



ARCHITECTURAL RECORD

November 1959 **11**

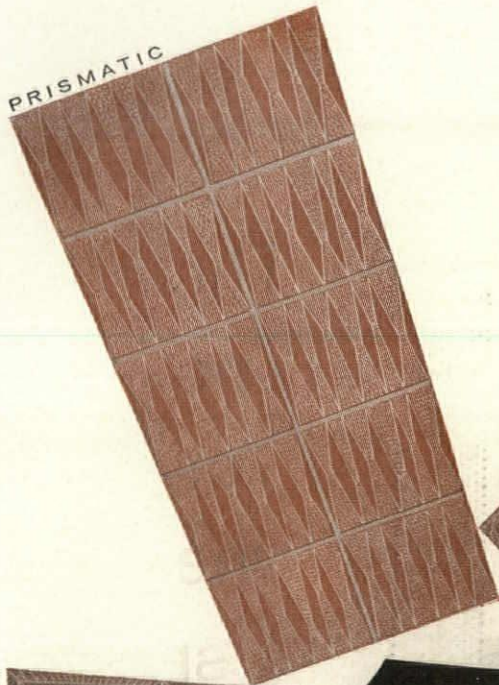
Building Types Study: Schools

Building for Reynolds Metals by Yamasaki

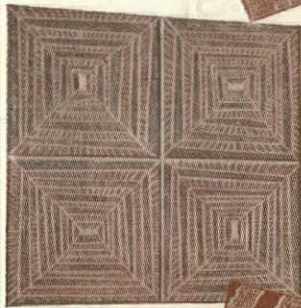
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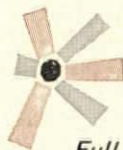
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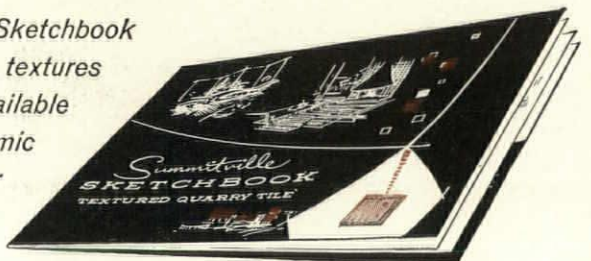
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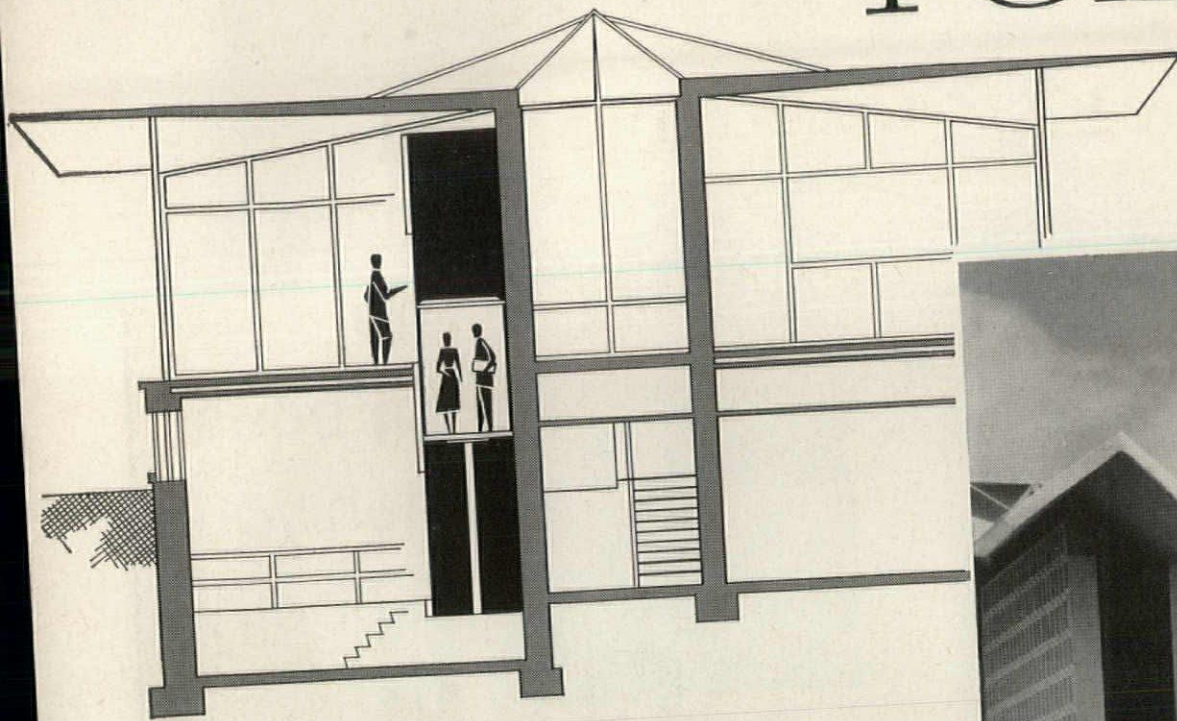
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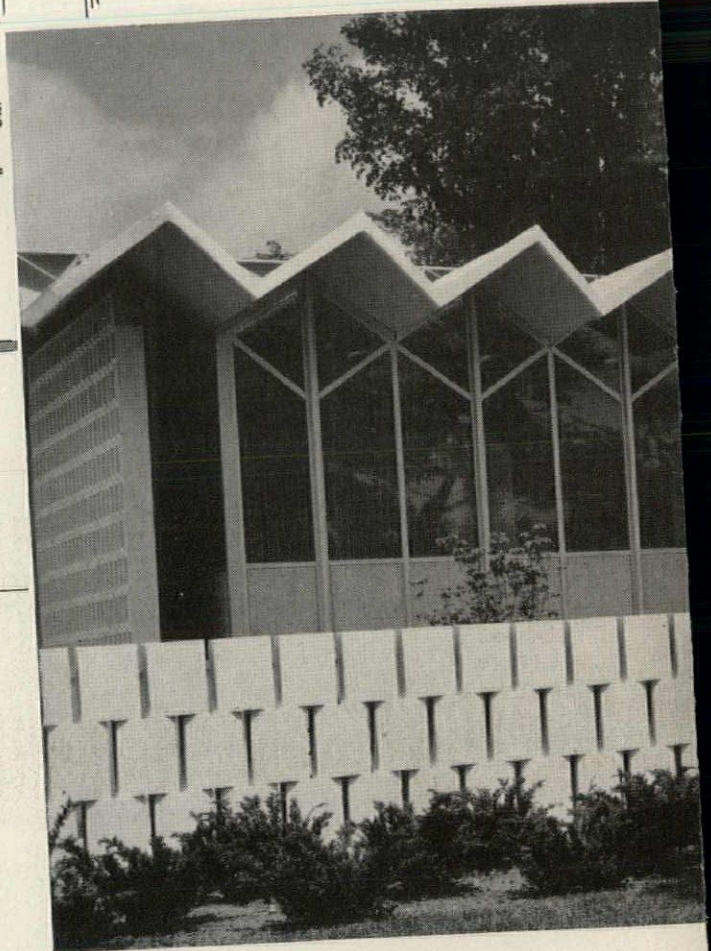
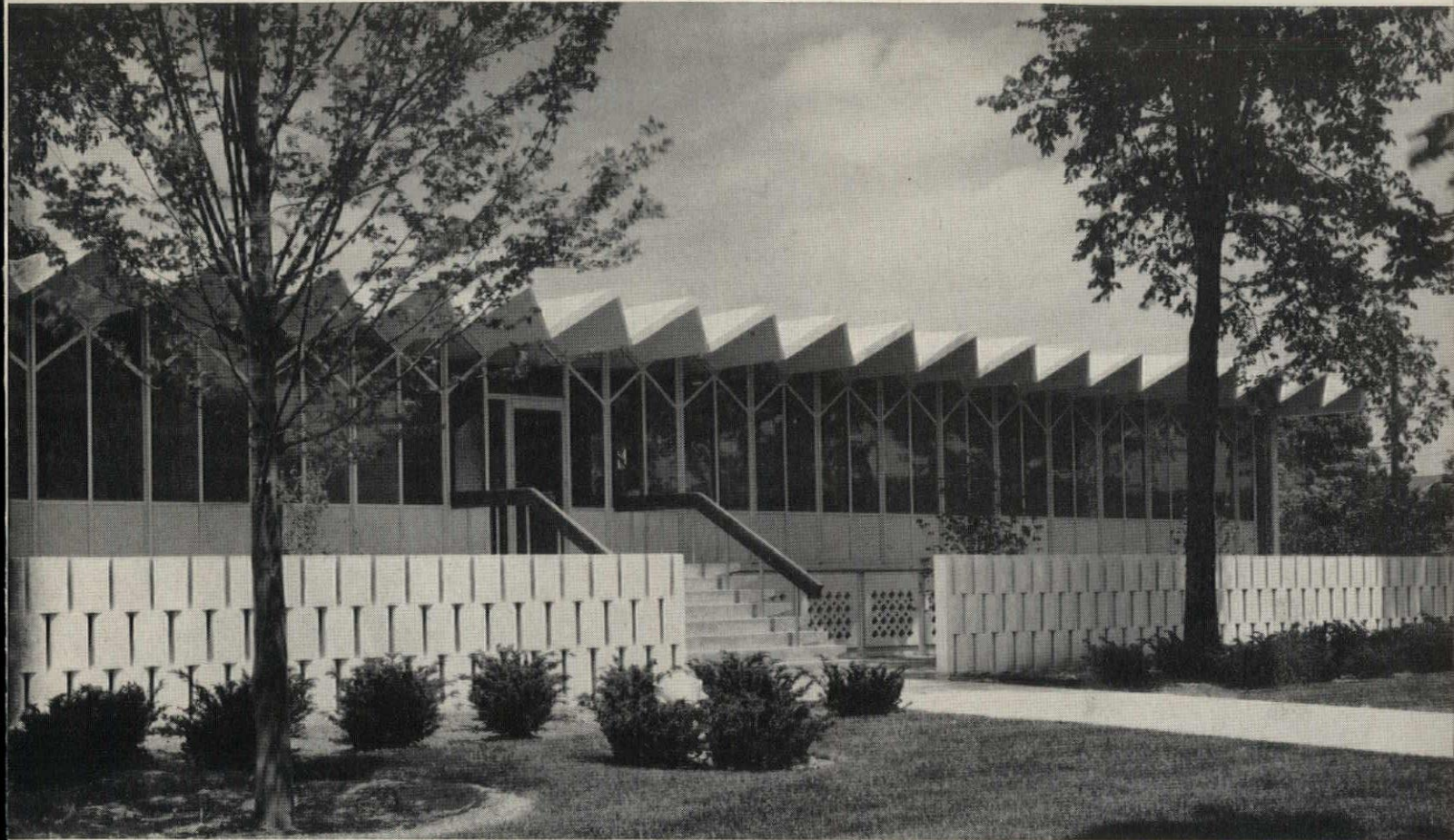


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ARCHITECTURAL RECORD

November 1959

CONSTRUCTION OUTLOOK FOR 1960 AND BEYOND

"Sighting the Sixties: Launching a Second U.S.A."

The annual F. W. Dodge Corporation analysis of future construction potential, by Dr. George Cline Smith, with the collaboration of Clyde Shute, Edwin W. Magee, Jr., and Edward A. Sprague.

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Great Lakes Region Sales Headquarters Building, Reynolds Metals Company, Detroit, Mich. Minoru Yamasaki, architect. Balthazar Korab, photo.

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November 1959
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Coming in the Record

VICTOR LUNDY'S CHURCHES

Victor Lundy's flair for the forms and spaces that evoke a human response is probably nowhere shown to better advantage than in his churches. It may be hopeful to say that most church-goers are looking for a new symbolism, but there is material here for them to look at if they are. Four of his newer church designs are grouped together in our Building Types Study.

INDEXING

For some years the RECORD did not publish indexes in its pages, this in the mistaken belief that indexes were for librarians. Well, we got some screams from librarians yes, and we printed and mailed out separate indexes to the screamers. But we heard enough from working architects and engineers too to convince us that indexes were a real service. They have been back in the regular copies, at semi-annual intervals, for the last year and a half or so. It is worth mentioning here, as another December issue looms, to be sure that readers all know that they are back there again.

ACOUSTICS AT HIGH INTENSITIES

Problems of acoustics at higher intensities—that means real noise—are not quite the same as those at more normal levels. Engine test cells, machine rooms—these and many others give the architect some special problems. A December article brings together the recommendations; it will be supplemented by some Time-Saver Standards summarizing the data.

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—Dow Building Cost Calculator.

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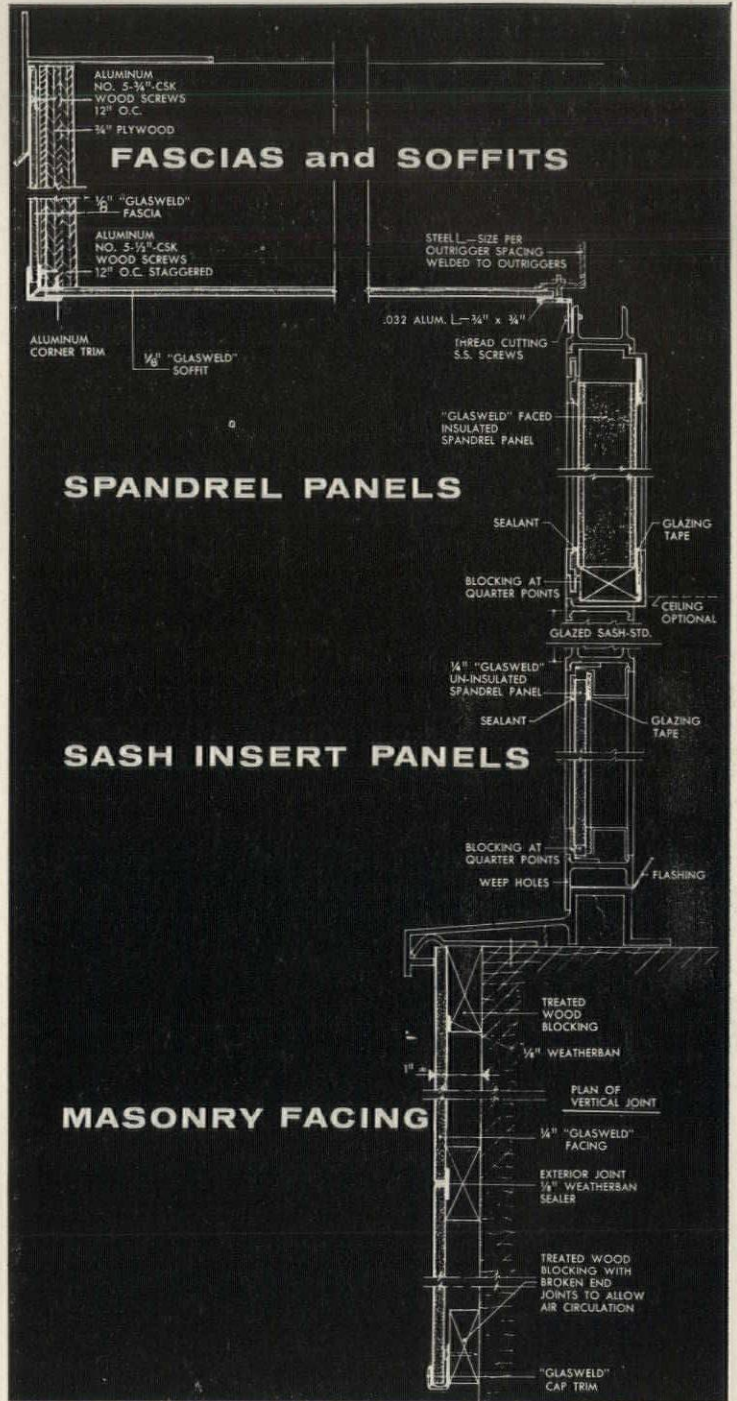
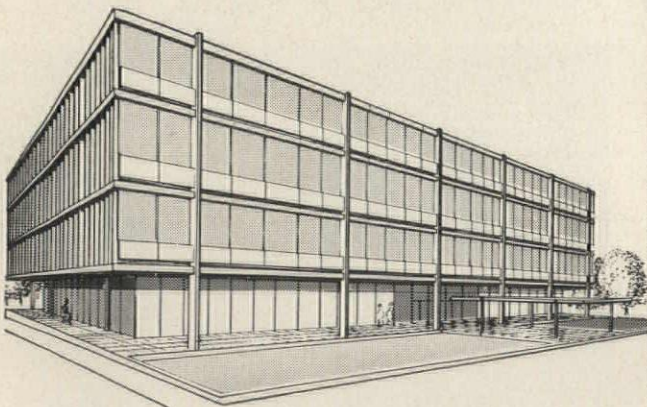
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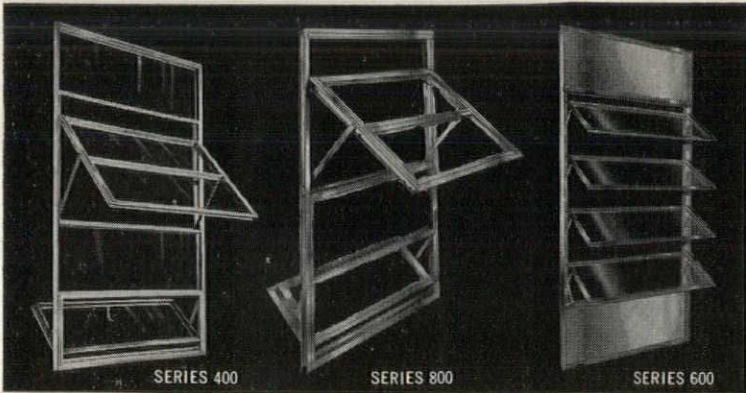
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Wright's Guggenheim Opens

Just over six months after his death, Frank Lloyd Wright's Guggenheim Museum opened last month. The paintings were in place, the lighting was *almost* installed, and the time had come when the public and his fellow architects could judge the truth of Mr. Wright's words: "The success of the museum means the liberation of the picture from the exploitation of the picture-broker and puts the painting more at ease according to its nature and the nature of the observer" (in a RECORD article on the Guggenheim, May 1958, pages 182-190). Mr. Wright also called this building the most faithful expression of the nature of its material ever built; and he thought its completion would make a suitable occasion for that final article he was always promising to write for his famous series for the RECORD—"In the Cause of Architecture," subtitled "The Nature of Materials." He would clasp his two hands together tightly and declaim: "It's all one: see, you can't pull it apart—no joints, no arthritis. It makes every other building in New York obsolete." Its opening does, in any event, make obsolete any architectural tour of New York that doesn't include it.

The Practice of Relevance

An article by Robin Boyd in the September issue of *Harper's*, discussing architecture as expression, declares that the search for excitement has supplanted the purification of the glass wall as the esthetic objective of architecture's "restless creators" if not yet of all their imitators. Discussing some of the results in their relation to architectural expression, Mr. Boyd observes: "Much of the new architecture of excitement is so strong and confident that it may

delude us for a moment that it is leading to new realms of architectural beauty. But birds and curves can pall at least as quickly as boxes. . . . Ultimate satisfaction is achieved only when the long-term visual reaction is appropriate to the human activities involved—and when the architectural environment engenders a quicker sense of the realities of the situation, a sharpening of each experience. . . ." As it is, "It must be admitted that few people outside the higher ranks of the architectural and engineering professions take their architectural excitement with any discrimination." The problem as Mr. Boyd sees it is "how to control irrelevant enrichment and irresponsible structural gymnastics and restrict the foreground gems to genuine poetry. This is a task which involves everyone. The better architects should practice relevance in their excitement. Less gifted architects should be encouraged to keep to the anonymous, unexciting but lucrative backdrop. The audience should learn to see the line which divides any sincere expression from the displays and advertisements, and to keep raising the line another peg. . . . It requires only that people grow more aware of the possibilities of architectural expression, and awareness is undoubtedly being stimulated even now by the experiments in enrichment and excitement. Later, if this awareness can develop into a public demand for genuine and appropriate character, architecture will be on the way back to its former status at the head of the family of arts."

A Holiday for Some Sketches!

The Old World every now and then seems like the Old World again. The following ad appeared in the October

3 issue of the British *New Statesman*: "HOTEL proprietor in remote Orkney Island offers free wildfowling holiday to brace of architects with view to future business. Box 11254."

Castles in the Air Jets

Buildings may be supported on air sooner than you think. That same air jet principle which some automobile manufacturers are applying in experimental (wheel-less) cars is being applied by a firm called Space-tronics Inc. to a "large" platform device that raises off the ground and moves (not flies or hurtles) through the air. If a "large" platform is under development, a larger and a larger will surely follow, and how long for the earth are buildings?

"Salute to the Architect"

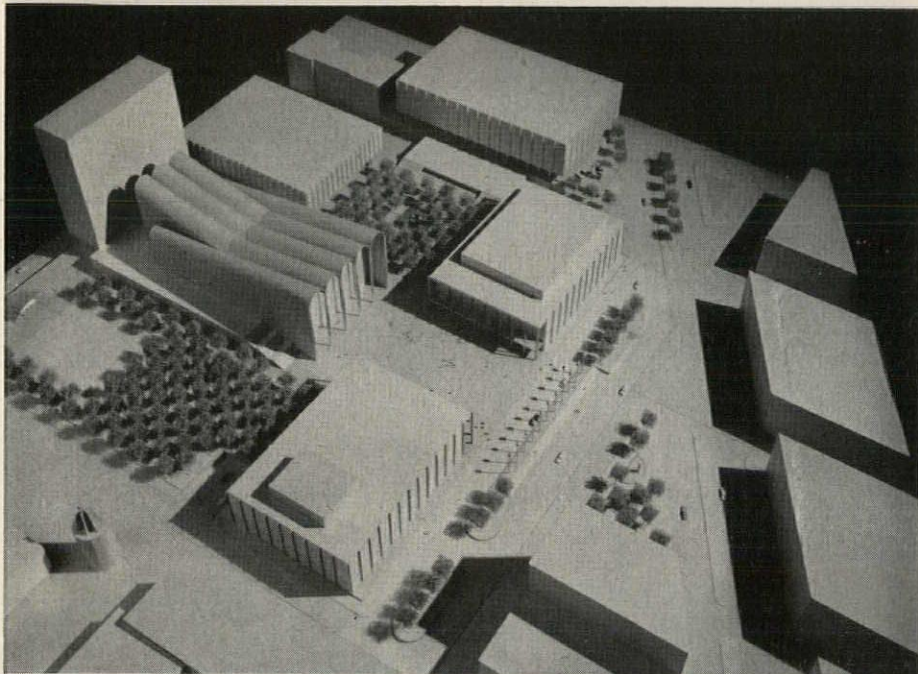
A pleasant public relations note. The Armstrong Circle Theater, sponsored by Armstrong Cork Company, on October 14 devoted the opening announcement of its coast-to-coast telecast to a "Salute to the Architect" intended "to make known the many contributions and services made by the architect to the community and the nation." The script: "Today marvelous new buildings are changing the face of every city and town in our land. And every one of these new buildings is the creation of a talented architect who has participated in every step in its development from the initial ideas and the drawing of the plans through all the stages of construction. It's also the architect's responsibility to select all the materials that go into his building. Through research, Armstrong has worked closely with the architect for many years," etc. This was Armstrong's second TV salute to architects; the first was last year.

Buildings in the News



The new University of Chicago Law School center, dedicated last month, consists of four stone, glass, and steel buildings occupying a square block. Construction cost: \$4.1 million. From left, the structures are: dodecagonal courtroom-auditorium building; classroom-seminar building emphasizing hori-

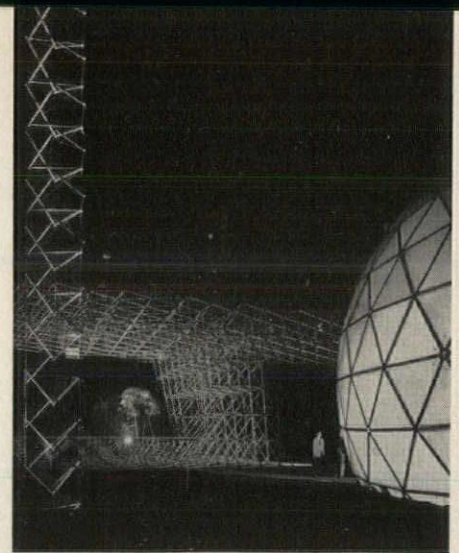
zontal lines; six-story library-office building with glass walls; two-level administration building. All structures are connected by glass-walled corridors. An open court with reflecting pool is in the center. Eero Saarinen, architect; S. N. Nielsen Co., general contractor



Below: The new \$20-million main office of the National Bank of Detroit has 14 stories above ground and two below. The building, 281 by 130 ft and 232 ft high, provides 598,000 gross sq ft. The steel-frame, reinforced concrete structure has a skin of white Cherokee marble, stainless steel, and glass. Albert Kahn Associated Architects & Engineers, Inc., architects and engineers; Bryant & Detwiler Co., general contractor



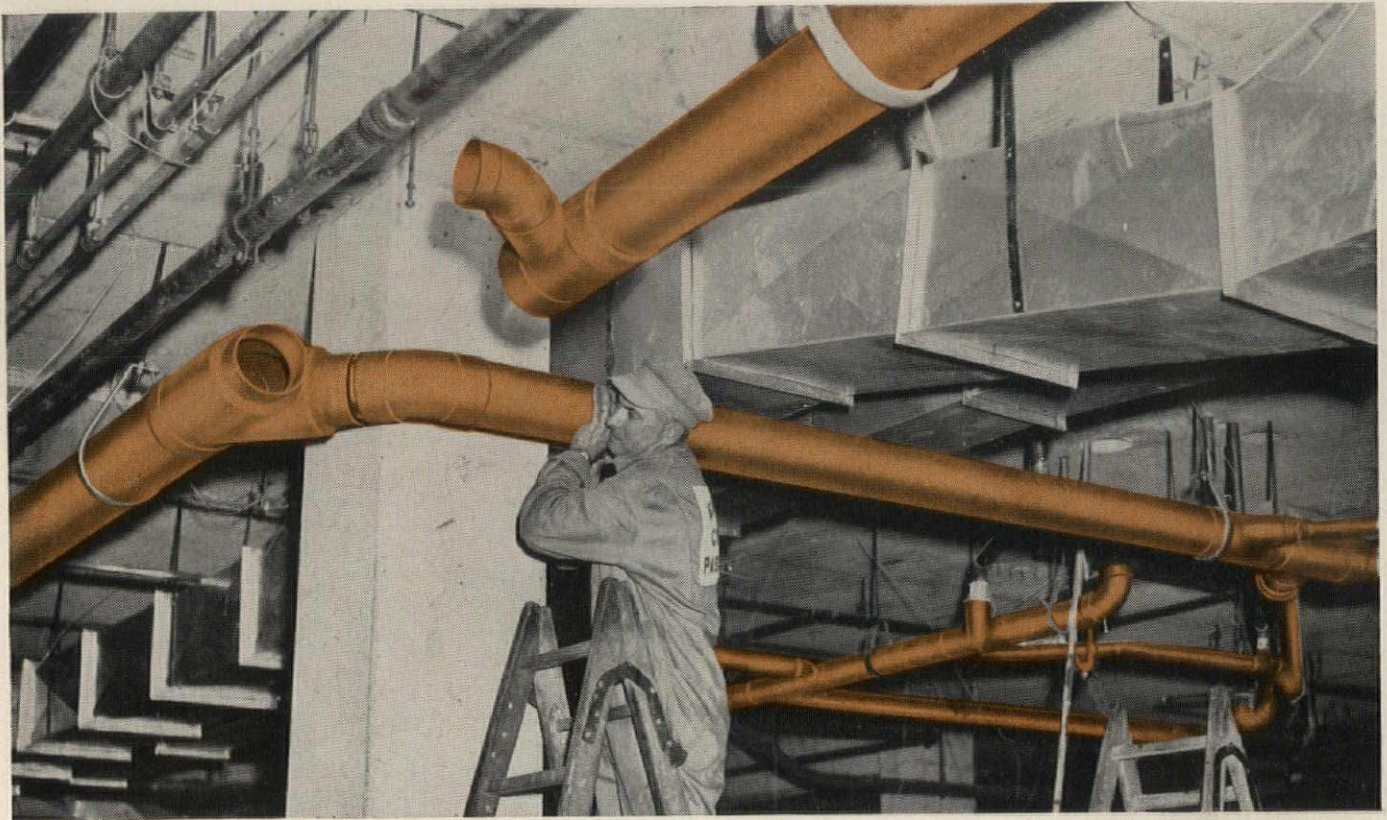
Below: Quincy House, Harvard's eighth undergraduate residence structure and the first since 1931, was opened in September. (See AR, Feb. '59, 160-161.) The building consists of a seven-story residence hall with a master's penthouse residence above; there are also dining room and library wings. The



Above: A night view of "Structures by Buckminster Fuller," an exhibition in the garden of the Museum of Modern Art, New York, that opened September 22 and is to run through the winter. Left in photo: Tensegrity Mast, built by Shoji Sadao & Edison Price, Inc. Right: Rigid Geodesic Radome, lent by Lincoln Lab., M.I.T. Background: Octet Truss, contributed by Aluminium, Ltd.

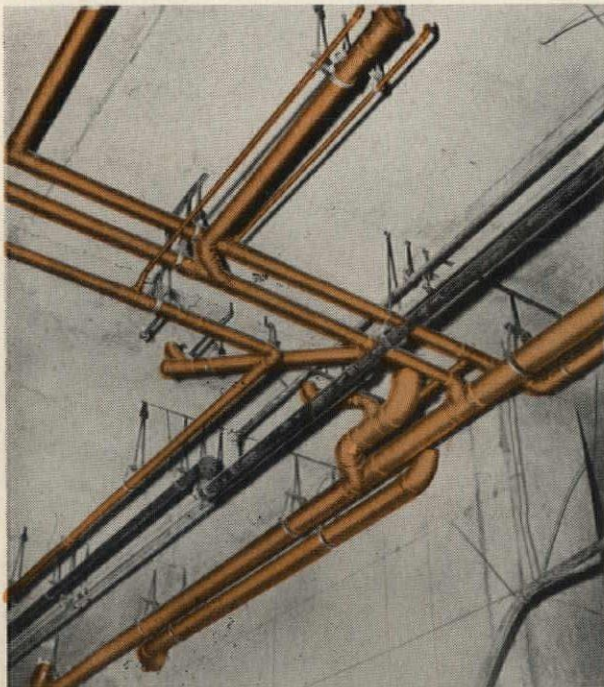
Left: A new model of Lincoln Center for the Performing Arts in New York was unveiled last month; the siting and approximate mass of each of the buildings are now presented as final (designs, however, are still in the development stage). Clockwise from foreground: Theater for the Dance (Philip Johnson Associates); Metropolitan Opera House (Wallace K. Harrison) with its tower for offices, workshops, and central air-conditioning equipment for all theaters and halls; Repertory Theater and Library-Museum (Eero Saarinen and Skidmore, Owings & Merrill); the Juilliard School (Pietro Belluschi), across 65th St.; Philharmonic Hall (Max Abramovitz), on which construction began last May. Wallace K. Harrison is chief architect. General contractors are four firms associated under the name Turner-Fuller-Walsh-Slattery

"skip-stop" plan, with corridors only on the third and sixth living-room floors, and bedrooms above and below, is used; thus there are two of these three-floor units (the ground floor: tutors' apartments). Shepley, Bulfinch, Richardson & Abbott, architects; George A. Fuller Co., general contractor



EASY TO HANDLE. Mechanic easily connects a length of 6-inch copper tube. More than 16,000 pounds of Anaconda Copper Tube, Type M, in sizes up to 8 inches, was used for the sanitary drainage systems. Architect and Engineer: California State Division of Architecture. Mechanical Engineer: Division of Architecture. General Contractor: Robert E. McKee, Inc., Los Angeles. Plumbing Contractor: E. O. Nay, Inc., Pasadena.

COMPACT COPPER SANITARY DRAINAGE SYSTEM GIVES NEW CALIFORNIA HOSPITAL MORE USABLE SPACE



CLOSE WORK LIKE THIS is possible only with copper tube. Water and drainage lines hug the ceiling, giving ample basement headroom. Even in tight quarters, connections are easy to make. Sizes in this photo range from $\frac{3}{4}$ " water lines to 4" for drain and vent lines.

Copper tube sanitary drainage lines in the hospital building and administration wing of the new Fairview State Hospital at Costa Mesa, California, eliminated wasted space in furred areas and allowed ample headroom in the basement. Equally important to the project owners, however, was the fact that copper tube drainage systems are easier to install, are long lasting, require less maintenance than other materials.

Copper tube was used also for the hot and cold water lines and for the radiant heating system.

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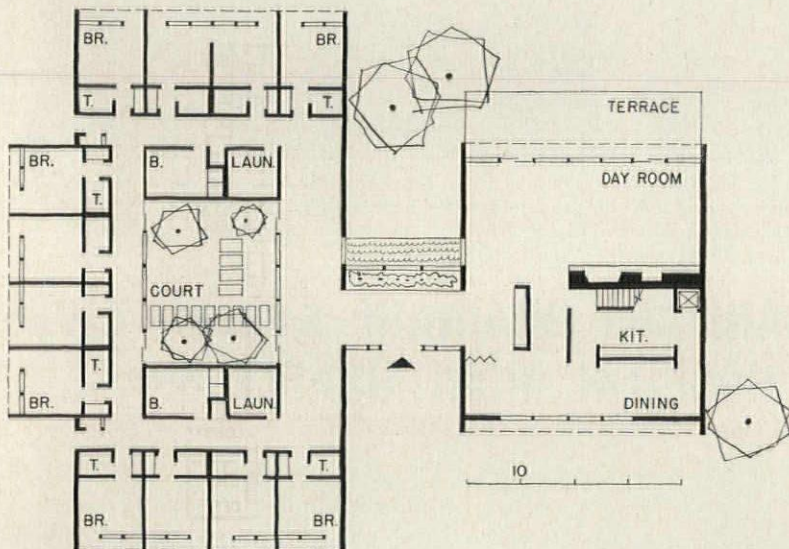
HOUSING FOR THE AGING: 11 INSTITUTIONS AND PROJECTS CITED AS "OUTSTANDING"

In keeping with its theme, "Designs for Retirement," the University of Michigan's 12th Annual Aging Conference included in its program an architectural exhibition of current housing and nursing facilities for the aging in this country. More than 50 projects were entered in the exhibit, of which 11 were selected as "outstanding."

The competition jury was composed of E. Everett Ashley III, chief of the housing economics branch of the Housing and Home Finance Agency, Washington; Bo Boustedt, of the architectural firm Boustedt & Heineman, Kungälv, Sweden (see AR, October 1958, pp. 179-186); Robert C. Metcalf, assistant professor of architecture at the University of

Michigan; William Muschenheim, professor of architecture, also at the University of Michigan; and Edna E. Nicholson, director of Central Services for the Chronically Ill at Chicago's Institute of Medicine.

(For a report on other activities at the conference, see ARCHITECTURAL RECORD, August 1959, pp. 32, 36, 40.)

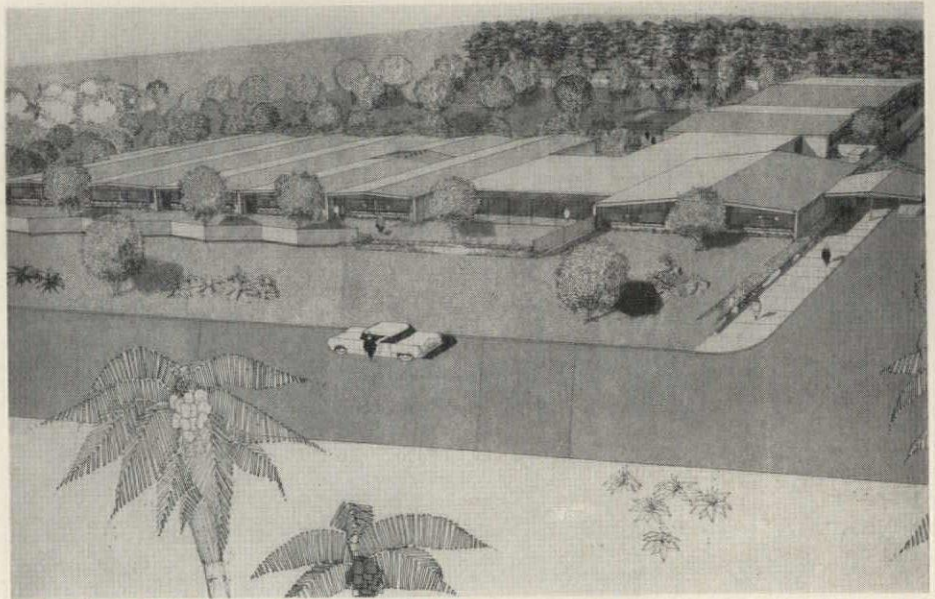


Category: Institutional Housing. *Designer:* Bruce Harrison, Department of Architecture, University of Illinois. *Jury's comment:* "best student work." This project was based on observations of Swedish housing made in a study for the Forest Park Foundation. The requirements presented called for "basic communities" of 12-16 residents, each to be provided with bedroom, lavatory and water closet, and to share dining facilities, lounge, bath and laundry. Mr. Harrison's solution offered separate buildings for library, crafts and auditorium, and for the infirmary, employe quarters and guest rooms.

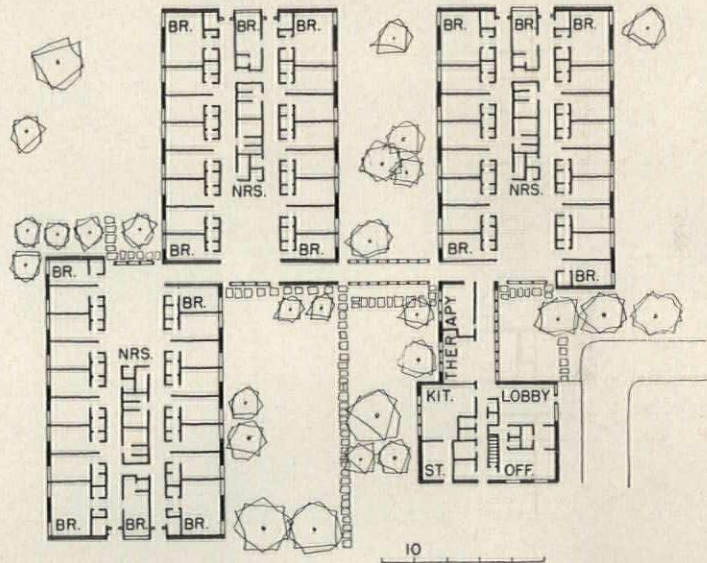


Category: High-rise Housing. *Architects:* Thorshov & Cerny, for Minneapolis Housing and Redevelopment Authority, Lyndale Homes. *Jury's comment:* "good, compact design." The 12-story apartment house in the center of this development contains 88 units, all of them intended for occupancy by the aging. The row housing is occupied by younger families. On the ground floor of the apartment building, lounges, crafts rooms and kitchen serve all residents. No medical facilities are included, as a large general hospital is nearby. Downtown Minneapolis is within walking distance (seven blocks).

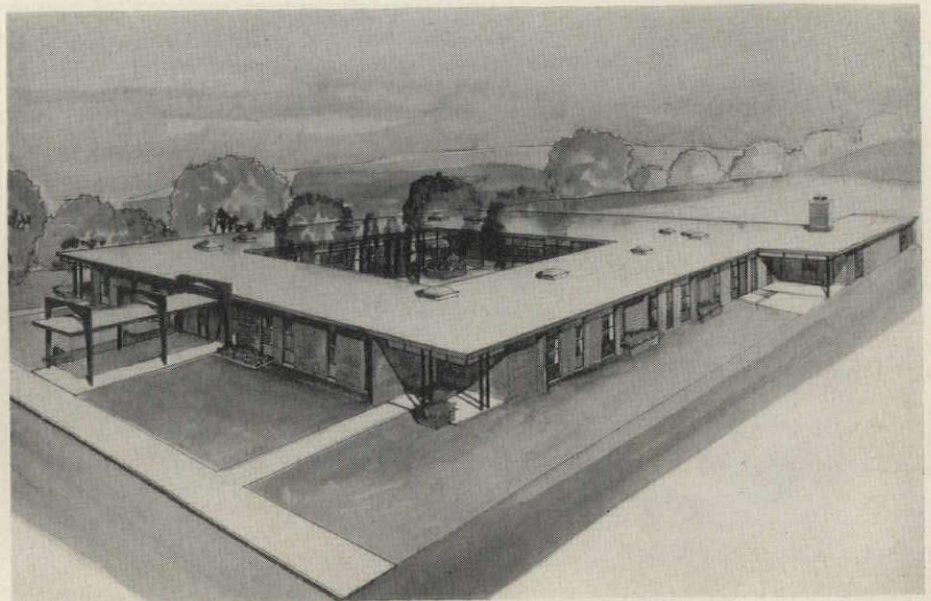
Category: Institutional Housing.
Architects: Begrow & Brown, for McWilliams Nursing Home, Sarasota, Fla.; Slater & Schneider, associate architects. *Jury's comment:* "excellent environment." This project was designed for nursing care, rather than as simple residence. Ambulatory patients will occupy the largest wing (at left), which will contain both single and double rooms, as well as some facilities for therapy. Another wing (upper right) will be set aside for non-ambulatory patients, and these two wings will be connected by buildings containing dining rooms, offices and more therapy rooms.



Category: Institutional Housing.
Designer: A. L. Bruner, for Clinton Convalescent Center, North East Detroit, Mich.; Begrow & Brown, associate architects. *Jury's comment:* "interesting orientation and design." A dual problem of space and congestion was presented. Space requirements were for a 100-bed nursing home to be located on a two-acre lot; to reduce the "institutional" atmosphere, three wings, each with commons and dining areas, were designed to house 32-36 patients each. To give residents some privacy on a corner with much traffic, walled courts were provided.

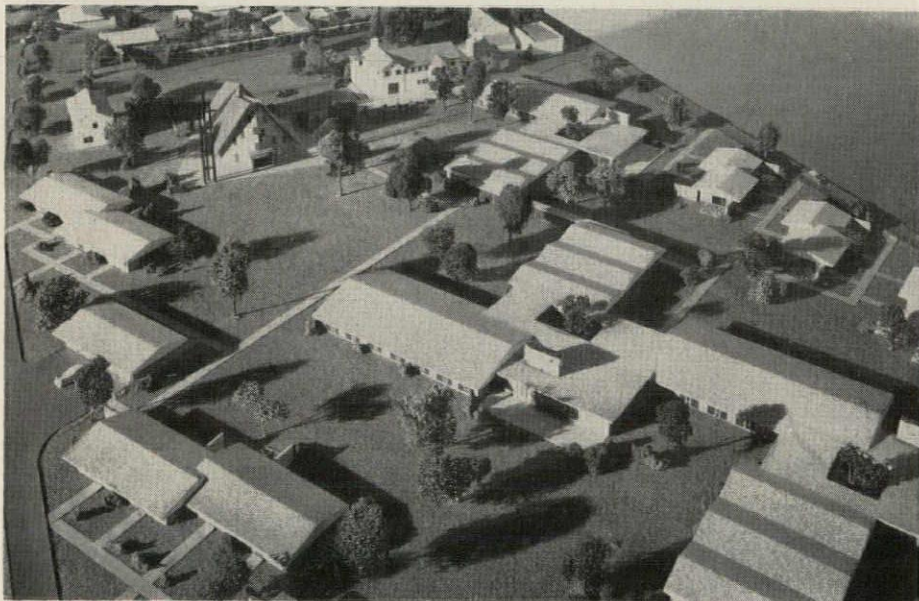


Category: Institutional Housing.
Architect: J. Wesley Olds, for the Hawley Nursing Home, Adrian, Mich. *Jury's comment:* "pleasant, economical design." An almost square plan, with a landscaped court in the center, will provide each room with a pleasant outlook. This small home will house only 40 patients, 32 of them in double rooms located in the wings perpendicular to the main entrance. In front wing are nurses' station, work rooms and a double-duty room for occupational therapy and chapel. Rear wing contains kitchen and dining facilities. Provisions are included for future expansion.

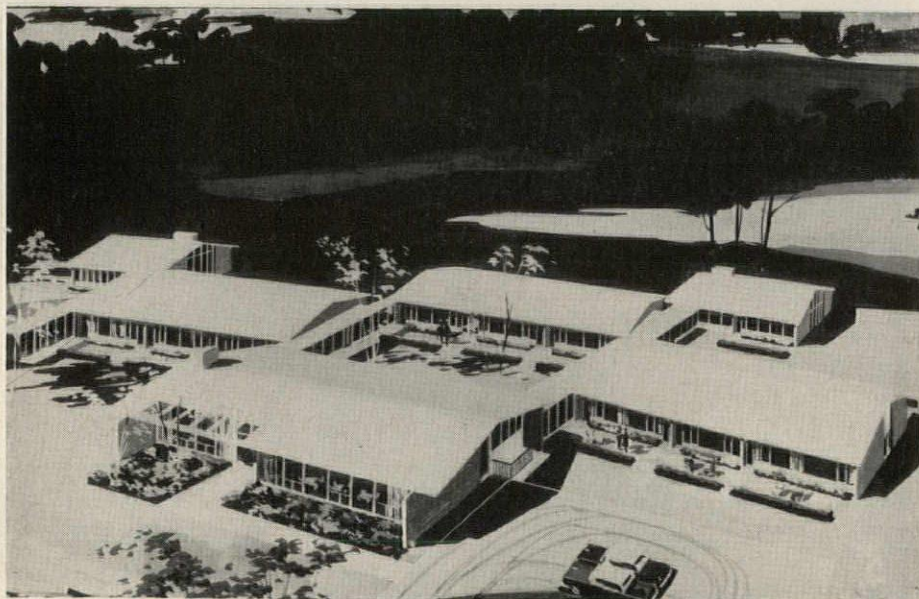




Category: Institutional Housing.
Architect: Edward Mahlum, for the Norse Home, Inc., Seattle, Wash.
Jury's comment: "straightforward, efficient design." The lack of "frills" is probably more than made up for by the home's view of Puget Sound and the mountains. Typical floor plan includes one-room apartments with private bath, and, on each floor, two lounges and a coffee room; the third floor is set aside for nursing care. The two-story wing at ground level contains dining room and central lounge. The cost of the building, with equipment and furnishing, came to about \$14 per sq ft.

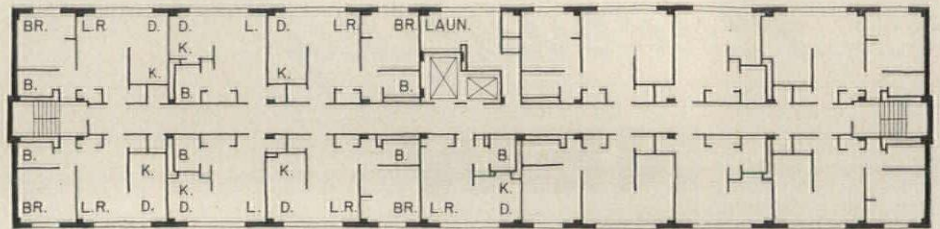


Category: Institutional Housing.
Architects: Smith, Hinchman & Grylls, for Presbyterian Village, Syosset, Long Island, N. Y. *Jury's comment:* "excellent use of site." A master plan for an 11-acre site on a former estate will take some time to execute. The first building scheduled for construction is an addition to an existing house (top center), to house 26 residents, as well as a library and crafts room. Eventually, facilities in the village will include one-bedroom apartments, bachelor apartments, a nursing unit and individual houses, scattered for variety.

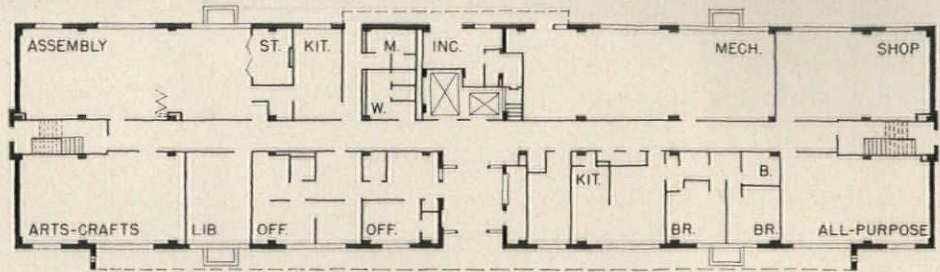


Category: Institutional Housing.
Architects: Smith, Hinchman & Grylls, for St. Anne's Mead Episcopal Home for the Aged, Detroit. *Jury's comment:* "excellent design and use of site." The first building in the master plan will be a community residence," to house 32 residents, with expansion plans for another 16. This building will also contain an infirmary, matron's quarters, dining and lounge facilities. Another similar unit is planned, as are 11 studio apartments, and seven individual houses. The large units will have small wings to harmonize with the residential character of the project.

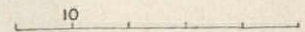
Category: High-rise Housing. *Architects:* Loewenberg & Loewenberg, for Chicago Housing Authority, Housing for the Elderly. *Jury's comment:* "good, simple plan." This development contains 91 apartments, all with living room, dining area, kitchen and bath, 56 with bedroom. Built-in safety devices include hand-rails in bathrooms, automatic controls on pilot lights, nonslip floors, wide doors and corridors to accommodate wheelchairs. Medical services are located on the ground floor, as are lounges and workrooms open to older members of the community as well as to the residents of the development.



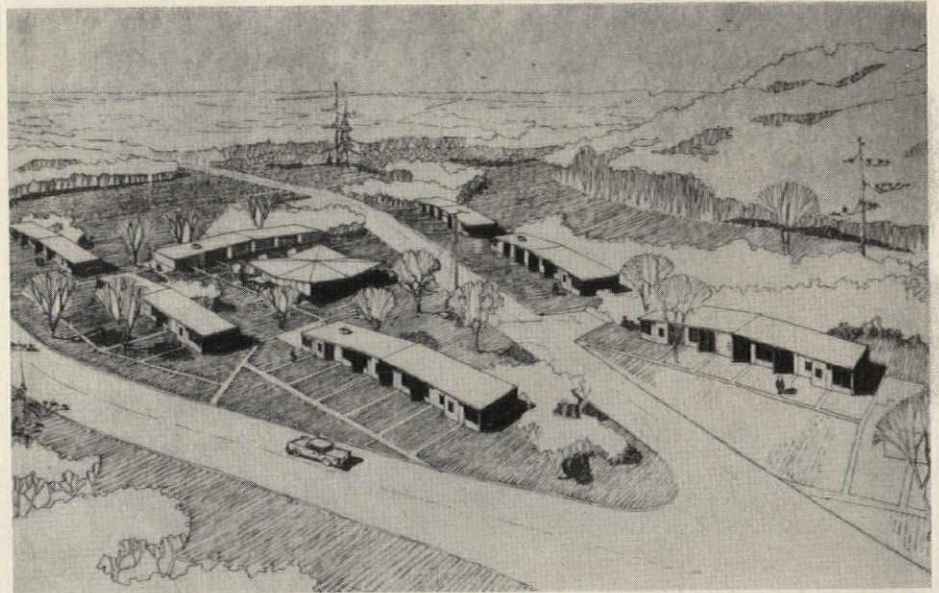
TYPICAL FLOOR PLAN



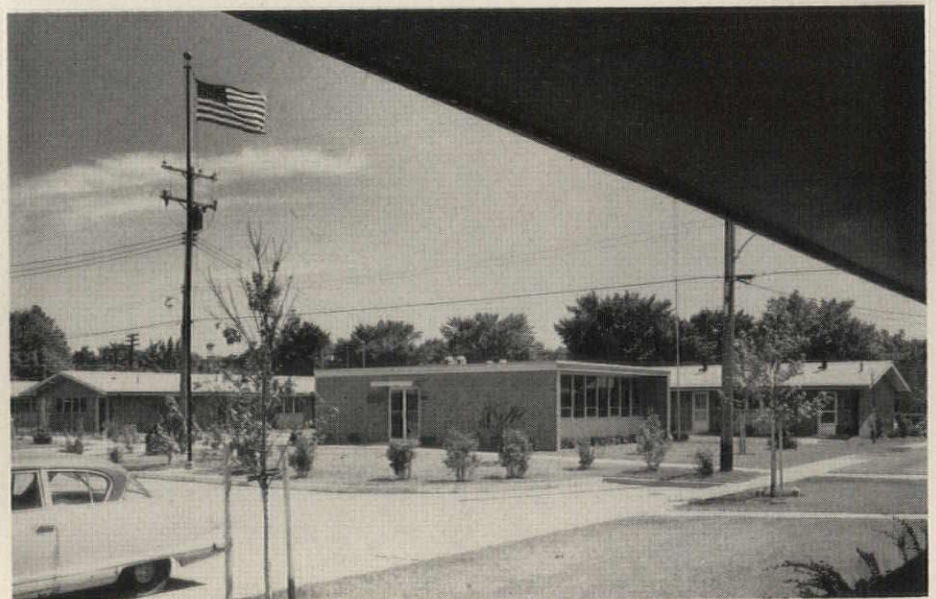
FIRST FLOOR PLAN



Category: Row Housing. *Architect:* William Hoskins Brown, for Fitchburg, Mass., Housing Authority, Clinton Valley Terrace. *Jury's comment:* "excellent design." The 48 apartments in this development were arranged in eight small buildings to preserve the rural appearance of the wooded site. Of these apartments, 16 are for double occupancy, 32 for single, and all were intended for able-bodied residents. Special efforts were made to give each apartment individuality, by varying shapes and colors, and by setting off each entrance. Each apartment looks out on both the street side and garden side.



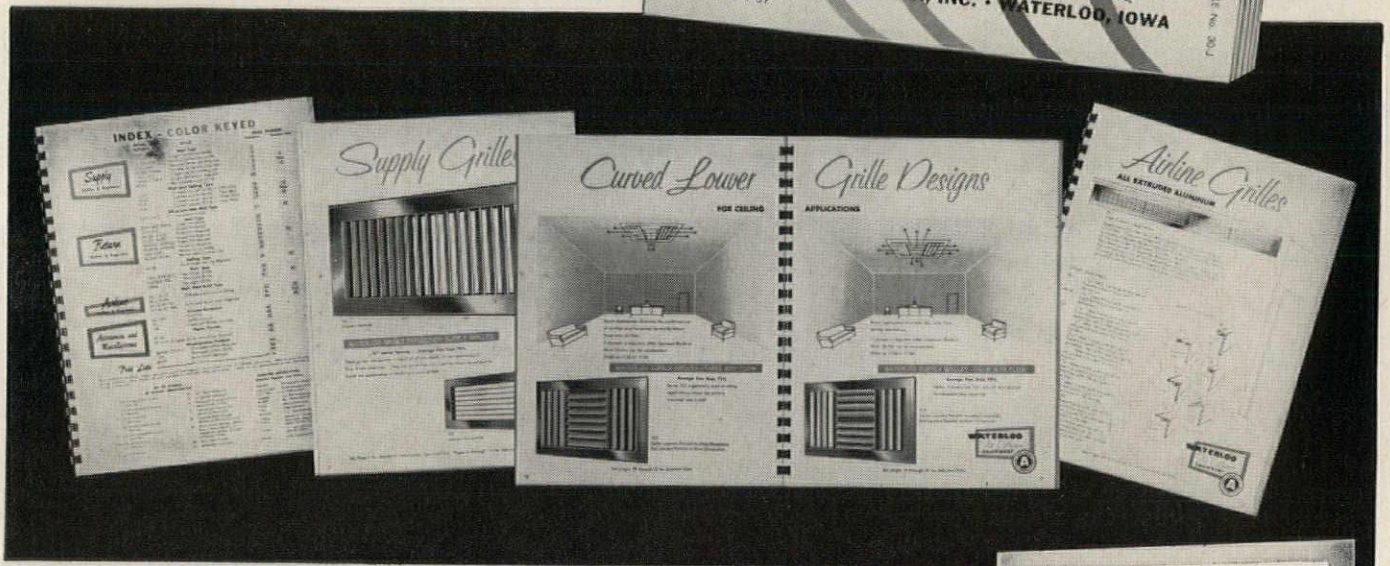
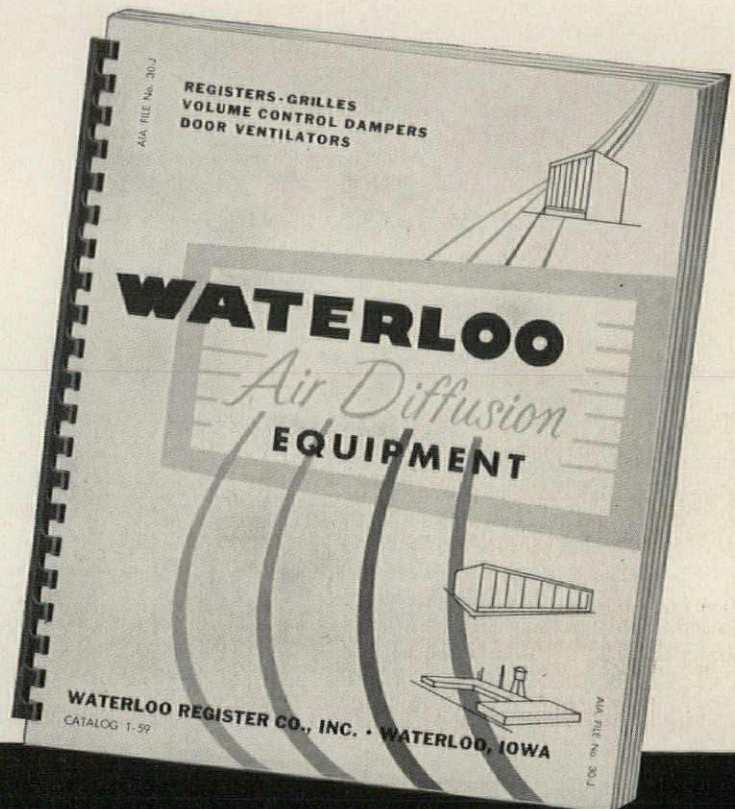
Category: Row Housing. *Architects:* Munger, Munger and Associates, for the Toledo, Ohio, Metropolitan Housing Authority, A. Gideon Spieker Terrace. *Jury's comment:* "good, modest housing for low income elderly." Undertaken to provide adequate rental housing for aging couples and single persons on limited pensions, this development now houses 94 residents in 44 one-bedroom apartments and six apartments without bedrooms. The ten single-story houses and a central building which houses social activities occupy a 2.6 acre site near other public housing and local transportation.



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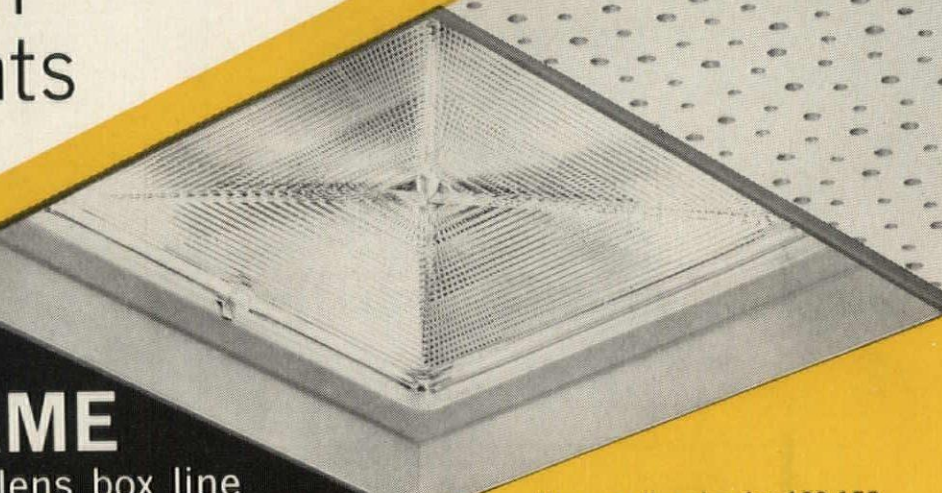
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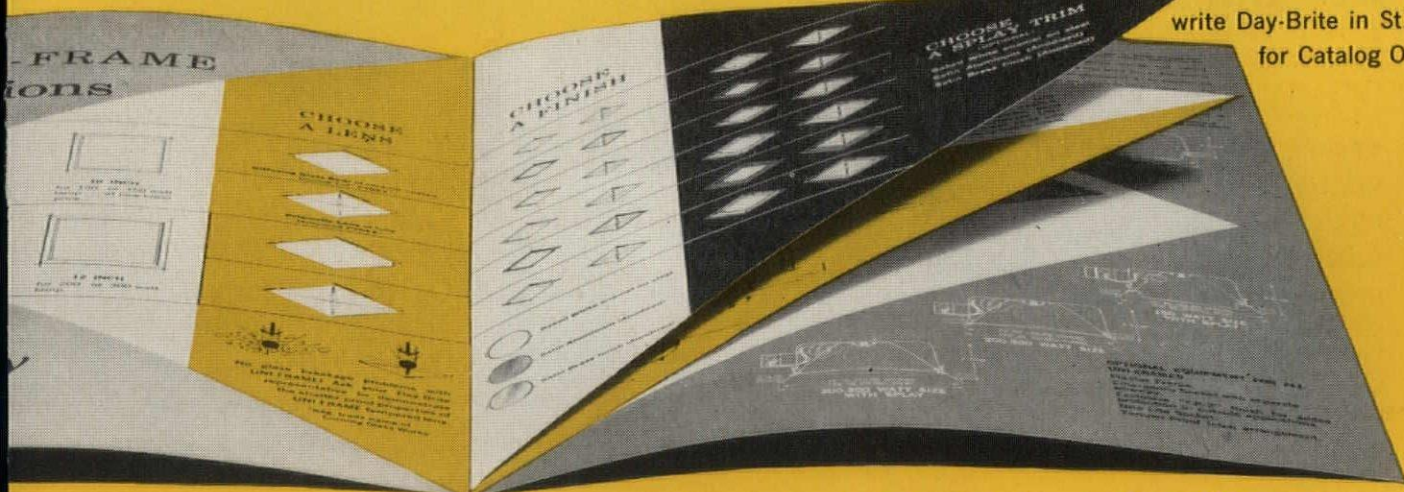
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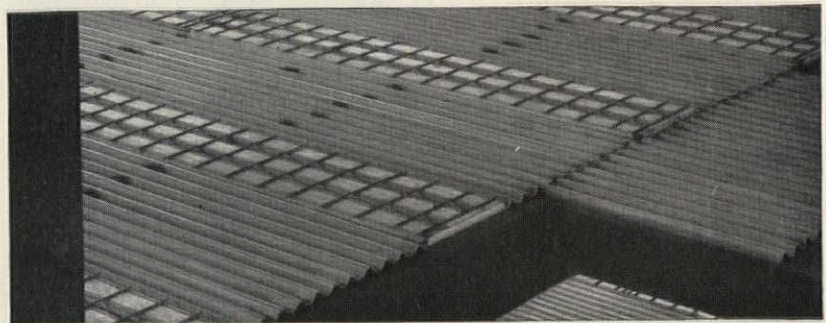
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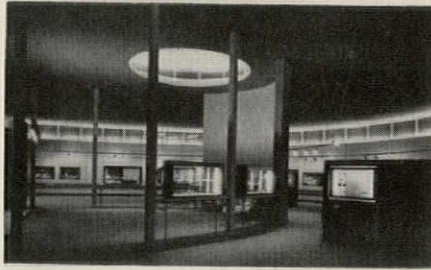
News of Architecture Abroad

Israeli Archaeological Group Opens With Glass Museum

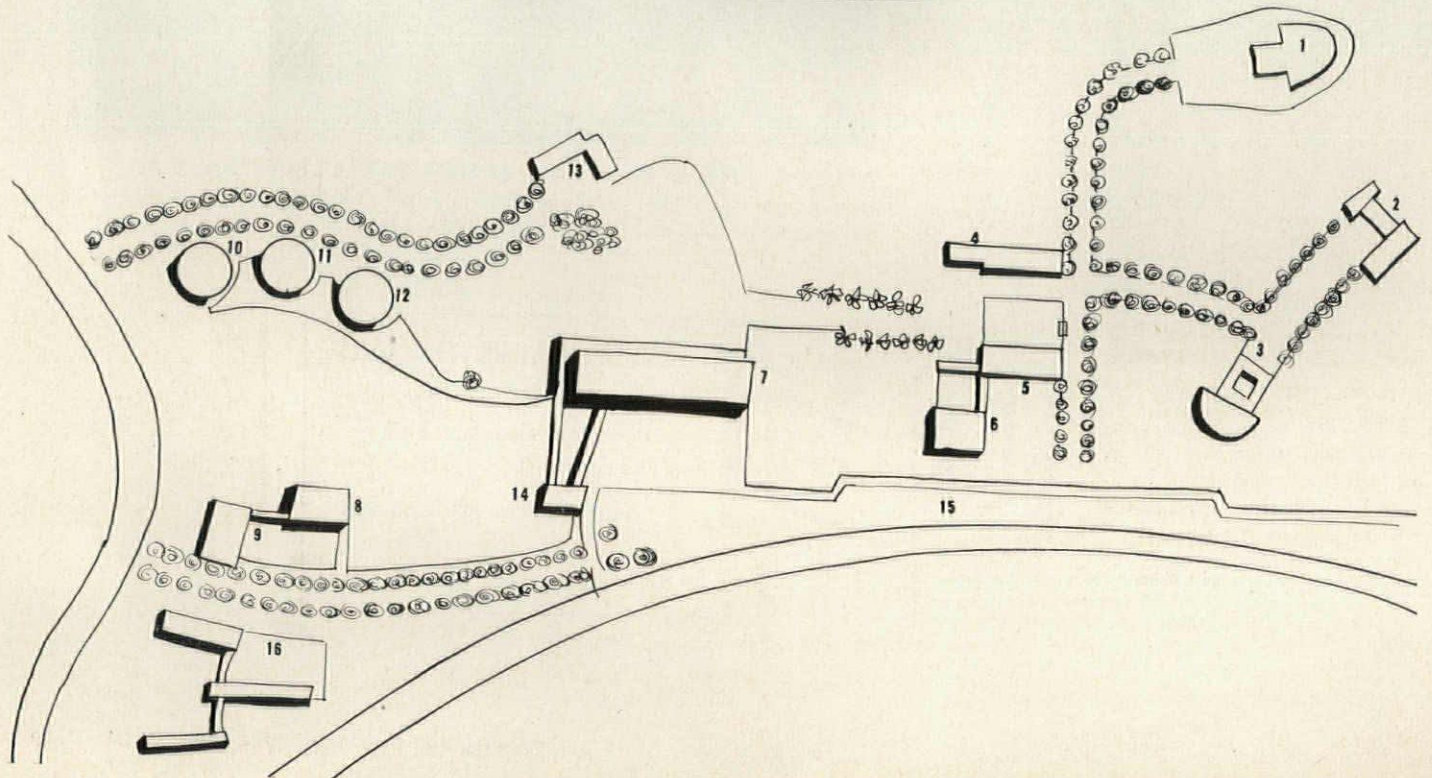
The Museum of Glass, the first of a number of buildings ultimately to comprise the archaeological Museum Ha'aretz (Museum of the Land), was opened last June near Tel-Aviv in Israel. The architects of the Glass Museum are W. J. Wittkower and E. W. Baumann of Tel-Aviv.

The two-story building contains an entrance lobby and 4000-sq-ft circular exhibition hall above offices, laboratories, library, etc. Construction is reinforced concrete; the roof is supported near its center by a curved concrete interior wall and on the perimeter by steel columns. The ceiling height rises from 14 ft 6 in. to 17 ft. 6 in. at the center. External walls of the lobby are faced in Nazareth limestone in five colors; turquoise ceramic tiles are used for facing the main hall.

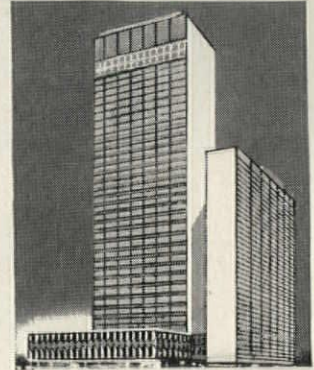
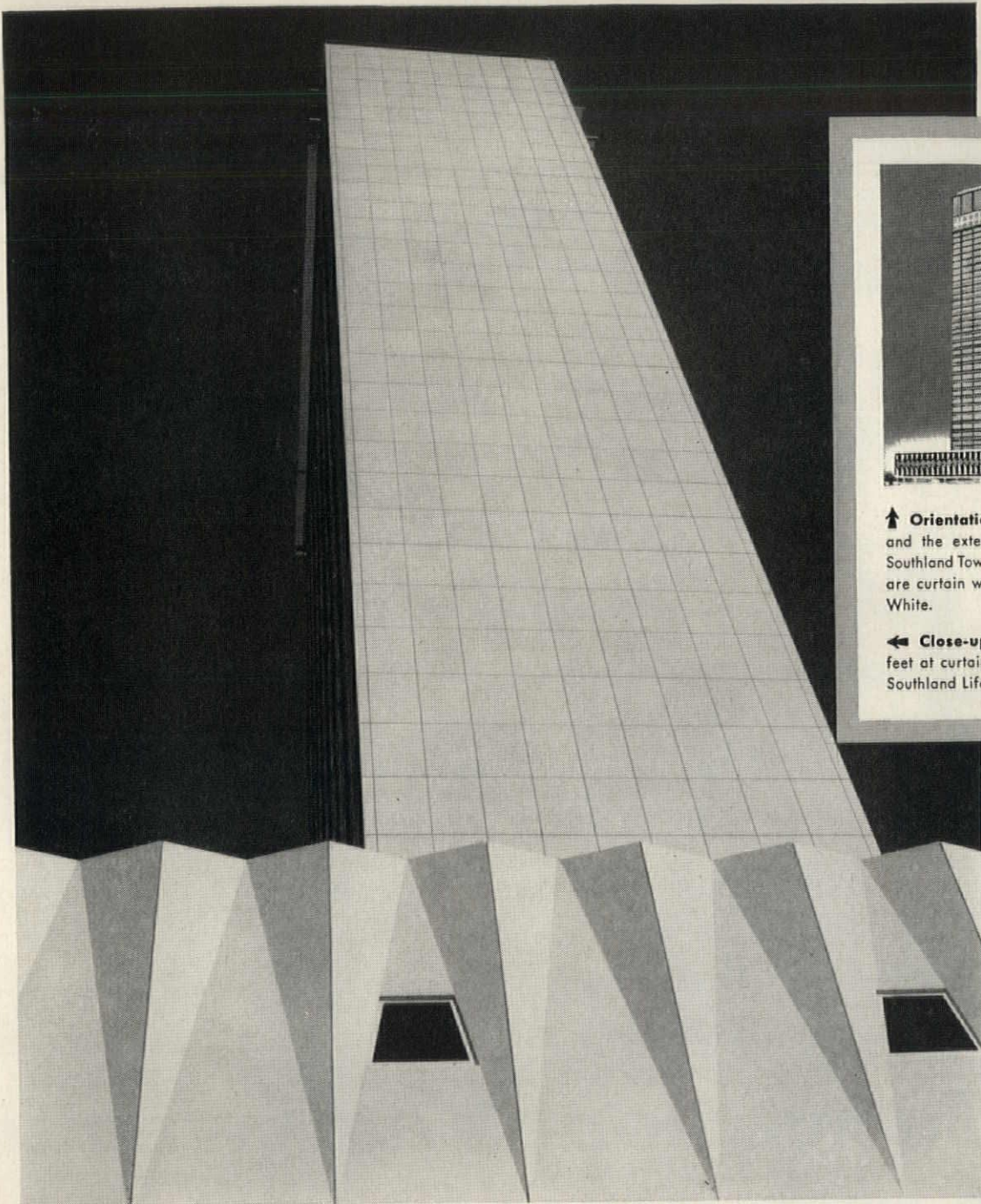
The late Dr. Walter Moses, founder of the Museum Ha'aretz, established a foundation which negotiated an agreement with the city of Tel-Aviv under which the city provided the museum site and is responsible for upkeep. Dr. Moses made a number of archaeological collections, including the glass collection which is housed in the first building. The Glass Museum was financed by a contribution of the late Louis M. Rabinowitz through the America-Israel Cultural Foundation.



Site plan of the Museum Ha'aretz near Tel-Aviv, Israel, showing the locations of the first building and of the 13 others planned to house collections from various areas: 1. Museum of Glass; 2. folklore; 3. prehistory and geology; 4. Cyprus and islands; 5. Greece; 6. Egypt; 7. Israel; 8. Mesopotamia; 9. Syria and Anatolia; 10. period of the Crusades; 11. Islam; 12. Byzantium; 13. club and cafe; 14. entrance; 15. parking; 16. Institute of Archaeology. The three photographs give a general exterior view of the Museum of Glass, a close-up of the exterior, showing the ceramic tiles, and a view of the circular exhibition hall



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← **Close-up.** Looking upward 550 feet at curtain wall on the 42-story Southland Life building.

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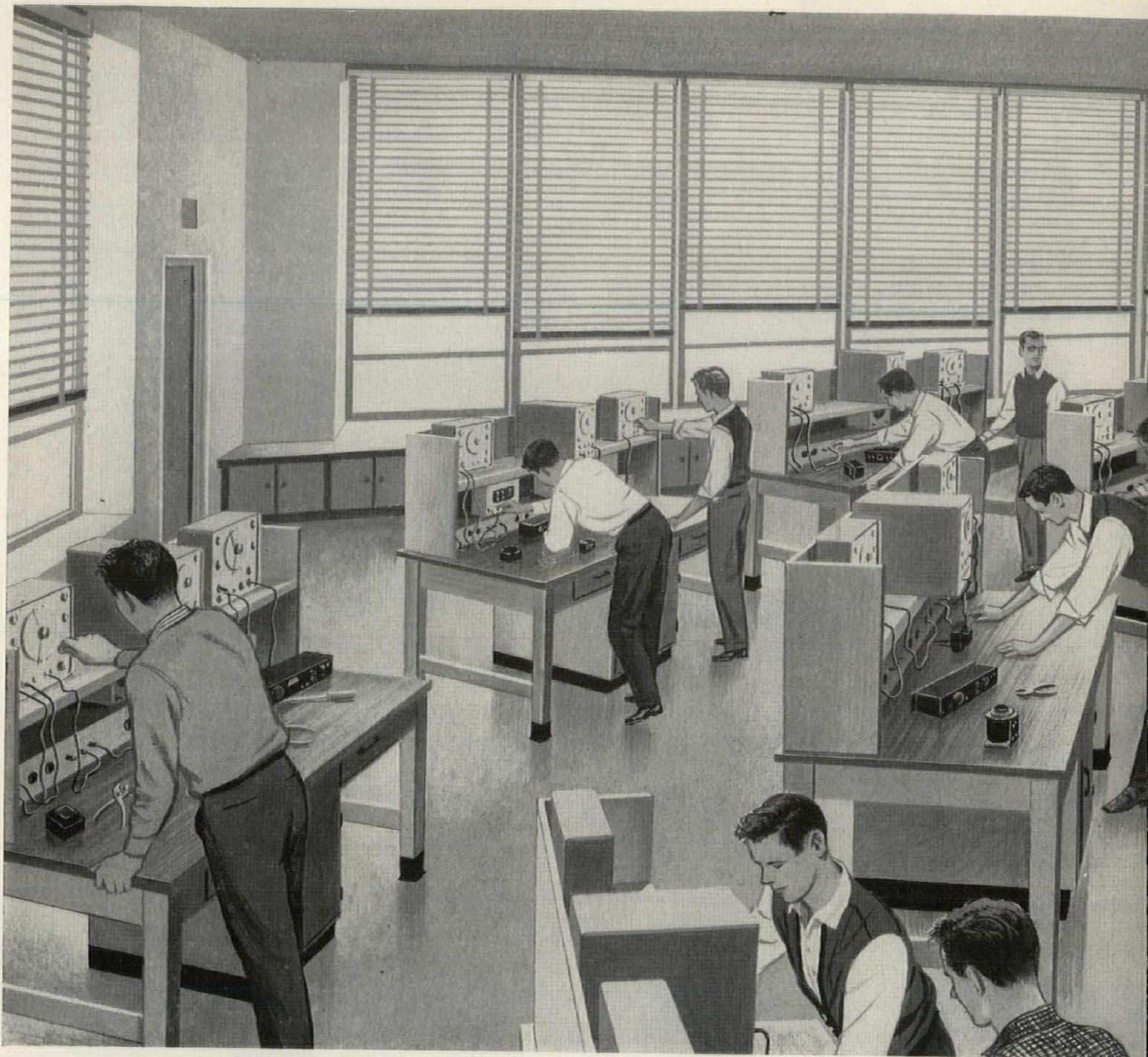
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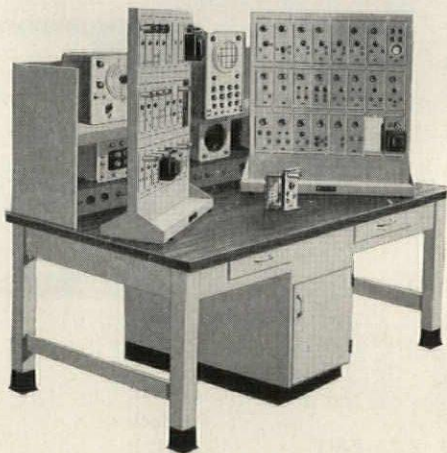
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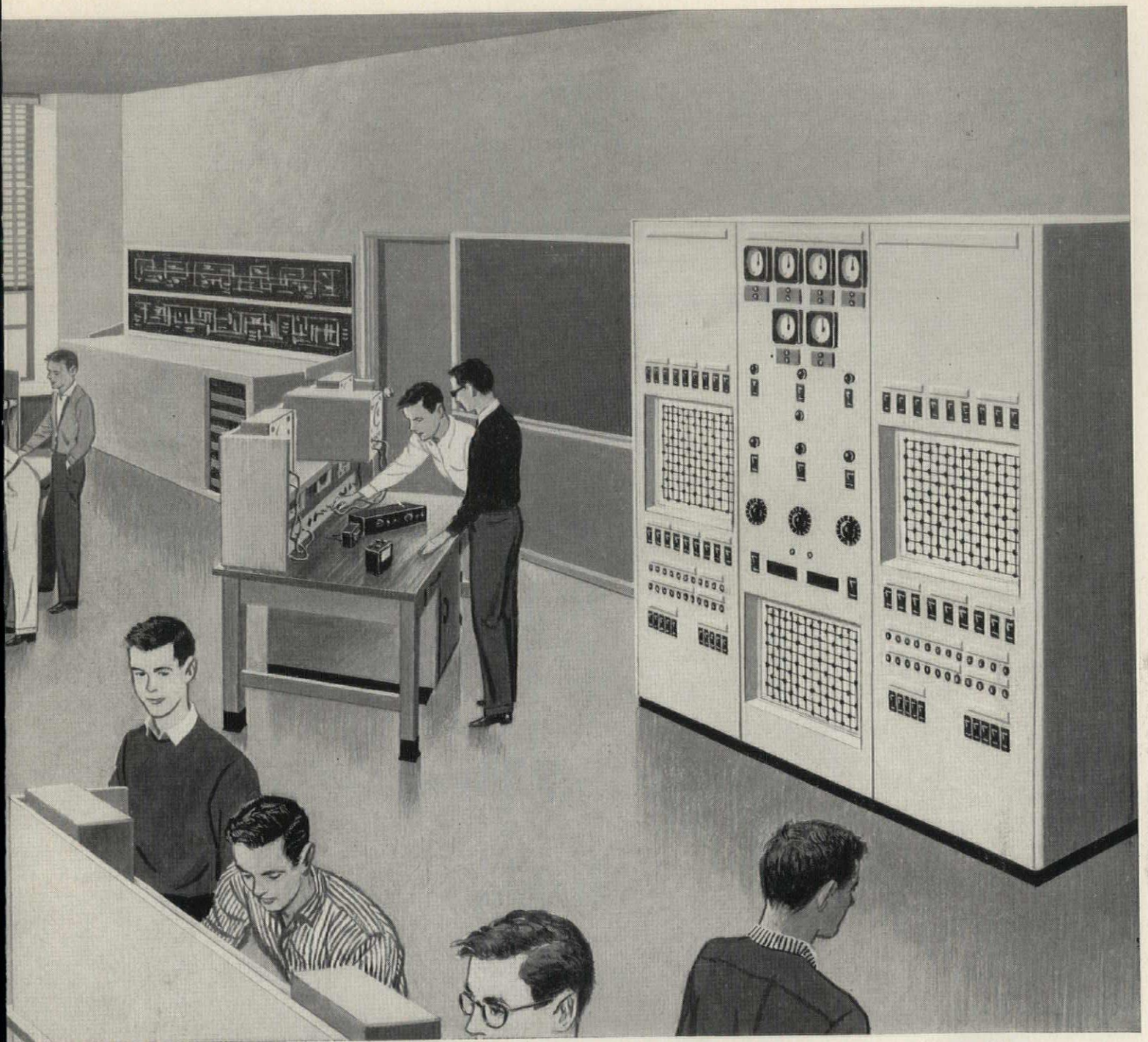


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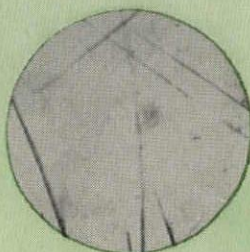
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New York State Architects Meet

More than 500 architects, exhibitors, wives, and guests attended the annual convention of the New York State Association of Architects at the Whiteface Inn, Lake Placid, October 7-10. The meeting was timed to take fullest advantage of the spectacular fall foliage in the Adirondacks, which lived up to expectations. The N.Y.S.A.A. is composed of the New York State Regional Organization, A.I.A., plus various constituent societies over the state.

High point of the program was the seminar on "Inside Our Profession." Olindo Grossi, dean of Pratt's School of Architecture, discussed future directions in architectural education; Vincent G. Kling, Philadelphia architect, provocatively suggested that the entire profession—as well as our total environment—might benefit should the architect become again the master builder; and John J. Calanese, assistant attorney general of New York State, pointed out deficiencies in the present registration statute, and offered cooperation to the N.Y.S.A.A. in remedying them.

The group elected the following officers for the coming year: John W. Briggs, president; Frederick H. Voss, first vice president; S. Elmer Chambers, second vice president; Simeon Heller, third vice president; F. Allen Macomber, secretary; Martyn N. Weston, treasurer. Joseph F. Addonizio will continue as executive director, with offices in New York City. —James S. Hornbeck

Producers' Council Meets

The 38th annual meeting of the Producers' Council, Inc., held in St. Louis last month, drew more than

200. The following officers were re-elected: H. Dorn Stewart, Barrett Division, Allied Chemical Corp., president; Elmer A. Lundberg, Pittsburgh Plate Glass Co., first vice president; Henry E. North Jr., Arcadia Metal Products, second vice president; T. D. Wakefield, The Wakefield Co., secretary; H. L. Cramer, Westinghouse Electric Corp., treasurer. Two new directors were also elected: Marvin Greenwood, Celotex Corp., and George Martens, Johns-Manville Sales Corp.

Awards were presented to the Kansas City chapter for its project known as "Kansas City Kitty" and to A. M. "Brig" Young, Libbey-Owens-Ford Glass Co., as chairman of the year. Mr. Young's award, a new one, recognizes his continuing chairmanship of the seminars committee and his participation in all Council activities.

P.C.'s seminars on specific construction projects were outlined. The first, on curtain walls, has been held; the current series of meetings is considering roofing and roofs. The third is to be on air conditioning. Also, proposals were made that P.C. spend \$25,000 a year for the next three years on a detailed study of three major aspects of distribution complexities: distribution channels themselves, better identification of those who specify materials for jobs, and the elimination of "gaps" in construction statistics. —Ernest Mickel

B.R.I. to Consider Six Topics

The Building Research Institute's Fall Conferences, to be held November 17-19 at the Shoreham Hotel in Washington, will focus on six main aspects of building technology. The

program has been drawn up by a planning committee whose chairman is Thomas E. Werkema, industrial research analyst, Dow Chemical Co.

The six primary topics are:

Modular Coordination—William H. Scheick, vice president, Timber Engineering Co., chairman; the participants include: Cyrus E. Silling, F.A.I.A.; Byron Bloomfield, executive director, Modular Building Standards Association; D. Kenneth Sargent, dean, School of Architecture, University of Syracuse.

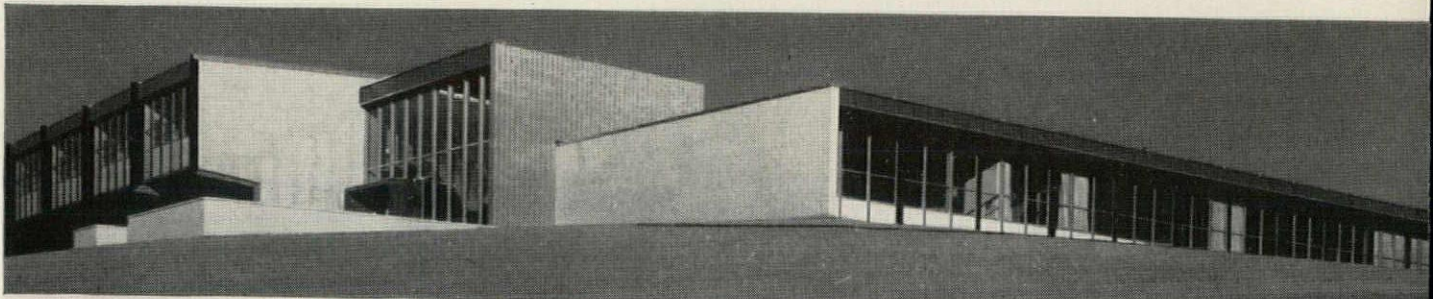
New Heating Techniques—John Everetts Jr., consulting engineer, chairman.

Metal Curtain Walls—George P. Danforth, director, department of architecture, Illinois Institute of Technology, chairman. This conference features "case studies" of selected buildings, including Morton Salt building (Graham, Anderson, Probst & White), New Orleans Public Library (Curtis & Davis), Sheraton Hotel, Philadelphia (Perry, Shaw, Hepburn & Dean).

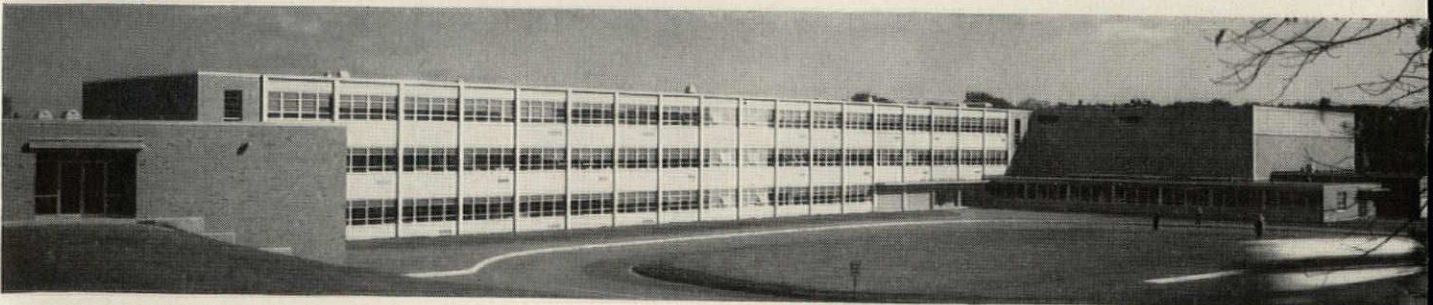
Building Research Workshop—"Manufacturers' Problems with Component Construction": Leonard G. Haeger, chairman; "Proposals for New Building Research": Glenn H. Beyer, director, Housing Research Center, Cornell University, chairman; "Documentation of building Science Literature": Charles H. Topping, senior architectural consultant, duPont, chairman.

Sandwich Panel Design—Albert G. H. Dietz, professor of building engineering, Massachusetts Institute of Technology, chairman. The participants include: John Dinkeloo, partner, Eero Saarinen & Associates; Phillip Grennan, engineer associate,

First Christian Church of
 Tomorrow, Oklahoma City,
 Oklahoma. Meditation Walk
 and the Educational Building
 dramatically positioned beside
 a reflecting pool. Ceco 1½"
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 Windows with aluminum
 panels were field welded one
 on top of the other to the full
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 Stainless steel louvres
 separate each window unit.
 Louvres are so placed that no
 direct ray of sunlight enters
 the building, yet full
 daylighting is accomplished.
 Here's an example of how
 Ceco Steel Windows
 complement the crisp beauty
 of a functional church, yet
 perform with maximum
 efficiency.
 Architects: Connor & Pojezny;
 Contractor:
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Modern simplicity is exemplified in the Quincy Senior High School, Quincy, Illinois, riding the top of a rise as viewed here. Ceco Aluminum Projected Windows with porcelain enameled panels add to the pristine beauty of the structure while providing adequate daylighting for visual acuity. Architects and Engineers: Behrensmeyer & Horn; Contractor: J. L. Simmons Co., Inc.



New Portsmouth High School, Portsmouth, New Hampshire, is a large structure with multiple needs, architecturally speaking. Ceco Aluminum Projected Windows were specified along with Ceco Architectural Projected Steel Windows and assure the maximum in functional performance. Architects: August Lux Associates; Contractor: Davison Construction Co., Inc.



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Meetings and Miscellany

Alfred Easton Poor, Architects; Robert F. Hastings, executive vice president, Smith, Hinchman & Grylls Associates.

Building Research International—Douglas E. Parsons, chief, building technology division, National Bureau of Standards, chairman.

N.A.H.B.—A.I.A. Design Clinic

The National Association of Home Builders and the American Institute of Architects are sponsoring the first joint "Design Clinic," to be held November 4-7 at the University of Florida in Gainesville. The program is a result of A.I.A.'s and N.A.H.B.'s joint endeavors to promote collaboration between house builders and architects. The clinic will include discussions of basic house design principles, the effect of design on selling, and reciprocal critiques of builders' plans by architects and architects' designs by builders.

Competitions Open

THE SIXTH ANNUAL ARCHITECTURAL AWARDS PROGRAM IN CATHOLIC INSTITUTIONAL DESIGN has been announced by its sponsor, the magazine *Catholic Property Administration*. The 1960 program is under the jurisdiction of the Wisconsin Chapter, American Institute of Architects, which has selected Alvin E. Grellinger, A.I.A., Milwaukee, as chairman of the jury. The categories this year are: churches seating no more than 400; elementary schools accommodating 400 or more; high schools accommodating no more than 750; hospitals or hospital additions of no more than 100 beds; convents accommodating no more than 15. Any may be submitted when completed, under construction, or as an "approved" design. Entries are to be received by December 1 by *Catholic Property Administration*, 20 W. Putnam Ave., Greenwich, Conn.

THE INDIANAPOLIS HOME SHOW, INC., announces its 1960 architectural competition. There are no geographical limitations on eligibility, and any architect, architectural designer, draftsman, or architectural student may compete. The problem is the design of a house in a midwestern city for a specific professor and his family. There will be prizes of \$1000, \$500, and \$200, and six honorable mentions of \$50 each. The 50 best designs will be displayed at the 1960 Indianapolis Home Show in February and published in a plan book. The jury will consist of: John Noble Richards, F.A.I.A., president, American Institute of Architects, chairman; Charles J. Betts, A.I.A., president, Indiana Society of Archi-

itects; Fran E. Schroeder, A.I.A., president, Indianapolis Section, Indiana Society of Architects; Glen Smith, builder; James E. Holt. The architectural adviser is Donald E. Clark, A.I.A., 1456 N. Delaware St., Indianapolis 2. The program and information are available from Mr. Clark. Applications and entries, to be mailed to him, must be postmarked by December 1 and December 30, respectively.

THE NATIONAL INSTITUTE FOR ARCHITECTURAL EDUCATION announces its annual competitions for students. The advanced problem (senior and post-graduate student), "Forecast for Ellis Island as a Project," carries the S.A.D.G. Groupe American Prize; the intermediate problem (students in third and fourth year of design), "A Concert Hall-Recital Center," carries the Emerson Memorial Prize; the elementary problem (students who have had at least two years of design), "An Exercise in Light, Color, and Form," carries the ARCHITECTURAL RECORD Prize. Entries must be in by January 11. Details from the Institute, 115 E. 40th St., New York 16.

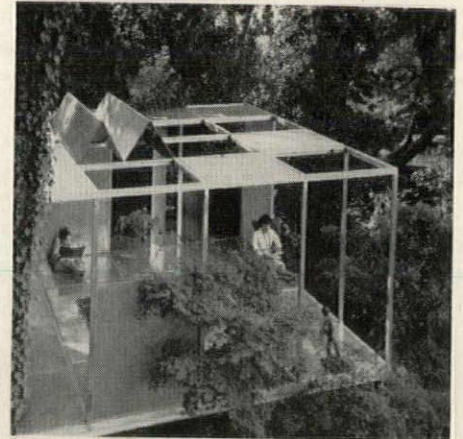
THE FINE HARDWOODS ASSOCIATION announces the 1959 "Design in Hardwoods" Awards. Eligible is any American or Canadian product or architectural installation made of genuine hardwood or in which hardwoods play a major role. Entries, which must have been produced or be in existence, may be submitted by the designer, architect, decorator, or artist who created each one (or, if a manufactured product, by the firm for which it was created). Entries must be received by December 1 by the Fine Hardwoods Association, Room 1730, 666 Lake Shore Drive, Chicago 11.

Now 51 Accredited Schools

The 1959-60 list of accredited schools of architecture, issued by the National Architectural Accrediting Board, shows 51 schools, one more than in 1958-59. All are accredited for five years (subject to approval of an annual report) except the seven schools given provisional status. Of these, one is the addition this year: University of Houston. The provisional status of the University of Arkansas, University of Kansas, Montana State College, Virginia Polytechnic Institute, and Western Reserve University has been continued; Rice Institute is newly in that category.

Civil Engineers to Meet

The Kansas City Section of the American Society of Civil Engineers



The View Box, a demountable light-weight all-purpose shelter, was designed by John Matthias as a prototype for the Aluminum Company of America. Intended for easy construction (the prototype was erected, without tools, by a woman and a six-year-old), the structure is composed of structural aluminum members and plastic-and-anodized-aluminum sandwich panels. It is not currently on the market, though production is being considered.

will sponsor a Regional Conference on Construction, to be held November 12-13 at the Continental Hotel in Kansas City. The general theme is to be "Mid-Century Construction—What's Right? Wrong? New?" Major topics are concrete construction, steel construction, foundations. Session moderators are: Joseph Sorokin, partner, Howard, Needles, Tammen & Bergendorff, Consulting Engineers; Col. L. E. Laurion, district engineer, U. S. Corps of Engineers; S. J. Callahan, partner, S. J. Callahan & Co, Consulting Engineers.



Members of the Chicago Chapter of the American Institute of Architects, hosts at an October 9 luncheon, were among several A.I.A. groups to entertain an unofficial delegation of 16 Soviet architects, engineers, and planners visiting the U.S.A. last month. Here, standing: John R. Fugard Jr., chairman of the A.I.A.'s Committee on Foreign Relations; William J. Bachman, president of the Chicago chapter; and State Department interpreter Alexander de Bildering. Seated: Grigor C. Agababyan, civil engineer from Erivan, Armenia, and Boris V. Muraviev, leader of the group and Architect of Public Works in Leningrad. In the course of a two weeks' tour, the visitors also stopped at New York, Philadelphia, Washington, and Dearborn, Mich.

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Doors with Frame and Hardware Ready-To-Ship

No cost guesswork; no production lead time! Panelfab's famous aluminum-faced honeycomb doors now come to you *fast*, when you need them, with costs budgeted before you specify. This handsome, "Hi-Traffic" door is now ready for immediate shipment from factory stock and readily utilized wherever you need a lightweight, lifetime architectural door with exceptional strength characteristics. Check these added advantages of the Panelfab door:

- **COMPLETE DOOR with FRAME and HARDWARE** from a single source
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Miami, Florida—Phone: WIlson 5-1411

Gentlemen:

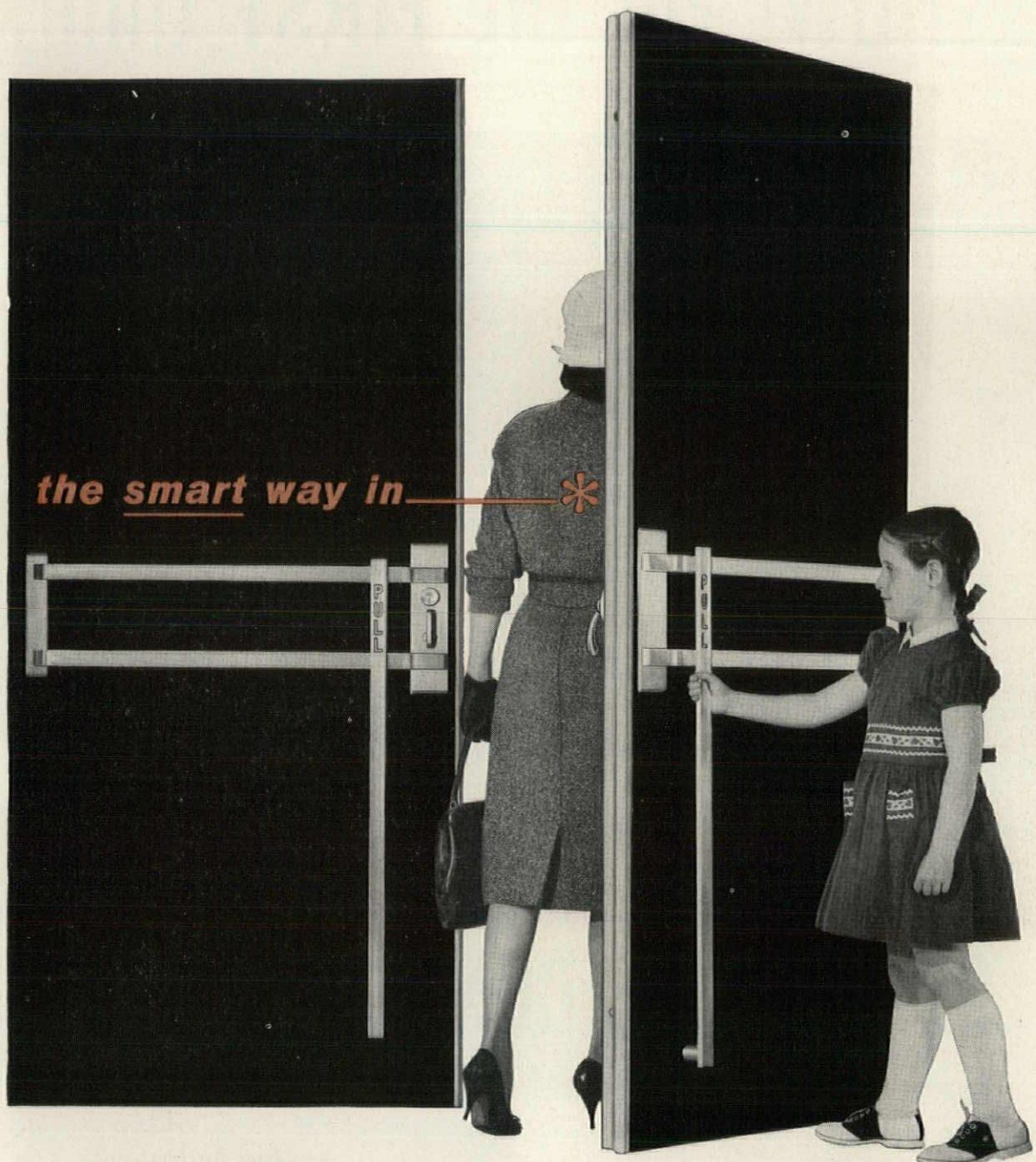
Please send me complete information on Panelfab's aluminum-faced honeycomb door.

_____ (name)

_____ (title)

_____ (street address)

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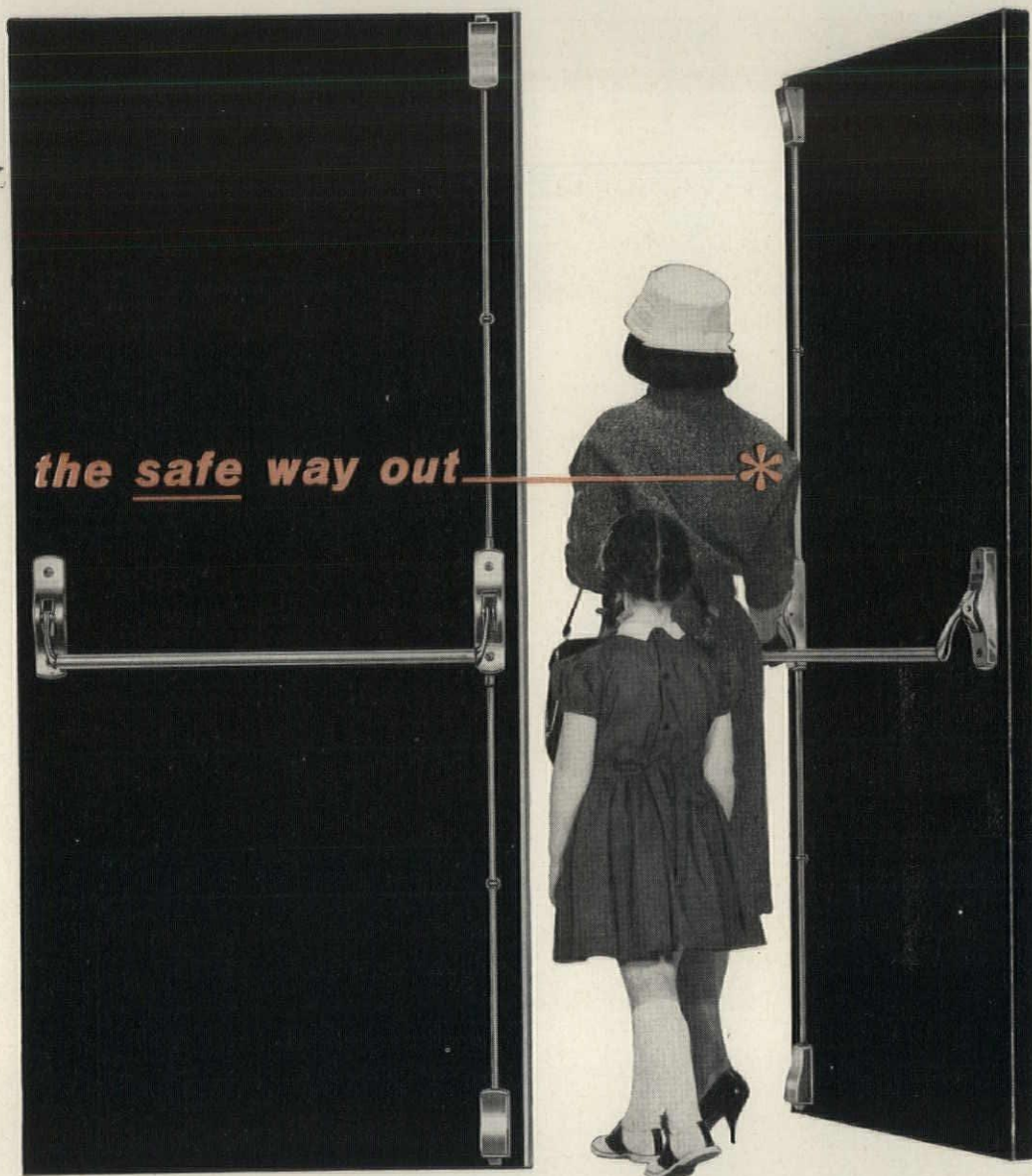


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● Von Duprin pull bars are *all* extruded aluminum or bronze. Here is a fully versatile line: reversible . . . no resizing necessary . . . modern or matching designs, each with studs to anchor A² or 88 Von Duprin rim devices . . . plain or engraved grips are curved to fit the hand—safely. Matching push plates and pulls available for vestibule doors. Complete details are yours for the asking; write for Bulletin 576.

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



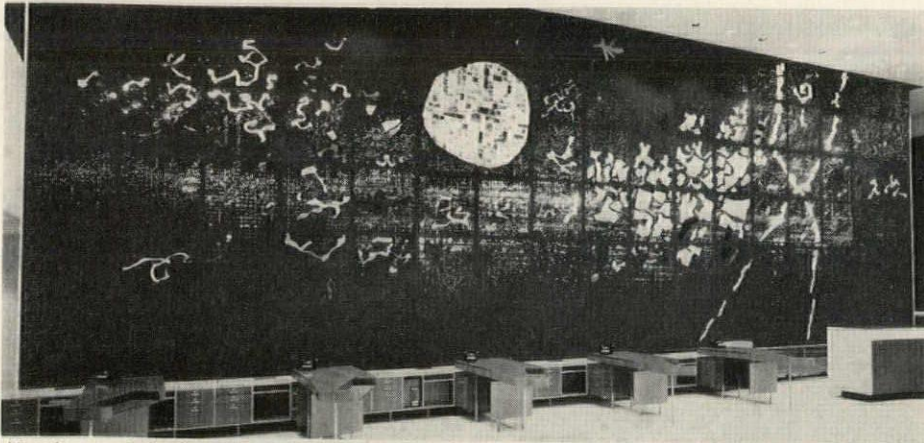


Von Duprin® EXIT DEVICES

illustrated above: the sleek, smart Type 66 device . . . in stainless steel. Catalog number 6621 on active door; 6627 on inactive door. Write for Bulletin 581 for full details.

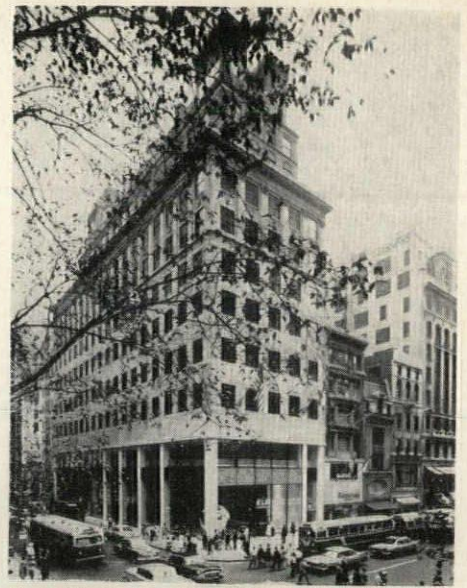
● Von Duprin builds devices to *last* . . . give decades of dependable service with minimum maintenance! From Von Duprin's *complete* line, you can select a design, material, locking function and outside trim style to harmonize with every type exit. To perfect the performance of the entire door opening, you can choose from a wide range of quality auxiliary items. With Von Duprin, you *know* you have provided "the safe way out!"

VONNEGUT HARDWARE CO. • VON DUPRIN DIVISION • INDIANAPOLIS, INDIANA



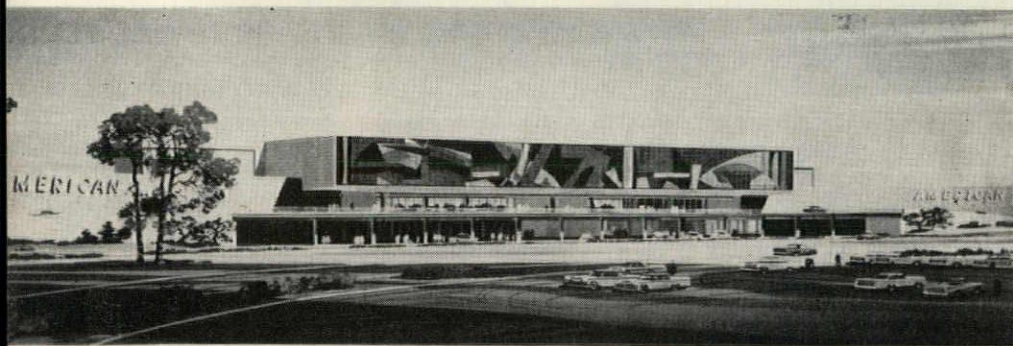
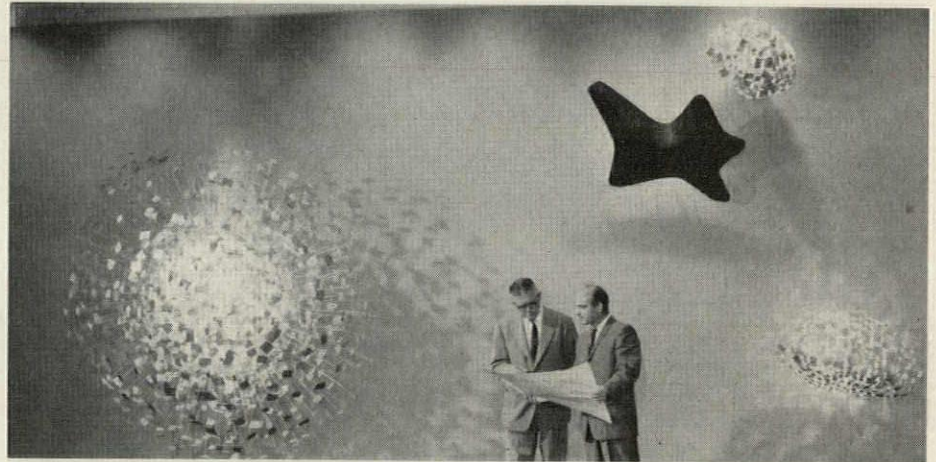
Aluminum, stained glass and electric lights are the major components of a mural designed for the KLM Royal Dutch Airlines ticket offices in New York City by Gyorgy Kepes, Professor of Visual Design at Massachusetts Institute of Technology. The large (51 ft by 18 ft) mural was conceived as an

expression of "the relationship of space to natural and man-made stars," according to Mr. Kepes. "This impression comes from the experience a person has flying in an airplane at night and looking down on a panorama of city lights . . ." The gray aluminum screen has around 60,000 perforations,

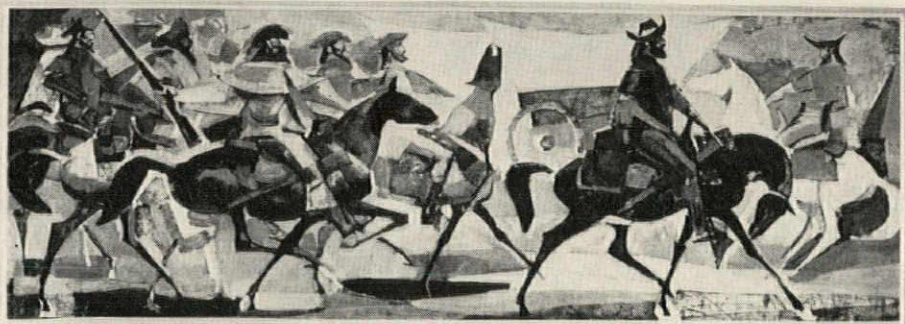


as well as the 36-sq-ft cut-out filled with stained glass; combinations of incandescent and fluorescent lights flicker and dim behind it. A special air conditioning unit was installed to offset the heat generated by the lighting. The architects for the offices were Antonin Raymond & L. L. Rado

Right: Brass and electronics are combined in Harry Bertioia's sculpture for the Zenith Radio Corporation. The group will be on permanent exhibition at Zenith's Chicago display room. Symbolizing "world communications in the atomic age," with the three smaller units representing light, sound and electronics, the sculpture will be specially illuminated: light impulses transmitted from the largest unit call forth similar light impulses from the smaller units. The sculpture, mounted on an orange wall, is visible from the street through a glass wall. Shaw, Metz & Associates of Chicago were the architects



The American Airlines Passenger Terminal, now under construction at New York's International Airport, was the sole subject of a recent exhibition, "Art in Architecture," held at the IBM Gallery of Arts and Sciences in New York. Among the works commissioned for the building: a stained glass wall by designer Robert Sowers, believed to be the largest expanse of stained glass ever installed (see rendering, above left). Two interior murals, also good-sized (17 ft by 52 ft) will be executed by Brazilian painter Carybe, winner of a Western Hemisphere competition for the commission (at left, "Discovery of the Americas"; not shown, "Rejoicing and Feast of the Americas"). Architects of the terminal are Kahn & Jacobs; Turner Construction Co. is the general contractor



architect: **Frank L. Glick, Chicago**
 general contractor: **Munao & Son, Inc., Chicago**
 acoustical contractor: **Airtite, Inc., Chicago**

There are many instances when Acoustical Fire Guard ceilings will provide greater fire protection to a building than would be the case with alternative methods. In such cases, this additional protection will usually be recognized in the form of lower fire insurance rates on the building and its contents.

The plans for the new American Turners Northwest Chicago Bowling Lanes called for a concrete floor on grade, solid masonry walls, and steel bar joists spanning from one wall to the other with a gypsum roof deck. Because one-hour ceiling construction was required, the architect planned to use gypsum board with $\frac{5}{8}$ " or $\frac{3}{4}$ " mineral tile cemented to it.

Then, at the request of the architect, the plans for the building were taken to the Cook County Rating Bureau for a comparison of the fire insurance rates with the above ceiling and with Armstrong

Acoustical Fire Guard. It was discovered that by substituting the two-hour Acoustical Fire Guard ceiling for the one-hour gypsum board and mineral tile ceiling, the rate per \$100 evaluation of the building dropped to \$.1104 from \$.194. The rate on the contents showed a corresponding reduction.

The owners of the bowling alley will realize an annual saving of \$485 on the premiums for the building and its contents. And they will have a safer building at lower initial ceiling cost—since the Armstrong Acoustical Fire Guard ceiling actually cost less than the one-hour ceiling of gypsum board and mineral tile.

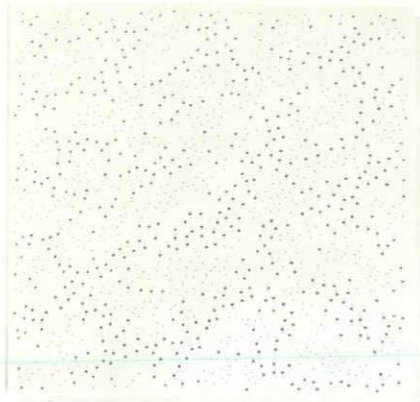
The comparisons below are approximate for typical buildings. In view of the many variables affecting fire insurance rates, you are urged to contact your local insurance representative for exact comparisons on specific buildings.

APPROXIMATE FIRE INSURANCE PREMIUM SAVINGS ON TYPICAL BUILDINGS*

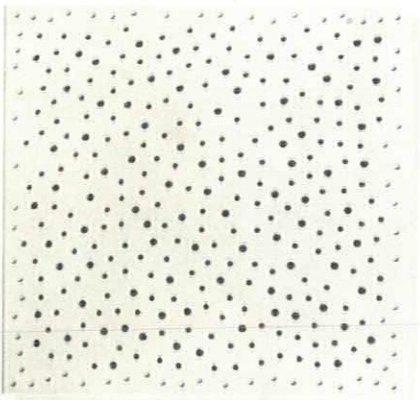
| Building Type | City | TWO-HOUR ACOUSTICAL FIRE GUARD FLOOR-CEILING ASSEMBLY VERSUS: | |
|---------------|--------------------|---|---|
| | | Combustible Tile Ceiling Suspended Beneath Unprotected Bar Joists | Incombustible Tile Ceiling Suspended Beneath Unprotected Bar Joists |
| School | Bellingham, Wash. | 24% Saving | 12% Saving |
| Supermarket | Tulsa, Okla. | 76% Saving | 62% Saving |
| School | Wilkes-Barre, Pa. | 22% Saving | 5% Saving |
| Bowling Alley | Peoria, Illinois | 73% Saving | 61% Saving |
| Supermarket | Columbus, Ohio | 73% Saving | 60% Saving |
| Bowling Alley | Pontiac, Michigan | 77% Saving | 60% Saving |
| School | Winnetka, Illinois | 60% Saving | 50% Saving |

*Percentages compiled from data of three leading insurance firms





Classic design



Full Random design



And Armstrong Acoustical Fire Guard has all the advantages of a superior ceiling material

Excellent sound absorption. Noise-reduction Coefficient of .70 for both $\frac{5}{8}$ " and $\frac{3}{4}$ " material.

Excellent resistance to sound transmission. Room-to-room attenuation factors (over ceiling-height partitions) are 42.8 db for $\frac{5}{8}$ " Acoustical Fire Guard and 44.0 db for $\frac{3}{4}$ " Acoustical Fire Guard (as measured by AMA test procedure by Geiger & Hamme, Consultants in Acoustics, Ann Arbor, Michigan—see table at right). Acoustical Fire Guard ceilings are compatible with the best movable, ceiling-height partitions.

Three attractive designs. Fissured, Classic, and Full Random (see photographs).

Excellent resistance to "breathing". Because of their special density and composition, Armstrong Acoustical Fire Guard ceilings resist "breathing,"

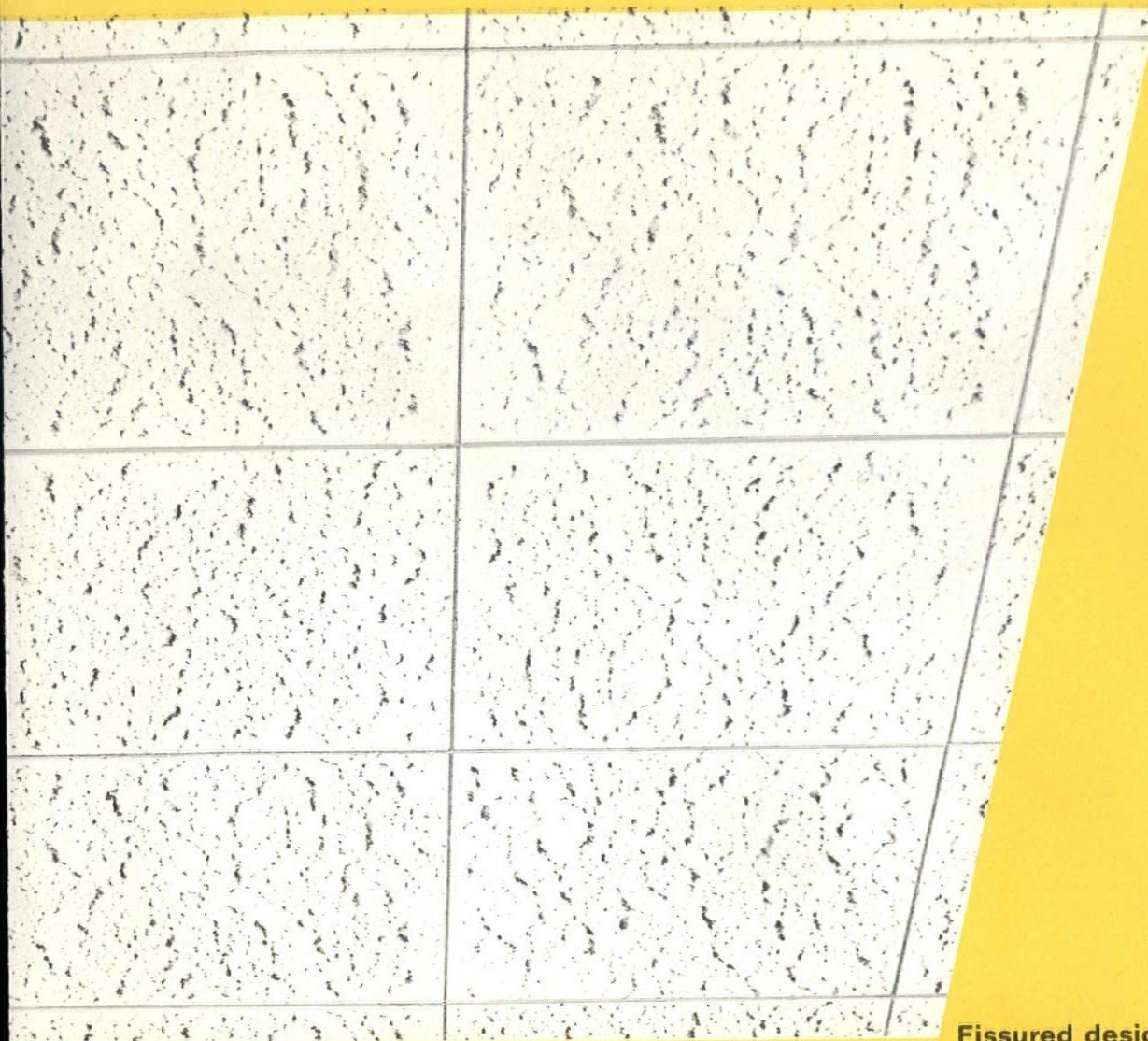
the passage of dirt-laden air up and down through the suspended ceiling. Dust and dirt do not build up on the surface of the tile.

Easy maintenance. Acoustical Fire Guard can be washed when necessary and can be repainted several times without appreciably affecting acoustical efficiency.

Convenient accessibility. New access clip-panel arrangement allows access to any part of the ceiling's plenum chamber.

High light reflectance. Acoustical Fire Guard's white surface reflects light evenly, without glare, and has a light reflectance of "a" (over 75%).

Self-leveling T & G joint. Interlocking T & G edges assure a level, better-looking finished ceiling.



Fissured design

Sound-Absorption Coefficients of Armstrong Acoustical Fire Guard

| Mounting | Thickness | 125 Cycles | 250 Cycles | 500 Cycles | 1000 Cycles | 2000 Cycles | 4000 Cycles | N.R.C.* |
|------------------|-----------|------------|------------|------------|-------------|-------------|-------------|---------|
| (7) Mechanically | 5/8" | .37 | .42 | .63 | .93 | .80 | .57 | .70 |
| Suspended | 3/4" | .55 | .44 | .72 | .95 | .69 | .52 | .70 |

*Noise-reduction coefficient—AMA Tests #A 59-77 and A 59-116

Room-to-Room Attenuation Factors for Armstrong Acoustical Fire Guard

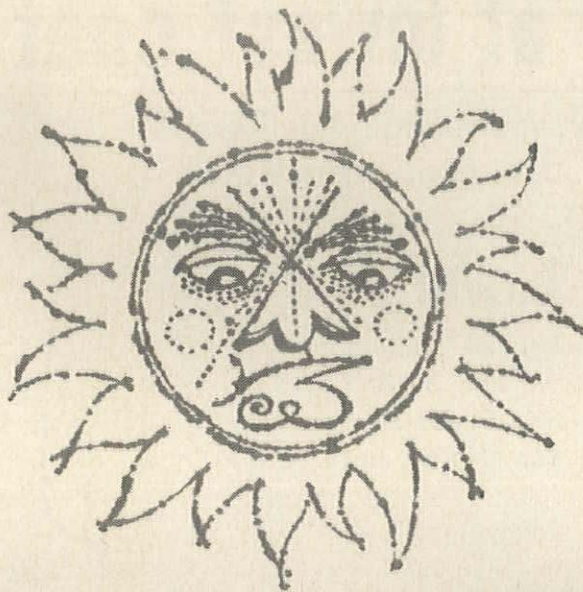
| Thickness | 125 Cycles | 250 Cycles | 500 Cycles | 1000 Cycles | 2000 Cycles | 4000 Cycles | Average Attenuation Factor* |
|-----------|------------|------------|------------|-------------|-------------|-------------|-----------------------------|
| 5/8" | 31 db | 29 db | 36 db | 44 db | 57 db | 59 db | 42.8 db |
| 3/4" | 27 db | 29 db | 39 db | 50 db | 57 db | 54 db | 44.0 db |

*Based on values at eleven frequencies

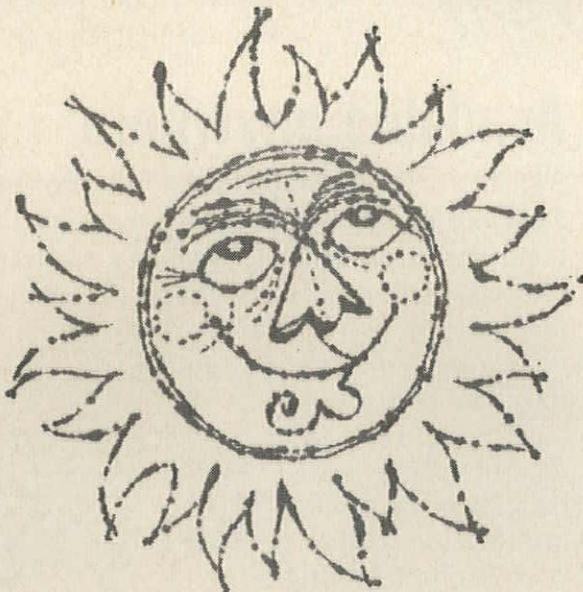
For more information about or samples of Armstrong Acoustical Fire Guard, contact your Armstrong acoustical contractor, or your nearest Armstrong district office (see list below), or write Armstrong Cork Company, Dept. FG-2, Lancaster, Penna.

| | | |
|-----------------------|--|--------------------|
| ATLANTA 8 | 727 W. Peachtree St., N.E. | TRinity 5-7201 |
| BOSTON | 200 First Avenue New England Industrial Center Needham Heights 94, Mass. | Hillcrest 4-5700 |
| CHARLOTTE 3 | 1127 E. Morehead St. | EDison 3-7741 |
| CHICAGO 34 | 6535 W. Irving Park Rd. | PEnsacola 6-9440 |
| CINCINNATI 37 | 1057 Meta Drive | ELmhurst 1-3330 |
| CLEVELAND 14 | 2975 Superior Ave. | MAin 1-7900 |
| DALLAS 19 | 2727 Oak Lawn Ave. | LAkeside 6-7468 |
| DENVER 4 | 35 West 5th Avenue | CHerry 4-0543 |
| DETROIT 26 | Free Press Building 321 Lafayette Ave., West | WOodward 3-5670 |
| KANSAS CITY 8 | 500 West 26th St. | VIctor 2-9154 |
| NEW YORK 16 | 295 Fifth Avenue | MURray Hill 4-6900 |
| PHILADELPHIA 2 | Robinson Building 15th & Chestnut Sts. | LOcust 4-4290 |
| ST. LOUIS 10 | 1919 Hampton Avenue | MIssion 7-3200 |
| SAN FRANCISCO | 1814 Ogden Dr. Burlingame, Calif. | OXford 7-1833 |
| SEATTLE 1 | Terminal Sales Bldg. | MAin 3-2772 |

Armstrong ACOUSTICAL CEILINGS



SHERATON-PORTLAND HOTEL, PORTLAND, ORE. Architect: Church, Newberry, Roehr & Schutte; Consulting Engineer: J. Donald Kroeker & Associates; Mechanical Contractor: J. M. Harder Plumbing & Heating Company.



Climate by Chrysler

**Pumps out heat in summer,
pumps in heat in winter . . .
saves money all year
for new Sheraton Hotel**

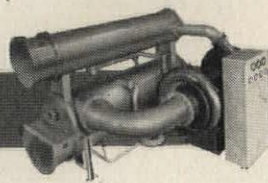
The most complete heat pump system ever installed in a hotel is providing a money-saving answer to the problem of all-year air conditioning for the new Sheraton-Portland, in Portland, Oregon.

The system takes advantage of low local power rates and utilizes available well water. In summer, two 250-hp Chrysler Centrifugal Heat Pumps use the water to absorb heat from indoor air and keep the hotel cool. In winter, the cycle is reversed. Heat is extracted from the water and pumped into the hotel.

Individual Chrysler fan-coil units give occupants of each room complete control over indoor climate. Public spaces are served by Chrysler central air-handling units.

The Chrysler Heat Pump is versatile: It also supplies domestic hot water for the hotel's 300 rooms, and delivers, through boosters, near-boiling water for the kitchen. And the system is economical: It costs less to operate than conventional year-round air conditioning . . . and it even warms the swimming pool without added cost.

Whether your air conditioning requirements are best met by a heat pump or conventional air conditioning, Chrysler has the equipment and technical know-how to help you do the job better . . . for less. For information on the mechanics or economics of Chrysler equipment, write today.



CHRYSLER AIRTEMP

Airtemp Division, Chrysler Corporation, Dept. M-119, Dayton 1, Ohio
In Canada: Therm-O-Rite Products, Ltd., Toronto, Ontario

Specify Asphalt built-up roofing— for long service at lowest cost

Asphalt built-up roofing on your building delivers long service with a minimum of maintenance cost.



“Custom-made” for dead-level decks

Low-melting-point Asphalts are custom made for maximum waterproofing in built-up roofing on dead-level decks. Their temperature susceptibility tends to eliminate hairline cracks in roof, seals it against standing water puddles. Yet, Asphalt doesn't flow away from high spots. And Asphalt roofing provides other important advantages.

Long service life

The record shows 20-, 30-, even 40-year service life for Asphalt built-up roofing on decks of all slopes . . . even on dead-level decks where conditions are most severe. Many such roofs outlast their buildings!

Asphalt roofing is well proven in the severe sun exposure conditions of the West and in northern cold winters . . . a good reason why it's used far more than any other type of roofing.

Lower cost

Asphalt built-up roofing typically **saves \$1.00 to \$4.00 per square and sometimes more.** One reason is the healthy competition among roofing manufacturers.



Application advantages

Roofers are more familiar with the handling of Asphalt products. And most roofers are aware of their lower toxicity. Workmen generally prefer to work with Asphalt over any other type of roofing material.



Available anywhere

Asphalt roofing manufacturers are strategically located throughout the United States—their products are readily available for your job, regardless of location. This is not always the case with coal tar roofing products.

Assure your next building of trouble-free, low cost protection by specifying Asphalt roofing materials. For more detailed information, contact your Asphalt roofing supplier.



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Campus, University of Maryland, College Park, Md.



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office, school, hospital or home*



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Eastern's Star VENETIAN DRAPERIES

Create new dimensions in room decor, new highs in client satisfaction . . . with Eastern's Star Venetian Draperies. Pull a cord, and Eastern's Star draws apart like the finest draperies . . . pull another cord, and "S"-shaped slats rotate for complete control of light, air and privacy.

Custom-made to your specifications, versatile Eastern's Star Venetian Draperies fit any opening . . . as draw draperies, window walls, room dividers, even closet doors. Available in many color combinations, too . . . with an exclusive dirt-resistant finish to reduce maintenance to a minimum.

1601 Wicomico Street, Baltimore 30, Maryland
Makers of acoustical systems and drapery hardware



SEND IN COUPON FOR FULL INFORMATION!



Draw Cord for easy opening, closing. No unsightly bottom track.

Rotate "S"-shaped slats for complete light and air control.

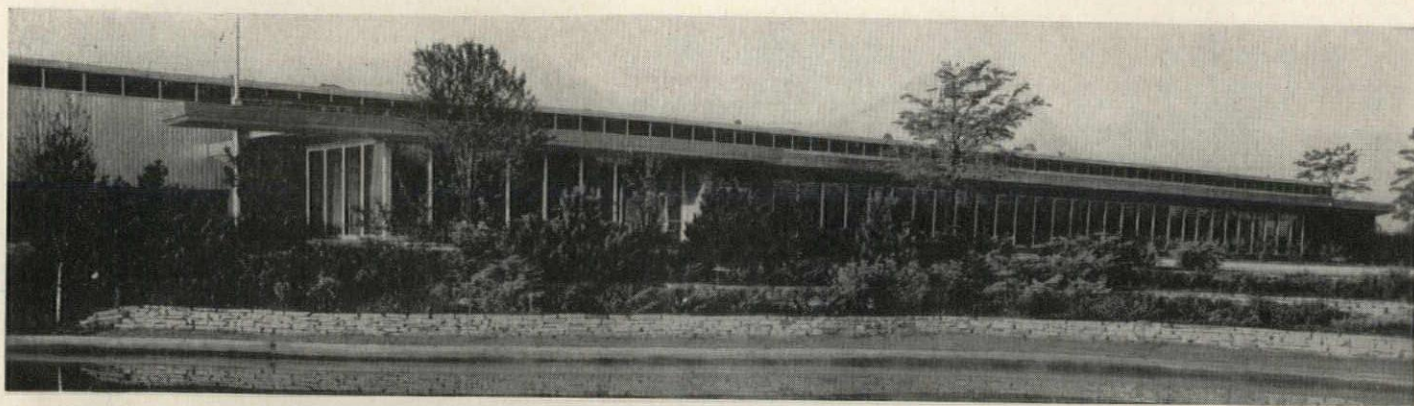
Eastern Products Corp.,
1601 Wicomico St., Baltimore 30, Md.
Please send detailed information on
Eastern's Star Venetian Draperies.

NAME

STREET

CITY

STATE



Square D Company, Glendale, Wis. Architect: Grassold-Johnson & Associates. Contractor: Hunzinger Construction Company

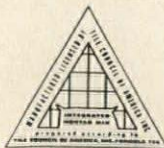
**"Ten Top Plants of 1959"
Get Factory Awards**

The "ten best manufacturing plants built in 1958" and selected by the editors of *Factory*, a McGraw-Hill publication, to receive *Factory's* 1959 Top Plants Awards are shown, in one exterior photograph each, on this and following pages. They were fully shown in a 52-page feature in the May issue of *Factory*, which marked *continued on page 52*

**REVOLUTIONARY NEW ADHESIVE MORTAR
REDUCES MATERIAL AND LABOR COSTS
... CUTS WALL WEIGHT UP TO 60%!**

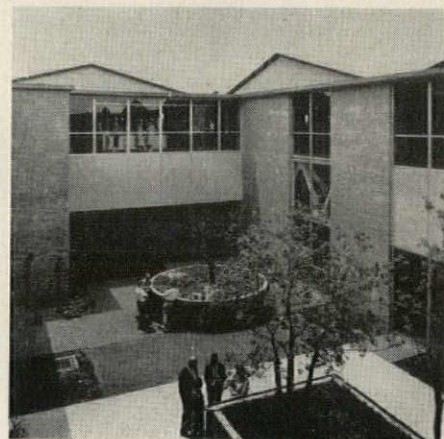
Tile-Mate* is a self-curing, thin-bed mortar adhesive which permits installation of ceramic tile or glass mosaics directly on dry back-up materials. Applied over dry wall board, foam styrene, concrete block or any masonry surface, it eliminates expensive metal lath, provides greater shear and bonding 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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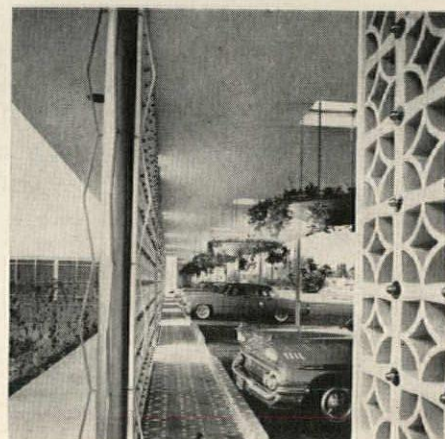


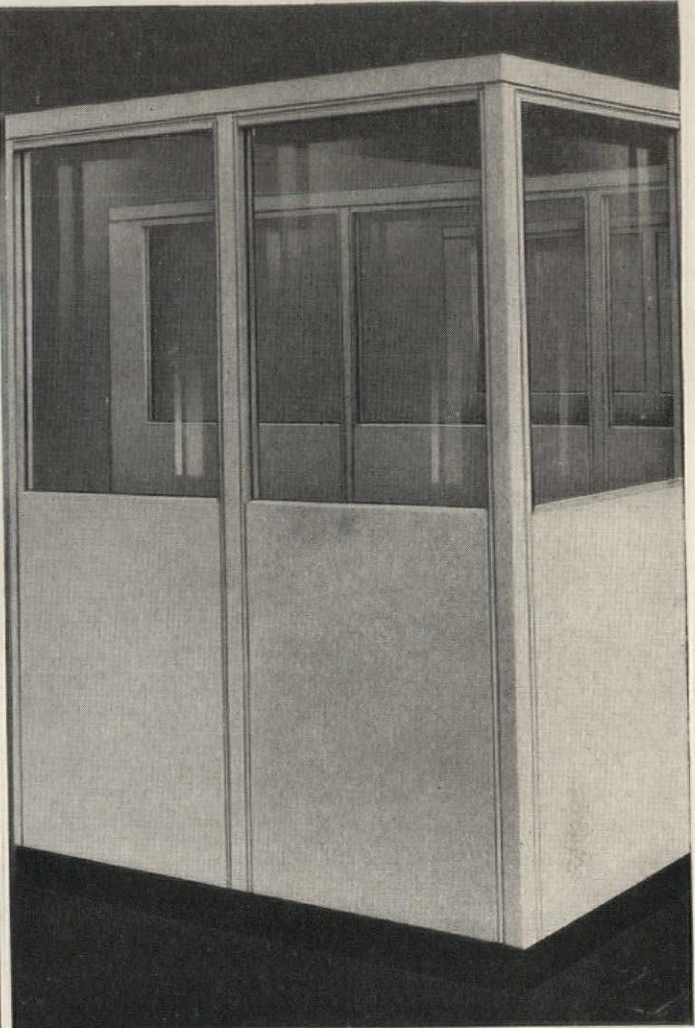
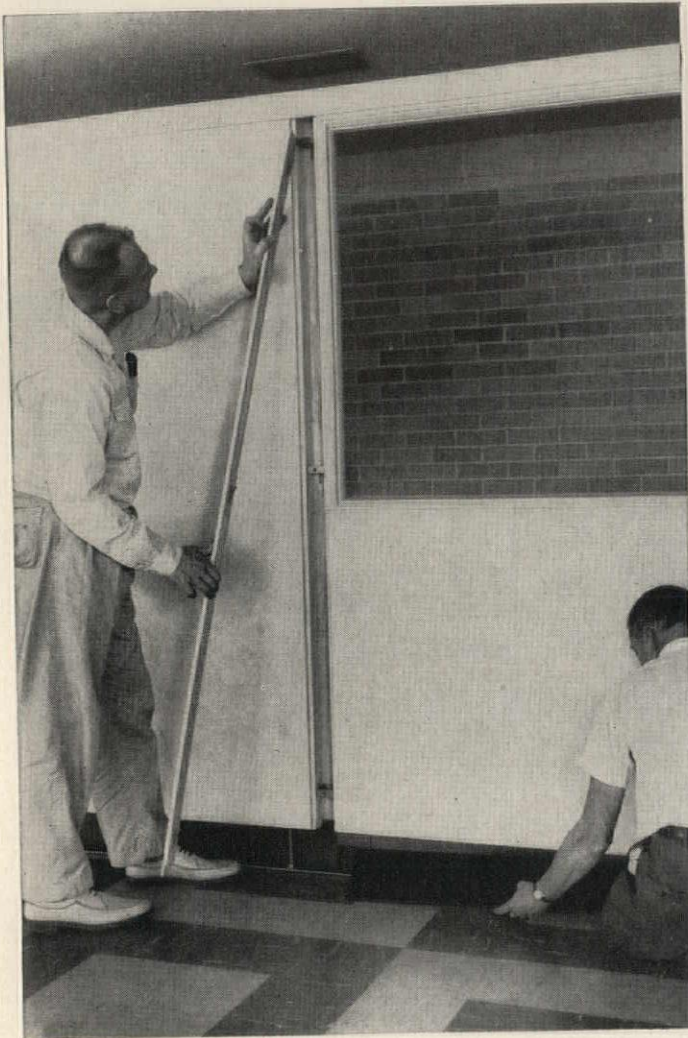
THE UPCO CO.

4805 LEXINGTON AVENUE • CLEVELAND 3, OHIO
Manufacturers of Hydroment Joint Filler



Above: Texas Instruments Inc., Dallas. Architect: O'Neil Ford & Associates; Richard S. Colley; A. B. Swank Associates. Contractor: Robert E. McKee General Contractor, Inc. Below: The Stuart Company, Pasadena, Calif. Architect: Edward D. Stone. Contractor: Myers Bros. & Brummett & Demblon, Inc.



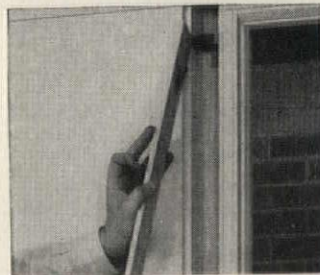


Movable walls that are movable!

Replacement of damaged panels . . . or actual rearrangement of the physical office space is easy and economical with GR movable walls.

Have you stopped to consider the problems involved in replacing a damaged panel in a movable wall line-up? In many instances the entire installation may have to be taken down. Or suppose personnel demands force a quick rearrangement of existing physical office space. This, too, could require a complete takedown with attendant high costs and temporary loss of office working space. With GR Metal Walls and GR Richland Wood Walls it's no problem . . . and no great expense. The easy, sure partition-pilaster hook-up gives you walls that really are movable. It's a simple matter of using expendable pilasters . . . they can be replaced or moved to another location with a minimum loss of time and labor. If you are specifying movable walls on your next job, specify GR Products, Inc., — the movable walls that are movable.

GR PRODUCTS INC.
2417 Eastern Avenue S. E., Grand Rapids, Michigan



Panels are joined by metal spacer. Pilaster-faces clip on, presenting a flush pilaster-wall front, readily accessible for inspection or wiring.



Panel height adjusters plus floating removable base compensate for uneven floors. Eliminate scribing at floor line.

The four illustrations above show the ease, speed and flexibility of GR Richland Wood Movable Wall installations. For GR Metal walls the application technique differs slightly but the end result . . . fast, reliable set-up or ease in dismantling to allow for office rearrangement . . . is equally effective.

See our complete file in Sweet's catalog.

