

ARCHITECTURAL RECORD

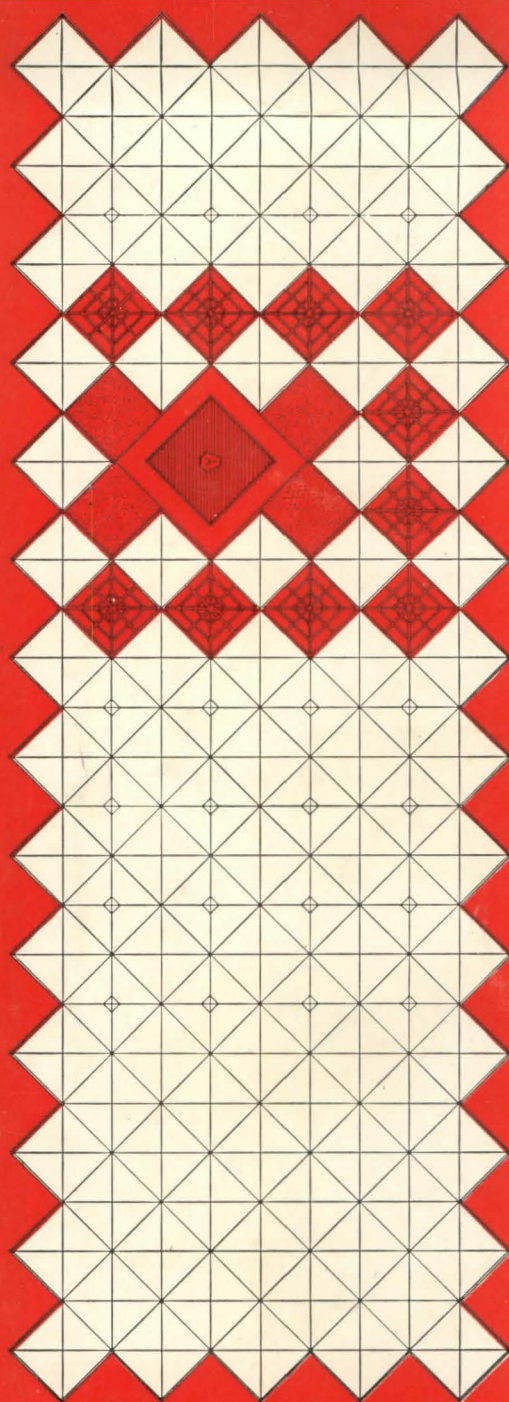
May 1959 **5**

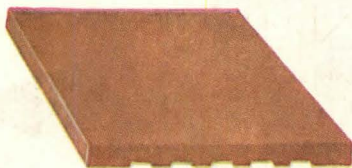
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Top: Civil Air Terminal, Dhahran, Saudi Arabia. Minoru Yamasaki, Architect. Bottom: Linton High School Schenectady, N. Y. Perkins & Will and Ryder & Link, Architects. James H. Karpales, photo.

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Coming in the Record

BUILDING TYPES STUDY: APARTMENTS

Apartment buildings seem to be heading for a boom, and next month's study will examine current design trends and achievements in this field, with particular emphasis on planning considerations and effective and economical use of floor space; special attention to interior design. Also, of course, some noteworthy examples.

U.S. AIR FORCE ACADEMY

What kind of architecture for airmen of the future? Skidmore, Owings & Merrill's designs have been widely seen and discussed, but next month will provide the first real look at the completed buildings, as the Academy is dedicated during its first graduation week. A major portfolio.

ARCHITECTURE FOR A WAREHOUSE

Not the building type most notable for Architecture as a rule: but Yamasaki has made an ingenious use of precast concrete yield a warehouse for Parke-Davis in Los Angeles which is not only economical and efficient but very handsome indeed.

OTHER F. W. DODGE SERVICES: Dodge Reports—Dodge Construction Statistics—Sweet's Catalog Services—Dodge Books—Dodge Mailing Service—The Modern Hospital—The Nation's Schools—College and University Business—Hospital Purchasing File—Chicago Construction News—Daily Pacific Builder—The Daily Journal (Denver)—Real Estate Record & Builders Guide.

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FRANK LLOYD WRIGHT 1869-1959

Thinking of Frank Lloyd Wright, and remembering, is a kaleidoscopic kind of experience. At his death one turns naturally toward the eulogistic thoughts and noble phrases, but there is always the crackling interference of his personality. One did not talk to Wright in pious, sententious pronouncements; nothing like that is in the flashing images of remembrance. Nobody who ever observed the impish twinkle of his eyes while he peppered his audience with arrogant witticisms could remember Wright in complete solemnity—or wants to. There were always the tingle of wit, of interest, of penetrating insight, the emanations of creative energy.

Now that the current has been switched off, it is proper to get on with the sober task of evaluating the legacies he has left the world of architecture. And the ARCHITECTURAL RECORD staff will want to join in the work. All of this in due time; there is no need to hurry that monumental assignment. Immediate thoughts turn to more personal memories, and to more selfish thoughts of our own loss. Perhaps in trying to express this loss, we shall be adding something to the record.

Wright first appeared in the pages of the RECORD in 1905. That early article commented: "The attempt is to secure a more truthful relation between structure and design, a franker expression of the quality of the material in its treatment, and a basis for architectural ornament, less stereotyped and artificial . . ."

In 1908 came his first major article, a pronouncement about architecture. In it he gave his "propositions" about architectural design, which he had first written down in 1894 (reprinted in ARCHITECTURAL RECORD, May 1952). This first article was given the title: "In the Cause of Architecture," and this was the first of sixteen times that title was to appear over an article by Wright.

It was the blanket title for the famous series so often reprinted since, subtitled then "The Meaning of Materials" and later called "In the Nature of Materials."

The tale of that series was one of Wright's favorite stories. On meeting some new member of the staff, Wright delighted to tell how the then RECORD editor gave him the lift that was to rescue him from the depths of despondency, to start him anew on another great creative cycle.

It was in the twenties, when personal tragedy haunted him, and when the vagaries of stylistic fancies seemed to label him a "past" master, that M. A. Mikkelsen, RECORD editor, paid him the fabulous sum of \$7,500 for a series of 15 articles. Wright always chuckled and said, "But I only wrote 14—I still owe you one."

With a great many friends believing in him, things gradually brightened for Wright. Publication of his work no doubt helped spread his influence, at least so it seemed to one subscriber: "Please cancel my subscription—that man Wright is having a baleful influence on my draftsmen."

Well, Wright contributed to our pages in the thirties, the forties, the fifties, through several eras of RECORD editors, over 54 years. Now we feel, with the world, the loss of its greatest architect, and, for ourselves, the loss of our greatest and most eloquent contributor.



"In the Cause of Architecture"

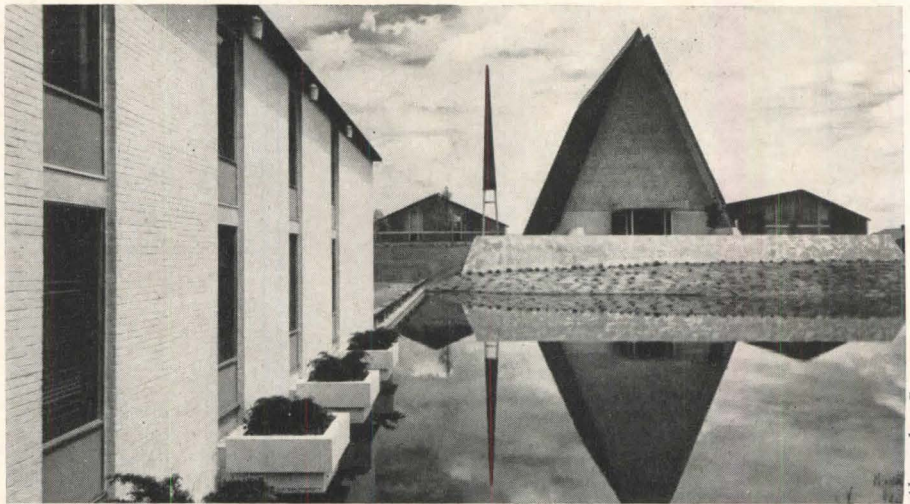
Buildings in the News

The 11th annual Honor Awards Program of the American Institute of Architects attracted 333 entries. Buildings cited: this page and pages 12-13. Members of the jury were: (chairman) Walter Bogner, F.A.I.A., professor of architecture, Harvard Graduate School of Design; Walter Gordon, dean, School of Architecture and Allied Arts, University of Oregon; Albert Sidney Golemon, F.A.I.A., Golemon & Rolfe, Houston; Vincent G. Kling, Philadelphia; Harry Weese, Chicago.

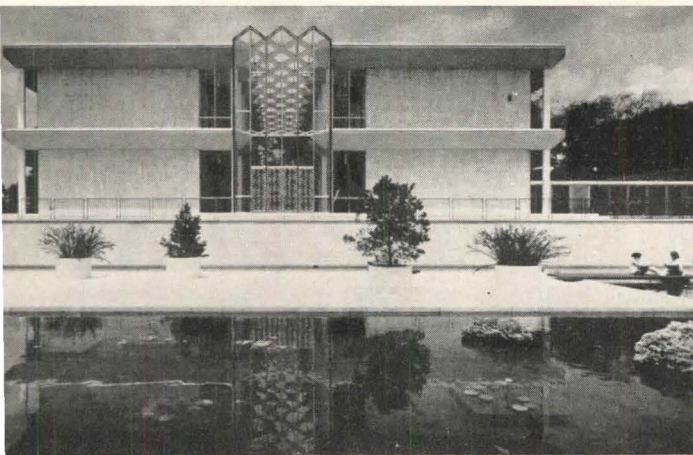
Frank Lotz Müller

FIVE FIRST HONOR AWARDS AND TEN AWARDS OF MERIT MADE IN A.I.A.'s ELEVENTH PROGRAM

Top: First Honor Award: Diaz-Simon Pediatric Clinic, New Orleans. Colbert & Lowrey & Associates, architects; Ogle & Rosenbaum, structural engineers; John W. Waters, contractor. *Right:* First Honor Award: Concordia Senior College, Fort Wayne, Ind. Eero Saarinen & Associates, architects; Severud-Elstad-Krueger-Associates, structural engineers; Samuel R. Lewis & Associates, mechanical engineers; Dan Kiley, landscape architect; Wermuth, Inc., general contractor for central group; Hagerman Construction Corp., general contractor for chapel, gym, dorms. *Below:* First Honor Award: McGregor Memorial Community Conference Center, Detroit. Minoru Yamasaki & Associates, architects; Ammann & Whitney, engineers; Darin & Armstrong, Inc., contractor



Alexandre Georges

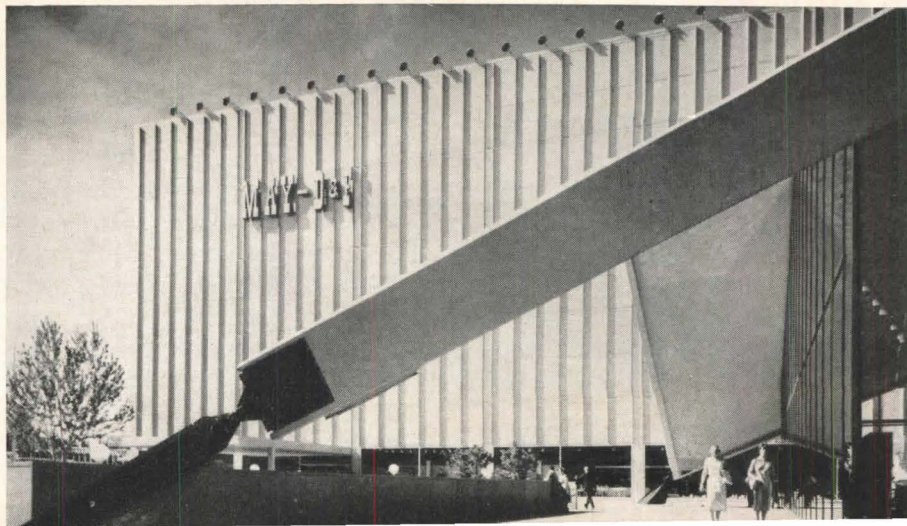


Istaitzar Korab



Morley Boer

Right, above: First Honor Award: Central Service Facility, Washington Water Power Co., Spokane. Kenneth W. Brooks & Bruce M. Walker, architects; William W. Wilson & Jack M. Lyerla, structural engineers; Kendall M. Wood Associates, mechanical engineers; Lawrence Halprin, landscape architect; Johnson-Busboom-Rauh, general contractor. *Right:* First Honor Award: Zeckendorf Plaza Development, May-D & F Department Store, Denver. I. M. Pei & Associates, architects; Ketchum & Sharp, associate architects; Weiskopf & Pickworth, structural engineers; Jaros, Baum & Bolles, mechanical engineers; Webb & Knapp Construction Corp., general contractor

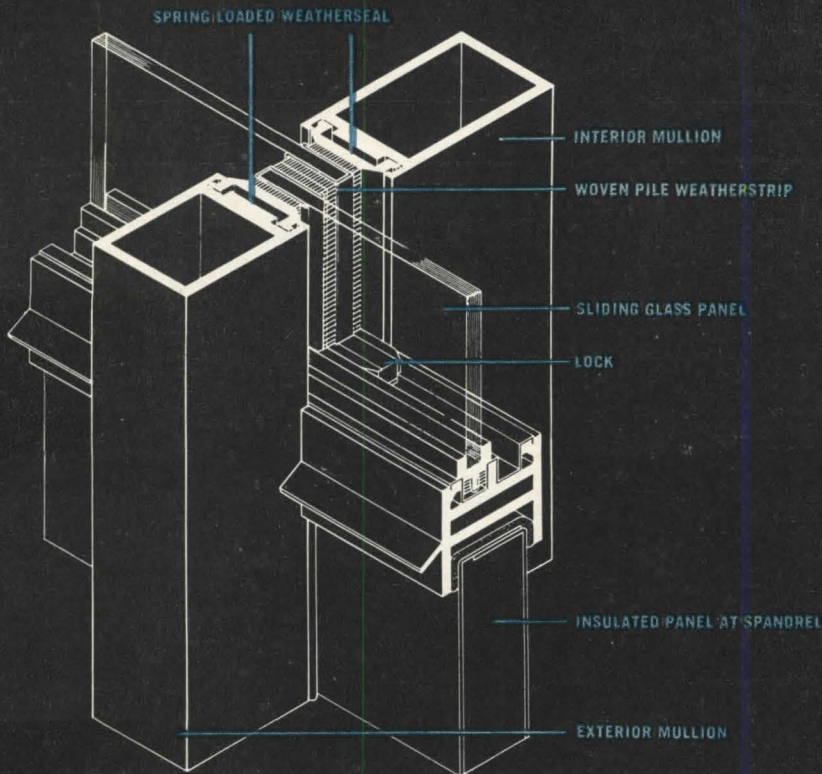


Warren Reynolds

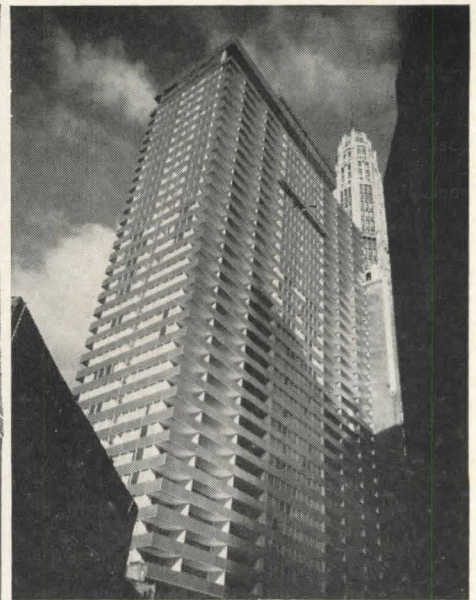
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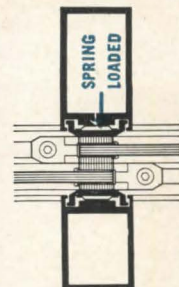
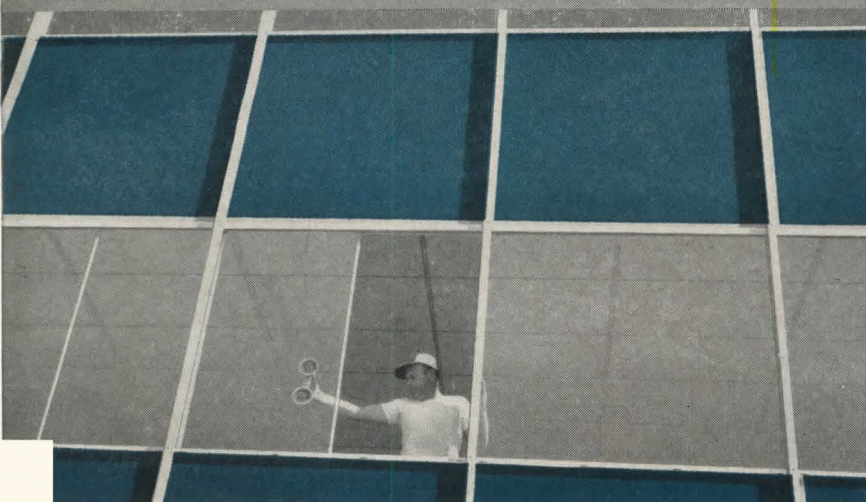
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Buildings in the News

Award of Merit: San Angelo Central High School, San Angelo, Texas. Caudill, Rowlett & Scott, architects; Max D. Lovett, associate architect; J. W. Hall Jr., mechanical and electrical engineer; Rose Construction Co., general contractor



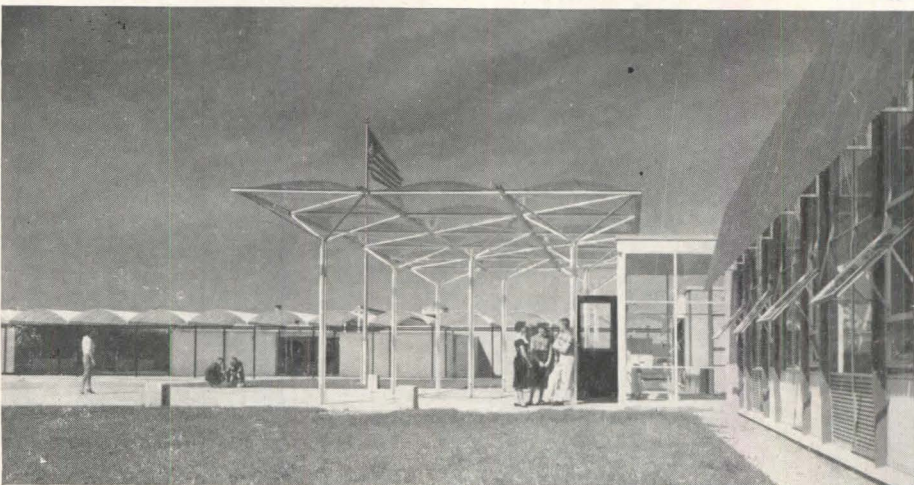
Ulric Meisel

Award of Merit: Residence for Mr. and Mrs. Richard Beattie, Rye, N. Y. Ulrich Franzen, architect; August Nelson, builder



© Ezra Stoller

Award of Merit: Benjamin Franklin Junior High School, Wayne, Mich. Minoru Yamasaki & Associates, architects; Darin & Armstrong, Inc., contractor



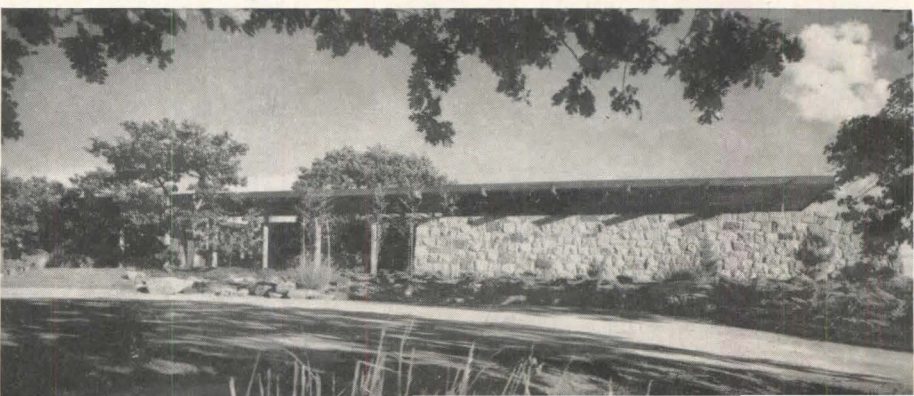
Baltazar Korub

Award of Merit: Residence for Mr. and Mrs. John Black Lee, New Canaan, Conn. John Black Lee, architect; Paschall Campbell, landscape architect; Ernest R. Rau, builder



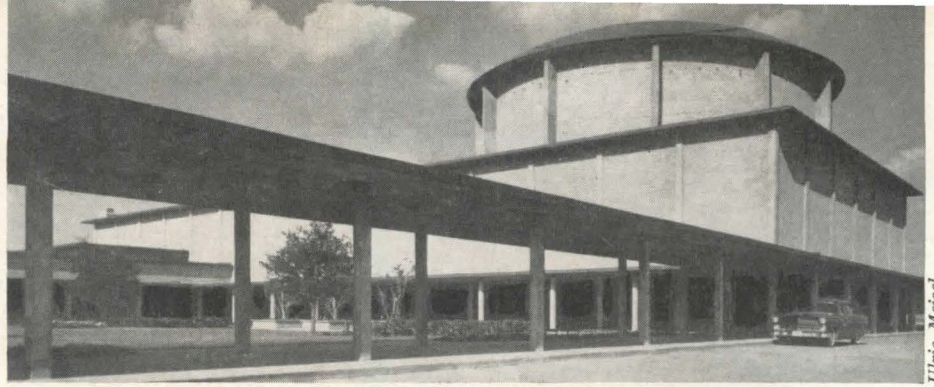
Joseph W. Molitor

Award of Merit: Residence for Mr. and Mrs. Dunbar Carpenter, Medford, Ore. George T. Rockrise, architect, Lawrence Halprin, landscape architect; William B. Gilbert, engineer; Dunbar Carpenter, contractor



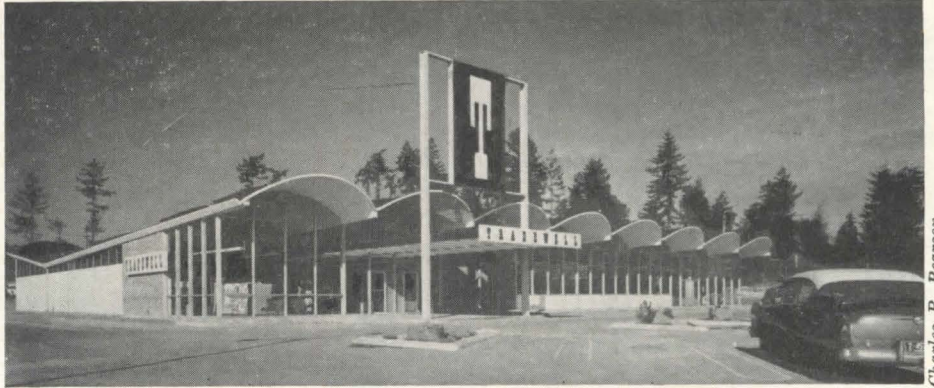
Ernest Brann

Award of Merit: Temple Emanu-El, Dallas. Howard R. Meyer & Max M. Sandfield, Associated Architects, architects; William W. Wurster, consulting architect; J. E. Morgan & Sons, general contractor



Ulric Meisel

Award of Merit: Tradewell Market, Burién, King County, Wash. Welton Becket, F.A.I.A., & Associates, architects; Rushmore & Woodman, associate architects; Richard R. Bradshaw, structural engineer; Jentoft & Forbes, contractor



Charles E. Pearson

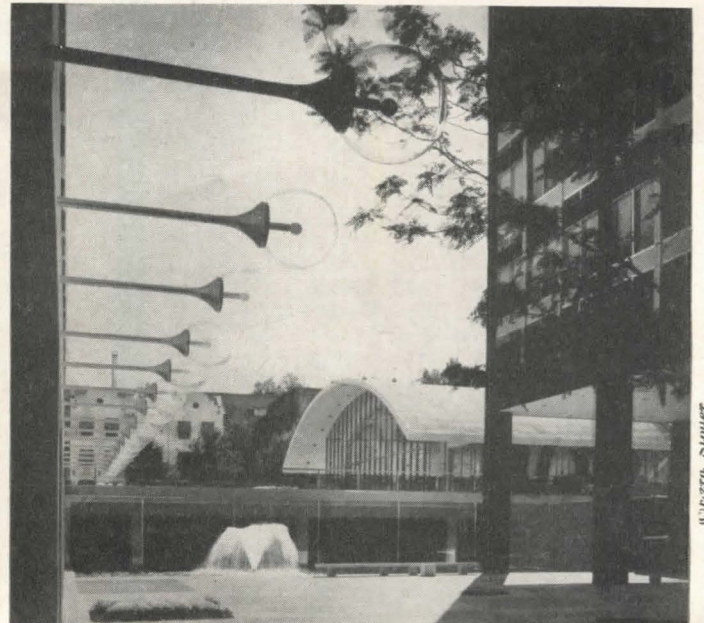
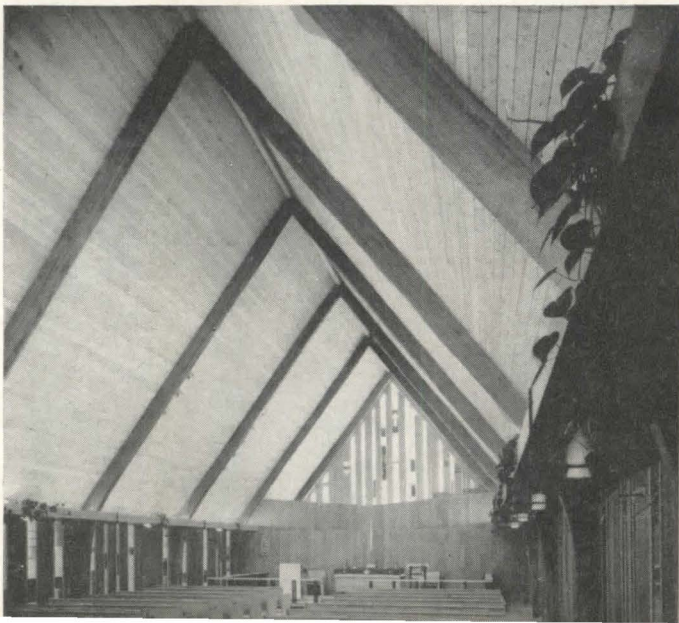
Award of Merit: Florida's Silver Springs (Tourist Center), Silver Springs, Fla. Victor A. Lundy, architect; John Rasmussen, contractor



Alexandre Georges

Left: Award of Merit: Gretna Methodist Church, Gretna, La. Lawrence & Saunders, architects; Ellzey & Estopinal, engineers; Richard Goodyear, contractor. Right: Award of Merit: Mile High Center, Denver.

I. M. Pei & Associates, architects; Kahn & Jacobs, associate architects; Severud-Elstad-Krueger-Associates, structural engineers; Jaros, Baum & Bolles, mechanical engineers; George A. Fuller Co., contractor

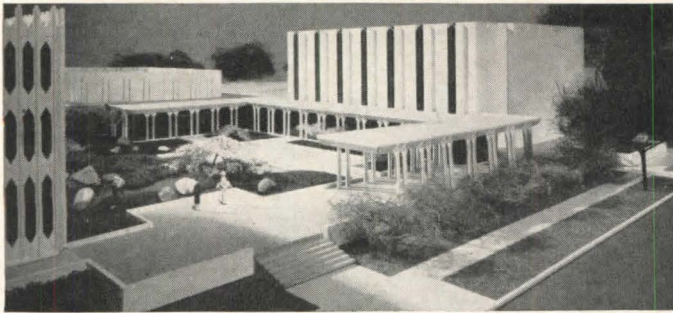


Warren Stouffer

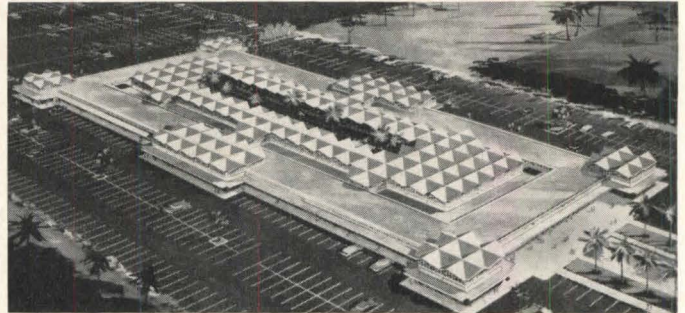
Buildings in the News

Right: Almost completed and now partially occupied is 717 Fifth Avenue, New York, 28-story office building owned by the Corning Glass Works. The largest all-glass structure in the city and the first glass skyscraper on Fifth Avenue, it provides 345,000 sq ft of office space, plus ground-floor shops and basement. The 359-ft tower is set back 12 ft from the property line; the 300-sq-ft open corner plaza includes a reflecting pool. The building is clad entirely

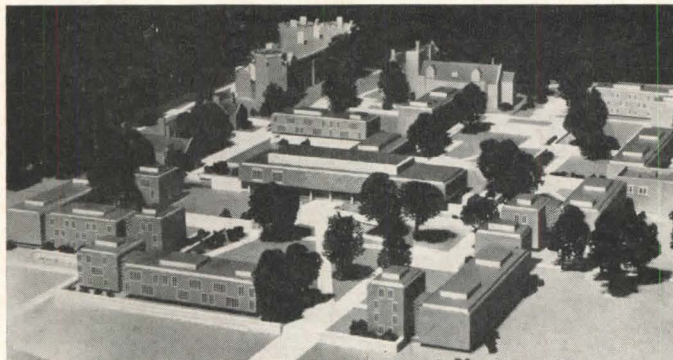
in nearly 200,000 sq ft of green-tinted, highly polished glass, tempered on the spandrels; window frames are extruded aluminum; fiberglass window draperies and acoustical tiles are used throughout. The Steuben Shop and Fibreglas Fabric Center are on the street floor. Harrison & Abramovitz & Abbe, architects; Edwards & Hjorth, structural engineers; Jaros, Baum & Bolles, mechanical engineers; George A. Fuller Co., general contractor



A proposed new \$3.5-million Conservatory of Music for Oberlin College, Oberlin, Ohio. At left is a corner of the main teaching unit; in center background is part of the library and rehearsal hall; a proposed concert hall is at the right. A unit containing practice rooms for individual students is also to be included. (The Conservatory is to replace a 75-year-old building, to be razed to make way for a humanities center; a new science building is also planned.) Minoru Yamasaki & Associates, architects



The Bazaar International, a \$2-million shopping center, is now under construction near Palm Beach, Fla. The 168,000 sq ft will contain stores and restaurants of all types. The building is composed of 20-by-20-ft structural bays arranged to form shops, courts, patios. Reinforced concrete, both prestressed and post-stressed, is being used, as are precast grills; domes are being cast in place. Alfred Browning Parker, architect; Joseph Mass, developer; Butler & Oenbrink, general contractor

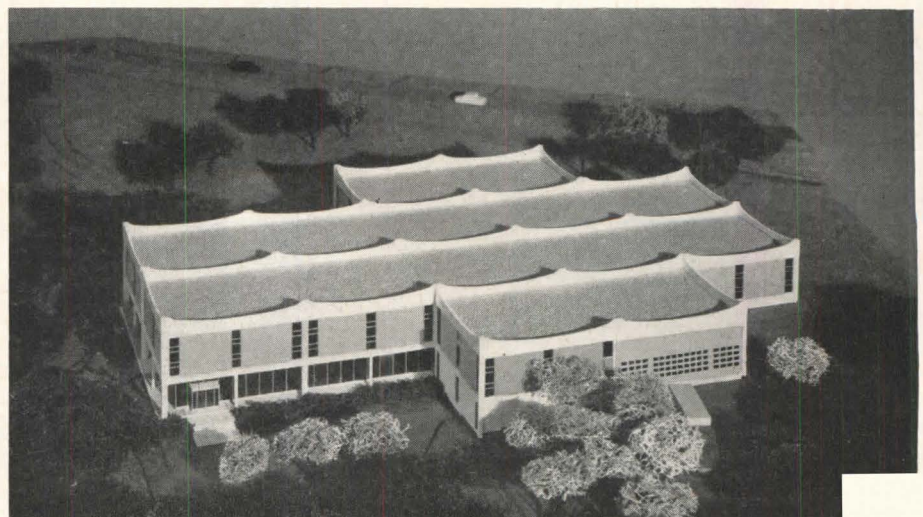


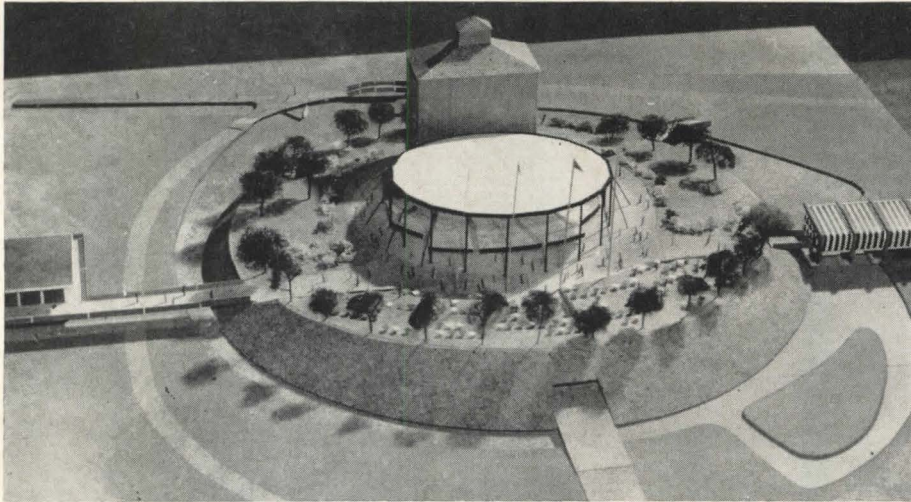
A new dormitory quadrangle for Princeton University is expected to cost \$4 million. Five dormitories housing 200 students and a central social building are to be built first and three to five more dormitories later. The entry system, giving each suite direct access to courtyards, is used. Local stone and brick will be employed to harmonize with existing buildings (two are shown in background). Sherwood, Mills & Smith, architects



Two portable buildings (total area: 24,500 sq ft) will house the U. S. exhibits at the 1959 Tokyo International Trade Fair. Each structure is an aluminum space frame suspended by cables from an aluminum and steel mast rising 118 ft from the ground; the roof is diamond-patterned aluminum tubing capped with white nylon and plastic; walls are interchangeable plywood and glass panels. Welton Becket & Associates, architects

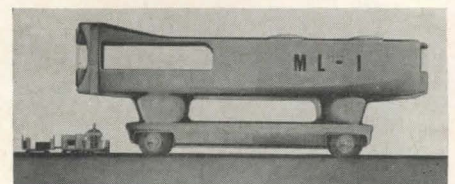
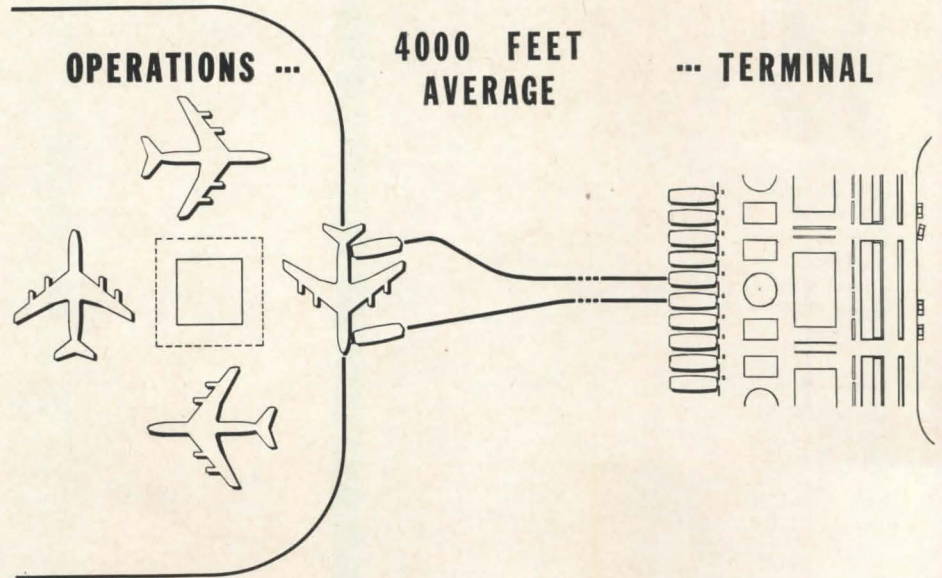
A combined branch office and warehouse for Parke, Davis & Company is now under construction near Baltimore. The 32,000-sq-ft warehouse is on the upper level; its precast concrete roof beams are on the exterior to permit maximum storage space. The lower level, 8000 sq ft, is the office area. Construction is primarily glass and reinforced concrete. Cost: \$650,000. Minoru Yamasaki & Associates, architects; Lardner & Wich, Inc., general contractor





The Metropolitan Boston Arts Center on the Charles River near Brighton is to include a tent theater designed by Carl Koch & Associates, an art gallery designed by Saltonstall & Morton, and, later, an opera house. Shurcliff & Merrill are landscape architects. The theater, now under construction, is shown above and left; the gallery is at right in the model photo. The theater is adaptable for either proscenium or amphitheater performances. It has a vinyl-coated, air-supported nylon roof which will be the form for a concrete dome applied later by the gunnite process. Roof stresses are transferred to a ring (supported by columns) that is a compression ring for the nylon roof and will become a tension ring for the concrete one. The walls are light-tight canvas. Paul Weidlinger is structural engineer for the theater; M. Solimando is general contractor

Washington International Airport, the first commercial airport in the world to be planned from the start for jet traffic, is now underway at Chantilly, Va. Ammann & Whitney, engineers, prime consultant for design and civil and structural engineering; Eero Saarinen & Associates, architects, in charge of all master location planning and architectural design; Burns & McDonnell, mechanical and electrical engineers; Ellery Husted of Ammann & Whitney, architectural consultant on planning; C. J. Langenfelder & Sons, general contractor. A serious problem presented by jet planes is their need for as much as twice the landing speed, runway length, and parking space as propeller-driven planes. Walking distances for passengers in existing airports are considered to have already reached the upper limits. For the new Washington airport the three planning firms and Mr. Husted have jointly proposed the solution here: "mobile lounges" to take passengers from a comparatively small, efficient terminal to airplanes parked around isolated servicing facilities. A "mobile lounge" (lower right) is a self-propelled vehicle about 60 by 15 ft, standing on cushioned stilts and wheels and accommodating about 80 passengers. It will be connected with the terminal building, then move to a plane, where the opening at its other end will be sealed around the doorway while passengers board. A prototype vehicle is to be completed by the end of this year



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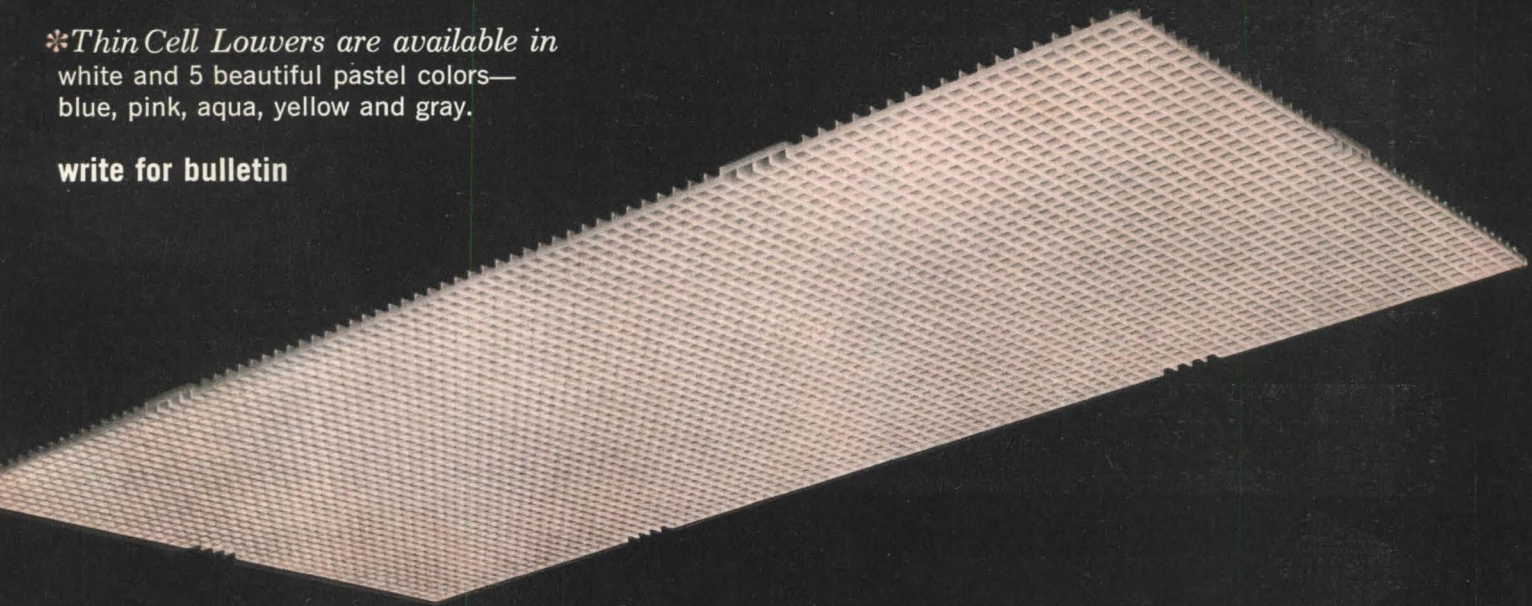
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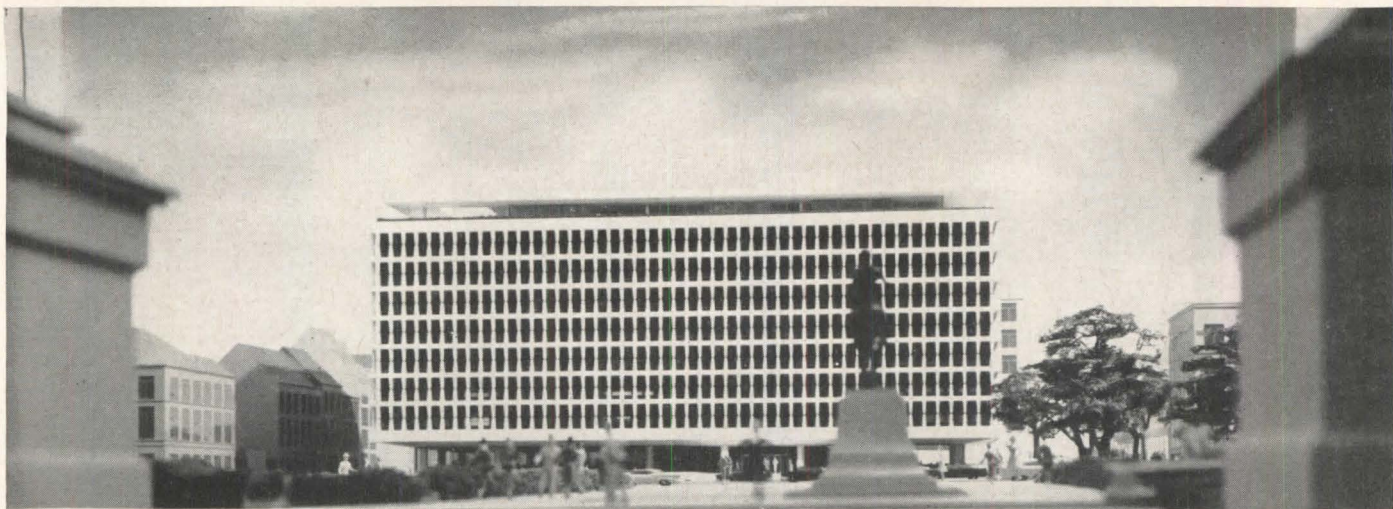
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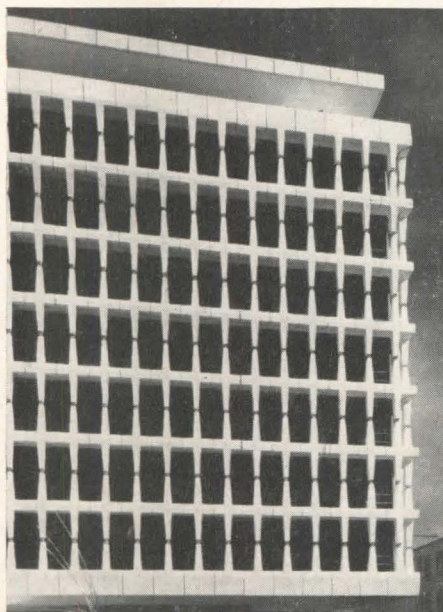
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SOM DESIGNS A CONCRETE BUILDING FOR BRUSSELS



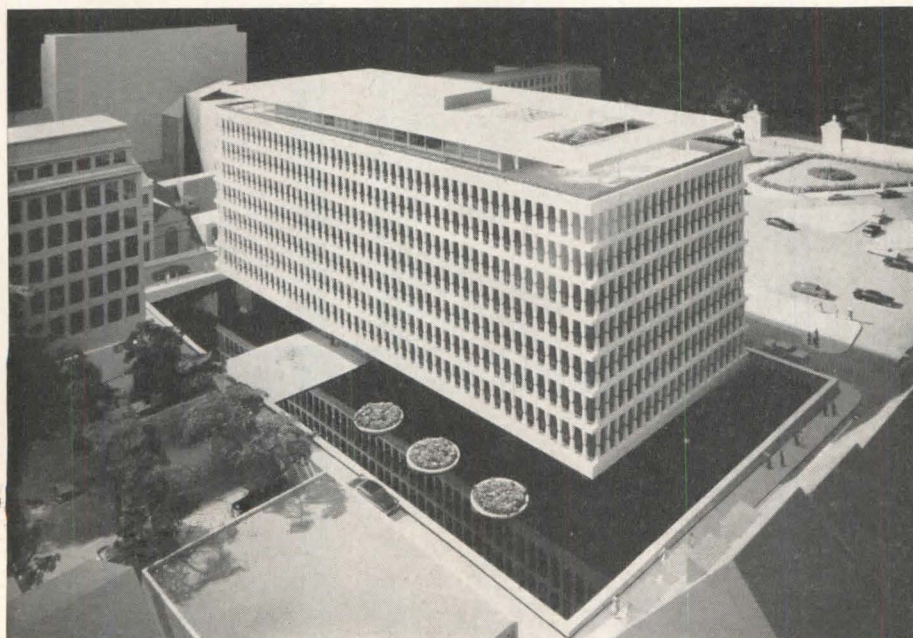
The Banque Lambert, a private Belgian banking organization, commissioned Skidmore, Owings & Merrill to design its headquarters in Brussels (shown in model form).

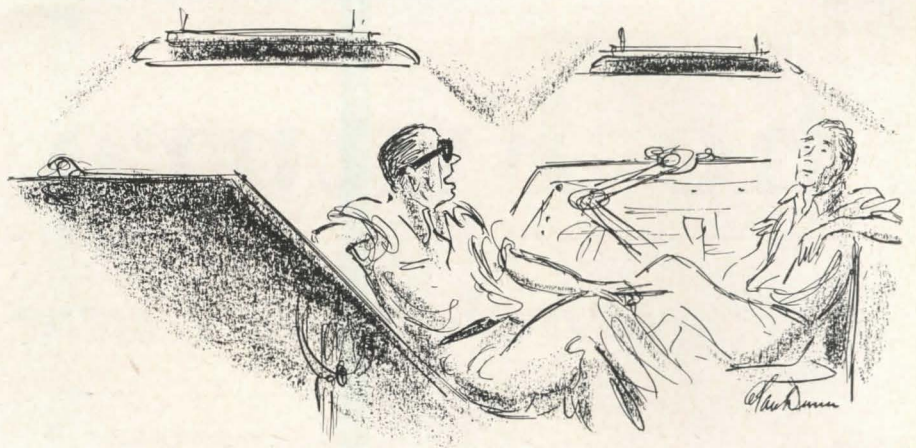
The relatively high cost of steel in Belgium led to the decision to use a reinforced concrete frame. The architects felt that a metal and glass façade would be inappropriate for expressing a concrete structure, as it would also be among the stone and brick buildings of the city.

Precast reinforced concrete structural units were therefore developed. Placed at modular intervals of 1.5 m around the periphery of each office floor, they transmit the perimeter floor load directly down the façade and also create a harmonizing appearance. At the ground-floor

ceiling a cantilevered concrete slab transmits the load to columns 15 ft back. The penthouse roof structure is cantilevered from interior columns.

Two basements contain vaults, etc., and parking for 120 cars. The ground floor provides lobbies and banking rooms. Above are seven typical floors for offices. The penthouse is a residence for the Lambert family. An off-center core contains utilities. Gross area (including basements): 319,000 sq ft. Skidmore, Owings & Merrill, architects (Gordon Bunshaft, partner in charge of design); Paul Weidlinger, consulting structural engineer; Syska & Hennessy, Inc., consulting mechanical engineers; Enterprises Bleton-Aubert, general contractor.





—Drawn for the RECORD by Alan Dunn

“There we were—helioids, conoids, catenary membranes, and hyperbolic paraboloids, and this senile old cantilever thought he could crash the party!”

The State of Construction

Dr. George Cline Smith, F. W. Dodge vice president and economist, is now writing a special analysis of “Current Trends in Construction” for the RECORD’s monthly department of that title. For Dr. Smith’s review of the situation in school construction, see page 418.

A.I.A. Fellows and Convention

Thirty-nine members of the American Institute of Architects have been nominated for advancement to Fellowship. Their names were announced last month.

Edward D. Stone, F.A.I.A., has accepted the Institute’s invitation to be the keynote speaker at the annual convention in New Orleans, June 22-26. The closing address will be given by Samuel T. Hurst, dean, School of Architecture and the Arts, Alabama Polytechnic Institute.

Pre-convention nominations for Institute offices close on May 13. At press time, the only completed nominations indicated one contest, for secretary, the two nominees being Edward L. Wilson, Fort Worth (incumbent), and J. Roy Carroll, Jr., Philadelphia, now Middle Atlantic District regional director.

The new Fellows, with their A.I.A. chapter affiliations and the services for which they were advanced, are:

William Stephen Allen Jr., Northern California—Design and Service to the Institute; Brother Cajetan J. B. Baumann, New York—Design; J. Murrell Bennett, Dallas—Design; George W. W. Brewster, Massachusetts State Association—Design; Herbert Hamilton Brown, Houston—Design and Service to the Institute; Walter Edward Campbell, Massachusetts State Association—Service to the Institute and Public Service; Hubert Hammond Crane, Fort Worth—Education, Literature; Thomas H. Creighton, New York—Literature.

Robert W. Cutler, New York—Design and Service to the Institute; Arthur Quentin Davis, New Orleans—Design; Robert Lewis Durham, Washington State—Design and Service to the Institute; Albert Sidney Golemon, Houston—Service to the Institute; Charles Morton Goodman, Washington-Metropolitan—Design; Isaac Merritt Harrison, Indiana Society—Service to the Institute and Public Service; Walk C. Jones Jr., Memphis—Service to the Institute and Public Service.

Raymond Stone Kastendieck, Indiana Society—Service to the Institute and Public Service; Paul Hayden Kirk, Washington State—Design; James Lawrence Jr., Massachusetts State Association—Public Service; Samuel A. Lichtmann, Chicago—Public Service; Thomas William Mackesey, Central New York—Education; Austin Wheeler Mather, Connecticut—Public Service; Thomas Francis McDonough, Massachusetts State Association—Public Service; Herbert C. Millkey, Georgia—Service to the Institute.

Edwin Bateman Morris Sr., Potomac Valley, Maryland—Service to the Institute and Literature; Frederick Duncan Parham, New Orleans—Public Service; Alfred Browning Parker, Florida South—Design and Public Service; Harry M. Prince, New York—Public Service; Michael L. Radoslovich, New York—Public Service; Thorne Sherwood, New York—Design; Chloethiel Woodard Smith, Washington-Metropolitan—Service to the Institute.

George E. Kidder Smith, New York—Literature; Wahl John Snyder, Florida South—Design; Harold Theodore Spitznagel, South Dakota—Design; Oskar Stonorov, Philadelphia—Design; Harry Bird Tour, East Tennessee—Service to the Institute and Public Service; Harold C. Whitehouse, Spokane—Design; Kenneth E. Wischmeyer, St. Louis—Service to the Institute; Henry F. Withey, Southern California—Literature; Theodore John Young, New York—Design.

B.R.I. Holds Meeting

With a registration of over 600, a new attendance record was set by the Building Research Institute at its

annual meeting in Pittsburgh, April 7-8. Except for the first morning session, at which investor Robert Dowling, planner Burnham Kelly of M.I.T., and architect Vincent Kling spoke on cities and buildings of the future, and the final afternoon session on industrial research plans, all other meetings were, in a new departure for B.R.I., a series of paralleled workshops and panel discussions. Topics included “Workshop on Windows,” “Sealants for Curtain Walls,” and “Mechanical Fasteners in Building.”

This particular B.R.I. meeting heralded a new policy by the organization in which major conferences and workshop meetings are to be consolidated into a series of annual spring and fall conferences; the annual meeting will be combined with the spring conference. It is hoped that this will signal a gradual evolution toward a self-supporting technical meetings program so that dues income can be used for research stimulation and correlation.

Announced at the meeting was the election of Harold L. Humes, vice president of Baldwin Hill Co., as president of B.R.I. and Robert W. Cutler, partner of Skidmore, Owings & Merrill, as vice president of B.R.I. While the election still must be approved by the National Academy of Sciences, it is assumed this virtually assures that at the next election Mr. Cutler will be the first member of a private architectural firm to hold office as president of B.R.I.

Also announced at the meeting were the appointments of Milton C. Coon Jr. to replace William H. Scheick as executive director of B.R.I. (see cut, page 28) and of Harold Horowitz as assistant director, technical meetings.

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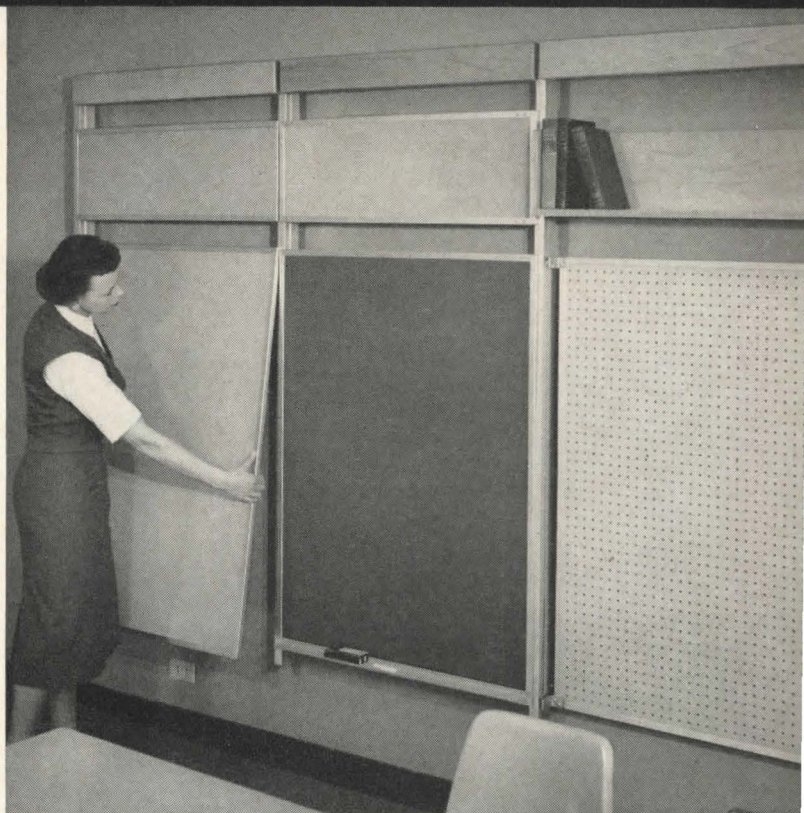
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The "Workshop on Windows" featured a panel of 25 architects, engineers, and manufacturers, among them Dudley Hunt Jr., senior editor, ARCHITECTURAL RECORD. The discussion involved the design, selection, operation, and maintenance of windows in terms of problems encountered by building owners and maintenance men.

In the workshop on "Sealants for Curtain Walls," under the chairmanship of Wayne F. Kopps, architectural consultant, reports were given on the newer types of sealants and gaskets, and also on new testing procedures for curtain wall tightness.

"Mechanical Fasteners in Building" got into the newest and best mechanical fasteners for steel, concrete, and wood construction, and for attaching industrial roofing and siding.

The program closed with talks by research executives from six of Pittsburgh's and the nation's largest industries on the subject of "Research Plans for the '60's and Their Potential Impact on the Buildings of 1970."

—Robert E. Fischer

Michigan Architects Meet

The 45th Annual Convention of the Michigan Society of Architects—held at the Hotel Statler-Hilton, Detroit, March 11-13—was well attended and a great success.

At the awards dinner, the society's gold medal was presented to architect Eero Saarinen (see cut), and an honorary membership to Edward D. Connor, Detroit councilman long associated with housing, planning, and the smoke-abatement program. R. Buckminster Fuller followed the presentations with a talk on "The Trend to Invisibility."

The first day's seminar discussed "Prefabrication and the Architect." The final seminar concerned itself with "Architecture and the Allied Arts." At the Building Industry Banquet, presided over by Past President Clair W. Ditchy, F.A.I.A., the principal speaker was Ellis Emmons Reed, public relations and advertising man.

Architect Frederick E. Wigen of Saginaw is president of the Society; architect Jack K. Monteith of Detroit was chairman of the meeting.

—James S. Hornbeck



Milton C. Coon Jr., recently appointed executive director of the Building Research Institute. Mr. Coon had been acting executive director since last September

Honors to Architects

LUDWIG MIES VAN DER ROHE recently received the Commander's Cross of the Order of Merit of the Federal Republic of Germany. Friedrich Baron von Lupin, German consul-general at Chicago, who made the presentation in the name of President Theodor Heuss, summarized Mies' achievements, then presented the decoration from "the country where you were born, where you grew up, and where you laid down the foundation for your great art—the country which will never forget you."

KENZO TANGE has been awarded the first Grand Prix International d'Architecture et d'Art, instituted by *L'Architecture d'Aujourd'hui*, for two works completed in 1958: the City Hall in Tokyo and an Arts Center in Sogetsu. (For the City Hall and other works by Tange, see AR, July '58, pp. 127-138.)

JOHN F. HARBESON of Harbeson, Hough, Livingston & Larson, Philadelphia, has been elected president of the National Academy of Design. GORDAN BUNSHAFT, partner in charge of design of Skidmore, Owings & Merrill, and MICHAEL RAPUANO, New York landscape architect, were among the members elected to Academicianhip.

EDWARD LARRABEE BARNES of New York has been chosen to receive the 1959 Brunner Memorial Prize in Architecture of the National Institute of Arts and Letters.

A.I.A. Gives Journalism Awards

The American Institute of Architects' Sixth Annual Journalism Award Competition resulted in twin \$500 first prizes for George McCue and Frederick Gutheim. Mr. McCue received first prize in the newspaper class for articles on architecture in the *St. Louis Post-Dispatch* in February, May, June, and November 1958. Mr. Gutheim's first prize in the magazine class was for his article on Lincoln Center, New York, "Athens on the Subway," in *Harper's*, October 1958.

Second prizes of \$250 each in the two classes went to Terry Ferrer, education editor of the *New York Herald Tribune*, for an article on the New York school-building controversy, November 23, 1958, and to Mary Hamman of *Life* magazine for the series on "The U. S. Need for More Livable Homes," September-October 1958.

Members of the jury of awards were Thomas W. D. Wright, Washington architect; Wolf Von Eckardt of the A.I.A. public relations staff; and Jeanne Davern, assistant to the editor, ARCHITECTURAL RECORD.

Harvard Fellowship Available

The Arthur W. Wheelwright Fellowship in Architecture, available for award each year by the Graduate School of Design of Harvard, is given to an architectural graduate of the school who has had practical experience in the profession and who shows promise of high achievement. (The grant is \$5830 this year.)

Nominations are invited for next year from the profession at large and from potential candidates themselves. They should be sent as soon as possible to the Committee on Scholarships and Awards, Graduate School of Design, Robinson Hall, Harvard University, Cambridge 38, Mass.

N. Y. Code Control Changed

The New York State Building Code Commission recently was abolished by legislation signed by Governor Rockefeller. This was a cost-cutting effort in which code activities are budgeted for \$148,000 instead of \$423,500. The Code Commission's functions have been reconstituted as the Bureau of State Building Code in the Division of Housing, with Arthur J. Benline as bureau chief. (Mr. Benline has been technical director for the Commission.)



Eero Saarinen, left, receives the gold medal of the Michigan Society of Architects at the Society's recent meeting from Frederick E. Wigen, M.S.A. president



Also at the M.S.A. meeting, four presidents, left to right: George W. Sprau, president, Western Michigan Chapter, A.I.A.; Frederick E. Wigen, president, M.S.A.; Auldin H. Nelson, president, Saginaw Chapter, A.I.A.; Robert F. Hastings, president, Detroit Chapter, A.I.A.

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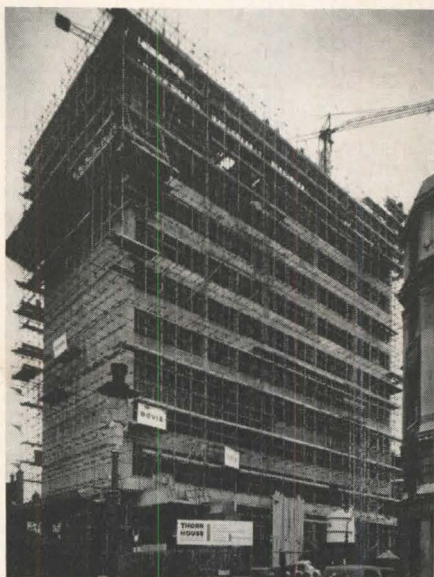
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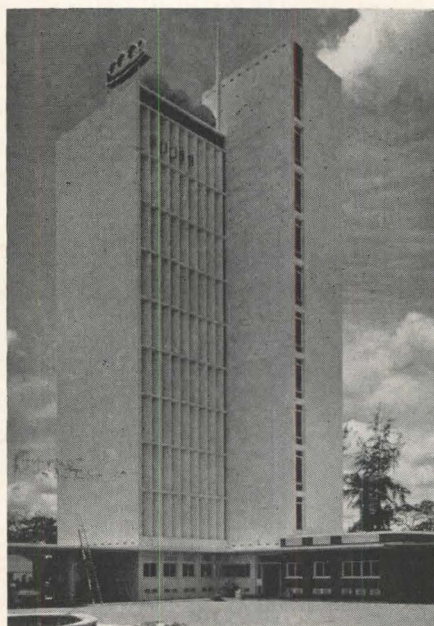
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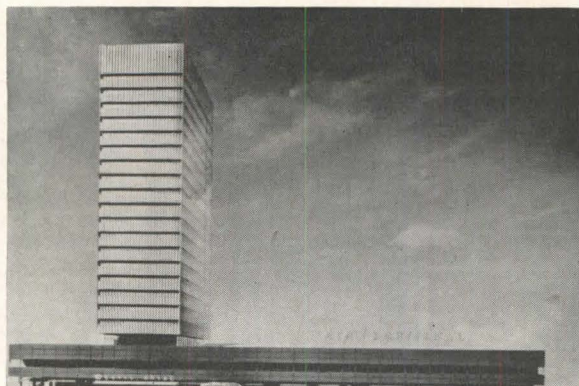
London: Office building for Thorn Electrical Industries, Ltd., shown under construction and in rendering. Basil Spence & Partners, architects

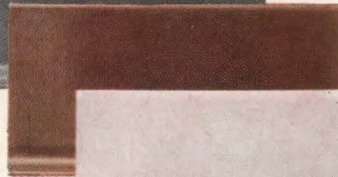
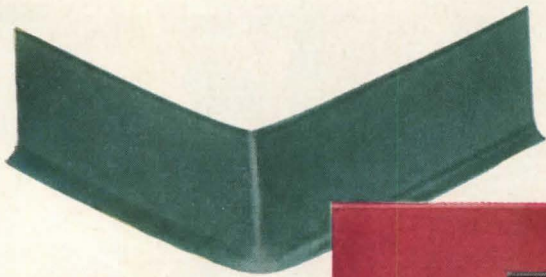
Ibadan, Nigeria: The Co-operative Bank of Western Nigeria, Ltd., from courtyard, left, and from road. Fry, Drew, Drake & Lasdun, architects; F. S. Knight, assistant architect; Ove Arup & Partners, consulting engineers



Calcutta: Offices for the Oriental Insurance Co. and Burmah Shell. Fry, Drew, Drake & Lasdun and S. S. Bajpa, architects; S. S. Mathur, assistant architect; Ove Arup & Partners, consulting engineers

Copenhagen: Hotel and Air Terminal for S.A.S., shown in rendering and under construction. Arne Jacobsen, architect





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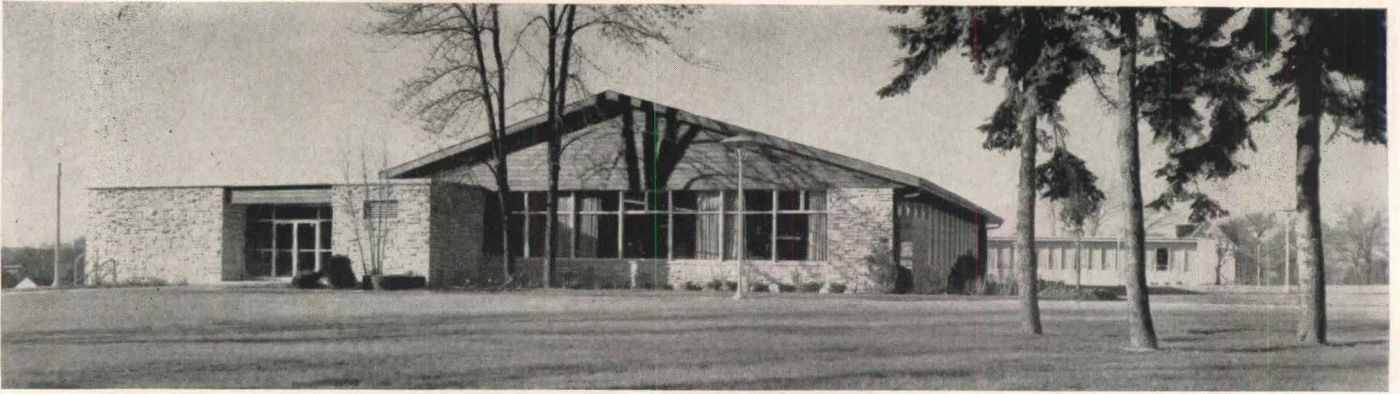
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First Honor Award: Wauwatosa Civic Center, Wauwatosa. The \$1.6-million building of stone, brick, and glass is the result of a program calling for a "working and useful" memorial dedicated to those who lost their lives in World War II. The library is shown below. The jury made the award to the civic center "because it presented a plan that was extremely flexible and responsive to immediate needs and provided for future expansion . . . The architect provided a human environment that was free, inviting, and flexible, as well as functional." Grassold-Johnson & Associates, architects; Jezo Construction Co., general contractor



One Honor Award and Six Merit Awards Given in Wisconsin

The seven 1959 honor awards of the Wisconsin Chapter, American Institute of Architects, were won by only four firms. The buildings are shown on this page and pages 40 and 44.

Fifteen firms entered a total of 51 projects. A civic center received the first honor award. Six equal awards of merit went to two schools, a hospital, a school administration center, a gift shopping plaza, and an industrial plant. The jury reported that all decisions were unanimous.

The jury consisted of Philip N. Youtz, dean, College of Architecture, University of Michigan; Victor C. Gilbertson of Hills, Gilbertson & Fisher, Minneapolis; Richard M. Bennett of Loeb, Schlossman & Bennett, Chicago.

continued on page 40



HOUSTON, located 50 miles inland from the Gulf of Mexico on the Houston Ship Canal, is, rather astonishingly, the third largest port in the U. S. Over 4,000 deep-sea ships move cargoes valued annually at \$4-billion. Houston is also America's industrial frontier. As the hub of one of our fastest growing metropolitan areas, its development is solidly based on bountiful resources of crude oil, natural gas, salt, sulphur and water. From these resources come 11% of the nation's refined crude oil; 85% of our petro-chemicals; and 22% of our aluminum. Symbolizing this remarkable growth is the brawny skyline of Houston rising like a colossus from the Texas coastal plain. Otis has a long standing "partner's" interest in Houston's growth. Over 66% of its elevators are the world's finest. They're by OTIS.

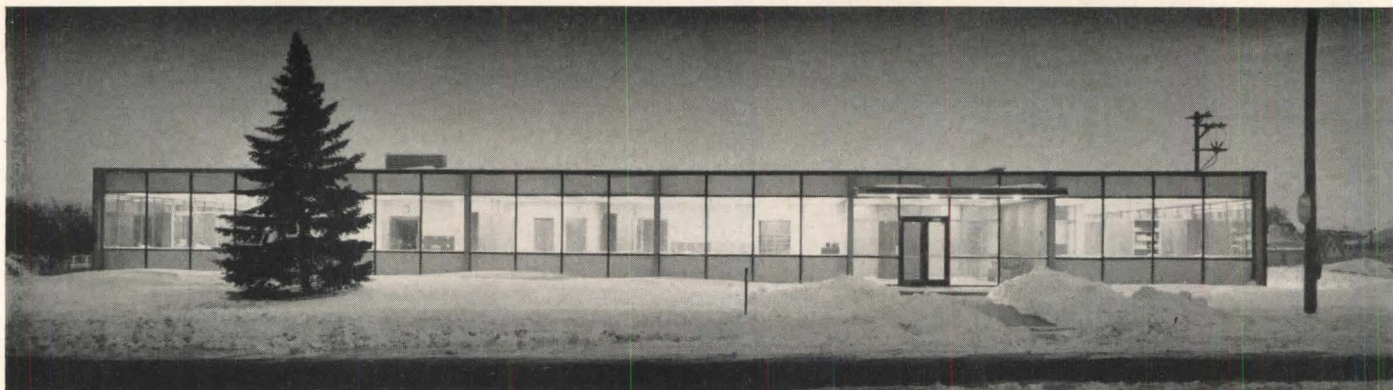


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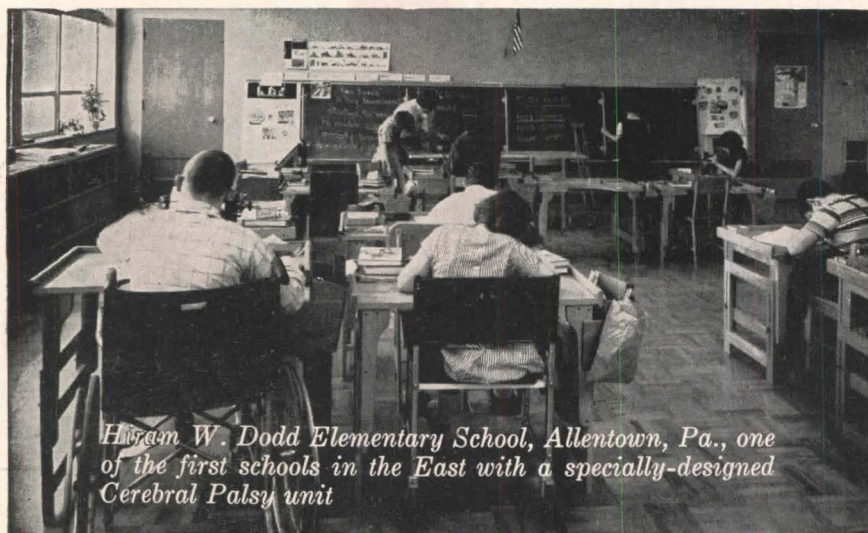
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Above: Merit Award: Educational Administration Center Office Building, West Allis. Cost: \$500,000. Schutte-Phillips-Mochon, Inc., architects; C. G. Schmidt, Inc., general contractor. *Below:* Merit Award: Irving School, West Allis. Cost: \$960,000. Schutte-Phillips-Mochon, Inc., architects; Jezo Construction Co., general contractor. *Bottom:* Merit Award: Square D Company, Glendale. Cost: \$3 million; 180,000 sq ft. Grassold-Johnson & Associates, architects; Hunzinger Construction Co., general contractor



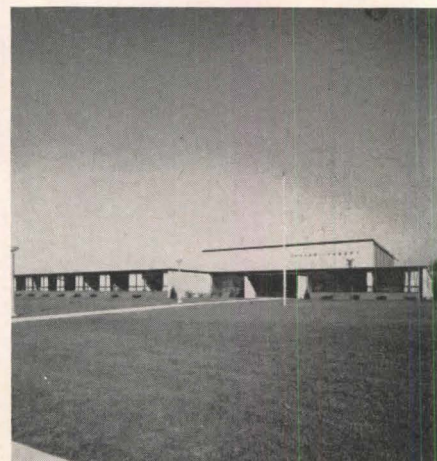
Hiram W. Dodd Elementary School, Allentown, Pa., one of the first schools in the East with a specially-designed Cerebral Palsy unit

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continued on page 44



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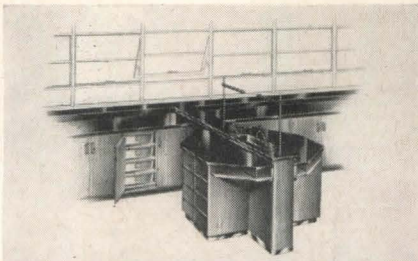
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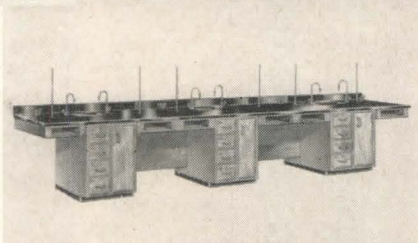
*Dealers listed in Yellow Pages under "Office Equipment"



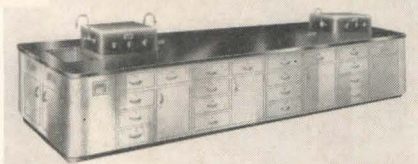
CENTERSCOPE TABLE



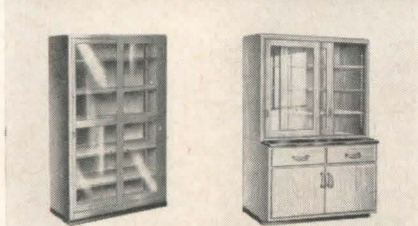
INSTRUCTOR'S DESK — W5750



COMBINATION SCIENCE TABLE — W5210



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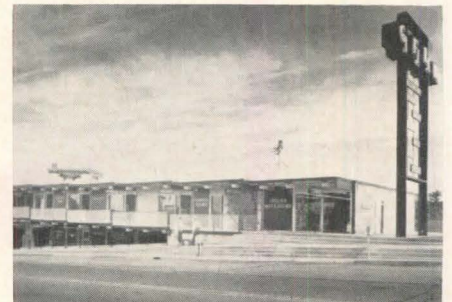
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Buildings in the News

Wisconsin A.I.A. Awards



Above: Merit Award: St. Vincent's Hospital, Green Bay. Cost: \$7.5 million. Foeller, Schober, Berners, Safford & Jahn, architects. *Below:* Merit Award: Giftland, Wisconsin Dells. Cost: \$100,000; 12,000 sq ft. John J. Flad and Associates, architects; G. E. Hilliard & Son, general contractor. *Bottom:* Merit Award: West Side Elementary School, Elkhorn. Cost: \$340,000. John J. Flad and Associates, architects; Magill & Welkos, general contractor



more news on page 48

RS

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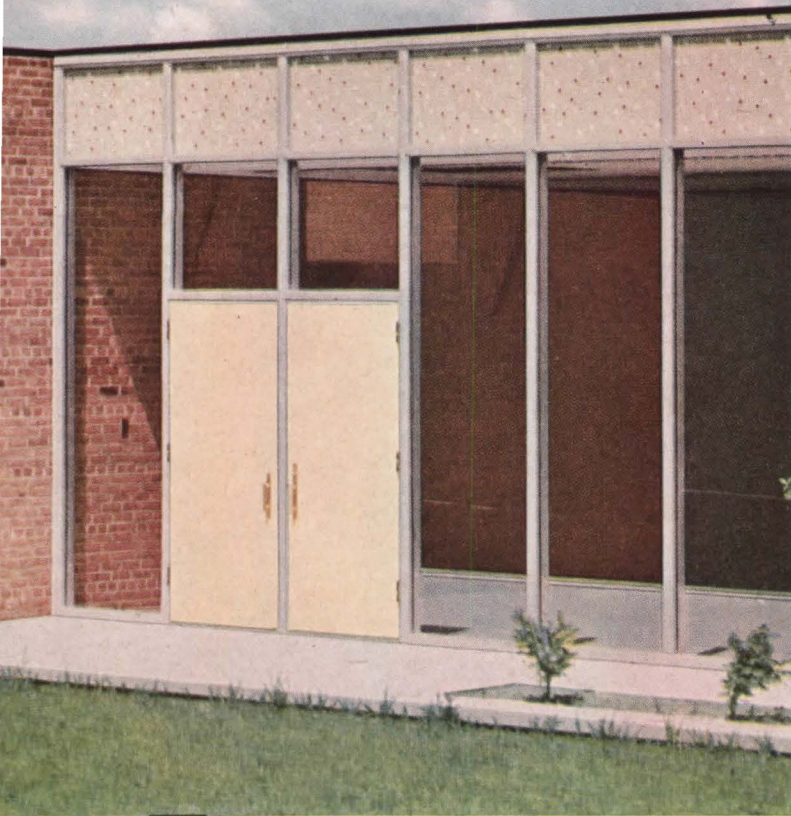
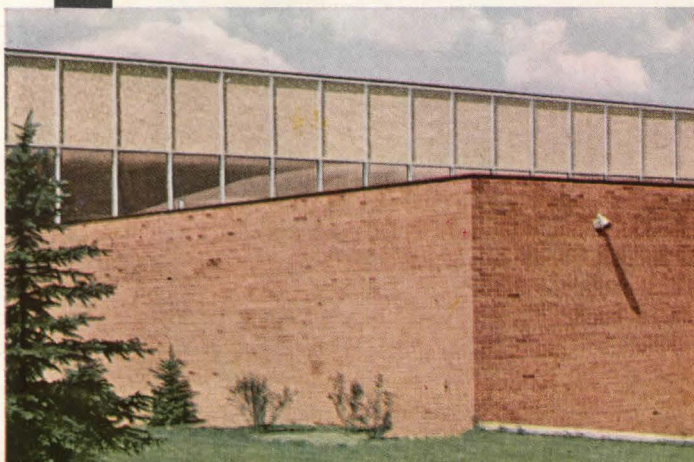


Plate No. 1075

UTICA COMMUNITY HIGH SCHOOL, Utica, Mich.

SMITH & SMITH/ARCHITECTS
Royal Oak and Iron Mountain, Mich.

Panel Installation:
EMIL VAN SILE CO., Detroit, Mich.



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CONSTRUCTION PROGRAMS IN MANY COUNTRIES AIDED BY ICA TECHNICAL HELP EFFORT

Program Stresses Housing and City Planning But All Types of Construction Are Included

The far-flung operations of the International Cooperation Administration (Department of State) embrace construction as a category and to the extent that they involve assistance in planning are spreading American architectural concepts throughout the free world.

Only about a dozen registered architects are regularly employed by the agency but its program of study for foreign architects in American schools and its spreading influence through this and other facets of its aided self-help program mean that the under-developed independent countries are learning about American architecture and construction methods. Over the post-World War II life of this effort, handled by ICA only since June of 1955, many millions of American dollars have poured into foreign nations in the form of technical assistance in various fields. One of these has been planning and construction.

Housing, City Planning Stressed

There is an emphasis on housing and city development since most of the administrative energy is directed toward these areas in the faraway places, but there has been volume, too, in the building of highways, power plants, factories, fertilizer producing facilities, schools, etc.; a pretty full range of non-housing installations.

A spokesman for this ICA function is Osborne T. Boyd, chief, Housing Division, International Cooperation Administration. His office handles all aspects of housing and urban planning and will provide talent secured from other cooperating agencies for many of the non-housing programs.

Housing and city planning projects now are going forward under ICA architectural guidance in these countries: Korea, Turkey, Trinidad, Guatemala, Costa Rica, Nicaragua and Chile. A project has recently been completed in Lebanon. This does not exhaust the list of foreign independent countries where housing projects are going forward under ICA auspices, however. Where organizational, financial, and, perhaps, engineering talent can handle the work, no architect is moved in.

It was explained that for the most part the housing considered for these underprivileged nations is minimum. This runs often around 500 to 600 sq ft per unit.

In all countries where ICA places one of its architects, the man works with local native architects who are paid by the native country. The justification for the American participation lies in the project agreement with the country in question to provide technical assistance.

The format of the ICA and its predecessor agencies' programs calls for assistance to the country for a period of from two to six years, then withdrawal to permit the native government to take the full burden of operation onto its own shoulders.

HHFA Recruits Architects

The recruiting of architects for this work is done largely through the Housing and Home Finance Agency, Mr. Boyd said. He has a very close working relationship with HHFA and its International Housing Service, with State actually providing funds for some of the housing agency operations.

Large, non-housing capital projects are handled by ICA's Office of Industrial Resources, but this office calls on Mr. Boyd's staff for architectural talent whenever this is needed.

The Boyd office formerly had an architect as a member of its Washington operating staff, but this office was vacated some time ago and will not be refilled, he said. As a permanent Washington staff member, he has an engineer, Richard Knight, who is familiar with construction detail as well as engineering.

The rules call for the traveling architects to stay in one post no longer than six years; the minimum assignment is two. After six years they are rotated back to the United States where they usually take a "refresher course" at a university, then are sent back to the foreign field.

This type of career (and ICA refers to its architects as career officials) is particularly appealing to younger men. Applications for the jobs are running two to three times the number that can be hired.

Many Foreigners Trained Here

The other side of the ICA-aided self-help program shows a steady stream of foreign technicians coming to this country each year for training in American colleges and universities. The number is about four times larger than the American technicians sent abroad.

Mr. Boyd said that in the design

and city development field approximately 100 are coming to American schools each year and this number will continue to increase moderately during the years ahead. Only three or four years ago this "class" of incoming foreign students numbered only 50. These are graduates who come to the United States for academic work covering from three months to two years. The average stay is one scholastic year, depending largely upon the position of the man.

(Illustrating the need for this program, Mr. Boyd cited Indonesia, which has but four architects for its population of 40 million.)

