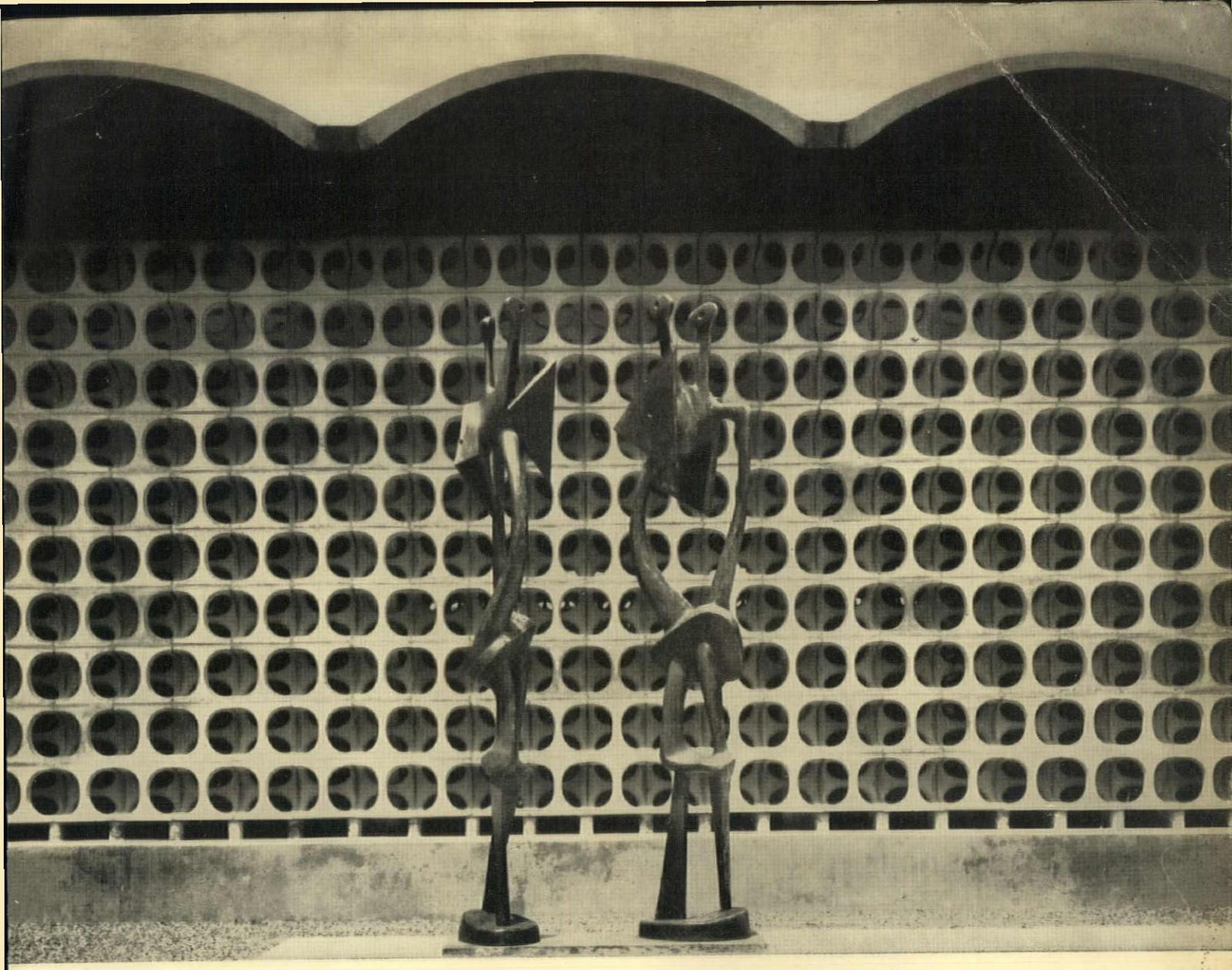
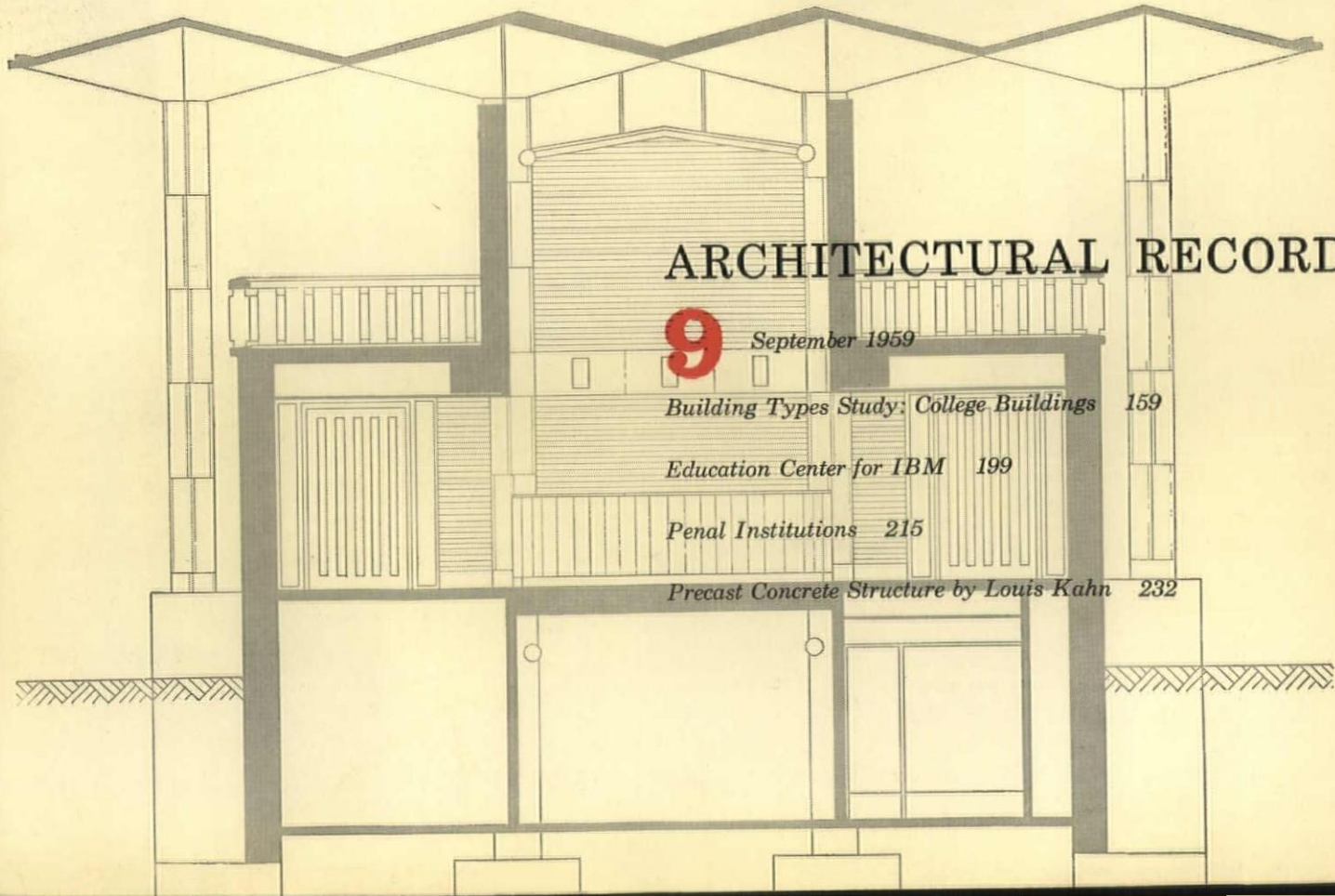
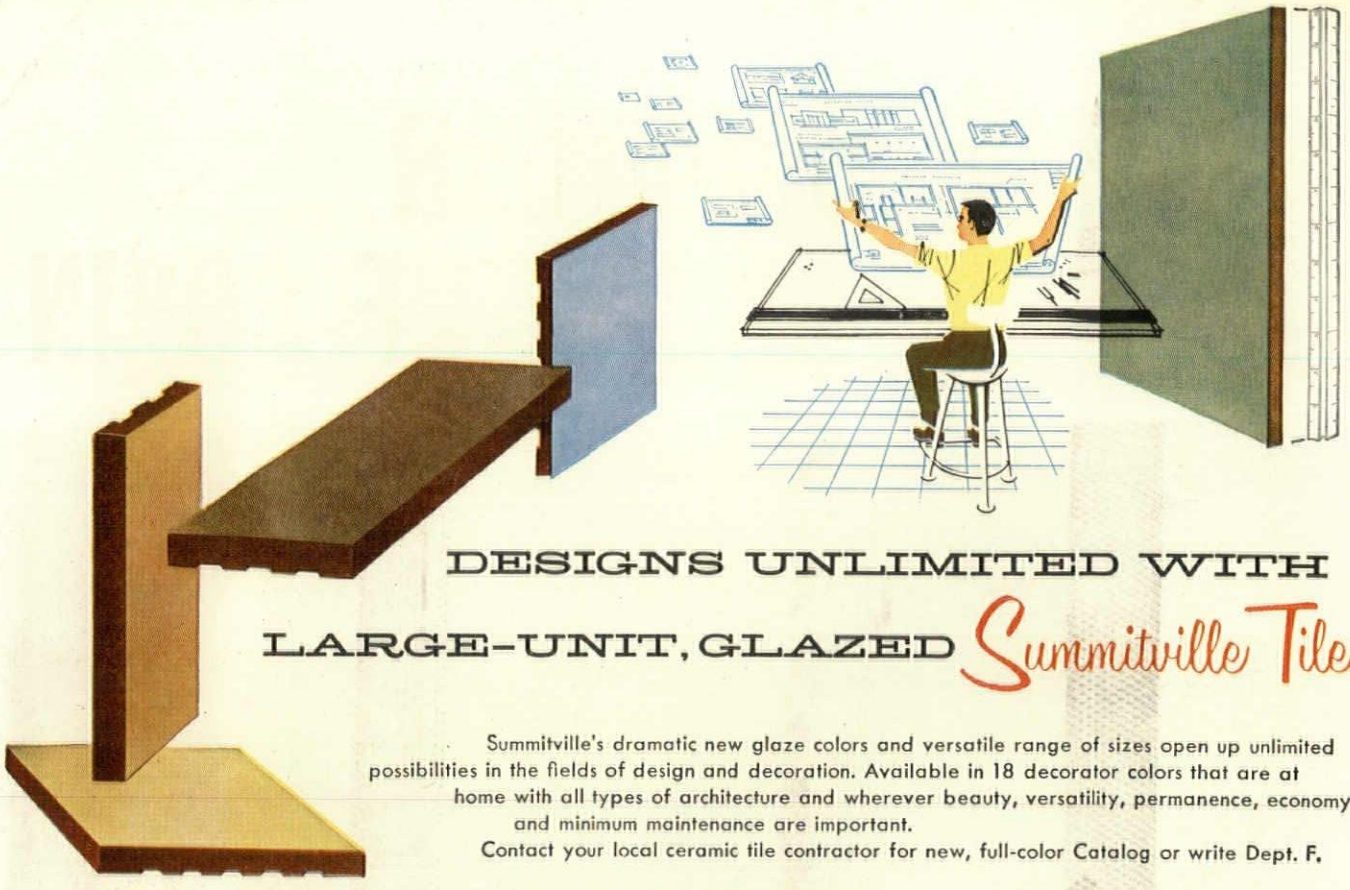




ARCHITECTURAL RECORD

9 *September 1959*



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ARCHITECTURAL RECORD

September 1959

Cover:

Top: Chicago Hall, Vassar College, Poughkeepsie, N. Y. Paul Schweikher and Winston Elting, Associated Architects. Screen by Erwin Hauer. Sculpture by Henry Moore. Ben Schnall, photo. Bottom: Men's Residence Hall, University of Chicago. Harry Weese & Associates, Architects. Drawing by Harry Weese & Associates.

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Coming in the Record

HOW SHOULD ARCHITECTURE BE CRITICIZED?

A big question, and a perennial one, and perhaps too lightly answered in some quarters these days. A scholarly article by Albert Bush-Brown restates some basic principles in the context of current approaches to architectural history and philosophy.

ARCHITECTURE BY HUGH STUBBINS & ASSOCIATES

The RECORD*'s continuing series on the work of significant contemporary designers focuses next month on Hugh Stubbins: a major portfolio will present four important projects: a first real look at what came after the Berlin Congress Hall.*

BUILDING TYPES STUDY: HOSPITALS

The radiographic suite in the general hospital will be taken up in this study, with a section prepared by the editors of the RECORD *in collaboration with the U.S. Public Health Service, and offering the latest design data developed by PHS on diagnostic X-ray suites. Also a group of new hospitals examined for overall planning considerations.*

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Building a Second U.S.A.
How will architects design another U.S.A.? Nothing less is the opportunity of the next 40 years if F. W. Dodge vice president and economist George Cline Smith is right in his view of the job the construction industry has ahead of it. "We are," he declared in a recent address, "on the threshold of the most fantastic era of growth and change the world has ever seen. Being constructive, the construction industry will occupy a prime position: as we build figuratively for the future, we must also build literally. How much must we build? That's easy—we have to build a second United States and then some. We will have to double all the structures, all the facilities, that now exist. And we'll have to do it before the babies born in 1959 reach middle age. We are embarked on the biggest construction project of all time."

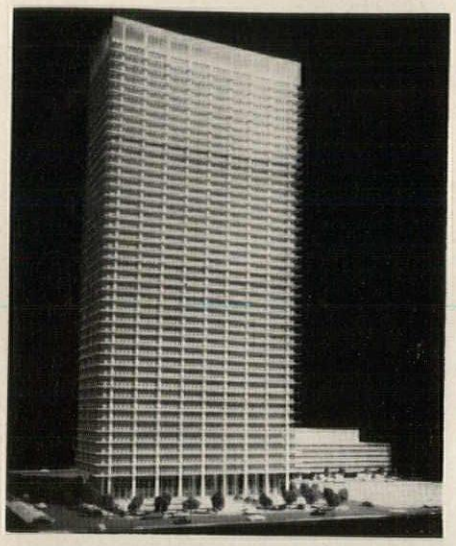
Watch on Wright Landmarks
In the first such joint effort in their history, the American Institute of Architects and the National Trust for Historic Preservation have selected 16 buildings by Frank Lloyd Wright for recommendation "to the nation" as important landmarks in American architectural history which ought to be preserved in their original form. This action, which in effect sets up a national watch over the buildings named, was formalized by the A.I.A. in a resolution passed by its Board of Directors at its New Orleans meeting less than three months after Wright's death. It had first been urged in a *New York Times* article by Aline Saarinen. The buildings selected by the A.I.A. and the N.T.H.P.: W. J. Winslow House, Auvergne Place, River Forest, Ill. (1893); Frank Lloyd Wright Studio, 951 Chicago Ave., Oak Park, Ill. (1895); Ward Willetts House, 715 S. Sheridan Rd., Highland Park, Ill. (1902); Frederick C. Robie House, 5757 Woodlawn Ave. Chicago (1909); Hollyhock House, Sunset and Hollywood Blvds., Los Angeles (1920); Taliesin, III, Spring Green, Wis. (1925); Falling Water, Edgar J. Kaufman Jr. house, Bear Run, Pa. (1936); S. C. Johnson and Son, Inc., Administration Building, Racine, Wis. (1936-39); Taliesin West, near Phoenix (1938); Unitarian Church, Madison, Wis. (1947); Heliolaboratory, S. C. Johnson and Son Inc., Racine, Wis. (1950); V. C. Morris Shop, 140 Maiden Lane, San Francisco (1951); H. C. Price Tower, Bartlesville, Okla. (1952-55); Beth Sholom Synagogue, Elkins Park, Pa. (1958-59); The Solomon R. Guggenheim Museum, New York (1957-59). An additional list of 15, mainly houses, names "other buildings designed by Wright worthy of preservation."

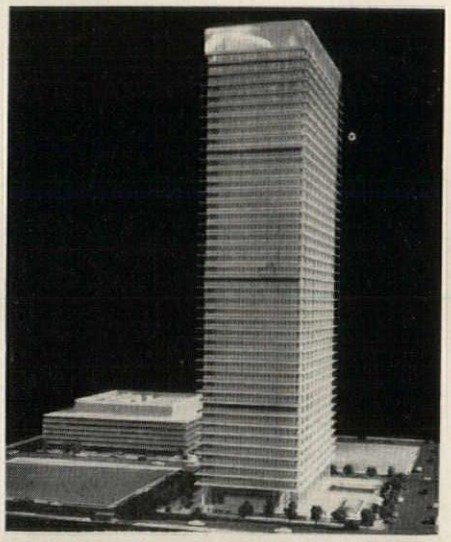
Dr. Le Corbusier
Speaking to an informal gathering of architectural students a few hours after he had received an honorary degree from Cambridge University, Le Corbusier took advantage of his new status as a Doctor of Laws to set forth a law of his own. In a series of sketches, he demonstrated that eminence can never be attained by easy flights, but only by a long series of little steps.

Challenge by Competition
A major architectural competition intended to spur architects to a greater role in the design of "middle-income housing"—that most dreary aspect of the American scene—has just been sponsored by a manufacturer of building products (for results, see pages 14-15), and it is surely worth noting that a manufacturer has seen fit to offer $25,000 in prizes to focus architectural attention on such an objective. Who else has? "The Architects' Competition for Better Living for the Middle Income Family" was sponsored by the Mastic Tile Corporation of America without reference to any application of the corporation's products. The A.I.A.-approved competition had A. Gordon Lorimer, A.I.A., as professional adviser, and Dean Pietro Belluschi, F.A.I.A., of M.I.T.'s School of Architecture and Planning, as chairman of its jury. Dean Belluschi, noting that "The purposes set forth were very significant in the future development of housing in this country," said the jury believed the best designs were "those which gave the feeling of being logical, easy to execute, economical of land usage yet producing the greatest amount of living amenity. Above all we believed that this competition should be able to show that any good piece of building land need not be abused by the usual long and dismal row of salt boxes which in recent years has marred the semi-urban landscape of our nation, and it should give a demonstration of the fact that with a little care and ingenuity interesting relationships between houses could be achieved, producing amenities without added cost." Mr. Lorimer, who said he was "particularly impressed with the intensity and thoroughness with which the jury performed its function, and the concern displayed by them that the results prove a useful demonstration to the operative builder," has expressed the hope that "some of the larger builders will pursue in actual operation the thinking demonstrated in the competition, and that a number of the contestants will have an opportunity to demonstrate this thinking in actual construction."

Addenda
The dirt and rock removed to make the excavation for the Equitable Life Assurance Society's new 42-story office building in New York weighed more than 250,000 tons, compared with the estimated weight for the building of 160,000 tons. . . . The Mohawk Maintenance Company, charged with the cleaning of the 3750 windows of the 38-story Seagram Building at 375 Park Avenue, New York, estimates that its four-man crew spends about 52 hours a month on the outside, 47 on the inside and 26 in the lobby. . . . "It Grows on You" is a newly published guide to planting street trees prepared by the Municipal Art Society of New York in cooperation with the Department of Parks. . . . Sky platforms powered by rotors fed by high-power radio waves beamed from the ground are being studied in a project of the Raytheon Company; they would be in effect pilotless helicopters, would be used perhaps as high altitude alert stations in the air defense system, weather stations, or as lighthouses of the air, identifying cities and other landmarks below. . . . Detroit, U.S.A., has recently been described—by industrial designer Carl Lundberg—as "the modern version of medieval Florence, with its attention to craft and the art of craft."

Buildings in the News

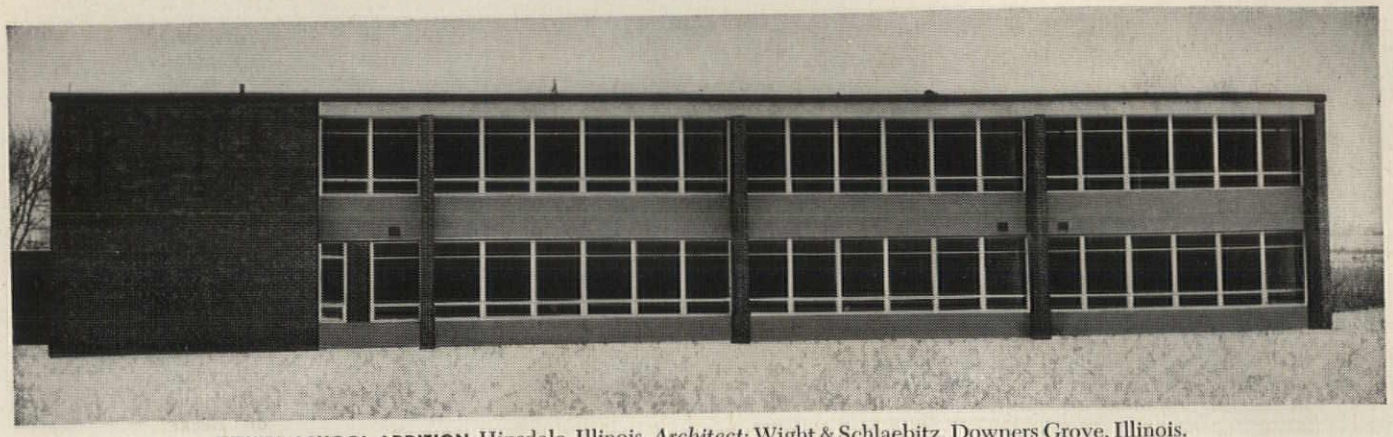




North and east views of a model of the proposed home office building and garage for the Humble Oil & Refining Company in Houston. The estimated cost of the building, to have a net area of about 1 million sq ft, is $32 million. The structure, 600 ft high, has 44 stories, a concourse, and two basements. It is of steel-frame construction with floors of light-aggregate concrete on metal pans. The horizontal sun-shades are aluminum and porcelain. A 4-ft-8-in. module is used in the design of the building, which is about 225 by 115 ft. Air conditioning, heating, and electrical systems and elevator machinery are carried in mechanical floors at about the 10th, 20th, and 30th floors. Welton Becket & Associates, architects and engineers; Golemon & Rolfe and George Pierce-Abel B. Pierce, consulting architects; Murray Erick & Associates, structural engineers

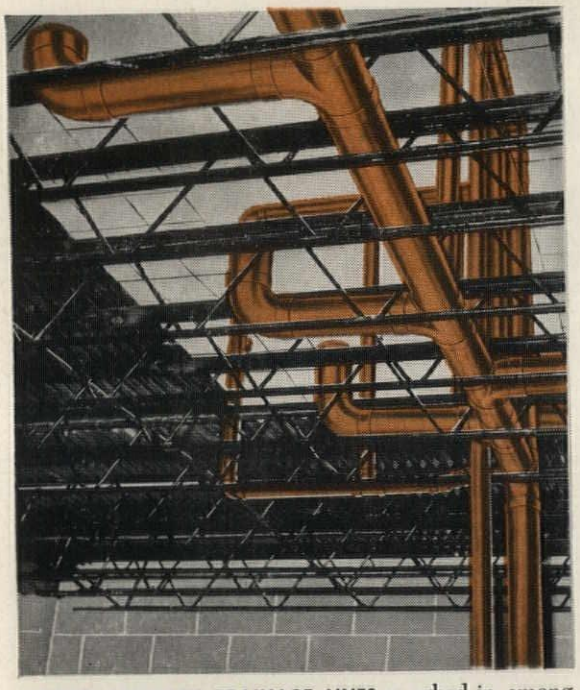
Two buildings of the Oregon Centennial Exposition, now in its last weeks at Portland. *Left:* Forest Products Pavilion, to be used for livestock shows later. The seven laminated-wood hyperbolic paraboloids are supported by six 8-ft buttresses; strip plastic skylights join the shells. John Storrs, architect; James G. Pierson, structural engineer; George A. Moore & Assocs., general contractor. *Right:* Hall of Religious History, a ten-sided structure with fir bents and siding. The building is intended to represent all known Oregon faiths. Stewart & Richardson, architects; Allen C. Lawson, general contractor

Left: Lake House, 10-story apartment building nearing completion on Lake Erie in Cleveland. The steel structure has 246 apartments in four sizes. Weinberg & Teare, architects; Marvin Helf, Inc., general contractor. *Right:* St. Andrew Presbyterian Church, under construction in St. Louis at a cost of about $223,000. Granite columns support a parabolic vault spanning the chancel. Pink brick and plastic-sprayed concrete are used for the exterior. Harris Armstrong, architect; Leslie J. Bergmeier, structural engineer; Belt & Given, mechanical and electrical engineers; Schneiderhahn Construction Co., general contractor

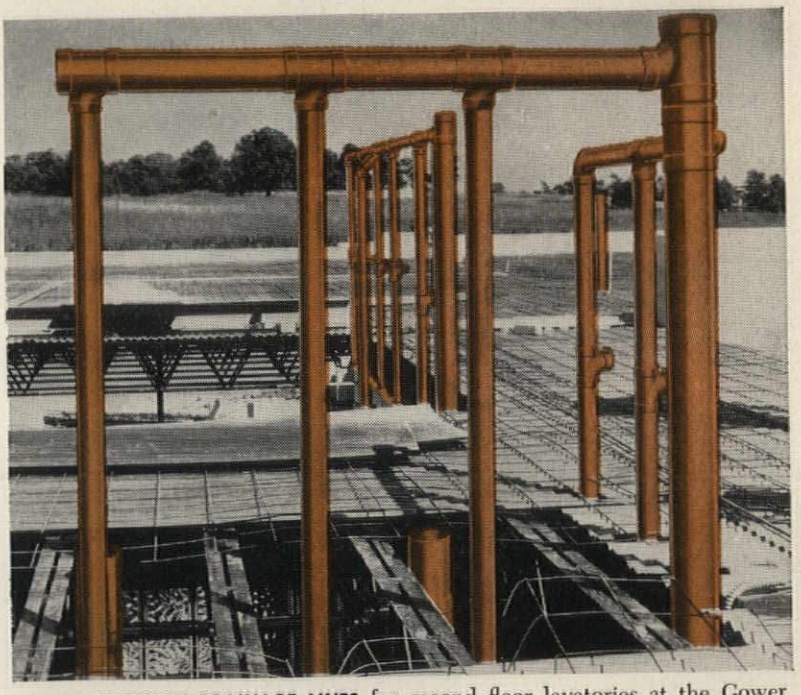


GOWER SCHOOL ADDITION, Hinsdale, Illinois. *Architect:* Wight & Schlaebitz, Downers Grove, Illinois.
Plumbing and heating contractor: Jerry & Phil's Plumbing & Heating, Inc., Brookfield, Illinois.

SUPERIOR **ALL-COPPER PLUMBING** IN THIS SCHOOL AT LOWER COST TO TAXPAYERS



COPPER SANITARY DRAINAGE LINES roughed-in among structural members at Gower School. This space-saving installation would have been impracticable with heavy, bulky pipe requiring threaded or caulked joints.



COPPER SANITARY DRAINAGE LINES for second floor lavatories at the Gower School. Light weight of copper tube and ease of making solder joints save many dollars on multiple installations like this. Compact assemblies eliminate wide plumbing walls, give greater usable floor area.

Phil Bergeron and Jerry Wehrmeister, plumbing contractors near Chicago, have found that the installation economies with copper tube and solder-joint fittings enable them to offer all-copper plumbing—water supply *and* sanitary drainage—at a cost lower than competitive bids based on installing ferrous piping. Recent jobs awarded to them as low bidder include the Gower School, the LaGrange Township Junior High School, a church, health center, two restaurants and a store. Anaconda was used for all these jobs. Phil Bergeron says, "We specify Anaconda Copper Tube and Fittings because their consistent fine quality and close tolerances makes our work easier and keeps the job costs within our estimates."

Contractors, builders, and architects the country over are finding that they can provide long-lasting, low-maintenance all-copper plumbing at a cost competitive with ferrous piping. For information on Anaconda Copper Tube and Fittings, write for a copy of Publication C-33. Address: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

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Religious Buildings in Nine States Receive Awards

At the 1959 Conference on Church Architecture, awards were given to 18 of the religious buildings exhibited (all are shown here). The conference was sponsored jointly by the Church Architectural Guild of America and the Department of Church Building, National Council of the Churches of Christ in the U. S. A.

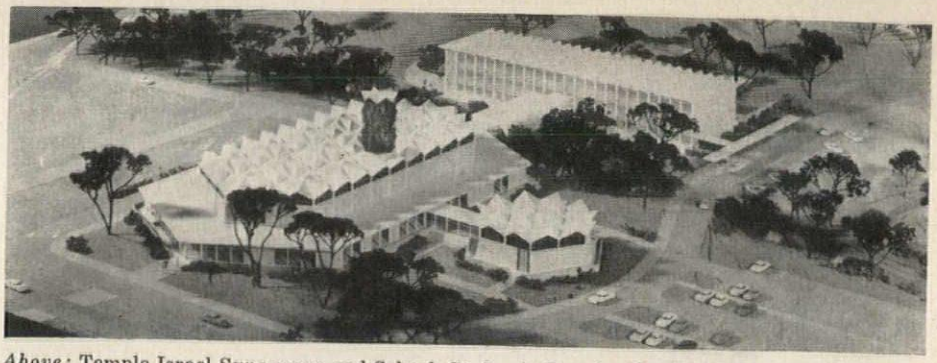
Arland A. Dirlam, A.I.A., was chairman of the juries. Both completed buildings and commissioned designs were eligible. Entries and awards were in four divisions:

Class I (*eight buildings on this page*) : churches seating 250 or more; Anthony Ferrera, A.I.A., jury chairman.

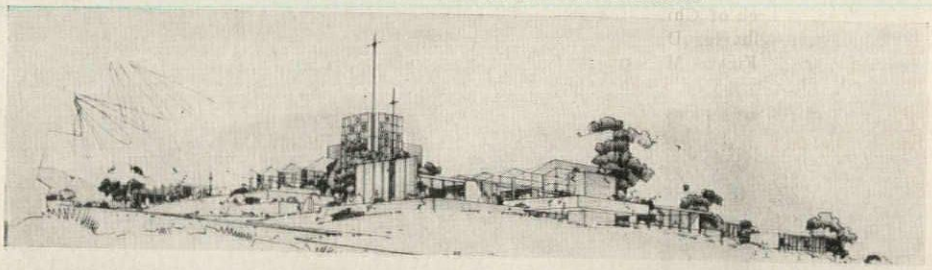
Class II (*three buildings at top, opposite page*) : churches seating less than 250; T. Norman Mansell, A.I.A., jury chairman.

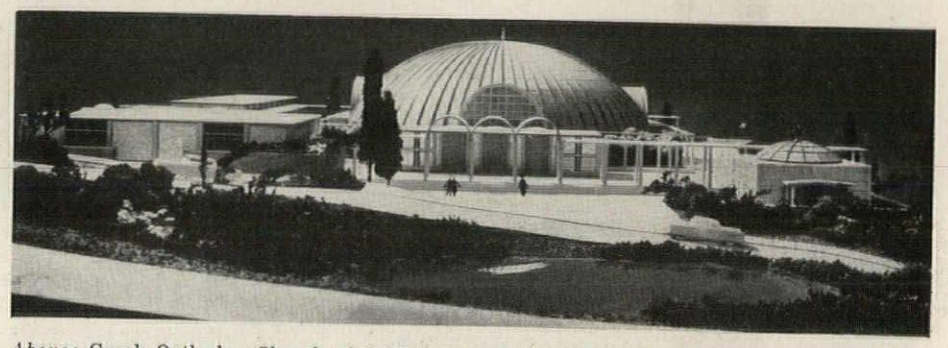
Class III (*three center buildings, opposite page*) : religious educational buildings; Walther J. Wefel, A.I.A., jury chairman.

Class IV (*four buildings at bottom, opposite page*) : chapels; Milton L. Grigg, A.I.A., jury chairman.

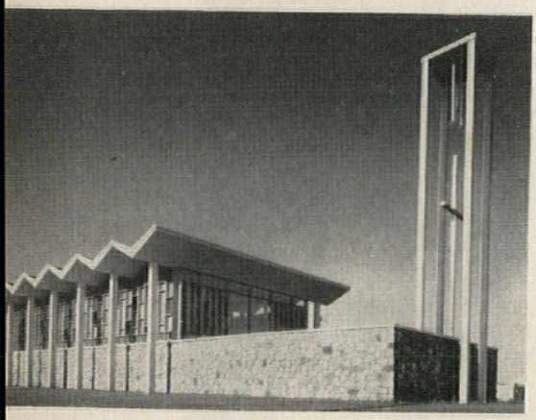


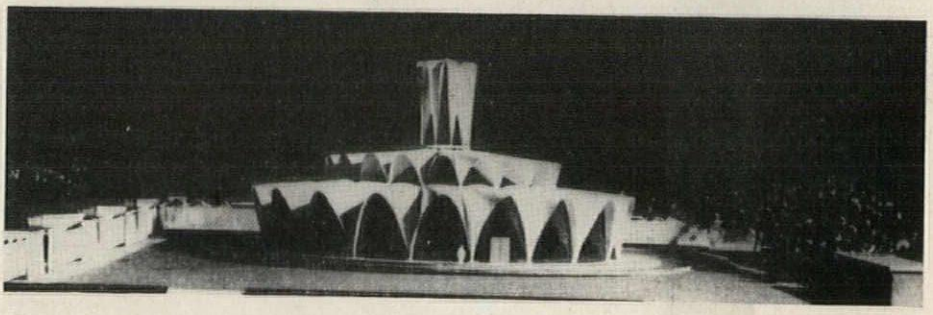
Above: Temple Israel Synagogue and School, St. Louis County, Mo. Hellmuth, Obata & Kassabaum, architects. *Below:* Congregational Church of Fullerton, Calif. A. Quincy Jones, Frederick E. Emmons, architects; Arundel & Lindsey, general contractor



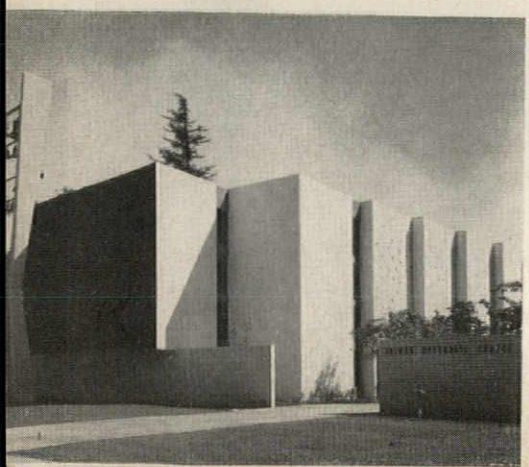


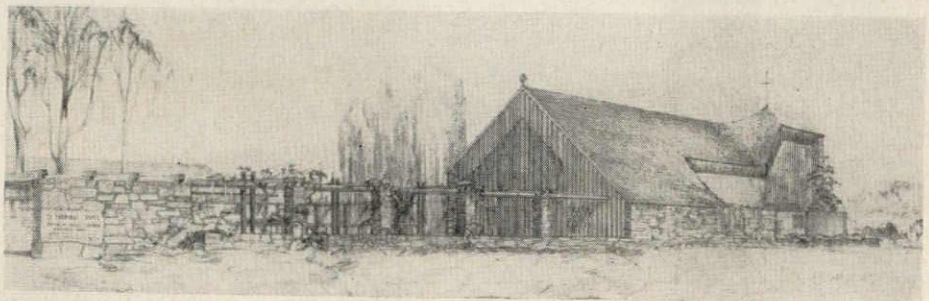
Above: Greek Orthodox Church of Oakland, Calif. John Lyon Reid & Partners, architects; Williams & Burrows, general contractor. *Below:* St. Louis Priory Church, Creve Coeur, Mo. Hellmuth, Obata & Kassabaum, architects



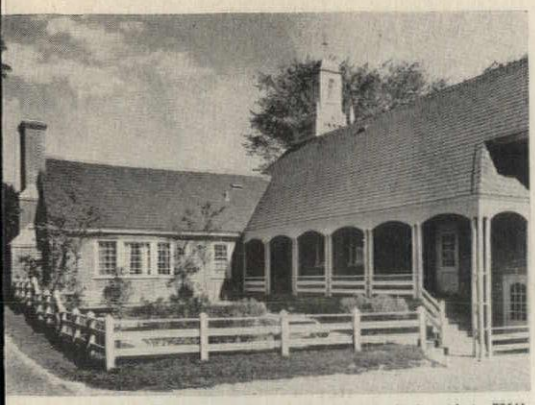


Above: First Lutheran Church, Virginia, Minn. Jyring & Whiteman, Inc., architects; Associated Builders, Inc., general contractor. *Below:* Holman Methodist Church, Los Angeles. Kenneth Lind Associates, architects; Butler & Butler, general contractor

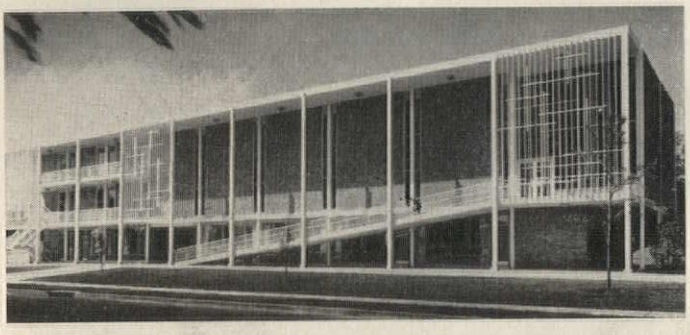


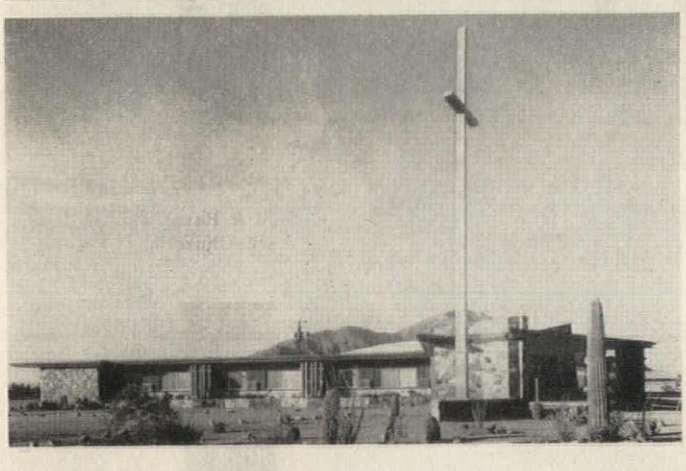


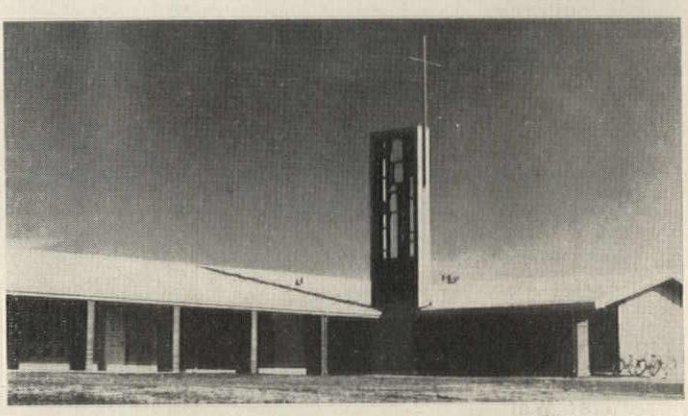
Above: St. Barnabas Episcopal Chapel, Greenwich, Conn. Philip Ives, architect; Duge Construction Co., general contractor. *Below:* St. Mary's Greek Orthodox Church, Minneapolis. Thorshov & Cerny, Inc., architects; C. H. Peterson Construction Co., general contractor



Left: First Church of Christ Scientist, Williamsburg, Va. Charles D. Faulkner, architect. *Center:* First Methodist Church, Bothell, Wash. Durham, Anderson & Freed, architects; Parsell & Race, general contractor. *Right:* Chapel of the Transfiguration, Eugene, Ore. Stafford & Morin, architects; Vik Construction Co., general contractor

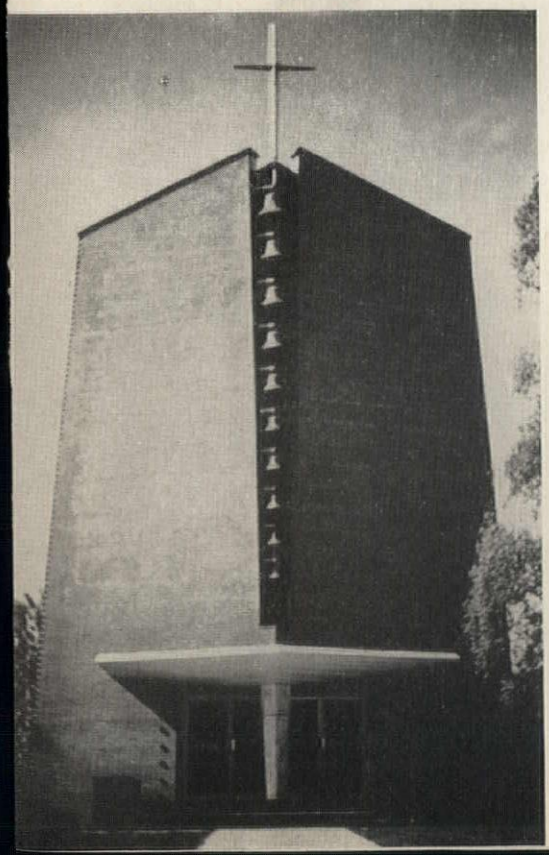


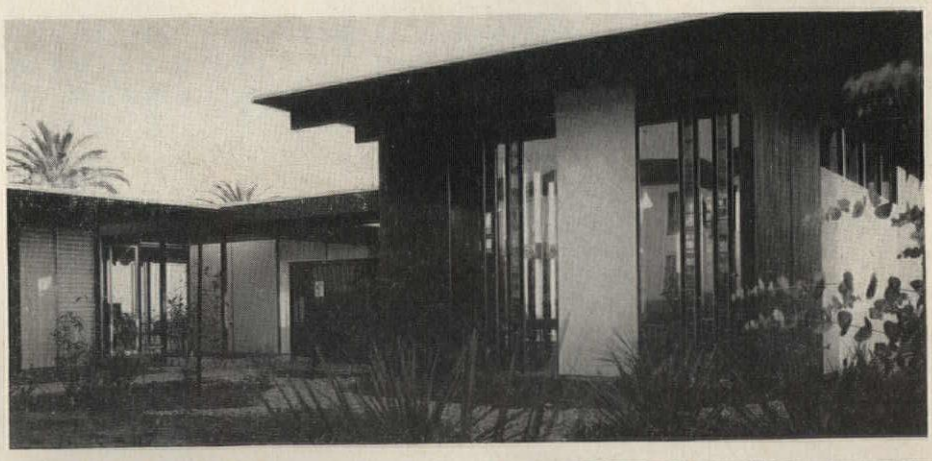


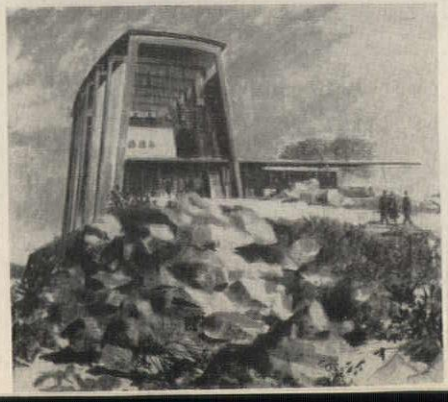


Above left: Christ Methodist Church, Memphis, Tenn. Walk C. Jones Jr., architect; Canfield & Scarbrough Construction Co., general contractor. *Above:* Foothill Baptist Church, Sacramento, Calif. Satterlee & Tomich, architects; John Ehnisz, general contractor. *Left:* Valley Presbyterian Church, Scottsdale, Ariz. Harold E. Wagoner, architect; Kitchell-Phillips Contractors, Inc., general contractor

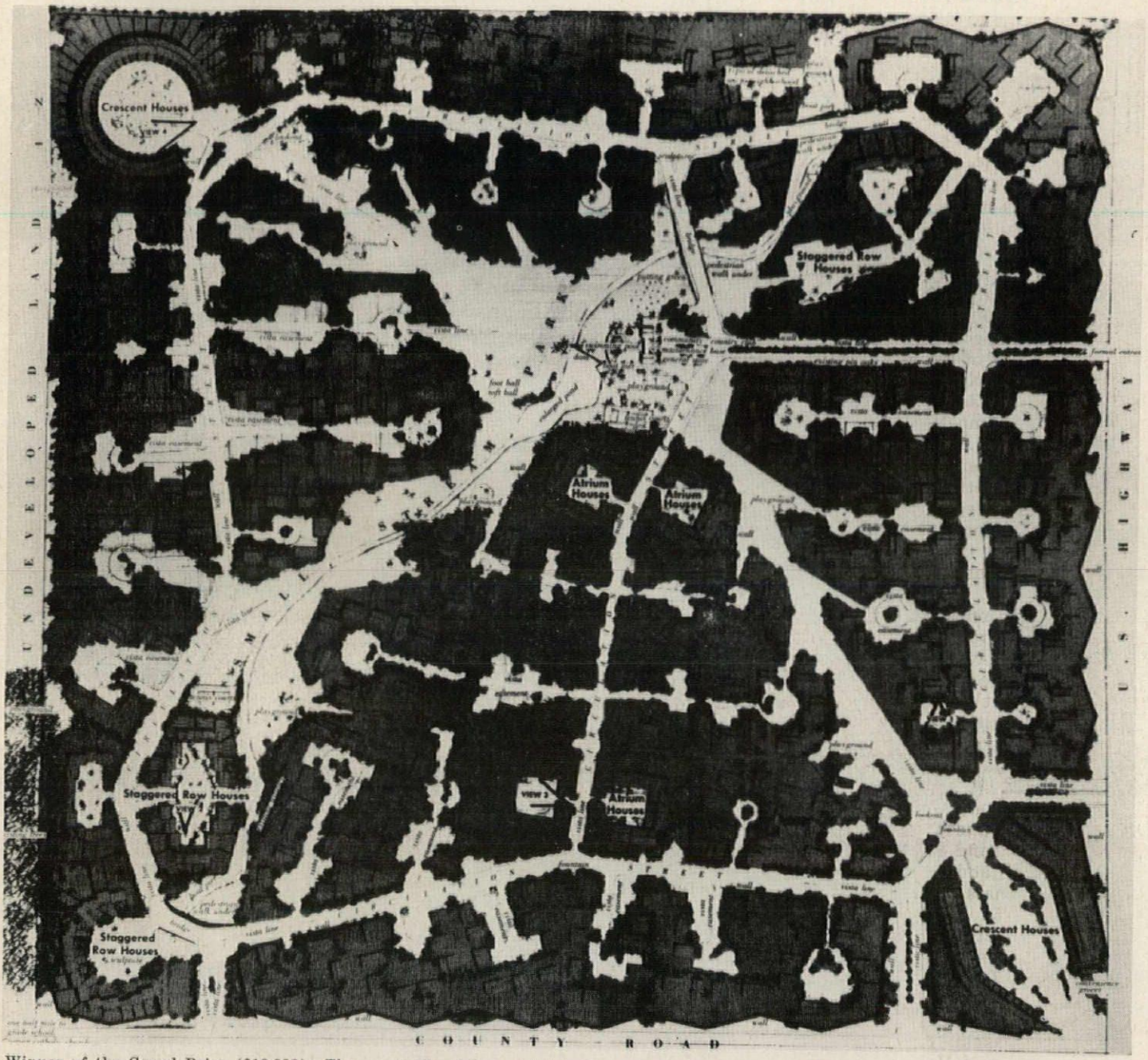
Below: St. Nicholas Chapel of the Episcopal Seamen's Center, San Pedro, Calif. Carleton Winslow & Warren Waltz, architects; Francis L. Sebesta, general contractor. *Below left:* St. Mark's Chapel, University of Connecticut, Storrs. Huntington & Darbee, architects; Joseph Kovarovics, general contractor. *Bottom center:* Chapel, Bel Air Presbyterian Church, Los Angeles. Hal C. Whittemore, architect; Judson W. Pittman, associate; C. V. Beckman, design associate. *Bottom right:* Children's Chapel, Neighborhood Church, Pasadena, Calif. Smith & Williams, architects; Roulac Co., contractor



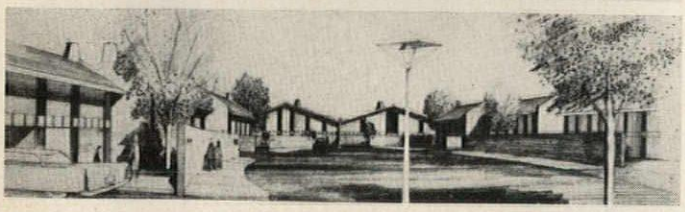




WINNERS ANNOUNCED IN MASTIC TILE'S $25,000 HOUSING DESIGN COMPETITION



Winner of the Grand Prize ($10,000): The entry submitted by Howard R. Meyer, F.A.I.A., James Reece Pratt, A.I.A., and John Harold Box, A.I.A. The jury said: The Grand Prize winner has demonstrated an ability to solve the problems of internal traffic while maintaining peace and serenity for the grouped houses; and has developed a community of varied texture in which many tastes and modes of living can be happily achieved." The plan provides for 56 "micro-neighborhoods," each on a cul-de-sac and having an average of 10 houses. *Below:* renderings of the four types of housing shown in the site plan: *upper row:* detached houses (420 of the total of 614 houses), atrium houses (32); *bottom:* staggered row houses (87), crescent houses (75)



Winner of the Second Prize ($5,000): The entry submitted by Manual Dumlao, John Buenz, Robert Burley, and Edward Kovach, all of Eero Saarinen & Associates

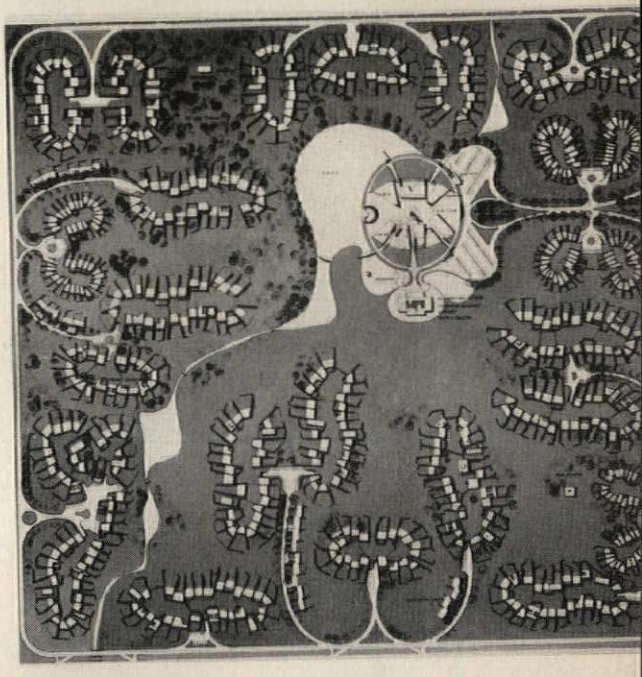
The results of the Architects' Competition for Better Living for the Middle-Income Family, sponsored by the Mastic Tile Corporation of America "to spur the architect's role in middle-income development housing," were recently announced. The problem assigned was the complete planning and design of middle-income ($6000-$9000) private housing for a specific 160-acre site on the periphery of a major city.

A. Gordon Lorimer, A.I.A., was professional adviser to Mastic Tile for this year's competition. The jury was headed by Pietro Belluschi, F.A.I.A.; the other members were: Edward H. Fickett, A.I.A.; George Fred Keck; Reginald Roberts, A.I.A.; and Joseph H. Orendorff, special assistant to the administrator, Housing and Home Finance Agency.

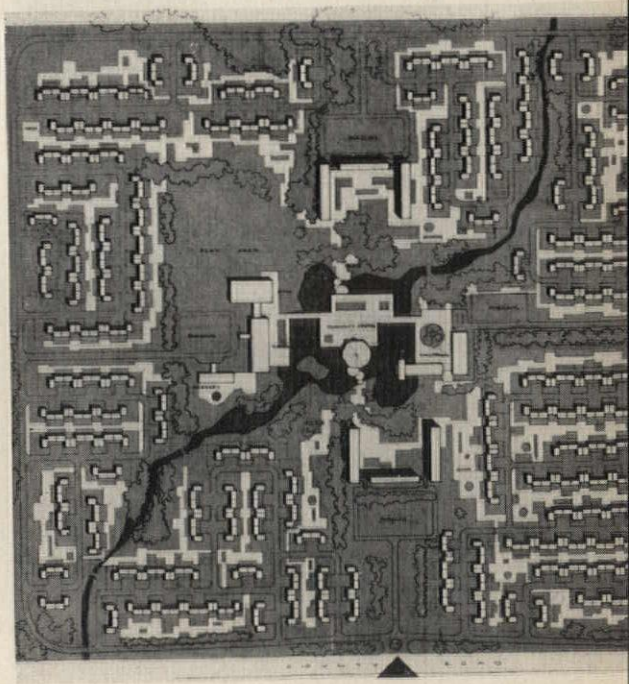
The competition was divided into two divisions: professional and student. The jury considered 199 entries (130 of these were professional, 69 were student), first judging on an overall basis, then separating the student entries from the others for judging against only others in that category.

The professionals who won the grand, second, and third prizes of $10,000, $5000, and $3000 are listed in captions. In addition, the following professionals won four merit awards of $250 each: Richard A. Miller, architect, Robert Zion and Harold Breen, site planners, Peter Bradford and Larry E. Charity, designers, New York; Havahiko Takase and Kyosuke Yoshioka of Minoru Yamasaki & Associates; Chih-Chen Jen of Hellmuth, Obata & Kassabaum; Paffard Keatinge Clay of Skidmore, Owings & Merrill.

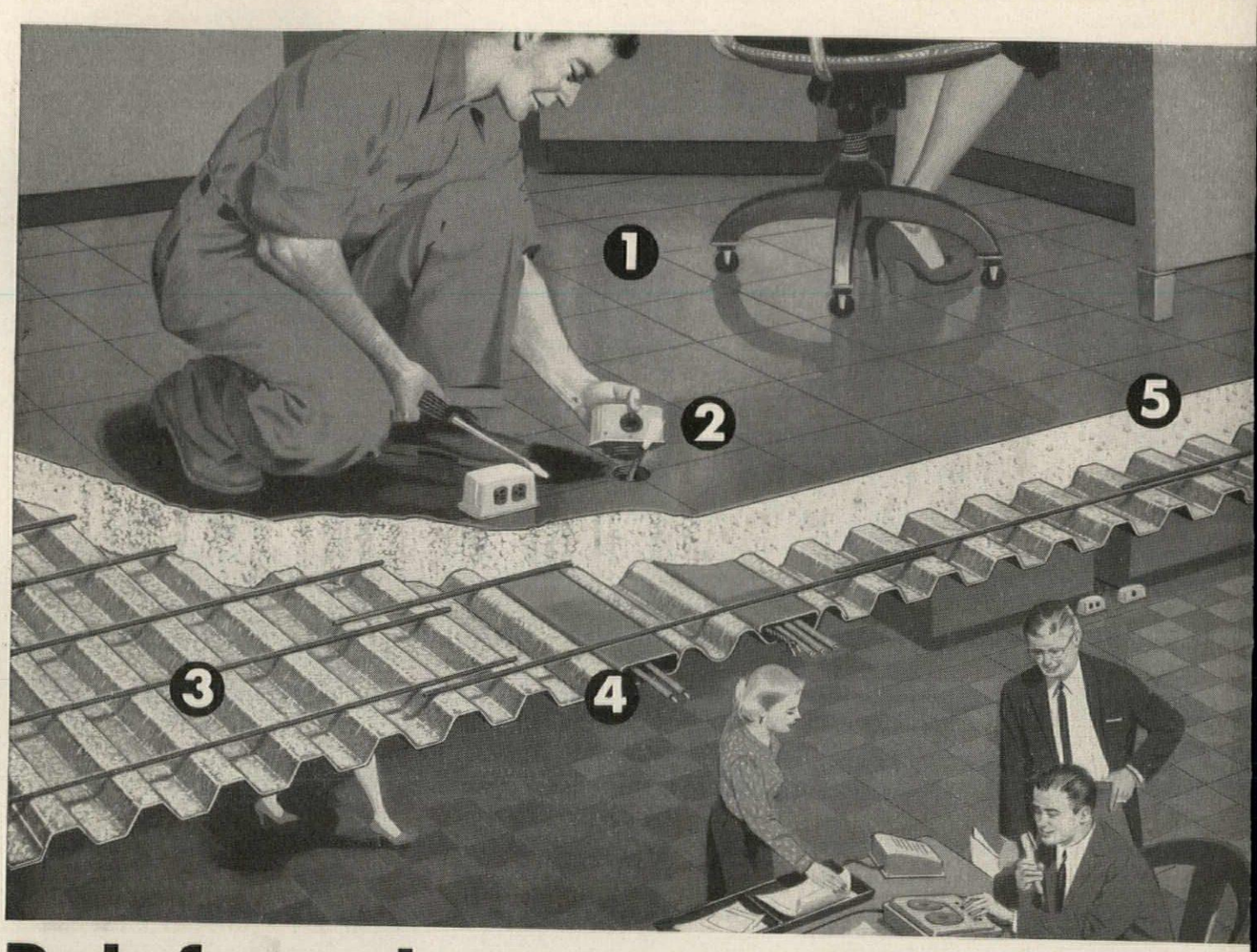
The winners of the first student prize of $2500 are listed in a caption. The second and third student prizes of $1500 and $1000 and the four merit awards of $250 each went to the following: Ernest G. Schweibert Jr., Princeton University (second); G. M. Bulota and W. Miller, University of Illinois (third); and (merit) Bill Batson and David Lawson, University of Illinois; Charles A. Platt, David I. Smotrich and Charles P. Parker, Harvard School of Design; Philip Gold and J. Stroud Watson, University of Illinois; William J. Lindsey and William H. Fosse, University of Illinois.



Winner of the Third Prize ($3000): The entry submitted by Paul A. Kennon, Chartier Newton, Henning Huth, and Phil Kinsella Jr., all also of Eero Saarinen & Associates



Winner of the First Prize in the Student Awards ($2500): The entry submitted by George Ohanian and Fernando Gonzalo of Pratt Institute



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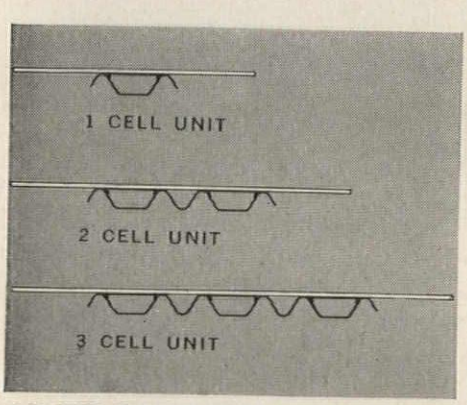

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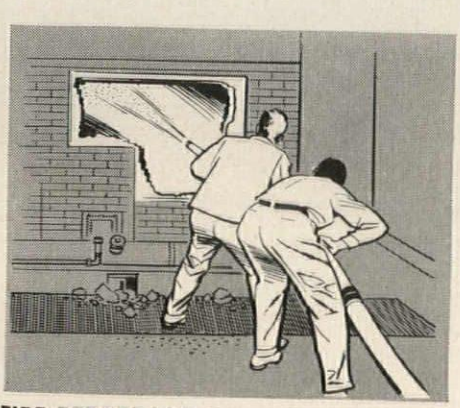

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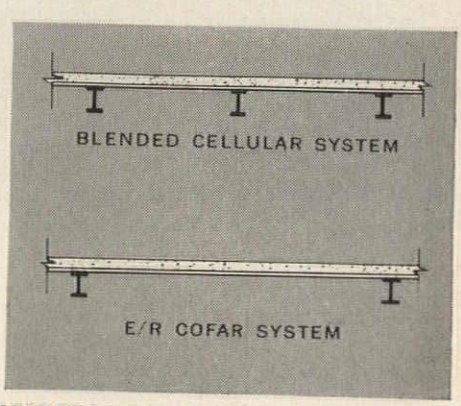

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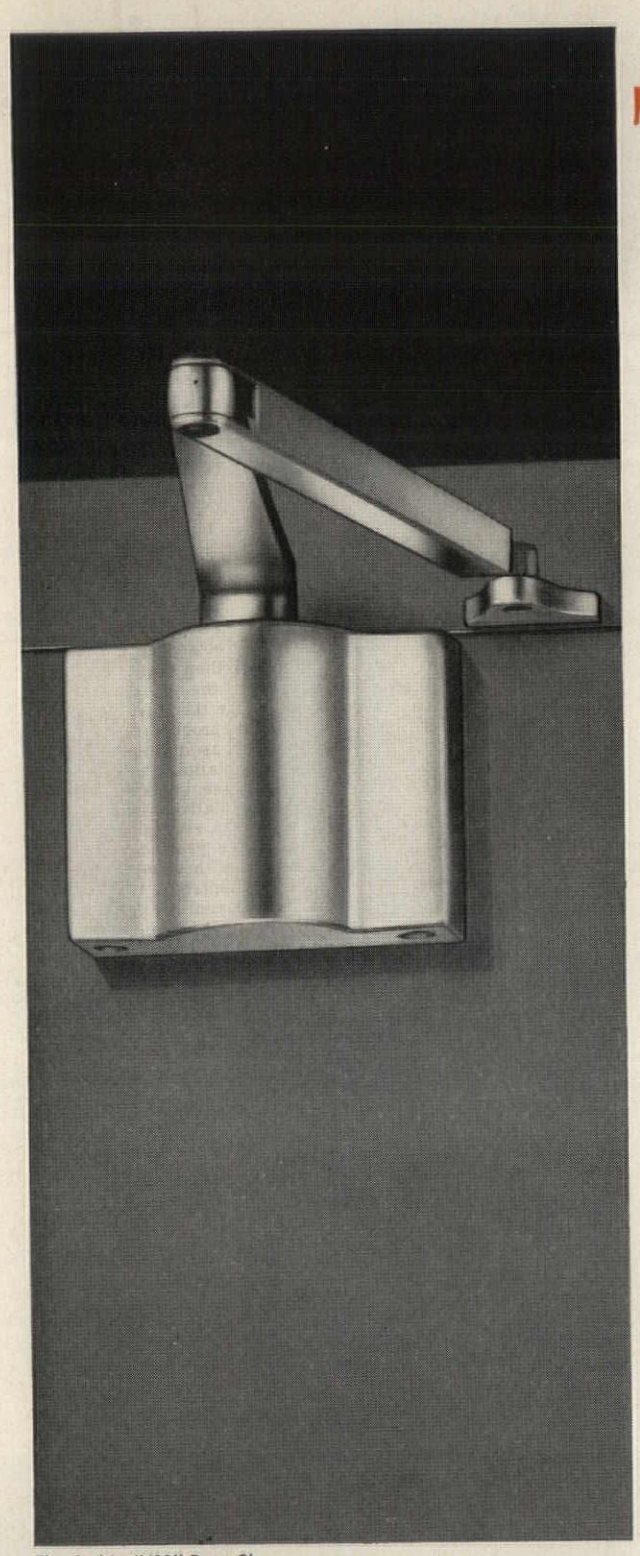

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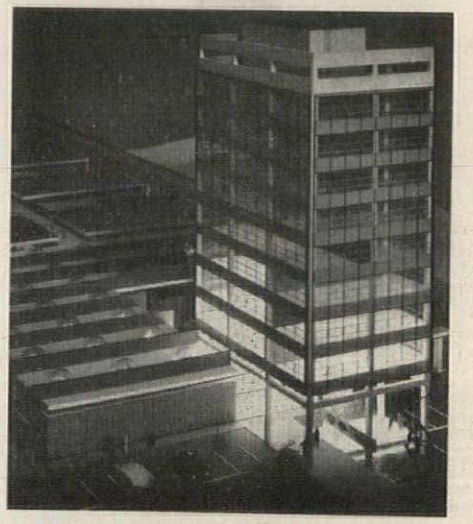
News of Architecture Abroad

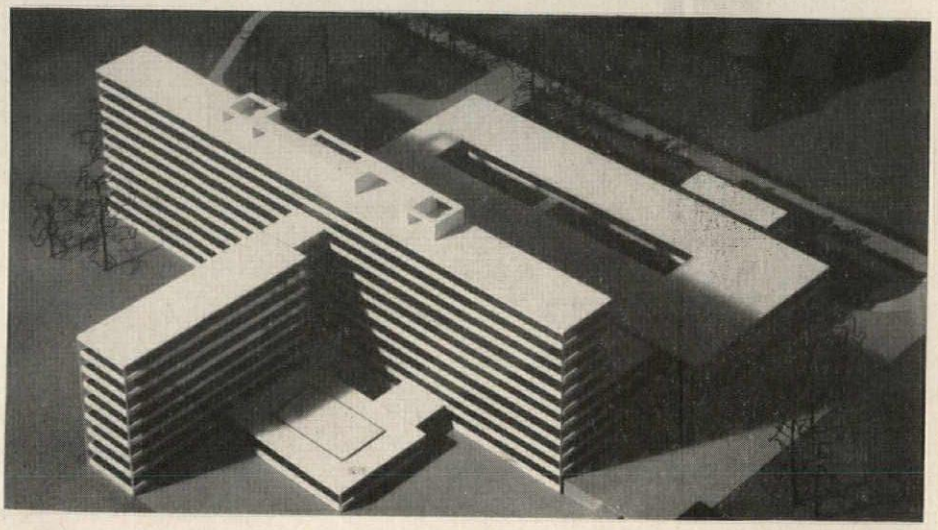
CURRENT ARCHITECTURE IN GREAT BRITAIN

A perspective sketch by Sir Hugh Casson of the new buildings for the Royal College of Art in London, showing their relationship to the existing Royal Albert Hall, whose porch appears in the foreground. The tall block houses classrooms and workshops, and a hall and exhibition space are contained in the single-story building. The architects are Sir Hugh Casson, H. T. Cadbury-Brown, and R. Y. Goodden

A side view of the control tower at Gatwick Airport by Yorke, Rosenberg & Mardall. The building faces the runways, which are to the left of the photograph. The construction is reinforced concrete, left as it comes from the shuttering, with brick infilling and glazing with hardwood frames. The esthetic possibilities of this form of construction are being explored by a number of British architects at present

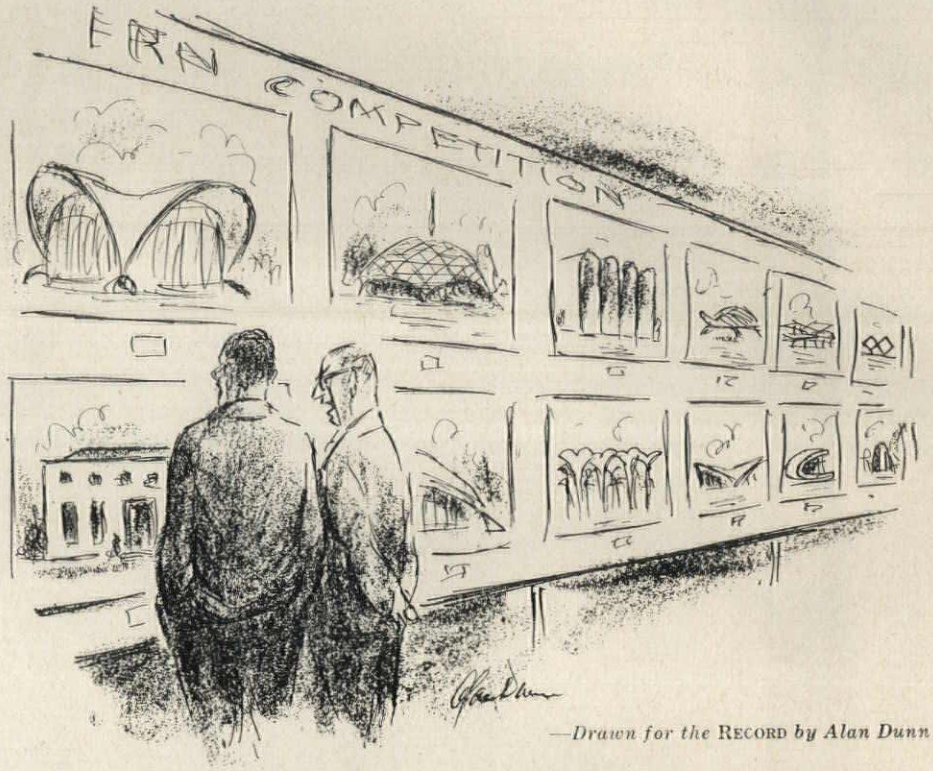


Model showing a night view of Liverpool University's new Physics Building. The tower stands at the corner of a complex of single-story units containing a group of lecture theaters and the teaching and research laboratories, which are visible in the left foreground. The tower houses classrooms, staff rooms, and some of the smaller teaching laboratories. Basil Spence & Partners are the architects



A model of the General Hospital at Hillingdon, Middlesex, by Gollins, Melvin, Ward & Partners. This structure will ultimately house a complete general hospital, except for the maternity department which will be in an adjoining building already under construction. The hospital will have curtain walling on a reinforced concrete frame, a combination still relatively rare in British work

Meetings and Miscellany



—*Drawn for the* RECORD *by Alan Dunn*

"How does he ever expect to be an architect if he can't invent a new roof?"

Plans for 1964 World's Fair
At press time plans for holding a New York World's Fair in 1964 were still contested by other cities but Robert Kopple, executive vice president of the corporation formed to put on the fair, was confident that the exposition would be held. Mr. Kopple added: "As soon as all arrangements are firm, an architectural and planning committee will be set up. Its members will include some of the outstanding architects of the country." The intention is to "have more control over overall design" than there was in the case of the 1939 New York fair. Mr. Kopple said: "We want some kind of unity for the whole fair." The theme will be "Peace Through Understanding."

Illinois Building Group
The Illinois Building Industry Alliance, recently formed, represents architects, engineers, specifications writers, and material manufacturers. Organizations cooperating in founding the group are the Architects Association of Illinois, State Council of Associated General Contractors, Construction Specifications Institute, and Producers' Council (Chicago Chapter); also a consulting engineer, Earl H. Beling, who serves as secretary-treasurer of I.B.I.A. President of the group is Charles F. Behrensmeyer, who is vice president of A.A.I.

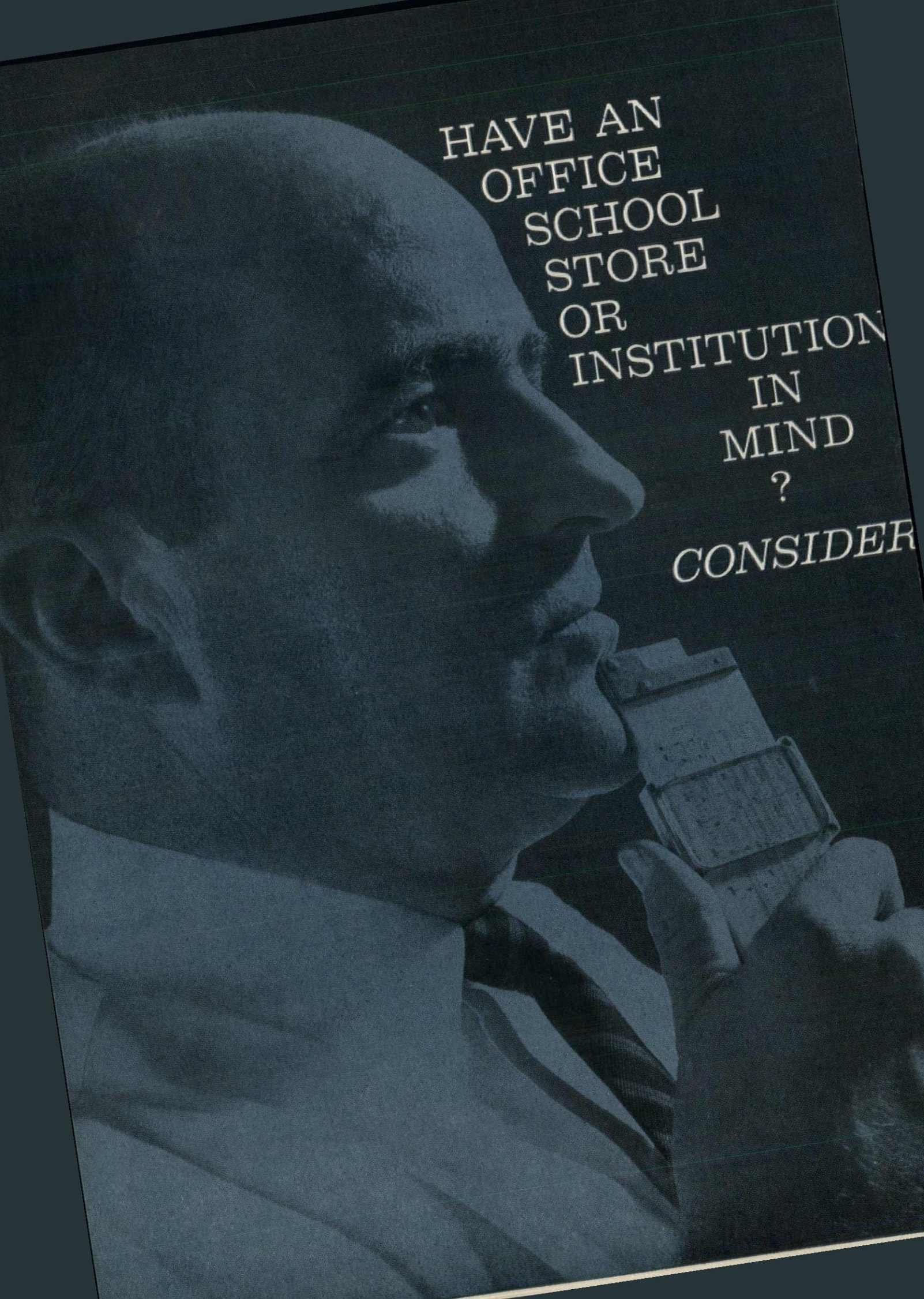
According to Mr. Behrensmeyer, a major goal of I.B.I.A will be "an information program to acquaint the public with the story of the giant Illinois building industry and its amazing accomplishments in design, engineering, and construction in the service of our complex civilization. Through I.B.I.A., the building industry in Illinois can increase its efficiency, improve its bidding and contract award procedures, and its financing. It can show the way to better, more economical, and more beautiful buildings."

A.I.A.-N.A.H.B. Award Announced
The American Institute of Architects and the National Association of Home Builders announce the first in a series of annual Awards of Honor "to encourage the design and construction of the best communities and homes for the American people by promoting the collaboration between architects and builders." The Award will be made to the architect-builder team judged to have contributed the most in one or more of the following: community planning, individual house design, improvement of building techniques, public service, architect-builder relationships, service to the A.I.A. or N.A.H.B. Other types of collaboration will also be considered.

Details are available from A.I.A. headquarters, 1735 New York Ave., N. W., Washington 6. Submissions, to be sent there, must be postmarked not later than October 1.

An early-August progress photo of World Headquarters for the Pepsi-Cola Company on New York's Park Avenue. The 11-story, 126,000-sq-ft structure is due to be occupied about the end of next month. Skidmore, Owings & Merrill, architects; Severud-Elstad-Krueger-Associates, structural engineers; Slocum & Fuller, mechanical and electrical engineers; George A. Fuller Co., general contractor

Steel Status Surveyed
As of a month ago, when the American Institute of Steel Construction conducted a survey, structural steel fabricators throughout the country reported that in general they had enough shapes on hand to continue operation for three or more months, in spite of the steel strike. Some said they could run as long as six months. Steel construction jobs un-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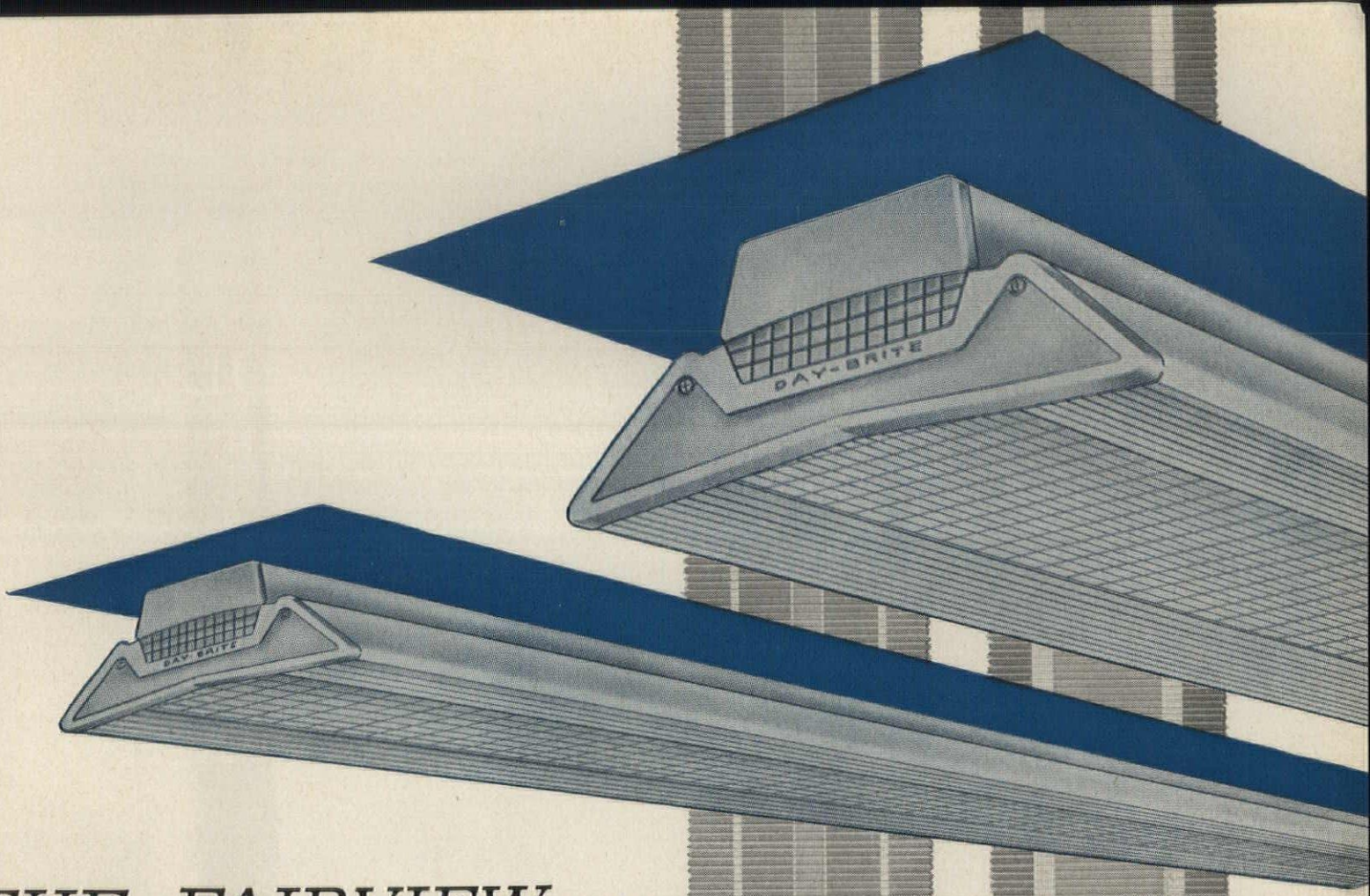

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derway when the strike started were not being affected. The A.I.S.C. concluded that construction delays would begin to happen only if the strike continued "indefinitely."

Foreign Study Grants Available
Young American architects and graduate students of architecture are among those eligible to study in any of 45 foreign countries during 1960-61 under the International Educational Exchange Program of the Department of State. Awards are made under the Fulbright Act in 27 countries and under the Inter-American Cultural Convention program in the Latin American countries where the Fulbright program does not operate.

Preference is given to candidates under 35. General requirements are: U. S. citizenship, a bachelor's degree or equivalent before departure, sufficient language ability for proposed study, good health. Requests for application forms must be postmarked before October 15; completed forms are due by November 1. Write to: Institute of International Education, 1 E. 67th St., New York 21.

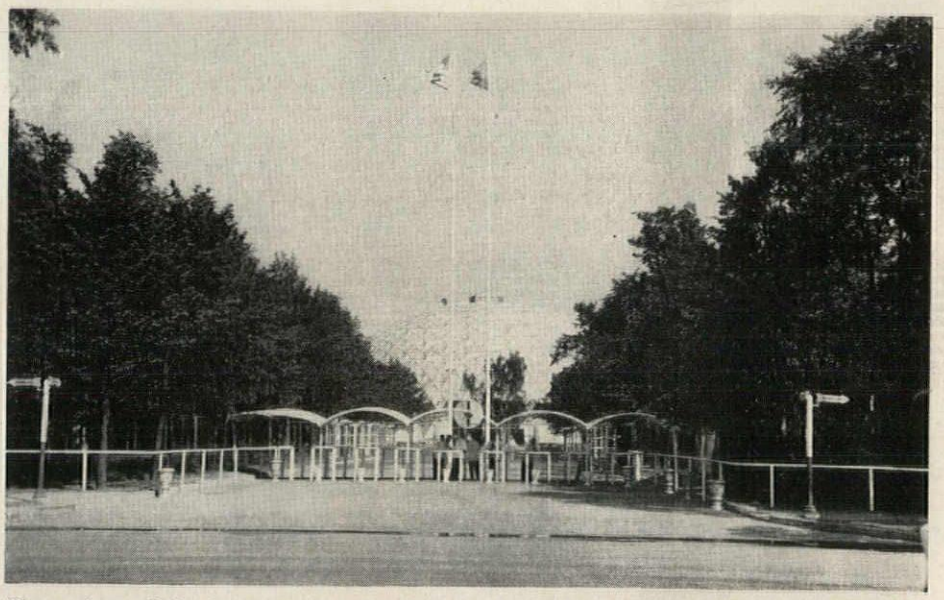
Architecture Teaching Discussed
The fourth annual Seminar on the Teaching of Architecture was held in June. The seminars are sponsored jointly by the Association of Collegiate Schools of Architecture and the American Institute of Architects. This year 53 teachers and 13 prospective teachers from 47 schools attended. The opening address was given by John E. Burchard, dean of the School of Humanities and Social Studies at M.I.T. and consulting editor, ARCHITECTURAL RECORD. One of the other speakers was John Noble Richards, president of the A.I.A. Harold Bush-Brown, chairman emeritus at Georgia Tech, and Buford L. Pickens, president of the A.C.S.A., served on the committee for arrangements.

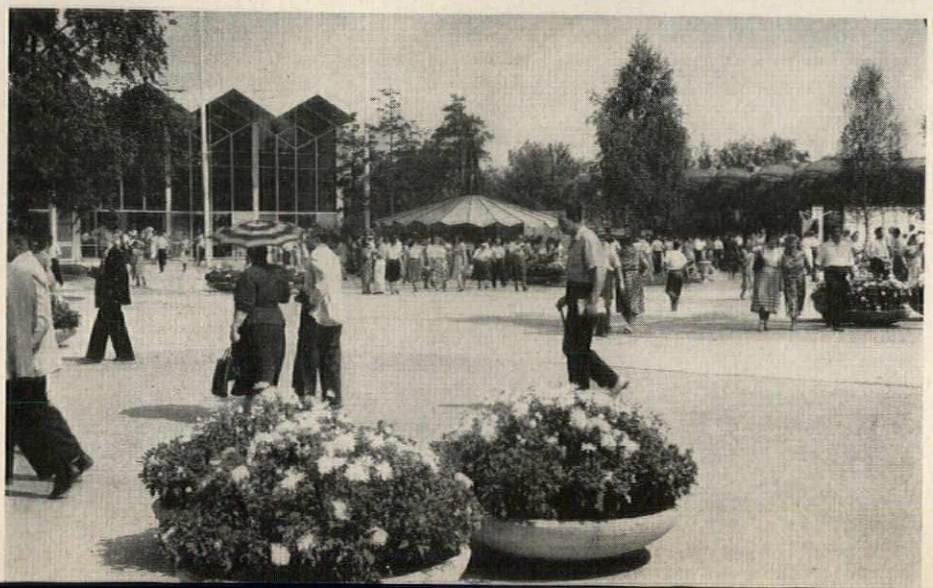
B.R.A.B. Chairman Reappointed
William Gillett has been reappointed to a second term as chairman of the Building Research Advisory Board. Mr. Gillett is vice president of Fenestra, Inc. Richard H. Tatlow III, president of Abbot, Merkt & Company, was reappointed vice chairman.

B.R.A.B. also announced the appointment of six new members to its board. They are: Frederic M. Babcock, Frederic M. Babcock & Company; Max Barth, Office of the Assistant Secretary of Defense, Department of Defense; Peter B. Gordon, vice president, Wolff & Munier, and president, John B. Pierce Foundation; Raymond H. Harrell, executive vice president and director of research, Lumber Dealers Research Council; Dr. Ernest Weissmann, assistant director, Bureau of Social Affairs, United Nations; Thomas E. Werkema, executive research staff, Dow Chemical Company.

McCallum Heads American Museum
Ian McCallum has been appointed director of the first American Museum in Europe, now being established near Bath in England. Mr. McCallum is resigning as executive editor of *Architectural Review* to assume his new duties.

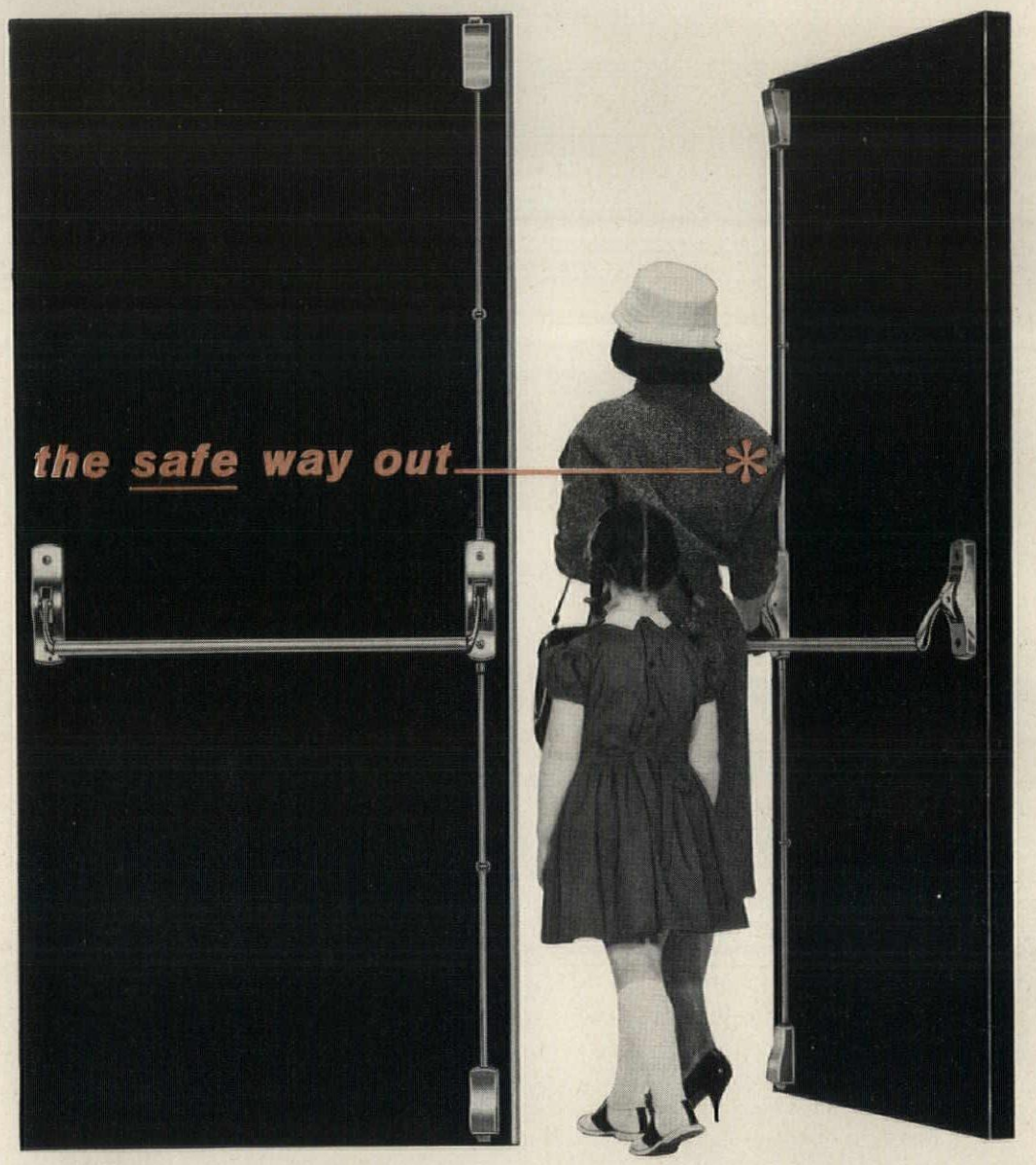
The Museum, expected to open in the summer of 1961, is being established in a late Georgian mansion. The Halcyon Foundation of New York has donated funds for purchase of the building, the basic collection, maintenance, and staff. The collection will illustrate the development of American decorative arts from the 17th to the 19th century in the form of complete rooms.





Photos by Robert Zion

Three views of the American National Exhibition in Moscow, which opened on July 25 and is to run through September 6. The permanent Kaiser geodesic dome (which follows the principles of R. Buckminster Fuller) and glass pavilion are seen; both were designed by Welton Becket & Associates. The smaller photo shows one of the groups of plastic pavilions; they were designed by George Nelson & Company, with Albert G. H. Dietz of M.I.T. as consultant, and built by Lunn Laminates, Inc. Site planning and landscape architecture were done by Robert Zion and Harold Breen



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It is expected that this clubhouse in Toronto, the Primrose Club, will be completed in the fall of 1960. John B. Parkin Associates, architects and engineers, in association with Kaplan & Sprachman, architects

Club in Toronto is Designed To Provide Flexibility

Construction is underway on the Primrose Club, a men's and women's social club in central Toronto. The building, at the intersection of two main roads, has a view of Sir Winston Churchill Park to the west. The architects and engineers are John B. Parkin Associates, in association with Kaplan & Sprachman, architects.

The architects and clients decided that, to make the building adaptable to changing future needs, a real emphasis on flexibility would be desirable. Therefore, there are fixed partitions only where essential; most of the building is open in plan, though folding partitions will be used when necessary.

The two-story lobby beyond the reception desk contains the main stairway, elevator shaft, coat room, and some lounge facilities. Nearby is the 3000-sq-ft main dining room, overlooking the park, and a semi-enclosed outdoor dining court. Also on this floor are the main kitchen, offices, a private dining room, television room, and board room; the last three rooms can be used in various combinations by means of folding partitions.

A large lounge, overlooking the park, is on the second floor. There are also a ladies' lounge, a reading room, a bar, and card rooms, plus coat rooms, etc. The card-room area, again, is provided with folding doors for flexibility.

The therapy department occupies the third floor. Included will be exercise and steam rooms, resting accommodations, and massage facilities. Sun decks are provided on the roof for the time being; they also are said to make possible with relative ease any future expansion of the building.

The reinforced concrete structure has semi-underground parking for 30 cars. An elevator leads directly from the parking area.

more news on page 36

Each is an Expert in His Field

First National Bank of Denver Architects (Interior): Periera and Luckman

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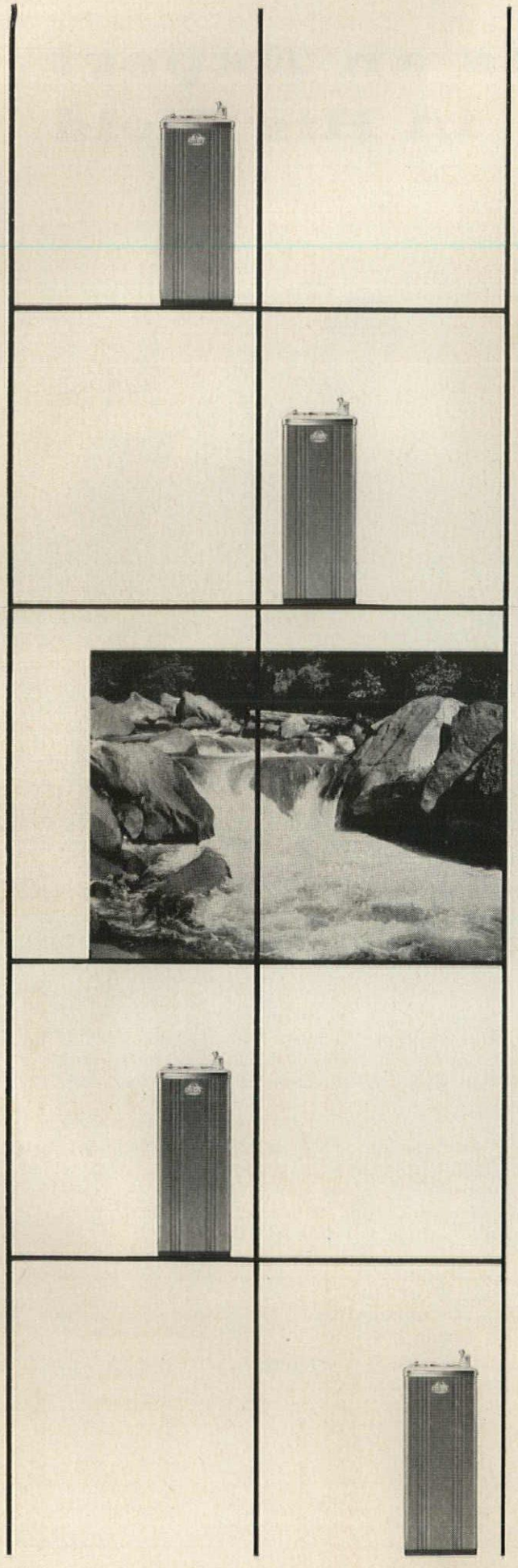

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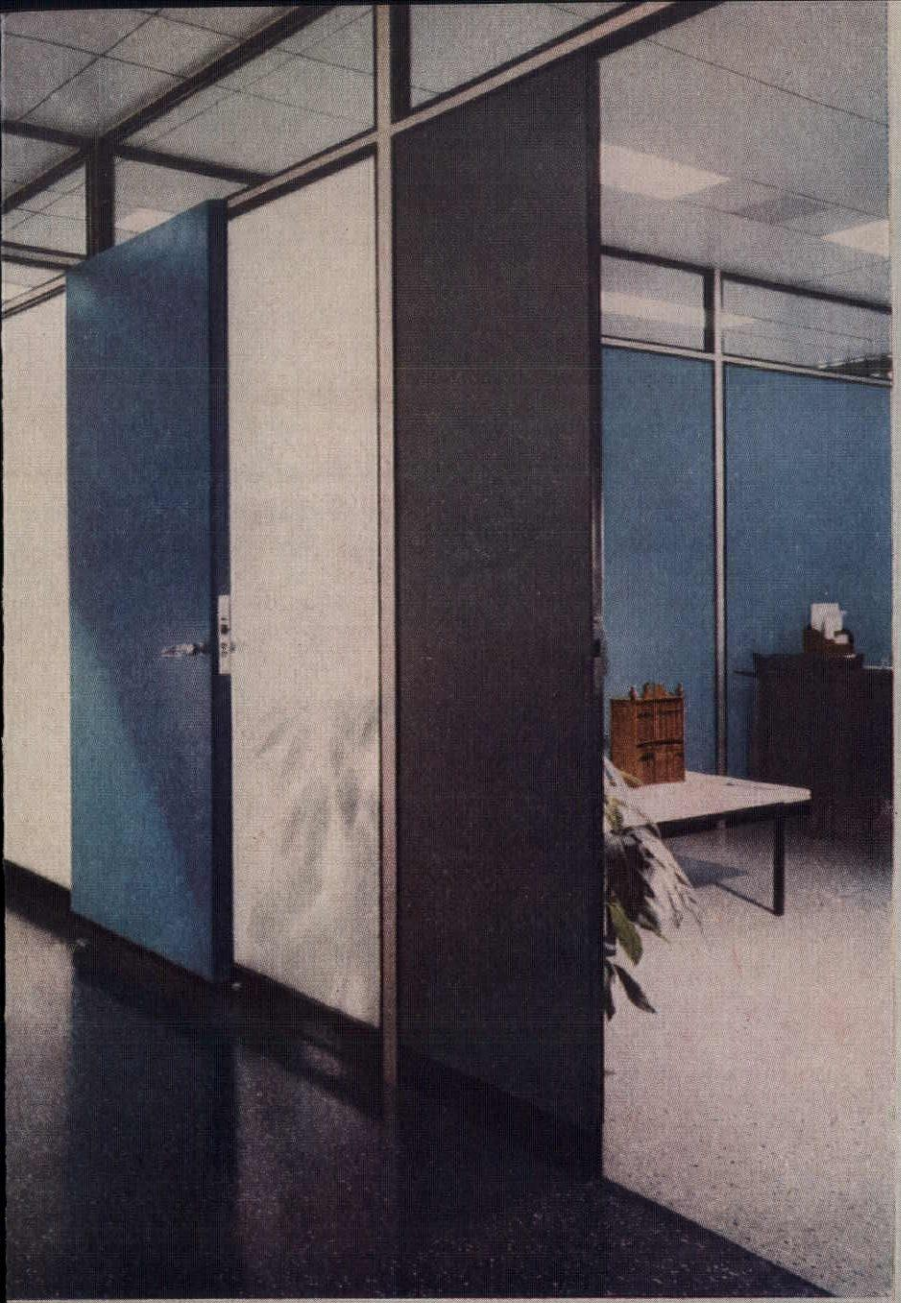

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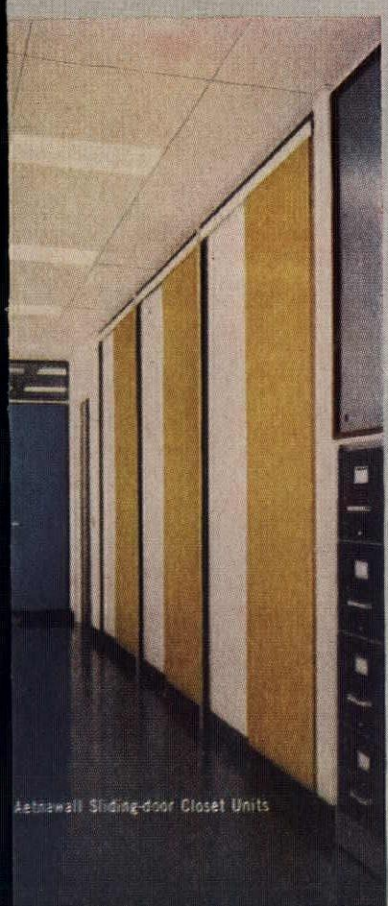

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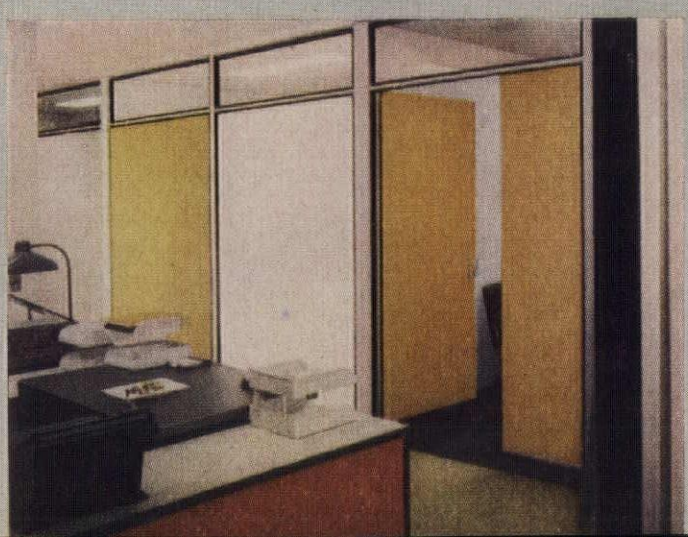

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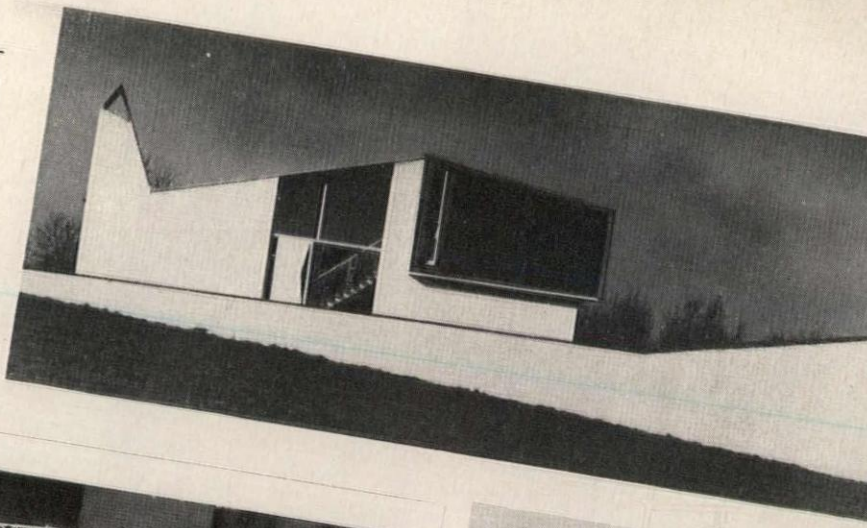
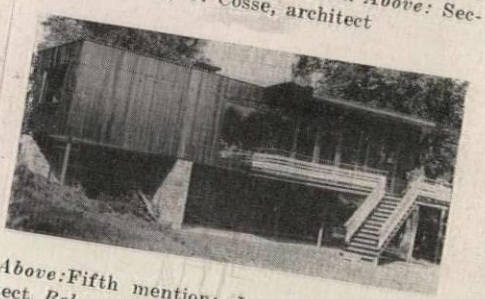
Belgian Architectural Contest Produces Awards for Houses

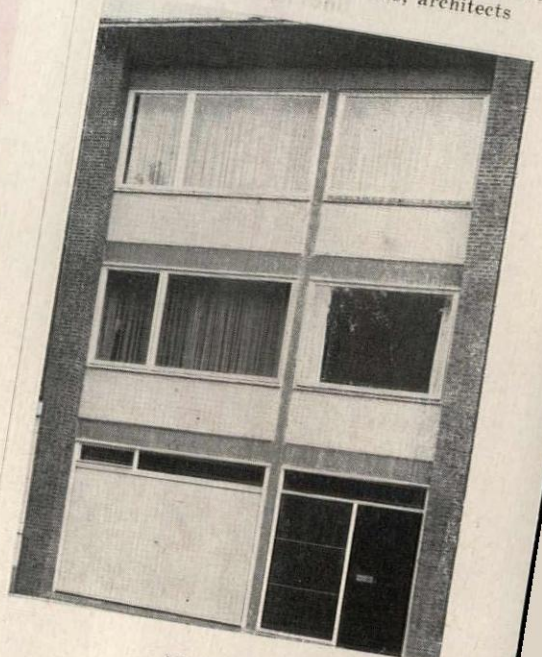
The annual Prix Van de Ven competition, held in Belgium since 1928, drew 70 entries this year, almost all of them houses. The winner of the Prix (20,000 francs) and three of the five winners of mentions are shown here. The architects of the houses receiving first and fourth mentions were, respectively, R. Homez and J. Vancoppenolle. The jury consisted of C. Carlier, A. Mairy, H. Nivarlet, M. van der Auwera, L. Vierin, and J. E. Wilbaut.



Top: Winner of the Prix Van de Ven: a house by Henri Guchez. The house, for three people, is red and white brick. *Above:* Second mention; J. Cosse, architect



Above: Fifth mention; Jean Moray, architect. *Below:* Third mention: town house for a doctor; Montois & Courtois, architects



more news on page 40

The Record Reports

More Research Needed by Wood Industry, Lumbermen Told

Architects and builders were invited to give constructive criticism of the lumber industry and suggest ways to increase the use of wood in house construction at a Washington conference sponsored by the National Lumber Manufacturers Association, the Timber Engineering Company (N.L.M.A. affiliate), and the National Association of Home Builders.

Among those who participated in the Wood Industry Product Planning Conference were Architects Edward H. Fickett, Paul H. Kirk, Victor A. Lundy, Harry Weese, and Herman H. York; also, A. G. H. Dietz, professor of building engineering at M.I.T. The moderators were Ralph J. Johnson, director, N.A.H.B. Research Institute, and William H. Scheick, vice president for research, T.E.C.O.

Most of the proposals that emerged during the meeting call for lumber manufacturers to expand their research in an effort to: improve present methods of component construction; maintain or reduce builders' on-site labor costs; make available more pre-cut, prepackaged, and pre-finished wood items; help builders conserve materials through more precise engineering and use of the same material for both structure and finish.

The architects advocated greater emphasis on good design, as important, they said, as costs. For instance, Mr. Lundy said: "We have to put a moral fiber back into the total picture of American design. The big visual image of this country is a rather ugly hodgepodge of individual design shouting and pushing for attention. There has to be a concerted program of education to point out what really is good design to the great mass of builders that are responsible for this big visual image."

There were many detailed recommendations suggesting development of new products. To give one example, a combination floor-ceiling panel for one-piece construction of ceiling and subfloor between two habitable levels was advocated.

Robert F. Schmitt, chairman, N.A.H.B. Research Institute, said he believed an all-out effort by builders and materials producers could achieve reduction of house-building costs from the present $10 per sq ft and up to about $5.

A 187-page transcript of the meeting, edited by Mr. Scheick, is available from T.E.C.O., 1319-18th St., N. W., Washington 6.

more news on page 44

Why North Hagerstown's new "TV High School"

Complete with supplementary closed-circuit TV educational system, North Hagerstown, Maryland's new "TV High School" embodies the latest educational and design concepts. Like McLeod & Ferrara, architects, you'll find that the use of Truscon VISION-VENT® Window Walls is an ideal way to convert one such concept—that of exterior walls which provide added light, beauty, and economy—into a striking reality.

MORE LIGHT, BETTER VENTILATION—Use of VISION-VENT Window Walls assures higher natural light factor, good fire-resistance and insulating value, better ventilation. When required, panels can be provided with louvers for heating or ventilation systems.

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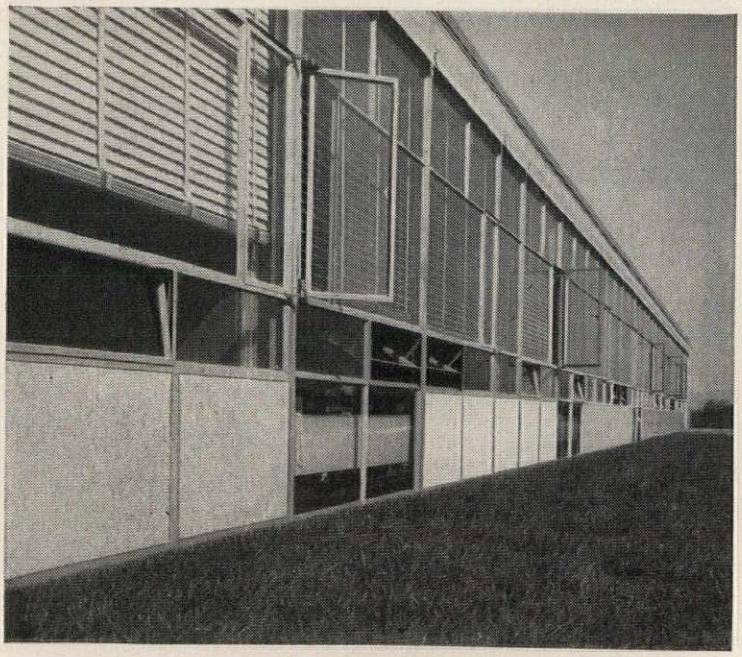
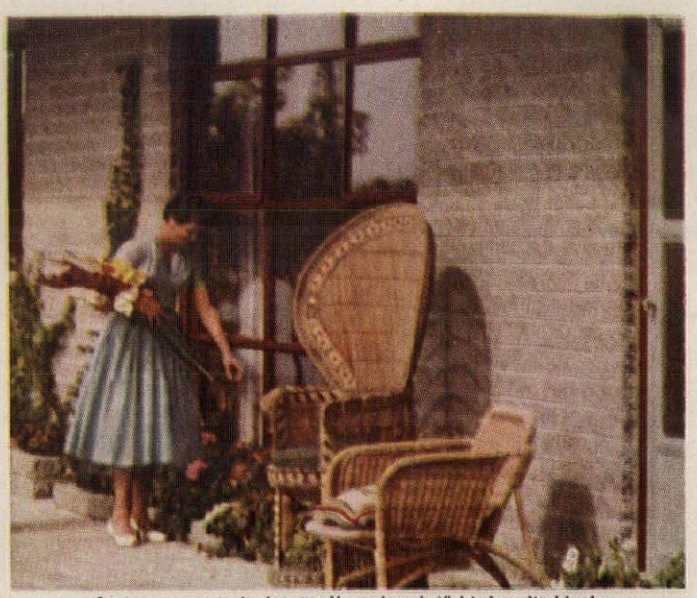


Cost of VISION-VENT Window Wall construction utilized by McLeod & Ferrara, Architects, compared favorably with any other type of construction considered. No other type, however, offered the combination of added light, beauty, durability, and complete flexibility of design.