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LEXSUCO

Noncombustible Lexsuco Vapor Barrier

*Complies with noncombustible standards as set forth in SEC. 206 National Board of Fire Underwriters' NATIONAL BUILDING CODES and SEC. 220-3 National Fire Protection Association's NATIONAL FIRE CODES

LEXSUCO INC. 33095 BAINBRIDGE RD. SOLON, OHIO

Underwriters' Laboratories, Inc.

INSPECTED SHEATHING MATERIALS

Not more than 10 square. Issue No. 0000

| FIRE HAZARD CLASSIFICATION | |
|--|---|
| <small>Applied to 1 noncombustible surface with adhesive**</small> | <small>Mechanically attached to 1 noncombustible surface with noncombustible sheeters</small> |
| FLAME SPREAD | 10 |
| FUEL CONTRIBUTED | 15 |
| SMOKE DEVELOPED | 5 |

**Adhesive tested for this manufacturer under Guide No. A2090 and applied in accordance with manufacturer's instructions

LEXSUCO

Noncombustible Lexsuco Adhesive R907T

*Complies with noncombustible standards as set forth in SEC. 206 National Board of Fire Underwriters' NATIONAL BUILDING CODES and SEC. 220-3 National Fire Protection Association's NATIONAL FIRE CODES

LEXSUCO INC. 33095 BAINBRIDGE RD. SOLON, OHIO

Underwriters' Laboratories, Inc.

INSPECTED ADHESIVE

Not more than 2 gal. Issue No. 0000

| FIRE HAZARD CLASSIFICATION | |
|---|---|
| <small>Adhesive applied to a noncombustible surface**</small> | <small>Applied to a combustible surface</small> |
| FLAME SPREAD | 10 |
| FUEL CONTRIBUTED | 15 |
| SMOKE DEVELOPED | 5 |

**When applied in accordance with manufacturer's instructions

Noncombustible Standard met by Lexsuco Vapor Barrier and Lexsuco Adhesive R907T. Underwriters' Label granted.

● Underwriters' Laboratories, for the first time, has tested and accepted a roof vapor barrier and adhesive. Extensive tests proved that the Lexsuco Vapor Barrier and Lexsuco Adhesive R907T meet the noncombustible standards established by the National Fire Protection Association and the National Board of Fire Underwriters.

COMPARE THESE TIME- AND MONEY-SAVING ADVANTAGES:



Assured Fire Protection. With or without a vapor barrier, the Lexsuco system completely eliminates combustible asphaltic materials between the roof deck and roof insulation. When you specify Lexsuco Adhesive R907T with the Lexsuco Vapor Barrier, or the adhesive only, over metal roof deck, you get assured building fire protection.

More for Your Roofing Dollar. Lexsuco products give you far more value for the money you invest. When you put Lexsuco products in your base specifications, subject to competitive bidding, you pay little or no more for the extra protection and value of these noncombustible materials than you would for combustible materials.

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Better Roof Construction. On all roof decks — metal, poured, precast or wood — you get economical and dependable securement with Lexsuco Adhesive R907T. Where it is necessary to protect the insulated, built-up roof from moisture migration from within the building, you get proven protection with the Lexsuco Vapor Barrier.

Contact your distributor or Lexsuco representative for information and the Underwriters' Report, or write to us direct. Ask about THE NEW LEXSUCO PVC WATERSTOPS.

Get a fire-retardent roof fast! Lexsuco mechanical applicator performs three operations on one pass — applies noncombustible Lexsuco Adhesive R907T to underside of Lexsuco Vapor Barrier and puts ribbons of adhesive on top of the vapor barrier to secure the insulation.

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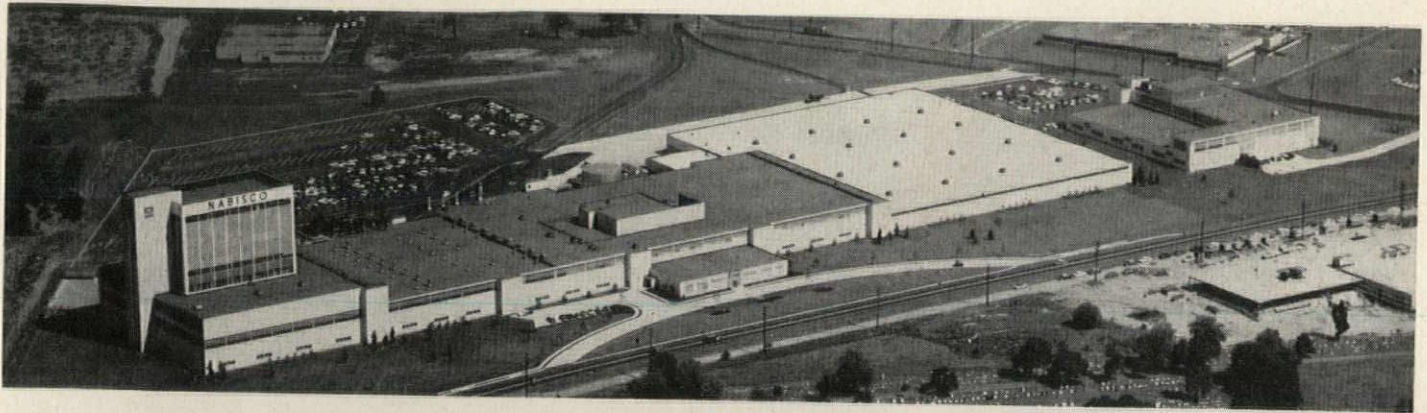


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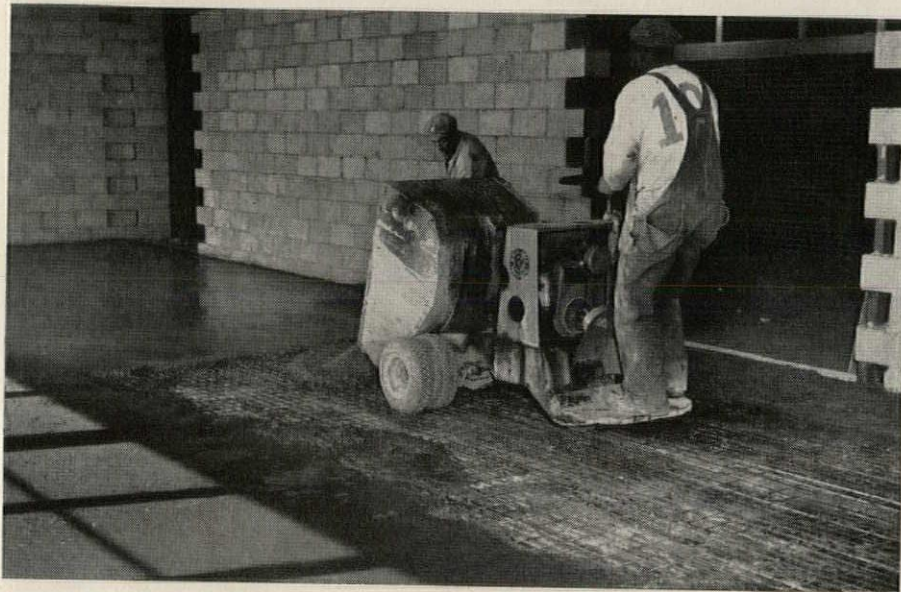
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12 foot lengths

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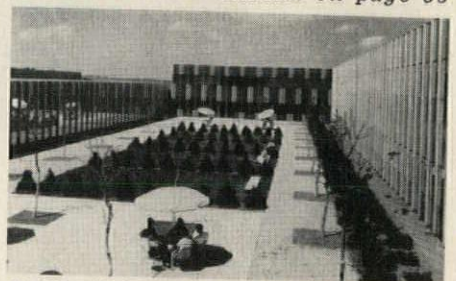


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the 25th anniversary of its annual awards program by congratulating all concerned "not merely for creating beauty, of which there is plenty in these pace-setting plants, but also for achieving utility, in which they excel." It is, said *Factory*, "this combination of beauty and utility that makes this year's winners outstanding models for all of industry, this year and in the years ahead. They grace their communities. They offer their employees, as well as their plant executives, excellent working environments. They are easy to maintain. They are highly efficient production units."

A single photograph cannot be expected to reveal many of the considerations which impelled *Factory* to cite any plant; but the group suggests the range of architectural character and esthetic sensitivity
continued on page 56



Above: International Business Machines Corporation, Rochester, Minn. Architect: Eero Saarinen & Associates. Engineer: Smith, Hinchman & Grylls Associates Inc. Contractor: Johnson, Drake & Piper. Below: Cutler-Hammer, Inc., Lincoln, Ill. Designer-engineer-builder: The Austin Co.



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This conference room is just one of several areas in the Indiana State Teacher's Association Building at Indianapolis that features Formica tables and a unique method of wall paneling.

See details on opposite page.



Architect:
McQuine & Shook
Contractor:
Leslie Colvin
Formica Panels:
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Field spline erection technique for Formica shop-veneered panels permits easy panel replacement

Formica surfacing is famous for its rugged resistance to normal wear. But it can be damaged by extreme cases of carelessness or accident.

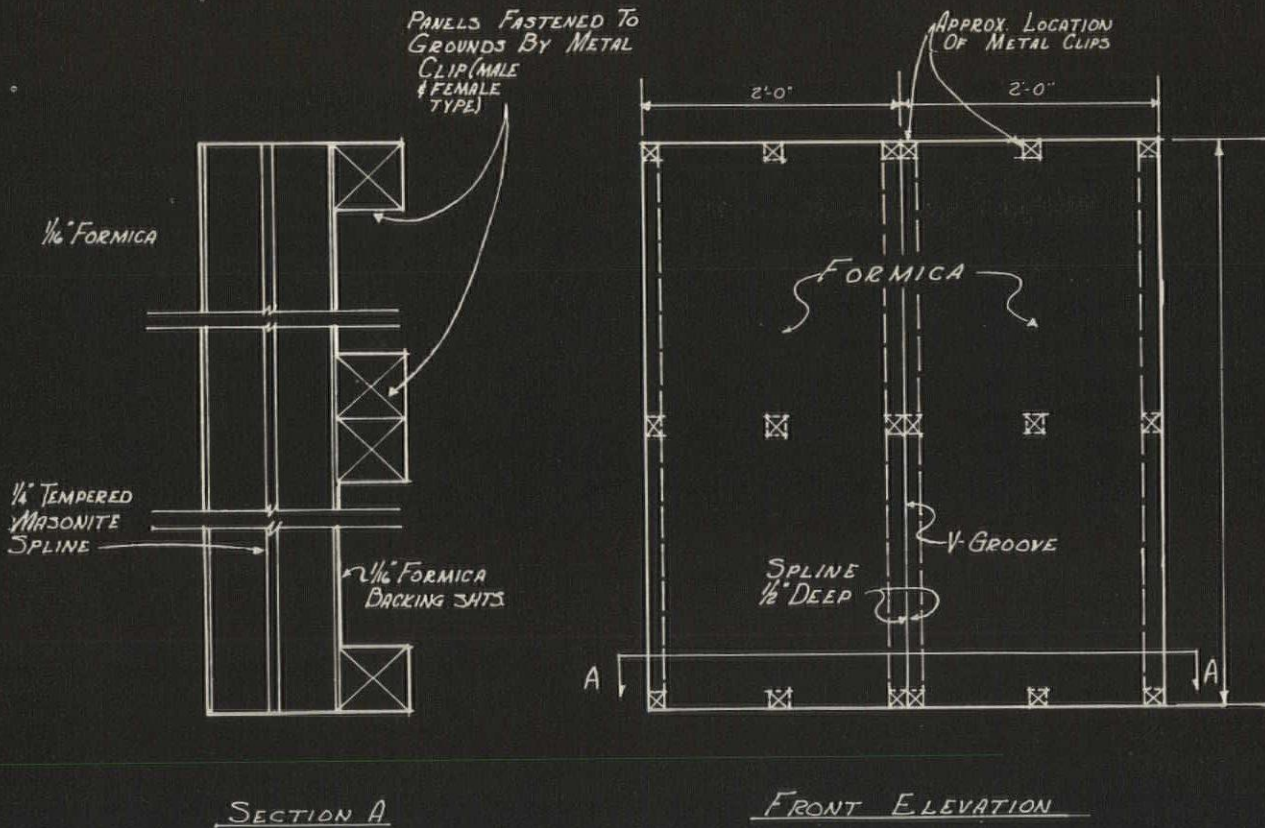
As extra insurance for permanent low cost beauty, the application method used in this installation permits easy single panel replacement quickly, inexpensively.

The wall panels were shop-veneered using Formica 24-CR-85 Cherry Picwood on $\frac{3}{4}$ " mahogany plywood with $\frac{1}{16}$ " Formica backing sheet.

The fabricator secured actual measurements

after building walls were up, cut panels to size, numbered them for ease of erection, and grooved them to receive a $\frac{1}{4}$ " spline with $\frac{1}{2}$ " penetration. The last panel for each wall was left oversize and cut to fit on the job by the installing general building contractor who used his regular carpenter labor.

The spline was left loose rather than fastened to furring strips. Panels are held in place by metal fasteners with male and female parts screwed to the backs of panels and wood furring strips.



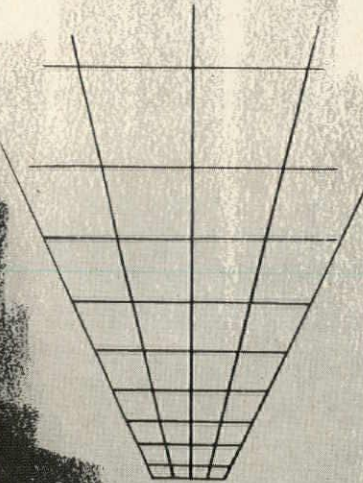
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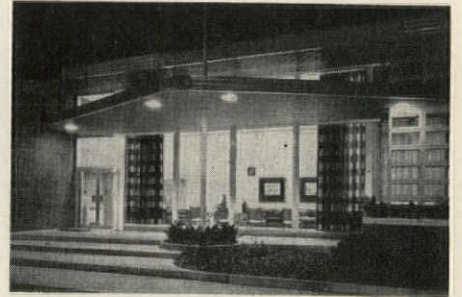


Developed for Contrex by Bolt, Beranek and Newman, Inc.

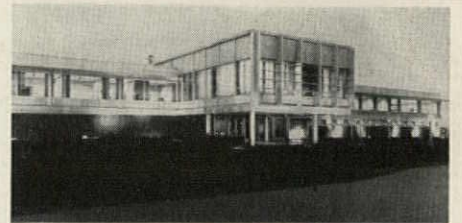
Available from coast to coast through authorized manufacturers of lighting equipment.

The Record Reports

among the winners. Architects will also be interested to note the range of design credits: of the ten, five designed by architects; one by "engineer-architect"; two by owners' engineering departments; and two by "designer-engineer-builders."



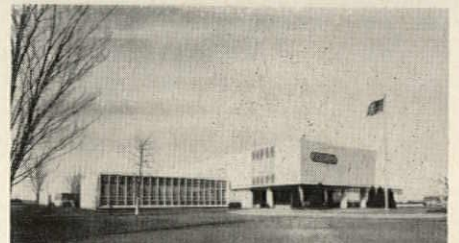
Bueyrus-Erie Co., Richmond, Ind. Designer-engineer-builder: The H. K. Ferguson Co., Inc.



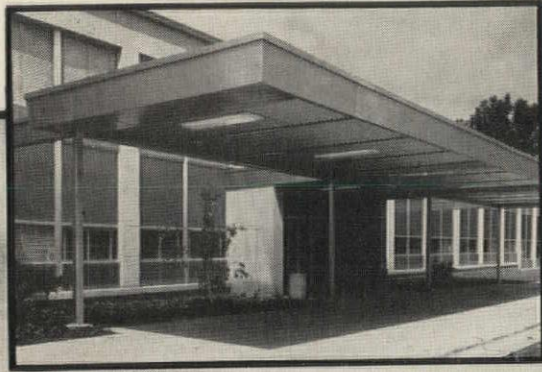
Kaiser Aluminum & Chemical Co., Ravenswood, W. Va. Engineer-designer; Kaiser Engineers, Division of Henry J. Kaiser Co. Contractor: Henry J. Kaiser Construction Co.



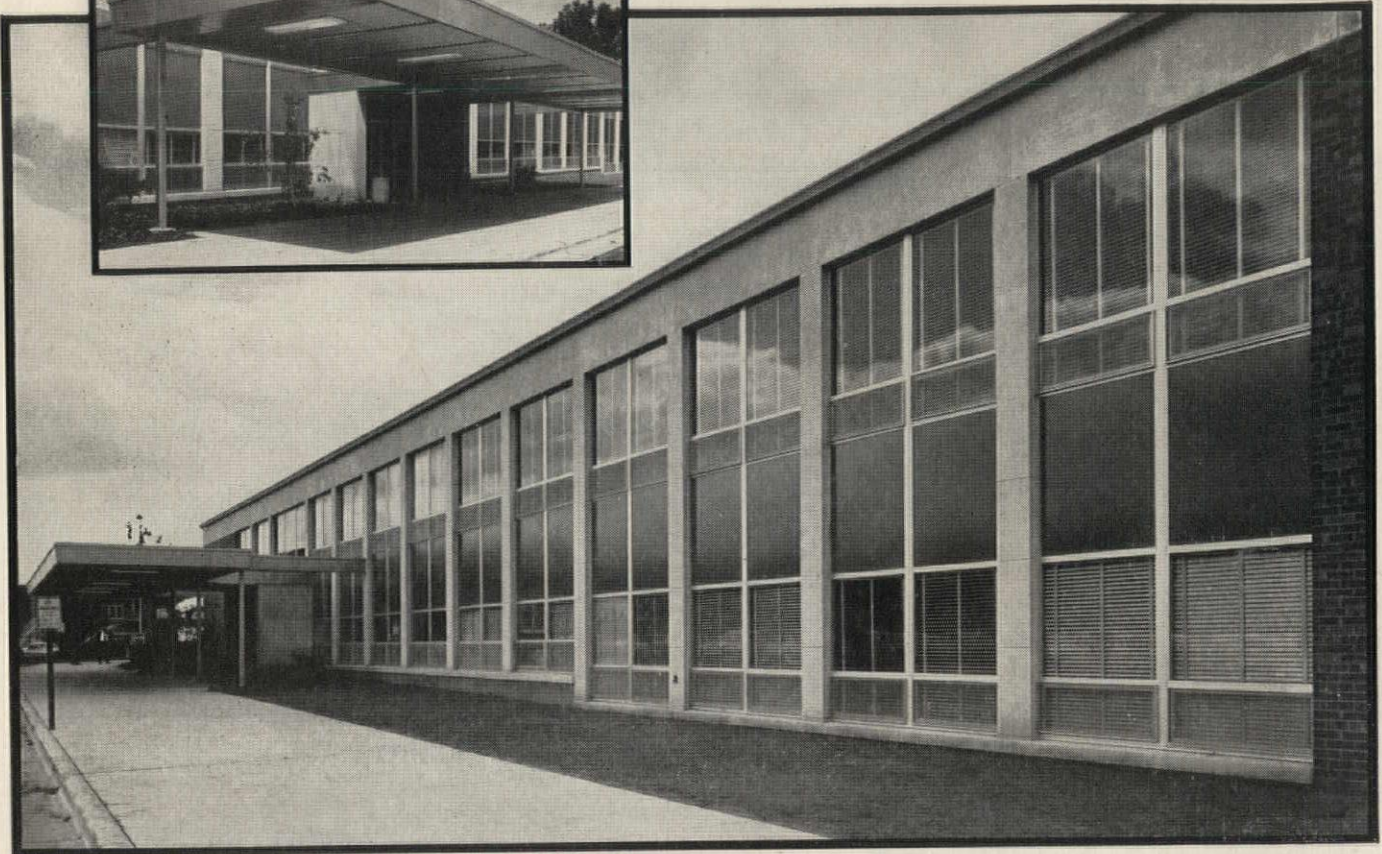
Split Ballbearing, a Division of Miniature Precision Bearings, Inc., Lebanon, N. H. Architect: Carl M. Koelb & Associates. Contractor: R. E. Bean Construction Co.



Charles Bruning Co., Inc., Mt. Prospect, Ill. Engineer-architect: A. Epstein & Sons, Inc.



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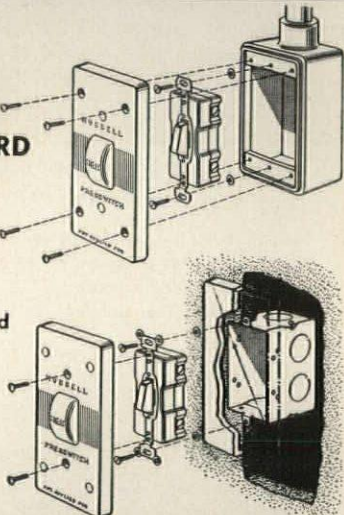
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Finned, self-sealing mounting holes permit the "Insulprene"-sheathed plate to be fastened to FS or standard wall boxes.



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Moisture and dust cannot penetrate to the switching mechanism of this new Hubbell switch-and-plate combination.

The steel cover plate *and* the opening for the switch button are completely sheathed with a tough, flexible skin of "Insulprene", which prevents rusting and insulates wet hands from contact with metal. The "Presswitch" button is actuated simply by pressing the "Insulprene" bubble that covers it.

"Insulprene" is a DuPont neoprene-base plastic. It is non-conductive and highly resistant to impact, aging, oil, grease, live steam, hot water, extreme cold, heat and sunlight. For example, at the end of a 744-hour Atlas Weatherometer test simulating tropical rain and sunlight, the "Insulprene" bubble showed no significant loss of resiliency in operating the "Presswitch" button.

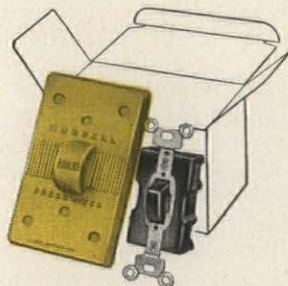
Hence this plate-and-switch combination is ideal for outdoor installations subject to severe weather conditions (-15° F to 150° F) or greasy hands (*filling stations, parking lots, garages, truck docks, playgrounds, sports fields, exposed passageways and breezeways*) or for indoor installations where humidity is high or temperatures are low (*dairies, freezer plants, cold-storage rooms, shower rooms, laundries, etc.*)

Words "Insulprene" and "Presswitch" are Hubbell trademarks.

The switching mechanism is the fast-acting Hubbell "Presswitch", which responds to the gentlest touch of finger, hand, or elbow in any position. It is available in single or double pole, 3-way or 4-way action, in 15 or 20 ampere sizes for 120-277 volt A.C.

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CONGRESSIONAL REPORT ASSERTS CIVIL DEFENSE PREPAREDNESS COULD CUT
NUCLEAR WAR FATALITIES FROM 25 to 3 PER CENT OF U. S. POPULATION

House Group Told Adequate Shelters Would Cost \$5 Billion to \$20 Billion
—Report Summarizes Data on Attack Effects on Materials and Structures

For the first time in history a Congressional subcommittee has gathered data and published a report on calculated damage from an imaginary nuclear attack and some of the calculations are worthy of study by architects and engineers.

The findings deal entirely with anticipated physical effects and radioactive results of such an attack, deliberately avoiding any study of economic reactions. Also ignored, although the needs for adequate defense were stated with emphasis, was the funding of a shelter program.

The much-discussed report came from the special subcommittee on radiation of the Joint Committee of Congress on Atomic Energy. The subgroup is headed by Rep. Chet Holifield (D-Calif.) of Montebello, whose work on civil defense studies in the shelter field has been widely followed.

The subcommittee said it wished it known that there was no intention whatsoever of trying to determine the exact form of a possible future nuclear war or the likelihood of such a war. In its hearings every effort was made to achieve an objective appraisal of weapon effects through a step-by-step examination of the problems by competent witnesses based on quantitative computations.

The report quotes one witness as stating, "If you are afraid to discuss the issue, you will certainly be afraid to meet the crisis if and when it occurs."

Radiation Perils Stressed

The "issue" for architects must surely lie in a pattern of defensive shelter against the possibility of attack, a determination of design type. The Holifield report successfully skirts this point, but paints a vivid background for it, placing heavy emphasis on radiation dangers. The report is titled, "Biological and Environmental Effects of Nuclear War."

Survival measures were dealt with in general terms, leaving conclusions on defense methods pretty much to future considerations. As to cost of an adequate defense shelter program, the Congressmen said that the price of "high-performance protection" had been placed at \$5 billion to \$20 billion. And the subcommittee considered the main conclusion presented to it to be that this country must

have a national radiological defense system if it is to withstand and recover from an attack of the scale which is possible in an all-out nuclear war.

"Probably the most significant finding presented to the subcommittee," the report stated, "was that civil defense preparedness could reduce the fatalities of the assumed attack on the United States from approximately 25 per cent of the population to about three per cent. The provision of shielding against radiation effects would at the same time protect against blast and thermal effects for the vast majority of the population."

What Happens to Houses

The report contains a section on damage to houses which points up vividly the potential damage experts say could be sustained in event of all-out attack with known power. The hypothetical attack instance on which the entire report is based assumed an enemy capability to deliver 1446 megatons. For the analysis these were "delivered" on 224 targets in the United States, 263 nuclear weapons in all. All weapons were arbitrarily said to have a yield of 50 per cent fission and 50 per cent fusion.

Such a holocaust, said the report, would render 11.8 million dwellings unsalvageable. This would be more than one fourth of the total housing inventory. Another 8.1 million dwellings would suffer moderate damage, necessitating evacuation for moderate repairs. "Light damage" would be inflicted on an added 1.5 million. This adds up to 21.4 million dwellings damaged.

The report continued: "Outside the areas of blast and thermal damage, some 2.6 million dwellings sustained radiation intensities exceeding 1000 roentgens per hour and would have to be evacuated and abandoned for periods extending up to several months. An additional 10.4 million dwellings sustained radiation intensities varying between 100 and 1000 roentgens per hour. With major decontamination effort most of these 10.4 million homes could be recovered by 60 days post-attack."

Summarizing, it was calculated that almost 50 per cent of the existing dwellings in the United States would be either severely damaged or contaminated by fallout to the extent

they would be unusable for at least several months.

As to human casualties, the report said testimony based on scientific data indicated that under present conditions such an attack would have cost the lives of approximately 50 million others sustaining serious injuries. Although weapons used in the hypothetical exercise were surface bursts, maximizing local radioactive fallout hazard, nearly 75 per cent of the "deaths" would have resulted from blast and thermal effects, combined with immediate radiation effects. Only 25 per cent would have been caused by fallout. Most of the home damage would have been from blast and thermal effects.

"The problem of survival of civilian populations faced with the threat of nuclear war and the decision as to whether the Federal government, the state, or the individual pays the bill remains and demands solution," the report concluded.

Protection against fallout was considered by the subcommittee to be the first requirement for protection against nuclear weapons.

Using the latest data available, the subcommittee report carried a section on effects on materials and structures:

1. Blast—Multistory brick apartments are quite vulnerable to the blast wave. All such structures would be destroyed within a radius of seven mi from ground zero for a 10-megaton weapon and within three mi for a one-megaton burst. Thus, a factor of 10 in yield changes the radius of destruction by about a factor of 12. A well-constructed wood frame house completely collapses within nine mi from a 10-megaton surface burst and within four mi of a one-megaton burst.

2. Thermal—Fires can be started by the ignition of light kindling materials anywhere within about nine mi from a one-megaton burst and within 25 mi from a 10-megaton burst. Thus, the presence of light kindling materials, such as trash, paper and unpainted wood in a residential area, will probably result in widespread fires.

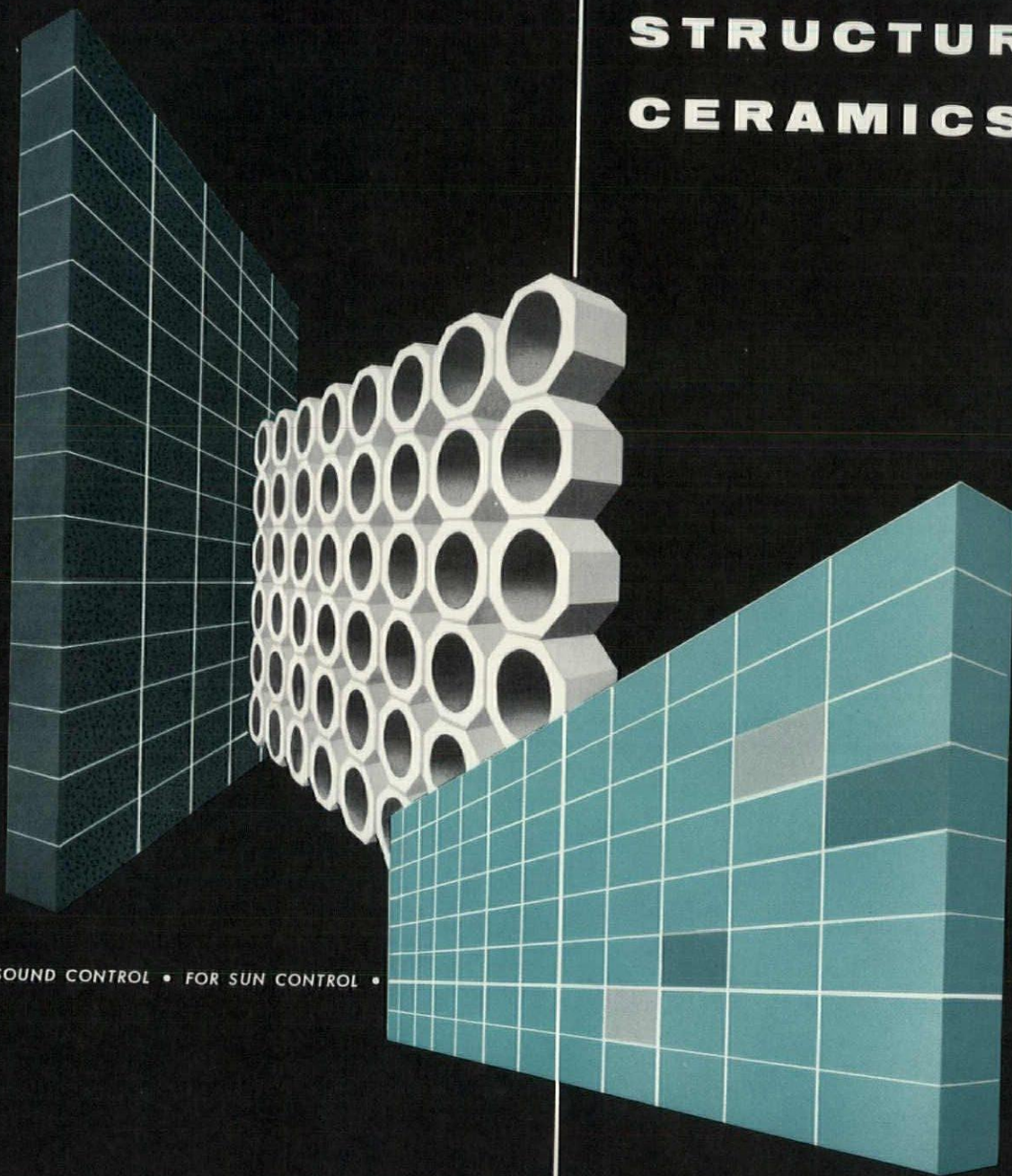
3. Nuclear radiation—Initial nuclear radiation and fallout have very little effect on most inanimate mater-

continued on page 342

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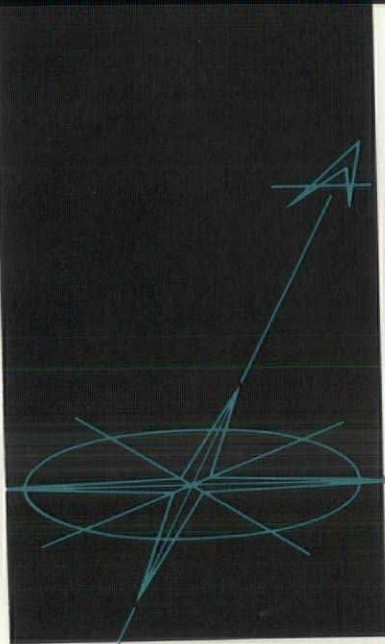
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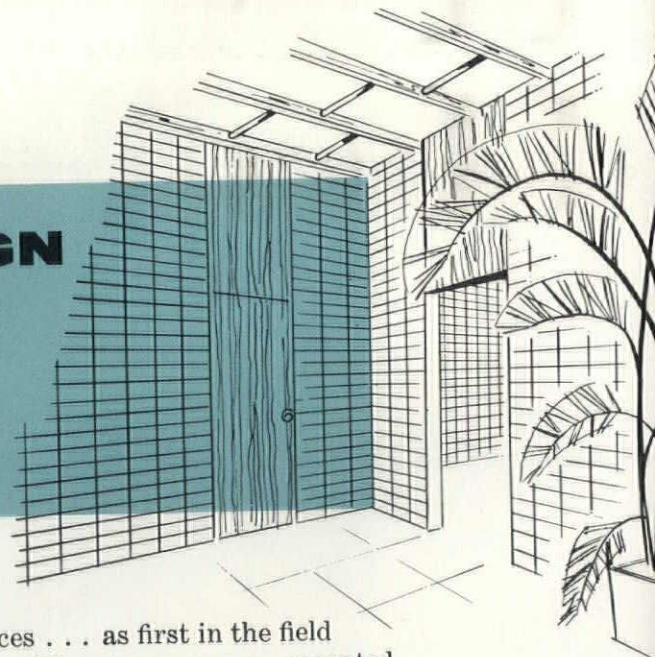
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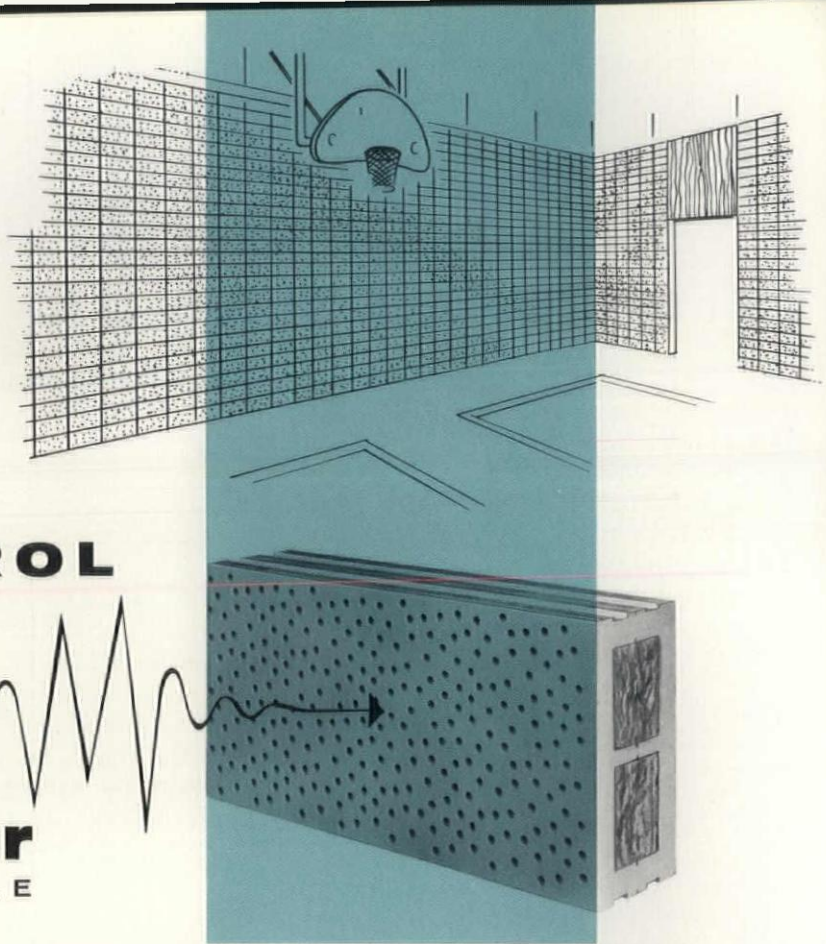
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with **soundbar**

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Noise problems meet their match when you specify SOUNDBAR. Just as its name promises, this new ARKETEX ceramic glazed tile is engineered to provide a structural wall against noise. Each unit is perforated to add scores of sound traps. Each has a fiberglass core to assure still greater sound-deadening efficiency. The result is a simple modular material with 99% sound absorption at 500 cycles (normal speech level) . . . twice as much as afforded by the nearest of all competitive materials tested . . . installed by a single trade at in-wall costs up to 50% less than those of competitive materials. And there is lesser need for acoustical ceilings, thus adding even more design economy.

Available in the complete Straight-Line 8W series, in the full range of new *direction colors* by Raymond Loewy Associates, SOUNDBAR

alone of all acoustical tile gives you the qualities exclusive to ARKETEX load-bearing structural tile: outstanding durability and cleanliness; high resistance to fire and to moisture; economical installation and maintenance; ability to withstand abrasion; and thermal insulation value. For half-acoustical, random-acoustical, or all-acoustical applications . . . for design that utilizes SOUNDBAR and STRAIGHT-LINE structural ceramic tile to achieve distinctive treatments . . . this new ARKETEX creation offers unmatched acoustic control. In hospitals, operating rooms, even in exacting test cells . . . in schools, factories, gymnasiums, meeting rooms, and any area where unwanted noise once posed a problem . . . installation of SOUNDBAR by ARKETEX is the one *right* answer.



... the progressive
name in
structural
ceramics

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ARKETEX CERAMIC CORPORATION


BRAZIL, INDIANA

FIRST CLASS
PERMIT NO. 32
BRAZIL, INDIANA



a new direction in

SUN CONTROL

with **SUN**  **bar** SOLAR SCREEN

Facade design that features a dominant use of glass becomes as practical as it is desirable. New SUNBAR Solar Screen by ARKETEX makes this a striking reality — through smartly functional design that *shades off 85% of glass heat gain*. Air conditioning installations of lower tonnage can be specified safely in initial plans, because equipment load is reduced substantially by SUNBAR. And operating costs are sharply lowered with this ceramic glazed solar screen deflecting Old Sol's heat and glare.

Because SUNBAR hides wall areas, real construction economies may also be gained. Spandrel walls may be of inexpensive non-facing materials. On all floors of a multi-story building, columns may be built flush with the interior wall surface and left exposed on the exterior . . . and varying column dimensions do not interfere with interior planning.

Nor is SUNBAR of value solely for non-residential exterior design. Dramatic interiors can be achieved for buildings and homes alike. Used as privacy screens, garden walls, interior space dividers . . . to screen carports, patios, swimming pools, or to conceal any unsightly areas around a house or building . . . SUNBAR adds decorative elegance most economically.

ARKETEX CERAMIC CORPORATION
BRAZIL, INDIANA

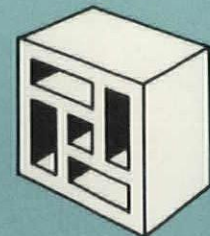
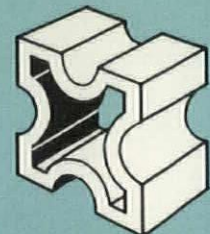
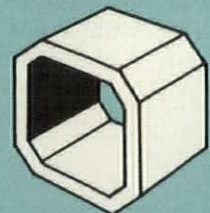
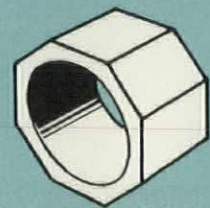
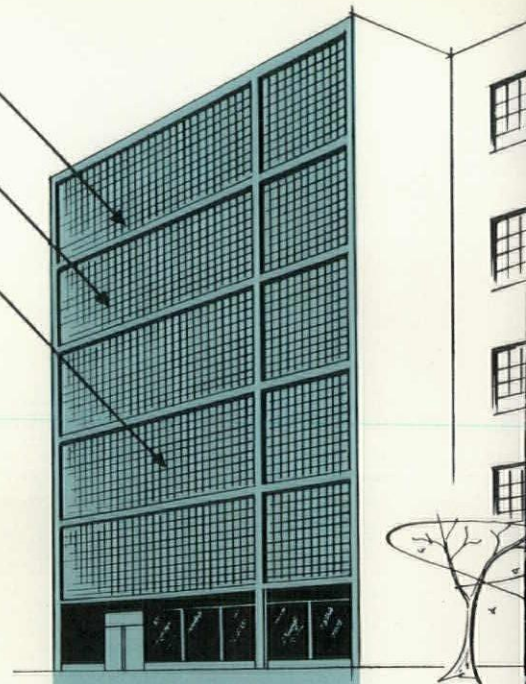
A.P. No. 07 Printed in U.S.A.

The *new direction* in which Arketex ceramic glazed structural tile can be utilized is most interesting. Please send me literature about

- Straight-Line design
- Direction Colors
- SUNBAR solar screen tile
- SOUNDBAR acoustical tile
- I would like to see your local distributor to discuss use of Arketex products in buildings I am designing.

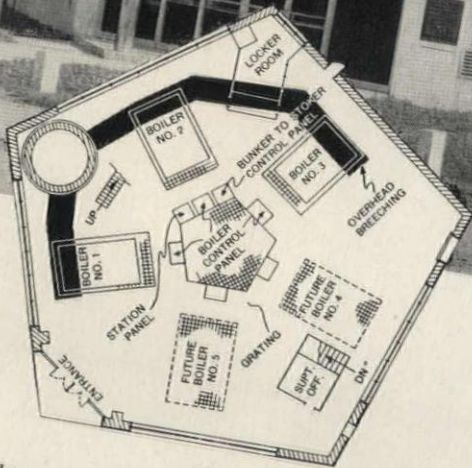
NAME.....TITLE OR
FUNCTION

ADDRESS.....



Send this postage-paid postcard for complete data on any or all ARKETEX Structural Ceramics for Better Architecture

Modern plants burn coal the modern way



PENTAGONAL POWER PLANT SOLVES SPACE PROBLEM AT RICHMOND STATE HOSPITAL

Richmond State Hospital, Richmond, Ind., decided to build a new power plant. The project was complicated by the space at the desired location.

The building was a five-sided building, designed by the firm of Fleck, Quebe and Associates, Inc., with F. B. Morse, of Purdue University, as consultant. This unique structure houses five boiler units (and space for two more) around a one-man control center, with equipment located between units. The units are used efficiently; actual space is simplified by completely automatic handling and ash removal. To save on housekeeping, the design

allows only an eye-level vision strip and provides for a vacuum cleaning system with 23 outlets throughout the building.

Radically different from conventional power plant design, the Richmond pentagon has proved itself in lower construction costs while providing best possible adaptation of space to present and future needs.

District engineers of the Bituminous Coal Institute have detailed information on how coal-burning plants lend themselves to modern architectural design. If you have a problem in power plant design, write for the name of the BCI man in your area.

BITUMINOUS COAL INSTITUTE

Southern Building, Washington 5, D. C.

See our listing in Sweet's

SEND COUPON FOR GUIDE SPECIFICATIONS, with complete equipment criteria and boiler room plans:

BITUMINOUS COAL INSTITUTE
Southern Building, Washington 5, D. C.

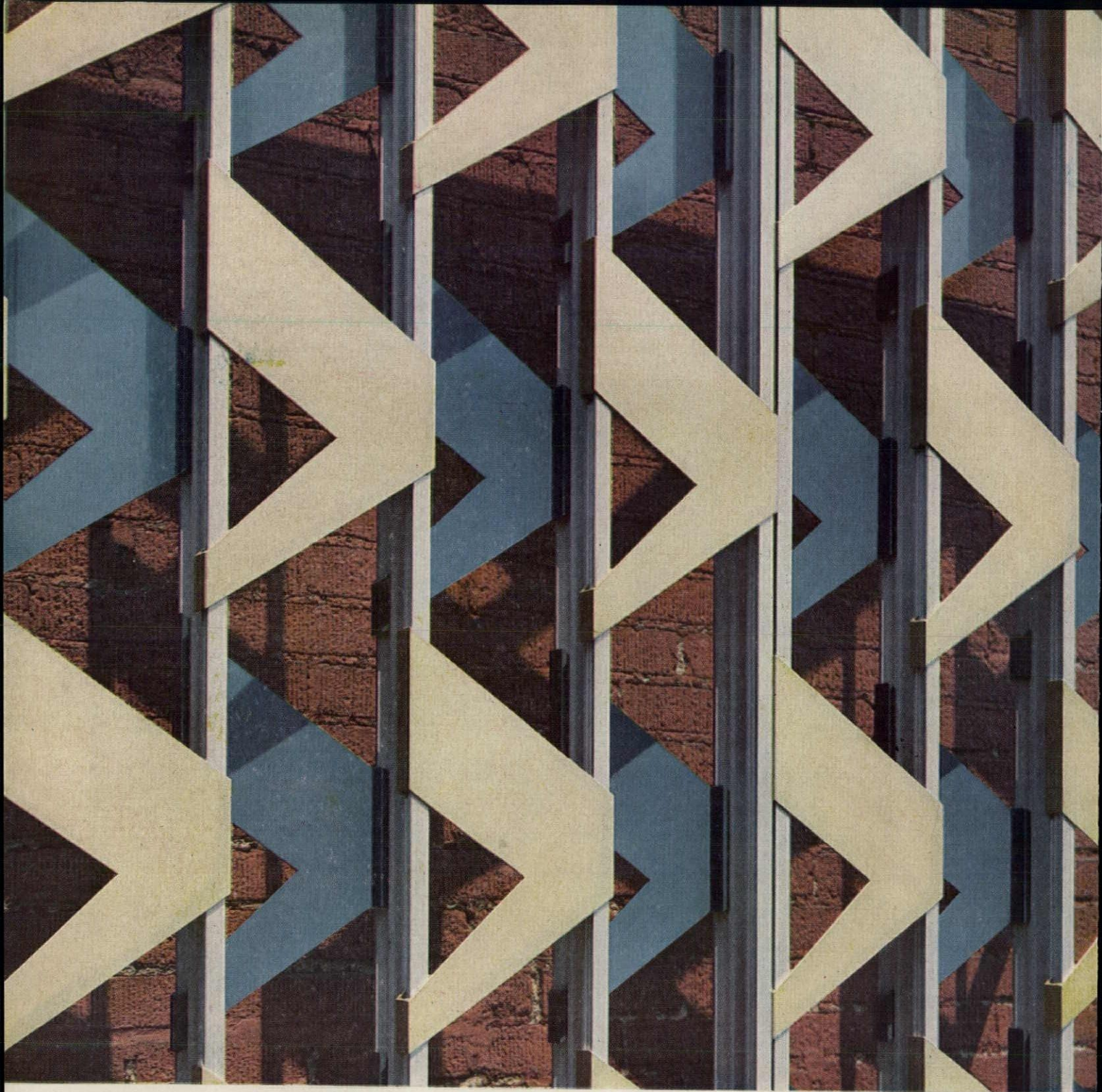
Gentlemen: Please send me:

- GS-1 (low-pressure heating plant, screw-type underfeed stoker)
- GS-2 (high-pressure heating and/or process plant, ram-type underfeed stoker)
- GS-3 (automatic package boiler for heating and process plants)
- Case histories on larger plants

Name _____
Title _____
Company _____
City _____

Zone _____ State _____

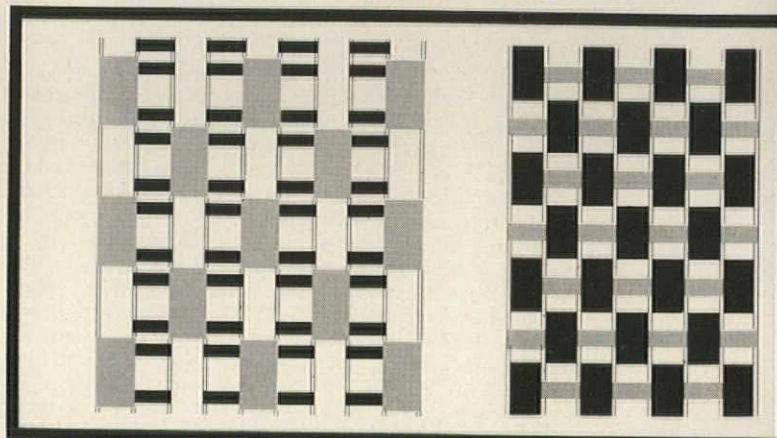
AR11



BEAUTY like this for as little as \$3 a square foot, *in place!* Panelettes are available in a variety of shapes, and in either natural aluminum or 11 standard Alcoa Alumalure* colors. In addition, you achieve individuality through—

Endless variations of grillage patterns

—simply by your own individual arrangement of the two basic components of the Sol-Dec system. The design above and the five suggestions in the box at the right are just six of the infinite range of designs that become possible.



Announcing a **New** dimension
in architectural expression—

ALCOA SOL-DEC

low-cost aluminum
solar decorative screen system

SUN SCREENS and grillage of Alcoa® Aluminum are not altogether new—many delightful and practical, modern, award-winning buildings owe much of their charm to just such usage of aluminum by inspired architects.

WHAT IS altogether new (and altogether exclusive with Alcoa) is the low-cost, easy-to-assemble Sol-Dec* system that permits real freedom of design in almost limitless variation while involving just two basic, standardized components. Cost? Only \$3 to \$5 a square foot—in place!

THE NEW Alcoa Sol-Dec system comprises panelettes in lengths, shapes and colors to your order. These are quickly and easily slipped over the 3-in. aluminum I-beams, spaced on 8-in. centers, positioned to your designed pattern, snapped and crimped into

place. The complete system is delivered directly to the job, ready for economical, foolproof assembly.

FOR THE full story of the exciting new vistas opened by Sol-Dec screens, write for *Alcoa Aluminum Building Products 300-5*, including *design details*. You'll find new ideas for remodeling old buildings and creating exciting new ones. Aluminum Company of America, 1823-L Alcoa Building, Pittsburgh 19, Pennsylvania.



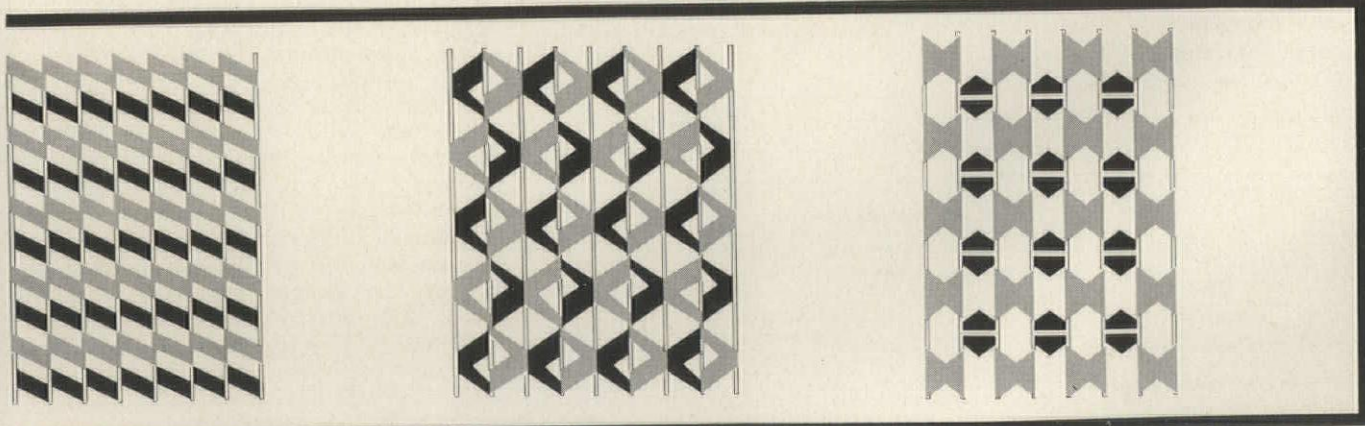
Your Guide to the Best
in Aluminum Value

For exciting drama watch "Alcoa Presents" every Tuesday, ABC-TV, and the Emmy Award winning "Alcoa Theatre" alternate Mondays, NBC-TV

*Trademarks of Aluminum
Company of America

Quick, on-the-job assembly in the pattern created by you!

1. Alcoa Aluminum panelettes, delivered in lengths, shapes, widths for your design and in your choice of a variety of profiles—
2. are slid onto ends of I-beams and moved to desired position. Then—
3. panelette is quickly and permanently snapped and crimped into place. That's all!



Third Housing Bill Passes Congress AND President

It took three major tries by Congress, but an omnibus housing bill for 1959 finally was approved. The President put his signature on the third effort without comment after vetoing the first two bills with considerable explanation.

Typically, the housing issues eventually were thrown into the dying days of the first session of the 86th Congress and threshed out hurriedly in committee. To get White House approval of the housing bill, Congress

finally made three major changes in its second measure, the one vetoed a few days before. These eliminated the time schedule on use of the new \$8 billion authority for Federal Housing Administration's loan insurance programs, removed the proposed program of loans to colleges for construction of classroom structures and other academic facilities, and stretched out the period in which \$650 million will be spent on urban renewal capital grants from one to two years.

Much of the heat from Senate de-

bate of these changes focused on the college and university loan program. President Eisenhower had objected to this provision from the first and attacked it vigorously in each of his two veto messages.

As first suggested, but finally eliminated from the bill, the proposal would have authorized a new system of loans to be administered by the Housing and Home Finance Agency. These would have been made to educational institutions for construction of new classrooms, laboratories and related facilities, including initial equipment, machinery and utilities. An appropriation of \$50 million would have been authorized for a revolving fund. Loans also could have been made for rehabilitation, alteration, conversion, or improvement of existing structures for such uses. The loans would have been made only after consultation with, and in accordance with the advice and recommendations of, the U.S. Office of Education.

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ATTENTION _____

New College Aid: Next Year?

There were strong indications that elimination of the college loan program for non-housing facilities did not mean the end of the matter. Senator Clark (D-Pa.), and 23 of his colleagues announced they would make a strong bid in the second session to get legislation of this nature.

Senator Clark said, in the closing days of the first session: "If it is desirable, as it is, for the government to help build rooms for students to sleep in, it seems self-evident that it is at least as desirable to help build the classrooms, laboratories, libraries, and other buildings in which they actually receive their education."

The dormitory construction program, Federal aid for which remained in the housing bill as finally approved this year, was termed an outstanding success by the Pennsylvania legislator. He said it had enabled colleges and universities to construct more than 121,000 student dwelling units, with an added 63,000 under construction. He added that college and university administrators had testified that without this program they could not have met their needs for student housing.

Senator Clark intends to offer the amendment after Congress convenes in January to the Federal-aid school construction bill which was reported out of the Senate Education and Labor Committee this year. That measure, S. 8, calls for a two-year emergency school construction program to help states with their elementary and secondary school building programs.

continued on page 350

RECESSED TROFFERS BY SYLVANIA

...designed for the man who *works with lighting!*



Sylvania Troffers—ideal for modern building practices
—offer specific advantages to designer and contractor.

Sylvania's new line of Recessed Troffers has received exceptional acceptance from men who know and work with lighting . . . and for good reasons.

These Troffers give the smart trim appearance and good lighting qualities that guarantee user satisfaction. In addition, they have important *built-in features* which are not apparent to this user—but which are vital to the designer and contractor responsible for the specification and installation of the lighting equipment.

FOR THE DESIGNER—Shallow Sylvania Troffers combine smooth, uncluttered finished appearance with practically limitless application possibilities.

The use of hidden latches and hinges and the extensive choice of shielding media bring the designer's ideas to attractive reality in the finished installation.

3 types of fixture housing—with exposed, concealed or fit-in flanges—permit Sylvania Troffers to fit ALL popular ceilings.

And Sylvania Troffers achieve any desired lighting layout because of the wide choice of standard elements including 1' and 2' wide models, downlighting Accent Units and 4' x 4' units.

FOR THE ELECTRICAL CONTRACTOR

Sylvania Troffers supply labor saving, time saving advantages so necessary for profitable operation. For instance—Sylvania's exclusive Snap-Up Hanger eliminates the need of hanger straps for many ceiling types and reduces installation time appreciably . . . and the adjusting screw of this Snap-Up Hanger levels the Troffer simply and quickly through the use of a screwdriver from below.

Wasted time and motion on the job are eliminated through Sylvania's use of maximum factory pre-assembly and unit packing. Fixtures are normally shipped in individual cartons with end caps and accessories in place and with shield frame and shielding installed.

The next time you specify or install recessed lighting, check the many advantages of Sylvania Troffers before making your choice. Compare Sylvania Troffers feature for feature with other makes. Then you be the judge.

For complete information, write to:

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A Division of SYLVANIA ELECTRIC PRODUCTS INC.

Department S-59-10
One 48th Street, Wheeling, West Virginia

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FLUORESCENT LIGHTING FIXTURES AND SYSTEMS • BEST FIXTURE VALUE IN EVERY PRICE RANGE



International Minerals & Chemical Corporation Administrative and Research Center, Skokie, Illinois
architects: Perkins and Will, Chicago
general contractor: Turner Construction Company, NYC
floor: Armstrong Custom Corlon (homogeneous vinyl) Tile, No. 1400, Polar White

**There's an Armstrong floor precisely right for each particular interior...
 in the cafeteria at International Minerals
 and Chemical Corporation, that floor is**

Armstrong CUSTOM CORLON TILE

Red, yellow, blue — fresh, contrasting accents harmonized by the subtly colored expanse of Armstrong Custom Corlon Tile. Daily mealtime rushes don't mar the lustrous, clear colors of this floor. Custom Corlon Tile is completely resistant to spilled food and grease stains. When things do get spilled, a quick damp mopping cleans the satin-smooth surface. Regular maintenance is easy and economical. Even accidental cigarette burns are easily removed. And exclusive Armstrong manufacturing processes guarantee that this type of homogeneous vinyl tile will not shrink or expand. Problem-free, long-lasting installations are ensured.

Technical data on Custom Corlon Tile: *uses:* above, on, or below grade; *surface resistance:* greaseproof, excellent for acids, alkalis, many solvents; *dimensional stability:* superior; *ease of maintenance:* superior; *static load limits:* 200 psi; *underfoot comfort and quiet:* excellent; *gauges:* 3/32", 1/8"; *sizes:* 9" x 9", 12" x 12", 18" x 36"; *colors and designs:* burl graining and Imperial series (a terrazzo effect) in over 30 colors, including plain black and plain white.

Architectural services. Since Armstrong makes all types of resilient floors, Armstrong Architectural-Builder Consultants can recommend without bias the one type of floor perfectly suited to each interior. They can also provide you with the services of the Armstrong Research Center, the Bureau of Interior Decoration, and special advice from the Armstrong Installation Technologists. Contact the Architectural-Builder Consultant at your Armstrong District Office. Or write to Armstrong Cork Company, 1610 Rock St., Lancaster, Pennsylvania.



Armstrong Floors price list

Approximate installed prices per sq. ft.

Over concrete, minimum area 1000 sq. ft.

| | | |
|--|---|---|
| <p>15¢ - 25¢</p> <p>Linoleum Tile .0625" Asphalt Tile 1/8" (A, B, C, D and greaseproof) Asphalt Tile 3/16" (A, B) Linoleum .0625"</p> | <p>30¢ - 45¢</p> <p>Linoleum Tile .090" Asphalt Tile 3/16" (C, D) Excelon Tile .0625" (vinyl-asbestos) Linoleum .090"</p> | <p>50¢ - 65¢</p> <p>Excelon Tile 1/8" (vinyl-asbestos) Linoleum .125" Battleship Vinyl Corlon .070" Cork Tile 1/8"</p> |
| <p>80¢ - 95¢</p> <p>"Futuresq" Vinyl Corlon .070" Cork Tile 3/16" Rubber Tile 1/8" "Tessera" Vinyl Corlon .090" Linofile 1/8" Custom Corlon Tile 3/32"</p> | <p>\$1.00 and over</p> <p>"Imperial" Custom Corlon Tile 3/32" Custom Corlon Tile 1/8" Cork Tile 5/16"</p> | <p>\$1.00 and over</p> <p>Rubber Tile 3/16" Custom Vinyl Cork Tile 1/8" Opalesq Vinyl Tile 1/8"</p> |

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 |
| 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 |
| 1958 | 328.0 | 315.1 | 348.6 | 365.4 | 357.3 | 243.9 | 239.8 | 255.7 | 261.9 | 262.0 |
| June 1959 | 344.2 | 331.0 | 369.8 | 388.5 | 376.9 | 250.9 | 246.8 | 263.9 | 270.3 | 271.8 |
| July 1959 | 344.2 | 331.0 | 369.8 | 388.5 | 376.9 | 254.9 | 249.9 | 269.5 | 276.2 | 276.2 |
| Aug. 1959 | 344.6 | 331.4 | 370.4 | 388.5 | 376.9 | 254.9 | 249.9 | 269.5 | 276.2 | 276.2 |
| Aug. 1959 | 179.0 | 170.7 | % increase over 1939 | | | 195.4 | 200.7 | % increase over 1939 | | |
| | | | 183.4 | 191.2 | 189.7 | | | 183.4 | 183.6 | 191.6 |

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 |
| 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 |
| 1958 | 297.0 | 287.9 | 304.9 | 318.4 | 313.8 | 289.8 | 274.9 | 311.5 | 326.7 | 320.8 |
| June 1959 | 306.3 | 296.9 | 316.3 | 332.0 | 326.0 | 298.3 | 285.0 | 320.8 | 334.7 | 327.9 |
| July 1959 | 306.9 | 297.5 | 317.0 | 332.0 | 326.0 | 298.3 | 285.0 | 320.8 | 334.7 | 327.9 |
| Aug. 1959 | 306.9 | 297.5 | 317.0 | 332.0 | 326.0 | 303.3 | 287.8 | 327.7 | 344.2 | 334.3 |
| Aug. 1959 | 178.5 | 178.0 | % increase over 1939 | | | 187.2 | 189.8 | % increase over 1939 | | |
| | | | 167.0 | 177.1 | 173.9 | | | 179.1 | 182.4 | 186.9 |

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.:

$$\frac{\text{index for city A} - \text{index for city B}}{\text{index for city B}} = 0.158$$

(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.

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

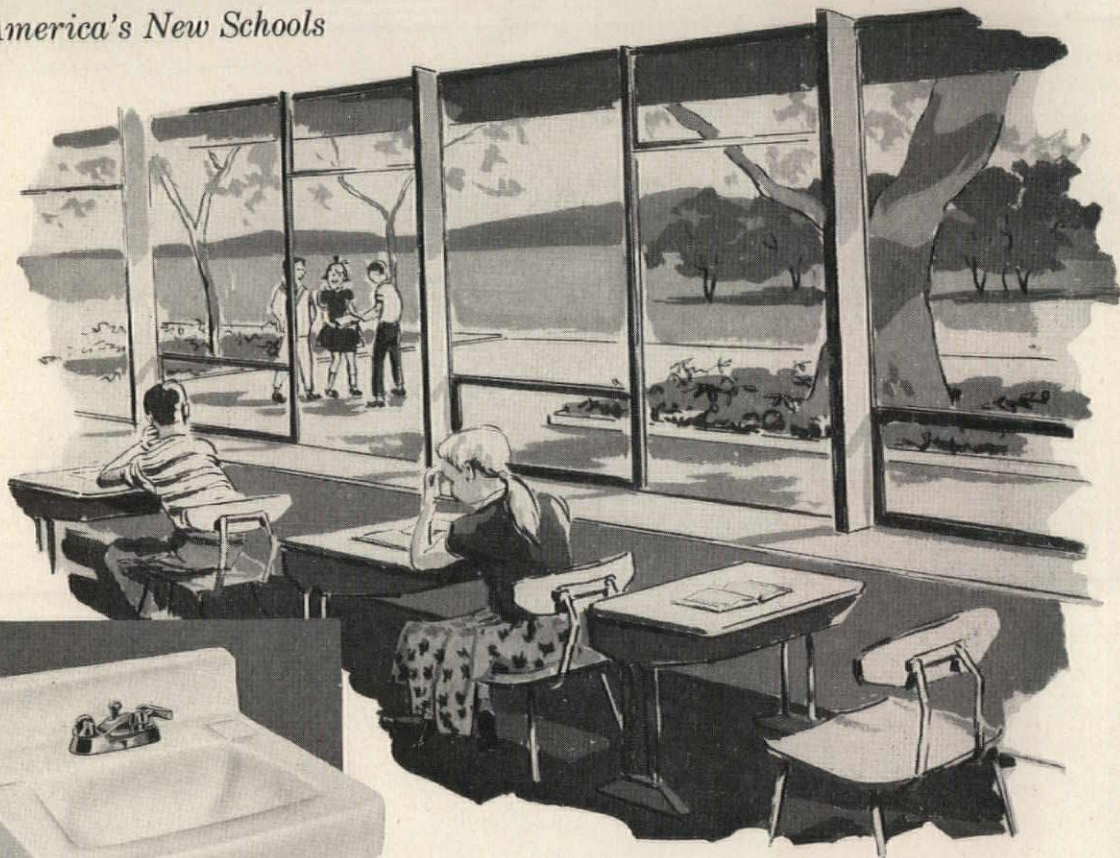
Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

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.

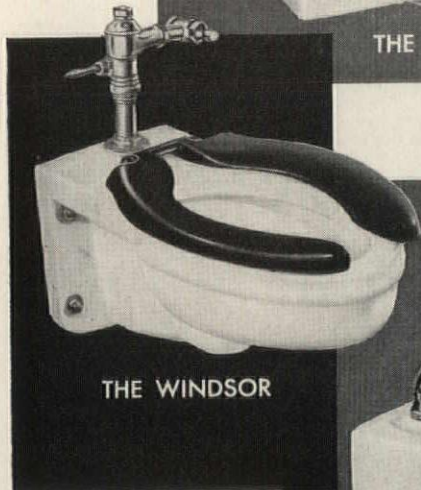


Quality Beyond Specification

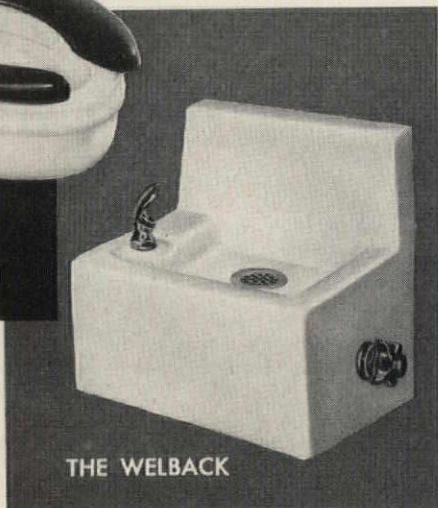
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Rheem Manufacturing Company, Metuchen, New Jersey





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semi-concealed door closer
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SARGENT

Required Reading

Fig. 5

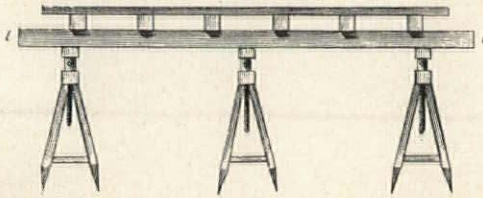
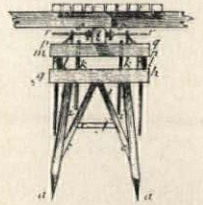


Fig. 4.



Fig. 3.



1 2 3 4 5 6
Echelle de 6 Pieds.

Contemporary Plates Illustrate Technology of 18th Century

A DIDEROT PICTORIAL ENCYCLOPEDIA OF TRADES AND INDUSTRY. *Manufacturing and the Technical Arts in Plates Selected from L'Encyclopédie, ou Dictionnaire Raisoné des Sciences, des Arts et des Métiers of Denis Diderot. Edited with Introduction and Notes by Charles Coulston Gillispie. Dover Publications, Inc., 180 Varick St., New York 14. 920 pp., illus. (2 vols.). \$18.50.*

This fascinating and beautiful collection of reprinted copperplate engravings gives an amazingly comprehensive view of French technology in the 18th century. Building trades, engineering projects, and architectural crafts are portrayed. Many different arts, processes, and tools are also shown in detail, as are agriculture and the military arts. These two volumes would be of great interest to almost anyone, but particularly to architects and engineers with some historical curiosity.

The volumes are large enough (9 by 12 ins.) to allow most of the 485 plates to appear in the original size. Charles Coulston Gillispie, associate professor of history at Princeton, contributes an illuminating and interesting introduction that includes a biographical sketch of Diderot and describes his great *Encyclopedia* as an achievement of the Enlightenment. The plates, incidentally, were contained in a number of volumes intended to be illustrative supplements to the *Encyclopedia* itself.

Mr. Gillispie's explanatory notes to the plates deserve special commendation. They could hardly be better. Mr. Gillispie describes in detail what is happening in each picture in a style marked not only by authority and erudition but also by a combination of charm and unforced wit that is quite irresistible. For instance, on fortress architecture: "These plates make it obvious that the influence of French taste on Italian exuberance had the same effect in military as in civil architecture. It curbed imagination by geometry and fancy by reason."

The plates are divided into 13 sections: agriculture and rural arts; art of war; iron foundry and forge; extractive industries; metal working; glass; masonry and carpentry; textiles; paper and printing; leather; gold, silver, and jewelry; fashion; miscellaneous trades. —P.C.F.

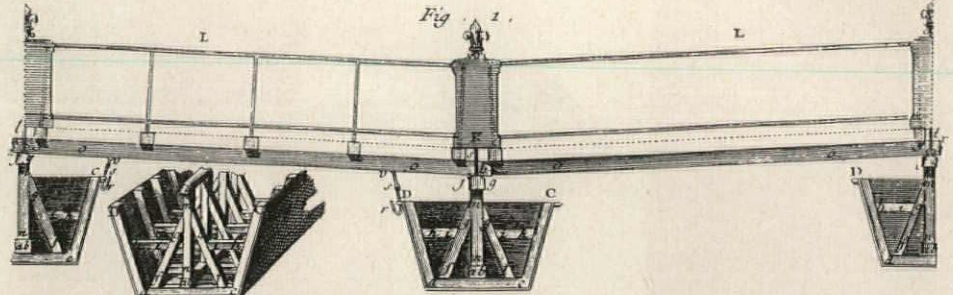


Fig. 01.

From the *Diderot Pictorial Encyclopedia*: Prefabricated Bridge. "A retreating army would normally burn or blow up its bridges, which would have to be replaced by the pursuer. The prefabricated military pontoon bridge of the 18th-century military engineer did not differ in principle from that of his World War II successor, although it was perhaps rather more pleasing in design"

Sourcebook of Industrial Details

INDUSTRIAL BUILDING DETAILS. By Duane F. Roycraft. F. W. Dodge Corp., 119 W. 40th St., New York 18. 352 pp., illus. (2nd ed.). \$12.75.

This master reference of architectural details for the industrial building designer presents more than 1500 drawings, each to scale. Text is kept to a minimum, appearing only when necessary for clarification. The details are large enough to trace or project for direct use, or they can be adapted. The 17 major sections cover structural details, walls and windows, louvers, roofs and parapets, monitors, floors, ventilators and stack curbs, expansion joints, flashing, canopies, doors and door frames, stairs and landings, ladders and platforms, hatch covers and

frames, catch basins and manholes, storage and transport, miscellaneous. There are a list of abbreviations, key to materials symbols, and a complete index.

Urban Renewal: Three Aspects

THE CHALLENGE OF URBAN RENEWAL. By M. Carter McFarland. Urban Land Institute, 1200 18th St., N. W., Washington 6. 44 pp. \$3.

THE REAL ESTATE MARKET IN AN URBAN RENEWAL AREA. By Chester Rapkin. City Planning Commission, 2 Lafayette St., New York 7. 139 pp. \$1.

THE HUMAN SIDE OF URBAN RENEWAL. By Martin Millsbaugh and Gurney Breckenfeld. Edited by Miles L. Coleau. Fight-Blight, Inc., 32 South St., Baltimore 2. 283 pp., illus. \$3.50.

To those interested in current work on urban renewal projects, these three soft-cover books offer a variety of necessary information.

The Challenge of Urban Renewal is a compact and concise introduction to the problem. It explains clearly exactly what the program is, the

continued on page 79

Fig. 7.

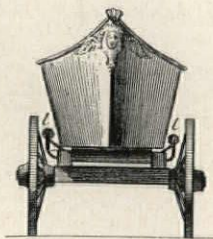


Fig. 6.

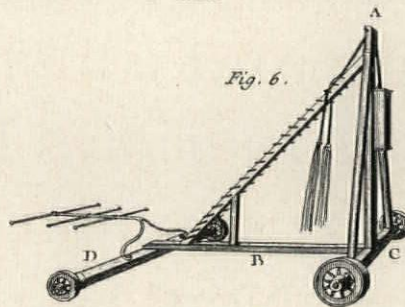


Fig. 8.

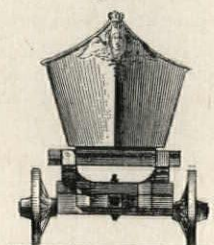


Fig. 2.

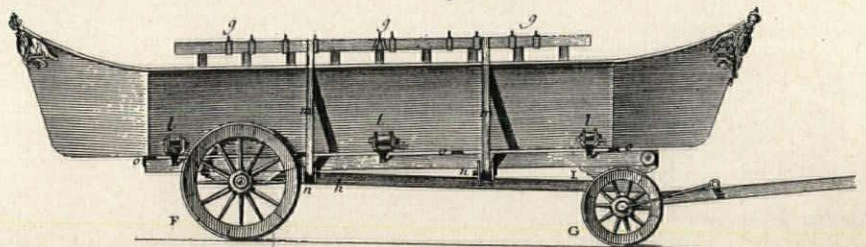
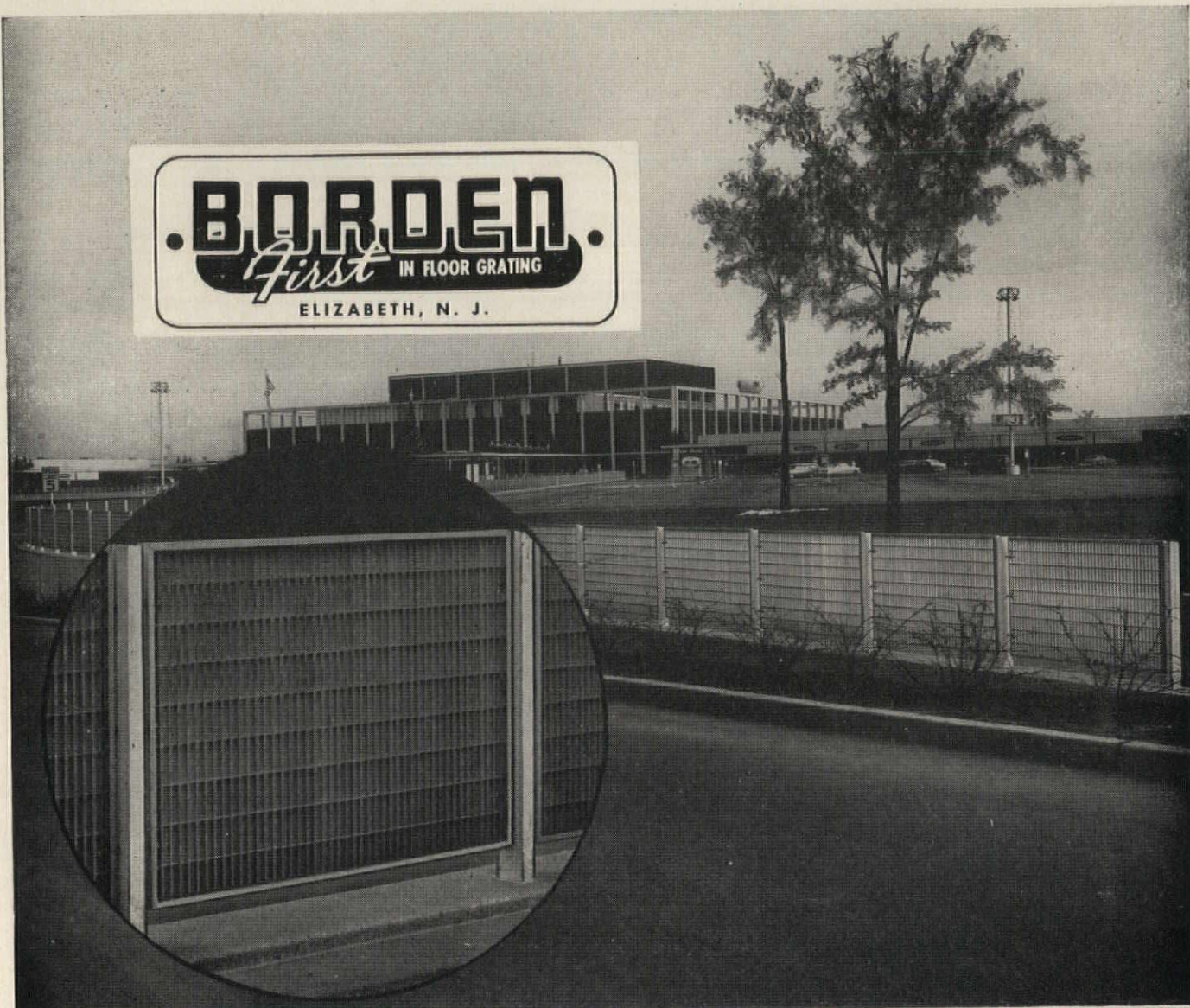


Fig. 9.



* Architect: Victor Gruen & Associates, Inc., Detroit, Mich.

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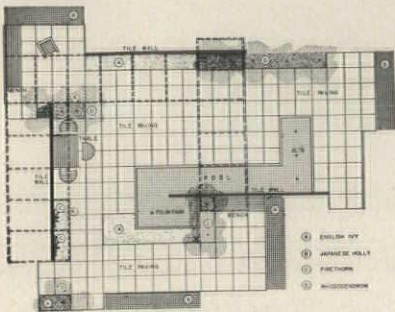


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Required Reading

continued from page 76

legislation behind it, its place in the economy, and its part in community problems. It can be used as a valuable educational booklet to pave the way for a needed project.

The Real Estate Market in an Urban Renewal Area is a specific study of a 20-block section of Manhattan's West Side that was executed as a preliminary examination of a proposed renewal project. Mr. Rapkin goes into great detail in pointing out the trends in types of housing, property ownership, and property values. He includes many tables and charts which give a forceful demonstration of the need for rehabilitation and renewal. This study should prove to be a very useful example to communities contemplating the start of a project.

The Human Side of Urban Renewal traces the non-housing problems encountered once a program is started. In examining the early experiments of Baltimore, Chicago, Miami, and New Orleans, the authors point out problems arising from prejudice, tradition, family and financial difficulties which are as important to the rehabilitation of an urban area as are the new construction or rejuvenation of housing units. This book, published as a summary report of the Fight-Blight programs, should be read by the supporters of any type of rehabilitation work.

—CAROLINE BRADY

Urban Renewal: More Aspects

TWENTY YEARS OF PUBLIC HOUSING: ECONOMIC ASPECTS OF THE FEDERAL PROGRAM. By Robert Moore Fisher. Harper & Bros., 49 E. 33rd St., New York 16. 303 pp. \$6.50.

EDUCATION TO FORWARD URBAN RENEWAL IN PHILADELPHIA. By Howard W. Hallman. Philadelphia Housing Assn., 1717 Sansom St., Philadelphia 3. 49 pp. (mimeo.). \$1.

THE HOUSING YEARBOOK, 1959. National Housing Conference, 1025 Connecticut Ave., N. W., Washington 6. 72 pp., illus. \$3.

PROCEEDINGS, SECOND NATIONAL CONFERENCE ON COOPERATIVE HOUSING. Cooperative League, 343 S. Dearborn St., Chicago 4. 30 pp. \$1.

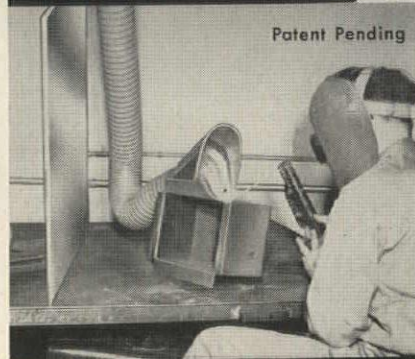
URBAN REAL ESTATE RESEARCH. By David T. Rowlands. Urban Land Institute, 1200 18th St., N. W., Washington 6. 94 pp. \$4.

COMMUNITY FACILITIES: A LIST OF SELECTED REFERENCES. Prepared by National Housing Center Library. National Assn. of Home Builders, 1625 L St., N. W., Washington 6. 170 pp. Free.

another book on page 382

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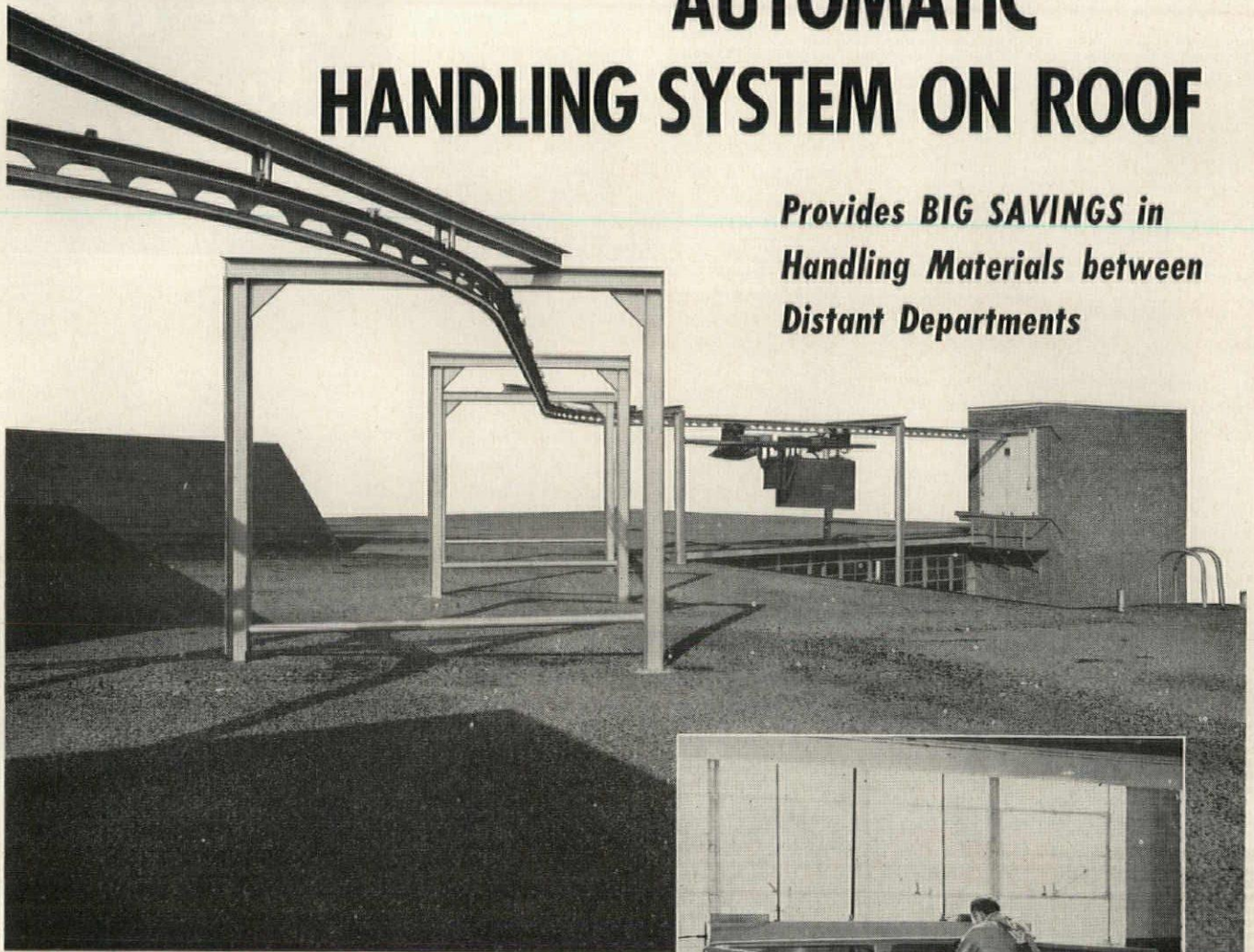
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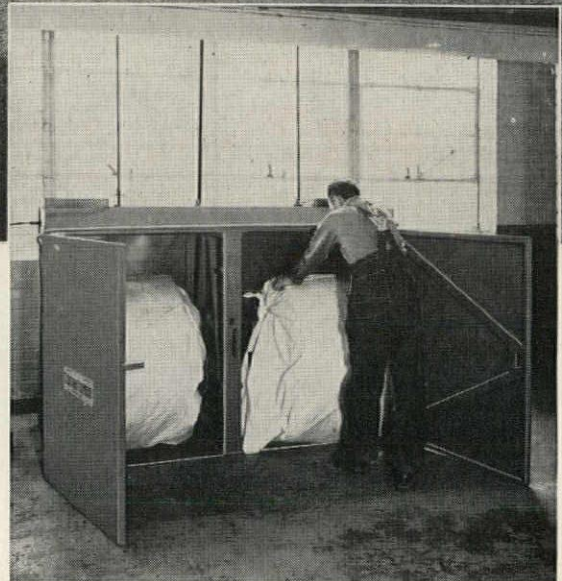
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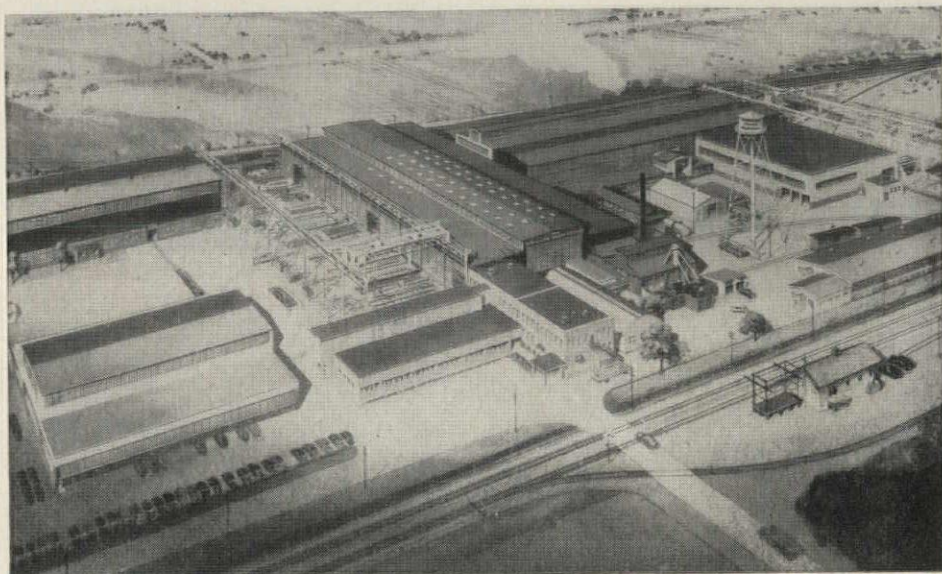


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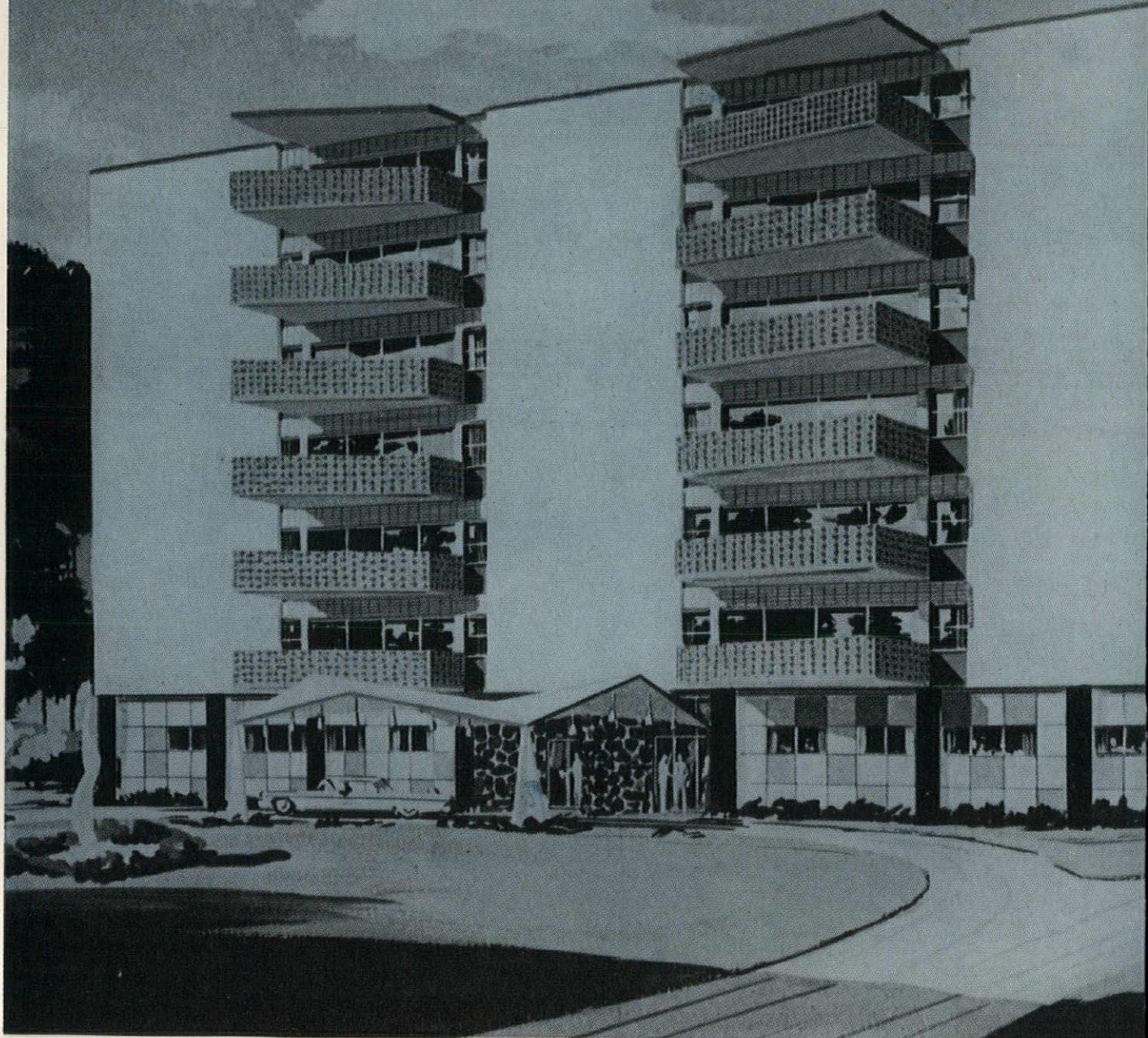
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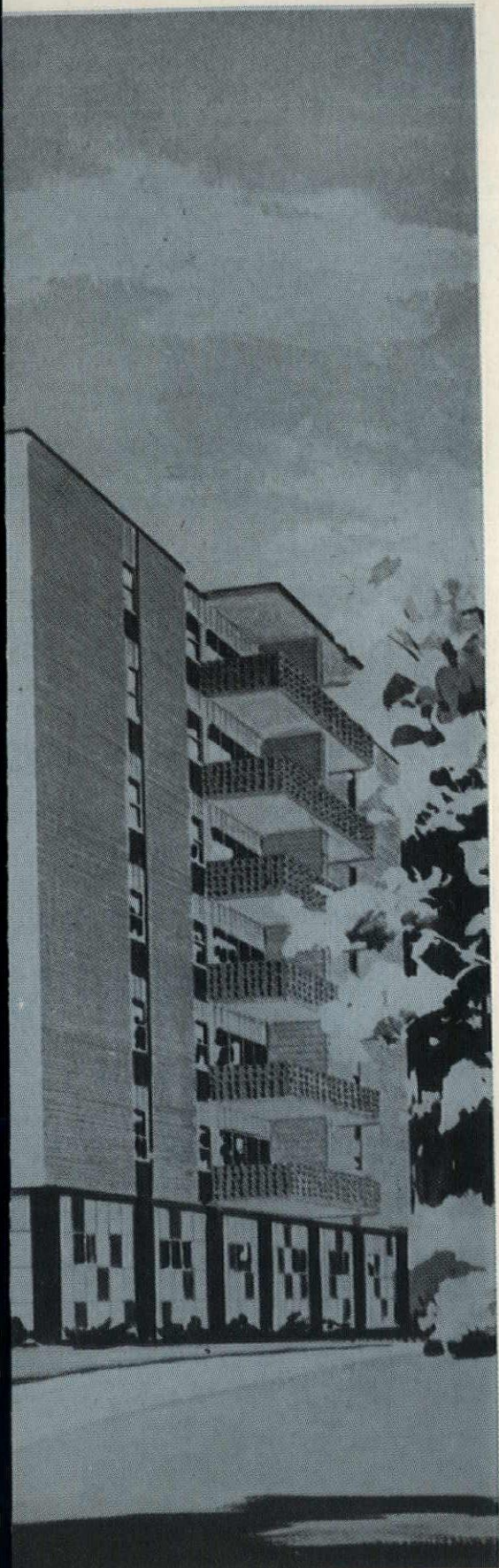
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Harry Sugar (left), one of the builders, and designer Matthew J. Rosenstock

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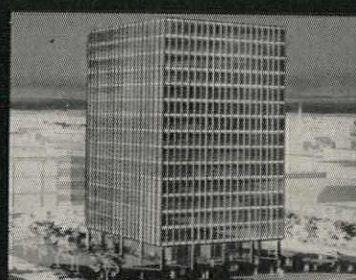
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Stephens T. Mason Building, Lansing, Michigan; Smith, Hinchman & Grylls, Architects and Engineers



National Bank of Detroit, Detroit, Michigan; Albert Kahn & Associates, Architects



Libbey-Owens-Ford Building, Toledo, Ohio; Skidmore, Owings and Merrill, Architects



Universal Building, Washington, D. C.; LeRoy Werner, Architect



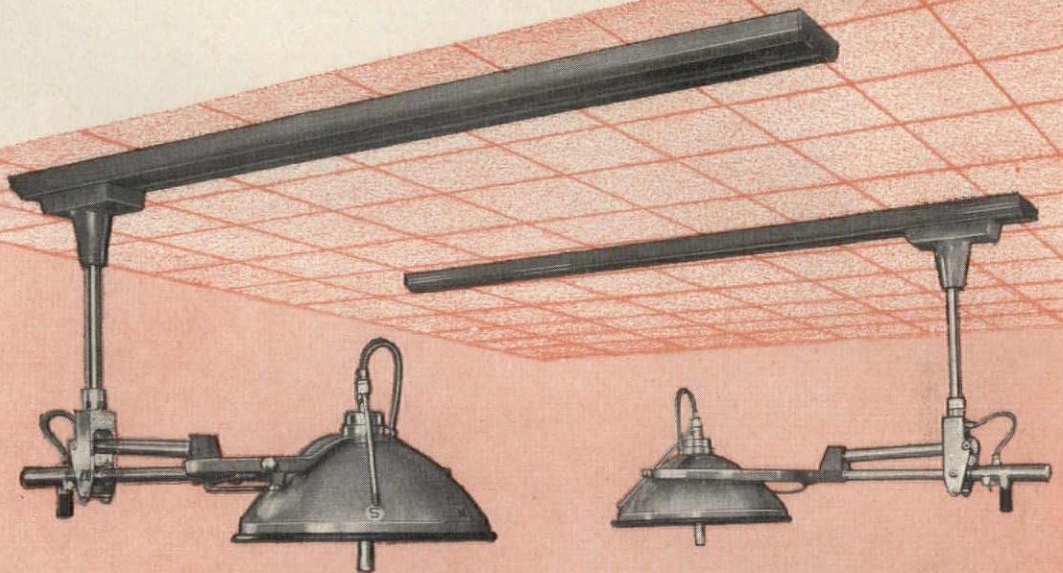
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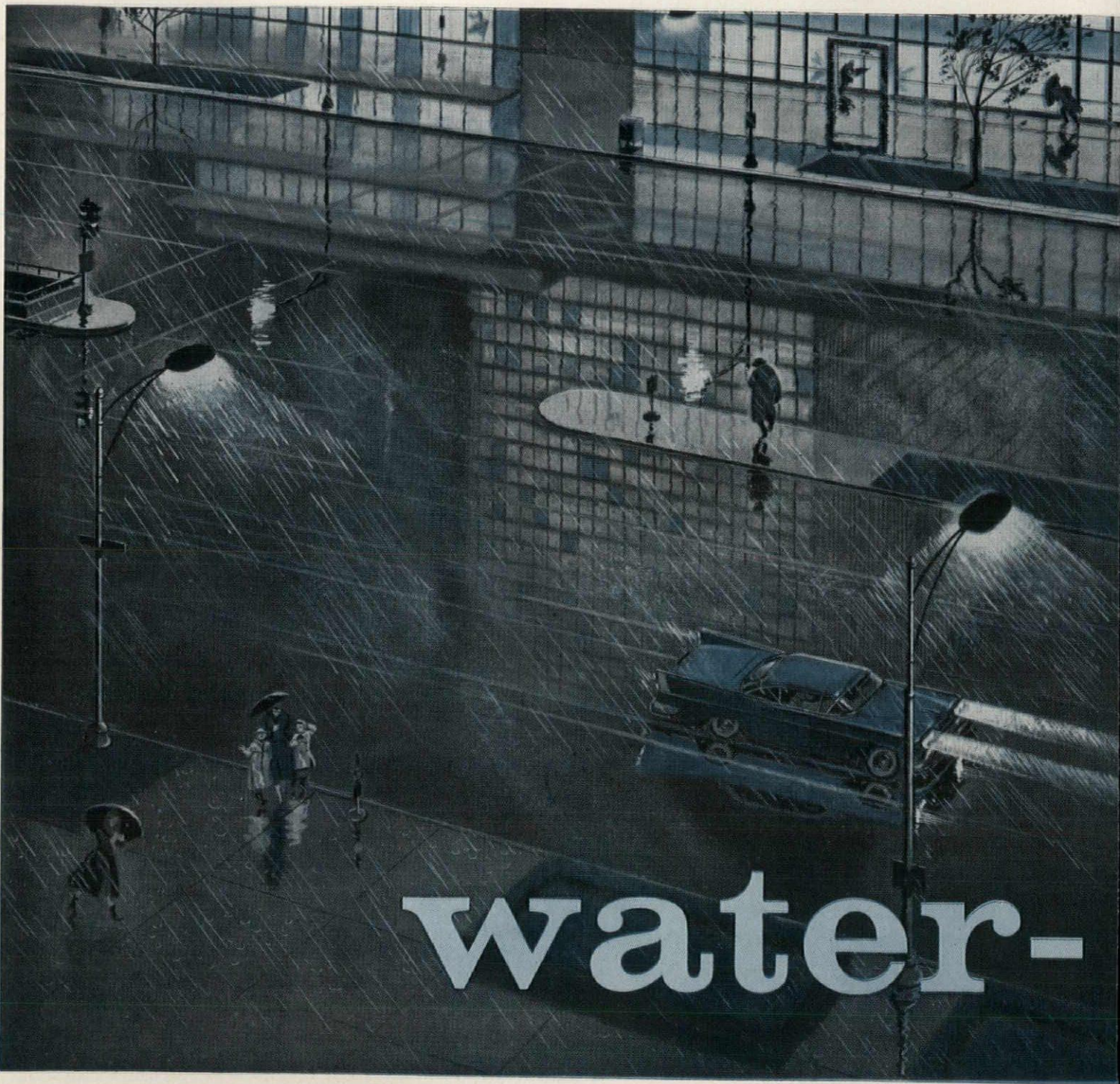
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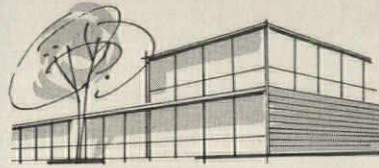
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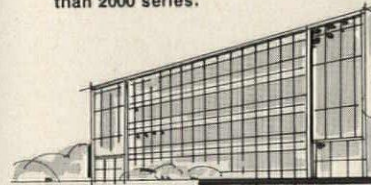
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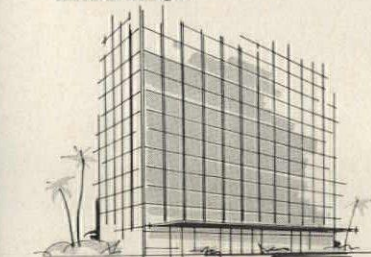
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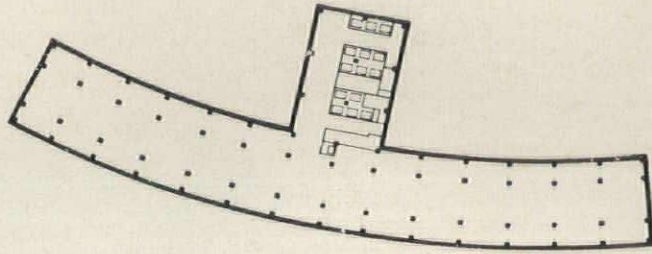
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DEPT. D, 4033 WEST BURNHAM STREET, MILWAUKEE 1, WISCONSIN ATLANTA, BALTIMORE, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND,
DALLAS, DENVER, DETROIT, KANSAS CITY, LOS ANGELES, MILWAUKEE, NEW ORLEANS, NEW YORK, ST. LOUIS, ST. PAUL.



... IN A *Donley* INCINERATOR

Once it was a delicious red apple; now it's a garbage problem! But garbage and rubbish can be deposited any time and destroyed almost immediately in a Donley Incinerator. To eliminate large accumulations of garbage and rubbish, Donley Automatic Safety Burners provide frequent small fires at regular intervals. This Donley principle of frequent burning minimizes smoke, odor and fly-ash. It also avoids the destructive heat of large fires that damages incinerators and flues.

Donley incinerator designs and equipment meet operating standards established by leading fire insurance companies, testing laboratories and most municipal building codes. Write today for your Donley Incinerator Catalog or see it in Sweet's.



Trouble-free Donley Incinerators were specified for this large residential development in Philadelphia.

8239-DB



THE *Donley* BROTHERS COMPANY

13972 Miles Avenue

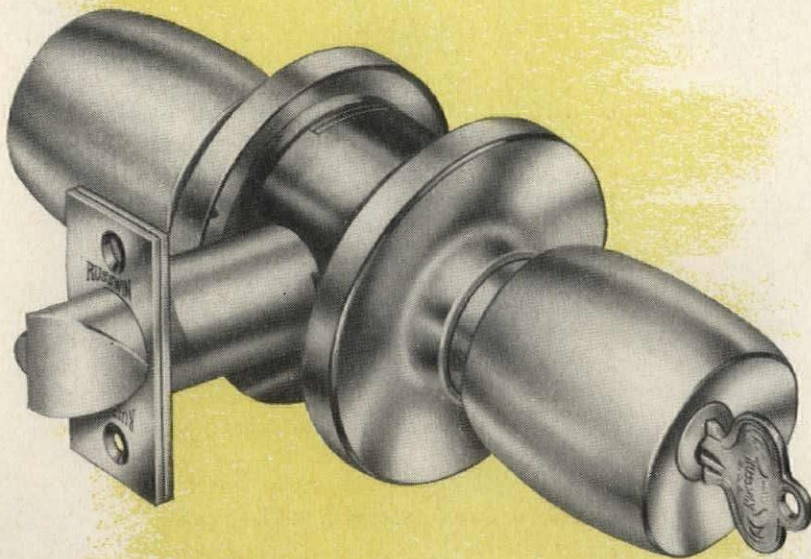
Cleveland 5, Ohio



Employment Security Building, Baltimore, Md. • Architects: Fenton & Lichtig, Baltimore • Contractor: Blake Construction Co., Inc., Washington, D. C. • Hardware Supplier: Albert Gunther, Inc., Baltimore

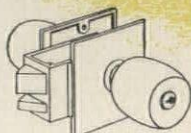
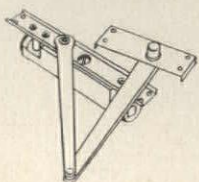
America builds
for the future . . .

with **RUSSWIN DOORWARE**



Impressive is the word for the handsome new Employment Security Building in Baltimore, Md. And indicative of the careful planning that went into it are Russwin Tempo design Stilemaker locksets. This smartly styled, heavy-duty doorware not only complements the building's modern architecture, but offers many features Russwin-engineered for long, trouble-free service. Ball bearing pin tumbler lock cylinders, for example, minimize lock wear. Extra-length knob shank bearings hold knobs rigid, rattle-free. Latch bolts with a full $\frac{5}{8}$ " throw provide positive security. Write for detailed information about Russwin's popular Stilemaker line. Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

For any door . . . in any building

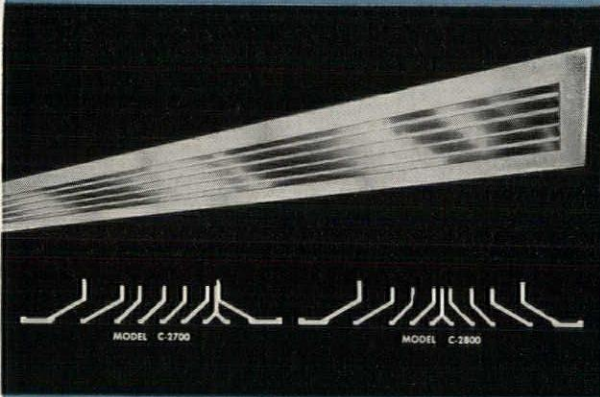


Russwin's "Top-railer" 500 Series Door Closers are used for dependable door control in the Employment Security Building. Rugged Russwin Unilocs are used on entrance doors.

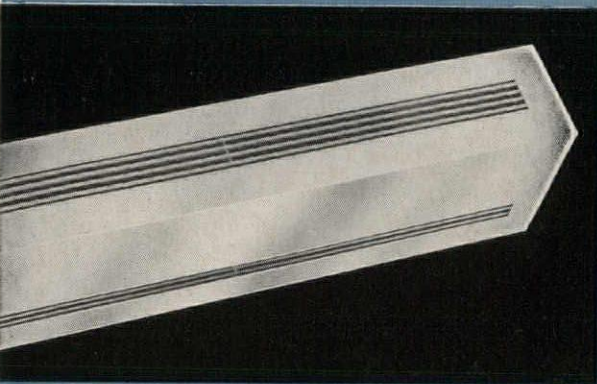
RUSSWIN
DISTINCTIVE DOORWARE

"Harmony in line" for ceilings, sidewalls, floors . . .

New



new Titus model C-2700 & C-2800 SLIM-LINE GRILLES designed for ceilings. 1-way and 2-way deflection models. Any length — many standard widths.



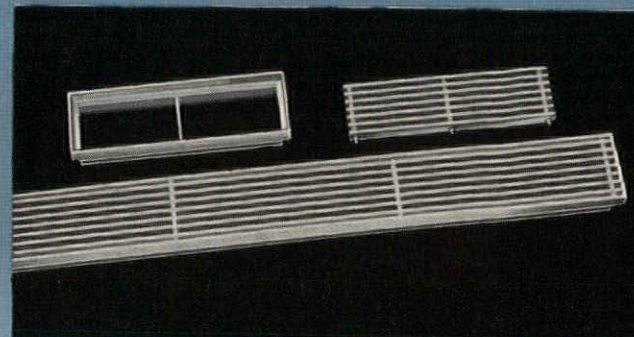
new Titus model C-3100 CONVECTOR ENCLOSURE. Today's most modern covering for convectors, radiators, air conditioning and ventilating units. Grille faces in top and side.

Now . . . for the first time . . . you can use a combination of grille types throughout a building AND YET BE ABLE TO CARRY OUT A HARMONIOUS LINEAR KEYNOTE IN INTERIOR GRILLE DESIGN. These matching Titus grilles are truly unmatched for their sheer linear architectural beauty.

AND THERE IS NO COMPROMISE IN GRILLE PERFORMANCE HERE! Each of these Titus extruded aluminum grilles is specially designed to fit a specific application in ceiling, sidewall, floor . . . YOUR GUARANTEE OF THE MOST EFFICIENT AIR DIFFUSION.

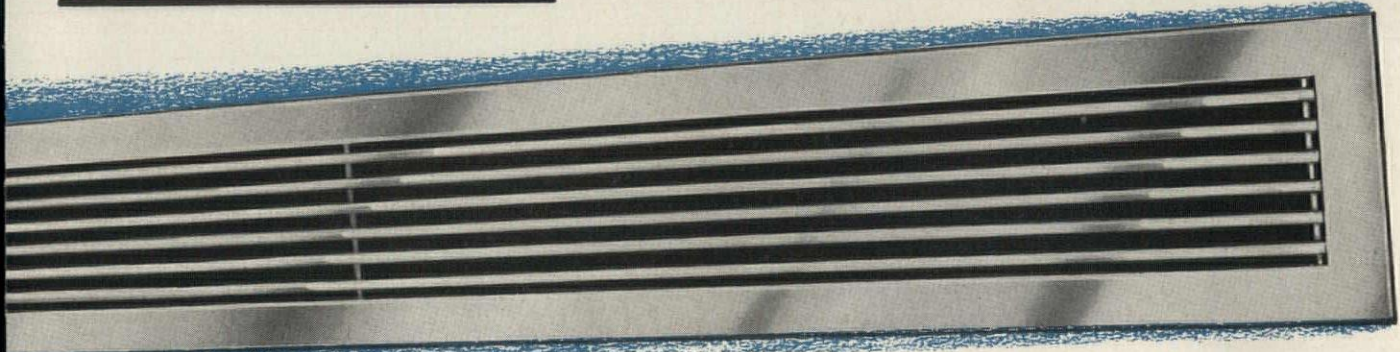
Each grille is of fabulous aluminum . . . light, strong, corrosion-resistant and with long-lasting natural beauty.

*PICTURED ABOVE: Titus Series C-2500 Linear Type grille for sidewalls.



new Titus model 3000 FLOOR GRILLE WITH REMOVABLE FACE. Grille face lifts out of frame, then is replaced after frame is installed in floor. Any length, many stand. widths.

matched linear grilles



of extruded aluminum

by

TITUS

Today's first *complete* line of quality extruded aluminum grilles . . .
made of the very *finest* aluminum extrusions from Titus' own
extrusion presses. All types of grilles and registers including
outside louvers and louver penthouses.

Titus also custom makes extruded aluminum
grilles to fit *any* design, finish or color. **WRITE FOR DETAILS.**



YOURS FREE . . .
this new "PORTFOLIO OF TITUS
EXTRUDED ALUMINUM
GRILLES AND REGISTERS."
Fill out coupon,
clip to your company
letterhead
and mail today.

TITUS MFG. CORP., WATERLOO, IOWA

Please send new "PORTFOLIO OF TITUS EXTRUDED
ALUMINUM GRILLES & REGISTERS."

name _____

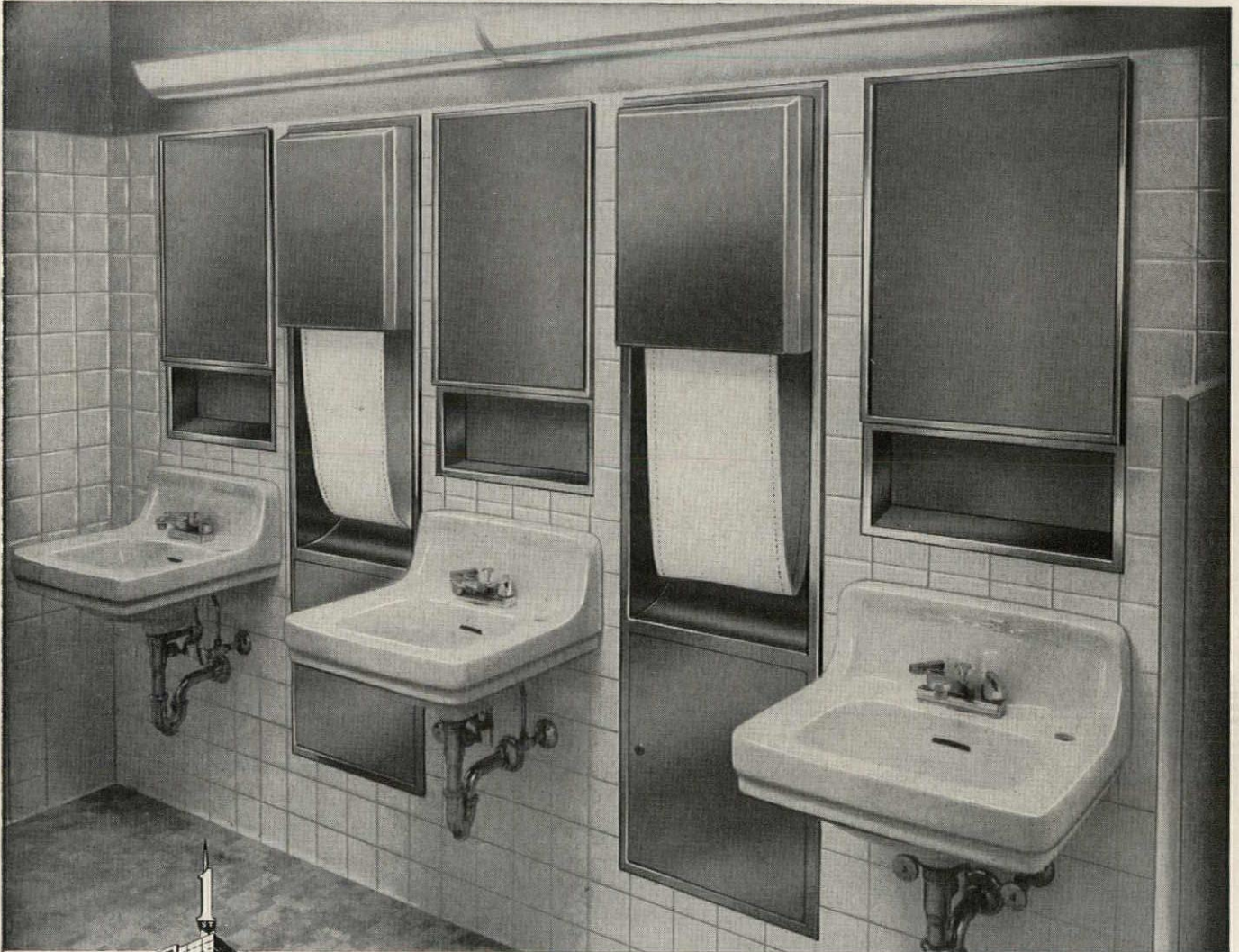
company _____

address _____

city _____ state _____

functional beauty
and "linen" luxury
with

Continuous Cotton Towels



← New First American National Bank Building, Duluth, Minn. Architect Thomas J. Shefchik, A.I.A., Duluth. Contractor: Fowler-Veranah Construction Company and Klippen-Holm Company, Duluth.

↑ Recessed continuous-towel cabinets with base storage units. End clutter of waste receptacles. Integrate with the modern design of the wash room. (This installation serviced by: American Linen Supply Company, Duluth.)

You provide the finest in hand drying facilities AND MORE when you specify continuous towel cabinets.

Low cost installation and service by a linen supplier . . . Reduced maintenance and janitorial costs . . . Elimination of litter, storage and disposal problems . . . Limits fire hazard and plumbing repairs.

Add to this, the fact that you do not

obligate the owner to any particular service, *even* when you specify recessed cabinets like the ones pictured above. (Recesses are designed to accept any of a wide variety of cabinets.)

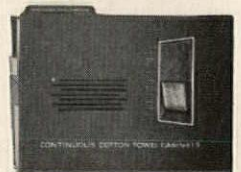
So, why not make sure your clients get the best? Specify the luxury and quality of cotton toweling . . . include continuous towel cabinets in your design.

** Send for this free Planning-for-Cloth kit*

Linen Supply Association of America

and National Cotton Council • 22 West Monroe Street, Chicago, Ill.

Illustrated, includes specifications for recessed unit and continuous cloth towel cabinets. Write—to Linen Supply Association on your letterhead.





“Telephone planning is just the kind of built-in convenience home buyers want”

—SAYS CHARLES V. SIMMS,
CUSTOM BUILDER OF DAYTON, OHIO

“You can’t ignore what people want,” says builder Charles Simms, of Dayton. “People *do* want telephone-planned homes today.

“Five years ago, pre-wiring a home for telephone service was a special feature few people expected. Today, they ask about it, even insist on it. They appreciate the convenience of having built-in telephone outlets throughout their home—and the common sense of having wires concealed inside the walls, with only neat outlet plates visible.”

Mr. Simms builds custom homes priced from \$18,000 to \$40,000 with as many as *nine* telephone outlets in them. They are advertised as “Communication Conditioned” homes.

“A builder has to merchandise his product,” says Mr. Simms, “and telephone planning is good merchandising. The public wants this feature—and the telephone company makes it practical to offer it, costwise.”

Your local Telephone Business Office will gladly help you with telephone planning for your homes. For details on home telephone installations, see Sweet’s Light Construction File, 8i/Be. For commercial installations, Sweet’s Architectural File, 32a/Be.

BELL TELEPHONE SYSTEM



The builder and telephone representative Mary Ellen Sears stand before “The Brookfield”—chosen Dayton’s “Home of the Year”—in Mr. Simms’ Spring Valley Acres development.



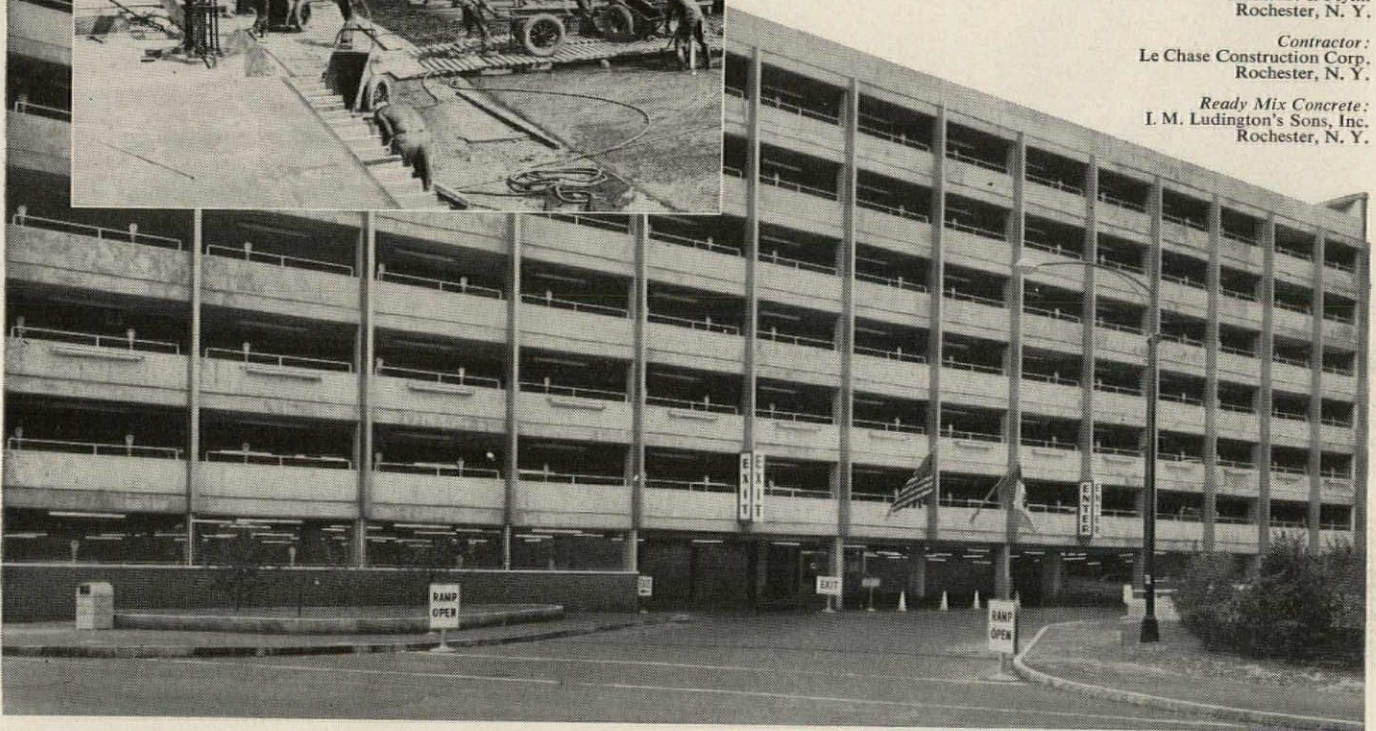
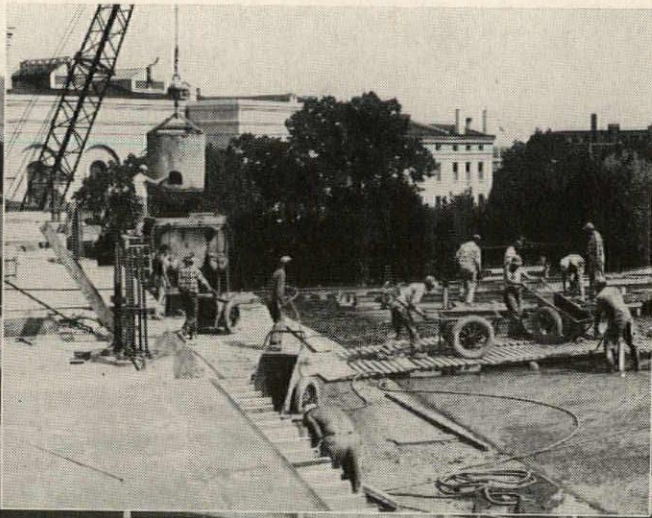
Rochester adds another concrete parking ramp made with

LEHIGH EARLY STRENGTH CEMENT

Architect:
Bohacket & Flynn
Rochester, N. Y.

Contractor:
Le Chase Construction Corp.
Rochester, N. Y.

Ready Mix Concrete:
I. M. Ludington's Sons, Inc.
Rochester, N. Y.



Eight parking levels contain 551 metered spaces. Motorists park their own cars, taking advantage of such modern features as automatic coin changers, passenger elevators and a counting system which tells them where spaces are available.

• *The Clinton Avenue Parking Ramp* is another structure resulting from the forward thinking of the City of Rochester, N. Y. Because of the ramp, 551 more cars have been removed from the curbs of busy downtown streets.

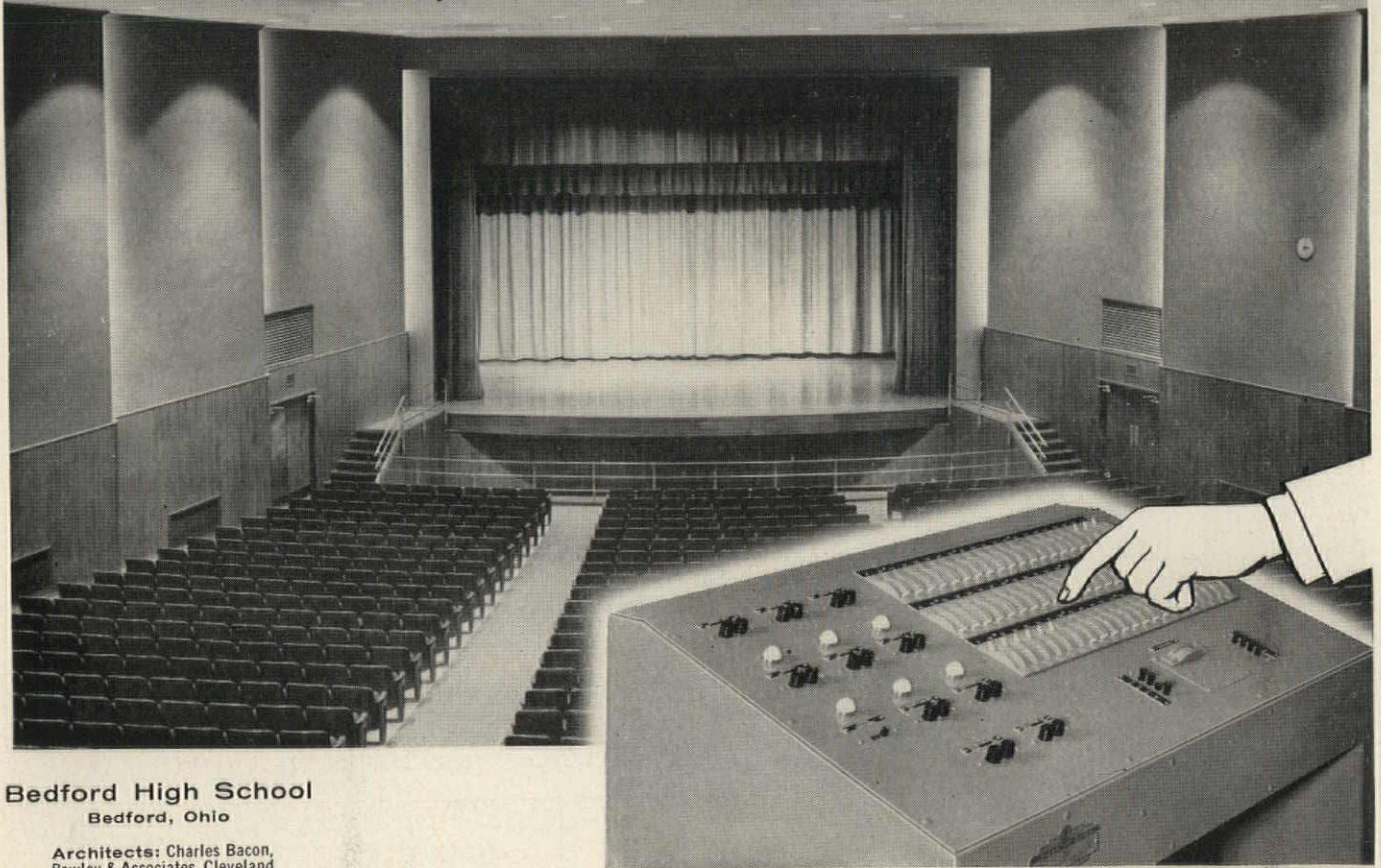
For the second time in 26 months (the city's 523 car Mortimer Street Parking Ramp was completed in March '58) Lehigh Early Strength Cement was chosen for a big Rochester parking facility. The tight schedule called for placement of concrete during most of the Fall and Winter months. Work progressed so well that six floors

were opened temporarily during the Christmas rush. After the holidays, concrete pouring was completed. The ramp has been producing full income since April.

This is another example of how Lehigh Early Strength Cement saves time and money in modern concrete construction. Lehigh Portland Cement Company, Allentown, Pa.

LEHIGH CEMENTS

ANY COLOR IN THE RAINBOW
at the touch of a fingertip!



Bedford High School
 Bedford, Ohio

Architects: Charles Bacon,
 Rowley & Associates, Cleveland
Electrical Engineers:
 Paul C. Mehnert and Charles K.
 Reid, Cleveland
Contractors: Standard
 Electric Company, Cleveland

FRANK ADAM STAGE LIGHTING CONTROL SYSTEMS

FRANK ADAM EQUIPMENT STARS AT NEW BEDFORD HIGH SCHOOL AUDITORIUM

- **MAGNETIC AMPLIFIER DIMMERS**
 No electronic tubes, no relays, no moving parts, nothing to wear out. Instant response!
- **THREE SCENE PRE-SET**
 Permits pre-setting of lights on all 21 controls for 3 scenes or for 2 scenes in advance of present scene.
- **FADER CONTROL**
 allows scene-to-scene fading.
- **BLACK-OUT CONTROL** — Provides instantaneous black-out or fade-out of any scene.
- **SLIDING CONTACT-TYPE CROSS CONNECT PANEL**
 Permits any of the 72 branch circuits to be connected to any of the 21 dimmed or 3 non-dimmed circuits.

With Frank Adam performing "behind the scenes", the entire spectrum is instantly on command to match the mood to the play.

A complete range of Frank Adam lighting systems is available, "tailored-to-the-job", for every requirement—in school and college, theatres—or any other kind of auditorium.

Take your cue from the country's leading architects—specify Frank Adam Stage Lighting Control Systems.
Send for fact-filled brochure!



FRANK ADAM ELECTRIC COMPANY
 P O BOX 357, MAIN P O • ST LOUIS 66, MO

busduct • panelboards • switchboards • service equipment • safety switches • load centers • Quikmeter

See our catalog in SWEET'S





Sit on it, stand on it—

ASE's honeycomb top will keep its perfect surface

It's no secret that office workers are hard on furniture. This edge-sitter, for instance, might harm another desk. But ASE's exclusive honeycomb top will stand many times his weight. This same construction is used in airplanes for its strength and ability to keep a perfect surface. Tops on *all* ASE desks are made this way. Yet, there's no premium for this extra quality.

ASE furniture is designed for efficiency, and

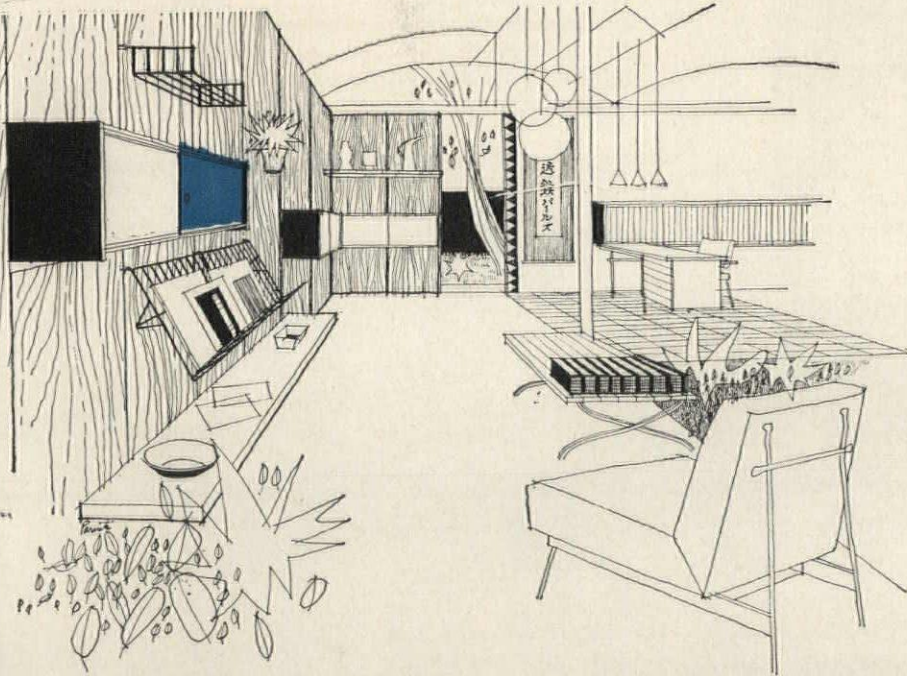
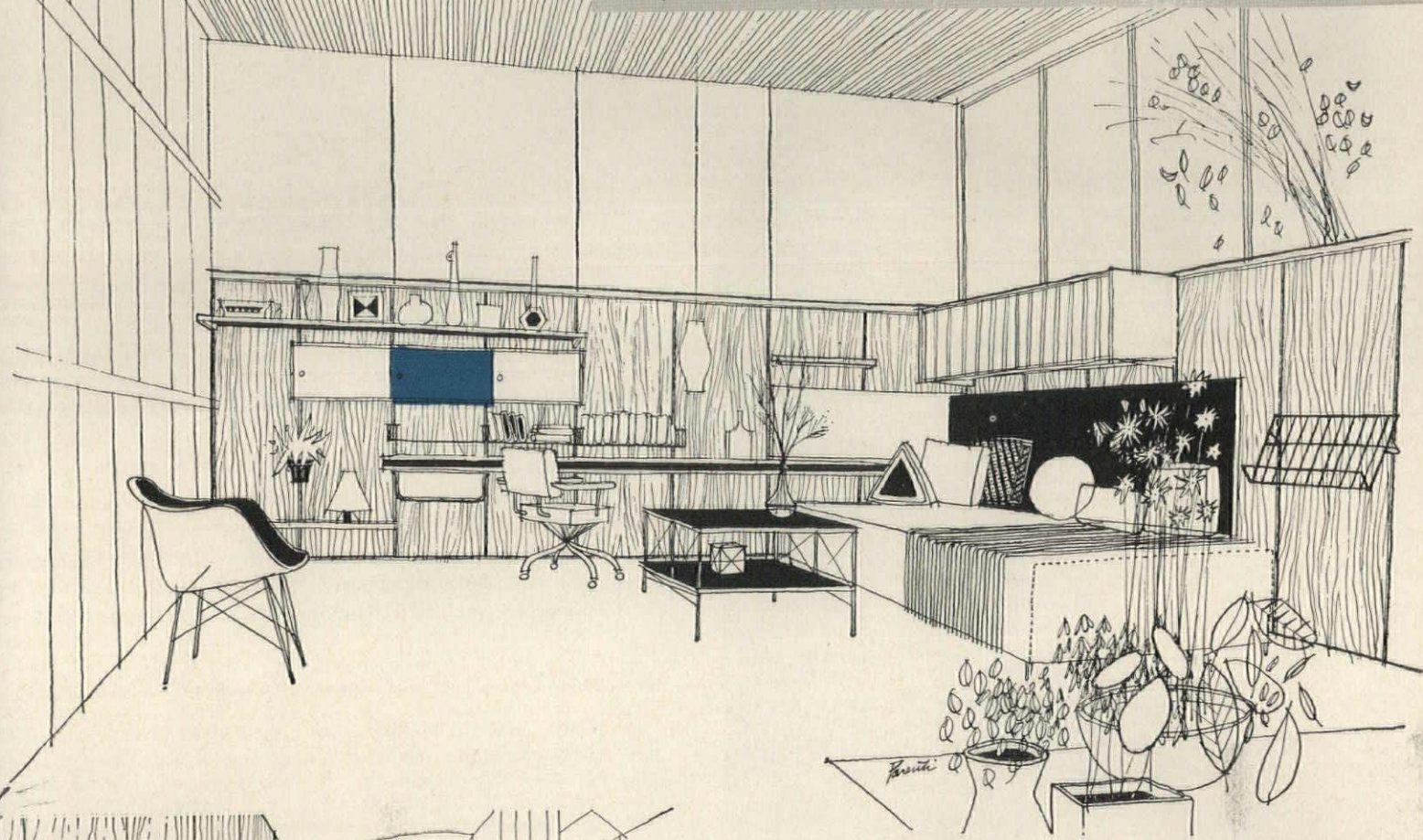
made to take active use. It requires the absolute minimum of maintenance. And ASE offers a complete line of office furniture. You will find a wide choice of colors as well as desk top materials and chair fabrics. This is furniture you can recommend with confidence. It will reflect your good judgment for years to come. For complete details, write: All-Steel Equipment Inc., Department A, Aurora, Illinois.

A·S·E

ALL-STEEL EQUIPMENT Inc., Aurora, Illinois

Desks • Chairs • L-units • Credenzas • Tables
Bookcases • Filing Cabinets • Storage Cabinets

Masonite Contemporary Studies



So unusual is this new wall system, so exceptional its possibilities, that it may well mark a turning point in the history of interior design.

With the Masonite® Panelok® wall system, the complete room—floors, windows and walls—can be designed for function as well as appearance. Upon the handsome surface can be supported cases, shelves, racks, artistic objects, and even legless tables and counters, as the sketches show. Here, truly, is the 3-dimensional wall.

The method is ingenious yet simple. Between each 2-foot section of dense, sturdy Masonite hardboard is a hidden metal lockstrip, slotted to receive a variety of Adjust-A-Bilt* accessories. All can be moved in a moment to left or right, up or down, without injury to the wall.

The panel surface itself is a thing of beauty. It is available in a choice of four contemporary tones on a beautiful wood-grain pattern, expertly applied at the factory; or unfinished ready for painting.

We'll send you a colorful booklet describing Panelok and its uses. Just send us the coupon.

from Design Series No. 101M—Interior Wall Systems

MASONITE CORPORATION

©Masonite Corporation—manufacturer of quality panel products for building and industry.

*Reg. T.M. U.S. Pat. Off. by L. A. Darling Co.

Masonite Corporation
Dept. AR-11, Box 777, Chicago 90, Ill.
In Canada: Masonite Corporation, Gatineau, Quebec
Please send me more information about Masonite Panelok.

Name _____
Firm _____
Address _____
City _____
Zone _____ County _____ State _____

Concrete work in is reinforced with

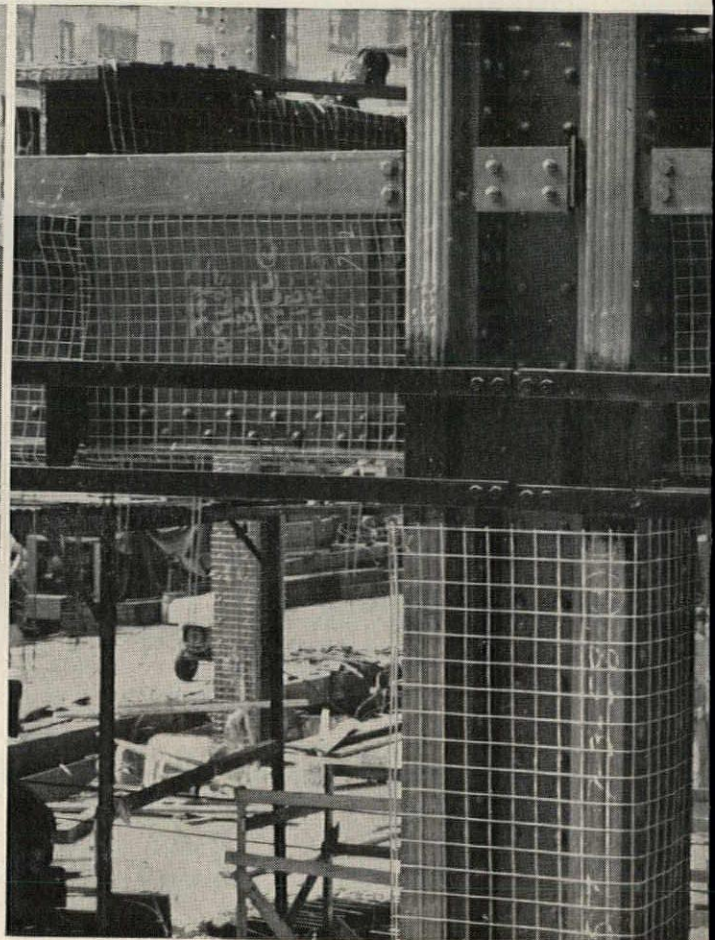
JUST north of Grand Central Station a new skyscraper is rising to join New York's storied skyline. It is the 52-story Union Carbide office building. During the razing of the Hotel Marguery, formerly on the site, and the erection of the new skyscraper, Grand Central trains operated below—on time, without interruption.

USS American Welded Wire Fabric was used throughout this building to add strength and durability to concrete work. To meet the differing requirements of

USS American Welded Wire Fabric style 22-1212 was used to reinforce the thin layer of concrete encasing the structural steel for fire protection. The closely spaced small members of fabric ideally suit it for this reinforcement to prevent crack-causing stresses due to temperature changes and structural deflection. The fabric readily shapes to the steel and retains its rigidity in the bent form. Large sheets can be applied to speed construction.



Architect: Skidmore, Owings & Merrill
Consulting Engineer: Weiskopf & Pickworth
General Contractor: George A. Fuller Company
Concrete Contractor: Knickerbocker Construction Company
Fabric Distributor: Carroll-McCreary Company, Inc.



new Union Carbide Office Building

USS American Welded Wire Fabric!

concrete slabs, fills and fireproofing, three USS American Welded Wire Fabrics—of varying weights—were used.

American Welded Wire Fabric has long been used successfully and economically in practically every form of structure. It has an enviable record of successful structural application in the world's tallest and largest buildings. For more information on American Welded Wire Fabric, write to American Steel & Wire, Dept. 9332, 614 Superior Avenue, N. W., Cleveland 13, Ohio.