A breakdown of expenditures for technical advisory services and actual construction abroad under ICA and its predecessor programs would be difficult, Mr. Boyd explained, because of the many methods of outlay. In some localities the entire amount goes for technical assistance while in others a portion is allotted for technical aid and another part for actual building. The defense support activities and economic aid also are factors in the division of ICA appropriations for these purposes. In other countries, local currency from the sale of U. S. imports locally will find its way into planning and construction.

This overseas program as it is carried on today had its beginning with formation of the Economic Cooperation Administration, although there were other forms of technical assistance before that time during World War II. ECA, which administered the European recovery program, was abolished in October of 1951, and its functions transferred to the Mutual Security Agency. MSA and the Office of the Director for Mutual Security were abolished by Reorganization Plan 7 in 1953 and the functions transferred to the Foreign Operations Administration. This agency, picking up the Technical Cooperation Administration and several other foreign assistance activities, was abolished on May 9, 1959.

It was at this time that ICA was established within the Department of State by Executive Order. It was given the responsibility for coordinating all foreign assistance operations, and for the actual conduct of mutual security programs except those which provide military assistance and some others.

Interior Design: Eleanor LeMaire
Interior Layouts: Griswold, Heckel & Keiser
Architects: Harrison & Abramovitz
General Contractor: George A. Fuller Company
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Need for Airport Building Put at \$1.2 Billion

The new Federal Aviation Agency has said this nation should spend \$1,285,394,000 over the next four years to make its airport system adequate.

This information is contained in the National Airport Plan for 1959, a 500-page volume documenting airport facility needs for the immediate future. It includes projects for 3324 airports of all types in the United States and its possessions.

The estimated outlays required for suitable building development at air commerce fields for the four-year period are placed at \$243,227,000, 24 per cent of the total \$1,002,994,000 expenditure for facilities of this type. For the general aviation airports, the building area development figure is \$28,472,000, 10 per cent of the \$282,400,000 FAA says is required.

The balance of the funds would be spent for site preparation, land, lighting, pavement and other.

Need, Not Program

This report takes careful note of the fact that it was submitted without regard to appropriated or authorized funds or to future requests to Congress. It reads, in fact, that the statement of need therein should not be related to the need for Federal participation under the Federal Airport Act. No commitments are implied.

It was explained that the initial development of the Plan always begins with the District Airport Engineer. His recommendations usually are then coordinated with state, municipal and other airport officials. The District segment then goes to the regional office to be coordinated with all other districts in the region. These recommendations then are sent to the Washington office, where they are reviewed, further refined and evaluated from a national level.

The foreword to the ponderous volume, over the name of E. R. Quesada, administrator of FAA, states:

"This revision of the Plan includes the items of work considered desirable within the next four-year period. To afford the airport authorities sufficient time for scheduling the work, the aeronautical forecasts have been geared to 1965 . . .

"Future revisions of the National Airport Plan will encompass some of the research now being conducted with respect to the separation of airports, parallel runways, and the numbers and sizes of airports needed in metropolitan areas. They will reflect more advanced techniques in the master planning of airports and related facilities to insure greater comparability with adjoining lands and community interests."

HEW Publishes First Report On College Facilities Survey

The first of five major reports detailing college building programs and needs and initiating a perpetual inventory of college and university plant facilities is off the government presses.

This Part One of the College and University Facilities Survey is being conducted by the Division of Higher Education, U. S. Office of Education, Department of Health, Education and Welfare.

The 54-page book now available is replete with facts and figures on the cost and financing of college and university buildings during the five-year period of 1951 through 1955.

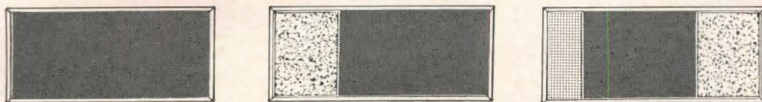
(Copies can be ordered at 45 cents each through the U. S. Government Printing Office, Washington 25, D. C. Full title: *Part 1: Cost and*

continued on page 376

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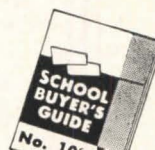
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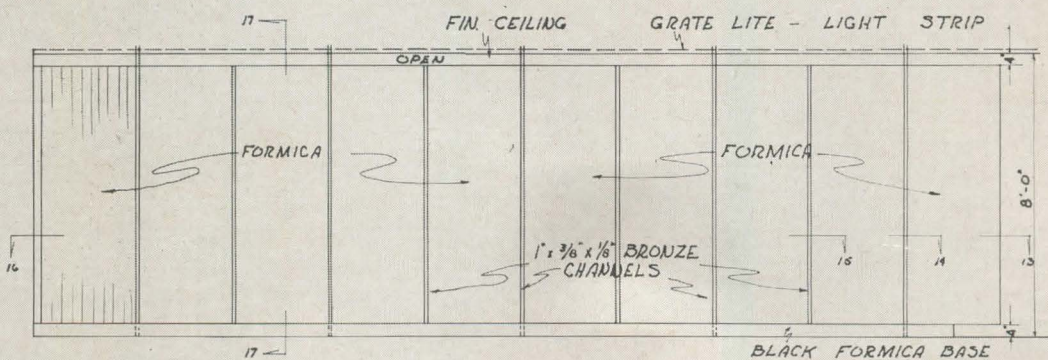
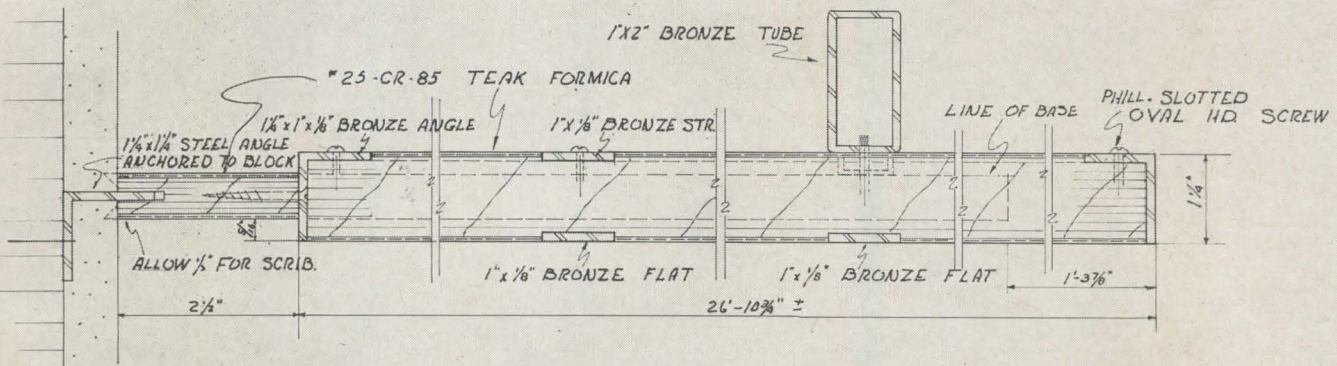
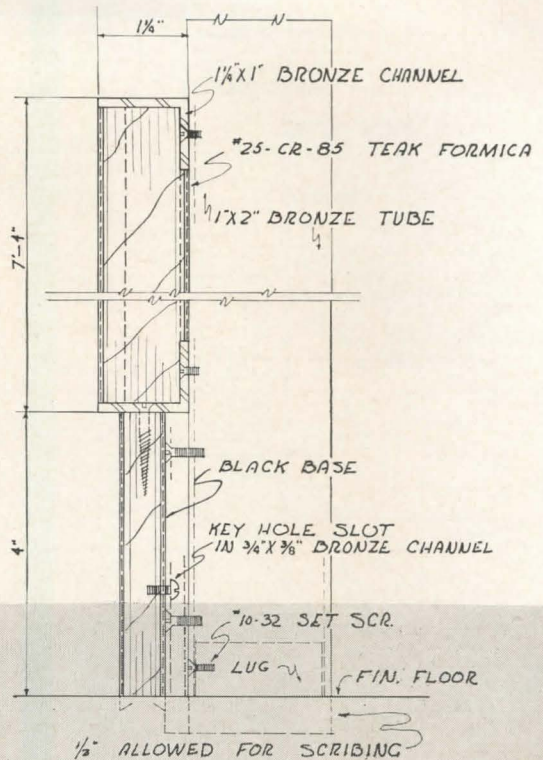


Materials: Formica $\frac{1}{16}$ " sheets Teak 25-CR-85
 Formica $\frac{1}{16}$ " sheets Black 1014 Urac 185 Glue
 $1\frac{1}{8}$ " lumber core birch plywood 1" x 2" bronze tubes
 1" x $\frac{1}{8}$ " bronze flats $\frac{3}{4}$ " x $\frac{3}{8}$ " keyholed bronze channel

Plywood slabs cut to finished size of 7'-8" were shop veneered with Urac 185 adhesive under pressure with Formica $\frac{1}{16}$ " material both sides.

$\frac{1}{2}$ " plywood was two face veneered with black Formica to form 4" base. Supporting bronze tubes were erected floor to ceiling and base attached to channel extensions keyholed over screw heads in base.

Formica slabs rest vertically on base and bolt to tubes every 8 ft. Bronze flats cover seams every 4 ft.



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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

ATLANTA

PERIOD	RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.		RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	
	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1946	181.8	182.4	177.2	179.0	174.8	148.1	149.2	136.8	136.4	135.1
1947	219.3	222.0	207.6	207.5	203.8	180.4	184.0	158.1	157.1	158.0
1948	250.1	251.6	239.4	242.2	235.6	199.2	202.5	178.8	178.8	178.8
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.7
December 1958	335.9	321.5	358.7	378.2	367.5	246.5	242.0	260.2	266.4	266.8
January 1959	337.8	322.5	362.3	383.1	368.8	247.7	243.2	261.8	268.4	268.3
February 1959	338.2	323.0	362.4	383.1	368.9	248.9	244.8	261.8	268.4	268.5
			% increase over 1939					% increase over 1939		
February 1959	173.8	163.9	177.3	187.2	183.5	188.4	194.6	175.3	175.6	183.5

ST. LOUIS

SAN FRANCISCO

1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.6	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1946	167.1	167.4	159.1	161.1	158.1	159.7	157.5	157.9	159.3	160.0
1947	202.4	203.8	183.9	184.2	184.0	193.1	191.6	183.7	186.8	186.9
1948	227.9	231.2	207.7	210.0	208.1	218.9	216.6	208.3	214.7	211.1
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8	216.1
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0	259.7
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.6
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
December 1958	299.1	290.0	307.7	321.4	316.5	292.9	278.0	316.5	331.0	325.2
January 1959	301.1	292.6	310.5	324.5	318.4	293.6	278.5	317.4	332.2	325.9
February 1959	302.2	294.0	310.7	324.6	318.7	295.0	280.3	317.7	332.4	326.3
			% increase over 1939					% increase over 1939		
February 1959	174.2	174.8	161.7	170.9	167.8	179.3	182.3	170.6	172.7	180.1

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.:

$$\frac{\text{index for city A} - \text{index for city B}}{\text{index for city B}} = \text{percentage difference}$$

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

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

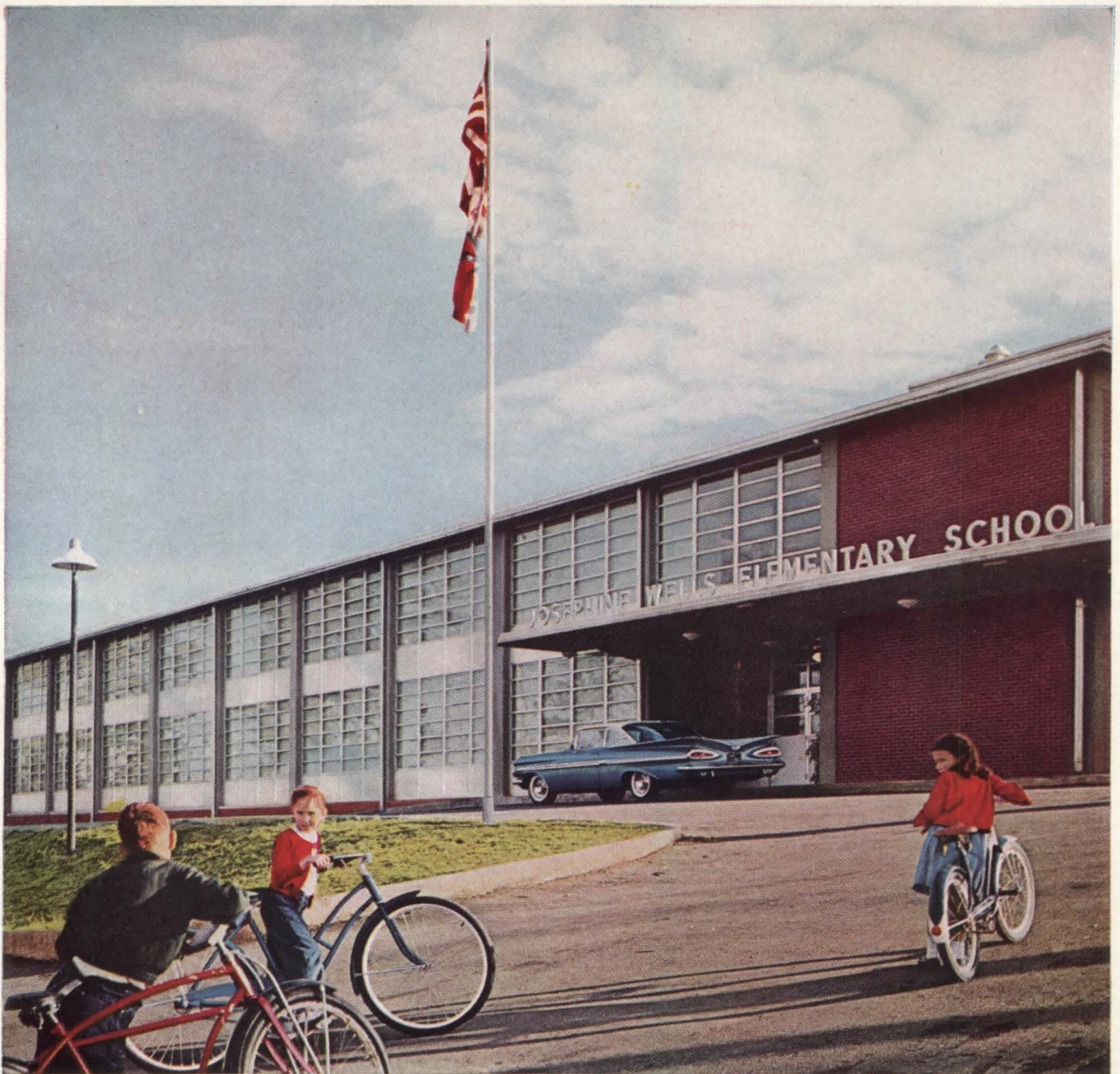
$$\frac{110 - 95}{95} = 0.158$$

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.



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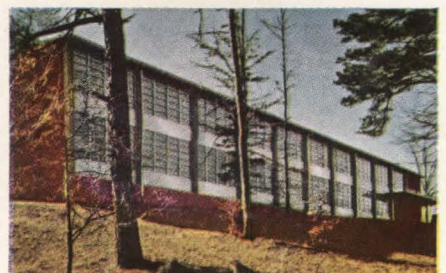
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Building: Josephine Wells Elementary School, Atlanta, Ga.
 Architect: A. Thomas Bradbury & Associates, Atlanta, Ga.
 General Contractor: Abco Builders, Atlanta, Ga.
 Aluminum Fabricator: Brown & Grist, Inc., Newport News, Va.
 Aluminum Entrance: American Art Metal Company, Atlanta, Ga.

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Around the World in Eight Books: Architecture in Picture Form

ARCHITECTURE OF TODAY: A SURVEY OF NEW BUILDING THROUGHOUT THE WORLD. By Udo Kultermann. Translated by E. H. W. Priefert. Universe Books, 381 Fourth Ave., New York 16. 236 pp., illus. \$9.50.

LOOKING AT ARCHITECTURE IN CANADA. By Alan Gowans. Oxford University Press, 417 Fifth Ave., New York 16. 232 pp., illus. \$10.

SCANDINAVIAN ARCHITECTURE. By Thomas Paulsson. Charles T. Branford Co., 69 Union St., Newton Centre 59, Mass. 256 pp., illus. \$7.50.

CONTEMPORARY DANISH ARCHITECTURE. Edited by Finn Monies and Bent Rogind. Arkitektens Forlag, Bredgade 66, Copenhagen. 88 pp., illus. \$4.65.

JAPANESE ARCHITECTURE. By Hideto Kishida. Japan Travel Bureau, Tokyo. 139 pp., illus. \$2.50.

JAPAN'S NEW ARCHITECTURE. By Shinji Koike and Ryuichi Hamaguchi. International Book Service, 11 2-chome, Hirakawa-cho, Chiyoda-ku, Tokyo. 141 pp., illus. \$9.

CONTEMPORARY ARCHITECTURE OF JAPAN. By Shinji Koike. International Book Service (address above). 119 pp., illus. \$7.50.

SHADOWS FROM INDIA: AN ARCHITECTURAL ALBUM. By Roderick Cameron. British Book Centre, 122 E. 50th St., New York 22. 213 pp., illus. \$12.50.

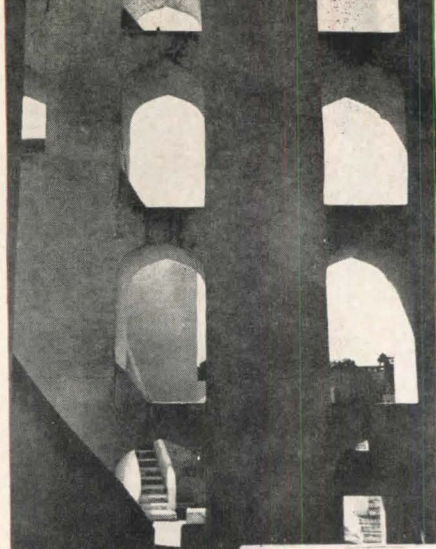
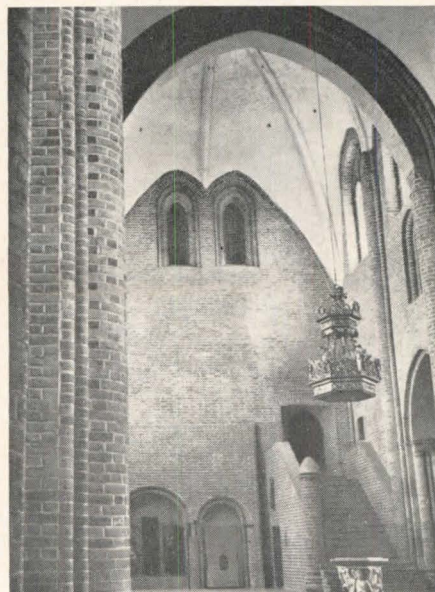
BY ARTHUR FISHER
Associate Editor, Dodge Books

If one picture is worth a thousand words, are a hundred pictures worth a book? The success of a picture book ultimately depends on how well certain problems are met. How much text should there be, and on what level? If photographs are to be drawn from many sources, how is a consistent editorial viewpoint to be maintained? Should graphic or informational qualities be stressed? With these and similar considerations in mind, eight recent books on architecture are now discussed.

The most ambitious of these is Udo Kultermann's *Architecture of Today*. It is also the one that best demonstrates the pitfalls involved in such a work. The author is an admirer of the "international school," and his aim is to show its "continuity and convincing quality." But the text is neither analytical nor convincing; apart from a brief and somewhat pretentious introductory history it consists mostly of strung-together biographies of well-known architects, together with catalog-

type descriptions of their buildings. This kind of material is, of course, available elsewhere. The text is arranged by country, and so is the collection of photographs that follows it, but there the resemblance ends. The sequence of the text is not followed, so that the reader must flip back and forth to find which buildings have been omitted and which included, in the course of which he will discover that Costa, Niemeyer, Markelius, and the like are not illustrated at all. (Costa is characterized in the text as "the greatest living representative of Brazilian architecture.") Add the poor translation, the variable print quality, the lack of plans and interiors, and the fact that most of these buildings are already quite familiar, and one must conclude that this book is an exercise in futility.

Versatility, on the other hand, is the word for Alan Gowans' *Looking at Architecture in Canada*, a book that may be approached in several ways. First, it may be read as a "popular" history of Canadian architecture in which the method is to illustrate representative examples of various trends and periods and, "through descriptive captions and interpretive essays, suggest how, where, and why they are important." This plan has been admirably executed. Secondly, the reader who simply wants to know what buildings in Canada look like may browse through this beautifully designed book and find out painlessly. Finally, the book may be happily read by appreciators of urbane and pointed wit—the description of that hapless monstrosity, the Casa Loma, for example. And surely the author is not



Above: Part of the Yantra Samrat, or "Prince of Dials," an observatory in India; "a man halfway up would appear the size of an ant." Below: Logumkloster, Denmark

unaware of the sociological implications involved when he reminds us that the Château Frontenac was inspired by a design for a Buffalo, N. Y., insane asylum.

Mr. Paulsson's book furnishes an interesting contrast. It too is a history (from the Iron Age to the present), clearly showing the interaction between building styles and society in Scandinavia. It is comprehensive, scholarly, and well illustrated. But it suffers from a stodginess of style and design that is totally unsuited to

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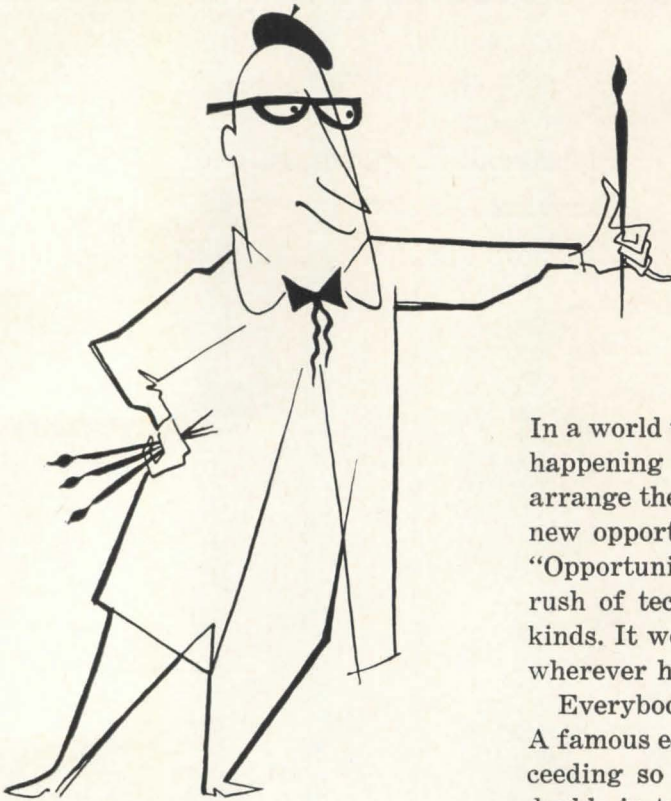
Italian and German Art

THE SENSE OF FORM IN ART: A COMPARATIVE PSYCHOLOGICAL STUDY. By Heinrich Wölfflin. Translated by Alice Muehsam and Norma A. Shatan. Chelsea Publishing Co., 50 E. Fordham Rd., New York 68. 230 pp., illus. \$6.50.

This book, whose original German title, *Italy and the German Attitude to Form (Italien und das deutsche Formgefuehl)*, conveys a more accurate indication of its subject, is the third of the fundamental works of that gray eminence of modern, formal art history, Heinrich Wölfflin, to appear in an English edition. Somewhat narrower in scope than its predecessors, *Classic Art* and *Principles of Art History*, this work attempts to answer the question why "we can identify an Italian work as Italian and a German work as German, no matter to which period it belongs."

Concentrating his inquiry on the 15th century and the early 16th century, a period of strong Italian influence on German art, and giving equal attention to architecture, painting, sculpture, and the graphic arts, Wölfflin, by means of penetrating *visual* analyses of comparative works, has sought to epitomize the basic attitudes of the two cultures

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more books on page 63



Artist

The Image of the Architect

Sketches by
Sol Ehrlich

In a world that seems to be orbiting around a scientific sun, what is happening to horizons for architects? And how should architects arrange their organizations and their services to take advantage of new opportunities as they take these new horizons into account? "Opportunities" is, we feel, the correct word. Clearly the dizzier the rush of technology the greater the call for design services of all kinds. It would seem certain that "the architect" will be welcomed wherever his capabilities and his aspirations suggest his presence.

Everybody talks about change, but few are quick to adjust to it. A famous educator has remarked that the advance of science is proceeding so rapidly that the world's total sum of knowledge will double in ten years. We shall soon have jet planes capable of 2000 miles per hour, and 4000 seems indicated. Obsolescence floods over everything we have, everything we are—our possessions, our buildings, our tools, our methods, our knowledge, our jobs, our traditions. This is good, this is bad; this is inspiring, this is depressing: depending on your point of view. Whatever else, it is challenging.

What is the image of the architect—yesterday, today, tomorrow?

With this 16-page feature, ARCHITECTURAL RECORD begins an examination of the whole situation in which "the architect" finds his call for creative endeavor. We shall join the soul-searching that is now going on, with some pointed looks at the architect's training and traditions, his professional status and his public relations, his competence and the calls upon them. We'll present also some methods and some accounts of how some architects have broadened and enlarged their services.

We shall be proceeding in the firm belief that the architect represents, as in Renaissance times, the complete man of design. He is the master builder in the sense of master planner. Only now of course the master planner must be backed up by an integrated group; no single individual could encompass all necessary knowledge today. But design must represent a melding of all necessary disciplines; it cannot consist of fragments. The architect must be conscious of his special orientation toward order and integration, and must develop it; as technology forces more and more specialization, the need for the coordinator becomes more pronounced. The architect is not a member of a team; he is coach, captain, cheerleader.

Yes, the image of the architect is changing, has already changed, will change still more. The RECORD will keep on reporting the course of events, as in a dawn count-down at Cape Canaveral. And we shall hope that the four-stage push in this issue will launch a worthwhile series of articles.

—EMERSON GOBLE

TODAY'S CONCEPTS OF ARCHITECTURAL

The increasing intimacy of our world, the acceleration of transportation, and the facility of communication, the precipitation of activity, the emergence of minorities seeking their places in the sun, and the exploration of space, all have contributed to a tempo of progress which brings in its wake a proliferation of crises so that we have hours, not years, of decision. We were all trained to believe, in accordance with smug and vapid precepts of the 19th century, that we had but one, or at the most two, major decisions to make in our lives, such as the choice of mate. There was no choice of church, residence or vocation, those pursuits being generally determined by the omniscient elders.

Now we arrive at new and major crossroads after appallingly short intervals of following the road of illusive clarity. Perhaps we are not so much approaching crossroads where decisions are to be made, as we are finding ourselves in restless and rapidly evolving situations, causing us, in the effort of survival, to either conform to the pressures and trends of contemporary civilization, or drift to the rear to permit the more cleverly adaptable to succeed and perhaps even to lead.

Today the concept and practice of architecture are far different from those for which I was prepared in the teens and early twenties by one of the then best architectural schools in the country, supplemented by study in Parisian ateliers and by foreign travel. Travel which, unfortunately, took on the grand tour character following the well worn and sometimes dreary paths laid out by the early 19th century gentleman traveller with pretensions to erudition and followed with unquestioning faith by generations of doctrinaire architects. A fortunate few struck out ways which led to the discovery of fresh points of view and from which they launched careers of telling leadership.

It is soon obvious to anyone occupying a position at the center of the construction industry, as I do, not to say of the country, that the complexities and demands of our times are such that the architect must either prepare himself to meet them, or he must be content to relegation to the role of the technician hired by others whenever his particular technical talents and manual dexterity may be oppor-

by *Edmund R. Purves, F.A.I.A.*
Executive Director,
American Institute of Architects



City Planner



Industrial Designer

PRACTICE



Teacher



Architectural Analyst

tune and used to the advantage of those who really plot the physical course of our civilization.

That the center of the profession is Washington may be challenged by anyone in either a great metropolitan area or, for that matter, by anyone who would feel that America is the abundance of smallish but no longer isolated cities. However, Washington is rapidly and surely taking its place as the location of the headquarters of those organizations which seek to identify themselves with the leadership of our country and to leave their impress on its progress. The influx of national associations and labor union headquarters has given this City the appearance of a well-ordered steel, glass and masonry boom town.

Now there is no good reason why the architect should let his profession become another vanished skill existing only in the monuments of its heyday. To maintain his permanent domination, the architect might well consider a present fulfillment of the role he once played well—that of “master builder.” In the past fifty years we have allowed that important title to become vacant.

The exact role is expressed succinctly and ably in the title itself. The emphasis is on the word “master.” That the title has slipped into disuse may be due in large part by failure of the architect to force the recognition which he enjoyed when the lay public, especially that element which undertook whatever form the promotion of construction may have assumed, turned naturally to an architect to furnish all requisite services.

It is worthwhile to look at today's client, at his demands, at his expectations and then conjecture as to whether or not his desires can be met. Perhaps the “public” is a better word than the “client.” However, several years ago the editor of one of our architectural magazines, dealing with the world the architect faces, coined a phrase which, although it smacks more of the belly than of the brain, enjoys an aptness sufficient for our purpose. He spoke of the “corporate client.” I prefer to dwell, however, more on the client's interest and expectations than on his identity, which is now adequately established.

Coming from a family which for generations was engaged in commerce, banking and industry and having a brother or two (out of five) who are not too far removed from the family's traditional occupations, I have some conception of the attitude and demands of the corporate client.

The client of today is far better versed than his

forebears in trends of the times, the potential of the future, the demands of his business and the requirements of his residence, recreation and worship.

The American Institute of Architects, the magazines, and the advertisers have made great strides in educating the public to the need for good planning and salubrious surroundings.

Within the last year a powerful policy formulating body, the Committee on Economic Development, (an organization composed of outstanding businessmen, foundation officials, and men in public life) realizing the essentiality of planning not only for convenience and beauty but actually for survival—economic and physical—has been devoting considerable study to the impact of planning on the American scene.

When taking up a new subject, especially when that subject is large scale planning, all people devise their own nomenclatures. The CED's choice of definition is "area development." Perhaps this is not the happiest choice of the lot but it is not bad for beginners. Beginners, they are, in this field of hitherto largely unrecognized importance. We might say totally unrecognized importance save for a persistent few who at the risk of being labeled self-designated experts, esoterics, and odd balls, hammered away on the essentiality of planned order in the development of the American scene and economy so that finally the merits of a civilized approach to planning the American setting penetrated the hide of the business behemoth.

Merit is a mild word. I like to think that American business is at last awaking to the fear that has been constantly with planners; namely, that a continuance of ruthless disregard of order will inevitably make universal the sporadic nightmare that is now the typical American city, devastating to the land and alarming in its threat to health, happiness and pocketbook.

American business in the aggregate, as represented by buildings (or people or the combination of the two) is impressive. It exudes a sense of power and of fundamental decency. It seeks to learn, to move forward, and it is willing to be told. It should be told, of course, by those best qualified to do the telling and incidentally by those in whom American business will find that note of authority without which it is lost.

So when American business turns to the professional it expects competent and comprehensive knowledge and it expects also highly skillful and ac-



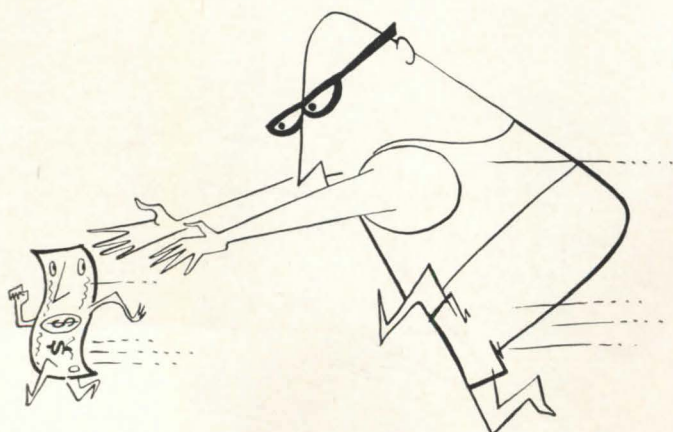
Salesman



Economist



Sociologist



Cost Accountant

curate service. Just as it turns to the legal profession to demand with confidence the safeguarding of its corporate welfare, and turns to the medical profession with confidence to preserve the active life of its individual members, it may well turn to the architectural profession with confidence to plot its shelter and its traffic so that its life may be attractive, fitting, and economically sound. This is the challenge that faces our profession, to furnish that advice and service which we have persuaded business is to be had from us for the asking. Surely if the corporate client does not find what he expects he will turn elsewhere for the service, and if that service does not exist then the corporate client will in all likelihood create it for himself, in which endeavor he will find no lack of arid assistants.

Now what is the corporate client looking for? What does he expect? First of all he expects a comprehensive understanding of his problem, financially as well as physically. He expects the production of a program that he can understand. He expects the production of documents that will realize for him an economically sound and esthetically fitting project. He is beginning to expect the well-balanced relationship of that project with the general development.

There are many firms, both large and small, fully capable of meeting the demands of the corporate client. Of this I have no doubt for it has been demonstrated time and again within recent years.

Now that the corporate client is turning his attention to area development it is hoped that the architect, having served him well, will be looked to as that professional who can work best with the corporate client on the overall development.

It is our feeling at the Octagon that knowledge of the profession on the part of the public is considerably greater than it was even ten years ago, and that knowledge is of a far more penetrating variety than the popular romantic, not to say frivolous, concept of the architect during the barren period of American architecture when it seemed incapable of advancing on its own and relied on European prototypes to an extent which could not fail but to decrease respect for the profession. The public's knowledge of the profession is fortified by the public's increasing awareness of the essentiality of sound planning if this country is to survive; its confidence will be maintained (and justified) only by an ever-increasing standard of competence in the practice of architecture.

THE ARCHITECT AS OTHERS SEE HIM

In an attempt to get at the architect as his client-public sees him, ARCHITECTURAL RECORD has queried several client groups. If the architect and his services are to be examined in depth—so went our thought—it might be useful to establish the clients' view of his architect as a base point.

The replies were surprising for the wide range of views expressed. Respondents were asked to be frank, but were given no particular lead. While some replies were strongly flattering to the architect, and some unflattering, a great many did some pushing and hauling in both directions. All were interesting but generally too verbose for use here.

So for the immediate purpose we shall stay pretty close to one theme that ran through nearly all letters. The refrain was the call to architects for more responsibility in programming the building.

A DEVELOPER OF OFFICE BUILDINGS

(Erwin S. Wolfson)

If architects are to provide ever valuable services to an industrialized society, they must concern themselves with concepts that go beyond order and beauty. They must ask of themselves: Is the profession profiting from its experiences? Is the individual architect or firm evaluating the end result of his or its work? Is the sum total of the architects' contributions to technology and progress commensurate with what the public expects from the profession?

More specifically, one must question whether there is any machinery for critical examination of design, construction and layout, either as a whole or as individual components of architectural services.

Without any medium for broad exchange of experience, continuity of effort and progress can only be haphazard. When you consider that some architects work with the same specifications that they did thirty years ago, it becomes apparent that there is room for critical evaluation.

The life span of an individual builder in the construction industry is a relatively small one. Although he is able to profit from his own experiences as he goes from one project to another, there is need for a much broader base.

It is incumbent upon architecture, as a profession, to lead the way. Architects, with new horizons open to them at the dawn of the space age, must develop procedures for dissemination of information that will coordinate the experiences of all—good and bad—for the benefit of the profession and the public at large.

Progress can only be recorded through a continuity of advances. There is considerable opportunity for more continuity in architecture.

A LARGE MANUFACTURER

We think that there are available in this country competent firms which are set up to handle the various types of work. It does not appear to us that there would be



Supervisor



Landscape Architect

any real benefit to us if all of the architectural firms or architect-engineer firms were staffed to handle all phases of architecture or engineering in all different types of construction.

In our particular situation, therefore, we think that we are better off to have various types of firms available to us so that we, in turn, can select the ones which best serve our purpose.

A LARGE BANK

It has been our experience that where the need of architectural services has been required, as it has been in so many of our branch locations, such services have been quite adequate from the inception of a project to the final occupancy.

We find the architect an excellent coordinator between the customer and the builder, manufacturer and vendor who all have a part in the ultimate result.

A MANUFACTURER

Our two major considerations in the selection of architects are (1) creative ability, and (2) cost consciousness. We have seldom been able to obtain both qualities in one architect.

In general, our past experience has indicated that architects' drawings do not conform with our requirements; i.e., they have taken liberties with our criteria, schedule and/or budget. While we welcome suggestions, we feel that the drawings should reflect our criteria. Suggestions should be made under separate cover, indicating the effect of each item on cost and schedule.

AMERICAN TELEPHONE AND TELEGRAPH CO., (Howard E. Phillips, building engineer)

It seems to us that the architects need an increased appreciation of the value of our objectives—all of them—and perhaps the telephone companies do, too. As this affects the architects, the following are some points that we'd like to see improved:

1. Greater appreciation of the importance of the smaller and medium-sized commissions. Except for an occasional really large building, almost all of our thousands of structures are in this category. Yet the modest building in its own neighborhood is just as potent a creator of good or bad public relations as is the large downtown headquarters. It is deserving of an architect's best efforts, and should never be considered a routine pot-boiler.

2. A greater feeling of freedom to exercise his creative talent to produce gracious architecture. Limitations of size and shape imposed by equipment needs are merely problems, not prohibitive bars to good design, as is attested by many successful equipment buildings. Perhaps both architects and telephone people need to appreciate this more fully.

3. A realization that excellent architecture is not synonymous with high cost. Many of our most acceptable buildings are among the lower cost ones. Ultra-expensive materials and costly detail are usually not necessary.

All this does not infer dissatisfaction with the architectural services we are receiving. Some of the architects we use produce consistently superior results. Many of them do very well a good part of the time. We are, however, anxious to see the general architectural level of our buildings steadily improved, and we feel that the things we have talked about would help to that end.



Office Administrator



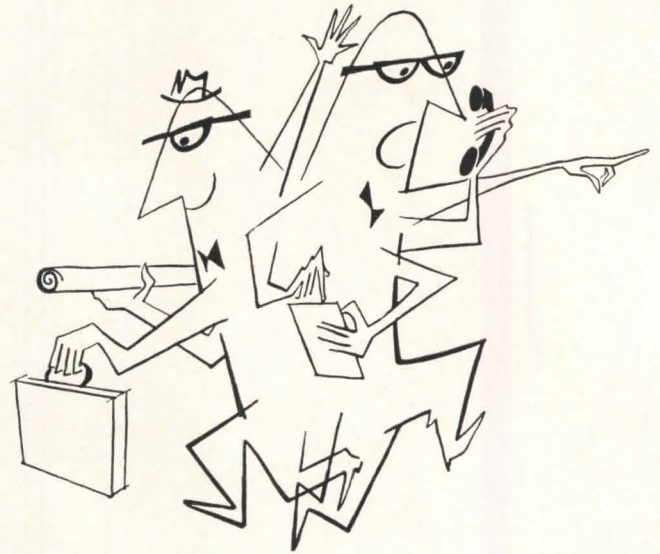
Graphic Designer

ARCHITECTURE IN A RESTLESS AGE

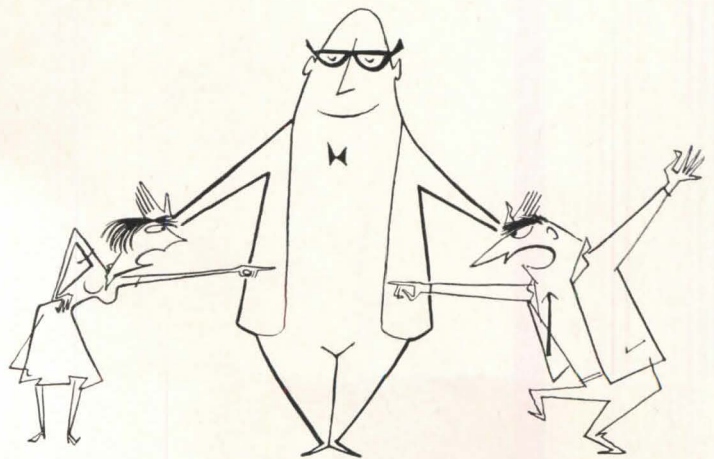
by John Ely Burchard

Architectural historians looking upon the Western scene of mid-1959 will probably call it a time of chaos in which escape from boredom may have been the dominant cry. This may seem to them the more discouraging because of the great and fresh promise offered by the revolution of the first quarter century and because isolated architectural monuments of great quality continued to appear from time to time as the century rolled into its third quarter. But the doctrines which had held designers and critics and prophets together in the earlier days now appeared to have vanished. If there could have been said to be *one* contemporary movement in the twenties, it had fragmented into many by the fifties; and often the one common agreement was nothing more than rejection of the notion that there was any necessity to return to those patterns of Roman imitation which had provoked and sustained the modern revolution in the beginning.

But save for that common determination there now seems to be little else in common. We are told by an increasing number that the classic form which might have been distilled from the Miesian cage will not emerge because all the possibilities of the cage have been exhausted—in fact, that it is boring. We are told by others that there must be a retreat from the all-glass façade not for the possibly good reason that it is not a satisfactory façade but because there is nothing more that can be done with glass now; that it too is boring. (Parenthetically we may thank heaven that the designers of the glass of the Sainte Chapelle did not lay a similar stricture after the installation of the windows of Chartres.) We seem to live in an age when very few architects can be permitted to repeat themselves in any significant way. It is even more an age when it is regarded as plagiarism or worse if one architect takes the work of another as a base and sets out to refine it in his own way—yet this is the way in which every great previous architecture has had to develop. More than that, we live in an age when few clients can be found to want something that is merely an improvement on something that has gone before, even *something* modern, so that there are design patents on every innovation so to speak and about all that seems to remain as interesting in architecture is its novelty.



Coordinator



Family Counselor

I scarcely need to remind this audience of the various forms this restlessness is taking but it is perhaps appropriate to suggest that the overpremiation of novelty and innovation has characterized in the past only the most thoughtless and the most foppish periods and those of power and sobriety. Foppishness in dress or poetry is bad enough, foppishness in architecture has a deadly durability. For this restlessness the great Dante might have apportioned the punishment he gave to those who made "the reason thrall to appetite"

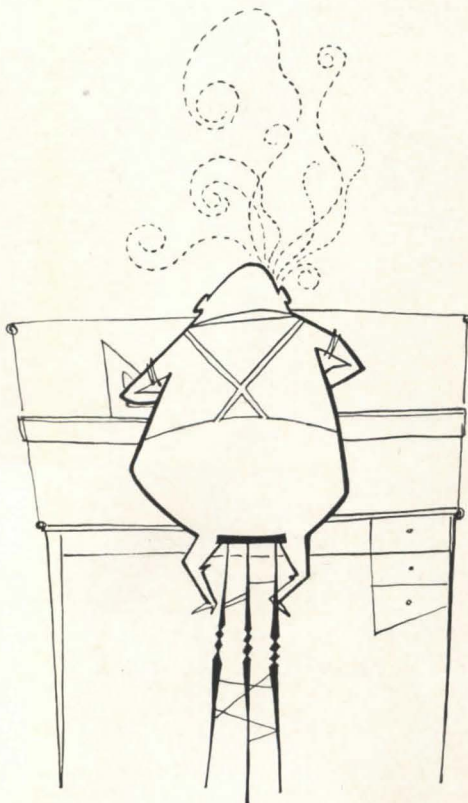
*"And as a great flock of starlings on the wing
In winter time together trooping go
So did that blast the wicked spirits fling
Now here, now there, now up and down below;
Comfort of hope to them is never known
Either of rest or even less bitter woe"*

Thus these shadows who on the storm blast whirled and surged, moaned in their ceaseless meaningless flight as the black air whistled round them like a scourge.

Do not misunderstand the tenor of these comments. I do not lump every one who abandoned the 19th-century renaissance of the Renaissance in a single company of "picturesque secessionists" spawned together in the manger of Viollet-le-Duc. I still have as great hope that out of the revolution may yet come a great architecture as I am sure nothing will come from a return to the literal emulation of Vignola. But the term "picturesque secessionist" has a useful bite if we apply it only in our own times and to our own friends who, in their determination to be different and to achieve personal styles and to avoid boredom, are rapidly seceding from each other; and perhaps worse still encouraging all their students to be imaginative, even those who have no imagination. Badly as poor designers may do with their versions of any classic form, including the Miesian, it is as nothing to what is let loose on the world when the unimaginative are told to innovate at all costs and encouraged to believe that the search for the novel is the greatest search in architecture, and that in the "new freedom" there may be no rules at all, not even the rules of scale, proportion, rhythm, balance, which have been observed by every competent architect in every day, whether or not he professed them audibly.



Decorator



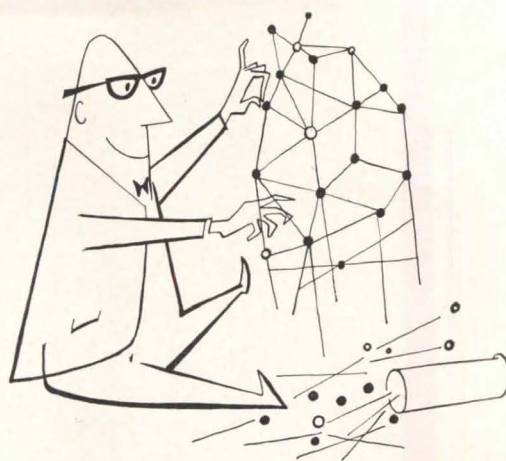
Draftsman

There is perhaps nothing that can be done except to let this wildness run its course; and to hope that in its flood it does not sweep away the sturdy principles which the great men of the architectural revolution all subscribed to. This is not, I think, a risk to be assessed lightly.

If there is nothing we can do about it, is it subversive to the cause of contemporaneity to talk about it? I think not. It is amusing for the historically minded anyway to speculate as to how it has all come about.

Has it come about because of some fundamental principle that must attach to a "democratic" architecture or at least to an American democratic architecture of the 20th century? Frank Lloyd Wright thought this might be so and said so way back in 1901 in his famous Hull House lecture. He was speaking of Democracy and its Forms. "I do not believe we will ever again have the uniformity of type which has characterized the so-called great styles. Conditions have changed. Our ideal is democracy; the highest possible expression of the individual as a unit not inconsistent with a harmonious whole . . . as the individual unit grows more and more to be trusted we will have an architecture in richer variety of unity than has ever arisen before." This great master has always adhered to his philosophy but how often he must have felt himself betrayed in his belief that the individual taste could grow more and more to be trusted. Indeed, there is even every reason to expect that a congeries of buildings by great individual modern men may somehow also fail to achieve unity; that the only true unity can be obtained, as the Australian Robin Boyd has suggested, by streets of thoroughly anonymous buildings against which the occasional individualized jewel can be set. But who in a democracy can yield the task of designing the jewel to another; who in a democracy can accept the menial role of designing the anonymous? When every architectural clod is a personal king, the range of palaces may seem like hovels all, and the masterpieces among them may be hidden in the insistent glitter of the dross.

Has it come about because as a society we have no sure sense about what buildings we think are really important and so try to make everything important; is it because architects are trying foolishly to emulate science as they once did before they tried to transfer Darwinism from evolution to building? Science changes our knowledge of the world at a prodigious pace these days; the plane we ride in to-



Engineer



Public Speaker



Politician



Spec Writer

day is of course obsolete on the drafting boards for tomorrow and all the wonders of space are beckoning. Change and violent change is a force of our time—perhaps the driving force. Does this mean that every activity of man must operate at the same pace, or is this a misconception which is doing harm to a reasonable development of a great architecture?

Are the times victims of their own techniques? Today almost any form can be built at some price, almost any material employed, plans can be forced by equipment to almost any function. Does all this richness of resource bring on the madness of innovation as sitting too long in the moon once did or is it merely an abettor of the eagerness to be personal, different, to be an innovator?

Or is it merely that we cannot learn how to design high buildings for air conditioning?

Or is it just the schools with their lack of discipline or the architectural press with their journalistic nose for news asserting that nothing old is news?

Or are we all in the same boat together? Or is the boat not sailing on rough waters anyway? Or is the shore clearly in sight? Or who are the helmsmen?

Have architects finally fallen victims to the malaria of the Renaissance which in permeating the individual set out to make the name and character of the individual actor or artist of greatest importance? Much of the greatest art has not been produced in these circumstances, or by artists of any ilk who offered only private messages. The world as a whole is moving to a greater and greater collectivism and I mean this in the most general terms, not necessarily economic, not necessarily political. More and more things require group efforts to achieve. Leaders are more and more captains of committees and not of armies, conciliators not commanders. But committees cannot write poetry we know. Are the arts then the last final refuge of the Renaissance philosophy of the individual? Is the dignity of man impossible unless each man can make a strange enough face and speak in loud enough words so that he commands the attention if not the admiration of all who pass by? Has contemporary architecture, lagging painting and sculpture as it always has before, finally fallen heir to the malaise of the other arts based on the notion that it is better to do bad personal work than good collective work? Can architecture as a social art afford this fantasy?

ARCHITECTURAL ANALYSIS — PRELUDE

A doctor doesn't necessarily give his clients what they want. In some cases he could be jailed for that. A doctor gives his clients what he thinks they need. So it should be with the practice of architecture. But the trick is to distinguish between *wants* and *needs*.

We design a lot of schools. It takes no special talents or great experience for us to take pencil and tablet in hand and go to a school board client (the seven-headed kind) and say, "How many classrooms do you want? And how large do you want your cafeteria to be? And how many toilets do you want? Will there be an assistant principal's office? How large should it be? Oh yes, do you have any special place you would like us to locate the building on the site?" Believe us, no school plant worth its salt has ever been produced this way.

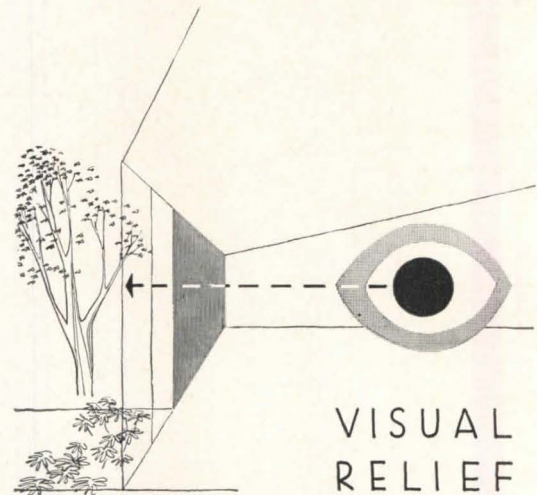
A mere list of spaces has little to offer in the problem solving approach to architectural practice. Even if the list represents approximately what the client needs as well as what he wants it is a very poor source for competent designers to go to for inspiration. Of course we must admit that each of us has been listing (just what it implies) for years. But a lister does not provoke the client to think. Lister are not creative questioners. The "program" we got in school was generally mere listing of spaces. Perhaps here lies the greatest weakness of our architectural schools—too much program and not enough programming.

What is programming? Isn't it the process of determining needs? But how can we distinguish between wants and needs? Here's where training and experience do come into play. And we think special talents, too. Obviously the architect with the analytical mind can do the best job of programming. In essence, he is an architectural analyst. We often wonder why our architectural schools do not have degrees towards a specialization in architectural analysis in this age of architectural teamwork. How can we distinguish during this programming process between what our clients think they want and what their true needs are? We have no magic formula. So much depends on the ability to analyze combined with good judgment. But we do have here an outline of the methods based on our own experience, which we hope may give greater significance and breadth to the programming process. Before presenting the outline, we submit to you these premises on which they are based: (a) Programming initiates the problem-solving approach because actually it is finding out what the problem is. In essence, architectural analysis (we think this is a better term) is the prelude to good design. (b) The pure analytical

by William M. Pena

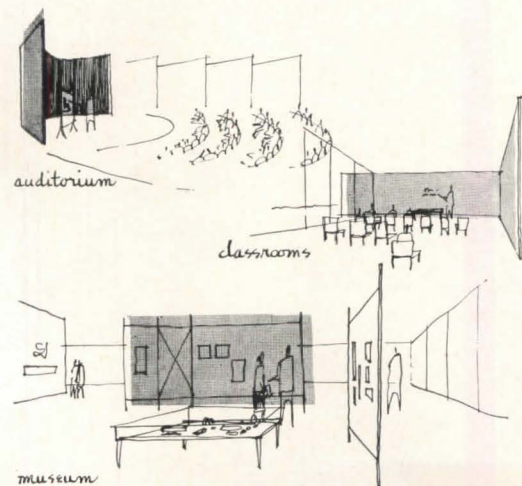
and William W. Caudill

Caudill, Rowlett and Scott, Architects

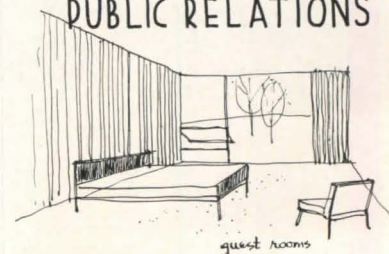


VISUAL RELIEF

there is a need for visual strips in the work areas throughout industrial plants. lounge areas with outside view are also necessary for periods of relaxation

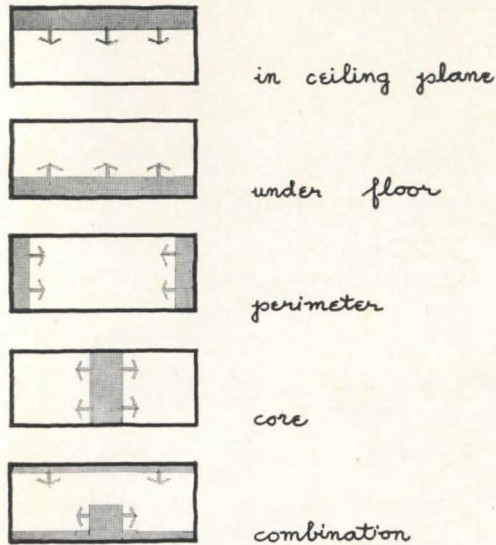


PUBLIC RELATIONS

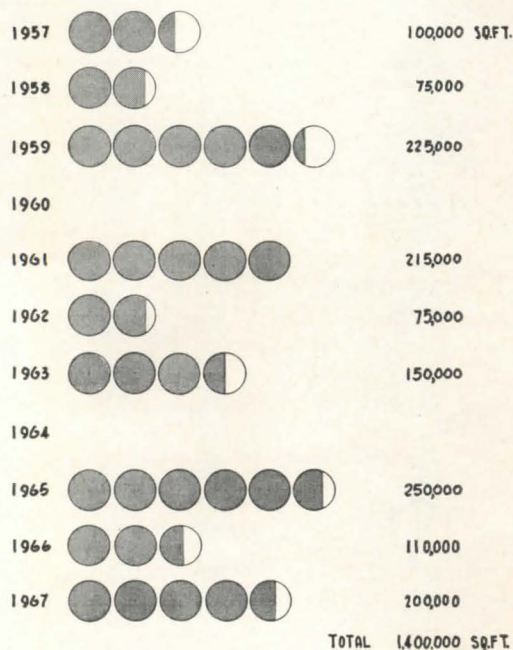


TO GOOD DESIGN

LOCATION OF MECHANICAL SERVICES



ACRE SPACE SCHEDULE



approach, however, must be complemented with the creative approach before a really good architecture is produced. Architectural analysis alone can't do it. Nor can creativity alone produce a great building. It takes both. (c) The process of architectural analysis is the same for any building type.

It is our belief, therefore, that the proficient architectural analyst must have a mind that is analytical, assimilative, and creative. It is also our belief that regardless of the size of the project a careful architectural analysis is essential. Of course, the more complex the function the more comprehensive the analysis must be.

Now for the methods used by the architectural analyst. There are many, but these seem to have prime significance:

Make your clients part of the planning team and reap the benefits of group interaction. An example of this paying off came about when we were programming the needs of a junior high school in Tyler, Texas. At that time we had set up conferences with various people of the teaching staff to try to pin down the problems of a gymnasium. At first about all we got were negative criticisms. "Don't make it like the one we have; it's too hot." "And it smells." "The lighting is terrible." "And who wants to play basketball in the bottom of a barrel?" About all we were getting out of this bunch were some suggestions on what not to do. However, as our conferences continued, the benefit of group interaction was brought about when one teacher said, "Wouldn't it be nice if we could have an inside court nearly as good as an outside one." This triggered what we believe to be the first all glass gymnasium in the U.S.

Obtain a background. Develop a background through library research and by attending seminars, conventions, and conferences, read, talk, and listen. We have conducted clinics involving our clients, townspeople, everybody in the planning team. This helps in establishing rapport between the many people involved. School clinics at San Angelo, Texas, and at Roanoke, Virginia, were cases of a public function.

Develop the art of interrogation. You don't have to have a couch for your client, but it might help. It is a very difficult job to determine the difference between *wants* and *needs*. We confess we know very little about the art of interrogation. We've tried to pick up a few pearls from the psychiatrists, but the only thing we learned was how to tolerate insecurity and live with ourselves. They did not tell us how to tolerate and live with clients who want the moon. About the only thing we have to offer is the result of our meager experience. From this we believe: (a) the more conferences with the client the better; (b) in the early stages it is best never to talk about solutions—only problems; (c) and it is still more important to try to seek out the big planning concepts by

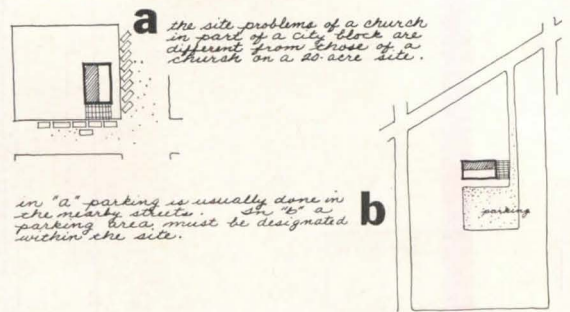
asking questions about the aims and methods of the process—whether it is manufacturing, medical treatment, educating children, worshipping, or simply family living; (d) by asking questions early in the game to establish some big concepts—such as in factory planning the industrial-architectural concept of flexibility, or in school planning the educational-architectural concept of decentralization—the flood of insignificant details later to come will not cover up what is real in planning; (e) questions relating to people and products are much more relevant than an opinion poll on the desirability of certain plan types or building materials.

Study the client from bottom to top. Interrogating only the top people in an organization may lead to an incomplete view of the problems. A plant manager is not always aware of the workers' functional requirements. A study through interviews of a vertical section of people is necessary to get the complete picture. You don't have to include large numbers of people at any one level if this leads to duplication of efforts. For example, in the design of a recent factory, management led the architect to specify an over-all shadowless illumination system. Production people were not consulted; they could have explained that shadows were necessary in the close inspection for flaws in their product.

We arrived at a system of decentralized dining in a junior high school after finding out from students why they did not patronize the large school cafeteria.

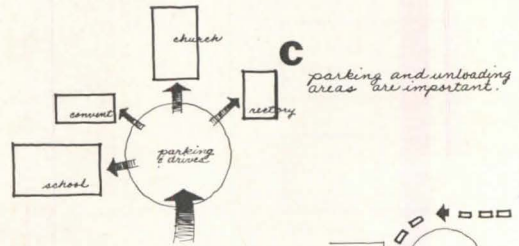
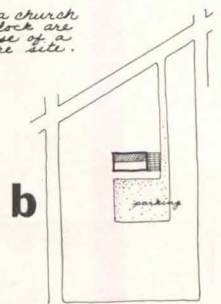
Make visitations to see plants with similar function. Regardless of how many projects of any specific building type an architect has done, it is always wise for him to visit and study the functions of similar types. When we were programming the needs of the Brazos County Courthouse in central Texas, our partners visited a dozen or so courthouses throughout the U.S. Our prime interest was to seek out problems, not solutions. Old buildings are much better to study than new ones because the temptation to crib is minimized. A great lesson can be learned in finding out how these old buildings have responded to changing function throughout the years. This can be part of a study of the trends in function. Before we did our first high school we made a serious study of the 30-year-old Classen High School in Oklahoma and the 40-year-old high school in Olympia, Washington. The study of these two old timers converted us to the concept of flexibility, because we saw how expensive in the long run a non-flexible building can get. Here was a case where we forbade any of our planning staff to visit new schools. We didn't want what little imagination we had to be snuffed out. You can get into trouble with cribbing the shell.

Raise the architectural appreciation level of your client. If, after programming, the client does not have a better understanding and appreciation of ar-

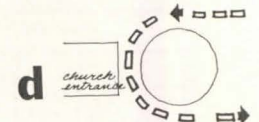


a the site problems of a church in part of a city block are different from those of a church on a 20-acre site.

in "a" parking is usually done in the nearby streets. In "b" a parking area must be designated within the site.



design the driveway to expedite the traffic problems involved in funerals.

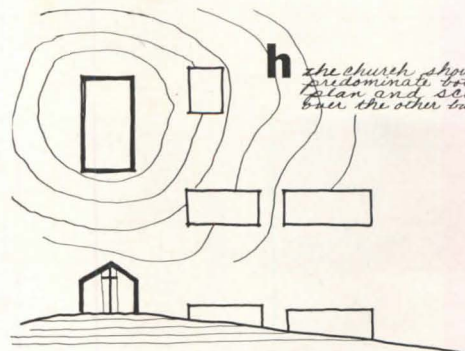
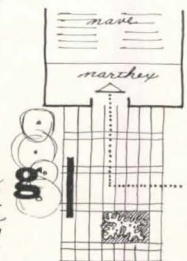


e avoid steps at the church entrance. provide easy access for elderly people.

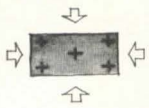


f the early churches had atriums at the front of the church.

we should provide a social terrace at the entrance of the church for people to gather informally before and after religious services held inside the church.

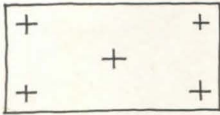


h the church should be predominant both in plan and scale over the other buildings.



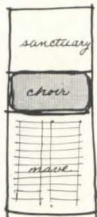
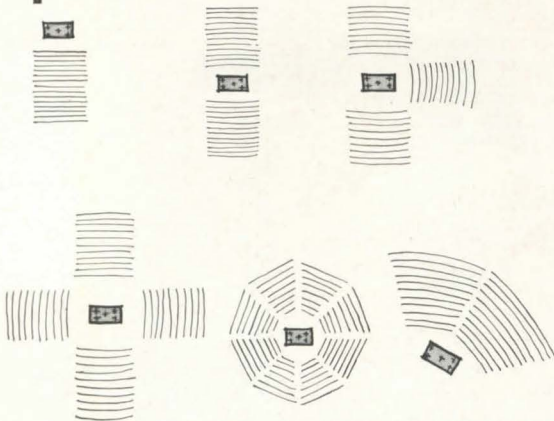
Liturgically - the altar is the focal point in a church.

o



therefore - it must be in full view of the people attending services.

p



q

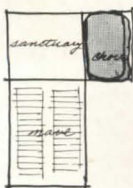
the position of the choir.

the real liturgical choir is not found in parish churches in the United States.

most churches have a choir loft ---



but some churches have it here ---



or here



chitecture, this phase of a specific architectural project might well be considered unsuccessful. This we believe, because a building conception cannot be much better than the client's sympathy and understanding of architecture.

An "educated client" makes the best kind. But how can you educate a client? Expose him to good architecture through reference material, visitation, and discussions. We know for a fact that good architects raise the architectural appreciation level of their clients.

Examine the facts. Study the site, its surrounds and its climate. For the Bettes Building we studied the signboard approach because of its money-making implications. Look into the client's pocketbook. Enough said. Investigate local construction methods and materials. (At Monterrey, Mexico, we found the ecology of form to be very important to us.)

Put concepts, needs, and ideas for consideration down on paper. Both of us are firm believers in putting things down on paper, either graphically or in words. It has been our experience that you get the fuzz off of a fuzzy idea if you write about it. We also believe that our design ability improves when we learn to organize our thoughts in simple, clear words. Therefore we consider that it is imperative that the architectural analysis be put down on paper. This does these things: (a) it makes us, as architects, become more articulate concerning our client's problems; (b) it lets our client know how we are thinking; (c) it provides a document by which our client can make the necessary evaluations required for a successful project.

We might add a fourth. The written report allows our firm to share our experiences with other architects. Only through an interchange of ideas and criticisms can we hope to have a true profession in architecture.

The graphic outline is another necessity. The flow chart, for example, helps both client and architect to arrive at an understanding of the problem of movement. The space relation diagram pictures in a few simple lines the complicated relationships of needed spaces. An illustration of purposes and methods of the client's activities often does more good than a bushel of meaningless sketches of solutions of nonexistent problems. Architectural practice is problem solving. The analysis portion of this practice is simply finding out what the problems are. The graphic language helps to locate and identify them.

Present the architectural analysis as you would preliminary plans. Once you feel that you have completed the architectural analysis, we believe it should be presented to your client with the same fanfare, enthusiasm, and thoroughness that you have in presentation of preliminary plans. In fact, the package should be wrapped up prettier. Here's where you have proven yourself to be a real profes-

sional—the complete Architectural Diagnostician.

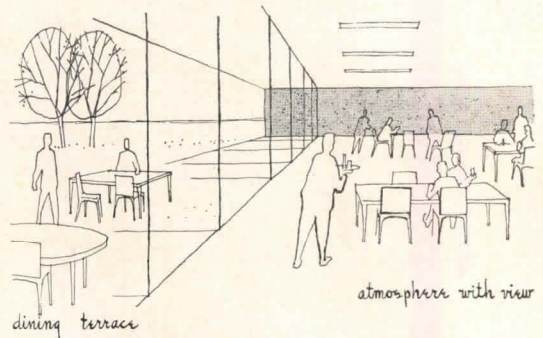
Our firm goes to a lot of effort to make the analysis an impressive one as well as to give our clients a thorough understanding of what we consider their real problems and how we hope to solve them.

When we first started our practice we used what we fondly called our “snow cards” as part of our graphic presentation. Each card, about 15 in. by 30 in., would contain a simplified statement of the problem, or a flow chart, or graphic analysis of cost considerations, or a sun analysis, or some other graphic breakdown of some problem. Then, as clients having many more heads began to come to us, we went to the “snow roll” so all heads could see our visual aids. We wallpapered many conference rooms with large graphic illustrations which spelled out the problems on rolls of brown wrapping paper.

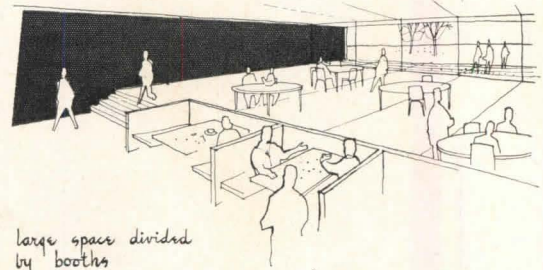
We are now going beyond the “snow roll.” We make each graphic analysis the size of a wall. This is done by making the sketches on 5 in. by 8 in. cards, then projecting them on a screen with an opaque projector. These cards we identify by the much less imaginative but slightly more dignified name of “analysis cards.”

Before basic plans are started, write the specifications for an architecture. We are all familiar with architectural specifications; and although the art of writing architectural specifications is important, it becomes increasingly subservient to the art of writing specifications for an architecture. What are specifications for an architecture? Let's see if we can explain it this way: the designer, whether he is involved in the analysis phase or not (we think of course he should be), receives actually little guidance and most certainly no inspiration from a listing of “spaces required by the program.” His job is to create an environment, beautiful and workable—not just shuffling around some oversized dominoes. People live and work in those dominoes. The designer therefore should be as interested in qualitative space as in quantitative space. Writing specifications for an architecture is putting down on paper in words the requirements of qualitative space. We often wonder why more of this is not done in the architectural schools. Shelter did not evolve into architecture until the ingredient of human values was added. It is this plus-factor that architects should be interested in. The plus-factor is spelled out in the specifications for an architecture.

Now let us see if we can wrap this thing up in a nutshell: 1) A thorough architectural analysis is a necessary prelude to good design. 2) Most important is to distinguish between the client's *wants* and *needs*. 3) And to find out true needs, the architect better learn the art of interrogation. 4) The architectural analysis should cover not only quantitative space, but qualitative space as well. 5) In this respect the architectural analyst should also learn the art of writing specifications for an architecture.

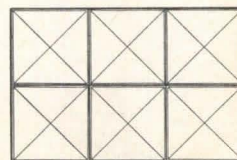


atmosphere with view



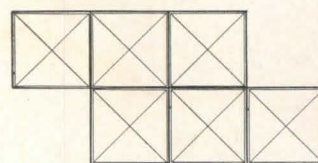
DINING

VERSATILITY

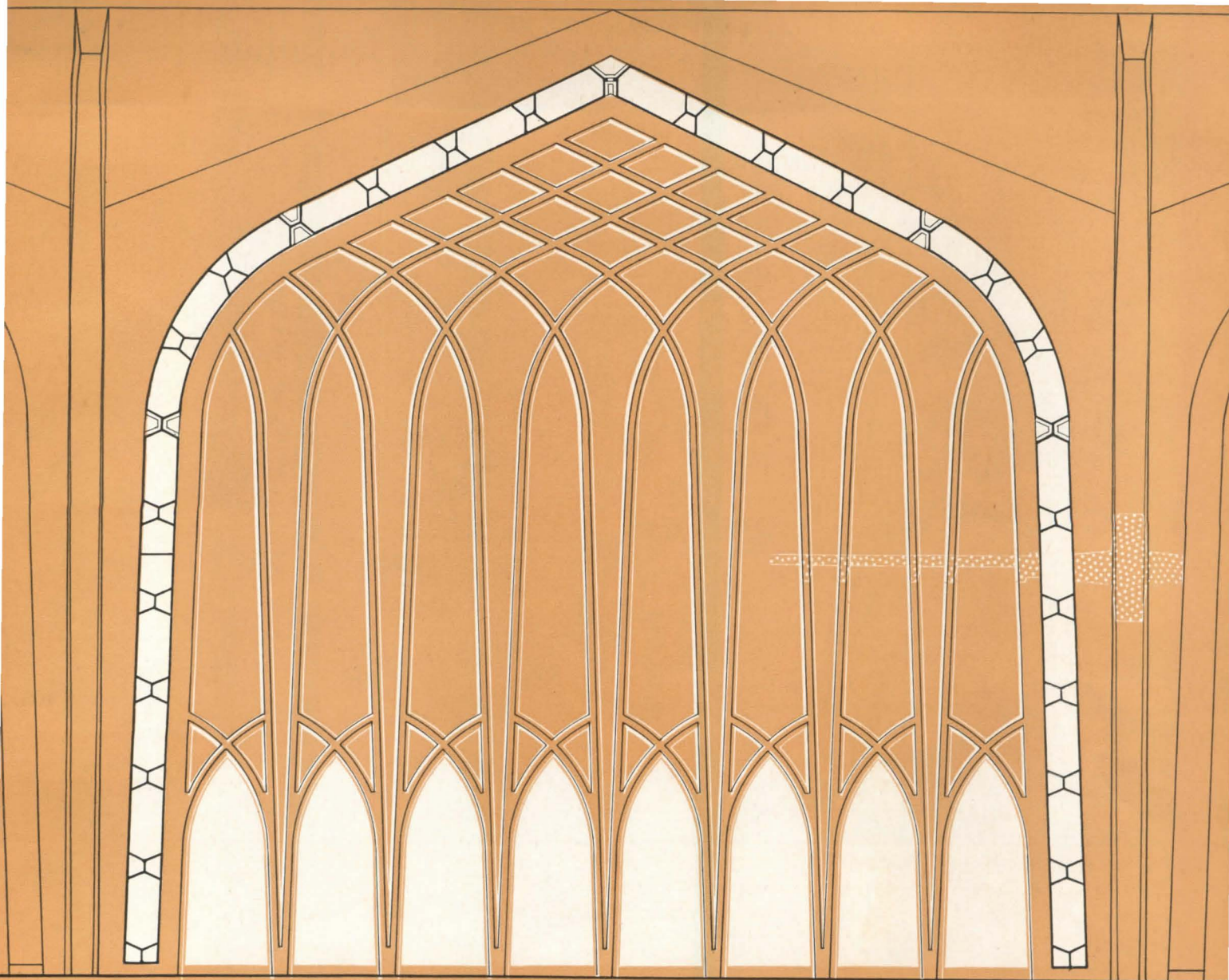


we can group them in clusters like this

an acre of space—typical



or this cluster



CIVIL AIR TERMINAL

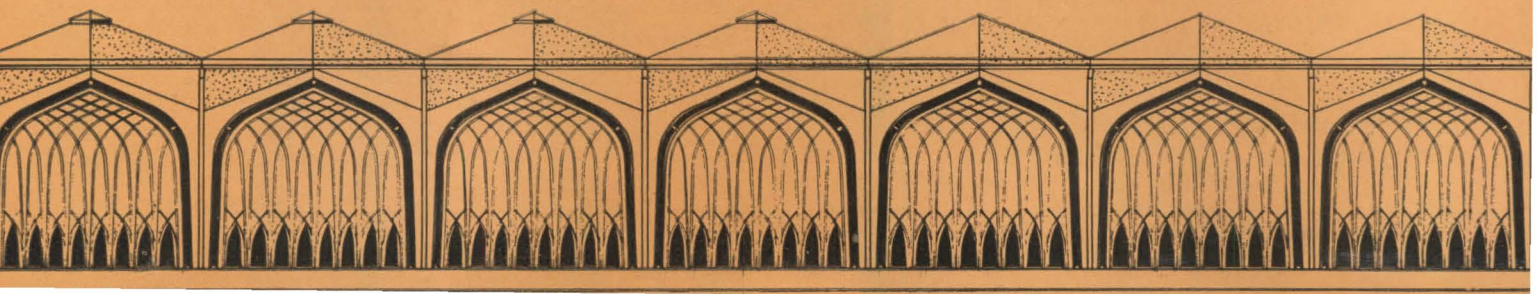
Dhahran, Saudi Arabia

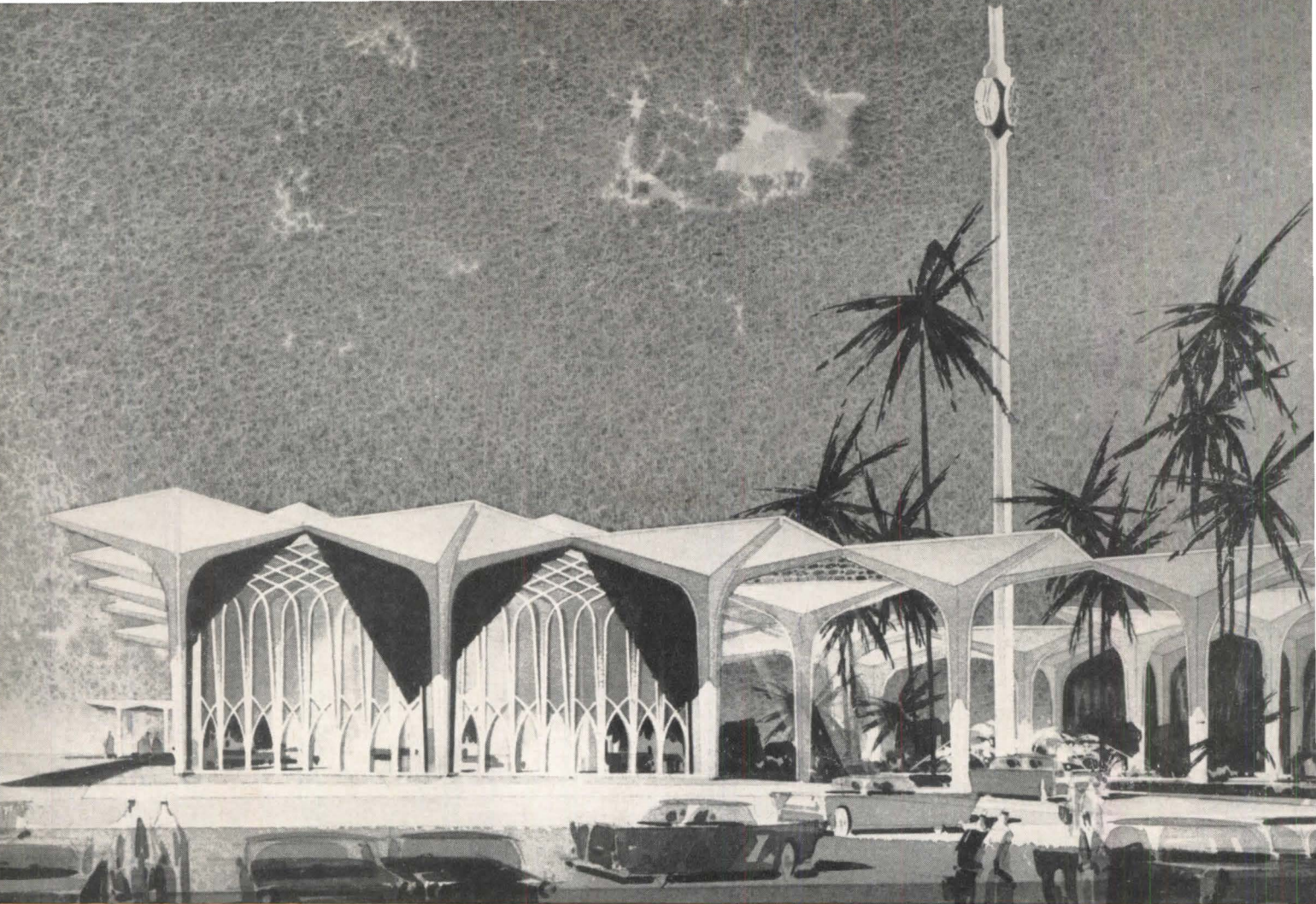
*The Ralph M. Parsons Company
Engineers—Constructors*

*Minoru Yamasaki, Consulting Architect
Gunnar Birkerts, Cass Wadowski,
Henry Guthard, Project Associates*

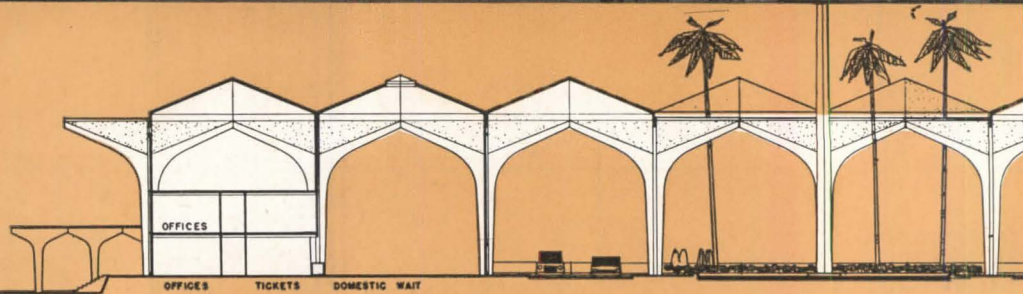
*Landrum and Brown
Airport Consultants*

*The Corps of Engineers, U. S. Army
Contracting Authority*





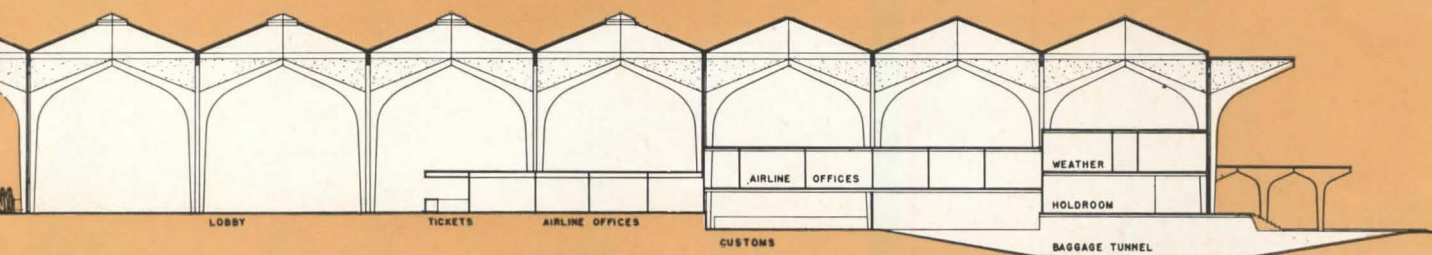
Rendering by John Hollingsworth



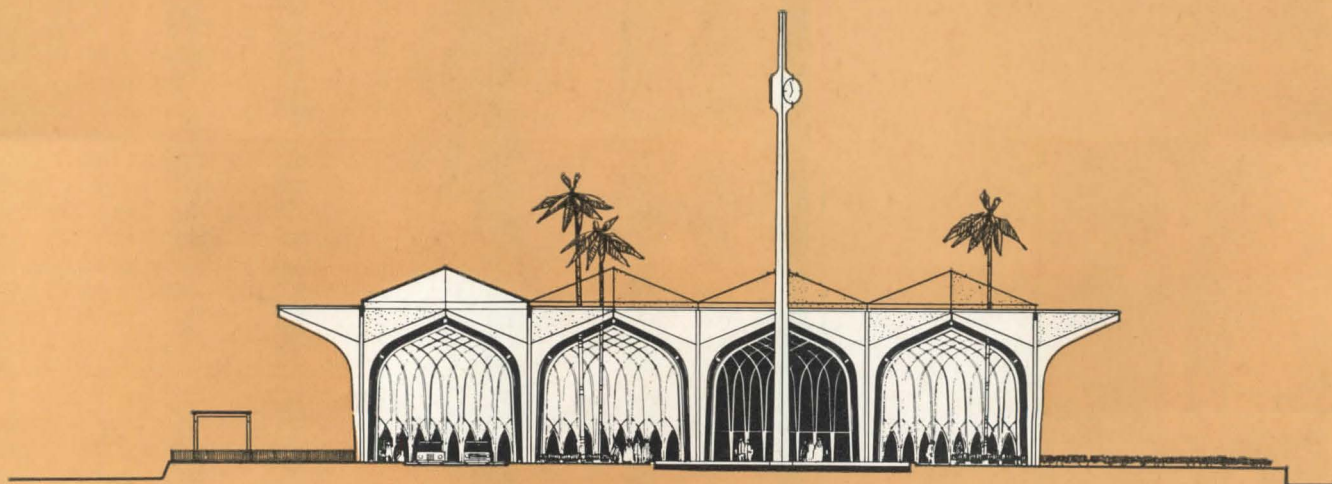
DHAHRAN AIRPORT



The several influences of environment, modern precast concrete technology, and traditional Arabian culture were blended with great skill and taste in shaping the design for this air terminal. The situation—a desert, very hot and dry—demanded small glass areas to ameliorate the air conditioning load, and asked for as much shade as possible for outdoor areas. As designed, a cooling fountain set in a shaded, lushly planted courtyard will offer delightful relief from the baking aridity on all sides. This oasis-court will separate the two main areas, the domestic and international terminals; will serve as a turn-around for cars; and



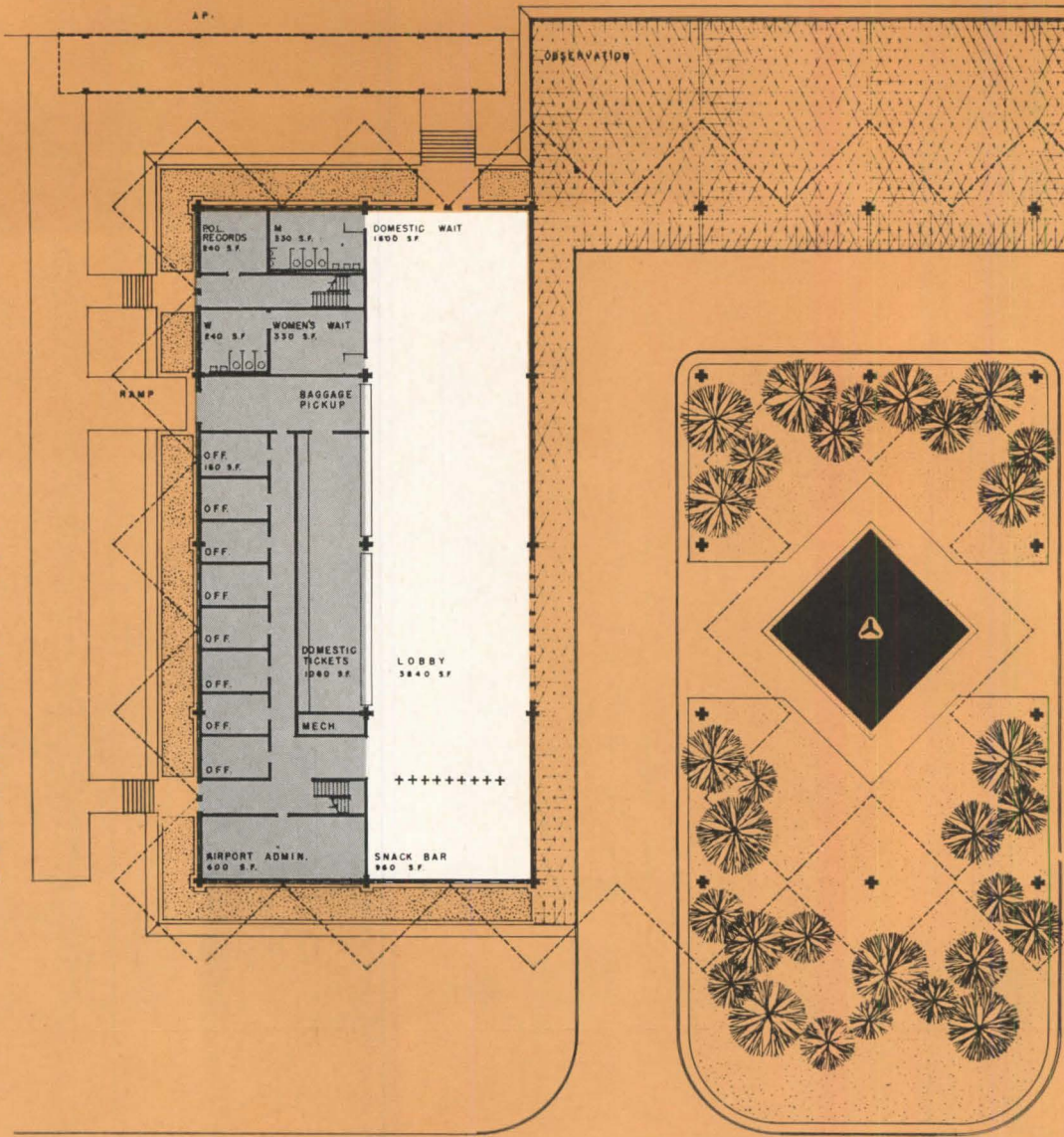
LONGITUDINAL SECTION



TRANSVERSE SECTION

Division of the work was clearly defined, with consulting architect Yamasaki responsible for design, and the principals, The Parsons Company, handling the engineering and development of working drawings.