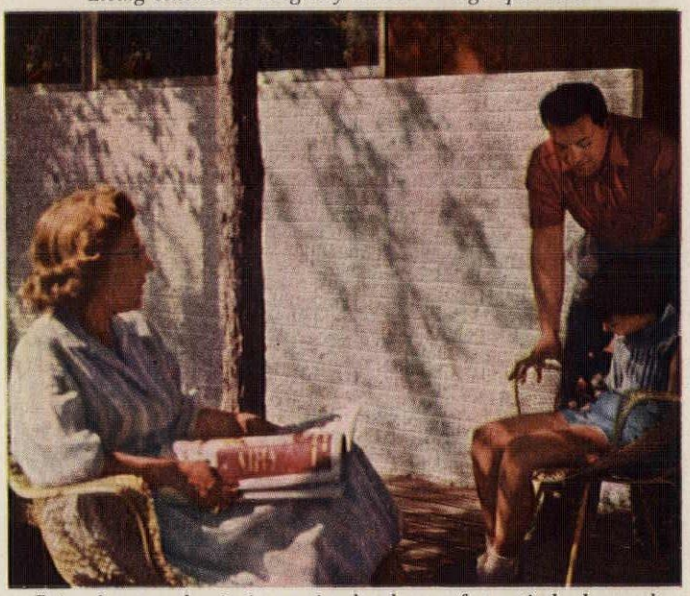
Truscon "O-T" Open Truss Steel Joists® are employed exclusively in North Hagerstown's new high school. Joists are covered by acoustical ceilings in all but a few laboratories—such as the electronics lab seen above—where possible increases or changes in electrical systems will require complete accessibility. Send coupon for "O-T" Steel Joist details.

Smooth-surfaced block painted a modern pastel shade



Living concrete in integrally colored 4"-high split block

Fireplace of concrete slump block has raked joints for interest



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A Washington Report by Ernest Mickel

U.S. PLANS ADVANCE FOR NEXT YEAR'S WHITE HOUSE CONFERENCE ON AGING

Preparations for the White House Conference on Aging to be held in Washington, D. C. in January of 1961 are well underway, with states securing the Federal assistance funds to which they are entitled and with a new committee appointed in an advisory capacity by Health, Education, and Welfare Secretary Arthur S. Flemming.

This large advising group—130 names were included in the initial list—has responsibility for overall direction of the plans, preparations and conduct of the Conference year after next.

No Architects?

While architects designing in the residential field have an important interest in the care for the aging program, the initial list announced by Dr. Flemming did not contain the name of one.

Later, the Secretary named seven regional representatives from HEW to assist states and communities in preparing for the national conference. These representatives have met and been briefed by Miss Bertha S. Adkins, under secretary of HEW, and former Congressman Robert W. Kean, New Jersey, is advisory committee chairman.

Others in the general building field who are on the advisory committee include Carl T. Mitnick, Collingswood, N. J., current president of the National Association of Home Builders and a member of the advisory committee on housing for the elderly of the Housing and Home Finance Agency; Theodore D. Cornman, Albuquerque, contractor and real estate developer; Richard G. Hughes, Pampa, Tex., chairman of the National Housing Center at Washington and past president of N.A.H.B., and Charles B. Shattuck, Los Angeles, past president of the National Association of Real Estate Boards.

Recent Developments Reviewed

Something of the significance for architects in this program which now is receiving so much national attention can be gained from a review of developments prepared by E. Everett Ashley, division of economics and program studies, Office of the Administrator, HHFA.

This analysis of housing aspects of the aging problem details four phases of aging in relationship to housing couples.

It urges that attention be directed to housing requirements in the first, or middle age stage. This is the period in which children are growing up, getting married, and the house which may have been scarcely large enough for the parents and their children begins to provide more space than is needed by the family group left behind.

Few families at this period entertain any idea of moving into smaller quarters and this is ironical in its way, the HHFA reports points out, because at this point in the family cycle, the couple is probably in its best economic position to make a housing shift or to adapt its present quarters to meet later requirements.

The second stage is identified as that of "later maturity." Usually at this point all children have left home, many of the principal wage earners have retired or face retirement soon. Income is lower and physical ailments limiting activity are beginning to show.

At this point, HHFA notes, many families think about doing something concerning living arrangements, but most of them do nothing. Here, another study has shown that after retirement, seven out of 10 couples still live in the homes they occupied when the husband was working.

It is at this stage that the more economically independent seek a change of residence to warmer climates or to retirement housing of some type. The agency makes the point that at the lower end of the economic scale, this is the time when increasing numbers of elderly couples find it necessary to go live with their children.

Retirement becomes almost universal in the next stage, that of early old age. Only one family in five, it is estimated, because of economic sufficiency, readily adjust the housing arrangements to meet current needs and maintain satisfactory quarters.

Here a housing problem is posed by the fact that a growing number of home owners who have elected to "stay put" begin to pay the price for that decision.

"These are the people who, having neither the physical strength nor the money, are unable to cope with the problems of maintenance of a big house and have let it run down or who have failed to recognize signs of neighborhood deterioration until blight and decay have undermined much of the value which the property once could have commanded," the HHFA reports. "By now, a growing share of those who have been renters find the quarters they are able to afford ill suited to their current needs."

Much of the present effort in the field of housing the elderly is directed toward this group.

The last phase in the cycle comes as a sharply curtailed number of couples reaches late old age, HHFA continued. Physical infirmities then are great. Ultimately, all but a favored few will require at least nursing care if not active medical care in the terminal phases of life."

Variety Seen as Need

The housing agency has found a growing consensus that housing for the aging persons, looked at across the entire spectrum from middle age through late old age, actually requires a variety of types of housing and living arrangements from more effective use of existing homes to nursing homes.

These, then, are some of the problems that will be considered when the White House Conference on Aging convenes in January of 1961.

The HHFA treatise has listed a number of "challenges" in the field of housing the elderly and these may well be reviewed, along with others, at the 1961 conference. A multiplicity of approaches is urged:

—Maximum use must be made of the standing stock of housing.

—More grass roots support for rental projects must be found. Communities themselves must assume leadership, even to the extent of becoming elderly housing project sponsors.

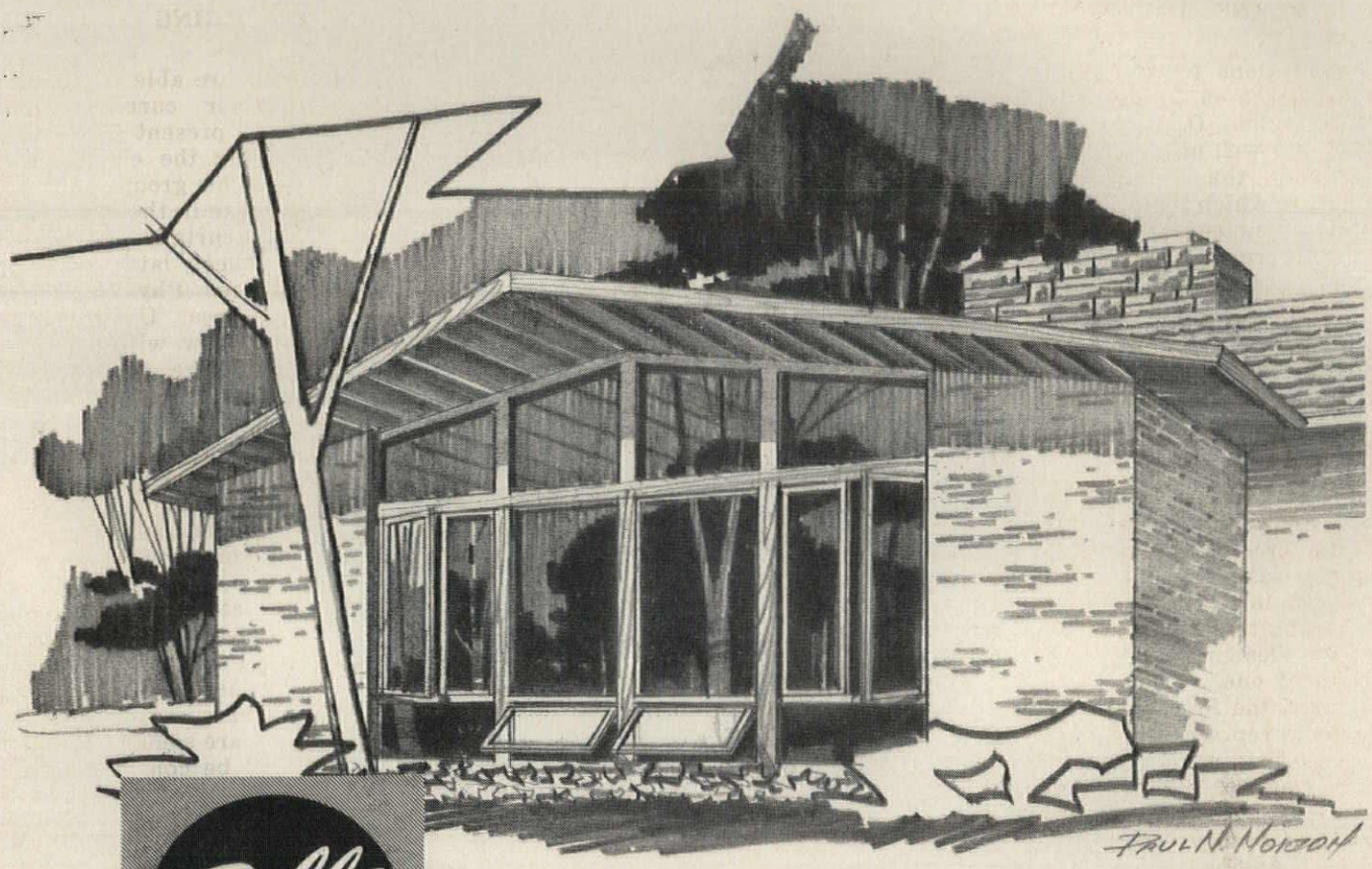
—A careful reexamination of the whole question of the most effective means of providing shelter for both couples and individuals is needed.

—The home building industry needs to be made more aware of the untapped markets for retirement sales housing in many sections of the country. Builders should also assume leadership in helping sponsors of small nonprofit projects.

—The time is ripe for reappraisal by the lenders of their role in the financing of housing for the elderly.

—The states need to take positive action to stimulate the production of elderly housing. Many states are moving too slowly in initiating action programs of their own.

—Finally, in addition to providing housing accommodations for the elderly, there is a great need for more nursing homes—both proprietary and nonprofit—to take care of those among the elderly who are infirm or sick.



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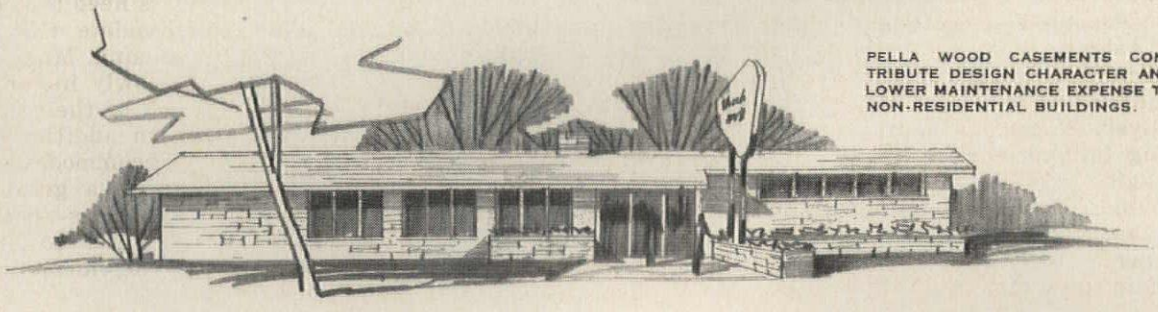

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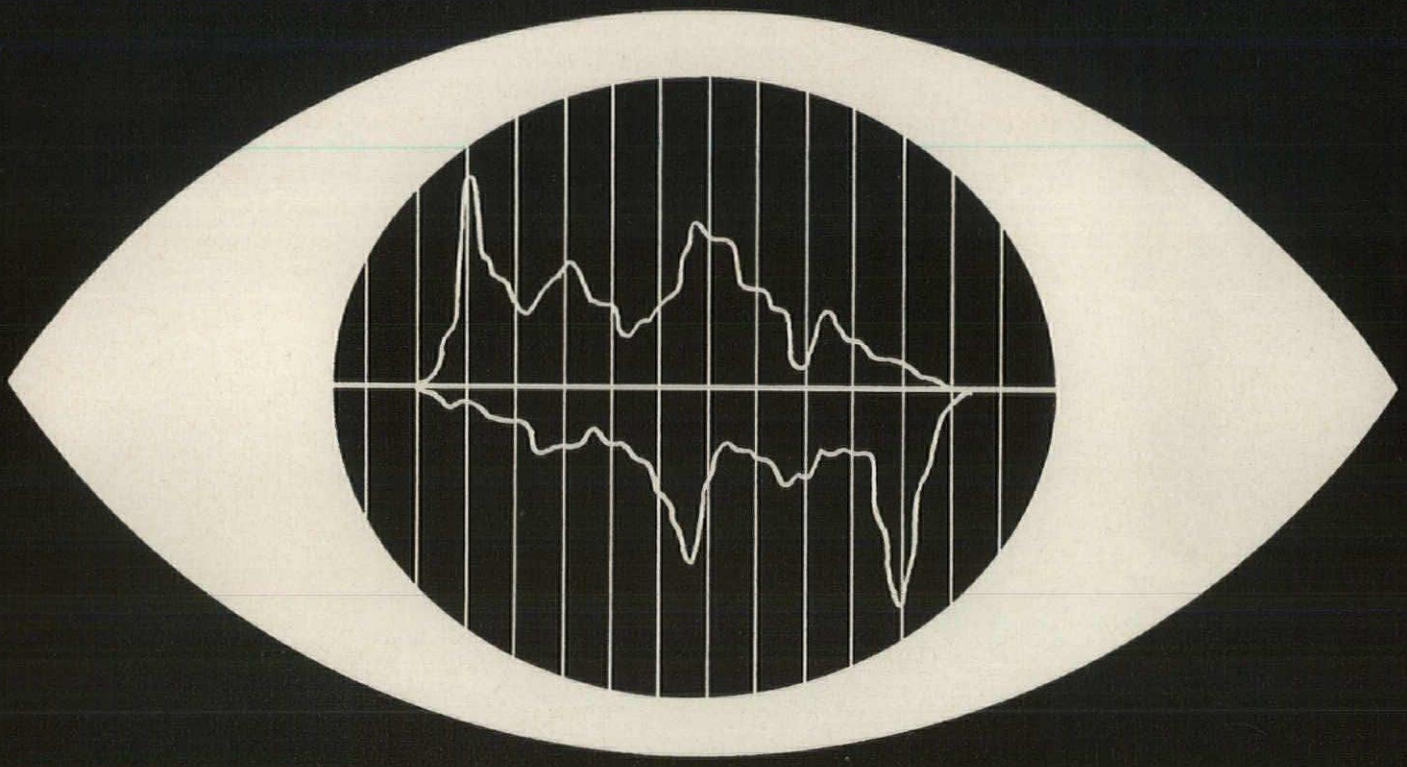

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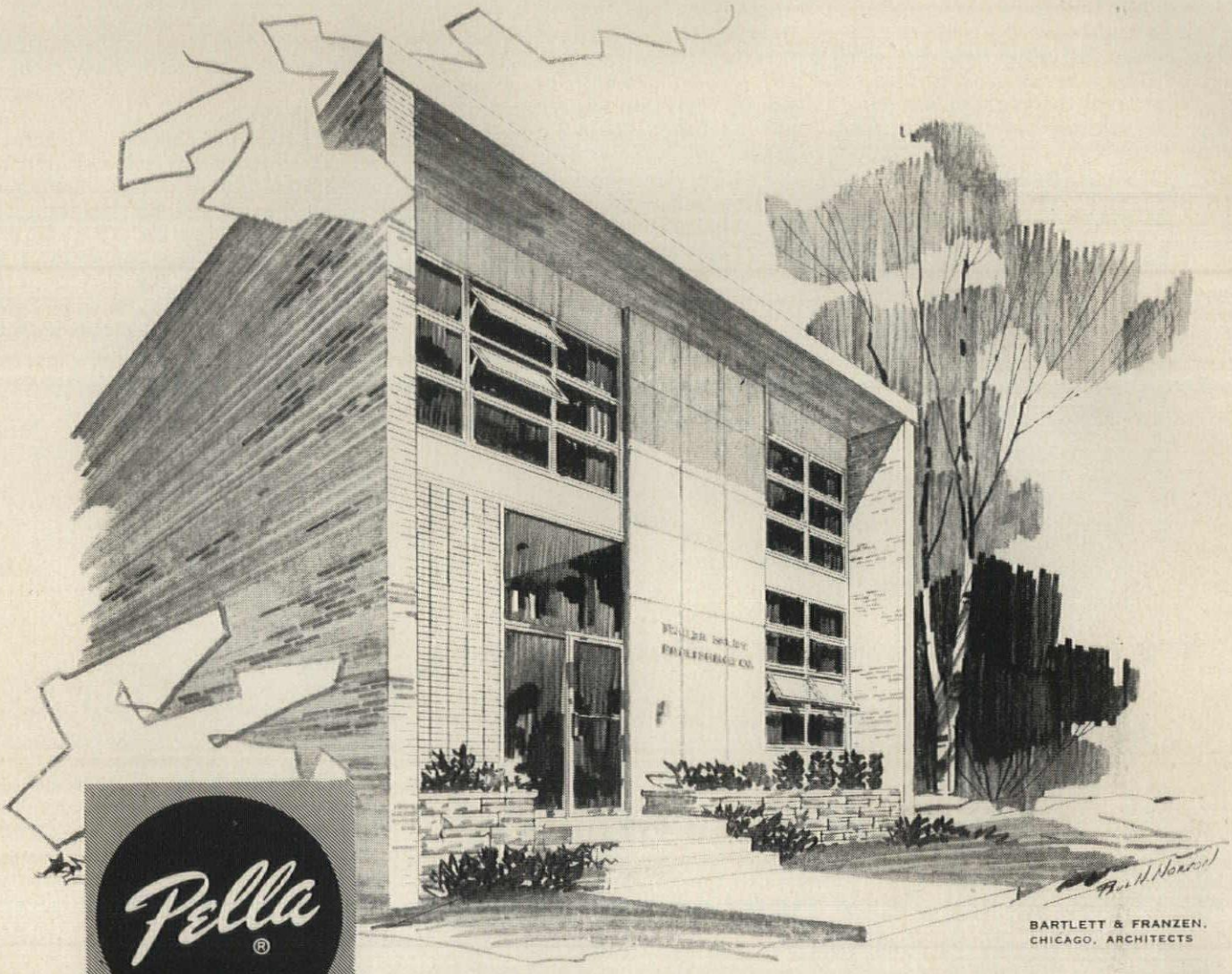

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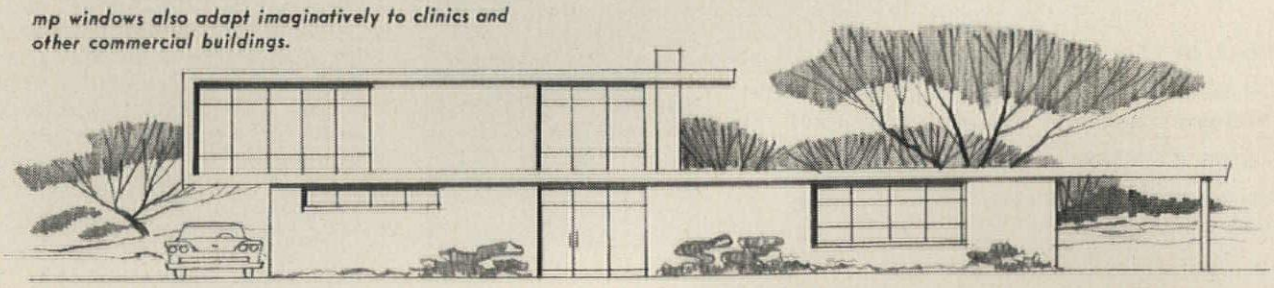


Washington Topics by Ernest Mickel

New Public Buildings Act Close to Approval

The public buildings construction act of 1959 was on its way toward final approval in Congress, assuring at least authorization of a new program of Federal construction under supervision of the Public Buildings Service.

Funds would have to be appropriated in separate legislation.

As the authorization measure coursed through Congress, the PBS was well prepared to meet its terms for submitting qualified building projects for approval by Senate and House public works committees. For this, it would draw on a list of some 200 projects compiled for submission to Congress under terms of the now defunct lease-purchase program.

The Service also had a list of 71 projects where it said a need exists for construction of public buildings on government-owned land. There also are 20 projects which have been approved by Congress and on which site acquisition and architectural planning funds have already been appropriated and spent. Under terms of the new public buildings act, these jobs would have to be resubmitted to the committees for approval again.

The new bill carried no limitation whatsoever on the actual number of buildings that could be constructed under its provisions. Its limitation lay, however, in wording which held to 30 projects the number that could be approved by the public works committees at any one time before money for them was appropriated by Congress.

The General Services Administration, parent agency to the PBS, has estimated that there is a "reasonable necessity" for an annual expenditure of around $350 million on new public building construction over the next five years.

GSA said that upon approval of the new law, it was ready to submit to Capitol Hill about 100 projects selected from the three separate lists mentioned above.

The public works committees retained for themselves authority to approve all new building construction costing $100,000 or more per project, and all remodeling work costing in excess of $200,000 per job.

An important provision permitted a 10 per cent increase in original construction cost estimates without additional Congressional committee approval. Failure to provide this in earlier measures threatened to hamper the programs, GSA pointed out. Also provided in the new measure was authority for the GSA to make a continuing study of the need for public structures throughout the country.

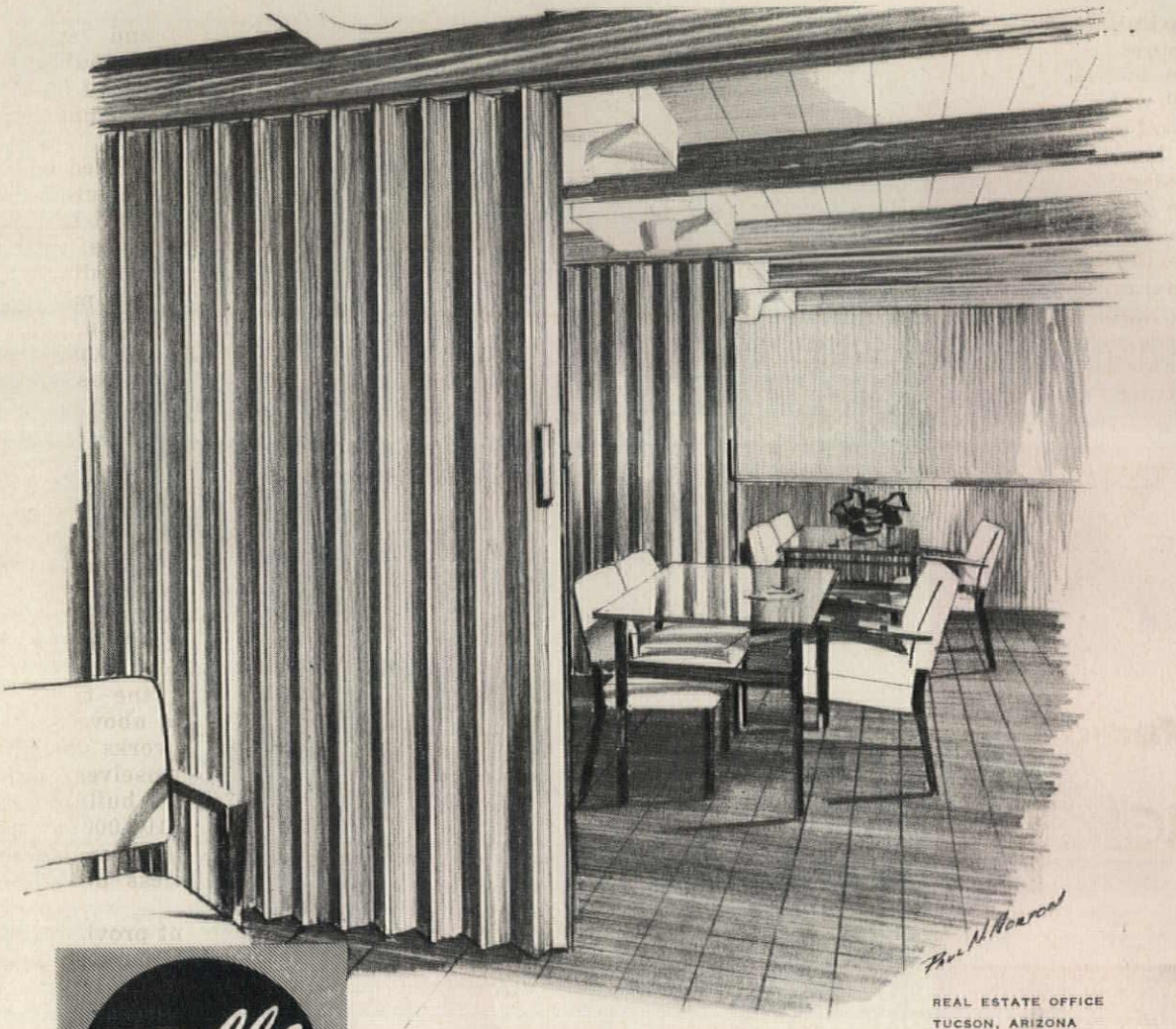
Consideration of the bill in the House provoked a discussion of architectural fee control. Rep. Robert E. Jones (D-Ala.), sponsor of the legislation, answering a question posed by Rep. Paul C. Jones (D-Mo.), explained that his subcommittee felt the bill as finally drafted carried sufficient safeguards in this regard by retaining control over the broad program in the hands of the public works committees.

Housing Bill Outlook Unsure In Wake of President's Veto

Housing legislation in Congress was in a highly uncertain phase last month. The President's veto arguments were being heard by Senator John J. Sparkman's housing subcommittee and a decision was yet to be made on a course of action in the remaining weeks of the session.

One of the problems facing the

continued on page 346



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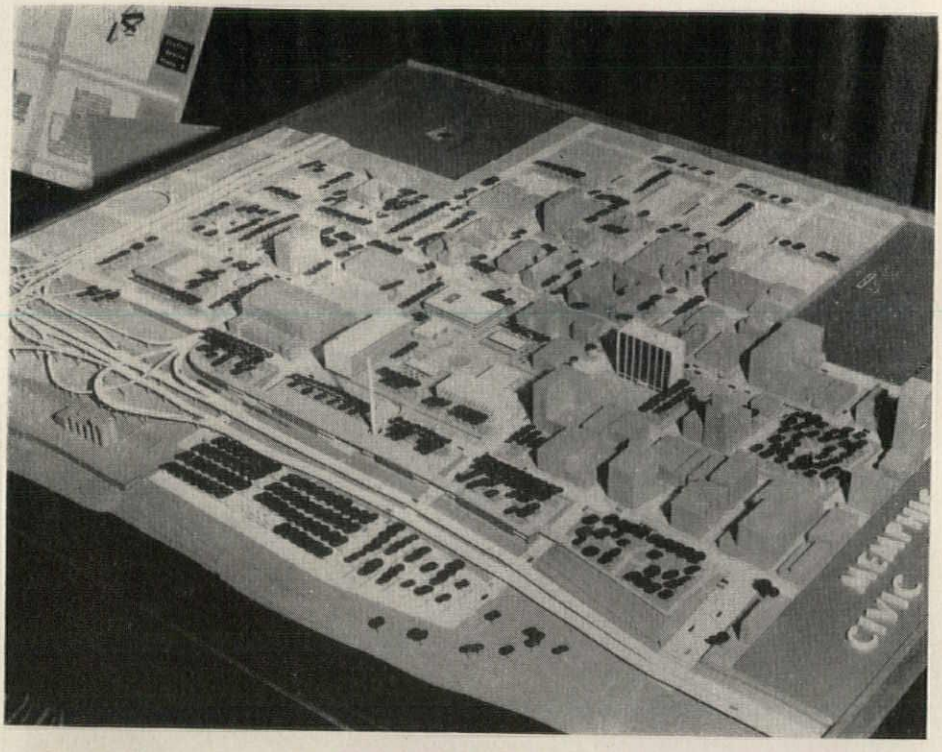
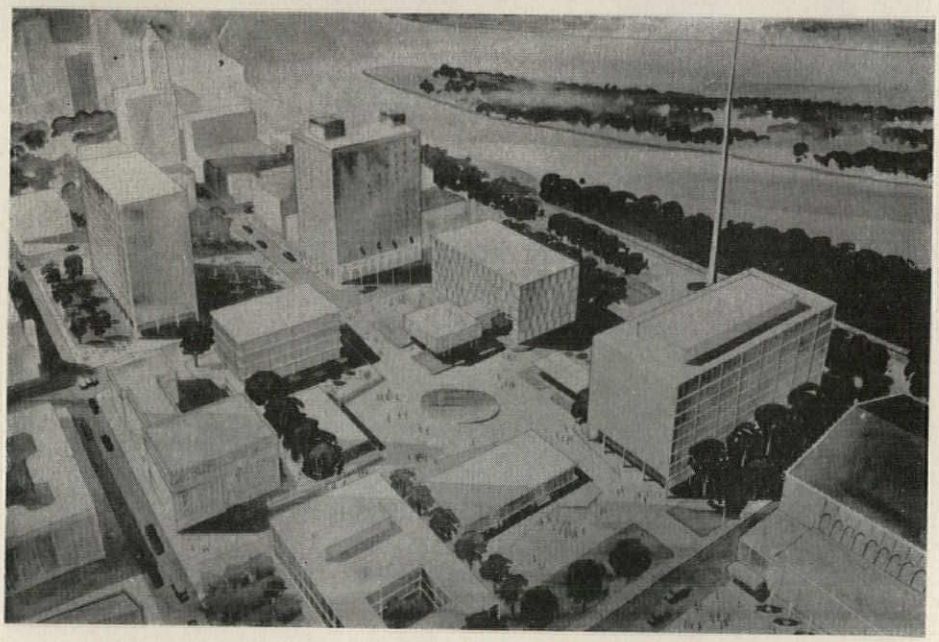
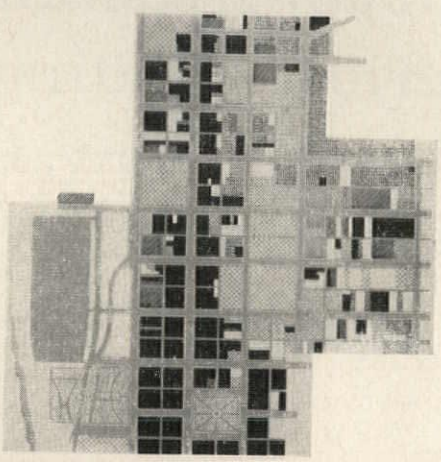






Top: The preliminary study model for Memphis' Civic Center as developed by the design team of the League of Memphis architects. Existing buildings are solid gray. Proposed structures include a 300-ft tower (left center) on the river; a new City Hall with council chamber (right of tower); a new Federal Building (left of City Hall); a State Office Building (farthest of new buildings). A reflecting pool is in the center of the Civic Center Plaza; between the state and Federal buildings is an information center. The taller new building at right is the proposed office of the city-owned light, gas, and water division. *Center:* A perspective study of the Civic Center area, looking toward the river. *Right:* An example of detailed studies of existing conditions presented, this one shows present land use.

Memphis Architects Volunteer As Non-Profit Corporation

In Memphis local architects have contributed their services for the preparation of a master plan for a new Civic Center through a non-profit corporation, the League of Memphis Architects, Inc., formed for this purpose last February. The officers of the League are the same as those of the Memphis Chapter, American Institute of Architects, and the League members represent the chapter in this project.

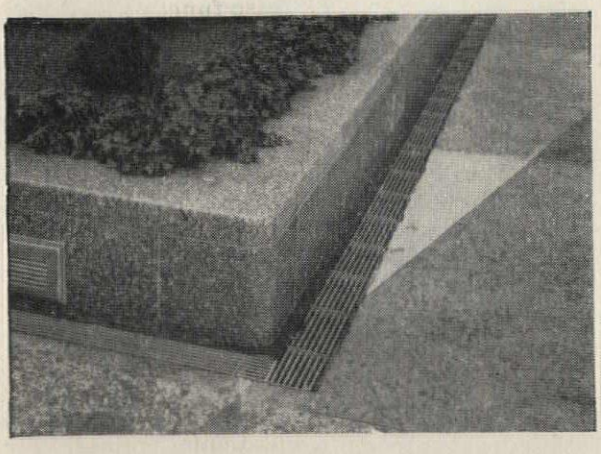
The League made a contract with the City of Memphis under which the city agreed to pay overhead expenses of up to $30,000 for a period of about six months. The project office includes a full-time manager and assistants working under the supervision of a 10-man design team chosen by the League. The members of the team are: Merrill G. Ehrman, A.I.A., Thomas F. Faires, A.I.A., Francis Gassner, A.I.A., Roy Harrover, A.I.A., Walk C. Jones Jr., F.A.I.A., W. D. McKinnie Jr., A.I.A., Robert Day Smith, A.I.A., Tom A. Windrom, A.I.A., Walter A. J. Ewald, landscape architect, and William Pollard, representative of Harland Bartholomew & Associates, the planners who aided in establishing the area covered by the Civic Center study.

The architects are working under the authority of a Civic Center Advisory Committee named by the mayor and commissioners of Memphis. They also function directly under the executive committee of the League, which consists of: Mr. Faires, president; Mr. Gassner, vice president; Raymond Martin, secretary; Robert Goforth, treasurer; Wells Awsumb, director; William H. Norton, director; and Dean E. Hill, ex-officio (all are A.I.A. members).

The League, in conjunction with the Advisory Committee, undertook to publish and submit three reports to the City Commission. The first, issued in June, presents the results of general studies of factors affecting the Civic Center area. Included are 19 charts and maps and accompanying explanatory data on such topics as traffic, parking, transit, topography, assessed valuation, condition of buildings, street capacities, utility lines. One of the maps, showing existing land use, is reproduced here.

The second report was to present specific site and building studies; the third report is to present the recommended design of the master site plan.

BORDEN ALUMINUM GRATING IN MELLON SQUARE PARK . . .



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The arrows indicate two of the locations of a system of drain trenches in existence throughout the park.

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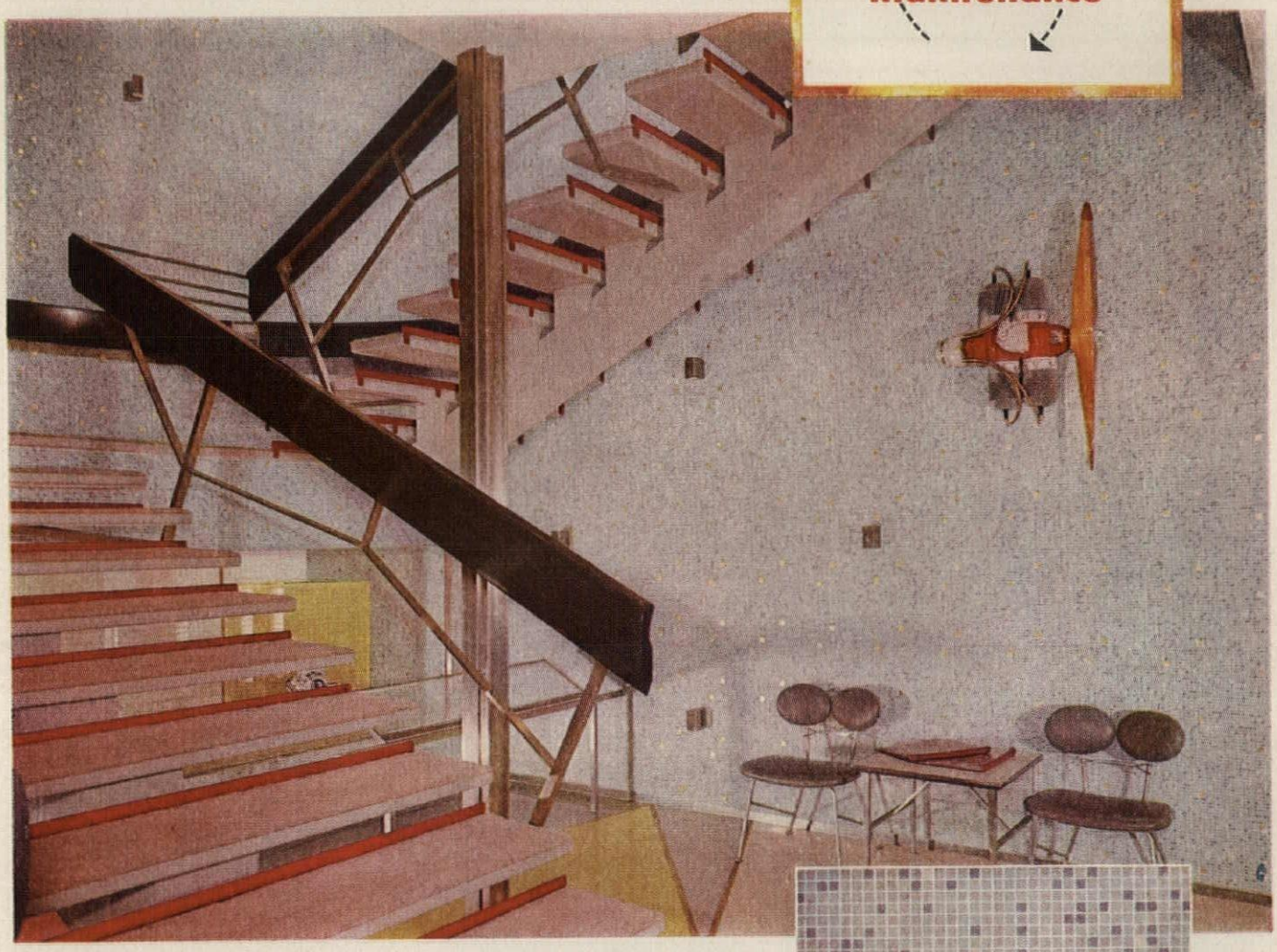

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Construction Cost Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929=100

NEW YORK

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.6	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	274.9	271.8
1952	278.2	274.8	271.9	265.2	262.2
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
1955	293.1	286.0	300.0	308.3	302.4
1956	310.8	302.2	320.1	328.6	324.5
1957	318.5	308.3	333.1	345.2	339.8
1958	328.0	315.1	348.6	365.4	357.3
April 1959	340.7	326.3	364.6	385.3	371.2
May 1959	340.9	326.5	364.9	385.5	371.4
June 1959	344.2	331.0	369.8	388.5	376.9
	% increase over 1939				
June 1959	178.7	170.4	182.9	191.2	189.7

ATLANTA

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.0	224.6	221.3	221.8	223.0
1954	219.6	219.1	233.5	225.2	225.4
1955	225.3	225.1	229.0	231.5	231.8
1956	237.2	235.7	241.7	244.4	246.4
1957	241.2	239.0	248.7	252.1	254.7
1958	243.9	239.8	255.7	261.9	262.0
April 1959	249.9	246.0	262.9	269.5	271.0
May 1959	250.7	246.6	263.6	270.1	271.6
June 1959	250.9	246.8	263.9	270.3	271.8
	% increase over 1939				
June 1959	190.7	197.0	177.5	177.5	187.0

ST. LOUIS

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.0	259.2
1954	266.6	260.2	263.7	273.3	266.2
1955	273.3	266.5	272.2	281.3	276.5
1956	288.7	280.3	287.9	299.2	293.3
1957	292.0	283.4	295.2	307.1	302.9
1958	297.0	287.9	304.9	318.4	313.8
April 1959	303.4	295.2	311.8	325.8	321.0
May 1959	306.3	296.9	316.3	332.0	326.0
June 1959	306.3	296.9	316.3	332.0	326.0
	% increase over 1939				
June 1959	177.9	177.5	166.5	177.1	173.9

SAN FRANCISCO

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	90.8	86.8	100.6	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.0	259.7
1954	257.4	249.2	264.1	272.5	267.2
1955	268.0	259.0	275.0	284.4	279.6
1956	279.0	270.0	288.9	298.6	295.8
1957	286.3	274.4	302.9	315.2	310.7
1958	289.8	274.9	311.5	326.7	320.8
April 1959	296.2	281.6	318.9	334.2	326.9
May 1959	296.4	281.8	319.2	334.4	327.1
June 1959	298.3	285.0	320.8	334.7	327.9
	% increase over 1939				
June 1959	182.5	187.0	173.2	174.6	181.4

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

More than 33,000 pieces of 1⅜" glazed ceramic tile were used to create this mural. Side panels use 8½" x 4¼" tile. Color Plate No. 405.

This colorful mural in the entrance lobby of the DuPont Plaza Center in Miami, testifies to the way ceramic tile can be used to achieve striking decorative effects. Created by American Olean's design department, this impressive 24 x 35 ft. mural will greet hundreds of thousands of visitors to the Architects' International Bureau of Building Products each year.

CERAMIC TILE
American Olean

AMERICAN OLEAN TILE COMPANY • EXECUTIVE OFFICES: LANSDALE, PENNSYLVANIA • FACTORIES: LANSDALE, PA., OLEAN, N. Y. • MEMBER: TILE COUNCIL OF AMERICA, PRODUCERS' COUNCIL

Neutra's Recent Work Shown in New Collection

RICHARD NEUTRA: 1950-60 BUILDINGS AND PROJECTS. *Edited by W. Boesiger. Frederick A. Praeger, Inc., 15 W. 47th St., New York 36. 240 pp., illus. $15.*

BY MILDRED F. SCHMERTZ

Willy Boesiger, the editor of this picture book of Neutra's buildings and projects of the last decade, is best known for his editions of the complete works of Le Corbusier. The Neutra book, in the same general format as this famous series, is a sequel to the collection of Neutra's work from 1927 to 1950, by the same editor, that was published in 1950.

This volume leaves no doubt that Neutra has been very busy indeed in the last ten years. Twenty California houses and apartment buildings are presented, as well as schools, hotels, hospitals, and churches. The U. S. Embassy in Karachi, the Dayton Museum, and Adelphi College are shown. The last section of the book includes two city plans for Venezuela, a redevelopment scheme for Sacramento, and another for Los Angeles; neighborhood plans for the Spanish cities of Madrid, Seville, and Zaragoza, and a comprehensive planning and design scheme for the island of Guam.

Approximately 600 photographs, plans, and sketches are included, but unfortunately there are very few detail drawings to show how Neutra achieves the crispness and precision for which his work is distinguished. A more determined pruning of photographic material would have made room for working details. Most of the text—which is in English, German, and French—is descriptive, rather than critical, and does not attempt to evaluate. Mr. Neutra has contributed several of his own short articles and addresses which attempt to define his approach.

Free Handbook for Authors of Technical Books Available

WRITING AND PUBLISHING YOUR TECHNICAL BOOK. *F. W. Dodge Corp., 119 W. 40th St., New York 18. 50 pp. Free.*

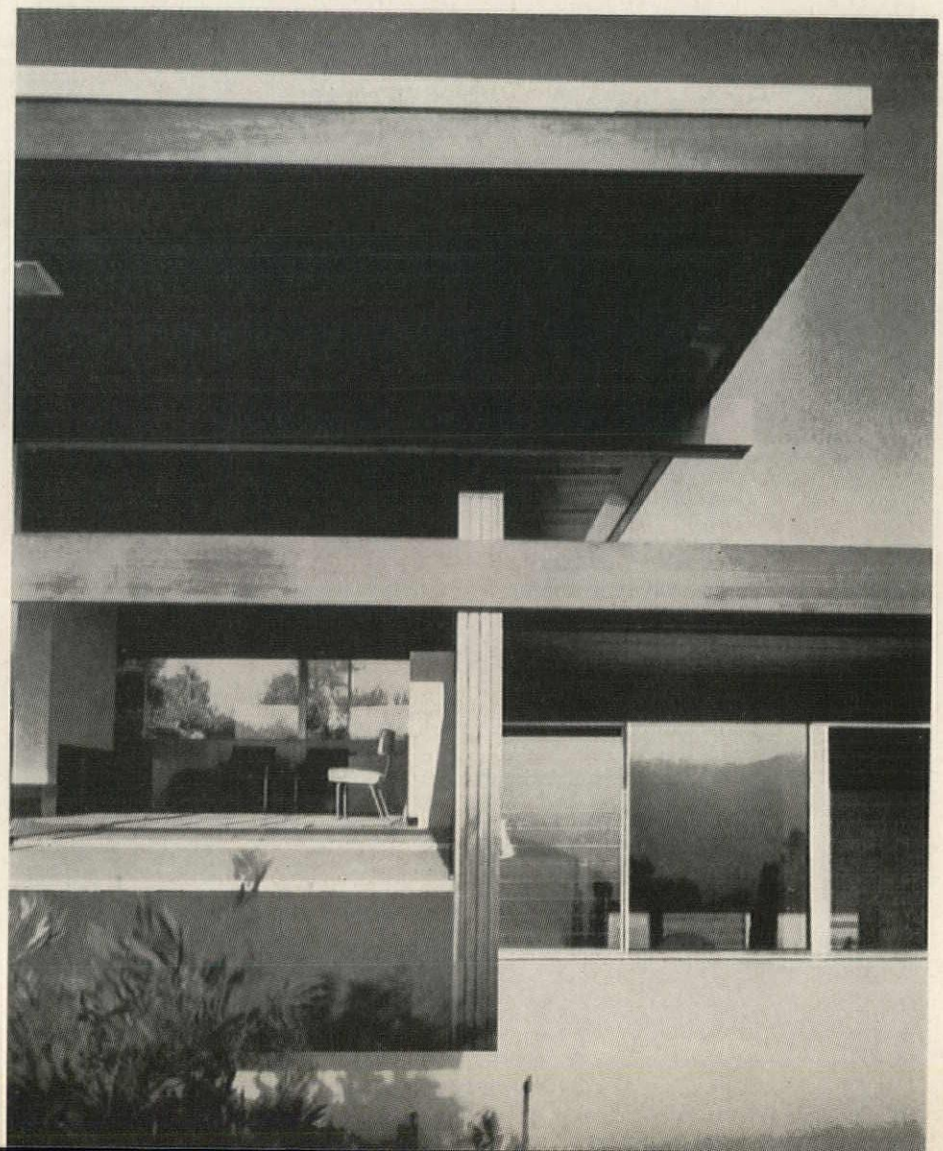
"Anyone who can write a good business letter has all the literary ability he needs to write a good technical or professional book." So begins a new 50-page manual, *Writing and Publishing Your Technical Book*, just published by F. W. Dodge Corporation and offered free of charge.

Anyone who has ever contemplated writing a business, industrial, engineering, or professional book would find a copy very useful. The booklet is written to help authors organize and develop their ideas for books to the point where they can obtain the support and backing of a publisher. It answers a great many questions about the author-publisher relationship, and it also presents many practical checklists for preparing material for publication.

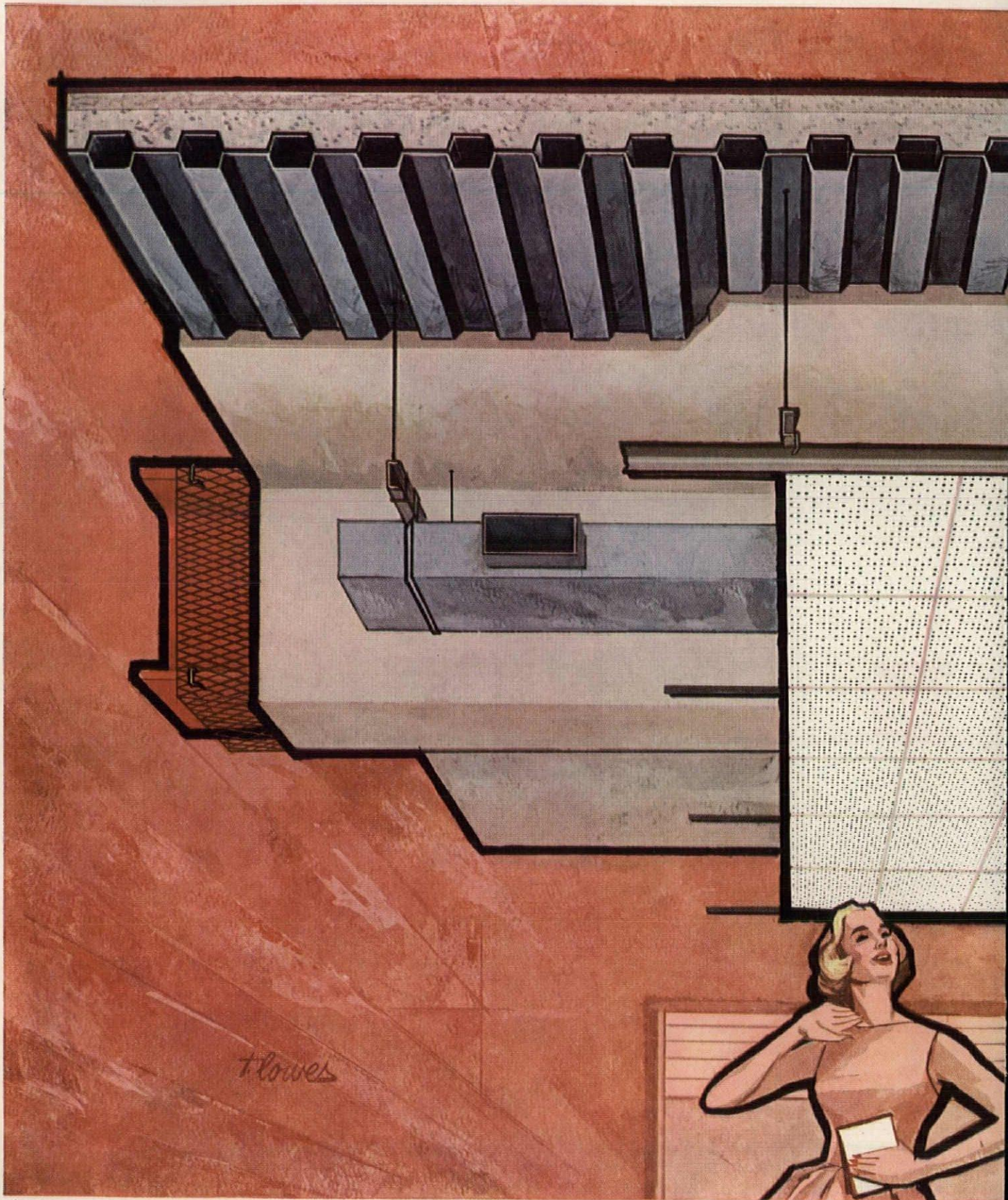
The publishers of the manual believe that a potentially successful author may hesitate to approach publishers with a manuscript idea because he is unsure of one or more things: he may not know how to choose and approach a publisher; the may think the publisher does not want to see him before he has a completed manuscript; he may not know what the publisher will expect from him once he begins a writing project; he may have only a dim idea of how a publisher operates. The manual discusses and answers these and hundreds of other questions.

The chapters are entitled: "Should You Write a Book?", "Planning for Success," "Choosing a Publisher," "The Prospectus and Outline," "Writing the Specimen Chapters," "Acceptance and the Contract." A great deal of little-known information about the workings of business and technical publishers is also included. Another feature is a point-by-point discussion of the author's contract in which the responsibilities of all parties are fully outlined. An index is included.

continued on page 370



Hansch House, Sierra Madre, Calif. The split-level plan places the living quarters a halfstory above the bedroom wing. Richard Neutra, architect



COLLEGE BUILDINGS

BUILDING TYPES STUDY 274 ®

The Prospect

by George Cline Smith
Vice President and Economist, F. W. Dodge Corporation, and Economics Consultant to ARCHITECTURAL RECORD

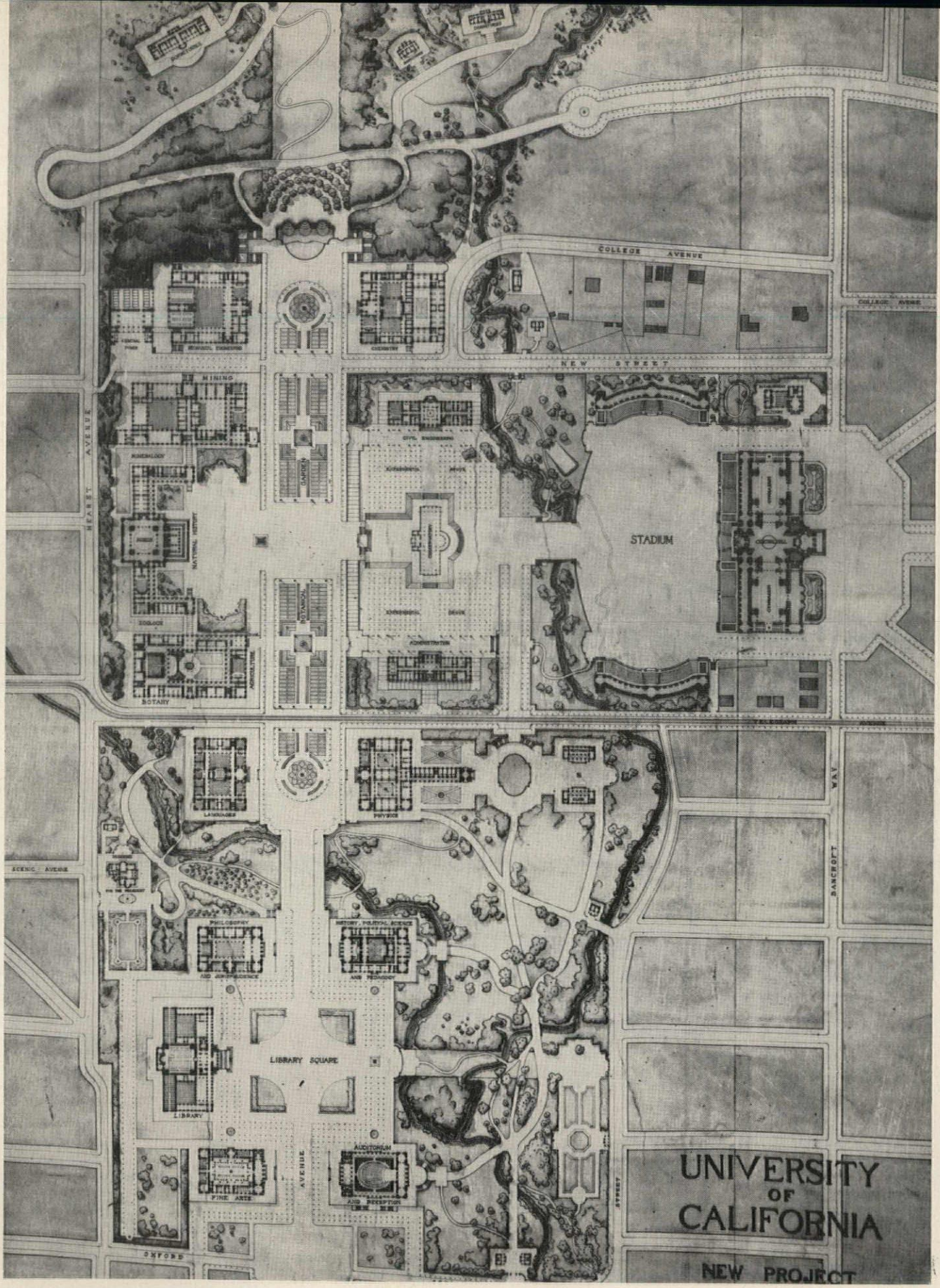
Some time ago, the RECORD ran an Alan Dunn cartoon which showed a college administrator talking to an architect outside a shiny new glass building. "Please," the administrator was saying, "just a small potted climber or two—we don't want to lose our membership in the Ivy League."

Suddenly, colleges are no longer ivy-hung cloisters. They have become Big Education—an economic entity of respectable proportions. According to the RECORD's sister publication, *College and University Business*, the nation's 1850 higher education institutions now enroll 3,600,000 students, and the number is going up fast. The colleges provide living quarters for a third of their students, and dining facilities for about half. (This, incidentally, makes colleges the third most important mass feeders of people, ranking behind restaurants and hospitals.)

The college building market is already of a handsome size, and the only way it can go is upward. The Dodge contract statistics show that college classroom and administration buildings totalled $201 million last year. To this must be added a major share of the contracts for dormitories, which amounted to $354 million, plus unknown portions of other building types like hospitals, laboratories and even apartments.

Because the figures are classified on a building type rather than an ownership basis, an exact total is impossible, but contracts for college buildings last year certainly amounted to well over half a billion dollars. But the increase in students is only just getting under way. As the bumper baby crops of the 1940's begin to reach 18 years of age, there will be enormous further gains in enrollments, especially around 1964 and 1965. To meet the future demand, nearly every college has a building program; big schools have big programs, small schools have small programs.

The American Council on Education estimates total building needs between now and 1970 at $12 to $15 billion. Considering the rapidly growing interest in education at all levels, it seems a safe bet that even this huge figure will turn out to be too low.



The first master plan for the University of California at Berkeley resulted from an international competition financed by Mrs. Phoebe Apperson Hearst. It is referred to by Wurster as the "1900 Plan" and the "Bernard Plan" and it sets out planning principles which are, according to Wurster, "worth returning to"

CAMPUS PLANNING

by William Wilson Wurster

With the flood of college students coming now and to come in the near future, we need to plan our colleges carefully and with great imagination. This I feel strongly, for at best we can hardly hope to meet the demand for higher education especially in the public institutions which are having to expand both their physical plants and their faculties at a tremendous rate. But the private colleges too will have to endure growth, although they cannot be expected to expand at the rate which is possible for the publicly supported group.

At the University of California in Berkeley, whose campus I have known as student and as member of the Campus Planning Committee which acts as supervising architect, there were already 19,000 students in 1958-59. But along with the nation-wide forces behind the rising demand for higher education, which are felt here as everywhere, California receives 1000 additional residents a day by net immigration. And the University, being a state institution, must keep pace with the requirements of all its citizens. Fortunately, much of the expanding load will be assumed by the fine private colleges and universities in the state, by the State College and Junior College systems, and by other campuses of the University of California. Berkeley was the first, but now it is one of eight in the University framework, with two entirely new campuses scheduled to come. In making their basic overall plan for the University, an essential preliminary step, the Regents decided to limit the growth of the Berkeley campus insofar as feasible. But even so, it was determined that Berkeley would have to accommodate 25,000 students by 1965.

It was good fortune for me that I have been able to work into this problem gradually. My first experience, which opened my eyes to the demand, was at Massachusetts Institute of Technology from 1944 to 1950. True, the expansion was not at the rate I have come to know, but it was sizeable, for MIT grew from a prewar 3500 student group to 5500 postwar. It was also during this time that I began my trips to San Antonio, Texas, to work on the master plan for a new site for Trinity University. Here I found an exciting set of problems, for we started from scratch, planning a campus on a commanding plateau overlooking the city. The buildings were all lift-slab and understandably set a new esthetic pattern which reflected this method of construction.

Since coming to the University of California at Berkeley in 1950 I have also been consultant for the masterplanning of Brigham Young University in Utah and of the University of Utah. Within the last year I have become a part of a Design Board at the University of Washington.

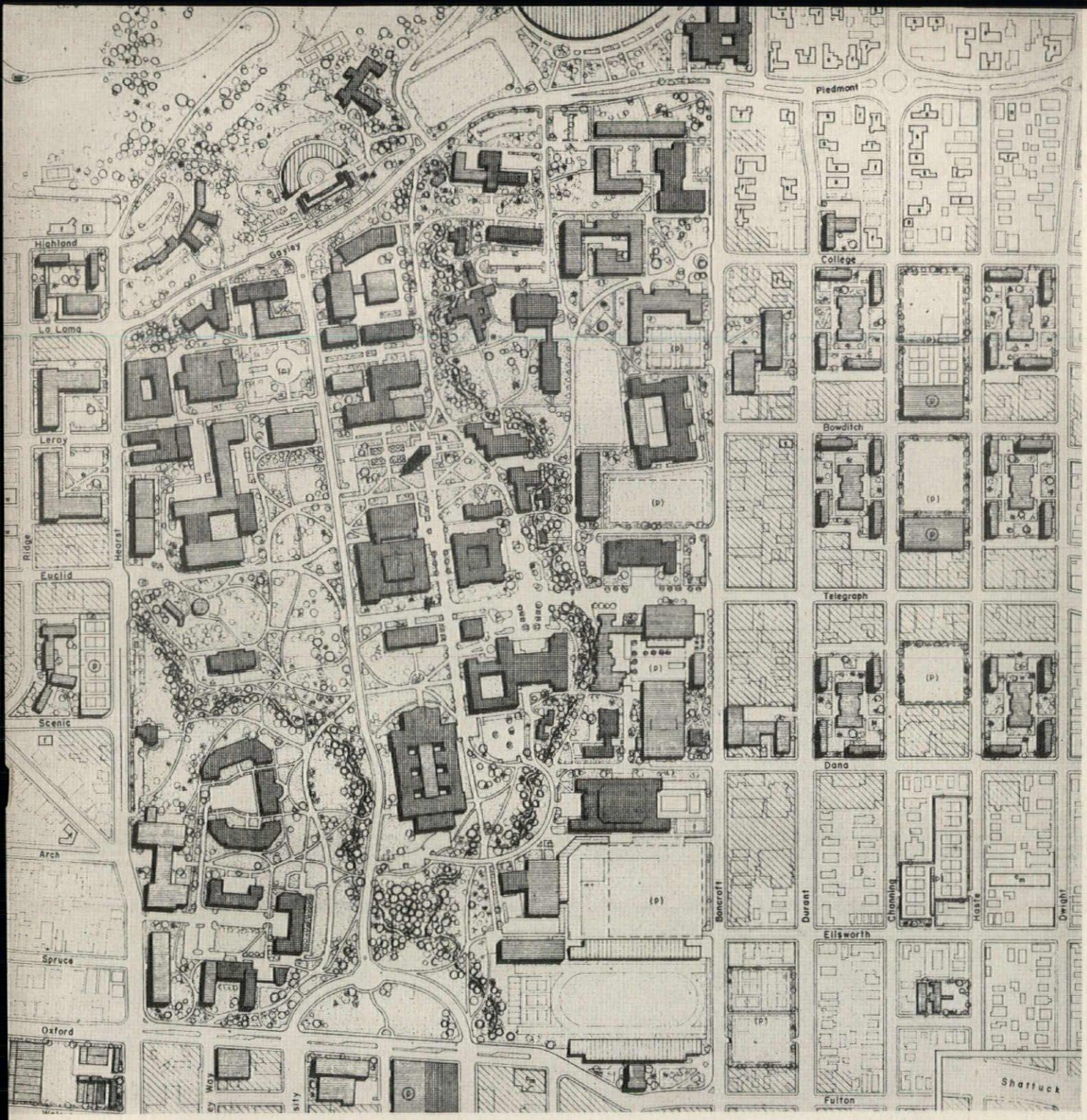
Out of all these varied experiences, it comes as a continuing surprise how the problems repeat themselves in each place. The relationships of departments, the selection of architects, how to join the old and the new esthetics, and perhaps, above all, the car parking problem; these all appear on each of the campuses.

But since I know more of the details on the Berkeley campus of the University of California, let me use this as my primary example. The problems—and the means of solving them—would hold in some degree at each of the places I have known.

The first thing needed is an academic plan, and certainly this is the hardest thing to come by, if I am to judge from my experience.

The Chancellor (administrative head on the Berkeley campus) established an academic council to set goals in all phases of the university's activity, at the beginning of our most crucial period of expansion in 1955. After a year's discussion, estimates were set as to the number of students who might be expected in 1965. This figure was then broken down to show where the loads could be expected—so many in the lower division; so many in the upper division; so many graduate students. A careful analysis of each department was made and then the departments were roughly grouped into several categories: those which would remain the same size, those which would increase in the same proportion as the overall campus increase, and those whose growth would be greater than that of the campus at large. Departments were carefully polled as to the departments with which they had constant interchange and also asked in what location they would rather be on the campus.

The data gathered from the Academic Council and from the polls were given to the Administrative Faculty Committee on Buildings and Campus Development for review and study. A Campus Planning Committee, consisting of a Regent (member of the governing board), the Chancellor and the Dean of Architecture was set up to perform the duties of a



The present long-range development plan for the Berkeley Campus, University of California

supervising architect. In carrying out the decisions of the Committee, the competent and enthusiastic staff of the University's own Architects and Engineers office was of the greatest assistance.

The decisions which resulted from the Academic Advisory Council and Campus Development Committee were translated into a physical plan and published in a definitive report, "Long Range Development Plan for the Berkeley Campus." This deals with all the concrete problems of campus development, and clearly states the principles behind the plan, including the following: that only 25 per cent of the land should ever be covered by buildings; that buildings should be pulled together into close groups, reflecting functional interrelationships insofar as feasible; and that the unique natural beauties of the campus should be conserved and enhanced through a clearly defined, permanent system of open spaces, including two fine stream-beds that cut across the whole area.

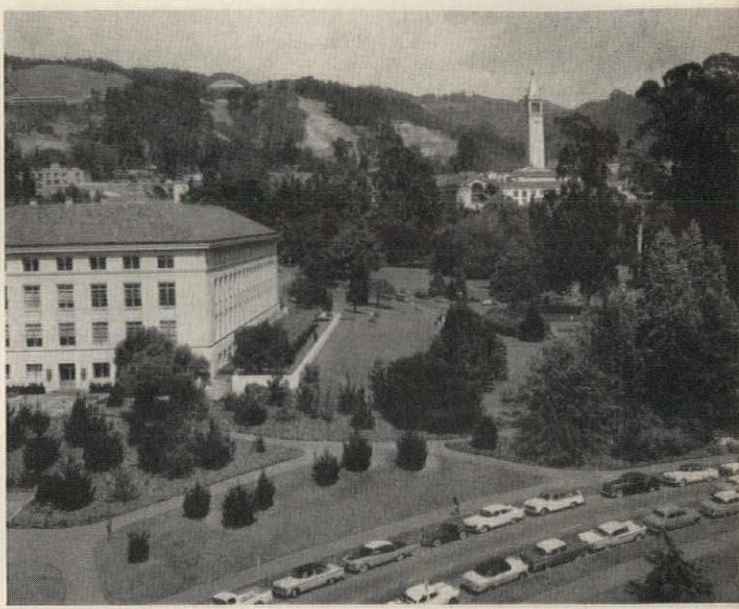
Of course many major buildings already located set strict patterns. This is true of all older campuses. The University of California was founded on March 23, 1868, and the present campus development began in 1873. For example, a permanent library building in its location certainly sets up a positive planning

point. The same is true of the science groups, with their major investment in laboratory equipment.

A university community is always a complicated intertwining of town and gown. The town has stores, houses, social and religious institutions with streets to serve them. In preparing the long-range plan for the development of the Berkeley campus a Liaison Sub-Committee of the Buildings and Campus Development Committee was activated to work with the Planning Commission of the City of Berkeley so that the city government would know of the exact University intentions as to need for land beyond the existing campus limits. More than this, the Liaison Committee meetings have served as a place for discussions as regards traffic and items in the City's Master Plan of mutual interest. Without this two-way method of communication it would have been impossible to avoid major misunderstandings. Even so, conflicting interests are bound to exist.

The Long-Range Plan showed all the land that would be needed for residence halls and recreation areas and that would have to be acquired in the city area. At the outset it was decided that the University would make every effort not to interfere with major social, religious and business institutions. In this way one retains some of the original flavor of the town and its institutions, and at the same time the facilities themselves are maintained for the students' convenience as well as that of the townsfolk. If these are pushed further from the center, both time-honored custom and convenience are lost. There has been a tendency to question this principle—of fingers of private concerns penetrating into the campus area—but I think it is good for the reasons just listed.

In general, this is the basis for procedure in planning as it affects a campus in a city. To gain the same ends at other urban campuses, I am sure the steps might not be identical. The fundamental idea is that all concerned with university growth have a



Looking east toward the campanile over the Berkeley Campus of the University of California

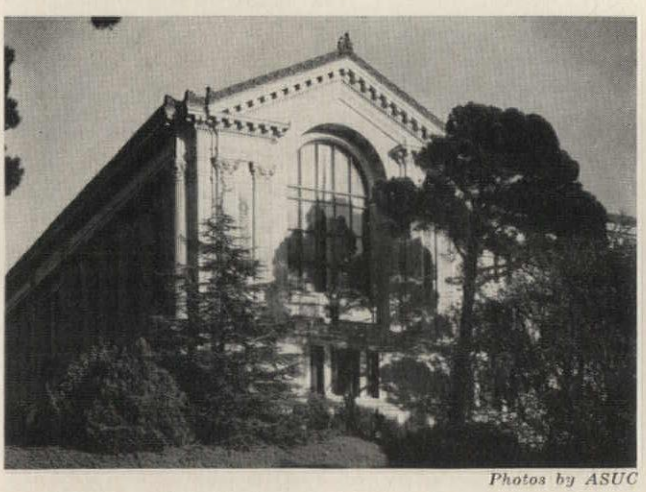
planned method of participation. Thus when the academic aspects, the administration of the university, and the surrounding city all are participating and informed, there is a good basis for agreement and action.

After this initial broad planning come the questions of actual layout and design. In Berkeley, as on many campuses, there are certain natural beauties to consider: streams, trees and the natural sculptured form of the land. All of us feel a strong desire to retain as many of these as possible lest we lose our gifts of nature and change an exciting landscape into a prosaic one.

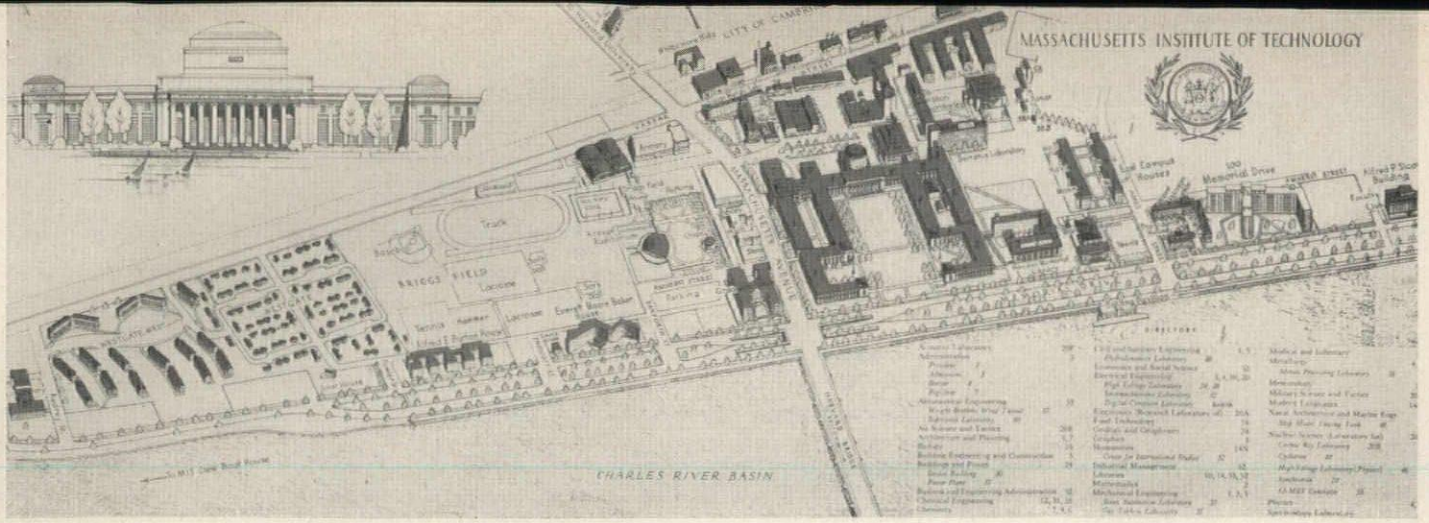
We have an added problem on the Berkeley campus. The buildings which were built from 1903 to 1915, following the great Beaux-Arts competition of 1900, are all formal, granite buildings with rich ornament. From 1915 to 1927 the buildings were on classic lines, but of concrete instead of granite. Then came a period of a clay product to look like granite. Following this came a chaotic period when each architect set his own goals and all unity vanished.

I am sure as I write this that I speak for every campus with its esthetic confusion; or perhaps if there is more unity it comes from a lifeless copying of an older period. Neither chaos nor copying solves the problem. And very few campuses are built all at one period with no later changes. Even the Massachusetts Institute of Technology's single complex has had to have later buildings which could not fit into the rigid pattern of the Welles Bosworth design. Because education itself is not a static process—is, in fact, a developing and unfolding—it is perhaps more than merely fitting that a campus should reflect change and its own history. What is important is a

The University of California library at Berkeley, John Galen Howard, Architect



Photos by ASUC



Perspective diagram of the Massachusetts Institute of Technology, showing the Welles Bosworth design for the central campus; which is the U-shaped central grouping

strong unifying scheme to tie together the historic variety.

The best example of this is the Harvard Yard, which unifies strong buildings from more than two centuries of shifting needs and esthetics. In general sequence there came Massachusetts Hall and the early dormitories of Georgian Beauty, University Hall in granite by Bulfinch, the robust plastic Sever Hall of brick by Richardson, the Eastlake dormitories of Victorian aspect, the Widener Library by Trumbauer and the Architectural Buildings by McKim, Mead and White. To this one adds the Chapel and the Lamont Library for undergraduates by Henry Shepley's firm. A wonderful array of buildings, even if some of them are not to my taste. Here the spaces in the yard between the buildings are outside rooms, with elm trees forming the roof. The patina of time derived, perhaps, from a continuity of purpose, a definiteness of goal and a consistency of custom, somehow binds this into unity, so that I feel this campus (called with true New England understatement "The Yard") is the greatest in all America.

Aside from more complex reasons, the varied buildings in these groups probably owe their kinship to the red brick walls with windows that are but holes in the walls, to the great elms, and the underlying plan with its strongly defined spaces and circulation scheme. In Harvard Yard proper, which is all I am discussing here, there happen to be no glass and metal skins, or abstract concrete shapes, because the spaces were all filled in before the present era. But there is considerable variation in architectural style nonetheless. And although no one can ever really judge how a contemporary building will fit in with the rest, once it has lost its novel look and become part of history too, I tend to feel that any new structure done with equal conviction and equal propriety would ultimately look at home in this type of older environment.

The time factor in shifting taste is worth more thought than it has received, however. At first, in their primitive revolutionary zeal, modern architects seemed to be striving for some perfect and permanent solution beyond fickle fashion. The one article of faith we all shared was a profound scorn for the self-conscious styles that were successively stylish during previous benighted centuries. But today, with "modern architecture" firmly in the saddle, the only thing demonstrably clear about it thus far is its infinite potential variety. The battle of the styles continues, in a much wider arena of technical possibility, cultural values, and functional needs. Fashions change with wilder rapidity than they ever did in the past, when there was usually enough spacing in time not only to lend conviction to each building, as a true mirror of the taste of the day, but also to allow for a reasonably respectful relationship to what had gone before.

Moreover, the competitive zeal of individual modern architects is greater than ever, although much of the original social fervor has been lost in the current push for high-style abstract sculpture. Too often new buildings seem primarily to vie with each other for public attention, as in a gallery or a group of billboards, instead of seeking some overall unity —or merely solving a practical problem with sense and sensibility.

All in all, the hectic tides of present-day architecture create serious problems for civic and institutional design, which must integrate varied forms and practical needs into some kind of meaningful harmony, without losing a sense of historic continuity. In large groups of buildings today, we can all too easily produce either over-standardization—where they are all done at once by a single-minded architect and builder, or chaos—where different eras and designers are involved.

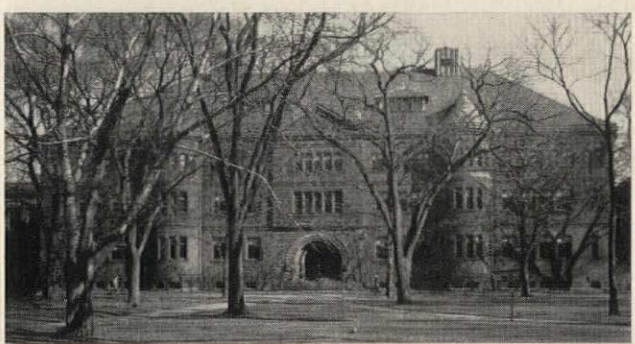
If we lack the spacing of time and collective taste, and therefore tend to lack the inherent sureness and discipline that produced the Harvard Yard, how do we go about designing a campus and guiding its building program? How much does the supervising architect limit the freedom of the designers of individual buildings? How much does the institution contribute of its own practical knowledge and broader purposes? Does the supervising office remain silent, for instance, when it knows that a proposed all-glass

structure will either destroy the visual quality of an existing group, or alternately freeze and fry its occupants?

I can offer some concrete answers, from our Berkeley experience. Yes, the supervising architect does enter into all aspects. He calls attention to the practical aspects of heating and cooling, to the glare from San Francisco Bay at the west and to the need for bowing to the existing buildings rather than allowing a brusque rudeness on the part of the new design. The kinship may be a simple one of using a tile roof. Or it may be that the shape of the windows is sympathetic between the old and the new. Or the choice of the color of the building may be the binding force. As each architect starts his project at Berkeley we say "Your structure is part of a great scheme—this new building is related to the past as well as the future, to open spaces as well as other buildings. It is your responsibility to help us bring this about effectively, through appropriate design."

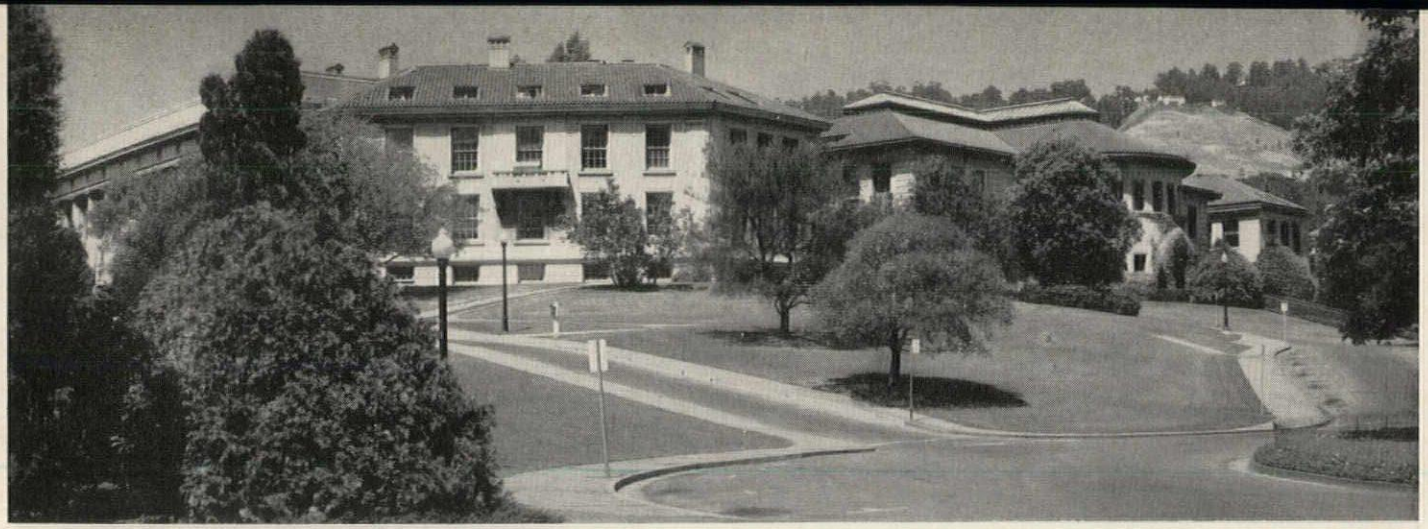
I well recall a laboratory building for Engineering where the original design was for entire glass walls. Careful inquiry showed that the Department wanted concrete walls upon which to hang equipment. The building as built of concrete has the enthusiasm of the architect for he, in the final analysis, designed it to fit the needs rather than as an abstract piece of sculpture.

We are too much in the midst of decisions of a large building program in Berkeley to know what the verdict of the critics in the years to come will be. However, we are setting up procedures and criteria



Photos courtesy Harvard News Office

Buildings at Harvard University: top, Massachusetts Hall; second, University Hall (1815); third, Sever Hall (1880); below, a general view of the old Harvard Yard, with the statue of John Harvard in the foreground



An existing departmental complex at California (school of agriculture), the plan of which lies behind the present program of grouping—both for convenience and as a way to more openness in other areas

which should eliminate chaos and so give a chance for unity and beauty.

From the point of view of beauty and the guiding of the process which can produce this beauty, I believe some understood procedures must be outlined and adhered to. The architects must know they are to be subject to advice from the Campus Planning Committee and that, in the end, all authority is vested in the decision of the Board of Regents.

The importance of the student and his surroundings has been emphasized in Berkeley by two major architectural competitions which have been held in the last three years. The first was for the residence halls and has resulted in a very real, and I believe successful, attempt to give human scale to structures which must of necessity house hundreds of students. The great commercial slab forms have been avoided, much to the betterment of student living. The second competition, for the student center, has grouped four buildings around a plaza. The Dining Commons has been designed with a rippling roof so that the usual great barracks hall is non-existent. Recreation, and student and faculty living, are as integral a part of the campus plan as the educational disciplines and the esthetic experience. In face the entire human side for students should be one of the dominant factors in designing college buildings. To this end there is a plan to have student sub-centers for meeting where there can be both indoor and outdoor coffee and sandwich bars.

Youth is vehement and boils over if easy outlets are omitted. As our intramural fields for informal games and tennis courts are pushed from the main core of the campus by the need for locating educational buildings within the area of the ten-minute class interchange, there is imperative need for replacement of these facilities. At Berkeley this is a definite part of the residence hall development, and playing fields are provided under this program. In fact, this has become such a part of the thinking that the idea originated with Chancellor Kerr (now president of the University) of moving the University maintenance yard out of Strawberry Canyon to a site in an industrial area of the city so that the Canyon could be restored to its former beauty and used for swimming, tennis and playing fields.

Other universities whose rate of expansion is not so high as at Berkeley have this problem in lesser degree. But they do have it. And as leisure becomes more abundant, wisdom in its use becomes of greater importance. Thus, recreational outlets in formative periods may play an even more important role than has been suspected.

In universities it is good fortune if many of the faculty and students live close at hand; for a commuting campus can have, in the extreme, too much of a correspondence course character. It is pleasant to record that as I write this there will be over 1680 students newly accommodated in residence halls this fall within walking distance of the campus. It is also good to record that property values in Berkeley still allow the staff to live near the Campus if they choose. We must have University housing for the new young people on the faculty so that in their beginning teaching years they may be close at hand for the desirable casual student meeting and easy use of the library in odd hours. The great virtue of the small independent college town is the simplified, easy relationship between faculty and students, and among faculty of different levels and departments. This is often lost in the big-city university, although it may have some compensating advantages. The vast Los Angeles campus of our University is surrounded by costly new residential development which few of its faculty can afford, while the University of Washington, in an older section of Seattle, still has most of its staff living in the neighborhood. Both Chicago and Columbia Universities are trying to strengthen their community environments by major renewal and redevelopment programs. Here in Berkeley, we have some of the virtues of both worlds and hope to maintain them. San Francisco is one half hour across the bridge (shorter if and when we get a transit system) and Berkeley itself has a normal urban mixture of population and activities. But the immediate environs of the campus are still attractive and still very much the faculty residential areas.

One of the joys of a campus is that it permits a sense of outdoors with uncrowded open spaces and that walking is the accepted method of moving about. The pedestrian must be king on the campus. The paths, plazas and views should be so designed that crossing the campus is a visual joy. Fortunately in Berkeley we started with native beauty though we have tended to lose some of this with the years. With care and thought it is now coming back under the guidance of a strong and gifted supervising landscape architect, Thomas Church.

The plantings on every campus should be the crowning glory of the area. In hot climates there should be leafy tunnels and plazas—in cool regions there should be sunny areas with the planting used as decoration rather than shade. But in either case it can be as the Lawn at Virginia, the elm-covered Yard of Harvard, the formal relationships of Columbia, or the creeks and glades of Berkeley. These, as much as the buildings on a campus, are the remembered delights of college days.

We have listed the problems of campus planning item by item and, as is most human, have left the most difficult to the last. And what is this? Do you need ask? Automobile parking. In our modern American world it plagues every campus town and city with its space demand and visual brutality. Some argue that automobiles are *not* here to stay for they feel that with the crowding on the roads and the lack of places for them at the end of the journey they will fall into disuse. I fear this is too hopeful and think we must seek to cope with the problem for many years to come.

In Berkeley we have some 178 acres for the academic core, which will have buildings for 25,000 students plus an overload. Within this area it is thought to have no student cars parked (except for use of physically disabled students) but to allow faculty parking under certain rules and charges. In general we will have no curb parking but place cars in groupings of 50 to 100 in paved areas partially concealed by shrubs and trees. All playfields, tennis courts and certain plazas will have cars parked under them. This is costly, but it has the great virtue of bringing two new space consumers into coincidental use and thus allows close-in use where it is wanted and needed. In addition, there must be peripheral multi-story parking structures.

Even with all of this the need of Berkeley citizens to have a place for guest cars on the streets near the University will not be gained. But this is the problem in all cities in any apartment area and we are in no way solving it. Meters are only a partial answer. A good rapid transit system might help.

The few principles which could be listed are:

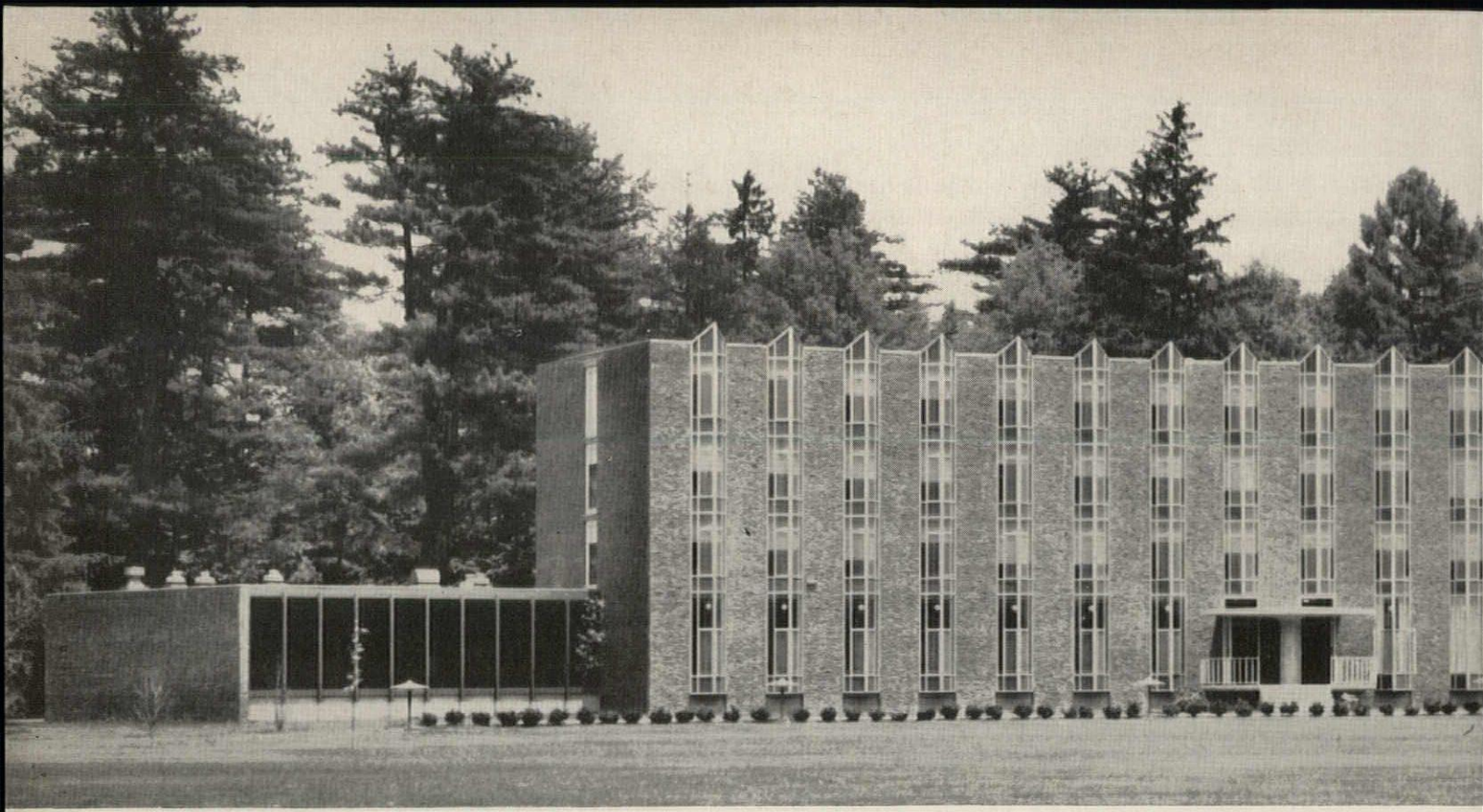
> Charge for all parking on campus—enough to pay for all costs of same.
>
> Keep casual student parking out of Academic Core area.
>
> Make all possible areas do double duty (recreation fields over car parking).
>
> Build multi-story parking at periphery of Academic Core.

Function, economy and beauty all must be served for tomorrow and the next generation by any responsible scheme for campus development. In Berkeley we have assumed that this requires a carefully studied academic plan, and a strongly conceived physical plan which encompasses not only the campus itself in some detail, but also its relationships to the town and the world outside. One basic principle has guided our physical plan, which was partly shaped by what we wanted to avoid. What tends to make American cities so dull, we felt, is the uniform pattern of development, whether in high-density downtown districts or in low-density suburbia, and whether the structures themselves are good or bad, standardized or highly variegated. What makes the Harvard Yard successful, at base, is the interesting, meaningful pattern of buildings, open spaces, and circulation, and the fact that it is an integral part of the surrounding town.

In Berkeley we did not want to make the campus into a tight institutional island, so we have left fingers of commercial and other uses indented at the fringe. And although we had to crowd 25,000 students into a rather limited area, we felt that it was imperative to preserve our splendid natural landscape—not only in terms of views, lawns and gardens, but also in wilder, more secluded spots—for contrast to the general openness. Our buildings will therefore have to be in tight clusters, often higher and denser than at present. Together, these criteria mean that instead of dull uniformity, we have the makings of a Grand Scheme. It will be quite different from Harvard Yard. But it will turn a little toward the great Beaux Arts competition plan of 1900 for the Berkeley campus, realized only in small part and long neglected. And in spirit it will be a lot closer to both than to most of the urban and institutional development in America that has taken place in between.

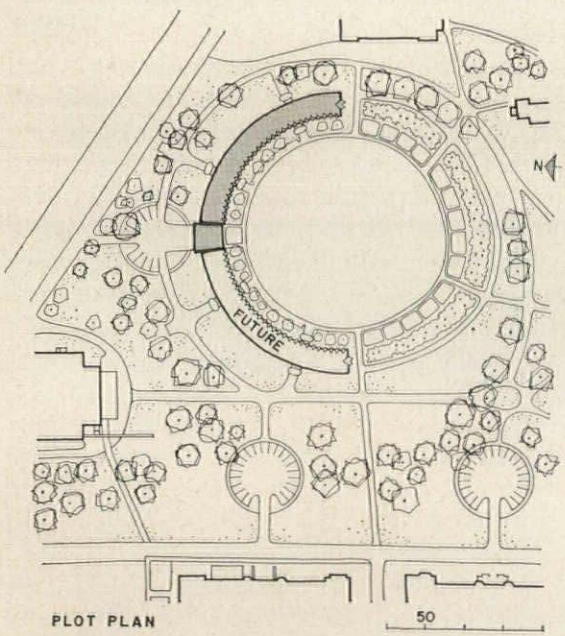
Concealed parking and curb parking near the library at the University of California, Berkeley Campus

Photos by ASUC



College Buildings: Vassar

THE SITUATION CALLED FOR AN ARC-LIKE PLAN

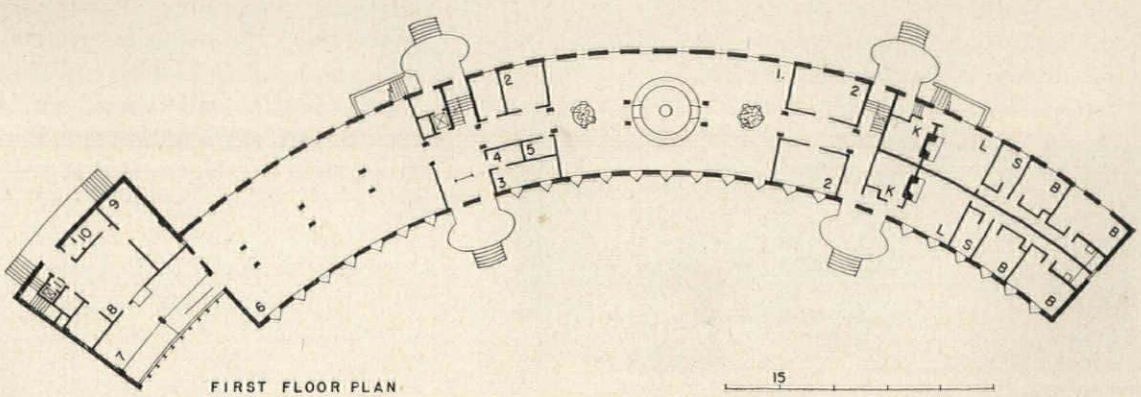


The site of this 4-story, 156-student dormitory comprises a portion of the Vassar campus known as "the circle"—sentimentally remembered by old-timers as a flowered promenade where the girls could stroll with their visiting beaux. The problem, then, was to design a building that would strengthen and further define "the circle," and become also an attractive addition to the rather heterogeneous architecture of the existing buildings. Despite the variety in style, the dominant theme of the campus appeared to be brick buildings, vertical in feeling. The new brick was carefully selected to be harmonious, and was laid in black mortar to avoid a harsh, "just-built" look. The prow-like aluminum bay windows create the desired vertical feeling.

Emma Hartman Noyes House, Vassar College, Poughkeepsie, N. Y. Eero Saarinen & Associates, Architects. Severud-Elstad-Krueger, Structural Engineers; Samuel R. Lewis & Associates, Mechanical Engineers. Gilbane Building Co., Gen. Contractors.

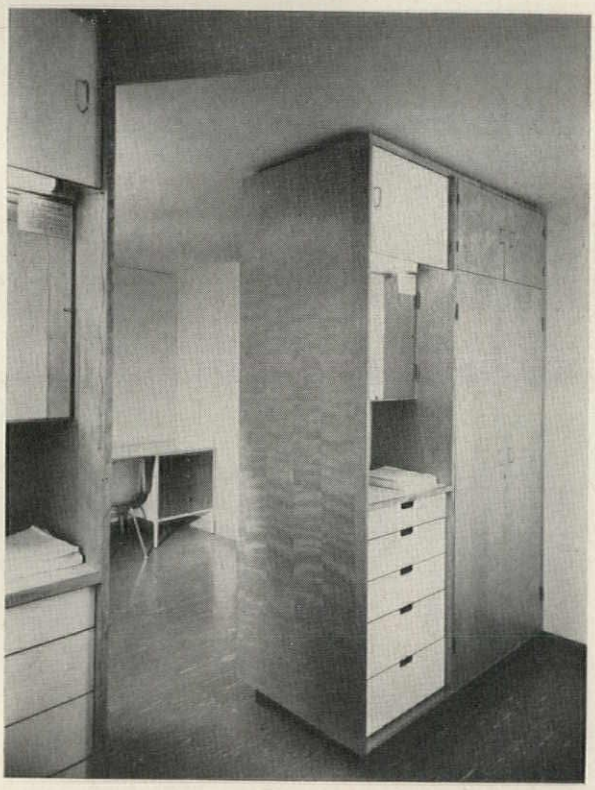
1. Lounge
2. Parlor
3. Office
4. Phone
5. Kitchenette
6. Dining Hall
7. Serving Area
8. Kitchen
9. Dishwashing
10. Refrigeration Rm.
11. Dumbwaiter

FACULTY SUITES
K. Kitchen
L. Living Room
S. Study
B. Bedroom



Interiors of the ground floor lounge and dining hall are shown below. Note how the basic structure of the double-loaded corridor scheme above carries through and is expressed here with considerable skill and taste. The ceilings, structure, walls, hangings, table tops, and pedestal furniture are white; the carpeting is beige; the conversation pit (dubbed the "passion pit") is upholstered in soft shades of mauve, orange, and green

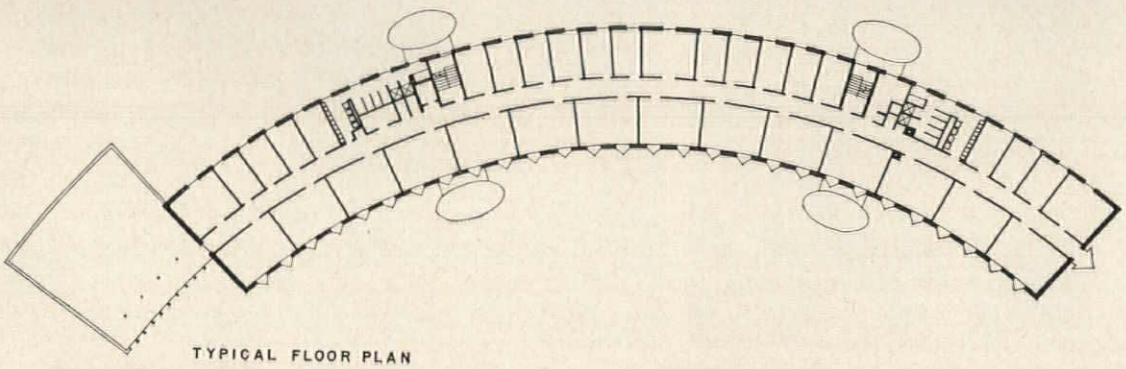
All photos by Ben Schnall



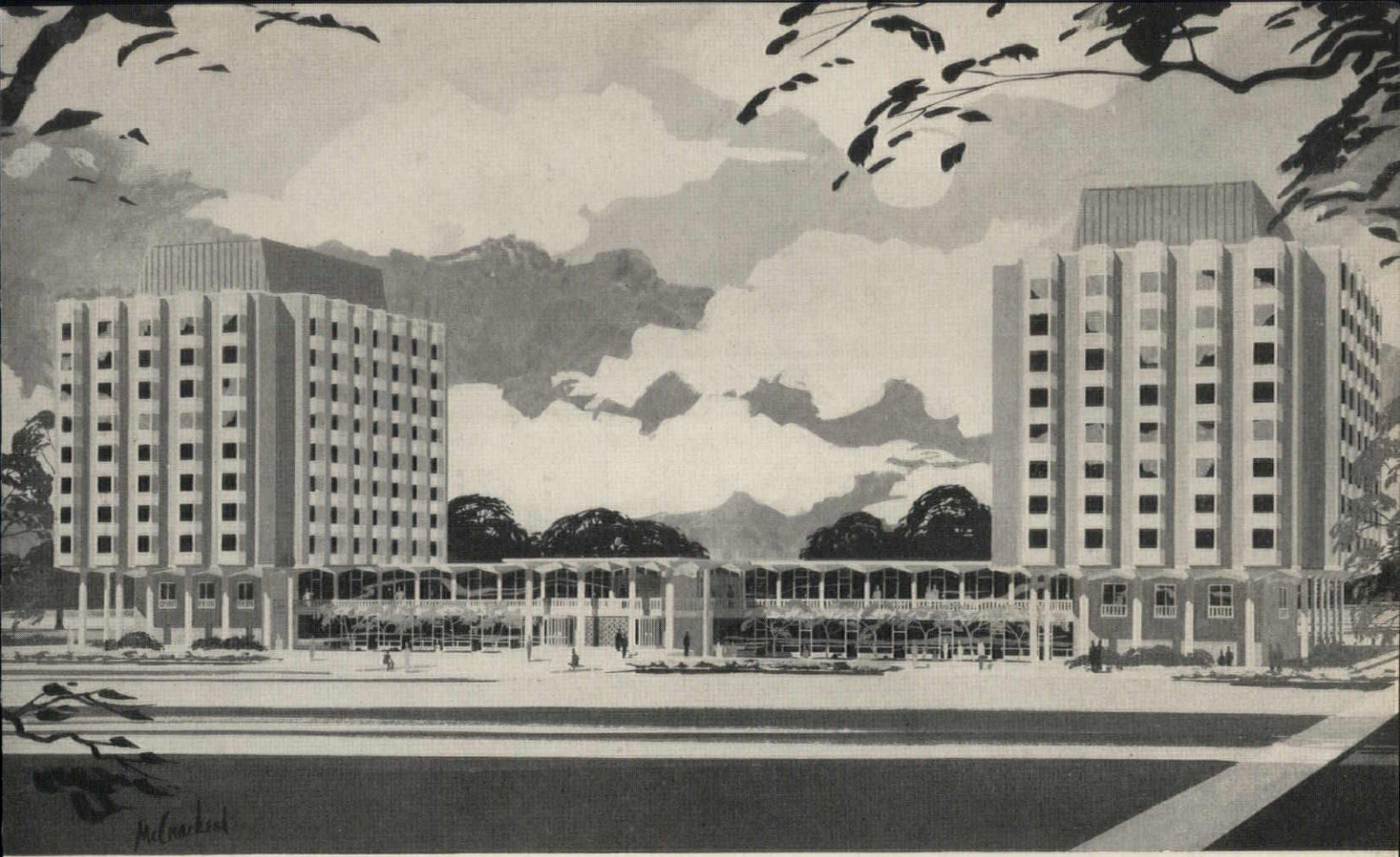
The 34-ft-wide upper floors contain 51 double rooms along the 150-ft curving, bay-windowed front, and 54 single rooms along the opposite perimeter. There are ground floor apartments for two House Fellows and their families. The building cost $1.4 million, and was the first building completed in Vassar's $25 million development program.

The basic structure consists of poured-in-place reinforced concrete flat floor and roof slabs resting on exterior bearing walls which are precast, tilt-up panels, faced with brick. Architect Saarinen says, "In appraising the design, one must visualize the final stage—arrived at when the half-circle has been completed."

Above and right one sees a typical double room. Particular care was given to the details of the built-in wardrobes and cabinets



TYPICAL FLOOR PLAN



College Buildings: Chicago

MAJOR BREAK-THROUGH ON THE ANTI-SLAB FRONT

Expressed externally as a two-story, colonnaded pavilion linking twin residential towers, this design for a new men's residence hall at the University of Chicago is highly unusual in several ways, possibly the most interesting of which is the three-dimensional arrangement of a typical residential "house." Each of the twin towers will contain four two-story "houses" of 83 students each to total 332. The two layers of outer rooms comprising a "house" will be united by a two-story-high central lounge for the group; will be reached by skip-level elevators stopping at the lower of the two floors, the upper floor being a one-story walkup. Each "house" will have a proctor's suite on the main floor; an assistant's room on the upper. (See plans and sections that follow).

It was felt by the architect that interior lounges were justified by their two-story height, their fireplaces, and the fact they will be used principally in the evenings, when an enclosed atmosphere is appropriate. Such a parti also permits an economical perimeter treatment, and makes a real break-through in getting away from the monotonous, many-layered slab character common to so many hotels, motels, and dormitories.

The single entrance lies at the center of the pavilion and leads to the main lobby and desk, placed several steps above grade. From here a partial flight up arrives at the lounge level and tower elevators; a partial flight down arrives at the dining halls. A desirable and pleasing separation of lounge and dining areas is thus achieved. The upper level lounges open to a terrace forming the roof of the dining halls; the dining halls open to a lower, landscaped terrace slightly below grade.

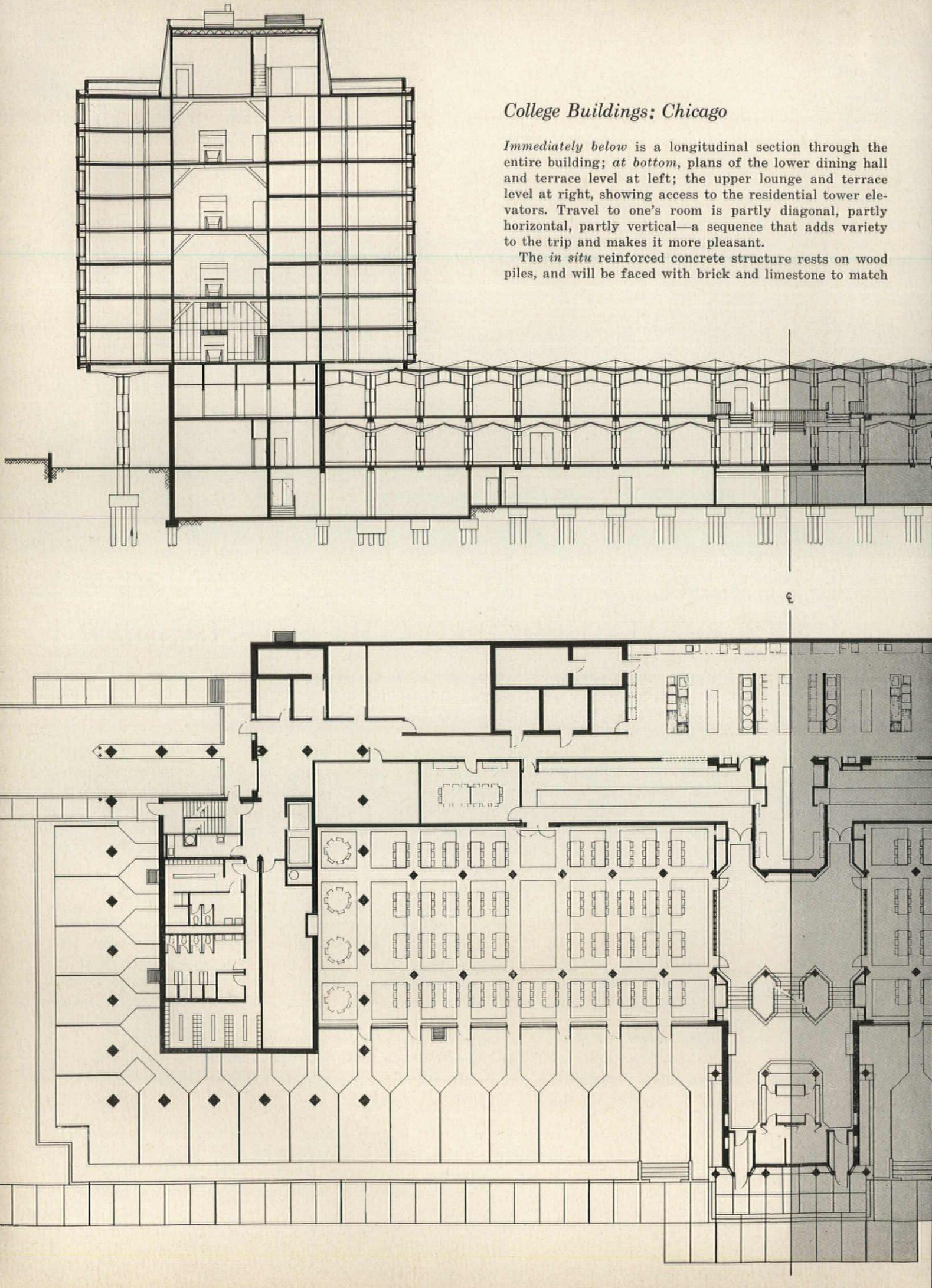
The pavilion's continuing hyperbolic paraboloidal undulations serve visually to unify the entire composition, and act as an effective separation foil for the pavilion's horizontality and the tower's verticality.

