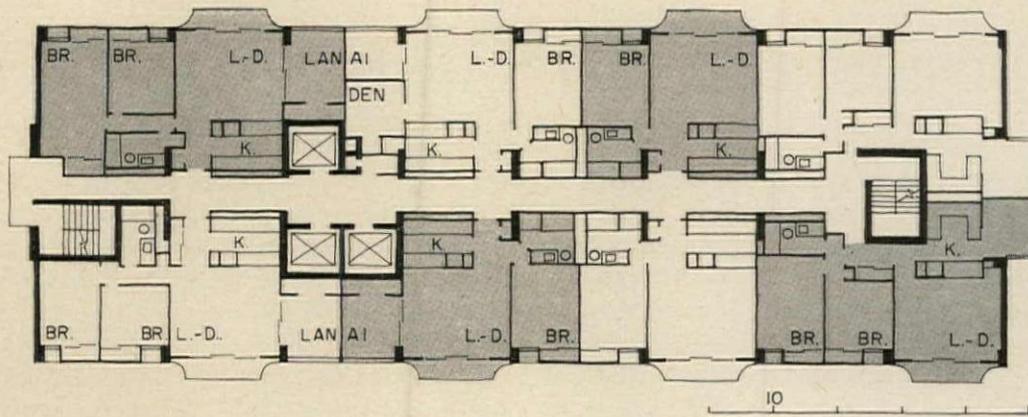
Concerning the design of this striking, 587-apartment redevelopment on an 8.3-acre site in downtown Honolulu, architect Minoru Yamasaki says: "In the Hawaiian climate, two major factors affect buildings: the ever-present sun and the trade winds. During the many warm days of the year the trade winds are useful for necessary ventilation, except that often they reach high velocity, with resulting uncomfortable conditions where open windows face them. Therefore, we decided to locate the buildings in this complex with their length parallel to the trade winds. The corridors have louvered doors, open to the winds, so a venturi action creates an aspirating effect in the apartments by way of louvered corridors. Although theoretical when planned, this idea has worked out extremely well; the apartments are comfortable and there have been no complaints about ventilation or too much air circulation.

"In living rooms, wall-to-wall and floor-to-ceiling glass is provided to take advantage of the magnificent outlook. Sunshades—folded over in form—serve to protect the large glass areas from the hot sun and eliminate the feeling of acrophobia associated with large glass areas in high buildings. Sun-shading is mandatory for interior comfort in Hawaii, although outdoors it is 'paradise.' For privacy, bedroom windows are relatively small, while the remainder of the exterior wall is made up of a precast wardrobe closet, which makes interior planning and furniture arrangement easier."

There are two 23-story buildings and one 12-story building in the project. Capitalizing on the slope, parking was placed underground and a plateau created. The resulting large garden-playground space is devoted to tenant use, and fenced off for privacy and security.

R. Wenkam photos



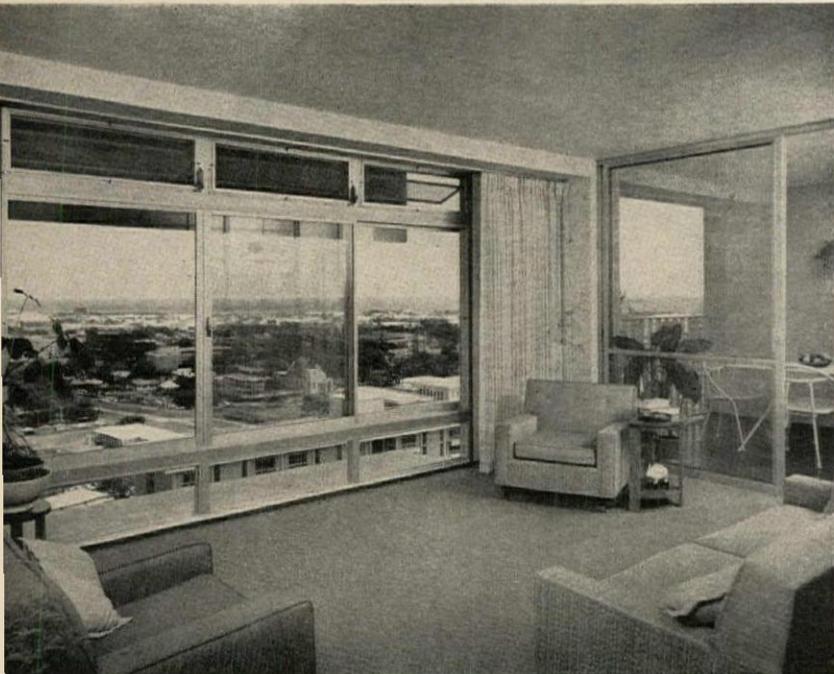


Queen Emma Gardens, Honolulu

Yamasaki explains: "Since balconies or lanais are essential to apartment living in Hawaii, many of the units are provided with room-size balconies located within the building frame rather than projecting, as is the usual case in Honolulu. These lanais are more usable because of the resultant sense of security and the large floor area. For promotional purposes they were called 'yards in the sky.'"

In the plan (*above*), one can note how spaces are disposed and the manner in which lanais adjoin living areas; the photos (*below*) show the view from a typical living room and lanai, and the service from kitchen to lanai.

The lower stories of the buildings are generally used as common areas, including a recreation lounge, offices and laundry facilities. The level immediately below the garden and lobby is devoted to tenant storage



ARCHITECTURE AS TOTAL COMMUNITY: THE CHALLENGE AHEAD

A series of seven articles examining the contemporary crisis in human environment and presenting strong, frequently controversial, convictions on planned development as guiding principles for community order with diversity, beauty and humanity

By ALBERT MAYER

in consultation with CLARENCE STEIN

5. NEW TOWNS: AND FRESH IN-CITY COMMUNITIES

Now we are ready to embark on the truly creative part of our presentation. Let's call it, not modestly:

WINNING OUR WAY INTO THE NEW INTEGRATION OF LIVING

This is by way of the creation of New Towns and of new in-city communities. This is a direct extrapolation and sublimation from what we have hitherto been considering. It deals with reorganization of the large-city complex—ANY CITY—its metropolitan area and beyond. Then in the next chapter comes REGION, and consideration both of how to effectuate this physical-social process in an appropriate and workable frame and matrix in and beyond the existing metropolitan areas, and of quite different possibilities in other locations, for the vastly increasing populations. And then the finale: the great, great opportunity in which the architect and architecture can integrally participate, and into which they can grow in a continuum of many scales from nucleus to region, crystallizing and enhancing.

At the start we forged the brave pronouncement that we must be in CREATIVE CONTROL, that TREND is not DESTINY.

But if one is worthy to play the role of development statesman, and not just wishful thinker, one must recognize that certain trends are truly ineluctable for our time, are truly the wave of our foreseeable future, and one must then make a statesman-like distinction between them and what we can with determination and tenacity change, and should. There is one other facet, subtle but pervasively influential, that this hypothetical statesman must

recognize and deal with: results commonly and almost automatically, but incorrectly, imputed from what is actual ineluctable trend. For example, with rising incomes and more leisure the curve of car ownership will rise steeply. The automatic reflex is to equate this with the need for ever more roads and more carrying capacities, more and wider super-highways. I will show that this is not at all a necessary corollary, that indeed cars might be more of a personal asset and pleasure under a different road hypothesis and system.

So, we formulate goals and frameworks based on our conception of the good life, test them against the real realities, exorcise the pseudo-realities; and that becomes our program. And we bear in mind that we do not want to find any one rigorous pattern, in a pluralistic society, and also that in our materially dynamic civilization and century, *any* solution should if possible be flexible enough to absorb unforeseen developments.

The Real Trends

Increasing population, increasing leisure, increased automobile ownership and use.*

Spread, both to take additional population and to permit some de-densification of existing cities, to

* Its upward curve *may*, of course, be bent by birth control. But the sharp population increase (and the in-migration from rural areas) will be still sharply upward for several decades. So, our goals and measures accept them as a basis



RADBURN was rightly called "the town for the motor age." The concept developed by Clarence S. Stein and Henry Wright introduced the super-block unpierced by through traffic; complete separation of pedestrian and motor-car; the internal social-recreational park on land gained by the cluster-principle. Due to the depression of 1929, it remained only part of a New Town. But its technical, land use and social conceptions have had world-wide impact

make them more acceptable and habitable, recreatable. Spread is inevitable, and not undesirable. The question is: spread by planned and jeweled nucleation, or by oozing undifferentiated despoilment (whether in legally zoned two-acre hunks, or catch-as-catch-can smaller hunks).

Technological advance. We must recognize it and use it, and will. We certainly don't want to attempt to turn our backs on it, in the 19th-century, nostalgic sense of William Morris and a sentimental reversion to the hand-press, the vine-clad cottage. Nor do we want to be infatuated by our great technology, and be tempted to place so much confidence in it that we feel basic decisions and basic self-discipline don't much matter because our technical inventiveness can solve anything and everything, no matter how anarchic. It hasn't hitherto, and it can't. Uncontrolled, it piles up increasingly complicated headaches. Subtly and powerfully used toward conscious goals, it permits greater living.

Modern technology in the fields of motion-communication (auto and bus, subway, train, plane), and message-communication (telephone, television, computer and electronics) have conjured up two polarized distorted visions, both extrapolations from presently dominating trends. One is the latter-day equivalent of a sort of inverted William Morris: the sophisticate-advocate of the ever-greater central city because of its grand culture of museums, concerts, theaters, art galleries. To him, the larger and ever larger the city, the vaster and deeper can be these excellences—which how few of the people in the city really imbibe!—and at what expense in terms of ever vaster costs in money and energy of just going and coming. The other pole: the thesis that with improvements in the technology of communications, anyone can live almost anywhere, however far away from anywhere else, and can still manage to get where he needs to, or to stay home

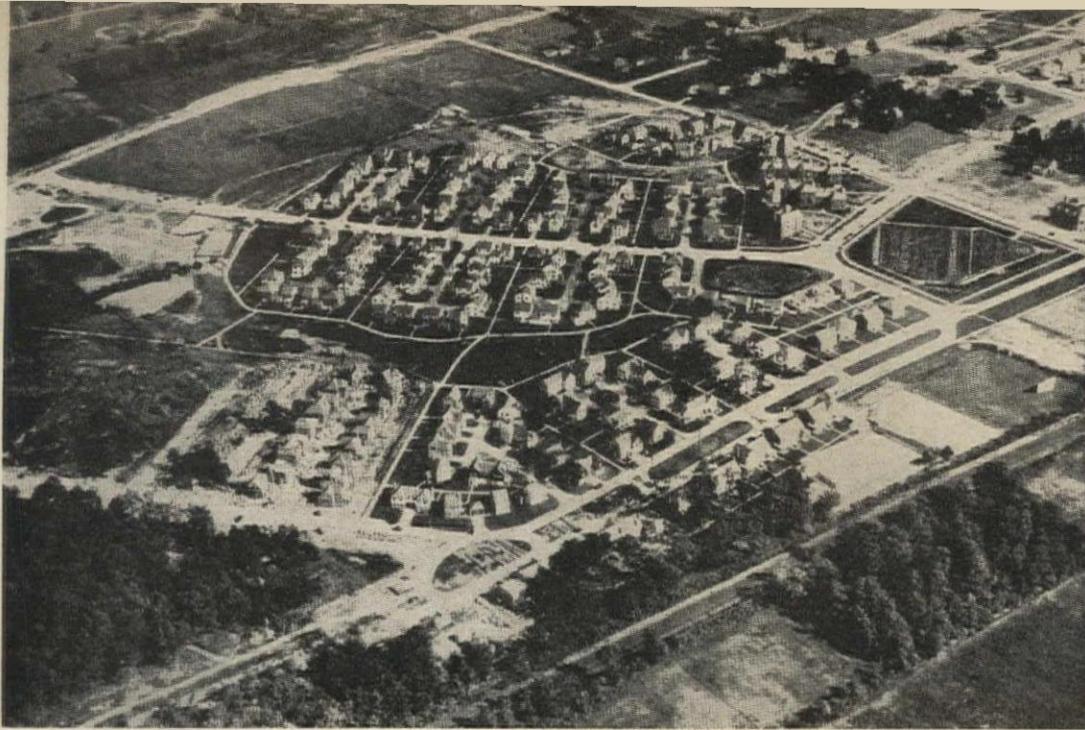
and do all his work by communications.

Thus there may be physically-technologically possible the two extremes of physical-social anarchy. The one is the ever-continuous space-consuming development of the big city and the consequent estrangement of its inhabitants from nature, the real cultural impulse, except by way of the sweaty journey. On the other hand, we have the apotheosis of scatteration, one of the high priests of which remarks ". . . the nodally concentric form that has marked every spatial city throughout history could give way to nearly homogeneous [i.e., homogenized?] dispersion of the nation's population across the continent; the hesitancy may stem mainly from the fact that a non-nodal city of this sort would represent such a huge break with the past."¹

Both of these ultimate-horrors stem from the same: a mechanistic willingness or even compulsive worship-eagerness to discern trend and follow it or accelerate it. The apparent feasibility of these courses stems from reliance on technology to solve anything, and a willingness to ignore basic sociological and ecological needs such as both social structure and the warmth of propinquity, tempered by the counterpoint of solitude and access to nature. In brief, the Pandora's box of unlimited discipline of scarcity, in lack of both necessities and choice, must be succeeded by sensitive choice and by self-discipline.

Let us see how we can gain the best of both these anarchic worlds and harness the technological powers as well.

There are two major kinds of enterprise potentially at our command that can satisfy the various planes of our need. The one is NEW TOWNS that both can make a fresh start and can perform the indispensable function of a large net increase in our housing supply for added urban population. The other is reorganization of our cities into better and



Air view (1929) of the first unit of Radburn; photograph by Chas. F. Doherty from Clarence S. Stein's "Toward New Towns for America"

better-related constituent communities both within themselves and in relation to the operating costs and general physical-social amenity of the cities. We take them up in that order.²

What Are New Towns?

What are New Towns—functionally, physically, socially, economically? That is: what are we trying to create, and why? And let us say strongly here that everything called a New Town is by no means a *real* New Town in our sense.³

How can our kind of new town be created, and on something like an adequate scale? What kind of legislation, effectuating organization, land policy, and measures should be set up?

How much promise is there in the presently proposed legislation for New Towns?

All right: what are New Towns? What are their characteristics? And what do they offer uniquely for better living?⁴

New Towns are planned crystallized communities to take up the pressing metropolitan population increase as well as organize dispersal to create elbow room within the cities. They are communities of people and of employment, of culture and of recreation, in convenient planned relation to each other and within the new community; and closely accessible to the recreative values of Nature.

They are conceived internally as integrated or balanced in terms of:

—Jobs and workers in varied occupations.

—Economic and social groups.

Open space and development.

By fairly closely and intelligently relating homes, employment, recreation, nature—which we can indeed do—the increased numbers of automobiles

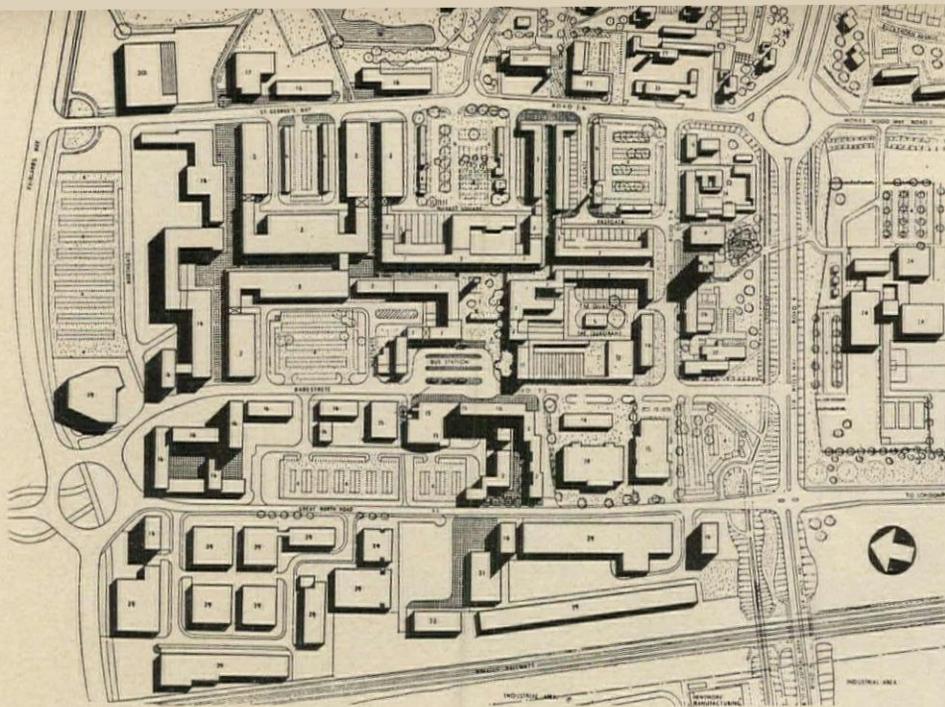
¹ Melvin M. Webber's paper "Order in Diversity: Community Without Propinquity," from *Cities and Space* (previously cited), page 43

² There is a third category of city-building enterprise which could have a significant role, mainly in connection with the smaller range of cities. These are, essentially, new, relatively self-contained communities, at the edges of cities where unspoiled land is available, which could make of those smaller cities a more satisfactory totality, as well as the satisfying new community itself. The best-known prototypes are Vallingby and Farsta, integral with and attached to the outer reaches of the city of Stockholm, which has for many years held the land inviolate in its ownership for this very purpose. The straggling pepper-and-salt fringes of large American cities generally preclude this solution. Conditions for such development, and some ideas in connection with this possibility, will be noted in the next article, on Region and Regionalism

³ In a recent conversation with Dr. Robert Weaver, HHFA administrator, he mentioned there are 75 new towns by private enterprise in various stages of development. Familiarity with some of them leads to the remark above. In this context, one finds a dry and wry comment in "The New Towns, the Answer to Megalopolis," a rewarding account of the over 20 New Towns in England, created in the last 15 years, or being created now: "Commercial builders, public-

utility societies . . . appropriated [Ebenezer] Howard's carefully defined term of art, "Garden City," and used it indiscriminately as a label of prestige for any kind of residential development . . . And so the suburban flood went on, often despite the expostulations of Howard's followers, under the stolen banner "Garden City." You must read this book. It is by Sir Frederick Osborn and Arnold Whittick, published by Leonard Hill, London 1963 (quotation is from page 65). It is a stirring and comprehensive account of a stirring national enterprise. Initiated by the Labor Government under the New Towns Act of 1946, after years of heated discussion, 15 new towns were started under the Labor Administration. Then for a long time under the Conservatives no additional new towns were started. But results proved so favorable and demand so insistent that the Conservatives have themselves got a new batch of New Towns under way

⁴ The whole theory and practice of New Towns in our sense is based on the classic in this field, by Ebenezer Howard. His "Garden Cities of Tomorrow" shows the foresight of genius, was definitively republished in 1944 by Faber & Faber (London) with an introduction by Lewis Mumford (first published at the turn of the century). This is MUST reading, or re-reading, by all of us. Not only a brilliant theorist, Howard found capital to develop the two earliest examples: Letchworth and Welwyn, the forerunners of so many more



STEVENAGE. Note the pedestrian-exalted Town Center unpenetrated by vehicular traffic. Stevenage is typical of British New Towns in its relative self-containment. Note the modern industrial plants (bottom of plan) providing ample local employment within a walk or bicycle ride from home. And there are very varied kinds of employment. Stevenage has just finished a 15-story office building, and more are planned. Thus, a balance of living, employment, recreation

Plan and photographs from *The New Towns*, by Frederic J. Osborn and Arnold Whittick (McGraw-Hill, 1963)

can become wholly pleasurable, used for shorter distances and at non-peak road-densities, instead of for the long and sweaty journey to work in peak hours, long and sweaty journey to and from recreation in peak uni-directional week ends. By proper and actually attainable physical use relationships, we can reduce travel peaks and daily travel lengths. In short, it is no paradox but simply common sense and imagination to proclaim boldly: more cars, fewer jams, less sweat, *fewer road lanes* and fewer complications demanded by heavily-reducible peak requirements, far fewer mileage-hours, far simpler road systems.

If we are as successful as the British New Towns, the tedious suburb-to-city (or city-to-suburb) journey to work is all but eliminated, mainly by the availability of employment in the same town, and partially by employment in peripheral belt-road-connected towns.¹

Our New Towns will not be of any standard size—they can well vary from 50,000 to several hundred thousand, appropriate to the individual location, function and outlook. But each *will* be of an approximately pre-determined size modified by "tolerances," because only so can utilities and city structure be economically provided and maintained, only so can we forestall the same fringe-ification all over again, only so can we keep "open water" or open green between towns or between town and city, instead of an oozing together and a no-man's land of honkey-tonk.

The effective implementation of such limits depends on the integrally purchased surrounding land as greenbelt. Kept always essentially open—not sterilized—for agriculture, forests, sports and recreation, ventilation, land for the greenbelt must be acquired integrally with the built-up area.

It is vitally essential that a public government-backed body with ample finance acquire and retain

the land; or for planned comparison a massive source of capital operating on the same principles. In the first place, normal private development capital cannot afford to acquire the very large acreage, and as experience shows, certainly cannot afford to keep heavy capital tied up and to pay taxes for the long period required for development. The build-up of pressure to reduce such involvement and to become liquid is usually irresistible.² Land must be sold off, whether or not the uses are optimum for the city, or prematurely forced into building, or too little land acquired at the start, so that there is practically "built-in" fringe development and deterioration. Also, one of the major advantages of the New Town is the low cost of land, which as we have seen has otherwise become a major factor in increased cost of homes. Unless this price continues to be kept down, a major benefit is lost.

Consider, too, the great and practically untrammelled opportunities which new towns offer for the application of modern principles of planning:

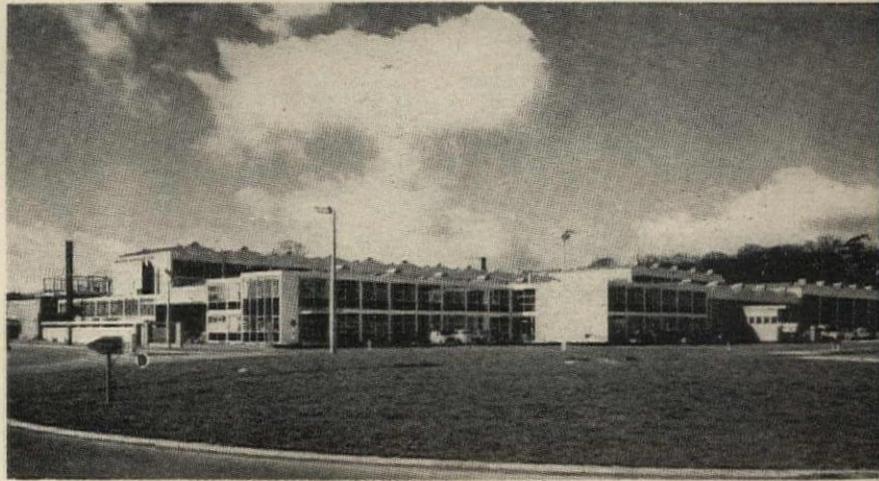
—Of street planning and community layout for safety, efficiency and amenity, largely separating the pedestrian from the tensions of competition with vehicles, and separating through and local automobile movement.

—Of green spaces close at hand, schools and community facilities within walking distance within the neighborhood.

—Of industry close enough to the residential areas to eliminate the long, tiring, expensive journey to work. The time that has been gained by shorter working hours can be devoted to recreation, culture, and other leisure-time activities.

—Of decreased cost and maintenance of roads, utilities and parking, as in the Radburn prototype; and as since applied in many places in many countries.

This is the core of essentials. But there is no



standardized package. There is room for many solutions and many living preferences, for individuality and privacy as well as community.

Note in this connection the un-validity of some clichés. The towns should to a maximum extent be self-contained, *as far as daily operation and desires* are concerned: work, near-at-hand cultural and recreational opportunities. Thus the desperate peak traffic loads and peak tensions, and costs of peak road investments are dampened down. But I don't see that any of this promotes parochialism, or enforced local fellowship as contrasted with desirable community esprit, or separation from a major city's higher level of cultural opportunities or cultural flavor. Each town should certainly have its own characteristic layout and special flavor, real reasons for inter-town interchange. And indeed within the town there will be varying character and densities in different neighborhoods and within neighborhoods, as in the plans for varied "villages" for Reston, the New Town now being built in the Washington area (not shown here because covered in detail last month, pages 119-134). And the simpler, less horrendous, less bumper-to-bumper road system required to the major city may well put the New Town dweller in an excellent time-position to imbibe face-to-face a major city's outstanding cultural and entertainment opportunities as compared with many of the in-city dwellers.

On the social side, and on the side of citizens' political stake and alertness, the new town offers a whole gamut of advantages and of freshened viewpoints. It is on a total scale—also in the crystallized communities composing it—where the citizen can feel some degree of significance, identification, influence as compared with big city frustration and remoteness. The very fact of its starting from zero and building up can be made a strong evocative stimulus. We hope that such a spirit can be created,

too, in the internal re-constitution of our cities. The beginnings of this can be discerned now, in urban renewal situations and elsewhere. Much more needs to flow from a new urban renewal. The essential drama inherent in the very conception and creative act of NEW TOWN can give this a tremendous impulse and dimension—if we don't just slide into them, but fully create them.

On the physical-functional side, we can more fully create and experiment in a fresh situation and can feed back the lessons into the inner city.

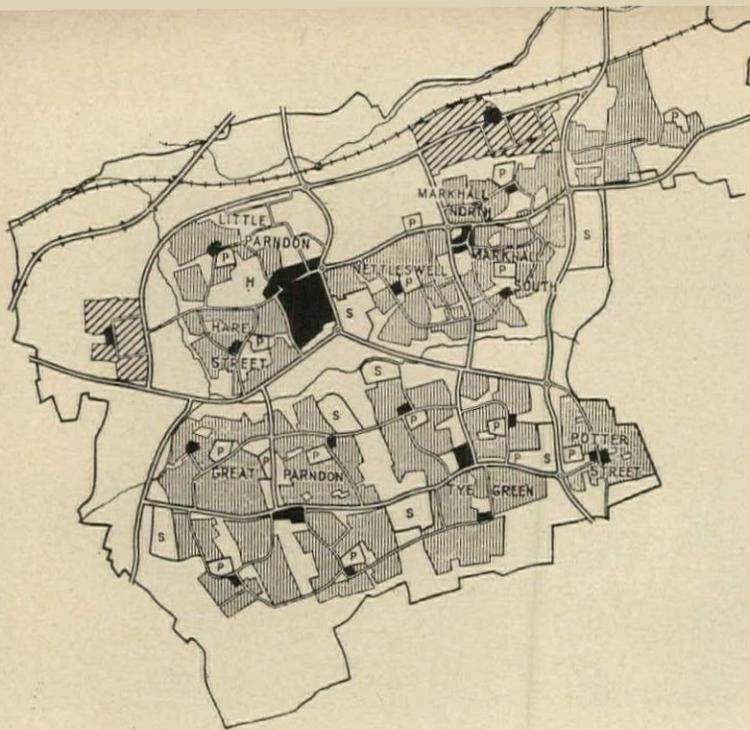
How Create Our Kind of New Town?

So much for the *what* of New Towns. How to bring them into being? The Administration has in the pending housing bill included provisions for New Towns, entirely by way of loan help to private enterprise in its developer sector, though of course other segments of non-governmental enterprise would be eligible to make use of the proffered help. The government agency through which this would be done is the Federal Housing Administration.

Prima facie, the fact that the Administration is making *any* serious proposal to aid New Towns may

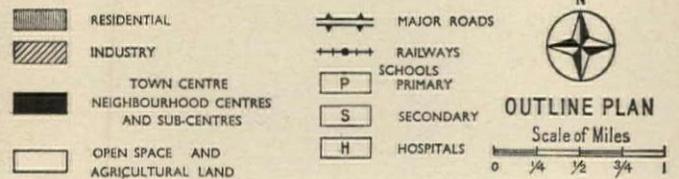
¹ Thus, for workers and employers, there is both a variety of employment available, and a large and varied labor market; most often in the New Town itself, also in other towns. Thus, there is the equivalent of the advantages of the central city labor market. Thus also peak traffic is avoided individually and the total heavily slashed.

² Consider the case of Alexander M. Bing. A man of very considerable wealth, he was the developer-statesman of the twenties who gave a free experimental hand to Henry Wright and Clarence Stein to develop the epoch-making enterprises of Sunnyside and Radburn, physical and social landmarks of the greatest significance. But Radburn remained only a two-superblock suburban fragment because Bing could not hold on to the large amount of land he acquired in the face of declining values in the depression, and inexorable taxes. His name, little known now, is one to which our generation owes a great deal



HARLOW. Built for a population of 80,000 people, it consists, as the town plan shows, of four major neighborhoods or districts, each with its good-sized social-commercial-entertainment core in addition to the main center. The aim of the planning is to allow an amount of land within the total town so that the rising generation can, if it wishes, stay and found its own hearth in Harlow

Plan and photographs from The New Towns, by Frederic J. Osborn and Arnold Whittick (McGraw-Hill, 1963)



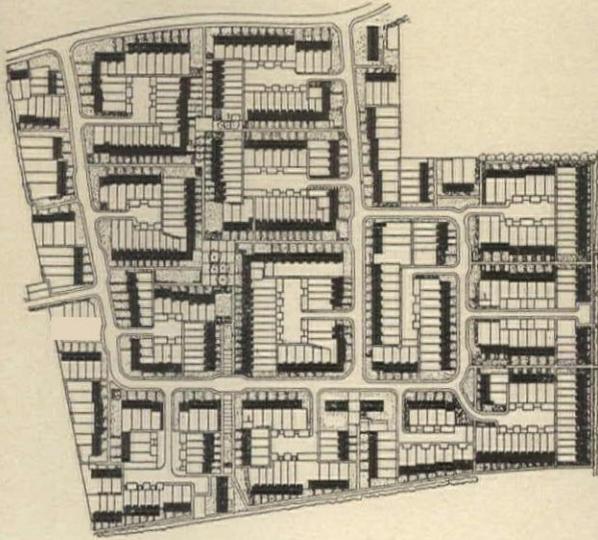
be important and gratifying. However, the route it contemplates essentially fails to reach the kind of goal that is worth attaining. Private enterprise in its developer form is with very few discernible exceptions not the vehicle by which to attain the glittering objectives. Its efforts will go ahead in very considerable numbers in any event. But to encourage these, to give extraordinary help, to use them as the exclusive chosen instrument, as is contemplated, may well be a negative detour. I am convinced that it is.

Perhaps the best way to establish what would be the most desirable setup for the creation of NEW TOWNS would be by way of contrast to what can be expected under the proposed setup. For the purpose of this discussion let us confine ourselves to the development of a given town itself, assuming for the moment that the specific location and the regional configuration can be satisfactorily created, according to our best lights, by some regional organization that is in real control. This will in itself be plenty difficult but, in any event, it is a metropolitan-regional matter with which we will grapple in the next chapter. We assume, then, that locations are determined, and can be made to "stick"; also that sizes of communities can be set within certain tolerances, and also be made to stick.

The problem for the purposes of present discussion is the layout, quality, composition—physical-social-ethnic-economic—of the town itself, and what the setup under the proposed bill will do to the New Town objectives and potential that have been here presented. Essentially the driving force is the private developer-entrepreneur. It is he who calls the shots, makes the primary decisions, finds and disposes the large funds energized by his thin-edge investment on which he plans to get high and essentially quick returns. True, the FHA will scrutinize. But even if FHA's philosophy, history, outlook were

a great deal more forward-looking than they are, a scrutinizer can only modify, adjust, make minor improvements. It cannot substitute a different philosophy, a different approach-and-emphasis, than basically characterizes the initiator or central figure. Let us see what this must result in.

We want not a single-class suburb or a thin social-economic-stratum suburb or town. That is what we have now, though we may grant that under the proposed situation it should be rather more orderly. We hope to create a community that is economically and racially integrated—i.e., contains a substantial range of income and occupation, and a substantial number of non-white families. While it is true that by the Presidential order any housing aided by government may not practice discrimination or segregation, a private developer may live up to this requirement and yet have only a very small sprinkling of minority and of low-income families. He may accept everyone who turns up and who qualifies; i.e., passively and even willingly accept them. But we know that unless he makes a quite special effort, minority families will, for reasons of diffidence, habit, and because of inadequate income, not apply in serious numbers; and that without subsidized public housing the income range of those that can be accommodated is pretty thin, even with 221 (d) (3).^{*} Normal private enterprise is eager to build and sell houses quickly at a profit. It is basically not socially or administratively or motivationally geared, or financially in a position, to make a paramount and realistic commitment to a well-integrated community on any large scale. It just isn't in the wood. This is not to say that there are NONE who will try to do this. But certainly not enough, certainly not in any characteristic numbers that would justify this central reliance for the future of our country. This is not to say that there are not, and will not be, individual promising cases—



e.g., Robert Simon's Reston near Washington, and James Rouse's new town near Baltimore may turn out to be such. But even assuming they are, this is very different from setting up a universal chosen instrument.

Lacking a reasonably full economic cross-section, this setup is also not going to be able to make a serious contribution to diminution of traffic-and-commuter miles. With industry massively moving out of the central city to get more land for elbow room and one-story assembly lines, with private builders creating middle- and upper-class new communities, and with more office buildings in the central city for prestige and other semi-compelling reasons, the two-directional commuting will continue to rise, and create new peaks.

The large American new communities of recent years, with the Levittowns and Park Forest, near Chicago, as leading examples, demonstrate the validity of this analysis. Park Forest did start out by earmarking an area for industry. But it did not bear fruit. There was no particular leverage available to them, and the profitable creation of housing absorbed the attention and energies of the builders. A generic reason too, may be that characteristically open-planned industry cannot compete for land at the prices that privately-produced houses can command, particularly with the resale-at-a-profit bait. Thus again we are back to the proposition that as long as land is a freely disposable private commodity, and speculative profit a basic factor, large-scale logically related development is not going to take place, though the volume itself may prove large.

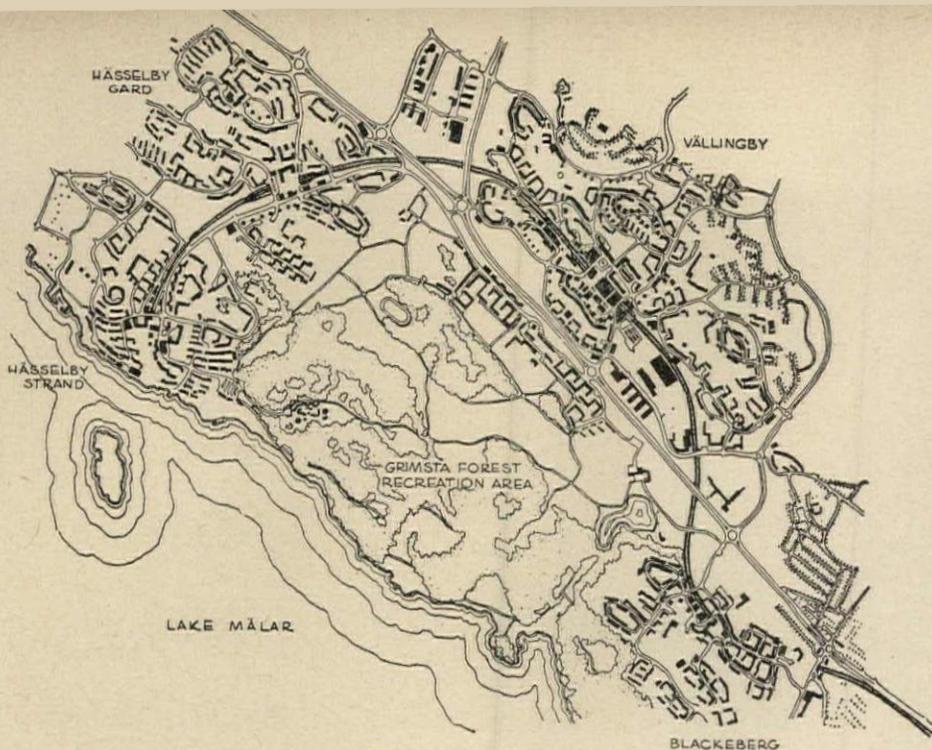
The Wrong Center of Gravity

The fact is that the center of gravity of the proposed legislation is wrong. The kind of private en-

terprise it will help so massively just is not, in any serious numbers, fundamentally interested in a fully-fruitful New Town program, though it will, no doubt, manage to include elements to satisfy FHA or even the Housing and Home Finance Agency Administrator's own office. The job in its real social-civic-ecological form is essentially much too complex and time-consuming and long-run in character to fit into the private developer's characteristics and needs. His three characteristic out-of-city operations as of now are and have been separate and single-purpose: narrow-stratum suburban-residential; regional shopping center; industrial park. These are quick pinpointed operations, have a satisfactory limited rationale that meets definite needs and markets WITH A QUICK TURNOVER. These are certainly more orderly than haphazard roadside spot-peppering of elements. And they have other merits as well—as for example, some handsome architectural and landscaping work, and a gala atmosphere in the shopping centers (once you are in them, past the sea of parking). But essentially they do not meet even by extrapolation the kind of larger needs and goals that we have set out. In fact, as far as the suburban belt is concerned, they have very likely worsened the intra-traffic situation. . . . These observations will not be further pursued, in any depth. Their introduction here has been for the purpose of illustrating the nature of the operations that are really attractive to the larger-scale development entrepreneur, and accord with the spirit of his operations and aspirations.