The preliminary plan, right, has undergone the inevitable series of minor revisions as working drawings were developed, but remains essentially correct. Shaded portions delineate areas over which a second floor will be built to house variously either additional offices or space for air conditioning equipment

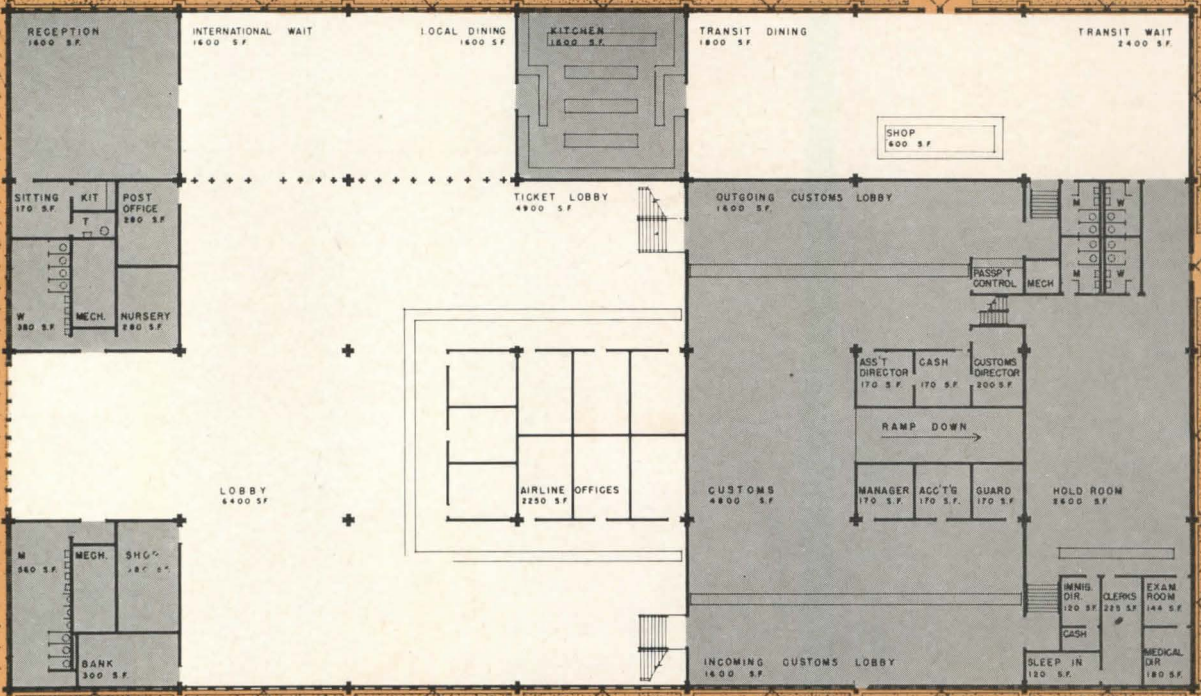


DHAHRAN AIRPORT

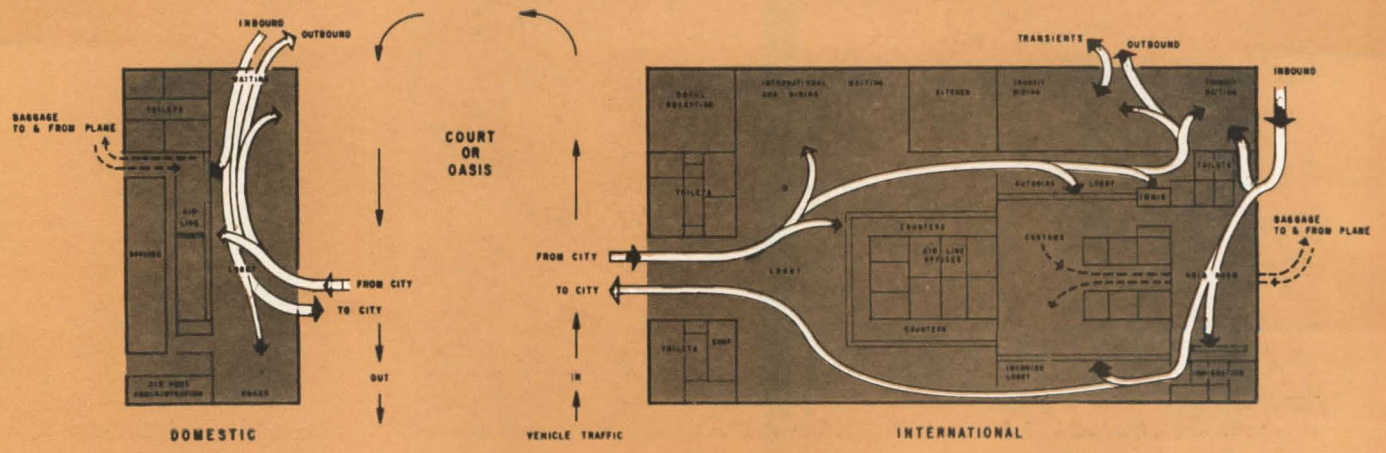


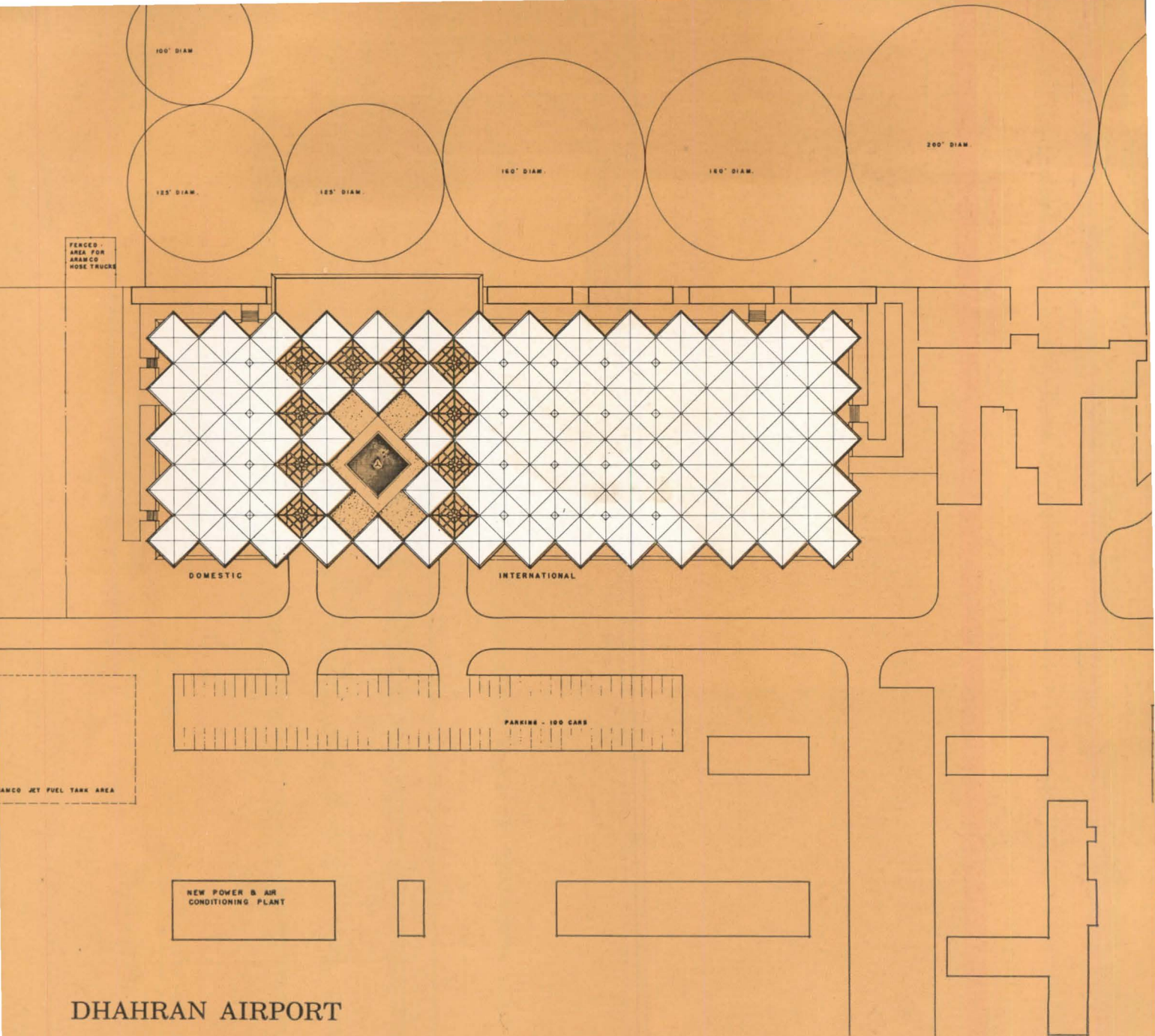
will lie adjacent to the observation terrace overlooking the flying field.

The building will be constructed by assembling components of precast concrete. For economy and ease of construction—among other reasons—it was decided from the beginning to forego complicated building techniques and large span constructions of any kind. After considerable study it was determined that a 40-ft module for column spacing would meet all the requirements of the plan and at the same time make possible a simple structural system composed of relatively small members easily handled by an ordinary crane. Four L-shaped

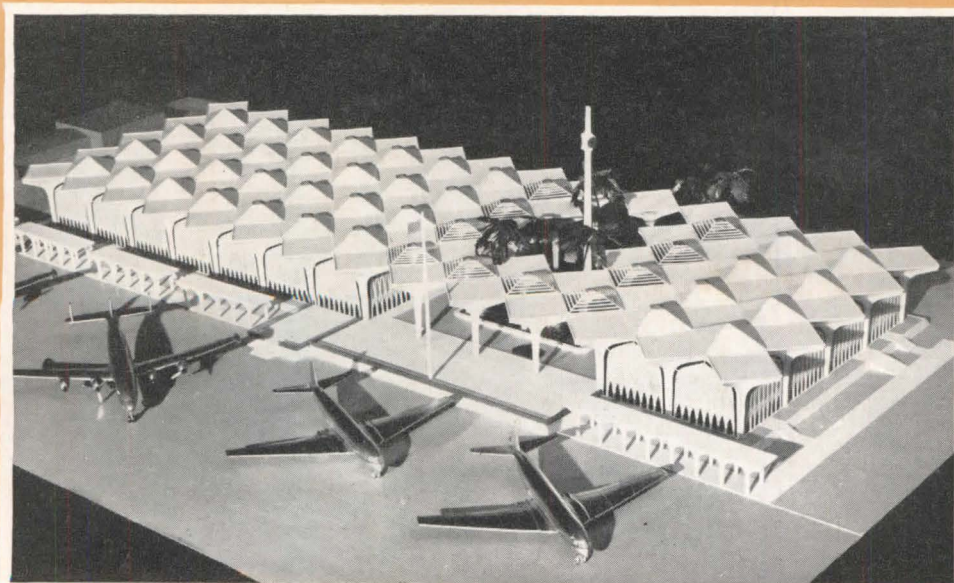


The flow of incoming and outgoing passengers—and their baggage—as well as the linking together of this movement with automobile traffic to and from the city, was the subject of considerable plan study and analysis, as shown in the diagram below





DHAHRAN AIRPORT



bents will be tied together to make spreading columns; thin roof slab elements will then lock the entire system into structural unity.

To give the building its "Arabian look," the bents were deliberately shaped as segments of a Moorish arch; and the wall panel ribs (necessary for stiffness) were designed to create a visual illusion of laciness, in keeping with traditional Arabian grille work. The interior of the wall panels may be enriched by tile patterns or by painting. Floors and terraces will be terrazzo, tile or some similar material, with certain areas patterned in sympathy with the richness of traditional Arabian design.



When a Japanese garden must be waterless, illusion substitutes for reality. In the famous Kare-sansui (dry garden) of Daisen-in, Kyoto, first laid out in 1515, water is symbolized by raked white sand and moss, a mountain waterfall by upright rocks in the background. Other stones represent cliffs, islands, even a boat, and a stone slab bridges the torrent

WHY WATER

by Elizabeth B. Kassler

Where water is concerned, American architecture has traditionally kept its distance. Occasionally it has been welcomed as a view or used in the Beaux Arts manner to embellish a public monument, but by and large our attitude has been one of indifference or distrust. Even the natural springs and streams of suburbia are normally tucked away in culverts—a tidy practice astonishing to any Oriental householder, who would himself go to no end of trouble to ensure a trickle of water in his garden. Garden water we do cherish as swimming pools, but the typical backyard pool has little to do with architecture. Unrelated to house or to landscape, it is an extraneous object dropped by a kind Providence and properly labeled For Swimmers Only.

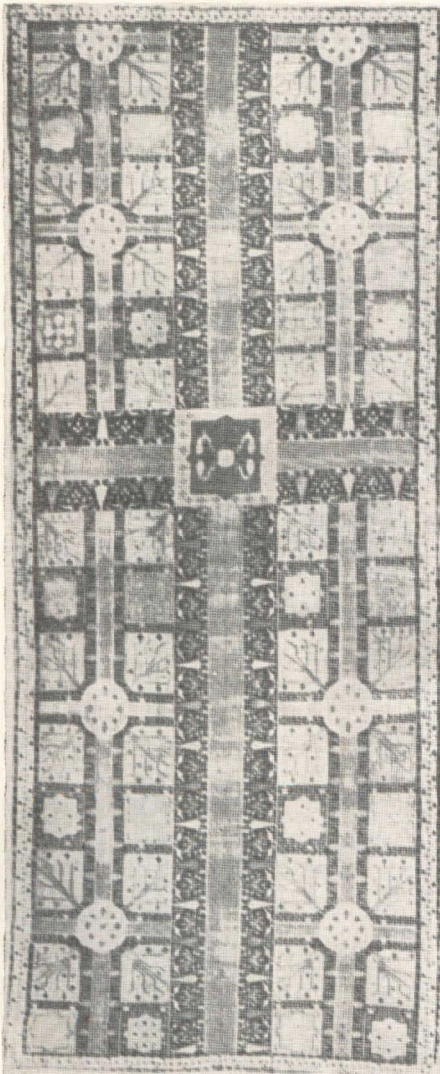
Only in our exposition architecture has water had an assured and honored place. Perhaps the very fact that fairs and fountains are so related has played against the acceptance of water in less ephemeral projects.

“Thousands have lived without love, but none without water.” AUDEN

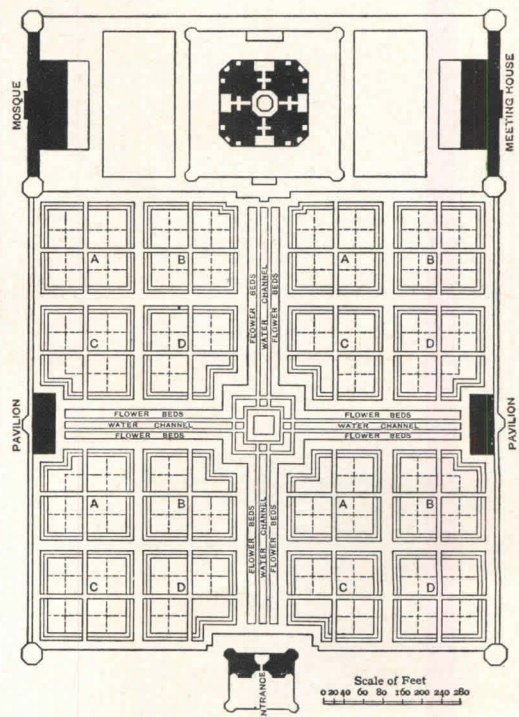


Country Life

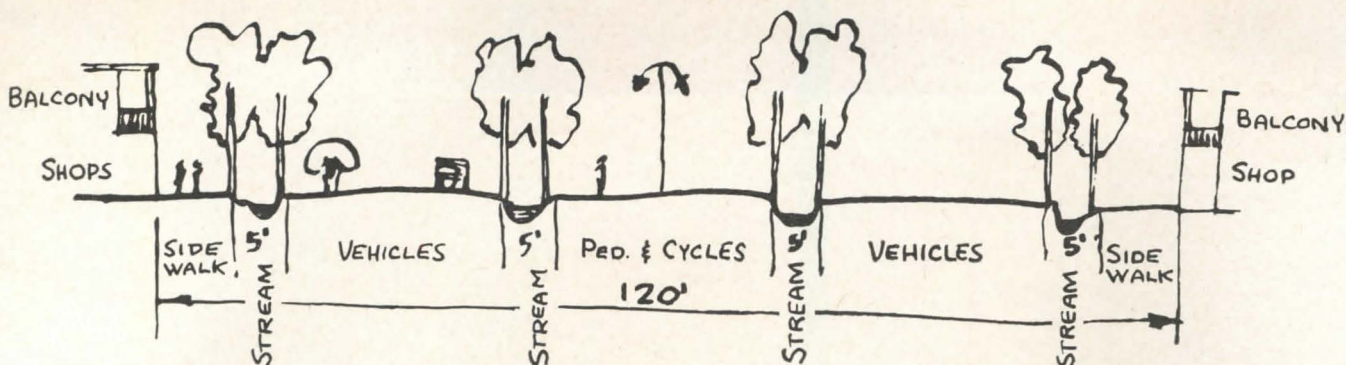
Villiers Stuart: Gardens of the Great Mughals



Illustrated on this page are some interpretations of the ancient concept of Paradise as a garden quartered by four streams and, in some versions, centered by a holy mountain. Below is an old plan of India's Taj Mahal gardens, laid out around 1650 for Shah Jehan with a cross of water centered by a raised pool,—a type of design brought from Persia early in the 16th century by the conqueror Babur. At left is a rare Persian "Paradise carpet," woven in the 17th century to a pattern known to go back to the fabulous Sassanian "spring garden carpet," with crystallized streams and jeweled flowers, which was made in the 6th century for Chosroes I and his palace at Ctesiphon. . . . To this hoary tradition Sir Edwin Lutyens brought new life with the crossed, brimful canals in the gardens of the New Delhi Viceroy's Palace, started in 1912



Plan of 1828 from Villiers Stuart: Gardens of the Great Mughals



Sketch from notebook of William Wilson Wurster

Following ancient techniques, the public water supply of a typical Persian town is brought from distant mountains by *qanats* or horizontal wells. The water comes to the surface at the upper edge of town as clear cold streams to run through gardens and pleasure *jubes* which line the streets, flow through gardens and pleasure pavilions, turn mill wheels and emerge, dirtied and diminished, to irrigate the fields below. These numerous ditches still sound the normal accompaniment to Persian life. . . . With its four rushing *jubes* and its eight rows of plane trees, Isfahan's Chehar Bagh or Avenue of the Four Gardens (above) are still a wonder of the world, though little remains of its early 17th century splendor, when it was built by Shah Abbas the Great. Then the channels were faced with onyx and bordered with jasmine and roses, while the central esplanade was enlivened by cascades and pools

G. E. Kidder Smith



"One of the chief defects of Hindustan," complained the victorious Babur in 1526, "is the want of artificial streams." This he proceeded to remedy, for wherever the Moslems went as conquerors, whether to India or to Spain, they brought the techniques of irrigation and the art to shape the moving, sounding water for pleasure as for profit. Here in the courtyard of a Cordova mosque is a garden of 976 A.D., the oldest surviving in Europe. Orange trees, planted as extensions of the mosque's rows of columns, are set in brick paving, and fountains fill irrigation channels which run from tree to tree

"And a river went out of Eden to water the garden; and from thence it was parted, and became into four heads." GENESIS 2. 10

Our disinterest in water is reasoned: we have too much of it. As a commonplace, it has had no strong appeal to our collective imagination. In Persia, India and the Mediterranean basin, the case was different. Where rainfall was limited, it inevitably became a treasured element in building for the good life. Surely it is no accident that all these people, Hindu and Moslem, Jew and Christian, share the concept of Paradise as a garden quartered by four symbolic rivers. With its crossed canals, a Moslem's garden was his heaven on earth.

Need has been the more or less immediate basis for most of the great water architecture of the world. For Moslems the central challenge was irrigation, and physical discomfort in hot weather, while for Hindus and Buddhists it was the demands of ritual bathing. In northern Europe it was the call for public fountains and defensive moats. When necessity mothered the art, custom often happily outlived the need.

For us such motives have been largely irrelevant. Irrigation is necessary only in limited areas and our ritual use of water is negligible except in air conditioning, accepted relief from summer heat. Our need for moats has never pressed, nor have we been dependent for water upon fountains or public wells.



McKim Marriott

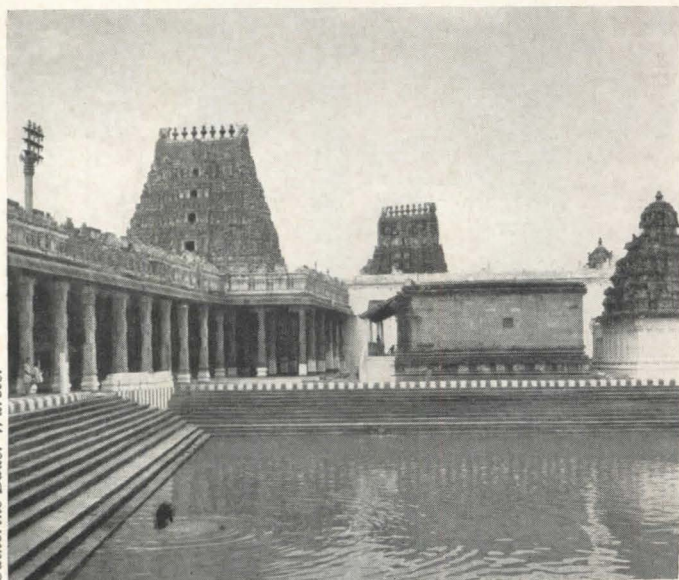
McKim Marriott



For the 17,000 people of the Hindu town of Wai, near Poona, the center of all life—religious, working, social, recreational, political and, implicitly, esthetic—is the holy Krishna River, contained by magnificent stepped granite embankments or *ghats*. Here in early morning are people drawing water, scouring pots, doing laundry, praying, or preparing to worship the god Shiva in one of the temples that jewel the banks. (According to McKim Marriott, anthropologist-photographer, worshippers must first bathe in the river, wash their soiled clothing and don fresh, then fill a vessel of water to pour on Shiva's lingam and on his vehicle, the bull Nandi.) At other times, say the William Wursters, there would be women gossiping, singing incantations, or bringing food offerings on top of their bright brass jars; sacred bullocks being washed, then decorated with flowers and colored powder; boys diving from rocks; circles of men discussing politics or theology; and always, they found, the rich pattern of activity brought into "absolute indivisible unity" by the river and its *ghats*. . . . Below, in the same setting, are natives and pilgrims in a ritual described by Marriott as "the concluding bath of a huge Brahminical sacrifice of 10,000,000 clay lingams of Shiva, dropped into the river"

*Water. Sounding, moving, protean water.
Holy water, home of gods and stuff of dreams*

Sacred tank within the walls of a great Hindu temple at Conjeeveram (Kanchipuram), in southern India



Catherine Bauer Wurster

It is love rather than material need that brings together water and architecture in China. A first requisite of garden or courtyard is a quiet reflecting pond, sometimes surrounded by sinuous galleries and contemplative pavilions, sometimes complemented by a "mountain" of exotically shaped rocks or by an island kiosk and connecting bridge

American architects are therefore in an enviable position, for by tradition and circumstance they are free of all responsibility for visible dealings with an extremely difficult medium—messy, unpredictable, even dangerous. Water can reasonably remain H₂O, piped.

But there are other forces that can work to bring water into architecture. Consider the Chinese and the Japanese, waterlovers both, waterlovers even in damp and rainy climates, and treasuring water not only for the delight it offers the senses, but as a possible source of spiritual growth, for they believe that the right experiencing of nature can help man find his true place in the universe.

Few of us would specify water as a spiritual requirement. At some risk of understatement, let us merely say that water is a possible source of pleasure. And pleasure in water is, after all, the common denominator that relates the wild waterfall of the Chinese sage to the Persian's neatly channeled irrigation streams, the Baroque fountain to the garden ponds of Japan, the public *Gartenbad* of the Swiss to the majestic *ghats* of India, the Baths of Caracalla to a Gothic gargoyle.



Oswald Sireń, from his Gardens of China



still waters . . . in the Katsura gardens (Kyoto, early 17th century) add mysterious dimensions through the reflections which convert the known into the unknowable, the hidden depths beneath, and the undefined shape of the pond itself

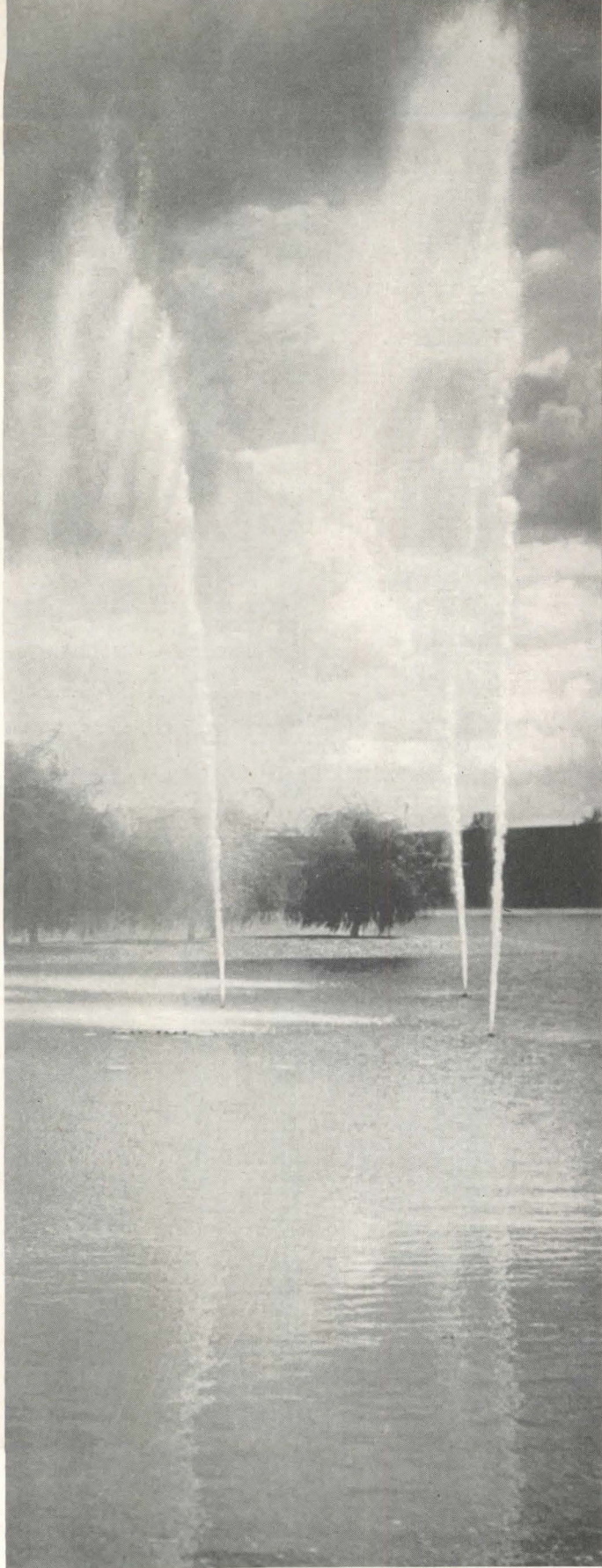
Museum of Modern Art

falling streams . . . in a medieval German market-place drop splashing from one basin into another and become, by virtue of their sound and movement, the natural focus of urban life



Walter Schröder-Kiewert, from his *Der Schöne Brunnen*

"Tenants of the house,
Thoughts of a dry brain
in a dry season." ELIOT



jets . . . mysteriously propelled from the lake of Eero Saarinen's General Motors Technical Center as part of a Water Ballet staged by Alexander Calder. As in the Moslem tradition, the fountain is the soaring water, unadulterated by masonry or by mythological conceits

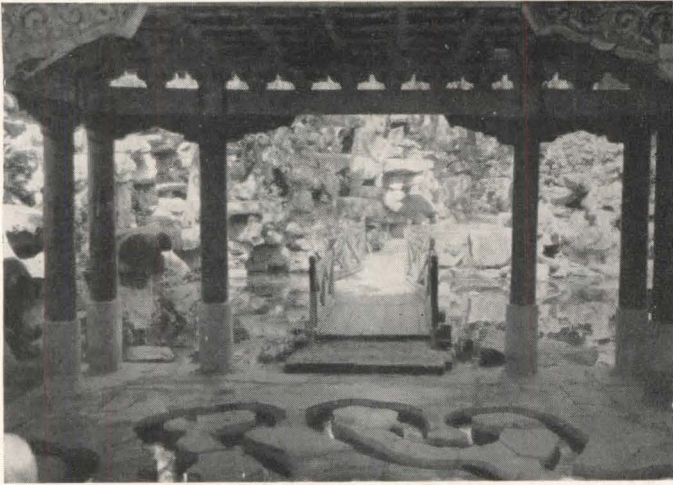
Pleasure in water means pleasure in its multiplicity of face and mood, its elusiveness, its double-talk of calm and commotion, surface and depth, illusion and reality, change and non-change. . . . Pleasure in the multiplicity of sound with which it measures eternity. . . . Pleasure to dabbling fingers and pleasure in cool spray blown against warm skin. . . . Pleasures too long denied us.

American architects are suddenly taking a long look at water and deciding that they like it, they like it very much. In its sound, its movement, its reflections, they are finding new dimensions to add to length, breadth and height, new potentialities for space and light. As they gain experience with the new medium, their work will grow in authority, and today's *tour-de-force* may tomorrow give way to a wonderful unstrained oneness of water and buildings and earth and people.

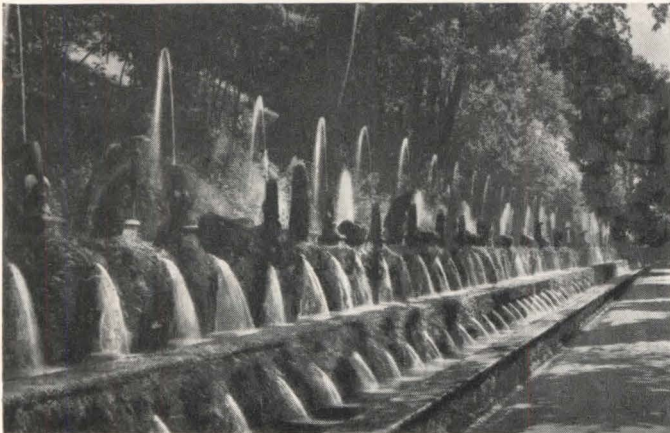
The still pool, the falling stream, the jet. This is the basic vocabulary of water design, —material for a scherzo or a dignified andante, for a grace-note or an entire symphony. The designer's control is rarely absolute, however, for water is cousin to wild wind and sky and responds gratefully to their capricious shifts of mood.

Water awaits the architect's pleasure.

Sirén, from his Gardens of China

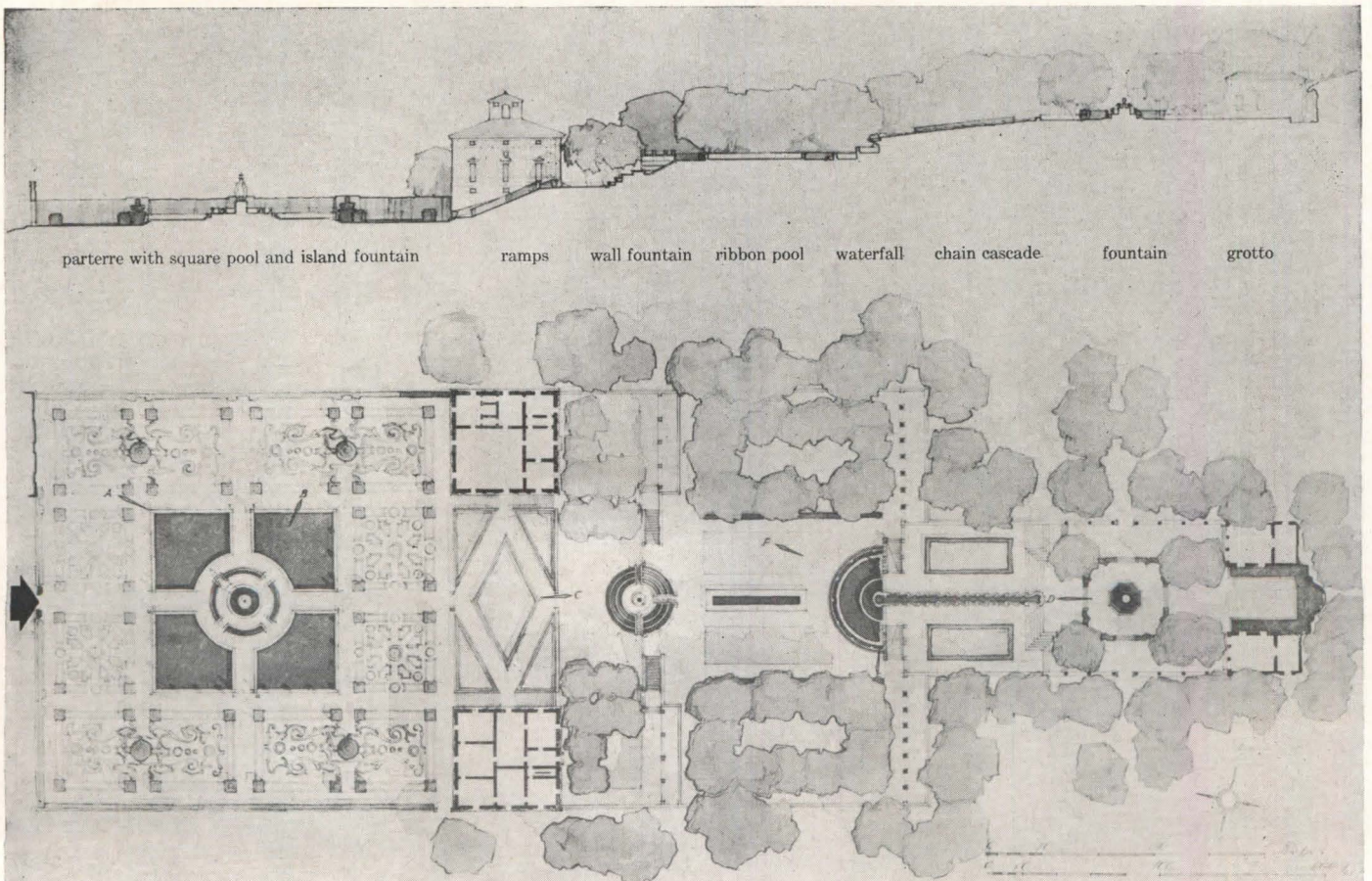


scherzo . . . In the former imperial pleasure park on the shores of Nan Hai, in Peking, Professor Sirén photographed the little Pavilion of the Floating Cups, "beside a pond framed by magnificent hollow rocks. To the pavilion leads a bridge, and its stone flooring is cut through by an ornamental loop of canal, where the water flows in. . . . It was a matter of writing a poem while a little wine cup floated on its saucer from one end of the canal to another." The slow poet was the loser in the competition and as forfeit emptied the cup



fugue . . . Walk of 100 Fountains, Villa d'Este, Tivoli, c. 1550

concerto . . . The Villa Lante at Bagnai (below) is almost unchanged since it was laid out around 1575, probably by Vignola. It is unique in that water forms its entire central axis, undisturbed by the offset twin pavilions; yet, due to the steep site and the uphill approach, the garden is only gradually revealed and one proceeds as in music through a series of extraordinarily personal experiences, distinct but unified. . . . Entrance is at the base of the hill into a sunny, formal parterre, from which one mounts counter to the flow of water into increasing turbulence and shade, threading through a wall-fountain, marvelously wrought of concentric circles, up to a ribbon of water lying still as death in its elongated sarcophagus, then around a stepped waterfall to a ramp centered by the bright burbling immediacy of knee-high cascade, and finally circling a high-sputting fountain to reach the grotto where water issues from a wild source

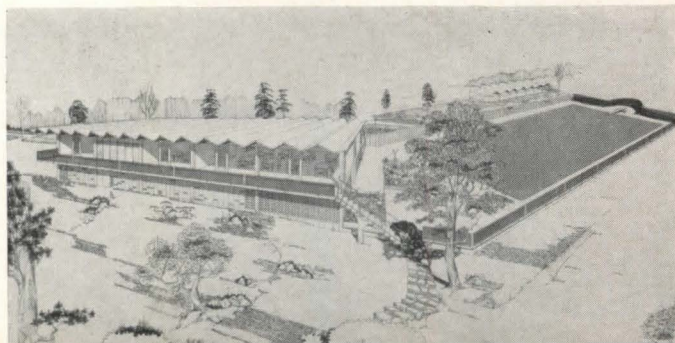
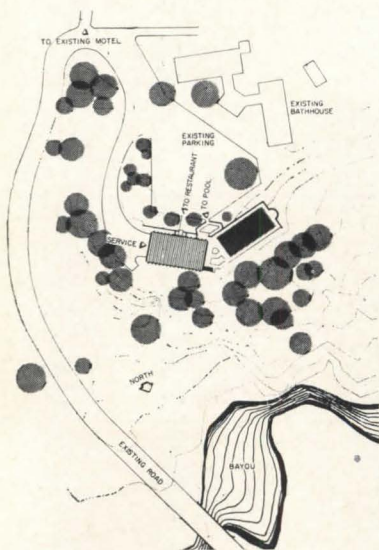


Fouquier and Duchêne, Des Divers Styles de Jardins



Frank Lotz Miller

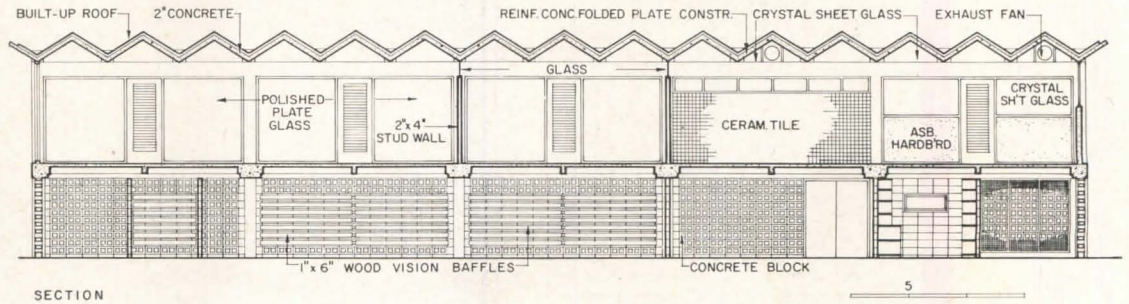
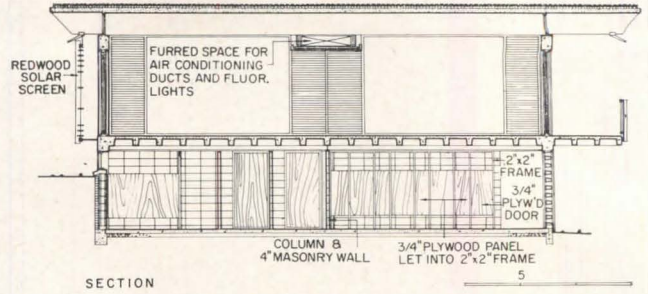
A RESTAURANT AND SWIMMING POOL MAKE GOOD USE OF SITE



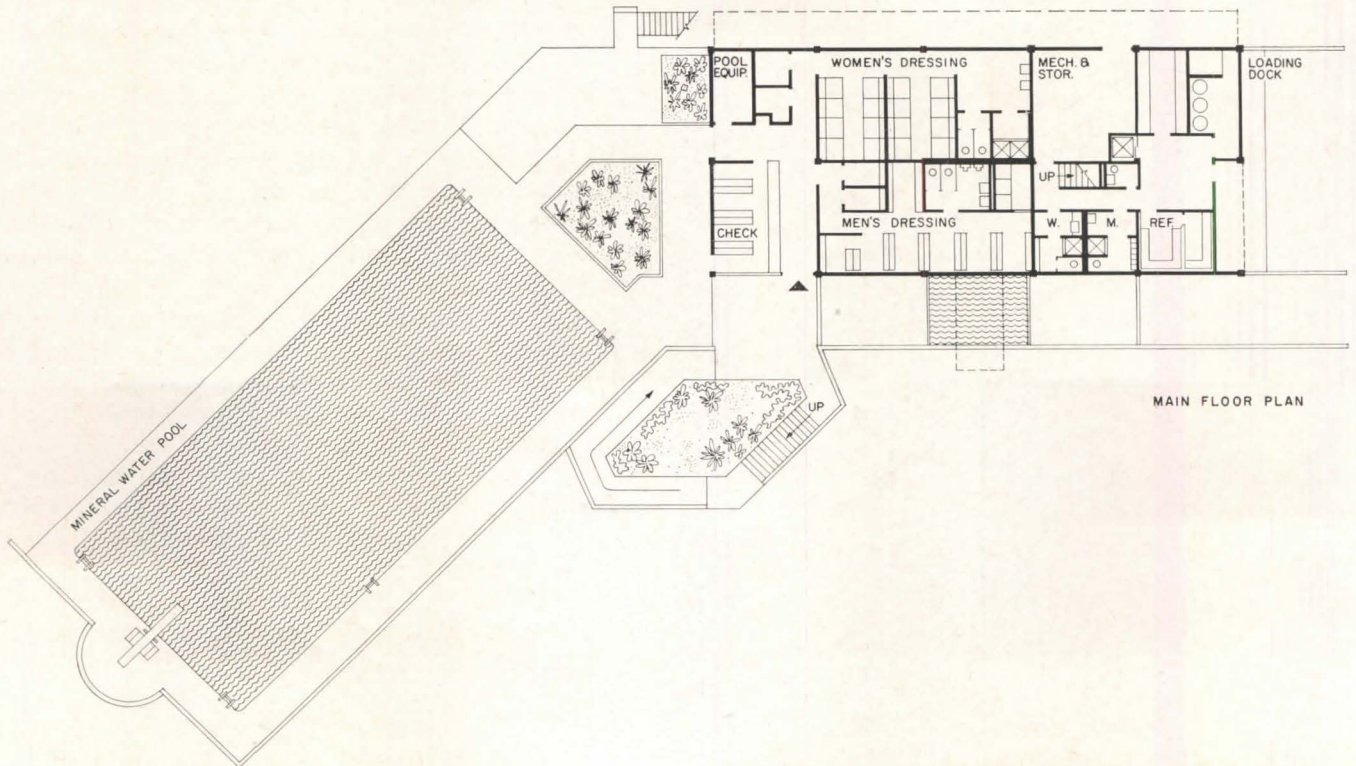
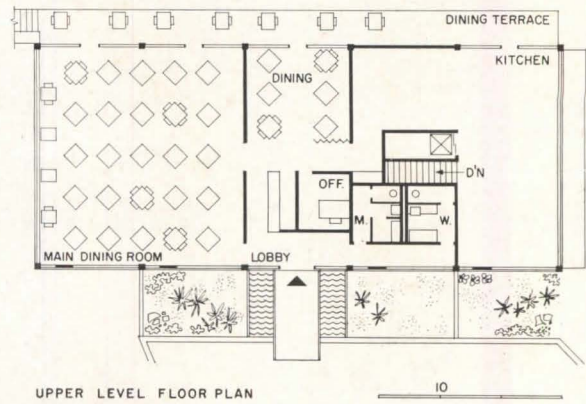
The architectural and engineering firm of Glankler and Broadwell have added a restaurant and swimming pool to a mineral water health spa in Louisiana. The site merited special consideration on the part of the architects for it occupies the brink of a wooded foothill bordering flat Mississippi Delta farmland, and overlooks a bayou and the small rural village of Hot Wells. The Louisiana State Department of Hospitals has for some time offered hydro-therapeutic treatments based on the curative effect of the hot mineral water welled on the site. The therapy takes place in a large bathhouse built in conjunction with a motel. It was decided to supplement these facilities with a hot water swimming pool, dressing rooms and a restaurant to serve the motel and passing tourists. The new building and pool are placed at a point lower down the slope below the bathhouse and motel to offer an unimpeded view. The restaurant is on the second floor above the dressing room facilities on the first floor at pool level. The pool and dressing room area are carved out of the slope below the parking space which because it is at the same elevation as the restaurant provides direct access for physically handicapped patrons. Stairs and a ramp for wheel chairs provide access to the pool.

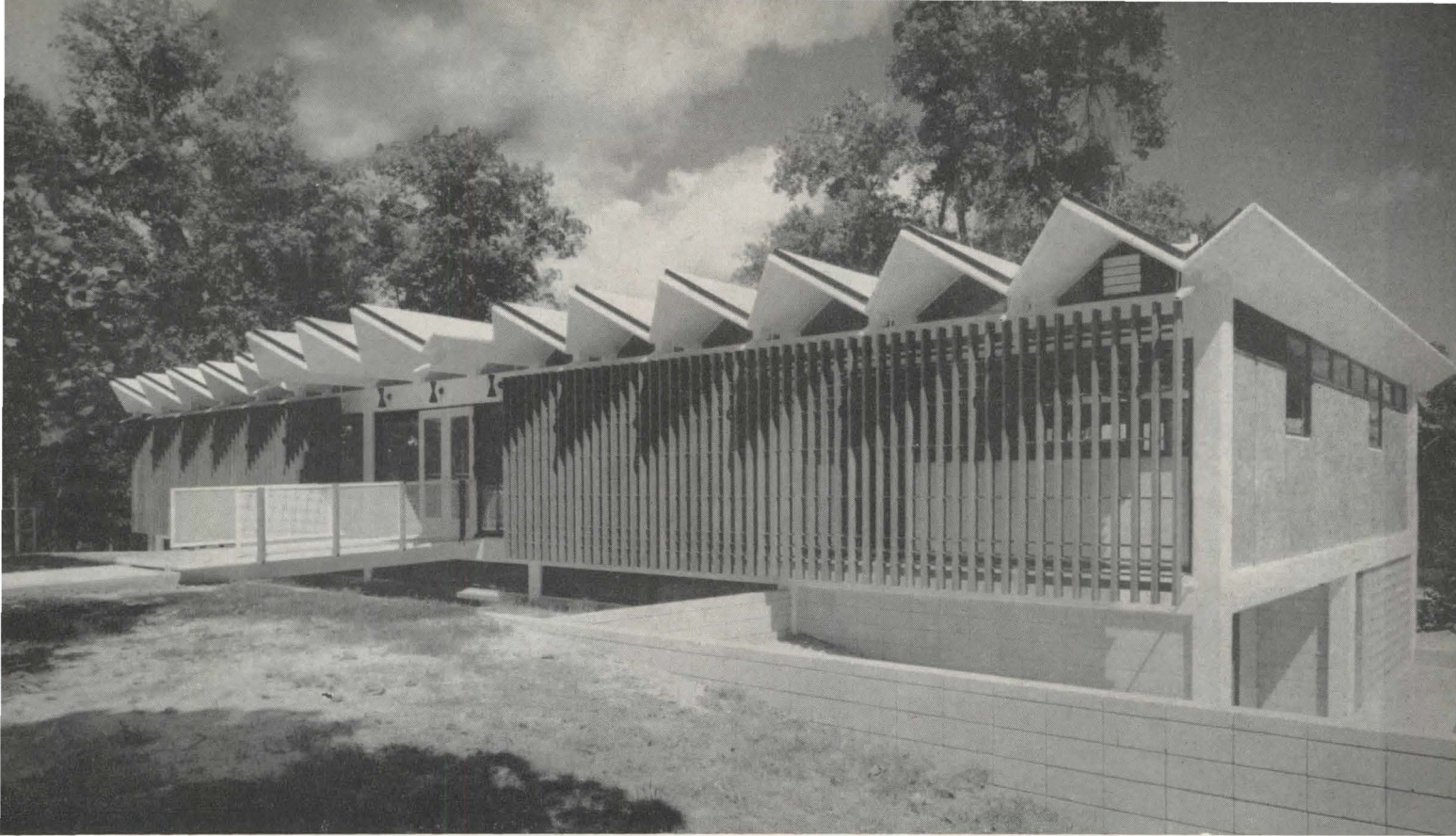
Restaurant and Swimming Pool

OWNER: Louisiana State Department of Hospitals
 ARCHITECTS: Glankler and Broadwell
 CONTRACTOR: Gravier and Harper
 MECHANICAL AND ELECTRICAL ENGINEERS:
 DeLaureal and Moses
 STRUCTURAL ENGINEER: Leroy Staples
 MECHANICAL AND STRUCTURAL ENGINEERS FOR POOL:
 Pan American Engineers



Building is of reinforced concrete frame construction. The folded plate concrete roof affords a structurally unobstructed dining space and provides a many faceted silhouette when viewed from above or below. The plates are 52 ft long at their extremity and have a clear span of 40 ft. Redwood solar screens protect the southwest wall and offer a sense of visual privacy from the parking area while maintaining the transparent quality of the structure. Glass jalousie windows and doors interrupt the plate glass window surfaces of the restaurant. Precast concrete panels between steel T beams are used at the restaurant level and lightweight concrete blocks below in the dressing room area. A year-round forced air mechanical system conditions the restaurant

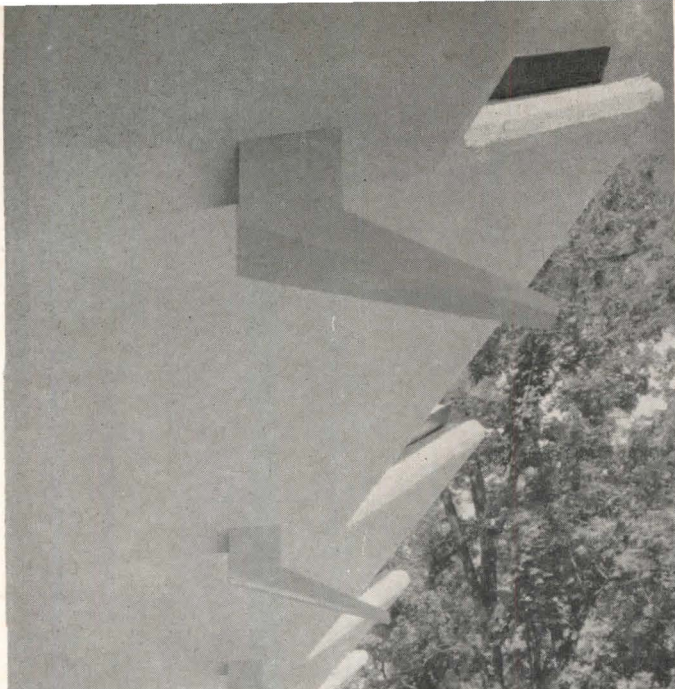




Frank Lotz Miller



Restaurant and Swimming Pool



Frank Lotz Miller

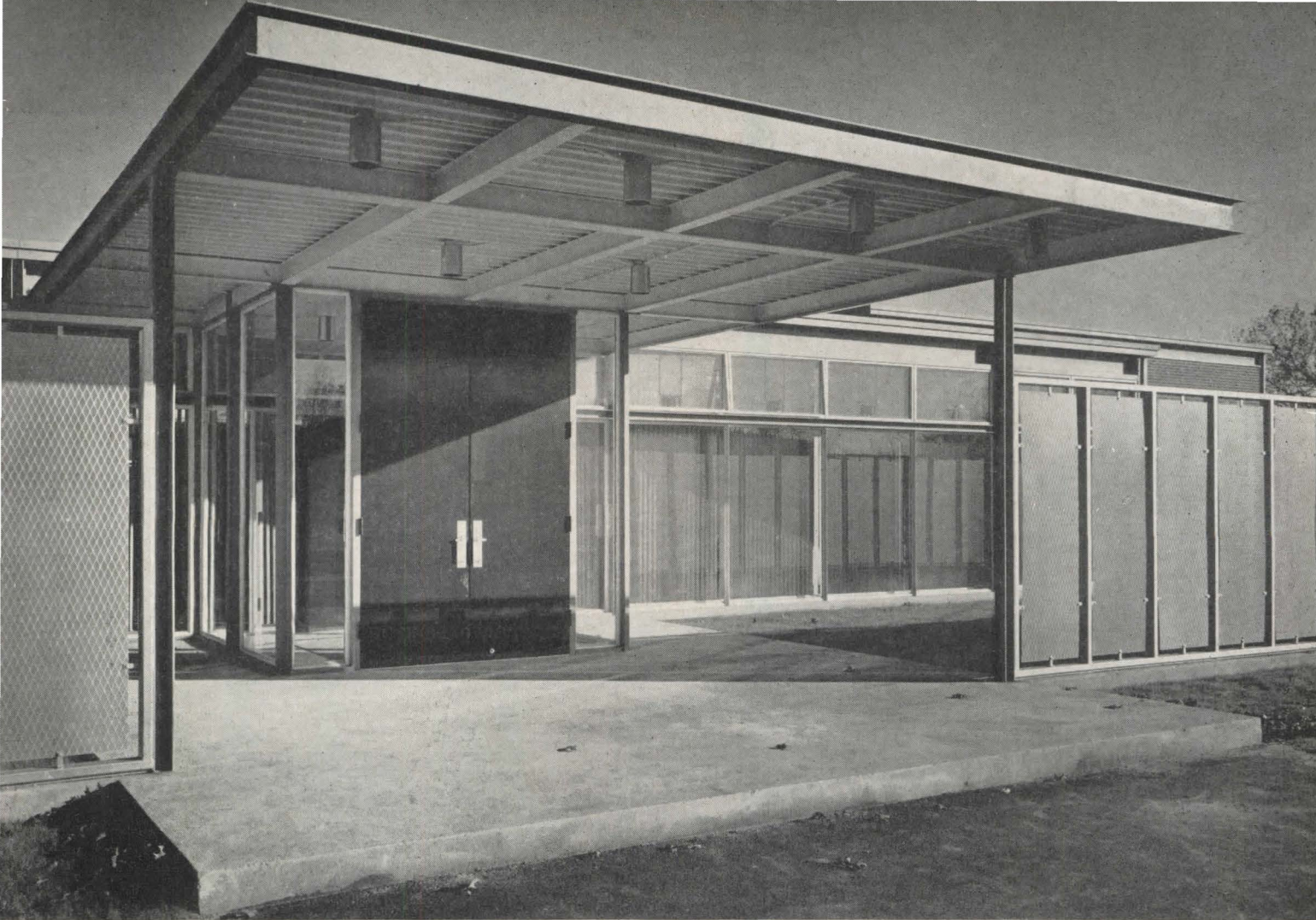
Left: valleys formed by folded plate slope in both directions from mid-span. Water drains through 1½-in. diameter copper pipe into 20-gauge galvanized iron roof scuppers



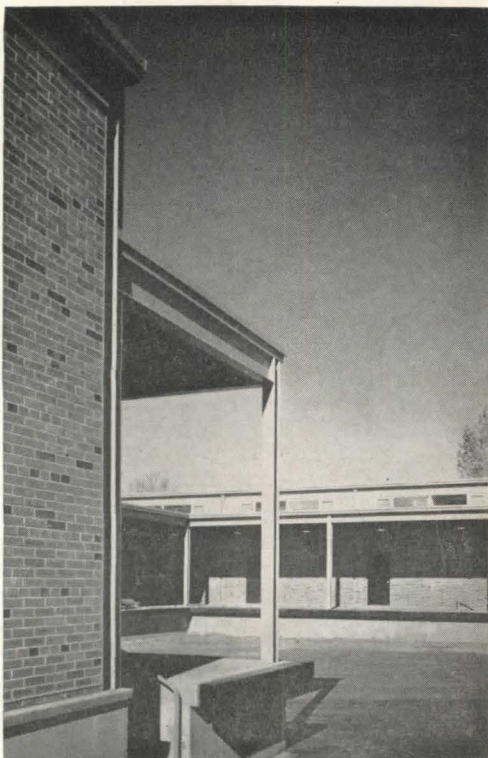
Right: restaurant overlooks pool in one direction, bayou and farmland in other.

Below: fluorescent general illumination is tempered with dimmer controlled incandescent accent lighting. Photograph shows entrance from parking lot





SUBURBAN PLASTICS LABORATORY



Development Laboratory and Pilot Plant,

American Cyanamid Company,

Wallingford, Conn.;

Pederson & Tilney, Architects;

*Alex Kousmanoff, Associate-
in-Charge of Design;*

Henry Pfisterer, Wilcox and Erickson,

Structural Engineers;

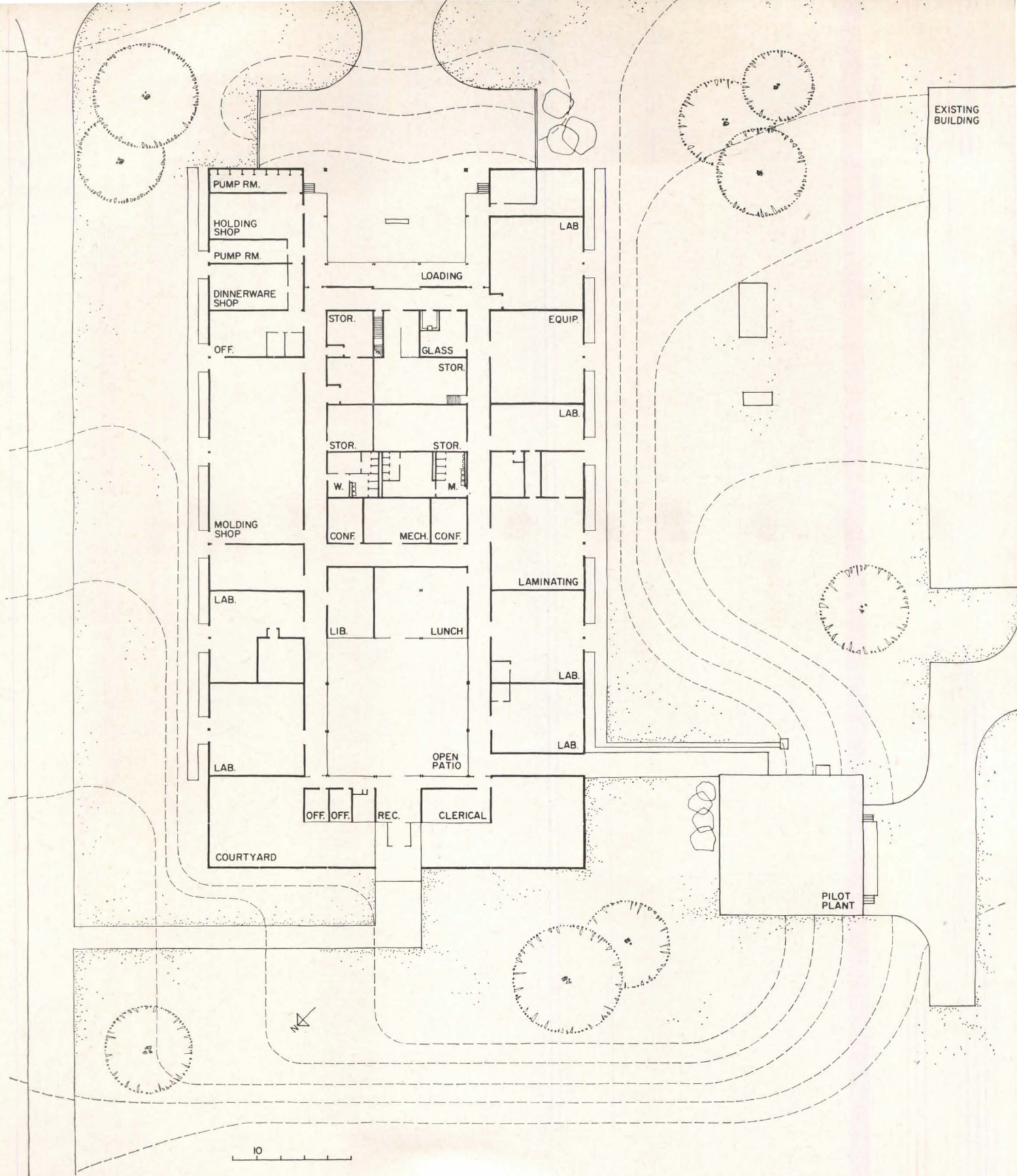
American Cyanamid Company Engineering Dept.,

Mechanical & Electrical Engineering;

Megin Construction Company,

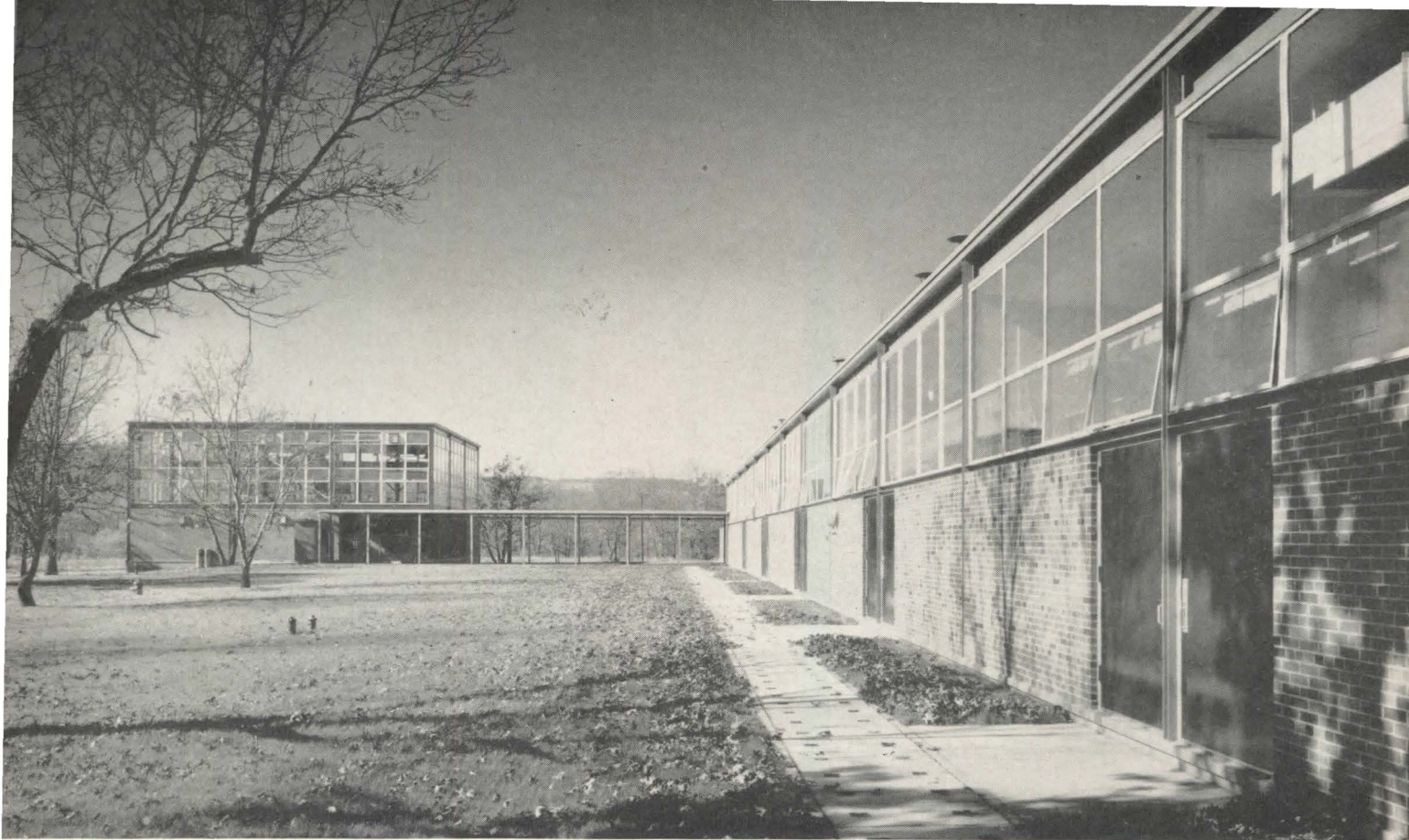
Contractors.

Joseph W. Molitor photos



After careful consideration of the problems involved in this project, the architects designed a symmetrical complex consisting of two identical laboratory buildings and a pilot plant connected to them with covered walkways. The plan shows one-half of the complete scheme. This much has been built, fitted into the pleasant lawns and surrounding trees of the suburban site. The remainder of the scheme will be added later. The interior courtyard area and admits light and air to the library, lunch room, and lecture space. A 10-ft module is used for the buildings

Services within the buildings are very complex, many of the rooms requiring special electrical, gas, pressure, and similar lines and close temperature-humidity controls. The problem is further complicated by the requirement for flexibility for placing and moving equipment. For these reasons, all services were located overhead along the corridors. Lines may be tapped every 20 ft for services to equipment and for modified room functions. Laboratories have a special waste system, connecting with a drain trench on the outside. The concrete slabs over the trench act also as sidewalks at the sides of the buildings



Joseph W. Molitor photos

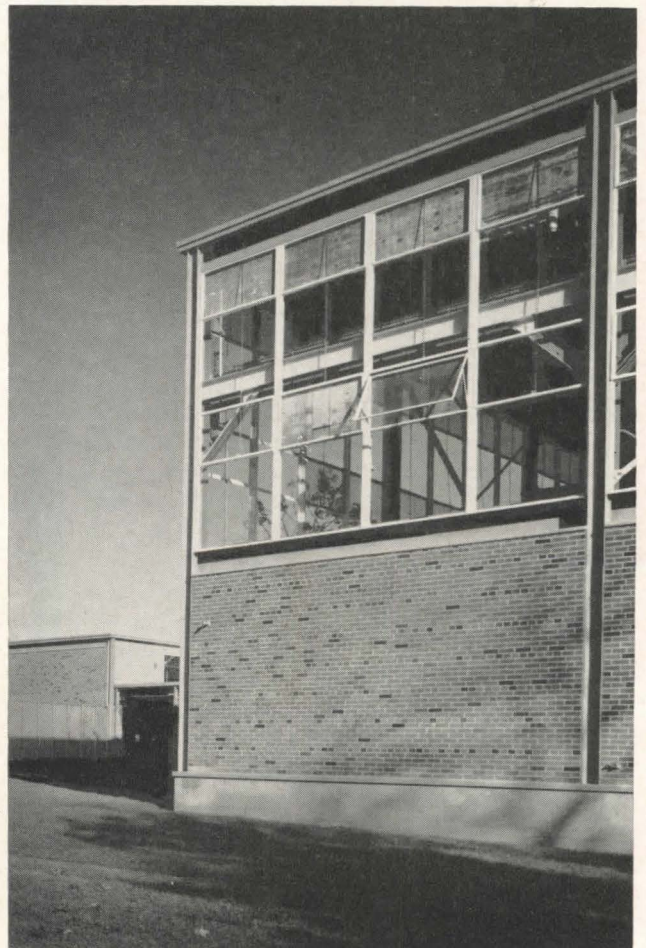
DEVELOPMENT LABORATORY — PILOT PLANT

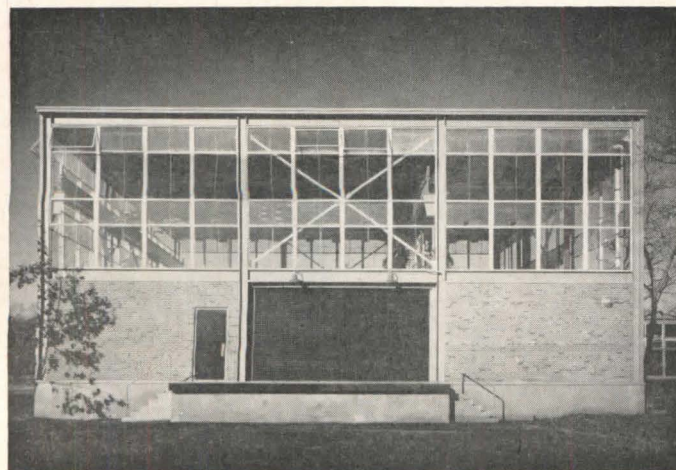
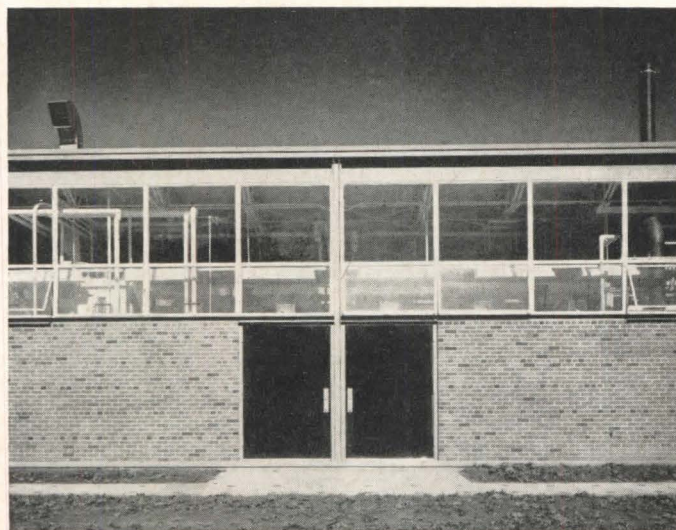
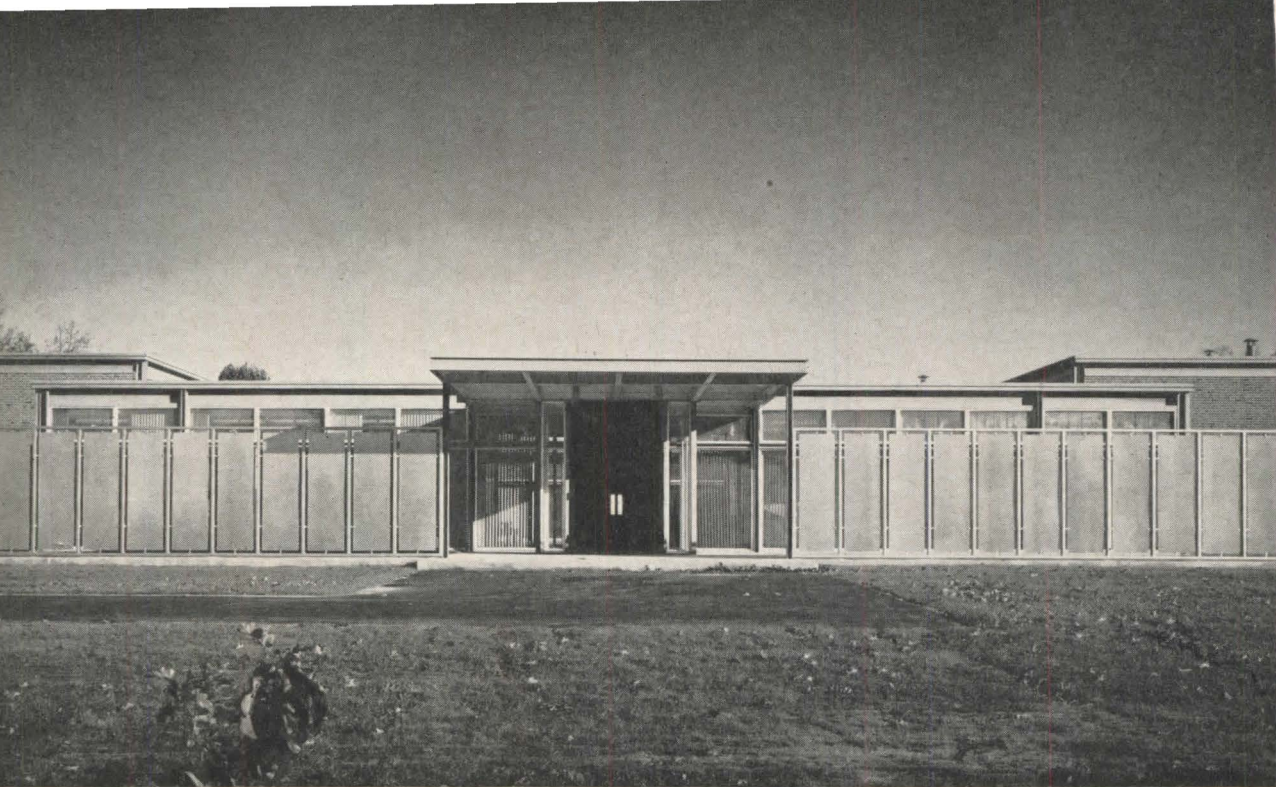
These buildings show the results of the wedding—in architectural and workmanlike manner—of all of the aspects of architecture (such as programming, planning, design, cooperation with client) in an industrial building complex. The results were achieved by the architects' close attention to all of the important factors in architecture, rather than to only one or two (such as design or structure) at the expense of the rest.

The basic requirement presented to the architects was for a development laboratory and pilot plant, to be directly concerned with new and improved uses for plastics. Actual research leading to the discovery of new plastics formulas is done elsewhere.

Approximately 25 per cent of the employes housed here have PhD degrees and most of the others are college graduates or highly trained technicians. An effort was made to provide efficient working areas for these expert, technically-trained people, and at the same time, make the surroundings attractive and simple.

The design which resulted from these and similar considerations has resulted in a simple grouping of buildings, with utmost flexibility, and the possibility of doubling the space in a few years. The architects, together with company engineers and the consulting engineers, developed the program, process layouts, and preliminary designs together. A somewhat unusual arrangement made it possible for the company engineers to consult on the mechanical and electrical work.

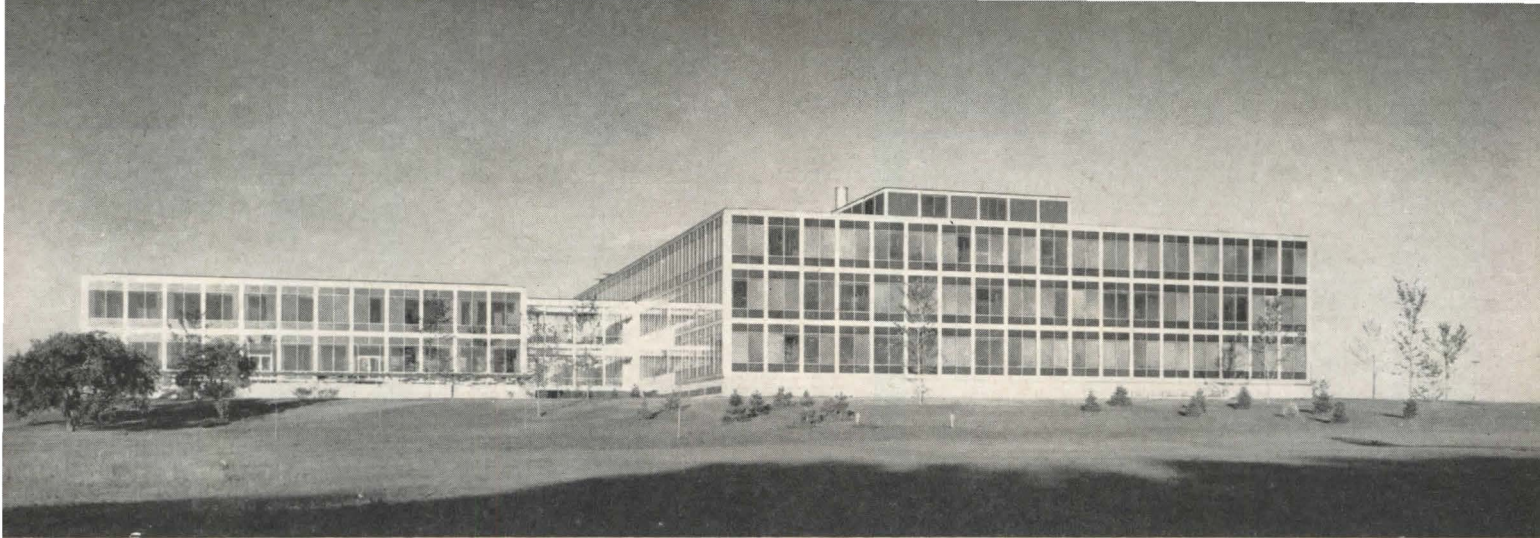




DEVELOPMENT LABORATORY— PILOT PLANT

The exposed steel frame was very carefully detailed and fabricated, resulting in a simple elegance when combined with the dark-red brick and glass employed. The organizing and controlling influence of the strict module and the extreme refinement of the steel details may be seen in the illustrations. The openings (including large escape doors for laboratory rooms) conform to the modular concept. Plastic products were used wherever feasible, providing at once a showcase of company products and a method for field evaluation. In addition to the screens shown, plastics were used in the shower stalls, fume hood stacks, laboratory piping of some types, glazing of windows, and other places throughout the building complex.

Joseph W. Molitor photos



HOME OFFICE FOR GENERAL MILLS

*Office building in Minneapolis suburb
by Skidmore, Owings & Merrill
has well defined masses and good detailing*



When General Mills, the largest flour milling organization in the world, decided to build a home office building to satisfy its particular needs, it selected a forty-acre site in a rapidly developing suburban area within a seven-mile radius west of Minneapolis. Facilities which would be found in the usual urban environment of an office building, such as restaurants, garage space and garage facilities have been incorporated in the scheme. Special requirements of the General Mills operation were extensive research kitchen areas where ideas for cookbooks are originated, tested and tasted, a home service department, and laboratories where samples of flour, soybeans and other products are checked. Space for executive offices, and administrative space for operating divisions and supporting departments had to be included. It was necessary that the building create optimum working conditions for 800 regular employes and establish an impressive identity for thousands of visitors a year.

The final solution is not as compact as a small urban office building would be, nor is it as freely organized as the generous site would allow. Space requirements have been organized to form two buildings and a connecting element which comprise 288,000 sq ft of gross area. The main building features a 60-ft clear span which eliminates interior columns in the office space, providing maximum flexibility for adjustment in office requirements through the use of steel and opaque glass movable partitions. It consists of four levels; service functions are on the first level, and the second, third and fourth levels contain offices, an auditorium, kitchens and administration areas. The employe entrance is at the first level on the parking lot side. The main entrance is on the second level. Escalators are used instead of elevators.

The smaller wing has three levels, the first providing a parking garage for 50 cars, with a grease rack and a wash rack. Parking space is rented to employes. The second level consists of a 400-seat cafeteria. Executive offices and an executive dining room opening on a small court are on the third level.