Men's Residence Hall, University of Chicago. Harry Weese & Associates, Architects; Hans Neumann, Project Manager. J. Lee Jones, Associated Architect for the University. Frank J. Kornacker, Structural Engineer, Samuel R. Lewis & Associates, Mechanical Engineers; Bolt, Beranek & Newman, Acoustical Engineers. George Sollitt Construction Company, General Contractors.

College Buildings: Chicago

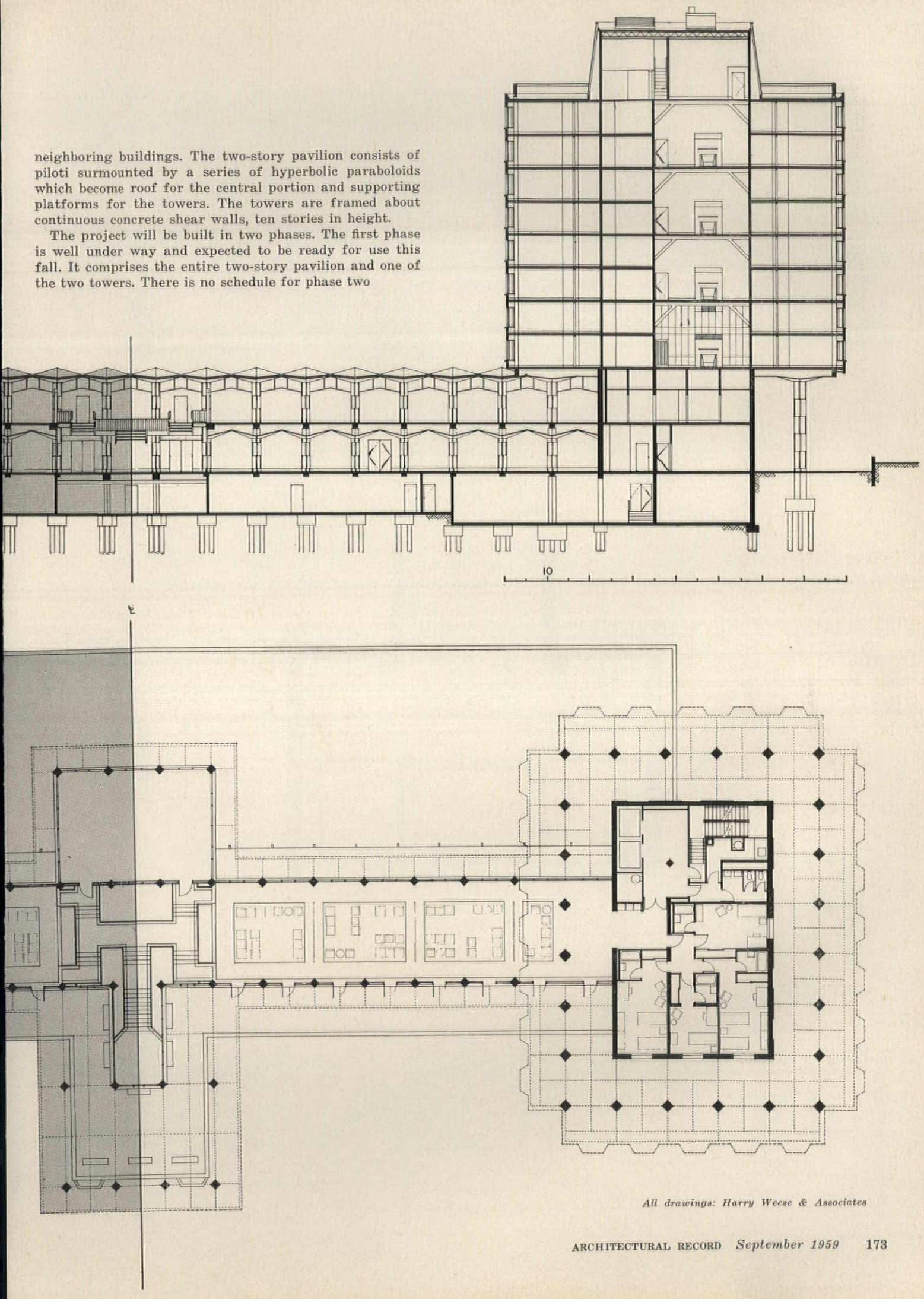
Immediately below is a longitudinal section through the entire building; *at bottom*, plans of the lower dining hall and terrace level at left; the upper lounge and terrace level at right, showing access to the residential tower elevators. Travel to one's room is partly diagonal, partly horizontal, partly vertical—a sequence that adds variety to the trip and makes it more pleasant.

The *in situ* reinforced concrete structure rests on wood piles, and will be faced with brick and limestone to match

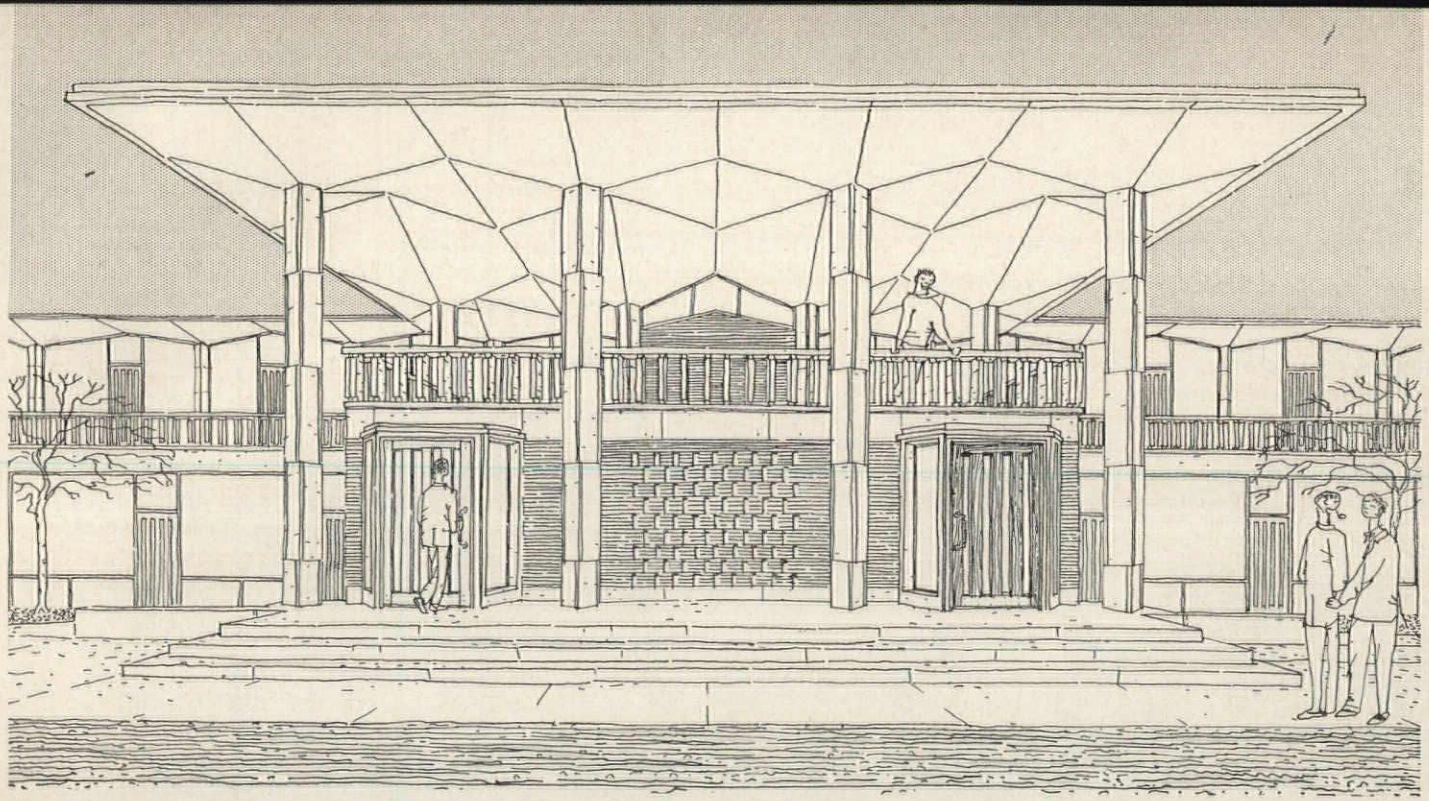


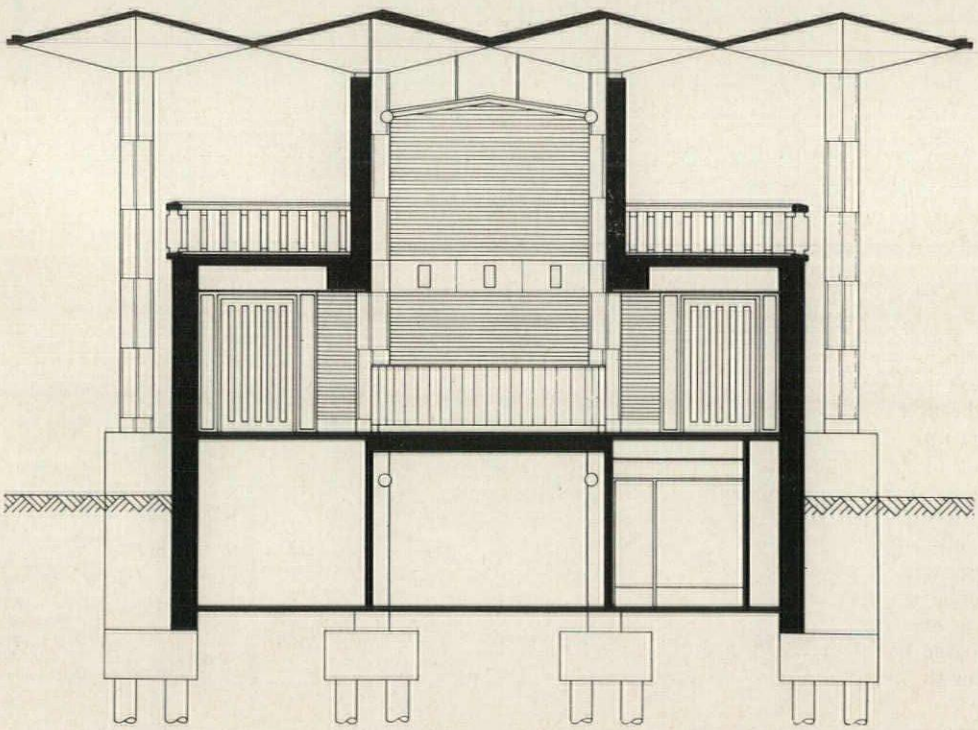
neighboring buildings. The two-story pavilion consists of piloti surmounted by a series of hyperbolic paraboloids which become roof for the central portion and supporting platforms for the towers. The towers are framed about continuous concrete shear walls, ten stories in height.

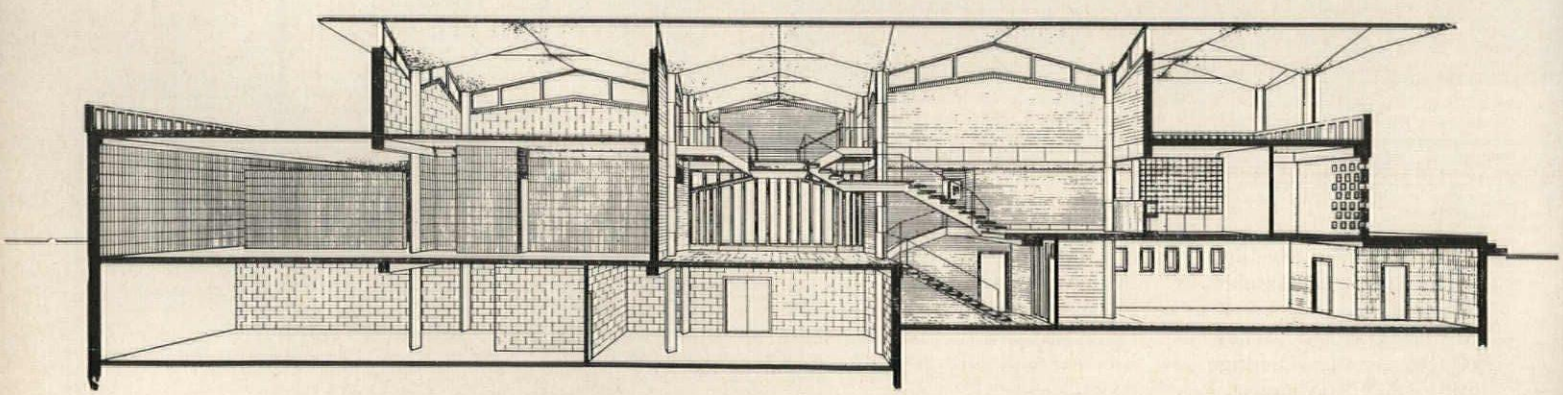
The project will be built in two phases. The first phase is well under way and expected to be ready for use this fall. It comprises the entire two-story pavilion and one of the two towers. There is no schedule for phase two

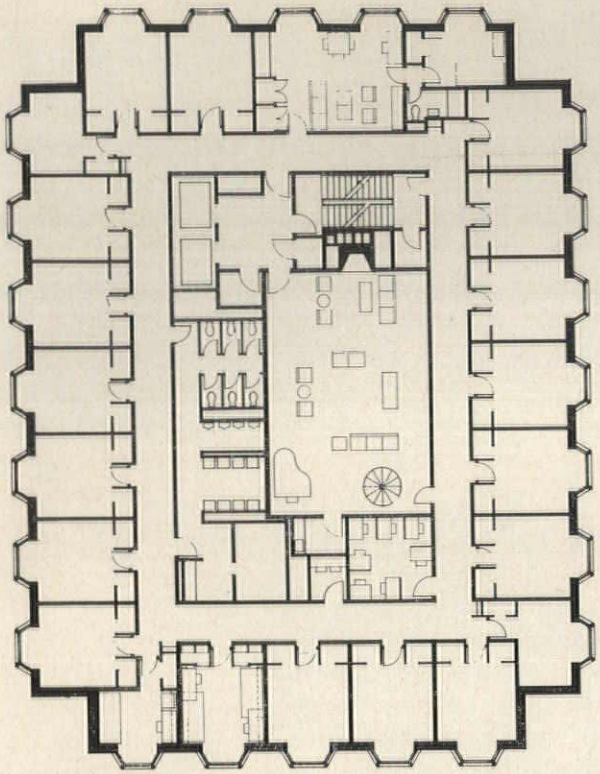


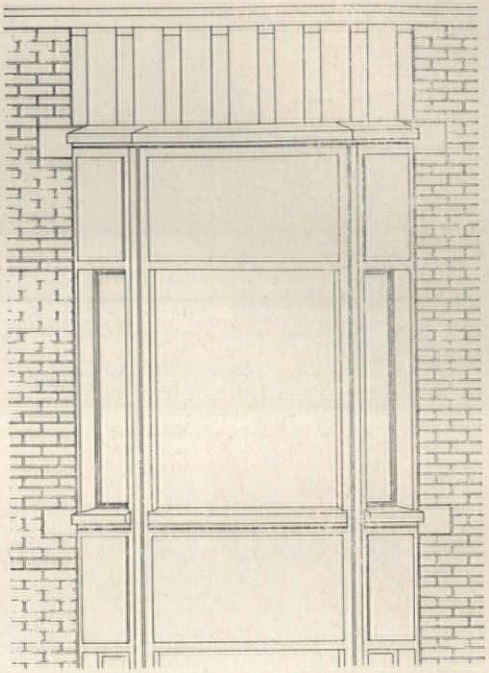
All drawings: Harry Weese & Associates

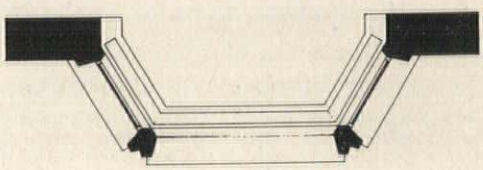












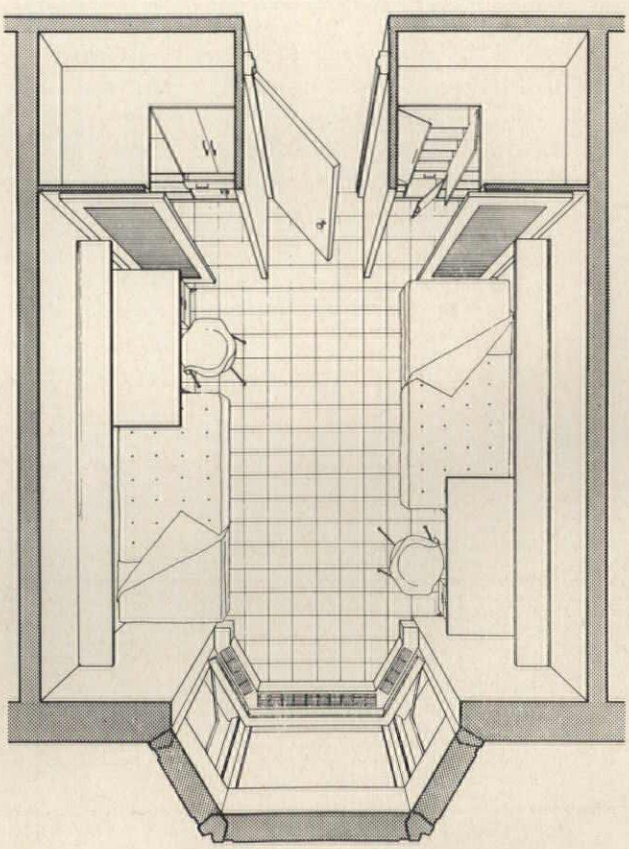
College Buildings: Chicago

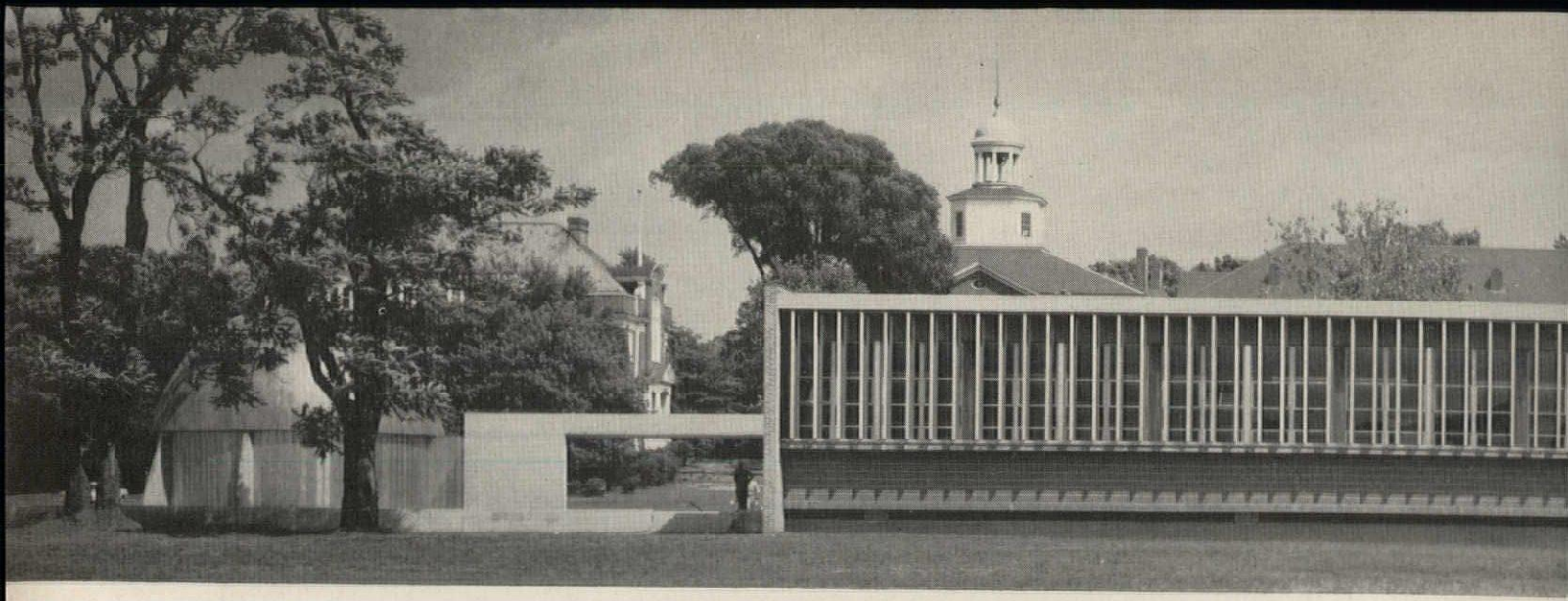
On the left the drawings show the central entrance, lobby, and control desk element, and the relationship of its split-level to the upper lounge floor and lower dining halls; also the upper and lower terraces and roofs. Top, architect's preliminary sketch of the exterior; center, cross-section at the control desk; bottom, a long section through the entire entrance and lobby element. The undulating soffit defines the first floor of the 10-story twin residential towers overhead. A single entrance was required by university officials for reasons of security and control. Individual mailboxes are located here; packages are distributed to students from the desk.

On this page is shown a typical residential tower plan (the lower of two comprising an 83-student "house") with its central two-story lounge. At right are details of a typical double room, with its limestone-clad bay window. Limestone and brick for this building are in keeping—in color, scale, and character—with the existing Collegiate Gothic structures.

Architect Weese says, "Bay windows make each room more than an institutional hole-in-the-wall, the bay becoming an eyrie from which one can look out over trees and roofs in three directions."

Each room has carefully fitted closets, a picture molding, and a continuous shelf for books or gadgets. A full size room mockup was furnished and tested; it had also an adjustable ceiling. Resultant ceiling height was set at 7 ft 8 in. The floor is plastic tile; flush doors and woodwork are birch; walls are painted plaster; ceilings are painted exposed concrete which was poured against plastic-coated forms





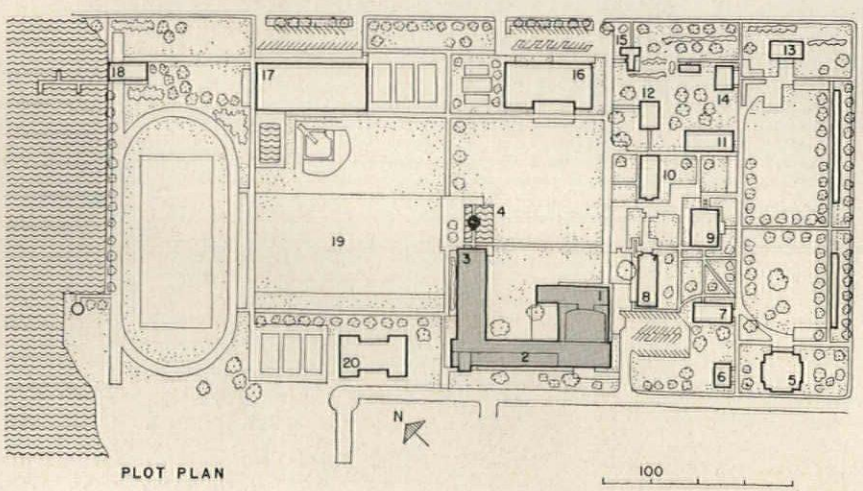
College Buildings: St. John's

SCIENCE AND THE ARTS IN A VENERABLE SETTING

The architects were presented here with the challenge of designing an auditorium, music department, and science laboratories for St. John's College (a new bulk almost double that of existing campus construction) in such a manner that the new, large structure would not "take over" the campus and would unobtrusively harmonize with the Georgian Colonial buildings already there. St. John's, with a present enrollment of 300, was founded in 1696, and is a neighbor of the U. S. Naval Academy. Appropriately enough, the new red brick and flagstone building seems to achieve a scale and character sympathetic to the older buildings, and does so without making any concessions to the ideology of modern architecture.

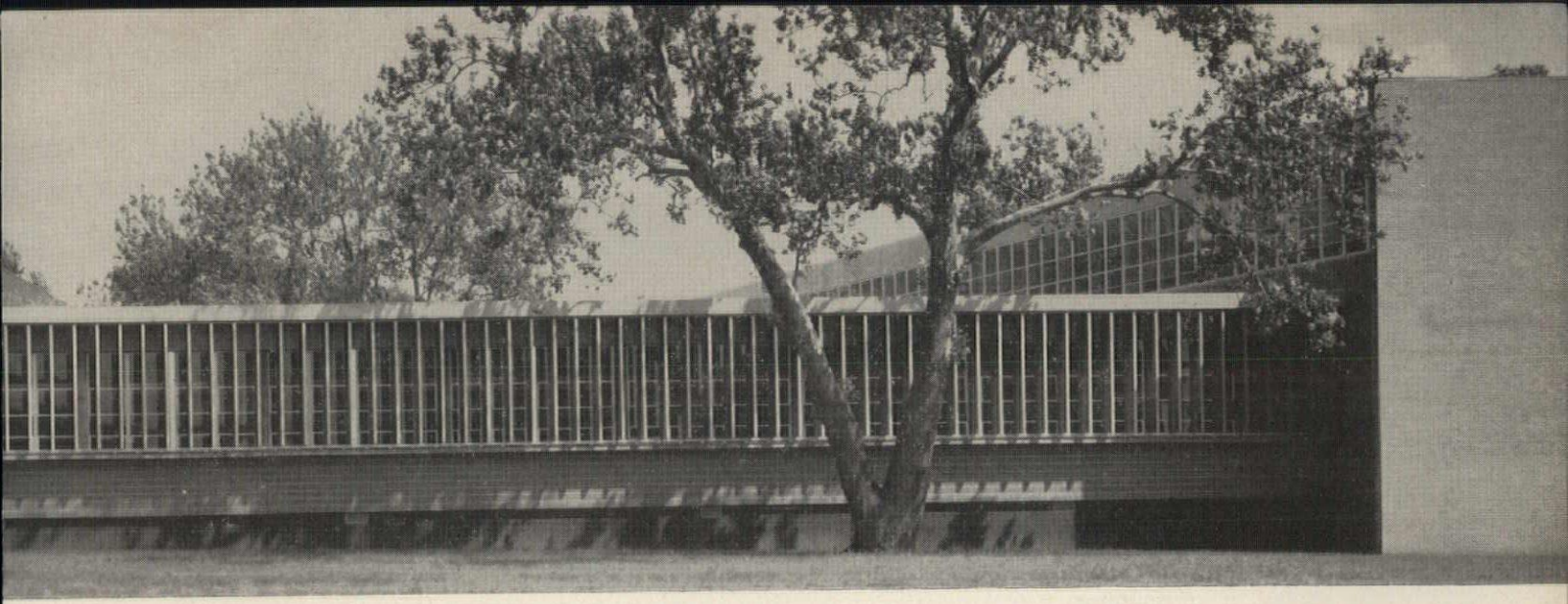
Architect Neutra says, "There is great stimulation in meeting the most advanced thinkers of the day in old colleges, and in witnessing them teaching modern science which is far removed from the horizons of former centuries in buildings constructed in those bygone days. We have discussed and tried to grasp and express this faith in values that transcend mere historic or modish relativities."

The Francis Scott Key Auditorium, the Mellon Laboratory, the McKeldin Planetarium, St. John's College, Annapolis, Md. Richard J. Neutra & Robert E. Alexander, Architects; Cochran, Stephenson & Wing, Resident Architects. Parker, Zehnder & Associates, Structural Engineers; Boris M. Lemos, Mechanical Engineer; Earl L. Holmberg, Electrical Engineer. Baltimore Contractors, Inc., General Contractors.

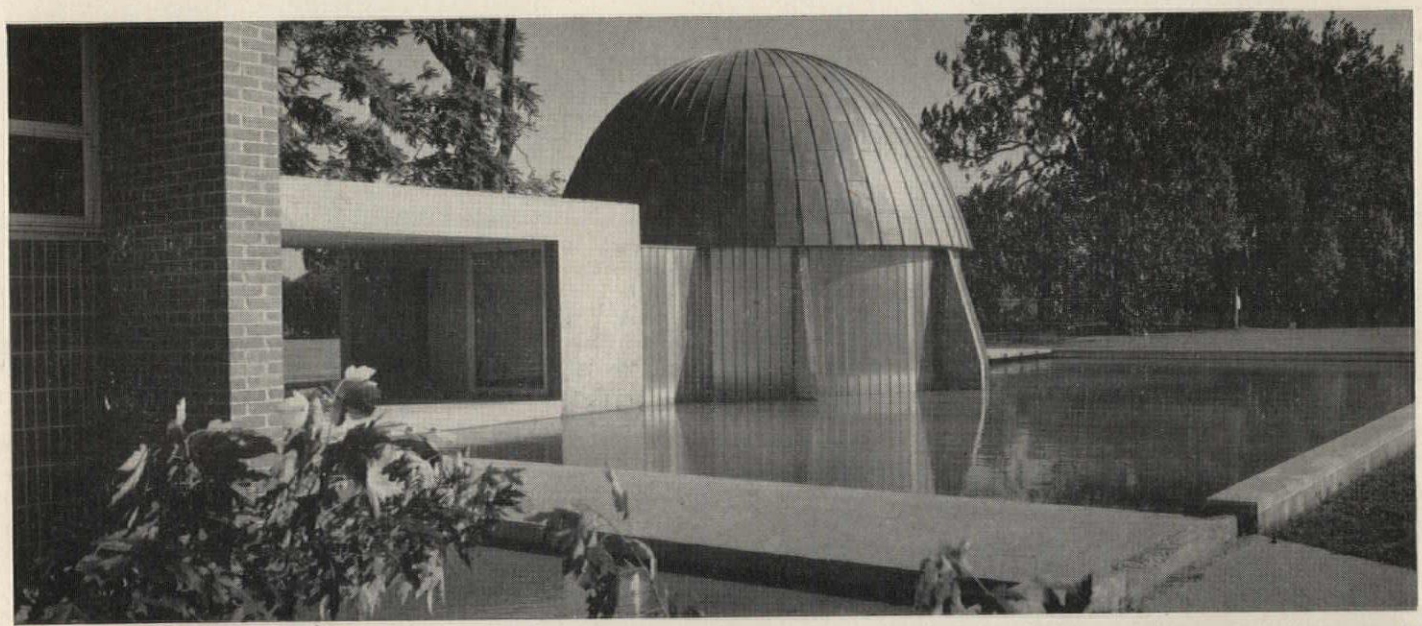


PLOT PLAN

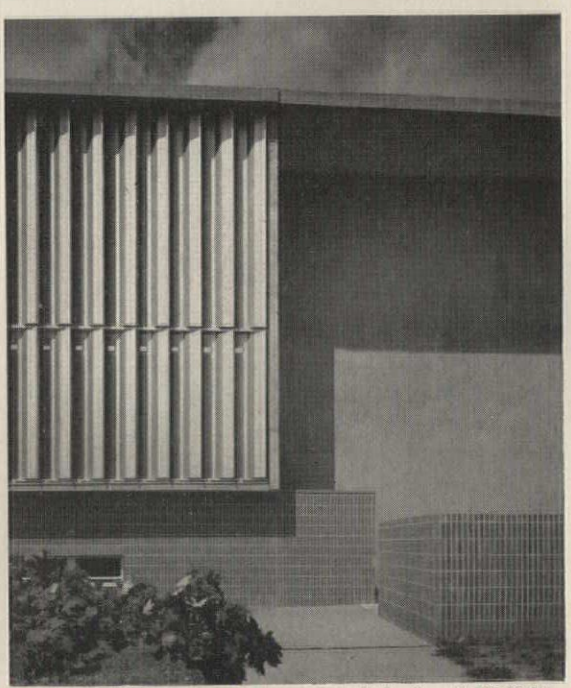
1. Francis Scott Key Memorial Hall
2. Music and Fine Arts
3. Science
4. Planetarium
5. Hall of Records
6. Carroll House—Dormitory
7. Humphreys Hall—Present Science
8. Campbell Hall
9. McDowell Hall—Main Building
10. Randall Hall—Dining
11. Pinkney Hall—Dormitory
12. Future Dormitory
13. Woodward Hall—Library
14. Chase Stone House—Dormitory
15. Davis House
16. Iglehart Hall—Present Gym
17. New Gymnasium
18. Boat House
19. Playing Fields
20. Steam Plant



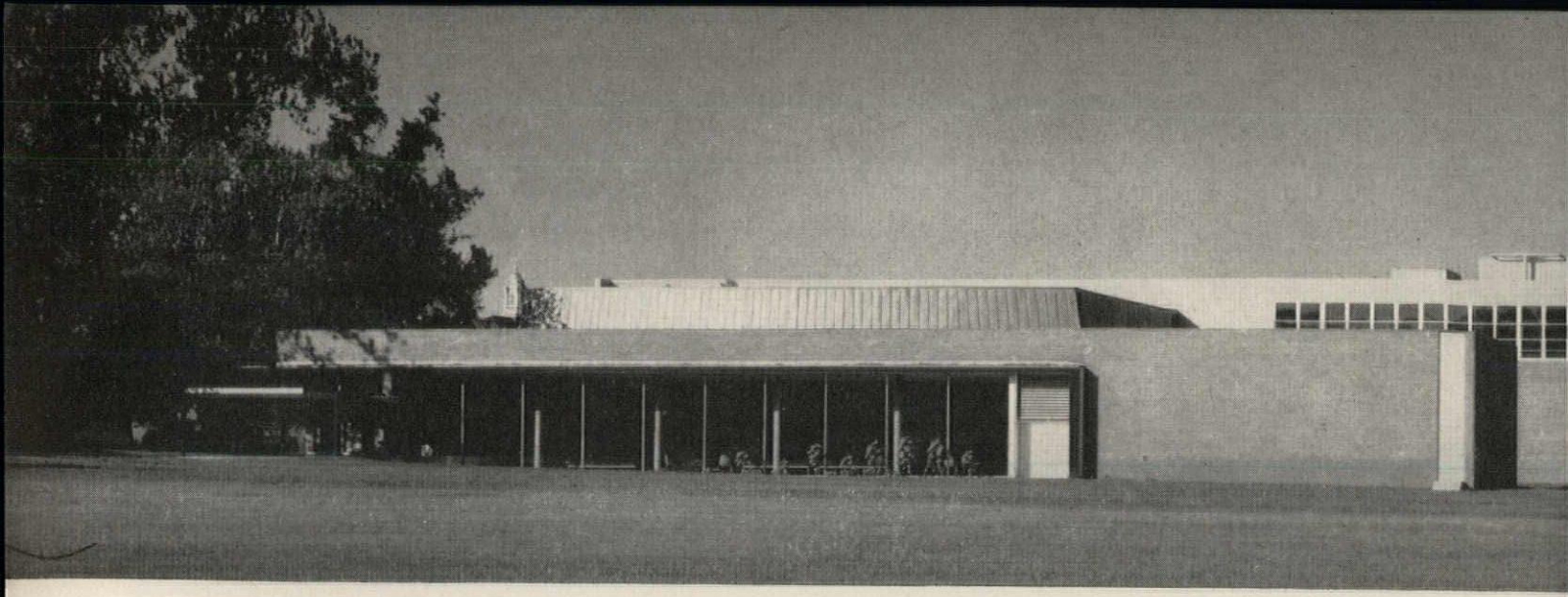
Above: the science wing, which terminates in the planetarium at the far left, shown also in the picture immediately below. *Below*: two views of interesting exterior texture patterns, showing the play of light and shade on louvers, brick, glass, etc.



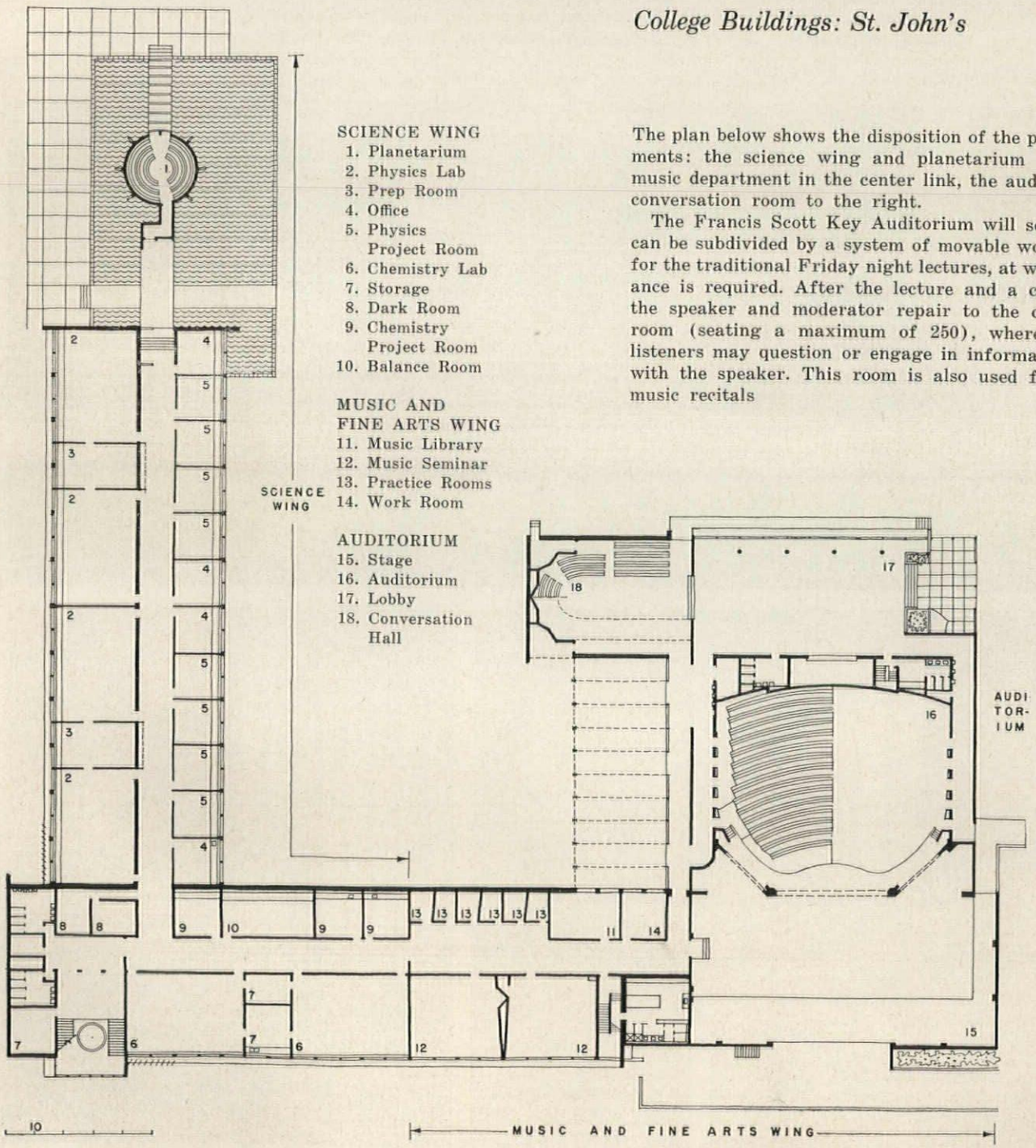
M. E. Warren



All photos (except as noted) by Joseph W. Molitor



College Buildings: St. John's



SCIENCE WING
1. Planetarium
2. Physics Lab
3. Prep Room
4. Office
5. Physics Project Room
6. Chemistry Lab
7. Storage
8. Dark Room
9. Chemistry Project Room
10. Balance Room

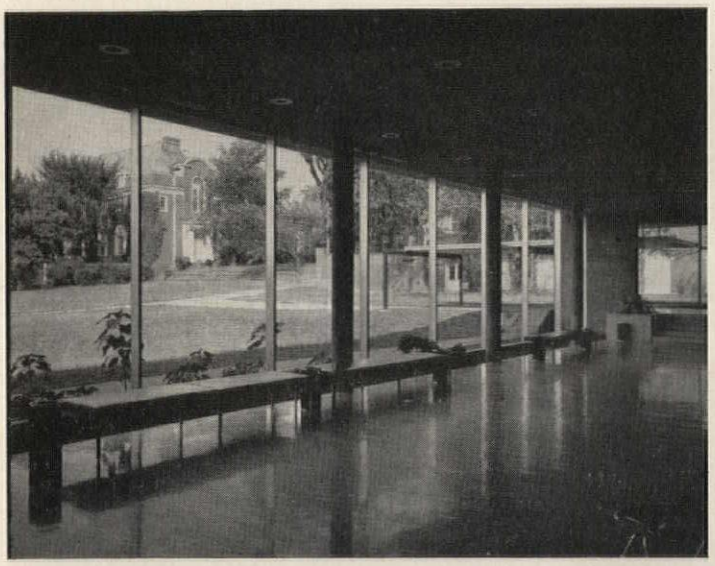
MUSIC AND FINE ARTS WING
11. Music Library
12. Music Seminar
13. Practice Rooms
14. Work Room

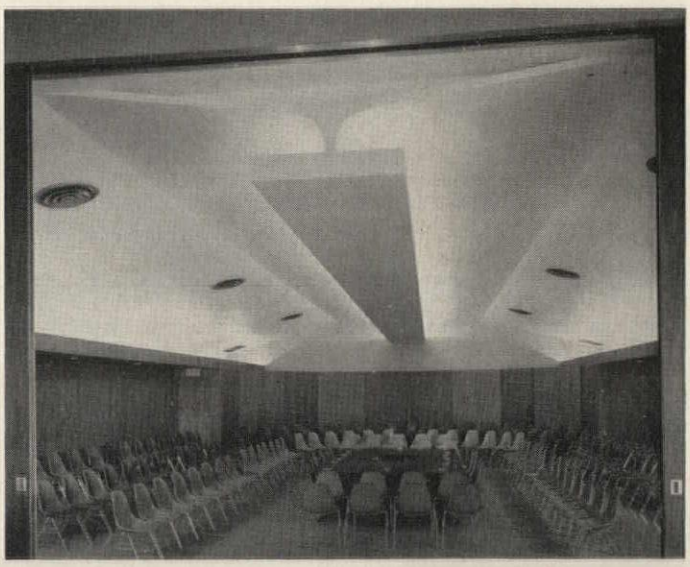
AUDITORIUM
15. Stage
16. Auditorium
17. Lobby
18. Conversation Hall

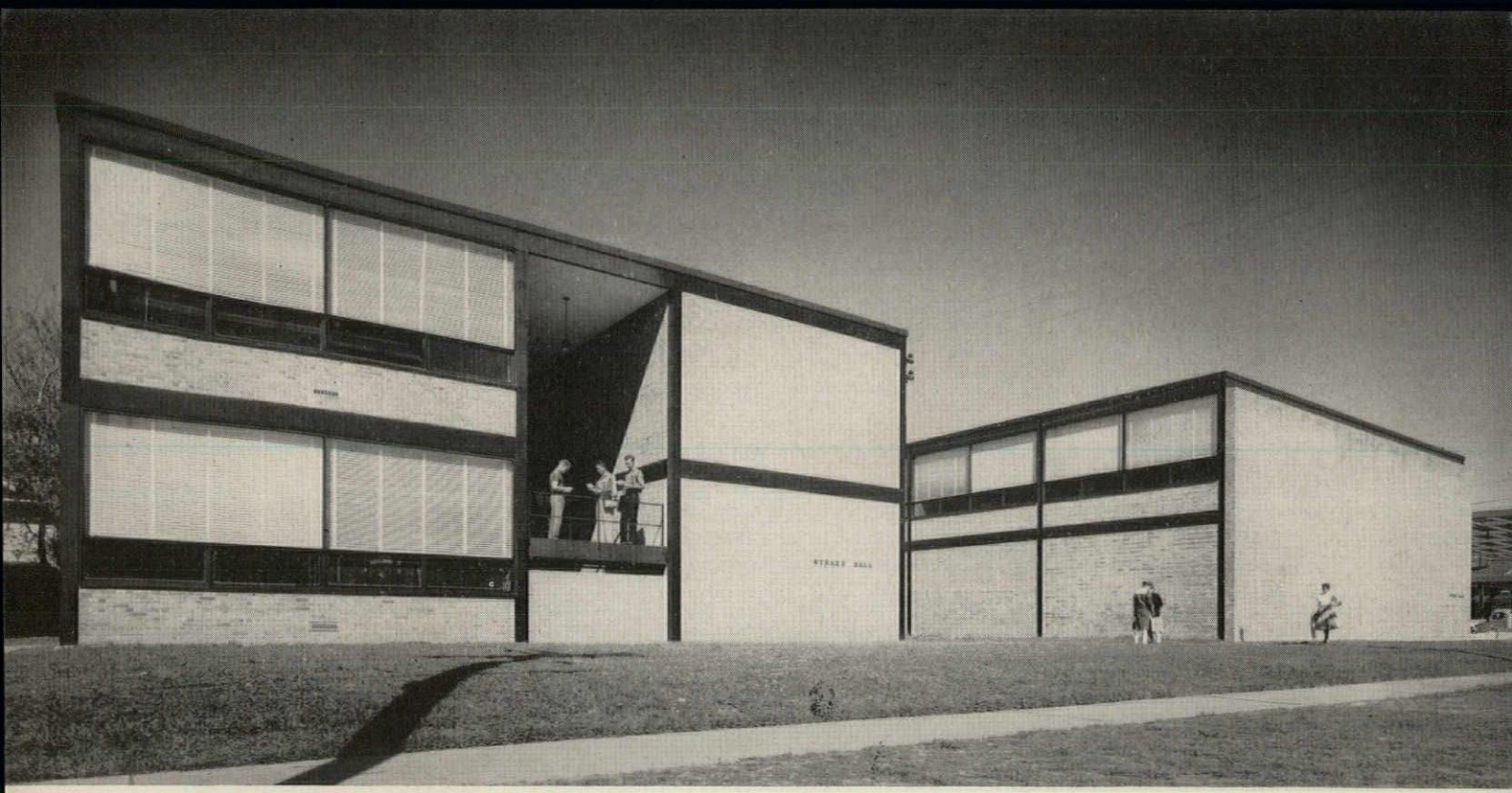
The plan below shows the disposition of the principal elements: the science wing and planetarium at left, the music department in the center link, the auditorium and conversation room to the right.

The Francis Scott Key Auditorium will seat 600, but can be subdivided by a system of movable wooden baffles for the traditional Friday night lectures, at which attendance is required. After the lecture and a coffee break, the speaker and moderator repair to the conversation room (seating a maximum of 250), where interested listeners may question or engage in informal discussion with the speaker. This room is also used for chamber music recitals

Above: Elevation from the northeast, showing the auditorium entrance at left, planetarium at right. *Below*, top left: the auditorium lobby, with a view of the old campus through the glass. Top right: the conversation room. Bottom left: The Foucalt Pendulum, dropping 40 ft., is a replica of one devised by that French physicist in 1851 to demonstrate the earth's rotation. Bottom right: the auditorium has continental seating







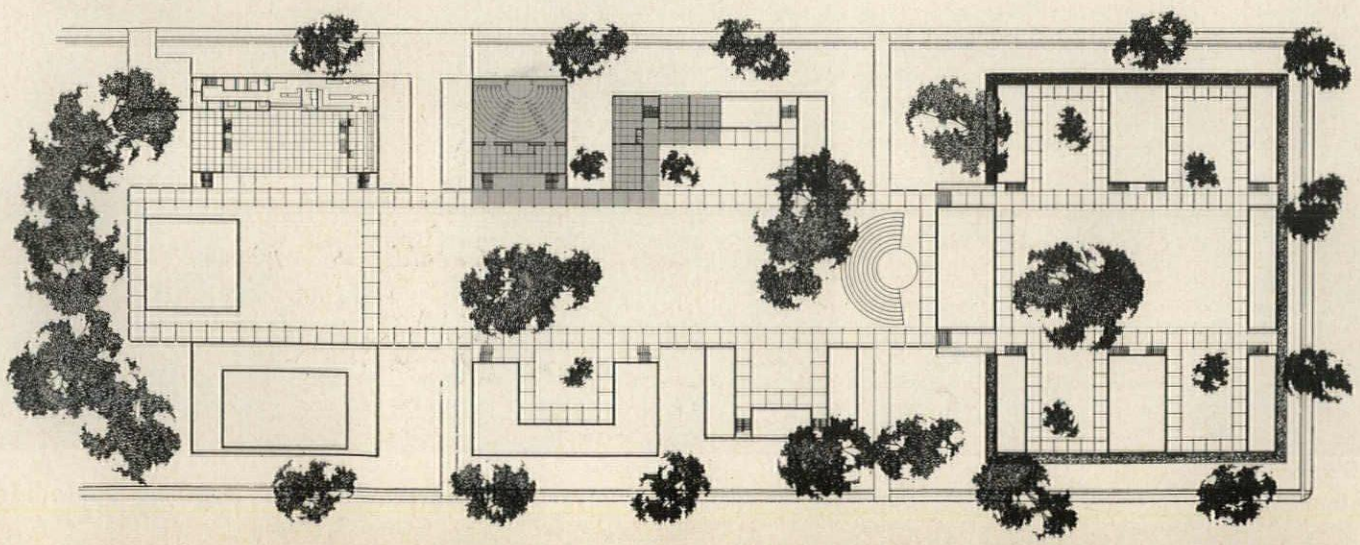
College Buildings: St. Thomas

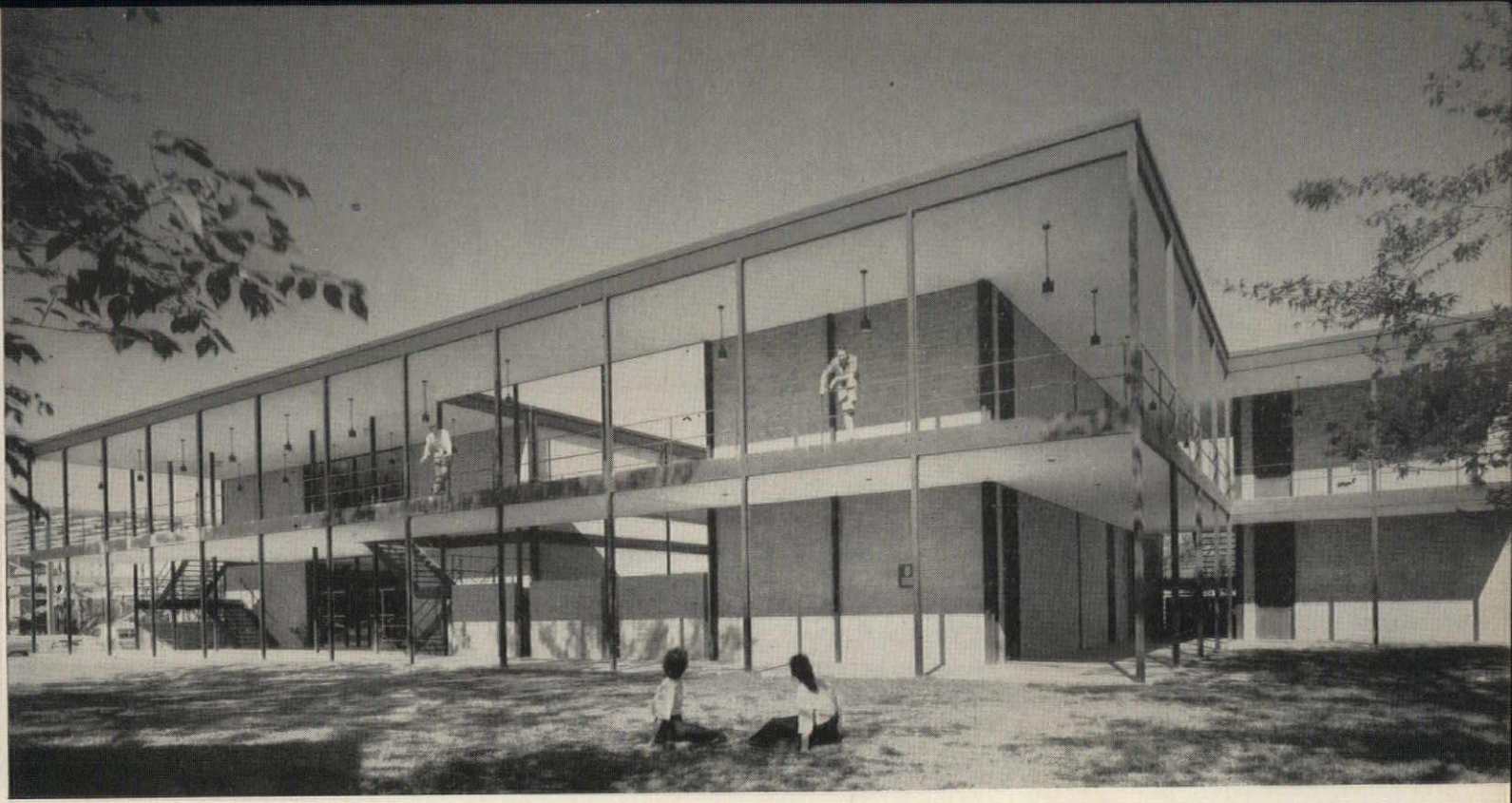
FIRST UNITS IN THE FABRIC OF A CLOSED CAMPUS

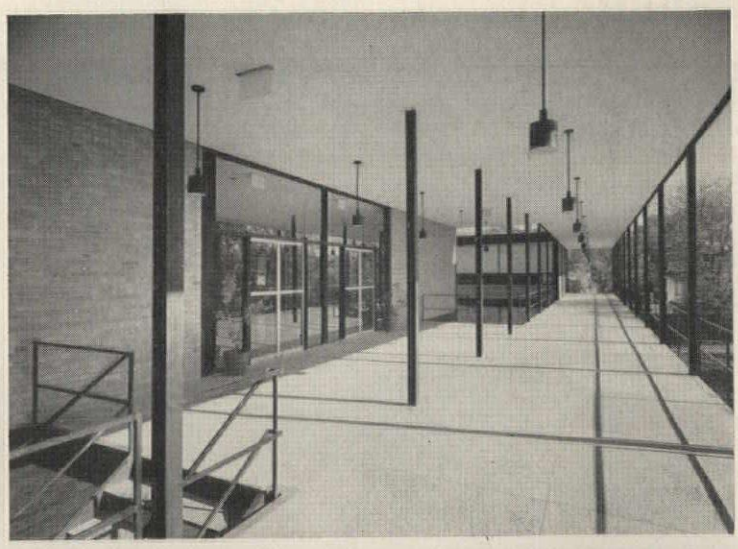
These two buildings—an assembly-fine arts hall and a classroom building—are the first units to be completed at St. Thomas University as that school develops its building program. They are shown as toned areas in the master plan below. The entire scheme follows a 10-ft-6-in. modular pattern that should give the entire university scale and unity.

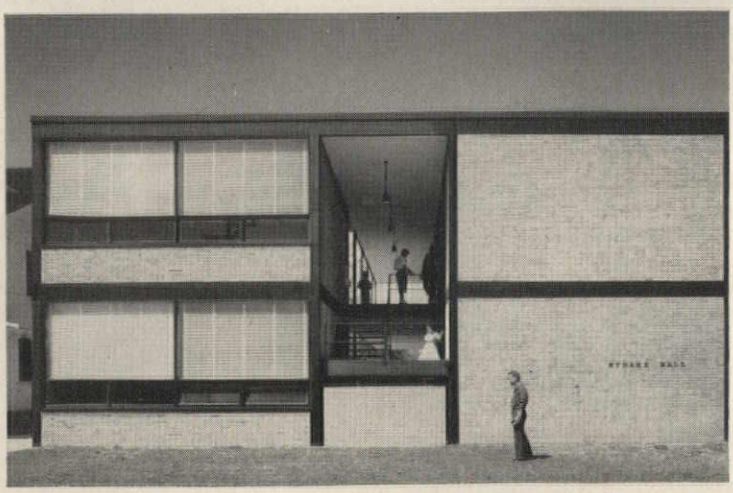
Of the master plan, Architect Philip Johnson says, "St. Thomas is a formal design that consciously follows Jefferson's University of Virginia plan as a model; but has a less open character. There will be an inner cloister walk connecting all the buildings and the complex will be built within and against a cityscape. With all the buildings facing inward to the sheltered walk, the campus proper will form more of a 'green street' than a typical American campus. The strong sense of community which should result is the same sense of cohesion a cloister gives a monastery."

Classroom Building and Assembly-Fine Arts Building, University of St. Thomas, Houston, Texas. Philip Johnson Associates, Architects; Bolton and Barnstone, Supervising Architects. Severud-Elstad-Krueger, Structural Engineers; Fred Dubin, Mechanical Engineers. Robert E. Smith Co., General Contractors.

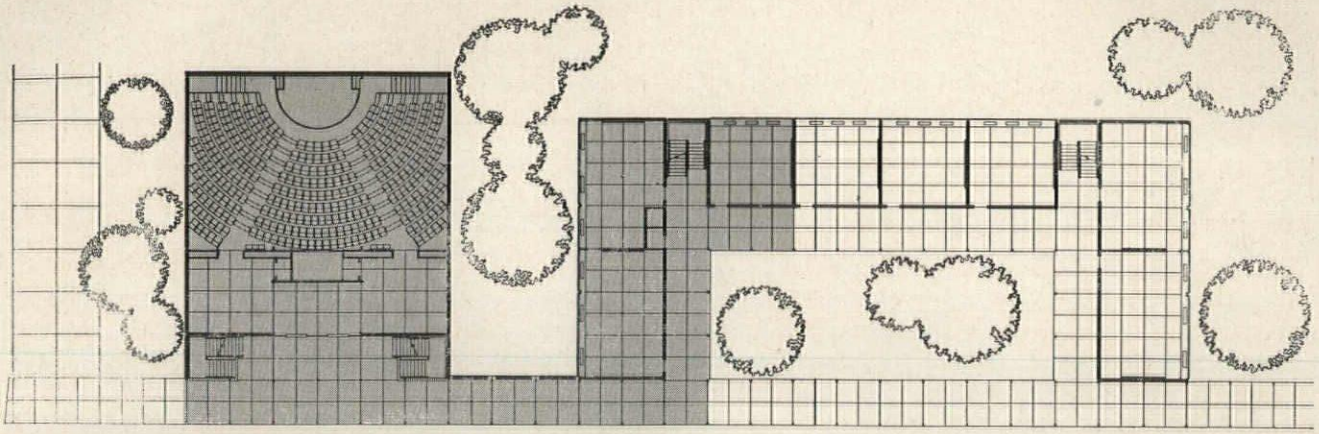


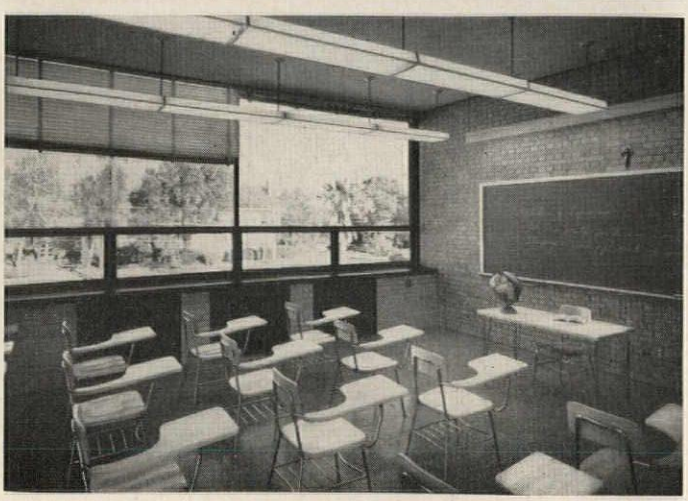






All photos by Frank Lotz Miller





Pictured in the photographs, reading from top to bottom: the lobby of the assembly-fine arts building; the 350-seat, amphitheater-like assembly hall; and a typical classroom.

The exterior and interior exposed steelwork is painted charcoal gray; the soffits are plaster; the walkways are concrete. Brick infilling is of the speckled type, pink in color. Interior floors throughout are of white terrazzo with white bronze divider strips; interior ceilings are finished with acoustical tile, except for the fine arts gallery over the assembly hall

All photos by Ben Schnall

College Buildings: Vassar

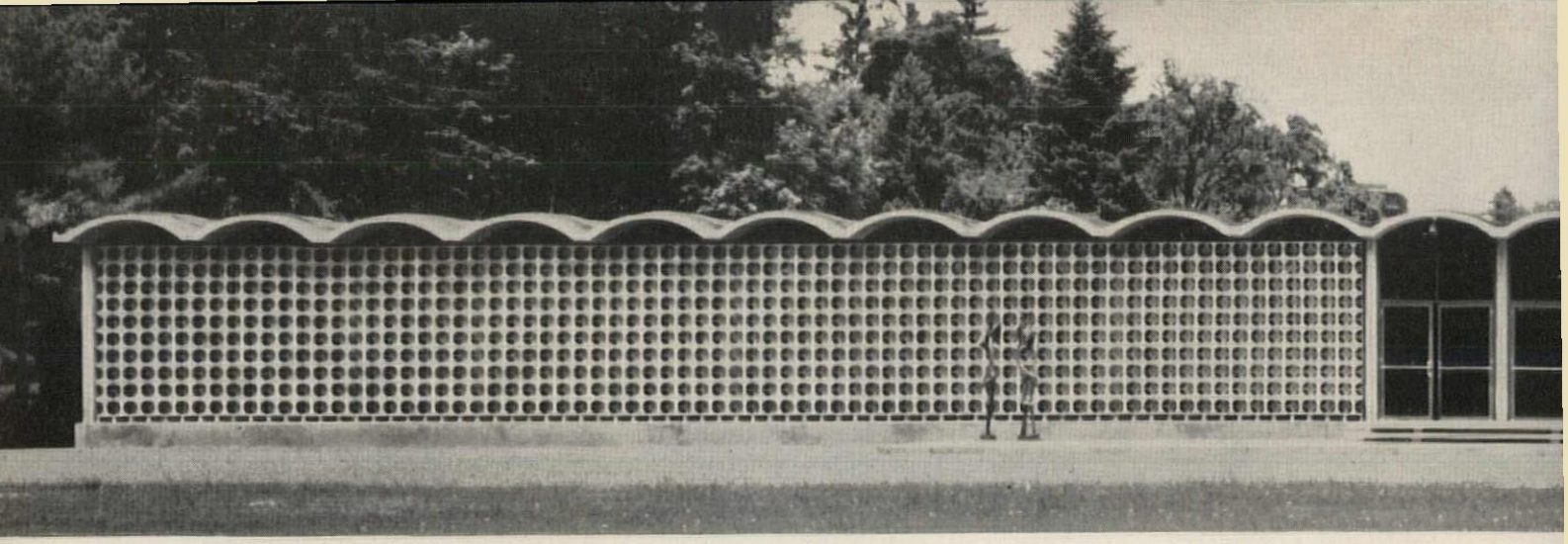
NEWEST NOTE IN THE HETEROGENESIS OF VASSAR

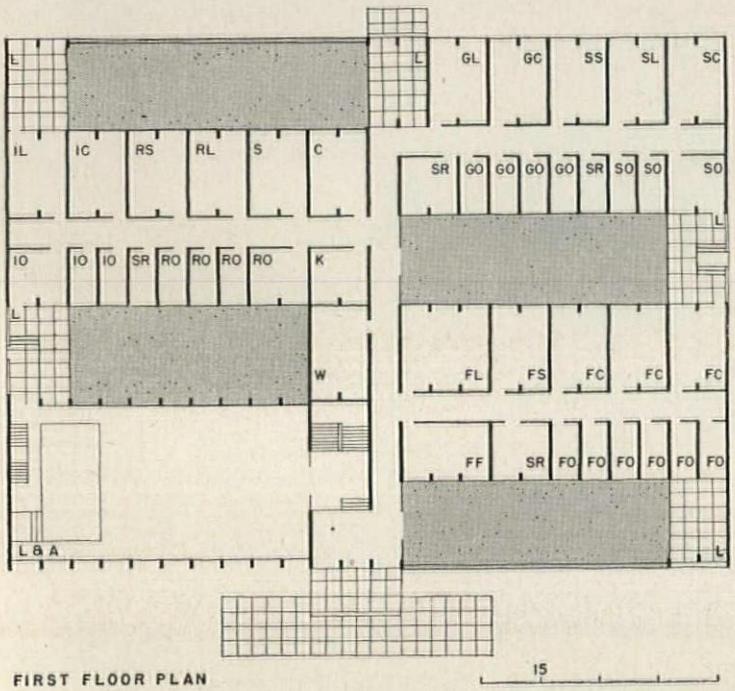
There is something to be said for the varied architecture at Vassar, which bespeaks growth and change; which faithfully mirrors the evolution of collegiate building design on all sides. There is a different kind of expression here for nearly every generation: Renwick Victorian, Neo-Classic, Georgian-Colonial, Collegiate Gothic, and the New Architecture—1950 Breuer plus the very latest Saarinen and Schweikher.

The long, low horizontality of this foreign language center—gracefully expressed by the undulating line of the roof vaults—contrasts intriguingly with the vertical line one so often feels as he looks about. But, on the other hand, there is a kindred horizontality (and an almost similar scale) in Breuer's dormitory, not far away. It will be interesting indeed to see the *next* architecture at Vassar!

Concrete has been used in Chicago Hall for structure, finish, and decoration. The walls are block; the slabs become the floors; and the roof vaults remain unfinished as the ceilings.

Chicago Hall, Vassar College, Poughkeepsie, N. Y. Paul Schweikher and Winston Elting, Associated Architects. Frank Klein, Structural Engineer; Samuel R. Lewis & Associates, Mechanical Engineers; Elliott Kone, Audio-Visual Consultant. Campbell Building Co., General Contractors.





FIRST FLOOR PLAN

L&A. Lounge-Auditorium
L. Loggia
W. Work Room
K. Kitchen
S. Seminar Room
C. Classroom
SR. Supply Room

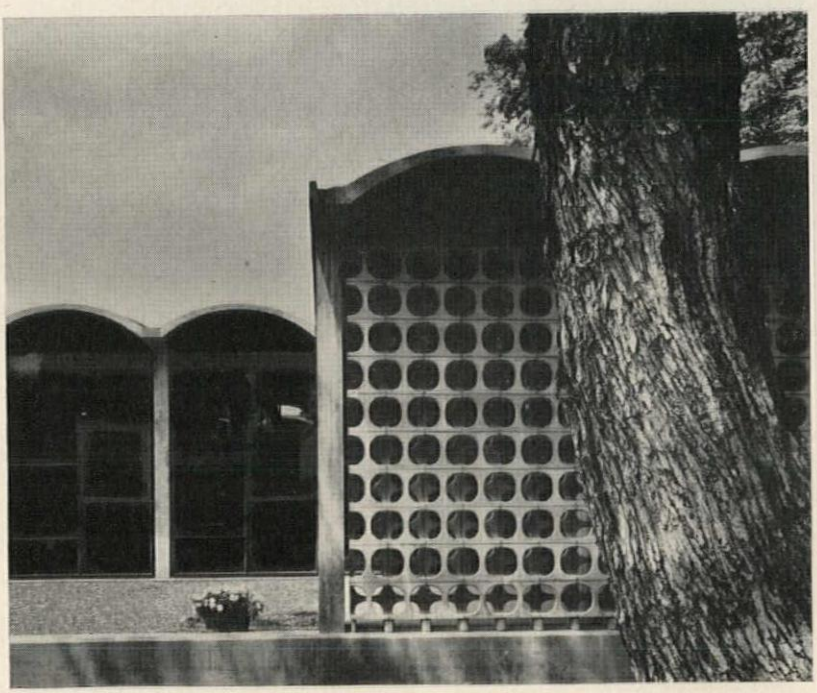
ITALIAN SECTION
IL. Language Center
IC. Classroom
IO. Offices

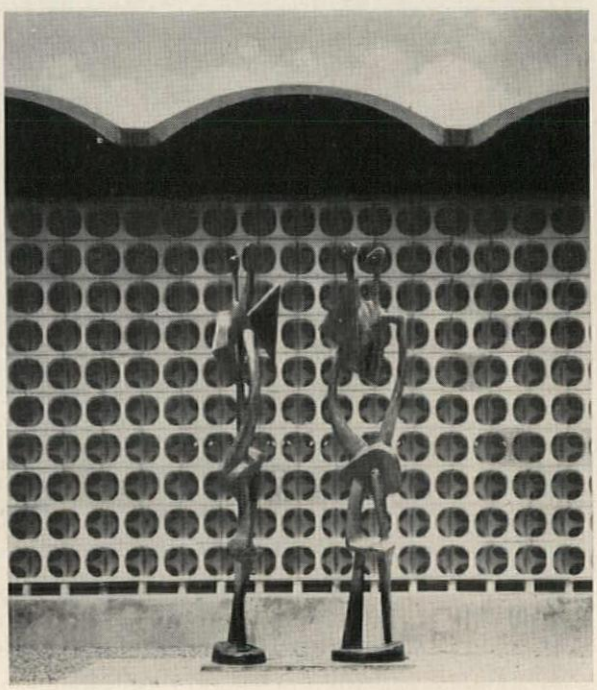
RUSSIAN SECTION
RL. Language Center
RS. Seminar Room
RO. Offices

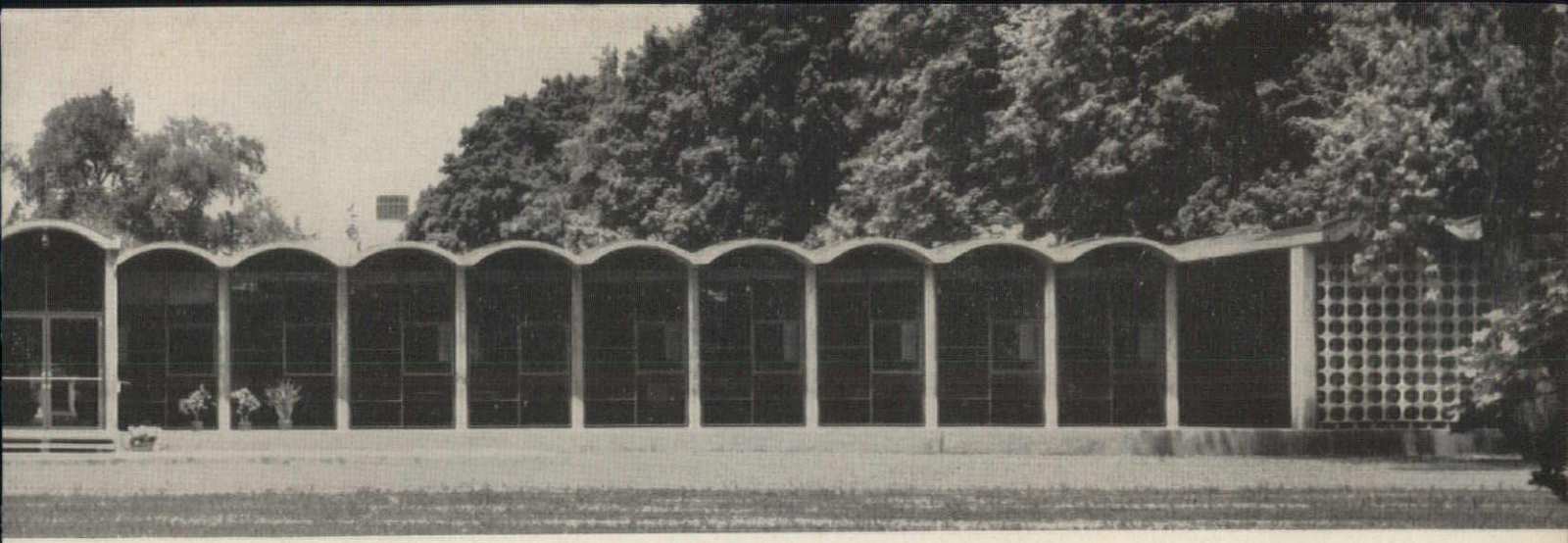
FRENCH SECTION
FL. Language Center
FS. Seminar Room
FC. Classroom
FF. Faculty Room
FO. Offices

SPANISH SECTION
SL. Language Center
SS. Seminar Room
SC. Classroom
SO. Offices

GERMAN SECTION
GL. Language Center
GC. Classroom
GO. Offices

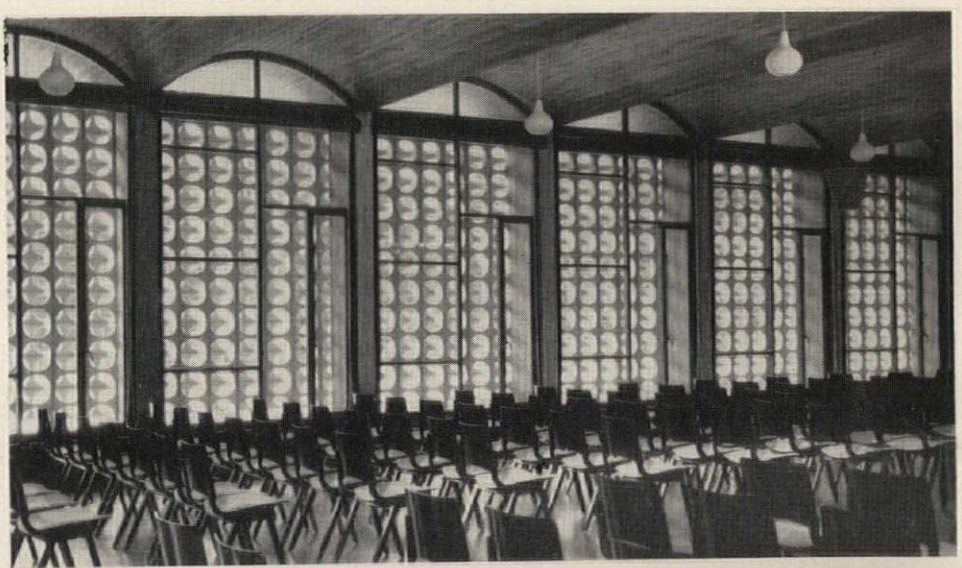


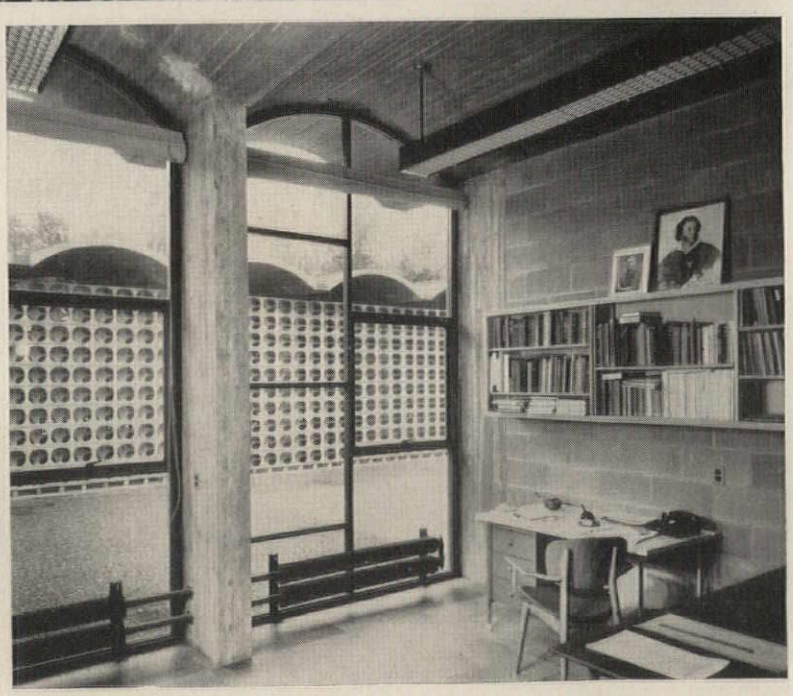


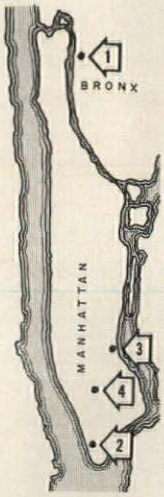


The decorative concrete block screen, designed by sculptor Erwin Hauer, is a principal visual feature of the building, inside and out. This ingenious, precast unit creates a pattern in two planes, and its complexity of light and shade looks especially well against the severity of its architectural frame. The bronze sculpture of Henry Moore (*opposite page*) and the Calder stabile (*page 183*) serve with great effect to enhance the building.

Below, reading clockwise from the top left: the entrance hall; the auditorium lounge; a typical classroom; a faculty office







1

2

College Buildings: NYU

NATION'S LARGEST UNIVERSITY

New York University—largest in the nation—is matching its size with a building program that calls for 35 million dollars worth of construction in one year! Seven buildings will be built: two will be ready this fall, one will begin in December, the other four are well under way. The university's 14 schools, colleges, and divisions are located at seven centers in Manhattan and the Bronx; the new construction will add facilities at four places.

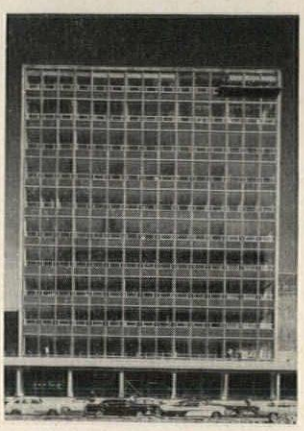
Architect Marcel Breuer, with Hamilton Smith as Associate, has designed four buildings for the University Heights campus in the Bronx which were started in May, and are pictured on these two pages. They are: a hall of technology, a lecture hall, a residence hall, and a community dining hall-lounge building. Their aggregate cost will run about 6.3 million.

3

At the NYU-Bellevue Medical Center—just south of the United Nations Headquarters—ground will be broken in December for the new 19-story University Hospital, which is expected to cost about 20 million. It was designed by Skidmore Owings & Merrill.

In the downtown financial section another SOM design is rapidly nearing completion—the 10-story Graduate School of Business Administration, which will be called Nichols Hall.

Architects Harrison & Abramovitz designed the nearly completed 10-story Loeb Student Center at Washington Square, situated at the foot of Fifth Avenue in midtown Manhattan. A preview follows.



4

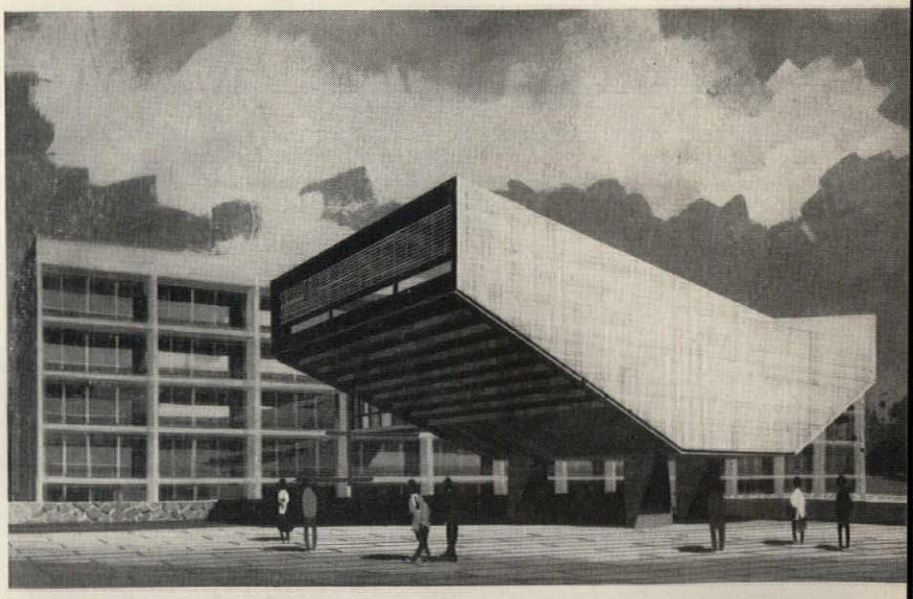
CONSTRUCTING SEVEN BUILDINGS

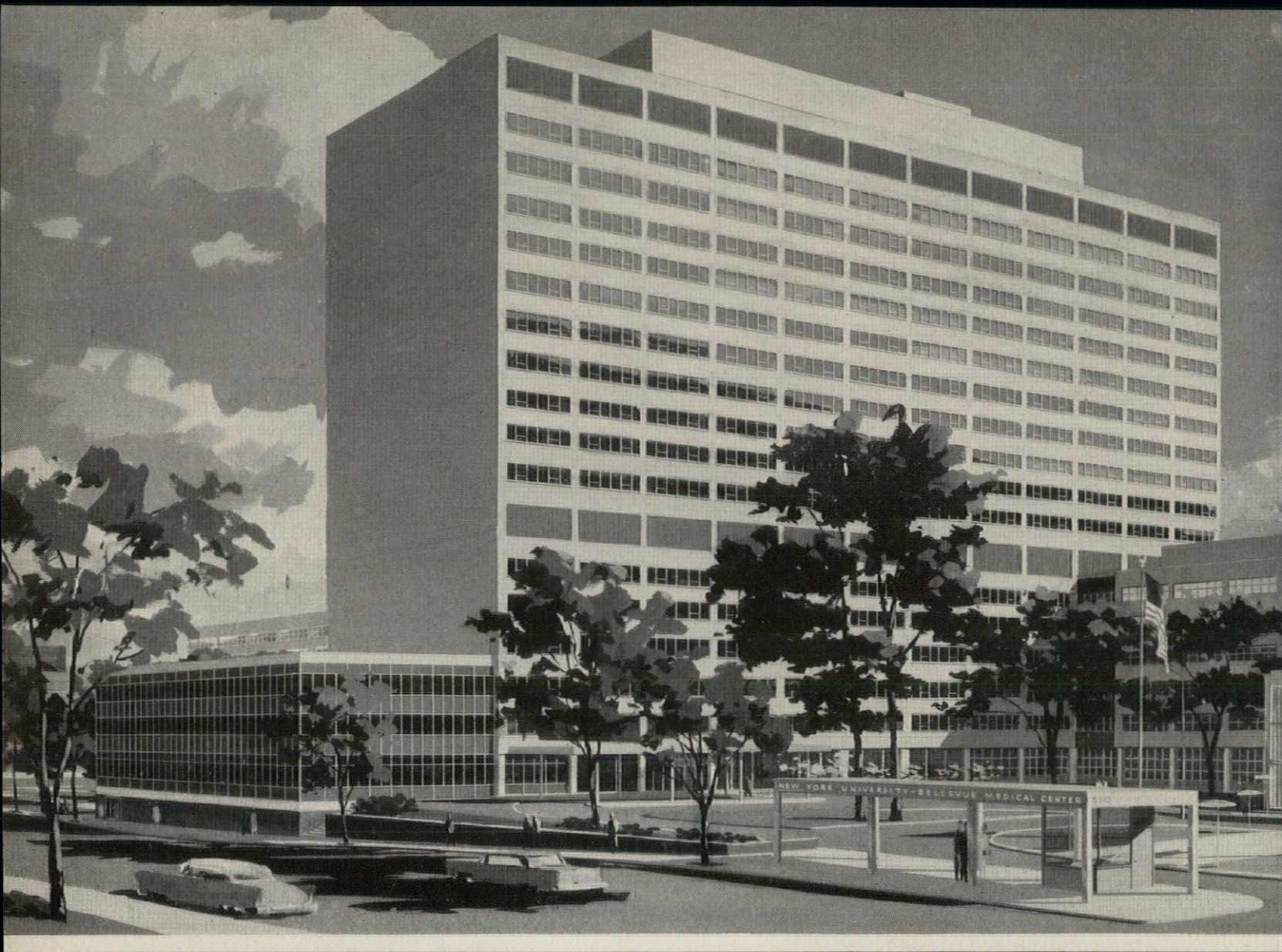
1. Four Buildings For The University Heights Campus

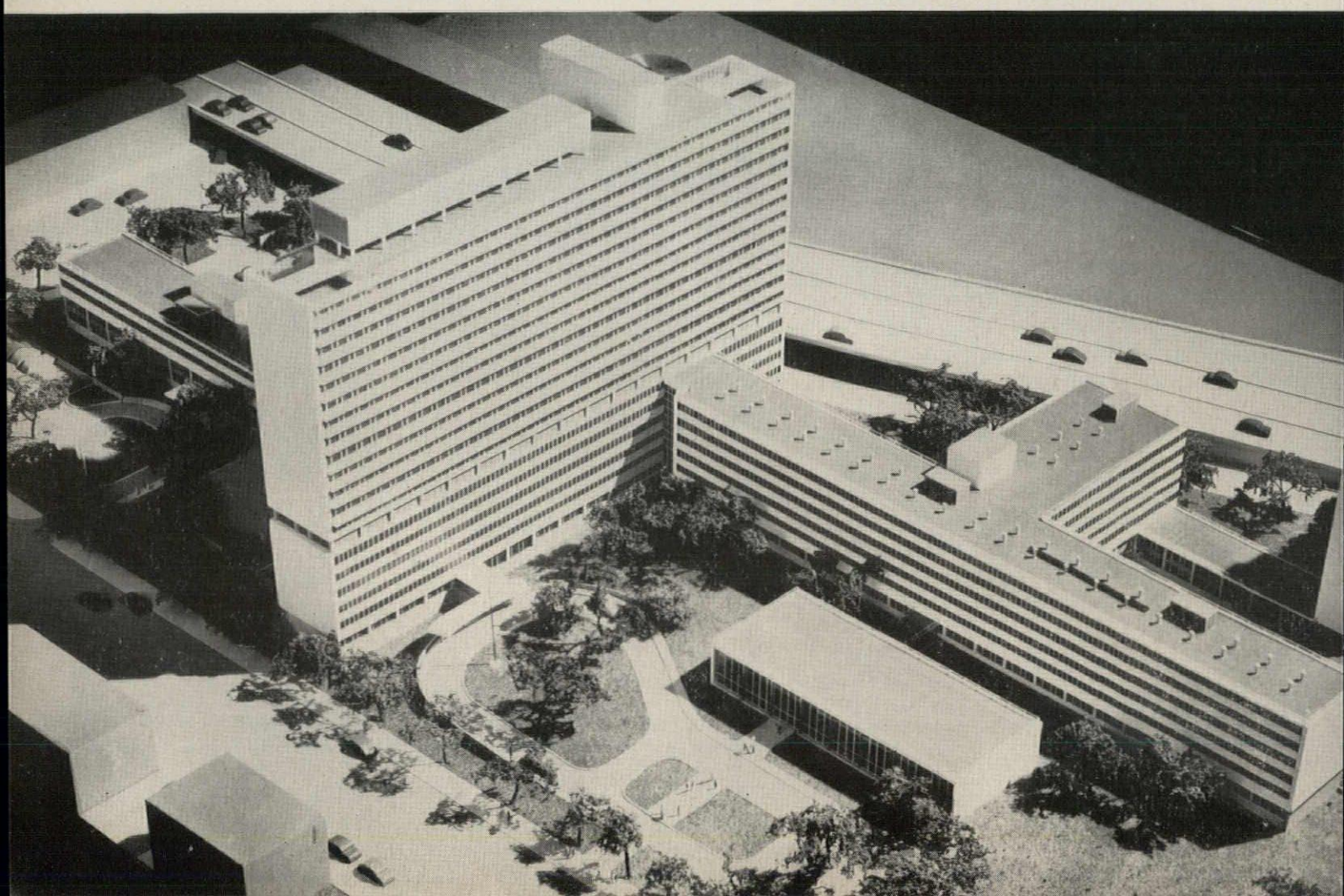
There are several points of unusual interest in the design for this four-building complex now under construction at NYU's Bronx campus. The dormitory—far left in the model photo below—is for both men and women. Rigid division and control will of course be maintained, but flexibility of division between the sexes has been achieved architecturally by the provision of readily movable partitioning in the center portion of the building on each floor. Note also the separated entrances, consisting of bridges leading to the dining commons and recreation building, immediately left of center in the model photo.

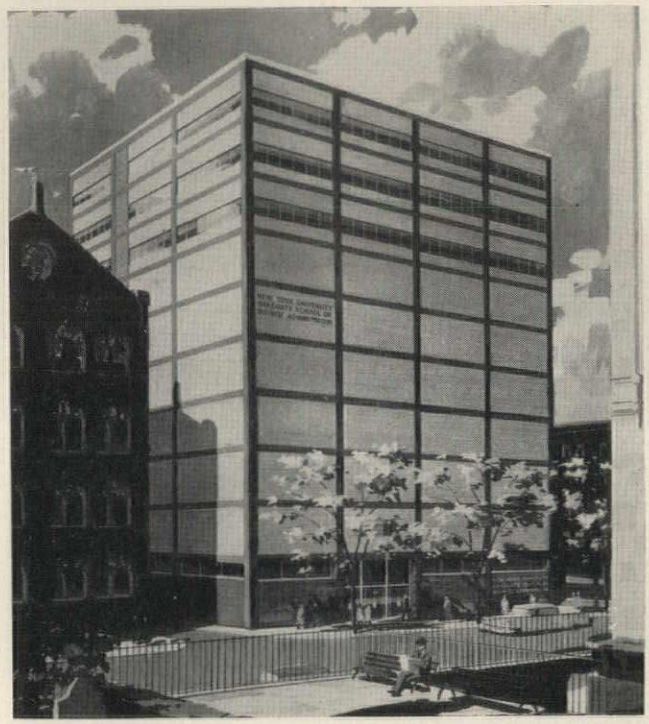
The unconventional, canted, and cantilevered lecture hall, right, is another interesting and typically Breueresque touch. It has been made a separate element removed from the technology building, far right in the model photograph, so its bulk would not disturb the basic 4-ft modular regularity of the tech building it serves.

Marcel Breuer, Architect; Hamilton Smith, Associate. Weisenfeld, Hayward & Leon, Structural Engineers; Jaros, Baum & Bolles, Mechanical Engineers. Caristo Construction Co., General Contractor.




NEW YORK UNIVERSITY-BELLEVUE MEDICAL CENTER





2. Windowless Classrooms in NYU's New Graduate Business School

Located in the heart of New York's financial district, this new 10-story, gray brick and dark cast-stone business school will feature six floors of windowless, air conditioned classrooms. In addition, the structure will contain a two-story, 70,000 volume library (with windowless reading room), a bookstore, snack bar, lounge, dining room, and auditorium with seating for 500.

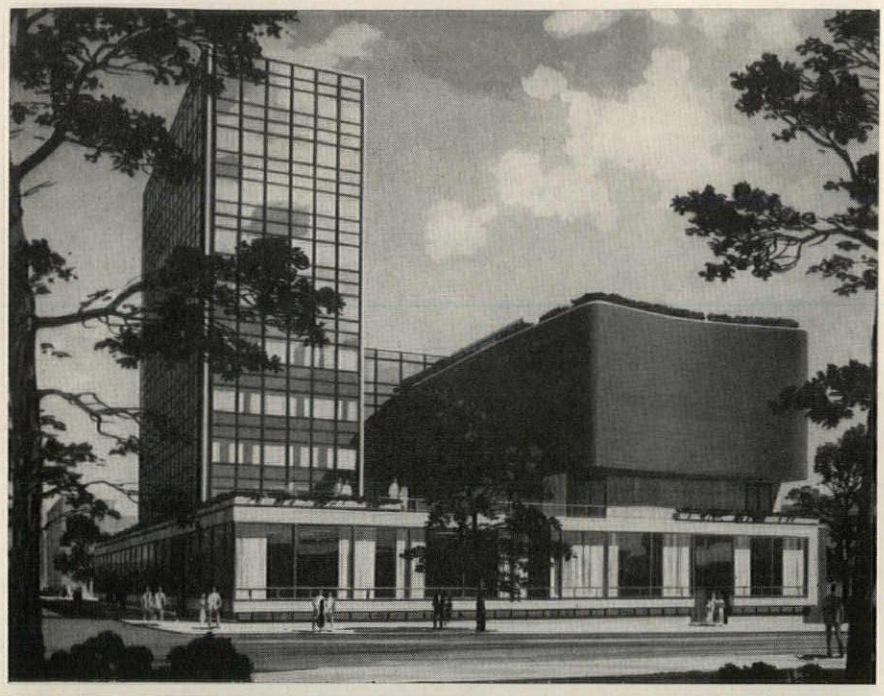
Nichols Hall, the NYU Graduate School of Business Administration. Skidmore, Owings & Merrill, Architects. Seelye, Stevenson, Value & Knecht, Consulting Engineers. Paul Tishman Co., Builders.

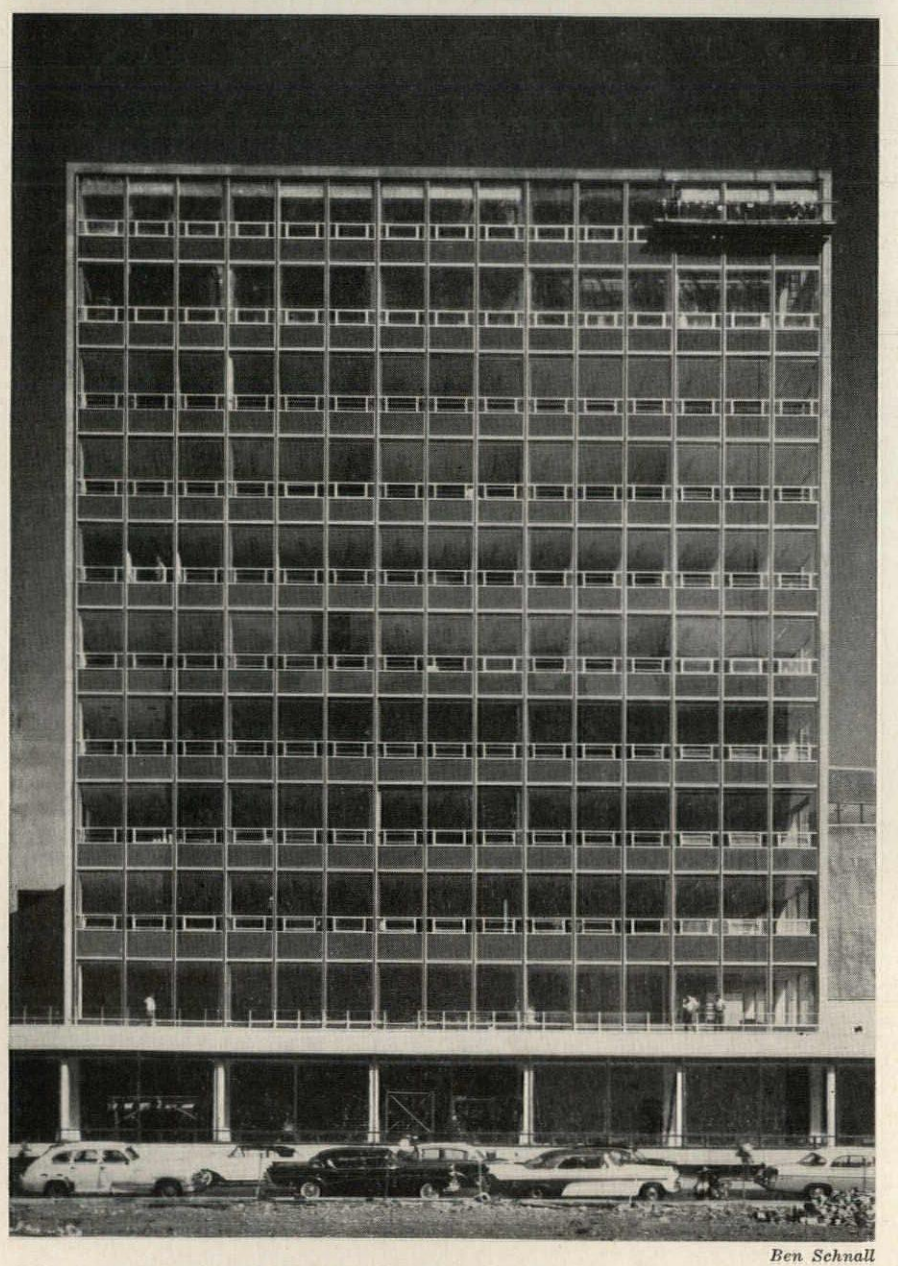
3. Last of Six Units Will Complete Medical Center

With University Hospital (top left) definitely scheduled for construction late this year, completion of the NYU-Bellevue Medical Center is in sight. The entire complex is shown in the model photo at left. The 19-story hospital will be connected at seven levels with the medical college.

The completely air conditioned hospital will be of the teaching and research type. Patients will come from middle-income families, as opposed to those at Bellevue, a public institution. The rooms—singles, doubles, or 4-bed—can be rearranged at will for maximum flexibility in use.

University Hospital, New York University-Bellevue Medical Center. Skidmore, Owings & Merrill, Architects. Seelye, Stevenson, Value & Knecht, Structural Consultants; Syska & Hennessy, Mechanical Consultants; Moran, Proctor, Mueser & Rutledge, Foundation Consultants.





Ben Schnall

4. Red Brick, Stone Glass, and Aluminum

At the edge of Greenwich Village on Washington Square South, this new student center will be ready for use this fall. Its rectilinear 10-story, glass, and aluminum tower contrasts interestingly with its lower, irregularly shaped, red brick auditorium wing to make an attractive composition.

The building contains lounges, terraces, meeting rooms, offices for student organizations and publications, dining and recreation facilities, an auditorium to seat 1000, and multi-purpose space for student functions and events.

Loeb Student Center, New York University. Harrison & Abramovitz, Architects. Edwards & Hjorth, Structural Engineers; Jaros, Baum & Bolles, Mechanical Engineers; The Office of E. E. Ashley, Electrical Engineers. Caristo Construction Company, General Contractors.

THE ARCHITECT'S ORBIT OF INFLUENCE

by John Noble Richards, F.A.I.A., President, The American Institute of Architects

Given the space age, what are the dimensions of the architect's orbit in it?

This is no question to be answered by feeding mathematical data into an impersonal electronic computer. The answer will be written by the architect himself, because he will determine in great measure the extent of his own orbit of influence. He will determine whether it will be limited to a tight circle around his own drafting room and his clients' conference tables, or will be expanded to make the influence of the architect felt in the far reaches of activity where the shape of things to come is being formed.

We cannot minimize the importance of maintenance and strengthening of professional standards, the importance of the endless process of learning that is part and parcel of the practice of architecture, the importance of development of new talent and the importance of the many other intra-professional matters which engross us in our contemplative hours.

But all that architecture can give will not be taken if we only say, in effect, "we are ready with the talent and the perception if you will but use us." Too often when that offer is taken the basic decisions that govern shape and form have been made.

More than offering architecture, we must aggressively sell architecture, not just as a service, but as a basic factor in consideration of all aspects of building. We must make architecture as fundamental a consideration as water and utility lines.

That word "selling" grates harshly on some ears. All right, call it education. The end result is the same—an increased awareness of the vital ingredient that only architecture can provide.

Build we must in the years ahead. The arrival of a new American every seven and one half seconds . . . cities slowly strangling in their own traffic . . . advances in productive technology coming so fast they tread on each other's heels . . . a population of ever-increasing mobility and leisure . . . and many other factors, obvious to us all, insure that we must build.

But whether we build well or poorly will depend on the extent to which the voice of architecture is heard and heeded.

We cannot depend on the voices of a few leaders in the profession, however impressive their stature, to make the necessary impression and penetration. The voice of architecture, to be effective in the face of the challenge of tomorrow, must be the collective voice of all architects, everywhere.

The voice of architecture must be raised, individually and collectively, in practically every area of activity in our society. The architect, that man of many hats, must don still another headgear, that of the missionary. If we fail to do so, then we must concede the unthinkable—that architecture is not the instrument with which to open man's eyes to new vistas, but is only the reflection of the norm of contemporary taste and awareness. In this concept the architect would have to surrender the role of leadership, the role of master builder, and content himself with hoping that there will be others who will assume those tasks for him.

Certainly we did not enlist in the long and taxing apprenticeship, we did not accept the obligation of continual creative growth, only to earn that niche in the social structure, to accept that limitation on the service of architecture to society.

And with equal certainty we cannot say that the world of today and tomorrow is such as to deny us assumption of the role for which we have prepared ourselves in training and in practice of our profession.

There is a strong and growing awareness today that in our society, with its demonstrated capacity to give more and better tools of living to more people than any other economic and social structure ever built by man, there is something wrong. For years the automotive industry has contended vigorously that the car of ever increasing size, ever fancier non-functional decor, ever larger horsepower and gas consumption, represents the taste and the demand of the consuming public, and that contention has been supported by consumer survey after consumer survey. Today the American automotive industry prepares to market a smaller car, along the lines of the imports that have penetrated the American market.

This evidence can be multiplied many times in observations in everyone's experience. The commuter wonders why he has to spend a good portion of his lifetime on a train in order to enjoy home life in good surroundings. The city council ponders meeting the cost of municipal government when a decaying core of the metropolis saps tax revenues, and increases the burden of government service. The residents of the ill-planned segments of suburbia struggle with flooded basements and find the "spacious" split-level is really cramped and confining, because it was designed for selling and not for living.

No architect can contemplate the American scene today and the problems and tasks of the foreseeable

tomorrow without a feeling of frustration and a sense of insufficiency. And no architect can take refuge from those feelings with the assurance that the things we see were not of our doing. We can't fly over a poorly planned, monotonously designed housing development . . . we can't pass by an industrial building that stands as a monument to lost design opportunities, without feeling a sense of responsibility for them. If our profession does not share in the responsibility through commission, we can feel a sense of omission in that architecture is not doing all that it could do.

This task of selling, or educating if you will, is truly a staggering one. There are 13,500 A.I.A. members in the United States. Currently there are some 171 million other people. The student body far outweighs the faculty in numbers. But we must assume that in that mass of people there lies the generating force that creates both problems and opportunities. This proportion is not limited to clients, actual and potential. The ordinary citizen as a voter, expressing his support or disapproval of the policies and practices of office holders, of school and institutional levies . . . as a customer setting acceptable standards for the highways, streets and stores he uses, for the housing he buys . . . in his support of community efforts to remake our cities and towns . . . in all these areas and more this ordinary citizen influences the shaping of the circumstances under which architecture makes its contribution to society.

Soul searching, healthy in this or any age, should include a probing of the architect as an individual, should include a study of our knowledge of the nuts and bolts technique of bringing a concept of what architecture is and what it can do to those people whose awareness is so important a factor in the tasks that are the responsibilities and the opportunities of architecture.

But we have been skillful in developing the nuts and bolts technique of bringing out from people, on many occasions singularly non-communicative people, the real uses and needs of projected construction that guide us in the most effective use of the art of architecture in the creation of those structures. Surely we can master the practical ways and means of bringing awareness of architecture to people.

The areas in which architecture can be brought to people are far removed from the Cathedral at Chartres. They lie in the luncheon clubs, in the Community Chest drives, in public service. Every one of us should periodically re-evaluate his personal participation, not just token participation but real contribution, to community life. Is our orbit only that familiar one of our workshops, our professional associations and clients? Are we in too tight an orbit? Do we know enough people and do enough people know us?

Knowing more people gives us the opportunity to talk to more people . . . about ourselves. Here again a little self-study is indicated. How do we talk to people? Do we use terminology the average man outside our field can understand?

In the realm of community service do we wait to be called upon for participation? Architects must take the initiative at every suitable opportunity.

And where words fail, visualization can do the job. The four-color illustration of the convertible with the pretty girl sells more cars than the technical data on torque and compression ratio. The latter is what the car is, the former is the bright promise of what the owner can have.

In my home city of Toledo and in numerous other cities, groups of architects on their own time have developed design and models of what can be done to revitalize and remake downtown areas. In this civic contribution there is the companion result of education as to what architecture is and what it can do in terms of the world in which people live and work.

Architects can broaden their sphere of influence by taking all the work they can possibly handle. These will include jobs that are troublesome and taxing far out of proportion to the return. But they help us tell more people of architecture.

Home building is a field architecture temporarily lost, to a great degree through default. Yet this field contains a major potential for increasing the force of architecture at the base. Working with a home builder on the drawing board or in the field may not be the most rewarding activity and it is not likely to get you international recognition. But in it you will have exerted the influence of architecture to a greater degree than in a single noteworthy office building.

Understanding of other people looms large in any personal inventory of an architect. We can't find the root cause of the factors that obstruct growth and development of our towns and cities until we understand the fears, the motivations—frequently selfish—the political forces and the multitude of other factors that make people act and react the way they do.

Understanding involves more than knowledge. It implies the willingness to make an effort to correct misunderstanding . . . to adjust differences . . . to find the way around obstacles. Understanding means the architect is a friendly, cooperative person with whom to work in community affairs, not an oracle who brooks no contradiction.

We cite as the ultimate in irony the fact that a nation which talks confidently of shooting men to the moon cannot solve the problem of getting a man from his home to his job without hours of wearisome travel in congested traffic.

Equal in irony would be the acceptance of the fact that a group of trained, creative people could not find ways to bring their skill and knowledge to its optimum potential in the solution of earthbound problems.

THE NEW MEASURE OF THE ARCHITECT

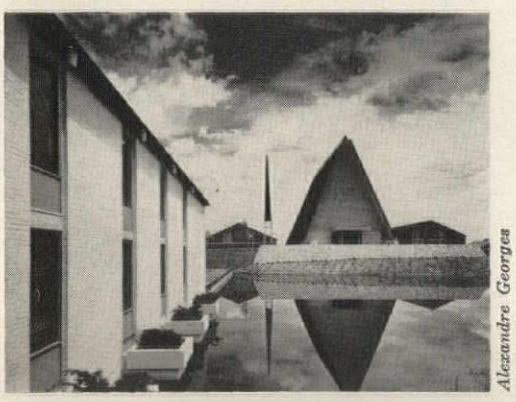
by August Hecksher

Even in the most familiar image, the architect, according to a distinguished lay observer, faces new responsibilities in a wealthy but weary world

I remember, a good many years ago, visiting an architectural school and being surprised to find one of the students busily studying a map of the state of New Hampshire. I assumed he must be laying out a road system, or perhaps contemplating the construction of a great dam. He assured me this was not the case. He was designing a tourist cabin, approximately nine by twelve feet in dimensions.

Until he had contemplated the whole landscape, he explained—until he had surveyed the roads, considered the cities and entered imaginatively into the deeper forces that were affecting the social order—he would not be able to decide what kind of a tourist camp to build. And until the whole camp was in mind he could not design the individual cabin.

The incident has remained with me because it has seemed to represent in an almost symbolic way what is happening to architecture in the modern age. The architect is being challenged to expand his view to take into account factors which previously he had not thought of, or had taken for granted. Beside his blueprint he is being compelled to place a map; and the map comprehends larger and larger areas of human life.



Alexandre Georges

". . . whole new colleges where nothing of the kind stood before . . ."

To a degree this enlargement of responsibility is occurring in all the professions. The doctor today is not a practitioner merely, but in some measure must be a scientist and even a statesman. The scientist, not permitted to isolate himself among his tubes and formulae, must become a citizen.

Once it was the lawyer, and perhaps the lawyer alone, who saw the vital relationships between the seemingly petty precedents he helped establish and the structure of society as a whole. He could feel that the old cases were not dead things; and he could pass naturally, as if by right, from his law office to the legislative forum. Now all professions breathe something of this public air. Their best men are those who can keep, along with a conviction of the job's importance, a clear view of its involvement in the total scheme of things.

■ ■ ■

The architect today should find it impossible to miss the significance of his position. He stands at the center of almost every great development in our society. The changes which are acting most powerfully upon the American people, and which will run dramatically through the 1960's, are within the field of his immediate concern. He will shape some of them; his career will be influenced by them all.

For what affects us most deeply today are not, as I see it, questions which might be called political: the organization and forms of government, the division of powers, the distribution of economic gains. There are, of course, difficult problems in this realm; and the supreme issue of war and peace overarches them all. But more alive than the strictly political questions are those which might be called social. These determine how people live together, what they do with their years, what kind of a moral and material landscape they call their own.

The nature of family life is changing. The nature of our cities is changing. The abundance of leisure time and the abundance of material wealth are giving the people new, and sometimes rather frightening, options. In these various areas, the architect must, whether he chooses to or not, play a major role.

He provides the setting of family life, and the visible substance of cities. By his art he opens before the public new choices as to how they shall spend their dollars and their leisure. In the deepest sense he lays out the paths which will determine, also, how they spend their lives.