USS and American are registered trademarks

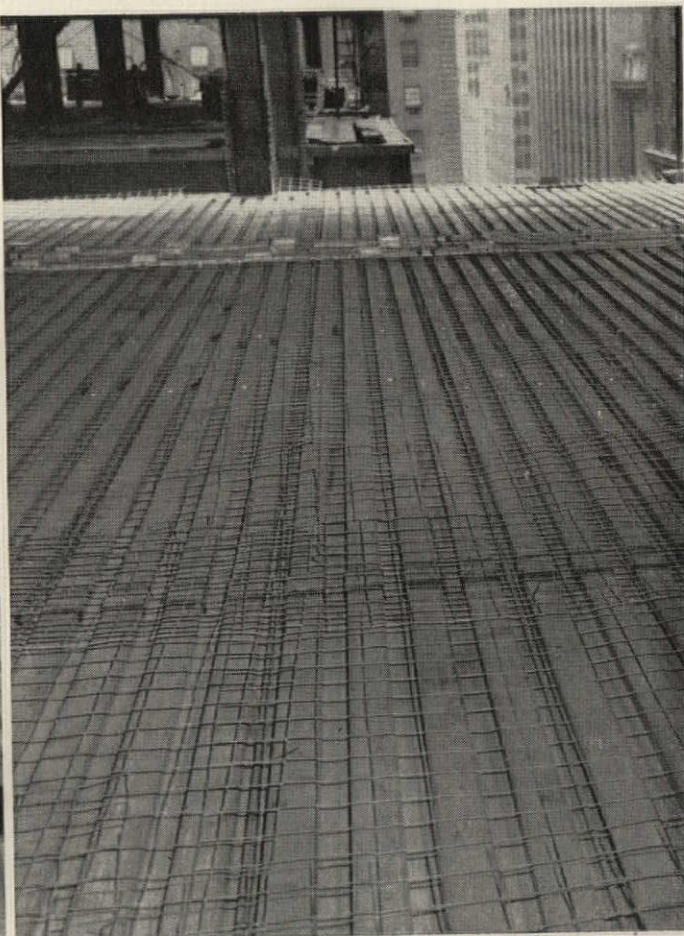
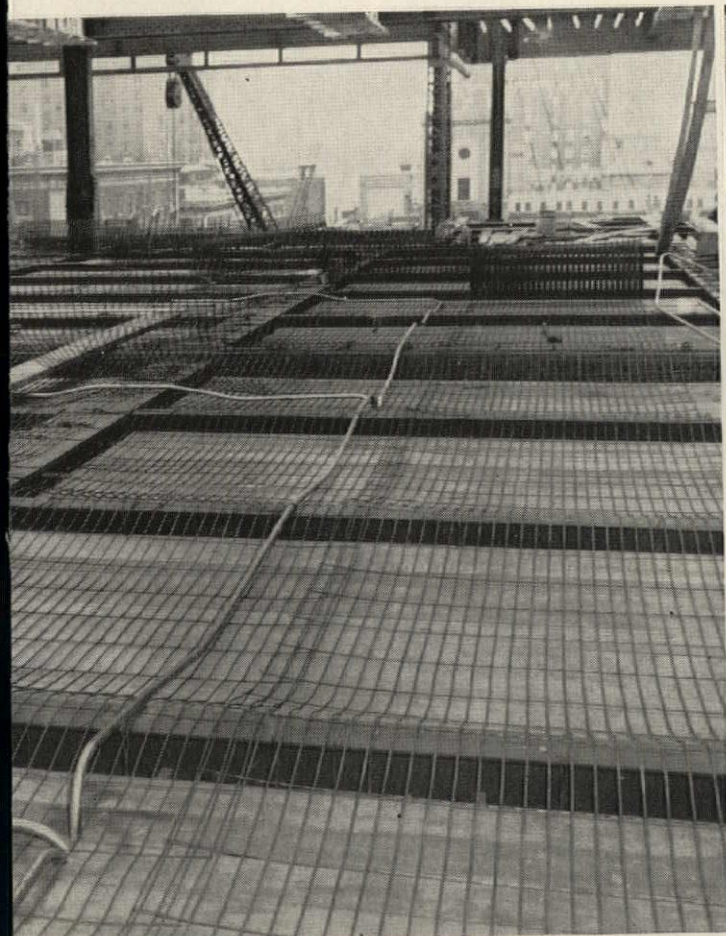


**American Steel & Wire
Division of
United States Steel**

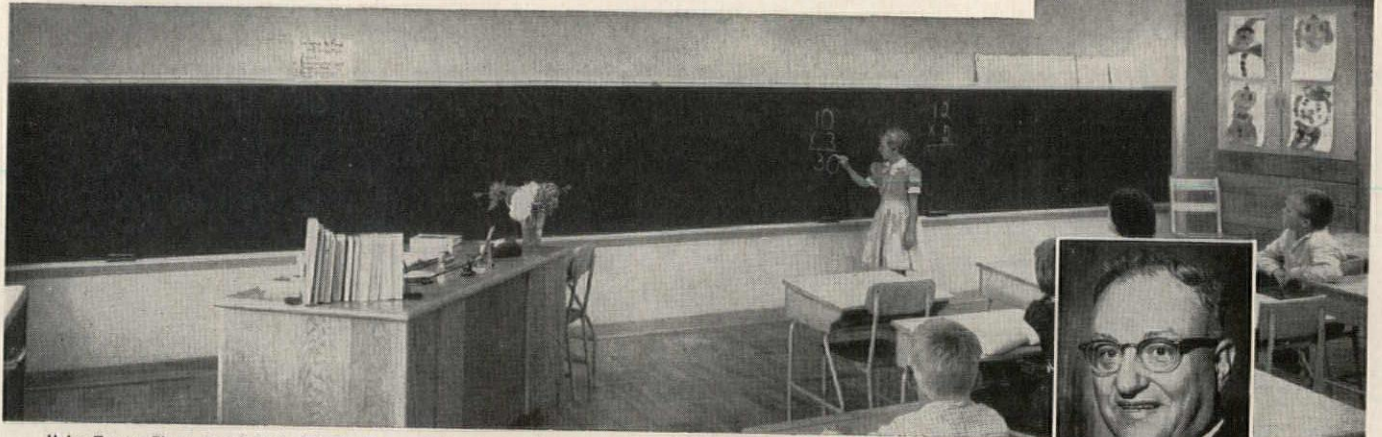
Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

Short span concrete slabs are structurally reinforced with a rectangular style of USS American Welded Wire Fabric. The high yield point of the cold-drawn wires permits higher working stress, thus reducing the amount of steel to be handled and installed. It is easily draped and placed at points of maximum stress due to positive and negative movement. Long fabric rolls speed installation and assures continuity of slab action through continuous reinforcement.

The designers and owners specified that distributed reinforcement be used in the concrete fill over cellular metal decking to prevent temperature and shrinkage cracking. USS American Welded Wire Fabric style 44-1212 was selected. The small diameter closely spaced wires provide the needed protection against unsightly cracking.



natural slate chalkboards



Union Terrace Elementary School - Allentown Arch.: A. L. Wiesenberger, Assoc., Allentown



"First and Only Choice of the Allentown, Pa. School District"

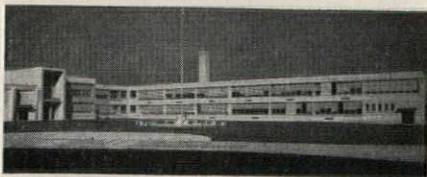
. . . says Mr. Paul J. Fink, Assistant to the Superintendent of Schools



Midway Manor Elementary School - Allentown Arch.: Heyl-Bond-Miller, Allentown



Muhlenberg Elementary School Addition - Allentown Arch.: Lange & Everett, Allentown



South Mountain Junior High School - Allentown Arch.: Heyl-Bond-Miller, Allentown



Vocational Annex to Senior High School - Allentown Arch.: George E. Yundt, Allentown

"There is no substitute for the real thing! Nothing is easier on a child's eyes than the contrast of white chalk against a slate chalkboard. Words stand out crisp and clear . . . are quickly read by all."

"We have found Pennsylvania slate to be practically indestructible as we're still using some of the original slate boards in one of our recently renovated schools . . . boards installed when the school was built in 1886! After close to 70 years, these boards are still ably serving our students and teachers. What's more, they fit in perfectly with their new, modern surroundings. No wonder we are sold on slate and specify it in all our schools."

That's the feeling of Mr. Paul J. Fink of the Allentown School District. And the facts bear it out. Since 1950, this district has renovated or built additions to 7 elementary schools, built 2 new elementary schools and a junior high school, added a vocational annex to the senior high school, and construction is now under way for another new junior high school. In each case, natural slate chalkboards were specified.

Why not investigate slate chalkboards for your classrooms? You'll find for contrast, durability, easy maintenance . . . and timeless good looks . . . there is just no substitute for slate!

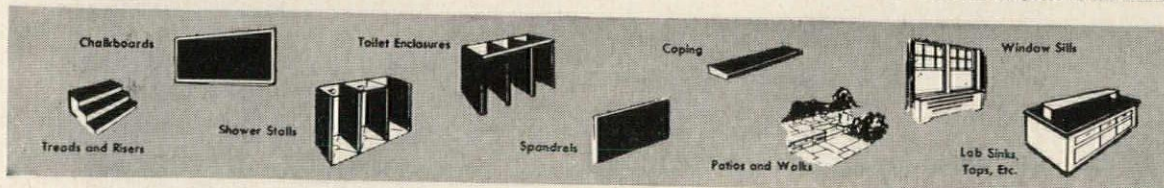
Inquiries welcomed on specific properties of slate. Write:

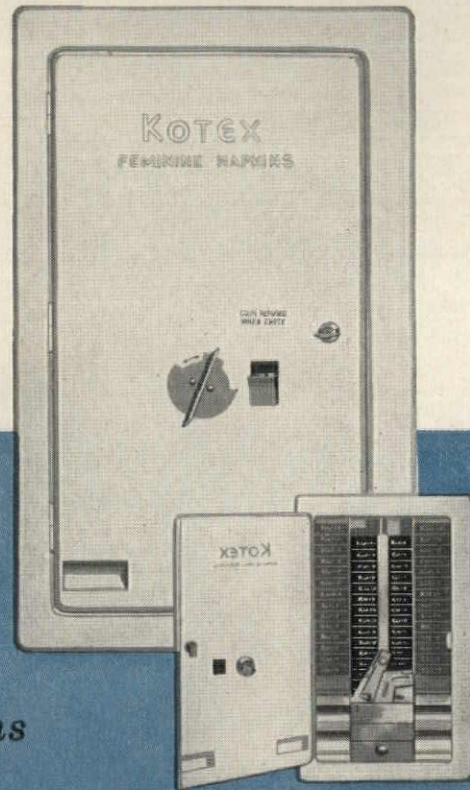
NATURAL SLATE BLACKBOARD CO.

THE STRUCTURAL SLATE CO. - pen argyl, pennsylvania

for your protection, insist on slate quarried in Pennsylvania

natural slate...500 million years in the making





The ultimate in built-in convenience...

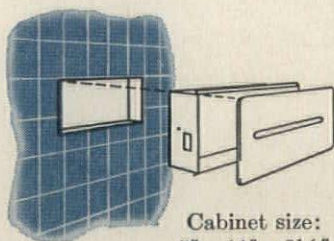
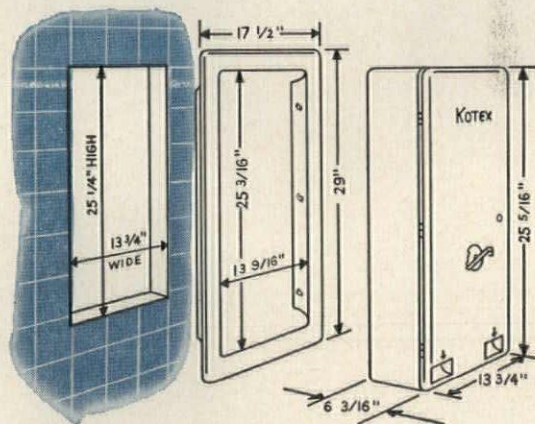
RECESSED VENDORS

for **KOTEX** feminine napkins

TO KEEP PACE with the latest architectural designs, Kimberly-Clark has styled a brand new recessed dispenser for Kotex feminine napkins for rest room use in schools, offices, stores; industrial and public buildings. This unobtrusive, built-in vendor holds 63 individually boxed napkins. 33 vend from a single loading, 30 are held in storage.

These streamlined, sturdy, pilfer-proof vendors add a much appreciated service to any public building. They are available with either a five-cent or ten-cent coin mechanism.

Available in durable white enamel, satin chrome, gleaming polished chrome and stainless steel. Matching frame for recessed installation. (Other vendors that can be surface mounted are also available.)



Cabinet size:
5" x 11" x 2 1/16"



RECESSED DISPENSERS FOR KLEENEX TISSUES

Holds full box of Kleenex 200's. Dispenses one tissue at a time. Mirror-chrome finish. Holes in back and side make it easy to fasten to studding.

For further details on how these attractive new dispensers can fit into your plans, see Sweet's 1959 Architectural File Cat., Section 26e/Ki. or write to Kimberly-Clark Corp., Dept. 111-119, Neenah, Wisconsin.

KOTEX and KLEENEX are trademarks of KIMBERLY-CLARK CORPORATION

KIMBERLY-CLARK  **CORPORATION** NEENAH, WISCONSIN

presenting *Vina-Lux*[®]

... the new vinyl asbestos tile with color-chip styling



From Azrock! Another exciting new development in resilient flooring — Heavy Duty Architectural Patterns in Vina-Lux vinyl asbestos tile! Here is a new kind of permanent beauty in color-chip styling for heavy traffic areas... because the color chips are distributed throughout the full thickness of the tile — from top to bottom! They are not a surface decoration.



Gives you the answer to your client's demand for an economical color-chip styling in vinyl asbestos tile — America's most wanted type of resilient flooring. In an architectural palette of appealing beiges, greys, green and white, the Vina-Lux 800 Series is specially designed for heavy-traffic institutional, commercial and industrial installations.



Specifications — 9" x 9" size. 1/8" thickness. Six colors. Federal Specification: Manufactured to meet ALL requirements of Federal Specification L-T-751, including paragraph regarding the distribution of mottling through thickness of tile!



Write Azrock for samples and complete architectural specifications today.

Specialists in the manufacture of vinyl asbestos and asphalt tile flooring.

AZROCK FLOOR PRODUCTS DIVISION
UVALDE ROCK ASPHALT CO. • 517A FROST BANK BLDG. • SAN ANTONIO, TEX.

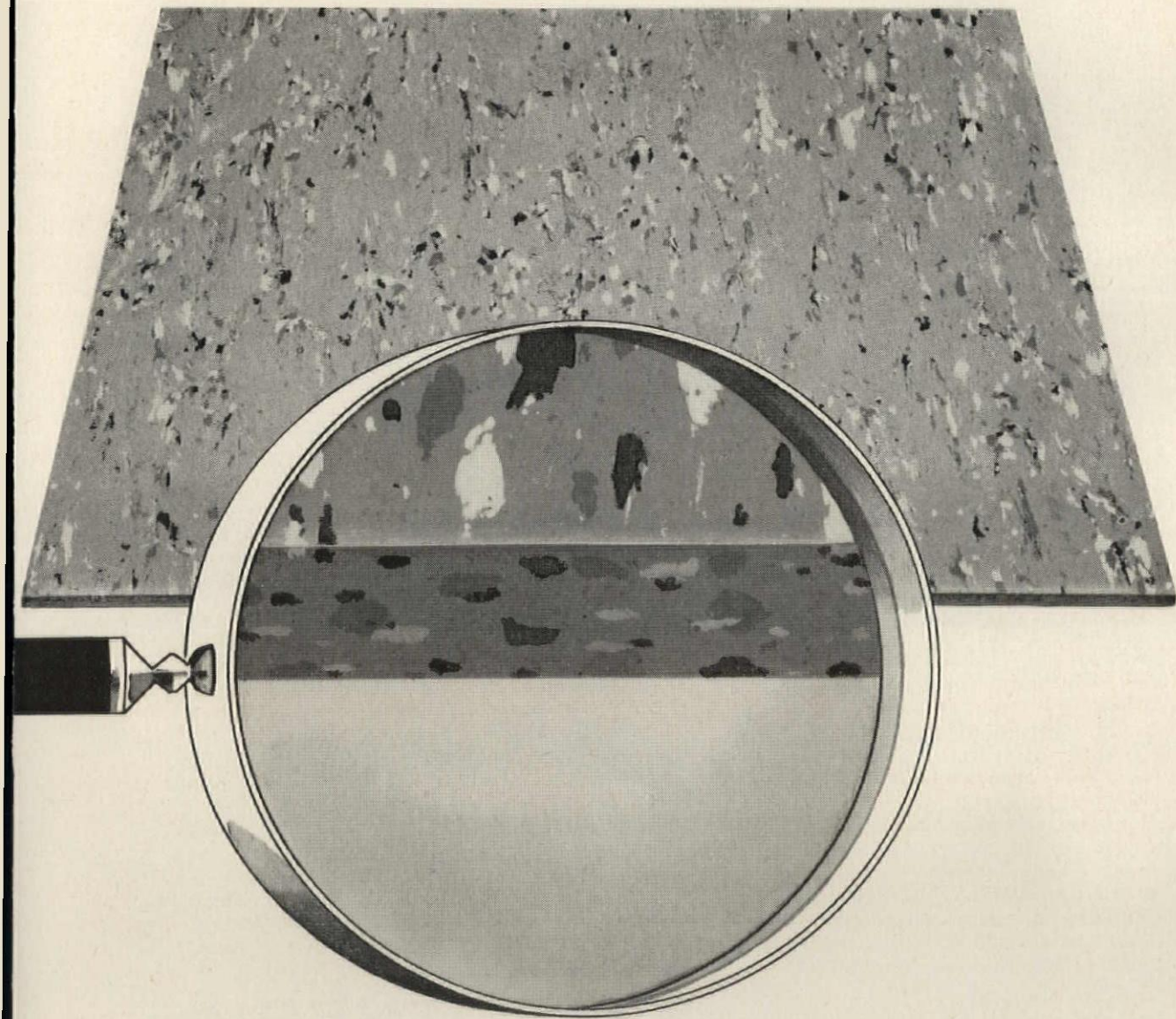


MAKERS OF VINA-LUX VINYL ASBESTOS TILE • AZROCK ASPHALT TILE

800 *Series*

HEAVY DUTY ARCHITECTURAL PATTERNS

throughout the thickness of the tile--at no extra cost!



AZPHLEX VINYLIZED TILE • DURACO VINYL INDUSTRIAL TILE

"WE SECURED EVEN TEMPERATURES THROUGHOUT THIS 14-STORY BUILDING WITH SARCOTHERM HEATING SYSTEM CONTROLS,"

say Slingerland and Booss, architects and engineers

New York's "Avon House," completed in 1957, Architects and Engineers: Slingerland and Booss, 120 Greenwich Street, N. Y. C.

Mechanical Contractors: Fein-Schlosberg, Inc., 1770 Second Avenue, N. Y. C. Owner: The Ten Men Realty Co., Leon Finley, President, N. Y. C.



In the superbly appointed "Avon House" apartments at 340 East 74th Street, New York, the complete automatic heating control job is Sarcotherm. The architects and engineers, Slingerland and Booss, called on Sarco's experienced engineering department to work with them and the mechanical contractor in working out components—controls, vacuum pumps and steam specialties. Besides setting up undivided responsibility of one manufacturer, this policy assured a balanced system with no weak links.

Accurate orifice calculations by Sarcotherm insured proper distribution of subatmospheric steam in the system, even in mild weather. Each of the 2 zones of this building is controlled by a Sarcotherm

Continuous Flow Modulating Steam Control Valve. These valves meter the steam to furnish proper heat at any given outside temperature. Control Valves are influenced by outside temperature, wind velocity, and solar radiation, plus differential steam pressure between supply and return mains. A Master Control Panel supplies complete programming operation with automatic control for day, night and morning pickup cycles.

There is ample testimony to the sound judgment of the architects in making this a complete Sarcotherm vacuum heating control system. Since its first day of operation the installation at the new Avon House has been 100% trouble-free.

SARCOTHERM

An Affiliate of SARCO Co., Inc.

635 Madison Avenue, New York 22, N. Y.

6181

for security say

CORBIN CYLINDRICAL LOCKS

When you want the last word in security, specify Corbin Heavy Duty Cylindrical Locks. Latch bolts are made with extra long throw to insure secure locking, even on doors that shrink or warp. You also get automatic deadlocking. What's more, you get today's most flexible masterkeying system. For extra security . . . Corbin!

for style say

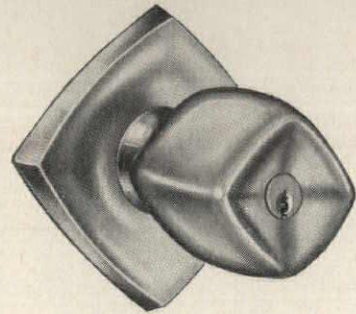
CORBIN CYLINDRICAL LOCKS

When you want the last word in distinctive styling, choose Corbin Heavy Duty Cylindrical Locks. Seven striking knob designs in brass, bronze, aluminum, stainless steel — 27 functions. Matching or contrasting escutcheons and trim in all popular finishes. For style . . . for security . . . Corbin Heavy Duty Cylindrical Locks.

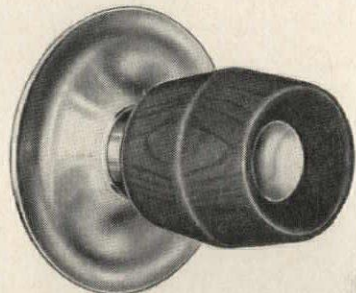
say

CORBIN

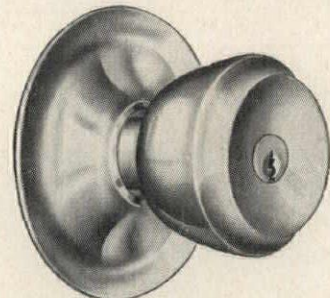
and you've said everything



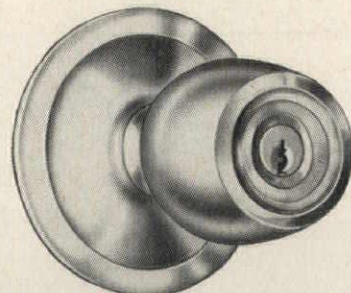
Vegas design 813



Melody design 811 C



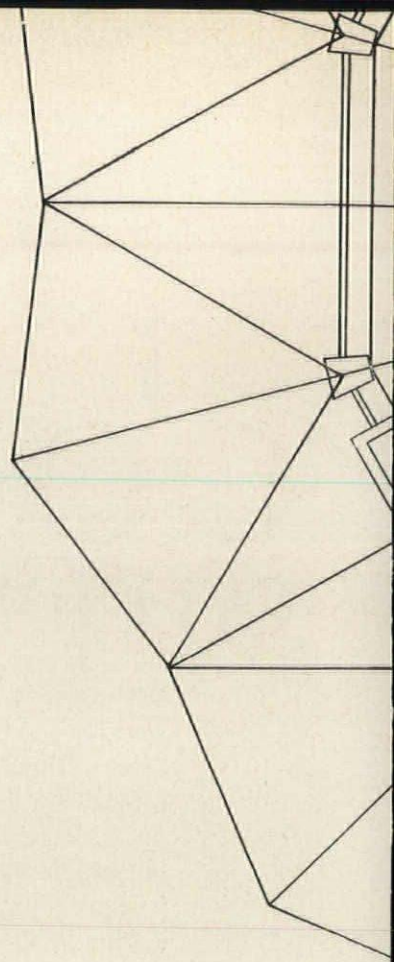
Chalice design 809



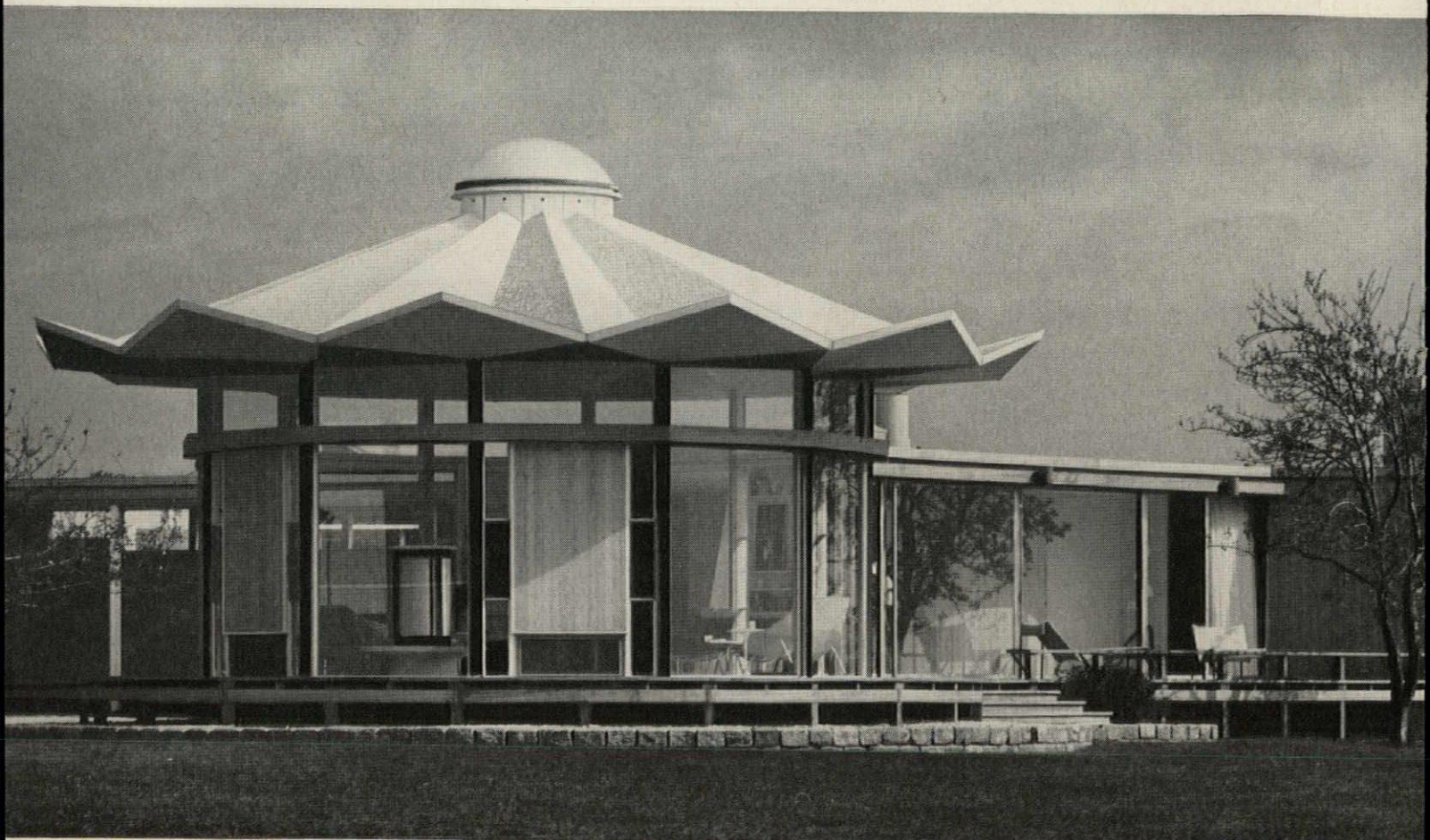
Crestwood design 805

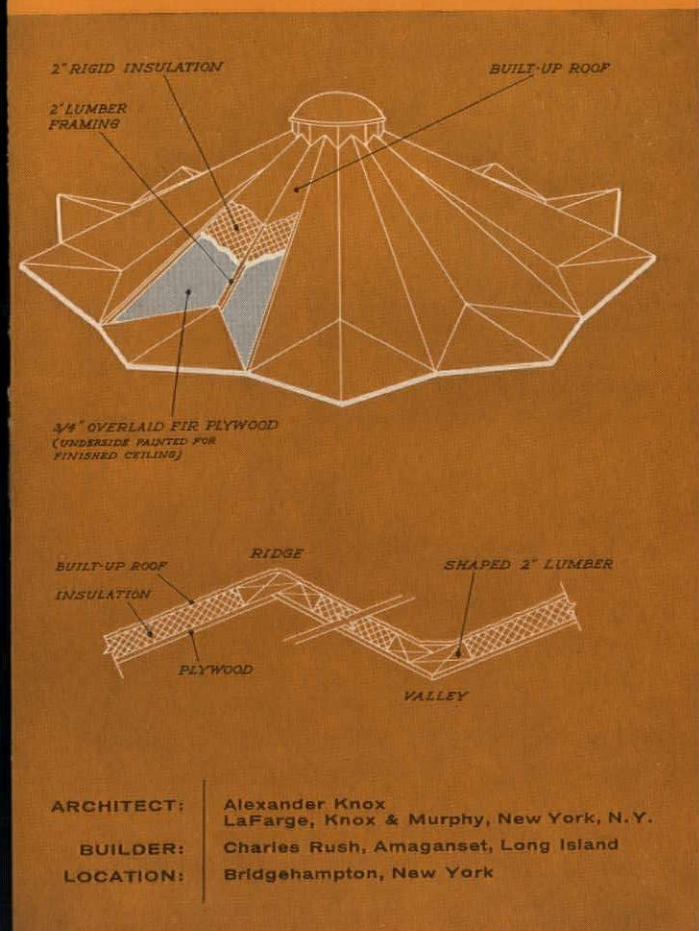
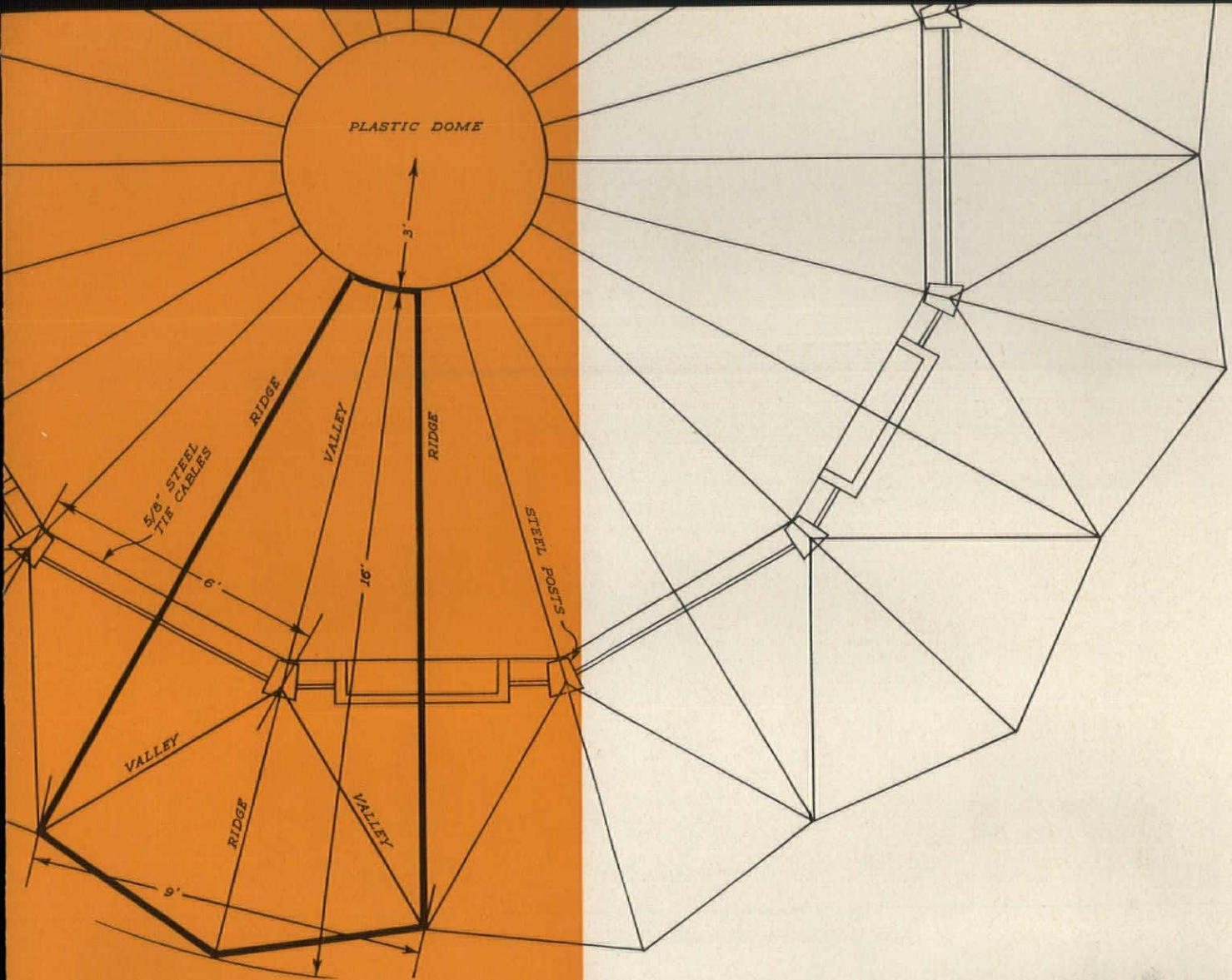


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THE AMERICAN HARDWARE CORP., NEW BRITAIN, CONN.



new approaches to structural design with fir plywood





THE PLEATED ROOF that crowns this pavilion-like living room is a prime example of the bold and imaginative forms derived from the basic fir plywood folded plate principal. Shape rather than mass is the key to its strength. The distinctive sawtooth configuration capitalizes on fir plywood's high diaphragm strength to create, in effect, a series of rigid, lightweight "V" beams. Intermediate posts, trusses and bulky framing are eliminated.

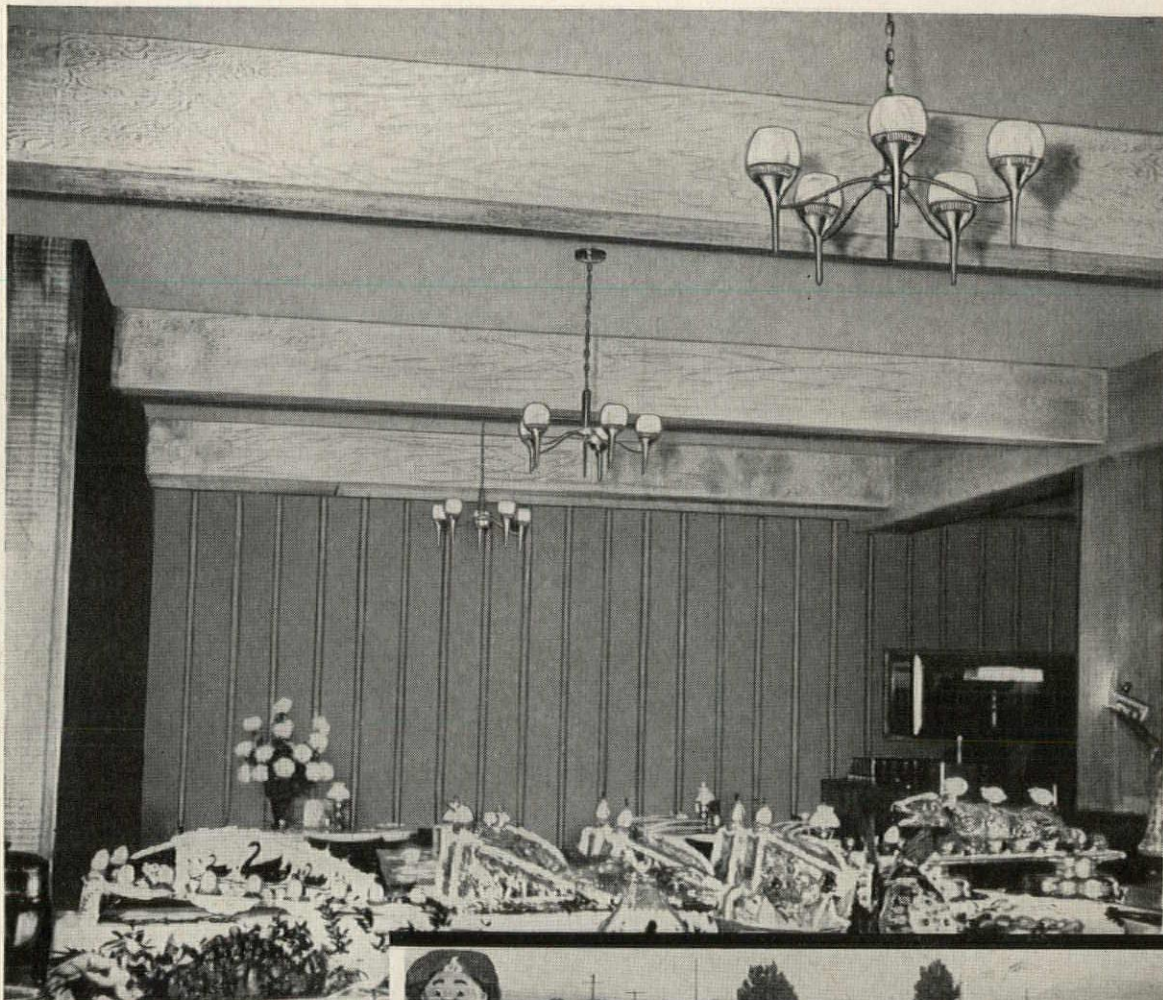
In this sophisticated circular design, the plywood folded plates provide a dome, spanning 26 feet, wall to wall. No central support is required. Where desired, far greater spans could be achieved utilizing the same basic system.

The roof itself is composed of 12 basic "boat-shaped" fir plywood components which were crane-lifted into position atop the steel supporting columns. Each component, in turn, is made of four triangular pieces of 3/4" overlaid fir plywood, perimeter framed and interconnected with shaped two-inch lumber. Alternate projecting and recessed stiffeners along the ridges connect each component with its neighbors. Each component combines roof deck, insulation and finish ceiling.

For basic design data or other information, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Washington.

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ARCHITECT: Alexander Knox
LaFarge, Knox & Murphy, New York, N. Y.
BUILDER: Charles Rush, Amaganset, Long Island
LOCATION: Bridgehampton, New York



MOE Light M-1555 "brandy sniffer" chandeliers spread their flattering light over a feast fit for Diamond Jim Brady, in the casino's plush Golden Rooster Room.

Leading attraction just outside Reno, Nevada is Dick Graves' opulent new Nugget Casino, where customers dine in restaurants of unusual decor, glamorously lighted with MOE Light chandeliers.



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Today lighting plays a leading role in restaurant design. Attracting customers...flattering furnishings...creating moods...glamorizing foods, MOE Light's contemporary and traditional lighting fixtures perform with distinction. They add the merchandising appeal your clients require...satisfy the decorative inspirations of the designer...and please your all-important public.

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Golden is the overall effect of this modern five-story office building. Curtain wall, column covers and spandrel panels are all gold-anodized Reynolds Aluminum. The bottom floor presents a contrasting treatment in black-anodized custom store fronts. Curtain wall consists of 11' x 6' tubular frame grids with top-hinged windows and insulated panels. Unique gold-anodized sun screens shade the window areas. Another example of proud beauty achieved with the most practical of metals.

FRANKLIN NATIONAL BANK,
Roosevelt Field, Long Island, New York
ARCHITECT: I. M. Pei & Associates, New York.
GENERAL CONTRACTOR: George A. Fuller Co., New York.
CURTAIN WALL ERECTOR: F. H. Sparks, Inc., New York



designed to

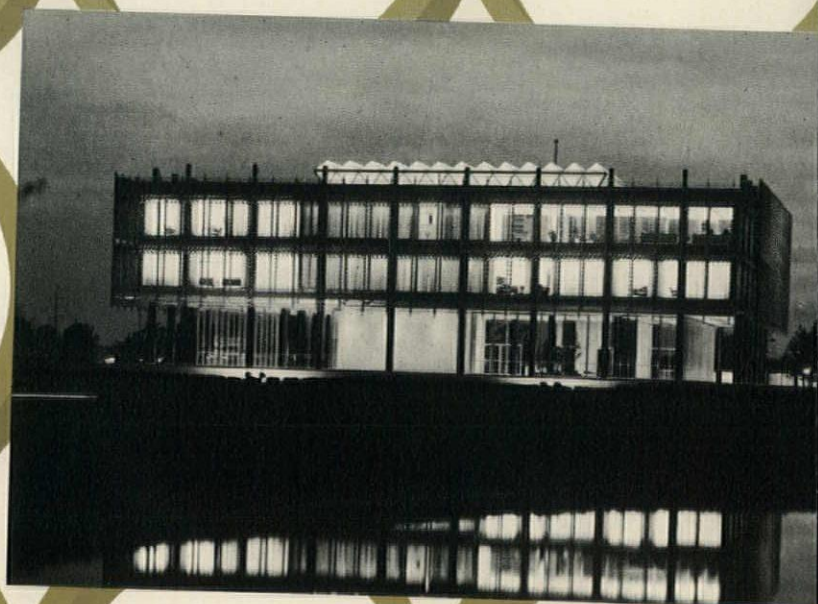
dramatize the

useful beauty

of _____

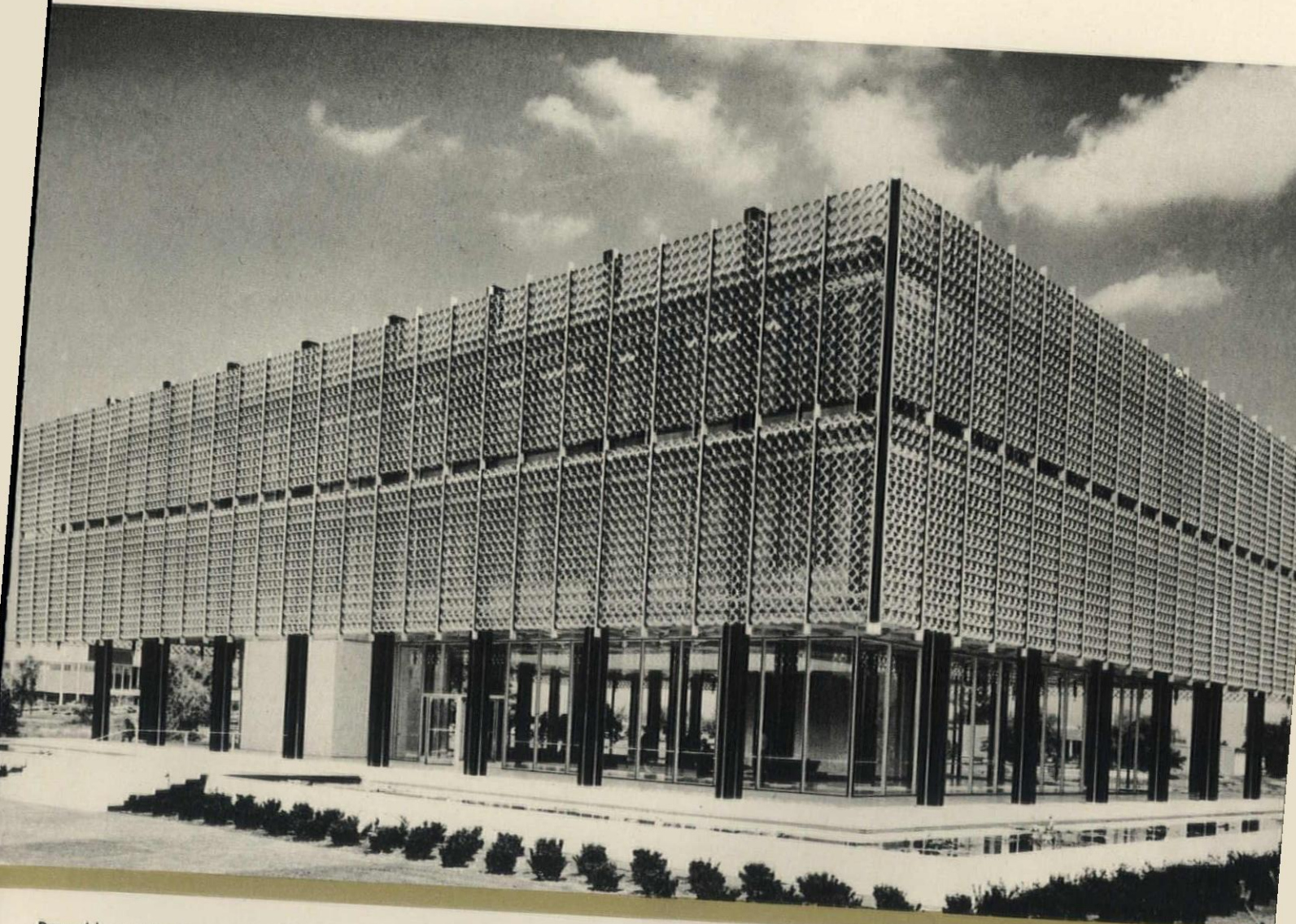
**GREAT LAKES REGION
HEADQUARTERS BUILDING**
Reynolds Metals Company
Detroit, Michigan

ARCHITECT: Minoru Yamasaki
and Associates, Detroit, Michigan
GENERAL CONTRACTOR: Darin
& Armstrong, Detroit, Michigan
**ALUMINUM FABRICATION
AND ERECTION BY:**
Moynahan Bronze Company
Detroit, Michigan



aluminum

GOLDEN, in a marvelously light and lacy way, is the effect of this new building — with its sun screen grille made of interlocking rings of gold-anodized aluminum. It has been called a "Jewel on Stilts." Naturally, as a Reynolds Metals headquarters, it is a show-case for aluminum — but only in the most practical sense. Behind the grille the walls are simple — floor to ceiling windows. Each application is useful, attractive, economical both in initial cost and in maintenance. Further details will be gladly supplied. Visitors are welcome.



Reynolds engineering and design assistance is freely available to architects and builders and to fabricators of aluminum building products. Reynolds own extensive fabricating and anodizing facilities can also help solve problems of production and of product development. Call any Reynolds sales office or write to Reynolds Metals Company, Dept. AM-3, Richmond 18, Virginia.

REYNOLDS ALUMINUM



575 LEXINGTON AVENUE, NEW YORK

ARCHITECTS: Sylvan Bien and Robert L. Bien
OWNERS-BUILDERS: Sam Minskoff & Sons, Inc.

Golden is this skyscraper. 34 stories in two-tone anodized aluminum . . . light gold for extruded mullions, darker gold for window frames and spandrels. Intermediate projected windows. Spandrel panels pre-assembled of interlocking extrusions.



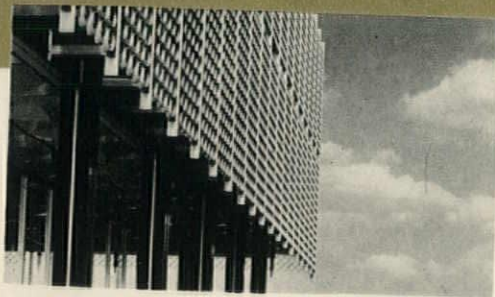
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GENERAL CONTRACTOR:
R. P. Farnsworth & Company, Inc., New Orleans

ACOUSTICAL APPLICATORS:
King & Co., Inc., New Orleans

MECHANICAL ENGINEER (Air Conditioning):
Leo S. Weil & Walter B. Moses,
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Golden is silence, too! Reynolds Aluminum perforated acoustical panels, pyramid type, are suspended from this Library's reading rooms. They serve both to control sound and as a diffuser for the air-conditioning system. Whether you are specifying for an educational, commercial or manufacturing building, consider the proved values of Aluminum.

Of special interest in connection with the gold-anodized curtain walls shown in this insert is an 8-page folder on Anodizing. Send for this and for your copy of Reynolds Aluminum Commercial Building Products File Folder. Your office library should also have Reynolds three-volume set "Aluminum in Modern Architecture." Write to Reynolds Metals Company, Dept. AM-3, Richmond 18, Va.

REYNOLDS ALUMINUM

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 Robert Billsbrough Price
 General Contractor:
 Korsmo Construction Co.
 Painting Contractor:
 Kenneth R. Lang
 P&L Products Used: Vitralite Enamel, *New*
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 P&L Exterior Rustic Stain.

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St. Mary's Episcopal Church is a modern building of extreme beauty. Its unique construction produces an atmosphere of reverence so much desired but not always achieved in present-day churches.

The unadorned, yet distinctive choir loft is in the rear of the church thus leaving the altar unchallenged for attention.

A spacious feeling has been created by the structural frame of laminated wood beams and columns, combined with the liberal use of glass. Decoration throughout was achieved with Pratt & Lambert paints and varnishes.

Two triangular skylights over the altar admit natural daylight.

PROFESSIONAL-LEVEL, COLOR PLANNING SERVICE by experienced Pratt & Lambert representatives . . . the suggestion of distinctive color plans, in addition to recommendations of authoritative painting specifications, is available upon request, and without obligation.

Please write: Pratt & Lambert Architectural Service Department, 3301 38th Ave., Long Island City 1, N. Y.; 326 W. 26th St., Chicago 16, Ill.; 75 Tonawanda St., Buffalo 7, N. Y.; 254 Courtwright St., Fort Erie, Ont.



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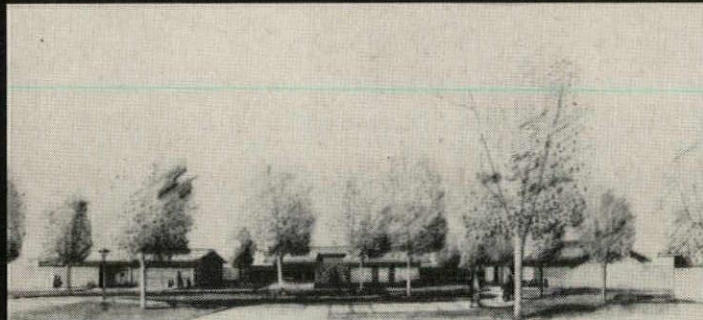
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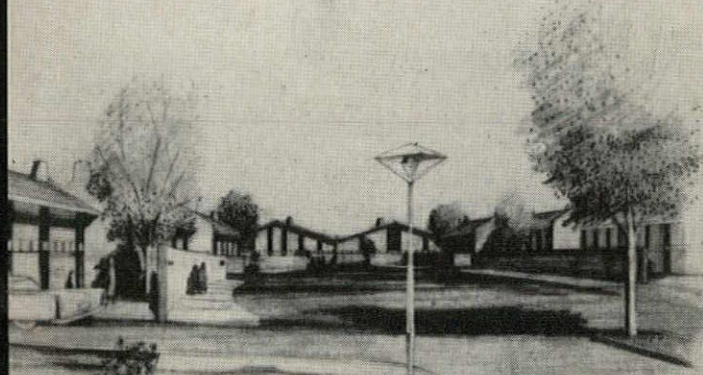
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GRAND PRIZE 1959



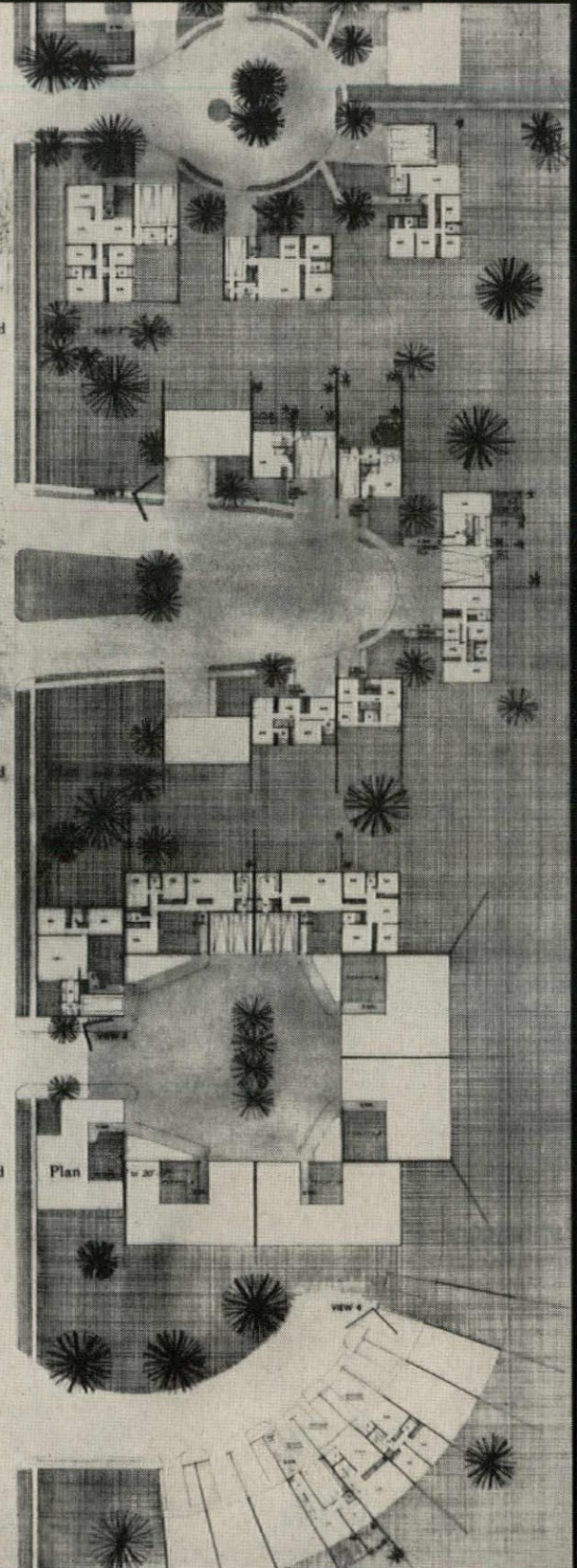
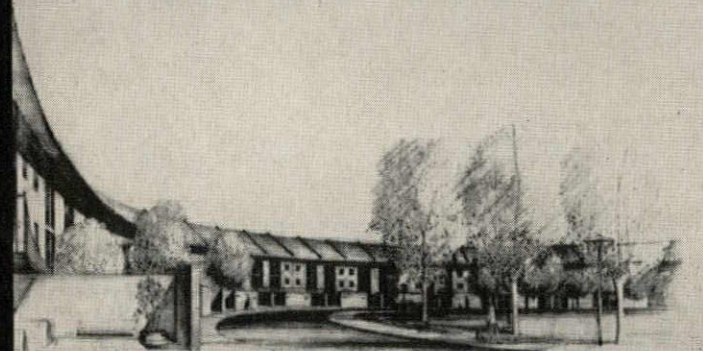
Detached House Micro-neighborhood



Staggered Row House Micro-neighborhood



Atrium House Micro-neighborhood



Annual Design Competition

CONCEPT

A major need in tract housing today is to express the small town community of the past in a new form. First, to better relate the individual home to its neighborhood community environment:

- We create a community of micro-neighborhoods sharing certain desirable facilities in common. Each of 56 micro-neighborhoods is located on a cul-de-sac with an average of ten homes. No home faces a circulation street. This makes possible the pedestrian environment essential to good family living where children's safety is primary. Common neighborhood areas are reached by crossing at most one circulation street.
- A variety of things to do are provided within the neighborhood. Pedestrian walks lead through "Small Stream Park" to small playgrounds, sports facilities, the community "country club," "general store" concession, bus stop, a late hour convenience grocer, and toward schools, churches, and shops.
- For the automobile, a circulation loop links micro-neighborhoods, community facilities, and access highways.
- The two small store concessions are conceived to help focus the neighborhood internally, and help support the community facilities.

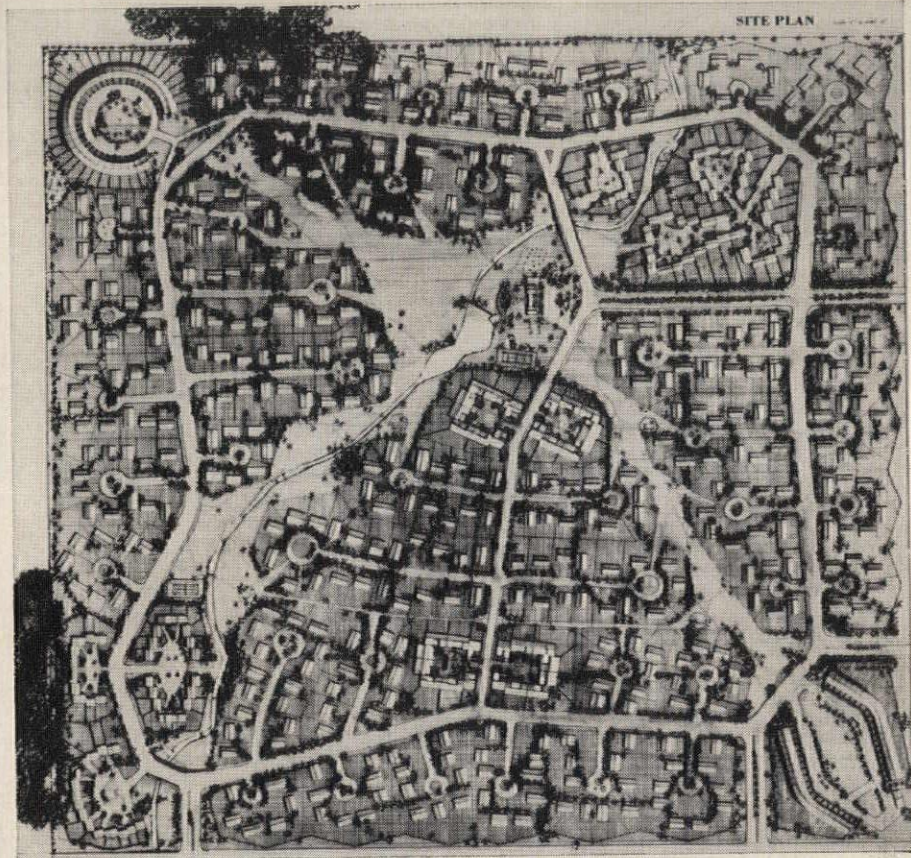
To encourage more individual expression in ways of living we offer four housing types to appeal to varied age groups:

- One story individual homes grouped in micro-neighborhoods of different sizes and character comprise seventy percent of the development.
- Three types of row houses also grouped in micro-neighborhoods, are designed to afford economy of construction and land use. (See ledger.)
- Each type of housing is characterized by a private area for outdoor living. In the row house a front courtyard provides a transition from the street to house, and is also used to handle the automobile.

To create a visually appealing environment:

- We propose a comprehensive plan for community appearance. The municipal planning board is assumed to have special zoning powers to adopt this plot which will make the location and arrangement of building binding. These special powers under state enabling legislation are in existence in such cities as New York. They provide that where there is an adequate plan, ordinary zoning rules may be waived.
- To foster pride in the development, and to sustain it as a unity, we propose that deeds include ownership shares in a neighborhood corporation. This corporation shall own all common land, community buildings, and other community improvements, and maintain all private as well as community trees and lawns. An annual assessment of \$30.00 per family will cover building maintenance and labor costs for five employees, each at a salary of \$3000.00 per year.
- A sequence of spaces and vistas unifies the entire development. Both public and private spaces are organized by building masses, heights, and building lines, and by walls and tree patterns to encompass all things seen from the public way. "Vista easements" are provided for public enjoyment.
- A unity of form is achieved throughout the development with simple gable roofs of varying pitches.
- Within each micro-neighborhood a substantial portion of all structures shall be of the same material. Individual character in the micro-neighborhood is obtained with its building material, mass arrangement and special plants or sculpture as the focal point of each cul-de-sac.
- A special sidewalk pattern, street lamps, or other "street furniture" will contribute to the distinctive character of the development.
- The neighborhood is defined from the exterior with a landscaped fence zigzagged at a scale to be comprehended by speeding motorists, and by vistas from highways to the center of the development.

The image of the ideal small town environment can be given new form within the city by the conscious definition isolation of neighborhoods such as this one. If the individual is to flourish, he must again be able to perceive and relate himself to a finite environment of human scale and beauty.



Howard R. Meyer,
F.A.I.A.



James Reece Pratt,
A.I.A.



John Harold Box,
A.I.A.

"The jury awarded the Grand Prize to an entry showing an unusual degree of sensitiveness, coupled with practicality. By unanimous consent, they found it to be a most convincing and beautiful solution at all levels, from the general concept to the varied and well-conceived details. It shows a respect for economy without forgetting the essential demands for aesthetic expression. In the opinion of the jury no other entry had the same degree of self-assurance or clarity of direction."

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LOCKWOOD



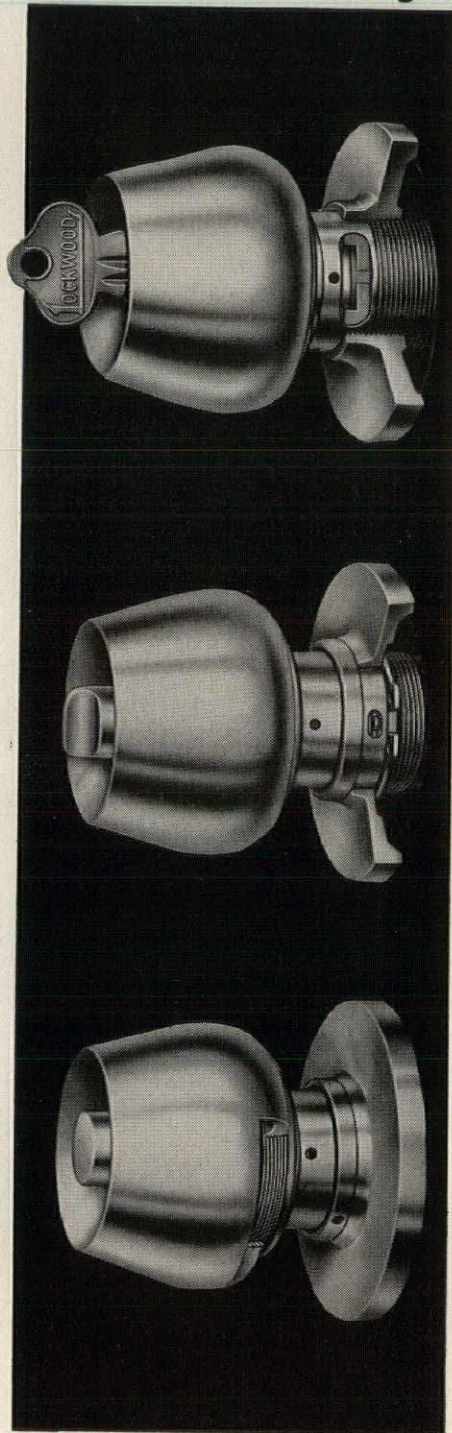
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Cast aluminum knobs have forged brass shanks ensuring long service. Shanks are screwed in and pinned. (Note pin at lower edge of cutaway section).

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See our catalog 19e/Ca in Sweet's Architectural catalog or write for a free copy. It contains original and practical ideas plus helpful information for specifying canvas.

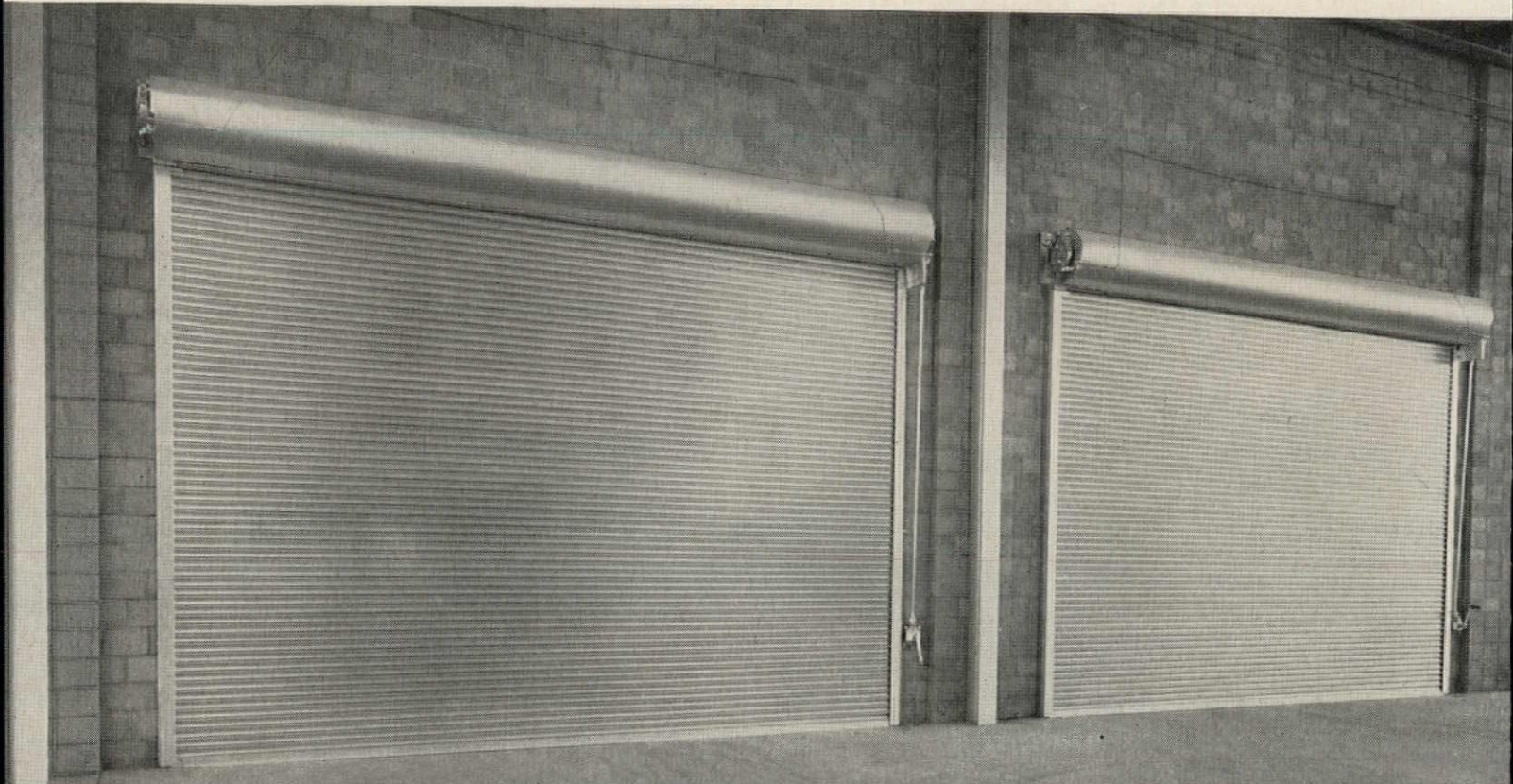


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64 Mahon ROLLING DOORS



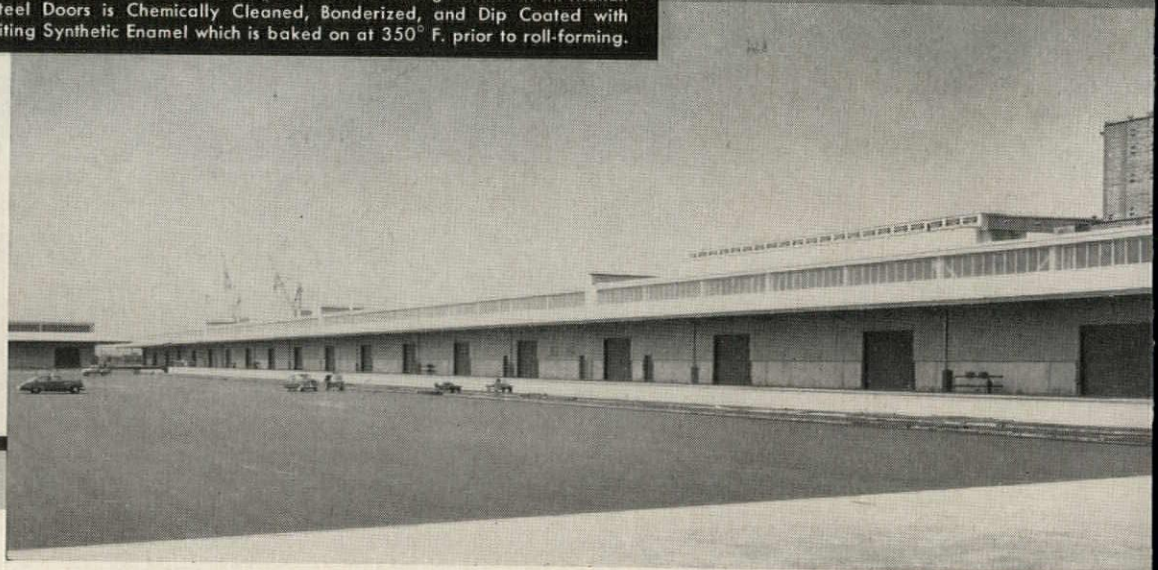
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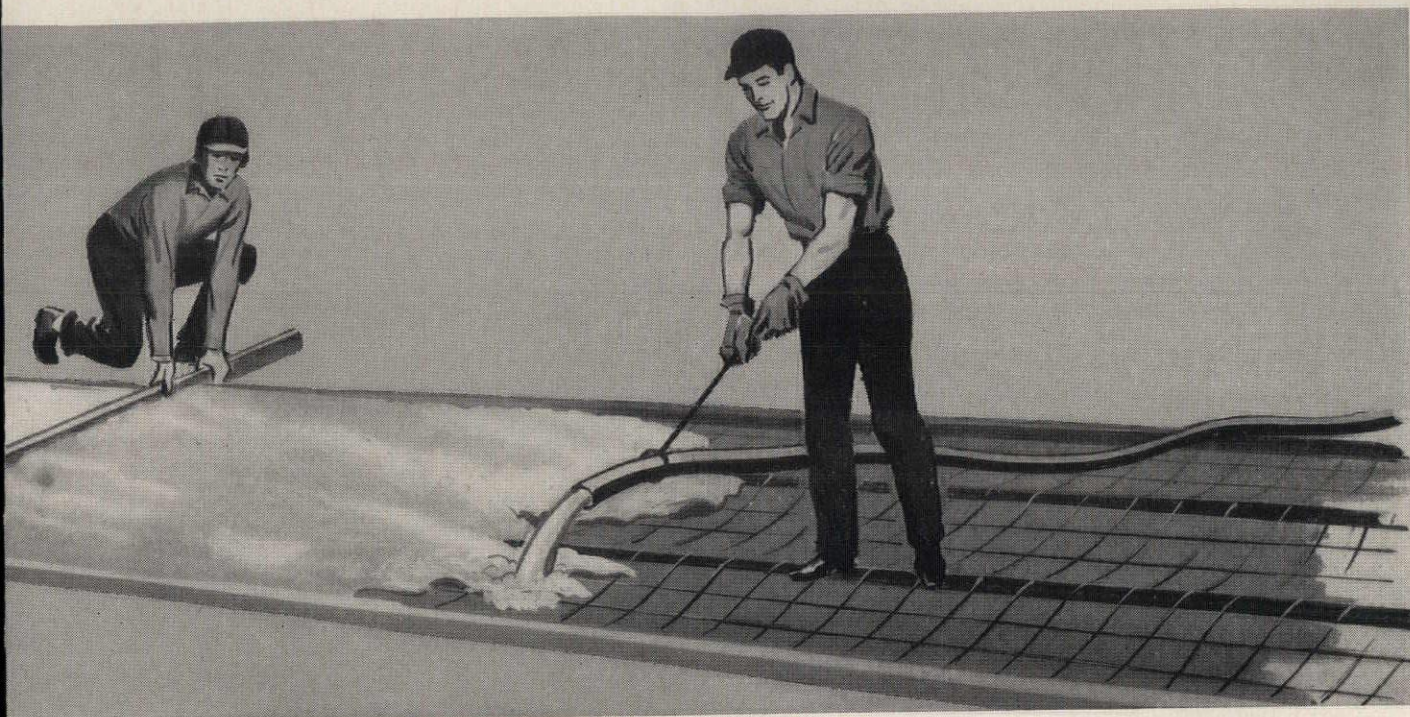
Above are two Mahon Automatic Rolling Steel Fire Doors. Eight of these 20' x 14' Automatic Fire Doors are included in a total of 64 Mahon Rolling Steel Doors installed in the Transit Shed and Warehouse of the new Seaway Wharf Facilities recently completed for the Seaway Port Authority of Duluth, Duluth, Minnesota.

Engineers: Pfeifer & Shultz

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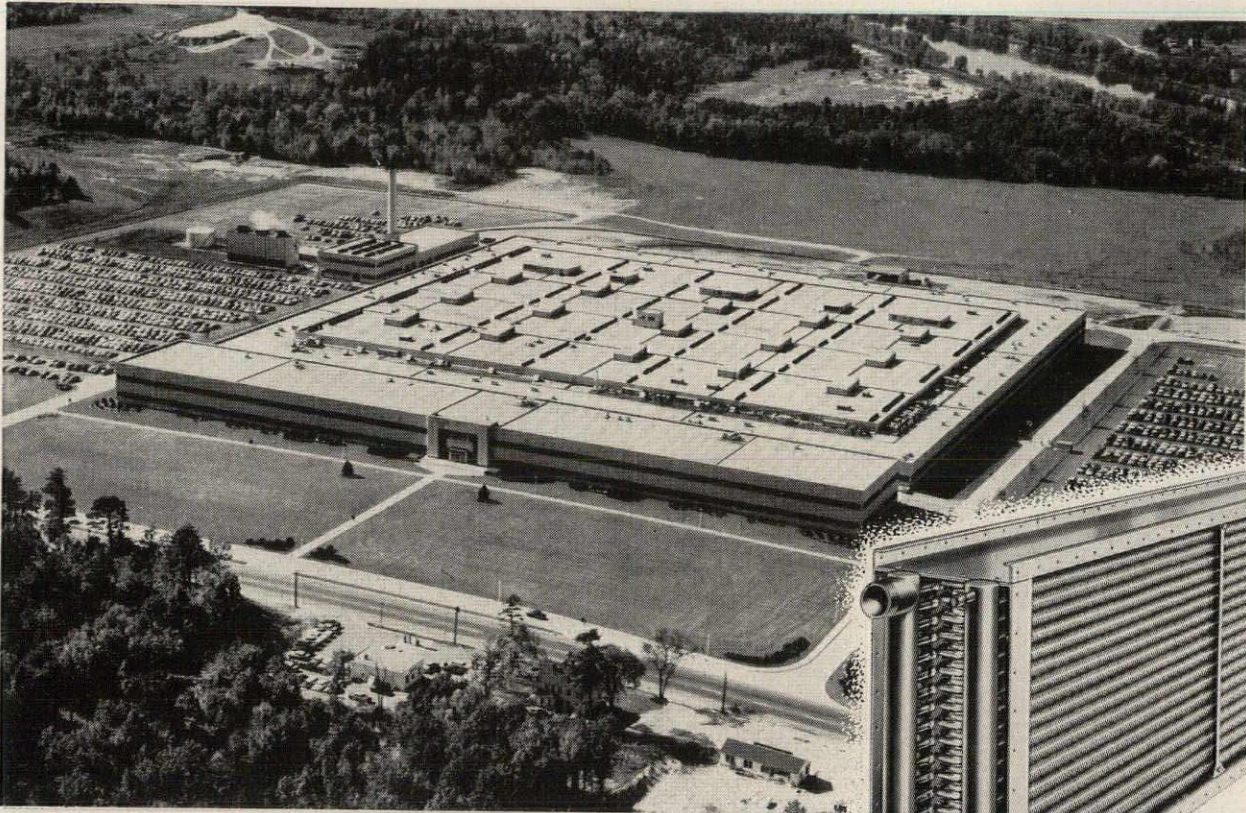


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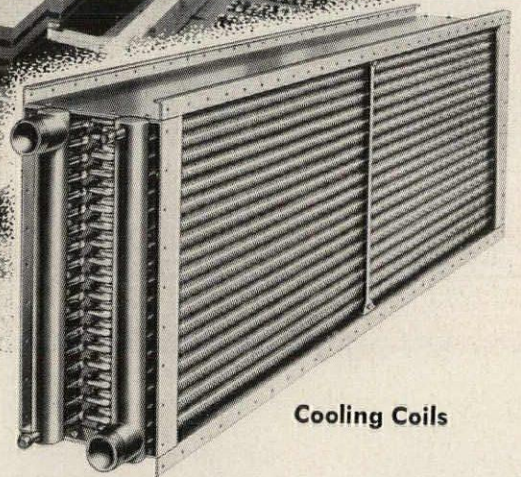
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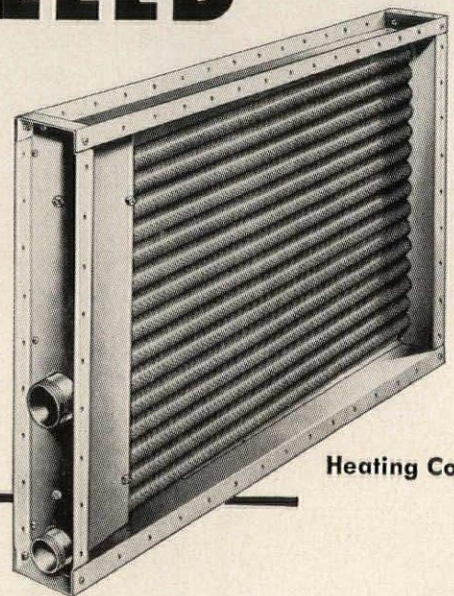
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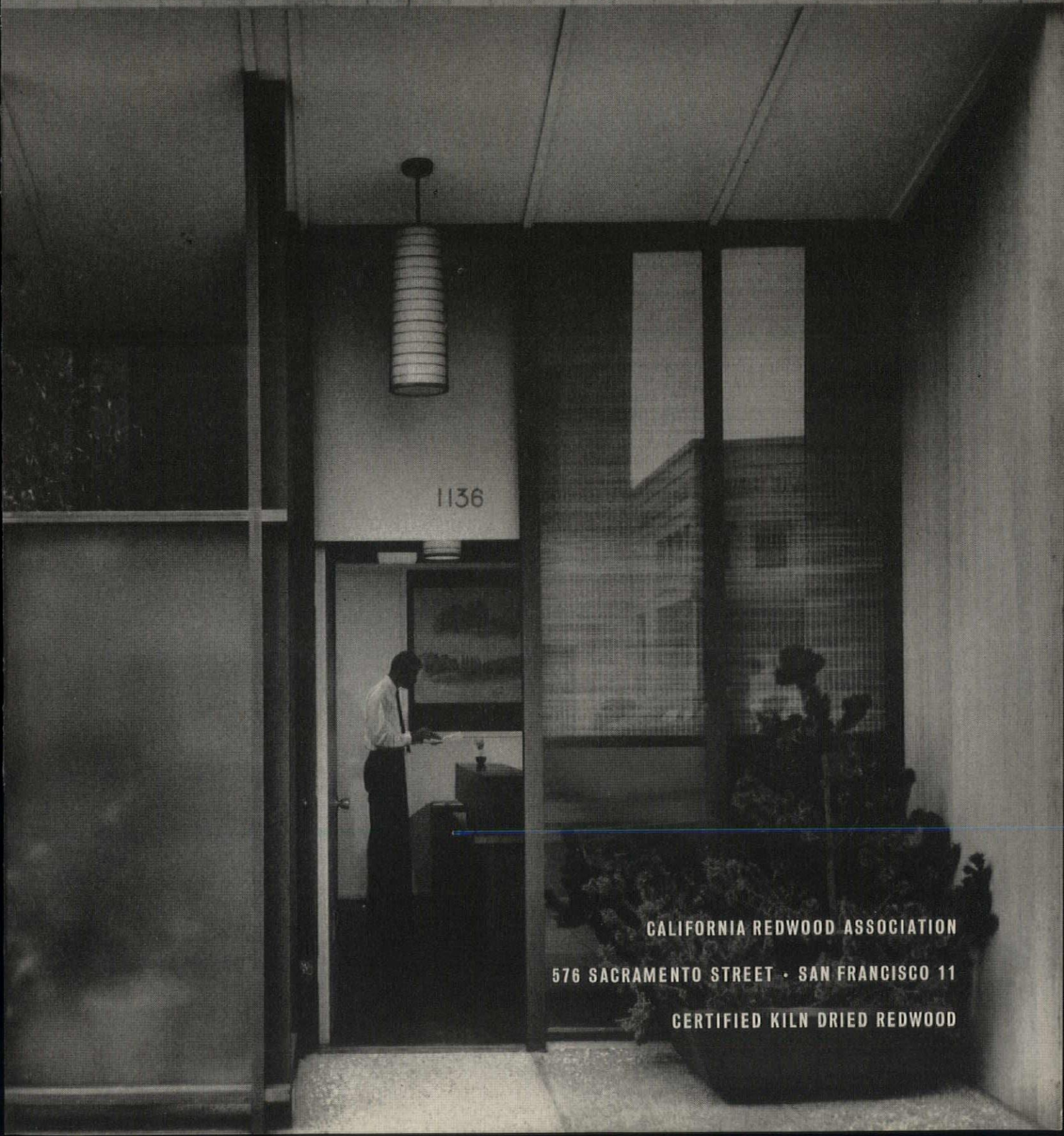
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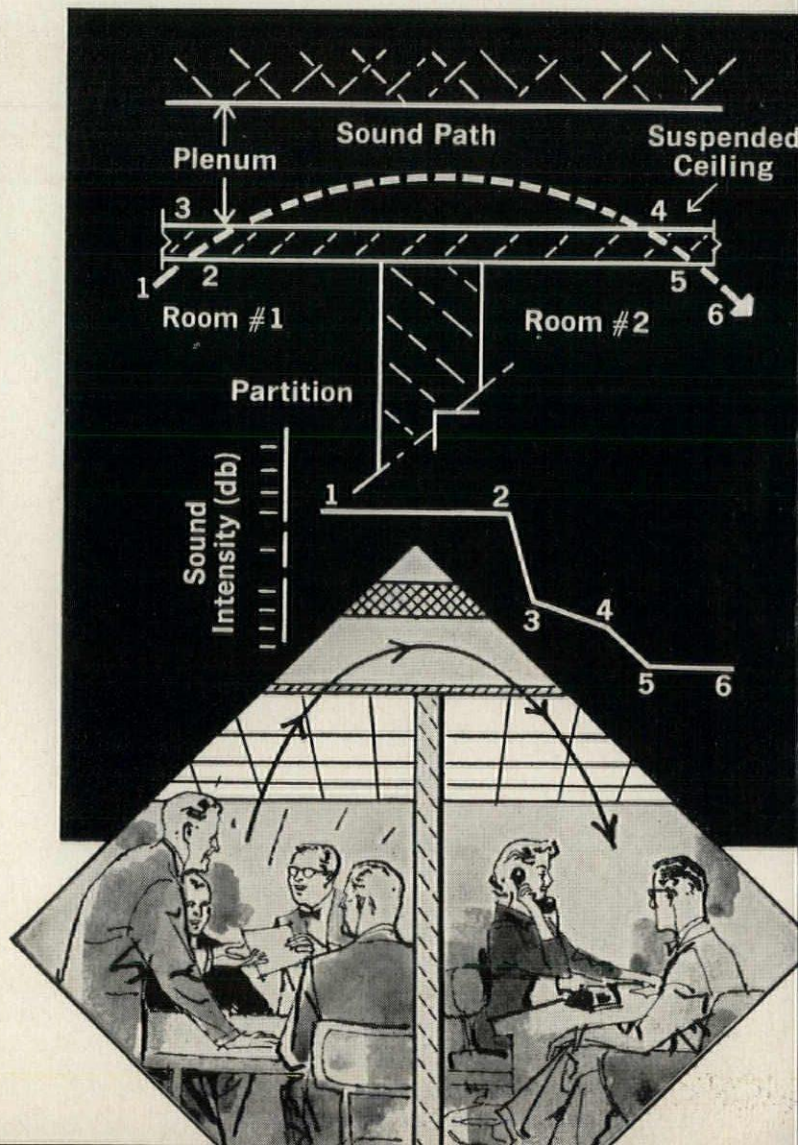
New, exclusive Acousti-Celotex attenuation results enable you to specify the right ceiling tile system for every job

The diagram and graph illustrate the new two-room test method of measuring sound attenuation—the difference in transmitted sound intensity levels between two adjacent rooms. This new test, officially known as “Acoustical Materials Association Tentative Method AMA-1-II” now provides you with accurate test information to use as a basis for solving your sound transmission problems. Employing a completely different technique, it obsoletes all other sound transmission data for rooms where partitions extend only to the suspended ceilings.

The two-room method uses a standard suspended ceiling construction, with 30" deep plenum, and a ceiling high partition having a high sound transmission loss rating separating the two rooms. A sound source is located in the one room with microphones to measure sound intensity levels in both rooms. The path of the sound is through the suspended ceiling over the partition and down through the suspended ceiling into the other room, as illustrated.

Formerly, data were obtained by the “Reverberation Room Test Method.” That method, satisfactory for some materials and construction, proved insufficiently accurate for modern acoustical calculations. The new AMA 2-Room Tests are made under realistic simulated working conditions. Results are expressed in specific frequencies instead of in averages. They make possible accurate evaluation of acoustical product performance.

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2' x 2' MINERAL FIBER TILE

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¾" CELOTONE® mineral fiber tile. Has the realistic random fissuring of travertine marble. High sound absorption. Washable. Paintable. Incombustible.

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| Frequency (CPS) | 125 | 177 | 250 | 354 | 500 | 707 | 1000 | 1414 | 2000 | 2828 | 4000 |
| Coefficient (db) | 23 | 27 | 24 | 24 | 27 | 27 | 30 | 35 | 41 | 50 | 56 |

2' x 4' MUFFLETONE® PANEL ¾". The big size board with high attenuation values. Fast lay-in installation. Strength,

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|------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Frequency (CPS) | 125 | 177 | 250 | 354 | 500 | 707 | 1000 | 1414 | 2000 | 2828 | 4000 |
| Coefficient (db) | 25 | 27 | 24 | 24 | 27 | 28 | 30 | 35 | 38 | 45 | 49 |

2' x 2' NEW RANDOM PATTERN* 5/8" perforated mineral fiber tile with high decibel ratings across full frequency range. New large-size units enhance modern "open" interiors, speed installation. Incombustible. Exceptional strength, rigidity. New edge-to-edge pattern minimizes joint lines, creates monolithic effect.

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|------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Frequency (CPS) | 125 | 177 | 250 | 354 | 500 | 707 | 1000 | 1414 | 2000 | 2828 | 4000 |
| Coefficient (db) | 30 | 31 | 26 | 29 | 30 | 30 | 31 | 35 | 38 | 45 | 54 |

ACOUSTI-CELOTEX

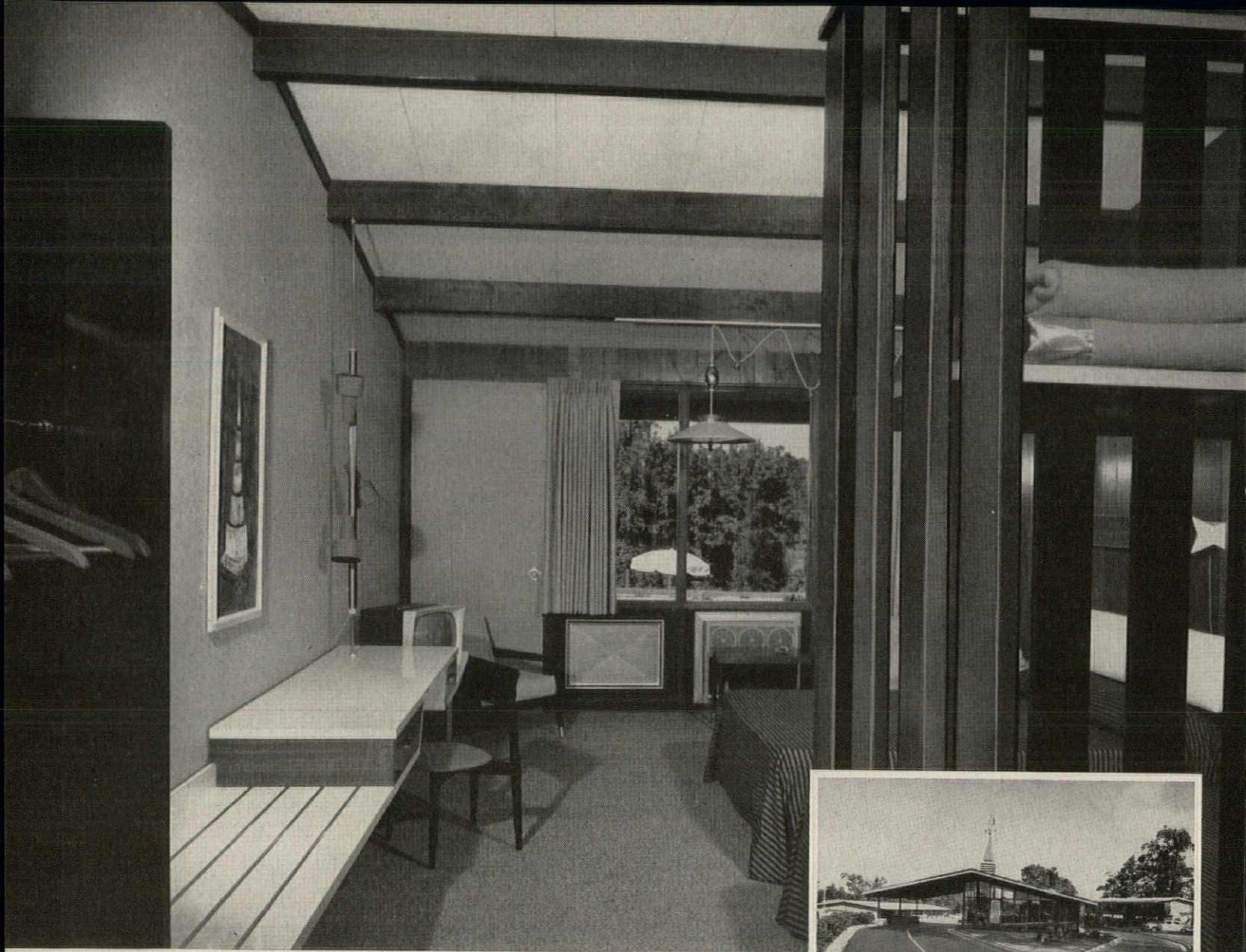
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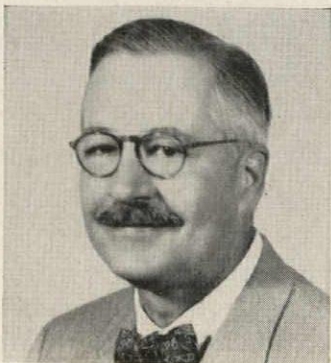
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Howard Johnson Motor Lodge, Northside Drive & U.S. Highway 41, Atlanta, Ga., Consulting Architect: Richard H. Pretz, A.I.A., Atlanta. Painting Contractor: C. F. McGouirk, Atlanta.



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Richard H. Pretz, A.I.A., Consulting Architect for this fine Southern Motor Lodge, carried the beauty of its lovely woodland setting over into the lodge's interior. Devoe Wonder Woodstain was chosen to accent the charm of the natural wood panelling and Devoe Wonder-Tones for color and texture contrast.

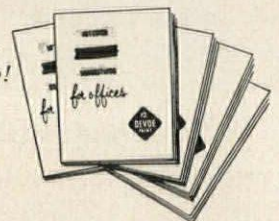
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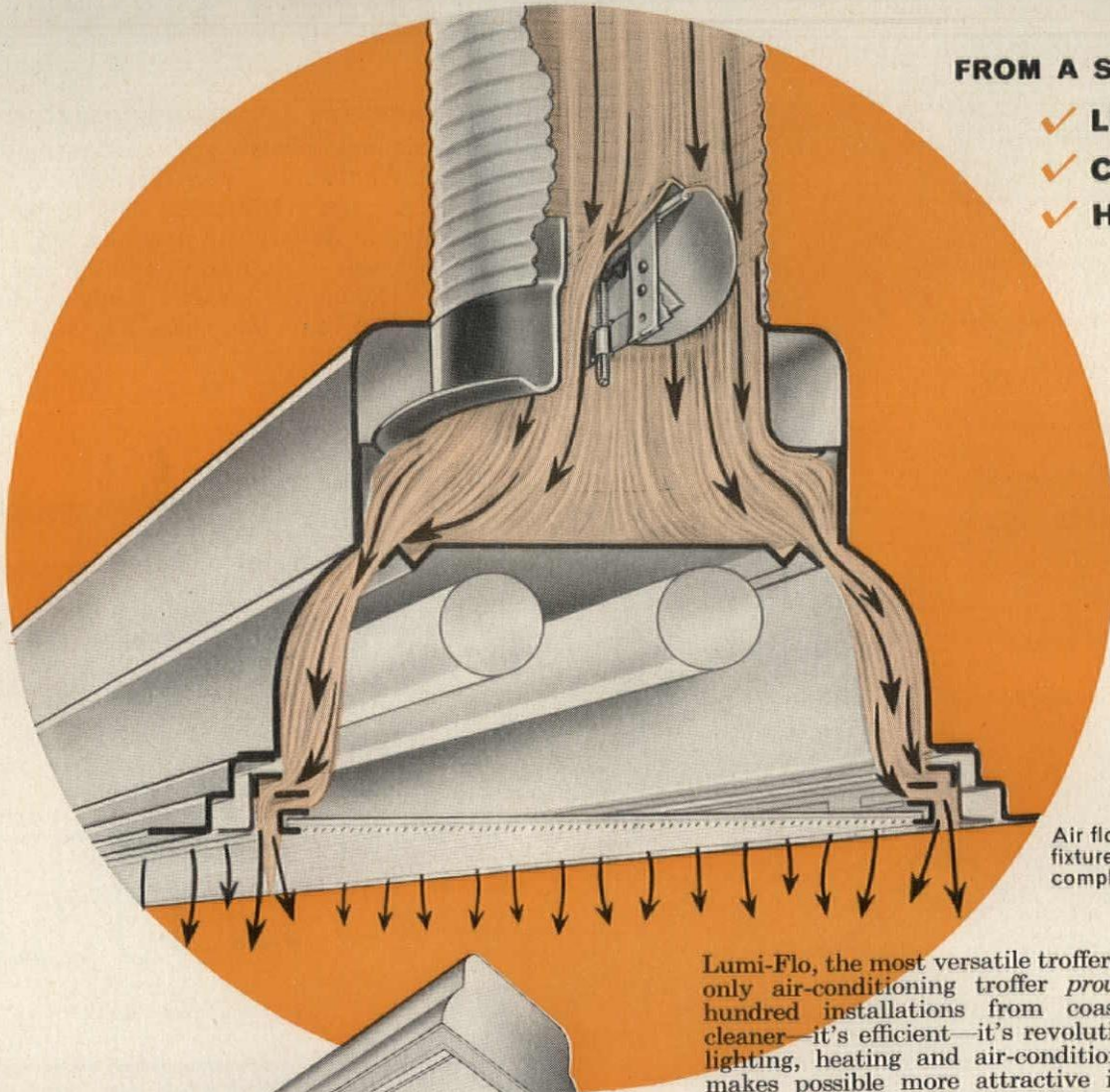
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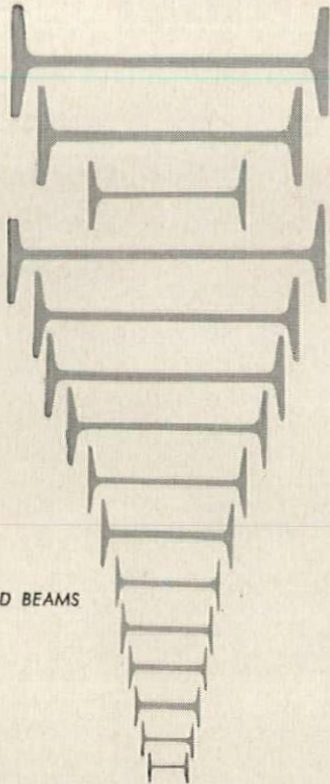
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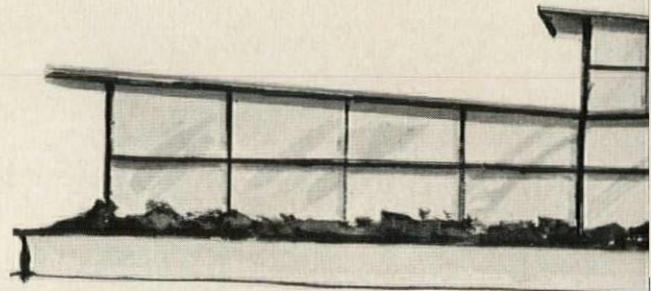
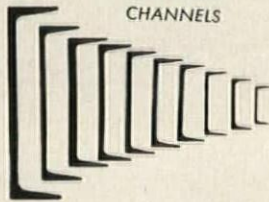
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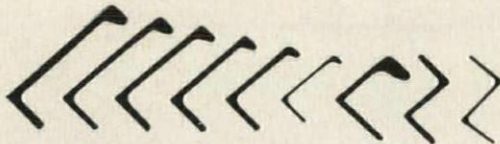
STANDARD BEAMS



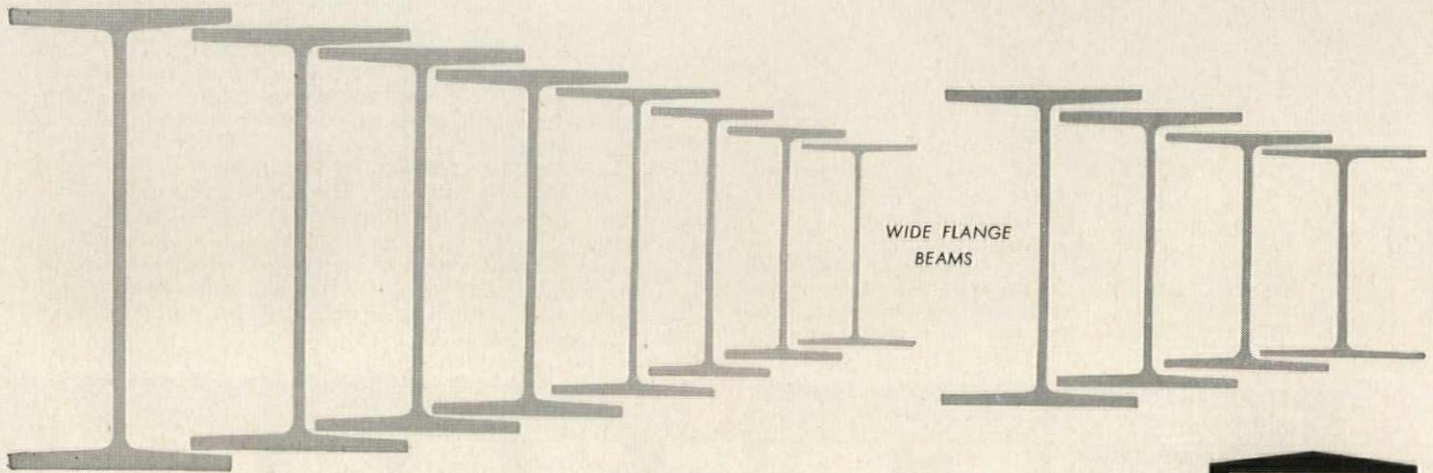
STANDARD CHANNELS



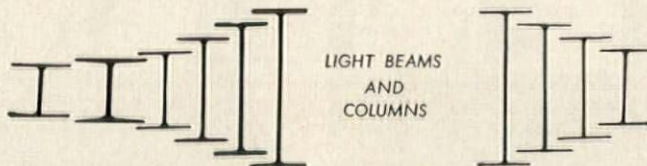
SHIP AND CAR BUILDING SECTIONS

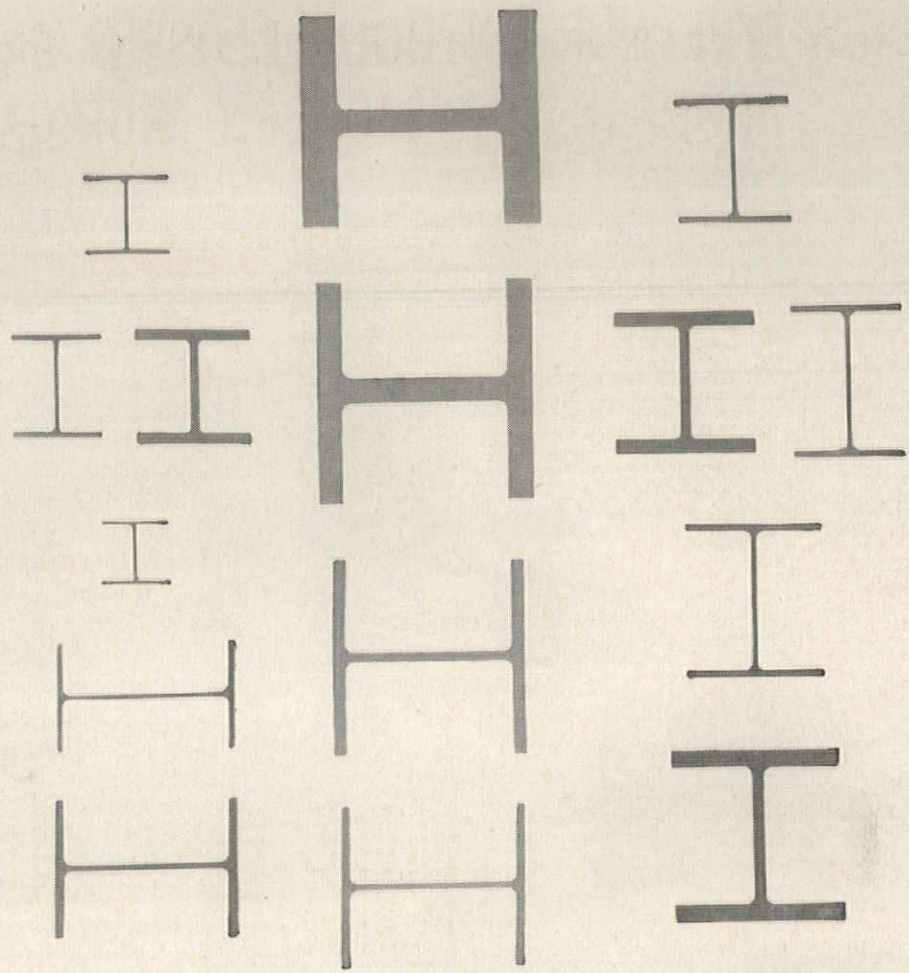


WIDE FLANGE BEAMS

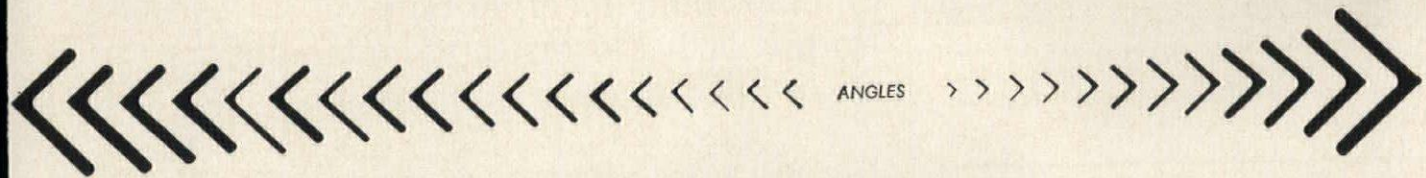


LIGHT BEAMS AND COLUMNS

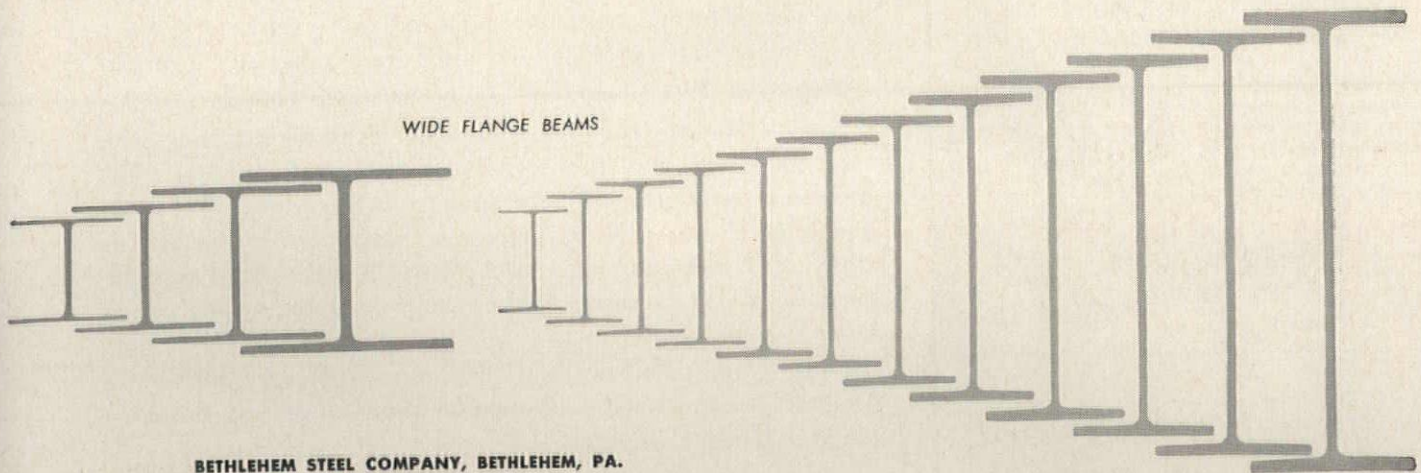




COLUMNS



WIDE FLANGE BEAMS

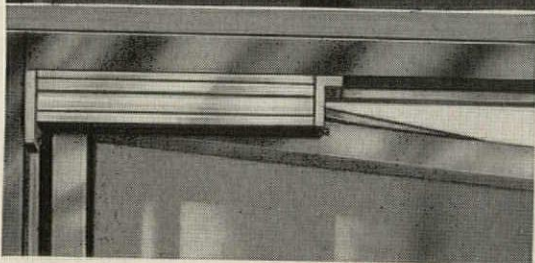
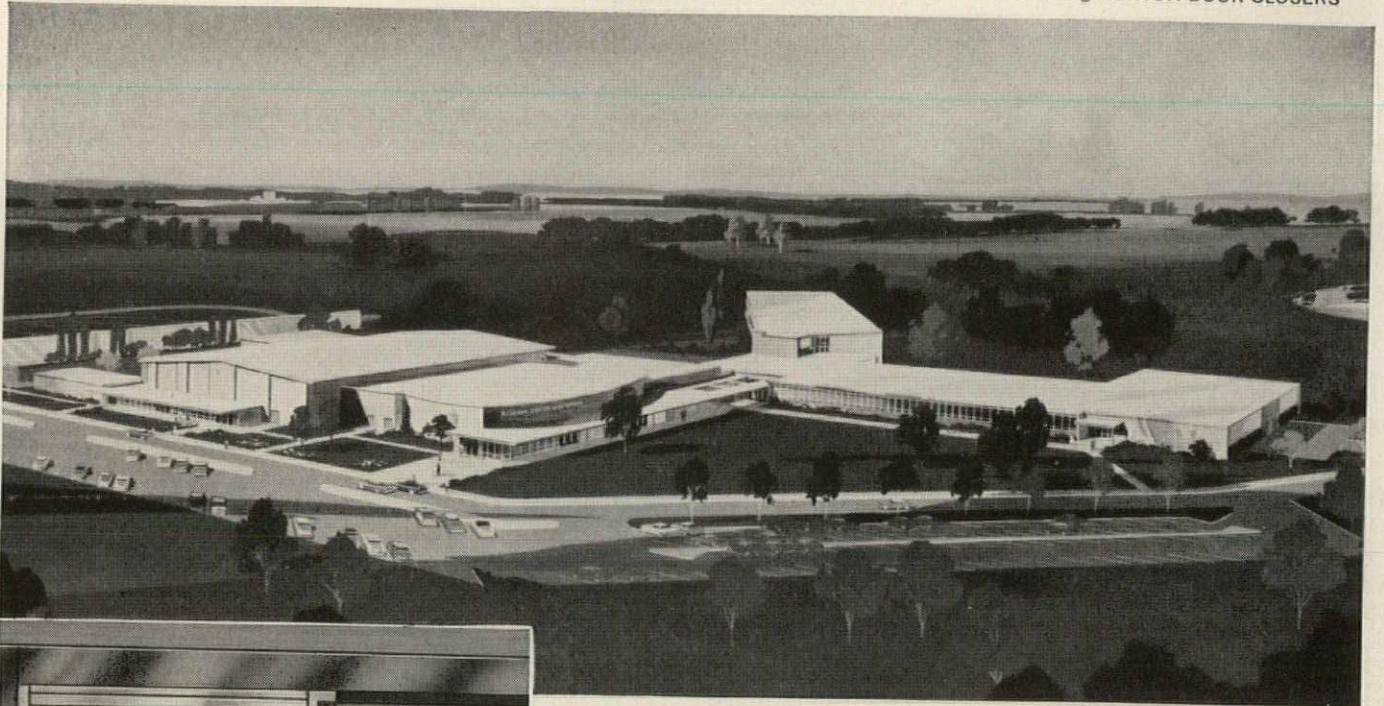


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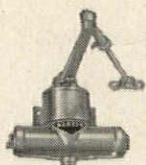
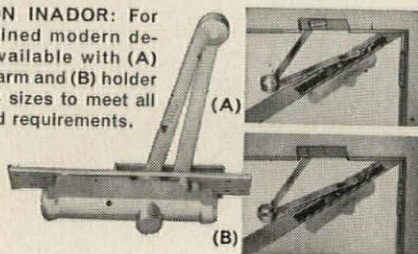
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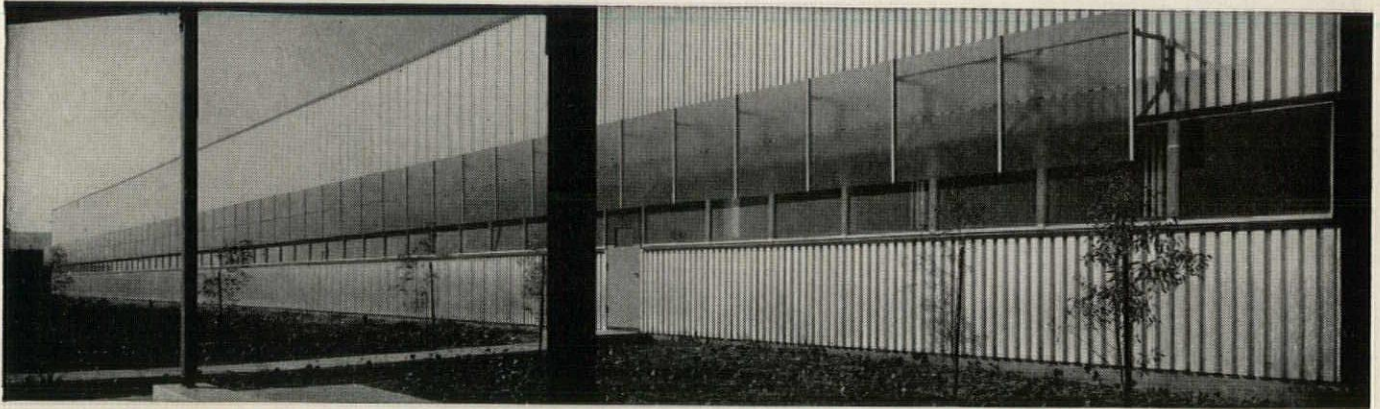
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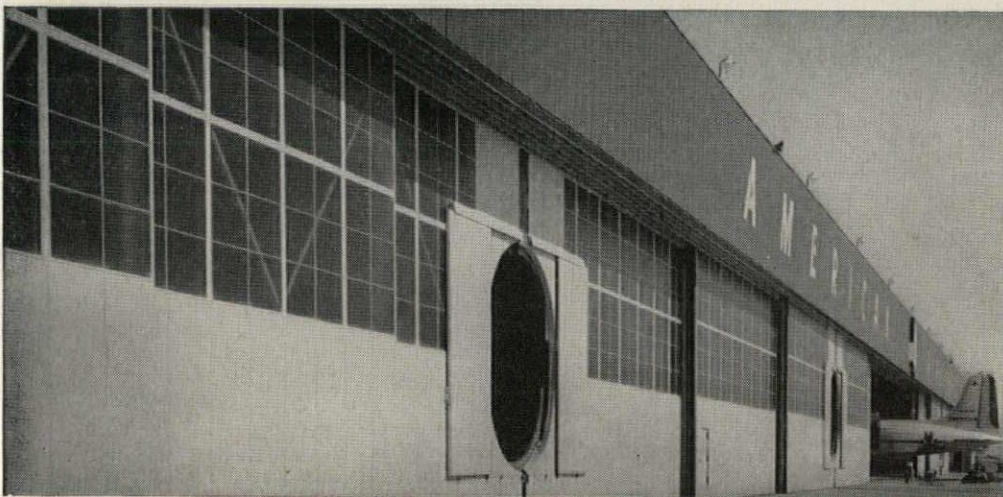
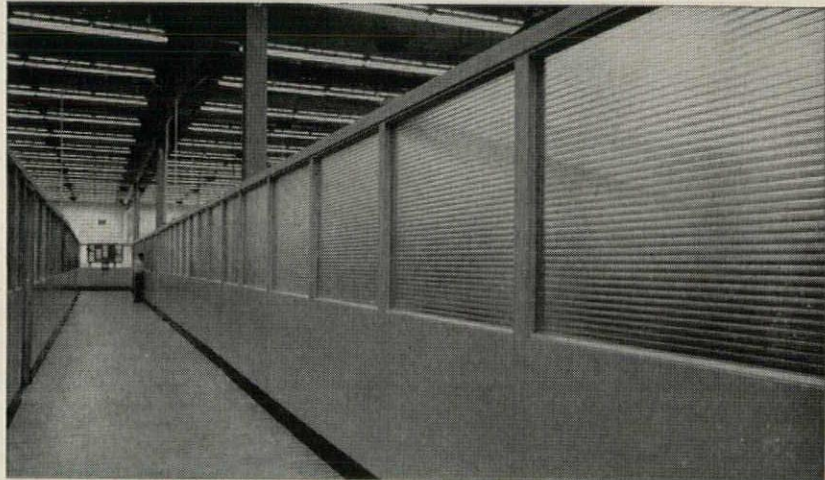


Architects: Marcel Breuer and Associates
Supervision: Craig Ellwood

A point of special architectural interest in the new Torrington Manufacturing Co. plant at Van Nuys, California is the sunshade of Coolite heat absorbing wire glass that spans the western elevation.

Complementing the spectacular new IBM offices in San Jose, California are these Hauserman partitions, glazed with lustrous Mississippi Broadlite glass.

Architect: John S. Bolles, San Francisco, Calif.
Partitions by: E. F. Hauserman Co., Cleveland, Ohio



1260 lights of 1/4" Coolite Wire Glass provide better daylight with protection, while absorbing excess solar heat in expansive American Airlines Hangar at Los Angeles International Airport.

Architect: Quinton Engineers Ltd., Los Angeles, California
Glazing by: W. P. Fuller and Company, Los Angeles, California



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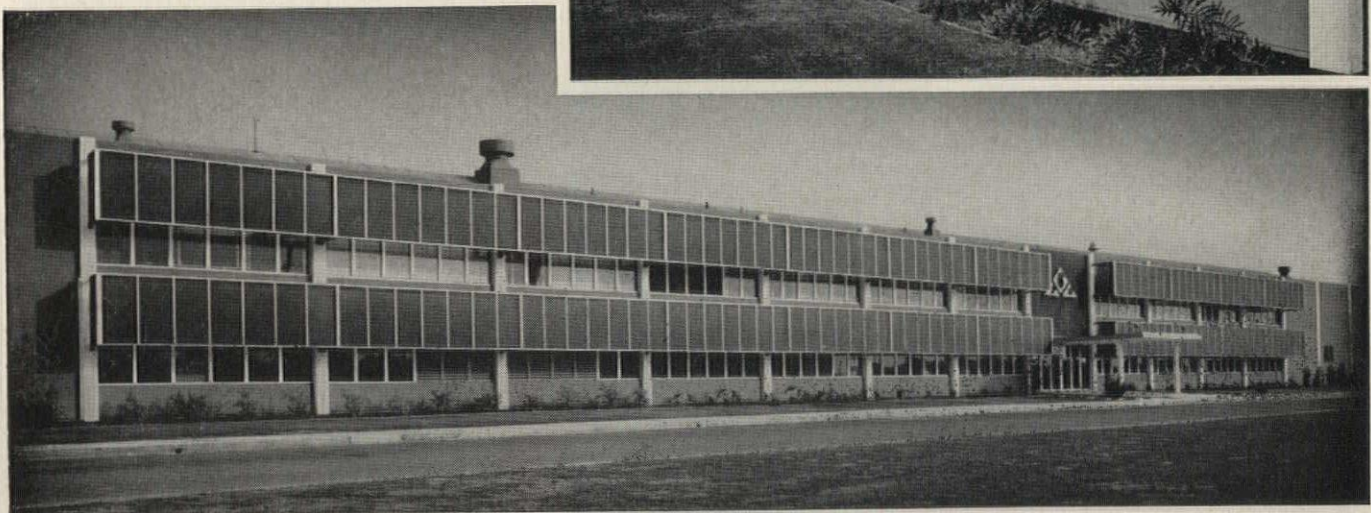
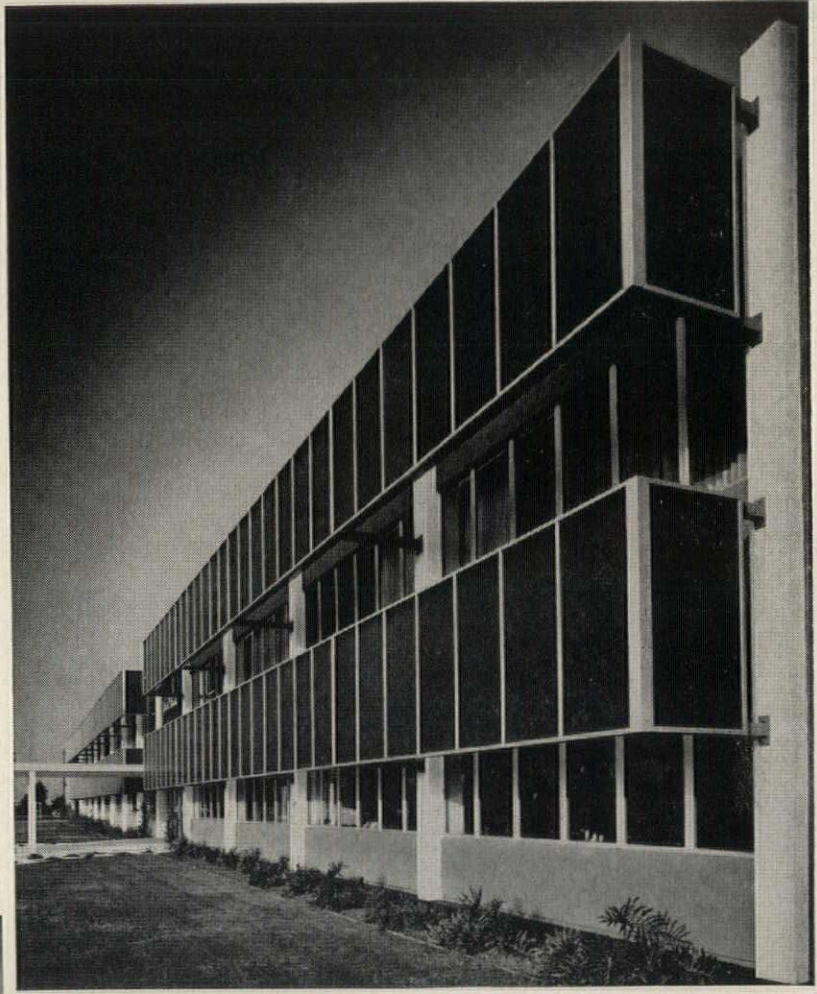
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Growers Container Corporation, Fullerton, Calif.
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R O L L E D , F I G U R E D A N D W I R E D G L A S S



Desloge High School, Desloge, Mo. Architects: Charles W. Lorenz, Kirkwood, Mo. Contractor: Buckley Construction Co., St. Louis.

Space provided: gymnasium of 100' x 117' with folding door to partition area in two parts; seating capacity 2,100. Also contains boys' and girls' locker and shower rooms, instructors' rooms, team rooms. *Structural framing:* glulam peaked beams of 119' span spaced at 16'-8". *Exterior walls:* brick.

Interior walls: painted masonry with glazed tile wainscot. *Heating:* hot water unit heaters. *Ventilating:* power with large fan. *Lighting:* incandescent. *Floors:* maple. *Roof:* built-up surface over heavy timber decking. *Area:* 11,700 square feet. *Volume:* 310,050 cubic feet.



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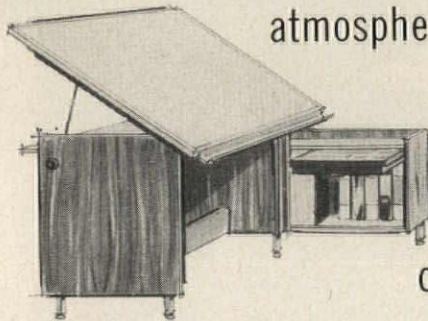
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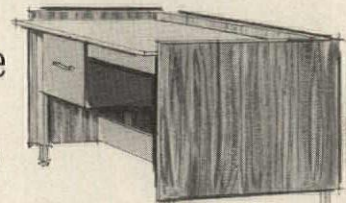
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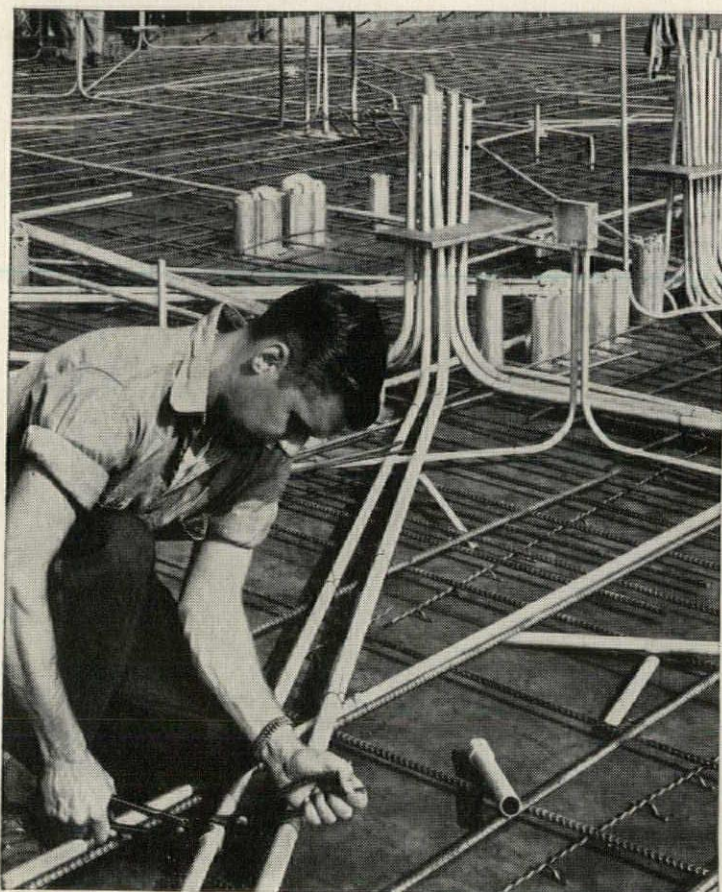
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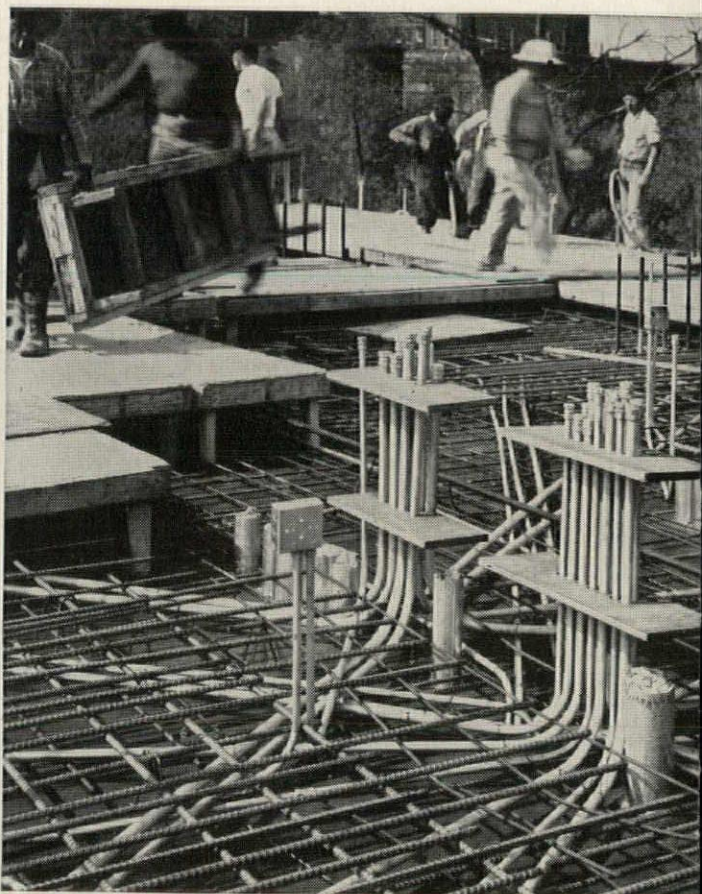
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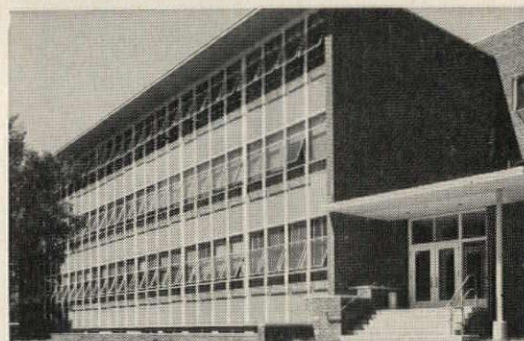
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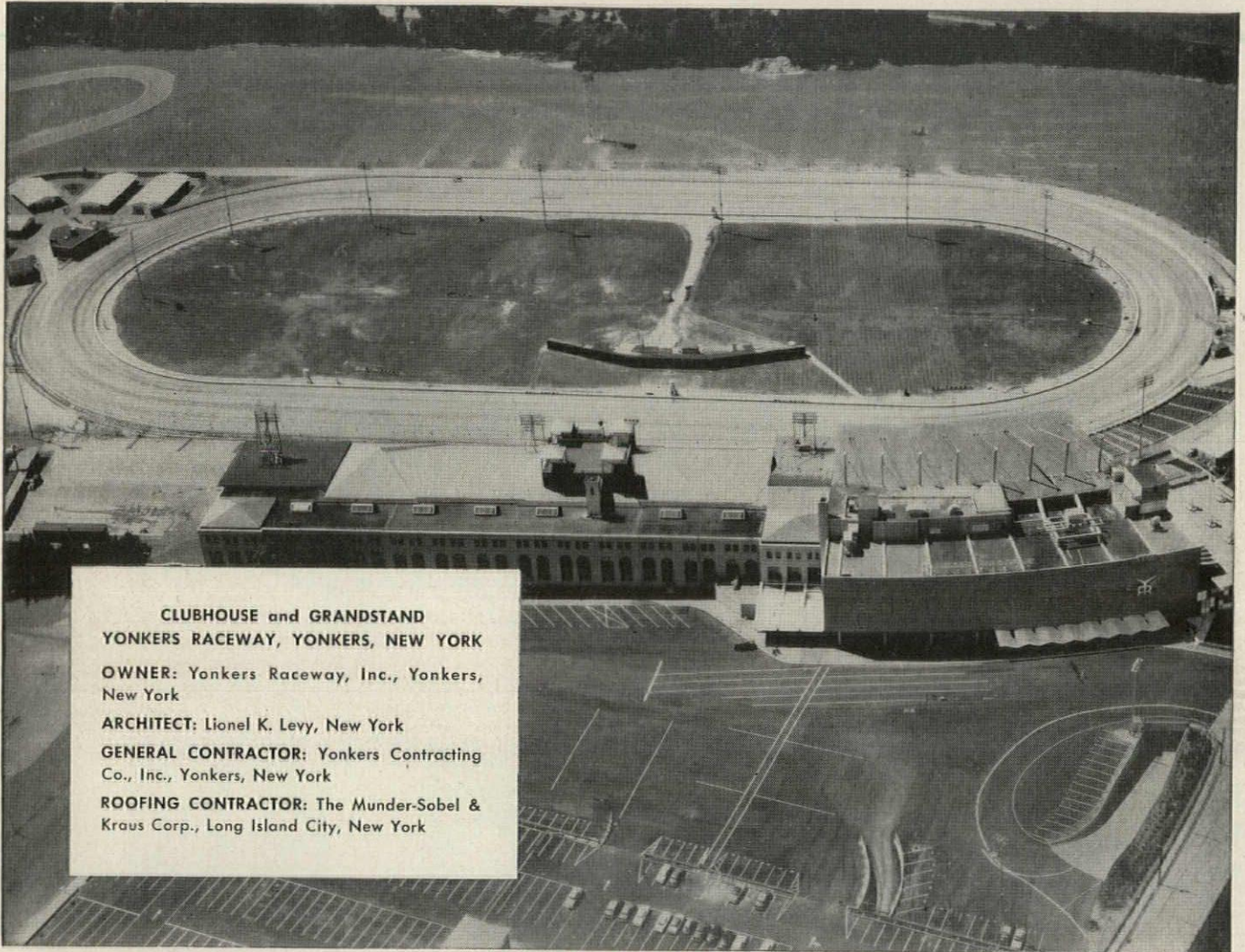
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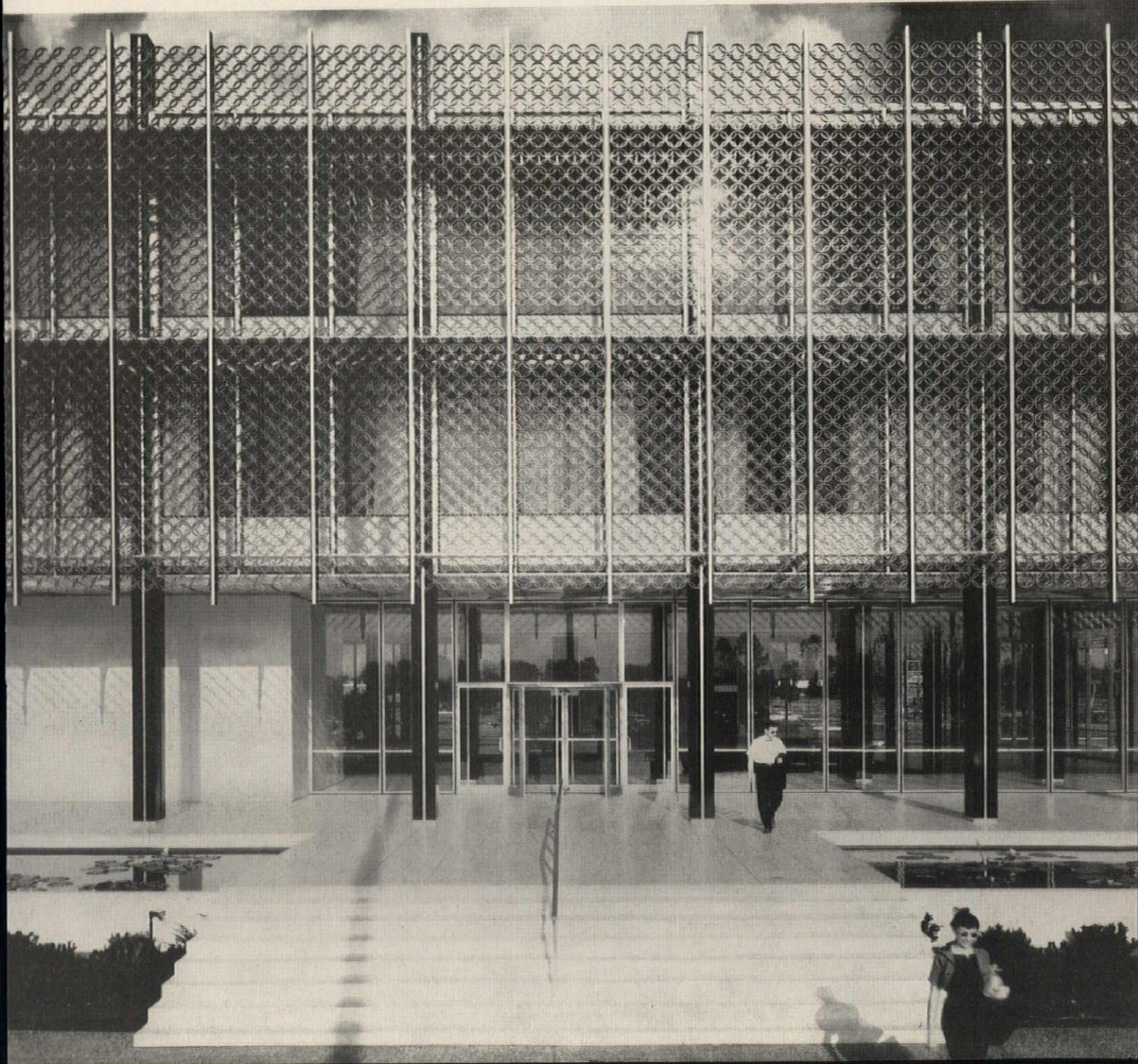
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THE REYNOLDS METALS BUILDING IN DETROIT

*Sales Headquarters Building
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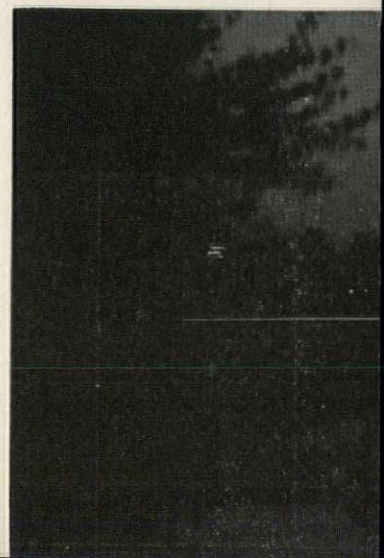
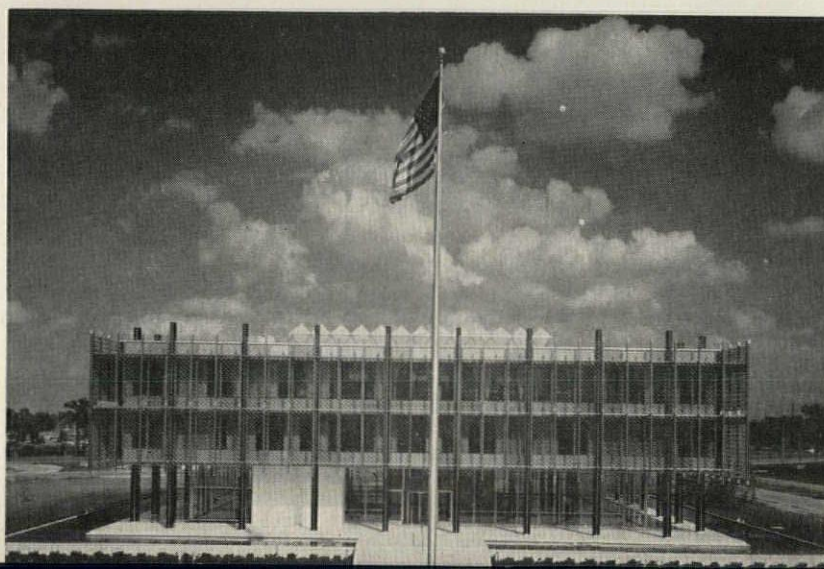
Minoru Yamasaki and Associates, *Architects*; Cass S. Wadowski, *Project Director and Mechanical Engineer*; Henry J. Guthard, *Electrical Engineer*; Harold Tsuchiya and Gunnar Birkerts, *Design Associates*; Lillian Pierce, *Color Coordinator*. Eichstedt-Johnson Associates, *Landscape Architects*; W. B. Ford Design Associates, *Interiors*; Ammann & Whitney, *Structural Engineers*; Bolt, Beranek & Newman, *Acoustical Consultants*; Darin & Armstrong, *General Contractors*. For Reynolds Metals: C. Davis Blackwelder, *Construction Coordinator*; John Grimm, *Superintendent of Building*.





All photos (including page 161) by Baltazar Korab

The Reynolds Building

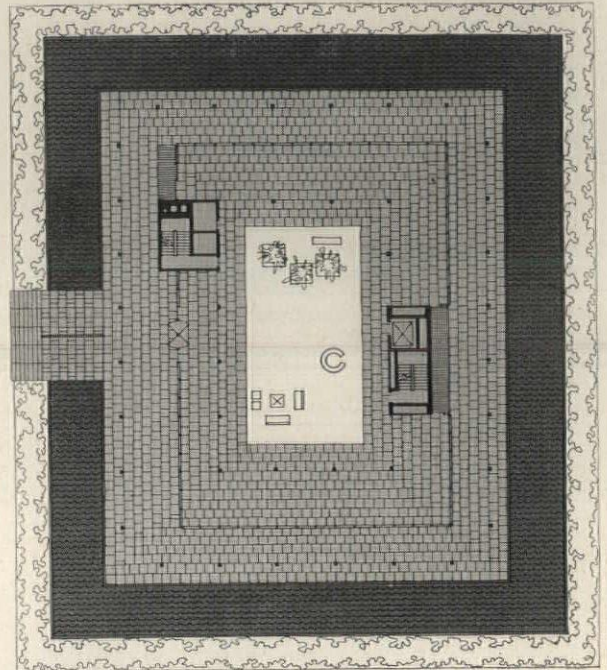


SUBSTANCE AND SPACE

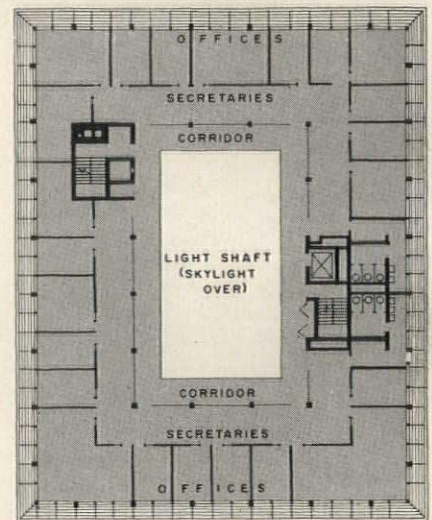
Much of this building's excitement stems from its interplay of substance and space; space that flows in and out horizontally at ground level, and then fairly explodes upward inside. The arrangement is a raised, two-level block of perimeter offices that form a hollow rectangle wrapped about a skylighted central well. The first, or lobby-display floor consists of a glass-enclosed, white terrazzo podium—four feet above grade—that looks over a surrounding reflecting pool.

The exterior is notable for the lacy decorative-ness of the gold-anodized aluminum sunsreen, as opposed to the solidity of the black-clad columns that carry upwards to tie everything together; the openness of the first floor; and the milky-white silhouette of the skylight on top. Inside, the flood of light from the skylight fairly compels one to look up through the openness of the well. This up-and-down quality is furthered by the large purple carpet—the same size as the light well—which interrupts the horizontality of the white platform. At night, the skylight is artificially lighted to produce a similar interior effect, as well as providing an attractive exterior topping for the structure.

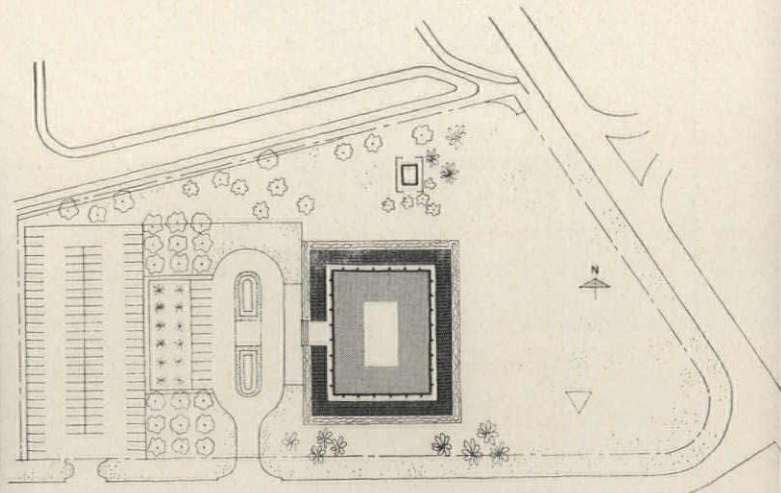
The building serves as headquarters for the 115 persons who at present make up the staff of the company's regional sales organization, and provides space, not at present used, for future expansion. The site is in northwest Detroit in a rapidly developing business center near the Northland shopping center. Calculated to become a vehicle for sales promotion and public relations, and aimed at focusing attention on the architectural potentials of aluminum for both beauty and utility, the building succeeds in doing so in a dramatic, dignified way.