ARCHITECTS AND ENGINEERS: *Skidmore, Owings & Merrill*

OWNER: *General Mills, Inc.*

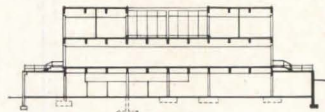
LOCATION: *Golden Valley, Minnesota*

CONTRACTOR: *Johnson, Drake & Piper, Inc.*

KITCHEN CONSULTANT: *Arthur Swanson Assoc.*

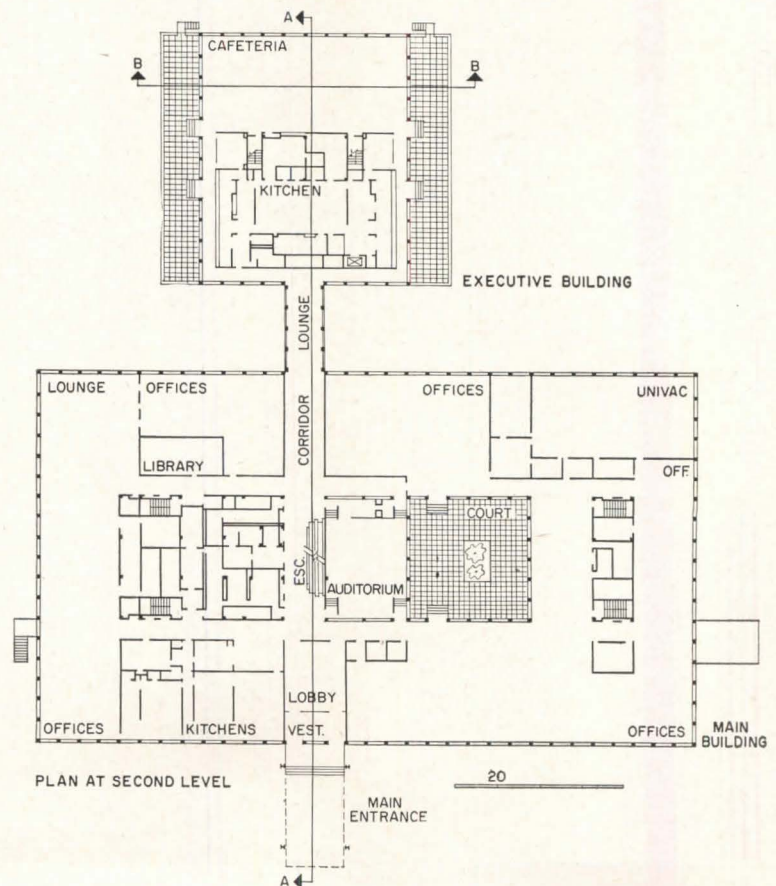
OWNERS REPRESENTATIVE FOR LANDSCAPE DESIGN: *Edmund Phelps*

OWNERS REPRESENTATIVE FOR INTERIORS: *Marian C. McCarthy*



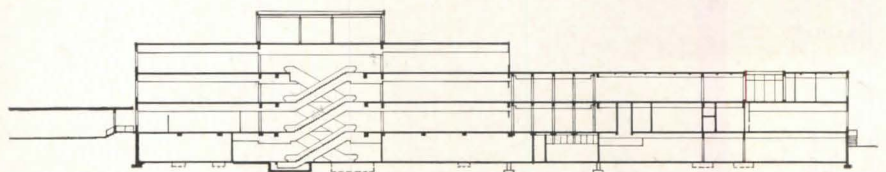
SECTION B-B

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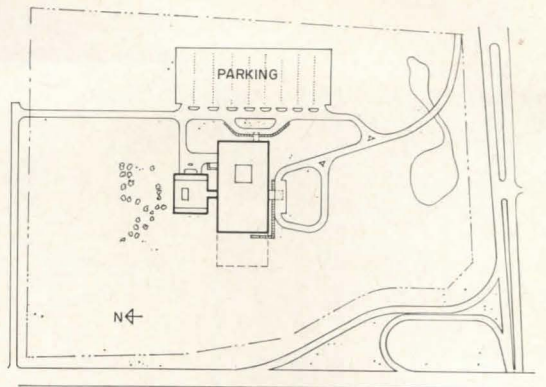
PLAN AT SECOND LEVEL

20



SECTION A-A

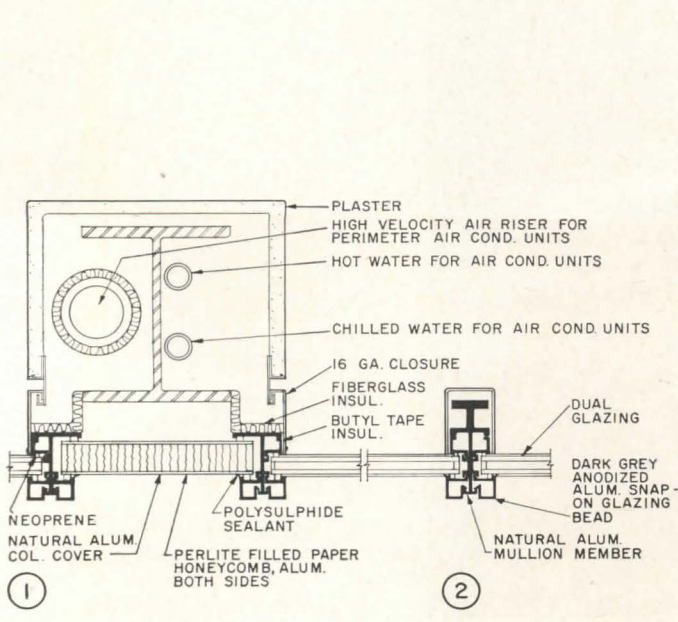
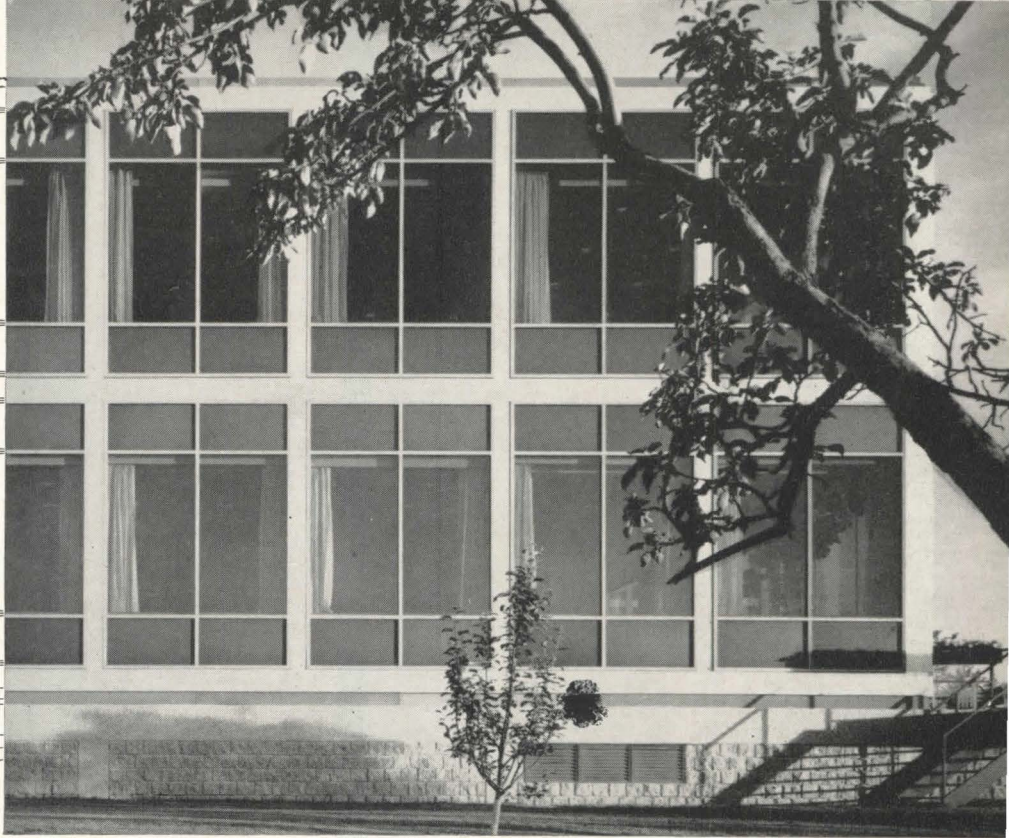
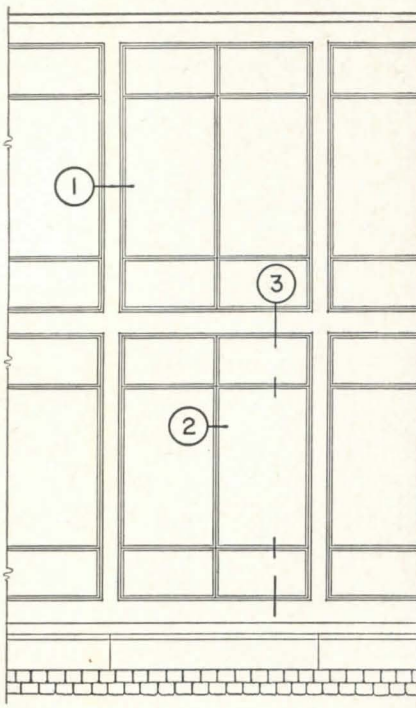
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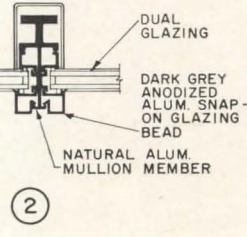
PLOT PLAN

100

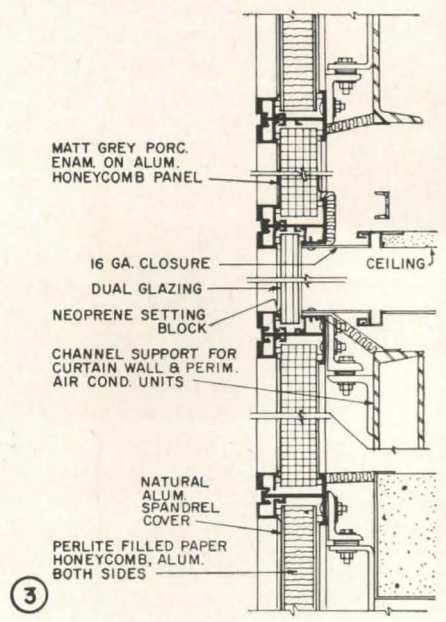
© Ezra Stoller



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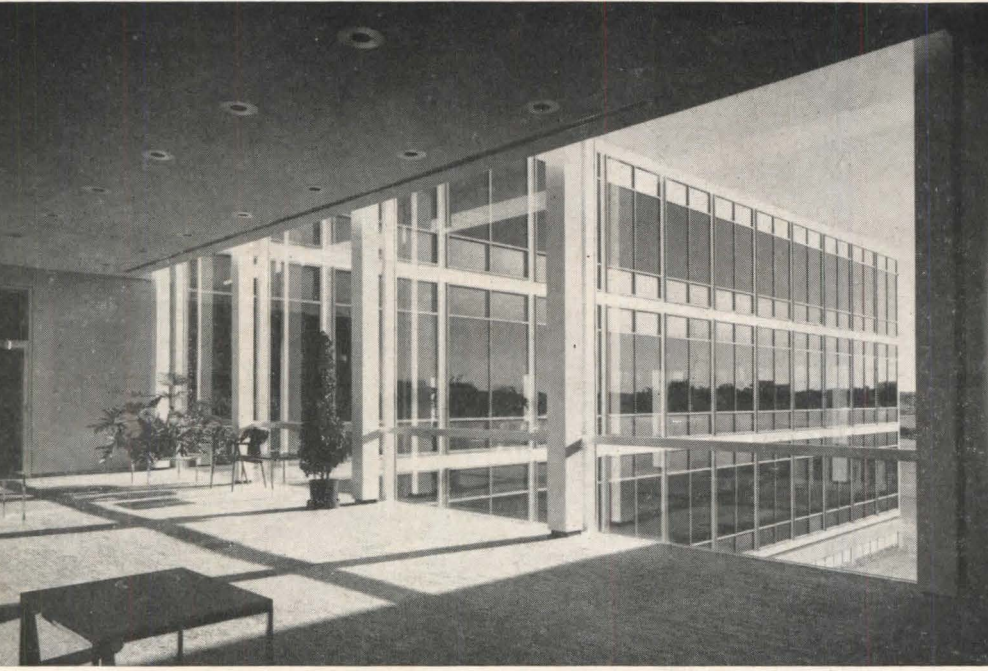


②



③

© Ezra Stoller



Left: lounge on third level of connecting element overlooks main building. Exterior view below. Dual glazing is tinted gray on the outside to absorb heat and reflect glare. Glass on the inside is clear plate. All sash is fixed and the building is air conditioned throughout



Right top: visitors entrance

Right bottom: employees entrance from parking lot. Pump house at rear



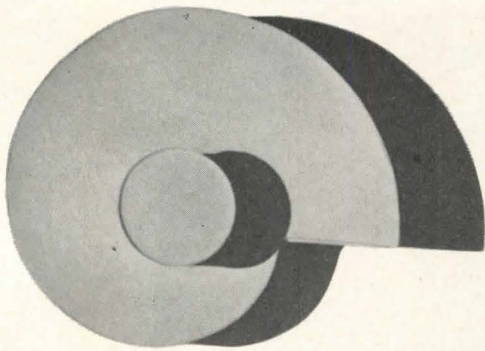
© Ezra Stoller



Executive dining room on top floor of executive wing overlooks small court



Main office area overlooks large court on first level roof. Court is completely enclosed on four sides by the aluminum and glass curtain wall, and provides additional daylight for offices



SYMBOLISM FOR RADIO BROADCASTING

*WVIP Radio Station
Mt. Kisco, New York*

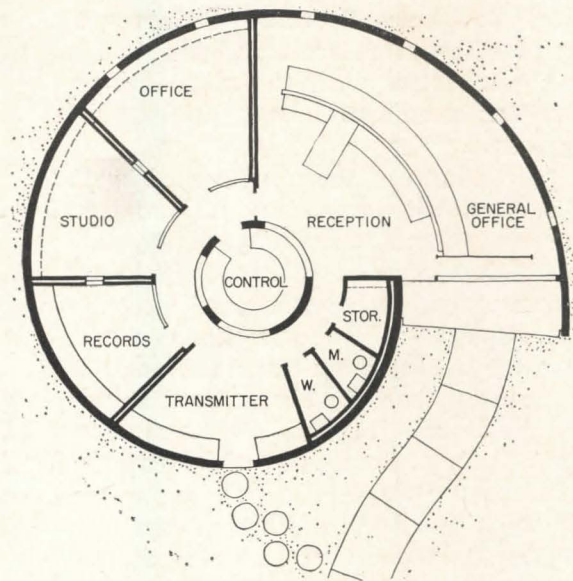
*Edward Larrabee Barnes
Architect*

*Howard Battin
Associate Architect*

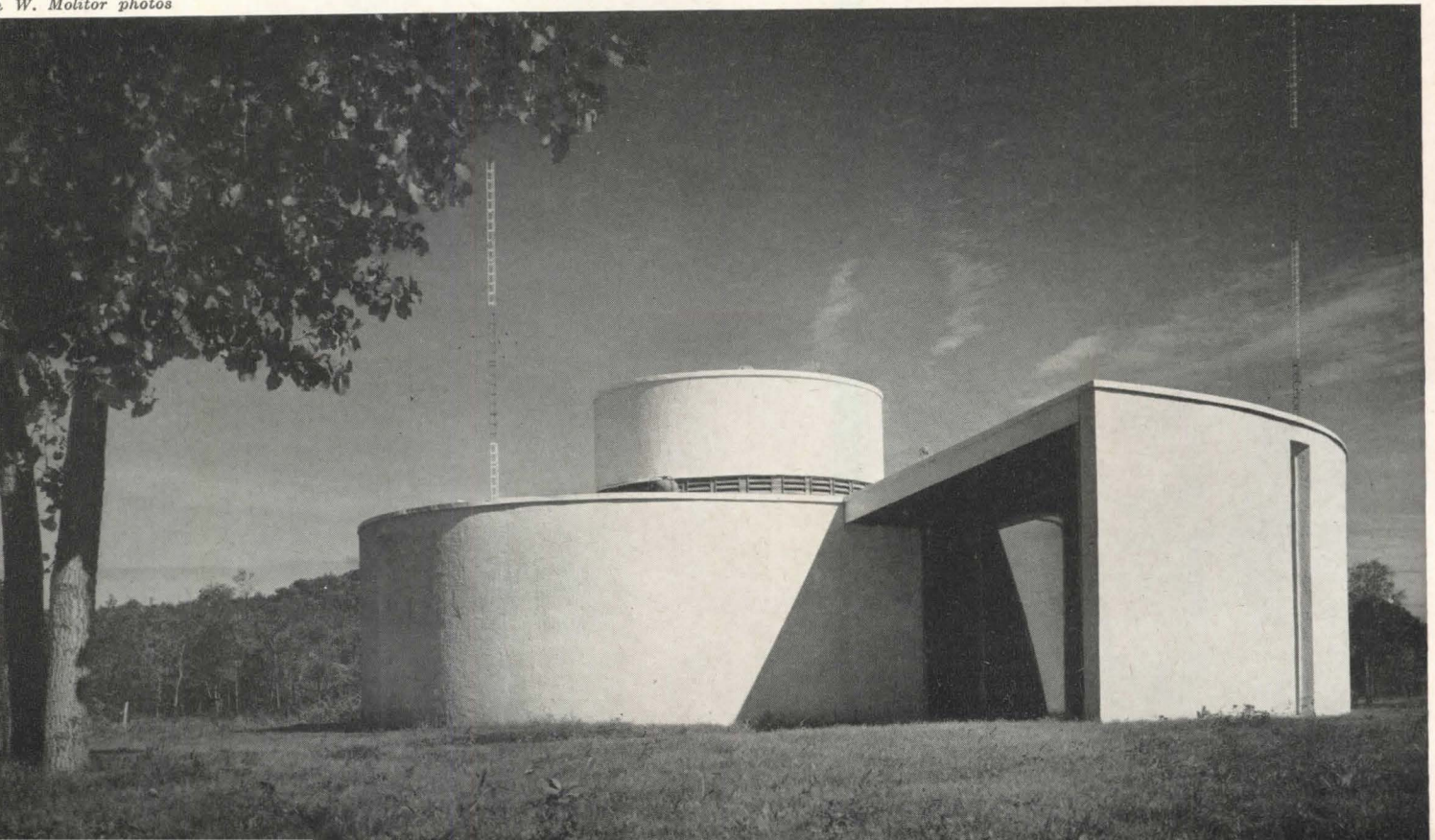
*Farkas & Barron
Structural Engineers*

*John W. Coggeshall
Mechanical & Electrical Engineer*

*Chiappinelli & Marx
Contractors*



W. Molitor photos



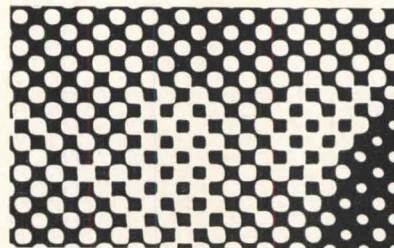
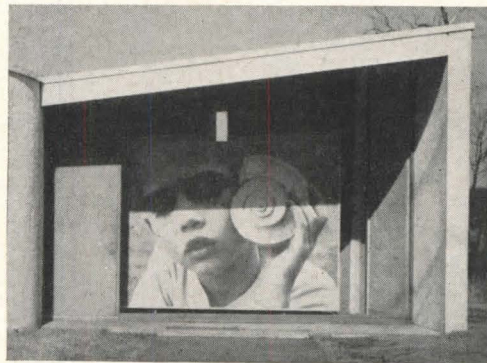
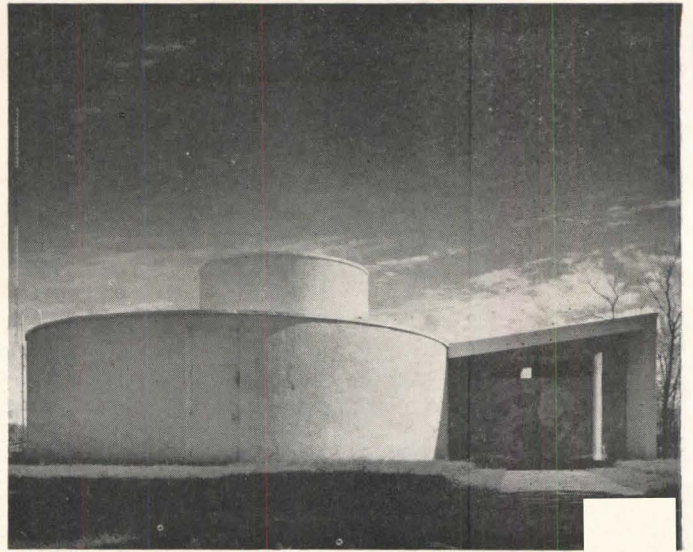


SYMBOLISM FOR RADIO STATION

From a strictly utilitarian viewpoint, the spiral form of this small radio station resulted primarily from the requirements for a central control room and the acoustical problems of radio broadcasting. These highly practical considerations have been integrated by the architect with the more abstract purpose of arriving at an expression of the nature of broadcasting sound.

Thus, the spiral form of the plan is used by the architect as a symbol of the nature of sound and hearing in general as well as when applied to radio. The spiral and related symbols are repeated in varied ways throughout the building and in the station operations. The spiral—in the form shown directly above—is used for the company trademark, and the architects planned for the audio signature of the station to repeat the motive in sound. The large photomural at the entrance also repeats the symbolism (when viewed from a distance), literally in the shell spirals and in the literary sense. When viewed close-up, the photomural dissolves into an abstract pattern of black and white dots, also highly symbolic of radio.

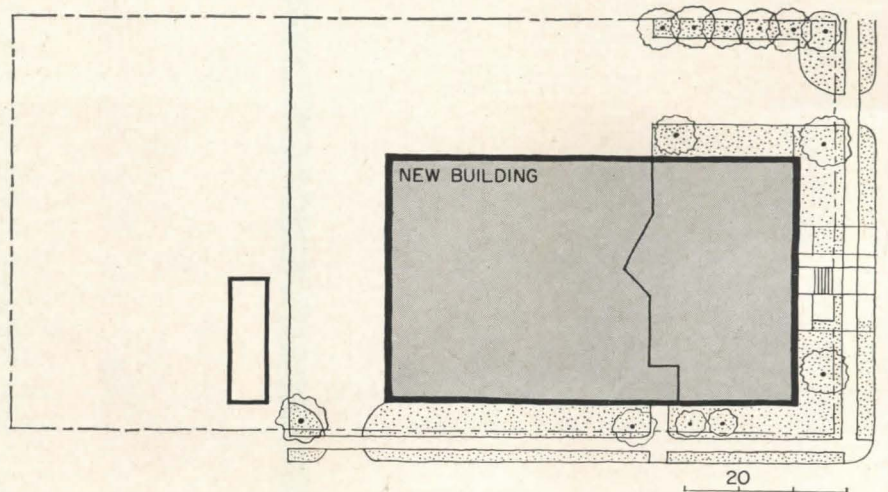
The building has proved highly functional. The control room has a direct view of all broadcasting spaces. Room sizes and ceiling heights vary with the specific uses of spaces. Sprayed with acoustical plaster of varying densities, the wedge-shaped rooms perform well acoustically.





BROADCASTING STUDIOS COMBINED FOR FLEXIBILITY

*KTHV-KTHS Radio-Television
Station
Little Rock, Arkansas
Ginocchio-Cromwell and Associates
Architects
Henry Schwartz,
Associate Architect
May Construction Co., Contractors*



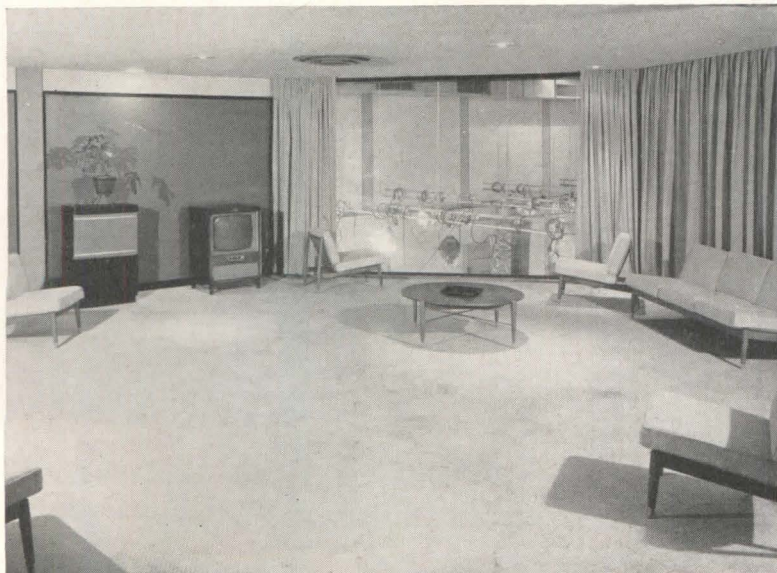


BROADCASTING STATION

This simple, well-detailed building was designed for the joint use of a radio station and a television station under a single management. Some facilities, such as broadcasting studios planned for the use of one station, may be used by the other when the occasion arises. However, overlapping functions have been combined for the two stations wherever possible. Examples of these are accounting, business offices, and news services.

The site is an old lake bed. This made below-grade construction unfeasible, hence the two-story scheme. In order to eliminate vibrations which may prove disastrous to broadcasting activities, piling were used, the soil was specially compacted, and columns were placed on close centers (10 ft in the long dimension of building.)

In spite of the moderate budget, the architects were able to provide a fire-proofed steel structure with concrete floor slabs and gypsum roof deck. Exterior walls are of brick, glass, and uninsulated metal curtain wall panels. Interior partitions are finished with Philippine mahogany from floor levels to door heads, with acoustical plaster over and on the ceilings. The exterior and interior materials were chosen by the architects, not only for their appearance and appropriateness, but for economy in first cost and upkeep. The entire building, with the exception of storage areas, is heated and air conditioned.





NEW HOTEL
IN MIDWEST
OFFERS
UNUSUAL
FACILITIES

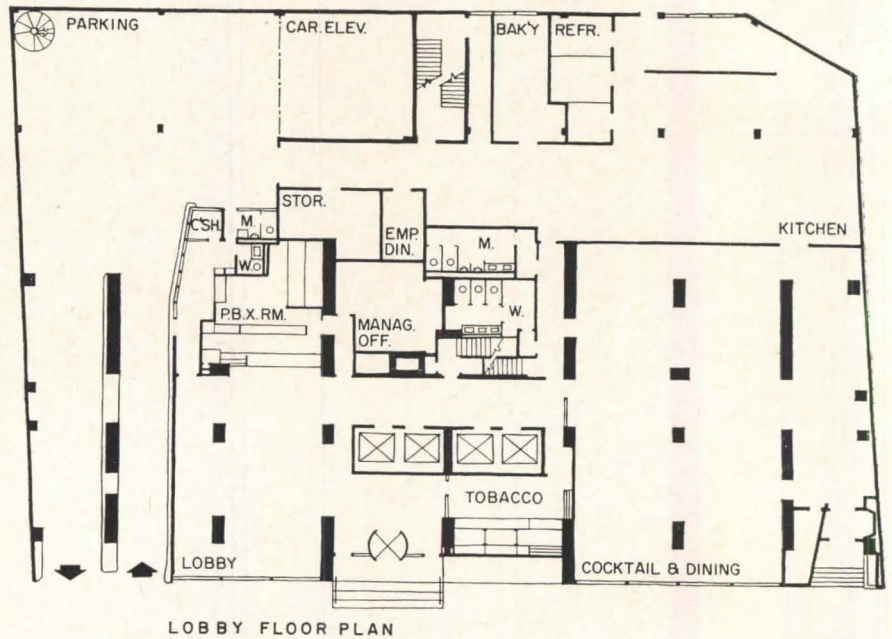
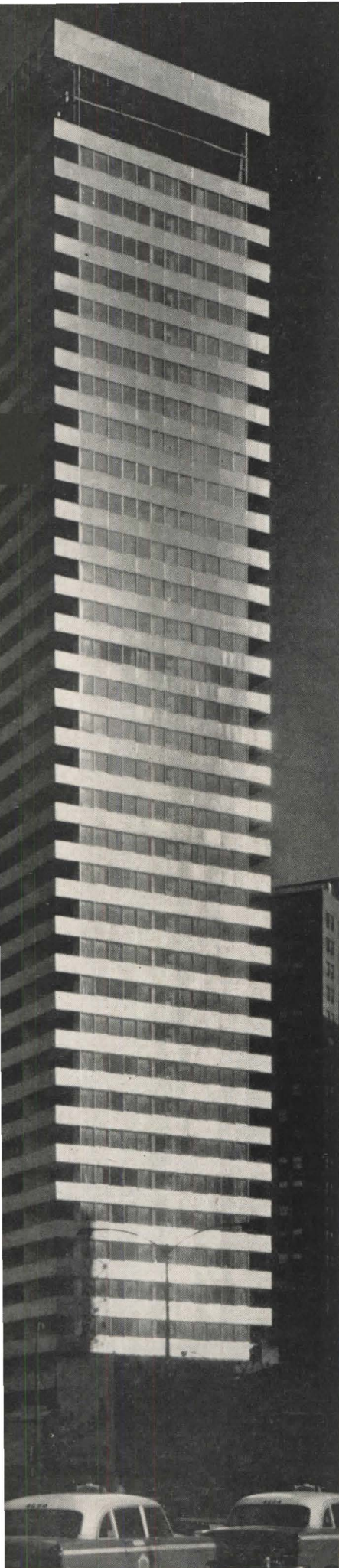
*Chicago's
First New
Downtown Hotel
In 28 Years
Also The Tallest
Reinforced Concrete
Structure In The
United States*



Executive House, Chicago

*Milton M. Schwartz & Associates
Architects*

*Miller Engineering Company
Structural Engineers*

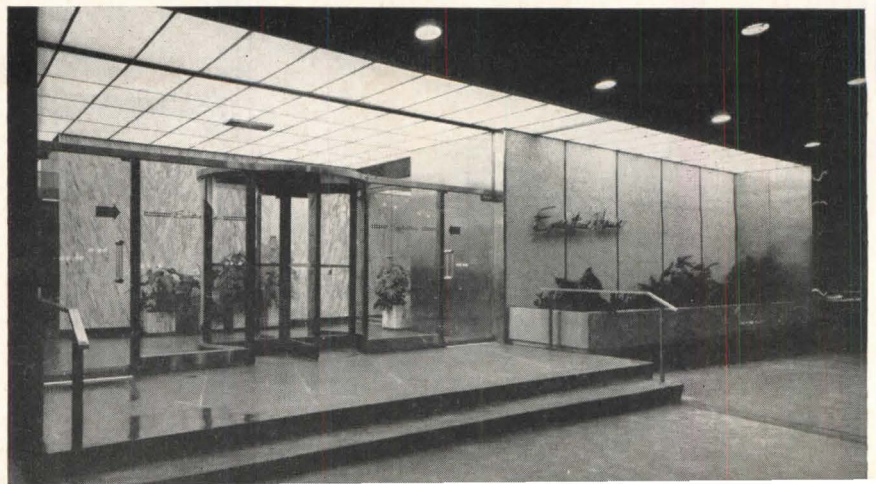


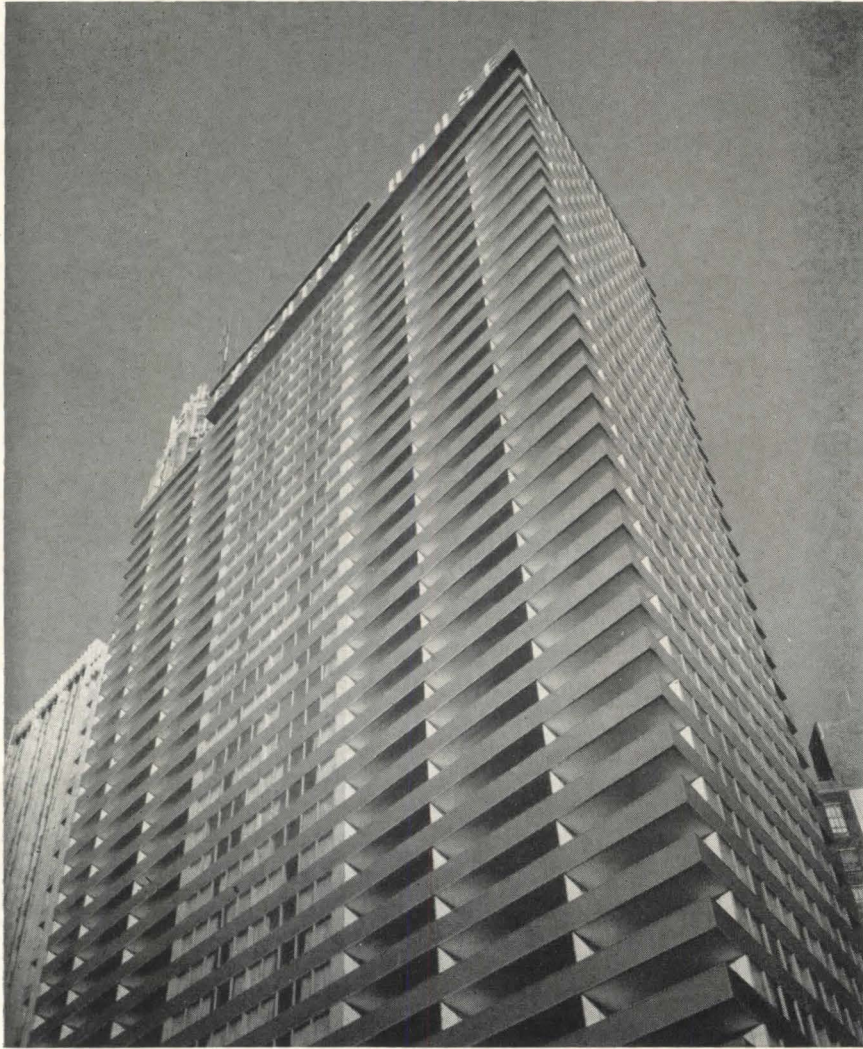
EXECUTIVE HOUSE

*Many-balconied, stainless-steel clad hostelry
offers amenities for business entertainment or for living*

Designed for a new kind of hotel service, Executive House offers 448 suites and studios for rent by the day or for years. Each unit has a kitchenette for business entertaining or light housekeeping; most of the apartments have at least one balcony 6 by 20 ft. Phone service permits direct dialing; calls bypass the hotel operator and are merely metered for billing. A 200-car, two level garage connects directly by elevators to rooms. There is a dining room and cocktail lounge at ground level; the penthouse is planned for meeting rooms

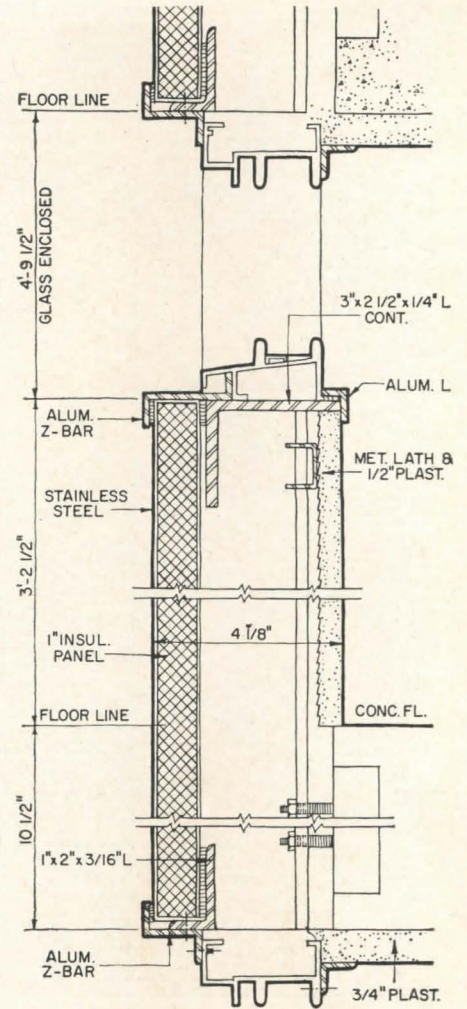
All photos by Hedrich-Blessing





and a night club. The Chicago Chapter, A.I.A., cited the building for a Merit Award in a recent design competition.

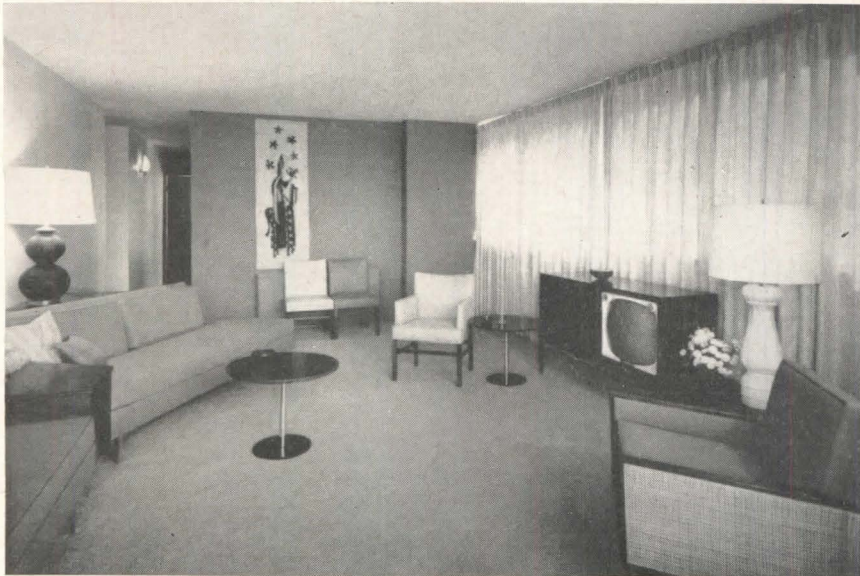
The 40-story, 370-ft structure rests on 57 caissons extending 120 ft below ground line to bedrock. Shear walls—to combat wind stresses—extend across the width of the 60- by 150-ft tower at 40-ft intervals. Columns are spaced at 8 and 16 ft transversely, 20 ft longitudinally, and are typically 20 by 60 in. in cross-section, with the long dimension placed laterally.



INSULATED CURTAIN WALL DETAIL

4-ft bands of stainless steel encircle the building, forming parapets for the balconies or spandrels under the sliding windows of the central section. The 4- by 8-ft panels consist of a 26-gage stainless steel face, a 1-in. foam glass core, and a 24-gage galvanized steel back-up sheet. For the balcony parapets, the back-up sheet is covered by a white plastic sheet to prevent possible rust. The panel elements were laminated in a 100-lb, hot platen press

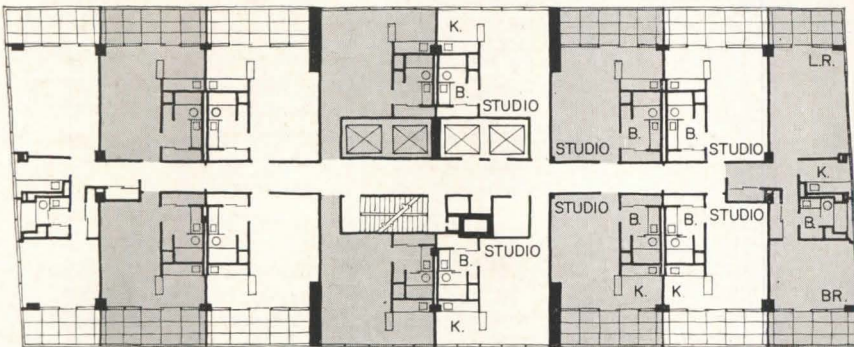




EXECUTIVE HOUSE

The typical kitchenette (above and below) has a refrigerator with freezing compartment, a 4-burner range with oven, storage cabinets, pots, pans, flatware and dishes. The rolling drop-leaf table can be used for dining or as a tea wagon.

Each unit has a dressing room in conjunction with the bath (see plan); access to balconies is by way of floor-to-ceiling sliding aluminum doors, glazed with $\frac{1}{4}$ -in. plate. Walls and ceilings are painted plaster; baths are ceramic tiled; floors are carpeted in living and sleeping areas and of vinyl tile in kitchens and dressing rooms. The hotel is completely air-conditioned.



TYPICAL FLOOR PLAN



SCHOOLS

A REALISTIC APPROACH TO ECONOMY TRUE

BUILDING TYPES STUDY 270

®

School costs are probably the most controversial subject being discussed in educational circles today. Much of this controversy is concerned with only limited aspects of the actual problem, such as square foot or cubic foot costs of construction. Since these are not actually indicators of true school economy, more realistic groups are now carrying on research projects for the purpose of discovering valid principles of economy. The project reported on in this study is one of these. The schools shown illustrate some of these principles for widely varied educational programs. Together, the study and the examples indicate that true economy does not consist of cheapness of construction or of the lowest initial costs. On the contrary, true economy consists of receiving maximum value for the money spent. And this includes not only the money expended for initial construction, but that spent for upkeep, maintenance, and operation. In order to achieve true economy, the school program, philosophy, and complete building process must be studied. The interrelationships between these factors must be closely analyzed. Only by a realistic and detailed study of all of these factors for each individual school plant can the greatest number of schools be obtained, in which to provide the best possible education for the increasing numbers of children to be educated in the future. As shown in this study many architects, consultants, and educators are doing just this.

ECONOMY IN SCHOOL DESIGN

Based on a research report sponsored by The State Education Department, The University of the State of New York, Albany, 1958; prepared by School of Architecture, Rensselaer Polytechnic Institute, Troy, N. Y., Harold D. Hauf, Dean; Wayne F. Koppes, Principal Investigator; Alan C. Green, Research Assistant

The specific objective of the study here reported was to determine impartially whether there are any aspects of construction technology or procedure which offer economies in school construction costs, and to establish which, if any, of these appear to offer the most significant savings.

The procedure followed in conducting the study has involved several research techniques:

1. An analysis of recently completed schools in New York State
2. A review of previous work and pertinent literature
3. Round-table conferences with architects, engineers and builders experienced in the design and building of schools in the State
4. Contacts and conferences with authorities in fields related to school building costs
5. A survey by questionnaire of school maintenance problems and operational costs throughout the State
6. On-site inspection of a number of recently built schools

The cost factors considered fall into three principal categories:

1. The building design: its planning, the materials used, and the mechanical equipment
2. The regulations: restrictions governing design requirements
3. The procedures: commonly employed processes in the building program

Economy in building design (over which architects and engineers wield the most influence) is discussed in some detail in this article.

Single-story vs Multi-story Buildings

Prominent among the characteristics of the postwar schools has been the growing predominance of the single-storied structures. The principal advantages of single-story and multi-story types may be summarized as follows:

For the single story:

1. Elimination of expensive and hazardous stairways
2. More flexibility in layout, permitting space requirements and side conditions to be met with a minimum of waste
3. Lighter structural design loads, resulting in reduced foundation requirements, a consideration of particular importance in areas of poor sub-soil conditions
4. Possibility of using cheaper non-fireproof construction that would be prohibited in a multi-story design
5. Generally reduced cost of maintenance of window areas and exterior walls by eliminating the need for scaffolding and extra risk insurance for workmen

For the multi-story:

1. Smaller square footage of ground coverage resulting in reduced lineal footage of foundations; a consideration if site is rolling or otherwise "difficult." (The obvious problem of site size will not usually be a factor, as sufficient acreage should be purchased to permit either single- or multi-story construction)
2. Reduced roof area affecting heat loss and maintenance costs

3. Lower plumbing costs, with more compact toilet layouts

4. Shorter runs for piping, ductwork and conduit

5. Reduced heating costs due to lower overall heat loss

Conclusion: No general rule can be stated as to the relative economy of one-story and multi-story buildings, except that for large schools the latter may be expected to offer advantages. In general, each situation must be analyzed on the basis of specific conditions and requirements.

Campus Plan vs Compact Plan

The campus plan for school plants may be compared with older and more compact plans. Each of these concepts has its advantages.

For the campus plan:

1. Usually very significant savings in the cost of site development and grading, except in cases of perfectly flat, open locations
2. Reduction of enclosed corridor space through use of open, covered walks
3. Provision for economical future expansion without disrupting the use of the existing buildings
4. Savings on fire insurance rates (effects of fire are easily isolated and confined to small sections, with minimum effect on the overall program)
5. Feasibility of using small individual heating units

For the compact plan:

1. Reduced mechanical costs due to centralized equipment, reduction of runs, and less duplication of equipment
2. Much less exterior wall perimeter
3. Lower maintenance costs

Conclusion: Neither the campus plan nor the compact plan offers consistent advantages of comparative economy. Each project must be considered individually in light of the specific problems involved.

The Use of Repetitive Units in Planning

The use of repetitive bay dimensions, beam lengths, column spacings, window locations, mechanical and electrical service units, and similar elements not only simplifies the material fabricating problem but also facilitates the construction operation at the site.

Conclusion: Although it is not possible to assign a comparative quantitative value to the potential economy inherent in full utilization of modular principles, there is no doubt that this is one of the most fruitful paths for future development of economies in school building design and construction. Ultimately it probably will offer more promise of economy than any other currently known technological concept.

The Space Module Concept

This principle embraces more than the application of modular components, although their use is an essential part of the concept. The basic space module is not a building unit, but is a "block of space" which is used repeatedly throughout the plant, thus multiplying the total of repetitive elements. All environmental control factors are built into the structural shell. Since there are no load bearing walls or partitions, the interior space is left free for division in any way desired. Thus the concept combines flexibility of educational space with a maximum use of repetitive components.

Conclusion: No precise evaluation factor can be assigned to the general use of the basic space module principle but schools embodying this concept have been built at costs substantially lower than those of conventional

design. The extent of savings will vary with the skill of the planner but may amount to as much as 10 per cent of the total construction costs.

Natural vs Artificial Lighting

The classroom has taken on many and varied cross-sections to permit maximum use of natural light (e.g., clerestories, skylights, corridor lighting and glass block walls). These innovations have often resulted in increased construction costs due to the additional expenses of louvers, overhangs, blinds, shades, and other devices for controlling the light once it is introduced.

With current improved methods of artificial illumination, such techniques should be subject to serious questioning on the ground of economy and many architects are of the opinion that critical attention should be paid to the costs involved.

The use of large glass areas in the outside wall of classrooms, as a dependable primary light source, is generally admitted to be a dubious practice for several reasons:

1. In most areas of the northeast, the sky is overcast during a large part of the time schools are in use.

2. Once large window areas are introduced, the devices usually required for sun control (whether built on the exterior of the structure as overhangs or sunshades or used inside the windows in the form of shades, blinds or drapes) involve additional cost. Visits to schools built with large window areas verify that this need for sun control is commonly in evidence.

3. Regardless of the amount of natural light provided in a classroom, artificial lighting is still in constant use. In every case of schools visited, the artificial light was in use regardless of the supply of natural light. All persons questioned on the matter stated that the lights were turned on early in the morning and were used all day.

The initial cost of glazed areas, per square foot, is nearly always more than that of blank wall areas. The proportionate costs vary widely, of course, depending upon what types of windows and walls are compared. Variations in the amount of glass area used in a typical exterior classroom wall can easily affect the initial building cost of exterior classroom wall by as much as 15 per cent.

Maintenance costs of glass areas are an important consideration. There is also the cost of maintenance of the required venetian blinds, shades, and other features.

The heat loss through glass areas is significant in analyzing the long-range costs of large window walls. There is no doubt that economies in heating plant as well as fuel generally favor reduced glass areas, in spite of the fact that heat gain through glass areas offers compensating advantages during some daylight hours.

Conclusion: Definite economies should result from a reduction in glazed wall areas in classrooms. In terms of total building costs, however, such savings are probably small; perhaps from half per cent to five per cent both in initial and maintenance costs, depending on whether unilateral or bi-lateral lighting is the basis of comparison.

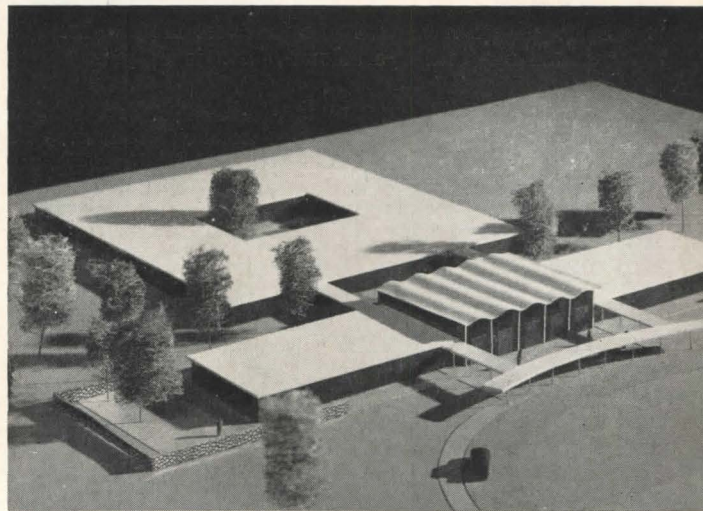
Perimeter Length of Exterior Walls

In school planning it has become a maxim of economical design to keep the length of perimeter walls to a minimum, within the limitations of functional requirements. Its value becomes apparent when it is recognized that, on the average, the overall cost of the exterior wall of even a one-story building is about \$100 per lineal foot.

Conclusion: The economy of minimum exterior wall lengths is undebatable. The extent of savings to be realized can obviously not be predicted since it varies with each case.

Exterior Walls

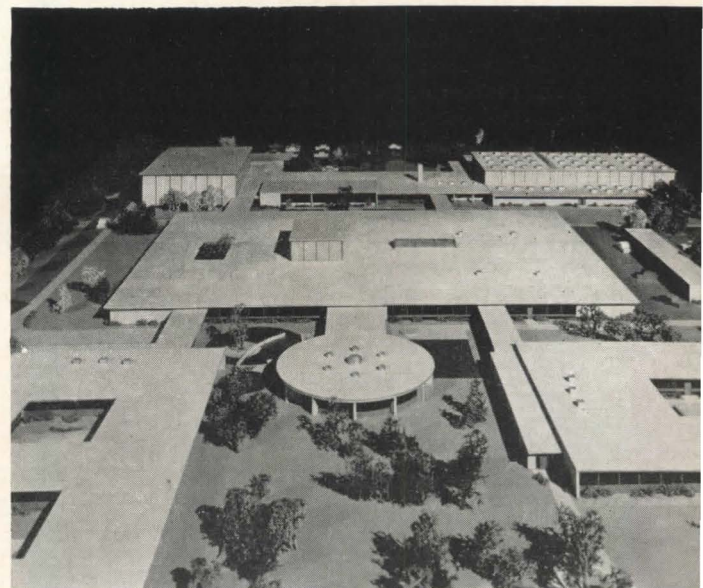
Relative costs of exterior wall construction vary widely.



Parke Lane Elementary School; Eberle M. Smith Assoc., Inc. *Lens-Art photo*

Individual school plants require individual study, in order to achieve the utmost real economy. Educational programs and other variables must be given realistic study, if true economy in first costs and operating costs is the desired goal. In the elementary school shown above, the program is moderately simple. Few specialized rooms were required (multi-purpose room and a cafeteria). These rooms are to have only nominal use outside school hours for meetings and the like. For the large, complex high school shown below, the program called for a great number of specialized rooms. The resulting building, therefore, includes a variety of types of spaces and is designed in a manner to fit the specific functions of the spaces enclosed. It would be extremely unlikely that the economical design of these two schools could be approached in exactly the same manner. It is also highly unlikely that the costs of two such varied schools can be compared in any direct and valid way for true economy

Linton High School; Perkins & Will and Ryder & Link. *Hube Henry, Hedrich-Blessing*



In the selection of wall construction the consideration of maintenance and operational costs is of primary importance.

Conclusion: It appears likely that by a careful choice of materials the initial costs of exterior walls may be lowered by as much as 20 per cent but, in doing this, maintenance costs may be increased. Assuming wall costs to be, on the average, 10 per cent of the total building cost, it is doubtful that a net overall saving of more than one per cent can be anticipated from this source.

Interior Partitions

If it will be necessary to relocate partitions several times during the life of the building, then the initial use of the more costly movable types can be economically justified. Studies of the costs involved show that even one relocation serves to equalize the costs of the demountable and conventional block type partitions and that each subsequent move adds to the cost advantage of the former. If, on the other hand, "demountable" partitions are selected because of the "possibility" of relocating them at some vague time in the future, considerable unnecessary expense will be involved.

Among the conventional partition types receiving the most attention in this study have been those built with lightweight block partitions and those constructed with steel studs, metal lath and plaster. Of the two, the latter appears to offer the greater economy and yet possesses essentially the same sound transmission reduction value.

Some contractors grant little credit for substituting paint for plaster, claiming that the extra care required in laying up the blocks offsets any theoretical saving. Many of them, though, maintain that the use of painted block walls results in costs appreciably lower than the cost of plastered walls, provided that the architect is willing to accept the natural quality of the wall and does not insist on special precise workmanship. All are agreed that the use of stacked bond for painted walls will nearly always involve a cost penalty of at least 30 per cent, as compared with ordinary running bond. It is unrealistic, also, to expect economy when painted block partitions have buried in them any amount of conduit or piping; the extra cutting and patching work required prior to painting will often cost more than a covering coat of plaster. Some architects have found the use of steel-stud-and-plaster partitions to be a dependable source of economy, especially when the plastering is done by machine. This type permits almost any required amount of piping and conduit to be buried with ease.

Conclusion: There appear to be several leads to possible savings in the cost of partitions: the use of movable systems only where actually needed, a recognition of the inherent limitations of painted block and wider use of hollow constructions to accommodate service lines. The cost saving involved is indeterminate but will probably average less than two per cent of the total building cost.

Cost of Casework

Casework is a relatively large factor in school costs. Investigation shows that certain potential economies can be realized in this part of the work, if the following recommendations are observed:

1. Casework should be designed to be built off the job and brought in as finished units ready for installation. Only a minimum of cutting and fitting should be done at the site.

2. Repetitive designs should be used as far as possible, with a minimum number of different units. Units should be designed for multiple functions wherever possible.

3. The quantity of cabinetwork should be limited to actual need. Too often the cry of "more storage space" provides cabinetwork in the classroom that isn't needed.

This results in reduced usable floor space and increased maintenance costs.

4. Cabinetwork can often be simplified in design, thus reducing initial cost, maintenance and upkeep expense. This applies particularly to sliding doors with complicated and expensive hardware, shelf brackets, drawers and runners. Initial equipment should satisfy minimum needs only.

5. The quality of material used is also as important consideration. There is little need of specifying clear stock, for instance, if the cabinets are to be painted.

Conclusion: A reduction of about 20 per cent in the average cost of casework appears to be a reasonable possibility. This would represent a saving of from one to two per cent in overall building costs.

Thermal Insulation

The value of adequate thermal insulation as an economy measure is too often disregarded. It applies only to operational costs, of course. Since such costs as a whole are usually underestimated as to their significance, this oversight is understandable.

Comprehensive studies exploring the long-term economies of thermal insulation in school building construction have led to findings directly pertinent to the investigation of potential savings.

Conclusion: In the interests of overall economy, more adequate thermal insulation should be provided in the walls and roofs of school buildings. This will not usually lower initial costs but may result in savings of as much as six per cent of total annual operating and maintenance costs.

Prefabrication

The term "prefabricated" is applied to such a wide variety of offsite-fabricated elements that its meaning will be restricted for the purposes of this discussion. It will be used here with two connotations:

1. To denote school construction systems that build to a design fixed largely by the manufacturer

2. To denote a system of components which may be assembled in a variety of ways, permitting the architect to give full consideration to specific functional requirements and site conditions.

This distinction is not sharply definitive, however, since some systems intended to possess the characteristics of the second category are forced as a practical manufacturing expedient into the first.

Conclusion: At the present time there are no prefabricated school systems on the United States market that offer clear-cut economic advantages and still retain a substantial degree of flexibility in design.

There undoubtedly is a promising potential for prefabricated systems, especially those that possess variable design characteristics. There may also be economy potentials for further development of systems fitting the fixed design category if generally acceptable basic designs can be developed for classroom and other components whose functional requirements are susceptible to a reasonable degree of standardization.

Maintenance Costs

It costs the taxpayer almost as much each year to run school buildings as it does to acquire them. A 10 per cent reduction in these costs is almost as important a saving to the taxpayer as a 10 per cent reduction in the cost of the building, because maintenance costs increase with the age of the building, while payments on the initial costs end after thirty years or so.

Significant recommendations as to specific ways of reducing maintenance costs can be made only after a thorough study of the matter. Such studies are in process in

certain areas and should provide much valuable information.

Part of the responsibility for maintenance costs is incurred with the design of the building. Often it is the architect who chooses the materials and finishes which determine these costs but too frequently important decisions affecting them are made by the local board. In either case this long-term expense must be a major consideration, if building costs are to be reduced.

The efficient conduct of maintenance work is most important. The reason is that 90 per cent of maintenance costs are labor charges. Industry in general has made amazing progress in bringing maintenance costs down but until recently schools have largely ignored the need for scientific study of this significant item of expense.

Little attention generally has been paid to the rising cost of fuel. With small additional first cost, substantial annual savings can often be realized if heat losses are reduced by more adequate insulation.

Conclusion: Costs of maintenance and operation account for a much larger share of the annual budget than generally realized. The potential economies here are significant but too frequently overlooked. With careful attention to the selection of materials and the efficient use of labor maintenance costs should be susceptible to a reduction of at least 10 per cent, a saving almost as important as the same proportionate reduction in the cost of the building.

Mechanical Equipment

There is a tendency to overdesign heating and ventilating systems in schools. Some authorities consulted thought that the reason for this was lack of information (at the time the basic design was established) as to final treatment of walls, amount of glass area, door area, etc. This could lead to overestimation of probable heat losses. Others suggest that there is a tendency to overdesign as a hedge against substandard construction. In several instances the detailing and fitting of doors and windows admitted several times the normal expected infiltration; the mechanical engineer would be naturally inclined to guard against such contingencies.

Heating and Ventilating

Doubts were expressed about the necessity of always basing the design of the system on minimum temperatures. The question was raised as to whether schools actually operate during the lowest temperatures, or are they usually closed because of weather conditions at these times. This applies, too, in questioning the real necessity of expensive stand-by heating equipment. It was pointed out that it might be much more economical to close the schools for a day or two during the breakdown than to pay the carrying charges for duplicate installations.

A strong feeling exists that the acceptance of some calculated risks on the part of the school authorities and the architect in respect to these matters would be both logical and advisable, in the interests of reducing costs.

Conclusion: It appears that in many cases the mechanical systems of schools are unnecessarily expensive; a more realistic consideration of needs may offer valid economies. These matters should be carefully and thoroughly investigated. Potential savings of as high as 15 per cent of the heating and ventilating costs (or one per cent of total building costs) are indicated.

Costs of Control Equipment

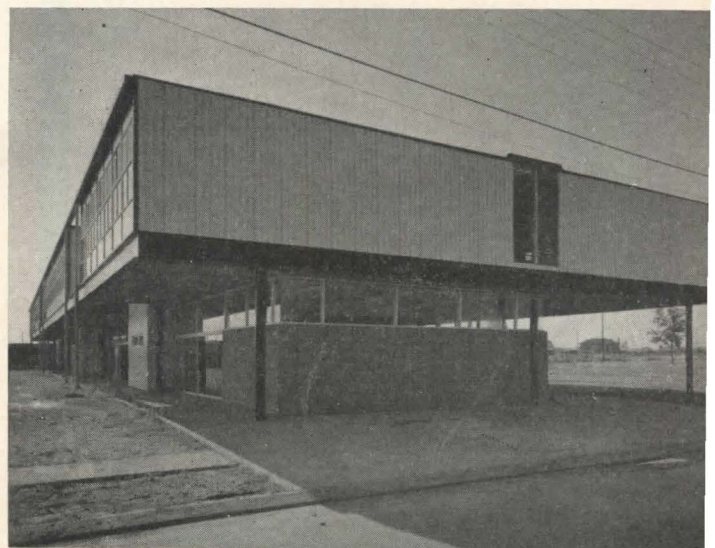
Many architects feel that temperature controls in school buildings are often unduly elaborate. Investigations show that the expense involved ranges from seven per cent to 20 per cent of the cost of the entire heating and ventilat-



Pioneer Valley High School; The Architects Collaborative.
Joseph W. Molitor photo

Economy in school design and construction is affected in considerable degree by the conditions of the site. In the high school shown above, the location is in rolling country on a large property. The setting is rural; bearing qualities of the soil are excellent. The building reflects these qualities of the site in its spread-out essentially one-story plan, its conformity with the contours of the site. The elementary school below was built on an extremely different site, of minimum size, in an urban area. The ground is tabletop flat, with poor soil bearing. Consequently, it was conceived in a manner allowing much of the instructional area to be raised off the ground to gain play area underneath. In both schools, some additional economies relating to soil bearing qualities, not taken advantage of for other valid considerations, might have been gained by using a multi-story scheme in the first example, single-story in the second school.

Jean Gordon Elementary School; Edward B. Silverstein Assoc.
Jean Seidenberg photo



ing system. It has not been established what this optimum proportion should be but the indications are that an effective and satisfactory control system should probably cost no more than 12 per cent of the total cost of the system.

On the other hand, it must be recognized that individual room controls, though relatively expensive in themselves, generally result in a saving in piping by eliminating the need for zoning.

Several architects interviewed felt that they had "yet to see a school operated as it was designed; there are still hot-blooded and cold-blooded teachers." However, there seems to be pressure on the architects and engineers "to provide something that works by itself, so as to make it easier for the custodian to operate the building."

Conclusion: Much investigation remains to be done in the area of proper utilization of temperature control devices. It would appear that possible economies of five per cent of heating and ventilating cost (about one-third of one per cent of total building expenditures) might be realized in this area.

Plumbing Systems

Plumbing requirements, like those of heating controls, appear to have grown in complexity and cost until, as one individual remarked, "we almost have to put a toilet at every kid's desk." Another expressed the opinion that toilet accommodations seem to have been determined on the assumption that everyone in the school is going to use them at the same time.

The potential savings by means of standardization and shop assembly of supply and drainage systems (or at least substantial parts of them) seem to have been largely overlooked. The architect can do much to encourage savings by arranging layouts and fixture positions so that runs are simplified, repetitive assemblies are used and more prefabrication is possible.

Conclusion: Serious consideration should be given to reducing current standards of required toilet facilities to actual needs. More attention should be paid to the potential economies of off-site plumbing assemblies. A saving of 20 per cent in plumbing cost would lower overall building cost by about one per cent.

Economy Measures: Regulations and Requirements

A search for sources of building economy must examine conditions beyond the control of the local districts, such as State imposed regulations and fire insurance rates. These both contribute cost factors that, for the most part, are fixed and not related to choice (or may limit choice) at the local level. If greater local prudence is to be expected, State action may be necessary in order to set the stage properly.

State School Design Requirements

The general opinion of the design professions is that New York State regulations governing school design are, on the whole, reasonable and contribute little to unnecessary expense. These regulations on careful reading are far less restrictive than is often implied. This is not to say, however, that no requirements are questioned.

As a further check on defensibility of current requirements, a survey was made of the nature of similar regulations in neighboring states. It can be stated that New York State requirements, though perhaps more explicit, are not exceptional.

The lack of a current codified form of State regulations is subject to criticism. Some regulations apparently are not currently available at all and others only by persistent search through a series of seemingly unrelated releases and publications.

Conclusion: Current New York State regulations gov-

erning school design have little or no adverse effect on school costs. Codification of these regulations and coordinated periodic supplemental releases would be an aid to all concerned.

Fire Insurance Rates

The relationship of fire insurance rates to school building economy should be considered from two points of view. Either the current cost of insurance may be taken as an immutable matter or, more objectively, the validity of current rate structures may be questioned. Both attitudes have been considered in this investigation.

Accepting the current costs of fire insurance as valid and inescapable, there are several means of saving costs which should not be overlooked:

1. The architect should always check preliminary school plans with the fire insurance rating organization, to see that the tentative building design permits the most favorable rates possible.
2. School authorities should see that all unnecessary fire hazards are eliminated from existing properties, to keep rates at a minimum.
3. The school board should take pains to see that only necessary insurance is carried on the most economical plan.

General Conclusions

Means of economy relative to building design have been examined in detail and discussed with selected informed parties. Some of these economy ideas have been found to offer little or no predictable savings. Some offer economies of small overall significance. Others are certain to reduce costs but only to an indeterminate extent. It appears that the sources of greatest potential economies in relation to design will result from the following:

1. Wider use of modular planning, repetitive units, and off-site fabrication.
2. Recognition of the importance of maintenance costs and consistent efforts to reduce them.
3. Objective research as to the real needs in schools, aimed at reducing arbitrary but unessential requirements for structure and equipment.

Several basic facts have appeared as a result of this broad critical survey of various approaches to economy.

1. The architect is the key figure in the whole problem. The significant economies depend on skillful planning and competent overall guidance with experienced regard for long-term costs.

2. The local school authorities often contribute arbitrarily (and perhaps unknowingly) to unnecessary costs. Too frequently over-riding decisions affecting costs are based on opinion rather than on objective data.

3. There are many opportunities at the State level to promote school construction economies. Such measures would undoubtedly require additional funds and staff but would certainly return far more than their cost in resultant savings. Important among such services which only the State could probably supply are:

a. Objective research directed at determining justifiable needs, examining maintenance costs and evaluating materials and methods.

b. Coordination for a program of cooperative action among architects, engineers, builders, labor and financial groups directed specifically at school cost problems.

c. Research, in cooperation with competent professional authorities, concerning the feasibility and merits of a standard format for school specifications.

d. A more intensive program of advisory service for local school boards on all matters affecting long-term school costs.

e. Review of the current rate structure governing fire insurance rates.



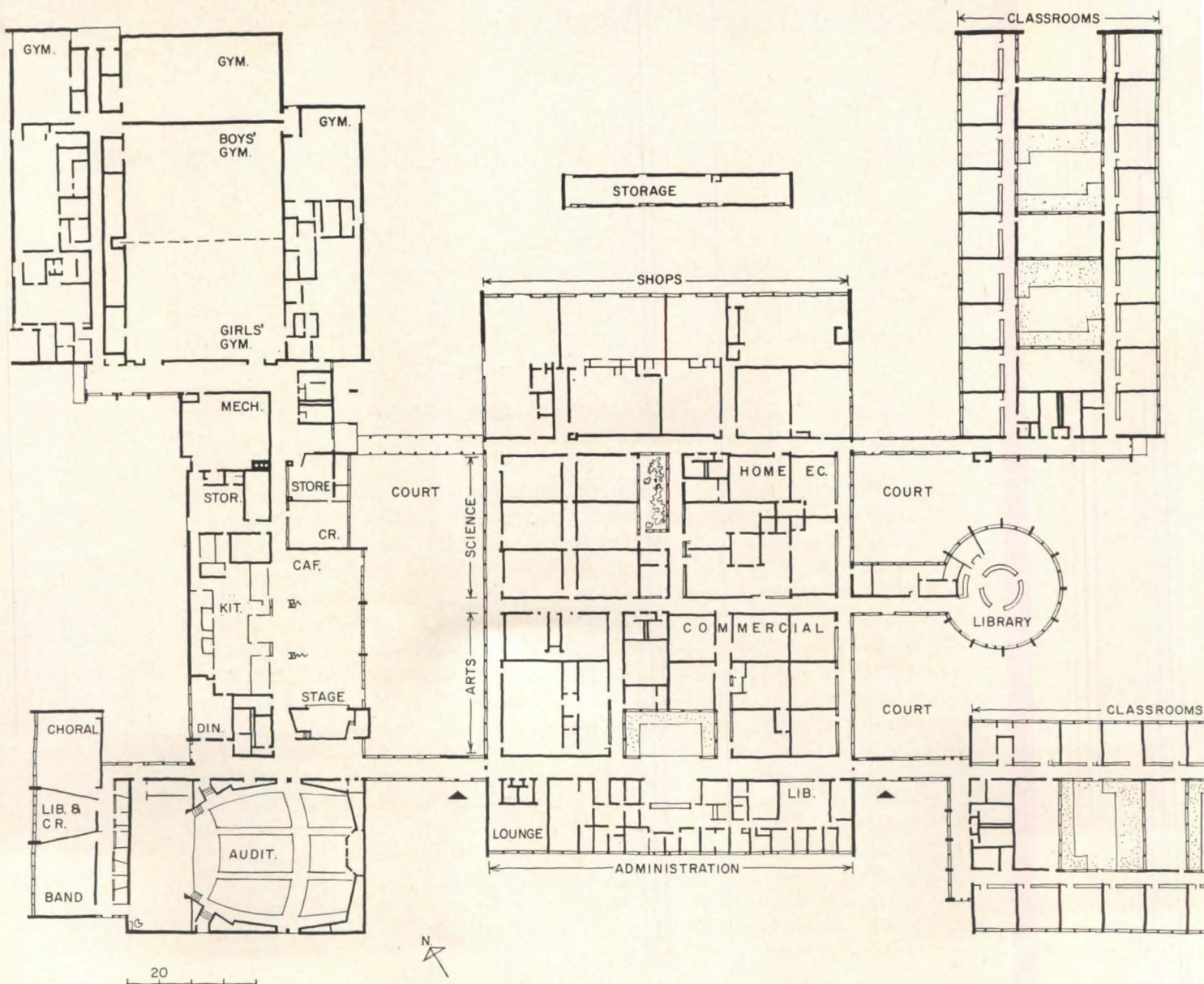
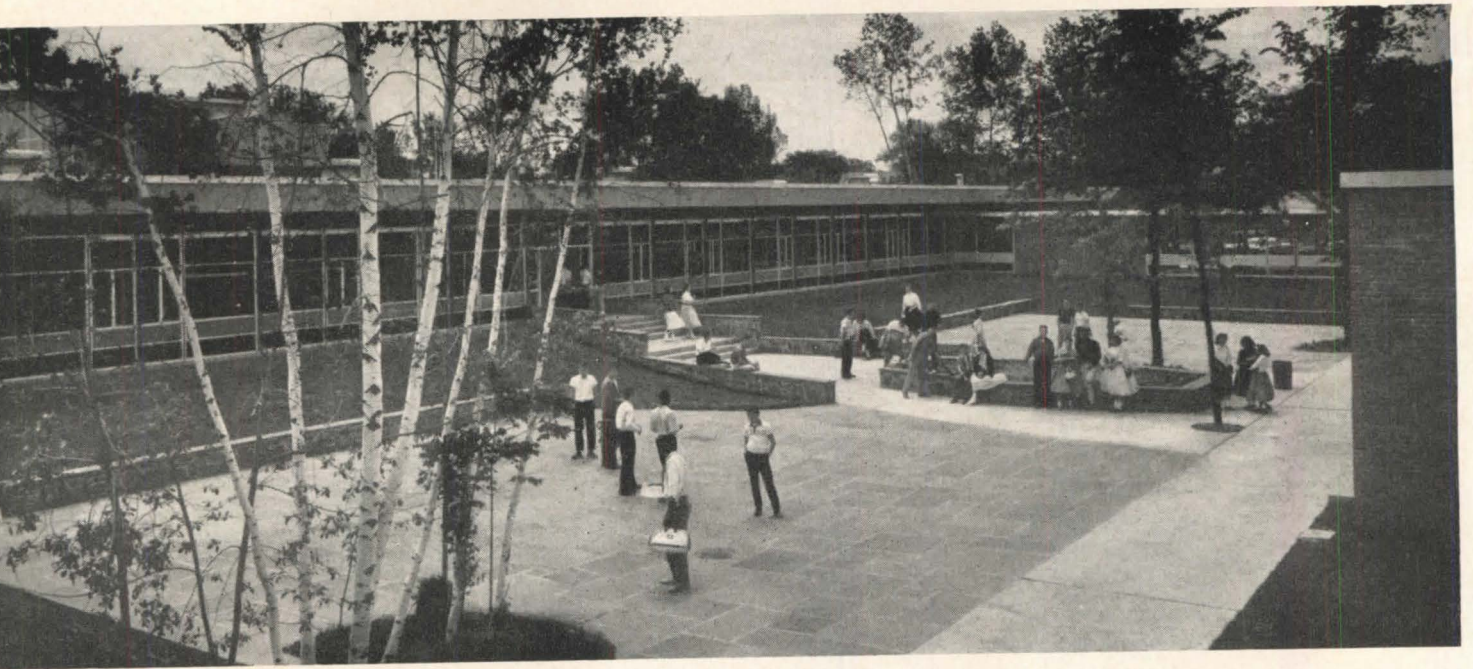
James H. Karales photo

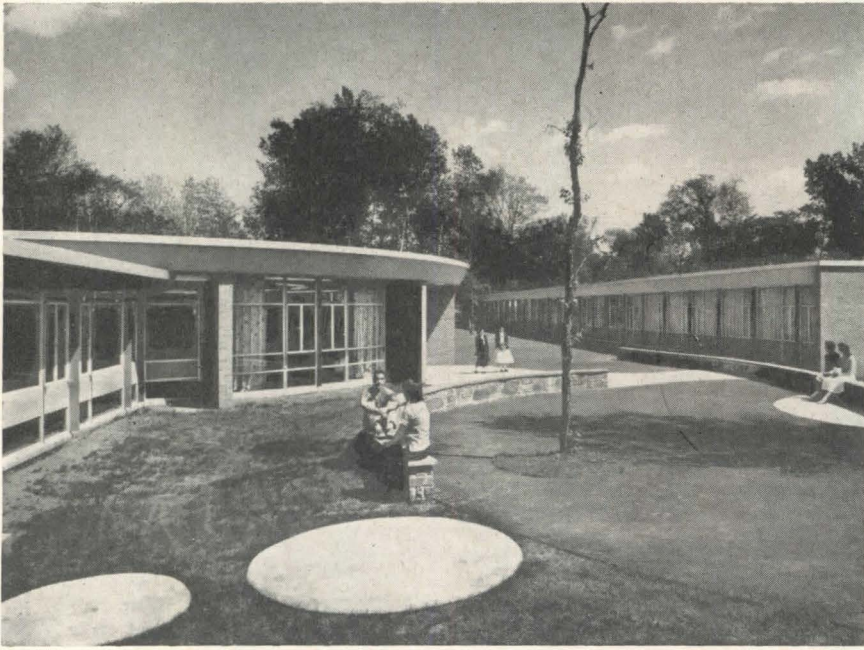
COMPREHENSIVE HIGH SCHOOL FOR INDUSTRIAL COMMUNITY

This large, complete plant (1800 students) provides all facilities for diversified training of the 60 per cent of the students who desire terminal training in specific vocations, as well as for the remainder who expect to continue their education in colleges

Linton High School, Schenectady, N. Y.; Perkins & Will and Ryder & Link, Architects; Christensen & Nielsen, Contractors

In this large city high school, the architects have provided an economical solution, well-fitted to the educational program. By dividing the school into small administrative units of 12 classrooms each (for 300 students), opportunities have been created for all of the children to participate in and identify themselves with small groups and with the school population as a whole. At the same time, the comprehensive program provides for a wide variety of courses and educational experiences. In addition to the general classrooms, special spaces and equipment for such studies as commerce, fine and applied arts, family living, and shop work are provided. Complete auxiliary functions such as gymnasium, auditorium, and library have been provided. All of these facilities make possible the training of students for college work and for vocations. The architects and educators believe they have achieved a school plant which will aid greatly in preparing youth for living accelerated lives in a changing world, in helping students to gain understanding and develop the attitudes necessary for them to become intelligent and productive participants in economic life. The school plant aids in these goals by providing ample opportunity for supervised work experience as well as education in the knowledge and skills necessary for vocations or advanced college studies.

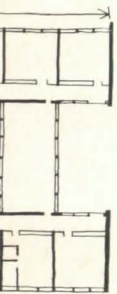
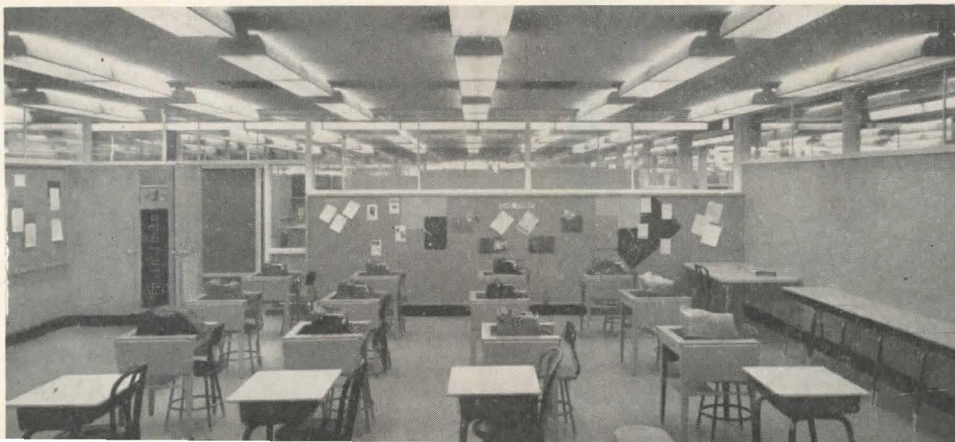
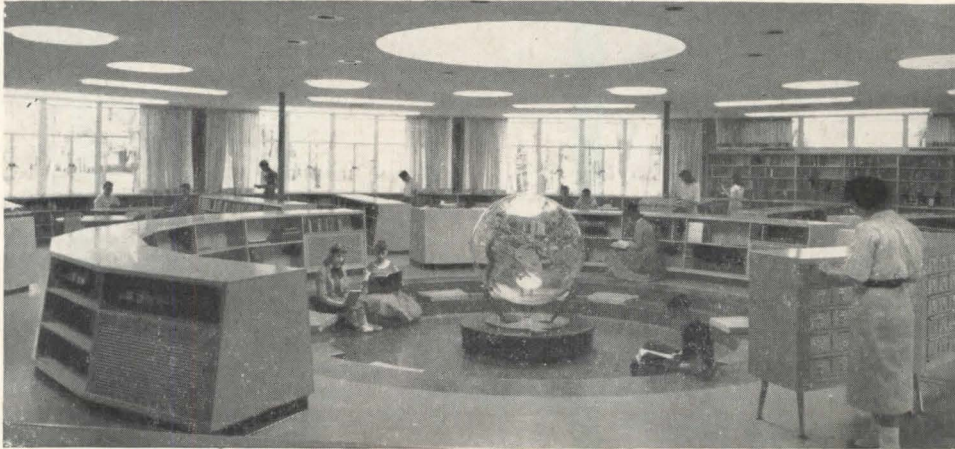




James H. Karales photos

Linton High School

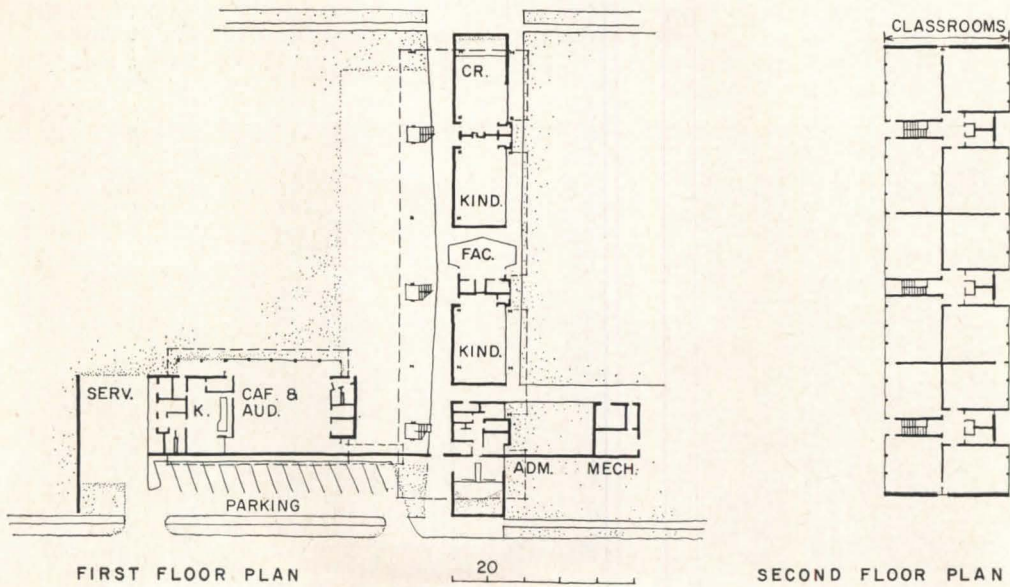
The plan is essentially based on the concept of the core-techs unit (where special classrooms are located). Around this are ranged the academic units and auxiliary spaces such as library, gym, and cafeteria, all interconnected with covered walkways. Open courts are used extensively. Economic studies pointed the way to scheme employed: core-techs plan, design for artificial illumination primarily, structure and plan similar to buildings for industry. Enrollment: 1800; Grades Housed: 10, 11, 12; Area: 258,157 sq ft; Const. Cost: \$4,328,130

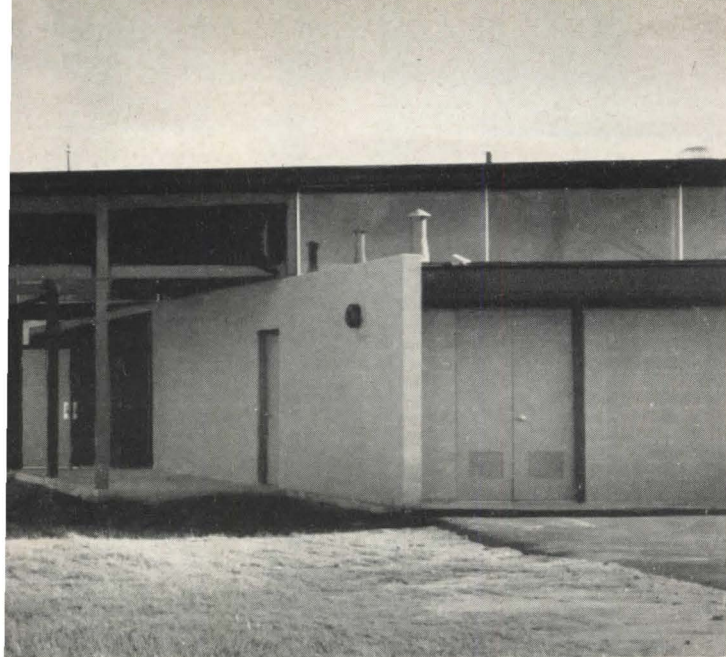




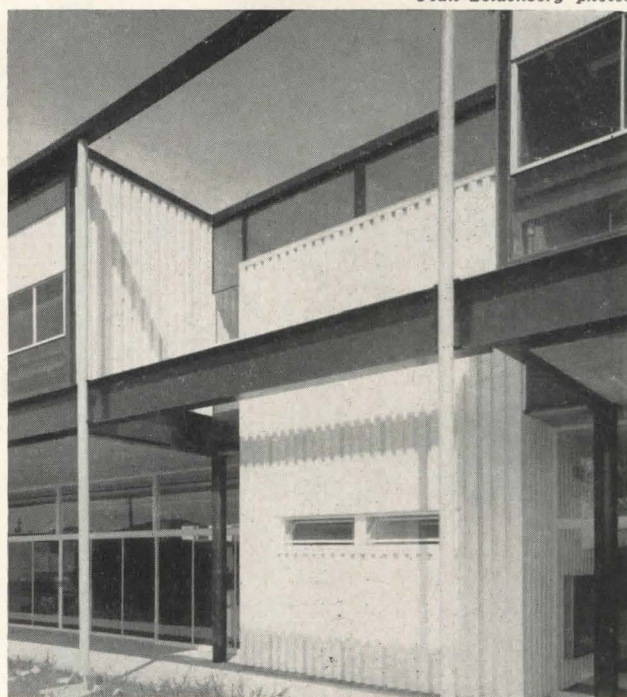
LIMITED SITE DICTATES ELEVATED CLASSROOM BUILDING

A lunchroom-assembly area, administrative suite and other supporting facilities are combined with 15 classrooms in this elementary plant located in an urban area adjacent to residential and commercial buildings





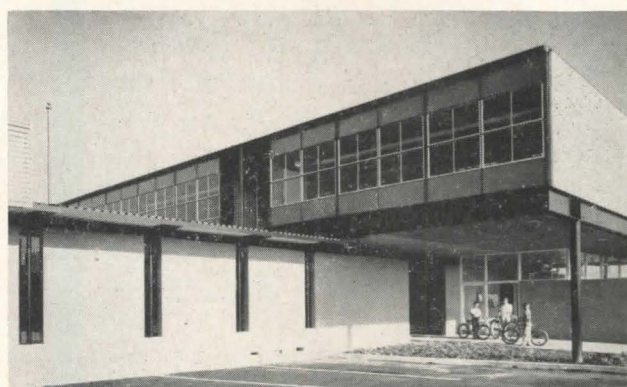
Jean Seidenberg photos



Jean Gordon Elementary School, New Orleans, La.; Edward B. Silverstein and Associates, Architects; J. Brian Corry, Associate-in-Charge; A. W. Thompson and Associates, Structural Engineers; A. R. Salzer and Associates, Inc., Mechanical Engineers; Edward J. Yoerger, Electrical Engineers; Otis W. Sharp and Son, Inc., Contractors

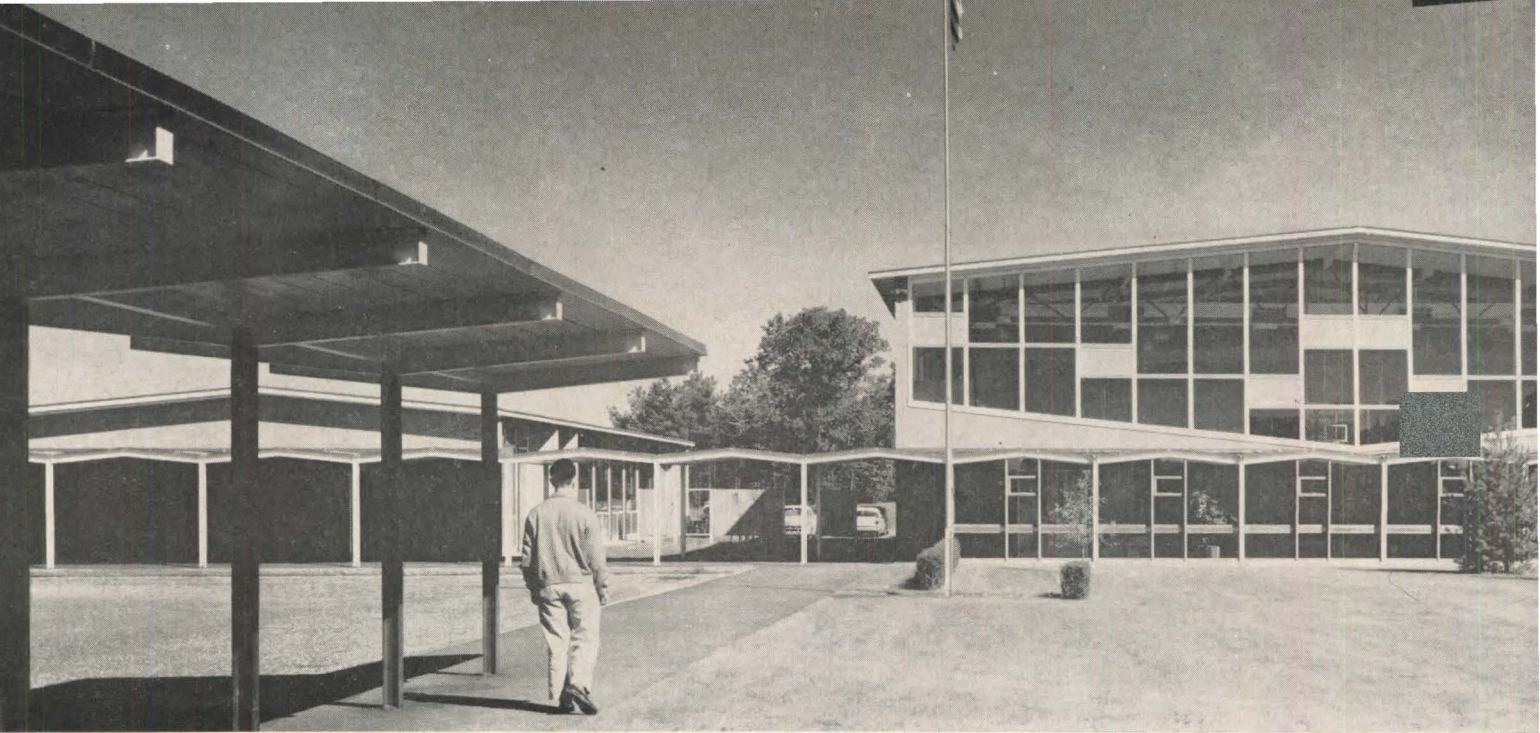
This elementary school, located in a recently developed urban area, is an example of an effective—yet economical—architectural solution to the major problem of building a functional school on a site extremely limited in size by high land costs. By placing only three classrooms, administration, and the cafeteria on the ground floor, and employing a cantilevered steel framing system, the architects have conserved precious ground area. Through careful planning, kindergarten and general play areas were isolated from each other. The cafeteria wing was utilized to form a buffer between both playgrounds and the undesirable noise and activity of the off-street parking area, service areas, and the nearby commercial district.