■ ■ ■

The functions of the architect today are therefore high and difficult. I suggest four of these, which he not only is able to perform, but which no one else in our society can perform in quite the same degree.

(1) *He is the shaper of the physical environment.* Whether this country in the next decades is to be a land of beauty or of sordidness and ugliness is for him to decide. The actual shape of things is for him to accomplish. There are others who share this burden: businessmen who provide the capital, clients for whom he builds, and of course those in allied fields, such as urban planners and industrial designers, who help create the atmosphere and the style of the time. It is perhaps not necessary to claim for architecture sole responsibility in this field; it is enough to say that its responsibility is very great.

In sheer mass of building the next decades will be unprecedented. One thinks of periods when a country is opened up and settled; one thinks of the vast reconstruction that has followed devastating wars. But in such times building has had to be done hurriedly or skimpily. We, on the contrary, face great enterprises undertaken out of our deliberate

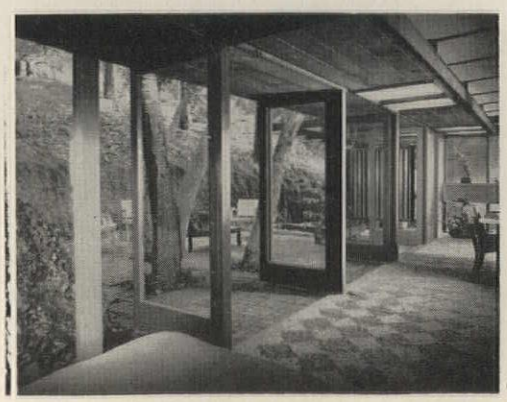
Courtesy Harvard University

". . . but the spaces between them are lovely . . ."

New York Times photo

". . . cities will be torn down and rebuilt . . . they will find it good or evil . . ."

". . . the lessons of space can be taught . . ."



Julius Shulman

choice and performed amid unexampled national wealth.

Schools and colleges will not merely be made over; whole new ones will be created where nothing of the kind stood before. Cities will quite literally be torn down and rebuilt. When men catch their breath again and see the work they have done, they will find it good or ill according to the way the architects have risen to the challenge provided them.

(2) *The architect is the manipulator and moulder of space.* As I have been arguing he shapes *things;* now we must also note how he shapes the relations of things to each other and determines the intervals and emptinesses between them. The enclosure of space is architecture's chief task; the sensations of various degrees of inwardness, the contrasts between bounded and open distances, afford its principal delights.

When that extraordinary exhibition of photographs, The Family of Man, opened first at the Museum of Modern Art, the installation was done by Paul Rudolph. I expressed some surprise that one of the leading young architects should have been called on for this task. There was almost nothing in the way of structure visible: simply the great pictures placed so that one moved among them with continuous sensations of constraint and release. Bancel La Farge, standing near by, answered my surprise. "In modern architecture," he said, "it isn't so much the things themselves that count; it is the space between things."

A few years later, on the campus of a mid-western college, I exclaimed to my host upon the beauty of the place. "We don't really think very highly of our buildings," he said apologetically. (They were in fact rather mediocre nineteenth century structures.) "Perhaps," I answered, remembering Mr. La Farge's brief architectural lesson; "but the spaces between them are lovely." I am afraid my host thought I was being facetious, yet this was not the case.

Now we are coming into a period when the arrangement and organization of space is going to be one of the major concerns of society. For the first time on this continent we are coming up against the problem of crowding. We are learning to know what it is to have space so evenly spread out and distributed, as in the typical suburban development, that in the end no one seems to have space at all. Our city planners cry out somewhat desperately against the blight, and the architect wonders what, in the small compass usually given him to work in, he can accomplish.

The answer it seems to me, is that no matter how small the area, the lessons of space can be taught and exemplified. Gordon Drake's first postwar house, built for himself on a Los Angeles hillside, cost $4500 and contained approximately 600 square feet. Yet

within it he gave form to the dreams of a new and personal architecture which had preoccupied him during the years of active service as a Marine. The sense of limits and of distances; the openness that counts because it is contrasted with enclosure; the mystery of translucence and the almost violent release of unshaded light—all these he combined in one small building. It was his aim to teach as well as to build, and if he had built nothing else this house would have told by itself an important story.

The architect must always teach. Whether he likes it or not his structures speak forth principles and incarnate experience. What men and women feel in their buildings they can seek in their cities. But the buildings must come first. The architect must be the innovator if we are to create—out of crowdedness without escape and emptiness without meaning—something that answers to man's true needs.

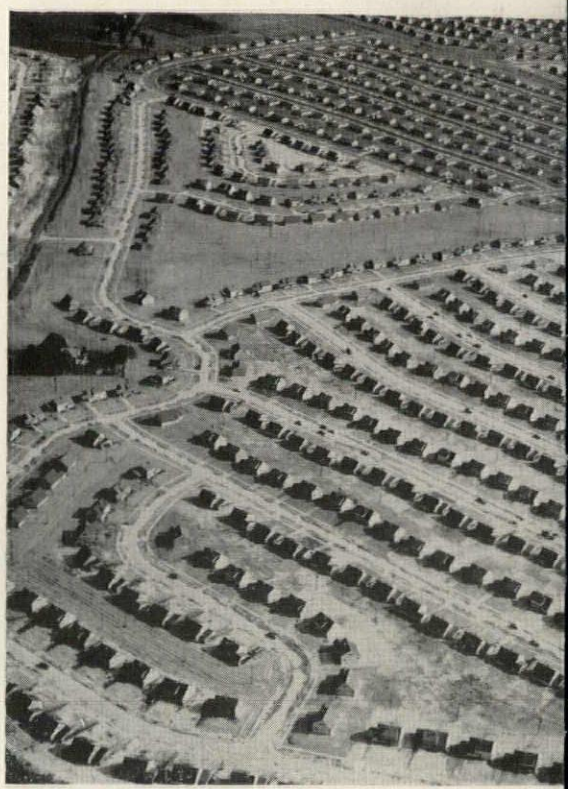
(3) *The architect keeps the balance between the Old and the New.* In other periods it has been the lawyer or statesman who chiefly performed this function in a society. But today the impact of the changing environment is so powerful that it speaks louder than words or than laws. There is a real danger, it seems to me, that we shall lose in several of our greatest cities the contrasts and balances which can make them habitable.

Streets and whole sections are demolished and replaced with dreary acreages of sameness. On the outskirts the bull-dozers remove the vestiges of other periods—including the geological formation of the earth itself—to create one-generation, one-style, one-purpose buildings. A city is agreeable in proportion to the often unplanned combinations and mixtures it exhibits. Its real vitality is exemplified, not by the degree to which it tears everything down, but by the degree to which it makes use of its heritage.

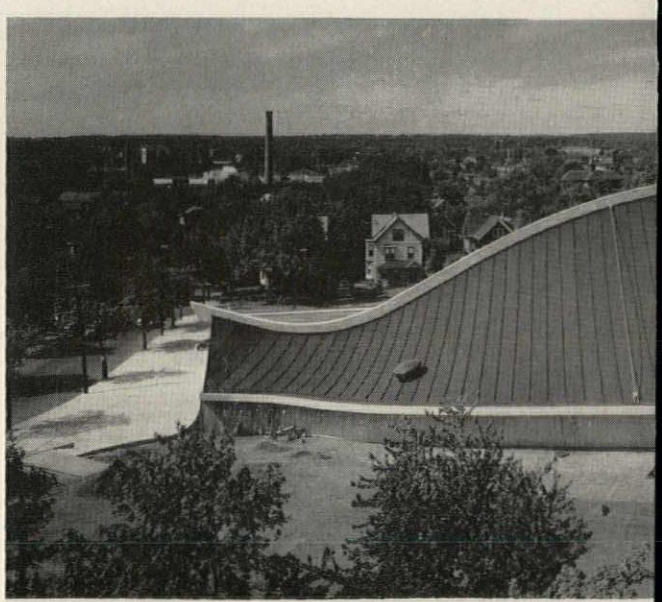
By this latter test, New York shows feverishness rather than vitality. San Francisco is a city which manages to carve out of existing buildings (none of them, it is true, very old) surprising and delightful spaces. Its elegance is the more striking because it seems to spring from a natural soil.

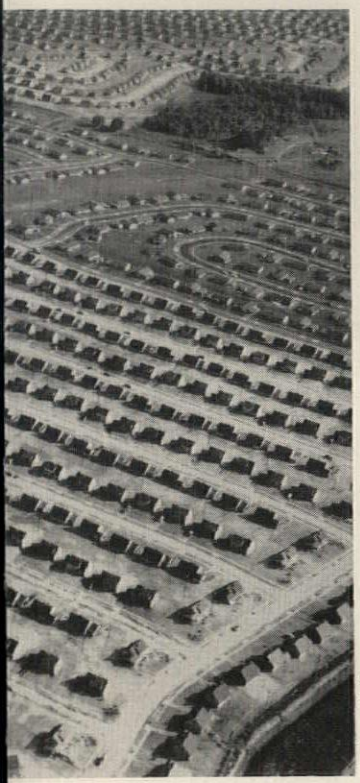
Perhaps I should make plain that in saying that architecture must hold the balance between the old and the new, I am not suggesting a bastard style, a compromise between traditional and modern. I am urging that today's builder should respect, and should use where possible, the old forms; but I certainly mean to imply that the new should be frankly and unapologetically of its own time. Nothing seems more empty than the homage of imitation whether it appears in politics, in literature or in art.

In New York City there is an example of what seems to me a false deference; I cite it because it has received praise from the highest sources of architectural criticism. Canada House, on Fifth Avenue and



". . . replaced with dreary acreages of sameness . . ."





Ewing Galloway

54th Street, stands between a handsome church in the Gothic style (St. Thomas's) and a beautiful building copied from a Renaissance model (The University Club). Avowedly out of respect for these, Canada House was built of limestone, a material which is supposed to harmonize with that of its neighbors. Yet if there was ever a place for a glass tower, reflecting and dramatizing the elaborate and weighty stonework of the Gothic and Renaissance styles, was it not here?

The point about a glass tower is that it does reflect what is around it; the disaster is that it so seldom has anything significant to reflect, and that so frequently it loses its virtues of lightness and brilliance by being set beside other glass towers exactly like it. The builders of Canada House had a chance to make the stone of its neighbors seem more massive, and itself more airy than any similar structure in the city. They failed because they were seeking a superficial harmony and making a misconceived bow to the past.

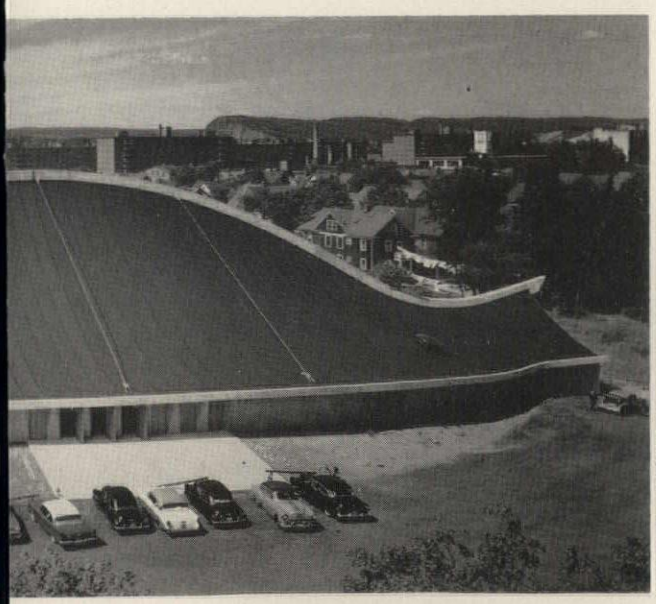
To hold the balance between the old and the new is not easy. The relationships are subtle, and a spirit neither of undue reverence nor excited innovation can provide the key. Yet the health of the social order will be measured in the end by the way in which this balance is preserved. The profession which justifies for itself the claim to this function cannot but hold a high rank in society's esteem.

(4) *The architect, finally, acts as the reconciler of technics and esthetics.* The division between these two spheres of life we see everywhere about us; the notable divergence between science and the humanities in the educational field is perhaps the most obvious of its manifestations. The architect meets the problem in his particular way, and the equilibrium he establishes sets a pattern which inevitably affects others.

The problem, for the architect, is that he deals with intractable materials, under the strict surveillance of the engineer. Increasingly the house becomes less a hand-made object, and the calculations of the mathematician assume a larger role as buildings take on the complex and daring forms which new techniques of construction permit. It almost seems as if the relationship between the architect and the engineer will in time be reversed, with the architect not conceiving and creating, but merely acting as consultant to a technical staff.

Yet the architect cannot, of course, allow this to happen. He has a supreme role, and he is charged with the obligation to maintain it. He is in the position, I suggest, of the great printers, who in the fifteenth century saw the creation of books suddenly mechanized, and managed to place upon the rigid new types, seemingly so dull and uniform compared to manuscript letters, a timeless beauty of their own. He is like an artist, such as Brancusi or Mondrian,

". . . as buildings take on the complex and daring forms . . ."



Joseph W. Molitor

who uses elements characteristic of a machine technology, subtly transforming them into works of the spirit and the imagination.

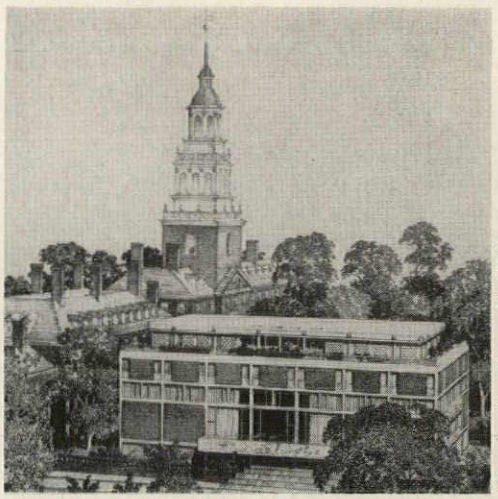
The architect must, in effect, humanize science and discipline the machine. He must use elements as repetitive as types, mass produced like them, creating through proportion and harmony something as intrinsically noble as the page of a Baskerville or Bodoni folio. The buildings he shapes will have their ultimate justification on esthetic grounds, because spirit has mastered material substance, and technics has bowed before art.

■ ■ ■

In speaking of these four functions of the architect, I have not wanted to indicate merely that he has problems to solve and difficulties to overcome. My point is a larger one: that because of the nature of his trade and the dramatic and dominating character of building in America today, he stands as a prototype, and indeed almost as a prophet. Others may have their share in bringing matter under the control of spirit; but unless the architect succeeds in doing it, the cause is lost. It is the same with the shaping of the environment, the organization of space and the establishing of a balance between old and new forces in the social order. Whether he likes it or not the architect is at the center of things, setting the pattern beyond his own works and in a large measure determining whether the remaining decades of the century will see our common life made more rational and rewarding.

Having said all this I cannot but emphasize in conclusion what seems a gaping disparity between the role of the architect as it is in essence, and the appreciation and understanding of this role among the public. With the possible exception of poets, no group playing a major role in society has ever been so little noted. The leadership which the architects exert is almost secret. Too often their names are not recorded in the daily press, though everyone else connected with the unveiling of a building may receive his due. Immense structures upon the landscape, a thousand times more preoccupying and more permanent than a book, would thus seem to have no authors. In the public mind it is as if they had grown there, the product of natural and anonymous forces.

The trouble, in part, is with the architects. If the public does not fully understand their role, it must be added that they themselves too often fail to do so. They perform their unescapable functions as part of the day's work, not seeing their task in relation to society as a whole. It is time they took their own measure. For in awareness of what they do, and must do, there is not only the chance for higher accomplishments but also, surely, for more lasting satisfactions.



Drawing by Harry N. Wijk

". . . to hold the balance between the old and the new is not easy . . ."

Page 193—Concordia Senior College, Eero Saarinen & Associates, architects

Pages 194-195—New York City public housing; Harvard Yard; his own house, Gordon Drake, architect

Pages 196-197—Suburban development, Pennsylvania; David S. Ingalls Hockey Rink, Yale University, Eero Saarinen & Associates, architects

Page 198—Non-Resident House, Harvard University, Shepley Bulfinch Richardson & Abbott, architects

All photographs by Ben Schnall

CLARITY, COHESIVENESS, GOOD DETAIL

IBM Education Center
Poughkeepsie, New York

Eliot Noyes & Associates
Architects

Dan Kiley
Landscape Architect

Seelye, Stevenson, Value & Knecht
Structural & Mechanical Engineers

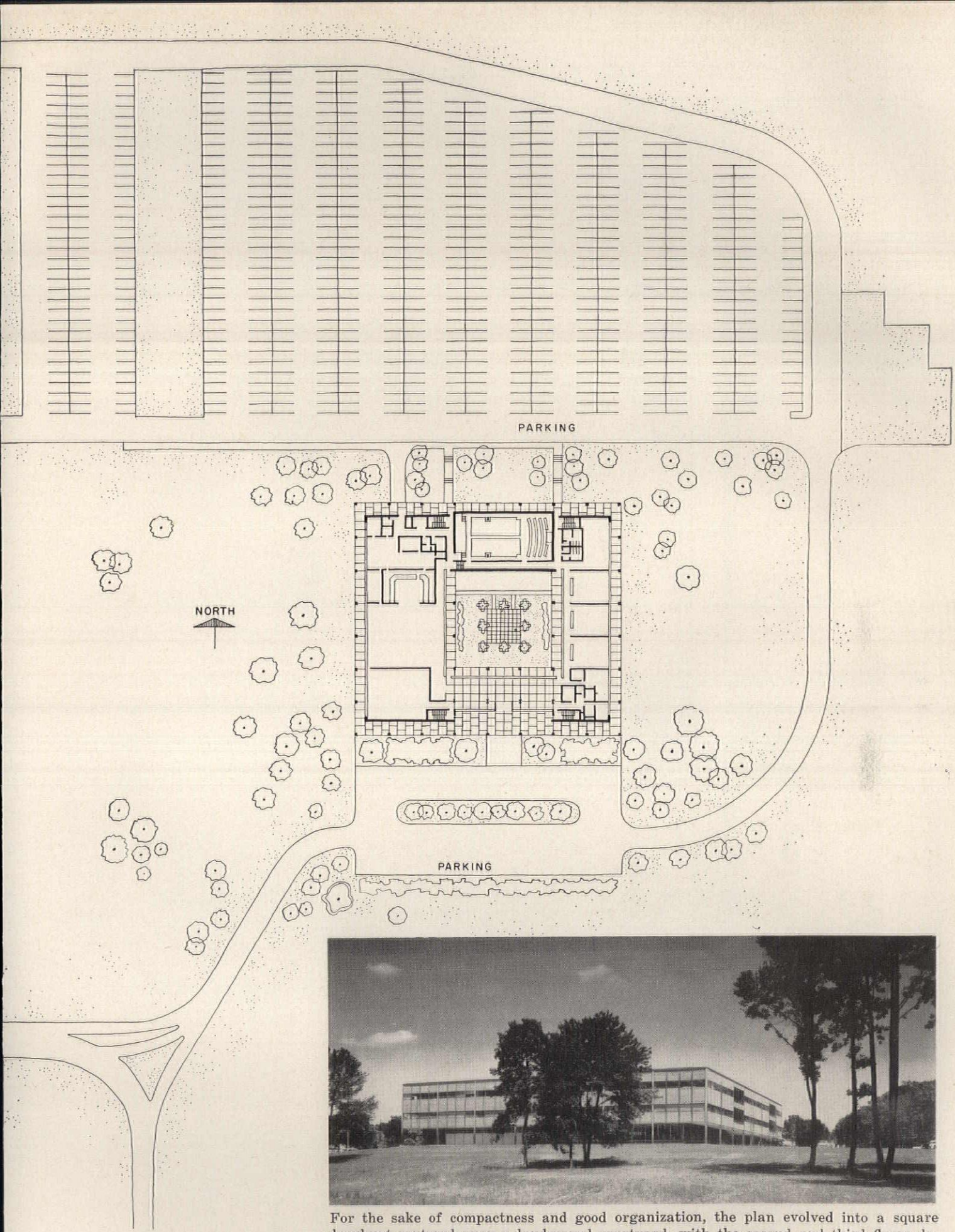
Howard L. Post
Food Service Consultant

Walter A. Stanley Construction Co.
General Contractor

The considerable architectural merit of this building is not due to an unusual idea or a strikingly new expression—there are countless "courtyard buildings" and any number of structural "expressions." This example, however, is notable for its clarity, cohesiveness, and refinement. A variety of elements have been organized within the discipline of a precise steel cage and mullion system, stainless-clad and sensitively delineated. Within this grid, brick and fieldstone and voids and fenestration are arranged in a changing pattern that tempers its severity and provides visual interest. Walking through the building, one gains an impression of variety, order, good taste, and careful detailing. Color and textures are interesting, but handled with appropriate restraint.

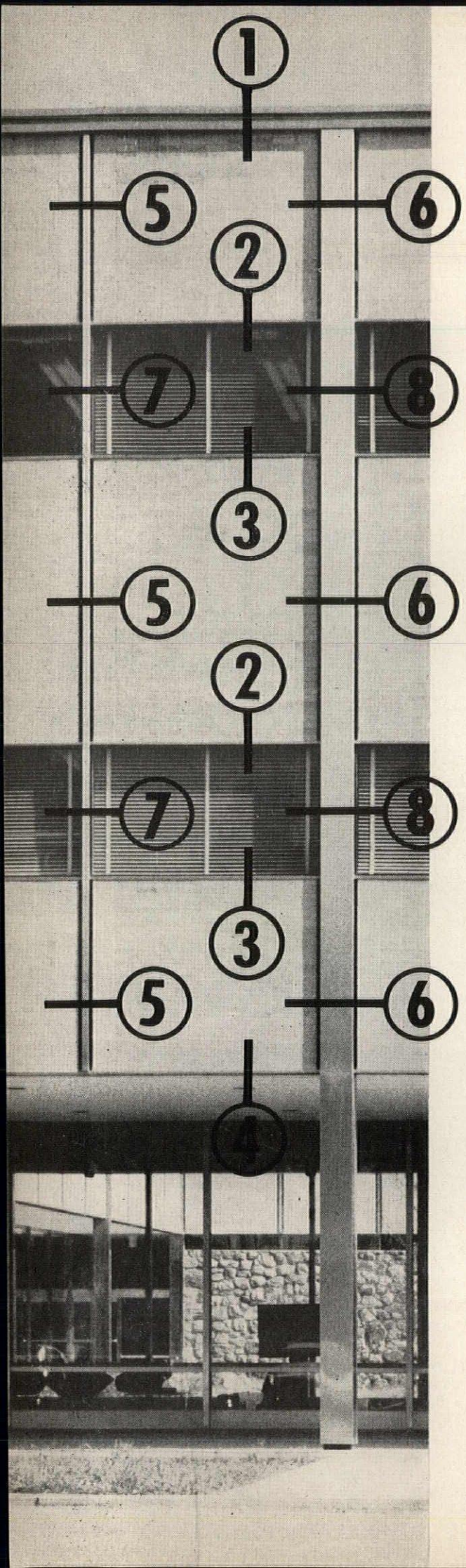
Here customer executives, IBM salesmen and service engineers, and customer engineers study the application, use and maintenance of various IBM data processing machines and systems. There is also an adult education program—usually in the evenings—for employes interested in self-improvement and in learning more about the company and its products.

The air conditioned building normally handles about 700, and is located within easy walking distance of a large IBM computer factory. Early study considered tying the education center physically to the plant, but such a scheme proved awkward both functionally and esthetically. As built, the disconnected education structure is pleasantly located in a wood setting; is successfully linked to the factory by efficient limousine service; and has an appropriate "campus" air.



For the sake of compactness and good organization, the plan evolved into a square doughnut centered upon a landscaped courtyard, with the second and third floors devoted entirely to classrooms flanking a double-loaded corridor. The ground floor contains a large reception and exhibit lobby, auditorium, seminar room, cafeteria, several classrooms, and administration offices. There is parking on the 5-acre plot for 600 cars. Opposite page, from top: the courtyard, a first floor corridor, the lobby, the cafeteria

IBM Education Center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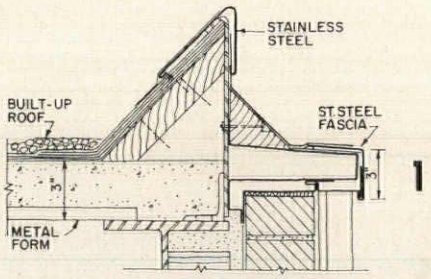
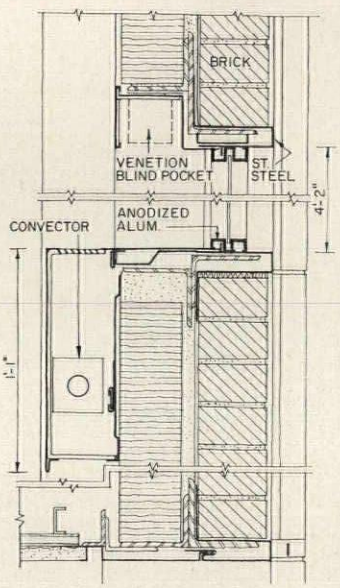

STAINLESS STEEL
BUILT-UP ROOF
ST.STEEL FASCIA
3"
3"
METAL FORM

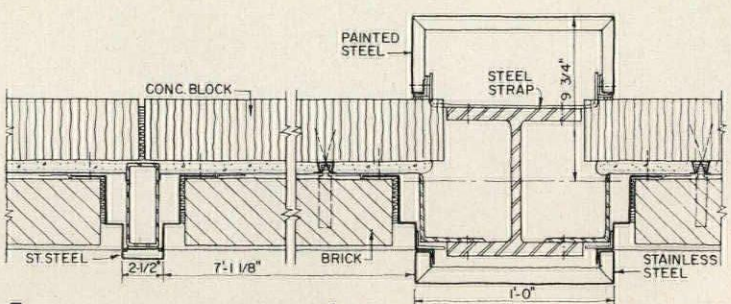
1


BRICK
VENETION BLIND POCKET
ST. STEEL
4'-2"
CONVECTOR
ANODIZED ALUM.
1'-1"

2

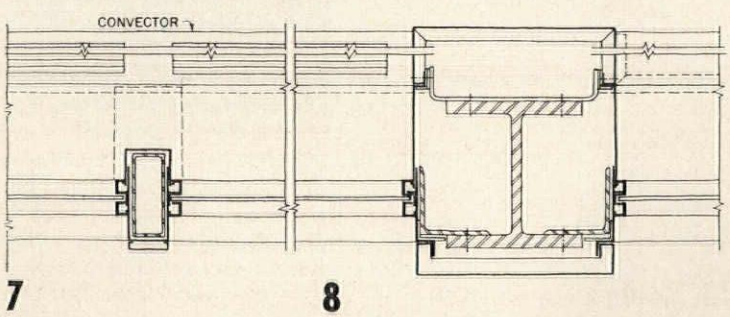
3

4


PAINTED STEEL
CONC. BLOCK
STEEL STRAP
9 3/4"
ST.STEEL
2-1/2"
7'-1 1/8"
BRICK
STAINLESS STEEL
1'-0"

5

6


CONVECTOR

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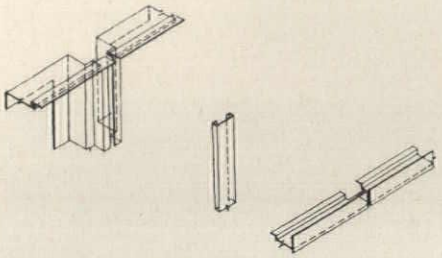
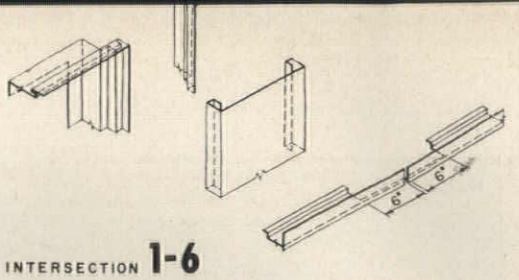
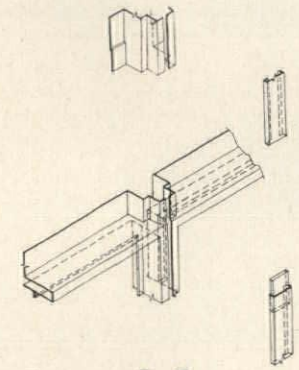


INTERSECTION **1-5**



INTERSECTION **1-6**



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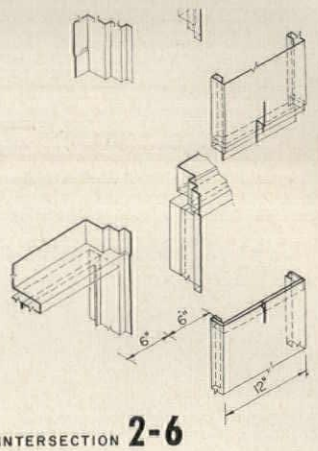

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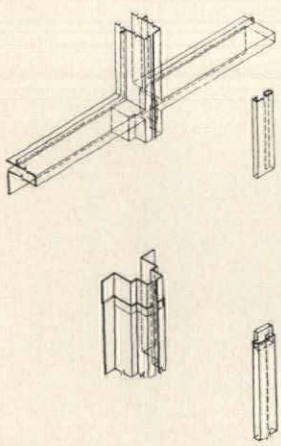

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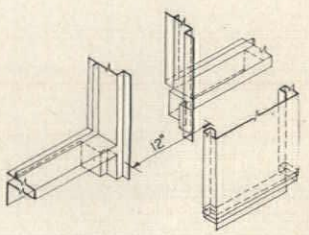
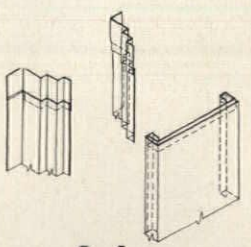
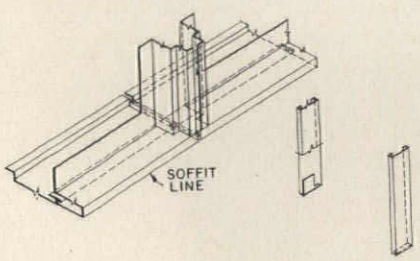




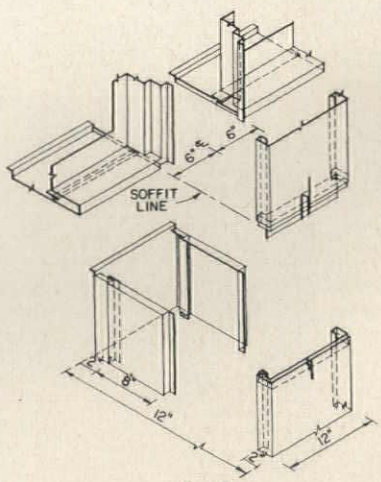
INTERSECTION **3-6**



INTERSECTION **4-5**

IBM Education Center

The exterior consists of a stainless steel-clad structural frame (on regular 30-ft bays) equally subdivided by stainless steel mullions and struts. The infilling is glazed brick—speckled light-gray—and all fenestration is stainless steel. The use of exploded isometric details (a few examples above) made clear the often puzzling junctures of vertical and horizontal members and helped materially in securing an exact and favorable construction price from the builder



INTERSECTION **4-6**

IBM Education Center

The auditorium, *top left and right*, can be joined (by opening soundproof accordion doors) to a 60-seat seminar and demonstration room. Total seating then becomes 400. The stage is set level with the ground floor so machines can be wheeled directly upon it for demonstrations, etc. Auditorium seats are plastic upholstered; walls painted concrete block; the ceiling a plywood sound reflector.

The two bottom photos show a typical first floor classroom. These are larger than those upstairs; are used for bigger groups; and are especially designed for projection.

Color schemes and interiors were designed and supervised by Eliot Noyes Associate Hugh Smallen, Jr. All walls, ceilings, and floors are vivid gray, off-white, or natural; with vivid color used on doors and such free-standing elements as columns, furniture, displays, auditorium seats, etc.

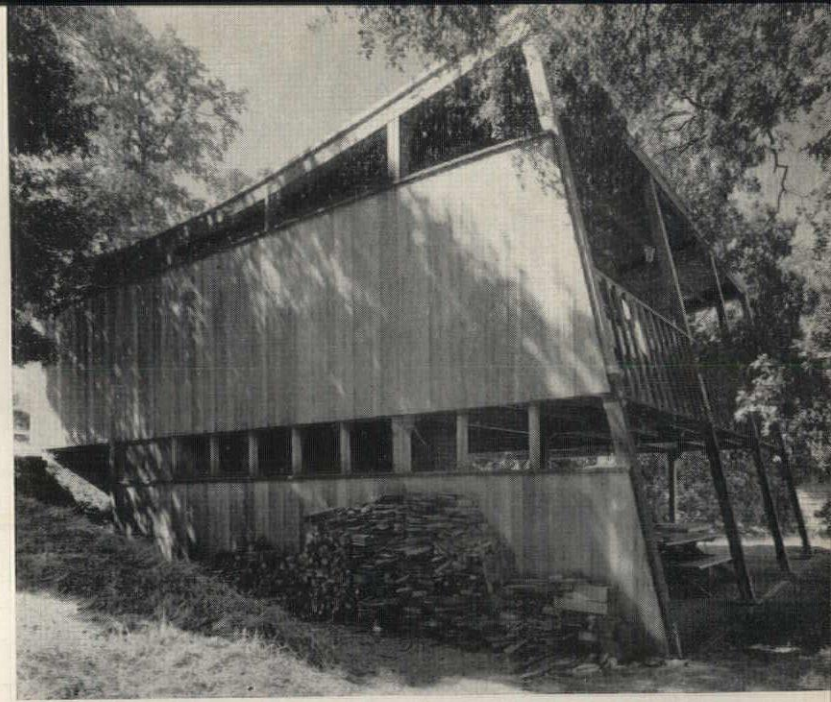
VACATION HOUSES

1.

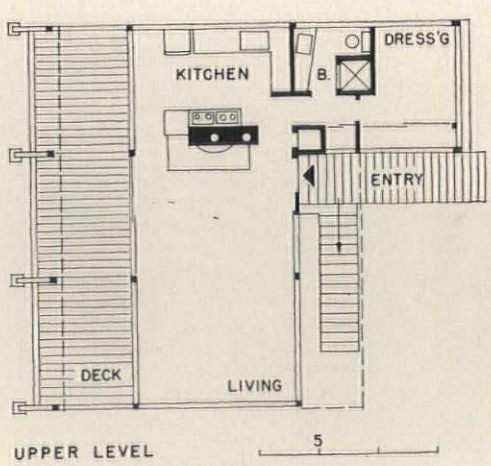
Francis Joseph McCarthy, Architect

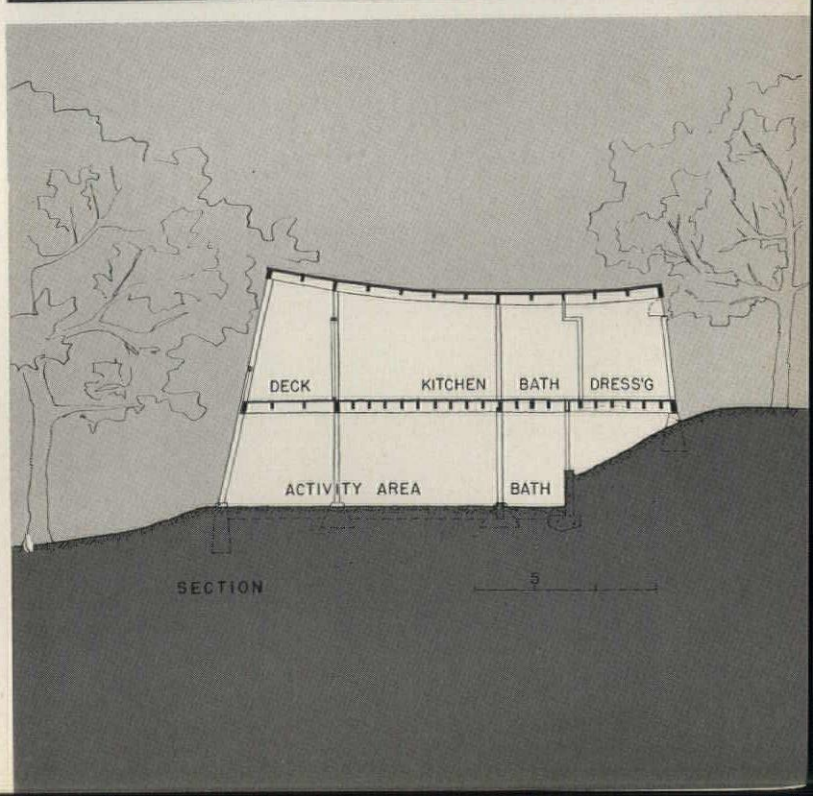
Mr. and Mrs. Edward A. Macklins, Owners
Clear Lake, California

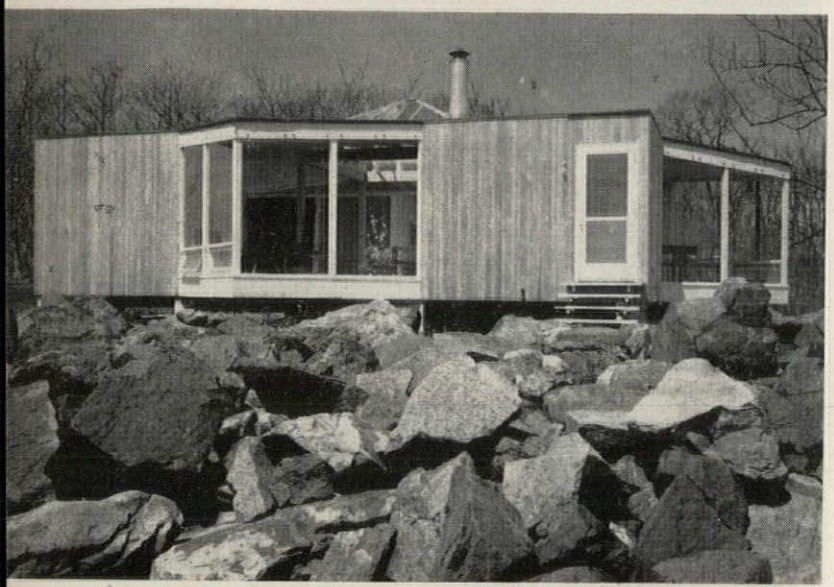
The catenary roof and battered façades clearly express the spirit of holiday fun for which this little house was designed. To the rear, the wooded hillside site overlooks a lake shore; this side of the house has a glass wall and wide sheltered deck to take best advantage of the view. At the front, the main level of the house has an entry at ground level, with immediate access to the parking lot and driveway. This level is basically a one room plan, with separate dressing room and bath. Couches and cots for sleeping are on the deck and in the living area. The lower level is an open activity area with space for boat storage, barbeque pit, dining, table tennis. It is reached by stairs off the entry, and a dumbwaiter is provided to simplify service of food. There is also a bath on this level. Three sides of the house have only high strip windows, for privacy.

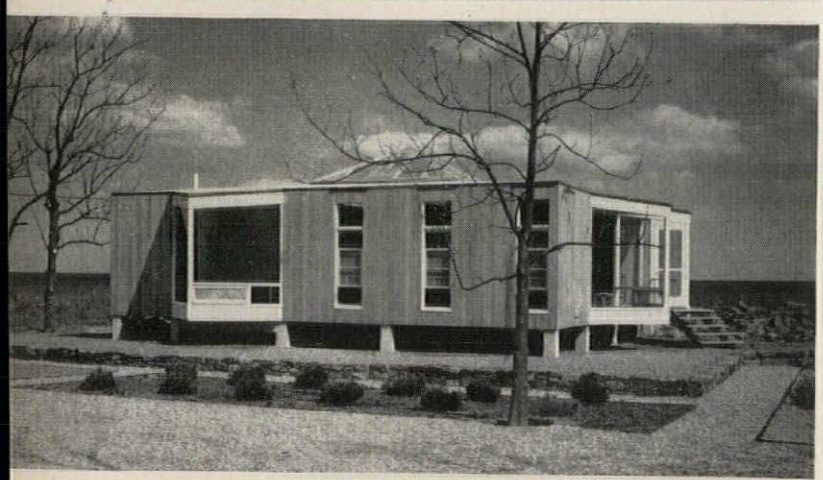


Ernest Braum









VACATION HOUSES

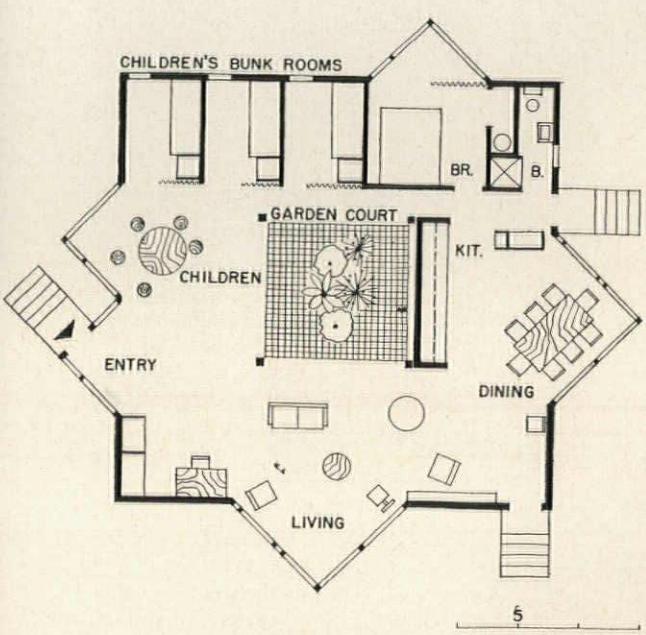
2.

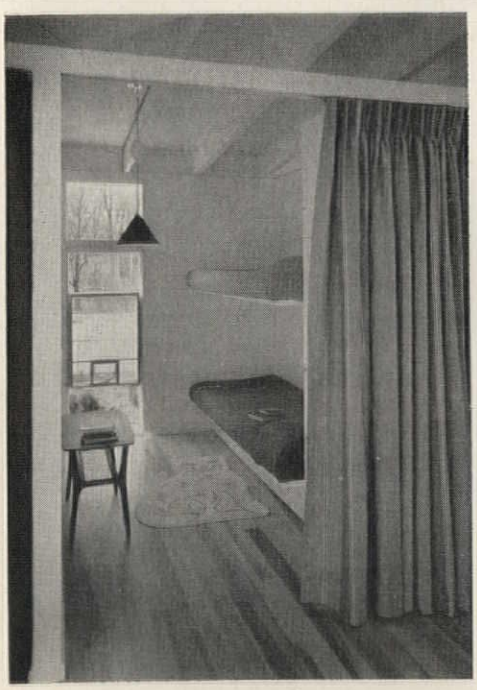
McNulty-Fawcett, Architects

Mr. and Mrs. Albert F. Gallatin, Owners
Kittery Point, Maine

An irregular star shape gives a highly individual character to this attractive vacation house. The glazed points that project from the four sides, and at the skylight, echo somewhat the character of the rocky coast of Maine, plus offering excellent views of the sea and adding interesting interior spaces.

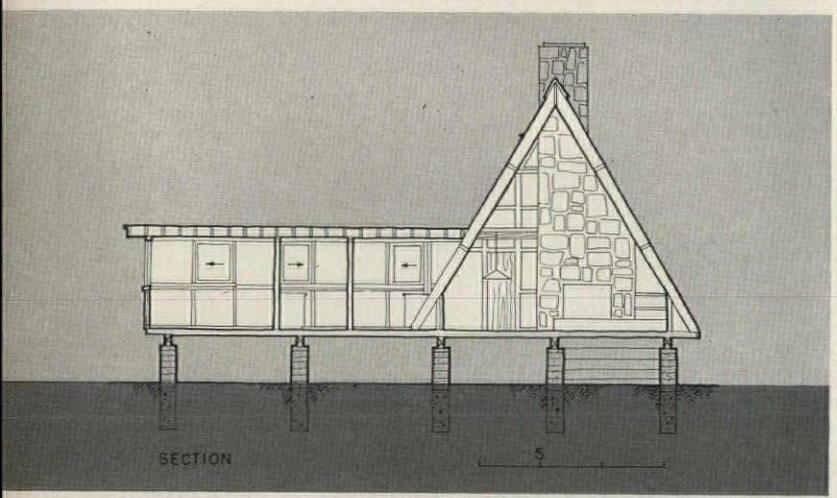
The open planning of the house offers flexible use of the areas, with the central courtyard as a focal point. The outside environment with the salt air prohibits any planting, so the interior court becomes an important green space. The house is planned for use during the summer months, and for weekends in spring and fall. It is on an isolated five-acre site. The cost was about $20,000.





Douglas Armsden

The structure is supported at its center by a table-like framework around the court; the frame is accented by painting it a soft blue. The court is paved dark blue ceramic tile. The glazed points are cantilevered over concrete beams. The house is raised about two feet on concrete piers as protection from high tides. Walls are cedar, floors are pine.



VACATION

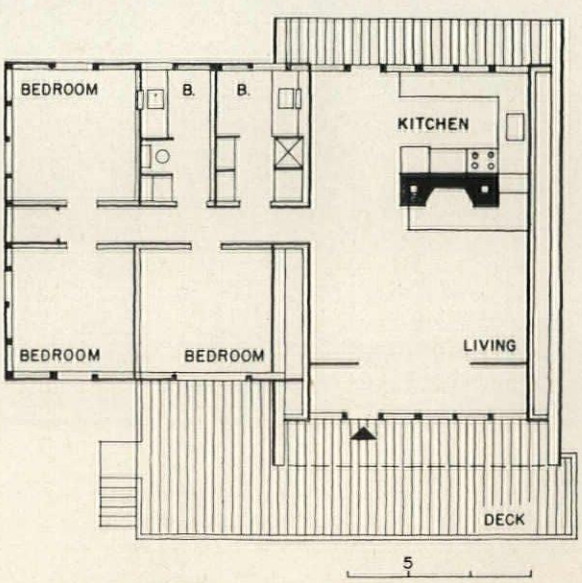
3.

Thomas C. Babbitt, Architect
Mr. P. C. Plehn, Owner
Monterey, Massachusetts

A great tent-like roof over the living areas dominates this vacation cottage. Its hillside site offers an excellent view across the wooded valley, and the soaring peak of glass provides a dramatic frame. Cost was $18,400.

The rear of the house is at ground level, with direct access to the kitchen via a small porch, which is also hooded by the roof. The kitchen is screened from the living area by a massive stone fireplace, which has a built-in ledge for extra seating.

All the redwood and stone finishes throughout the house are left natural, except the roof edging, which is accented by painting it white. Natural-finish, horizontal planking forms the underside of the roof and the top is surfaced with mineral coated roll-roofing.



HOUSES

4.

Mr. and Mrs. John Mykolyk,
Architects and Owners
Near Madisonville, Louisiana

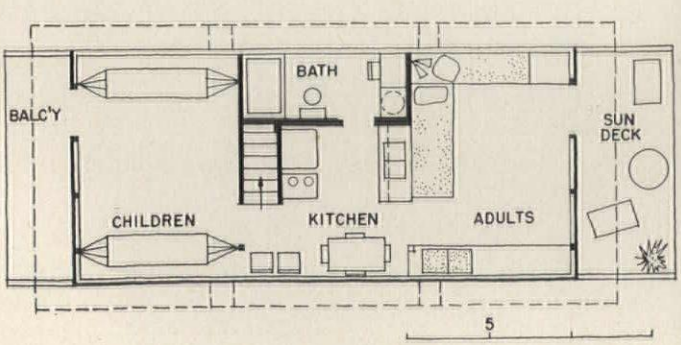
This tropical cottage was put together by its architect-owners for an incredible $1470, not including land. It does, however, include cost of a shallow artesian well, bath and kitchen equipment.

Corrugated aluminum roofing and glass fiber screening form the principal enclosure for the 40- by 14-ft cottage, which is raised a story above the ground to help alleviate the heat and humidity. The lower level is paved with a concrete slab, and serves as a sheltered sitting area and carport.

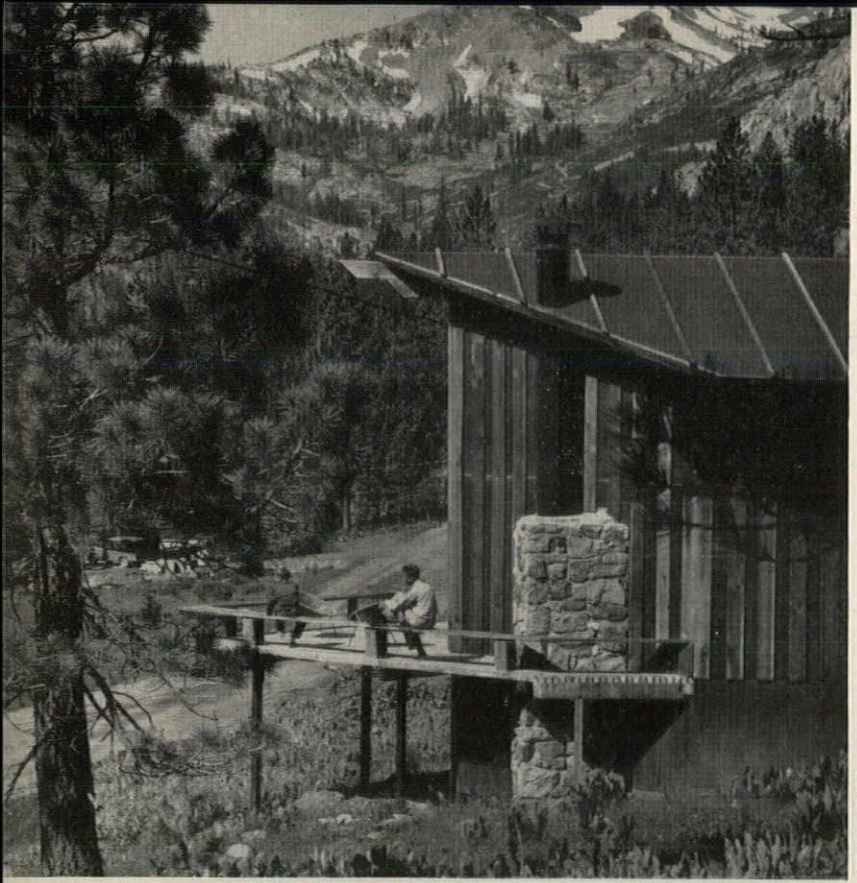
The upper level is floored with marine plywood, and has table-high side walls of the same material. All wooden structural members of the house and the plywood panels were stained walnut. The stairway is the lift-up, attic type. The kitchen faces into the adults' side of the house, and has all-electric equipment. Strips of corrugated plastic are inserted at intervals in the roof to admit more daylight.

The house won an award of merit at the 1958 A.I.A. Gulf States Regional Convention.

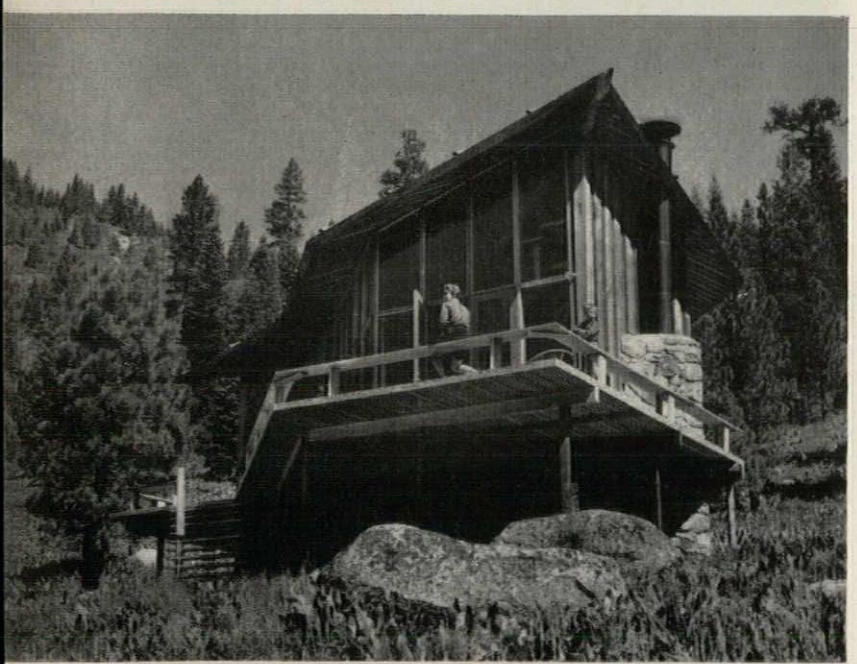
Random Picture Service

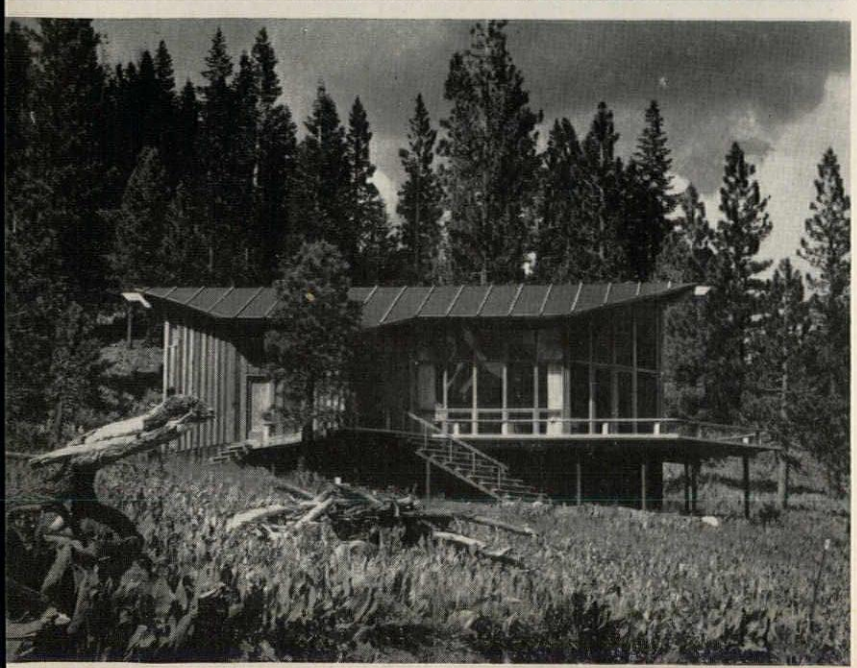


VACATION HOUSES



Clyde Childress





5.

Henrik Bull, Architect

Mr. and Mrs. Magnusen, Owners

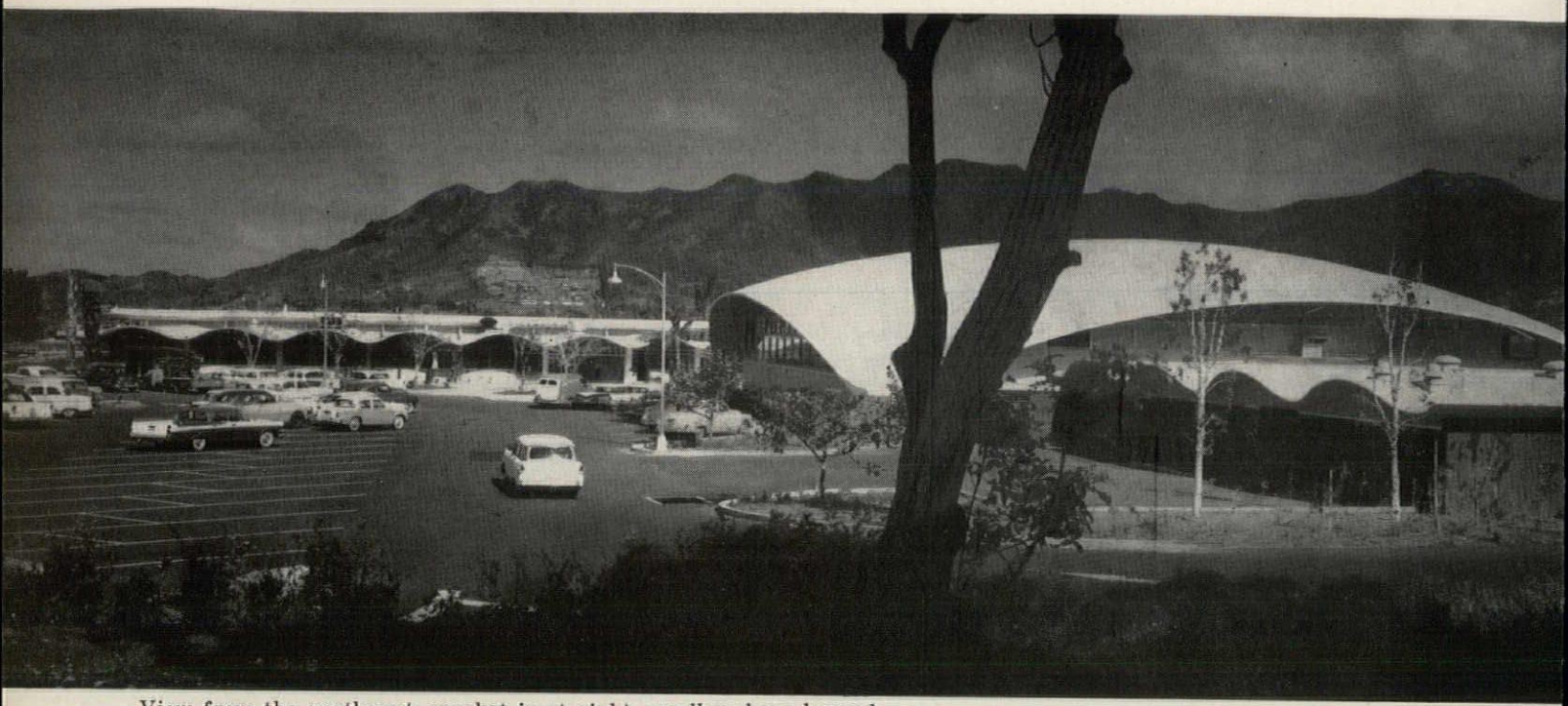
Squaw Valley, California

The rugged mountain setting is strongly reflected in this chalet-like cabin. The strong roof and beams were designed to carry the weight of the heavy Sierra snows. Rough construction is Douglas fir, with siding of untreated redwood. Living areas and the kitchen are on the main level, with loft sleeping areas above at the rear.

The slatted deck provides a summer sitting place, and an entry above the drifts in winter. The prow shape of the façade was planned to help deflect the winds of winter storms.

THIN SHELLS COVER SHOPPING CENTER

NAME: *Windward City Shopping Center*
LOCATION: *Kaneohe, Oahu, Hawaii*
ARCHITECTS: *Wimberly and Cook*
ASSOCIATE ARCHITECT: *George V. Whisenand*
STRUCTURAL ENGINEER: *Richard Bradshaw*
LANDSCAPE ARCHITECT: *George Walters*
CONTRACTOR: *Nordic Construction, Ltd.*

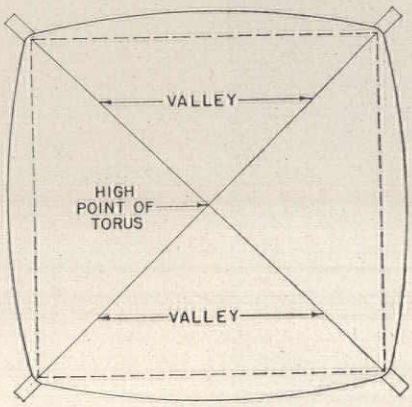


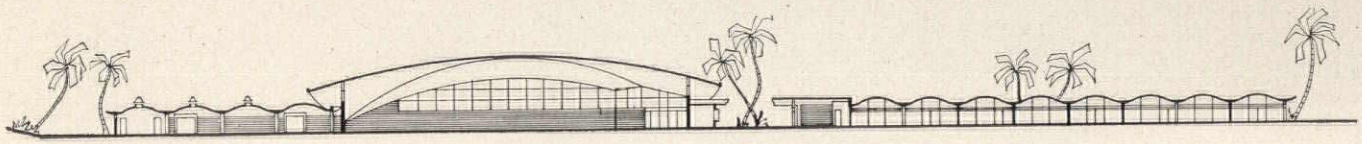
View from the northwest, market is at right, smaller shops beyond

This shopping center derives much of its character from the gay and pleasant way in which reinforced concrete thin shell roofs have been used to enclose each building. This method of structure was selected not only for the playful shapes it offers, but because of lower first costs and minimum maintenance costs. The market (see plan, section and roof diagram on opposite page) is covered by a dome giving an unobstructed area 16,384 ft square. High in the center, the roof overhangs the lower exterior walls and shades the glass areas from the sun. The shape of the dome is a "double torus," segments of two toroid forms at right angles to each other. The radii of the torus arcs are 120 and 240 ft. The dome is supported at four points only by means of concrete buttresses at each corner. The lateral thrust on the buttresses is resisted by means of tie beams along each side from corner to corner. The thickness of the shell varies from 3 in. at the crown to 7 in. near the buttress. Reinforcing over the central section of the dome is a single layer of ½-in. bars running radially and tangentially and spaced at varying distances from 6 in. to 12 in. on center. The other sections of the dome have a double layer of reinforcing gradually increasing in size and density toward the buttresses.

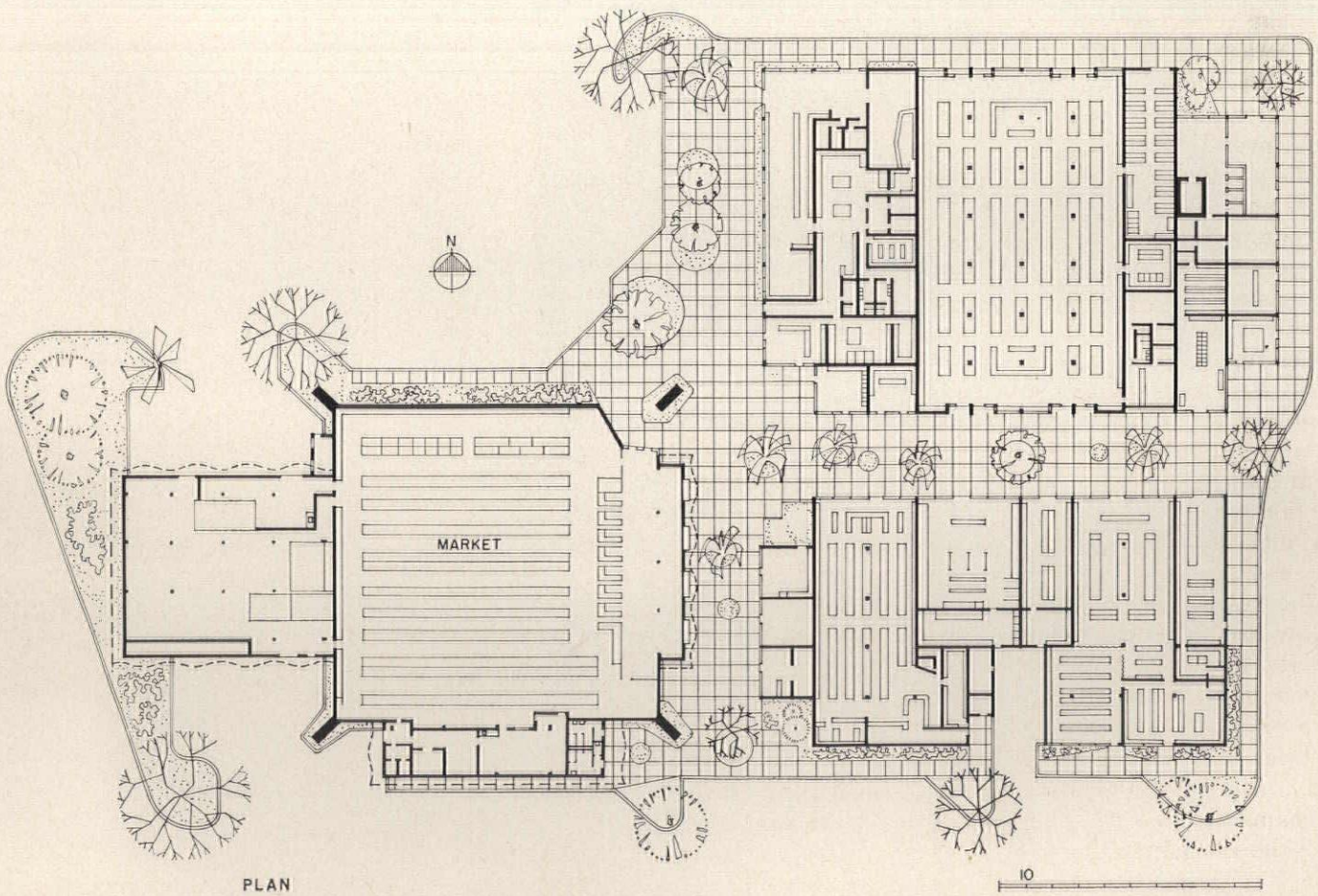
The two other major buildings of the shopping center are divided into many kinds of stores in a variety of sizes. Undulating thin shells on 20-ft square bays form a continuous roof for each structure (see plan and section opposite). The shells are 2 in. thick and are reinforced with ½-in. bars placed 12 in. on center in each direction. No stiffening ribs or beams are needed. The slab is thickened slightly over the column heads.

Unobstructed market interior

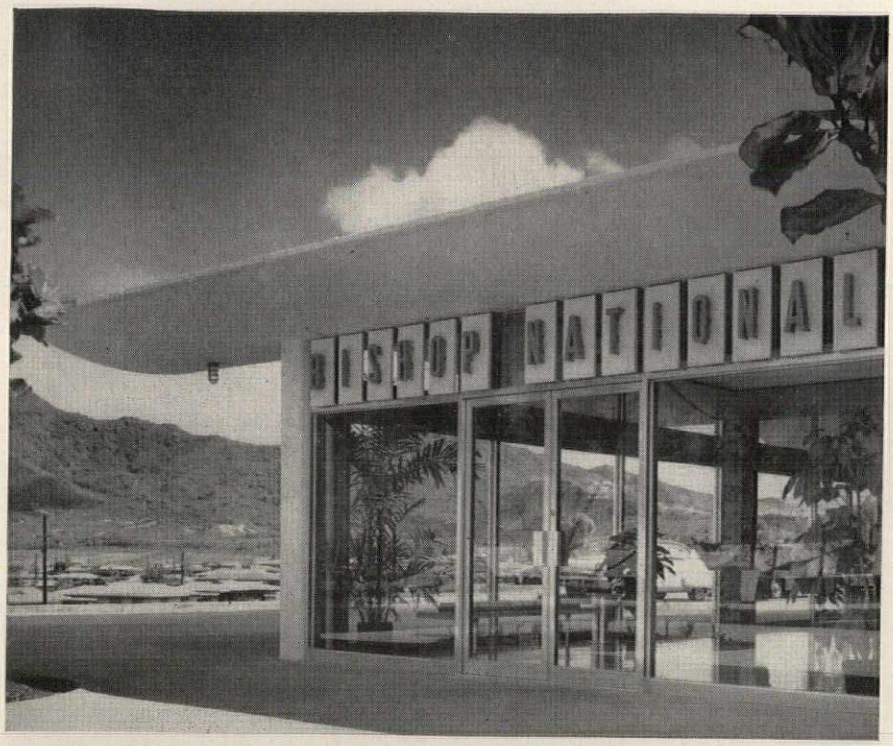


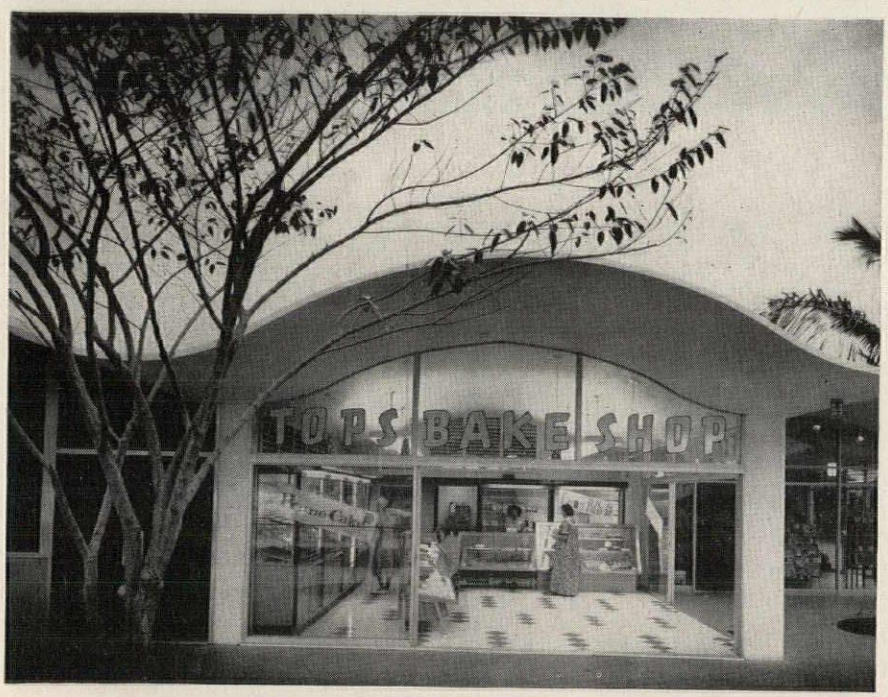


SECTION



PLAN





Shop fronts consist of aluminum extrusions which hold plate glass or ¼-in.-thick asbestos board. Exterior filler walls and interior partitions are non-bearing hollow concrete block

BUILDINGS FOR CORRECTION

The underlying philosophy of penology has gradually substituted, as its basic tenets, the principles of correction and rehabilitation for the old ideas of punishment and retribution. Most of the existing plants are outmoded by these or any other valid standards. In this study, some of the new principles of penology and penal architecture are examined. The opportunities available to architects for highly gratifying and important work in this field are discussed and examples of recent work shown

Penology and Architecture

by JAMES V. BENNETT, Director, Federal Bureau of Prisons

Fundamental and far-reaching changes have occurred in methods of treating and handling prisoners in the nineteenth and twentieth centuries without a corresponding evolution in the architecture of the institutions in which they are housed. The emphasis during the formative days of our democracy was almost exclusively on punishment as a technique for controlling crime.

One tough old warden of the Maine state prison set the architectural tone for the earlier prisons in the following blunt and no-nonsense words: "State prisons should be so constructed that even their aspect might be terrific, and appear like what they should be, dark and comfortless abodes of guilt and wretchedness. No mode or degree of punishment is in its nature so well adapted to purposes of preventing crime and reforming a criminal as close confinement in a silent or solitary cell, in which, cut off from all hope of relief during the term of his sentence, the convict shall be furnished with a hammock on which he may sit, and with such coarse, though wholesome food as may be best suited to a person in a situation designed for grief and penitence. . . There his vices and crimes shall become personified, and appear to his frightened imagination as co-tenants of his dark and dismal cell. They will surround him as so many hideous spectres, and overwhelm him with horror and remorse."

And prisons of that time were frightening places in their external façade and interior "apartments." Fortress architecture or a grim Egyptian motif predominated, as in the old Charlestown, Mass., prison or the Moyamensing prison in Philadelphia. Men lived in stone cells into which a few rays of light struggled through a narrow slit or strap-iron bars, used a wooden bucket for a toilet, and in winter got on as best they could with a trickle of heat. They lock-stepped to their meals, which they ate with a spoon from a tin plate in complete silence and under the baleful eye of a gun guard who paraded menacingly along a gallery. Daylight hours were spent in overcrowded and hazardous sweatshops operated by contractors who paid the state a pittance for their labor. There were no schools, vocational training shops, or recreational facilities.

CURRENT PHILOSOPHY AND NEEDS

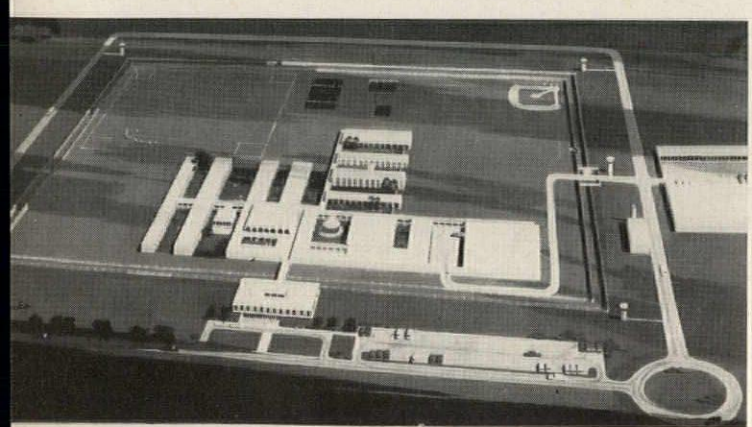
Because these methods did not succeed in scaring people into compliance with the law, a new approach has evolved. What is sought now is "individualized treatment," each man to receive consideration of his own needs, merits and

Vanguard Photography

For Juvenile Rehabilitation: Los Padrinos Juvenile Hall, Los Angeles County, Calif. Welton Becket and Associates

Frank Lotz Miller

Medium Security Institution: Wisconsin Correctional Institution, Fox Lake, Wis. Curtis and Davis



Maximum Security Institution: Federal Penitentiary, Crab Orchard Lake, Marion, Ill. Hellmuth, Obata, and Kassabaum

progress. Instead of regimentation, mass treatment, and monotony, there should be classification of prisoners according to a dozen or more basic criteria, variation in degrees of custody, and placement in accordance with attitudes and institutional adjustment of the individual prisoner.

Prison architecture regrettably has not kept pace with these developments, let alone taken the lead. It has followed the beaten path of beaten men. Instead of building institutions which reflect the correctional philosophy of today, we have generally been content to follow traditions which had earned disrepute a hundred years ago. We are still constructing cells and massive cell blocks which were devised in another age. Even some of the most recently constructed prisons have high and expensive walls, as for instance, the institutions at Greenhaven and Attica, N. Y., and Norfolk, Mass. To be sure, we shall have to continue to build here and there maximum custody prisons with walls and at least some cells, but the emphasis must be placed on construction of medium custody prisons, open institutions, camps, or other similar contemporary types.

Also we cannot permit the urge to keep down unit and operating costs to cause us to build massive institutions with a capacity far larger than can be managed efficiently. Behemoths like San Quentin with its 5200 prisoners or Jackson, Mich., with its 6000 inmates are so large that all efforts to classify the men on the basis of character, needs, or institutional progress are frustrated. Moreover, they are dangerous, expensive cauldrons, and are most difficult to control.

American penology has now reached the stage where it is substituting brains for bars. It is depending more on personnel to control and shape the attitudes and behavior of prisoners and less upon steel, masonry, and gadgets. If penology is to make significant progress with its new ideas, it must escape the confining grip of outmoded architectural concepts.

The fact that most jails, reformatories, and prisons are outworn and outmoded is at once a handicap and an opportunity. It is a handicap in that modern penological concepts cannot function in the kind of setting these facilities represent. It is an opportunity in that their rapid replacement by modern structures would contribute more to the advancement of American penology than any other single factor.

It is also an opportunity and a challenge to the nation's economy. The Federal Bureau of Prisons alone needs over $100 million in new construction over the next ten years, yet it has the responsibility for only slightly more than a tenth of the 200,000 adult prisoners in American penal institutions. Many times this sum should be expended in the replacement of aged state prisons and the construction of new facilities for increasing prisoner populations. It has been estimated that $3 billion will be required in the next 25 years for new prisons to take

care of the growing number of prisoners and for replacement and modernization of existing plants. Moreover, most of the 3000-odd county jails are disgraces to the communities which tolerate them and ought to be replaced as rapidly as possible. By conservative estimate, the nation should spend at least $1 billion for new jail construction. The potential requirement for architectural services in this field is enormous.

To measure up to this tremendous responsibility all individuals involved in penal design and construction must recognize that a prison is no longer a bastille or a vast warehouse where men are sent to be locked up like animals for a while and then turned loose again, still brute-like in spite of the aid society has attempted to give them. The purpose of a prison—it must be remembered—is to transform unhealthy attitudes into healthy ones. The restrictions of massive cell blocks fetter the minds as well as the bodies of men. To accomplish their difficult task correctional workers must have faith in their fellow men, faith in the ability of their fellow men to learn and grow with experience. That faith does not come easily when the massive rigidity of their surroundings testifies only to lack of faith in their fellow men.

Cheerfulness, color, and interest should characterize the total design of a correctional institution. But at the same time the design should not take on the overtones of a "country club." Correctional institutions should have an atmosphere of hope, direction, and purposefulness. The schools, the shops, the factories, should be planned for brisk activity and production. The entire complex of structures should be functionally related to facilitate the institution's objectives.

SIZE OF INSTITUTIONS

In the matter of size, costs of construction and operation must be taken into account. In general, a large institution is somewhat cheaper to build and cheaper to operate, in terms of per inmate costs, than a smaller one. But the larger the institution becomes the more difficult is individualized treatment. The optimum size (resulting from compromise between these factors) of an institution for adults seems to be a population of 600 to 1000. A plant of this magnitude can be reasonably economical to construct, if multi-purpose facilities are emphasized, single-story or at most two-story housing units planned, and space for administrative overhead kept to a minimum.

SITE SELECTION AND PLANNING

Another consideration is that of site. A correctional institution must have good transportation ties to centers of population, so that it can get its supplies easily, so that its personnel can live in desirable communities, and so that the families of prisoners can visit them often enough to preserve familial relationships. However, the institution should be sufficiently distant from the city that it does not become choked and restricted by growing urban encroachment, for a prison tends to attract the more unsightly activities of a modern city. To keep its operating costs down, the institution should also have access to the community's public water, sewage, gas, and electricity services. And among many other attributes, the site itself should be reasonably attractive.

PROTECTIVE ENCLOSURE

Architects and penal administrators must gravely ponder the type of enclosure that should surround the institutional plant. A wall today is needed only for maximum custody prisoners, and even here it is not always an absolute requirement. For most penal institutions a double fence provides sufficient perimeter security. A fence is also more flexible, and imposes less restraint on the manner in which the enclosed buildings must be laid out.

PRISONER HOUSING

But it is the kind of housing for the prisoners that paradoxically gets the most study and the most unsatisfactory solutions. Many wardens want single cells for all prisoners—so that they can sleep well, they say. With each prisoner locked in a single cell it takes few men, and none of high calibre, to patrol the catwalks. Yet this type of housing is the most costly and hardly worth the price. Unquestionably, in most prisons some cells are needed, but if the classification system is to work, a correctional institution should have a variety of housing situations—inside cells, outside cells, honor rooms, dormitories, and squad rooms. This principle applies even to a close custody institution, for when a man has demonstrated that he can live amicably in a dormitory he may be ready to leave the close custody institution for one that is less restrictive.

Yet on this point architects and administrators usually settle for elongated, multi-tiered blocks of inside and outside cells. If a dormitory appears in the final plans, it is usually because there is not enough money to build all the cell blocks the administrator wanted. If any experimentation can be detected in the lay-out of the housing units, it is usually an adaptation or a variant of the old radial concept. The persistence of this old idea concretely illustrates how tightly much of today's prison architecture clings to 19th century philosophy. In recent years the radial plan has repeatedly shown up in juvenile, youth, and minimum custody institutions and in such assorted adaptations as stars, maltese crosses, V's, X's, and Y's.

RELATIONSHIPS BETWEEN BUILDINGS

Then there is the problem of the functional relationship of buildings. The most common solution is the "telephone pole" design, in which most buildings are laid criss-cross along the pole, or central connecting corridor. Occasion-

ally this results in a central corridor of almost interminable length; in at least one recently constructed institution the corridor is so long the personnel must ride bicycles to get from one end to the other. Despite the prevalence of this design the validity of its adoption for every type of institution except possibly the maximum custody prison is doubtful. It permits a high degree of control, but it imposes excessive restrictions on prisoner populations not requiring extreme custodial restraints.

More practicable is the concept of zoned areas, in which housing units of similar types are grouped together. The housing for special purposes (hospital patients, disciplinary cases, "trusties") occupy a separate area, the schools, chapels, recreational and other commonly used facilities another, and the shops and industries yet another. The dining rooms and kitchen are placed at a point conveniently accessible to all zones. Because these areas need not be connected by enclosed corridors, attractive patios and courts can be introduced into the design. This concept stimulates more originality and flexibility in design and, for most types of institutions, it can be utilitarian and functional.

SPECIAL FACILITIES

The trend toward the construction of institutions classified for different types of prisoner populations requires for each institution a decision concerning the extent to which school, vocational training, employment, and recreational facilities should be provided. A good rule of thumb would be to emphasize schools, vocational training, and athletics for youthful offenders, and to emphasize employment, industries, and more sedentary and spectator type recreational activities for older prisoners. Some institutions for youngsters have gone a step too far and have concentrated entirely on school and vocational training for their residents. All types of institutions should supply meaningful employment opportunities for their inmates. Work is healthful and personally challenging and must be considered an essential element in any rehabilitation program. One cannot fully learn the value of work, in terms of the satisfaction that comes with production and achievement, unless one is given the opportunity to work.

ANALYSIS OF POPULATION

All such design decisions—size, site, type of enclosure, housing, treatment facilities, and functional relationships—depend for accuracy upon a detailed analysis of the specific type of population for which the institution is intended. There is no need to provide housing composed entirely of inside cell blocks for a typical jail whose population will be at least fifty per cent drunks. The prisoners in the institutions of a rural state are usually more manageable than those found in a predominantly urban state. A younger population will require more security safeguards than an older population, white persons more than Negro. A small state will have to equip its few institutions with a greater variety of facilities than a large state which can instead furnish a greater variety of institutions. Few institutions will have identical population types, and a careful cross-sectional study of a state's prisoner population must be carried out before institutional planning can begin.

FUTURE TRENDS

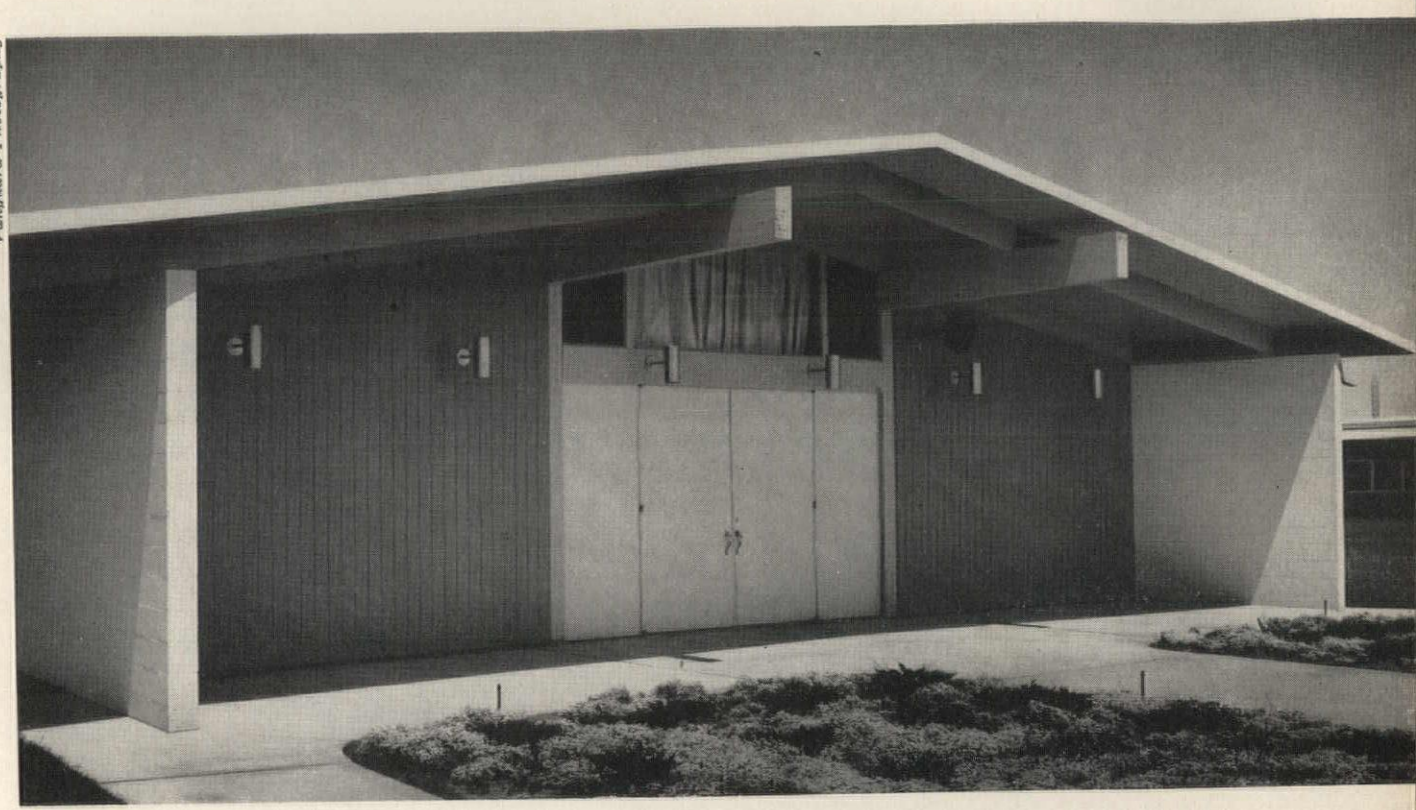
Apparent throughout the nation are two general trends which suggest important implications for future institutional design. Our prisoner populations are becoming much younger on the average and the sentences for which they are committed are becoming longer. Both trends mean that custody will remain a significant design consideration. However, since we have always had more custodially-secure facilities than may now be required, this does not mean that institutions will have to be built with more custody designed into them. It means only that prisoners will have to be more carefully classified in the future and placed in facilities which suit their characteristics. The proportion of prisoners who present serious custody risks has always been in the minority, and even if this proportion grows, it is likely to remain in the minority. The field is still wide open for institutional design in which custody can be balanced in rational perspective with other equally important considerations.

If correctional architecture is to free itself from its medieval inheritance, it must engage in a great deal more research and experimentation than it has so far shown any willingness to do. Traditional methods of construction are expensive, and if the obsolete institutions presently being operated in the Federal and state systems are eventually to be replaced, some way must be found to make replacement reasonably economical. Much research is needed to develop more practicable and cheaper locking devices, plumbing fixtures, communication systems, alarm systems, culinary layouts, detention type windows, grills, control centers, towers, lighting, and almost every other feature.

The history of penology and penal architecture is mainly one of trial and error. The solutions to the problems of future penal architecture lie in the rapidly developing correctional philosophy of today, in bold experimentation and design, and in untiring research.

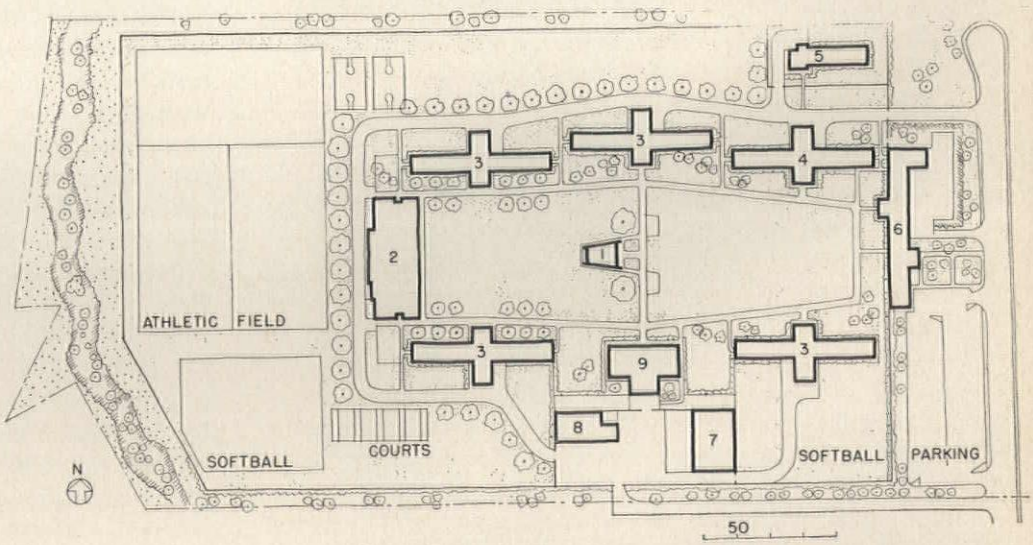
NOTE: In 1949, the Federal Bureau of Prisons published the *Handbook of Correctional Institution Design and Construction*, which presents the historical and philosophical background of correctional institution construction, and evaluates much of the work accomplished in America. Shortly a supplement to the Handbook will be issued covering more than thirty of the institutions which have come off the drawing boards since the original volume was published.

Vanguard Photography

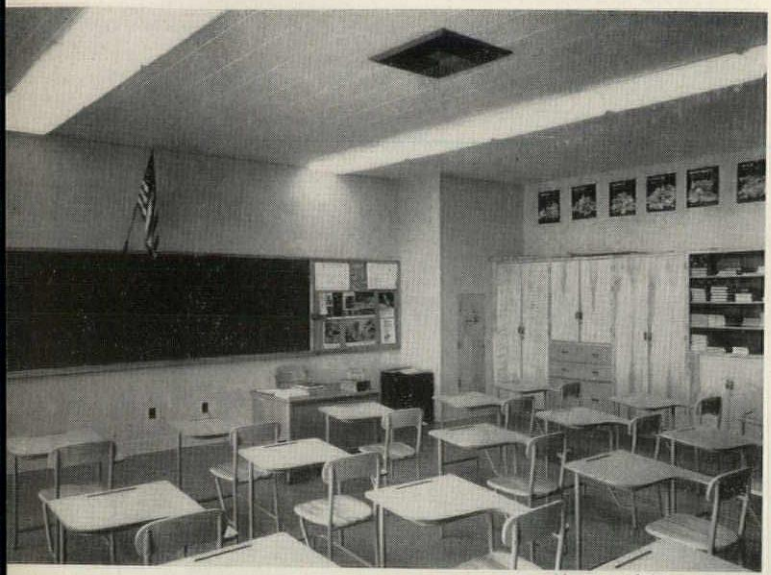


Juvenile Rehabilitation: California Branch Facility

Los Padrinos Juvenile Hall, Los Angeles County, Calif.; Welton Becket and Associates, Architects-Engineers; Murray Erick & Assoc., Structural Engineers; Lester R. Kelley, Mechanical and Electrical Engineers; Robert Herrick Carter, Landscape Architect; R. J. Daum, Contractor



1. Chapel
2. Gymnasium-School
3. Housing Units
4. Receiving Building
5. Recreation Building
6. Administration
7. Maintenance Building
8. Mechanical Building
9. Kitchen-Dining



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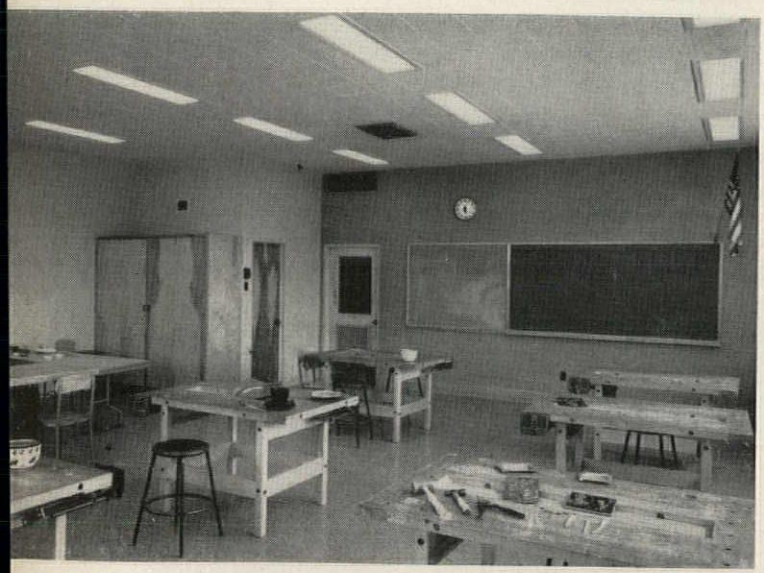
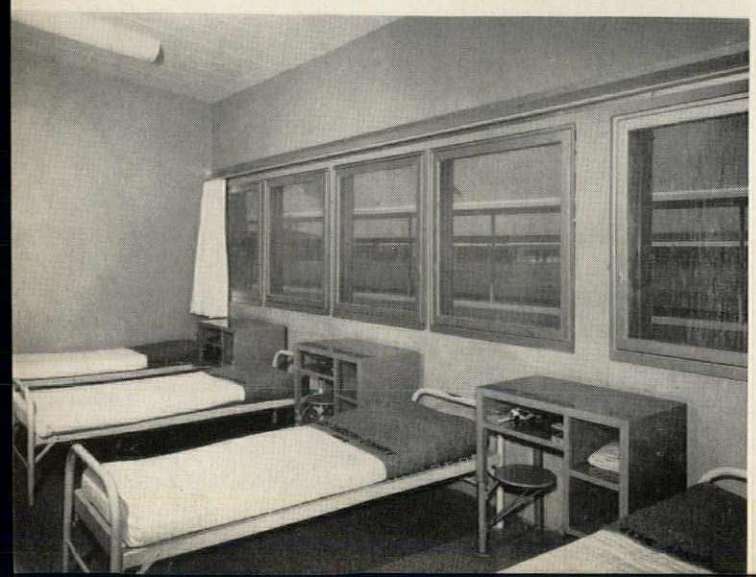




Many of the important ideals set for a juvenile institution by forward-looking penologists have been provided for in this plant. Of the design, James V. Bennett says, "the architects have achieved an agreeable atmosphere with few of the repressive custodial aspects found in so many institutions of this type. Unusual foresight and taste were shown in the use of a number of full-grown trees in the landscaping. The buildings are pleasant and adapted to the California climate. The only incongruous note is the 17-ft concrete wall which surrounds the buildings."

Conceived of as a therapeutic community for juvenile correction and rehabilitation, Los Padrinos is located on a pleasant suburban site not far from Los Angeles. The plan is similar to one which might be used for a campus plan school. The institution is much like a school in other ways (if the high wall can be ignored). The buildings are informal and residential in character, one story except for the gym. Complete facilities are included for approximately 200 youthful offenders.

The chapel is used as a major focal point for the site layout of the complex. The grounds are landscaped and pleasant. The particular emphasis in the design of the grounds as well as the buildings has been to create a climate within which the youths assigned here can grow, mature, and become productive, useful citizens upon release. For these reasons, the atmosphere has been consiously kept as unprisonlike as possible.

The administration building—through which entrance is gained to the grounds—contains general offices and interview rooms for probation officers. A complete medical section is maintained in this building for treatment of sickness, first aid, and for physical examinations.

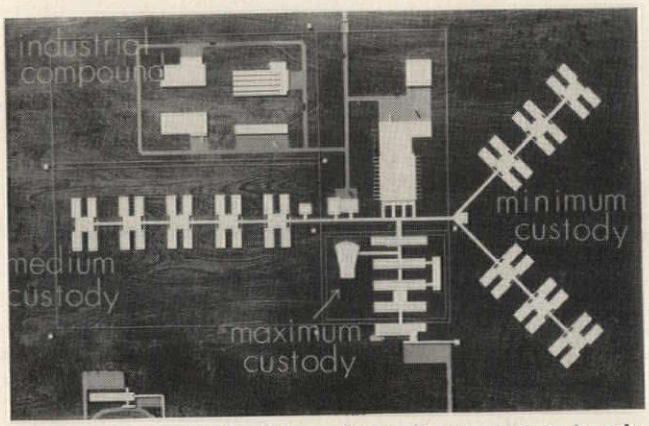
Each of the four housing buildings is divided into two wings, each containing a four bed dormitory and 16 rooms and lavatories are provided for each wing. In each building, one counselor is able to supervise all of these areas from his office.

The dining building contains ten dining rooms which surround a central kitchen. The gymasium is designed for multipurpose uses, doubling as a theater-lecture hall with movable seating. A stage and dressing rooms are included for inmate theatricals and other performances. Also provided within this building are six classrooms for general academic training and shops for handicraft instruction and hobby uses.

Clarence E. Cabell, director of the facility, says "the Hall is in a superior class. It is easy to operate and supervise. While the buildings were designed, for strength and security, of reinforced concrete and concrete block, the final result is a campus-like plan which instills pride in the inmates. This is reflected in the almost spotless cleanliness maintained by the boys and the almost complete absence of runaways."

Wisconsin Correctional Institution, Fox Lake, Wis.; Curtis and Davis and Associated Architects and Engineers

"This correctional institution, which is about to be constructed, shows the results which can be achieved when a courageous administrator (Wisconsin Corrections Director, Sanger B. Powers) and resourceful architects team up. The proposed design is calculated to motivate the inmates to respond constructively to the treatment program." *James V. Bennett*



A. Louisiana State Penitentiary, Angola

Frank Lotz Miller

B. Wisconsin Correctional Institute, Fox Lake

Medium Security Institution: Programming and Design

*by NATHANIEL C. CURTIS, JR.**

The design of Angola (left top) was a particularly difficult task because it is three institutions in one—maximum, medium, and minimum custody. These share facilities. Its short-comings—as we see them now when analyzed with the benefit of hindsight—are happily found to be those that might be excused because of circumstances that were beyond any possible control. For example, everyone knew the institution at Angola would be too large, its huge population of 2500 far exceeding the generally agreed upon maximum limit of 1500 or less. The location of the site is inconvenient, being considerably removed from any metropolitan areas and railroad access. The failure of the legislature to provide enough funds further restricted the planning and the amount of "inmate services" which could be provided. Finishes were sacrificed in the interest of obtaining space, the need for which amounted to an emergency at the time. Due to the fact that the inmate population of Angola was unclassified at the time, the provision of different types of housing units became an educated guess. It has now become apparent that the number of maximum security cells is low. However, room for expansion was designed into the plan.

In contrast to the limitations of Angola, the new Wisconsin Correctional Institution (left below) offers almost ideal conditions, under which to design a penitentiary. Close liaison exists between the architects and the expert administrative personnel who staff the Wisconsin system. The State Bureau of Architecture and Engineering is a valuable source of information and guidance concerning conditions peculiar to the area. Wisconsin has an outstanding program of activities for prison inmates. Further, the state government has made available funds in sufficient amount. Finally, the site was selected by the architects, who were governed by the program philosophy for the new institution. This new institution is intended to relieve crowded conditions resulting from a mounting prisoner population. It will be a medium security facility for younger and more hopeful prisoners, screened from the existing maximum security penitentiary and reformatory inmates. The philosophy back of its design is the single most important design criterion.

The design of the Wisconsin prison was conceived of by the State Department of Corrections as follows: "*General Philosophy:* The construction of a medium security prison in the State of Wisconsin will represent a new facet in our correctional program and will complete the constellation of types of institutions adapted to the specialized treatment of the offender. While medium

*Partner, Curtis and Davis

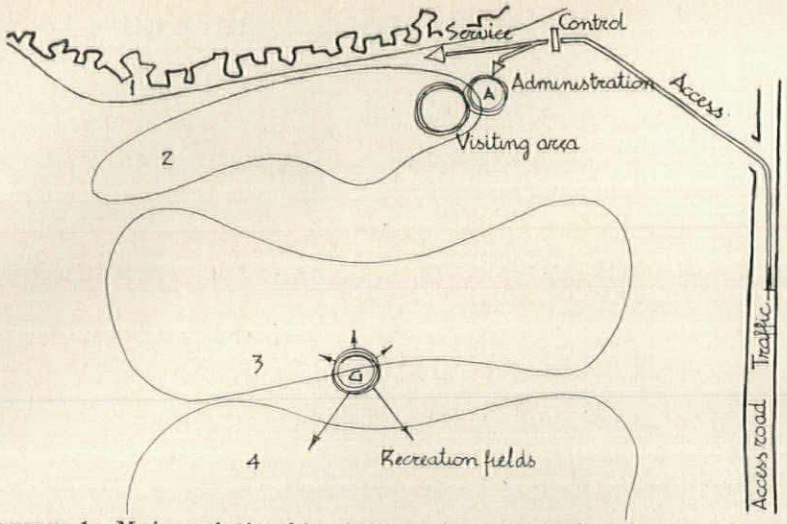


Diagram 1: Major relationships between important plan elements

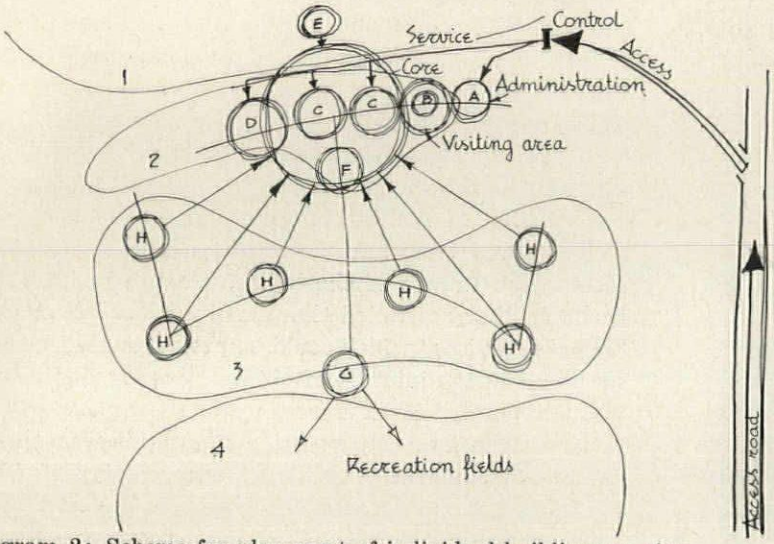


Diagram 2: Scheme for placement of individual buildings on site

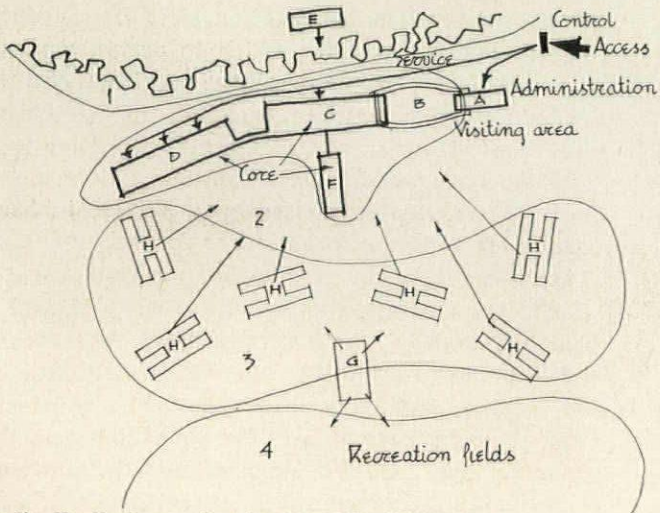
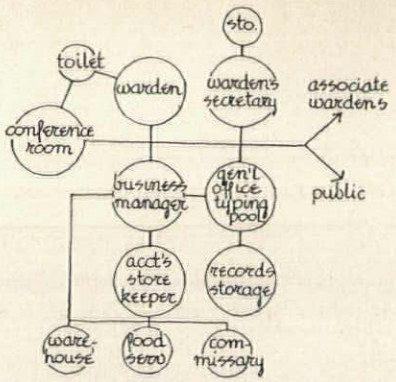
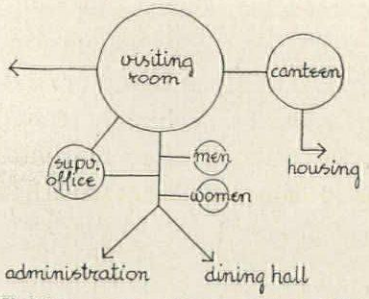


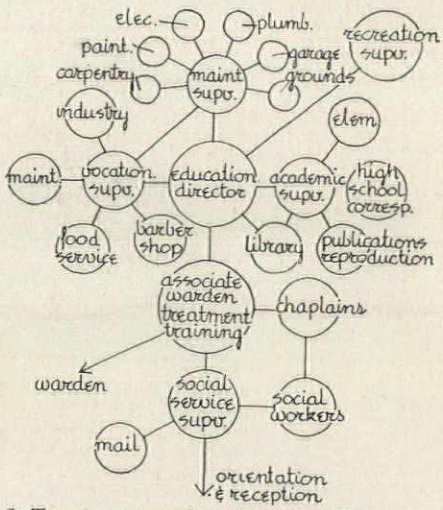
Diagram 3: Preliminary sketch plan of building shape and placement



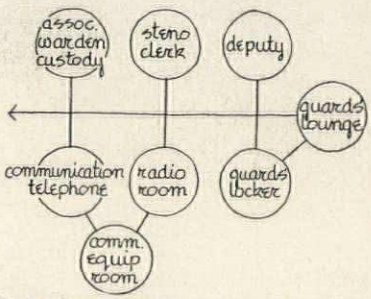
A. Administration offices and facilities



A. 1 Visiting area, offices, and facilities



A. 2 Treatment and training facilities



A. 3 Custody and Control facilities

A. Administration
1. Visiting 2. Treatment and Training 3. Custody
B. Chapel
C. Dining, Kitchen, Warehouse
D. Vocational, Industrial Shops
E. Garage
F. Inmate Services
1. Reception, Orientation 2. Infirmary 3. School 4. Library
G. Recreation
H. Housing

security will be attained by development of a fenced and guarded perimeter that envelops a group of buildings, it will be most desirable to develop an institution which physically will avoid the appearance of unyielding punishment and yet will afford the safe custody and provide for the inmate's academic, vocational, social, religious and industrial training and guidance.

"The physical construction of the institution will be of such a nature as to provide for maximum operational efficiency as well as to form an attractive environment effect. There will be no high encompassing walls, no reinforced cell blocks or telephone pole effect branches. The housing units will be surrounded by spacious areas for outdoor sports with separate buildings provided for administration, central security and visitors, dining and classes in food preparation, academic and technical training, industry, warehousing, and truck and car housing. Even though plans and specifications must provide that all building materials, including those of exterior doors and windows, will be of such composition that some type of tool would be required for penetration, we hope the institution will in no way give the appearance of a security-type facility.

"Because we envision a completely new institution where new forms of treatment will be carried on, every attempt must be made not to duplicate institutions already existing either in security, discipline, or over-all climate, but rather to provide the facilities for a program where the entire staff functions as a treatment team with a complete de-emphasis on the "keeper" role of the guard. While the individual confined will benefit from favorable accommodations, he will undoubtedly be most affected by individual and group experiences made possible by the plant, other inmates, and the staff.

"The success of the program will result from the wholesome and constructive relationships that can be developed between the officers and the inmates. To accomplish this requires a departure from the old line prison construction and management to new facilities that emphasize the positive features of a treatment program. While discipline and security remain a necessity, these phases should be handled in such a manner that they enhance character rather than degrade the dignity of the individual, and provide every possible opportunity to establish habits of industry, a furtherance of education, and the building of a sound sense of social responsibility in addition to specific skills.

"Population Characteristics: Unlike other correctional institutions within the State of Wisconsin, the population characteristics of this institution can be controlled through selectivity, for it is envisioned that there will be no direct court commitments, but only transfers from the Wisconsin State Reformatory and the Wisconsin State Prison made by the Division of Corrections. No rigid limits should be set on eligibility for transfer but rather emphasis should be on who can benefit from transfer to the medium security unit.

"There will be certain basic criteria, however, used by the classification committee of both institutions which will serve as guide posts. Some of these will be:

1. A medium security classification designation.

2. No persons with chronic medical or psychiatric problems will be considered for transfer.

3. The age range for the majority of those recommended for transfer should be between 20 and 35; however, this would not preclude the transfer of others either above or below this range.

4. Individuals considered for transfer should have the ability to live in a group situation under minimum supervision.

5. All those recommended for transfer should be able to take constructive advantage of the program.

6. All should be interested in being transferred to the institution and in being assigned to a particular job and/or the vocation training program.

"Quite conceivably, there may be a tendency to exclude from this institution persons adjudged guilty of some types of crimes or sentenced for extended periods of time. However, it is felt that the basic consideration in all instances should be the offender and not the offense. A result of this selectivity of transfer will be a homogeneity of population not found in other institutions. Consequently, with a diminuation of problems resulting from complex, heterogenous populations, a program impossible in other institutions can be inaugurated and maintained."