The New Towns effort, its purposes and implications, represents a philosophy and conception of living and work and relationships which is too drastically different from our present slipshod *laissez*

* English New Towns have a substantial proportion of public subsidized housing



VÄLLINGBY is one of several new outer districts of Stockholm, on the same "self-contained" principles as New Towns. It was made practicable because the municipality had for a long time owned the land whose price had therefore not speculatively risen, and there was no fringe-scatter development. Note how the new settlements horseshoe around the beautiful open recreational heart which runs down to the water. In Vällingby there is a range of living accommodations; tall buildings near the town center, then lower buildings, then two-story flats and single houses: an integrated pattern

faire attitudes, methods, and their physical embodiment, to be attained by a mild and painless adaptation of the present setup. Placing it under FHA, the most custom-bound and developer-bound of all the agencies, perhaps epitomizes this under-estimation of the real magnitude and nature of the issues.

We may consider the kind of setup that could be equal to the situation and its challenges. In doing so we will draw to a considerable and varying extent on the British example and on the British and Swedish examples of very extensive land acquisition and holding. They seem to have suitable elements and they have worked successfully. And while we are on the British, let us bear in mind that preceding the New Towns legislation of 1946, there had been long national debate, and a series of remarkably thorough and imaginative official and unofficial reports. The reports were both the outgrowth from the discussions, and the forerunner of new pinpointed purposeful debate which culminated in action. There had been real focus on the subject in all its facets. Here, there has scarcely been any rigorous sustained full-dress discussion. Scarcely the way to launch a great policy. Again, this seems a measure of serious underestimation.

A Realistic-Creative Setup

We must completely change our proposed center of gravity, center of initiation; and in place of just agency check-up control, we should have a very top quality-and-prestige study and an initiating and continually participating group: a New Town Committee or Commission. It should recommend on every important element of policy and proposed practice, study incisively and make recommendations—for example, as to the tough problem of getting the synchronous cooperation of industry, decen-

tralizing into new towns instead of quite independently. This is not just check control, but setting out a creative program by a highly competent well-known and well-respected group, with the ability and determination to crystallize, to outline and to urge action.¹

No matter how determined and effective such a committee is, and no matter how many allies are acquired along the way, this is going to take time. And so it should, as compared with an attempt at a very short cut. The trouble with the short cut is both that it probably in most cases leads to the wrong place and that action under it may for years postpone the realization of what it is we really must have. One must note here again that the big developers or consortia of developers doing the 75 "New Towns," and no doubt more, are going ahead anyway. So, one isn't stopping the wheels of the temporarily-inevitable while tooling up for a glittering optimum, and expediting the real solutions all possible.

To culminate our present consideration of New Towns, let us propose what kind of organizational setup might be conceived that could formulate and do the actual individual undertakings, as has been found necessary and has succeeded in the other essentially private-enterprise countries. In England, these bodies were governmentally-appointed development corporations, one for each new town: in many ways this is similar to an "Authority" in this country—e.g., a Port Authority; an independent body of qualified important citizens but subject for the planning, and for budget and periodic report, to the government. This setup was intended to have, and in practice does have, flexibility, directness of action, combined with its primary outlook of public service—as an "Authority" does.

Sir Frederic Osborn, one of the authors of the already-cited "The New Towns," was a member of the New Town Committee that was operative in



American-Swedish News Exchange



England. He notes (page 86) “. . . the decided preference of the members of the committee, and of almost all the organizations they consulted, for the governmentally-appointed development corporation as the agency for the new-town building, as against the alternatives of their building by local municipalities, authorized (nonprofit) associations, or commercial firms.” Thus we have direct evidence from the direct experience of creating new towns, and the indirect satisfactory examples of our own various kinds of Port, Bridge, Tunnel and Thruway Authorities, that this is an effective mechanism, if modified in accordance with the British example, to more periodical accountability and responsibility.

This would be a major mechanism. Another has already been suggested in a previous installment: involvement by legislative requirement, in equity investments, of large private capital of the type of insurance companies, pension funds, large foundations. The Humble Oil Company illustrates another kind of case: of very large capital and long-range return considerations, in its new town Clear Lake City and Bayport, a synchronous development of varied industries and a port, now under way 25 miles outside of Houston, planned for ultimate population of 180,000. Their essential interest does require steady return (though in the case of foundations it could be expected that the experimental aspects might be an important alternative incentive). In Stockholm, in the case of Farsta, its new town or district, there is an interesting combination of methods which should produce interesting comparisons: one third built by the municipality; one third by H.S.B. (the big cooperative association already described); one third by groups of builders.

We have then, several tried methods for achieving genuine New Towns, with all their glittering possibilities, rather than generally inadequate “New

Towns” which the present Administration bill would seem to offer and foster.

We have referred a good deal to the British experience and called it successful. What are some of the additional criteria of success?

After a somewhat slow start, industry became convinced of the advantages of New Town locations; and now there is also office building construction—i.e., an essentially non-commuting town. A good and dynamic balance has been maintained between quantities of residence and of employment. Up to January-May, 1964, some 600 factories of most variegated character have been built—i.e., no one-industry town—and a large number of new ones are abuilding.

How about an economic cross-section of residents, as against the danger of a one-class town? Answer: the approximate figures compare well with the entire country. Consider Harlow:

Classification	Harlow*	England*
Managerial-Professional-Executive	18%	19%
Skilled workers	63%	51%
Semi-skilled	9%	16%
Unskilled	6%	13%

And finally, what about financial results? Answer: the British New Towns since 1962 have begun to show substantial surplus over interest and amortization.

¹ Membership of a New Towns Committee might, for example, include such elements as a couple of far-sighted developers; “New Town Thinkers” including architects-planners; an industrialist and an industrial location specialist; a communications man and a roads man; representative from pension fund and from insurance company (capital aggregations) and from cooperative organizations; ecologist-sociologist: adding up to perhaps 10 or a dozen people

² These figures are from Wyndham Thomas, director of Town and Country Planning Association, London; 1964

Fresh In-City Communities: Two Types

The *New Type* applies in the case of those cities, generally middle-sized or under, where they can be found at all, which have unspoiled or relatively unspoiled land adjacent and can acquire it. New communities or new districts as urban extension and absorber of population increase may well be an excellent solution. This is what Stockholm has done in three fine integrated new communities or districts, already noted. Substantial employment in industry and office employment have been built in, and majestic nature is part of the scene. As has been previously emphasized, all the land in the ownership of the city has been accumulated over a long period. It was, therefore, low-cost as well as physically available. As this condition is nonexistent here, the applicability of this fine instrument will be very limited. More will be said of this in the regional discussion.

The *Reborn Type* or determination to achieve the reborn type, offers a far more important and ubiquitously prevailing challenge, and, of course, is desperately urgent. Our cities are largely amorphous, not crystallized in viable, identifiable or self-identified entities. This sense of identity does exist healthily in the London boroughs (not boroughs at all in our sense, but districts), and to an extent in the Berlin districts. Here decisions are made remotely in remote city halls. The original separate settlements which coalesced into the city have in most cases all but disappeared. The traffic movements within the city are even more confused and more time-consuming than in the metropolitan area as a whole; and commuting within the city about as long and exhausting. The living conditions as we all know are generally congested, economically and racially segregated. The readers of this journal are certainly too sophisticated to need anything more than this quick description to evoke the whole sorry picture. One should, perhaps, hazard the view that the slum has made such great demands on our indignation and emotional energy that not enough has been left over for the generally unfruitful, over-tense and wasteful conditions that characterize our cities as a total, unsatisfactory organism or anatomy.

Urban Renewal can and must address itself to reorganization, to structuring the city, to recognizing the vestiges of and helping to create a somewhat cellular structure, with much more local employment, local opportunity generally. We have not sufficiently recognized that in the city itself there is a vast amount of dangerous and unpleasant and costly "inner-commuting" as serious as the metropolitan variety into the city center from the outside. A great

deal more can be done to help unravel this than is recognized. The fact is that our big cities could be much more multi-centered than they are; and below that scale more cellular. Let us see.

We think of decentralization as a beyond-the-city concept. But it should be applied within the city also. The big insurance companies, the headquarters of many big enterprises could readily have the large bulk of their records and other semi-dormant department requirements separated in one of the districts of the city, in a non-face-to-face relationship with the policy makers. The rent for this space would be much cheaper, many employes would not need to add to the peak hour floods or would be doing it in non-peak directions. The trouble is that by lumping all the needed space together, in the center, there can be the prestige of a huge name-building. And, I am told, due to the tax situation, Uncle Sam really pays for most or all of the excess rent. Such decentralization as here suggested would have a good by-product as well: the location of some decent-looking buildings in areas that badly need this kind of leavening, badly need some local sources of pride.

In a similar way, only much more so, the city itself should decentralize its operations. There is a rash of new over-sized city centers all over the country.* It is uneconomical because the building inspectors, the health inspectors, the fire inspectors, etc., report in and travel out from the center wastefully to get to their assignments in whatever district. This is not only wasteful of time and rent and travel cost, but it is frustrating for the people living in any locality to be so far from the seat of decision on even small matters and complaints. In fact, there is a notable gain waiting to be taken advantage of, in our bigger cities, in bringing a unified set of city services to a district both for its greater actual effectiveness and social-psychological effect on the people, and as nucleus for its future visualized (by me) local civic center.

In fact, coming back to where we started from, there is a major possibility and obligation to restructure our cities, from almost every functional and psychological point of view. This point was raised in various forms in the urban renewal discussion, including the "reciprocal project" idea. However, it is appropriately followed up again here, for it is on the in-city basis closely akin to the New Town thinking and objectives. And it is the thinning out of the major city's population which makes the satisfactory re-building of the city possible, and may eventually produce its own remedy in a new equilibrium.

Together, the two programs seem to me to offer a stirring outlook. We must find the way and create the effective and insistent public opinion that can move us along to creative achievement in each of these needed enterprises.

* And, for good and staggering measure, Federal and state buildings all piled together also

NEW OFFICE BUILDING BY SOM HAS UNUSUAL SITE PLAN, AND A WELL INTEGRATED STRUCTURAL AND MECHANICAL SYSTEM

This recently completed administration building on Chicago's near north side, built for the American College of Surgeons, shares its plaza with a partially submerged one-story garage and features an ingenious modification of the waffle slab to accommodate lighting and air-conditioning equipment

To the indifferent eye, one SOM office building may look just like another, but the practiced observer knows that many new structures designed by this firm represent steady progress in the development and refinement of planning and engineering concepts.

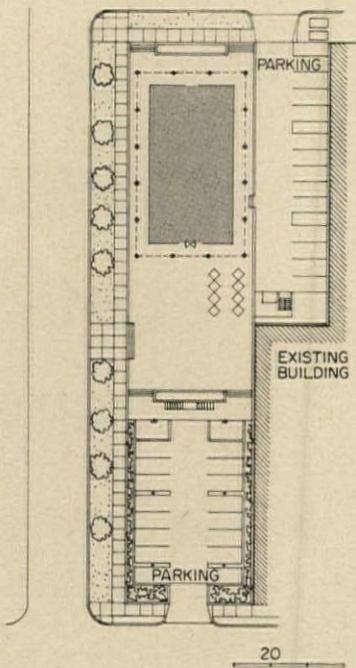
This new eight-story office tower has two sub-basements which extend out beneath a narrow plaza which joins a parking structure built of exposed steel. The entrance to the plaza is not on axis with the main entrance as the photograph (*above right*) which was taken from the roof of the parking garage might suggest, but is from the adjacent street seen at left in the same photograph. This entrance serves as a link between the plaza and an older complex of buildings across the street which will continue to be used by the college for special functions. The floor of the covered parking garage is several steps lower than the plaza, and this building in conjunction with a low perimeter wall, serves to partially enclose the plaza and stress its private nature. Those who park in the garage may enter the plaza directly by climbing either of the symmetrically placed garage stairs. A smaller plaza marks the buildings secondary entrance shown in the photograph (*bottom left*).

A flat slab and shear head reinforced concrete

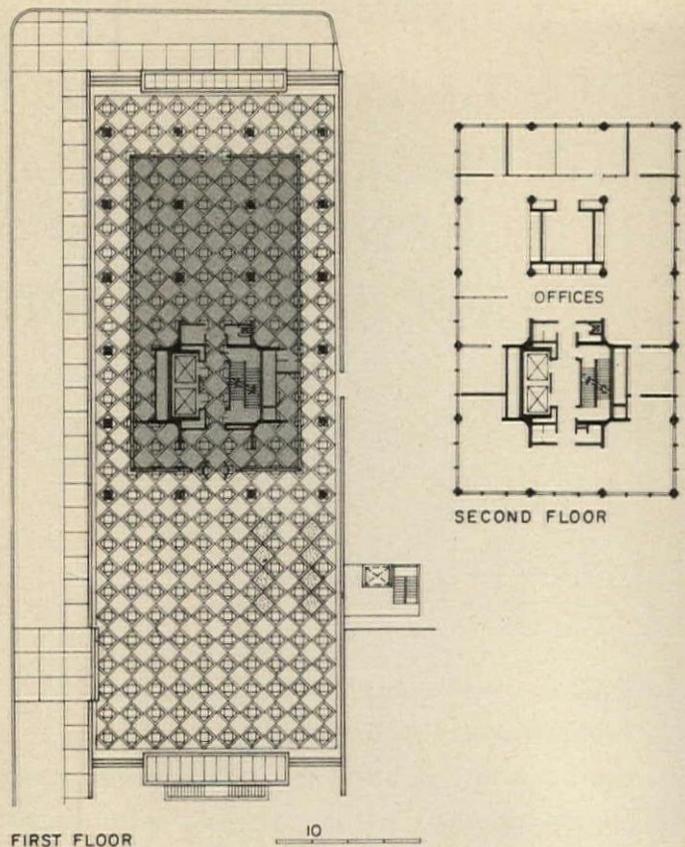


Balthazar





Parking is provided by one story covered parking garage axially related to the office tower. Additional parking is available in an open lot on the remainder of the site. The patterned terrazzo floor is skillfully related to the building module as can be seen in the ground floor plan. Poured concrete walls surrounding the stairwell and elevator shafts also serve as wind bracing. Air intake or exhaust is located in two pylons 3 ft high, one placed at the edge of the covered parking area and the other defining the small plaza at the rear. Cooling towers are located beneath parking structure roof

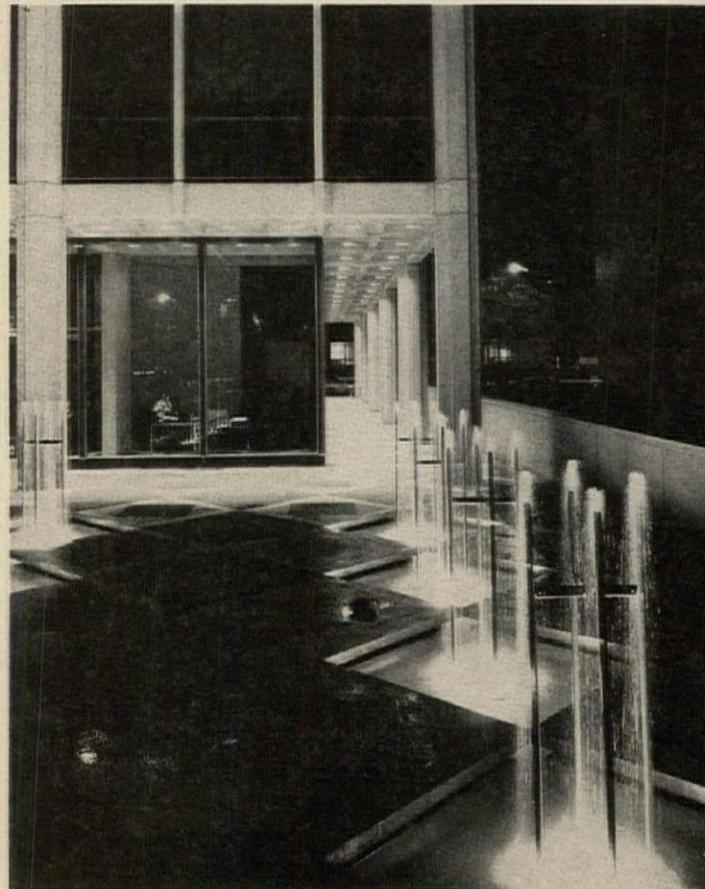


structural system is used for the two basements. The 99-foot 6-inch high tower structure consists of reinforced 2- by 2-foot concrete columns used in conjunction with a dual depth waffle slab. The top floor has upturned girders spanning the space. Wind bracing for the building is an integral part of the core design. That portion of the poured concrete shear walls surrounding the stairwell and elevator core which is exposed within the interior spaces is given a sand blasted finish.

The shape and placement of the pools is governed by the patterned terrazzo which covers the entire ground floor of the plaza and building, and is textured on the outside and polished on the inside of the building. Pool water splashes down from bronze stems. This raised source allows the water to fall nicely with the accompanying pleasant sounds, but avoids the dampening problems caused by certain other types of fountains.

The window wall from the second to the eighth floor consists of gray glass and black tempered glass spandrels set in black rubber gaskets. Bronze anodized aluminum frames are used on the interior. On the first floor translucent onyx panels are used in combination with clear and obscure glass panels for exterior walls. This use of onyx is extremely effective because of the warm quality it imparts to light.

Balthazar



*Administration Building for American College of Surgeons
Chicago, Illinois*

ARCHITECTS: Skidmore, Owings & Merrill

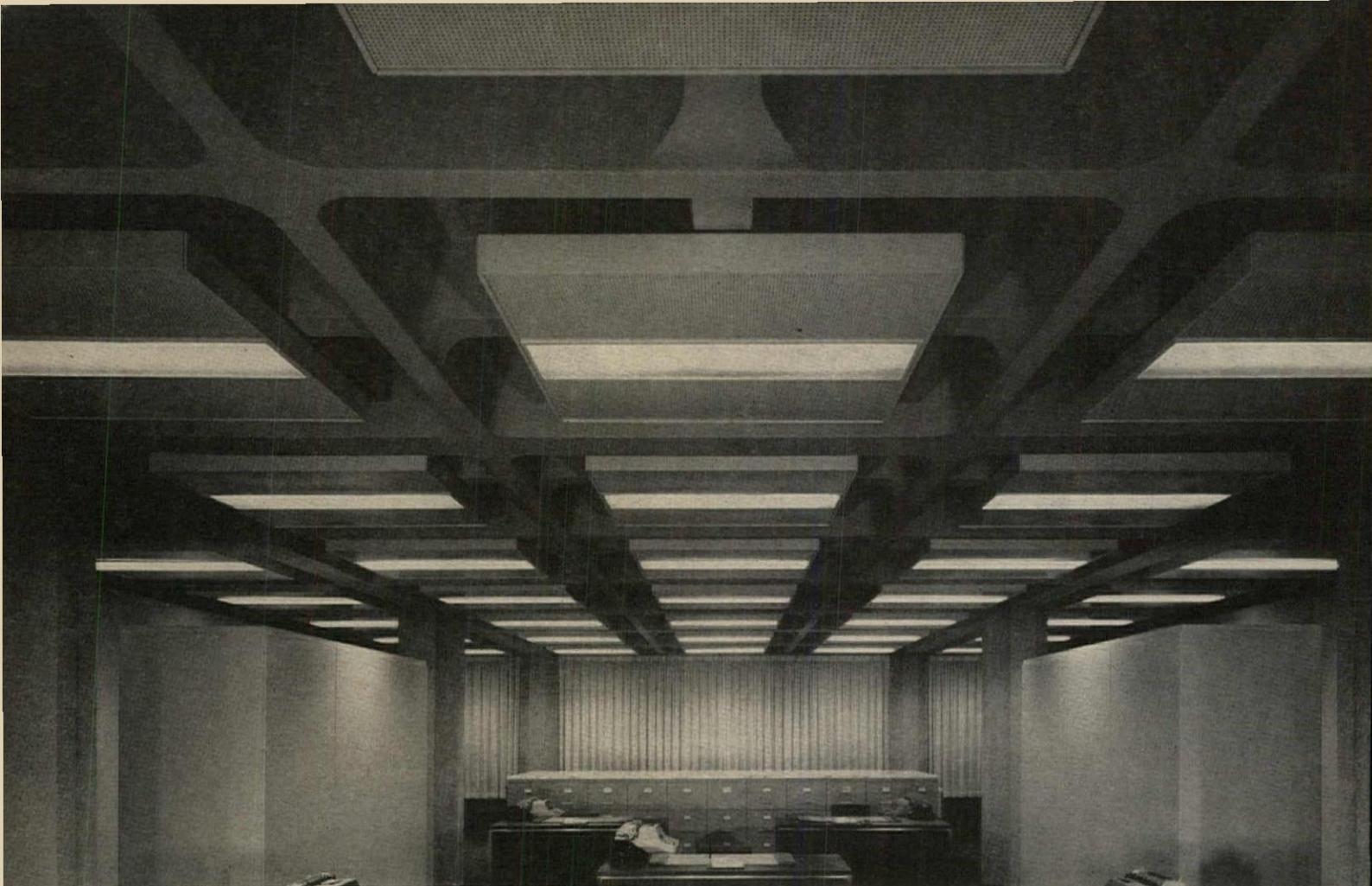
GENERAL CONTRACTOR: Turner Construction Company



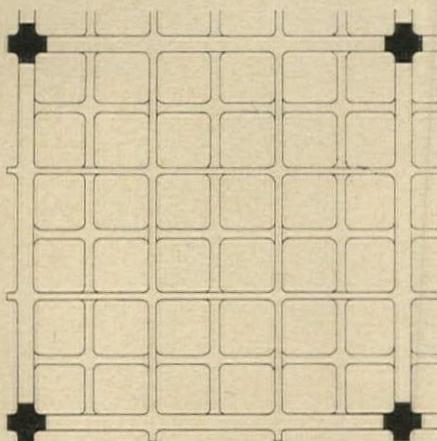
Bill Hedrich, Hedrich-Blessing photos

First floor walls consist of translucent glass, clear or obscure glass and translucent onyx panels which can be seen in photographs at right. The onyx panels are separated by clear glass slits. Ceiling waffle slab is left exposed. Other exposed concrete surfaces are sand blasted

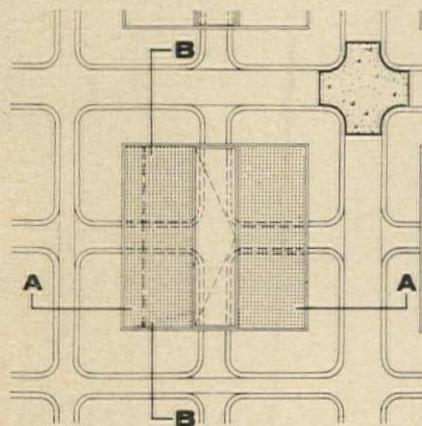




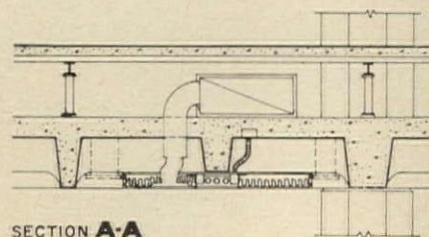
Bill Engdahl, Hedrich-Blessing



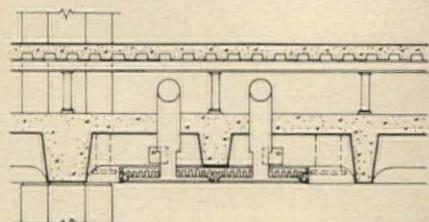
REFLECTED BAY PLAN



REFLECTED CEILING PLAN



SECTION A-A



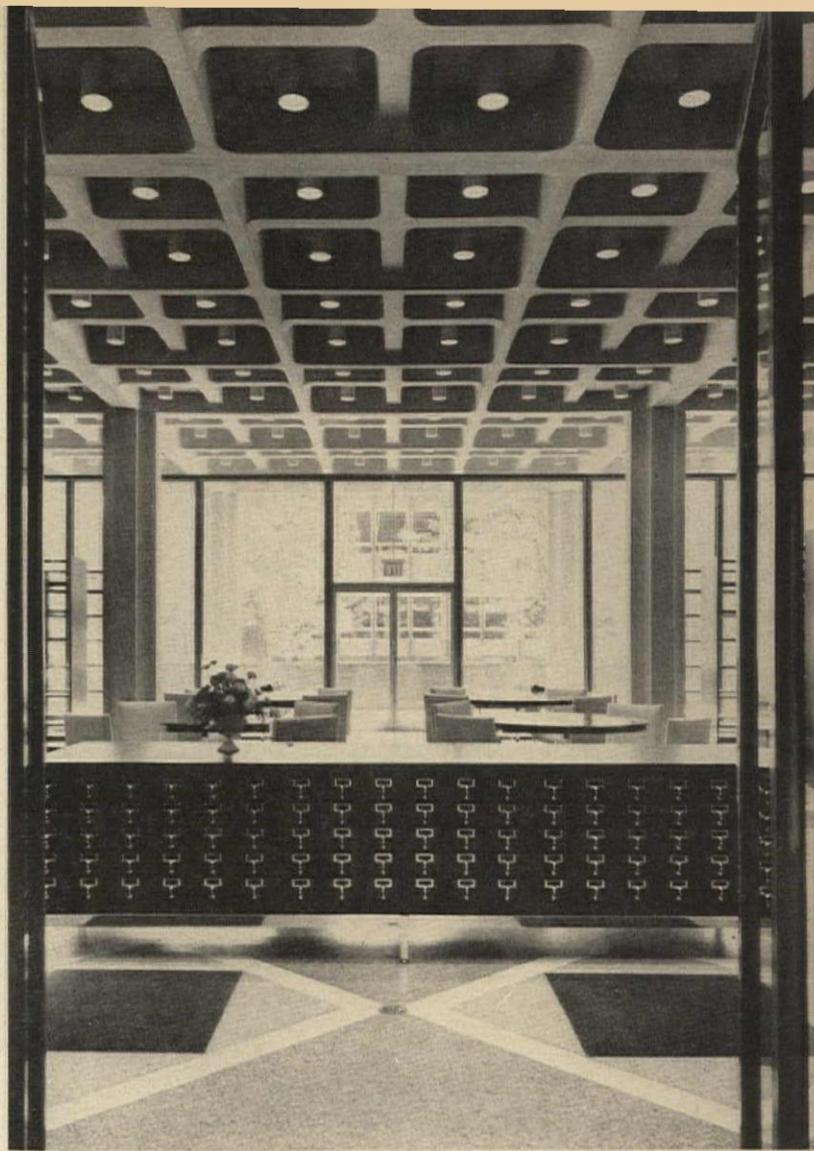
SECTION B-B

Every effort was made to design using natural materials and to create an integrated structural, mechanical and electrical system that would permit the structure to participate in the interior spaces. An exposed sandblasted concrete column and dual depth waffle slab structural system with the mechanical space above the slab permitted the concept to be fulfilled. Separation of floors and mechanical spaces by concrete also greatly reduces noise transmission problems.

The dual depth waffle slab, because of the shallow middle rib, permits a combination light, air handling and acoustical panel to be suspended within the exposed structural depth.

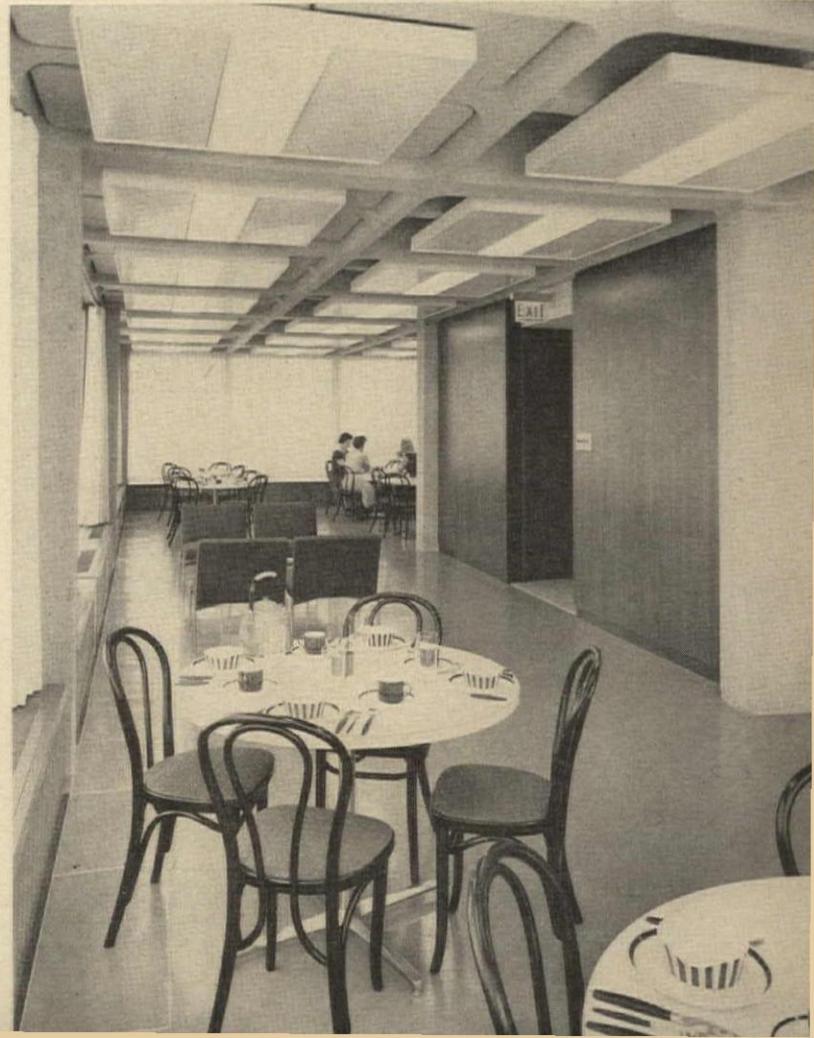
Supply for this unit is provided from the mechanical space above the structure. In this space are located all horizontal duct floor runs and piping. Raised above this space on stub columns is a steel cellular floor with concrete fill that handles the telephone and electrical outlet facilities for the floor above. Four units comprise the waffle slab module of 6 feet, 6 inches, forming a bay size of 19 feet, 6 inches. The typical floor height is 12 feet. All mechanical piping and ducts rise in the building core from the basement and feed into the mechanical space above the structural slab, and down to the ceiling fixtures below and up to the three pipe perimeter induction units

Office Building by SOM



Right: View from core toward rear entrance

Balthazar photos



Right: Employee dining area has been carefully equipped

DESIGN FOR CONTROLLED LIGHTING



Less rather than more daylight is often the route to lighting control in today's office buildings, and in Denver heat build-up from the strong mountain sun is a serious problem in buildings, in winter as well as in the summer. The new headquarters building for the Public Service Company of Colorado meets the requirements of client and climate with relatively little glass in its exterior walls. Its steel-framed structure is enclosed with panels of pinkish granite punctured by narrow slits of windows, intended more for outlook than for admission of light. These small windows cut the sun's heat, and they also increase the effectiveness of the interior lighting by making possible a more even distribution of light. Since the building is not only the main office of the company but its showcase as well, effective use of lighting is an important part of its function. Although some outside lighting is to be expected in a utility building (here it consists of colored lights playing on the penthouse, and the lighted windows) the really dramatic impact of light and lighting techniques comes inside the building. Almost every variety of technique and fixture is used in some appropriate location and way, and the level of illumination is 100 footcandles in general work areas, more in specialized areas. The building's architectural expression, in its space relationships, meticulous detailing and use of color, is carefully studied.

