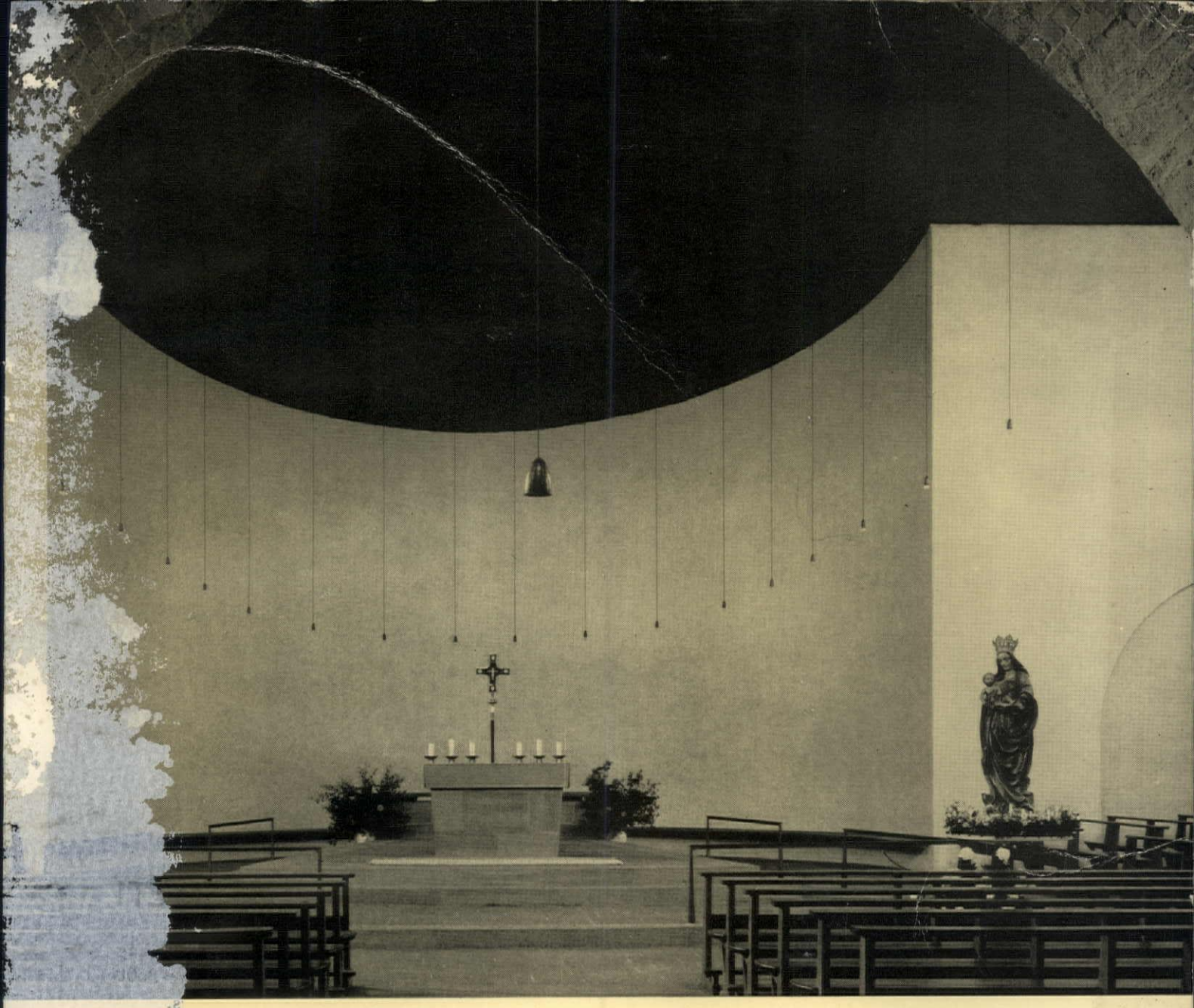

ARCHITECTURAL RECORD

6 JUNE 1962

BUILDING TYPES STUDY: SHOPPING CENTERS

NEW CHURCH ARCHITECTURE IN GERMANY

A TOUR OF CENTURY 21

FULL CONTENTS ON PAGES 4 & 5

MORE THAN JUST A WALL...

This Translucent Paneling System By SANPAN

Provides Glare-Proof Natural Lighting

Striking . . . the word for the new Rippowam Senior High School in Stanford, Conn., a brilliant concept of modern design conceived by Architects Urbahn, Brayton and Burrows. Its clean, classic lines are enhanced by 1,200 Sanpan translucent panels forming the basic structural walls . . . the largest installation of its kind to-date.

Before installation, the amount of translucency in each Sanpan structural plastic panel is predetermined by increasing or decreasing the pigment in the translucent skin. As a result, harsh glare and excessive light transmission are effectively reduced, facilitating maximum indoor natural lighting. Sanpan panels boast exceptional insulating qualities equivalent to that of a 12″ masonry wall, providing protection against moisture penetration from the outside and heat loss on the inside. Sanpan panels also permit significant economies in construction and maintenance. Extremely lightweight, they are designed for simple screw connection.

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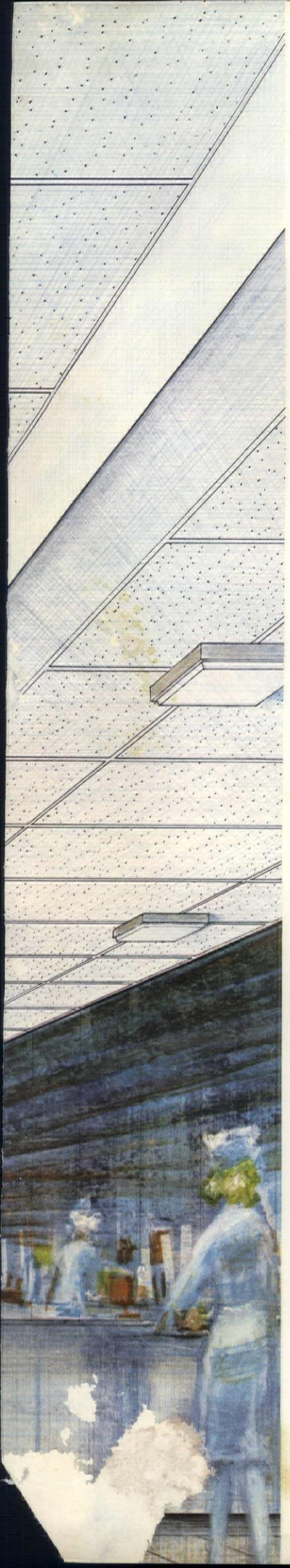

NEW ARMSTRONG CEILINGS FOR RIDDLE MEMORIAL HOSPITAL ARE ACOUSTICAL, FIRE-RETARDANT AND FACED WITH MYLAR* FOR EXTRA HYGIENE

Armstrong has added yet another advantage—hygiene—to the excellent sound-absorbing and fire-retarding properties of Acoustical Fire Guard. A smooth, continuous film of Mylar makes Fire Guard soil-resistant, and because Mylar is tough and waterproof, the ceiling can be washed repeatedly. The many qualities combined only in Fire Guard faced with Mylar recommend this handsome ceiling for hospitals, clinics and other buildings where hygiene, comfort and safety are of prime importance.

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Armstrong ACOUSTICAL CEILINGS
First in fire-retardant ceilings

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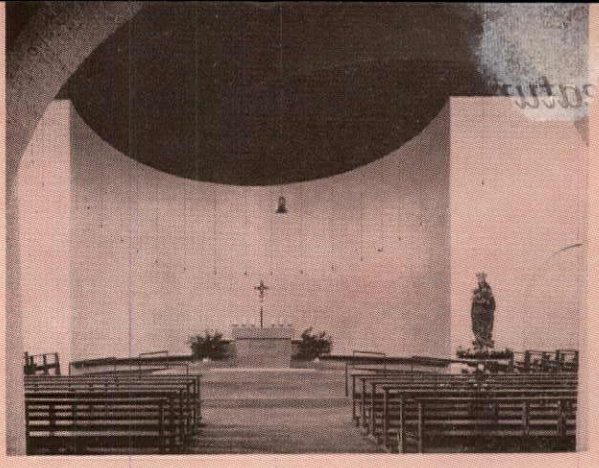
*Mylar is a registered trademark of E.I. du Pont de Nemours & Co., Inc.

RENDERINGS BY ARA DERDERIAN

Architectural Engineering



Cover:

St. Laurentius Church, Hohenlohe Strasse, Munich. Emil Steffann and Siegfried Ostreicher, architects. Photograph by G. E. Kidder Smith

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(National Edition)

ARCHITECTURAL

Record Reports

Architects and Buildings

Authors and Articles

Features

RECORD

CONTENTS

June 1962

Building Types Study 308: Shopping Centers

Coming in the Record

NEW WORK OF PHILIP JOHNSON

There is probably none among the current architectural innovators whose work is watched with more interest than Philip Johnson, who has in the last few years embraced stylistic diversity with as much talent, taste and sophistication as he once devoted to refinement of the concepts of the International Style. Next month's feature will present in special drawings and model photographs several major new projects which are notable for their variety of form, material and structural system: a first look at some important architecture.

COMMON HEADQUARTERS FOR AUTONOMOUS GROUPS

The new headquarters building designed by Vincent Kling for the American Baptist Convention near Philadelphia had the special problem of providing for continued autonomous operation of a number of separate groups within the Convention organization while giving them the advantages of pooled service and support facilities. The solution was a circular building of unusual interest visually as well as functionally.

ACOUSTICS AND SCHOOL DESIGN

New developments in school design have been creating some new and complex acoustical problems which will be the special concern of next month's Building Types Study on Schools. There will be articles summarizing the relevant findings of some rather extensive surveys just completed by the Educational Facilities Laboratories and reporting on special studies of acoustical problems made by John Lyon Reid in connection with a new high school in Andrews, Texas.

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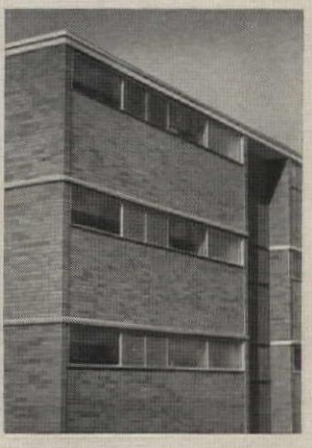
Men's dormitories consist of six three-story units grouped around a central three-story office and lounge building, with total area of 48,094 square feet. They provide a total of 57 four-student housing units, plus apartments for student counselors.

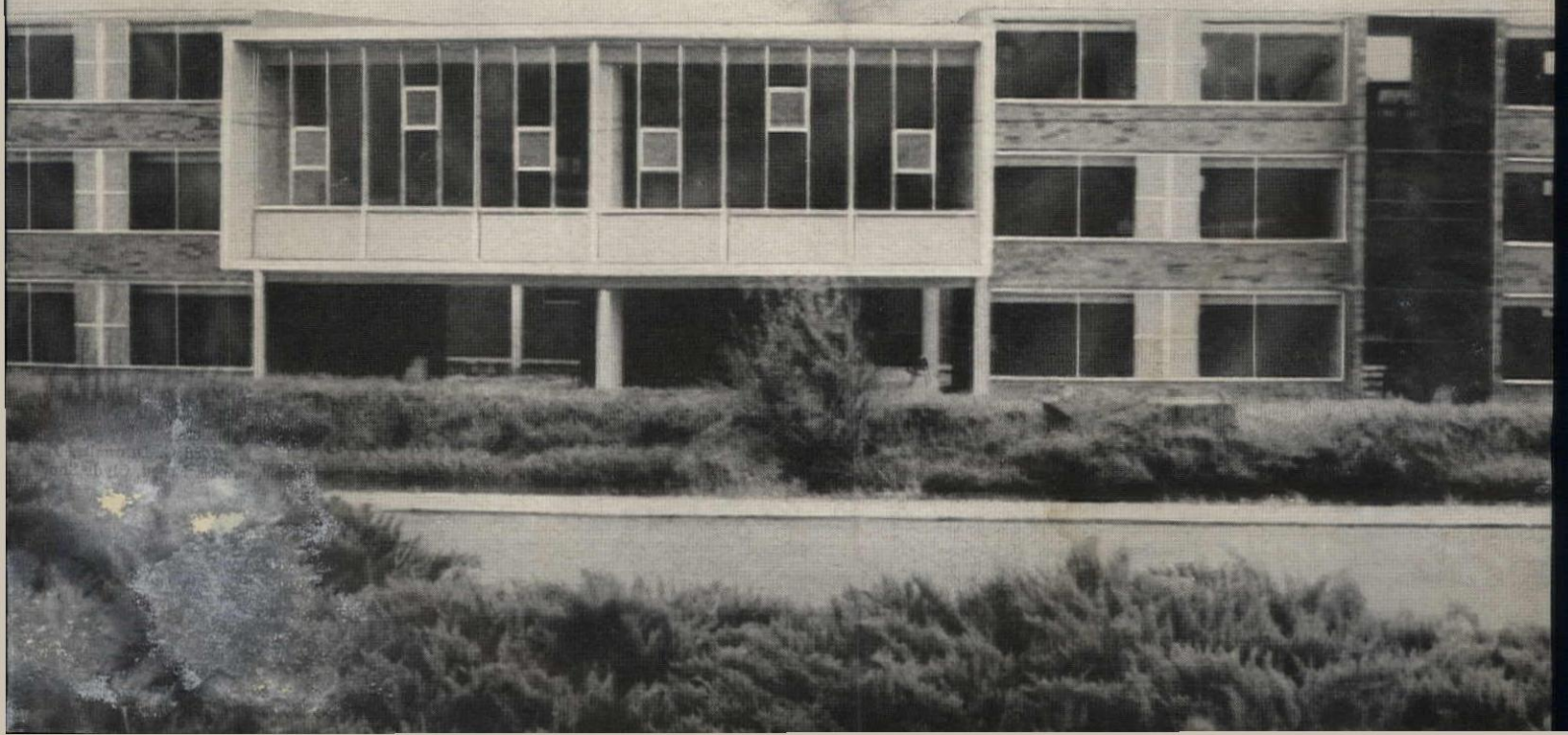
promising future for students and structure

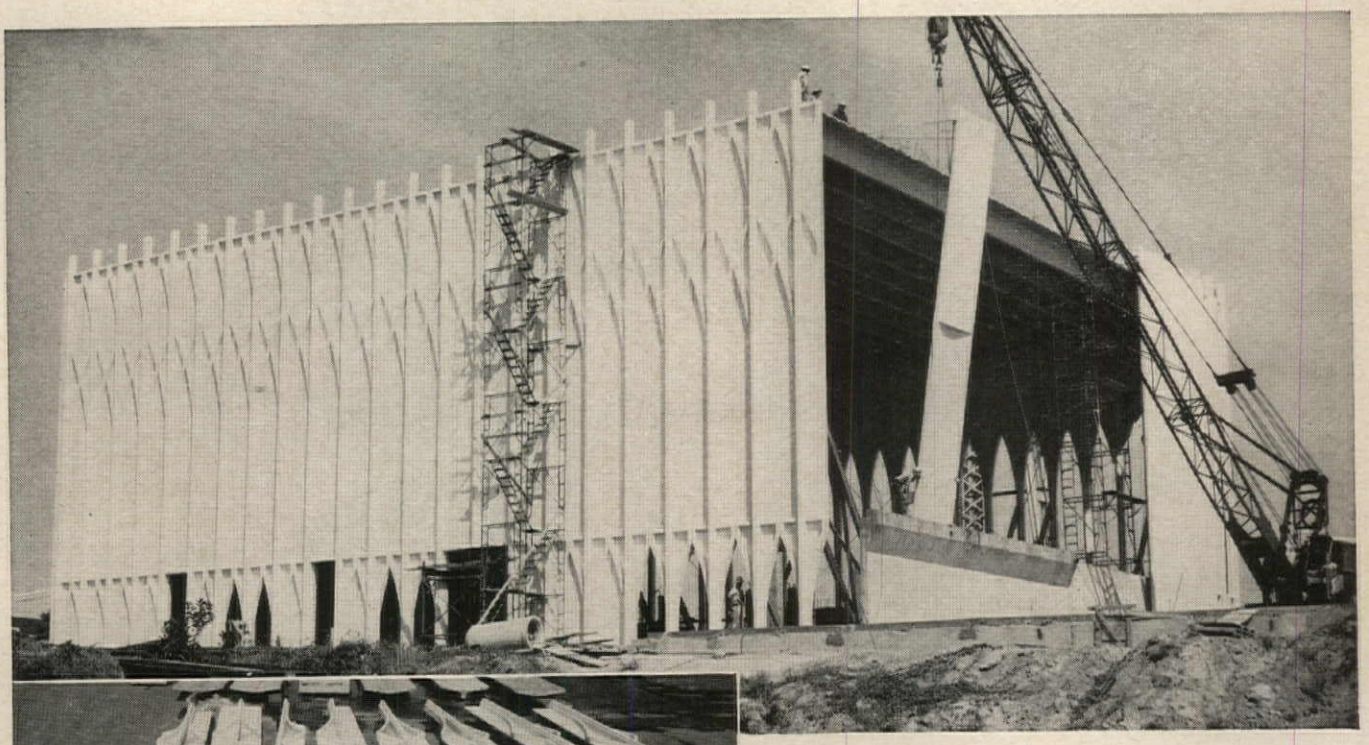
With the construction of these attractive new dormitory buildings, Central Washington College of Education has taken a long step forward in insuring the kind of pleasant, comfortable surroundings that will encourage its students to their best efforts. ¶ At the same time, abundant care was taken to give the buildings themselves a good start in life. All brick and block were laid up with Lone Star Masonry Cement. Lone Star Portland Cement was used for all concrete requirements. ¶ Lone Star Masonry Cement is the best way to launch any masonry structure on a long and useful career. It combines all the essential ingredients (except sand and water) in just the right proportions . . . makes it easy to get mixes of highest quality and uniformity every time. Lone Star Masonry Cement makes smooth, workable mortars that speed work, save time and labor on the job. ¶ Why not take a lesson from Central Washington College and use Lone Star Masonry Cement on your next job? You'll find it pays off now and for years to come. LONE STAR CEMENT CORPORATION, 100 PARK AVENUE, NEW YORK 17, NEW YORK

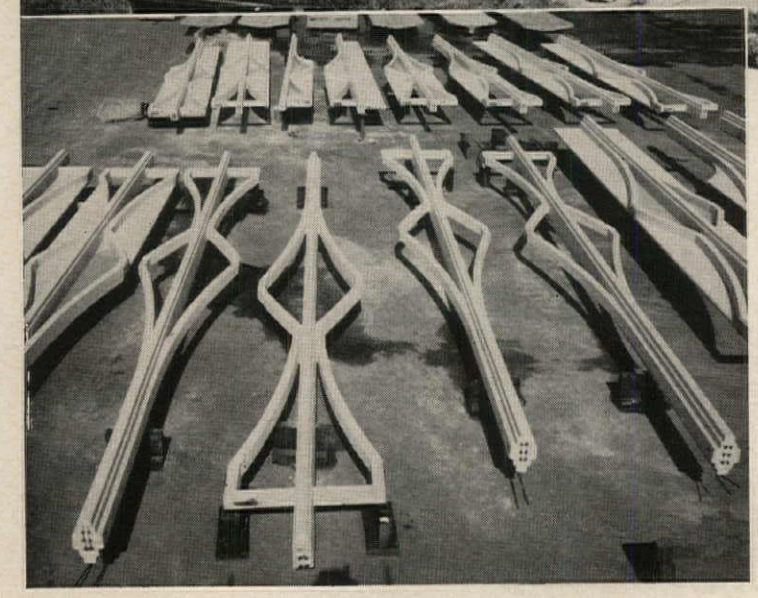


Student Housing, CENTRAL WASHINGTON COLLEGE OF EDUCATION, Ellensburg • Architect: COWAN & PADDOCK, Yakima • General Contractor: VANDIVORT CONSTRUCTION COMPANY, Wenatchee • Masonry Contractor: BROWN & WALKER, Yakima • Masonry Cement & Concrete by: ELLENSBURG CEMENT PRODUCTS COMPANY, Ellensburg • All of Washington.

Lone Star Masonry Cement

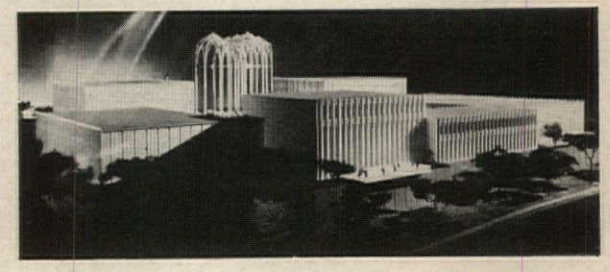






ABOVE: Swinging the panels into place
LEFT: The prestressed components
BELOW: Model of Science complex when finished

Architects: Minoru Yamasaki & Associates, Detroit
Naramore, Bain, Brady & Johanson, Seattle
Precast Concrete Units: Associated Sand & Gravel, Inc., Everett, Washington
Engineers: Worthington, Skilling, Helle & Jackson, Seattle



...wherever concrete must be beautiful

The United States Science Pavillion is one of two principal theme buildings of the Seattle World's Fair. After the Fair it becomes the city's cultural center.

The load-bearing S-type stud wall panels are 32 and 52 feet long. They are faced with Trinity White portland cement and white quartzite aggregate. They are prestressed. The high strength of Trinity White and the high-early-strength gray cement back-up permitted the forms to be stripped in 12 to 14 hours with steam curing. Panels are secured in place by either welding or bolting.

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A Fight on the Wrong Issues

In planning the Dallas convention, the officers and staff of the American Institute of Architects hoped to advance the cause of the expanded service concept. Unfortunately, however, there were a couple of squabbles in the business sessions which tended to obscure the main idea. The "new dimensions of architectural practice" seemed to get confused by the rebellion of the membership over two proposals to change the bylaws.

One of these proposals would authorize the establishment of component councils, or guilds, to include along with A.I.A. members a variety of non-professional members. This proposal, which had been rather inadequately communicated to A.I.A. members in an official notice of proposed bylaw changes, was far from popular. Board members were talking about "bloody Wednesday," the day on which this was to come to vote. Sure enough there was a battle, and an apparently thorough trouncing was avoided only by a motion (which carried by a slim but official margin) to refer the proposal back to the Board for further study.

The other contested proposal would permit chapters of the Institute to establish the classification of "professional affiliates" if they so desired. This one was heatedly discussed, but was not voted on, because somebody had conveniently discovered that there was not an official quorum present on "bloody Friday."

It needs to be pointed out that those two proposals are really only fringe offshoots of the basic effort. They would have represented a certain broadening of the A.I.A. itself, but only incidentally a broadening of the architect's activities or abilities. They are not at all necessary to the extension of his competence or his responsibility, and so didn't really need even to come up in the first place.

It is well to remember that the architect is being challenged today by his clients and by his competitors, and that the present or future image of the architect is an issue not to be avoided.

As outgoing President Philip Will said in his banquet address: "Our profession is not exempt from the laws of historical challenge and response. We too must recognize the need for adaptation and change not merely in the way we design buildings but in our relation to society, to one another, and even in the way we understand and define our own profession."

Or again: "We are no longer the simple civilization of our pioneer forefathers. Yesterday's standard of mature performance equals that of today's novice. The Renaissance man, a modern Leonardo, cannot exist today. Such is the explosive growth in technology and standards of performance that professional amateurism can no longer be tolerated by a demanding public. Failure by the architectural profession to recognize this new need for performance in depth has left a vacuum into which has poured a horde of consultants and specialized non-professional building enterprises."

Henry Wright, in-coming president of the Institute, phrased it in positive terms: "There is hardly a single service mentioned in the Committee of the Profession's report which has not been provided as a matter of regular practice by many men of my acquaintance for the past ten or fifteen years. There is nothing new about making feasibility and economic studies and arranging for financing of projects and working methods of the entrepreneur, and collaboration with planners and others in urban renewal and redevelopment projects. What *is* new is the Institute's new program designed to gather, collect and make available information on this broad spectrum of architectural practice to all members."

Maybe that's a good note to remember about the Dallas convention.

—Emerson Goble

A.I.A.'S DALLAS CONVENTION DEBATES NEW ERA AND SPIRITED SKIRMISHES PROVE AGAIN THAT ARCHITECTS ARE STILL FOR ARCHITECTURE

Bittersweet moment: his widow accepts the 1962 A.I.A. Gold Medal posthumously awarded to Eero Saarinen and presented by President Philip Will Jr. at the annual dinner

Bylaw changes fought as diminishing architect; Wright becomes president; Carroll, Odell and Gamble elected

If you want to sell architects *anything*—even a professional program for expanding their services and besting their most worrisome competition—you had better avoid suggesting that specialization is any part of it. The architect is a generalist with no specialty but design itself and any proposals which seem to deny this basic premise will be overwhelmingly rejected.

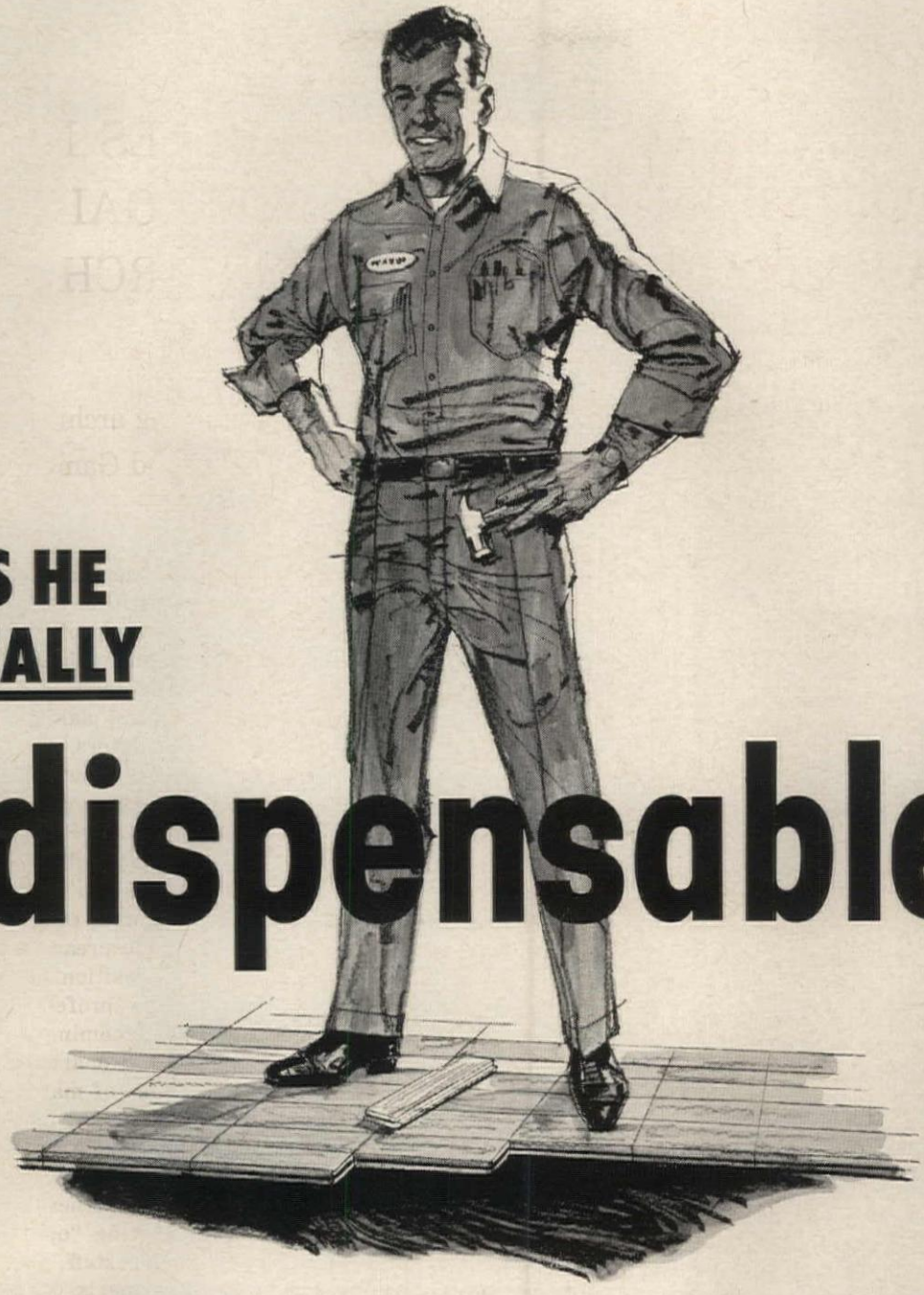
Such, at any rate, appeared to be the inescapable lesson of the A.I.A.'s 1962 annual convention, held May 7-11 in Dallas. It was a very hot week (temperatures mostly in the 90's), but air conditioned buses and cars shuttled the 2,275 conventioners between (air conditioned) convention hotels, the Statler-Hilton (official "headquarters") and the Sheraton, to meetings and exhibits in the enormous (air conditioned) Dallas Memorial Auditorium (as well as on extracurricular excursions), so it was mostly tempers that were warm.

And warm they were in the sessions (described in some detail on page 9) which took up the Board proposals for "special purpose Councils" as separate components within the Institute and for authorization of a new "professional affiliate" class of membership to be established by chapters at their discretion for engineers, planners, landscape architects, sculptors, muralists "and other artists allied to architecture."

Although the Councils' proposal was merely "tabled," and the professional affiliates proposal could not be acted on for lack of a quorum, the floor discussion left no doubt of the widespread and literally passionate opposition of the delegates to both. The professional affiliates proposal was coming up for the third time at a national convention; and the irritation of many delegates was clearly expressed by George Vernon Russell of Los Angeles (a leading opponent of both proposals) when he suggested there ought to be a means of getting "opposition" views to Board and staff. As it is, he said, "the phone is off the hook and nobody's listening."

As Executive Director William H. Scheick saw it afterwards, "what they told us at this convention is

A.I.A.'s new officers were elected with more than usual excitement because three of the offices were contested. *From left*: the new president, Henry Lyman Wright of Los Angeles, was unopposed to succeed Philip Will Jr. of Chicago. *Above, left to right:* First Vice President J. Roy Carroll Jr. of Philadelphia; Second Vice President Arthur Gould Odell Jr. of Charlotte, N.C.; Secretary Clinton Gamble of Fort Lauderdale, Fla.; Treasurer (since 1956) Raymond S. Kastendieck of Gary, Ind.



IS HE REALLY indispensable?

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A.I.A. Convention

continued from page 10

that we're moving too fast" and he seemed to feel this was on the whole a heartening kind of criticism.

The convention did approve other Board proposals for making the first vice president also the president-elect (effective with next year's election) and for moving forward with plans for development of a new headquarters building on and adjoining the present site in Washington, D.C., the Octagon itself to be preserved as the ceremonial center.

All in all, the discussions at Dallas suggested next year's convention at Miami Beach, which has been expected to debate quite extensive changes in the A.I.A. Mandatory Standards in connection with the expanded services program, would be far from dull.

Missing Dimension? The four sessions of the "professional" (i.e., non-business) program, developed on the theme "New Dimensions of Architectural Practice," provided nothing like the excitement and stimulus of last year's famous Philadelphia program. A great many useful things were said by a number of accomplished spokesmen for their fields, but the stirring sense of relevance to the doing of architecture was somehow lacking.

By far the most absorbing of the sessions was the one in which four young representatives of their chapters presented three "Case Histories of Community Service" by A.I.A. chapters, rather spectacularly documented with slides to convey visually the problem, the program and the design results. As panel moderator Emerson Goble, editor of the RECORD, put it, "What the architect needs to do—what these four have done—is to fill a void in leadership." The case histories: Market Square Mall, Knoxville, described by Benjamin McMurry Jr. for the East Tennessee Chapter; Civic Center, Eugene, Ore., described by Donald H. Lutes for the Southwestern Oregon Chapter; and Main Street, Little Rock, described by Gordon Wittenberg and Noland Blass Jr. for Little Rock.

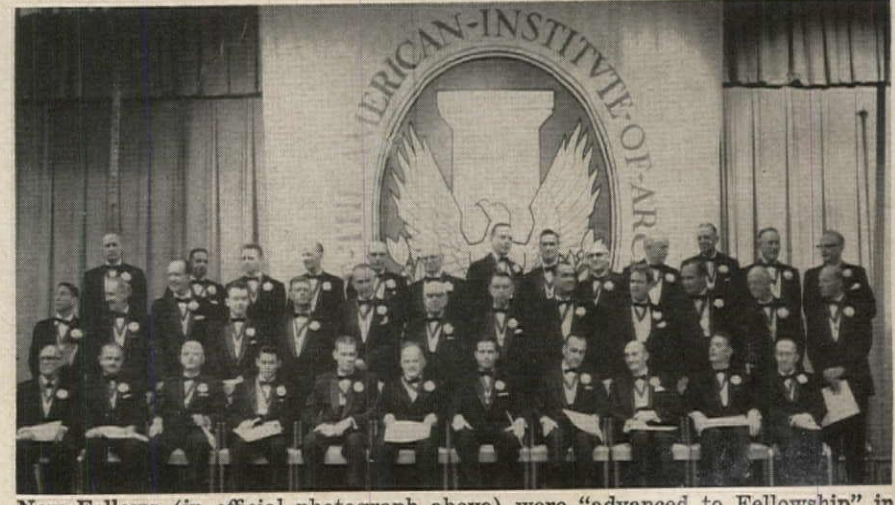
Traditional Honors. Except for the Gold Medal and the Fellowships, the awards were made at the annual awards luncheon, held the opening day of the convention in the Statler-Hilton's grand ballroom.

Architect Harry D. Payne of Houston received the annual Edward C. Kemper Award, named for a for-

New A.I.A. Board sat for formal portrait at its post-convention meeting in Dallas. *Front row, left to right*: Directors Reginald Roberts, *Texas;* Robert M. Little, *Florida,* and Malcolm D. Reynolds, *California;* Second Vice President Arthur Gould Odell Jr.; First Vice President J. Roy Carroll Jr.; President Henry Lyman Wright; Secretary Clinton Gamble; Treasurer Raymond S. Kastendieck; Directors James A. Clark, *East Central,* and James Lawrence Jr., *New England;* and Executive Director William H. Scheick. *Back row, left to right*: Directors Oswald H. Thorson, *Central States;* Charles M. Nes Jr., *Middle Atlantic;* Morris Ketchum Jr., *New York;* George B. Mayer, *Ohio;* R. Lloyd Snedaker, *Western Mountain;* Julius Sandstedt, *North Central States;* G. Scott Smitherman, *Gulf States;* Adrian N. Langius, *Michigan;* Robert L. Durham, *Northwest;* William J. Bachman, *Illinois;* William E. Freeman Jr., *South Atlantic;* and William W. Eshbach, *Pennsylvania*

Hospitality lounge (two views above) provided by host chapter near meeting room in Dallas Memorial Auditorium was attractive and popular gathering place. Perpetual coffee service was thoroughly patronized—here Mrs. Henry Elkins and Mrs. George Harrell serve Daniel J. Howe Jr., F. W. Dodge public relations director

Convention Chairman Roscoe DeWitt of Dallas (left above) at convention registration headquarters, on Auditorium's lower level near exhibits. 1962 Building Products Exhibit (entrance right above) was largest ever (167 exhibits)



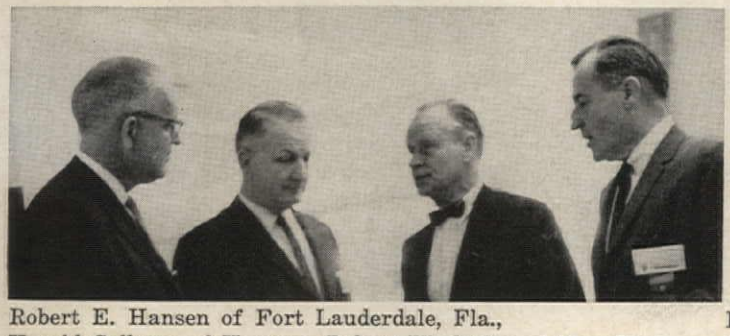
New Fellows (in official photograph above) were "advanced to Fellowship" in stately ceremonies held in the Grand Ballroom of the Sheraton Hotel, where the President's reception immediately followed. The new Honorary Fellows (not in this photograph) were also installed on this occasion. (For list of Fellows, April 1962, page 26)

Between sessions . . . .
Irving W. Hadsell, president of F. W. Dodge Corporation, with RECORD Editor Emerson Goble and Mrs. Goble

Edgar H. Berners of Green Bay, Wis., Mr. and Mrs. Solis Seiferth of New Orleans and Lem Moody, also of New Orleans

Benjamin McMurry of Knoxville, Gordon Wittenberg of Little Rock and William Stephen Allen of San Francisco (left). *Center*: Robert Anshen of San Francisco with California's Dean William Wurster

Cross-country exchange. . . . (far right) Samuel E. Homsey of Wilmington, Del., and Bartlett Cocke of San Antonio



Robert E. Hansen of Fort Lauderdale, Fla., Harold Calhoun of Houston, Robert W. Cutler of New York, and Morris Ketchum Jr. of New York

Robert M. Cunningham Jr., RECORD editorial director and F. W. Dodge Corporation vice president, with RECORD associate editor Herbert L. Smith Jr. and G. Scott Smitherman of Shreveport, La.

Happy colleagues. . . . (left) A.I.A.'s new secretary, Clinton Gamble of Fort Lauderdale, Fla., and Robert H. Levison of Clearwater

Center: New Honorary Fellow Hector Mestre of Mexico, Frederick J. Woodbridge of New York, Mrs. John Noble Richards of Toledo and A.I.A. Past President Richards. *Right:* J. Roy Carroll Jr. and California's Ulysses Floyd Rible

Samuel I. Cooper of Atlanta, chairman of A.I.A. International Relations Committee, with Hon. Tomas Reyes and Hernan Larrain-Errazuriz of Chile

Mr. and Mrs. George E. Kassabaum of St. Louis and Mr. and Mrs. Oswald H. Thorson of Waterloo, Iowa

continued from page 12

mer executive director of the Institute and given for distinguished service to the Institute and the profession. Mr. Payne has been active for nearly 20 years in the establishment and administration of insurance programs for architects.

Medals in allied fields were given as follows: *Fine Arts*—painter Stuart Davis of New York; *Craftsmanship*—model-maker Theodore Conrad of Jersey City, N.J.; *Industrial Arts*—industrial designers Sundberg-Ferar Inc. of Southfield, Mich.; *Allied Professions*—consulting engineers Ammann and Whitney of New York; *Architectural Photography*—Ernst Haas of New York.

This year's Citation of an Organization went to the Museum of Modern Art, New York, and Lewis Mumford of Amenia, N.Y., received the Citation of Honor for his book "The City in History."

Skidmore, Owings & Merrill of New York, Chicago, San Francisco and Portland, Ore., received the A.I.A.'s first Architectural Firm Award for "maintaining a high standard of excellence that has distinguished its architecture over a wide geographical area and in many building types."

Also presented at the awards luncheon was the sixth annual R. S. Reynolds Memorial Award, accepted by French architect Guy Lagneau on behalf of the Atelier d'Architecture Guy Lagneau, Michel Weill and Jean Dimitrijevic, a Paris firm honored for design of the Museum Cultural Center in Le Havre, in collaboration with architect Raymond Audigier of Le Havre (May 1962, page 20). The prize of $25,000, largest in architecture, was accompanied by an aluminum sculpture by Harry Bertoia.

Honorary Memberships were bestowed on Polly Shackleton, former head of the A.I.A.'s legislative affairs department and editor of its biweekly newsletter; Wolf von Eckhardt, former head of the A.I.A. public information department and art director of the A.I.A. *Journal;* Edith Brazwell Evans, for 14 years and until its recent absorption by *House & Garden,* editor-in-chief of *Living for Young Homemakers;* George E. Pettengill, A.I.A. librarian; Perry I. Prentice, editor and publisher of *House & Home;* and Arnold C. Tjomsland, school planning expert and associate professor at Washington State University.

Reflective moment. . . . (left) Worley Wong of San Francisco. *Right*: George F. Pierce Jr. and Albert S. Golemon of Houston in a quick conference with colleagues

Mr. and Mrs. Clinton Gamble of Fort Lauderdale, Fla., with Robert W. Cutler of New York (left). *Right*: Dean William Wurster of California with Robert F. Marshall, RECORD publisher and F. W. Dodge Corporation executive vice president

Texas regional directors now and then. . . . (left) Reginald Roberts of San Antonio (present) and R. Max Brooks of Austin (past). *Right*: New President Henry Wright of Los Angeles with Past President George Bain Cummings of Binghamton, N.Y.

Dean John Lawrence of Tulane with Herbert L. Smith Jr., RECORD associate editor, and James R. Lamantia Jr., of New Orleans (left). *Right*: John Carl Warnecke Jr. of San Francisco with California's Dean William Wurster

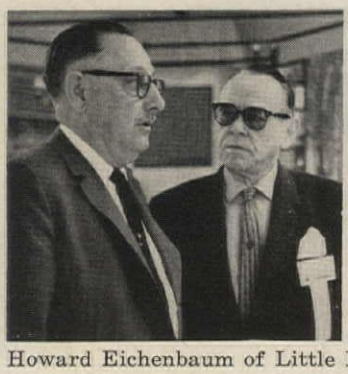
All photographs: Donald R. Snyder, Emerson Goble, Daniel J. Howe Jr.

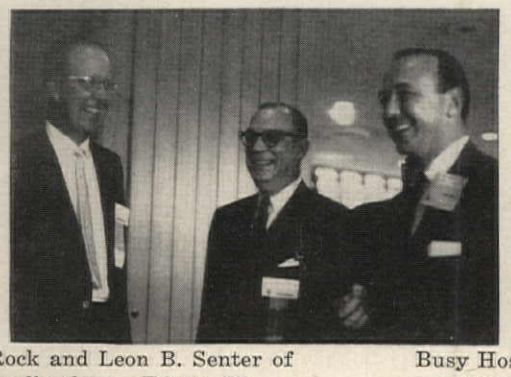
North Carolina State's Dean Henry Kamphoefner with Arthur G. Odell of Charlotte, N.C. (left). *Right*: New Honorary Fellow Ngo Viet-Thu of Vietnam with RECORD Senior Editors Robert E. Fischer and Jeanne Davern and Ernest Mickel of F. W. Dodge construction newspapers

New President Henry Wright with Daniel Schwartzman of New York. *Right*: Dean Walter Taylor of Ohio with H. Samuel Kruse of Miami, next year's host chapter convention chairman

Gulf States' new regional director, G. Scott Smitherman of Shreveport, with Paul Spreiregen, new member of A.I.A.'s staff in Washington, D.C., and Mrs. Spreiregen

Center: Clinton E. Brush III of Nashville, Gulf States' retiring regional director, with Matthew L. Rockwell, A.I.A. director of public services, and R. Max Brooks of Austin, Tex. *Right*: William Dudley Hunt Jr., RECORD senior editor, with Florida's Clinton Gamble and Robert F. Hastings of Detroit





Howard Eichenbaum of Little Rock and Leon B. Senter of Tulsa, Okla. (left). *Right*: Carrolls three—Edwin W. of El Paso, J. Roy Jr. of Philadelphia, and Elliott of A.I.A. headquarters staff in Washington

Busy Host Chapter Chairman Ralph Bryan of Dallas pauses for a quick chat with Bartlett Cocke of San Antonio (left). *Right*: Mr. and Mrs. O'Neil Ford of San Antonio

J. Winfield Rankin, A.I.A. director of administrative services, with Past President Clair W. Ditchy of Detroit (left). *Right*: A.I.A. Public Relations Counsel Robert Denny of Washington, RECORD Editor Emerson Goble and William Stephen Allen

Three of four speakers on conventional panel moderated by Emerson Goble—Benjamin F. McMurry, Gordon G. Wittenberg and (from Eugene, Oreg.), Donald Lutes. *Right*: George Vernon Russell of Los Angeles and Harris Armstrong of St. Louis

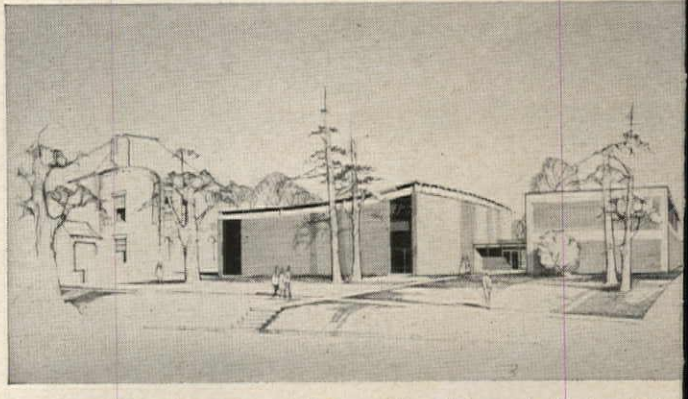
NEW IDEAS IN CONCRETE

MEN'S PHYSICAL EDUCATION BUILDING, Indiana State Teachers College, Terre Haute—is distinguished by the longest single-span folded plate roof in the United States: 160 ft., 10 in., with a 3-ft. overhang at each end. Tendon and anchorage assemblies, equipment and technical assistance supplied by Ryerson. **Architect:** Miller—Miller & Associates, Terre Haute. **Structural engineer:** Homer Howe. **Contractor:** J. L. Simmons Co., Indianapolis.

...shaped to hard-working realities

PORT OF SEATTLE PIER 28. Warehouses adjacent to three ship berths span 150 ft.—with no interior columns. The clear span is made possible by a post-tensioned thin-shell concrete barrel roof, supported by columns spaced at 40-ft. intervals. Minimum clear height in the warehouses is 26 ft. **Chief engineer,** Port of Seattle: Charles Dearstyne. **Design engineer,** for Pier 28 project: Wheeler H. Rucker, Jr. **General contractor:** Lease Company, Inc., Seattle.

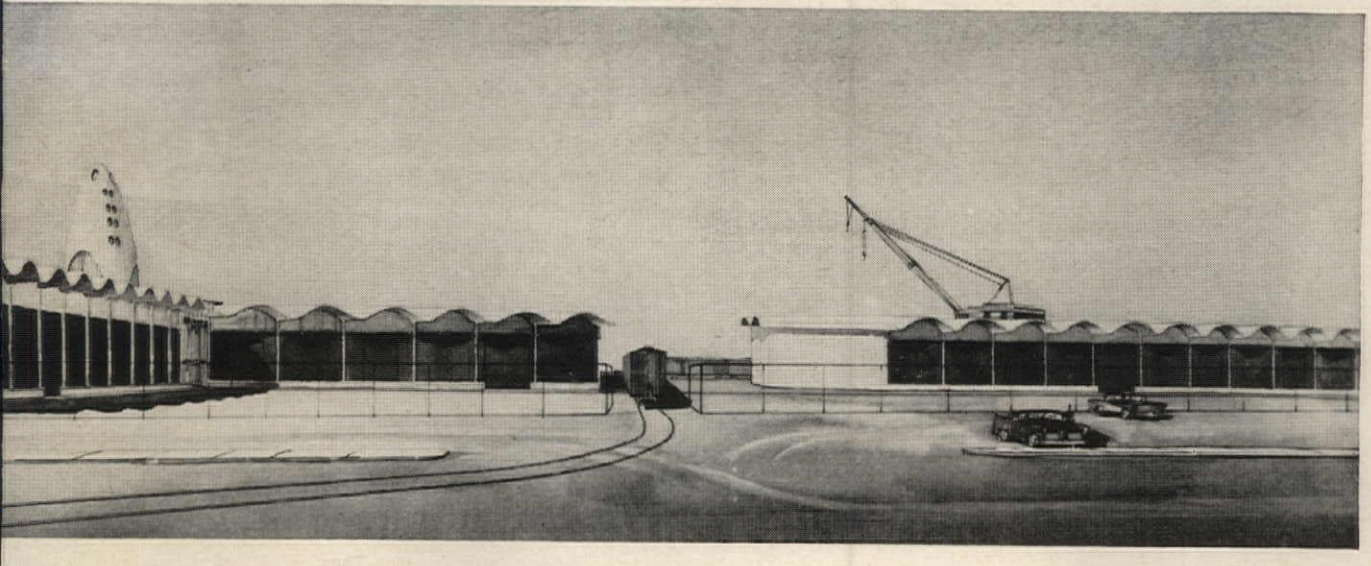
Stretch a roof or fling a highway—the versatility of concrete is equal to the task when post-tensioned by Ryerson. Here are four examples of that versatility. In each case, Ryerson service provided post-tensioning materials, equipment and experience to bring the project to a successful conclusion.



FINE ARTS CENTER, Grinnell College, Grinnell, Iowa. In this beautiful structure the 100-ft. span in the theater, as well as the reduced structural depth of the building frame, was economically achieved by post tensioning. Two connected parts, the Roberts Theater and the Arts Building make up the Center.
Architect and Engineers: Skidmore, Owings & Merrill, Chicago.
Contractor: The Weitz Company, Inc., Des Moines.

PHYSICAL EDUCATION BUILDING, Northern Illinois University, DeKalb—includes four gymnasiums, three swimming areas, dance rooms, classrooms, offices—110,000 sq. ft. of recreational and work space. Post-tensioned, concrete roof girders 127' long make the large free-space areas possible. **Architects and engineers:** Samuelson and Sandquist, Chicago. **General contractor:** Johnson, Jacobson, Inc., DeKalb. **Sub-contractor, roof girders:** Midwest Prestressed Concrete Company.

y RYERSON post-tensioning service



ll-stage service in a single-price package

nique quality-controlled Ryerson service covers every peration. One quoted price includes:

Force development calculations—from design engineers' asic data, Ryerson furnishes computations verifying at the forces developed by its system meet your plan equirements.

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Quality-controlled tendon and anchorage assemblies—l units are fabricated under carefully controlled conditions. We can provide test reports on every heat of wire used in tendons.

• **Equipment for precise stressing, positive grouting**—we furnish all necessary equipment, including easily-operated jacks, instruments for measuring stress and elongation, hydraulic pumps, grout mixers.

• **Field Procedures**—Ryerson personnel are thoroughly experienced and can provide whatever counsel you need at each step of the post-tensioning operation.