In order to solve the highly individual problems inherent in the design of an efficient school in this location at the lowest feasible cost, the architects used economical, low-maintenance materials. Concrete-filled steel pipe columns support steel joists and a concrete floor, with exposed steel tubular columns and joists on the second level, bulb tee purlins and a lightweight concrete roof deck. Modular, standard steel curtain wall units with projected vents are used for first floor classrooms and between the tubular columns on the north and south second floor walls. Windowless walls are framed with plywood on the interior, galvanized iron siding on the exterior.



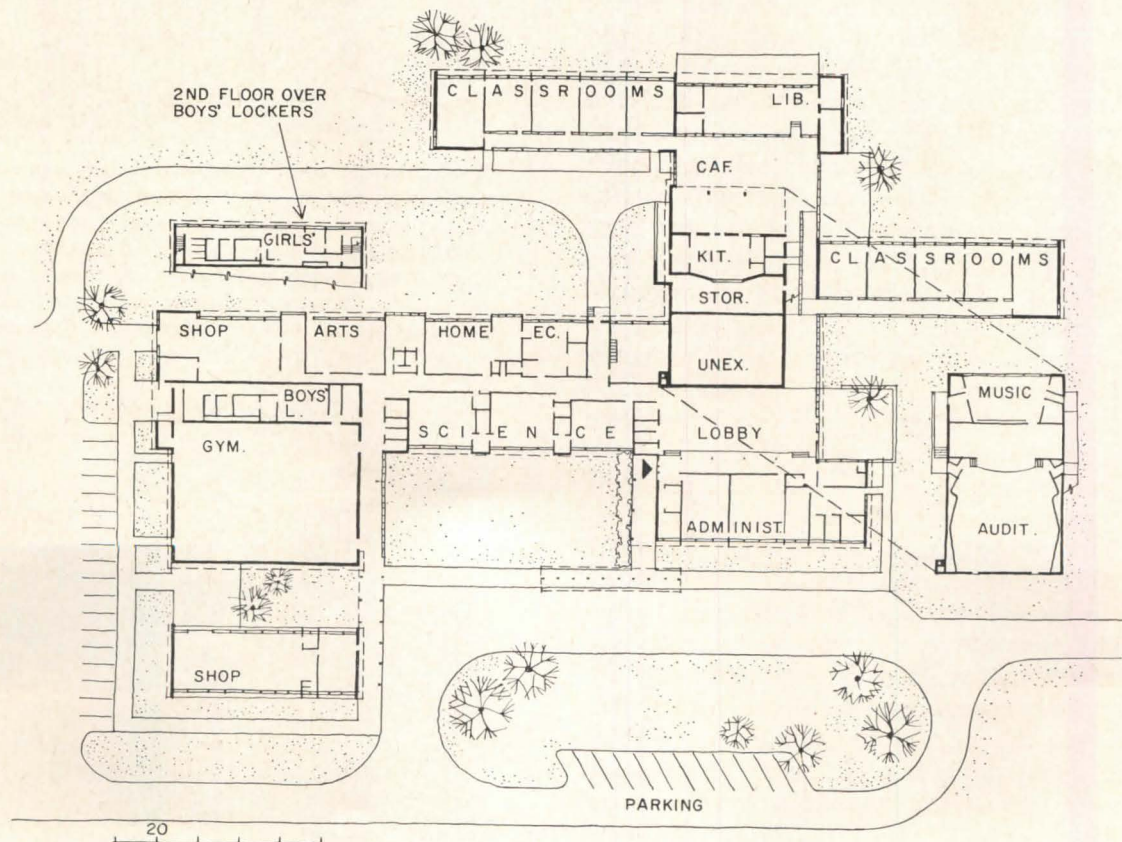
Economic studies of the site and program for the school resulted in the majority of the classrooms being raised off the ground to retain as much play area as possible. Access to second-floor rooms is by stairs entered from covered area below and located so that each serves four classrooms. Thus, second-floor corridors were eliminated. Enrollment: 515; Grades Housed: 1 through 6, Kindergarten; Floor Area: 28,650 sq ft; Const. Cost: \$421,000

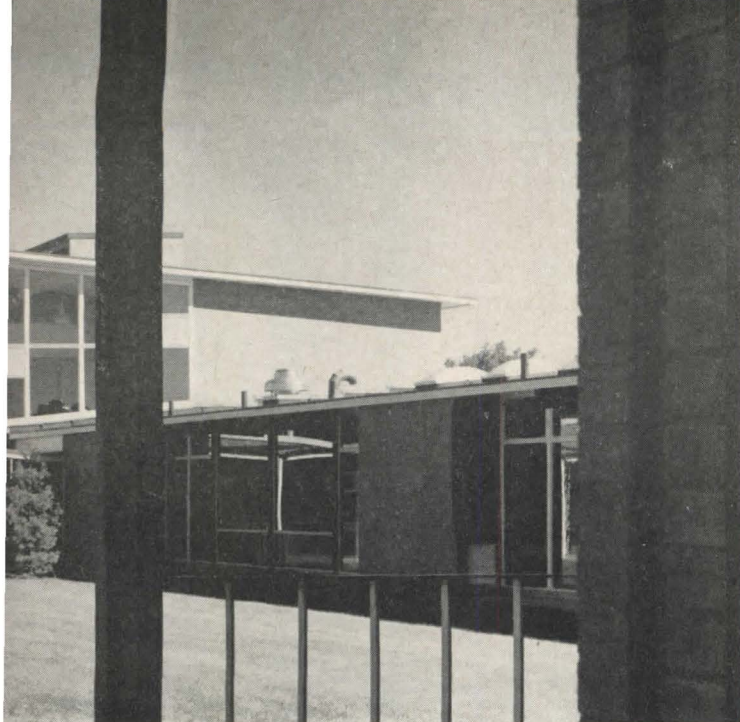




SECONDARY SCHOOL PLANT SERVES THREE NEIGHBORING TOWNS

Located on a beautiful, wooded hillside overlooking the Connecticut River Valley, this school was designed to fulfill the needs of students in grades 7 through 12, in a centrally located regional plant to be used and supported by three neighboring towns



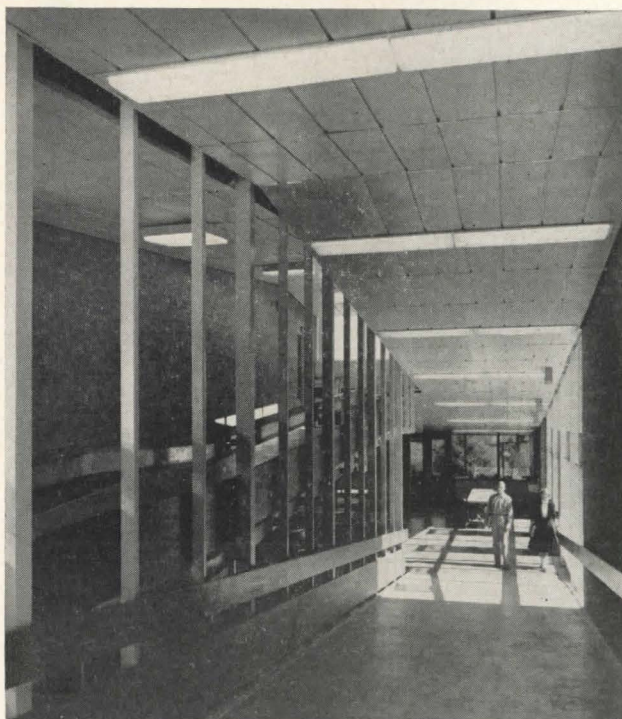
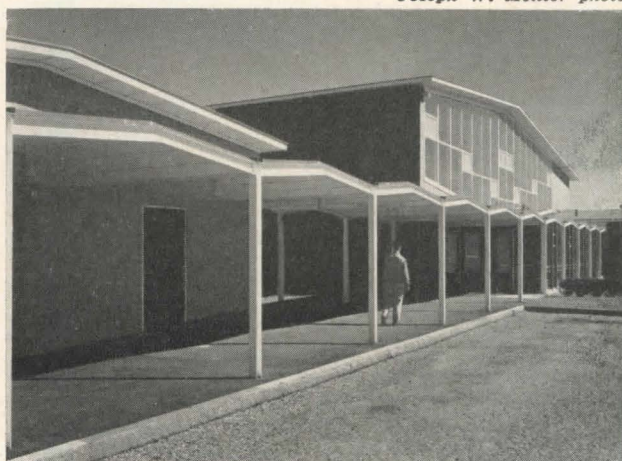


Pioneer Valley High School, Northfield, Mass.; The Architects Collaborative, Architects; Frank Morgenroth & Associates, Structural Engineers; Fred S. Dubin Associates, Mechanical and Electrical Engineers; Louis Neri, Contractor

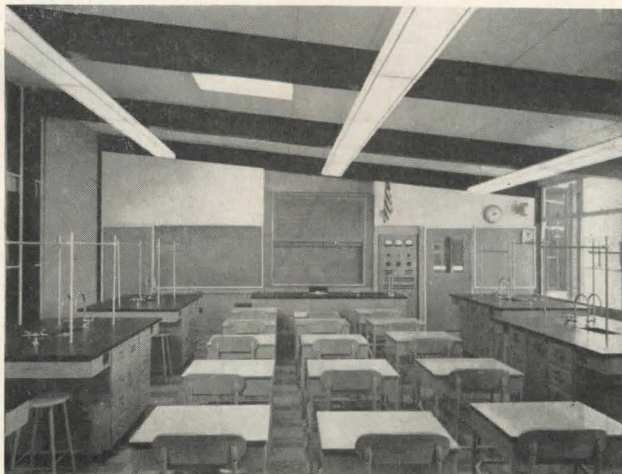
In order to design this efficient and economical school, the architects first established very closely, through study, the estimated number of students to be housed and the realistic needs of these students from the three towns associated in the project. As the result of careful analysis and design, the required spaces and equipment were obtained, a peaceful, pleasant atmosphere for learning was created, all in an economical, attractive building.

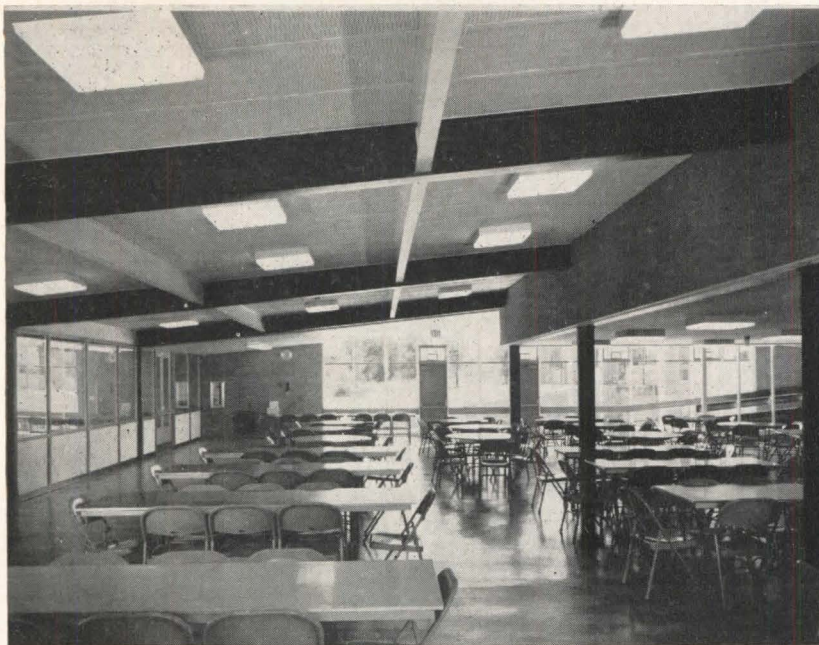
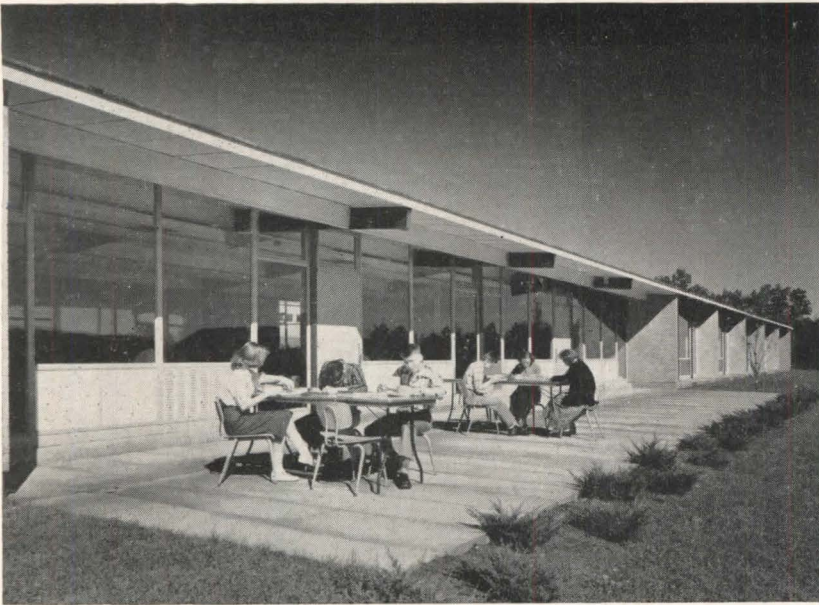
The school is integrated into the wooded, hillside site overlooking the Connecticut River Valley. Floors and roof levels follow the contours resulting in feasible first costs of construction while allowing the form of the building to blend in with the site. Excavation was virtually eliminated by this scheme. This resulted in further economy. The portion of the site which was naturally level is used for play areas and parking. Rooms housing similar activities are grouped together for economy of construction and for zoning quiet areas away from noisier ones.

Materials and structure were chosen for reasonable costs, low maintenance, and appearance. The structural system is an exposed steel frame and bulb tee purlins with a gypsum roof deck on acoustical form boards. Exterior walls are steel-framed curtain walls with porcelain enamel panels and brick. Interior partitions between classrooms are polished lightweight concrete block.



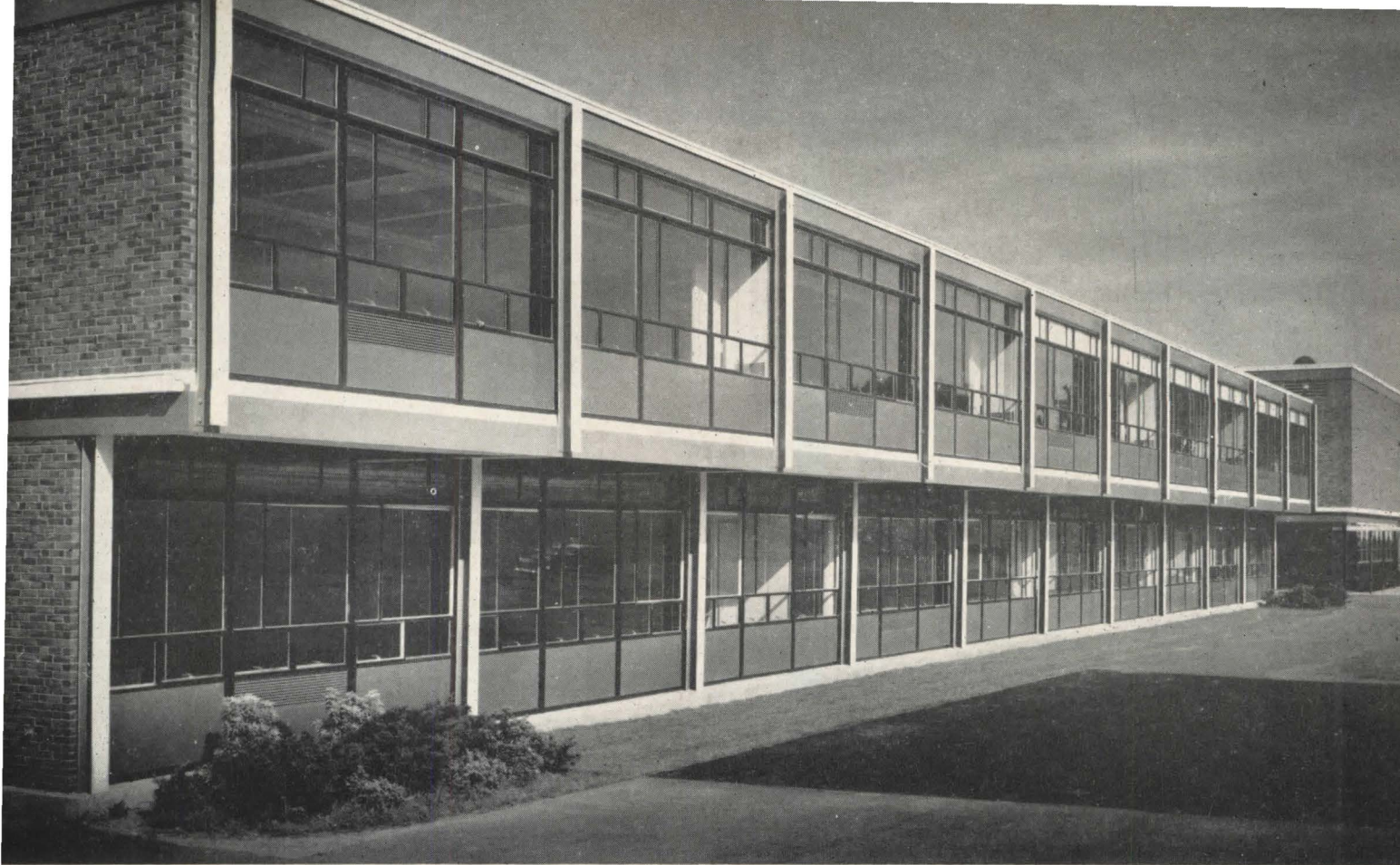
Studies of the educational program, site, and other requirements led the architects of this school to the design solution used: essentially a one-story plan, with floor levels following the contours of the rolling site. Corridors are kept to a minimum and are ramped for easy circulation. Enrollment: 550; Grades Housed: 7 through 12; Floor Area: 68,000 sq ft; Const. Cost: \$1,243,371





Pioneer Valley High School

The school was designed for maximum flexibility of use and for expansion. Various spaces are often used for community functions and adult education classes are held during off hours. Ample parking is provided nearby and the access drives were closely studied for safe, easy travel to and from all three supporting towns. Outside areas were developed for student and teacher use near the lobby, cafeteria, and library (shown in photograph, left above). The cafeteria (left, center) is located on the ground level, with auditorium (left, bottom) over. Adjacent to the cafeteria is an outdoor eating court. Behind the auditorium stage are located sound-isolated music practice rooms. The auditorium and gymnasium are primarily lighted by artificial means. Classrooms and other areas are designed with large windows and plastic domes to utilize natural light sources as much as possible. The gymnasium, shops, and agricultural shops (required for the predominantly farm communities) are grouped together, removed from other spaces



Joseph W. Molitor photos

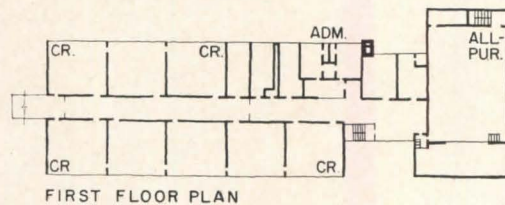
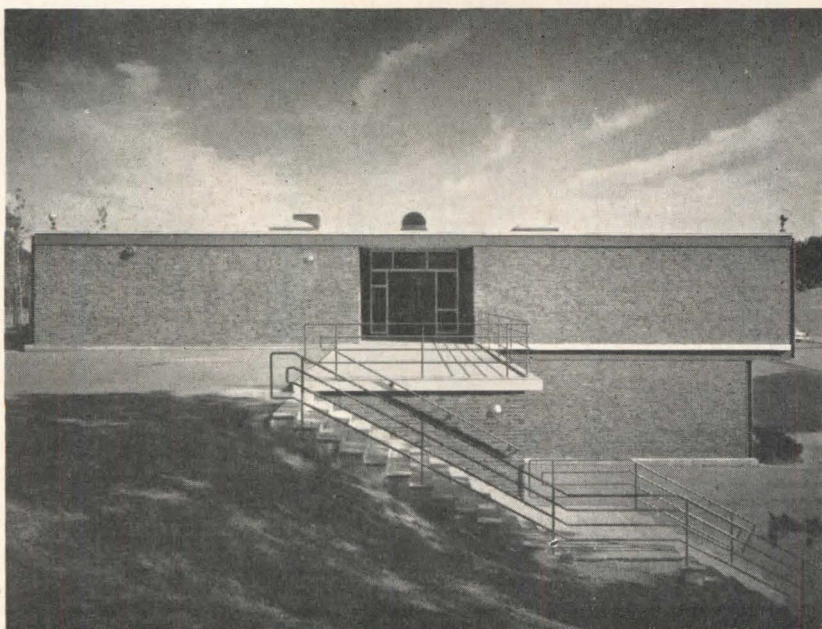
TWO-STORY SCHOOL BUILDING ON DIFFICULT HILLY SITE

This complete elementary plant, built on a less-than-desirable site because no better one was available in the area, includes 12 classrooms, administration, lunch room, and an all-purpose room used for after-school sports and nightly group meetings

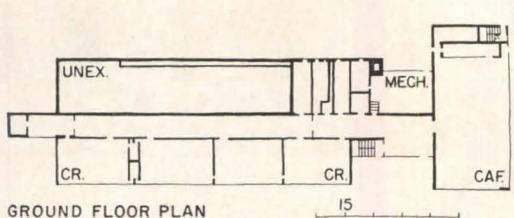
Academy Avenue Elementary School, Weymouth, Mass.; Coletti Brothers, Architects; Merrill Associates, Mechanical Engineers (Heat. & Vent.); Daniel J. Sullivan, Mechanical Engineer (Plumb.); C. W. Rickerd, Electrical Engineer; Chambers & Moriece, Inc., Landscape Architects; Louis Proia Construction Co., Inc., Contractors

This school represents an out-of-the-ordinary solution to the extremely serious problem of economical design for a highly undesirable site. The location (adjoining the existing high school) was selected because it was the only one available in the neighborhood to be served. Hilly and partially swampy, the site is cleft by a steep ledge. After considerable study, the architects found the most feasible building to be one which would exploit the ledge. This was accomplished by the scheme used—two story on one side and single story on the other. The structural system and materials were chosen for economy in first costs and maintenance. The exposed steel frame supports a reinforced concrete floor and an exposed roof deck of metal-edge gypsum plank. Steel-framed curtain walls with porcelain enamel panels, brick (exposed both sides), and insulated aluminum panels are used for exterior walls. Interior partitions are painted cinder block.

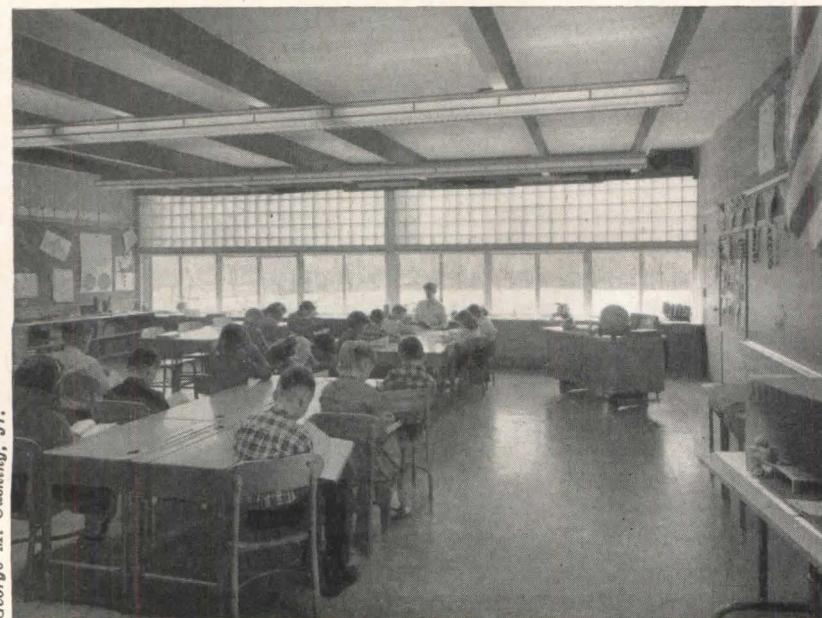
Joseph W. Molitor



George M. Cushing, Jr.

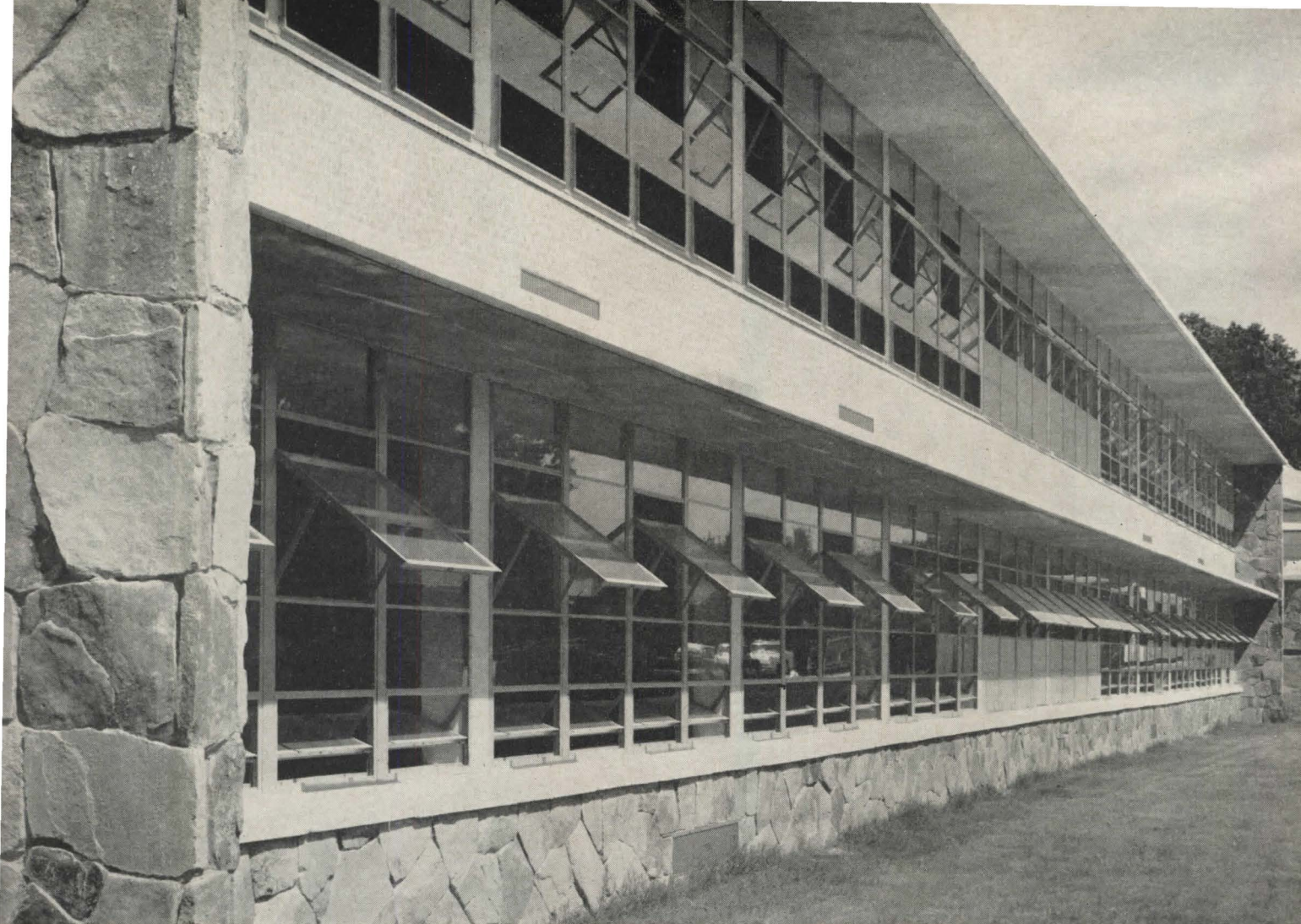


George M. Cushing, Jr.



Academy Avenue Elementary School

The steeply sloping location of the school resulted in the combination one- and two-story solution as shown in the plan and the photograph, left above. This made for economy since the more level areas of the site can be used for playing fields and other outdoor activities. Second floor classrooms were made almost square in order to minimize corridor lengths and building perimeter dimensions. Corridors (left, center) are spacious for easy circulation. Classroom windows are large to take maximum advantage of daylight. Because square rooms (left, below) are deeper than usual, three skylights per room are used to equalize lighting. The expenditure for an all-purpose room was justified by the fact that it is extensively used for physical education, assemblies, musical groups, and the like during the day, for after school sports for the children, and by the great demand for space for community activities. Enrollment: 365; Grades Housed: 1 through 6; Area: 32,269 sq ft; Const. Cost: \$433,061



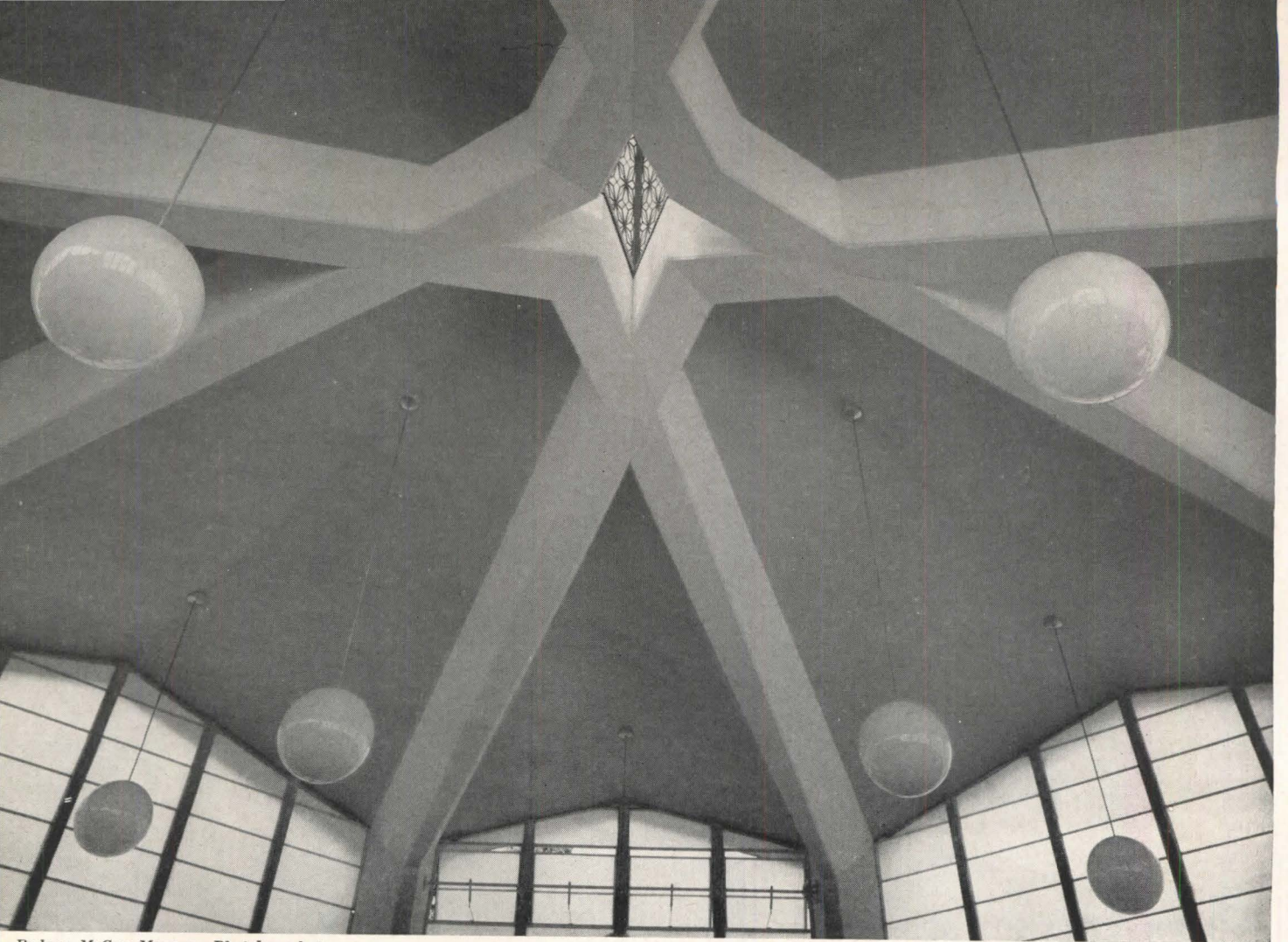
Rodney McCay Morgan—Photolog photo

RURAL SCHOOL COMBINES SEVERAL RELATED FUNCTIONS

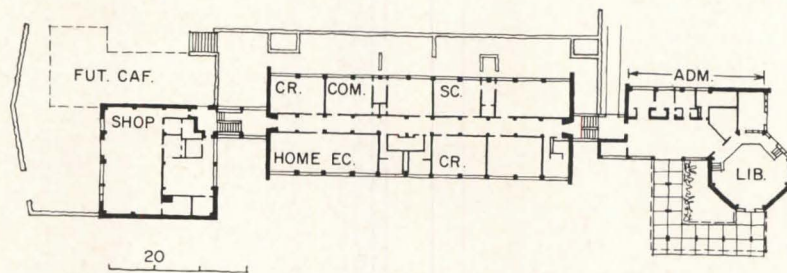
Located on a mountain slope, this school provides elementary and high school training—in a 12 year program—for approximately 100 students from the local school district and about twice that number of boarding students who come here from the entire state

Consolidated School, Tallulan Falls, Ga.; Aeck Associates, Architects; Morris, Boehmig & Tindel, Inc., Structural Engineers; Lazenby & Borum, Mechanical Engineers; Charles F. Howe, Electrical Engineer; James L. Bracewell Co., Contractors

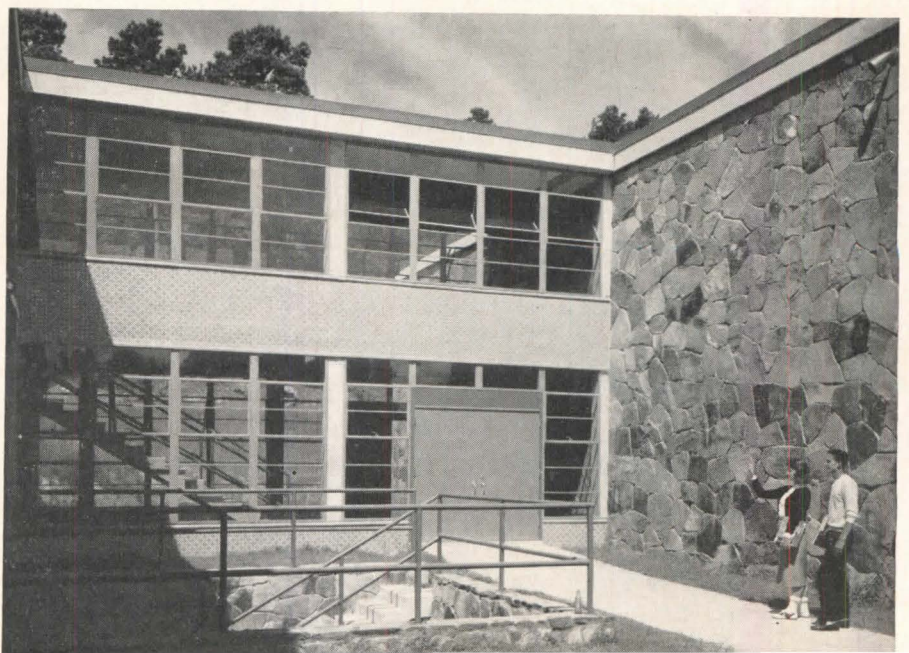
This mountain school represents a unique architectural solution to a unique problem. The school program provides education for boys and girls on a day-student basis and for boarders. The school is owned by the Georgia Federation of Womens' Clubs and is operated by the Board of Trustees of that organization. It was founded primarily to provide educational opportunities for rural children. Training in arts and crafts and a constructive work program for students are important parts of the school philosophy. These have received special consideration in the design.



Rodney McCay Morgan—Photolog photos



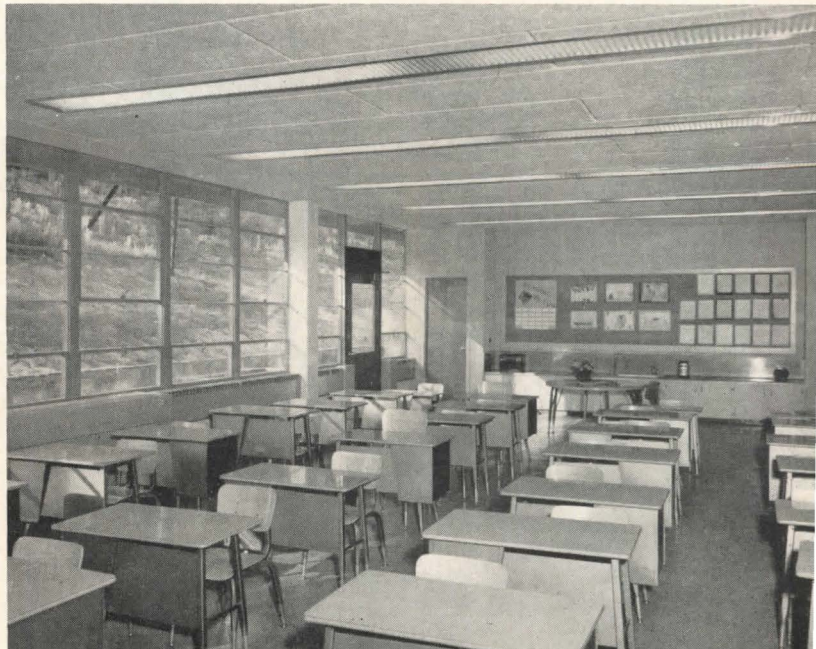
In order to achieve economy and the best solution of the problems, the architects and school personnel worked closely together for some time, developing not only a master plan for the school but also the educational program on which it was based. Their studies indicated there would be no significant population changes in the area, therefore local enrollment could be assumed fairly constant. Boarding school enrollment was assumed on the principle of natural limits on numbers imposed by the basic philosophy of the school and the ideal of concentrated efforts on fewer individuals rather than on larger groups. One reason the first unit to be built (classroom building-library) could be planned with economy was this close attention to realistic needs. Another important factor was the use of simple details and native materials as shown in illustrations

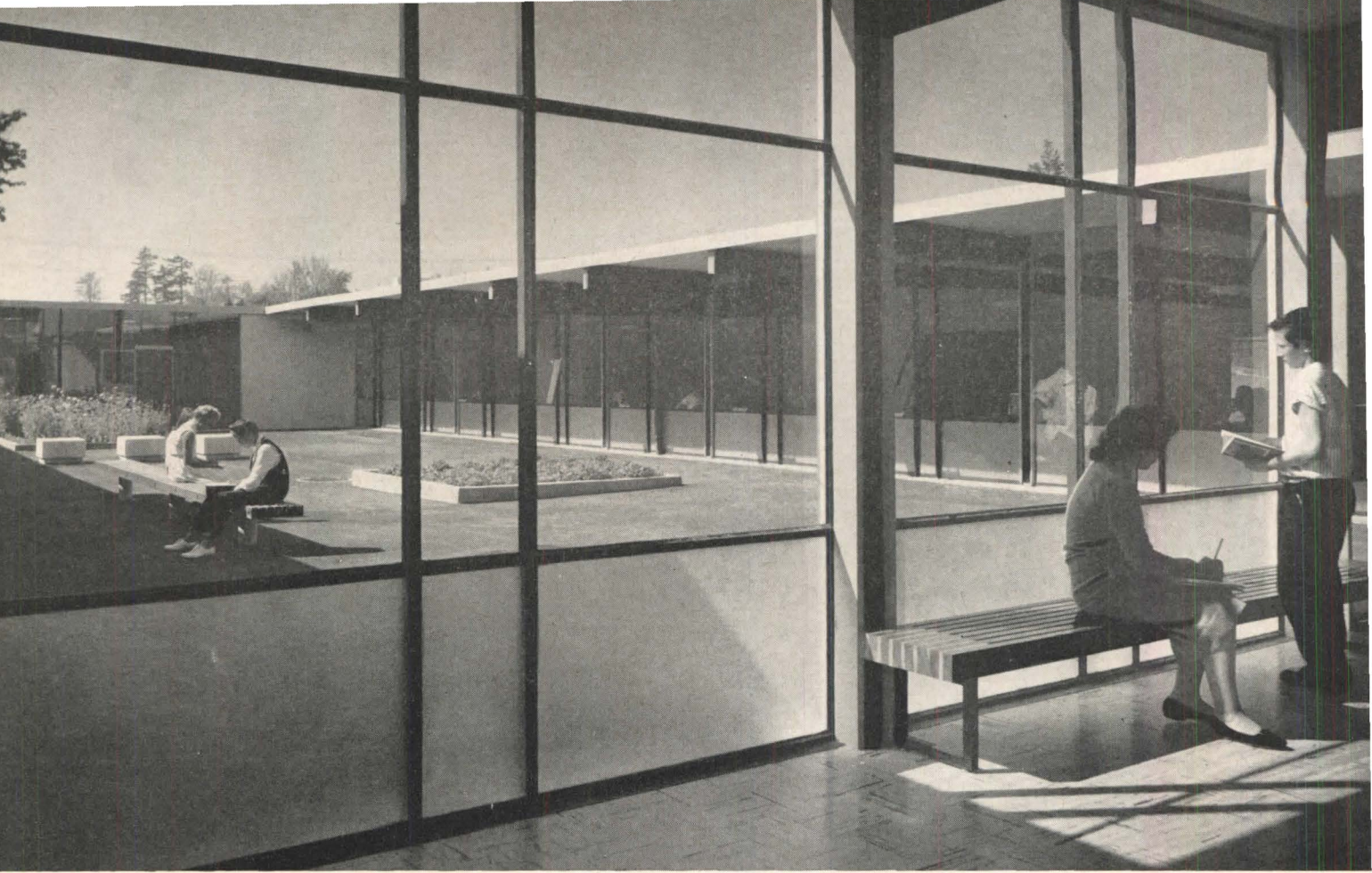




Tallulah Falls Consolidated School

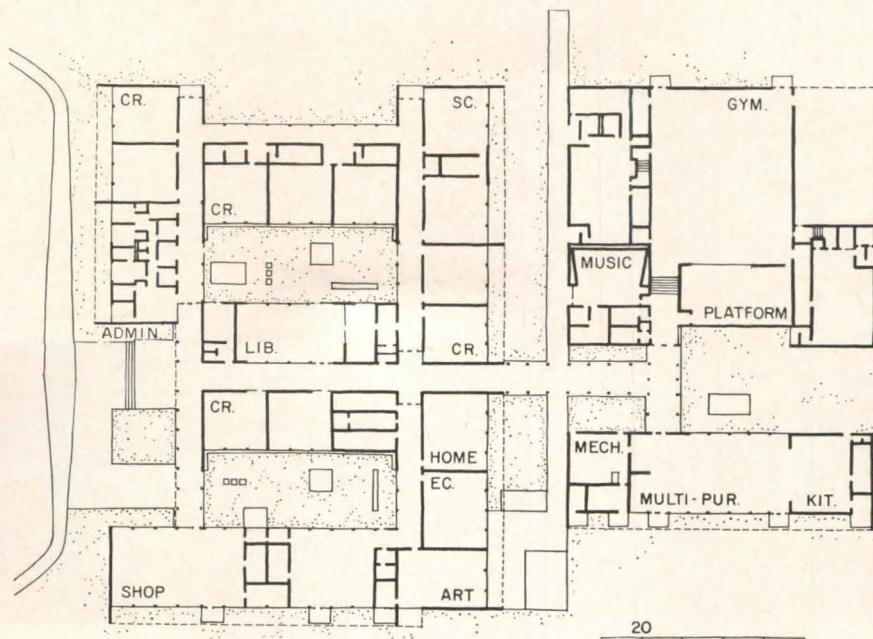
The library (shown above) was considered important enough to be included in the first portion of the building program. It includes special facilities such as music listening rooms. Formerly housed separately in temporary buildings, the elementary and high school students were brought together in the new building, for economy in supervision, administration, and mutual use of group spaces such as assembly rooms and the library. Elementary and high school students are zoned away from each other so that both can function independently, without interference. All elementary classrooms are located on the ground floor. High school facilities are divided into units centering around such special interest departments as home economics, agriculture, commerce, and home and farm shop. Structure is exposed concrete frame with native stone on concrete block backup and steel windows.





SCHOOL BUILT IN TWO STAGES FOR FAST-GROWING SUBURB

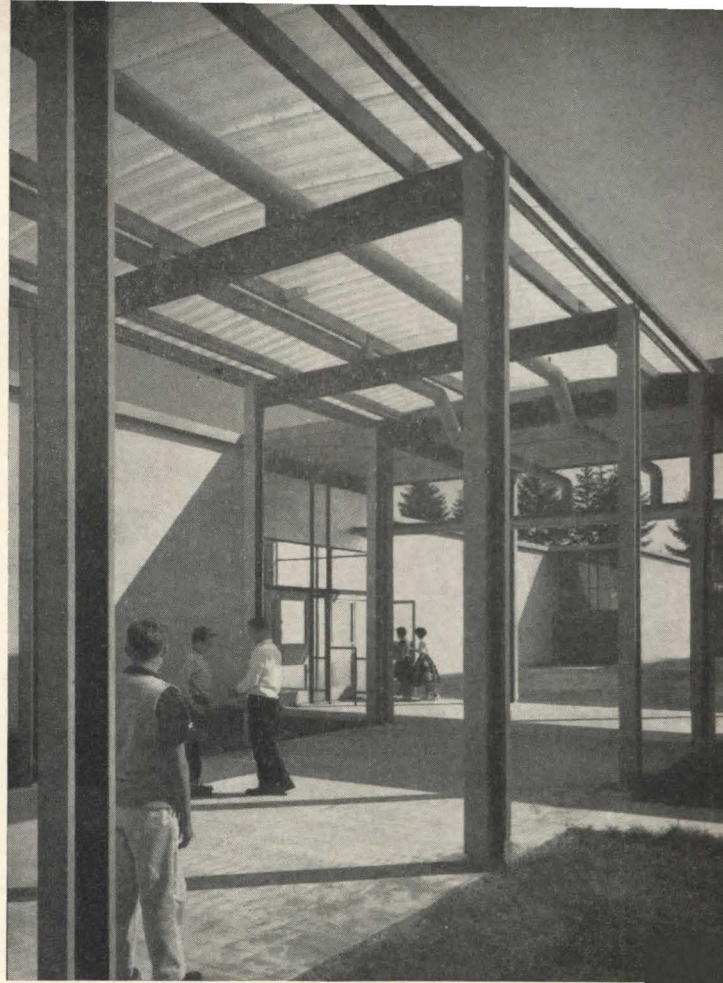
On a limited eight-acre site (Washington State Board recommends 25 minimum), this complete junior high school plant was originally constructed for 325 students, then enlarged about a year later to provide all required facilities for a total of 500 children



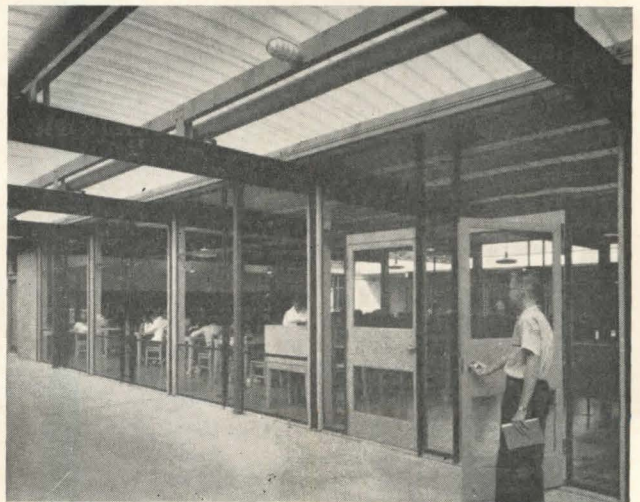
Chinook Junior High School, Seattle, Wash.; Waldron & Dietz Architects; Stevenson & Rubens Structural Engineers; Stern & Towne, Mechanical Engineers; Beverly Travis, Electrical Engineer; B. F. Turnbull, Inc., Contractors

This complete junior high school is a good example of economical design for a rapidly expanding area, in which future growth and needs are very difficult to predict. The architects designed a flexible master plan for a school of 500 population for the site. Within months of the time of completion of the first phase, needs had increased so rapidly that work was begun on the second. The site is smaller than the size recommended by the state board. It is quite irregular and bounded on two sides by heavily congested streets. In order to solve the design problems economically, the architects derived a moderately compact scheme, with major circulation through a main outside corridor. Classrooms and other rooms are disposed around this main artery. The library is centrally located for availability to all students in the academic areas. The gymnasium is directly related to the outdoor play areas.

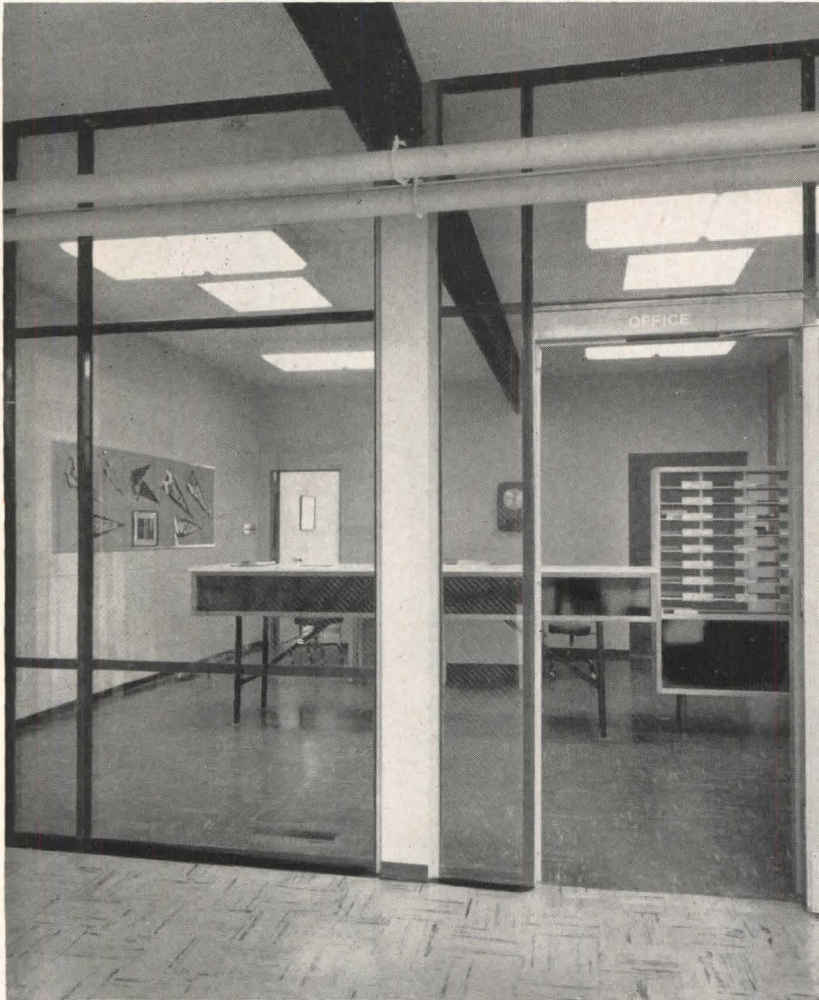
The majority of the students arrive at the school by bus. Special study was given the access and approaches of the buses to avoid adding to the congestion of the already crowded streets. The architects retained a bank of existing trees to help isolate the school from street noises on one side. The entrance was placed on the other side, along with off-street parking to remove the school proper as far as possible from the other street. Parking areas are related as directly as possible to the gymnasium, multi-purpose room, and other rooms which are often used for evening functions. Service entrances are located in same area as the parking, in order to conserve as much as possible of the limited amount of play area. The architects feel that additional classrooms can be constructed on the site, economically, and with little hardship on the present classes and without disrupting the existing circulation patterns.



Illustrations show the extreme refinement and simplicity of detailing of the glued laminated wood structural frame. Plastic panels are used over the corridors and covered walkways to admit maximum light. Floor to ceiling windows and a north-oriented continuous skylight over the classrooms and gym provide extremely uniform natural lighting. Enrollment: 500; Grades Housed: 7, 8 and 9; Floor Area: 69,000 sq ft; Const. Cost: \$885,000.



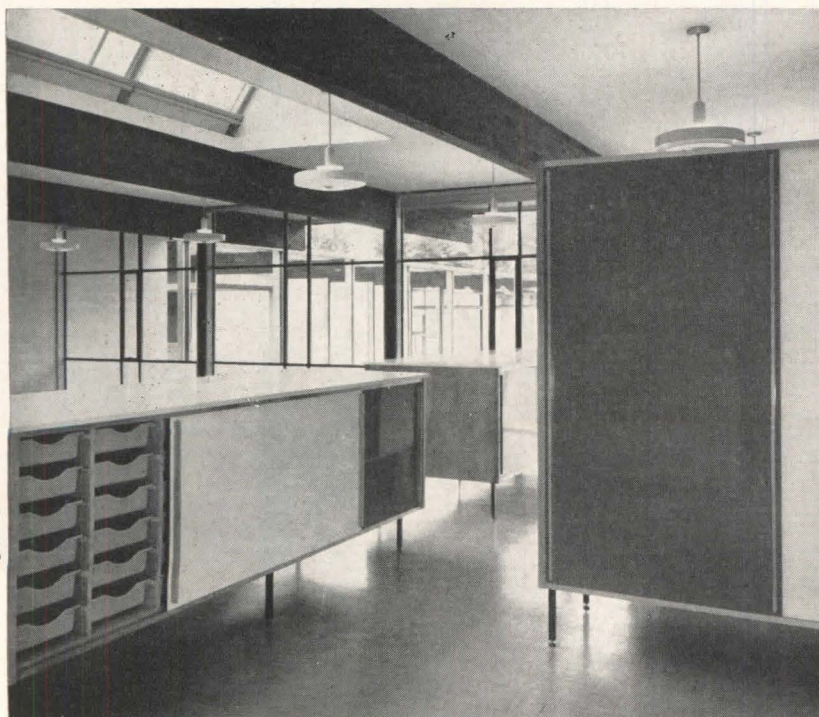
Dearborn-Massar photos



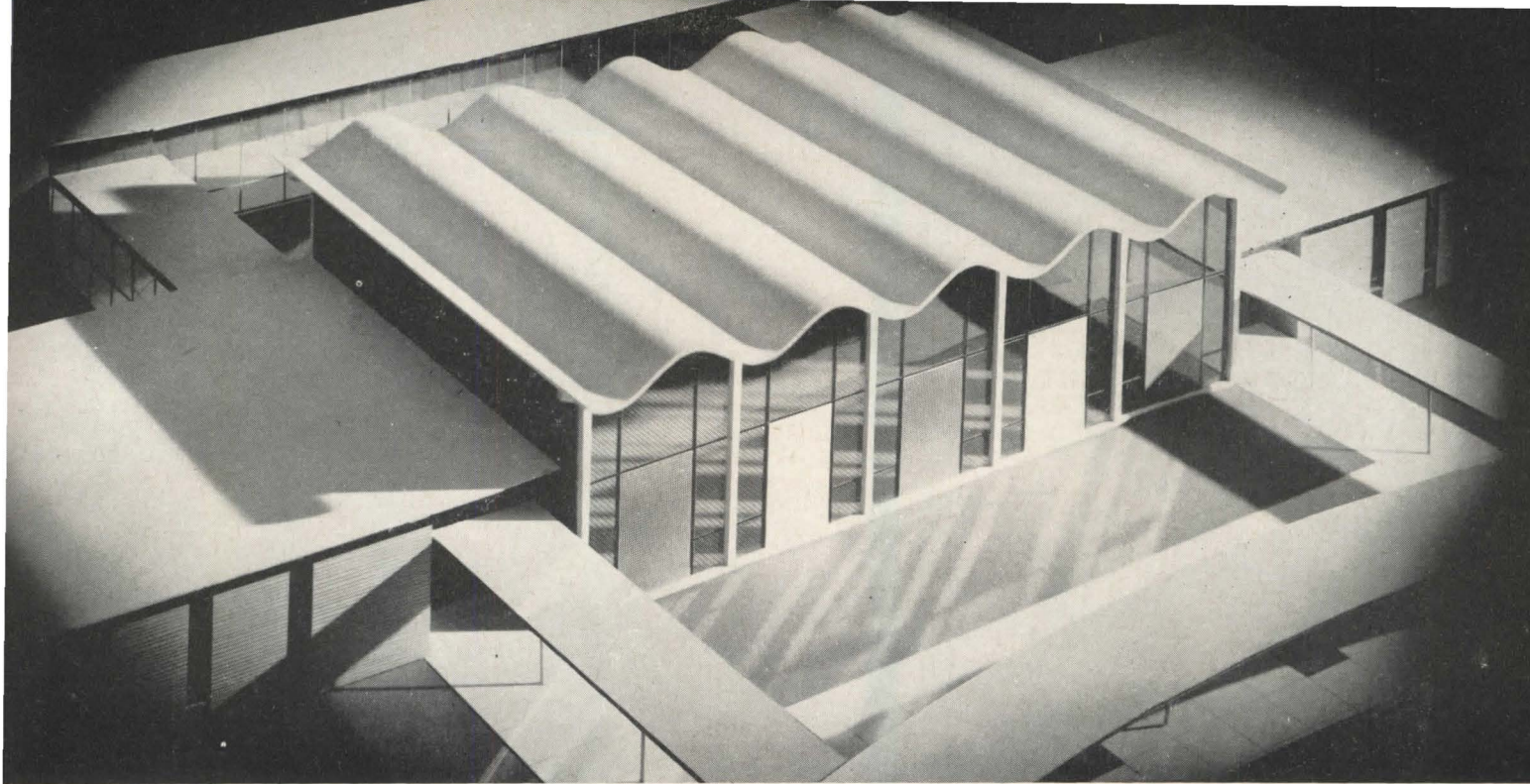
Chinook Jr. High School



The steel framed windows, glazed with plastic panels and glass are strictly modular and are composed of standard units. The roof deck material is T & G wood planking, treated with acoustical tile where necessary, otherwise exposed. Windowless walls (bearing where required) are of concrete block with stucco. Piping (left, above) and other mechanical service lines are run exposed for efficient maintenance and repairs. Wherever possible, furniture stands on moderately high legs to facilitate economical cleaning operations



Dearborn-Massar photos



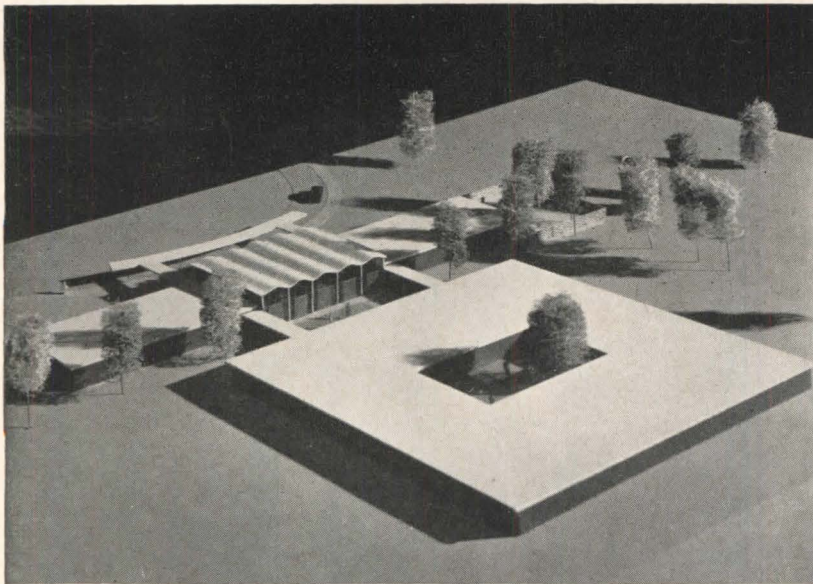
Lens-Art photos

SUBURBAN SCHOOL FOR A PLEASANT ISLAND COMMUNITY

In this complete suburban elementary facility, age groups are zoned away from each other, grades one through three located on south side of large element, grades four through six on the north, and kindergartens in a separate unit near loading shelter

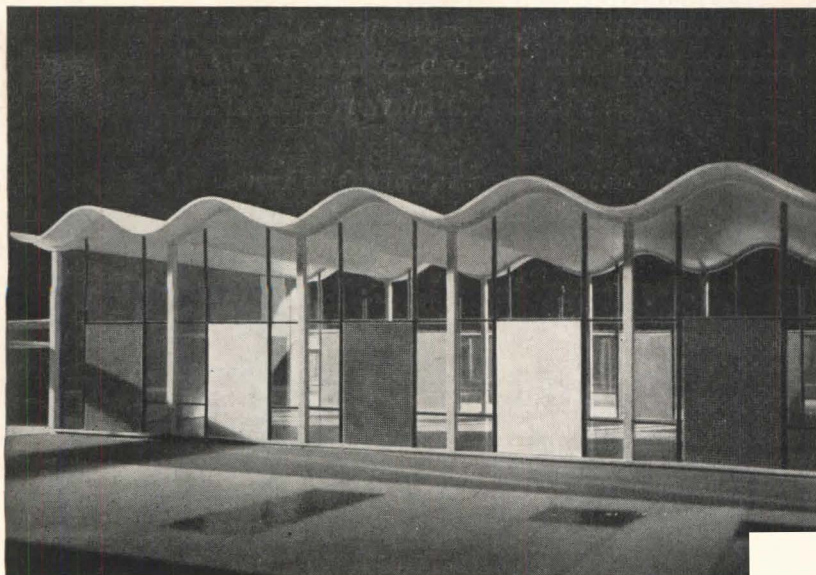
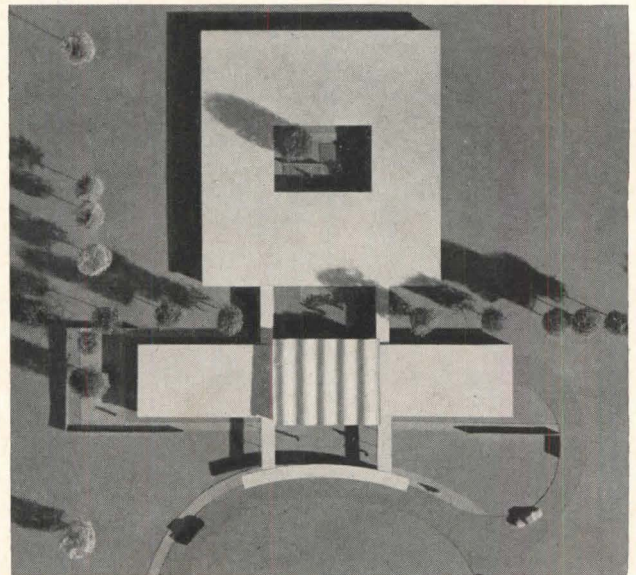
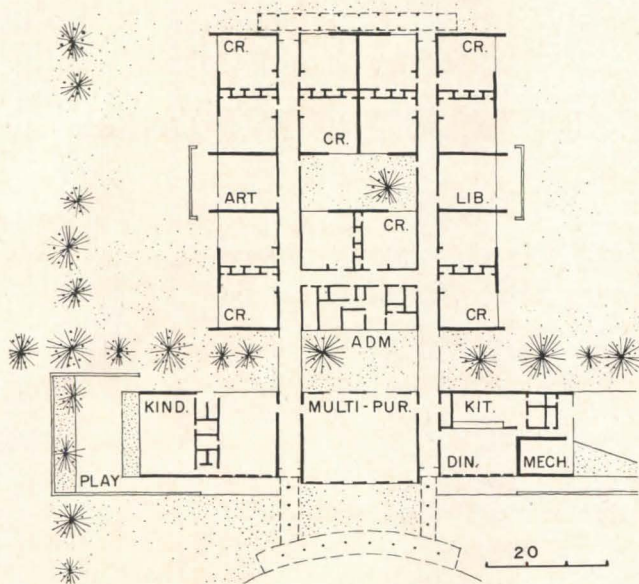
Parke Lane Elementary School, Grosse Ile, Mich.; Eberle M. Smith Associates, Inc., Architects; Lyn E. Graziani, Architectural Designer; A. N. Hickson, Inc., Contractors

Located in an island community, not far from Detroit, this elementary school is a good example of the economical design of a complete plant for a very socially active and civic-minded populace. When the building has been completed, much use will be made of the multi-purpose room and dining area for both adult and children's extra-curricular activities. Study of the educational program indicated the desirability of separating different age groups among the students for both study and play. It was decided that this kind of separation made for more efficient and fruitful educational experiences for all groups. Accordingly, the building was zoned into areas according to age of the pupils. It was felt that the academic areas should be closed off from the assembly rooms for after-school-hours functions. Therefore, the multi-purpose and dining rooms were placed in a separate wing to the front. The plan is quite compact for economy, but is opened up with courts to provide a variety of feelings of enclosure, pleasant outdoor vistas, and a sense of secure shelter. The structural system is economical and simple. Classrooms are constructed with masonry bearing walls and standard steel joists. The multi-purpose room is roofed with concrete shells of 3-in. thickness. These have alternate sections inverted. Exterior walls are glass and brick. Interior partitions are concrete block in classrooms, brick in public areas.



Lens-Art photos

Parke Lane Elementary School



As shown in the photographs and plan, the site is divided in two directions by straight rows of mature trees. The architects have organized the axes of the building to conform with the lines of trees. These form a backdrop for the building and aid in relating it to the site. Classrooms, designed for artificial illumination, have half glass and half solid outside walls. (This scheme also adds to sense of shelter, the architects feel). On the other hand, the multi-purpose room (left, below) is opened up with glass wherever possible. (The seemingly opaque panels in the illustration are actually obscure colored glass.) Enrollment: 450; Grades Housed: 1 through 6; Area: 27,922 sq ft; Const. Cost: \$380,254.

Architectural Engineering

More Power to You!

Electric servants to ease housewifely drudgery, and air conditioning to keep brows cool are making more work for designers of residential buildings and owners of rental housing. A case in point is the 3000-apartment Fresh Meadows development in Queens, N. Y., run by New York Life. Acknowledged as one of the nation's most modern housing projects when completed 10 years ago, Fresh Meadows is now undergoing a two million dollar, five year modernization program in which 2400 of its apartments (in the two and three-story garden-type buildings) will get new kitchens and a rewiring job, giving 8 to 12 circuits per apartment, and special outlets in bedrooms and living rooms for air conditioning units. Says N. Y. Life's Otto L. Nelson, Jr., "The rapid growth and diversification in uses of electric power, along with the constant change this brings in the pattern of living, imposes an intolerable burden on once-modern kitchens and wiring."

"What's Muffling the Voice of the Engineer?"

Communicating to John Doe seems to be worrying engineers as much as architects these days; witness this phrase, title of an Engineering Public Relations Forum, sponsored by the Engineers Joint Council, the collective voice for most of the nation's major engineering societies. Edward R. Sammis, Editor of *The Lamp* (Standard Oil Co., N. J.) had this answer in his talk, "Engineers have very clear and definite ideas as to what fascinates them, but what fascinates the public? Engineers have still to open their minds another notch . . . they are much too inclined to fear that a colleague may laugh at them and feel they are saying something foolish or undignified in print rather than recognizing the necessity of communicating their knowledge to the public. . ."

Have Building, Won't Travel

Engineers will tell you that the bugaboo of hung roofs—cables, tents, etc.—is flutter due to wind. Paul Weidlinger, New York consulting engineer, had to consider this when he was designing the air-inflated plastic roof for a Tent Theater by Carl Koch situated along the Charles River in Cambridge, Mass. The 300-ft roof has two layers of vinyl-coated nylon, held together by a zipper, inflated by continuous air pressure, and tied to a compression ring which rests on steel columns guyed by wires. He sought the opinion of a friend, who, he says, is a flying saucer expert. The answer: "It won't fly!"

Answer to Brickbats

". . . building codes are not the stupid obsolete obstacles to building progress that is sometimes suggested by popular writers. They are an essential part of the democratic process, when properly prepared and administered . . . Building codes, however, are dull reading, just as technical considerations of most building materials lack the glamour that is attached to more recent developments in other branches of technology. All of us are familiar with the wisecracks made by amateur observers of the building scene to the effect that we still build houses of bricks and mortar just like the Romans. These same people choose to forget that fortunately we still take hot baths, just like the Romans! . . . New building materials will come into use, however, but this will not happen overnight and only come to pass as a result of much hard work, experimentation and trial use." From a talk by Robert F. Legget, Director, Division of Research, National Research Council of Canada, at ASTM Committee Week.

This Month's AE Section

PROFILED AND PIERCED PRECAST SLABS. pp. 244-249

ALL-WEATHER ARENA. pp. 250-252

PREFAB REINFORCEMENT FOR FLAT PLATE APARTMENTS. pp. 253-254

PRODUCT REPORTS. page 255. *OFFICE LITERATURE.* page 256

TIME-SAVER STANDARDS. Termite Shields. pp. 259, 261, 263

Concrete panels for exterior walls are catching on with some alacrity because of the infinite variety possible in texture, shadow and color, and the opportunities in grillwork and glazed openings.

While, until of late, exposed concrete was more popular in Europe, architects here are now exploring the potentials of surfacing techniques—some long familiar, others newly developed.

In this article are examples of European work, to be followed in a later issue by a survey of American practice.

PRECAST CONCRETE SLABS — PROFILED

by Betty Campbell *

Given a plastic material able to take any shape required of it, strong enough to be cast in extremely thin sections, the color of which can be varied within a range wide enough for any architectural purpose—and itself one of the most durable of building materials—and what could be more evident than that it would be used to solve that ever-recurring

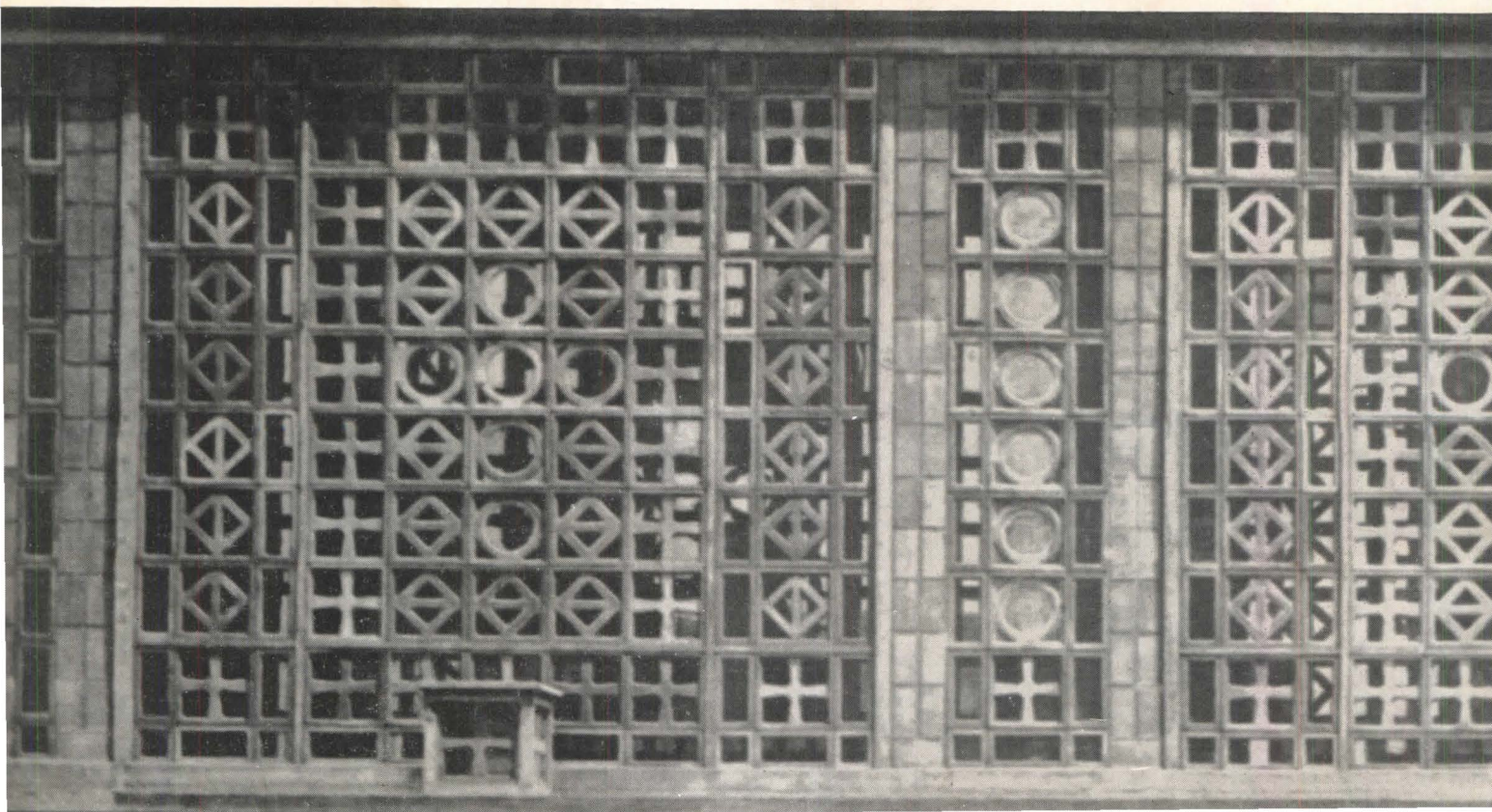
*The author is editor of *Concrete Quarterly*, published by the Cement and Concrete Association of London. This is an adaptation of a recent article from that publication

problem, the facing of buildings? The development of the profiled concrete slab has been a natural—an obvious one. The only strange thing about it is that it has not been more rapid and more widespread than it has.

It is well over 50 years since Frank Lloyd Wright set patterned slabs on one of his earliest buildings; it is 35 years since Perret glorified concrete in the walls of Ste. Thérèse. Twenty years later the Germans were pro-

ducing almost exact replicas of Perret's pierced slabs at Freiburg University, and variants in churches in Cologne, Dubendorf, and elsewhere; the Swiss showed his influence in several churches; it even reached Japan, where a recent church at Tokyo is still almost pure Perret.

In France, meanwhile, individual and original developments did take place. The plastic qualities of concrete appealed to the romantics, led by Le Corbusier, whose concrete



AND PIERCED

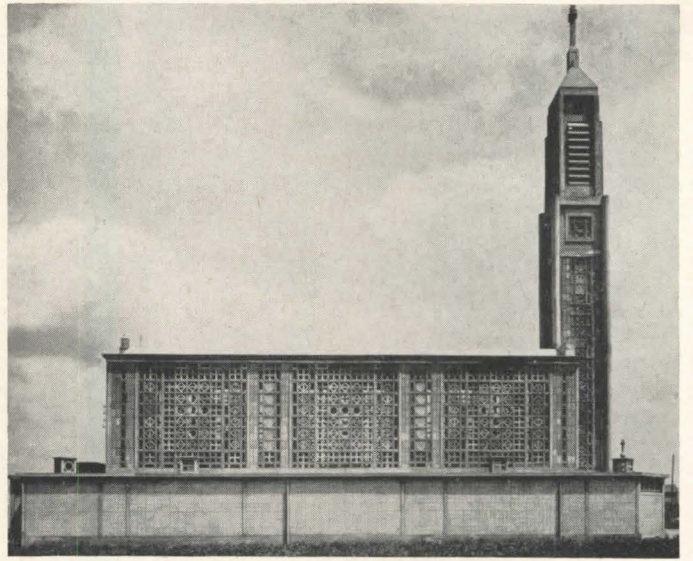
"Modulor" man cast in intaglio on the Marseilles flats was a beckoning figure to young architects. Among these, the name of Nicolas Kazis should be thought of in connection with the plastic use of concrete. In his splendid church at Baccarat, in situ concrete in the belfry is touched with irregular geometrical patterns that give just a sufficiency of delicate modeling to the natural material. Inside, beside the board-marking of in situ concrete columns, are precast

slabs incised with restrained geometric patterning, thick jewel-like glass enfolded in curving concrete shapes, and, also, the formal geometry of the "Perret" type precast slab window.