In keeping with the philosophy outlined above, a gently rolling hillside was selected. This offers a natural opportunity for creating an institution of informal character in keeping with the program. On this site, an orderly plan may be developed with an atmosphere of informality. An analysis of the program and needs indicated the possibility of grouping the physical facilties into buildings according to their use, structural demands or need for separation from other facilities. These elements became the buildings shown in drawing III.

With the various buildings established, the problem became one of properly arranging the various elements within the buildings and then to arrange the buildings themselves upon the site in such a way that proper relationship would be maintained to the lines of traffic to and within the site, to each other and to the whole, and to the site itself.

SITE PLANNING

It was determined that all traffic to the site will approach from one direction along the only access road to the property. The traffic is divided at a controlled point into two categories: A. Visitors, staff, business public, new arrivals and inmate departures. This traffic must find its way initially to the elements contained in the administration building. B. Service. This dictates a direct relationship of those elements requiring service to this line of traffic.

As shown in diagram 1, the site selected divides itself into four general areas as follows: (a) a fairly steep, wooded side to the east which was judged too difficult and expensive to build upon and became the service side of the project; (2) the crest of the hill which is flattened off; (3) the gently sloping portion of the hill; (4) a fairly flat base at the bottom of the gentle slope. The flat base is the ideal portion for the recreation fields, and this determined the location of the recreation element. The administration building and recreation building thus being located in proper relation to the traffic and to the site, it was decided to place the "core units" on the crest of the hill close to administration.

The housing units (diagrams 2, 3) were placed in an informal pattern around the gentle slope of the hill so that they are also properly related to the "core" as well as to recreation. The spaces in between the buildings will be treated as a campus. As may be seen in diagram 3, the plan resolves itself into a pattern so that each group of buildings occupies that portion of the site best suited for its purposes. The buildings are located with respect to outside traffic where necessary, to each other, to the whole, and to the traffic patterns within the institution. The resulting plan consists basically of the core buildings, located in a line along the crown of the hill, with the housing units informally curving along the flatter land at the foot of the hill. The service building is the architectural link between these two parts of the plan and contains the school, library, infirmary and reception housing unit. All inmate pedestrian circulation is confined to the housing unit side of these buildings and vehicular traffic and service to the opposite side.

The administration building is three stories high but so located at the edge of the plateau that only two stories are above the plateau. Inmate circulation is confined to the two stories above the plateau, thus providing a horizontal custody separation between the ground floor entrance and the upper two stories.

The visiting room is on the plateau level and is linked to the dining hall by a sunken courtyard, punctuated in the center by the circular chapel. The location of the chapel at this point affords an opportunity for inmates and visitors alike to use the facility freely. The chapel may be viewed by the inmates at mealtimes through the glass wall of the dining room.

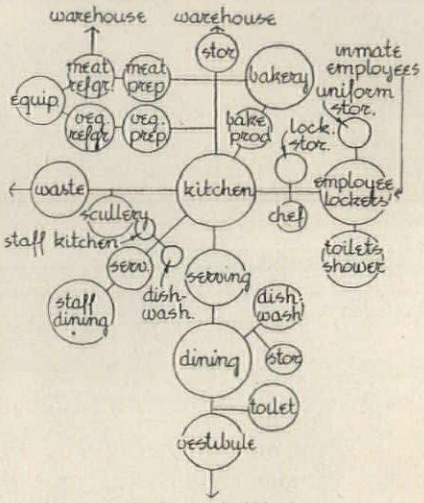
The dining hall, kitchen and warehouse are contained in one long building, with a warehouse at the rear, and a full basement. A sheltered pedestrian concourse is provided in this building along the housing side. At the warehouse end of the building, along the pedestrian concourse, are the commissary, clothing store and barber shop.

Continuing the line of buildings along the plateau is the two-story shop-industry building, located on the slope so that only one story appears on the service side, but the full two stories on the campus side. The entire first floor will be devoted to maintenance and vocational shops fronting on the campus, while the lower floor will contain industry workrooms.

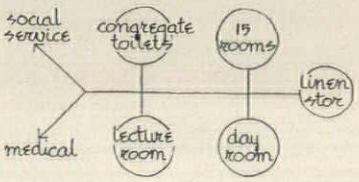
The housing units are so called "cloverleaf" dormitories. As shown in the plan, each of the four wings contains 24 individual outside rooms, while the core contains 4 separate day rooms and toilet facilities, serving each housing wing. A custodial office, interview room and laundry supply room are shared by the four wings. A central corridor pierces the width of the building and serves also as a guards' walk for supervision into each of the four wings. The most unique feature of the design of the housing units is the proposed use of perforated masonry screens, reinforced for security. These screens are placed approximately 3 ft 0 in. in front of the exterior wall and windows (which can be of non-security type) and extend from floor to roof to provide a completely secure building. Besides affording an "un-prisonlike" appearance, the screen functions as a sun break during the summer, resulting in cooler buildings.

The field house is located on the same axis as the central building, but beyond the housing units for good relationship to the athletic fields. In addition to the gymnasium floor, there is a large dirt floor area so that varied sports activities can be accommodated. Permanent seating is available for the total inmate population. Movies will also be shown in the field house. The proposed structure has an arched roof and along each side, under the low eaves, service areas are located, as well as music practice areas and craft shops. This provides a centralization of night-time recreational activities, thus simplifying custody problems.

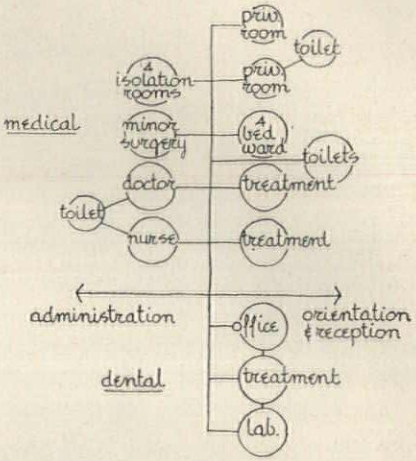
The architecture of this institution strives in every way —in site arrangement and in individual building designs —to avoid "prison-like" features which are a psychological barrier to the advancement of a rehabilitation program. The informal site arrangement, with gently sloping campus, the avoidance of the "cell" look in the exterior of the housing units, the siting of the chapel opposite the dining hall—all of these are conscious design elements calculated to influence and better the morale of the inmates, and help them to become more responsive to training and rehabilitation.



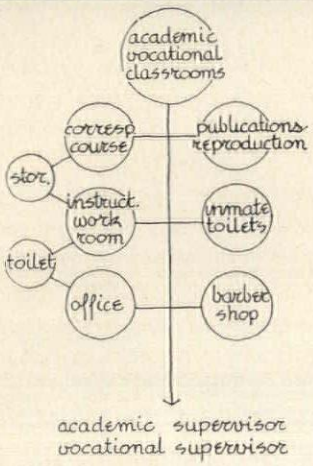
C. Dining Hall and Kitchen



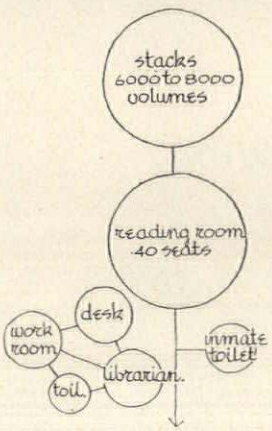
F.1 Reception and Orientation



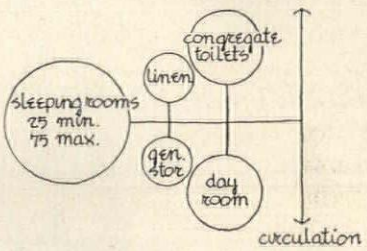
F.2 Infirmary



F.3 School

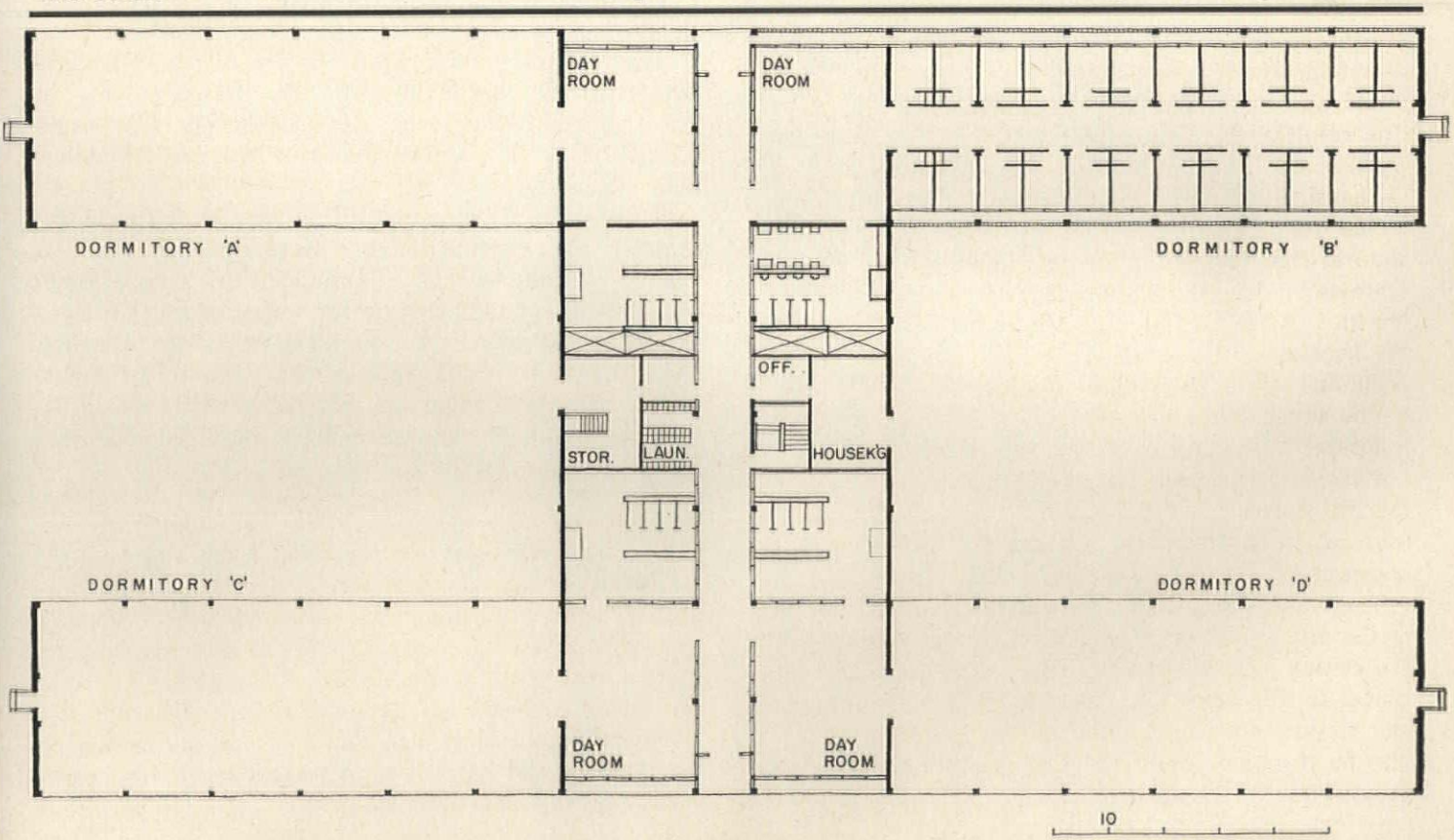


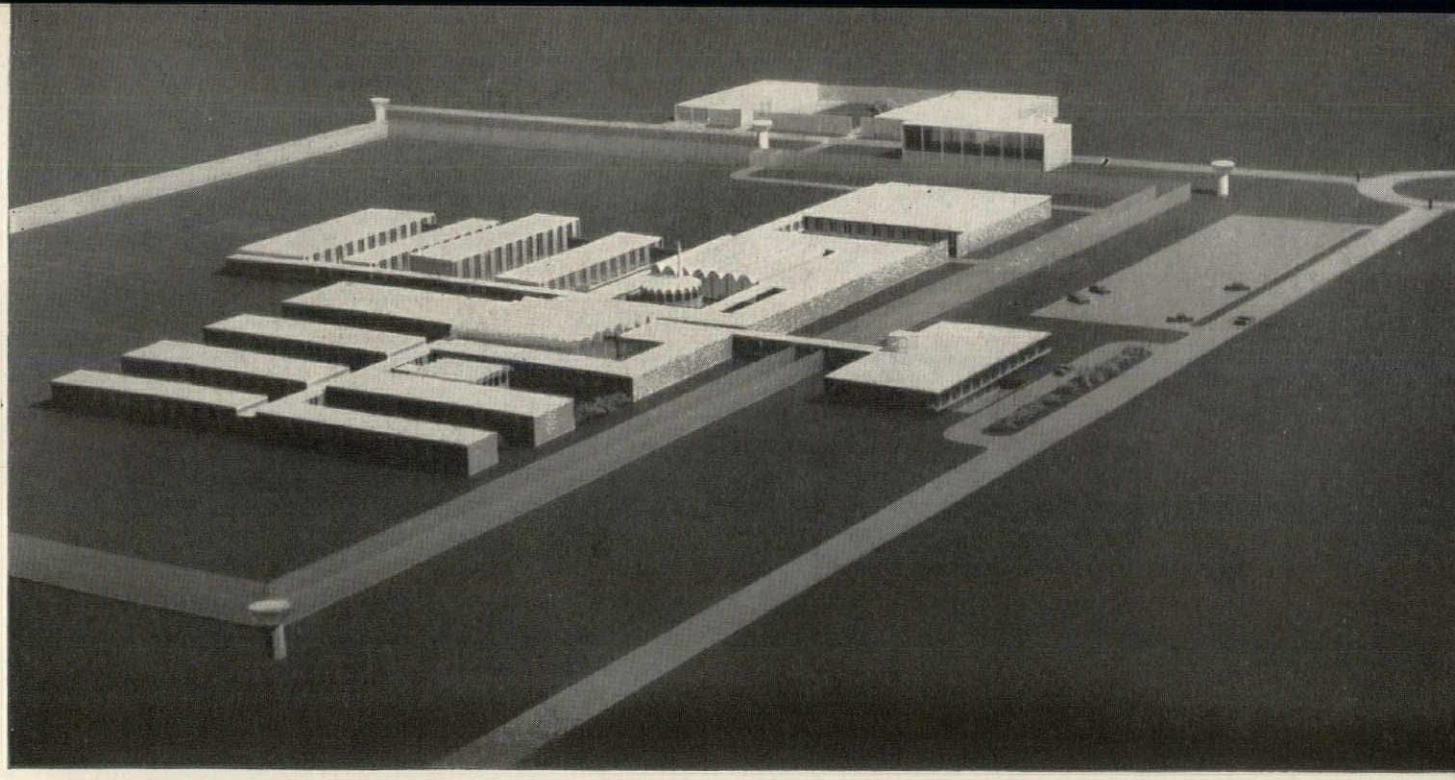
F.4 Library



typical unit

H. Housing





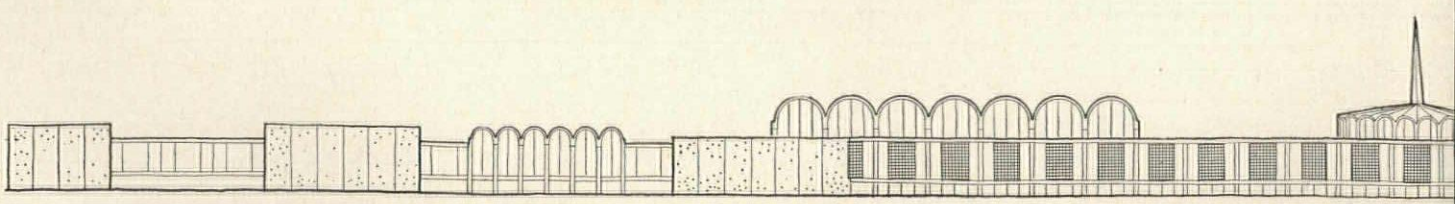
Maximum Security Institution: Federal Penitentiary, Marion, Illinois

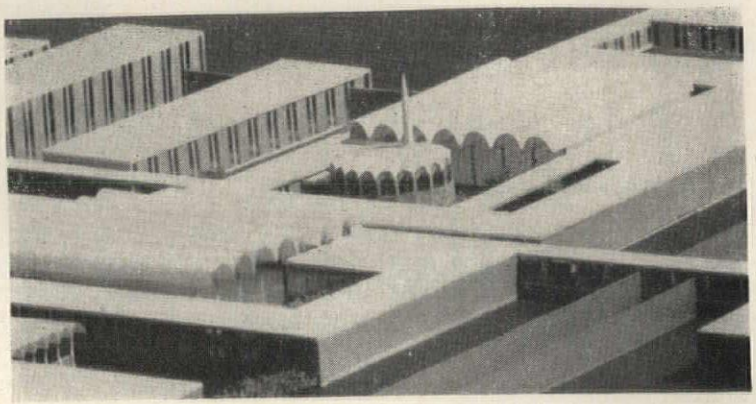
Hellmuth, Obata & Kassabaum, Inc., Architects
George W. Aderhold, Consultant

The design for the new Federal Maximum Security prison (its security requirements are similar to those at "The Rock," Alcatraz) represents the results which may be obtained when intelligent and creative architects work in close harmony with enlightened clients. The primary mission of this institution is the safe custody of the most intractable group of prisoners, from adjustment and custody standpoints, in the entire Federal system. Initially, the assignees here will be transferred from other Federal units. They will be, for the most part aggressive hostile prisoners, over 25 years of age. Most will have served one or more terms. They will be wise to the ways of prisons. The creation of a building complex which will function safely and efficiently for such a group was a great challenge and the most important factor in the design.

The problem was complicated by the relatively small number of existing prisons which approached what the Federal Bureau wanted here. As the first new Federal prison of any type in 20 years, the design of this institution was forced to be a pioneering effort, in order to succeed as architecture reflecting the current philosophy of penology.

The size for the new institution represented a considerable hurdle. Current thought on this subject points to smaller populations than was the rule in the past. However, because of the great overcrowding of other prisons in the Federal system, the decision was made to design the institution for 600 inmates with provisions for possible expansion to 1000. Another factor complicating design was the site, which was finally determined only after the preliminary design had been completed.





Concerning the design of this institution, James W. Bennett says, "it is one thing to achieve an engaging design for a minimum or medium security prison, but quite another to attempt it for a maximum custody plant. The architects for this institution were given the very difficult task of designing a maximum security plant to house 600 or more of the most rebellious prisoners in the Federal Prison System. They were told to keep its construction costs down to $14,250.00 per inmate, or a total of approximately $10 million. These costs are very low for maximum custody construction.

"After much study, the architects arrived at an adaptation of the telephone plan so ingenious that it must be considered a new concept. Main circulation through the institution will be by means of four corridors at right angles to each other. Two story, 72-man housing units are ranged along two of the corridors. Special purpose housing units located on one of these corridors include an admissions and orientation building, a hospital, a 70-room unit connected to the hospital for psychiatric and similar purposes, and an administrative segregation building for disciplinary purposes. Although this is a maximum security prison, a large number of outside rooms is provided in order to make it possible to create situations in which to test the readiness of inmates to move on to other Federal institutions with fewer custodial restraints.

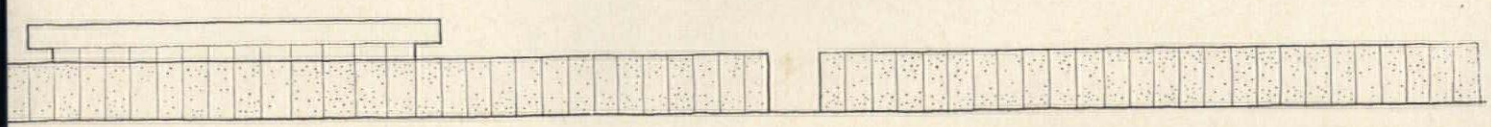
"The architects have emphasized functional aspects in their design for the new institution. This will minimize construction, maintenance, and operating costs. The relating of all major areas to the central control point located at the intersection of the four main corridors will facilitate prisoner movements. When not in use, the shop units, dining rooms, and other facilities can be locked off from the housing and activity areas.

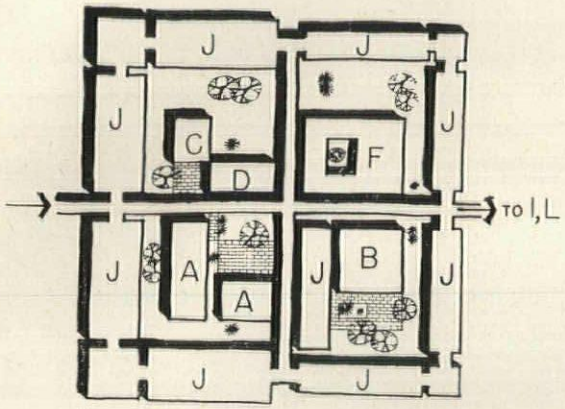
"Provisions have been made for economical future expansion by the choice of the simple, direct circulation system via relatively short corridors radiating from the central control point. Access to and supervision of the two-story units will be made easy by the placing of the access corridors at a level midway between the two floors (see sections, page 230). Corridor construction will be combined with that of a utility distribution tunnel directly below. In this manner, much costly underground construction will be eliminated.

"While the new maximum custody prison is expected to be relatively inexpensive to construct and operate, considerations of economy do not preclude the provision of facilities for an active program of individualized treatment, training, and employment. These rebellious, escape-conscious prisoners cannot be just locked up and written off. They will come out of prison some day. This prison has been designed to help make their entry back into society as successful as possible.

"Another important part of the program for the design of this institution was the provision of facilities for a penological laboratory and research center whose findings will eventually benefit the entire Federal prison system.

"In essence, the new prison represents an inventive—yet realistic—compromise between the needs of the community for protection and the needs of the prisoners for intensive treatment and, if possible, rehabilitation."

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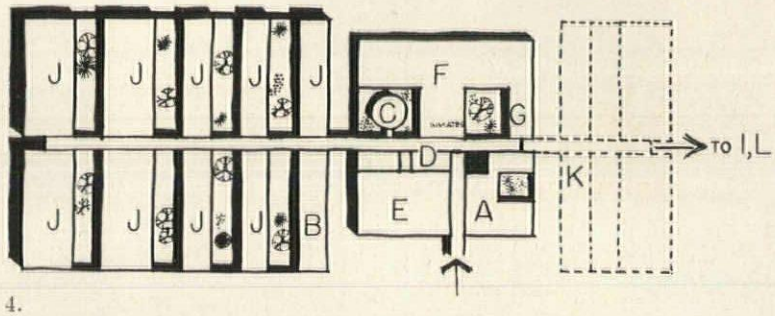
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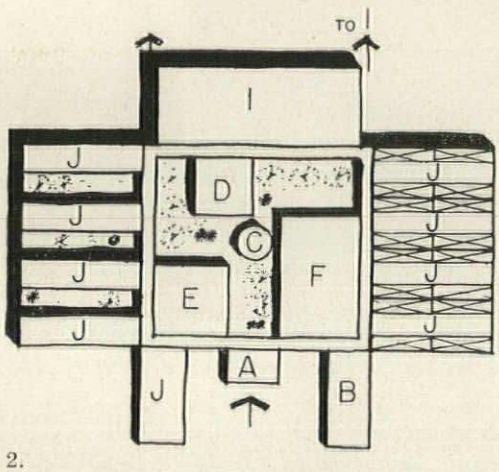
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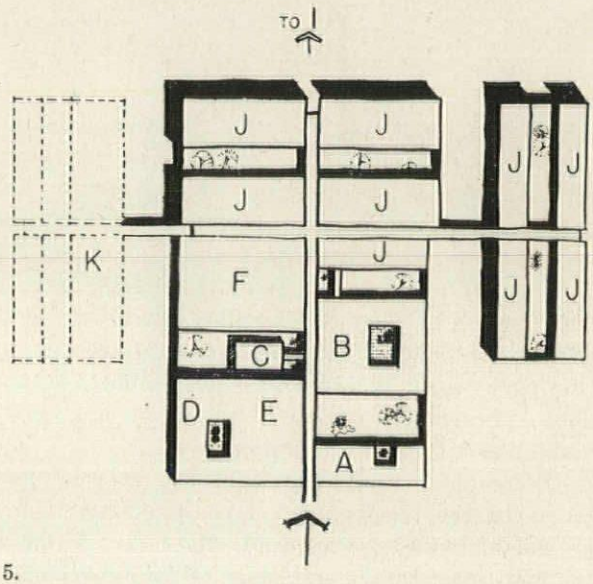
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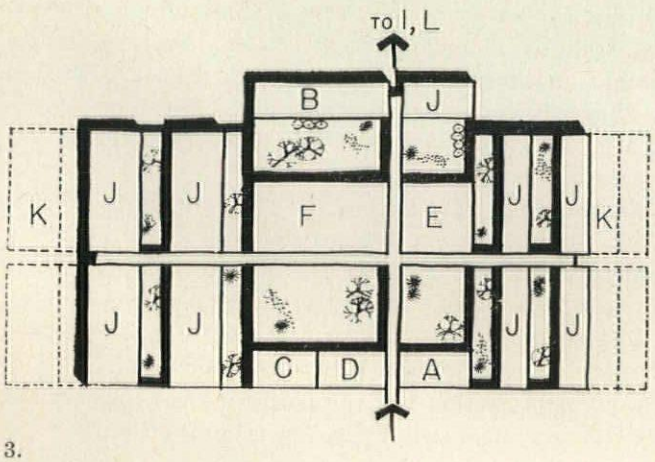
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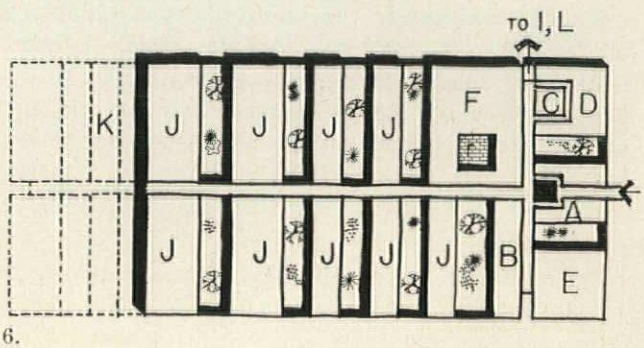
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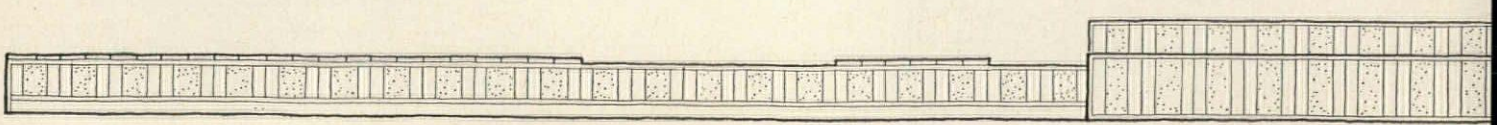
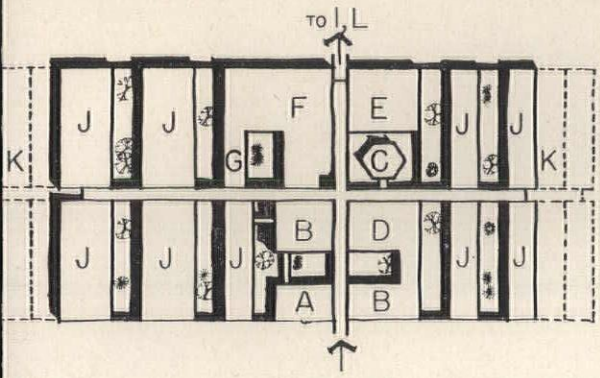
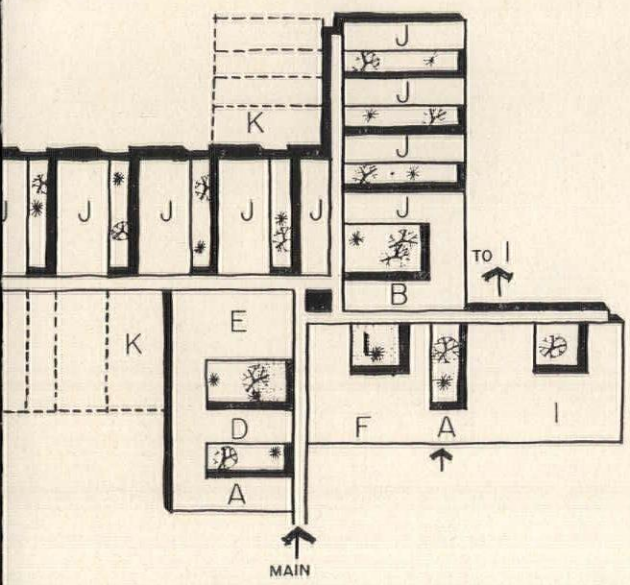
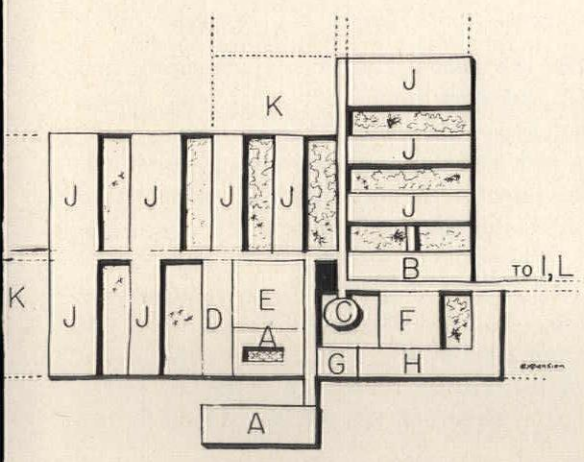








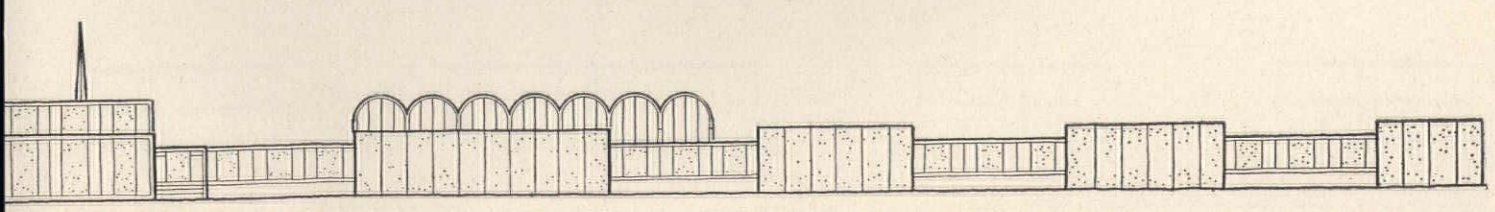
A. Administration
B. Hospital
C. Chapel
D. School
E. Auditorium-Gym
F. Dining
G. Staff Dining
H. Kitchen
I. Industry
J. Housing
K. Future Addition
L. Playfields

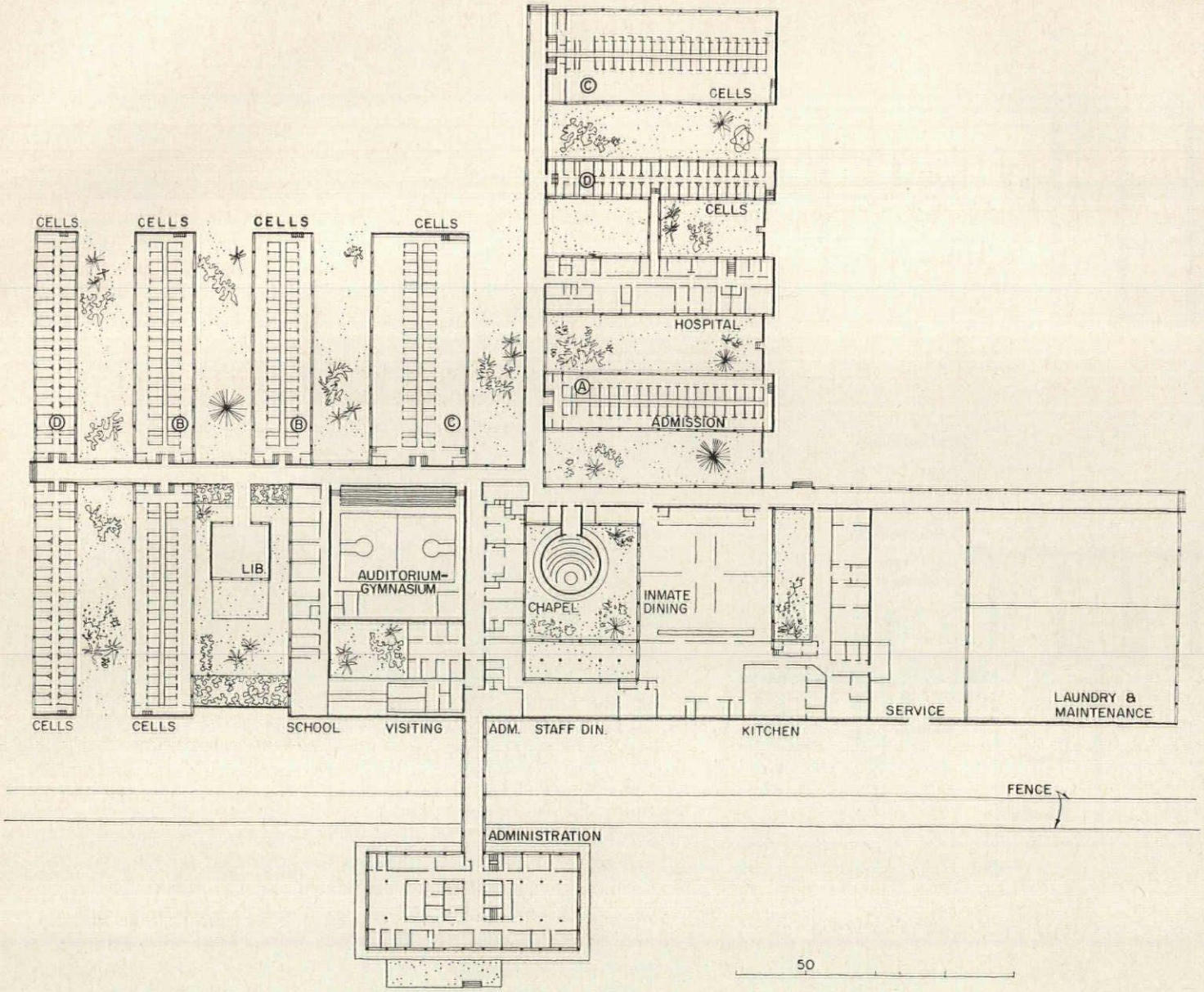
It was evident from the beginning of architectural work on this prison that a great deal of data gathering, research, and preliminary work would be necessary. After this work had been accomplished as completely as possible and the program established, the architects began a long series of preliminary development drawings. Some of these are shown here.

The original departure point was a hollow square scheme (fig. 1). The square is crossed by a set of two control corridors, along which are located the necessary community facilities such as the hospital, school, and dining hall. As may be seen, this plan is tight, static, and inflexible. A second attempt resulted in an entirely different arrangement of circulation (fig. 2). This scheme has many of the same faults as the original, and in addition, circulation is less well-defined and functional. The architects went back to the original cross-corridor scheme and from this point on all designs were based on variations of this system.

The main limiting factors of the design, which became apparent as the design progressed, were effective control of all facilities and corridors and the necessary relationships between administration, community facilities, and the housing units. Within these groups, many details of sub-group relationships also had to be solved.

As the design process neared a solution, the circulation system became a staggered cross corridor system, resembling in plan, a pinwheel (figs. 8, 9). By the use of this scheme, all important relationships were achieved. A central control point was established which, it is believed, will function effectively. The final plan (page 230) is a more refined minor variation of this scheme.



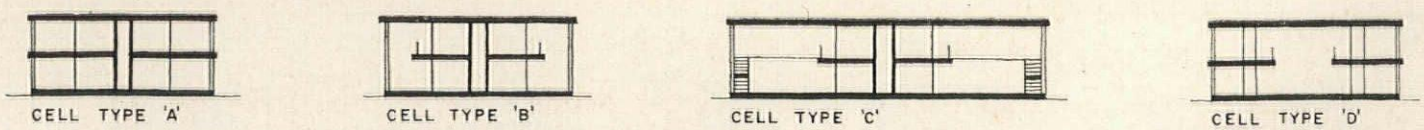


The final plan for the prison, which resulted from the painstaking study described in the preceding pages, represents a considerable departure from the design concepts for prisons formerly constructed. It has almost nothing in common with existing maximum custody plants. There are no high walls; this institution is surrounded by a double fence. Security here is a matter of correct placement of elements and the provisions for near-perfect controls. In other words, maximum custody is achieved here through top-notch architectural design based on the best current penology.

Together, design and prison philosophy have achieved other useful benefits here. It has been made as pleasant as possible under the circumstances. Large windows will provide adequate ventilation and a view. Landscaping will be studied with extreme care for maximum effectiveness. Vaulted roofs on the chapel, library, gymnasium, and dining room will lend some interest to what is an essentially dull, monotonous existence.

Facilities are provided for the rehabilitation and advancement of the inmates. Opportunities for educational pursuits are available in the six-classroom school and the library. Inmates will be able to perform useful work in the industries building to be constructed later. Recreational facilities are complete and will allow a varied program. The chapel (seating 200) will be readily available. In the dining hall, inmates will be seated at four-man tables rather than the older mess hall types with all men facing the guards.

If it is at all possible to return some of these almost irredeemable people to useful lives outside, this should be the place where it can happen.



SECTIONS

Architectural Engineering

Not Only The Heat and the Humidity

We called the Weather Bureau the other day during a hot spell, and as we expected, were told that, all in all, it has been a pretty normal summer. Nevertheless, we've been watching the Bureau's Temperature-Humidity Index, and believe we have some scientific basis for having felt uncomfortable at times. [The T-H Index was introduced this spring in a dozen major cities and embodies temperature and humidity as variables. Originally it was called, with some logic, Discomfort Index, but chambers of commerce and tourist bureaus pressed for a more euphemistic name.] While such a measure of discomfort might suffice for most commercial and domestic air conditioning, it leaves out many factors significant in schools, hospitals, and for many industrial and military situations, including space travel. Dr. L. P. Herrington, a long-time researcher in special military thermal environments, on the ice caps, in the tropics or under the sea, has set out to gather a lot of complex data on heat and cold stress which can be put into a conveniently usable equation so as to predict the conditions necessary for comfort or specified grades of stress. In talking to the annual A.I.A. meeting this year in New Orleans, Dr. Herrington described a calorimeter for measuring human reactions in complex indoor and outdoor climates that may range from − 40 F to + 180 F with all variations of humidity, radiation and air movement. Dr. Herrington, who is director of research of the John B. Pierce Foundation in New Haven, Conn. has built into his equation such factors as age, sex, working rate, insulation value of clothing, mean radiant temperature and air velocity. Eventually, he says, there will be human thermal design guides covering all tolerable temperature ranges, and all combinations of both normal and activity-required protective clothing. Who knows, perhaps he could write specifications for the thermal comfort of earth people on Mars. And in any case, those of us who remain on earth should have a scientific rejoinder for the weather small talk we have with taxi drivers, elevator operators and waiters. Seems a shame, doesn't it?

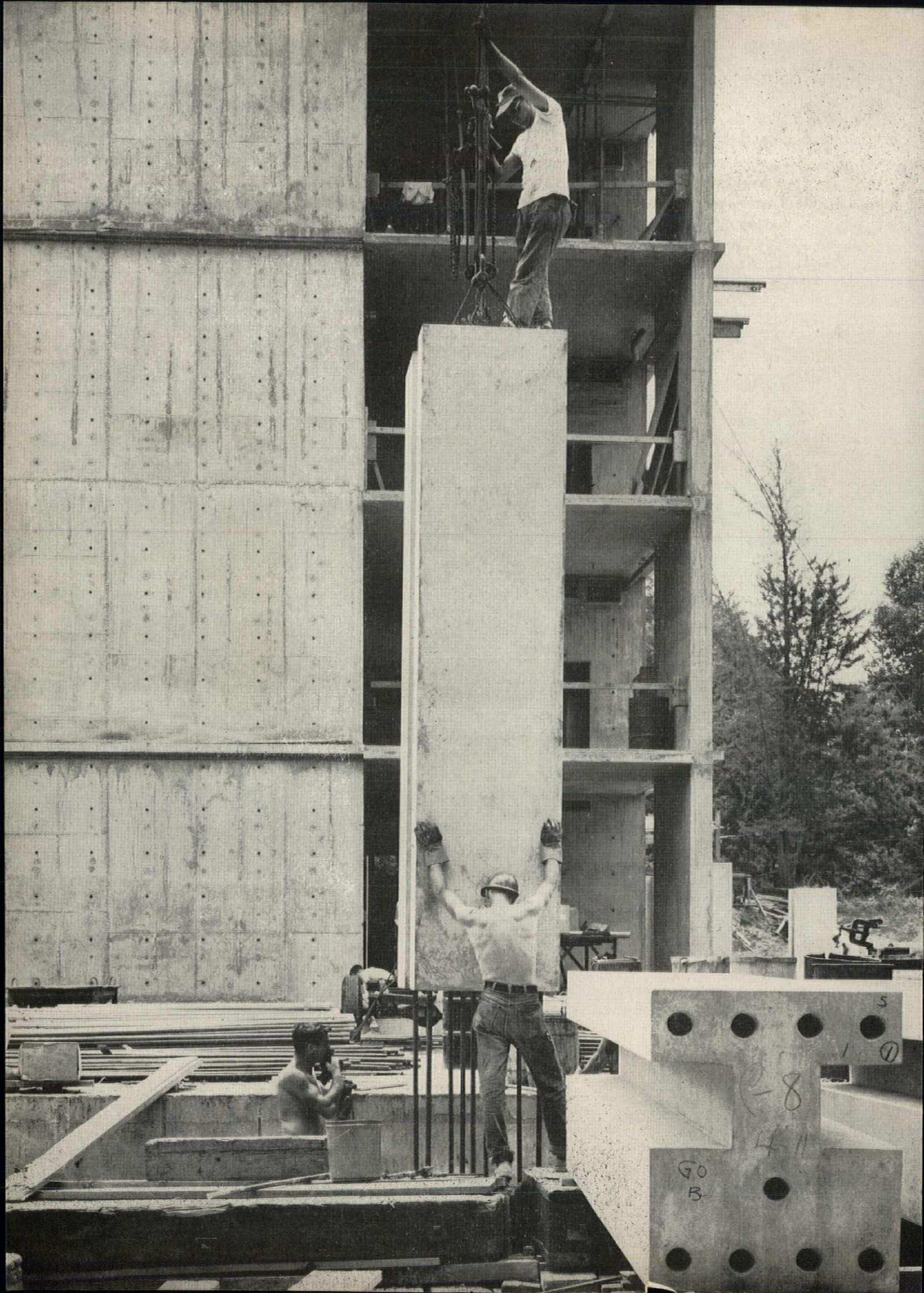
Half a Billion in Central Station Air Conditioning—1958

Over $550,000,000 worth of central-station air conditioning systems was installed last year in office, apartment, commercial and industrial buildings, according to a July report from the Air-Conditioning and Refrigeration Institute. The volume was split between the first two and last two categories. With an eye out for the future, ARI points out that less than 10 per cent of U. S. industrial buildings are air conditioned, but that growing company recognition of gains in production and employe morale plus the increasing need for process temperature and humidity control make this an attractive market.

Why the Pentagon Fire?

The Pentagon fire on July 2 was still another example of an open invitation to fire. This is the conclusion one draws from a preliminary report in the August edition of *Fire News*, published by the National Fire Protection Association. The fire burned out a 4000-sq-ft area containing three computers and between 5000 and 7000 rolls of magnetic tape, with property damage estimated at over six million dollars. According to NFPA the building was honeycombed with combustible partitions, concealed spaces containing wood framing and suspended combustible ceilings. Two possible causes of fire were listed: (1) defective or overheated wiring in the concealed ceiling space or (2) a bulb, in a string of temporary lamps, lodged between a rack and the combustible ceiling finish.

This Month's AE Section



LOGIC AND ART IN PRECAST CONCRETE

MEDICAL RESEARCH LABORATORY *University of Pennsylvania, Philadelphia, Pa.*
Architect: Louis I. Kahn, F.A.I.A.
Structural Consultant: Dr. August E. Komendant
Consulting Engineers: Keast and Hood
Prefabricator: Atlantic Prestressed Concrete Co.
General Contractor: Joseph R. Farrell, Inc.

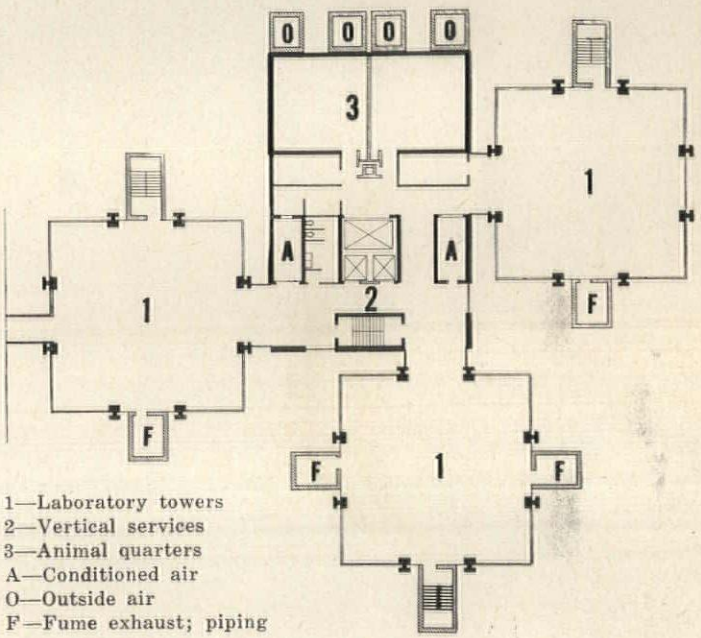
Louis Kahn's comment on the precast shapes shown on these pages is that they convey the spirit of the building —just as a few battered columns can still convey the spirit of ancient Greece. The comparison is an apt one. For the shapes themselves, like the structure they form, evolved so logically from the architectural requirements that "structure" and "building" cannot be separated: the one evokes the other.

In the beginning, however, Kahn had neither. He started with just two premises: that for students and researchers, as for architects, the studio is the best environment; and that the extensive services needed for their work should not interfere with it. From these premises, he devised a plan not essentially different from the standard one of distributing offices and laboratories along service corridors. But the corridors are vertical, the "studios" are stacked on top of one another, and the Laboratory is four buildings instead of one.

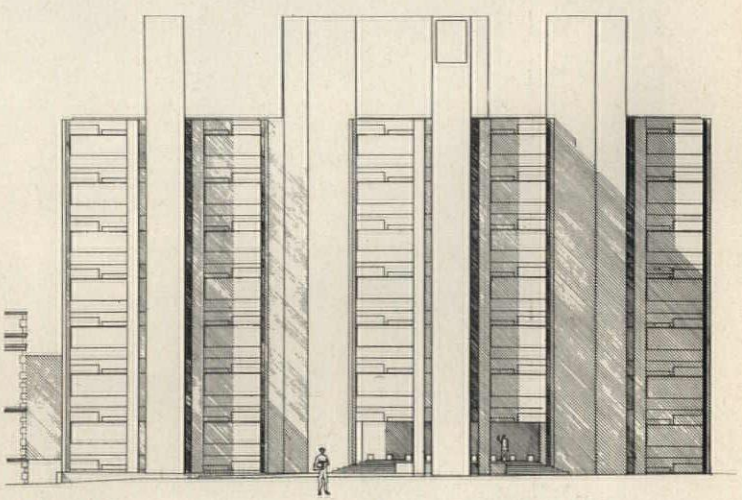
The central building in the complex is a poured-in-place utility tower with two-way slabs supported on the load-bearing walls that enclose elevators, stairs, lavatories, quarters for laboratory animals, and other facilities shared by the three, eight-story studio towers distributed swastika-style around it. Each of the three studio towers is in turn flanked on four sides by slender brick sub-towers which rise some 25 ft above the main buildings. Three of the sub-towers link their respective buildings to the central core; the others enclose fire exits, vertical service lines, and exhaust stacks.

With all vertical circulation of services and people thus confined to the sub-towers or the central utility tower, each laboratory floor becomes a self-contained studio, unencumbered by permanent verticals of any kind. To leave the corners light and open, the two columns on each side of the studio towers were moved in to the third points. The 47-ft clear spans are bridged by precast Vierendeel trusses which allow free horizontal circulation of the complex network of services for each floor.

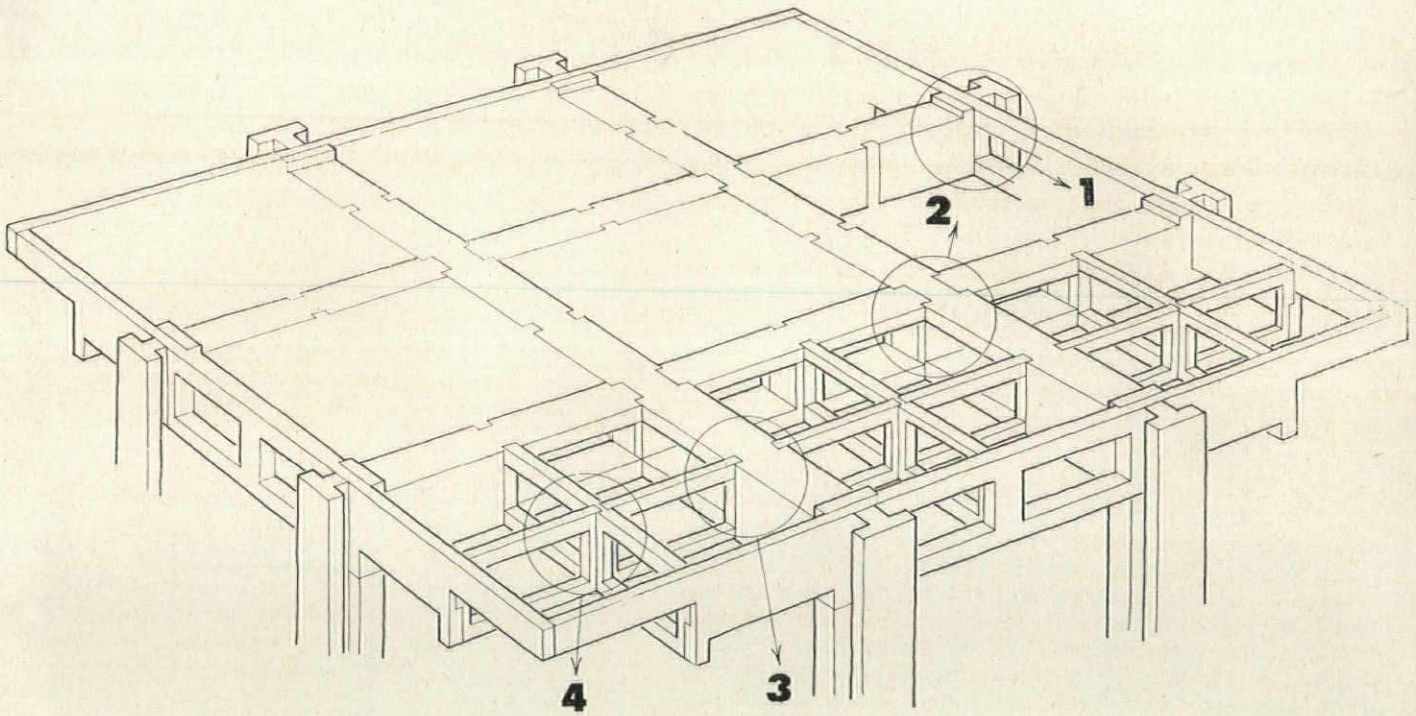
The framing system for the studio towers consists of four basic precast shapes. But the four are standard only in the sense that they are repeated. Each was tailored to meet the particular requirements of this particular building; and each was carefully detailed to meet variations in field conditions through modifications in the members themselves rather than in the connections. As a result, the elements lie somewhere between the stock members (channels, T's and so forth) that are used primarily for economy, and the intricate geometric forms that are used primarily for visual expression. Perhaps they also point the way to a more logical use of precast concrete: one that takes full advantage of factory techniques without resorting to assembly line engineering.



1—Laboratory towers
2—Vertical services
3—Animal quarters
A—Conditioned air
O—Outside air
F—Fume exhaust; piping

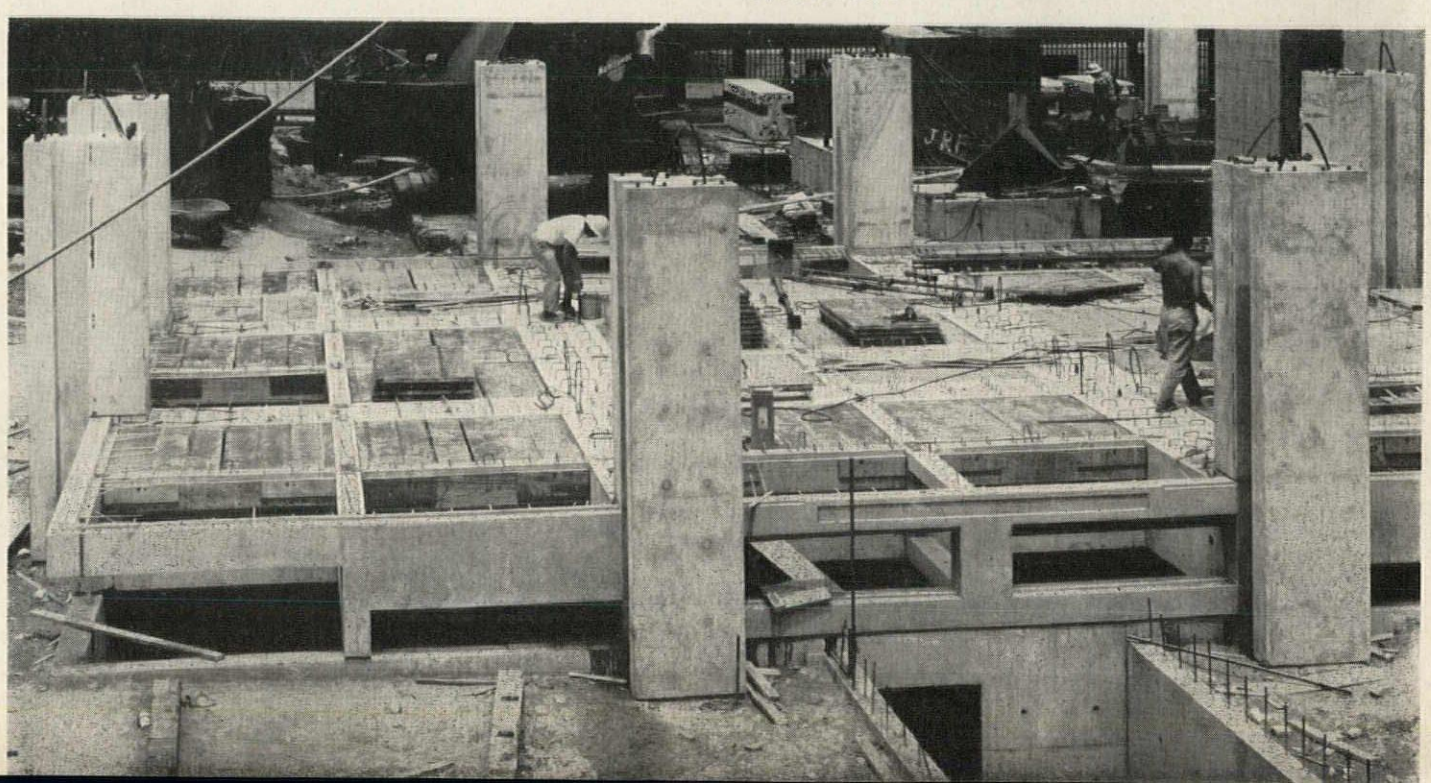


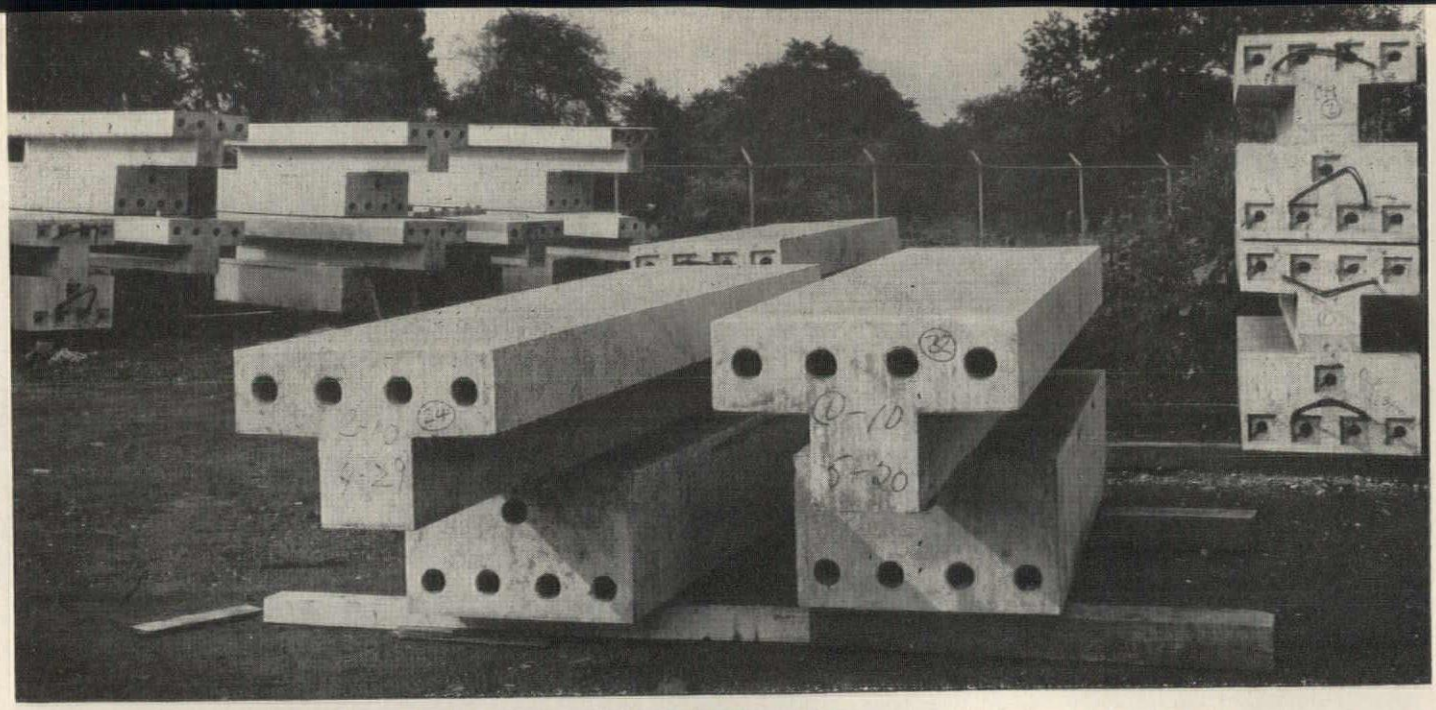
All photographs by Ronald C. Binks

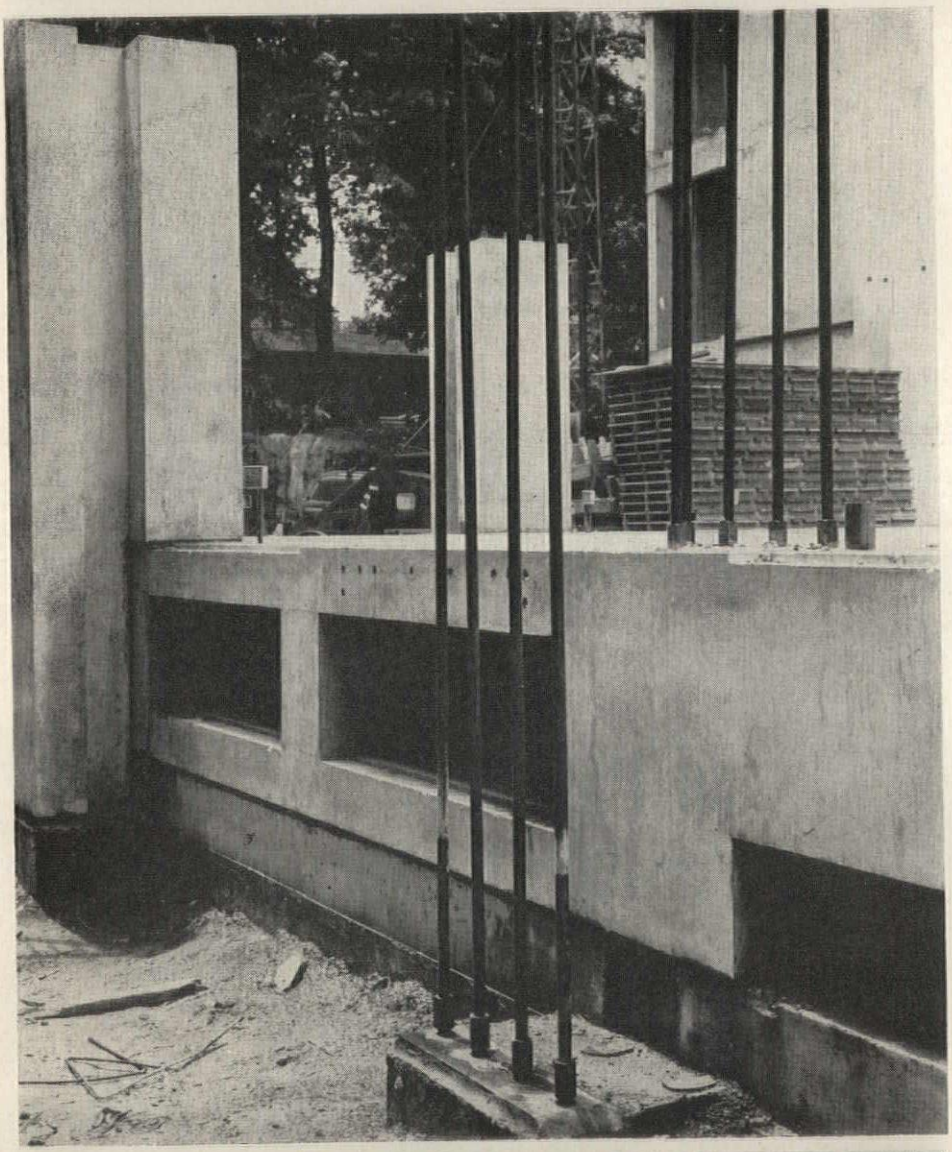


Basically the structure for the studio towers (top floor shown above) is an eight-story rigid frame whose 45-ft-square clear spans are bridged by heavy Vierendeel trusses supported on H-columns at both ends. Stepped spandrel beams cantilever outward from the columns, while slim secondary trusses span between the main trusses and spandrels. The horizontal framing members of each floor thus form a 3-ft-deep open web which supports floor loads and the network of pipes, conduits, ducts and hood exhausts within the confines of the structure.

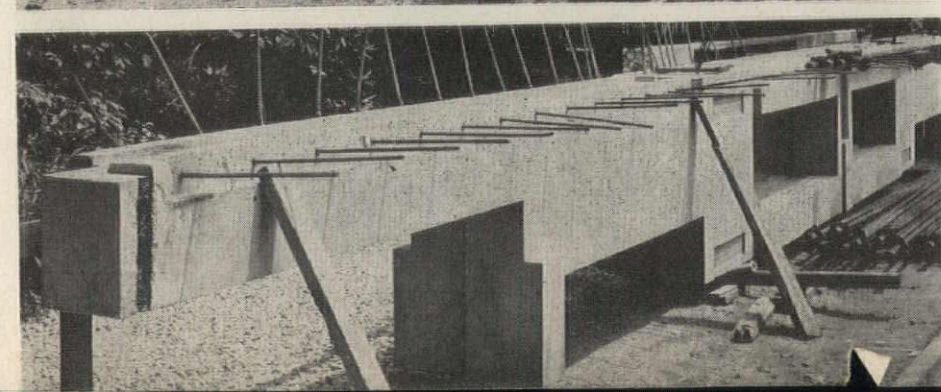
Although the extensive services and the heavy laboratory equipment brought the design live load up to about 100 psf, prestressing kept the columns and girders down to manageable size and linked them into a fully continuous, and highly efficient, structure—reportedly the highest precast frame of its type ever built

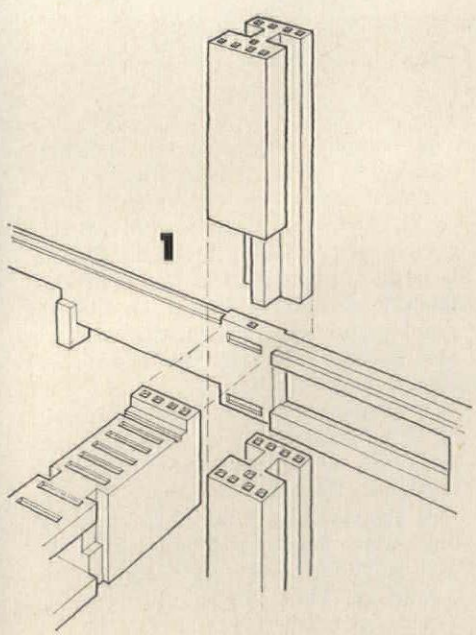


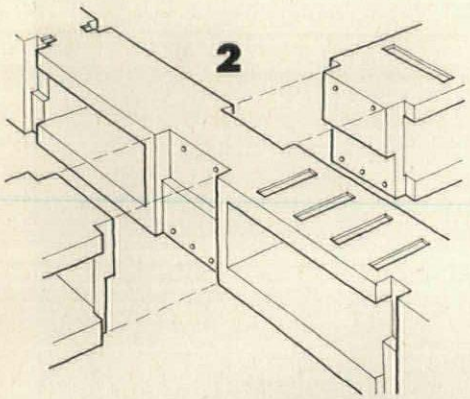


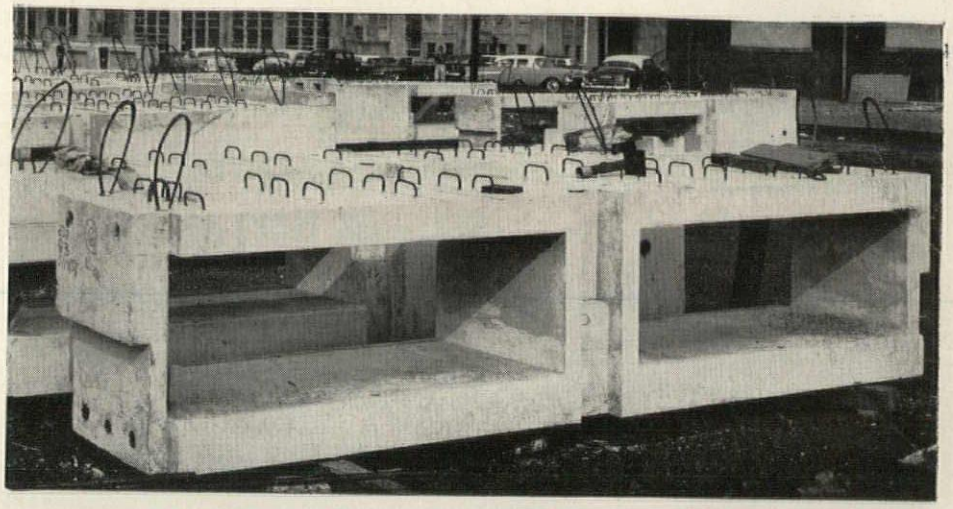


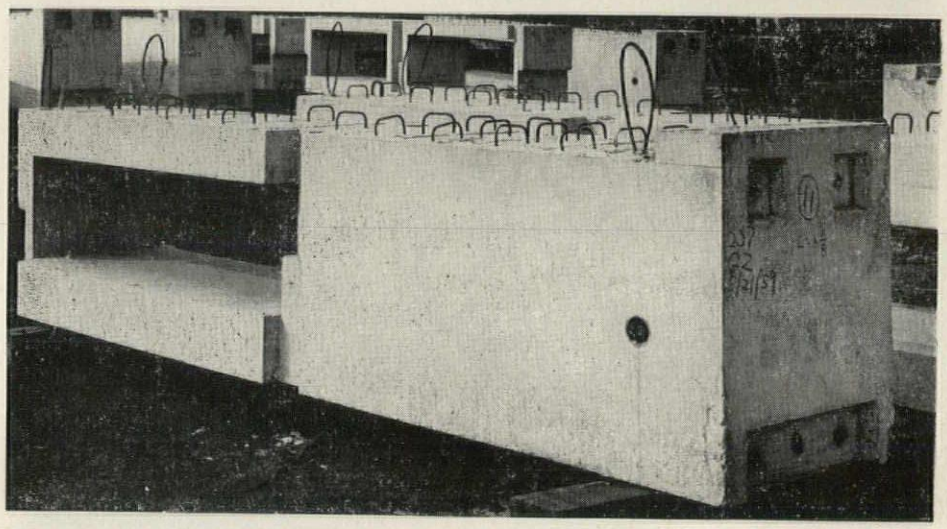
Although the columns and spandrels are "architectural," they are not arbitrarily so. For example, the web-deep separation between the column's outer flanges and the face of the building does lighten the columns visually. But the H-section was chosen for maximum efficiency under the eccentric loads. The deep truss section that permits passage of service lines through the center of the spandrel also supports its cantilevered ends; and the stepped cantilevers themselves take advantage of the gradually decreasing stresses in the span without making it necessary to frame the glazing into a sloping member. As shown, the inner flange at one end of each column is cut short to form a niche for the spandrel and truss which rest on the column below. To preserve the continuity of the columns at the joints, the prestressing rods in their inner flanges are also run through the spandrel and truss, tying them in place with a prestress force of 90 tons



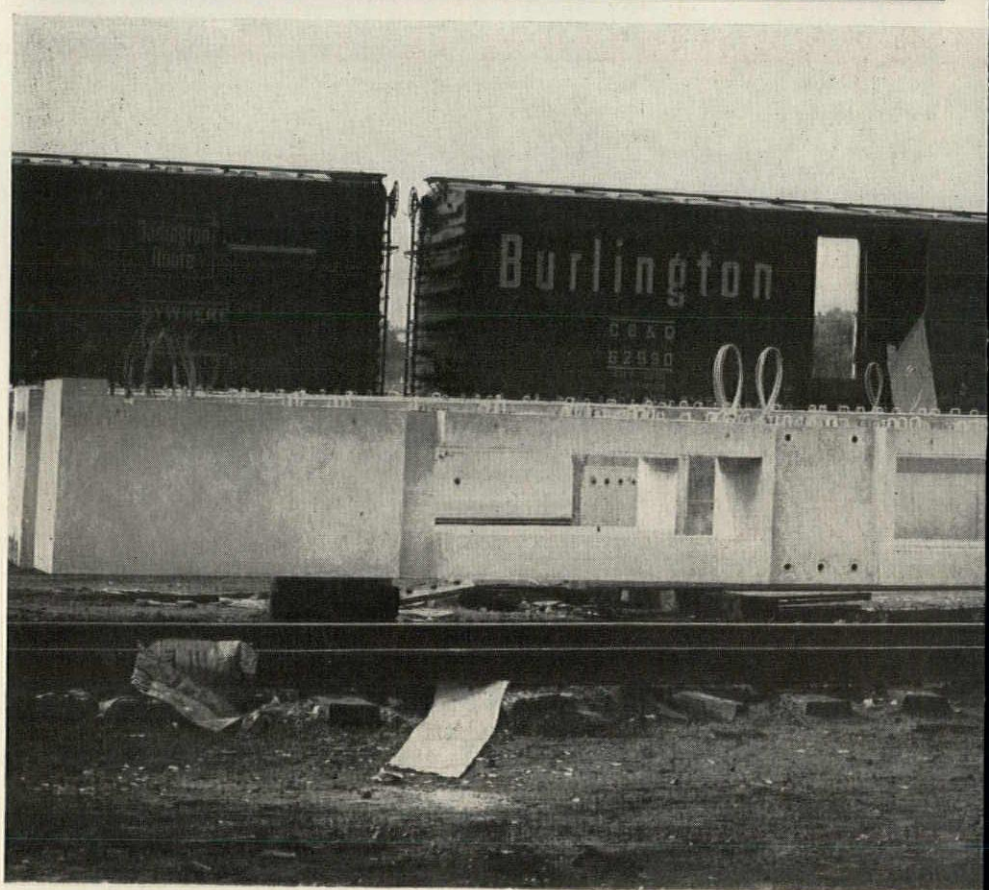






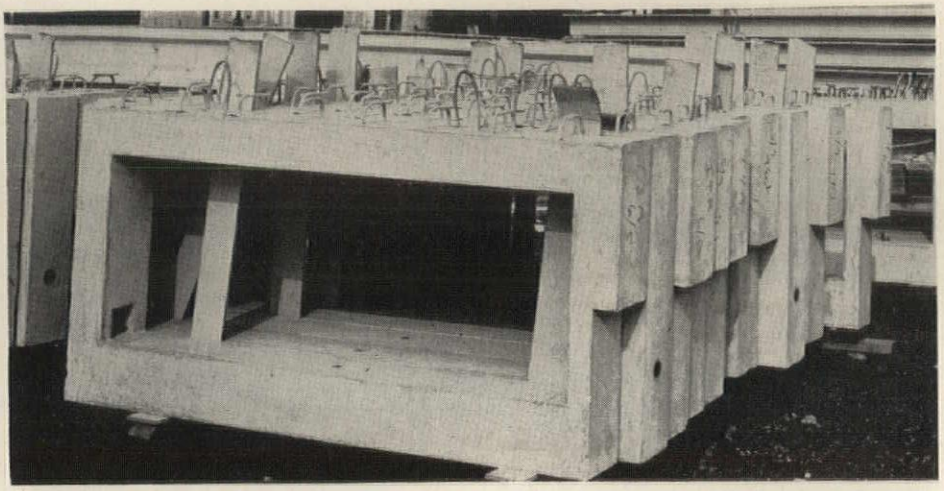


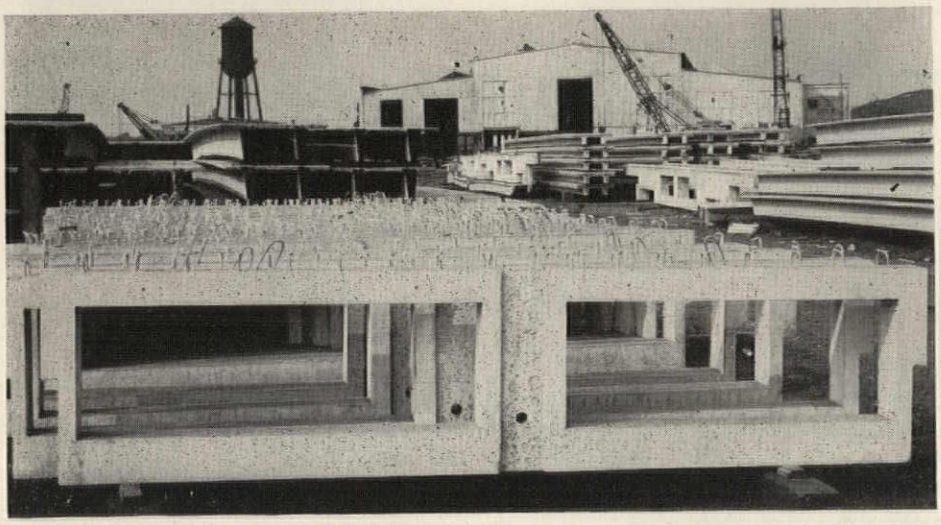
Two of the four Vierendeel trusses on each floor were cast in three parts which slip in between the columns and the two one-piece pretensioned trusses running in the other direction. Both ends of the middle truss section (above right) and the inner ends of the sections on either side of it (right) are notched to match seats cut into the pretensioned trusses. The outside ends are seated on the columns. Once in place, the three sections are joined by post-tensioning to form a continuous member that duplicates the pretensioned truss. The vertical joints were filled in with ¼-in. steel plates instead of grout so that the sections could be post-stressed as soon as they were seated; the grouting was done after post-tensioning

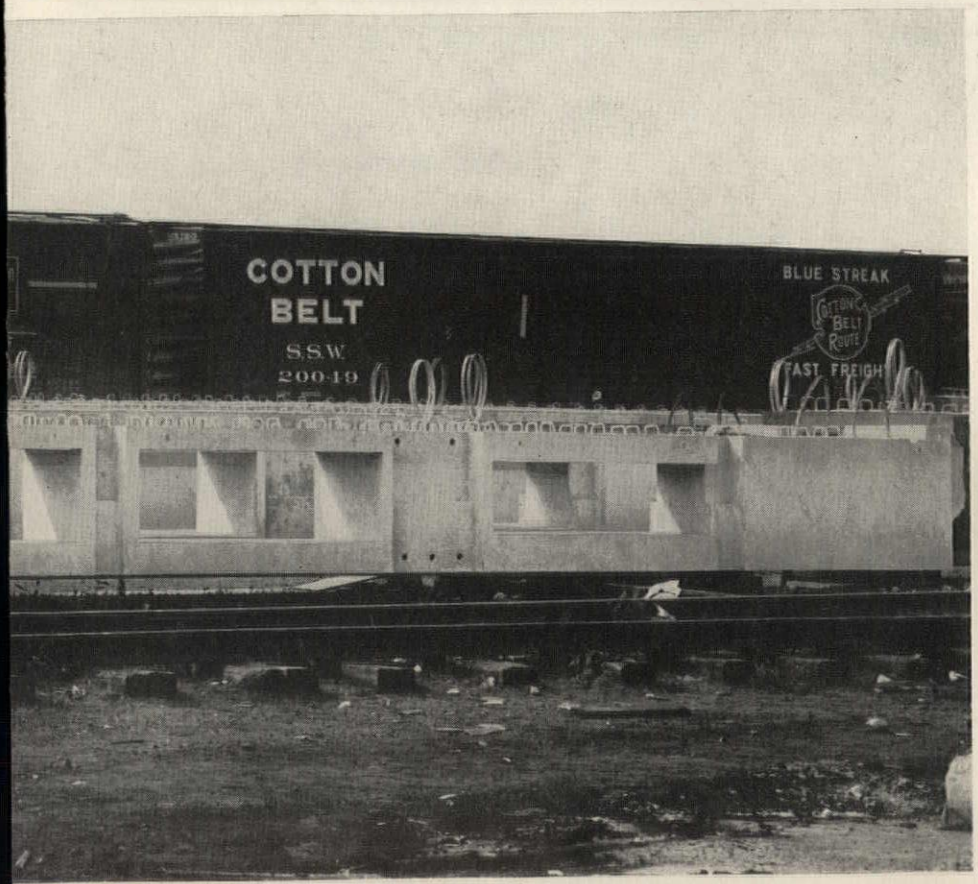


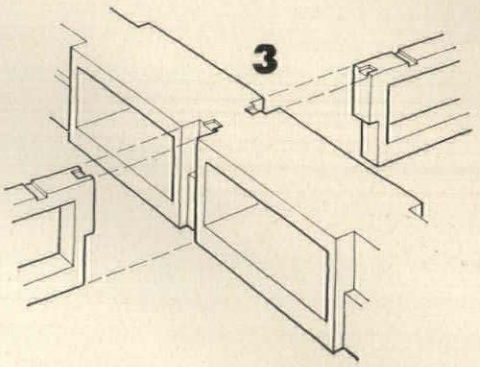
The one-piece main trusses (right) were pretensioned slightly higher than the final loads required so that they could carry the extra weight of the three-part trusses until the latter had been post-tensioned. Field tests on the main trusses have shown an almost exact correlation between their actual and theoretical behavior under various conditions of loading.

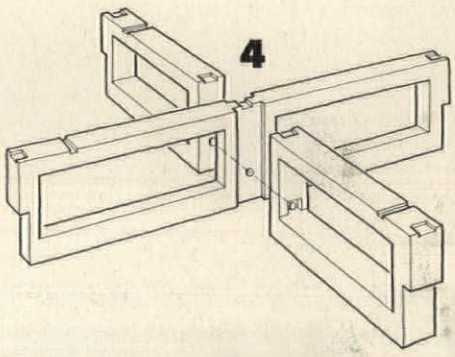
The one-part trusses are prestressed by ⅜-in. strands: 12 in the top flange and 26 in the bottom flange. The post-tensioned trusses have three 1¼-in. rods stressed to a total of 200 tons in the bottom flange, and two 1-in. rods with a 70-ton prestress force in the top flange. They camber about ⅛ in. after post-tensioning





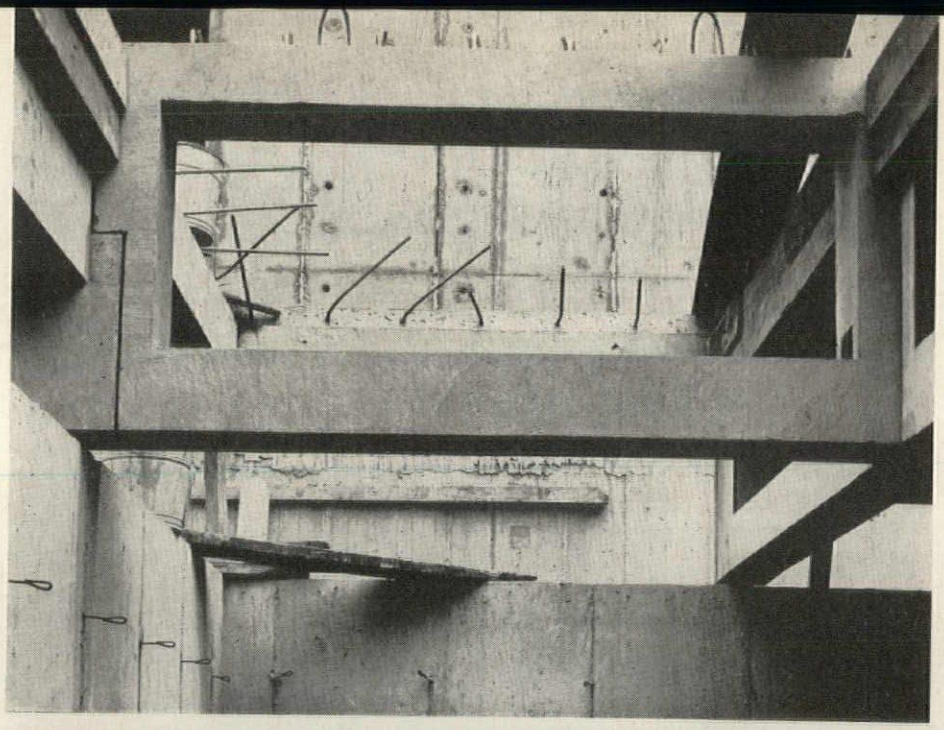


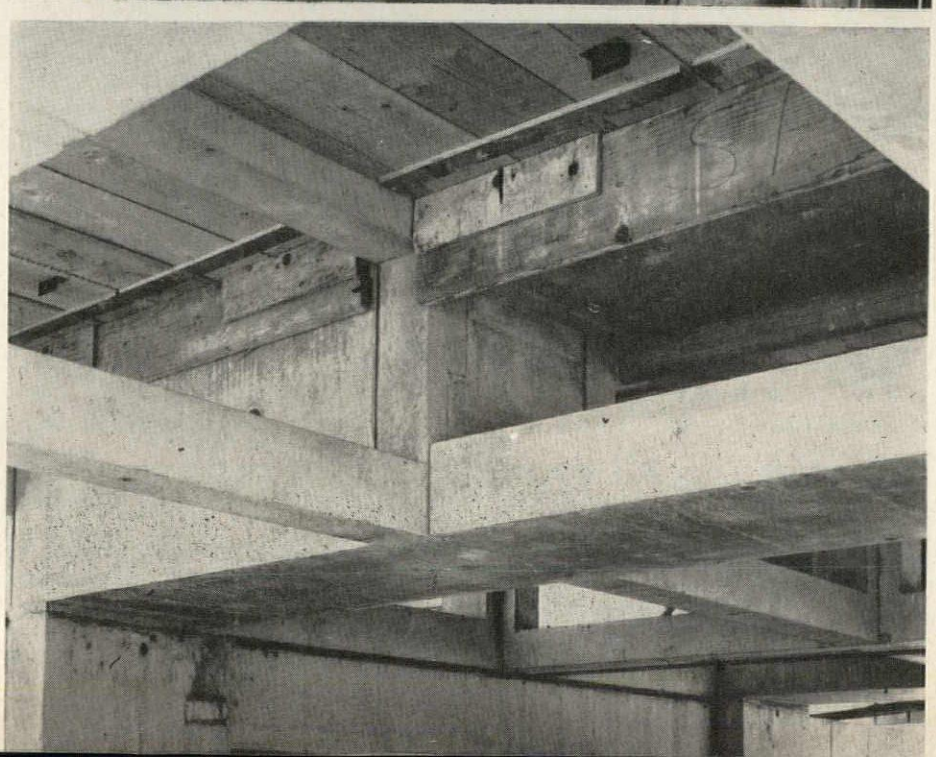




The slim (8 in. thick, 38 in. deep) secondary trusses at left above were also notched to match seats on the Vierendeel trusses, which they join as shown in detail 3. One of the two in each bay was cast in two parts and bolted together through the one-piece truss perpendicular to it (see detail 4).

Since they could be omitted altogether without seriously affecting the basic structure, the primary purpose of the secondary trusses is to provide intermediate supports for the pipes and ducts. (They cost no more than hangers would.) However, they also provide convenient locations for partitions, and help to lighten the floor slabs





At this stage of construction, as the photos here show, one of the most striking features of the Medical Research Laboratory is the precision with which the elements were assembled into a monolithic whole. Kahn insisted on craftsmanship—and he got it: the exposed members fit together with a deceptive simplicity more typical of fine cabinetwork than of concrete construction.

To begin with, they were detailed to expedite a carefully worked out erection procedure. They were then cast to extremely close tolerances and steam-cured to obtain smooth, durable lime-packed surfaces. As a result, the laboratory floors are being put together at the rate of three a week; the joints are so precise that they will be emphasized by tooling out the grout to a depth of ¼ in.; and it is difficult to find a flaw in the finish.

The speed of field operations is attributed to the joining system, which provides seats for all members, thus assuring faster and more accurate placement than would be possible if welded plates or cast-in-place sections were used at the joints

PLANNING FIRE ALARM SYSTEMS

by L. T. Chandler, Edwards Company, Inc.

What are the various types of fire alarms; and what characteristics do you want to meet the requirements of a particular building type—school, hospital, factory? These questions are answered in the following article; examples of typical situations are given in Time-Saver Standards, pp. 247, 249.

It is almost axiomatic: people simply will not concern themselves about fire protection—that is, not until after a major fire. According to experts, public interest in fire prevention usually reaches its peak after some serious tragedy. During the aftermath of, say, a Chicago school fire everyone agrees that something must be done. But in a relatively short time interest dies down and in the end little or nothing is done to prevent similar catastrophies.

Hopefully, there are signs that this may be changing: that fire protection is getting the attention it deserves.

Legislatures across the country have at long last begun the job of either instituting or bringing up to date, state and local fire codes. For example, automatic fire alarm systems are now mandatory for all new residential construction in Quincy, Mass., following the passage of a city ordinance on July 1, 1958. Championed by the city's building department, fire chief and local newspaper, this code is believed to be the first of its kind ever enacted in the U.S.

Nearby New England cities have been quick to follow Quincy's lead—and perhaps even go a bit further. A baker's dozen of nearby communities have recommendations before their respective city councils, some calling for automatic fire alarm systems in all new construction. Philadelphia's city council likewise has taken action. A recent court decision there directed the installation of automatic fire alarms and fire escapes in all 18,000 of the city's three-story multiple dwellings.

There is similar evidence of concern all over the nation. At this writing, Nebraska has before its legislature a strong, well-written fire protection code. The state of South Carolina recently passed its first statewide school fire code.

However laudable, this of course places new burdens on the architects and engineers who are called upon to design, lay out and specify components for such fire alarm systems. Each type of structure is different, and each requires a custom-designed installation which will protect lives and property most efficiently for that type of building.

Today, there are literally hundreds of different fire alarm systems on the market. Problem is, which type of system is best suited to what building.

Table 1 (see page 240) outlines general types of systems, their components and their operation. Table 2 (see page 242), on the other hand, illustrates the application of these systems to various structures.

Just as it doesn't make good design sense to specify floors capable of bearing the same loads, or heating units that deliver the same Btus for two completely different buildings, so it is important that each and every fire alarm system be tailored to meet specific needs.

In a school building, for example, the primary job of a fire alarm system is to alert faculty and administration to danger, so that pupils can be immediately evacuated. On the other hand, immediate evacuation is the last thing hospital administrators want in their fire alarm systems, since it could do more harm than good to convalescing patients.

Regardless of circumstances, when a school fire alarm system goes off, children must leave the building—rapidly. To accomplish this, most schools install relatively simple fire alarm systems (in the case of smaller schools, type NC or MC systems, while in larger buildings, C-type units are recommended) that sound an instantaneous warning throughout the building whenever an alarm is turned in. In other words, school systems are, for the most part, one stage—fire is reported and a general evacuation alarm is sounded simultaneously.

Compare these simple systems with the highly-sophisticated two-stage protection-detection set-ups in thousands upon thousands of hospitals. Known as pre-signal systems, these do exactly what their name implies—sound special coded "pre" signals when fire breaks out. This notifies selected personnel, i.e., administrators or nurses, that fire has broken out. Fire location is indicated by the coded signal. For instance, if 3-2-1 rang on a pre-signal, it might mean fire in wing *three*, on floor *two*, near room *one*. If after investigation, a stage two, or general alarm is warranted, authorized personnel can then inset a key in any fire alarm box, pull the handle, and thus cause evacuation signals to sound.

Dormitories (and this includes a number of similar structures such as motels, and convalescent homes) have slightly different fire alarm requirements. In such buildings, early warning and detection of fire is imperative, to assure complete safety for sleeping occupants. How is such early detection and warning accomplished? By installing automatic fire detectors throughout such buildings. When activated by heat, these detectors close electrical circuits, causing all alarm signals to sound.

Still different criteria are found in hotels. Here, occupants are generally transients, who cannot be expected to be familiar with emergency fire procedures; consequently an immediate general evacuation signal here is not desirable. The answer, then, is the two-stage, or pre-signal system. During stage one, the manager and maintenance crew are alerted. Then if necessary, guests can be evacuated in an orderly manner.

Though fire alarm systems are generally fitted to given building types as evidenced by Table 1, there are no firm boundaries as to applications. Many systems, it has been found, can be adapted to protect other types of structures with only minor modifications.

For example, ordinarily type NC or MC systems would be used in school buildings. Administrators in Boulder, Colorado, felt, however, that a completely automatic system would best protect students in the 15-school district. Consequently, they purchased and had installed ZNC-type systems, using some 1500 automatic fire detectors. Naturally, all these systems were city-connected.

TABLE 1: BASIC LOCAL FIRE ALARM SYSTEMS AND THEIR COMPONENTS

TYPE	SYMBOL	INITIATING DEVICES		INDICATING DEVICES		OPERATION
		Manual	Automatic	Audible	Visual	
NON-CODED	**NC**	non-coded station	fire detector	4, 6 or 10 in. vibrating bells or horns	annunciator (see note 1)	Operating of any initiating device sounds signal until device is restored to normal.
CODED	**C**	coded station	fire detector (see note 1)	4, 6 or 10 in. single-stroke bells, chimes or horns	annunciator or punch recorder-time stamp (see notes 1, 3)	Operation of any initiating device sounds four rounds of code, indicating location of the operated device.
MASTER-CODED	**MC**	non-coded station	fire detector	4, 6 or 10 in. single-stroke bells, chimes or horns	annunciator (see note 1)	Operation of any initiating device sounds four rounds of common code or a continuous march-time rhythm (120 beats per minute).
PRE-CODED	**PC**	coded pre-station	fire detector	4 in. single-stroke bells or chimes for pre-signal: 6 or 10 in. bells for general alarm	annunciator or punch recorder-time stamp (see notes 1, 3)	Operation of any initiating device sounds four rounds of code unique to device, on pre-signals *only*. General alarm, turned in manually by means of lock switch at any station, sounds on all signals.
ZONED, NON-CODED	**ZNC**	non-coded station	fire detector	4, 6 or 10 in. vibrating bells or horns	zone lamps on control panel	Initiating devices wired in zones. Each zone connected to an associated lamp on panel. Zone lamps are normally lighted. When initiating device operates, associated zone lamp goes out, thus locating fire area. All signals sound until system is reset.
All of the above systems can be city or remote station connected if specified						

NOTE 1: With annunciator, location of operated station or detector is indicated until reset
NOTE 2: Each detector or group of detectors requires one automatic code transmitter on control panel
NOTE 3: Punch register-time stamp offers permanent record of each alarm

Pre-signal systems, applied in hospitals and hotels for the most part, have also been used in large commercial buildings. Consider, for instance, the fire protection-detection system at the United Nations. Scattered throughout the buildings are some 200 pre-signal stations. Pre-signals are located in maintenance and fire control areas. On the first pull of any local system box, pre-signals sound. If, upon investigation, it's found necessary to evacuate personnel, a second pull of the box sounds general alarm only in the building involved, and at the same time, sends an alarm to New York City fire headquarters, via an inter-connected municipal alarm box.

From the few examples above, it's obvious that different building types cannot be best served by just one or two fire alarm systems. Rather, each building must be considered a separate entity and as such requires a custom designed system.

As a guide for selecting and applying fire alarm systems, local, state, and federal organizations have enacted many laws and ordinances. Generally, these follow no uniform pattern. Therefore, before fire alarm specifications can be written for any specific installation, all local codes should be reviewed to insure conformity.

Many of the fire protection codes do have a common basis, making direct reference to the National Fire Protection Association's pamphlet Number 72 (which covers standards for installation, maintenance and use of fire alarm systems).

One generalization can be made concerning most codes regulating fire safety; they establish, for the most part, only minimum fire protection standards. It should be recognized that these regulations do not, generally speaking, call for the most effective protection.

Never assume that conformity with codes will automatically result in the best possible protection.

Before fire alarm systems can be chosen and properly applied, it is important for architects and engineers to have a working knowledge of these units, what goes into them, and how they operate.

Basically, electrical fire alarm systems consist of alarm initiating devices, either automatically or manually operated, audible or visual signals used to indicate danger, control centers to monitor signals, and wires connecting the various components.

Beyond this very elementary definition, the National Fire Protection Association has classified systems into four basic types: local; auxiliary; remote-station; and proprietary.

Local fire alarm systems are specifically adaptable to the most common types of buildings. Therefore, these are the kinds of systems that architects and engineers will have to become the most familiar with. Essentially, local systems produce signals at one or more places in the protected premises. These signals, primarily to warn occupants, may be used for location of fire as well as general evacuation alarms.

Auxiliary, sometimes called city-connected, fire alarm systems can only be used in connection with a suitable municipal system that is well-maintained, *after* a permit for such connection has been obtained from municipal authorities. By auxiliarizing the municipal system, the delay in traversing the distance from a fire area to a street box is eliminated. Obviously, such early warning is critical. It enables city fire fighters to control or prevent the spread of fire. Thus, this auxiliary system is often combined with local fire systems (defined above), so that alarms are automatically transmitted directly to the municipal authorities. In keeping with accepted standards of good practice, city connection is a recommended addition to basic local fire alarm systems.

Remote station systems employ a direct circuit between alarm initiating devices in a given building, and signal indicating equipment in a remote station, such as police or fire headquarters. The circuit between the protected premises and the remote station must be used *only* for fire protection signaling services. This system is also in keeping with accepted standards of good fire protection practice, and is recommended as an alternative to auxiliarizing a municipal system.

Proprietary systems are used primarily in extremely large industrial buildings (or groups of buildings) having their own fire fighting personnel. Owing to their complexity and limited application, architects and engineers are seldom called upon to design and specify them.

It should be understood that though NFPA lists types of systems, it does not approve individual units of fire protection equipment. Suitability of such devices is indicated, rather, by listing of nationally recognized testing laboratories, for example, Underwriter's Laboratory, Inc. Most reliable fire alarm manufacturers have their equipment tested and listed with U/L. All fire alarm equipment listed by U/L can be found in its annual publication, "Fire Protection List," or the "Bi-Monthly Supplement."

PRINCIPAL COMPONENTS OF FIRE ALARM SYSTEMS

As mentioned, all fire alarm systems contain manual or automatic alarm initiating devices.

A manual device (sometimes called a station, pullbox or firebox), transmits an alarm when its pull-lever is operated. Generally stations are of two types, coded and non-coded. Non-coded units, when operated, close or open a set of contacts and lock them in the operated position until reset. Coded stations, when operated, transmit no less than four rounds of coded alarm signals. This code indicates fire location. (Pulling the lever of the station winds a mechanism. Releasing the lever unwinds this same mechanism, and thus causes a code wheel to spin. This code wheel is notched. As it spins, notches pass across a contact, causing signals to sound. For example, if the wheel contained four notches, and made four complete revolutions, the resulting code would be 4-4.)

The coded station is also available with a pre-signal feature, for use with pre-signal coded systems. The pre-signal feature consists of a lock switch on the outside of the station. To initiate general evacuation signals, authorized personnel merely insert a special key in any equipped station, turn it, then pull the handle.

"Breakglass" operation can be applied to any manual station. This makes use of glass plates or rods which must be broken before an alarm is turned in. Many manufacturers have designed one action breakglass stations—pulling the lever simultaneously breaks the glass and operates the station. Breakglass construction is thought to act as a deterrent to false alarms.

It's axiomatic that manual stations should be used only for fire protection purposes. According to accepted rules of good practice, boxes should be mounted between 4½ and 5 ft above floor level. (In every building, regardless of the system-type used, at least one manual station must be installed on each floor.) Stations should be completely unobstructed, readily accessible, and located in the normal path of exit. Distribution of stations should be such that no one need travel more than 200 ft, horizontally, to reach one.

Automatic devices, including fire detectors and waterflow switches in sprinklers, transmit, without human assistance, a signal indicating fire (in the case of flow switches, sprinkler operation).

There are many automatic fire detectors on the market today. Of these, the spot type (listed by U/L as thermostats) are the most popular and can be used in each system covered in this article. Heart of the compact spot detectors, usually two to three inches in diameter, is a heat-sensitive element which can be set by the manufacturer at any given temperature, the most common setting being 136 deg F and 190 deg F. The units set for 136 deg F are suitable for most areas. 190 deg F detectors should be used in areas with higher ambient temperatures.

Two types of spot detectors—one set for fixed temperature and the other combining fixed temperature and a rate-of-rise feature—are available. Fixed temperature units close a circuit when a pre-determined temperature is reached. Combination units, on the other hand, operate when temperature changes at a rate greater than 15 degrees per minute, as well as when predetermined points are reached.

Since the combination detectors are more sensitive, U/L has rated them as effective to cover 2,500 square feet, with a 50-ft center mounting. Fixed temperature detectors are rated to cover 400 square feet, on 20-ft centers. Naturally, these units are most effective when ceiling-mounted, since heated air from a fire will rise to the highest point in any room.

According to NFPA, waterflow switches, installed in sprinkler mains, are also considered automatic alarm initiating devices. These switches may be wired directly into a fire alarm system, in many cases just as detectors are. Thus sprinkler operation cannot go undetected.

In coded (C) and pre-signal (PC) systems, code transmitters are required when fire detectors and sprinkler flow switches are used, since

TABLE 2: LOCAL FIRE ALARM SYSTEM APPLICATIONS

STRUCTURE	SYSTEM	REMARKS
SCHOOLS Elementary (under 10 rooms)	**NC** or **MC**	Immediate evacuation of prime importance. Automatic detectors in all hazardous or fire prone areas, manual stations in corridors. 6-in. bells throughout building. If bells are used to signal class changes, horns should be used in fire alarm system. City or remote connection recommended.
Elementary (10 or more rooms)	**NC** or **MC**	As above. Annunciator recommended.
High Schools	**C**	Coded system audibly locates fire, thus aids faculty in choosing safe path of exit, and at the same time, indicates to firemen the danger area. No annunciator needed. Otherwise as above.
DORMITORIES **RESORTS** **MOTELS** **CONVALESCENT HOMES**	**ZNC**	Fire detectors throughout. At least one manual station on each floor. Vibrating bells or horns throughout. City or remote connection recommended.
HOSPITALS	**PC**	Manual stations in corridors. Fire detectors in boiler room, gas storage areas, other hazardous locations. Pre-signal chimes in all nursing stations, maintenance department, administrative offices and at switchboard. General alarm bells and horns throughout building. Punch register-time stamp recommended for large structures. City or remote connection preferred.
HOTELS	**PC**	Fire detectors throughout building. Manual stations at corridor intersections. Pre-signal chimes at manager's office, front desk, maintenance department. General alarm bells or horns throughout. Punch register-time stamp recommended. City or remote connection.
COMMERCIAL Office Buildings	**NC**	Manual stations on each floor, so distributed that no one is more than 200 ft from nearest box. Alarm signals in superintendent's office, maintenance department. Fire detectors in file rooms, fire prone areas. In large structures, annunciator recommended—to be installed in superintendent's office.
Warehouses	**ZNC**	Automatic fire detectors throughout. Control panel (containing zone-indicating lamps) to be located in well-trafficked area, i.e., office. Alarm signals in normally occupied areas. Connect waterflow switches on sprinkler mains to fire alarm system. City or remote connection recommended.
Department Stores	**ZNC**	Same as Warehouses.
Exhibition Halls	**ZNC**	Same as Warehouses.
INDUSTRIAL Small	**ZNC**	Automatic fire detectors throughout. Control panel in manager's or watchmen's office. Alarm bells or horns throughout. Connect waterflow switches on sprinkler mains to fire alarm system. City or remote connection recommended. (Note: in areas where normal noise levels are extremely high, i.e., foundry rooms, vibrating horns should be used.)
Large	**PC**	Manual coded pre-signal stations throughout. Fire detectors in storage and fire prone areas. Pre-signal bells, horns or chimes in supervisory areas so that authorized personnel are notified of danger condition. General alarm signals throughout. Connect waterflow switches in sprinkler mains to fire alarm system. Punch register-time stamp recommended for permanent record of all alarms. City and remote connection desirable.
CHURCHES **PARISH HALLS**	**ZNC**	Automatic fire detectors throughout (especially organ lofts, altar boys' rooms, etc). Extension signals in rectory and sexton's office (if nearby). City or remote connection desirable.

these devices, by themselves, cannot transmit coded signals. Transmitters codify signals from these automatic devices, and thus indicate fire location. One transmitter is required for each automatic device or group of devices.

To obtain the ultimate in fire alarm coverage, automatic detectors should be installed in all areas throughout any given building. However, for certain installations this may not only be unnecessary, but impractical as well. For example, a modern "fire-resistive" school building requires detectors mainly in untended, or fire prone areas such as boiler rooms, kitchens, storage areas, etc. Corridors and other well-trafficked areas can be well-protected by manual stations. (Incidentally, many states require such balanced automatic-manual coverage.) If, on the other hand, the school building is older, and of wood construction, then no safety compromise should be made —every area within the school should be automatically protected, so that if fire should break out anywhere, students and faculty are warned immediately. Similar completely automatic systems should be used in all buildings containing sleeping quarters. Here again, supplementary manual stations, at least one per floor, must also be provided.

ALARM INDICATORS

Alarm indicating devices, which actually signal fire conditions, include audible devices such as bells (vibrating and single stroke types) horns, chimes, and buzzers; and visual indicators like annunciators and punch registers.

The NFPA code requires that fire alarm signals be reserved solely for this purpose. They may not be used otherwise. Conversely, other signalling or communication systems such as loud speakers and bells used for public address or schedule changes may not be used in the fire alarm system. Audible fire signals must be distinctive from others within a protected building. For example, if bells are used to signal class changes in a school, then horns should be used in the school's fire alarm system.

In addition to being distinctive, fire alarm signals, according to NFPA, must be loud enough to be heard by everyone throughout the protected premises. The best practice is to install a sufficient number of signals of medium intensity or loudness, rather than just a few extremely loud signals. In this way, complete coverage is assured.

Before selecting audible signals, architects and engineers should take into account the nature of reflective surfaces, loudness and frequency of background noises, etc. within the building to be protected. Table 3 lists db ratings of common audible signals, and may be of some help in specifying these important fire alarm components.

Annunciators are electrically operated signals made up of one or more target or lamp indications. Annunciators are commonly used to visually indicate, at a central point, the general location or zone in which fire has been detected or reported. They are especially recommended in large buildings, so that upon arriving at the scene, firemen can tell at a glance in which area the blaze is located, and thus save precious minutes.

Punch recorders are used to give a permanent record of fire alarms from coded systems. The punch automatically perforates a paper tape. If used with a time stamp, not only is every alarm registered, but the time of day it occurred, and the date are recorded as well.

Nerve center of every reliable, approved fire alarm system is its control panel. Centrally located, the panel receives signals from automatic detectors or manual stations, then energizes alarm bells, horns, etc., automatically. When remote station or auxiliarized systems are used, the control panel also contains the necessary relays and terminals. Also within the panel is the electrical supervisory circuit. This, wired to a trouble bell, automatically guards against faults in wiring or components. Should a fault occur, the trouble bell automatically sounds. Electrical supervision is a prime requirement in NFPA's code 72.

Usually, the trouble signal for supervising the system is located on or in direct proximity to the panel. It is in keeping with rules of good practice to have a silencing switch on the control unit, so that the trouble bell or buzzer can be silenced. Such a switch, according to Code 72, may be used only if it transfers the audible signal to a lamp adjacent to the panel.

Reliable electric power service, motor generators, and storage batteries are all approved sources of power supply for fire alarm systems. Electric power service is most commonly used.

The alarm system itself generally uses a 1-phase, 3-wire, 115-230v, 60-cycle supply, having a continuous unfused neutral conductor. One side or phase is used for the main operating power while the second operates the electrical supervisory circuit.

Generally, all wiring for fire alarm systems should be installed within the requirements of the National Electric Code for Class I signal-systems circuits. (Note: Signal-Circuit wiring is found in Article 725 of NFPA No. 70 National Electrical Code.) Some exceptions to the Class I requirement are permitted in Article 210, principally in the case of limited-energy fire-detector circuits. Here, the open-circuit voltage does not exceed 50v., over-current protection of not more than 2-amp rating is provided, and capacity of the supply circuit is limited in its maximum-rated output not to exceed 100 va.

TABLE 3: DB RATINGS OF COMMON AUDIBLE SIGNALS

TYPE OF SIGNAL	DB At 10 FEET
*Industrial Fire Alarm Chime	88
*Single Stroke Bell— 4 in.	62
*Single Stroke Bell— 6 in.	72
*Single Stroke Bell—10 in.	78
Vibrating Bell — 4 in.	77
Vibrating Bell — 6 in.	83
Vibrating Bell —10 in.	89
Horn-Grille Type	98
Horn Resonating Type	104

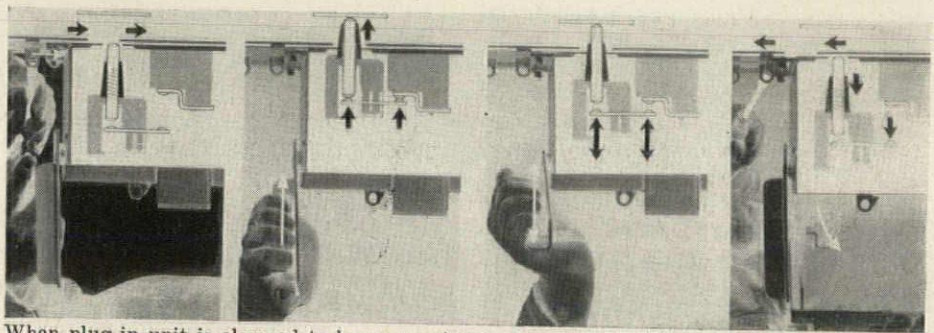
*These are single stroke devices and, therefore, may only be used with coded systems.