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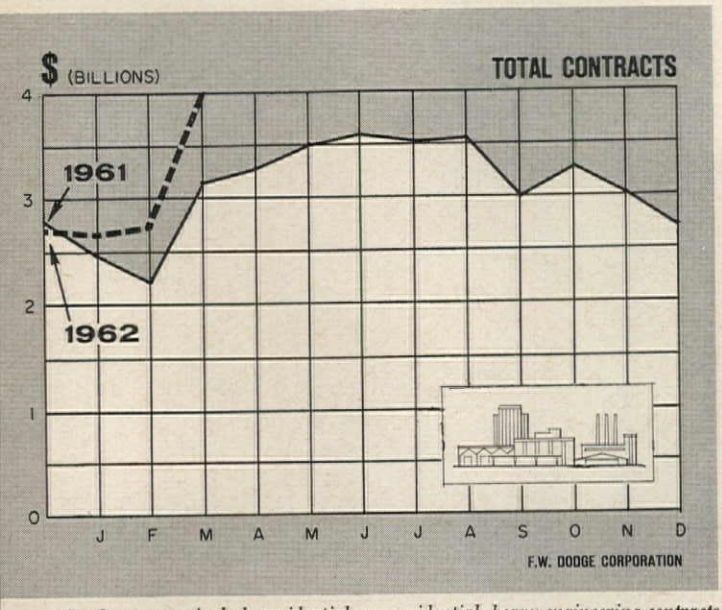
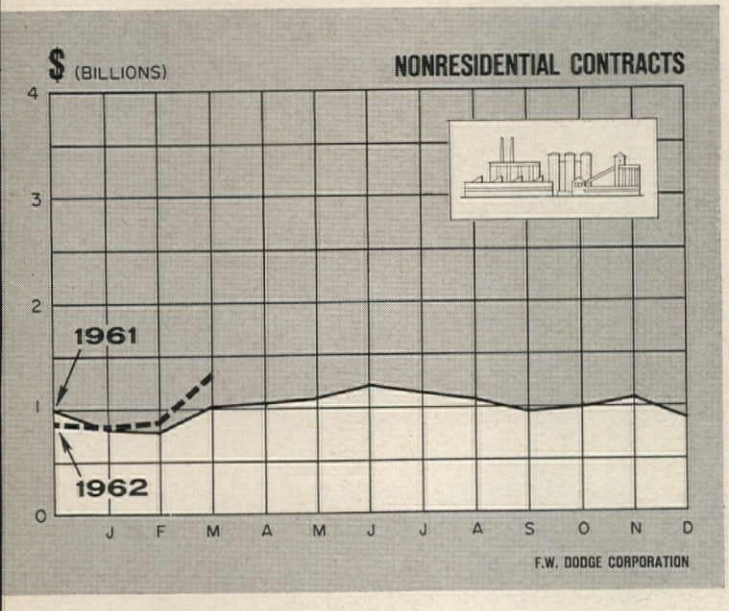
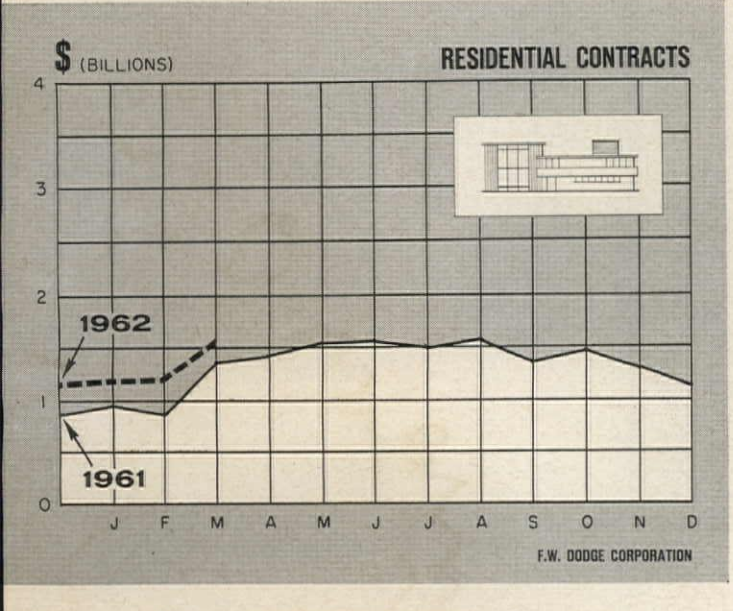


Total contracts include residential, nonresidential, heavy engineering contracts





SHOPPING CENTERS PACE STORE CONSTRUCTION

STORE BUILDING continues on its merry upward way with a record performance in 1961 and further gains in early 1962. Both dollar and physical volume of store building contracts reached all-time highs last year, at $1,996 million and 192 million sq ft, respectively. For the first quarter of 1962, mercantile building contracts (in dollars) ran seven per cent ahead of the comparable period last year. The growth of store construction has had a decided impact on total nonresidential building, as stores now account for about 15 per cent of that market.

EXACTLY HOW MUCH of this growth represents shopping center construction is impossible to pin-point. However, we have reason to believe that it is a substantial part and is increasing. According to one estimate, 5,500 shopping centers accounted for 25 per cent of all retail sales (excluding automobile sales) in 1961 compared to less than one per cent in the late 1940's. There seems to be another trend toward larger individual shopping centers serving a wider variety of retail needs. What started out as a parking space for a supermarket and maybe a connected drug store has become, in many cases, a self-contained commercial "city" with department store branches, a discount house, a food supermarket, a clothing speciality shop, a furniture outlet, a gourmet shop, or any number of other combinations.

SHOPPING CENTERS' *raison d'etre* is still, of course, the automobile. The principal attraction of the most elegant of the new shopping centers, with their park-like malls and cohesive architectural design, is apt to be their convenient access by private car. To get there by driving, to find a place close to the stores to leave the car, and to have all the items on the shopping list available within walking distance from the car appear to be the preferred habits of most consumers. Acres of adjoining parking lots mean relatively high land costs to the developer (to say nothing of the expense of grading, paving, and servicing these acres), but they are essential for the success of the suburban shopping center. And the new centers in or nearby downtown areas, which may be part of an urban renewal plan, usually contain vast underground parking facilities or have other special arrangements for enlarged parking space.

HISTORICALLY, motor-vehicle travel has increased considerably faster than car registrations (or sales of new cars). Forecasts prepared by the Bureau of Public Roads indicate a *93 per cent rise* in vehicle-miles traveled from 1956 to 1976. This trend, along with the stepped-up pace of the new highway program is bound to have a very stimulating effect on shopping center and store construction in the years to come. As for the near term, we expect the first quarter gain in total store building to be maintained throughout 1962. Rising personal income, retail sales, and general business activity will contribute to another record year for store construction, with contract awards totaling well over $2 billion for the first time.

EDWARD A. SPRAGUE, *Economist*
F. W. Dodge Corporation
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The rich mosaic design of this handsome Bigelow Carpet is in perfect harmony with the lavish Victorian decor of the Plaza's corridors.

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Famed interior designer, Henry End, A.I.D., I.D.I., in charge of the Plaza Hotel's program of restoration has refurbished this historic establishment in the elegance and style suited to such distinguished premises. The Bigelow Carpets chosen for all corridors, dining areas, lounges, private rooms and suites were specially planned to carry out Mr. End's individual design.

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Construction Cost Indexes

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

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

NEW YORK

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1949	243.7	240.8	242.8	246.6	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	274.9	271.8
1952	278.2	274.8	271.9	265.2	262.2
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
1955	293.1	286.0	300.0	308.3	302.4
1956	310.8	302.2	320.1	328.6	324.5
1957	318.5	308.3	333.1	345.2	339.8
1958	328.0	315.1	348.6	365.4	357.3
1959	342.7	329.0	367.7	386.8	374.1
1960	351.6	337.2	377.7	395.8	380.6
1961	362.5	343.0	398.2	422.4	397.0
January 1962	365.1	343.5	407.1	432.5	405.7
February 1962	367.1	344.6	410.2	436.9	409.2
March 1962	367.1	344.6	410.2	436.9	409.2
	% increase over 1939				
March 1962	197.2	181.5	213.8	227.5	214.5

ATLANTA

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.0	224.6	221.3	221.8	223.0
1954	219.6	219.1	233.5	225.2	225.4
1955	225.3	225.1	229.0	231.5	231.8
1956	237.2	235.7	241.7	244.4	246.4
1957	241.2	239.0	248.7	252.1	254.7
1958	243.9	239.8	255.7	261.9	262.0
1959	252.2	247.7	266.1	272.7	273.1
1960	259.2	253.3	274.7	282.5	278.8
1961	256.7	249.7	275.8	284.5	275.8
January 1962	260.0	253.0	279.8	288.9	278.0
February 1962	259.9	252.9	279.7	288.9	278.0
March 1962	259.9	252.9	279.7	288.9	278.0
	% increase over 1939				
March 1962	201.1	204.3	194.1	196.6	193.5

ST. LOUIS

1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.0	259.2
1954	266.6	260.2	263.7	273.3	266.2
1955	273.3	266.5	272.2	281.3	276.5
1956	288.7	280.3	287.9	299.2	293.3
1957	292.0	283.4	295.2	307.1	302.9
1958	297.0	278.9	304.9	318.4	313.8
1959	305.4	296.4	315.0	329.8	323.9
1960	311.4	301.0	322.2	337.2	329.2
1961	315.1	302.0	329.0	346.8	332.2
January 1962	319.2	304.9	336.6	355.5	337.7
February 1962	319.6	305.1	337.2	356.5	338.3
March 1962	319.6	305.1	337.2	356.5	338.3
	% increase over 1939				
March 1962	190.0	185.1	184.1	197.6	184.3

SAN FRANCISCO

1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.0	259.7
1954	257.4	249.2	264.1	272.5	267.2
1955	268.0	259.0	275.0	284.4	279.6
1956	279.0	270.0	288.9	298.6	295.8
1957	286.3	274.4	302.9	315.2	310.7
1958	289.8	274.9	311.5	326.7	320.8
1959	299.2	284.4	322.7	338.1	330.1
1960	305.5	288.9	335.3	352.2	342.3
1961	308.7	290.2	345.1	362.9	350.2
January 1962	310.8	291.4	350.4	368.2	354.0
February 1962	310.8	291.4	350.4	368.2	354.0
March 1962	310.8	291.4	350.4	368.2	354.0
	% increase over 1939				
March 1962	194.3	193.4	198.5	202.0	203.9

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.:

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

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

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

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

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

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

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

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

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For complete information on Deca-Grid and the other Borden Architectural Decor Panels, including Deca-Gril, Deca-Ring, Decor Plank and their many variations and subtypes, write for our new eight-page catalog on Borden Architectural Decor Panels.

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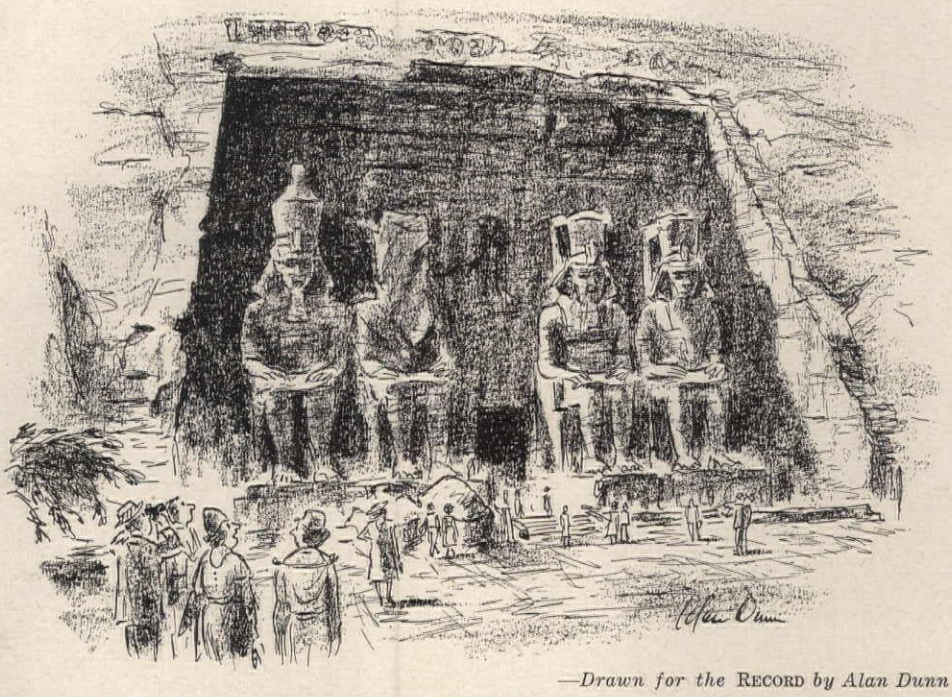


—*Drawn for the* RECORD *by Alan Dunn*

"I can't worry over the rising waters of the Nile—I've got my hands full back home saving Penn Station—"

C.S.I. CONVENTION TAKES UP STANDARD REFERENCE SPECIFICATIONS IN SELF-ANALYTICAL PROGRAM

Standard reference specifications emerged the major issue at the sixth annual convention of the Construction Specifications Institute. This year's program involved the critical evaluation of the Institute by spokesmen for the American Institute of Architects, Associated General Contractors of America, Consulting Engineers Council and the Producers' Council, Inc. The three-day meeting held April 23-25 in Atlanta, was attended by 820 persons, including 169 delegates from 39 C.S.I. chapters.

Although no final action was taken on the question of whether or not C.S.I. should adopt a standard reference spec, conventioners were given copies of a proposal by the Atlanta chapter to take home for study. The Atlanta chapter's proposal was backed by a sample specification on the Atlanta Airport terminal building done in two formats—in the conventional format and as a standard reference specification.

A floor discussion on the subject showed those attending solidly behind this new concept of writing construction specifications.

Elmer A. Lundberg, Producers Council president, said the producers were delighted to see a reduction in the words and pages of specs. George W. Poulsen Jr., Consulting Engineers Council treasurer, said specifications are getting so much more complicated, there is a real need for a standard reference section.

It was emphasized that although there were probably many small points on which C.S.I. members would disagree in the Atlanta chapter's proposal, for the time being only the principle of the standard specification would be considered. Once that met general approval, the task of ironing out small details would begin.

New Officers Elected

Edwin T. Pairo, Chatelain, Gauger & Nolan, Washington, D.C., is the new Institute president. He was to take over his official duties from James Bort, Chicago, on June 1. Other new officers are Frank W. Crimp, Boston; Terrell R. Harper, Dallas; Jack R. Lewis, San Diego—vice presidents; Edwin A. Weed, New York—secretary-treasurer.

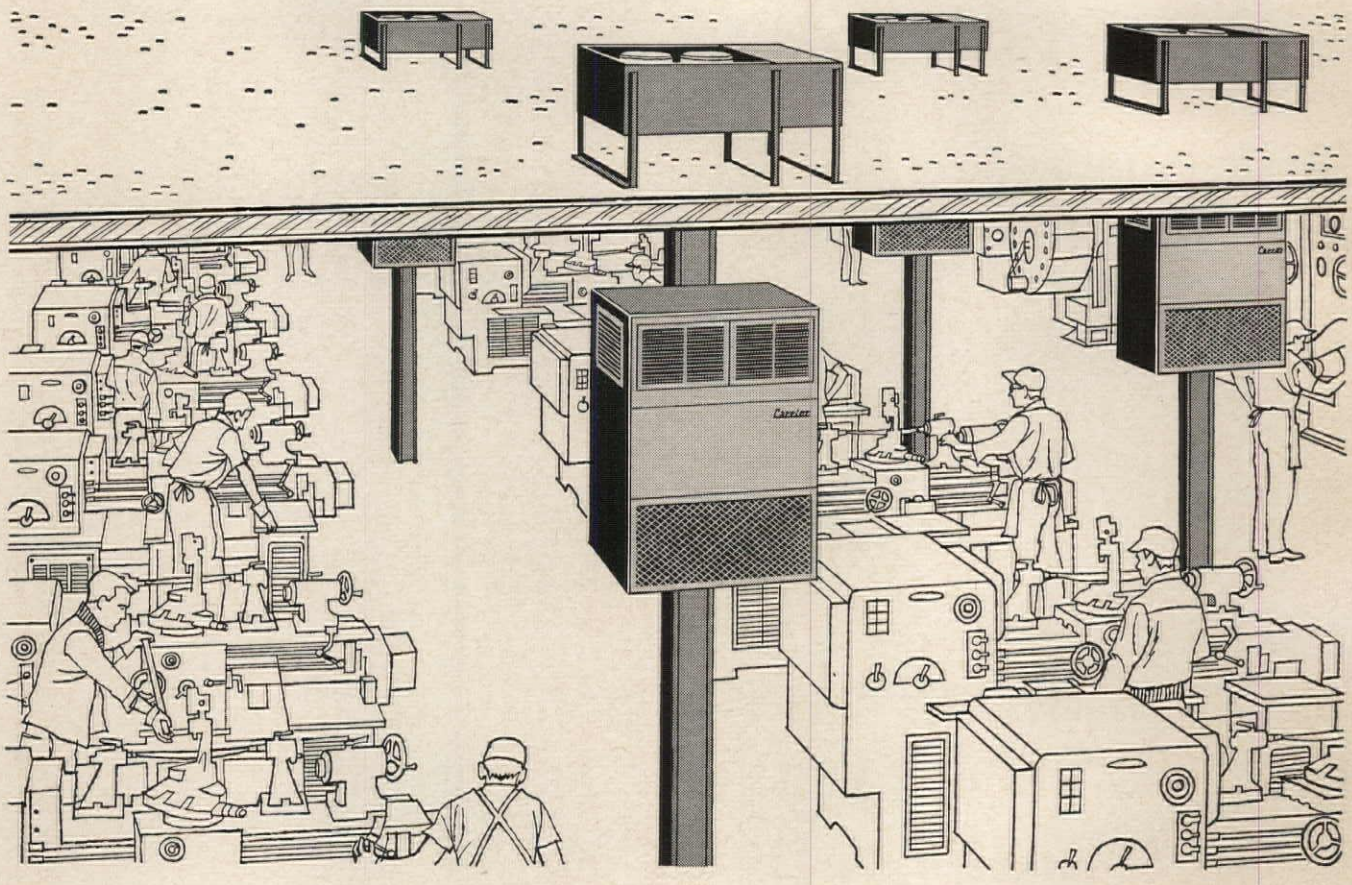
Honors Awarded

Five members were elevated to the rank of Fellow: Willard H. Barrows, New York; Albert G. Bear, New Orleans; R. Redmond Coghlan Jr., Los Angeles; Jack R. Lewis, San Diego; and Henry T. J. Martin, Dallas.

Certificates of appreciation went to Lester T. Burn, Washington, D.C.; Frank Couch, Detroit; and John P. Davey, Columbus, Ohio.

The President's Medal, a new award, was instituted as a symbol of office and was to be given to the in coming Edwin T. Pairo and the nine former C.S.I. presidents.

Receiving President's Plaques were James A. Lee, Atlanta; Edwin A. Weed, New York; Leslie M. Lowery, Detroit; Vincent G. Raney, San Francisco; and Robert G. Burkhardt, Chicago.



One of many ways you can use this Carrier matched pair for low-cost air conditioning

This application consists of Carrier 38AB outdoor Condensing Units and 38R Fan and Coil Units. It is just one of many ways you can "tailor-make" an installation to provide effective, economical air conditioning for your prospect's specific requirements.

This installation shown above serves a one-story plant. The indoor sections, hung vertically from columns, provide 3-way air discharge. Depending on your requirements, the indoor sections may be suspended from the ceiling, hung on the walls or stood on the floor. They may also be used horizontally. With the outdoor section, they require only a single refrigerant circuit—a factor which reduces installation costs.

The outdoor sections are ideal for roof-top use. They are comparatively light in weight, have a low silhouette and their vertical airflow eliminates the need for wind deflectors. They also feature capacity control, providing 2/3 capacity for light load operation. This lowers operating cost and, at the same time, improves humidity control.

Carrier 38AB Condensing Units and 38R Fan-Coil Units are available in matching capacities of 10 and 15 tons. In addition, Carrier offers matched combinations for cooling and heating, as well as Heat Pump Weathermakers*. For information, call your Carrier dealer, listed in the Yellow Pages. Or write Carrier Air Conditioning Company, Syracuse 1, N. Y.

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ANNUAL C.E.C. MEETING TACKLES HUGE AGENDA

NEW EXECUTIVE COMMITTEE: Harold P. King, past president; J. Gibson Wilson, Jr., secretary; Sanford K. Fosholt, first vice president; Lester L. Bosch, president; Eugene Waggoner, second vice president; Harry Czyzewski, treasurer

More than 60 subjects of vital concern to U.S. consulting engineers—the top four being competition from government bodies, architect-engineer relations, legal problems and public relations—were discussed and acted upon at the Consulting Engineers Council Sixth Annual Board of Directors Meeting, May 10-12 in New Orleans.

Over 150 U. S. consulting engineers, plus representatives from Australia and Canada attended the three-day meeting. Acceptance of three new consulting engineer groups brought the total number of member organizations to 36 (plus 27 members-at-large), giving an engineering firm membership of 1,643 which is estimated to include more than 5,000 practicing engineers.

Among the highlights of the meeting were panel discussions on consulting fees, professional liability insurance and the engineer's role in planning.

Other principal items on the business agenda were committee reports on cooperation with other professional organizations, a new proposed catalog indexing system, the C.E.C. manual of practice, unionization of engineers and special problems of individual C.E.C. organizations.

The C.E.C. board of directors discussed and approved sponsorship of a national joint committee of C.E.C. with A.I.A. following the decision of the Engineers' Joint Council in April to withdraw from the E.J.C.-A.I.A. Liaison Committee.

Announcement was made at the meeting of plans to circulate the newly developed C.E.C. Engineering Catalog Index among trade associations and publishers for comment.

An Award of Merit was given to Admiral Eugene J. Peltier for his advancement of engineer registration during his tour as Chief of the Bureau of Yards and Docks, and an Achievement Award was given to John K. Minasian for outstanding engineering in connection with structural design of the Seattle World's Fair Space Needle.

BACKGROUND ON C.E.C.

The 36 member organizations are independent local, state or area groups of consulting engineers. These groups are made up of individual consulting engineers or consulting engineering firms whose representatives are either sole proprietors, partners or registered engineer officers of corporations offering consulting engineer services.

The government of the Council is vested in its Board of Directors which meets twice a year. C.E.C. employs an executive director, a director of information and office manager with offices in Washington, D.C.

C.E.C. has published many documents and publications for its members and dissemination to the public. The Council is represented at national business, professional and legislative meeting and hearings of importance to consulting engineers.

B.R.I. CONFERENCES: SOLAR EFFECT TO SEALANTS

The Building Research Institute 1962 Spring Conferences held April 24-25 in Washington, D. C., and attended by some 500 people, featured a technical program on three major topics: joint sealants, solar effects on building design and new building research.

B.R.I. also presented the F. Stuart Fitzpatrick Memorial Award, given annually in honor of outstanding achievement in the unification of the building industry, to Douglas Whitlock, Chairman of the Board, Structural Clay Products Institute.

During the award ceremony, Philip Will, Jr., past-president A.I.A., quoted from the citation presented to Whitlock, saying, "Over the years, you have made a notable contribution to extending research, establishing better apprenticeship practices . . . and promoting closer harmony between the diversified elements of the construction industry and its related professions."

Among the papers presented at the solar effects sessions were: "Solar Effects on Building Appearance," "Solar Effects on Building Costs," and "Procedures for Analysis of Building Design as Related to Solar Effects." Other papers dealt with "Design of Windows," "Design of Skylights," "Design of Electric Illumination."

Under the general head of "New Building Research" were papers dealing with administration of research for building, suggestions for new research projects and reports on new building research.

"New Joint Sealants: Criteria, Design and Materials" program was divided into joint criteria based on performance experience, sealant criteria based on recent research and performance experience, and recent developments in joint sealant materials.

—Robert E. Fischer

New Church Architecture in Germany

Photographs and text by G. E. Kidder Smith, F.A.I.A.

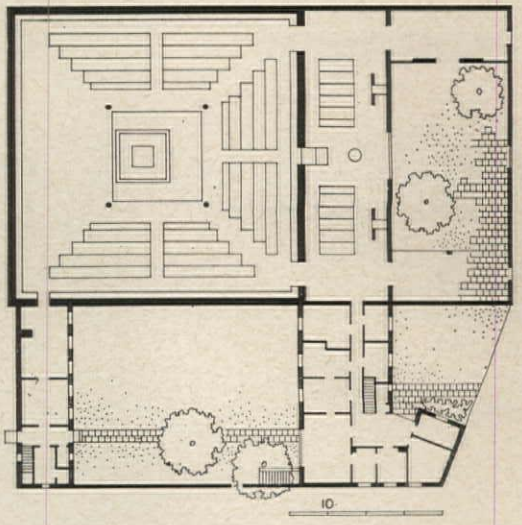
Garden entrance to church of the *Holy Family* by Rudolf Schwarz

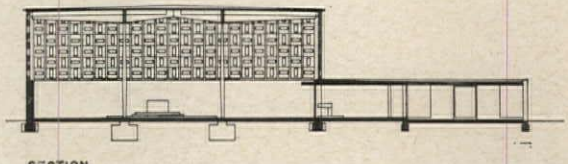
1. *Holy Family*. Gustavstrasse, Oberhausen (Essen). Rudolf Schwarz, architect

Approach to garden court

Entrance to church from garden court

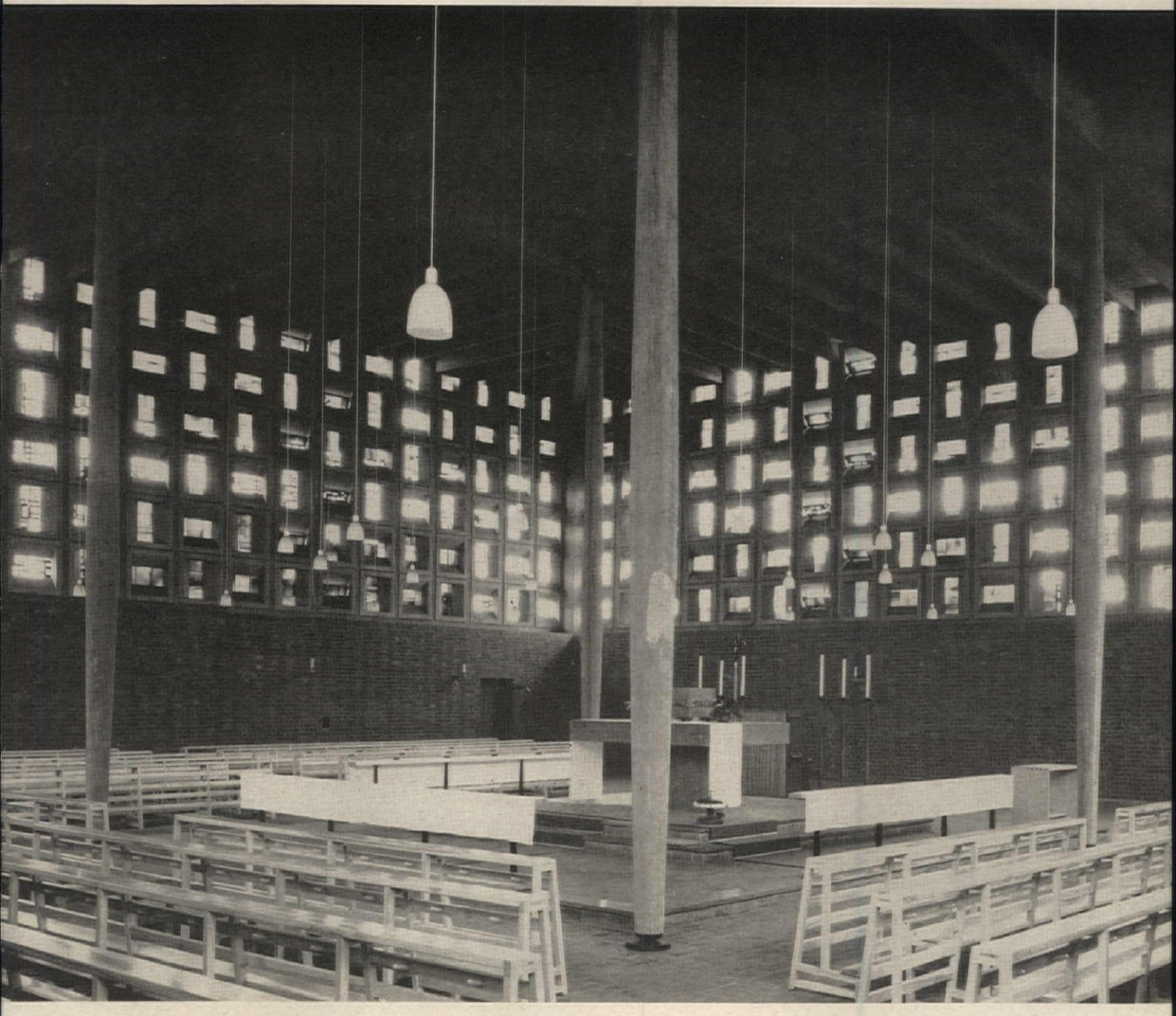
A pleasant garden entrance, in thoughtful contrast to the crowded nondescript surroundings, makes the approach to this Roman Catholic church one of Schwarz's most sensitive. The small weekday chapel forms one side of this garden court and can be entered directly so that the church proper can be kept locked if desired. Seating in the chapel takes care of extra worshippers on crowded Sundays. The lighting of the church itself floods in from all four sides through a series of rectangular panes set in square concrete blocks. These windows are filled with stained glass and are laid up alternately horizontal and vertical. The structure is an independent, raw concrete frame whose four central columns define the sanctuary. The congregation sits about the altar on three sides with a notable intimacy between priest and people.





SECTION

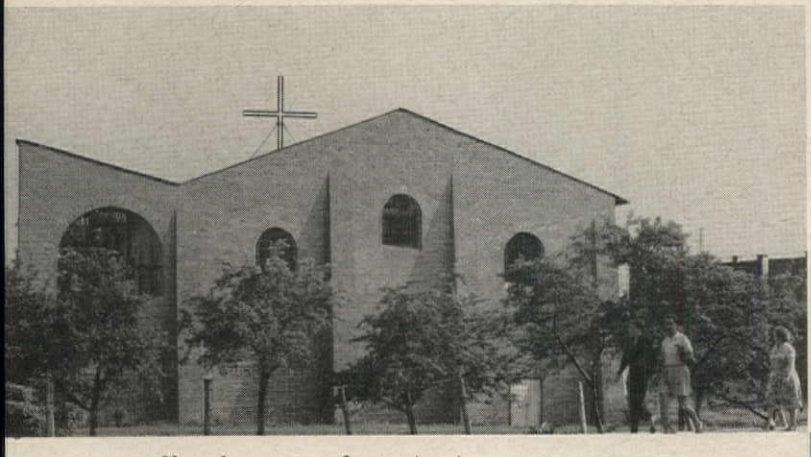
Ceiling above sanctuary



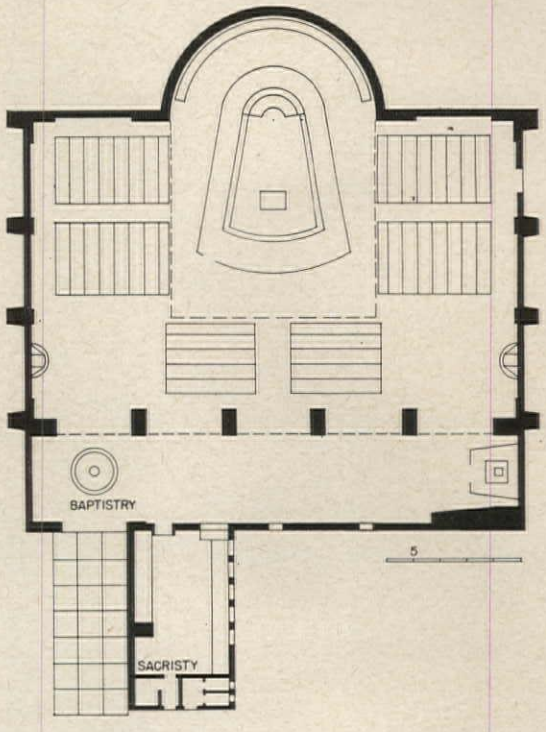
Sanctuary

2. *St. Laurentius*. Hohenlohe Strasse, Munich. Emil Steffann and Siegfried Östreicher, architects

Although the semi-medievalism of this Roman Catholic church is not altogether satisfactory, since the shape is somewhat amorphous, and the fenestration undistinguished, it does deliver that elusive architectural quality of a spiritual place. Its buttressed brick exterior is simple and rugged, happily devoid of acrobatics or readily ruined finish. On entering one finds a semi-narthex with a baptismal font to the left and a small altar at the right. One then steps into the main body of the church. This is dominated both in plan and in space by the semi-circular niche marking the chancel, which gives to the altar a visual importance and emphasis without separating the sanctuary from the congregation. Pews are placed on three sides. Complete simplicity and a fortunate minimum of trappings mark the space.



Church as seen from street



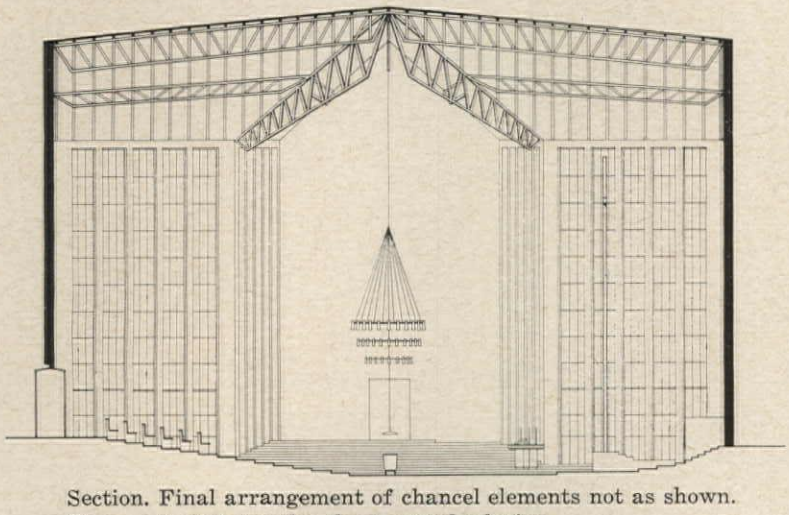
Main body of church as seen from narthex

View toward sanctuary

3. *Christ Church.* Schillerstrasse, Düren. Hentrich and Heuser, architects

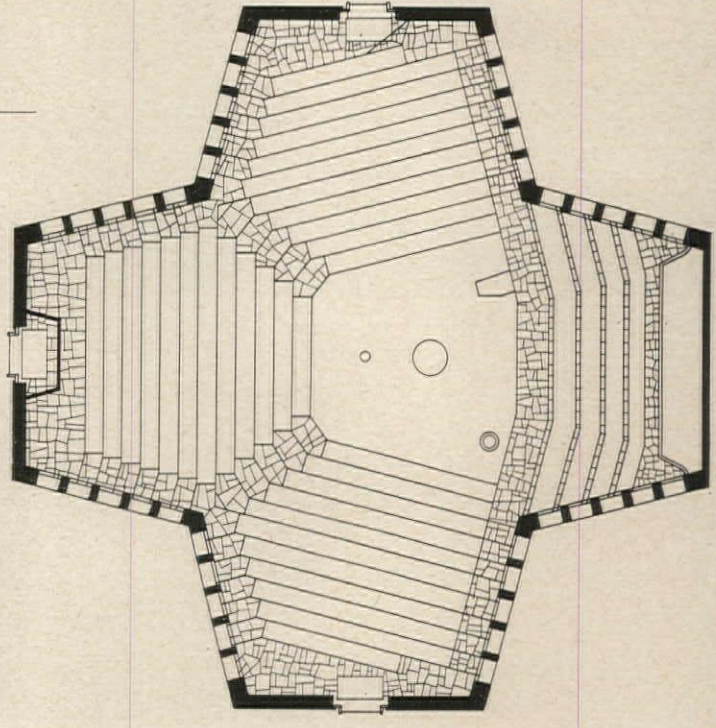
Entrance façade

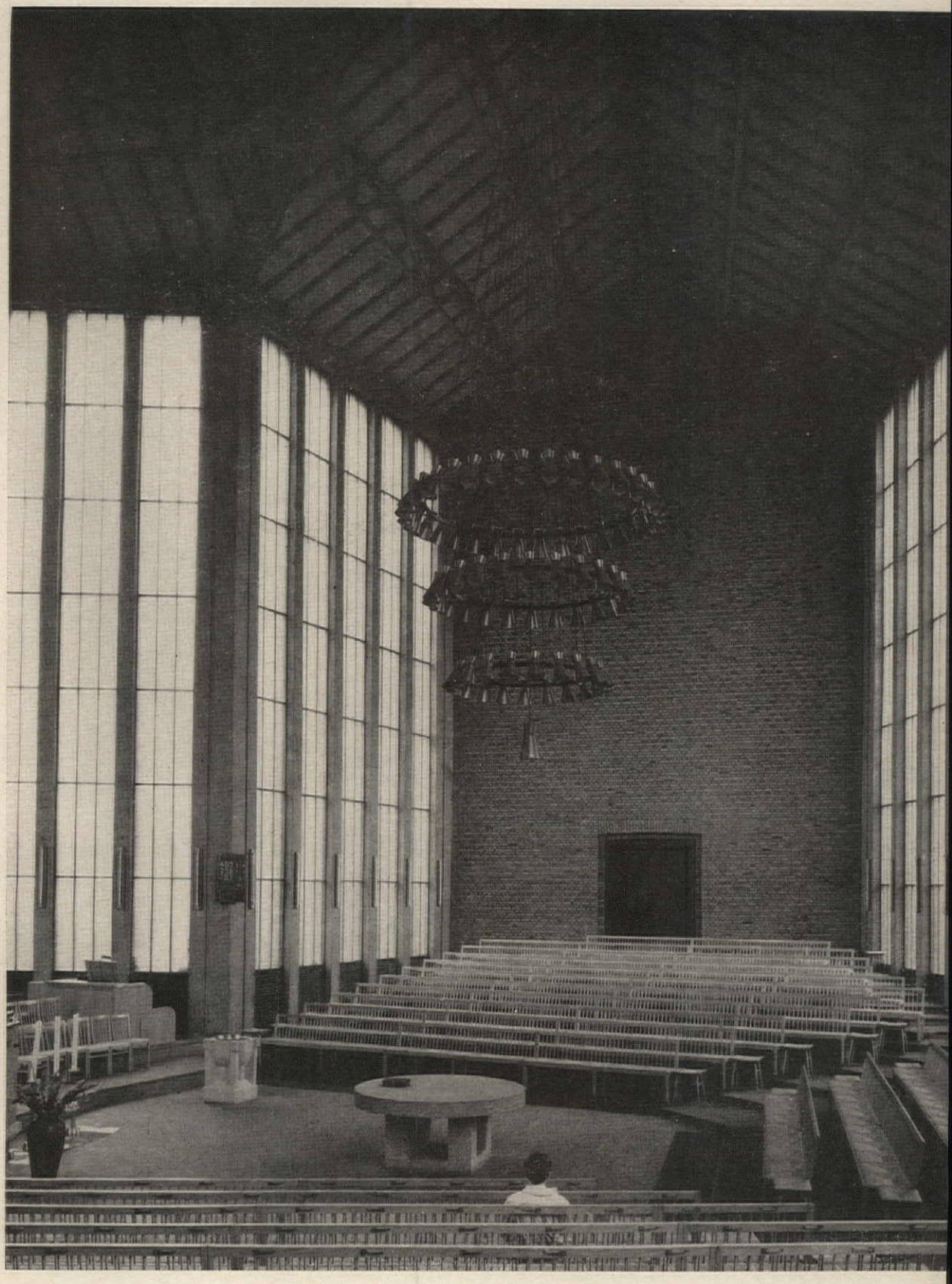
Although the over-all statement of this Protestant church is on the dry side, the plan delivers an excellent feeling of corporate worship, with the congregation grouped on three sides of the presbytery. The pews are banked slightly about the chancel, giving it an additional focus. The plan forms a modified Greek cross, its sides slightly splayed out to provide fuller breadth at the crossing than at the end walls. The sides are fully, a bit overly, glazed with translucent glass providing a high level of illumination. Choir and organ are in one arm of the cross, directly behind the chancel. Note the open design of the pews.



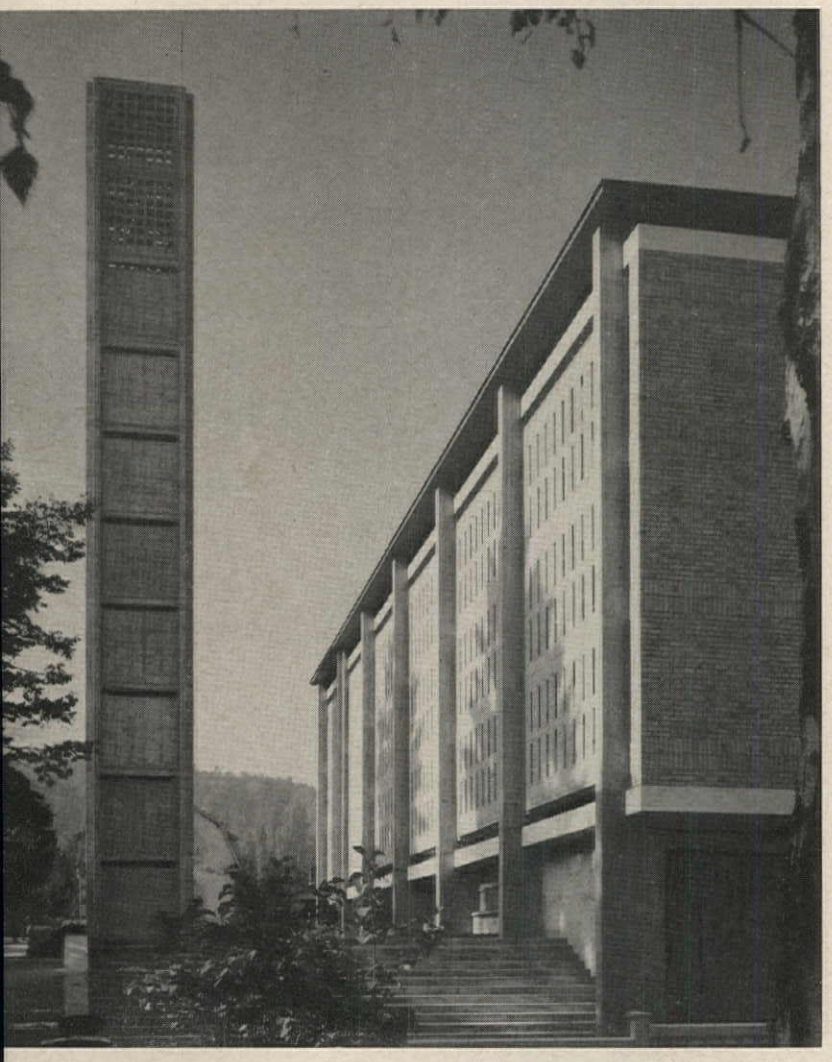
Section. Final arrangement of chancel elements not as shown. Plan and photographs show actual solution

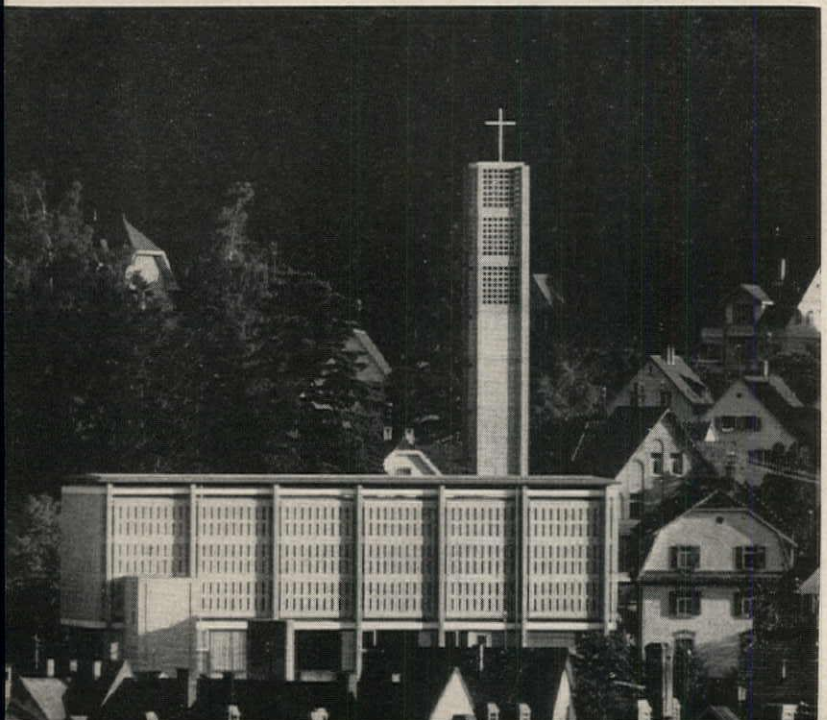
Chancel



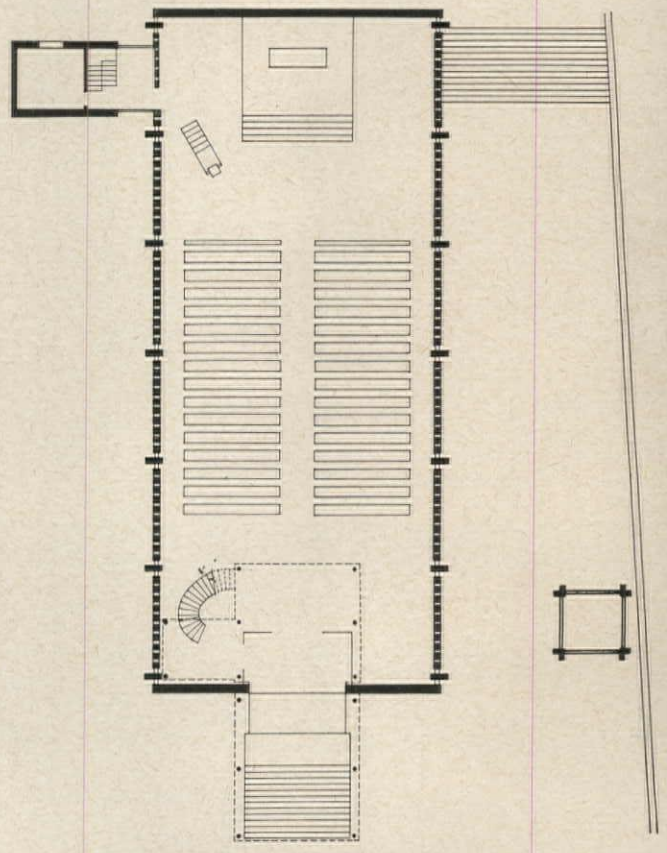


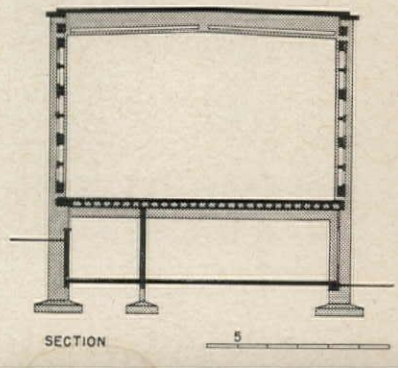
4. *Evangelical Church.* Jagdhausstrasse, Baden-Baden. Rolf-Eckart Weber, architect





The architect for this 500-seat church in southwest Germany wanted each element to be a clear and distinct entity in plan progression; bell tower, entry, nave and sacristy. Furthermore he sought to keep structure separate from fabric, with its concrete frame fully exposed, inside and out, and the panel walls stated as such. He wanted to speak with truth, architecturally and spiritually. The light floods in from two sides, but the glazing is set on the outer edge of the deep reveals so that no glare develops. The glass is clear where the brick enclosing panels meet the structural columns, but it is colored within the panels proper. It provides an agreeable natural light. The entire church is lifted partly above the ground to enable the youth center and services which fill the basement to be accommodated within the building proper.



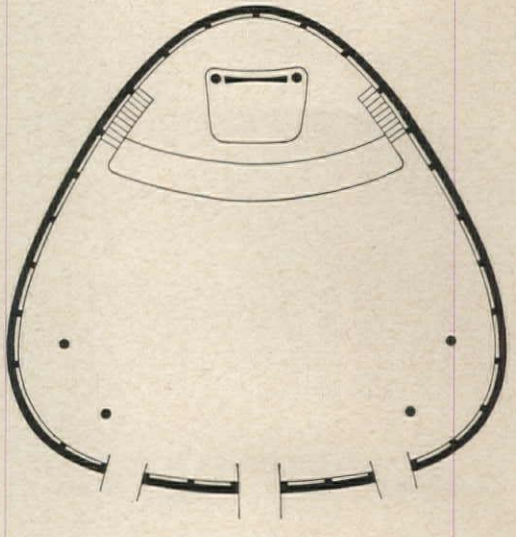


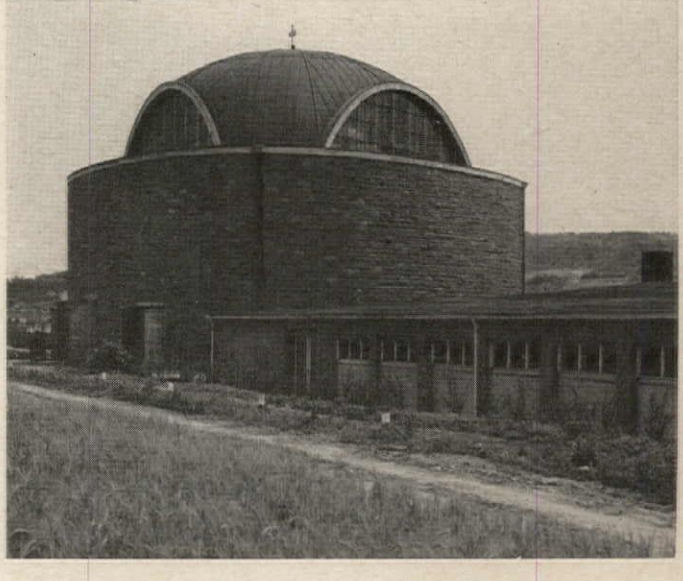
View toward chancel

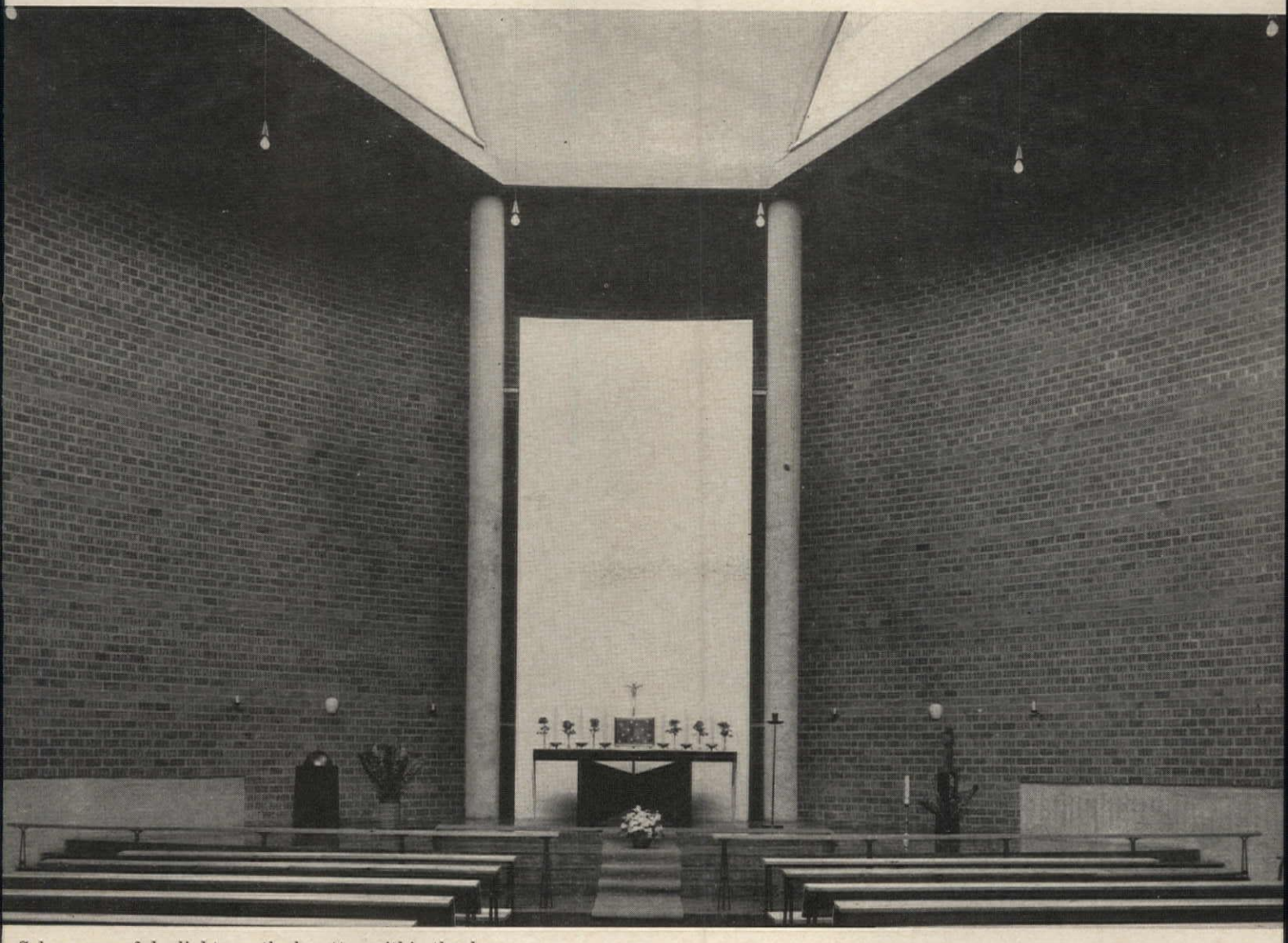
5. *Holy Ghost Church.* Pfaffenbergweg, Würzburg. Giefer and Mäckler, architects

Paired columns and white panel accent altar

The interior of this ovoid-circular Roman Catholic church provides a simple, dignified and well-lit place for worship. One is surrounded by solid walls, but not oppressively so, because they bow out slightly and the roof structure is stated within them. Thus a monolithic appearance is avoided. Pews are well focused on the altar, which is given added emphasis by the white screen behind it. Three large lunettes in the domed roof provide good natural light. Side walls are of perforated brick with acoustic backing. The exterior, with three floating doors and an unsatisfactory juncture with the Sunday school wing, is the weakest element.