Headquarters Office Building

Public Service Company of Colorado, Denver

ARCHITECTS: *Berne, Baume, Muchow & Polivnick*

Norton Polivnick, Partner in Charge

STRUCTURAL ENGINEERS: *Ketchum, Konkel & Hastings*

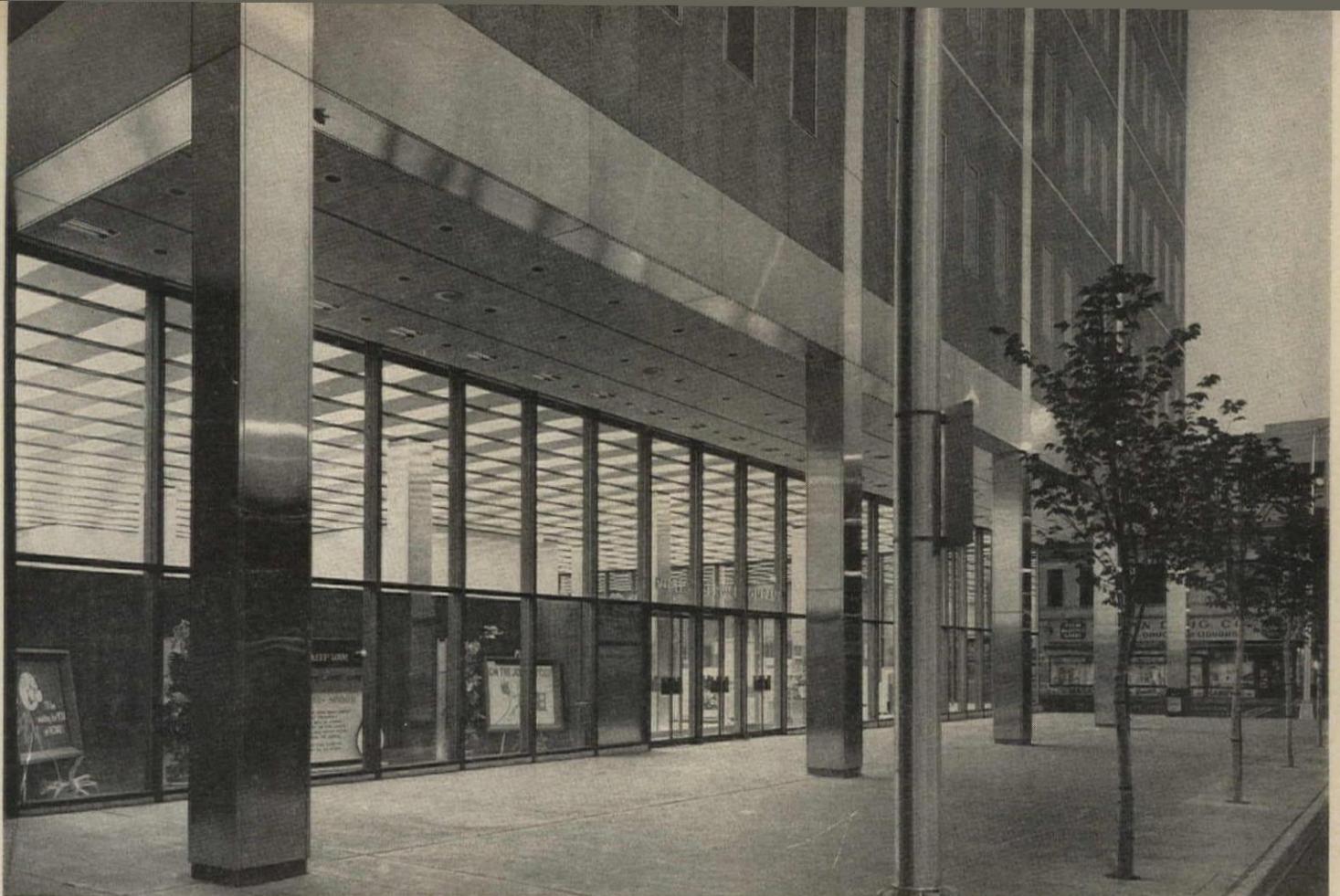
ELECTRICAL ENGINEERS: *Swanson-Rink & Associates*

MECHANICAL ENGINEERS: *Clint Cator & Associates*

SPACE PLANNING CONSULTANTS: *Ebasco Services, Inc.*

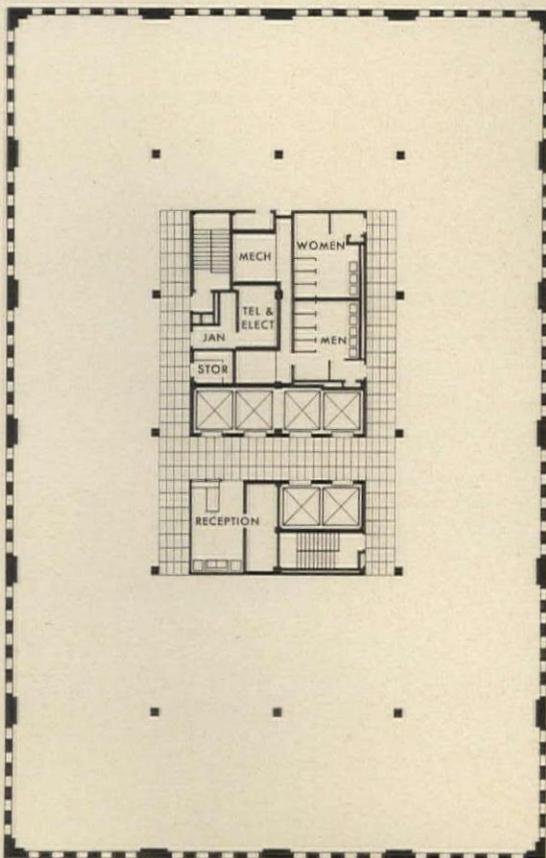
ACOUSTICAL ENGINEERS: *Bolt, Beranek & Newman, Inc.*

ELEVATOR CONSULTANTS: *Charles W. Lerch & Associates*



Set back from the building line and shaded from morning sun by the building overhang, the entrance is the mid-point of a glass wall that encloses the ground floor on two sides and acts as a display case for the company's service and sales. Snow melting equipment, using 27 watts per square foot, is installed in the sidewalk around the building; infrared lamps in the soffit of the overhang direct heat down in from the show windows. The checkerboard

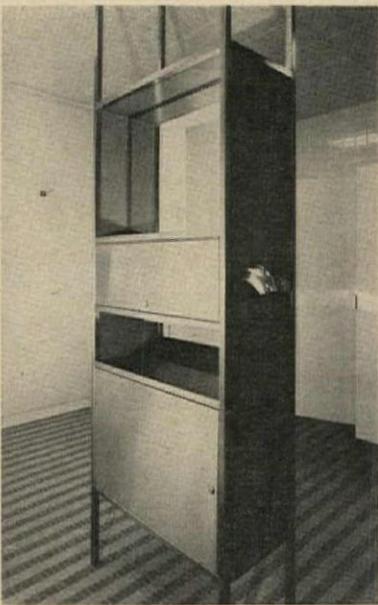
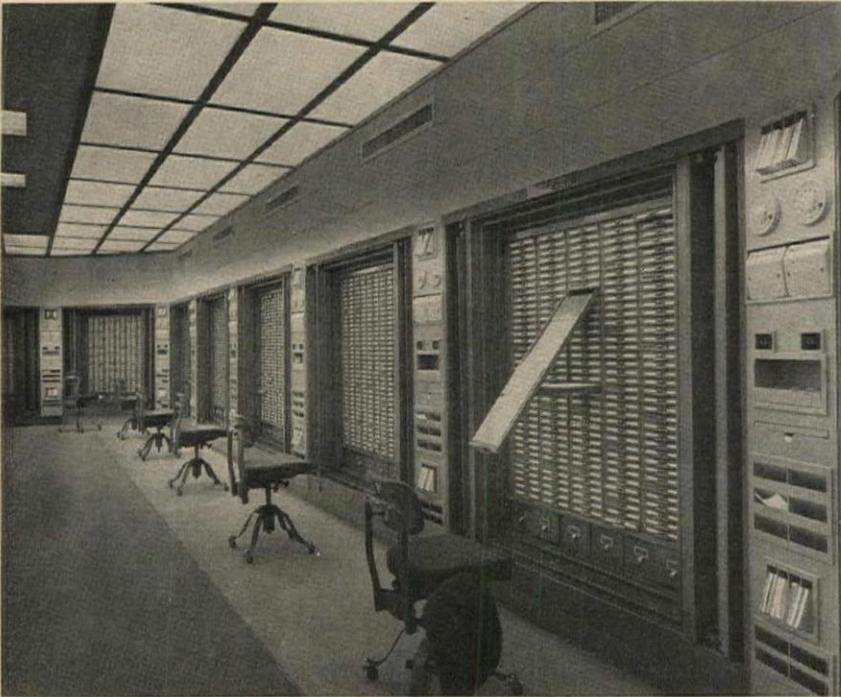
ceiling over the entire ground floor results from alternating panels of acoustical tile and diffusing glass for fluorescent fixtures set between recessed trolley ducts of black aluminum. The ducts are spaced on a module which allows complete freedom in display lighting. By combining fluorescent with incandescent lighting, an illuminating capability of 300 footcandles (and higher, for specific displays) is possible



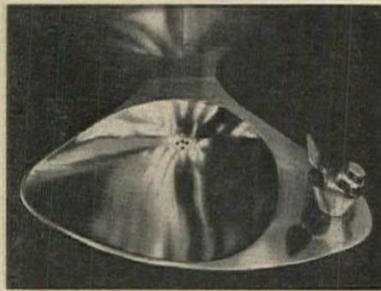
TYPICAL FLOOR PLAN



Window spacing on typical floor (shown in plan at left and photo above) is based on minimum office space requirements. Lighting levels range from 100-200 footcandles, depending on the type of work. On the 12th floor the fenestration module changes and reflects special uses. The exterior walls enclosing an auditorium on this floor are unbroken by windows, and those surrounding a lounge consist of large panels of glass divided by slender mullions



In records department, luminous ceiling provides high lighting level. The free-standing towel holder used in toilet rooms throughout building, contains two towel dispensers, two dryers, two mirrors and one towel disposal in cabinet 1 by 3 feet. Drinking fountain is of cast brass, chrome plated and dulled. Fountain and towel holder were specially designed for the building



Palmer Boggs



Alexandre Georges photos

SIMPLICITY CUTS COSTS FOR A SEASIDE HOUSE

William Morgan makes frank use of
economical materials for a trim and
comfortable Florida residence





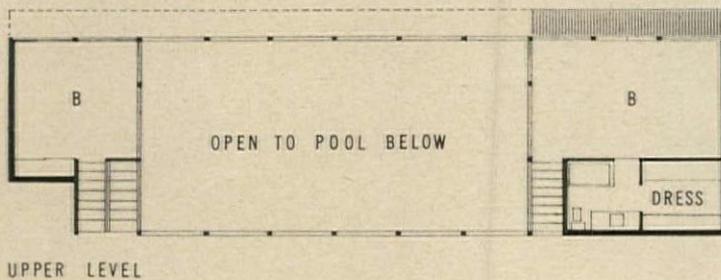
A comfortable, well-zoned house with a great air of spaciousness has been achieved here at relatively low cost by the use of simplicity in design and in materials.

The focal point of the house, and key to its sense of space, is an integral, two-story screened patio. This central space is closed on the east by a zone for the children, on the west by a zone for the parents, and on the north by a central family area. The plan is arranged on three levels under a continuously sloping shed roof; major living spaces are at the mid level, with playroom, pool and car-port half a level down, and two bedrooms half a level up.

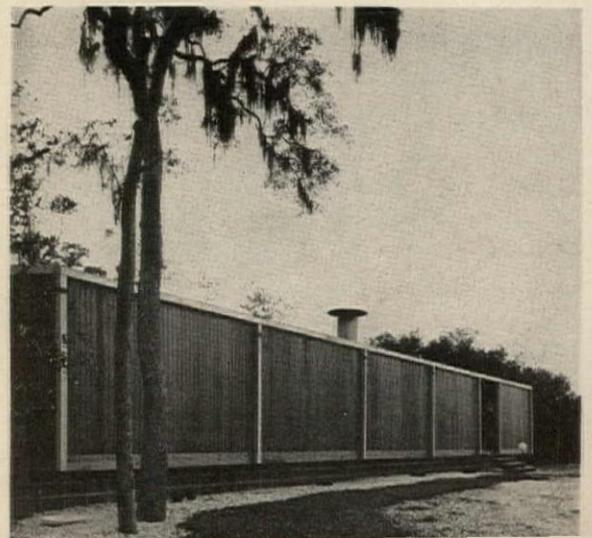
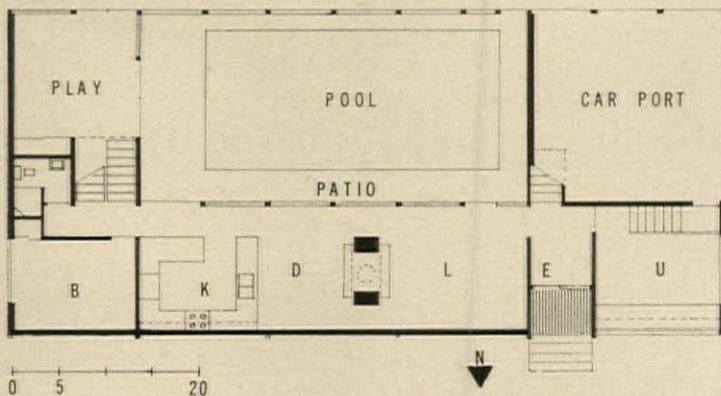
The front and sides of the house have few openings, for maximum privacy from neighbors and the road, while the back is almost entirely glazed for views of a lagoon edging the property and a panorama of the savannas in the distance. Visitors approach the house by boat from the intercoastal waterway to the south, or by road from the north. The structure is of fir posts and beams on 7-foot centers. Walls are cedar and concrete block. The floors are carpet on wood frame above grade, and concrete slabs on grade.

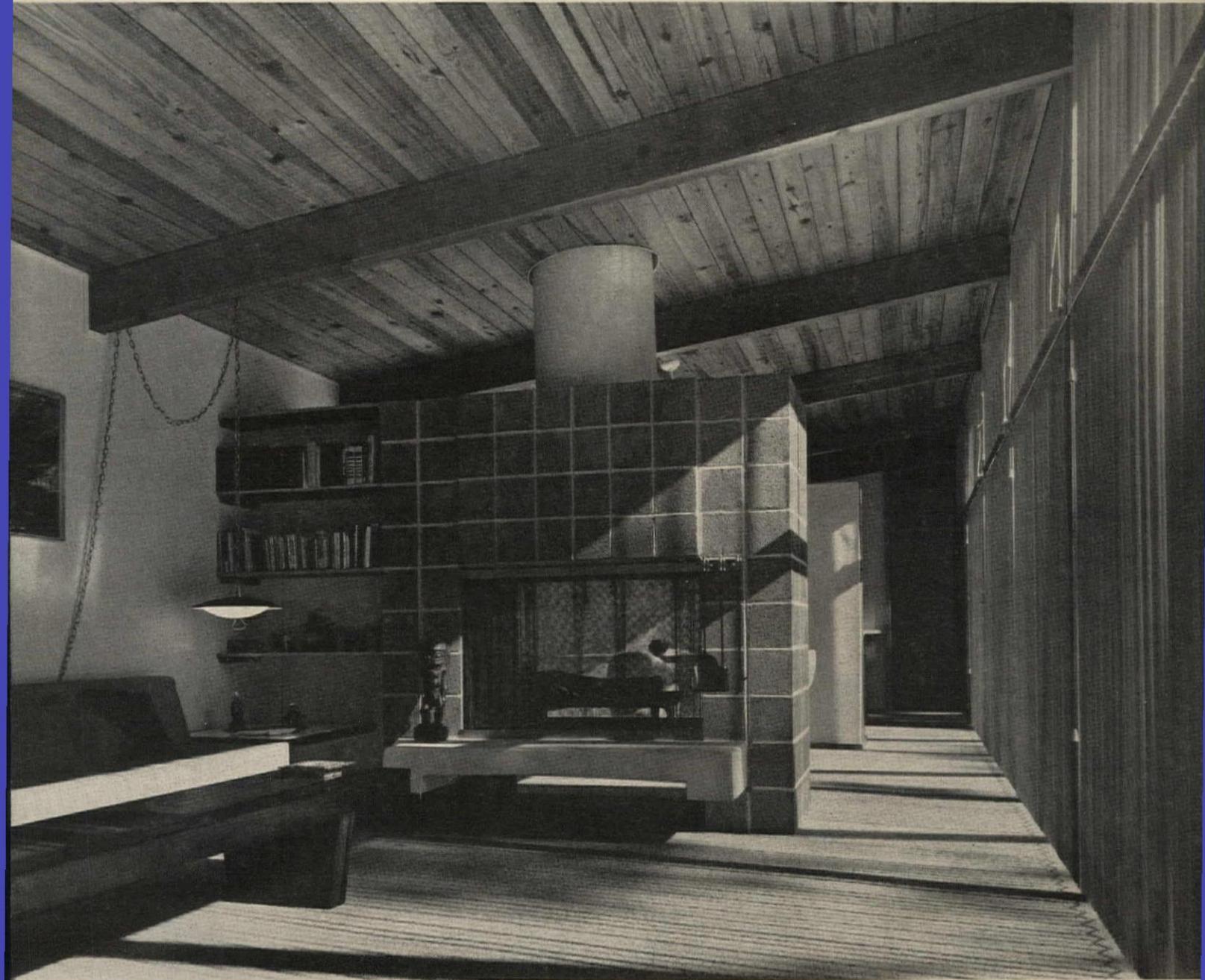
The entire enclosed space in the house is air conditioned by a horizontal fuel-oil-fired furnace, with cooling coils and remote outside condenser.

The architect states that "the basic house cost \$22,995, including 2,110 square feet of air-conditioned space, 240 square feet in garage and storage area, and 360 square feet in covered exterior balconies and terraces. The pro-rated square foot cost was \$9.36. The swimming pool, patio and screened enclosure was constructed under an additive alternate for \$3,920. Costs include carpet, grading and paving, but not land and furnishings."



UPPER LEVEL





*Residence for Dr. and Mrs. Conrad L. Williams
Jacksonville Beach, Florida*

ARCHITECT: William Morgan

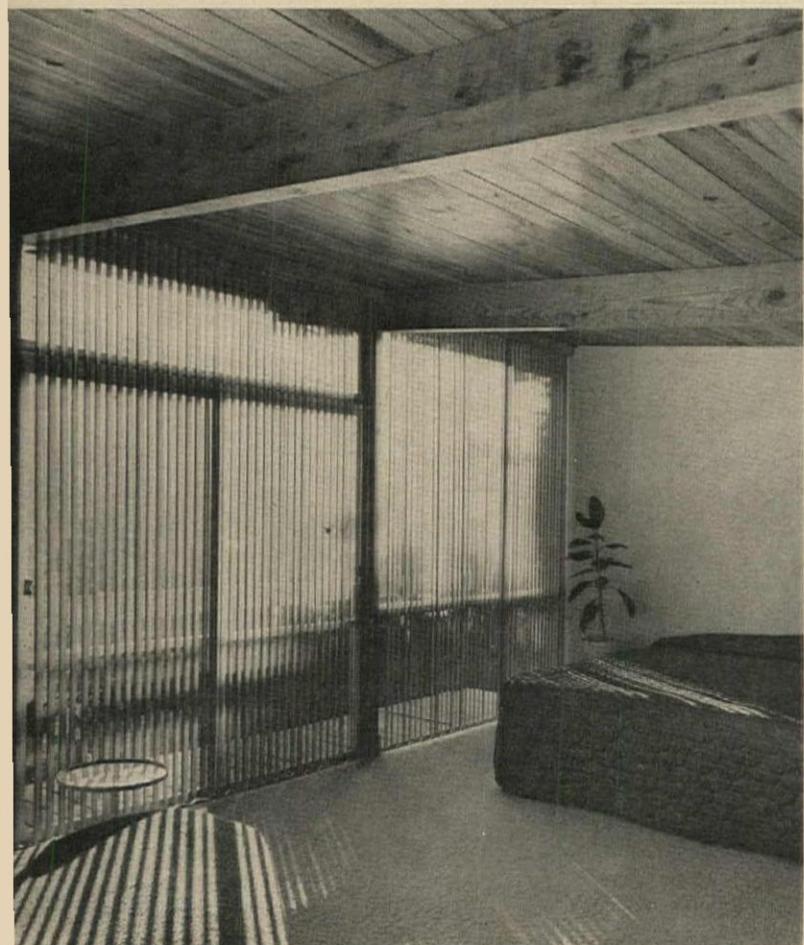
STRUCTURAL ENGINEER: J. N. Hutchinson

MECHANICAL ENGINEER: J. N. Sampson

CONTRACTOR: McCue Construction Company



In addition to the glass walls on the south, the sense of space in the living-service areas of the Morgan house is increased by the use of open planning, with partial partitions, and by the upward slope of the ceilings. The pine tongue-and-groove roof decking also serves as finished ceiling. Most interior wall surfaces are painted plasterboard, except for tile in the bathrooms and white laminated plastic in the kitchen. The ceiling of the playroom is finished with acoustical tile to reduce sound transmission to the bedroom directly above it. All the glass walls are fitted with vertical aluminum blinds



Architectural Engineering

Structural Integrity

Today's structural engineering practice could stand considerable improvement in the area of "structural integrity," according to Bruce G. Johnston, professor of structural engineering at the University of Michigan. Writing in the June "News of the Structural Division of ASCE," Professor Johnston takes engineers to task who slight any of three components of structural integrity: (1) continuity in structural design; (2) correctness in construction practice; (3) soundness of the finished structure.

Professor Johnston sees a trend away from continuity in recent years and points to some of the disastrous effects of the Alaskan earthquake as evidence that continuity is being imprudently neglected. He illustrates the importance of continuity by taking the analogy of a tree bending in the wind: ". . . a growing tree is designed by nature to withstand the most violent storm, flexible where it is frail, in its leaves and smaller branches, but growing in strength and never abandoning that most important factor—continuity—as the branches grow in size to finally form a trunk that is securely rooted in the ground."

Regarding construction practice, Johnston points out that if the engineer has not visualized completely the various intermediate stages between the time that the structure goes up and the building is enclosed, failure may result. For soundness in the finished structure, thoroughness is required in attending to every detail during manufacture, fabrication and construction.

In recent years structural engineers have been assimilating new materials, new methods of construction, new structural forms, new methods of fabrication, and new methods of analysis and computation, and this process has produced both progress and problems. The all-important question is, says Professor Johnston: "How can we make full use of these modern tools, still retain an intuitive insight and feeling, and at the same time carry through all stages of design and construction with honesty and care [so that] the integrity of our structures will be insured?"

Engineering Thesaurus

Has 80,000 Entries

A Thesaurus of Engineering Terms which can be used as a vocabulary control reference for indexing, storing and retrieving technical literature has just been issued by the Engineers' Joint Council.

The content of the 320-page book is also available on magnetic tape with punch print-out programs for computer manipulation in mechanized information storage/retrieval systems. Consisting of one reel, the magnetic tape edition is 2,400 ft long and can be used, as is, on an IBM 1401 computer. It includes all the alphabetical terms in the thesaurus book along with each entry's processing codes.

The thesaurus contains 10,515 main terms. With inclusion of their cross-reference relationships the volume has more than 80,000 entries. Terms are arranged alphabetically and are displayed to show synonymous, hierarchical and other relationships. For further information on the thesaurus book or the magnetic tape, write to Engineers Joint Council, Dept. FS, 345 E. 47th St., New York, N.Y., 10017.

Referendum on Softwood Lumber

The U. S. Department of Commerce has released a tabulation made by its National Bureau of Standards of the responses to a questionnaire on the proposed revision of the American Lumber Standard for Softwood Lumber. A total of 3,079 replies was received and tabulated out of more than 16,100 copies of the proposed standard revision and response form circulated. The National Lumber Manufacturers Association reports that a number of major wood producer-user groups have noted that the standards referendum showed strong support for the new size and quality criteria.

This Month's AE Section

CLOSER CONTROL OF CONCRETE CONSTRUCTION, page 156. *NEW TECHNIQUES ENHANCE SLIPFORMING POTENTIAL*, page 157. *DESIGN CONSIDERATIONS FOR HORIZONTAL SPACE FRAMES*, page 152. *BUILDING COMPONENTS: New System for Air-Conditioned Schools*, page 163. *Products*, page 165. *Literature*, page 166.

DESIGN CONSIDERATIONS FOR HORIZONTAL SPACE FRAMES

Horizontal space frames for extra-long-span structures have much intrigued designers because of their inherent rigidity and efficient material utilization. But dollar economy does not follow unless the critical items such as joint connections are conceived and detailed in a practical way. Experience with this and other key areas is summed up in this article. It is based on a paper given at the 16th AISC National Engineering Conference held last May in Omaha.

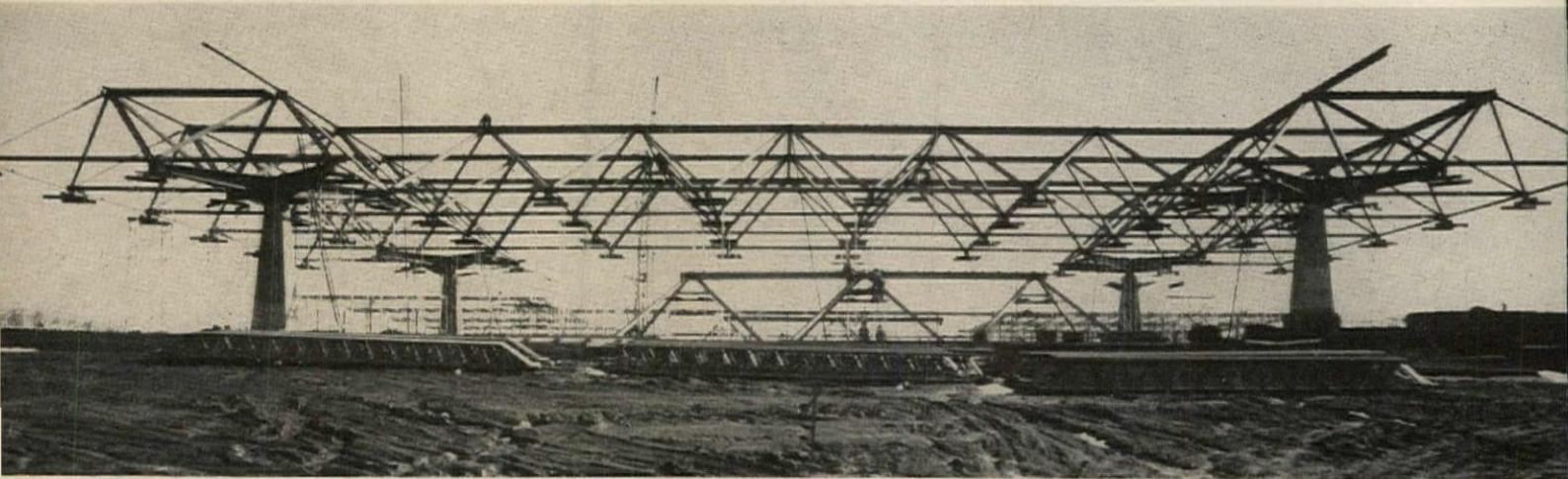
Support Location

The location of supports will significantly affect structural efficiency of space frames. For example, cantilevers produce negative mo-

2. Joint costs and the number of square feet tributary to each joint.
3. Horizontal roof infill system.
4. Ratio of top chord bending stress to direct stress.
5. Ratio of horizontal spacing of chords to depth of truss.

The building planning module (3 to 8 ft), or a convenient multiple of it, is perhaps the most influential factor in the determination of the horizontal module for chords. Resulting structural modules (or bay sizes) may range from about 21 to 48-ft. Assuming a 7-ft plan module and a space frame span of 280 ft, a logical bay size would be 28 ft because 280 ft is divisible by 28 which in turn is divisible by 7. In addition,

Kenneth C. Naslund discusses the practical aspects of space frame configurations, joint design and column support. He is a partner in the Chicago firm, The Engineers Collaborative



ments which will reduce the positive moments. Ideal cantilever length of approximately 0.3 of the clear span results in a structure that has less deflection, the best distribution of chord material, and consequently least material. Cantilevers have little effect on the size of web members. While this arrangement is preferable, the number and location of supports used generally will be determined by the plan requirements of the structure. The desired column locations, then, are those which produce symmetry about two or three axes.

Space Frame Modules

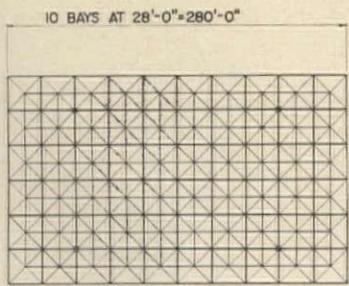
The factors to be considered in establishing the chord spacing are:

1. Building planning module.

a rough approximation of the optimum depth is 1/20th of the span or 14 ft which is also divisible by 7.

The number of square feet tributary to each joint seriously influences costs. Generally, the larger this ratio is, the more economical will be the structure. A good ratio is in the area of 200 to 456 sq ft per joint for space frame spans of 250 to 300 ft having 20 ft to 30 ft chord spacings.

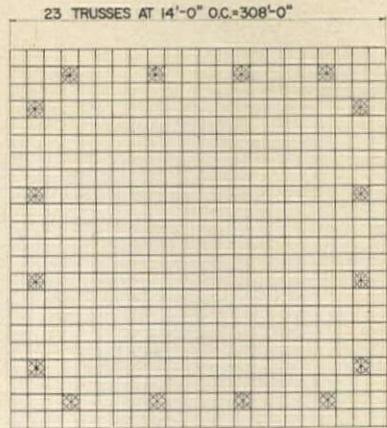
The horizontal roof infill system ideally should span in two directions to chords at its boundaries, making bending moments the same for each chord, thus greatly simplifying chord design. This can be accomplished by two-way slabs, hyperbolic paraboloids, smaller order reticulated space lattices, shallow



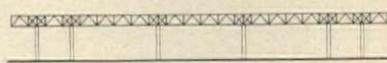
PLAN



ELEVATION

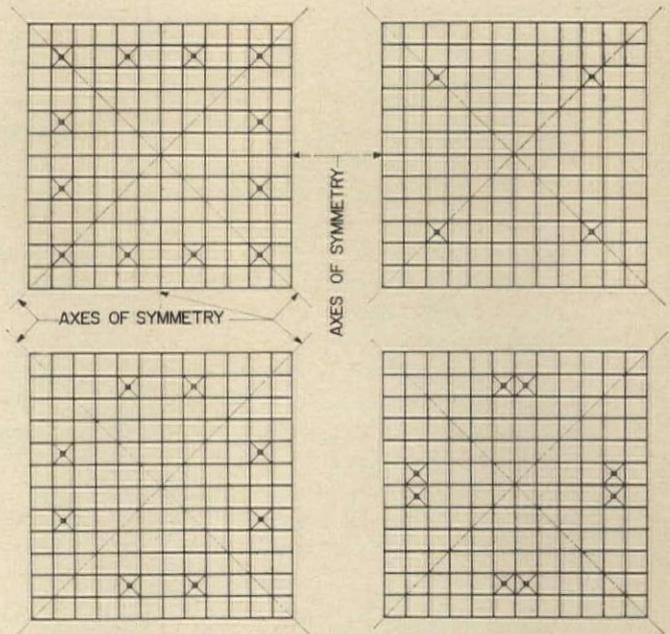


PLAN

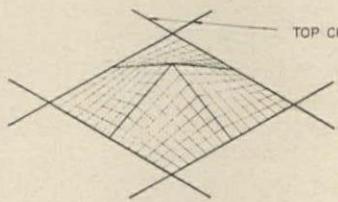
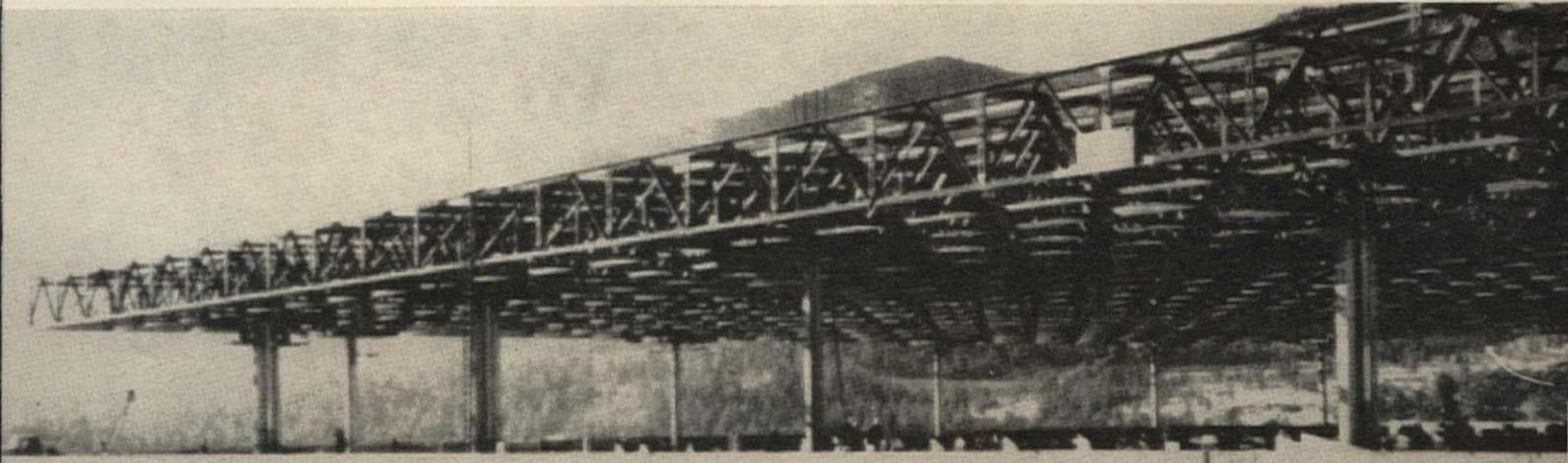


ELEVATION

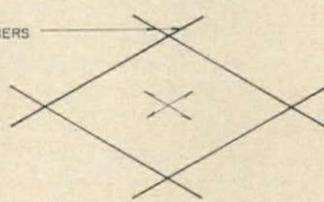
Structure *left* is a three-dimensional Warren truss system supported at four points. Two-way vertical trusses are used in system *right*



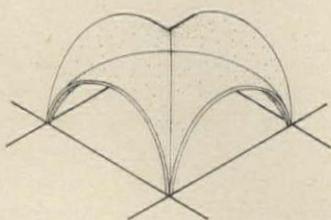
Various column arrangements give axial symmetry. It should occur about two, preferably three, axes



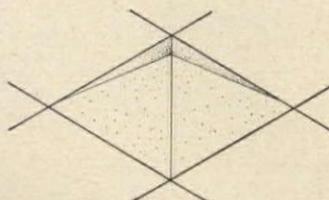
HYPERBOLIC PARABOLOID



TWO-WAY SLAB

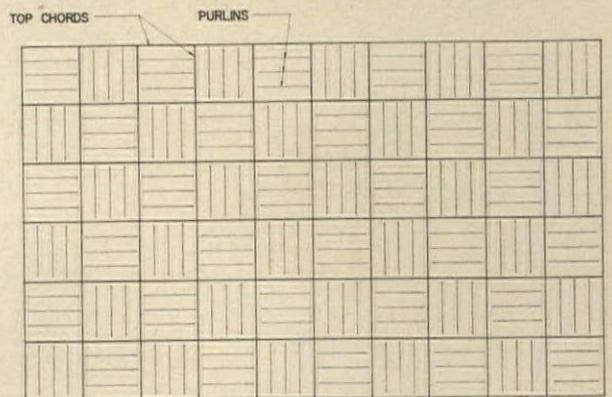


INTERSECTING BARREL VAULTS



HIP ROOF

Construction photos are of now-completed gymnasium in Pekin, Illinois by architects Foley, Hackler, Thompson and Lee (*across-page*) and Air Force Academy dining hall by Skidmore, Owings and Merrill (*above*). Sketches show roof infilling techniques



ROOF FRAMING PLAN

double curved arches, and pyramidal structures.

The same distribution also can be achieved with one directional spanning systems by "checkerboarding" panel span directions. While this approach does not produce the same effect on the perimeter space frame chords, these are generally minimum members and are not affected by the resulting alternate panel loading.

It is important to select top chord members which have a better compression than bending capacity. The optimum ratio of bending stress to direct stress has been found to be one to one or less.

Assuming that the chords are equally spaced in both directions we feel that optimum web lengths are achieved by adopting a three dimensional Warren truss arrangement. This requires that bottom chords be located midway between top chords in plan. When each chord panel point is then connected to the opposite chord a pyramidal volume is developed which has 45 degree sides. The resulting space frame has a depth equal to one half the chord spacing.

While the "optimum" web lattice just described is a favorite of ours we do not wish to imply that other arrangements should not be employed. Some of the other web arrangements are:

1. Vertical Warren web systems in two directions.
2. Vertical Pratt web systems in two directions.
3. Vertical Warren web systems which run diagonally in one direction from panel point to panel point.
4. Other triangulated systems.

Joint Details

The most important economic consideration in the design of space frames is determining how the joints are to be fabricated. There are numerous possibilities which depend on:

1. Type of members.
2. Size of members.
3. Geometric relationships of members.
4. Connection techniques such as welding or bolting or the use special connectors.
5. Desired appearance.

Space frames have been built utilizing tubular members, structural tees, angles, and wide flange

members. Each of these has an implied connection discipline.

The size of members will often dictate the type of connection. For example it is extremely difficult to weld directly a 12 in. WF web member to a 6-in. structural tee chord, and in cases such as this, either the member size must be revised or a different connection developed.

The geometric relationships between members requires special study of angles of intersection and accessibility for welding or other connection techniques. A significant advantage of welded connections is that they eliminate extra connection material and connection devices. In some instances, however, such as with tubular members, it is necessary to use a joint piece to obtain enough weld length to develop the member stress. Bolted connections generally require joint material or joint assemblies which extend out on the members, increasing the cost of the connection.

Of all factors which affect the joint details, we feel the most important is appearance—the best detail is the one which has the simplest appearance. And in general we have found that welded joints satisfy this requirement.

Collection of Loads

There are really only two choices for the transfer of load from a space frame to its vertical supporting elements. The vertical support can be made continuous with the space frame, or the juncture between the vertical support and the space frame can be a pinned connection.

When a vertical support is made continuous with the space frame it generally allows several panel points to be supported simultaneously by "column capital" action which in turn reduces web stress concentrations under vertical load. However, this continuity can cause even greater web stresses than those which would occur if only one panel point were supported. This condition can occur with certain combinations of lateral and vertical loading and vertical support stiffness.

We feel the introduction of continuity between the vertical support and the space frame needlessly complicates the analysis of an already highly indeterminate struc-

ture. The justifications for continuity in the minds of some designers are:

1. Reduced deflection.
2. Resistance to lateral loads.
3. More support perimeter at each vertical support.
4. Conservation of floor area.

These are subject to the following criticisms:

1. Space frames are generally deep structures which are many times stiffer than the vertical supports, and deflection is seldom the limiting design criterion.
2. The dead load of space frame structures and their support spacings are such that lateral loads can be effectively resisted by vertical supports with fixed bases without uplift being produced.
3. More support perimeter can be achieved regardless of continuity.
4. Floor area for a fixed base member need not be any larger than that for continuous vertical support.