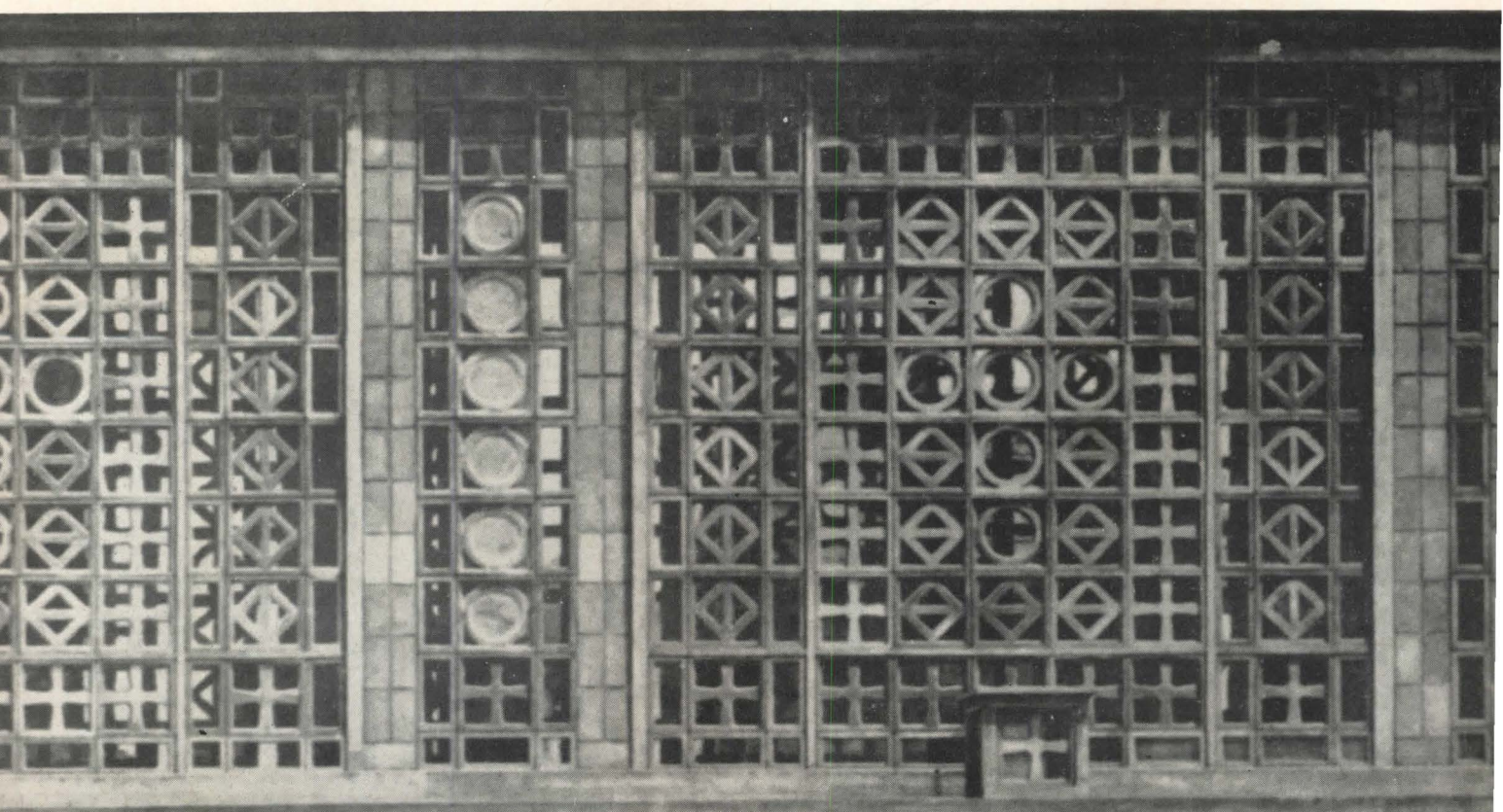
Maurice Lods, Chief Architect to the French Government's official buildings has also gained fame for his striking precast concrete work. His church of St. Joan of Arc at Belfort is another admirable synthesis of concrete forms; contrasted, again,

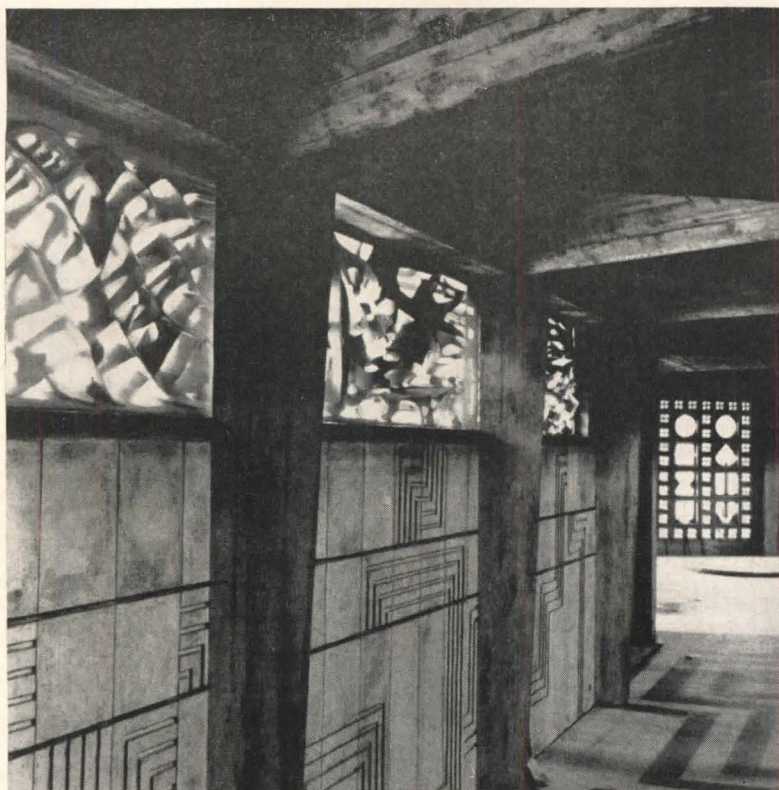
are the simple incised slab, the strong markings of board formwork, the texture of exposed-aggregate slabs, the plain, smooth wall panels marked only by regular jointing, and the dynamism of concrete and glass shapes. Associated with Lods in this work was the artist Jean Luc Perrot, who designed the fine, taut, concrete traceries of the great window (made by Glaceries de Boussiron).

In Holland, equally original work is being done. A young designer,



Above and below: Perret's famous introduction of the pierced precast slab 35 years ago in Ste. Thérèse, Montmagny, France





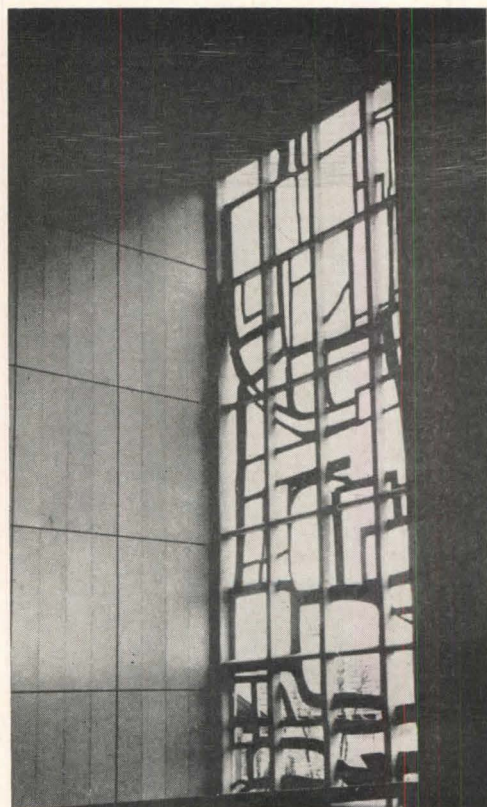
Interior of a church at Baccarat, France, combines form-board marking of columns with geometric pattern of precast slabs, the intertwined shapes of concrete and glass windows, and a pierced slab (background)

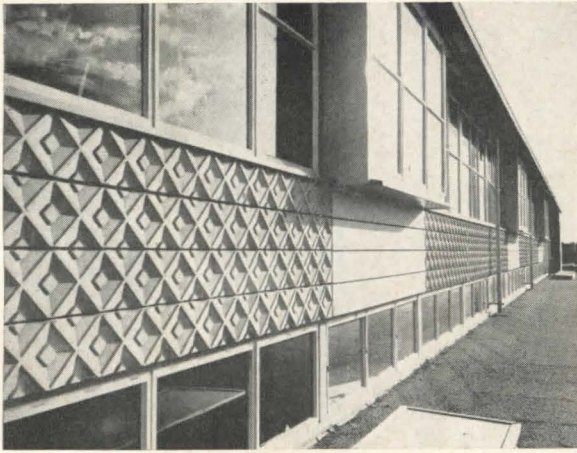


Glass-concrete panel for Dutch Pavilion at Brussels. Glass is laid in pattern on the ground; concrete poured around it



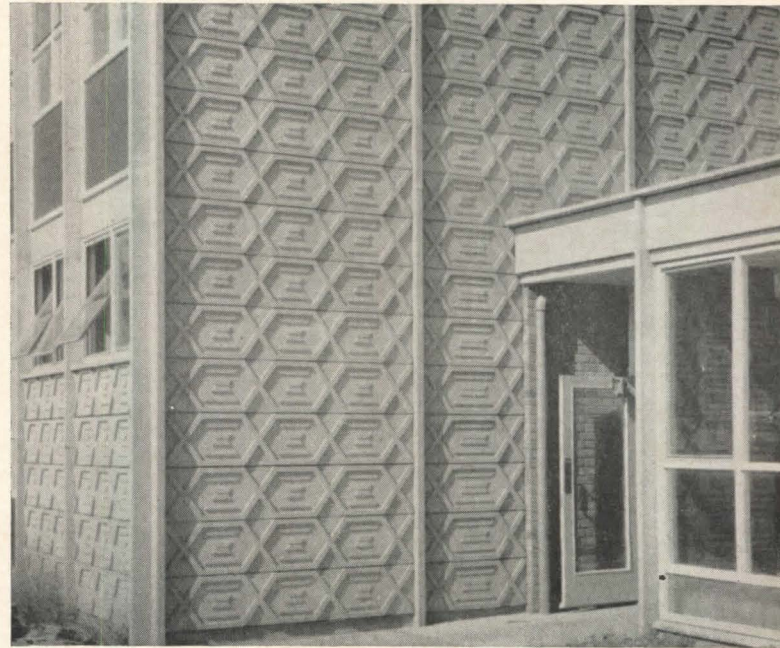
Glass-concrete window of St. Joan of Arc Church contrasts externally with exposed aggregate facings and internally with smooth, simple wall slabs





Above: seven year's weathering of diamond-design panels on Castle Hill School, Ipswich, England, has enhanced their texture of light and shade

Right: pattern of interlacing hexagons for buff-colored precast panels at secondary school, Ipswich



Daan Wildschut, already well known for his ecclesiastical work, created fine glass-and-concrete wall panels for the Dutch pavilion at the Brussels Exhibition, in which sinuous, concrete shapes and prismatic colors picked up the "water" theme of the exhibit. His technique is to set out the design of the panel on the ground, place the pieces of glass in position, arrange reinforcement between them and then pour in the concrete. The glass used is cut from pieces 20 cm square by 2, 3 or 5 cm thick, the difference in thickness producing different shades of color. Variations of shade in one "pane" are obtained by flaking off layers of glass with a sculptor's chisel—the tool also used to "sculpture" the glass to the required sizes and shapes. The work is made up into panels approximately 3 ft sq, which are generally mortared together.

A similar technique is being used in England by the firm of glass workers, Powell and Company (Whitefriars) Limited, who have employed it to produce a series of panel windows for St. Aidan's Church, Speke, Liverpool. The designer was Bernard Miller. These windows, on their smaller scale, more nearly approach the normal conception of the precast concrete panel.

In Britain, one man, perhaps more than any other, has been responsible for developing the profiled slab technique: Birkin Haward, of the firm of Johns, Slaber and Haward, archi-

itects, of Ipswich. His primary object was to find an economical method of giving variety to the surface on a bolder scale than that generally obtainable with exposed aggregate.

The thing started, with him, soon after the war, when the firm was designing the light steel framed primary schools which were going up as quickly as possible at that time, and were looking for a suitable cladding. Modeling and experimenting, Haward eventually developed his prototype slabs from original plaster casts.

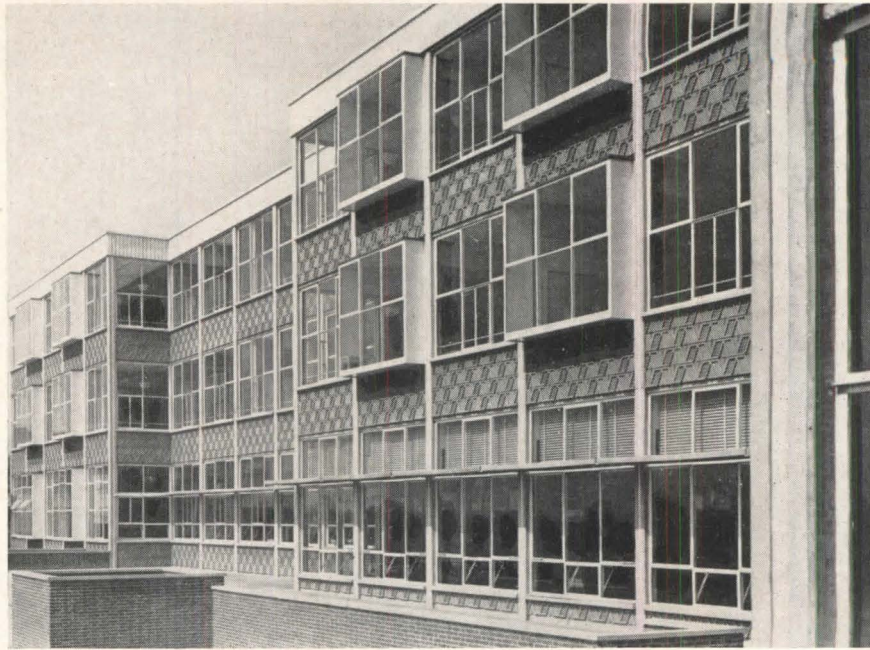
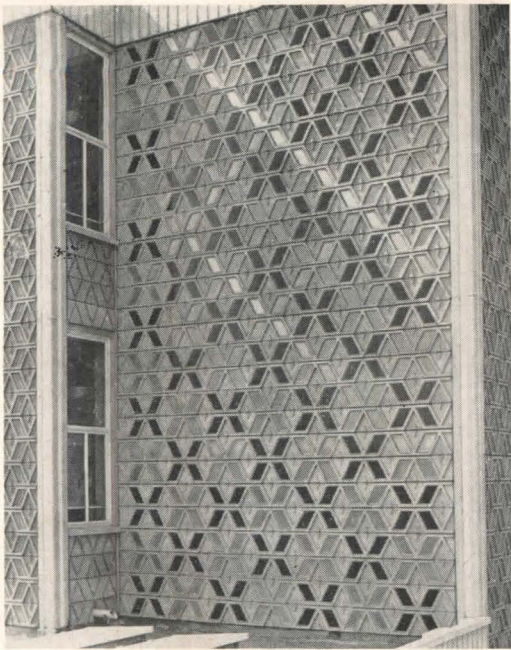
His first use of this type of slab was at the Castle Hill School, Ipswich, which has already achieved a certain fame of its own. The simple diamond pattern chosen echoes that used in the brickwork, and is a traditional East Anglican design. These slabs have now weathered for seven years, and it is notable how the weathering has produced a definite texture of light and shade, even on a dull day.

This was simple repeat patterning. Simple as it was, it started something new in facing slabs in England. Haward's great contribution has been this very thing of the repeated pattern; the interlocking repeat common in textiles and wallpapers, new in this medium of precast concrete, where it has the further advantage of being reversible, interchangeable and so immensely variable, while being based on a standardized unit.

At the same time, Hertfordshire County Council was developing its school program, to which Johns, Slater and Haward contributed designs. From the plain exposed aggregate infilling slabs first used with the standard 16-in.-deep external frame unit, they progressed to the use of a hexagonal design. The hexagon has obvious advantages for this purpose, being infinitely repeatable and easily divisible, as well as having a form which is intrinsically interesting.

It is used in a new school they have under construction in Ipswich at the present time; Thurlston School, a secondary school of boys and girls, where the units of light buff concrete, in each of which the pattern is complete in itself, also produce together a larger pattern of interlacing hexagons.

Sir Anthony Deane School, Dovercourt, designed in 1954 but not officially opened until this year, is the most ambitious use so far of profiled and pierced slabs in England. It is a modern secondary school, planned eventually to accommodate 700 boys and girls. The structure is entirely of precast concrete; framing, floor units and infillings alike. These latter introduce the combination of profiled and pierced slabs—the one as the wall cladding, the other in the windows, and the same profiled slabs appear internally, picked out in different colors, to form gay and imaginative murals at minimum cost.



Two types of slab were used externally, both of the same dimensions and designed to span between the columns of the precast concrete frame, which is planned on a 3-ft-4-in. module, in lengths of 3 ft 4 in., 6 ft 8 in., 10 ft and 13 ft 4 in., and depths of 10 in. The more strongly patterned slab has a pronounced diamond theme; it is also used pierced for the windows and, with its elements picked out in different colors, forms the internal murals that highlight the end of a corridor or the foot of a staircase; vermilion, turquoise, or emerald green, with black, white and gray. The other type of slab, also based on the diamond theme, is simpler—a background texture pitted by nail heads introduced in the formwork, and the pattern an overall one obtained by divergent parallel engraving in the actual slab. Both types gain in richness of texture by the early de-molding which, initially a measure of economy, has given them a slightly “picked,” or stippled, texture which is a definite advantage. Both types, too, when used externally, gain further variety by a difference in color. Two concrete mixes were used, one a light buff obtained by the use of one part in six of buff cement, the other a warmer, light terra cotta color, obtained by using all buff cement. The two warm shades are shown up admirably by the use of natural grey concrete in the exposed structural frame, and white cement concrete in the fluted

parapet which surrounds the eaves of the building.

From long-span cladding slabs to standard sized blocks is another obvious step, and at least one enterprising block manufacturer is now offering facing blocks in standard concrete block sizes—18 in. by 9 in. by 4 in. and five standard patterns based on strong and simple rectangular shapes.

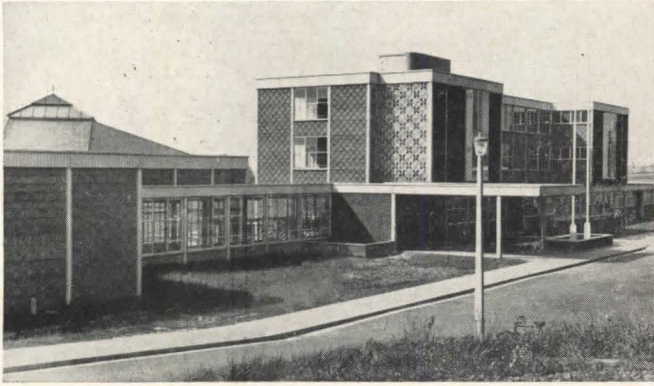
The possibilities are, in fact, endless. Scale is always to be remembered: a pattern should generally be broad enough to read at a distance, at least in its counterpoint of light and shade, which weathering ultimately produces even on a dull day. A recent building in Germany—the Rhein-Main Hall at Wiesbaden—has external facings of 3-ft-sq slabs cast to a massive tetrahedron pattern which, by reversal and combination produces most unexpected and unusual effects, changing with the intensity of light. This aggressive blockwork is held in scale by powerful pilotis of natural board-marked concrete and the strong verticals of story-high louvers.

We have considered the profiled slab as wall cladding, the pierced slab as windows. There is the third use of the medium, generally more applicable in warmer countries than ours, as claustra, or grille—the pierced slabs unglazed, really differing only from the precast window slab in the type of pattern best suited for the purpose.

This is the direct descendant of the Moorish traceries that seeped through Spain to Europe and the New World—pared down by standardization to a minimum of simple, repeatable forms. This use of precast concrete is becoming as familiar to us in the work of many British architects designing for hot climates as in that of, for example, the South Americans, past masters of the art. Fry, Drew, and Lasdun are a group of architects who, from long experience of tropical needs, use this scintillating medium with a practised assurance. Their decorative claustra walls are built up of the simplest of precast elements designed for mass production and repetition.

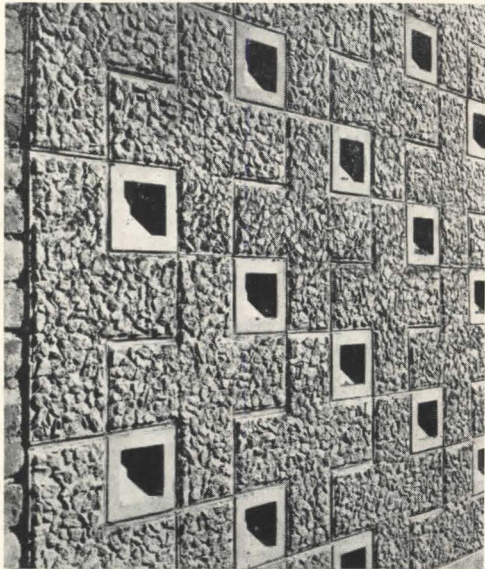
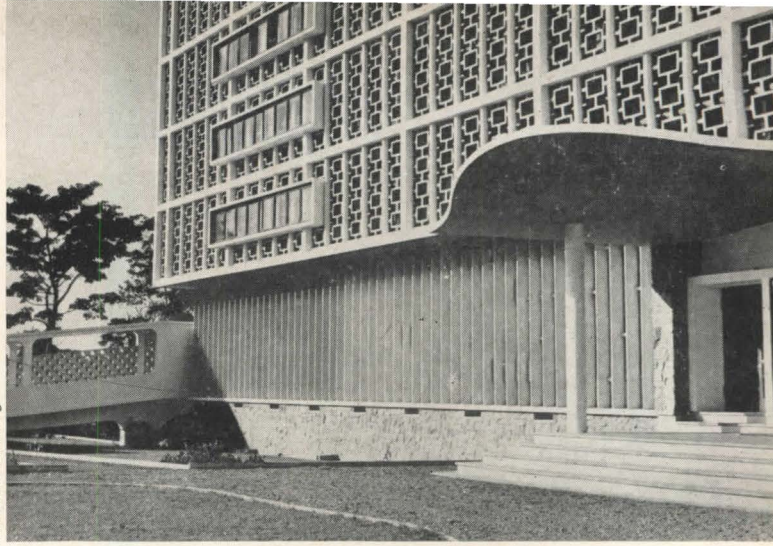
Mortar joints, of course, build up the tracery of pierced slabs. The attachment of profiled cladding or infilling slabs can be effected in a variety of different ways: those at the Sir Anthony Deane School are bolted back with clips to nibs cast on the sides of the framing columns by means of tapered concrete pegs, which force the slab against a water-seal cord. The question of attachment has received constant thought, to reduce it to the simplest.

There are, in fact, no obstacles to the developing application of profiled, and pierced, slabs. Their possibilities are as far-reaching as imagination and ingenuity can go; their successful use depends, in the last resort, on the innate artistry of the user.

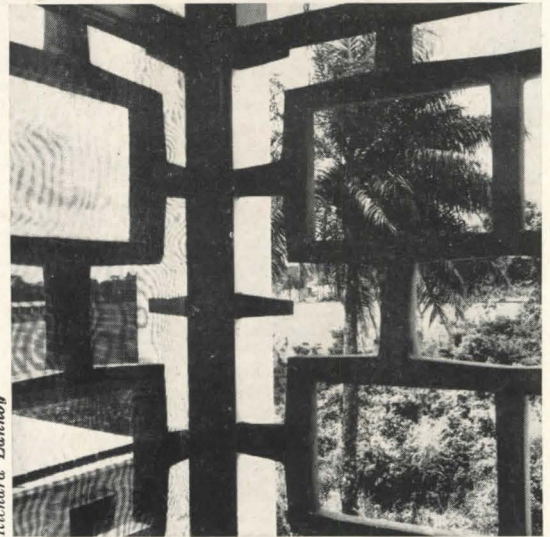


Sir Anthony Deane School (above and left) is entirely of precast concrete. Profiled slabs appear as wall panels; pierced slabs form a two-story high staircase window. The two types of wall slabs are in buff and in terra cotta colors; columns are natural cement; parapet is white

Richard Lannoy



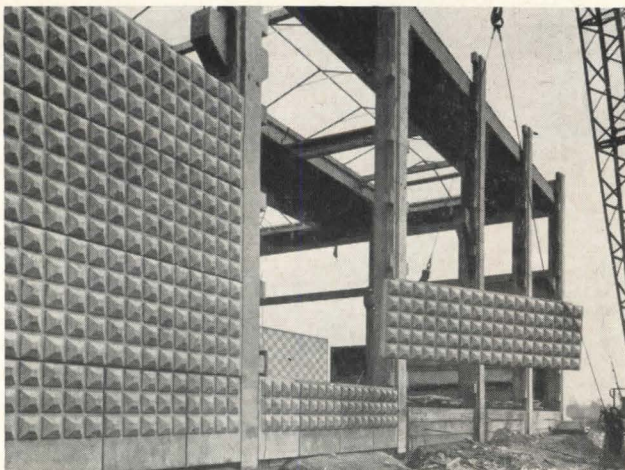
Profiled slabs are combined with exposed aggregate slabs in a wall for an English academy. Architects, Harvey and Scott



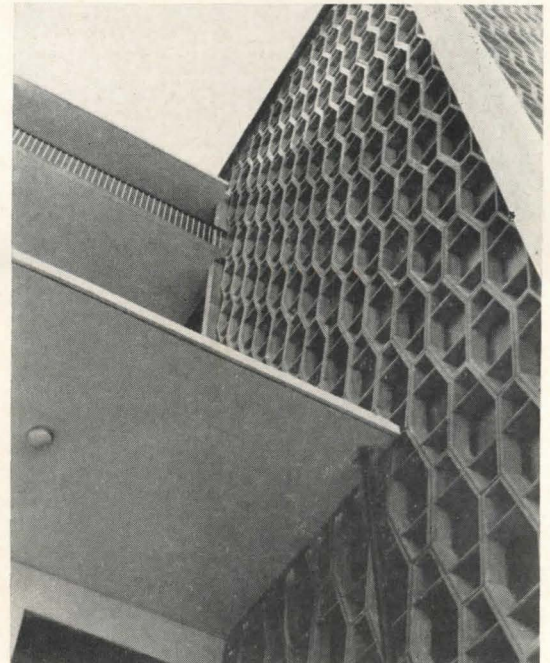
Richard Lannoy

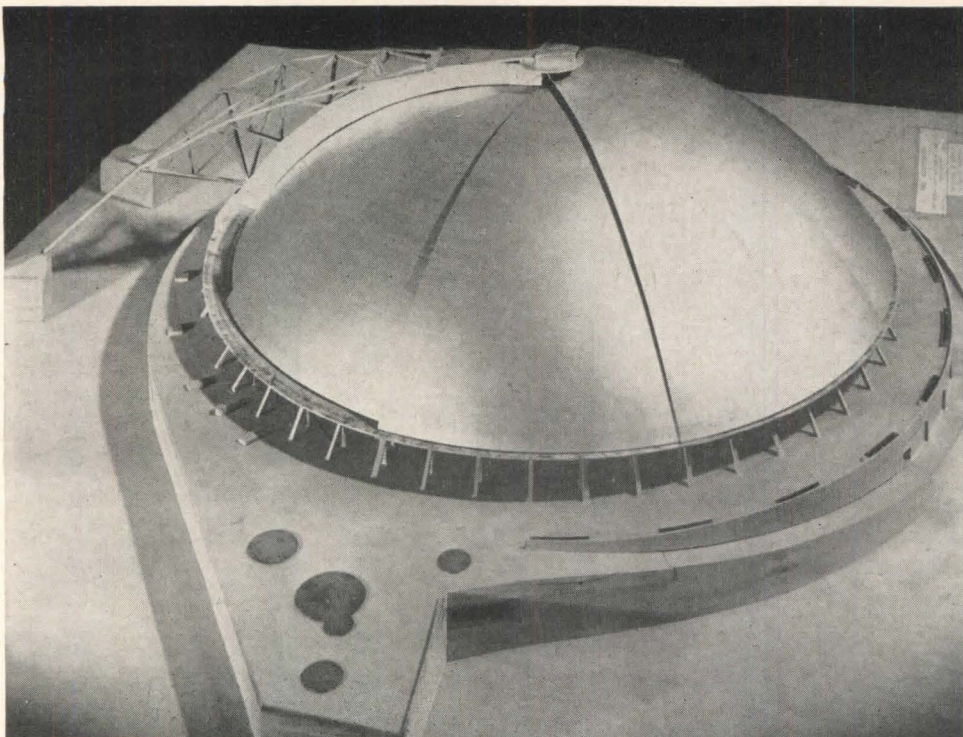
Grilled slabs make screen walling for the library at University College, Ibada, Nigeria. Architects: Fry, Drew, Drake and Lasden

Detail of the library and administration building, Engineering College, at University of Rangoon, Burma. The walls are entirely of precast concrete, infilled with colored glass. Architects: Raglan Squire and Partners

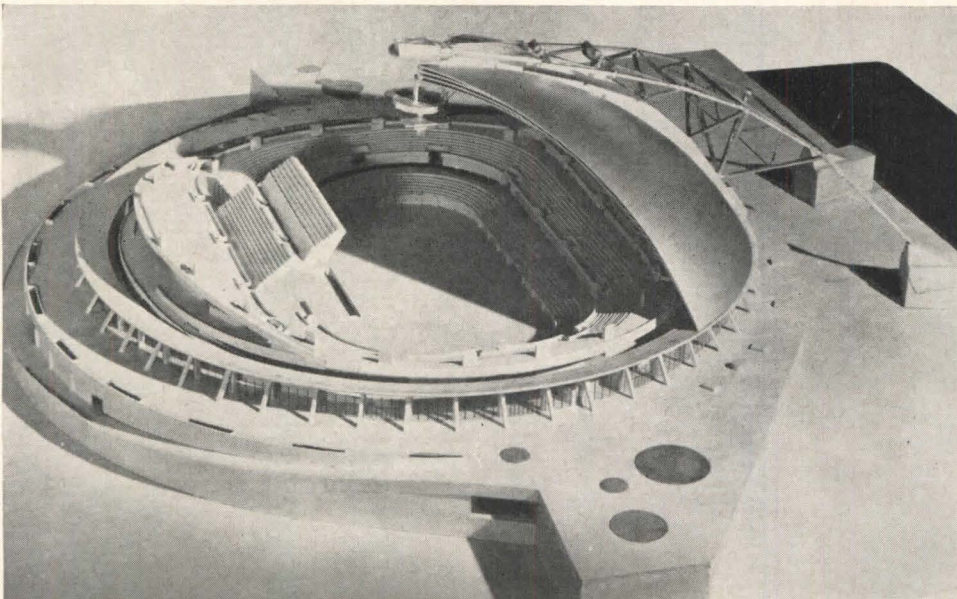


Profiled panel being hoisted into place for a factory in England. Architects: Harry Weedon and Partners





Pittsburgh's Public Auditorium will be roofed by an eight-segment stainless steel dome which can be opened at the press of a button to form an open-air arena. One section of permanent seats can be raised, as shown below, to serve as a proscenium when the stage beneath it is in use



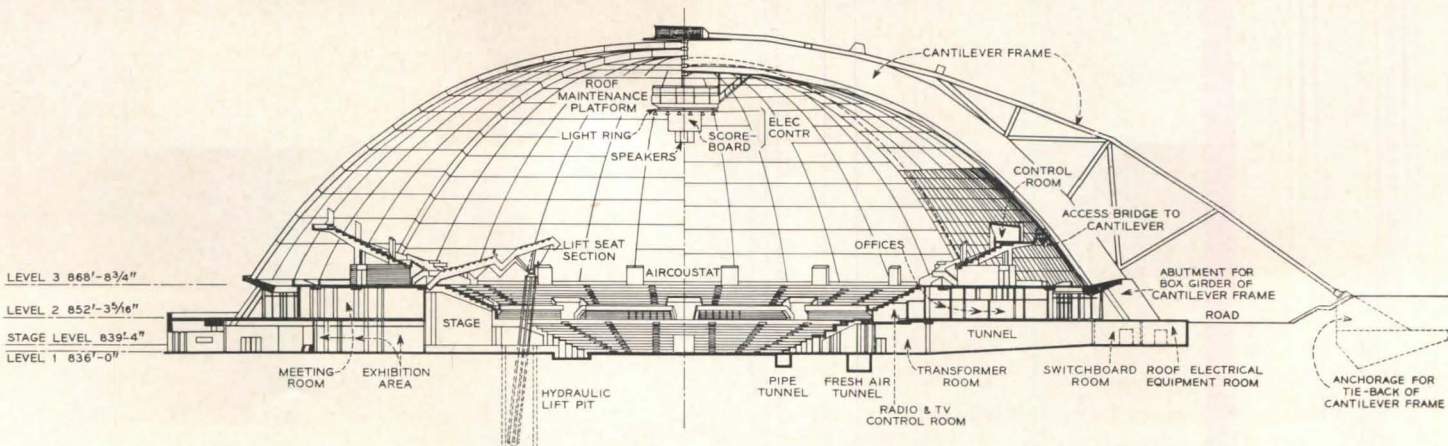
Retractable for All-Weather

With foundation work now nearing completion, Pittsburghers are beginning to get a glimpse of what their new \$20 million Public Auditorium will look like when it is opened two years from now. At the moment, it consists of a huge hole in the ground, rimmed by a canted concrete ring girder on concrete legs. But even at this early stage of construction, the dimensions of the ring girder (4½ ft thick, 16 to 20 ft wide) hint at the even more imposing proportions of the domed roof it is designed to support.

Some 415 ft in diameter and twelve stories high at the center, the dome is believed to be the largest of its kind. Its chief claim to fame, however, is not its size, but the fact that it is retractable. For the stainless steel-sheathed roof is designed to fold back upon itself, converting the weathertight auditorium to an open air stadium within some two and a half minutes after the appropriate buttons have been pressed.

The key structure in Pittsburgh's Lower Hill Redevelopment, the Auditorium will serve as convention hall, open air amphitheater, sports arena and exhibit center. Its facilities will be distributed over three levels, with the stage nested beneath a section of the permanent seats which will be raised hydraulically to form a proscenium arch.

The most remarkable feature of the Auditorium, however, is the domed roof. It is divided radially into eight leaves which are supported at the crown by an exterior steel frame that



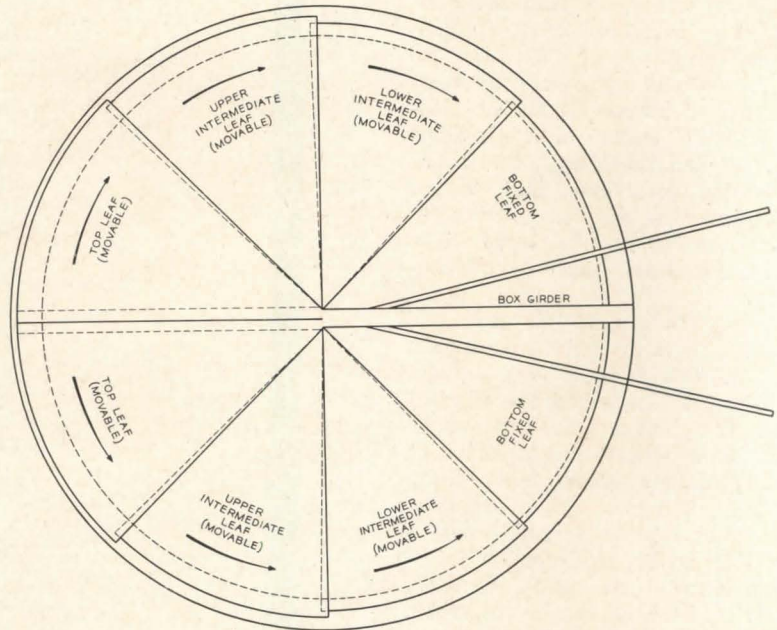
Dome
arena

cantilevers from outside the dome, and at the bottom by the reinforced concrete ring girder mentioned above. Two of the leaves are fixed. The others are hinged at the crown and mounted on motor-driven wheels and steel tracks at the base, so that they roll into the nested position like multiple-leaf rolling doors.

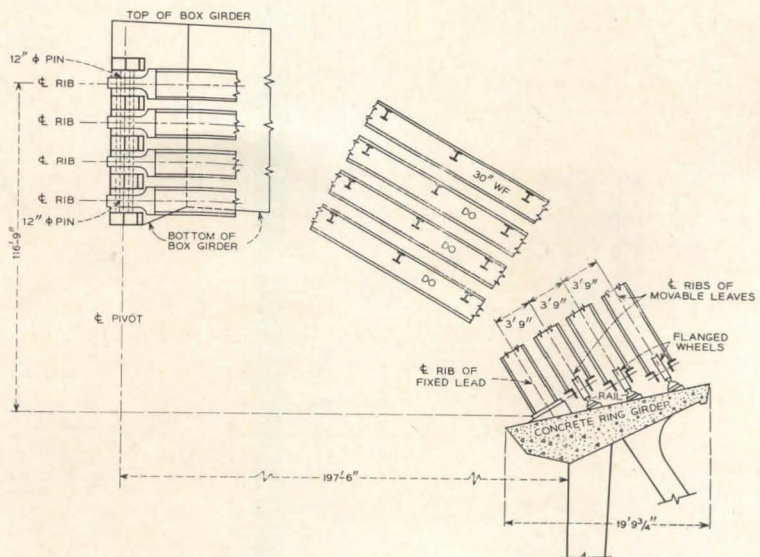
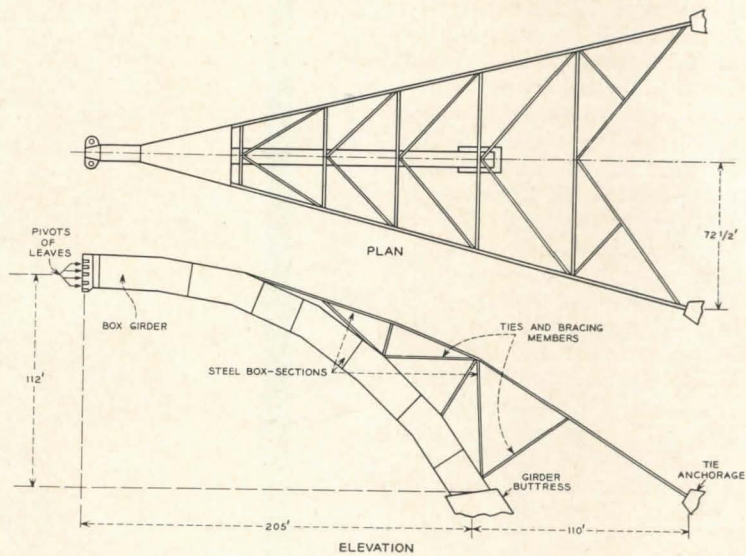
All of the leaves have seven 30-in. rolled steel beams as ribs, with 8- and 10-in. beams as purlins. Their outer surfaces are of cellular metal decking covered with rigid insulation, felt and stainless steel sheets. Horizontally, the sheets will be lock-seamed. Vertically, they will be joined by standard batten seams which will allow for expansion and contraction and help to keep the metal skin from wrinkling.

While the finished dome will appear spherical, the leaves will in fact be constructed of six flat surfaces that describe chords of the sphere. The batten seams will extend from the base of the dome, tapering in about 6 in. in every 15 ft until they reach a point about 50 ft from the apex. From there on, the dome sheath will be welded at the seams, though a false cap over the weld lines will preserve the batten appearance.

The cantilever frame from which the leaves are supported is composed of a curved box girder approximately 8 ft wide and 17½ ft deep, with a system of tie-back members extending from an anchorage point near the ground up to near the top of the girder. It terminates in a 10-ft cross member, each end of which is a mul-



PLAN VIEW OF DOME



Plan view of dome (above right) shows arrangement of fixed and movable leaves, location of supporting cantilever frame (details right center). Dead loads of frame will be negligible when roof is closed, reaching a maximum when sections are completely retracted. Profile at right shows leaves in nested position. Pivot shown is one of two in structure; 10-ft separation between them forms a pocket for box girder

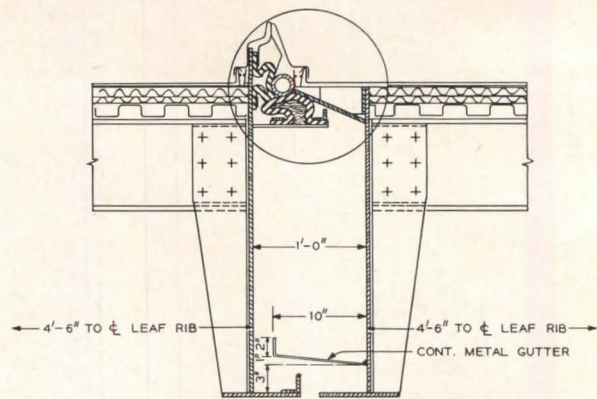
tiple clevis and vertical pin to which four of the dome sections are connected. The resulting 10-ft separation between the two halves of the dome is spanned by 5-ft extensions of the upper leaves on either side.

To provide water- and air-tight joints between the leaves, two separate sealing problems had to be solved, since the top leaves butt together when the roof is closed while the intermediate leaves overlap slightly.

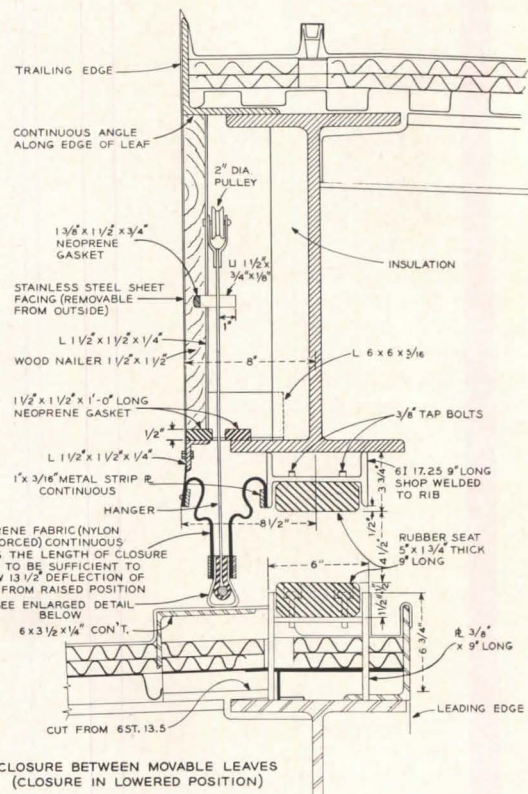
The seal at the butt-joint between the top leaves is essentially a tongue-in-groove. The tongue is a 1½-in. steel pipe running along the edge of one of the leaves; the groove is formed by two bulb-shaped strips of neoprene fabric filled with foam rubber. As the two leaves come together, the pipe is forced between the pliable bulbs, sealing the joint. At the same time, stainless steel flashing on both of the leaves meets in a metal-to-metal joint that will permit only spatters of rain or snow inside. Whatever moisture does penetrate this joint will be retarded by the tongue-in-groove seal, and drained off the sloping roof.

In the case of the other movable leaves, which overlap about 14 in., the problem was solved in a similarly ingenious manner. A neoprene fabric flap, tipped by a neoprene-covered sponge rubber bulb, will be attached to the under edge of the top leaf. When the leaves come together, the automatic tensioning of a wire cable in the bulb will lower the flap and press the bulb against the lower leaf to keep out air and moisture.

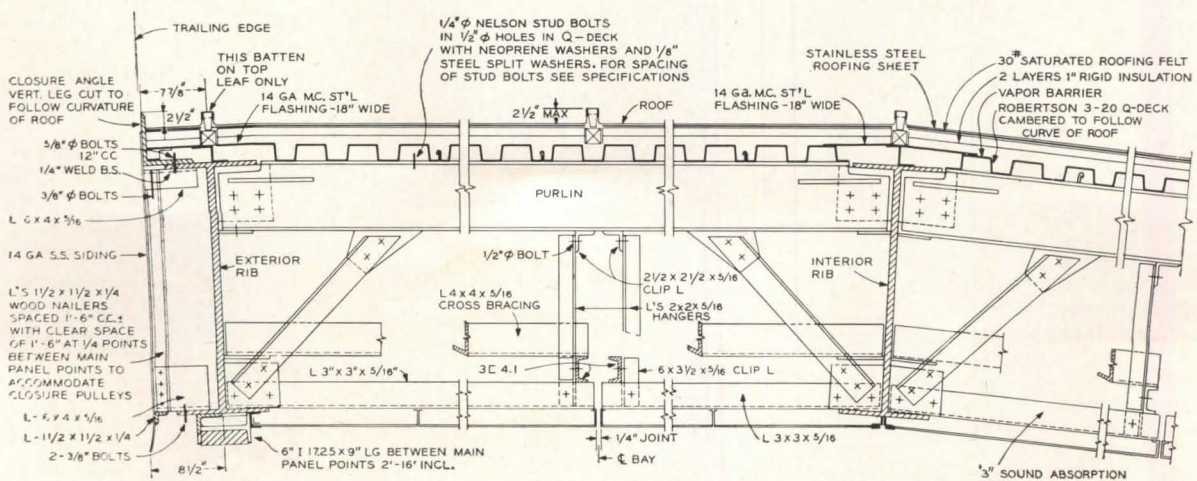
Architects for the project are Mitchell & Ritchey of Pittsburgh; consulting engineers are Ammann & Whitney of New York City.



TYPICAL CLOSURE BETWEEN TOP LEAVES (LEAVES IN CLOSED POSITION)



CLOSURE BETWEEN MOVABLE LEAVES (CLOSURE IN LOWERED POSITION)



TYPICAL ROOF CROSS SECTION



After setting up column forms and framing for decking, workmen lay plywood deck forms for flat plate slabs. Markings indicate the position of each panel, as well as the location of each break in the slab. Three sets of forms, all identically marked, were used on the job, requiring only verification of markings as each floor was formed



Reinforcing cage for column is lowered into form. Column and spandrel reinforcing was fabricated on the job. Below: Welded wire fabric in 19 combinations of wire spacing, gage, mat size, et cetera, is hoisted by crane, laid on previously-placed $\frac{3}{4}$ -in. high "chairs"



PREFAB REINFORCING FOR FLAT PLATE APARTMENTS

By using heavy welded wire fabric mats instead of conventional reinforcing for the flat plate slabs in a New York City apartment building, engineers Farkas & Barron have scored significant savings in construction time and cost. More specifically, they estimate that such savings as the \$50 a ton knocked off the cost of handling and placing reinforcing steel will add up to a total of 10 or 15 cents a square foot, and that construction time will be cut by a full month.

The decision to use flat plate concrete slabs reinforced with wire fabric stemmed from the conditions laid down by the owner who wanted the greatest possible rentable cubic space at the lowest possible cost in the shortest possible time.

To begin with, since the slab surfaces are unbroken except by the columns and spandrels, flat plate construction gives greater flexibility of partitioning and lower plastering and decorating costs. It also gives greater flexibility in placing columns, which can be—and usually are—tucked away where they will interfere least with a predetermined room arrangement. In this case however, the architects, Boak & Raad, A.I.A., worked within the most economical column arrangement, modifying it only when efficient apartment layout so demanded. The $5\frac{1}{2}$ -in. slab that had been selected limited them to a maximum column spacing of about 16 ft—but its thinness also made it possible to squeeze an extra story in under the building height limit without excessively lowering the apartment ceilings.

However, both the engineers and the owner had reservations about the speed with which the concrete super-

structure could be built. Barron, who had recently been in charge of designing the wire reinforcement for the hyperbolic paraboloidal roof of architect Marcel Breuer's Hunter College Library (ARCHITECTURAL RECORD, January 1959), suggested that similar fabric mats might be used to reinforce the flat plate slabs. On the Hunter College job, their use had substantially reduced the time and labor consumed in placing reinforcement, and Barron estimated that, since the fabric's higher yield strength would permit a higher allowable steel stress (24,000 psi), the weight of the steel required for the flat plate could also be reduced.

So Farkas & Barron prepared a second design in which conventional bars were replaced by welded wire fabric. This design, thought to be the first to use wire fabric reinforcing in a flat plate slab, was subsequently approved by city building authorities, and accepted by the low bidder on the job. It involves the use of nineteen different "styles" (wire spacing, gage, size) of mats on each floor, some made up of wires almost half an inch in diameter. Continuity of reinforcement, usually achieved by lapping mats one wire-spacing, is assured by a ladder-like strip of fabric which Barron devised to nest over adjacent mats, locking them together. As promised, the new design paid off in reduced poundage of steel—from 6 lb per sq ft for conventional reinforcing to 3.8 lb per sq ft for the wire fabric.

But the real test of the system, of course, came on the job. Generally each operation started at the east end of the building and worked west, with each succeeding step immediately behind. A two day working cycle early proved feasible for the complete erection of each 140- by 60-ft floor and its supporting columns, but since the lower floors were built under severe winter conditions, a 2½ to 3 day cycle was adopted for them. The upper floors were, however, completed in two days, and at one point three floors were poured in a single week. According to the contractor, conventionally reinforced construction of an equivalent area would have taken up to 4 days per floor, and would have required more lathers to place the steel.

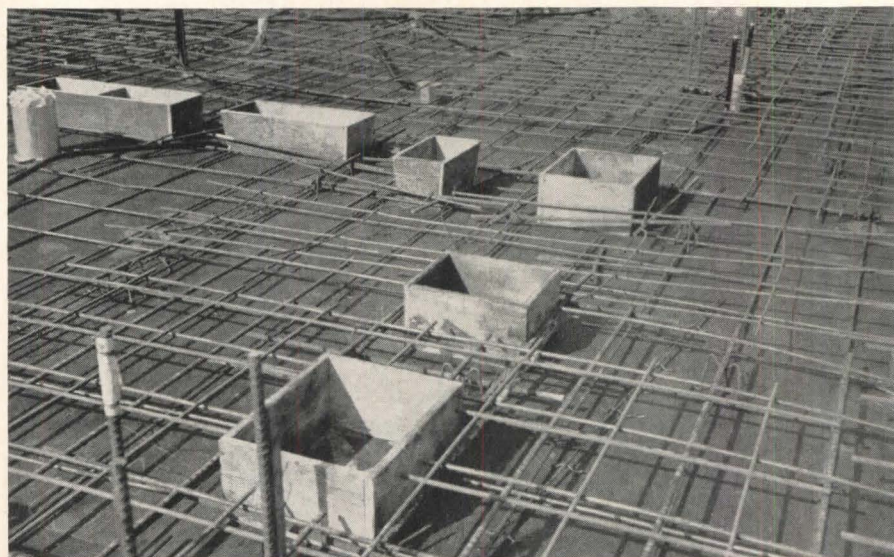
After some experimentation on the first floor, the following sequence of operations was worked out (for a two day cycle):

First day: (1) Form columns, frame for deck forms, and place decking. (2) Drop reinforcing cages for columns and spandrel beams, place ¾-

continued on page 266



On first floor, mats were placed on top of boxes, sleeves, vents, etc. and cut away where necessary. To speed steel placement, mats on subsequent floors were laid first, as above, and cut-outs for slab breaks were later made in locations indicated by markings on forms



After boxes, sleeves, conduit, piping, etc. had been placed, top steel to resist negative moment over columns and spandrels was laid over 4-in. chairs and tied. Below: Construction sequence is completed by pouring light weight concrete from buggies fed by hoppers





LIBRARY FURNITURE COMBINES DURABILITY, CLEAN DESIGN

The new "Designer" series of library furniture and equipment features a combined metal and wood construction which was developed in an attempt to satisfy the user demand for both structural strength and beauty. The line includes, in addition to the standard reading table and chair and children's double-faced, sloped top table shown here, such miscellaneous

equipment as catalog cases, charging desks and book display stands. All the pieces in the line have supporting members of anodized aluminum reinforced with steel, and exposed surfaces of birch. All were designed by architect-designer Norman Cherner in collaboration with the engineering department of *Remington Rand*, 315 Fourth Ave., New York 10, N. Y.



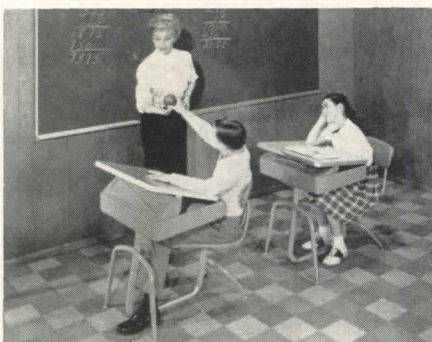
SCHOOL DESKS: FOR STUDENTS TODAY, TEACHERS TOMORROW

In line with current speculation on the educational methods that will prevail in tomorrow's classroom, the American Seating Company has developed an *Electronic Teaching Center* which groups audio-visual equipment at the teacher's desk. The 4 by 8 ft "L" shaped unit contains, for example, a 21-in. screen television receiver that swings from its niche in the front of the desk up into viewing position at the flick of a switch. Additional controls adjust the set to receive closed circuit or direct telecasts, and close draperies and turn off room lights for better viewing. The unit also houses a tape recording system, as well as two storage cabinets and three drawers for books, papers and records.

top which eliminates glare and changes its slope to fit various learning activities, along with a compound-curved seat and self-adjusting back made of a supple plastic which flexes to body contours, thus helping to assure correct, comfortable sitting posture. Both seat and bookbox are adjustable up and down, and the seat can also be moved back and forth or swiveled 45 degrees in either direction to permit easy entry from both sides and full visibility to all parts of the classroom.

Perhaps more immediately useful than this teacher's control center is a *Study Center* pupil seating unit that features a three-position tilting

Another advantage cited by the manufacturer is the single unit construction, which is said to make available up to 25 per cent more classroom floor space. The *Study-Centers* are easily movable, so seating arrangements can be varied at will. They come in coral or parchment, combined with blue. *American Seating Co.*, Grand Rapids 2, Mich.

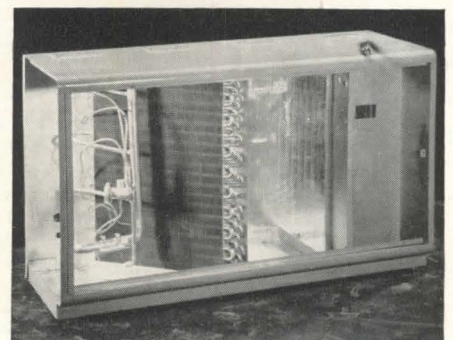


AIR CONDITIONING FOR SCHOOL CLASSROOMS

The latest development in the Lennox line of school classroom heating, ventilating and air conditioning equipment is a three ton air conditioning coil which can be installed in a regular 48-in. bookcase section of the *Comfort Curtain* system. Thus provision for future air conditioning of classrooms can be made at no extra cost when the system is installed in a new school. If air conditioning is

desired later, it can be added by simply installing the coil in the existing cabinet. The new unit will handle cooling requirements for an average classroom, and, with minor changes, the coil can also be converted to act as a heat pump to supply minimum heat requirements. *Lennox Industries, Inc.*, 1701 East Euclid Ave., Des Moines, Iowa.

more products on page 282



Precast Concrete Floors and Roofs (A.I.A. 4-K) Describes the *Flexicore* precast concrete floor and roof system, and gives design data and detail drawings on its use with steel and reinforced concrete frames, plumbing, heating and cooling systems, and electrical wiring. Recommended specifications and notes for related trades are also included. 8 pp. *The Flexicore Co., Inc., 1932 E. Monument Ave., Dayton 1, Ohio **

Barrett Reference Manual

(A.I.A. 12-B) Presents first published specification data on Barrett's new 25-year roof bond for flat and low-incline pitch and felt roofs. Specifications and details are also given for built-up roofs, roof insulation, roof drainage systems, waterproofing and dampproofing. 68 pp. *Barrett Div., Allied Chemical Corp., 40 Rector St., New York 6, N. Y. **

Selected Bibliography on Building

. . . *Construction and Maintenance, Building Materials and Structures Report 140 (Third Edition)*, by Edith R. Meggers, gives sources of information on building materials, equipment, good construction practices for new construction, and the modernization and maintenance of buildings. 30 pp. 30¢. *Supt. of Documents, U.S. Government Printing Office, Washington 25, D. C.*

Duralab Fume Hoods

Catalog DH3 describes and gives selection data, roughing-in details and specifications for *Slimline* and conventional chemical fume hoods. 28 pp. *Duralab Equipment Corp., 979-995 Linwood St., Brooklyn 8, N. Y.*

Heavy Press Extrusions

Covers design and production of heavy press aluminum extrusions, including types of sections that can be produced and manufacturing limits for solid shapes, hollow shapes, panels and tube. *Harvey Aluminum, 19200 S. Western Ave., Torrance, Calif.*

Heifetz Design Catalog

Catalogs broad selection of lamps and fixtures, including *Rotaflex* plastic globes and original designs in woods, ceramics and metals. *The Heifetz Co., 16 East 53rd St., New York, N. Y.*

Architectural Metals by Anaconda

(A.I.A. 15) Comprehensive publication on the use of copper, brass and bronze in current architectural design discusses available metals, their compositions, colors, forms, physical properties and architectural ap-

plications. Suggested specifications are included, as are construction details and color plates showing the use of copper and copper alloys in outstanding contemporary buildings. 64 pp. *Dept. SBR, The American Brass Co., Waterbury 20, Conn. **

Cafco Sound-Shield

(A.I.A. 39-B-1) Bulletin S-10 gives complete specifications including noise reduction coefficients, light reflectance values and flame spread classifications for *Cafco* continuous blanket, machine applied acoustical treatment. 4 pp. *Columbia Acoustics and Fireproofing Co., Stanhope, N. J. **

Fiberglas Noise Control Products

(A.I.A. 37) Includes a quick selection guide, application data and specifications, and descriptive material on the various acoustical products in the *Fiberglas* line. Cat. No. AC-43C, 30 pp. *Owens-Corning Fiberglas Corp., Toledo 1, Ohio **

Professional Identification

Six-page brochure (PI-6-58) shows a wide variety of metal plaques, symbols and name plates for hospitals and clinics, doctors, dentists and other professional people. *A. J. Bayer Co., 2300 E. Slauson Ave., Los Angeles 58, Calif.*

Ross Instantaneous Heaters

(A.I.A. 29-D-2) Describes principal features of Ross instantaneous heaters, and gives detailed selection data in the form of tables, charts and piping diagrams. Bulletin 304.4K1, 24 pp. *American Standard, Industrial Div., Detroit 32, Mich. **

Guide to High Fidelity

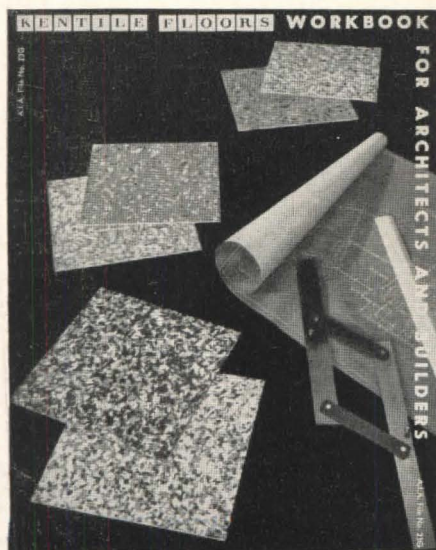
. . . *Stereo and Monophonic Speaker Systems and Components* offers useful information and practical suggestions for building or improving a high fidelity system, and describes speakers and components in the University line. 16 pp. *Desk BL 1, University Loudspeakers, 80 S. Kensico Ave., White Plains, N. Y. **

Mississippi Glass Catalog

(A.I.A. 26-A-3, 5, 6) Catalog 59-G features complete line of rolled, figured and wired glass, and contains special data on industrial, school and commercial, and residential applications. Photos of patterns, pattern specifications and light distribution charts are also included *Mississippi Glass Co., 88 Angelica St., St. Louis 7, Mo. **

**Additional product information in Sweet's Architectural File, 1959*

more literature on page 320



Kentile Floors Workbook for Architects and Builders (A.I.A. 23-G), a compilation of basic information on resilient tile flooring, is designed to assist in proper product selection and workmanlike installation. In addition to charts showing approximate costs, radiant heating data, recommended and not recommended uses and so on, it includes installation instructions and specifications. *Kentile, Inc., Brooklyn 15, N. Y.*

TERMITE SHIELDS FOR HOUSES: 1

Prepared by Copper & Brass Research Association

Termites require damp, rotting wood, and will carry in moisture and fungi to rot sound wood so they can feed on it. This requires a constant source of moisture, usually obtained from the soil. Entrance to unprotected structures is gained through cracks in concrete or masonry foundations or walls, through the wood portion of the house frame, or by building tunnel-like structures called shelter tubes over foundation posts and walls.

Properly installed shields will not only prevent termites from invading the wooden portion of the structure but will also act as an effective moisture barrier.

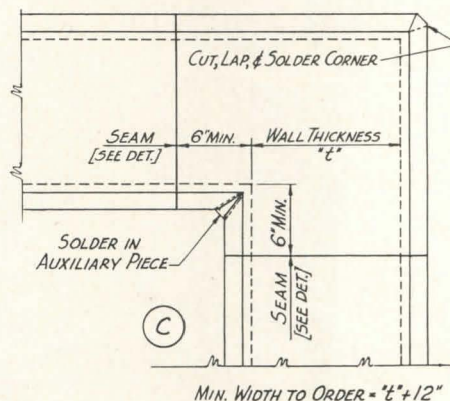
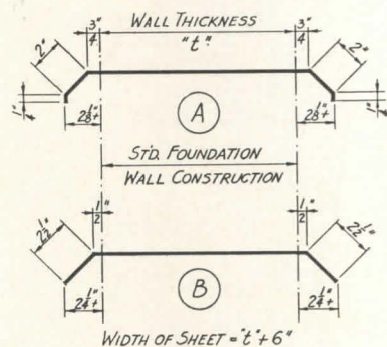
Termite shields may be of either one of two forms: the barrier, or the deflector (Figures 3a and 3b), or a combination of the two (Figure 3c).

ESTIMATING TABLE
For Straight Runs

WALL THICKNESS	WIDTH OF SHEETS
8 in.	14 in.
10 in.	16 in.
12 in.	18 in.
16 in.	22 in.

BARRIER SHIELD In installations where inspection of the shield is impossible, a barrier type is required. It is designed so that termites building up over the stone or concrete foundations are blocked from entry into the woodwork of the house above by the projection of the shield. Two basic barrier type shields are shown in A and B of Figure 1.

The A type with a vertical turn-down edge is preferable, but the B type is also satisfactory and under some conditions easier to apply. The sharp edge of the metal, either vertical or at 45°, provides a 180° angle around which the termites are unable to construct a shelter tube. (A shelter tube is a tunnel-like structure



Drawings above and below show details for using cold rolled copper sheet

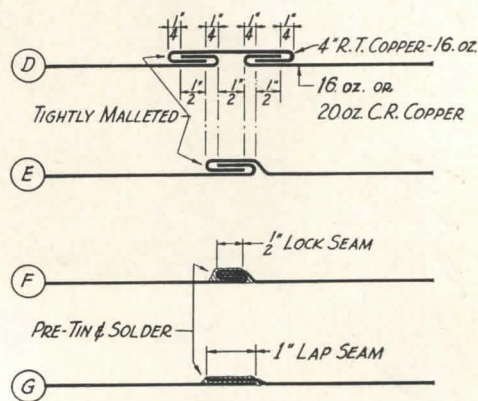
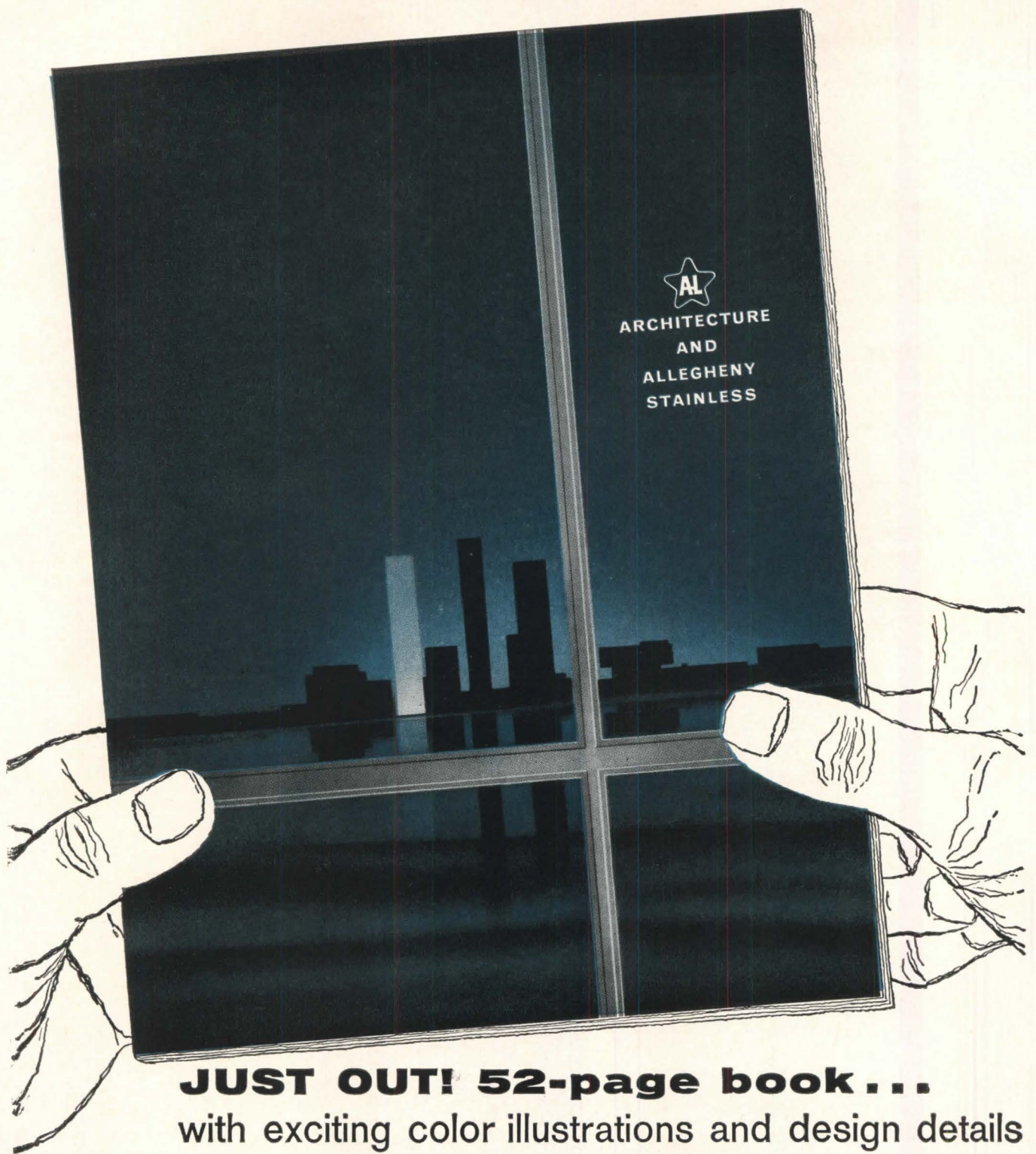


FIGURE 1

built by termites over foundation walls and posts through which they can bring fungi and moisture to dry wood.) Some shield designs have a rolled edge, but they are not recommended because shelter tubes might be built around the roll.

At corners, as in standard types of through-wall flashing, it is better to use a specially formed piece as in C than to have a diagonal seam across the corner. Four types of cross seams are shown at D, E, F, and G. Types D and E should be tightly malletted. When the soldered types (F or G) are used, the edge of the sheets should be pre-tinned to ensure a solid joint. Any loose joint provides access for termites to enter the structure.



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TERMITE SHIELDS FOR HOUSES: 2

Prepared by Copper & Brass Research Association

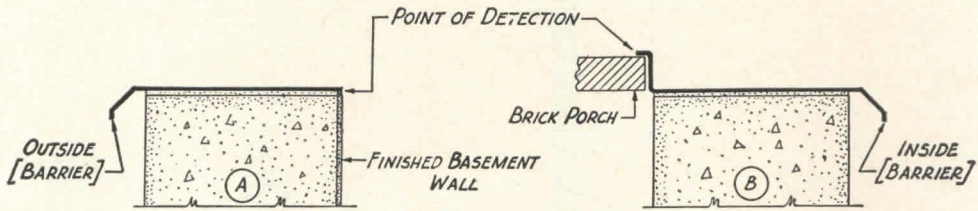


FIGURE 2

DEFLECTOR SHIELD This shield, illustrated in Figure 3b, does not in itself provide an impossible barrier to the termites. It is employed only in areas accessible for periodic inspections, such as the interior wall of a basement recreation room, or on the outside of a brick porch.

Termites building a shelter tube from the ground moisture to

house woodwork are forced to move out around the shield as indicated at the "point of detection" (Figure 2). The shelter tube, exposed at this point, can be easily broken off and the termites that have gained access to the building are cut off from their essential moisture. This simple procedure, repeated several times, apparently discourages the tube-building termites.

VENTILATION Termites in a building isolated by shields generally make a strong effort to restore contact with ground moisture. If a shallow, unexcavated area is available they have been known to connect a joist to the ground by means of a shelter tube. Proper

ventilation however, should defeat such attempts. Under moist conditions, lengthy shelter tubes can be formed, but under dry conditions the tubes have the consistency of sand and tend to crumble and collapse.

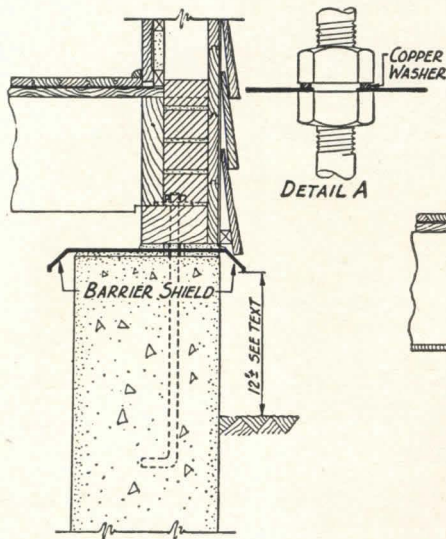


FIGURE 3A

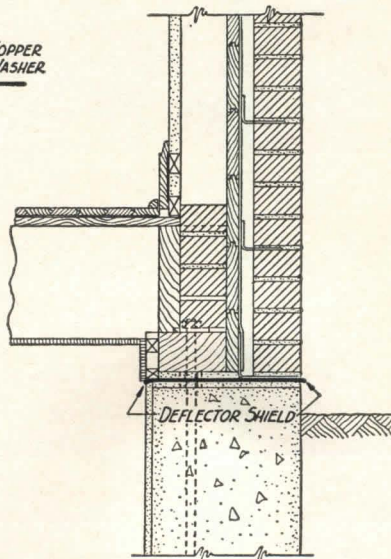


FIGURE 3B

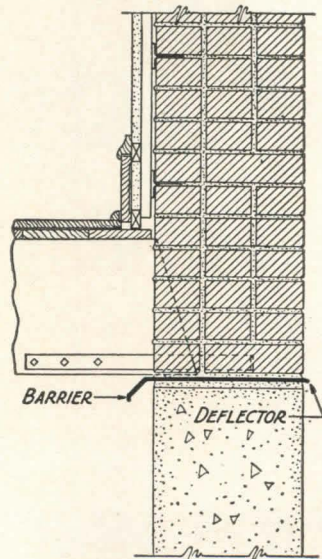


FIGURE 3C

TYPICAL FOUNDATION WALLS Figure 3a shows the foundation wall installation of a shield for a frame house. Here a barrier type is necessary. With veneer construction, as shown in Figure 3b, a deflector shield is generally satisfactory. Similarly, a deflector shield generally is used in solid masonry construction, Figure 3c, although in this illustration the interior has been assumed to be inaccessible for periodic inspection; therefore, a barrier shield is shown installed on the inside.

In the southern part of the United States the shield should be from 12 to 18 in. above ground level; in the northern part, from 9 to 15 in. is usually sufficient. The degree of local infestation also

must be considered in determining proper clearance.

When there is objection to the line of shielding shown on the outside of the house it often can be camouflaged with shrubbery, or a modification of a true barrier type can be employed. This design, of course, will demand periodic inspections to discover if any termite shelter tubes have been built and care should be taken that shrubbery does not provide a by-pass of the shield.

Detail A (Fig. 3a) shows how an anchor-bolt penetrating the shield is made termite-proof. Instead of the washer as shown, special nuts with grooves may be used. In either case, the two should be drawn so tightly that termites can't squeeze through.

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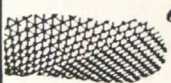
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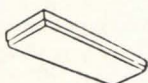
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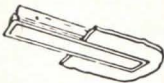
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TERMITE SHIELDS FOR HOUSES: 3

Prepared by Copper & Brass Research Association

Part 4 will be in the June issue

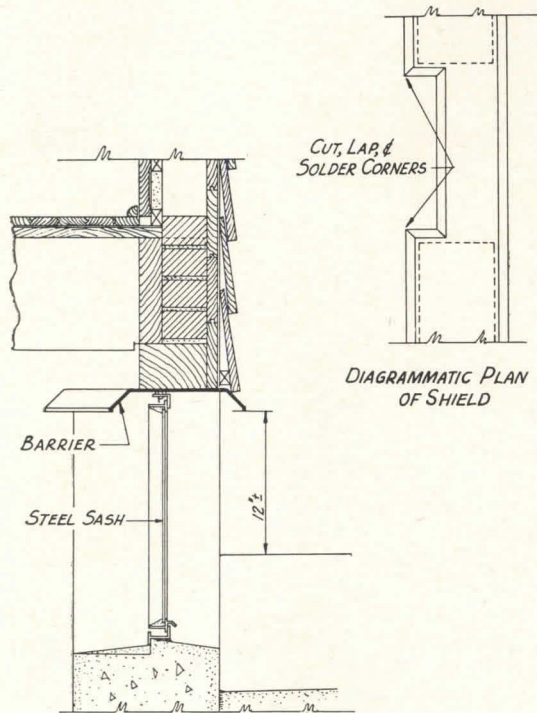


FIGURE 4

TYPICAL CELLAR WINDOW Figure 4 shows a detail of shielding construction at a typical cellar window. As the window itself is below the level of the shield, to secure complete protection the window should be a metal one. When the window is above the ground level, a shield beneath the window will give ample protection.

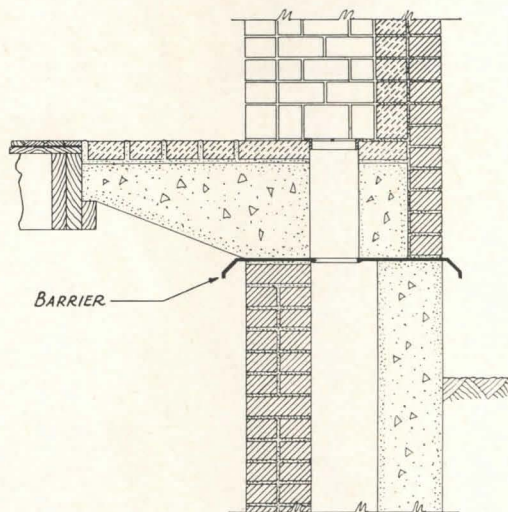


FIGURE 5

FIREPLACE Figure 5 shows a fireplace protected by a barrier shield over the foundation wall. The ash-dump is above the shield and the ash-flue below. Utmost caution should be exercised in the installation of the termite shield under the fireplace. The seal should be tight and permanent. Termites can squeeze through the narrowest of crevices.

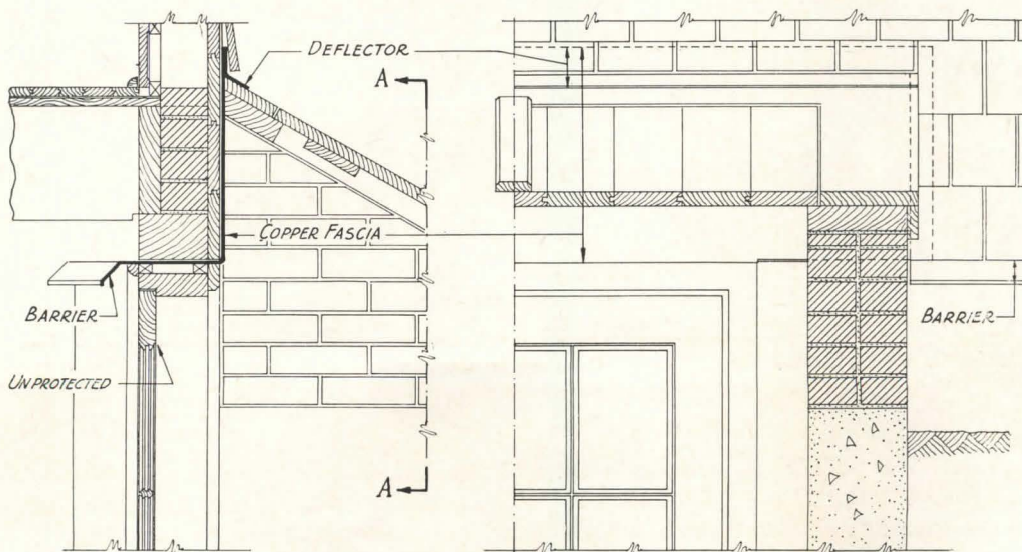


FIGURE 6

CELLAR HATCHWAY Figure 6 shows a typical cellar hatchway installation. Note that this application combines barrier with partial deflector type shields, because where the shield extends vertically it is conceivable that shelter tubes might be built around

it. The combination of shields, plus inspection, will assure protection to the building. In this example the door shown is of wood construction and it is located beneath the protection of the shield. To be termite-proof the door [unless treated] should be metal.



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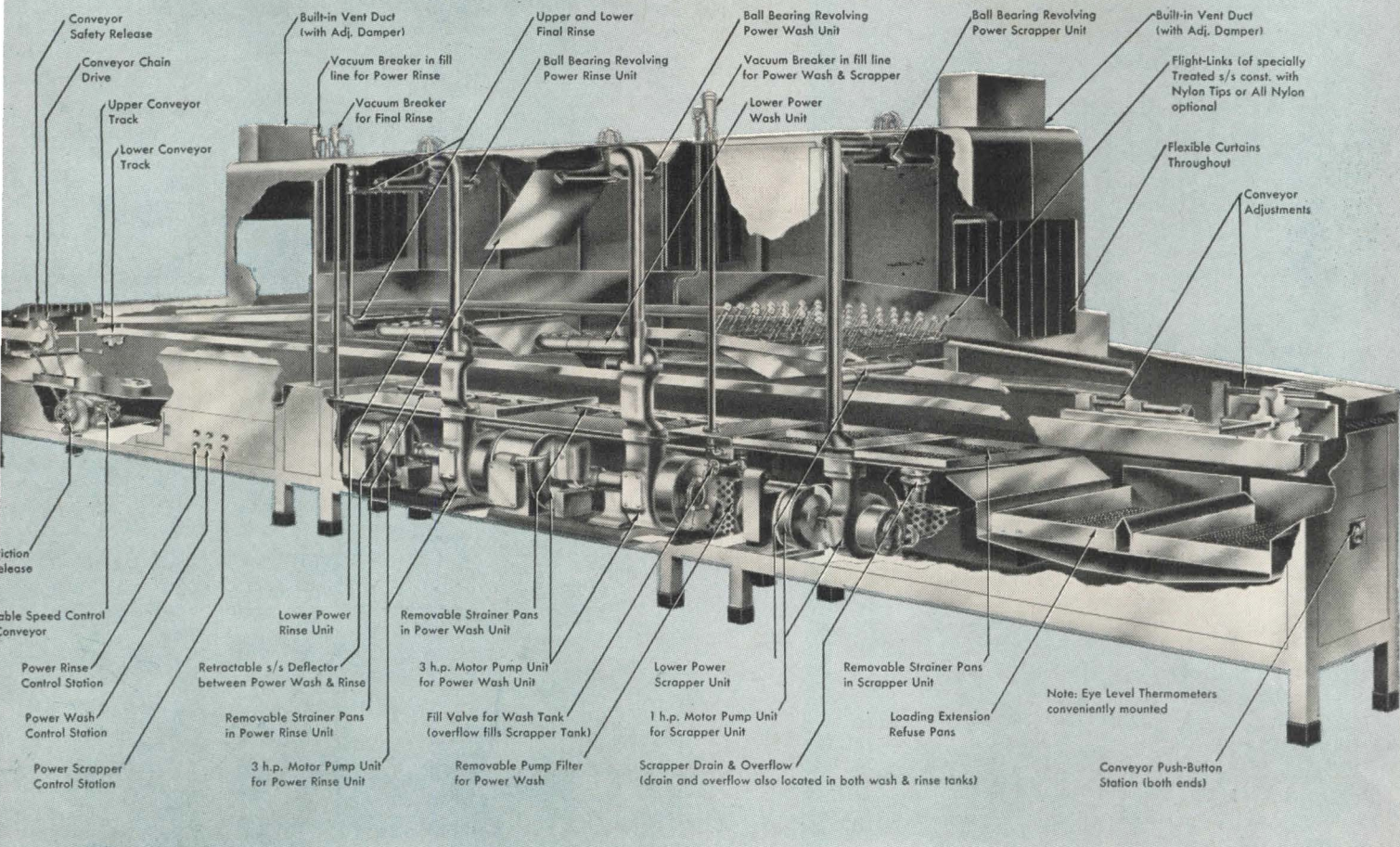
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in. chairs for supporting fabric, place bottom steel mats. (3) Cut out fabric for ducts, boxes, sleeves, conduit, etc. (4) Start placement of boxes, sleeves, conduit, piping, etc. *Second day:* (1) Place fabric mats for top steel (to resist negative moment over columns and spandrels) on 4-in.-high chairs. (2) Complete conduits and placing and tying of top fabric. (3) Place concrete hopper, runways, etc. in preparation for pouring. (4) Pour and finish slab.

Several lessons learned during the construction of the first floor contributed to the speed and smoothness of these operations. For example, the sleeves, boxes, vents, *et al.*, were originally placed on the bare plywood deck and the mats laid over them so that the lathers had to stop to fit each mat around the obstructions, cutting away wires where necessary. This problem was solved by painting an identification number and markings showing the location of breaks in the slab on each panel of the plywood decking. With the permanently marked panels laid in the same place on each floor, the lathers could place the mats in position with no loss of time and come back later to cut out the openings indicated on the forms.

Another speed-up was in placement of the $\frac{3}{4}$ -in. chairs. On the first floor, the chairs were slipped under after the mats had been placed. But as the lathers became familiar with the placement of each type of mat, they were able, on subsequent floors, to position the chairs before the fabric was laid, thus saving rehandling of the mats.

The engineers feel that as contractors become accustomed to using the system, and similar cost-cutting procedures are devised, the total savings on a wire fabric-reinforced concrete structure of this type could be boosted to about 20 cents a square foot.

The building is owned by the Southmore Realty Corp., a David Rose & Associates enterprise. Mechanical engineers were McConaughy and Elvove; the concrete work was handled by Dic Concrete Corporation.

Technical Roundup

NBS Studies Strains in Concrete Beams Having Diagonal Cracks

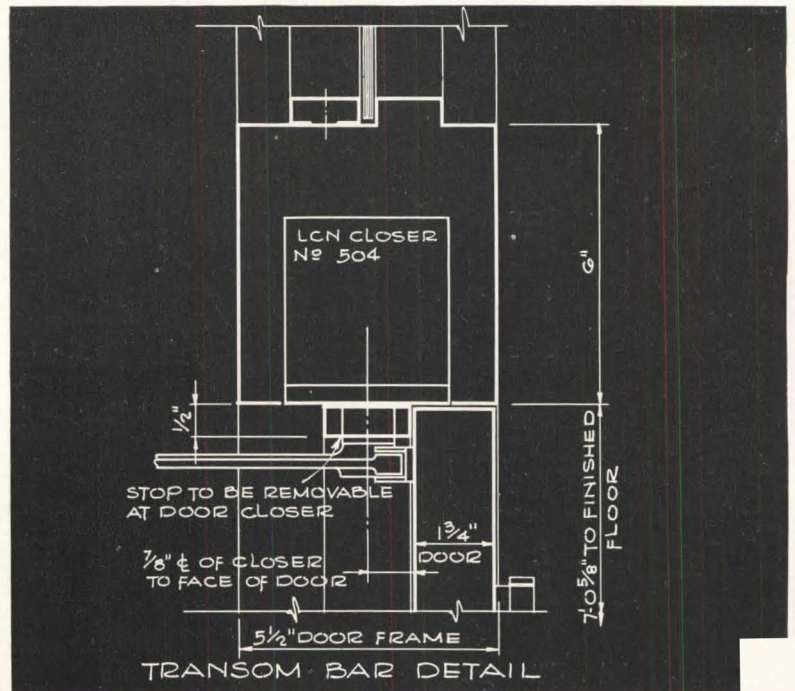
To determine the validity of the assumptions usually made in designing reinforced concrete beams to resist shear, several such beams were loaded to failing in a study sponsored by the American Iron and Steel Institute at the National Bureau of Standards. In analyzing data

on shear strengths of reinforced concrete beams, it is commonly assumed that tension reinforcement does not transfer vertical shear across a diagonal tension crack and that the maximum strain in the concrete at the critical section of the shear span occurs at the outermost fiber. It is also usually assumed that the maximum value of this strain is of the same order of magnitude as the maximum strain in a flexural failure.