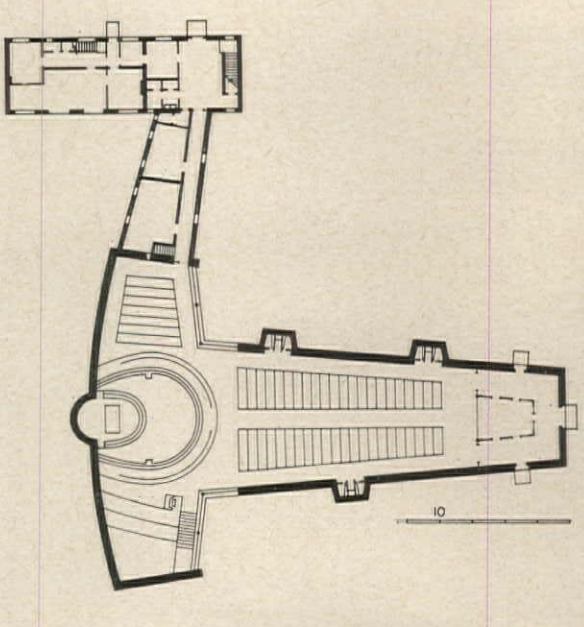


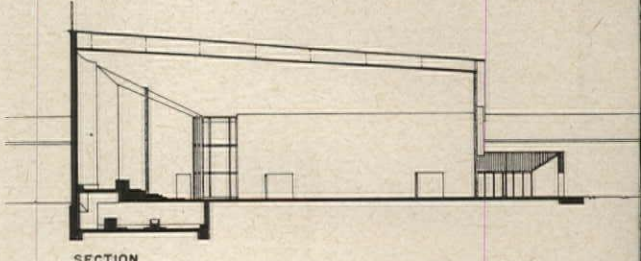


Sole source of daylight are the lunettes within the dome

6. *Maria Königin.* Usdorferstrasse, Frechen. Rudolf Schwarz, architect

A simple and direct Roman Catholic church in a small town west of Cologne, it is relatively conventional in its attenuated plan. The church is distinguished by the spotlight of natural illumination which floods the forward projecting sanctuary. Note that the brick side walls are solid, intensifying the play of this light, the major sources of which are located to prevent glare. The choir and a side chapel occupy the two sides of the transept, each in close touch with the chancel. A semicircular niche set in the bowed sanctuary wall emphasizes the altar. Quarters for the priest are attached to the north side.





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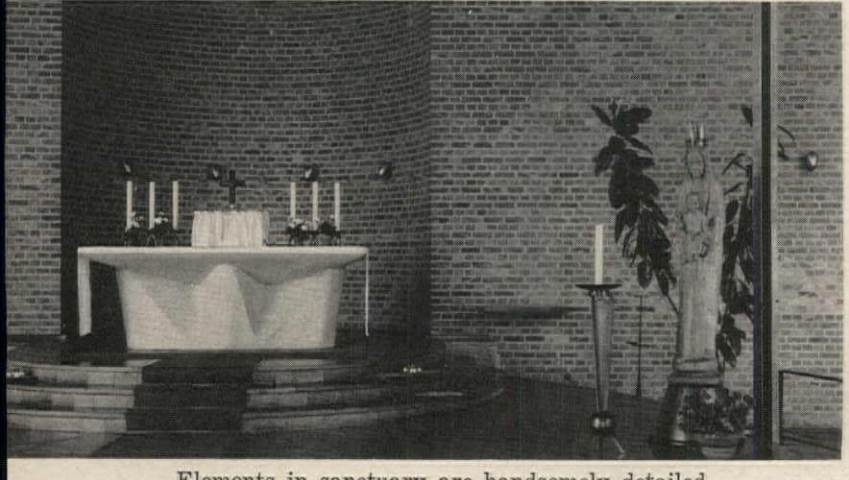
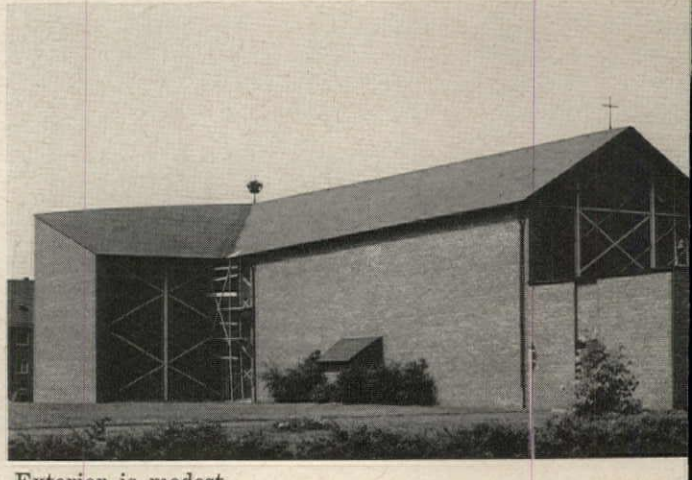


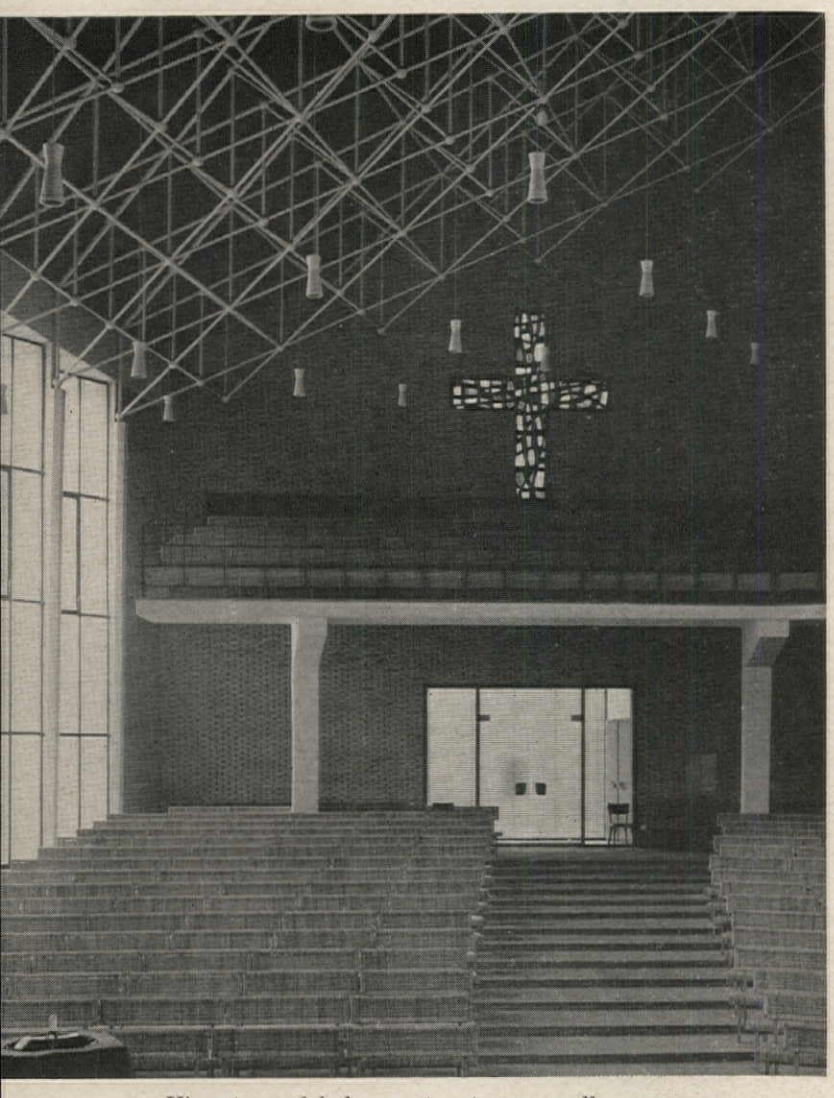
Elements in sanctuary are handsomely detailed



Exterior is modest

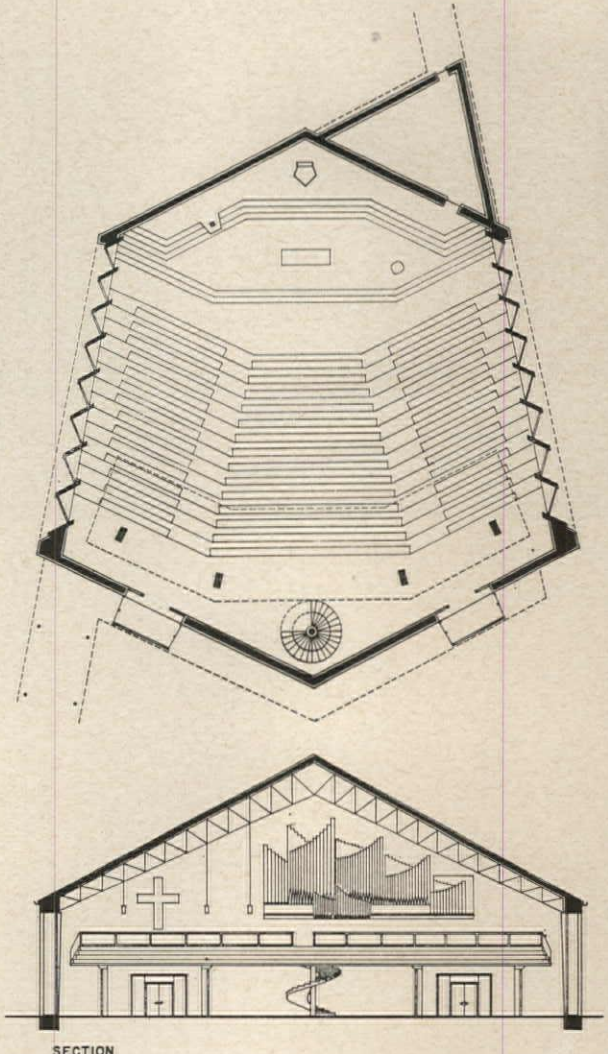
anctuary has brilliant natural illumination from transept windows

7. *St. Peters.* Am Röttchen, Unterrath (Dusseldorf). Hentrich and Petschnigg, architects



View toward balcony at entrance wall

This rather large Protestant church has been designed to seat 680 persons in the nave, and 150 in the balcony. It is distinguished by its handsome space-frame roof of metal tubes and its almost too generous chancel which is spread over one entire end of its splayed hexagonal shape. The roof structure is well studied, although its juncture with the side walls is not cleanly handled. The white painted tubes form a light but not distracting umbrella over the congregation. The chancel's generous space is dominated by the metal-clad cross to the left, with pulpit and altar on axis. A temporary organ is placed on the right. An excellent simple background of angled brick walls marks the sanctuary. If the chancel space in front had been a little more tightly knit, the church would have been more successful. The bilateral lighting comes from windows set in the outer splays of the side walls.



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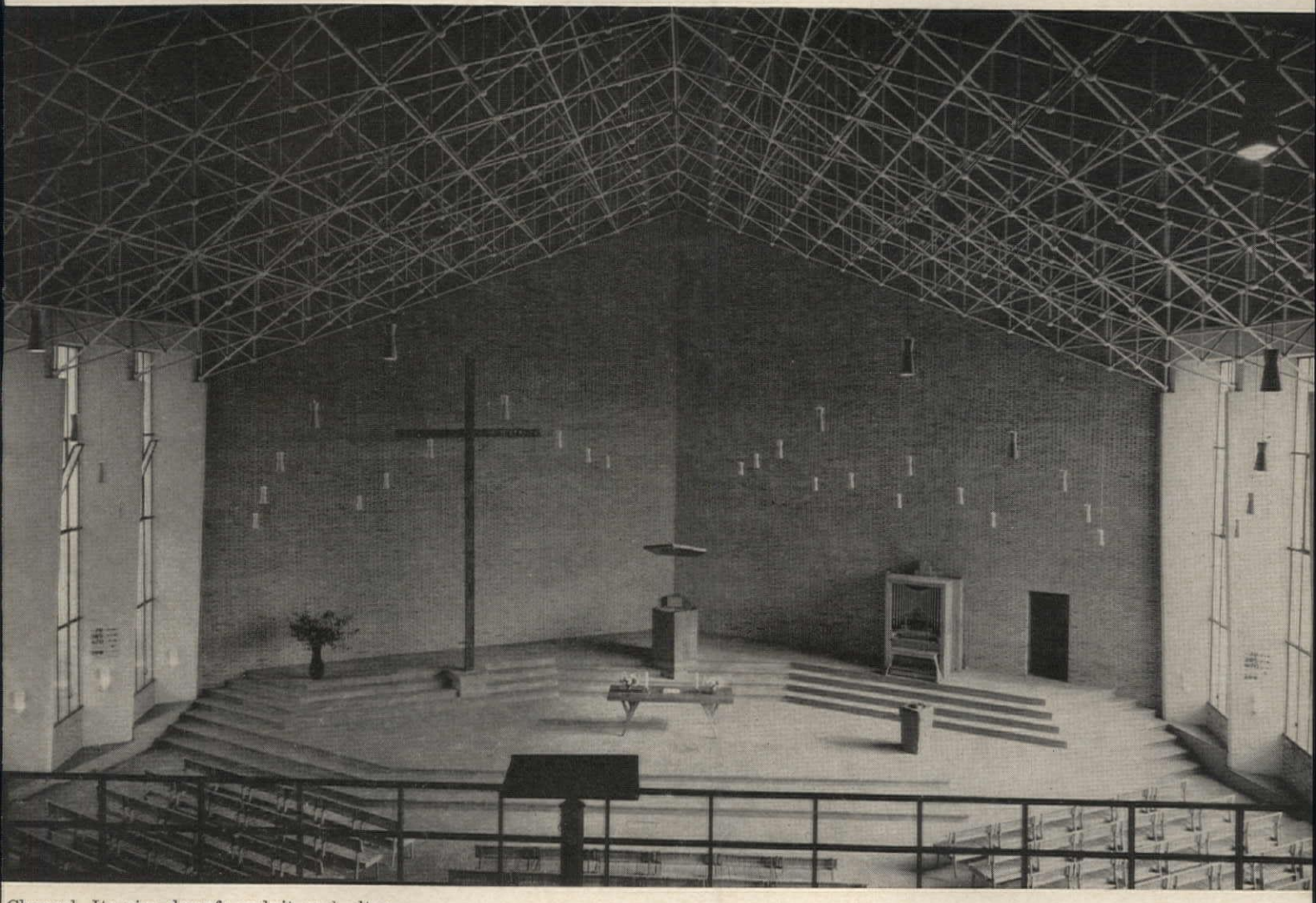
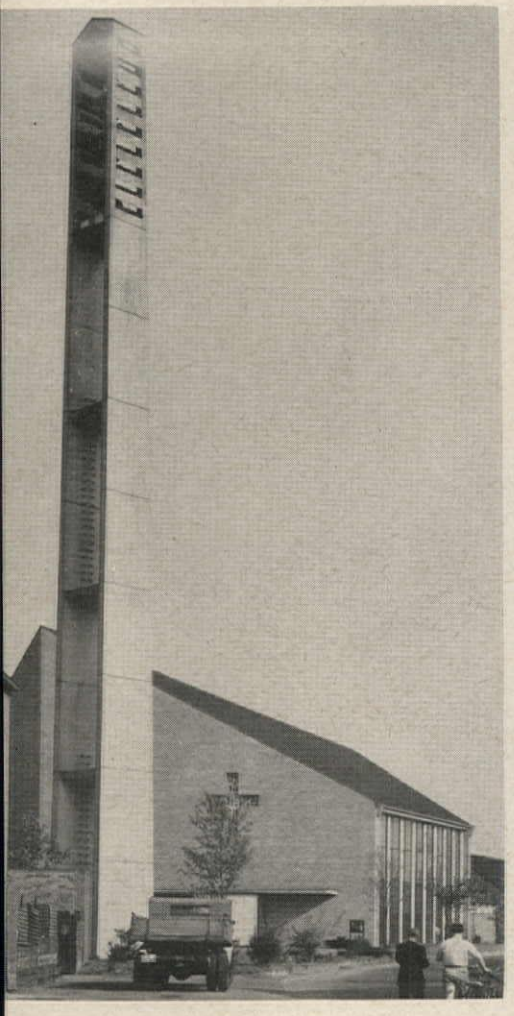
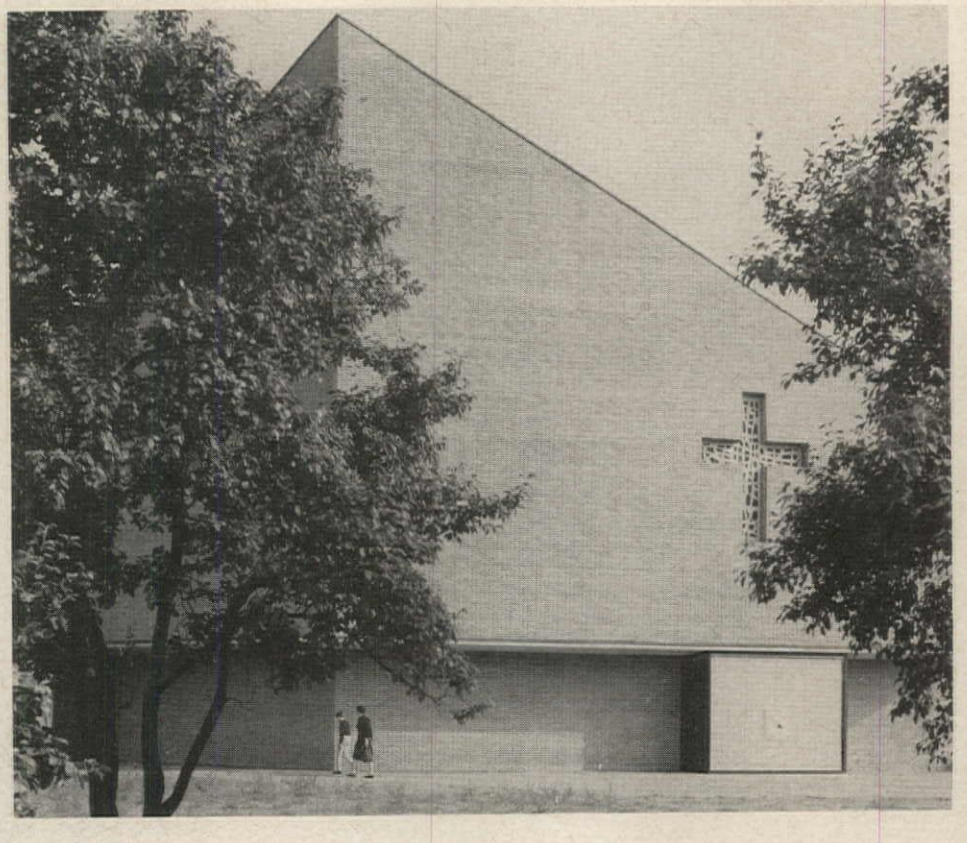


Chancel. Its size dwarfs pulpit and altar

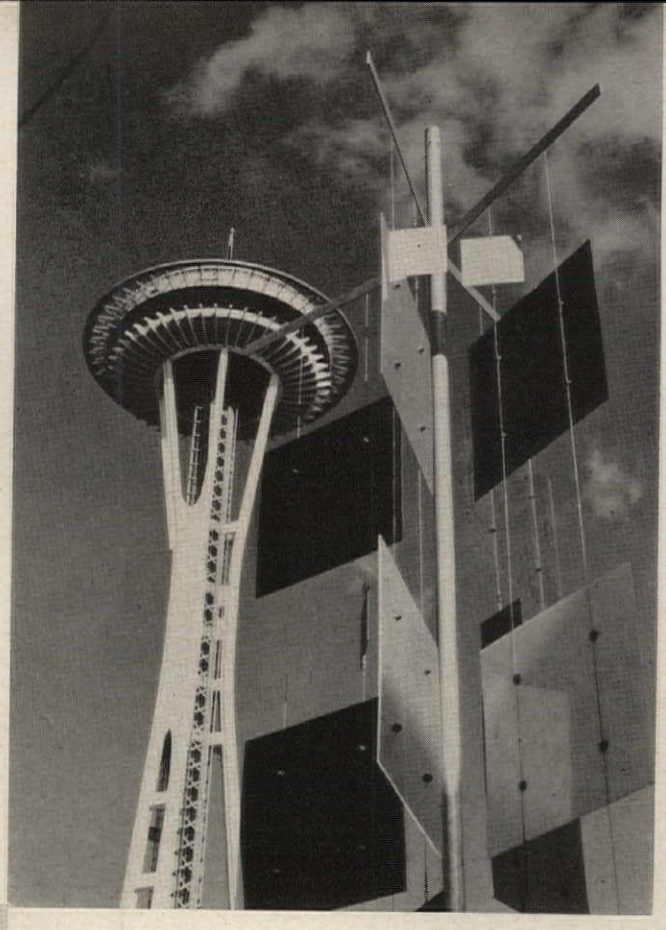


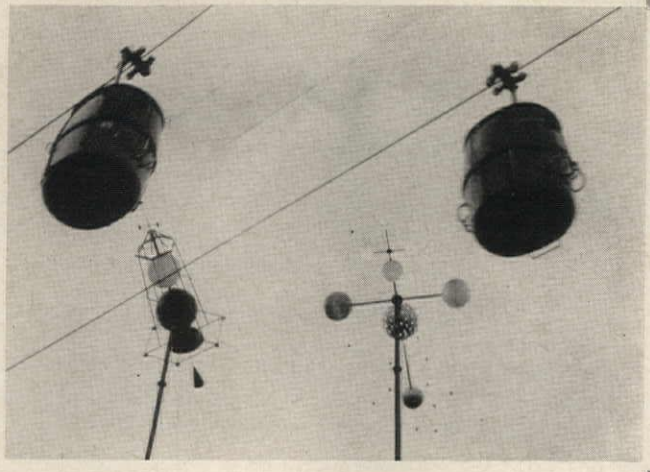


Left and above: entrance façade. Stained glass window in the form of a cross is skillfully positioned as an effective accent on both the exterior and interior

A TOUR OF CENTURY 21 WITH PAUL THIRY

All photos by Paul Thiry





Top: Space Needle, a permanent part of Seattle Center. John Graham & Company, architects; John K. Minasian, structural consultant. *Above*: "Satellites" designed by Paul Thiry, and Sky Ride cars, gay (and ephemeral) notes for a gala fair. *Right*: bright red Sky Ride Terminal, invitation to a low "flight" over the fair grounds. Tucker & Shields, architects

There are worlds within worlds. Century 21, the Seattle World's Fair, is such a world within a world—and within it are more worlds: of Science, of Industry and Commerce, of Entertainment and the Arts, of Man. Many worlds, many viewpoints, many facets to each viewpoint, many moods to each facet. Uniting them and giving substance to them are the buildings, symbols and magnets by which the fair attracts attention and attendance. In this opening day walk through the fair I have wanted to suggest the great variety within the discipline of order which was a basic design premise in planning the fair's physical form. These photographs are, however, only highlights; much of interest was unfinished and could not be photographed or was too popular with opening day crowds or could not easily be transferred to the two dimensions of film. Here are some of the buildings which make up the world of architecture within the world of Century 21.

PAUL THIRY, F.A.I.A.
Primary Architect

Fountains are a major and permanent part of the fair for lasting delight, when it becomes Seattle Center. Everett DuPen, sculptor, for fountain between Coliseum and Canada's pavilion

What gives the Seattle Fair sharp meaning, particularly for architects, is that within the requirements of a passing moment's gaiety—what fair ever was that was not gay?—it states unequivocally the value, in tangible as well as intangible terms, of architecture and the important role of the architect in achieving a fair's primary purpose. For it is the architecture of its buildings—all of the permanent ones, and those which will go with the fair's end—which gives the Seattle Fair its special flavor and its lasting significance.

This is not to imply that there will or should ensue a period of "Seattle Fair architecture." Let us hope that we may be spared that. The significance is that here on a 74-acre plot in the Northwest corner of the United States the statement has been made with clarity and brilliance that good design makes good business. The Seattle Fair was an assured financial success even before its opening. Until the gates opened the fair's one and only promotional asset was the outward and visible form of its buildings—its architecture—and the over-all plan of its site. By its architecture it became known; by its architecture it has sold itself to the American public on which it depended for success.

Fortunately the fair's sponsors recognized early the need for some kind of direction for the physical development of the site they wanted to use. And fortunately, too, they lived in a city where there has been an increasingly favorable climate for design of a high order and where there is a more than usually able group of architects and artists on whom to call. But the most fortunate of all is the fact that they believe in, and were willing to give the measure of over-all design control which could either make or break the enlightened appearance of the fair.

There is no doubt that they were greatly helped in this enlightened approach by the fact that the fair is a combination of permanent and impermanent buildings. The permanent ones form a nucleus for the development of the post-fair Seattle Center, a community center for activities ranging from grand opera and drama to indoor athletic events and rides to the top of the Space Needle. The faith in architecture that the fair sponsors showed is justified in the quality of design which these permanent buildings—The Coliseum, Playhouse and Exhibition Building, Federal Building, the various display pavilions and the Space Needle—provide. Designed with an adventurous look to the future, they have also the degree of dignity which becomes a permanent work of architecture. For them the fair is a sparkling occasion of dedication to their future function.

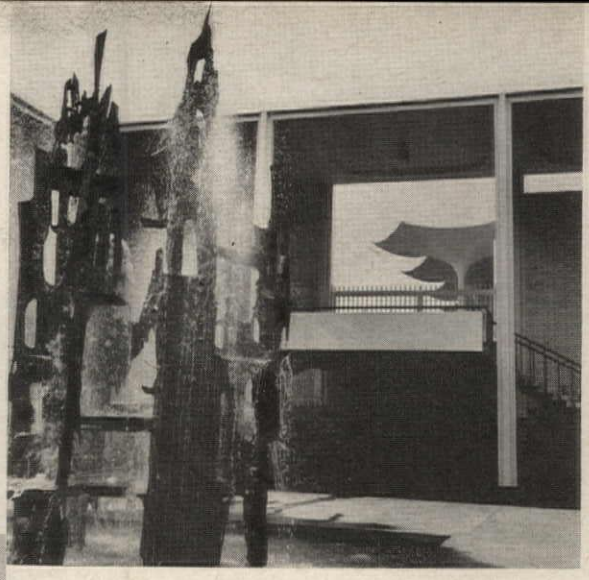
Canvas over a steel frame—height and prominence without expensive structure. Seattle First National Bank; Paul Thiry, architect

New building products in an elegant pavilion for Standard Oil Company of California. Michael Saphier & Associates; Gene Tepper Division, designers; Piero Patri, architect; Lawrence Halpin Associates, landscape architects; Eric Elsesser, structural engineer

IBM's pavilion, conventional background for its theme "new paths to knowledge." Charles Broudy, architect

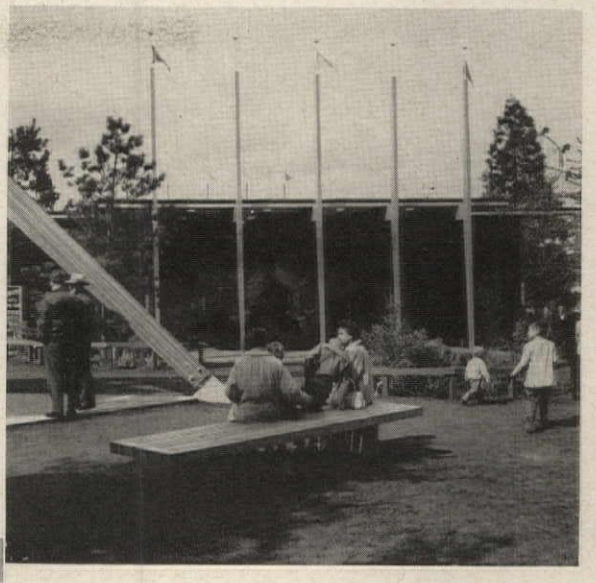
Plastic form shell for Nalley's pavilion, concrete pneumatically applied on frame of reinforcing rods and metal lath. Paul Thiry, architect

The Playhouse, Seattle's contribution to the fair and cultural nucleus of Seattle Center after the fair is over. Kirk, Wallace, McKinley & Associates, architects; James Fitzgerald, sculptor



Graceful hyperbolic paraboloid shells of International Commerce and Industry building, located between Playhouse and Coliseum. Walker & McGough, architects; Worthington, Skilling & Jackson, structural engineers; James Fitzgerald's fountain at left

Adjoining the Playhouse, across this large court with the fountain by François Stahly, the Fine Arts Building. Kirk, Wallace, McKinley & Associates, architects

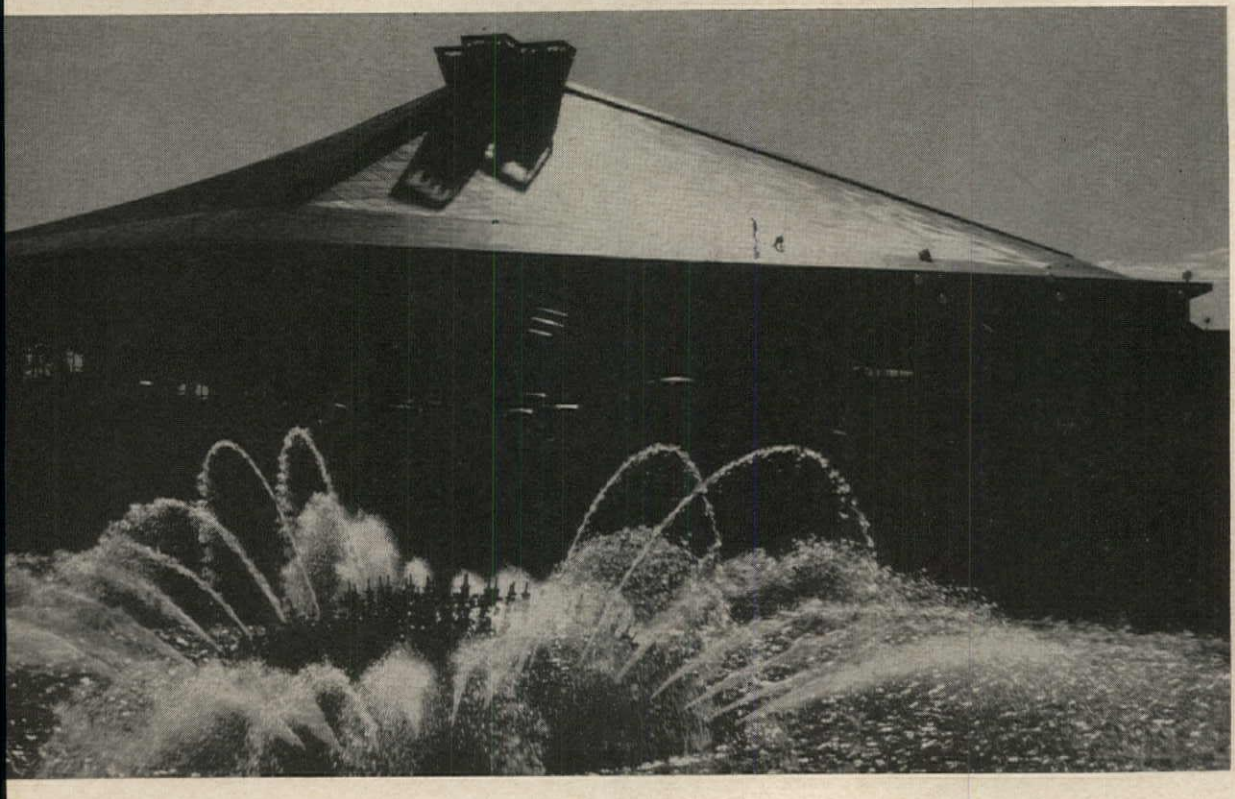


Forest Products Theater, in opposite corner of fair, near Space Needle, an all-wood building with stressed skin plywood roof. Robert B. Price, architect; Lawrence Halprin Associates, landscape architects

Connoisseur of art before Paul Horiuchi's mural in the commercial exhibitors' pavilion area

Connoisseurs of a different art in the "adult education zone"

Strong structure, simple form of Paul Thiry's Coliseum for State of Washington, seen close-up from walk on top of wall behind Everett DuPen's fountain



Silhouette on silhouette, permenant additions to Seattle skyline. International Fountain; designed by competition winners Hideki Shimizu and Kazuyuki Matsushita, with Coliseum in background

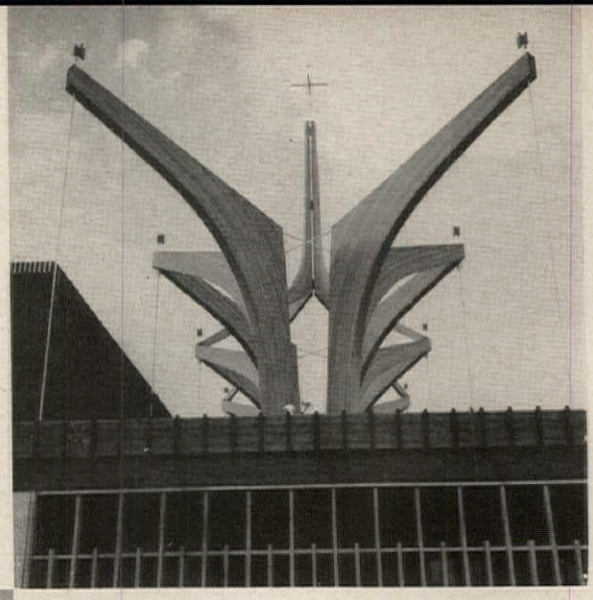
Jets in bowl-shaped basins and tiny lights in trees, mystical setting for mysteries of space-age science; Federal Building at dusk

Towers of the Federal Building, located on the highest part of the site, rise from islands in a great pool. Minoru Yamasaki and Associates and Naramore, Bain, Brady & Johanson, architects; Worthington, Skilling, Helle & Jackson, structural engineers; Bouillon, Griffith, Christofferson & Schairer, mechanical engineers

Science takes over inside Federal Building, but architecture provides the setting and stimulates expectancy for unsurpassed array of science exhibits

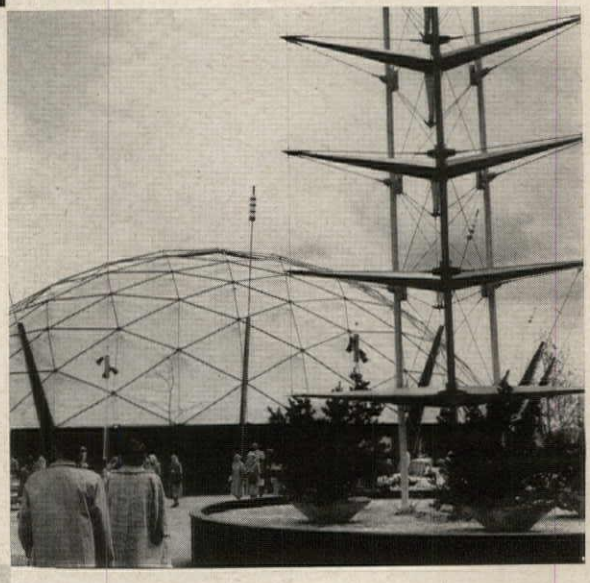
Midpoint in six-acre complex is welcome rest area where visitors look out over downtown Seattle on one side, over pools and fountains on other; precast members repeated with slight variation, distinctive in effect

FAIR AERIALS



Sign in the sky: tower of laminated wood bents; Christian Witness Pavilion whose roof hangs by cables from the bents. Durham, Anderson & Freed, architects

The fair's south entrance; a gay forest of brightly painted poles hung with multi-faceted lanterns. Bassetti & Morse, architects



Projecting arms of steel tower, and geodesic dome of Ford Building. Paul Thiry, architect

"Satellites" near the Coliseum. Paul Thiry, architect

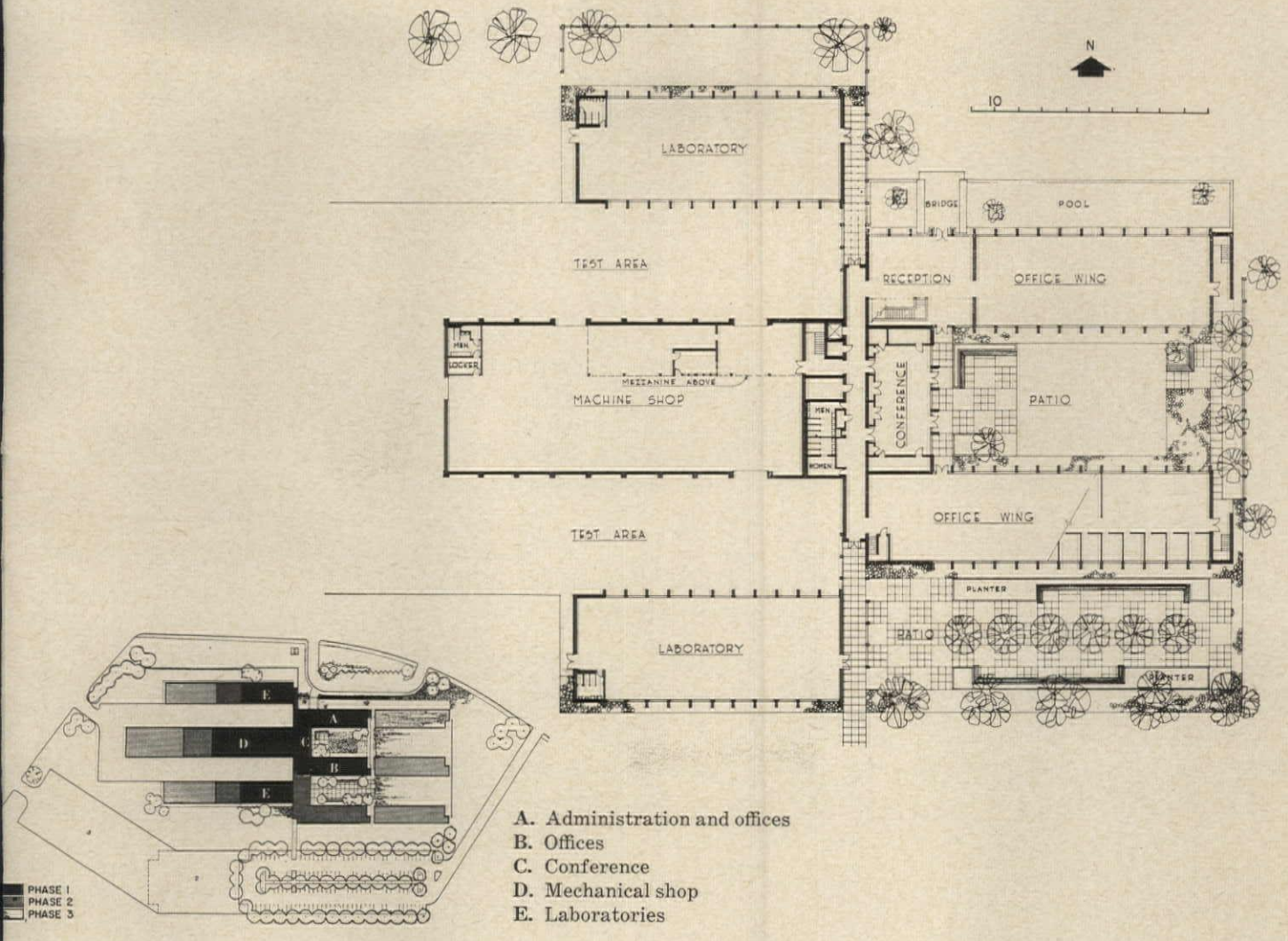
George Knight photos

PRECISE DETAILING, CRISP PROFILES PRODUCE HANDSOME RESEARCH CENTER

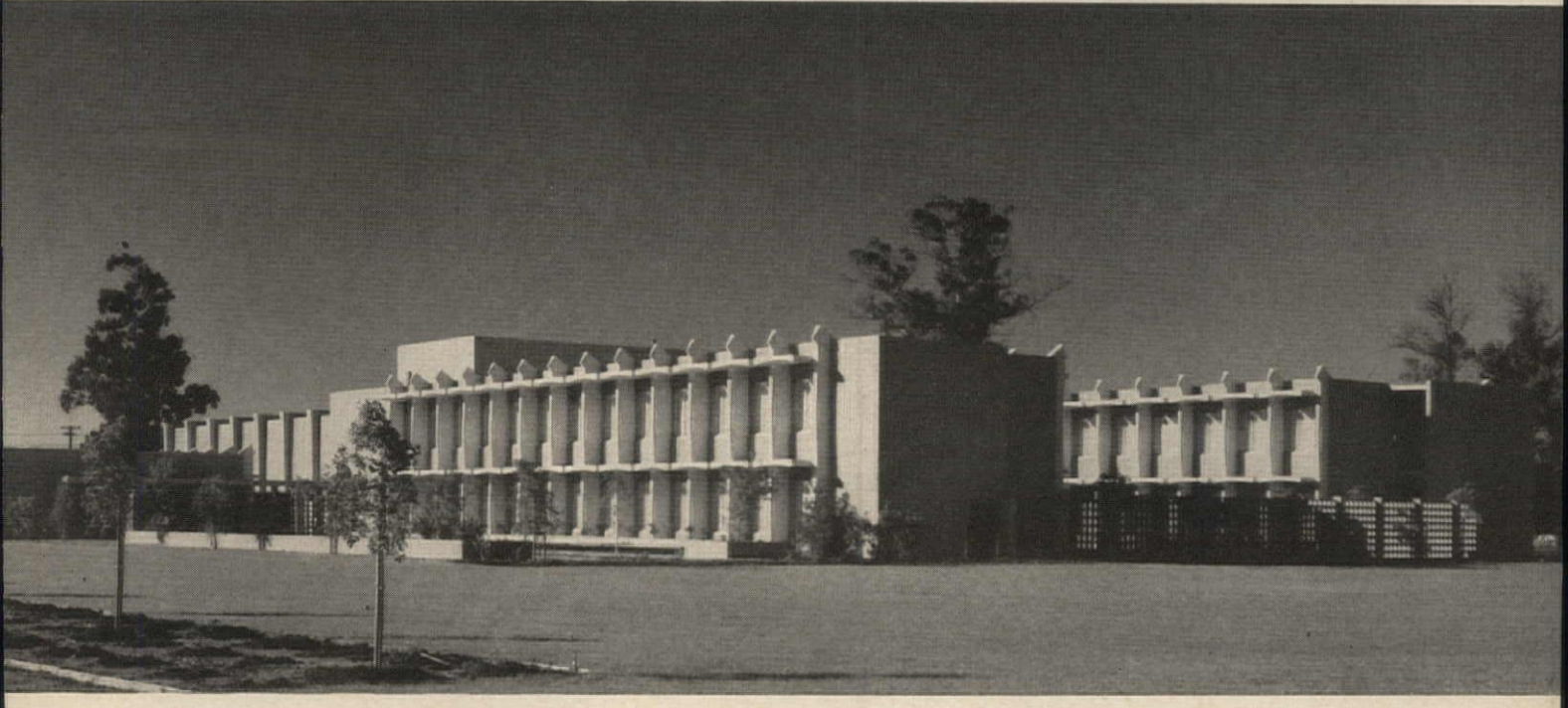
Food Machinery Corporation, Research and Engineering Center, Santa Clara County, California

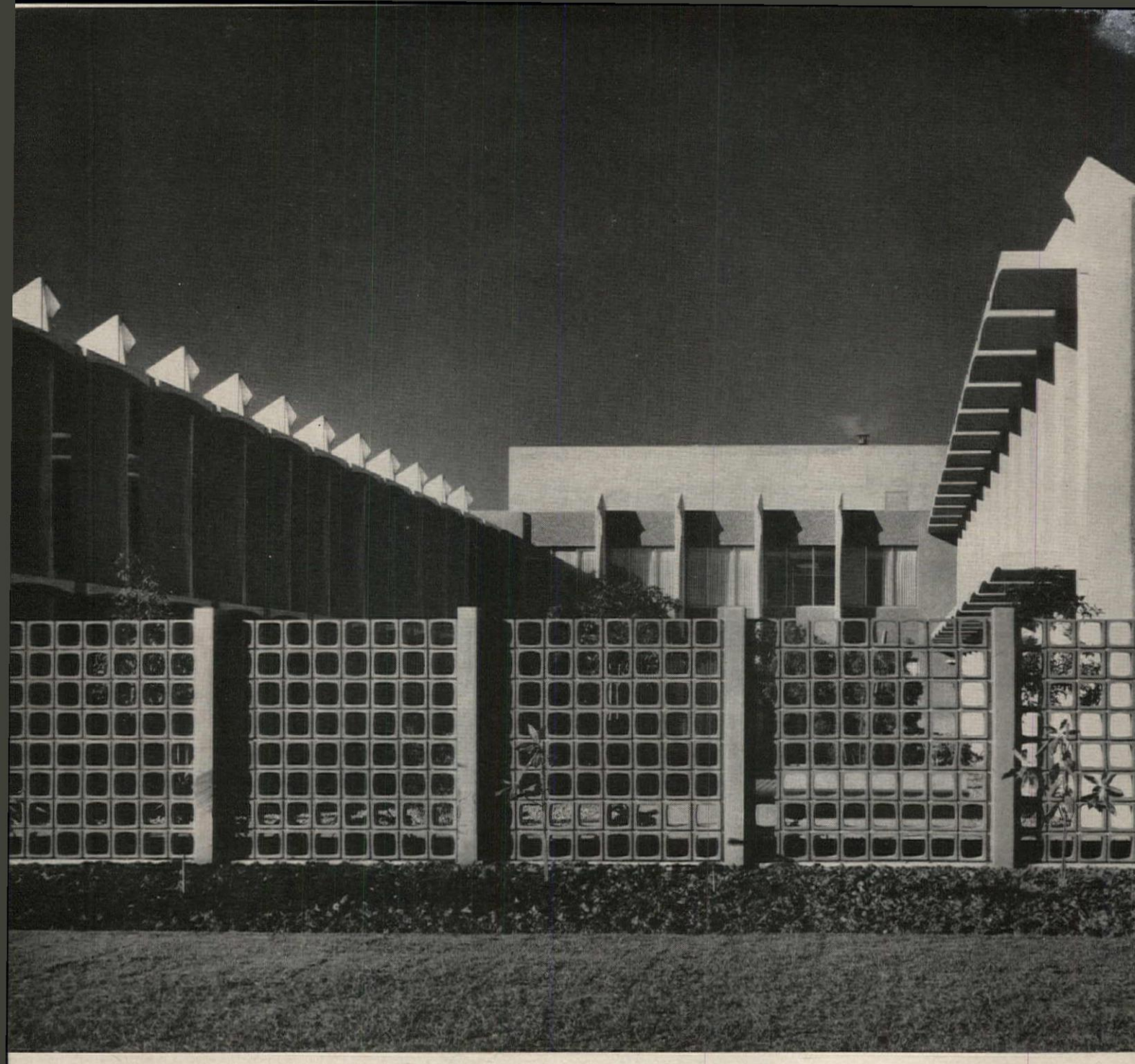
ARCHITECTS: *Anshen & Allen*
STRUCTURAL ENGINEERS: *Gould & Degenkolb*
MECHANICAL ENGINEERS: *Eagleson Engineers*
ELECTRICAL ENGINEER: *Charles Krieger*
LANDSCAPE ARCHITECT: *Douglas Baylis*
CONTRACTOR: *Carl N. Swenson Company, Inc.*

This new building for the Food Machinery Corporation is the first unit of a three-phase development which will ultimately enclose twice the floor space of the present structures. Since the center provides offices for administration and several kinds of space for engineering, experimental and development work, the buildings reflect this variety of activity: offices and drafting rooms are in the two-story units; laboratories are in one-story wings, with adjacent outdoor space for experimental set-ups; and shops are in the centrally placed high-bay building. The mechanical core is also centrally placed and is designed to serve the fully-developed center. The low-rise building solution, completely appropriate to the surrounding area, avoids the foundation problems which multi-story building would have imposed on the poor soil conditions of the area. The north-south orientation, dictated by the shape of the site and the need for expansion, is used to handsome advantage not only in the outdoor spaces but in the architectural expression of the building. Sculptured columns of precast smooth concrete and precast concrete over-

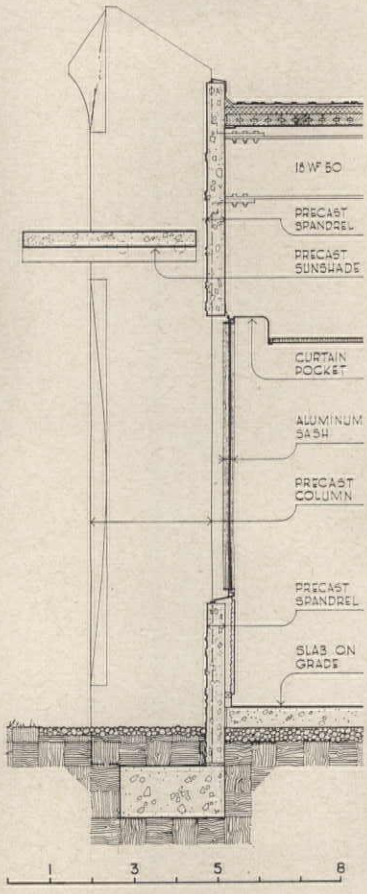


A. Administration and offices
B. Offices
C. Conference
D. Mechanical shop
E. Laboratories

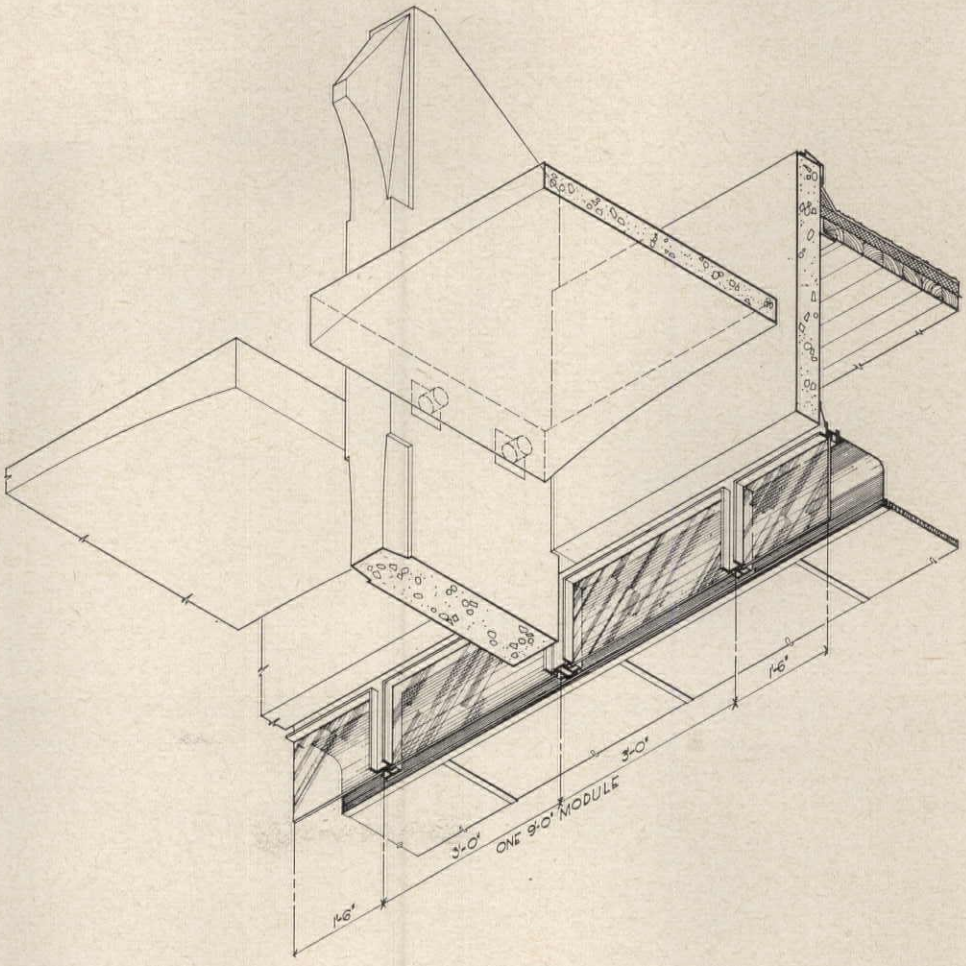


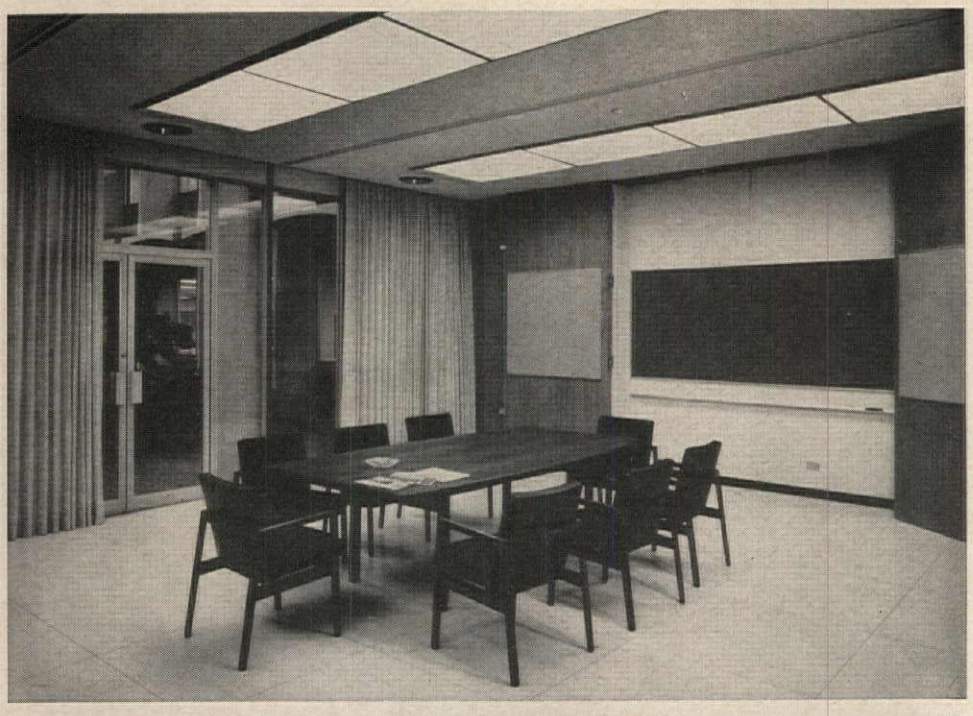


hangs not only effectively control sun in the office and laboratory wings but give modeling to the building. Essentially a curtain wall solution, the details of the wall structure are unusual and the elements are so interdependent that one of the firm's architects calls the erection procedure "instant wall." The columns are tied with steel beams to form the building frame; spandrels of precast exposed aggregate concrete connect the columns and form the wall. The glass window wall, however, is free of the columns, permitting complete flexibility in partitioning (the ceiling grid uses the same 3-ft module on which the window design is based). The overhang, welded to the columns, provides some lateral stability even before installation of the floors. Pressure-treated wood with a plywood membrane is used for floors and roofs. To achieve the crisp profiles and close tolerances of the wall elements, the architects used stock window sections as much as possible, developing only two new dies, and worked with the panel fabricator to avoid expensive formwork by using his methods to obtain the desired effects.