GROUND FLOOR



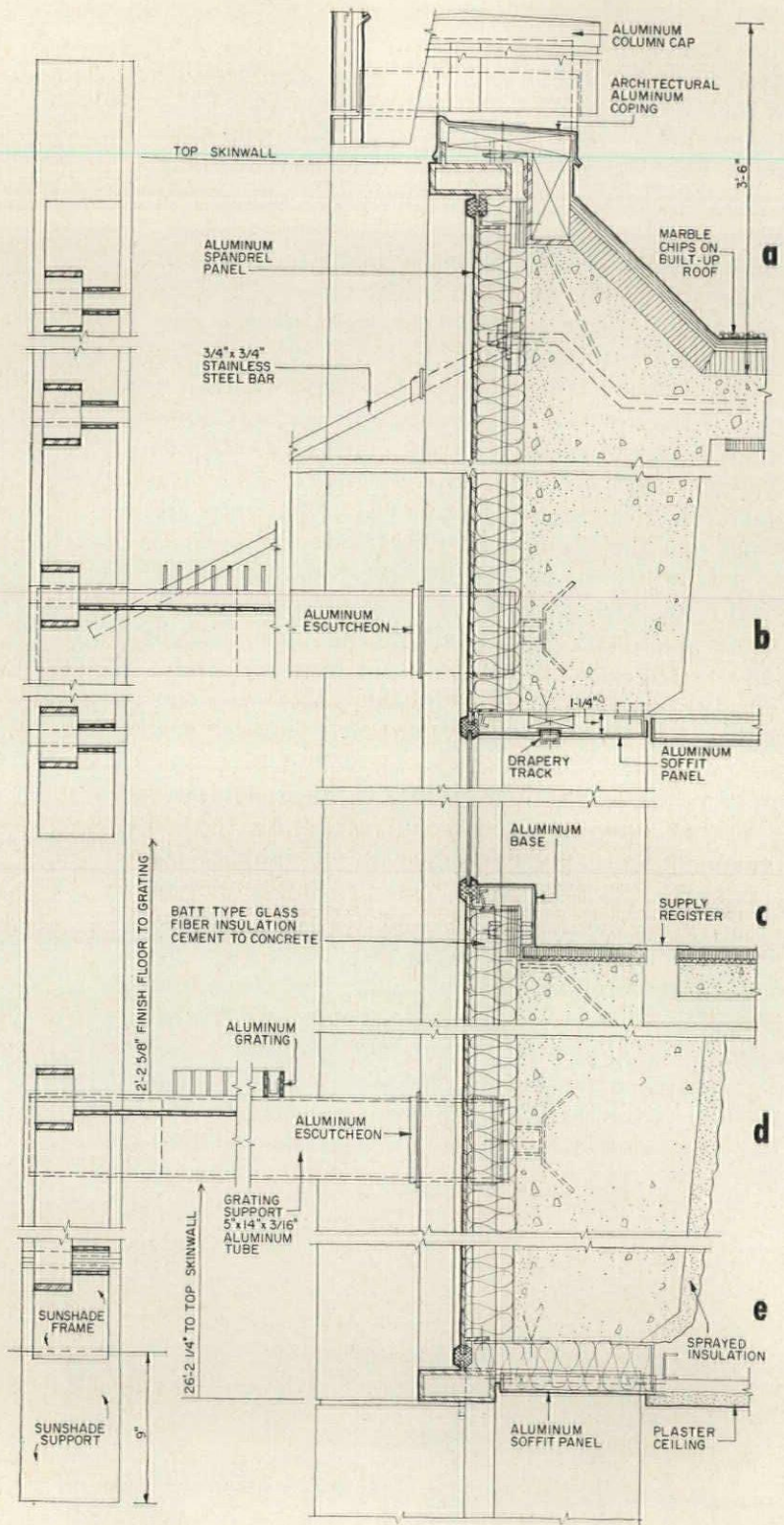
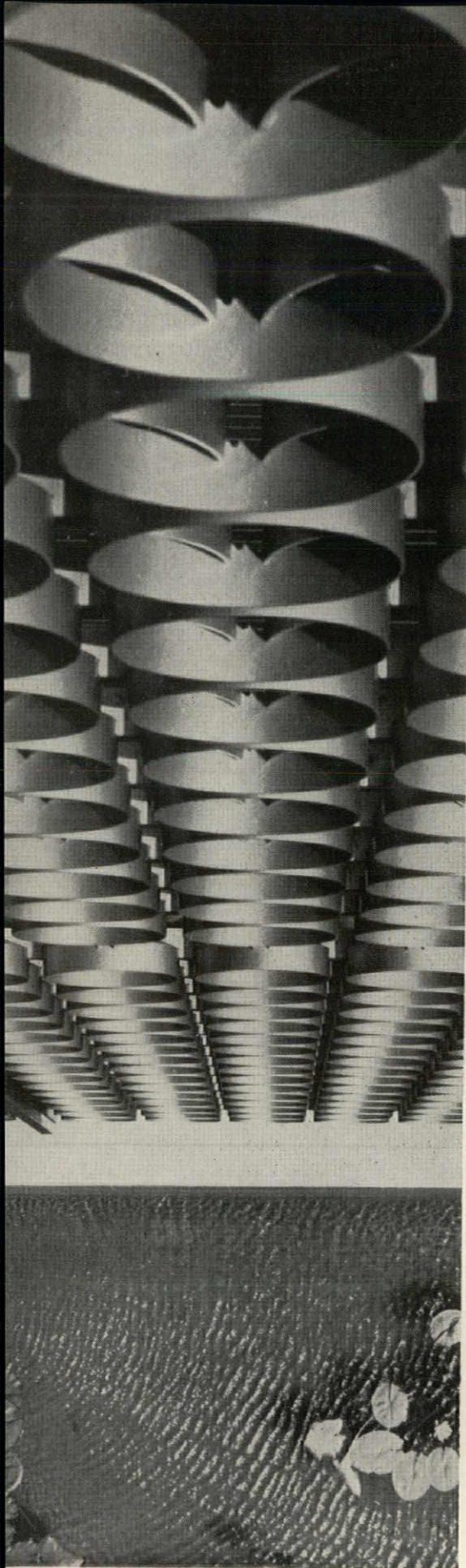
TYPICAL UPPER FLOOR



PLOT PLAN

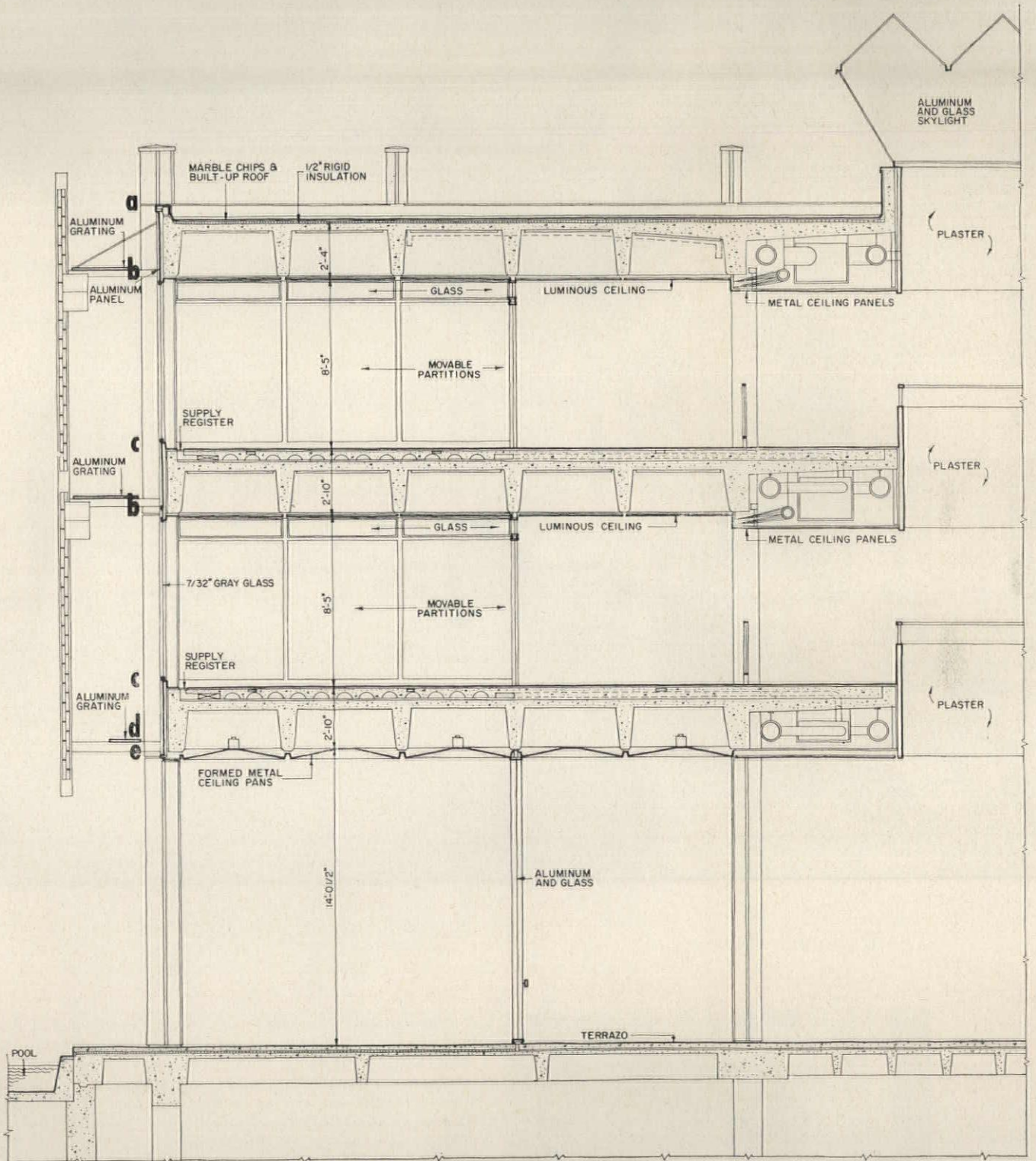
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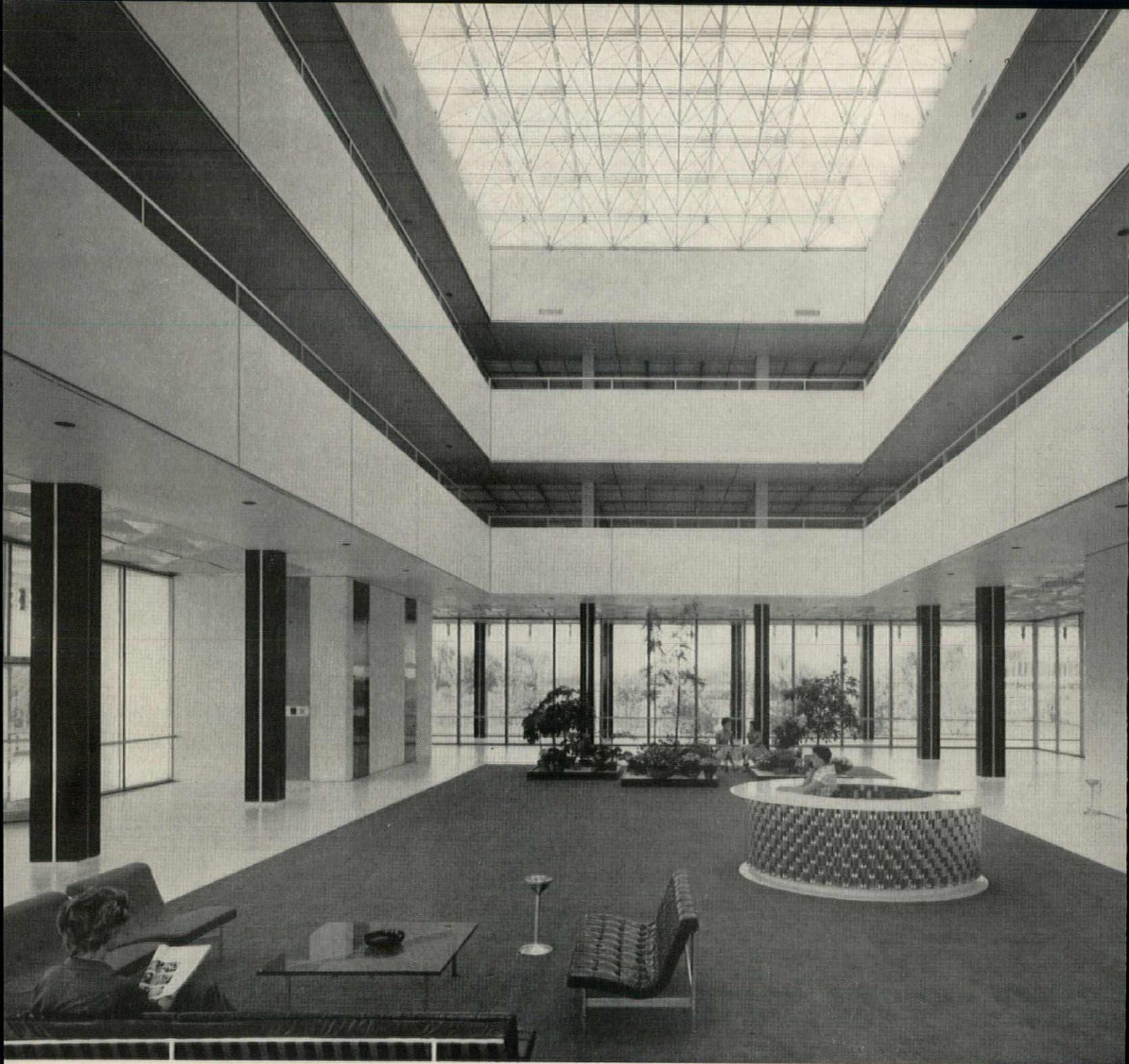
The gold-anodized aluminum sunshade consists of 10-in.-diameter rings, 2 in. deep, locked together mechanically into panels about 12 by 5 ft in area. Above the 7-ft height, the rings are 14 in. deep, and work together with the walkway gratings to cut off the rays of the sun until they reach a very low angle. The screen reduces the operating air conditioning load 25 per cent

The Reynolds Building



TYPICAL BUILDING SECTION

Considerable study was devoted to integrating the structural, lighting, mechanical, and electrical systems within the fabric of the building. The waffle slabs (5-ft. squares) provide lighting troughs for the illuminated ceilings thus eliminating the waste space of suspended ceilings; on top of the slabs, a series of 3½-in. metal vaults carries hot or cold air to the peripheral registers; the fill over the vaults contains electrical and telephonic raceways. Floor to floor heights are, by means of such construction, held to a minimum

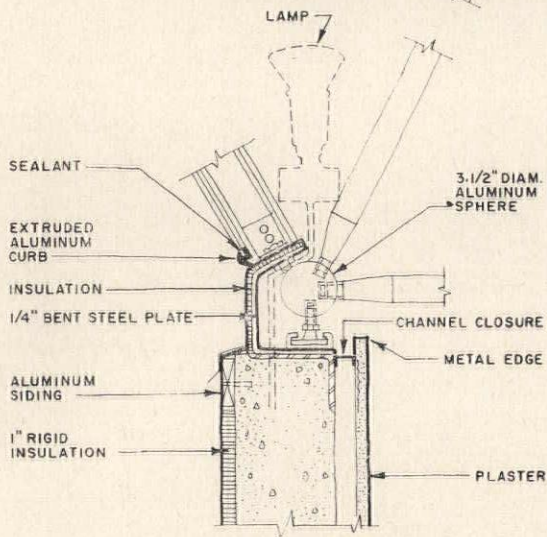
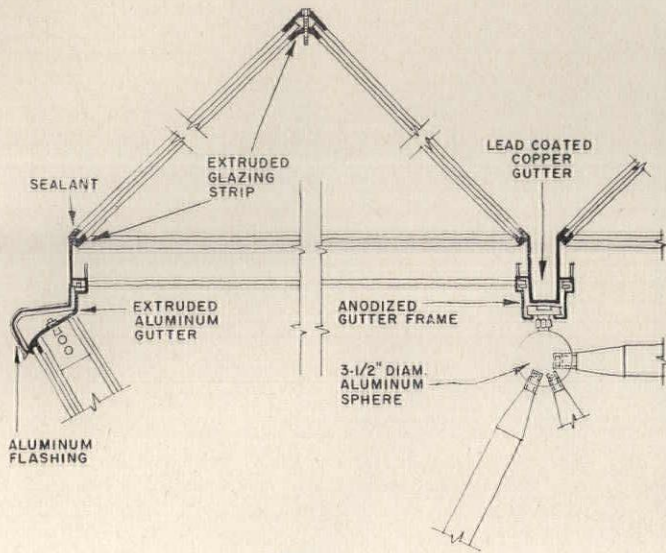


The Reynolds Building

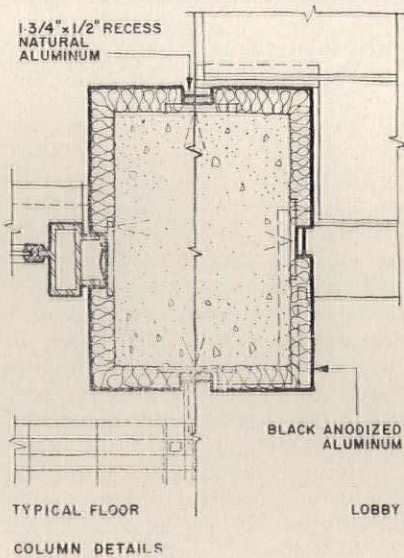


The lobby, which is designed for both reception and the display of aluminum in use, centers on the one-piece royal purple carpet (30 by 60 ft in size). Its expanse is punctuated by the desk, the black marble planting boxes, and the furniture—which is upholstered in fuchsia raw silk and mulberry colored leather. The displays (not yet installed when these pictures were taken) might include an automobile or a boat, as well as smaller products, since large panels of glass have been made removable.

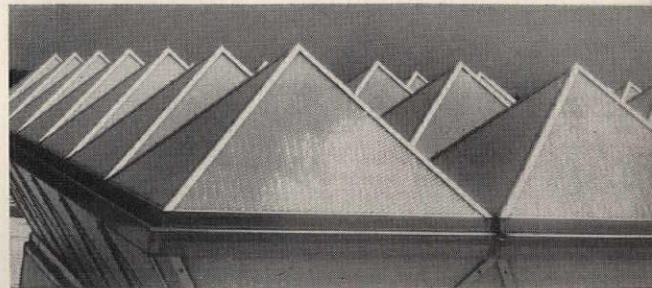
The reception desk, designed by D. Lee Du Sell, is 8 ft in diameter and topped by Carrara marble. Its sculptural screen is composed of extruded aluminum elements both bright dipped and gold-anodized in tone

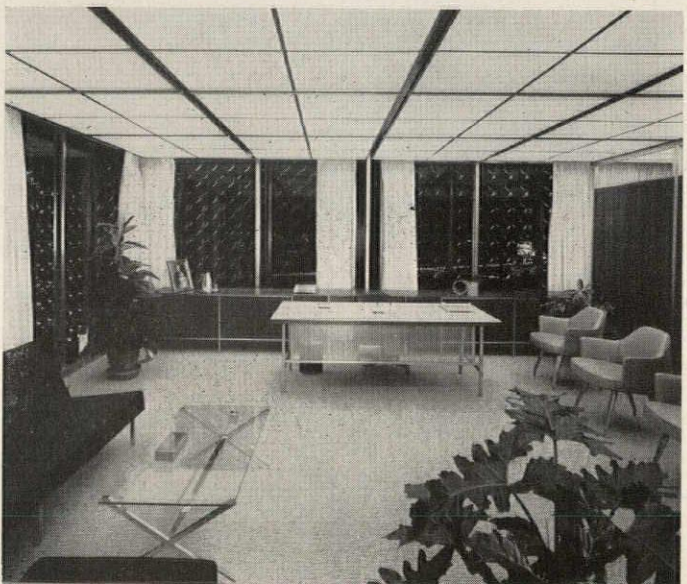


SKYLIGHT DETAILS



Detailing the skylight posed several problems, such as structural support, expansion and contraction, and drainage. The solution is a space frame of bright aluminum rods and spheres, beautifully fabricated and finished. The frame supports a gutter system of extruded aluminum sections which in turn holds the 1/4-in. wire glass in such a fashion that movement is possible without leakage. The entire structure was erected in 5 days. It is lighted at night by 91 150-watt floods, and is shielded against lightning damage





The Reynolds Building

Typical upper floor secretarial and office spaces are shown at left. All offices face the exterior of the building, with secretarial areas on the center well. Upper floors are carpeted in beige throughout; secretarial desks are black, white, and natural aluminum; the movable partitions in executive offices are walnut paneled, topped by 12-in.-high glass panels; partitions in engineering offices are off-white in color. Special built-in units of aluminum and walnut provide wardrobe, display, and storage space in executive offices.

The luminous ceiling, divided into 2-ft. 6-in. squares by aluminum T-bars, contains fluorescent tubes shielded by a small-scale honeycomb of aluminum painted white, and provides a pleasant, soft light throughout the upper floors



DESIGNING THE MOSCOW EXHIBIT

ARCHITECTS OF PERMANENT STRUCTURES: *Welton Becket and Associates*

DESIGNERS OF INTERIOR AND OUTDOOR EXHIBITS: *George Nelson and Company Inc.*

LANDSCAPE ARCHITECTS: *Robert Zion and Harold Breen*

LIGHTING CONSULTANT: *Rollo Williams*

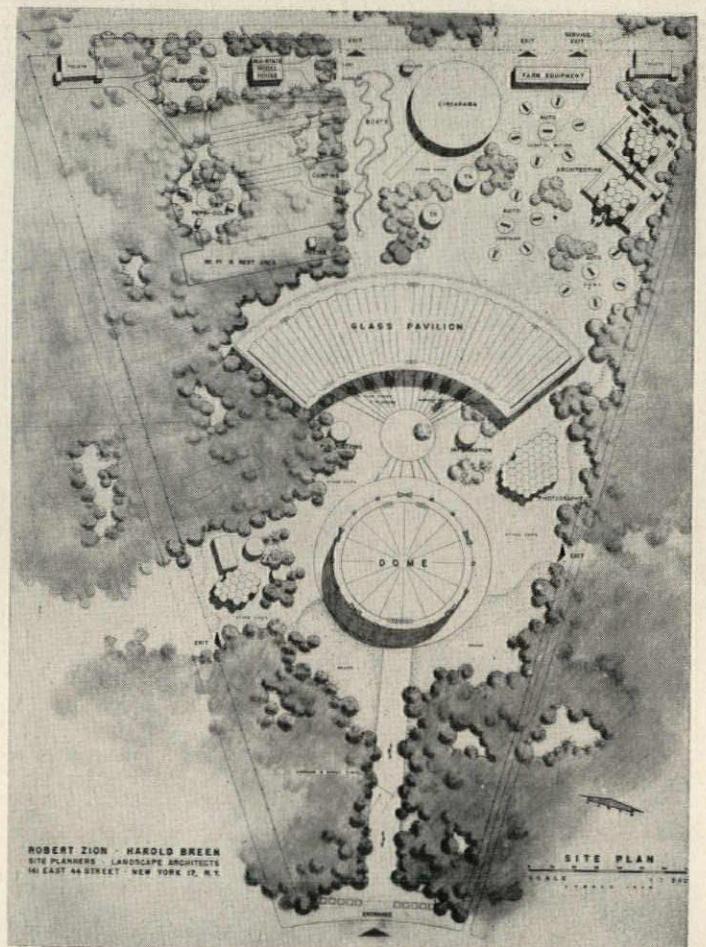
GENERAL CONTRACTOR: *Reynolds-Feal*

CONTRACTOR IN CHARGE OF ERECTING DOME: *Lydick Roofing Company*

Welton Becket and Associates, architects responsible for the site plan and the two main structures of the American National Exhibition in Moscow, were determined to impress their Russian hosts with American building skill, and, requiring full Soviet cooperation to do so, made several interesting basic decisions partially in deference to the Soviets. Since it had been agreed that the All-Union Chamber of Commerce of the U.S.S.R. was to buy the two exhibit buildings for \$375,000 or one half the actual cost of construction, whichever amount turned out to be less, the Russians had something to say about their purchase. They wanted a multiple assembly building because of their own current interest in the development of this type of structure; and Russians love domes. So it seemed a good idea to construct the largest aluminum geodesic dome yet built. The dome, gold anodized and gleaming, is 200 ft in diameter, 78 ft high and covers 30,000 sq ft of exhibition space to accommodate 5,000 people an hour. It was assembled on the site in two weeks, providing the Russians with a dynamic example of American construction technique. The dome was positioned to end an already existing axis stretching beyond the entrance gates shown on the plot plan and approximately a mile and a half long. This axis had been developed as part of the Russian master plan for Sokolniki Park.

The other major exhibition building, a steel and glass structure with a folded plate roof, was planned to enclose the additional 50,000 ft of exhibition space agreed upon by the Russian and American governments. Its shape and position bear no true relation to the imperatives of the Russian axial plan (effectively climaxed by the dome).

While the dome and pavilion were being designed and constructed, architect George Nelson was planning the exhibition itself. The United States Information Agency had established as its aim to "open the door" to American life, to tell the Russians the truth. The impossibly complicated truth was to be believable, and convincing display techniques had to be developed. The two separate structures posed a problem. "A good play does not have two first acts," said George Nelson. "We knew that we had to make a drastic separation. We decided to have no 'things' in the dome. It would be an information dispensing machine. We would pack the pavilion with thousands of diverse objects." When it later became evident that a need existed for more covered space, a plastic parasol was developed by the Nelson office and used in clusters to shelter the fashion show, the architectural exhibit and the "Family of Man" show. These multiple assemblies formed the first all plastic structural enclosure yet developed. The basic components of the plastic parasol, as well as the details of the display devices for the pavilion and dome are shown on the pages that follow. A fuller account of the development of the parasol will be found in the Architectural Engineering section.

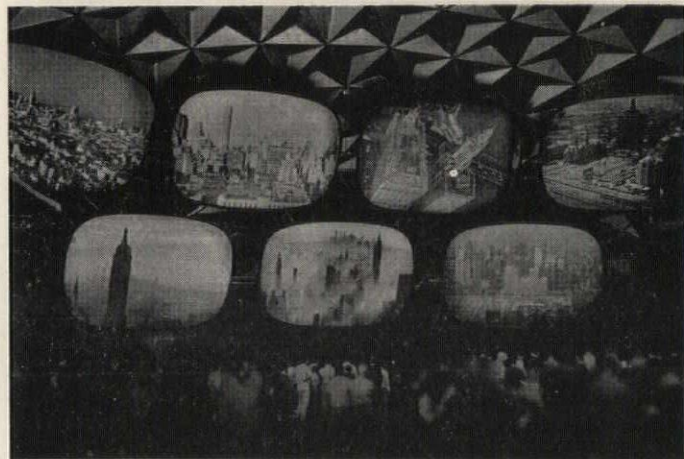




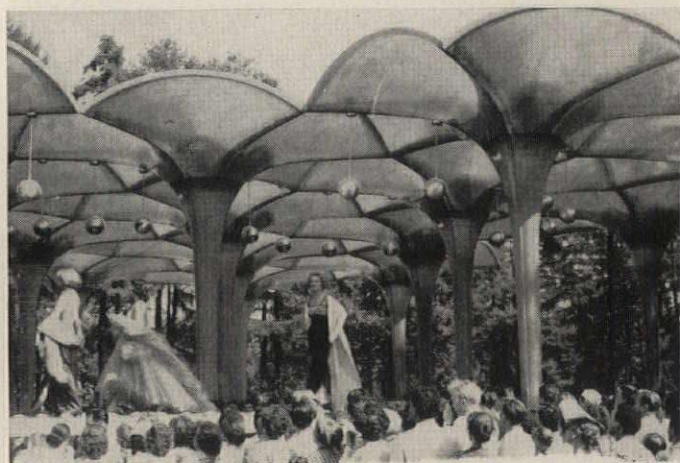
Robert C. Lautman

Above: the dome was constructed in accordance with the geodesic principles of R. Buckminster Fuller. The unformed panels were shipped flat to Moscow where the diamond shapes were formed on a brake press. The dome was erected around a 130-ft mast equipped with rigging to lift each ring of aluminum panels as it was applied

Right: photograph of model of dome interior shows seven-screen arrangement for film designed and produced for multiple projection by Charles Eames. The function of the film was to show things which were too big to bring to Moscow, such as dams, highways and cities, housing, schools, etc., and to show a lot of different examples of the same type on seven screens simultaneously to establish credibility. Other components of the information providing process were the Ramac which answered questions about the U. S., and eight exhibits which covered broad areas such as agriculture, public health and space research

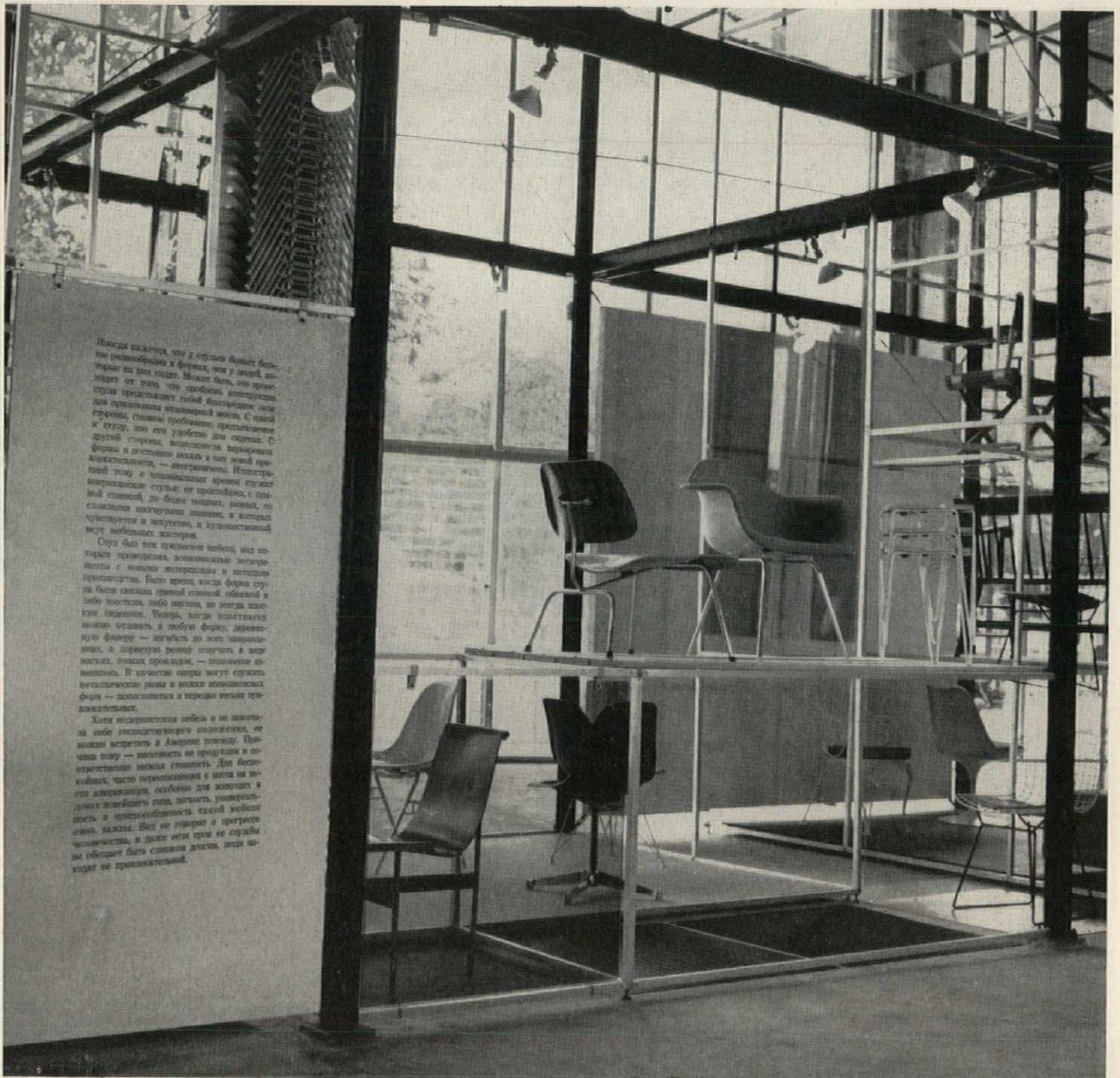


Opposite page left: all landscaping decisions had to correspond with Russia's future plans for the reuse of the site. The thickly wooded character of Sokolniki Park, once a hunting ground for Russian Czars, also affected the siting of the main buildings and the outdoor exhibits. Landscape architects Robert Zion and Harold Breen found that Russians respect trees and are reluctant to chop them down. The dome was shifted slightly to save a tree. To solve the circulation problems for an immense daily crowd and to locate approximately fifty outdoor exhibits on the eight acre site, the Soviets finally consented to the removal of over one hundred trees—birch, larch, Scotch pines and European lindens—which were then transplanted in full leaf in July to locations elsewhere on the site or in the remainder of the park. All trees which did not interfere with the displays remained. Fittingly enough, the only flowers available to the landscape architects in sufficient quantities were red begonias, white chrysanthemums and blue ageratum



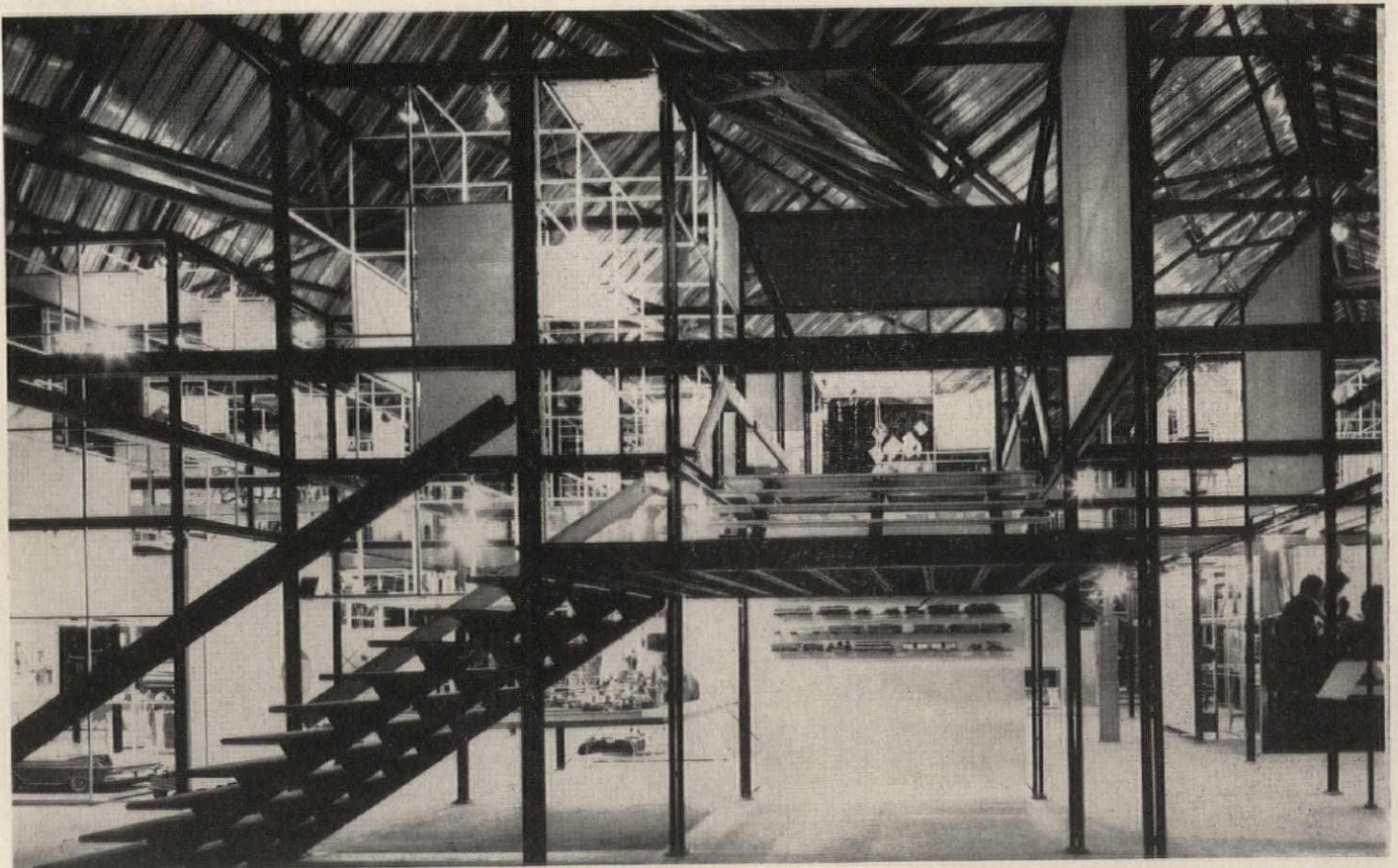
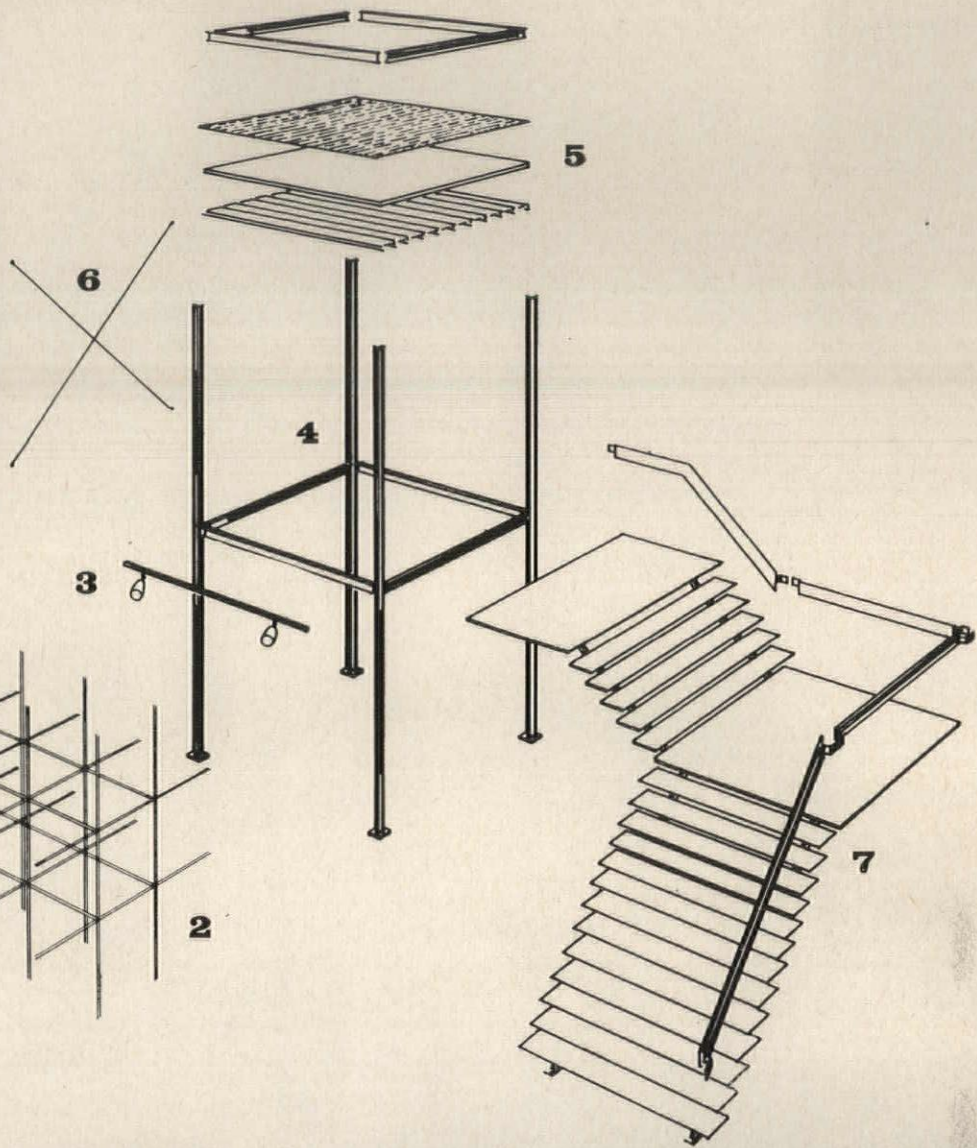
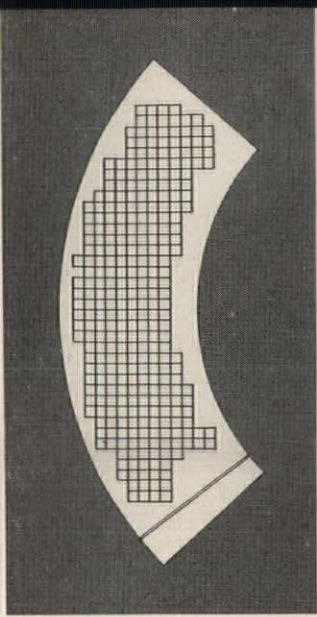
Plastic parasols appeared at best advantage sheltering uninterrupted space as here in the fashion show area

The jungle gym which filled the fan-shaped pavilion was designed for a crowded exhibition like a bazaar, full of color, noise, people and objects. Said George Nelson: "We devised a unified modular structure to give order to what was essentially chaotic." 1. General plan of glass pavilion showing area occupied by the jungle gym. The segment on one side of the building is office and administration space. 2. Typical aluminum cage which subdivided 10-ft cubes into display space. Horizontal and vertical panels of wood chip board and acrylic plastic were suspended in this cage. The brightly colored translucent plastic panels contributed luminosity and lightness to the exhibit. 3. Lighting strip attached to beam with plug-in outlets for adjustable reflector flood lamps. 4. Typical 20-ft-high steel frame which formed two 10-ft cube spaces. 5. Flooring for traffic area at 10-ft level showing carpeting, plywood or steel decking. 6. Sway bracing set at critical intervals. 7. Typical stairway fitted into grid. Basic system was developed by Dick Baringer



Никогда еще не было так много вещей, как сейчас. И это не только в смысле количества, но и в смысле качества. Мы живем в эпоху, когда каждая вещь должна быть функциональной, удобной, красивой. Это требует от нас, архитекторов, новых решений, новых форм. Мы должны научиться создавать вещи, которые не только служат своей цели, но и являются произведениями искусства. Мы должны научиться создавать вещи, которые не только служат своей цели, но и являются произведениями искусства. Мы должны научиться создавать вещи, которые не только служат своей цели, но и являются произведениями искусства.

Хотя модернизм себя и не признает, он все же остается господствующим направлением, его можно встретить в Америке повсюду. Причина тому — универсальность его принципов и его способность к развитию. Для нас, архитекторов, важно не только создавать функциональные вещи, но и создавать красивые вещи. Мы должны научиться создавать вещи, которые не только служат своей цели, но и являются произведениями искусства. Мы должны научиться создавать вещи, которые не только служат своей цели, но и являются произведениями искусства.



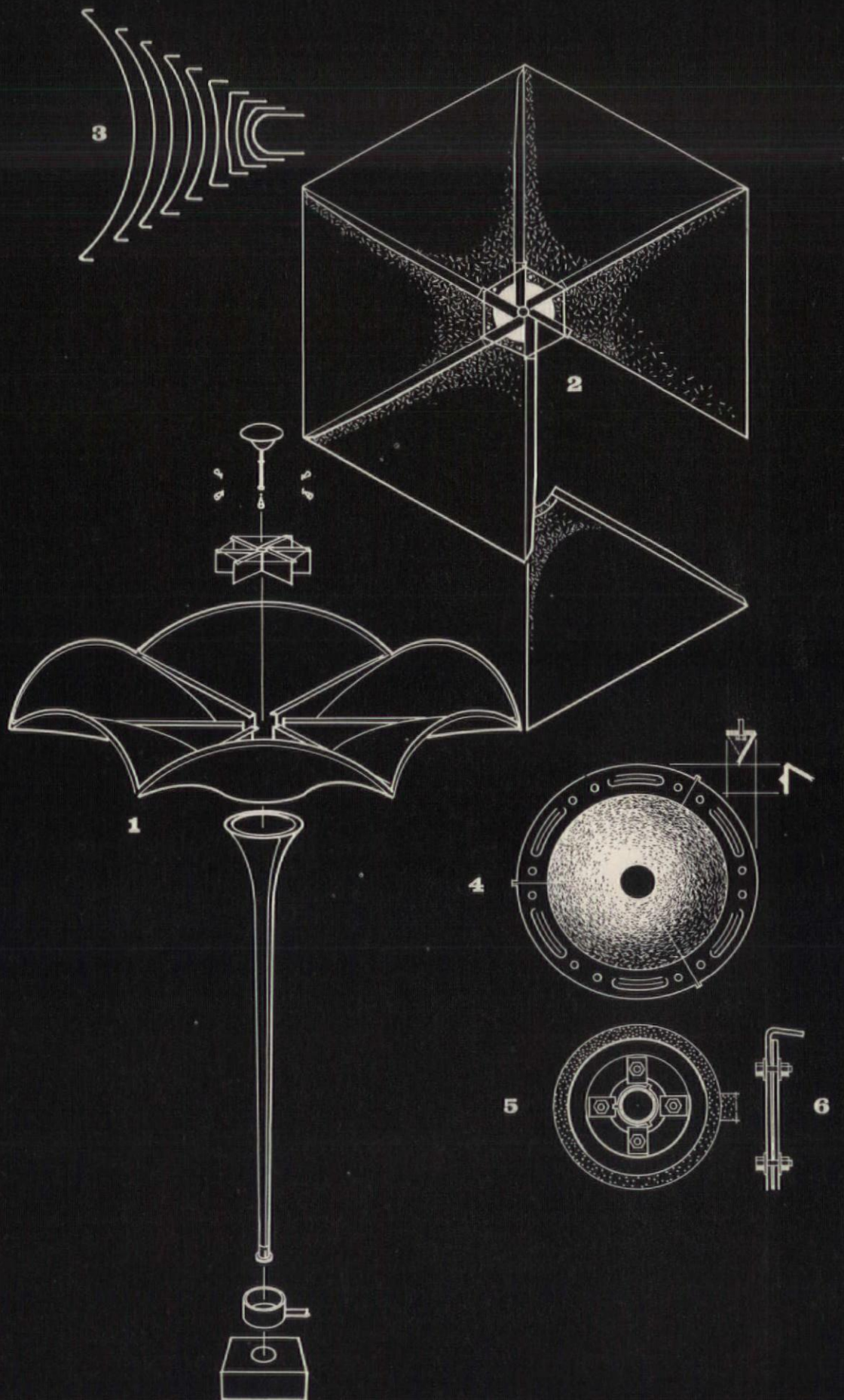
Opposite page right: the plastic parasols served as structures for shelter, as lighting units, and as gigantic rainspouts, forming in cluster a completely self-draining roof. Suggesting whole new configurations for future buildings, these parasols were the most significant structural innovation in the exhibition and were indeed very effective exhibits themselves. 1. Exploded view of one hexagonal parasol showing (top to bottom) lighting, aluminum spider, six roof sections joined to form one hexagon, column, well with drain outlet and concrete footing. 2. Plan view of hexagonal roof showing one triangular roof section partially removed. 3. General sectional contours of one roof section. 4. Top view of column showing bolt studs for roof attachment and bead for aligning roof with column. 5. Plan view of well showing column base. Four dogs secure a flange on a steel tube bonded into the column base. 6. Connection between triangular roof sections. Irving Harper and Rodney Hatanaka helped develop the design



Robert C. Lautman



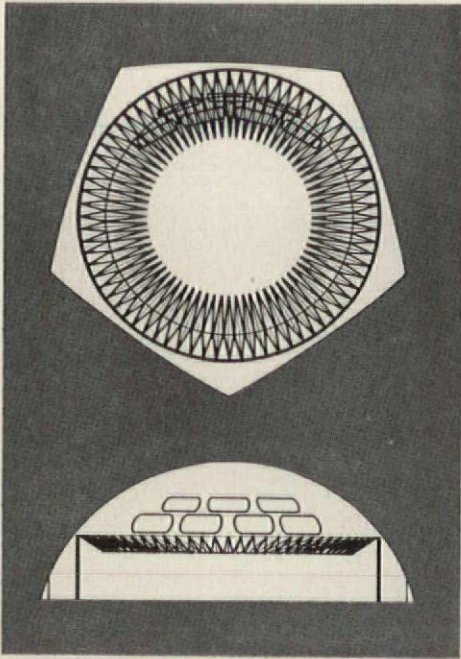
Nelson's parasols are here shown sheltering the exhibition of U. S. architecture prepared by architects Peter Blake and Julian Neski. Large scale photographs in one point perspective with a central vanishing point at the spectator's eye level, were planned as a visual extension of the exhibition space. Visitors were supposed to feel that they were entering or walking through the spaces shown



Moscow Exhibit: Ring Strut in Dome

"We wanted the dome to seem almost empty in contrast to the pavilion. We wanted to suspend things to keep them off the floor . . . we wanted the crowds to move around freely on an uninterrupted floor plane, and be able to duck under things . . ." According to George Nelson this is why his staff developed the ring strut from which exhibits were hung. 1. General plan and elevation showing the "floating" tension ring structure within the dome. Also indicated are the seven sus-

pending motion picture screens. 2. Perspective of a basic unit of the structure showing: vertical downward load on arms (lightweight panels and lighting units were suspended from these arms), the horizontal force tangent to the circular ring and the vertical force exerted by the wall. 3. Detail plan of inner tip of a strut unit and typical section of a tube to plate joint. 4. Plan of joint at tension ring. 5. Plan of joint directly over wall. William Katavalos devised ring



1

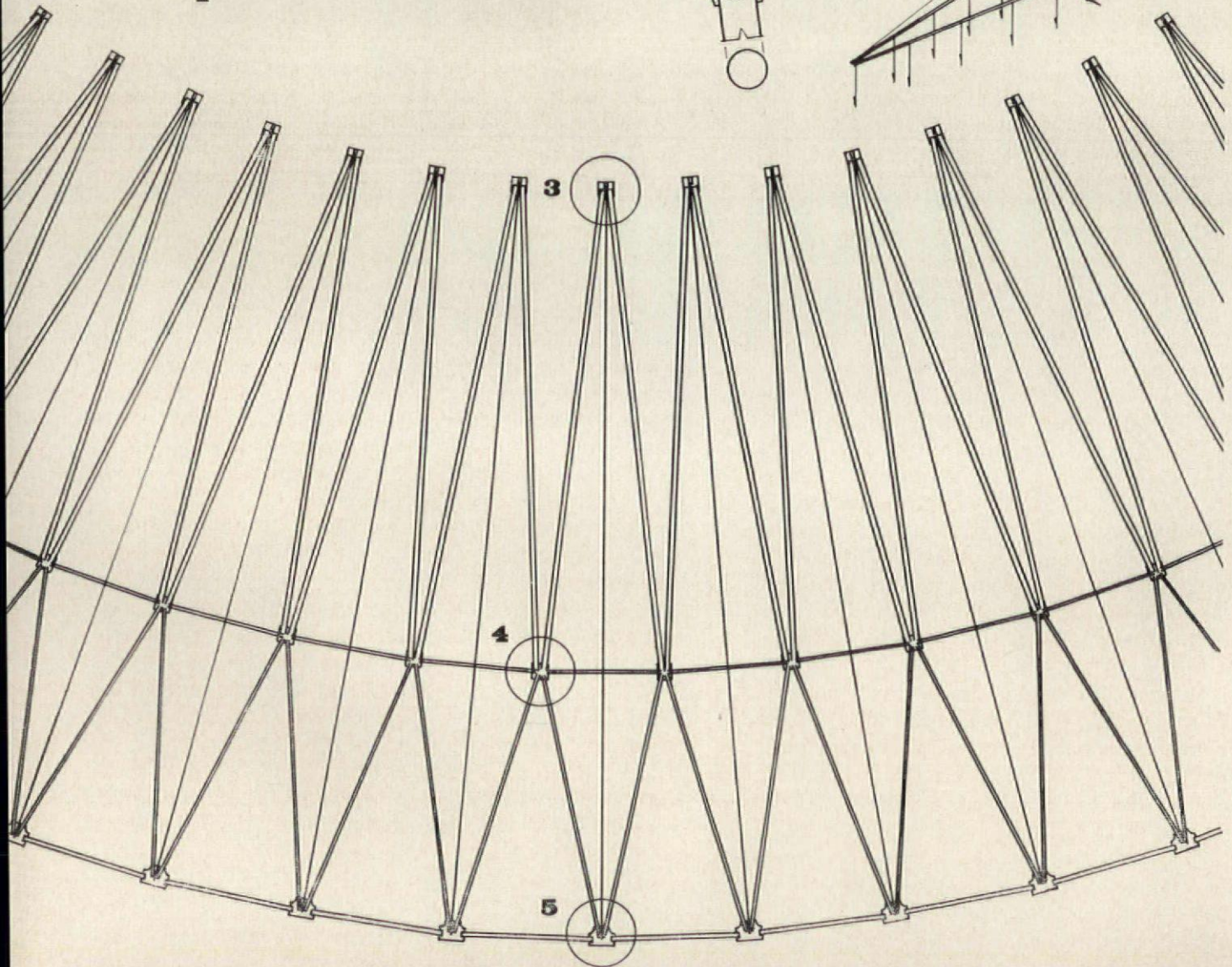
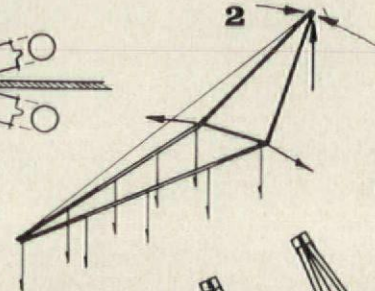
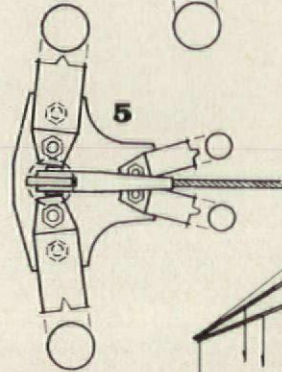
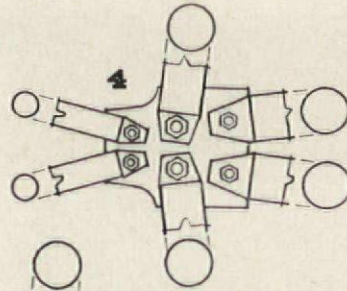
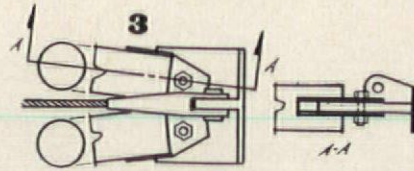




IMAGE OF THE FUTURE ARCHITECT

If the image of "the architect" is changing, to what extent is his education changing? Is architectural education altering its goals and its curricula with the shifting times? And is education itself, in a new orientation, changing the concept of the architect of the future and his responsibilities?

In its broad inquiry into the "image of the architect," ARCHITECTURAL RECORD addressed the deans of the Association of Collegiate Schools of Architecture asking them to comment in some detail on such questions. In following pages we are reporting virtually the full response to the survey, omitting only a few of the most casual answers, and cutting only a few of the lengthier ones.

It is abundantly clear that architectural deans—or some of them—are deeply concerned about the role of the architect in our present society and his total competence in a time of scientific orientation. Many answered with obvious feeling and at great length. Some were just as clearly unmoved.

Quite a number of respondents, in answer to Question 1, said that they didn't think architects were keeping up with opportunities of this age, but Harold Hauf (former RECORD editor) pointed out that he didn't believe that college deans were in the best possible vantage point to observe rapid shifts in practice. On this, as on other questions, answers varied so widely that a clear tabulation of results is not possible; we are reporting most of the remarks in full to give each dean a chance to present his views in his own context.

Most significant is the simple fact that changes *are* being wrought in educational focus and emphasis. Some are already in force, some are a bit tentative, some patently in the future. It is not too much to say that the image of the architect is definitely up for study, is in fact in process of change.

Perhaps it is more accurate to say that the image of "the architect" is becoming more diverse. On the

basis of the attitudes clearly readable in the replies, or lack of them, it could be said that the products of one school (or group of schools) are going to be quite different from those of another.

Generally speaking it was the entrenched "big-name" schools which answered if at all with polite apologies for being too busy. Perhaps it is significant that these schools were largely located in the East; perhaps not. Of surer moment is the fact that these are by no means the larger schools in terms of numbers of students. It is safe to generalize at any rate that the schools of the West (west of the Hudson) seem more alert to space-age requirements for designers, and thus to speculate that images of their graduates are or will be different.

Quantitatively, the survey does not give any reading of these differences. Here and there the letters mention specific programs or courses for students; mostly however the differences in training seem to lie in attitudes of deans and professors. Even if in some instances these earnest responses were merely defensive, it seems apparent that there is a significant shift toward a more intensive preparation of the student for the demands of a world that has its sights on the moon.

As for the future, Dean Philip N. Youtz, Michigan, summed up neatly the view that a new day is ahead:

"Architecture has always been one of the learned professions. However, the center of gravity of this training has moved away from history and archaeology as an exclusive study and now has shifted toward social sciences, physical sciences and mathematics.

"Looking ahead, the new architect is going to be oriented toward current problems, technical developments and the new sciences. I believe the role of the architect today is to design a hospitable environment for our scientific age."



These are the questions put to deans of architectural schools:

1. Do you think practicing architects generally are keeping abreast of opportunities of this age, or are other disciplines taking over some of their prerogatives?
2. Do you think architectural schools should change their programs or shift their emphases? Have you made any such changes?
3. How about the student who veers to the practical side: do you offer him encouragement in that direction? Do you have special courses or curricula for him?
4. Do you think the architectural schools should undertake to prepare students for their later responsibilities in such matters as: programming of building design; office practice; cost control; specification writing; supervision of construction; client relations; master planning?
5. How about other educational media in such matters? Or post-graduate courses in architectural schools? Do you have such courses?
6. Any comments on the future?

New Programs, New Policies

My answers to your questionnaire will be colored by the efforts expended over a period of over twenty-five years in building a small practice in a medium-sized city into one of larger size while concurrently devoting a number of hours weekly to teaching. The subject and questions, however, do not allow easy short answers.

It appears that more than a few architects are constantly adjusting their thinking and their organizations to the rapidly changing conditions of today's practice as required by the technical advancement of our age. The complexity of modern buildings surely demands an adjustment in our practice and the development of competent teams of individuals skilled in the various disciplines required by each structure. Such groups of architects of varying skills must be developed for the individual can no longer cope with the complete scope of a modern structure . . .

Continuously and concurrently with changing conditions, architectural schools must adjust their programs and their basic policies. Too long has lip service been given to the total preparation of the architect without careful analysis of the total need of the practitioner. Too long have we depended upon the apprenticeship to fill in educational gaps of total practice, now suddenly learning that many of the offices of practitioners are unable to supply this fundamental training.

In medical education, complete preparatory training is given with respect to all aspects of medical practice. Internship (apprenticeship) is largely limited to the clinical aspects of medical education and not a filling of educational gaps left by the schools. Should we not fully recognize this principal in our own professional training? Certainly the schools are better fitted to teach fundamentals and principles than the average office . . .

Specialization by the architect could well pattern after medical education as illustrated by continued study known as "residency" which combines clinical experience with detailed technical studies. Such specific study is never begun until the medical student has been awarded his degree and served the general clinical training of internship. This procedure in medical education was not dictated by academic precept, but rather was the logical outgrowth of the current demands of the medical profession. Specialization came only after a thorough training in all aspects of medical learning from anatomy to psychiatry, from bio-chemistry to surgery, from pediatrics to geriatrics. Yet we in architectural education have allowed young men to limit their training to a very narrow field at the expense of the other disciplines. We have

continued to emphasize a single area of study while technological progress has added new problems to all areas of building construction such as the subject of mechanical equipment that accounts for approximately one-third of the building budget yet the usual curriculum allows but approximately one-thirtieth of the allotted time for the undergraduate degree. Such trivial coverage does not allow the necessary understanding for direction of design of the whole building . . .

Since the question of specialization in one of the numerous disciplines of the profession has been raised, it is seemingly necessary that opportunities be afforded for further detailed study even if clinical experience is not included. Fortunately, most of the schools of architecture are in larger universities which can afford concentrated study in the numerous related fields to any of the special disciplines. Such post graduate study is available at most schools. Institutions in large cities could well investigate the possibility of a program of clinical experience integrated with thorough and intensive study of the concentration afforded by the university's total facilities.

Graduate programs should not be limited to any one of the several professional disciplines. Rather we should be able to offer equal opportunity to the students who wish to specialize in engineering, administration, urban planning or other aspects of the professional practice. Subjects closely related to specific areas of study should be included in this graduate program of each individual.

With architectural practice in the hands of individuals each with a general background of the profession yet a member of a team of specialists who serve each client, the practice of architecture could be easily retained in the hands of the architect.

*D. Kenneth Sargent, Dean
School of Architecture
Syracuse University*

Different Paths to Licensure

1. I am not sure that the college professors are the best persons to pass judgment on this particular point. However, I do feel that there is a real danger of the profession forfeiting some of its responsibilities . . . I think there is a great hazard in the architect becoming only an "arranger of spaces" and not participating directly and in a dominant position in determining the program.
2. I believe that the architectural schools should take a very hard look at their present programs and the more-

or-less conventional content in the architectural engineering courses that comprise part of the architecture curriculum. Although I realize that probably the licensing procedure depends pretty heavily on the architect's presumed knowledge of safe structure, I am sure that there will never be enough room in the curriculum to make him anything like an accomplished structural engineer in other than the "bread and butter" sense of using safe load tables and designing very simple structures. It seems to me that the real progress in structural engineering as applied to buildings will have to be done by men who are primarily engineers but that the inspiration for such work can well come from the architect with his sensitivity to form. The character of engineering courses in architectural curricula could well shift toward a more qualitative approach in my opinion with much more time spent on the integration of the structural scheme with the functional requirements and plan. Such a change might permit more time to be devoted to what Messrs. Pena and Caudill in your May issue discuss under programming and architectural analysis. We are now taking a serious look at the architecture curriculum at Rensselaer with a view to fundamental revisions in approach and subject matter.

3. Our program at Rensselaer seeks to be a balanced curriculum providing the fundamental knowledge that may serve as a basis for many different careers within the broad field of architecture. To this end we avoid specialization and attempt to direct our subject matter toward areas of study that are fundamental to the design professions as a whole, or for that matter, to the building industry as a whole.

4. With respect to this question I should like to state first that I believe the primary objective of an architectural school should be to prepare men in the basic areas that will permit them to assume their later responsibilities in their career. I believe any educational program at the college level aimed at the first job is missing the mission of higher education. With respect to the specific areas mentioned in this question, I feel that the programming of building design is probably one that has been neglected or at least underemphasized in most architecture curricula. Increasing the amount of time devoted to programming and analysis, and also increasing the amount of time devoted to an examination at a mature level of building industry relationships, appear to me most valuable uses of collegiate time since they do undergird the responsibilities that will develop later.

5. I am sure that the architectural schools can participate much more heavily in post-graduate courses for practitioners. It is probable that the greatest value of such post-graduate courses would lie in presenting theoretical rather than practical subjects. The practitioner comes into day-to-day contact with all the practical matters of building, but in many instances he does not have time to devote to reflection and thought on the larger matters of building occupancy. We do offer post-graduate institutes from time to time but this is not a characteristic of the Rensselaer school at the present time. Perhaps the activities should be expanded.

6. I am a bit skeptical about very much crystal-ball activity. Nevertheless, I am sure that some rather fundamental changes should occur in architectural education. Perhaps one of these, which also requires the cooperation of licensing bureaus, should be the establishment of different paths for architectural licensure. As our catalogue states, "It is recognized at Rensselaer that the broad scope of building activities creates opportunities for widely varying careers within the profession of architecture . . ." If this is accepted then perhaps licensure requirements should recognize different fields of

strength within the profession so that we do not ever keep unlicensed good designers because they can't pass the concrete examination or good project managers and analysts because they cannot pass the same design examination that more creatively gifted professionals can. Perhaps we should return to a basic four-year college program in architecture, and then require an additional year of professional or graduate training which would emphasize the specific strength of the individual. Any such change would require extensive effort since the entire basis of accrediting architectural curricula would have to be re-examined.

*Harold D. Hauf, Dean
School of Architecture
Rensselaer Polytechnic Institute*

Vision, Leadership the Goals

1. and 2. If the architect is "losing out in a world of space-age science," it must be that the profession is deficient in some respect. If this be true, one must first ask the question, "Is there a need for the services which the profession offers to perform?" In a rapidly expanding and fantastically affluent society, the need for architectural services is critical.

It is then logical to ask two further questions, "Does the profession provide vision and civic leadership in those crucial areas in which the architect is uniquely qualified to act?" and "Does the profession insist on professional competence?" I agree with you that the architect is "losing out," and I believe that it follows that the answer to one or more of these questions must be negative.

Vision and leadership are the goals of education, that is, of the colleges; technical competence is the province of the professional school. I think it follows from the preceding paragraphs that the schools should shift their emphasis on one hand to education and on the other hand to more rigorous professional training. The two goals are related. The general propositions with which education deals give meaning (and urgency) to special studies, specialization provides the cutting edge necessary to deal effectively with large issues. If the architectural profession valued education and professional competence, its future would be assured.

To answer your second question specifically, Washington University, with several other universities, is changing its program to two years of liberal studies preceding four years of technical training. At the end of the first four years we give a Bachelor of Science degree with a major in Architectural Sciences. After two more years of work in the School of Architecture we give the degree of Bachelor of Architecture. We try to make our technical courses rigorous; we try to teach architectural skills and a methodology of design in the second two years and in the last two years we try to present a challenging graduate program to those students whom we feel promise to use such studies effectively.

3. I understand what you are driving at, but in my opinion, the most impractical people in the world are the so-called "practical men." I believe that such people should be encouraged to acquire an education.

4. I believe that education and professional training is a continuing process. Certain parts of this process can be accomplished in the schools and certain parts must be accomplished by actual experience. I do not believe the schools should pretend to do jobs that they cannot do, and I do not believe you can learn programming,



office practice, cost control, etc. in any other way than by actual experience.

At the same time, an understanding of the effects of these conditions on design is important. I believe the schools should try to make the students recognize they are incomplete designers until they master these parts of their craft.

5. See above.

6. I face the future with guarded optimism.

*Joseph R. Passonneau, Dean
School of Architecture
Washington University*

Many Schools Remiss in Programming

1. and 2. Several years ago, as a member of the Survey Commission for the profession and education for the profession, many hours were spent discussing the disturbing fact that architects, for the most part, were not keeping abreast of either opportunities or professional developments. As a result came the recommendation (R-41) for the Institute and the schools to get together to help bridge this gap. This was to be by a series of short offerings for architects in practice to refresh themselves in much the same manner as the medical profession keeps its membership up to date.

Since then the ACSA set up a committee to implement the recommendation and for the past two years I have been its chairman. The results have been disappointing to date with only 12 schools offering 23 refresher courses in a survey covering 66 schools . . .

2. As a general statement on the school program, I am convinced that one great strength of professional education in America lies in our ability to absorb graduates from the wide variety of programs offered by the architectural schools. It seems to me that our multiple minor regional emphases add much vitality to the total program in architectural education. For example, this is what we expect to do at the University of Arizona by including studies in solar control and a consideration of the special problems of the arid lands. This would hardly be expected of a program in the north central region! Also, there is substantial migration across the country of students from local high school origin to the out-of-state schools they select for architectural training for the primary purpose of taking advantage of just such special programs. The schools themselves are constantly reviewing their curricula for the practice of architecture even if it could be accomplished within the framework of existing procedures.

3. I shudder at the thought of a student "veering to the practical side" (as you put it) while in the process of his relatively short formal educative period designed primarily to develop his imaginative skills and his discriminative taste. Certainly an appreciation of the practical side of architecture is essential to his study of design and this must not be overlooked for any student—but for a student to reach the decision in his third or fourth year in college that he intends to be only "practical" would in short order condemn his later professional practice to mediocrity. The carefully planned curriculum is a cumulative effort embodying a rhythm of high disciplinary studies with those providing freer use of individual creative effort. Most schools provide this rhythm in the regular architectural curriculum. Others depend on sub-professional courses (such as Business and Building, construction options, etc.) to syphon off their students who are obviously not suited to the demands of an

architectural course and who consider technology for its own sake rather than as a resource for design.

4. There is much misunderstanding about the scope of responsibility of the schools in training for professional practice. Most of this comes from the practicing architects, who hope for new men for their offices who are architects in the complete sense, at the time of graduation. These architects fail to appreciate the meaning and intention for the period of apprenticeship required by law, originally included at the demand of the profession, and for the express purpose of supplementing academic preparation with experience in those responsibilities of practice which the schools could undertake far less successfully than could the office. The regularized "architect-in-training" plan now in operation by the A.I.A. (also a Survey Commission recommendation) will do much to return to the architect in practice a more definite role in the cumulative training program. In addition to this program, it should be the province of the architect in the areas of office practice, cost control, specifications, supervision, etc.

You also mention in this category the topic of programming and this is one area where I believe many schools have been remiss in not beginning this facet of total design at an early stage in a student's development. Too often the issued program of a design project is presented as complete and final. There are some schools, Arizona for example, where the problem is broadly stated and the individual student expands his own program (under careful supervision) in a manner following general practice. This approach, I believe, is important to the development of the student's analytical skills and also sharpens his facilities for research.

6. Too many to record in this brief time.

*Sidney W. Little
Dean of the College of Fine Arts
University of Arizona*

Professional Future is Rosy

1. I think that the leading practicing architects are abreast of the opportunities of this age. However, it is impossible to keep abreast of each individual advancement as it becomes known to the scientist or the specialist in some particular area.

2. We have made some changes in the program in the last few years which may not be for the better. There is a terrific emphasis on architectural design. I am quite sure that you can't explain to the student the answer to every problem he will meet in his life as an architect. I think you can teach him some fundamental laws of nature and of art. I think you can make him dimly aware of the business responsibilities and the legal aspects of this profession. I might say in the end that architectural schools teach what it is possible to teach and sometimes what it is convenient to teach.

3. As for the student who veers toward the practical side, if he has progressed far enough along in architectural education, let us say the junior year, so that we think he has a feeling and a knowledge of the things we think an architect should consider his responsibility, we encourage him to continue. My own private view is that we can't all be geniuses and somebody has to run these offices. There are a good many men who are partners in architectural firms because they are skilled in office management, specifications, supervision, meeting the public, or in getting out the working drawings. We do not have special curricula for this particular person, but we try

to see to it that his electives and technical options are selected to be of the greatest assistance to him.

4. It so happens that in the last couple of years, major buildings have been in progress for the University in which it was possible for me to rub the students' noses in particular examples of office practice, cost control, specification writing, supervision of construction, and client relationships.

5. The other education media in such matters are usually summer work for architects, for contractors, drafting for stone companies, and even lumber concerns. Most of our students have part-time jobs somewhere in what might be described as "industry." Whether it includes designing kitchens for commercial concerns or working for an interior decoration outfit, it's all the same to me. The informal education gained this way is very valuable. As to postgraduate courses in architectural schools, it seems to me that those who have applied recently have been the students who could not make it in the various offices after the Bachelor Degree. I'm not real certain that the very best of students apply for postgraduate courses.

6. In the next ten years, we will build a total valuation of structures which may exceed the whole building operation that this country has seen since the beginning of its days. As far as I can tell, anybody who can hold a pencil can have a job, and anyone who can get a license and gather two or three men together can be in practice. I think the future is rosier now than it has ever been in this profession. However, we may reap a whirlwind from this because a lot of it is thoughtless, and much of it insensitive, and, as I have indicated in Number 1, only those who are leaders in the profession are abreast of the times.

*Linus Burr Smith, Chairman
Department of Architecture
University of Nebraska*

As Broad An Experience As Possible

1. In my limited contact with architectural practitioners outside of the educational area I find that they are generally aware of and concerned with the opportunities of this age.

2. There seems to be an increase in general education or common curriculum studies which are required of all students in many universities. I think that this is a change in the general program. The result is a broader exposure to a variety of disciplines. In addition to the humanities we now require work in all of the sciences—physical, biological and social. I think that the school of architecture of the past concentrated on the technical side and cared little about the education of the student beyond the architectural subject matter. I think that today we are concerned with turning out an educated man for whom we can predict greater success as an architectural practitioner.

3. With exams just over, I wish I had a student who veered to the practical side. We are trying to avoid paper exercises by encouraging the student to approach his problem with more thought on the practical aspects of architecture. We offer encouragement but have no special courses.

4. I think that the schools have a responsibility to give the student as broad an experience as possible. We do cover some of the topics you mention: programming, office practice, and to a limited extent specifications writing. It would be impossible to expose the student to every facet of architectural experience and also give him a

good general education in five years. I don't know how the magic five was arrived at as schools were offering the five-year program when I began my studies, but perhaps we need more than five years to do the job. I suspect that in the future more schools may require two years of pre-architecture with a four-year program following, or as some now require a four-year undergraduate degree prior to entrance to a four-year architectural curriculum.

5. We offer a one-year graduate program in City Design which is attracting a number of our students. This program is limited to students with either a five-year architectural degree or a four-year planning degree. In addition we require some practical experience prior to admission to the program.

*C. E. Stousland, Chairman
Department of Architecture
Miami University*

To Become a Better Programmer

1. The architectural educator who levels remarks at today's practitioners implying that their subjects are "losing out" in a world of space-age science should be quite busy shifting the "collegiate picture plane" to produce a more appropriate architect image. To say it another way, the architect of tomorrow must be more thoroughly educated. He must not only be thoroughly trained in shaping and artfully endowing beauty to the spaces in which man lives but he must possess a growing vocabulary in the technology and specifications of architecture.

2. Presumably, many schools are shifting their emphasis to produce perhaps a plural architect image. This seems to be inevitable in order to cope with the plural of forces acting on architecture—the plural client, the plural economics, plural government, etc., as well as the plural concept of living. Whether we credit the highly developed means of communication and salesmanship, or the ever quickening development of ground and space transportation with today's ever-evolving cycle of social concern, the architect must prevail in the final judgment of what is best for man's physical environment.

3. At Texas A & M College, rather than teaching the student to follow architectural design programs preconceived by the design instructor, he is presented with a challenge to research and analyze the needs of the various assigned projects and to present his own program, and to promote his finished solutions. This approach is very maturing for the student. If he becomes too engrossed in practicalities, he is encouraged and guided to weigh his concepts with his fellow students who might be less thorough in visual perceptions but have perhaps better creative imaginations. Both types gain in this interchange of study. We think this teaches the student not to be a mere "lister" of building requirements from which to produce architecture but to be a better "programmer" or "planner" of building and space design. With a very active "Architectural Research" program existing within the administration of our Division of Architecture it quite naturally follows that our students and faculty investigate the various design and technological concepts of architecture.

4-5 The "watch word" is for schools of architecture not to become unstable in the wake of multi-influencing factors on today's architecture. They must not be quick to shift their curricula to the right or to the left or in both directions. The images of today's client (man or space-age monsters) as well as today's architect (singu-



lar- or multi-headed) must be thoroughly considered when the shifting of the educational emphasis is to be done. Any conscientious educator will be quick to tell you that thorough investigations are taking place today in the collegiate schools.

6. The practicing architect of today who is highly critical of the educational curriculum that molded him into his present being should not, on the other hand, continue to cast the vanishing lines of his own image back to a collegiate curriculum which he places on the ground line. Perhaps he should lift the horizon and study the depth of his image in terms of his own professional experiences of this age, and be helpful by relating his findings to his Alma Mater, to be added to the future production of tomorrow's image of the architect.

*Theo R. Holleman, Professor and Head
Division of Architecture
Agricultural and Mechanical College of Texas*

Less Facts; More Principles

1. In the time-consuming operation of being a designing architect many civic duties are brushed aside and when this happens, the less talented gain ascendancy. The cartooned expression of this is the package deal. I think that no profession has prerogatives—all prerogatives are dependent upon performance.

2. Yes, I think architectural schools should spend time with a broader base which shall recognize, or even partially include, the environment of man. Such environment shall take account of social, economic and esthetic matters. Our department is now joining up with the department of City Planning and Landscape Architecture in a common college called "College of Environmental Design." Our graduate degree is thought of as being based on research of principles.

3. No, we have no options. We like to think of the general curriculum as being a broad river containing all—the more practical stay near the shore—the gifted swim out into the current. All have the same privilege.

4. I think that the school should train programming of building design and master planning.

I do not think that school is the proper place to teach office practice, cost control, specification writing, supervision of construction, or client relations.

5. Each office should try to give its draftsmen a varied series of duties which provide an "in-service" training. Thus conferences should be attended by many people concerned with the project at hand. Supervision is best learned in this way also, I think.

We have no postgraduate courses involved in the matters I have mentioned above. I think this is the point where the new college training and the old apprentice system are each at their best.

6. Less facts taught and more principles—I feel it would be a mistake to lengthen the present usual five years just because there are more complicated structural systems and mechanical needs. These should be understood in a measure by the architect but designed by gifted specialists.

In the future I would like to train architects to disregard published photographs so that they work out their own solutions fitting their own problems. The blind eclectic following must become a thing of the past.

*William W. Wurster
Dean of the College of Architecture
University of California, Berkeley*

Future Possibilities Tremendous

1. It is my opinion that practicing architects generally are not keeping abreast of opportunities of this age. However, the few that are do a wonderful job. Engineering discipline seems to be taking over some of the prerogatives.

2. It is not necessary for architectural schools to change their programs or shift their emphases if their programs are designed to permit changes within the framework. It is a simple matter to change course content. We have made such changes.

3. It is rather difficult to determine what one means by the practical side. Good design is as important if not more so than any other phase of the practice of architecture. The difficulty with architecture today is the lack of good design. We all know that a few individual architects are leaders in this field, however the countless others who are practicing architecture, be they architects or engineers, are not.

To encourage an architectural student in any direction, other than good design, is very wrong. A student who discovers that he lacks design qualifications should transfer to major engineering disciplines, liberal arts, or business. His initial study in architecture is, without a doubt, of great benefit to him, but it is wrong to give him a degree in architecture.

4. Architectural schools, in my opinion, are preparing students in such matters as: office practice; specification writing; supervision of construction; client relations; master planning. In my opinion it is difficult to train a student in cost control, because it is a phase which must be taught by experience.

5. Postgraduate courses in architectural schools including two or three day seminars are very important. Unfortunately we do not have postgraduate work in architecture at Notre Dame, but we are looking forward to the possibility of some work in the future. We have had seminars for artists and architects, in the field of religious architecture, which have been very successful.

6. The future holds tremendous possibilities for the architect, and I am quite confident that he will meet and take advantage of these opportunities to the betterment of architecture.

*Frank Montana, Head
Department of Architecture
University of Notre Dame*

Advanced Work at Graduate Level

1. The architect is trained at Pratt Institute in basic and professional disciplines in the direction of general practice. Upon graduation, he often specializes in one or more types of buildings and hence gives up certain aspects of general practice. For example, interiors, office layout, elementary structures, costs, etc., may be handled by people with less training, since they do not require so rigorous a preparatory curriculum in their present superficial practice. The architect unfortunately is also being encroached upon by office layout experts, industrial designers, interior designers, etc., who would practice in functional and structural areas by employing architects.

2. I do not think that architectural schools should change their programs in great measure. Perhaps some shift of emphasis is possible in some cases, but I truly feel that many architects could readily go into special areas with concentrated attention if not specialized training. Schools might increase a focus on the industrializa-

tion of building techniques including prefabrication of components, new structural forms and their expressions, and city planning, which is gaining tremendously in public and official acceptance.

3. Many school programs are practical in the sense that they include courses in working drawings, details, specifications, and structural analysis and computation. Some schools offer additional special courses in this field. Pratt Institute offers five years of structural courses terminating in a structural analysis of the theses. It must be realized, however, that architecture is more than just the "practical" and that that field alone can be taught in a less advanced curriculum, perhaps in a non-degree program.

4. Architectural schools should and do introduce students to such matters as programming of building design, office practice, estimating, specifications, client relations, and city planning, but it should be understood that, together with the good amount of liberal arts also desired, extensive work in these areas would lengthen the undergraduate program greatly.

5. In order to help students develop in specialized areas, we at Pratt Institute offer advanced work at the graduate level in city planning, research in housing costs, sociology of housing, planning engineering, law and planning legislation, urban renewal, advanced delineation, and graduate design and construction.

6. The architect's future training should become more like that of the doctor who is first trained for the general practice of medicine and who later, in advanced study, specializes in a specific area, e.g., internal medicine, surgery, psychiatry, etc. The entire professional quality of architecture and its allied design fields would be improved immeasurably if the current training in the allied fields, which now leads toward purely decorative appliqué to a minimal understanding of building design were replaced by graduate work in these fields after an undergraduate training in architecture. I leave it to the editor of your magazine to cite examples of architects who have later specialized with eminent success in allied fields.

*Olindo Grossi, Dean
School of Architecture
Pratt Institute*

New Curriculum at Columbia

1. Historically the present period of architectural practice will indubitably be classified as transitional. We are searching for a significant expression of the complex factors which have entered contemporary living. This takes a lot of doing. The time element is, of necessity, not a brief one. Able minds are at work. Esthetic considerations are beginning to be more sensitively explored. Even though the role of the architect, at this particular stage, appears to have diminished, we all know that only architects can produce the ultimate solutions. These solutions will be arrived at only if our best minds continue to be deeply concerned with the *whole* problem rather than its fragmentation.

2. Personally, I believe the architectural schools have a responsibility to effect such changes as will contribute to a mature understanding of the task before the profession. Columbia has, and will, continue to modify its course structure and its critical, philosophical and technical approaches.

3. and 4. While design must remain the central core about which other courses tend to revolve in an archi-

tectural school, the realists understand that not *all* graduates will function as designers in their subsequent careers. We have only to examine the work-divisions in any efficient, professionally run office to realize that specialists in a number of other technical areas are essential. I am convinced that preparation for these specializations should be superimposed on the basic architectural curriculum at the Master's level rather than replace courses now included in the Bachelor degree program.

5. The graduate schools of architecture must, of course, accept this weighted responsibility for scholarly preparation in these specialized areas. However, it is now timely to question whether we also have a responsibility for providing instruction in such related areas as construction management, because of its liaison with the two main branches of building. The recent development of such a curriculum at Columbia is proving of utility in this direction. None of us has done all we should to provide building laboratory experience and material controls from the supervisory angle.

*James Grote Van Derpool, Acting Dean
School of Architecture
Columbia University*

Three-Way Health Program

1. Architects are keeping abreast of esthetic developments and modes, but are very slow in adapting themselves to the scientific attitudes and processes of our age. They leave themselves open to competition from engineers and industrial designers and to the mercy of those whose advice is based upon a background of basic research.

2. Yes, architectural schools should spend more time on fundamental principles of building techniques and technicals, on program analyses and in research. Too much time seems to be wasted in allowing the student to cover square miles of paper by indulging in design doodles. the result of stomach spasms rather than of purposeful and authoritative thinking. The *teaching* of design is important, the teaching of the basis upon which sound building design grows is most important. Only good designers should be permitted to continue their studies in architecture, and they should apply their design skill to solutions. The present tendency is rather the reverse, the solution to a building problem is assumed to be the outcome of a design idea.

The School of Architecture at the University of British Columbia is embarking on a new program which requires at least three years in a faculty of arts or science, including prerequisite courses in physics and fine arts, plus an additional three years of concentrated professional training in architecture. The undergraduate program is directed to a general basic training, leaving final specialization to postgraduate work leading to the Master's degree.

3. The "practical" student should obtain training in a technical school or institute of technology. The only special concession we make to this type of student is at the postgraduate level, provided he has met the academic qualifications.

4. No, the school cannot effectively, and definitely cannot efficiently, teach the office practice of architecture. However, as pointed out earlier, our biggest responsibility in the schools is to ensure that the graduate has obtained a good grounding in the humanities and basic sciences. This is one of the reasons for the change in our curriculum. We expect, as a result, that our graduates



will be more able to deal with the human and technical problems within the practice of our profession.

5. Refresher, or post graduate courses for practicing architects and graduates in training, would be highly desirable and are needed. It is after some experience in the field that professional practice matters can be most effectively studied and discussed.

We do not offer such courses yet but hope to organize them within the next few years. Our post graduate program gives opportunity to anyone desiring to specialize further in aspects of construction.

6. To keep healthy and in step with our age the profession of architecture, in my opinion, should learn to: a) serve the client and the community first, by b) designing buildings which are practical and are thought out within a framework of basic architectural research, but which c) are conceived and detailed with emotional fervor, sensitive esthetic judgment and respect for community traditions.

*Fred Lasserre, Director
School of Architecture
The University of British Columbia*

"To Design a Hospitable Environment For Our Scientific Age"

1. The contemporary architect is busily engaged in designing a brand new human environment based not on the tradition of the past but on the new science of living. This is a large goal but I believe that he is making very substantial progress toward it.

2. Architectural schools should continually change to meet the requirements of a rapidly evolving new world. The faculty of our own Department of Architecture re-studies its curriculum every year and adopts certain changes which they think will be useful to students and make it easier to meet the contemporary demands on the architect.

Ultimately I think all architectural schools will have to become graduate institutions and offer their professional training to students who have already had the advantage of a Bachelor's degree. Five years is too short a time in which to train the architect for a multiplied responsibility in the modern world. At present most students cannot afford to spend four years in college followed by another four years in a professional school so I do not anticipate expanding our five-year program immediately.

3. As far as I know most colleges of architecture emphasize design first, structures second, and the practical features of the curriculum third. Frankly, I think our schools are very weak on practical courses and mechanical equipment. I should like to see these phases of training strengthened.

4. The present five-year curriculum of our college is too crowded to permit any thorough coverage of programming of building design; office practice; cost control; specification writing; supervision of construction; client relations; master planning. However, our faculty has recently increased the offerings in these subjects and we are well aware of their importance. Probably we will not be able to give them due emphasis until such time as the professional course in architecture is lengthened.

5. We are developing our graduate work in the College of Architecture and design and expect to give increasing emphasis to this. This will enable us to offer architects a more liberal background as well as more practical training. We feel that our present five-year course is very

crowded and does not permit us to give the student the optimum training.

6. Architecture has always been one of the learned professions. However, the center of gravity of this training has moved away from history and archaeology as an exclusive study and now has shifted toward social sciences, physical sciences and mathematics.

Looking ahead, the new architect is going to be oriented toward current problems, technical developments and the new sciences. I believe the role of the architect today is to design a hospitable environment for our scientific age.

*Philip N. Youtz, Dean
College of Architecture and Design
University of Michigan*

Synthesizer of Environment

You have asked some tremendous questions at a time when I have been especially preoccupied—the end of my first school year as Dean! Being new in the academic game I had been hardly aware of the peculiarly demanding and absorbing nature of educational work at the climax of the year. So I am afraid I cannot provide you with very thoughtful answers to your questions now, and it would be presumptuous to speak with any authority as a school man.

I do have a few impressions, however. It seems clear to me that practicing architects are not abreast of scientific and other materialistic developments of this age. It is easy to imagine the individual professional architect engulfed by the present massive tendencies toward complex organization and mechanization. But it seems to me the age needs to be profoundly concerned with the disappearance of individual expression and personal freedom; and that the architect is more likely to find a unique role in the future by stressing positively his creative esthetic design abilities. He can be the synthesizer of environment, toward the end of delight, toward lifting the spirit. This will require of the architect high abilities as an artist, philosophical conviction and the intellectual equipment to make him effective.

*Walter Gordon
Dean of the School of Architecture and Allied Arts
University of Oregon*

Too Much Self-Evaluation?

When I first started teaching some ten years ago, I shocked some of my colleagues and provoked some lively discussions with the statement that architecture was obsolete. A number of years later I had begun to question this view, and I now find myself arguing vigorously on the other side. Such self-evaluation as your letter indicates the profession is now undertaking can perhaps be construed as evidence in favor of my present position.

Strange it is indeed that when one looks critically at himself he can say: I am what I am because of the schooling I received. Might he not better ask himself why he did not get more out of the schooling and other opportunities for learning that were offered him. The schools, of course, must assume a substantial share of responsibility for the inadequacies of the architect today (they are in general followers and not leaders), but the

continued on page 256

Frank Lotz Miller



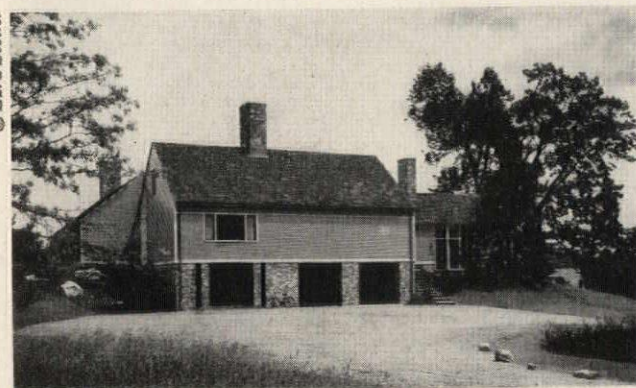
1. Louisiana

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2. Ohio

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3. Massachusetts

Dearborn-Massey



4. Washington

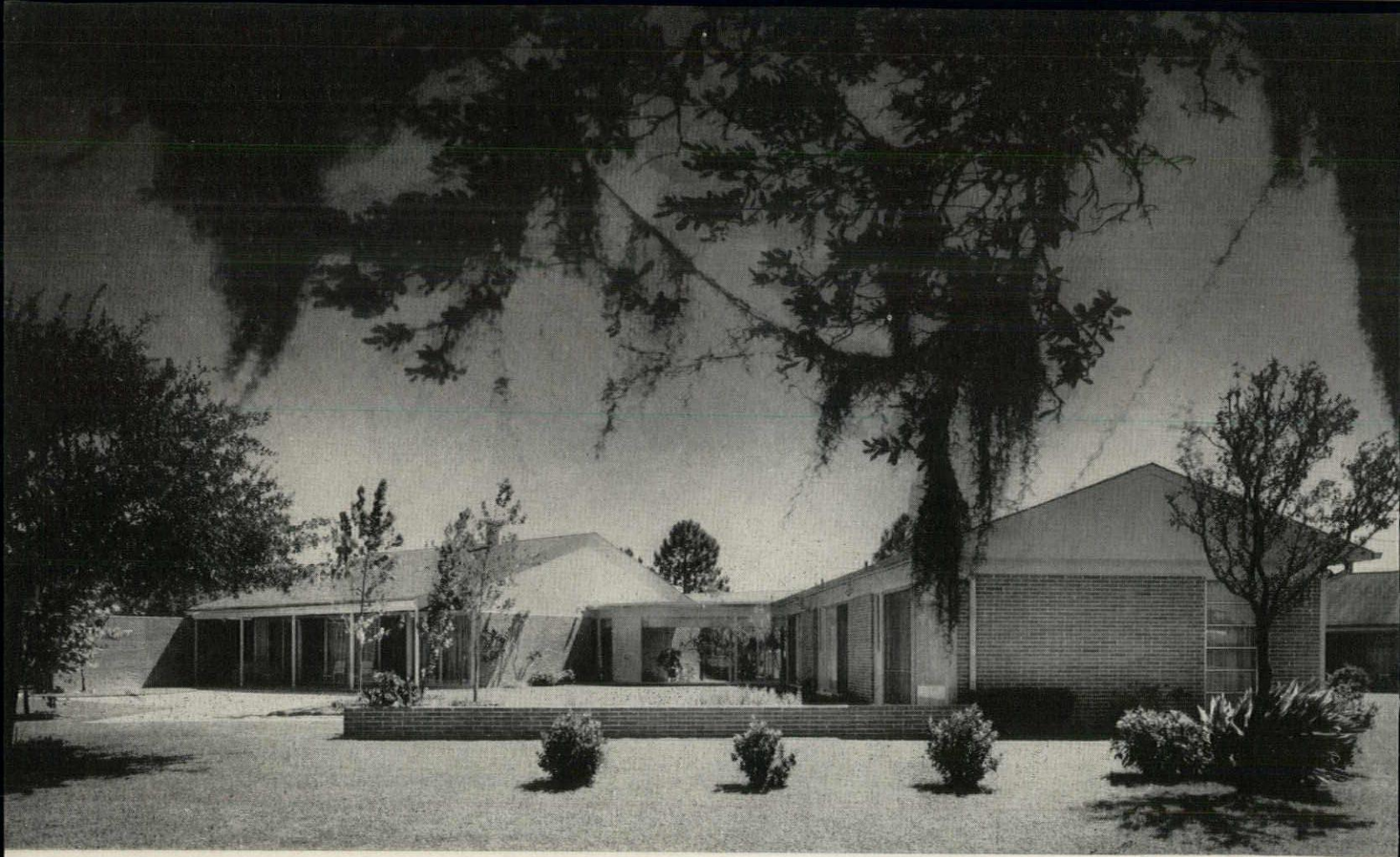
5. Illinois

Hedrich-Blessing



Five “Good Neighbor” Houses of Contemporary Design

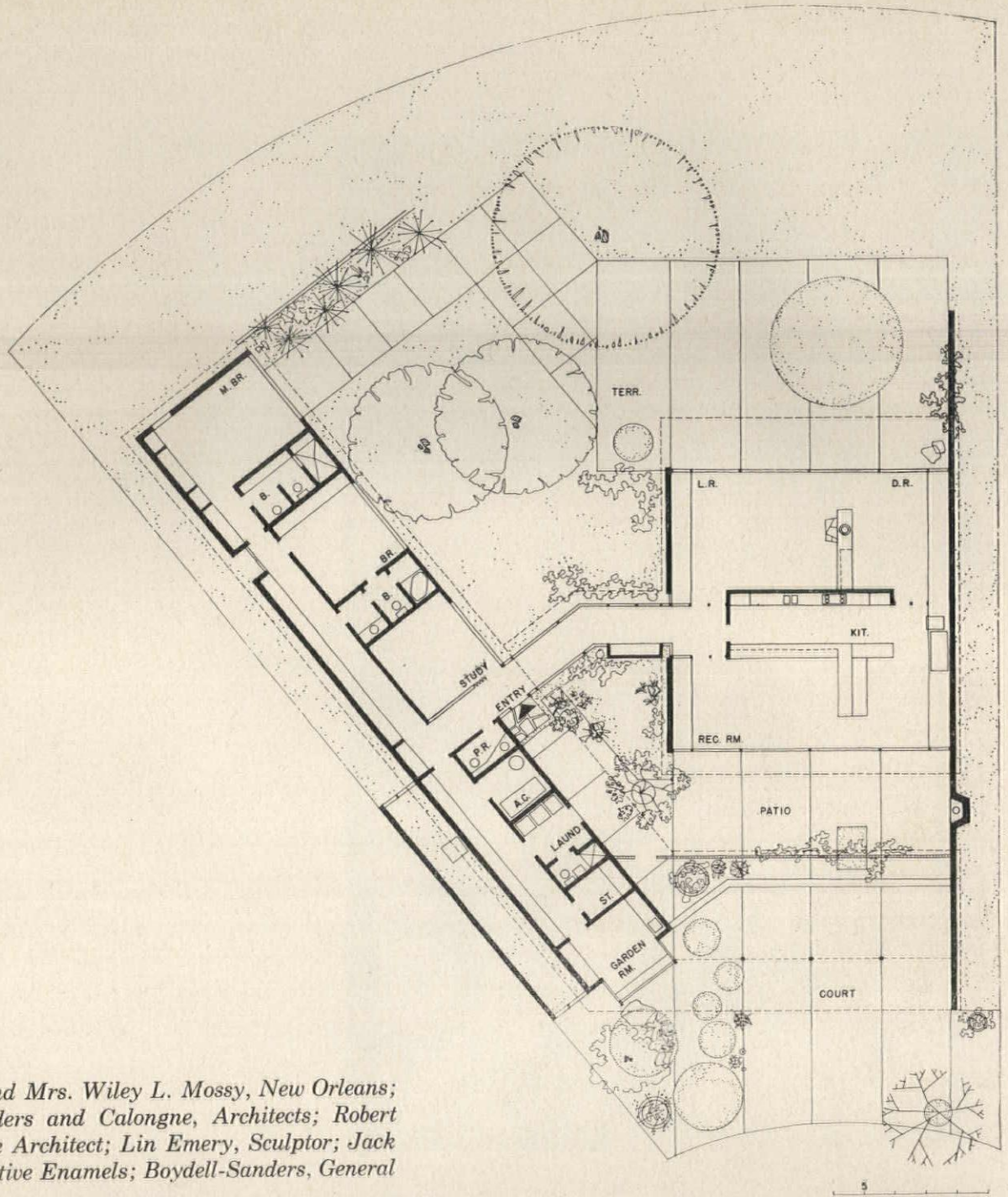
Many a residential community which once zoned out the “modern” house—the flat-roofed glass box, in popular interpretation—is coming these days to realize that contemporary architecture *can* blend, and nicely, with its honored ancestors. The reason for this change of heart is not hard to find: in all sections of the country architects are paying much more attention than formerly to environmental design. Zoning laws often do not prohibit a well-planned, entirely contemporary house; they only stipulate that the roof must not be flat, or that the house may cover just so much of its site, and so on. Traditions are something else again, and it is in this area that so many toes have been trampled in the past. Many architects, as the examples on the following pages suggest, are producing good houses that make good neighbors of and for today (and tomorrow) and are at the same time highly sensible of and for their surroundings.



Frank Lots Miller photos

Site and View Shape a New Orleans House

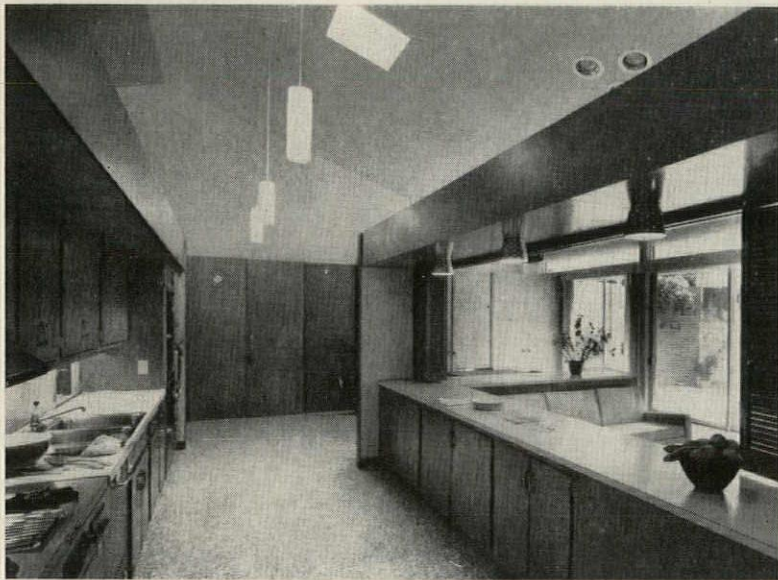
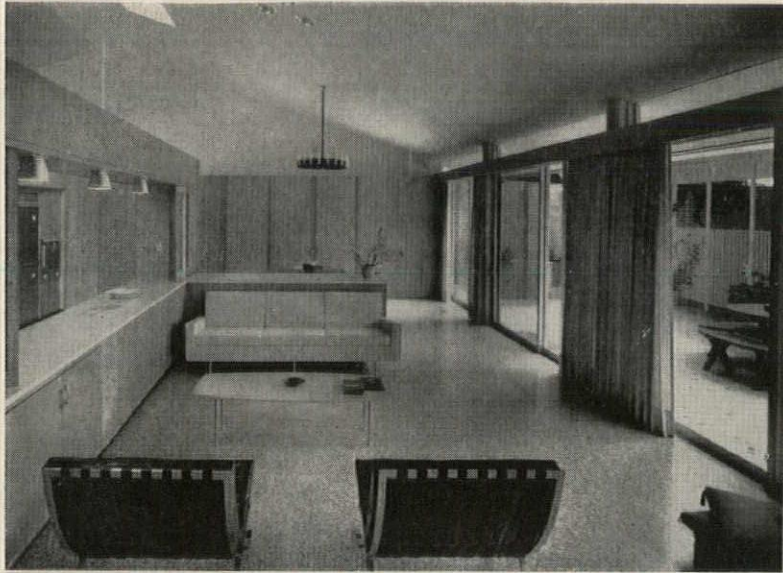




House for Mr. and Mrs. Wiley L. Mossy, New Orleans; Lawrence, Saunders and Calongne, Architects; Robert Reich, Landscape Architect; Lin Emery, Sculptor; Jack Hastings, Decorative Enamels; Boydell-Sanders, General Contractors

This house knows New Orleans and embodies some of the traditional characteristics of its domestic architecture in fresh and contemporary terms. It presents discreetly closed façades to the public, opens up on patio areas it encloses and makes much of them. It also is designed to exploit a site advantage rare in New Orleans: a sweeping view—across a well-kept park to Lake Pontchartrain in the distance. Color throughout is restrained, with off-white and natural brick predominating on the exterior and a light beige and black walnut predominating on the interior. The principal design objective, say the architects, was “the creation of a variety of interior and exterior spatial sequences and experiences, retaining always a consciousness of the relationship of house to site.”





Mossy House

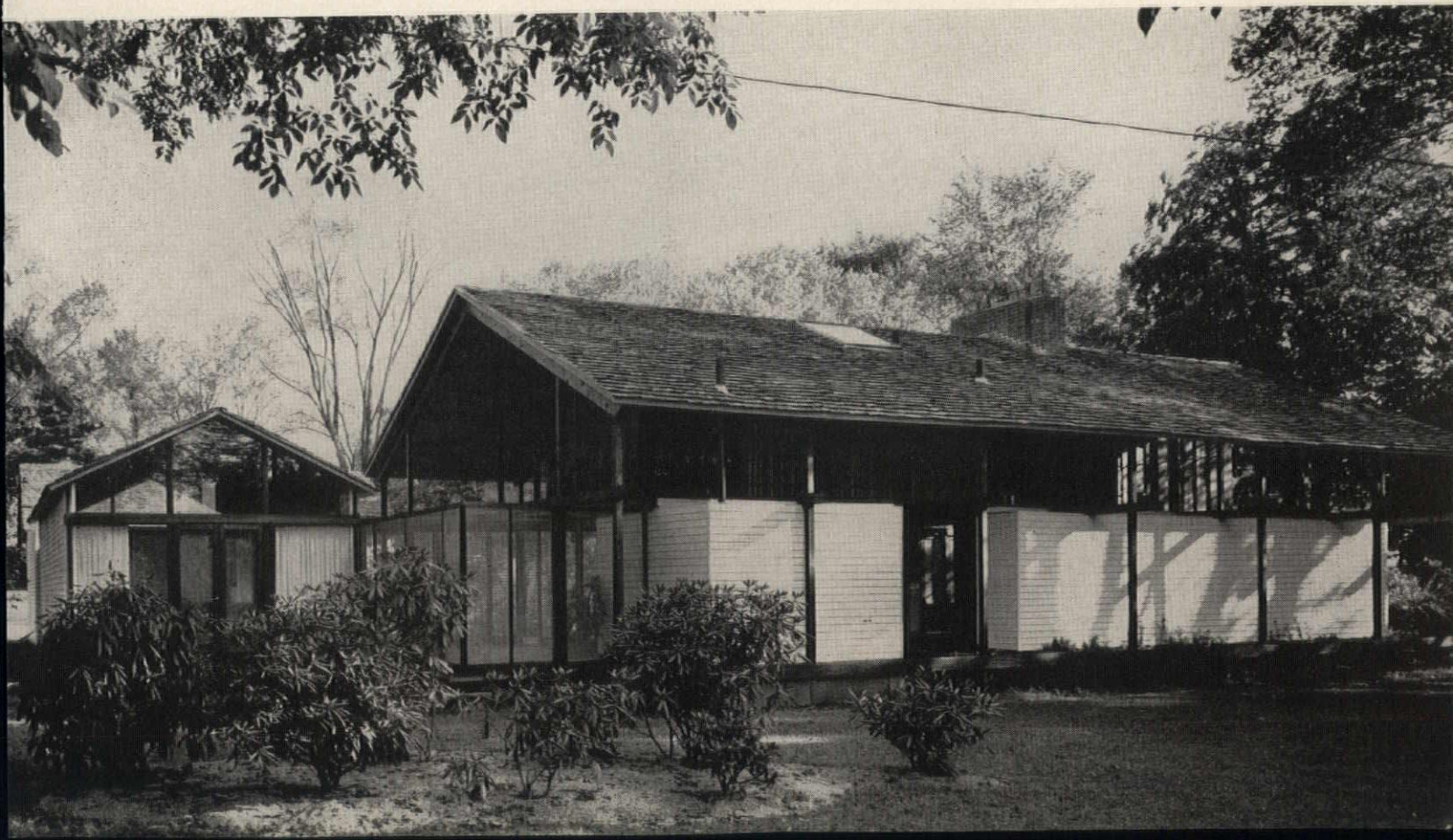
Recreation room (top photo) is separated from kitchen (center photo) by counter with an accordion-type shuttered partition allowing any degree of opening or closure. Kitchen partitions are only eight feet high, so full sweep of the 1600-sq-ft living-dining-kitchen-recreation area can be grasped from any point within it: at the peak of its gable this area has an interior height of 18 ft. Structure is steel.

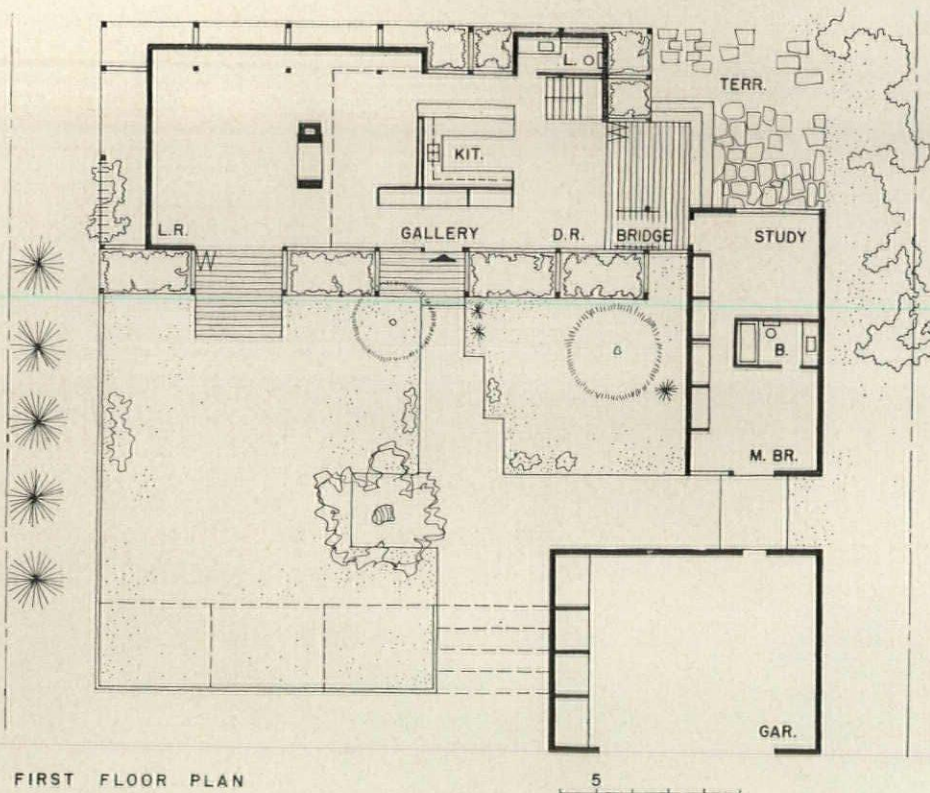
The pool area near the entrance foyer, with a sculptured fountain and bird bath by Lin Emery, is characterized by the architects as a "cool" spot among the varied pleasant outdoor spaces



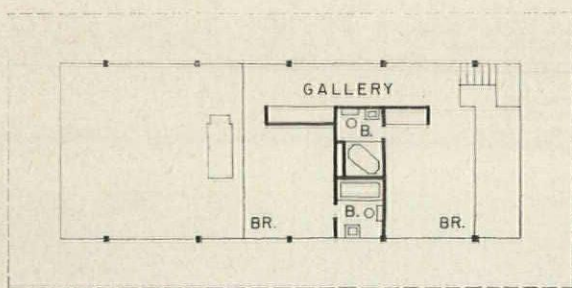
Ed Nano photos

Clapboard Siding Reflects Ohio History





FIRST FLOOR PLAN



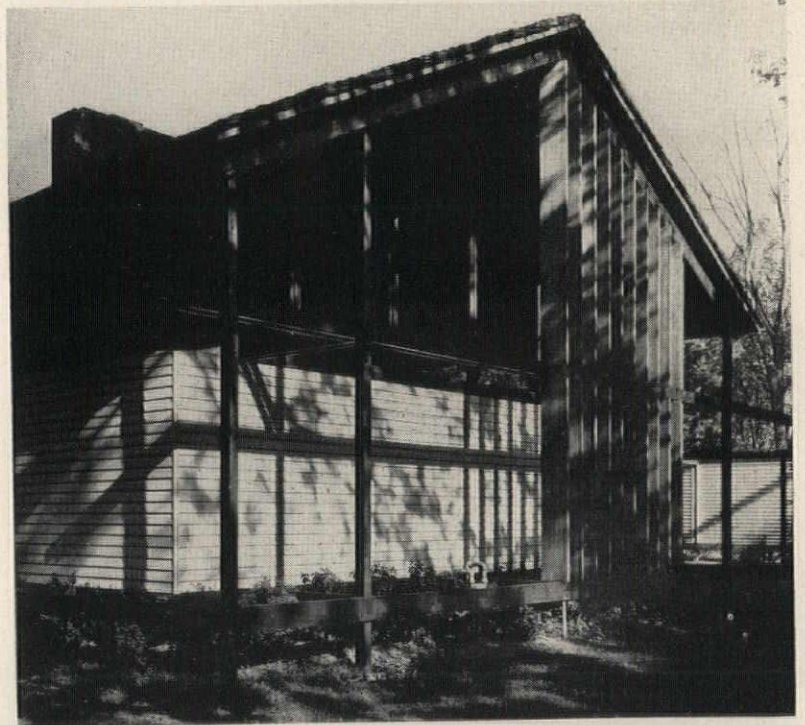
BALCONY PLAN

Residence for Mr. and Mrs. Irwin T. White, Hudson, Ohio; John Terence Kelly, Architect; Gensert-Williams and Associates, Structural Engineers; D. R. Harper and Associates, Heating Consultants; Robert L. Capretto, Building Contractor

Hudson is not only a town of traditional architecture, it is also an "historically important Ohio village" with many old Colonial buildings. The off-white clapboard siding—though used here as solid planes without "punched holes" for windows—serves as one connecting link with the neighboring houses, as does the pitched shingle roof. Although the plan, in which three units enclose a private garden, differs considerably from the town's tradition, special effort was made to keep the scale and placement in harmony with nearby houses.

On the interior, walls of white clapboard, exposed wood structure and flooring of random-width pine board echo traditional sources, as, in the garden, do brick sidewalks and wisteria, laurel and honeysuckle.

Though some opposition was recorded at the start of construction, most of the community, it is reported, has succumbed to the house's neighborliness.



White House

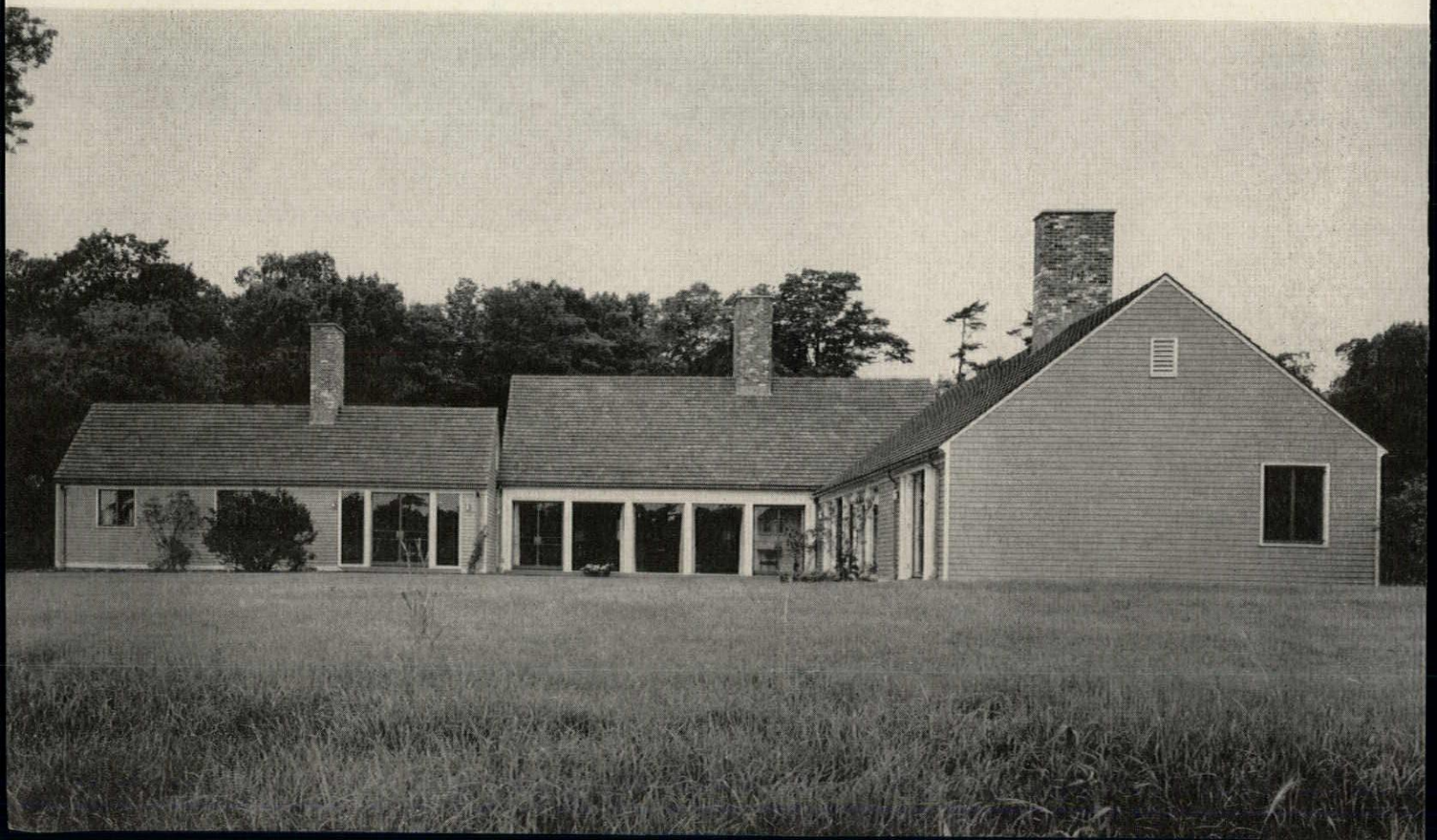
Top: living room, with clapboard wall, takes advantage of full height of house; wood and plastic shutters (not shown) can be opened on bedroom level to create balcony. Center: traditional textures—brick, wood shakes, white clapboard, natural wood. Bottom: antique furniture and Oriental rugs in company with contemporary furniture continue this approach to tradition on the interior. Opposite page: position of garage was changed between the project stage (below) and finished building

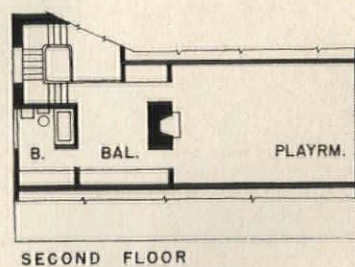
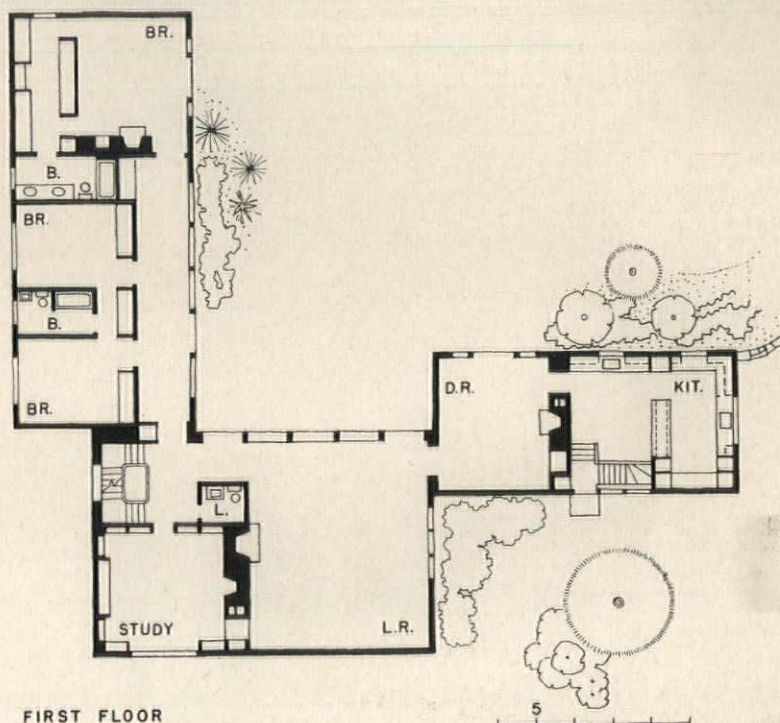
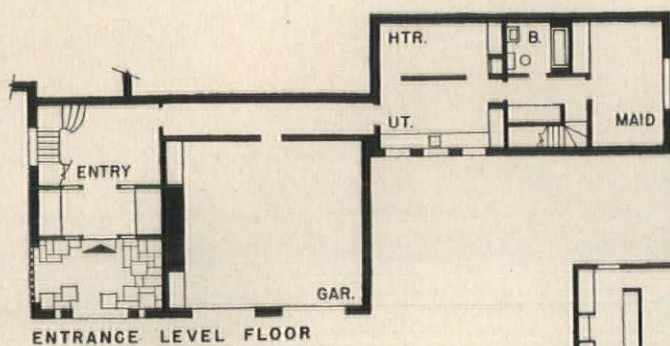




photos © Ezra Stoller

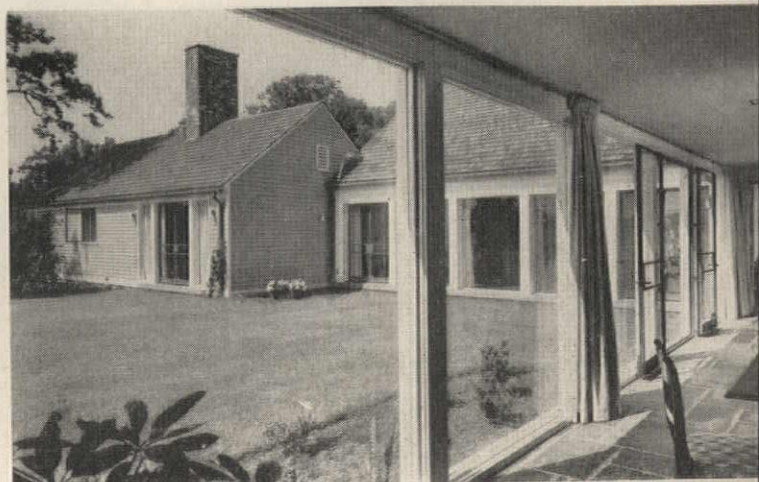
New Tradition for Contemporary Living

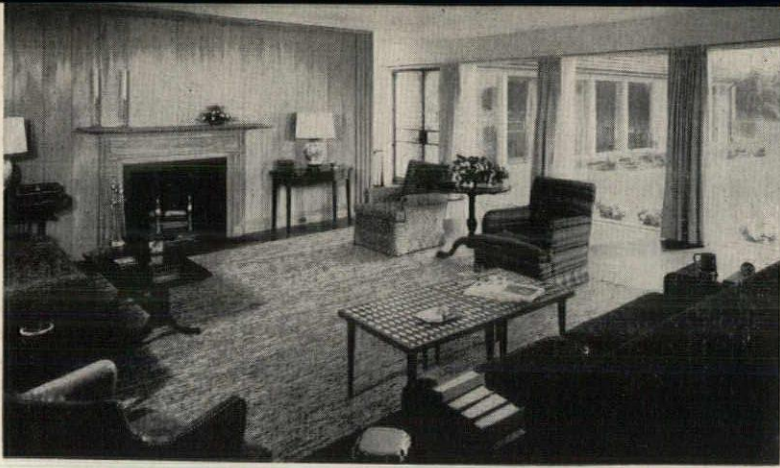




Residence of Mr. and Mrs. George Wolbach, Brookline, Mass.; George W. W. Brewster, Architect; Stanley Underhill, Landscape Architect; George Cheney Inc., Contractor

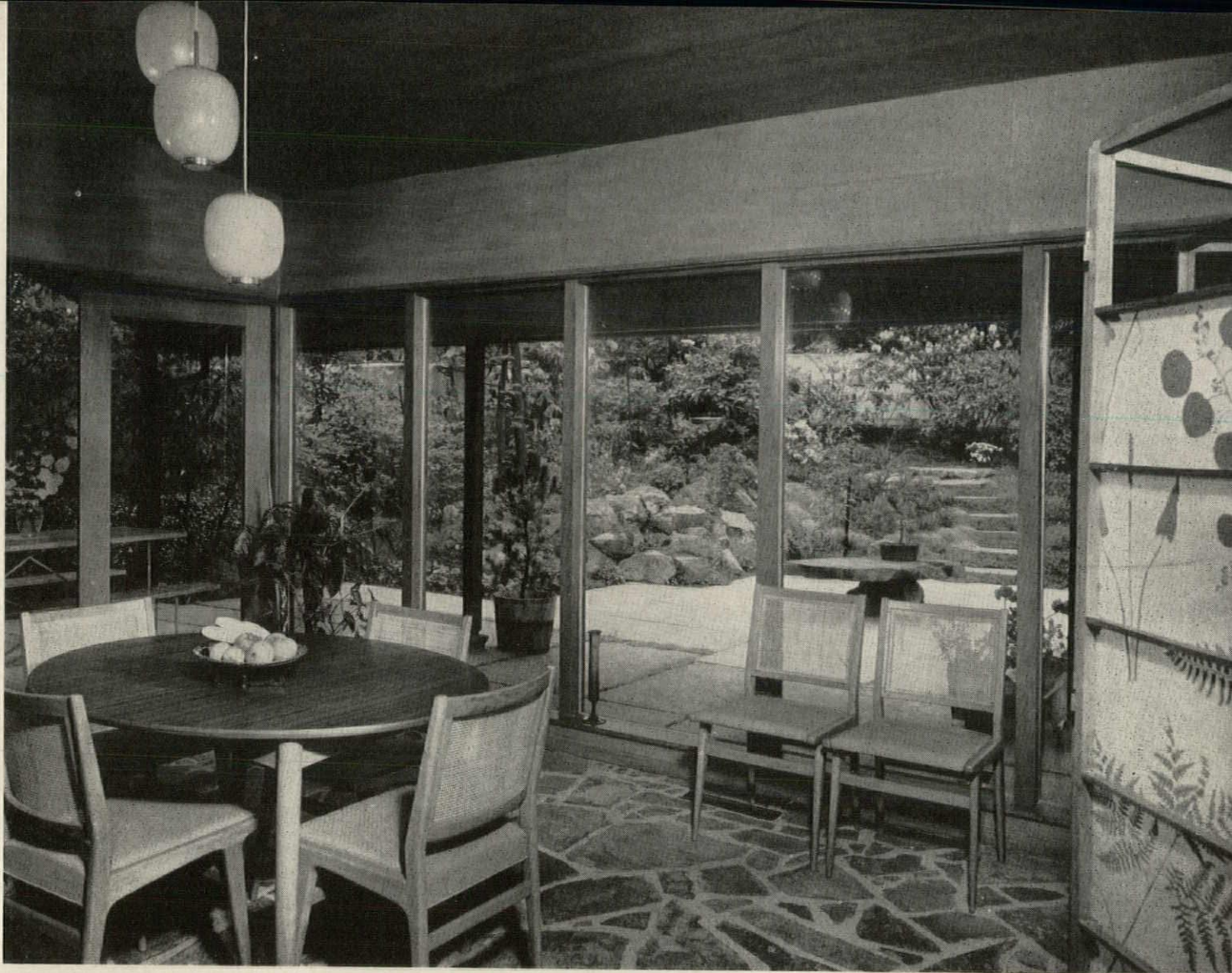
Though it may sound trite, the fact is that this house was designed for good and gracious living. It is deeply rooted in tradition, yet contemporary in plan; open and inviting, when these qualities are desirable, yet amenable to the closeness of quiet and solitude when the occasion demands. The house does not insinuate itself into its site; it would seem to have grown there or have been formed there by some natural phenomenon. The exterior materials used are mainly clapboard, brick, stone and slate. These are handled with meticulous care, placed in combinations of near-perfect proportion. Slate floors, wood paneling and built-in storage units, plastered walls, the handsome stair—each element of the interior seems appropriate in its place. Any change in one of these would be for the worse. All are combined, through strict attention to detailing and superlative craftsmanship, into a very sophisticated house for present-day people.



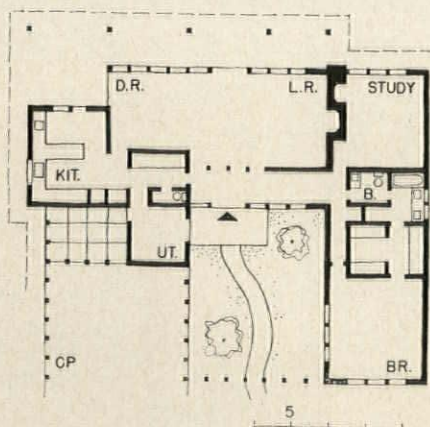


Wolbach House

Perhaps the most effective bow to tradition can be made by using good material superbly detailed and finished—as here in the playroom (at bottom) where carefully laid brick is set against white plaster to the maximum advantage of each, or in the stairway, highly polished and finely joined



Residence for Dr. and Mrs. Frederick Tucker, Seattle, Washington; Ralph Anderson, Architect; Miller-Pollard Design Associates, Interior Designers



Since this quietly contemporary house was built on a landscaped lot which was once part of the adjoining property, architect Anderson chose to slip it in among its more conservative neighbors by blending it with the abundant foliage on the site rather than by borrowing the basic materials and forms of older houses in the neighborhood. His principal techniques of "camouflage" were the choice of warm, earthy materials, and the use of wide overhangs whose deep shadows echo those of the foliage and soften the otherwise severe lines of the house. The exterior is entirely of stained cedar siding and glass; the roof is of cedar shingles; and the same umber tones are carried to the interiors. Although Seattle's often-gloomy climate demands the use of extensive areas of glass for light, the rich textures and warm tones used inside and out, together with the sweeping overhangs, nevertheless produce a strong sense of shelter throughout the house. And shelter is, after all, the very oldest tradition in residential design.



Dearborn-Massar photos

Native Materials Reflect Site, Not Neighbors





Tucker House

A key feature of this tri-level plan is the built-in provision for converting it to a smaller house. Bedrooms for the two boys are now located directly under the master bedroom and study, which are one half flight up from the living wing. When the boys' rooms are no longer in use, the lowest level (not shown) can be closed off.

"Earth" tones of exterior of Tucker house are carried through to interiors where walls are of dark-stained fir, floors are of hardwood or a local gray-brown slate, and the fireplace wall, which is the focal point of the living area, is of a local stone in rich brownish tones.

Wide overhang with translucent skylight shelters patio (below) and makes possible its year-round occupancy by people and furniture, but admits necessary light to glass wall of living-dining areas

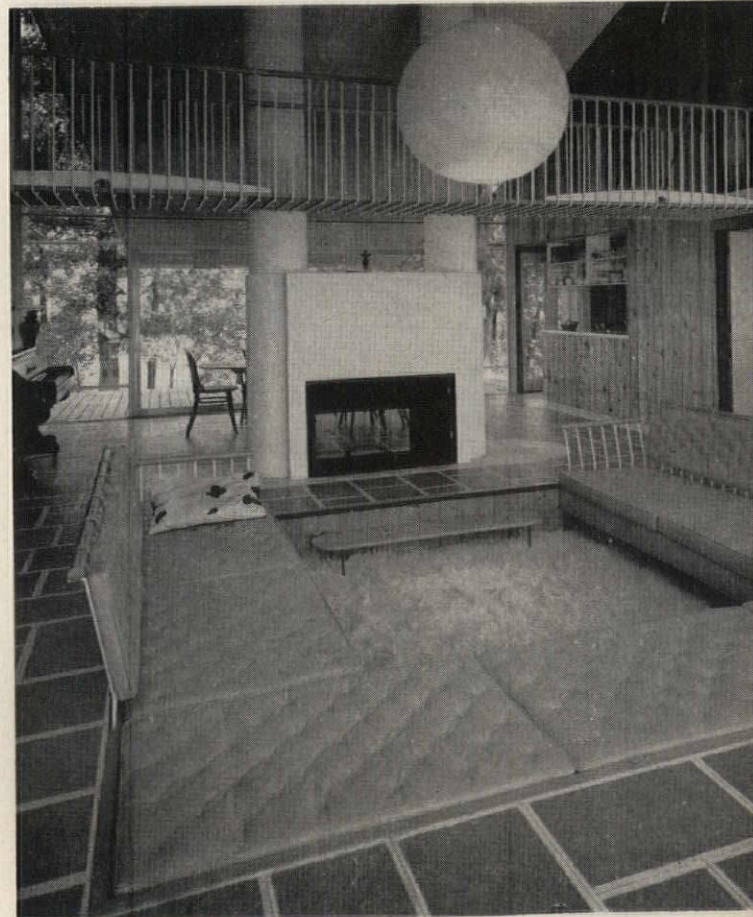
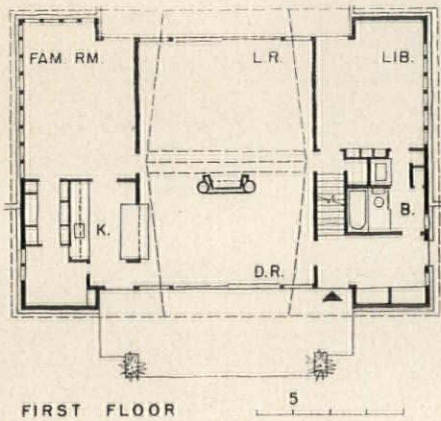
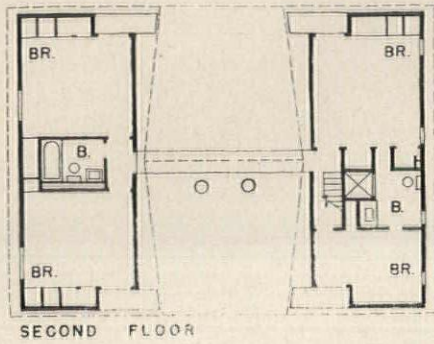




Hedrich-Blessing photos

Modern Roof Looks Medieval – or Vice Versa?

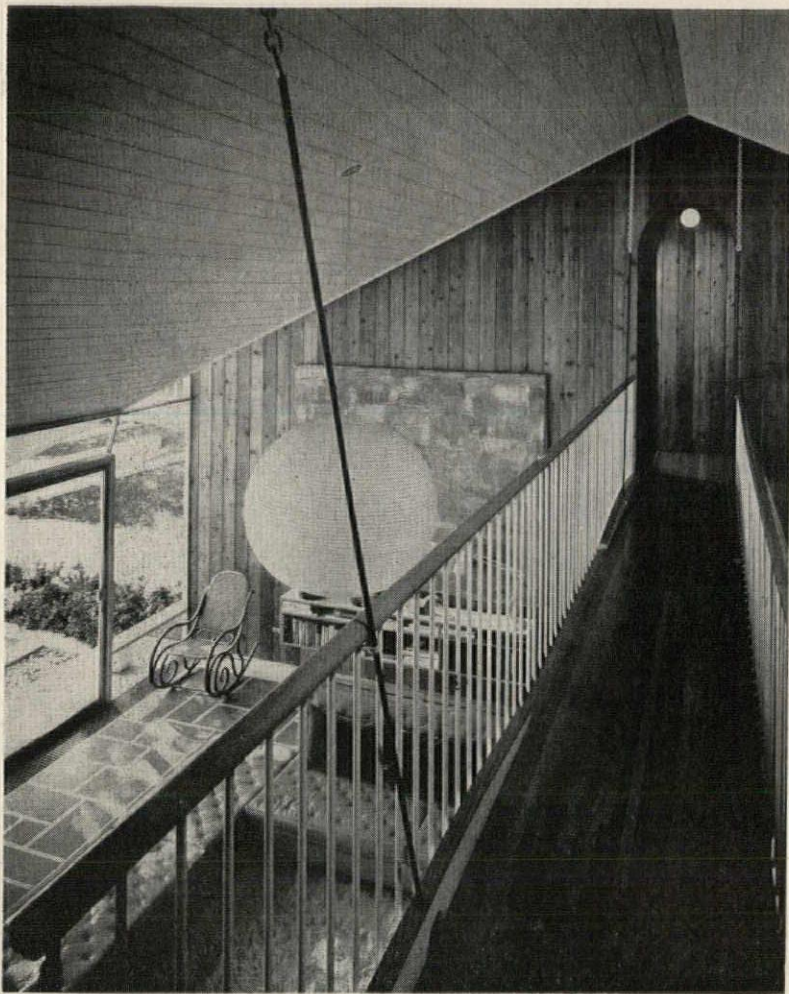




An Architect's Studio and Summer House, Barrington, Illinois; Harry Weese, Architect and Owner; Reike Construction Co., General Contractors

Due to its configuration and generally gracious look, this house would certainly rest easily in almost any suburban setting. Yet, quite unusual things happen under that apparently medieval roof; and even the roof itself—composed of prefabricated panels of 4-in. cedar planking—is of structural interest, since the central peaked segment is suspended from the two end elements and is not framed *into* them in conventional fashion. This made possible both cleaner surfaces and budget reductions.

In summer, the house is used by the architect's family; in winter, as a studio and retreat. Thus the whole concept revolved about the idea of creating a gay, carefree vacation place for children and for entertaining. Materials are informal—slate floor and birch planking on all sides and overhead—the hanging bridge is sort of a fun thing; children's rooms have outer balconies reached by ladder; a daughter's room is reached by a catwalk. All this is done subtly and within the bounds of taste—a measure of the architect's design skill.



Weese House and Studio

The basic structure is composed of prefabricated panels of 4-in. cedar planking. The end pavilions were built first by erecting the wall and roof elements; and the central, U-shaped roof was then suspended from them, completing the rough enclosure. The planking is left exposed as interior finish for both the roof and walls.

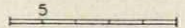
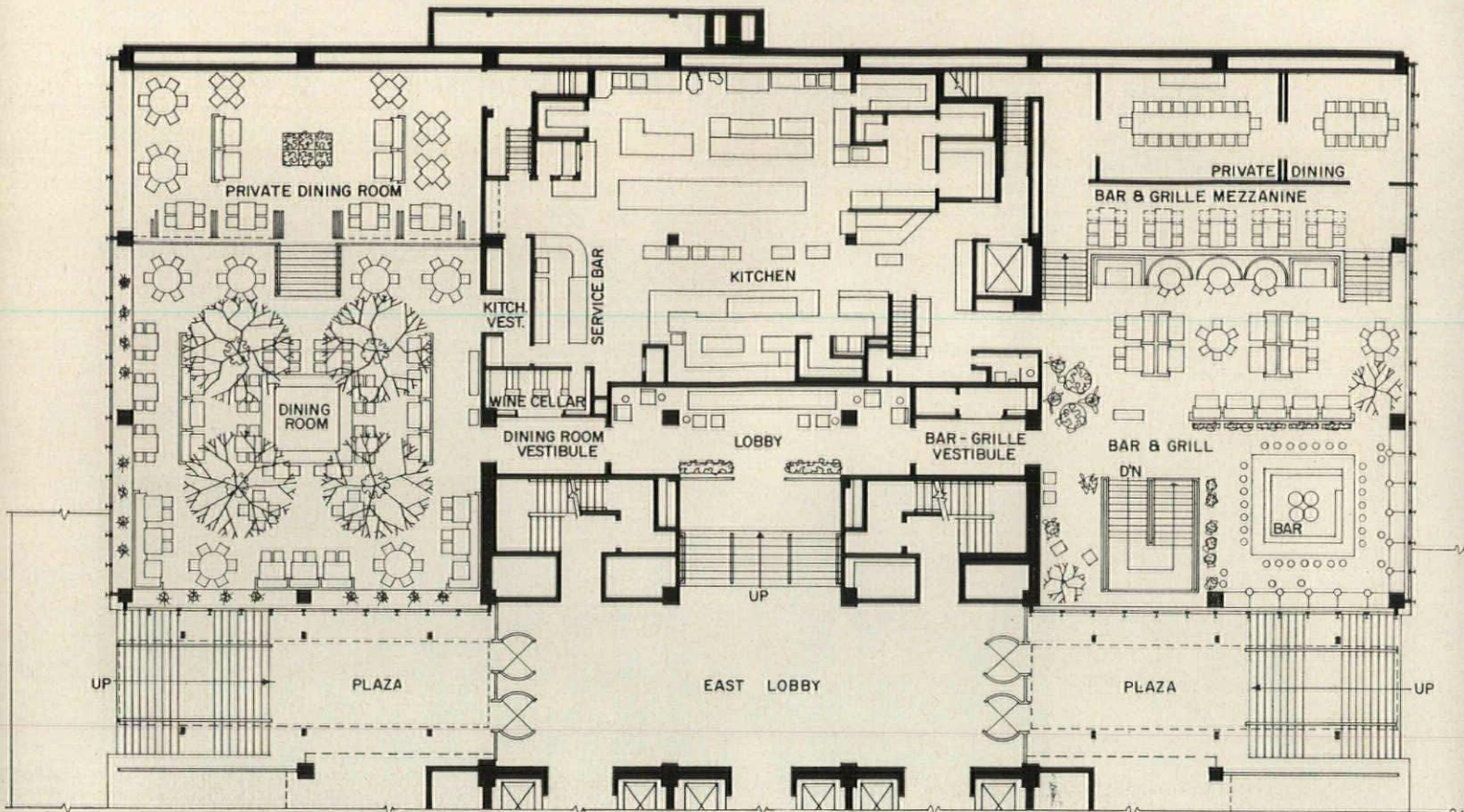
The exterior roof is cedar-shingled; casements and sliding sash are painted, galvanized steel; floors in living areas are generally of slate—in bathrooms of linoleum

More Elegance at the House of Seagram

*Philip Johnson helps his client spend
\$4,500,000 on equipment and decor
for new restaurant in the Seagram building*



Principal entrance from main lobby of building exhibits a painted stage curtain by Picasso originally done for the Diaghilev Ballet



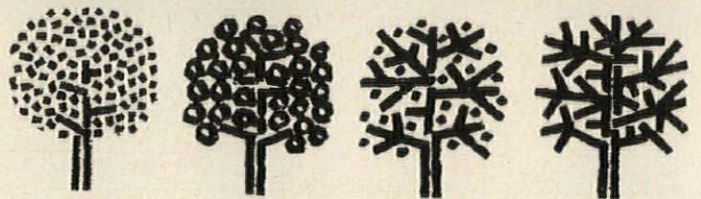
OWNER: *Restaurant Associates, Inc.*
 ARCHITECT: *Philip Johnson*
 INTERIOR DESIGN: *William Pahlmann Associates*
 LANDSCAPE ARCHITECT: *Karl Linn*
 LIGHTING CONSULTANT: *Richard Kelly*
 GRAPHIC ARTIST: *Emil Antonucci*

Lobby beneath bar and grill. Tapestry by Miro



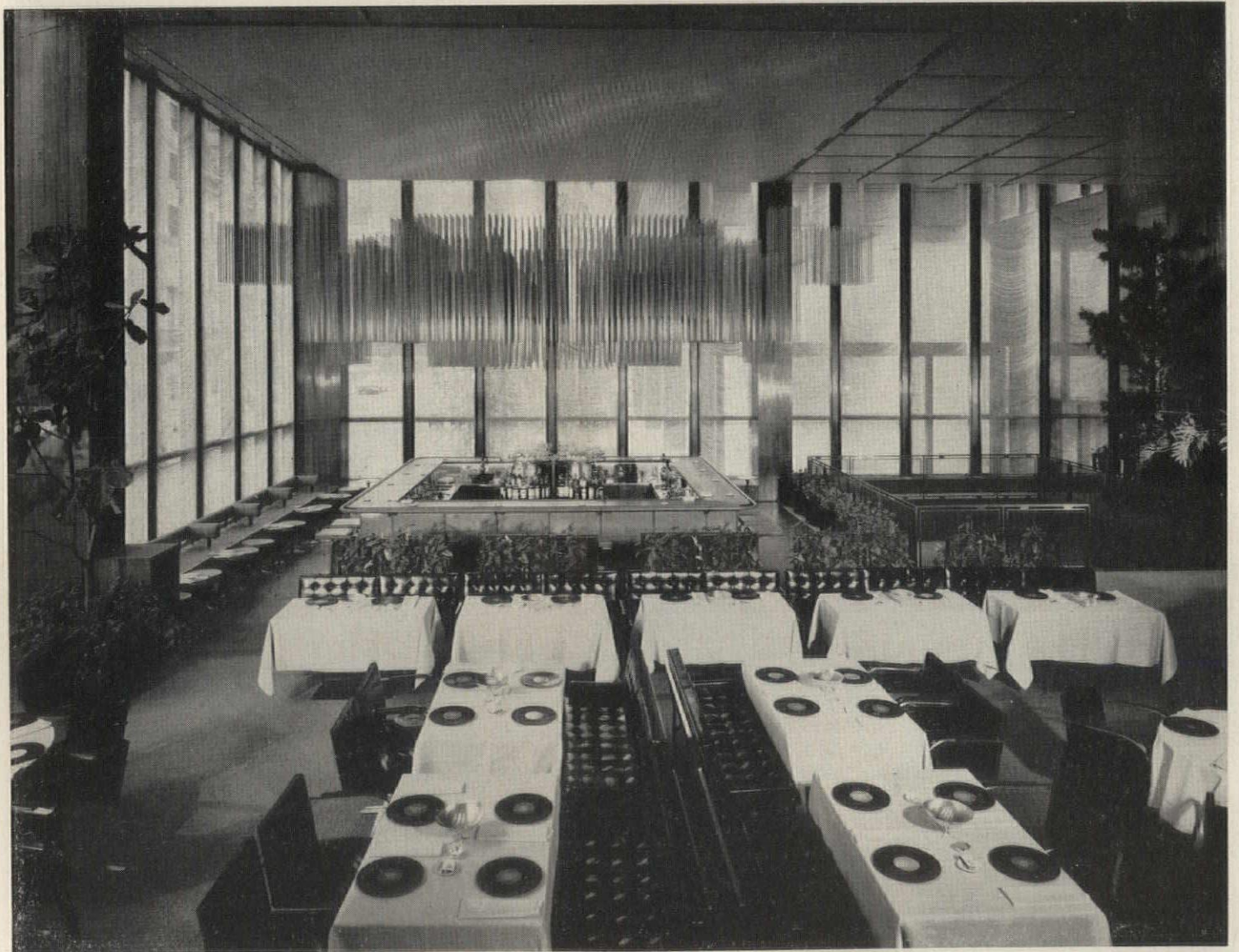
Big, splendid and very expensive (mere art lovers may buy a drink at the bar), the new restaurant in the Seagram building is called The Four Seasons. More than a name, it is the restaurant's idea. Four trees, pink for spring, green for summer, red for fall and brown for winter form the constant graphic motif, but each color establishes the palette for its own season. Each of the four colors appears in its turn on waiters' jackets, menus and matchbooks, while other changing colors, those of flowers for example, harmonize with it.