The use of a pinned joint at the intersection of the space frame and its vertical supports must allow rotation in all directions while transmitting lateral shear to the top of the vertical support.

Where it is desirable to increase the support perimeter, "shear head" type elements can be introduced at the top of the vertical support element. These are connected to the space frame points and project out from the center of the vertical support.

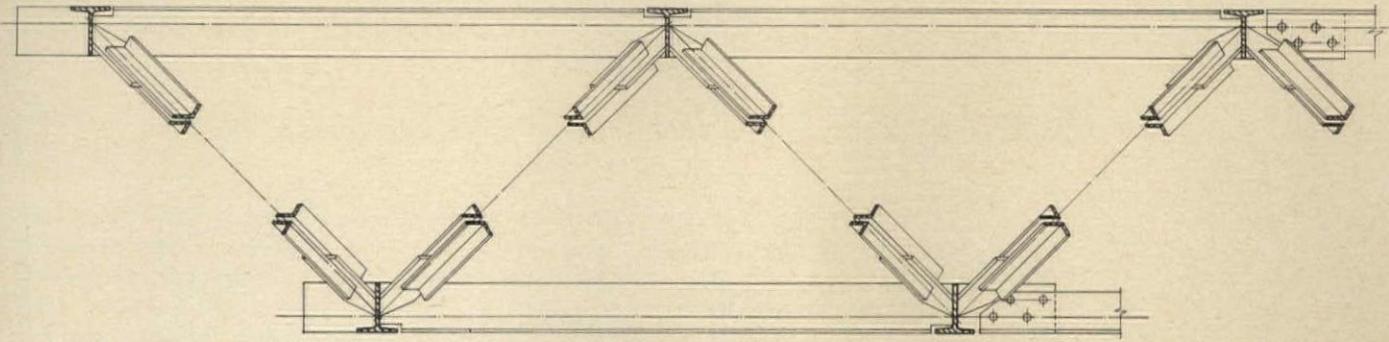
Methods of Analysis and Design

Methods available for analysis are:

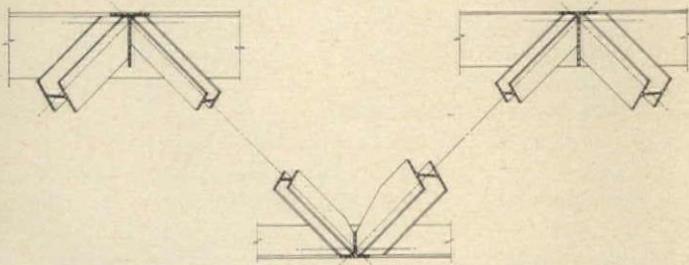
1. The method of consistent deflections.
2. The use of an equivalent anisotropic flexural grid treated by the method of finite differences.
3. The use of an analogous orthotropic grid.
4. The use of an analogous flat plate with moment distribution.
5. Model analysis.
6. Successive approximation with a computer program.

Structural model analysis has been employed in preliminary design. The present state of the art suggests that it may be considered for this purpose, and as a cross-check against other methods, but not as a prime method of analysis.

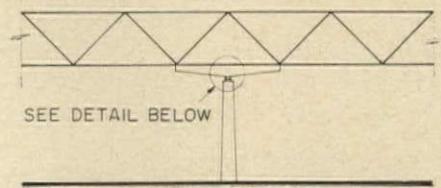
The use of the computer is strongly recommended for a successive approximation analysis.



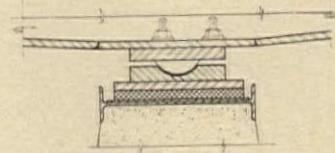
Above: Connections between tee-shaped chord members and, double-angle web members



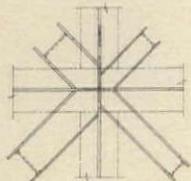
ELEVATION OF TOP & BOTTOM CHORD JOINTS



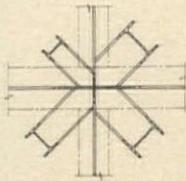
FIXED CONNECTION AT BASE



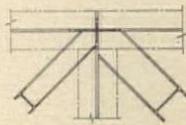
PIVOT JOINT DETAIL



PLAN OF TOP CHORD



PLAN OF BOTTOM CHORD



PLAN OF TOP CHORD AT END CONDITION

Left: Connections between tee-shaped chord members and wide-flange web members. Above: Pinned type connection between space frame and column. Below: "shear head" type element transfers load to column



CLOSER CONTROL OF CONCRETE CONSTRUCTION

By Warner Howe, Gardner & Howe, Consulting Structural Engineers, Memphis, Tennessee

Long-time experience with concrete structures in the mid-South suggests that structural engineers should prepare shop drawings and inspect in detail concrete construction. In too many cases the customary methods of handling reinforced concrete design and construction have proven inadequate, failures have occurred, life and property have been endangered, and the courts have placed an unanticipated responsibility and an unjust financial burden on the architect and engineer.

Concrete Design

The design of reinforced concrete building structures is more complex and costly than that of most other structural materials. Because of the increased development of design technology, the engineer can design many new and exotic concrete structural shapes requiring a complex and time-consuming design analysis. But even in conventional concrete construction, the structural system is frequently complicated by the unlimited variety of member sizes and shapes, types of construction, varying continuous span conditions, etc. Design short cuts often result in uneconomical and sometimes unsafe construction; a more rigorous and costly structural analysis generally is required.

Concrete Shop Drawings

The shop drawings for most building materials customarily are prepared by the one most familiar with his product, the supplier. However, in reinforced concrete the supplier is not one but many firms, and none of these are fully cognizant of the design assumptions or requirements. The task of preparing shop drawings has fallen to the fabricator whose basic objective is to facilitate ordering and fabrication of the reinforcing. Therefore, such drawings are sketchy, containing the minimum information for placing steel and no framing dimensions or details.

Concrete Inspection

Concrete inspected only after completion cannot, by its exterior ap-

pearance, or by any practical or economical means of testing, give any assurance that all of the varying factors affecting its ultimate quality have been cared for adequately. Yet, the standard architect-owner contract contemplates only periodic observation during construction. When an architect or engineer in his project specifications assumes authority to approve or reject materials and workmanship and authority to shut down the work, the courts have ruled that he is responsible to the contractor to supervise thoroughly and without negligence so as not to cause delay or impose hardship. This responsibility as ruled by the courts exists even though no contract covers this service. For reinforced concrete this responsibility can be discharged properly only through "special" detailed field observations during construction by competent inspectors who are familiar with the structural design requirements and concrete technology.

Memphis Solution

Many engineers are seeking other methods of handling shop drawings. Some are combining the design and shop drawings as part of an expanded design endeavor. Some are specifying that a registered engineer prepare the shop drawings; others are increasing design fees to cover detailed checking of the fabricator's shop drawings. Many are insisting on detailed field supervision.

Consulting structural engineers in Memphis area have for many years furnished complete "reinforced concrete shop drawings and special engineering inspection" for concrete construction as an expanded service for the owner contractor. This service provides two essential ingredients: (1) more complete plans and (2) more detailed inspection during construction by the designer. Shop drawings include: (1) framing plans showing all forming dimensions and details, thoroughly coordinated and checked in order to expedite layout and formwork, and (2) reinforcing bar placing plans shown in much greater detail than the usual fabrica-

tor's shop drawings, including bend sheets and steel order lists designed to expedite ordering and placement of reinforcement. Since the preparation of these shop drawings can be started as soon as the design is complete, and therefore will be well advanced by the time construction bids are taken, these drawings can be expedited so as to be of maximum advantage to the contractor.

Inspection

Memphis structural engineers have also been furnishing detailed observations and investigations by the structural engineer's representative during all phases of the concrete construction to insure conformance with the contract documents. But the engineer will not supervise the work nor direct how it will be accomplished unless so specified in the contract documents. The contractor solely is responsible for the supervision of all construction. This inspection service is performed during all phases of this portion of the work including: form construction; placement of reinforcement; mix design, mixing, handling and placement, finishing, curing and protection of all cast in place concrete work.

Cost of Special Services

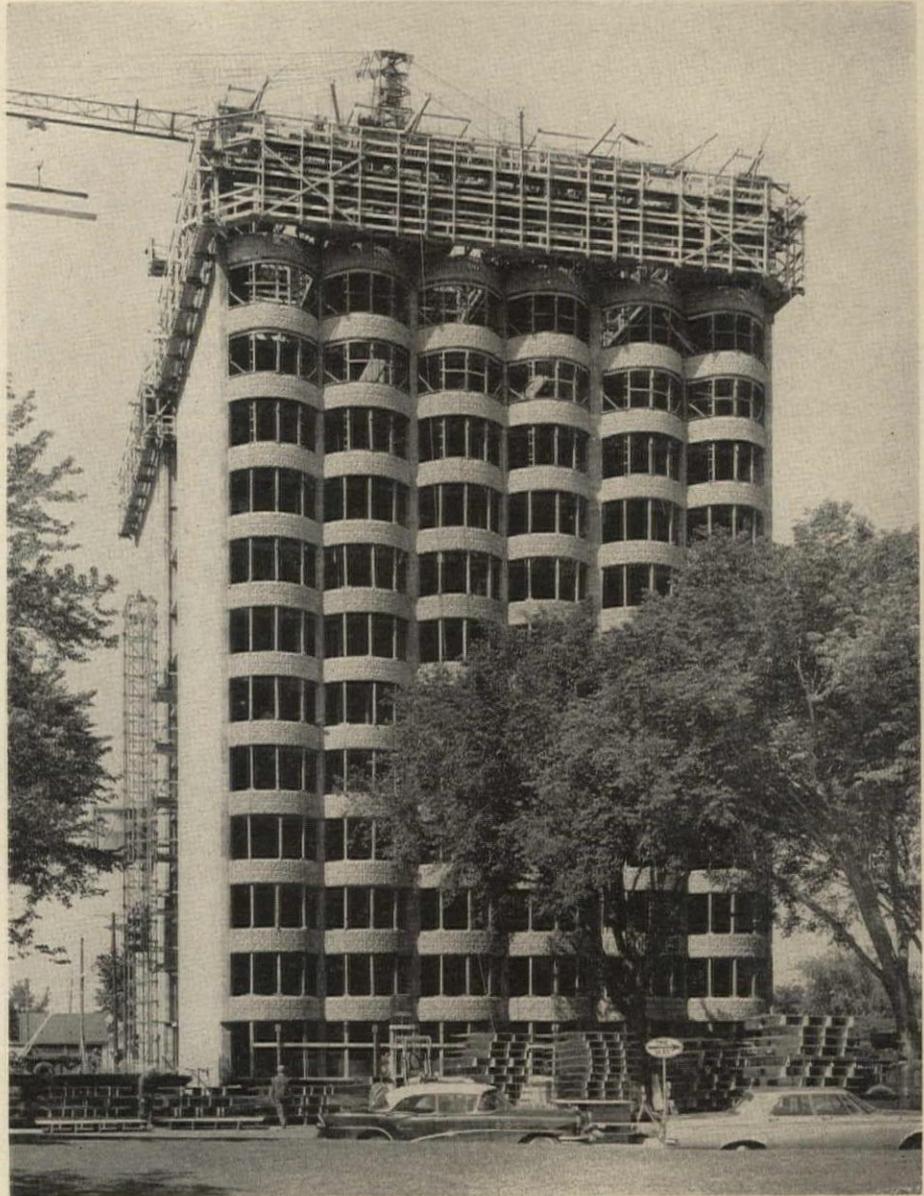
In evaluating the cost of these special engineering services one should consider the over-all cost of the completed concrete structure which is seldom more and usually less than when handled in the customary manner. Although this is a fairly expensive professional service the following offsetting savings are possible: (1) a closer and more economical structural design is justified where the engineer knows the work will be adequately detailed and inspected; (2) the cost of the fabricator's shop drawings is eliminated, as is the engineer's costly checking thereof; and (3) the contractor realizes considerable construction cost savings by having adequate and thoroughly checked drawings to build by, and expeditious consultation during construction resulting in fewer errors and costly corrections.

NEW TECHNIQUES ENHANCE SLIPFORM POTENTIAL

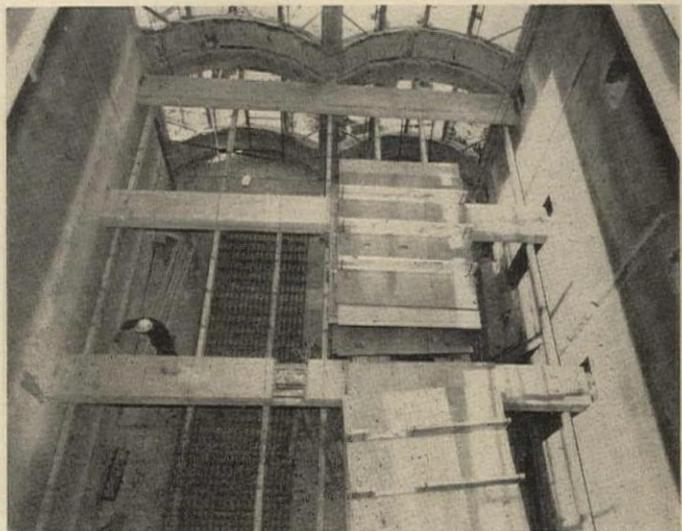
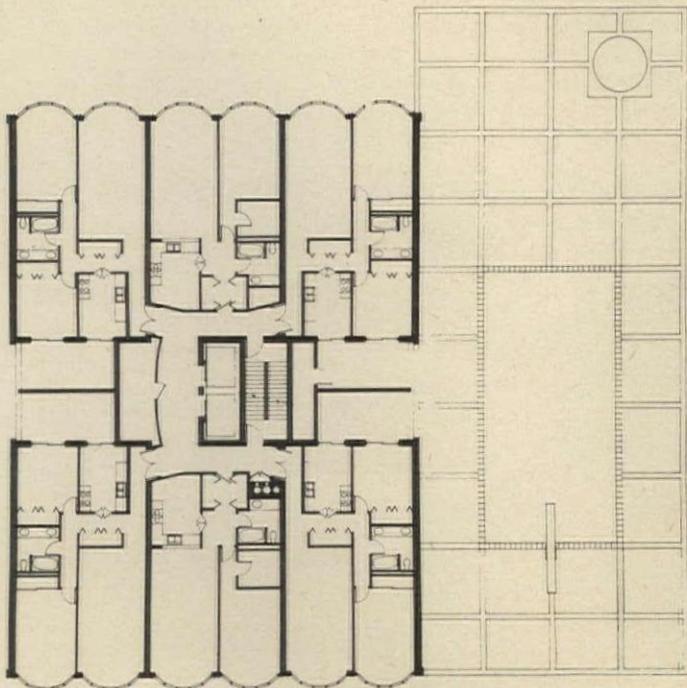
All the walls of this 25-story apartment building in Milwaukee, including spandrels, were constructed by what the engineers term "second-generation" slipforming. Erection by this method proceeded at the rate of one floor per day, resulting in an estimated cost saving of 20 per cent on the 3½-million dollar project. The whole structure was completed in 35 working days, including the foundation walls.

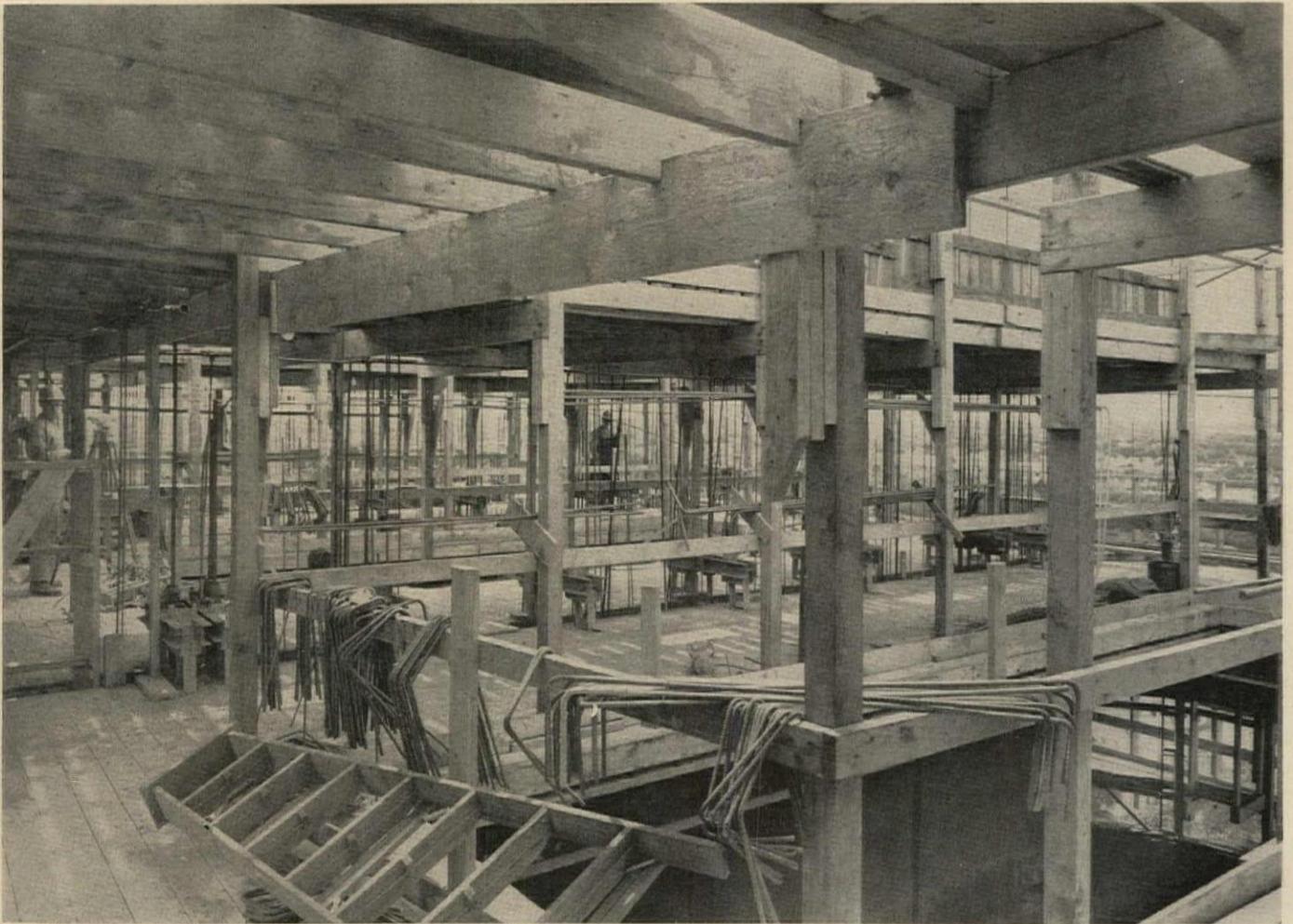
A unique aspect of the construction was the use of a double form arrangement on the curved facades to permit a patterned texture on the spandrel panels. Fiber glass reinforced plastic forms, dimpled to give texture, remained stationary while the outside forms which shaped the small exterior columns slid by. This was a variation of the method whereby dummy forms remain stationary to create wide openings in the interior bearing walls. In addition to the walls, the elevator shaft, chimney and incinerator were poured by slipforming.

A double-decked platform (shown on the following page) was used to perform the slipforming operation. Concrete was poured and reinforce-



All vertical concrete elements were slipformed for the 25-story Bay View Terrace apartment building in Milwaukee. The double-deck platform used for slipforming can be seen in the photo (*above*). Precast beams set in the walls support floor forms, shown in photo (*below*), eliminating shoring





Interior view of double-deck platform shows reinforcement in foreground; row of jacks can be seen in center of photo

ment installed from the lower platform; the upper platform was used to store reinforcement.

To avoid shoring the engineer designed the floor as a 4-in. slab supported by precast, prestressed beams. Floor forms were hung from these beams which were inserted in pockets left in the slipformed walls.

Special wind bracing had to be provided since the floors were poured some 36 ft lower than the slipform operation.

The double-decked platform was hoisted by means of 138 hydraulic jacks which climbed rods set in the concrete walls. The crane was lifted by 16 jacks at the same rate as the

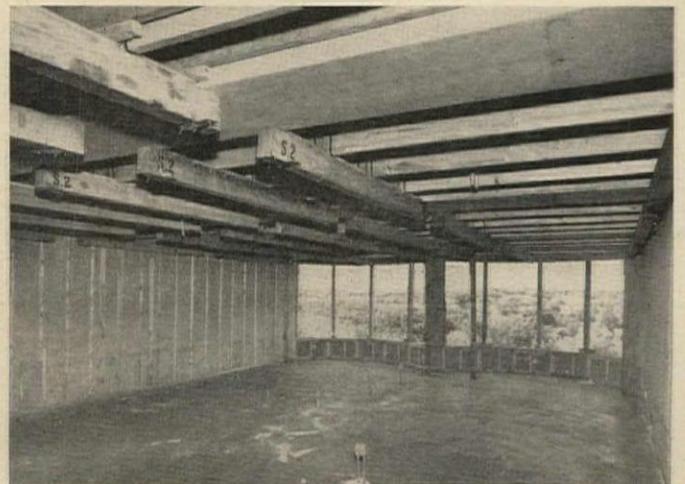
platform.

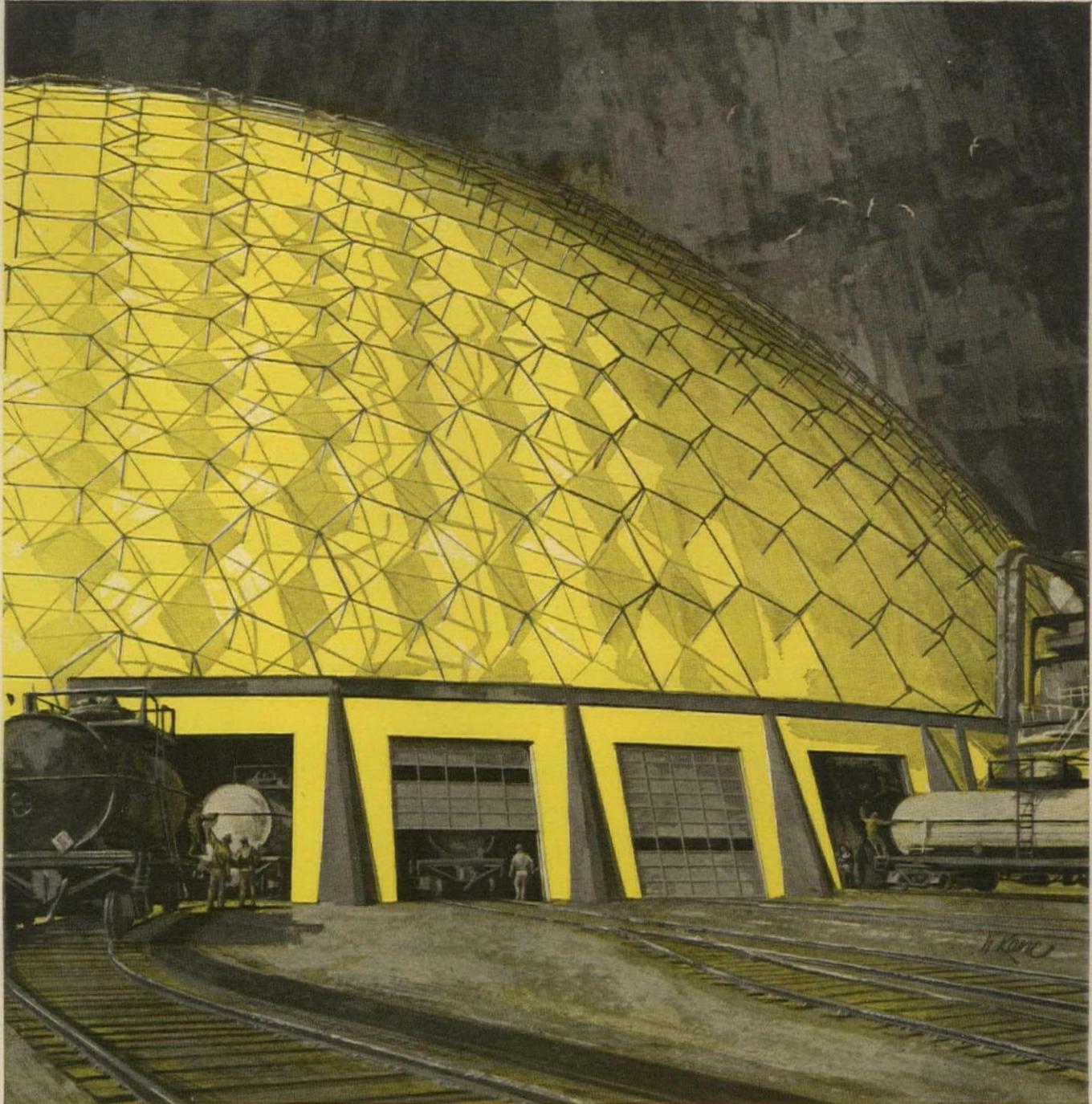
Architects were Rasche, Shroeder & Spransy; structural engineer, Lev Zetlin & Associates; general contractor, Joseph P. Jansen Co.; J. M. Camellerie, consultant for reinforcement detailing. B. M. Heede Co. furnished the jacking equipment and the Linden crane.

One of the 138 jacks used to hoist the double-deck platform



Ceiling will be gypsum board attached to wood furring members





Union Tank Car Service Center, Baten Rouge.

Designed by R. Buckminster Fuller.

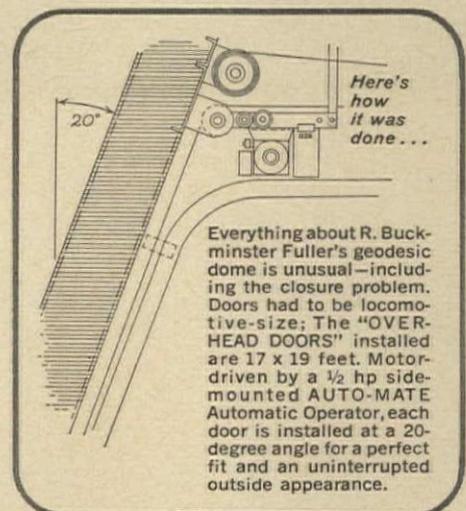
There's no closure problem you can't control with The "OVERHEAD DOOR"

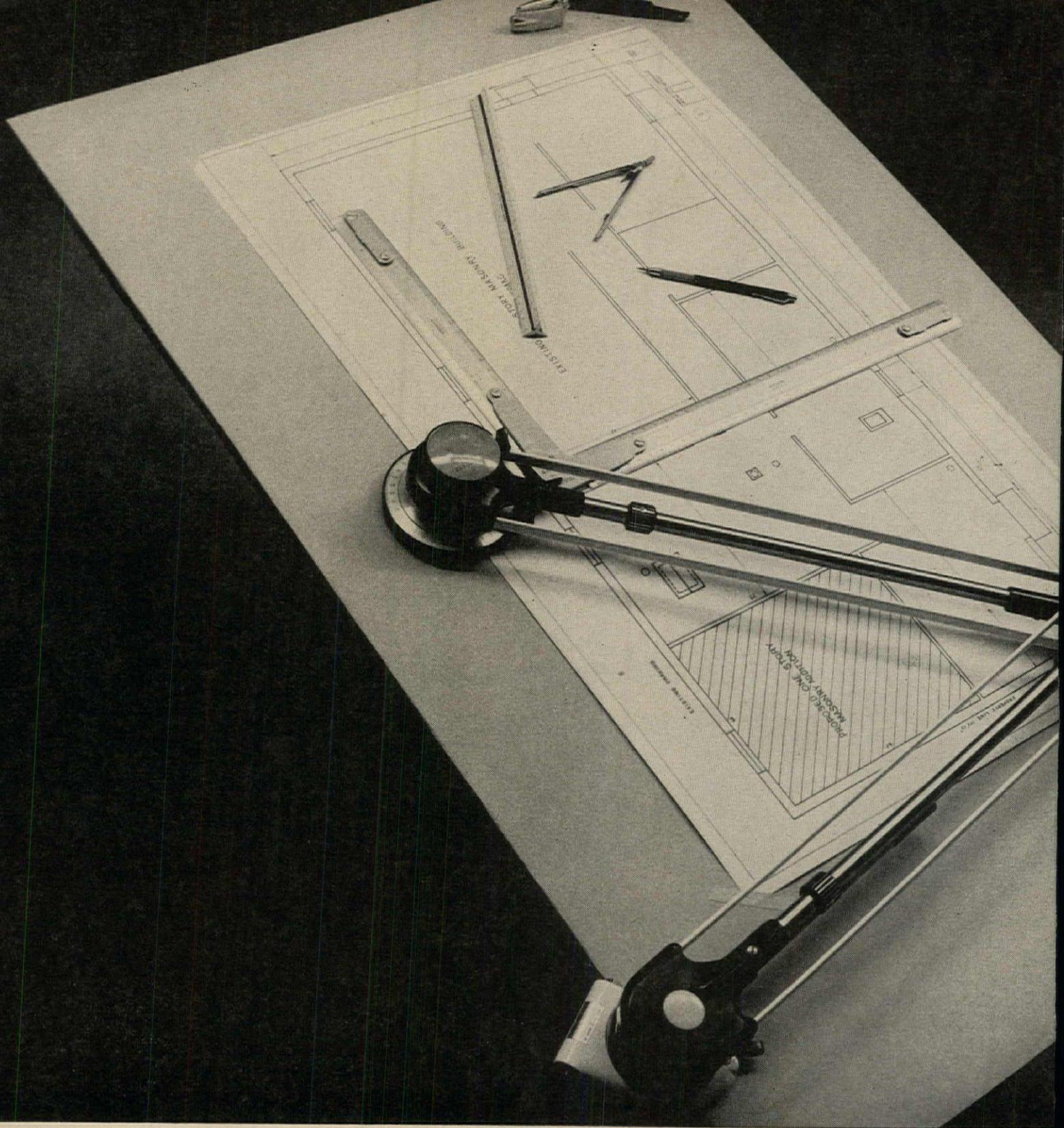
You may never square off with a roundhouse design, complete with geodesic dome by Buckminster Fuller. But you're sure to go many rounds with some challenging closure problems. When this happens, our Architect Design Service can help you solve them with skill and imagination, and the versatility of The "OVERHEAD DOOR."



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For more data, circle 75 on Inquiry Card





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ture won't absorb water. No more roof blistering and cracking caused by water-soaked insulation. Remember its low "k" factor. Remember that roofers find it light in weight, easy to handle, fast and easy to install. And most important, remember that with Styrofoam RM roof insulation, heating and cooling costs remain constant for the life of the roof. And clients remain

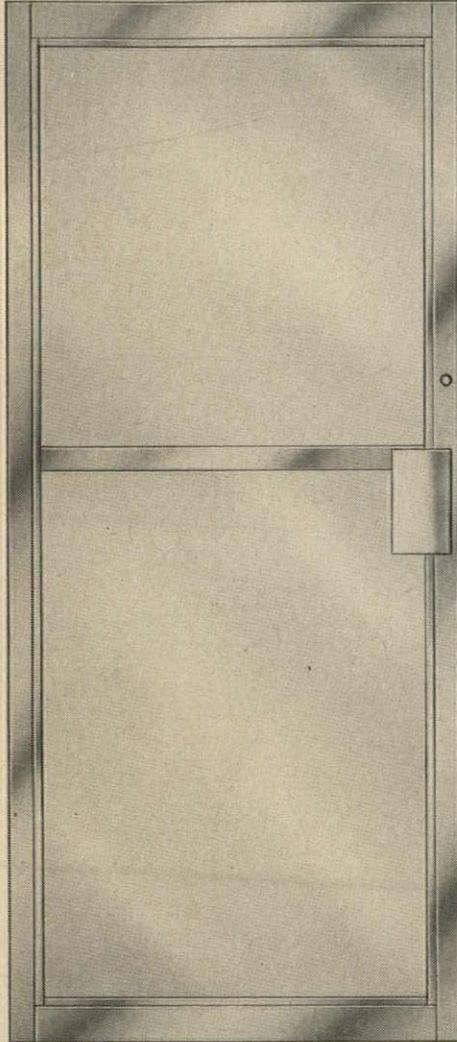
satisfied for at least that long.

Any questions? We'd be happy to send you all the data and specifications you need. Or see Sweet's Architectural File 8a/Dow. The Dow Chemical Company, Plastics Sales Department 1313N8, Midland, Michigan. *Styrofoam is Dow's registered trademark for expanded polystyrene produced by an exclusive manufacturing process. Accept no substitutes... look for this trademark on all Styrofoam brand insulation board.*



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The new Alumiline doors and entrances are another example of how J&L is working with manufacturers in developing quality stainless products at competitive prices.

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For more data, circle 77 on Inquiry Card

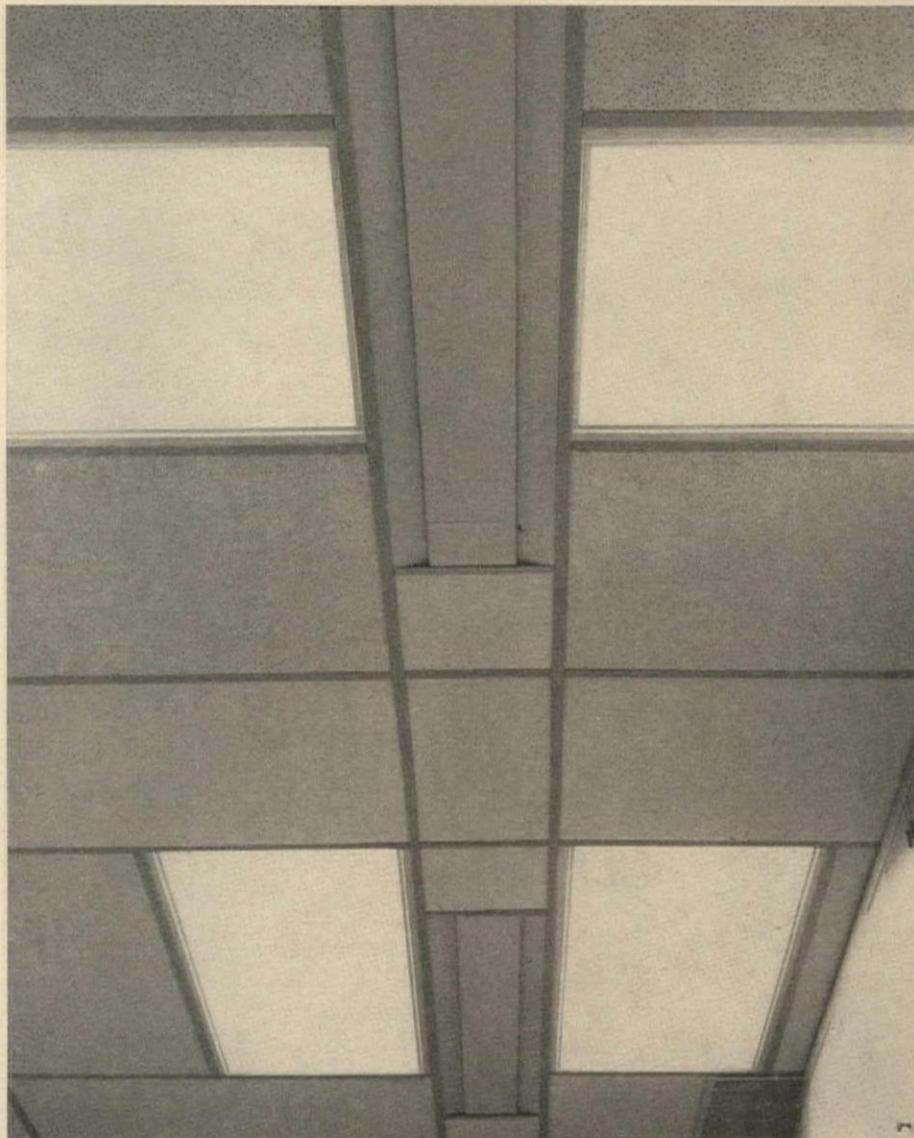
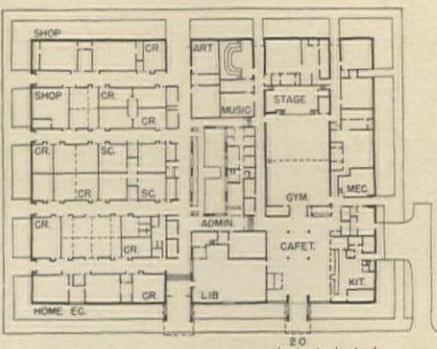
CEILING UNITS FOR SCHOOL AIR CONDITIONING

Two identical 1,000 pupil junior high schools in Montgomery County, Maryland are among the first school buildings in the country to use a recently developed variable volume Dual Conduit* system for year-round air conditioning. Terminal units mounted flush with the hung ceilings deliver air through pairs of long slots designed to cause supply air to be mixed with room air before it reaches occupants.