ONE-STORY LABORATORY WALL





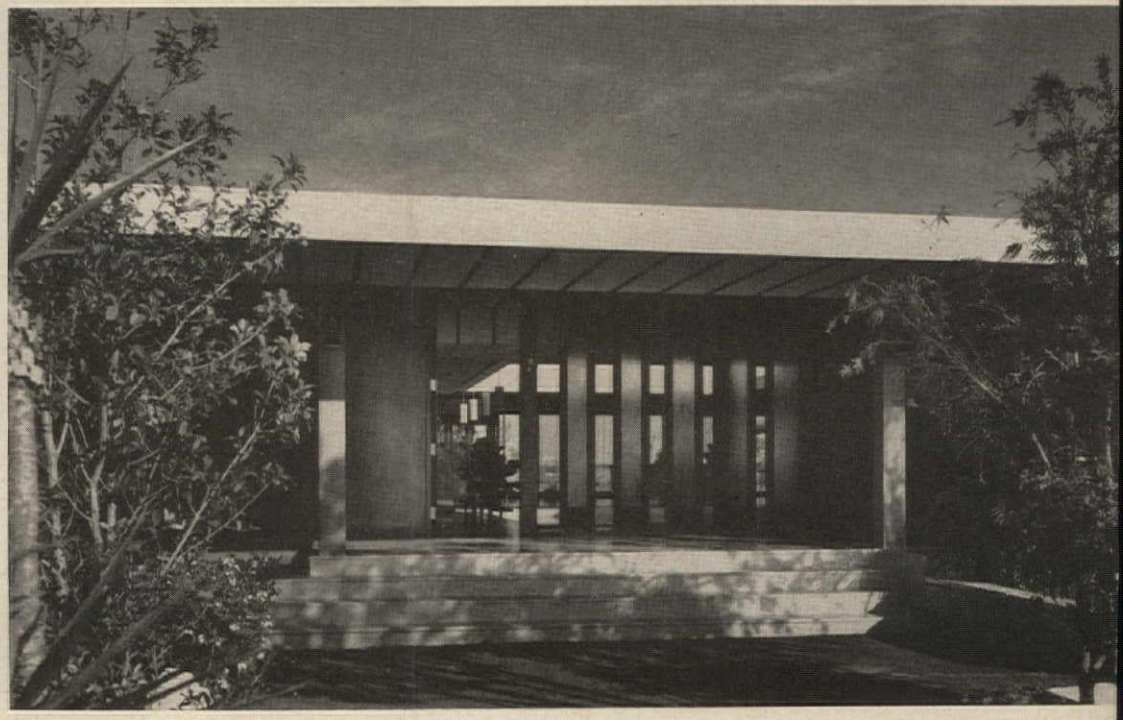
The conference room (*above*) links the two office wings on the first floor and opens onto the patio to the east. Center panels of the precut siding end wall open for use of blackboard, screen and tackboard; when closed they fit exactly and the wall shows no seams. Developmental work is done in the high bay building (*below*) with its overhead crane and shop equipment. Lighting is both artificial and natural, balanced for shadow-free illumination. The structure is cast-in-place concrete columns, steel roof beams and concrete tilt-up walls with roof deck of pressure-treated wood

Joseph W. Molitor photos

PATIO AND POOL FORM HUB OF FLORIDA HOUSE

Rufus Nims creates an informal but luxurious house centered on a screen-roofed atrium

ARCHITECT: *Rufus Nims*
ASSOCIATE: *Ken Miller*
OWNERS: *Mr. and Mrs. Ben Bloom*
LOCATION: *N. Miami, Florida*
ENGINEERS: *J. W. Ross & Associates*
CONTRACTOR: *Albert Hallquist*
LANDSCAPE ARCHITECT: *John Seymore*



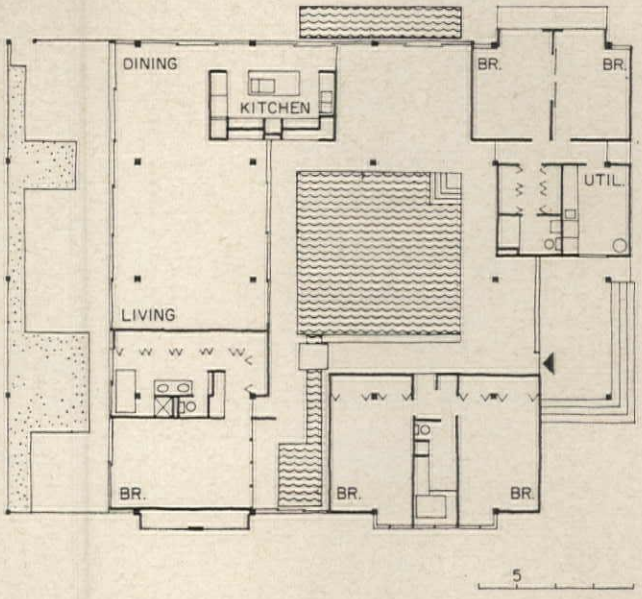
Major Rooms Are Alcoves Off The Screened Atrium

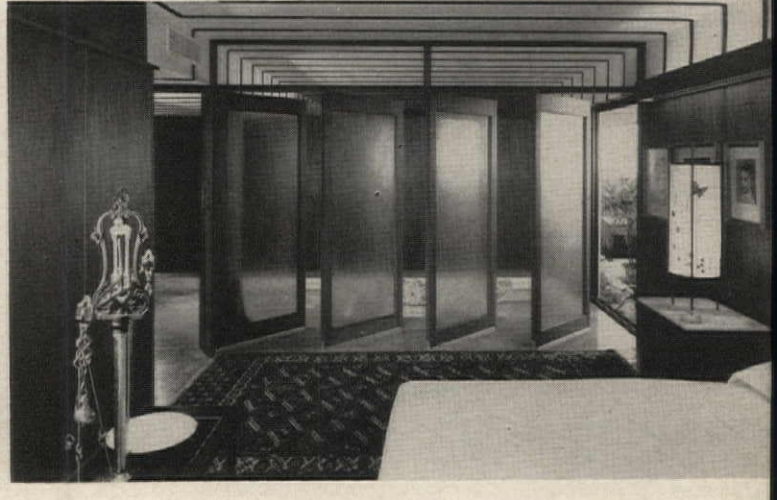
An amazing amount of space and privacy is included in this tropical house. Dominating the entire plan is the central patio with its large swimming pool. Radiating off this, and open to it, are all major living spaces; entry, lounge, living room, and dining room. The living room can be closed off when desired by sliding, frosted-glass doors, and is in turn extended by a second screened "Florida room" ranging along the canal at the back.

The master bedroom suite is given an extremely dramatic entrance along a little L-shaped extension of the swimming pool (see photos left and bottom right). A third pool is located just off the lounge area, in a narrow, bamboo-fenced garden along the side of the house. Two small bedrooms on this side (for children or servants) also have small screened-in outdoor areas.

The structure of the house is framed with concrete columns and beams, and has all exterior and interior walls made of flush doors. All ceilings are fiberboard and batten (the actual effect is more of texture, and a bit less boldly striped than appears in the photographs). The roof is surfaced with a synthetic rubber roofing material over plywood. All sliding doors are aluminum-framed glass. A plastic skylight is used in the laundry room, located in the little compound of children's or servants' rooms and bath. This compound has its own private entrance.

The house is air conditioned, but the entire building can practically be converted into an open screened porch in fine weather.





Even Service Areas Are Handsomely Fitted Out

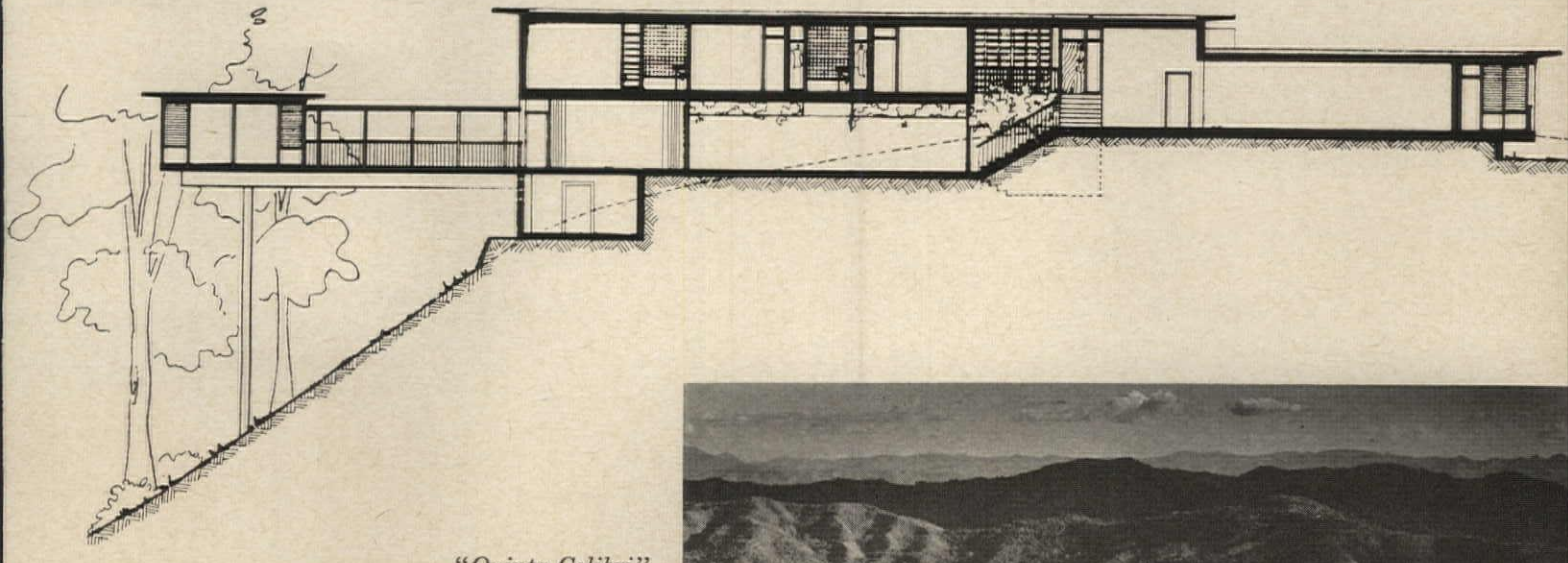
The U-shaped kitchen (photo right) has an unexpectedly elegant air lent by the flush doors and matching cabinets used throughout the house. A center island contains a second sink and set of range burners, and a breakfast counter. The opposite side of the room is glass, opening on the little side garden (photo below right).

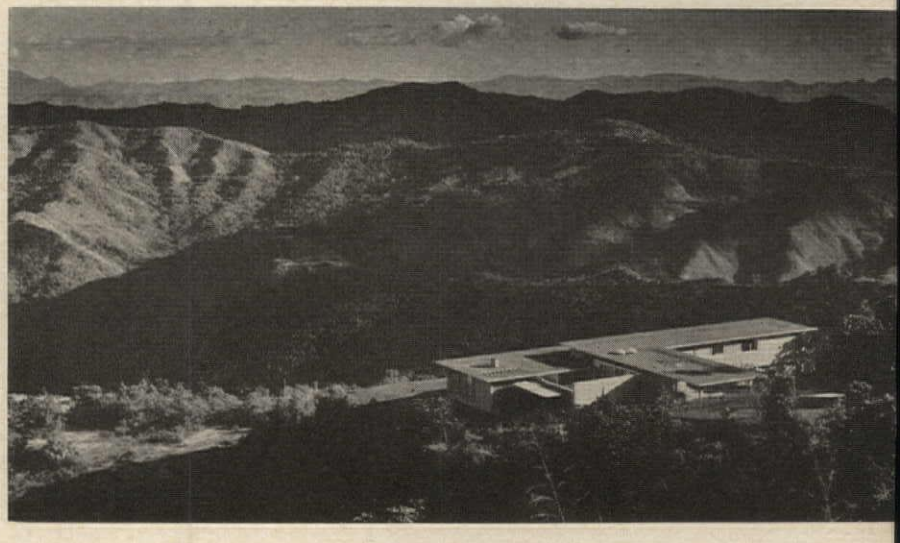
The two major baths have sunken tubs and wide counters with double basins. The master bath (photo below) also has its own little court for sun baths, with sufficient privacy added by a bamboo fence. The dressing area of the bath is ranged with a long bank of closets; closet doors and partitions are flush doors here as in major walls

Henrich Thede photos

This elegant house is designed with facilities for orchid research and frequent entertaining

MOUNTAIN-TOP HOUSE IN ORCHID COUNTRY



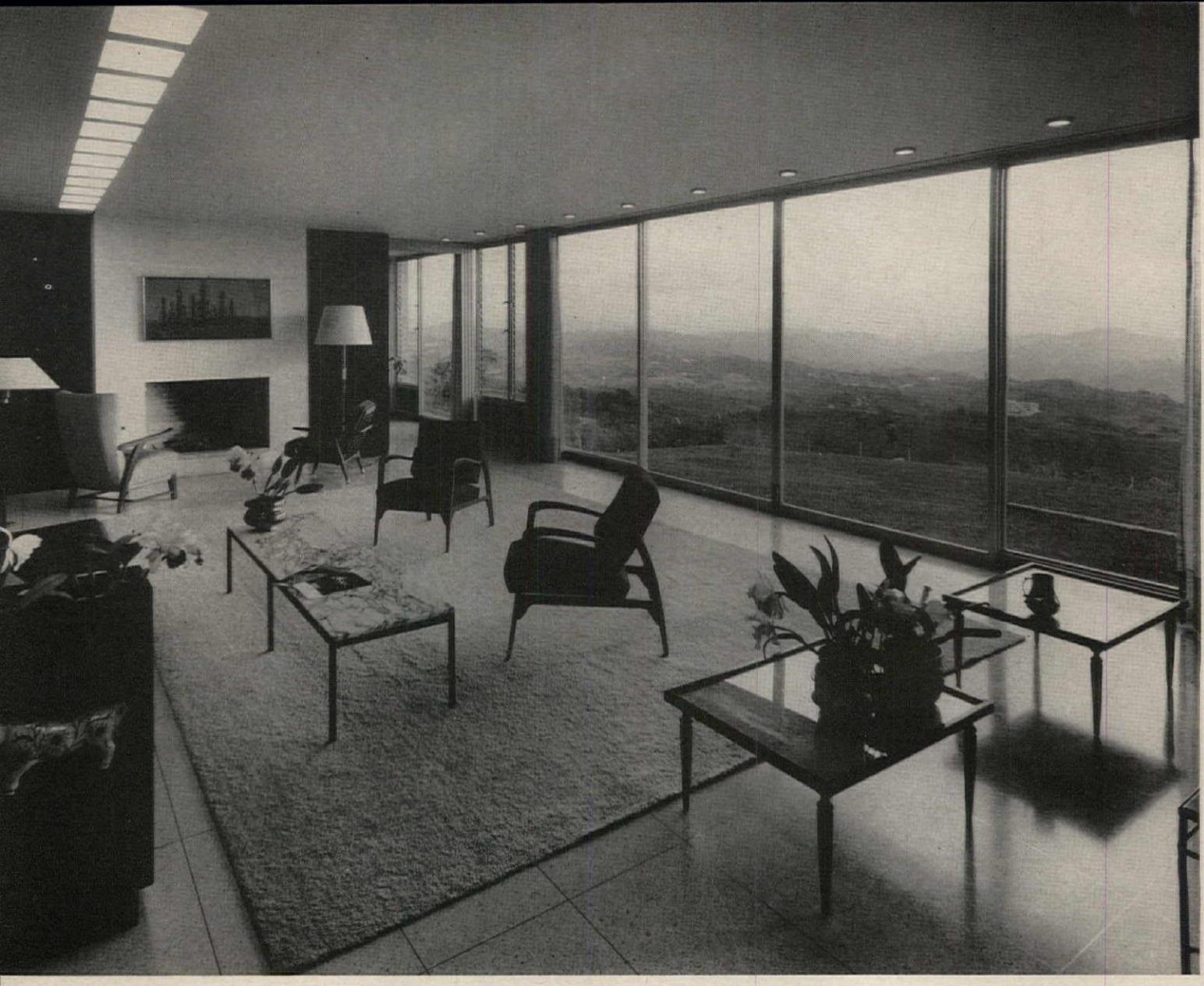


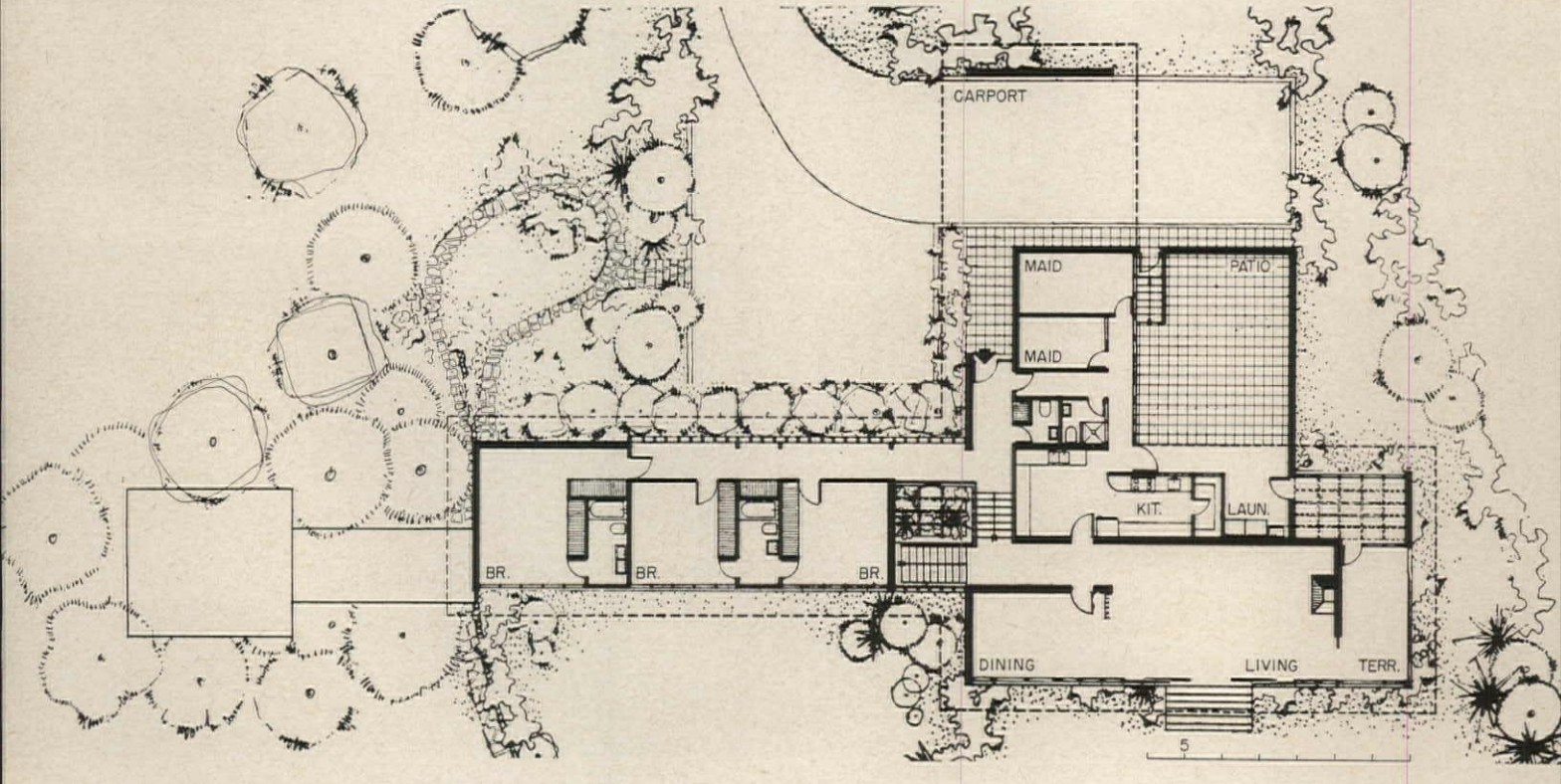
"Quinta Colibri"

ARCHITECT: *Dirk Bornhorst*

OWNER: *Mr. G. C. K. Dunsterville*

LOCATION: *Caracas, Venezuela*




CARPORT
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5

A Trim, Spare Design Offsets The Luxurious Setting

The site for this handsome house includes spectacular views of the hills and valleys around Caracas, and a vertical drop near the building site with dense tropical vegetation.

The program, apart from providing for the usual conveniences of a home, included complete facilities for orchid research—such as a study with microscopic instruments, air conditioned deposit, hot-house with adjustable roof ventilation, and space for storage and exhibitions. A net of subterranean tanks for storing rainwater also was included to help overcome the sometimes critical dry season.

As developed, the nucleus of the house is a spacious hall with stairways, filled with tropical plants and orchids. From this point, bedrooms lie in the west wing, services in the north wing, and living-dining rooms a half floor below in the east wing. The bedroom wing is a basically free-standing unit on steel columns, with a big covered terrace for entertaining below. The study is on this lower level. To the east, a covered bridge is projected (see section and plan), leading to a pavilion with a panoramic view, and situated in the midst of orchid-covered tree tops.

The structure of the house is reinforced concrete; the edge of the roof is protected by a metal rim. Roof insulation is covered with green granite gravel. Exterior walls are roughcast white cement with marble dust. Window frames are of aluminum in two tones, natural and bronze. This was used to subdivide the fenestration visually into narrow units. Filler panels are black marble.

The Entry Of The House Highlights Display of Orchids

The north front of the house (photos above) show the house surrounded by a park-like garden. The bedroom corridor was treated with one continuous glass window, made of special sliding panes without any vertical frames; the panel below it is of cement blocks.

The central stairway (photo left) has white terrazzo treads with copper strips (all floors in the house are similar). The windows here are of obscured glass, with a vertical panel of gray and ochre tones by Carlos Gonzalez Bogen. Big flower beds permit a generous display of plants. An "orchid terrace" is off the living areas for further display space indoors

BUILDING TYPES STUDY 308

®

SHOPPING CENTERS

In this Building Types Study we present four shopping centers that each hold architectural significance; and an article by Edward Larrabee Barnes on the importance of the architect taking control of the signs and graphics in shopping centers, together with an explanation of how he did it in Texas.

The four centers that follow have in common the quality of good design, but are otherwise purposely dissimilar, to point out the variety in shopping center character that is developing across the country, and the fact that such variety can have merit when well handled.

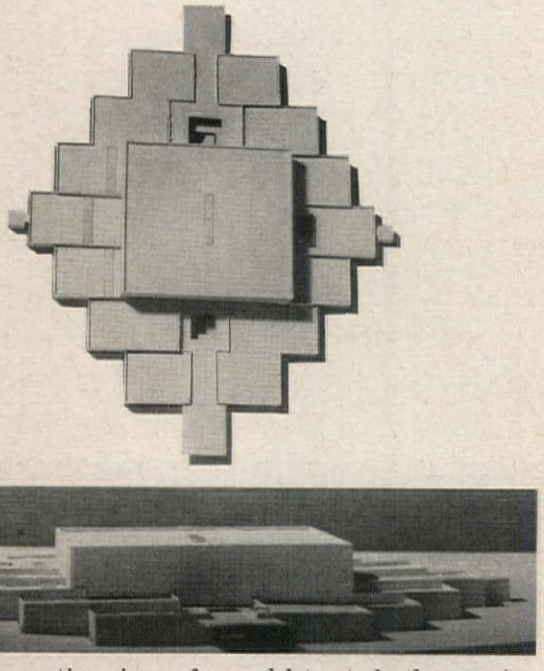
There is a small downtown center designed to fit gracefully into its almost quaint setting in Carmel, California; a quietly elegant center, knowingly detailed in typical SOM fashion, built near high income Short Hills, N. J.; a suburban center in Massachusetts in which TAC has made the signs an integral part of its clean lined architecture; and one of Victor Gruen's best large centers, built near Camden, four miles from Philadelphia, which focuses on enclosed, air conditioned malls that create a new and attractive environment for shopping.

—JAMES S. HORNBECK, A.I.A.

Joseph W. Molitor

CONTROL OF GRAPHICS ESSENTIAL TO GOOD SHOPPING CENTER DESIGN

Architect Edward Larrabee Barnes explains how his concept for the new Neiman Marcus Center will insure a unified architecture for shopping

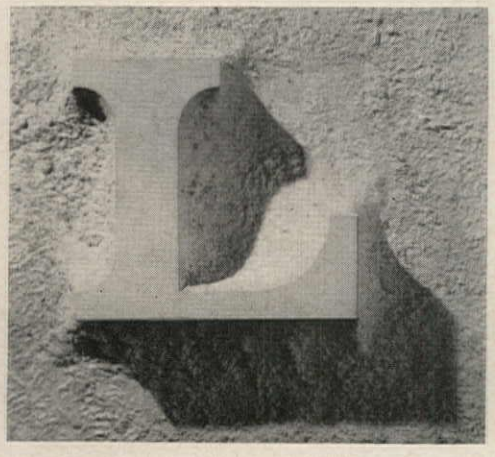


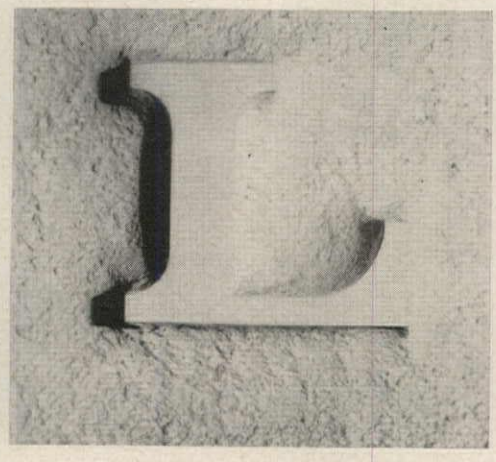
Plan and perspective views of a model to study the massing of the Neiman Marcus Center, Houston (see text)

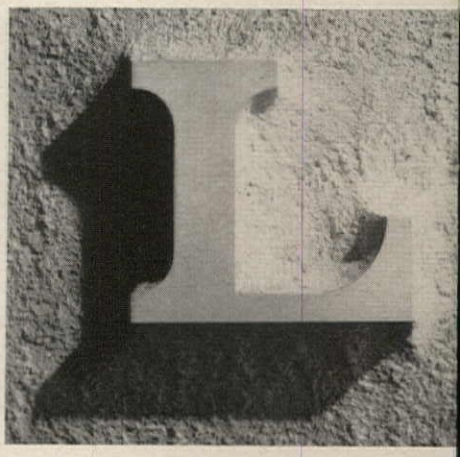
The major obstacle to good architecture in shopping centers is the sign. One cannot plan for chaos, yet that is what the shopping center architect is asked to do—produce a unified design while the landlord capitulates to tenant sign demands. The pattern is typical across the country. There are many examples of attractive courtyards, Miesian details, and canopies over which a good architect has sweated to no avail; for in the end all one really sees is the clash of conflicting advertising, with each tenant trying to shout louder than the next.

A good shopping center is impossible without an enlightened, understanding developer; one who wants unified architecture. The budget for site and buildings must be economically sound, for even the most understanding developer will capitulate to tenant demands if rentals are slow. There must be agreement by all involved that the identity of this market place is more important than the identity of the various individual tenants.

We are fortunate enough to be working on such a job. The enlightened, understanding developer is







Cherry Hill

Left to right: graphic devices for several of the centers covered in this study; Cherry Hill, page 174; New England, page 180; The Mall at Short Hills, page 170

Neiman Marcus; the site is in Fort Worth, between two growing shopping boulevards. And there is an agreement that the shopping complex shall make a single, strong architectural statement.

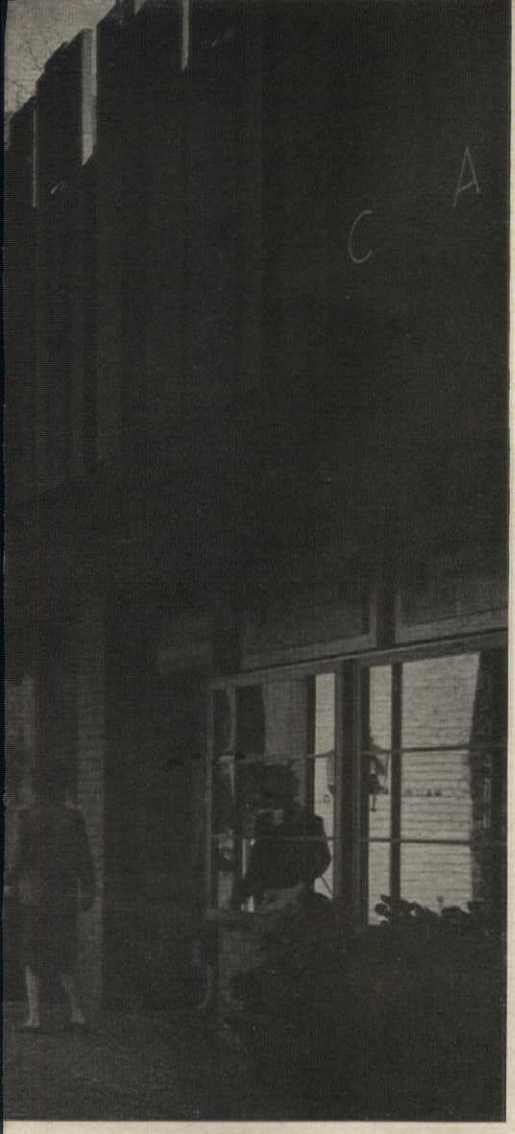
The unity of the Neiman Marcus center can be seen in the plan and perspective at left. The department store—the drawing card—is surrounded by smaller stores. There are open courtyard entrances from the main streets and side entrances from the flanking parking lots. Basically, the parent store has willingly permitted itself to be surrounded by a cluster of shops. Since the site slopes, the complex will appear almost as a village, with individual shops at different levels and the Neiman Marcus two-story block rising in the center.

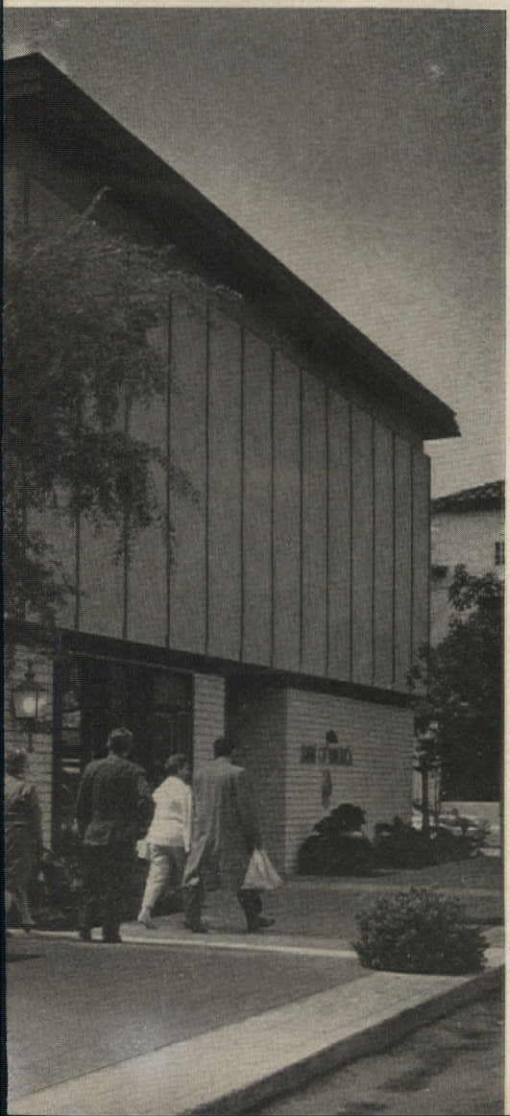
Such an integrated design obviously requires great discipline in the use of materials and signs. The total impact must count, and not become lost in a fringe of fratricidal competition. The solution is simple: all walls of rough white stucco, all signs of raised white letters. The tenant logotype is of deep ribbon Venus letters in white porcelain enamel; the department store lettering grows from the walls, the stucco curving out boldly to flat, smooth faces. Everything is white on white. At night, lights will throw the sculptured surfaces into bold relief; during the day the Texas sun will create a continuously changing play of light and shadow.

Where does this treatment throw the emphasis? From the nearby highways the total architecture counts, making a massive statement that can withstand the competition of gas stations, motels, etc. As one walks about the building or through the courts, the merchandise and planting will count. The continuous white stucco surfaces will set off the contents of the shopping center as the white background sets off the advertising photographer's model. On the Greek island of Mykonos the continuous white walls and roofs and pavements of the village dramatize the ikon in the church or a geranium in a window. Here—on a commercial level—the same principle of continuity will apply. The architecture will become a background for activity.

—EDWARD LARRABEE BARNES

Joseph W. Molitor photos





Morley Baer photos

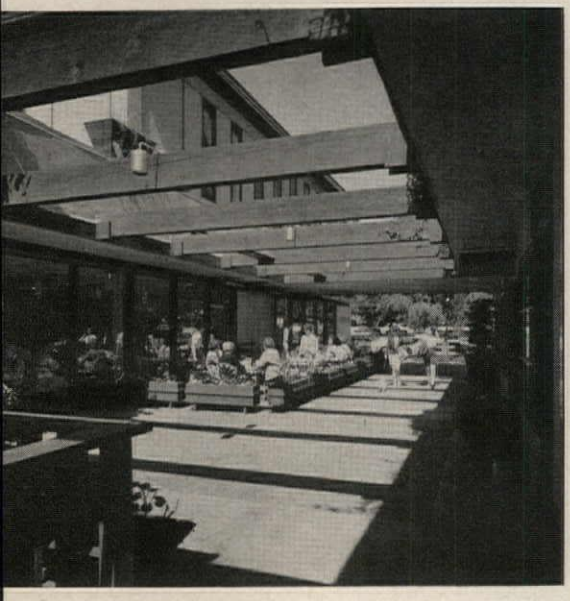
DOWNTOWN CENTER FOR AN UNUSUAL WEST COAST TOWN

Concerning an appropriate character for this downtown center in Carmel, California, and how it was achieved, architect Olof Dahlstrand says, "The town is largely one of small buildings, which border on the quaint, in a wooded setting on a sandy coast. Therefore, an important aspect of the design was the creation of a scale and feeling compatible with the town. Height was minimized; building elements were held to two stories or less. Variety of forms and the choice of materials within a unifying framework were carefully considered. Materials in character with the surroundings were used, with brick, redwood, and stucco predominate.

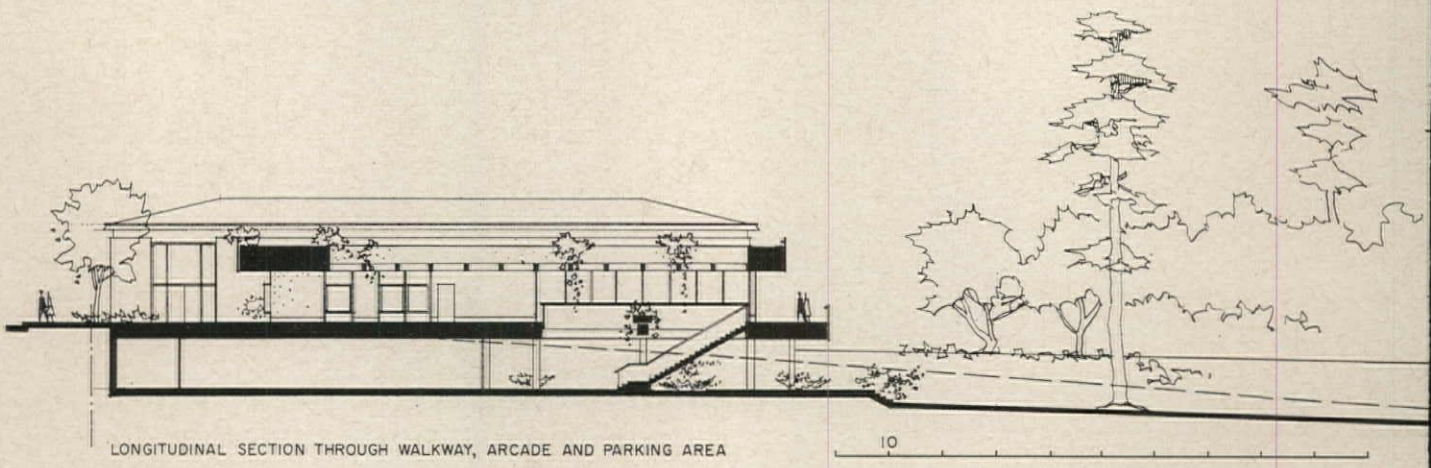
"Planting was extensively employed; the several existing trees on the site remain, and were supplemented by a considerable number planted within the project and in adjacent sidewalks. Planting beds and boxes are used on walkways, balconies, arcade areas, overhead trellises, and roofs."

The two photos at left show the side of the center facing the town's principal street (Ocean Avenue). The space between the two major tenants—a bank and branch department store—is devoted to small shops set back to form a courtyard. From this courtyard, a wide walkway with overhead trellis extends through the building to a balcony overlooking the lower level parking area and forested area beyond.

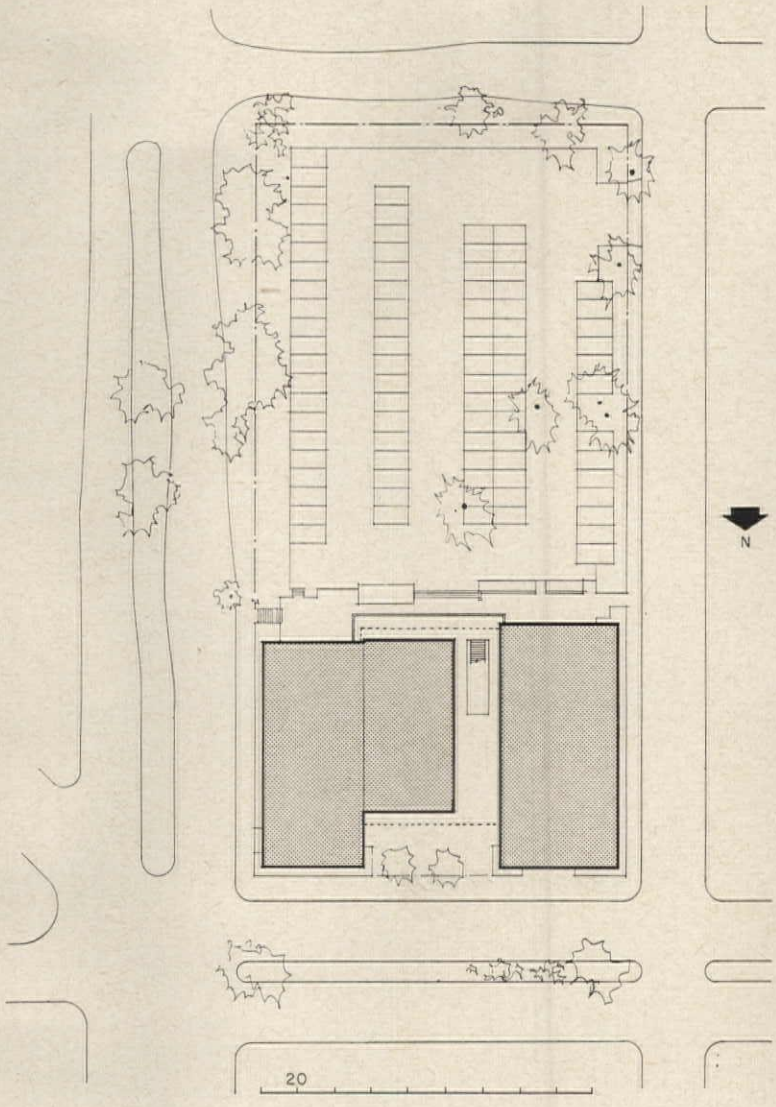
The Carmel Plaza
Carmel, California
OWNER: *The Carmel Plaza Corp.*
ARCHITECT: *Olof Dahlstrand*
STRUCTURAL ENGINEERS: *Carter & Slattery*
MECHANICAL & ELECTRICAL ENGINEERS: *Alexander Boome*
CONTRACTORS: *Stevenson Pacific, Inc., & James I. Barnes Co.*

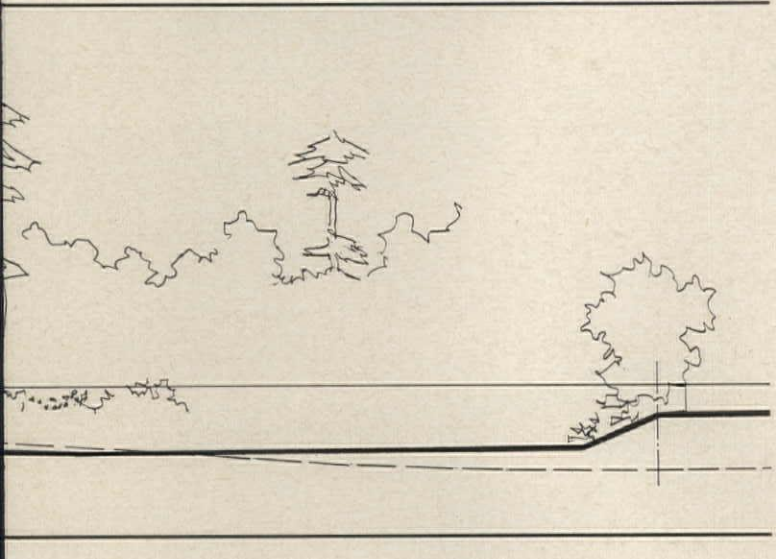


The Carmel Plaza, Carmel, California



LONGITUDINAL SECTION THROUGH WALKWAY, ARCADE AND PARKING AREA

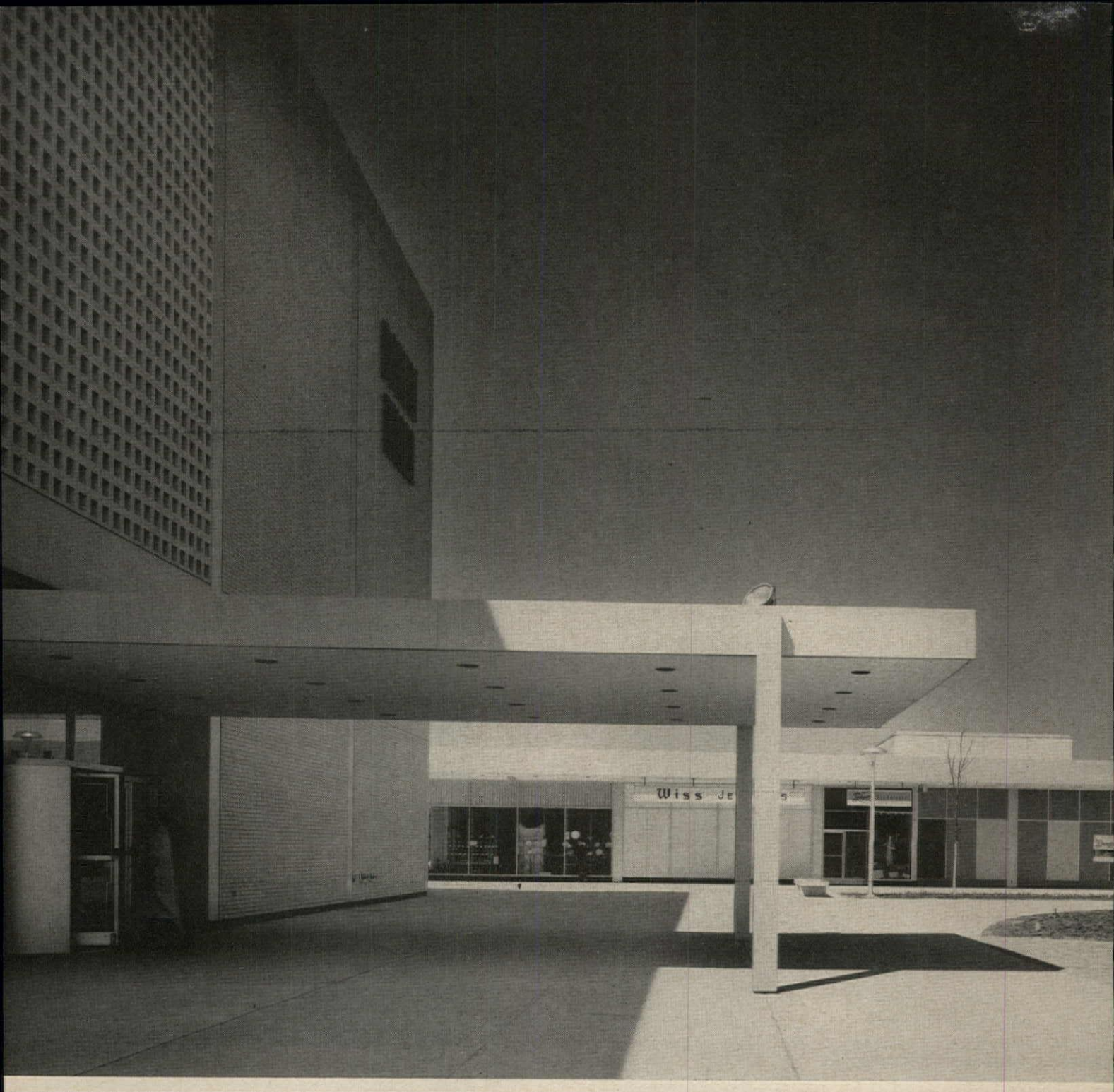




Consideration of the plan, longitudinal section, and photographs on these two pages will make clear the three-dimensional nature of the center, and how it has been arranged to work with the site, which slopes downward 25 ft from front to rear.

The interconnection of the two levels in a manner to encourage traffic between them was an important consideration. From the balcony at upper level, a large (and attractive) open stairway leads down to a lower level arcade of various shops. This arcade leads to a terrace—sheltered by the balcony—which separates building and parking lot. The terrace is set two ft above the parking area to minimize the view of the cars.