The restaurant's decor changes in accord with another briefer time sequence. The sculptures over the bar and mezzanine, made of thousands of gold dipped brass rods by Richard Lippold, quiver almost imperceptibly in the light, creating gently changing patterns. According to Philip Johnson this movement is caused by the "shock of New York"; specifically perhaps by the trains roaring under Park Avenue toward Grand Central. The window draperies also move. Made in the style of Vienna curtains in three tones of gold anodized aluminum chain, they present a constantly rippling appearance as each chain swings forward and back within an infinitesimal arc in a movement caused by air convection at the window. The rippling is also seasonal as it relates to contrasts between inside and outside air temperature. Movement was greater in summer than fall, will increase in the winter and subside in the spring.



THE FOUR SEASONS

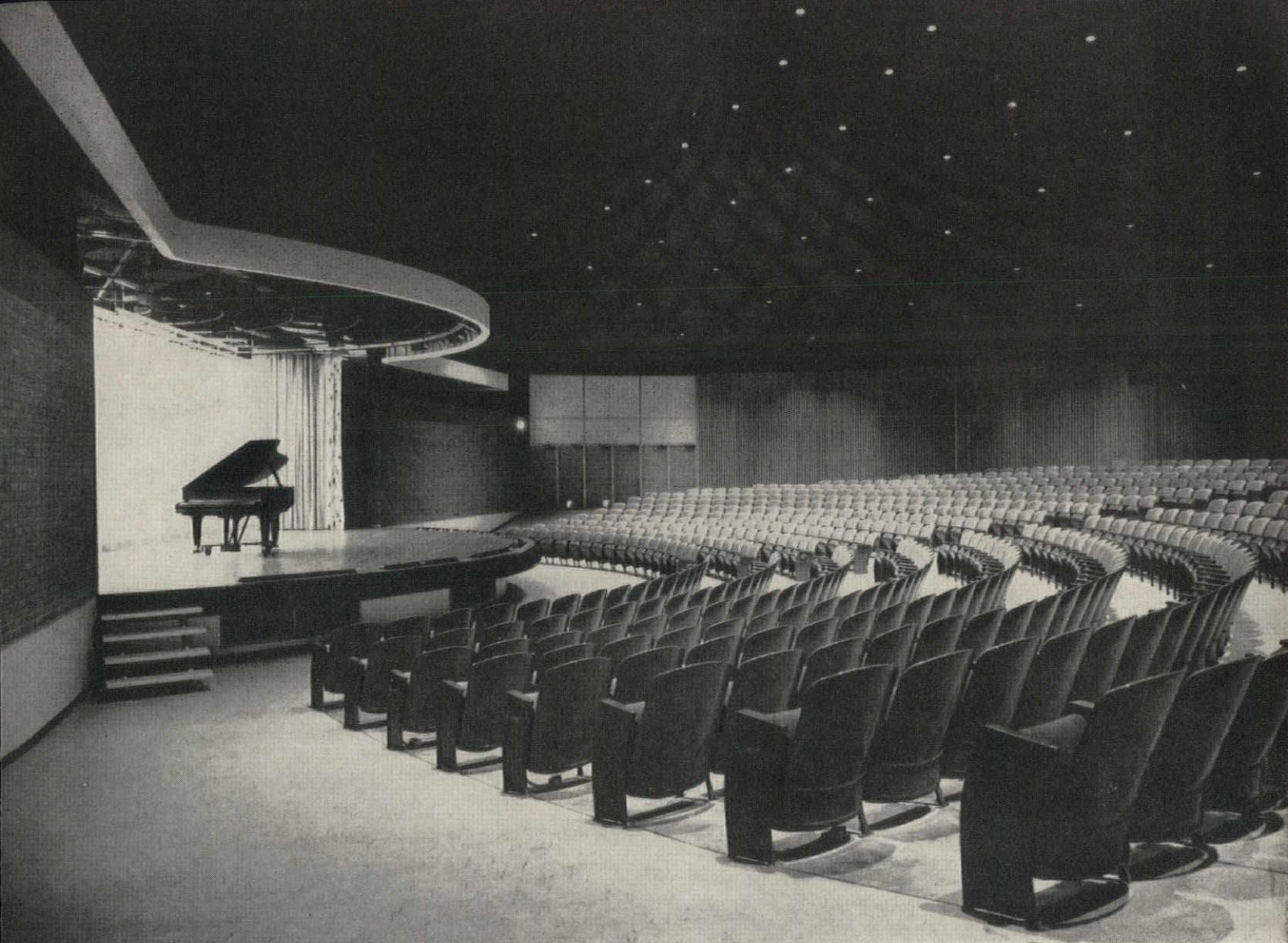
Bar and grill. Paneling is of carefully matched French walnut. Floor around bar is ebonized oak. Brass rod sculptures, suspended on fine wire, by Richard Lippold





The dining room has been planned around a quiet pool with a 17-ft ornamental fig tree at each corner. Suspended plants change with the seasons. All accessories and serving equipment were specially designed by Garth and Ada Louise Huxtable and custom made for the restaurant





Auditorium addition to Utica, Michigan, High School. Smith & Smith, Architects.

Lens-Art

SCHOOLS

BUILDING TYPES

®
STUDY 275

A heart-warming clarion on schools, and vote of confidence in architecture was sounded recently by John L. Cameron, new head of the School Housing Section of the U.S. Office of Education (Health, Education, and Welfare Department). At a meeting in Asheville, North Carolina, he observed: "While there are similarities, the planning of each school building project is a different problem. Orientations are different; site topographies and shapes are different; the availability and location of utilities are different. Most important, a school building should be designed to accommodate the educational program as a particular community has determined its needs and wants. The building should also be a source of pride to the community."

As we continue our look into different parts of the school plant, we have tried to bear these differences in mind. The following pages present a group of good schools in various parts, which have successfully solved their needs for assembly or auditorium space in different ways. They are led off by a project designed to explore the possibilities of expanding the types and periods of use for an auditorium facility.

A challenging new type of auditorium by Zick and Sharp, Architects, results from the findings of the Ford Foundation's Educational Facilities Laboratories, Inc.

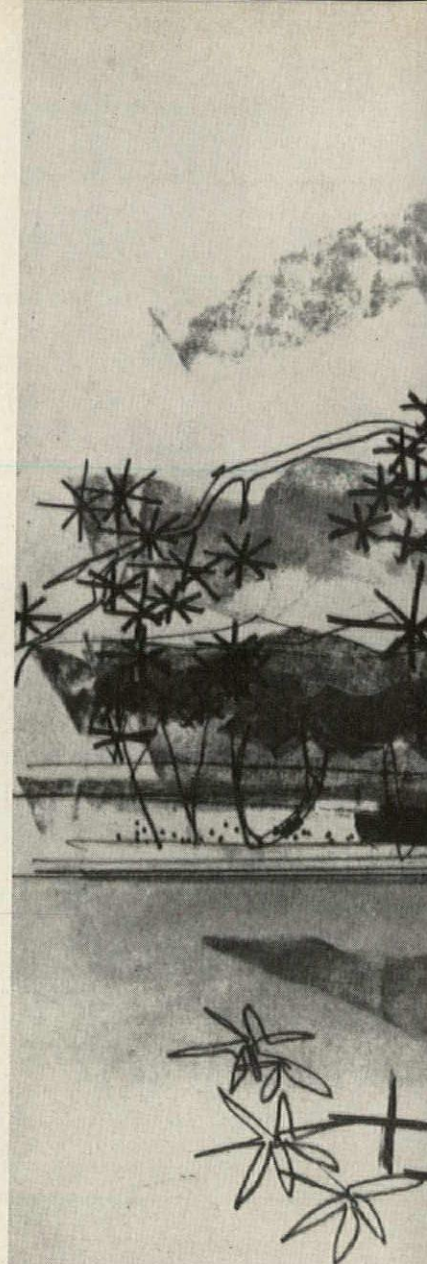
A MULTI-USE INSTRUCTION CENTER

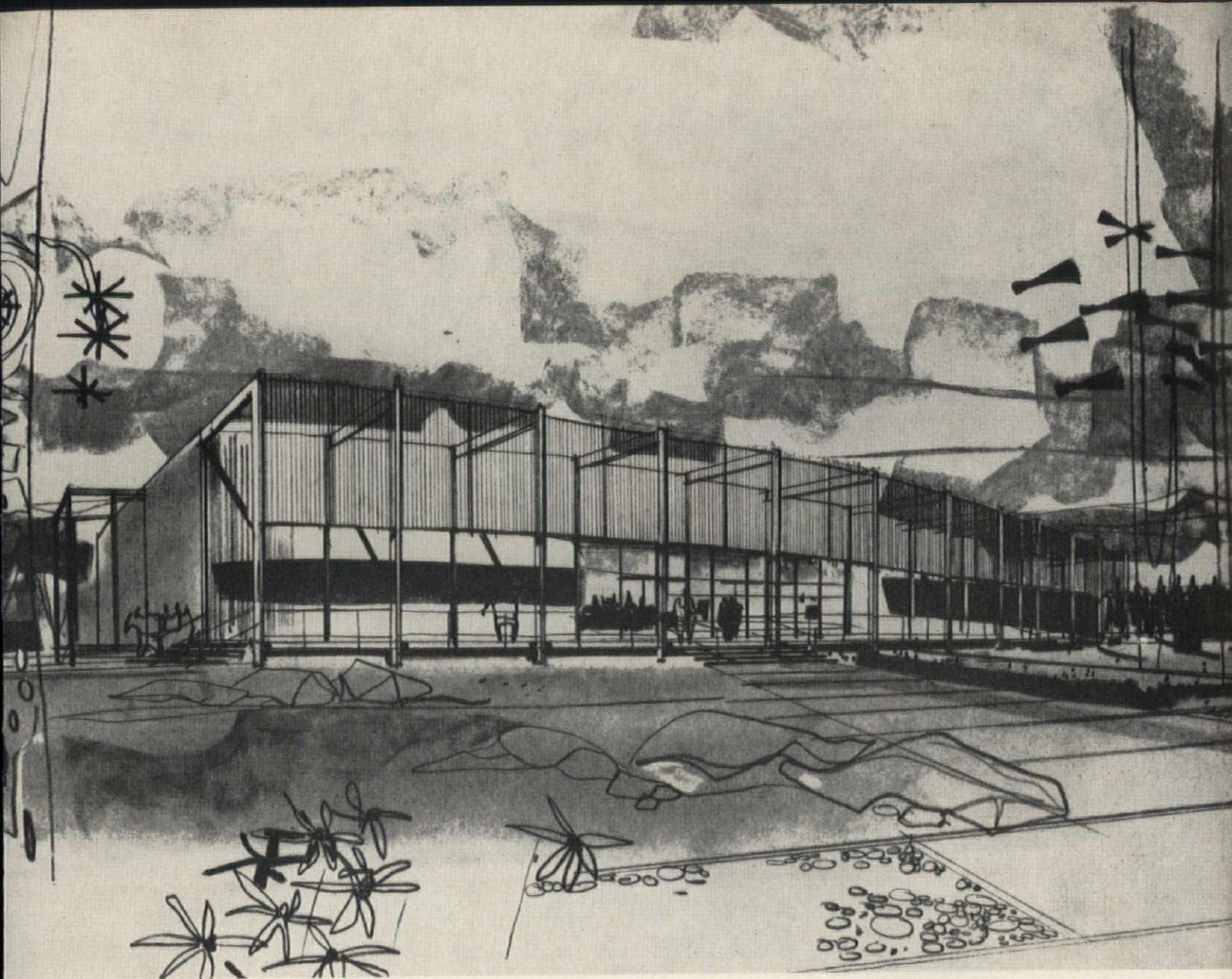
The busy, various—and one must add, vital—probing of the Ford Foundation's Educational Facilities Laboratories, Inc., have come up with a challenging concept in this new multi-use "Instructional Facility." The fact that their research findings and theories are, as in this case, nearing concrete—and therefore testable—realization, is in itself worthy of notice. But the fact that their awareness of the architectural side of the business of schooling (both architectural qualities, and the current problems) is as acute as in the educator's realm, pyramids the significance.

Their projects also, to date anyway, carry the considered tag that "here is an answer." "This is one way to do it." The provision of quality at reasonable cost is probably the ultimate answer sought by such a balance in building and in teaching. Flexibility is currently being explored as a way toward this.

And again the two sided coin: flexibility in building spaces, and in educational methods. Harold B. Gores cogently underscored EFL's basic thoughts on this in our August Building Types Study, especially in regard to classrooms.

With this project for Boulder City, Nevada, attention is shifted to the auditorium. The staff of the Western Regional Center of EFL, at Stanford University and under the Directorship of James D. MacConnell, developed a very forward-thinking set of educational specifications for the Clark County (Nevada) School District for a new auditorium. The result is the center shown here. It is an imaginative scheme for improving the utilization of high school auditorium space. The team work of all concerned in the program has been stressed: "The planning for this new multi-use instruction center, featuring large movable, soundproof partitions, was accom-





plished by representatives from many disciplines. Engineers, physicists, artists, architects and educators, working together, applied their knowledges and skills to produce a unique facility."

The basic problem involved was that auditorium space is often fairly costly, intermittently used, highly desirable to have, and frequently omitted. Excerpts from the educational specifications describing the program follow:

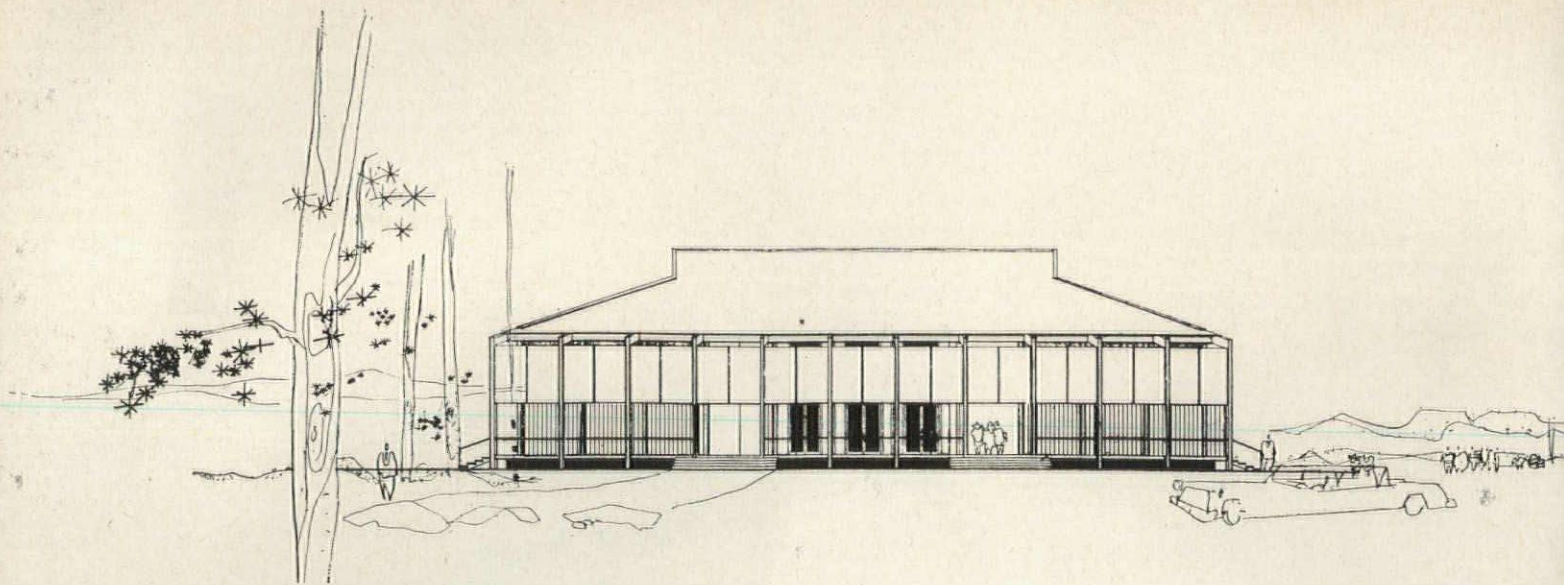
"The traditional high school auditorium provided a fixed seat for each member of the student body and its faculty. And, typically there were some extra seats available for visitors from the community or guests from out of town.

. . . Educational utilization of the auditorium within the formal academic program appeared limited. It was used, perhaps, one period each week for a general assembly. The assemblies were called by

the administration for the purpose of benediction, announcements, awards, local or out-of-town speakers, and commencement exercises. The speech and drama departments utilized the facility for forensics and theatre arts instruction and presentations. The music department used the facility for choral and instructional practice, rehearsals and presentations. On stormy days, physical education classes were frequently scheduled for the auditorium where they might hear lectures or view films on topics suitable to the course.

When a town-hall or community auditorium was lacking or inadequate, the use of the school auditorium was in popular demand for community activities.

All of these activities were considered necessary to the total educational program. But even with the activities listed above, high school auditoriums were



A Multi-use Instruction Center

*Boulder City Junior-Senior High School, Boulder City, Nevada;
Zick and Sharp, Architects*

PROJECT CONSULTANTS:

Robert B. Moore, Associate Director, Commission on the Experimental Study of the Utilization of the Staff in the Secondary School; William O. Nesbitt, Project Director, Experimental Staff Utilization Study; Bolt, Beranek and Newman, Acoustical Consultants; Century Lighting, Inc., Theater Lighting Consultant; Faber Birren, Color Consultant

PROJECT STAFF, Western Regional Center, Educational Facilities Laboratories, Inc.: James D. MacConnell, Director; Raymond C. Schneider, Associate Director; Conrad Briner, Assistant Director

standing idle nearly 90 per cent of the time.

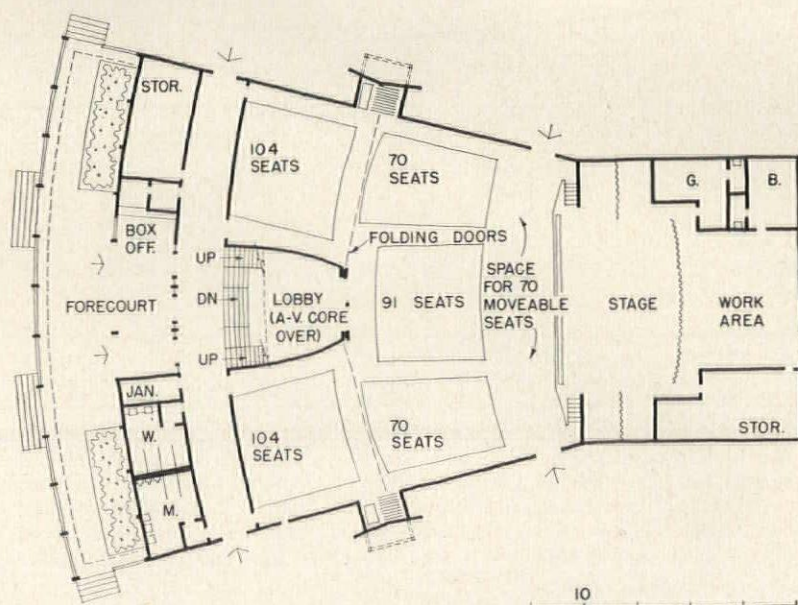
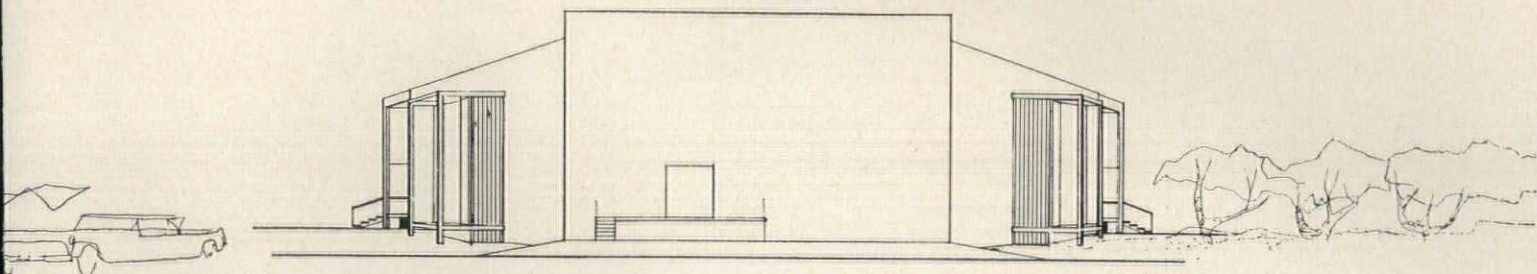
Following World War II, rapid changes occurred in school enrollments, curriculum, staff utilization, and the scheduling of a student's time; which, when coupled with a tremendous rise in construction costs, forced a reconsideration of the value of the traditional auditorium as an integral part of many new secondary school plants. The fiscal inability to provide a high cost—low utilization facility represented an economic liability to those districts confronted with severe classroom shortages.

It became increasingly difficult for a rapidly growing district to provide a common use space at each of its schools which would comfortably seat an entire student body. Those schools which valued the educational activities typically conducted in an auditorium facility, attempted for a while, to divide the student body and hold assemblies on staggered

schedules. Ultimately, of course, this practice was ruled inadequate. As it became economically unfeasible to provide a fixed seat auditorium, the gymnasium and cafeteria when available were utilized for student body activities.

Today, newer concepts of teaching are undergoing experimentations. Staff utilization studies, as well as curriculum studies, are being undertaken throughout the nation. Methods of facilitating the findings of these experimental programs are also being studied.

. . . The focus of this EFL project has been to coordinate with the Commission of Staff Utilization in the planning of a multi-use instruction facility. It followed, then, that this center should be designed to facilitate the Commission's recent findings on the sizes of instructional groups: large-group instruction in the presentation phase, independent study



in the organization phase, and small group seminars in the summation.

This Multi-use Instruction Center . . . is being planned specifically to meet the needs of the large-group instruction space described above, and, in addition, meet the social, cultural, and educational needs of the students and staff of the Boulder City (Nevada) Junior-Senior High School and the citizenry of Boulder City itself; thus fulfilling an obligation on the part of the Clark County School District to Boulder City—the provision of a complete educational facility . . .

The facility is designed, specifically:

To provide a single teaching station accommodating approximately 600 students.

To provide within this large space at least three teaching stations, which could meet simultaneously, permitting the scheduling of large-group instruction

for capacities of approximately 150, 150 and 300 students respectively.

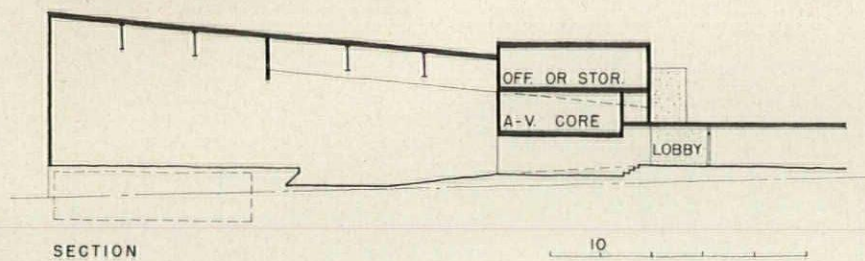
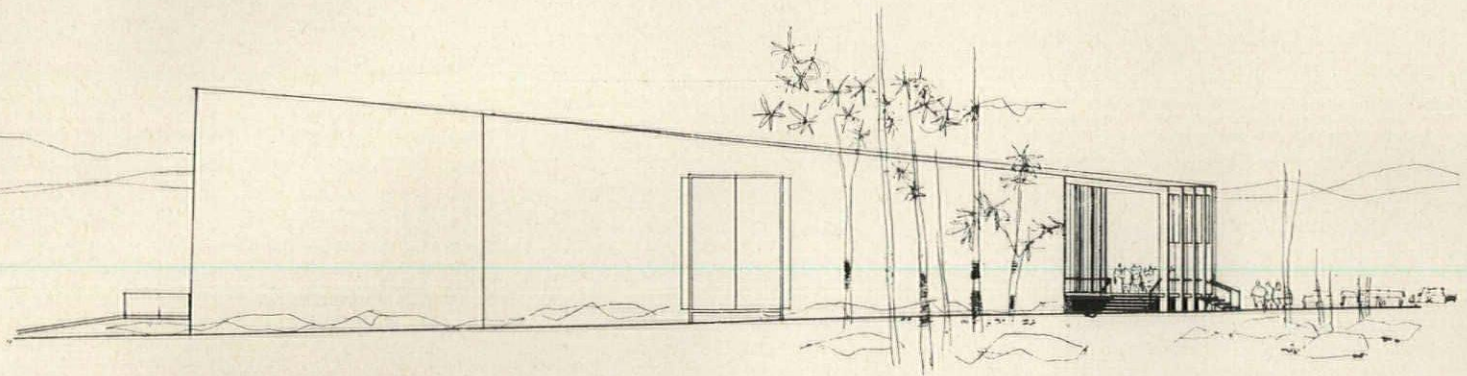
To provide a nominal flat floor area between the stage and fixed seats for informal student activities.

To provide both a stage and a back-stage classroom for stage-craft, dramatic presentations and instruction in the drama and theater arts.

To provide, if possible, office and work space for the purpose of planning and preparation of lessons.

To provide a central area for audio-visual, mechanical and electronic instructional aids; their storage, repair and maintenance, and control.

To provide nominal space and facilities in conjunction with the main entrance areas, for school arts and crafts exhibits which could be used as well for informal small-group educational and social activities usually associated with drama, music, arts and crafts presentations.



A Multi-use Instruction Center

The adaptability of the center relies heavily on the careful placement of the audio-visual core, which serves the auditorium spaces divided or used together. It is the result of a series of studies of possible schemes. Also critical to its success are the push-button operated, sound-proof folding partitions. These are currently being perfected by Bolt, Beranek and Newman, and should find a welcome reception by exponents of flexible rearrangements of spaces

To encourage greater utilization of a traditionally little-used space.

To foster joint school-community-relations by permitting the citizens of Boulder City to use this same facility for local meetings, concerts, speakers, and dramatic presentations, as well as for visiting artists, traveling exhibits and other educational and socio-cultural activities or events; as they may be scheduled. . . .

Flexibility. The introduction of movable partitions, which sub-divide the large space into smaller sound-conditioned, spaces, is designed to effect greater multi-use of the facility and maximum flexibility in the arrangements of the prime area.

Economy. The greatest potential in economy to be realized from the multi-use and flexibility features is the increased utilization of the entire facility. Joint-use of the facility should be enhanced

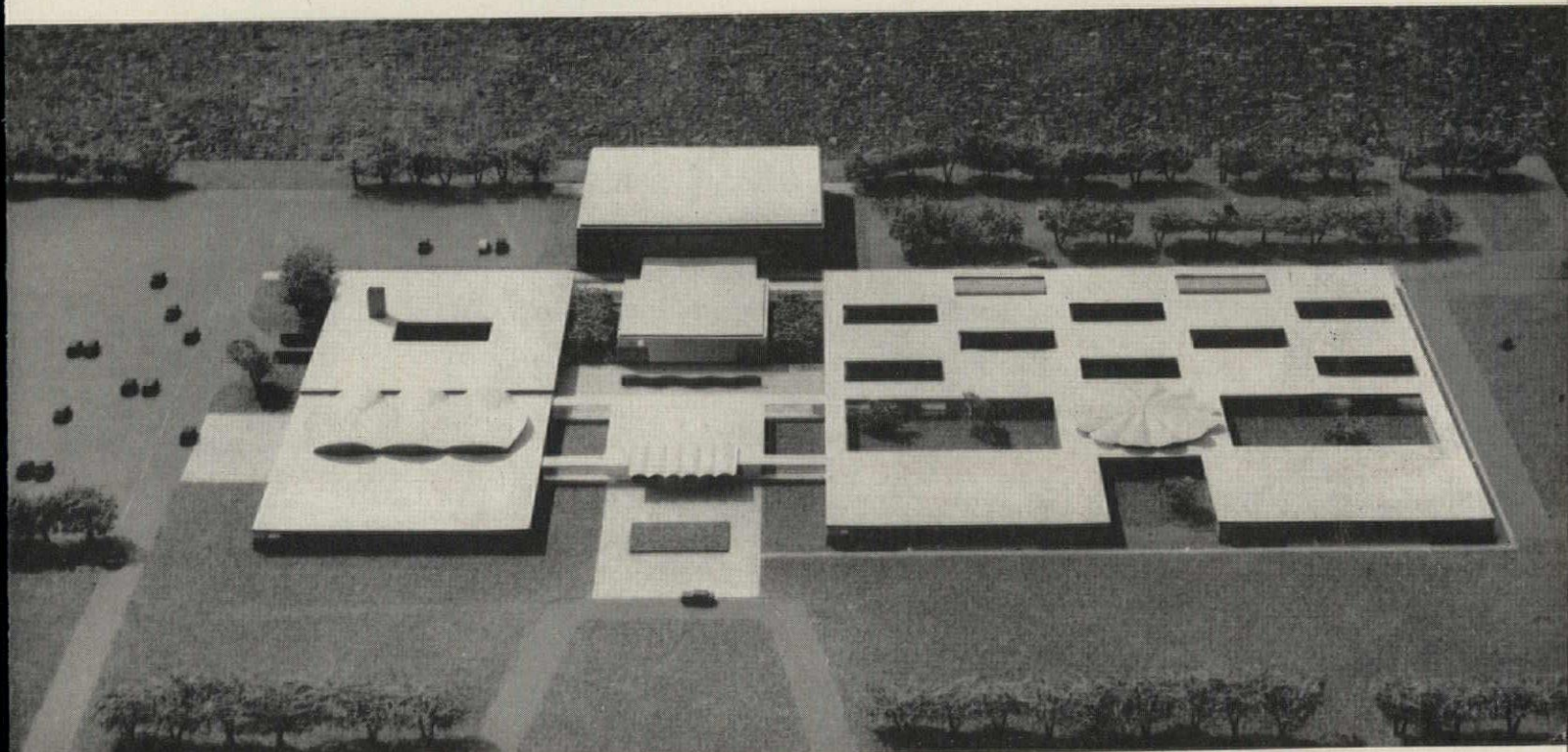
by joint-scheduling of the general academic and specialized subject matter areas of the school and school-community activities. More efficient utilization of the secondary school staff personnel also is potentially greater with this unique facility.

The multi-use instruction center should most closely resemble a small community theater as opposed to a large commercial theater. Its planning should be as simple and foolproof as possible . . .

Each teaching space, irrespective of whether the main assembly space is divided or utilized as a single teaching station, should provide space for a portable unit. Each of these units should include the following: controls for lighting and the operation of audio-visual equipment; a rear-projection type, overhead and/or opaque projector; an appropriate viewing screen of adequate size; a teacher's chair; and a small desk or lectern.

WYLIE E. GROVES HIGH SCHOOL

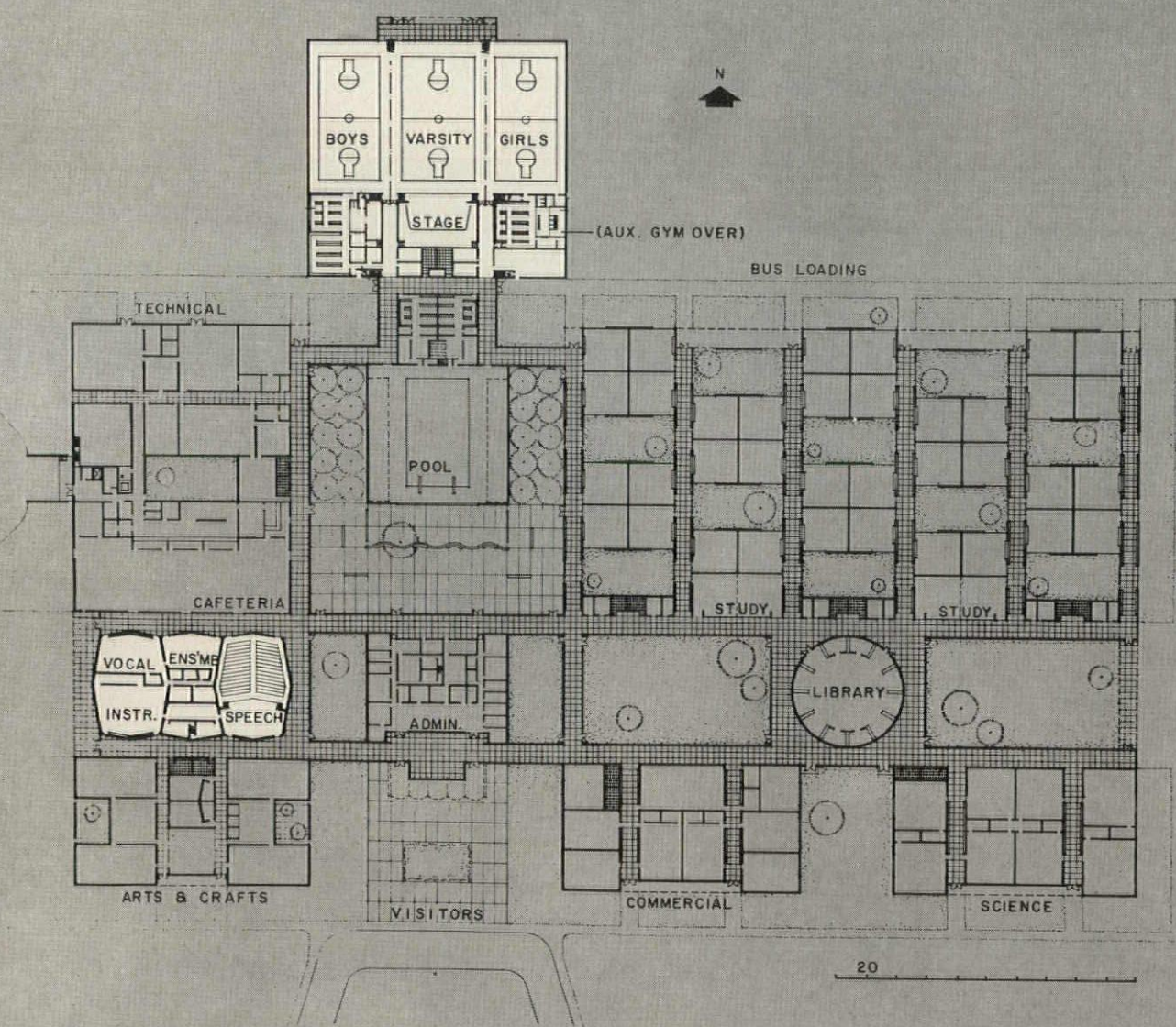
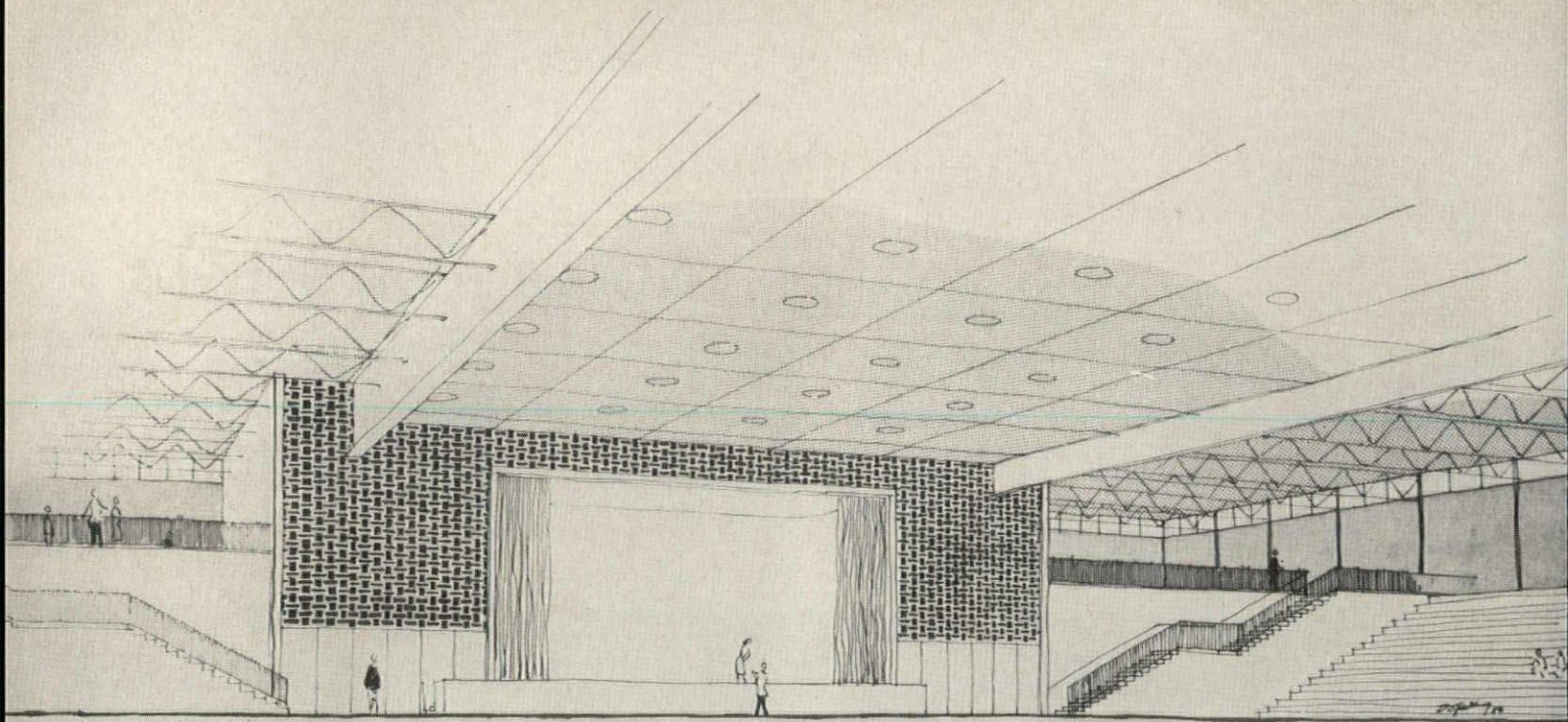
Birmingham, Michigan. Linn Smith Associates, Inc., Architects (Linn Smith, A.I.A., Almon Durkee, A.I.A., Gordon E. Hoyem, P.E.); James Newbold, Associate Architect. Clifford Holforty, Structural Engineer; Pulte-Strang, Inc., General Contractor



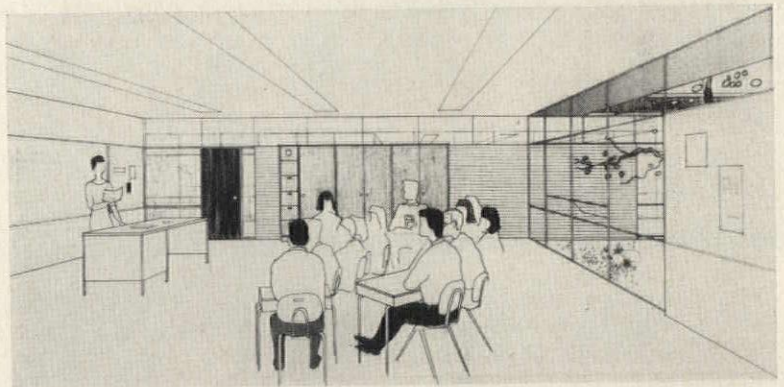
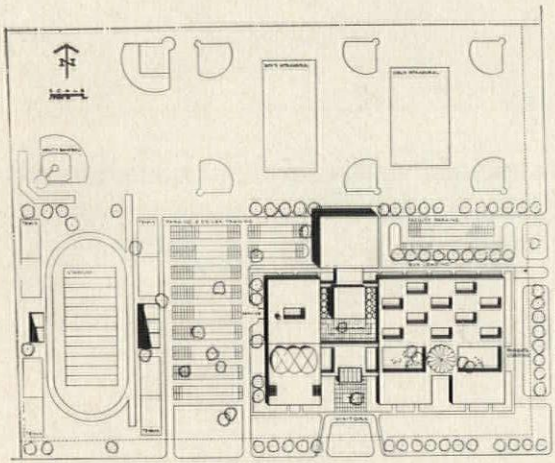
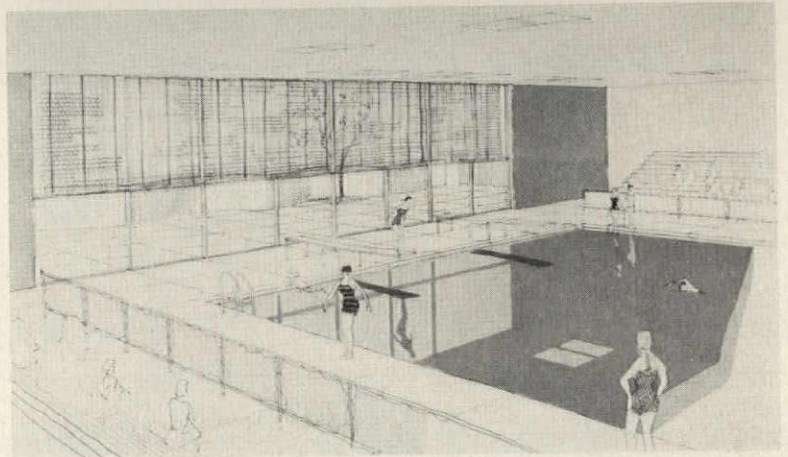
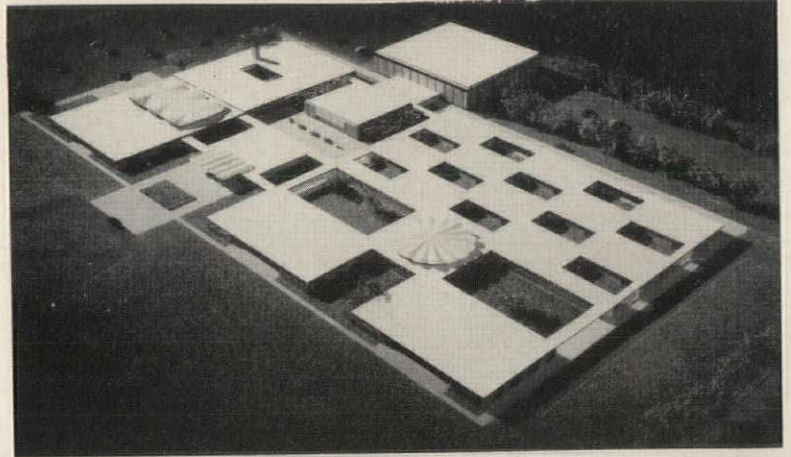
Lens-Art

This extremely pleasant school uses a classroom cluster scheme, and a campus plan to achieve appropriate scale, and well articulated building grouping, in a sizable plant for 2000 pupils. Court-dotted, and sprinkled with concrete shell roofs, the orderly scheme acquires a near-festive atmosphere. It is now nearing completion; the classroom section was occupied at the beginning of this school year.

The basis of design for the school was a thoroughly developed set of educational specifications prepared by school officials after careful analysis and evaluation of local needs, and a series of conferences with a representative of the architectural firm. The educational program was conceived in terms of four basic areas—general education, vocational and special interests, physical and mental health, and social adjustment. Each area and activity of the school was comprehensively outlined in terms of objectives, activities, and building, equipment and storage requirements. Since the community sends a large percentage of its high school graduates into higher education, the school was planned with special emphasis on college preparatory courses. Pending further population increases, the school will temporarily serve as a junior-senior school, later as a senior high school.



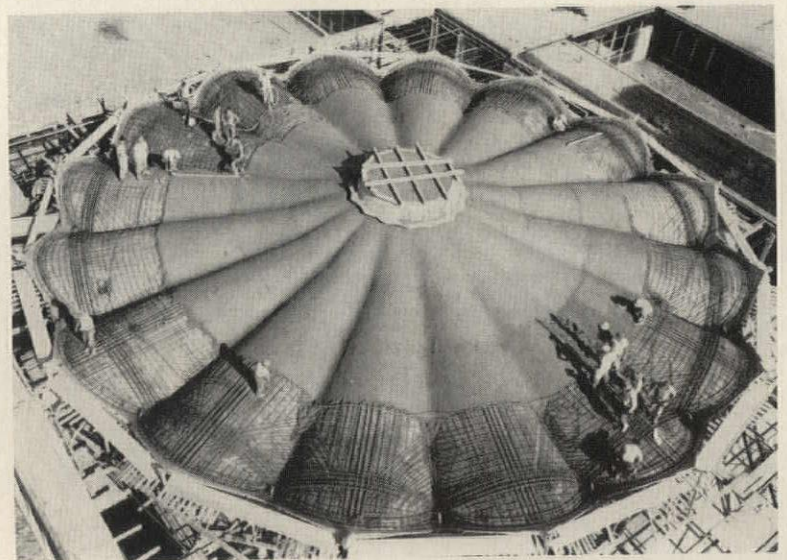
Wylie E. Groves High School
Birmingham, Michigan



Two highly different facilities are provided in this school for assembly and auditorium use. For big gatherings and productions, a stage is provided in the gymnasium (sketch upper left). For more intimate plays, broadcasts, music recitals, a small theater seating 300 is placed with the music and speech departments.

Instructional areas are grouped into three major zones. A quiet academic zone, with its series of four classroom clusters has as its focal point a centrally located library, which also serves the science and commercial wings. The noisier allied arts and cafeteria are placed from this "main campus," with adjoining parking for community use. The gymnasiums and indoor-outdoor swimming pool are placed to the rear of the school and centered on the playground.

Construction is of lightweight steel except for the three precast concrete shell roofs. Walls are masonry or prefabricated curtain walls. Heating is by a hot water split system using radiant ceiling panels and ventilating fan units



MEDINA ELEMENTARY SCHOOL

Medina, Washington. Naramore, Bain, Brady & Johnson, Architects. Worthington & Skilling, Structural Engineers; Lewis Construction Co., Contractor; Bouillon & Griffith, Mechanical & Electrical Engineers

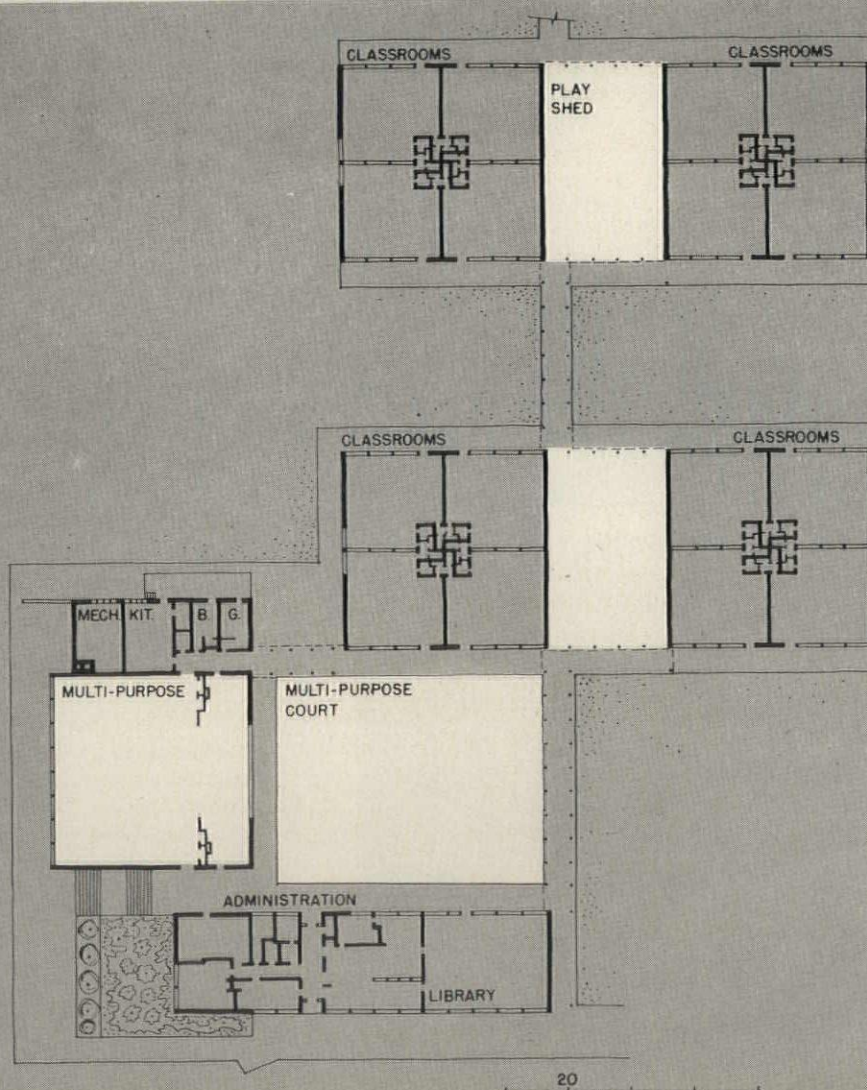
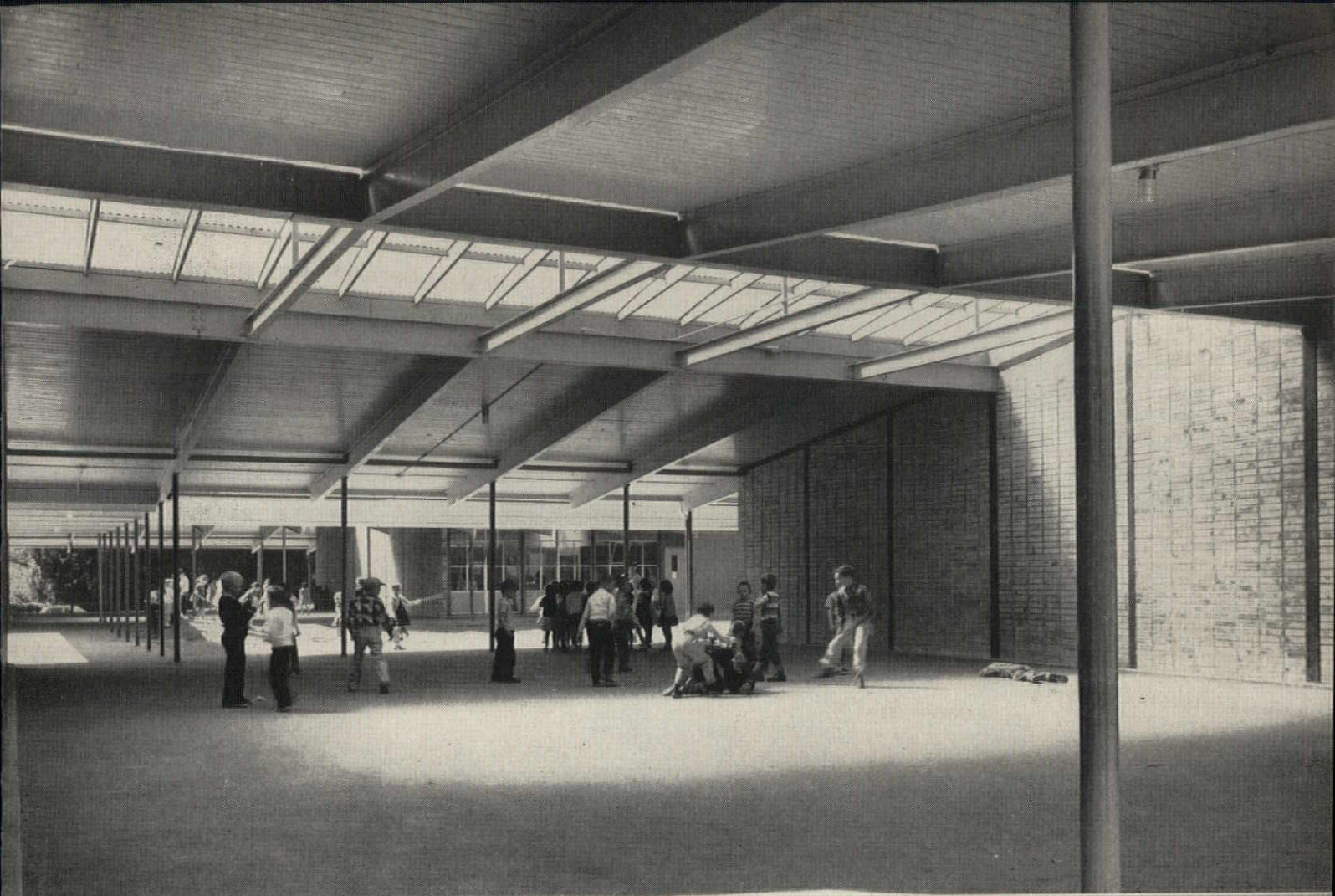


Charles R. Pearson

This cluster-type school gains a lot of economical get-together and play space by linking pairs of classroom clusters by open-air covered play sheds. Large plastic skylights keep them bright and cheerful. Indoors, assemblies and the like are taken care of by a multi-purpose room, which opens onto a big outdoor multi-purpose court.

The school is actually a 16-classroom addition to an old double-story school building. The new plant is completely isolated from the existing structure, with only a path connecting the two. 480 children are housed in the new buildings with grades from kindergarten through the 6th grade. The addition also includes an administrative suite, clinic, library, kitchen.

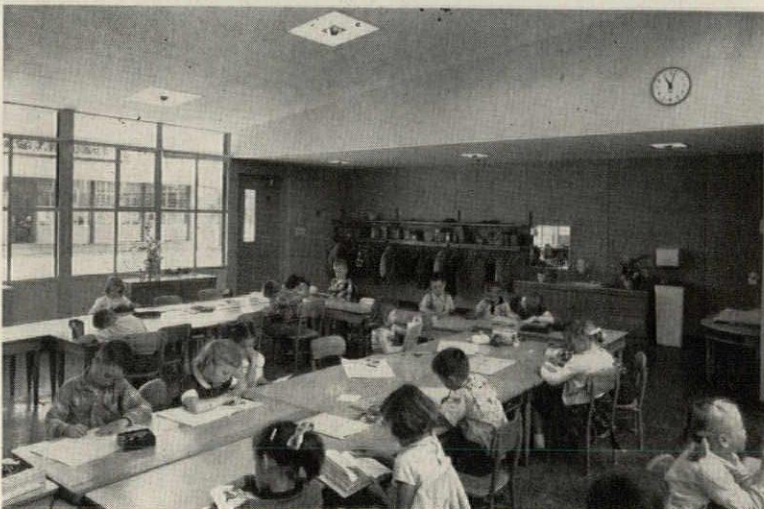
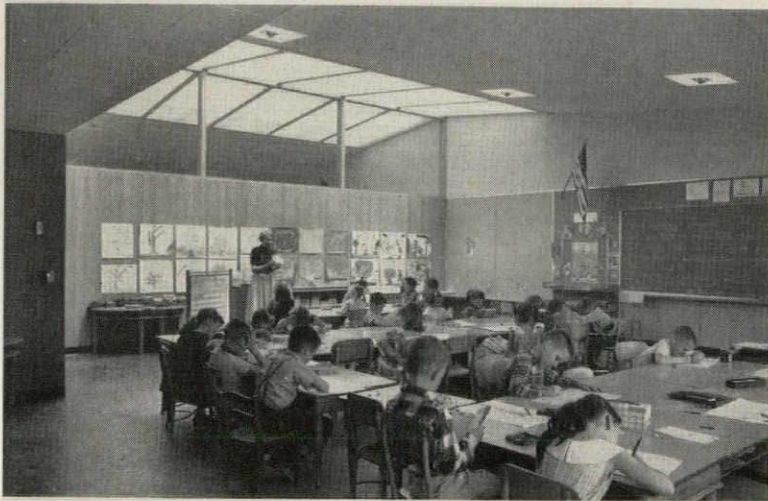
Basic program requirements included: low fire insurance costs, low maintenance costs, large classrooms but minimum gross floor area per pupil, and bilateral lighting. Insurance requirements were met by using 6-in. exterior brick walls and metal window panel walls. These and the other materials selected cut maintenance by eliminating most exterior painting. Classrooms of 960 sq ft were provided, but per pupil area kept to a minimum (68 sq ft) by the cluster arrangement eliminating interior corridors. Plastic skylights provide bi-lateral lighting.



Charles R. Pearson



Medina Elementary School Medina, Washington



The buildings of the school are constructed of a steel frame, with brick, aluminum, and glass exterior walls. Interior partitions are wood frame surfaced with cedar boards and plaster board. Floors are of asphalt tile on a concrete slab. The roof is of 2-in. wood plank; ceilings are acoustic tile. Heating and ventilation are accomplished with steam-heated ventilators.

Total area of the school is 32,596 sq ft. Total cost (exclusive of land, landscaping, furniture, taxes and fees) was \$427,951

RYE NECK JUNIOR-SENIOR HIGH SCHOOL

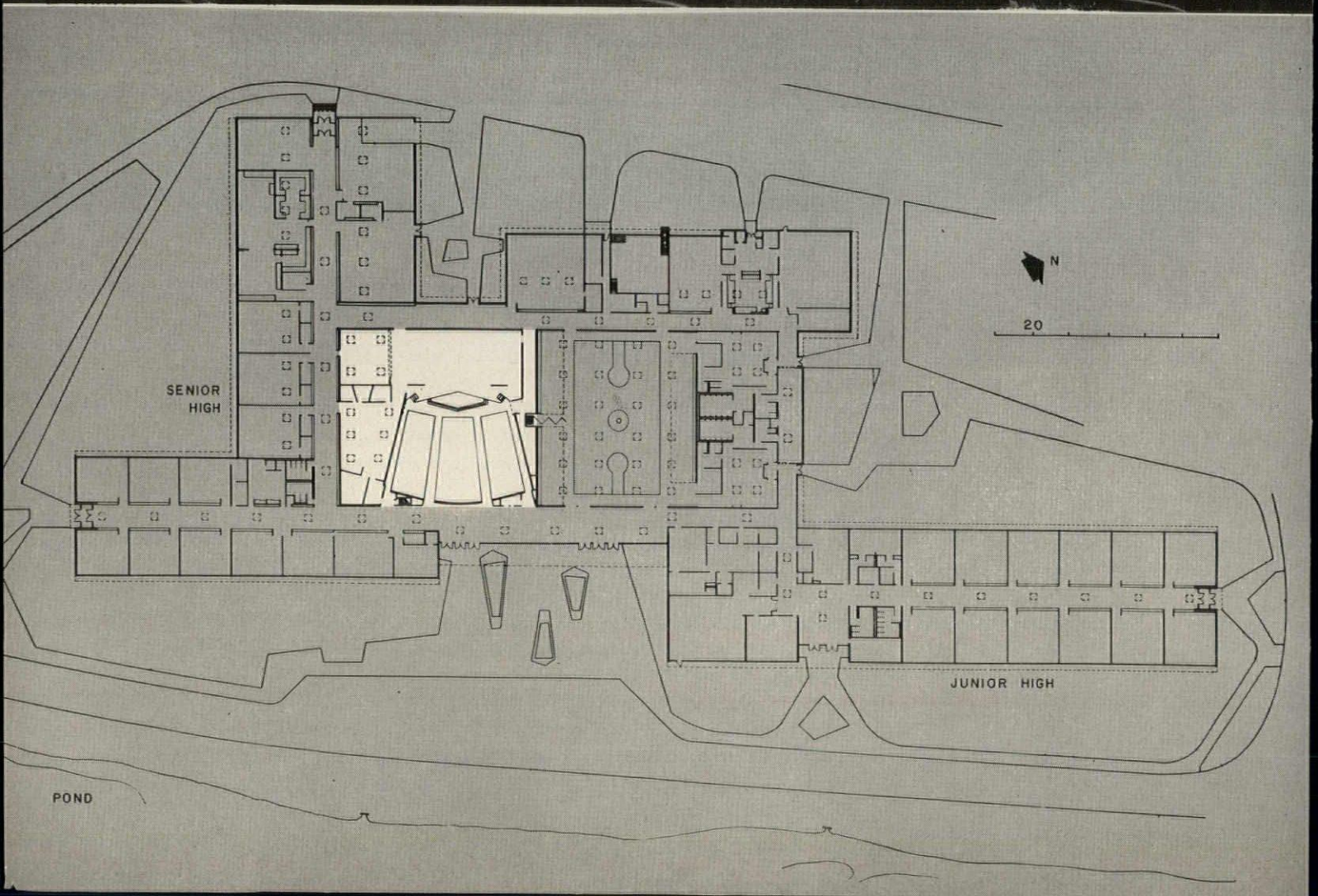
Rye, New York. Perkins & Will, Architects. Severud, Elstad & Krueger, Structural Engineers; Jansen & Rogan, Mechanical Engineers; Damon R. Finelle, Landscape Architect; M. E. Maloney & Co., Contractor; Bolt, Beranek and Newman, Acoustical Consultants



Joseph W. Molitor

A central core of specialized facilities serves Junior High, and Senior High classroom wings of this new school. The core contains auditorium, gymnasium and lockers, cafeteria, library, and spaces for: music, art, industrial arts, home economics and science. Thus these more expensively equipped spaces achieve maximum use from the joined schools, while separation of the wings—each has its own entrance—gives each age group its identity. The teaching space within the two wings is planned to accommodate about 750 students by 1960.

The school is a one-story building of yellow face brick. Orientation and overhangs were calculated to permit the sun's rays to enter to a maximum of 8 to 10 ft in classrooms from September to June. The site of about 45 acres provided ample space for the semi-campus plan. The structure is steel frame supporting, for the most part, open web steel joists and thermal acoustic roof deck. Roofing is tar and gravel. Auditorium, music room and gymnasium all use long span joists to support the same roof structure. Interior partitions are of painted concrete block. Corridor walls are primarily lockers with glass above. Classroom ceilings expose steel framework; a hung ceiling in corridors masks piping, wiring and other mechanical installations.



Joseph W. Molitor

Rye Neck Junior-Senior High School
Rye, New York



The auditorium of the Rye Neck School is easily accessible from the main school entrance, and has carefully studied acoustics, sightlines, ventilation, storage and work areas, orchestra pit and projection booth. The orchestra pit has removable fillers to increase flexibility of arrangement. Flexibility is also provided backstage by a folding partition permitting a stage classroom to be added to back stage work space when needed. Ample rigging and lighting equipment are supplied to permit more productions to be worked on at one time. The music room is located adjacent to the auditorium, with four practice rooms and space for a music library and storage of instruments and uniforms.

Total costs of all contracts amounted to \$1,833,487.82. This was broken down into actual building cost at \$1,612,686.82 and actual site development cost of \$214,301 for the entire 42 acres. Built-in food service equipment was \$6500

HAMLIN JUNIOR HIGH SCHOOL

Springfield Oregon. Wilmsen & Endicott Architects. Thomas C. Jamieson, Mechanical Engineer; Fritz Klawa, Electrical Engineer



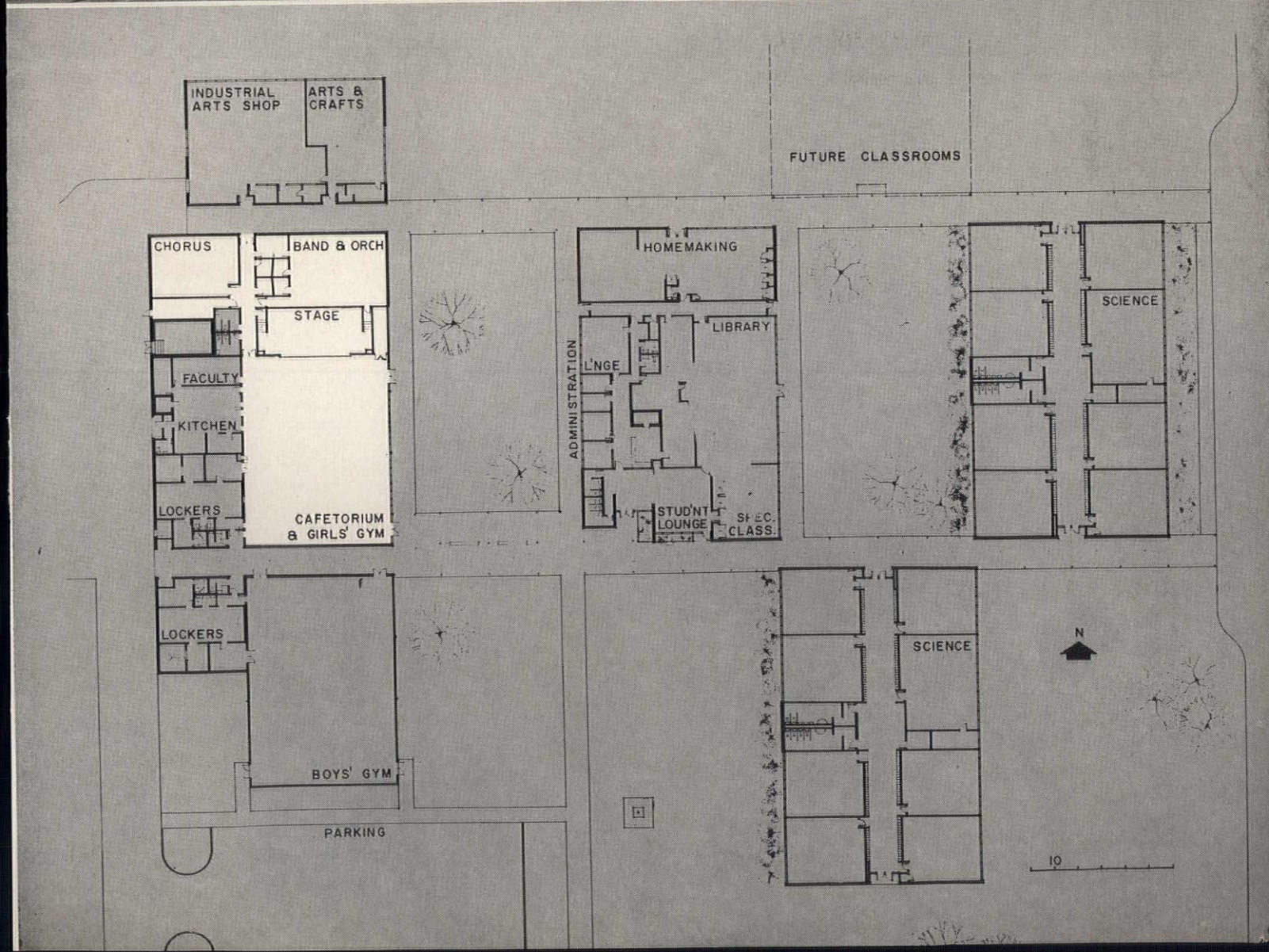
Tom Burns, Jr.

This highly individual school, with what the architects refer to as a "Whoopsie-do" roof system, is a forthright attempt to create a school of unique appearance to help the Junior High student identify himself. The folded plate roof system does create a symbol to which the pupil can feel he "belongs," and adds considerable gayety to avoid an institutional appearance in the school.

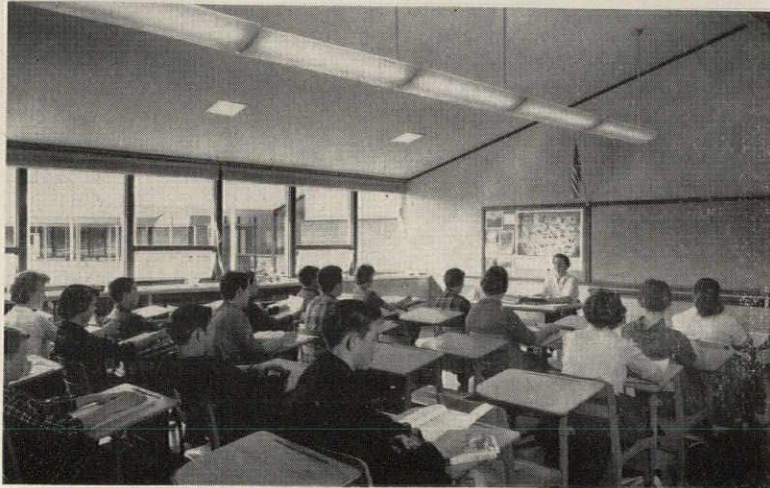
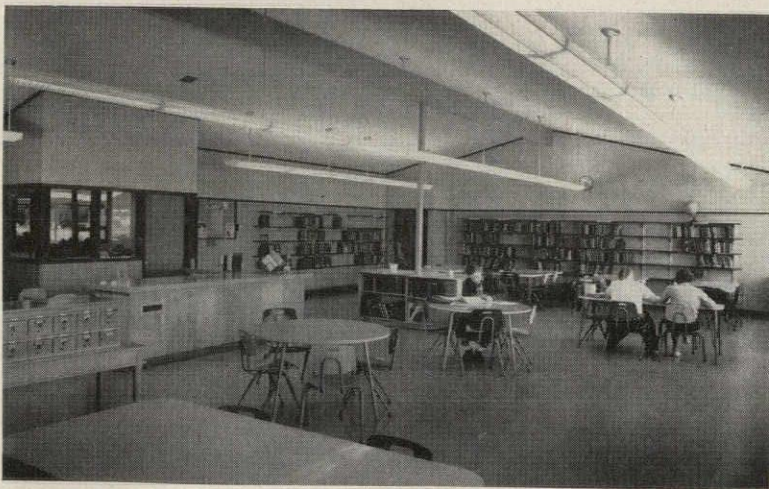
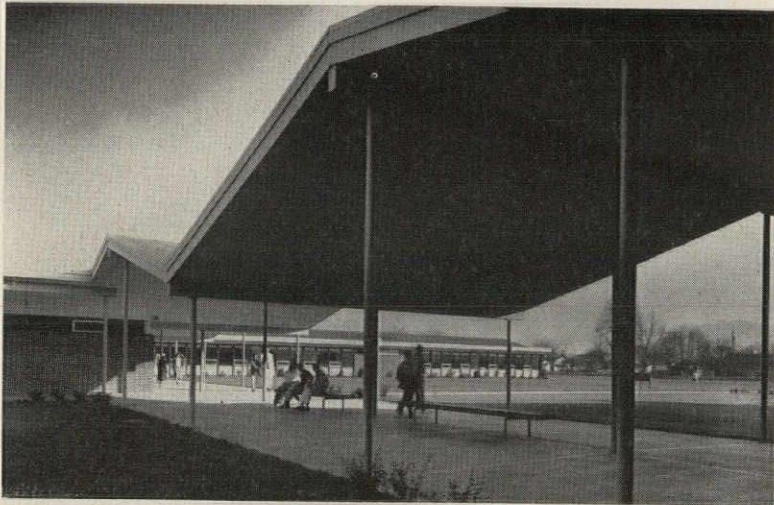
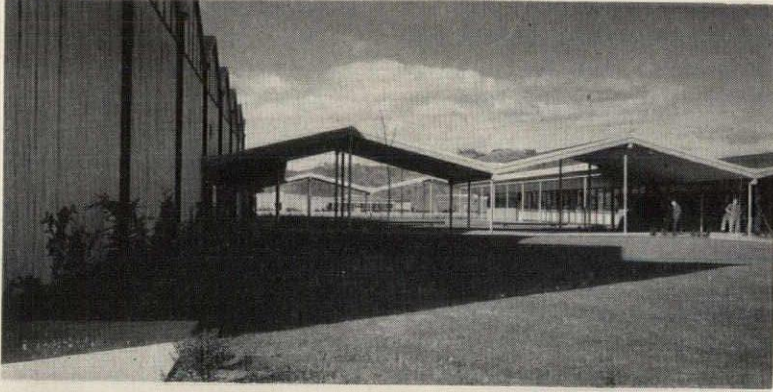
In plan, the school is broken down into several smaller, linked units, with an extra classroom wing planned for expansion, and to complete one of the courtyards (see model photo above, and plan at right).

The problem of space for assembly or auditorium use was solved by making one of the two gyms into a "Cafetorium," with a good sized stage at one end. Music rooms, band and chorus rooms are arranged in good relationship to the stage. Cafeteria facilities and faculty dining area can also double for snack service at evening assembly functions.

As Springfield is a lumber and plywood manufacturing city, a great quantity of fir lumber and plywood was used. The roof framing is of fir roof joists spanning to fir laminated ridge beams. Classroom window walls have fir frames, prefabricated and set in sections prior to setting the roof joists, and thus have a structural value.



Tom Burns, Jr.



Hamlin Junior High School Springfield, Oregon

Due to a rigid budget, a great number of economy materials was used throughout the school—and with very pleasant effect. Floors are concrete slab on grade, finished with asphalt tile. Walls and partitions are wood frame; exteriors have a 7-ft brick wainscot for durability, cedar siding on the gymnasium wing. Interiors have a 3-ft wood wainscot with plaster walls above in classrooms, 7-ft wainscot and plaster above in corridors. Ceilings are acoustical plaster, columns are pipe. The exposed laminated beams are painted blue. Doors are painted bright colors for accent. Perforated hardboard with acoustical insulation behind is used on high walls of cafeteria and gym for additional acoustical control. Heating is electrical: unit ventilators in classrooms, unit heaters in shop and utility areas, and volume heaters in the gyms. (An especially low electrical rate was obtained on a ten-year contract.)

Total area of the buildings, with covered walkways at $\frac{1}{3}$, comes to 60,179 sq ft. Total contract cost was \$548,067, which comes to \$9.10 per sq ft.

JAMES HENRY GARNETT ELEMENTARY SCHOOL

Gary, Indiana. Leonard Klarich, Architect. Harold Silverthorn, Educational Consultant; Remy Construction Co., General Contractor; Alfred Caldwell, Landscape Architect



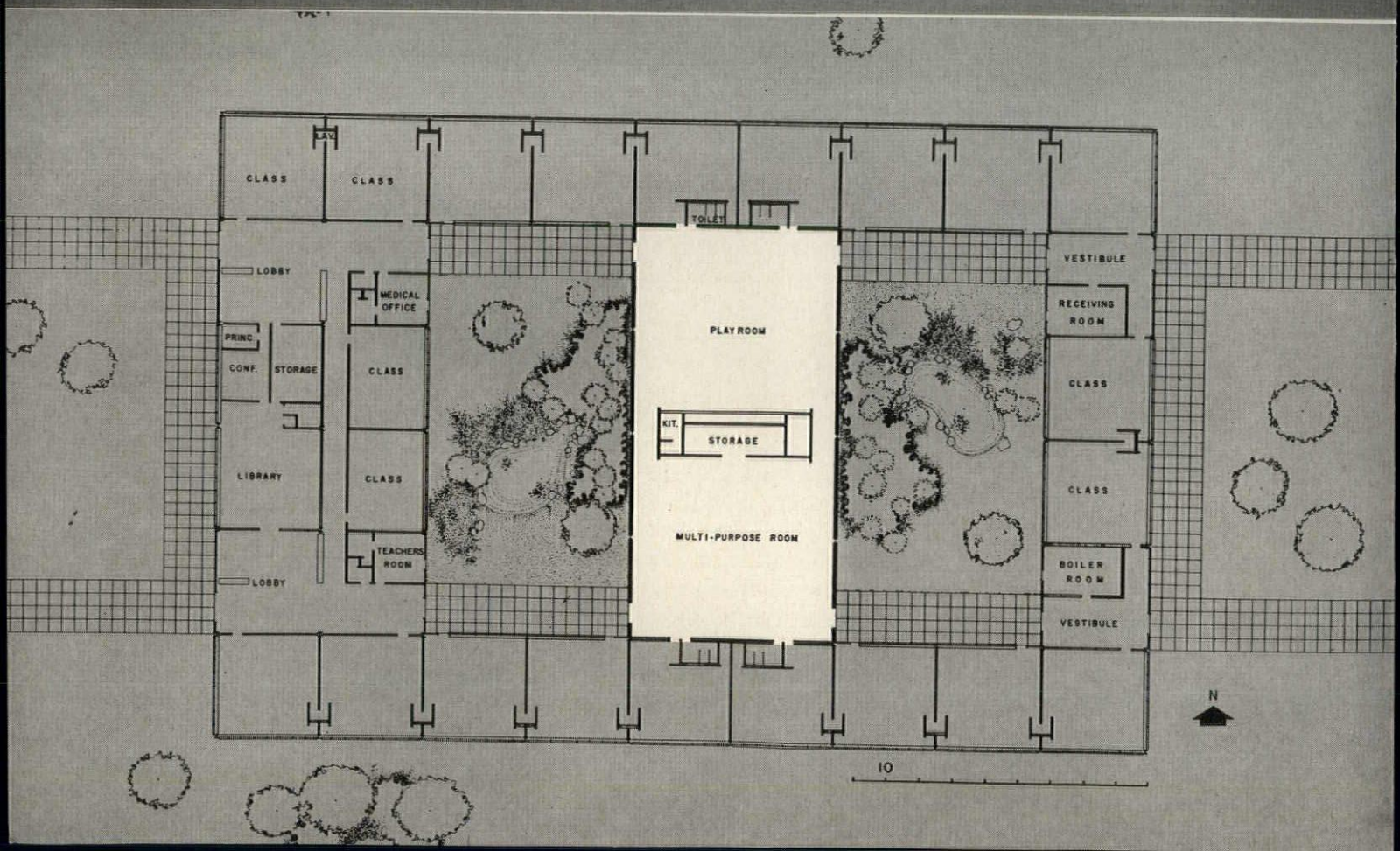
Hedrich-Blessing

An introverted scheme, focusing on two courtyards, was developed for this school because of unusual site conditions: alleys on three sides, and a, as yet, still projected park for the fourth. Thus, sill heights are kept on the exterior walls, at normal level on the courts.

The shape of the building—trim and rectangular—was, to a large part, determined by reasons of economy. Outdoor corridors were used to further reduce costs. The scheme was planned for seven hundred and twenty students in twenty classrooms, plus two kindergartens.

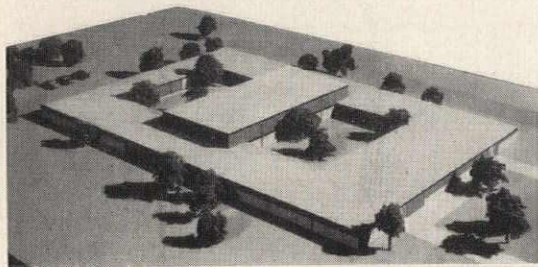
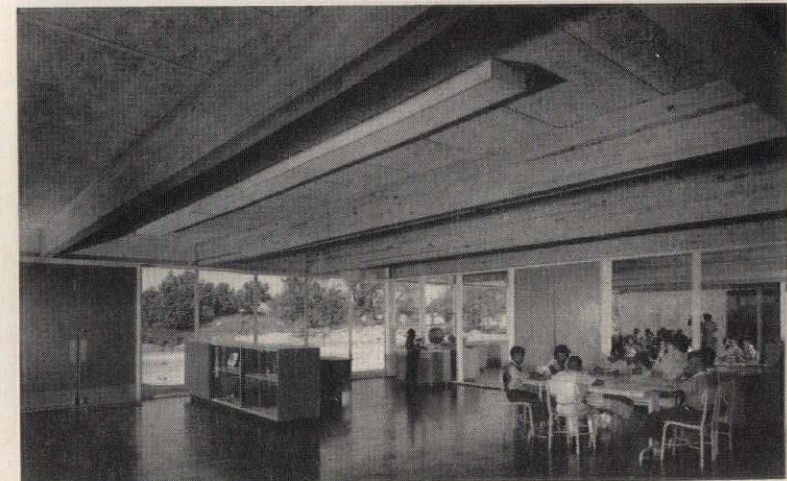
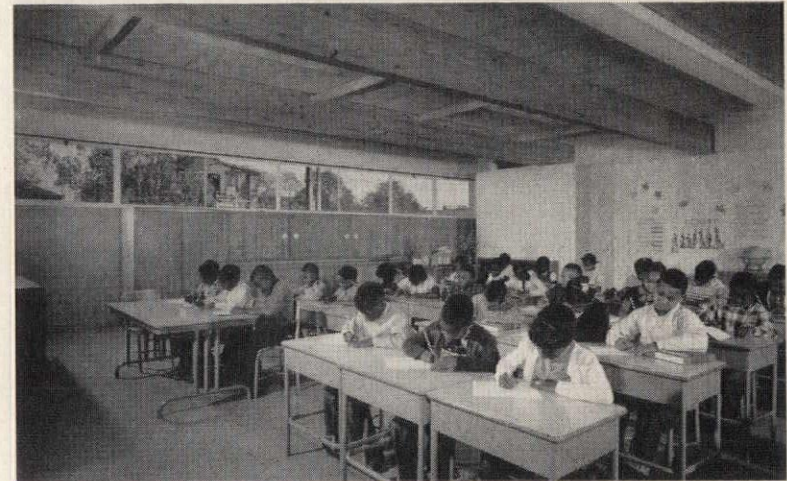
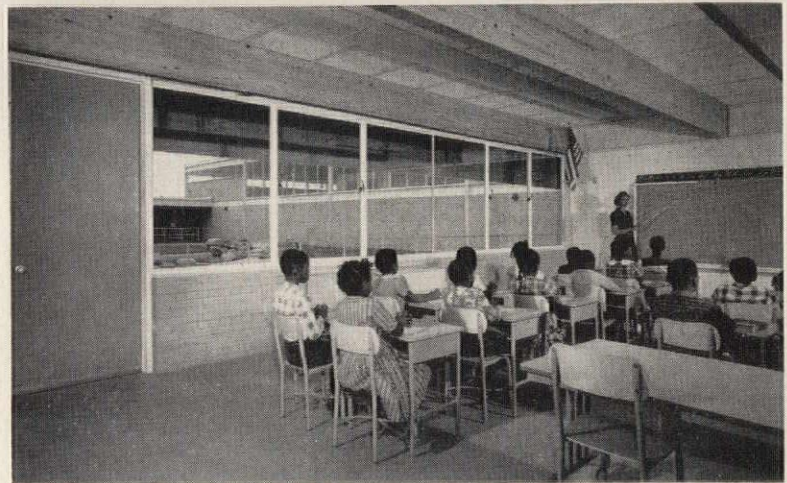
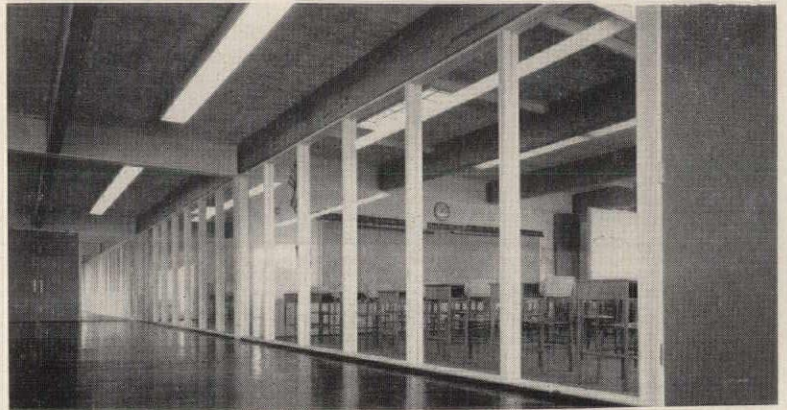
Assembly, play and cafeteria space is provided in a large multi-purpose room, which separates the two courtyards. This large room is divided by a storage core through the center, containing storage space for chairs, tables, a small kitchen, food storage, a removable serving line, and a toilet. The dividing core permits use of the two areas independently—small children on one side, older ones on the other. Its location makes it convenient for use during the regular class hours. Kitchen facilities are kept at a minimum, as food is prepared in a nearby school and brought in warming carts.

The entire building is on a 32-ft structural module, with a sub-module of 4-by-8-ft. Most classrooms are 32 ft square.



James Henry Garnett
Elementary School, Gary, Indiana

Hedrich-Blessing



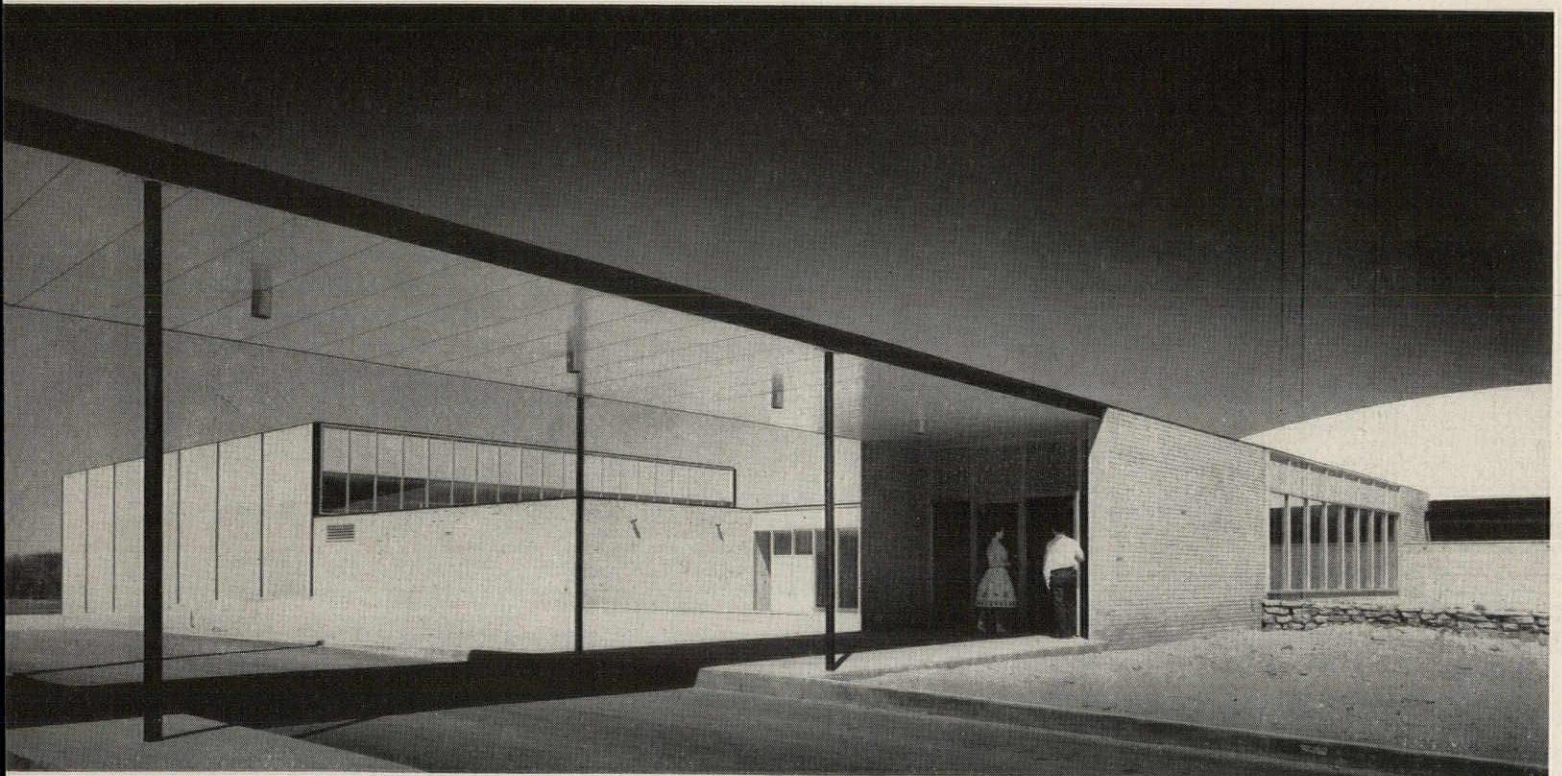
The multi-purpose room (left) is built of durable materials, brightened by the painted plaster walls of the core. The floor is asphalt tile on concrete, exterior walls are buff brick, exposed both sides. The roof is of prefabricated insulating panels, on long span bar joists. Classrooms have similar materials, with a structural steel frame, wood laminated beams. Glass block roof panels, and glass walls along corridors help supplement and balance the daylight.

The library is planned as a special "instructional materials center," and contains all audiovisual aids. A full time specialist is in charge. There is storage provided for jumbo files, posters, tapes, records, slides, projectors and screens. A teacher planning room is adjoining, and the preview room is combined with the conference room.

Total costs, including cabinet work and site development were \$523,454. Total area is about 40,000 sq ft.

UTICA HIGH SCHOOL ADDITION

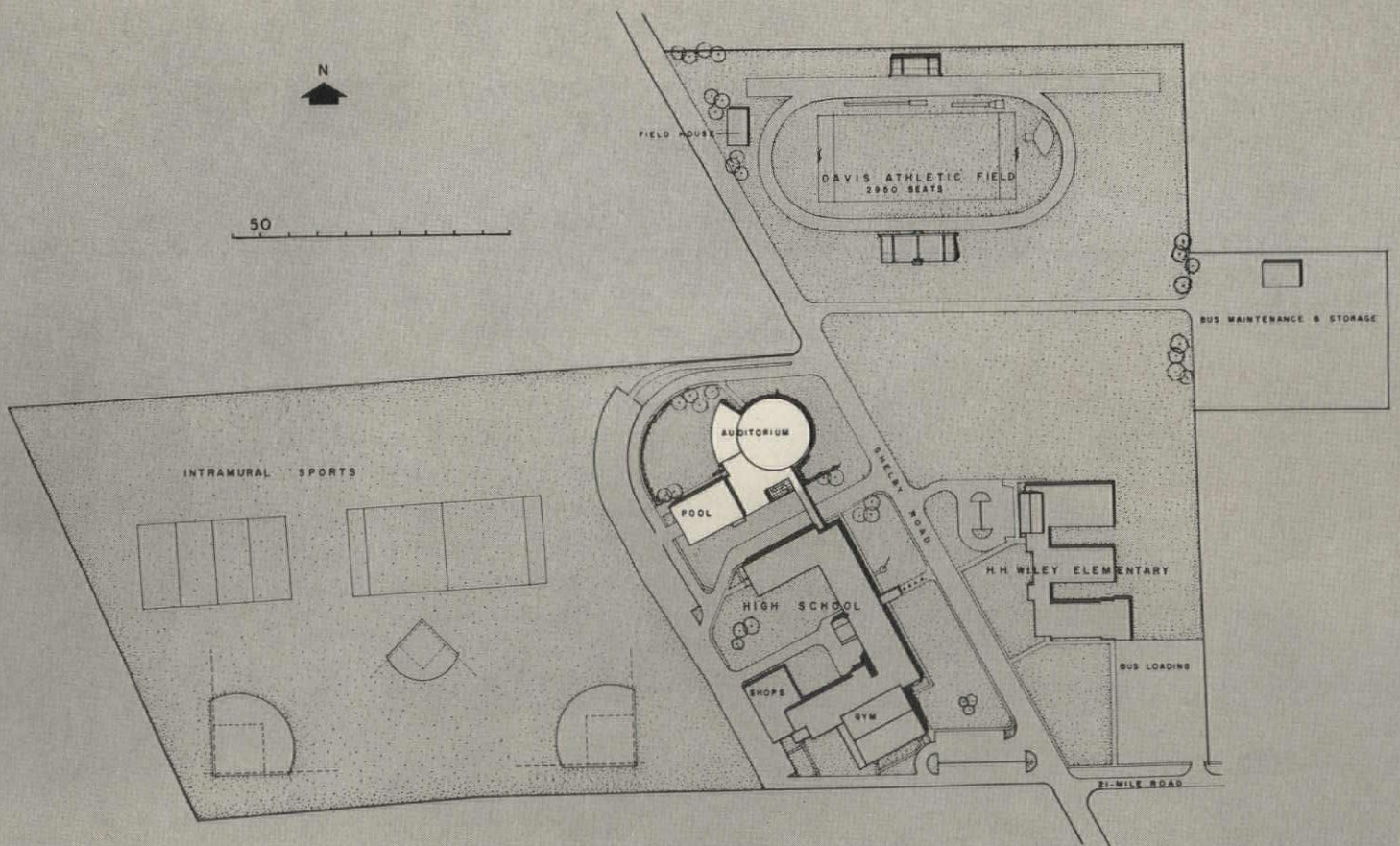
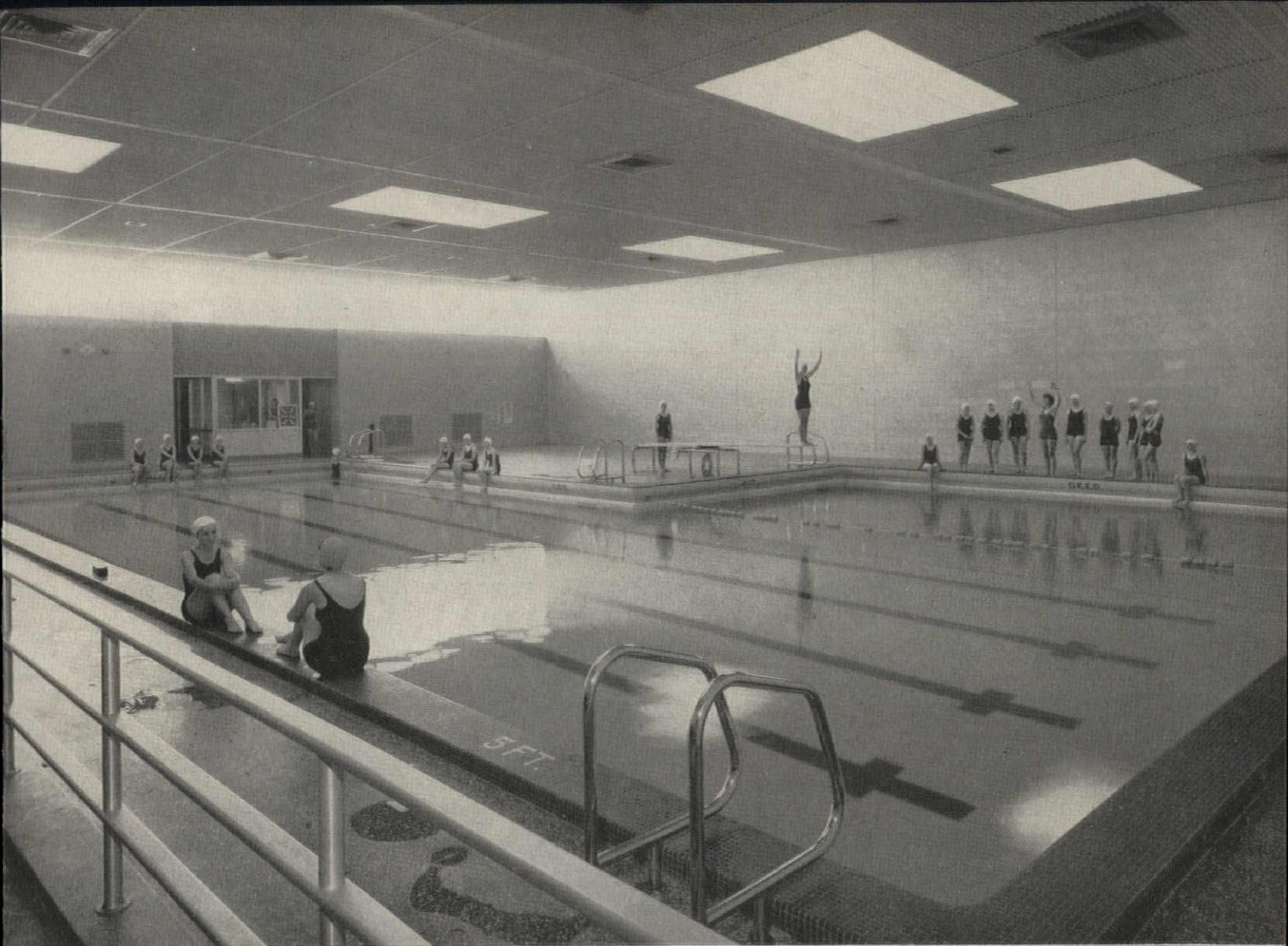
Utica, Michigan. Smith & Smith, Architects. James H. O'Neill, Structural Engineer; B. A. King & Assoc., Inc., Mechanical and Electrical Engineers; C. H. Reisdorf & Sons, Inc., Contractor



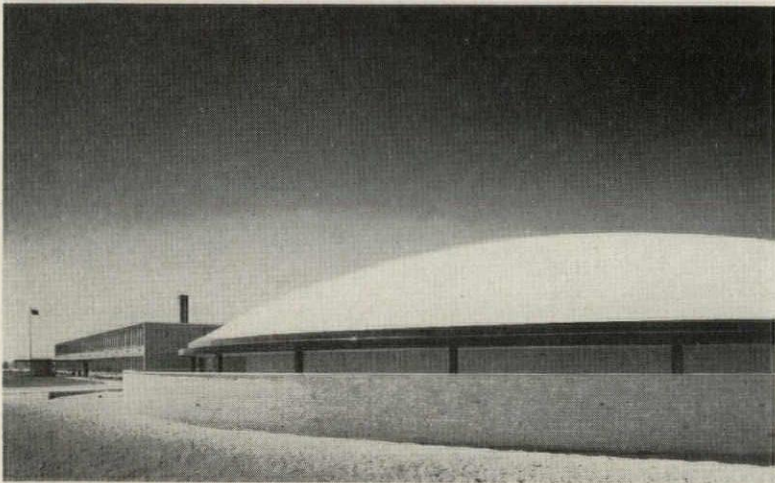
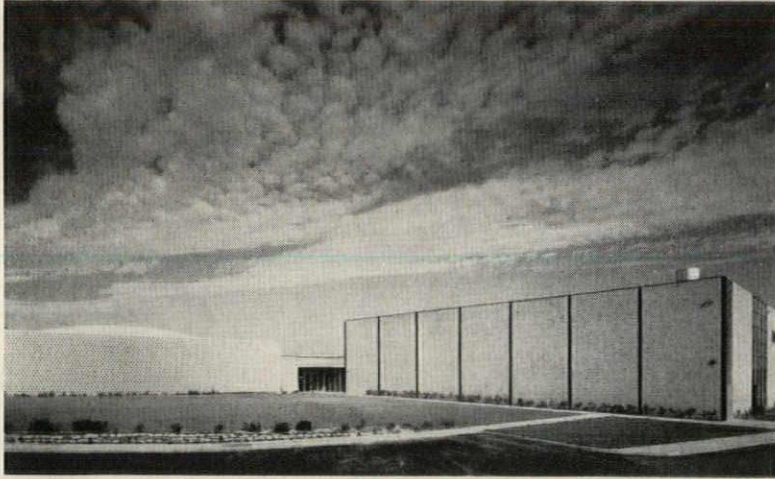
Lens-Art

This new auditorium and swimming pool addition to the Utica High School supplements facilities built in 1953. At that time, the Board of Education of the Utica Community Schools decided against a combination auditorium-gymnasium; district population trends and school enrollment studies indicated that in a few years educational, as well as community requirements would demand separate facilities.

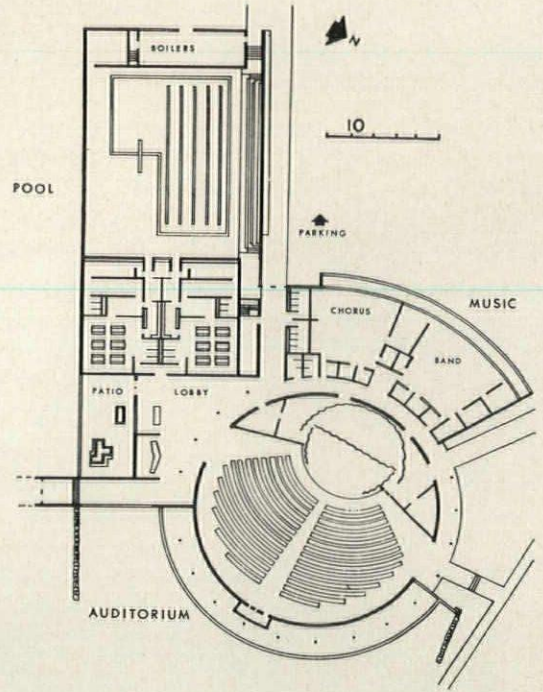
Enrollment has increased to that point, and the handsome education and community center shown here is the result. Besides the pool, and an auditorium seating about half the student body, the center includes a complete instrumental and vocal music department. The shape of the auditorium, and its seating arrangements were a blending of two widely used patterns: the long, narrow, three-sectioned hall; and the semicircular "continental" seating arrangement. The latter provides intimacy, but poor circulation and view-lines for movies or plays. The final solution contains 694 seats, with the farthest away only 54 ft from the stage. Rows of seats are wide enough apart to minimize need for aisles. The stage is planned with a flexibility to adjust for a single speaker, a three-act play, or large orchestral and choral groups. The swimming section has an "L" shaped pool to separate diving.



Lens-Art



Utica High School Addition, Utica, Michigan



The auditorium is roofed by a wood framed dome, exposed on the interior, and supported from a reinforced concrete tension ring. Roofing is composition with white marble coating. Steel construction with reinforced concrete foundations and floors is used elsewhere. Poured gypsum and matched wood deck is used. Exterior walls are brick-veneered, light-weight concrete block. Pool and lobby areas have terrazzo floors; other spaces are asphalt tile. Heating and water-heating systems are gas-fired. Costs were quoted as "less than \$1 million"



Architectural Engineering

Life Begins at Forty

Felix Candela, whose name is synonymous with hyperbolic paraboloid, seemed to find something in the English air during a tour of Britain earlier in the year that not only inspired him to memorable lectures before architects and engineers, but also put him in the mood for a revealing interview in the magazine *Interbuild* about the pattern of his development as a designer. For that of a creative designer, his early history had a not atypical sound, ". . . you become familiar with what is happening with known forms. When I began building in this way my mind was [developing] from the scholar . . . stage. As students we believe firmly in everything we are told . . . In my case I began to lose faith in all things I had believed in before . . . You begin to live critically and . . . criticize everything that comes your way." As to when Candela reached this point he said this, ". . . I never wrote an article before I was forty . . . I was even unable to speak in public. And then all this began to happen very quickly . . . I began to feel sure of my opinion—and feel that I even had an opinion." Turning to his idea of the role of the creative designer he said, "I think it is absolutely necessary to specialize . . . It ought not be exaggerated too much. You must have a general background in everything . . . To be able to think by yourself is indeed the only real problem."

Costs of Nuclear Power

At the present time estimated costs for nuclear power are approximately twice that of power from conventional power plants, according to a July report from AEC. Cost of producing electricity in 12 fossil-fuel plants having outputs from 100 to 300 megawatts was reported to be from 5.5 to 8 mills per kilowatt hour in 1957. Range of expected costs of electricity from nuclear plants being built or planned for early construction of 150 megawatts or more were given as 11 to 18 mills per kwhr. In Euratom countries conventional power is estimated to be from 9 to 11 mills per kwhr. The largest single factor in the cost of nuclear power is high capital investment. Technological improvements and standardization should reduce costs. Fuel costs which are about half of fixed capital charges can be improved also. The report, "Costs of Nuclear Power," (TID-8506) can be obtained from the Office of Technical Services, Department of Commerce, Washington 25. 50 cents.

Electrical Growth

The United States is producing about 40 per cent of all the electricity generated in the world and outranks Russia three to one, according to a report in *Electrical Construction and Maintenance* for September. The figure most bandied about for power growth is that it has doubled every decade. Figures from *ECM* show, however, that from 1948 to 1958 the kilowatt hours increased by 263 per cent. It is estimated that electrical energy will reach 1458 billion hwhr by 1970. Power usage breakdown is rather interesting: in 1958 residential accounted for 28.4 per cent of the total, industrial 47.9 per cent, commercial 17.8 per cent, and other 5.9 per cent.

Wood And Building Codes

American Standards Association is making progress toward the formulation of a construction standard on wood for the guidance of those responsible for the writing and adoption of building codes. Basis for this standard is expected to be a U. S. Forest Products Laboratory report of two years ago called, "Recommended Building Code Requirements for Wood or Wood-base Materials." The report provides for the use of any materials or methods of wood construction which are shown by analysis or test to give satisfactory service. Since specific construction details are not given, 44 reference publications are listed to indicate accepted good practice. Some of the topics covered in the government report include: light-frame construction; decay and insect protection; glued laminated structural members; structural sandwiches; prefabricated panels; wood diaphragms; trusses, arches, rigid frames and pole framing.

This Month's AE Section

AIR CONDITIONING FOR HIGHER LIGHTING LEVELS. pp. 230-237. *PLASTIC PARASOLS FOR MOSCOW.* pp. 238-241. *PRODUCT REPORTS,* page 242. *OFFICE LITERATURE,* page 250. *TIME-SAVER STANDARDS.* A Reference Guide to Hospital Electrical Facilities, pages 245, 247.

AIR CONDITIONING FOR HIGHER LIGHTING LEVELS

by W. S. Fisher and J. E. Flynn

General Electric Co., Large Lamp Dept., Application Engineering

Even in the past, heat from electric lighting formed a large part of air conditioning load. Now that the Illuminating Engineering Society has raised its footcandle recommendations (in many cases they have been doubled) the effect of lighting on air conditioning is even more serious—especially when conventional methods of cooling are employed. The authors suggest a large portion of the heat from lighting fixtures can be removed at the source by exhaust air, or by cooling water—a much more efficient way to do it than by letting the heat come into the room for elimination there. In winter, it is possible for lighting to supply 100 per cent of the heat required for comfort. The use of exhaust air for cooling fixtures has been put to test in a mockup. The results should answer what heretofore could only be conjecture about this method.

Current lighting recommendations for commercial and industrial buildings have reached a point where the lighting load may have considerable influence on air conditioning and heating system design. Continuing trends toward higher levels of illumination, as well as increased use of wall lighting and accent lighting,

have introduced additional human comfort and economic factors due to the heat which is introduced by the lighting system.

Estimates on the basis of conventional practice indicate that in office buildings where about 100 footcandles of general illumination is provided, the lighting load accounts

for approximately 37 per cent of the total air conditioning requirements. If the load is increased to provide 400 footcandles, then, lighting accounts for more than 70 per cent of the cooling capacity.

On the other hand, many current examples of lighting in commercial and industrial areas testify that 100, 200 and 400 footcandles are often desirable and economical to provide, notwithstanding the cost of supplying these levels with the necessary cooling. Also, techniques which combine certain aspects of air conditioning and lighting indicate the possibility of substantial reductions in overall costs. Some examples of integrated systems are now in existence.

It also has been pointed out that these higher lighting loads can furnish much of the heat required for a building during cold weather, suggesting the possibility of providing both light and heat from the same system.

Lighting as a Heat Source

All electric light sources generate heat in addition to the primary purpose of producing light. Regardless of the type of lamp, heat is emitted at the rate of 3.415 Btu/watt-hour of energy consumed. From this factor is derived the conventional "rule of thumb" that one ton of cooling capacity is required to remove the heat from approximately 3500 watts of lighting load.

While these factors remain constant for all light sources, they are related to "energy consumed" and not "light output." The fluorescent lamp, therefore, having approximately three times the luminous ef-

ficacy of an incandescent lamp, can be said to produce only about one-third the heat load per lumen. This establishes an initial thermal advantage for the fluorescent system. But detailed study of these two light sources establishes more fundamental differences in their characteristic operation as a heat source: differences which have an important bearing on the thermal comfort of lighted rooms.

Figures 1 and 2 show the dissipation of lamp watts from an incandescent and a fluorescent source with all of the wattage eventually becoming heat energy. While the lamps considered were approximately equal in lumen output (150w incandescent and 40w fluorescent), the figures shown indicate the dissipation as per cent of the total lamp

wattage in each case. This is illustrated in a comparison of the convection-conduction heat generated by the two lamps. As a per cent of the total input, this heat represents a smaller proportion for the incandescent system than for the fluorescent. However, if a comparison is made for equal light output, we see that for incandescent load, this form of heat is 20 per cent of 150 watts or 30 watts. Approximately the same light output from a fluorescent lamp and ballast produces 41 per cent of 45 watts or 18.5 watts of convection-conduction heat. So while the percentage figures may appear higher, the difference in luminous efficacy must be kept in mind when drawing conclusions from the illustrations.

A very important factor which must be kept in mind is that the

This article was presented as a technical paper at the annual National Technical Conference of the Illuminating Engineering Society in San Francisco, September 7-11.

light source is seldom an operating entity in itself. The heat emission characteristics of the lamp-fixture combination provide a more realistic picture.

First, it should be noted that any reduction in light output due to luminaire absorption is accompanied by a similar reduction in invisible radiant energy, as the two "follow each other" and have similar characteristics. When light (and invisible radiation) is intercepted and absorbed by the fixture, this loss is converted into heat within the luminaire itself. Radiant transfer, the transfer of heat directly between two objects or surfaces, is effected between the warm lamp and the cooler fixture surfaces.

Heat build-up within the luminaire may become substantial, with the convection-conduction heat and the ballast load initially trapped in the unit and a portion of the radiant energy absorbed by the luminaire surfaces. This confinement of heat will also increase the temperature of the ceiling and ceiling cavity (if any). If the build-up is allowed to continue, the luminaires and adjacent ceiling area become "secondary heat sources," the heat being carried into the occupied parts of the room by convection or re-radiation to cooler objects and surfaces.

To illustrate the point with a fluorescent example, it is noted that each 40 watt lamp plus its ballast will introduce approximately 154 Btu/hr. (3.415 x 45 watts) into the room. Ordinarily the entire load will eventually become a factor in the comfort of the space (and on the air conditioning requirements).

A study of the heat characteristics of the lighting system shows that the bare lamp itself dissipates 41 per cent of the lamp-ballast wattage as convection-conduction heat. This heat plus the ballast loss is initially trapped in the unit. In addition, a luminaire efficiency of 50 per cent means that one-half the light plus invisible radiation is absorbed by the fixture surfaces. Therefore, approximately 76 per cent of the total heat produced is initially restricted to the luminaire. If this heat or a substantial part could be drawn off without having it enter the occupied space, the lighting load which affects occupant comfort could be as little as 37 Btu/hr (as compared with the 154 Btu/hr. for the lamp and ballast as conventionally considered).

In theory then, for the luminaire condition noted, every 40 watts of fluorescent lighting (plus 5 watts ballast loss) will introduce 37 Btu/hr in a form which becomes an immediate factor on occupant comfort.

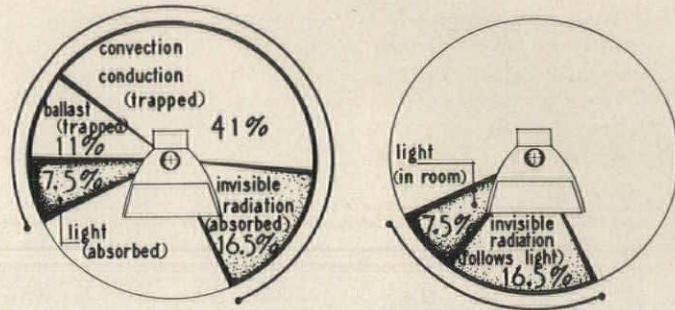


Figure 1. Energy output for a 40-watt fluorescent lamp plus 5 watts ballast loss. Energy (heat) initially confined in luminaire 76% (left). Energy (heat) initially entering occupied space 24% (right)

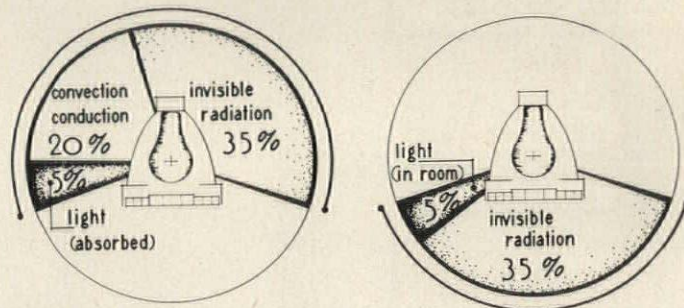


Figure 2. Energy output for a 150-watt incandescent lamp. Energy (heat) initially confined in luminaire 60% (left). Energy (heat) initially entering occupied space 40% (right)

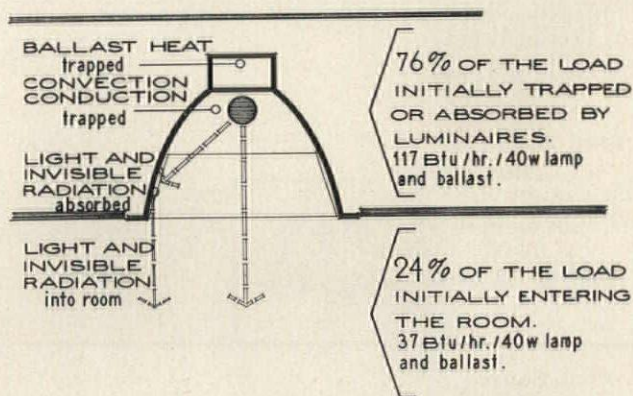


Figure 3. Distribution of heat by a luminaire. Heat trapped or absorbed by the luminaire is removable before it enters the occupied space.

This heat must be offset by cooling in the room itself, unless heating is desired. (Figure 3.) With this an additional 117 Btu/hr is in a location and in a form which can be controlled in some degree. This latter heat may be drawn off by ventilation (and/or cooling) in warm weather before it enters the occupied space, or it may be allowed to enter the space in cold weather to reinforce (or even replace) the heating system. A similar picture might be derived for the incandescent system.

Under any circumstances, an uncontrolled build-up of heat in a fluorescent luminaire is undesirable for its adverse effect on light output and lamp efficiency. For example, a T12 lamp operated at 430 ma. in a 100 F ambient is about 12 per cent lower in light output than at 77 F. A need for moving this heat away from the lamps and either into the room or away from it is therefore indicated, not only for room comfort, but also for improved lamp and ballast operating conditions.

Integrated Light-Heat System

Under many conditions the heat produced by modern lighting systems is sufficient to compensate for normal

heat losses in the room. A pre-requisite for use of this heat is a method of control to regulate the output as the weather moderates.

Figure 4 indicates proposals for the control of the lighting heat. Air movement through the luminaire will carry off substantial portions of this heat before it builds up. Exhaust air is pulled out of the space through the lighting system, carrying the heat away before it affects room comfort. For room cooling, this air may be moved directly to the outside and replaced by new, cooler air or, when the exhaust temperature is lower than the outdoor air, it may be recirculated through the cooling system.

Air circulation in cold weather may be through the system in a similar manner, where it picks up heat and then is returned to the occupied part of the room to reinforce (or even replace) the heating system.

Figure 5 illustrates methods for control of lighting heat with air circulation in several types of lighting systems. For sealed luminous ceilings, filtered outside air could be used for ventilation instead of room air. Outside air will remove heat until its temperature is equal to or higher than the normal lighting system ambient. In single story buildings with suspended ceilings, ventilation of the cavity space with outside air may also remove much of the solar heat (which can be considerable in such structures).

An alternate (or supplement) to the use of air for heat control is the use of water-cooled panel systems. Luminaires utilizing sheet metal with integral tubing, used presently for refrigerators (Figure 6), may offer such integrated control. Use of water-cooled systems also implies a reduction in building volume and material requirements when water tubing is used in place of more bulky air ducts.

It should be remembered that water cooling does not eliminate the need for air in a room since minimum fresh air requirements must still be maintained.

Through some variation or combination of the illustrated techniques, the effect of heat from the lighting can be controlled. A large portion of the heat output is in a form subject to control and cooling of the lighting system. If this control is achieved, the remaining heat which enters the occupied part of the room and directly affects comfort may be less for the integrated system which meets today's illumination standards than for lower lighting levels where current air conditioning practice allows all of the heat from lighting equipment to enter the occupied space before it is removed.

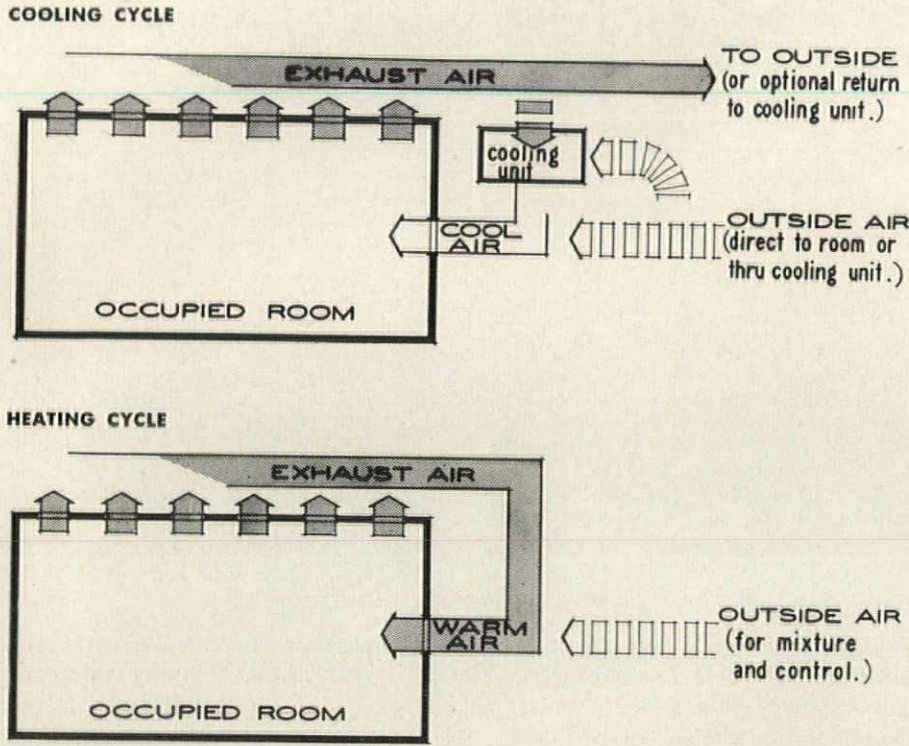


Figure 4. Schematic diagram of a method for controlling luminaire heat. Air is usually exhausted to outside on cooling cycle, recirculated on heating cycle. Other variations are indicated.

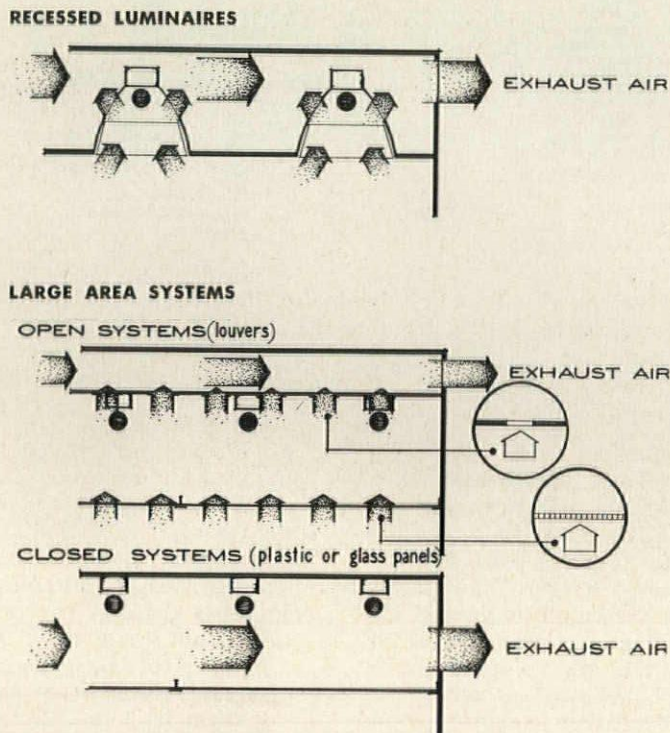


Figure 5. Methods of heat removal for several types of lighting and ceiling construction. Room air and/or filtered outside air may be used.

Practical Application

The performance of one type of integrated lighting-air conditioning system has been verified in a full scale installation at Nela Park. The room is an office demonstration area with dimensions of 25 by 35 ft. The space is also used as a classroom, and as such, may be occupied by as many as 60 persons continuously for several hours. In planning the complete integrated design for this room it was desired that the space be visually and thermally comfortable when lighted to about 500 footcandles. This integrated system has demonstrated the feasibility of these design objectives on many occasions.

There are a number of lighting systems in the room including several for lighting the wall areas. The system tested consists of louvered troffers, 24 in. wide, each employing four 1500 ma. lamps of non-circular cross-section. (Figure 7.) The lamps are operated on a dimming circuit developed for this installation and the dimming chokes and transformers were located remotely.

Slots are provided in the luminaire reflector through which air may be exhausted at a desired rate. The cavity between reflector and the back of the unit serves as an air duct integral with the luminaire. Each row of luminaires is then connected to a main exhaust duct. Data were obtained to determine the heat removed from the luminaire by air exhausted through the unit. This information is presented in Figure 8.

The curves of Figure 8 (a) and (b) are for three lamp loadings representing about 25, 50 and 100 per cent of the lamp watts. Data for both (a) and (b) are the same, but are shown in different ways. The temperature differential between lamp bulb wall and air is greater at higher loadings, so the rate of heat

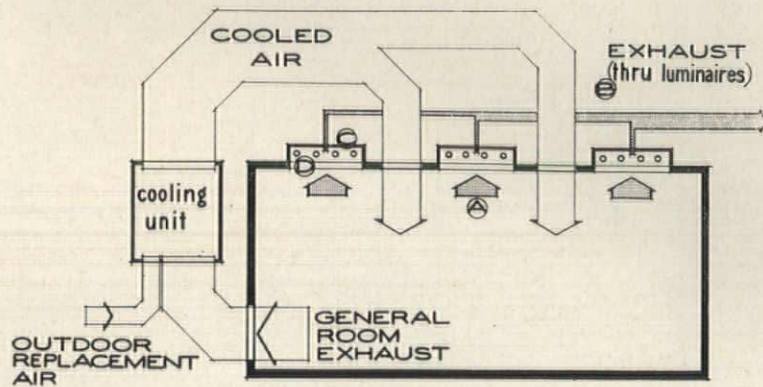


Figure 7. Schematic diagram of integrated lighting-air conditioning system tested. Part of room air is exhausted through luminaires, the remainder cycled to cooling unit. Air removed through the luminaires is exhausted to the outside in warm weather, recirculated to central system for heating during cold weather. Room was designed to be comfortable visually and thermally when lighted to about 500 footcandles. System consists of troffers, 24-in. wide, equipped with a new, low-brightness louver. Each unit has four 1500-ma lamps.

transfer and the total heat removed are proportionately higher. (Figure 8-a). However, the percentage of total heat removed by a given volume of air is greater for the lower loadings. Air temperatures other than those used in the test and different luminaires may change the shape and relationship of these curves.

In practical installations with ballasts mounted in the luminaires, the heat transfer curves might be slightly steeper, as the same air flow should efficiently pick up most of the ballast heat. When the ballast is completely enclosed by the luminaire, its energy is largely available in the form of conduction and convection heat.

It will be noted that heat transfer of more than 70 per cent was observed for the 25 per cent loading. This is close to the maximum heat available assuming this condition simulates that indicated by Figure 1. However, it was noted that the light output for this exhaust condition was about 10 per cent less than

for lower exhaust rates, indicating that if heat transfer approaches the maximum available, there is a possibility of cooling lamps below their optimum operating temperature.

The test condition of most significance is that for full loading of the non-circular cross-section lamps. When 4 cfm of air is exhausted through the luminaire for each 100 watts, then approximately 40 per cent of the heat energy is removed. (Figure 8-a.) This is about 55 per cent of the heat available for removal from the fluorescent lamp and fixture combination. (Tests at lower loadings were performed for the indications they provided and should not be applied as typical for lamps of other sizes and loadings.)

Without ventilation luminaire reflector temperatures of about 128 F resulted with lamps operated at 1500 me. (see table.) At this temperature the reflector is a source of radiant energy comparable with a panel heating system and can exert a substantial influence on the thermal comfort of a room. The presence of radiant energy was quite apparent to the authors under this condition despite a maintained room temperature of 72 F. With about 4 cfm of air for each 100 luminaire watts exhausted through the lighting units, reflector temperatures dropped to the vicinity of 100 F which mitigated the radiant heating effect in the room. Reactions of hundreds of people who have occupied the room indicate this latter radiant heating effect is entirely acceptable for the maintained room temperature conditions.

In some commercial areas where ceiling heights may be as low as 9 ft, two-lamp or single-lamp luminaires employing 1500 ma. lamps of non-

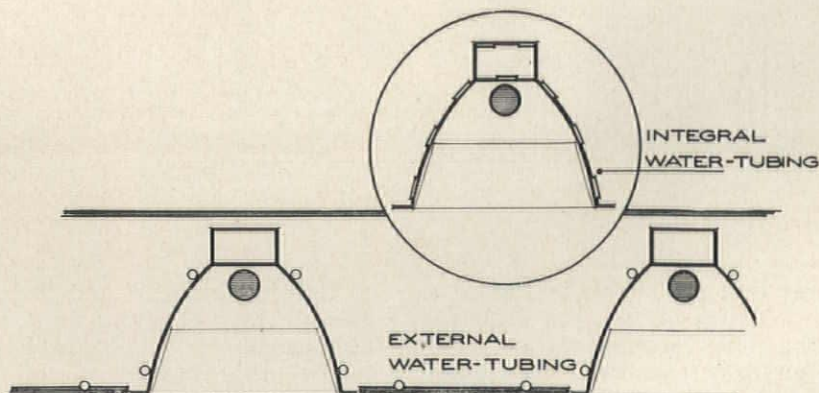


Figure 6. Circulating water as a means of heat removal. Mechanically attached tubing or sheet metal with integral tubing may be used.

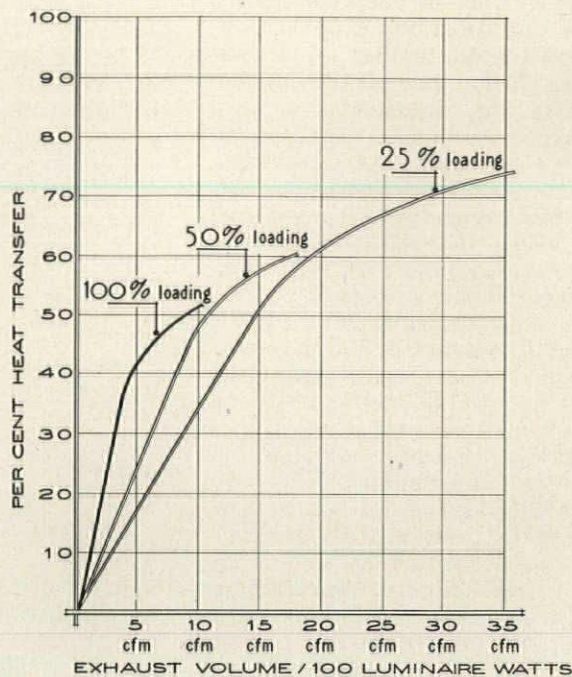
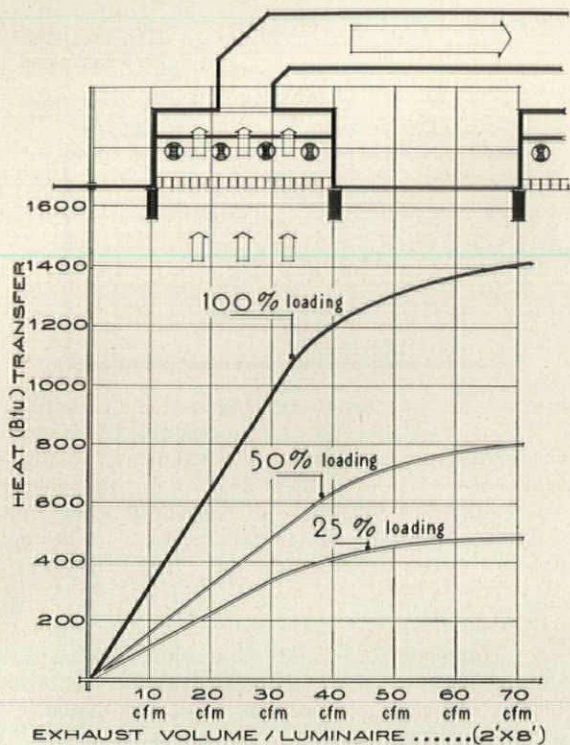


Figure 8 (a) and (b). Heat transfer for the integrated system plotted on two different bases. Figure 8 (a) notes the removal of heat in Btu/hour/luminaire tested. Figure 8 (b) charts the per cent heat removal per 100 luminaire watts. Most significant test is for full loading of lamps. Figure 8 (b) shows that when 4 cfm of air is exhausted for each 100 watts, about 40% of total lighting heat is removed. A 200 ftc installation of this type would require no more cooling capacity than 120 ftc of conventional illumination.

TEST DATA FROM INTEGRATED LIGHTING-AIR CONDITIONING SYSTEM
(letter designations refer to test locations labeled in Figure 7)

| Exhaust Volume Per Luminaire (cfm) "A" | Watts Per Luminaire | Average Illumination, fc | Room Temp., F | Duct Temp., F "B" | Luminaire Reflector Temp., F "C" | Luminaire Air Temp., F "D" |
|--|---------------------|--------------------------|---------------|-------------------|----------------------------------|----------------------------|
| 0 | 800 | 335 | 72 | | 128 | 126 |
| 16 | 800 | 377 | 72 | 102 | 118 | 104 |
| 28 | 800 | 385 | 72 | 101 | 111 | 99 |
| 66 | 800 | 406 | 72 | 91 | 101 | 89 |
| 0 | 400 | 234 | 72 | | | 96 |
| 15 | 400 | 235 | 72 | 90 | | 87 |
| 28 | 400 | 237 | 72 | 88 | | 86 |
| 69 | 400 | 233 | 72 | 83 | | 83 |
| 0 | 200 | 115 | 72 | | | 88 |
| 17 | 200 | 122 | 72 | 84 | | 84 |
| 30 | 200 | 119 | 72 | 82 | | 82 |
| 68 | 200 | 107 | 72 | 78 | | 79 |

circular cross-section are needed for practical spacing of units in 100 to 200 footcandle lighting systems. Luminaires scaled for the same loading as those of this test, e.g., 6 in. of width for each lamp with slots between lamps, should have heat transfer characteristics similar to the

curves that are shown in Figure 8. Luminaires of the type employed in this test are practical for many present-day commercial and industrial lighting installations, since ventilation makes possible the use of lamps of greater loading. This can substantially reduce the initial cost

of lighting systems and lower the over-all cost of light. In addition, new techniques for controlling luminaire brightness with reasonable efficiency are now available which can function satisfactorily for lumen loadings even higher than those of the luminaire used in this test.

Hypothetical Office Building

A hypothetical multi-story office building with 35 per cent glass area was analyzed in a paper previously presented on lighting and air conditioning.* The data on ventilated luminaires can be extended to this structure. For example, a luminaire employing a single 1500 ma. lamp of non-circular cross-section is assumed to provide the lighting. Its design is such that the heat transfer curve of Figure 8-b applies. About 100 footcandles can be provided in a medium-sized office with luminaire rows five feet apart. If 4 cfm of air are exhausted through the luminaires for each 100 watts, then approximately 40 per cent of the lighting heat load can be removed.

In large office buildings, average practice provides about 27 cfm of fresh air for each occupant so that the room air will not become stale. In addition a building occupancy of one person for each 100 square feet can be assumed. To allow for the fresh air, an equal amount of the building air must be "bled off." Some of the 27 cfm per person is exhausted through toilet rooms while a small amount is used for "pressurization" to maintain the building air at a slightly higher pressure than outside. These requirements may take about one-third of the waste air, which leaves two-thirds available for luminaire exhaust. This amount (about 9 per cent of the total air supply) is very nearly equal to that required to carry off 40 per cent of the luminaire heat. So, with no increase in primary air supply, the air conditioning needed to take care of 100 footcandles in this integrated system is only 60 per cent of that for a conventionally cooled installation. Figure 9 shows the relationship between illumination level and the air conditioning tonnage required for conventional and integrated systems. Further, the volume of air required, being proportional to the tonnage, means a reduction in air handling equipment.

Analysis of air conditioning costs

* Benesch, E. J., "The Effect of the Recommended New Levels of Illumination on Air Conditioning Design and Noise Control." A paper presented at the Building Research Institute Conference on Building Illumination, May 20-21, 1959, Cleveland, Ohio.

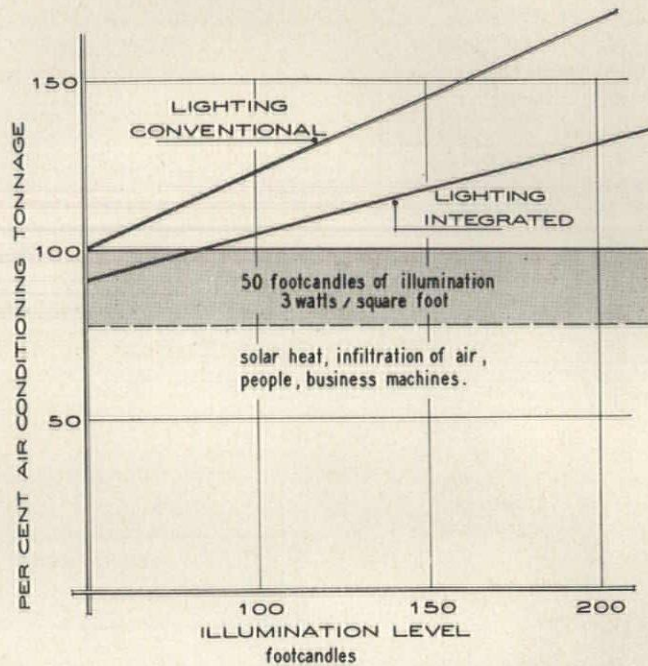


Figure 9. Variation in air conditioning tonnage with illumination level for conventional and integrated systems. Height of shaded area is tonnage for 50 ftc; white area below is for items listed. At 100 ftc of integrated lighting, tonnage is only 5% more than that for 50 ftc of conventional lighting.

to provide for lighting in the large office building example indicate that increasing the illumination from 50 to 100 footcandles with conventional lighting and air conditioning systems requires an increase in initial costs of about 93 per cent. This amounts to an approximate increase of 18 per cent in the over-all air conditioning installation. However, if an integrated lighting-air conditioning system of the type just described is employed, the increase in cost for air conditioning is only about 57 per cent (or 12½ per cent of the over-all). This latter figure includes the cost of the extra air handling system needed to exhaust the luminaires. (Perhaps integrated systems where 20 or 30 per cent of the lighting load is removed to the outside will also prove attractive in reducing initial costs of air conditioning).

At illumination levels above 100 footcandles, more air for exhaust through luminaires will be needed than is available for "waste" in typical office buildings. The additional air could be provided by circulating through the luminaires more air

than would normally be "bled off." Under the extreme design conditions, e.g., 95 F, high humidity out-of-doors, it may prove to be more economical to recirculate this heated air. However, in mild weather it is usually better to exhaust all of it to the outside. Automatic thermostatically-controlled dampers ("economizer systems") could be used to select the most favorable condition. These devices are presently being used to select the most economical operating mixture for particular weather conditions.

In many types of public buildings such as auditoriums, arenas, and exhibition halls, the density of occupancy may be higher than in office buildings. In addition, there may be considerable smoking or vigorous physical activity which would call for substantially more fresh air than the 27 cfm per person supplied in offices. Thus, the percentage of "make-up" air may be 25 per cent of the total air supply or higher. This quantity of "throw-away" air makes integrated lighting-air conditioning systems especially attractive for these areas.

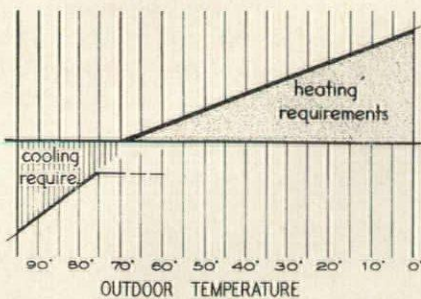
The Economic Picture

The use of higher lighting levels may be altering the economics with regard to mechanical services. Ways to reduce the cooling costs (and

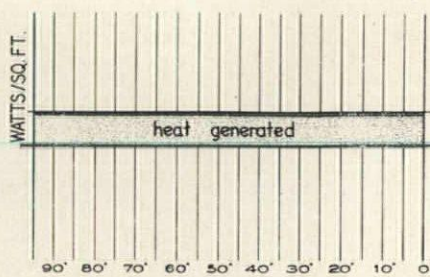
lighting costs) have been suggested. Further gains in over-all economics can be achieved by a substantial reduction in heating requirements since lighting may furnish a signifi-

cant part of the total heat needed for a commercial or industrial building. Techniques such as panel heating and cooling, or the heat pump may perform more economically

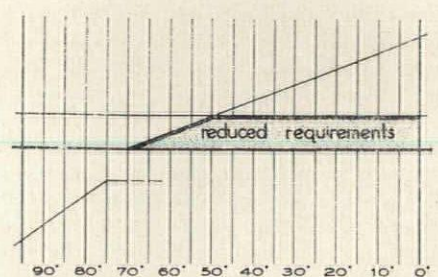
VARIATION IN INTERIOR HEATING AND COOLING REQUIREMENTS (excluding lighting)



CONSTANT HEAT GENERATION FROM LIGHTING (with lower lighting level)



REDUCTION IN HEATING REQUIREMENTS (due to lighting load)



NOTE: to maintain indoor temperature equilibrium 70-75f despite changes in outdoor conditions 0-95f

(with higher lighting level)

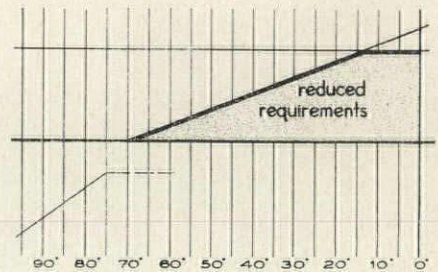
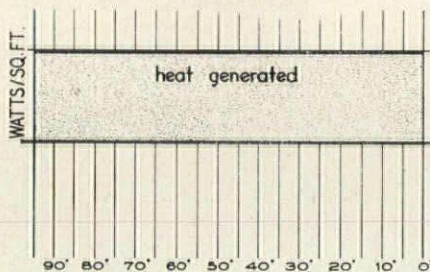


Figure 10. Effect of lighting on heating requirements.

when combined with the heat from a lighting system.

A method of analyzing the heating and cooling requirements of buildings is presented by steps in Figures 10 and 11.

Consideration of the heat from the lighting has, until recent years, been primarily with relation to the increased cooling requirements. As seen in Figure 10, the levels of illumination in practice were relatively low and the effect on total heat requirements was insufficient to warrant special provision for utilizing it. Figure 10 further indicates the substantial portion of the total heat supplied as levels of illumination have increased in recommendation and practice.

Estimation of heat losses in the office building example cited earlier indicates that for a New York location a uniform lighting level of 100 footcandles would supply enough heat to replace about two-thirds of the heat losses for the outdoor condition of 0 F and 15 mph wind. Increasing the level to about 150 footcandles of fluorescent lighting, therefore, introduces a total heating load approximately equal to the building losses. Full utilization of this heat would require careful control and distribution throughout the building (See Figure 4). But the

presence of such a load becomes an important economic factor in appraising the total value of the lighting system. For the commercial or industrial property where the management must (or chooses to) build its own heating plant, the utilization of lighting as the principal heat source can mean substantially reduced capital investment in boilers, chimneys, and the distribution systems.

On the other hand, the potential advantage of reduction in heating requirements may be somewhat offset by an over-all increase in cooling requirements. It is here that the fundamental importance of Figures 1 through 3 become apparent. If it is possible to control a considerable portion of the lighting heat and remove it before it becomes a factor in room comfort, then the actual effect of the increased load on air conditioning tonnage and on occupant comfort may not be as great as anticipated by today's conventional methods.

Figure 1 noted that for our example fluorescent system, up to 76 per cent of the total heat is subject to some control. Figure 11 then indicates the maximum extent of this substantial quantity, implies the impact on room temperature, and underlines the importance of removing

it in warm weather before it enters the occupied portion of the room.

Normal ventilation equal to or exceeding the basic building code requirements can be utilized to remove and control part of the heat accumulation. During moderate weather, careful use of this outside air, as a thermostatically-controlled mixture of outdoor and recirculated air, may be sufficient to maintain room comfort.

Figure 11 also notes this heat-regulating effect of controlled room ventilation and indicates the possible increase in efficiency when this same air is passed through a higher ambient and used to ventilate and cool the lighting fixtures as well as maintain room temperature.

As outside temperatures rise and the ventilation system alone is no longer sufficient to maintain room comfort, a cooling system becomes necessary, both in the occupied portion of the room and in conjunction with the lighting system.

The last portion of Figure 11 compares current cooling practice, where all of the heat enters the room before it is removed, with a higher level system and the integrated approach proposed in this paper. In the latter case, the considerable heat initially confined in the lighting system is removed before it enters the

occupied space and the actual heat load that affects room comfort may be less for the higher level system than for the lower level cooled by conventional techniques.

In the final analysis, the economic practicality of a single integrated system for heating, cooling, and lighting must be determined by local conditions. The relative seasonal value of reduced cooling requirements changes considerably for warm sections of the country. In the extreme warm climate, the potential economic advantage of reduced tonnage requirements (Figure 9), or the need for reducing the heat in the occupied zone may be the more critical situation from the standpoint of maintaining occupant comfort and lamp operating conditions.

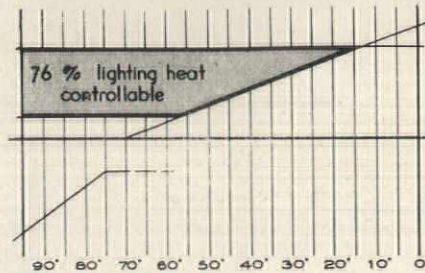
Figure 12 indicates the advantages of integrated over conventional systems for comfort and for reduced costs.

Still another factor which must be considered is the possible combination of these techniques with other heating and cooling systems. For example, the winter heating load usually determines the size of a heat pump with summer cooling capacity as a bonus. The reason for this is the wide difference between indoor-outdoor temperature gradients of summer and winter. In summer, the machine must produce an indoor-outdoor differential of 15 to 20 F while the winter conditions call for 70 to 75 F gradients. If the lighting load can be combined with such a system, however, the resulting reduction in winter heating requirements may make the application of heat pumps more economical.