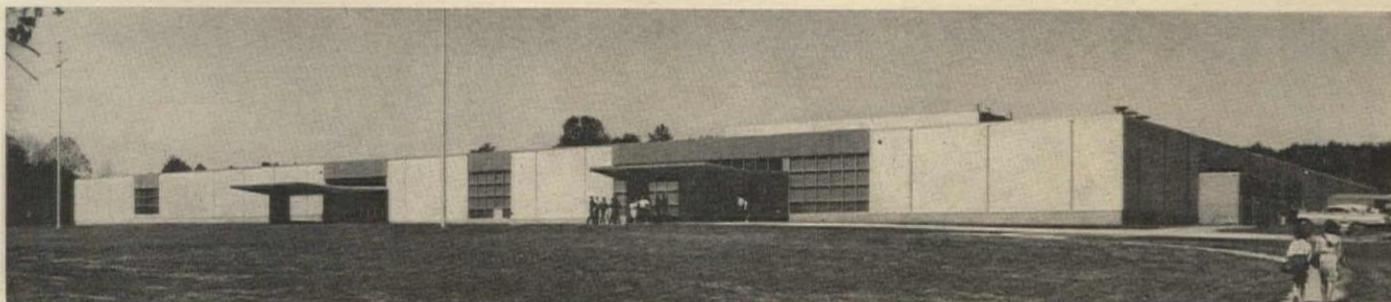
As is the case with a great many of the air-conditioned schools now emerging, these two are compact in plan and have well insulated structures. Classrooms have no exterior windows. With this design, heating of these two schools will not be necessary until the outside air temperature drops below 40 F, and solar effect will be minimized, precluding rapid fluctuation of exterior loads.

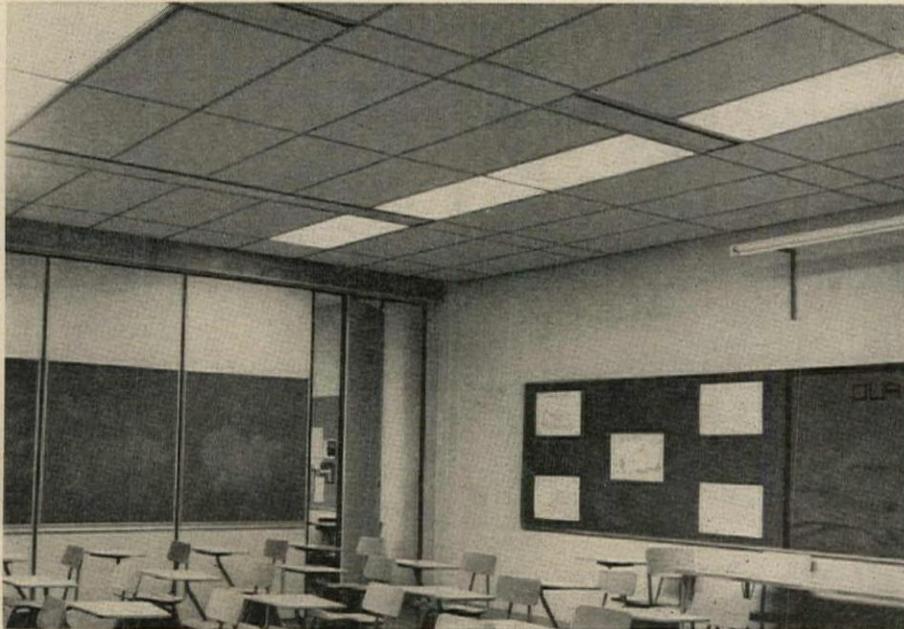
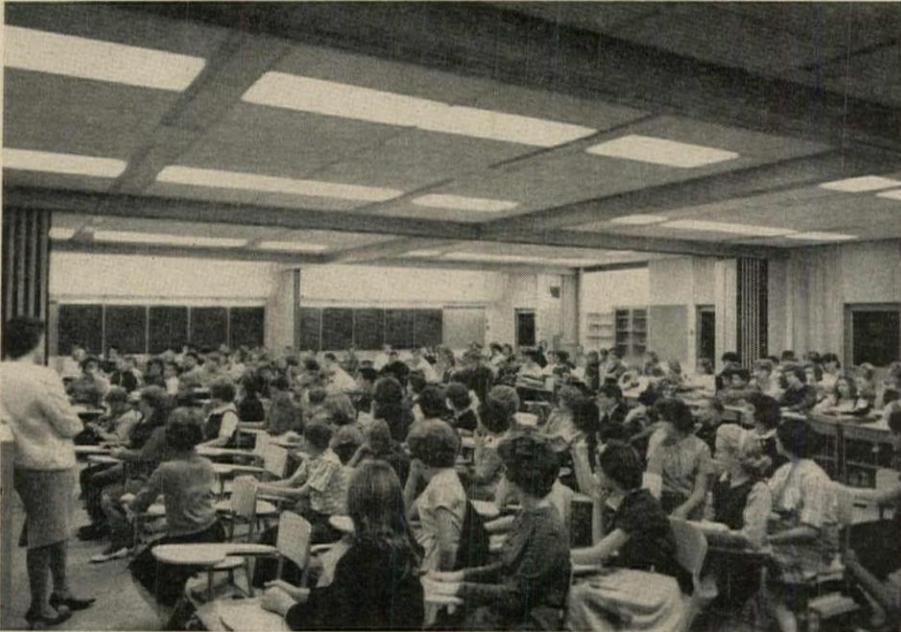
These factors were favorable to the selection of the variable volume Dual Conduit system which essentially is an interior zone system. Two separate air supplies are used: a primary system of constant vol-

*System patented by Carrier Corporation



Variable volume ceiling air supply units adjust entering air temperature to meet changing lighting and population loads in compact-plan Randolph Junior High School and a twin, Parkland, in Maryland. The system's flexibility can cope with different space arrangements in team-teaching areas. Architects were Burket, Tilghman, Nelson and Associates; mechanical engineers were H. Walton Redmile Associates





Above, at top: Folding partitions have been pushed back to open up team teaching area for lecture use. Ceiling diffusers can be seen running perpendicular to rows of recessed fluorescent fixtures. These diffusers are the sole source of air supply in these windowless classrooms. Photo (*directly above*) has partition nearly closed. The diffusers each supply typically 100 cfm in classroom application and have their own built-in controls

Right: Court in the center of Randolph school is glass enclosed to permit a view of the outdoors and to let in daylight. Ceiling diffusers are run close to the glass to compensate for heating and cooling loads. Other exterior glazed areas include ends of corridors, sections of the library and the home economics classroom



ume, variable temperature air, and a secondary system of variable volume, constant temperature air. The primary air system temperature varies according to outside conditions and is used to offset building heat losses and gains. The larger secondary system handles the heat load from lights and people.

The ceiling-mounted outlets contain built-in controls that regulate temperature according to the heat load in the space. This integral control makes it possible for the variable volume system to adjust itself to varying lighting loads and classroom population. Thus, in team teaching areas, when students leave a particular space, the system throws extra air into occupied spaces.

Return air is pulled from rooms to the corridors, where it is picked up by intakes set high on the walls. Return ducts lead into a tunnel under the floor, and air is carried up a central shaft to the large air treating units in the penthouse.

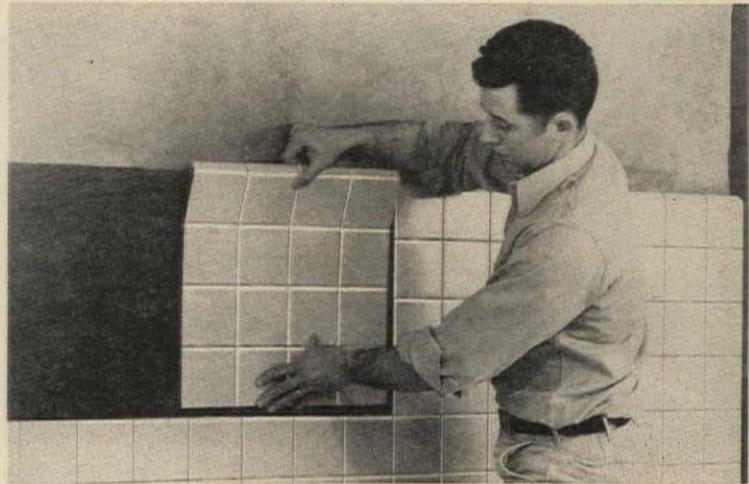
Fire warning is supplied by a smoke detector in the return air duct. The device also shuts off air handling units in the event of fire.

The large glass walls of the court and glass at the entrances provide daylight for exit in case of power failure.

Chilled water is supplied by a 380-ton electric-drive centrifugal refrigerating machine sized for future expansion (peak refrigeration load now is 300 tons). Two oil-fired boilers supply steam. Estimated annual power cost for cooling is \$3,700 and estimated annual heating cost is \$3,600.

For more information circle selected item numbers on Reader Service Inquiry Card, pages 193-194

EDGE BONDED TILE SHEETS CUT INSTALLATION TIME



Test applications of American Olean's new *Master-Set* glazed tile sheets indicate a substantial saving in installation time, when compared with individual tile setting. Tests carried out on a 9- by 18-ft wall showed that a team using the new *Master-Set* mounted tiles could complete the job in about half the time it took them to surface the wall set-

ting each tile individually.

Each tile sheet consists of 16 tiles joined at the edges by a thin ribbon of extra strong, flexible bond material. The corners are left open and the tile backing is 100 per cent exposed for maximum bonding. Sheets can be soaked in water without affecting size, shape or tile alignment. Conventional mortar, thin-set mortar

or adhesive setting methods can be used. No special grout is required. *Master-Sets* can be ordered with a cap or cove base already attached. Sheets are available with 3-, 4-, and 6-in.-square tiles as well as 6 by 4 $\frac{1}{4}$ in. and 8 $\frac{1}{2}$ by 4 $\frac{1}{4}$ in. *American Olean Tile Company, Executive Offices, Lansdale, Pa.*

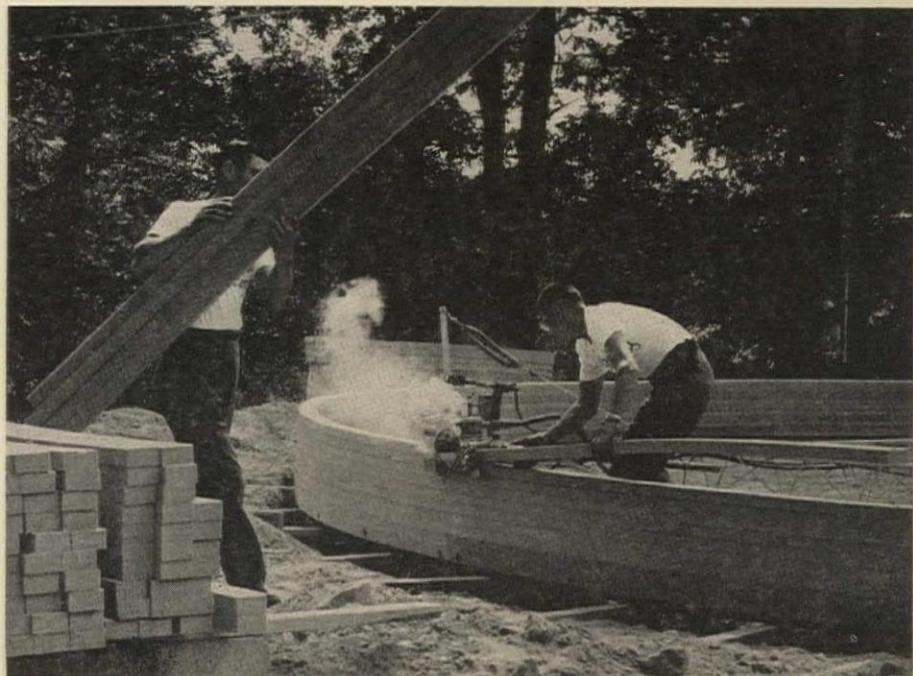
CIRCLE 300 ON INQUIRY CARD

NEW SYSTEM FORMS CURVED STRUCTURES OF PLASTIC FOAM

A mechanical system to form plastic foam boards into curved architectural shapes is being developed by the Dow Chemical Company. Although still in the research stage, the *Spiral Generation* system has already been used to erect a number of experimental structures at the company's headquarters.

A small machine bends, places and fastens the foam boards together in a pre-determined path. The machine can be modified to produce a number of shapes, but at present hemispherical shapes are most used. Most of the work to date has involved the use of Styrofoam extruded polythene foam, but the research program is being extended to include other materials. *The Dow Chemical Company, 133 Building, Midland, Mich.*

CIRCLE 301 ON INQUIRY CARD
more products on page 174



Office Literature

For more information circle selected item numbers on Reader Service Inquiry Card, pages 193-194

HARDWOOD FLOORS AND WALL PANELING

Three illustrated color leaflets give details of *Bruce* pre-finished hardwood floors and wall panels. A fourth leaflet provides information on the control of termites with the aid of the *Bruce Terminix* protection system. *E. L. Bruce Co., Inc., Memphis, Tenn.**

CIRCLE 400 ON INQUIRY CARD

CANVAS SHADES

New ideas for the use of canvas are displayed in a colorful 16-page brochure. Canvas arcs to protect pools, a cone-shaped canvas canopy and a canvas igloo are among the unusual items featured. *Canvas Awning Institute, Inc. and National Cotton Council, 1918 North Parkway, Memphis, Tenn.*

CIRCLE 401 ON INQUIRY CARD

STEAM TO WATER CONVERTORS

A 36-page catalog gives comprehensive information on the company's line of Steam-to-Water Convertors. Pool heaters and snow melting equipment are also described. The information given covers design features and materials, construction techniques, selection methods, piping diagrams and standard specifications. Tables are included which list GPH and pressure drop for the various convertor units. The capacities of the units when providing 10-, 20-, 30- and 40-deg temperature rises are also shown by means of tables. *Lindy Hydrothermal Products, Inc., 1656 E. 23rd St., Bronx 66, N.Y.*

CIRCLE 402 ON INQUIRY CARD

LIGHTING FIXTURES

A 32-page catalog contains photos, descriptive material and specification data for a new line of all aluminum fixtures. Items included in the line are extruded aluminum exit lights, a wall washer series and low brightness down lights. *Marvin Electric Manufacturing Company, 6100 Wilmington Ave., Los Angeles 1, Calif.**

CIRCLE 403 ON INQUIRY CARD

INSULATION OF WOOD-FRAME STRUCTURES

This 24-page report, seventh in the series of Wood Construction Data publications, discusses thermal insulation of wood frame buildings. A table is included which compares the thermal properties of wood and other construction materials and lists their relative insulation values. Methods of installing insulation in the most common wall, floor ceiling and roof systems are illustrated, and tabulations are included listing the thermal properties of these types of wood constructions. Comparative costs of heating and cooling a masonry structure and an insulated wood-frame building are given, based on a two-year study conducted by the association. *Technical Services Division, National Lumber Manufacturers Association, 1619 Massachusetts Ave., N.W., Washington, D.C.*

CIRCLE 404 ON INQUIRY CARD

COLOR FINISHES FOR METAL WALLS

Anodic hardcolor finishes for *Kawneer* metal wall systems are illustrated in a new information file for architects and builders. Samples of the *Permanodic* hardcolor on aluminum in shades of bronze and black are included in the file. *Kawneer Company, Division of American Metal Climax, Inc., Niles, Mich., 49120**

CIRCLE 405 ON INQUIRY CARD

GLASS BUILDING UNITS

The company's complete line of glass building units is described and illustrated in a 12-page catalog. *Intanglio* glass wall units, which provide unusual grill arrangements, sculptured glass modules, color glass blocks, rectangular and standard glass blocks are among the items featured. Photographs of job applications are included as well as information on how to select appropriate functional blocks for specific uses. Installation data is given for all items. *Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh, Pa.**

CIRCLE 406 ON INQUIRY CARD

ARCHITECTURAL PATTERNS IN STONE

A 14-page catalog shows by means of photographs close-up details and the over-all effects produced by 12 different patterns of Palos Verdes Stone. Descriptions of the different types of stone are included as well as complete data on physical properties, coverage, specifications and methods of anchoring stone veneer to brick, block, wood and precast masonry backings. *Palos Verdes Stone Department, Great Lakes Carbon Corp., 343 Lomita Blvd., Torrance, Calif.*

CIRCLE 407 ON INQUIRY CARD

TEN YEARS OF ARCHITECTURE

"The Value of the Architect" is a reprint of the Minneapolis-Honeywell Regulator Company's advertisements over the past 10 years. The advertisements feature descriptions and photographs of interesting contemporary buildings in which *Honeywell* automatic control systems for heating, ventilating and air conditioning have been used. *Minneapolis-Honeywell Regulator Co., Executive Offices, Minneapolis 8, Minn.*

CIRCLE 408 ON INQUIRY CARD

METAL ROLLING DOORS

A wide range of hand or motor operated steel or aluminum rolling doors, counter shutters and grills are fully described in a 36-page booklet. Diagrammatic drawings and suggested specifications are included for all items. *The Kinneer Manufacturing Company, Columbus, Ohio**

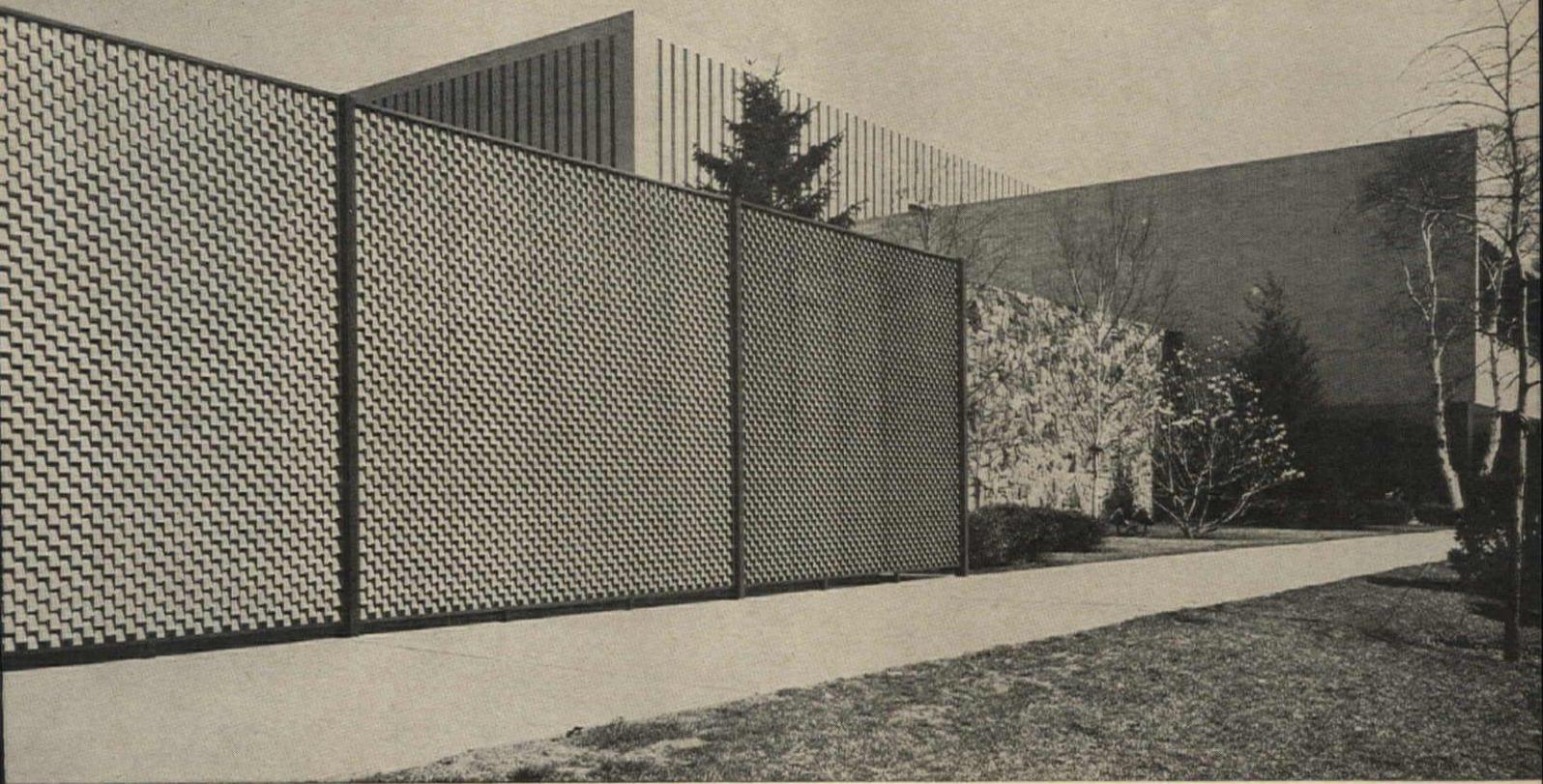
CIRCLE 409 ON INQUIRY CARD

REFRIGERATION CATALOG

This 48-page catalog contains descriptive material and complete specification data on the company's *Streamline* driers, valves, fittings, tubing and other refrigeration system accessories. The latest *Dry-master Micro-Guard* filter driers and several service tools are featured. *Mueller Brass Co., Port Huron, Mich.**

CIRCLE 410 ON INQUIRY CARD

*Additional product information in Sweet's Architectural File
more literature on page 210



Architect: Abbott, Merkt & Co., New York City

BORDEN ARCHITECTURAL DECOR PANELS: DECA-GRID

Shown above: Custom-designed Borden Deca-Grid panels with tilted spacers, used to separate and screen the service area at Saks in Garden City, Long Island.

With the Deca-Grid style, specifications for spacings and spacer bar positions may be varied almost indefinitely. Another variation available for Deca-Grid is known as the Slant-Tab variation—here the spacers are mounted at angles of 30°, 45°, 60° or 90° and the spacers (called Slant-Tabs) may be altered in length, depending

on angle of mounting selected.

All the Borden Decor Panel styles, including Deca-Grid Deca-Grid, Deca-Gril, Deca-Ring and Decor-Plank, are highly versatile in design specification and in application such as for facades, dividers, grilles, fencing, refacing of existing buildings, etc. Fabricated in standard or custom designs in sturdy, lightweight aluminum, Borden Architectural Decor Panels provide a handsome, flexible, maintenance-free building component.

Write for latest full-color catalog on Borden Architectural Decor Panels.

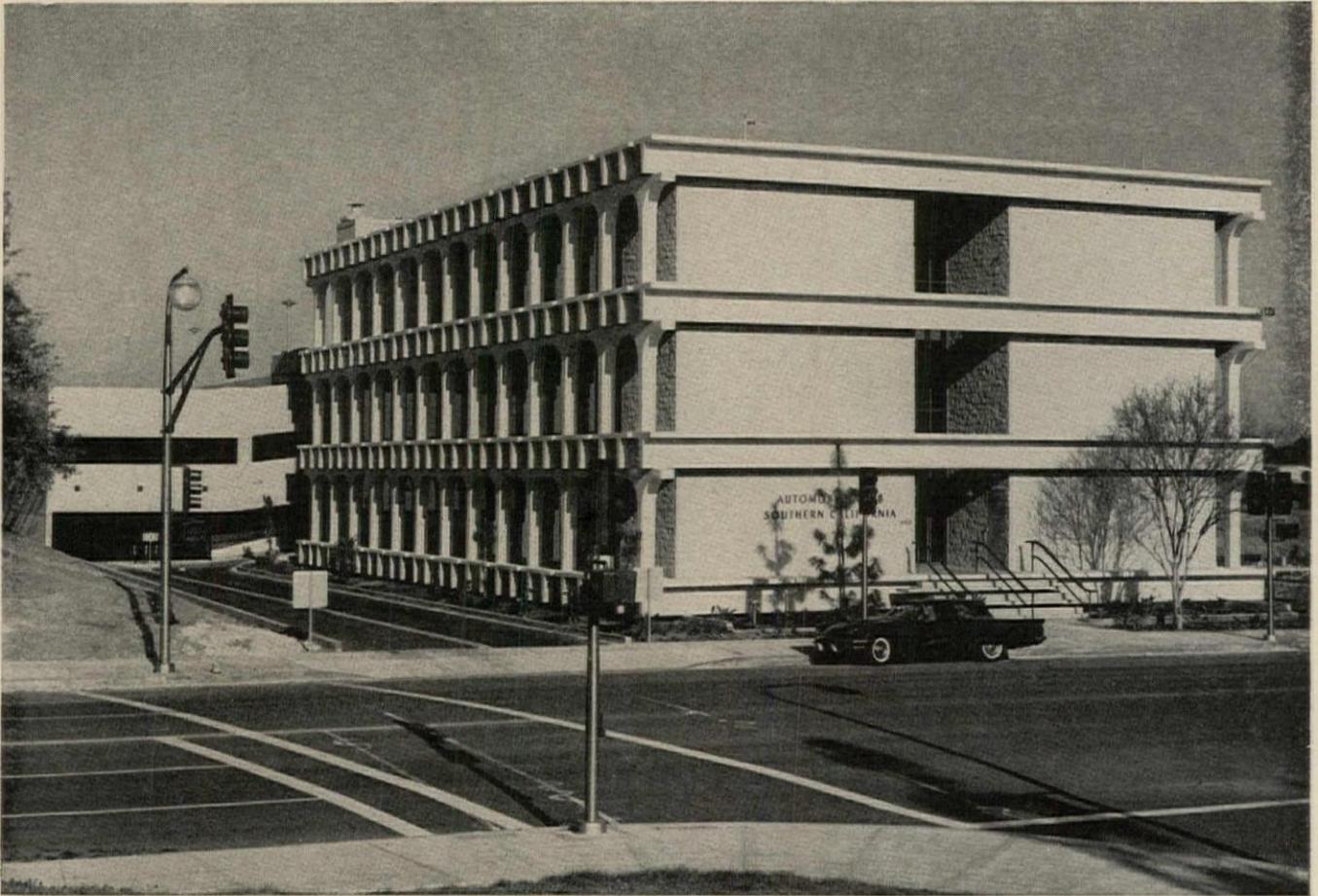
another fine product line of

BORDEN METAL PRODUCTS CO.

MAIN OFFICE: 822 GREEN LANE, ELIZABETH, NEW JERSEY • Elizabeth 2-6410
PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS

When in New York City, see our exhibit at Architects Samples, 101 Park Avenue

For more data, circle 78 on Inquiry Card



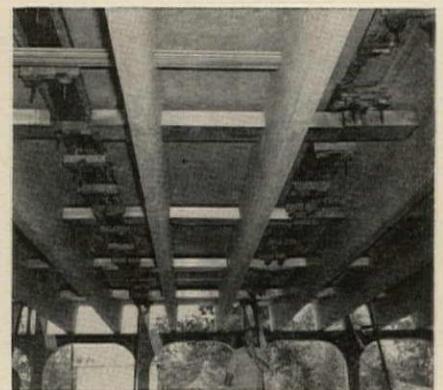
Office building and garage of Automobile Club of Southern California, Los Angeles, California.
 Architects and engineers: Welton Becket and Associates, Los Angeles, California.
 Contractor: Oltmans Construction Co., Monterey Park, California.
 Prestressed Concrete Fabricator: Rockwin Prestressed Concrete Corporation, Santa Fe Springs, California.

Handsome new Auto Club office and garage features prestressed double tees

Exposed prestressed concrete sections provide interesting shadows and highlights on the new office building of the Automobile Club of Southern California, Los Angeles. Prestressed double tees were used in the floor and roof structure of the new facility. Garage structure, shown behind the office, is also made with prestressed double tees. Inset photo shows how metal ducts were run directly through the legs of the tees thus decreasing required ceiling height.

In all, 88 double tees were used for the office building. These have a 65' span, 8' width and 32½" depth. Garage tees are 61' long, 8' wide and 26" deep. Union TUFWIRE Strand was used throughout by the prestressed concrete manufacturer.

TUFWIRE Strand and other Union Wire Rope products are made by Sheffield Division, Armco Steel Corporation, Department S-1584, 7000 Roberts Street, Kansas City, Missouri 64125. Write us for helpful data.



Note ductwork passing through web of tees. This method used to conserve overhead space.

ARMCO Sheffield Division

For more data, circle 79 on Inquiry Card

This man has a "color-full" past



**And he belongs
in your future plans.**

His experience makes it easy for him to save you time and money when it comes to paint. This man can help you with any color subtleties you may want to create. He can supply accurate paint cost appraisals—along with technical data on such factors as light reflectivity, weather resistance, and special formulae for corrosive and erosive conditions for any industrial jobs you may have. And he helps with many other details, right down to on-the-job deliveries.

"The Man from Devoe"—that's who he is: a specialist

in providing time-saving, money-saving assistance. Get acquainted with his many services now—merely write or phone the nearest Devoe office.



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For more data, circle 96 on Inquiry Card

IT'S EXCLUSIVE!

ONLY *Thermopane*[®]
INSULATING GLASS HAS THE
METAL-TO-GLASS SEAL

*It's dependable because
it's more vaportight!*

In *Thermopane* — and only *Thermopane* — the metal divider between the panes is *bonded* with the glass to form the hermetic seal. The seal is entirely inorganic. No seal which depends on organic mastic materials can be so vaportight, so free from moisture penetration.

The dependability of the seal for *Thermopane*...the greater assurance of satisfactory performance...is extra protection for you as an architect. It's the kind of quality that means greater client satisfaction, fewer recalls.

BENEFICIAL ALL YEAR 'ROUND

Thermopane provides greater comfort in winter, contributes to heating and air-conditioning economies year 'round. Where sun heat and glare present a problem, *Thermopane* can be fabricated with *Parallel-O-Grey*[®], *Parallel-O-Bronze*[®] or Heat Absorbing Plate Glass as the outer pane or *Tuf-flex*[®] for greater impact resistance. For information, call your L·O·F distributor or dealer (listed under "Glass" in the Yellow Pages). Or write to L·O·F, 2184 Libbey·Owens·Ford Bldg., Toledo, Ohio 43624.

MADE IN U.S.A.

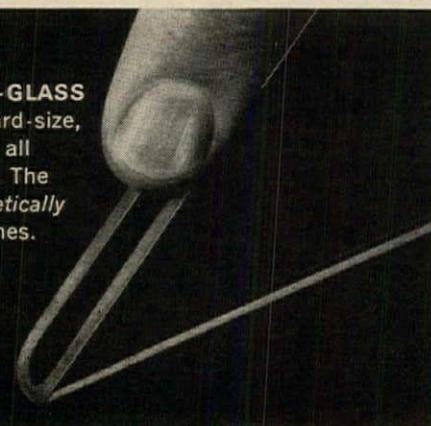


Standard Warranty Now 10 Years

L·O·F was the first insulating glass manufacturer to double the period of its standard warranty on every unit produced — on both *Bondermetic Seal*[®] and *GlasSeal*[®] units. That's a real backup for you.

Libbey·Owens·Ford

TOLEDO, OHIO



A FUSED GLASS-TO-GLASS SEAL, TOO, for standard-size, operating windows. It's all one material—all glass. The dehydrated air is *hermetically* sealed between the panes.

For more data, circle 97 on Inquiry Card



Thermopane®

METAL-TO-GLASS SEAL

The dehydrated air space between the two panes in *Thermopane* is protected by a metal-to-glass seal which is bonded—not glued. No organic seal can stay so vaportight! To keep the air even drier, each unit has the exclusive dehumitube on the metal seal.

Product Reports

continued from page 182

LIGHTWEIGHT FIRE EXTINGUISHER

This new extinguisher, which is capable of fighting all classes of fire, weighs only 18½ lbs when filled. Its light weight and general compactness make it easy to install. Operation is quick and simple, a slight squeeze on the lever handle gives instant discharge. The ABC extin-

guisher, which holds 10 lbs of dry chemical, has a heavy duty steel cylinder, a leak-proof high compression valve and a flexible corrosion-proof hose with nozzle. *W. D. Allen Mfg. Co., 650 South 25th Ave., Bellwood, Ill.*

CIRCLE 310 ON INQUIRY CARD

500 WATT DIMMING CONTROLS

Two new 500 watt capacity electronic dimming controls, *PC 5-I/P* and *PC5-I/3P*, are designed to fit any standard 2-in.-deep single gang

switch box and to utilize the Silicon Symmetrical Switch, an AC, solid state power device, designed by the company specifically for true full wave dimming.

A special feature of both units is the tap on, tap off control allowing on and off action at any desired intensity setting. The *PC 5-I/3P* is designed to operate on a three-way switch circuit and can be wired in to replace one of a pair of three-way wall switches, and to operate in conjunction with the remaining switch. Both units are said to withstand current and inverse voltage surges. *Hunt Electronics Company, 2617 Andjon Dr., Dallas, Tex.*

CIRCLE 311 ON INQUIRY CARD

NEW LAVATORY BASIN

Phillip Johnson Associates were responsible for the design of this new lavatory basin for office and institutional buildings. The new model has been added to the Rheem plumbing fixture line. *Rheem Manufacturing Company, 7600 South Kedzie Ave., Chicago 52, Ill.*

CIRCLE 312 ON INQUIRY CARD



NINE ACRES OF TIMBER ROOF STRUCTURE

More than 9 acres of storage for canned food products is provided under this economical roof system of 530 double cantilevered glued laminated timber beams. This includes 28-11" x 43⅞" x 113'-0" and 28 11" x 48¾" x 96'-8" beams, with the balance in lengths from 62'-4" down to the shortest purlin 26'-4". In addition to the glued laminated timber primary structural units, the roof system uses solid sawn Douglas Fir secondary purlins and joists and Douglas Fir plywood sheathing.

All of the beams were manufactured and fabricated to specification at Rosboro Lumber Company's laminating plant in Springfield, Oregon.

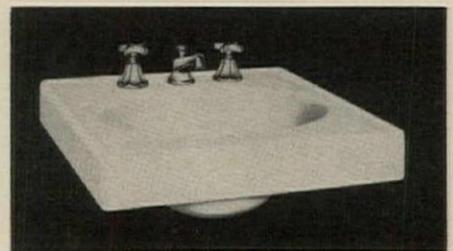


HUNT FOOD & INDUSTRIES, HAYWARD, CALIFORNIA

Architects: John Fortune & Associates
Consulting Engineers: King, Benioff & Associates
Contractors: Swinerton & Walberg Co.
Erection Contractor: Associated Wood and Glu-Lam Inc.