Parking is a serious problem in the town, hence provision for parking is an important part of Carmel Plaza. The present parking arrangement is temporary and may be changed [with future development]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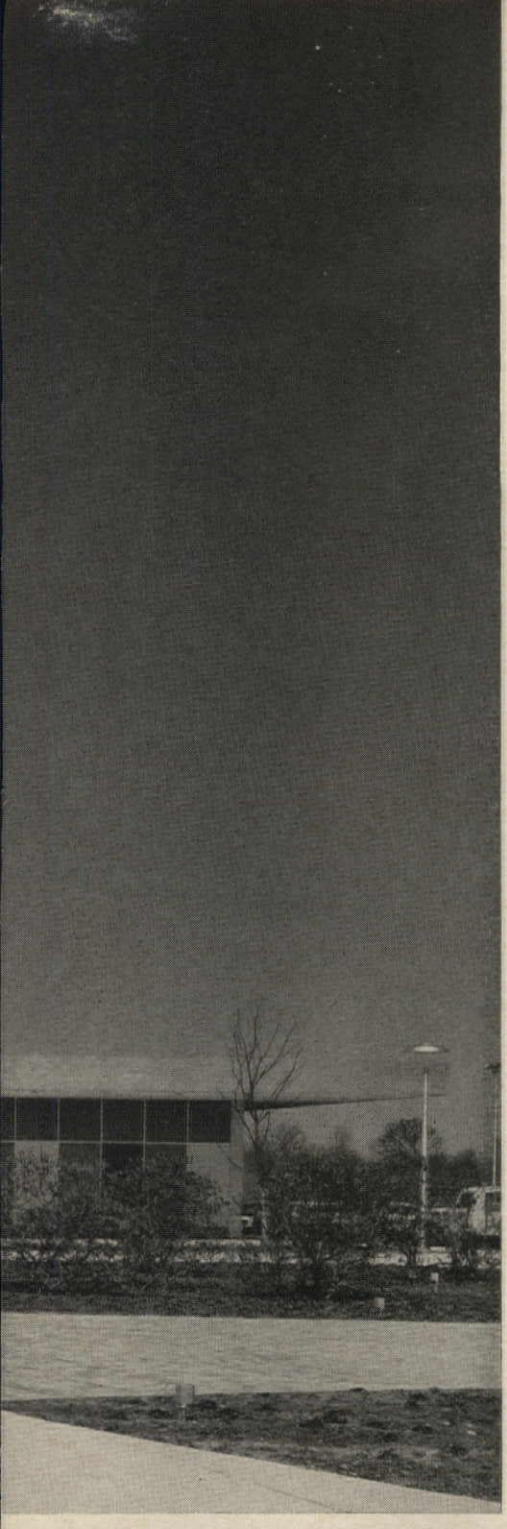
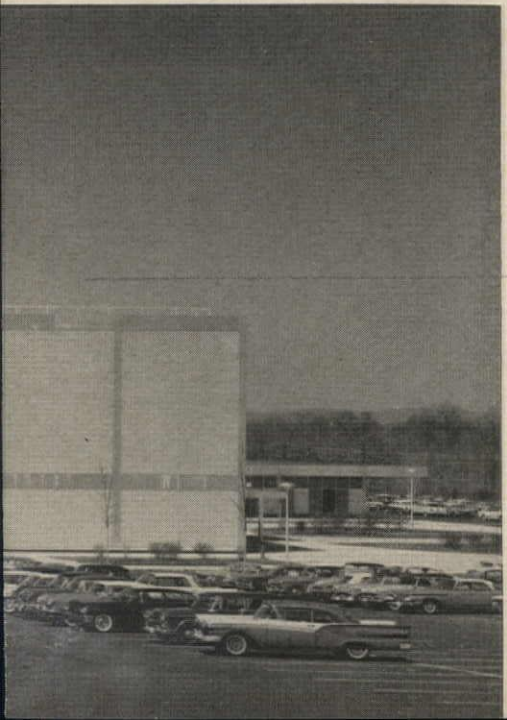




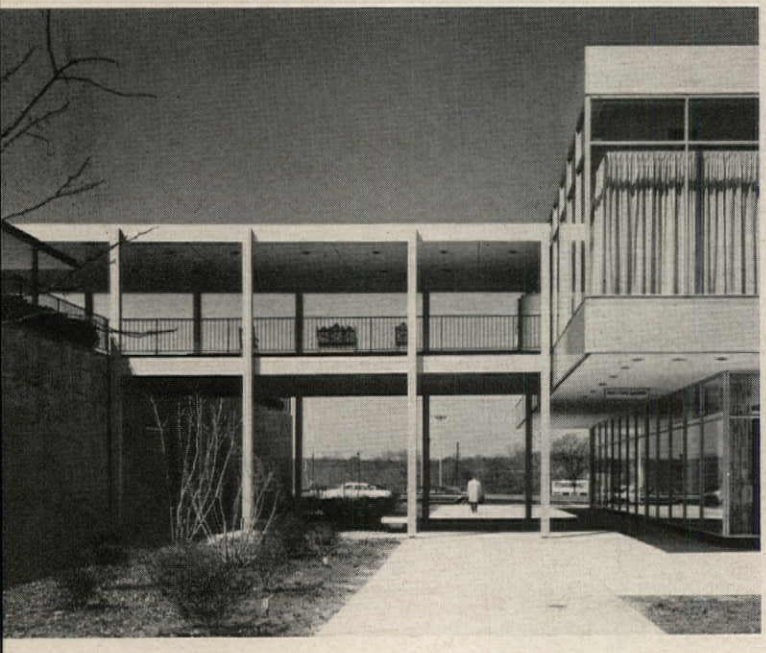
Joseph W. Molitor photos

ELEGANCE AND RESTRAINT FOR "CLASS" TENANTS

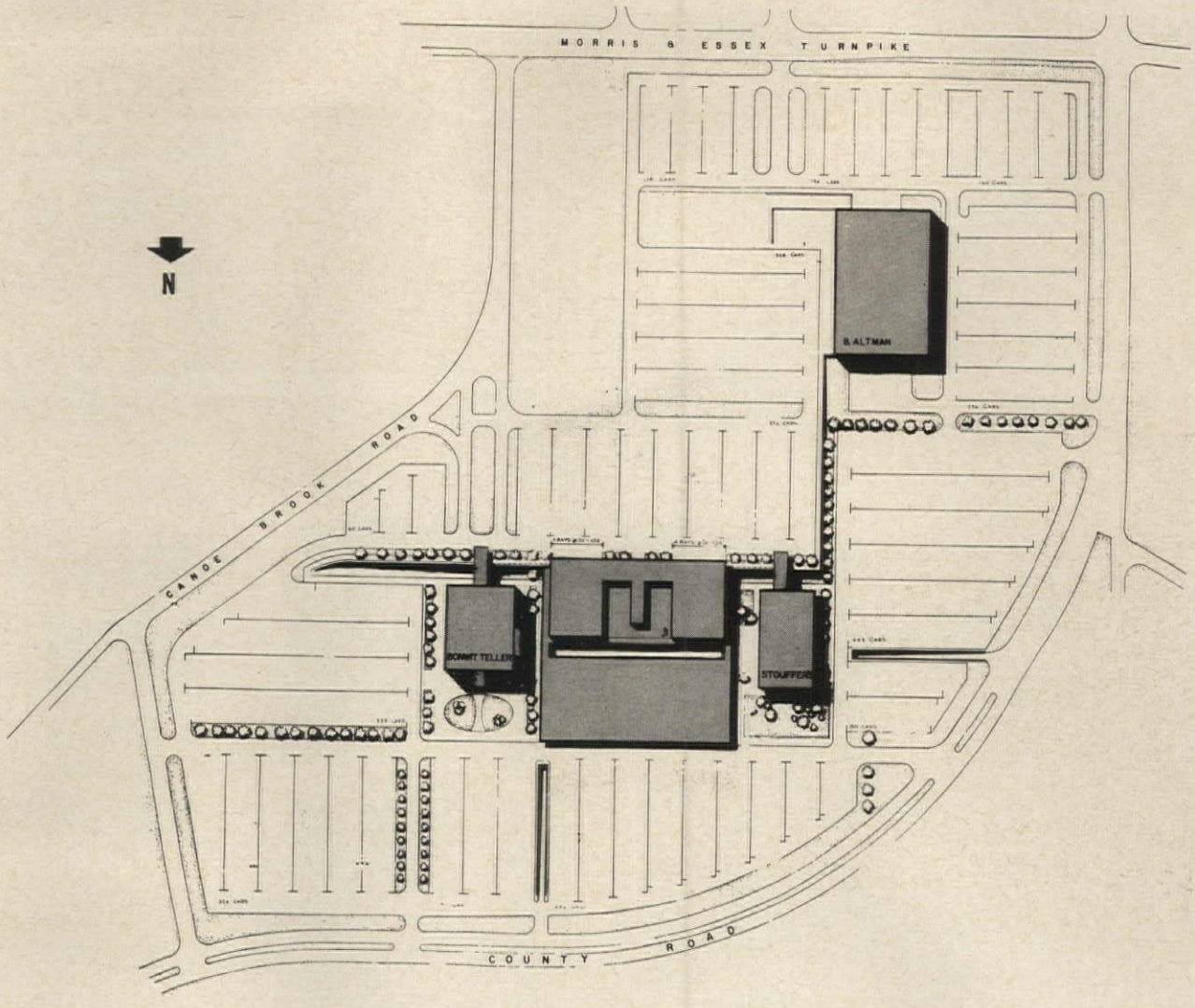
The unique character of the Mall shopping center might be summed up in the word *quality*: quality of design, building materials, and construction one does not normally associate with shopping centers; quality of stores and shops—the list of tenants reads like a miniature Fifth Avenue Association; quality of customers from the prosperous suburban countryside nearby. To carry out this idea in visual terms, it was necessary that the architects be in control of store fronts, graphics, and materials; at least for the exterior of all buildings. In typical SOM fashion, all these elements were carefully disciplined and detailed. The result is notable for its unity and dignity. A pattern of uniform column spacing (about 25 ft) was set up, as well as a uniform depth for all stores; a light beige-gray brick was selected for all buildings; all exterior metal work was carried out in aluminum; and great attention was paid to scale in an effort to humanize the whole.

A basic—and difficult—problem was that of integrating the new grouping with an existing B. Altman store on an adjacent eight acres at a higher level. As the photo at left and plot plan on next page show, this was done by neatly shaping the earth to two levels and connecting them with conventional and electric stairways.

The Mall
Short Hills, New Jersey
OWNER: *Prudential Insurance Co.*
ARCHITECTS & ENGINEERS: *Skidmore, Owings & Merrill*
PARTNER IN CHARGE: *William S. Brown*
PARTNER IN CHARGE OF DESIGN: *Roy O. Allen Jr.*
PROJECT MANAGER: *Albert Kennerly*
PROJECT DESIGNER: *Sherwood A. Smith*
MECHANICAL ENGINEERS: *Syska & Hennessy*
GENERAL CONTRACTOR: *John W. Ryan Construction Co.*



The Mall, Short Hills, New Jersey



The plot plan shows graphically the difficulties involved in integrating the new group of buildings with the existing, five-year old B. Altman building—a distance away and at a higher level. Two distinctly defined levels were created, with parking for each. The concrete retaining wall will soon be ivy-covered and have planting against it for a considerable length. All of the stores in the new group—as well as the restaurant—are serviced from an underground truck tunnel. The restaurant and the three-story Bonwit Teller store rise above the other buildings and are located for visibility from the two highways to the south; see photo at left.

At the outset, the only definite requirement for a master plan was to provide a Bonwit-Teller store, a 25,000 sq ft restaurant, and 300,000 sq ft of space for stores. Then as tenants signed up their spaces were planned within the column spacing [grid]


CHERRY HILL
STROLL SHOP
SAVE
STRAWBRIDGE & CLOTHIER

Joseph W. Molitor photos

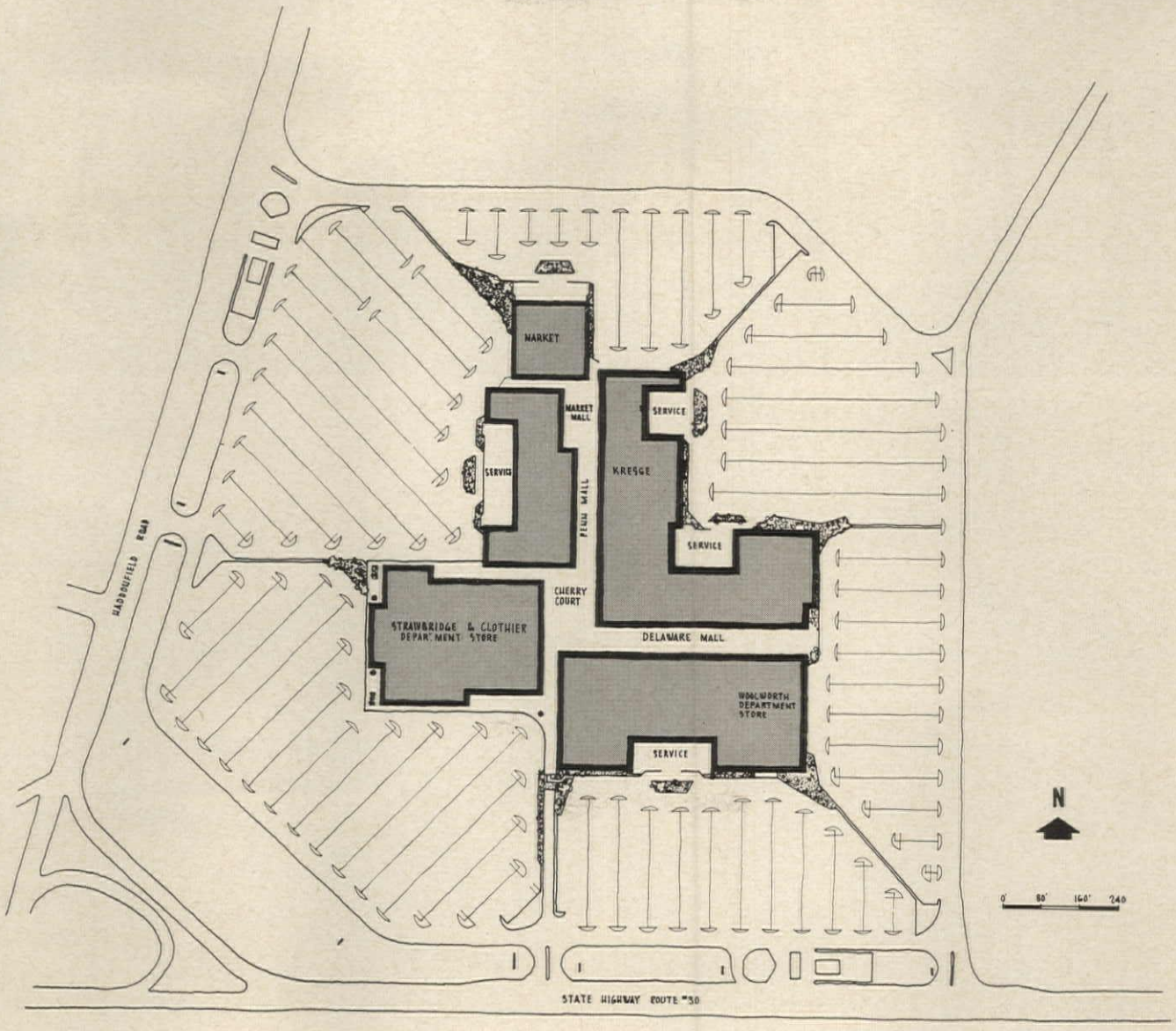
DESIGN FOR A BETTER OUTDOORS INDOORS

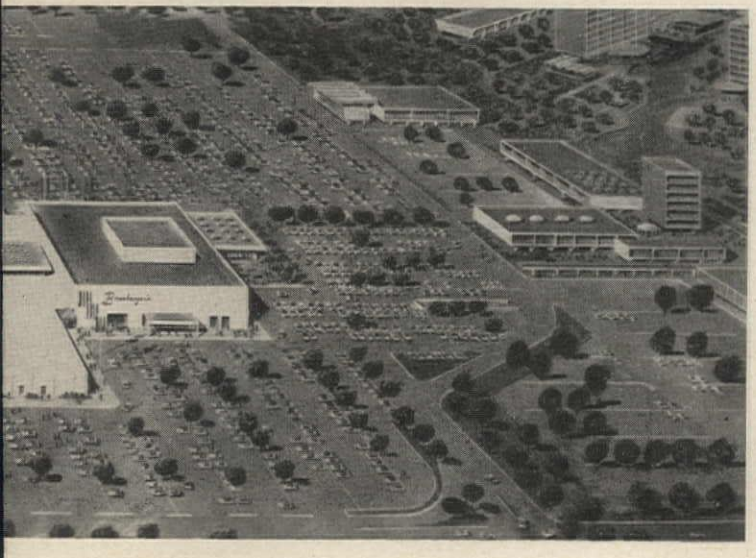
Victor Gruen, architect of the Cherry Hill shopping center, says of the design concept, "The underlying purpose of the enclosed mall is to make people feel that they are outdoors—to provide psychological as well as visual contrast and relief from indoor shops —yet at the same time they are provided with the comfort of air conditioning, the chance to sit down and rest a while, and the visual enjoyment of landscaping, fountains, and sculpture." The concept has been skillfully carried out at Cherry Hill, as the photo at left will reveal.

This large center—two department stores, a supermarket, and 75 shops—focuses on a concourse 1,370-ft long, in an L shape, which terminates in three courts, the largest of which, photo at left, adjoins the Strawbridge & Clothier department store. This space, called Cherry Court, is 110 by 172 ft in size, and rises through upward sweeping curves to a skylight 46 ft above the floor. Daylight also reaches this area from clerestory windows in the two side walls. In addition to the fountain, this area includes a Japanese garden, complete with arching bridge and running water, and a fanciful wood gazebo where one may sit and relax.

Cherry Hill Shopping Center
Delaware Township, N. J.
PROJECT ARCHITECTS: *Victor Gruen Associates*
ASSOCIATE ARCHITECTS: *Strawbridge & Clothier Store, George M. Ewing Co.*
INTERIORS: *Strawbridge & Clothier Store, Welton Becket; Food Fair, Kasoff & Bifano; Cherry Hill Cinema, William Riseman Associates*
LANDSCAPE ARCHITECTS: *Lewis J. Clarke*
CONSULTANTS: *Traffic, Wilbur Smith & Associates; Real Estate, Larry Smith & Co.*

Cherry Hill Shopping Center, New Jersey





The plot plan above shows the center as it now stands; the rendering at left shows the full extension to the east which is under way and should be finished this summer. The new mall will be flanked by about 12 additional shops and will terminate in a court adjacent to Bamberger's department store. The 81-acre site—which devotes 18½ acres to buildings and 62½ acres to parking—is accessible from several directions; offers entrance to the buildings at seven points; and accommodates 6,291 cars. The center is located directly across the Delaware River from Philadelphia, four miles east of Camden, New Jersey, and serves a market of approximately 400,000 people.

The top photo at left shows the exterior (west) entrance to the Strawbridge & Clothier store; the middle photo at left shows the 65-ft wide opening that joins the store to Cherry Court. A restaurant at terrace level overlooks the court.

Cherry Hill Shopping Center, New Jersey

Photos top left show two views looking along Delaware Mall in opposite directions. Soon to become an indoor shopping street 620-ft long, this thoroughfare, which has a 25-ft high, skylighted ceiling, is lined by 50 stores and a movie theater and will terminate in a large court leading to Bamberger's department store. Photo bottom left shows a view of the terrace restaurant overlooking Cherry Court.

There are several ingeniously designed, vertical folding, kiosk shops located in the mid-section of the malls, photo above. Constructed of wood and glass, these small establishments have outer walls composed of showcase and display elements that fold open for daytime business; fold closed for protection at night.

Note, in the two photos next left, how signs for the row of specialty shops and the supermarket have been brought under control. All signs for the center must meet with the architect's approval


Sears


WOOLWORTH'S
DOLWORTH'S
FOR
EARING APPAREL
DO
NOT
PARK
HERE
WOOLWORTHS
WOOLWORTH'S
Luncheonette
BAKER'S SHOES

Louis Reens photos

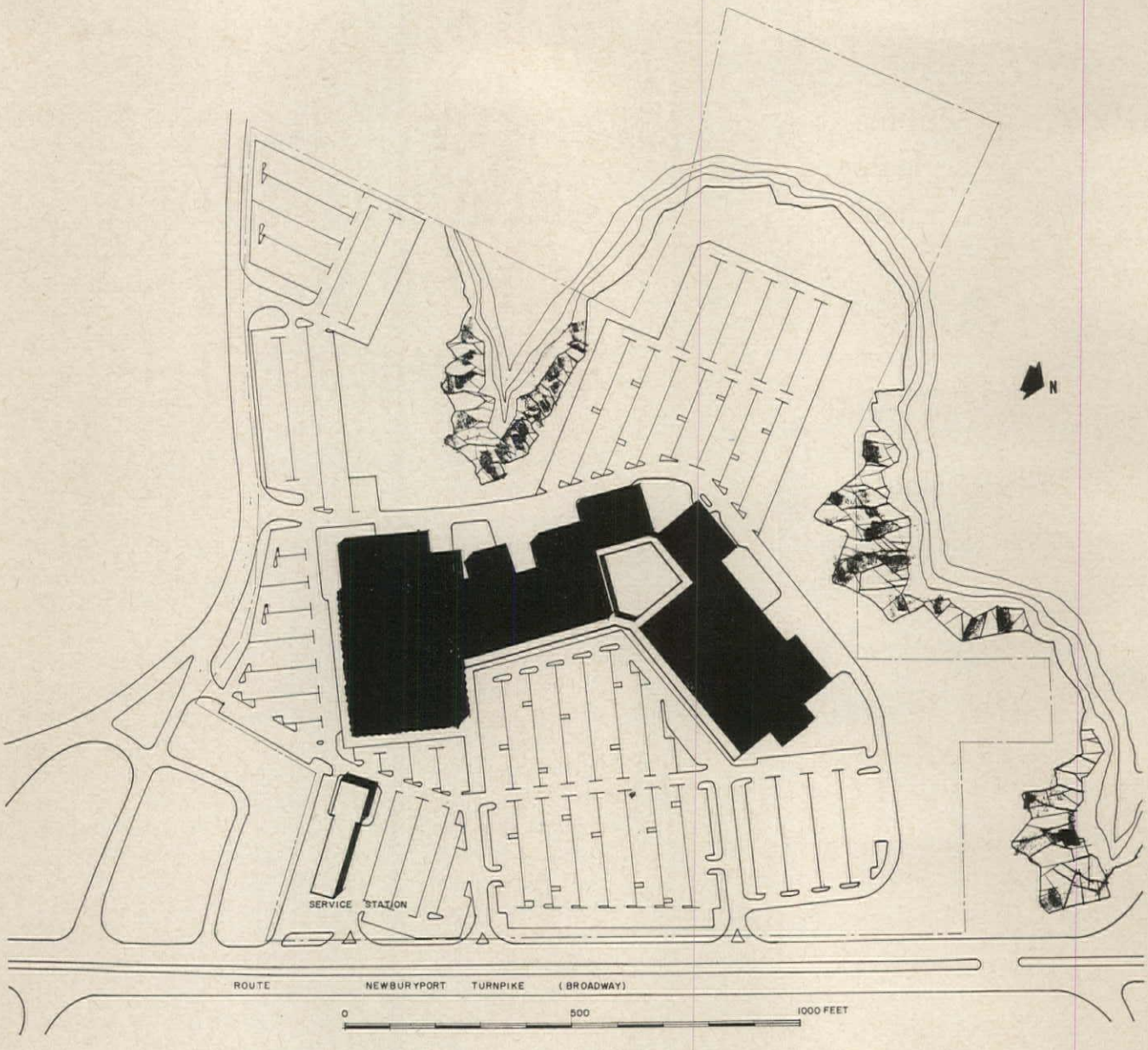
BRINGING ORDER OUT OF MANY DIVERSE NEEDS

The architect's principal problem in the design of this 31-store center was in reconciling and ordering a diverse set of requirements. The owner demanded maximum sign visibility from the highway, a pleasant arcade, and accommodations for both large and small lessees. The tenants required a variety of store widths and depths (irreconcilable to a standard structural bay); different types of mechanical and electrical systems; store fronts of all types; and various sign requirements of size, height, color, etc.

To organize these diversities, the architects made the linking arcade an expression of steel L-shaped bents on a strictly regular pattern, with all signs supported at the upper level, free of the store fronts, and arcade roofs at low or high levels (for emphasis). Sign panels of uniform height now have the flexibility of different lengths; and have a uniform ivory white background. A system of aluminum store front details was developed to accommodate the various demands of tenants.

The Sears store was conceived as a quiet anchor for the center, yet one strong enough to make a statement amidst the jumpy quality of nearby Route 1 stores. The folded wall is of exposed quartz aggregate precast concrete panels extended above the roof to create a serrated line against the sky.

New England Shopping Center
Saugus, Massachusetts
ARCHITECTS: *The Architects Collaborative,*
Norman Fletcher, Architect in Charge
JOB CAPTAINS: *Shopping Center, William J. Geddis;*
Sears, John Romish
ASSOCIATE ARCHITECT: *Francis X. Gina*
STRUCTURAL ENGINEERS: *Goldberg & Le Messurier*
MECHANICAL & ELECTRICAL ENGINEERS: *Stressenger & Adams*
ELECTRICAL CONSULTANT: *John Maguire*
OWNER-DEVELOPER: *Green Development Corp.*
GENERAL CONTRACTOR: *Vappi Construction Co.*



New England Shopping Center, Saugus, Mass.

The over-all development of the 81-acre site was influenced by the topography and rock outcroppings, which led to a crescent-shaped plan with a court at the junction of the two wings. The future plan includes a third shopping wing to complete the crescent, with Sears as the central anchor. The scheme aims to achieve maximum visual impact from the main highway.

During construction a seasonal sales roof for Sears, photo at left, was requested, and a folded plate shelter in steel was designed. One of the vaults doubles as a parking-lot entrance; natural light enters the shelter through continuous corrugated plastic skylights set into the top plane of the vaults

Architectural Engineering

Gas Turbine Lights, Heats and Cools a School

All the electrical and air conditioning energy requirements for a 2,400-pupil high school being built in McAllen, Texas will be supplied by a natural gas-fueled turbine. This compact-design school, to be finished the summer of 1963, is the first public school in the country to have the natural gas-turbine system, according to the American Gas Association. First, the gas turbine will supply electrical current at 60 and 840 cycles, the latter to be used for high-frequency fluorescent lights. Second, exhaust heat from the turbine will be used to generate steam for winter heating and to operate a steam absorption unit for air conditioning. The turbine will drive in tandem a 563-kva, 60-cycle generator and a 362-kva, 840-cycle generator. Use of high frequency current is said to increase lighting output by 24 per cent. Architect for the McAllen School is Zeb Rike, and the consulting mechanical and electrical engineer is D. Dana Price.

Ohio to Evaluate School Heating Costs

How much should heating of schools cost, and what are the economics of various fuels and types of construction? This is the purpose of a study to be made by the Board of Education of Ohio on 24 sample schools of different sizes and types—six schools each for gas, coal, oil and electricity. End objective is a manual containing charts, formulas and tables required for rapid, accurate and practical economic evaluations of: (1) fuel costs, (2) selection of types of construction, (3) selection of fuels and heating systems, (4) the degree of insulation required, and (5) orientation and location of school buildings. Preliminary studies will get underway this summer, and completion of the full study is anticipated by the end of 1963. Heading up the study are Robert Beynon, director of research, and David A. Pierce, research architect, State Board of Education of Ohio in Columbus, who described it at the Building Research Institute Spring Conferences held last April in Washington, D.C.

Toward More Precise Design Temperatures

Further pointing up the growing importance of improving predictability of air conditioning operating costs is a recent grant of $9,850 by ASHRAE to Loren W. Crow, consulting meteorologist of Denver, to re-examine basic data from which design temperatures in common use are derived. More exact calculation of heating and cooling loads (hence equipment sizes and operating costs) will depend a great deal on more precise integration and averaging of outdoor temperatures at the building site. Present design temperatures are based on the limits of daily extremes occurring at certain intervals at some 400 weather stations in the U. S. To test the efficacy of further refinement, Mr. Crow will analyze both daily and hourly data for five main stations and daily extreme data for about 30 smaller stations surrounding each of the five. Data will be processed electronically at the National Weather Records Center in Asheville.

New Report on Lift-Shape Construction

A new, detailed report is now available on Lift-Shape Construction for thin shells developed by James H. Marsh III, assistant professor of architecture at Texas A & M College. The concept involves fabricating steel reinforcement on a flat plane to be lifted and "sprung" into final position for a spray coating of concrete or other material. The Lift-Shape concept, the report notes, is based on the fact that when forces are applied to the ends of a straight bar, the bar will bow into a parabolic arc. Combinations of intersecting bars of different lengths fastened together will take curves other than parabolic when forces are applied to the ends of the bars. Thus the shapes available through various patterns of bars are almost limitless. The 24-page report, is available from the Publications Department, Texas Engineering Experiment Station, A & M College of Texas, College Station, Texas.

This Month's AE Section

THE STRUCTURE OF A SEA-SHELL ROOF

by Wayman C. Wing

United Church of Rowayton, Connecticut
ARCHITECT: *Joseph Salerno*
STRUCTURAL ENGINEER: *Wayman C. Wing*

P. E. Guerrero photos

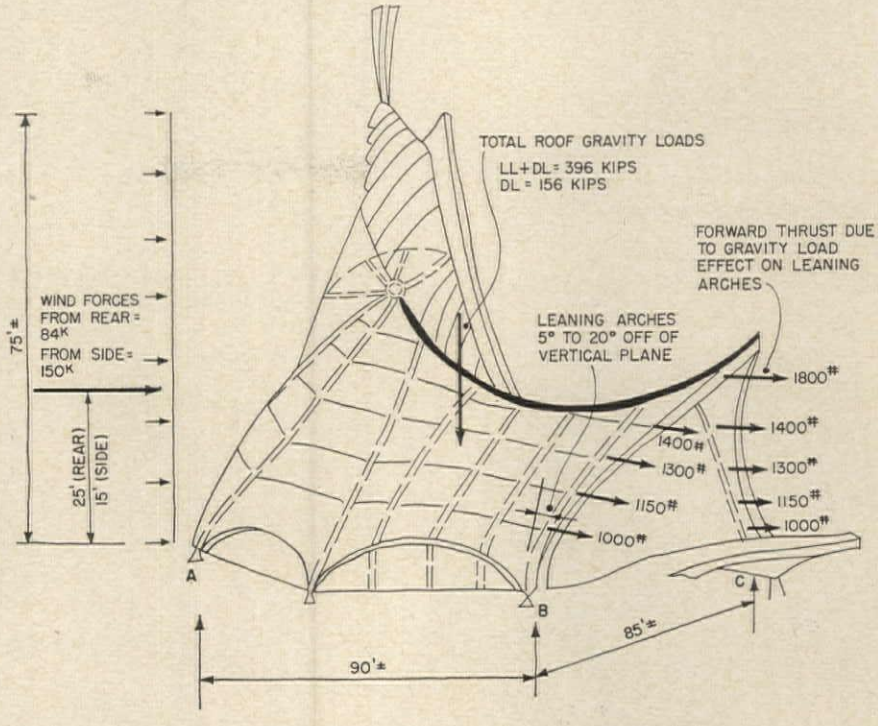
The sculptured roof of this church resembles the shape of a sea shell, with its unique clerestory spiraling heavenward. Having conceived this shape as an appropriate one for the new sanctuary of the United Church of Rowayton, the architect's problem was how to get it built. Pooling their thoughts, the architect and engineer decided that a skeleton frame of wood with stressed-skin cover would suitably carry out the concept, while also meeting budget requirements. The result was a frame of 19 intricately-shaped, glued-laminated arch ribs, 13 springing from the floor line and the remaining six from the ground. They join at a ridge beam in the front, and a hub-and-spoke wheel at the back where the roof wraps around itself to form the opening for the clerestory.

The main engineering problem was design against horizontal thrust toward the front of the building. First, there is a continuous horizontal thrust due to the fact that several of the front arch ribs "lean" forward in varying degrees from the horizontal. Second, wind blowing from the back will also cause horizontal thrust forward which must be added to that caused by the "leaning" arches.

This force must be taken out in the sheathing and purlins, designed to work together as a stressed skin. The stresses from the thrust are carried back toward the rear of the building, and are gradually balanced by the anchorage of the rear arches.

After close study of the architect's model of the church building, it was evident to the engineers that a possible vertical plane of relative weakness existed between the front 50 ft of the building and the rear 40 ft, due to the complicated way that arches had to be framed and the problems in making the sheathing absolutely continuous.

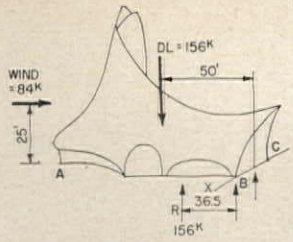
They decided to make provisions in the structure so that if the shape were disconnected, or "the shell's back were to be broken," the structure would still be stable. In order to accomplish this, only the dead load of the rear portion was considered in resisting the wind forces. It was found that this portion of the building, with a spread of only 40 ft, would not be stable unless anchored down at the arch bases. In a similar fashion, the forward portion of the building was analyzed. All the arches



The engineer had to make sure the structure would resist overturning due to wind and forward thrust of front arches. Design loadings are given in the table below. Stability calculations are given on the following page

DESIGN LOADING ON ROOF

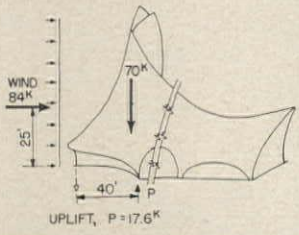
Type	Live Load	Dead Load	Actual Area	Horiz. Area	Load (kips)
Gravity	30 lb/ft²			8000 ft²	240
Gravity		12 lb/ft²	13,000 ft²		156
Wind	30 lb/ft²		2800 ft² (rear)		84
Wind	30 lb/ft²		5000 ft² (side)		150



CHECK 1: Wind From Back

Moments about line B-C (Center of gravity 50 ft from line B-C):
50 ft × 156 kips = 25 ft × 84 kips + 156x

Then, $x = \frac{5700}{156} = 36.5$ ft (within middle third, so stability exists)

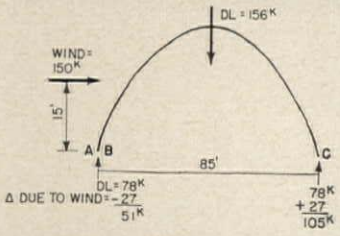


CHECK 2: Assume Roof Has Split

Dead load in rear portion:
45% × 156 kips = 70 kips
Overturning moment:
25 ft × 84 kips = 2100 ft-kips
Resisting moment:
40/2 × 70 kips = 1400 ft-kips
Uplift resistance is required:

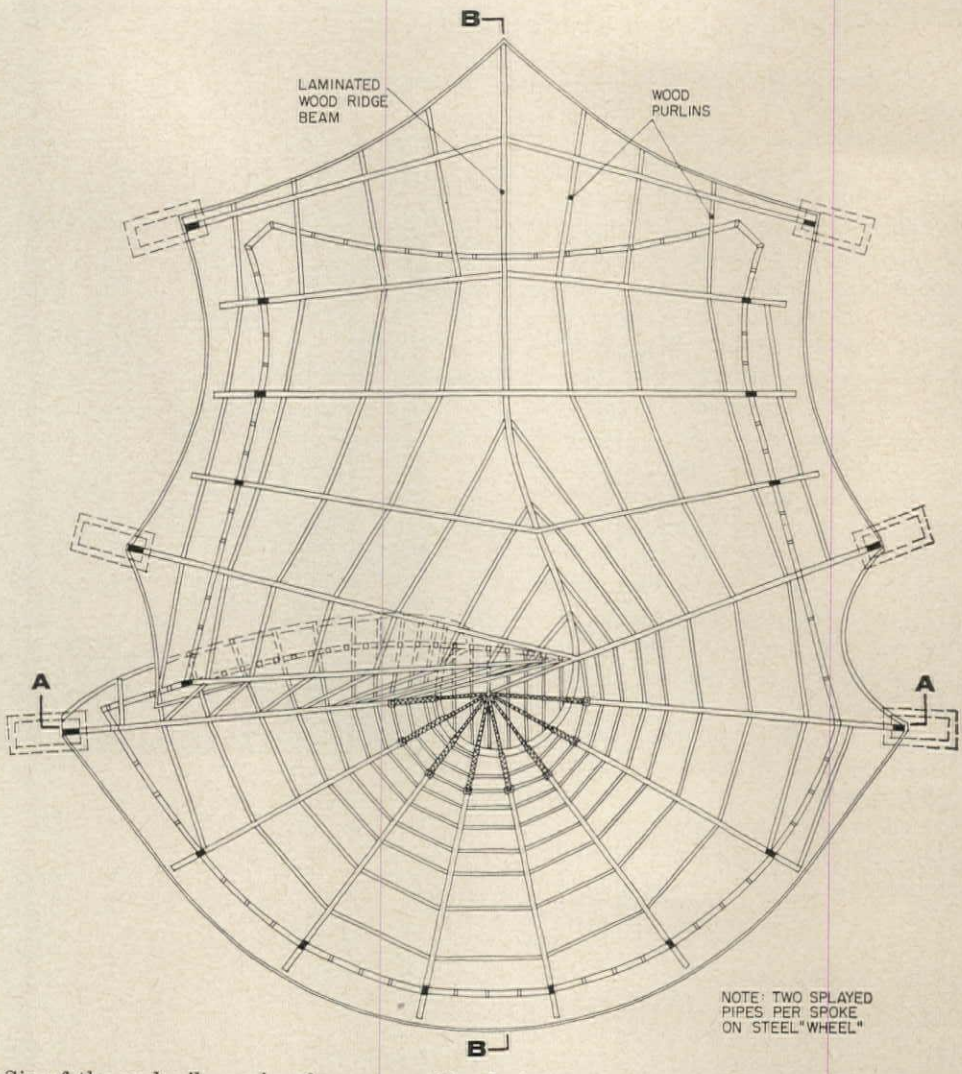
$$P = \frac{2100 - 1400}{40} = 17.6 \text{ kips}$$

(anchored at rear of building)



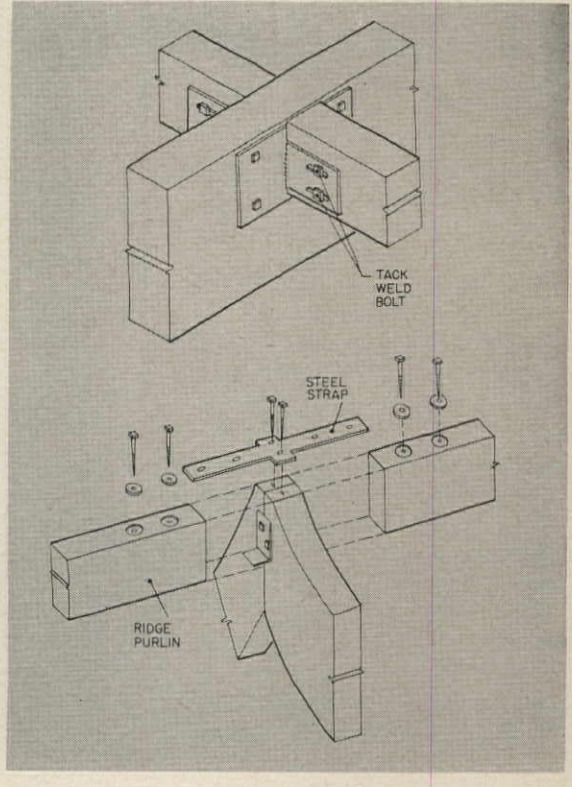
CHECK 3: Wind From Side

Moments about line A-B (Center Gravity 42.5 ft from line A-B):
Overturning moment:
15 ft × 150 kips = 2250 ft-kips
Resisting moment (D. L. only):
42.5 × 156 kips = 6620 ft-kips (roof is stable)



Six of the arch ribs spring from ground-level abutments (see plan); the rest start perpendicularly at the first floor. Arch ribs meet at a ridge beam in front; are attached to 16 steel pipes of a spoked wheel at the back (eight spokes; two splayed pipes per spoke). Connections of purlins to arch ribs are shown below. Top is typical, bottom is at ridge

Norman R. C. McGrath



were detailed to resist possible uplift at their bases.

The glued-laminated arches vary in size between 5¼ by 21 in. and 9 by 37¼ in. Lengths were between 90 ft and 45 ft. A 1¼- by 6-in. tongue-and-groove wood decking was used, fastened with galvanized threaded nails. In order to insure necessary continuity of the 3¼- by 6⅜-in. glued-laminated purlins, all connections were detailed and specified to have sufficient strength in tension to resist the forward thrust of the roof.

All lumber is select structural West Coast Douglas Fir (allowable working stress, 2,200 psi; modulus of elasticity, 1,800,000.)

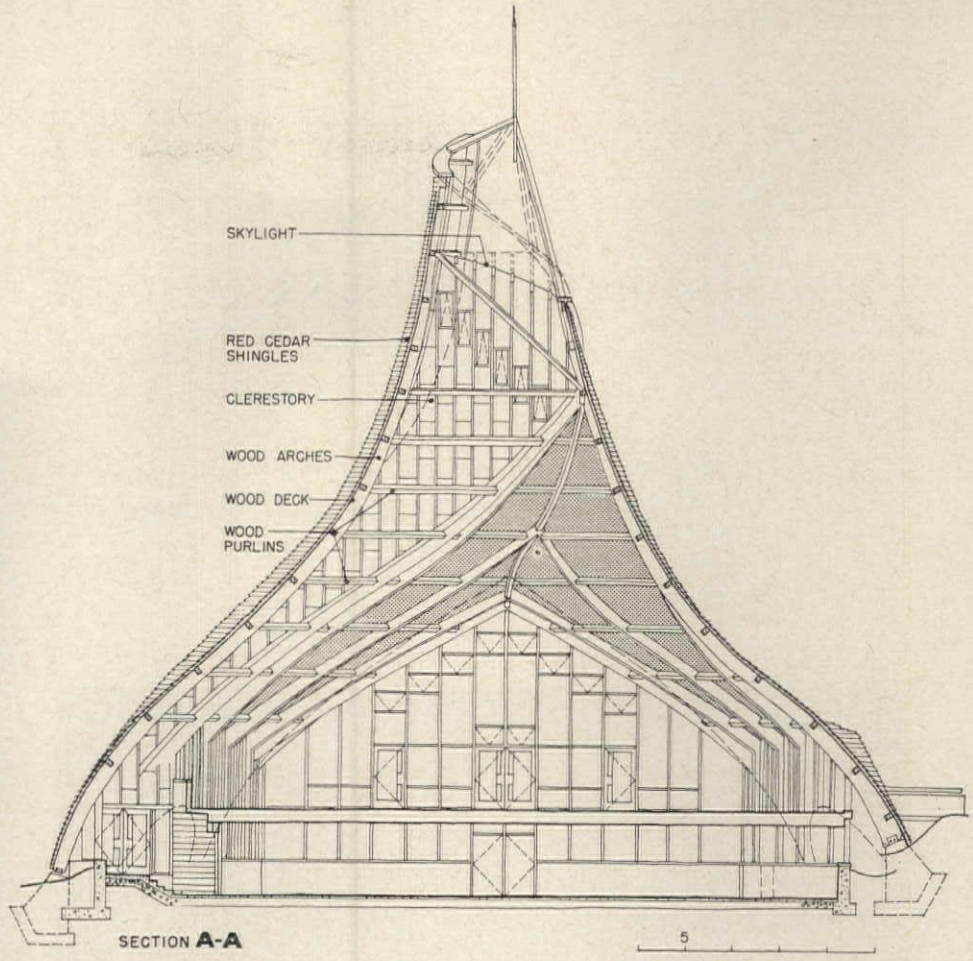
In the clerestory portion of the building, where nine laminated "sticks" come together, a complicated joining problem was resolved through the use of a hub-and-spoke assembly of steel pipes. (See plan and first-page photo.)

Three pairs of the ribs are supported by exterior concrete abutments for architectural reasons: the roof line reaches down to the ground. The remaining arches are supported on the first floor construction where a network of horizontal ties is fully continuous between the individual arches and welded to resist the horizontal thrust.

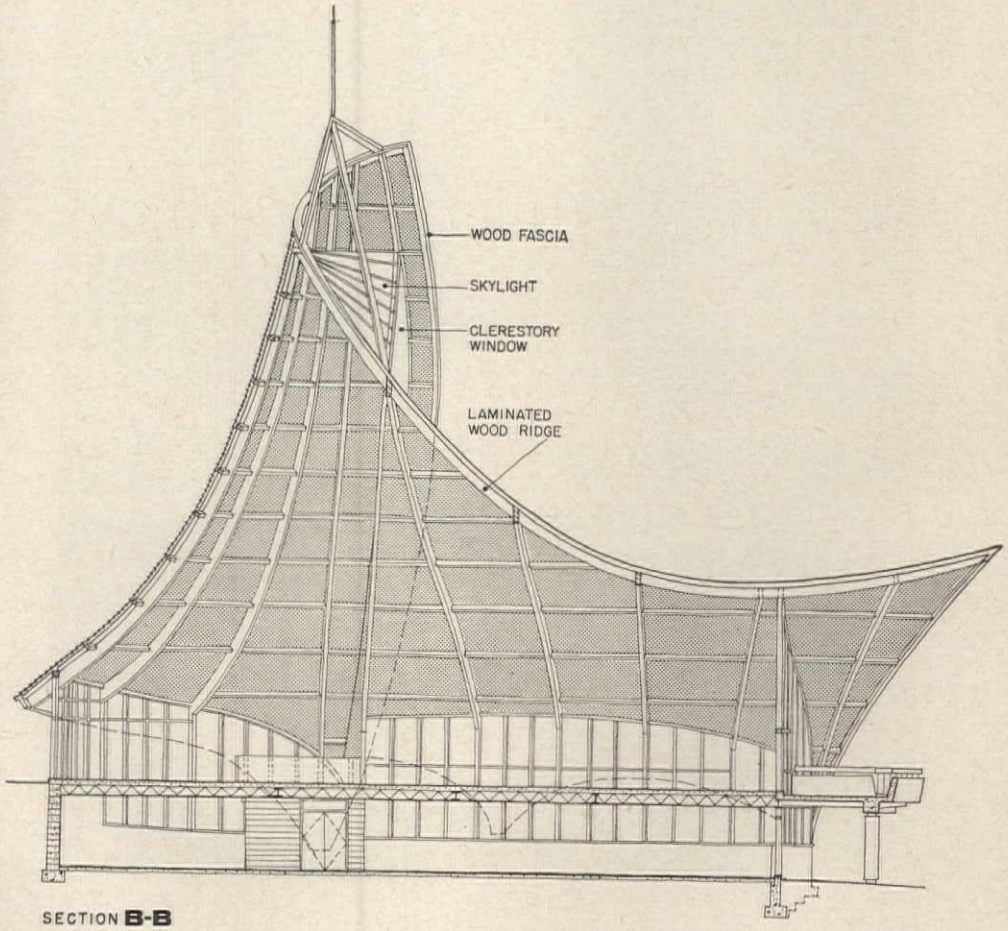
The first floor, which is the floor of the congregation seating area, was constructed in steel joists with a three-inch concrete slab poured on steel deck. This floor also serves as a horizontal diaphragm to resist the forces of the arches. Steel beams and pipe columns support the steel joists. Connections between the steel beams and columns were designed to resist a portion of the shear resulting from the wind forces on the roof above. The balance of these wind forces were resisted by the concrete walls around the perimeter of the building.

The approximate cost of the structural portion of the roof, excluding the wood shingles and furring strips, and the clerestory glass, was $55,000 or $6.85 per sq ft of floor area, or $4.25 per sq ft of actual roof area.

All the glued-laminated arches were provided by Rilco Engineered Wood Products Division, Weyerhaeuser Company. The general contractor, T. J. Riordan, was erector for the roof. James E. Flynn was in charge of the project for the structural engineer, and Richard Kasal for the architect.



SECTION **A-A**

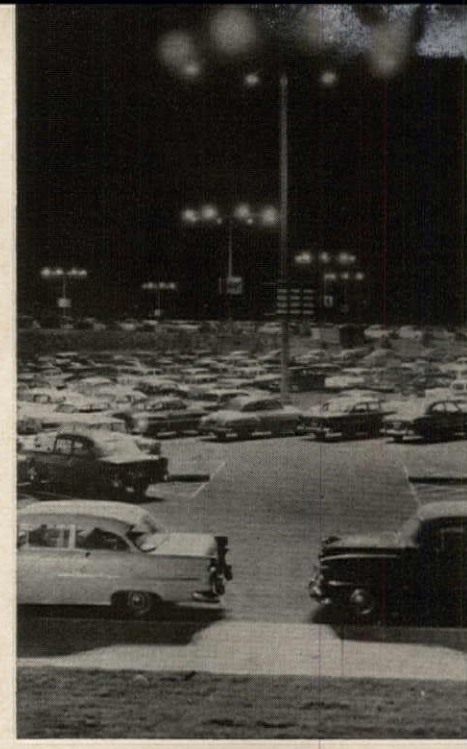


SECTION **B-B**

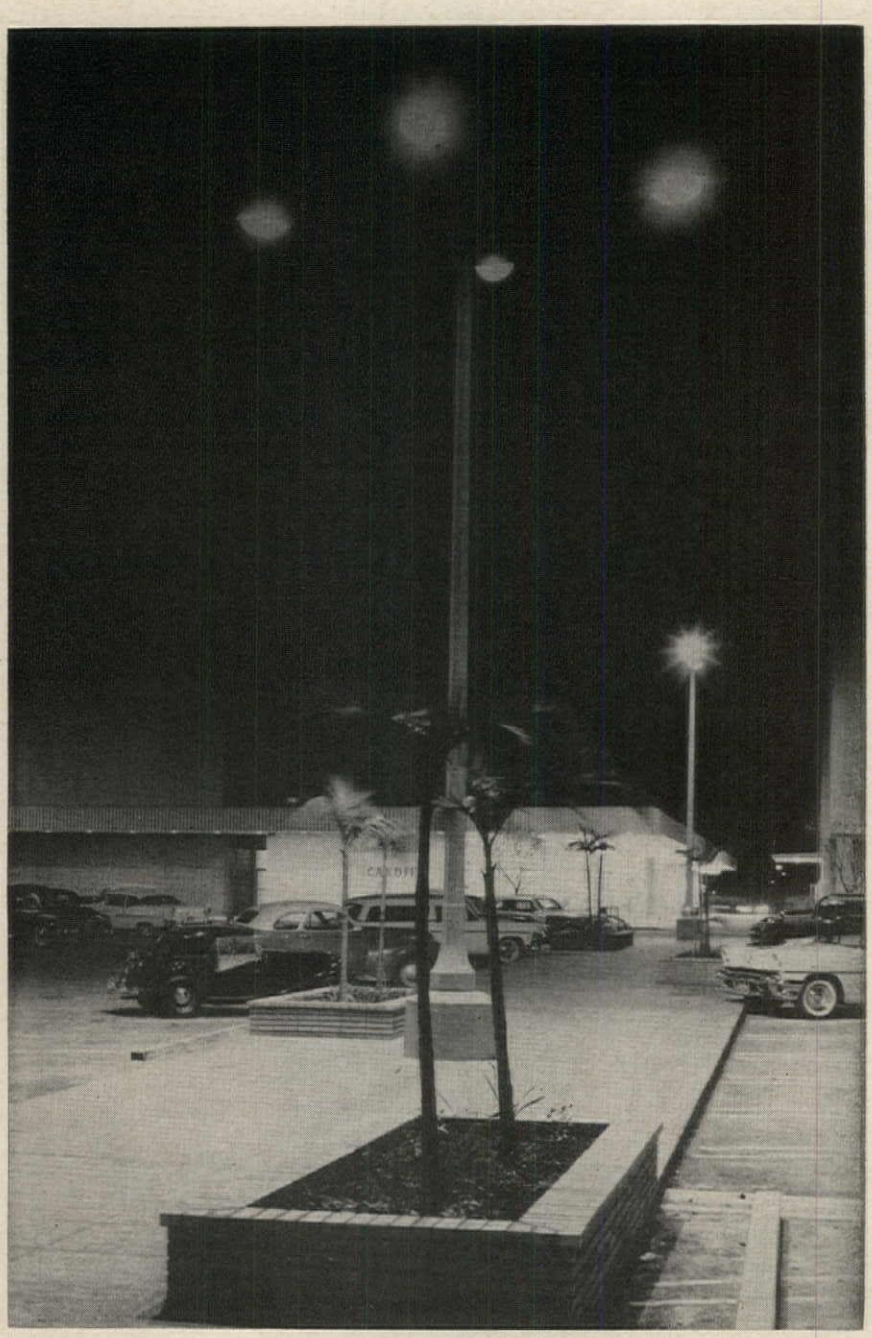
THE ROLE OF OUTDOOR LIGHTING IN SHOPPING CENTER DESIGN

by William H. Kahler

How lighting provides design flexibility for nighttime color, texture and controlled merchandising



Southdale Shopping Center, Minneapolis, (Victor Gruen Associates, architects) uses 60-ft poles 300 ft apart, each with eight 1000-watt mercury lights



Concrete poles with water-polished finish carry out motif of masonry planters, support one to four streetlight luminaires. Note the bumper-high pole bases

Lighting is the essential architectural ingredient that makes nighttime shopping possible. Since many operators of shopping center stores say that 50 per cent or more of their business comes from the evening shopper, the basic plan of a shopping center must include nighttime appearance as a foremost design consideration. When the sun sets and the lights come on, the entire shopping center can take on a new cloak of color, form and texture.

The Over-all View

The over-all nighttime view is the total effect of many illuminated areas and various forms, including the signs, driveway entrance, parking area, buildings, walkways and store fronts. This over-all panorama is made up of a wide variety of brightness patterns which vary in brightness level, color and contrast. In general, large areas of low brightness form the base of the lighting design, while smaller areas are much higher in brightness to create definition, sparkle and attraction.

The low brightness values apply to such areas as the parking space and the faces of buildings. Higher brightnesses are provided for the driveway entrance, signs and store fronts. Maximum brightness will be from exposed sources of light such as luminaires or bare lamps. Such sources

WILLIAM H. KAHLER is chairman of the IES Committee on Lighting for Merchandising and is chain sales manager of the Lighting Division, Westinghouse Electric Corporation, Cleveland, Ohio

White store facade is floodlighted with two 1000-watt incandescent units concealed from normal view. Luminous tube sign in blue identifies store while dark stripes frame the entrance

Fluorescent luminaires designed for area lighting, although somewhat more costly than mercury units, do provide opportunity for a change of pace or color in parking areas

can serve to attract attention and create sparkle, but if they are uncontrolled they may be very annoying and distracting.

Color effects can be obtained by variations in light sources (mercury, incandescent and fluorescent), by colored surfaces, or by combinations of certain sources and color filters. Effective colors can be obtained most efficiently by taking advantage of the characteristics of mercury and incandescent lamps. The incandescent lamp, being highly efficient in the red end of the spectrum, is best for red and amber colors with filters. The mercury lamp is strong in yellow, green and blue and, therefore, can be used more efficiently to produce these colors with filters.

Parking Area Lighting

The important attributes of well planned parking area lighting are: (1) it attracts shoppers, (2) it prevents accidents, (3) it speeds customer parking and walking to and from cars, (4) it helps prevent theft and vandalism.

General Design Considerations. A well designed parking area lighting system involves careful selection of the lighting quantity and quality.

The amount of lighting considered to be adequate will depend upon the use of the particular area and the general brightness level of the surrounding areas and adjacent streets.