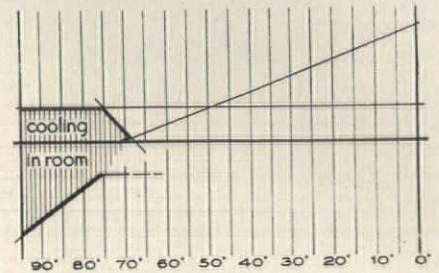
Consideration of ventilation and cooling systems integral with the lighting design, then offers a number of potential advantages:

1. From an air conditioning standpoint, such a system offers the possibility of substantial heat reduction in rooms, so that heat is evacuated before it becomes a factor in occupant comfort; and to reduce the tonnage requirements and quantity of air (cfm) required for regulating the heat in occupied spaces.
2. The control of this heat, to use it in cold weather or evacuate it in warm periods, introduces the potential application of lighting as a heating system. Such a system might be used alone or in conjunction with other systems.
3. The prevention of uncontrolled heat build-up in the lighting system induces ambient conditions more favorable for highly efficient operation of fluorescent lamps and ballasts.

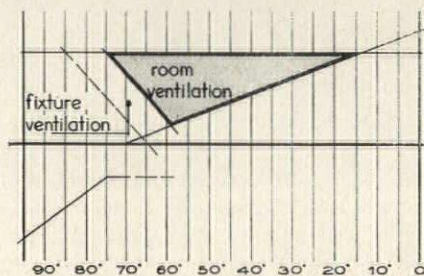
LIGHTING HEAT REMOVEABLE BEFORE ENTERING OCCUPIED SPACE



COOLING REQUIREMENTS IN CONVENTIONAL PRACTICE (with lower lighting level)



HEAT REMOVAL THROUGH VENTILATION (circulation of outdoor air)



COOLING REQUIREMENTS IN INTEGRATED SYSTEM (with higher lighting level)

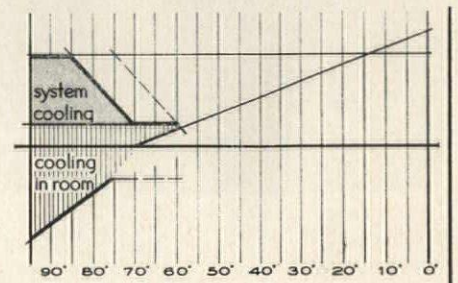
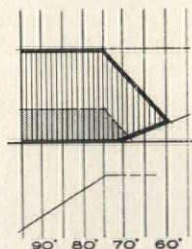


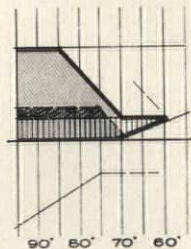
Figure 11. Effect of lighting on cooling requirements.

CONVENTIONAL PRACTICE



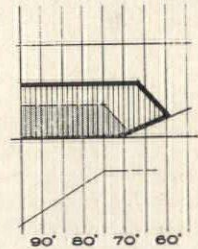
1. All heat enters occupied space before being removed

INTEGRATED SYSTEM A



1. All room air exhausted through luminaires; cycled to cooling unit
2. Minimum heat entering occupied space

INTEGRATED SYSTEM B



1. Waste air exhausted through luminaires
2. Reduction in cooling capacity

Figure 12. Advantages of integrated systems for improving room comfort and reducing tonnage with present recommended lighting levels. The effect of lower lighting levels handled by conventional practice is indicated by lower shaded areas. Integrated system "B" illustrates the performance of the installation tested in this article.

Acknowledgments

The authors wish to thank Messrs. G. I. Wightman, P. Lucak, and M. Heppert, air conditioning engineers of Plant Engineering at Nela Park, who developed the details of

the full-scale integrated lighting-air conditioning system. They also provided helpful counsel during the testing and evaluation of the system's performance.



Five-parasol cluster set up at the intersection of two runways at Long Island's Mitchel Air Force Base was tested for dynamic behavior under made-to-order gales provided by the slipstreams from the props of the two B-26's shown in the background

Photos by Albert G. H. Dietz

PLASTIC PARASOLS FOR MOSCOW

Designers: George Nelson and Company, Inc.
Structural Consultant: Albert G. H. Dietz

Based on a report by Albert G. H. Dietz, Professor of Building Engineering and Director of the Plastics Research Laboratory, Massachusetts Institute of Technology, and by Frank J. Heger, Assistant Professor of Structural Design, Massachusetts Institute of Technology

Newspaper and magazine coverage, as well as public response both here and there, seem to have left little doubt that the clusters of plastic parasols over our displays of architecture, fashion, and photography at the recent American National Exhibition in Moscow were highly successful exhibit spaces. But they are more than that. The blow-by-blow account of their design and erection often reads like a check list of the factors that must be considered in any case when reinforced plastics are used structurally. And as George Nelson pointed out approvingly, they also demonstrate the substantial benefits that can be reaped from a close and sympathetic collaboration between architect and engineer. Although it was made under pressure of time and budget, the search

for the most efficient possible structure resulted, as it so often does, not only in the expressive use of a particular material, but also in a graceful and refined bit of architecture.

The Evolution of a Form

When Nelson's office first conceived the parasols, they envisioned simply a honeycomb of hexagonal canopy units made up of flat triangular roof sections supported on steel or aluminum ribs which would in turn rest on a central pipe column. It was only when the decision was made to form the parasols entirely of plastic that the evolutionary sequence shown opposite began, ending in the curvaceous tulips shown on these pages.

The design of an all-plastic structure of the type originally conceived early ran into several serious obstacles. To begin with, the columns, slender as they were, had to have at least a 6 in. diameter and fairly heavy walls. Plastic pipe that large was not available. Secondly, flat sheets could not span the distances proposed even when the long dimen-

sion of the hexagon was reduced to the 16 ft that could be readily shipped; while corrugated sheets would be less desirable esthetically, would prevent the run-off of rain water to the hollow pipe column, and would in any case have to be fabricated to special order in the short time allotted. (Only a little more than six months elapsed between the initial decision to build the plastics pavilions and the opening of the Fair.) Also some difficulty was expected in fastening the cantilevered ribs and sheets to the slender column, and in achieving the necessary stiffness without the help of guy wires or sway bracing.

The unavailability of a suitable plastic pipe prompted the first modification of the initial design, which was a shift to molded, glass fiber mat reinforced polyester columns. Because of the lower strength and stiffness of this material, the columns had to be larger, but since they were to be molded in any case, it was possible to taper them—a better solution from both the engineering and

esthetic standpoints than the constant-diameter pipe. The taper not only provided a continuous sweep from column to canopy, but also opened the column top to a more satisfactory moment-resistant joint at the canopy.

As shown in the drawings at right, the canopy itself was designed in two ways: as a hexagonal folded plate made up of twelve flat triangular sandwich panels, and as a series of six molded, double-curved ribbed shells. Although some difficulty was expected in developing a strong joint between the column and the sandwich sections of the canopy, the over-riding objection to the folded plate roof was esthetic. The pavilion was to be adjacent to another folded plate roof, and a less angular form seemed better suited to molded plastic.

Even the final design with doubly curved shells went through several evolutionary stages. At first, the edges of the shells were formed with deep half-troughs to simulate the cantilevers carried over from the earlier concept and an attempt was made to fit two half-troughs together and fasten the inner ends to the top of the column. This resulted in a seam, likely to leak, at the very point where water would collect to run in to the hollow column.

The next step was to form the trough as a single unit and to mold a half-shell on each side with a connecting upstanding flange at the mid-point (highpoint) of the shell. This eliminated the leaky seam, but was unsightly and introduced a joint where continuity was essential.

Finally, the column was tapered uniformly from a 6-in. diameter at the base to about 11 in. at a point 12 ft up. The remaining quarter of the 16-ft column was flared sharply in a continuous curve to 36 in. at the top where it sweeps into the double curves of the canopy shells. The deep-troughed cantilevers were abandoned and replaced by upstanding ribs where the lower edges of the shells meet along the long radii of the hexagons. By discarding the upper flanges and molding the shells as continuous pieces, their light-transmitting areas and engineering soundness were increased, the molding and assembling operations were simplified, and the esthetic value of the shells was enhanced.

Critical Factors in the Design

Since the plastics pavilions were designed as temporary structures for summer use only, the principal loads were wind and rain, of which wind was the most critical, adequate drainage having been provided

through the hollow column. Accurate data on prevailing winds in Moscow proved difficult to come by, but an educated guess postulated maximum winds of 60 mph. Because of the probable rarity of winds of that magnitude, it was decided to design for them as far as strength was concerned, but in the interests of lightness, to sacrifice some stiffness and permit sway in the occasional very high winds. However, since the exact wind conditions on the site and the aerodynamics of the canopies themselves remained unknown quantities, it was decided to run wind tests here to ferret out any critical aerodynamic characteristics that might require correction. Preliminary designs for guys were also carried out—just in case.

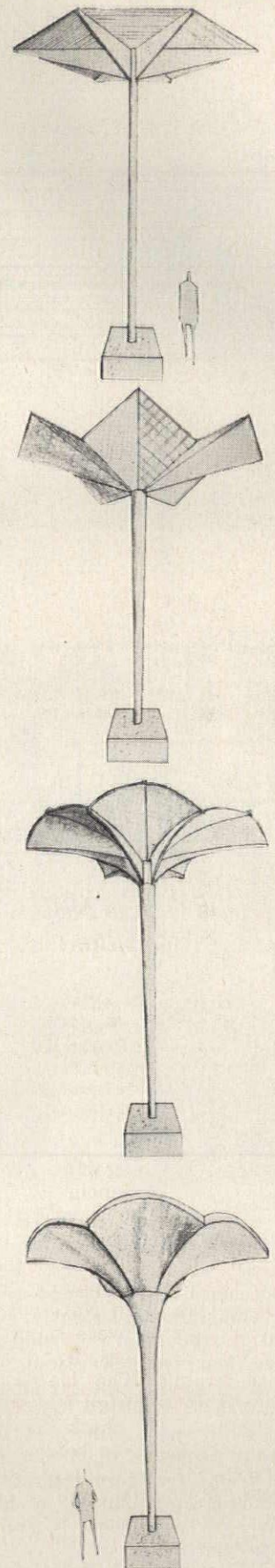
Once the design loads had been established, the mechanical properties of the selected glass fiber reinforced polyesters were assumed on the basis of previous experience, allowing for considerable variation in their strength. (The assumptions were later borne out by tests on actual specimens.) Of these properties, the design was dictated more by stiffness requirements, i.e., modulus of elasticity, and particularly by resistance to buckling, than by strength, in spite of the decision to allow some sway in the pavilion. According to Dietz, this is often the case in designing with reinforced plastics because while strength is usually more than adequate, low stiffness leads to deflection, deformation and such dynamic characteristics as flutter.

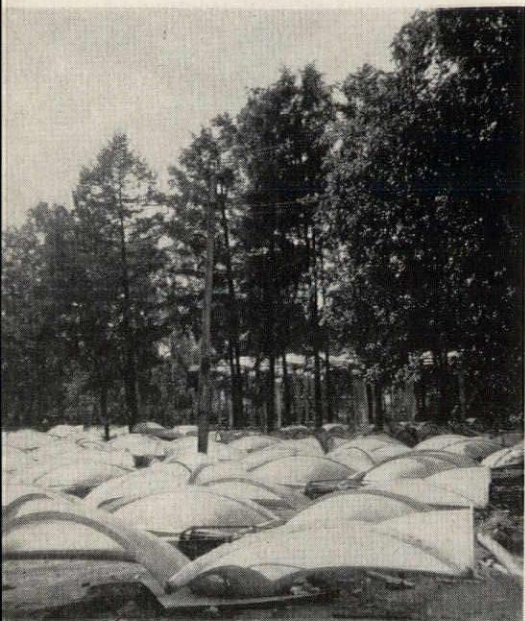
Another factor that had to be considered was the proposed arrangement of the canopy units in irregular clusters, each involving different wind loads. The worst case appeared to be a cluster of as few as five parasols, and the original design was based on this arrangement. However, the material and the fabrication costs of the heavy parasols required for such small clusters led to the decision that cluster arrangements should not involve less than four columns in any row in any direction and that no display boards or other structures should be attached to the columns or canopies in such a way as to increase the area exposed to wind. With these stipulations agreed upon, the design was finally lightened, although the wind tests were carried out on a cluster of five parasols of the original design.

The Design Procedure

Because of the pressure of time, the sizes and thicknesses of members were obtained by approximate solutions and checked later by a more exact analysis. (The original design

Evolution of Canopy Design





As shown above, ninety canopy sections were shipped to and assembled at storage area before being joined to columns and erected in clusters. On-site assembly, which went on while site was being prepared and footings placed, consisted of joining the six doubly-curved shells in each canopy to the steel spider and to each other. Large holes in flanges of radial ribs were field-drilled for more accurate fit. Already-erected cluster in background of lower photo is pavilion for fashion show

was found to be slightly conservative.) Early in the design it became evident that maximum stiffness and minimum deflection demanded firm anchorage and maximum moment resistance at the bases of the columns. For this reason, the approximate analysis was made on the assumption that footings would be large enough to prevent both uplift and any slight rotation which could be magnified into excessive swaying of the top of the column.

The column wall thickness arrived at on this basis ranged from $\frac{3}{8}$ to $\frac{1}{4}$ in., about as thin as such a structural member could be made with a satisfactory degree of reliability. The rigid connection at the footing was formed by inserting a 5 in. diameter pipe into the bottom of the column. Two feet of the pipe's 27-in. length was bonded to the inside wall of the column; the remaining 3-in. projection, was welded to a round flange that provided anchorage at the base by means of four steel "dogs" which were in turn fastened to four anchor bolts. Two slots cut in the bottom of the steel pipe provided runoff for water draining down the columns from the roof. Circular precast concrete rings formed small sumps on top of the footings and cement-asbestos pipe was used to drain water from the sumps to a dry-well. As it turned out, the footings were precast even larger than specified and consequently were more than ample to provide the necessary weight and rigidity.

For maximum translucence, the canopy shells were designed to be not more than $\frac{1}{16}$ in. thick. Since this was just adequate for stability under static loading of a doubly-curved shell of the 100-in. radius proposed, the radius was reduced to 75 in. to allow for unknown flutter under wind loads. The shells were also stiffened by radial ribs which carried the loads from the canopies to the columns and by similar ribs along the outer edges of the shells which made it possible to bolt adjoining canopies together.

To provide the necessary moment resistance, continuity had to be provided across the center of the canopy from rib to opposite rib, and from canopy to column. In the latter case, continuity was achieved by providing an inward projecting lip at the top of the column and a corresponding lip on each shell section, and bolting the two together. Studs built into the lip at the top of the column engage corresponding holes in the lips of the shells, and the joint between the column and canopy was brought into register by preformed shallow tapered mortises and tenons.

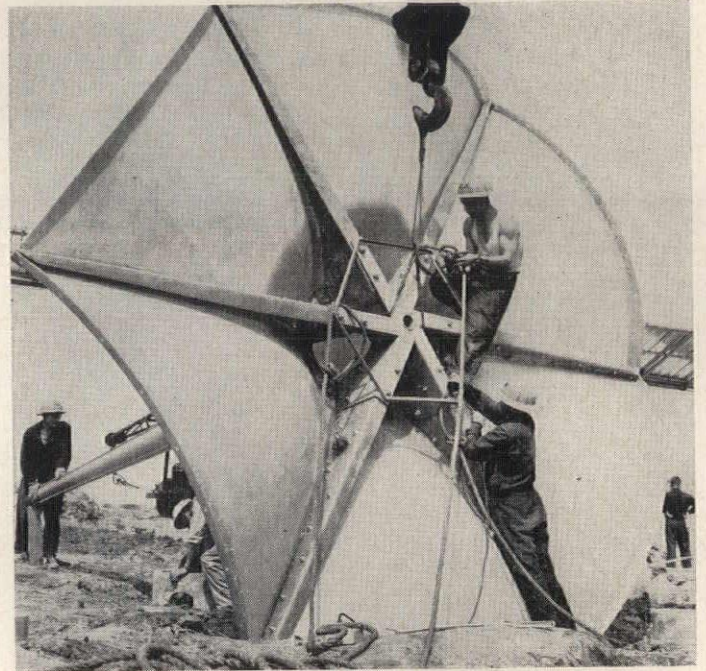
Continuity from rib to rib was achieved by a steel spider consisting of a central pipe section to which were welded six radial ribs made of $\frac{1}{4}$ -in. vertical steel plates with bent-over horizontal flanges at the top. Each steel rib was brought adjacent to one of the plastic ribs of the canopy and the two bolted together to provide the necessary moment and shear resistance.

As a result of wind tests (results extrapolated from clusters of five heavy parasols to sixteen lighter parasols) and a thorough structural analysis, the plastic structures were found to be quite safe, albeit a little more flexible than might be strictly desirable, and members fabricated according to the above design were shipped to Moscow for erection.

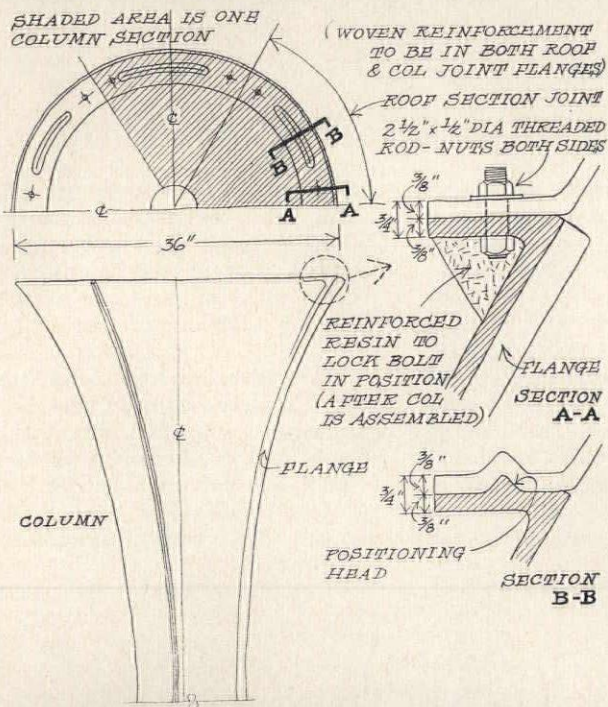
On-Site Assembly and Erection

Once there, the hexagonal canopy units were assembled while the site was being prepared and the footings placed. (It took some persuasion to convince the Russian foremen that the alignment of the footings required transit-and-tape accuracy, and that centering-sticks were not good enough.) This part of the job consisted of assembling the six doubly-curved shell sections to the central steel spider, which turned out to be all the template that was required, drilling two large holes in the flanges of the six ribs to receive the bolts, and bolting the rib sections together.

When the footings were finally in place (aligned by transit-and-tape), the canopies and columns were trucked from the storage area to the site, and the columns were attached to the canopies to form complete parasols. Cranes were used to pick up the umbrellas by means of their spiders, and to swing them into a substantially vertical position while a caulking bead was extruded around the top of the column. The upper end of the column was then raised into position, the studs in its top pushed through the corresponding holes in the base of the canopy, and the nuts pulled up tight on the studs. The assembled unit was then centered over the footing and securely fastened in place. At the same time, the upstanding ribs along the edges of the canopy were bolted to the corresponding ribs of previously erected umbrellas. Bolt holes in these ribs were drilled just before the individual umbrellas were assembled because the number of bolted edge ribs varied according to the position of the umbrella along the periphery or in the center of a cluster. After a cluster had been completed, the joints between all ribs were sealed with a caulking bead.

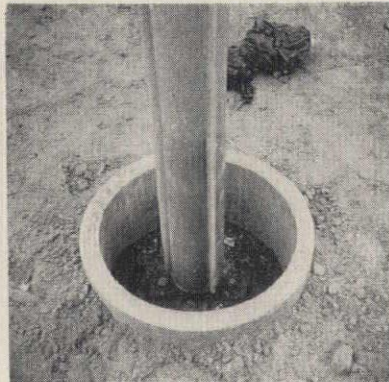


Above: With crane holding canopy in almost vertical position, base of canopy is fitted to top of column and bolted to column flange. Assembled parasol is then hoisted into place and anchored. At same time, edge ribs of canopy are bolted to corresponding ribs of previously-erected units



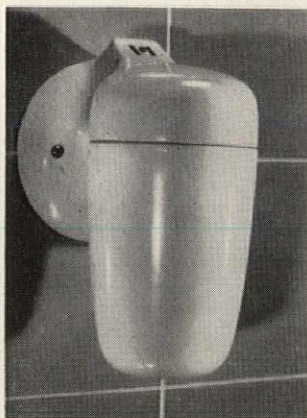
Detail of Canopy-Column Connection

Below: Photo at far left shows precast footings in place with anchor bolts and setting plate mounted, ready for final pour of concrete. Photo at left shows circular concrete sump around base of column and "dogs" holding steel flange. Drainage lines run from sump to dry well

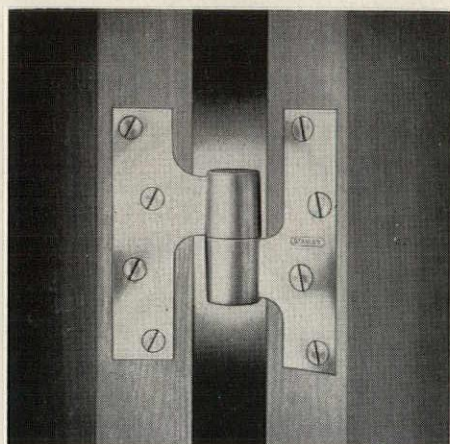
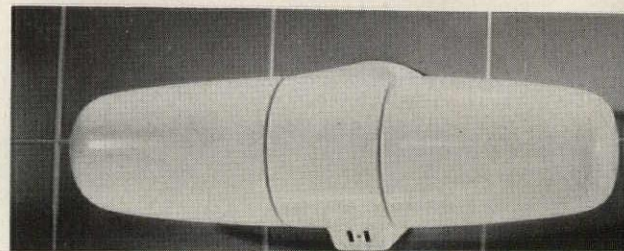
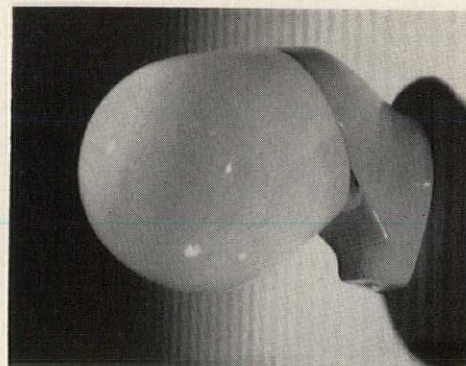


STREAMLINED WALL BRACKETS FOR INDOOR AND OUTDOOR USE

The *Porzeline* line of imported architectural lighting fixtures includes canopy fixtures in addition to the sleek bracket-type fixtures shown at right. In all models, the canopy (or bracket) is mounted directly to the outlet box with two screws, while the glass diffusers are equipped with threaded collars designed to screw easily into the mounting. All diffusers are of a triplex opal satin finish imported glass that gives excellent soft lighting without glare or high-spots. They come with a rubber gasket that makes the fixtures air- and watertight enough to have been U/L approved for outdoor lighting. The wall brackets come in black, light green, light blue, pink and gray, as well as white, and can be had with or without a pullswitch and shaver outlet. The canopy fixtures (not shown) are available in white only. *A. W. Pistol, Inc., 8-10 Drake Ave, New Rochelle, N. Y.*



Above: Porcelain wall bracket with screwtype diffuser is 8 in. high, extends 5 in. from wall, and accommodates one 100 watt bulb. Above right: Similar bracket is 6 1/4 in. in diameter, extends 8 1/4 in. and takes a 75 watt bulb. Right: Double bracket will hold two 100 watt bulbs. It extends 5 in. from wall and is 15 in. long



HIGH STYLE, HIGH STRENGTH HINGE

Designed to complement the clean lines of modern interior door openings, the new paumelle hinge (BB 93) shown at right will be used for the first time in the new Time and Life Building in New York City. A variant of the traditional olive knuckle hinge, it is made of bronze forgings with tensile and yield strengths comparable to those of steel, and has the added advantage of high corrosion resistance. The teaming of the excellent bearing qualities of the high strength forged knuckle with the

husky pin is said to insure lifetime lateral wear resistance, as proven in extensive field use. Lubricated ball bearings are encased in an outer shell which seals in the lubrication and provides complete protection against dirt.

Made of extra heavy (.225 gage) metal, in one size only, the 5-by-4 1/2 in. hinges are packed with both wood screws and machine screws for template and non-template work. *Stanley Hardware Div., The Stanley Works, 195 Lake St., New Britain, Conn.*

NEOPRENE COATING OFFERS MORE PROTECTION AT LESS COST

Coro-Gard 1706, a new general purpose, one-part neoprene rubber based coating, is said to provide excellent chemical, abrasion and weathering resistance with the added advantage of reducing application costs.

It has high adhesion to unprimed metals, concrete, wood and glass fiber reinforced polyester plastics, protecting them with a tough rubbery film that has good resistance to the corrosive action of chemicals and fluids, remains strong and flexible under varying weather conditions, and has outstanding resistance to the deteriorating effects of ozone, oxy-

gen and industrial atmospheres.

In addition to its effectiveness as a protective coating, *Coro-Gard 1706* has many features that reduce total application costs. It can be applied to surfaces without a special primer and without the addition of a catalyst or accelerator for curing. Because it is of a gel-type consistency, the coating can be put on with a brush without stirring or diluting and will not sag or flow even when applied to vertical surfaces. Only one or two coats are required for most applications to achieve the proper thickness.

The new *Coro-Gard 1706* coating is

expected to find use in a variety of applications, including protection of metal curtain walls and exposed structural members against weathering; protection of air conditioning equipment against condensed moisture, mold, erosion and weathering; protection of factory buildings and machinery against industrial atmospheres, acids, caustic vapors, steam and moisture; and protection of electrical parts against water and oil. *Adhesives, Coatings and Sealers Div., Minnesota Mining and Mfg. Co., 900 Bush Ave., St. Paul 6, Minn.*

more products on page 262

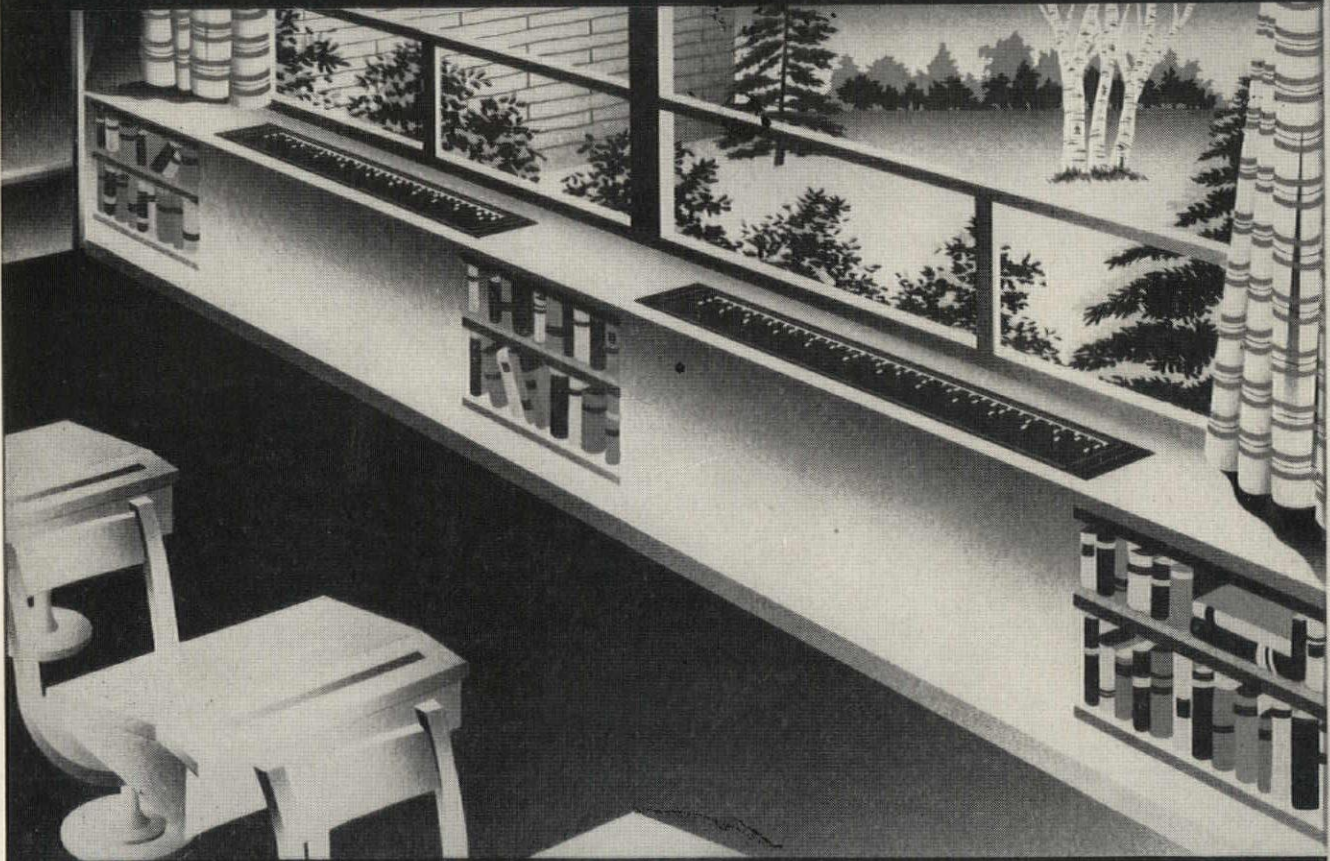
MEMO:

Dear Bill:

If you are building a new school or planning to renovate an old one, you unquestionably need the new Anemostat School Catalog.* Suggest you write for your copy to Anemostat Corporation of America, 10 East 39th Street, New York 16, N. Y.

Tom

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A NEW DEVELOPMENT FOR HEATING AND VENTILATING



* Contains performance and dimension data, control diagrams, everything you need to specify.

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AC1360

ALPHA

BETTER CONSTRUCTION THROUGH
BETTER USE OF CEMENTS

news and notes from the field

MIXING WATER CAN BE COSTLY!



Water is used in concrete to lubricate the mix and act chemically with the cement to form the paste which glues the aggregates together. Too much water dilutes the paste and makes it weaker—less solid.

How Much is Too Much?

In a 5-bag concrete mix using about 36 gallons of water per cubic yard—including moisture in the aggregate—only about *half* the water combines with the cement. The rest is a lubricant which eventually causes voids in the concrete. Recommended slumps for different jobs are listed in the table at upper right.

Results of Too Much Water in a Mix

- 1. Higher labor costs**—When workmen have to wait for the mix to stiffen or for excess water to soak into the subgrade or evaporate, overtime costs run high. In cold weather, as much as 6 to 12 hours in extra time can be the result.
- 2. Excessive bleeding**—As concrete bleeds, water comes to the surface. If there is excessive bleeding, the water brings aggregate fines to the surface which often causes dusting and crazing.
- 3. Sand-streaked walls**—Excess water bleeds up the sides of forms, washing out the cement paste leaving a streaked, raw, unattractive wall surface.
- 4. Segregation**—Coarse aggregates settle to the bottom, leaving a weak layer of water and fines on the surface. The lower sections of the concrete often

Recommended Slumps for Various Types of Construction*

| Type of Construction | Slump, in.** | |
|--|--------------|---------|
| | Maximum | Minimum |
| Reinforced foundation walls and footings, and thin plain walls | 5 | 2 |
| Plain footings, caissons, and substructure walls | 4 | 1 |
| Slabs, beams, and reinforced walls | 6 | 3 |
| Building columns | 6 | 3 |
| Pavements | 3 | 2 |
| Heavy mass construction | 3 | 1 |

*Adapted from Table 4 of the 1940 Joint Committee "Report on Recommended Practice and Standard Specifications for Concrete and Reinforced Concrete."
**When high-frequency vibrators are used, the values given should be reduced about one-third.

have honeycombed areas because of cement-water paste leaking out of the forms.

5. Excessive cracking—Foundation walls and floors crack excessively from high shrinkage and low tensile strength caused by excessive mixing water.

6. Rough surface—It is more difficult to get a smooth surface because deep trowel marks are a common problem in concrete containing excessive amounts of water.

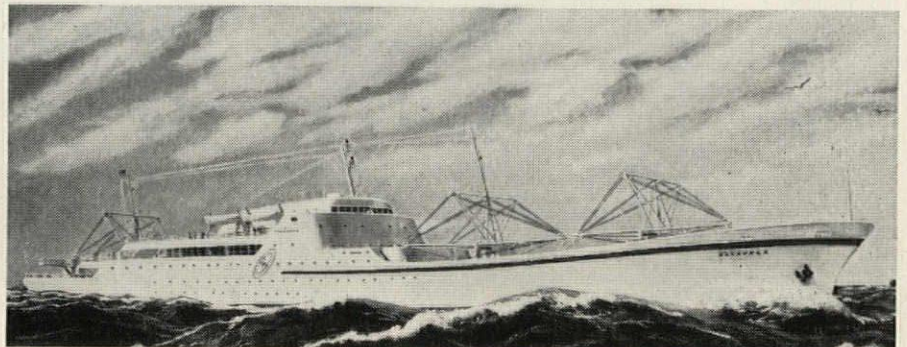
7. Leaky walls and wet floors—Both can result from excessive voids in con-

crete caused by too much water.

8. Surface scaling—Air is entrained in concrete to protect it from freezing and thawing damage. When the slump is greater than 6 inches, the air content decreases and this important protection is reduced.

Stiff concrete is much less expensive when measured in man hours. It may require more labor initially to get it in place but can be finished sooner . . . your bonus is a satisfied customer—and a good job that will not have to be repaired or replaced.

AN ALPHA EXCLUSIVE



FIRST NUCLEAR POWERED commercial ship, the N. S. Savannah, being built by New York Shipbuilding Corp., Camden, N. J. Alpha cement has been chosen for building the heavy concrete encasement used for the atomic reactor shield. Concrete will weigh 260 lbs. per cu. ft. compared to normal weight of 145 lbs. per cu. ft. Job is continuous pour by pressure or injection grouting, done by Intrusion Prepackt Company of Philadelphia. Alpha cement will be supplied by the Camden Lime Co., Camden, N. J.

ALPHA

PORTLAND CEMENT COMPANY
Alpha Building, Easton, Pa.

A REFERENCE GUIDE TO HOSPITAL ELECTRICAL FACILITIES: 4 (continued from October)

by Noyce L. Griffin, Electrical Engineer, Architectural and Engineering Branch, Division of Hospital and Medical Facilities

Public Health Service

HAZARDOUS LOCATIONS

Anesthetic storage rooms within the surgical suites are considered hazardous throughout. Rooms for bulk storage of unopened containers of anesthetic agents in a relatively remote area are generally not considered hazardous locations.

The extent of the hazardous location of an anesthetizing space for administering flammable anesthetics or disinfectants is considered to include the entire floor area of the room, and to a height of 5 ft above the floor. All hazardous locations require special attention to construction, equipment, and operation as precautions against ignition of these agents which cause fires and explosions. All equipment used in these areas should be approved for use in Class 1, Group C hazardous atmospheres. For specific requirements, see NFPA No. 56.

All hazardous locations require conductive floors for electrically intercoupling all people and equipment in the room to prevent electro-static sparks which might ignite flammable gasses or vapors.

Operating and delivery rooms require ungrounded electrical distribution systems for all wiring, except for fixed nonadjustable lighting fixtures located more than 8 ft above the floor for the purpose of minimizing the hazard of electric shock and sparks from the electric system.

A ground detector system is required for the purpose of warning of accidental or fault ground on the ungrounded system. Wiring and equipment installed above hazardous location, more than 5 ft above the floor, should be enclosed or guarded to prevent sparks or hot particles from falling into the hazardous location. All furniture and mobile equipment should be conductive and in electrical contact with the conductive floor.

Controlled humidity of at least 50 per cent is considered an important factor in the control of static electricity.

COMMUNICATION SYSTEMS**NURSES' CALL SYSTEMS**

Call systems for nursing service vary from the simplest type of a signal system to two-way voice communication. An important feature common to all systems is that the switch provided for patients' use will register the call at the nurses' station. This feature may be varied to fit any practicable situation by the various types of switches for actuating calls and the various points and means of registering calls. Cord operated switches are preferable for isolation or contagious areas because these cords are inexpensive

and may be removed and incinerated. A new cord can then be installed for each new patient.

Registration of calls should include a signal light in the corridor over the door of the room where the call originates. A selection of lights, buzzers, bells, chimes, and annunciators are available for registering calls at the nurses' station, floor pantries, utility rooms, or other duty stations.

Emergency calls, actuating distinctive signals, are usually installed in patients' toilets and sometimes incorporated into the regular call station at the patient's bed for use by the nurse when she needs assistance. Call stations should be provided for nurses' use in nurseries, children's wards, operating, and delivery rooms.

Two-way voice communication is a feature which may be added to the signal system described. Where it is planned for economy reasons to first install a signal system and later add the voice feature, conduits large enough to accommodate the wiring of the final installation should be included in the original installation.

PAGING SYSTEMS

Paging systems for doctors and staff may be the wired or radio type. The wired paging system usually includes a microphone and/or a sending station for calling or signaling to one or a combination of the following: loud speakers, coded chimes, illuminated numerals, bell taps, or annunciator drops.

DOCTOR'S IN-AND-OUT REGISTER

Usually these registers include boards containing staff doctors' names at all entrances normally used by doctors and at the telephone switchboard. All boards are electrically connected to register the same signal simultaneously. A recall feature may be included which consists of a flasher unit having a motor driven interrupter which actuates a flashing light at the doctor's name on all register boards. The control for this unit is located at the telephone switchboard. The recall feature assures the doctor's attention upon entering or leaving the hospital.

CALL-BACK SYSTEM

Call-back systems provide a relatively inexpensive means of "wake-up" or calling service for interns and nurses. Calls originating in the office or at the switchboard actuate a bell or buzzer in the quarters. An answer switch is provided for acknowledgment that the call has been received. Wiring

may be arranged for individual calls or, if desired, it can be connected so that one button may call several rooms or stations simultaneously.

TELEPHONES

Interconnecting telephones should be provided for all department heads, assistants, operation and delivery suites, nurses' stations, offices, housekeeper, maintenance supervisor, doctors' rooms, record rooms, and diet kitchens. These may be connected on a dial system which will permit interior communication through the hospital switchboard without the assistance of an operator. At all private and semi-private beds, telephone jacks should be installed so that a telephone can be plugged in at any time, with a minimum rental charge to the hospital. This arrangement is efficient and satisfactory.

Conduit should be provided for all telephone wiring. Installation and connection of wiring is usually done by the telephone company. Provision should be made for public telephones at convenient locations for visitors and others requiring the use of pay stations.

INTERCOMMUNICATION SYSTEMS

Telautograph transcribers which transmit written messages from one department to another are being used successfully in some hospitals. These systems leave a written record of the message at the sending and receiving stations. Where installation of this equipment is contemplated, conduit should be installed for the necessary wiring. This equipment may be obtained on a rental or purchase agreement.

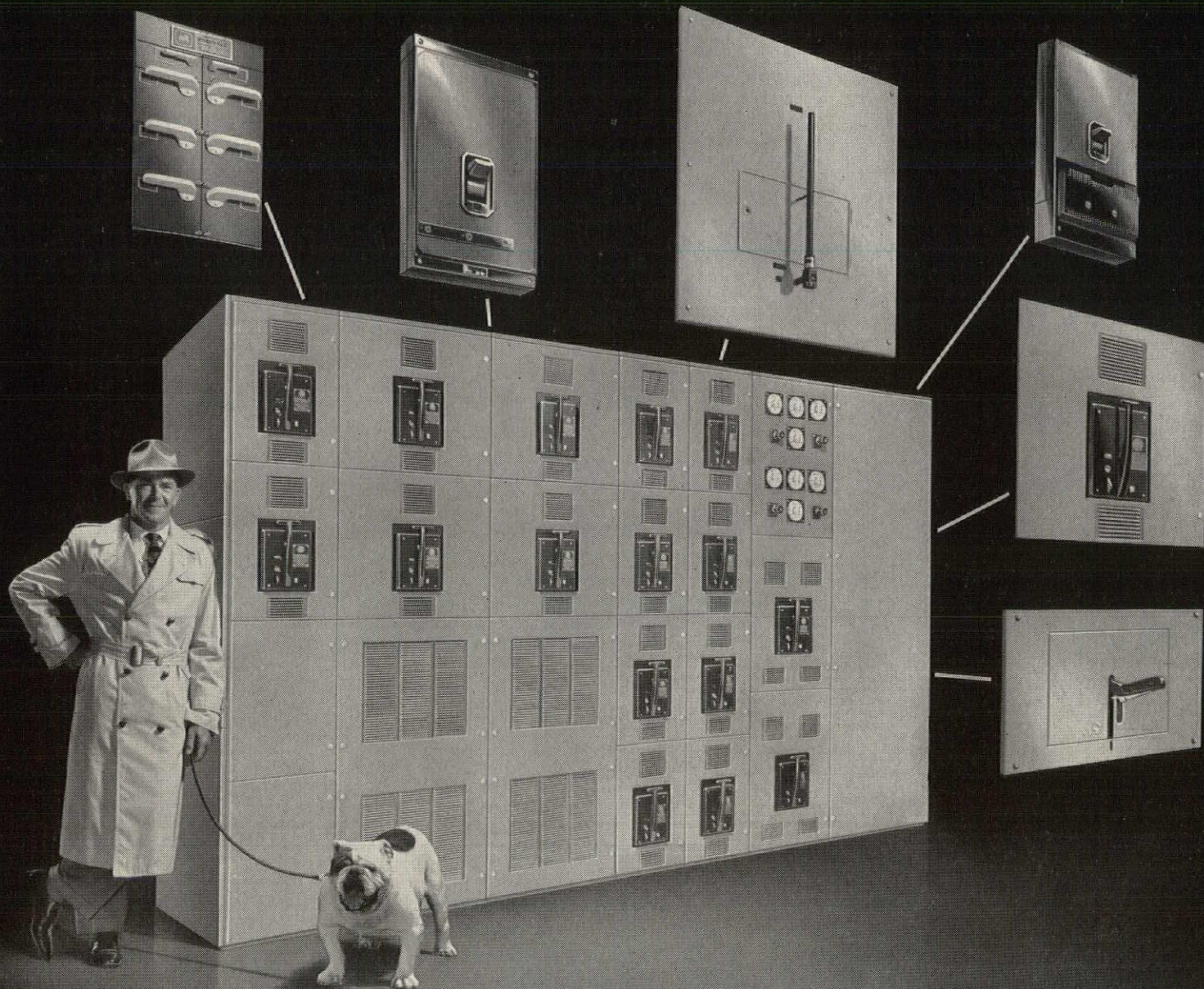
Audible speaker systems are frequently used for communication between departments and within specific branches. These systems may be arranged for individual as well as collective announcements.

Loud speaker systems which include microphone, amplifier, and loud speakers are often required for extending the voice range, as in auditoriums, outdoor assembly, parking lot, or to issue general instructions as in the case of fire or any other type of disaster.

CARRIER TUBE SYSTEMS

Pneumatic tube systems are extremely useful to carry records, prescriptions, or orders from one department to another. The carriers of these systems are propelled by electrically operated vacuum systems or vacuum-pressure combinations.

Nonpowered gravity drops with hand-



ANNOUNCING: THE NEW BULLDOG DF-60 UNCHALLENGED FOR VERSATILITY

BullDog's new DF-60 lets you put everything from large air circuit breakers to small Vacu-Break® units in one space-saving enclosure. It will handle any of the following light-duty or heavy-duty switch units . . . in any combination:

- New I-T-E K-line back-connected air circuit breakers, 225 to 4000 amperes
- I-T-E Molded Case Circuit Breakers, back-connected or panelboard-mounted, 15 to 800 amperes
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- Fused Pressure Switches, back-connected, up to 4000 amperes

- BullDog DF-30 fused switches back-connected, 30 to 1200 amperes
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In addition there is room for current-transformer equipment and metering systems. But duct systems up to 4000 amperes can be connected directly to the board.

A call will bring your local BullDog field engineer to assist you in selecting the type, combination and arrangement of units needed to handle your clients' power load . . . help supervise installation. You'll find the new DF-60 will ease your plant layout problems, too. For complete details send for Switchboard Bulletin SB-555.

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A REFERENCE GUIDE TO HOSPITAL ELECTRICAL FACILITIES: 5

by Noyce L. Griffin, Electrical Engineer, Architectural and Engineering Branch, Division of Hospital and Medical Facilities

Public Health Service

operated lifts are sometimes useful between one floor and another directly above or below.

ELEVATORS

Size and shape of the elevator car and its door opening are related to the needs of vehicle traffic. The length and width of patients' beds are determining factors in car depth and door width.

Hospital elevators are usually limited to three sizes, as standardized by the industry and the National Elevator Manufacturers' Institute. These sizes comply with the requirements of the American Standard Safety Code for Elevators, A17.1-1955 and in respect to rated load capacity in pounds and the outside dimensions of the car platform the sizes are as follows: 3500 lb, 5 ft 4 in. by 8 ft; 4000 lb, 5 ft by 8 ft 4 in.; and 5000 lb, 7 ft by 8 ft 4 in.

Small and medium size hospitals, where comparatively few elevators are needed, use these hospital-size cars almost exclusively because of the economic advantage of their "all-purpose" characteristics. Automatic operation without an attendant, except during peak service demands, visiting periods, and vehicle transportation, is common practice in most of the small and medium size hospitals. Larger hospitals sometimes employ a few "office building-size" cars for passenger service only. Automatically operated elevators should be provided with a keyed switch which permits an attendant to bypass any calls and travel directly to any station. This feature is needed for hospital-type elevators as it is not desirable to combine passenger traffic with vehicle traffic such as bed or stretcher patients or food carts.

It is desirable that the electric service to elevators be arranged so that at least one of the hospital-type elevators may be operated on the emergency system. Switching should be arranged to permit connection of the emergency power to bring any elevator to a landing in case it has been trapped between floors by interruption of the normal power.

FIRE ALARMS

Fire alarms are required in every hospital. Alarms as required by the "Building Exits Code" apply except where they may be modified by additional requirements of local or state codes.

Devices used in the alarm system should be listed by Underwriters Laboratories, Inc., or Factory Mutual Laboratories, or certified to comply with the requirements of the listed devices. In all cases the system should be

electrically supervised, preferably the code signal type and should comply with NFPA No. 72, "Proprietary Signaling Systems." To minimize panic among patients when a fire alarm is sounded, a pre-signal feature is generally recommended, designed so that the initial signals will sound only in department offices, engine rooms, fire brigade stations, nurses' stations, and other central locations. Chimes or lighted signal gongs are recommended in nursing areas.

CLOCKS

An electric clock system, rather than individual clocks, should be provided with clocks in all offices, nurses' stations, main lobby, waiting rooms, telephone switchboard, kitchen, dining room, laundry, boiler room, operating and delivery rooms. The clocks should be of the recessed type, preferably with a narrow frame. Clocks in operating and delivery rooms should have sweep second hands. The need for elapsed time indicators in operating and delivery rooms is controversial.

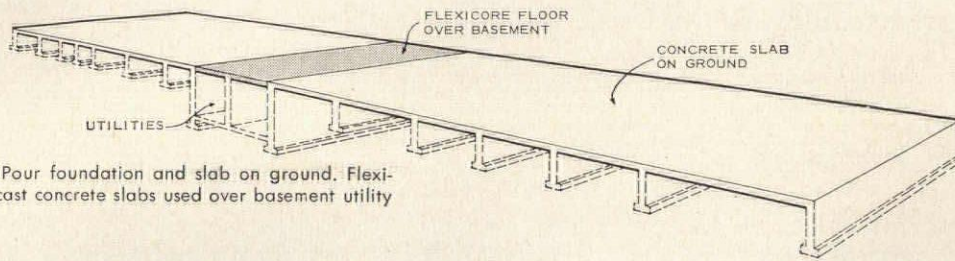
Two types of clock systems are available: the wired and the electronic. The wired system requires wiring from the individual clocks to the master control clock. The electronic system requires no wiring connection between the individual clocks and the master clock. Control is by means of electrical impulses sent out by the master control clock and picked up by a radio-type receiver in each clock which is operated from any convenience outlet.

X-RAY

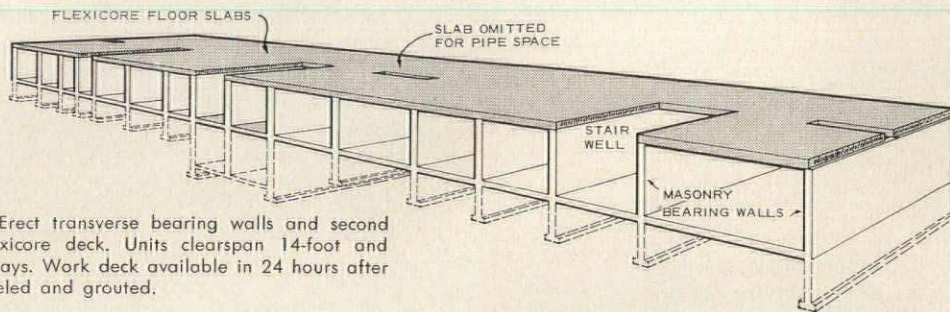
Voltage supplied to the X-ray unit should be nearly constant so that images and pictures will be uniform. An independent feeder with capacity sufficient to prevent a voltage drop greater than 3 per cent is recommended. A separate transformer for the X-ray feeder is desirable and is a requirement for most installations.

REFERENCES

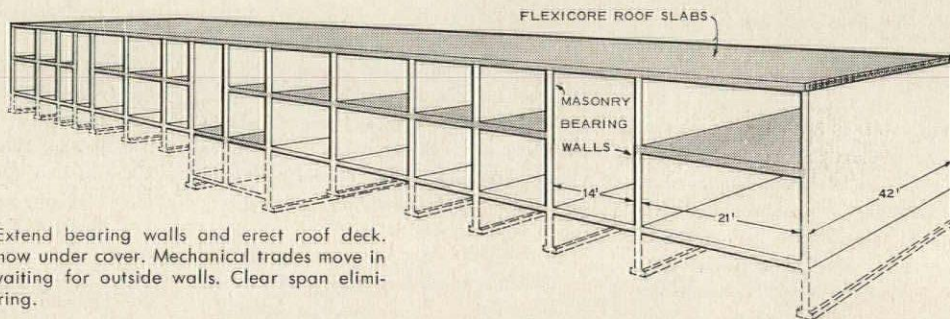
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STEP 1. Pour foundation and slab on ground. Flexicore precast concrete slabs used over basement utility rooms.



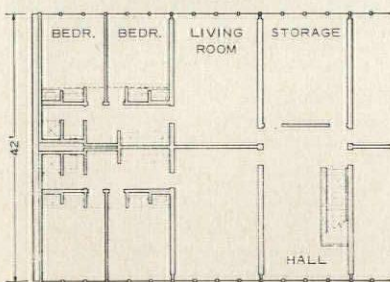
STEP 2. Erect transverse bearing walls and second floor Flexicore deck. Units clearspan 14-foot and 21-foot bays. Work deck available in 24 hours after slabs leveled and grouted.



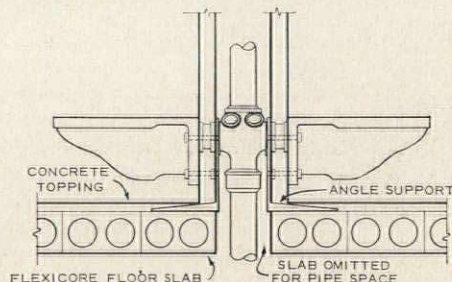
STEP 3. Extend bearing walls and erect roof deck. Building now under cover. Mechanical trades move in without waiting for outside walls. Clear span eliminates shoring.

Skidmore, Owings and Merrill, Architects—Engineers

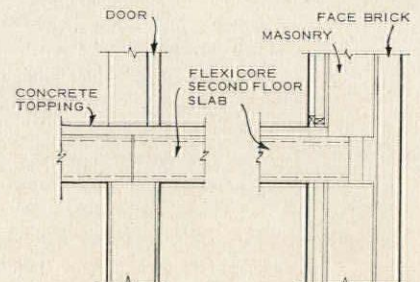
How Air Force Academy Got New Buildings Under Cover Quickly



TYPICAL PLAN SECOND FLOOR



DETAIL—PIPE SHAFT



INTERIOR BEARING WALL END BEARING WALL



The Bachelor Officers' Quarters and Visiting Officers' Quarters at the new Air Force Academy have precast Flexicore floor and roof decks because they provided fast erection, a fireproof structure and a reasonable cost.

For more information on this project, ask for Flexicore Facts 84. Write The Flexicore Co., Inc., Dayton, Ohio, Flexicore Manufacturers Association, 297 S. High St., Columbus 15, Ohio, or look under "Flexicore" in the white pages of your telephone book.



Increase your office-productivity

Overnight



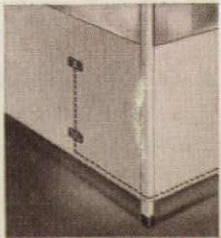
Globe-Wernicke Techniplan Partitions magically create efficient, attractive private and semi-private offices, a proven technique for increasing employee work output. Techniplan Partitions are space-engineered, modular metal units. They can be installed *overnight* with ordinary tools. No alteration of your lighting, air conditioning or other existing facilities is necessary. Free-standing Techniplan Partitions can just as easily and quickly be re-arranged to suit changing requirements. They are never obsolete. There is no simpler, faster or more economical way to increase your office productivity than installing Globe-Wernicke Techniplan Partitions. Their tremendous acceptance is endorsed by the thousands of installations in every type of business. Why not call the G/W dealer* in your city today? He will be happy to demonstrate the many outstanding features, a few of which are illustrated below, of Techniplan Partitions — or write for complete information to Dept. J-11.



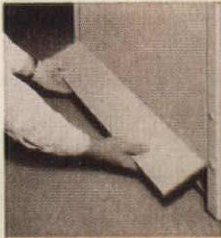
Techniplan partitions, available in 8 widths, 4 heights—up to 84", interlock to form free-standing sections.



Techniplan metal partitions are available with glass (transparent or translucent), metal or acoustical panels.



Techniplan panels and posts have provisions for concealed wiring and electrical outlets and switches.



Techniplan partitions have open base; can be converted to closed base with snap-in, snap-out base panels.

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For safe, economical school heating... specify an

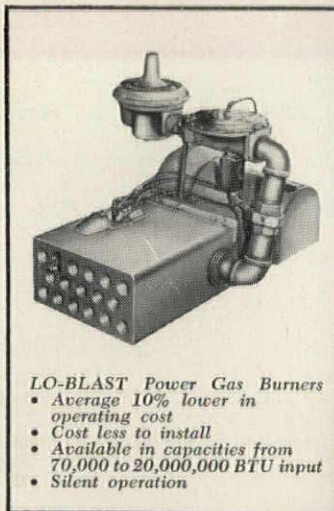
ECONOMITE LO-BLAST *Gas System*

For over 25 years, the Economite Lo-Blast Gas burners have been endorsed by satisfied and enthusiastic users. From a single room to a large school, there's a Lo-Blast Power burner just right for the job.

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Bradley Group Showers

(A.I.A. 29-H) Gives detailed information on multi-person showers, including complete details on the basic Shower Column, installation data and floor plan suggestions. 8 pp. *Bradley Washfountain Co., 2203 W. Michigan St., Milwaukee 1, Wis.**

Extruded Aluminum Door Louvers

Describes, and gives technical and selection data and suggested specifications for the C/S line of extruded aluminum door louvers. 4 pp. *Construction Specialties, Inc., 59 Winans Ave., Cranford, N. J.**

Design Data for 6400 Holoflux

(A.I.A. 31-F-23) Provides performance data, installation details, and specification and ordering information on the 6400 series *Holoflux*, a recessed *Primalume* luminaire. 8 pp. *Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.*

Ballast Application Guidebook

Loose-leaf manual contains complete information on the proper selection of fluorescent lamp ballasts, including a listing of recommended ballasts and their performance characteristics, and a review of the principles of ballast specifications for a wide variety of applications. Bulletin GIZ-964, 100 pp. \$5. *Ballast Dept., General Electric, 1430 E. Fairchild St., Danville, Ill.*

Vibration and Shock Control

Technical manual gives complete data on control of vibration and shock with *Sorbtex* preformed fabric neoprene and rubber pad materials. *Voss Engineering, Inc., 5649 N. Ravenswood Ave., Chicago 26.*

Carey Industrial Insulations

(A.I.A. 37) Describes all types of Carey industrial insulations and insulating cements, and the appropriate applications for each. Form 6451, 4 pp. *Philip Carey Mfg. Co., 320 S. Wayne Ave., Lockland, Cincinnati 15, Ohio**

Mosaic Medley Patterns

(A.I.A. 23-A) Presents full-color close-ups and installation photos of random mixture ceramic mosaic patterns, with specifying information for each. 12 pp. *Mosaic Tile Co., Zanesville, Ohio**

Sol-Dec Screen

(A.I.A. 35-P-2) Details components, applications and pattern variations of new aluminum solar and decorative screen system. *Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.**

Year Round Concreting

(A.I.A. 3-B-2) Summarizes new ACI standard recommendations for cold weather concreting, with sections on accelerators, preparation before concreting, winter concreting objectives, and production required. Guide specifications are also included. 8 pp. *Calcium Chloride Institute, 909 Ring Bldg., Washington 6, D. C.*

Macomber Allspans Design Manual

(A.I.A. 13-G) Gives comprehensive tables of dimensions, properties and allowable loads, construction details and suggested specifications for *Allspan* open-web structural steel framing members. MA-59, 28 pp. *Macomber Inc., Canton 1, Ohio**

Hinge Guide

(A.I.A. 27-B) Details factors influencing hinge selection, and catalogs a full line of hinges with complete information on their characteristics, sizes and finishes. 12 pp. *Stanley Hardware Div., Stanley Works, Dept. PD, 195 Lake St., New Britain, Conn.**

Industrial Fans

Presents fundamental data on the capacities and construction of Type I.E. industrial fans, with complete rating tables and other pertinent technical information. Bulletin L-5, 28 pp. *Lehigh Fan & Blower Div., Fuller Co., Catasauqua, Pa.*

Electric Radiant Glass Heating

(A.I.A. 30-C-44) Gives complete technical and descriptive information, as well as specifications, on the Berko line of baseboard, wall panel and ceiling-recessed glass electric radiant heaters. Catalog GC-106. *Catalog Dept., Berko Electric Mfg. Corp., 212-40 Jamaica Ave., Queens Village 28, N. Y.**

Comfortable Quarters

... for *Laboratory Animals* is a collection of floor plans, details and photos designed to facilitate the planning and construction of animal quarters in scientific institutions. *Animal Welfare Institute, 22 East 17th St., New York 3, N. Y.*

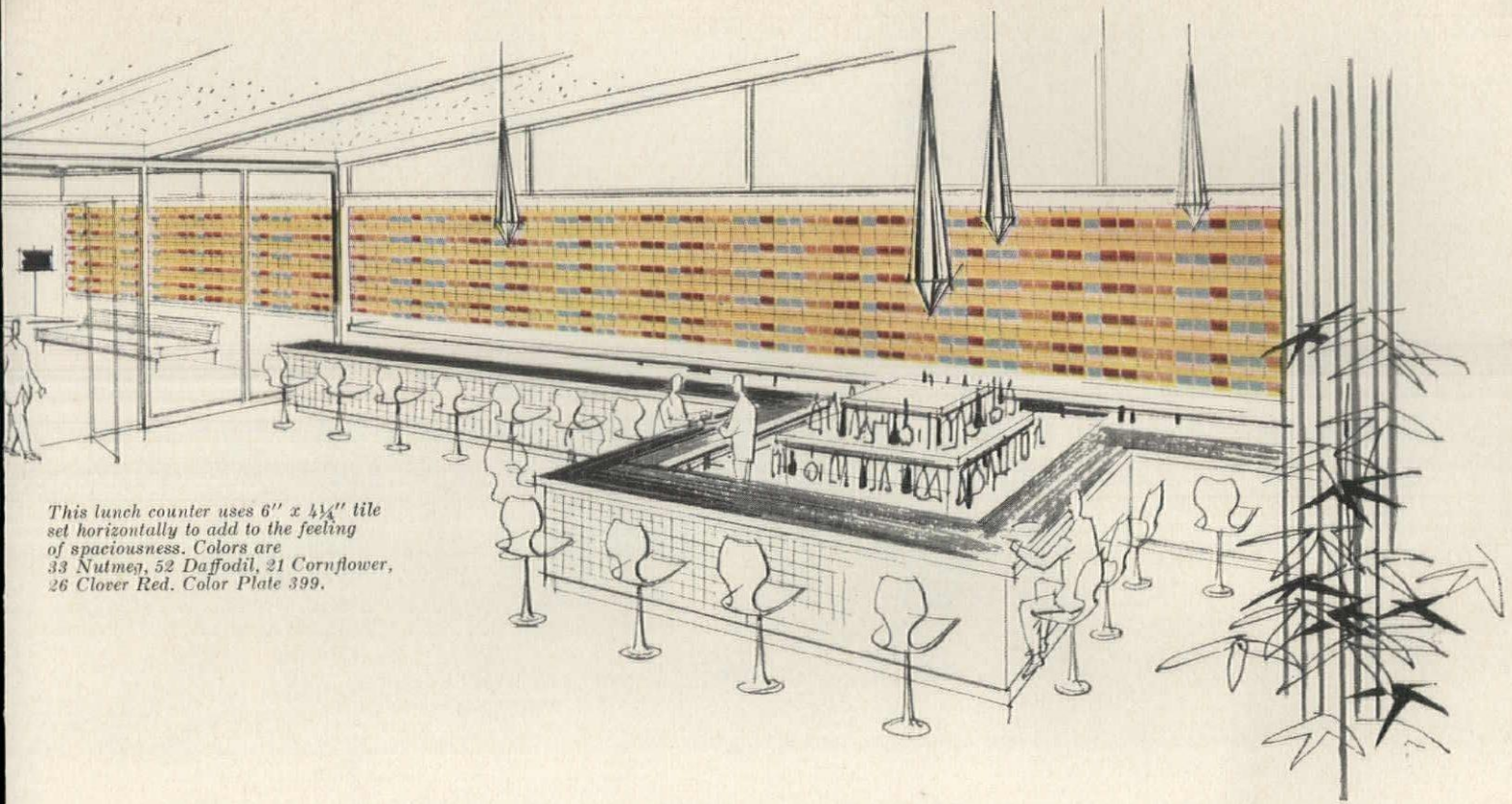
Vertiflow Unit Heaters

(A.I.A. 30-C-4) Gives technical data, mounting heights, spread circle diameters, unit capacities, specifications and dimensional drawings for *Vertiflow* vertical discharge heaters for spaces with high ceilings or large clear spans. Catalog 2659, 16 pp. *Young Radiator Co., Racine, Wis.**
*Additional product information in *Sweet's Architectural File.*

more literature on page 302



FIRE SAFE SCHOOLS presents in brief form the essential elements of fire safe school buildings and gives recommendations for obtaining fire safety in new and existing schools of all types. Separate sections discuss the construction of new buildings, the improvement of existing buildings, fire extinguishing facilities, and fire hazard safeguards. 22 pp. A second booklet, *Fire Safe Hotels*, presents similar data on year-round, seasonal and apartment-type hotels. 25 pp. *National Board of Fire Underwriters, 85 John St., New York 38, N. Y.*



This lunch counter uses 6" x 4 1/4" tile set horizontally to add to the feeling of spaciousness. Colors are 33 Nutmeg, 52 Daffodil, 21 Cornflower, 26 Clover Red. Color Plate 399.

LARGE SIZE TILES FOR LARGE WALL AREAS

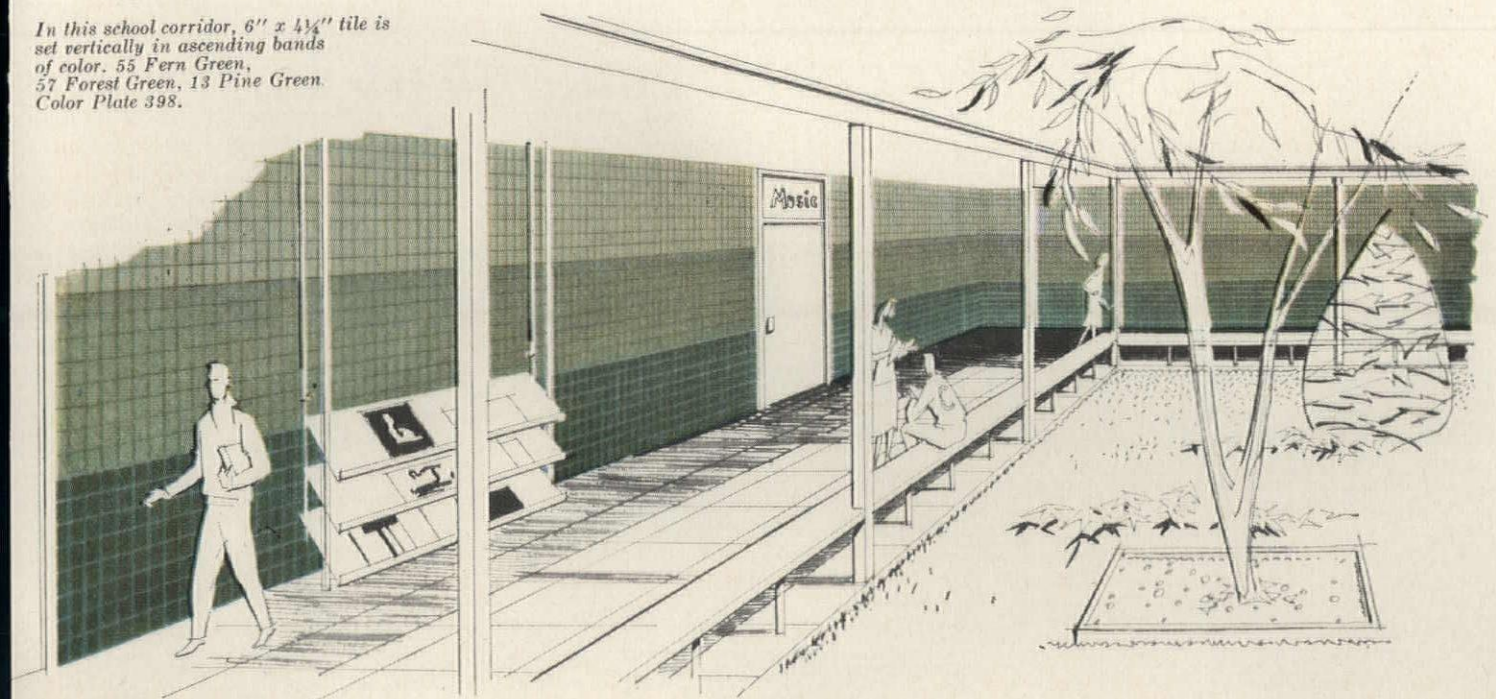
The larger sizes in American-Olean ceramic tile offer unique advantages to architects and designers looking for new ways to add interest to large wall areas. As the two sketches shown here illustrate, these larger sizes can be used to achieve desired scale effects as well as to create decorative treatments that are fresh and distinctive.

For complete information and many other suggested applications, write for American-Olean's new Color Booklet "New Interiors with Large Size Tile".

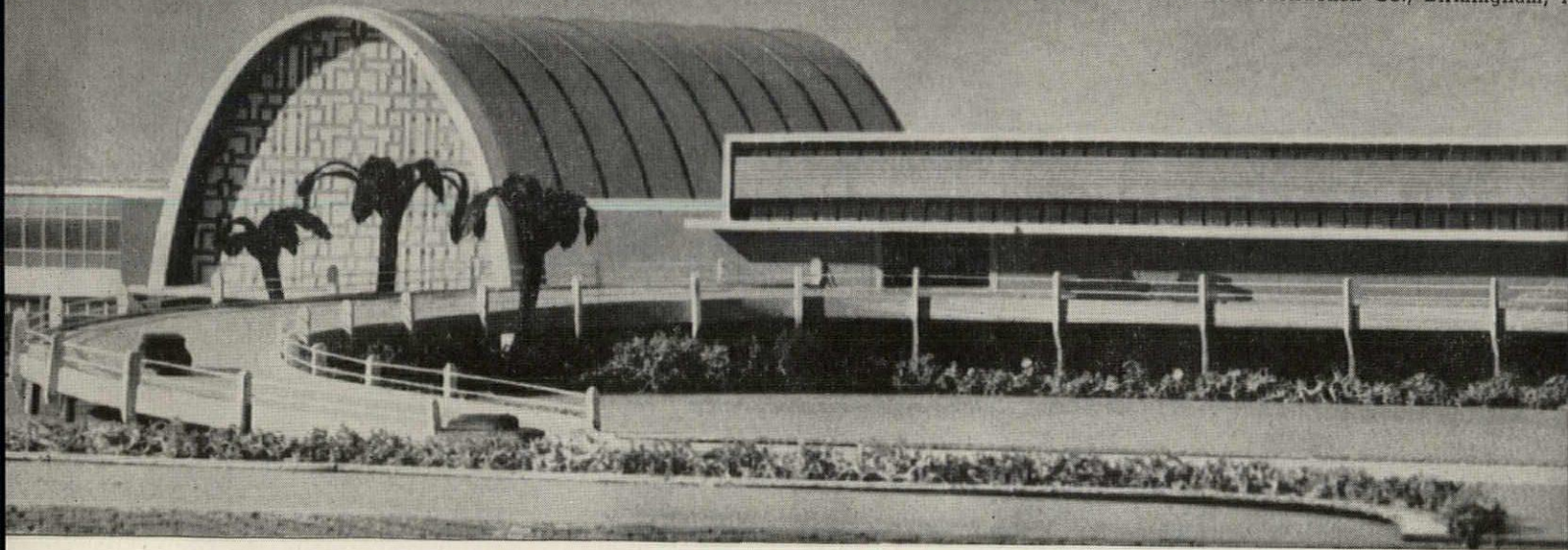
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In this school corridor, 6" x 4 1/4" tile is set vertically in ascending bands of color. 55 Fern Green, 57 Forest Green, 13 Pine Green. Color Plate 398.



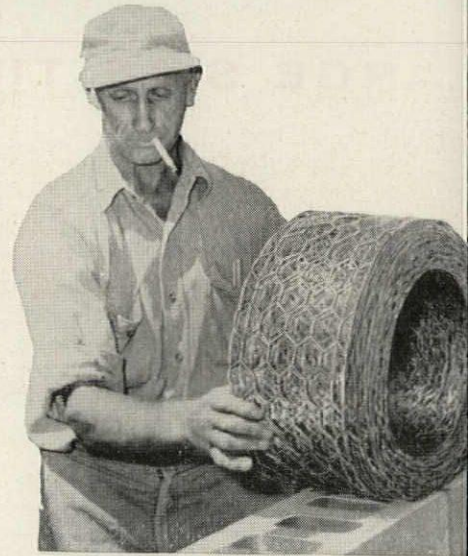
LOUISIANA—The Moisant International Airport Terminal, New Orleans. Keywall used in alternate courses of all concrete block, structural clay facing tile and hollow building tile. Architects: Goldstein, Parham & Labouisse, New Orleans, and Benson & Rice, New Orleans. General Contractor: J. A. Jones Co., Shreveport, Louisiana. Masonry Contractor: Dixie Construction Co., Birmingham, Alabama.



the South turns to

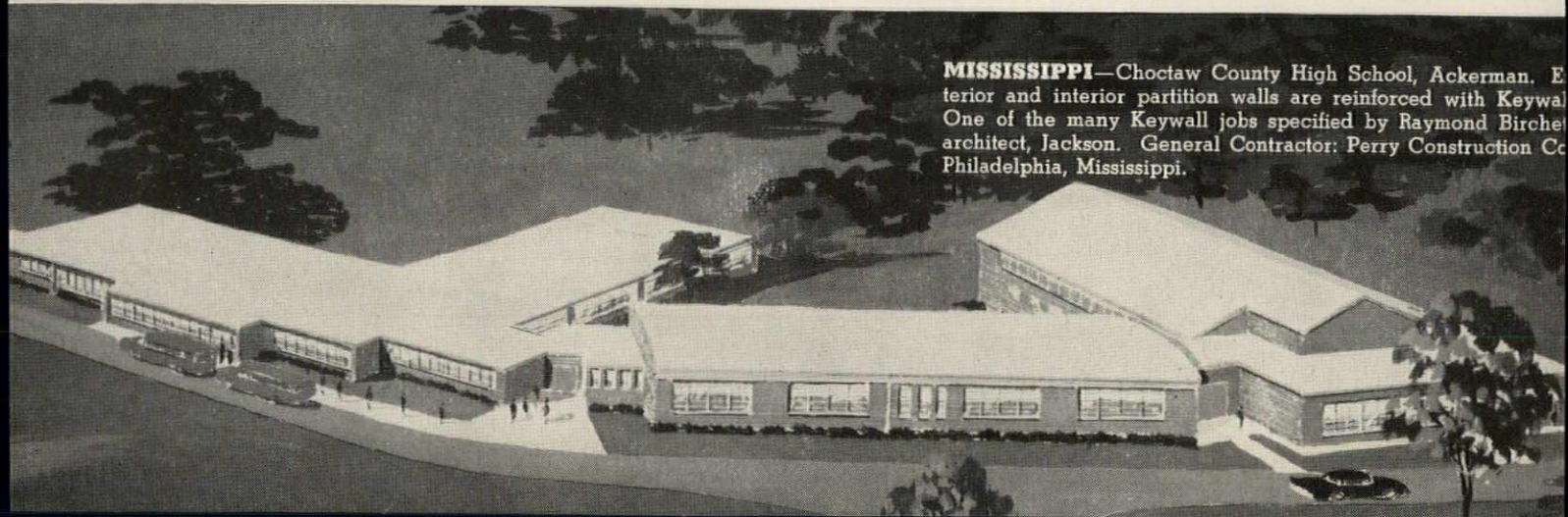
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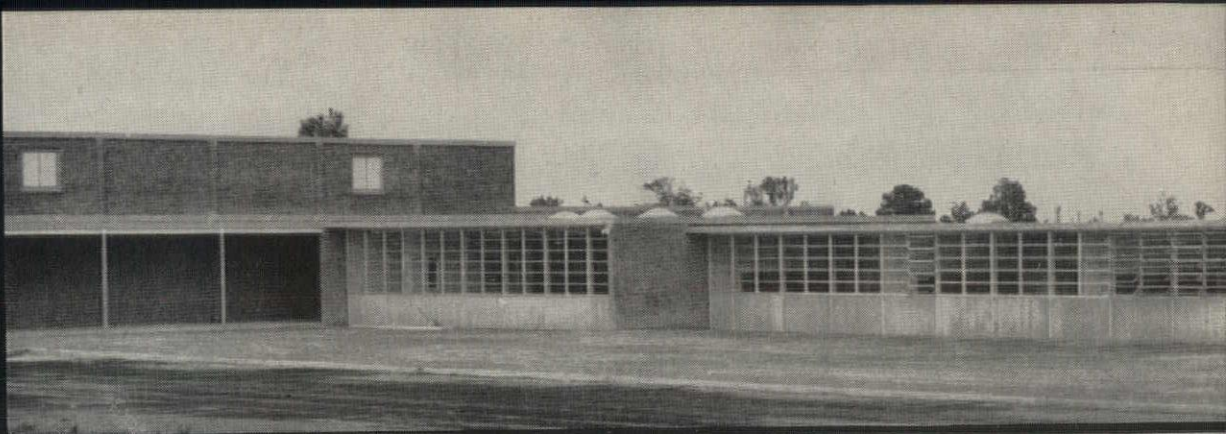


to get stronger reinforcement at lower cost

MISSISSIPPI—Choctaw County High School, Ackerman. Exterior and interior partition walls are reinforced with Keywall. One of the many Keywall jobs specified by Raymond Bircher, architect, Jackson. General Contractor: Perry Construction Co., Philadelphia, Mississippi.



MISSISSIPPI—Whisenton School, DeKalb. Keywall used in every third course of exterior and interior concrete block walls. Architect: Bill Archer, Meridian. General Contractor: B & M Construction Company, Meridian.



MISSISSIPPI—One of the fourteen apartment buildings being constructed for married students on the University of Mississippi campus, Oxford. The buildings are of concrete and masonry construction, reinforced throughout with Keywall. Architect: Thomas H. Johnston, Jr., Starkville. General Contractor: J. W. Rich Construction, Humbolt, Tenn.



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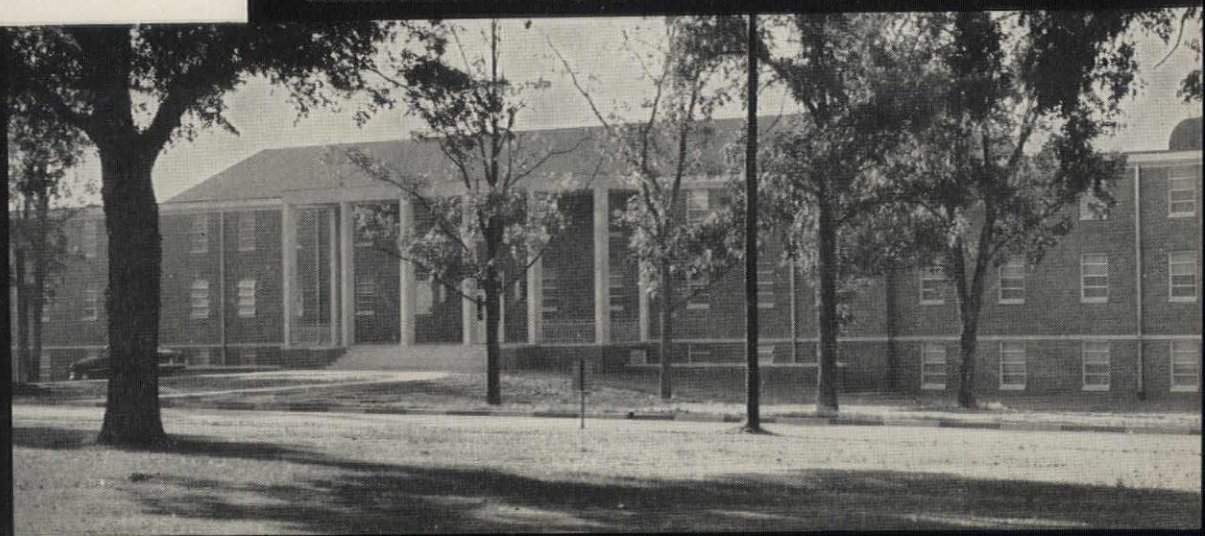


TENNESSEE—Pine Hill Community Center, built for the Memphis Park Commission. By reducing shrinkage cracks, Keywall gives longer life to the beauty of this building. Architects: Mann & Harrover, Memphis. General Contractor: W. F. Jameson Construction Co., Memphis.



MISSISSIPPI—The Northside Elementary School, Kosciusko. One of the many buildings designed by William I. Rosamond, architect, Columbus, on which Keywall was specified. General Contractor: Fenwick Brothers Construction Company, Kosciusko.


ALABAMA—Dill Hall, student dormitory, Troy State College, Troy. Keywall is adding greater crack resistance to this attractive building. Architect: Pearson, Tittle & Narrows, Montgomery. General Contractor: Henderson, Black & Greene, Troy.



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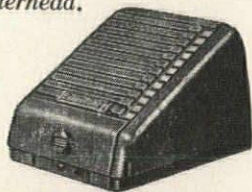


IMAGE OF FUTURE ARCHITECT

continued from page 184

profession must look to itself as primarily responsible for the finished product. I think we all recognize that the able and serious student leaves his school with a large measure of idealism and enthusiasm. Immature, of course, and often misdirected, but essential if architecture is to be. He then enters the so-called hard, cruel world, is told to forget all that nonsense and buckle down to the hard facts of competitive production. By the time he is ready for his own practice, or starts to participate in the policy decisions of the firm which has apprenticed him, he has become inured to the ways of business and has largely forgotten what he learned, or should have learned, in school.

I paint a black picture to make the point that the training he receives during his apprenticeship is likely to have more effect upon his final performance than is the training he received in school. I am a strong advocate of the principle that the time in school should be a time for growth, for experimentation, for the discovery and development of a philosophy, in short for the establishment of ideals and idealism.

*J. Palmer Boggs, Chairman
School of Architecture
University of Oklahoma*

Must Increase His Vocabulary

1. The need and the use for the architect is expanding, but not relative to the opportunities which have been created. Our age has relegated him to the role of a businessman and an organizer of an end product: someone who makes space a little more efficient with esthetic implications and for which he gets a little money—hardly an eternal occupation!

2. No, not all schools. Shifts in need are not immediate. I wouldn't say we can be very positive about making changes for an age which does not exist as yet. In our school we try to develop a vocabulary in mathematics, physics, technology, at the same time attempt to create a sensitivity to the many needs of people.

3. Practical? More, we would like to demonstrate and appreciate the unity of people with their know-how to reduce the dualisms of practice and design: of architecture and engineering, sociology, physics, etc. We would encourage anyone who has been given

continued on page 260

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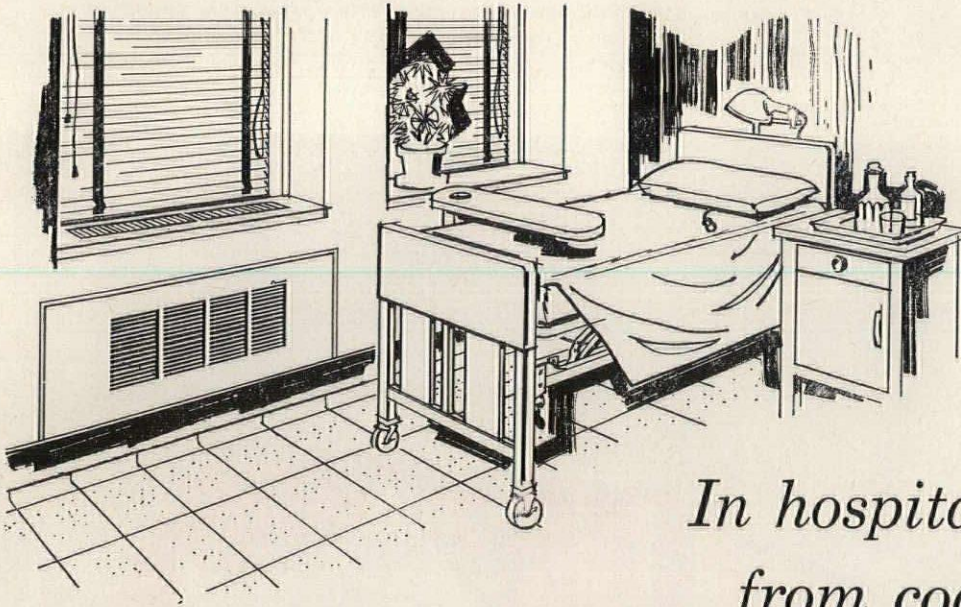
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| CLARK COUNTY MEMORIAL HOSPITAL, | Arkadelphia, Arkansas | ST. LUKES HOSPITAL | Kansas City, Missouri |
| HELENA HOSPITAL | Helena, Arkansas | TRINITY LUTHERAN HOSPITAL | Kansas City, Missouri |
| HUNTINGTON HOSPITAL | Pasadena, California | HASTINGS STATE HOSPITAL | Ingleside, Nebraska |
| AIR FORCE ACADEMY HOSPITAL | Colorado Springs, Colorado | ST. CATHERINE'S HOSPITAL | Omaha, Nebraska |
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IMAGE OF FUTURE ARCHITECT

continued from page 256

the gift of comprehension and who wants to contribute and find his life work in the creation of our environment.

4. Some of the topics you have mentioned are difficult to deal with at a school level: however, contributions by education can be made in teaching: performance, responsibility, personal ethics, at the same time setting academic standards.

5. Yes, teaching is endless!

6. With the energy and scientific break-throughs now made, people will be able to rely more on the contributions of the world's gifted. If the Architect is to remain around, he will have to increase his vocabulary of concepts and technology.

George Hasslein, A.I.A.

*Dept. of Architectural Engineering
California State Polytechnic College*

Must Become a Dynamic Art

1. I am afraid generally (not specifically) that other disciplines are taking over some of the architect's prerogatives. I hope that the fine art of architecture does not succumb to prefabrication and machine-like stylization.

2. I think construction (courses in structure) must be stressed and integrated with design to prevent prefabrication and machine-like stylization.

3. I do offer the student encouragement if he veers to the practical side but our school has no special courses nor curricula for him.

4. Yes.

5. No.

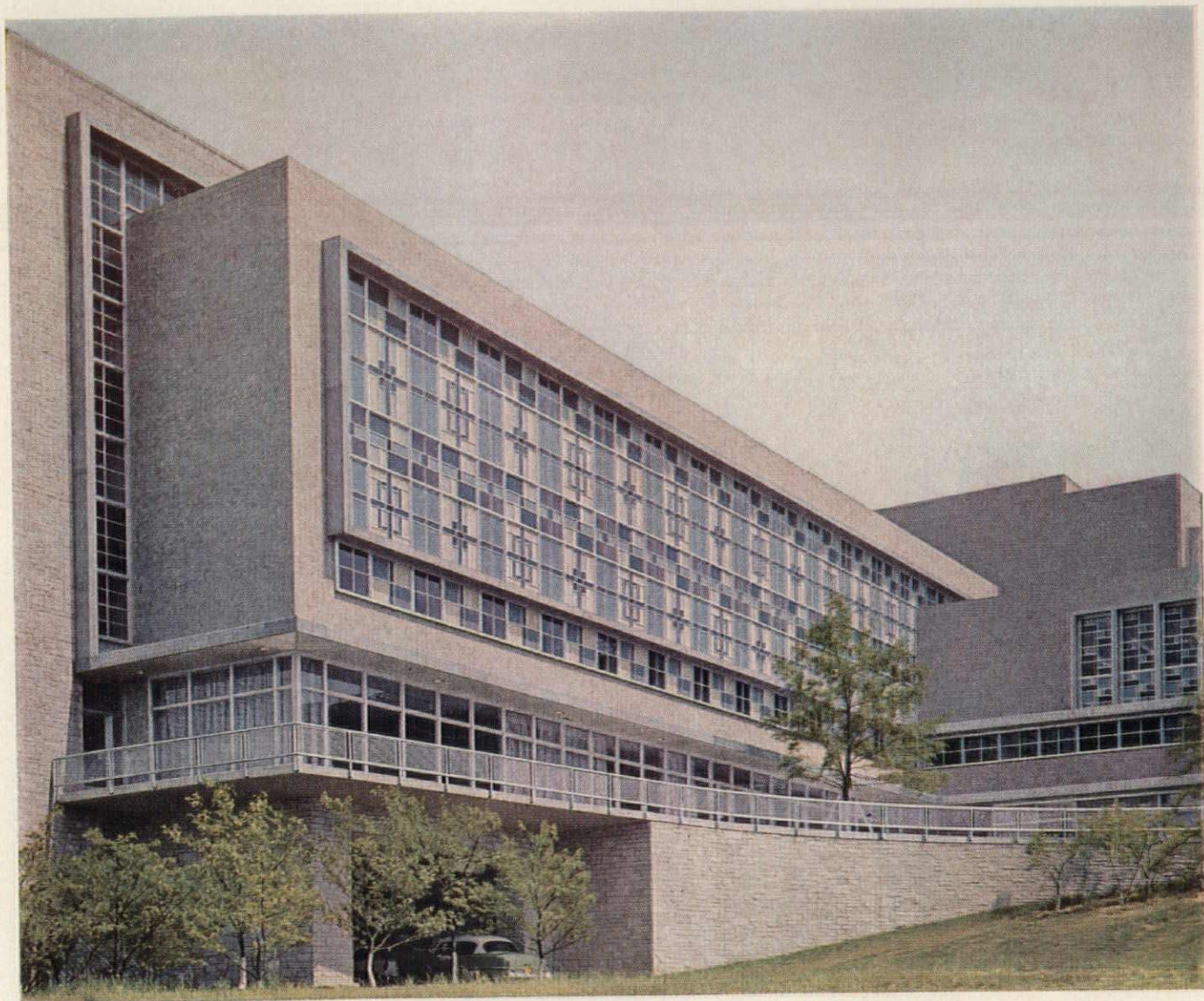
6. If architecture is to survive, it must be correlated creatively with the vast strides which are being made in science and engineering.

I would hate to see the day come when a building or a home could be traded in on a new model like automobiles are today.

Years ago people worshipped the antique—old homes, old churches, old statues and so on. Today there is a definite worship of the new, especially here in America.

I feel in architecture that flexibility and adaptability must become increasingly important. It must become a dynamic, moving art rather than a static, permanent art.

*Richard W. Lilliott, Jr., Director
School of Architecture
University of Houston*



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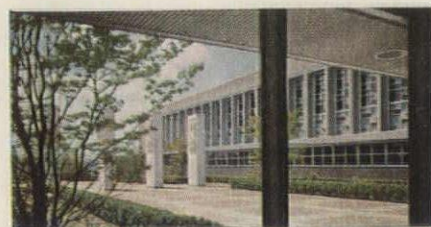
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GENERAL CONTRACTOR
Virginia Engineering Co., Newport News, Va.
ALUMINUM FABRICATOR
Newman Brothers, Inc., Cincinnati, Ohio

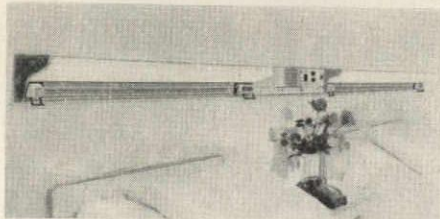


Your Guide
to the Best
in Aluminum Value



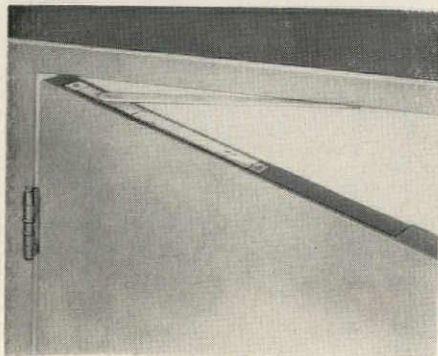
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The *Centron-10* is a single, integrated console service unit that incorporates at least ten different services normally installed separately in hospital bedrooms. Contained in a long, slim package only 7 in. deep are a general illumination unit, shielded reading light, color-corrected examination light, night lights, convenience outlets, and provision for nurse call system, N.C.G. oxygen and vacuum systems, television lead-ins, phone outlets and accessory intravenous apparatus support arm. A single console coordinates all functions in one central location and permits "feed thru" of all plumbing and electrical services for four beds in two adjoining rooms. The *Centron-10* units are mounted just above eye-level, singly or in continuous rows. *Sunbeam Lighting Co.*, 772 East 14th Place, Los Angeles 21, Calif.



Door Closer With One-Piece Arm

The new *Multi-check* door-installed closer for interior doors features a straight one-piece arm which functions on a traveling spindle to relieve leverage stress on butts and door frame and is completely concealed when the door is closed. Only 1 3/8 in. thick, the closer can be mortised or surface mounted on either wood or

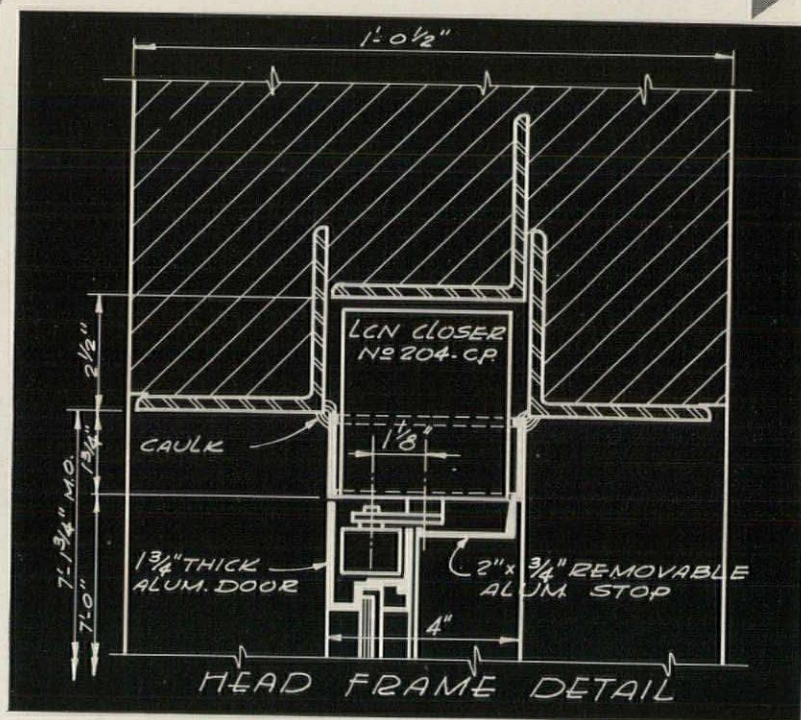
hollow metal doors. Regardless of the mounting method or the door width, the closer and jamb rail are always located the same distance from the hinge side of the door. Since all *Multi-checks* are the same size, mortise dimensions also are always the same. *Oscar C. Rierson Co.*, 9100 W. Belmont Ave., Franklin Park, Ill.

Acrylic Fiber Weatherstripping

Because of acrylic fiber's low moisture absorption (about 1 per cent against 16 per cent for wool), and its superior resiliency, a new weather-

stripping made from Chemstrand's *Acrilan* is expected to outwear conventional weatherstripping by as much as 50 per cent. In addition to its durability, the new *Cushion-Seal* weatherstrip has high resistance to freezing and will remain soft and pliable even after prolonged exposure to extreme cold and concentrated moisture. In terms of window performance, this means a noiseless seal with excellent resistance to sticking and binding. *Kessler Products, Inc.*, Youngstown, Ohio

more products on page 270



CONSTRUCTION DETAILS

for LCN Overhead Concealed Door Closer Shown on Opposite Page
The LCN Series 200-CP Closer's Main Points:

1. Efficient, full rack-and-pinion, two-speed control of the door
2. Mechanism entirely concealed; arm disappears into door stop on closing
3. Hydraulic back-check prevents door's being thrown open violently to damage walls, furniture, door, hinges, etc. Door may open 130°, jamb permitting
4. Hold-open (optional) set at any one of following points: 85°, 90°, 100° or 110°
5. Easy to regulate without removing any part
6. Used with either wood or metal doors and frames

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

LCN CLOSERS, INC., PRINCETON, ILLINOIS

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

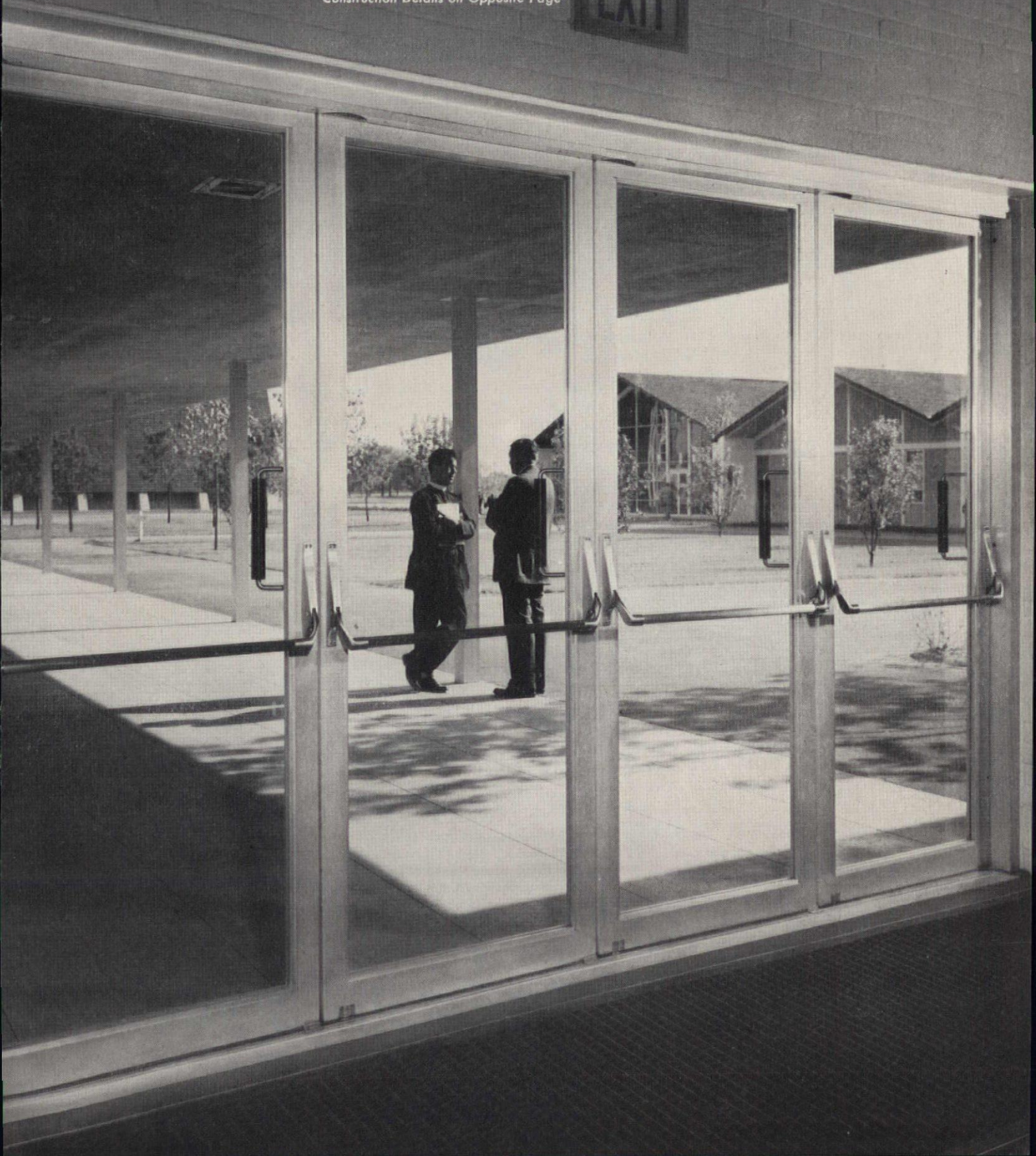
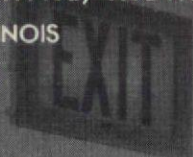
Eero Saarinen and Associates, Architects

MODERN DOOR CONTROL BY *LCN* Closers Concealed in Head Frame

CONCORDIA SENIOR COLLEGE, FORT WAYNE, INDIANA

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page





COMMONS CAFETERIA, COMO PARK JR. HIGH SCHOOL, MINNEAPOLIS, MINN. • PHOTO: WARREN REYNOLDS, INFINITY, INC., MINNEAPOLIS

School Master: Timeless Terrazzo

What's harder on a floor than adolescents? Answer: Hungry adolescents. The architect who specified Terrazzo and Mosaic for the school cafeteria shown above demonstrated knowledge of both material and *homo sapiens*.

Lunch hours—and classes—come and go. But Terrazzo goes on and on. It withstands wear because it's made of marble (70% or more) and portland cement (30% or less). Maintenance and cleaning are minimized because dirt and bacteria

can't get a foothold in the smooth, jointless surface. Painting, refinishing, waxing and buffing are eliminated. Wet cleaning alone keeps Terrazzo floors brilliant and lustrous, with the fine light-reflecting qualities so important in schools.

Terrazzo is available for floors, ramps, stairs, walls and wainscots. For detailed information, write the Association. Free AIA kit upon request. National field service association representatives available for consultation. Catalogued in Sweet's.

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香港外貌改觀

THE CHANGING FACE OF HONG KONG (Cantonese)



HONG KONG is the "shop window" through which Red China watches the activities of the free world. This 32 square mile island, with its capital city of Victoria, along with the mainland city of Kowloon and the New Territories beyond, make up the British Crown Colony. Hong Kong, faced with an upsurge of population from 600,000 in 1946 to today's 2,800,000 and a lack of living space, is capitalizing on the advantages of the skyscraper. Guided by their native instinct for quality, Hong Kong banking, commercial and industrial leaders are providing these fast emerging skyscrapers with the world's finest completely automatic elevators. They're buying OTIS.



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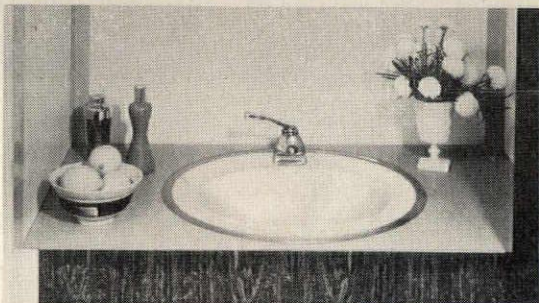
Baker®
Industrial Trucks



Hotel-Motel
*"Room of Tomorrow"**
Bathroom Available Today!



The Bathroom of Tomorrow says, "This is a good place to stop." Crane fixtures include the Criterion lavatory, Criterion bathtub, Santon closet and Hygiene bidet.



Slide open a panel of the storage wall and you have a unique lavatory-serving pantry, featuring Crane's Crown lavatory with Singl-ese control.

YOU CAN SPECIFY

The Crane line is so broad, so varied, that it offers the architect the greatest selection of plumbing fixture styles and colors. Crane gives you great flexibility in prices, too, as the bathroom in the hotel-motel "Room of Tomorrow" aptly demonstrates. Here the award-

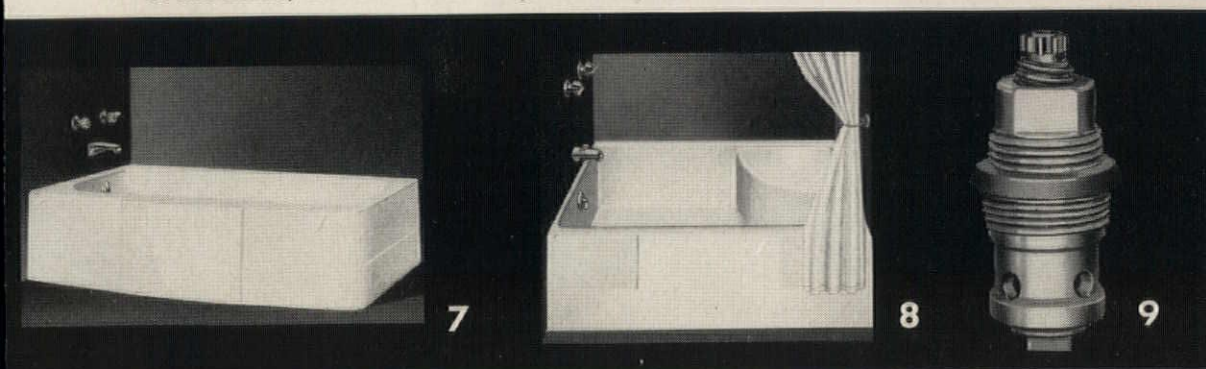
***SEE THESE CRANE FIXTURES**
 at the National Hotel Exposition
 New York City, November 2-6, 1959
 Visit us in Booth No. 4075



1. Distinctively new and practical! The Crane vitreous china *Counterlav* offers plenty of counter space for toilet articles, a roomy rectangular basin and *Dial-ese* controls. 2. The Crane *Westland* lavatory, in gleaming vitreous china features the one-hand *Singl-ese* control. 3. Generous slab space, two soap depressions and Crane *Dial-ese* controls are features of this Crane *Norwich* vitreous china lavatory.



4. Up to six inches of valuable floor space are saved with the Crane *Walsan* closet. Allows full-floor tiling and carpeting, too. Tank is completely concealed in the wall. 5. The Crane *Walton* features an elongated rim, flush valve with vacuum breaker. Chromium-plated trim. 6. The clean, simple lines of the Crane *Drexel* closet, combined with its quiet whirlpool action, make this an ideal hotel or motel fixture.



7. Graceful roominess and modern styling distinguish the Crane *Criterion* porcelain-enameled cast iron bath. It also features a flat, safety bottom; broad rim seat, and *Dial-ese* controls. 8. Designed for both showering and bathing, this smartly designed Crane *Lahoma* receptor bath, with built-in seat, is made of durable, gleaming Duraclay—*Dial-ese* controls. 9. *Dial-ese* controls, featured on all Crane plumbing, operate easily and dependably. All working parts are contained in one interchangeable unit.

CRANE QUALITY IN EVERY PRICE RANGE

winning *Criterion* lavatory and bathtub represent the finest of Crane bathroom fixtures; the *Santon* closet demonstrates Crane quality at a moderate price, and the utility area features the Crane *Crown* lavatory—a classically designed fixture at a moderate price.

Whatever your hotel and motel fixture needs, Crane can fill them. See your Crane representative—he will gladly work with you in selecting the proper equipment for any job you have on your boards.

CRANE®

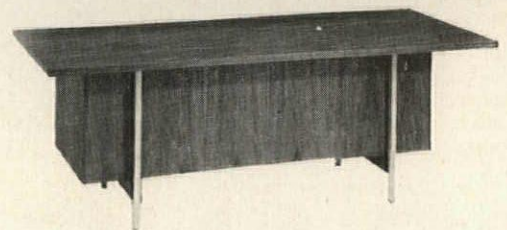
THE PREFERRED PLUMBING

CRANE CO., 836 SOUTH MICHIGAN AVENUE, CHICAGO 5, ILL. • VALVES • FITTINGS • PIPE • PLUMBING • HEATING • AIR CONDITIONING



The Leopold Company: crisp new design in office furniture

This new modular group of wood office furniture combines a clean, almost delicate design with the rugged durability of handcrafted cabinetry. The Template Group is produced in quantity, making it affordable for general office use. And each component is completely functional by itself or in combination with others.



In addition to cabinets and double pedestal desks, The Template Group includes executive and bi-level L desks, conference desks and chairs.



All desks in The Template Group are available in open style as well as closed.



Designer, Charles U. Deaton

The Template Group's interchangeable components allow unlimited combinations for executive, secretarial and clerical offices. The group includes executive L desks, bi-level L desks, double pedestal and conference desks, tables, cabinets, chairs and credenzas. All combine veneer finished walnut with brushed metal legs and U. S. Naugahyde trim. Either closed or open wells are available, with short or long outrigger legs. Tops are made to match the case, or finished in self-edged laminated plastic.

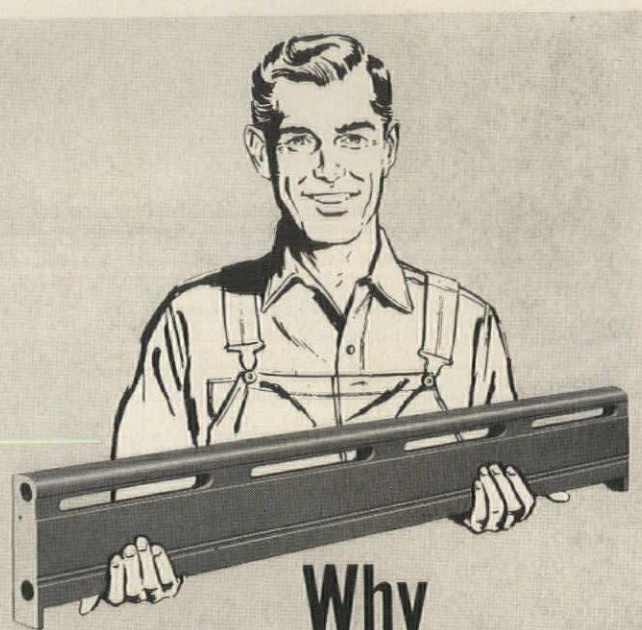
Architects, designers and decorators are invited to write direct to the Leopold Company, Burlington, Iowa, for pricing and purchasing information.



A variety of equipment is available for installation in cabinets.



Coordinated chair line includes two swivel chairs, two arm chairs, a side and secretarial chair.



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Longest nationally advertised. BASE-RAY was the first cast-iron radiant baseboard advertised in national magazines. Every year since, Burnham ads have presold the public. Your clients feel confidence when you specify a name they know! I-B-R rated, too.

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Address

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NEW

Pittsburgh Fab-Form, available in lengths up to 28 feet, 3 inches with $\frac{5}{8}$ -inch corrugation, is handled easily on steel joists by one man at St. Regis Church and School in Trafford, Pa. Contractor H. Justin Brown & Son, Mt. Lebanon, Pa., reported it took four men just one day to lay 10,800 square feet of Fab-Form. Fab-Form was sold and engineered by W. N. Dambach, Inc., Pittsburgh, Pa.

New Fab-Form by Pittsburgh Steel Cuts Floor and Roof Slab Costs, Gives Greater Length and Width

Fab-Form, a brand new addition to Pittsburgh Steel Products' line of quality construction products, builds in savings of materials and erection time for concrete floor and roof slabs.

New Fab-Form—longest and widest corrugated, permanent steel form for slabs poured over joists—reduces the number of end and side laps through its 32-inch cover width and extra length.

In addition, Fab-Form has an exclusive new welding method that is literally a snap.

- In standard lengths, plus other lengths up to 28 feet, 3 inches—twice as long as most others.
- In a cover width of 32 inches
- With deepest corrugation — a full $\frac{5}{8}$ -inch — of any standard steel centering.

• Plain or Bonderized with an exclusive baked-on duPont red oxide primer that provides weather protection and serves as an excellent primer base for further painting of exposed underside. Fab-Form's special protective finish prevents water stain or "white rust."

Fab-Form's uniform strength comes from high-tensile (90,000 to 100,000 psi), 27 gage, cold rolled steel sheet.

• **Ideal for School**—One of the first construction jobs in which Fab-Form was used was the new St. Regis Church and School in Trafford, Pa. Architect for the job was Ermes Brunettini, AIA, Verona, Pa. More than 33,000 square feet of Fab-Form supports three-inch concrete floor and roof slabs set on steel joists.

Thomas A. Laboon, job superintendent for H. Justin Brown & Son, general contractors from Mt. Lebanon, Pa., said that the deeper corrugations in Fab-Form helped make a stronger slab. Pittsburgh Steel's six-inch square mesh made of No. 6 gage wire was used for reinforcing.

Fab-Form's speed of installation also impressed Mr. Laboon. He said that it took four men just one day to lay 10,800 square feet of Fab-Form on roof joists. After sections were laid, welders using the unique Fab-Form Welding Washer Stick made plug welds to every other joist.

• **Easy as A, B, C**—Welders found using the exclusive Fab-Form Welding Washer Stick unusually simple. Pittsburgh Steel developed the unique stick so that each welder bent up the end washer on the stick, made his plug weld and snapped off the washer—in just seconds. This eliminates fumbling in heavy gloves for individual washers. Next, mesh was installed and the slab was poured.

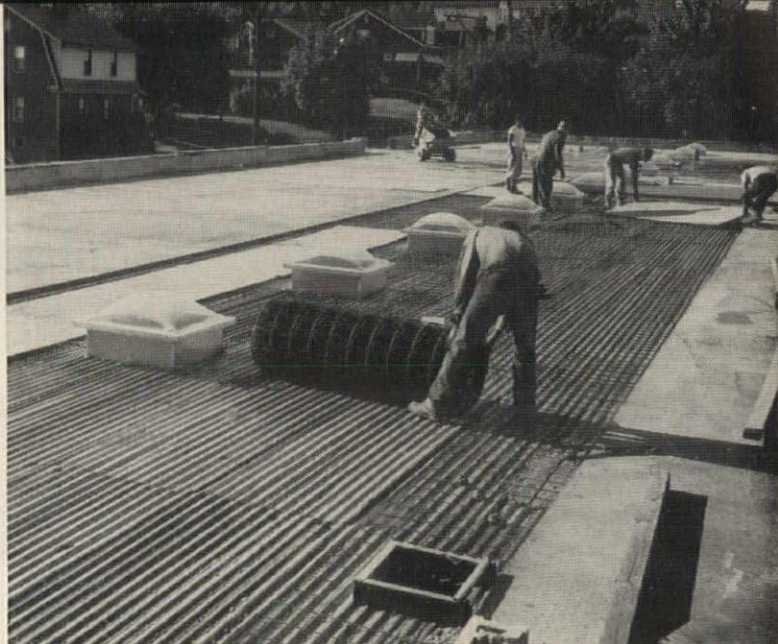
"Everything came out exactly right with no scrapped material," said Mr. Laboon in commenting on the economy of Fab-Form. "The side and end-lapping worked out exactly right.

"On top of that," he added, "you know that when Fab-Form is down you have a material that will take a beating from men tramping on it, buggies and even rough weather.

"Later, after the slab is poured,



Deepest corrugation, $\frac{3}{8}$ -inch, of all standard steel centering is available with Fab-Form. Job Superintendent Thomas A. Laboon, left, shown with Pittsburgh Steel Products Salesman C. W. Bainbridge Jr., said deep corrugation helped make a stronger slab.



Rugged Fab-Form, longest and widest corrugated steel centering for concrete floor and roof slabs on the market, easily supports a three-inch roof slab. Fab-Form saves material and erection time.

you are confident that the same material will go a long way in helping provide sound construction."

Join the growing list of satisfied Fab-Form users. Your first application will convince you of Fab-Form's advantages . . . from Pittsburgh Steel Products Division, a leader in the construction products field for more than 30 years.

Write today for literature or, better yet, contact the nearest Pittsburgh Steel Products sales office listed here.



Pouring is no problem with Fab-Form. Here a buggy has rolled over Fab-Form without damaging the material. Six-inch square mesh made of No. 6 gage wire is from Pittsburgh Steel, too.



Exclusive Fab-Form Welding Washer Stick reduces installation time. After the end washer on the stick is bent up, the welder makes a plug weld and snaps off the washer. Then mesh is installed and slab is poured.

Fab-Form

Pittsburgh Steel Products
a division of Pittsburgh Steel Company

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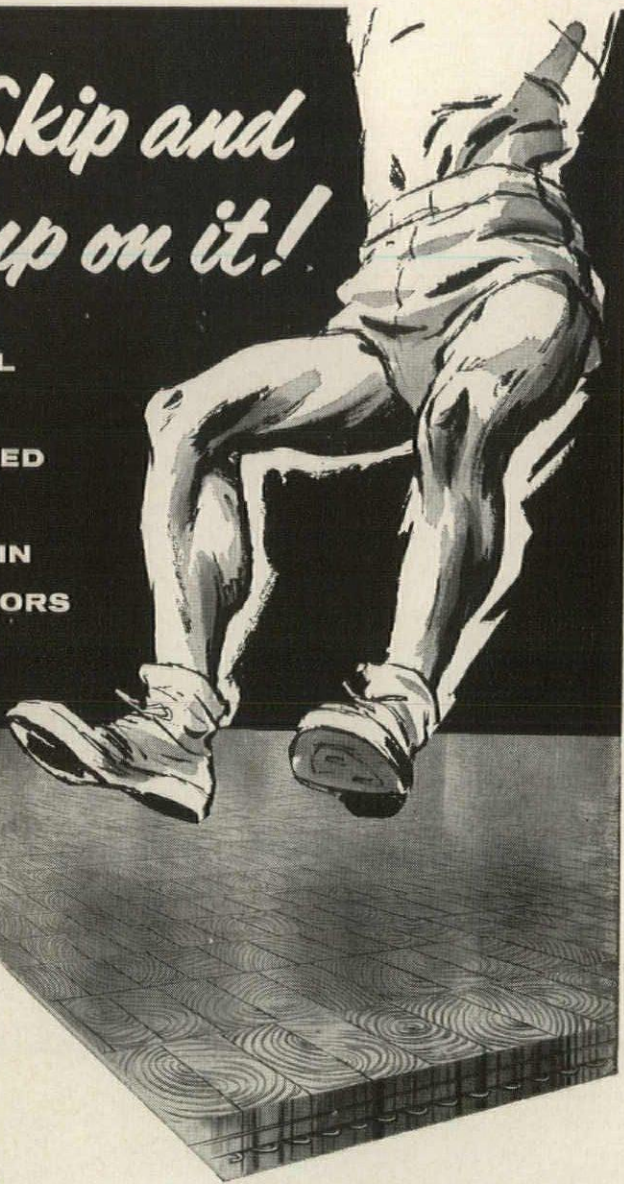


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ACTION of any kind is welcome on this floor.

Because of their high resiliency, Flexible Strip End Grain Wood Block Floors are actually kinder to the feet by lessening fatigue.

In addition to this highly desirable feature, these floors resist wear, stay new longer and require only a minimum of maintenance.

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Product Reports



Single or Dual Glazed Sliding Door

The use of vinyl adapters makes it possible for the new *ThermaLume* series of rolling glass doors to accommodate either single or double glazing— $\frac{7}{32}$ -in. heavy sheet glass, $\frac{1}{4}$ -in. polished plate or $\frac{5}{8}$ -in. insulating glass—in the same standard frame. The doors also feature a design which puts the moving panel outside the fixed panel so that any wind or other force presses it more snugly against its weatherseal. They come in standard heights of 6 ft 9 in. and 7 ft 11 in., widths from 6 ft to 24 ft, and silver or "champagne" alumilited finishes. *Shower Door Co. of America, 1 Permalume Place, N. W., Atlanta 18, Ga.*



Over-Bed Lighting Fixture

A new fixture for institutional lighting, particularly over-bed lighting in hospitals, hotels and motels, combines indirect up lighting from a fluorescent tube with controlled down lighting from incandescent globes. Each 4 ft long, the individual units are easily suspended from any type of wall and may be installed end-to-end in multiple groupings. The light sources, which are controlled separately, are shielded by a sleek wood-finish baffle. *Prescolite Mfg. Corp., 2229 Fourth St., Berkeley, Calif.*

more products on page 282



CURON was used by Davison Office Interiors, Inc., on the ceilings, walls and partitions in the offices of Wesley-Jessen, subsidiary of Plastic Contact Lens, Inc.

Million and a half feet of CURON sound conditions and decorates walls for this expanding company!

The growing network of 300 world-wide offices of Plastic Contact Lens, Inc., will use sound-absorbing CURON* wall covering in decorative colors and design. Architects and designers quickly appreciate the importance of a decorative material which will absorb noise at the wall level. Executive offices, meeting rooms, business machine rooms, hotels, restaurants and other areas have always needed a decorative and acoustical wall covering. CURON wall and ceiling covering has many cost saving features—it has thermal properties . . . it can be installed

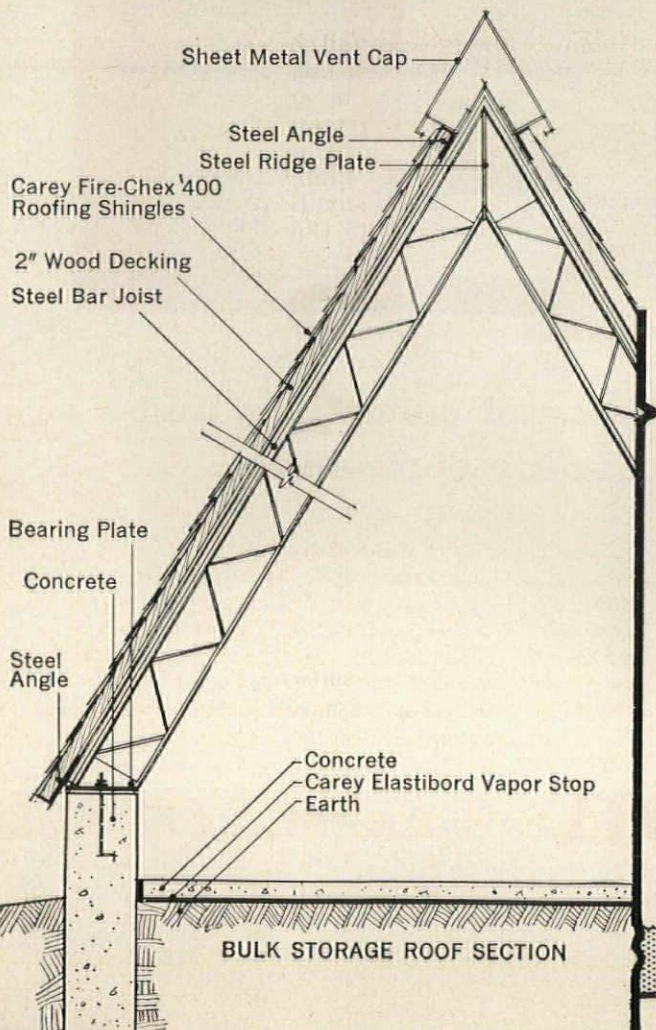
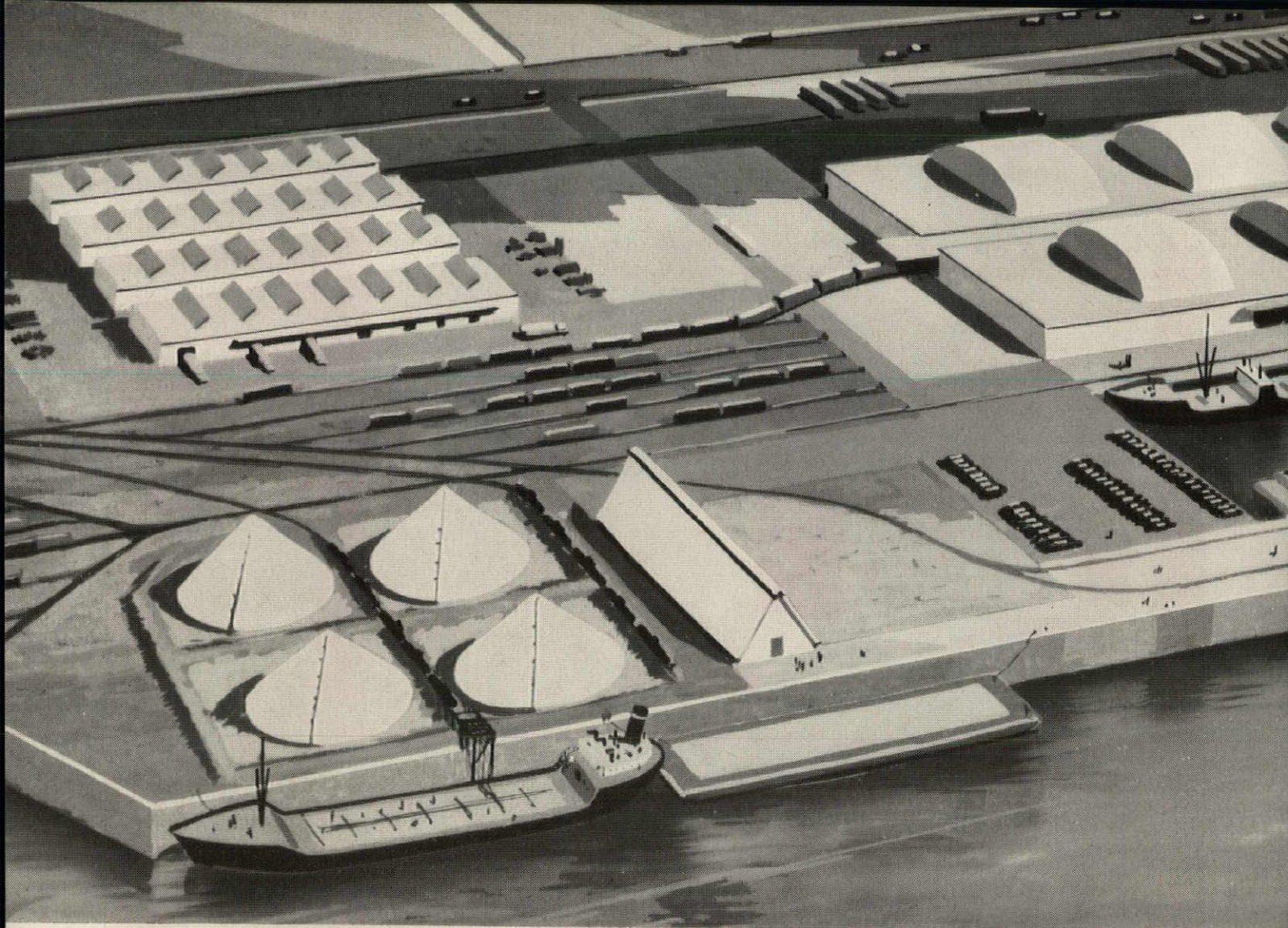
over any flat surface—even over cement and cinder blocks after proper sizing . . . will stay smartly modern for years . . . and it will not need painting. These features make it excellent for use in motels, bowling alleys and schools, too.

Curon®
WALL-CEILING COVERING

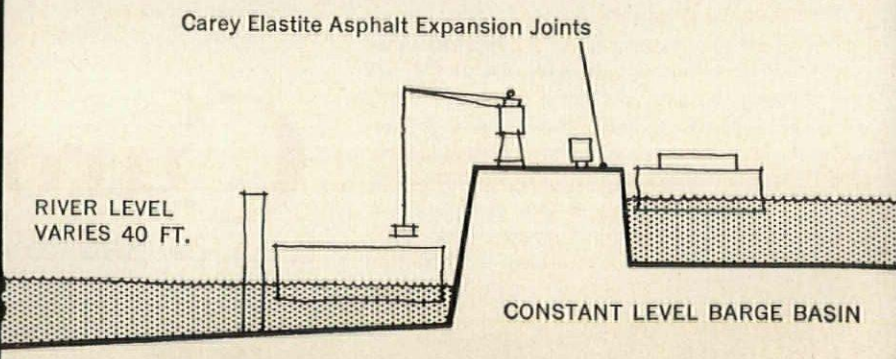
CURON wall and ceiling covering is a luxurious, flexible, 1/4" thick acoustical material which will even go around corners and curves. It has a richly textured surface, can be easily cleaned, is available in many colors and is supplied in silk-screened panels, roll goods or various sizes of tiles.

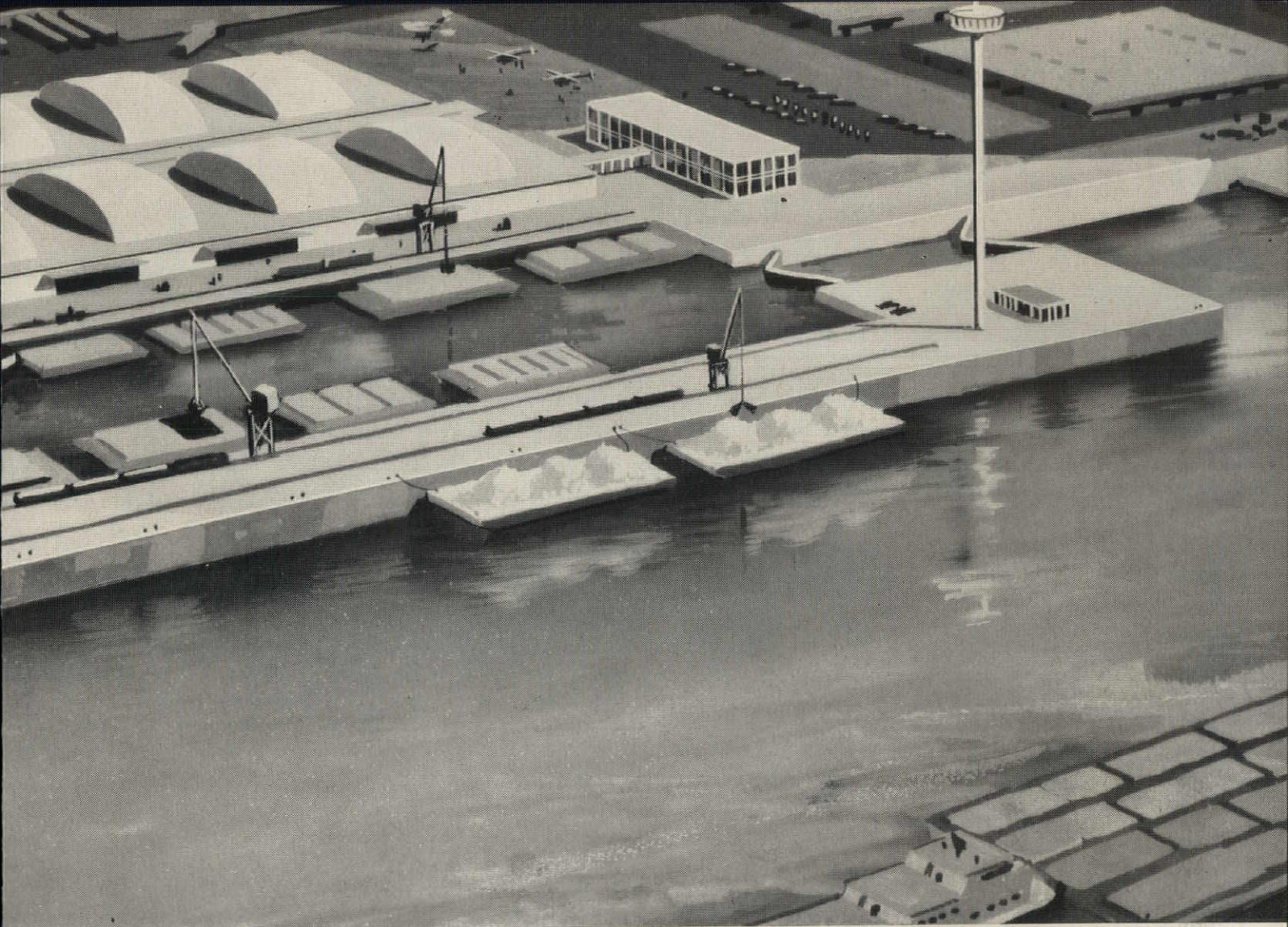
For more details write: Curon Division, Section AR-11, Curtiss-Wright Corporation, 50 Rockefeller Plaza, New York 20, N. Y.

*CURON is a registered trademark of Curtiss-Wright Corporation for its multicellular materials.



Smith & Entzeroth, a.i.a.
plan an
inland port
facility
for St. Louis Missouri





The growing importance of the mid-continent as a center of manufacturing and distribution has focused national attention on the need for integrated transportation facilities for domestic and international commerce.

In recognition of this expanding need Carey commissioned the architectural firm of Smith & Entzeroth, St. Louis, Missouri, to design a prototype installation combining air, rail, truck and waterway transportation and including all transfer and storage accommodations.

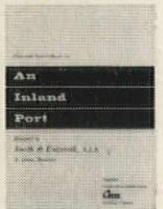
After considerable research Messrs. Smith & Entzeroth selected a new industrial site on the Mississippi River, north of the city of St. Louis and adjacent to St. Louis

County's new circumferential truck route. At this point barge lines, railroads and highway carriers could efficiently unload, load and transfer every type of cargo to or from any destination in the mid-continent. Via the inland waterway and the Port of New Orleans exporters and importers can reach markets all over the world quickly and conveniently.

To handle expanding air-freight traffic a cargo port is located nearby so that all shipping can be coordinated with surface carriers.

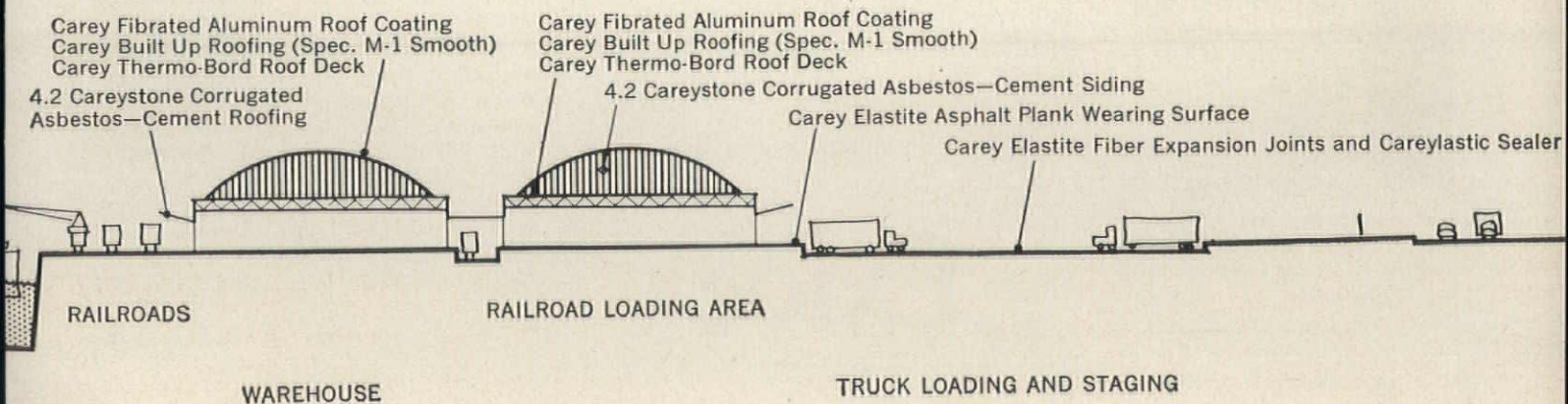
In the development of this project a number of Carey Building Products were used in ways that may be interesting to other architects and to engineers and con-

tractors. Detail sheets and brief specifications on these uses have been prepared by the architects and are available from your Carey representative. Or, you may prefer to write The Philip Carey Mfg. Company, Lockland, Cincinnati 15, Ohio. Dept. AR1159.

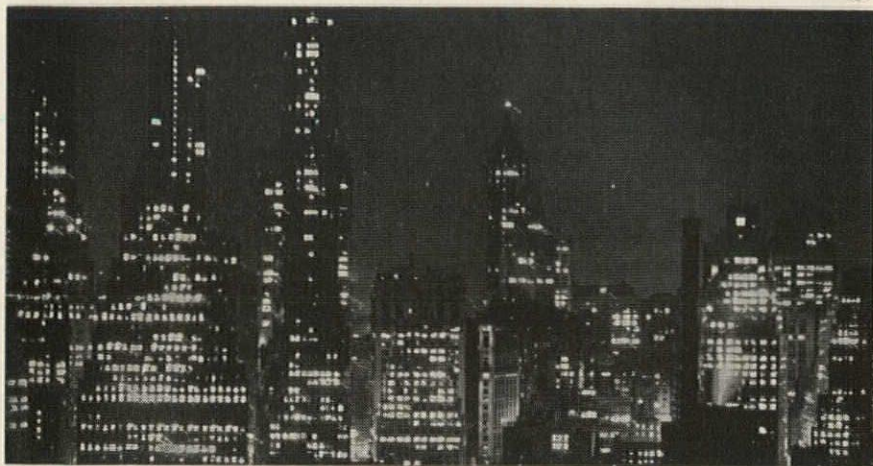


Carey[®]

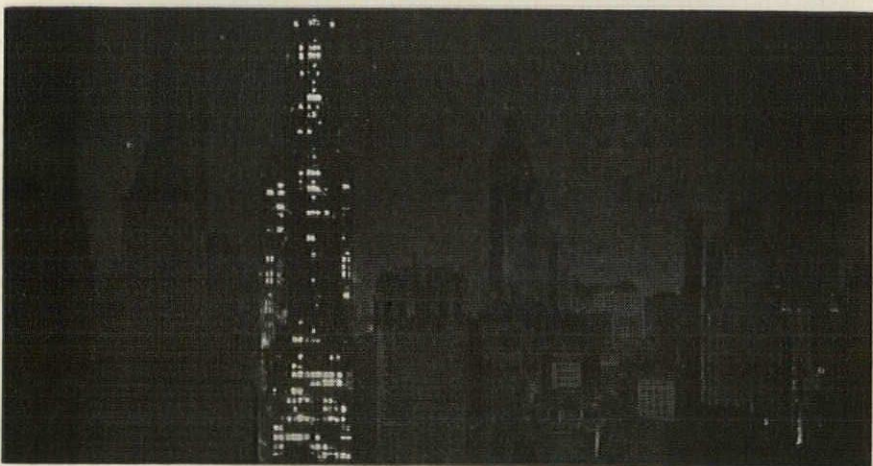
BETTER PRODUCTS FOR BUILDING SINCE 1873



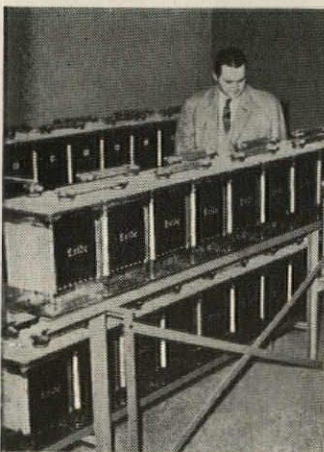
The building equipped with Exide Emergency Lighting



KEEPS ITS LIGHT



EVEN WHEN POWER FAILS

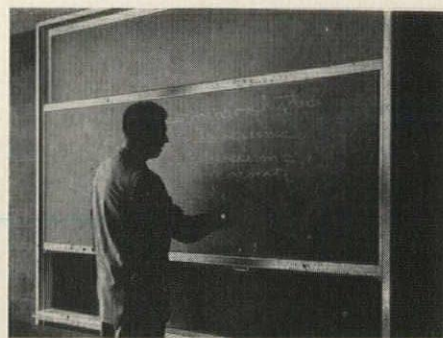


Your own power source. High-capacity Exide batteries handle lighting loads for entire buildings. Long-lasting—as much as 25 years in many installations.

No building is ever *safe* from power failure. But an Exide Emergency Lighting system can keep it safe from loss of light. If regular power fails, Exide power takes over—automatically. Keeps lights on. Prevents accidents, panic, damage, theft. Low cost protection for modern buildings. Get full details. Write Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

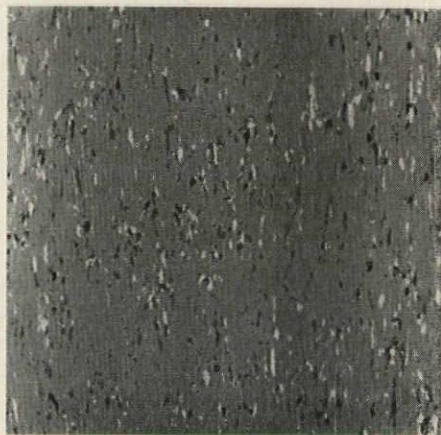
Exide®

Product Reports



Sliding Chalkboard Hardware

Lite-Lift, a new type of hardware for counter-balancing vertical sliding chalkboards and tackboards, assures smooth manual operation of panels as large as ten feet long, thus permitting greatly expanded board area in classrooms. Single units are typically used for wardrobe enclosures (with tackboard panels) and for expanding chalkboard space over existing fixed boards. Double units provide a maximum of usable chalkboard area, particularly for science and university classrooms. *S. H. Pomeroy Co., 41 Magee Ave., Stamford, Conn.*



Color-Chip Vinyl Asbestos Tile

A new vinyl asbestos tile designed to meet the requirements of heavy traffic areas in institutional, commercial and industrial buildings is said to be the first to offer color-chip styling throughout the full thickness of the tile—at no extra cost. The *Vina-Lux 800* series of tiles will come in standard 9-in. squares, 1/8 in. thick, for installation over concrete (on, above or below grade) or on felt over wood subfloors. Six background colors with harmonizing "chips" are available: gray, beige, cream, green, and white with black and gray, or white with brown and beige. *Azrock Floor Products Div., Uvalde Rock Asphalt Co., Frost Bank Bldg., San Antonio, Tex.*

continued from page 252

Sears orders white concrete to package new retail outlet



Precast white concrete panels front this sparkling new Sears store in Roanoke, Va. Made with ATLAS WHITE portland cement and exposed quartz aggregates, these concrete facing panels provide the freshness and variety in design specified by Sears to avoid a drab, "chain store" look.

These 4-inch-thin concrete panels were easily and quickly anchored in position to provide a curtain wall that is weather-tight and maintenance-free.

The economy and versatility of precast concrete panels are opening new possibilities in building design. They can be specified in a range of sizes, shapes, colors and textures. For more information on the use of ATLAS WHITE portland cement in architectural concrete, write Universal Atlas Cement, 100 Park Avenue, New York 17, N. Y.



Sears, Roebuck & Co., Roanoke, Va. — **Architect:** Stevens & Wilkinson, Atlanta, Ga. **Contractor:** Wm. Muirhead Construction Co., Inc., Durham, N. C.
Concrete Panels: The Mable-Bell Company, Greensboro, N. C.



Universal Atlas Cement
Division of
United States Steel

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In the new Santa Ana Public Library, a

UNIQUE 11-ZONE LANDMARK[®] NEW-TYPE, PRECISION



*Santa Ana Public Library, Santa Ana, California
45,000 sq. ft. floor space, book capacity 250,000 volumes*

| | |
|---|---------------------|
| Harold Gimeno, A.I.A. | Architect |
| Lee Fabian | Project Architect |
| Al Vioni | Project Engineer |
| Francis Keally & Harold S. Patterson, Associated Architects | Library Consultants |

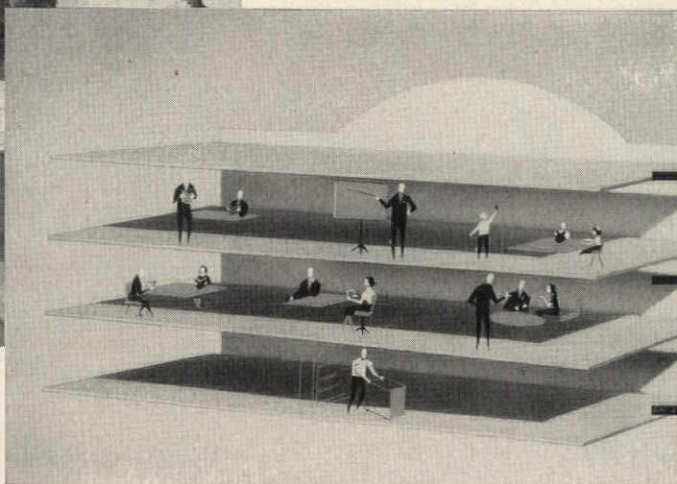
COMFORT SYSTEM PROVIDES HEATING AND AIR CONDITIONING

Wide flexibility of the new Landmark system offers practical and economical ways to bring perfect year-round comfort to all rooms, under all conditions

At minimum installation cost (and space), the new Santa Ana Public Library is getting a unique 11-zone Landmark comfort system that's highly efficient, draft-free, super-quiet, and extremely flexible. It provides—and maintains—perfect heating and cooling throughout the building despite varying solar heat gains, constant temperature changes caused by large groups of people assembled in concentrated areas. All eleven zones of the Landmark system are controlled by a central time clock. Each zone has its individual automatic heating-cooling thermostat with a selector switch to turn each zone "on" and "off."