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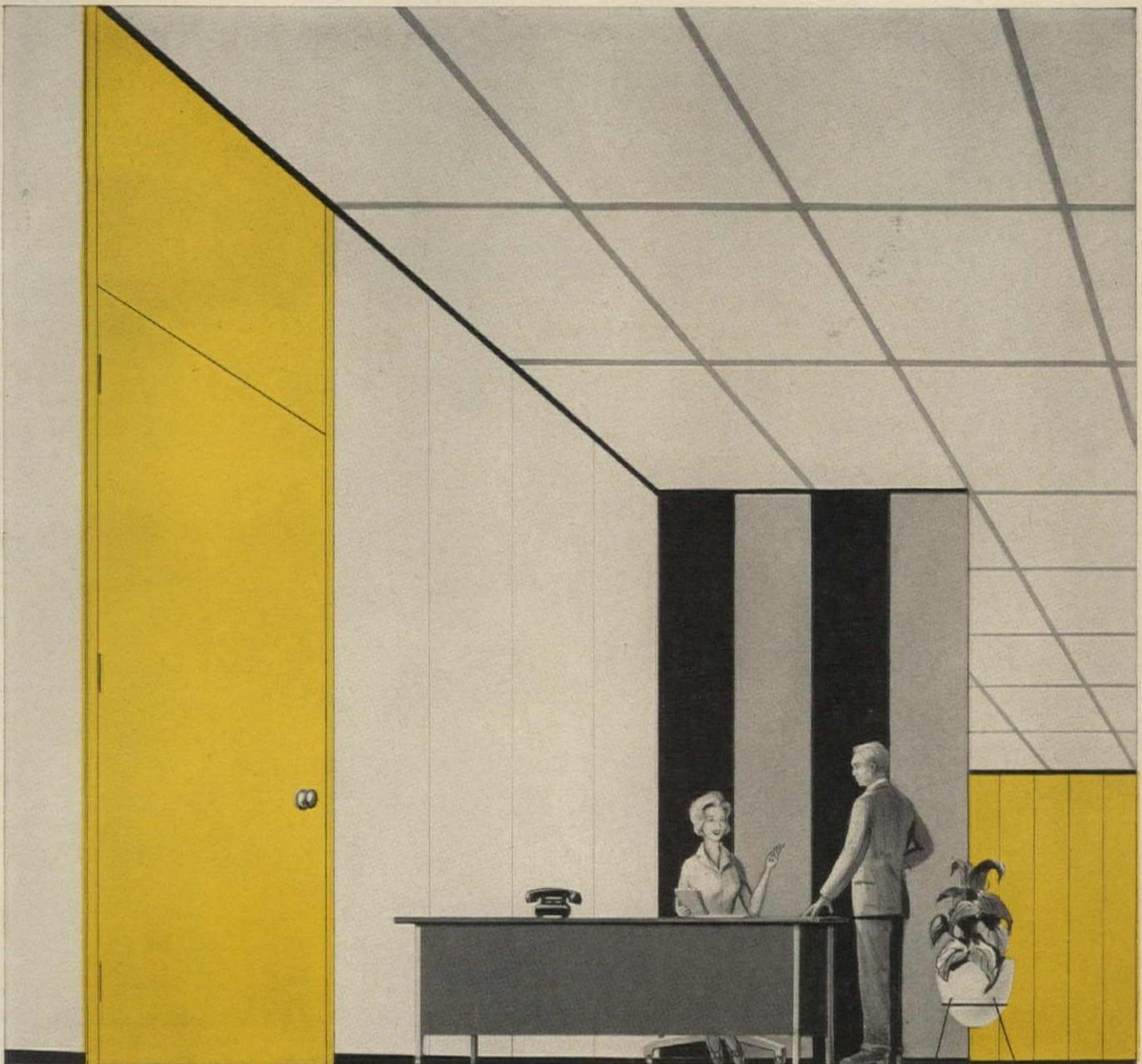
COOLING UNIT USES SEA WATER

A condenser water cooler using nickel alloy parts that can utilize sea water as the cooling agent in coastal areas is now on the market. The heat exchanger units ranging in size from 4 to 30 in. in diameter and from 2 to 20 ft in length, utilize a two-pass U-bend removable tube bundle. All wetted surfaces on the tube side are of 90/10 copper nickel. The use of nickel in these coolers makes it practical to use well water in coastal areas, or straight sea water as the cooling agent, thus eliminating the need to use expensive city water for air conditioning and other units which make use of condensers. *ITT Bell & Gossett, Inc., 8200 N. Austin Ave., Morton Grove, Ill.*

CIRCLE 313 ON INQUIRY CARD

more products on page 206

For more data, circle 98 on Inquiry Card



design with Penwall Mark II for handsome interiors at low, low cost

Penwall Mark II is designed specifically for architects who want the premium quality of a movable steel partition without paying premium prices.

You get a trim, recessed base . . . a recessed cornice for fine-line accent at the ceiling . . . a door frame with header panel that gives the appearance of a full-height door . . . and an aluminum window unit of any height required.

There are no restrictions on choice of colors, panel materials or textures. And yet, with all this, Penwall Mark II is easier and less expensive to relocate than any partition on the market today. Every single part is reusable.

For details of these handsome, low-cost partitions, send for a copy of catalog MP-22. Contains cut-away drawings and complete specifications.

PENN METAL COMPANY, INC.

Sales Office: P. O. Box 1468, Parkersburg, W. Va. 26101

Executive Offices: 40 Central Street, Boston, Mass. 02109

Plant: Parkersburg, W. Va.

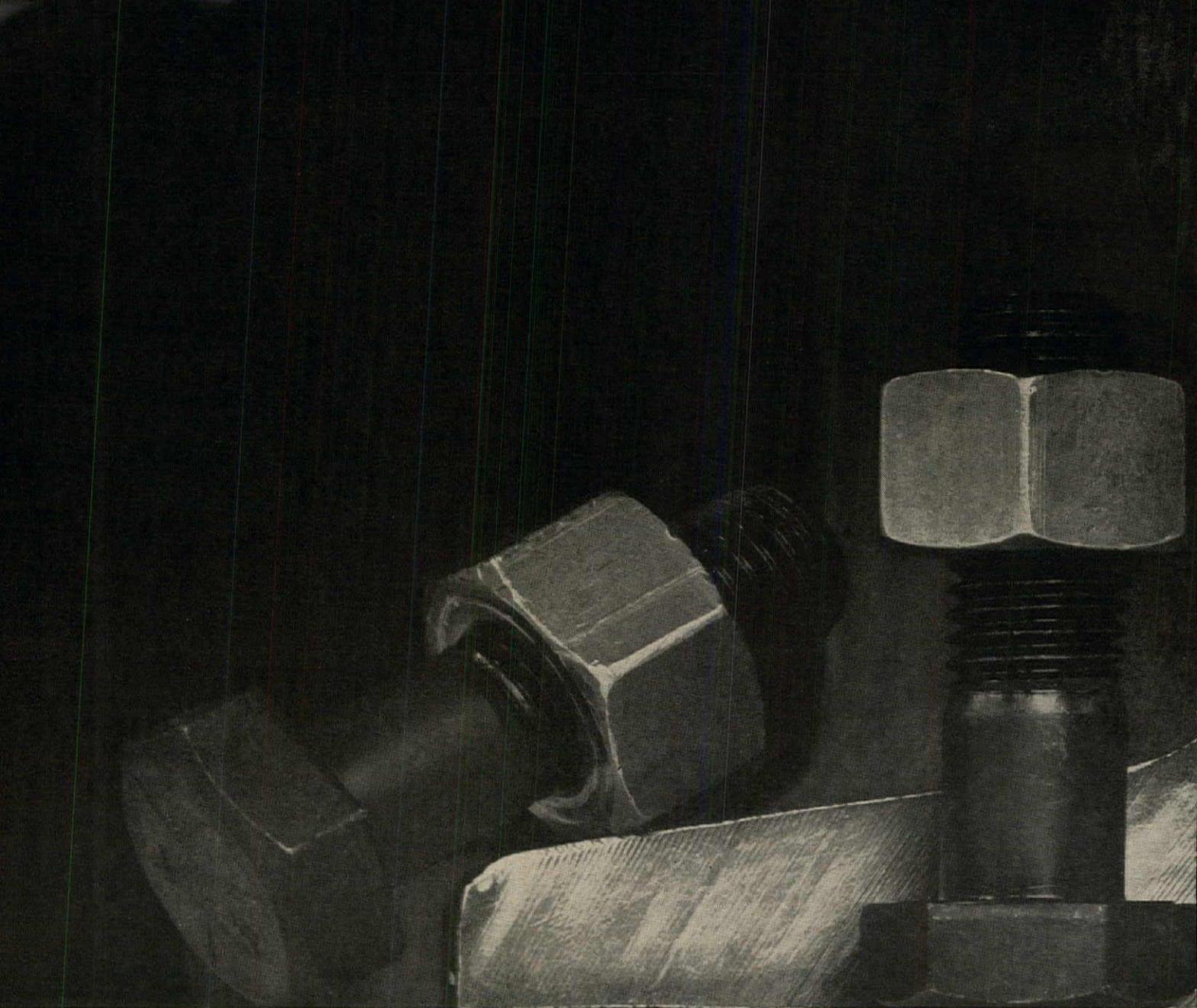
District Sales Offices: Boston, Chicago, Dallas, Detroit, Houston, Little Rock, Los Angeles, New York, Parkersburg, Philadelphia, Pittsburgh, St. Louis, San Francisco, Seattle.



a name to remember

PM-306

For more data, circle 99 on Inquiry Card



Republic Heavy Head High Strength Bolts and Nuts in approved design are available now in diameters from $\frac{1}{2}$ " through $1\frac{1}{2}$ ", to meet broadest needs.

Two Republic heavy head bolts

"Heavy Head" means that Republic High Strength Bolt Heads are now the same width as the nuts. Not only can the same wrench be used on both bolt and nut, but the larger head permits tightening to greater clamping loads. This tightening force is transferred to joints as clamping strength, an advantage impossible to duplicate with any other fastening method.

Because of increased shear values higher than those for rivets, two bolts can now do the work of three rivets, providing the threads are not in the shear plane. To assure this advantage, the thread length of Republic High Strength (Heavy Head) Structural Bolts has been shortened to avoid placing threads in shear.

In addition, where "turn-of-the-nut" tightening method is used, *both washers may be eliminated.* (See table at right.) Elimination of washers in friction type or bearing joints is recognized by AISC and AREA, where "turn-of-the-nut" tightening is used.

Using this new tightening method, Republic High Strength Bolts are both the original and final fasteners. First, bolts are installed, snug-tight. On the second and final pass, tightening as described in the table here, completes this new, stronger assembly.

Save construction time and costs with this new fastening method! Call your local Republic office for brochure No. 962-R.



This STEELMARK of the American Steel Industry on a product assures you it is made of modern, versatile, economical Steel. Look for it on the products you buy.



do the work of three rivets

"TURN-OF-THE-NUT" Structural Bolting

(Disposition of outer faces of bolted parts, from snug-tight condition of nut.)

Both faces normal to bolt axis.

$\frac{1}{2}$ turn



One face normal to bolt axis; one sloped 1:20. (Bevel washers not used.)

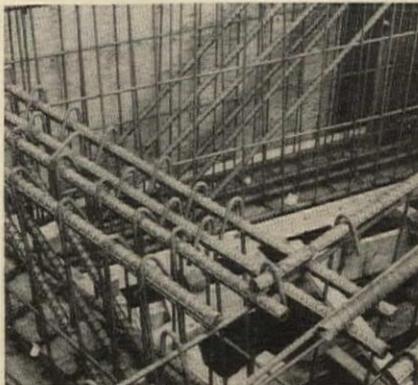
$\frac{3}{4}$ turn



Both faces sloped 1:20 from normal axis. (Bevel washers not used.)

1 turn

For more data, circle 101 on Inquiry Card



Reduce steel needs and structural weight with Republic High Strength Re-Bars. Yield strengths from 60,000 psi to 75,000 psi. Available immediately through your local Republic supplier, in any quantity.



Republic supplies famous ELECTRUNITE® Carbon and Stainless Steel Tubing for every structural need, in a full choice of sizes, gages, and wall thicknesses. Write for booklet No. STR-2.



REPUBLIC STEEL
CORPORATION

CLEVELAND, OHIO 44101



Product Reports

continued from page 202

VERSATILE PLATFORM SEATING

Hussey flexible telescopic seating platforms have extruded aluminum decks with built-in safety treads and an all steel understructure. They are designed and constructed to reduce the over-all weight, to make transportation easy and to provide structural rigidity. The Hussey system

was used in the Tulsa Assembly Center, to provide 1630 portable seats which could be adapted to suit the variations in seating patterns required for different events such as hockey, basketball and stage shows. *Hussey Manufacturing Co., Inc., N. Berwick, Maine*

CIRCLE 314 ON INQUIRY CARD

WALL TELEPHONE BOOTH

A new acoustical wall telephone booth, called the *ADCO 10-S Slim-Line*, is designed to permit installa-

tion in an extremely narrow space and to provide effective sound absorption. Its 19-in. width permits installation of three booths in the space normally occupied by two standard size booths.



The mar-proof stainless steel booth has shelf space for purses, packages, etc., a phone book compartment, and a 1/2-in.-thick clear Plexiglas divider on the side to give privacy. *Acoustics Development Corp., 1061 North Northwest Highway, Park Ridge, Ill.*

CIRCLE 315 ON INQUIRY CARD

New TALK-A-PHONE Apartment House Intercom



Provides instant and direct 2-way conversation between any Apartment and Vestibule . . . Greater Performance with these Exclusive Talk-A-Phone Features:

- **Ample Volume**—Whispers, shouts and normal voice are heard clearly without "boom".
- **Automatic Privacy**—On all Apartment Units.
- **Volume Selector**—Each Apartment selects own volume. Concealed yet easily accessible.
- **Built-in Buzzer**—Pleasant sound, in each Apartment Unit.
- **Contoured Push Button**—Operates electric door opener.
- **Fanning Strip-Terminal Block** for easy connection.

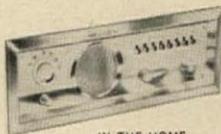
Distinctively styled. Quality Engineered. Built to withstand continuous use.

TALK-A-PHONE . . . "Has Everything. Does Everything." The accepted standard of quality and dependability in Intercommunication for over a third-of-a-century.



IN OFFICE AND INDUSTRY

IN OFFICE AND INDUSTRY . . . Talk-A-Phone fulfills virtually every Intercom need. Gives you instant and direct two-way conversation between any two points. Saves thousands of man-hours, simplifies office routine. Distinctively styled, ruggedly built to withstand continuous day and night use. Pays for itself many times over.



IN THE HOME

IN THE HOME . . . everyone in the family will enjoy the comfort, convenience and peace of mind this Talk-A-Phone Home Intercom-Radio System provides. From any room you can • Listen-in on baby, children or sick room • Answer outside doors without opening doors to strangers • Talk to anyone—upstairs and downstairs, inside and out • Enjoy radio in every room with the simple flick-of-a-switch. Distinctively styled. Beautifully finished. Easily installed.

Send for Free Catalogs . . .

Dept. AR-8

TALK-A-PHONE CO., 5013 N. Kedzie Ave., Chicago 25, Illinois

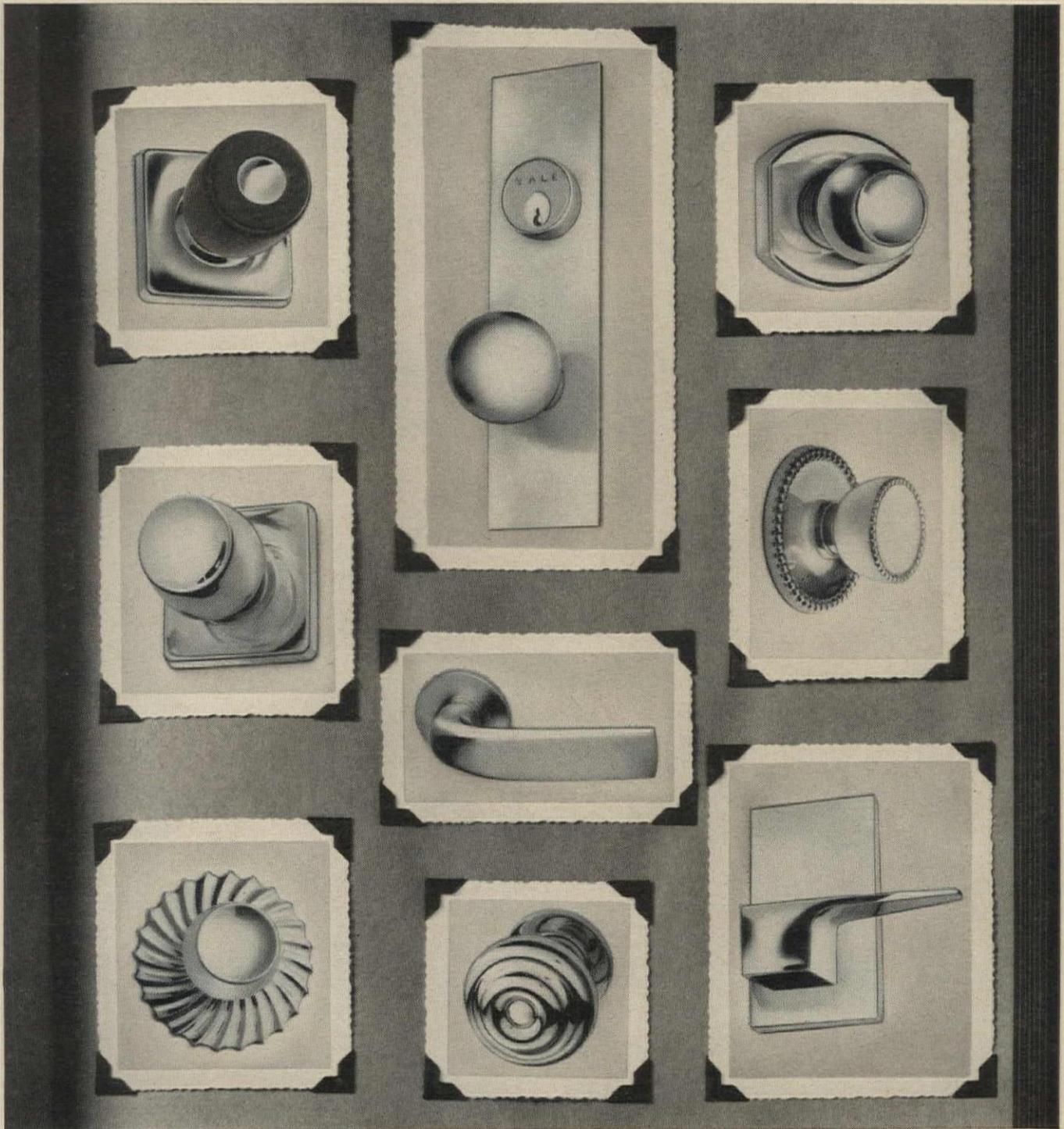
For more data, circle 102 on Inquiry Card

ARCHITECT DESIGNED CLOCKS

Section battery-operated clocks, designed by architect Angelo Mangiarotti and manufactured in Switzerland, have a guaranteed accuracy of less than two seconds a day. They will run for more than two years on a single standard flashlight battery and never require winding. The clocks are available in a variety of styles, sizes and colors. *Smith Metal Arts Company, Inc., 1721 Elmwood Ave., Buffalo 7, N. Y.*

CIRCLE 316 ON INQUIRY CARD





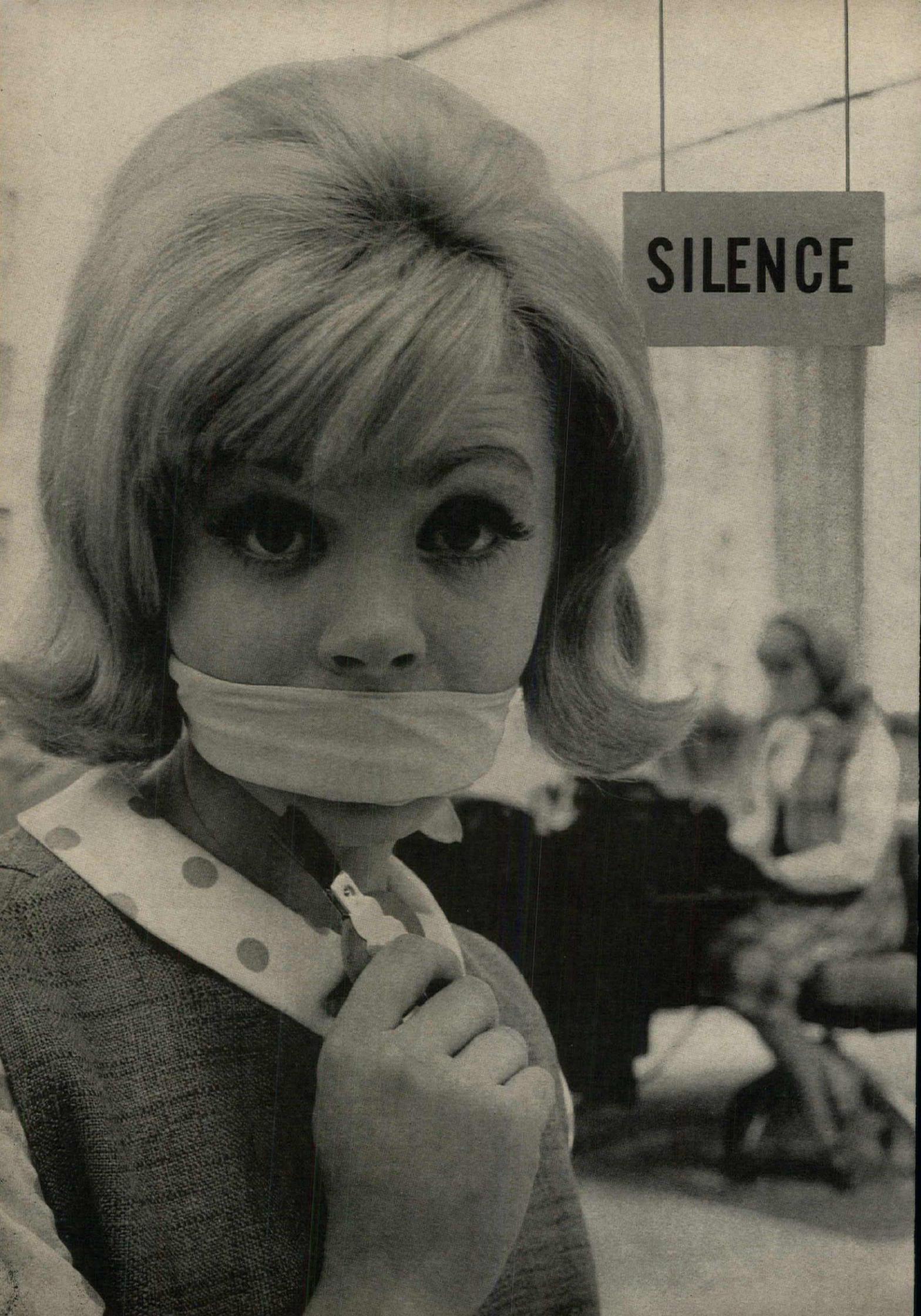
Meet some of the family.

We hope you'll get to know them better. Even though there's a strong family resemblance, each has its own individual beauty and talents. The members you see here are representative of our creative concept of integrity in lockset design. From years of imaginative engineering grew the concept of Yale door hardware

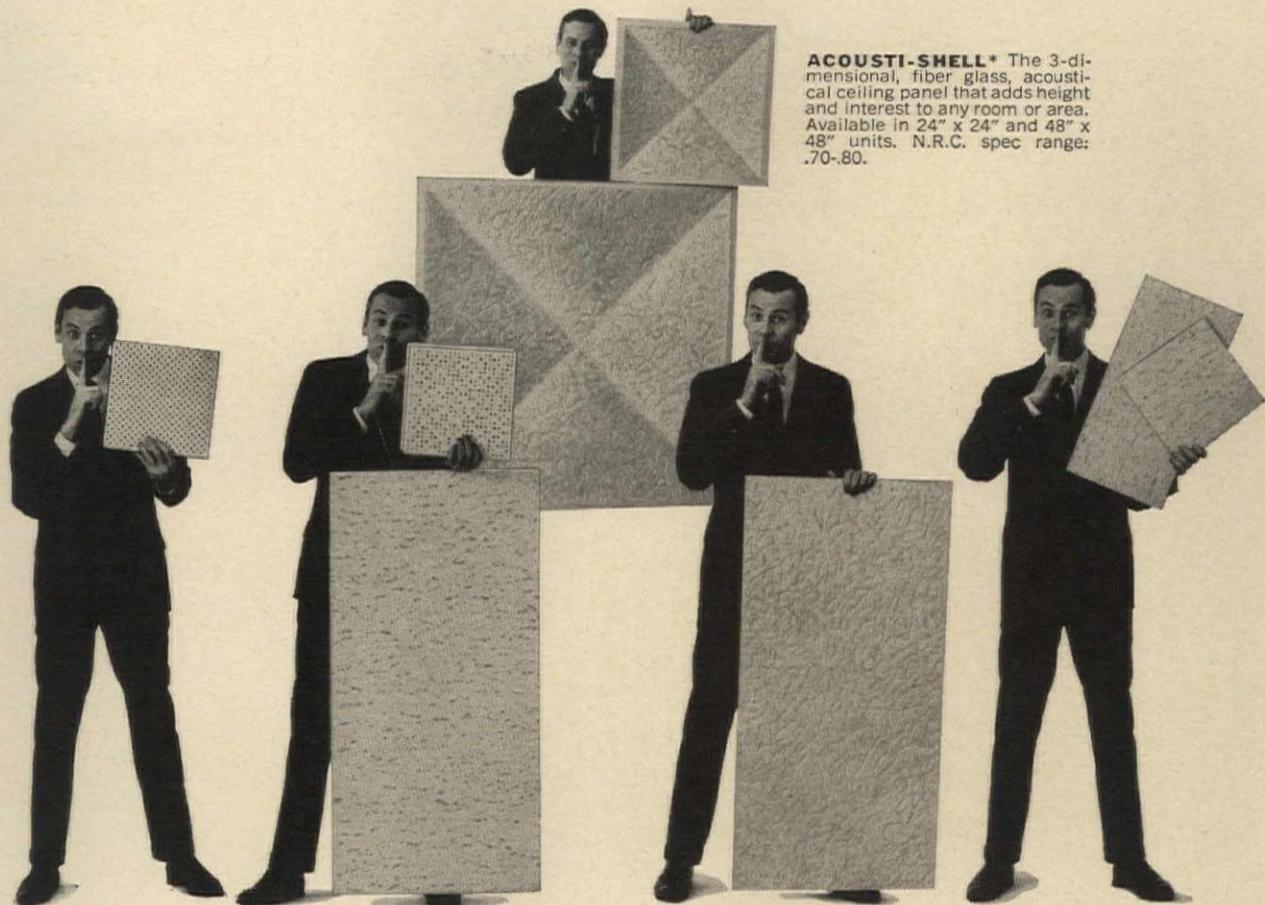
as an integral element of architecture—a medium in the hands of the thoughtful architect—combining unity of design with the ultimate in functional versatility. Yale offers the greatest freedom of choice from the widest selection of distinctive styles, finishes and decorative trims. Want to meet the rest of the family?

YALE
 THE FINEST NAME IN
 LOCKS AND HARDWARE
YALE & TOWNE

For more data, circle 103 on Inquiry Card

A black and white photograph of a young girl with short, wavy hair, looking directly at the camera. Her mouth is completely covered by a piece of white tape. She is wearing a dark, textured sweater over a white collared shirt with dark polka dots. In the background, a sign hangs from the ceiling that reads "SILENCE" in bold, black, capital letters. Other students are visible in the background, some sitting at desks, but they are out of focus.

SILENCE



ACOUSTI-SHELL* The 3-dimensional, fiber glass, acoustical ceiling panel that adds height and interest to any room or area. Available in 24" x 24" and 48" x 48" units. N.R.C. spec range: .70-.80.

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

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

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

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

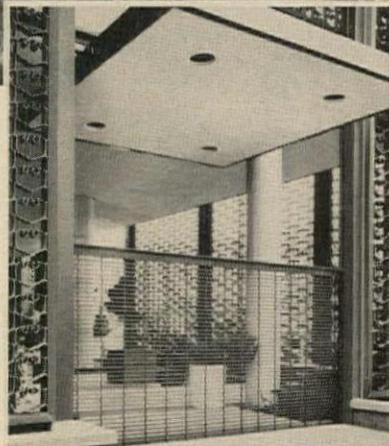
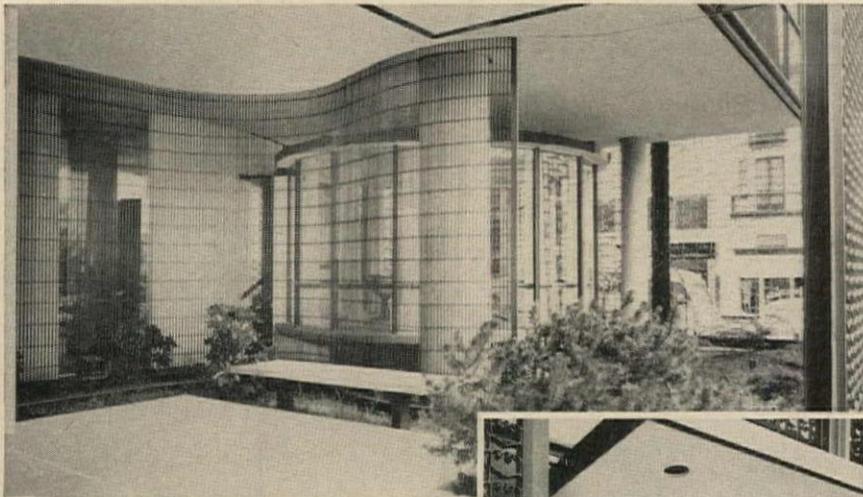
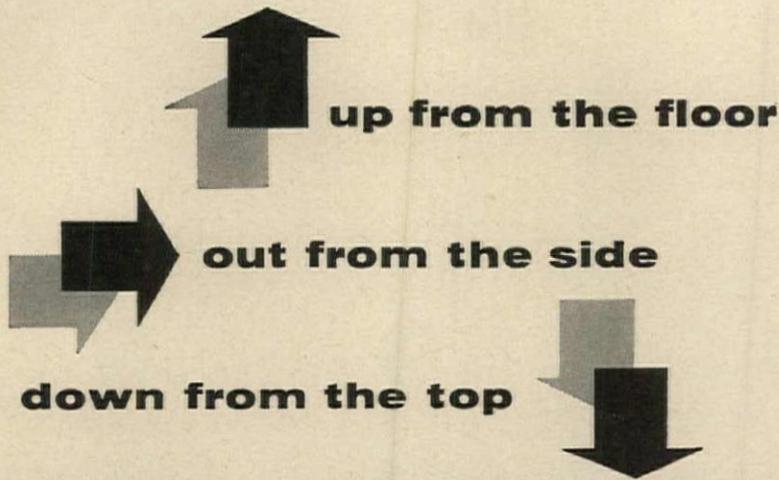
*TRADEMARKS

Five easier (and infinitely more subtle) ways to say s-h-h-h

Ears never had it so good. Or eyes! Because, no matter what the acoustical problem, there's a Johns-Manville ceiling that'll hush the noise. Beautifully! ■ The five products described above will give you some idea of the wide aesthetic and acoustical range of J-M ceilings. They're part of the most extensive line in the industry. You'll find all the details in a colorfully illustrated booklet that's yours free for the asking. Just write to Johns-Manville, Box 111, New York, N.Y. 10016. In Canada: Port Credit, Ont. Cable: Johnmanvil.

Johns-Manville 

For more data, circle 104 on Inquiry Card



WITH COOKSON GRILLE DESIGN FLEXIBILITY

Introducing a new concept in Rolling Grilles, Cookson now offers complete flexibility that allows the architect to design these practical interior-exterior closures to the specific need, with an exceptional combination of architectural compatibility and utility. All the important features are here: strength, security, high visibility, free ventilation. There is no finer closure for banks, garages, store fronts, school corridors, stairways—wherever open grille-work plus maximum security is required. Specify in steel, aluminum, or stainless steel. Select from five types of operation, from manual to smooth-acting push-button automatic. Cookson Grilles can mean the difference between the ordinary and the unusual. Write for full information, or see Sweet's.

Two of several Cookson Grilles installed in the modern new Bay View Federal Savings and Loan Association building, San Francisco. Top view shows exterior Side-Coiling Grille in unusual curved track design. Inset shows one of the upward-acting Cookson Grilles mounted in the floor. All are power operated. Architect: Fischer, Miyamoto & Bassett. Contractor: Barrett Construction Company.



"BEST WAY TO CLOSE AN OPENING"



COOKSON

The Cookson Company • 700 Pennsylvania Avenue
San Francisco 7, California

ROLLING DOORS • FIRE DOORS • GRILLES • COUNTER DOORS • COILING PARTITIONS

For more data, circle 105 on Inquiry Card

Office Literature

continued from page 166

FAUCETS AND LAVATORY FITTINGS

A 60-page catalog gives details of the company's range of faucets and fittings for lavatories, bath and shower units, service sinks and laundries. Glass fillers, bubblers, urinal valves and flow control valves are also described. Complete information is provided on special finishes available and on vandal proofing and other design features. *The Chicago Faucet Company, 2100 South Nuclear Dr., Des Plaines, Ill., 60018*

CIRCLE 411 ON INQUIRY CARD

ARCHITECTURAL HINGES

Three new hinge lines are discussed in detail in this "Architectural Hinge Fact File," which gives test data, suggested specifications and a list of the types and sizes available. Buildings in which the hinges have been used are illustrated, and a section is included which describes a series of hinges particularly suitable for use in hospitals. *Stanley Hardware, Division of the Stanley Works, New Britain, Conn.**

CIRCLE 412 ON INQUIRY CARD

STAINLESS STEEL WINDOW SPECIFICATIONS

Suggested guide specifications for stainless steel windows have been prepared by the International Nickel Company with the consent of the A.I.A. The guide specifications follow the format of the copyrighted A.I.A. specifications worksheets. Names and addresses of manufacturers are listed on each specification. *The International Nickel Company, Inc., 67 Wall St., New York 5, N.Y.*

CIRCLE 413 ON INQUIRY CARD

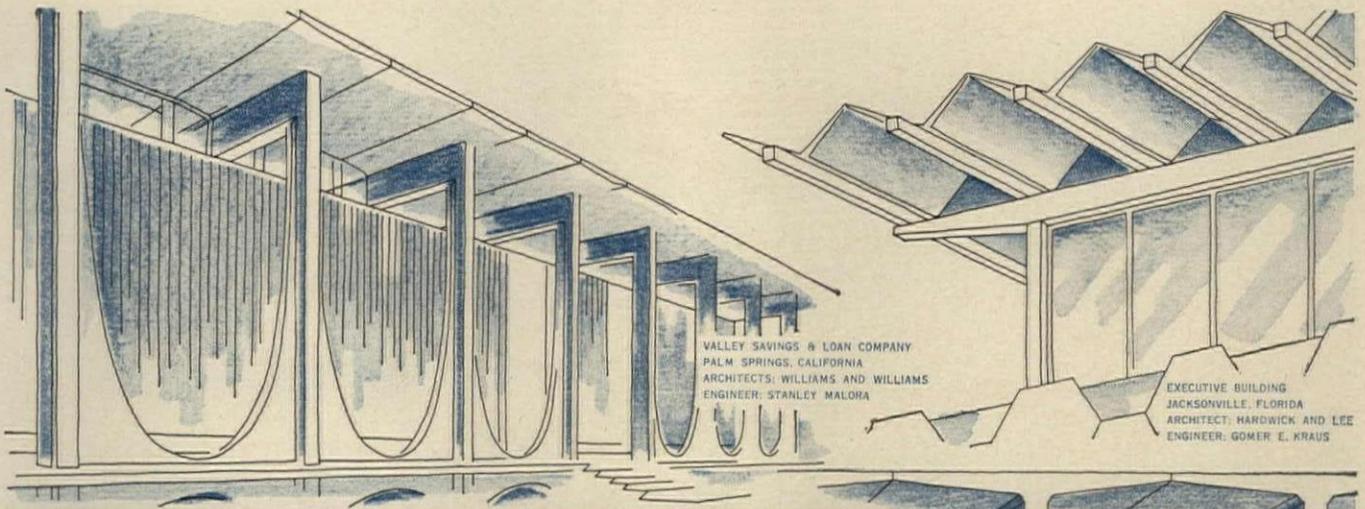
AUTOMATIC MERCHANDISERS

A range of automatic vending machines is described in a series of three illustrated leaflets. Full details are given of the different models which range from cigarette and candy merchandisers to hot food and coffee machines. *National Vendors, 5055 Natural Bridge, St. Louis, Mo.*

CIRCLE 414 ON INQUIRY CARD

*Additional product information in *Sweet's Architectural File*

more literature on page 214



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

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

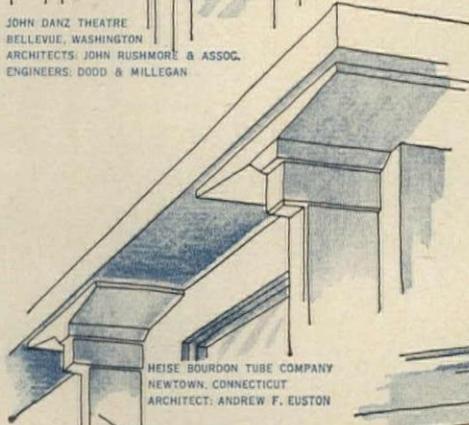
PRESTRESSED CONCRETE

CREATIVE DESIGN GIVES CUSTOM LOOK TO STANDARD PRODUCTS

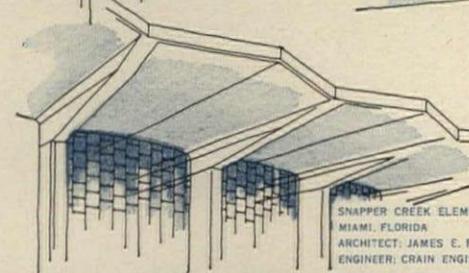
Architects and engineers whose esthetic concepts and ingenuity lead them to seek broad versatility find prestressed concrete a truly cooperative structural material. Simple techniques in manufacture permit virtually unlimited variations in economical standard sections. Let your next building express bold individuality with plant-produced prestressed concrete.