Table 1: Recommended Average Horizontal Footcandles

Location	Low Brightness Surroundings	High Brightness Surroundings
Parking Areas	1*to 2	2 to 5
Entrance & Exit Driveways	2 to 4	4 to 10
Loading Platforms:	5	5
Parcel Pick-up, Passenger Loading Zone	5	10

*Minimum level recommended by Illuminating Engineering Society for barest seeing essentials on the parking lot

Table 1, showing recommended illumination levels for vehicle traffic areas, was developed on the basis of visual requirements and today's current practice.

Providing only the proper quantity of illumination, however, does not guarantee satisfactory lighting in any installation. Equally important, but more difficult to evaluate, is the quality of the illumination. The lamp and luminaire combination selected to perform the lighting task should provide the desired level of illumination free from harsh shadows and objectionable glare. Three general rules are:

1. Variation between average illumination level and minimum at any point in the parking area should not exceed a ratio of 4 to 1.

2. Luminaire spacing and mounting height should be such that light strikes each point in the parking area from several directions. This will prevent black shadows.

3. To prevent objectionable glare, light should not direct excessive brightness toward adjacent homes, shopping malls, or highways.

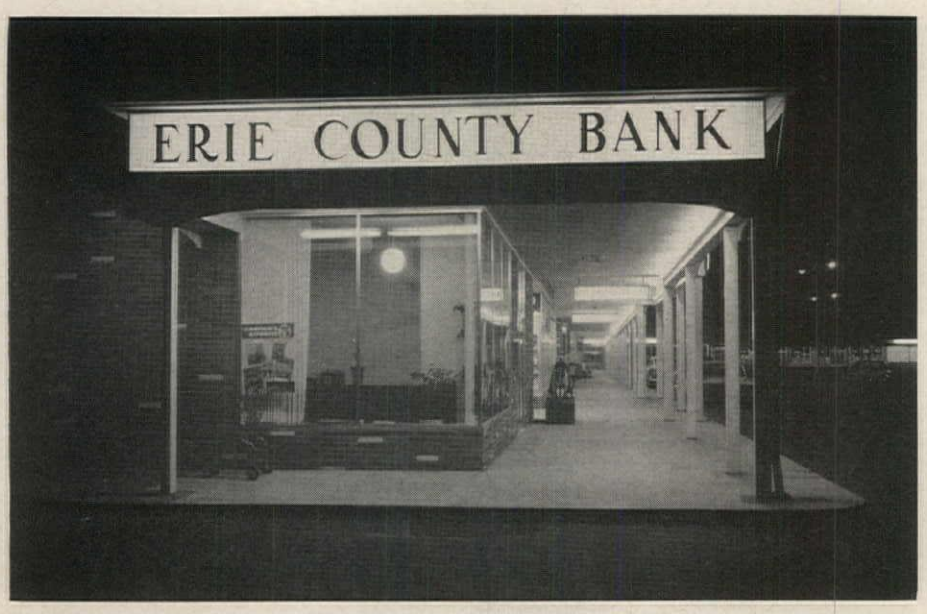
Light Sources. There are various types of lamping for area lighting equipment suited to parking spaces. Their selection depends upon architectural and economic considerations. Economy is important because of the large area involved. For this reason, the mercury lamp has become a favored light source for this application. The high efficiency and long life of this lamp allow the designer to provide generous illumination levels within limited initial and operating budgets.

Fluorescent lamps have been used to some extent for parking areas, but initial and operating costs are somewhat higher than for comparable illumination with mercury lamps.

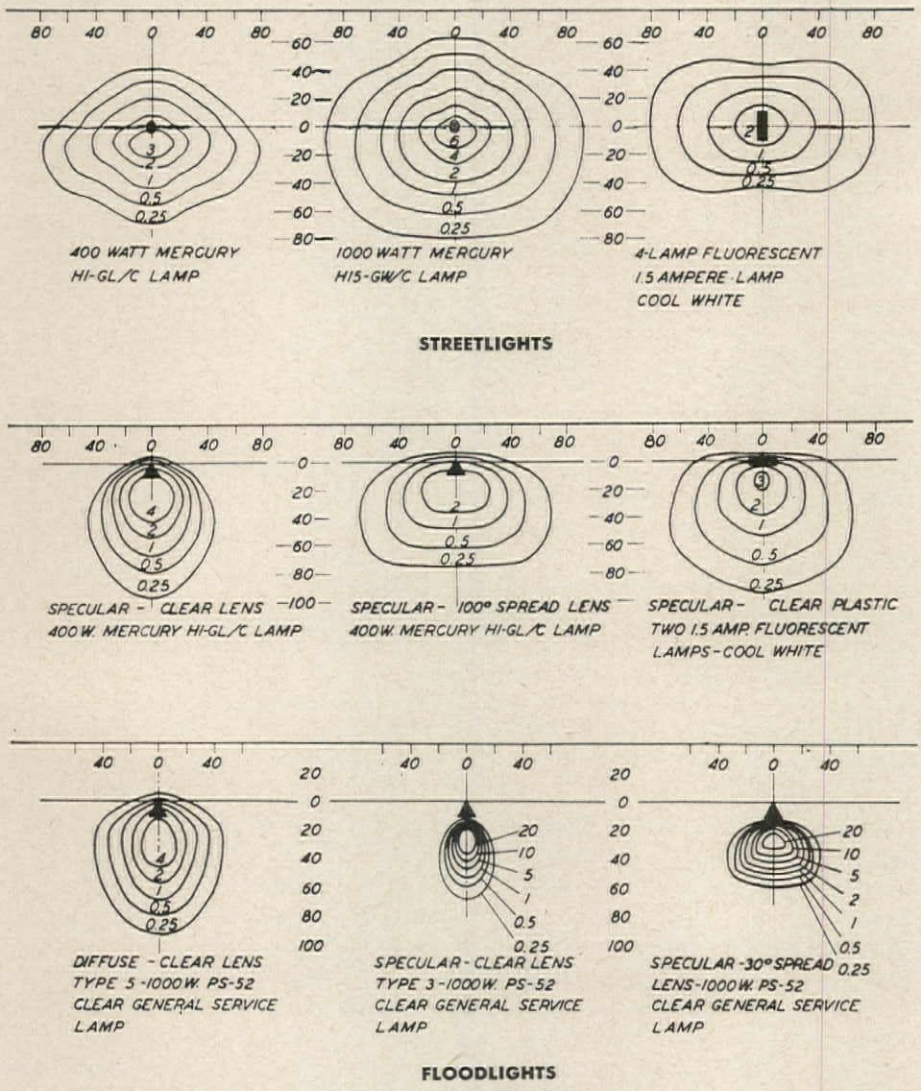
Today there are very few parking areas planned for incandescent lighting because of the relatively low efficiency and high operating costs.

Lighting Equipment. A number of different types of luminaires are available for parking area lighting, among which floodlights and street lighting units are most commonly used. The nature and shape of the parking area largely influence the selection of the best suited lamp and luminaire combination.

Both floodlighting and street lighting luminaires are optically designed



Luminous band of concealed fluorescent lights along outer edge of walkway can unify shopping center while silhouetted signs identify stores to shoppers approaching from parking area; backlighting contributes to walkway brightness



Typical isolux diagrams show initial horizontal footcandles at various distances from mounting poles for streetlights and floodlights. Scales above are in feet; mounting height is 30 ft; floodlights aimed at 45 deg. For other heights, see note

to produce a specific distribution of light, and the pattern produced is dependent on the size, location and type of light source used. The wide range of light distribution patterns (called isolux curves) are shown in the accompanying diagrams. Street lighting units are generally mounted two per pole at mounting heights of 25 to 35 ft. Where the layout dictates poles around the perimeter of the parking area, single luminaires are usually mounted on each pole. Less conventional techniques may specify four or more luminaires per pole with mounting heights up to 60 ft. Also, specially designed equipment may be applied to suit the architectural scheme.

Floodlighting arrangements vary from widely spaced high towers with mounting heights of 40 to 100 ft to a larger number of low mounted units at heights of 20 to 40 ft. The advantage of high mounting is that a greater number of floodlights can be mounted on one pole and a minimum number of poles is required. However, at such high mounting special provision must be made for maintenance access to the equipment. The usual lighting service truck reaches only about 30 ft.

Mounting Poles. Lighting poles are available in steel, aluminum, or concrete. Unpainted aluminum is increasing in acceptance for its appearance and low maintenance. The concrete pole also needs no painting and blends well with an over-all concrete motif.

Most poles selected today for shopping centers are of the rigid type, because the long life of mercury lamps minimizes the frequency of maintenance. However, a maintenance truck must be available for luminaire cleaning and lamp replacement. This service can now be purchased from maintenance contractors in most metropolitan areas.

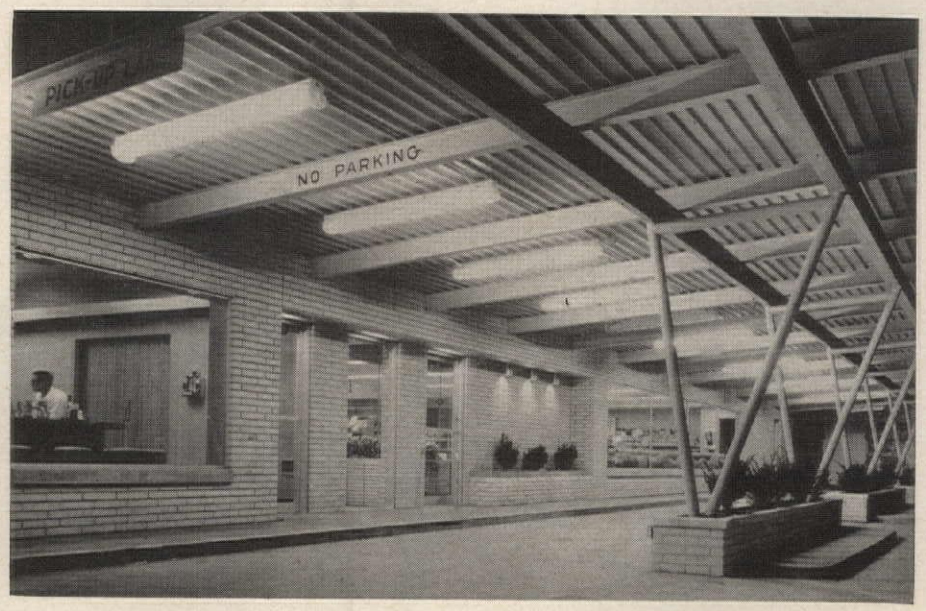
NOTE

Mounting height affects the amount of illumination on a ground point in accordance with the inverse square law. Suggested correction factors for isolux values at left are:

Height	*Factor*
20	2.25
30	1.00
40	.56
50	.36
60	.25

In some outlying centers, the hinged pole has been favored because access to luminaires is obtained by lowering them to the ground. Hinged poles are designed to meet a range of luminaire weights and are selected to insure adequate strength for wind and weight loading.

Poles for mercury luminaires, in the past, have been selected with transformer bases for the mercury lamp operating auxiliary. Today, however, auxiliary equipment is built into the mercury luminaire, so the transformer base is not required. Regardless of base type, poles should be mounted on a concrete sub-base of sufficient height to absorb automobile bumper shock; or there may be curbing and a planting area around the pole location. To accommodate decorative, seasonal and special event lighting, poles should be equipped with convenience outlets. Extra circuits should feed these outlets, or additional capacity should be provided in lighting circuits.



Parcel pick-up and entrance walkway sheltered by canopy, lighted by fluorescent luminaires designed for outdoors with ballasts for low temperature starting. High output lamps are enclosed in plastic shields to control output in winter

Entrance and Exit Driveways

Approaches and exits are the forgotten areas in many shopping centers. It would appear that some designers have assumed that the driveway approach would be lighted by adjacent street lighting or lighting spilled from the parking area. On the contrary, it is essential that these areas be provided with considerably more light than adjacent areas so that drivers can immediately identify the driveway. The rule is for illumination at least twice the level of adjacent areas. Luminaires of the same type used in the parking area are generally satisfactory, but must be located close to the driveway to obtain the required quantity of illumination. Border lighting or painted curbs are also helpful in identifying these critical locations.

Building Floodlighting

The façades of shopping center buildings offer opportunities for illumination because vertical surfaces are visible for great distances and create the visual background as the shopper approaches the center. Fluorescent, incandescent and mercury lamps are all suitable for building floodlighting, and often a combination of two sources provides interesting contrast. Where the floodlighting can be an integral part of the building architecture, fluorescent floodlights are most suitable because their extended length and low source brightness permit close mounting to the illuminated surface.

Light-colored surfaces create a high brightness effect with minimum illumination. Light-colored façades can be wholly lighted to stand out, or architectural details and outlines can be emphasized where light trim colors are highlighted against dark building surfaces.

Translucent panels as part of the architecture of the façade can be back-lighted to create high brightness effects. A complete luminous band can be used to tie the shopping center buildings together while individual store signs can be superimposed on the luminous element.

Store Fronts

Store front architecture and lighting treatment in the shopping center may be handled on an individual store basis or as an over-all coordinated store front plan. The latter is preferred and includes consideration of façade lighting, luminous panels, walkway canopy and show windows.

A walkway canopy which serves as protection for shoppers also shields the show windows from direct sunlight to minimize fading and reflections. A variety of lighting techniques can be incorporated in the canopy design, including recessed incandescent and fluorescent equipment, or continuous rows of fluorescent luminaires. Fluorescent equipment for such a purpose must be suitable for outdoor applications from the standpoint of reliable starting at low temperatures.

Show window lighting is generally considered a part of the store interior lighting system, but the effect must be coordinated with the over-all outdoor and store front lighting. Attraction to the show window is important merchandising strategy so the show window brightness should be higher than surrounding exterior illumination. Actually, the show window lighting should be the highest value of the entire brightness pattern of the center.

The Outdoor Mall

The mall is the area where the designer can use imagination and ingenuity to create interest and mood. Concealed mercury floodlights, for example, produce lovely tree lighting effects the year around. Trees and shrubs to be illuminated should have lacey foliage to allow light to filter up through the entire plant.

Illuminated sculpture, fountains, and pools are accent attractions that can add to the over-all pleasantness of the mall.

If areas of the mall are set aside for community activities and it is not practical to install permanent special lighting, then adequate convenience outlets should be provided.

ELECTRIC BASEBOARDS HEAT COLLEGE DORMITORY

by George M. Fraser, Heating Consultant

Electric baseboard heaters are the sole source of heat for the new 80-unit married student's dormitory at Northern Illinois University, DeKalb, Illinois. The dormitory was occupied September 1960 and records of heating costs for the 1960-61 season show an average heating cost per apartment of $50, based on a power cost of one cent per kwhr.

Preliminary plans were prepared and cost estimates made with the idea of heating the building from a central hot water or steam plant, or tapping into the existing remotely located power plant. With the lowest cost central system it was determined that the $480,000 budgeted for this building would be exceeded by more than $80,000.

An alternate heating system design offered the best cost reduction possibility. Self-contained gas units located in the outside walls of each apartment were considered originally. Bathrooms were to be heated and ventilated by combination exhaust fan-radiant heaters. One gas heater would provide the heat for each apartment.

At the suggestion of the local utility and following an economics study by the engineer, an alternate bid on electric heating was taken on the job. The electric heating alternate—with the same bathroom heating as specified for the gas system—called for baseboard electric heaters with multiple thermostatic control, a thermostat for each room, designed for inner wall mounting.

When the bids were analyzed it was found that the initial installed cost of electric heating and of gas heating were practically the same, and that the entire project cost was within the budget. The economics of initial costs plus estimated operating costs indicated that there would be no premium for the use of electricity over gas. The electric utility and the consulting engineers estimated electric heating costs at approximately $5,000 a year. The actual cost of power for heating for the first full year was just less than $4,000.

Building design called for a two-floor, cruciform-shaped structure, the first floor to be on a concrete slab. The slab is insulated with 2 in. of rigid plastic insulation around the perimeter. Exterior walls are of face brick followed by 2 in. of rigid plastic insulation and an interior of 8-in. concrete blocks. The roof is of 3-in. wood decking with 2 in. of rigid insulation and a built-up roof. Windows are all double glazing in aluminum frames, and doors have storm sash.

Half of the apartments are one-bedroom units of 396 sq ft, and half are efficiencies with combination living-bedrooms of 360 sq ft. Heating losses vary from 7509 Btu/hr for a first-floor inner apartment to a maximum of 11,263/hr for a second-floor corner apartment.

The service voltage is 120/208 and the connected heating load is 300 kw.

In the table above is a month by month analysis of the electrical costs chargeable to the building. Estimated costs of all services, as well as heating, are shown. The normal heating year in DeKalb, according to University records, is 6,900 degree days, and the 1960-61 heating season, for which these figures apply, had 6,960 degreee days. The low one cent power rate is due to the large power usage of this university in its plant of over 30 classroom and dormitory buildings.

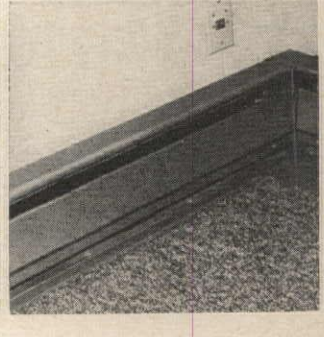
Orput, Orput and Associates of Rockford, Illinois were the architects, and Beling Engineering Consultants of Rockford, the mechanical and electrical engineers.

MONTH BY MONTH USE OF POWER

MONTH	Kw DEMAND	Kwhr	NET BILLING	EST. USE[3] NON-HEATING	NET HEATING COST	HEATING COST PER APT.
Oct. 1960	216[1]	45,300	$ 512.31	$400.00	$ 112.31	$ 1.40
Nov. 1960	216[1]	88,200	881.74	400.00	481.74	6.02
Dec.	216[1]	124,500	1,114.95	400.00	714.95	8.94
Jan. 1961	216[1]	125,100	1,118.97	400.00	718.97	8.99
Feb.	216[1]	126,900	1,131.03	400.00	731.03	9.14
Mar.	216[1]	95,700	921.27	400.00	521.27	6.52
Apr.	156[2]	82,800	757.56	400.00	357.56	4.47
May	156[2]	50,400	540,48	400.00	140.48	1.76
June	156[2]	26,400	379.68	300.00	79.68	1.00
July	156[2]	17,100	317.37	300.00	17.37	0.22
Aug.	156[2]	14,400	299.28	299.28	0	0
Sept.	156[2]	30,400	406.48	300.00	106.48	1.33
TOTAL FOR YEAR		827,200	$8,381.12[4]	—	$3,981.84	$49.79

1. Based on actual billing demand that occurred on 11/29/60, 12/1/60 and 12/15/60
2. Based on actual billing demand that occurred on 3/7/61, 3/12/61 and 3/30/61
3. Based on $5.00 per month per apartment except during summer months—includes lighting, refrigeration, small appliances, laundry operation, exterior building lighting and street lighting
4. Average cost per kwhr—one cent

80-unit married students dormitory at Northern Illinois University, DeKalb, Illinois. Electric baseboards have a built-in raceway



Get 40% greater carrying capacity with Ceco's new "H" series joists

Loading for "J" and "LA" series also increased

You have more design freedom with new "H" series open-web steel joists . . . heavier loads can be carried on greater spans at little additional cost.

Approved by the Steel Joist Institute, the "H" series joists with Ceco's high strength steel have a greater carrying capacity than the old "S" series joists. One happy result is that you can place *up to 40% heavier loads* on the extreme spans. For example:

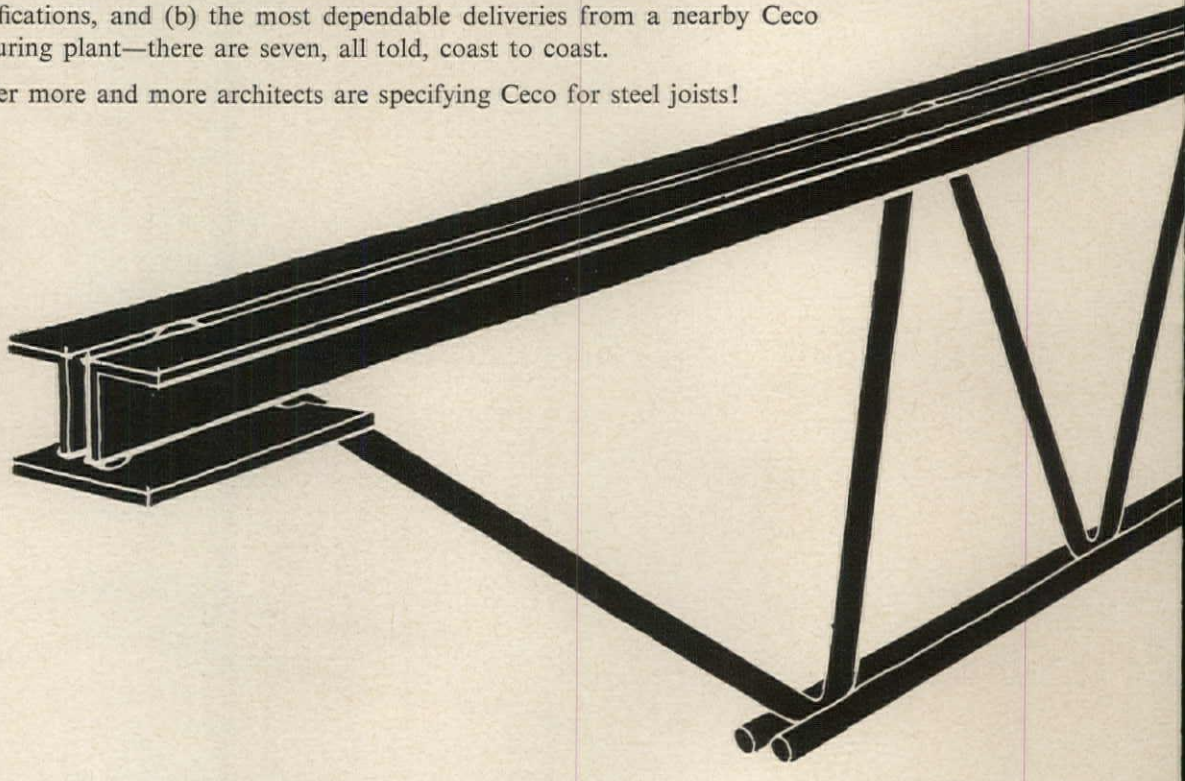
- a 24H8 joist can carry 207 lbs per lineal ft at 48 ft, whereas the old 24S8 joist carries only 145 lbs at that span and could not support a 207 plf load beyond 40 ft. Or . . .
- the limit load carried by a 24S8 joist *on a 40 ft span* can now be carried safely by a 24H8 *on a 48 ft span.*

In addition, carrying capacities of the "J" series and "LA" series joists, fabricated from A36 steel, are increased up to 10%.

Thus, complete design flexibility can be yours by using Ceco open-web steel joist construction. Ceco's "H", "J", and "LA" series joists include 158 standardized types having clear spans up to 96 feet.

And keep in mind the Ceco "plus" advantages which benefit the whole building team: (a) engineering design based on Steel Joist Institute approved load tables and specifications, and (b) the most dependable deliveries from a nearby Ceco manufacturing plant—there are seven, all told, coast to coast.

No wonder more and more architects are specifying Ceco for steel joists!



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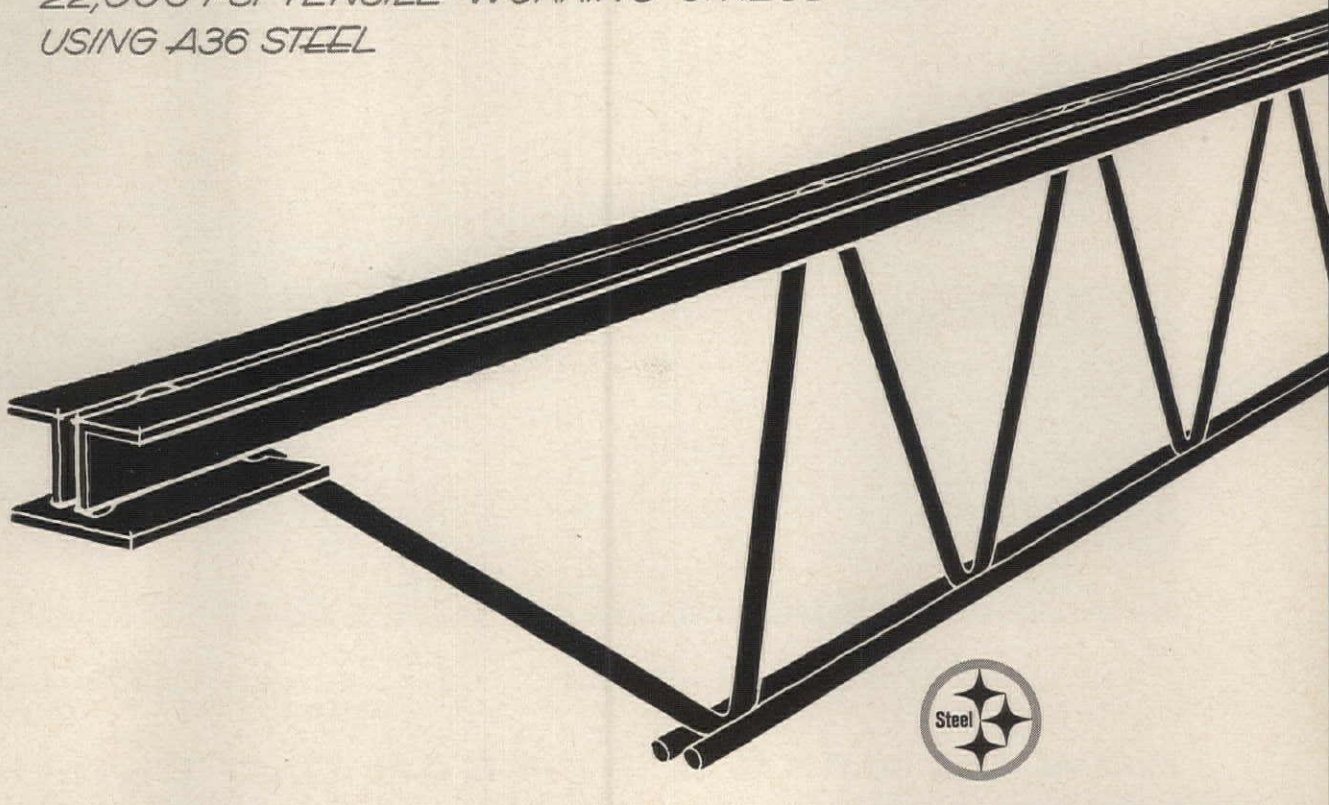
22,000 PSI TENSILE WORKING STRESS
USING A36 STEEL



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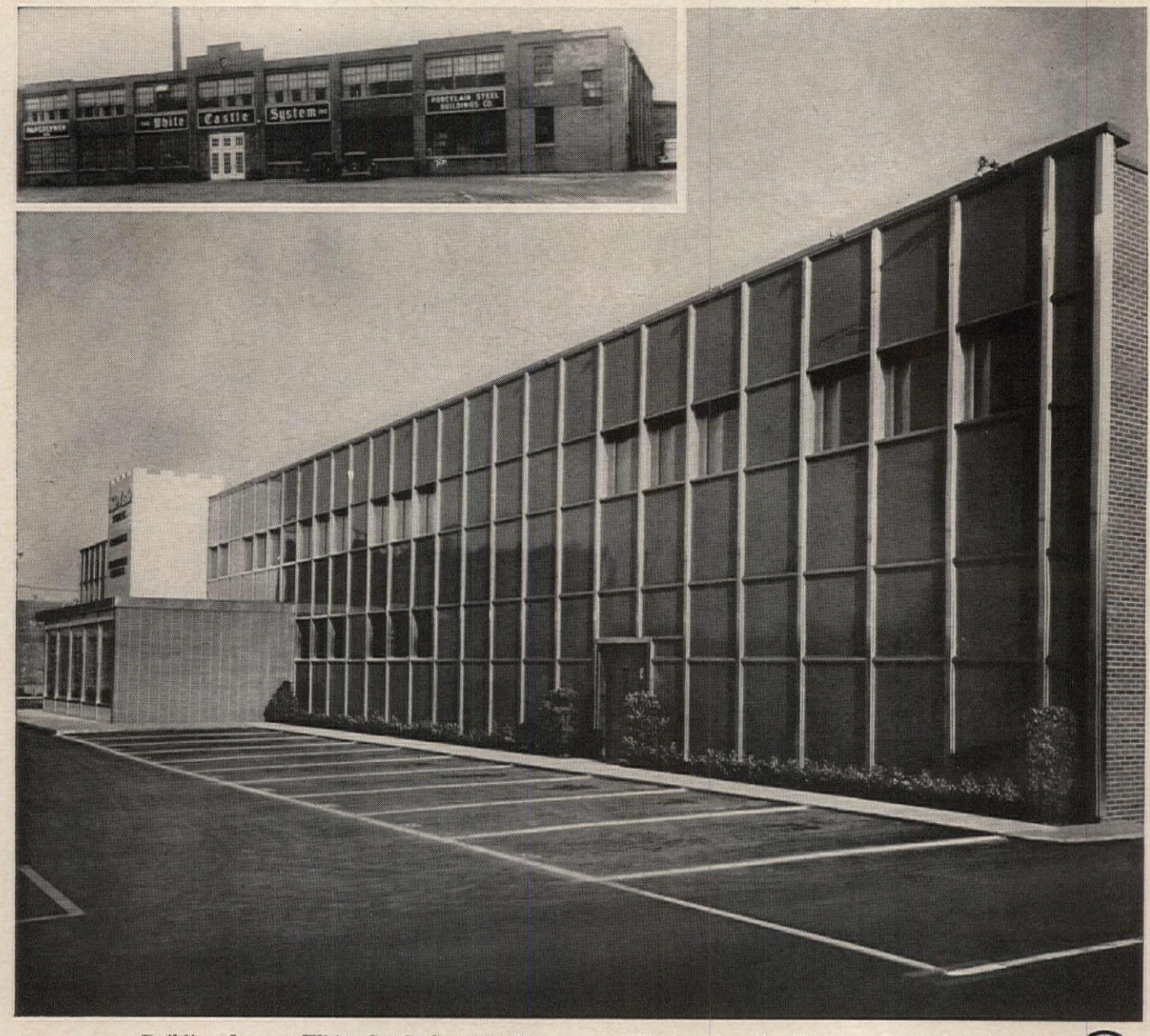

Building Owner: White Castle Systems, Inc., Architect: Outcalt, Guenther and Van Buren. General Contractor: General Maintenance and Engineering Co. Stainless Steel Curtain Wall: Michaels Art Bronze Co. Porcelain Enamel: Davidson Enamel Products, Inc.

HOW TO MAKE A 37-YEAR-OLD BUILDING...
LOOK LIKE NEW

You could do it the way this job was done on the White Castle General Office Building in Columbus, Ohio—built in 1920, remodeled in 1956. The curtain wall over the old masonry is porcelain enamel with Nickel Stainless Steel mullions...a combination used profitably for thirty years in other White Castle facilities.

Handsome and maintenance-free, this curtain wall hasn't cost its owners a penny since completion, six years ago. And business went on as usual while the wall went up.

A practical remodeling method, the curtain wall provides design latitude—plus adaptability and ease of assembly. This wall stands away from the old building, clearing all projections. Alternate grid frames of AISI Type 302 stainless steel were entirely shop-assembled, with horizontal mullions, attached at jobsite. Furring angles connect the vertical and horizontal mullions to the masonry. Window units are slightly recessed to minimize depth of sill.

A practical remodeling material, Nickel Stainless Steel has a high strength-weight ratio that permits light, economical gages. It won't stain or bleed on other decorative surfaces. With its low expansivity and excellent corrosion resistance, it is the best material for use in combination with other popular building materials.

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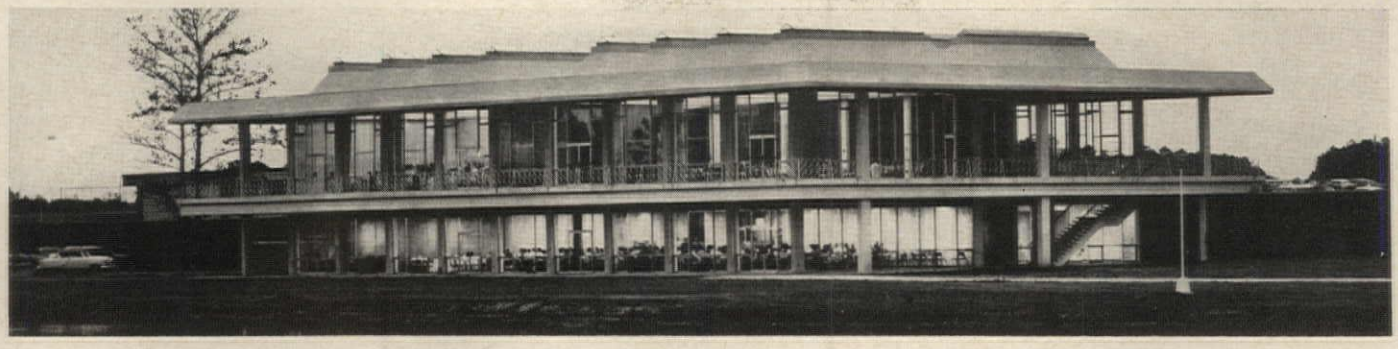


Clear, heavy sheet glass can be used effectively for large area glazing. Student Union Building, St. Andrew's Presbyterian College. Architect: A. G. O'Dell and Associates

A GUIDE TO GLASS FOR ARCHITECTURE

by Richard W. Rigg **Part 1: Types of Glass**

With glass being such a universal material, it is surprising that so little has been written on architectural glass in general.

This article describes the basic types of glass for buildings, indicates where they can be used and discusses solutions to problems related to glazing, heat control, glare control and waviness.

TYPES OF FLAT GLASS

Three varieties of flat glass are used in architecture: (1) sheet or drawn glass, (2) rolled or patterned glass, and (3) plate glass. Each of these has its own advantages and uses.

The first step in the manufacturing process is the same for all three types: all mass-produced flat glass today is melted in continuous-melt tanks from a basic batch consisting mostly of sand, soda ash and lime, with varying amounts of other metallic oxides added to prevent crystallization, and to help melt the sand and make the product more workable. Once melted, however, the three types of glass part company.

Sheet glass is drawn upward from the tank in a continuous sheet and allowed to harden in the air before it is touched by any rollers or holding devices. This gives it a fire polished surface that is molecularly smooth, like the surface of a liquid. Because no mechanical methods are used to insure that the surfaces will be exactly parallel, there is always a slight wave in the surface of drawn glass, although in the best quality sheet glass this is scarcely noticeable.

Rolled or patterned glass flows horizontally from the melting tank between rollers, which control its thickness and imprint it with a pattern. The result is a glass that transmits light but obscures vision.

Plate glass is also rolled from the tank and imprinted with a light pattern, but following this both surfaces are ground and polished to make them completely smooth and clear. Most plate glass produced in this country has both surfaces ground simultaneously, thus assuring that they will be precisely parallel.

SHEET GLASS

Sheet glass, which comes in a variety of thicknesses, is the type most commonly used in fenestration, since its cost is between 40 and 60 per cent that of plate glass. Thicknesses of less than .076 in. are not generally used in architecture. They have wide application, however, in microscopic or photographic slides and in picture framing. Heavier thicknesses come in two classes: window glass and heavy sheet or crystal.

Window glass is either single strength (.087-.095 in.) or double strength (.121-.129 in.). U. S. Government specifications call for double strength in all construction under government contract, but single strength can easily be used in other structures for windows or individual panes less than 40 in. in any one dimension. Lights between 80 and 120 united inches (i.e., width plus length) require double strength.

For larger glass areas, heavy sheet is required. This is obtainable in thicknesses of $\frac{3}{16}$ in. (.187-.199), $\frac{7}{32}$ in. (.212-.224) and $\frac{1}{4}$ in. (.240-.256). Both window glass and heavy sheet are available in standard widths up to 90 in. and in convenient shipping and handling lengths up to a normal maximum of 120 in. However, when determining thickness and dimensions for a specific application, the architect should consult wind-load recommendations available from manufacturers.

Gray tinted sheet glass, available from leading manufacturers in one or two tones, comes only in $\frac{3}{16}$- and $\frac{1}{4}$-in. thicknesses. This is generally used for glare reduction, since it tones down the more brilliant levels of sunlight. Also this neutral gray tint does not distort the color of objects seen through it.

No matter how high the quality of drawn glass, distortion is never wholly absent. This results from variations in thickness on the order of a few hundred thousandths of an inch and is most apparent when objects are reflected in the glass, because the variations act as lenses, magnifying portions of the reflection. Distortion tends to run in a line parallel to the direction in which the glass is drawn. The architect can minimize its effect if he keeps this line horizontal, so that an observer moving past the building will be less aware of changes in the reflection. In some cases, as in a tall building with vertical lines where reflections of neighboring buildings will also be vertical, it may be preferable to glaze with the line of distortion in an up-down direction.

RICHARD W. RIGG, Vice President Merchandising, American-Saint Gobain Corporation

In ordering glass sizes, the architect can be sure the line of distortion will run in the desired direction if the first dimension he specifies is the one he wishes to be parallel to the line of draw. For example, if a light 48-in. wide by 24-in. high is to be glazed with a horizontal line of distortion, it should be ordered 48 by 24 in. rather than 24 by 48 in.

In the case of gray sheet glass, distortion is scarcely apparent, even in large lights, and consequently can be ignored by the architect. This is because gray glass reflects almost entirely from its outer surface, and so produces no lens effect.

PLATE GLASS

Plate glass is currently manufactured in thicknesses from $\frac{1}{8}$ in. to $1\frac{1}{4}$ in. The $\frac{1}{8}$-in plate is used mainly in laminated safety glass for automobile windshields. Thicknesses from 7/32 in. to $\frac{1}{4}$ in. are generally used in mirrors, and those of $\frac{1}{4}$ and $\frac{3}{8}$ in. in glazing. Heavier thicknesses are used for furniture, large-area windows and all-glass doors. Plate is classified according to quality in three grades: glazing, select glazing and mirror. Plate glass is generally used in large areas of glazing where no distortion can be tolerated—such as in large display windows, glass doors and walls of business lobbies, or ground floor windows in a building's front elevation.

Glazing quality plate generally comes in standard sizes up to 130-in. wide and up to 218-in. long. Select quality plate, however, is seldom ordered in pieces larger than 25 sq ft. The exact size ordered for any specific application will depend on wind-load requirements.

Plate glass lights larger than the standard maximum widths are considerably more costly, since they must be made by the old-fashioned pouring methods.

When ordering plate for applications where the edge will be visible and open, as in shelving or furniture, the specification should read "edges ground and polished" or "edges ground."

Tinted plate glass is available in a number of colors, including heat-absorbing blue-green and glare-reducing gray. For a large job, special colors can be made, but delivery time is generally quite long—often up to six months. Even standard plate glass tints require a fairly long delivery time as compared with clear plate, but certain colors—notably the gray, blue-green and amber colors—are fairly easy to obtain.

Prices of tinted plate glass generally run from 100 to 200 per cent higher than prices of clear plate, because tinted plate is made in relatively small batches by the pouring process. One factor in determining the cost of a specific order is the range of "cut-offs"; i.e., the amount of glass cut off of a standard sheet when trimming lights to the desired size. This is included in the price.

PATTERNED GLASS

Patterned glass is rolled in exactly the same way as plate glass, except that it does not go through the grinding and polishing phases. The metal rolls are machined, etched or turned with a design—fluted, checkered, geometric or random—that embosses a decorative pattern on the glass. Types of glass used for this process are the standard clear (or "lime") glass, blue-green heat-absorbent glass and milky-white opal glass. Lime and opal patterned glass can also be obtained in the corrugated form.

Patterned glass is used for both esthetic and practical reasons. In decoration it can be used in room partitions, decorative doors, translucent backing for display shelves, shower enclosures or office cubicles.

From a more practical standpoint, patterns are widely used for light diffusion to reduce glare. This makes them desirable for windows and skylights. Indeterminate or non-directional patterns (such as those with a pebbled or hammered surface) diffuse light in a rough cone, so that a skylight glazed with such a pattern will illuminate a large area directly beneath it. Linear patterns, however, elongate the diffused light in a direction perpendicular to the direction of the pattern. Carefully placed skylights of linear patterned glass, consequently, can spread illumination into distant corners of a room.

Patterns range from almost clear to completely obscure, and from a soft, shallow design to a deep and sparkling one. Patterned glasses can also be obtained with special surface treatments such as frosted, sandblasted, or design-etched. It is wise to avoid specifying frosted glass for an application where it will be subject to moisture, grease or finger marks, since it has a porous surface which is impossible to clean. There are finishes, however, made by successively sandblasting and etching, which do not absorb moisture, and consequently are quite practical for such applications.

Plate glass blanks—i.e. slabs of plate glass that have not yet been ground and polished—are sometimes used in place of commercial patterned glass, since the blanks have a rough pattern that appeals to many architects, and because they are often available in larger sizes and thicknesses than patterned glass. Blanks of tinted plate glass are especially sought after for use where color forms part of the design.

Thicknesses of patterned glass include thin $\frac{1}{8}$ in. (.100 in.), $\frac{1}{8}$ in., $\frac{3}{16}$ in., $\frac{7}{32}$ in., $\frac{1}{4}$ in. and $\frac{3}{8}$ in. Sizes range from 48- to 60-in. wide and from 120- to 144-in. long, depending on type and pattern. Before specifying a particular patterned glass it is wise to check its availability from the manufacturer and jobber. Maximum wind-load recommendations for sheet and plate glass are also applicable to patterned glass, using the root thickness, or over-all thickness less pattern depth.

Prices of patterned glass generally run from 75 to 150 per cent of the price of sheet glass on a sq ft basis, but are generally lower than prices of plate. As is the case with sheet and plate, prices differ from one area to another and are dependent on size of the order. Delivery time is also a variable, depending on the availability of a particular pattern.

Wired glass is usually classed by manufacturers with patterned glass, since it is manufactured by the same process. The glass is rolled out of the melting tank and the wire is sealed within the sheet in one continuous operation. The glass may then be ground and polished as with plate, or left imprinted with a pattern. Wired glasses, available with either hexagonal or diamond shaped mesh, are made out of clear lime glass, heat absorbing glass, and opal glass. Corrugated wire glass is also obtainable.

Although no stronger than ordinary lime glass of the same thickness, wire glass will remain in place even when cracked or shattered. This property makes it a recognized transparent fire-retardant material.

(To be concluded in July)

NEW LINES OF OFFICE FURNITURE PRESENTED

ROUNDED CHAIRS MATCH LEATHER INLAY ON DESKS

Softly rounded chairs are a highlight of the Jens Risom collection. The chairs, designed to give proper back support and comfort, are made as a high back armchair, a low back armchair and a low armless chair. In addition to the four metal leg base and swivel base, a revolving disc pedestal of aluminum with heavy plastic coating is available. An executive desk is walnut with leather inlay top which matches chair upholstery. Desk legs are square wood with an aluminum inlay strip. On the guest side of the desk are a pull-out writing surface and cigarette tray. *Jens Risom Design Inc., 444 Madison Ave., New York 22, N.Y.*

DESIGN DETAILS IDENTICAL FOR ALL AREAS

An L-shaped steel leg support is used on the chair, desks, and cabinets of the *Market Street* line of office furniture, which has related pieces for all parts of an office. All pieces are available in walnut or *Formica*. The stenographer's desk shown has modular components to permit interchanging of tops and drawer combinations to meet any need. The *Wall Street* line of office furnishings features wishbone-shaped cast aluminum legs on all pieces. *S. J. Campbell Co., 6-171 Merchandise Mart, Chicago 54, Ill.*

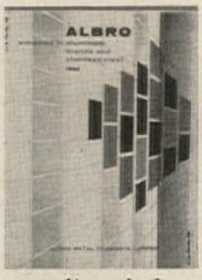
FLEXIBLE UNITS FOR MULTIPLE SEATING

Flexibility in multiple seating is provided by *Viscount 65*, a system of joined units with tripod legs that can be expanded in wide angles. The chrome-finished, collapsible frames can be locked in any position from an S curve to a straight line. Seating is available in several upholsteries and in two designs—the scroll shape shown and a barrel shape. Ottomans and table tops fit the frames. *Royal Metal Mfg. Co., One Park Ave., New York 16, N.Y.*

more products on page 212

Office Literature

METAL WINDOWS



(A.I.A. 16-E) Windows in aluminum, bronze, and stainless steel are featured in a 20-page catalog. Types of windows include reversible, sliding, double hung and security windows. *Albro Metal Products Corp., 944 Longfellow Ave., New York 54, N.Y.**

GYPSUM CONCRETE ROOFS

(A.I.A. 4-L) Detailed information about the selection and design of poured gypsum concrete roof decks is given in a 14-page folder, which includes several short-form specifications. *Gypsum Assoc., 210 N. Wells St., Chicago 6, Ill.*

INSULATING

(A.I.A. 37-B) Structural insulating board, roof insulation and acoustical-insulating roof decks are described and illustrated in a 12-page catalog. *Simpson Timber Co., 2041S-R Washington Bldg., Seattle 1, Wash.**

ACOUSTICAL CEILINGS

Protectone mineral fiber tile and lay-in panels are described in an eight-page brochure. UL fire-ratings, sound absorption co-efficients, and sound attenuation values are given as well as details on sizes, finishes and patterns. *The Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.**

FLUSH METAL DOORS

(A.I.A. 16-A) Complete specifying information with a wide range of standard designs and sizes are given in a 20-page catalog. Lines are *Pyro-Dor* fireproof mineral core doors and lightweight *SpiraDor* with treated hardwood spirals core and metal cover. *Dusing & Hunt, Inc., 59 Lake St., LeRoy, N.Y.**

APARTMENT PHONES

(A.I.A. 31-I-51) A four-page data sheet gives detailed information about transistor telephone system for communication between vestibule and apartments. *S. H. Couch Co., Inc., North Quincy 71, Mass.*

STEEL SPECIFICATIONS

Provisions for composite construction from the new specifications for structural steel by the American Institute of Steel Construction have been reprinted in a four-page booklet. *Nelson Stud Welding, Gregory Industries, Inc., Lorain, Ohio*

HOME IMPROVEMENT PLANS

Ideas, designs and space specifications for home interior improvements are given in a 48-page book published by 13 cooperating land grant colleges and universities. Cost is $1 a copy. *Midwest Plan Service, Iowa State University, Ames, Iowa*

OFFICE FURNITURE

A 60-page catalog of office furniture has photographs and details on sizes and materials available for each item in the line. *O D I Furniture, 315 E. 62nd St., New York 21, N.Y.*

FIREPROOFING FOR STEEL

A four-page bulletin describes *Albi-Clad*, a sprayed fireproofing material for one-hour rating on frame steel. It has a textured surface with high abrasion resistance and sound absorbency. *Albi Mfg. Co., Inc., 98 E. Main St., Rockville, Conn.*

ACRYLIC PLASTIC

A 12-page booklet is filled with pictures showing various ways in which *Plexiglas* acrylic plastic can be used in houses, stores, and office buildings. Shown are skylights, sprandrel panels, lighting installations, partitions, and luminous walls. *Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.**

PORCELAIN ENAMEL TESTS

"Effect of Exposure Site on Weather Resistance of Porcelain Enamels Exposed for Three Years" reports on exposure tests at seven sites. The tests are conducted by the National Bureau of Standards and the Porcelain Enamel Institute. The 13-page booklet costs 15 cents. *Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.*

RIGID FRAME DESIGN

(A.I.A. 19F) Design manual gives an analysis of the plywood rigid frame construction system. This method is said to have been used for general utility structures at a cost of about $1 a sq ft. Intended as a reference, the manual does not contain stock plans; it does have fabrication details, member selection tables and design formulas. Single copies are free, with additional copies available for 50 cents each. *Douglas Fir Plywood Assoc., Tacoma 2, Wash.**

CLASSROOM CABINETS

Classroom storage cabinets, wardrobes, supply cabinets, and mobile science laboratories are described and illustrated in a 14-page booklet. All units have laminated plastic on interiors and exteriors. *National School Furniture Co., Odenton, Md.*

CLEANING CLEAN ROOMS

Bulletin 164 is a four-page folder with illustrations and specifications for vacuum systems to maintain the demanding dust control required in so-called "white rooms" or "clean rooms." *The Spencer Turbine Co., Hartford 6, Conn.*

GLASS DOORS

Details and specifications for stainless steel and bronze frame glass doors are in a 16-page catalog, which includes accessories such as panic bolts and weather strips. *Schacht Assoc., Inc., 1175 E. 156 St., New York 59, N.Y.**

PRESTRESSED CONCRETE

Physical properties and load tables for 35 pretensioned concrete building members, including T's to 8-ft wide, joists, piling and plank, are given in a 60-page manual. Cost is $4.75 a copy. *Leap Associates, Inc., Box 1053, Lakeland, Fla.*

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

more literature on page 238

Owner: Eastern Air Lines **Mechanical Engineer:** Seelye, Stevenson, Value and Knecht, New York City
Architect: Chester L. Churchill, New York City **Mechanical Contractor:** Brandt Corporation, New York City

B&G UNIVERSAL PUMP

B&G® Pumps keep air line terminal clear of snow and ice

In the complex mechanical design of the Eastern Air Lines Terminal Building at New York International Airport, an important role is played by B&G Boosters, Universal and 1510 Pumps.

The eleven zone snow melting area covers approximately 50,000 sq. ft. and includes parking areas, vehicle ramps and passenger loading areas. Circulation of the heat transfer medium is effected by six B&G "C" type Universals and five Series 1510 centrifugal pumps.

Two bronze B&G Booster pumps are used to circulate the service water and ten standard Boosters to circulate the space heating system zones.

B&G heating system pumps earn a place in such outstanding installations because of a long record for dependable, maintenance-free performance. Where *quiet* operation is vital, the design and construction of B&G Booster and Universal Pumps have made them the preferred equipment for this service.

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Dept. HD-32, Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

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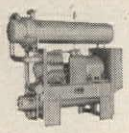
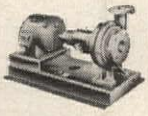

Package Liquid Coolers


Refrigeration Compressors


Centrifugal Pumps


Heat Exchangers

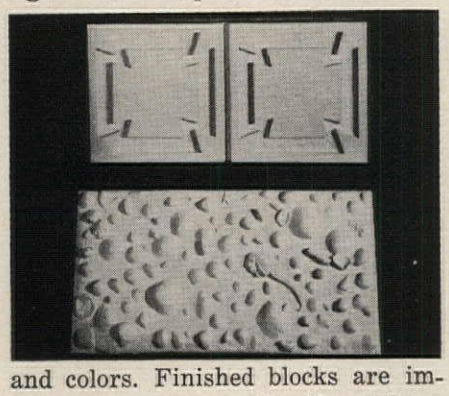

Oil-less Air Compressors

Product Reports

continued from page 199

PATTERNED DESIGNS FOR CONCRETE BLOCKS

Finishings for faces of concrete blocks have three-dimensional designs with deep textured patterns



and colors. Finished blocks are impervious to water and acids, and are not affected by extreme ranges of temperature. *International Plastics Development Corp., 11033 Manchester Ave., St. Louis 22, Mo.*

AIR-TIGHT FREEZER DOOR

An air-tight door for walk-in coolers and freezers has a neoprene rubber sealed frame and jamb that reduce thermal conductivity and moisture problems and eliminate the need for heater cables and defrosting devices. *Jewett Refrigerator Co., Inc., 2 Letchworth St., Buffalo 13, N.Y.*

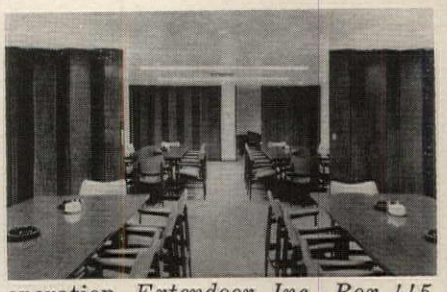
EXECUTIVE DESK IS CONFERENCE TABLE

An executive table-desk allows for seating on all sides so it can also be used as a conference table. It has a teak top with chrome aluminum legs. The three drawers and the stretchers have a black ebony finish for contrast. The desk top comes in

four sizes, from 66 by 36 in. to 84 by 42 in. Chairs featuring U.S. Rubber's *Naugahyde* textured upholstery have concave seats and backs for better posture and seating comfort. *John Stuart Inc., Park Ave. at 32nd St., New York 16, N.Y.*

WOOD FOLDING PARTITION

Woodwall, a custom-crafted wood folding partition, features panels as wide as 12 in. to provide good scale for large openings in commercial and institutional buildings. The warp-proof panels are available in woods of all varieties. A concealed nylon hinge eliminates springs, battens, and plastic connectors. A silent glide suspension system assures effortless



operation. *Extendoor, Inc., Box 445, Muskegon, Mich.*

more products on page 218

NEW *complete line of* CEILING DIFFUSERS

Today's first for unrestricted use with modified light troffers; superior air distribution on any application

Here, for the first time, is a line of air diffusers that can be specified *entirely independent* of the light troffer* selected! This means architects, engineers and contractors can now be sure of the finest air distribution . . . *regardless of modified troffer used . . . regardless of ceiling application.* *(Contact Titus reps for names of qualified light troffer manufacturers.)