The results of the study show that certain plane sections in a load-

ed beam do not remain plane after a diagonal crack forms, and that maximum compressive stresses in the concrete occur some distance below the compressive face. In addition, the strain at the extreme fiber of the compressive zone decreases until it becomes a small tensile strain. The tests also indicated that the longitudinal reinforcing may, under certain conditions, carry vertical shear across a diagonal crack in a loaded beam, but that this force decreases as the load approaches a maximum.

more roundup on page 272



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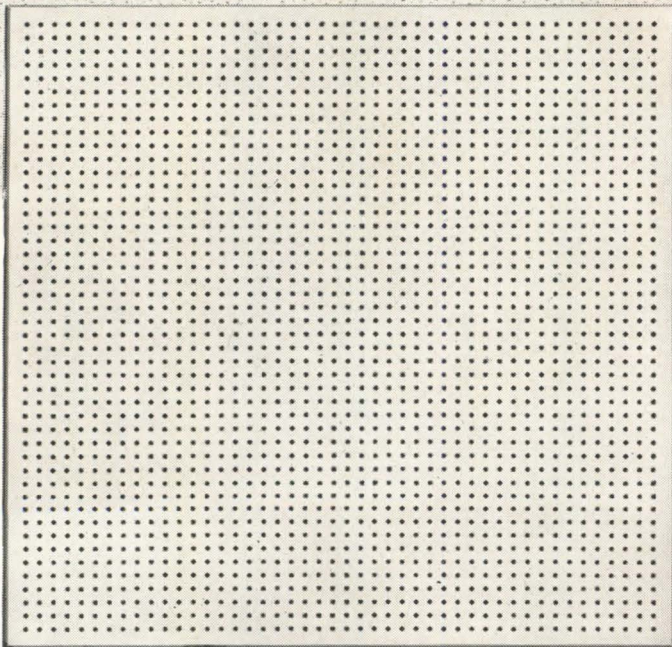
Complete Catalog on Request—No Obligation
or See Sweet's 1959, Sec. 18e/LA

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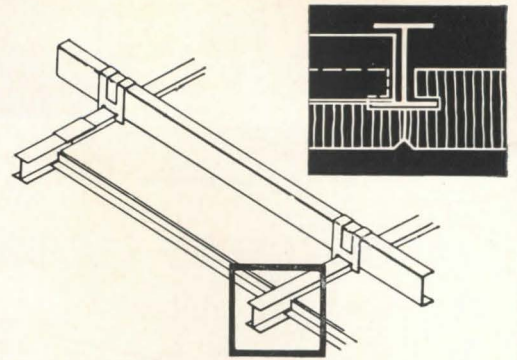
Canada: Lift Lock Hardware Industries, Ltd., Peterborough, Ontario

PATTERN

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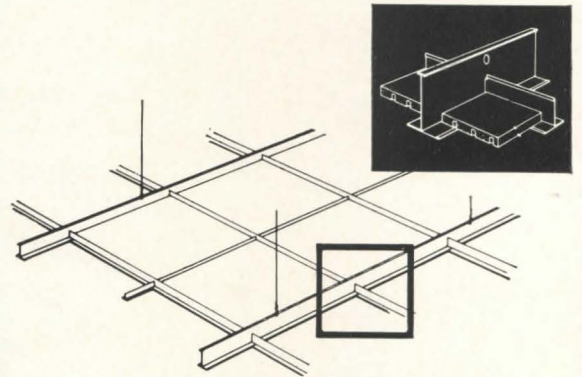


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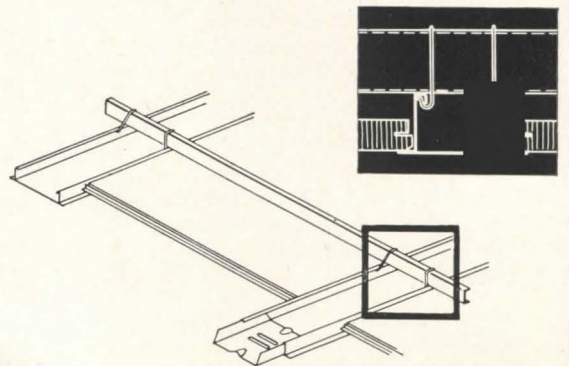
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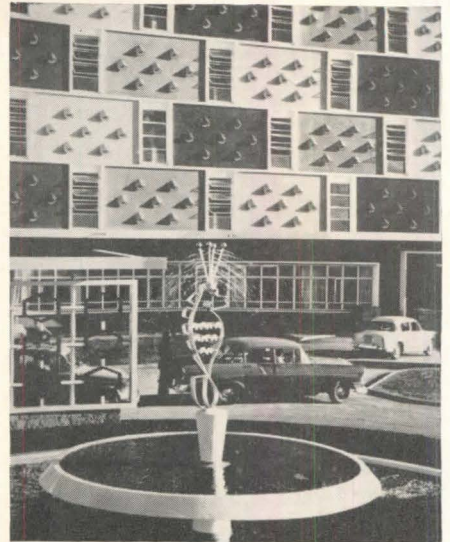
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Technical Roundup



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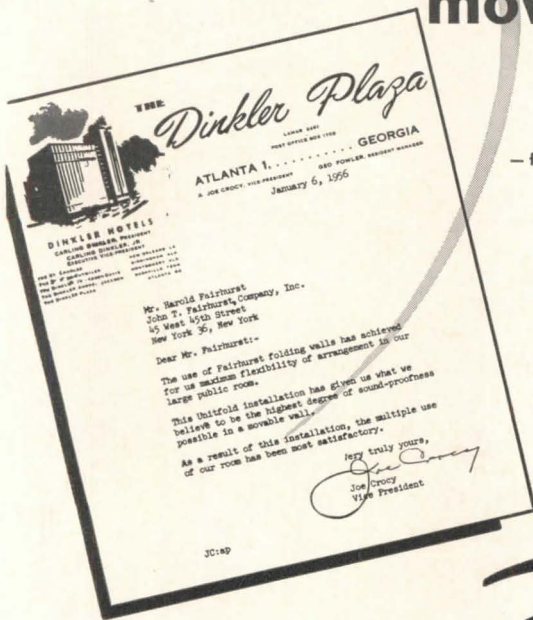
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continued on page 278



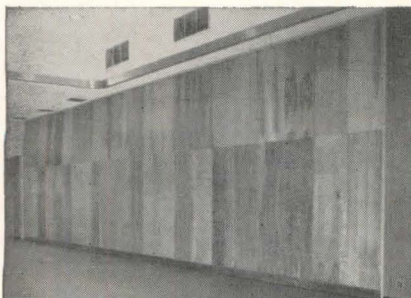
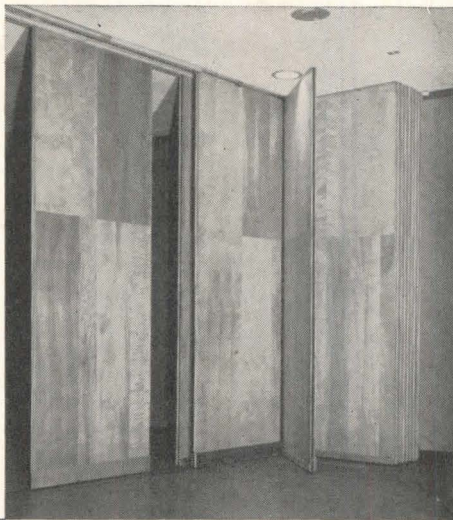
— from a letter by A. Joe Crocy, Vice-President, The DINKLER-PLAZA, Atlanta. Alexander & Rothschild, Arch.

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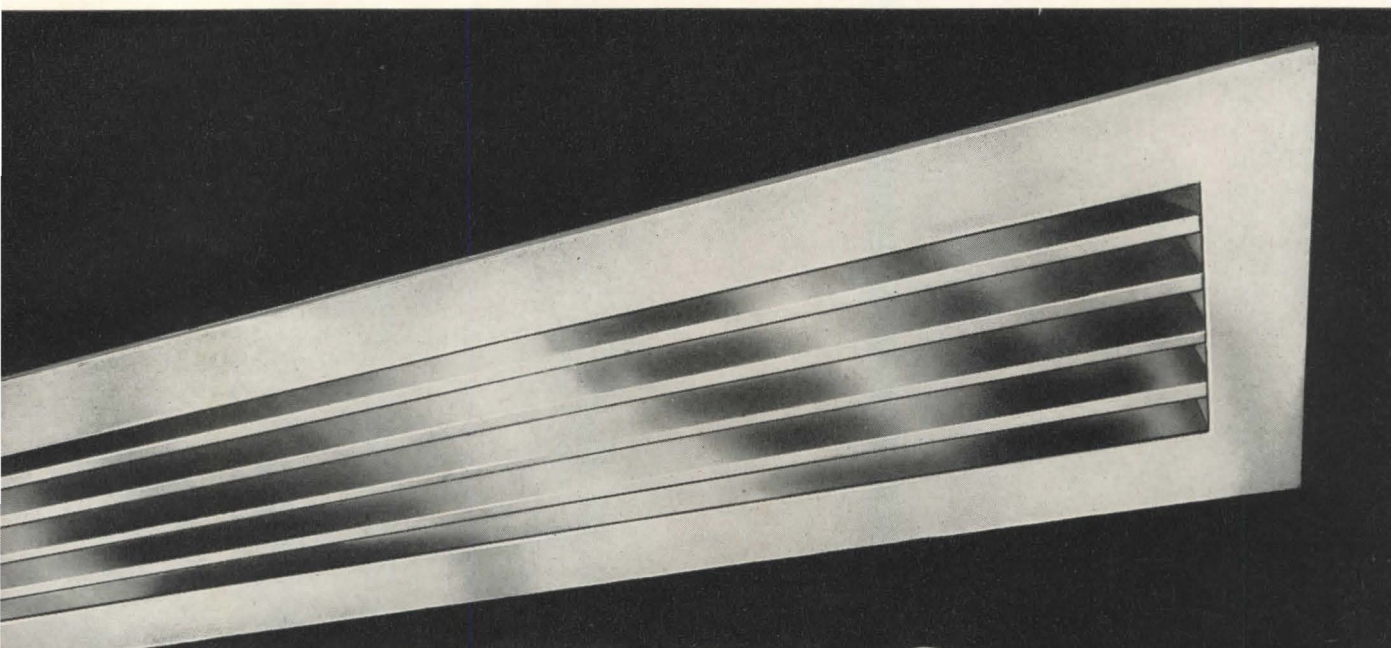
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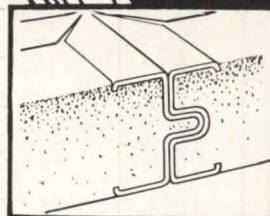
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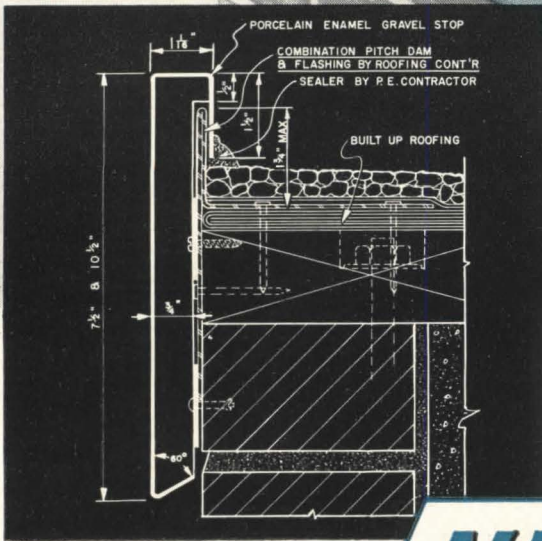
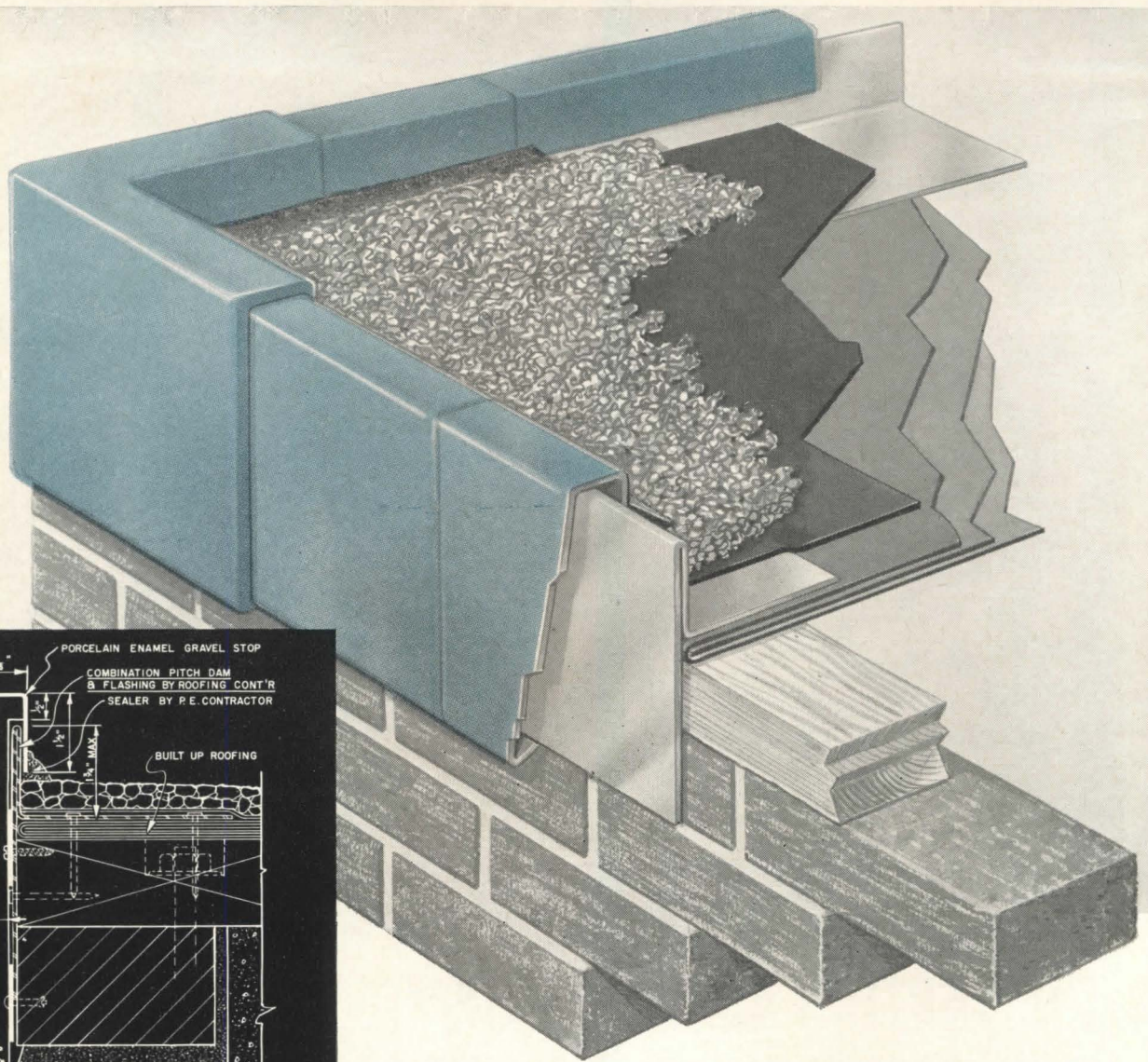
Telephone Headsets Give Architects "Three Hands"

During the course of design and construction of any project, there are scores of times when two men conduct a telephone conversation and refer to duplicate sets of plans before them. Usually, this involves juggling the telephone receiver in one hand while leafing through or marking drawings with the other. That it need not be so was proved by the Princeton, N. J. architectural firm of Fulmer & Bowers. They arranged to have several switchboard operator's headsets distributed throughout the office on many phone extensions, each equipped with an extra long cord. Look, Ma, three hands!



Moving Sidewalk Bridges Street

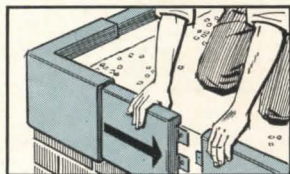
The world's first "Travolator" moving sidewalks arch 127 ft across a busy San Diego street to connect the main building of the El Cortez Hotel with a new motel and parking garage opposite. Guests and hotel employees are carried back and forth on a series of safety-cleated platforms which incorporate the same safety features as modern escalators and are capable of moving up to 7500 people per hour in each direction. Open to the sky, the "Travolators" have glass railings and brightly colored side panels. They were developed by the Otis Elevator Company.



..... **NEW** #750 AND #1050
GRAVEL STOP
 in architectural porcelain

...SPECIAL DESIGN PERMITS FASTER ROOF COMPLETION

Davidson's new porcelain enamel Gravel Stop Fascia System can be installed after the roofing contractor has completed his work. Special features include the *all* new telescoping corner which eliminates field measurements and permits flexibility of design, accuracy of installation, and weather tightness.



Available in standard face dimension sizes — 7½" (#750), and 10½" (#1050), the new Davidson Gravel Stop fits over roof flashing already in place. This new Gravel Stop is also available with flush corner instead of telescoping corner.

As an added extra advantage, the Davidson Gravel Stop Fascia System has two coats of porcelain on all surfaces and is available in an extensive range of one and two colors, gloss, stipple, and semi-matte finishes.

For further detailed information on this new Gravel Stop, write . . .

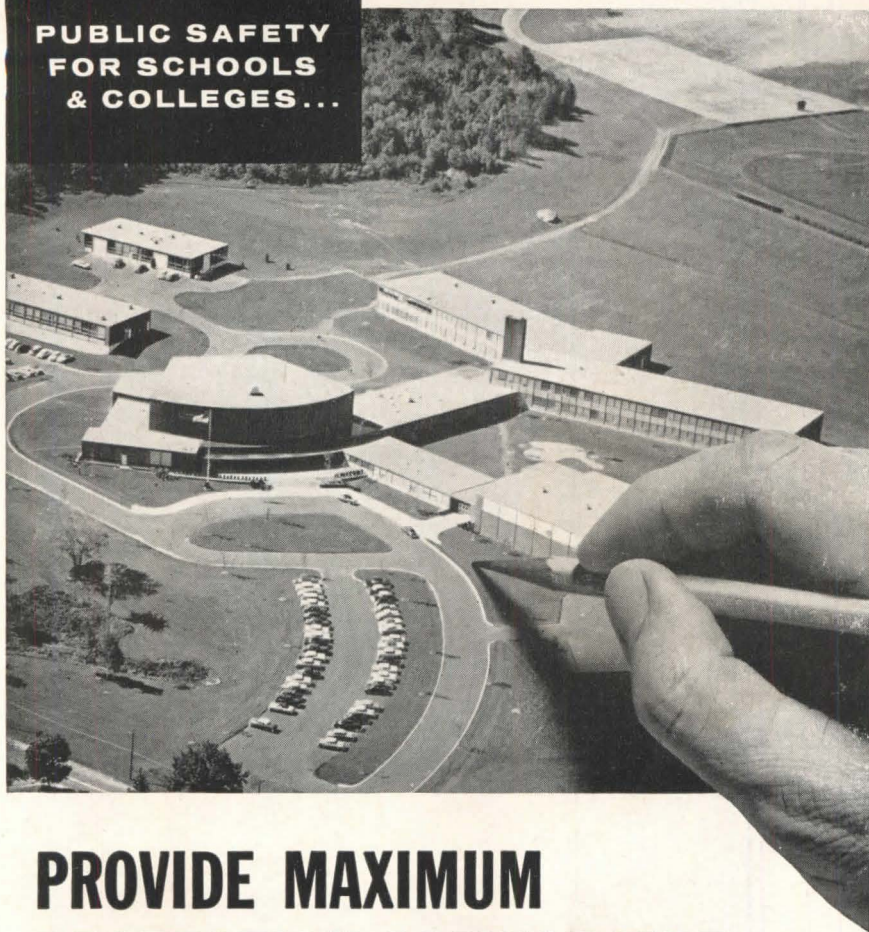
DAVIDSON ENAMEL PRODUCTS, INC.,
 Subsidiary of Fenestra, Inc., 1104 East Kibby Street, Lima, Ohio.



Member:
 Porcelain Enamel Institute
 Producers' Council, Inc.

Davidson
 THE WORLD'S LARGEST
 EXCLUSIVE MANUFACTURER
 OF ARCHITECTURAL PORCELAIN

**PUBLIC SAFETY
FOR SCHOOLS
& COLLEGES...**



PROVIDE MAXIMUM PROTECTION AGAINST FIRE with GAMEWELL FLEXALARM!

Schools and Colleges, like all public buildings, have special requirements for fire alarm systems and fire defense.

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Flexalarm is the modern, all-in-one fire alarm system that can be precisely tailored to your building and its requirements. It features building-block design and unit type components for simplicity in satisfying all types of construction, fire codes and life hazards. It is easy to specify and economical to buy because of extensive pre-engineering and simplified unit-by-unit installation. Saves money all down the line . . . all from one source, one line of equipment — with complete engineering help if needed.

Send for New Flexalarm Manual. Clients and customers expect the best in fire alarm protection. This specialized, easy-to-use Manual will help you give them maximum protection against fire. Send for your copy, today.

Ask for catalog F249.

**Gamewell Fire Alarm Systems
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THE GAMEWELL COMPANY
Dept. BB, Newton Upper Falls 64, Mass.

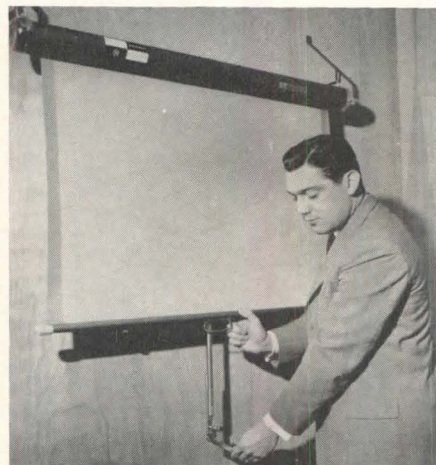


SPECIALISTS IN PUBLIC SAFETY

GA 8-11

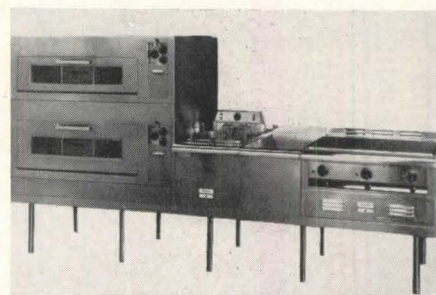
Product Reports

continued from page 255



Roll-Up Lenticular Wall Screen

The new *Educator Wallmaster* projection screen is said to be the first to combine the convenience and flexibility of a roll-up wall screen with a lenticular surface which gives full 100 degree viewing in both darkened and normally lighted rooms. An exclusive "stretch bar" is credited with solving the problem of stretching a flexible lenticular wall screen taut enough for proper picture clarity and brilliance, thus making it possible to roll the screen up into a compact 3½- by 44-in. package when not in use. *Radiant Mfg. Corp., P. O. Box 6540, Chicago 80, Ill.*



Modular Commercial Kitchens

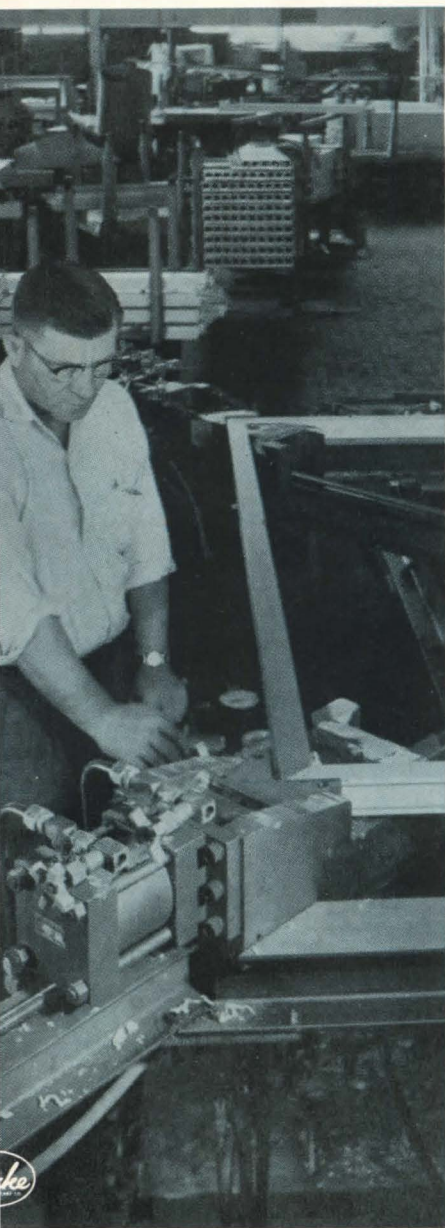
New "pedestal type" stainless-steel cooking units are designed to provide maximum ease in maintaining top sanitation conditions in food-service facilities. For optimum operational efficiency, each unit is planned to function at the working level. Range-top, oven, deep-fat fryer and broiler combine to form a modular kitchen only 128 in. long. However, the units may also be installed in other combinations, and an 18-in. "spacer" is available to provide a convenient table-top working area. *Hotpoint, Commercial Equipment Dept., 6201 W. Roosevelt Rd., Berwyn, Ill.*

more products on page 286

FACTORY-ASSEMBLED. The "Adlake way" to machine, jig-drill and assemble windows completion before shipment. This provides curate joinery, weather-tightness.

FACTORY-CONTROLLED INSTALLATION. Another Adlake "plus" is responsibility of installation. Factory trained, factory supervised crews are never permitted short cuts.

FACTORY-SERVICED. A century-old rule with Adlake is, "No time limit on service." Count on Adlake to be around to service windows long after the guarantee has expired.



CAN YOU AFFORD TO SHORT-CUT THESE **A-PLUS** SERVICES?

Responsibility is fixed, responsibility is complete, and responsibility is without time limit—when you deal with Adlake.

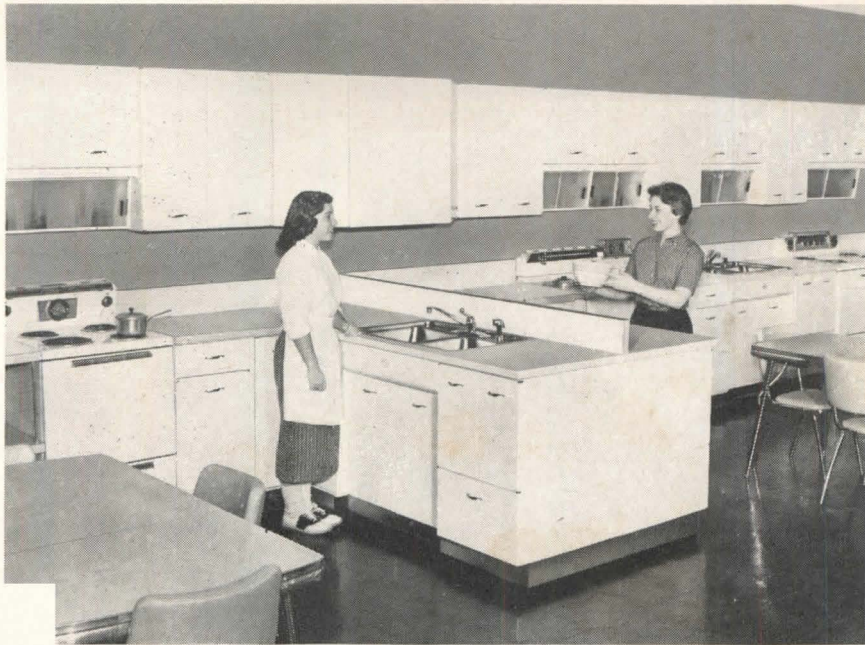
That's why in the quality field, Adlake gets the **A-plus** rating.

The extra cost is small. Cost per year is usually less.

May we present the facts? **Send for free catalog J-2105.**

The Adams & Westlake Company, Elkhart, Indiana.

A⁺Adlake
custom windows



Hundreds of schools select

GENEVA CABINETS

for their durability, low maintenance and beauty

Since Geneva Cabinets "have gone to school" they have won unprecedented acceptance from coast to coast. These are the reasons: Widest standard cabinet selection! Functional superiority! Greater design and layout flexibility . . . true economy and utility.

Specify *GENEVA Cabinets of Steel* they offer unmatched durability, far less maintenance—with famous "whisper quiet" quality. You'll find GENEVA'S extensive custom cabinet and planning facilities capable of meeting your needs.

ask about all-new

Impasto

GENEVA'S exclusive textured cabinet finish of etch-line patterned steel. It has the strength of Gibraltar . . . new warmth in appearance . . . superior stain and mar resistance.

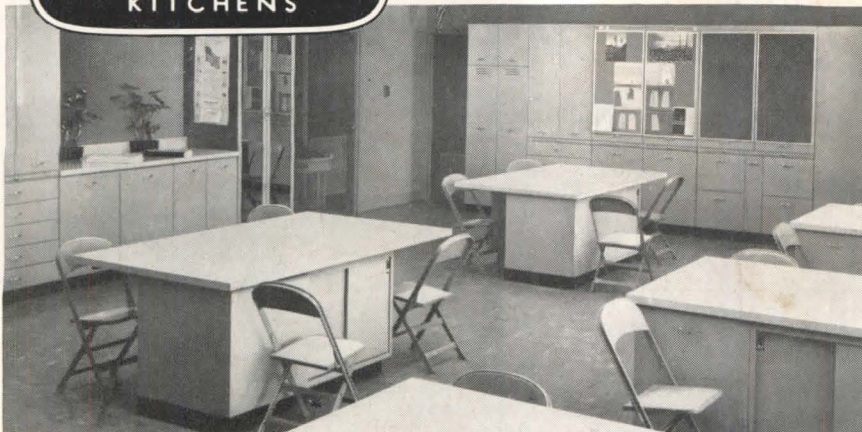


Write for complete information



GENEVA MODERN KITCHENS

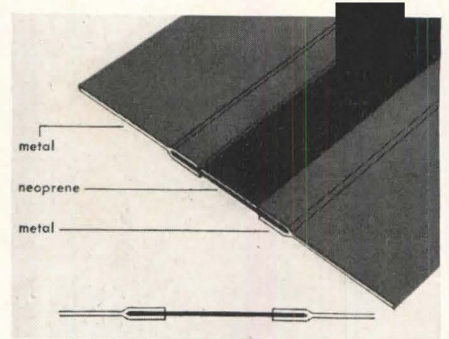
DIVISION OF ACME STEEL COMPANY
Dept. AR-5-59, GENEVA, ILLINOIS



Product Reports

Light-Producing Panels

Electroluminescent panels are now available commercially in the form of rectangular "plates" in standard sizes ranging from 2 by 2 to 24 by 24 in. and in standard colors of green, blue or yellow. Basically the new *Rayescent* lamps consist of a sheet of glass coated with a layer of phosphor which is backed by an electrically conductive coating. When voltage is applied, light produced by the phosphor is emitted from the transparent front surface. The lamps use no filaments, contain no gas or metallic vapor, produce practically no heat, and require little current. (A 4- by 4-in. lamp supplied from a 120v, 60 cycle source draws only 0.07 watt.) They give a completely diffused light without special fixtures or baffles, and can be used for a wide variety of lighting applications which do not require high footcandle output. *Westinghouse Electric Corp., Box 2278, Pittsburgh, Pa.*



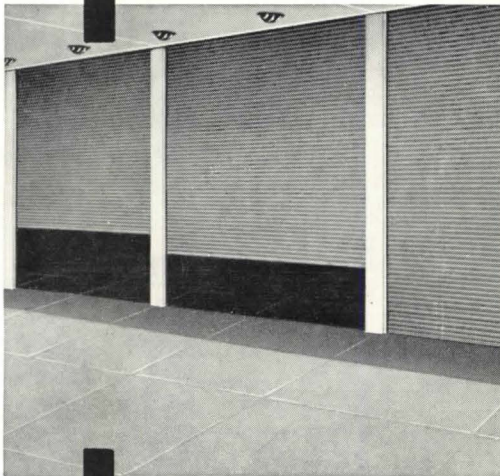
Neoprene-Metal Flashing

Expand-o-flash, an easy-to-install flashing material made up of a resilient neoprene strip joined to a metal edging with a combination mechanical-adhesive bond, is said to eliminate the possibility of cracks and leaks resulting from metal fatigue under repeated expansion and contraction. Fabricated in roll lengths of 25 ft, it can be spliced in the field to form uninterrupted flexible seals of 100 ft or more. Prefabricated corners and crossovers simplify construction of irregular joints. Because its design permits wide dimensional variations, *Expand-o-flash* can be used for flexible roofing, vibration isolators, membranes, gutters, etc., as well as for expansion joints and waterstops. Standard flashings are made with 16-in. neoprene sheets edged in copper or aluminum; other sheet thicknesses and edge metals can be had on special order. *Lamont and Riley Co., 300 South Cutoff, Worcester 7, Mass.*

more products on page 290

Best Answers for Doors, Passageways, Other Openings:

KINNEAR ROLLING DOORS,* FIRE DOORS, GRILLES



Coiling upward action is Kinnear's key to highest efficiency. It assures maximum space economy: *all floor and wall space around the opening is fully usable at all times.* Head-room and ceiling-space requirements are negligible (the barrel on which the closure coils when opened can in most cases be set within the wall either *below* ceiling height, *at* ceiling height, or *above* ceiling height). Motor, chain, crank or manual-lift is available, to suit any operating needs. In all cases, the closure rises completely out of the way when opened.

KINNEAR ROLLING DOORS protect openings with a continuous curtain of interlocking steel slats (a Kinnear first) — full door efficiency

plus protection against wind, weather, intrusion, and fire.

KINNEAR ROLLING FIRE DOORS have features added to the steel-slat curtain operation that bring positive, automatic, safely controlled closure in case of fire, plus extra fire-blocking capacity approved by Underwriter's Laboratories, Inc.

KINNEAR ROLLING GRILLES, a combination of rugged steel bars and links fully protect openings against trespass, without blocking light, air, or vision.

All three of these Kinnear upward-acting closures can be used in various combinations, and are built to fit openings of almost any size. *Write today for full details.*

*Also doors of modified design, available as COUNTER SHUTTERS

KINNEAR
ROLLING DOORS
Saving Ways in Doorways

The KINNEAR Mfg. Co.

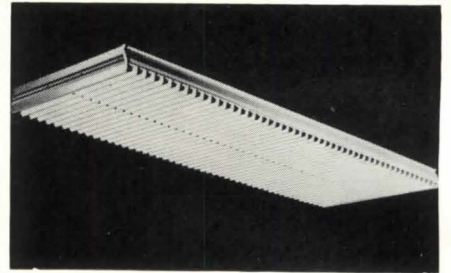
FACTORIES:

1860-80 Fields Avenue, Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in All Principal Cities

Product Reports

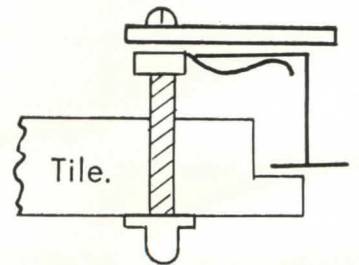
Sound-Quiting Felt Wall Covering

The latest wall-covering idea is a sound-absorbing textured felt that can be hung like wallpaper and comes in a range of over thirty decorator colors. Backed by an impervious, dimensionally stable lining, *Hushalon* will not warp, stretch, buckle or sag. It is said to be mothproof, flame-, soil- and water-resistant, and easily applied. And it provides built-in sound and thermal insulation. Rolls are 54 and 27 in. wide, 40 ft long. *Continental Felt Co., 22 West 15th St., New York 10, N. Y.*



Powerful Commercial Luminaire

The *Power-Lux*, a new economical luminaire for commercial applications, uses specially-designed parabolic louvers to distribute the high-intensity output of *Power Groove* lamps so that they provide high foot-candle levels with controlled brightness. Two-lamp (12 in. wide) and four-lamp (36 in. wide) models are available in 4- and 8-foot lengths. According to the manufacturer, a single *Power-Lux* fixture with four *Power Groove* lamps will do the job of three conventional four-lamp, slimline fixtures. *Lighting Products Inc., Highland Park, Ill.*



Access Door Bracket

A bracket for suspended acoustic ceilings makes it possible to use a standard tile as an access door. The bracket clamps on the top flange of the suspension bar and a stud protrudes through the ceiling tile, which is held in place by a flanged cup nut. The tile is prepared by cutting away the kerf on one side to form a rabbet, and punching a hole for the stud to go through. *Fred Grosskortenhaus, 168 Old Country Rd., Deer Park, L. I., N. Y.*



TILE *

PRODUCED IN THE U.S.A.

by the makers of Suntile



DESIGNS by HARRY J. MACKE

You can use HORIZON TILE in solid colors, in many original combinations, or select any of 10 buckshot patterns styled by Harry J. Macke. Our Art & Design Department will be glad to assist you with special tile design or layout problems — at no obligation.

COLORS by FABER BIRREN

The beautiful colors of HORIZON TILE were carefully developed by the world famous color authority Faber Birren. Choose from 58 solid or textured colors including gold and silver.

SEND FOR COLOR PALETTE

A color palette of actual tiles showing the complete range of 58 different available colors will be sent without cost to architects and designers who write on their professional letterhead. Others send \$1.00. Address Dept. A 93.

Daylighting and Dollars GO FARTHER

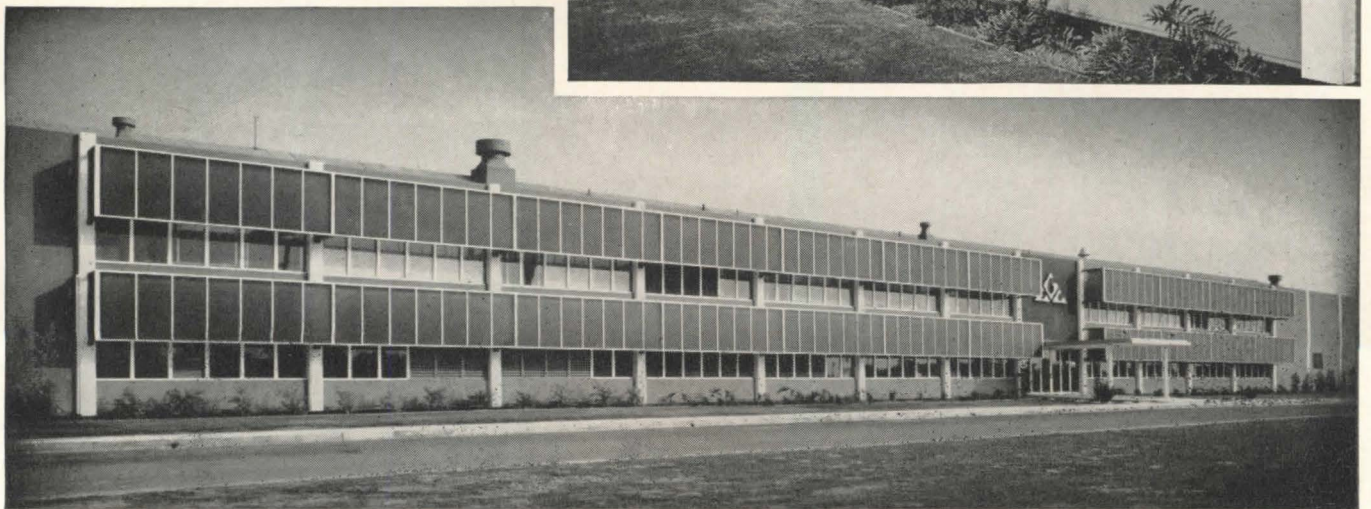
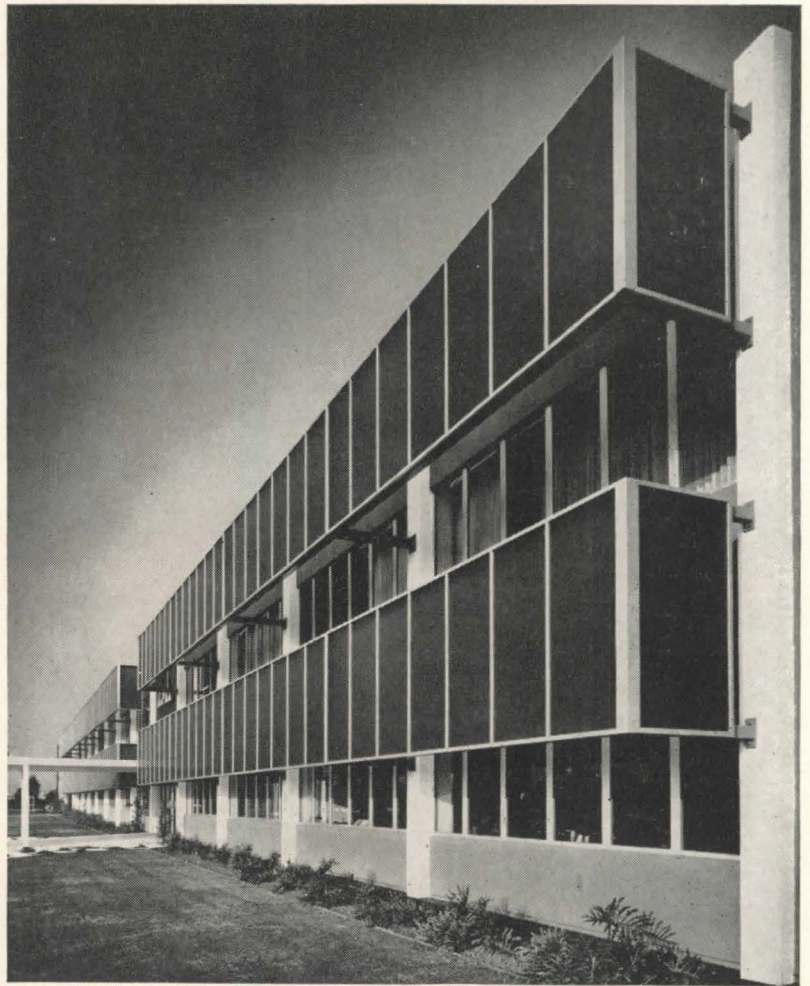
To make the most of daylight, use translucent, light diffusing glass by Mississippi. For utility, beauty and economy, unmatched by any other glazing medium, specify Mississippi Glass. Available in a wide variety of patterns, wired and unwired, at better distributors everywhere.

Write for new
1959 Catalog.
Address Department 7.



A place in the sun is especially desirable when heat absorbing blue-green Coolite Glass is there to help employees see better, feel better, work more comfortably. A brand new concept in "extended screen" glazing technique that combines beauty and utility.

Growers Container Corporation, Fullerton, Calif.
Architect: Falk and Booth, San Francisco, Calif.



G L A S S C O M P A N Y

88 Angelica St. • St. Louis 7, Mo.

R 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



Office Literature

continued from page 256

Curtain Walls by Albro

Describes, illustrates and gives details and specifications for three basic types of custom-fabricated metal curtain walls. 12 pp. *Albro Metal Products Corp., New York 59, N. Y.*

Sargent Door Closers

Includes information on selecting and specifying closers; technical details; and illustrated descriptions of all door closers and accessories. Form 40V-10-58, 40 pp. *Sargent & Company, New Haven 9, Conn.**

Steel Coating Specifications

Four new bulletins offer comprehensive recommendations for specifying coatings for steel surfaces. *Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.**

Air Diffusion Equipment

(A.I.A. 30-J) Designed for fast selection of air diffusion equipment, 58-page Catalog 1-59 color keys sections on four major product groups. Each section includes detailed selection tables and illustrations of models within the product category. *Waterloo Register Co., Inc., P.O. Box 72, Waterloo, Iowa**

G-P Hardboards

(A.I.A. 23-L) Four-page folder presents concise, detailed specification data on twenty specialty hardboard products. *Georgia-Pacific Corp., Hardboard Div., Equitable Bldg., Portland 4, Oregon**

Ceramic Tile

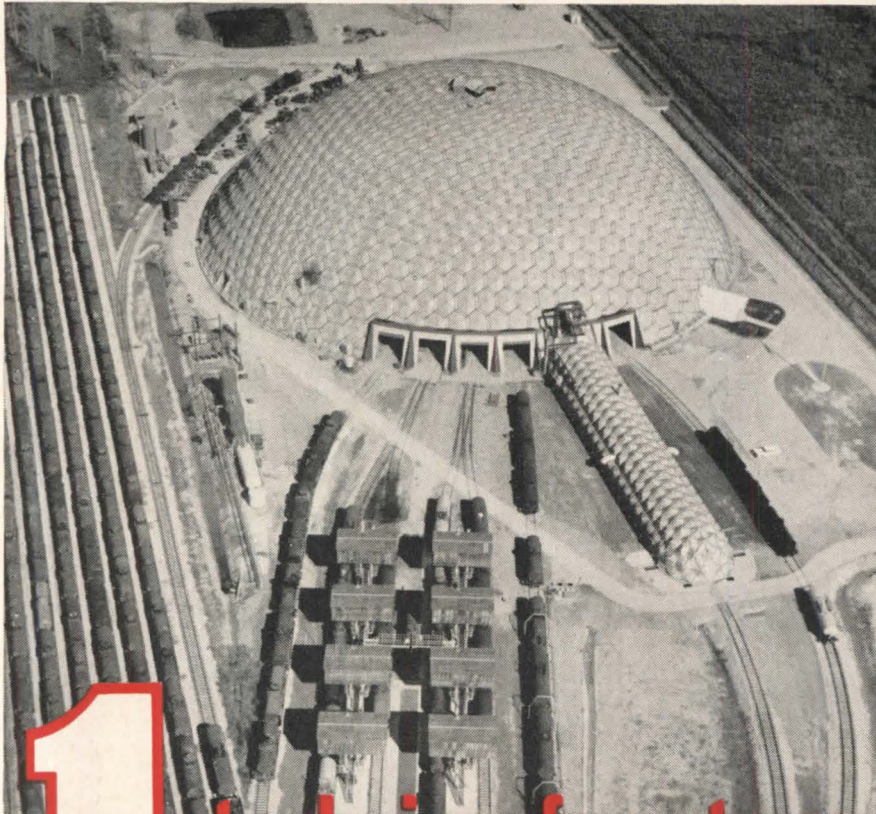
(A.I.A. 23-A) Covers complete line of glazed and unglazed tile for walls, floors and specialized uses, as well as china bathroom accessories. Catalog No. 209, 32 pp. *American-Olean Tile Co., 1000 Cannon Ave., Lansdale, Pa.**

King-Post Nailed Trussed Rafters

Bulletin No. 36 reports in detail on a two-year study of nailed trussed rafters of king-post design, believed to be the most economical roof construction yet developed for buildings of medium width. 24 pp. *Wood Research Laboratory, Virginia Polytechnic Institute, Blacksburg, Va.*

Ware Window Catalogs

(A.I.A. 16-E) New catalogs contain descriptions, sizes, specifications and details on aluminum windows for residential, commercial and institutional use. *Ware Laboratories, Inc., 3700 N.W. 25th St., Miami, Fla.**
**Additional product information in Sweet's Architectural File, 1958*



1st choice for steam in world's largest dome

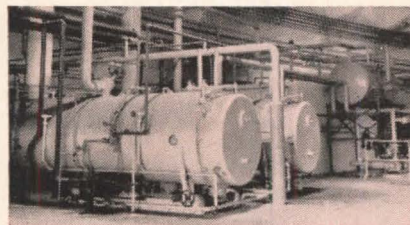
Matched pair of 200 hp Cleaver-Brooks boilers picked to supply steam for cleaning tank cars and for heating, too, at Union Tank Car's great new repair center in Baton Rouge, Louisiana

This fabulous structure houses the most modern of tank car repair facilities. The two Cleaver-Brooks packaged boilers provide low-cost process steam for cleaning tanks — eliminating residual acids, volatile and tenacious liquids or near-liquids.

Their high-capacity performance not only meets the demands for efficiently produced steam for cleaning (guaranteed 80%), but also provides steam for heating.

Because of packaged design, the two 200-hp units (delivering 150 lbs. pressure) were easy to install, occupy minimum floor space. And the boilers are fired by either oil or gas . . . thus, providing operational flexibility regardless of available supplies.

So far, Union Tank Car has



used steam from the Cleaver-Brooks boilers to clean out cars that have transported petroleum products, chemicals, coal tar products, vegetable oils and liquid fertilizers.

The choice of the Cleaver-Brooks boilers was underwritten by their combination of remarkable compactness, automatic operation, wide-range flexibility and around-the-clock reliability.

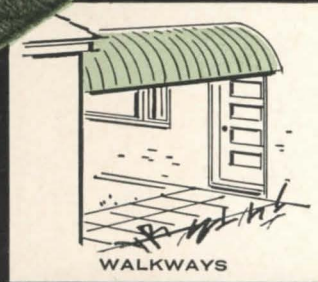
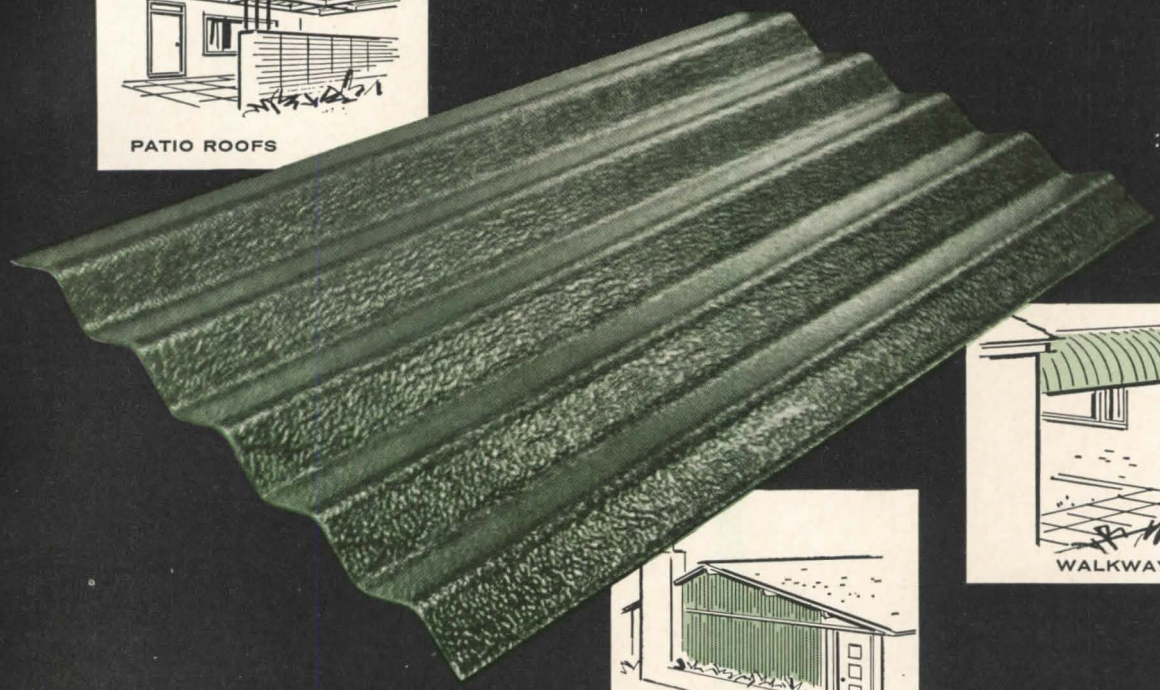
If you'd like to know more about this installation or how Cleaver-Brooks packaged boilers (15 to 600 HP) fit into your expansion or replacement plans, write Dept. E, 362 E. Keefe Ave., Milwaukee 1, Wisconsin.

Cleaver  Brooks®

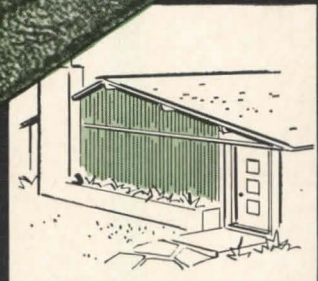
ORIGINATOR AND LARGEST PRODUCER OF PACKAGED BOILERS



PATIO ROOFS



WALKWAYS



TRANSLUCENT WALLS

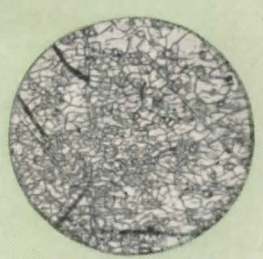
What makes this panel resist weathering ?

Other glass-fiber reinforced panels may look like this when new . . . but how about three years later? The photomicrographs below show the results of a continuous 36-month outdoor exposure test in Florida. The panel made with acrylic-modified PARAPLEX P-444 polyester resin shows virtually no discoloration or fiber

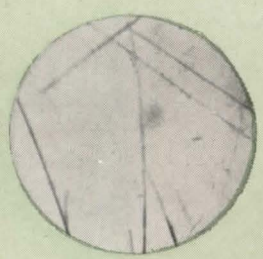
evidence. Note the pronounced degradation in the other panel made with conventional light-stabilized resin.

Wherever you use colorful, attractive reinforced plastic sheets, specify panels made with PARAPLEX P-444. The result will be a truly weather-resistant installation of lasting beauty. Write for names of panel manufacturers.

36-MONTH FLORIDA EXPOSURE TEST



Conventional light-stabilized resin



PARAPLEX P-444

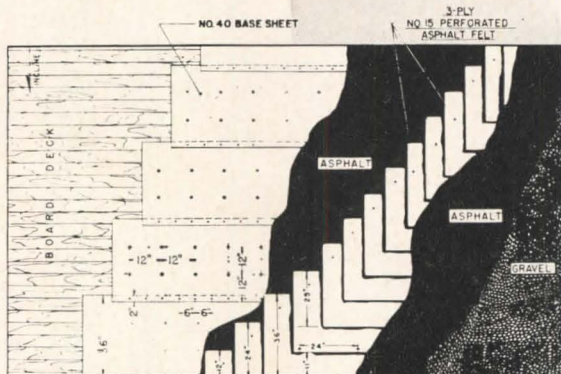


Chemicals for Industry
ROHM & HAAS
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 WASHINGTON SQUARE, PHILADELPHIA 5, PA.

PARAPLEX is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.

PARAPLEX P-444

New! 40# ROOFERS' BASE SHEET OFFERS QUICKER "DRY IN"



Certain-teed's new 40# roofers' base sheet is designed as an alternate to two "dry" sheets of 15# Asphalt Felt required on all previous "nailable" specifications.

Being a coated sheet, it is a roofing material in itself and, as the basis for Certain-teed's Base Sheet Specification Series, offers these advantages:

1. Can be applied to wet deck or exposed to elements without absorbing moisture or wrinkling.
2. Because it remains flat, it makes a better mopping surface for subsequent layers.
3. Has better nail holding power than two 15# felts or one 30# felt.
4. Enables roofers to "dry in" building at earliest possible time by nailing one layer of 40# Base Sheet over complete deck without carrying all plies along at same time.
5. Remaining plies and gravel can be applied at roofer's convenience.

Full information on this new Base Sheet series is available in Certain-teed's just-published, "Built-Up Roof Manual." Obtain your copy from your Certain-teed representative or write direct.



Superior Products through Creative Research

Certain-teed®

CERTAIN-TEED PRODUCTS CORPORATION

Ardmore, Pennsylvania

Plants and offices throughout the United States

The Record Reports

On the Calendar

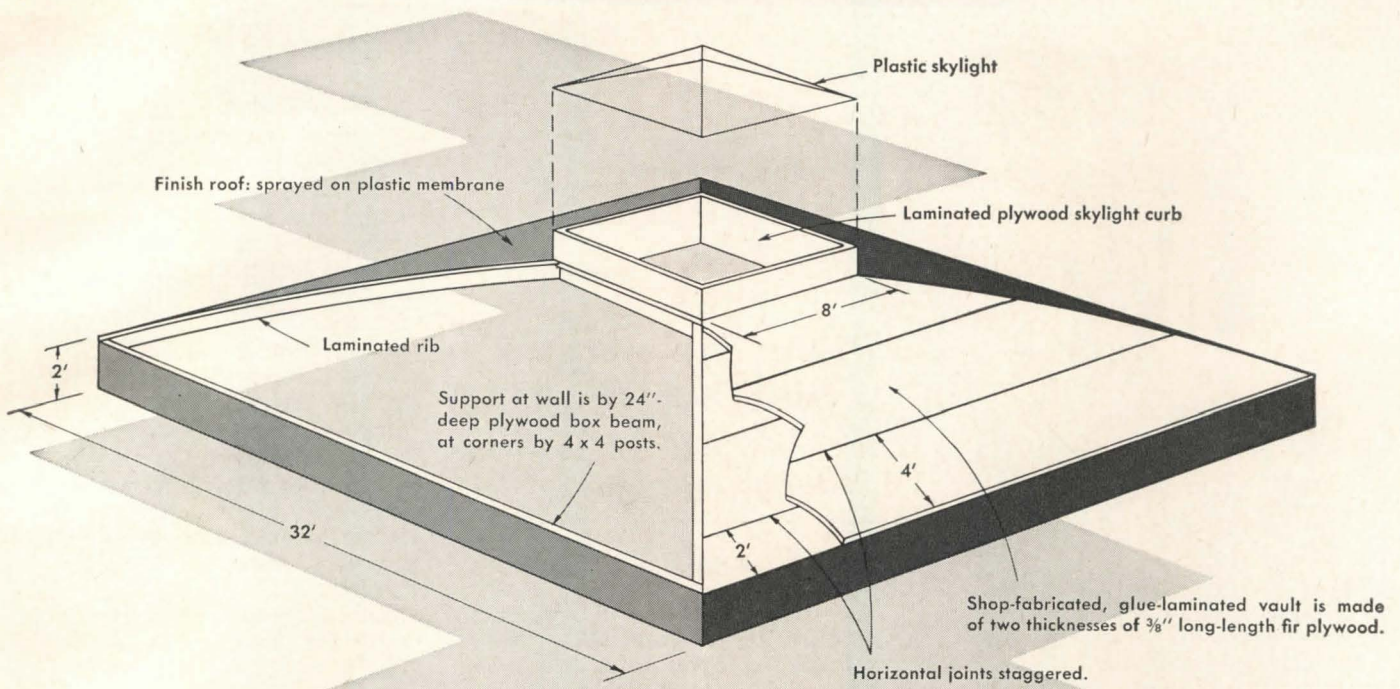
May

- 1-7 Annual Convention, Royal Australian Institute of Architects—Brisbane, Queensland
- 3-6 Annual Meeting, Air Conditioning and Refrigeration Institute—The Homestead, Hot Springs, Va.
- 4-6 Third Annual Convention, Construction Specifications Institute—Palmer House, Chicago
- 4-6 Eighth Annual Convention, National Parking Association—Jung Hotel, New Orleans
- 4-6 "The ACTION Program for the American City," national urban renewal conference cosponsored by ACTION and Newark Economic Development Committee—Newark
- 4-8 National Convention (second of three in 1959), American Society of Civil Engineers—Sheraton-Cleveland Hotel, Cleveland
- 13ff "Recent Sculpture, U.S.A." exhibition; through August 16—Museum of Modern Art, New York
- 14 Industrial Conference, Society of Industrial Realtors—Pittsburgh
- 20-21 Conference on I.E.S. lighting recommendations, conducted by Building Research Institute—Statler-Hilton Hotel, Cleveland
- 25-28 Design Engineering Show and Conference—Convention Hall, Philadelphia
- 27-30 Annual Assembly, Royal Architectural Institute of Canada—Prince Edward Hotel, Windsor, Ont.
- 27ff "The New American Painting" exhibition; through September 8—Museum of Modern Art, New York

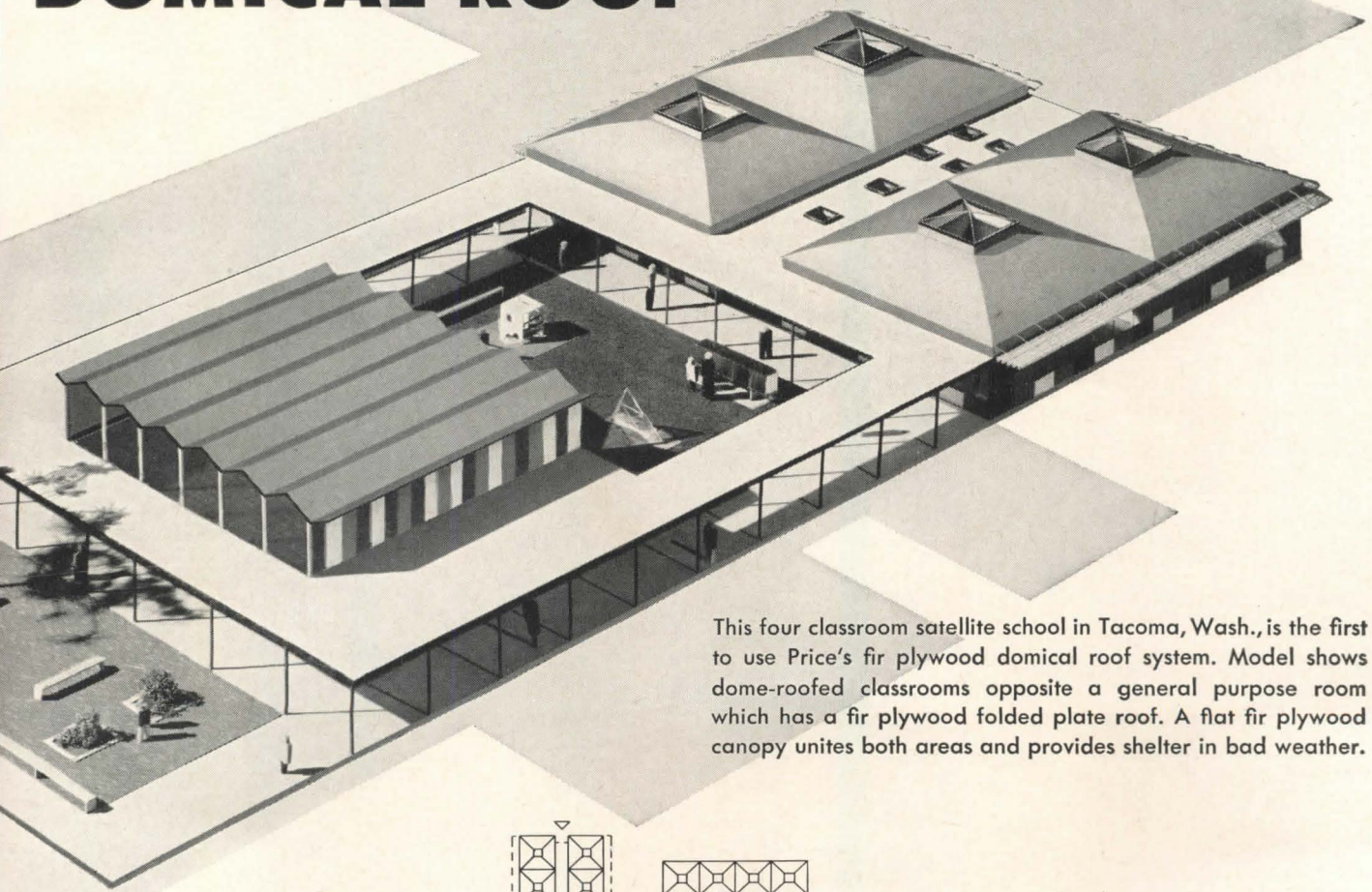
June

- 1-5 Annual Meeting, National Fire Protection Association—Hotel Dennison-Shelburne, Atlantic City
- 1-6 11th International Hospital Congress, organized by International Hospital Federation—Assembly Rooms, Edinburgh, Scotland
- 7-11 Semi-Annual Meeting, American Society of Heating and Air-Conditioning Engineers—Vancouver, B. C.

continued on page 332

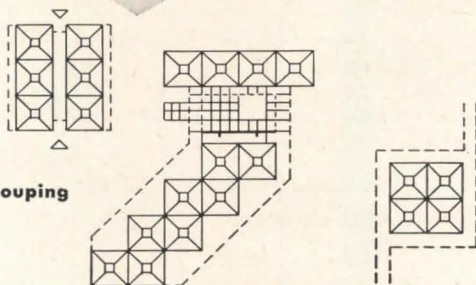


DOMICAL ROOF

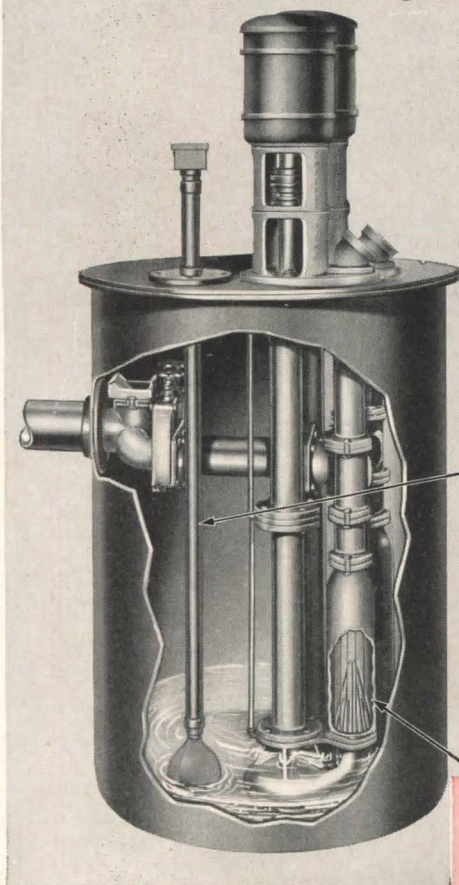


This four classroom satellite school in Tacoma, Wash., is the first to use Price's fir plywood domical roof system. Model shows dome-roofed classrooms opposite a general purpose room which has a fir plywood folded plate roof. A flat fir plywood canopy unites both areas and provides shelter in bad weather.

Units can be placed in any grouping



"from Chicago"



... the NEW FLUSH KLEEN® story

better than ever
FLUSH KLEEN®
clog-proof
sewage pumping

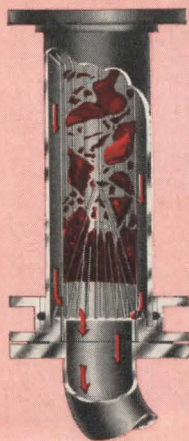
NOW available with . . .

New SEALTRODE*

Sealed Electrode Floatless Pump Controller . . . the *only* pump controller completely free of becoming insulated or coated with grease or corrosive elements found in sewage and drainage water.

New FLO-THRU* Strainer

...the heart of the FLUSH KLEEN® System, is now available with FLUSH KLEEN® Sewage Pumps. Clear liquid flows continuously around and through the strainer without obstruction . . . at maximum solids loading.



High Wet Strength Paper Products and other solids . . . are never a problem.

*Trademark

Putting Ideas to Work



FOOD MACHINERY AND CHEMICAL CORPORATION

Chicago Pump Company

622M DIVERSEY PARKWAY • CHICAGO 14, ILLINOIS

The Record Reports

- 8-12 Maintenance Coatings Short Course (for painting contractors, architects, maintenance engineers)—School of Mines and Metallurgy, University of Missouri, Rolla
- 10-13 British Architects' Conference—Cardiff, Wales
- 11-13 Annual Convention, New Jersey Chapter, A.I.A., and New Jersey Society of Architects; theme, "Planning is Architecture"—Berkeley-Carteret Hotel, Asbury Park, N. J.
- 15-20 International conference on electronic computers and information-processing techniques, sponsored by UNESCO—Paris
- 21-26 Annual Meeting, American Society for Testing Materials—Chalfonte-Haddon Hall, Atlantic City
- 21-27 Ninth International Design Conference in Aspen; theme, "Communication: The Image Speaks"—Aspen, Colo.
- 21-27 Annual Conference, American Library Association—Washington
- 22-24 12th Annual Conference on Aging—University of Michigan, Ann Arbor
- 22-26 Annual Convention, American Institute of Architects—Roosevelt Hotel, New Orleans
- 22-29 Annual Meeting, American Society of Refrigerating Engineers—Lake Placid Club, Lake Placid, N. Y.
- 28ff 60th Annual Meeting, American Society of Landscape Architects; through July 1—Palmer House, Chicago
- 29ff 13th National Meeting, Forest Products Research Society; through July 3—San Francisco

Office Notes

Offices Opened

Robert M. Blunk, A.I.A., has opened his own office at 1299 Bayshore, Burlingame, Calif. He formerly was with Janssen, Daseking & Keller.

A. Jackson Davis, A.I.A., has opened his office in the Medical Arts Bldg., Petersburg, Va.

Thorn & Howe is the name of the new firm formed by Edward S. Thorn, A.I.A., and Carl O. Howe, Jr., A.I.A., at 212 Adams Ave., Memphis 3, Tenn. Both formerly were with Walk C. Jones, Jr.

continued on page 338

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- Minimum maintenance
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Now you can get *genuine* Structural Clay Facing Tile in 9 new accent colors — colors that will add new interest, new beauty to your wall designs. Color researched by Faber Birren, noted authority, these new colors provide interesting accents to other base colors, or they can be used alone.

Regardless of which colors you choose, remember, there is no substitute for *genuine* Structural Clay Facing Tile. It pays for itself over and over again. Even first cost is surprisingly low when you consider it's a wall-and-finish-in-one. Modular sizes lay up fast with a single trade. Colors are permanent. Durable, smooth surfaces clean sparkling new with just soap and water. Maintenance is an absolute minimum.

For clients who want the best. For clients who are economy-minded. You can satisfy both by specifying *genuine* Structural Clay Facing Tile for interiors and Ceramic Glazed Brick for exteriors.

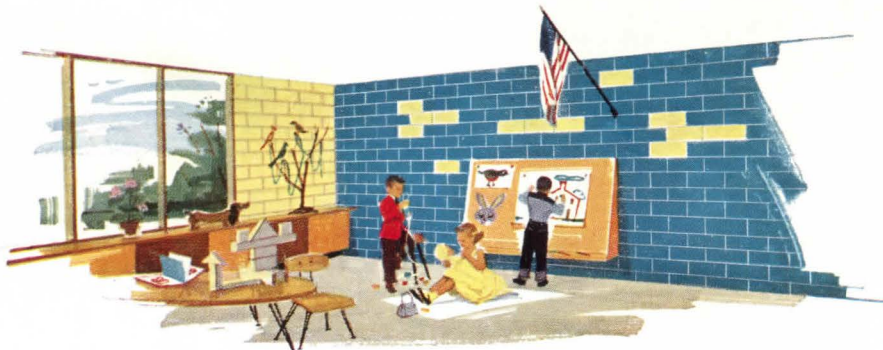


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 STARK CERAMICS, INC., Canton 1, Ohio
 WEST VIRGINIA BRICK CO., Charleston 24, W. Va.



The Record Reports

Firm Changes

Camburas & Theodore, architects and engineers, announces that R. Donald Jaye has been made a junior partner and that the firm is now known as Camburas, Theodore & Jaye. Address: 105 W. Madison St., Chicago.

Fred S. Dubin Associates, Consulting Engineers, announces the appointment of Victor M. Garcia, P.E., as associate in charge of the San Juan, P.R., office (1357 Ponce de Leon Ave., Santurce 34). The firm's other offices are in Hartford, New York, Boston, and St. Louis.

The Office of Ernest J. Kump announces that James D. Fessenden, A.I.A., has been made a partner. The other partners are Mr. Kump, Arthur B. Sweetser, and Stanley M. Smith. Address: 325 Lytton Ave., Palo Alto, Calif.

The firm of Morris Lapidus announces the admission to partnership of Harold M. Leibman, A.I.A., and the changing of the firm's name to Morris Lapidus, Kornblath, Harle and Leibman. The other partners are Mr. Lapidus, Leo Kornblath, and Abbott Harle. Also, Mary Fitz-Townsend has been named director of the firm's new interior design department. Offices: New York, Miami Beach.

Stone, Marraccini and Patterson is the name of the reorganized firm formerly known as Stone, Mulloy, Marraccini & Patterson. The board of directors consists of Douglas Dacre Stone, Silvio P. Marraccini, Norman W. Patterson, George A. Agron, all A.I.A., Dean L. Folker, Robert J. Bettencourt, A.I.A., and Sanford L. Berger. Address: 536 Mission St., San Francisco.

Strickland, Brigham & Eldredge is now the name of the firm formerly known as Brigham & Eldredge. The principals are Charles R. Strickland, Richard C. Brigham, Joseph E. Eldredge, all A.I.A. New address: 209 Newbury St., Boston 16.

Williamson, Loeb sack and Associates, Topeka, Kan., architects, announces the appointment of Robert V. Goble as director of the firm's new public relations department.

New Addresses

John Alexanders, P.E., Consulting Engineer (Structural), 204-A Bellevue Ave., Upper Montclair, N. J.

James Sudler Associates, Architects, 818-17th St., Denver 2.

Wilkins & Ellison, A.I.A., First Ave. and Virginia St., Seattle 1.

more news on page 344

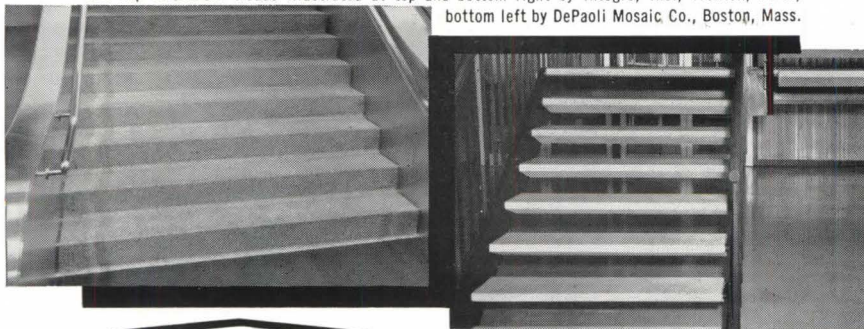


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ALUNDUM Aggregate not only provides a permanently non-slip surface, wet or dry, but also exceptional resistance to wear. And there are no grooves or corrugations to cause tripping.

Non-slip ALUNDUM treads illustrated at top and bottom right by Integro, Inc., Trenton, N. J.; bottom left by DePaoli Mosaic Co., Boston, Mass.

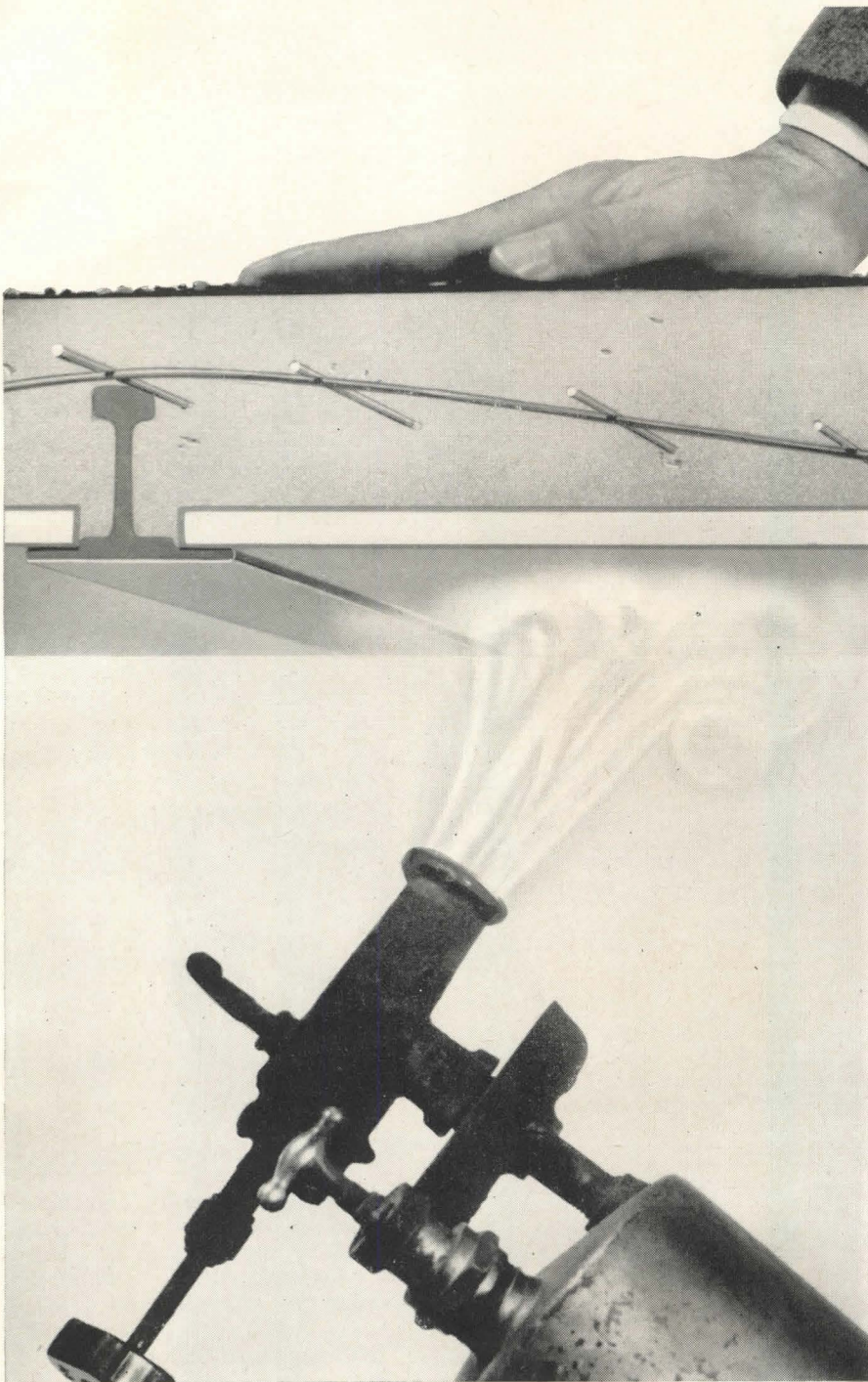


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ALUNDUM and CRYSTOLON Sidewalk Abrasives



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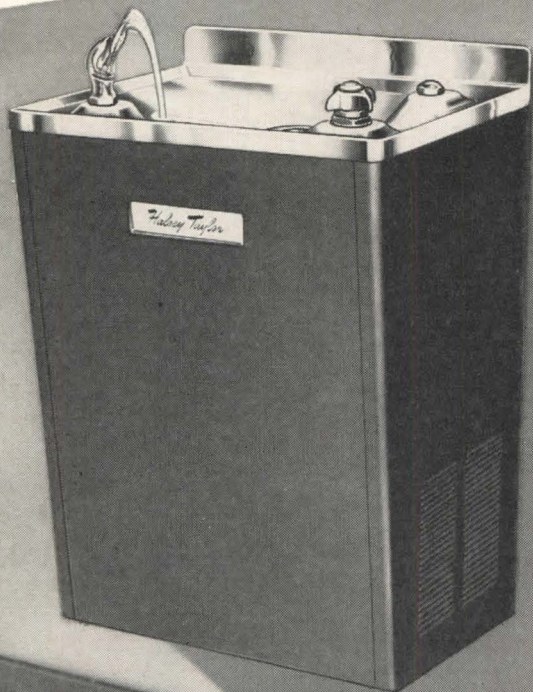
It pays to look into local fire insurance premium rates before selecting a roof deck. For complete information about Gold Bond® "Firefighter" Roof Decks, write Dept. AR-59,

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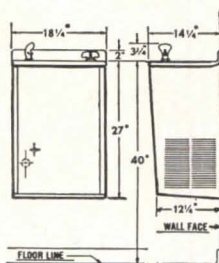


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The Wall-Mount is available in sizes 6, 11 and 16 gallon.

For further information write

The Record Reports

A.G.C. Has New Headquarters Building in Capital

The new National Headquarters Building of The Associated General Contractors of America in Washington was designed by Chatelain, Gauger & Nolan of that city. Mr. Chatelain is the immediate past president of the American Institute of Architects. The general contractor was the Joseph F. Nebel Company, also of Washington.

The four-story building is faced with buff limestone and has black granite trim around the window areas and the entrance. The windows are tinted and have dull aluminum mullions. Porcelainized steel spandrels are aqua colored to match the glass. The building has 19,000 sq ft of office space, including the basement, and is occupied exclusively by the A.G.C. The cost of building and land (exclusive of new furnishings) was about \$762,000. The lobby has rose crystal marble walls and terrazzo floor with the A.G.C. emblem

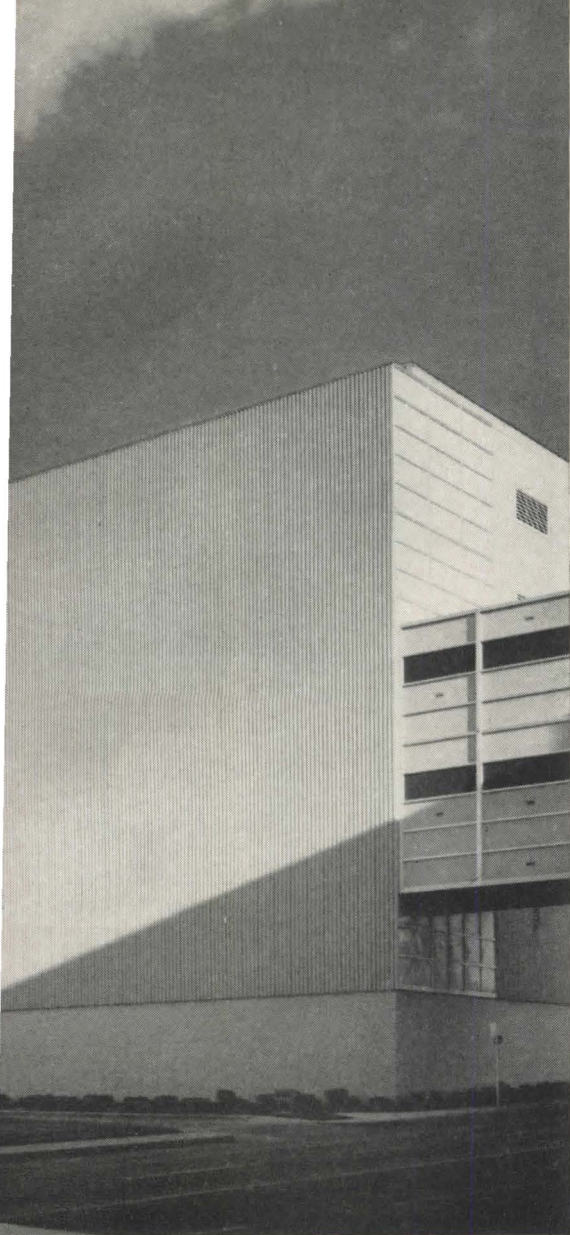


inlaid in ceramic tile. The third-floor walnut-paneled board rooms runs the width of the building and has folding doors at each end which can be closed to form conference rooms.

The A.G.C. was organized in 1918 and has steadily expanded since then, except for a period during the depression. It now includes more than 7000 of the country's construction firms in 125 chapters throughout the United States and Alaska. Its national staff consists of more than 60 people.

When the new building was dedicated some months ago, Vice President Richard M. Nixon officiated. Also, a time capsule containing predictions about the physical facilities of the world of tomorrow by editors of leading construction publications was sealed in the cornerstone. One of the forecasters was Emerson Goble, editor of ARCHITECTURAL RECORD.

more news on page 350



■ General office. Curtis Alzak aluminum low-brightness troffers assure glare-free illumination throughout the area, combining visual well-being with visual charm.



Curtis Lighting
helps
Hallmark Cards
say "Welcome!"