Mobile Closed-Circuit TV System for Schools

Although it can be moved from classroom to classroom as easily as a tea cart, the new Model ETS-1 educational closed-circuit televison system is actually a complete TV studio on wheels. According to the manufacturer, it enables teachers to present audio-visual TV lessons as readily as they now present films and slides. The basic equipment includes a camera and a mobile console that houses video monitors, the camera control, a sync generator, power supply and a wave form monitor. Other equipment can be added to the console as needed. Although it is small enough to fit in a panel truck or an elevator, and through a standard 30-in. door, the mobile system is said to meet all the requirements of educational TV: high picture quality, durability, simplicity of operation, accessibility for maintenance, and flexibility for expansion. *Dage Television Div., Thompson Ramo Wooldridge, Inc., Michigan City, Ind.*

Safer Electrical Distribution System

Uni-Bus Masterguard, a new electrical distribution system, is said to provide "total safety" by making it impossible for personnel to touch live parts. When a plug-in unit is attached to energized feeder or any other power-carrying device in the system, a safety slide over the bus bars and retractable stabs in the unit operate as shown above. This unique mechanism assures that no current-carrying parts are accessible at any time during installation, operation or removal. The same safety slide outlet is used throughout the system in motor control centers, switchboards, motor starters and enclosed switches. In addition to safety, the standardized components in the system are said to offer improved power transmission, greater efficiency, flexibility, simplified design and lower installed costs. *Electrical Distribution Products, Inc., Allentown, Pa.*

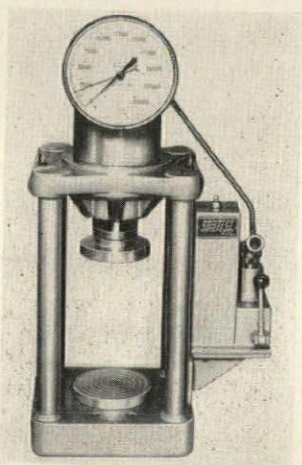


When plug-in unit is clamped to busway, release pins on plug unlock safety slide over outlet. Unit is wired with slide closed and stabs retracted. Then slide is opened, engaging pins that lock unit to outlet, and operating handle is closed so that primary contacts meet live busbars and secondary contacts close inside switch, completing circuit (b). Switching operation opens secondary contacts only. If switch is "off," primary contacts can be released by opening cover. This causes stabs to automatically retract to lockout position, but plug-in device cannot be removed until safety slide is also closed.

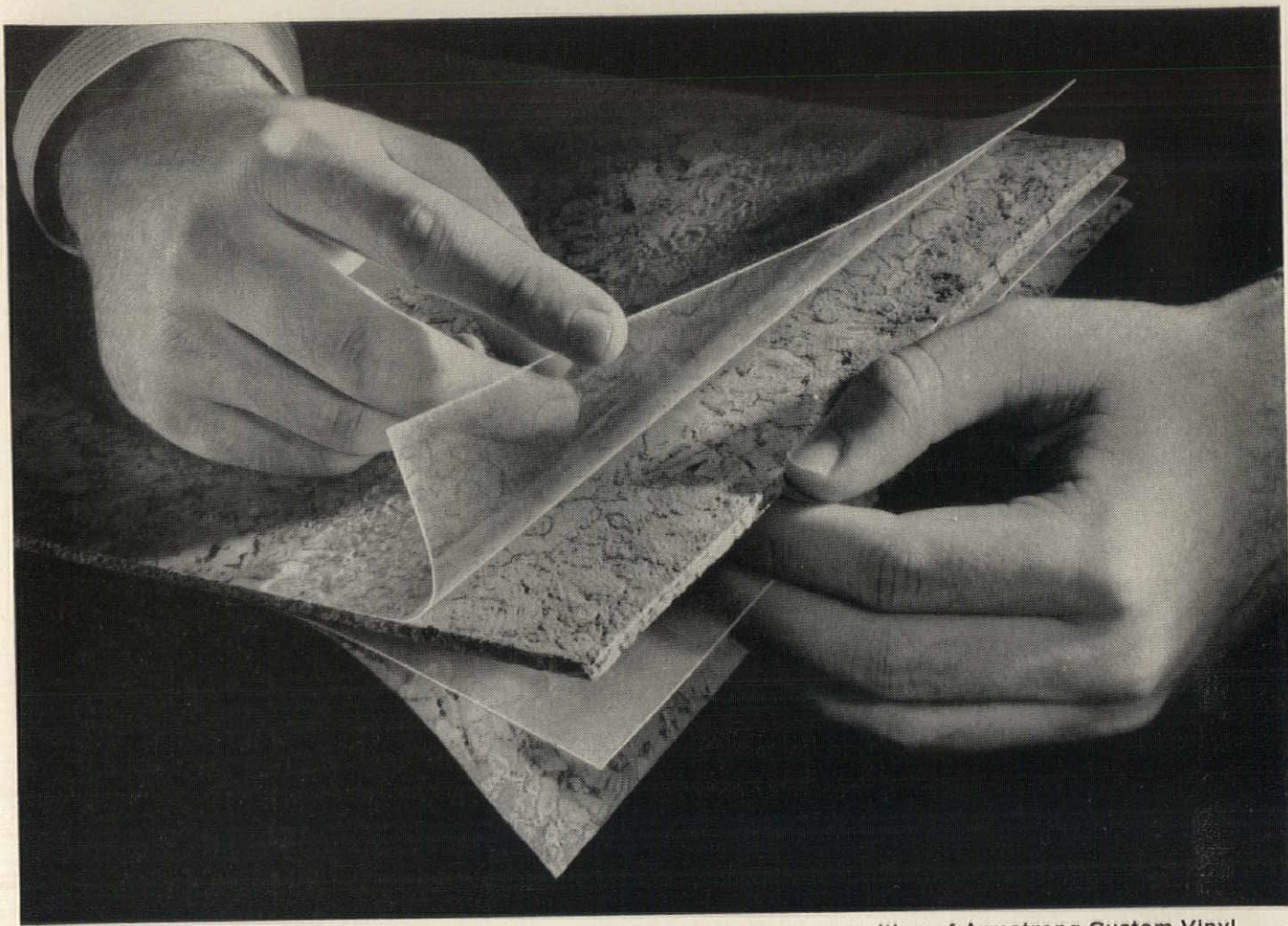
Portable Concrete Testing Machine

By making it possible to test concrete on the job site as well as in a central laboratory, a new portable concrete testing machine eliminates the transporting of test specimens, allows for uniform curing of specimens, and makes test results available almost immediately after testing. The 125-ton capacity Model CT-710 is designed for testing standard 6- by 12-in. cylinders, but can be used with appropriate attachments to test beams, 2-in. cubes, concrete blocks and other specimens. Brick, tile, plastics and similar materials can also be tested in compression or in flexure. The compact (38 in. high, 21 in. wide), portable machines are self-contained and require no pressure or electrical connections: loads are developed by a double-piston hand operated pump. Each tester is calibrated to be accurate within one per cent of indicated load. *Soiltest, Inc., 4711 W. North Ave., Chicago 39, Ill.*

more products on page 260



HERE'S THE LATEST DEVELOPMENT IN FLOORS



This photograph of a special "exploded" sample shows you the composition of Armstrong Custom Vinyl Cork Tile. A double thickness of clear vinyl is fused to the top of a cork mat. Within the cork is a vinyl moisture barrier which makes sure that tiles won't curl or peak. Note the large size of the cork chips.

Armstrong CUSTOM VINYL CORK TILE

tiles with big chunks of cork . . . protected by clear vinyl

As its name suggests, Armstrong Custom Vinyl Cork Tile adds the durability and practicality of vinyl to the rich beauty of natural cork. An exclusive Armstrong process fuses a thick layer of clear vinyl to the top of a cork mat. This permits the use of much larger pieces of cork than are used in other types of cork tile. And it makes the floor suitable for any interior—even heavy-duty areas and kitchens and bathrooms.

The architects of this elegant office used two patterns in Armstrong Custom Vinyl Cork Tile. The floor is in the Natural design No. 1005, while the walls are covered with the richly patterned Random Driftwood design No. 1006.
Office in Seagram's Building, NYC
Office architects: J. Gordon Carr and Associates

technical data on Custom Vinyl Cork Tile

(For samples and complete specs, contact the Architectural-Builder Consultant at your Armstrong District Office.)

composition: transparent vinyl resins fused with cork; **surface resistance:** excellent for grease and alkalis; **ease of maintenance:** superior; **underfoot comfort and quiet:** very good; **durability:** very good; **static load limits:** 125 psi; **recommended uses:** over suspended subfloors; and on grade when Armstrong specs are followed; **gauge:** ⅛"; **size:** 9" x 9"; **approximate price per sq. ft. installed over concrete:** $1.30; **design effects:** Natural 1005, Random Driftwood 1006, Walnut 1007, Platinum 1008, Teak 1009.

CLAUDE H. LINDSLEY, A.I.A.
ARCHITECT

5210 MORNINGSIDE DRIVE
HOUSTON 5 TEXAS

HOLCOMBE BOULEVARD
P. O. BOX 516
OCEAN SPRINGS MISS

CHAS. E. HIGHTOWER

Ocean Springs, Miss.
May 12, 1959

Taylor Sales Company
1405 West Roosevelt
Little Rock, Arkansas

Attn: Mr. A. J. Taylor

Re: Classroom Heaters

Dear Mr. Taylor:

I specified a number of your Classroom heaters for the Central Elementary School in Pascagoula, Mississippi, and they have been in use for the past heating season.

Recently I specified a number for the Junior High School and also Physical Education Building, Pascagoula, Mississippi.

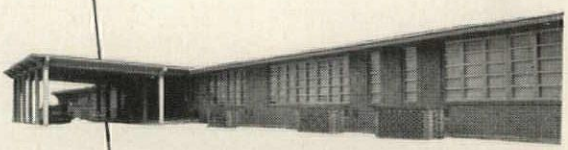
Before specifying your heaters for the first time, I wrote you for a list of nearby installations, and you sent me a list of seven schools. I wrote to all of these schools and asked if the heaters were satisfactory, and if they were going to purchase additional heaters, would they use the Norman heaters.

I had six replies out of seven, and all said they were well pleased with the heaters and if additional purchases had to be made, they would not hesitate to use Norman Heaters.

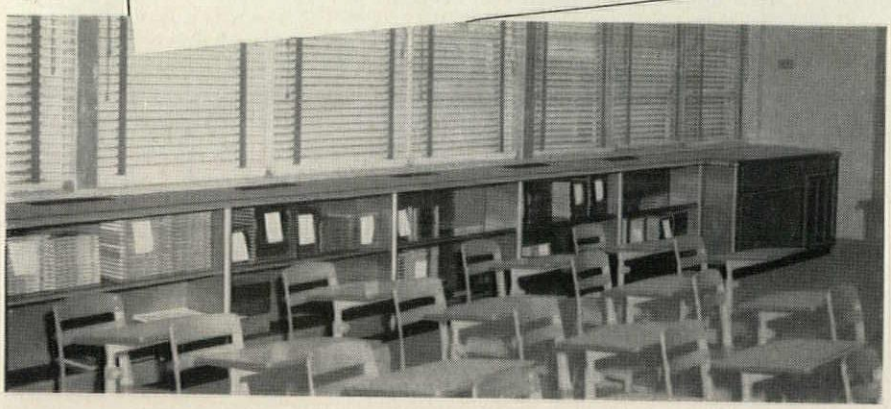
Yours very truly,

Claude H. Lindsley, A.I.A.
Architect

CHL-b



Another Norman Proof of SCHOOLROOM-PACKAGED COMFORT



Norman Systems Provide Complete Gas-fired Individual Schoolroom-Packaged Comfort... Save Money Three Ways!

Action speaks louder than words . . . and leading architects, engineers and school officials are finding that Norman Triple Economy is money-saving economy in installation, operation and maintenance.

Norman Packaged Schoolroom Heating and Ventilating systems are quickly installed room by room without expensive boiler rooms, chimneys and tunnels.

Heat is supplied only when needed . . . no fuel is wasted in maintaining uniform temperature . . . and ventilation is completely automatic.

Long trouble-free service is assured by sturdy construction, finest materials and standard controls. American Gas Association approved.

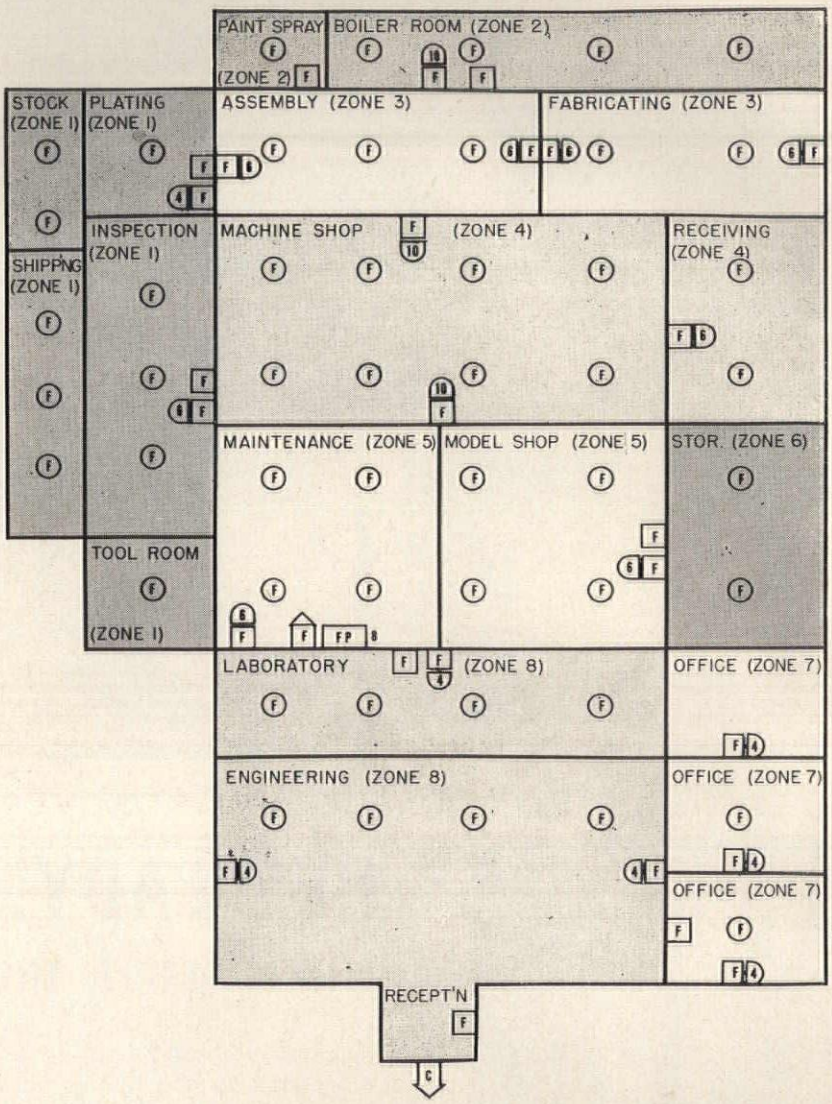
Write Today for Nearby Installations of Norman Schoolroom Heating and Ventilating Systems.

Central Elementary School, Pascagoula, Miss. Architect: Claude H. Lindsley, A.I.A.

Norman® PRODUCTS CO. • 1152 Chesapeake Ave., Columbus 12, Ohio

PLANNING FIRE ALARM SYSTEMS: 1

by L. T. Chandler

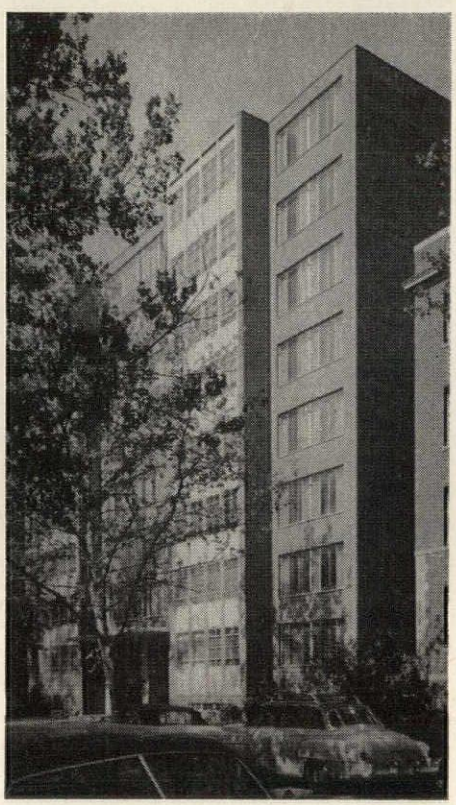


TYPICAL ALARM SYSTEM FOR AN INDUSTRIAL BUILDING

LEGEND

- MANUAL STATION. IN CASE OF CODED SYSTEM, THESE STATIONS ARE CODED
- FIRE DETECTOR
- BELL. NUMERAL INDICATES DIAMETER OF BELL IN INCHES
- HORN
- CONTROL PANEL. NUMERAL, IF INCLUDED, INDICATES NUMBER OF ZONES
- PRESIGNAL CHIME
- TROUBLE SIGNAL
- EXTENSION TROUBLE SIGNAL
- ANNUNCIATOR
- PUNCH REGISTER AND TIME STAMP
- CITY FIRE ALARM BOX ON PREMISES

8237-DB



Donley incinerator parts and plans were specified for this successful incinerator now serving this 72-suite apartment building.

HEY LADY...

WHAT ABOUT THE GARBAGE?

. . . and yesterday's newspapers? . . . and all the other rubbish the family produces daily? Quite a problem not only in apartments, but in every building you design . . . unless proper provision is made for refuse disposal.

Using the Donley Automatic Safety Burner to provide small fires at frequent pre-determined intervals, refuse can be disposed of at its source with minimum heat, smoke, fly-ash and odor. Donley parts and field-tested designs provide control of essential operating features and assure successful incineration.

Donley Brothers can help you solve your special incinerator problem. Write for further information or see our catalog in Sweet's.

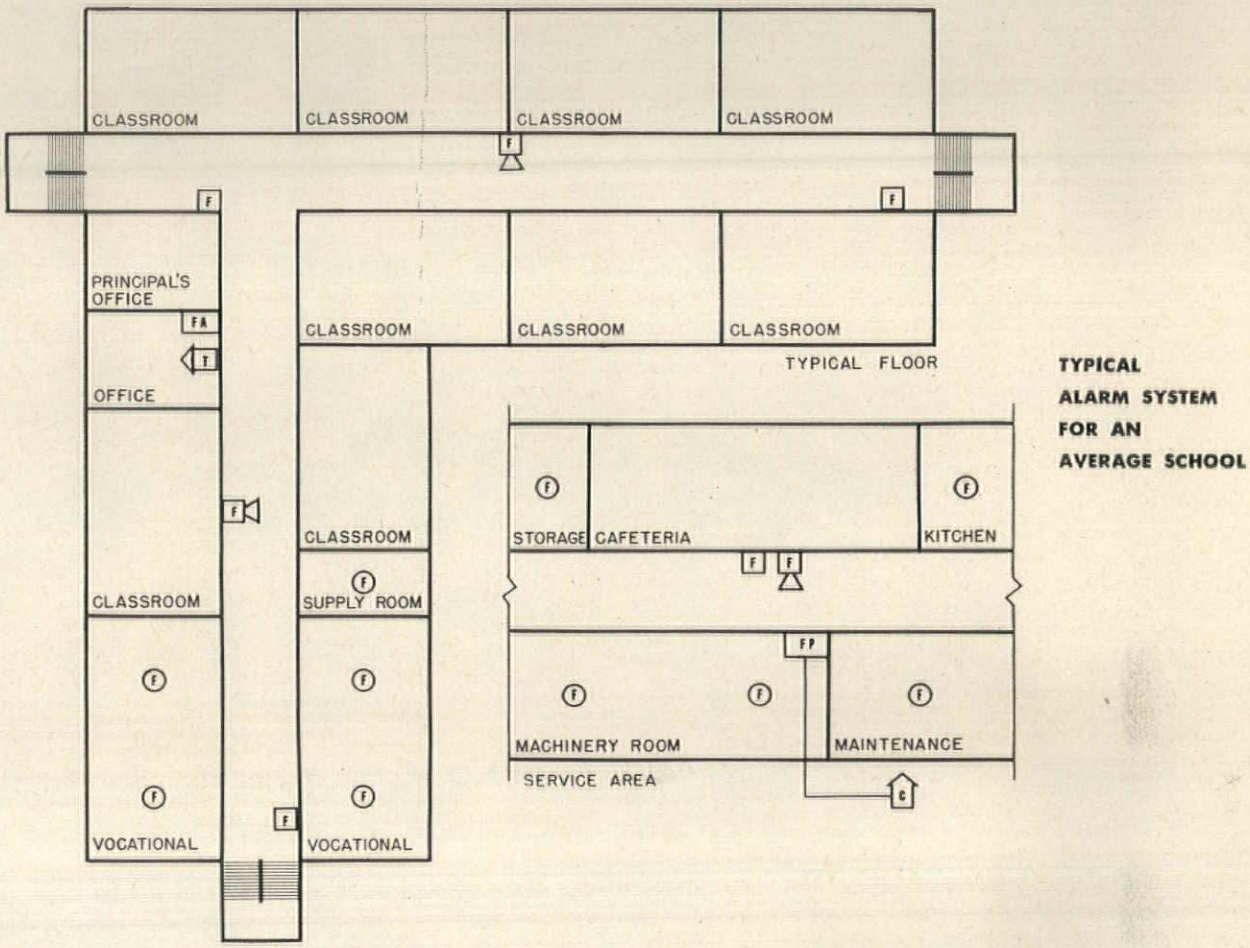
INCINERATOR INSTITUTE OF AMERICA MEMBER

THE Donley BROTHERS COMPANY

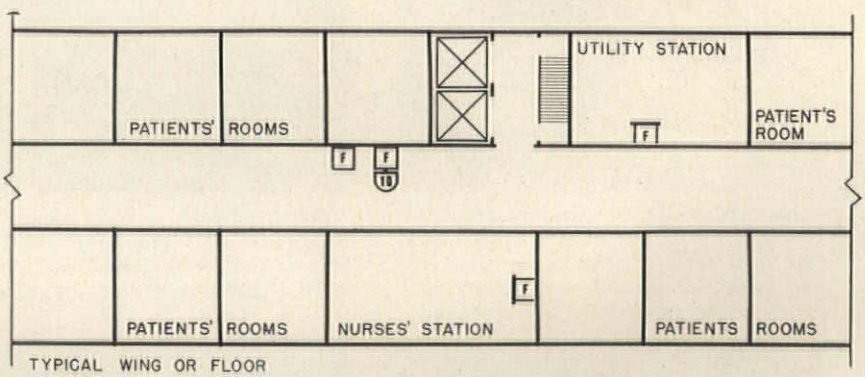
13972 Miles Avenue Cleveland 5, Ohio

PLANNING FIRE ALARM SYSTEMS: 2

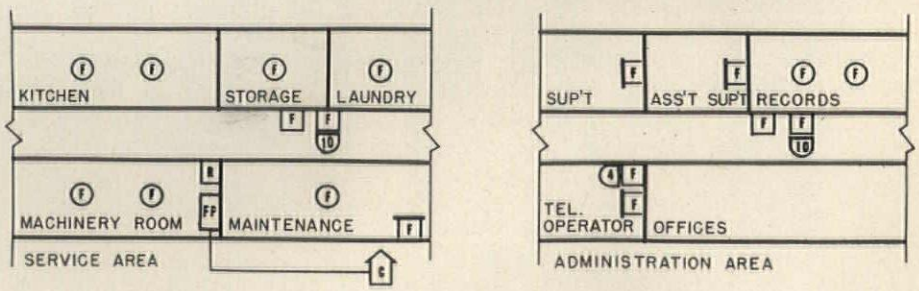
by L. T. Chandler



TYPICAL ALARM SYSTEM FOR AN AVERAGE SCHOOL



TYPICAL ALARM SYSTEM FOR A HOSPITAL



See legend on Sheet 1, page 247 for symbols

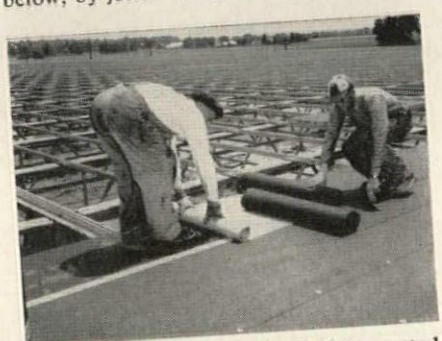
Every phase of the roof deck construction is illustrated in this view. Joists, box section sub-purlins, 2″ Tectum plank, roof and gravel coating.

Workmen are shown carrying several 34′ long lightweight box sections in the initial phase of the job. The sub-purlins are aligned in position with precision jigs and then fillet welded at each joist crossing.

Welding at each joist crossing provides lateral strength and continuous beam action. Note weld is hidden from view below, by joist — no painting required.

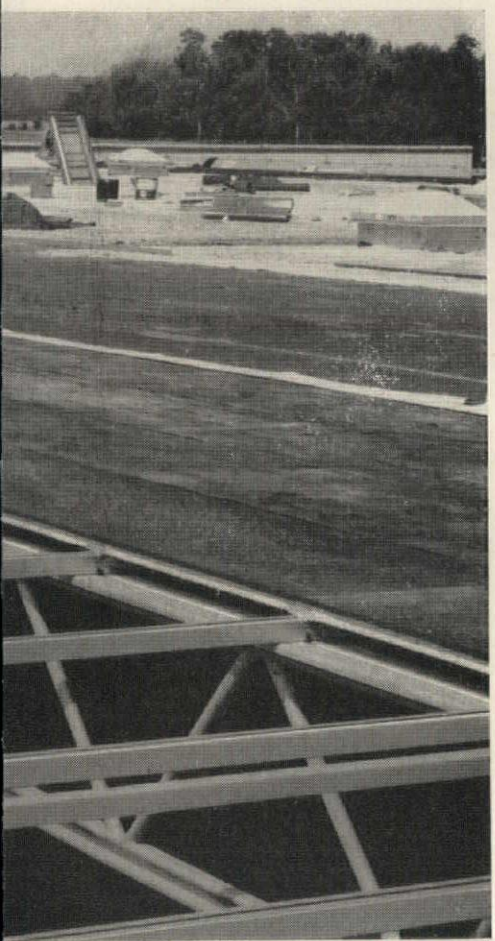
High speed clips are driven over tongue of plank. Tectum planks span three sub-purlins, giving added lateral strength. This operation is quickly accomplished.

Tectum has structural strength for through-opening cuts between spans. It is easily sawed or drilled on the job with ordinary wood working tools.

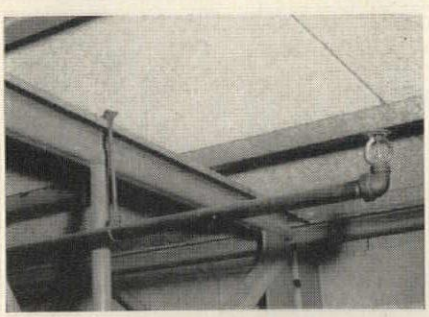


Roofing felts are laid as the deck is erected for perfect protection from the weather. Tectum roof decks are quickly erected so that large areas are placed under roof in the shortest possible time.

The finished deck is clean, light reflective and maintenance free. Tectum insulates, absorbs sound, is structural and noncombustible in accordance with Federal Spec. SS-A-118b.



Building: Scott Chemical Company, Marysville, Ohio. *Engineers & Builders:* James Campbell Associates, Inc., Marysville, Ohio. *Tectum Erector:* Bard Roofing & Sheet Metal Co., Columbus, Ohio.



In this close-up, the facility with which the sprinkler system was erected indicates a typical time saving advantage of the new Tectum roof deck assembly. An estimated $3000 was saved on the erection of the sprinkler system.

NEW CONCEPT . . .
GREATER DESIGN FLEXIBILITY →

The drawing at right illustrates the simplicity and the flexibility afforded the designer in planning the roof deck assembly. High speed clips anchor the deck in place. Spacing of box section sub-purlins offers economies over other methods; spacings of 36" to 48" are recommended dependent upon thickness of Tectum roof deck planks. Each plank spans three sub-purlin spaces; each sub-purlin spans at least three joist spaces; continuous beam action is provided in both directions.

Saved 50% on Sub-Purlins and Erection, 80% on Painting Costs with the NEW

Tectum® Box Section Roof Deck Assembly

James Campbell Associates, Inc., Engineers and Builders, Marysville, Ohio was one of the first to make use of the cost reducing features of the new Tectum Box Section Roof Deck Assembly. Combining pre-painted bar joists in light gray enamel, galvanized box section sub-purlins and Tectum 2" roof deck planks, 80% of normal painting requirements were eliminated at Scott Chemical Company's new warehouse building.

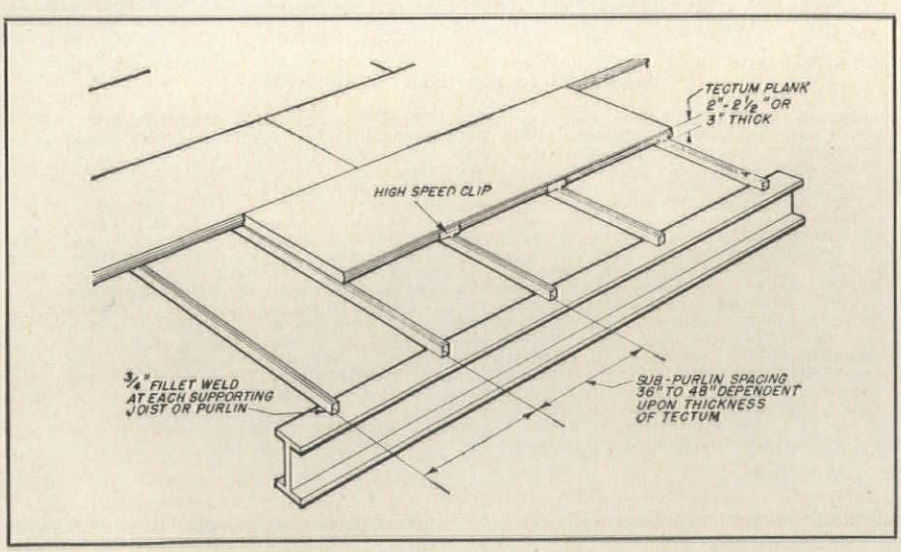
Mr. Campbell stated, "We were extremely pleased with the speed with which the roof deck assembly was completed. Tectum's new box section sub-purlins are light and quickly welded in position. The 2⅜" space between roof deck and bar joist provides generous space for pipe, conduit, hangers for ducts, utilities and fasteners for all subsequent operations in finishing the building. The new system is a time-saver from every standpoint and the appearance is excellent."

This new Tectum Box Section Roof Deck Assembly utilizes 18 ga. hot process, galvanized sub-purlins. Special high speed clips are quickly inserted into the box section and driven snugly over the Tectum tongue. The next plank seals the clips within the roof plank joint with superior uplift resistance. The details of each step in the erection of the new roof deck assembly are illustrated on the facing page. Why not investigate what the new box section roof deck assembly can mean in savings on your next building project. Find out how you can cut costs . . . the practical Tectum way.

Tectum Corporation, Newark, Ohio. Plants in Newark, Ohio and Arkadelphia, Arkansas. Regional offices in Philadelphia, Atlanta, Columbus, Chicago, Dallas, Beverly Hills, Seattle and Toronto, Canada.

Tectum

QUALITY • INTEGRITY • SERVICE 9-31



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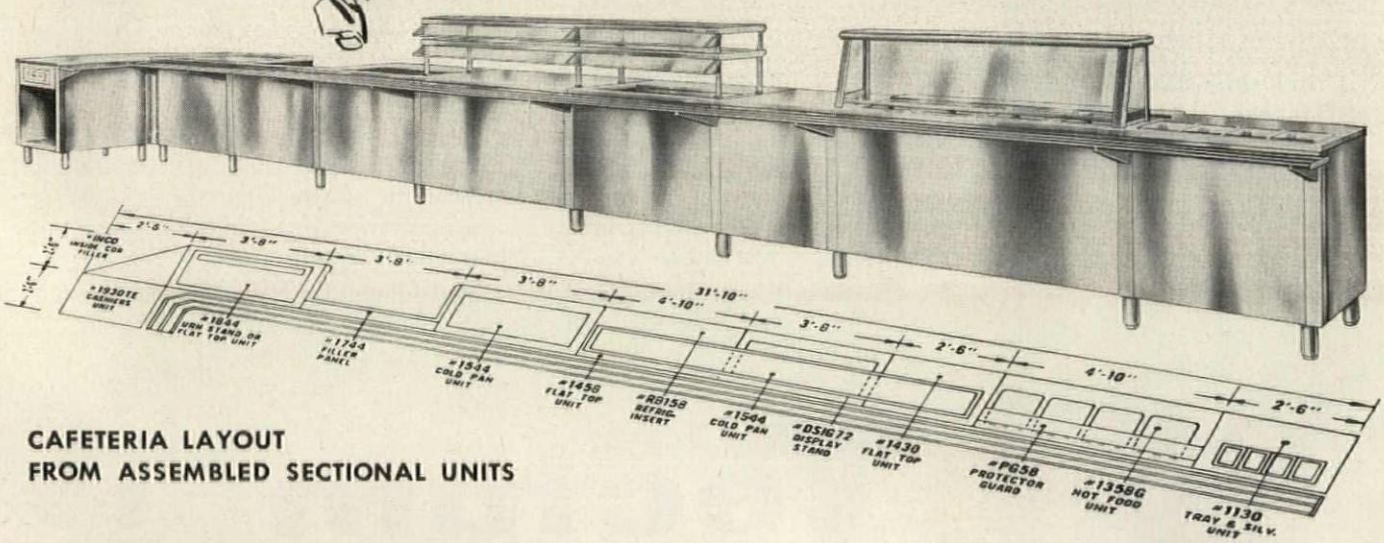
FINEST ^ CAFETERIA COUNTERS FOR INCREASED ENROLLMENT

Schools, Hospitals, Churches, Clubs, the nation's Factories, all are on the march, growing as our population grows. Meet these new and expanding feeding problems with Sectional Cafeteria Counters, planned and engineered for just this purpose.

Every Southern distributor is a highly trained specialist in food preparation and food service. Expert advice is yours for the asking. Call him today—get all the facts first hand or write Southern Equipment Co.



CAFETERIA LAYOUT FROM ASSEMBLED SECTIONAL UNITS

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3

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SOUTHERN®
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4548 GUSTINE
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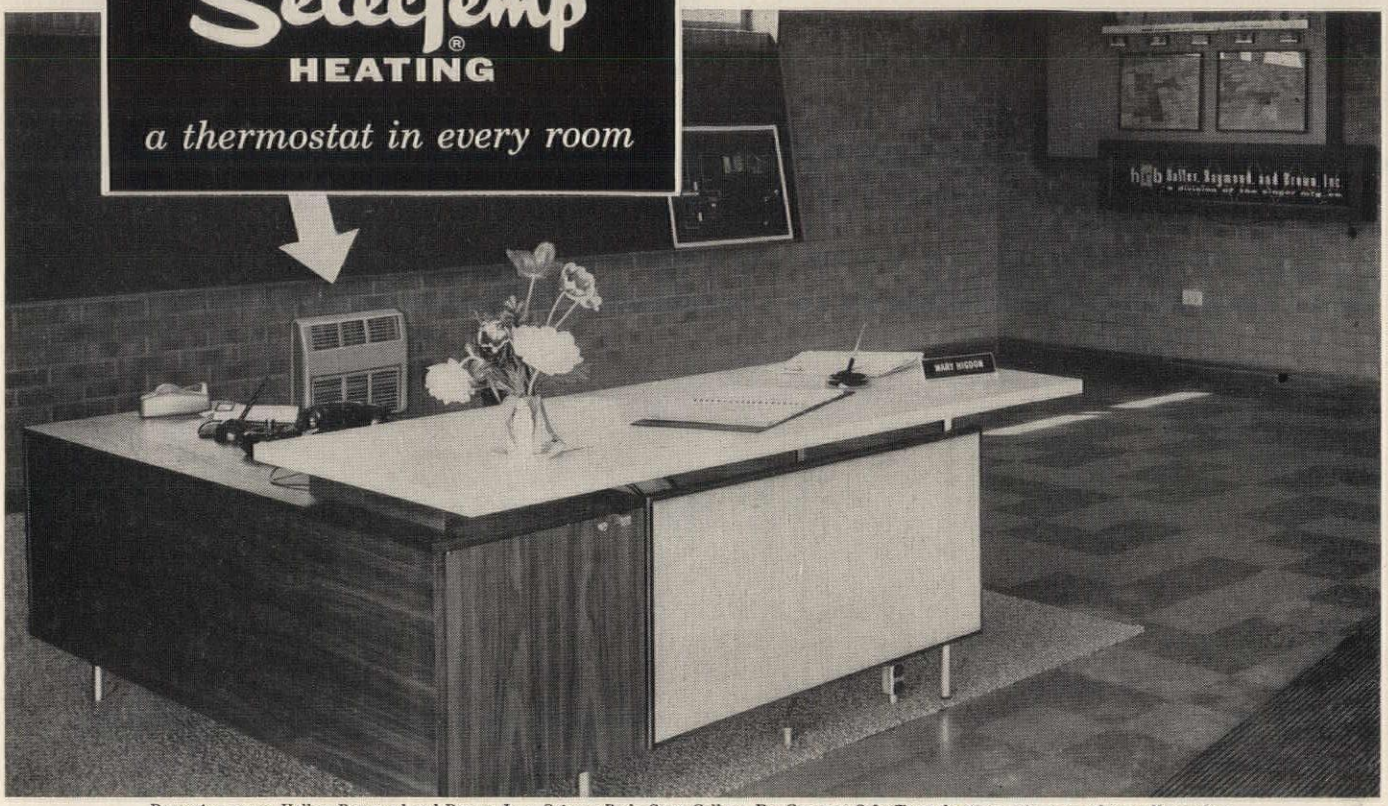
IRON FIREMAN
SelecTemp®
HEATING
a thermostat in every room

Architect, Horace Bailey, Johnstown, Pa. Heating Contractor, Stanton Barnhart, Johnstown.



Reception room, Haller, Raymond and Brown, Inc., Science Park, State College, Pa. Compact SelecTemp heating unit recessed in wall supplies as much heat as a big radiator, plus room-by-room temperature control and constant circulation of filtered warm air. No electric wiring required.

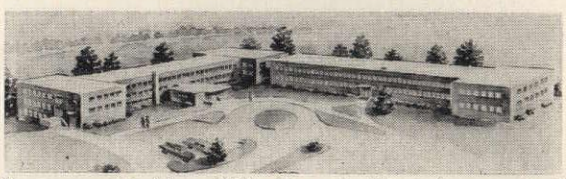
Prominent research firm praises new SelecTemp method of steam heating

Electronic scientists say, "SelecTemp more satisfactory than three other heating systems we have had"

"Outstanding features of SelecTemp heating are easy installation, efficient operation, low maintenance cost, very little deviation in room temperature, and individual room temperature control."

In these words Mr. Roy L. Smeltz, Plant Manager, sums up more than a year of experience with SelecTemp heating in the splendid new research building of Haller, Raymond and Brown, Inc., (division of Singer Manufacturing Co.) an organization of scientists and engineers engaged in electronics research for aeronautical and missile application.

Continues Mr. Smeltz: "In more than a year we have had only minor maintenance adjustments on three SelecTemp units out of 139. We are now completing a second building which has 89 units."



Two new research buildings of Haller, Raymond and Brown, Inc. are equipped with Iron Fireman SelecTemp heating, with a thermostat in every room.

No wasteful overheating; no uncomfortable underheating

The SelecTemp system provides steady, modulated warmth regulated by a thermostat in every room. Warm and cold sides of the building stay in perfect balance. With all of its advantages, SelecTemp costs no more than many systems that have no room-by-room regulation. Low maintenance costs and substantial fuel savings are a universal experience in SelecTemp heated homes and buildings. Steam for heat and steam-powered air circulation is supplied by a central low pressure boiler.

Send coupon for full information

IRON FIREMAN MANUAFCTURING COMPANY
3145 W. 106th Street, Cleveland 11, Ohio
(In Canada, 80 Ward Street, Toronto, Ontario)

☐ Send SelecTemp specifications and full information.
☐ Arrange for brief demonstration of SelecTemp room unit, in actual operation, in our office.

Name_____
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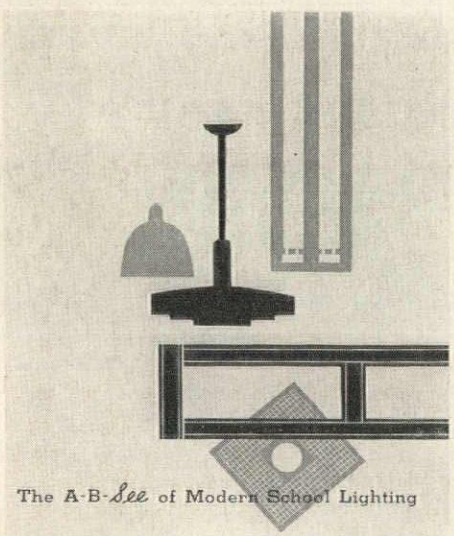
IRON FIREMAN®
Engineered
heating and cooling



The A-B-*See* of Modern School Lighting

THE A-B-SEE OF MODERN SCHOOL LIGHTING, a 24-page booklet by Bill Jones, research engineer of Smoot-Holman Company, discusses the problems involved in lighting schools, and explains in detail how to achieve the amount and quality of light needed to perform various visual tasks. Both natural and artificial light are discussed. A section on Classroom Lighting explains the effects of glare and brightness, gives recommended reflectance values, and concludes with a comparison chart of ten different types of lighting systems for a standard 30 by 32 ft classroom with 50 footcandles maintained. In Section Two, similar information is given on lighting areas other than classrooms. *Smoot-Holman Company, 321 N. Eucalyptus Ave., Inglewood, Calif.*

Manual of Recommended Practice
. . . *For the Production, Delivery and Use of Ready Mixed Concrete* discusses specifications, requesting of quotations, supervision, ordering, and the condition of concrete and equipment before, during and after delivery. 11 pp., $1. *The Concrete Industry Board, Inc., 220 East 42nd St., New York 17, N. Y.*

Tanier Lighting Catalog
Lists about 120 items in an enlarged collection of Scandinavian lamps and ceiling and wall fixtures. *George Tanier Lighting, Inc., 521 Madison Ave., New York 22, N. Y.*

Bathroom Products Catalog
(A.I.A. 29-I) Describes and illustrates a complete line of medicine cabinets, bathroom accessories, and vanity and lavatory mirrors. Catalog 59C, 24 pp. *F. H. Lawson Co., 801 Evans St., Cincinnati 4, Ohio*

Airvec Refrigeration Condenser
Gives detailed information on the installation, operation and advantages of the *Airvec*, a convection aircooled condenser that requires no motors, fans, water or maintenance. 16 pp. *Edwards Engineering Corp., 101 Alexander Ave., Pompton Plains, N. J.*

Terne Roofing Specifications
(A.I.A. 12-C-1) File folder contains specifications and other pertinent data on seamless terne metal roofing. *Follansbee Steel Corp., Pittsburgh 30, Pa.**

Logan Emergency Showers
. . . *and Decontamination Showers* (A.I.A. 29-H-3) illustrates and describes multi-spray emergency shower with swinging gate actuator for laboratory, plant or field use. Bulletin No. 59, 20 pp. *Logan Emergency Showers, Inc., P. O. Box 111, Glendale, Calif.*

Steel Equipment Reference Manual
(No. 487) covers grating, shelf filing and large drawer units as well as shelving, lockers, work benches, carts and other storage equipment. 64 pp. *Equipto, Aurora, Ill.*

Urelite Circuit Breakers
Gives complete application and selection data on new *Urelite* individually enclosed, low-voltage power circuit breakers. Bulletin 4261-2B, 8 pp. *I-T-E Circuit Breaker Co., 1900 Hamilton St., Philadelphia 30, Pa.**

Aluminum Copings and Gravel Stops
(A.I.A. 12-C-3) File folder contains complete cross-section drawings, installation details and specifications printed on tracing paper for convenient use in direct tracing or reproduction. *Reynolds Metals Co., Dept. PRD-15, Richmond 18, Va.**

Monotube Piles
(A.I.A. 6-A) Includes complete descriptive information, typical installation photos, test driving data, and other technical information on *Monotube* fluted steel foundation piles. Catalog No. 91, 24 pp. *Union Metal Mfg. Co., Canton 5, Ohio**

Standard Tile Specifications
(A.I.A. 23-A, 23-P) ASA-approved short-form specifications cover glazed ceramic wall tile, ceramic mosaic tile, quarry tile and pavers installed in Portland cement mortars. 28 pp. *Tile Council of America, Inc., 880 Second Ave., New York 17, N. Y.**

Swimming Pool Standards
Recommended minimum standards for residential swimming pools have been revised to include new definitions of pool walls and floors and accept a greater wall slope angle, thus permitting more latitude in design. *National Swimming Pool Institute, Harvard State Bank Bldg., Harvard, Ill.*

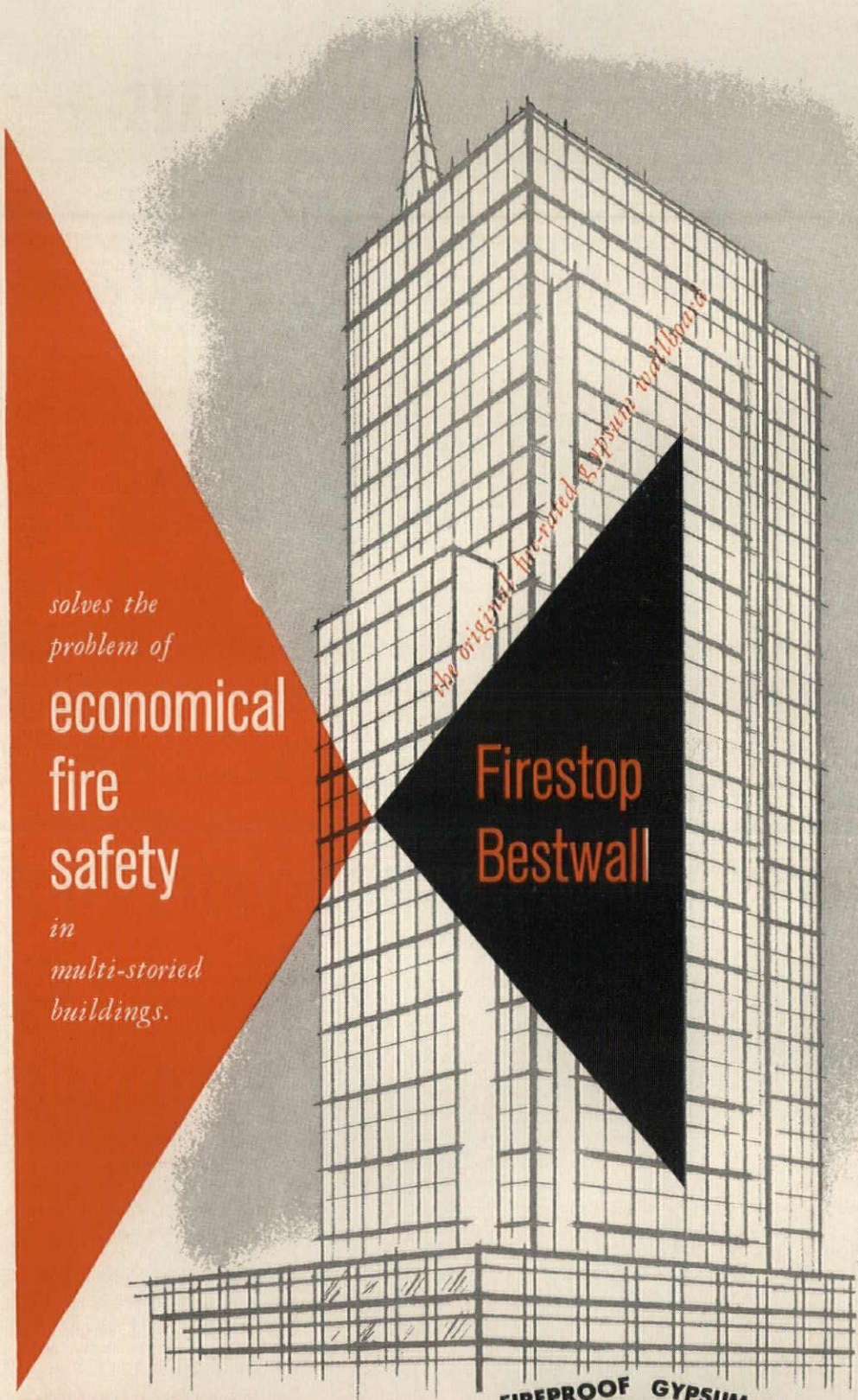
High Strength Structural Bolts
(A.I.A. 13-C-1) Provides information on the specification and use of high strength structural bolt assemblies. The applicable ASTM specification is printed in full with an appendix that explains in more general terms the principal points of the specification. Form No. Adv. 962, 16 pp. *Adv. Div., Republic Steel Corp., 1441 Republic Bldg., Cleveland 1, Ohio**

Steel Mill Air Cleaning
Discusses and illustrates the air cleaning requirements in steel mill operations. Topics considered include recommended sizes and types of air filters, filter locations, dust problems, maintenance and ventilation situations. Bulletin 234-P1, 16 pp. *Dept. PD, American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.*

Recommended Practices for the
. . . *Design and Installation of Master Television Antenna Systems* details criteria for antennas, amplifiers, and distribution systems. Comprehensive diagrams illustrate various examples of system design and necessary tables are supplied. 8 pp. *Entron, Inc., P. O. Box 287, Bladensburg, Md.*

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

more literature on page 284



solves the problem of

economical fire safety

in multi-storied buildings.

Firestop Bestwall

No other fire-rated gypsum wallboard has been proven in as many different constructions and received as many approvals throughout the country as Firestop Bestwall.

It was the first gypsum wallboard to provide one hour fire resistant construction with single layer application on both combustible and incombustible framing, load-bearing walls and ceilings. It can provide up to 3 hours protection in partitions and up to 1½ hours in ceilings.

In a typical multi-storied commercial building, Firestop Bestwall provides fire safety at low cost in separating partitions and ceilings, corridor walls, stairwells and basement ceilings.

Other advantages are:

strength—
⅝" Firestop has flexural strength of 225 to 275 lbs.

durability—
resists cracks, unaffected by temperature extremes.

versatile—
can be arched or curved.

easily decorated—
excellent base for enamel, oil paint, resin emulsion paint, water paint, wallpaper, etc.

sound deadening—
compares favorably with similar constructions.

Performance and cost data plus fire rating approvals will be sent on request or are available from your Bestwall representative.

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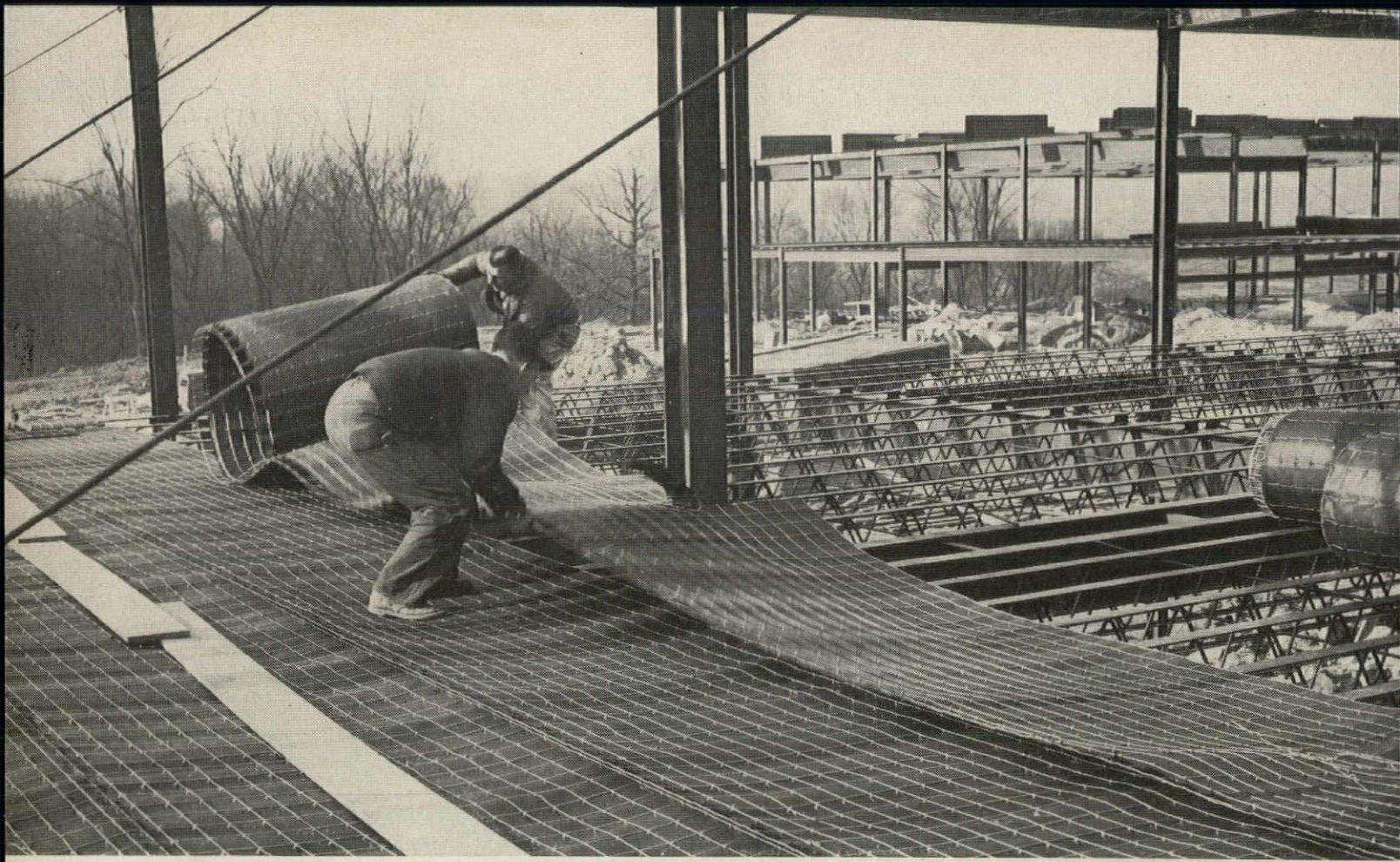
FIREPROOF GYPSUM
BESTWALL®
BUILDING PRODUCTS

BESTWALL GYPSUM COMPANY • Ardmore, Pennsylvania • Plants and offices throughout the United States



Quickly, easily Steeltex goes down at superbly designed Canevin High School, Pittsburgh, where 60,000 square feet of Steeltex support concrete floor slabs. Architect: Celli-Flynn, McKeesport, Pa. Contractor: Navarro Corp., Pittsburgh. Steeltex from Pittsburgh Steel Co. was specially commended for its installation features on this project.

Architect, Contractor Find . . .

Steeltex Saves 35 Cents per Square Foot

"I estimate we saved about 35 cents per square foot by using Steeltex instead of another material on the Baptist Hospital addition in Pensacola. Steeltex' quick installation also helped us meet our construction timetable easily."

Man speaking: President Raymond C. Dyson of Dyson and Company, Pensacola, Fla., general contractors.

Job: $1¾-million addition to Baptist Hospital. Here, Pittsburgh Steel Company supplied 70,000 square feet of Steeltex, the waterproofed, paper-backed wire mesh reinforcing used in the concrete floors and roof slabs.

Like Mr. Dyson, Architect Charles H. McCauley has used Steeltex for more than 20 years. He, too, knows Steeltex helps provide better construction at lower costs.

"I specified 100,000 square feet of Steeltex when the main hospital building was erected eight years ago," said Mr. McCauley. "Naturally, I specified it again when the addition was built. I think this shows I am enthusiastic about the qualities of Steeltex."

• **Cost 30-40 Percent Less**—Similar comments came from Cleveland where Architect Eugene W. Gray and Contractor William Passalacqua were responsible for constructing the new $600,000 Child Welfare Division Building.

Mr. Gray and O. E. Kronenwetter, chief engineer for Passalacqua Builders, estimated that 30,000 square feet of Steeltex in floor slabs cost 30 to 40 percent less than methods generally specified.

• **On Pittsburgh Job**—When Steeltex was combined with Pittsburgh Steel's wire mesh to support 60,000 square feet of concrete floor slabs at Canevin High School in Pittsburgh, Steeltex was specially commended for its installation features.

Joseph V. Cutuly, job superintendent for the general contractor, Navarro Corporation of Pittsburgh, likes Steeltex because "it takes more punishment during installation than a sheet metal, goes down faster and is much easier to handle."

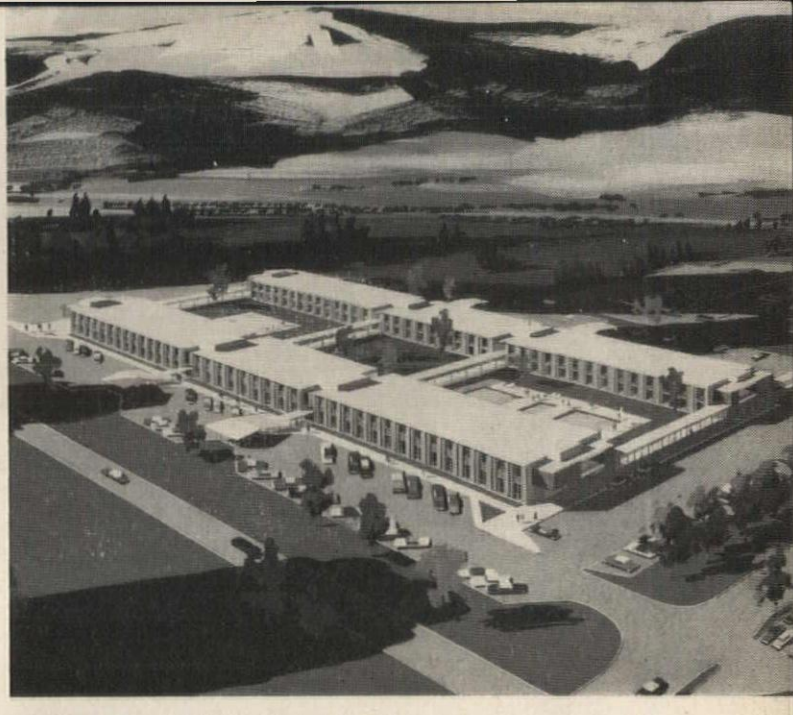
Dean Regan, foreman of the crew that installed Steeltex in the $2½-million building, has used Steeltex on more than 55 jobs in ten years.

"Steeltex is very easy to install. Just unroll it, cut, tighten and clip," he said.

• **Makes Stronger Slab**—William B. Tabler of New York City, architect for the $2½-million Hilton Inn at the San Francisco Airport where 65,000 square feet of Steeltex supports the floors, pointed out additional Steeltex features. Said Mr. Tabler:

"Steeltex retains moisture and cement to a greater degree than lath. This makes a cleaner job. Also, the sag from the concrete cradled in the Steeltex gives additional lateral resistance which aids earthquake construction."

Snug fit of Steeltex around drain pipe at Canevin High School is shown by Joseph V. Cutuly, job superintendent (l.), and Foreman Dean Regan. Mr. Cutuly says, "Steeltex takes more punishment during installation than a sheet material, goes down faster and is much easier to handle."



At luxurious Hilton Inn, San Francisco Airport, 65,000 square feet of Steeltex in floor slabs aid earthquake construction. Architect: William B. Tabler, New York City. Contractor: Cahill Construction Co., San Francisco.

• **New Users Like Steeltex**—Steeltex also is endorsed by new users such as the architectural firm of Charles Bacon Rowley and Associates, Inc., and Ernst Payer, and Contractor Albert M. Higley Company, both of Cleveland. They teamed up on building the $805,000 Western Reserve Historical Society Museum in their city.

Superintendent Albert M. Higley Jr. estimated "perhaps a four percent savings was realized by using 11,500 square feet of Steeltex instead of placing conventional roof structures."

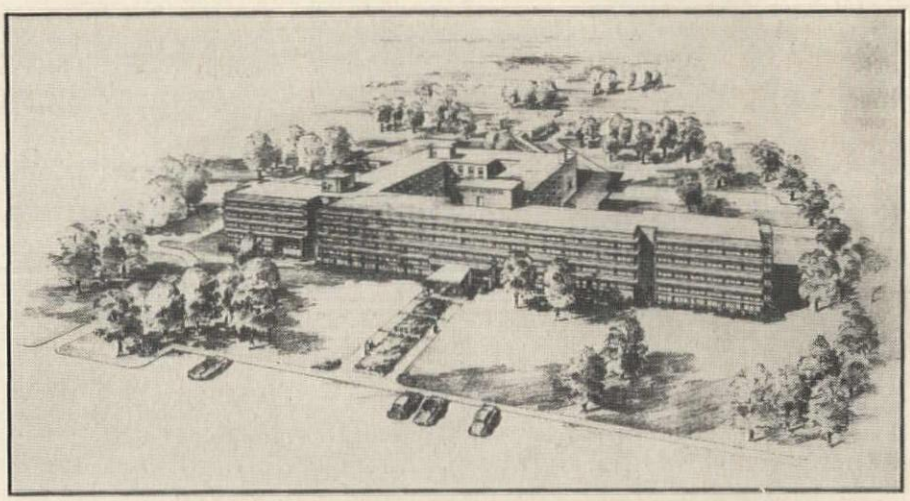
• **Will Use Again**—Another satisfied new user is Irving D. Robinson, architect for the new $325,000 Luria Brothers Building in Cleveland.

Mr. Robinson said: "This is the first time I specified Steeltex and I am sure I will use it many times again. Steeltex permitted work to continue on the floors without planking or scaffolding, although the concrete slab was not poured for many weeks after the 12,000 square feet of Steeltex were installed." Contractor for the job was J. L. Hunting Company, Cleveland.

Whether you are a veteran Steeltex user or a newcomer, you cannot afford to pass up using Steeltex on your next construction job.

Trained sales engineers are available to help solve your construction problems. Put them and Steeltex to work for you soon.

Contact the nearest Pittsburgh Steel Products sales office listed at right. Call today . . . you'll be glad you did.



$24,500 was saved on cost of material and labor by using 70,000 square feet of Steeltex in the Baptist Hospital addition in Pensacola. Architect: Charles H. McCauley, Birmingham. Contractor: Dyson and Company, Pensacola.

▶ **See Sweets Catalog Section 2-B**

Steeltex®

Pittsburgh Steel Products

***a division of* Pittsburgh Steel Company**

Grant Building • Pittsburgh 30, Pa.

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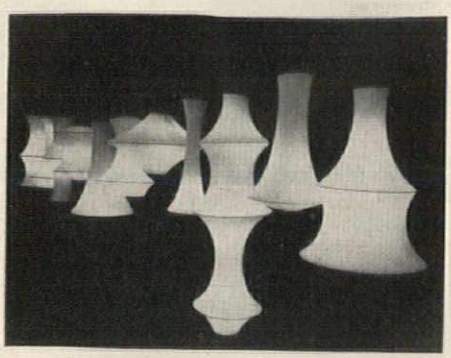
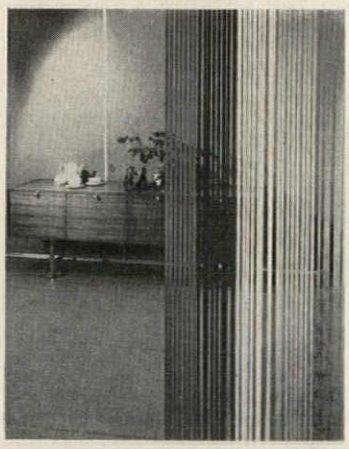
continued from page 244



Fish Net Shapes Fanciful Lanterns
The heir apparent to the "Bubble Lamp" is a new collection of "Net Lights"—also designed by George Nelson—which consist of vinyl-sprayed fish net stretched tautly over rings of various dimensions to produce a series of tension-formed curves. The lanterns are supported by a white metal canopy and are finished top and bottom with oiled walnut or metal rings. Depending on their size and shape, they carry one, two and as many as four light bulbs, the longer shapes being lighted at the top as well as the bottom. *Howard Miller Clock Co., Zeeland, Mich.*

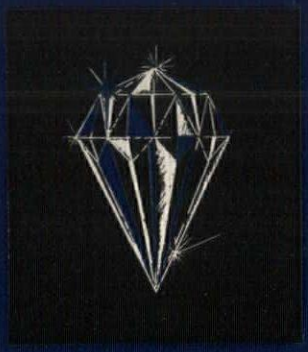


Metal Ribbons Form Space Divider
The latest variant on the Victorian bead curtain is George Nelson's new *Ribbon Wall*, a space divider made up of flexible metal streamers free-hanging from a ceiling track. The metal ribbons, which hang sixteen to the foot, can be cut to any desired length. They come in olive, orange, turquoise, blue, yellow, white and charcoal flat-finished colors. *Howard Miller Clock Co., Zeeland, Mich.*

TV Monitor for Hospitals
Visicall, an audio-video communication system for hospital patient supervision, features a closed circuit TV monitor that brings every hospital room into view in predetermined sequences. The viewing time for each room is controlled by the supervising nurse, who is able to hold any room by the flip of a switch and at the same time conduct a two-way discussion with the patient. Essentially the system consists of the two-way voice intercom system, a series of closed television circuits with multiple camera installations, one or more monitors, and a series of switches that automatically select audio and video circuits in the predetermined sequence. *Sperti-Faraday Co., Adrian, Mich.*

Glass Lined Clay Pipe
Amvit Glas-Glaz, a vitrified clay pipe for household sewer connections, is coated with a glass-like ceramic glaze designed to add strength and smoothness to the pipe. According to the manufacturer, it has withstood tests for weathering, chemical resistance, hydrostatic pressure, aging, rough handling and field practice. Made in 4-, 6- and 8-in. diameters, it comes in new long lengths of four feet or over, and features the *Amvit* compression type mechanical joint. *American Vitrified Products Co., National City Bank Bldg., Cleveland 14, Ohio*

more products on page 264



You get diamond-quality, but economical

STRENGTH

and BEAUTY

and many more facets of lasting value with

FLINTKOTE INSULROCK®

Roof Decks

INSULROCK, the only single-unit fiber board roof deck with

INSUL-GLO 70*

that makes possible 60 to 70% light reflectance from its beautiful exposed ceiling surface—at no extra cost.

INSULROCK, the single-unit fiber board roof deck with

PORTLAND CEMENT STRENGTH

Uniquely strong, portland-cement-bonded and chemically treated wood fibers assure Insulrock to be always well above normal ultimate load requirements. In all weathers. In all climates. For all structures.

When you specify **INSULROCK,** you specify the all-in-one roof deck that is:

- *non-combustible*
- *acoustical*
- *insulating*
- *economical*

eliminating added materials and labor.

Specify **INSULROCK** for factory-controlled, uniform quality—*for beauty that stands up through the years.*

Manufacturer of America's Broadest Line of Building Products

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THE FLINTKOTE COMPANY

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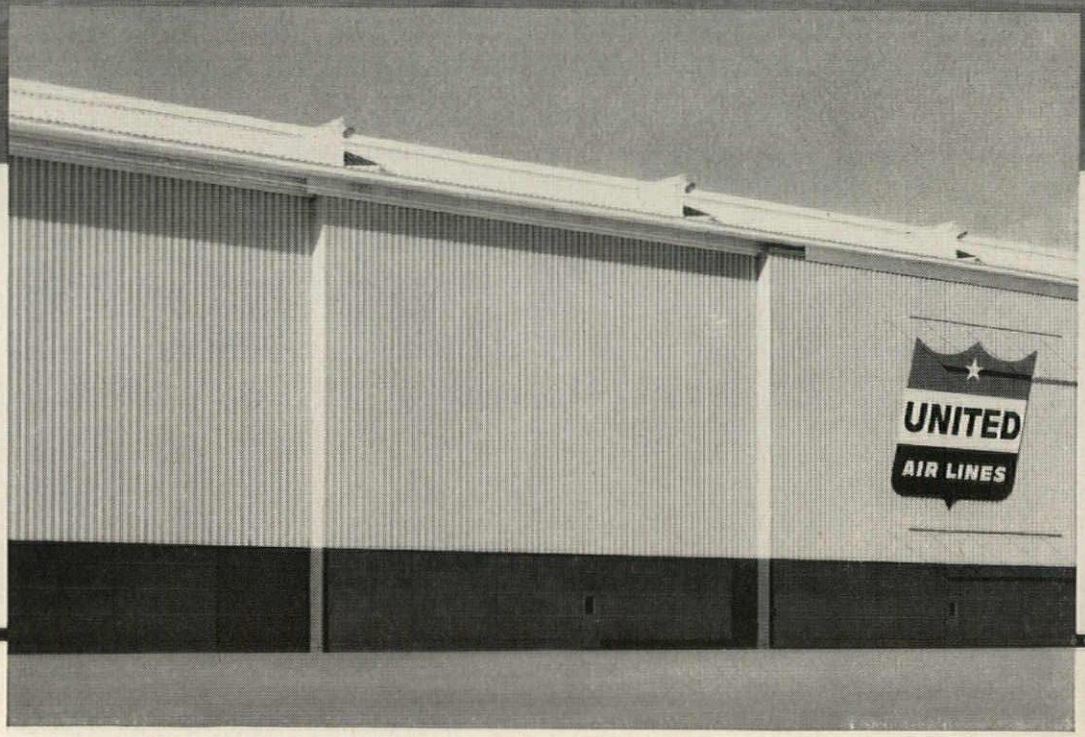
*A trademark of The Flintkote Company

Mahon METAL CURTAIN WALLS



United Air Lines Service Center at San Francisco, Cal. Mahon Metal Curtain Walls were employed to lend trimness and to retain the clean lines of this unique structure which was designed to accommodate four mammoth DC-8 Jet Air Liners. Mahon Curtain Wall Plates, of the same material and pattern, were also employed as exterior facing on the large hangar doors.

Architects & Engineers
Skidmore, Owings & Merrill

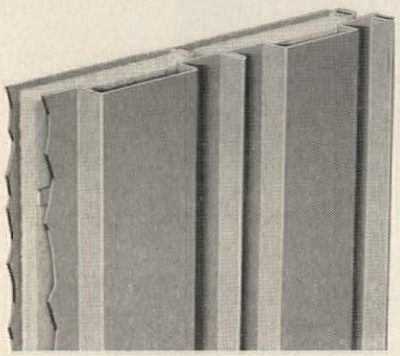
General Contractor
Dinwiddie Construction Company

Serving the Construction Industry Through Fabrication of Structural Steel, Steel Plate Components, and Building Products

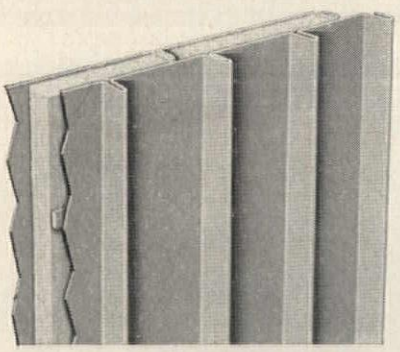
Produce a Clean, Distinctive Wall Texture in Any Type of Structure!

Mahon Walls can be Erected up to 60 Ft. in Height without a Horizontal Joint . . . Vertical Joints are Invisible

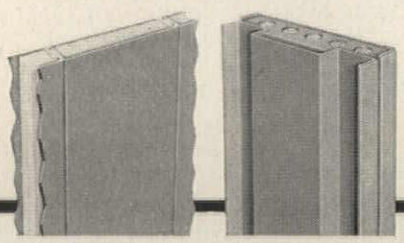
ALUMINUM or STAINLESS
GALVANIZED or PAINTED STEEL



MAHON FLUTED WALL
FIELD CONSTRUCTED



MAHON RIBBED WALL
FIELD CONSTRUCTED



FLUSH FLUTED
MAHON PREFAB WALL PANELS

☆ OTHER MAHON BUILDING PRODUCTS and SERVICES:

- Underwriters' Rated Metalclad Fire Walls
- Rolling Steel Doors (Standard or Underwriters' Labeled)
- M-Floors (Electrified Cellular Steel Sub-Floors)
- Long Span M-Decks (Cellular or Open Beam)
- Steel Roof Deck
- Permanent Concrete Floor Forms
- Acoustical and Troffer Forms
- Acoustical Metal Walls and Partitions
- Acoustical Metal Ceilings
- Structural Steel—Fabrication and Erection
- Steel Plate Components—Riveted or Welded

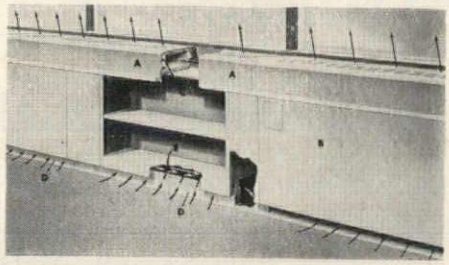
☆ *For INFORMATION See SWEET'S FILES or Write for Catalogues*

THE R. C. MAHON COMPANY • Detroit 34, Michigan
Sales-Engineering Offices in Detroit, New York, Chicago and Los Angeles
Representatives in all Principal Cities

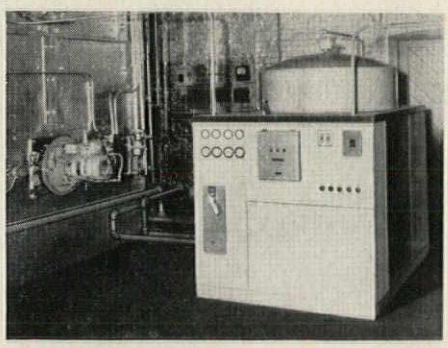
of Steel and Aluminum

MAHON

Product Reports



Perimeter Air Conditioning
The new Trane Wall-Line year-round perimeter air conditioning system consists of a *UniTrane* air conditioning unit with pre-assembled ducts which circulate conditioned air along exterior walls. According to the manufacturer, the system can be designed on Btu/hr/ft and cfm/ft basis that will be maintained even if interior walls and partitions are moved. Ducts extending air outlets along the full perimeter of the room also make it possible to substitute one, large capacity unit for several smaller units and provide better air circulation. The system components are shown above: A) fans; B) coils; C) insulation; D) return air intake; and E) alternate intake used if a partition is placed over the spacer between units. *Trane Co., La Crosse, Wis.*



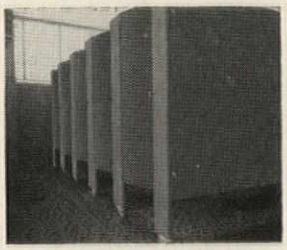
Boiler Water Control System
A new low-cost side-stream boiler water control system automatically keeps boiler water clear by eliminating sludge and suspended solids. Available in standardized models for all types of steam boilers up to 1,000 hp and customized units for boilers up to 6,000 hp, the *Filtrion* units operate by continuously recirculating boiler water through a side-stream filter and filter precoat that reduces suspended solids to a value close to zero. The completely automated systems also combine side-stream filtration with chemical pretreatment, internal treatment, continuous minimum blowdown and feedwater preheating and degassing within the system. *Sparkler-Filtrion Corp., North Chicago, Ill.*

more products on page 272

Sanymetal®'s NEW

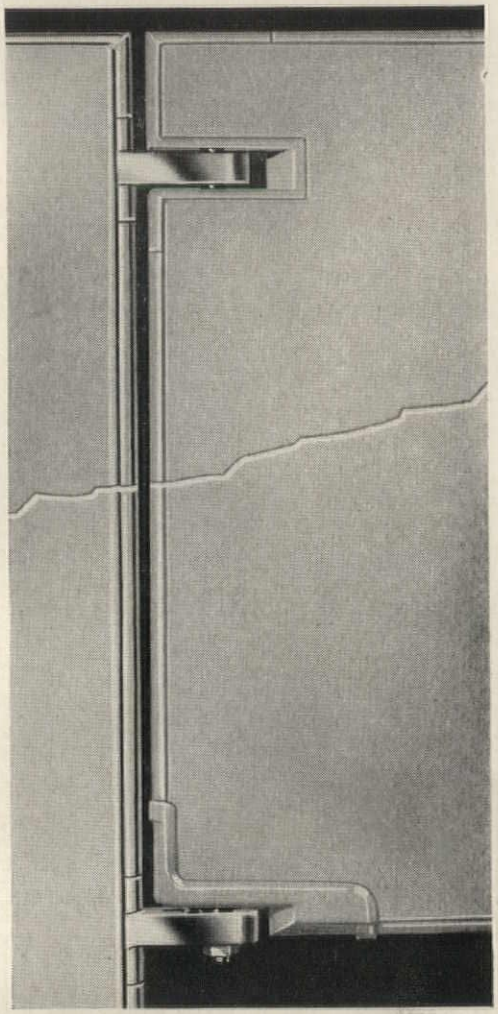
INTEGRAL DOOR HINGE BRACKET

the most important toilet compartment advance since 1953

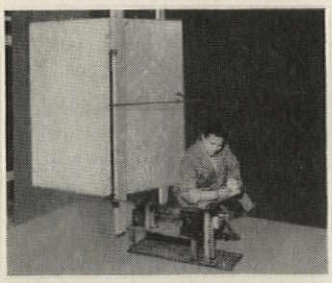


Toilet partition pilasters can now have true 'flat-slab' architectural appearance, a clean line uninterrupted by bolts that protrude, or hinge bracket parts that extend over the pilaster surface. Sanymetal's new INTEGRAL HINGE BRACKET is part of the pilaster, clean-lined and functional, bringing more beauty to compartment design, the greatest advance since introduction of Sanymetal's 7900 series hinge in 1953. The improvement has important practical advantages, too — easier, quicker installation, no bolts to loosen or be stolen, faster, more thorough cleaning. These durable and attractive new brackets are another of the features you get from Sanymetal's progressive design development features that contribute to the Sanymetal quality which brings greater beauty and prestige, with lower maintenance and repair costs.

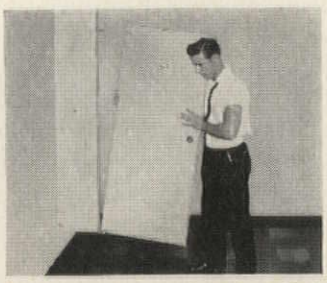
(Ask us to send the booklet "NEW Sanymetal INTEGRAL HINGE BRACKET")



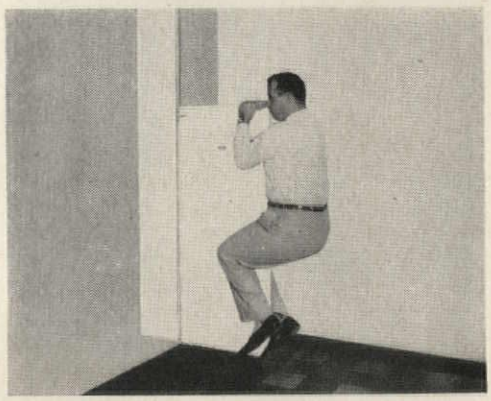
Sanymetal Integral Hinge Brackets have no protruding bolts or parts that interrupt the flat pilaster surface.



TESTED in an independent laboratory these brackets supported a door swung over 1,000,000 times; after the test the brackets still showed no evidence of wear.



Because brackets are factory-applied, application is faster, better. There are no bolts, no adjustments requiring field labor-time.

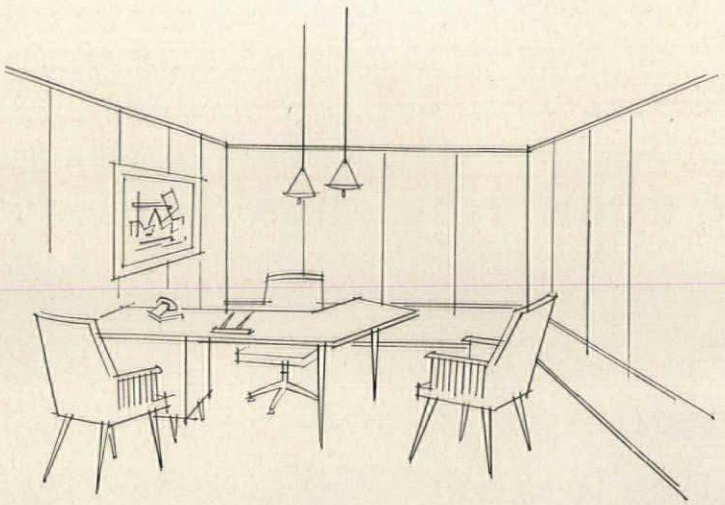


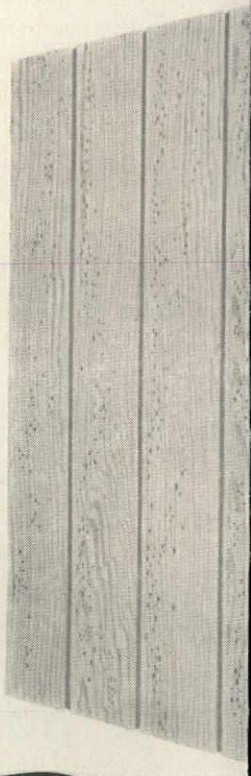
Sanymetal Integral Brackets support the playful swinging of a 240 pound man, with strength to spare.

LOOK FOR THIS

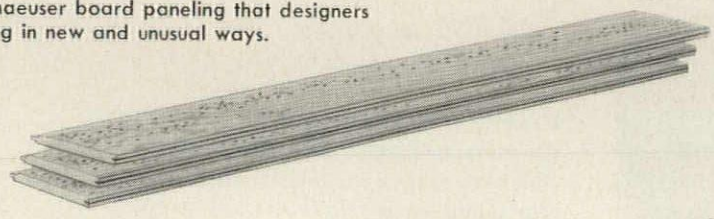
NAMEPLATE WHICH IDENTIFIES EVERY SANYMETAL INSTALLATION.

Sanymetal®
PRODUCTS COMPANY, INC.
1689 Urbana Road, Cleveland 12, Ohio





DRIFTWOOD PANELING, a richly distinctive Weyerhaeuser board paneling that designers are using in new and unusual ways.



For interiors with the Beauty

Weyerhaeuser 4-Square Wood Panelings offer unlimited design opportunities for a variety of interesting effects

Office, restaurant, church or classroom—wherever you want to provide the warm look of wood, make Weyerhaeuser 4-Square paneling your choice.

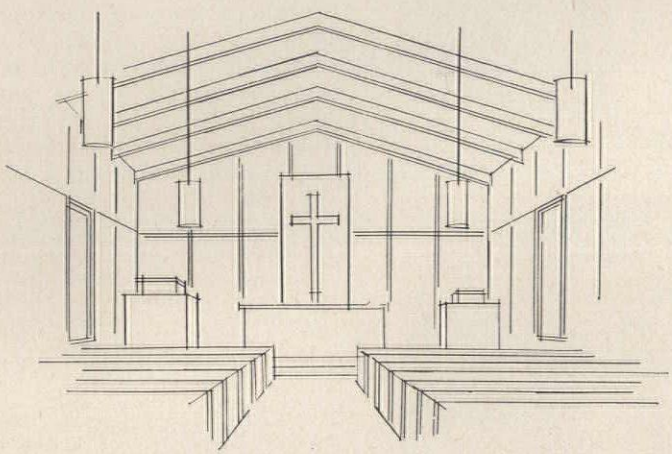
In the Weyerhaeuser line you'll find a broad selection of patterns, stylings and species in both board and plywood panelings. Board paneling is available in specified lengths, with precision-milled edge treatment that assures easy application and snug, tight joints. Plywood paneling, with the finest grains of quality veneers, is offered in smooth or grooved patterns suitable to almost any architectural styling. Other specialty plywood panelings, such as Loc-Wall shown at the right, are designed to effect big savings in installation.

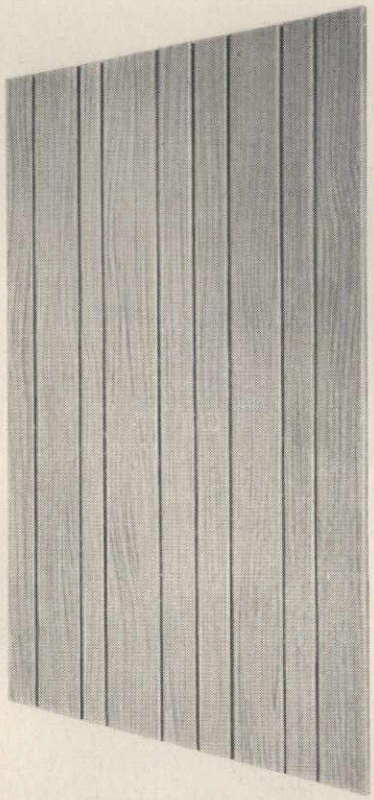
Weyerhaeuser panelings are skillfully milled to bring out the finest qualities of wood grain, texture and coloring. When you specify Weyerhaeuser paneling, you add striking, original beauty to your interiors.

Call your Weyerhaeuser 4-Square Lumber Dealer for detailed information, or write us.

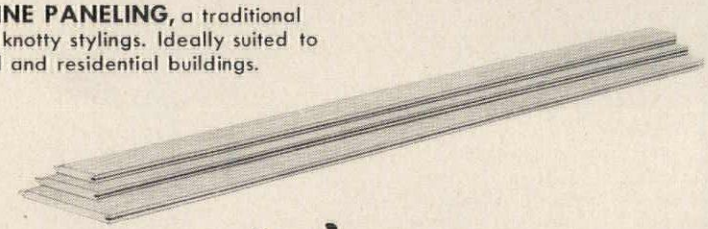
Weyerhaeuser Sales Company

First National Bank Building / St. Paul 1, Minnesota

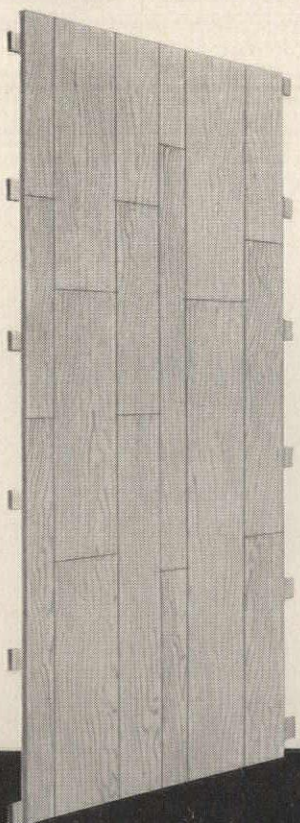


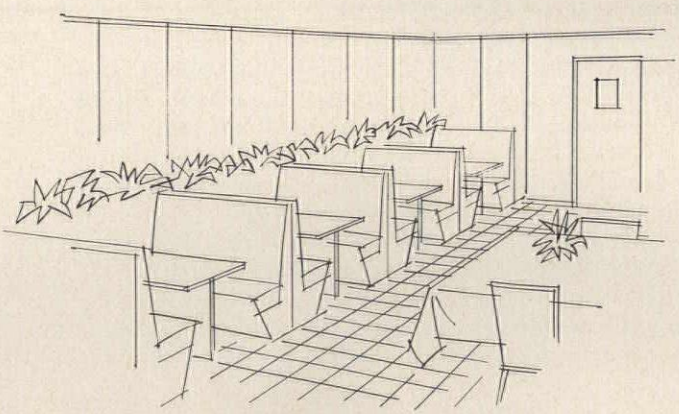


IDAHO WHITE PINE PANELING, a traditional favorite in clear or knotty stylings. Ideally suited to churches, commercial and residential buildings.



..that only *Wood* can give





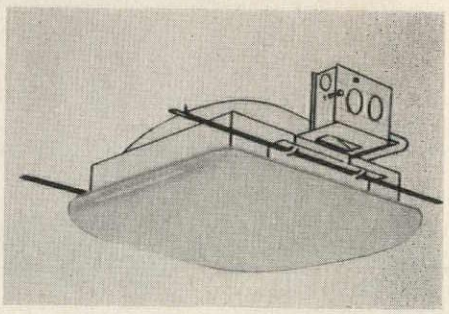
LOC-WALL PANELING, simple and easy to install with furring strips already attached. Room-height panel units go up quickly.

Weyerhaeuser **4-SQUARE®**

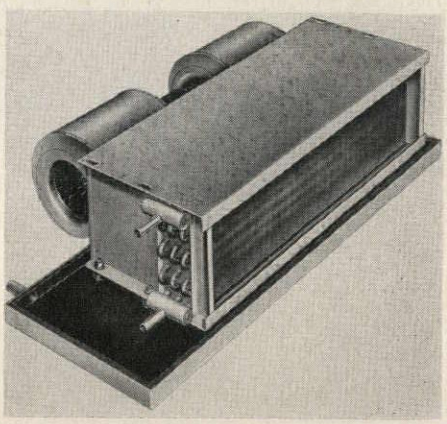
LUMBER AND BUILDING PRODUCTS

Product Reports

Synthetic Rubber Roofing
A new roofing compound made from synthetic rubber elastomeric resins provides a decorative surface for steep or flat roofs while preventing the loss of vital oils from the underlying asphalt surface. A high viscosity adhesive, *Glasene* is applied by spray or brush over new or existing roofing materials, and may either be left smooth or used as an adhesive for aggregate. It comes in white, red, green and blue. *Twinsburg-Miller Corp., Box 207, Twinsburg, Ohio Ohio*

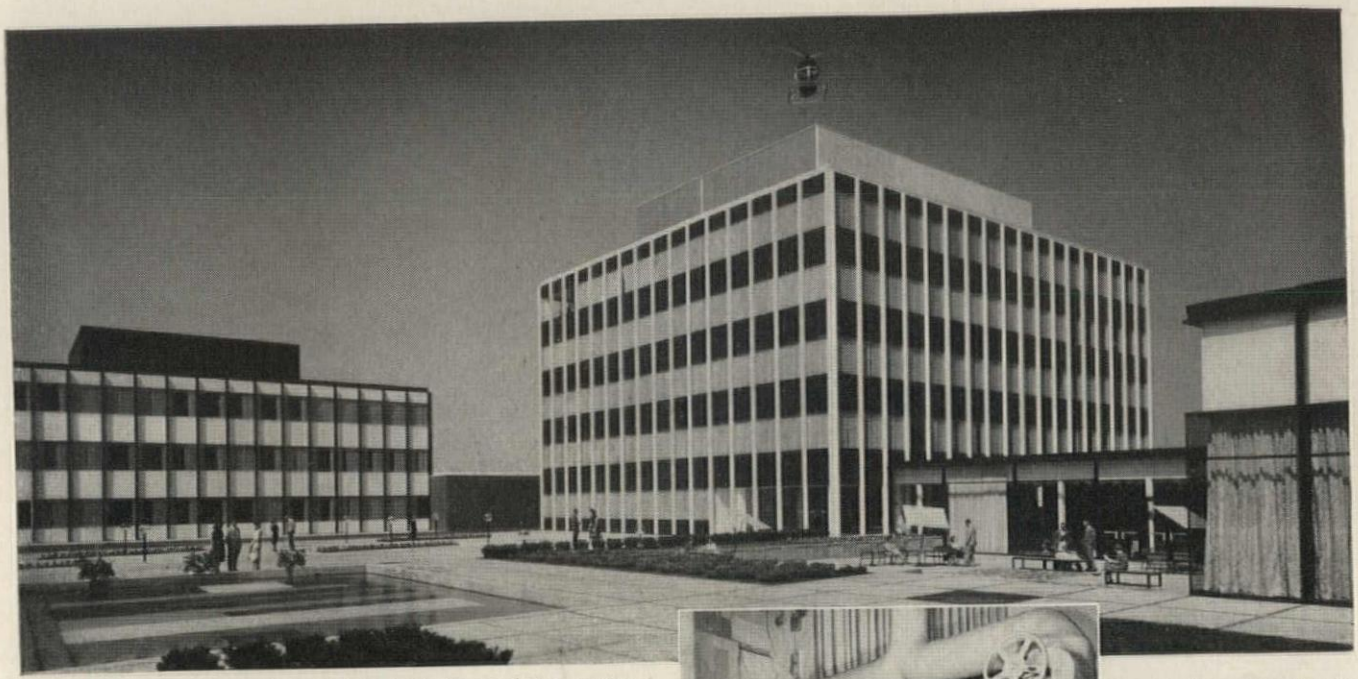


"Wrap-Around" Incandescent Unit
The glass diffuser of the new *All-Glass* recessed incandescent lighting unit curves outward and upward to the ceiling, thus providing ceiling illumination, wide-angle distribution and as much as 40 per cent more light output. The 100 and 150 watt round and square units fit Halo's standard round and square prewired housings. *Halo Lighting Products, Inc., 3232 W. Chicago Ave., Chicago 51, Ill.*



Horizontal Air Conditioner
The Type 30 *Remotaire*, a year-round, horizontal fan-coil air conditioning unit for apartments, hotels and motels, is designed for use with hot or chilled water in concealed overhead installations, such as in dropped ceilings or closets. Thus air conditioning can be removed from the exterior wall, freeing its design, particularly for floor-to-ceiling glass. Fan load and motor speed are carefully matched for maximum performance at mini-

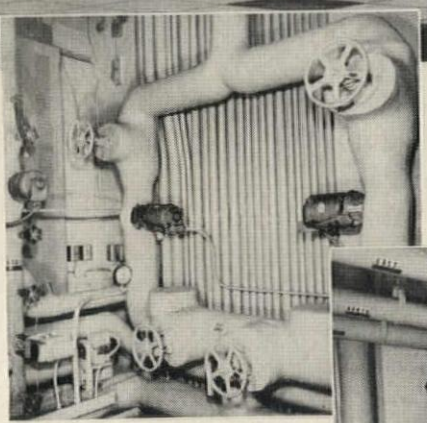
continued on page 278

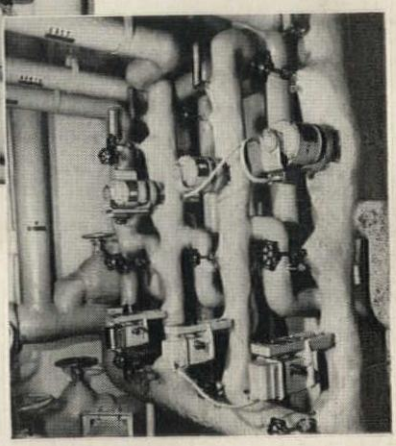


International Minerals & Chemical Corporation, Administrative and Research Center, Skokie, Ill.

Architects and Engineers:
Perkins & Will
General Contractor:
Turner Construction Co.
Mechanical Contractor:
M. J. Corboy Corp.

"ENGINEERED FOR THINKING" ...WITH 22 QUIET B&G BOOSTER PUMPS





B&G Boosters installed in various heating circuits.

B&G BOOSTER PUMP

Hydro-Flo SYSTEM

BELL & GOSSETT
COMPANY
Dept. FW-32 Morton Grove, Ill.
Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

International Minerals and Chemical's new administration and research center, Skokie, Illinois, has been described as "engineered for thinking." In keeping with that objective, twenty-two *quiet* B&G Boosters were selected as the pumps for the heating circuits of the four buildings and the snow melting panels.

B&G Boosters and larger Universal Pumps are designed and built specifically for circulated water heating and cooling systems, in which they satisfy the all-important requirement of *silent, vibrationless* operation. Over 3,000,000 are today installed in such systems.

Among the features of B&G circulating pumps are specially built, more costly motors, tested for quiet running...oversized shafts of hardened alloy steel... long sleeve bearings...noise dampening spring couplers...oil lubrication and leak-proof mechanical seals. They can be serviced without removing from the line.

Product Reports

continued from page 272

mum operating cost, while a large-surface-area three-row coil assures effective, quiet conditioning. A unique drain pan design offers positive sweat protection, eliminates metal-to-metal contact between the pan and the bottom of the coil, and assures clear draining and easy cleaning. *Plumbing & Heating Div., American Radiator & Standard Sanitary Corp., 40 West 40th St., New York 18, N. Y.*

Biological Safety Cabinet
A new biological safety cabinet for use in the study and safe handling of disease-causing micro-organisms provides glove port stations, each designed to accommodate rubber or neoprene gloves with 8-in. cuffs, for two technicians. A slight negative pressure inside the cabinet protects the operator from outward diffusion of particles and infectious aerosols; filtration and ultra-violet radiation clean the exhaust air. The cabinet itself comes equipped with a small stainless steel sink and connections for plumbing, electricity and gases. *Contract Equipment Div., Hamilton Mfg. Co., Two Rivers, Wis.*

Non-Combustible Plastic Diffuser
The new *NC Gratelite* louver diffuser panel is compression-molded of a non-combustible plastic that makes possible "wall-to-wall" lighting with economy of maintenance and fire-safety. (The panel has a U/L flame-spread rating of 25; is also approved for use below sprinkler systems.) Since the plastic is nonelectrostatic, the panels repel dust and dirt and require virtually no maintenance. Moreover, the $\frac{3}{8}$-in. open cubicles that make up the 24-in. square panels permit cooler lamp operation and at the same time provide low-brightness, high intensity lighting. *Edwin F. Guth Co., St. Louis, Mo.*

FACING, GRILLES AND SCULPTURE

for Our Lady of Assumption Church in Wood-Ridge, N. J. were custom-made by Federal Seaboard Terra Cotta Corporation. Mottled pink and gray Ceramic Veneer facing units, 22″ x 24″, gray textured grille units, 15″ x 15″, and the nineteen foot polychrome terra cotta statue were specified by Anthony De Pace, architect. Romagnino Construction Company were the builders. Colorful literature illustrating the versatility of Ceramic Veneer is available upon request. Federal Seaboard will also furnish construction detail, data, color guide brochure, advice and estimates on preliminary sketches involving the use of Ceramic Veneer.

FEDERAL
SEABOARD
TERRA COTTA
CORPORATION

10 E. 40th St., New York 16, N.Y.
Plant at Perth Amboy, New Jersey

F S T C

Strong, durable, lower in cost

You can now specify windows of sturdy, lasting stainless steel—at a cost much lower than you may think. Reason? Manufacturers now *roll-form* windows from Allegheny Stainless and pass the fabrication economies on to you.

In actual bidding recently, the price of roll-formed Allegheny Stainless windows averaged only about 10% higher than another non-stainless metal.

Vital to architecture, durability and compatibility are inherent in Allegheny Stainless. It never requires chemical films for surface protection, and virtually cleans itself with normal rainfall. Because of an amazing resistance to corrosive atmospheres, the brightness and freedom-from-pitting of Allegheny Stainless are recorded history; yet different patterns, textures and colors make news each day.

Stainless steel windows—of all-welded design and tubular construction—are available in Allegheny Stainless Types 202 and 302.

Include Allegheny Stainless in your design-thinking now. Learn how you can get the quality of stainless steel windows for much less than you think. For additional facts, and manufacturers' names, write to *Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa. Dept. K-*

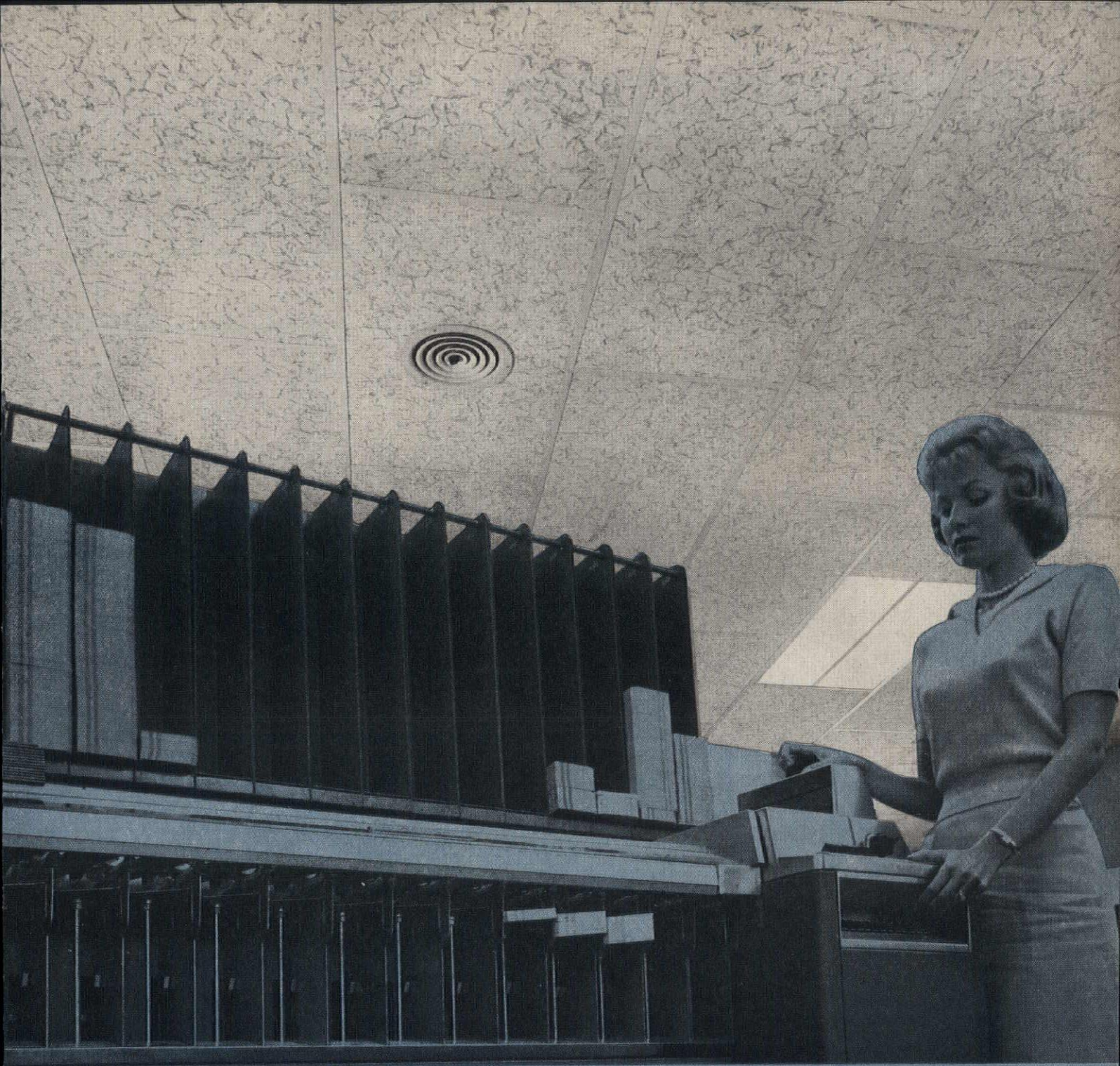
WSW 7296

ALLEGHENY LUDLUM

for warehouse delivery of Allegheny Stainless, call RYERSON

Export distribution: AIRCO INTERNATIONAL

EVERY FORM OF STAINLESS . . . EVERY HELP IN USING IT



In Accounting Machine Rooms, where the noise level can be a problem, it's

Quietly beautiful...Beautifully quiet...

ULTRACOUSTIC® CEILING BOARD

- Quietly beautiful—the only incombustible* glass fiber ceiling board with *travertine* texture.
- Beautifully quiet—85 NRC.
- All the permanence, stability, and easy-application characteristics of glass fiber
- The ideal ceiling board for any suspended ceiling application where appearance and acoustical efficiency are important. . . offers uniformity without monotony.

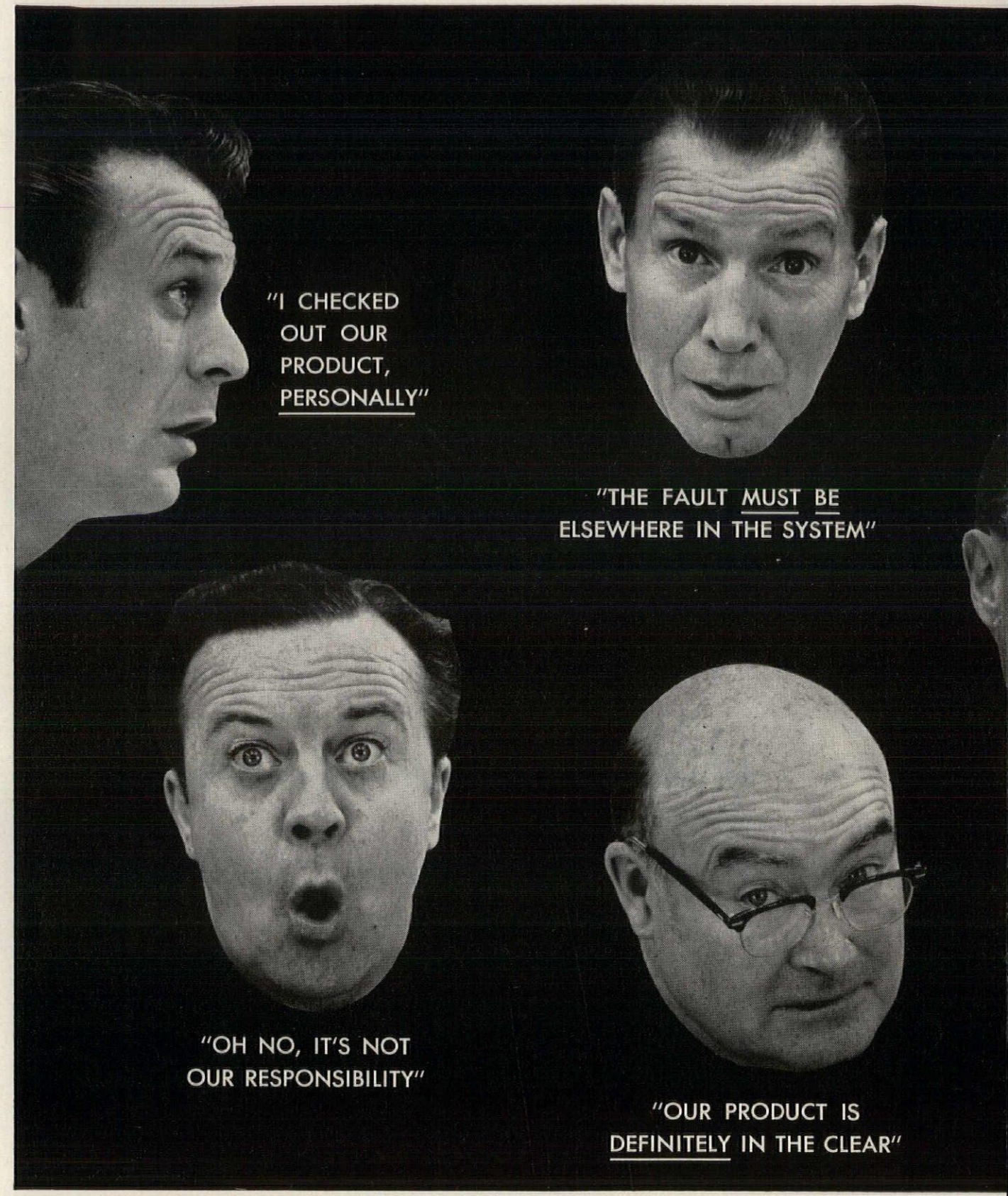
FOR ADDITIONAL INFORMATION SEE SWEET'S FILE 11A/GU OR WRITE FOR 4-COLOR AIA BROCHURE TODAY.

GUSTIN-BACON *Manufacturing Company* GUSTIN gb® BACON

Thermal and acoustical glass fiber insulation for duct work, pipe, curtain walls, metal buildings.

224 W. 10th St. Kansas City, Mo.

*Carries Underwriters' Laboratory label



One call for all

CENTRIFUGAL REFRIGERATING MACHINES • CENTRAL-STATION AIR CONDITIONERS
PACKAGED WATER CHILLERS • PACKAGED AIR CONDITIONERS • FANCOIL UNITS
MULTI-ZONE AIR CONDITIONERS • SPRAYED COIL DEHUMIDIFIERS • HEATING AND
COOLING COILS • CENTRIFUGAL FANS • PROPELLER FANS • POWER ROOF VENTILATORS
UTILITY SETS • UNIT HEATERS • BOILERS

Why divide responsibility for air conditioning equipment?

THERE'S A SAYING that a camel is a horse designed by a committee. Not so. A camel is a horse assembled by a committee. The horse concept is still basically a sound one.

Yet, by the same token, what happens when you split responsibility for the elements in a building or plant air-conditioning, heating, and ventilating system? The components are built by separate manufacturers who are answerable only for what they make.

How much better to select *all* the major components from American-Standard* Industrial Division. You choose from the combined American Blower, Ross Heat Exchanger, and Kewanee Boiler product lines . . . have *one-source* responsibility for quality and performance in equipment designed, engineered, and manufactured to work together.