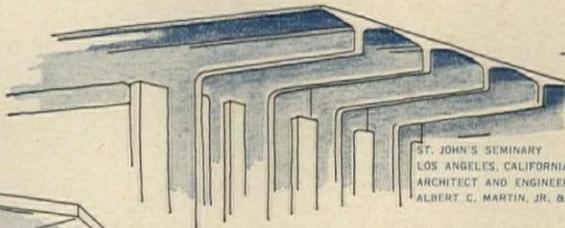
JOHN DANZ THEATRE
BELLEVUE, WASHINGTON
ARCHITECTS: JOHN RUSHMORE & ASSOC.
ENGINEERS: DOOD & MILLEGAN



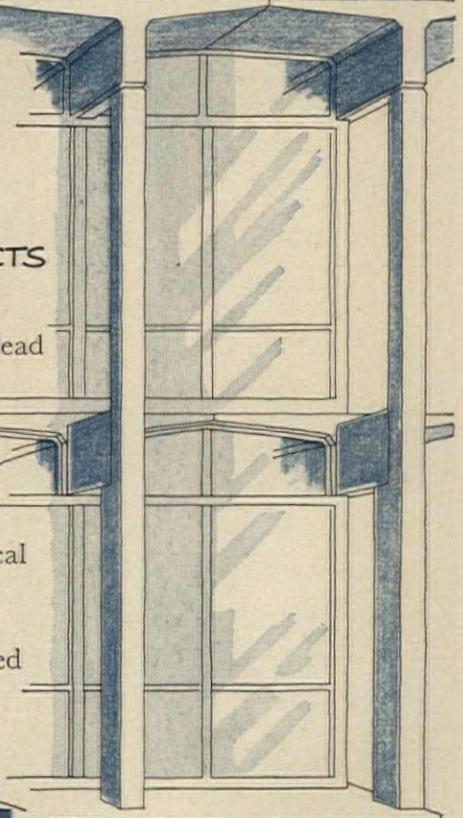
HEISE BOURDON TUBE COMPANY
NEWTOWN, CONNECTICUT
ARCHITECT: ANDREW F. EUSTON



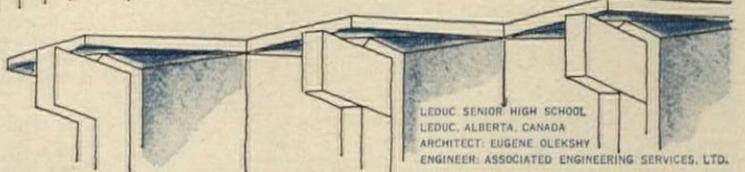
SNAPPER CREEK ELEMENTARY SCHOOL
MIAMI, FLORIDA
ARCHITECT: JAMES E. FERGUSON & ASSOC.
ENGINEER: CRAIN ENGINEERING CO.



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



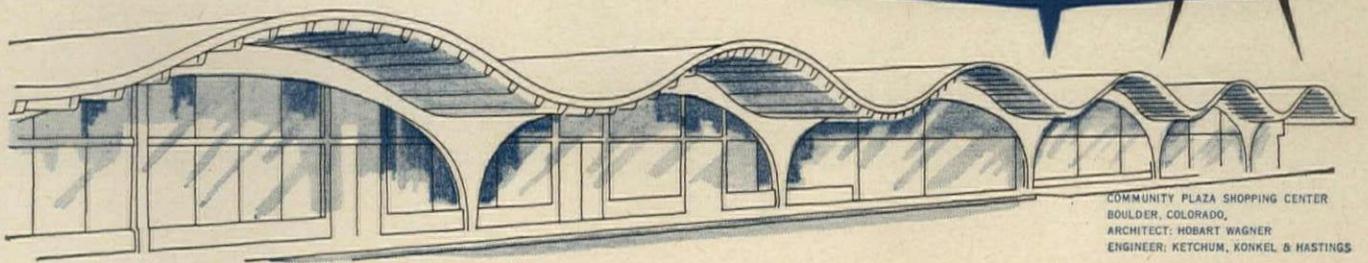
FITCHBURG PAPER COMPANY
FITCBURG, MASS.
ARCHITECT: CARL KOCK & ASSOC.
ENGINEER: SOUSA & TRUE



LEDUC SENIOR HIGH SCHOOL
LEDUC, ALBERTA, CANADA
ARCHITECT: EUGENE OLEKSHY
ENGINEER: ASSOCIATED ENGINEERING SERVICES, LTD.

PRESTRESSED CONCRETE INSTITUTE

205 WEST WACKER DRIVE • CHICAGO, ILL. 60606



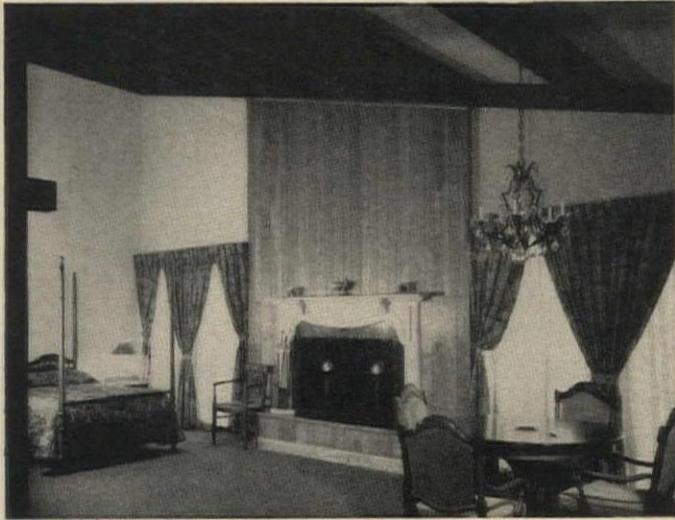
COMMUNITY PLAZA SHOPPING CENTER
BOULDER, COLORADO
ARCHITECT: HOBART WAGNER
ENGINEER: KETCHUM, KONKEL & HASTINGS

For more data, circle 106 on Inquiry Card



This beamed cathedral ceiling of "The Abbey" reaches new heights in architectural grace and beauty. The wide windows open the visitors' eyes on the Oak Grove.

For a magnificent and magnetic tourist attraction design with the freedom of **WOOD**



Beamed ceilings and paneled fireplaces in the guest rooms carry the beauty of wood throughout the structure, bordering on Lake Geneva, Wisconsin. Architects-Engineers: A. Epstein & Sons, Inc., Chicago.

UNICOM MANUALS 1 & 2: "Design Principles" (122 pages) and "Fabrication of Components" (248 pages), graphically detailing the UNICOM method of house construction, are available at nominal cost to those associated with or supplying the home building industry. For free booklet describing UNICOM, write: UNICOM, National Lumber Manufacturers Association, 1619 Massachusetts Avenue, N.W., Washington, D.C. 20036.

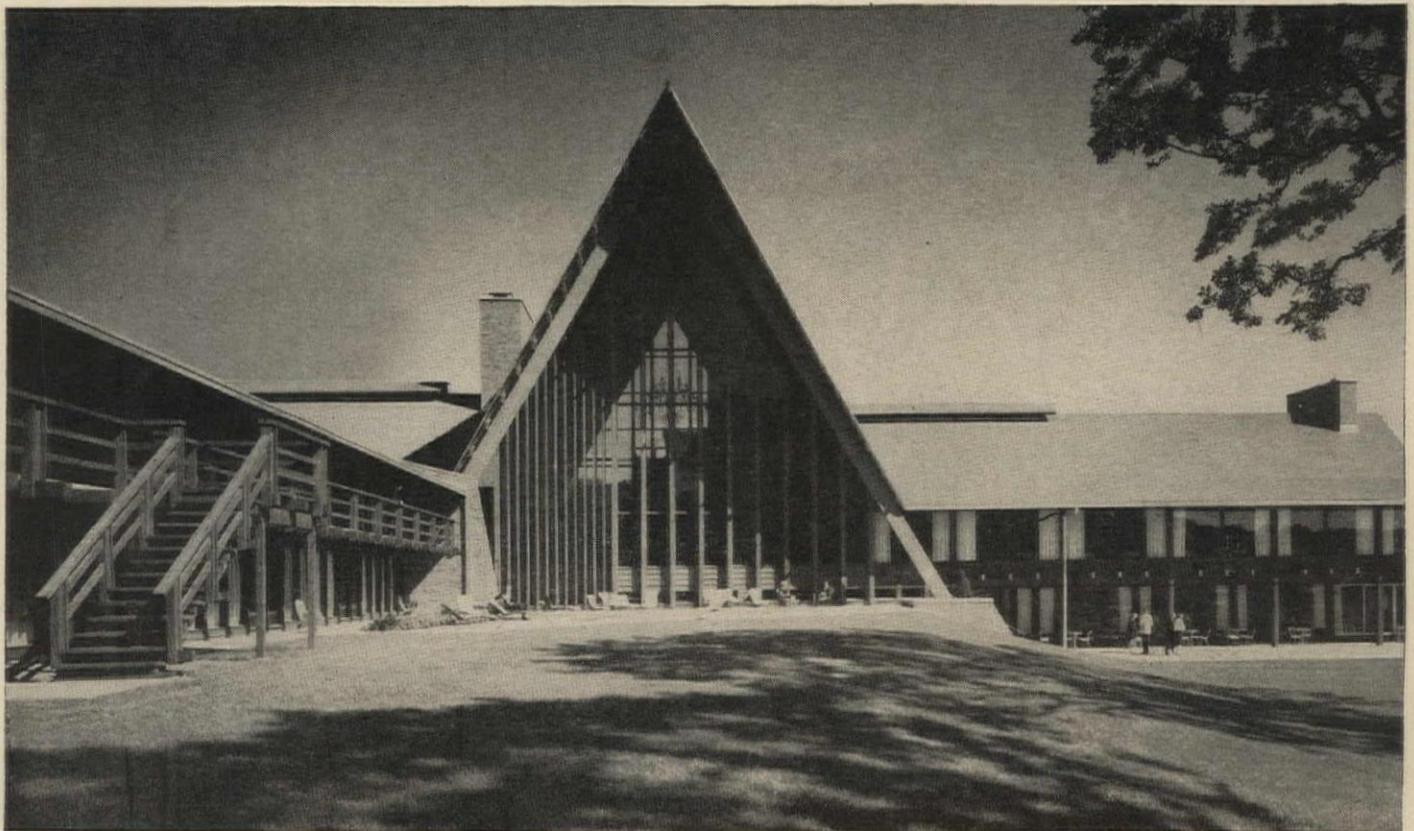
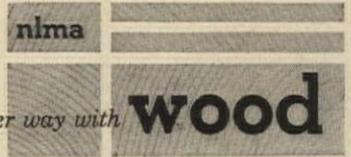
To entice the tourist, there's no better way than building his home-away-from-home with wood. Here's your opportunity to delve into the many designs and shapes which are remarkably adaptable to wood. Here's your chance to cut architectural capers . . . with rewarding results.

Here's the way to soothe the tourist with wood's insulation and acoustical qualities, and please him with wood's wide variety of species, tones and textures. Here's the material to keep him comfortable . . . it's wood's way of making any place feel like home.

When a wood structure requires alterations or additions, re-working with wood is fast and simple. Also, wood adapts readily to newly devised systems of planning . . . like UNICOM, the modern method of modular construction. For practically all residential and light commercial structures, even such elegant enterprises as "The Abbey," UNICOM helps reduce on-site time and costs.

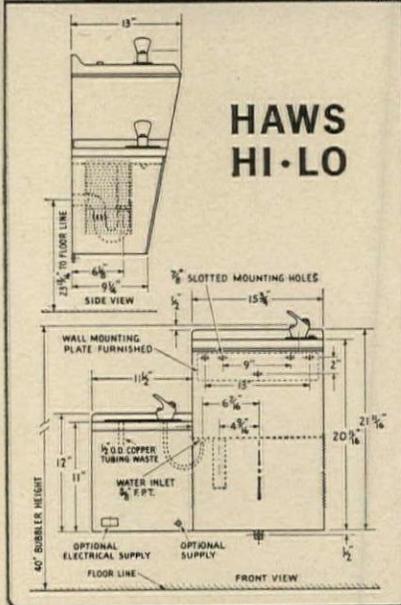
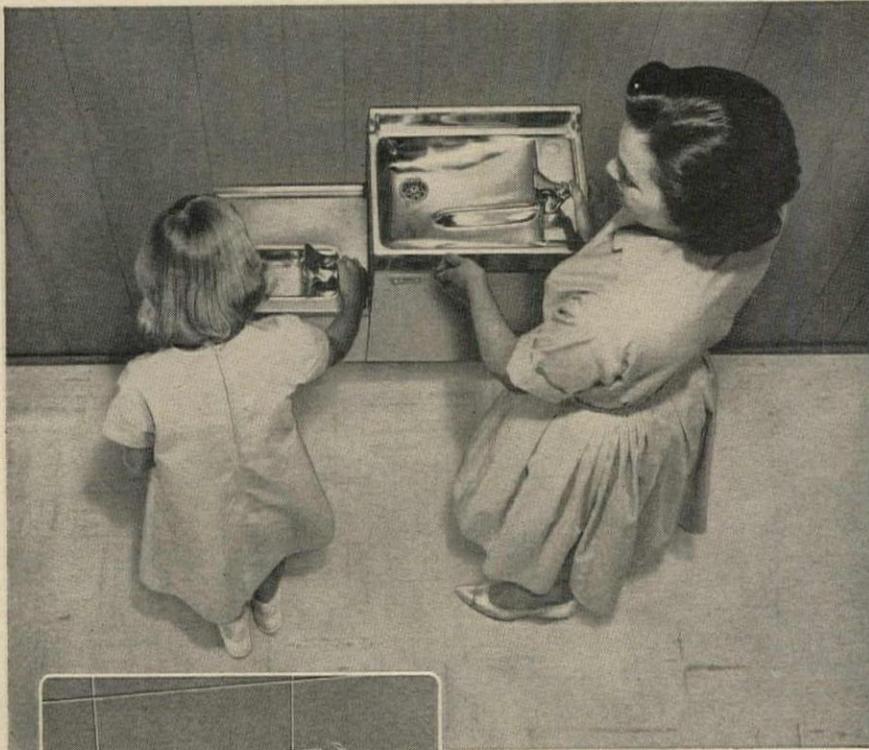
For more information on designing with the freedom of wood, write:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
Wood Information Center, 1619 Massachusetts Ave., N.W., Washington, D.C. 20036



This "A" frame Tower of Wood, "Tour de Bois," makes a point of bringing a striking and distinctive appearance to "The Abbey." Notice how wood works wonderfully with glass.

For more data, circle 107 on Inquiry Card



Utmost satisfaction to little thirsts and big thirsts...

Maybe you wouldn't mind being picked up around your middle because you decided you wanted a drink of water. Maybe, even if you were struggling with a lot of packages, you wouldn't mind picking up someone around his or her middle because he or she decided he or she wanted a drink. But maybe you would.

Haws Hi-Lo series off-the-floor water coolers feature the unique convenience of an additional low-level bubbler at the proper height for children... and are ideal for stores, supermarkets, schools and public buildings of all types. Write for detailed specifications.



Since 1909

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Fourth and Page Sts., Berkeley, California 94710

manufacturers of wall and pedestal drinking fountains • electric water coolers
emergency eye-wash and shower units • laboratory fixtures • Haws flush valves

For more data, circle 108 on Inquiry Card

Office Literature

continued from page 210

SUPERMARKET HEAT PUMP

The Hussmann *Big System* heat pump which combines the refrigeration, heating and air-conditioning system into one compact unit is fully described in an illustrated brochure. Specially designed for use in stores and supermarkets, the new heat pump is said to make possible considerable cost saving through the conservation of energy. The brochure includes a table comparing electrical power costs of the *Big System*, over a six month period with those of conventional refrigeration. *Hussmann Refrigeration, Inc., St. Louis, Mo.*

CIRCLE 415 ON INQUIRY CARD

LIGHTING BROCHURE

An eight-page brochure featuring large installation photographs of the *Benjamin Encore* lighting fixture has just been published by Benjamin Products, Thomas Industries, Inc. The booklet illustrates 16 different *Encore* installations in a variety of architectural settings. Classrooms, study halls, libraries, auditoriums and offices are shown.

The fixture, which meets the critical scissors curve for recommended school lighting, is an extruded aluminum, indirect type luminaire utilizing high output 1,500 ma fluorescent lamps. *Encore* systems are available for row, pattern, spline or valance installations in single lamp units. Two lamp units for row, pattern or valance systems are also featured in the catalog. *Benjamin Products, Thomas Industries, Inc., 207 East Broadway, Louisville, Ky.*

CIRCLE 416 ON INQUIRY CARD

STUDIES IN STRUCTURAL ARC WELDING

This study by Ronald B. Madison of the Bethlehem Steel Company was prepared as a guide for engineers and architects to assist them in the selection of the proper structural steel for their needs on the basis of strength and cost. Tables are included which compare strengths and pries and strength-to-price ratios of the different grades. *The Lincoln Electric Company, Cleveland 17, Ohio*

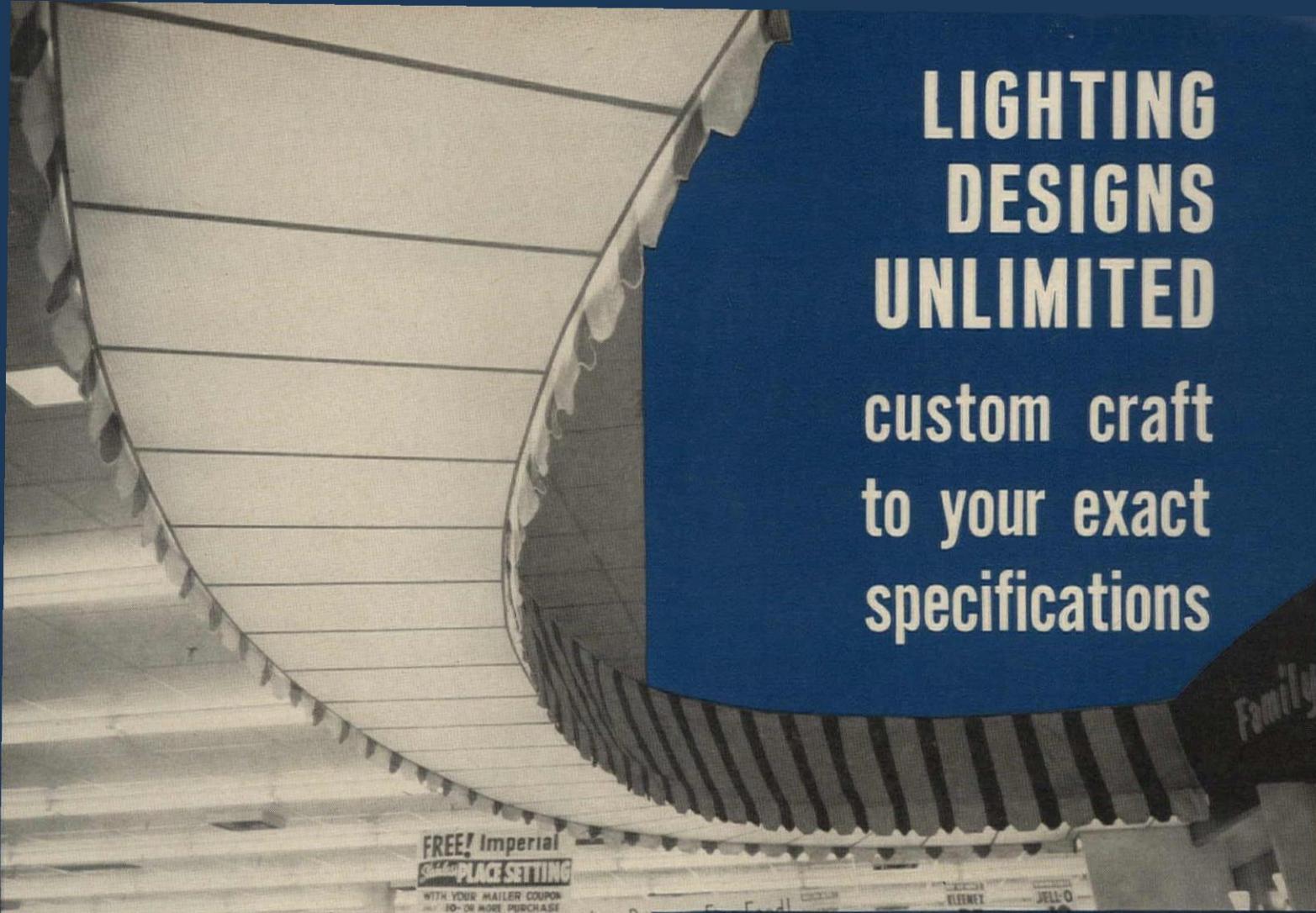
CIRCLE 417 ON INQUIRY CARD

*Additional product information in *Sweet's Architectural File*

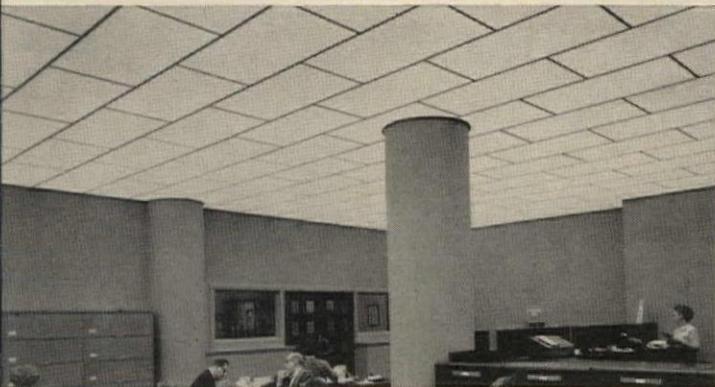
more literature on page 218

LIGHTING DESIGNS UNLIMITED

custom craft
to your exact
specifications



Cutting circles for columns is simple in this bank renovation where louvers are used in ashlar design.



Island individuality is emphasized in pharmacy counters using large 2 1/2 x 5 foot panels.



Unusual flexibility Attained through American's broad selection of louvers

Creative lighting design can be fully realized with American Louver Company's broad array of plastic egg-crate louvers. Five different overall dimensions are available. All can be cut to any size — either in our plant or on the job site. Different cell sizes and light shielding angles assure the proper brightness control for all applications.

Unlimited versatility for renovation and new construction. Ideal for luminous ceilings, fluorescent fixtures, perimeter lighting and luminous modules.

Durable, efficient, economical and attractive, American Louvers are the continuing choice of lighting designers for unlimited versatility, freedom of expression and excellent lighting.

WRITE FOR EIGHT PAGE COLORED CATALOG

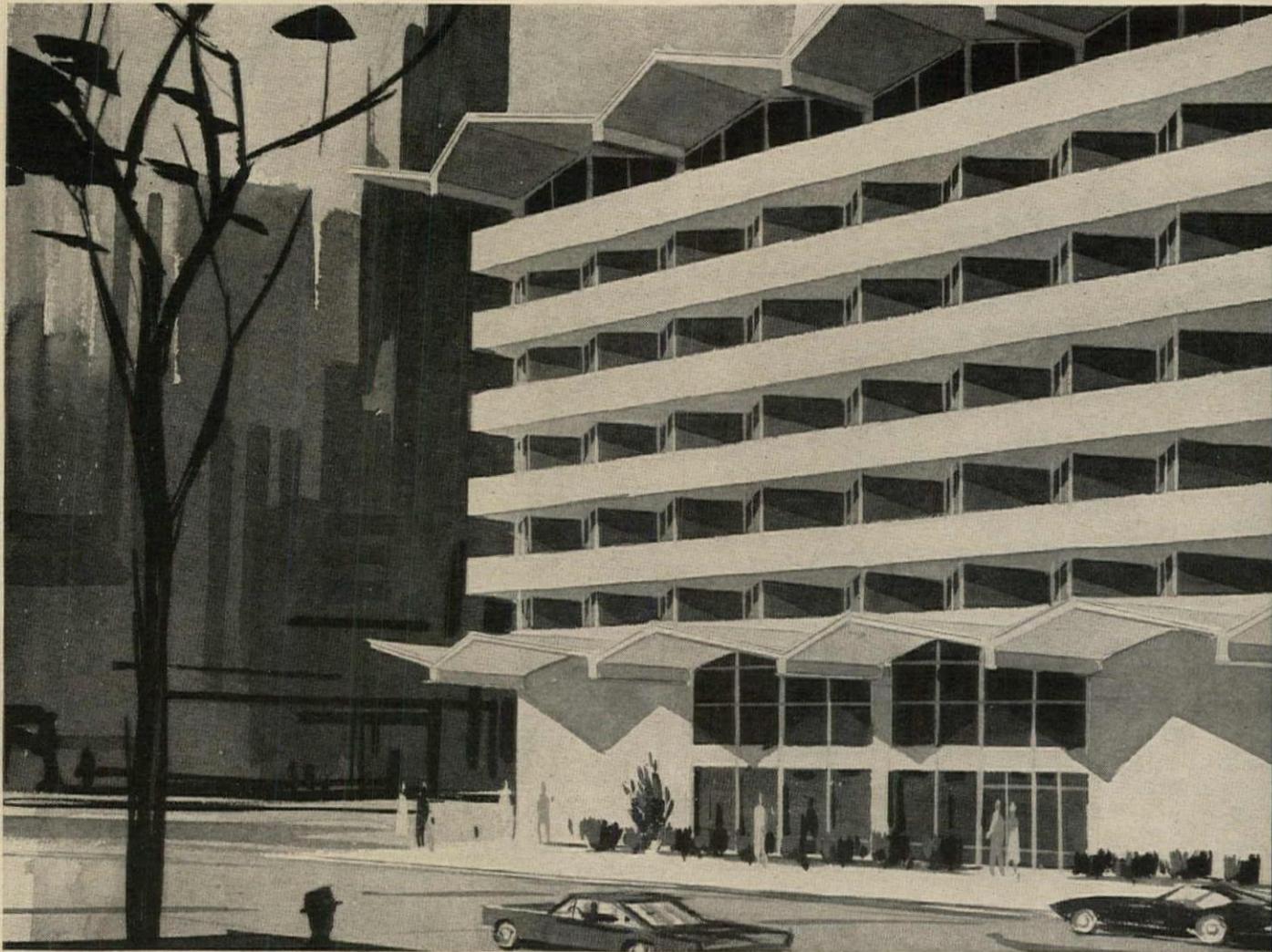
american louver company

5308 NORTH ELSTON AVENUE • CHICAGO 30, ILLINOIS
15 TIDEMARE, TORONTO (REXDALE) ONTARIO, CANADA

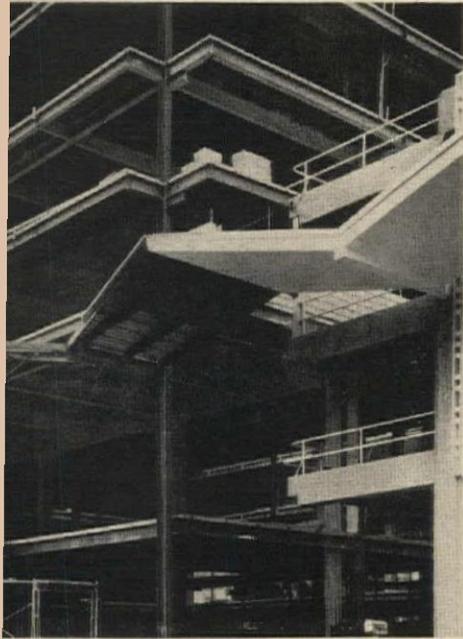
Atlanta's newest motor hotel scores two design firsts...including Atlanta's first use of weight-saving V Steel

The new \$3.5 million Atlanta Royale Motor Hotel marks the first use of composite design in that city.

And it is the first building in Atlanta to take advantage of the savings possible with Bethlehem's low-cost, high-strength V Steels. Combined with composite design, V50 steel helped save 24% of the weight required by the conventional frame.



Architect: Lundgren & Maurer, Austin, Texas. Engineer: Edward E. Evans & Associates, Baton Rouge, La. General Contractor: Batson-Cook Company, Atlanta, Ga.



How design problems led to cost-saving solution

The original design of this 8-story motor hotel called for an A36 frame with a structural concrete floor slab. But as costs crept toward the maximum budget allowance, redesign of the frame was indicated. Reinforced concrete framing was considered.

But then Atlanta's City Building Inspector approved the use of V Steels for construction. A redesign of the motor hotel using V50 steel (50,000 psi min yield point) and a composite beam-and-slab proved faster and more economical than redesigning in reinforced concrete.

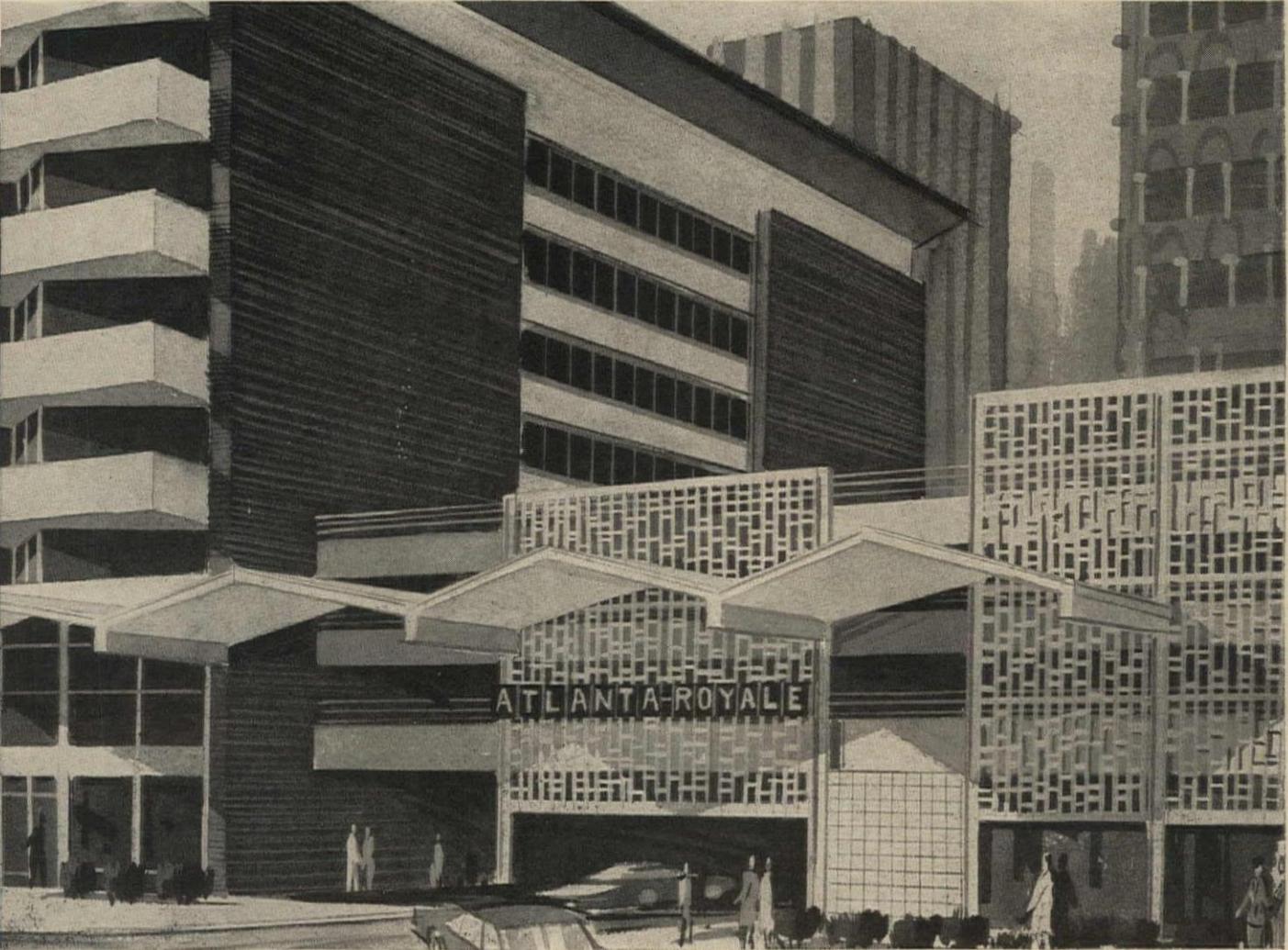
Specifically, the steel tonnage was reduced from 922 to 700, with V50 steel used in all columns and in all beams and girders (except for cantilevers and miscellaneous framing).

Bethlehem's five V Steels offer attractive strength-to-price ratios, and have proved their value in a variety of structures. All five grades (45,000 to 65,000 psi min yield) are weldable. Such design aids as booklets on allowable stresses, column loads, and beam loads are yours for the asking. And your Bethlehem representative will be happy to answer any questions. Bethlehem Steel Company, Bethlehem, Pa. Export Sales: Bethlehem Steel Export Corporation.

700 tons of Bethlehem steel, most of it V50, was fabricated and erected by Trojan Steel Corporation, Columbia, S.C.



Steel for Strength



BETHLEHEM STEEL



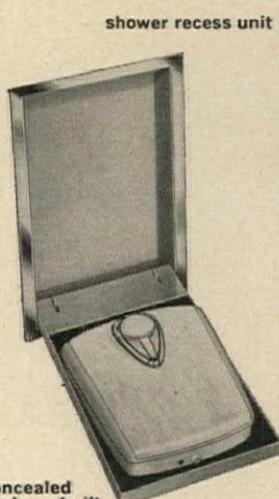
NEEDED FOR YEARS...to prevent perplexing predicaments in the bathroom...AND HERE IT IS



A NEW BATHROOM CONVENIENCE Just a cover-opening away is the spare...insurance against embarrassment. Closed it's one of the most attractive accessories a modern bathroom can have. Beautifully chromed and precisely made in every detail, it combines a new and original idea with Hall-Mack's fine styling.

The smoothly operating door which conceals the extra roll is a sparkling, chrome plated brass panel—compact and flush with the wall—that blends pleasingly with any decor.

For new homes or remodeling, you're sure to make friends and influence new customers when you specify, sell or install built-in features by Hall-Mack—especially Conceal-A-Roll with the "spare" compartment that solves a delicate problem.



shower recess unit



— handy, safe spot for shampoo bottles, etc.



concealed scale — built in the wall for utmost safety and convenience

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a **textron** company

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- Please send free color booklet on bathroom planning.
- Include complete information on Conceal-A-Roll.

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Address _____

City _____ Zone _____ State _____

Sold by leading plumbing, tile and hardware dealers everywhere.