LOOK AT THESE BENEFITS YOU GET ONLY WITH THE NEW TITUS AIR DIFFUSING UNITS:

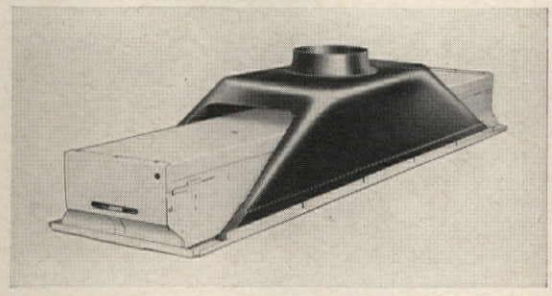
1. Completely adjustable air pattern. The air pattern on each side of each Titus unit can be quickly, easily adjusted to a horizontal discharge, a vertical discharge, or to any pattern in between, to exactly suit the space requirements. Simply adjust pattern controller through troffer air discharge slot for pattern desired.

2. Complete air volume control . . . from open to closed position. Adjusts through air discharge slot of troffer. Both air pattern controller and volume controller can be adjusted anytime before, during, or after diffuser installation.

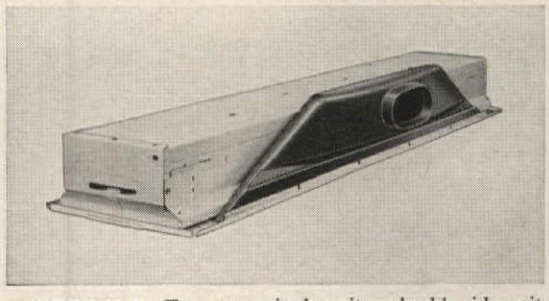
3. Diffusers are of one-piece, air-tight construction. This means faster, easier, lower-cost installation—*maximum isolation of air diffuser from light troffer.* Because diffuser is independent of troffer, heat from troffer is dissipated uniformly to ceiling space—no supply or return air can enter troffer. This assures maximum light output and color stabilization.

4. Today's only complete line. One-piece models to fit every need. Furnished in units that feed air from top, or in single and double units that feed air from side. Models to fit 1 x 4 and 2 x 4 light troffers.

Don't settle for "second best" air distribution . . . SPECIFY TITUS DIFFUSERS AND BE SURE OF *THE* BEST . . . regardless of modified light troffer you select.



• **MODELS LT-14 and LT-24.** For 1 x 4 and 2 x 4 troffers. Feed from top. 4″, 5″ or 6″ inlet . . . low, medium or high capacity. Each side has individual, fully adjustable air pattern and air volume control. Use as supply or return units.



• **MODEL LT-10.** For use as single unit or double side unit. Individual feed, individual air pattern and volume control. Can be used with both sides supply or return . . . or with one side supply and other return. Snaps into troffer.

MAIL COUPON FOR NEW CATALOG

TITUS MFG. CORP., WATERLOO, IOWA
Branch Mfg. Plants — Hialeah, Fla., Terrell, Texas

( ) Rush new Catalog on Titus Ceiling Diffusers for *unrestricted* use with light troffers.

( ) Have representative call.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

Office Literature

continued from page 242

DOORS

Entrance packages with swinging or sliding doors are described in a 28-page manual which includes details on door construction, closers, automatic operators, panic devices and frame and hardware options. Detail drawings and specifications are given. *Kawneer Co., Niles, Mich.**

STRIP OAK FLOORS

Information is available on installing strip oak flooring over concrete. *National Oak Flooring Mfgrs' Assoc., 814 Sterick Bldg., Memphis 3, Tenn.**

PARKING AREA LIGHTING

Details on mercury vapor, fluorescent and incandescent lamps for parking areas are given in three folders, included with a general information folder. *Steber Div., The Pyle-National Co., 2700 Roosevelt Rd., Broadview, Ill.*

ELECTRIC HEATING

Two bulletins illustrate advantages of electric heating for apartments (No. F00521) and for motels (No. F00501-1). *Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa.**

FURNITURE

A 35-page booklet has 84 photographs of contemporary furniture, including 12 pages devoted to office furniture. *Knoll Assoc., Inc., 320 Park Ave., New York 22, N. Y.*

WOOD TESTING REPORT

A 36-page general report of research done by the Forest Products Laboratory in 1961 includes an appendix listing all technical and scientific publications issued during the year for those who want more detailed information. *Forest Products Laboratory, Madison, Wis.*

BANK FURNISHINGS

Modular teller counter equipment is displayed in an eight-page brochure, *Diebold, Inc., Hamilton, Ohio**

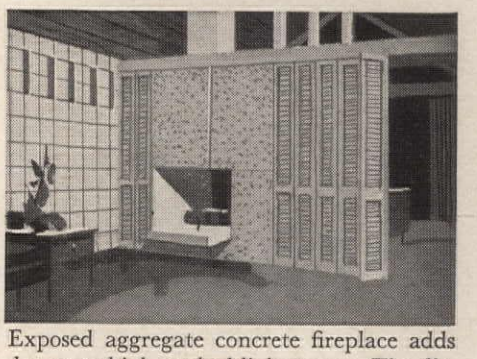
**Additional product information in Sweet's Architectural File*

Award-winning home defeats Southwest's glare and winds with modern concrete

Regional design award winner, 1961 Concrete Industries Horizon Homes Program. Architect: Peters and Fields, AIA

In this snug desert home in Odessa, Texas, the architect has demonstrated the ability of concrete to fit the needs of design and locale. Patterned concrete masonry walls of the house itself are extended to enfold outdoor living areas. Protection is achieved with high decorative interest.

Used alone or blended with other materials, concrete offers today's architects structural efficiency and unlimited design opportunity. Readily formed, textured, colored, patterned to structural and decorative ideas, concrete is infinitely versatile . . . truly, the material of modern construction. *Plan to enter the 1962 Concrete Industries Horizon Homes Program.*



Exposed aggregate concrete fireplace adds drama to high-peaked living room. The distinctive detailing of interior walls is repeated with variations in outdoor areas.

PORTLAND CEMENT ASSOCIATION *A national organization to improve and extend the uses of concrete*

Going up all over America! Sargent's

Never before have function and beauty been so perfectly wed in four architectural lock lines. IntegraLock, a modern mortise lock. MagnaLock, the ultimate for those who prefer a heavy duty bored lock. SentryLock for reliable standard duty. And a full range of mortise locks with new sectional trim—as up-to-date as tomorrow. All Sargent locksets are available with metal finishes or exciting new Delrin® knobs and fired copper roses. Choose from the widest variety of functions and fashion designs. Mix 'em or match 'em, but choose Sargent—a single

matched line of newest fashion locksets

source of quality and responsibility for almost 100 years. For more information see your Sargent supplier or write Sargent & Company, New Haven 9, Connecticut. In Canada write: Sargent Hardware of Canada Ltd., Peterborough, Ontario.

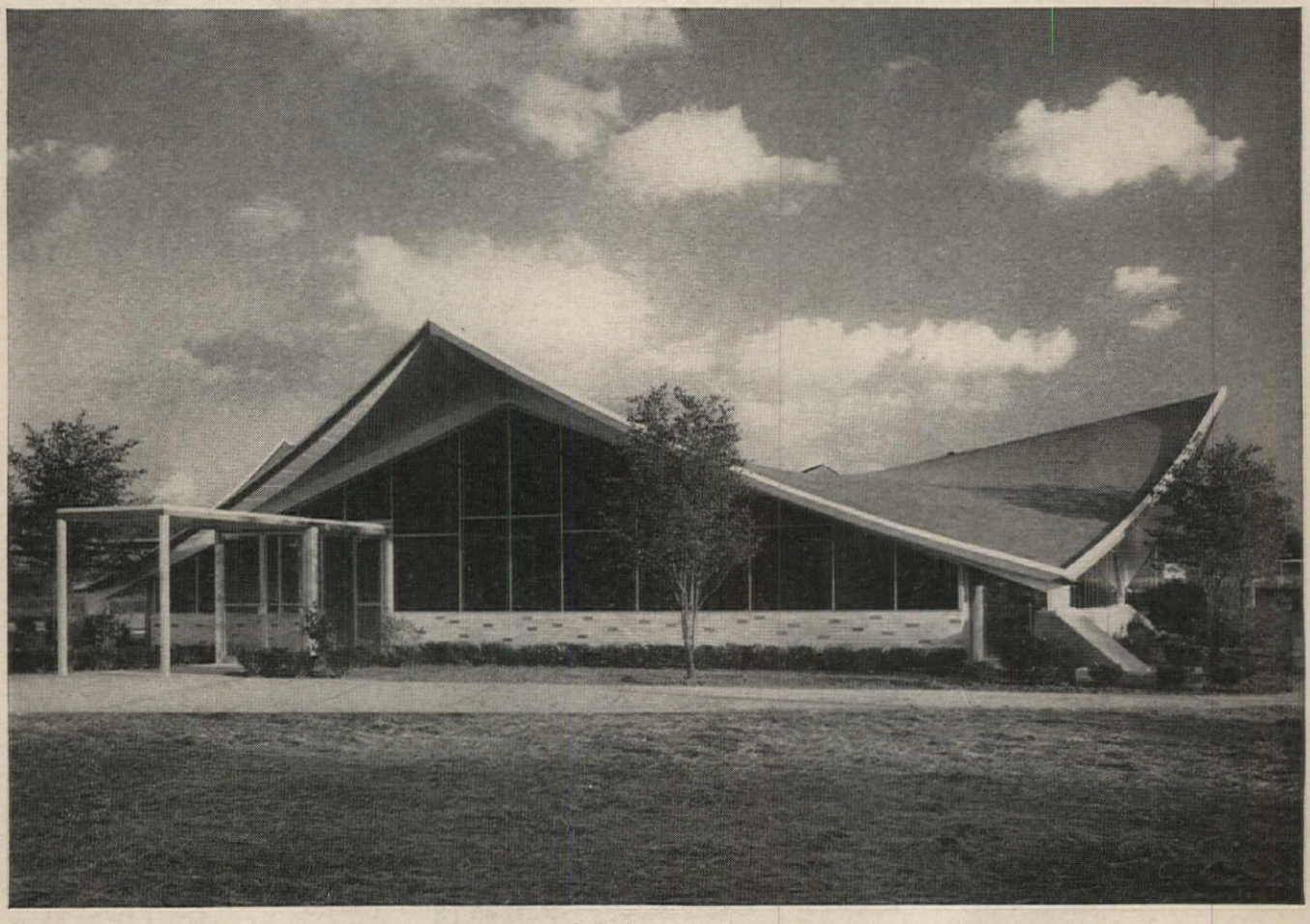
®DuPont

SARGENT

THE NEWEST FASHION IN A COMPLETE LINE OF ARCHITECTURAL HARDWARE

™

How the Dodge Reporter helped erect this award-winning restaurant



This novel shell structure was a case of research being ready for a need when it arose.

The owner wished to erect an economical structure of unconventional design.

Two years earlier, Woodie Garber and Associates had devised a laminated sheet-steel structural system of hyperbolic paraboloid form for economical clear-span structures of moderate size. With the assistance of a steel deck manufacturer, a prototype structure had been built and tested, and the system ready to go.

This restaurant was the first commission to be built using this system. Speed and access to unusual skills were necessary to the successful bidding and erection of the structure.

"As usual, the Dodge Reporter assisted materially in accomplishing our objectives", says Architect Woodie Garber. "Dodge Reports quickly alerted local suppliers and contractors to our needs."

"Our experience with the Dodge Reporter has been long and profitable."

"Without the Dodge Plan Rooms our bidding-period traffic would be intolerable. We find it helpful too, in working up a bid list to review with our Dodge Reporter the existing work-load of contractors available for bidding. Scheduling of our bid dates to reduce conflict is another of many devices we are able to use to our client's advantage through close contact with the Dodge Reporter."

Restaurant, Cincinnati, Ohio
Architects: Woodie Garber & Associates
Structural Engineers: Hanly and Young
Photographer: George Stille

The roof of this structure consists of two layers of welded steel deck, crisscrossed to form a four-quadrant hyperbolic paraboloid. Almost 5500 square feet are enclosed, clear of all obstruction except a common center column. The roof cantilevers 9½ ft. beyond the straight edge beams at the four peaks, and terminates in a curved fascia. The short corner columns rest on concrete piers which are tied diagonally across the building below floor level with reinforcing rods in concrete. This ingenious and economical roof system was one of the top award winners in the James F. Lincoln Arc Welding Foundation competition.

F. W. DODGE CORPORATION

DODGE REPORTS

CONSTRUCTION NEWS SERVICE
119 W. 40th St., New York 18, N. Y.

What's he hiding? Cost or saving?

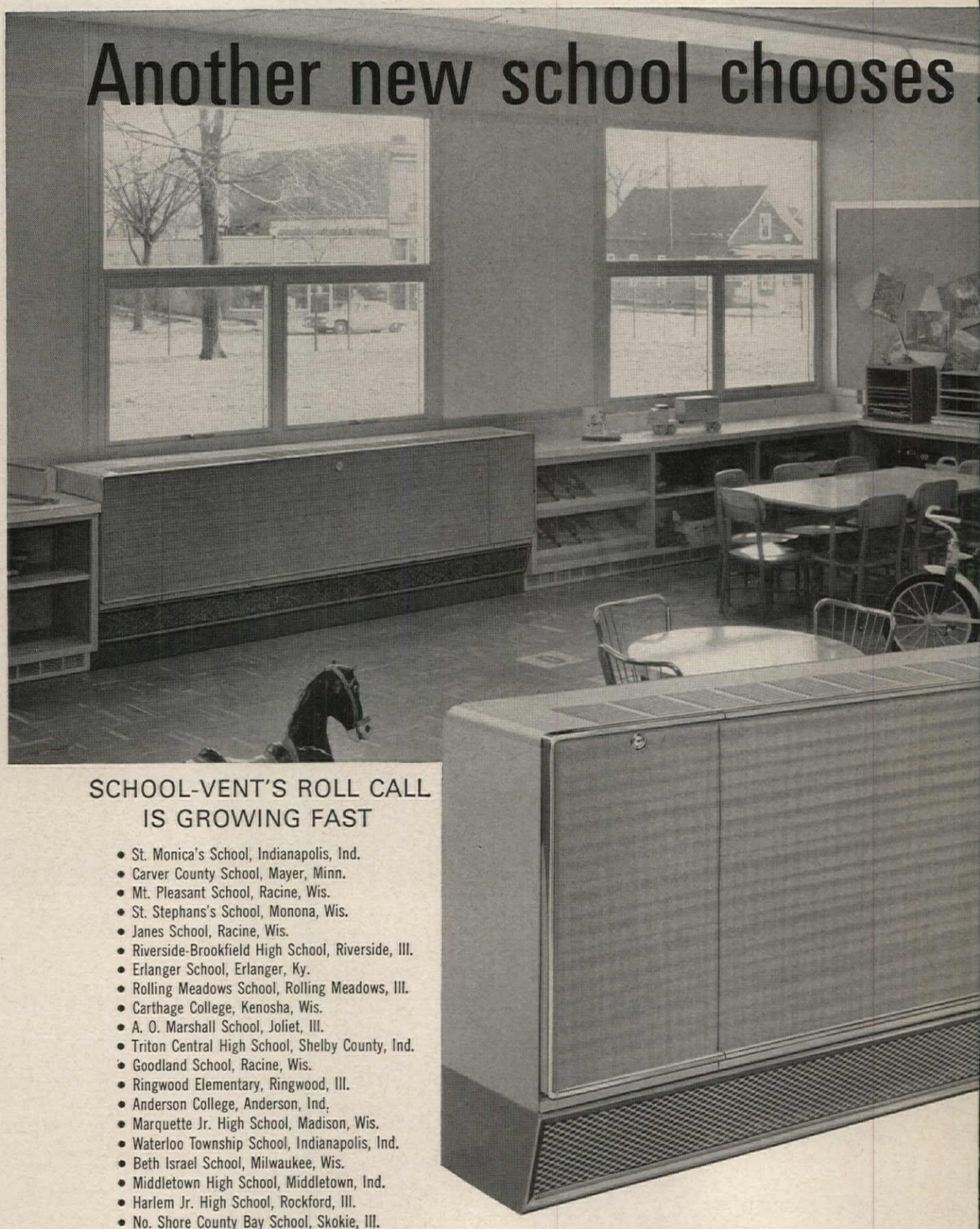
At the crucial moment the roofer lays the felts over the insulation, he covers up future cost or constant saving for your client. If the insulation is FOAMGLAS-BOARD®, savings start the minute it goes down. Anything else's a gamble. **Nothing but FOAMGLAS-BOARD** gives the assured insulation permanence of *inorganic cellular glass* in a 2′ x 4′ x 1½″ roofing board. Since the 1½″ thickness lowers the cost of FOAMGLAS Insulation's known quality, savings begin with the specification. Fast, low-cost installation, because of the new, larger unit size, adds to the saving. The real economy is its constant insulating efficiency . . . it can't absorb moisture. FOAMGLAS assures savings in heating and air conditioning costs. Our Building Insulation Catalog contains complete data. For a copy, write Pittsburgh Corning Corporation, Department B-62, One Gateway Center, Pittsburgh 22, Pennsylvania.

PITTSBURGH

PC

CORNING

Another new school chooses



SCHOOL-VENT'S ROLL CALL IS GROWING FAST

- St. Monica's School, Indianapolis, Ind.
- Carver County School, Mayer, Minn.
- Mt. Pleasant School, Racine, Wis.
- St. Stephans's School, Monona, Wis.
- Janes School, Racine, Wis.
- Riverside-Brookfield High School, Riverside, Ill.
- Erlanger School, Erlanger, Ky.
- Rolling Meadows School, Rolling Meadows, Ill.
- Carthage College, Kenosha, Wis.
- A. O. Marshall School, Joliet, Ill.
- Triton Central High School, Shelby County, Ind.
- Goodland School, Racine, Wis.
- Ringwood Elementary, Ringwood, Ill.
- Anderson College, Anderson, Ind.
- Marquette Jr. High School, Madison, Wis.
- Waterloo Township School, Indianapolis, Ind.
- Beth Israel School, Milwaukee, Wis.
- Middletown High School, Middletown, Ind.
- Harlem Jr. High School, Rockford, Ill.
- No. Shore County Bay School, Skokie, Ill.
- Plum Grove School, Palatine, Ill.
- Pachelle High School, Columbus, Ga.
- Marion College, Fond du Lac, Wis.
- New Cass Township School, Dugger, Ind.
- Geo. C. Marshall School, Vancouver, Wash.
- Grand Rapids School, Grand Rapids, Minn.
- Lake Shore Elementary, Vancouver, Wash.
- Glendale Jr. High School, Salt Lake City, Utah
- Lakeview Elementary, Lakeside, Cal.
- Washington Township School, Westwood, N.J.
- San Jacinto College, Houston, Texas
- Brooklyn School, Portland, Ore.
- Olivet Community School, Olivet, Mich.
- Hamilton School, Salt Lake City, Utah
- W. Lamar High School, Houston, Texas
- East High School, Bremerton, Wash.

Modine SCHOOL-VENT®

UNIT VENTILATOR for heating, cooling and ventilating

Modine's unique AIR-CONTROL CONCEPT has won wide-spread acceptance among engineers, architects and school officials

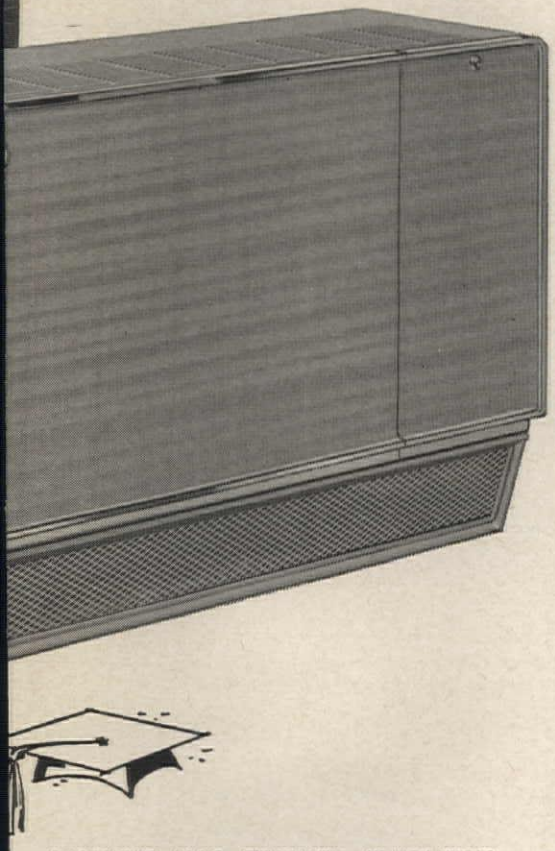
The Janes School,* Racine, Wisconsin, is one of the latest to join the list of modern schools enjoying the comfort and economies of Modine's SCHOOL-VENT.

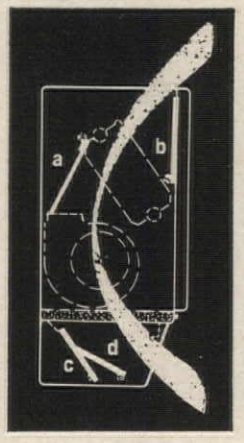
Unlike other unit ventilators, Modine SCHOOL-VENT does not require control valves to modulate flow of steam or hot water. A *single controller* automatically regulates the *air* through means of a *full-damper* system. There's *no delay* between comfort demand and comfort delivery. Dampers are constantly "alert" to changes in classroom temperature and fresh air requirements . . . adjust automatically to maintain the best possible comfort level.

This new air-control concept is the major reason for Modine SCHOOL-VENT's wide acceptance. But there are many more: Push-button lubrication system! Easy-access, hinged control panels! Easy filter removal! Student-proof cabinets! Really quiet operation! Attractive styling!

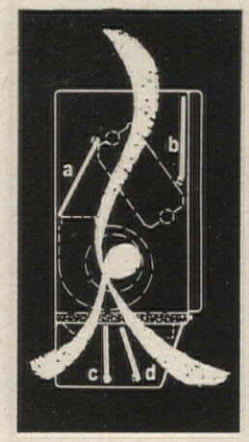
Modine's SCHOOL-VENT is available in seven colors, five sizes: 500 to 1500 cfm. For complete information, write for Bulletin 1261, Modine Manufacturing Company, 1510 De-Koven Avenue, Racine, Wisconsin.

*ARCHITECT-ENGINEER: Warren S. Holmes, Lansing, Mich.
HEATING CONTRACTOR: Wiertz & Huges Heating Co., Racine, Wis.

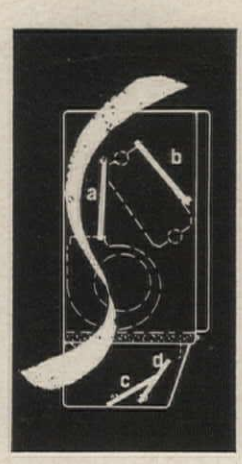




AFTER HOURS ECONOMY! When classroom is unoccupied, SCHOOL-VENT heats primarily by convection. Face-and-by-pass (A) and anti-wipe (B) dampers are open. Fan starts only when temperature drops below predetermined setting. Fan cycles briefly a few times nightly to maintain minimum temperature. Indoor damper (D) is open — outdoor (C) closed for maximum economy.



CLASSROOM COMFORT! During preclass warmup, fan runs until room temperature reaches daytime setting. Dampers remain in nighttime positions. Room air is recirculated for maximum heat gain. With room occupied and temperature rising, outdoor damper (C) opens to blend fresh air with room air. Face-and-bypass (A) and anti-wipe (B) automatically maintain desired temperature.



FULL VENTILATION! When room temperature continues to rise because of solar heat gain and body heat of occupants, fresh-air damper (C) and recirculation air damper (D) modulate to increase the proportion of outside air . . . up to 100% if required. During full ventilation, the face-and-bypass (A) and antiwipe (B) dampers are closed so fresh air completely by-passes the coil.

MODINE HAS EARNED "HIGHEST GRADES" IN SCHOOL COMFORT FOR MORE THAN 30 YEARS!

Modine cabinet unit heaters, convectors and conventional unit heaters have served schools — large and small — for more than three decades. Thousands of schools throughout the country are currently enjoying the economical comfort provided by these units.

HEAT TRANSFER CREATIVE CENTER ®

Modine
MANUFACTURING COMPANY
In Canada: Sarco Canada, Ltd., Toronto 8, Ontario

NEW YORK CITY TO HAVE NEW BUILDING CODE

New York City's Building Code, originally written as a code in 1899 and whose last major revision was in 1938, will be completely rewritten. A $700,000 contract for the three-year project was signed in April by John M. Wulff, Polytechnic Institute of Brooklyn, and Harold Birns, New York commissioner of buildings.

Overseeing the extensive job will be a Polytechnic committee under the chairmanship of Vice President Charles E. Schaffner. Members will be: Professor Robert B. B. Moorman, head, Civil Engineering Department; Professor Clifford Wojan, mechanical engineering; and Professor Sherman Glass, civil engineering.

The contract calls for consulting by architects, building specialists and others. In addition to the city's $700,000, the building industry has pledged approximately $75,000.

The decision to revise the Building Code comes as the result of a recommendation following a year's study of the existing code by Polytechnic at the request of the New York Building Congress and other building associations. Architects and builders have for many years demanded revision, since they have felt hampered by a code that did not keep pace with developments in designing, techniques and materials.

HAINES NAMED TO HEAD NEW YORK BUILDING GROUP

Charles Haines, partner of Voorhees, Walker, Smith, Smith & Haines, Architects, has been elected president of the New York Building Congress. Mr. Haines is the third member of the firm to have been elected to the office. Stephen F. Voorhees, founder, was first president; and Max H. Foley, a former partner, was president during the war years.

J. Walter Serveringhaus, F.A.I.A., Skidmore, Owings & Merrill, was elected finance committee chairman.

Sculptured Beauty

The exciting new design of the Leader Federal Savings and Loan Association Building has made it a center of attraction in Memphis. This new structure has gained recognition from all parts of the country as a pioneer in the trend toward frame type wall panel construction. Martin Marietta's frame type, Marzaic curtain wall panels have significantly contributed to the beauty of this building. The exterior surfaces of the panels expose a brilliant, white quartz aggregate. Too, the precast frames serve to modulate the sun's rays. The modern concept of architectural design, expressed by the deeply recessed windows, form modular interior alcoves. The total flexibility of design possibilities, the economy, ease of handling and fast erection all combine to create the physical expression of architectural design.

Architect:
Walk C. Jones, Jr.;
Contractors:
Dougherty-Liddell Construction Company;
Consulting Engineer:
Clarke Mann of Merrill and Mann Associates;
all of Memphis, Tenn.

SEE OUR CATALOG IN SWEET'S
OR WRITE FOR COPY

CONCRETE PRODUCTS

A CONSTRUCTION MATERIALS DIVISION OF

MARTIN MARIETTA

101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

DOORWAY TO TIME CONTROL

How to save more man-hours with

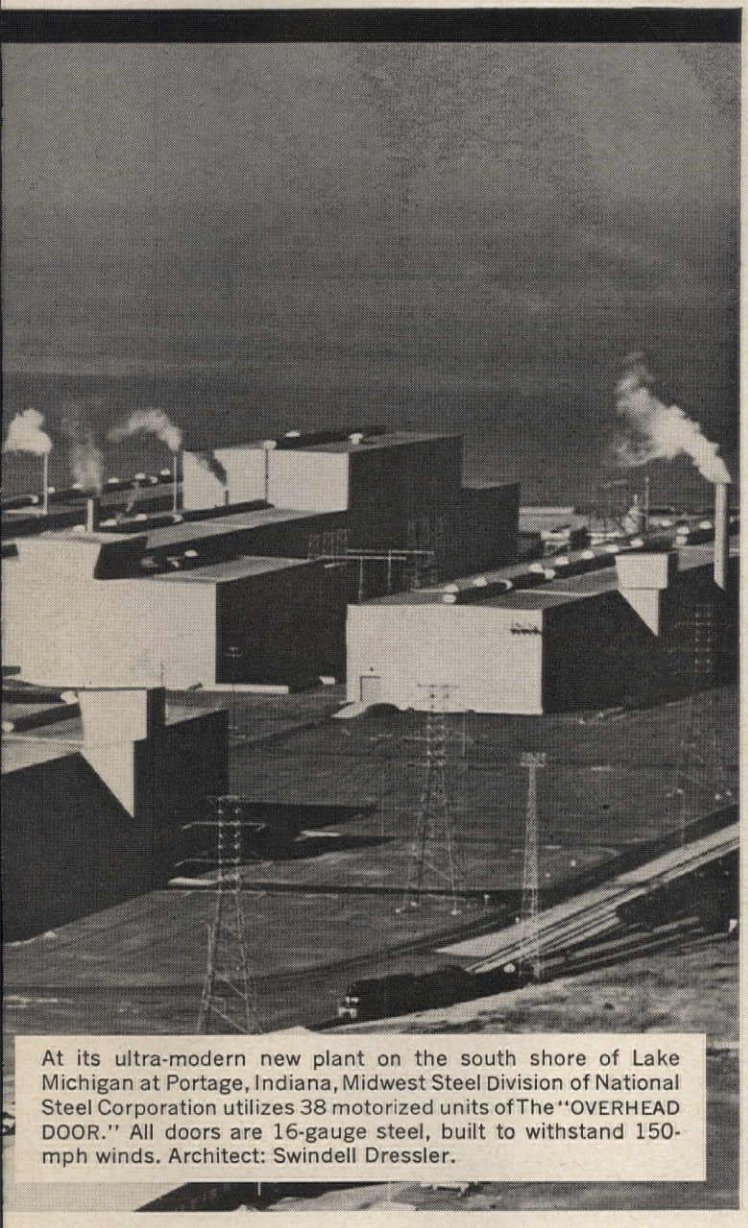
Bank of five steel "OVERHEAD DOOR" installations at Midwest Steel Division plant converts factory sidewall into a "movable wall," and provides control of traffic, time, space and climate.

The saving of man-hours can be a function of The "OVERHEAD DOOR," just as surely as it helps control traffic, space and climate through its "movable wall" function.

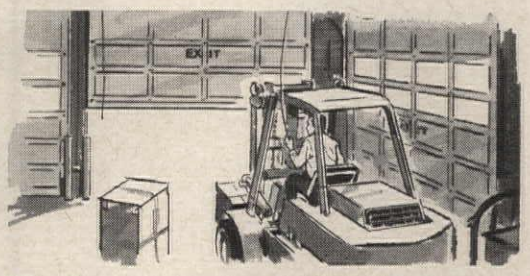
Motorized, push-button doors contribute importantly to this time-saving. And completely automated doors, operated electronically, can contribute even more. For example, a fork-lift driver may take 75 seconds to open and close an industrial door. At an average of one opening-and-closing per half-hour, 16 cycles per day per door, and a $2.25 wage rate, driver downtime alone can cost industry $183 per door per year!

When you multiply $183 by many doors, you can see the yearly savings possible with the automated "OVERHEAD DOOR."

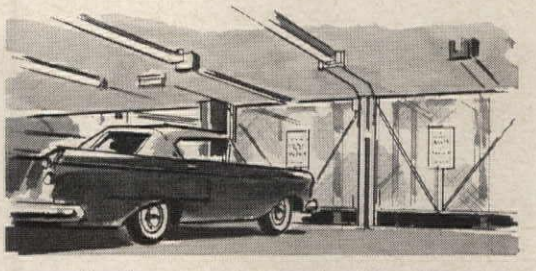
Besides man-hour savings and weather protection, both motorized and electronic "OVERHEAD DOOR" in-



At its ultra-modern new plant on the south shore of Lake Michigan at Portage, Indiana, Midwest Steel Division of National Steel Corporation utilizes 38 motorized units of The "OVERHEAD DOOR." All doors are 16-gauge steel, built to withstand 150-mph winds. Architect: Swindell Dressler.



Driver has pulled cord, and "OVERHEAD DOOR" is moving up in Air Express building at Atlanta's new airport. Immediate door operation permits tractors to pull package-laden carts into and out of building, quickly and efficiently, saving many man-hours.



Automatically-operated, upward-acting, expanded-metal gates by "OVERHEAD DOOR" are used in this pigeon-hole parking structure at Columbus, Ohio. Representing the newest in car-park automation, this driverless "file system" depends on The "OVERHEAD DOOR" for swift, automatic handling.

Industrial truck and fork-lift operators need never leave their vehicles as they approach an automated "OVERHEAD DOOR" installation. At the touch of a dash-mounted electronic button, powerful lift mechanism raises the door, or outer gate, speeds traffic flow, eliminates stop-and-go man-hours.

the motorized "OVERHEAD DOOR"

stallations can provide unlimited ingress and egress at traffic-flow arteries; control strategic expansion or confinement of given shop areas and functions; and safeguard the welfare of employees by closing to preserve warmth in winter, opening to provide full ventilation in summer.

GET THE COMPLETE STORY NOW

For detailed information, call your local distributor, listed in the white pages. Or write Overhead Door Corporation, the company that engineered and pioneered door automation—and originated upward-acting sectional doors for industry, commerce and residential building. *General Office and Manufacturing Division:* Hartford City, Ind. *Manufacturing Distributors:* Dallas, Tex.; Portland, Ore.; Cortland, N.Y.; Hillside, N.J.; Lewistown, Pa.; Nashua, N.H. *In Canada:* Oakville, Ontario.

16j
Ove

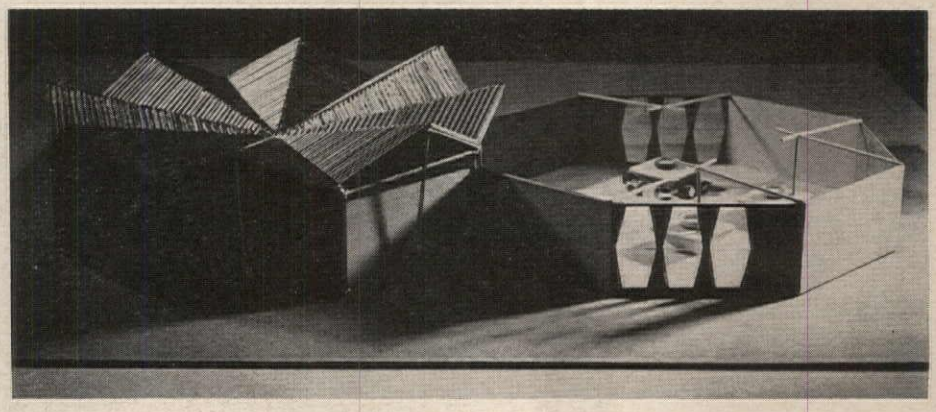
THE "OVERHEAD DOOR" TRADE MARK

the original upward-acting sectional door, made only by

OVERHEAD DOOR CORPORATION

INDUSTRIAL • COMMERCIAL • RESIDENTIAL
WOOD • STEEL • ALUMINUM

ART CARNIVAL PLAY-ART CENTER IS PRESENTED TO INDIA'S CHILDREN



A unique play and art center—the Children's Art Carnival—has been presented under the auspices of Mrs. John F. Kennedy to the National Children's Museum of India by the Asia Society and the International Council of New York's Museum of Modern Art.

Conceived and designed by Victor D'Amico, director of the Museum's department of education, the portable playroom and art studio is intended not only to give creative pleasure to children between the ages of four and twelve, but also to demonstrate art education techniques and philosophy. It serves as a training workshop for teachers and offers parents an opportunity to observe children engaged in a variety of creative activity.

The structure housing the Carnival consists of two octagons, each 40 ft in diameter. One becomes the motivation area, which contains a gallery of toys designed to introduce the children to elements of art—form, line, color, rhythm. The other is the workshop where children paint, make collages, constructions out of a variety of materials.

In both areas teachers assist the children when they need help in getting started, but do not tell them what to make. The aim is to stimulate the child's own imagination and encourage him to work independently. Except for teachers, adults are not allowed inside. Provision is made for educators and parents to observe without being seen by the children.

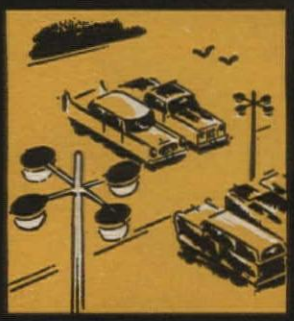
Blueprints and specifications for the construction of the Carnival are being prepared here and will be shipped to India. The Carnival will be circulated to major centers, such as Bombay and Madras, before it is permanently installed in New National Children's Museum.

SQUARE DISTRIBUTIONS

FROM ROUND HOLOPHANE REFRACTORS

FOR BEST OUTDOOR ILLUMINATION

Holophane research has produced another startling illumination first! A new bracket-mounted luminaire with a round-shaped refractor that directs light uniformly over square or rectangular areas. Its prismatic construction controls the light so that the total downward output exceeds 76%—highest efficiency in this type of luminaire. Wide-spread distribution delivers the light symmetrically right out to the very corners and edges of the space. The refractor is one-piece, specially processed glass, resistant to thermal shock and the elements. Takes 500 w. incandescent and 400 w. clear or color-corrected mercury lamps. Economical to install and maintain.



For Large, Rectangular Locations
Shopping Centers, Parking Lots

For Industrial Yards, Work Areas
and Private Roads

For Play Grounds, Housing Sites
Service Stations

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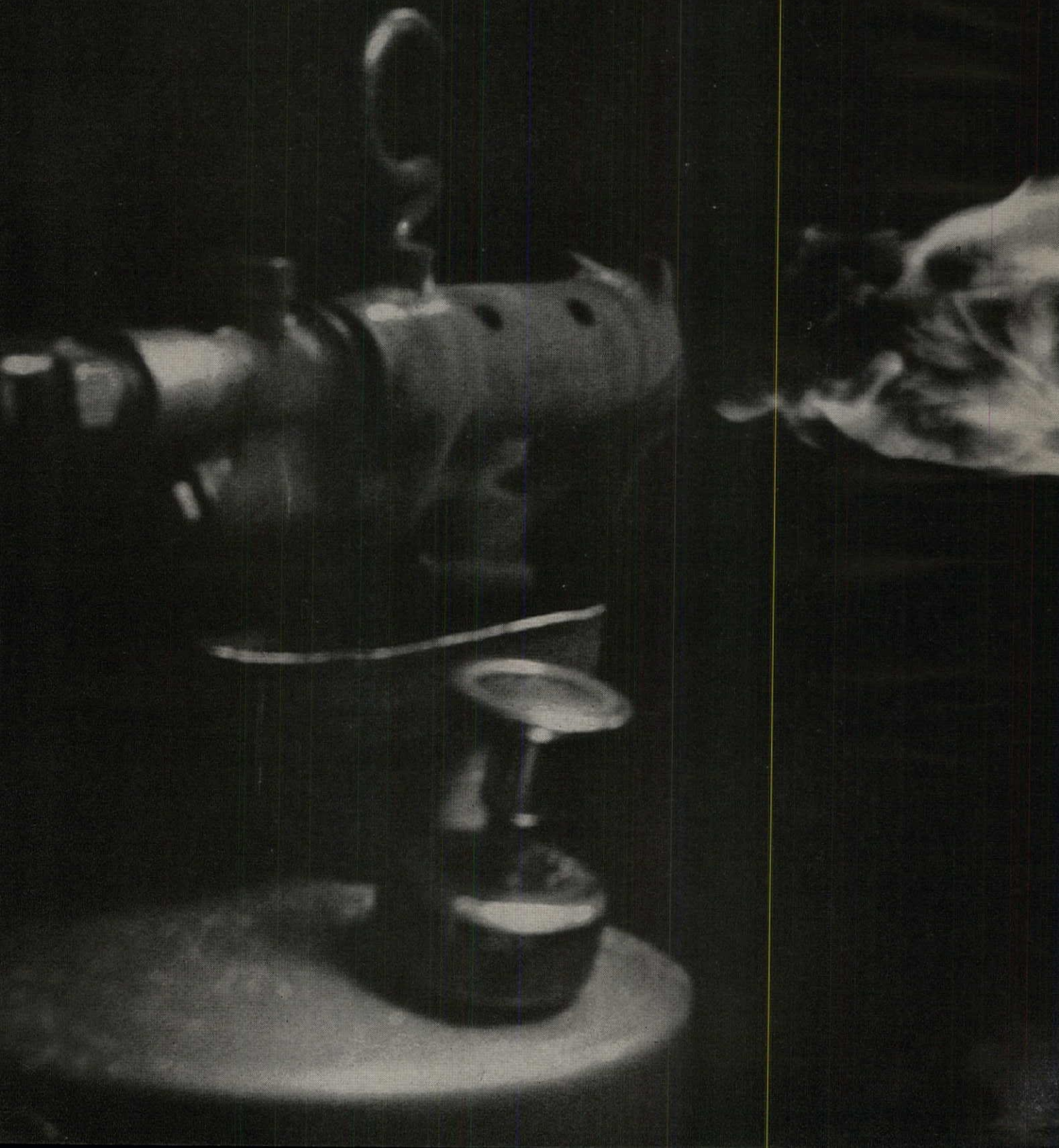

tile that can't spread fire

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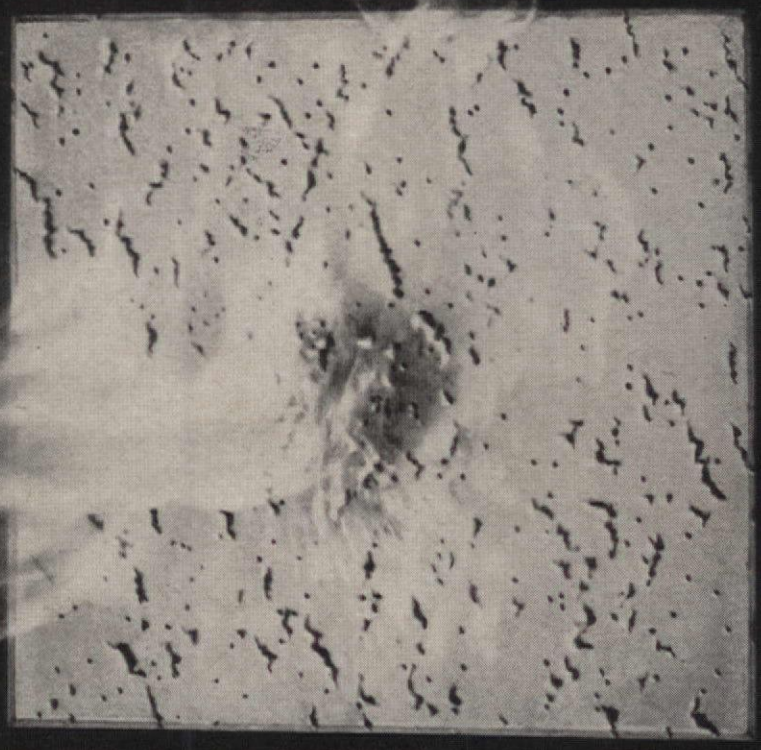

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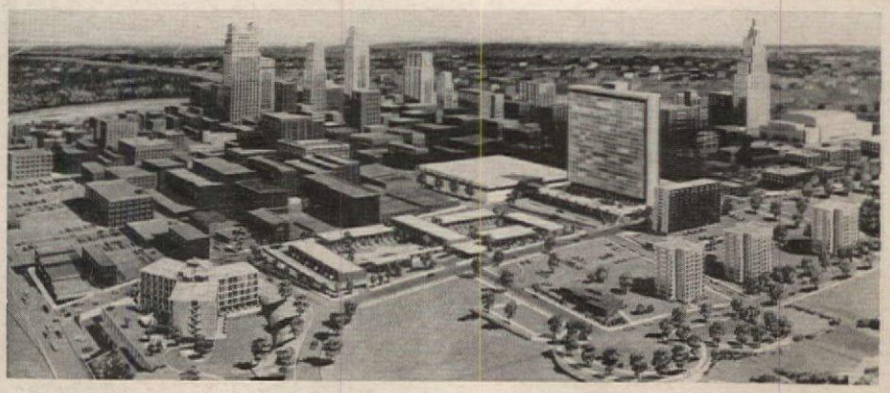
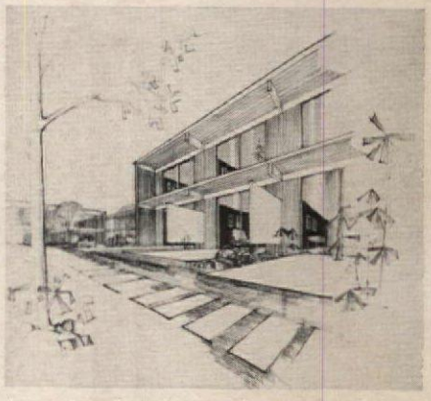
HILTON PLANS HOTEL COMPLEX IN KANSAS CITY

"Villas" and "Inn" and Convention Center grouped about high-rise hotel



Above: over-all view of Hilton's Kansas City proposal, with high-rise hotel (tall slab at right) fronted by series of villas. Hilton Inn is Y-shaped building in left foreground, convention center low white building at left of hotel. *Below:* villa rooms as seen from garden



A major hotel complex providing a separate "convention center" and several kinds of guest accommodations in a garden setting would be created on a 408,000-sq ft site in the heart of Kansas City by a unique proposal sponsored jointly by Hilton Hotels Corporation and Kansas City realtors Lewis Kitchen and Allen J. Block. Architects are Kivett and Myers.

The project, which would cost an estimated $10 million, would include a 400-room high-rise hotel; a large convention center building adjoining the hotel; a series of two-story "villas" grouped around gardens and a swimming pool and containing 222 rooms; and the 189-room "Hilton Inn" now under construction.

As presently planned, the main hotel would have an 11-story guest room tower above a five-level base structure to house parking for some 350 cars, lobby, shops, restaurants and offices, with mezzanine above the lobby. On the roof of the base would be built two stories of "lanai" guest suites surrounding a swimming pool and garden; there would be 80 of these.

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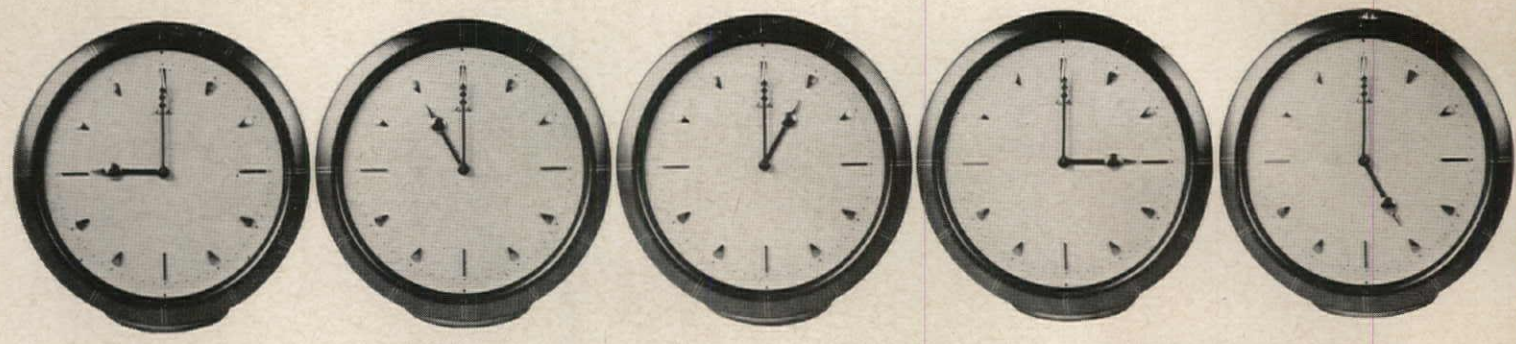

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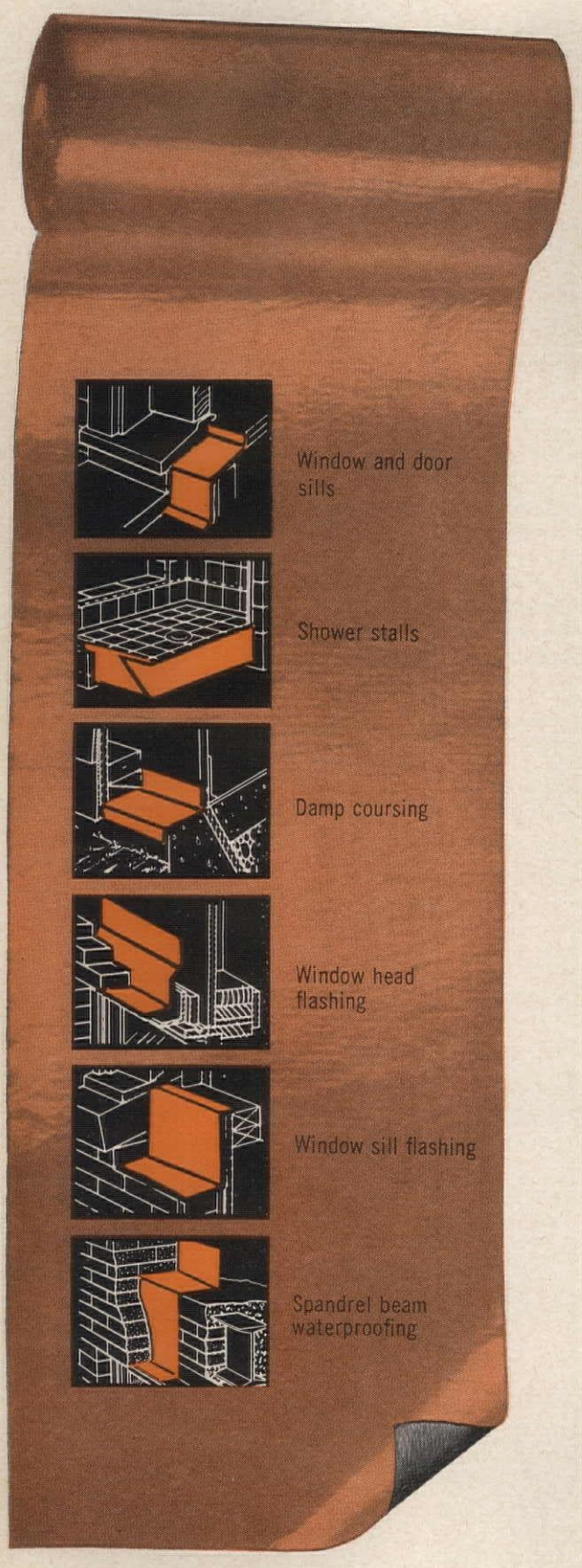

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On the Calendar

June

4-7 National Nuclear Congress, sponsored by Engineers Joint Council—Statler-Hilton, New York

10-15 Summer annual meeting, American Society of Mechanical Engineers—Hotel Frontenac, Quebec, Canada

11-21 "Urban and Environmental Design": R-17 Seminar for Teachers of Architecture, jointly sponsored by the Association of Collegiate Schools of Architecture and the American Institute of Architects—Cranbrook Academy of Art, Bloomfield Hills, Mich.

13-16 Annual meeting, National Society of Professional Engineers—French Lick Sheraton Hotel, French Lick, Ind.

14-16 1962 convention, New Jersey Society of Architects and New Jersey Chapter, American Institute of Architects; theme: "Functions of the Architect"—Essex and Sussex Hotel, Spring Lake, N.J.

16-24 National Shelter & Survival Exposition of 1962—The Coliseum, New York City

17-20 63rd annual meeting, American Society of Landscape Architects; theme: "Design in the Sun"—Americana Hotel, Bal Harbour (Miami Beach), Fla.