Offices, in all principal cities, staffed with product specialists, work with you in equipment selection and on-the-job problems. Give the one near you a call. AMERICAN-STANDARD INDUSTRIAL DIVISION, DETROIT 32, MICH. IN CANADA: AMERICAN-STANDARD PRODUCTS (CANADA) LIMITED, TORONTO, ONTARIO.

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AMERICAN-Standard
INDUSTRIAL DIVISION

AMERICAN BLOWER PRODUCTS • ROSS PRODUCTS • KEWANEE PRODUCTS

Office Literature

continued from page 252

J & L Lightweight Structurals
Discusses characteristics and applications of junior beams, junior channels, joists and light beam sections with tabular information on the design properties and dimension details of each. 16 pp. *Jones & Laughlin Steel Corp., 3 Gateway Center, Pittsburgh 30, Pa.*

Prefabricated Cabinets Manual
(A.I.A. 17-D) Discusses *Storagewall* prefabricated modular storage units, describes their uses, and gives construction details and general specifications. Separate sections detail the "Classroom Series" of cabinets, sink units and movable units. *Boyd-Britton Associates, 165 West Wacker Dr., Chicago 1, Ill.*

X-Ray Department Planning Book
Includes loose-leaf sections on the planning of one-, two-, and four-room diagnostic x-ray suites, each with layouts, wiring diagrams, electrical specifications and construction details. *Picker X-Ray Corp., 25 S. Broadway, White Plains, N. Y.*

Modern Shopping Centers
. . . and Btu Metering, by Kenneth S. Davidson, describes the installation, operation and maintenance of *Pollux* Btu meters for accurately billing heating and cooling charges from central systems in large shopping centers. 8 pp. *Air Conditioning Equipment Corp., 219 East 44th St., New York, N. Y.*

Welcome to the Wonderful World
. . . of Light (A.I.A. 31-F-23), Lightolier's 1959 Style Book, catalogs over 500 separate items for residential lighting. 96 pp. *Lightolier, Inc., 346 Claremont Ave., Jersey City* 5, N. J. *

Fiber Glass Reinforced Skylights
(A.I.A. 12-J) Describes and gives installation details, available dimensions and sizes, physical characteristics and specifications for *Consolite* skylights and accessories. *Consolidated General Products, Inc., P. O. Box 7425, Houston 8, Tex.**

Self-Cooled Motor Propellor Fans
Includes information on how to select the fan size needed, motor specifications, fan construction and dimensions, and accessory equipment. 20 pp. *Ilg Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 41, Ill.**
**Additional product information in Sweet's Architectural File*

more literature on page 292

A-plus quality check of anodizing

Is electroplating of uniform thickness? Are parts perfectly matched? Even hidden quality is never taken for granted at Adlake. This photoelectric reflective meter leaves nothing to guesswork!

"SKIN" DIVING ADLAKE STYLE

Suspended from the overhead crane are Adlake aluminum curtain wall sections that will become a part of the "skin" of a modern new office building. They're being immersed in a series of anodizing tanks—large enough to handle sections 28 feet long! This recent quarter-of-a-million dollar installation applies a protective coat that rates A-plus for looks and lasting qualities. For full particulars on Adlake curtain wall, double hung, pivot and stationary sash, write The Adams & Westlake Company, Elkhart, Indiana.

A+ Adlake custom windows

Standard Oil Company, Eastern Regional Office in Detroit, Michigan, has Adlake curtain wall and reversible windows.

Architect: S. A. Carlson; Standard Oil Company, Chicago
General Contractor: Barton-Malow Company, Detroit, Mich.

CECO'S E/C JOIST SYSTEM OF UNDERFLOOR ELECTRIFICATION ASSURES QUALITY WITH ECONOMY

New York Telephone Company Building, Utica, N. Y.
Architect: Frank C. Delle Cese, Utica.
General Contractor: McKay Construction Co., Oneida.
Electrical Contractor: Keller Electric Company, 36 Genesee St., New Hartford, N. Y.

When a building method offers quality at a cost lower than any competing system, that's a combination hard to beat.

Add to that down-to-earth practicality, plus design that satisfies the future . . . then you can specify with confidence.

Such is Ceco's E/C Joist system of underfloor electrification. Savings are realized because Ceco's E/C Joists do two jobs: 1—provide raceways for underfloor electrification; 2—carry the floor load. Now any building "can afford" underfloor electrification.

These advantages of Ceco's E/C Joist system were proved in the Utica, New York Telephone Company office building.

The architect specified Ceco's E/C Joist system and a commonly used alternate. The successful bidder's figures showed the Ceco system saved 56c per square foot compared with the alternate. Read what those concerned have to say:

Owner, Milton A. Abelove and Daniel B. Myers:
"The E/C Joist system satisfied our requirements of avoiding electrical obsolescence for years to come, and we saved a considerable amount of money."

General Contractor, John T. McKay:
"The savings shown in the bids were proven on the job by the Ceco E/C Joist system. I would like to erect more buildings using the same system."

Electrical Contractor, Reginald Keller:
"Installation of the E/C Joist system was practical. Our workmen were able to install it economically, even though they had never installed underfloor electrification using header ducts."

On your next job specify the Ceco E/C Joist system. Send for the facts now. Mail the handy coupon today. Ceco Steel Products Corporation. Sales offices, warehouses and fabricating plants in principal cities. General offices: 5601 West 26th Street, Chicago 50, Illinois.

CECO STEEL

IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE . . . Steel Joists / Steelforms / Concrete Reinforcing / Curtainwalls, Windows, Screens, Doors / Cecoframe Buildings / Roofing Products / Metal Lath

CECO STEEL PRODUCTS CORPORATION AR
5601 West 26th Street, Chicago 50, Illinois

Please send the following technical literature:
☐ E/C Joist Manual #3011-A ☐ Steel Joist Catalog #3001-O ☐ Joist Load Tables #3009

name_____
position_____
firm_____
address_____ zone____ state_____
city_____
☐ If student, check here for special data.

Olsonite

Seats "Take Off"

on America's First Jet Airliner!

Boeing Selects Olsonite No. 42 Seats

The most modern and most luxurious airliner to fly America's airways is the Boeing 707 Jet Airliner. Besides its amazing four and one-half hour flight time, New York to California, this new jet airliner features the finest appointments, the most comfortable and luxurious interiors air passengers have ever enjoyed.

In keeping with their high quality standards, Boeing selected Olsonite No. 42 Seats. These Olsonite Seats offer an outstanding record of permanence and attractiveness. Made of one material—all the way through—there is no applied finish to crack, peel or wear away.

For complete Olsonite catalog, *please address your inquiries to:*

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59-A1

CALIFORNIA REDWOOD has a distinctive natural beauty . . . an almost infinite variety of interesting textures and patterns. It is only natural, therefore, that Certified Kiln Dried redwood is the material preferred by many architects and designers for siding, fine interior paneling and such imaginative design elements as this sliding grille.

All the wonderful warmth of wood is best expressed in redwood.

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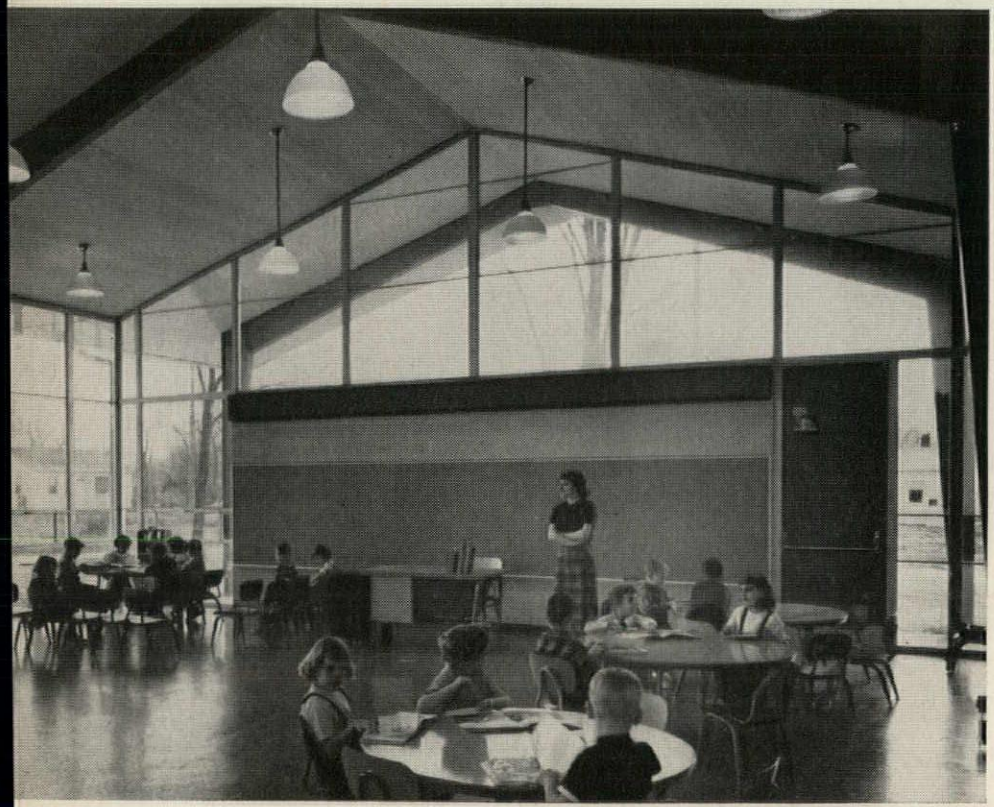
CALIFORNIA REDWOOD ASSOCIATION • 576 SACRAMENTO STREET • SAN FRANCISCO 11 • CERTIFIED KILN DRIED REDWOOD

Gompers Jr. High School, Joliet, Ill. Architects: Skidmore, Owings & Merrill, and Levon Seron, Associate Architects, Chicago. TOP AWARD

Award-winning schools feature



Gordon Road Elementary School, St. Clair Shores, Mich. Architects: Wakely-Kushner Associates, St. Clair Shores.

"HOMELIKE ATMOSPHERE"

"Selection and use of materials and good relationships contribute to the pleasing total effect. A friendly, homelike atmosphere," said the jury.

Fenestra Acoustical Building Panels were used in this school. These lightweight, high-strength steel panels combine structural roof and finished interior ceiling *built-in acoustical* treatment. They replace *five* different materials with *one* metal building unit, erected in *one* operation, by *one* trade.

BUILT-IN FIRE PROTECTION

Fenestra Hollow Metal Doors deter spread of fire, particularly when equipped with closers that have a special fusible link. In the presence of heat, these links melt, causing open doors to close automatically. An excellent, low-cost precaution for doors opening on stairwells. Doors bearing Underwriters' Seal of Approval also available. When you specify or buy Fenestra, you get a *complete* package—door, frame, hardware, machined and fitted at the factory. Ask the Man from Fenestra to help with your selection.

SHOWCASE FOR NATURE

Top award was given to Skidmore, Owings & Merrill, and Levon Seron, Associate Architects, for the school at left, with this jury's comment: "Well executed, orderly and logical space arrangement. Nice respect for the natural amenities which contribute greatly to the complement of a crisp building. Scale and placement of courts give effective relief to internal spaces."

Fenestra Steel Windows played a big role in creating these comments. They also contributed to keeping original costs down—and will save further through lower operative maintenance, as nothing stands up like steel in hard service.

Four of 1958's eight **Top Award** winning schools*, one **Honorable Mention** and one **Special Features** school used **Fenestra** building products. *Awarded by **School Executive** magazine.

Sweetbriar Elementary School, Smithtown, N.Y.
Architects: Ketchum and Sharp, New York City. SPECIAL FEATURES

SALT, SUN, SOUND AND SAVINGS

Four Fenestra products went into this school: Fenlite Steel Windows because they resist salt-air corrosion and do not require painting; Porcelain Curtain Wall Spandrels (above and below glass "vision strips" in classrooms) to eliminate glare and expensive overhangs; "D" Acoustical Panels which combine structural units, acoustical treatment and finished ceiling, all in one; and a special 10-ft. lightweight cantilever side-entrance canopy. For the gymnasium roof especially, Fenestra's large 60 sq. ft. "D" Panels speeded erection, saved labor costs.

fine products from *Fenestra*
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PRODUCT INFORMATION

Fenestra Incorporated
AR-9, 2252 East Grand Blvd., Detroit 11, Mich.

Please send me complete information on the products checked below:

SEE OUR CATALOG IN SWEET'S OR WRITE FOR COPY

- ☐ Fenestra Fenlite Steel Windows
- ☐ Fenestra Hollow Metal Doors
- ☐ Fenestra Acoustical-Structural Building Panels
- ☐ Fenestra Curtain Walls

Name_____

Street_____

City_____

Zone_____ State_____

Office Literature

Ainsworth Lighting Catalog
Loose leaf information file includes descriptions of six fluorescent units and the *Magna* incandescent unit. 12 pp. *Ainsworth Lighting, Inc., 38-10 Twenty-Ninth St., Long Island City 1, N. Y.*

Bowstring Truss Design Series
Detail drawings of eight typical segmental bowstring truss designs for spans up to 100 ft are supplemented by stress diagrams, dimensions, and lumber and hardware requirements for each. *Timber Engineering Co., 1319 18th St., N. W., Washington 6, D. C.**

Gas-Fired Duct Heaters
. . . *and Blower Assemblies* includes specifications, dimensions, ratings and performance and physical data on complete line. Bulletin GD-100, 4 pp. *L. J. Wing Mfg. Co., Linden, N. J.*

Floating Floors
Shows actual installations of *Floating Floors* for convenient access to subfloor areas in computer and data processing rooms, and gives specifications for a new model that requires no supporting frame. Bulletin 1001, 8 pp. *Floating Floors, Inc., 22 East 42nd St., New York 17, N. Y.*

Demersible Sump Pumps
Describes features and gives performance tables, dimension tables, installation data and specifications for new submersible sump pump. Bulletin 5300, 8 pp. *The Deming Co., Salem, Ohio*

Speedomatic Troffers
Six-page catalog on *Speedomatic* troffers is supplemented by 13 separate sheets on spot boxes and a wide variety of shielding media, and by a "Ceiling Index" that lists popular ceiling systems and the type of *Speedomatic* troffer to use with each. *Smithcraft Lighting, Chelsea 50, Mass.**

The New Measure for All Masonry
(A.I.A. 10-B) Includes a section on modular masonry with detail drawings of several types of masonry walls, complete and short form specifications, full color reproductions of tile colors and glazes, shapes and dimensions of units, and a section of ideas for walls of structural glazed facing tile. 100 pp. *Stark Ceramics, Inc., Canton 1, Ohio**

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

more literature on page 298

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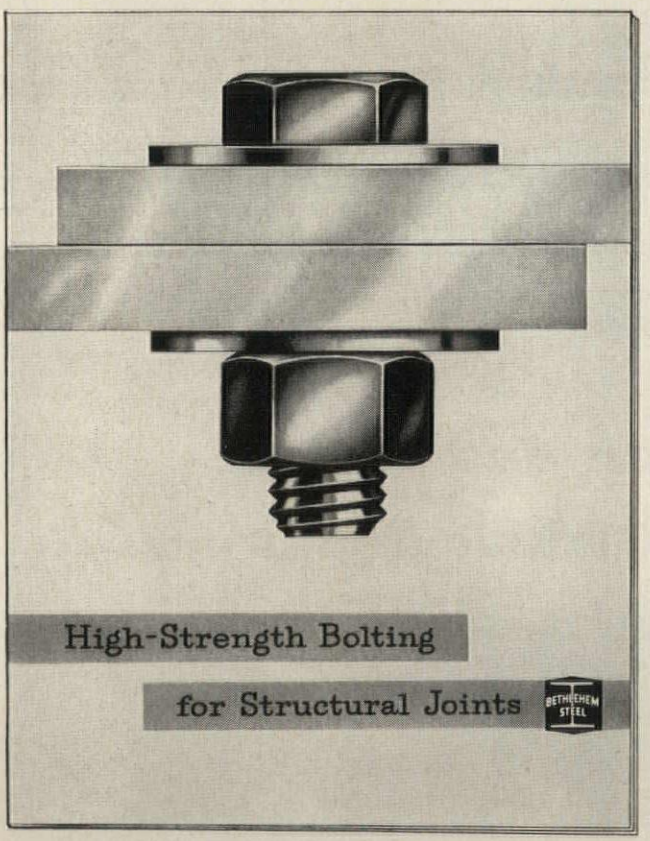

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NEW EDITION OF AN OLD FAVORITE. 20 pages of the kind of information you want: torquing methods, dimensional standards, specifications for materials and assembly, and other data. 32 illustrations. Also available: Bulletin #35 giving full details on how to torque using "Turn-of-nut" method.

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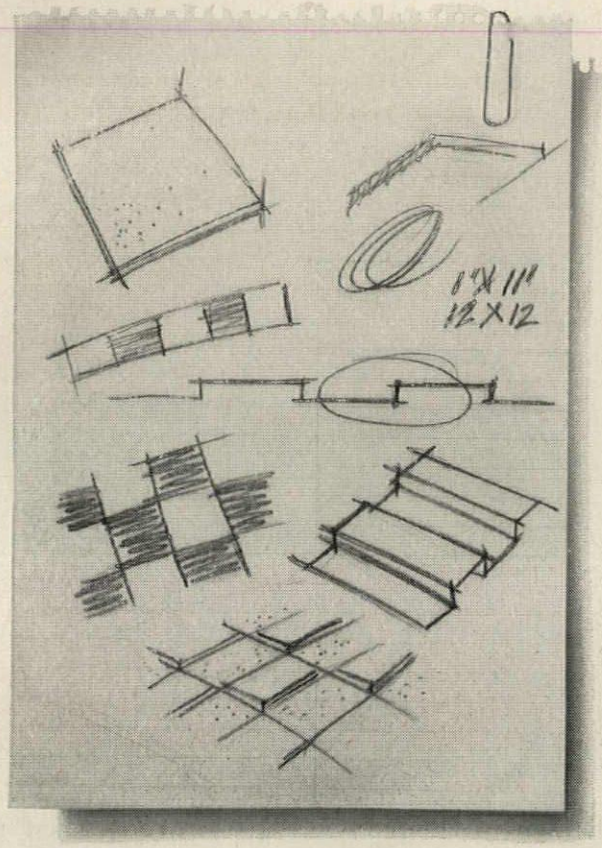
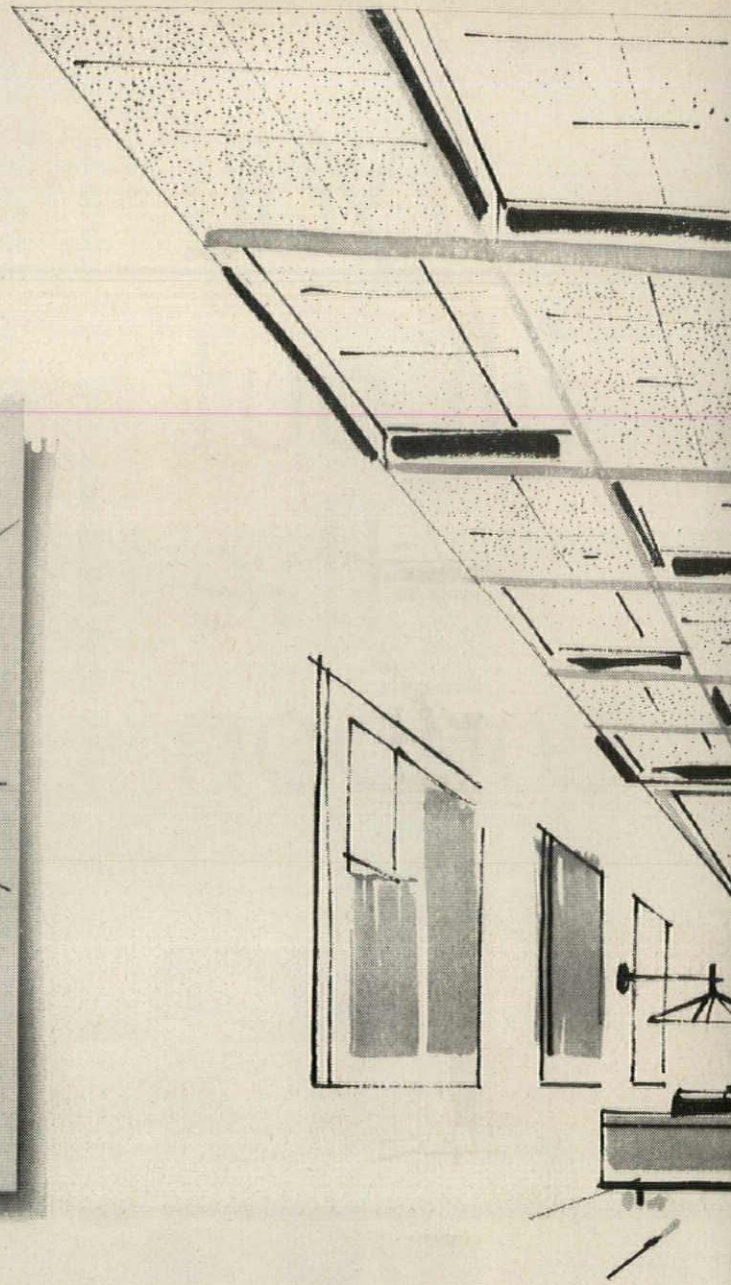




"How a scratch-pad doodle and Armstrong Classic Minatone helped us design a unique reception room"

says Richard E. White, Designer, **PERKINS & WILL**

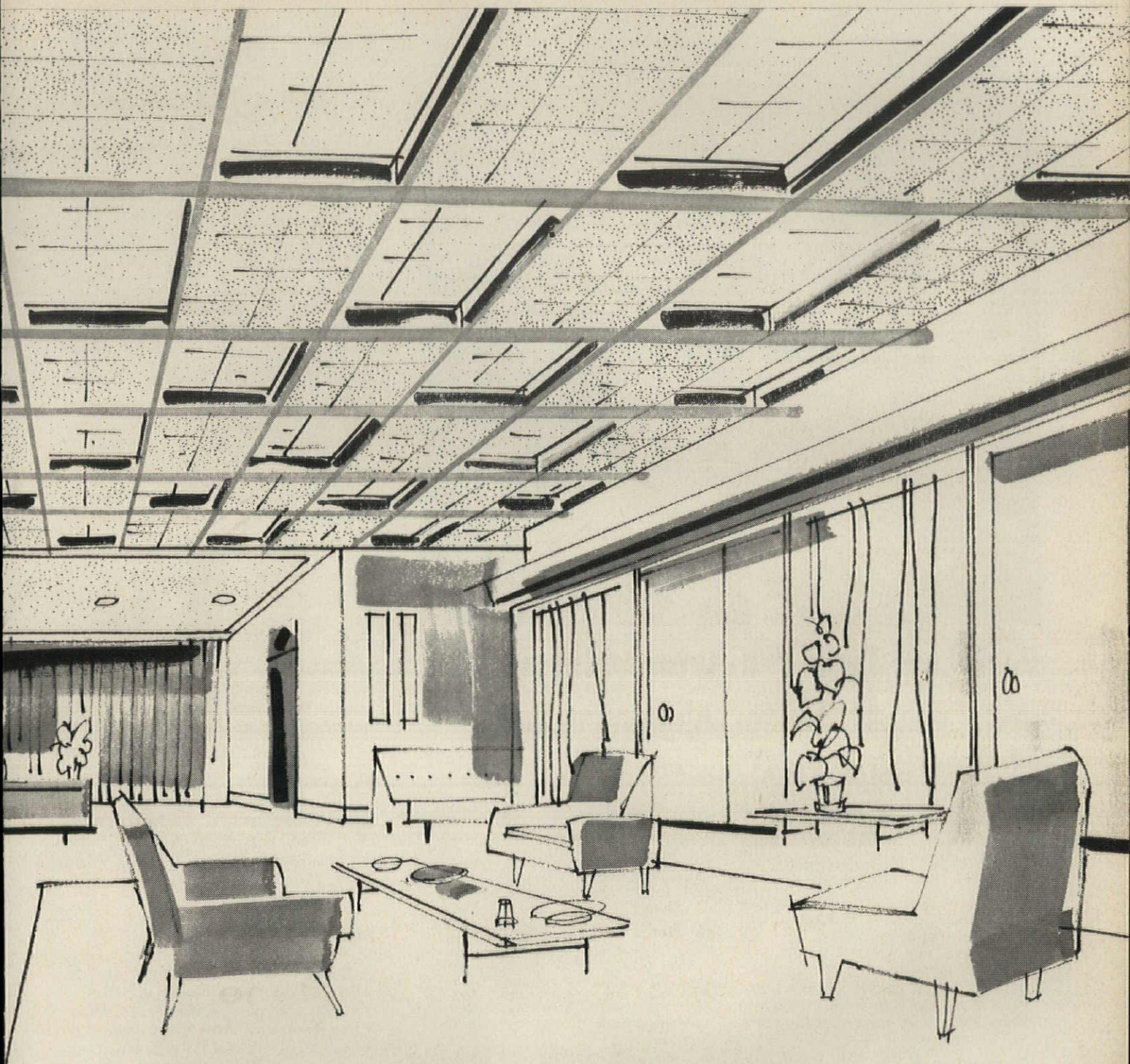
"LIKE so many architectural ideas, this ceiling design began on a scratch-pad.

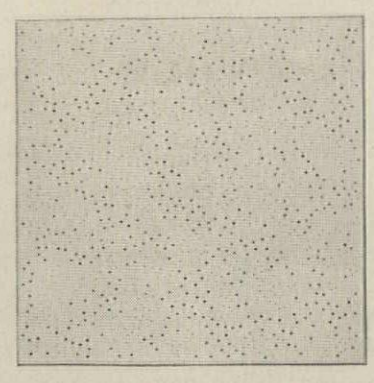
"We wanted a design that would project a warm friendly feeling. A room that would put people at ease and make waiting more bearable.

"The doodle was the first step. Then as the room developed, it became apparent that the low ceiling and the intimate atmosphere of the room called specifically for the fine texture of Armstrong Classic Minatone. The scale of the perforations is ideal for 'close-up' viewing.

"The ceiling is a grid of rectangles arranged in a checkerboard pattern of two horizontal planes approximately six inches apart. Fluorescent light, passing through the vertical surfaces of translucent glass between the planes, provides a soft light glow on the upper tile surface.

"This design makes the ceiling more interesting. And it has a high rate of sound absorption as well as a glareless, even level of illumination."





Armstrong Classic Minatone has hundreds of tiny perforations scattered in lace-like fashion across its surface. It has a Class A (Incombustible) rating under the Flame-Resistance Section of Federal Specifications SS-A-118b. Minatone also carries the Underwriters' Label. Classic Minatone has excellent acoustical absorption (NRC Specification Range of .60-.70 for Mounting #1 and .65-.75 for Mounting #7). It can be combined with low-cost Classic Cushiontone in the same building to provide a uniform appearance at a substantial saving.

For further information and complete specifications, call your Armstrong Acoustical Contractor or your nearest Armstrong District Office, or write to Armstrong Cork Company, 4209 Rock Street, Lancaster, Pennsylvania.

Armstrong ACOUSTICAL CEILINGS

Office Literature

Glidorama Window Walls
Contains technical data, details and architectural specifications on complete line of aluminum window wall systems. 6 pp. *Glidorama Div., Whizzer Industries Inc., 350 S. Sanford St., Pontiac, Mich.**

This Is Alply
Describes and illustrates the range of designs, colors and finishes available in *Alply* aluminum-faced insulated sandwich panels. Technical data on the panels' physical characteristics is included. 24 pp. *Aluminum Co. of America, 779 Alcoa Bldg., Pittsburgh 19, Pa.**

Water Treating Equipment
Presents the latest types of equipment now being used for treating water and the basic operating principles of each. Bulletin 615, 24 pp. *Elgin Softener Corp., 136 N. Grove Ave., Elgin, Ill.*

New Beauty for the Bathroom
(A.I.A. 22-A) Illustrates with photos and construction details a variety of marble installations in residential bathrooms. 24 pp. *Marble Institute of America, Inc., 32 S. Fifth Ave., Mount Vernon, N. Y.**

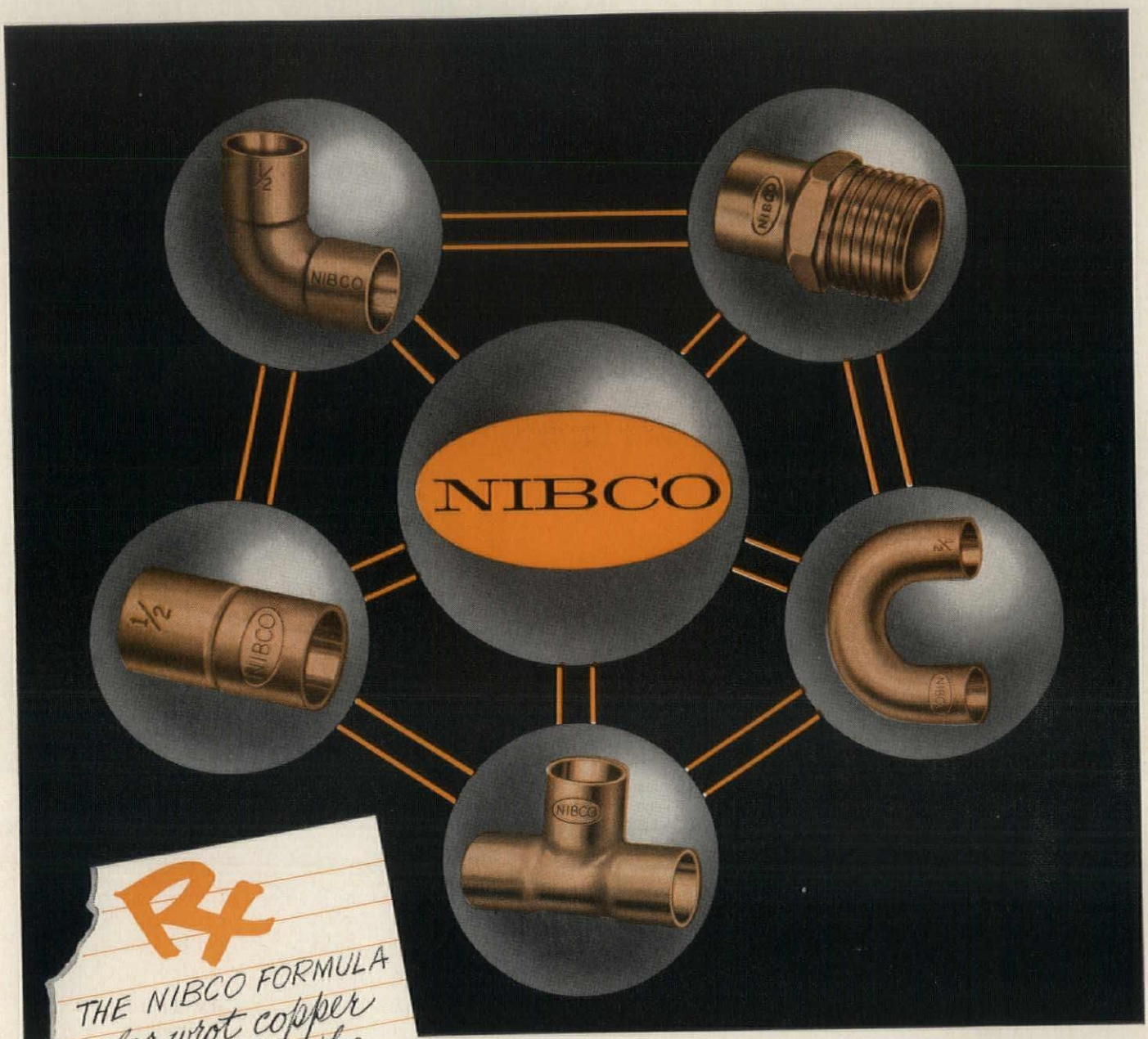
Movable Interior Partitions
(A.I.A. 35-H-6) Describes and illustrates components of *Penmetal* movable interior partitions, with specifications and details. 24 pp. *Penn Metal Co., Inc., 40 Central St., Boston 9, Mass.**

Introducing HV Trimline
Gives complete product information, including detail drawings and a stress chart, on a new aluminum construction system for glazed walls. 8 pp. *American Art Metals Co., 433 Highland Ave., N. E., Atlanta, Ga.**

Herman Miller Folders
Four new folders cover a comprehensive storage system, a seating and storage group, lounge chairs, and chairs for home. office and public areas. *Herman Miller Furniture Co., Zeeland, Mich.*

Calcium Chloride in Concrete
Revised third edition of Manual CM-1 on the uses of calcium chloride in modern concrete construction includes technical data, specifications, and information on major effects, industry use and special conditions. 64 pp. *Calcium Chloride Institute, 909 Ring Bldg., Washington 6, D. C.*

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



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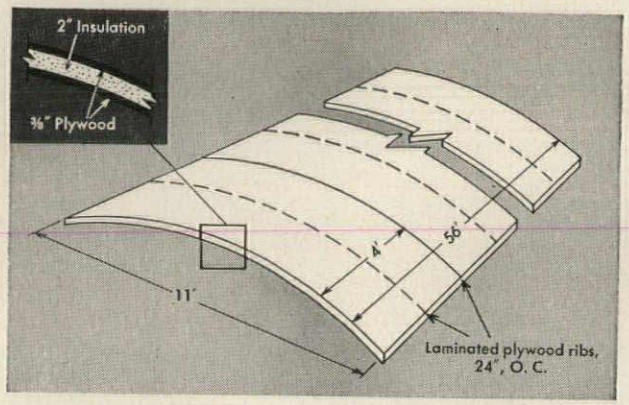
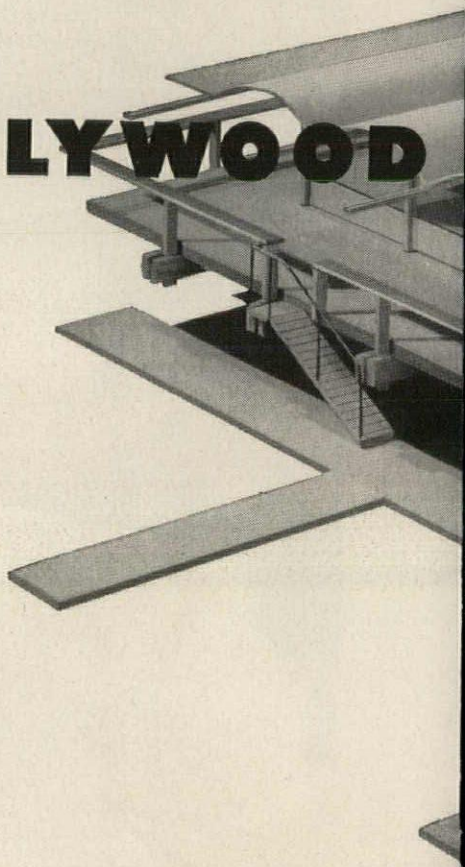
*American Standard ASA B16.22—1951

new approaches to structural design with fir plywood



Prefabricated roof vaults are 11 feet wide at the chord, and 56 feet long (40 foot span plus 8 foot cantilever both ends). Key to system is the outstanding shear strength of the stressed fir plywood skins.



FIR PLYWOOD

ARCHITECT: Theodore T. Boutmy, A. I. A.
George Kosmak, Consultant
John E. Brown, Structural Engineer

PLYWOOD VAULTS designed and engineered by Berkeley Plywood Co., Oakland

THESE lightweight fir plywood stressed skin barrel vaults designed for a California yacht club provide large clear floor areas at low cost plus an attractive profile and interior.

Combining roof decking, insulation and ceiling, the prefabricated vaults span 40 feet from front to rear and 11 feet from valley to valley, without use of beams or trusses. Vaults are cantilevered 8 feet front and rear; spouts which join units at the spring lines extend an additional 10 feet to act as gargoyles in carrying off water.

The roof system provides complete freedom in interior arrangements. Additions can be made simply by adding new vaults or extending the existing ones.

Structurally, the entire roof acts as a rigid plywood diaphragm in transferring lateral loads to the plywood end and shear walls. Two test vaults were successfully used at the San Francisco Arts Festival. Berkeley Plywood is contemplating mass producing the vaults as a standard construction component.

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. . . a portfolio collection of outstanding designs by six leading architectural firms. Includes 10-page booklet on fir plywood diaphragm construction. For your free copy, write (USA only) Douglas Fir Plywood Association, Tacoma, Washington.
Also write for information about DFPA design and engineering consultation services.

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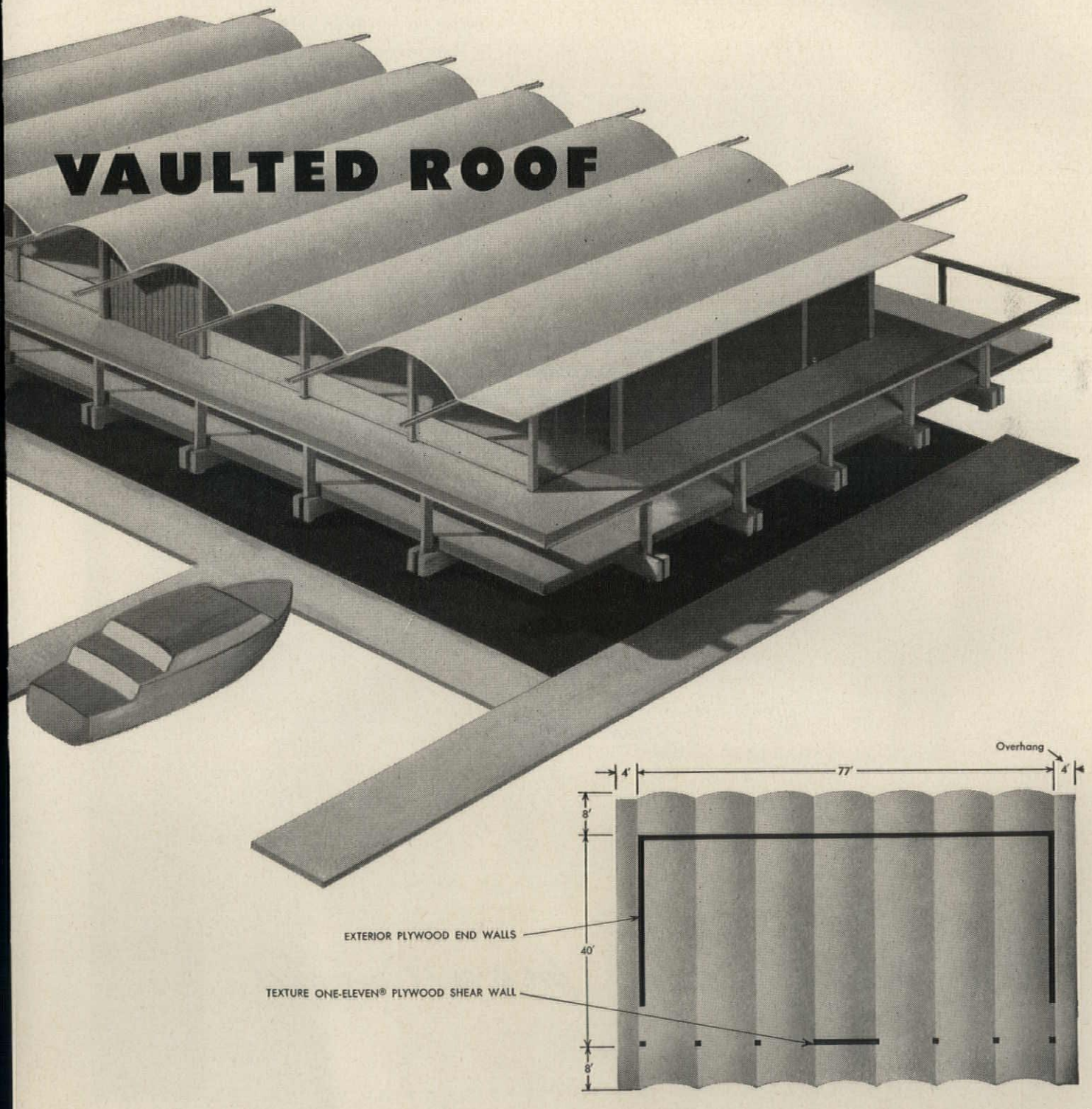
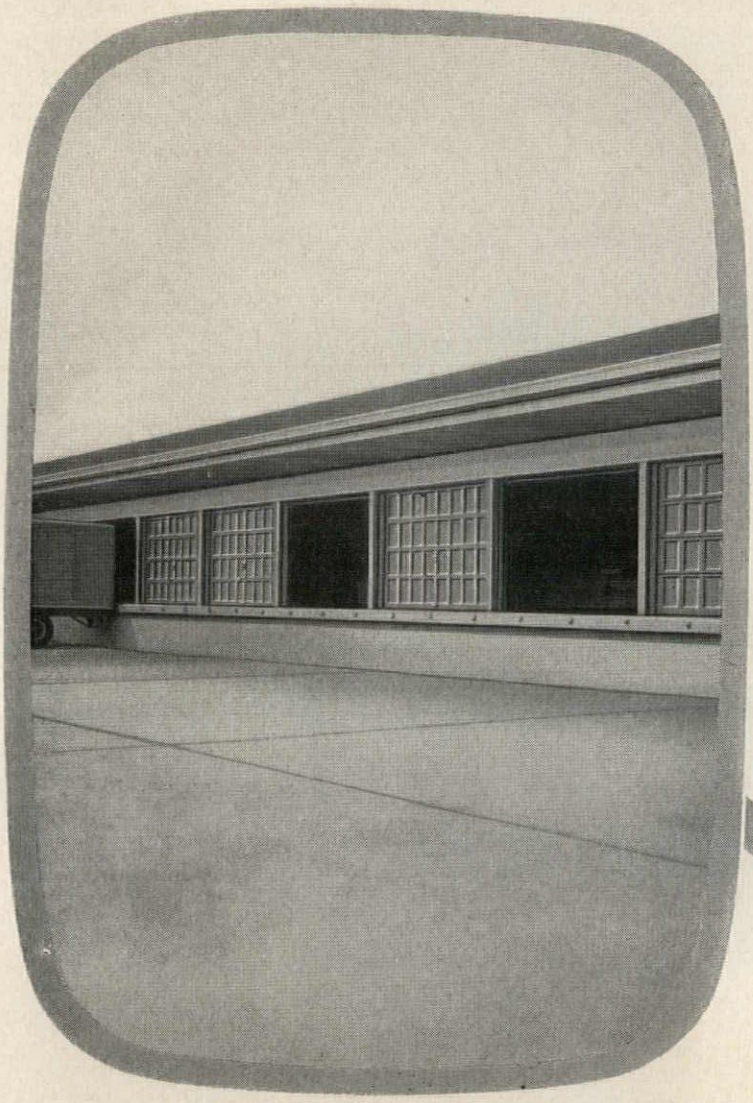


Reflection of Quality in Commercial Doors



No matter how you look at it, a RO-WAY Overhead Commercial Door reflects quality.

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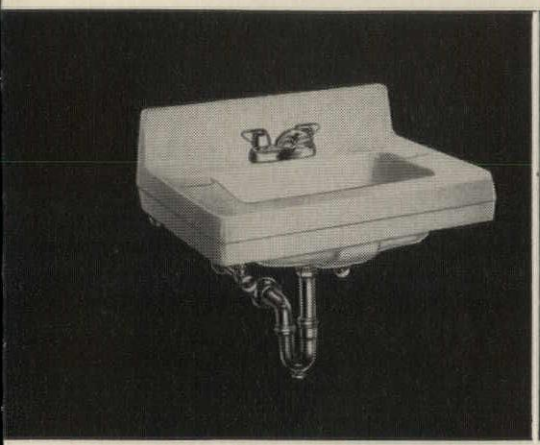
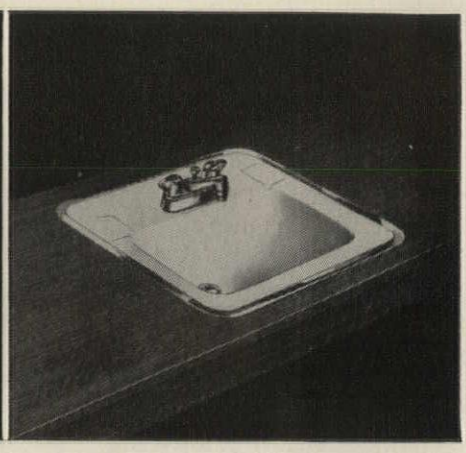
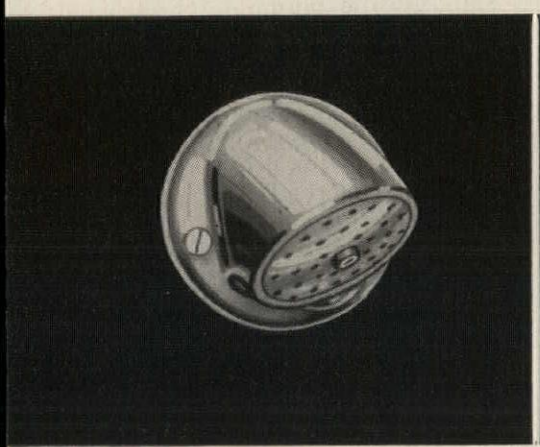


A cleansing spray—not a stream—emerges from the *Dial-ese Neu-Spray* supply fitting of this vitreous china Crane *Norwich* lavatory.

With its bevel-paneled shelf back and modern trim, this Crane *Oxford* vitreous china lavatory combines beauty and durability.



An excellent choice for faculty rest rooms and dormitories is this Crane *Westland* vitreous china counter-top lavatory.

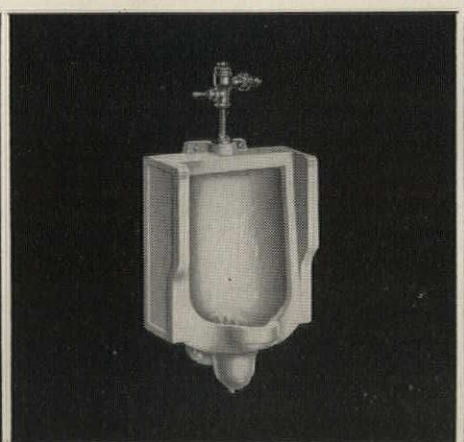


Tamperproof and exceptionally sturdy, the Crane *Wall*-type shower head gives a heavy shower, covering entire body.

Whirlpool flushing action assures thorough cleanliness with the Crane *Whirlton* siphon jet closet. Modern, elongated rim.

Crane *Placidus* closet has whirlpool, quiet-action bowl and flush valve that minimize noise. Has elongated rim, open front seat.

Classroom convenience: Crane *Classroom* combination drinking fountain-sink of acid-resisting porcelain enamel cast iron.



Hygienic principles govern the design of this Crane *Correcto* wall-hung urinal with its vigorous flushing and clean-out trap.

Dial-ese controls are a feature of all Crane plumbing. These exclusive controls close *with* water pressure, not against it. All working parts contained in one replaceable unit.

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The Record Reports

On the Calendar

September

7-11 National Technical Conference, Illuminating Engineering Society—Fairmont and Mark Hopkins Hotels, San Francisco

10-11 Annual Convention, Minnesota Society of Architects—Pick-Nicollet Hotel, Minneapolis

13-16 National Planning Conference, sponsored by Community Planning Association of Canada — Sheraton Mount Royal Hotel, Montreal

20-24 61st Annual Conference and Exhibit, American Institute of Park Executives and American Association of Zoological Parks and Aquariums—Benjamin Franklin Hotel, Philadelphia

20-25 14th Annual Instrument-Automation Conference and Exhibit (International), sponsored by Instrument Society of America — International Amphitheatre, Chicago

21-25 International Congress of the International Council for Building Research Studies and Documentation — Rotterdam, The Netherlands

22-23 North Central States A.I.A. Regional Conference; theme, "Color in Architecture"—Hotel Pfister, Milwaukee

22-24 Third Industrial Nuclear Technology Conference, co-sponsored by Armour Research Foundation and *Nucleonics* magazine, with cooperation of U. S. Atomic Energy Commission—Morrison Hotel, Chicago

22-27 Sixth Annual Assembly, International Union of Architects —Lisbon, Portugal

24-25 Third Annual National Executive Marketing Conference on Homebuilding, sponsored by National Housing Center—St. Louis

24-26 Annual Meeting, Porcelain Enamel Institute—The Greenbrier, White Sulphur Springs, W. Va.

28ff National Power Conference, co-sponsored by American Society of Mechanical Engineers and American Institute of Electrical Engineers; through Oct. 1—Muehlebach Hotel, Kansas City

28ff 41st National Recreation Congress, co-sponsored by American Recreation Society and

continued on page 314

ualco aluminum double hung

CARILLON HOTEL, MIAMI BEACH, FLORIDA

Architects: Norman M. Giller & Associates and Joseph & Vladeck, E. Abraben. Contractor: Cal Kovens

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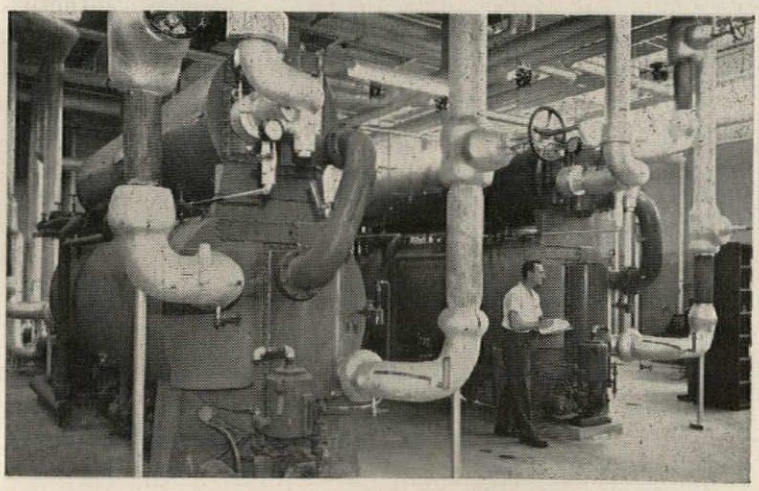
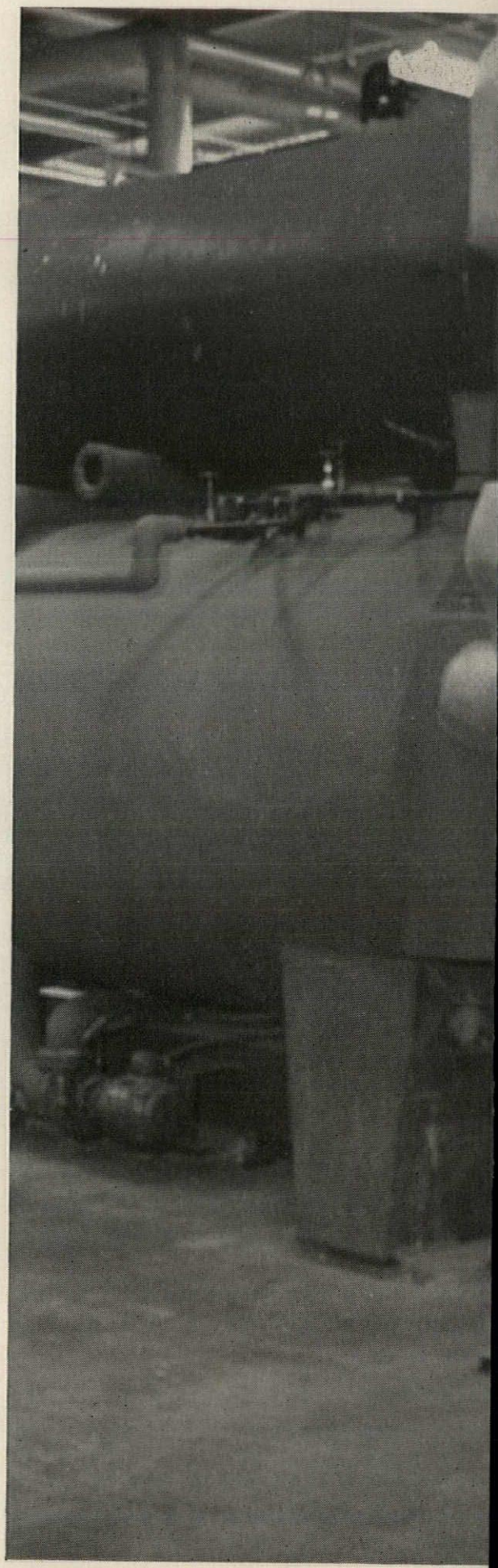
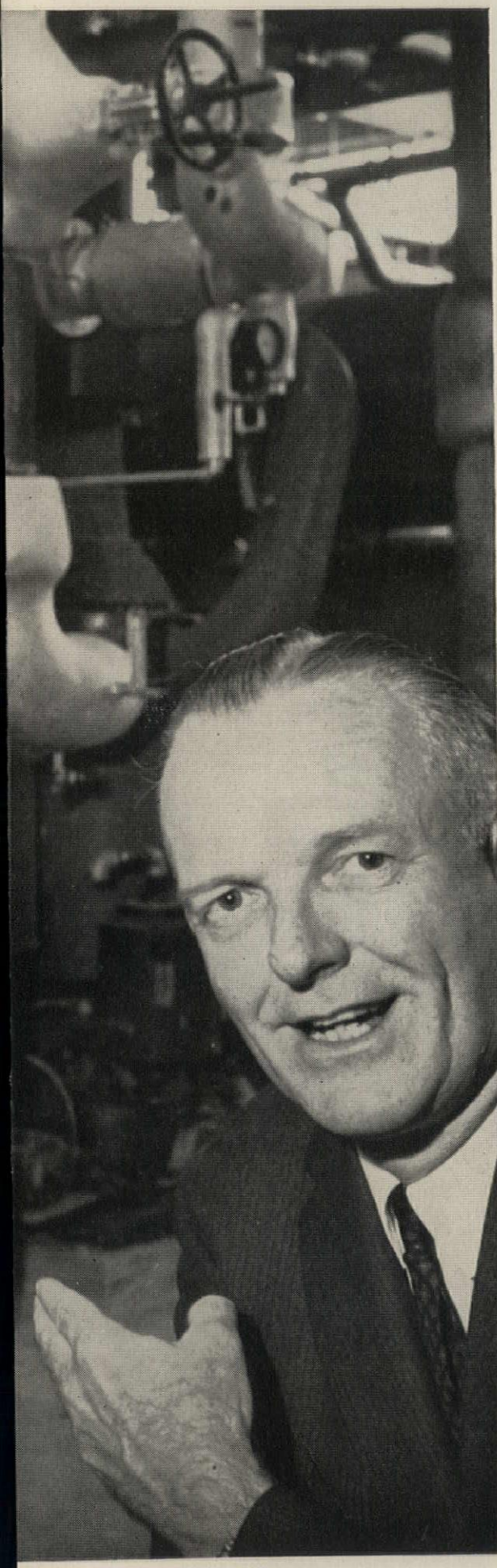
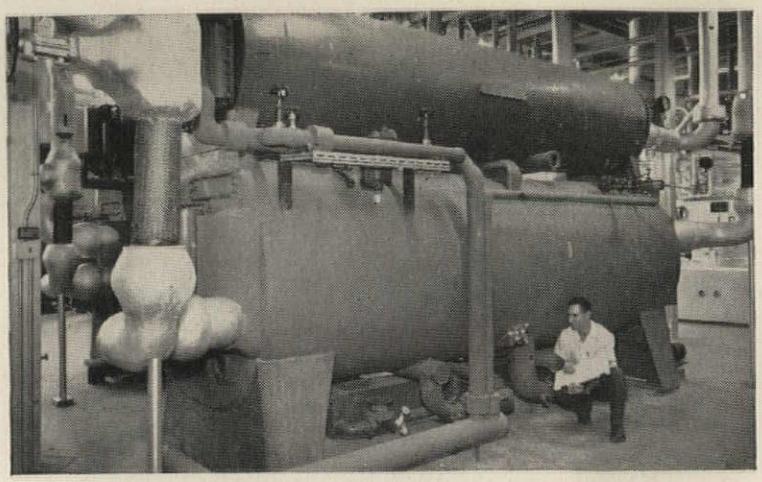


THE UTMOST IN FLEXIBILITY The units are cross-connected so that each operates independently if necessary.







MAINTENANCE COSTS TO DATE—ZERO! The Allen Company uses two York machines—a 230-ton unit serving 45,000 sq. ft. of office and cafeteria space, a 170-ton unit for process water cooling. Three small pumps and motors are the only moving parts in the entire system.

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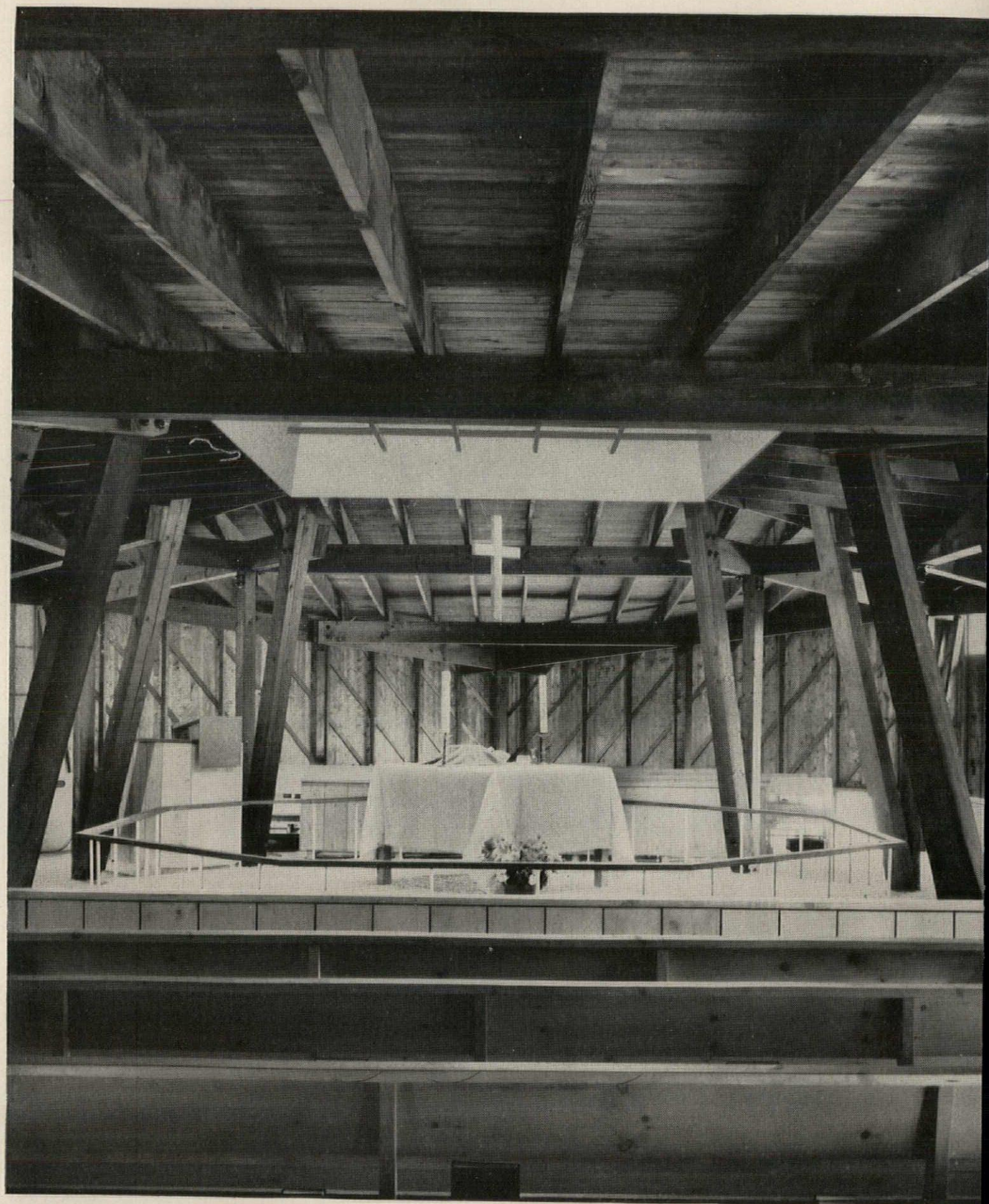
"With our boilers sized for a winter load, we were naturally oversized for the summer months. But York's gas-operated Lithium Bromide absorption water chillers permit us to make efficient use of part of this steam capacity to cool," says Mr. M. J. Mather, President of the Allen Manufacturing Company, makers of hex-socket screws.

The York Lithium Bromide system eliminates the need for huge compressors found in other types of cooling equipment . . . which brings down the original cost considerably. And with gas the boiler fuel, you make year-round use of an otherwise wasted source of power *at rock bottom costs.* In addition, York machines are noiseless, lightweight, compact—easy to install and readily adaptable to almost any plant layout.

Find out how your present heating system can pay off for you all year 'round with gas-operated York automatic water chilling units. Call your local gas company or write to the York Corporation, Subsidiary of Borg-Warner Corporation, York, Pennsylvania. *American Gas Association.*



CHAPEL OF ST. JAMES THE FISHERMAN, Wellfleet, Mass.: Two design problems solved by wood's adaptability — the need for a structure allowing every worshipper to share intimately in the service — the desire to evoke something of the character of a stout wood ship. Exposed wood framing and siding suggest a ship's structural honesty —fenestration from above and at floor level creates a luminous atmosphere for devotion. Olav Hammarstrom, architect.

or new answers...look to WOOD!

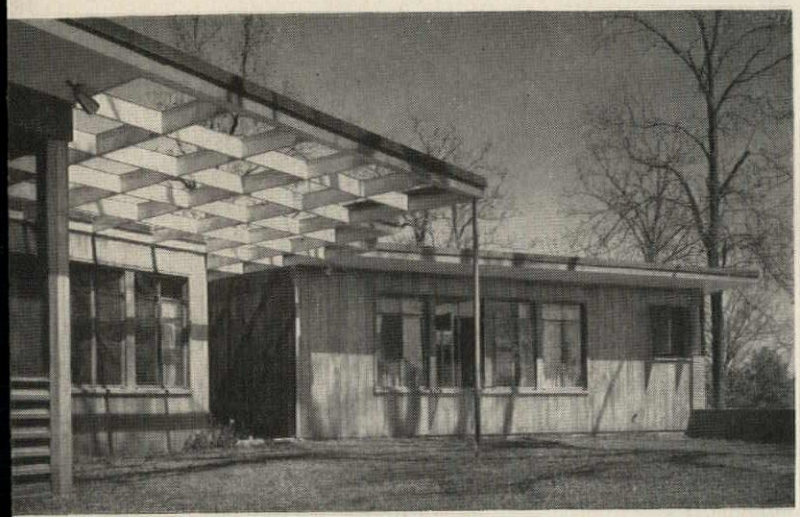
the face of the powerful forces of Nature . . . of wind and ater, sand and sun — the architect goes almost instinc-ely to *wood* as his basic structural medium. No more mpatible and versatile material exists when the design oblem requires a harmonious interaction of site to ucture, structure to man.

er adaptable, ever flexible, wood lends itself to new pressions — from the most profound religious aspirations man to the more down-to-earth keeping of rain, sun, and nd in their places. Wood's durability makes possible new signs that are practical — structures that not only with-stand the raw force of the elements but are actually mellowed and enriched in the process. For more information on designing with wood, write to:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
Wood Information Center, 1319 18th St., N.W., Washington 6, D. C.

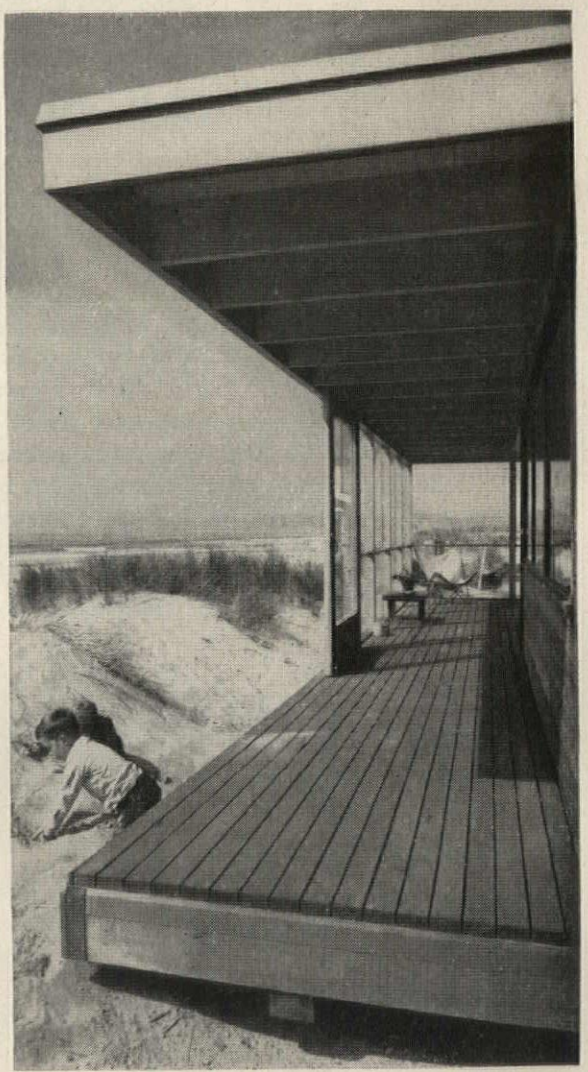
nlma

for freedom of design, look to **wood**



nple, patterned wood overhang provides dramatic focal point at little cost — cause it's of wood. Changing shadow pattern adds interest to patio, filters sun's ensity without cutting light in adjacent dining area. James T. Canizaro, architect.

chitects George Nelson and Gordon Chadwick answer a tough design problem — e interesting weather protection to beach home where *all* rooms have windows ing seaward. Answer: a fresh design motif suggestive of rolling surf — undulating yebrows" of weathered silver-gray wood shingles. Ezra Stoller, photographer.



How to have your beach house *on* the sand, but not *in* it— set the house on wood piles several feet above the dunes, provide generous walkways of separated wood strips to filter out tracked-in sand. Note generous frame overhang, vital for sun protection. Francis J. McCarthy, architect.

The Record Reports

National Recreation Association, and Fourth Institute on Recreation Administration (29-30); through Oct. 2—Morrison Hotel, Chicago

30ff Annual Convention, Producers' Council; through Oct. 2—Chase-Park Plaza Hotel, St. Louis

October

5-30 Seminar on Urban Planning, conducted by Inter-American Housing and Planning Center of the Organization of American States—Bogota, Colombia

7-9 Central States A.I.A. Regional Conference—Des Moines

7-14 First Pacific Rim Conference, sponsored by California Council, A.I.A. (and including the annual convention of the Council, the California Regional Convention, and the Women's Architectural League Conference)—Hawaiian Village Hotel, Honolulu

8-10 Regional Conference, New York State Association of Architects—Whiteface Inn, Lake Placid, N. Y.

8-10 Northwest A.I.A. Regional Conference—Spokane

9-11 Western Mountain A.I.A. Regional Conference—Western Skies Motel, Albuquerque

14-16 Annual Conference, Architects Society of Ohio—Akron

14-16 Annual Convention, Texas Society of Architects—Austin

18-21 26th Annual Conference, National Association of Housing and Redevelopment Officials—Netherland-Hilton Hotel, Cincinnati

19-21 "New Schools for New Education," conference sponsored by Department of Architecture, University of Michigan—University of Michigan, Ann Arbor

23-24 14th Annual Meeting and Forum, Pennsylvania Society of Architects—Galen Hall Hotel, Wernersville

November

1-7 Fifth Annual Convention, Prestressed Concrete Institute—Deauville Hotel, Miami Beach

2-5 11th Exposition of the Air-Conditioning and Refrigeration Industry — Convention Hall, Atlantic City

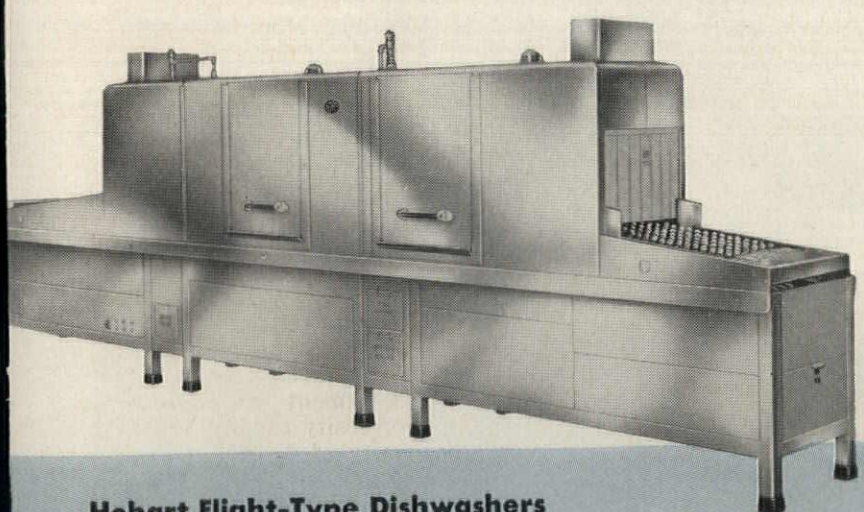
2-6 National Hotel Exposition—The Coliseum, New York

2-6 National Metal Exposition—Chicago

continued on page 322

ever eat on a plane?

Chances are your tableware was washed by a Hobart Flight-Type dishwasher



It's the overwhelming choice of the airlines, caterers and all volume food preparation operations. Here is every dishwashing service built into one amazingly fast, high-capacity machine—a fully automatic dishwasher that will rapidly pay for itself in lower operating costs. And Hobart dependability is built-in.

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How to say "integrity" with glass

THE TACOMA SAVINGS & LOAN ASSOCIATION has used glass effectively in its new office building to create an appealing corporate image in the minds of its customers and prospects. In keeping with its business, the design is dignified yet modern, and suggests responsibility and efficiency. It reflects a personality that is not secretive, but open and communicative. It invites inspection in an atmosphere of friendliness and good taste.

Pittsburgh's TWINDOW®—the windowpane with insulation built in—admits light and vision on three sides of the building. Above and below the TWINDOW and in the solid wall areas, Romany Blue SPANDRELITE® adds attractive color to the exterior. HERCULITE® Tempered Plate Glass Doors equipped with PITTCOMATIC® automatic door openers make an inviting and convenient entrance. Pittsburgh Polished Plate Glass is utilized for office partitions, and Pittsburgh High-Fidelity® Mirrors brighten the rest rooms.

Whether you seek the solution to a functional, decorative or interpretive problem in planning new buildings or revitalizing existing ones, consider the many advantages of Pittsburgh Glass. The architectural representative at your nearest Pittsburgh branch will be happy to discuss PPG glass products with you, without obligation.

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Lea, Pearson & Richards, A.I.A.
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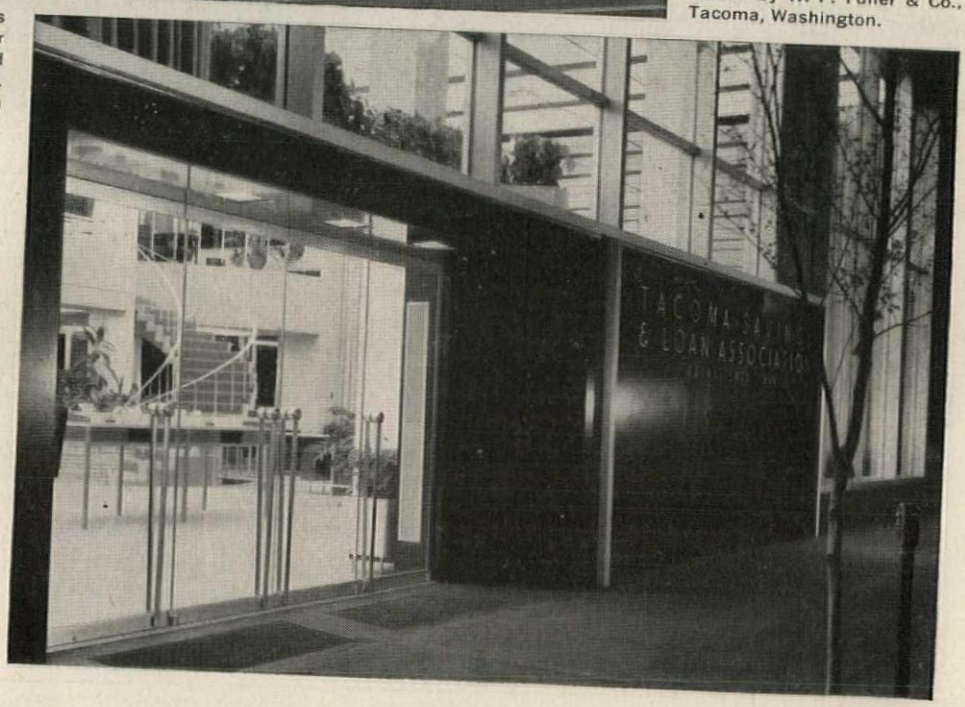
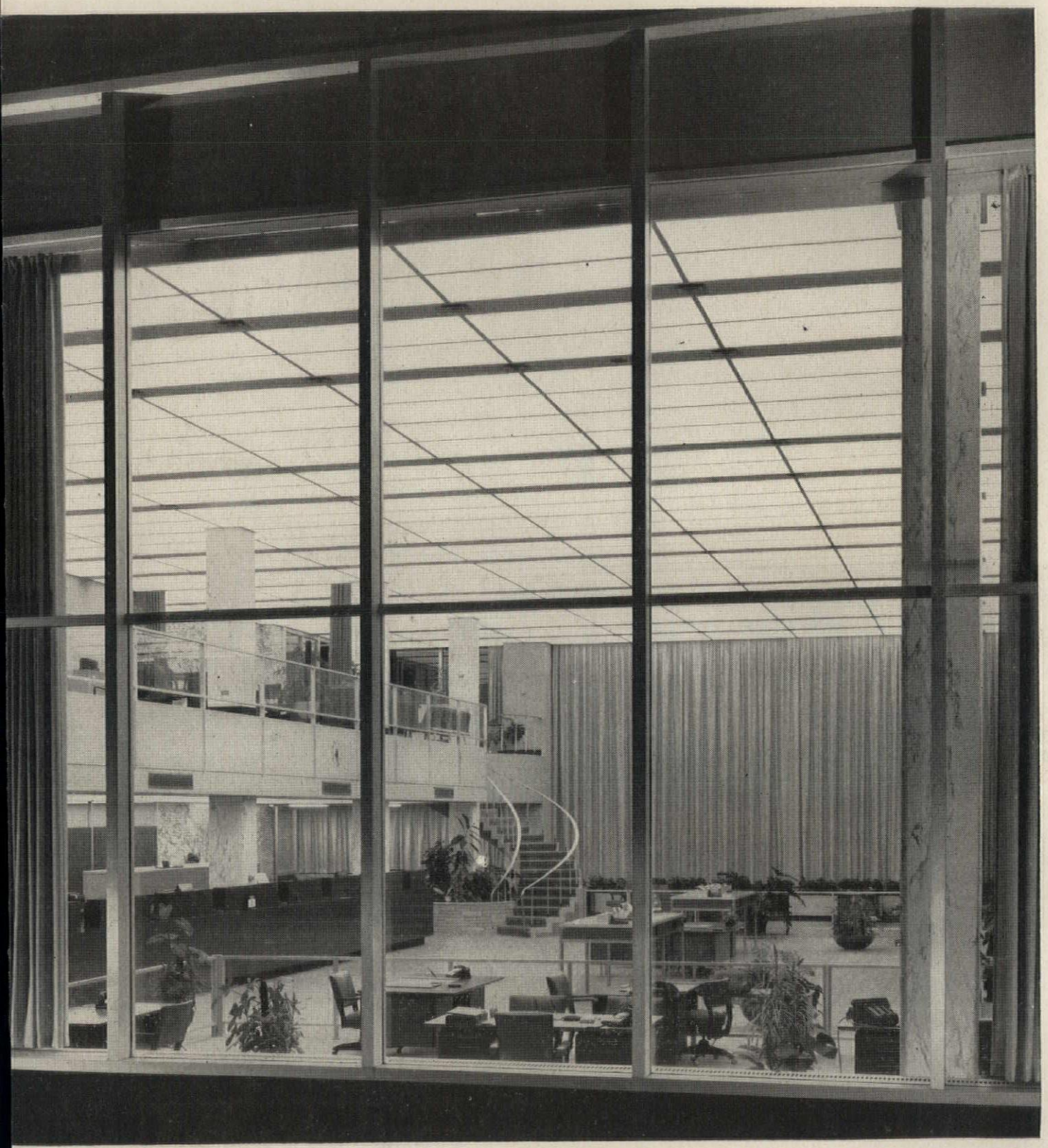
Contractor: Ketner Bros., Inc.,
Tacoma, Washington.

Glazed by W. P. Fuller & Co.,
Tacoma, Washington.

HERCULITE Tempered Plate Glass Doors are opened with the touch of a finger by PITTCOMATIC handle-operated automatic door openers. Hydraulic, motor-driven mechanism is completely concealed.





The unhindered view of the interior of this office dispels mystery, reassures strangers and invites friendly contact.

PITTSBURGH GLASS . . . the basic architectural material

On the Florida skyline...

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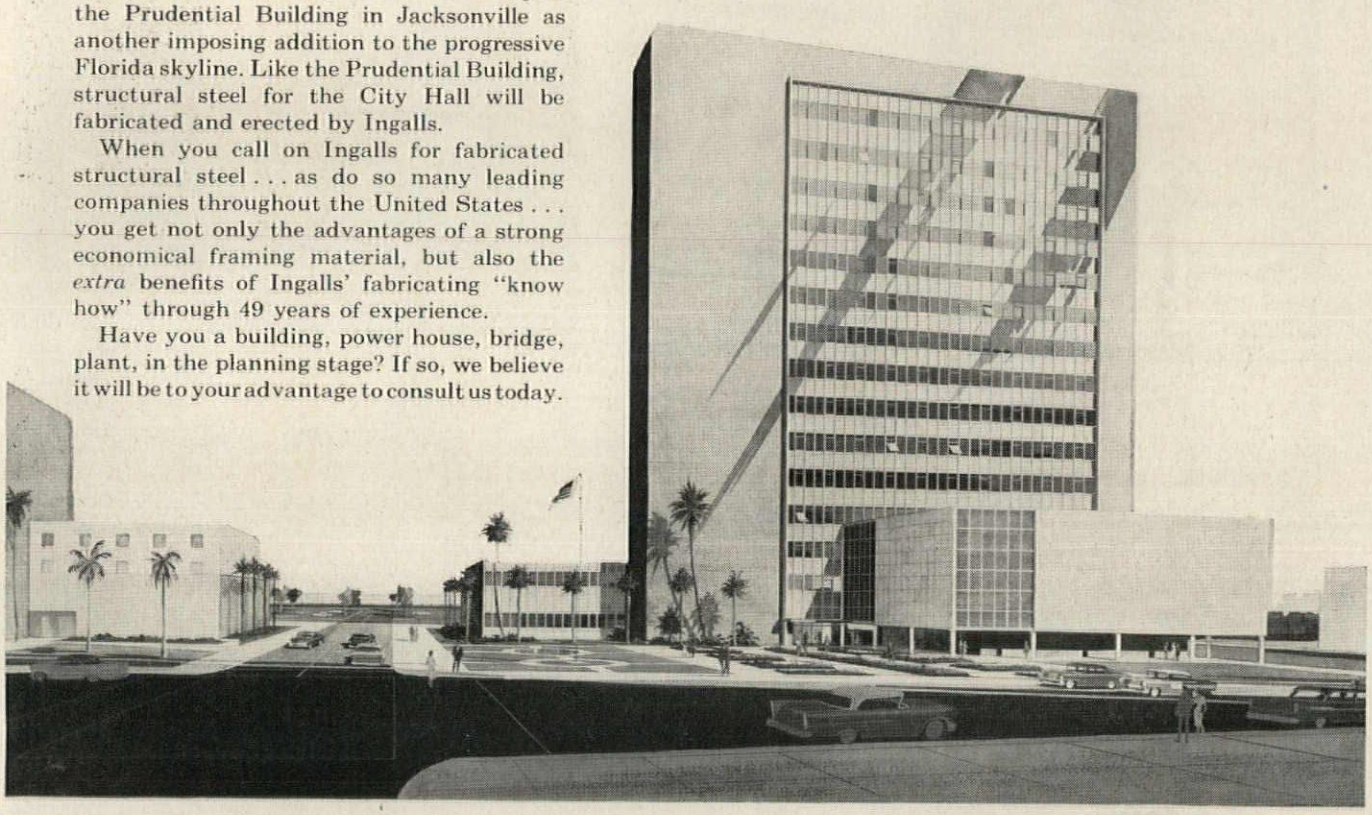
Jacksonville's new City Hall will soon join the Prudential Building in Jacksonville as another imposing addition to the progressive Florida skyline. Like the Prudential Building, structural steel for the City Hall will be fabricated and erected by Ingalls.

When you call on Ingalls for fabricated structural steel . . . as do so many leading companies throughout the United States . . . you get not only the advantages of a strong economical framing material, but also the *extra* benefits of Ingalls' fabricating "know how" through 49 years of experience.

Have you a building, power house, bridge, plant, in the planning stage? If so, we believe it will be to your advantage to consult us today.



CITY HALL
JACKSONVILLE, FLORIDA

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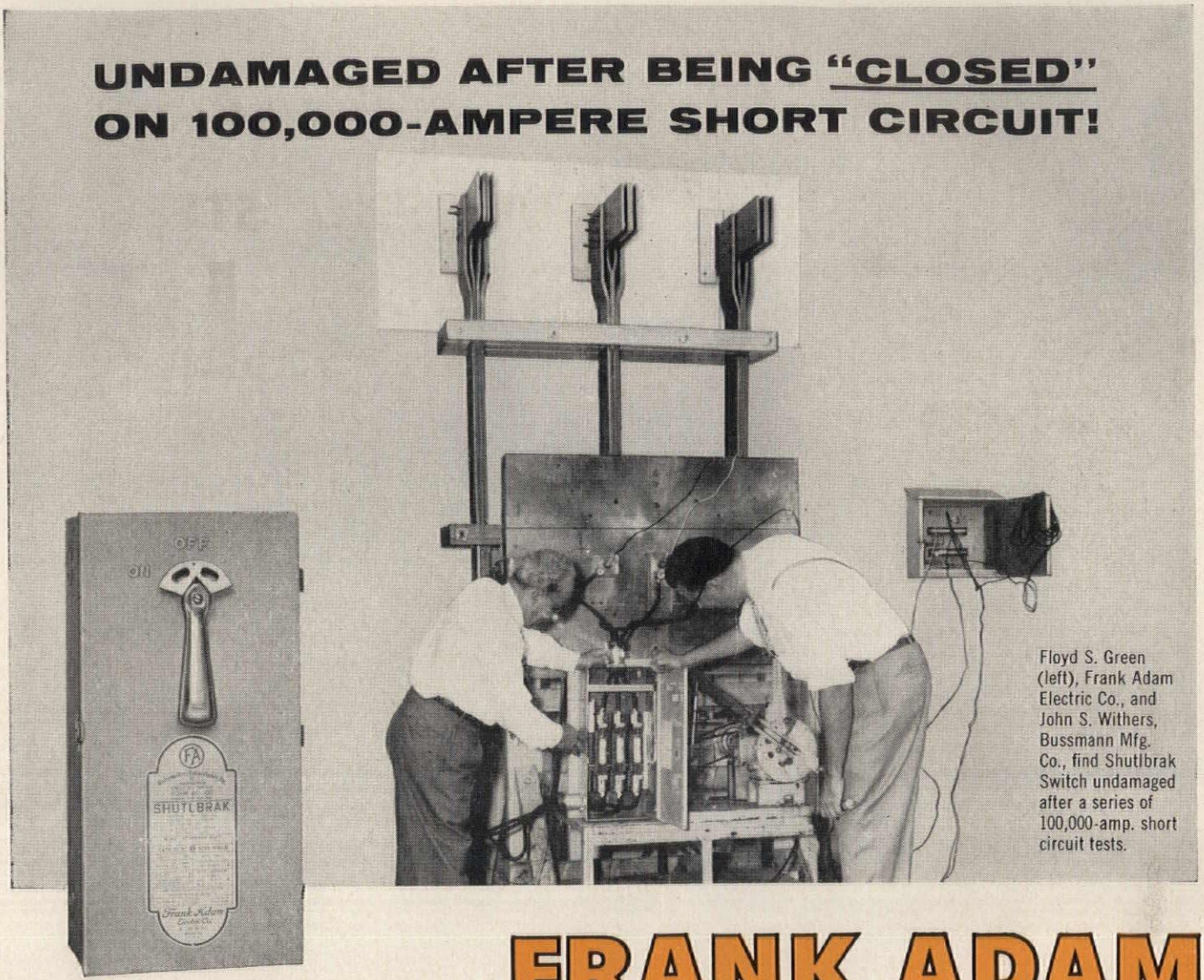
UNDAMAGED AFTER BEING "CLOSED" ON 100,000-AMPERE SHORT CIRCUIT!



Floyd S. Green (left), Frank Adam Electric Co., and John S. Withers, Bussmann Mfg. Co., find Shutlbrak Switch undamaged after a series of 100,000-amp. short circuit tests.

FRANK ADAM SHUTLBRAK SWITCHES

(SHUTTLE BREAK)

TYPICAL TESTS MADE WITH Ⓕ 3-POLE SHUTLBRAK SWITCHES

Switch Capacity	Fuse Type
100-amp. 250-v. Same switch	KTN Limitron LPN Low Peak
200-amp. 250-v. Same switch	KTN Limitron LPN Low Peak
100-amp. 600-v. Same switch	KTS Limitron LPS Low Peak
200-amp. 600-v. Same switch	KTS Limitron LPS Low Peak
400-amp. 250-v.	LPN Low Peak
600-amp. 250-v.	LPN Low Peak

In recent tests at Bussmann Manufacturing Company's test station, Frank Adam Shutlbrak Switches, equipped with Bussmann high interrupting type fuses, went through a series of tests with switches "closed" on a 100,000-amp. short circuit. **NOT A SINGLE BREAKDOWN OCCURRED!**

Here's a powerful demonstration of the safety and dependability insured by Frank Adam's famous Shutlbrak mechanism. Ⓕ Safety Switches give positive protection to both men and equipment against every hazard that might be caused by the tremendous overloads and shorts that can occur in any distribution and feeder circuit.

It costs no more for the extra *vital margin of safety* provided by Frank Adam Switches. Specify this better equipment. A new brochure is just off the press—*write for yours!*

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Location, Indianapolis, Indiana—not Europe! Spire: Third in a series of imposing Gothic spires by Overly in recent years. With each piece handcrafted and assembled into large, prefabricated panels for economical erection, Overly's spire building techniques produce the ultimate in grandeur. • Towering 170 ft. above grade, this 87-ft. lead-coated copper spire is of French Gothic design based on Sainte Chapelle in Paris. Prefabricated and erected by Overly. • We craft weather-resisting sheet metal spires of all types and sizes—from the largest to the smallest—to meet any design and to suit any church's budget. Write us today for our 28-page brochure on spire history.

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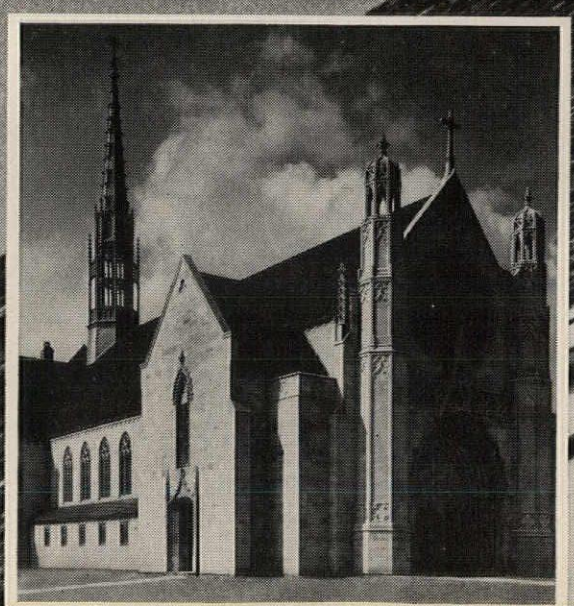

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Architects:
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Richey Associates, Indianapolis.

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Photos shown are "Home Economics Education Studio" for instruction of teachers and graduate students at Michigan State University.

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The Record Reports

3-5 12th Regional Meeting, American Concrete Institute—Continental Hilton and Del Prado Hotels, Mexico City

12-14 Annual Meeting, Florida Association of Architects—Jacksonville

Office Notes

Offices Opened

Allen W. Hixon Jr. has opened an office for the practice of landscape architecture and site planning at 920 Hopmeadow St., Simsbury, Conn.

F. Vanburen King has opened an office for the practice of architecture at 222 Warwick Rd., Newport News, Va.

Firm Changes

Bassetti & Morse, Architects, announces the naming of three associates: James Blair, A.I.A., Robert W. Murphy, and J. William Dimmich. Address: 1602 Tower Bldg., Seattle 1.

Welton Becket & Associates, Architects and Engineers, announces the appointment of Ted B. Adsit as assistant director of planning.

Caudill, Rowlett & Scott, Architects, announces that John B. Ward has become associated with the firm as eastern regional director.

DeLeuw, Cather & Brill, Engineers-Architects, has been dissolved. Clinton B. F. Brill and Benjamin Gray have formed the partnership of Brill & Gray to continue the engineering practice of the former partnership at 202 E. 44th St., New York 17. DeLeuw, Cather & Company maintains an eastern office at 361 Boylston St., Brookline 46, Mass.

Dupuis & Dunn, Architects, announces the association of J. H. Donahue as a partner and the changing of the firm's name to Dupuis, Dunn & Donahue. Address: 10740 Jasper Ave., Edmonton, Alberta.

Fisher, Nes, Campbell & Associates, Architects, announces the admission to partnership of H. Parker Matthai. The other partners are: L. McLane Fisher, Charles M. Nes Jr., James I. Campbell, Carson M. Cornbrooks, Allen C. Hopkins, and Charles H. Richter Jr. Address: 2120 N. Charles St., Baltimore 18.

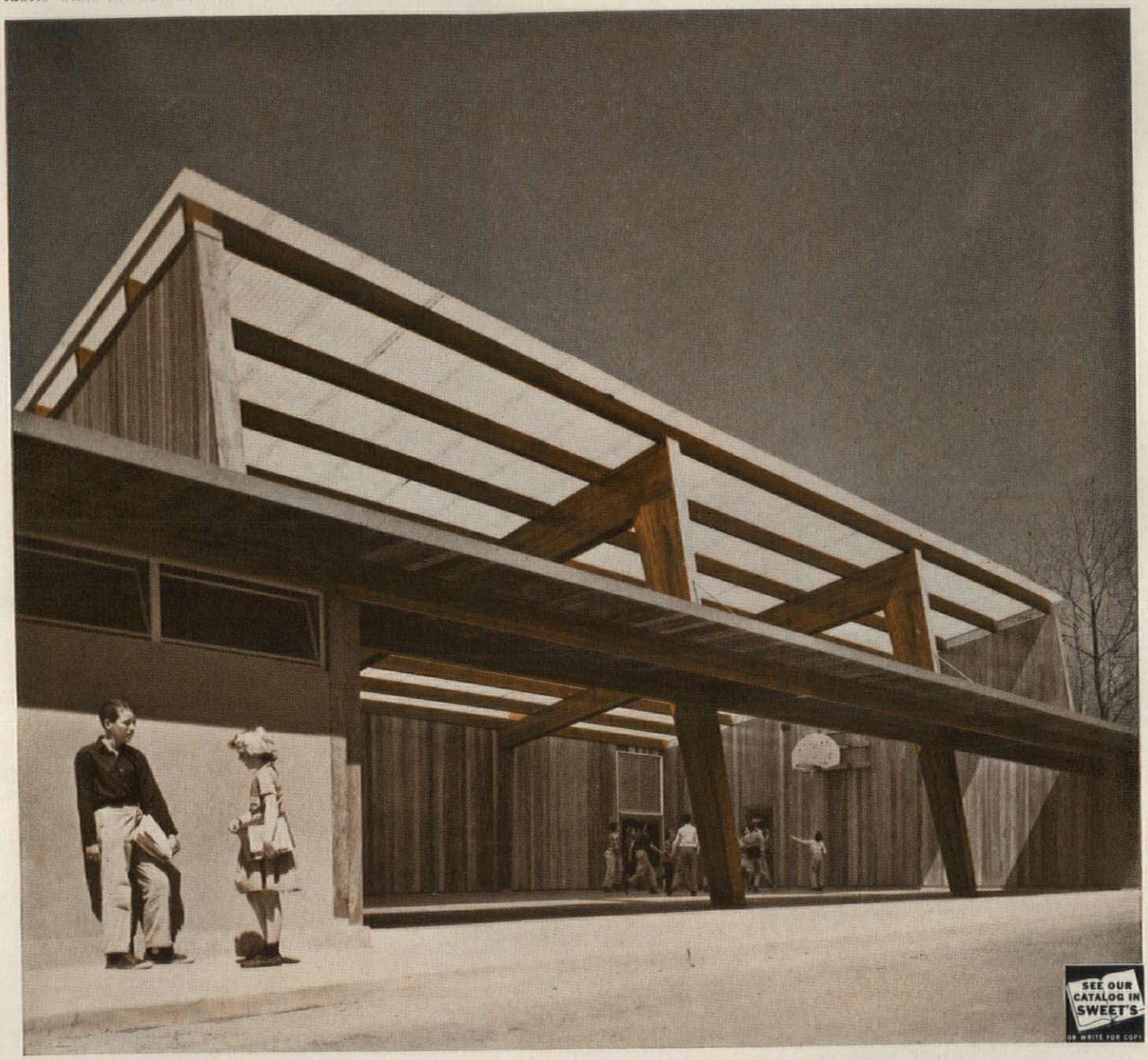
Correction

The RECORD regrets that the material used in the sunscreen for the Jewett Arts Center, Wellesley College, was erroneously described on pages 176 and 180 of the July issue. The sunscreen is of porcelain-enameled aluminum.

more news on page 330

Playroom at Tokeneke Elementary School, Darien, Connecticut. *Architects:* O'Connor and Kilham, New York City. *Structural engineers:* Throop and Feiden, New York. *Mechanical engineers:* Joseph P. Wohlpart Associates, New York. *General contractor:* George L. Hickey, Inc., New York.

Space provided: 16 classrooms, kitchen and Common Room, covered playroom, administrative suite, library, interior courtyard. *Pupil capacity:* 520. *Structural framing:* glulam beams spaced at 7'-9" for classrooms; glulam beam-and-column bents for Common Room and covered play room. *Exterior walls:* brick with concrete block in service areas; cyprus siding in play room. *Interior walls:* plastic coated fabric walls in classrooms, Common Room and halls. *Heating and ventilating:* radiant floor panel system, zoned and thermostatically controlled. Exhaust fans in classrooms, toilet rooms and kitchen. *Lighting:* semi-direct fluorescent. *Room surface:* tar and felt with white gravel surface; translucent panels over playroom and covered walks. *Floors:* vinyl asbestos tiles on concrete slab over insulating concrete fill and moisture barrier. *Volume:* 300,000 cubic feet. *Area:* 28,000 square feet. *Cost per sq. ft.:* $14.40.

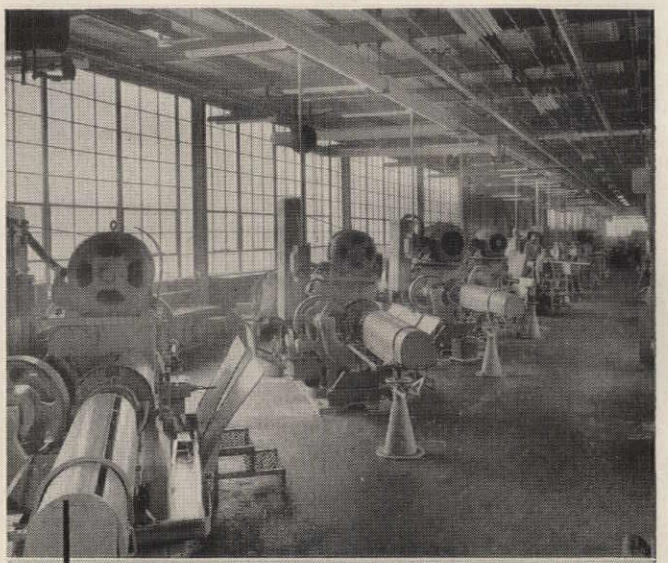


ANSLUCENT GLASS

Modern Buildings Utilize Diffusing Glass to Make the Most of Daylight

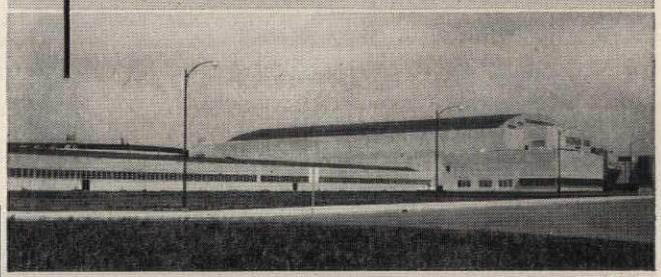
These outstanding buildings enjoy more and better aylighting per glazing dollar because translucent glass diffuses daylight deep into interiors to achieve even, omfortable, overall illumination at low cost. Areas are flooded with inexpensive, natural lighting, free of raw re. Sharp shadows and contrasts are reduced to make g tasks easier. Translucent glass helps create a feeling f spaciousness and comfort. Occupants see better, feel better, work better under improved daylighting. The sulting efficiencies and improved morale moke it good business to install translucent glass.

Today's leading architects are taking fullest advantage of translucent glass to achieve interesting, highly functional structures that provide high levels of low cost, natural illumination. Specify glass by Mississippi. Available in a wide range of patterns and surface finishes to solve any daylighting requirement.



Coolite, Heat Absorbing glass, glare reduced, installed in the Twin Disc Clutch Company, Racine, Wisconsin, floods work areas with conditioned daylight . . . absorbs up to 50% of unwanted solar heat. Glazier: Pittsburgh Plate Glass Co.

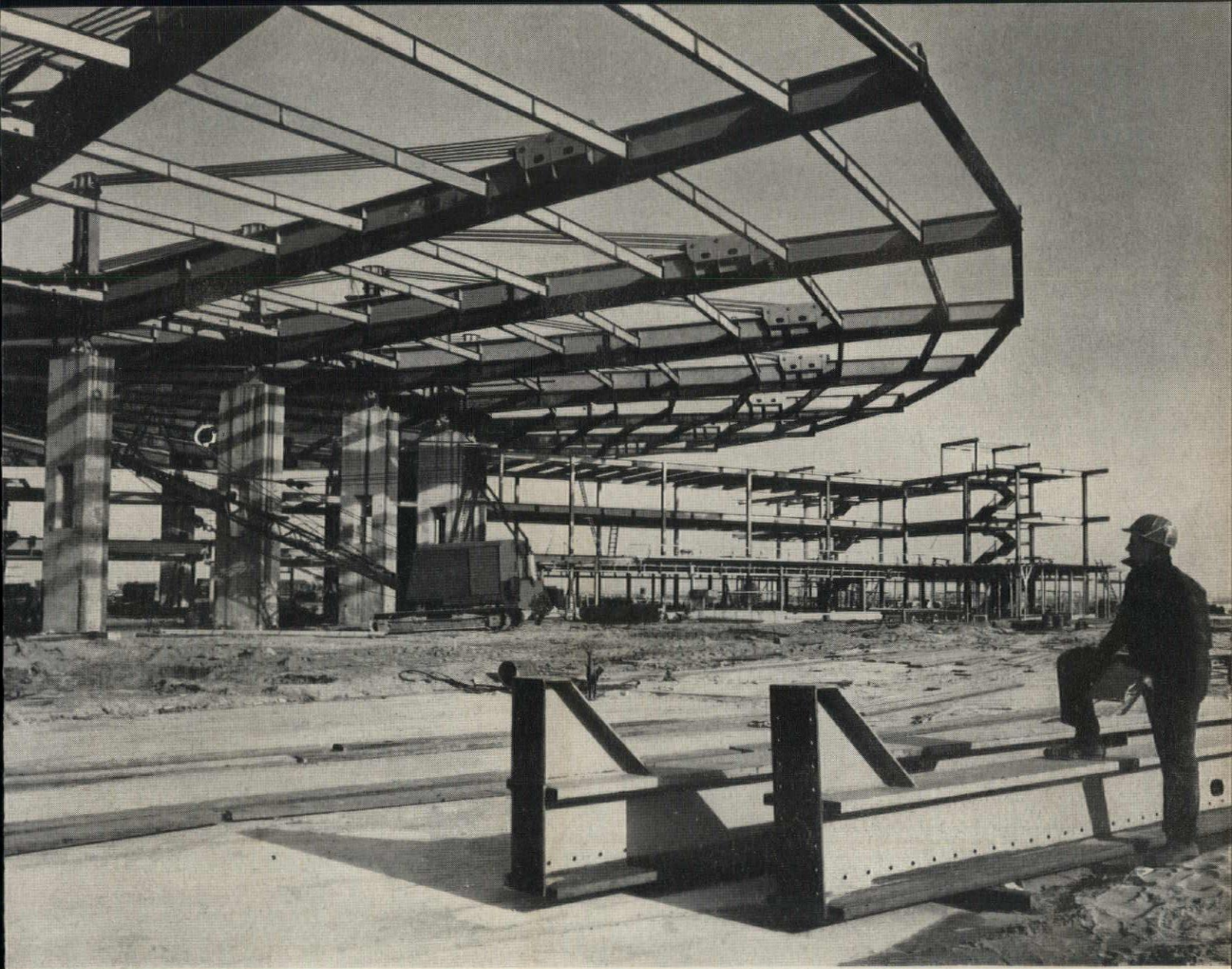
35,000 sq. ft. of Smooth Rough glass in the Kentucky Fair and Exposition Center, Louisville, Ky., brightens entire interior.
Architect: Fred Elswick and Associates of Louisville
Photo by: Royal Photo Co.



L A S S C O M P A N Y

A n g e l i c a S t . • S t . L o u i s 7 , M o .

L L E D , F I G U R E D A N D W I R E D G L A S S



Steel umbrella large enough to cover Yankee Stadium

"The House that Ruth Built" could tear up its rain-checks if covered by a steel umbrella of this size. Instead of shielding the bleachers, however, this umbrella will protect Pan American jet passengers from the weather at New York International Airport.

With 4,000 tons of Bethlehem structural steel in its rugged framework, this $8 million, elliptical-shaped structure incorporates elements of suspension bridge design. The cantilever-supported canopy, to flow upward over the glass-enclosed building, will project 114 ft beyond the roof-supporting columns.

The canopy is suspended by thousands of feet of Bethlehem wire rope. Hundreds of tons of Bethlehem steel reinforcing bars are also being used in this modern terminal building.

Whether you're building dams or churches, highway bridges or shopping centers . . . our nearest sales office stands ready to give you full details on the many forms of Bethlehem steel for construction. Give us a call today. Or write us at Bethlehem, Pa.

Scale model of Pan American World Airways' new jet terminal at New York's International Airport. *Architects and Engineers:* Tippetts-Abbett-McCarthy-Stratton; *Associate Architects:* Ives, Turano and Gardner; *Fabricator:* Lehigh Structural Steel Co.; *Erector:* Lehigh Construction Co.; *General Contractor:* Turner Construction Co. Structural steel supplied by Bethlehem Steel.

BETHLEHEM STEEL

BETHLEHEM STEEL

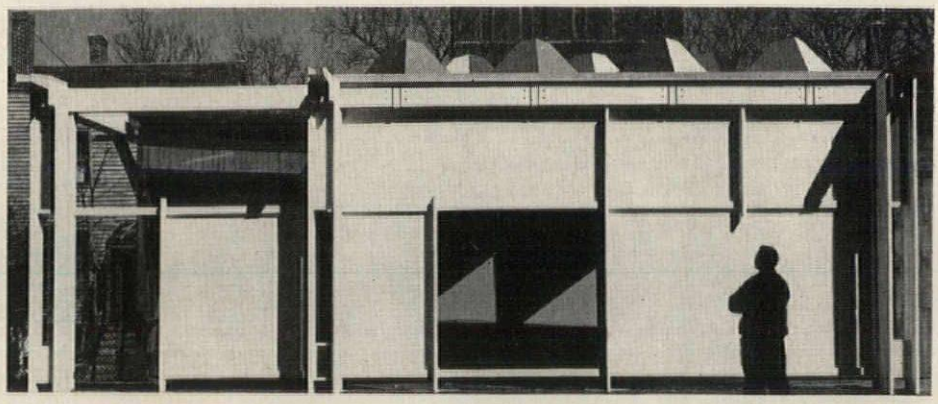
Harvard Construction Workshop Combines Doing With Learning

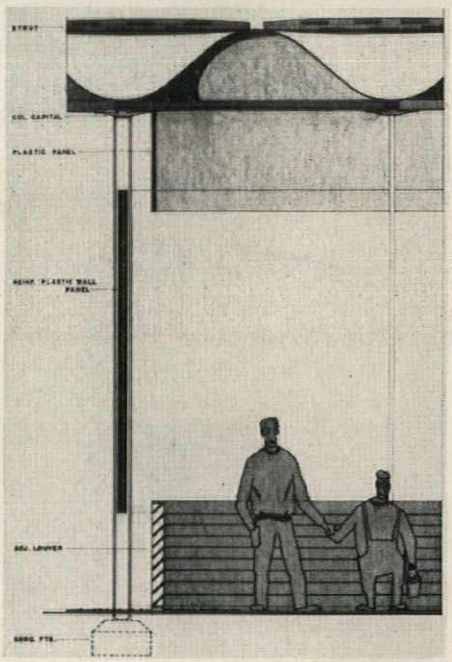
In the belief that the increasing complexity of building methods in recent years is threatening to revive the old separation between design and construction, the Architectural Construction Workshop has been set up at the Harvard Graduate School of Design.

In the course of showing students how to take into consideration not only the social requirements of our times, but also the best ways of using modern technical knowledge, faculty members assign design-construction problems. The workshop has facilities for actual construction under realistic conditions and provides opportunities for carrying out experiments and research. Students build parts themselves, in various scales including full size, and observe the techniques, limitations, and problems involved in their application. The workshop also provides sample collections of building materials, building trade demonstrations, and talks by construction experts.

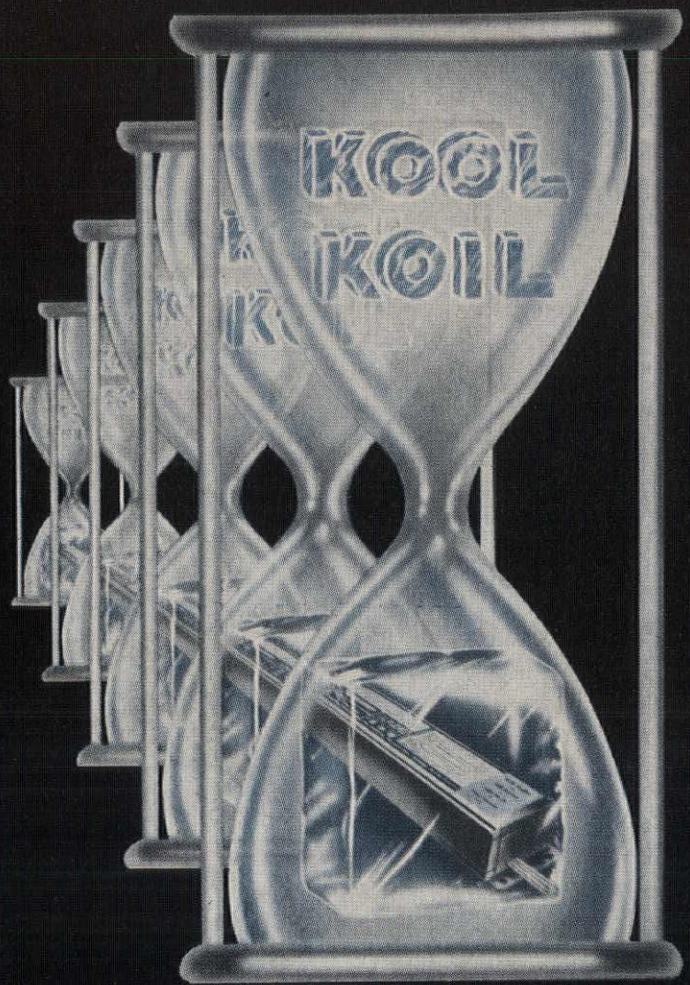
The first problem assigned was

continued on page 338





Above: Mock-up construction of part of a "traveling standard pavilion": "study of the esthetics of the system in terms of bolted joints, details at intersections, color experimentation, and proportion of elements to the whole." For an elevation drawing, see page 338. *Below:* Partial section of another proposal for the standard pavilion: space-frame roof system with stressed-skin plastic domes connected by 8-ft-sq aluminum compression struts. For two construction views, see page 338



The Advantages of ADVANCE KOOL KOIL Fluorescent Lamp BALLASTS Come in 1969

As time goes into the 1970's, you'll find ADVANCE Kool Koil Fluorescent Lamp Ballasts operating long after others have failed.