For more data, circle 110 on Inquiry Card

Office Literature

continued from page 214

MECHANICAL ADJUSTABLE DOCKBOARDS

A new brochure describes the safety and operating features of Kelley Adjustable Dockboards. Detailed line drawings and photos show how dockboard functions, and outline special features of the Kelley system. *Kelley Company, 6728R North Teutonia Ave., Milwaukee, Wis., 53209*

CIRCLE 418 ON INQUIRY CARD

ARCHITECTURAL USE OF STAINLESS STEEL

Imaginative functional applications of stainless steel at the Niagara Power Project are described in the First Quarter 1964 issue of "Stainless Steel Architectural Quarterly," which uses photographs and details to show the design of the Power Vista, visitors' observation building. The brochure also explains how the selection of materials—including stainless steel—contributes to the design. Also described is the Phoenix Mutual Life Insurance Building, Hartford, Conn., designed by Harrison and Abramovitz. *Committee of Stainless Steel Producers, American Iron and Steel Institute, 633 Third Avenue, New York, N.Y., 10017*

CIRCLE 419 ON INQUIRY CARD

USES OF PORCELAIN ENAMEL

A new 1964, 12-page color brochure, "Porcelain Enamel in Architecture" has been published by Davidson Enamel Products. The brochure presents examples of several types of buildings, each with engineering details and dimensional data to show how architectural porcelain enamel was used in the structure. *Davidson Enamel Products, Division of Fenestra, Inc., 1104 East Kibby St., Lima, Ohio**

CIRCLE 420 ON INQUIRY CARD

STORAGE CABINETS

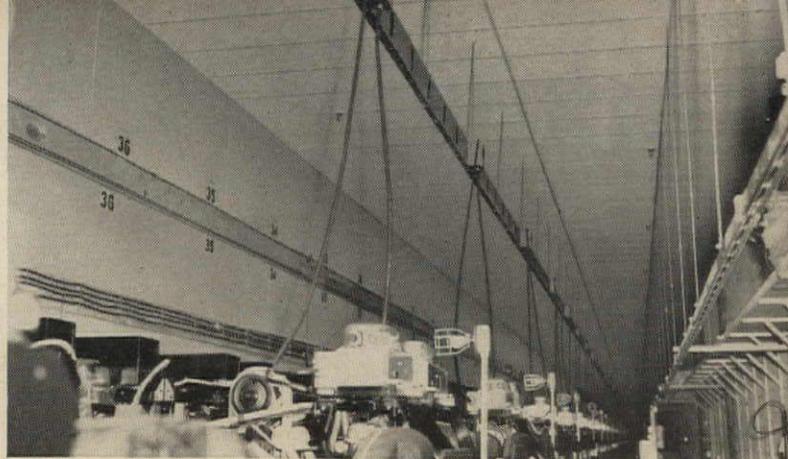
Catalog No. 1400 gives complete information on a range of 11 *Highcase* storage cabinets for teacher's wardrobe, classroom wardrobe or utility storage. The booklet illustrates and describes the 11 different models and gives suggested specifications. *Schemenauer Manufacturing Co., Holland, Ohio*

CIRCLE 421 ON INQUIRY CARD

* Additional product information in *Sweet's Architectural File*



Our X-100 Duct goes anywhere.



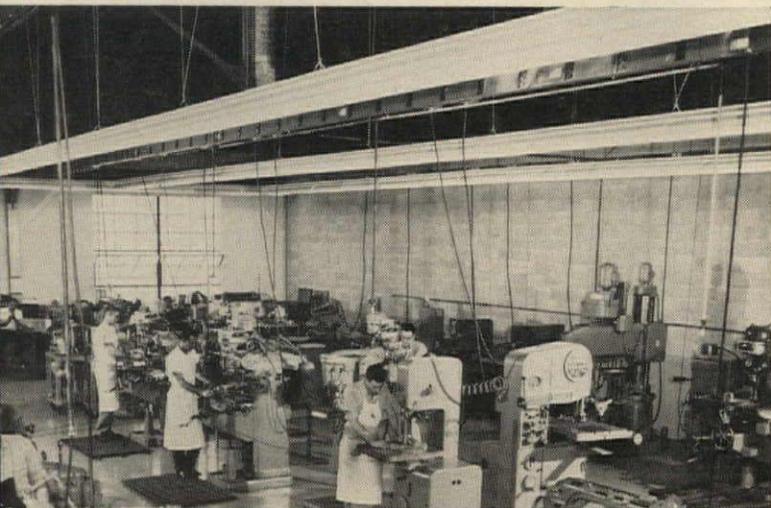
Anywhere.



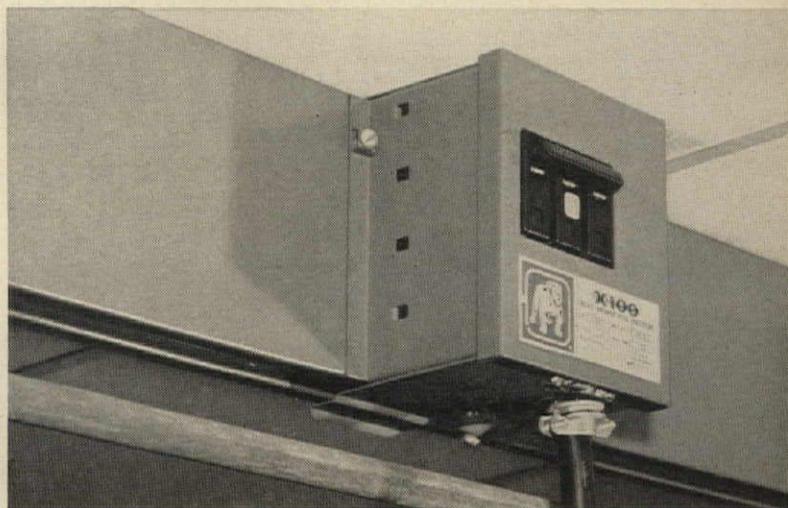
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Anywhere.



Everywhere.

It's hard to find a wiring job that our Bulldog 100-amp duct won't handle more economically, more efficiently. That includes even homemade wire and cable jobs. Plugs, with fuses or breakers, plug in every ten inches. Bulldog X-100®

Bus Duct is in your I-T-E distributor's stock. For further information contact your local I-T-E Sales Office or write the Bulldog Division, Box 177, Detroit, Michigan 48232. In Canada: 80 Clayson Rd., Toronto, Ontario.

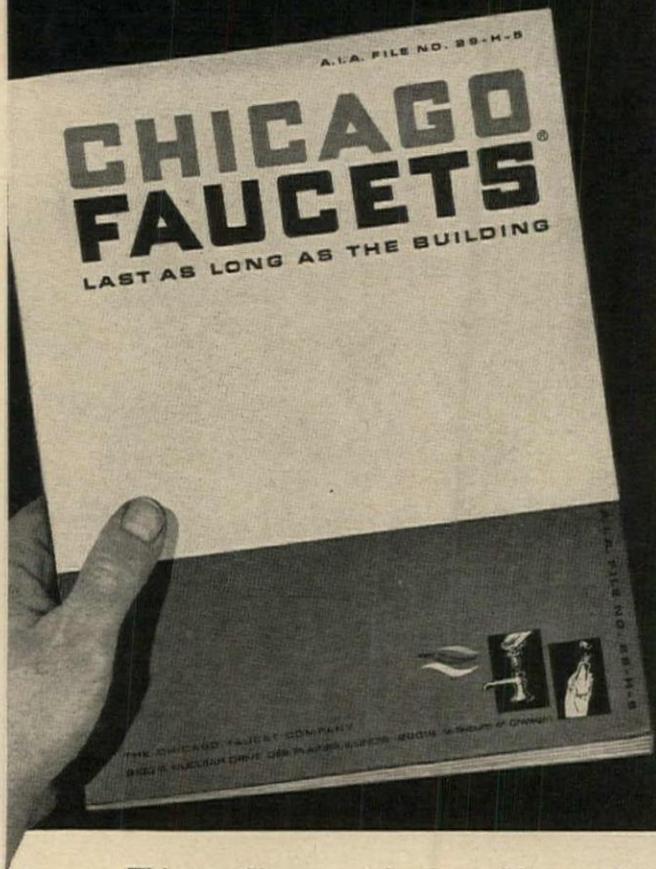


I-T-E CIRCUIT BREAKER COMPANY

I-T-E also manufactures: Circuit Breakers Unit Substations Power Transformers Panelboards and Switchboards Bus Duct Systems Power Switching Equipment Power Rectifier Equipment Motor Controls Safety Switches Service Entrance Equipment Porcelain Insulators Fuses Utility Test Equipment

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*For You—
New Catalog of*
CHICAGO FAUCETS



This new 60-page catalog is our biggest selection, ever, of faucets and fittings for commercial, residential and public buildings. Shows hundreds of different models, plus all the interchangeable spouts, supplies and operating units. Use it to find the one best answer for every need—the one that bears the most respected name in faucets. Coupon below will bring your copy.



Distributed through the Plumbing Trade exclusively.

The Chicago Faucet Company
2100 S. Nuclear Drive • Des Plaines, Illinois 60018
(A Suburb of Chicago)

Please send a copy of the new Chicago Faucet Catalog J.

Company _____

Address _____

City, Zone, State _____

By _____

Mail to: Chicago Faucet Co., 2100 S. Nuclear Drive, Des Plaines, Ill. 60018

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for cost-conscious clients!

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Actually, marble offers the best of *both* beauty and economy. Marble, of course, is permanent and durable, more than good for the life of any building. Its economy begins the minute it's installed. It never needs painting or waxing or buffing. Year after year, its minimum cost of maintenance is like money in the bank.

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Members of the Marble Institute of America offer skilled and experienced counsel in the proper use of marble; they offer the world's finest marble workmanship in their plants throughout the U.S.; and they offer as well more than 300 foreign and domestic marbles for you and your cost-conscious clients to choose from. For further information, write:



MARBLE INSTITUTE OF AMERICA, INC.
848 Pennsylvania Building, Washington, D.C. 20004

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Tells about super-strength Moistop that stands up under the kind of rough treatment most vapor barriers, including 6 mil polyethylene, can't take. Combines inertness of polyethylene film with strength of reinforced, waterproof Sisalkraft... resists tears, abrasion, puncturing for permanent protection under all floors—slabs, basements, crawl spaces. MVT Rating of 0.15 perms. Send for samples, today. American Sisalkraft Division—St. Regis Paper Company, 73 Starkey Avenue, Attleboro, Mass.

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Because no other manufacturer works with architects as closely, as competently and as completely as does American ■ We will detail a laundry planning engineer to work right with your job captain. Our man will make surveys, recommend equipment, furnish you with comprehensive floor plan drawings and specifications, supervise installation of equipment, and provide continuing service to your client long after the building is completed ■ So, when your building project includes a laundry—be sure to include American Laundry Machinery Industries in your project. Call one of our nearby representatives or offices (see the Yellow Pages) or write for complete information.

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For more data, circle 112 on Inquiry Card

NEW YORK A.I.A. AIDS TRAINING OF NEGRO ARCHITECTS

The New York Chapter of the American Institute of Architects has announced the name of the first recipient of the special scholarship it has set up to help Negroes obtain equal opportunities for architectural training. Harold Francis, an 18-year-old freshman architectural student at Pratt Institute, received the New York Chapter's Fair Practice Award of an \$800 grant-in-aid from Arthur C. Holden, chairman of the special Committee on Fair Practice.

In making the award, Mr. Holden cited the fact that there are only three Negroes in the 1,400-member New York Chapter and just 14 registered Negro architects in the city. There are 85 Negro draftsmen in private architectural offices and 65 in public agencies. It is to "remedy this imbalance" that the program, the first to be set up on such a formal basis, has been established.

The chapter is seeking to provide a permanent fund of at least \$10,000, the proceeds of which will go to an annual scholarship. To date, \$4,000 has been collected under the leadership of Albert Mayer.

Mr. Holden noted the importance of this inaugural grant by saying that the chapter "is not simply offering financial and moral help where it is urgently needed; it is involving itself in a historic step in social development."

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- WEATHER STRIPPING
- SOUND-PROOFING
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Write for ZERO'S new catalog today. Contains full size details, 168 drawings of weatherstripping and related products, for

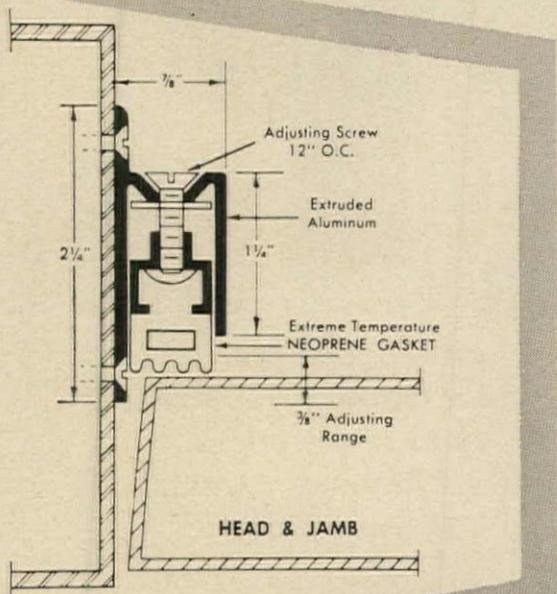
- doors
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Architects agree, weatherstripping can be the most significant detail of a structure's success. For 4 decades ZERO has been creating and manufacturing to meet changing needs.

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TRAVEL GRANT PERMITS STUDIES IN LATIN AMERICA

The James Stewardson Travelling Fellowship, a \$2,000 grant presented annually by the New York Chapter of the American Institute of Architects, has been awarded to G. Paul Frahm of the architectural firm of Warner, Burns, Toan, Lunde.

Geoffrey N. Lawford, chapter president, announced that the fellowship will be used for the study of Latin American architecture. Specifically, Mr. Frahm, a graduate of Syracuse University, intends to explore the architectural history of Mexico, Yucatan and Peru, hoping to determine the influence of this heritage on modern Latin American building design.

This is the fourth fellowship granted by the chapter under the Stewardson program. Previous awards were made for the study of Asian and Greek architecture and European prefabrication techniques. The Fellowship, made possible through a bequest to the chapter by James Stewardson, an English architect who spent most of his professional life in New York, is awarded annually to a candidate who has not previously had a traveling fellowship.

For more data, circle 113 on Inquiry Card

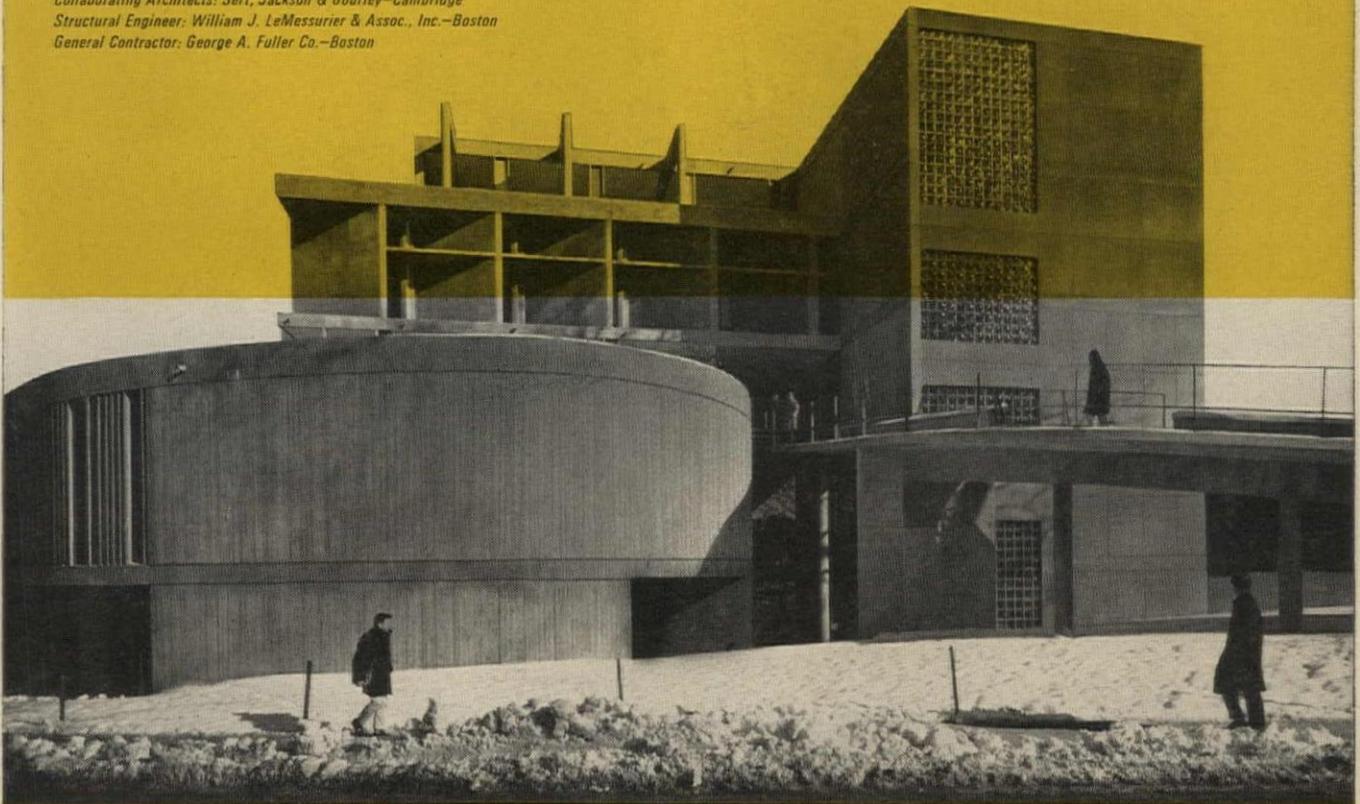


*Carpenter Center for the Visual Arts, Harvard University
Architect: Le Corbusier—France
Collaborating Architects: Sert, Jackson & Gourley—Cambridge
Structural Engineer: William J. LeMessurier & Assoc., Inc.—Boston
General Contractor: George A. Fuller Co.—Boston*

■ Le Corbusier chose reinforced concrete to execute his unusual design for Harvard's visual arts center. This versatile material was used for curved and straight walls, for floors, and the intricate "sun-breakers."

Only monolithic reinforced concrete permits architects to design with such complete freedom of expression. And for every type and size of building—for framing, wall surfaces, and facades—no other material has done so much to change the face of modern American architecture.

On your next project, be sure that you investigate the creative advantages as well as the many time and moneysaving features of this modern construction method.



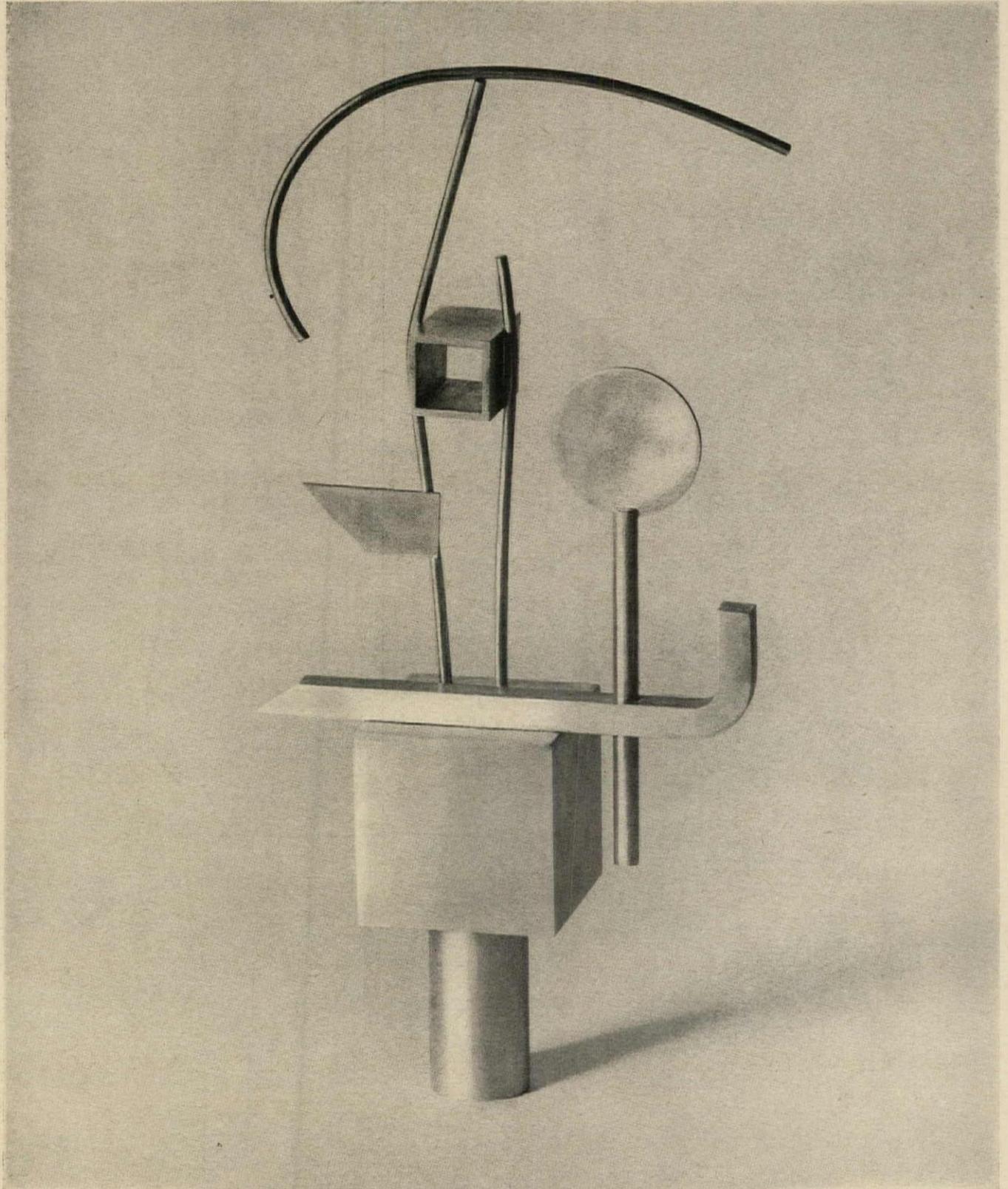
Harvard's visual arts center expresses the complete flexibility of monolithic reinforced concrete design

CONCRETE REINFORCING STEEL INSTITUTE

228 North La Salle Street • Chicago, Illinois 60601

8-63

"Retrospection" by Earl C. Van Swearingen



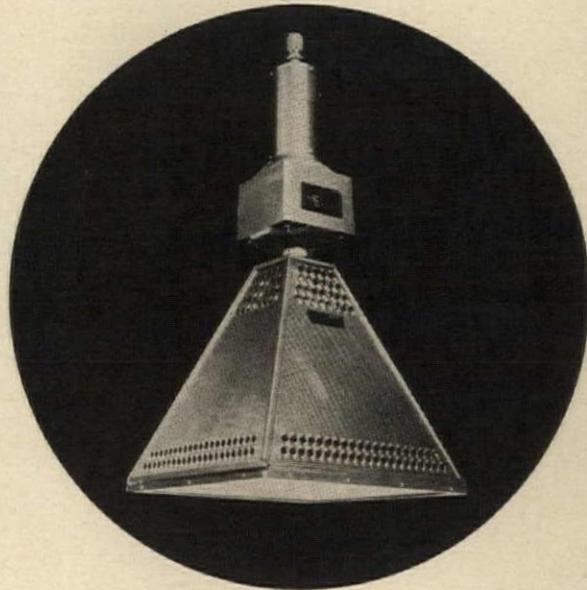
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Dodge helps architects realize their ideas. The project information you give to your Dodge Reporter helps contractors and suppliers fit their skills and products to your requirements more accurately, at greater savings of everybody's time—and money.



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REPORTS**

If this isn't the best
 fixture for your
 particular industrial
 lighting needs,
 we don't want it used



But we are so confident it is the best that we'll pay an independent computer laboratory to compare it with any three other types of fixtures you select.

And we'll give you the complete report, no matter how our Wide-Lite* fixture is ranked.

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you would like compared with the mercury vapor "Wide-Lite." A lighting specialist will visit the installation to obtain the area data, room reflectances, and other pertinent facts.

These facts will then be given to an independent computer laboratory, equipped with IBM 1401 and IBM 1620 computer systems, which will calculate the number of fixtures required by each system to maintain the lighting level specified. The laboratory will provide a complete Illumination Investment Analysis of the four lighting systems, showing a complete breakdown of costs, including initial costs, annual costs, operating costs, maintenance costs and total 10-year costs for the *four lighting systems in your particular application.*

There's no way you can lose, and we're willing to lose the sales we don't earn on merit. For more information, just send the coupon, or call your nearest "Wide-Lite" representative.

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Have a "Wide-Lite" representative talk with me about an Illumination Investment Analysis of lighting for a _____

Name _____

Company _____

Address _____

City _____ State _____

Name of electrical contractor _____

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PROGRAM AIMS TO GUIDE ARCHITECTS IN CHURCH DESIGN

With the purpose of providing those architects engaged in the designing of churches an opportunity to investigate the philosophical and formal bases which influence their work, Pittsburgh Theological Seminary

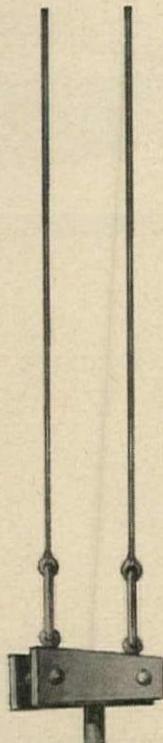
and the Carnegie Institute of Technology jointly sponsored the 1964 Institute of Church Design.

Held on the Seminary campus between June 1 and June 20, about half of the time was spent in lecture and seminar classes aiming to acquaint the participating architects with present-day theological, educational and liturgical developments. These courses were conducted by: Edward Farley, Associate Professor of Theology, and J. Gordon Chamberlain, Associate

Professor of Christian Education, Pittsburgh Theological Seminary; and Lewis A. Briner, Professor of Pastoral Theology, McCormick Theological Seminary, Chicago.

Workshops on design problems growing out of these courses were under the direction of Burtch W. Beall Jr., of Salt Lake City and Victor Christ-Janer of New Canaan, Connecticut.

Supplementing this program, the second annual Institute of Church Design scheduled informal conferences with practicing architects such as Paul Schweikher and Ulrich Franzen, a lecture on new theories and methods of concrete reinforcement by Professor James P. Romualdi of Carnegie Tech., and a lecture on the history of church architecture by Professor Heinrich Wurm of Göttingen, Germany, Visiting Professor at Carnegie.



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A.C.I. ANNOUNCES WINNING PROJECT

A Syracuse University architectural student has won the 1964 American Concrete Institute design competition with a project for a reinforced concrete sports arena. Out of the 120 entries, judged during the A.C.I.'s annual convention in Houston, Texas, the design by C. J. Shaughnessy was awarded the \$1,000 top prize. Honorable mention citations were given to John Clinton and James G. Young, University of Illinois; and Fred W. Hegel and E. M. Tower, University of Colorado.

The competition, open only to next-to-last year architectural students and performed as a 10-hour classroom sketch problem without previous preparation, called for the design of a sports arena in the form of a three-dimensional space framework with seating and roof structures of reinforced concrete.

The jury, which commended Mr. Shaughnessy's design for its "simplicity" and economy, included two architects and one structural engineer: Walter C. Bowman of Bowman, Swanson, Hiester; Charles Lawrence of Caudill, Rowlett, Scott and Associates; Milo S. Ketchum of Ketchum, Konkel, Ryan and Fleming.

Everybody's happy with this Square D UNDERFLOOR DUCT INSTALLATION



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400 Army Navy Drive Association

ARCHITECT
"It helped reduce floor-to-floor height and enhanced floor appearance."
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—**Sidney W. Barbanel**
Consulting Engineer

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—**Sydney G. Rodgers**
Rodgers Associates

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"Square D duct was a natural for this tough job of in-the-slab installation—it enabled us to complete decks faster and coordinate with other trades."
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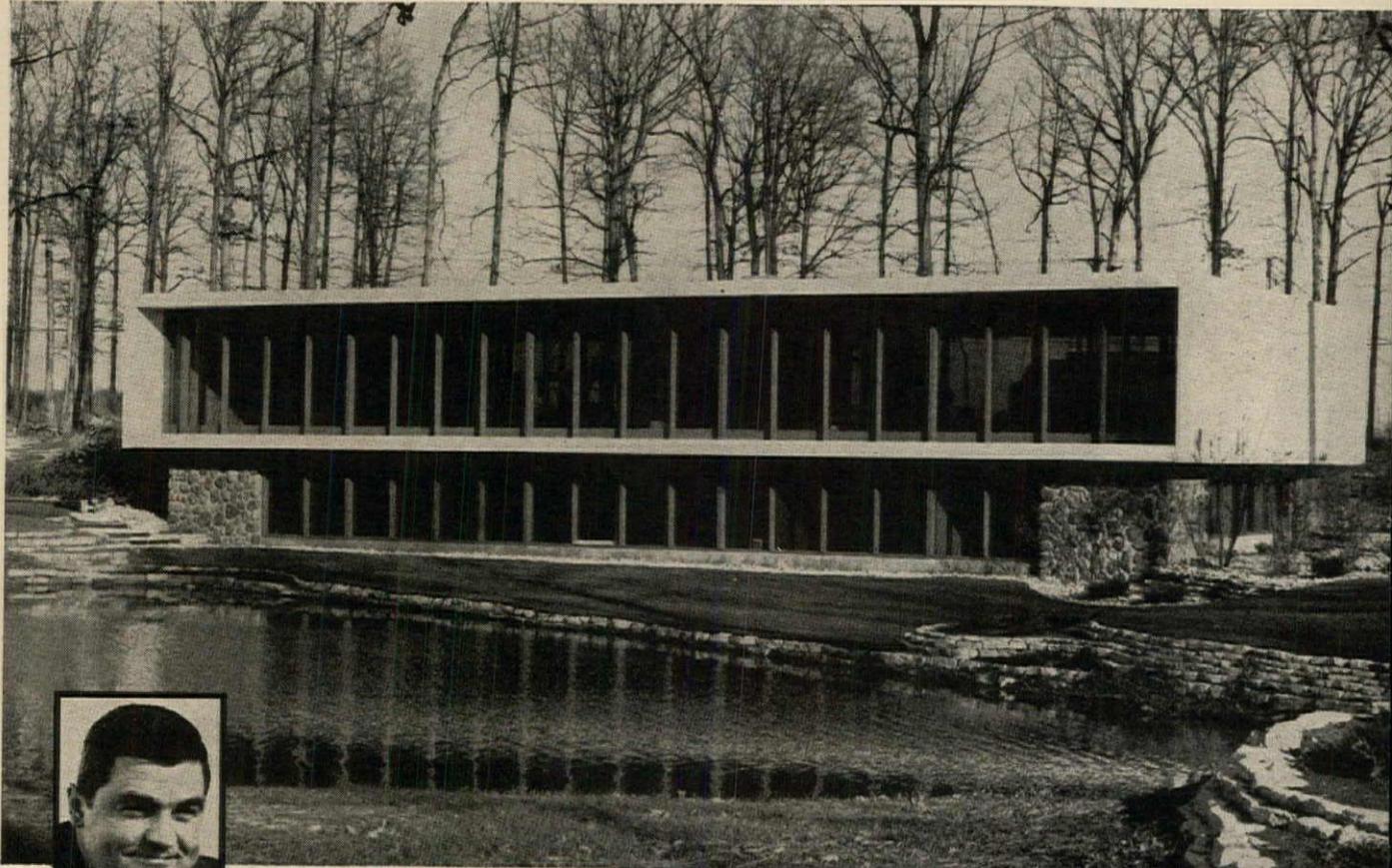


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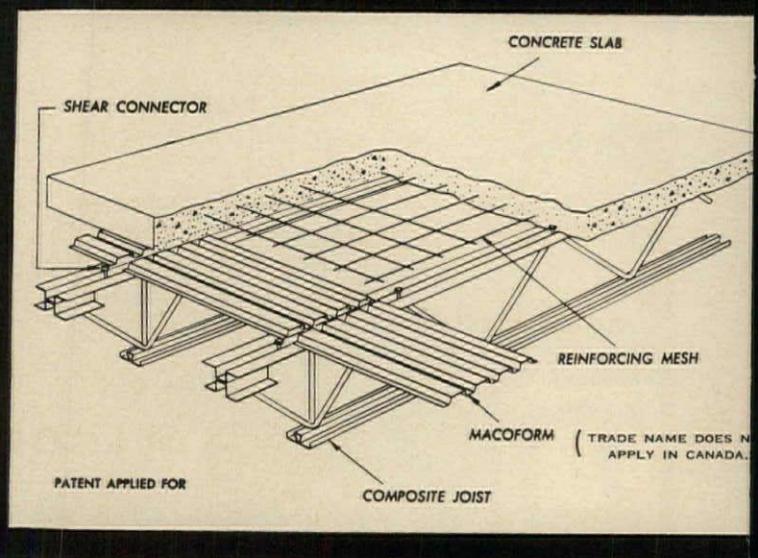
When an architect designs his own building.



OFFICE BUILDING

Location:
Owner:
Architect:
Contractor:

Fort Wayne, Indiana
Arch Development, Inc.
J. Douglas Lawrence
Schenkel & Lawrence
Irmischer & Son



. or a realtor looks to the future



APARTMENT BUILDING

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



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

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

Those responsible for some of America's finest buildings feel that the Composite System is a major breakthrough. The inter-action of the joists and slab provides a more rigid unit than steel and concrete acting independently.

Developed around a special Macomber open-web joist, the system permits longer spans with shallower depths, reducing height per floor. More efficient use of materials with a reduction in total dead weight and labor cost, results in decreased building costs.

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

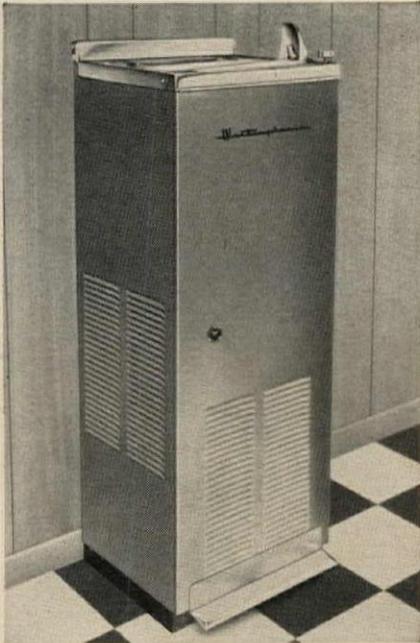


MACOMBER INCORPORATED

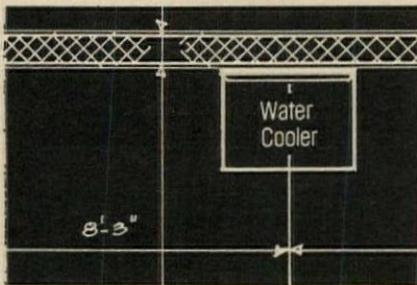
CANTON 1, OHIO

SUBSIDIARY OF SHARON STEEL CORPORATION

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City _____ Zone _____ State _____

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On the Calendar

August

16-20 Annual Conference 1964, American Institute of Planners—Robert Treat Hotel, Newark, N.J.
24-27 66th Annual Meeting, American Hospital Association—McCormick Place, Chicago, Ill.
30th National Technical Conference, Illuminating Engineering Society; through Sept. 4—Fontainebleau, Miami Beach, Fla.

September

8-11 Third Conference on Fundamental Research in Plain Concrete, ASCE Structural Division—Allerton House, University of Illinois, Urbana, Ill.

October

7-11 Annual exhibit of architectural products, California Council, A.I.A.—Hotel del Coronado, Coronado, Calif.
19-23 ASCE Annual Meeting and Structural Engineering Conference—Statler Hilton Hotel, New York, N.Y.

Office Notes

Offices Opened _____

Marcel Breuer, F.A.I.A., has announced the establishment of his European Office at 4, Avenue du Parc des Expositions, Paris 15.

Bruno Vezzoli, Architect, has opened an office for the practice of architecture at 451 Washington Ave., Bethlehem, Pa.

New Firms, Firm Changes _____

Dorfman-Bloom, Inc. will continue as **David Bloom, Inc.**, Lewis Tower, Philadelphia, Pa. **John H. K. Yuan** and **E. Fred Brecher** have been appointed associates to the firm.

J. G. Dickson has been appointed to the position of principal engineer and manager of the Civil Engineering Department of the Houston office of **Bovay Engineers, Inc.**

The formation of **Carter-Fraser**,
continued on page 240

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