For complete facts on the new Landmark—and how its flexibility may solve many of your heating-cooling problems—call your local Lennox Comfort Craftsman. Or write Lennox Industries Inc., Commercial Division, Des Moines 5, Iowa.

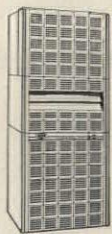
Patents Pending



2nd floor—three zones
Three Landmarks cover 10,000 sq. ft.—
reading rooms, offices, club rooms

1st floor—six zones
Eight Landmarks cover 21,000 sq. ft.—
main reading room, children's library,
lecture room, smoking lounge

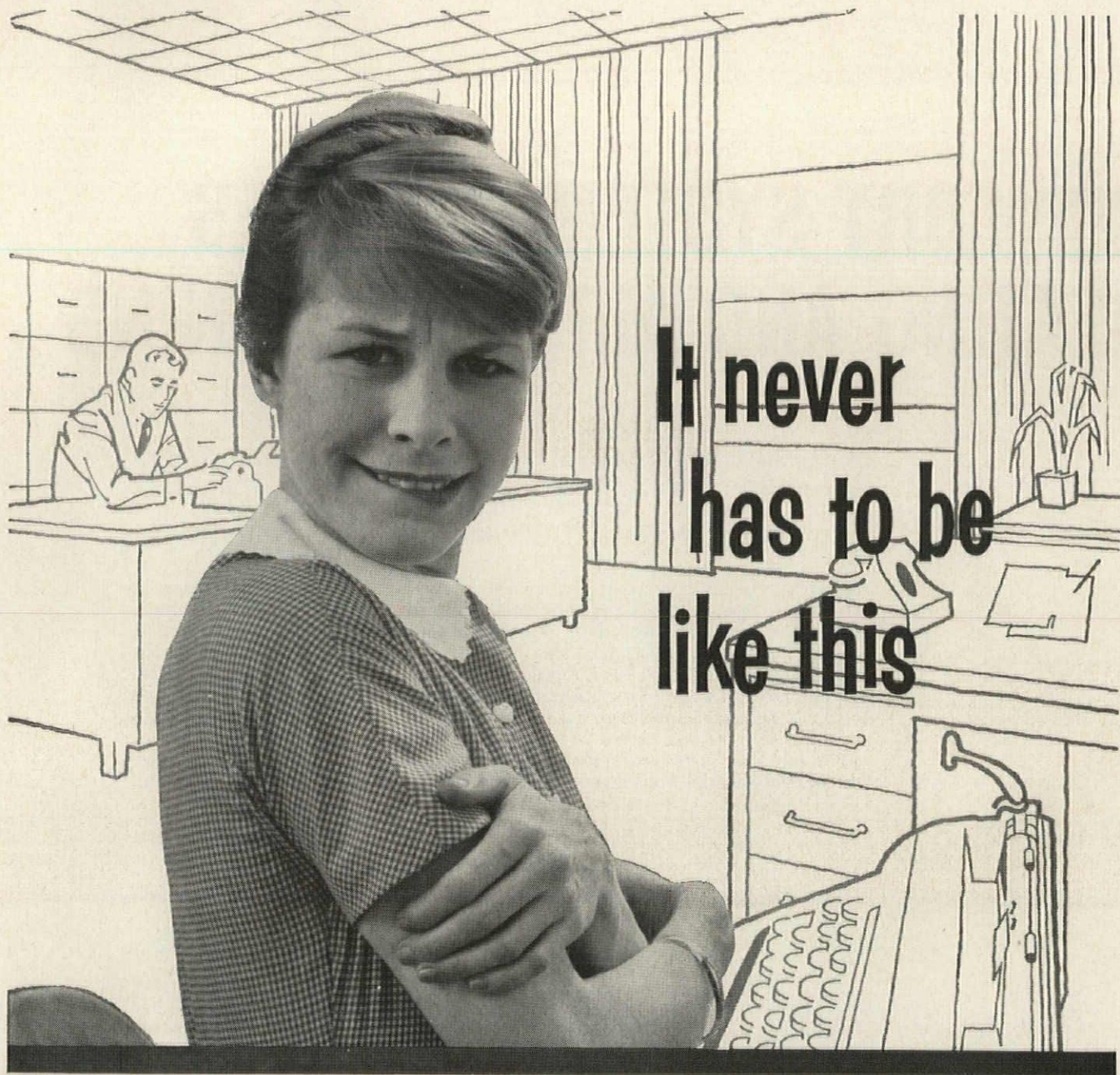
Basement—two zones
Two Landmarks (heating only) cover
14,000 sq. ft.—storage



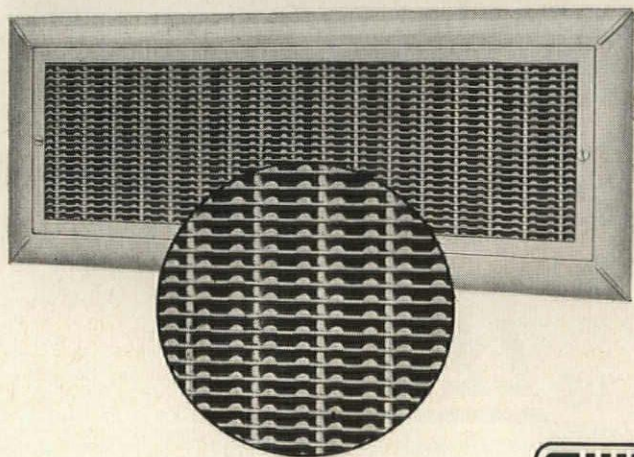
LANDMARK[®] by LENNOX[®]

... world leader in indoor comfort
for homes, business, schools

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**It never
has to be
like this**



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AIR DISTRIBUTION PRODUCTS



Drafts — a too common complaint — can often be traced to sidewall diffusers which fail to truly diffuse the entering air. Barber-Colman sidewall diffusers prevent this problem. Ask your engineer to specify them. Literature on request.

BARBER-COLMAN COMPANY
Dept. W, 1104 Rock Street, Rockford, Illinois



This floor-ceiling construction resists fire for 3 hours or more

Whenever fire-resistance is a primary requirement—the Bethlehem Open-Web Steel Joist construction shown above is your answer. In stores, schools, hospitals, apartments and similar buildings, this construction provides fire protection of 3 hours or more, as required for Class A fireproof structures.

The top slab is 2½-in. reinforced concrete. Ceiling is 1 in. gypsum-vermiculite plaster applied on metal lath and proportioned in the range 2:1 to 3:1 gypsum

to heat-expanded vermiculite by weight. Bethlehem Slabform provides an excellent solid steel centering for the slab in this type of construction.

The nearest Bethlehem sales office will be glad to give you full details on both steel joists and Slabform or any other of the many steel products made by Bethlehem for building construction. And, if you wish, one of our engineers would be glad to visit you and discuss your building. No obligation, of course.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



Floors designed for safety *First!*

— and —
everlasting beauty



ALUNDUM **NON-SLIP** TERRAZZO

In specifying Norton ALUNDUM Terrazzo for floors and entrance ways to the new First Western Bank and Trust Company Building, Oakland, Cal., the architects not only provided *walking safety* for the bank's customers but brought a subtle touch of lasting beauty to its modern interior design.

For floors and stairways in all types of buildings, both public and commercial, Norton ALUNDUM Aggregate in the proper proportions furnishes a terrazzo surface which is non-slip wet or dry, retains its initial beauty indefinitely and is exceptionally resistant to wear.

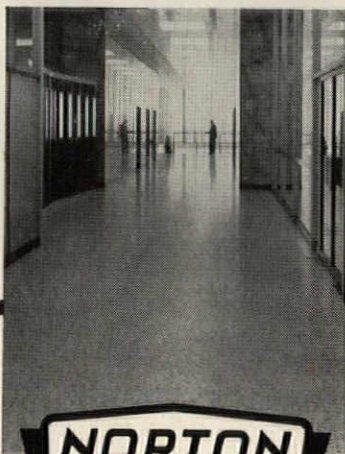
Send for brand new catalog on Norton products for **WALKING SAFETY**. Ask for Form 1935R.

Architects:
Stone, Marraccini & Patterson
San Francisco

Terrazzo by:
P. Grassi - American Terrazzo Company
San Francisco

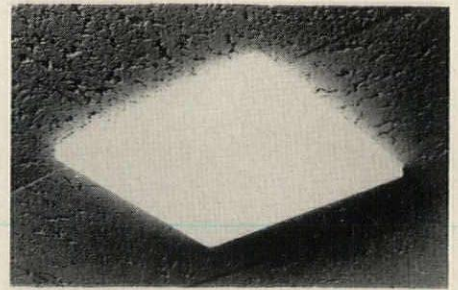
NORTON COMPANY
WORCESTER 6, MASS.

ALUNDUM AGGREGATE for Terrazzo and Cement • ALUNDUM STAIR and FLOOR TILE
ALUNDUM and CRYSTOLON Non-slip Abrasives



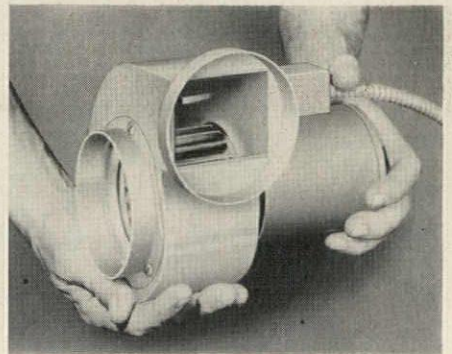
NORTON
NON-SLIP FLOORS

Product Reports



Frameless Lighting Fixture

The ability of its acrylic plastic diffuser to withstand rated incandescent lamp heat has made possible the frameless design of the new *Space-Lite* recessed incandescent. The lack of a metal frame is said to offer several advantages: longer life because there are no exposed metal surfaces to rust or corrode; more light and less fixture-ceiling contrast because of the side-lighting feature; and lower installation cost because trim time is eliminated. *Space-Lites* are available with flanged housings for 8 $\frac{3}{4}$ -in. and 12-in.-square ceiling openings, as well as in a model designed to replace a standard 12-in.-square ceiling tile without overlapping adjacent tiles. They utilize 100 or 150 watt lamps. *Alkco Mfg. Co., 4226 N. Lincoln Ave., Chicago 18, Ill.*



Motorized Vent Exhauster

By venting exhaust gases from unit heaters directly to the outdoors via a short length of 4-in. pipe rather than a chimney, a new motorized vent exhauster opens the way for extended use of gas unit heating in commercial and industrial buildings, and of direct-fired heaters in the home. (In residential applications, gases are carried to the outside under the floor; in other applications, they are exhausted through the side walls.) The *Venter* also improves heater efficiency by venting immediately regardless of stack temperature, and by eliminating downdrafts. It can be used with Reznor heaters from 25,000 up to 300,000 Btu input. *Reznor Mfg. Co., Mercer, Pa.*

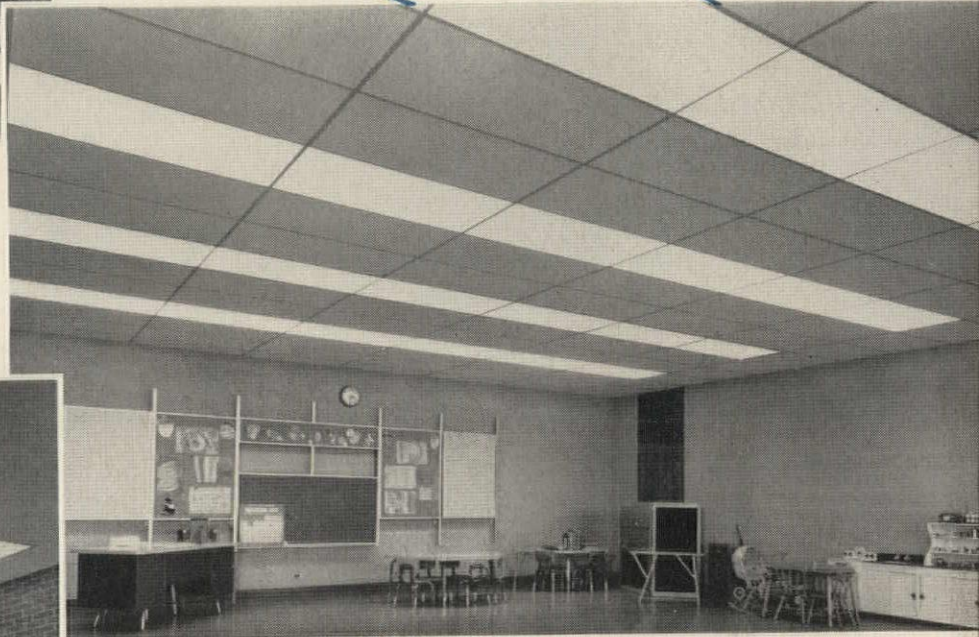
more products on page 294

middlefork school, northfield, illinois
feature american plastic louvers...
for better light shielding and seeing comfort



they provide the finest in luminous shielding qualities of soft glare free illumination, with minimum of maintenance . . .

ARCHITECT: Albert R. Martin
Wilmette, Illinois
CONTRACTOR: Oman & Giden
Northfield, Illinois
ELECTRICAL: Erland's Elec. Contractors
Skokie, Illinois

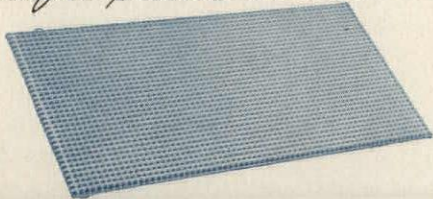


Now! AMERICAN LOUVER offers 3 shielding medias—42°—45° and the all new 55° louver, for higher lighting efficiency and uncluttered appearance—they will meet your most rigid lighting requirements for individual fixtures, modules or complete louvered ceilings.

It pays to specify American louvers

- PERMANENT COLOR STABILITY
- HIGH IMPACT FOR GREATER STRENGTH
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- LOUVERS MAY BE CUT TO SPECIFICATIONS

Available in 5 permanent beautiful pastel colors



American Plastic Louvers are available in pastel colors, molded-in for permanent beauty. They provide the architect and designer unlimited possibilities with the use of colors in combinations of White . . . Blue . . . Green . . . Pink . . . Yellow and Low Brightness Grey.

Engineers are available in your area to help with your lighting problems or write American Louver Company direct.

Exclusive Process by AMERICAN LOUVER COMPANY

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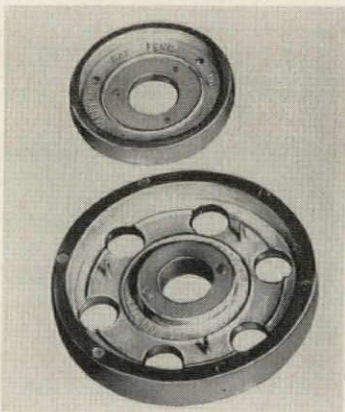
FILL IN AND MAIL

Product Reports



Laminated Block Flooring

A new block flooring made up of three cross-laminated plies of oak can be laid in mastic directly over concrete subflooring or such other sound subfloors as plywood, terrazzo or fiberboard. According to its manufacturer, *Modernwood* will not swell, shrink, warp or buckle, and is toxic-treated to resist termites, damp rot and vermin. It comes in 9-in. squares with a tough, long-lasting factory-finish. *Modernwood Co., Clinton, S. C.*



Alloy Precision Shear Plate

Pressure cast of aluminum alloy to tolerances which cannot be held in cast iron plates, a new shear plate for timber and structural fastening features a cast-in compression ring which raises the shear value of the plates beyond that of cast iron. (Shear values are equal to the bolt used in fastening.) In addition, nails are cast as an integral part of the plate, thereby eliminating the use of common nails and increasing the speed and efficiency of the fastening operation. The plates are available in standard trade sizes of 4-in. in diameter by $\frac{5}{8}$ -in. thick, and 2 $\frac{3}{8}$ -in. diameter by $\frac{7}{16}$ -in. thick. *Timber Hardware Co., 3400 N. E. 54th Ave., Portland, Ore.*

more products on page 298

TIME CONTROL



SYSTEMS by Cincinnati

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- LOWER INSTALLED COST
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member (trussed
and deformed)

Results (Crack-free
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a backbone of steel)

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Shipped in cartons with
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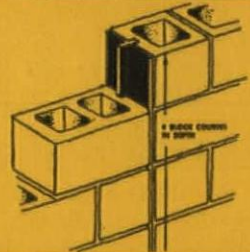
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Cedar Rapids, Iowa

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ZONE _____

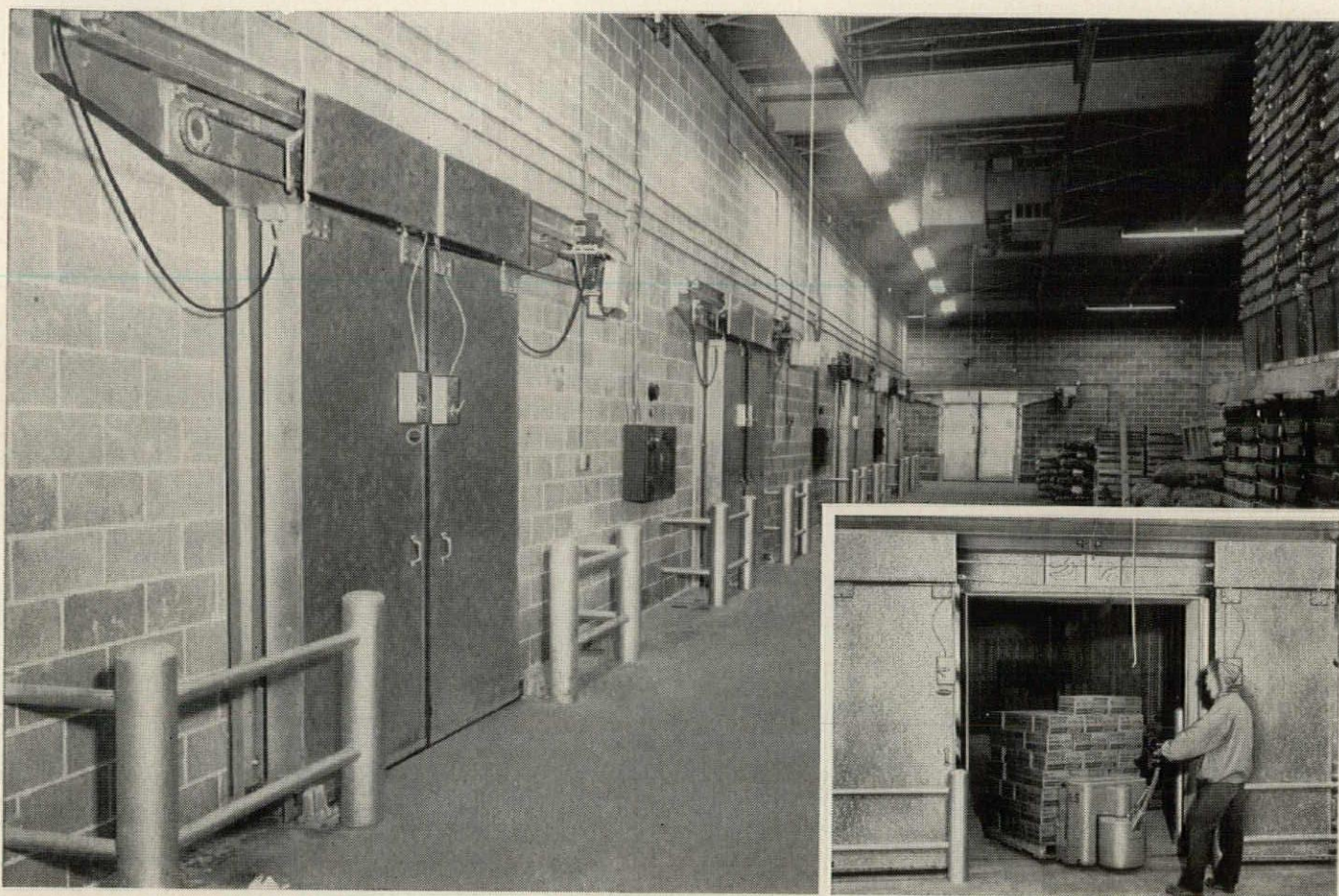
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Neoprene compound flanges with concave edges allow
easy compression and tight control joints.

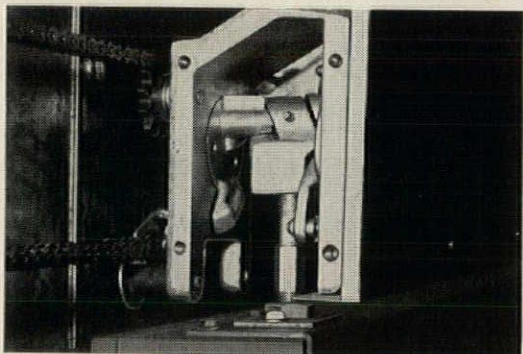
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Rigid Backbone of Steel For Every Masonry Wall

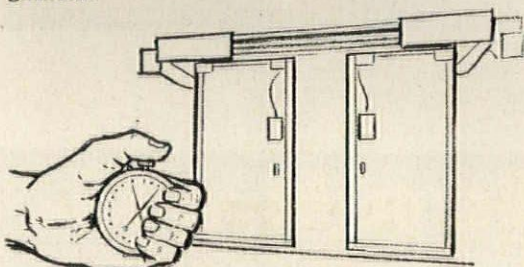
Dur-O-wal Div., Cedar Rapids Block Co., **CEDAR RAPIDS, IA.** Dur-O-wal Prod.,
Inc., Box 628, **SYRACUSE, N. Y.** Dur-O-wal Div., Frontier Mfg. Co., Box 49,
PHOENIX, ARIZ. Dur-O-wal Prod., Inc., 4500 E. Lombard St., **BALTIMORE, MD.**
Dur-O-wal of Ill., 119 N. River St., **AURORA, ILL.** Dur-O-wal Prod. of Ala., Inc.,
Box 5446, **BIRMINGHAM, ALA.** Dur-O-wal of Colorado, 29th and Court St.,
PUEBLO, COLORADO Dur-O-wal Inc., 165 Utah Street, **TOLEDO, OHIO**



9 Jamison Electroglide® Doors handle heavy traffic—save refrigeration



COMPRESSION SEAL—refrigeration savings assured by cam lock—in and down action on gaskets.



SMOOTH, SHOCK-FREE OPERATION—exclusive Electroglide spring cushion chain link absorbs inertia on opening, absorbs momentum when stopping.

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Contractor: A. W. Soderberg Construction Co., Wichita, Kansas.

- In Wichita, Kansas, at the big Safeway Cold Storage Warehouse, nine Jamison Electroglide Power Operated Cold Storage Doors demonstrate how they permit high volume, high speed warehouse operation.

Exclusive Jamison features of the Electroglide assure fast, positive operation with safety to personnel.

LEVEL RIDE—opening and closing without gasket wear or drag.

RANGE OF TYPES—available bi-parting and single leaf left or right hand operation.

PADLOCK WITH SAFETY—emergency inside release.

MANUAL OPERATION—possible when power is off.

For Electroglide bulletin—Write Jamison Cold Storage Door Co., Hagerstown, Md.

JAMISON

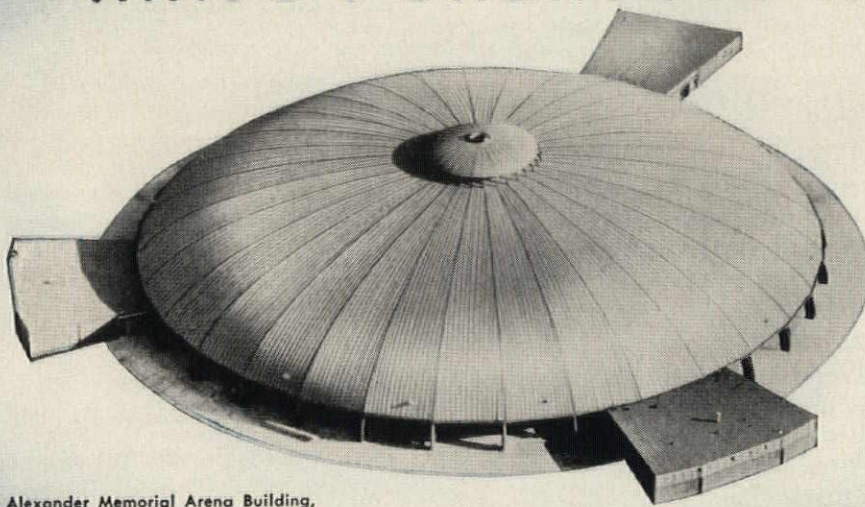
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versatility

functional design

and beauty

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Georgia Institute of Technology
Architect: Aeck Associates, Atlanta, Georgia
General Contractor: Mion Construction Company, Atlanta, Georgia
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Follansbee Terne performs its job of providing shelter beautifully. Terne will last a lifetime, is fireproof, windproof and weathertight. It can be painted any color, any time. Its versatility allows you to put design in any roof. Distinctive effects can be achieved with the use of standing or batten seams or with the new horizontal seam Bermuda roof.



Complete specifications in Sweets Architectural File

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FOLLANSBEE, WEST VIRGINIA

Terne Roll Roofing

Sales Offices in Principal Cities

Product Reports

"In-Out" Register for Hospitals

A new "in" and "out" personnel register designed specifically for use in hospitals automatically registers doctors and other key personnel by simple dialing from registrar stations at strategic locations throughout the hospital. Control center of the system is the PBX board which has a lamp annunciator panel, telephone communication with all remote registrar stations, and a pocket paging system that supplements automatic message indication. Read-out of personnel information is available at any of the registrar stations, and the system can also provide automatic time recording and print-out of all "in" and "out" information. The standard unit will store and read out data for up to one thousand people but is expandable to two thousand. *Edstan Automatic Registrar, P. O. Box 6831, Los Angeles 22, Calif.*

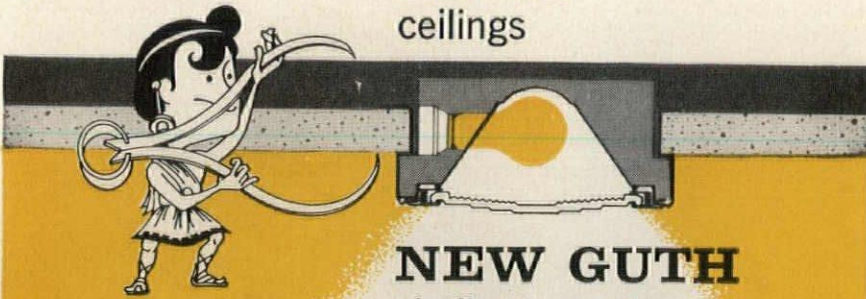
Insulated Limestone Spandrel

The dimensional stability, fire-resistance and permanence of limestone are now available in a thin (4-in.) and comparatively lightweight curtain wall spandrel panel composed of a 1½- to 1¾-in. thickness of limestone backed by insulation. The inner surface of the insulation is faced with asbestos cement board or a metal pan, depending on the type of insulation, code requirements and appearance desired. Although the panels weigh more than some presently used materials, the manufacturer reports that metal frames capable of withstanding imposed wind loads can usually carry the extra weight with little or no modification in the size of members. A mortarless and waterproof joint with the metal frame is achieved through the use of neoprene, Thiokol and caulking, and the limestone is "dirt-proofed" in the mill to slow down discoloration. The insulated limestone panels are fabricated to individual specification by *Indiana Limestone Co., Bedford, Ind.*

One-Part Caulking Compound

Maintz architectural caulking compound, a one-part formulation based on Du Pont's *Hypalon*, can be applied directly from the container without priming or other special surface preparation, and cures into a rubberlike material with all the excellent adhesion, weatherability and resilience of the *Hypalon* base. It comes in a variety of fast colors as well as white, black and aluminum. *West Chester Chemical Co., Box 39, West Chester, Pa.*

for tight spots
in shallow
ceilings



NEW GUTH
shallow mounting

SRS

INCANDESCENT LIGHTING FIXTURES

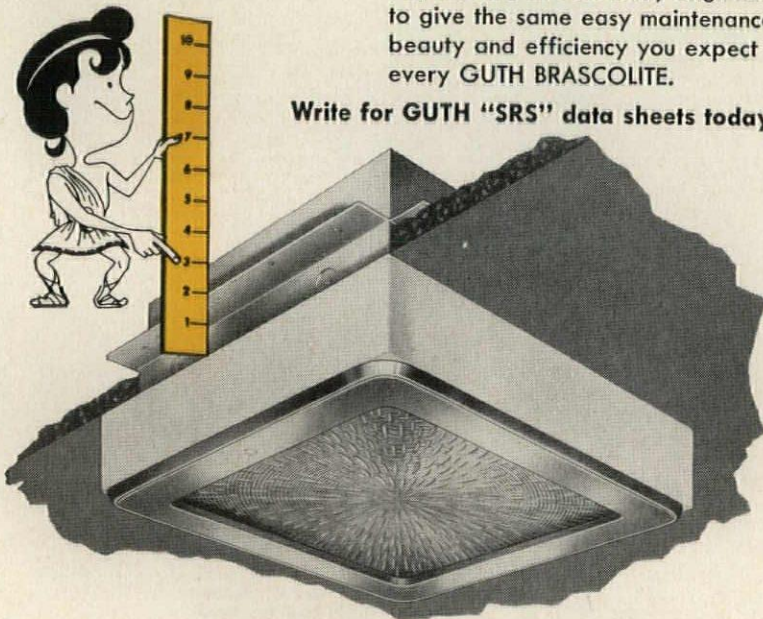
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There's room for your imagination to move around in Guth's wide, wide line of Semi-Recessed Shallows!

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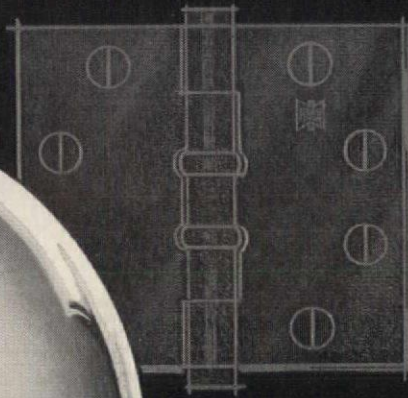
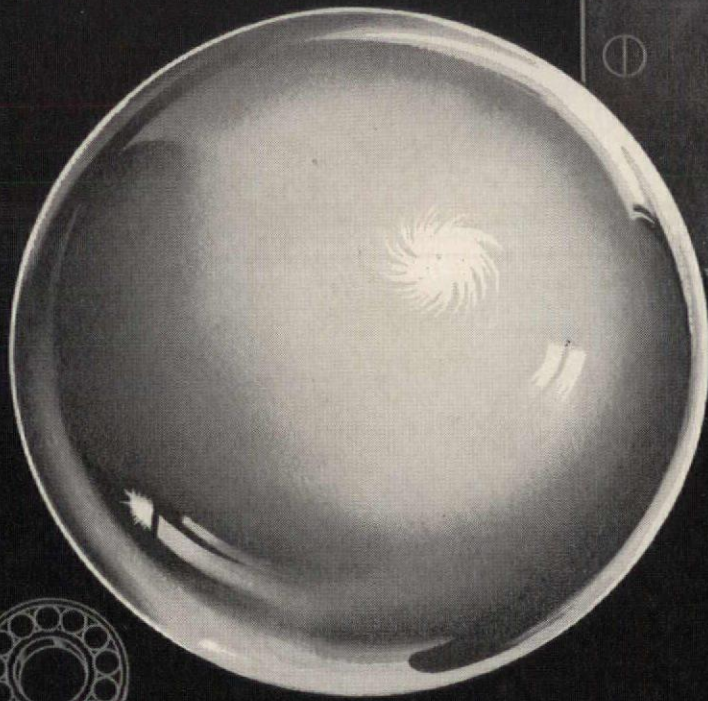
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26*^{*}-Jeweled movement

All 26 Keep Rolling Forever—not Part of the Time—in a Hager "Life-Time Bearing" Butt Hinge!

The bearings *stay there for life!* Upper and lower raceways ride *forever*—on the *full count* of ball bearings—in a Hager *Life-Time Bearing* Butt Hinge!

Tough case-hardened steel ball bearing raceways are press-fitted into direct contact with knuckle on Hager ball bearing butt hinges.

No soft brass retaining jacket (or crimped shell) lies between the knuckle and the raceway . . . nothing to eventually wear away and allow the bearings to slip out.

Both raceways and *all 26* ball bearings are hard at work in Hager Ball Bearing Butt Hinges—in fine jeweled movement—forever providing life-time trouble-free silent door operation.

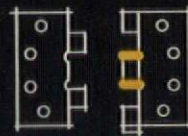
You'd expect finer performance from *Hager* Ball Bearing Butt Hinges, naturally—and naturally, you have a right to!

If it's expected to *stay for life*, then, of course
EVERYTHING HINGES ON HAGER!



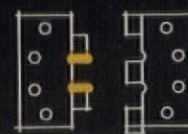
EVERYTHING HINGES ON *Hager!* • C. HAGER & SONS HINGE MFG. CO., ST. LOUIS 4, MO., U.S.A.
HAGER HINGE CANADA LIMITED, KITCHENER, ONTARIO

*26 Balls in 4 1/4" x 4 1/4"
2-bearing Butt Hinges



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One-knuckle-bored construction. Bearings anchored with wear-away brass bushings. (Bearings eventually fall out, when pin is removed.)



BUT THIS . . .

Hager TWO-knuckle-bored construction. Bearings anchored with case-hardened steel raceways.

VERTICAL *or*
HORIZONTAL*

Bayley
ALUMINUM and STEEL
Windows and Curtain Walls

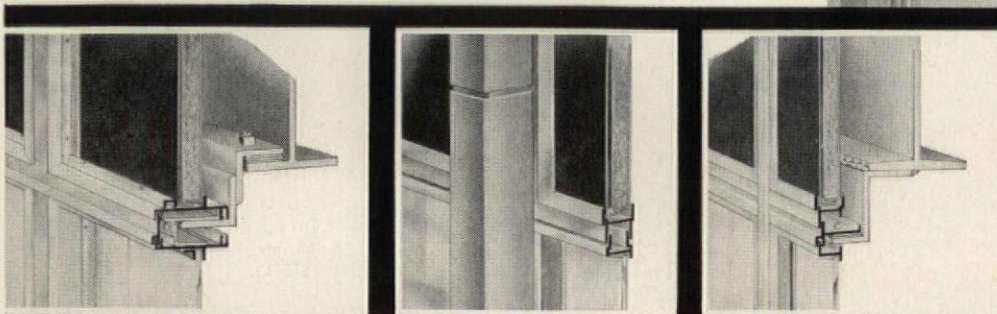
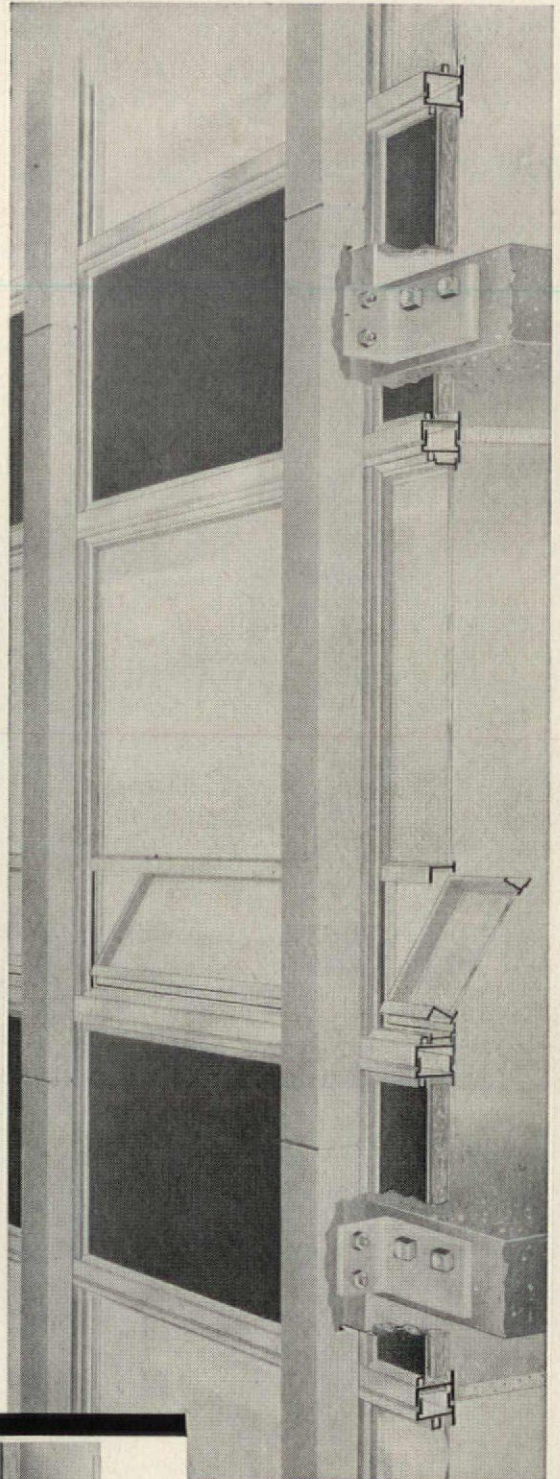
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— in depth of 1 1/2" to 7 1/2"*

Bayley Curtain-Wall Systems, of standard design, are readily adaptable to a wide variety of arrangements of fixed or ventilated window units and choice of decorative panels. They permit the designer full latitude to exercise his preference in wall treatment without costly, special custom designing.

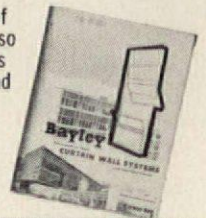
Through experience gained in 30 years of designing outstandingly successful curtain-wall jobs, Bayley is also able to offer you those important extra features in design, construction, appearance and service so vital to a satisfactory finished curtain-wall installation.

By relying on Bayley you have the benefit of a staff of experienced Curtain-Wall engineers ready to closely work with you from the earliest planning stages to the final occupancy of the finished building project. Also, you have the extra safeguard that goes with centralizing responsibility — from design inception to actual installation — with a financially sound organization that has an 80-year-old reputation for reliability.

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Write for copy of catalog C-59. Also see it in Sweet's Architectural and Industrial Construction Files.



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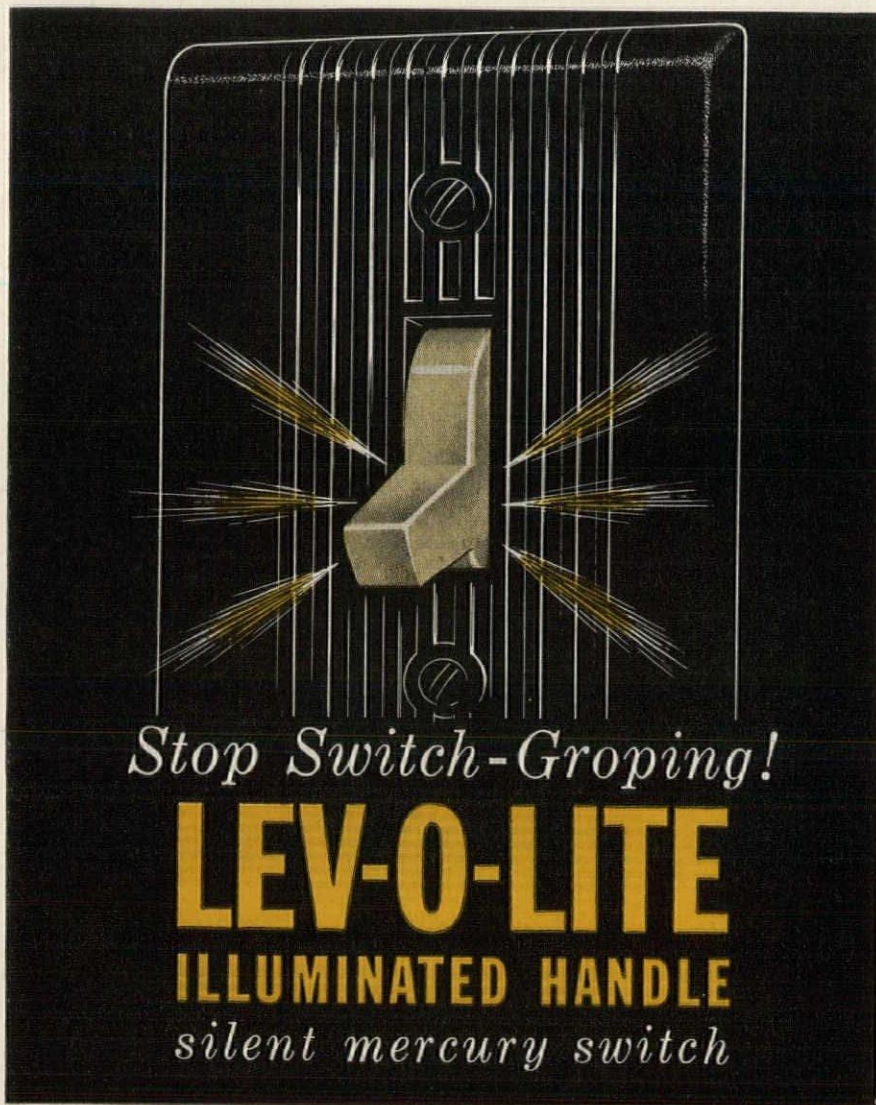
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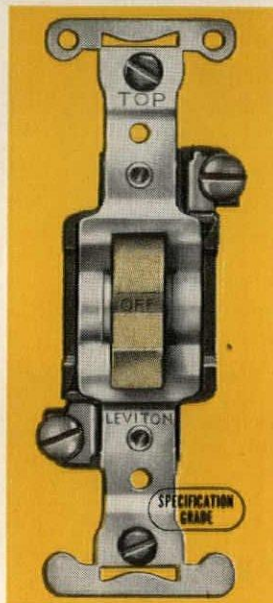
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Office Literature

continued from page 252

Brasco Wall Construction Details (A.I.A. 17-A) File folder includes specifications as well as a complete series of detail drawings of modular components in aluminum curtain wall system. *Brasco Mfg. Co., 15207 Commercial Ave., Harvey, Ill.**

Lighting Control Console Discusses construction features and performance characteristics of the control console for Vickers *Mark II* and *Mark III* lighting control systems; gives dimensions of the equipment and a schematic wiring diagram of a typical console. 8 pp. *Vickers Inc., Electric Products Div., 1815 Locust St., St. Louis 3, Mo.*

Lighting Applications Guide Lists lighting applications commonly found in various areas of several types of commercial establishments, suggests specific incandescent and fluorescent lamps to use in these areas, and indicates the effect which can be expected from each. The *Guide to Incandescent and Fluorescent Lamps for Commercial Applications* also includes a table which lists eleven common wall and trim colors and their reflectance values and shows how they will be affected by incandescent bulbs and by each of seven different "white" fluorescent lamps. 5¢. *Lamp Div., Westinghouse Electric Corp., Box 388, Bloomfield, N. J.**

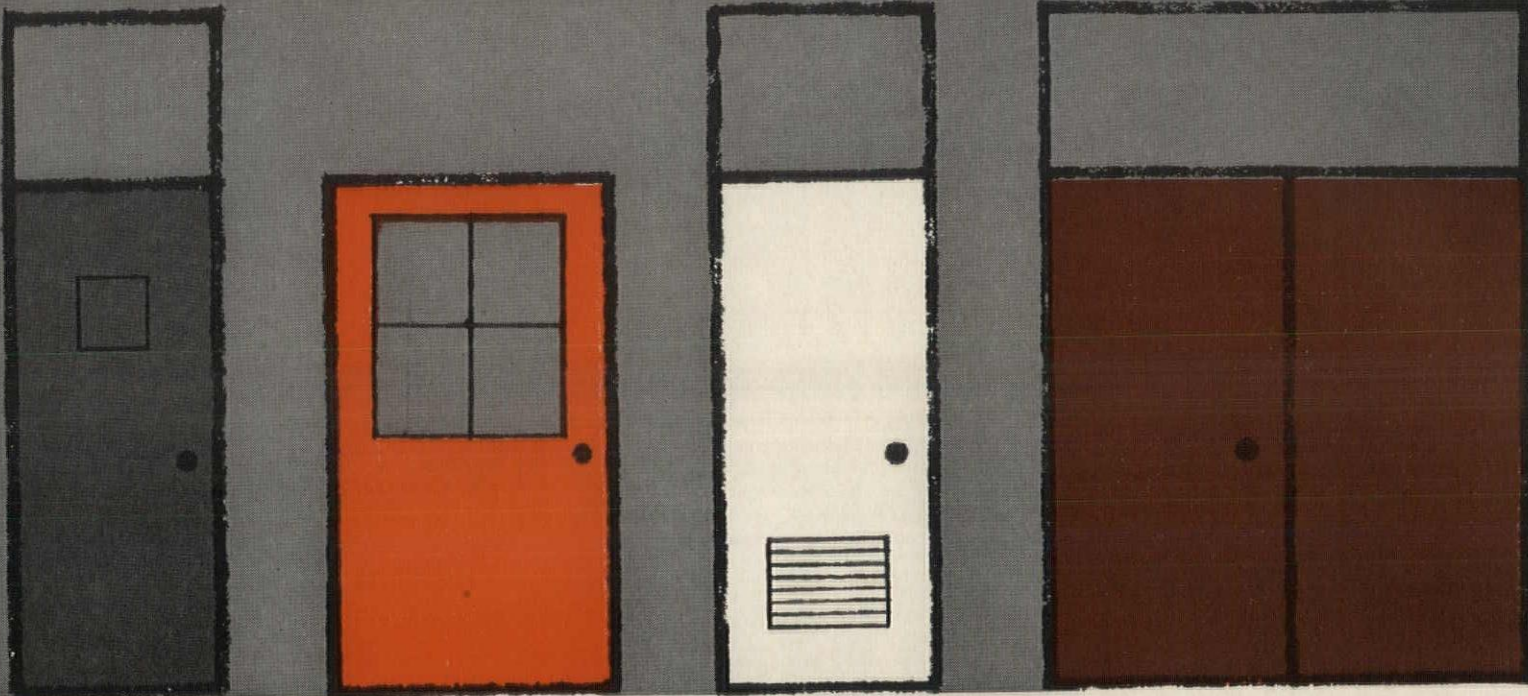
Autoflo Catalog Contains technical data, flow rate charts and illustrated features of the new *Autoflo* line of showers and plumbing fixture fittings. Catalog S-99, 16 pp. *Speakman Co., Adv. Dept., P. O. Box 191, Wilmington 99, Del.**

Swimming Pool Filters Provides complete information on the installation and operation of one-cell pressure filters for swimming pools, including charts on pipe sizes, sand and gravel requirements and filtration rates. 8 pp. *Modern Swimming Pool Co., Inc., One Holland Ave., White Plains, N. Y.*

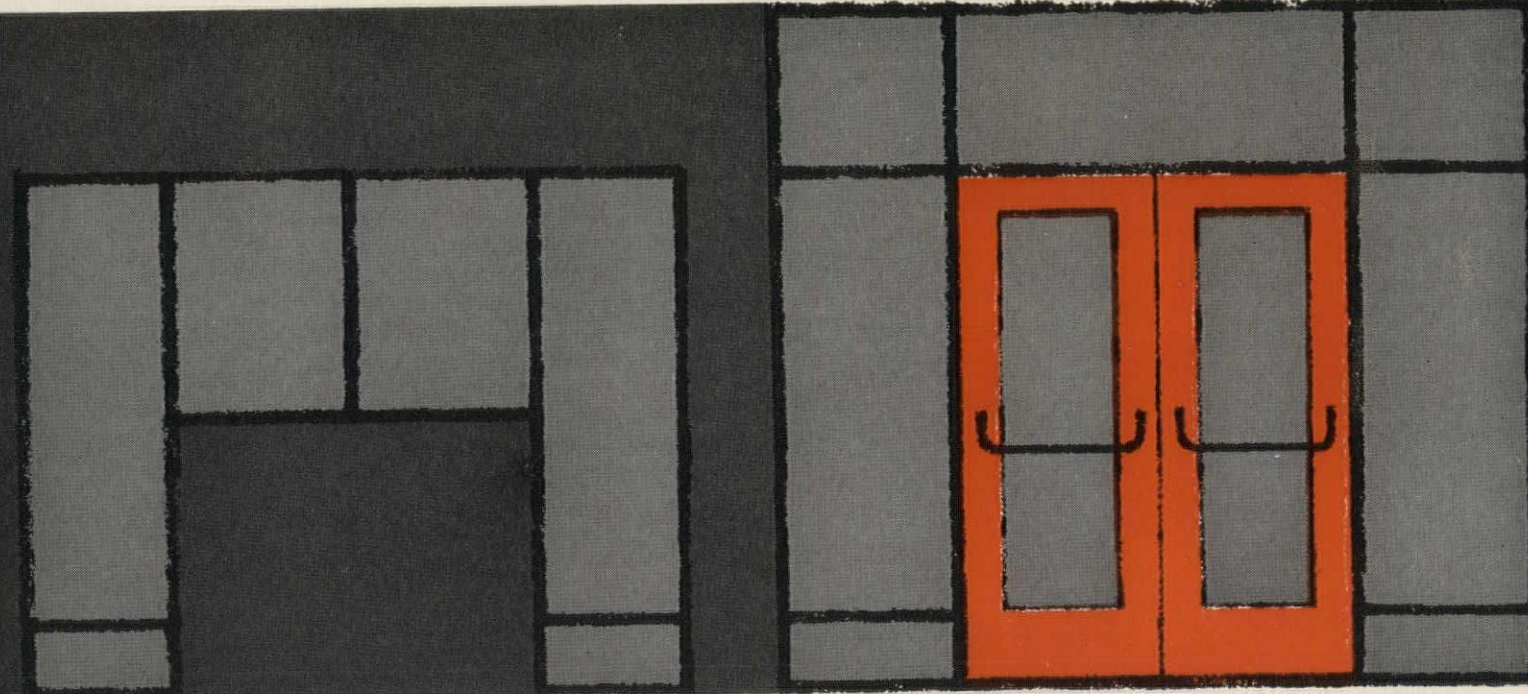
Chalkboards, Bulletin Boards, . . . Aluminum Trim (A.I.A. 35-B-11) includes product descriptions, with specification data, and line drawings showing construction details and recommended installation. Catalog 59, 24 pp. *Claridge Products & Equipment Co., Box 278-A, Harrison, Ark.**

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

more literature on page 306



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Tested and proved by Underwriters' Laboratories, SPRAYED "LIMPET" ASBESTOS fireproofs all types of buildings . . . such elements as floors, decks, columns and beams . . . and materials such as steel, aluminum, and concrete.

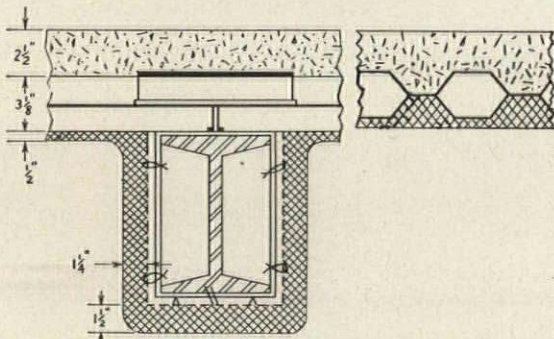
No holes or seams lower its efficiency. SPRAYED "LIMPET" ASBESTOS forms a continuous, felt-like covering. In addition, this modern fireproofing expands with the heated surface . . . thus preventing cracks through which flame can penetrate. It's 100% pure asbestos . . . combined with an inorganic bonding compound. Won't rot or corrode. Resists the effects of water. It's also chemically inert and vermin-proof.

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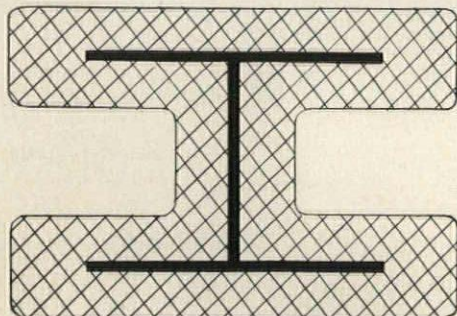
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4 hours fire protection for this standard cellular steel floor unit required only a $\frac{1}{2}$ " minimum thickness of SPRAYED "LIMPET" ASBESTOS below the steel.



4 hours of fire retardance for this steel beam was received from a $1\frac{1}{4}$ " minimum thickness of SPRAYED "LIMPET" ASBESTOS at the sides, a $1\frac{1}{2}$ " thickness at the bottom.



5 hours of fire protection for this steel column took only a $2\frac{3}{4}$ " average thickness of SPRAYED "LIMPET" ASBESTOS . . . sprayed to follow the contour.



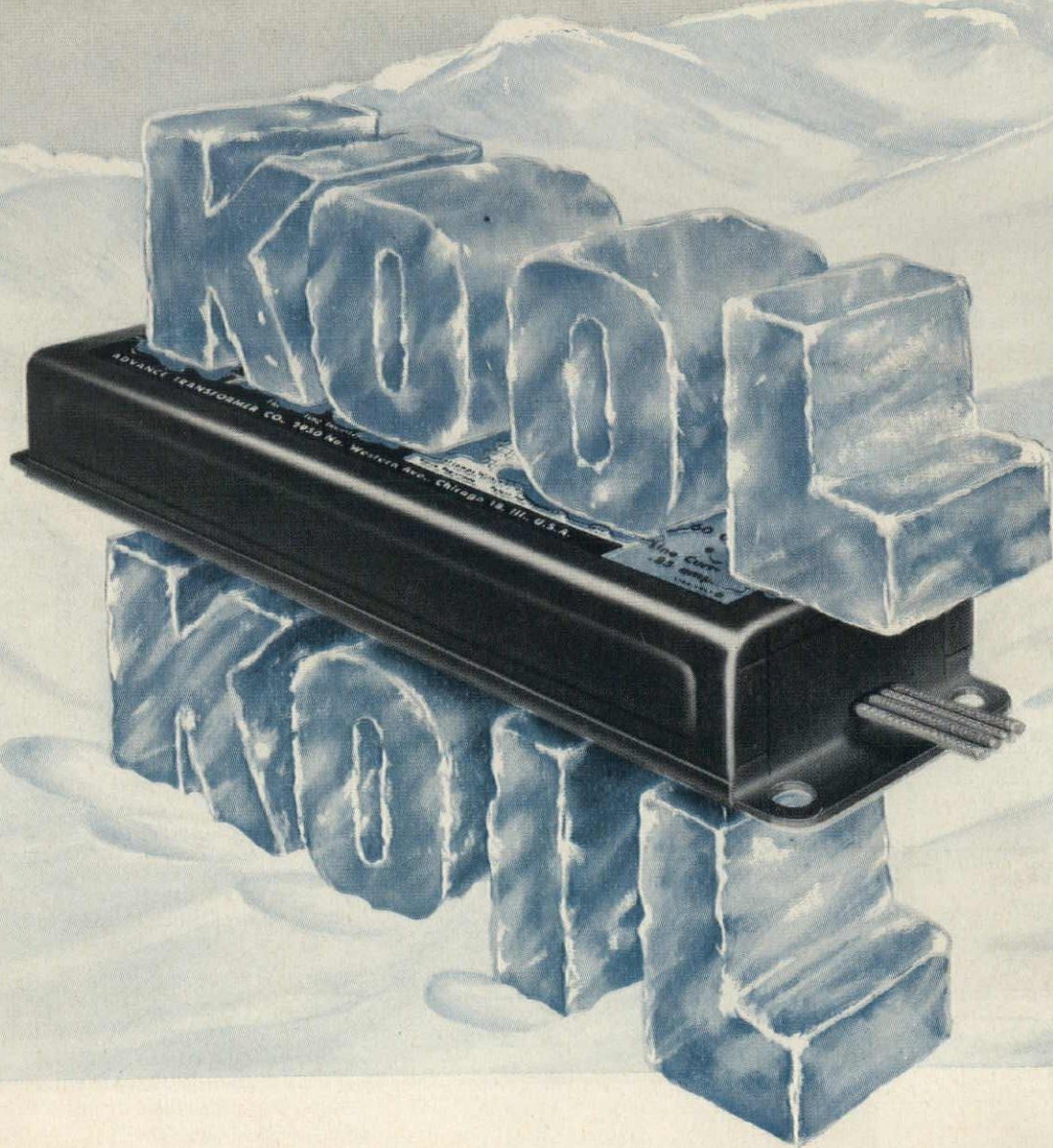
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Applied in one operation! Gun sprays dry asbestos fibers which combine in mid-air with water spray.



The proof of the pudding! After a fire in this warehouse, primary girders, protected by SPRAYED "LIMPET" ASBESTOS, remain in perfect condition. Unprotected purlins buckled.



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Ballast life is cut in half for each 10°C over normal operating temperatures. ADVANCE KOOL KOIL BALLASTS operating 16.5°C to 19.5°C cooler give 3½ to 4 times longer life.

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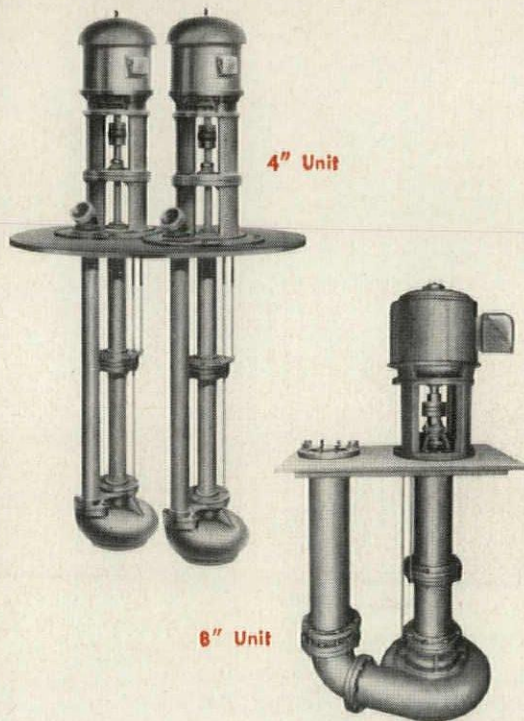
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7

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Chicago Pump Company

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Office Literature

Clay Masonry Specifications

(A.I.A. 5) SCPI's *Technical Notes*, Volume 10, Nos. 6, 7, 8 and 9 provide recommended guide specifications for clay masonry construction with sections on the scope of work, materials, erection, waterproofing, cleaning and samples, and appendices on painting and flashing. *Structural Clay Products Institute, 1520 Eighteenth St., N. W., Washington 6, D. C.*

Boiler Water Control System

(A.I.A. 34-B-1) Describes, illustrates, and gives technical data and specifications for Filtrion automatic side-stream boiler water control systems for steam boilers. 6 pp. *Sparkler-Filtrion Corp., Dept. AA1, 24th and Commonwealth Ave., North Chicago, Ill.*

Circuit Breaker Accessories

Twelve-page bulletin GEA-6757 provides all information necessary for selecting and specifying a complete line of industrial molded case circuit breakers and accessories. *General Electric Co., Distribution Unit, 90 Whiting St., Plainville, Conn.**

Mechanical Dust Collectors

Contains technical information, detailed drawings and application diagrams on *Cyclo-trell* mechanical dust collectors, including the new involute design. Bulletin 300. *Research-Cottrell, Inc., Bound Brook, N. J.*

Fir Plywood Roof Sheathing

(A.I.A. 19-F) Reference manual discusses plywood's functions and advantages, grades, types and uses, and gives plywood sheathing design data. *Douglas Fir Plywood Assn., 1119 A St., Tacoma 2, Wash.**

Rigid Wood Post Construction

Illustrates versatility of "pole-type" construction through descriptive text, design data and photos of typical pole-type buildings. 8 pp. *Western Wood Preserving Operators Assn., 1410 S. W. Morrison St., Portland 5, Ore.*

Literature Requested

Professor Roy Sellors, School of Architecture, The University of Manitoba, Winnipeg, Manitoba, Canada

Percy D. Bentley, F.A.R.A., Architect, Esley D. Harden, Associate Architect, 56 Thirteenth Ave., West, Eugene, Ore.

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

1

50 years of pump manufacturing experience.

2

Balanced impellers passing large spheres provide quiet operation with high pump and high non-clogging efficiency.

3

Expansion joints in discharge pipe prevent pump distortion and resulting bearing failures.

4

Simple, dependable micrometer adjustment permits easy setting of impeller clearance in pump casing to compensate for normal wear, maintaining maximum efficiency.

5

Heavy ball thrust bearings are located well above floor level to prevent water splashing into bearings.

6

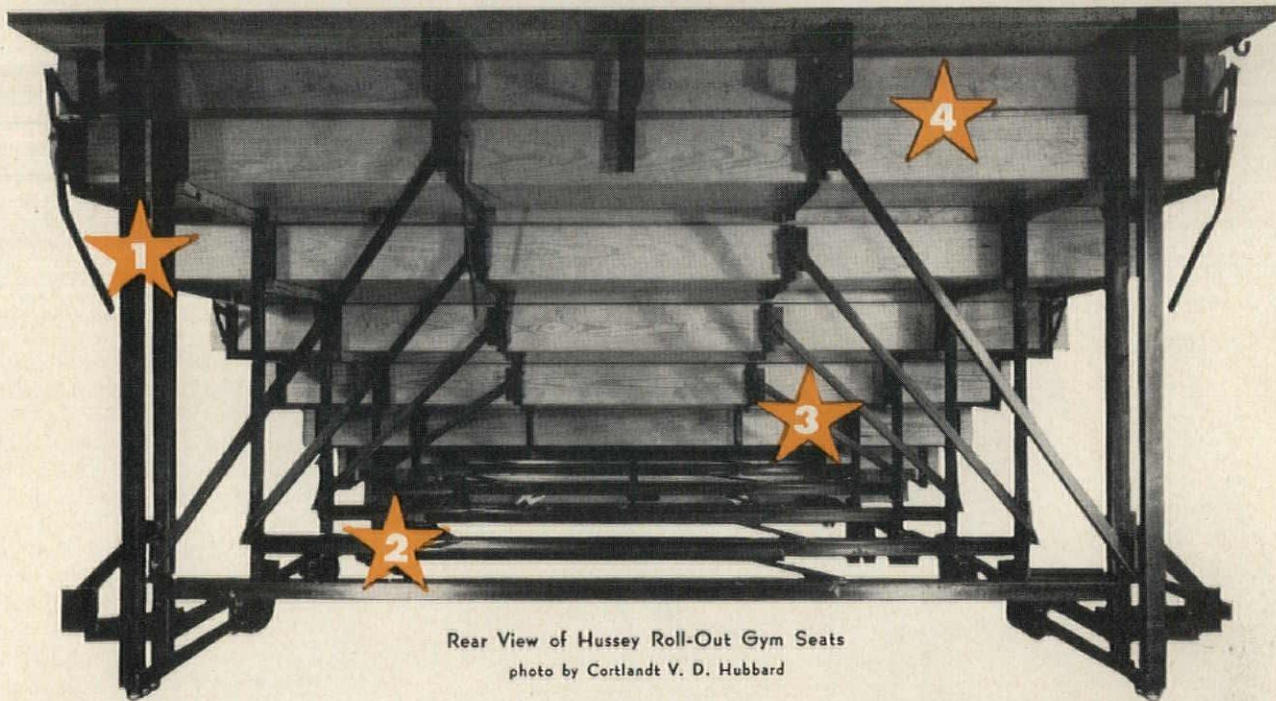
Packing boxes built into floor plates prevent leakage.

7

Heavy duty shafts and bearings eliminate vibration and provide long life.



There IS a Difference in Gym Seats



Rear View of Hussey Roll-Out Gym Seats
photo by Cortlandt V. D. Hubbard

HUSSEY'S TRUSS IS SAFE

Gym seats must be rigid to resist the side and end sway created by wildly cheering spectators. This is a job for a truss if you want the gym seats in the schools you design to be as safe as your building.

- ★ Vertical columns support each Box Girder seat unit. These columns are 1½" or 2" square steel tubing, depending on row height.
- ★ Horizontal braces tie these columns together. They are 2½" x 2½" x 3/16" steel angles. (Steel-work between these braces in the photo is Hussey's scissors-type paralleling device.)
- ★ Diagonal braces begin at the 3rd row and connect the vertical columns with their steel Box Girder stiffener angles. These steel braces are 1½" x 1½" x 3/16" or 2½" x 2½" x 3/16", depending on row height.
- ★ The Box Girder unit has front and rear risers and seatboards of 25/32" Arkansas Long Leaf Yellow Pine held in proper relation by 8 internal steel diaphragms and 8 steel Box Girder stiffener angles per 16' section.

These seats are engineered for rigidity and a safety factor of 4 to 1. Hussey Closed Deck Roll-Out gym seats have ALL these elements of a complete truss. A quick field check will prove it.

If **SAFETY** is of more importance to you and your clients than **PRICE**

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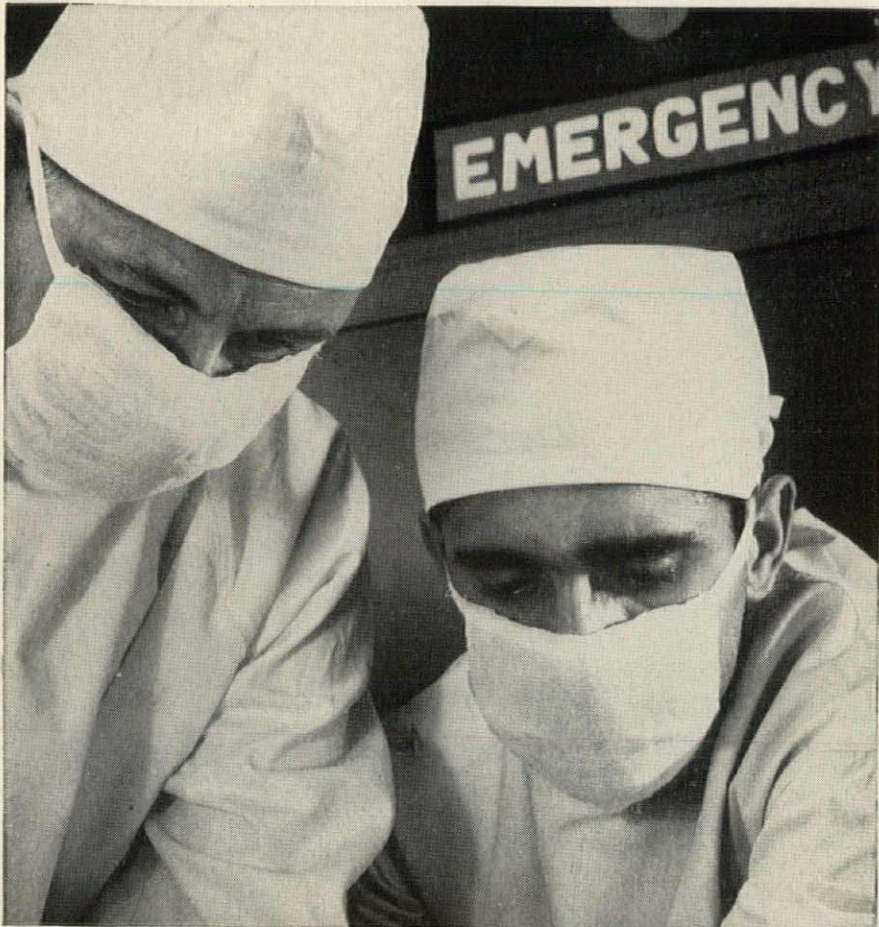
A. I. A. File No. 35-F-11



HUSSEY MFG. CO., INC.

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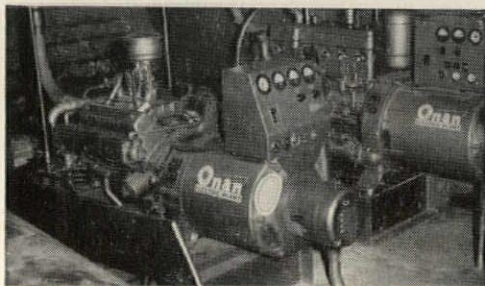


Where else in this hospital is standby power important?

Any list of critical areas or services would include elevators, heating system, respirators, aspirators, oxygen tents, communications, x-ray equipment and various kinds of pumps. Interruption of electric power to any of these could be as vital to the patient as failure of emergency or operating room lighting.

Onan can supply individual emergency electric plants up to 230,000 watts to handle all essential hospital services. A wide choice of voltages is available to meet the different voltage requirements of electrical equipment.

Diesel, gasoline or gas models.



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The Record Reports

Education Notes

HARVARD UNIVERSITY'S Graduate School of Design, in the fall of 1960, will offer advanced courses leading to three new degrees in the field of urban design: Master of Architecture in Urban Design, Master of Landscape Architecture in Urban Design, and Master of City Planning in Urban Design; the courses will be open to holders of professional degrees from the Graduate School, or their equivalents.

COLUMBIA UNIVERSITY has also announced that it is offering, in its program of evening courses in the School of Architecture, a course in advanced structures, to be directed to architects in practice.

Participants in ALLIED CHEMICAL'S program of aid to architectural schools this year are the University of Cincinnati, the University of Florida, the University of Pennsylvania, Syracuse University and Washington University; of the \$1000 granted to each school, \$650 is to be allocated for student aid, \$350 for use in the school's architectural program.

COLUMBIA UNIVERSITY has established the Avery Archive of Measured Drawings of Historical Monuments, for reference in comparative studies of historic buildings; so far, the archive contains 49 drawings of buildings in France, Italy and Switzerland, and its committee will welcome additions to the collection.

The UNIVERSITY OF MICHIGAN College of Architecture and Design has appointed Lester Fader assistant professor of architecture, Joseph Goto assistant professor of art and Robert Sannan Takaichi assistant professor of architecture. . . . SYRACUSE UNIVERSITY has appointed seven visiting critics for the current academic year: Richard L. Aeck, Anthony Ellner, Norbert Gorwic, Caleb Hornbostel, George Fred Keck, Victor Koechl and Ralph Walker. . . . CORNELL UNIVERSITY'S Department of City and Regional Planning has undertaken a study of possible means to be taken to protect an upstate New York industrial community from the effects of a nuclear explosion; the department is cooperating with the New York State Civil Defense Commission, the U. S. Office of Civil and Defense Mobilization and the New York State Department of Commerce, as well as with the American Machine and Foundry Company, the Buffalo Forge Company and the International Business Machines Corporation.

more news on page 322



CONSIDER

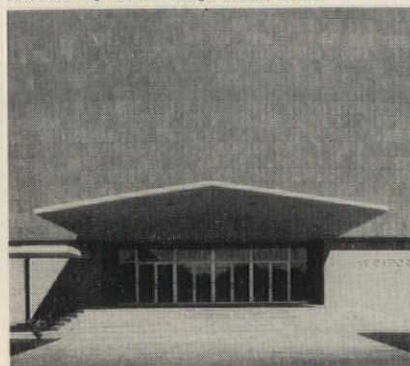
Carl Underwood Elementary School, Andrews, Texas. **Caudill, Rowlett & Scott, A.I.A.**

Schools mean walls of glass, inside and outside, doors, single and double and in series, interior partitions, chalkboards and cases and special designs. Aluminum is the answer, and Acme of course is a natural specification. Acme means Alcoa aluminum; we were Alcoa's first distributor of architectural aluminum. Acme means progressive, inventive design and engineering, and a solid reputation in architectural metals for over fifty years. Your glass contractor can do his best for yourself and your client, in quality, price and outstanding service, when you include Acme in your specifications.

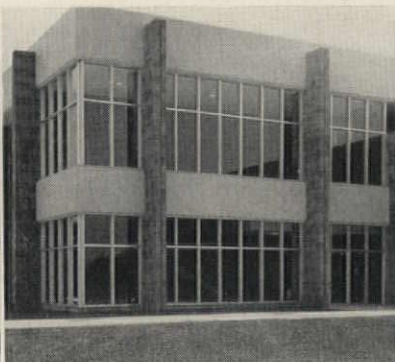


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For further information on treated wood, OSMOSE field representatives are ready to assist you in specifications. Write for our new brochure on the revolutionary discovery **FLAMEPROOFING OSMOSE - PFR.**

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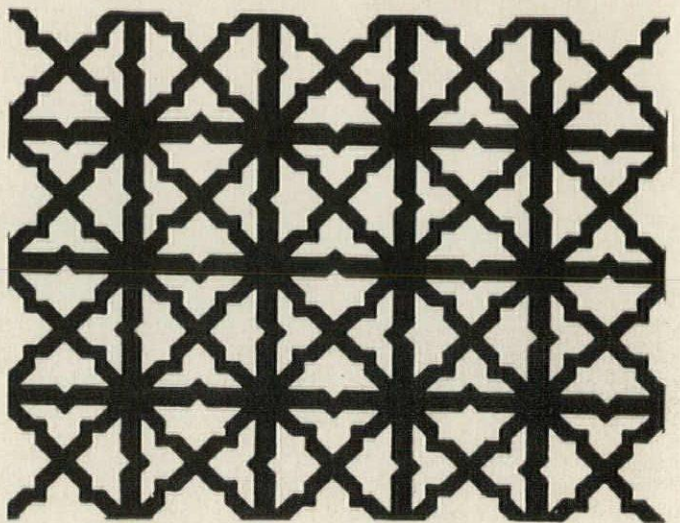
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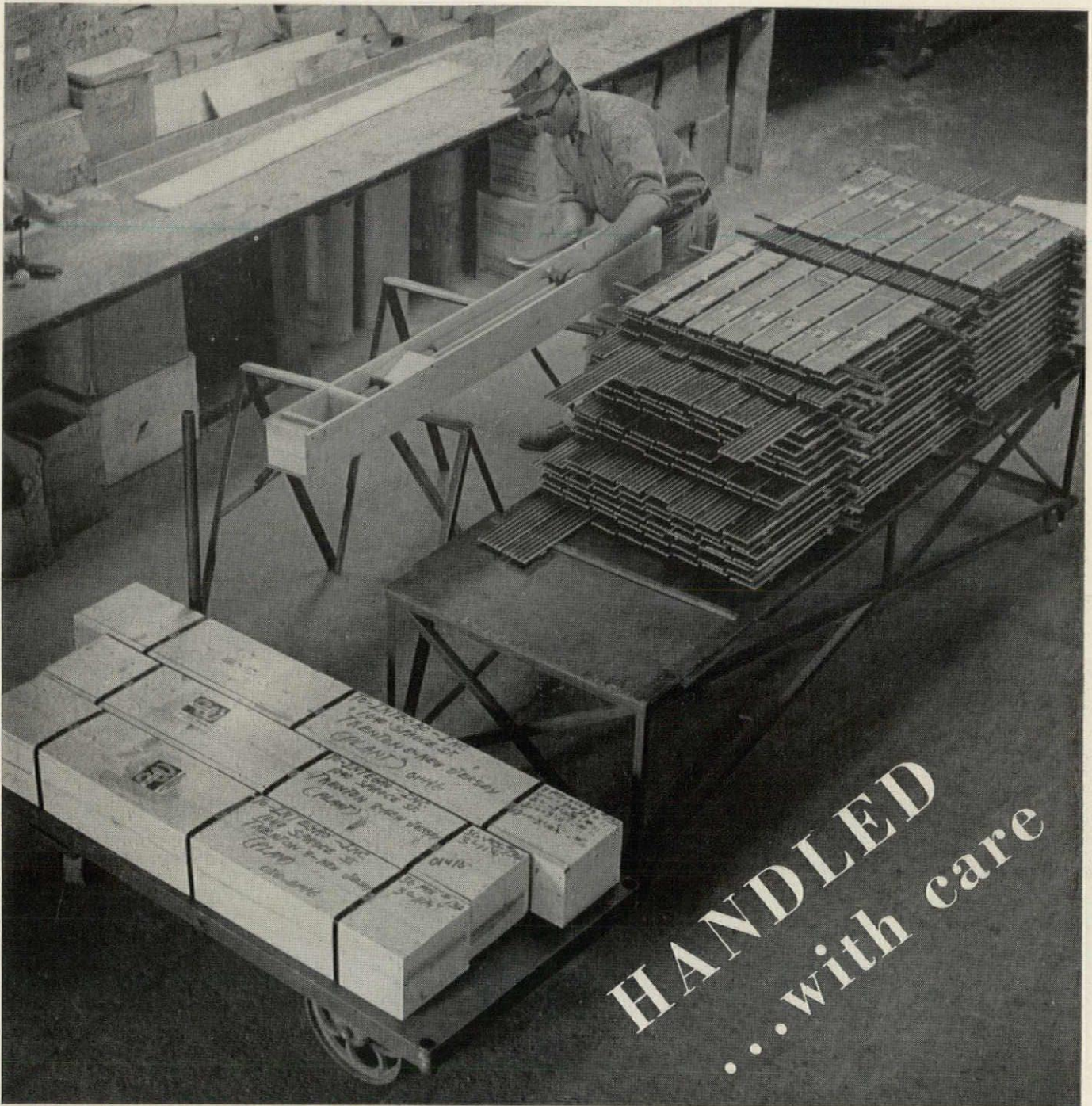


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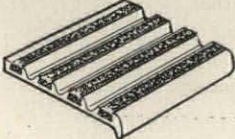
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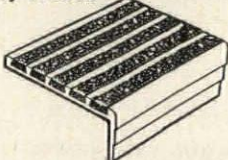


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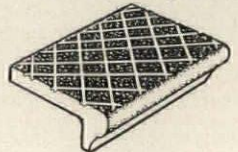


Even this final detail — the packing of finished products in special made wood boxes — reflects the constant maintenance of quality standards in every step of manufacturing Wooster Super-Grit and Safe-Groove Safety Treads.

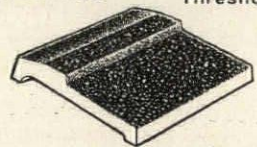
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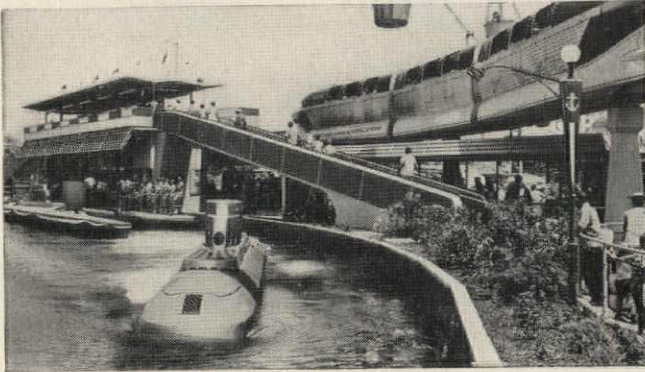
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Continue to make the **BIG NEWS** in mass transportation

DISNEYLAND, CALIFORNIA — JUNE 15th



An S-A SPEEDRAMP Passenger Conveyor carries visitors to the Monorail station where they board trains of the Disneyland-Alweg Monorail System . . . the first daily operating monorail in the United States. This SPEEDRAMP installation is a part of the fabulous new attractions visited by millions this summer at Disneyland '59. This modern mode of transportation was unveiled June 15 to a coast-to-coast TV audience and also received acclaim in nationwide publicity.

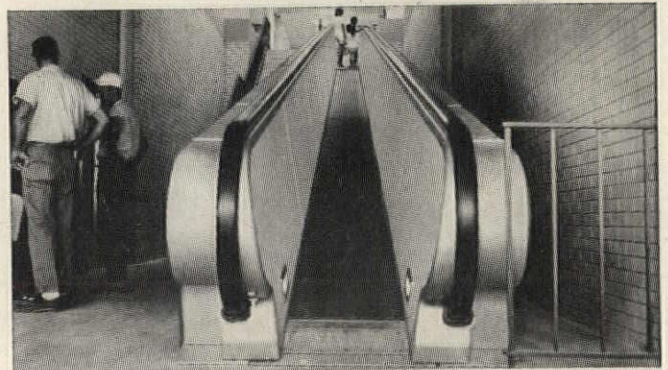
NAVY PIER, CHICAGO — JULY 17th



The press featured the fact that one new way of transportation — the St. Lawrence Seaway — became the mode of transportation for a second new system of travel — "the moving sidewalk," July 17th. It all came about when the Nordlake Line's S.S. KAARINA steamed away from her Navy Pier Dock, bound for Europe with the first passenger conveyor belt system destined for overseas installation. The SPEEDRAMP Passenger Conveyor will be placed in service at Lausanne, Switzerland, in the ultra-modern "Innovation" Department Store.

The first successful commercial passenger conveyor or "Moving sidewalk" was put into operation several years ago and some millions of safe passenger miles ago. Yet, month after month, SPEEDWALK Passenger Conveyor Systems continue to make news in the mass transportation field. Shown here, are but three typical examples of SPEEDWALK Big News events for 1959.

ATLANTA, GEORGIA — AUGUST 3rd



City-size Lenox Square Shopping Center, one of the world's most beautiful, most complete and without question most modern shopping centers, opened its doors to the Atlanta, Georgia area public, on August 3rd. The million square foot shopping center became the first of its kind to offer customers the advantages of a "Moving sidewalk."

SEE THE "SPEEDWALK" MOVIE . . . WRITE FOR FREE SHOWING DATE



Write for
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Brochure.



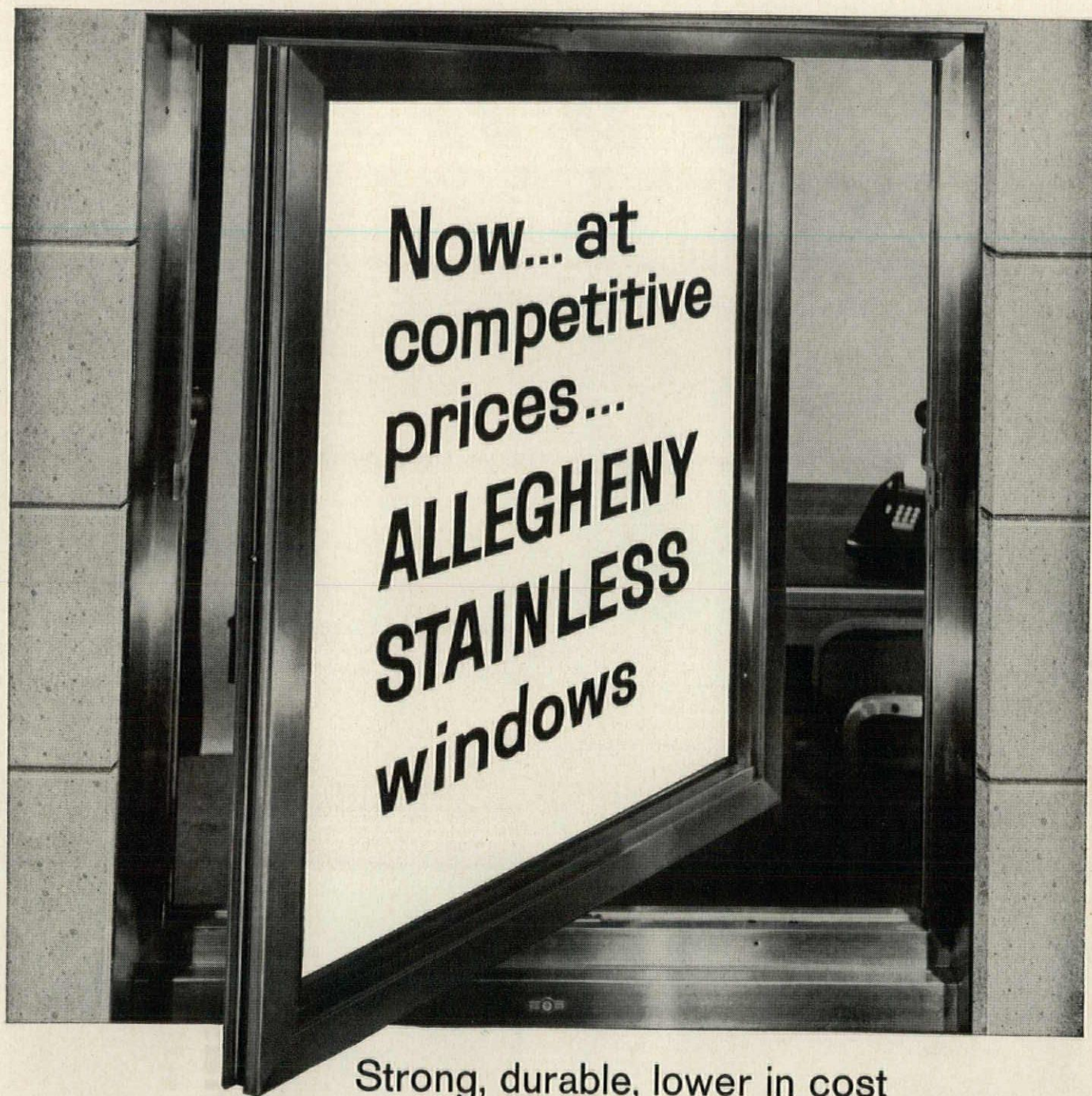
SPEEDWALK DIVISION

STEPHENS-ADAMSON MFG. CO.

GENERAL OFFICE & MAIN PLANT, 53 RIDGEWAY AVENUE, AURORA, ILLINOIS
PLANTS LOCATED IN: LOS ANGELES, CALIFORNIA • CLARKSDALE, MISSISSIPPI
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SEE THE MONTGOMERY ELEVATOR COMPANY REPRESENTATIVE OR THE
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ARCHITECTURAL RECORD November 1959 317



Strong, durable, lower in cost

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

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

Vital to architecture, durability and compatibility are inherent in Allegheny Stainless. It never requires chemical films for surface protection, and virtually cleans itself with normal rainfall. Because of an amazing resistance to corro-

WSW 7296

sive atmospheres, the brightness and freedom-from-pitting of Allegheny Stainless are recorded history; yet different patterns, textures and colors make news each day.

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

Include Allegheny Stainless in your design-thinking now. Learn how you can get the quality of stainless steel windows for much less than you think. For additional facts, and manufacturers' names, write to *Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa. Dept. R-23.*

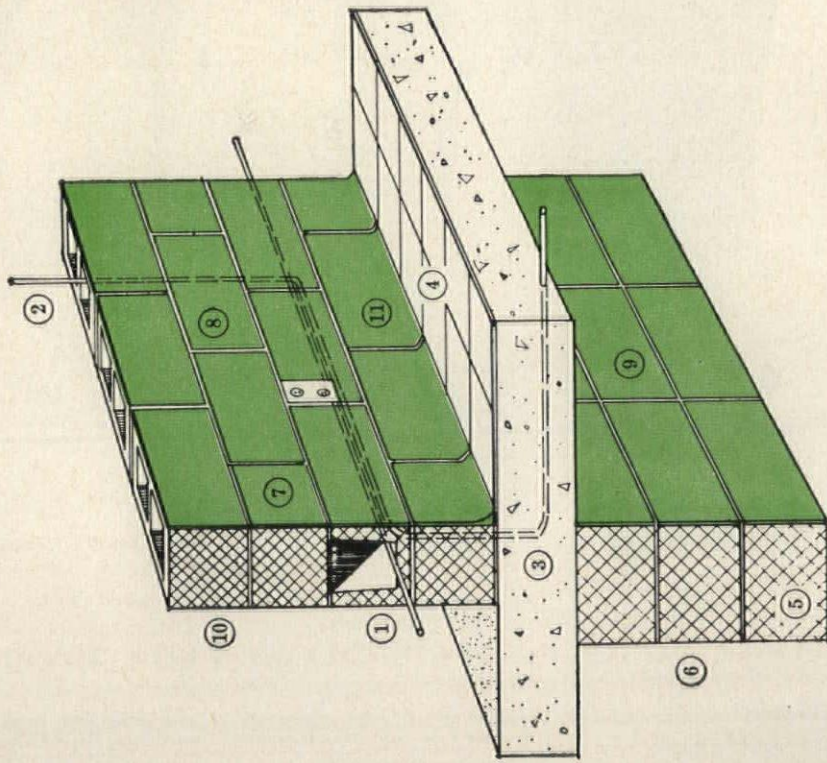


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 Edgar D. Otto & Sons, Inc., P. O. Box 387, Albuquerque • PENNSYLVANIA: A. Duchini Co., 24th & Brandes Sts., Erie • PITTSBURGH: Flexstone Co., Inc., 4th and Railroad Sts., Monongahela • SOUTH CAROLINA:
 Tidewater Concrete Block & Pipe Co., P. O. Box 162, Charleston • TEXAS: Glazed Products, Inc., P. O. Box 8346, Houston 4 • Nolan Browne Co., P. O. Box 575, Dallas 21 • Southwest Glazed Masonry Corp., P. O. Box
 885, Texarkana • Texas Concrete Block Co., P. O. Box 489, Lubbock • UTAH: Glazed Concrete Products, Inc., Ogden • VIRGINIA: Concrete Pipe & Products Co., Inc., P. O. Box 1223, Richmond 9 • CANADA: Edmonton
 Concrete Block Co., Ltd., 7425 120th Ave., Edmonton, Alberta • McCleery & Weston, Ltd., 9242 Hudson St., Vancouver 14, British Columbia • Cermetox (Western) Ltd., 509 Portage Ave., Winnipeg 1, Manitoba • Ryan
 Builders Supplies, Ltd., 210 Detroit St., Windsor, Ontario • Thorold Concrete Block Co., Ltd., Box 190, Thorold, Ontario • UNITED KINGDOM: Atlas Stone Co., Ltd., Artillery House, Artillery Row, London, S. W. 1, England.

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 you can design beauty and practicality into
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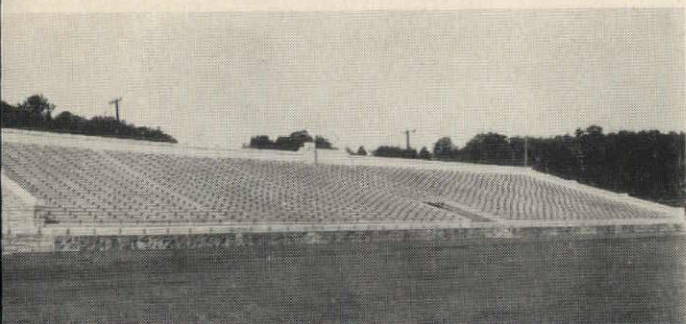
To order, call your L·O·F Glass Distributor or Dealer (listed under "Glass" in the Yellow Pages).

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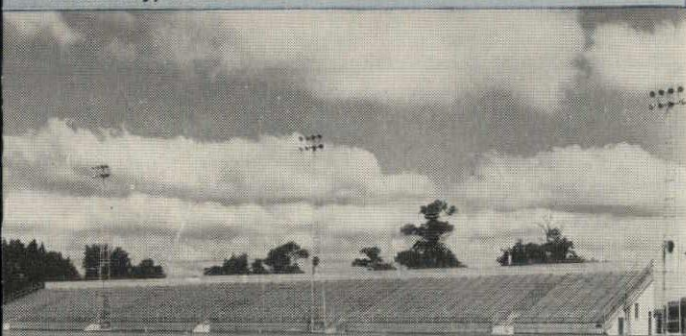
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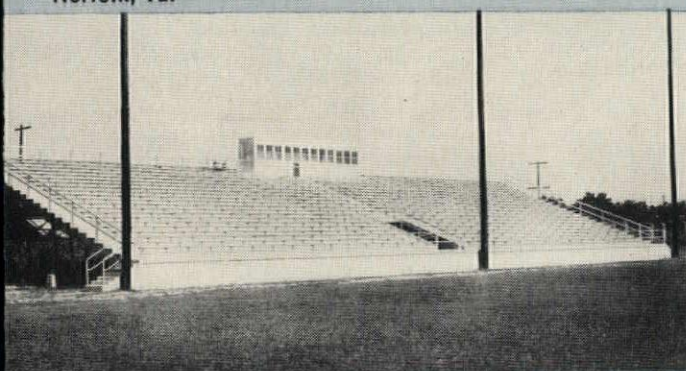
Waterbury, Conn. 4400 seats



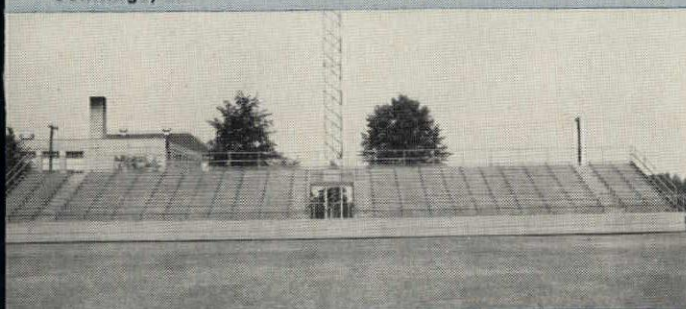
Coraopolis, Pa. 3600 seats



Norfolk, Va. 3000 seats



Jennings, La. 1850 seats



Quakertown, Pa. 1170 seats



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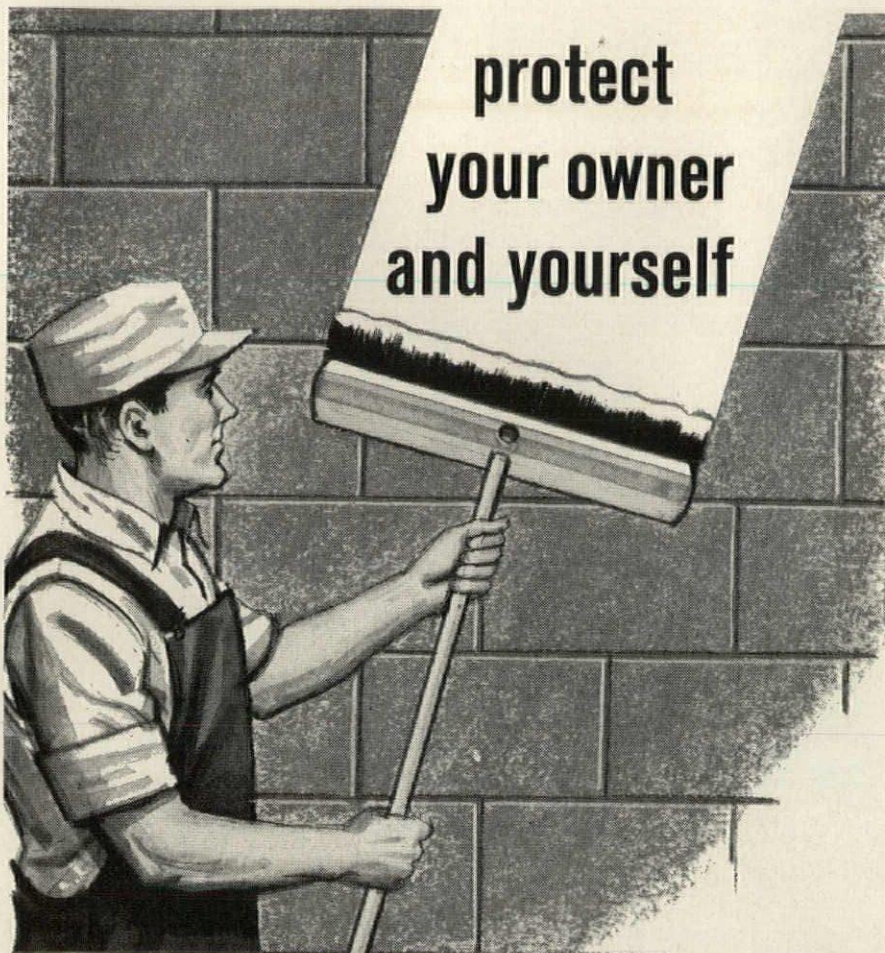


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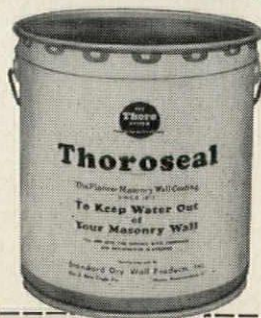
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| BALTIMORE (26).....Curtis Bay Station | DES MOINES (8).....916 Tuttle Street |
| NEW YORK (17).....Suite 2790, 200 E. 42d St. | DALLAS (1).....Suite 1716 Southland Center |
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BOX X (1) New Eagle, Pa.

Plants at New Eagle, Pennsylvania and Centerville, Indiana

The Record Reports

Speaker at Hospital Conference Urges Planning Cooperation

Medical officers and hospital administrators gathered in Edinburgh for the International Hospital Congress, held June 1-6 this year. This was the eleventh Congress organized by the International Hospital Federation. The program revolved around the theme "Efficiency Methods in Hospitals."

Discussing "Efficiency Methods as Applied to Planning and Construction," G. Birch-Lindgren, of Sweden, observed that in designing the hospital it is necessary to consider not only medical factors, but operational, administrative and economic factors as well. But, he added, "a hospital or a department in a hospital must be built in such a way that it can easily be operated not only by its first occupier; it must be planned in such a way that it can be used by a series of occupants without many elaborate changes." Mr. Birch-Lindgren's summary of the "ideal" pattern of cooperation in hospital planning was that: "(1) Hospital planning is a specialty, which makes specialists—both architects and engineers—necessary; (2) doctors, nurses, administrators, heads of service departments must be consulted and given ample opportunity to express their opinions and take part in the planning; (3) the final decisions ought to be taken, however, by people with experience in hospital planning as a whole and who are acquainted with the medical, operational, administrative and economic sides of the problem."

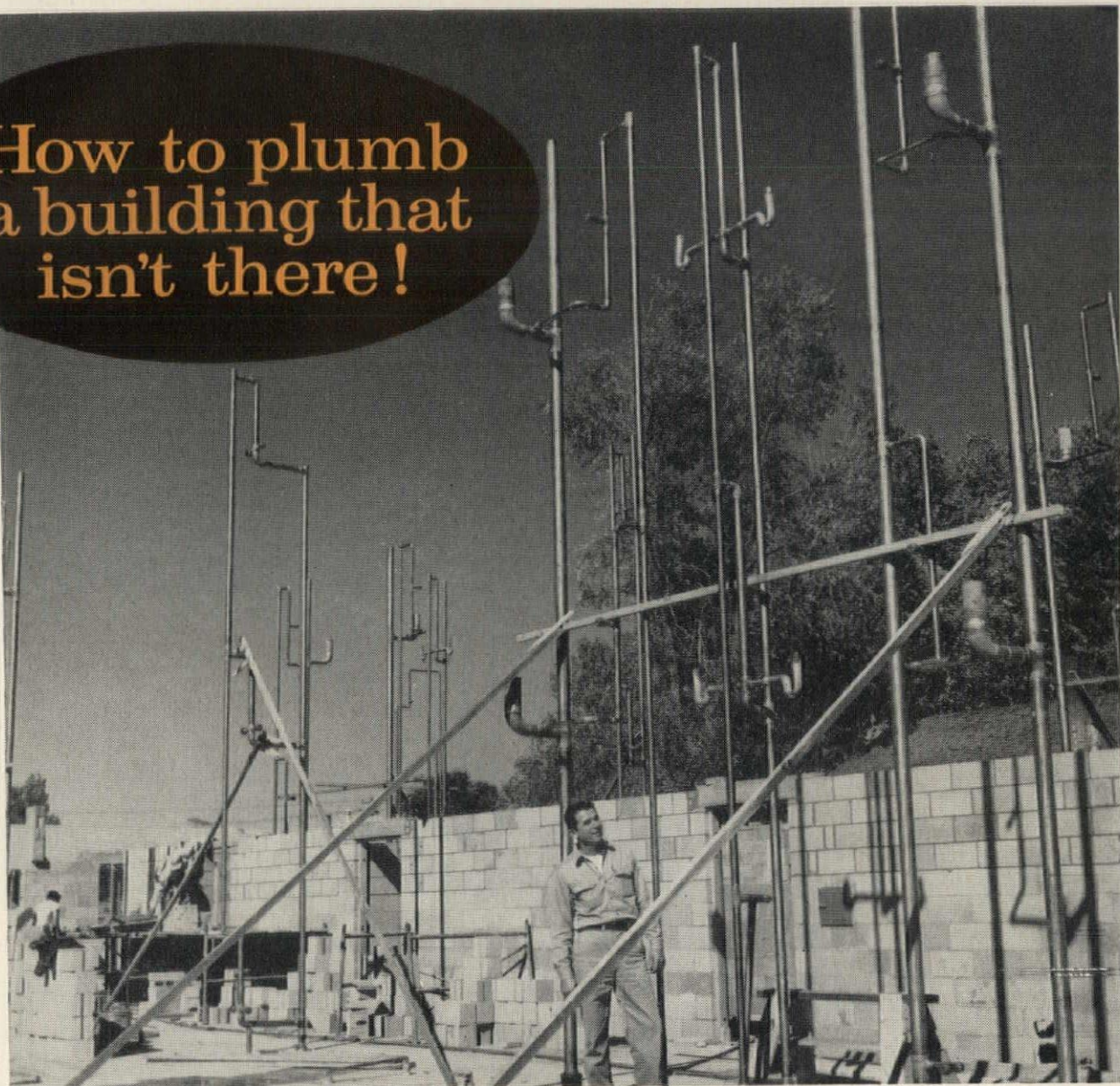
In addition to Mr. Birch-Lindgren's address, other papers were read on planning and on hospital procedures which affect the planning process, as well as on more strictly administrative subjects. The papers have been published by the International Hospital Federation, at 34 King Street, London, E. C. 2, England.

Ward Design

An architectural exhibition on hospital ward design was held in connection with the congress; it was organized by an architectural committee for the Scottish Organizing Committee for the Congress. The examples are all taken from British hospitals, and plans and descriptions of each of the included hospitals have been published in a brochure titled "Hospital Ward Design," which is also available from the International Hospital Federation.

more news on page 326

How to plumb
a building that
isn't there!



...with NIBCO copper fittings

Residents of Denver couldn't believe their eyes as they watched the Alida Rae Apartment building start to go up. The foundations were hardly in place before the plumbing lines were installed.

There was no error. Joe Harris of Harris & Company Plumbing was merely using a new technique, worked out with S. W. Haan, the architect/engineer, to save space, time and money.

With NIBCO fittings from Amstan Supply, Harris employees (members of Denver Plumbers' Local #3) prefabricated a copper system for this three-story building at the shop, hauled it to location and set it up. With no bother, no fuss, they completed the entire plumbing in three trips to the site: (1) Laid underground lines; (2) Set the prefabricated "trees"; (3) Set the fixtures.

NIBCO INC., Dept. J-2111, Elkhart, Indiana

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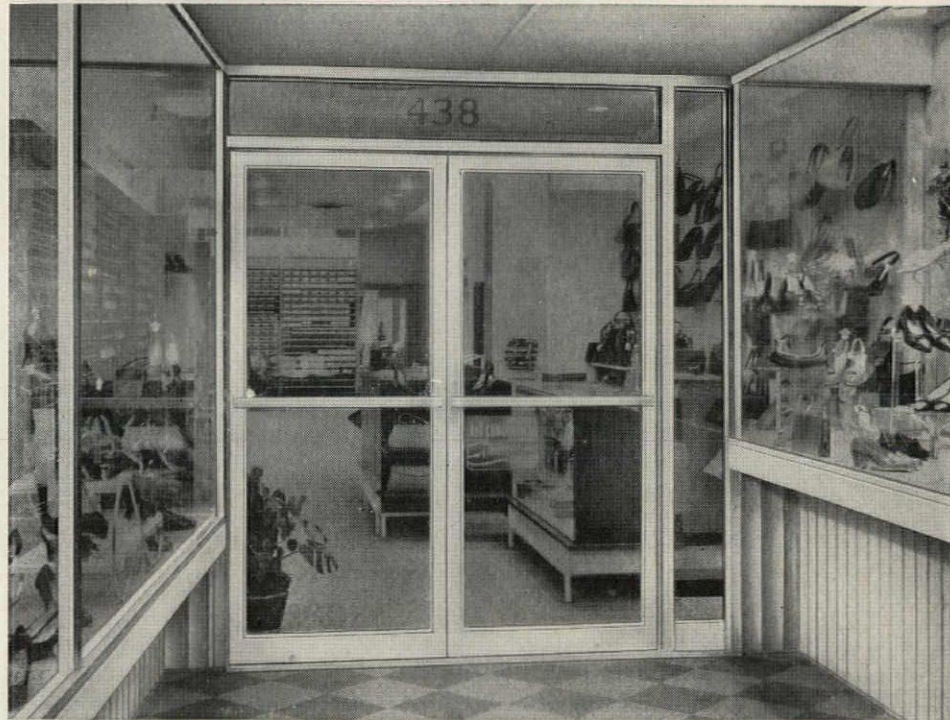


NIBCO

When it comes to doors

TUBELITE® DOORS

This inviting entrance to *David's Shoes* in Macon, Georgia, culminates in the simplicity of double TUBELITE Doors. Concealed channel-type anchors hold all frame seams to a hair line joint so that there is no structural blemish to mar the smoothness of the superb aluminum finish. The TUBELITE Door frames have an exclusive interlocking feature which gives them utmost rigidity, and assures that their shape will remain true through long and continued use. Standard or specially designed handles can be applied directly to the glass for complete open vision. *General Contractor: W. E. Dixon, Macon, Georgia.*



WEST TENSION DOORS

Narrow stiles characterize WEST TENSION Doors but there is no sacrifice of rugged strength. $\frac{1}{2}$ " thick glass held under compression in the metal frame makes a solid unit which can never sag, rack or get out of alignment. Its simplicity makes it compatible with a wide variety of architectural designs. It can be operated with any type of automatic opening device. WEST TENSION DOORS are moderately priced and completely dependable in operation. *Cumberland Savings and Loan Association, Portland, Maine; Architects: Wadsworth & Boston, Portland, Maine. General Contractor: Paul B. McLellan Co., Portland, Maine. Glazing by Soule Glass & Paint Co., Portland, Maine.*



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In the *Pittsburgh* line of quality doors, there are three distinct types . . . HERCULITE, WEST and TUBELITE. In the various sizes and styles of these three types of doors, you can find a model that will fit perfectly into any architectural setting. All three types of Pittsburgh Doors are handsome in appearance and completely dependable in operation.

For complete and detailed information on Pittsburgh Doors, see Sweet's Architectural File, sections 16a and 16b. Information may also be obtained by writing directly to Pittsburgh Plate Glass Company, Room 9213, 632 Fort Duquesne Blvd., Pittsburgh 22, Pennsylvania.

PITTCOMATIC . . . is the nation's finest automatic door opener and may be installed with any type of Pittsburgh Door. A simple, hydraulic, motor-driven unit, activated by either *handle* or *mat* control, is easy to install and maintain, and it is always completely concealed.

HERCULITE® DOORS

In this entrance to the *Thorofare Market* in Mt. Lebanon, Pennsylvania, HERCULITE Tempered Plate Glass Doors are installed with TUBELITE frames. The wide doorways provide easy access and at the same time framing members blend with the architectural pattern established by the adjacent metal window-settings. For the convenience of heavy-laden shoppers and pushcart traffic, PITTCOMATIC mat-controlled automatic door openers operate efficiently and dependably, and eliminate confusion in this heavily traveled area. *Architect: Charles Roberts, A.I.A., Pittsburgh, Pa. General Contractor: White & Cunningham, Pittsburgh, Pa.*

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IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

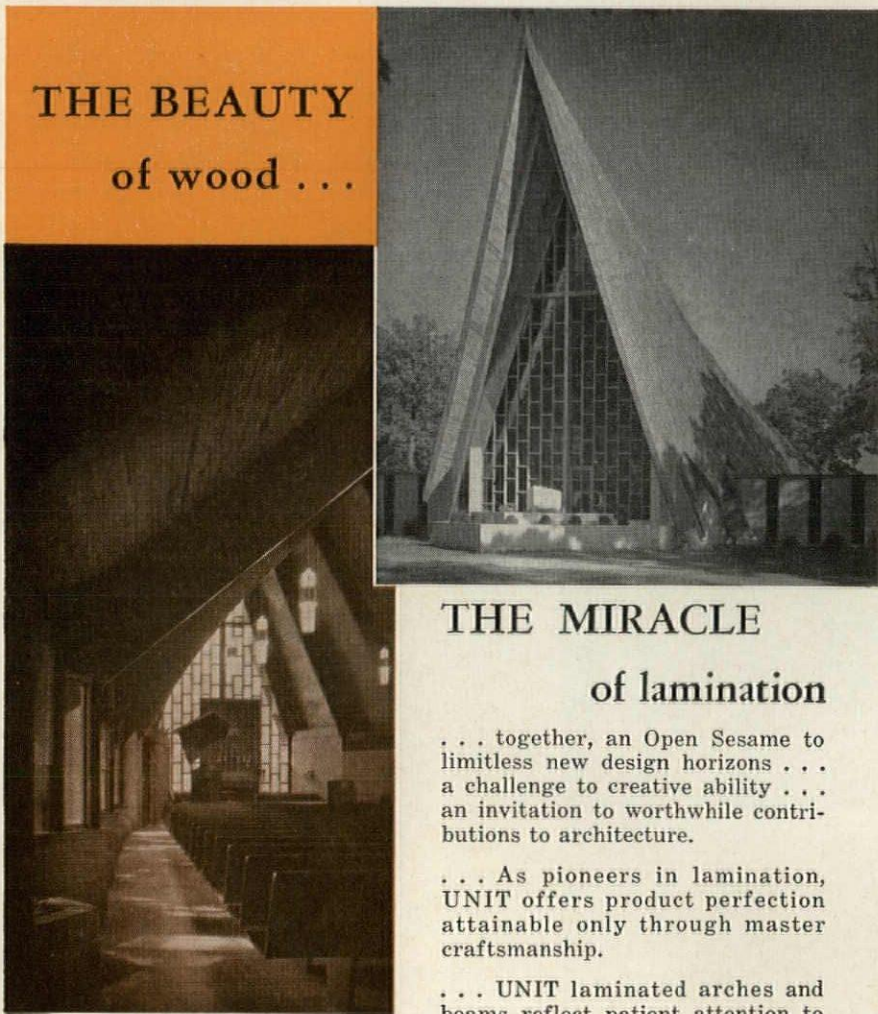
On the Calendar

November

- 2-5 12th Regional Meeting, American Concrete Institute—Continental Hilton and Del Prado Hotels, Mexico City
- 2-5 11th Exposition of the Air-Conditioning and Refrigeration Industry—Convention Hall, Atlantic City
- 2-6 National Hotel Exposition—The Coliseum, New York
- 2-6 Annual Conference, Atomic Industrial Forum, and Winter

- Meeting, American Nuclear Society—Sheraton-Park Hotel, Washington
- 2-6 National Metal Exposition—Chicago
- 2-7 Fifth Annual Convention, Prestressed Concrete Institute—Deauville Hotel, Miami Beach
- 6-12 52nd Annual Convention, National Association of Real Estate Boards—Toronto
- 11-13 Annual Fall Conference, National Fire Protection Association—Des Moines

- 12-13 Annual Meeting, American Society of Industrial Designers; theme, "Planning by Design: In a World of Product Change"—Hotel Statler-Hilton, New York
- 12-14 Annual Meeting, Florida Association of Architects—Jacksonville
- 14-17 Sixth Annual National Retail Lumber Dealers Association Building Products Exposition—Public Auditorium, Cleveland
- 16-18 Silver Anniversary Convention, Structural Clay Products Institute—Greenbrier Hotel, White Sulphur Springs, W. Va.
- 16-20 Automation Show and Conference on Materials Handling—New York Trade Show Building, New York
- 17-19 Fall Conferences, Building Research Institute—Shoreham Hotel, Washington
- 29ff Annual Meeting, American Society of Mechanical Engineers; through Dec. 4—Chalfonte Haddon Hall, Atlantic City



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Architect—A. G. Odell, Jr., & Associates
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December

- 1-4 Annual Convention, National Warm Air Heating and Air Conditioning Association—Chase Park-Plaza Hotel, St. Louis
- 11-15 Third Annual Swimming Pool Exposition and National Convention of National Swimming Pool Institute—The Coliseum and Hotel Statler-Hilton, New York

January

- 12-15 16th Annual Technical Conference, Society of Plastics Engineers—Conrad Hilton Hotel, Chicago
- 17-21 16th Annual Convention and Exposition, National Association of Home Builders—Conrad Hilton and Sherman Hotels and The Coliseum, Chicago
- 25-28 Plant Maintenance and Engineering Show—Convention Hall, Philadelphia

Office Notes

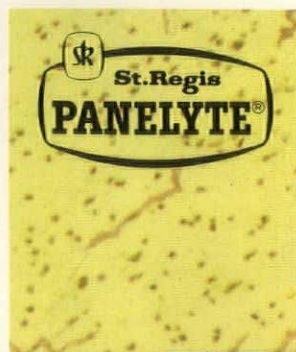
Offices Opened

Denis Beatty, A.I.A., has opened an office for the practice of architecture at 693 Mission St., San Francisco 5.

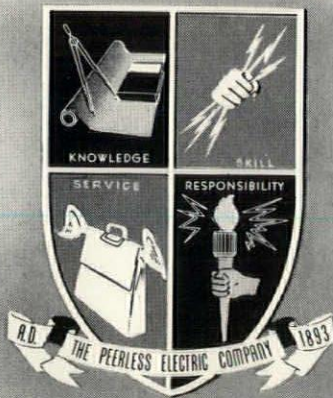
Richard C. Byce and Associates,
continued on page 334



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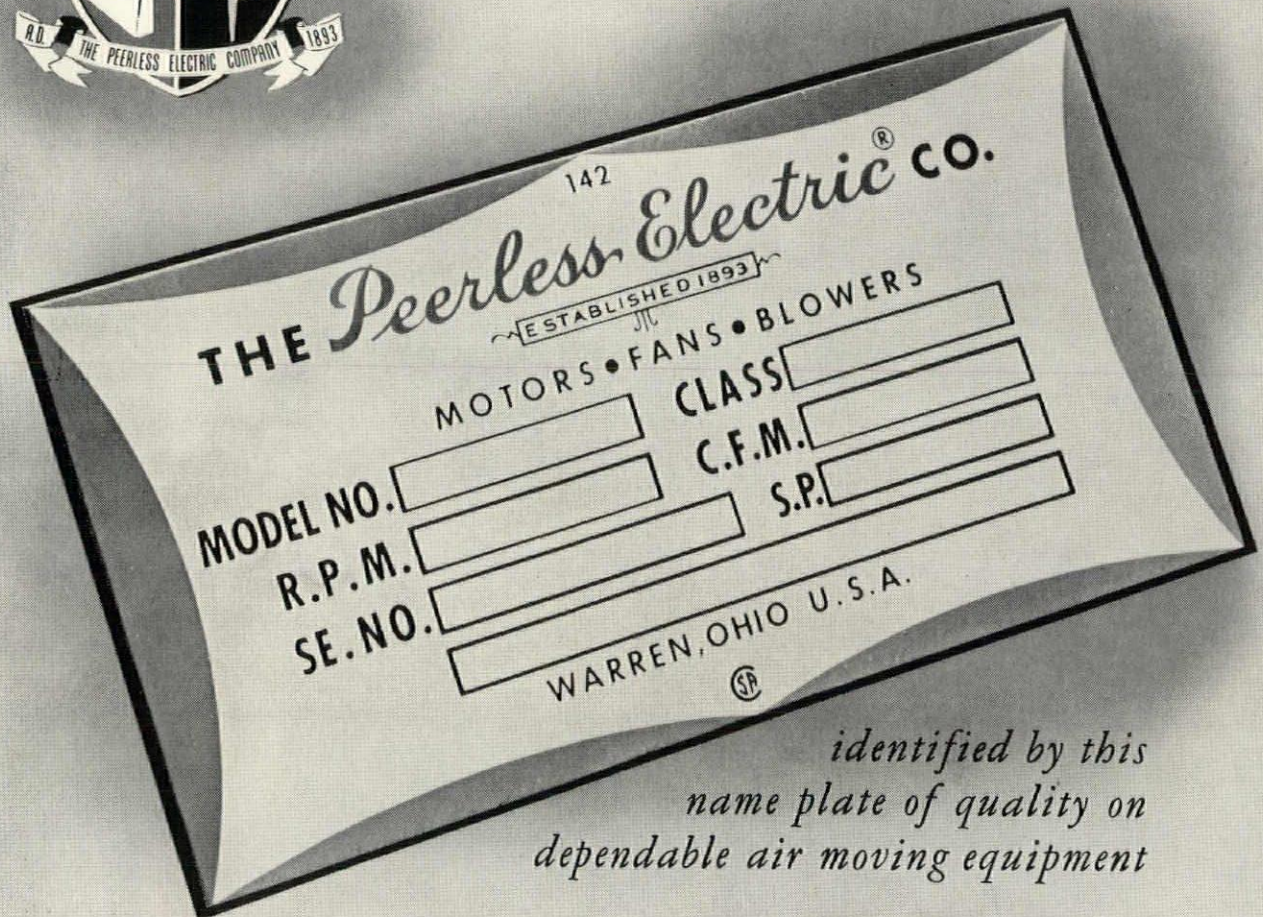


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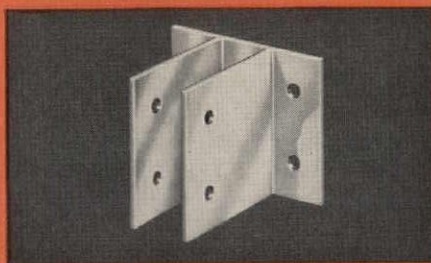
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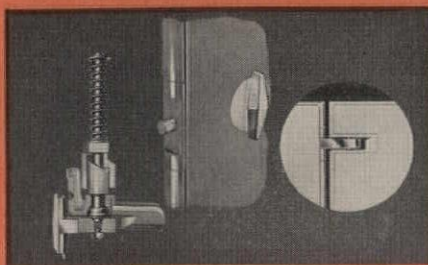
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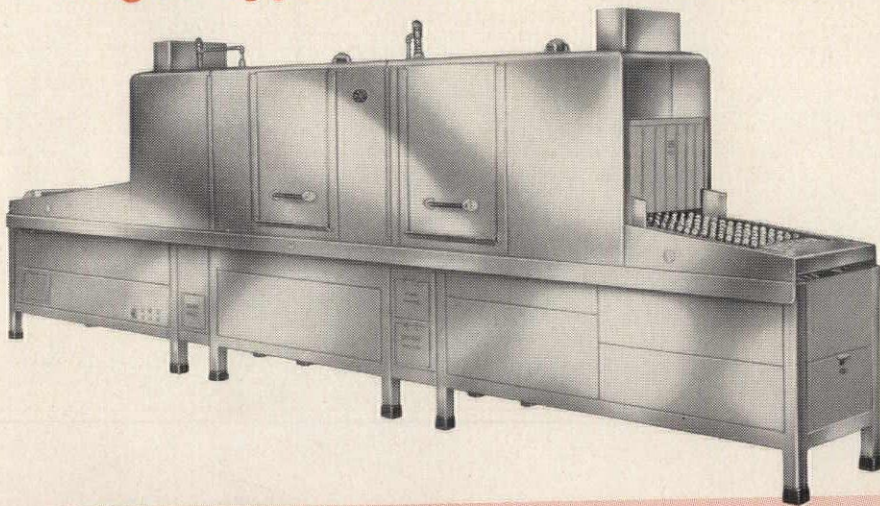
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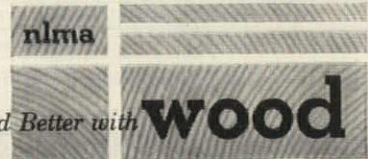
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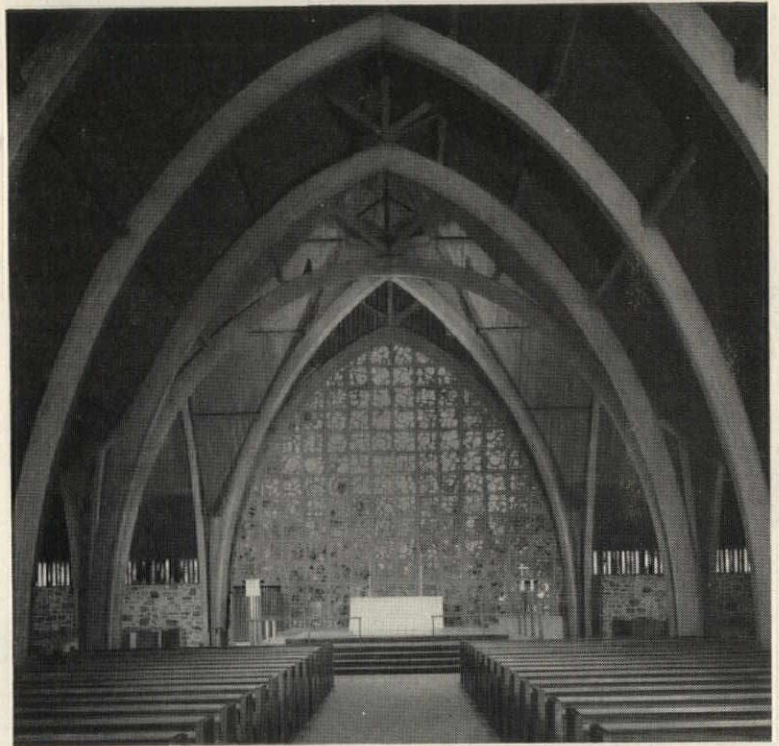
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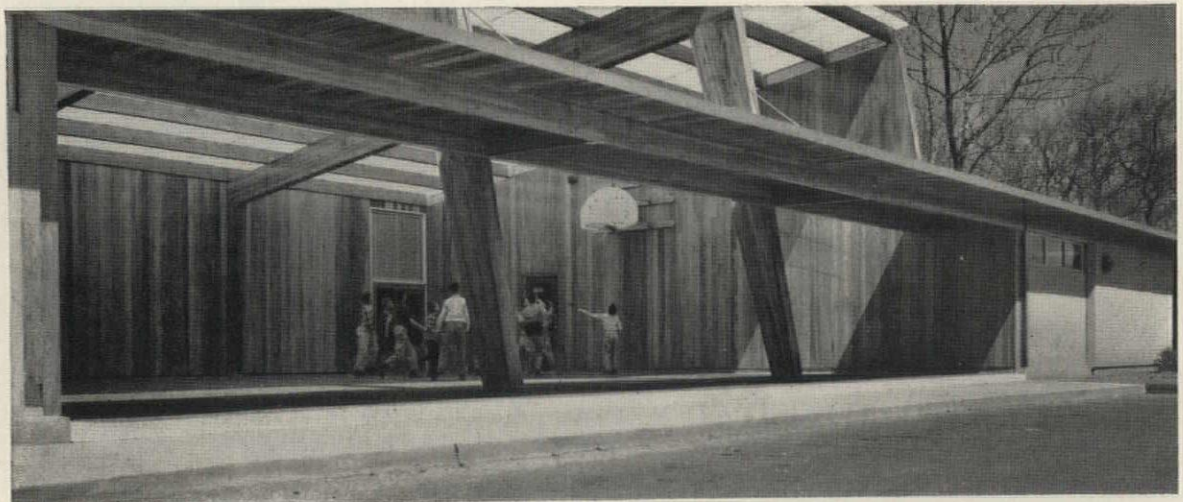


Exposed framing, 2" lumber on edge in decking and ceiling, on the porch of this new Lake Grove, Ore. lakefront home, form a natural setting for a scenic view. Architect: Van Evera Bailey.



Church of the Redeemer, Baltimore, Md., matches several species of wood in siding, ceiling and towering laminated arches for a spacious, uplifting feeling. Architect: Pietro Belluschi.

Great laminated members have been used, with exposed roof deck and walls of wood, structurally and decoratively in the Tokeneke Elementary School, Darien, Conn. Architects: O'Connor & Kilhan.



Inc., engineering firm, has been established at 428 W. South St., Kalamazoo, Mich.

Courtney E. Robinson, A.I.A., has opened an office for the practice of architecture at 1924 St. Joe Blvd., Fort Wayne, Ind.

Friedrich H. Schmitt has opened an office for the practice of architecture at 1208 E. Morehead St., Charlotte, N. C.

Stuart L. Werner, A.I.A., has opened an office for the practice of

architecture at 1012 17th St., N. W., Washington.

Firm Changes

The Sidney W. Barbabel Organization, consulting engineers of Long Island City, N. Y., announces the appointment of Saul Neufeld as executive engineer in charge of the Miami office.

Percy D. Bentley, Architect, Esley D. Harden, Associate Architect, is the new name of the firm formerly

known by Mr. Bentley's name alone. The firm also has a new address: 56 13th Ave. West, Eugene, Ore.

Finch, Alexander, Barnes, Rothchild & Paschal, Architects, announces the organization of an interior design department headed by William L. Pulgram, A.I.A., an associate in the firm. Address: 70 Fairlie St., N. W., Atlanta 3.

Hankin, Stull & Backes announces the retirement of Ned Ray Stull and the continuation of the partnership for the practice of architecture under the name Hankin & Backes. Address: 495 W. Hanover St., Trenton, N. J.

Harley, Ellington & Day, Inc., Detroit architects and engineers, announces the promotions of James E. Gibson, A.I.A., to project administrator and Robert C. Cunov to chief structural engineer.

Kegley, Westphall & Arbogast, Los Angeles architects, announces the election of James B. Stewart, A.I.A., as vice president. Mr. Stewart remains at 550 W. 5th St., San Pedro, Calif., which is now a branch office of the firm.

Thorshov & Cerny, Inc., Minneapolis and St. Paul architects and engineers, announces several changes: expansion of corporate ownership to include not only Roy N. Thorshov, president, and Robert G. Cerny, executive vice president, but also now Cecil M. Tammen, Newton E. Griffith, John G. Rauma, Frederick J. Bentz, Foster W. Dunwiddie, William J. Miller, and Kenneth R. Whitehead, vice presidents, and John G. Cook, secretary-treasurer. The group of ten comprises the firm's board of directors. Also announced were the recent promotions of Messrs. Dunwiddie, Miller, Whitehead, and Cook to their present positions as listed above. Also announced were the promotions of Francis R. Meisch to materials control manager, Richard A. Peterson to chief draftsman, Richard L. Peterson to chief mechanical engineer, Gerald Paulson to chief structural engineer, and Leonard Johnson to chief electrical engineer.

Frederic P. Wiedersum Associates, architects and engineers, announces the opening of a new office at 4400 Post Ave., Miami Beach. The other offices are in New York, Valley Stream, N. Y., and Trenton, N. J.

New Addresses

Wilfred E. Blessing, A.I.A., 3593 Stevens Creek Blvd., Santa Clara, Calif.

John D. Randall and Associates, Architects, 30 N. La Salle St., Chicago 2.

Shelve STORAGE PROBLEMS WITH ERECTA-SHELF*

U.S. Patent No. 185,801



- Erecta-Shelf on wheels rolls away storage problems.
- Corner Braces eliminate post, permitting full use of corner space.
- Erecta-Shelf platforms keep storage high and dry. Simplifies cleaning!
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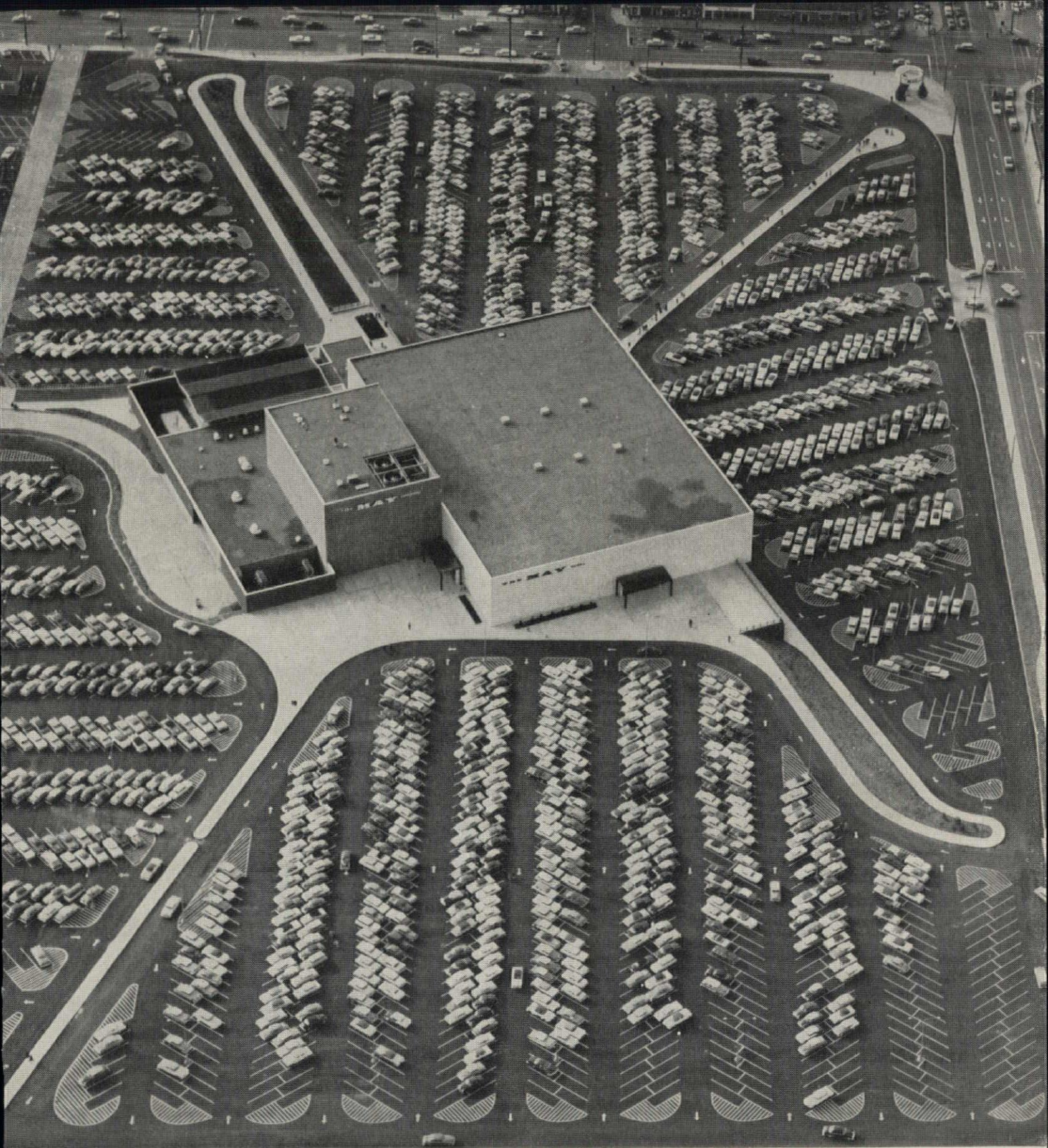
SPECIFY THIS LOW COST SHELVING

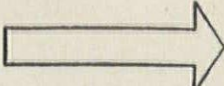
Erecta-Shelf's steel rod construction supports up to 1,000 lbs. per shelf! Shelves and uprights friction-fit into place without nuts, bolts or special tools! Assembly takes only minutes. Simple additions adapt Erecta-Shelf to most any height, depth or length requirement. You can count on Erecta-Shelf for a quick, easy, low cost solution to just about any storage problem!

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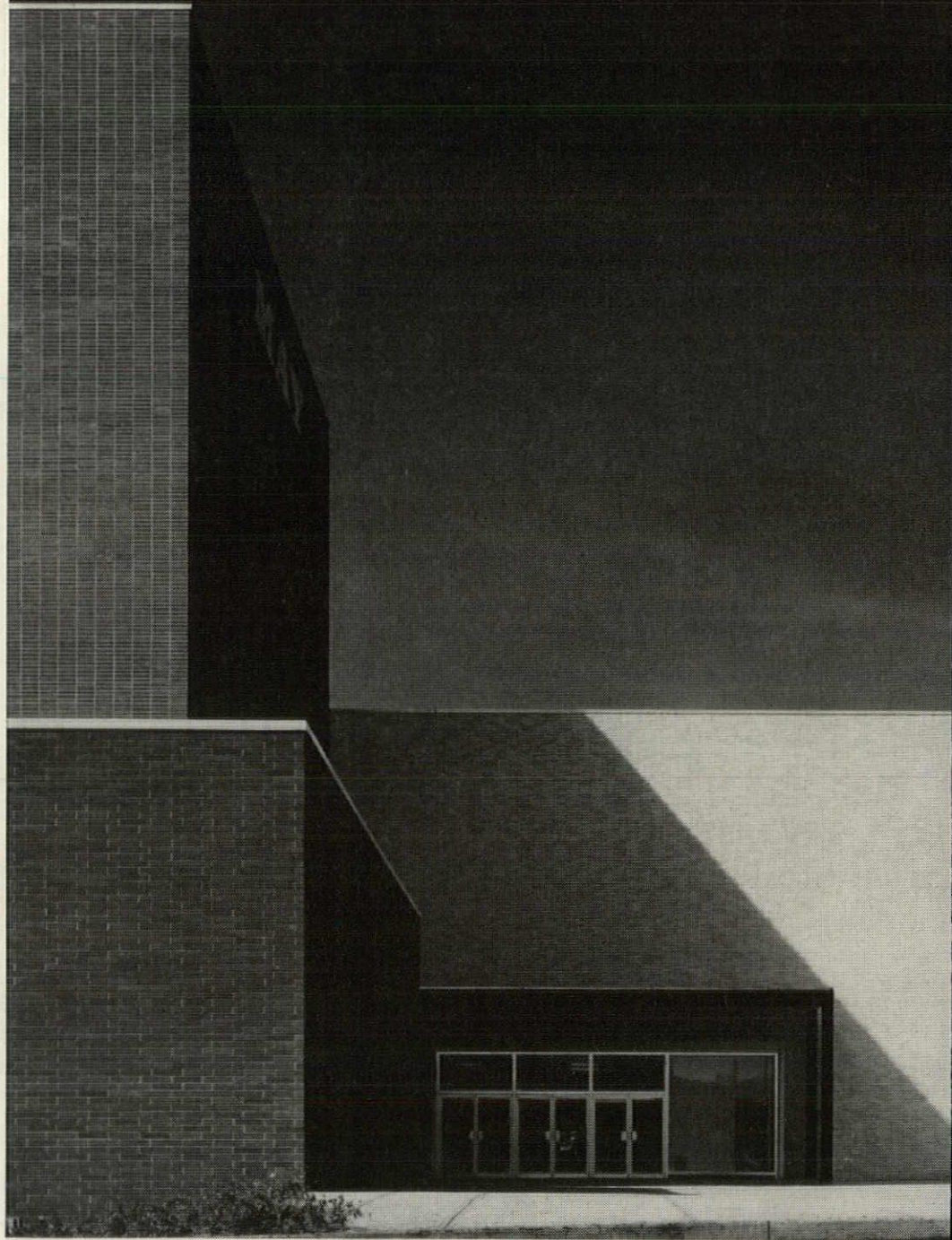


A new world of shopping convenience...
served by Westinghouse
electrical equipment 

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

COVER PHOTO

Aerial view shows Mays-On-The-Heights suburban store near Cleveland, Ohio, and part of its 18 acres of parking facilities. Adequate parking, protected walkways and convenient entrance to the store are attractive inducements to suburban shopping.



Close-up of new store building shows one entrance area. Multiple entrances at two store levels provide two "first" floors and permit greater flexibility in customer traffic flow. Building is of reinforced concrete with all walls covered with various colors of textured brick.

Mayfair Dining Room offers guests an exciting atmosphere of glass, light and shrubbery. One end of room overlooks a small court having an interesting modernistic fountain and colorful plants.

Over-all view of Mays-On-The-Heights shows entrances and spacious terrace created by protected walkways. Westinghouse OV-20 street lights with Westinghouse mercury-vapor lamps in the huge two-level parking area are functional as well as decorative, combining glare-free visibility with virtual elimination of maintenance.



J-94100-2



New suburban store says "Watch Us Grow" ... architect provides for future electrical needs

Mays-On-The-Heights, whose slogan is "Watch Us Grow," is a new suburban department store near Cleveland, Ohio. Owned and operated by The May Company Department Stores, Inc., it is the largest suburban store between New York and Detroit and one of the 10 largest in the country.

Especially designed to meet suburban shopping needs, the store has 353,000 square feet of space on four selling floors, employs 1000 people, and will accommodate 2000 cars in its two-level parking lot.

The careful design which distinguishes this new store goes beyond the many obvious architectural features. The electrical system has been carefully planned to provide maximum shopper comfort and convenience. Every item of Westinghouse equipment—power centers, switchgear, panelboards, circuit

breakers, safety switches, transformers and controls—was selected for its ability to provide dependable, uninterrupted service and for future expansion as store growth requires it.

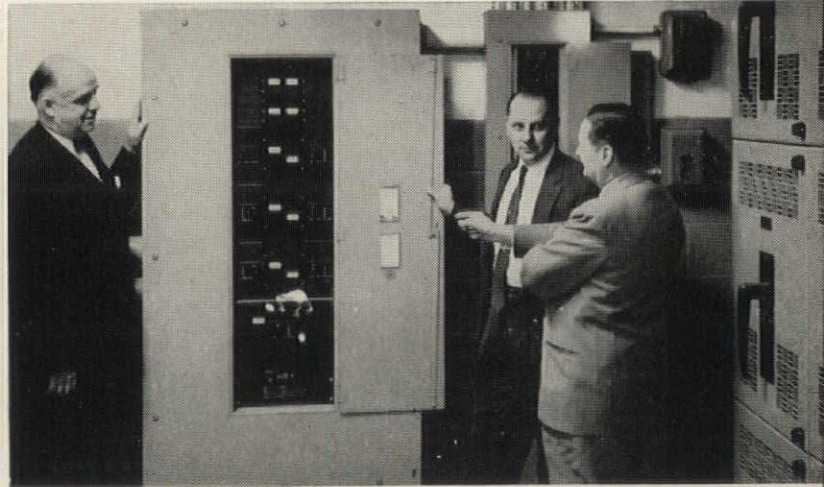
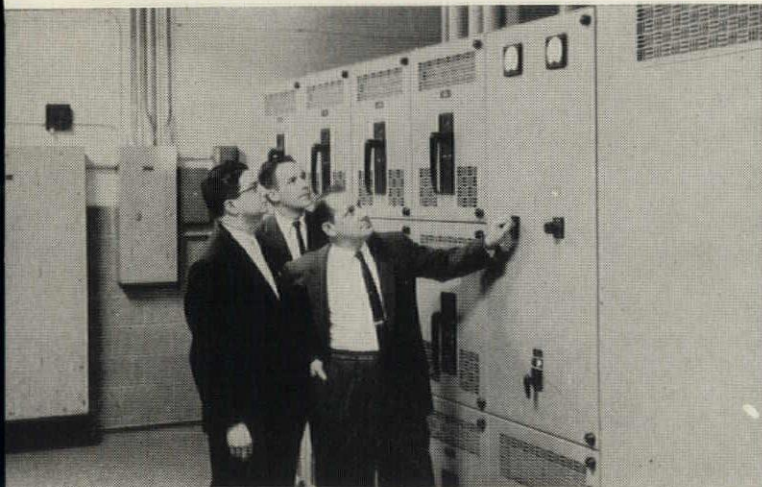
In addition to the electrical distribution system, Westinghouse outdoor lighting makes shopping safe and convenient. And shopper transportation throughout the building is rapid and convenient with Westinghouse elevators. (cont.)