ADVANCE engineers tested new grades of steel, larger diameter wire . . . developed special insulating materials and compounds . . . separated vital components in the ballast case so the capacitor would operate at temperatures far below its guarantee limits. Then, after three years of this exhaustive research ADVANCE perfected Kool Koil Fluorescent Lamp Ballasts . . . ballasts which operate 16.5°C. to 19.5°C. lower than any other ballast tested in a standard 40°C. C.B.M. and U/L heat box.

Because ballast life is cut in half for every 10°C. over normal operating temperatures, Kool Koil Ballasts operating up to 20°C. cooler give you extra years of trouble-free ballast operation and added protection that ends costly maintenance and interruptions in service.

Always insist on Kool Koil Fluorescent Lamp Ballasts . . . the extra benefits will come as time goes into the 1970's . . . and after.

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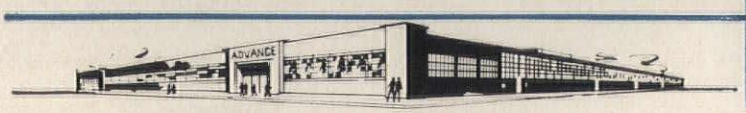

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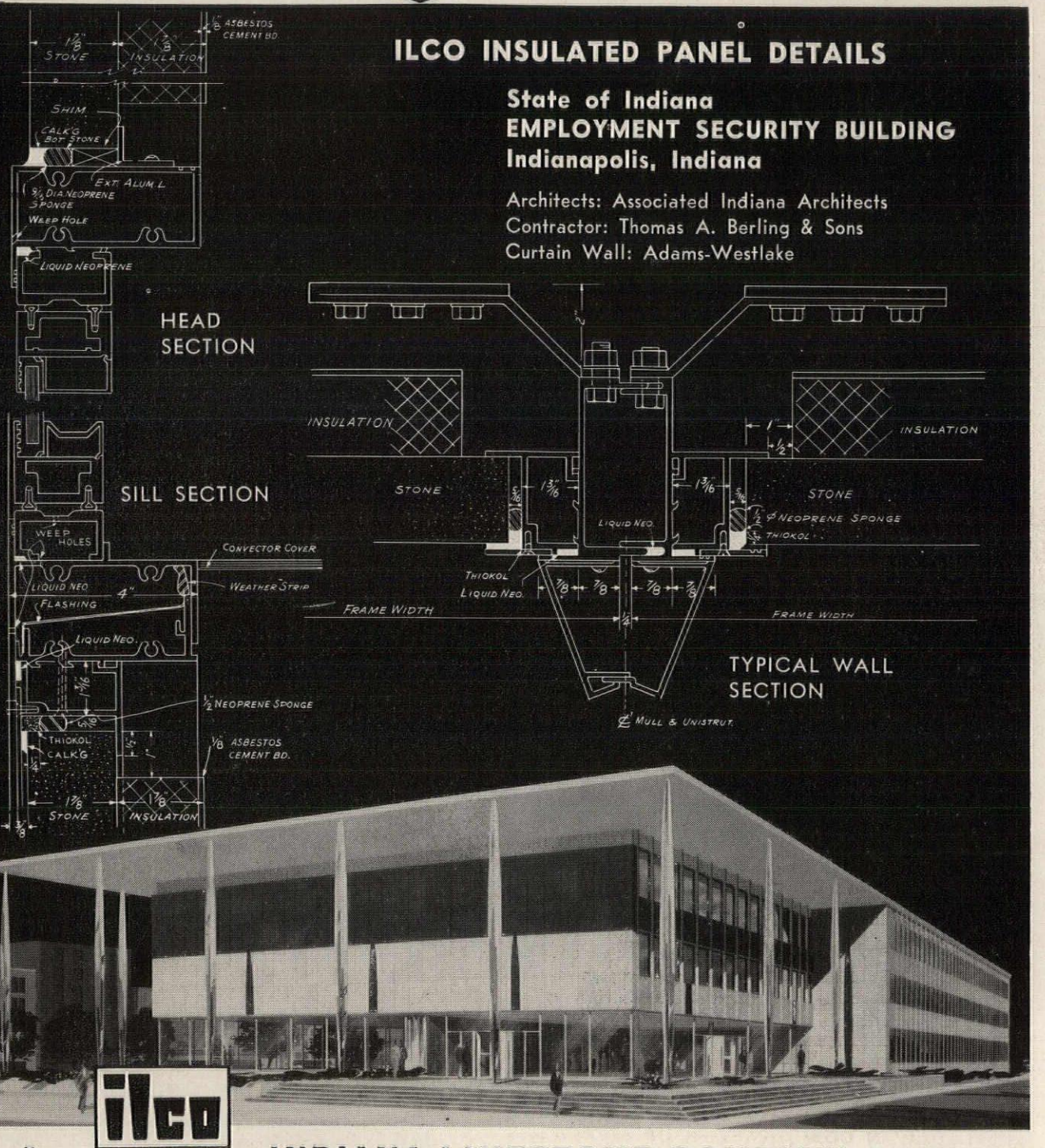
EMPLOYMENT SECURITY BUILDING
Indianapolis, Indiana

Architects: Associated Indiana Architects
Contractor: Thomas A. Berling & Sons
Curtain Wall: Adams-Westlake



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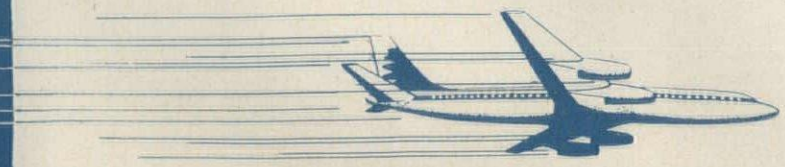

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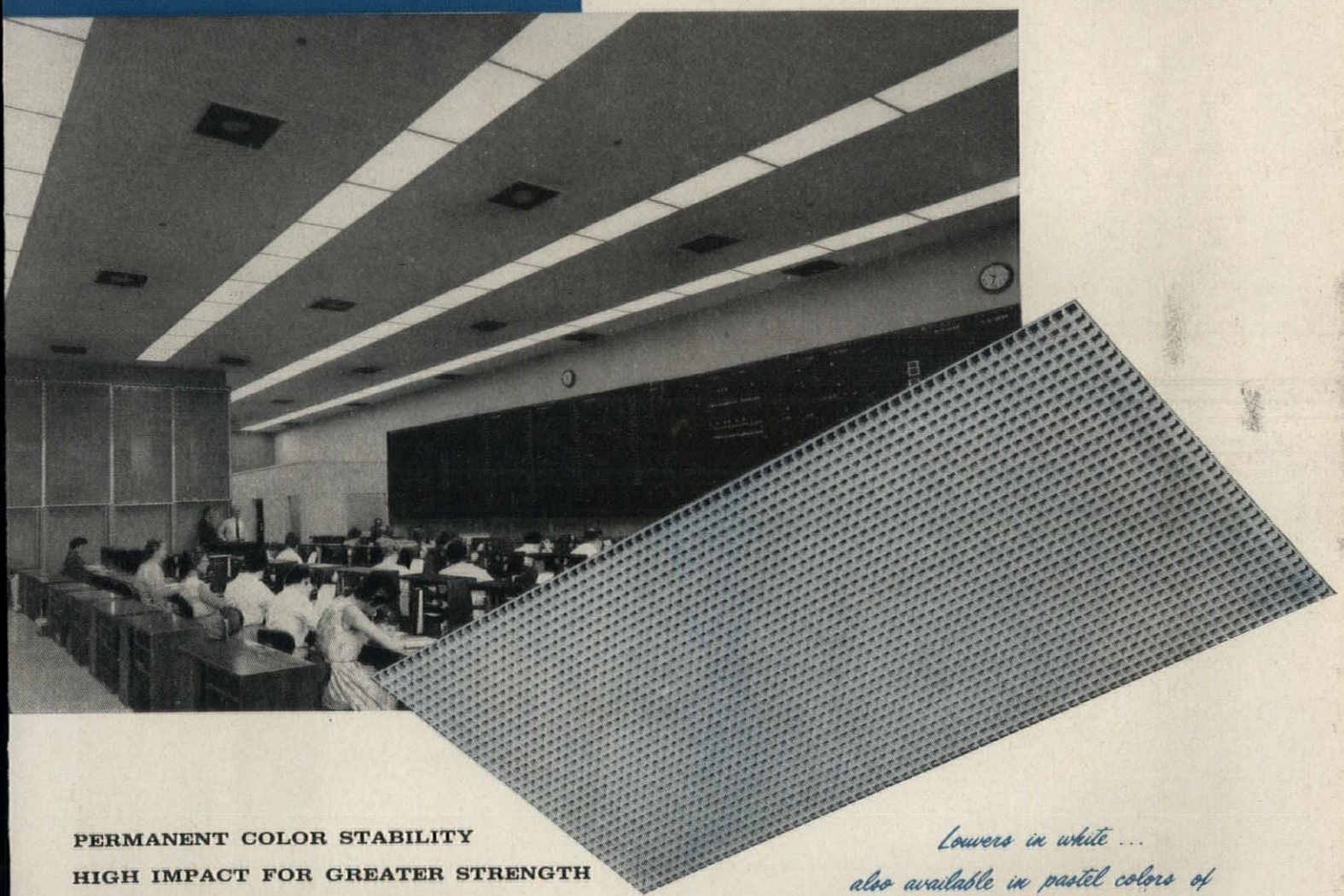
for perfect shielding with unexcelled seeing comfort and efficiency required for todays high-speed service.....



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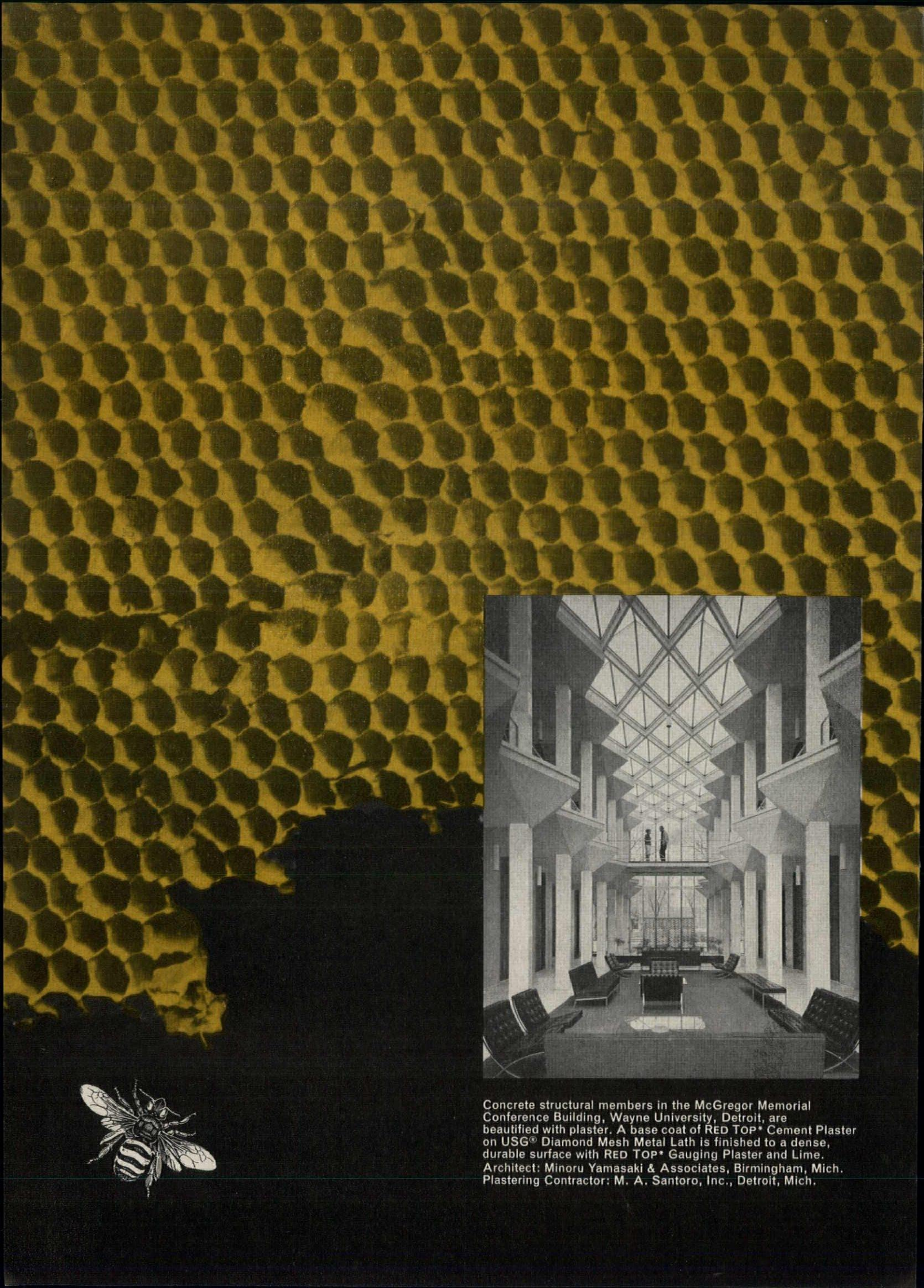

Concrete structural members in the McGregor Memorial Conference Building, Wayne University, Detroit, are beautified with plaster. A base coat of RED TOP* Cement Plaster on USG® Diamond Mesh Metal Lath is finished to a dense, durable surface with RED TOP* Gauging Plaster and Lime.
Architect: Minoru Yamasaki & Associates, Birmingham, Mich.
Plastering Contractor: M. A. Santoro, Inc., Detroit, Mich.

PLASTER CAPTURES THE CONTOURS OF CREATIVE THOUGHT

Varied in effect as the imagination that visualizes it, plaster transforms a creative idea into enduring reality

The interplay of plane and angle in the honeycomb design of the school building illustrated on the opposite page requires a construction material with complete flexibility of form. The answer—plaster!

Plaster's natural adaptability has been greatly increased by United States Gypsum research, a continuing effort that has also created new plaster and plastering systems that are lighter, stronger, more durable and more easily installed than ever before.

For any architect seeking new expressions in form and texture—lath and plaster, erected by skilled craftsmen, truly *capture the contours of creative thought.*

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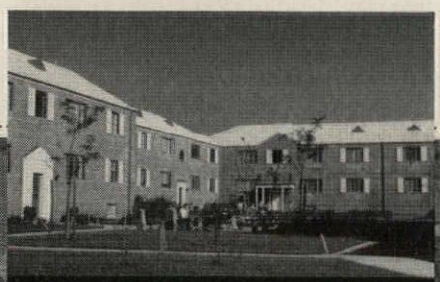
$40,000,000 PROJECT MAINTAINS EVEN, ECONOMICAL HOT WATER HEATING WITH SARCOTHERM CONTROL SYSTEM



Lindenwood Cooperative Garden Apartments, on Cross Bay Blvd. in Queens, N. Y. is nation's largest middle income cooperative development. Economical heating comfort for 12,000 people is maintained through 41 zones by Sarcotherm hot water heating control systems. Picture below shows one section of the project. Owner: Lipkin-Kahn, Architect: Benjamin Braunstein, Engineer: W. H. Dusenbury, Contractor: Fein-Schlosberg, Inc.

The Sarcotherm Weather Compensated heating control system installed at the new Lindenwood Cooperative Garden Apartments in Queens, New York, assures its residents even, reliable heat regardless of outdoor temperature. The engineer, William Dusenbury, worked out with Sarcotherm specialists a system that provides for continuous, modulated hot water flow. This system also handles night setback and morning pickup automatically, requiring no supervision.

An outdoor bulb, sensitive to change in outdoor temperature, controls a 3-way mixing valve, which regulates the temperature of the hot water supply to the system, in accordance with outdoor temperature changes. For example, at an outside temperature of 0°F., heating water is delivered at 200°F. An outdoor temperature of 65°F. sets the *water* control for 110°F. When the outside temperature exceeds 65°F., the Sarcotherm BA-4C High Limit Pump Control shuts off the heating system automatically. The PBA-2 program panel, especially designed by Sarcotherm engineers for apartment control, provides automatic heat programming. Comfortable, even heating is maintained in all 41 zones in the group of apartments.

The entire installation of the control system was supervised by Sarcotherm Controls, Inc.

Write for Sarcotherm Technical Literature. Please specify steam or hot water.

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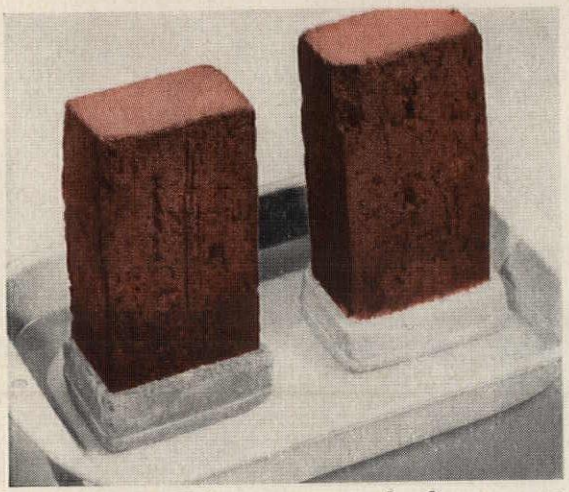
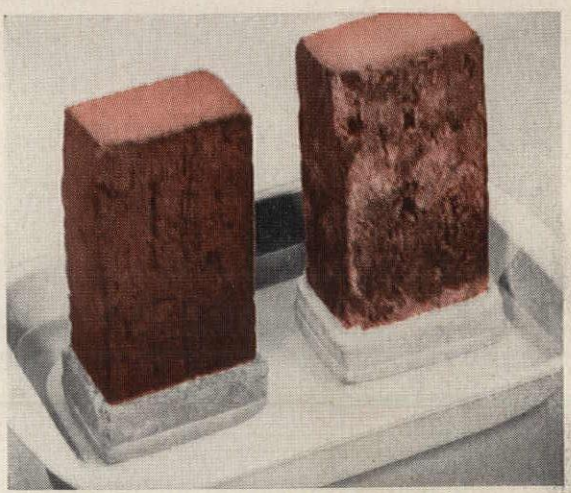
BRIXMENT MORTAR

Helps Prevent Efflorescence



To test Brixment mortar and ordinary cement-and-lime mortar for resistance to efflorescence, "cap" two brick heavily with the mortars—



let harden, and keep both brick for a few weeks in a shallow pan of water, as shown. See the difference with Brixment mortar!

HERE'S WHAT CAUSES EFFLORESCENCE—AND WHY BRIXMENT MORTAR HELPS CONTROL IT

Efflorescence is an outcropping of small white crystals on brickwork. It is caused by the soluble salts which almost all masonry materials contain. When reached by water, these salts dissolve. They may then be drawn by evaporation to the surface of the wall.

Brixment helps prevent efflorescence. The air-entraining, water-repelling agent in Brixment helps to prevent water from saturating the mortar and dissolving the small amounts of salts it may contain. Brixment mortar also helps prevent water from seeping down through the wall, dissolving the salts in the brick, and carrying them to the surface.

Contractors who have used all sorts of mortars say they have far less efflorescence with Brixment.

This is only one of many advantages which have helped make Brixment the most widely-used masonry cement on the market. It will be worth your while to hear *all* the advantages of Brixment the next time a Brixment salesman calls on you. Or write direct for full details.

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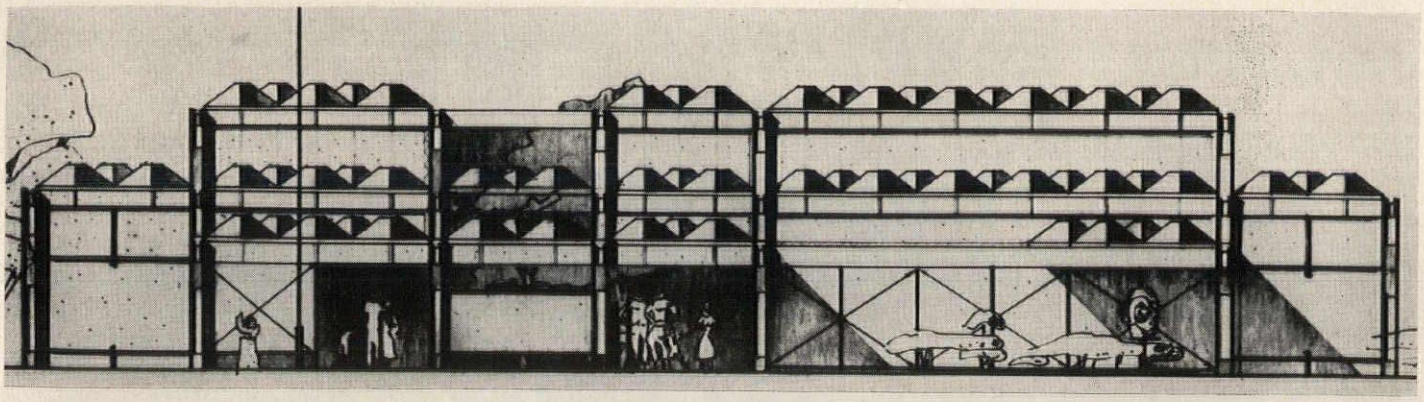
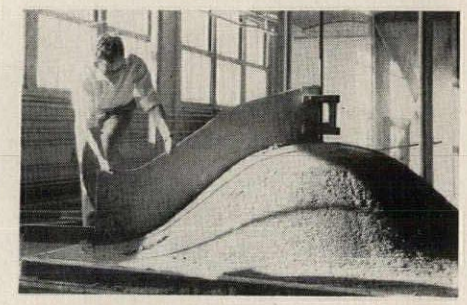


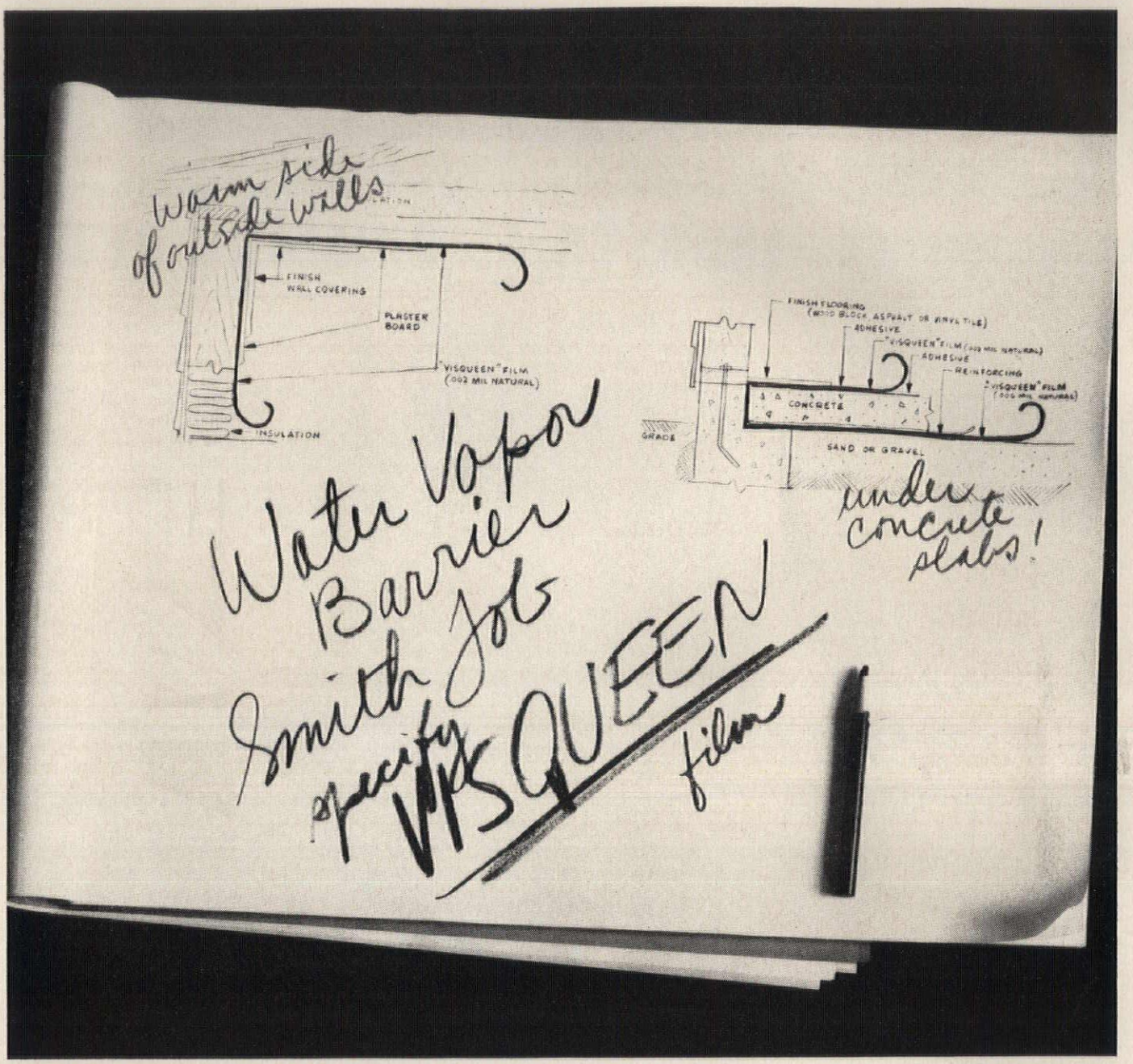
Above: Front elevation of the pavilion using standard wood elements bolted with bent metal connectors. *Below:* Mock-up construction of a fiberglass dome: making a sand form and viewing the completed dome



"building components for today's dwellings." Students studied and constructed components of walls, roofs, floors, and other house elements.

Some of the results of one of the later problems are shown on these two pages. The assignment, entitled "traveling standard pavilion for international industry fairs," was under the direction of Dean José Luis Sert and Professor Huson Jackson, with Alvaro Ortega and Jerzy Soltan as visiting critics. The students were asked to design a standardized system of construction for pavilions that could be shipped, could be adapted to differing sites, and could be erected in sizes varying from 4000 to 30,000 sq ft. The students submitted a basic design for a small pavilion and an alternate design for a large one. They also constructed standard elements.

more news on page 346



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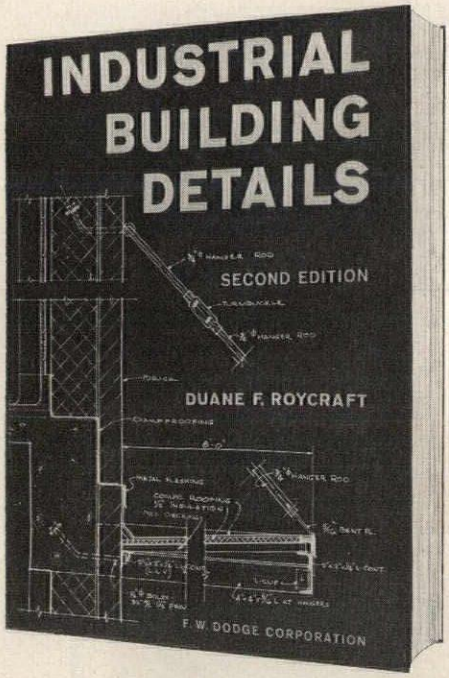

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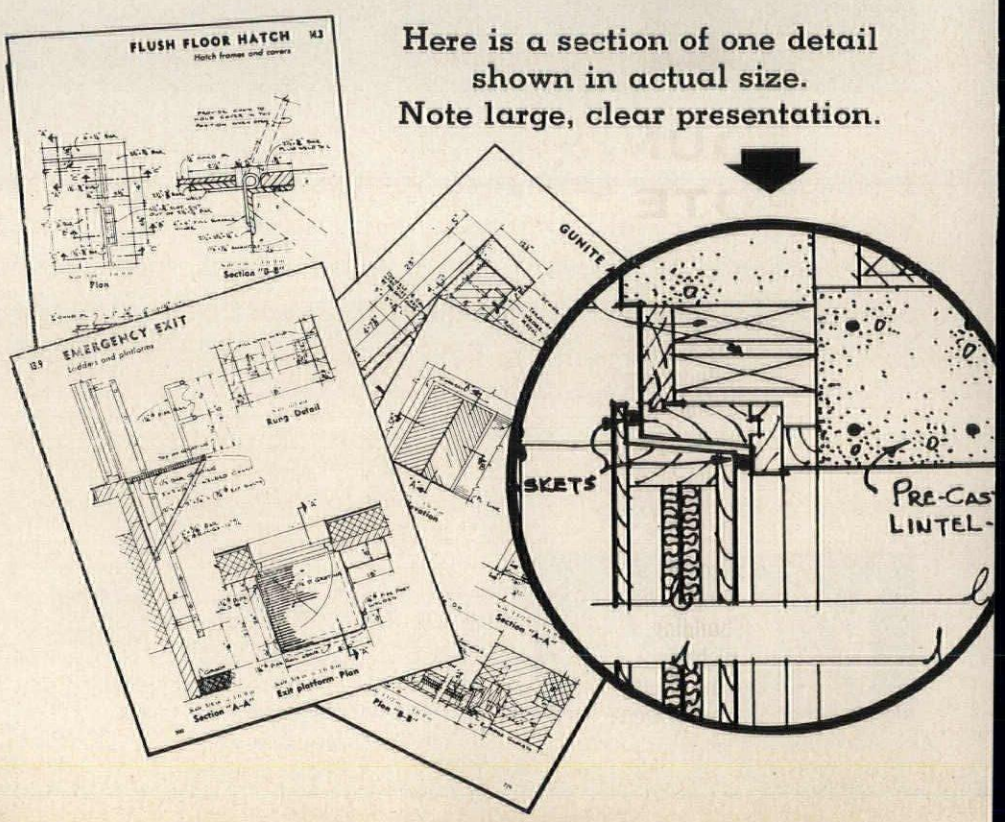

Here is a section of one detail shown in actual size. Note large, clear presentation.

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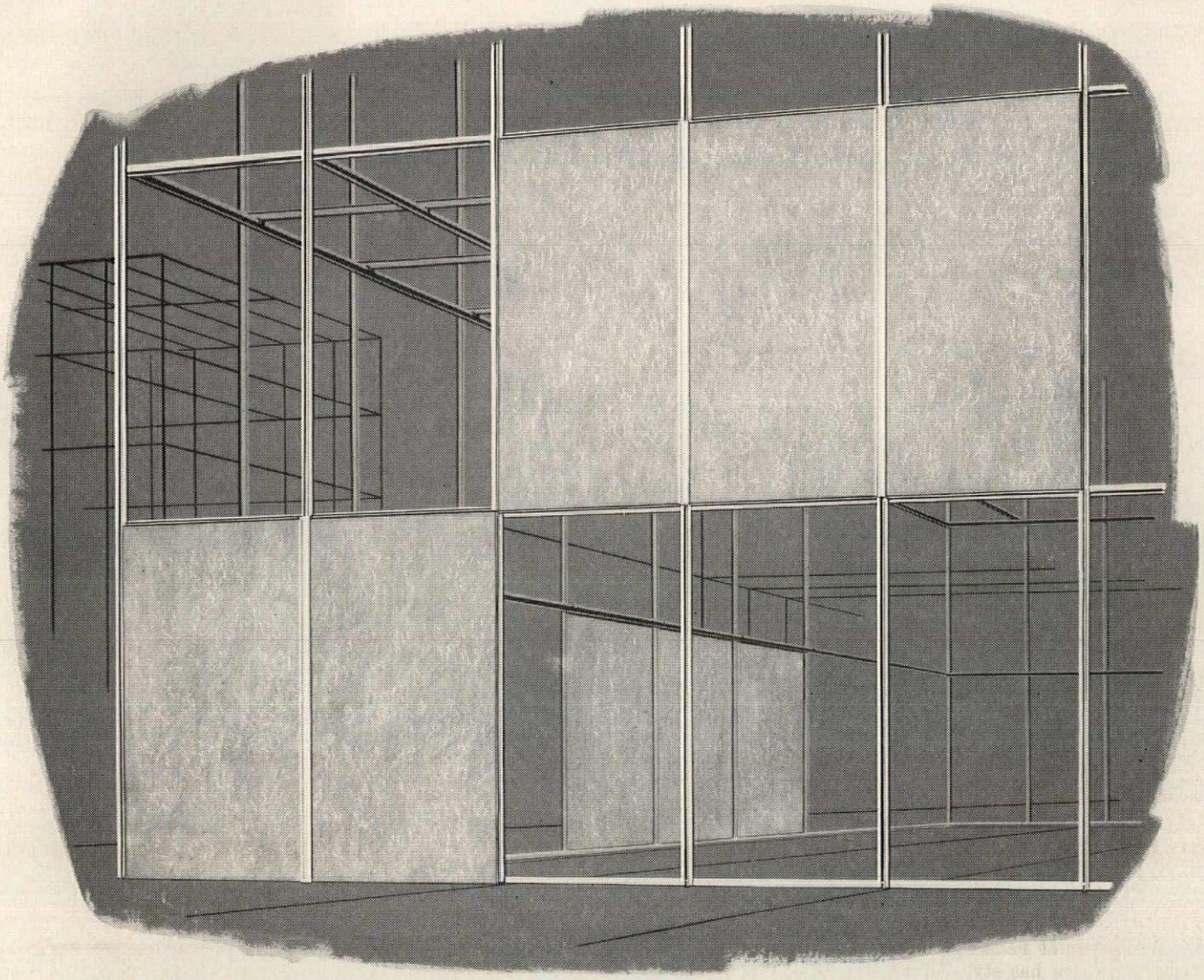

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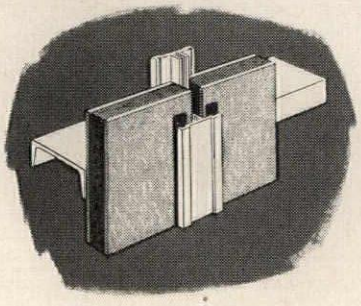

The above H & B aluminum molding is one of several attachment systems that may be used with Transitop.

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To see the many ways Transitop can help you in your construction—to see how easily it is erected, to learn of its economies—send for the illustrated brochure on J-M Asbestos Transitop—write Johns-Manville, Box 158, New York 16, N.Y. In Canada, Port Credit, Ontario.

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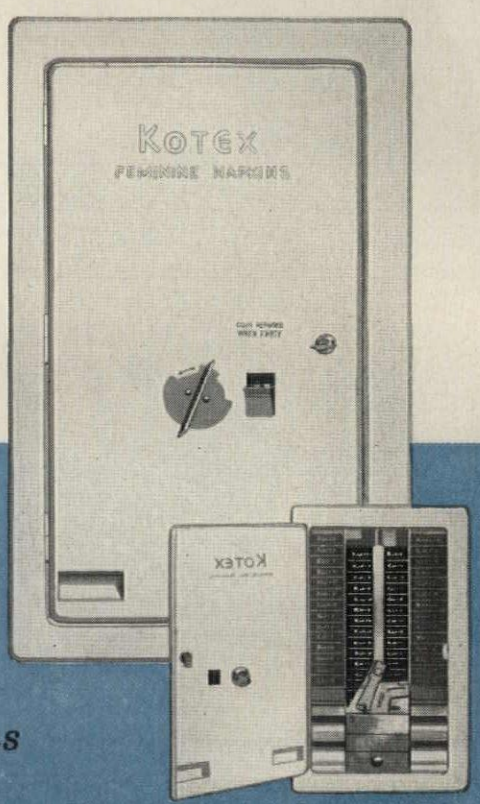

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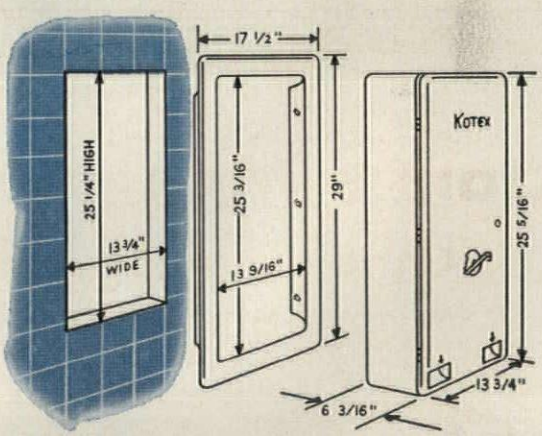
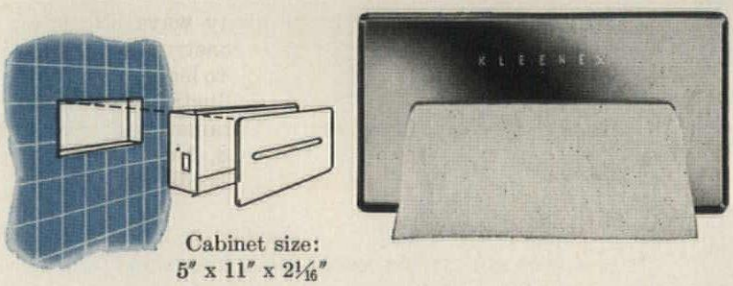
These streamlined, sturdy, pilfer-proof vendors add a much appreciated service to any public building. They are available with either a five-cent or ten-cent coin mechanism.

Available in durable white enamel, satin chrome, gleaming polished chrome and stainless steel. Matching frame for recessed installation. (Other vendors that can be surface mounted are also available.)





Cabinet size:
5" x 11" x 2 1/16"

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Holds full box of Kleenex 200's. Dispenses one tissue at a time. Mirror-chrome finish. Holes in back and side make it easy to fasten to studding.

For further details on how these attractive new dispensers can fit into your plans, see Sweet's 1959 Architectural File Cat., Section 26e/Ki. or write to Kimberly-Clark Corp., Dept. AR-99, Neenah, Wisconsin.

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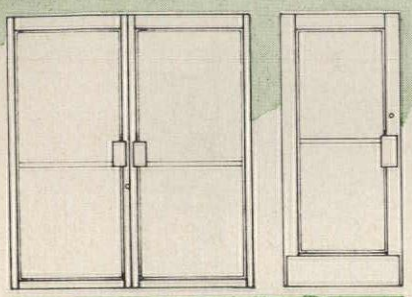

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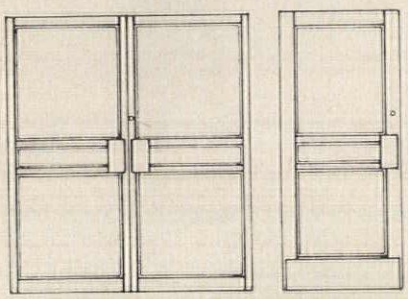

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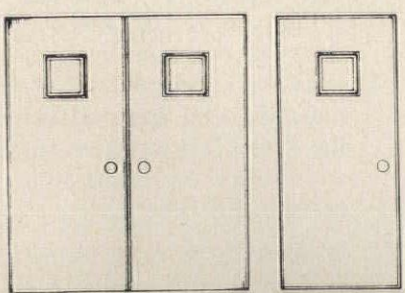
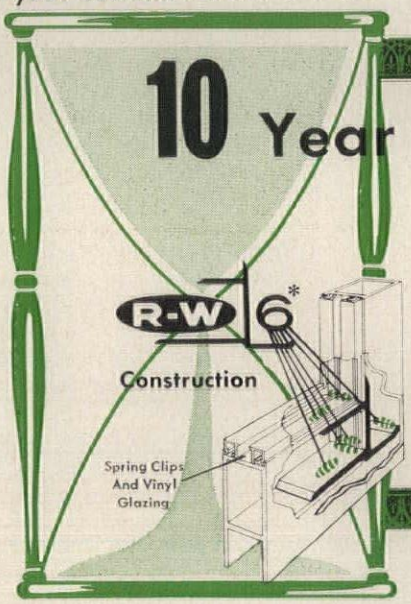


Honeycomb Flush Panel & Heavy Duty Flush Panel Doors



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The Alumiline Corporation guarantees replacement of door, if, under any but abnormal use or accident, R-W6 door corner breaks within 10 years from the date of purchase.

*R-W6 The exclusive Alumiline method of fusing a machined corner reinforcement to the stile and rail with 6-high tensile welds.

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THE ALUMILINE CORPORATION – Pawtucket, R. I.

Washington Topics

continued from page 48

Alabama Senator and his committee members was whether to recommend a test Senate vote to override the veto of the President or to submit a new bill less offensive to the White House which would have a fairly certain chance of clearing the President's office.

There were alternatives. A special resolution carrying the new insurance authorization needed by the Federal Housing Administration and some other "bare bones" housing items could have been passed, leaving some major programs in housing without further Congressional guidance. And Republicans had introduced new bills in House and Senate incorporating the President's wishes with regard to 1959 housing laws.

The unprecedented spectacle of hearing argument over the accuracy of Presidential statements in a veto message developed in Senator Sparkman's hearings. The chairman said he had not been able to pinpoint anyone who would admit to preparing the veto message and commented that "whoever prepared it did not tell the country the truth."

Senator Homer Capehart (R-Ind.), ranking Republican member of the Senate Banking group, said the controversy convinced him Congress should abolish the Housing and Home Finance Agency. He joined critical Democrats in contending that the President was misled by his advisers in certain details of the veto document.

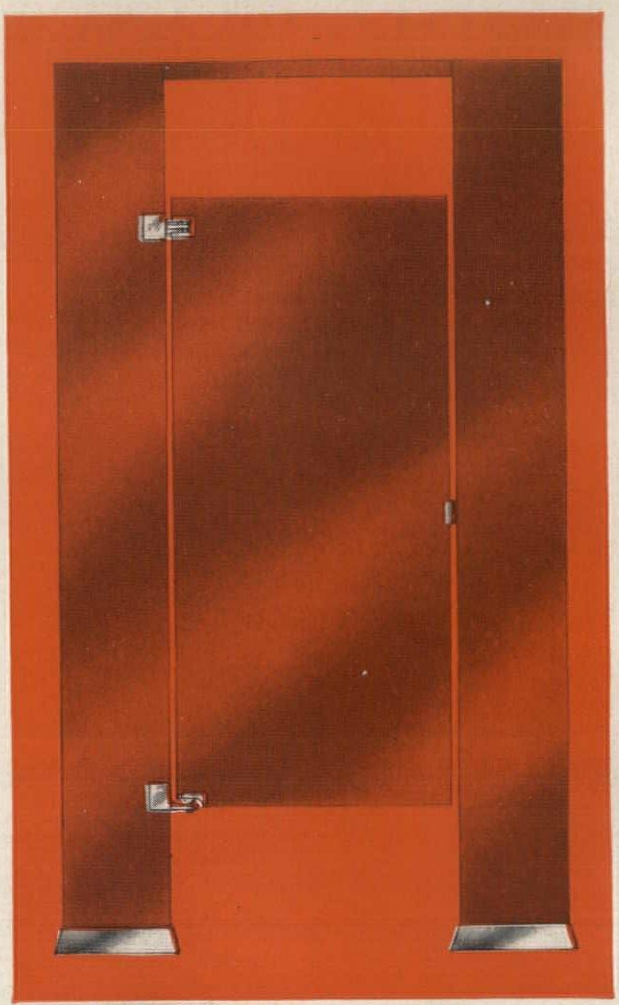
Senator Prescott Bush (R-Conn.), called the criticism unfair and unjustified. He commented: "I can understand the concern of my colleagues in the opposition party because President Eisenhower exposed to the people of this country the extravagance of the bill he vetoed. I can understand their eagerness to attempt to demonstrate that the veto message was not strictly factual in its language. I believe that attempt has failed and that, when it is considered as a whole without strained distortions of the plain meaning of the words, the message accurately described the vetoed bill."

Atomic Energy Program Funds Get House Approval

Construction funds for the booming atomic energy program were assured in an appropriation bill clearing the House which provided $255 million for plant acquisition and

continued on page 354

WHETHER THE JOB CALLS FOR ONE OR MANY...



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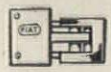

New "Life-line" hardware stands up under severe abuse

"Golden Gate" door construction eliminates door sway

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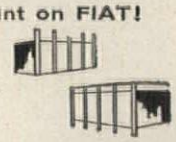

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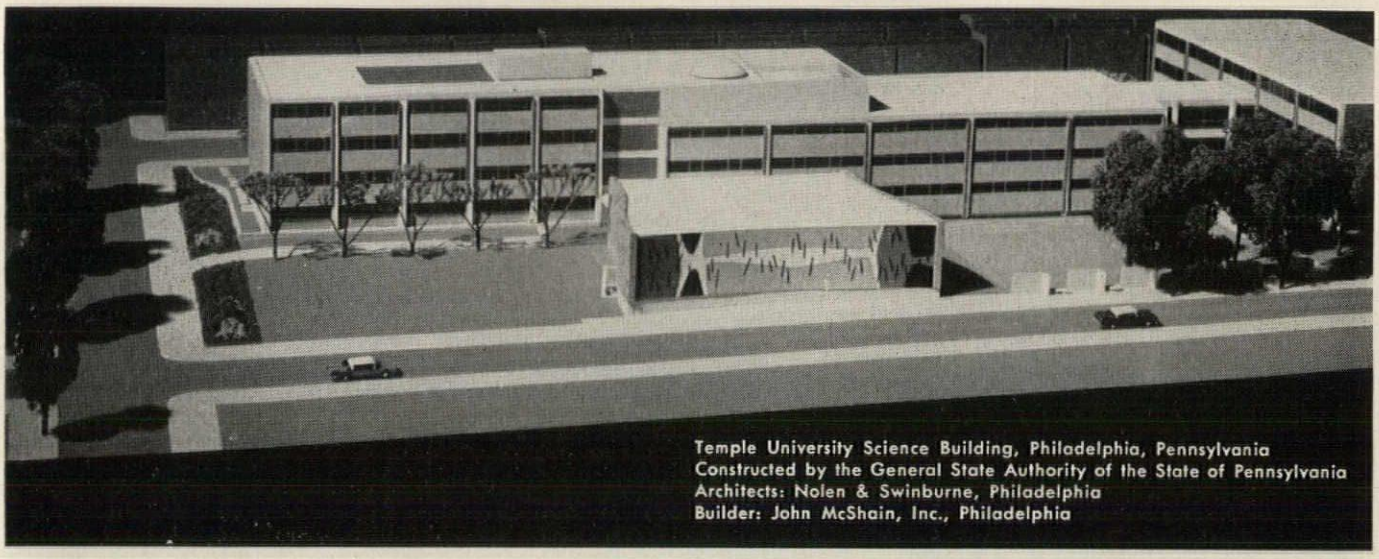
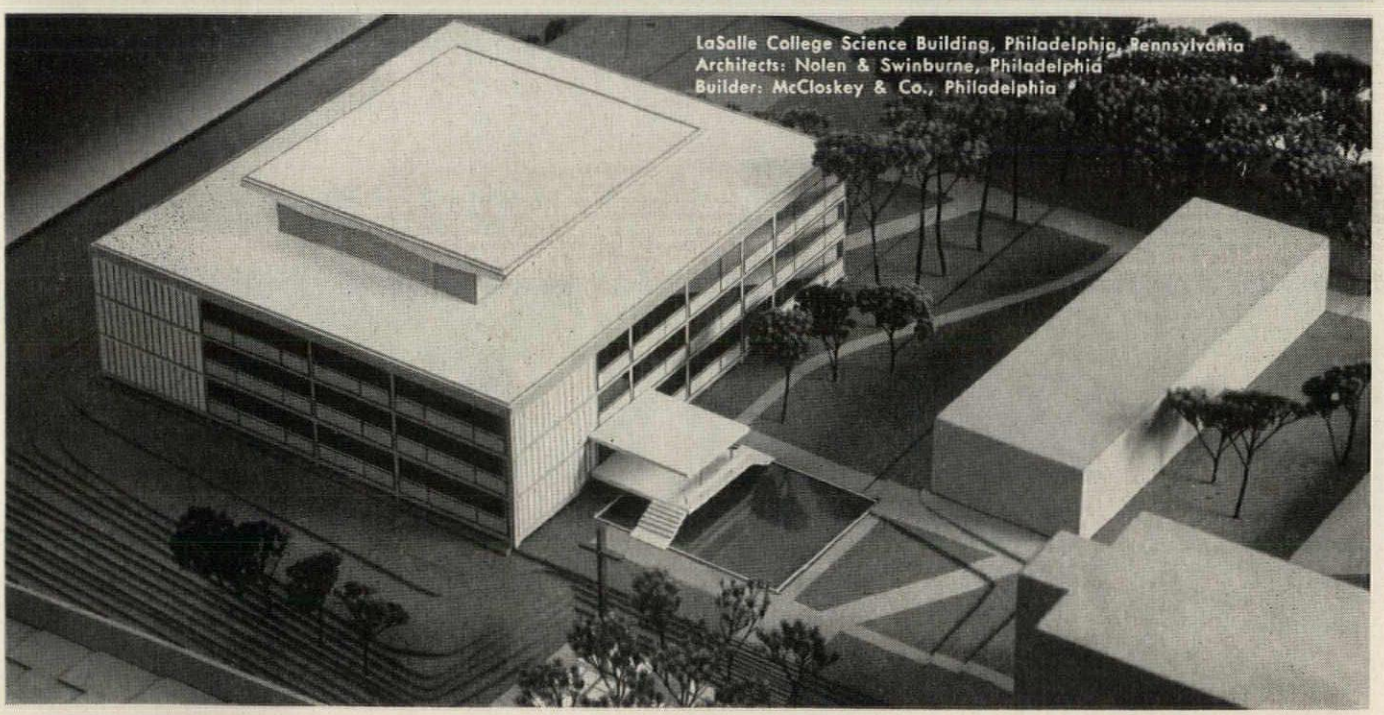


Temple University Science Building, Philadelphia, Pennsylvania
Constructed by the General State Authority of the State of Pennsylvania
Architects: Nolen & Swinburne, Philadelphia
Builder: John McShain, Inc., Philadelphia



LaSalle College Science Building, Philadelphia, Pennsylvania
Architects: Nolen & Swinburne, Philadelphia
Builder: McCloskey & Co., Philadelphia

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Coming to Philadelphia—two outstanding structures of modern design—the $4-million Temple University Science Building and the $2-million LaSalle College Science Building. Both are now under construction.

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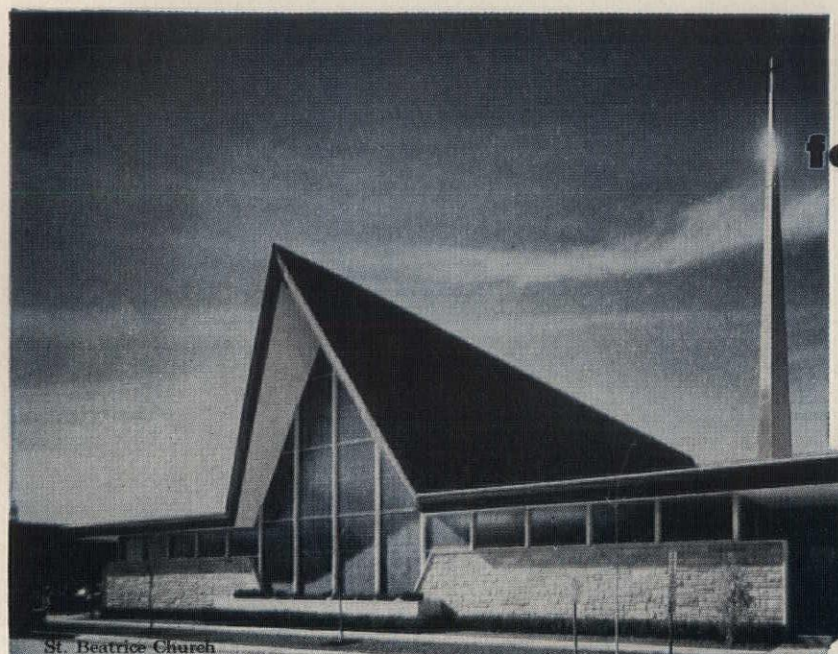
LASALLE COLLEGE SCIENCE BUILDING—the entire structure will be supported by reinforced concrete stair towers. Two reinforced concrete columns will be the only support for the central core containing lecture rooms and all mechanical services.

Before you build any type of building, investigate this flexible, economical, and timesaving medium of construction.



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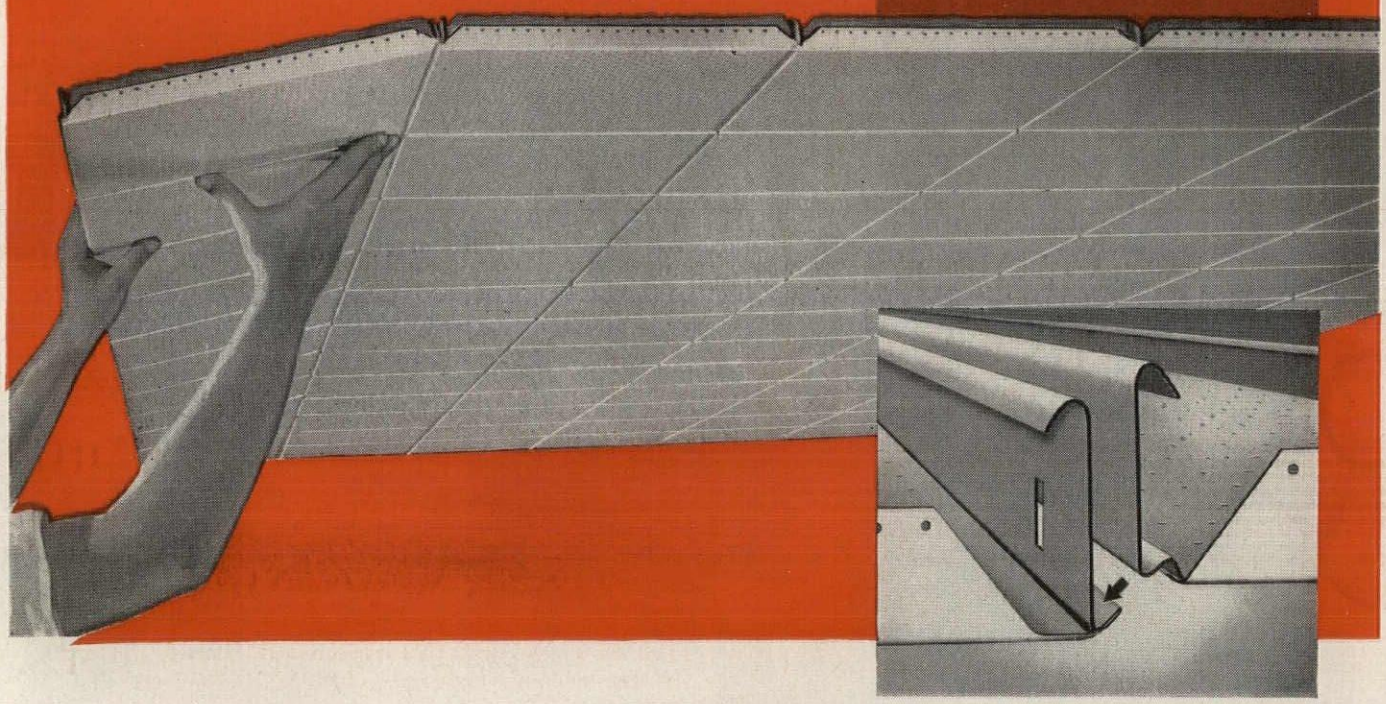

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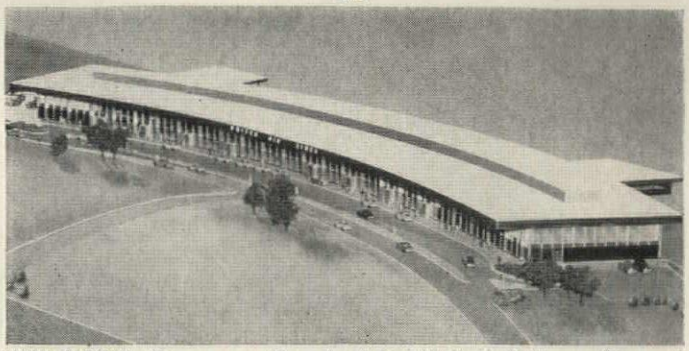

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talent deficiencies. Trainees come from leading technical schools throughout the country. The formal BYD training program is from 18 to 30 months and includes orientation, field training and on-the-job training and development in design, maintenance, construction, planning and research.

Officials said that the payment of travel and transportation expenses to the first duty station and payment of tuition for special engineering courses now enable them to compete favorably for young talent.

Architects and Contractors Hold "Summit" Conference

A "summit meeting" at professional and trade organization level is the way spokesmen described a recent meeting of top officials of the American Institute of Architects and the Associated General Contractors of America, Inc. It was the first time that presidents of both organizations had met formally to talk over mutual problems, accompanied by staff personnel, and the meeting was so successful that it probably will be continued on an annual basis.

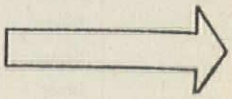
John Noble Richards of Toledo, A.I.A. president, and James W. Cawdry of Seattle, A.G.C. president, conferred in Washington, D. C., for a day, emphasizing the need for close liaison between architect and general contractor to eliminate misunderstandings and to secure benefits from a better understanding of each other's work and problems.

Discussed specifically by Mr. Richards and Mr. Cawdry were the merits of the single contract system, comparisons of legislative policies and methods of persuading architects and contractors to play more active roles in redeveloping urban centers. Retained percentages and scholarships also were given consideration in the talks.

House Group Hears Views on Direction of Urban Changes

Mayor Richardson Dilworth of Philadelphia told a House government operations subcommittee that local government authority across state lines must be consolidated in an increasing number of instances and that Federal legislation to govern this may be necessary. He was testifying in favor of several measures in Congress which would establish a Federal department of urban affairs with Cabinet status and provide for thorough and continuing study of major urban problems.

A new world of shopping convenience... served by Westinghouse electrical equipment



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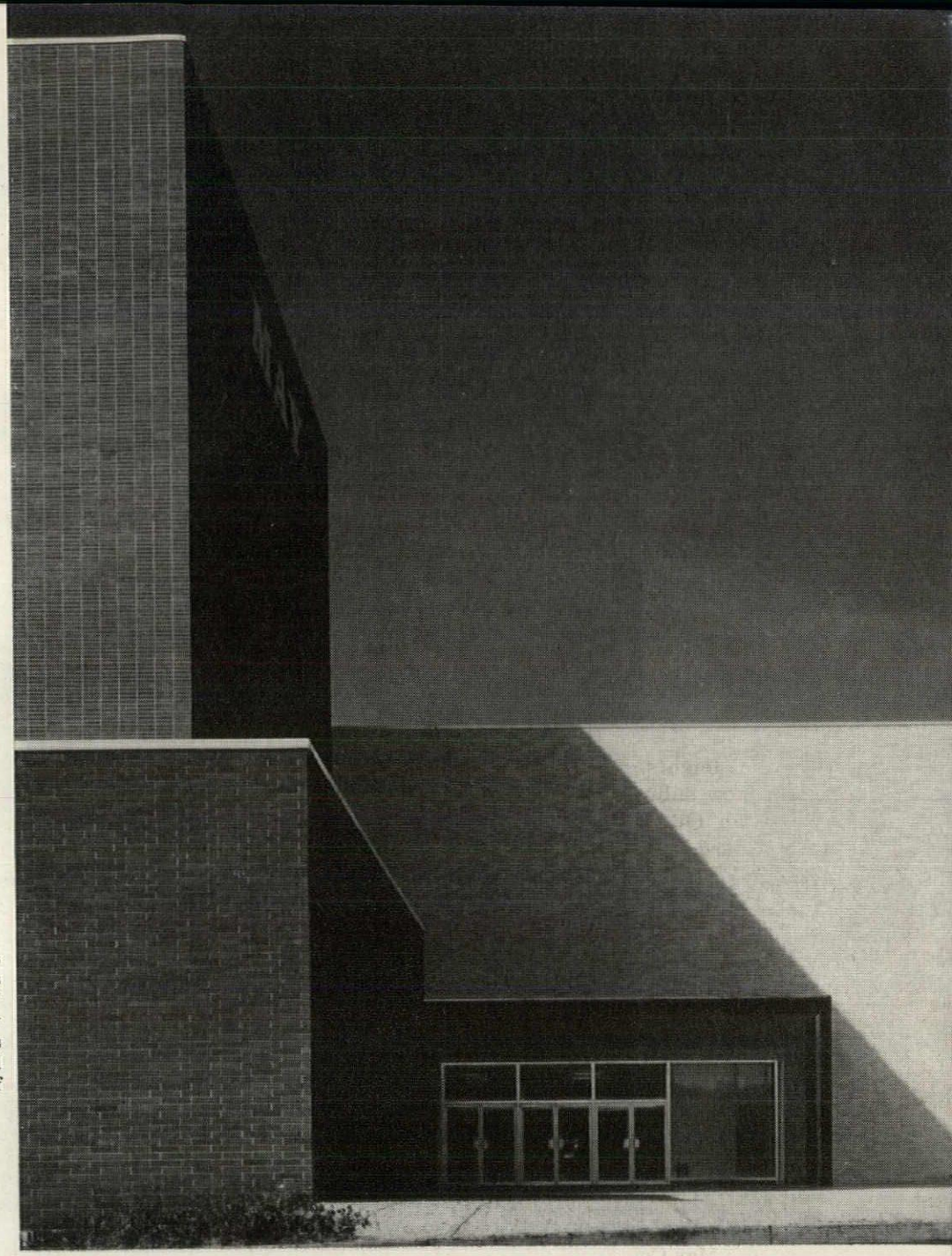
COVER PHOTO

Aerial view shows Mays-On-The-Heights suburban store near Cleveland, Ohio, and part of its 18 acres of parking facilities. Adequate parking, protected walkways and convenient entrance to the store are attractive inducements to suburban shopping.



Close-up of new store building shows one entrance area. Multiple entrances at two store levels provide two "first" floors and permit greater flexibility in customer traffic flow. Building is of reinforced concrete with all walls covered with various colors of textured brick.

Mayfair Dining Room offers guests an exciting atmosphere of glass, light and shrubbery. One end of room overlooks a small court having an interesting modernistic fountain and colorful plants.

J-94100-2

Over-all view of Mays-On-The-Heights shows entrances and spacious terrace created by protected walkways. Westinghouse OV-20 street lights with Westinghouse mercury-vapor lamps in the huge two-level parking area are functional as well as decorative, combining glare-free visibility with virtual elimination of maintenance.

New suburban store says "Watch Us Grow" . . . architect provides for future electrical needs

Mays-On-The-Heights, whose slogan is "Watch Us Grow," is a new suburban department store near Cleveland, Ohio. Owned and operated by The May Company Department Stores, Inc., it is the largest suburban store between New York and Detroit and one of the 10 largest in the country.

Especially designed to meet suburban shopping needs, the store has 353,000 square feet of space on four selling floors, employs 1000 people, and will accommodate 2000 cars in its two-level parking lot.

The careful design which distinguishes this new store goes beyond the many obvious architectural features. The electrical system has been carefully planned to provide maximum shopper comfort and convenience. Every item of Westinghouse equipment —power centers, switchgear, panelboards, circuit breakers, safety switches, transformers and controls —was selected for its ability to provide dependable, uninterrupted service and for future expansion as store growth requires it.

In addition to the electrical distribution system, Westinghouse outdoor lighting makes shopping safe and convenient. And shopper transportation throughout the building is rapid and convenient with Westinghouse elevators. *(cont.)*

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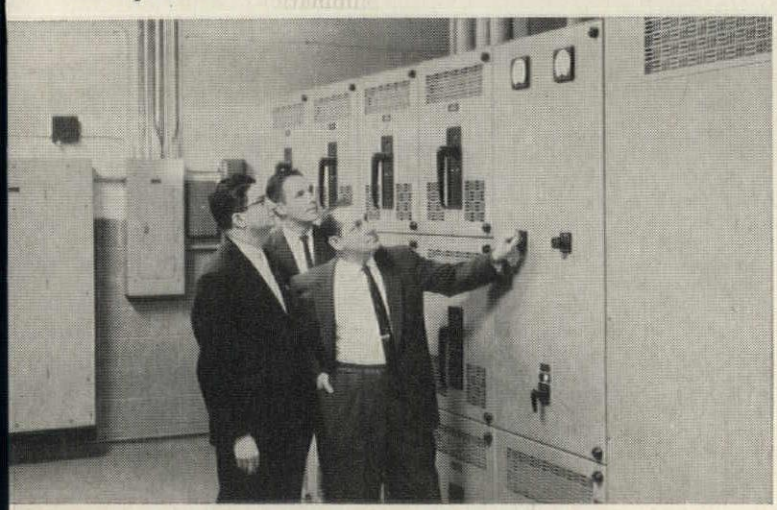
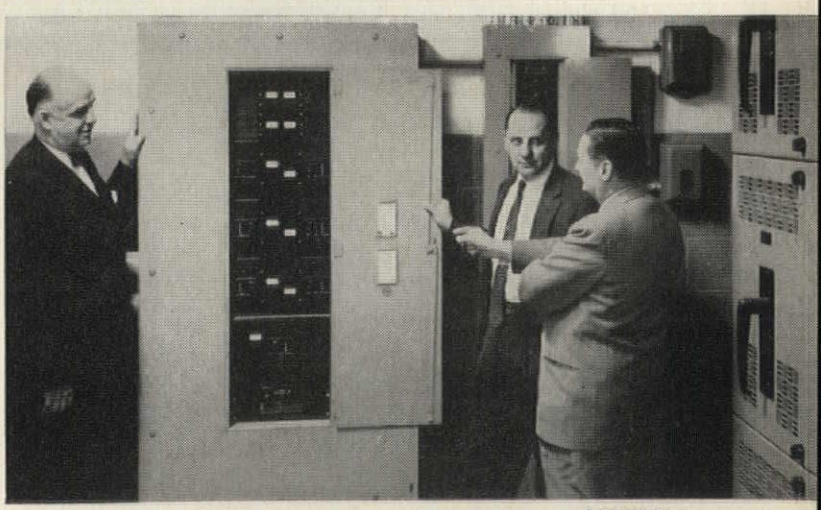
Over 275 Pages Westinghouse Data in Sweet's Architectural File.

Leo J. Chak, The May Company Building Superintendent, and James Miller, Westinghouse Construction Sales Engineer, read current being used in low-voltage switchgear section as George Friedlander, Phillips Electric Co., Electrical Contractors, points out current being drawn is less than half that available in system. Power center has built-in capacity for expansion.



Earl T. Stratton, Westinghouse Product Specialist, George Friedlander and J. C. Kamuf, WESCO, discuss features of Westinghouse CDP convertible panelboard, which provides feeder protection and control of 480-v power in mechanical equipment room. Type NLAB lighting panelboard and Class 15-825 contactors at right of CDP panelboard are used for 120-v lighting.



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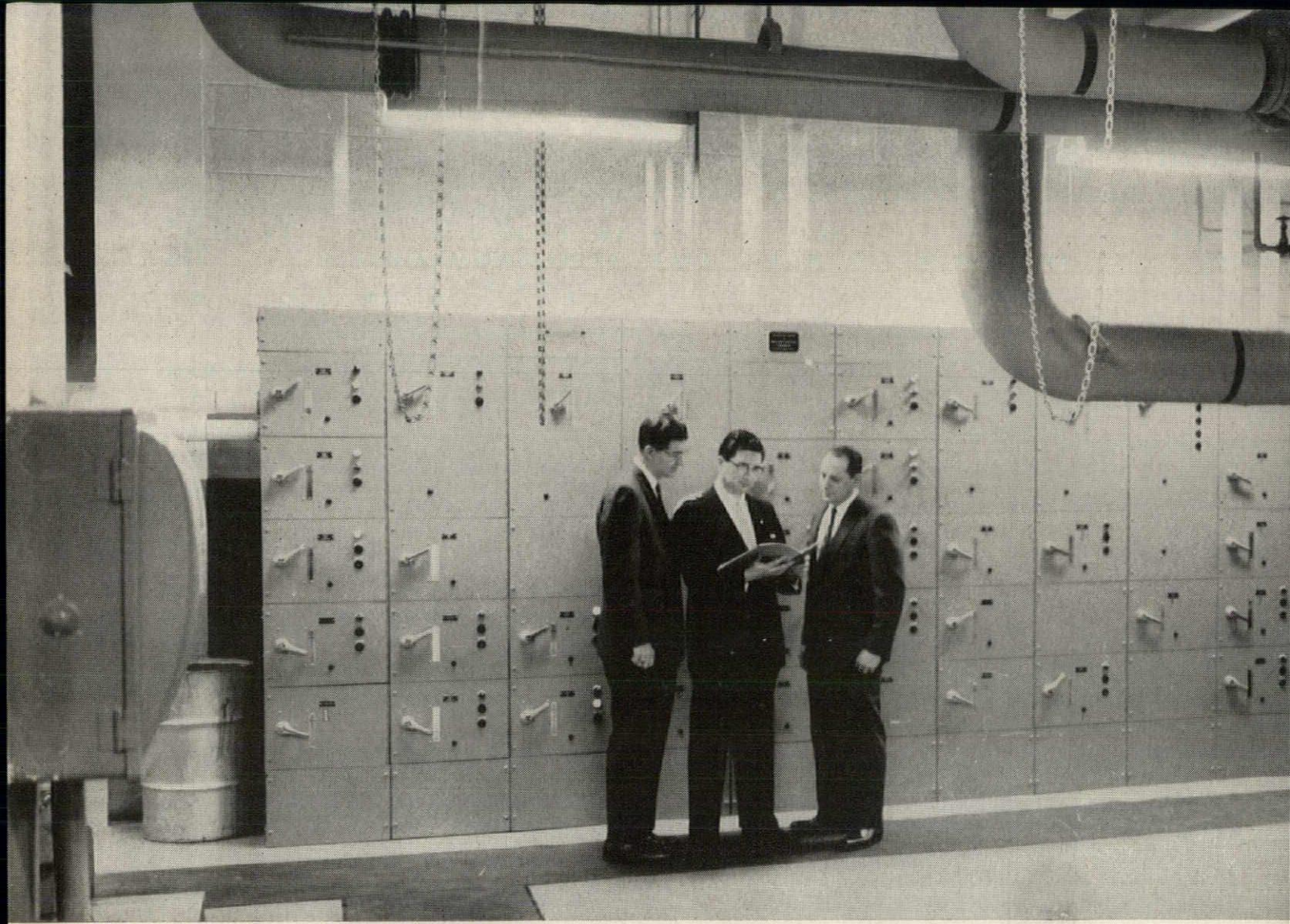

F. B. Burbank, Westinghouse Area Sales Manager, Leo J. Chak and George Friedlander are shown in front of Class 11-350 motor control center installed in mechanical equipment room. This compact Westinghouse unit centralizes all motor controls to save inspection time and reduce service problems.

New May Company store installs electrical system for present and future needs . . . now says "Watch Us Grow" *(cont.)*

The May Company slogan, "Watch Us Grow," had a definite influence on planning by the owner, the architect, the contractors and Westinghouse. The architect's use of the electrical system as a readily expandable design element enables the owner to double the electrical load on the system before it becomes necessary to add more power equipment.

A Westinghouse construction specialist can be of service in your planning. Call the Westinghouse sales office near you, or write: Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pa.

OWNER: The May Company Department Stores, Inc.
ARCHITECT-ENGINEER: Victor Gruen Associates, Detroit, Mich.
ASSOCIATE ARCHITECT: Jack Alan Bialosky, Cleveland, Ohio
GENERAL CONTRACTOR: The Sam W. Emerson Co., Cleveland, Ohio
ELECTRICAL CONTRACTOR: The Phillips Electric Co., Cleveland, Ohio
WESTINGHOUSE DISTRIBUTOR:
Westinghouse Electric Supply Co., Cleveland, Ohio

Walter Mack, The May Company Maintenance Supervisor, and E. E. Croushore, Jr., Westinghouse Construction Sales Engineer, take reading from ammeter on Westinghouse indoor metal-clad switchgear. Two 50 DH 150 air circuit breakers are used as feeders for the two Westinghouse 2000-kva power centers located at top of building. Utility company metering section is in far left compartment.

Over 275 Pages Westinghouse Data in Sweet's Architectural File.

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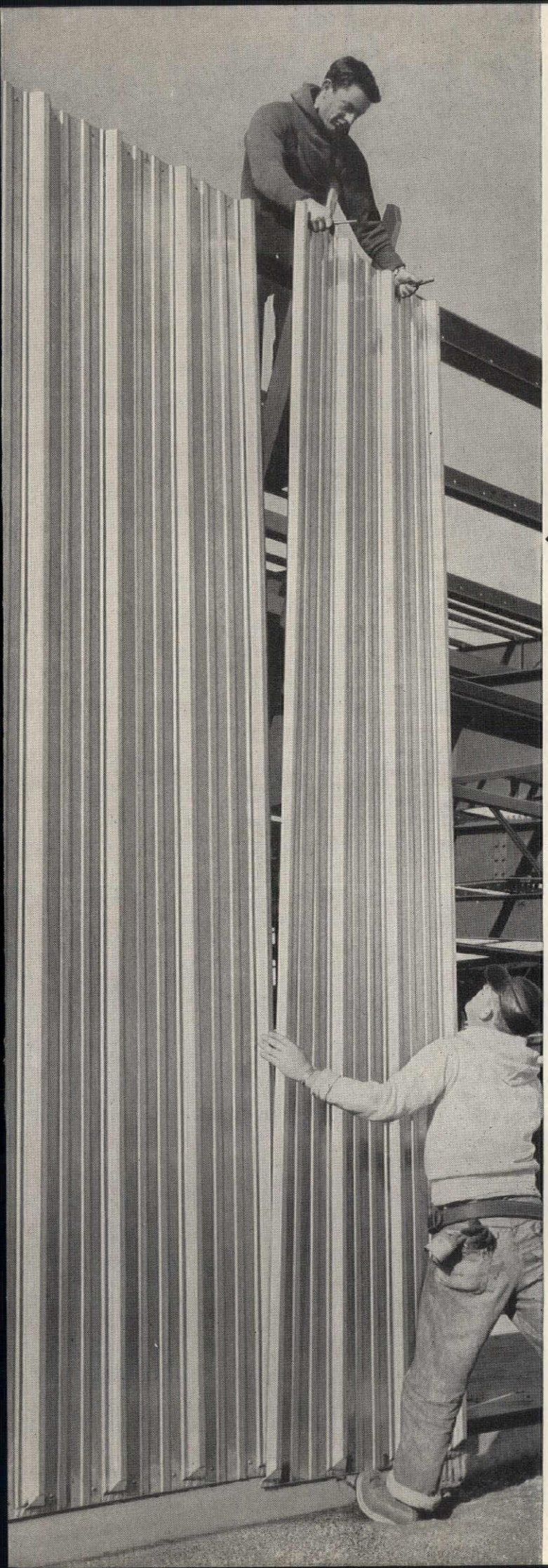

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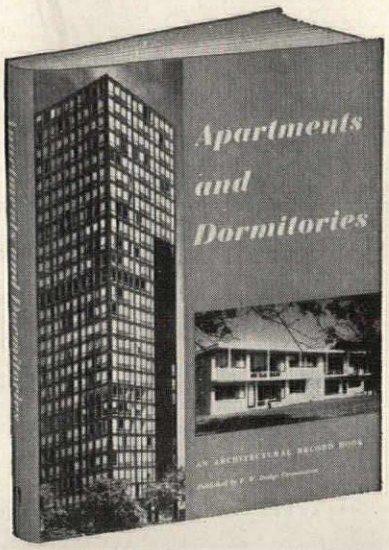

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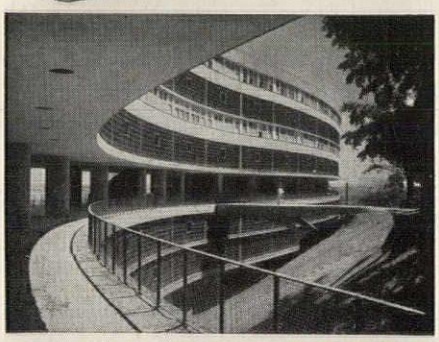

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3. **APARTMENTS: LARGE PROJECTS**
   Twenty-two large buildings or groups of buildings are shown here. The story behind each is presented — how it was financed, what type of tenants it was designed for, site problems, other design considerations. Floor plans show you unusual corridor and elevator-shaft arrangements, flexible layouts, other idea-provoking details. Numerous interior and exterior photographs are included.
4. **APARTMENTS: SMALL PROJECTS**
   Ten-family buildings, two-family houses, duplexes, and a hunting club are shown here. Many of these buildings are on unusual sites, and their purposes vary — some are for single persons, some are for faculty members, some are public housing, and some are in the luxury class.
5. **CAMPUS DORMITORIES AND APARTMENTS**
   Opens with a discussion of dormitory design which warns of the danger of cell-like campus housing, and explains the architectural needs of the student. Eleven projects are shown, including dormitories at men's and women's colleges, and housing for faculty members and married students.

Throughout the book, every point is made clearer by the inclusion of numerous photographs, plans, and drawings. There is no other book in print which offers you such a wealth of up-to-date design information, plus the stimulation of seeing the best efforts of some of the world's leading architects.

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continued from page 66

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Renaissance Architecture

A HISTORY OF RENAISSANCE ARCHITECTURE. *By Bruce Allsopp, F.R.I.B.A. Pitman Publishing Corp., 2 W. 45th St., New York 36. 228 pp., illus. $13.*

"I think I may claim that this is the first history of Renaissance architecture from the outside. I see the period as one of magnificent achievement which is over and done with." This statement prepares the reader for Mr. Allsopp's attitude of sympathy combined with healthy skepticism, an attitude that makes this history a lively and rewarding one.

The book examines the achievements of Renaissance architecture without forgetting its wobbly theoretical foundations. For example, the author never misses an opportunity to squelch the idea that medieval architecture was "barbaric," but takes pains to show why Renaissance theorists should think it so: "The structural logic of medieval building and the expressive use of structure practiced by medieval architects was not possible for most of the Renaissance architects. They did not know enough about structure, and did not think it mattered. They were concerned with other things: proportion and latinity."

The book is divided into three main sections. First, the Renaissance in Italy is described, from its origins through the development of the Baroque. One of the most important features of this part of the book is a condensation and analysis of Alberti's *De Re Aedificatoria*, the theoretical cornerstone of Renaissance building. The second section considers the spread of Renaissance ideas and technology in Europe (and, to some extent, in the New World). The most detailed discussion is reserved for France, from Francis I to the Revolution, and contains some very convincing speculation on the artistic responsibility for the Chateau of Chambord. The final section is concerned with England, from the 16th century to the Counter-Renaissance, and here the analysis

continued on page 378

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the accompanying quotation is from a talk before the thirty-eighth annual meeting of the Eastern Association of College and University Business Officers held in Washington in December 1957 —delivered by Ernest V. Hollis, director of college and university administration, U.S. Office of Education

"We have three powerful and salutary forces working together to bring the profession to maturity. The oldest of these are the regional associations of college and university business officers, of which none has played a more important role than the Eastern Association. Among the many significant projects of the regional associations none has contributed more to the growth of the profession than the workshops for upgrading personnel that have been nurtured so ably by Charlie Hoff in Nebraska, Frank Peterson in Kentucky, Ray Kettler in California and the committee on workshops of the Eastern Association.

The second of these forces is the National Federation of College and University Business Officers, which is new, but which has already sponsored the 60-college study and several other projects of nationwide significance.

unifying and stimulating

The third unifying and stimulating force that has advanced the profession is a commercial one. I refer to Hal Herman [editor] and his associates, who are doing such a magnificent service for the profession through the publication College and University Business.

The only part of the profession I am talking about this evening is the chief business officer of institutions and those among his associates who want to become, like him, generalists rather than specialists in the field."

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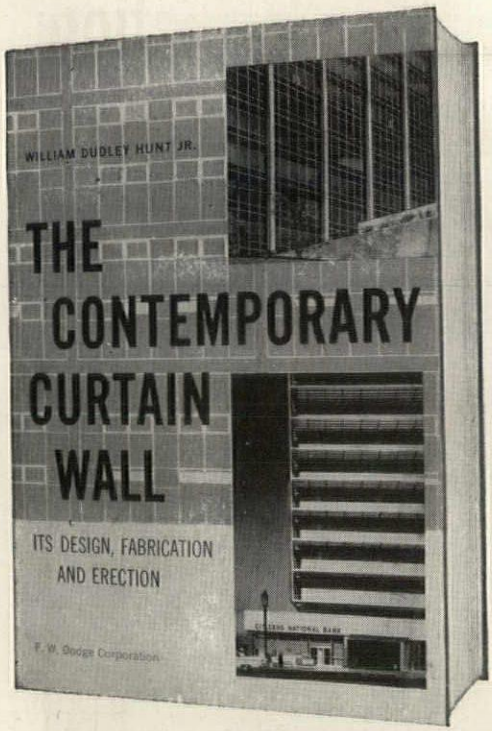

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Materials are studied next. Every known material from which curtain wall panels are manufactured is covered. Here you will find complete, concise data on the advantages and disadvantages of each material, its chemical, physical, and mechanical properties, its durability and appearance. Sample specifications are given, and a listing shows the different sizes, styles, and gages in which each material can be fabricated.

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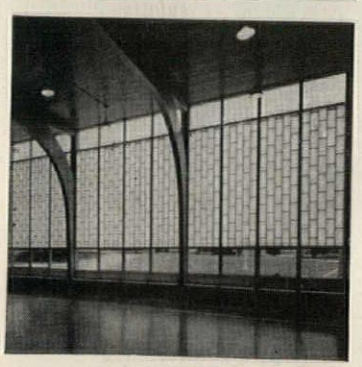
Although this book contains a voluminous amount of detail, both in text and drawing, it never loses sight of the broad picture. Overall design considerations and esthetics are discussed at length, and many excellent photographs show all types of curtain wall buildings.

The final chapter of THE CONTEMPORARY CURTAIN WALL takes a look at the future of this building method. Here the effects of increasing mass-production, use of standardized components, and non-use of local materials is surveyed. The possibility of numerous look-alike buildings is balanced against the infinite number of materials, forms, and colors made available, and the conclusions drawn are stimulating and provocative.



THE AUTHOR

William Dudley Hunt Jr., A.I.A., joined *Architectural Record* in 1958 as a senior editor. For eight years prior to this, he practiced architecture in Alabama, Louisiana, and Florida. He has been director of research and development for a building products manufacturer, and has also been active in industrial design work. In addition, he has taught engineering at Tulane University and Alabama State College.

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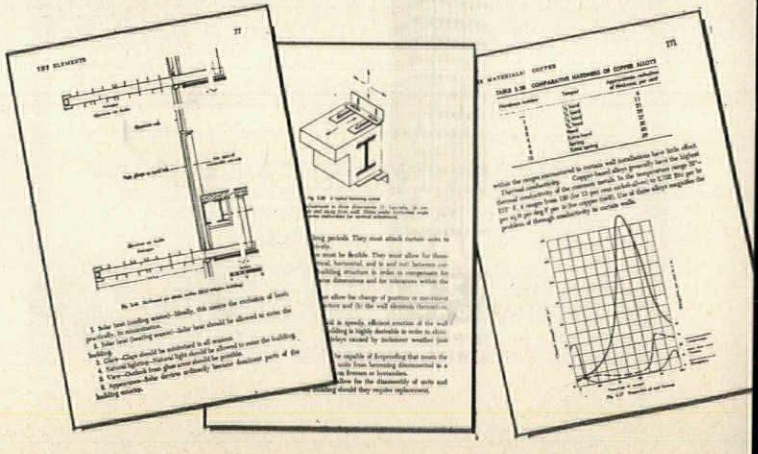

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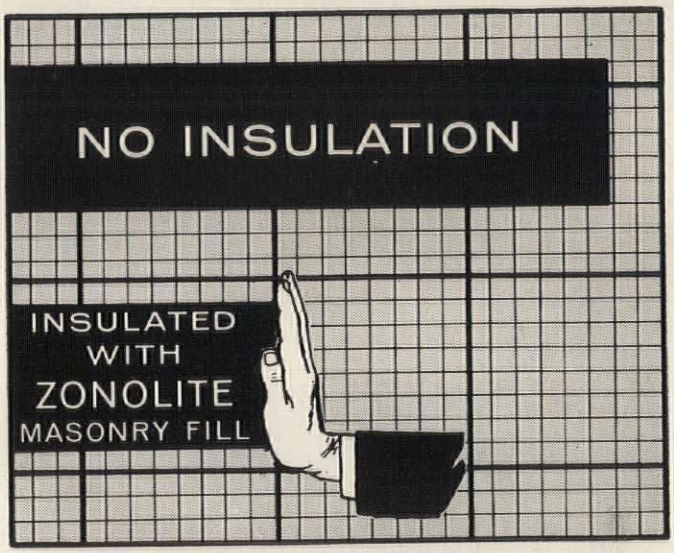

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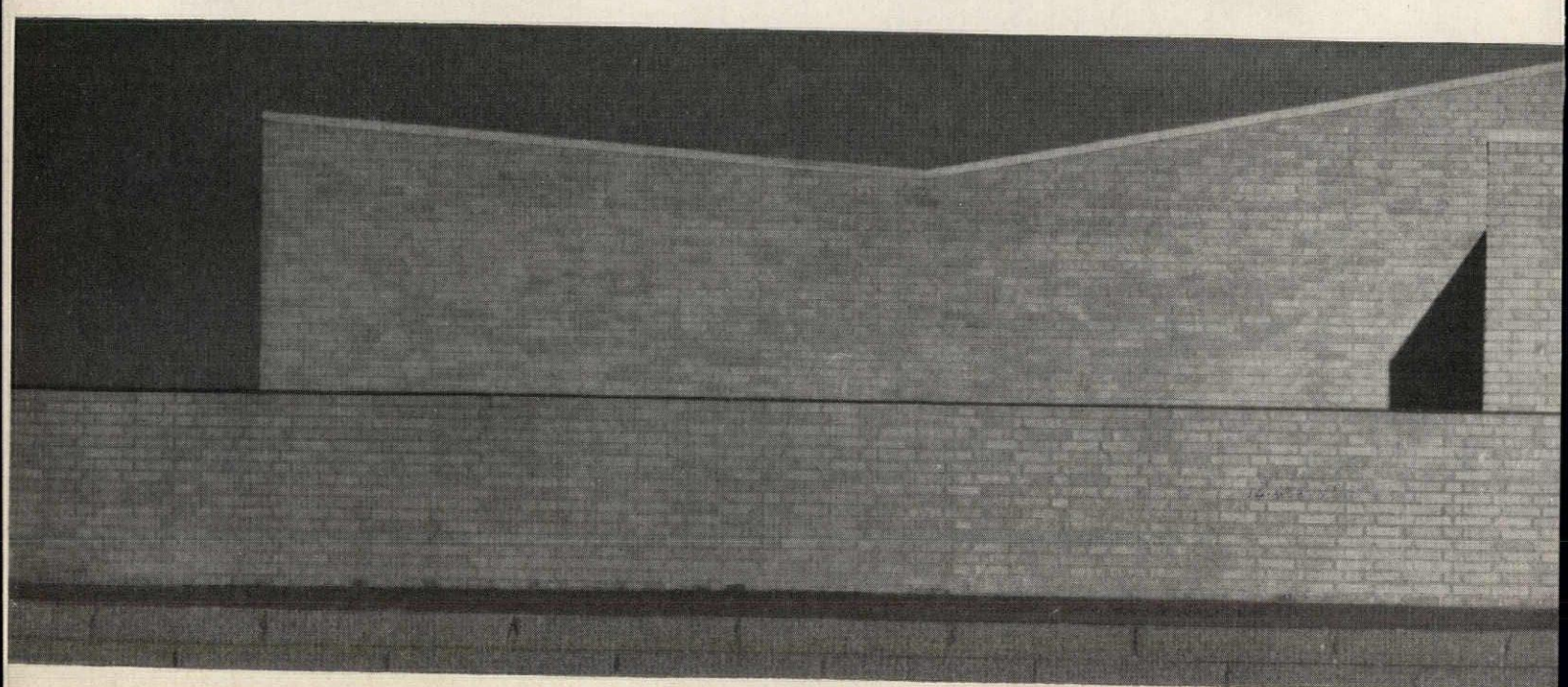

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is especially deft and pointed: "The kind of architecture that Inigo Jones practiced undoubtedly has many admirable qualities. One of them is that it is not very difficult to design."

A History of Renaissance Architecture is amply (and well) illustrated, and is supplemented by two valuable appendixes on the orders and by a really good bibliography. It is not so encyclopedic as some of the standard, more scholarly works, but it presents a fresh, informative, and always well-reasoned approach to the Renaissance.

—ARTHUR FISHER

On Libraries

PLANS FOR SIX PUBLIC LIBRARY BUILDINGS. *Edited by Ruth M. White. American Library Assn., 50 E. Huron St., Chicago 11. 58 pp., illus. $2.25.*

This report presents the plans of the following public libraries, with critiques (of the first five) by impartial librarians: Holland, Mich. White Plains, N. Y. Shreveport, La. Long Beach, Calif. Minneapolis, Minn. Queens Borough, Jamaica, N. Y.

A LIVING LIBRARY: PLANNING PUBLIC LIBRARY BUILDINGS FOR CITIES OF 100,000 OR LESS. *Edited by Martha Boaz. University of Southern California Press, Los Angeles 7. 84 pp., illus. $2.25.*

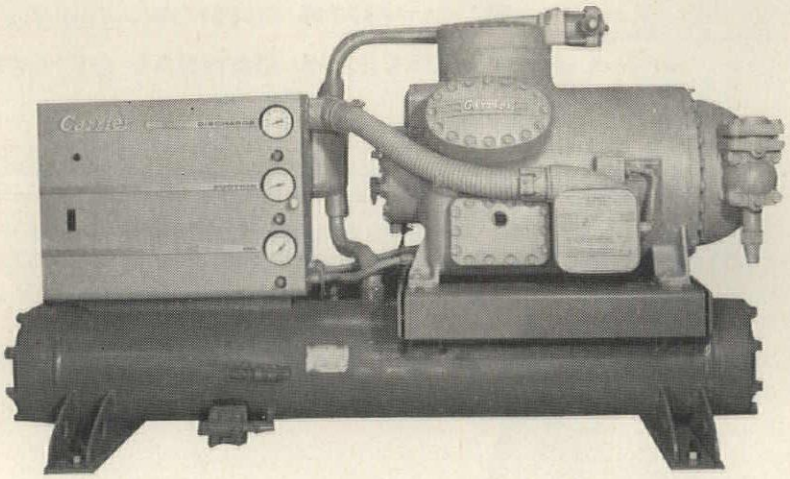
The authors of these papers discuss planning, the building team, engineering and structural details, cost, etc.

THE SMALL PUBLIC LIBRARY BUILDING. *By Hoyt R. Galvin and Martin Van Buren. UNESCO Public Library Manual No. 10. Dist. by Columbia University Press, 2960 Broadway, New York 27. 133 pp., illus. $2.*

This manual describes some principles and procedures in planning, building, and equipping small public libraries (up to 100,000 volumes).

THE EFFECTIVE LOCATION OF PUBLIC LIBRARY BUILDINGS. *By Joseph L. Wheeler. University of Illinois Library School, Urbana. 50 pp., illus. (offset). $1.*

In this report Mr. Wheeler, former director of the Enoch Pratt Free Library in Baltimore, synthesizes and discusses replies to a questionnaire he sent out to librarians. One of the primary conclusions is that a "pedestrian-center" site in the heart of a city's shopping and business area is much more important than parking facilities. "The site may justifiably cost half as much as the building."



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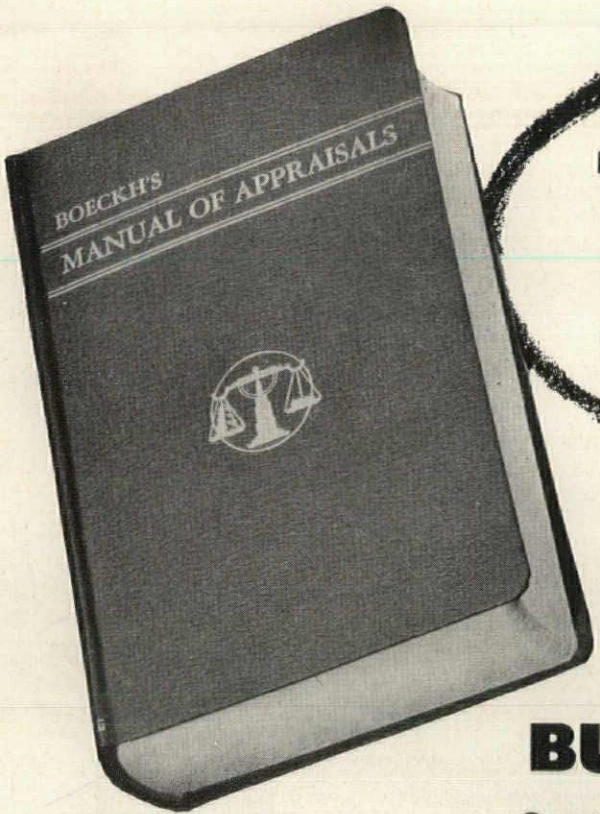

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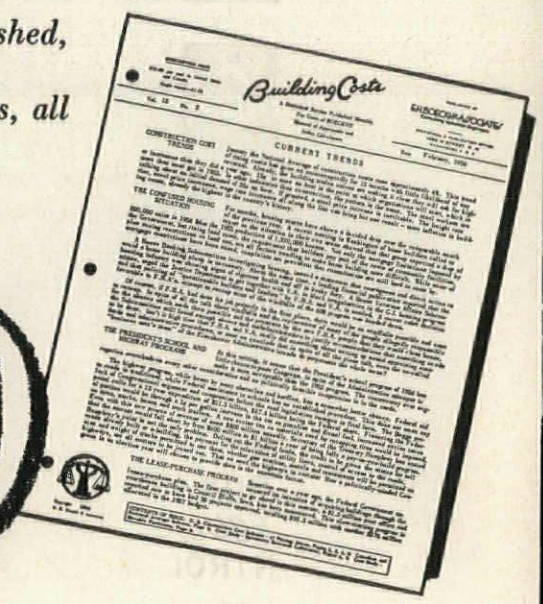

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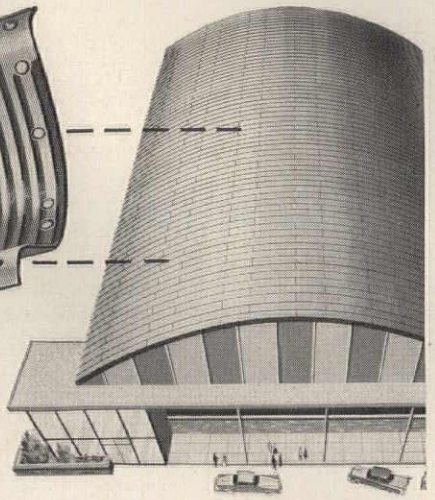

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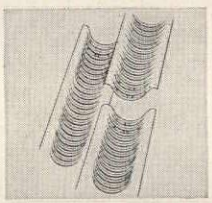

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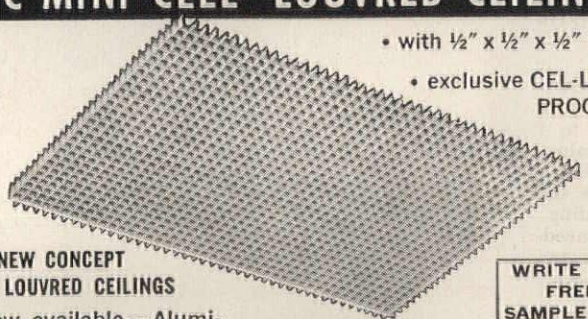

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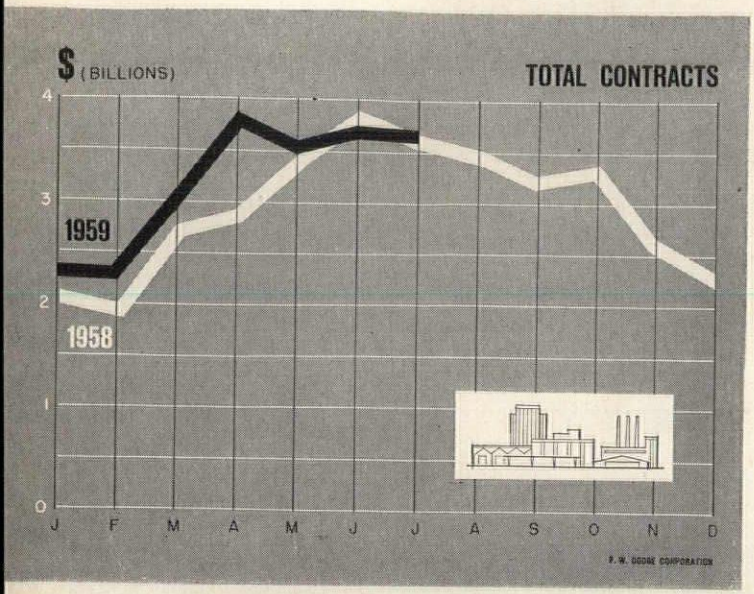

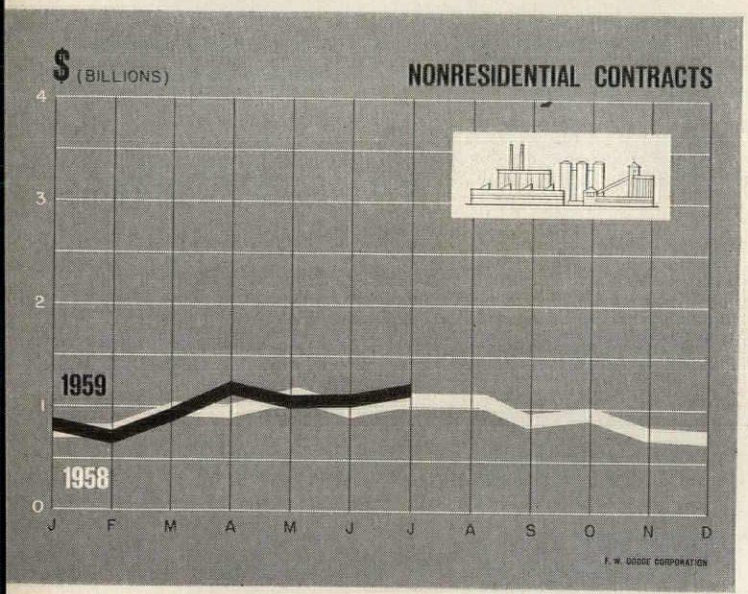

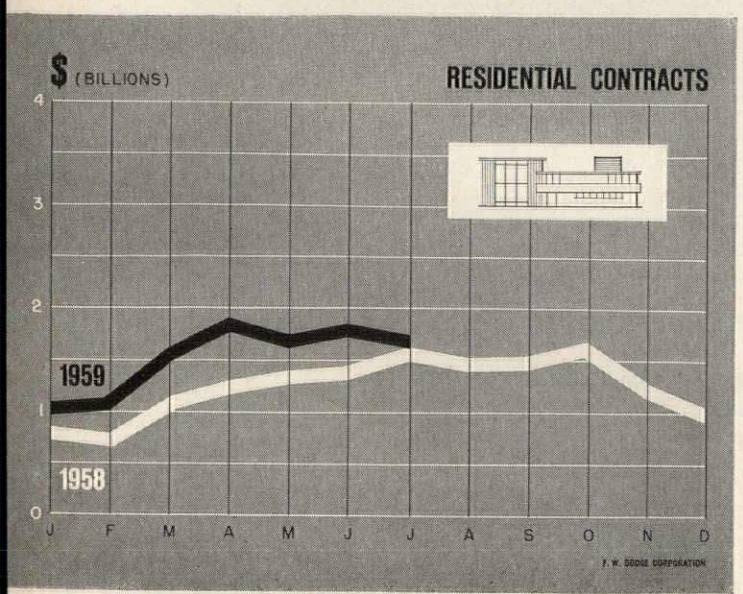

CONSTRUCTION activity continued to boom along in July, and the Dodge figures on contracts for future construction indicate that no slackening is in sight for the overall total in the next few months, at least. There are still some soft spots and some question marks. Heavy engineering is pulled down by the decline in highway contracts, and schools, while showing some strengthening lately, have not taken off for the high levels that might be expected. Commercial building, on the other hand, is running well out in front of the forecasts, and industrial building is also having a greater increase than was generally predicted.

HOW ABOUT HOUSING? Well, we're sorry to say it, but the situation is almost exactly the same as it was a month ago. By the time you read this, something definite may have happened, but as we sit here in the midst of an August heat wave, we can't do much more than repeat last month's prediction: there may or may not be a new housing bill, which may or may not be extremely liberal in its provisions, which may or may not be vetoed, and which, if veteod, may or may not be passed over the veto. Next month, we may well be saying the same thing over again. It used to be that Congress made up its mind and went home for the summer, but now that the Capitol has been air conditioned, the legislators don't seem to be in any great hurry. All of which proves that material progress is not an unmixed blessing.

ANOTHER MATTER that may or may not be settled when this page appears in print is the steel strike. The first month of the strike apparently had little effect on the construction industry, except for a few spotty cases. The second month will have more. A third or fourth month would be extremely serious. There is a widespread attitude that a total stoppage of steel production for six or eight weeks has little long-run effect on the economy. High inventories, the theory runs, take care of the first few weeks, and the remainder can be made up later by forced-draft production. There is, of course, some truth in this proposition. It breaks down, however, in any segment of the economy where resources are close to full employment. Under conditions where the economy, or any part of it, is running under a full head of steam, time becomes a precious asset; time lost can never be made up. If a large number of construction jobs are delayed by steel shortages, there will be at least some lag in the planning and starting of future jobs. How much of a lag depends on how long the strike lasts.

GEORGE CLINE SMITH
Vice President and Economist
F. W. Dodge Corporation

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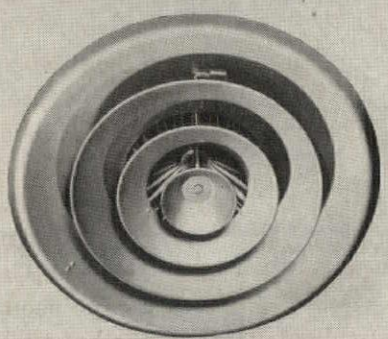
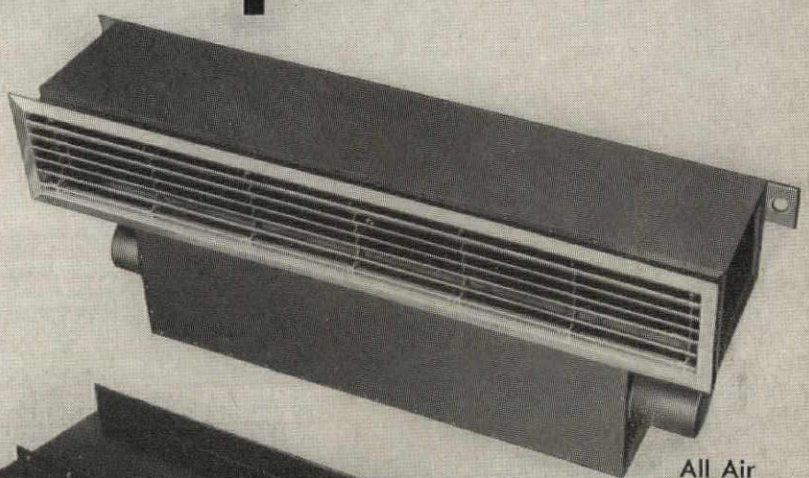


Conventional Air Diffusers



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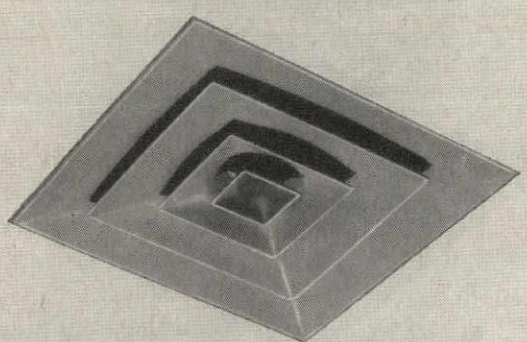

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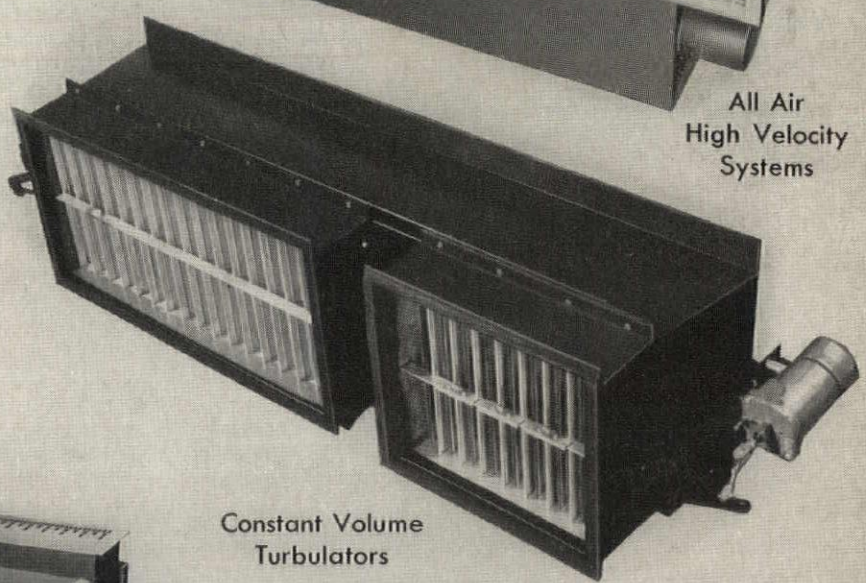
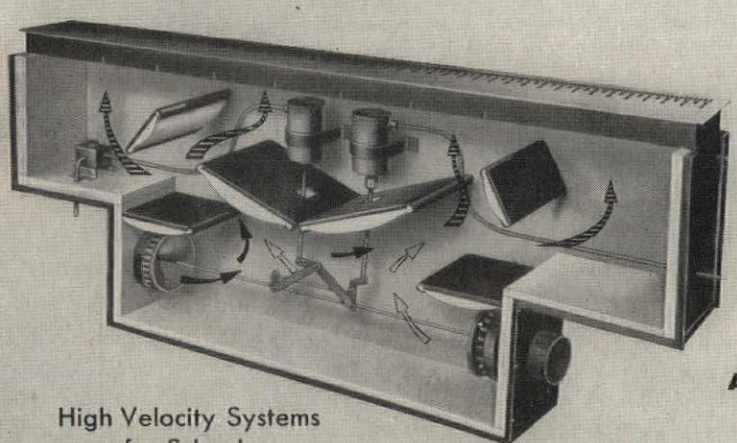


Constant Volume Turbulators



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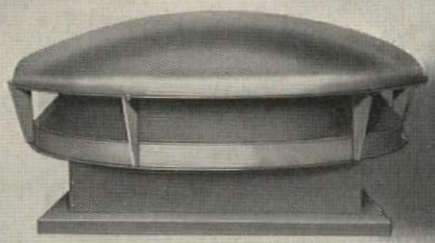

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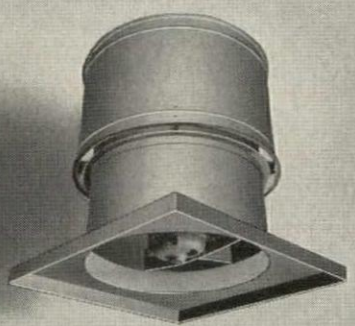

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