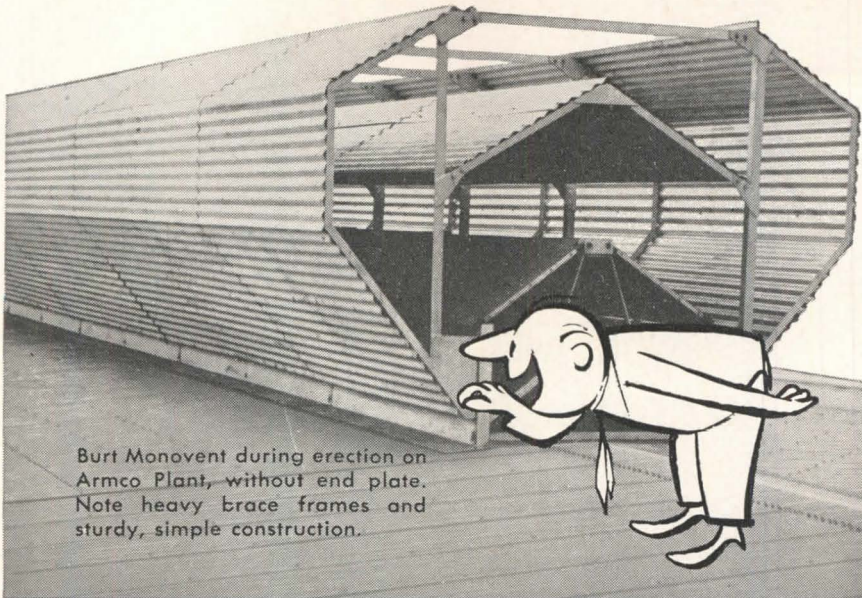
Special illumination effects in greeting card building . . . accent high visual comfort . . . create a feeling of friendliness

It's only natural that a greeting card company would want to capture the spirit of its product in its headquarters building. And that was done at Hallmark Cards, Kansas City, Missouri. Technically, the lighting problem called for a system that would be uniform throughout the structure, yet provide the same glare-free illumination in rooms of various sizes. The assignment clearly prescribed Curtis Visioneering. The desired result was effected when Curtis designed a lighting system combining Curtis Alzak aluminum low-brightness troffers and Curtis Vari-Spot recessed incandescent units. The careful application of Curtis products completed the theme of visual charm and warm greeting, thus accentuating the aesthetic characteristics of the Hallmark Cards building. For assistance on your lighting problems write for the name of the Curtis Visioneer nearest you. Curtis Lighting, Inc., 6135 W. 65th Street, Chicago 38, Illinois. In Canada: 195 Wicksteed Avenue, Leaside, Toronto 17, Ontario.



CURTIS

Visioneers in Planned Lighting



Burt Monovent during erection on Armco Plant, without end plate. Note heavy brace frames and sturdy, simple construction.

140 Feet of Burt Monovent Ventilates Armco Steel Heat Treatment Building

CONTINUOUS RIDGE GRAVITY VENTILATOR OF ARMCO ALUMINIZED STEEL EXHAUSTS HEAT AND FUMES OVER ENTIRE LENGTH

This husky 48" Burt Monovent Continuous Ridge Ventilator is on Armco Steel Corporation's Heat Treatment Building at their Butler, Pa. Wheel Works. Its Armco Aluminized Steel Type 2 exterior provides excellent resistance to atmospheric corrosion, assuring long service life and reduced maintenance. . . . The Monovent is particularly efficient for heavy industry—in steel mills, foundries, forge shops, etc. It converts the entire roof line into a huge exhaust that rapidly removes high heat and fumes from its entire length. Floor operated center-hinge-type dampers control the unit. . . . The Burt Monovent's simple, sturdy construction provides long, trouble-free life. Standard sizes from 4" to 96" handle almost any requirement. See Sweet's for complete data or write Burt—today!

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SIZES FROM 4" to 96" IN ANY LENGTH
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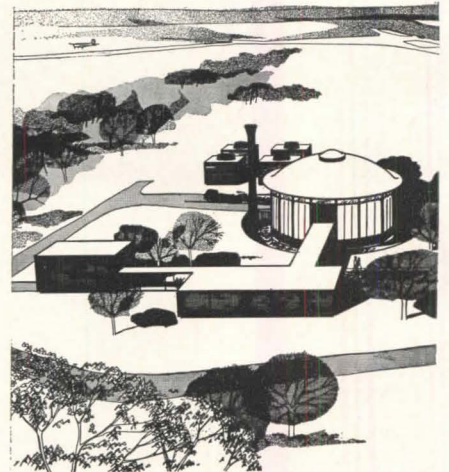
The Record Reports

Texas Nuclear Science Center Being Built in Four Phases

The first phase of the Nuclear Science Center being established by the Texas A. & M. College System is expected to become operational next year. The total cost will be about \$3 million, but the Center has been designed to be built in four logical construction phases, as funds become available. The architects are Caudill, Rowlett & Scott.

The Center, to be located on a six-acre plot three miles from the main campus of the A. & M. College of Texas, will be administered by the Texas Engineering Experiment Station and will be available not only to the college, but also to industry and other institutions.

The round reactor building, scheduled to be built first, will be a gas-tight, three-story structure. It contains the pool, 28 ft deep and 32 ft long, to provide the shielding around two reactor positions for high-power (up to five megawatts) operations. Bulk irradiation experiments will be performed at powers up to 500 kw at intermediate reactor positions in the pool.



Experimental facilities are around the pool on the basement and first floor. Access to the reactor from the first floor is through the pool water. Pneumatic tubes, irradiation tubes, and submersible chambers will be used for positioning samples to be irradiated near the reactor core.

On the first floor are the control rooms for both reactors and facilities for personnel, activation analysis, counting, and a pneumatic shuttle system. The hot cells, hot chemistry laboratory, hot storage, and access to utilities are on the basement floor. A mezzanine above the first floor provides observation and demonstration areas.

more news on page 356

Ridgewood Elementary School, Beaverton, Oregon. Architect: James C. Gardiner, Portland, Oregon. Contractor: Sterner Construction Company, Portland.



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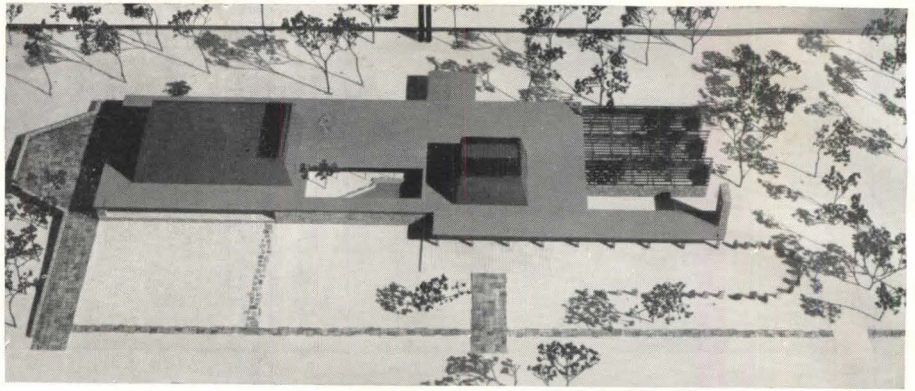
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Prize-Winning Chapel-Crematorium Now Being Built in Denmark

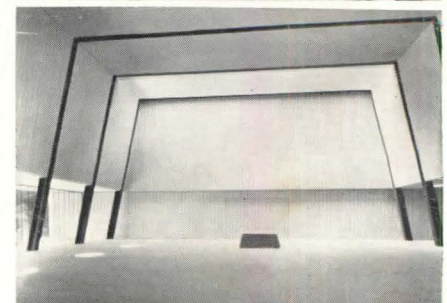
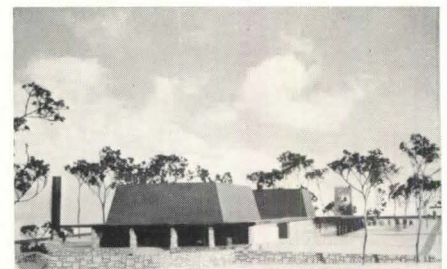
In 1951 the Danish community of Lyngby, a Copenhagen suburb, sponsored two coordinated inter-Scandinavian competitions for a chapel-crematorium and cemetery. First prizes in both were awarded to two young Danish architects, the partners Henrik Iversen and Harald Plum (second prizes for the chapel and cemetery, respectively, went to Alvar Aalto and the team of Edith and Ole Norgaard; Arne Jacobsen won both third prizes). The 64 entries were judged



by several architects, a landscape architect, and others.

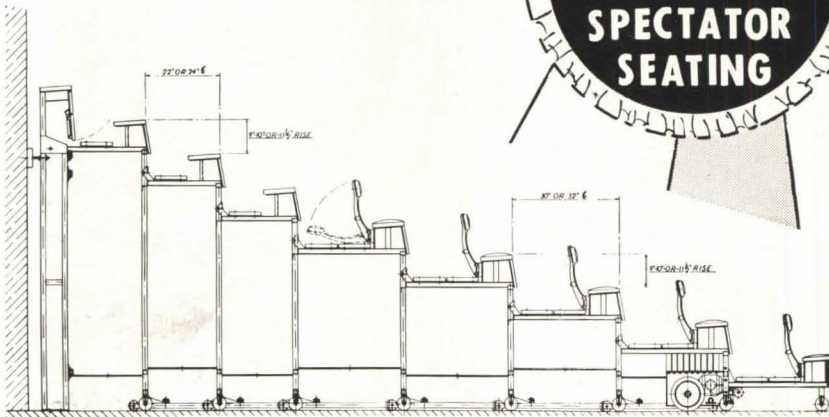
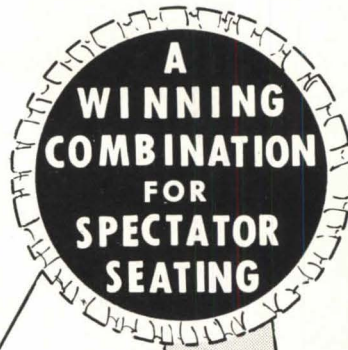
Iversen and Plum's chapel-crematorium building, shown in model form, is now under construction; the cemetery has been finished. In the view above, the large chapel is at left. The central section, opening onto a courtyard with a pool, contains offices for the minister, director, and other staff members, flower and urn rooms, and reception rooms. At right, nearer foreground, is a smaller chapel, and behind it a still smaller reception chapel, with a main entrance between them. The circulation is so arranged that relatives and friends may enter any of the chapels without meeting other groups, as may the minister. Also, the central administrative section is a self-contained unit with its own staff entrance. The crematorium and laboratories are in the basement.

One cut below shows the building in a ground-level view, with a bell tower at the other end. The other is the interior of the large chapel without its pews and planned murals. Gray and green stone and slate are used in the exteriors, and the chapels are paneled in pine.



more news on page 364

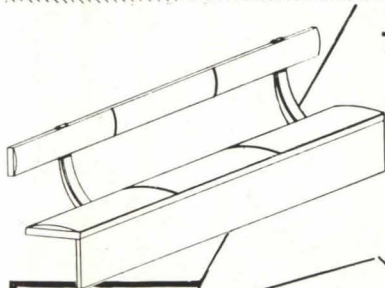
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Westinghouse electrical system
assures top efficiency for
Miami's modern new bank building



YOU CAN BE SURE...IF IT'S **Westinghouse**

Cover photo: Newest face on the downtown Miami skyline is the 18-story First National Bank Building—Florida's largest and Miami's oldest bank. The office tower, served by five Westinghouse high-rise elevators, offers more than 10,000 square feet of rentable area per floor.

Over-all view of the new bank lobby. Contrasts in lighting levels and in functional colors are used here to delineate areas. Traffic flow is well defined through use of a modern metal sculptured screen.

J-94122-2



Herbert H. Johnson, Weed-Johnson Assoc., Architects and Engineers, points out advantages of a bus duct vertical-rise electrical system, the electrical backbone of this new bank and office building, to Edward Clarke, Project Manager for Rooney-Turner, General Contractors; Charles W. Butsch, Westinghouse Construction Specialist, and Ralph W. Crum, President of The First National Bank of Miami.



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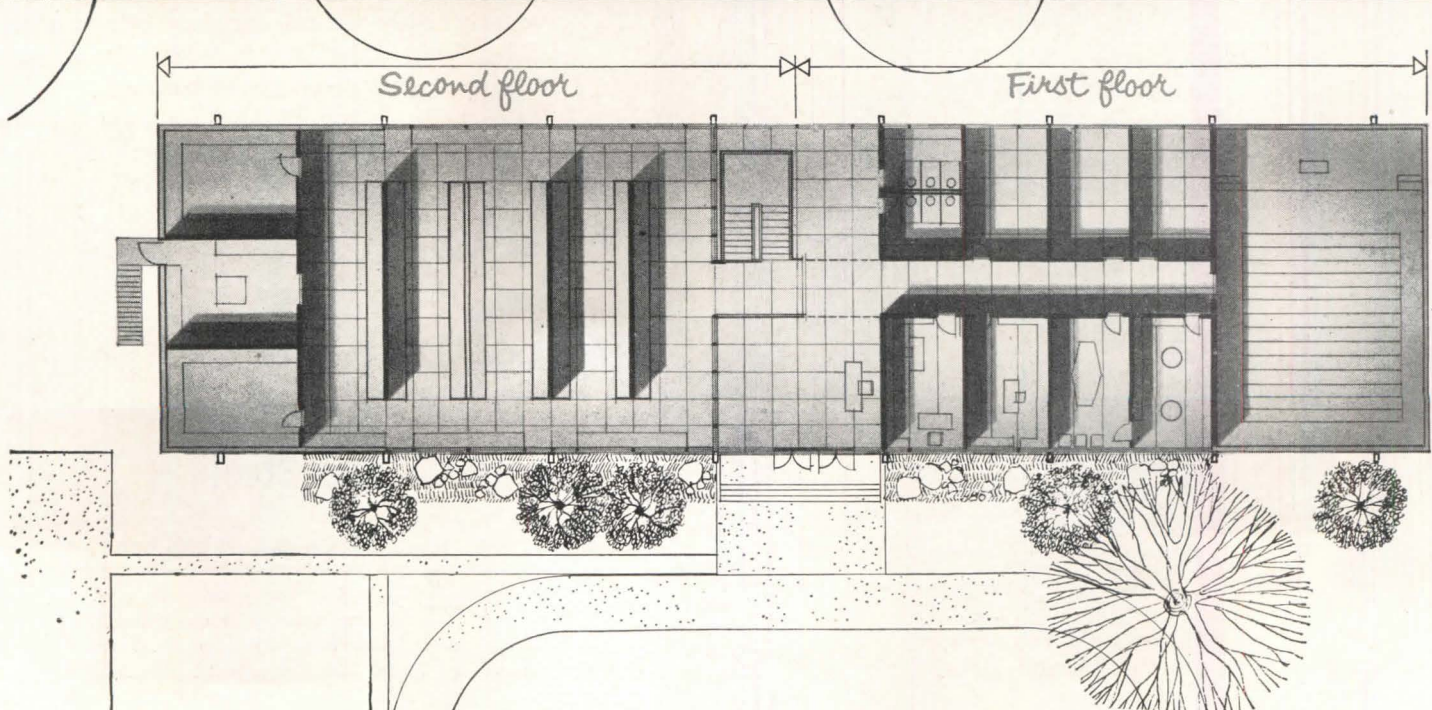
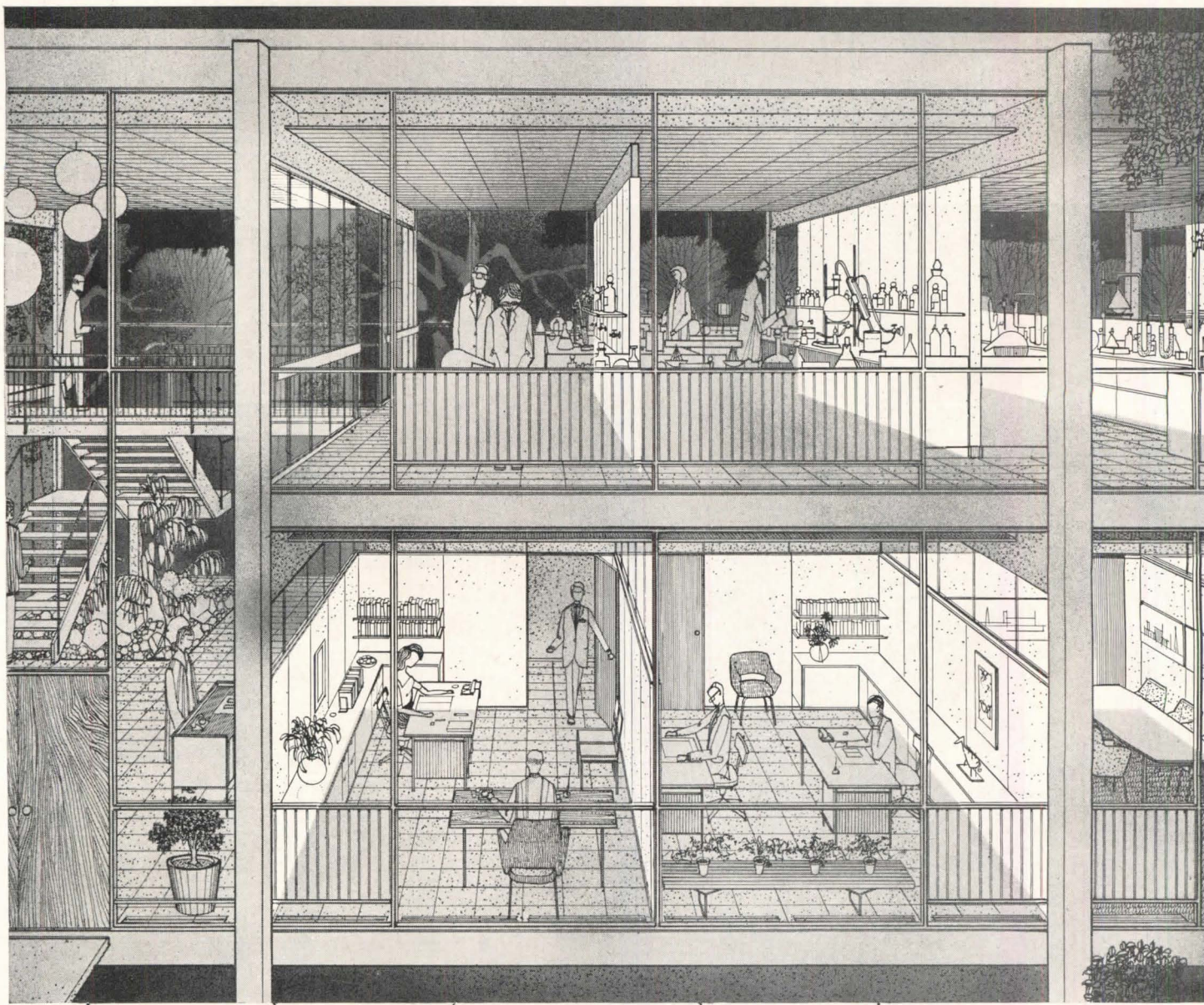
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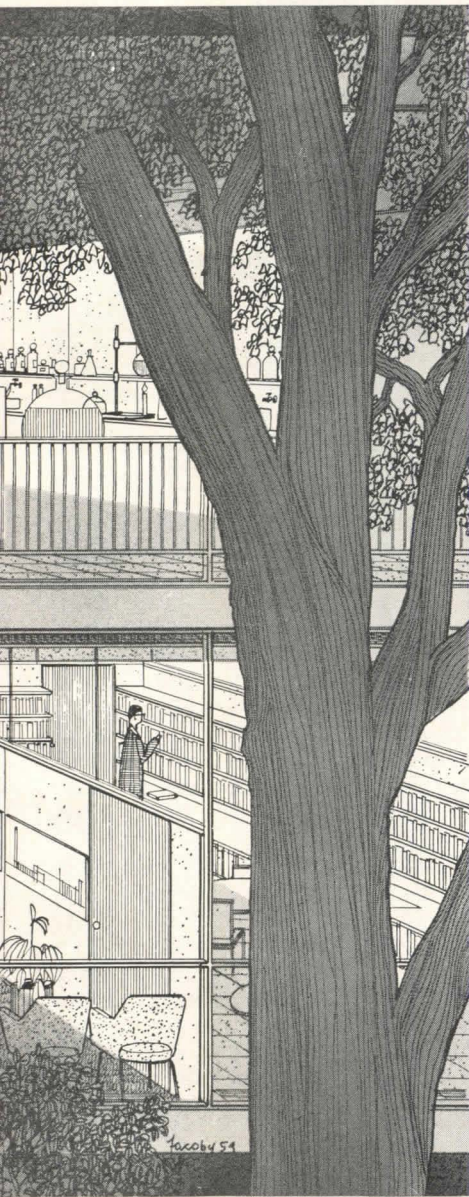
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Good-looking walls with a future

This "showplace" is designed with Johns-Manville Movable Walls, for beauty and ease of making changes later on

An architectural designer was given this proposal:

A large company plans a research and development center in the suburbs. The building should be highly functional, yet striking. It must satisfy professional scientists and meet their needs for specialized equipment and services. It should contain attractive offices for executives and provide for future rearrangement and expansion. At the same time it should be a showplace for visitors and travelers along a nearby highway.

How well J-M Movable Walls are used to meet all these requirements is shown in the illustrations. Laboratory walls are the thickness necessary to enclose all required service lines. Other walls of minimum thickness with glass fillers separate administrative offices. All can be used together, are erected easily and can be readily relocated as needs change.

J-M Movable Walls come in modular components. They are functional, attractive, and can be decorated in any way. They are supplied and installed complete with all items such as doors, hardware, trim and glass by J-M trained construction crews.

For illustrated brochure, "Johns-Manville Asbestos Movable Walls," write to: Johns-Manville, Box 158, New York 17, N.Y. In Canada, Port Credit, Ontario.

First floor, partitions are J-M Class A Movable Walls with glass top filler. These are pre-fabricated panels with a non-combustible core, asbestos faced on both sides. Panels are $1\frac{3}{4}$ " thick—can be painted or veneered in any number of ways to meet architectural requirements.

Second floor, laboratory sections are divided by J-M Imperial Movable Walls—asbestos panels attached to slotted steel studs. These walls can accommodate plumbing and service lines—can be varied from $3\frac{7}{8}$ ", up to any necessary thickness.

J-M Sanacoustic® units make up the acoustical ceilings and J-M Terraflex® Vinyl Tile covers the floors.

JOHNS-MANVILLE



Round Supermarket Planned For Convenience and Efficiency

This proposed round supermarket was designed by Daniel, Mann, Johnson & Mendenhall, Los Angeles architects and engineers. The "Store of the Future," as it is called, is intended to make shopping more convenient and pleasant and management more efficient.

The store has no front or back, and parking is provided completely around it. Also, there are multiple entrances and three check-out areas, each with its own pickup station.



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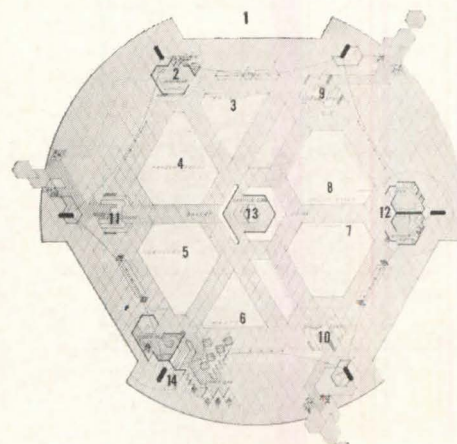
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An additional device is color coding, beginning at parking areas and entrances and continuing through the interior, to enable customers to check out at the stands nearest their own cars.

The round plan is said to make possible new fixture layouts and more clearly defined departments with short shelf sections instead of the usual long ones. Receiving, storage, and work areas are in a partial basement, connected to the selling floor by the central-core elevator. Merchandise is brought to the basement by a tunnel.

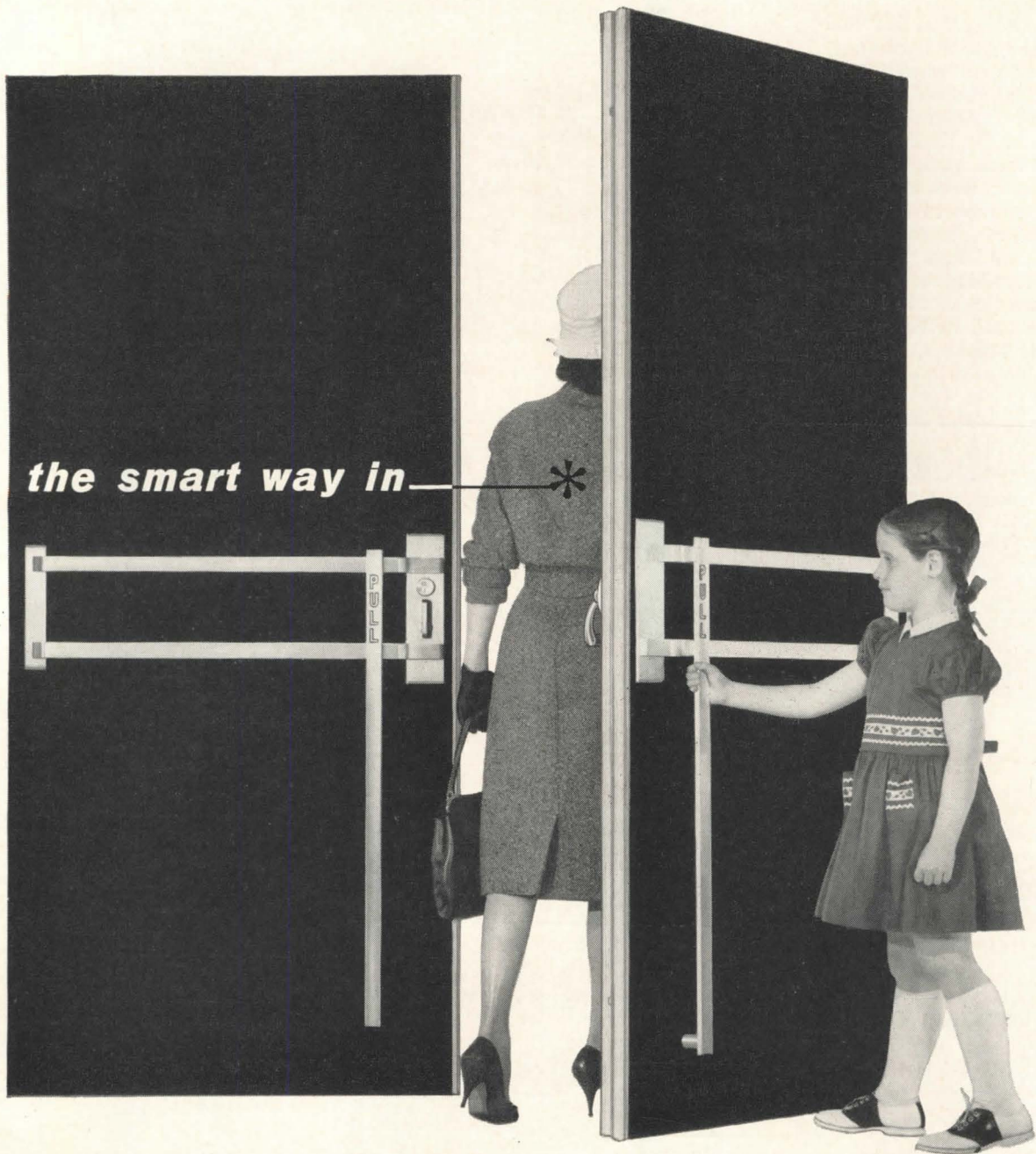
Entrances are kept open, but "curtains" of low-velocity air shut out weather (conventional doors are, of course, also installed). Closed-circuit television is planned for use both by the manager in supervising activities and by parents in keeping an eye on their children in the play area. Near the play area is a snack bar; two other corners contain public rest rooms and the manager's office (see floor plan).

Colored translucent plastic bubbles in the roof help light the store in the daytime and glow from inside when the store is seen at night.



- 1. Customer pickup; 2. Manager; 3. Produce; 4. Frozen foods; 5 and 7. Grocery; 6. Meats; 8. Delicatessen; 9, 10, 11. Check stands; 12. Toilets; 13. Service core; 14. Play area and snack bar

more news on page 370



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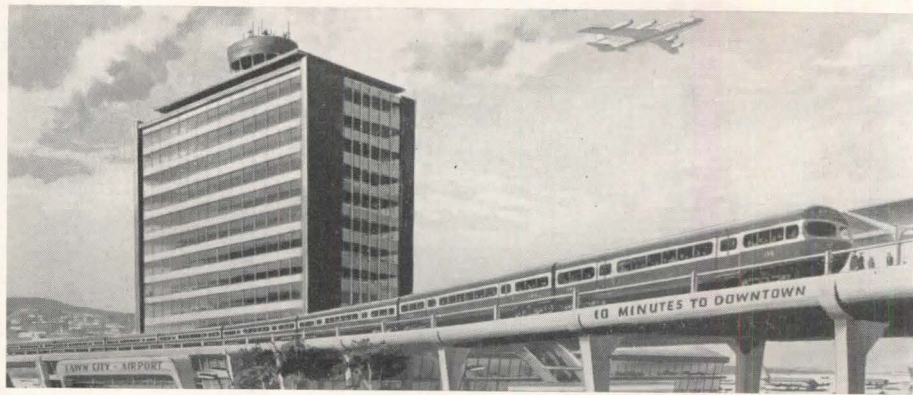
illustrated above: all extruded aluminum modern design with extended and engraved grips. Catalog number E282-ENG. on active door; E282DT-ENG. on inactive door.



Fast Ground Travel Planned For Future Air Travelers

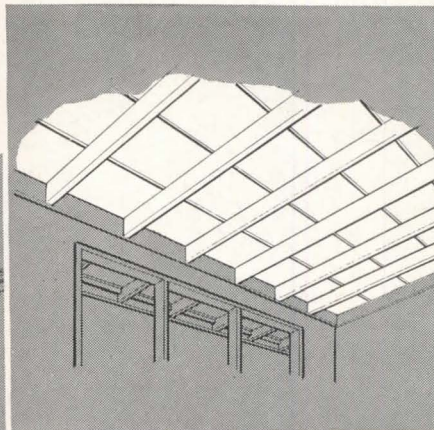
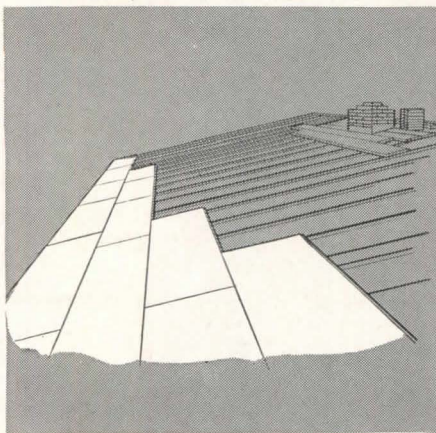
As jet planes make air travel faster and faster, ground travel to and from airports is getting slower and slower. General Electric transportation engineers have come up with a proposal for a coordinated metropolitan transportation system to beat traffic congestion, parking problems, and bad weather.

Rapid transit trains, traveling at up to 100 mph, would be used. Passengers would drive or take buses to transit stations, then would be



Above...

the basis for wood, asphalt or asbestos shingles, built-up roofing or 4" of light concrete, slate, ceramic or asbestos tiles



Beneath...

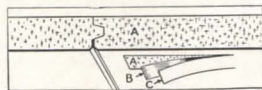
an aluminum vapor barrier—backed with decorative white kraft paper—suitable for a finished ceiling

Homasote 1 3/8" and 1 1/8" Roof Decking

This is news—a new type of vapor barrier—in a new place!

On the underside of the roof decking—the side exposed to the interior of the house—a thin sheet of aluminum lies next to the Homasote. The aluminum is then covered with a white kraft paper which makes a fine ceiling finish (whether left white or painted).

This puts the vapor barrier where it belongs. In terms of vapor protection, it is equivalent to a 1/2" increase in the thickness of the roof decking. The vapor barrier extends up into the tongue-and-groove construction—and this combination of vapor barrier with t-and-g construction precludes all chance of escape from within or leakage



A-Homasote; B-Aluminum vapor barrier; C-white kraft paper

from above. Here is full protection even in cold climates.

Homasote Roof Decking—1 3/8" or 1 1/8"—comes in 2' x 8' panels, tongued-and-grooved on the long edges. The 1 3/8" can be applied 32" o.c.; the 1 1/8" 48" o.c. Thus applied,

independent laboratory tests show that these panels will support a live load well in excess of the usual requirements. They can be used on flat, pitched or mono-slope roofs.

As with all Homasote Products, these panels are light in weight, easy to handle, weatherproof, insulating, sound-deadening and economical. You have major savings in both material and the labor operations otherwise required.

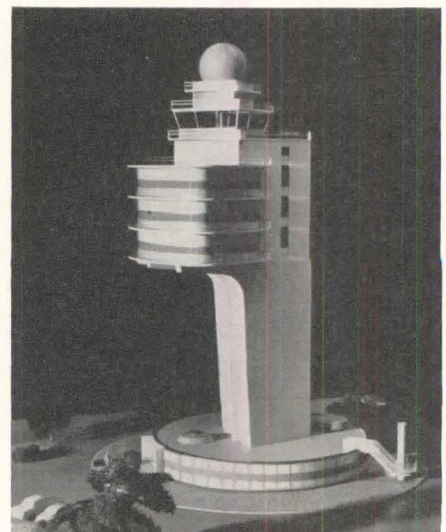
Ask your Homasote Representative—or write us—for samples and full information.

whisked to the airport on automatic trains with automatic fare collection. Such transit, integrated with an entire metropolitan area, would include stations convenient to suburbs. The engineers say rapid transit trains on exclusive rights-of-way could carry 40,000 passengers per hour per lane (buses carry 3000, cars, 2000).

New Control Tower Being Built At Newark Airport

The fourth control tower for 30-year-old Newark Airport, near New York, is now under construction. It was designed and is being built by the Port of New York Authority. The \$1,750,000 concrete structure will be staffed by 75 Civil Aeronautics Administration controllers and other specialists.

The tower is 150 ft high (see model photo). A shaft enclosing an elevator, stairs, and utilities rises 117 ft. At the 65-ft level it supports three cantilevered office and equipment floors, each 65 ft wide. Above them are the control cab, 20 by 20 ft, and electronic and radio equipment rooms. On top of the tower is a circular radome, 17 ft in diam. The tower will replace the present 65-ft one built during World War II.



more news on page 376



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224 Merton St., Toronto 12, Ontario

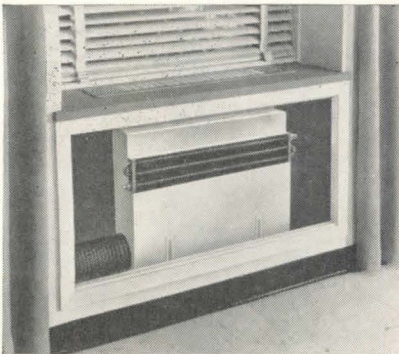
Send me the literature checked below:

- Roof Decking
- Exterior Finishes
- Dry-Wall
- One-Man Panels
- "48" Roofing
- E's Flooring Panels
- Homasote (72-pg.) Handbook

Name

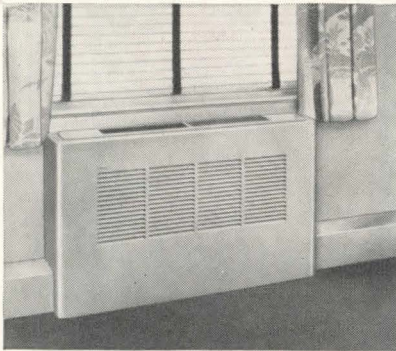
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City..... Zone..... State..... E-6



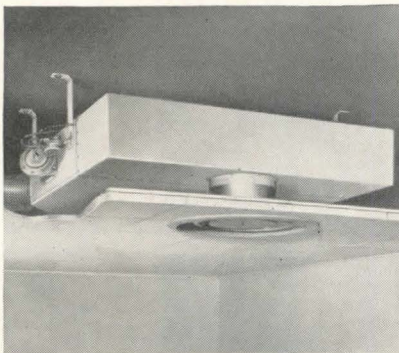
Typical Model 37E installations

Furred-in under window. Permits custom matching of building architecture. Recirculation grille with frame to facilitate plastering-in.



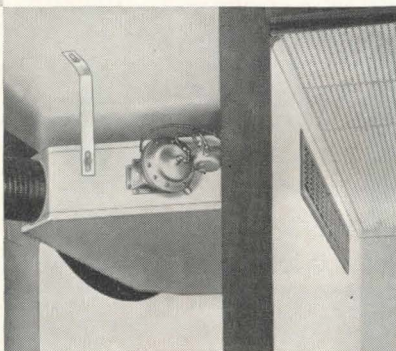
Free-standing under window. Cabinet-enclosed unit can be painted to match room décor. Ideal as radiator replacement.

Weathermasters for all-air systems!

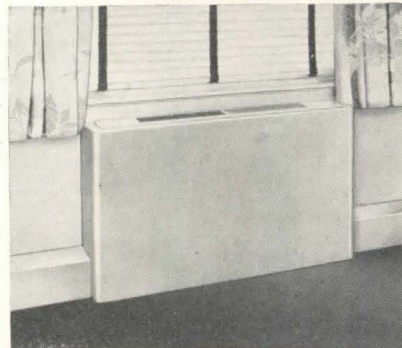


Typical Model 37D installations

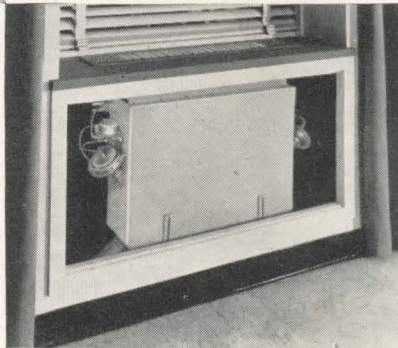
Ceiling-mounted with diffuser. This popular air distribution arrangement is ideal for interior zone applications.



Ceiling-mounted, wall discharge. Another popular arrangement, in which unit is often located above hung ceiling of corridor.



Free-standing under window. Steel cabinet includes easily removed outlet grille for routine servicing.



Furred-in under window. Accessory discharge grilles (fixed or adjustable), access panel and frame speed installation.

Financing of College and University Buildings, 1951-1955, College and University Facilities Survey.)

This initial report marks the beginning of the first nationwide building-by-building survey of higher education facilities ever to be made in the country. It will supply a need for comprehensive figures on the full extent of building needs which never had existed.

Building Need: \$18 Billion

It has been estimated that the na-

tion needs to invest \$18 billion in higher education construction between now and 1970. This is required to clean up the backlog, to provide for increased enrollments and for new programs. The publication states that about one fourth of the three million students in colleges attend classes or live in temporary structures that are fire or health hazards.

Those working on the survey hope that the data obtained will be brought up to date at intervals. This

would provide a permanent and continuous inventory of facilities throughout the country.

Part One, covering the first five years of this decade, shows that higher education institutions in the United States and the territories invested nearly \$1.8 billion in construction of 3272 physical facilities exclusive of campus improvement and equipment during the period. The \$544 million capital expenditures reported for 1955 more than doubled the \$251 million rate of 1951.

Of the total outlay, \$812 million was for 1189 instructional buildings, \$486 million for 1031 residential structures, \$260 million for 582 general facilities, \$125 million for 277 auxiliary units, and \$99 million for 193 research buildings.

These facts are set out on financing:

Funds borrowed for capital expenditures in 1955 were almost three and one half times those of 1951. Public institutions received some 66 per cent of their capital funds for residential construction from the issuance of revenue bonds; private institutions about 33 per cent.

Authors of Part One were W. Robert Bokelman, chief, Business Administration Section of the division, and John B. Rork, specialist in college facilities.

Doubling Enrollment Seen

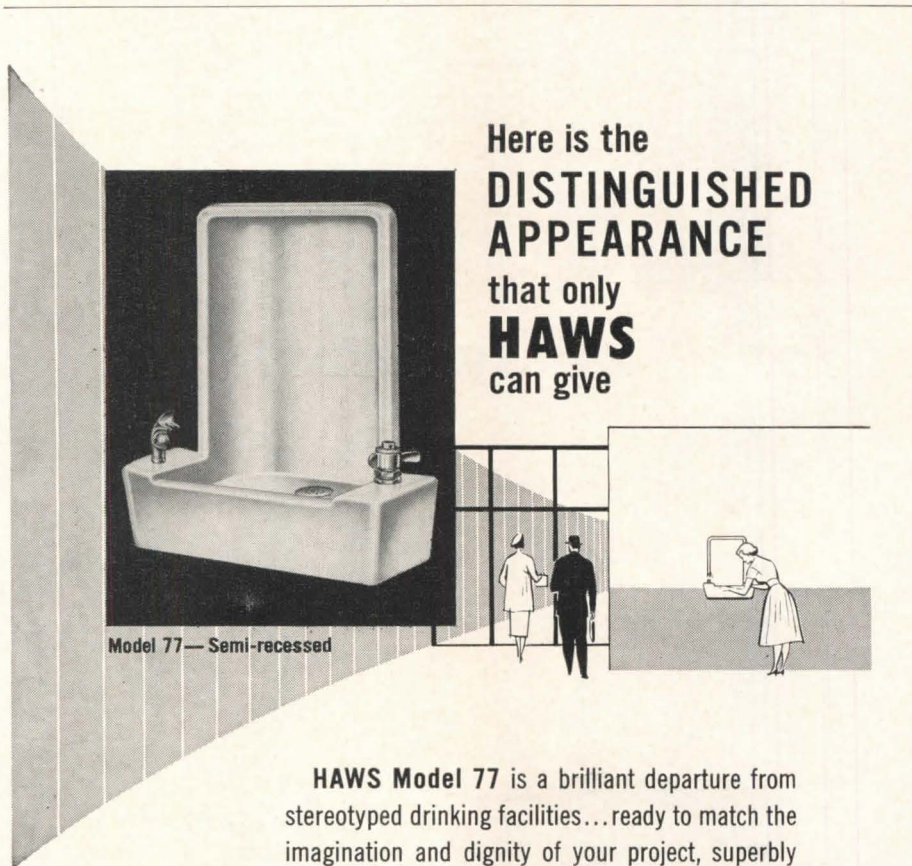
The introduction to this first volume notes that the need for sharing data on college building programs has been heightened by the necessity of facing squarely the question of whether colleges and universities will be able to house the expanded and diversified educational program required to accommodate an expanding enrollment. This student load is expected to double by 1970.

States this report: "As a result of rapid technological advances and economic and social changes, far greater numbers of youths are now seeking higher education as a desired goal than at any other time in the nation's history. The challenge of providing educational opportunities proportionate to the demand calls for concerted, coordinated, and imaginative planning."

It is to secure as much information as possible on building experiences and to disseminate this data as widely as possible among those who can use it to advantage that the project has been undertaken by HEW.

Part Two, expected in mid-summer, will be concerned with the collection and analysis of data on important factors bearing on planning

continued on page 382



Model 77—Semi-recessed

HAWS Model 77 is a brilliant departure from stereotyped drinking facilities...ready to match the imagination and dignity of your project, superbly styled, precision-engineered. Model 77 is a semi-recessed wall fountain—in durable vitreous china, available in striking colors, with automatic volume and pressure controls. And the same design is available in stainless steel (Model 73); or in remarkably tough, lightweight fiberglass (Model 69, in choice of colors at no extra cost).

For nearly 50 years, HAWS has provided finer drinking facilities to match forward-looking architectural design. Here's a design in vitreous china, stainless steel and fiberglass worthy of your attention.

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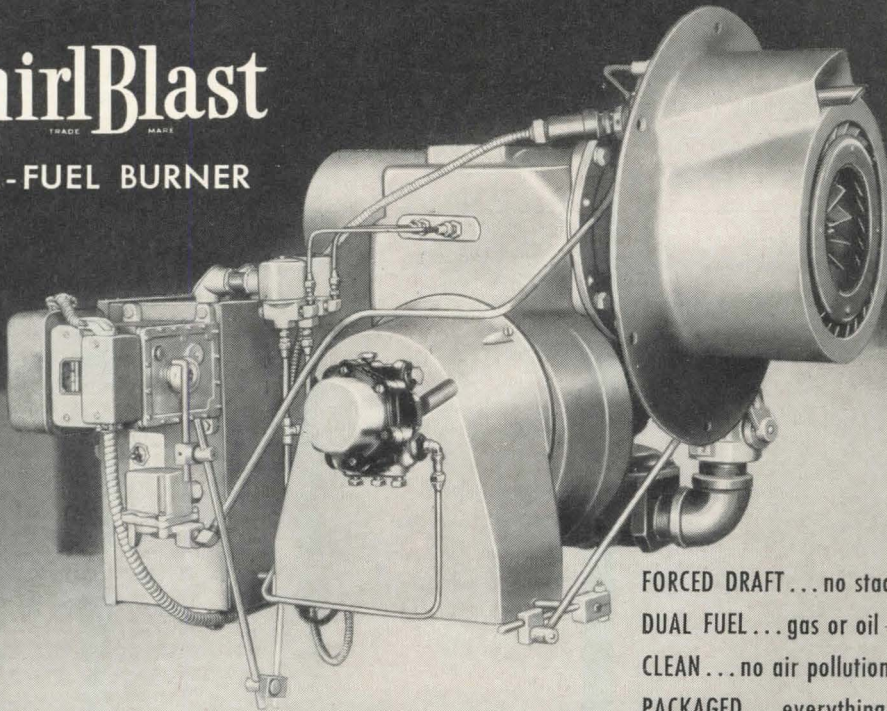
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WhirlBlast
TRADE MARK

DUAL-FUEL BURNER



FORCED DRAFT... no stack draft required
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PACKAGED... everything built-in, ready to go

New high in combustion efficiency and fuel economy

with this revolutionary burner for medium size boilers

This compact Iron Fireman WhirlBlast unit combines many of the advantages of big burners, yet it requires little more supervision than the oil or gas burner in your home.

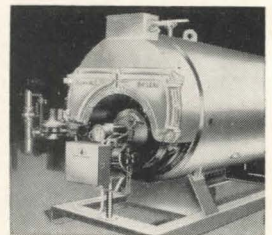
No stack — no draft problems. Air supply is precisely controlled under all conditions. The WhirlBlast burner eliminates the need for a costly and unsightly smokestack, and also eliminates the noise, bulk and high power requirements of induced draft firing. This burner starts clean and burns clean, with no soot or smoke problems.

Stadiest flame ever developed. In the new WhirlBlast firing head Iron Fireman engineers have solved the persistent problem of flame pulsation. A clean, steady, efficient flame is achieved without firebox vents or any other makeshift device.

Fires gas or light oil; changes fuels instantly. Quick fuel changeover can be accomplished with the flick of a switch, or automatically with special controls. Models available for firing either gas or oil exclusively.

A true "package". When you bolt the WhirlBlast unit to the boiler front you install a complete forced draft firing system, combining air and fuel systems and integral electronic combustion controls. It leaves the factory as an operating unit, factory wired and tested. Does not require refractory combustion chamber, nor any provision for secondary air supply.

For all types of boilers. The WhirlBlast burner can be purchased in two ways: as a boiler-burner unit (shown at right), or as a burner alone for use in your present boiler.



Complete boiler-burner unit, ready to operate. Boiler and burner compose a single unit, engineered, assembled, wired and tested at the factory, carrying factory responsibility. Requires little more than service connections when delivered to the job. Sizes from 15 to 100 boiler horsepower.

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programs and on projections of structures planned for construction between 1956 and 1970. It will include anticipated costs, number and functional uses of buildings, and proposed methods of financing construction.

Part Three will establish the permanent inventory, building by building. It will cover functional use, plant fund investment, year of construction, estimated present value of the facility, present condition, type of construction, and size and student

capacity of various functional areas within the buildings. Forms for getting the data for this one were sent to the colleges and universities in the spring of 1958.

Part Four will seek data on physical facilities needed by institutions of higher learning and the extent to which the needs will be filled by current planning programs. It also will report the character and extent of the remaining unfilled needs of these institutions.

Part Five will concern itself with

data on establishment of new colleges and universities and will cover anticipated costs of construction, number and functional uses of buildings planned, probable completion date, proposed size and student capacity, and anticipated sources of funds to pay for construction.

HEW is convinced that the need for continuous appraisal of requirements in the field of college facilities is demonstrated by trends shown in the current study. It says the average annual rate at which buildings are now being constructed falls far short of the estimated requirement of \$1.5 billion for each year until 1970.

Macy Succeeds McConihe as Commissioner of PBS

Ralph G. Macy, Norwalk, Conn., engineer, has been named Commissioner of General Services Administration's Public Buildings Service, succeeding F. Moran McConihe. Mr. McConihe resigned April 1.

In making this announcement, Franklin Floete, Administrator of General Services, said Mr. Macy would bring to his new post a long and distinguished career in the engineering profession. He comes to Washington from his position as consulting engineer and a director of the Norwalk Powdered Metals Company. From 1955 to 1957 he served as vice president of the Terry Steel Construction Company in New York City. Prior to that time he was Public Works Commissioner for the State of Connecticut.

As the new PBS Commissioner, Mr. Macy will be responsible for the efficient operation of about 6000 government-owned and government-leased buildings, the repair of almost 5000 additional facilities, and the supervision of a construction program embracing approximately 100 building projects at present.

One of Mr. Macy's former positions (1945 to 1947) was that of the Plants Branch of the Surplus Property Administration in Washington, D. C. At that time, he was in charge of the disposal of some 1700 industrial plants and properties for chemical aviation gasoline, ordnance, rubber, magnesium, and for pipeline and transportation facilities.

Fogarty Attacks Proposed Cuts In HEW Construction Funds

Closed-door testimony on the Health, Education and Welfare money requests for construction programs was released last month showing strong subcommittee support for expenditures larger than those requested by the Administration. Rep.

continued on page 388

REVOLUTIONARY NEW ADHESIVE MORTAR REDUCES MATERIAL AND LABOR COSTS ...CUTS WALL WEIGHT UP TO 60%!

Tile-Mate* is a self-curing, thin-bed mortar adhesive which permits installation of ceramic tile or glass mosaics directly on dry back-up materials. Applied over dry wall board, foam styrene, concrete block or any masonry surface, it eliminates expensive metal lath, provides greater shear and bonding strength than other mortars, in a bed only 3/32" to 1/8" thick. Tile-Mate mixes with water at the job site. Tile is set and grouted dry. Non-combustible, non-toxic, frost-proof. Use indoors or outdoors ... for swimming pools, too. Write for catalog.

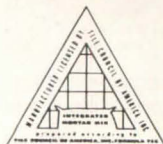
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Newest addition to the famed Oasis water cooler line is the convenient Model 3P with 3 GPH capacity.

Since $\frac{1}{4}$ of all water cooler locations require a cooler in this size range, Oasis Model 3P fills a big need. It is ideal for small offices. And it fills the need for two or more coolers for large offices and light industry, to save time going to and from the water cooler. Serves 36 people in offices and schools, 20 people in light industry.

From base to bubbler, the new Model 3P is engineered for the same high quality and top performance as every other cooler in the Oasis line . . . broadest in the industry. Oasis Model 3P is a low cost water cooler that you can specify with the utmost confidence.

For greatest satisfaction, specify Oasis water coolers. We will gladly send complete information on Model 3P or any other of the 17 Oasis water coolers.



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Manufacturers of the
most complete line of water coolers.

Distributed in Canada by G. H. Wood & Co., Ltd.

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Send complete information on Oasis water coolers, including
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John E. Fogarty (D-R.I.), appropriations subcommittee member, criticized the HEW requests sharply.

The testimony brought out that HEW has had around \$185 million construction in fiscal 1959, the current year. It is asking for \$101 million for this purpose in fiscal 1960. Of the difference, Mr. Fogarty said: "That is a pretty sizeable reduction in a program that has been so popular and has been meeting with such universal approval in all the states and communities."

He said it was his information that there are enough projects ready to be started and that with the necessary local financing in 1960 "we could be spending about \$470 million." Thus he charged that the Administration's request, if approved by Congress, would limit the program next fiscal year to only 25 per cent of what ought to be done. He estimated the total cost of the hospital projects to be ready in 1960 at \$1.25 billion with the Federal share running \$469 million.

"This is going to be quite a shock to some of these communities and states to have such a cut," Mr. Fogarty commented.

The program of aid to states for construction of waste treatment facilities also came under fire in the subcommittee hearings. There is a request to cut this from the \$45 million appropriated this fiscal year to \$20 million for 1960. On this, Mr. Fogarty remarked—

"I think you are penny-wise and pound-foolish, and you are placing a big burden on our children by curtailing that program now that it is going so well."

Taking up the budget request of \$20 million for construction of medical research facilities, the subcommittee found this represented a one-third reduction from the \$30 million voted for fiscal 1959. Again Mr. Fogarty: "The applications on hand are way over \$30 million. Doctors I have talked with are all amazed at this cutback of thirty-three and one third per cent for construction of health research facilities."

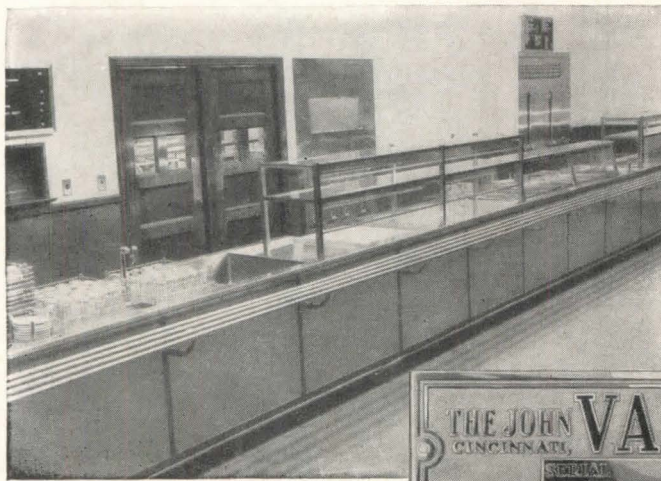
HEW Secretary Arthur S. Fleming told the subgroup that the government-wide policy on construction had determined the level of the request for hospital construction grants. Later in the hearing he told the subcommittee:

"When any Administration starts to prepare a tight budget, one of the first areas they examine is the construction area. I think the Budget Bureau has with a pretty high degree of uniformity followed a tight policy on construction items, either by eliminating them completely or by reducing them. In no case has any of our construction items been eliminated so far as grants are concerned . . . But I do believe the President and the Budget Bureau are correct in feeling that the construction area is an area where they can justifiably take a close look."

Post Office Modernization Need Set at \$2 Billion

The Bureau of Facilities of the U.S. Post Office Department asked Congress for \$88.5 million for fiscal 1960 to completely modernize 140 buildings scattered throughout the country. Testimony before an appropriations subcommittee indicated the Bureau wanted to use the money for driveways, platforms, inside equipment, lighting, etc. The bulk of the fund, \$77 million, would go for actual repair and modernization, the balance for contract research, development, engineering and technical services.

This testimony, by Rollin D. continued on page 394



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Van helps modernize cafeteria 25 years later

★ It was natural that this oldest teacher's "coed" college west of the Alleghenies should call in Van to help modernize the kitchen and cafeteria of Charles McKenney Hall. It was satisfied with Van's original installation of the early thirties. *Good will is the basis of Van's success.*

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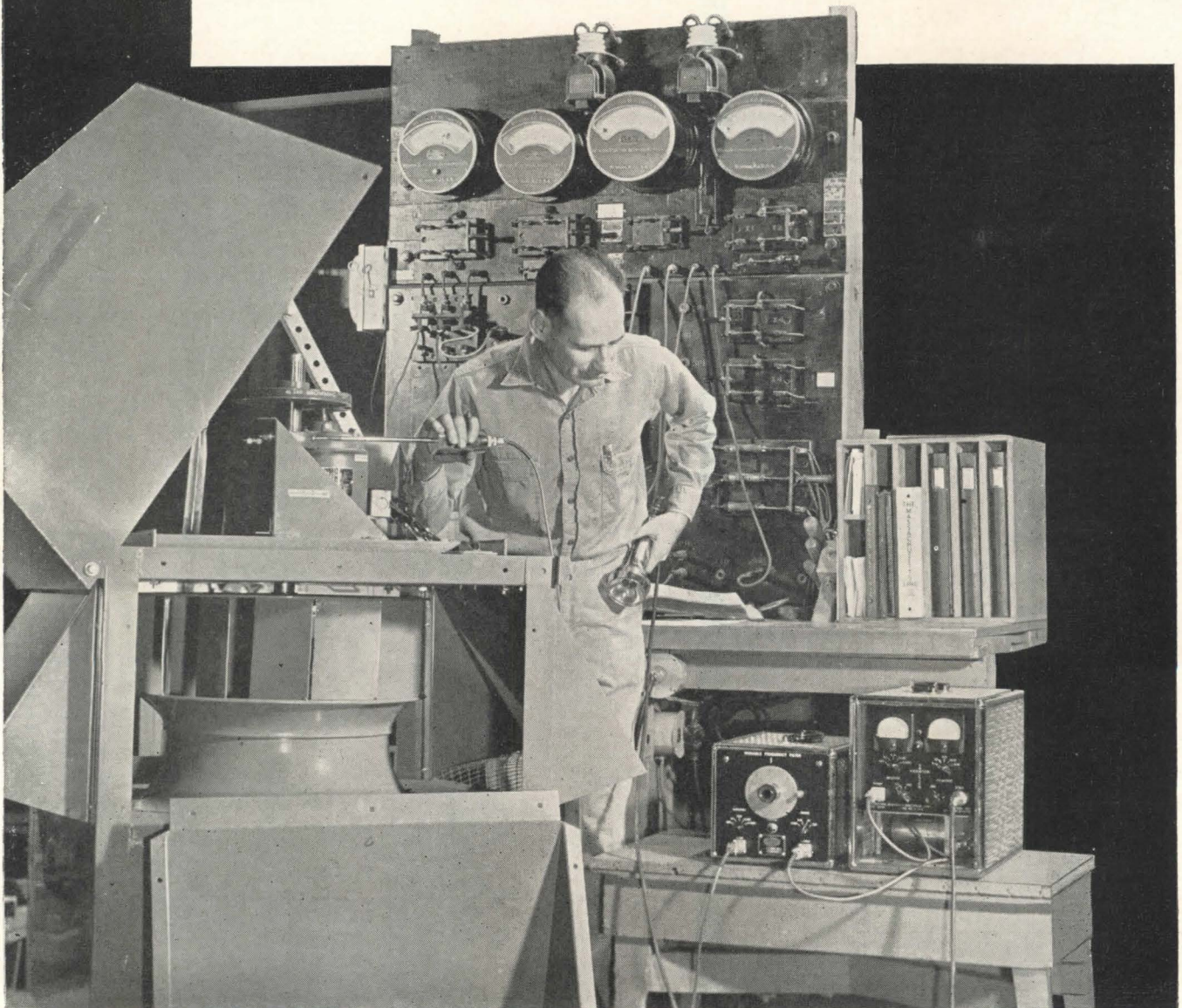
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Bernard, acting assistant postmaster general, told of the Department's long-range plans for the ultimate replacement or remodeling of 12,000 leased and rented buildings. The program calls for the enlargement, rehabilitation, or replacement with leased buildings of approximately 2500 Federally-owned post office structures and the installation of modern equipment. This entire modernization program will cost an estimated \$2 billion with \$1.5 billion of the sum provided by private enter-

prise under long-term lease agreements. The General Services Administration would handle construction details.

Tighter Congressional Reins On Public Buildings Proposed

A public buildings bill, introduced by Rep. Robert E. Jones Jr. (D-Ala.), chairman of the House subcommittee on public buildings and grounds, would require the GSA to submit a detailed prospectus for each building it planned to construct to both

House and Senate committees. The agency would be permitted to increase the cost of a project above the approved figure, but only within a 10 per cent range.

Under terms of the Jones measure, the committees could rescind their project approval if no appropriation was made for it within one year after date of approval. No additional buildings could be approved if there were more than 15 projects approved for any one year without appropriations for them. GSA would have to keep Congress informed of program progress and hire services of established architectural and engineering firms on a temporary basis.

The total amount of money to be spent each year would be determined through direct appropriations.

A similar authorizing bill was put through Congress last year, but President Eisenhower's budget proposals for fiscal 1960 did not contain funds for new government building construction.

It was the cost-increase factor that many observers held responsible for the partial failure of the lease-purchase program. GSA was unable to raise the estimates on projects when obviously greater sums for construction were required.

Hill-Burton Achievements Recounted by Haldeman

About half of the more than 1200 new general hospitals approved under the Hill-Burton hospital construction program of the Federal government are located in communities that, prior to the program, had no hospital facilities.

This was brought out in remarks made by Jack C. Haldeman, assistant surgeon general, in an appearance before the first Urban County Congress here. Another 25 per cent of the general hospitals in the program, he said, are located in places that have had only old, obsolete and non-acceptable facilities.

He stressed that the act has resulted in a continuing program of statewide planning, and development for the first time of minimum standards of design, construction and equipment of hospitals as well as other types of health facilities.

There is a growing interest being manifested in planning for long-term care facilities, he told delegates. These embrace chronic disease hospitals and nursing homes, and the interest extends to both planning and construction.

"Because surveys indicate that many patients in community general hospitals could be adequately cared for in good nursing homes," he

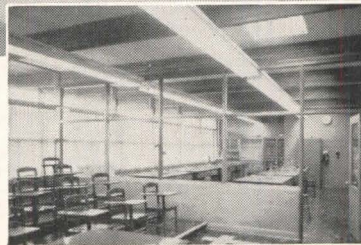
continued on page 400

COST PER SQUARE FOOT

\$999



High School, Payson, Illinois
Architects: Hafner, Hafner and Stranckmeyer, Quincy, Illinois
Contractor: Ostrum and Maguire Construction Company, Inc. Galesburg, Illinois



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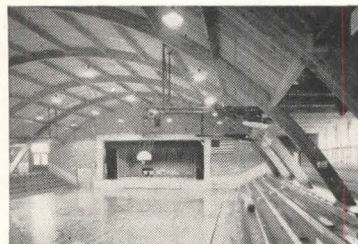
- "client was very pleased"
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... these are statements made by architect and builder of the Payson high school constructed with Rilco beams and radial arches.

Whether you plan a school, church, commercial or industrial building, consider the savings, fire safety and outstanding beauty of Rilco laminated wood members. See our catalog in Sweet's or write . . .



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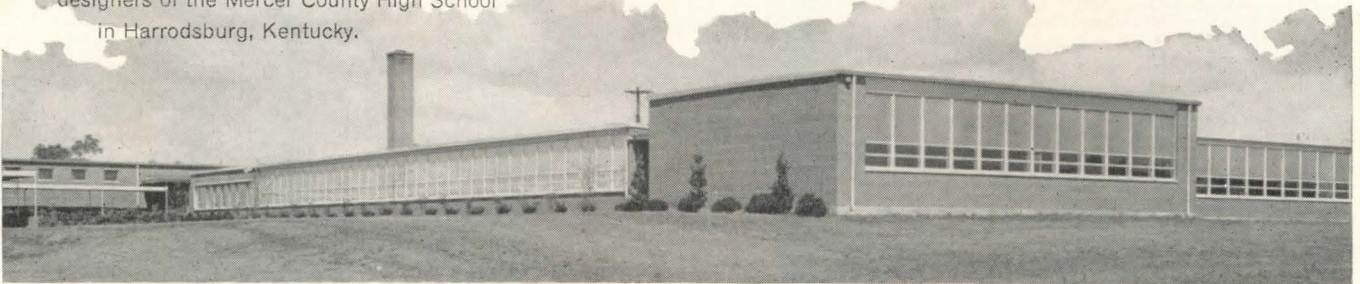


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Make Possible Annual Fuel Savings of over \$200
for this Typical School Building

Meriwether, Marye and Associates,
designers of the Mercer County High School
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U.S. Dept. of Commerce Minimum Standards for Awning Window Units permit air infiltration of 0.5 cu. ft. per minute per linear ft. of perimeter at 25 miles per hour wind pressure. BILT-WELL Awning Windows test at 0.319 cu. ft. per minute.

Translated into \$ and ¢ using a formula set up by the American Society of Heating and Ventilating Engineers, this means:

The average window loses about 1,189 B.T.U.s

of heat per hour at an average fuel cost of .035¢ per day, per window. For a one-hundred window school this would be a total heat loss of about \$630.00 for an average six-month season.

BILT-WELL Awning units lose only 750 B.T.U.s of heat per hour at an average fuel cost of .023¢. A one-hundred window school would realize a fuel savings of approximately \$216.00 per season using BILT-WELL Awnings over average window units.*

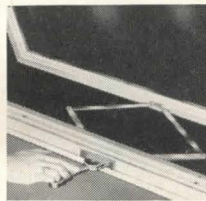
Bilt-Well Engineering and Design Make the Difference

Nowhere will you find the advanced engineering and design that are offered in BILT-WELL Awning Windows. Plus...a wide selection of Standard Sizes** and Operating Mechanisms make BILT-WELL the most outstanding complete line available—assuring Architects the very best windows to fit any modern design school building.

*Write BILT-WELL for complete project report No. 5820-6 covering fuel-saving tests on windows.

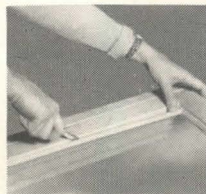
**For additional detailed information on these products see Sweet's Architectural 17c/Car and 24b/Car, or Sweet's Light Construction 6c/Car and 12a/Car.

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Washington Topics

noted, "more and more emphasis is being placed on assessing real health needs through community surveys before construction starts."

So far, more than 4400 projects have been approved in the H-B program. Total estimated cost is around \$3.8 billion with the Federal share of this placed at about \$1.2 billion, well under half. Approximately 65 per cent of all the projects approved are general hospitals, 15 per cent are public health centers and the balance consist of mental, tubercular, chronic disease, diagnostic and treatment, rehabilitation, nurse training and state health laboratory facilities, Mr. Haldeman said.

Mason Outlines Attitudes On Minority Housing Problems

New light now has been shed on the Federal government's policies regarding segregation, or the absence of it, in the many programs affecting a substantial portion of total home building in the country.

The light came from a statement by Norman P. Mason, who recently took over as administrator of the Housing and Home Finance Agency, relinquishing his position as Commissioner of the Federal Housing Administration. In this statement, Mr. Mason assured Congress he has no intention of forsaking the total desegregation policy he followed in FHA and he made it clear that he would apply this philosophy to all the HHFA programs.

His remarks were read to the House Judiciary subcommittee considering a bill by Rep. John D. Dingell (D-Mich.), which would assure equal rights and opportunities to all Americans regardless of race, color, or national origin. Lyman Brownfield, HHFA's general counsel, presented the statement for Mr. Mason.

The testimony opposed the Dingell legislation on grounds it is not needed; that, as far as housing is concerned, its objectives already are being practiced.

This was Mr. Mason's first major declaration on the housing policy on discrimination since he became administrator and was considered a significant move toward clearing up the uncertainty that has surrounded this issue.

Mr. Mason referred to "basic aspects of my own philosophy" in stating that the benefits of urban renewal, FHA mortgage insurance, public low-rent housing assistance, and all aids of the HHFA must be made available to all families on an

continued on page 406

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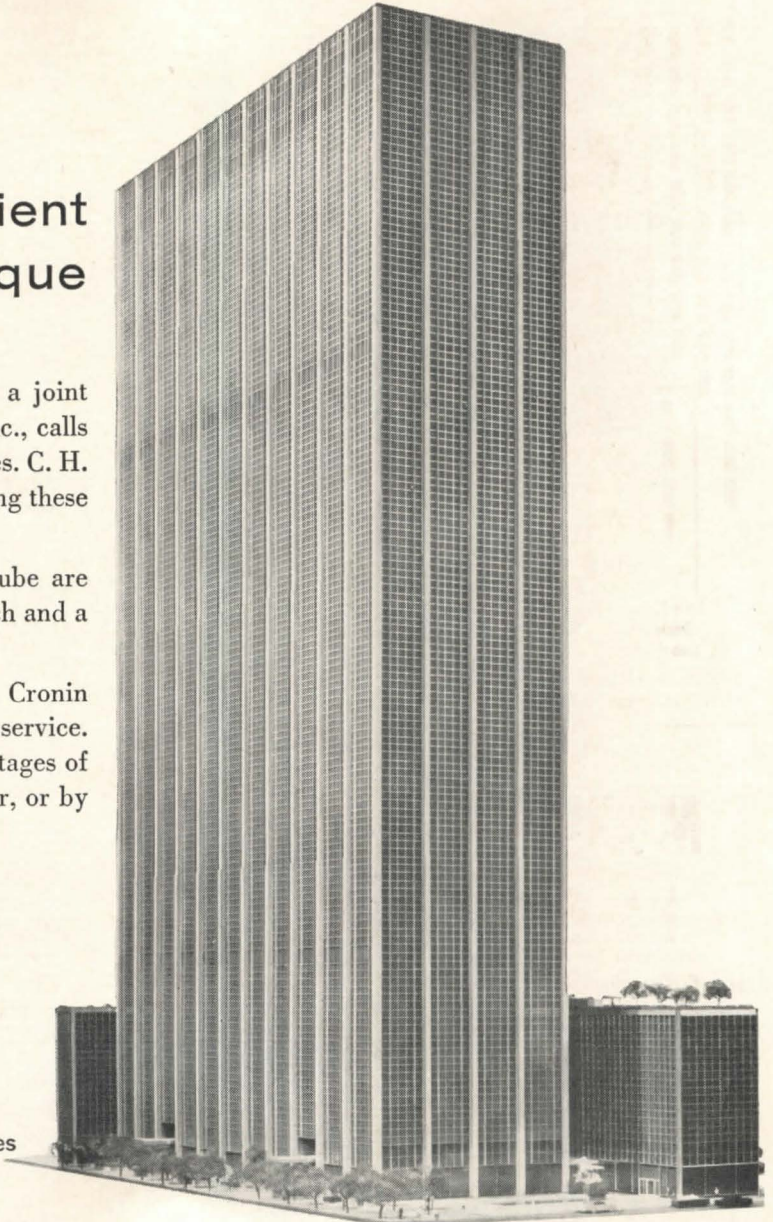
in the new TIME & LIFE building

Contractor uses efficient prefabrication technique

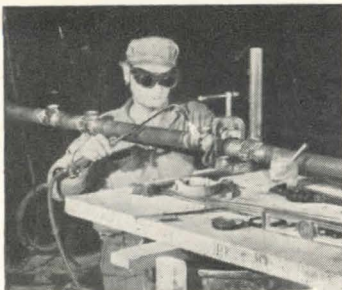
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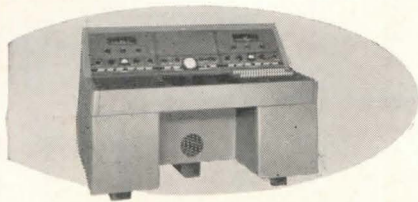
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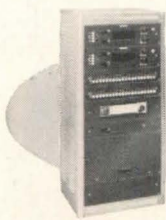


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Washington Topics

equal basis, irrespective of race, color, creed or national origin.

Open Occupancy Increase Noted

Citing his record as head of the FHA, the new administrator referred to a multi-million dollar program of truly open-occupancy projects located throughout the country. In recent years, he said, there has been a steadily increasing number of projects available to qualified renters or purchasers without regard to race, color, or creed. In his opinion, these developments are deeply significant in overcoming difficulties in establishing a free housing market.

Studies at both industry and government levels purportedly have shown that when the same lending standards are applied, results in home financing for minorities have been satisfactory or better than for other groups. Mr. Mason, as FHA Commissioner, made sure his insuring directors understood the practical value of these studies in their insuring activities.

His cooperation with various states fostering desegregation in housing is widely known. Describing this to Congress, Mr. Mason's statement noted that it went well beyond the advising of agreed-upon plans. In his words, it meant gearing staff to give useful assistance, with basic understanding of FHA's spirit and principle in undertaking such cooperation.

The Federal housing agencies, of course, cannot enforce state laws. They can help builders live up to the spirit of those laws, however, Mr. Mason asserted. The double appraisal system, for example, has been done away with in favor of FHA's standard method which, in Mr. Mason's words, dispels the old evil of two evaluations—one for minority groups and another for others.

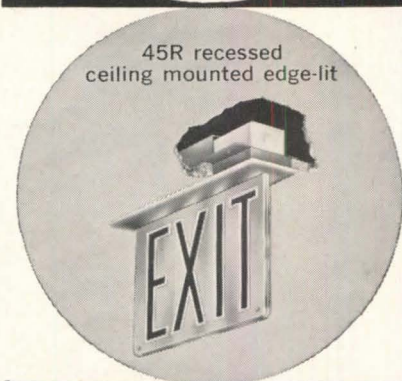
Urban Renewal Impact

Turning his attention to urban renewal, Mr. Mason described how this activity can complicate the housing problems of Negroes and other minorities. In this program the most severely blighted areas often must be cleared completely. With large segments of the total housing supply almost never available to members of minority groups, these families are confined and concentrated in what Mr. Mason termed the very areas most in need of renewal. He added, "These groups are also becoming a larger and larger element of our central city population."

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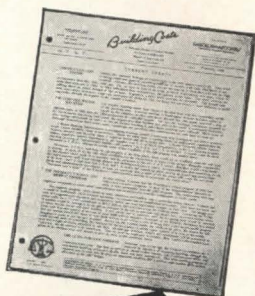
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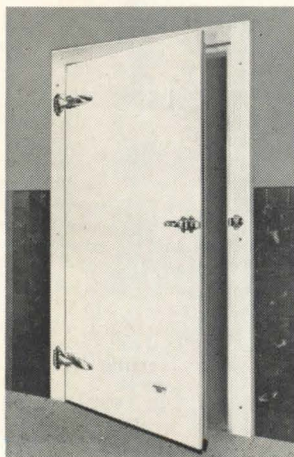
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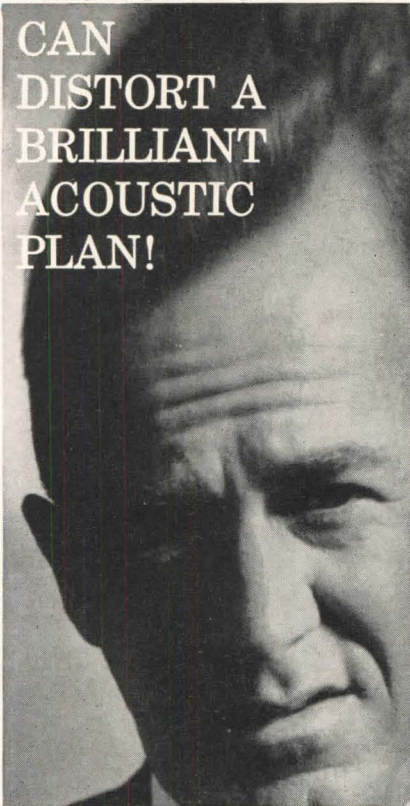
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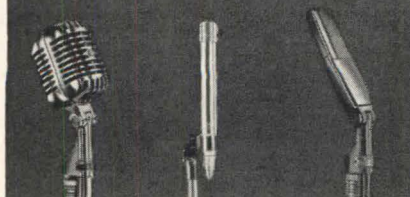


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Required Reading

Pictures . . . cont. from page 60
the exciting architecture it describes.

Contemporary Danish Architecture, on the other hand, is a slim, handsome volume with little text and many excellent photographs that crisply fulfill the promise of the title.

The Japanese entries are plagued by language and production problems. *Japanese Architecture* is a short history with very poor paper, printing, and photographs. The other two books together provide a comprehensive survey of recent Japanese building. They are mostly bilingual, but legends on plans and details are not translated, thus severely reducing their value to architects.

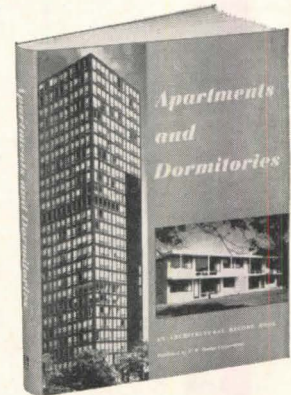
Roderick Cameron's *Shadows From India*, though subtitled *An Architectural Album*, is equally an art book, a travel book, and a set of personal impressions. The book consists of 199 photographs, practically all by Mr. Cameron, divided into five geographical sections, each introduced by a brief historical note. The captions to the photographs form a kind of running text. This text is often illuminating, but its gossipy style sometimes becomes intrusive. *Shadows* will not serve as a complete history of Indian architecture—there are simply too many gaps, both ancient and modern. Nothing is shown earlier than the seventh century, and nothing later (in style) than the imperial Roman buildings of 1931 New Delhi. Why, for example, no Chandigarh? However, the book is an excellent introduction to the subject. The pictures, though not always technically perfect, do leave a vivid impression of great beauty and variety.

Wölflin . . . cont. from page 60
toward artistic form—for the Italians "that nature contains the eternal models of beauty" and that those models by imitation and precept could lead the artist toward perfection, while "the Germans share neither the concept of nature nor this view of the task of art," rather that they "put aside the illusion that the human mind could ever grasp absolute perfection" and "that which is characteristic and distinct is more important in the North than beauty."

Wölflin is an education for the eye; that being true it is unfortunate that this edition is rendered almost useless by the incredibly poor reproduction of its 90-odd illustrations. This important and influential art historian deserves better treatment.

—ALFRED FRAZER

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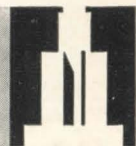
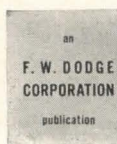
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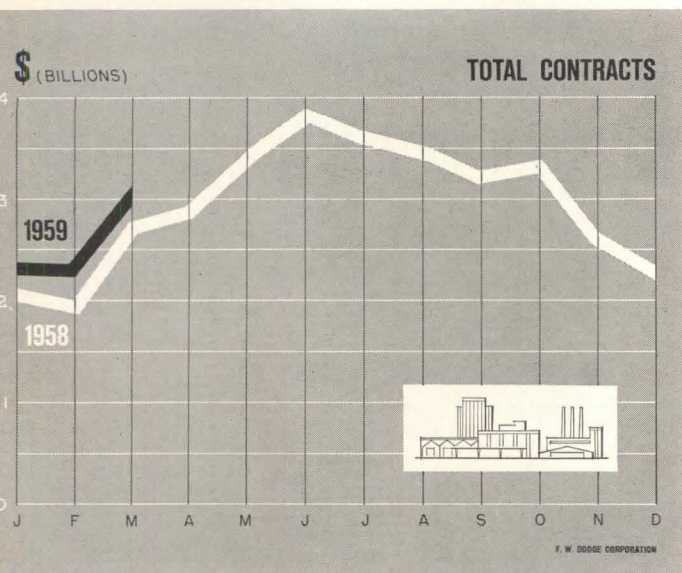
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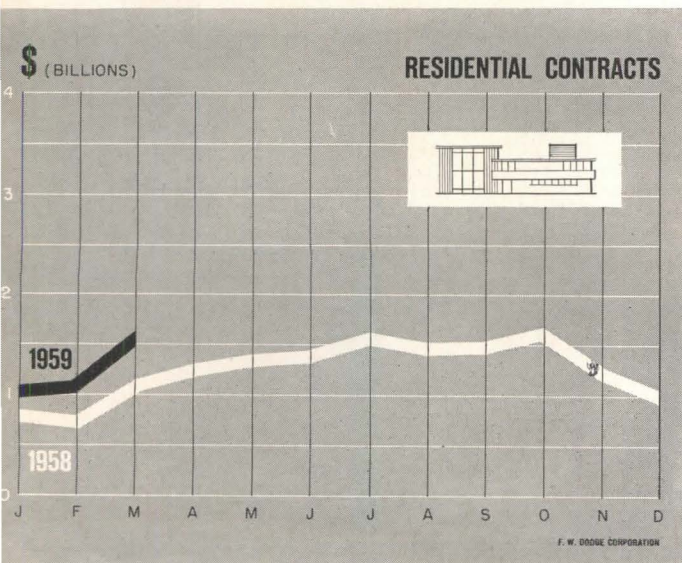
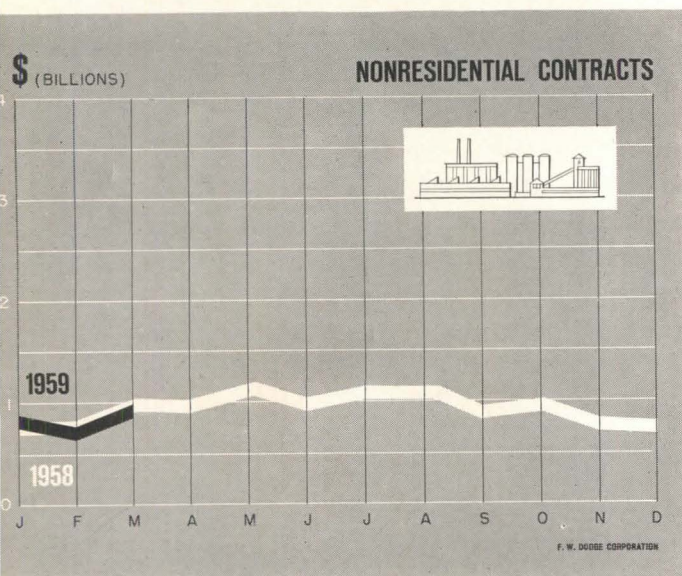
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SCHOOL CONSTRUCTION is an enormous segment of the nation's largest industry. Contracts for new schools last year amounted to \$2.9 billion, according to the Dodge figures, a total exceeded only by single family houses, commercial buildings and highways among all the construction categories. While school contracts this year are off to a somewhat slower start than usual, the fact remains that this building type in 1959 ranks among the four top markets for construction materials and services. The decline this year has been pretty generally spread across the country, and is not confined to any one area. It may be that there has been some tendency on the part of local officials to wait and see what, if anything, happens to proposed Federal legislation to aid school construction. It is hard to measure how much effect this may have had, but whatever effect there has been will be made up in later months, as the legislative situation clarifies.

THE STATE OF STATE FINANCES may also explain the current school situation. Difficulties have been experienced in many states and localities this year, and tax increases have been widespread. The voter is becoming acutely aware of the direct relationship between additional government outlays and the taxes he pays. More and more workers are moving up into tax brackets where income taxes take a substantial bite, and the impact of sales taxes and similar devices becomes more apparent to the public as the rates go up. The fate that befell a number of bond issues in last year's elections seems to have been partly a manifestation of this growing tax awareness. There is no denying that the financial soundness of all levels of government is a growing public concern.

ON THE OTHER HAND, better schools are also a growing public concern. Despite all the school building last year, according to U.S. Office of Education figures, there was practically no reduction in the backlog of classroom need; we just barely kept pace with population growth and obsolescence, without providing for any real improvement. The most recent estimate of the Office of Education was that the backlog of needed classrooms in the Fall of 1958 was 140,500. While this figure has been questioned by some observers as being too large (or too small) it at least gives some idea of the magnitude of the problem; even if the figures were 50 per cent too high, the backlog would still be huge. It seems quite likely that the application of good sense will result in a situation where we can have both a good financial structure in government and adequate school facilities. We stand by our original estimate—that school construction is going to keep on going up, with perhaps an occasional breathing spell, for all the foreseeable future; and especially when the new bumper baby crops of the 1960's begin to arrive.

GEORGE CLINE SMITH
Vice President and Economist
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