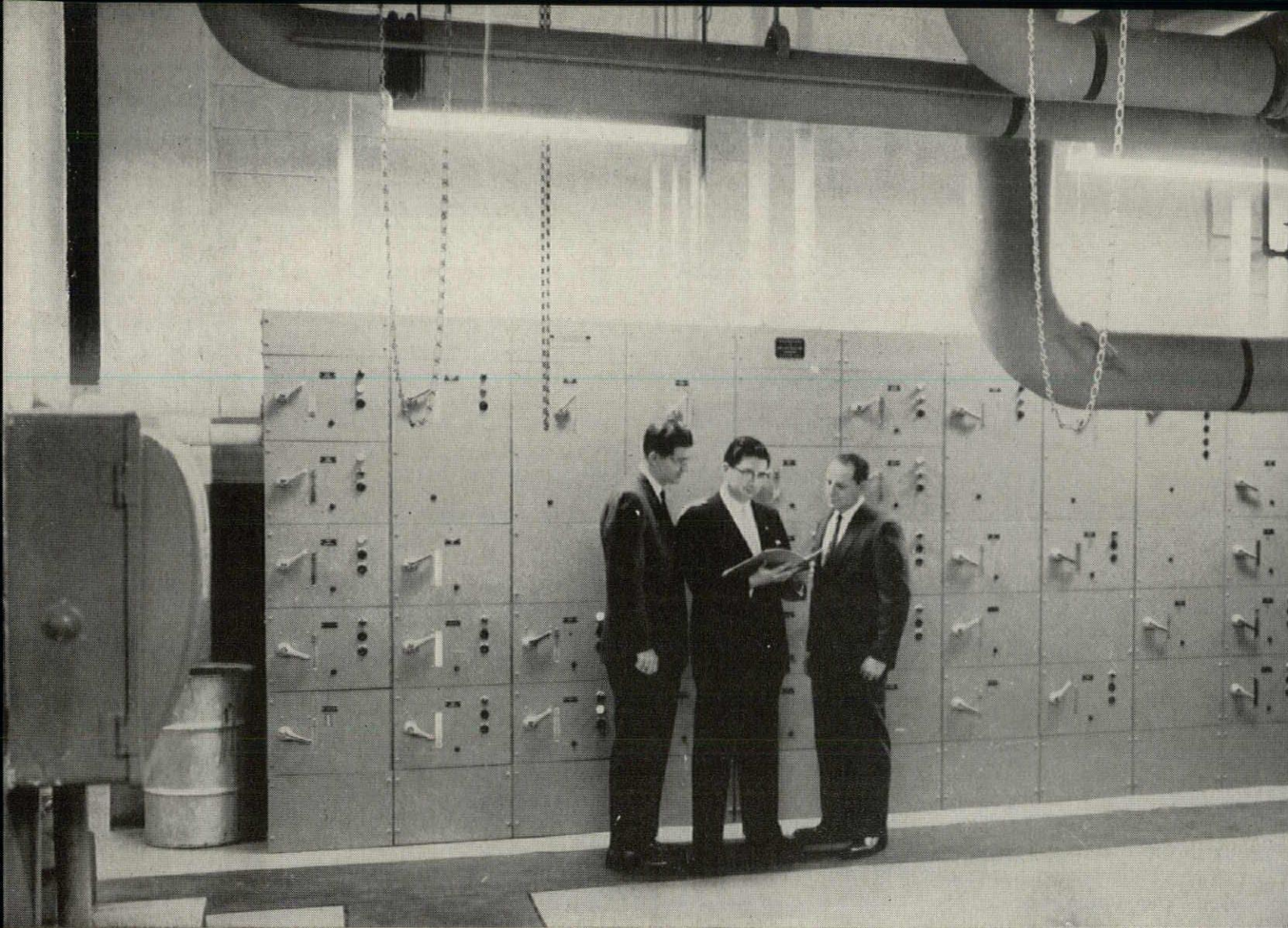
YOU CAN BE SURE...IF IT'S
Westinghouse

S Over 275 Pages Westinghouse Data in Sweet's Architectural File.

Leo J. Chak, The May Company Building Superintendent, and James Miller, Westinghouse Construction Sales Engineer, read current being used in low-voltage switchgear section as George Friedlander, Phillips Electric Co., Electrical Contractors, points out current being drawn is less than half that available in system. Power center has built-in capacity for expansion.

Earl T. Stratton, Westinghouse Product Specialist, George Friedlander and J. C. Kamuf, WESCO, discuss features of Westinghouse CDP convertible panelboard, which provides feeder protection and control of 480-v power in mechanical equipment room. Type NLAB lighting panelboard and Class 15-825 contactors at right of CDP panelboard are used for 120-v lighting.





New May Company store installs electrical system for present and future needs . . . now says "Watch Us Grow" (cont.)

The May Company slogan, "Watch Us Grow," had a definite influence on planning by the owner, the architect, the contractors and Westinghouse. The architect's use of the electrical system as a readily expandable design element enables the owner to double the electrical load on the system before it becomes necessary to add more power equipment.

A Westinghouse construction specialist can be of service in your planning. Call the Westinghouse sales office near you, or write: Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pa.

- OWNER: The May Company Department Stores, Inc.
- ARCHITECT-ENGINEER: Victor Gruen Associates, Detroit, Mich.
- ASSOCIATE ARCHITECT: Jack Alan Bialosky, Cleveland, Ohio
- GENERAL CONTRACTOR: The Sam W. Emerson Co., Cleveland, Ohio
- ELECTRICAL CONTRACTOR: The Phillips Electric Co., Cleveland, Ohio
- WESTINGHOUSE DISTRIBUTOR:
Westinghouse Electric Supply Co., Cleveland, Ohio

S Over 275 Pages Westinghouse Data in Sweet's Architectural File.

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

WATCH "WESTINGHOUSE LUCILLE BALL-DESI ARNAZ SHOWS" CBS TV FRIDAYS

J-94100-4

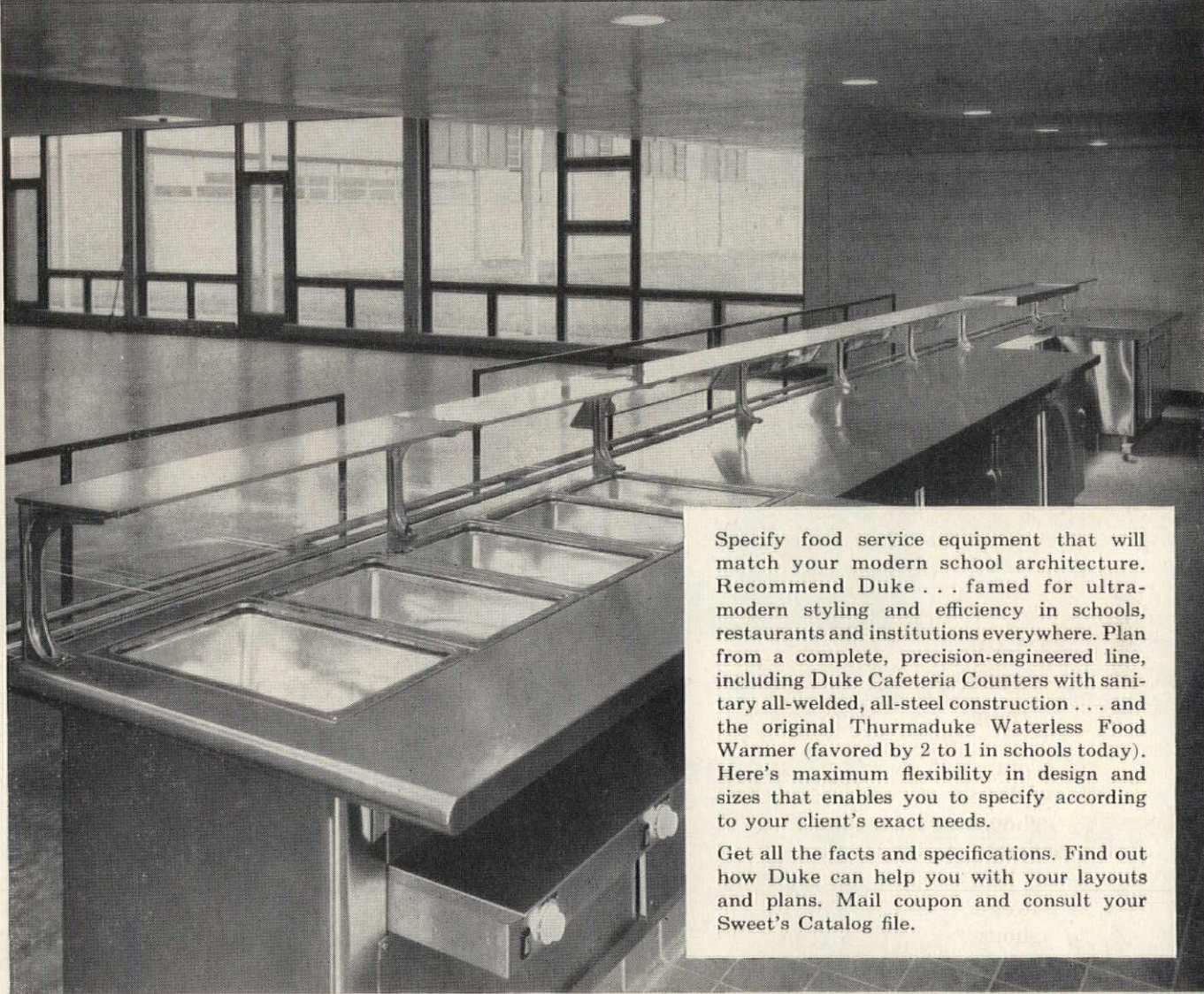
F. B. Burbank, Westinghouse Area Sales Manager, Leo J. Chak and George Friedlander are shown in front of Class 11-350 motor control center installed in mechanical equipment room. This compact Westinghouse unit centralizes all motor controls to save inspection time and reduce service problems.

Walter Mack, The May Company Maintenance Supervisor, and E. E. Croushore, Jr., Westinghouse Construction Sales Engineer, take reading from ammeter on Westinghouse indoor metal-clad switchgear. Two 50 DH 150 air circuit breakers are used as feeders for the two Westinghouse 2000-kva power centers located at top of building. Utility company metering section is in far left compartment.



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Food service equipment to match modern school architecture: **DUKE**



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Hellmuth, Obata & Kassabaum, Inc., Architects
Frank T. Hilliker and Associates, Food Service Consultants

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- Thurmaduke Waterless Food Warmers and Portable Food Warmers Service Tables
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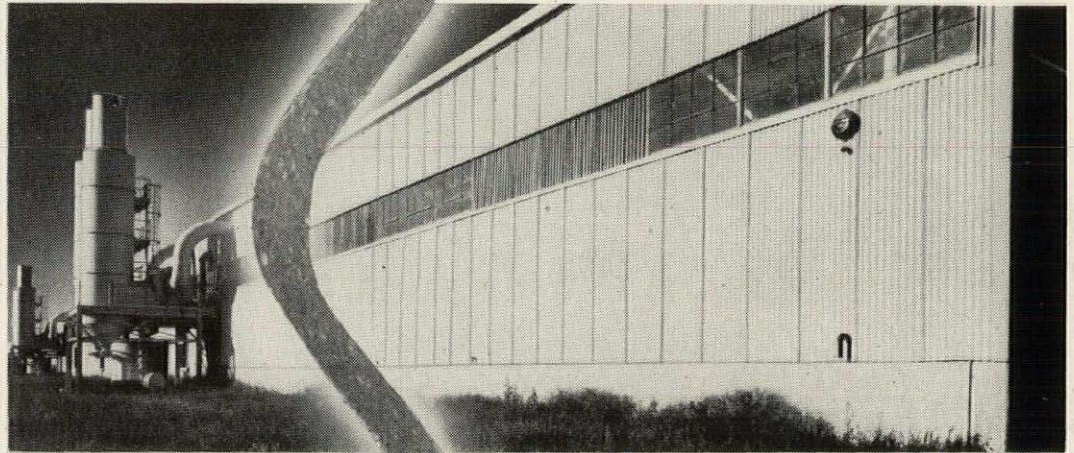
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Corrugated Transite sheets provide rugged service for industrial and commercial buildings.



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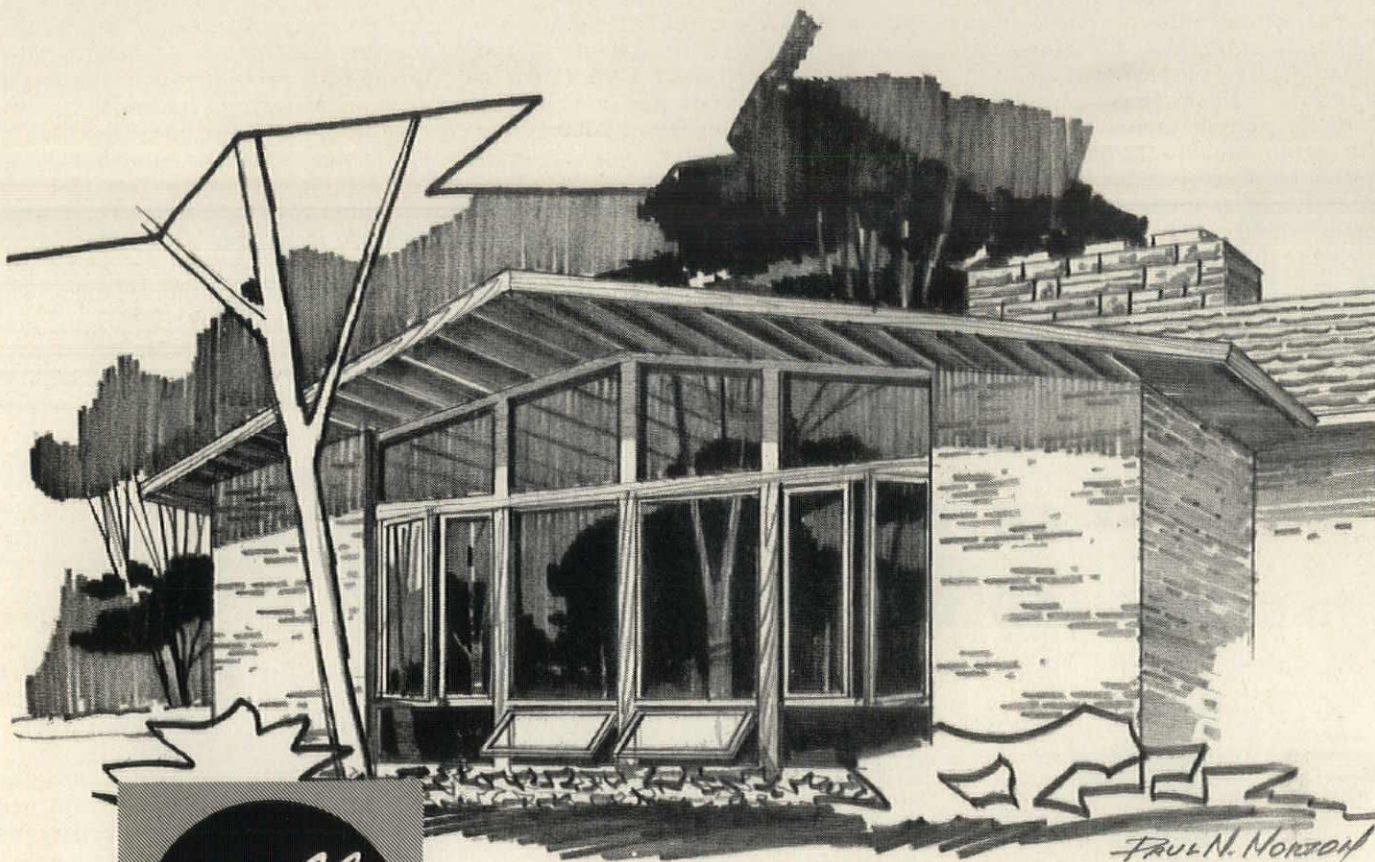
Johns-Manville Corrugated Transite sheets wear like stone. They are made of two virtually indestructible materials—*asbestos* and cement. Corrugated Transite can't burn, can't rot, can't rust—requires practically no maintenance.

Use it inside or outside—paint it a color or take advantage of its innate stone-gray attractiveness—use it with other materials for contrast or variation—use it alone to emphasize the light and shadow of the corrugations.

Sheets of Corrugated Transite are 42" wide (10 corrugations) in lengths up to 12'—cover big areas quickly with minimum framing. For full information on this versatile material, send for the free 32-page brochure, "Corrugated *Asbestos* Transite." Write to Johns-Manville, Box 158, New York 16, N. Y. In Canada, Port Credit, Ont.

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wood casements

implement dramatic fenestration

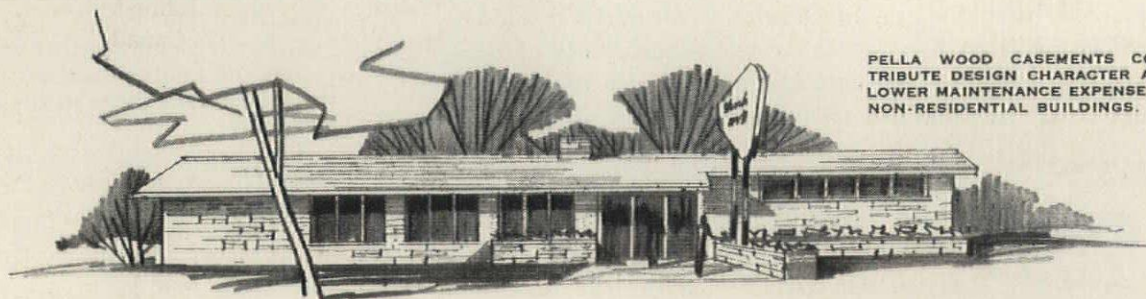
Here, PELLA WOOD CASEMENTS show their versatility by combining nicely with rectangular and trapezoidal fixed units . . . grouped over PELLA MP WINDOWS installed as awning-type ventilators.

For true flexibility in window planning, these quality wood casements are available in a wide range of sizes and pleasing proportions to help you achieve hundreds of attractive arrangements.

PELLA'S new glass height of 68" provides a new creative dimension for vertical themes in residential, commercial and municipal buildings.

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PELLA WOOD CASEMENTS CONTRIBUTE DESIGN CHARACTER AND LOWER MAINTENANCE EXPENSE TO NON-RESIDENTIAL BUILDINGS.

ials. However, fallout can deny the use of inanimate objects to man until they are decontaminated by removing the radioactive particles.

4. Crater—Such hard structures as underground installations are quite invulnerable to the other effects, but can be destroyed by the cratering effect of a surface burst. The damage would not be confined to just the crater dimensions, but would extend also into the rupture zone, a region having a diameter about twice the crater diameter. Almost no structure nor its occupants would survive

within this region. (The report carries a drawing to indicate cratering in dry soil. This gives a depth of 140 ft and a diameter of 1300 ft for a one-megaton burst, and a depth of 240 ft and a diameter of 2500 ft for a 10-megaton burst.)

Under problems related to a national system of survival measures, the subcommittee listed several factors, some of which follow:

—The need for a formal radiological defense system disappears at fallout levels less than a standard intensity of 100 roentgens per hr at one

hr. The protection afforded by existing buildings is generally adequate for this condition. (A shielding factor of 10 is provided in the basement of some two-story houses.)

—Most buildings offering a shielding factor of 100 or more are located in metropolitan centers and will be vulnerable to the effects of blast and fire if that area is a target.

—Very good protection can be provided by underground shelters. The best information available is for a particular design based on a 24- by 48-ft ammunition-storage magazine (quonset hut type) buried under three ft of earth.

—Such a shelter, developed by the U. S. Naval Radiological Defense Laboratory and tested in cooperation with the Atomic Energy Commission, provides for 100 people at an estimated cost of \$100 to \$125 per person sheltered. It provides a shielding factor for radiation of 1000 or more, and protection against blast at a level of 10 lb per sq in. Protection against mass fires can also be provided.

—The shelter can be designed for a protection against a blast pressure of 35 lb per sq in. Availability of such protection under conditions of the subcommittee's hypothetical attack could reduce the fatalities from approximately 25 per cent of the U. S. population to about three per cent. (All of these would result from immediate blast effects, no deaths from either thermal or nuclear radiation anticipated under these conditions.)

—Cost of providing protection for 200 million people at the levels prescribed by the higher performance defense system was estimated as between \$5 billion and \$20 billion, depending on use of existing facilities. The cost is almost entirely in the shelter phase.

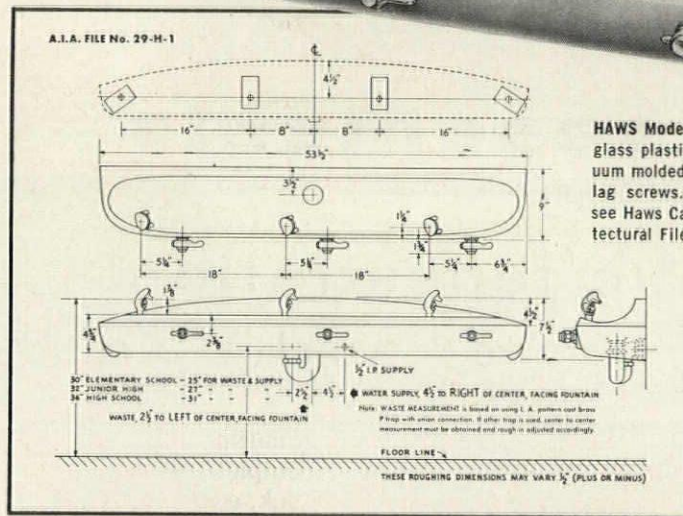
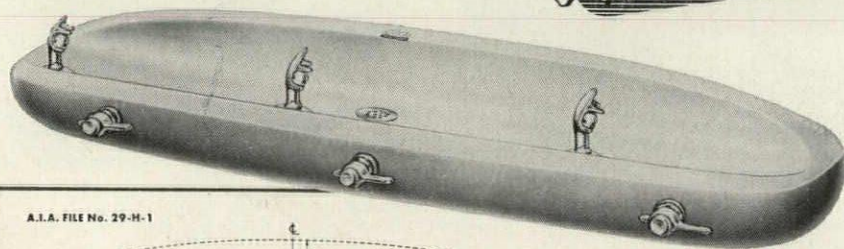
New data on group type shelters discloses:

1. On the first floor of a two-story wood building, the radiation was estimated to average about one-half of that outside. On the first floor of a brick building, it was one-seventh.
2. Closing openings in basements with bricks or sandbags will reduce the radiation in the basement by a significant amount.
3. Radiation dose rates inside fireplaces and behind masonry chimneys are lower than those in the center of the room.
4. A heavy table covered with 7.5 in. of concrete block and placed in the corner of a basement will reduce the radiation dose rate by a factor of 200 to 1000 over that observed on the ground outside the structure.

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in choice of **COLORS**

HAWS

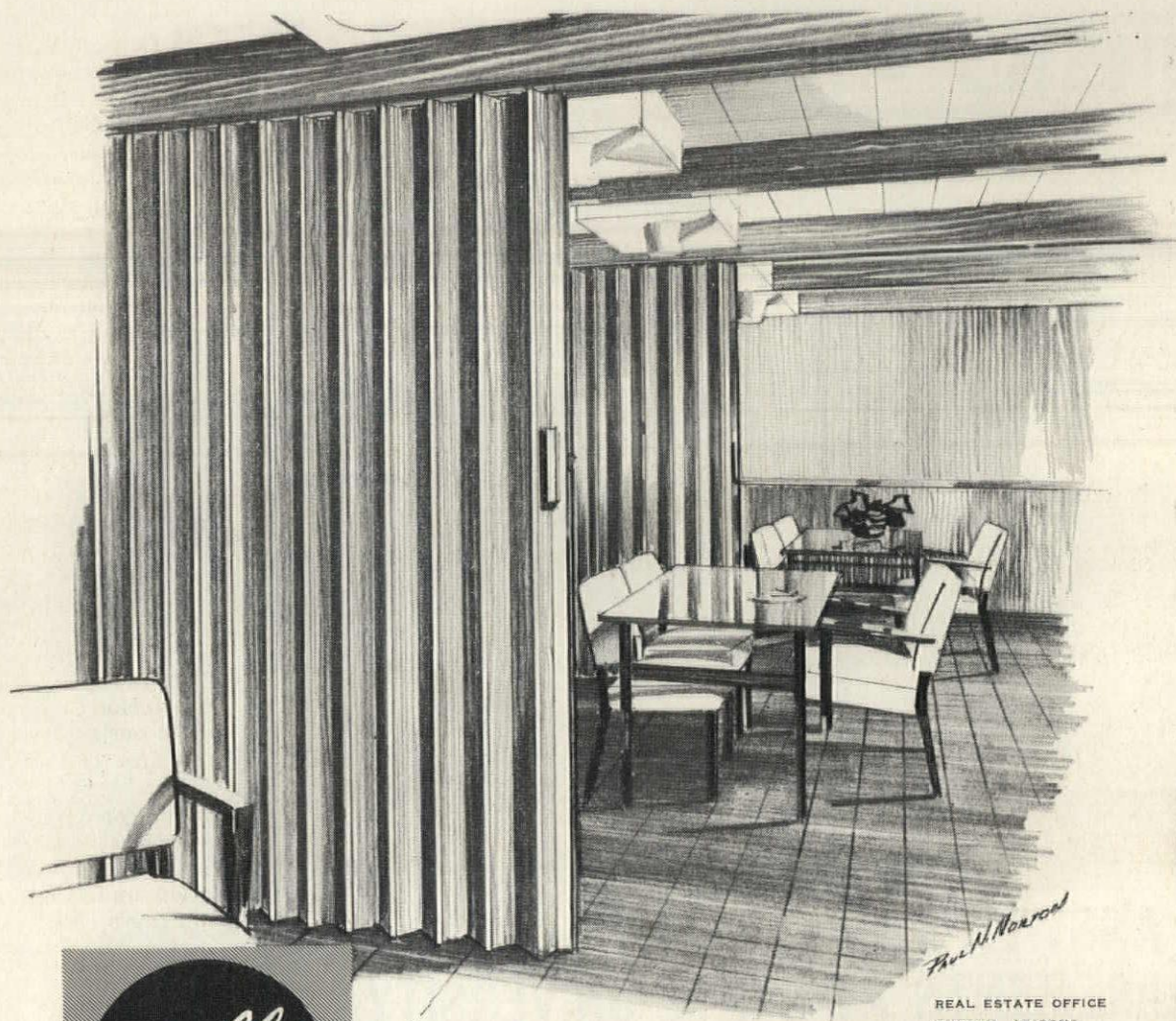


HAWS Model 10Y: reinforced fiberglass plastic, heat laminated, vacuum molded. Concealed hanger and lag screws. For complete details see Haws Catalog in Sweet's Architectural File.

In fiberglass, in color . . . and a design as fresh as the latest architectural trends! HAWS Model 10Y brings welcome beauty and color appeal to school and institutional environments. It's vacuum molded in tough, lightweight, acid resisting fiberglass—with smooth lines and 100% concealed trim. HAWS vandal proof, shielded bubblers are anti-squirt, with HAWS Flow Controls. Choose from five decorator colors and white at no extra cost! Write for the complete specs on Model 10Y (and also Model 10X, the same fine design in enameled iron).

See HAWS Catalog in Sweets Architectural File for data on the entire Haws line.

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TUCSON, ARIZONA
ARCHITECT: NICK SAKELLAR



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PELLA'S solid wood "Lamicor" construction and close-fitting panels provide an efficient space divider for conference areas or class and dining rooms. Patented "Live Action" steel spring hinging makes even the largest units effortless to operate, with the doors folding very compactly for storage. Available in any width and in heights

up to 12'1", PELLA WOOD FOLDING DOORS arrive factory assembled, complete with all hardware necessary for quick, economical installation.

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6 Fine Wood Veneers



AMERICAN WALNUT
PHILIPPINE MAHOGANY
WHITE ASH
BIRCH
OAK
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NEO-RAY LOUVRED CEILINGS



Shown above is NEO-RAY CU-3636 unbroken louvred ceiling pattern

THE ANSWER TO ALL* LIGHTING REQUIREMENTS AT STATE UNIVERSITY

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Wayne State University
Detroit, Michigan

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SUREN PILAFIAN
Detroit, Michigan

Engineers:
HYDE & BOBBIO
Detroit, Michigan

* Dear Sir:

We used the Neo-Ray ceiling at the Wayne State University Auditorium Lobby because it provided an overall lighting effect that would be easy to maintain and that would have a sparkling effect not found in more diffusing types of luminous ceilings. Also we wanted an unbroken distribution in the visual pattern of louvers, which this type provided.

Yours truly,

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Sweet's Architectural File Sec. $\frac{32a}{NE}$

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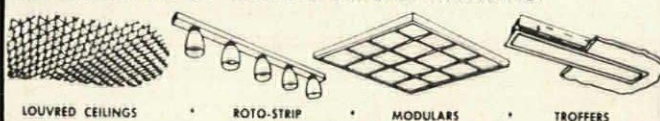
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- ... Sweet's Architectural File for 1959
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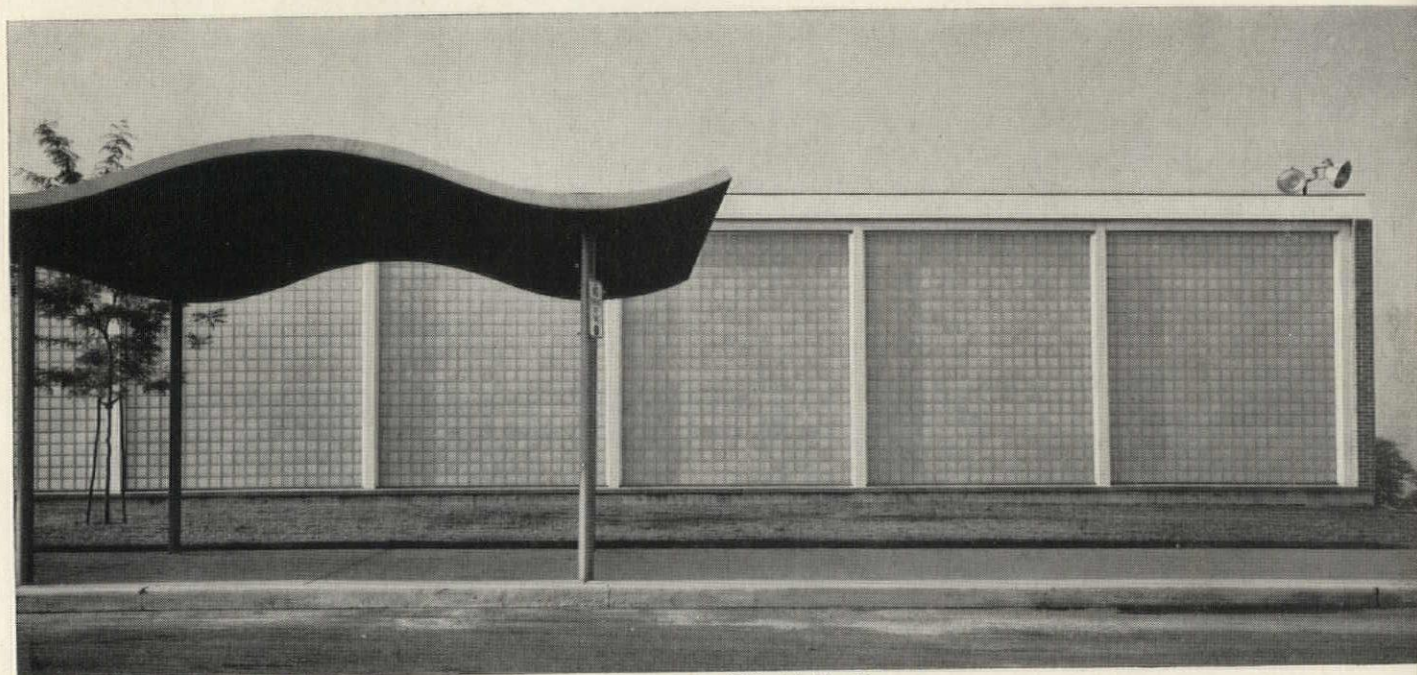
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See why
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make the things you build
cost less, last longer, look better

example:



Jewish Community Center, Camden, N.J. Architect: Vincent G. Kling, A.I.A., Philadelphia, Pa.

PC Glass Blocks to provide maximum diffused daylight inside while preserving privacy at this community center.

Architect Vincent G. Kling found that PC Glass Blocks provided a four-way answer to an important design problem at the Jewish Community Center, Camden, N.J. The floor of the Center's gymnasium is set below grade with one outer wall facing the entrance drive and highway. Good design called for a material able to admit as much softly diffused daylight as possible without sacrificing privacy . . . and without breaking up the broad planes of the elevation. Because of the location, it was also desirable to have a material rugged enough to withstand substantial abuse. The wall of PC Glass Blocks pictured above met the architect's design need on all counts.

Here you see an excellent example of PC Glass Blocks used with authority to insure that the material serves the design. This preservation of the architect's authority over design is inherent throughout the full line of PC Glass Blocks: in the sweeping variety of functional and decorative patterns; in the new 4 x 12 block; and in the broad spectrum of architecturally oriented face colors available. *(Continued)*

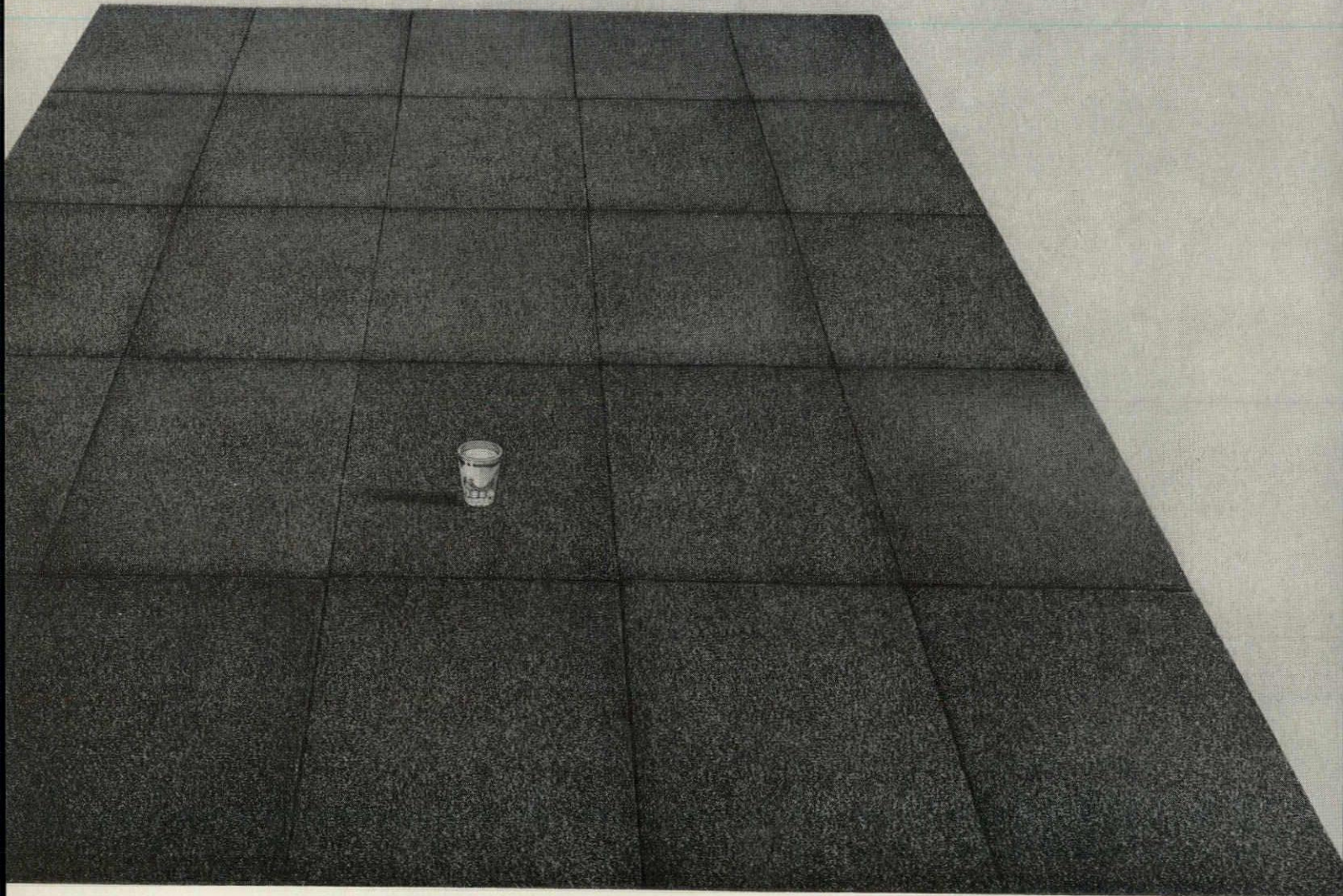
P I T T S B U R G H



C O R N I N G

example:

An ounce of water



Most thermal insulations absorb literally gallons of water in a surprisingly short time. FOAMGLAS insulation doesn't. What's that do to insulating value? Think back to a time when you were caught on a bitter cold day with your feet freezing in wet socks. Your socks should have served as insulators. But they were wet and couldn't insulate. An absorbent insulation soon reaches the point where it's no more effective than your wet socks.

And remember: most materials claiming to be waterproof do absorb airborne water vapor. When that vapor condenses inside the material, insulating value goes out the window.

P I T T S B U R G H

or 100 gallons . . . the difference shows why
FOAMGLAS® insulation guarantees constant k-factor and nothing else can



FOAMGLAS, on the other hand, is 20,000 times less permeable than the next most effective insulation. Thus, in the time it would take a given amount of FOAMGLAS to pick up an ounce of condensed water vapor, an identical quantity of any other insulation would pick up over 100 gallons. This contrast demonstrates why FOAMGLAS maintains its original effectiveness long after other materials have become too wet to insulate.

This illustrates why it is so important for you to compare all insulating materials. High Voltage Engineering did and selected FOAMGLAS. See why on the next page.

(Continued)

pc CORNING

example:

FOAMGLAS Roof Insulation . . . comparison tested to prove its superiority for this High Voltage Engineering Corp. roof.

Time and again, when insulations are carefully compared, FOAMGLAS gets the nod. High Voltage Engineering Corp. made a point by point comparison of roof insulations . . . and they picked FOAMGLAS for the roof of their new \$1½-million plant at Burlington, Mass.

They found no other roof insulation could deliver as valuable a combination of benefits as FOAMGLAS. The combination? First, moisture resistance. As pointed out on the preceding page, FOAMGLAS stays dry, thus insuring constant insulating efficiency. And strength. The average ultimate compressive strength of FOAMGLAS is over 7 tons per sq. ft., so it forms a remarkably solid base for built up roofing. Easy to cut and fit, it slashes roof installation time and money. It's light in weight and it can't burn.

And High Voltage Engineering found that the dependability of FOAMGLAS promised to cut their heating costs by some \$8,500 a year *every year*. Why not make your own comparisons?

(To be continued)



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| <input type="checkbox"/> FOAMGLAS Insulation for Piping and Equipment | <input type="checkbox"/> PC Color Glass Blocks |
| <input type="checkbox"/> FOAMGLAS STAY-DRY Pipe Insulation | <input type="checkbox"/> FOAMSIL®, the Acid-Proof Insulating Refractory |

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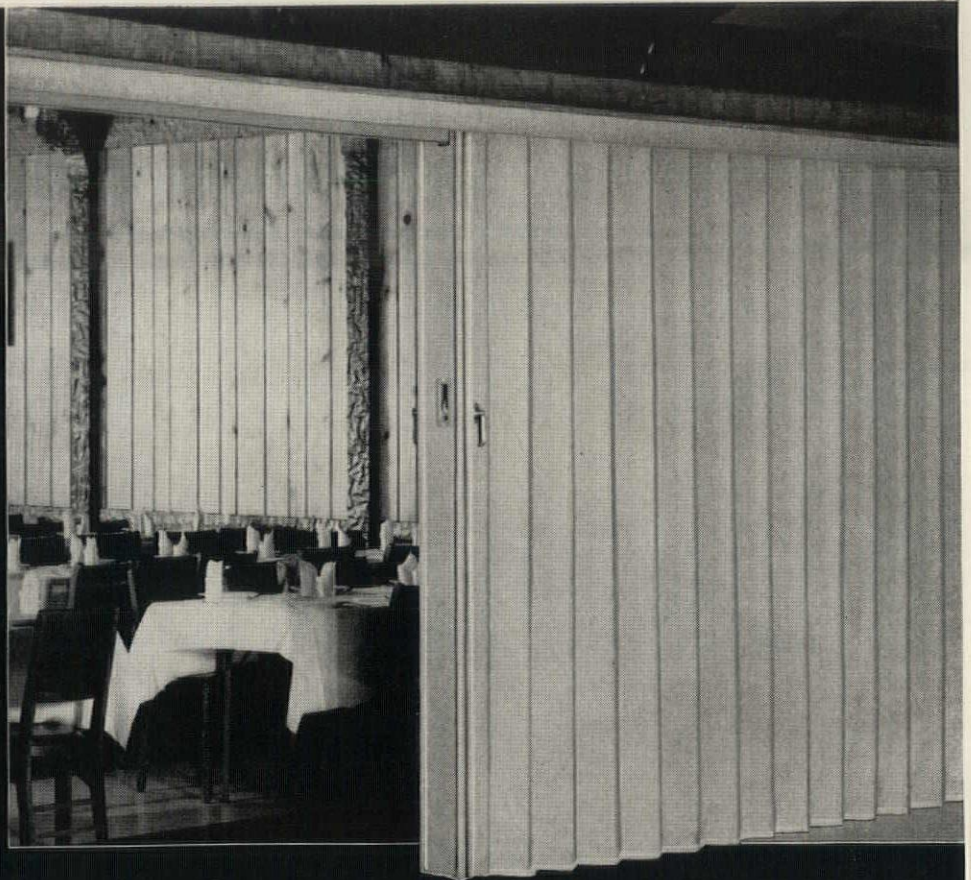


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WHEN YOU
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SPACE**

*with
new dual*

sound-retardant Foldoor partition



Robin Hood Inn, Clifton, New Jersey

**LOOK AT THE ADVANTAGES
ONLY THE NEW SOUND-
RETARDANT FOLDOOR OFFERS**

Equivalent in sound reduction to the following types of construction materials:



3 inch Solid Wood Door with Cracks Sealed



2 inch Solid Gypsum Tile Wall with 1/2" Plaster



3 inch Solid Gypsum Tile Wall



Wood Stud Wall with Metal Lath and Gypsum Plaster

- Minimum space requirements
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- All meeting points tightly sealed
- Installed weight is approximately 5.25 pounds per square foot, about half of which is represented by the four dense layers of complementary insulation.

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It's easy to see why new Dual Sound-Retardant Foldoor Partition is already being specified for so many multi-use facilities. This important Foldoor product offers all the versatile convenience and beauty of the fabric-covered folding door—combined with the practicality of a general purpose, maximum sound-retardant partition.

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SEND FOR FULL INFORMATION . . . or phone your nearest FOLDOOR distributor now.



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Relief for FHA

In summary, the new housing law, PL 86-372, "bails out" the FHA in extending its authorizations for home loan insurance. The agency was reaching the bottom of its resources, running on agreements to insure rather than firm contracts. These agreements had piled up a "promise to insure" in excess of \$5 billion altogether.

The home repair and improvement loan insurance program (Title I of the FHA) is extended until October 1, 1960.

FHA sales housing mortgage insurance—the ceiling permitted—was boosted on single-family units from \$20,000 to \$22,500, and on two-family units to \$25,000. The new down-payment schedule on FHA Section 203 sales housing is this—up to \$13,500, three per cent; \$13,500 to \$18,000, 10 per cent; over \$18,000, 30 per cent. The same applies to Section 220 urban renewal housing, and is a decrease in down-payments for houses valued at over \$13,500.

Under the new law, FHA now can accept Veterans Administration con-

struction inspections as a basis for application of full loan-to-value ratios.

A total of 37,000 units of new public housing are authorized, against the President's wishes, along with a directive pointing toward more local autonomy.

New Program: Nursing Homes

FHA is dealing with an entirely new program in insuring mortgages on privately-owned nursing homes. It works this way—the property can be a new or rehabilitated home. The insurable mortgage cannot exceed \$12.5 million or 75 per cent of the estimated value of the property. The maximum interest rate on the mortgage is five per cent, or six per cent if found necessary to meet the mortgage market.

The Federal Housing Commissioner cannot insure any mortgage under this nursing home program unless he has received from the state agency, designated under Title VI of the Public Health Service Act, a certification that there is a need for the nursing home and that there are in force in the state or the political subdivision of the state in which the home is to be located, reasonable minimum standards for licensing and operating nursing homes.

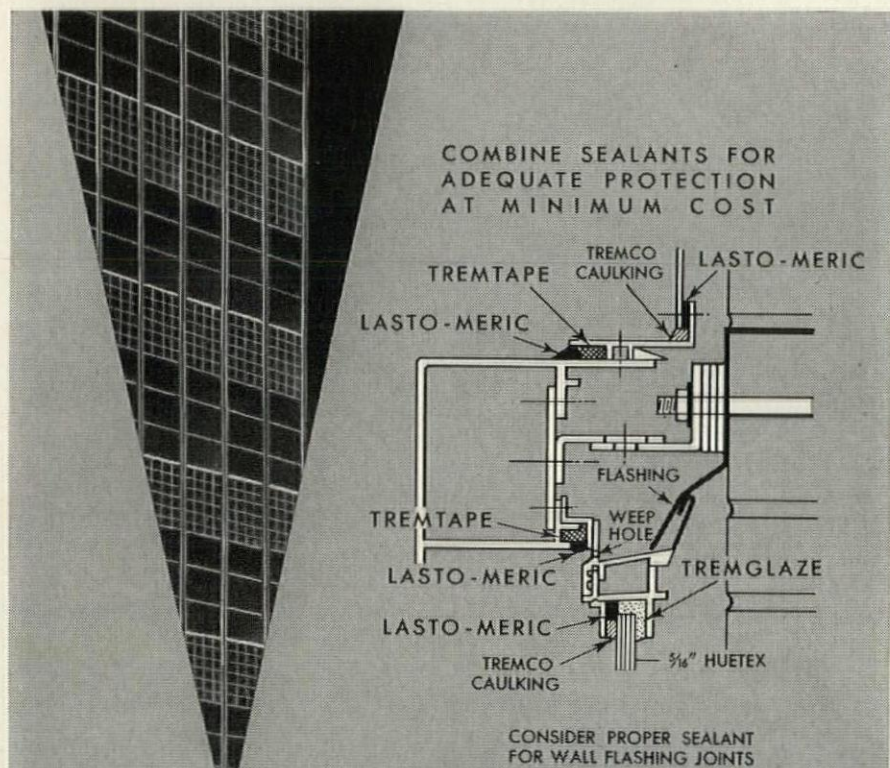
Elderly Coverage Broadened

Another new FHA operation entails mortgage insurance for both nonprofit and profit-making rental housing for the elderly. This is Section 231. The nonprofit rental housing for elderly provisions of the Act were repealed.

Under the new law property eligible for mortgage insurance is that of eight or more new or rehabilitated living units, not less than half of which are specially designed for the occupancy of elderly persons. The property can include such commercial and special facilities as the Commissioner considers adequate to serve the occupants. Elderly persons are defined as those 62 or over.

Such insurable mortgages cannot exceed \$12.5 million, except that where the mortgagor is a public instrumentality or a nonprofit group subject to certain governmental controls, the mortgage can be up to \$50 million. There is a per-unit ceiling of \$9000 for garden-type apartments, and \$9400 for elevator-type apartments; and these can be increased by \$1250 per room in high-cost areas. In the case of public or private nonprofit sponsors, the mortgage can run up to 100 per cent of the estimated replacement cost; in the case of pro-

continued on page 358



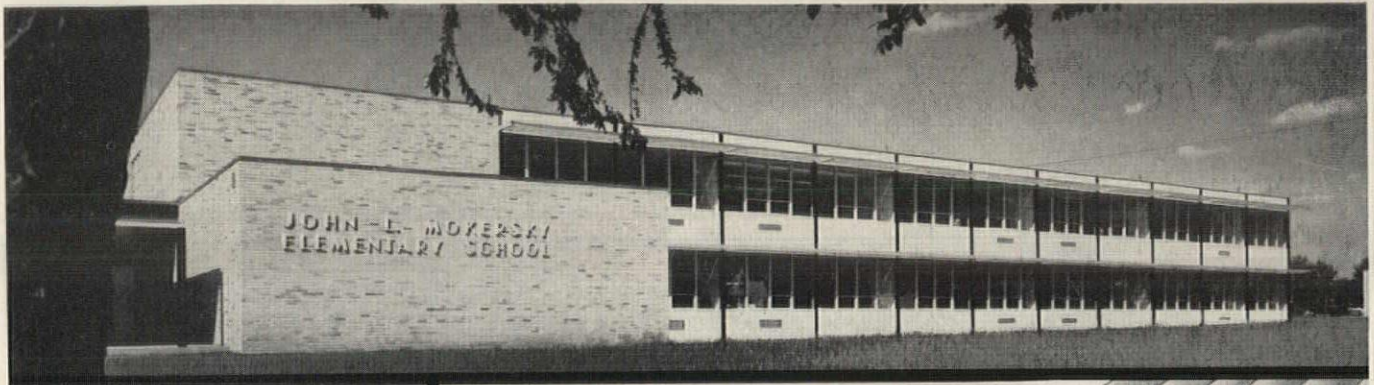
prevent leaks in curtain walls

New glazing and sealing techniques and products developed by Tremco research can insure leak-free curtain wall installations. Such techniques are described in the new publication "SEALANTS AND COMPOUNDS" which includes latest information, current specifications and detailed diagrams for glazing and sealing curtain wall construction. Ask your Tremco Man for a copy, or write: The Tremco Manufacturing Company, Cleveland 4, Ohio, or The Tremco Manufacturing Company, (Canada) Limited, Leaside, Toronto, Ontario.

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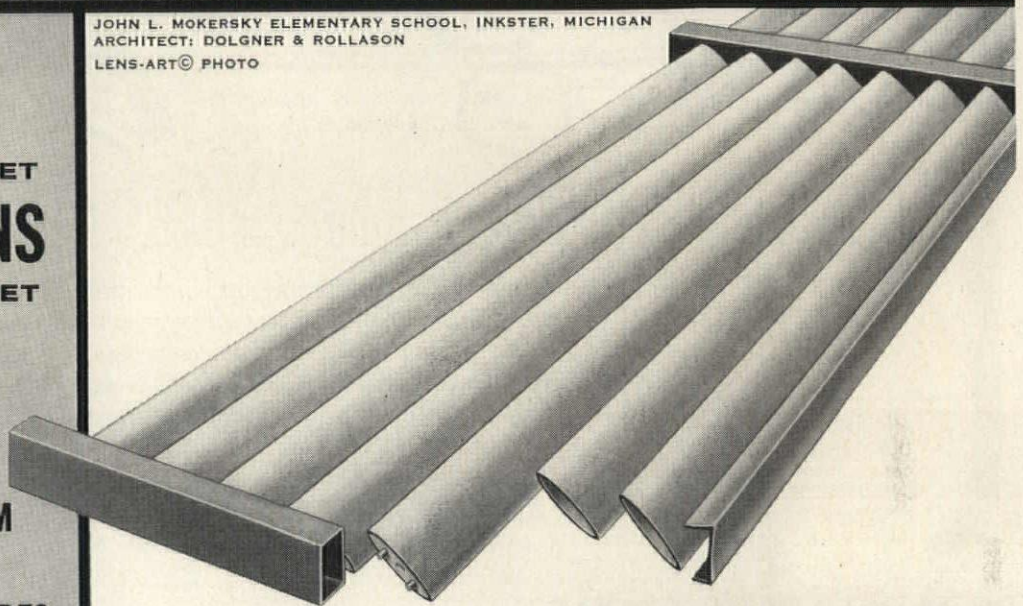
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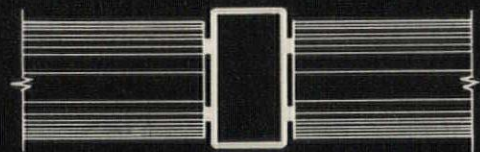
C-S Airfoil samples are available for inspection.

The C-S Airfoil Cantilever, specifically developed to span great distances between anchorages, gives the architect the freedom of an unusually broad, uninterrupted line for his solar shading designs. Spans to 20 feet can be made without intermediate support and with no visible deflection in airfoils under standard live loads. A range of airfoil sizes and fascia is available so that the architect may adjust the module of the sunshade to his building. The cost of C-S Airfoil Cantilever installations is in the same range as that of our standard cantilever, which has proved so popular and economical in recent years.

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The airfoil shape makes a highly efficient sunshade which adds beauty to the building. Seamless, extruded aluminum airfoil blades are available in a wide variety of finishes, including etch and lacquer, anodize, vinyl color coatings and porcelain enamel.

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Outriggers are heavy duty structural tubes capable of cantilevering up to 7 feet. Internal, concealed anchorages secure outriggers to the building structure.



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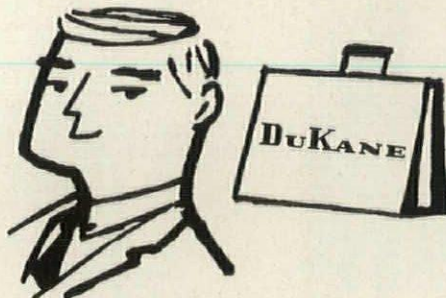
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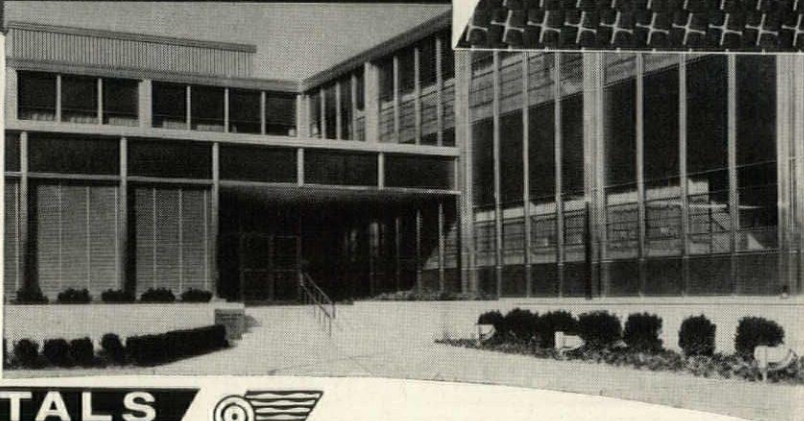
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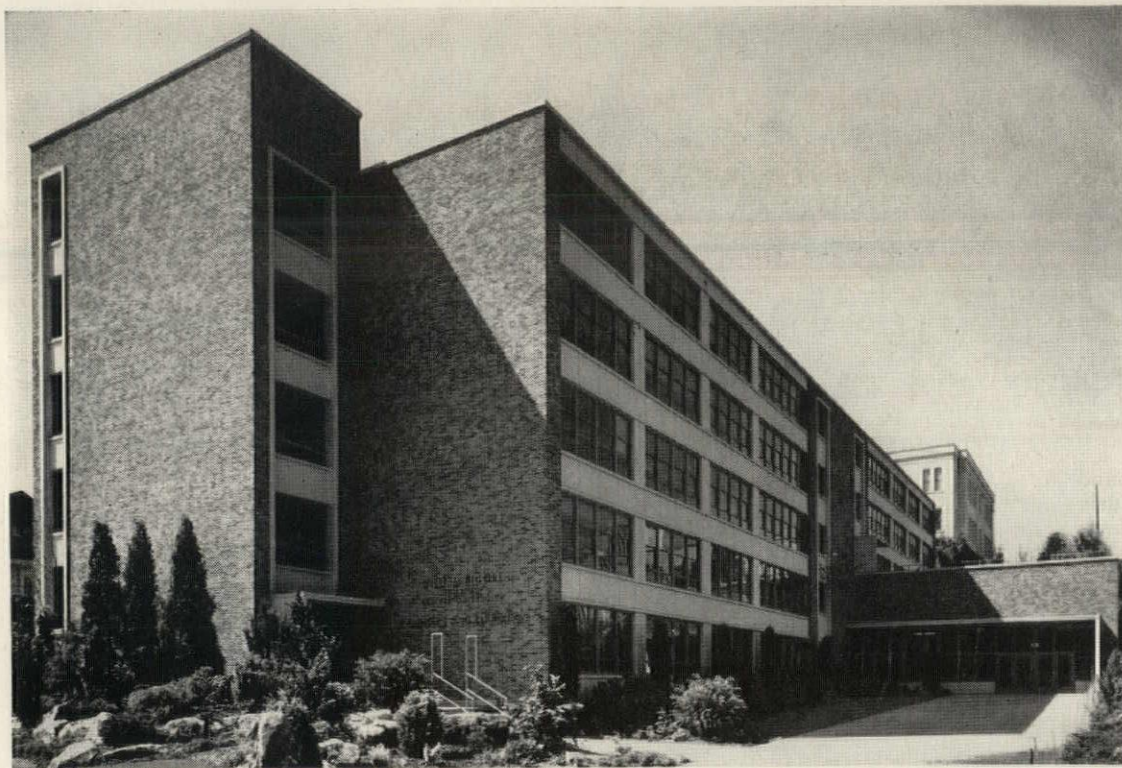


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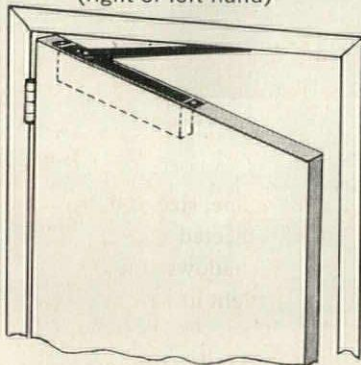
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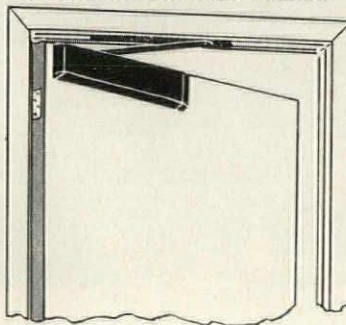


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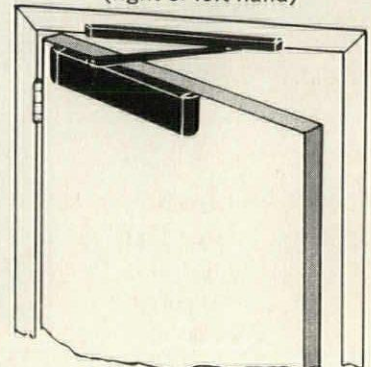
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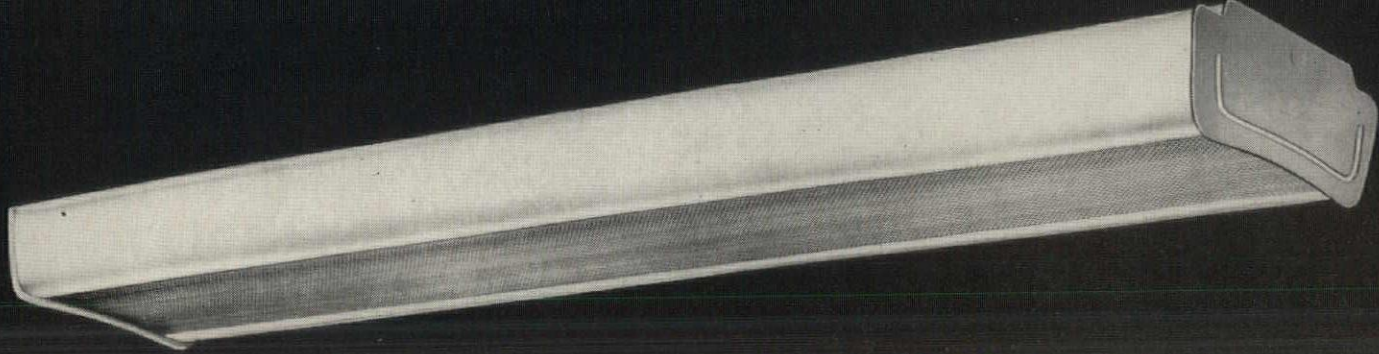
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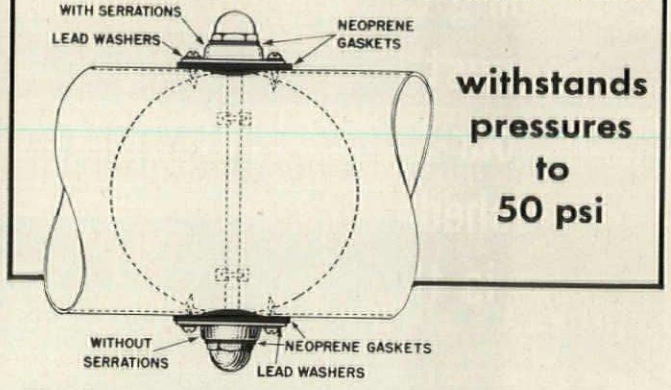
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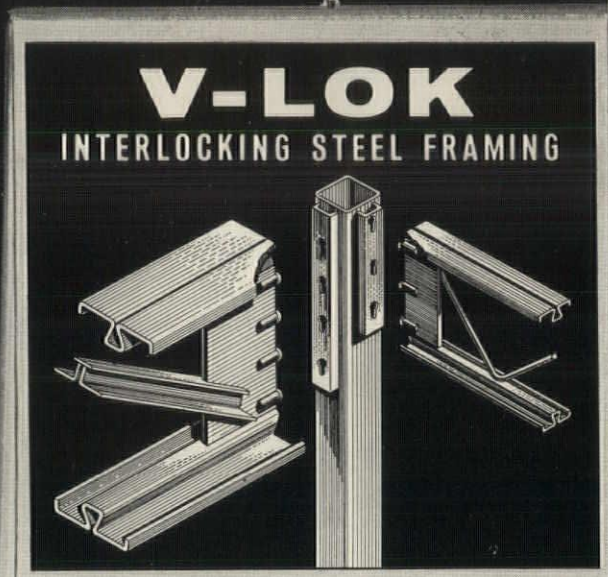
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fit-motivated mortgagors, the percentage is 90.

The maximum interest rate on these mortgages is five per cent, or 5½ per cent if necessary to meet the mortgage market.

What Urban Renewal Gets

In the urban renewal field, the authorization for capital grant contracts and other grants for assistance is increased by \$350 million immediately and by another \$300 million on July 1, 1960. The amount of the grant available for nonresiden-

tial redevelopment is increased from 10 to 20 per cent, applicable to the new authorization only.

FHA Ups Rates

As soon as President Eisenhower signed the housing bill into law, FHA announced an increase in the administrative ceiling on interest rates for insured mortgages on all one- to four-family home programs. This went from 5¼ to 5¾ per cent. The ceilings on rental project mortgages and cooperative housing projects also were boosted—to 5¼ per cent.

Commissioner Julian H. Zimmerman said the money market conditions had made these alterations necessary in order that the home-buying public can be more effectively served in the purchase of housing.

FHA felt that discounts paid for FHA mortgages had become excessive and said it was hoped the new interest ceilings would eliminate discounts in normal secondary market transactions. Average discounts had reached 4.2 points.

The agency can boost the ceiling to six per cent without further authority from Congress.

In conclusion, Commissioner Zimmerman said, "FHA has been legislatively authorized by Congress to meet the demands of the home buyer and housing industry at all times and because FHA insured mortgages must remain competitive in today's market, we are realistic enough to take the necessary steps to meet this need."

Criteria for Fallout Shelters In U.S. Buildings Outlined

A new advisory bulletin from the Office of Civil and Defense Mobilization encourages state and local governments, industry, business, and institutions to apply to their own construction programs the policies and criteria governing the incorporation of fallout shelter in future Federal buildings.

This bulletin also outlines the latest OCDM criteria for these fallout shelter areas in the Federal government's structures. Twelve specific requirements are set down as "architectural" in nature and follow an explanation that shelters of this type shall provide at least 10 sq ft of net floor area and 65 cu ft of net volume per occupant. On top of these net allowances, space shall be provided for fixed equipment; sanitary facilities; storage of bunks, food, medical supplies, etc.; and service areas.

Architectural Criteria Listed

The following, said OCDM, shall be provided as "architectural" requirements:

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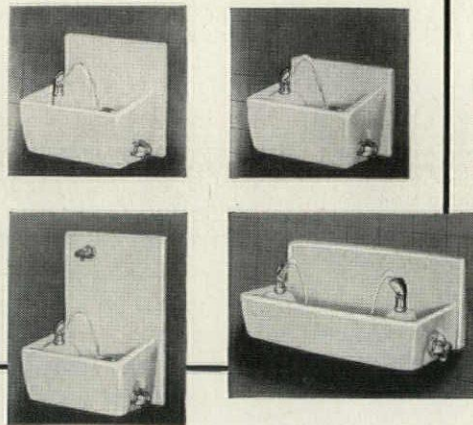
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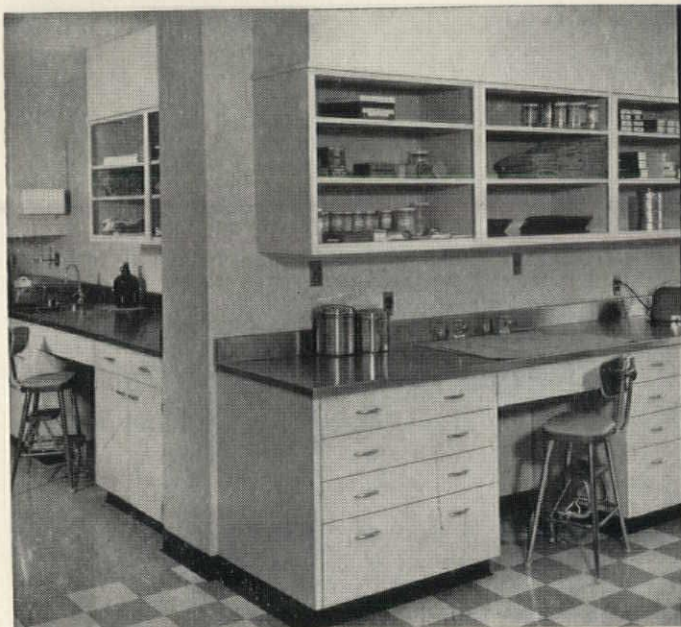
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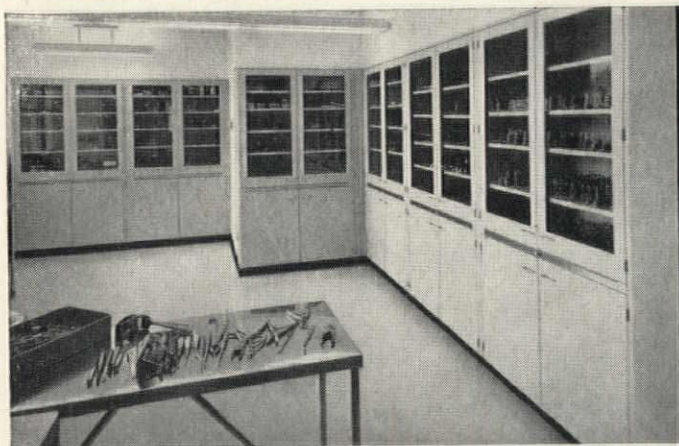
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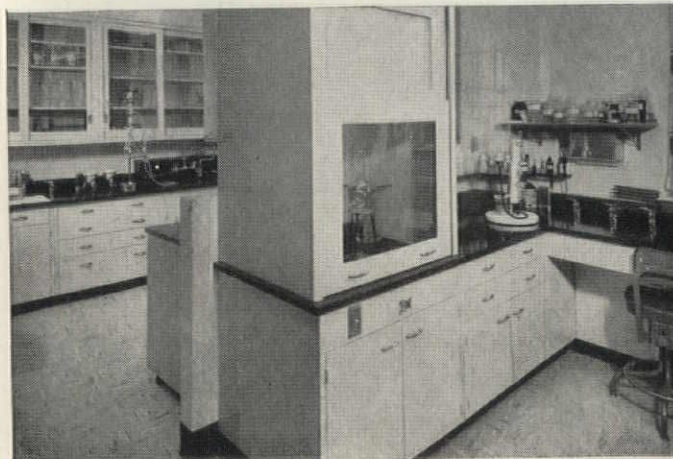
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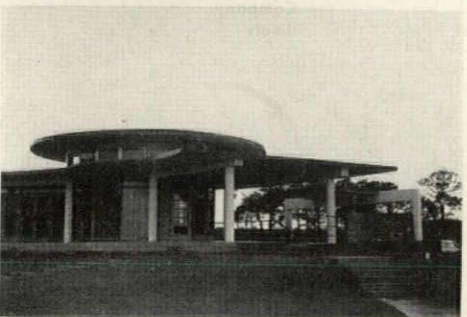
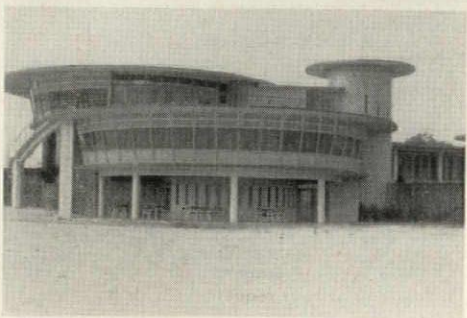
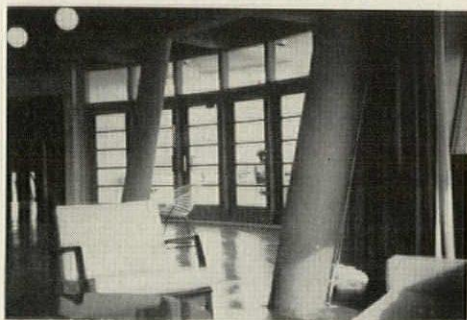


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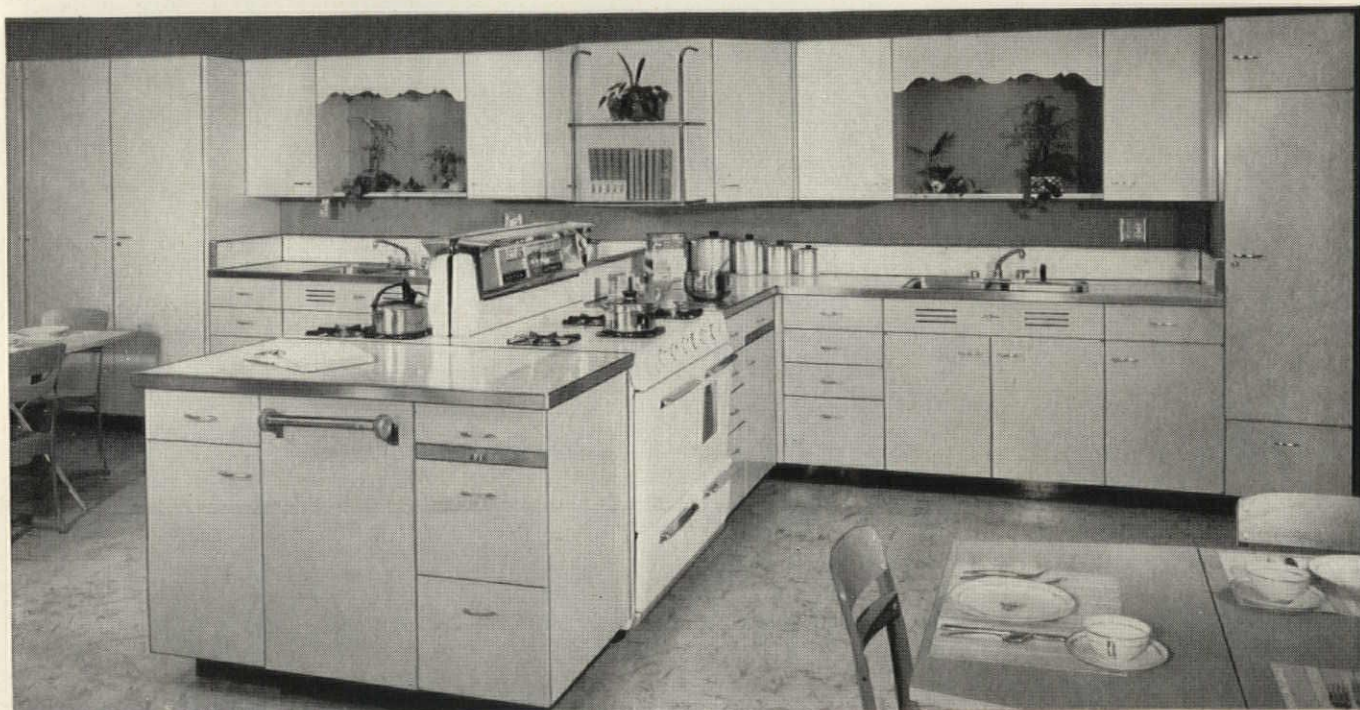
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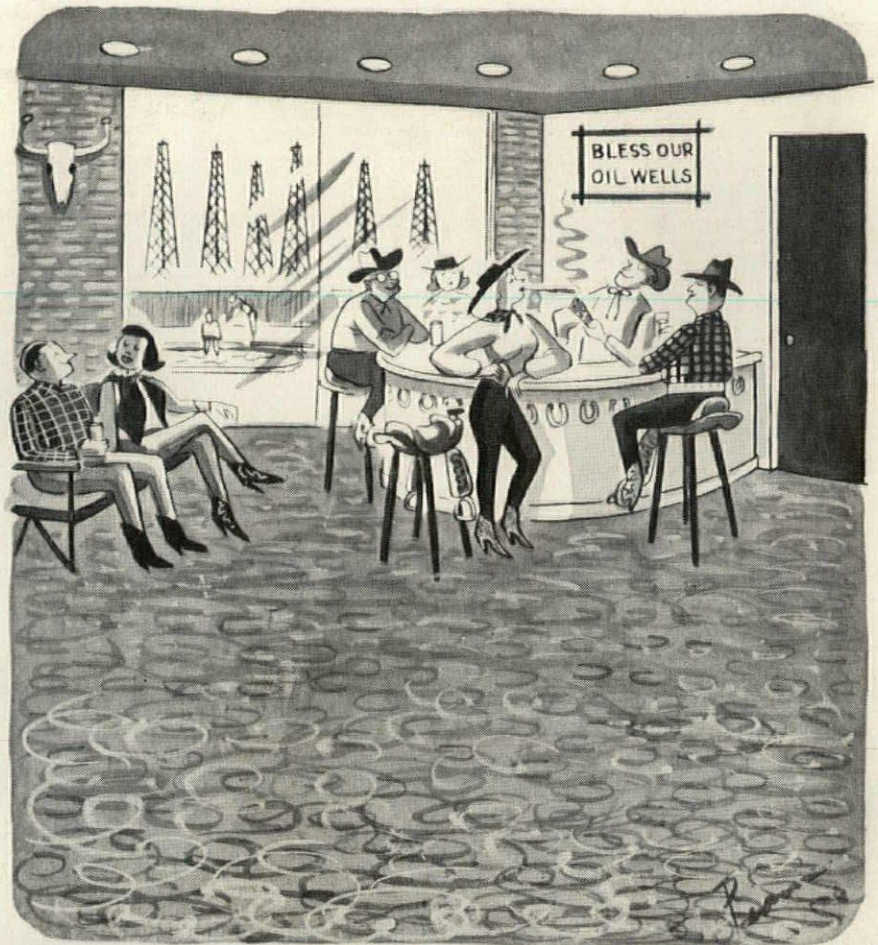
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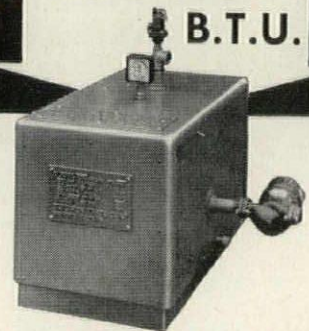
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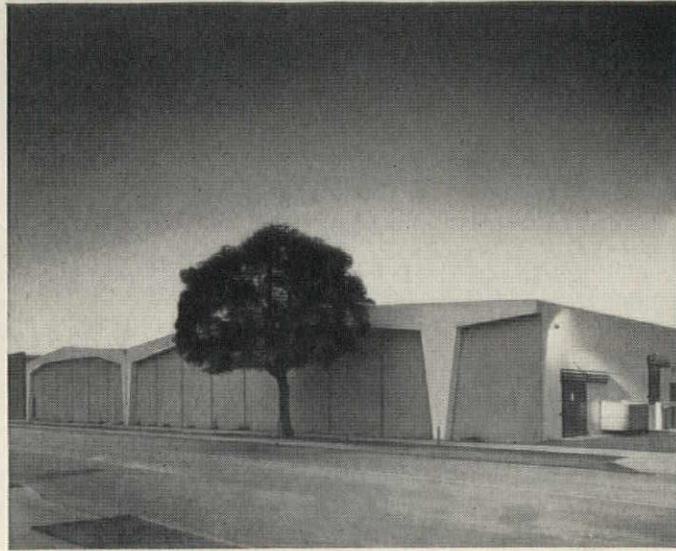
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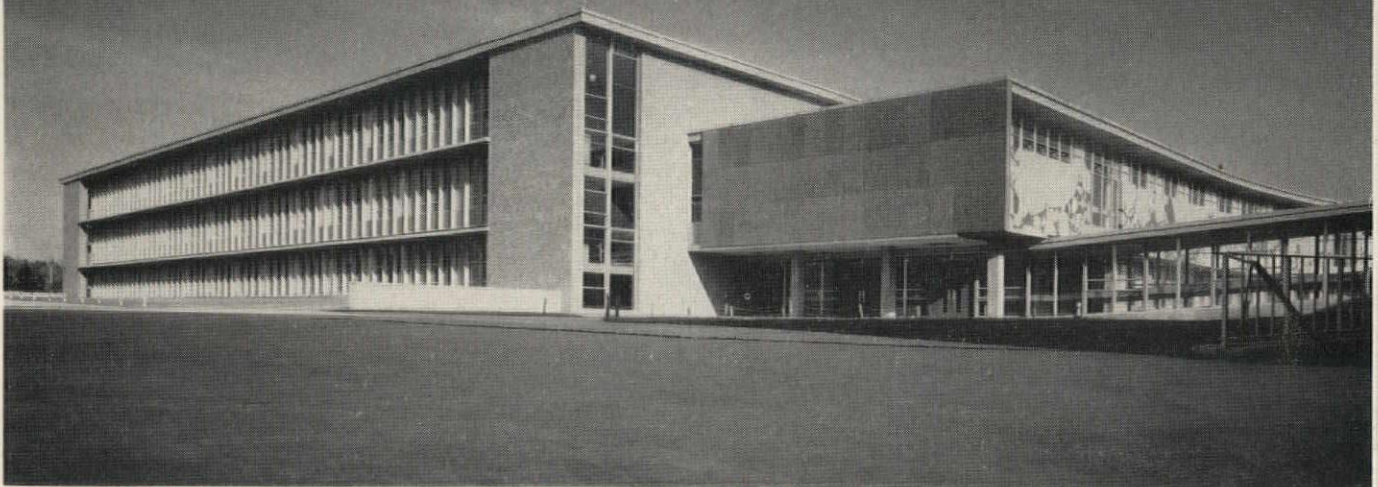
Write today for complete catalog
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Established 1832

No fire catastrophe here...it's

Reinforced CONCRETE



Proviso West High School, Hillside, Illinois
Architects and Engineers: Perkins & Will, Chicago, Illinois
General Contractor: Manan Company, Oak Park, Illinois

In every type of school building, fire protection is a major consideration. To protect our Nation's children against fire and tornado, reinforced concrete is being used extensively.

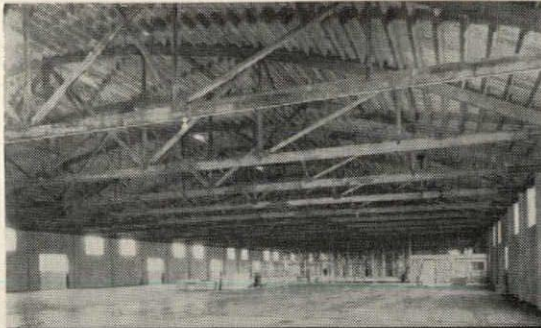
In the beautiful new Proviso West High School, it was specified as the *lowest*

cost fire-resistant method of construction available.

Before you build any type of building, compare the superior fireproofing qualities of reinforced concrete as well as its inherent design flexibility and greater construction economies.

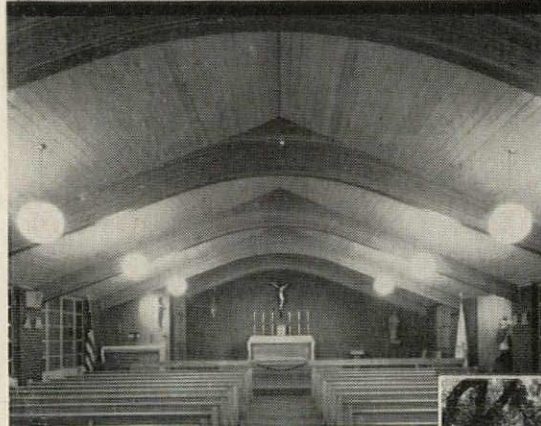
Concrete Reinforcing Steel Institute
38 South Dearborn Street, Chicago 3, Illinois





▲ Bass & Company, Inc.
Warehouse in Nashville, Tenn.
Trusses erected for 30c per sq.
ft. Contractor: J. E. Crain & Son
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■ St. Joseph's Catholic Church —
Yates Center, Kan., 21 Rilco beams
varying in length from 4'2" to 39'.

Contr.: Berthot Construction Company—
Chanute, Kan.

Arch.: Shaughnessy, Bower & Grimaldi
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■ The use of Rilco beams for St. Joseph's Catholic Church "was premised on cost factors as well as appearance considerations," states the architect. "We found the Rilco people very cooperative (and) despite snow and wet weather, no delay was experienced in the erection of the arches."

Contractor Berthot agreed. The Rilco structure was laminated perfectly and erected economically—"moreover, the service in the engineering department and production schedule, as well as the excellent field service provided by Rilco, contribute as much to this economy as any other item."

▲ Contractor Crain, Bass & Company, warehouse builder, was also "very well pleased with the Rilco wood trusses used in the roof system, consisting of 20 bowstring trusses, 120' clear span, spaced at 16' centers.

"They were easily assembled and erected at a labor and crane cost of \$122 per truss. The total material and labor cost of the truss system amounted to approximately 30c per square foot of floor area."

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DISTRICT OFFICES: TACOMA, WASH. • FORT WAYNE, IND. • NEWARK, N. J.

Washington Topics

person to every 50 occupants (may have light storable partitions).

6. Austere, demountable toilet facilities on the basis of one per 35 persons. The facilities to be supplemented by dispensable bags. Depending upon the size of structure, toilet facilities should be appropriately grouped, with provision for light, storable partitions for each area. (A suggestion for the "austere, demountable toilet facilities" is the use of long wall-hung, galvanized sheet metal urinals, and long wall-hung and leg-supported, galvanized sheet metal toilets with smooth-board edge seats. The urinals and toilets should be provided with outlets designed for quick coupling to Y's and traps in the soil stacks. Water supply should be available at the flushing end of the urinals and toilets. Tapped wall inserts and bolts should be provided for quick mounting of the urinals and toilets. A sewage pump and positive ejection pump should be provided. Fixtures of this type would be stored, in a similar manner to the bunks and bedding, for installation immediately upon occupation of the area for shelter purposes.)

7. Hand basins or austere lavatories on the basis of one per 50 persons.

8. Austere shower facilities on the basis of one for each 200 persons, combined with a facility for the decontamination of monitors or late-comers.

9. Sources of drinking water, strategically located.

10. Storage space for dead bodies on the basis of one per 750 persons, but not less than two per shelter. This requirement can probably be met most economically with hermetically sealed boxes, possibly sealing boxes.

11. Disposal means or storage space for garbage and trash, whichever is most practical and economical.

12. A 22-in. access and egress unit for every 200 people to be accommodated, and an additional, small single-unit outside entrance through the shower room decontamination facility—with an air lock. In no case should there be less than two means of egress of two units each, widely separated.

Upon completion of the shelters, said OCDM, food, water, and medical supplies should be stocked for a two-week occupancy. Seats, bunks, and bedding should also be provided.

Service Requirements

Here's the rundown on electrical and mechanical equipment required:

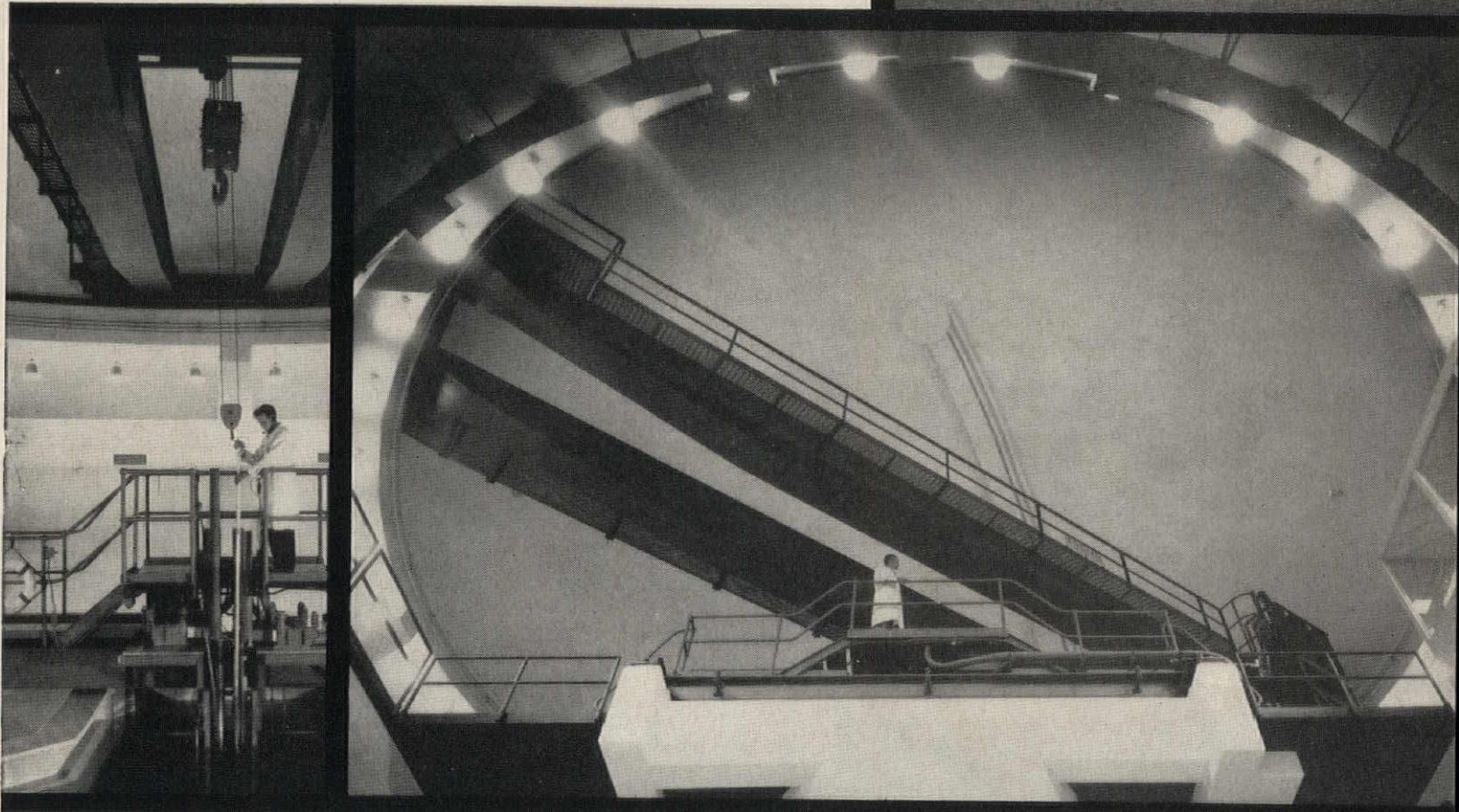
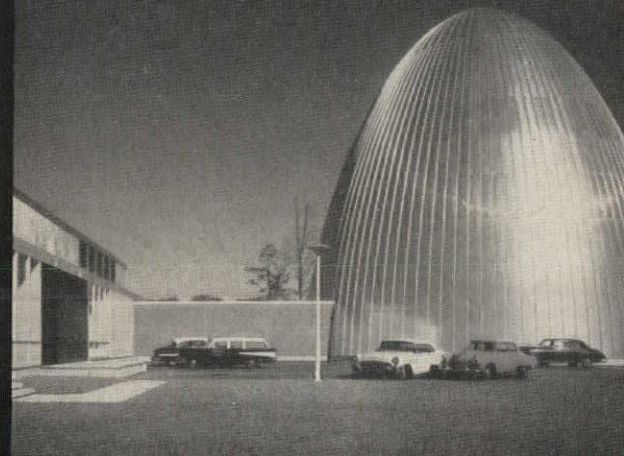
continued on page 374

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GUY B. PANERO ENGINEERS, Cons. Engrs.
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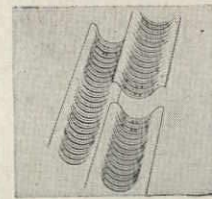
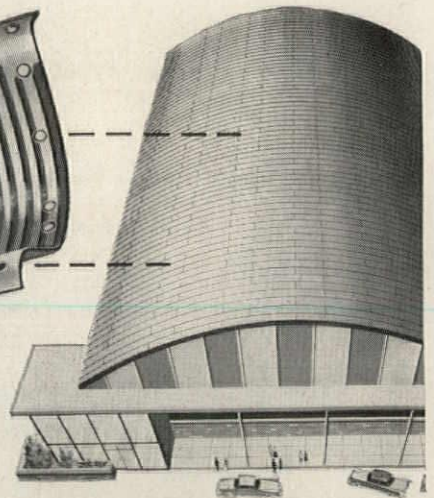
30 N. LaSalle Street
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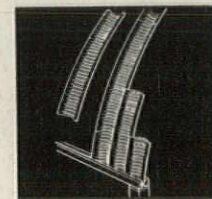


TSA-111

wonder building corporation of america



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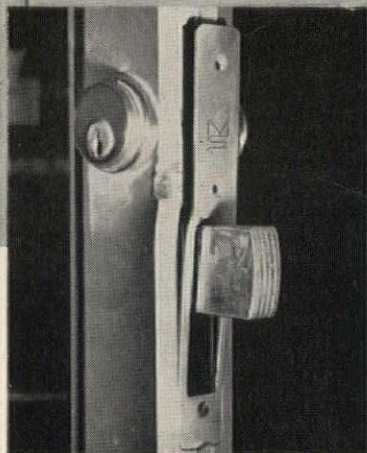
*Victor Gruen and Associates, Los Angeles



ALTEC LANSING CORP., Dept. 11R
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 a subsidiary of Ling-Altec Electronics, Inc.

12-66

no forced entry! protection...



Large photo shows door stile twisted by attempted burglary with MS Deadlock still holding • Lower photos reveal MS Deadlock in thrown and retracted position still operative.



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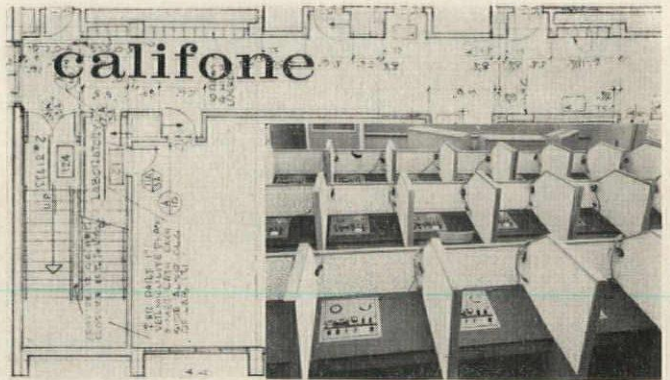
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Califone Language Laboratory installed at Redondo Union High School, Redondo Beach, California.

With additional funds now available through the National Defense Education Act in providing urgently needed new school and government structures (including alterations on existing public buildings), school architects are now being called on to adapt building designs to the newest language teaching method—THE LANGUAGE LABORATORY.

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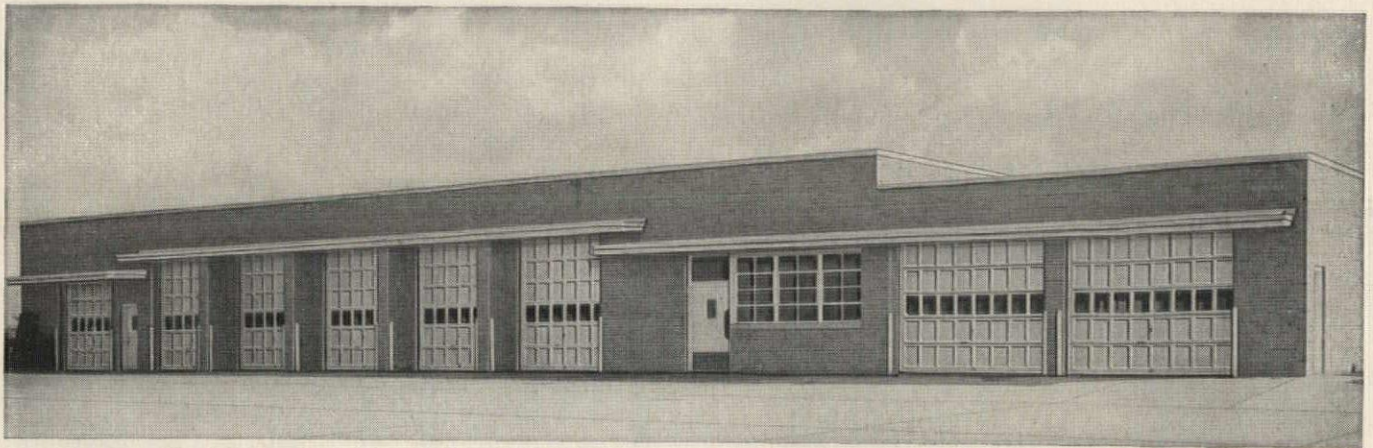


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Whenever Fire Protection Is Involved

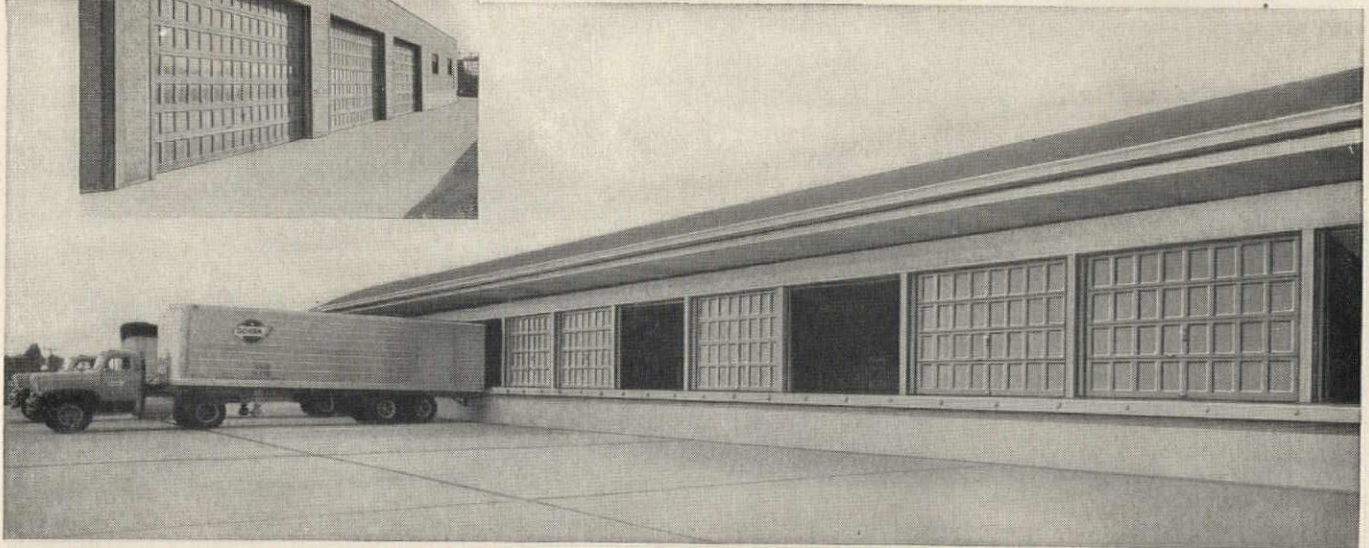
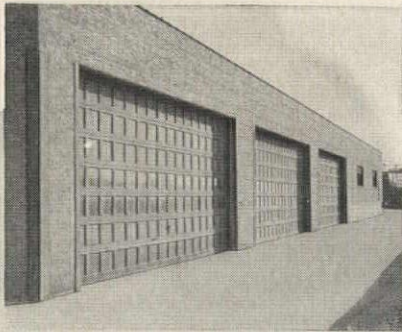
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Spray
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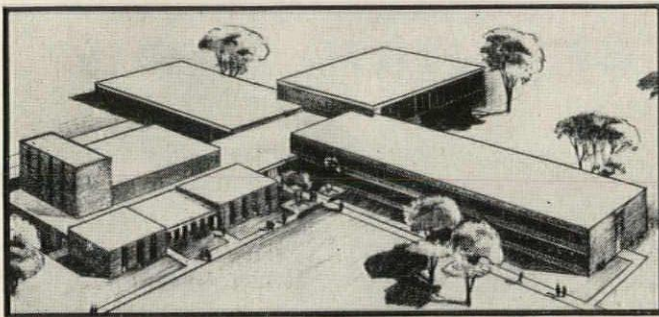
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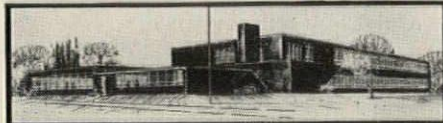
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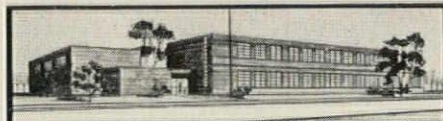
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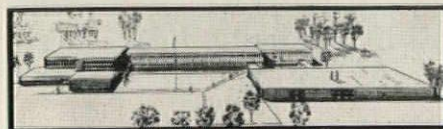
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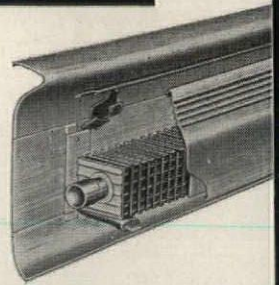
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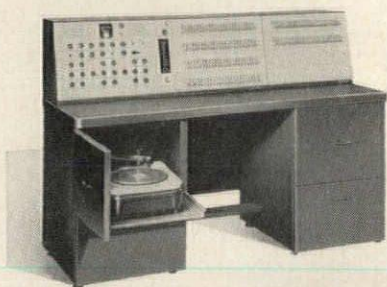
1 1/4" diameter pipe of Geon rigid vinyl is being installed by Illinois Power Company in gas lines leading to homes at Decatur, Illinois. In addition, 3/4" vinyl pipe is being inserted in reamed-out 1 1/4" iron pipe under streets to avoid breaking the pavement to repair leaking gas lines. Kraloy Plastic Pipe Company, Los Angeles, California, makes the pipe. B.F. Goodrich Chemical Company supplies the Geon rigid vinyl.



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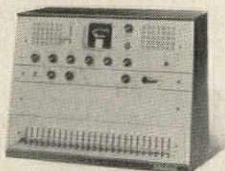


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Washington Topics

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2. A well, if feasible. Otherwise, a minimum of one gal of potable water per day per occupant shall be stored, and chemical toilets should be used.

3. Emergency power generation to meet all needs, including at least a two-week fuel supply. Provision must be made for cooling the engine-generator.

4. General lighting intensities of five to 10 fc and local lighting intensities of 25 fc where required for working areas such as the decontamination unit, first aid area and other special locations. Lighting circuits should be arranged to permit reducing the load on the emergency generator by cutting out alternative or supplementary circuits.

5. Fire-extinguishing equipment.

6. Instruments which will measure radiation levels both inside and outside the shelter with the monitoring devices suitably located in the shelter. OCDM standard item instruments are available and specifications and costs are obtainable on request.

7. Broadcast radio receiver and telephone land lines, upon completion of the shelter.

The bulletin also outlines the national shelter policy in two of its parts—(1) the Administration will provide leadership and example by incorporating fallout shelters in appropriate new Federal buildings hereafter designed for civilian use. Federal example is an indispensable element to stimulate state, local government, and private investment for fallout shelters, and (2) community use of the shelters in these new buildings is contemplated.

The policy intent is that the fallout spaces be included in all new nonmilitary Federal buildings that are reasonably adaptable for the purpose.

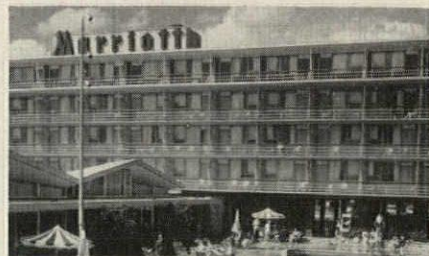
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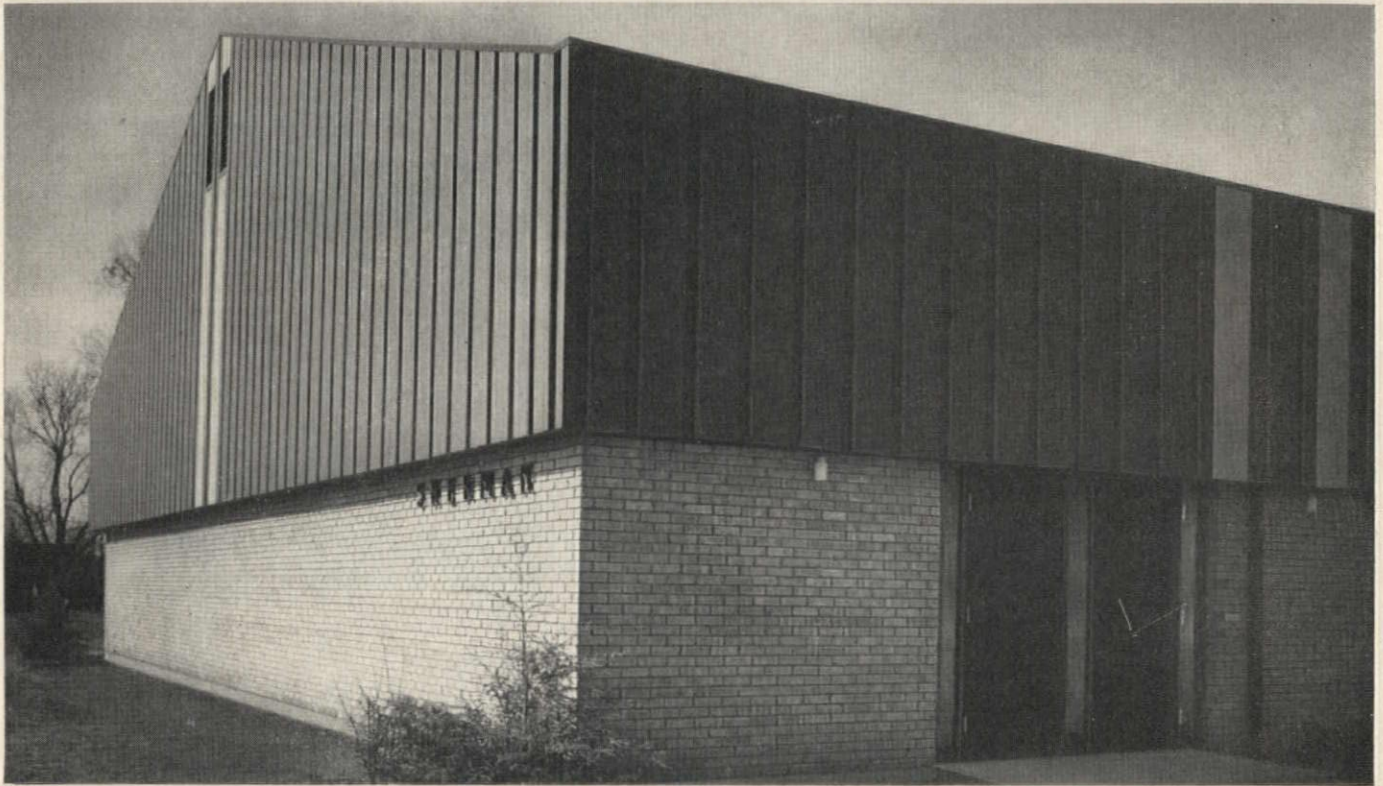
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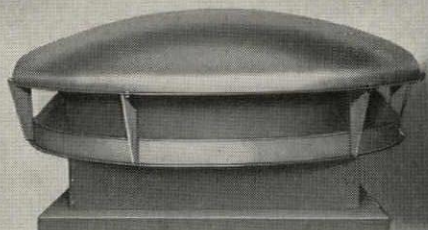
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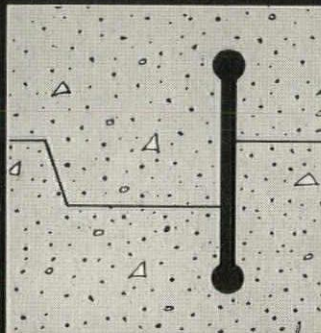
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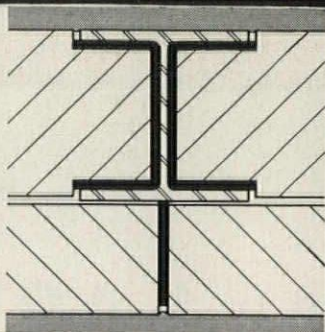
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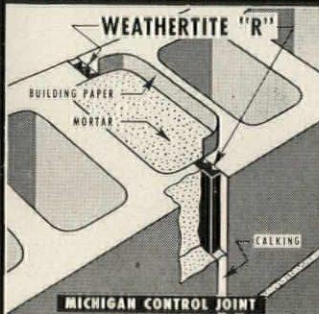
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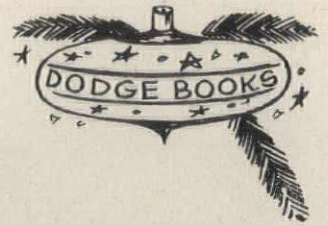
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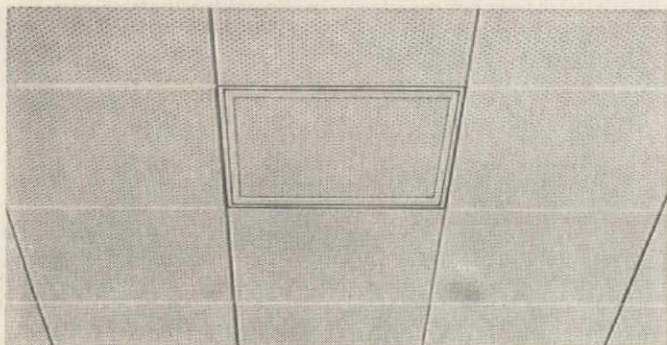
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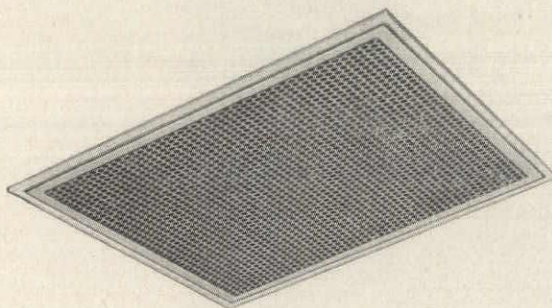
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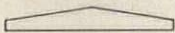
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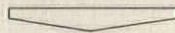


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Required Reading

continued from page 79

The Soul of a City

THE STONES OF FLORENCE. By Mary McCarthy. Harcourt, Brace & Co., 750 Third Ave., New York 17. 130 pp., illus. \$15.

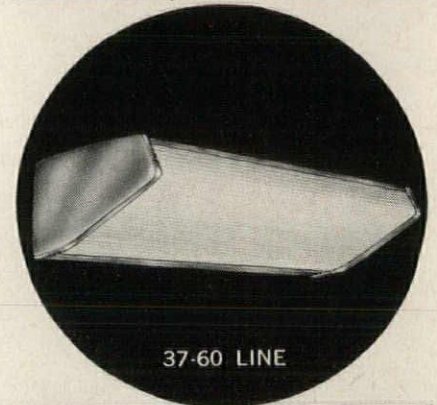
Mary McCarthy's book on Florence was designed not as a guide book nor a compendium on a notable city and its art, but as a critical essay. Virtually all of it, in fact, appeared last August as three articles in the *New Yorker*, where, in single columns between the whisky and shirt ads, it had considerable allure. Yet, oddly enough, in its present extremely handsome format the book is irritating. The photographs (mostly by Evelyn Hofer) are superb, and the book itself is beautifully made. Written impressionistically, yet with all the style and verve that mark Miss McCarthy's novels, the essay at first seems to be a work of art about a work of art that was a city. Miss McCarthy starts off stridently, describing the hateful, noisy heat of present-day, summertime Florence. Then, lulled by all the skill of a born writer, you are carried from the blaring, glaring streets to the sculpture-filled loggias, the great halls of galleries where tourists never penetrate, and the cool, forgotten secrets of neglected crypts and baptisteries. The history of a city, a people, and their art whirl about you like a half-dream, half nightmare. But then, somehow, you awaken. You realize that even all the book's evocative artistry hasn't quite brought the thing off.

Perhaps the fault lies in the *too* handsome format, where such things as references to illustrations or chapter titles never obtrude. Or it may be the style, wherein sentences half a page long are clogged with names only half remembered and references almost preciously oblique. But, more likely, the flaw lies in Miss McCarthy herself. The book rings with the hard bitterness of tone familiar to readers of her novels. It adds up to a cruel description of a cruel but beautiful city that cruelly languished. The sin of the Florentines, Miss McCarthy tells us, was their lust to capture the absolute in art, architecture, and politics. The Florentines challenged the mystery that binds all of us to our sinful fate. The book in the end strikes one as first-rate McCarthy. For the architect in search of his soul, a must!

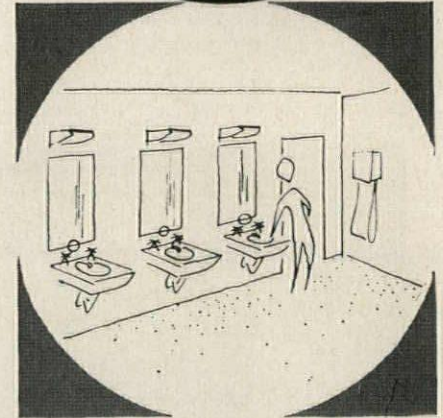
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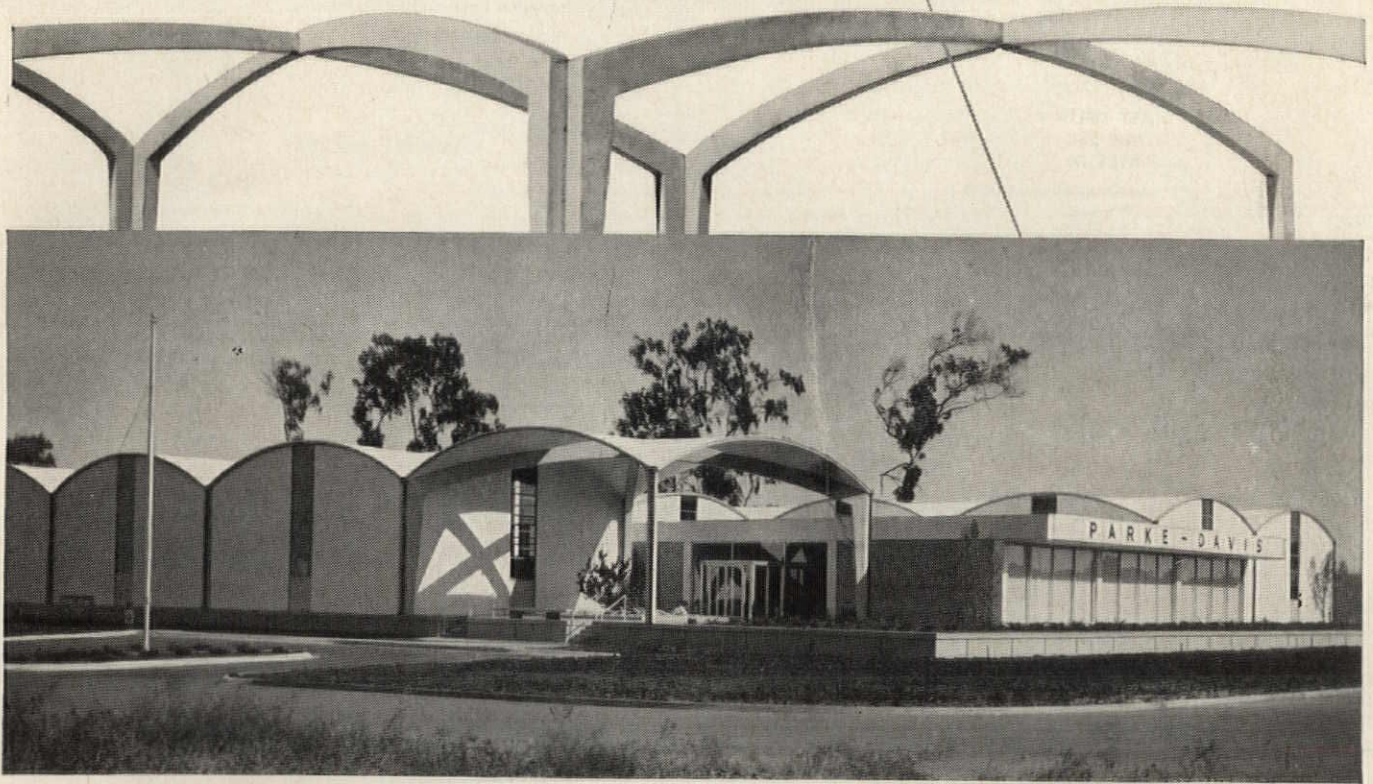
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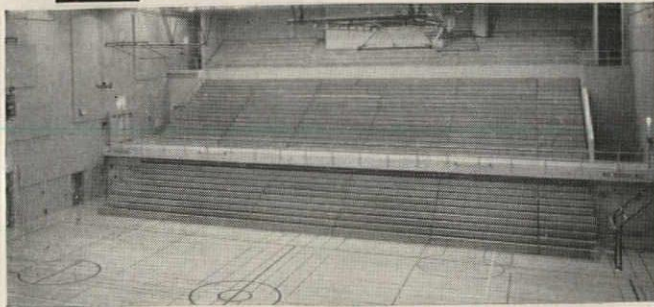
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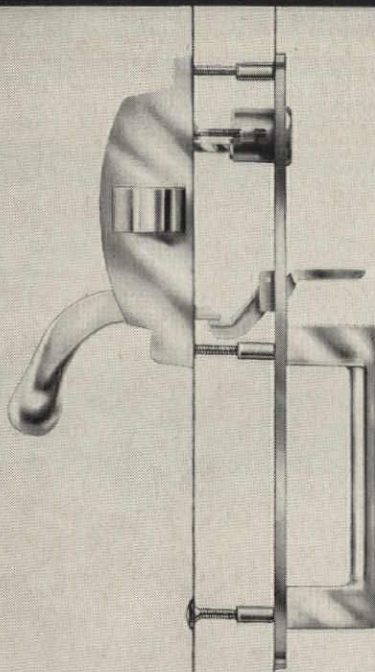
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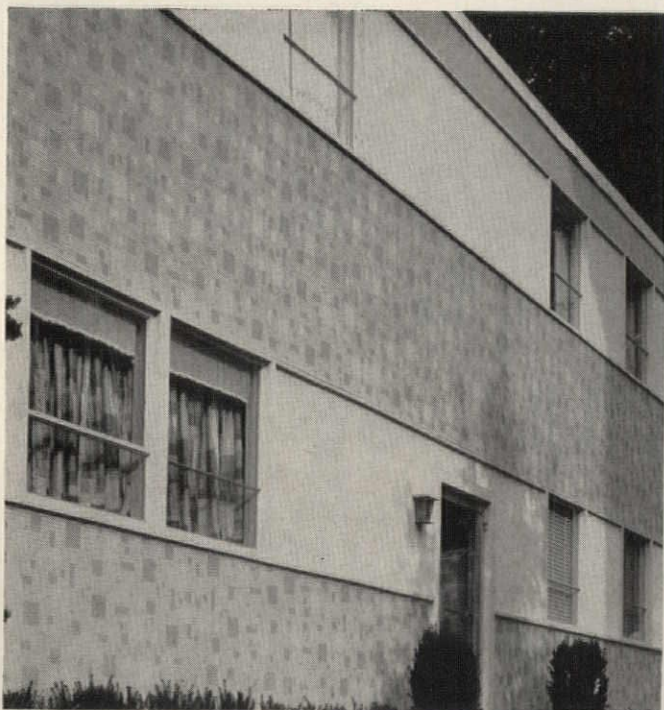


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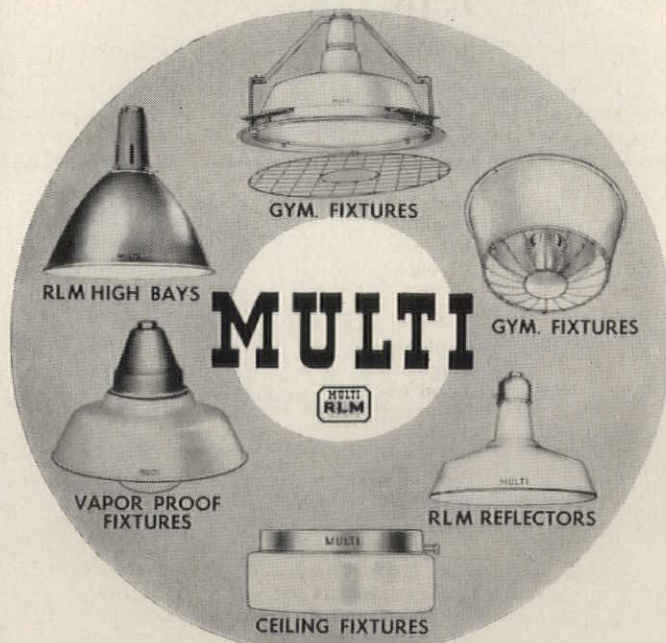
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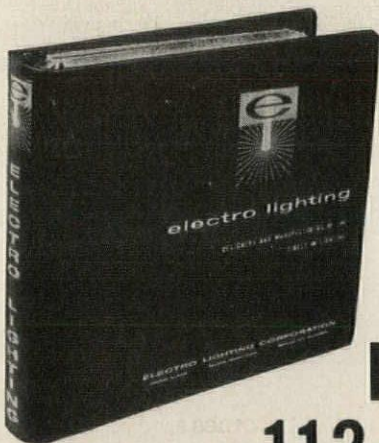


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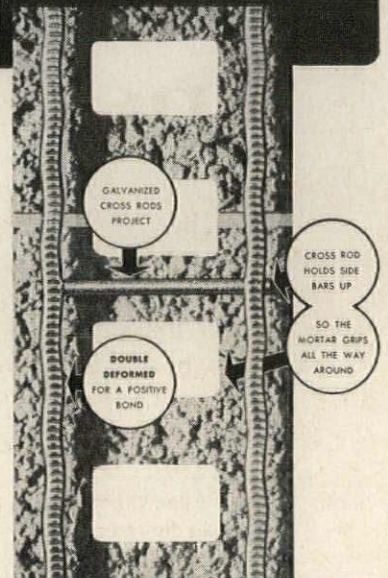
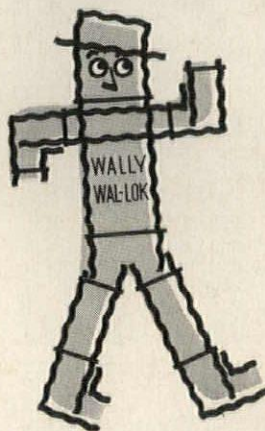
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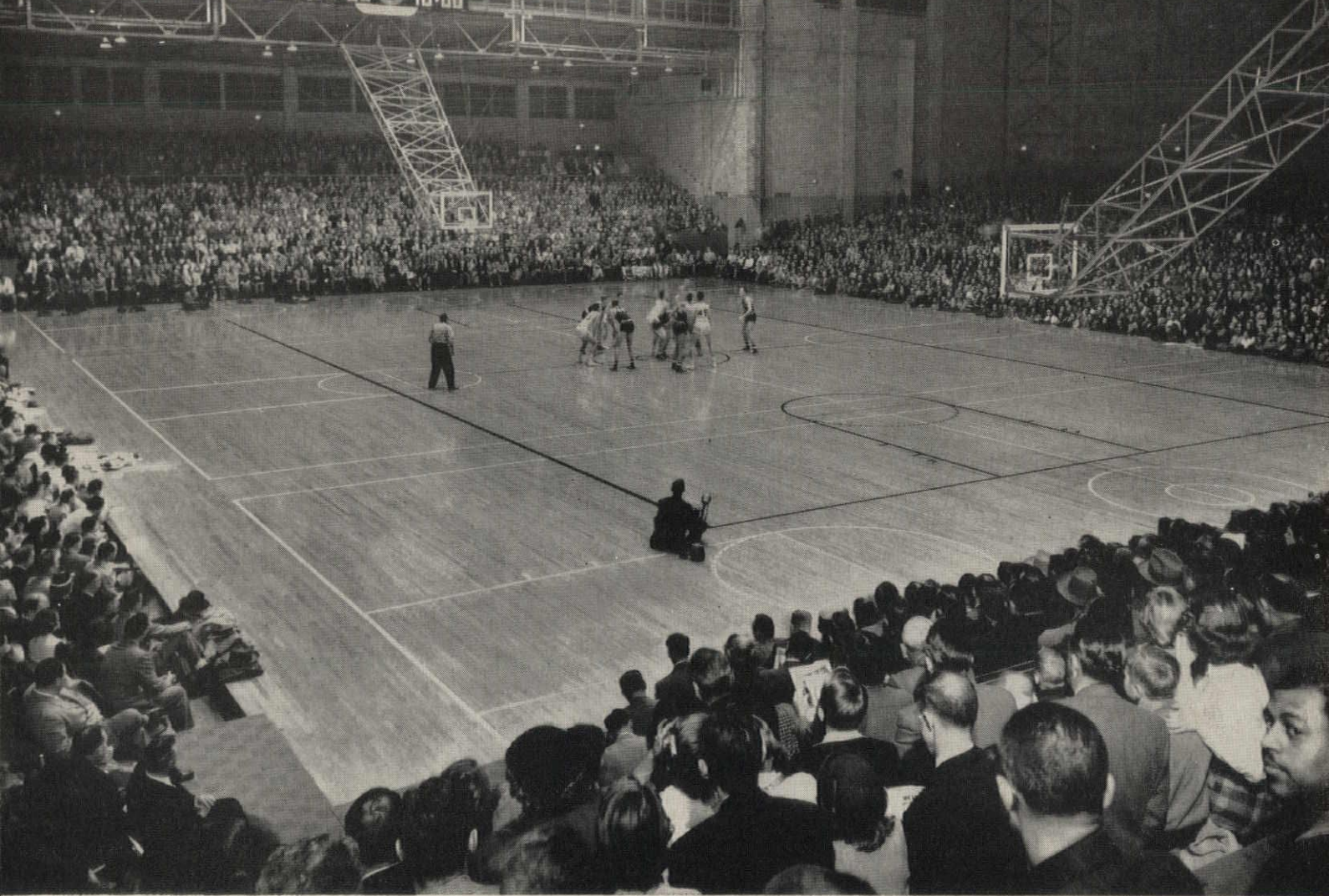
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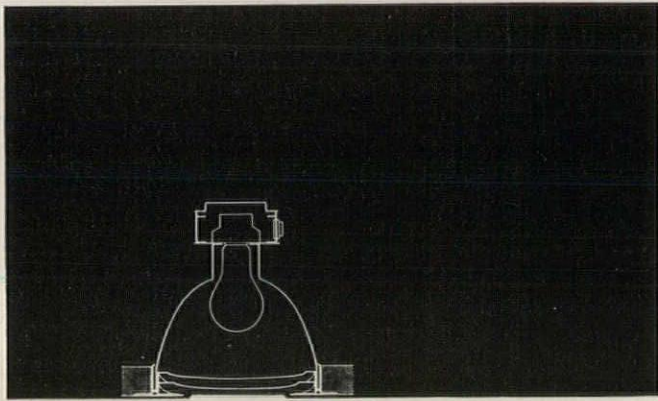
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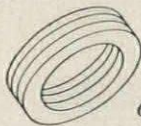
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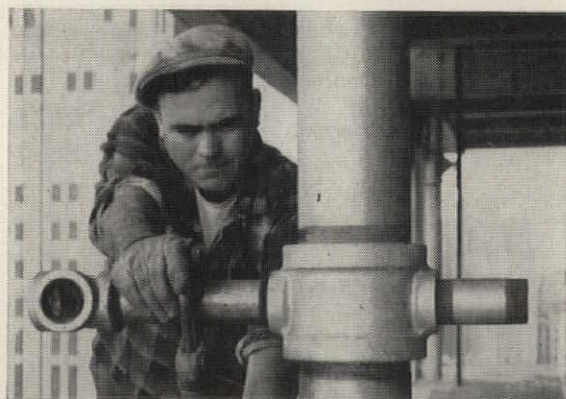
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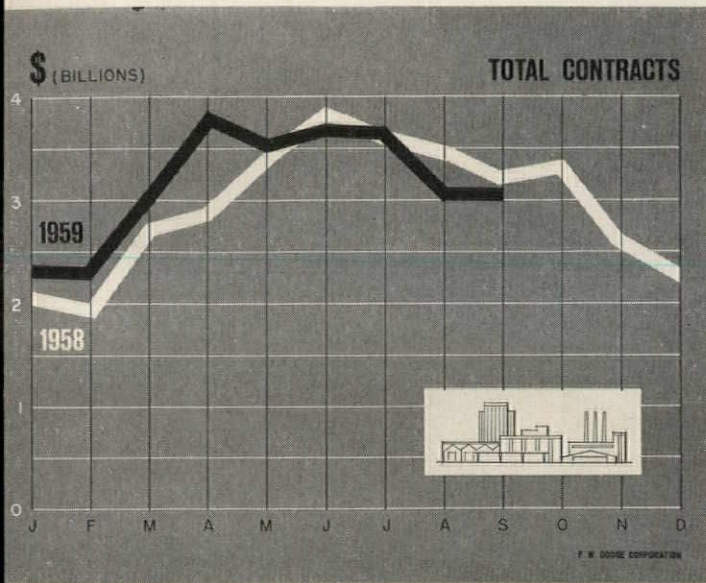
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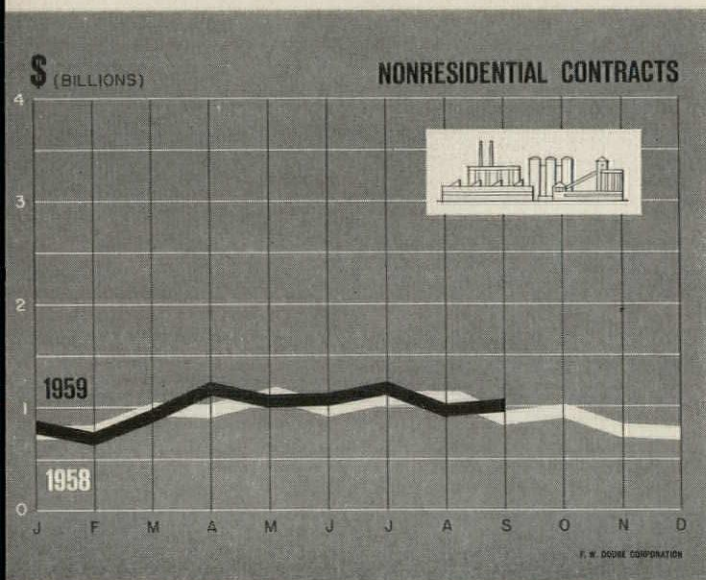
COMMITTEE ON STEEL PIPE RESEARCH

American Iron and Steel Institute
 150 East Forty-Second Street, New York 17, N.Y.

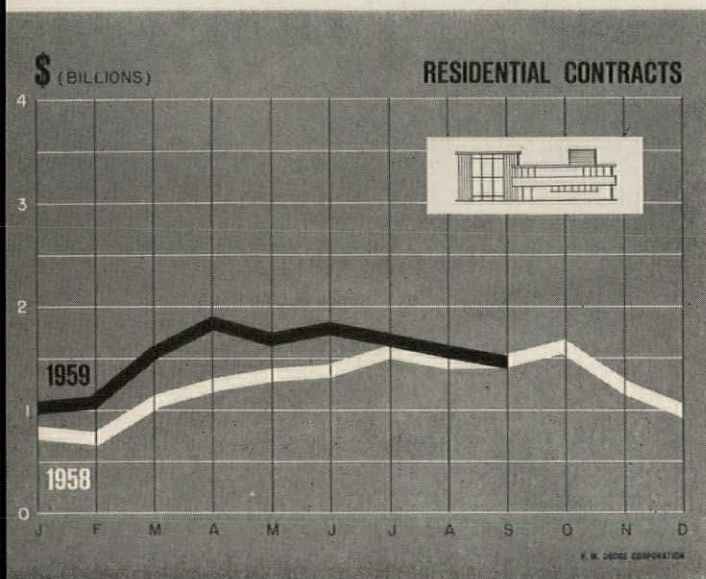
Current Trends in Construction



THE LEGAL PROCEEDINGS in which the steel strike is involved at this writing offer no guarantee of a solution to the problem. Several things are certain, however. The first is that the strike has already lasted long enough to do some damage to the nation's economy. Construction has been hit, not only in terms of projects which have been halted due to lack of steel, but also in terms of planning for new projects which cannot get underway. Other segments of the economy have also felt the strain—employment, retail trade, transportation, automobile manufacturing, to name a few. The effects are by no means over. Full production cannot be achieved until a month or so after the workers go back on the job, and then only under ideal conditions which may or may not exist. A resumption of the strike, either through a high court reversal of the injunction or the termination of the 80-day work period, could be extremely costly. And inventories are so much below proper working levels that shortages of particular types of steel, at the time and place needed, may persist for many months.



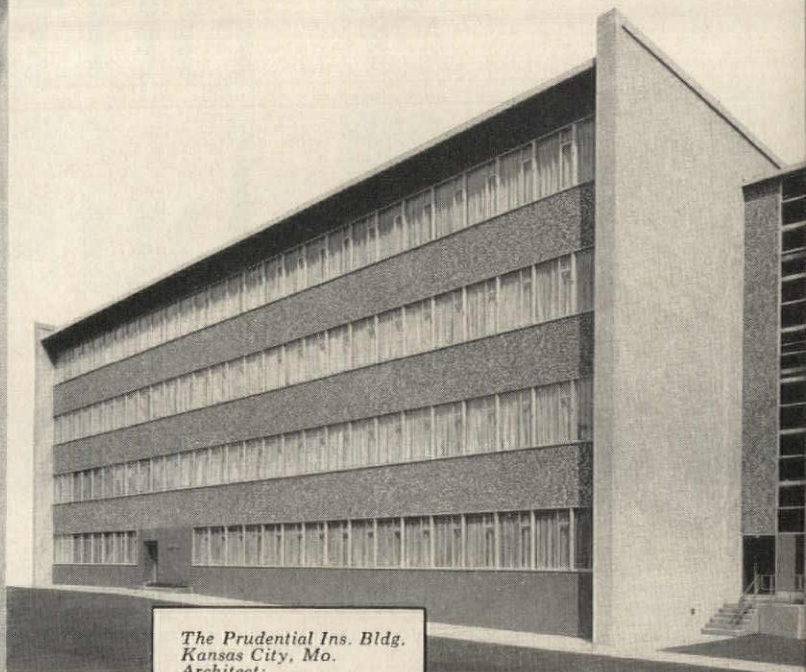
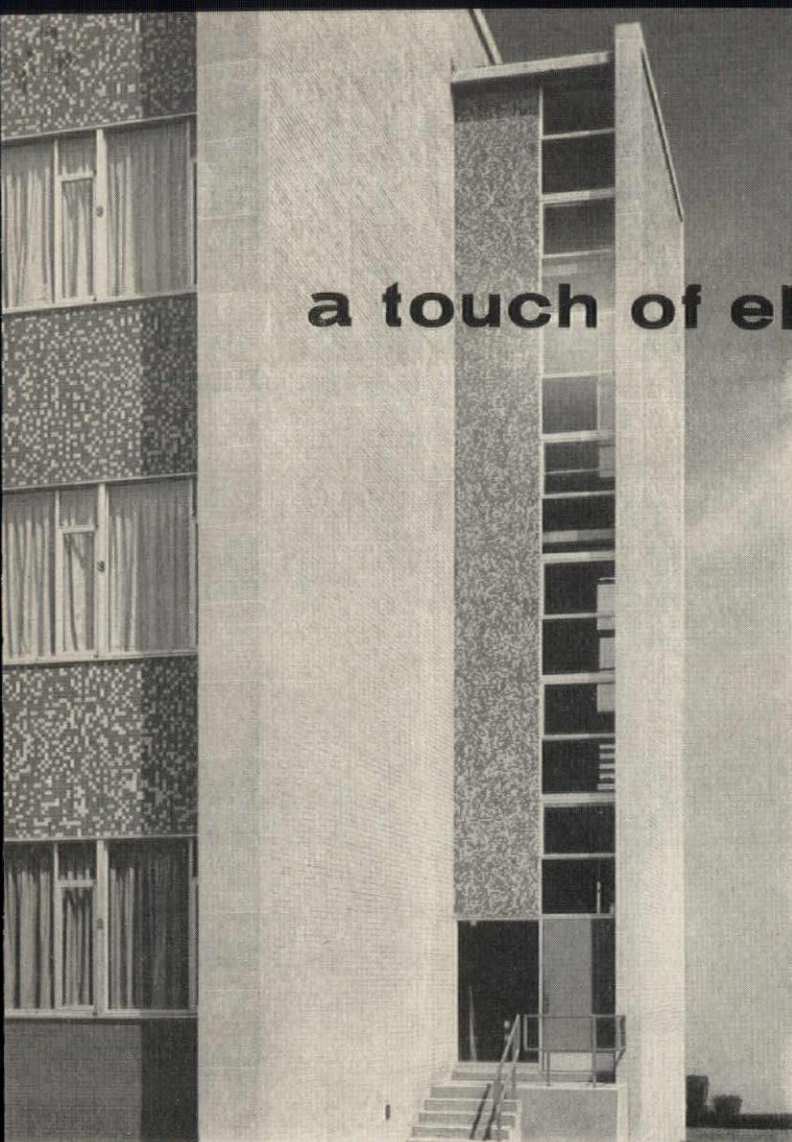
THE EXPERTS, as usual, are of several minds as to the long-range effects of the strike on the economy. One school holds that 1960 will see an unusually great boom as the nation produces at full steam to make up for lost time. An opposing school maintains that time lost is time lost; that the gap in production and income during the strike means a temporary hiatus in the normal growth trend of the economy. The truth probably lies somewhere in between. Recovery from the 1958 recession still has enough steam to induce a strong effort to make up production lost during the strike, and so some post-strike spurt is likely. But loss of income for both industry and workers over a period of months is bound to have some offsetting effect.



AN INTERESTING SIDELIGHT on the strike is this: the latest official estimate shows that the Federal budget for this fiscal year (July 1, 1959 to June 30, 1960) will be just about balanced. But this estimate assumed high tax collections based on booming corporate profits. It is apparent that profits in the second half of 1959 are not going to be anywhere near as high as the estimate, because of strike effects. In addition, personal incomes will also be somewhat lower than anticipated. Therefore, the Federal government faces the prospect of a deficit, rather than a balance, in the budget for the current fiscal year. The result could be a further tightening of tight money, with unpleasant implications for construction in general and housing in particular.

GEORGE CLINE SMITH
Vice President and Economist
F. W. Dodge Corporation

a touch of elegance that lasts...



*The Prudential Ins. Bldg.
Kansas City, Mo.
Architect:
Voskamp & Slezak
Kansas City, Mo.*

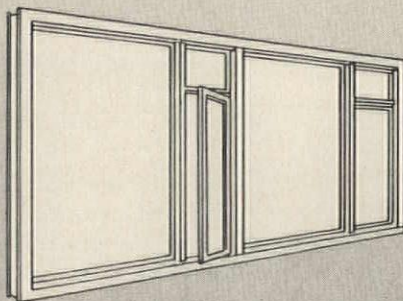
ALUMINUM CASEMENTS FOR PRUDENTIAL BY **MARMET**

Fenestration of gleaming aluminum puts a jewel-like finishing touch to the bold simplicity of architects Voskamp & Slezak's Prudential Insurance Building in Kansas City. Windows are MARMET Series 5212 Architectural Projected, made up in the interesting combination, (as shown in the section below) of fixed lites alternating with single casement ventilating sash. Marmet's Architectural Projected Windows come in two series; the 550 which is 1½" in depth and Series 5212, 2⅛" in depth. Tubular sash is available in either series for ventilating lites containing large expanses of glass.

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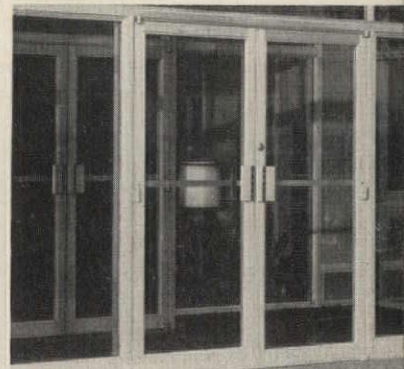


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Advertising Action in Architectural Record

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Architects and engineers have taken these actions recently as the result of reading specific advertisements in Architectural Record*

"U. S. Steel had an advertisement on stainless steel which I investigated further."
Engineer—San Francisco, Calif.

"Saw Suntile ad. Checked with dealer and specified product in school." Engineer—Ft. Wayne, Ind.

"My first introduction to latest acoustic tile and ceramic tile was via the Record. I never heard of the Simpson Bifold Door until I saw it in the Record. This has been going on for 30 years with me. I get more new ideas from the Record's ads than from direct mail." Architect—Cambridge, Mass.

"Investigation and subsequent exclusive use of Nu-Tone products in residential work."
Architect—Wausau, Wis.

"Saw an advertisement for mobile window washing equipment and contacted representative. At the time I could not determine where to find this information which I was looking for." Architect—Milwaukee, Wis.

"Andersen Windowalls folio used in detailing reference." Engineer—Vacaville, Calif.

"American Sisalkraft Corp. (Moistop). The use of this product on an underground structure is a direct result of seeing ad." Engineer—Oakland, Calif.

"Corrugated metal deck w/underfloor duct system looked good for possible future use by us. We sent coupon to manufacturer asking for additional information. Received information, read, discussed and filed for future use."
Architect—San Francisco, Calif.

"In one case we were interested in finding an improved quality of asphalt tile and rubber tile and contacted Kentile. In another we were interested in securing acoustical ceiling with larger units and simplified installation." Engineer—Salisbury, N. C.

"Specified Armstrong corkoustic for auditorium ceiling." Engineer—Wooster, Ohio

"Used Adams-Rite lock for narrow stile 'night latch.' Use of Kawneer's 'new' tubular entrance section (set in vinyl glazing)." Architect—Charlotte, N. C.

"Ad on movable Hauserman interior walls caused us to contact local representative for comparison purposes." Engineer—Dallas, Tex.

"Wanted more information on design for wood in school and recreational buildings and wrote to National Lumber Manufacturers' Association. Representative stopped at office." Architect—White Plains, N. Y.

* a random selection from hundreds of signed statements on file at 119 West 40th Street, New York 18, N. Y.

**"Recommended specific use of Sloan hand high toilet valve in new building."
Engineer—Jamaica, N. Y.**

"The advertisement on 'Aquadam' has helped me to overcome the problem described on our test lab buildings." Engineer—Van Nuys, Calif.

"Recent ad showing Cambridge Tile Co. patterns impressed us. We used one of the patterns in a specification." Architect—San Antonio, Tex.

**"I recommended the use of American Standard room unit in a new installation."
Engineer—Newark, N. J.**

"Saw ad on Tectum plank and specified on job."
Engineer—Payette, Idaho

"After having trouble with drip from drinking fountains at classroom sinks saw ad from Haws Fountain Co. and have been using them since." Architect—Ore.

"Armco ad in January '59 issue inspired idea for use of standard rigid frame structure for lab—with appropriate architectural treatment—for future project." Engineer—Fort Worth, Tex.

"An advertisement of Flexicore prompted us to investigate. Since that time we have been using this product in apartment house construction."
Architect—Great Neck, N. Y.

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2. Discussed product with associate **53.3%**

3. Turned to Sweet's Catalog File for more information **49.7%**

4. Specified—or recommended use of—the product **39.5%**

5. Tore out or filed ad—or otherwise took note of product for future use **38.9%**

6. Communicated with dealer or distributor **33.8%**

7. Gave time to a manufacturer's salesman who called **33.1%**

*Source: Continuing Readership Research

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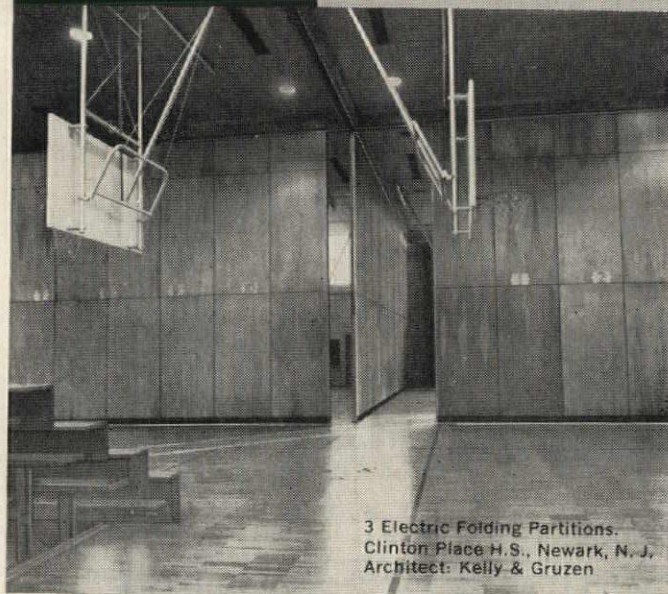
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Structural Engineer: J. Pasco Sweat, West Palm Beach, Florida

General Contractor: Frank J. Walker Company,
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