18-20 15th annual University of Michigan Conference on Aging, sponsored by the University of Michigan, U.S. Dept. of Commerce, Health, Education and Welfare, Labor; Housing and Home Finance Agency; Federal Council on Aging; and Michigan State Dept. of Health, Mental Health, Public Instruction, Social Welfare, Employment Security Commission, Office of Vocational Rehabilitation, Commission on Aging; and Michigan Society of Gerontology—Michigan Union, Ann Arbor, Mich.

18-20 Annual meeting, American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.—Deauville Hotel, Miami Beach, Fla.

18-22 Special summer session on "Modern Methods of Construction Control"—Massachusetts Institute of Technology, Cambridge, Mass.

20-25 National Real Estate Show—The Coliseum, New York City

24-29 Annual meeting and apparatus exhibit, American Society for Testing Materials—Statler Hotel, New York

25-30 12th International Design Conference—Aspen, Colo.

27-29 53rd annual conference, Stained Glass Association of America—Shoreham Hotel, Washington, D.C.

July

9-13 Seminar on "Planning Industrial Expansion," sponsored by Department of Architecture, M.I.T.—Massachusetts Institute of Technology, Cambridge, Mass.

10-13 1962 British Architects' Conference, sponsored by the Royal Institute of British Architects; theme: "Building and Planning in the Motor Age"—Coventry, England

August

22-25 44th annual convention, Society of American Registered Architects—Edgewater Beach, Chicago

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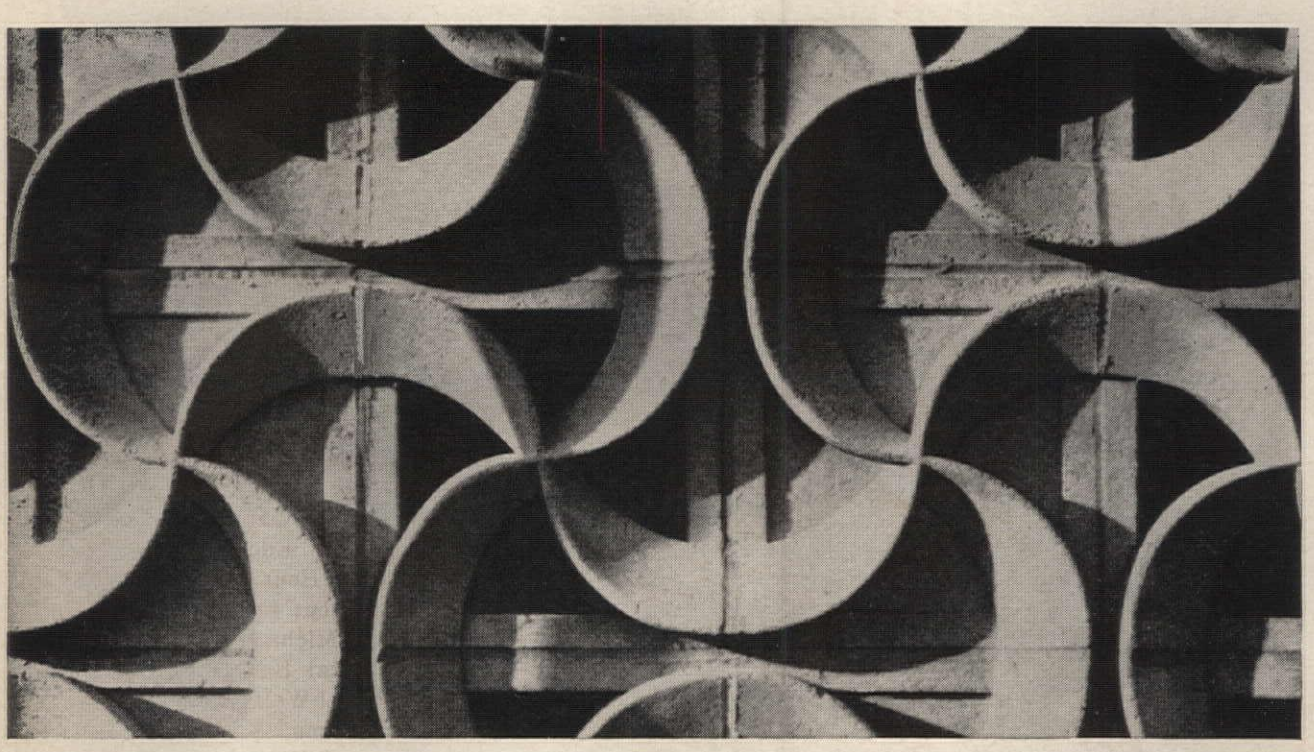

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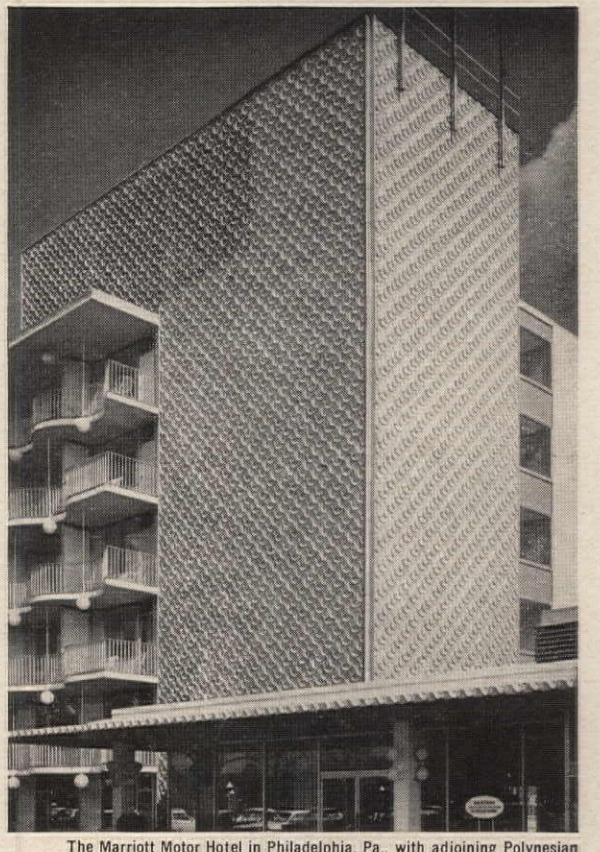

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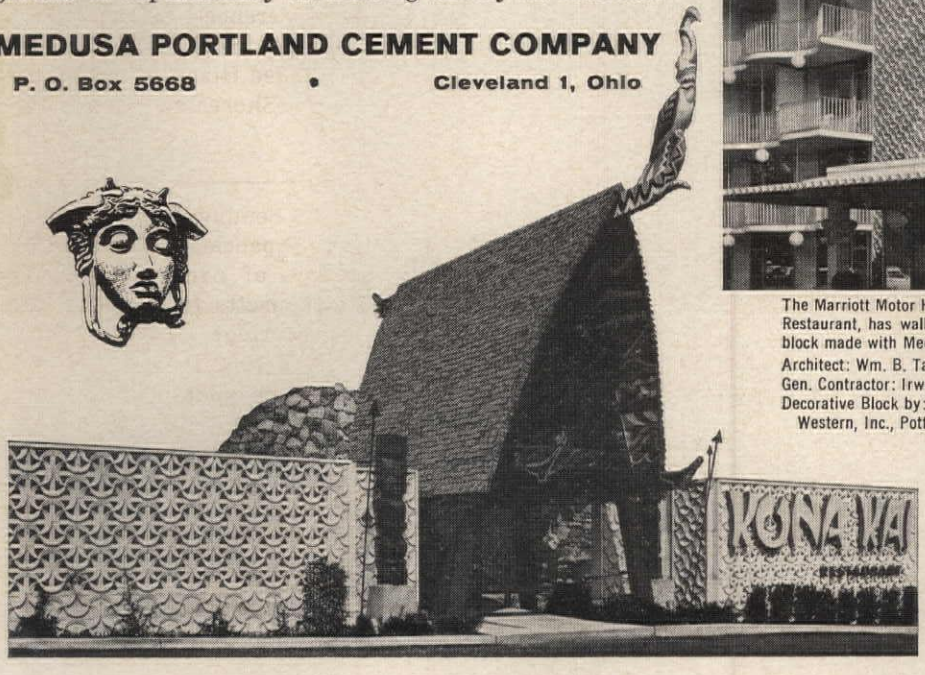

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Office Notes

New Firms, Firm Changes

Ted Jeruzalski, Dipl. Ing. Arch. (London) M.R.A.I.C., has joined Freedman & Petroff Architects, 3130 Bathurst St., Toronto, as a partner. The name of the firm is now **Freedman Petroff Jeruzalski Architects.**

Julian R. Cowin, A.I.A., has been elected president of the Detroit architectural and engineering firm, Harley, Ellington, Cowin and Stirton, Inc. Others elected were: **Fred M. Harley,** A.I.A., vice president and treasurer; **Malcolm R. Stirton,** A.I.A., vice president and secretary; Vice President **Paul B. Brown,** A.I.A. and Vice President **Frederick J. Hildebrandt,** P.E., to the board. **Alvin E. Harley,** F.A.I.A., and **Harold S. Ellington,** P.E., firm founders, became senior consultants.

C. James Bellamy is now an associate member of the firm of Kenneth W. Brooks, Architect, Spokane, Wash.

Kenneth DeMay has been appointed an associate with Sasaki, Walker and Associates, Inc., site planners and landscape architects, design and planning consultants, Watertown, Mass.

Andrew G. Elliott and **Stanley Gleit** have become associates in the firm of Garfinkel & Marenberg, Consulting Engineers, 100 W. 42nd St., New York.

Seven members of the Houston, Texas office of Bovay Engineers have been promoted. **Guy Furgiuele,** an associate, has been named chief engineer; **R. O. Grimes,** associate, is now assistant chief engineer; **Morris Backer,** associate, is now manager of the projects division. **C. E. Brown** has been promoted to manager of the mechanical engineering department. **John Zuttermeister, H. R. Petty** and **Keith E. Ping** have been named senior project engineers. Recent additions to the staff were Mr. Zuttermeister and **Robert C. Howell.**

Herbert Pomerantz, P.E., formerly an associate of S. W. Brown, has been made a partner of **Brown & Pomerantz, Consulting Engineers,** New York City.

Six senior associates and eleven associates have been named by Perkins & Will, Chicago, White Plains, N.Y. and Washington, D.C. architectural firm. Three of the senior asso-

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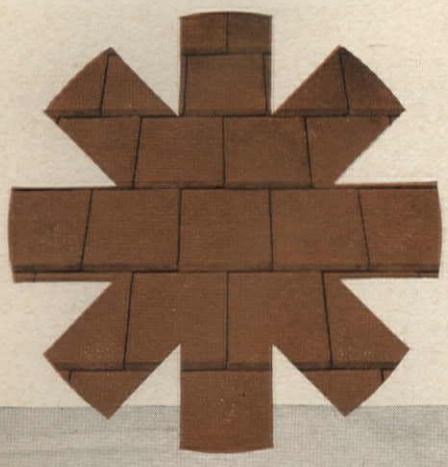

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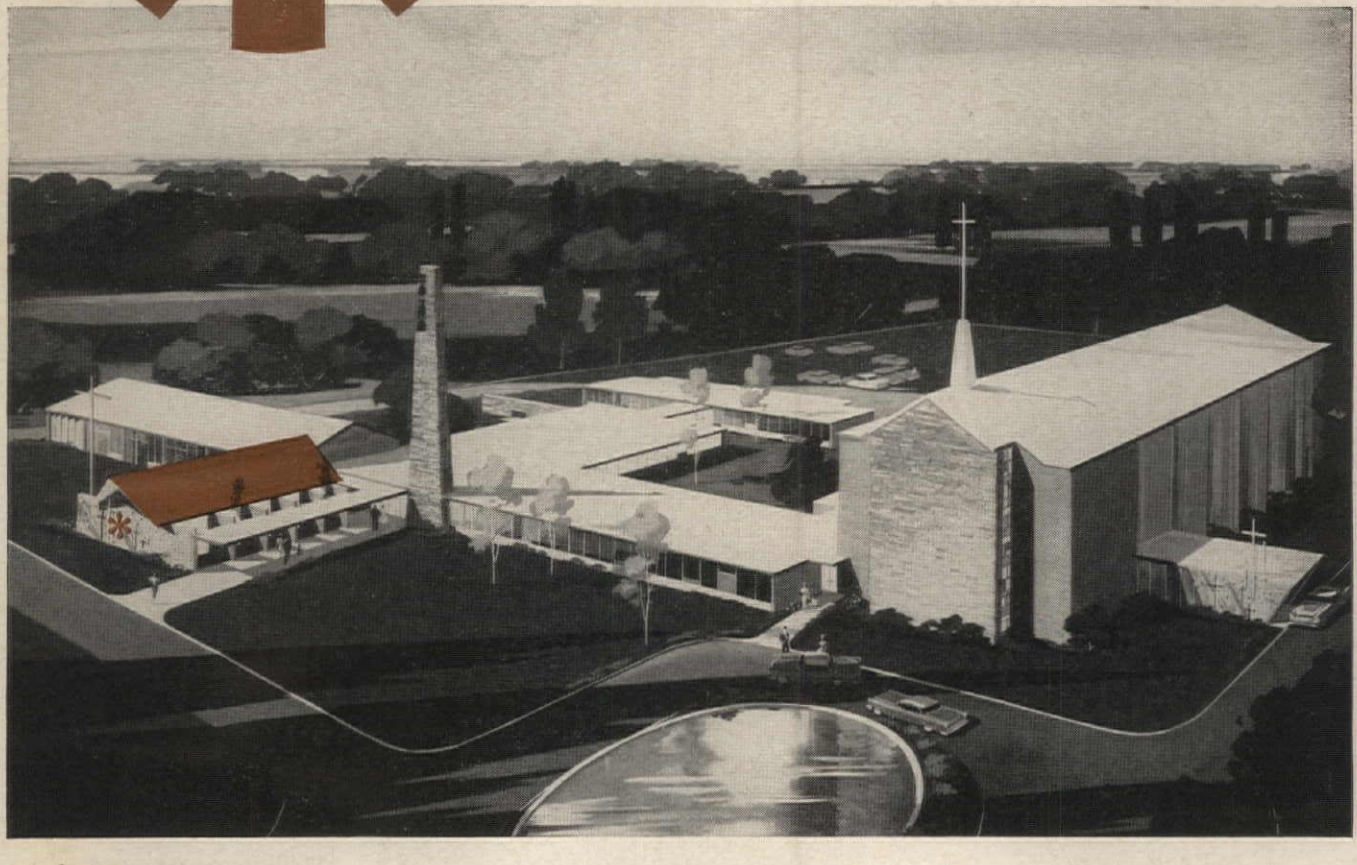

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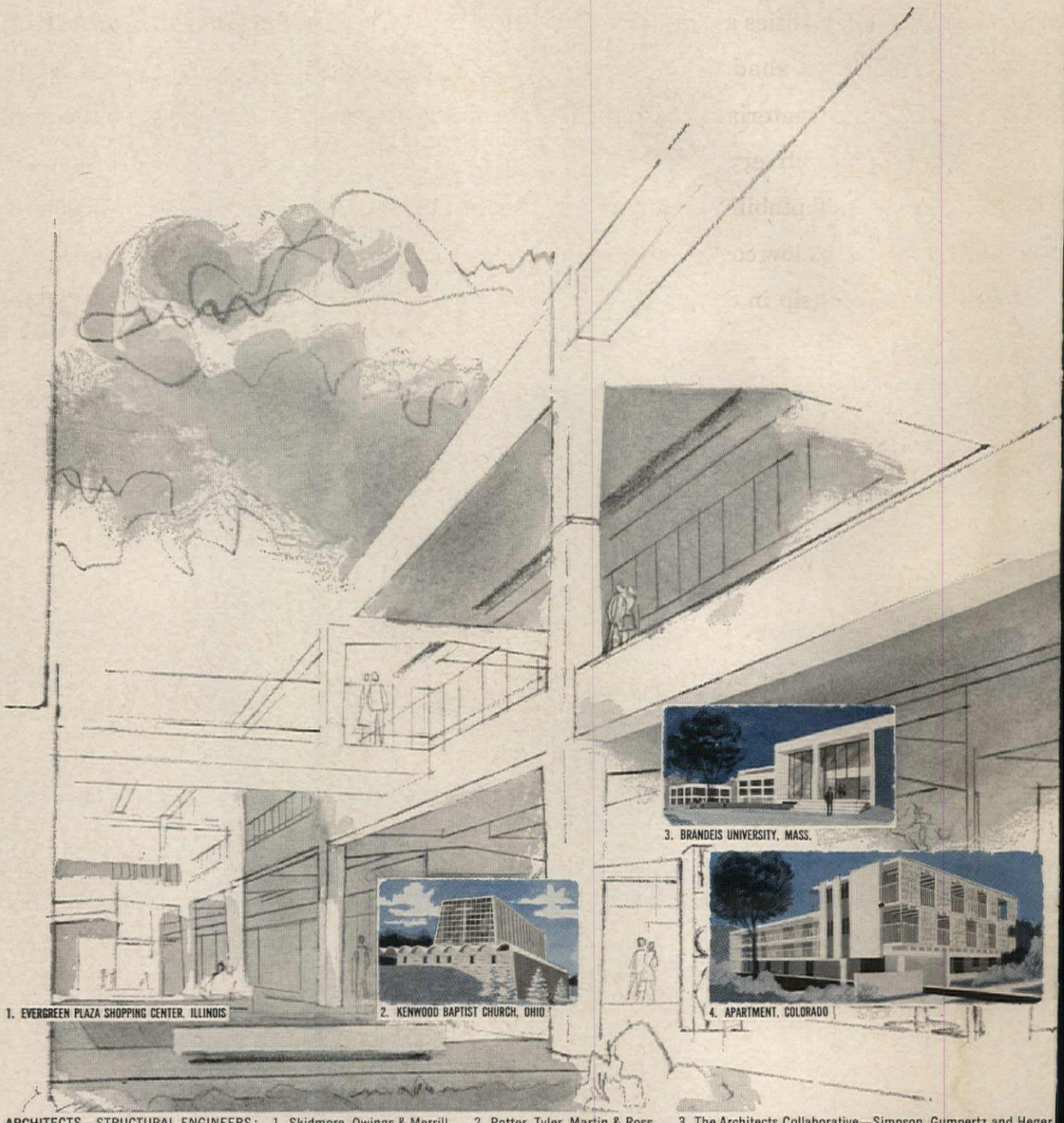

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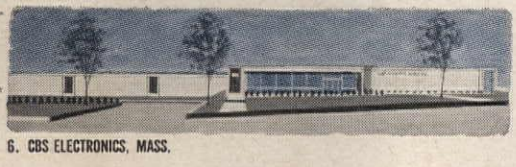
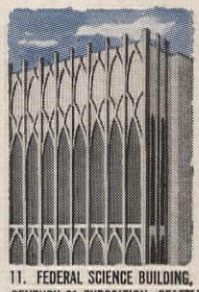


6. CBS ELECTRONICS, MASS.

8. PETALUMA RIVER BRIDGE, CALIFORNIA

5. COMMUNITY PLAZA SHOPPING CENTER, COLORADO

7. O'HARE INTERNATIONAL AIRPORT, CHICAGO



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Office Notes

continued from page 280

ciates—**Edward H. Matthei, Raymond C. Ovresat** and **Joseph F. Schroeder**—are located in the Chicago office. **J. Raymond Matz** and **Frank Raimondi Jr.** are members of the White Plains staff. **Thomas H. Klausmeyer,** formerly of the Chicago office, is now a senior associate with the Washington staff. The new associates in the Chicago office are **Ken Bristow, John P. Gallagher, Hem C. Gupta, Donald J. Millar, Norman C. Millett, Dean H. Morgan, Robert P. Morin** and **Stanley E. Tursman.** The new associates in the White Plains office are **John E. Keegan, William J. McCoy** and **Albert H. Stubing.**

Through a move representing a consolidation of offices as well as an increase of approximately 25 per cent in the firm's total space, **Emery Roth & Sons** is now located in a building designed by the Roth office at 850 Third Ave., New York City.

Leach, Cleveland & Associates, expanding Los Angeles architecture-planning-engineering firm, has occupied a new office building of its own design. The firm occupies the top floor of the three-story building at 8900 Melrose Ave.

Charles B. McReynolds has been appointed director of the New York City office of Welton Becket and Associates.

New Addresses

Donald J. Brown, Registered Architect, A.I.A., 2045 Wantagh Ave., Wantagh, N.Y.

Damuck and Painchaud, Architects, A.I.A., 72 Whitney Ave., New Haven, Conn.

Harold Edelman, A.I.A., Stanley Salzman, A.I.A., Architects, 117 W. 12th St., New York, N.Y.

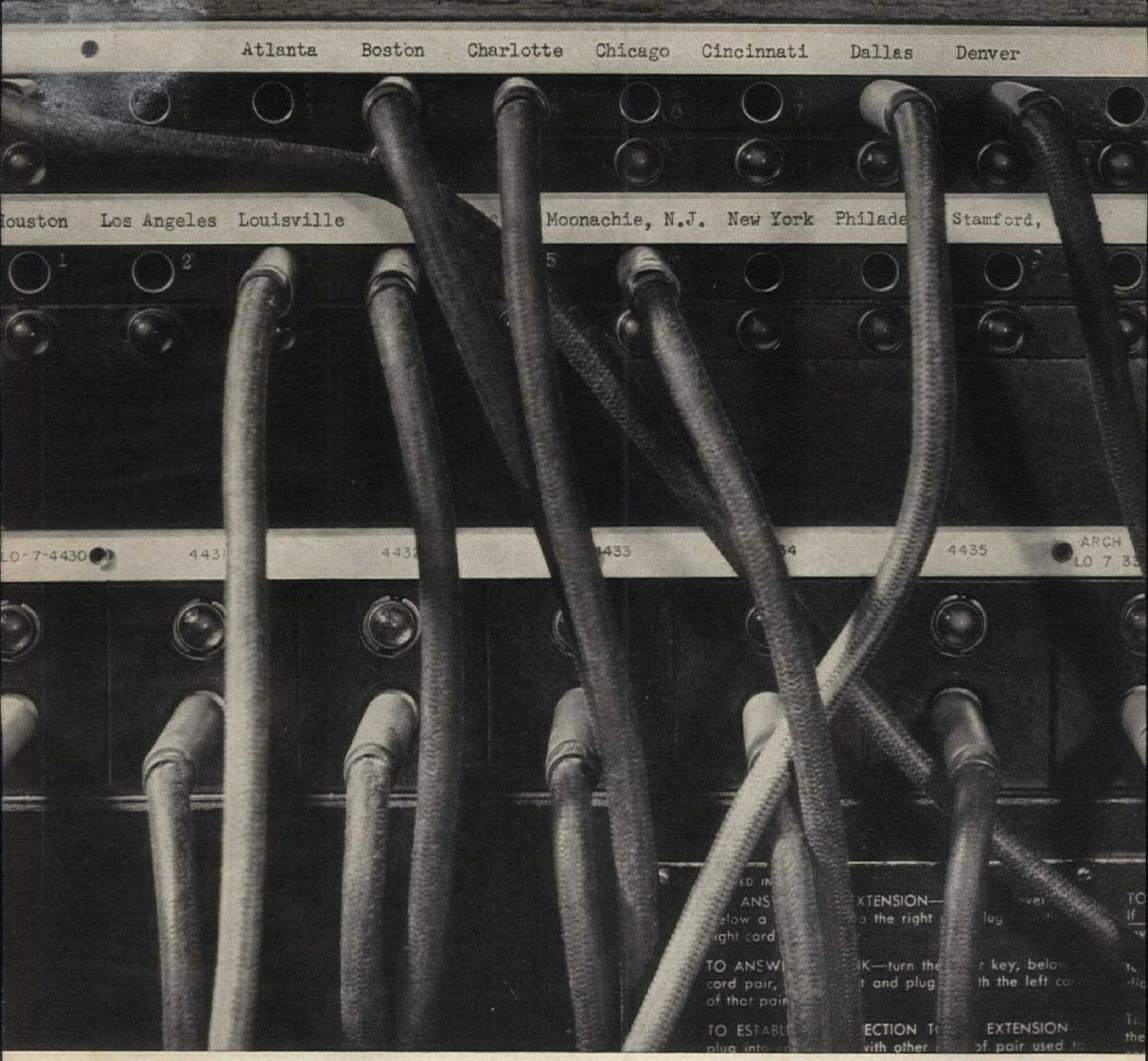
Hunter and Benedict, Architects A.I.A., 3670 Wilshire Blvd., Los Angeles, Calif.

Husband & Wallace, Architects, 120 Hughson St., S., Hamilton, Ont.

Ferdinand P. Kelly, Architect, 2508 No. Calvert St., Baltimore, Md.

George A. Kennedy & Associates, Inc., 217 No. Michigan Ave., Chicago.

Leo Kornblath Associates/Architecture/Planning/Interiors, 850 Third Ave., New York City and 1819 "L" St. N.W., Washington, D.C.



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You can save yourself time and trouble on your next commission by calling in the "Man from Devoe." Merely write or phone the Devoe office nearest you. There is no cost or obligation.

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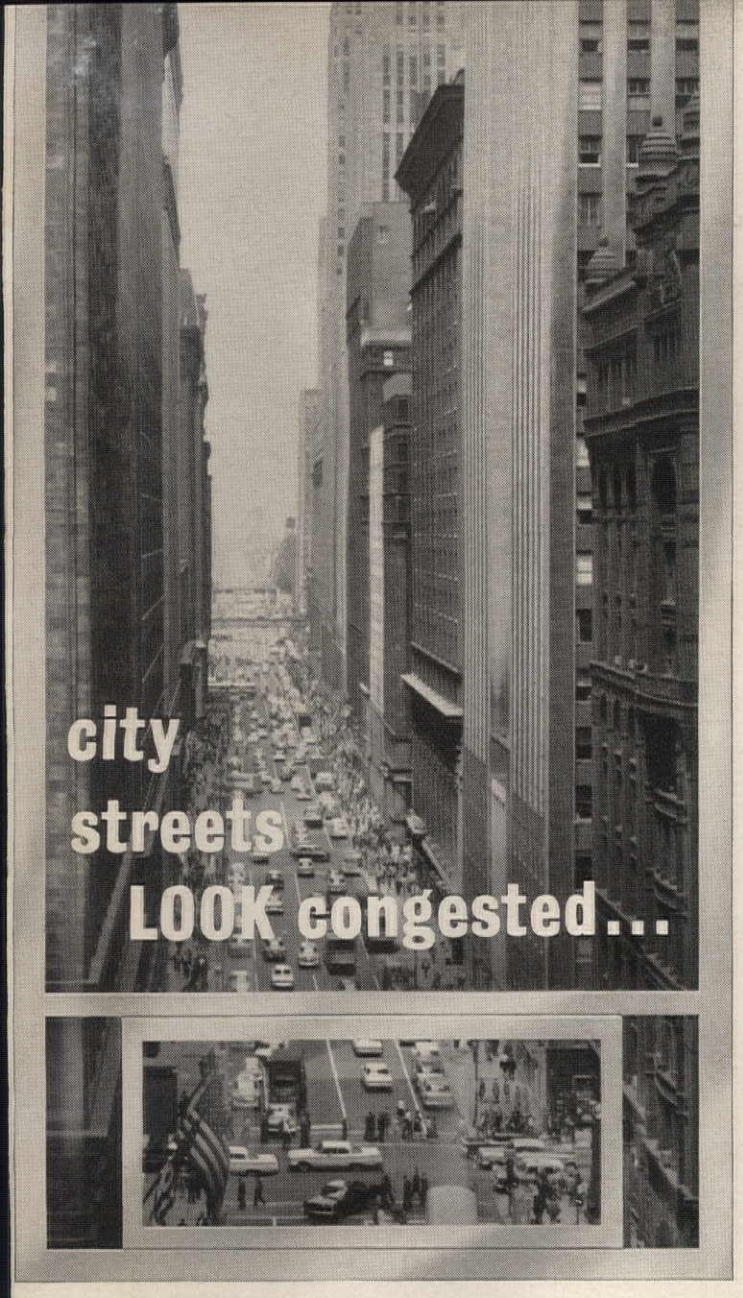

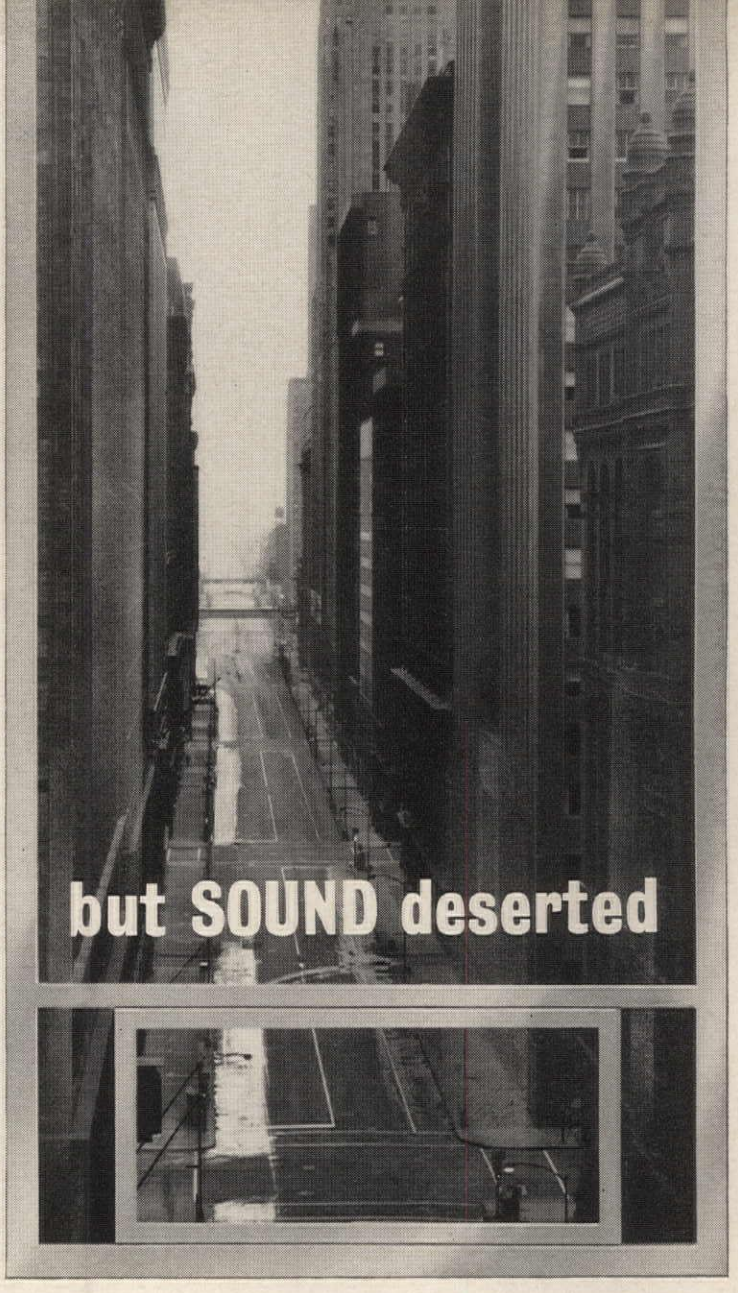

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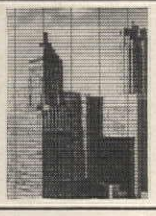

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COLUMBIA STUDENTS PLAN UNDEVELOPED NEW JERSEY SITE

Fourteen students in an advanced urban design class at Columbia U. School of Architecture have drawn plans for the development of a huge tract of New Jersey pineland which in three decades may become a new city. The 15,000 acre tract in central Jersey's Ocean County is now totally undeveloped.

Harry A. Anthony, associate professor of urban planning at Columbia, each year selects an undeveloped site for his urban design class. When his students have charted existing physical conditions and the social and economic characteristics of the surrounding area, they diagnose the area's prospects and needs and then prepare master plans to guide the development of the new community.

A co-owner of the site, E. B. Leone, Fairlawn, N.J., recently presented $7000 to the School of Architecture for graduate scholarships supporting the program.

Three sites selected by the Columbia class in previous years were near Springfield, Mass., near the St. Lawrence Seaway, and in Putnam County, N.Y. The present project marks the first time the class' suggestions may provide the basis for actual development of a site, rather than serving a merely educational function, Professor Anthony said. By April 1, the students had condensed their proposals into two separate concept solutions which were to be presented April 28 in Fairlawn at a day's meeting of the Association of Mayors.

The students who worked on the assignment were to be available May 31-June 2 at Tom's River, N.J. to explain the proposals to visitors.

The proposals see the city as somewhat self-sufficient, with schools, industry, commerce and a unique, safe residential area in which automobile and foot travel will be separated.

Graduate architecture students specializing in design of health and hospital facilities cooperated in the project under the direction of Richard A. Miller, associate professor of architecture. Also cooperating with Professor Anthony was Sigurd Grava, instructor in urban planning.

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West Chemical Concrete Floor Treatment goes right on after troweling... cuts labor costs in half

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So speed up your whole operation, cut costs in half and protect your investment by proper curing with West Concrete Floor Treatment.

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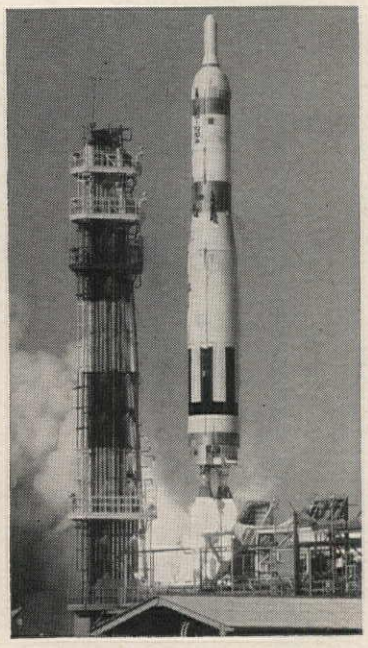

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Each major launching pad at Cape Canaveral has a delicate aiming device to "instruct" rockets as to direction and elevation. Barber-Colman *Electrionic* controls automatically maintain the delicate ground-to-air temperature balance of these space-age benchmarks 24 hours a day, seven days a week. This reliable control prevents warping where a 1/1000th degree deflection could put a missile several miles off the target 5000 miles away.

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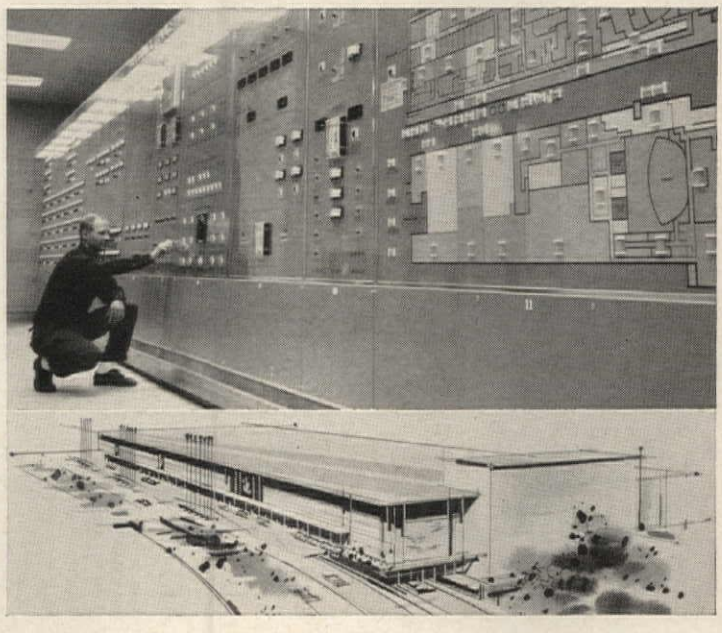

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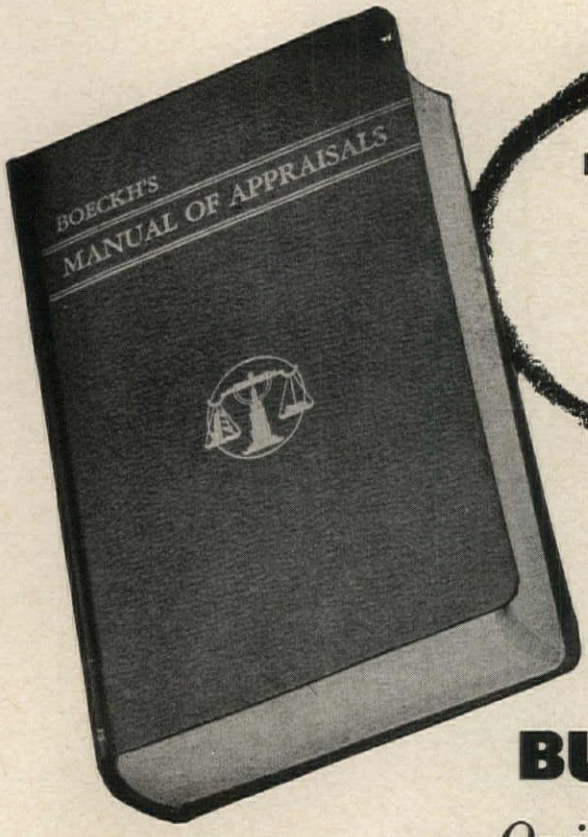

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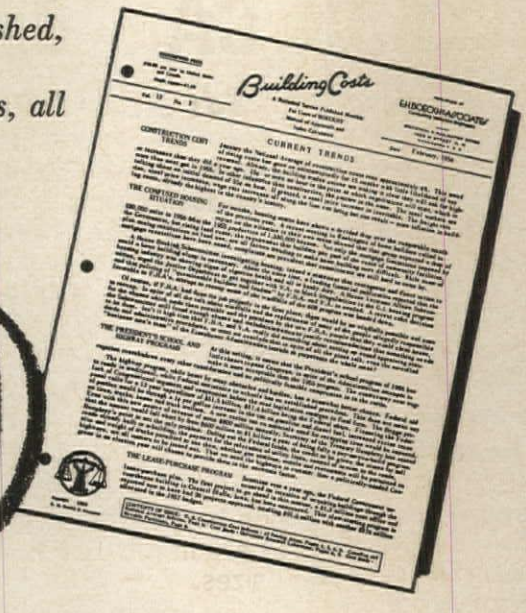

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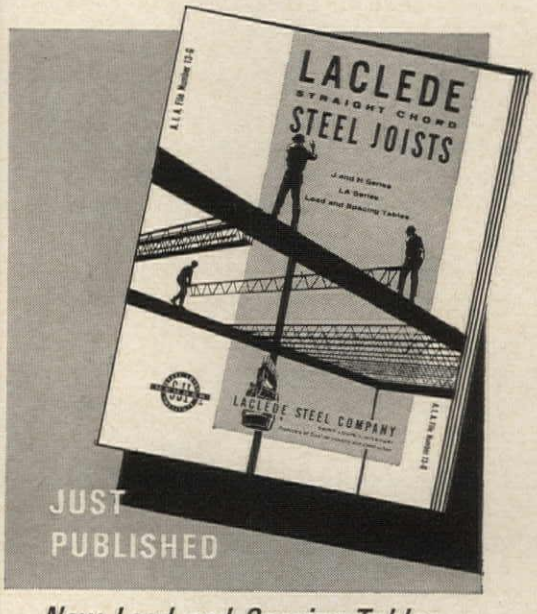

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LIPPOLD NAMED TO LINCOLN CENTER'S FIRST BIG ART JOB

The first commission by Lincoln Center of the Performing Arts for a major work of art has been awarded Richard Lippold, American sculptor, to create a work for the grand foyer of Philharmonic Hall.

The sculpture, entitled "Orpheus and Apollo," will consist of an identical pair of forms which will hang from the ceiling and extend the entire length of the 190-ft foyer. The material will be 190 sheets, in varying lengths, of highly polished metal (an alloy of copper and zinc) suspended by stainless steel wires from points on the ceiling, each sheet hanging independently.

Mr. Lippold said he felt "a great desire to provide forms which, even from the plaza outside, would invite one to move into the interior where the forms . . . would lead one to the source of all this attaction—the music on stage."

The architect for Philharmonic Hall, Max Abramovitz said he had asked Mr. Lippold to create a sculpture which "would float in space and relate in a contemporary manner to the interior of the foyer just as the magnificent crystal chandeliers of former day took command of their space."

The commission for the sculpture was made possible, said Edgar B. Young, executive vice president of the Center, by "a special gift from a donor who wishes to remain anonymous at this time."

Community room "live" programming can be distributed to any and/or all selected areas of the Southwest's largest shopping center.

Arrow points out DuKane Speaker Assembly located in store canopy for music and sound distribution at the new Seminary South Shopping Center.

Giant DuKane music and sound distribution system installed at the largest shopping center in the Southwest.

Developed by the Homart Development Co., a subsidiary of Sears, Roebuck and Co., Seminary South Shopping Center, Fort Worth, Texas, features a DuKane Music and Sound Distribution System, reputed to be the largest in the Southwest. The DuKane System distributes background music to walk-way canopies, general offices, parking lot and stores. Programming can originate from built-in AM/FM radio tuner, an automatic record player capable of producing 37½ hours of continuous music or "live" presentations from the center's community room, parking lot or either of five mall fountain locations. In addition, paging or emergency announcements can be distributed to any selected or all areas.

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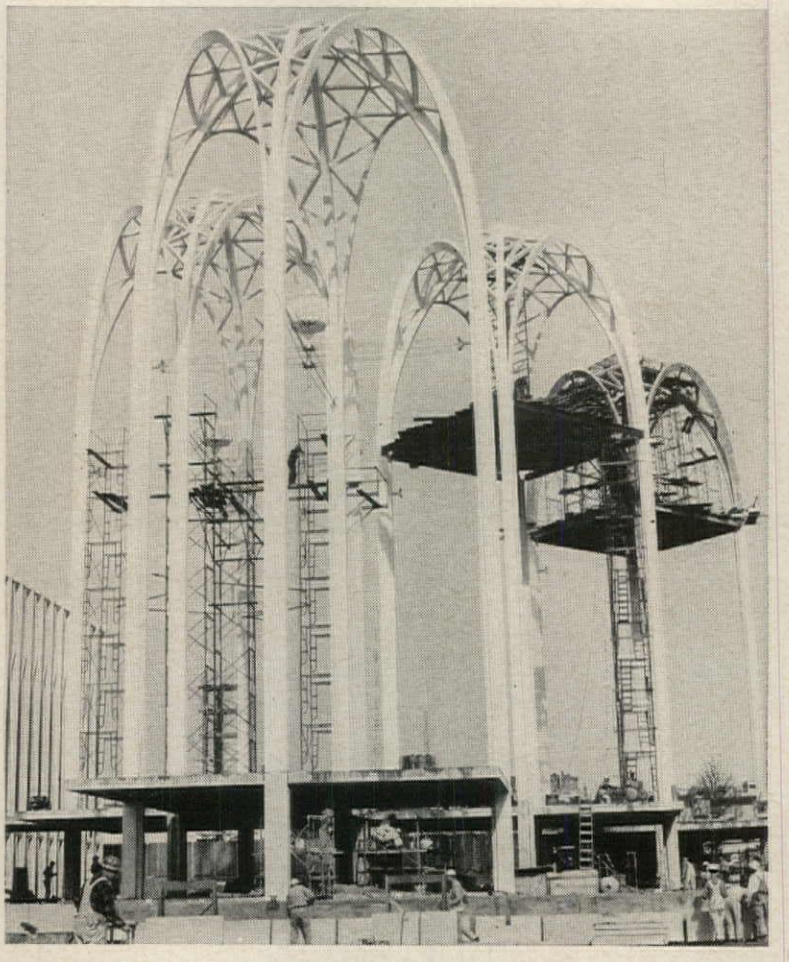

Five prestressed Gothic arches, 100 feet high, span the entrance court of the Science Pavillion, Seattle World's Fair. Note the filigreed pattern in the domes and slender columns.

Thin wall panels of the Science Buildings are sculptured in prestressed concrete. Some have open filigreed pattern. All are faced with crushed white quartz mixed in white cement. Panels bear the load of prestressed T-section beam supported roofs with spans up to 112 feet.

U. S. Science Pavillion. The six buildings and five 100′ arches are of prestressed concrete from the ground up. This new concept in construction offers freedom for aesthetic expression.

Monorail Transport System. Rubber-tired 4-Car trains will carry 450 passengers on prestressed, hollow concrete track cast in 120 feet lengths. Speed 97 seconds per trip. Said to be the solution to mass transportation in the future.

Four-story, 1505-car parking facility. A new design concept employs 313 prestressed T-Girders. Cost $1070 per car stall—almost ⅓ less than similar car parking and storage facilities.

The Prestressed Concrete Industry Offers--

adaptability unlimited!

Architects and engineers everywhere are seeking greater freedom in aesthetic expression. Many are closely watching the searchlight as it focuses sharper and sharper upon the growing exploitation of the design potentials of prestressed concrete.

Currently in sharp focus is the wide diversity of adaptations of prestressed concrete in structures at the Seattle World's Fair. They range from 100 foot high Gothic arches to the mile long monorail transport system.

Particularly in the structures of the U. S. Science Pavillion is the aesthetic fully expressed in the filigreed patterns of the Gothic arches and the wall panels. Here are some of the ways in which prestressed concrete enables you to put warmth, depth, color and texture into facades:

1. Panels in which unique and striking architectural effects are sculptured.
2. Panel shapes which enable you to break up the monotony of conventional, rectangular structures.
3. Panel design which doubles as curtain wall and load bearing members.
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5. Panels with colorful aggregate materials exposed.
6. Panels with an almost limitless choice of colors integrated in the concrete mix.

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— add these and other advantages and the sum total is *adaptability unlimited.*

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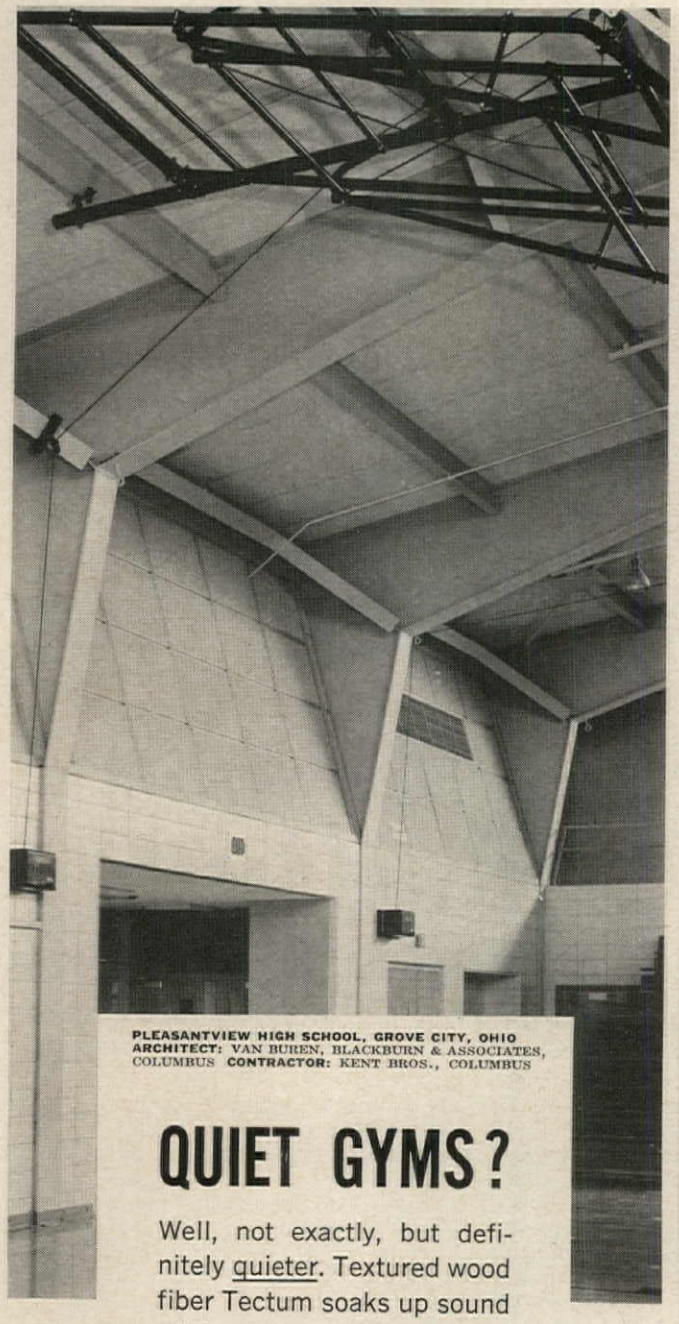

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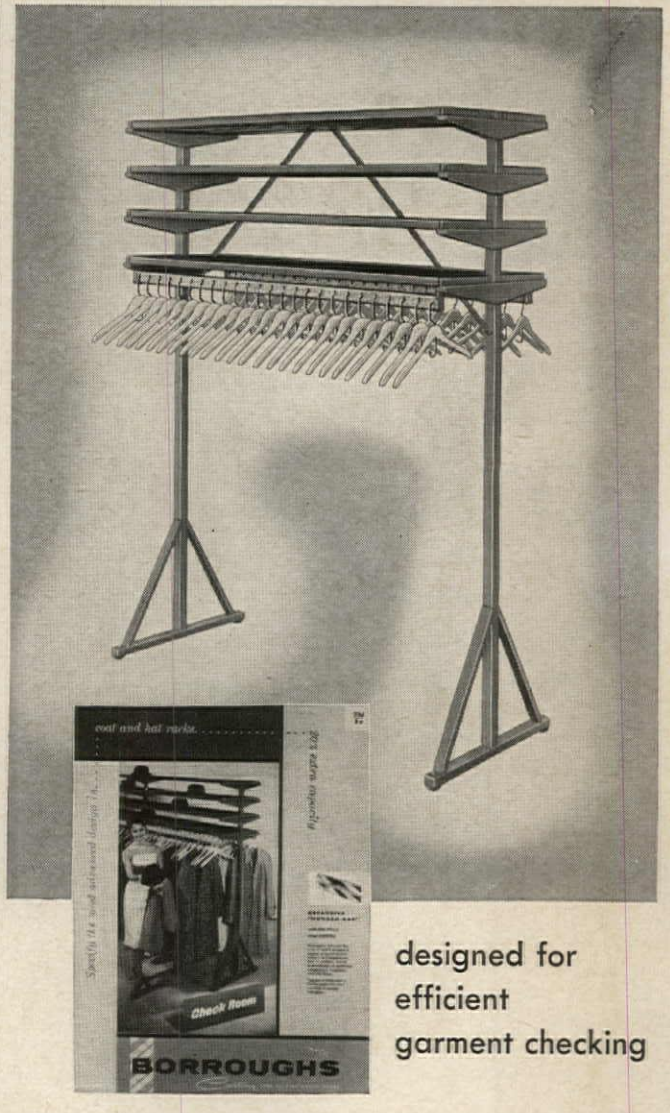

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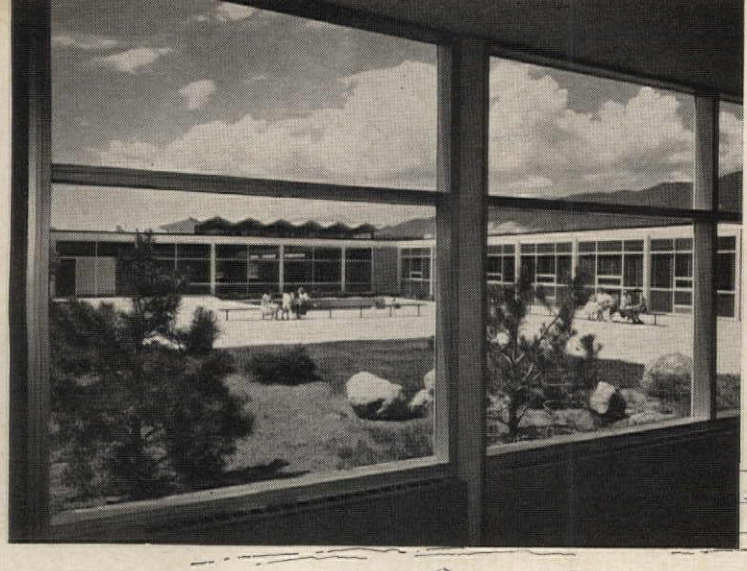

Air Academy High School
Colorado Springs, Colo.
Architects:
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F. Lamar Kelsey
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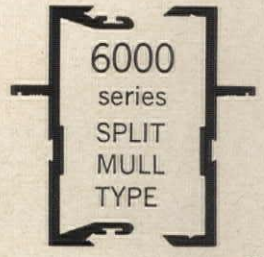

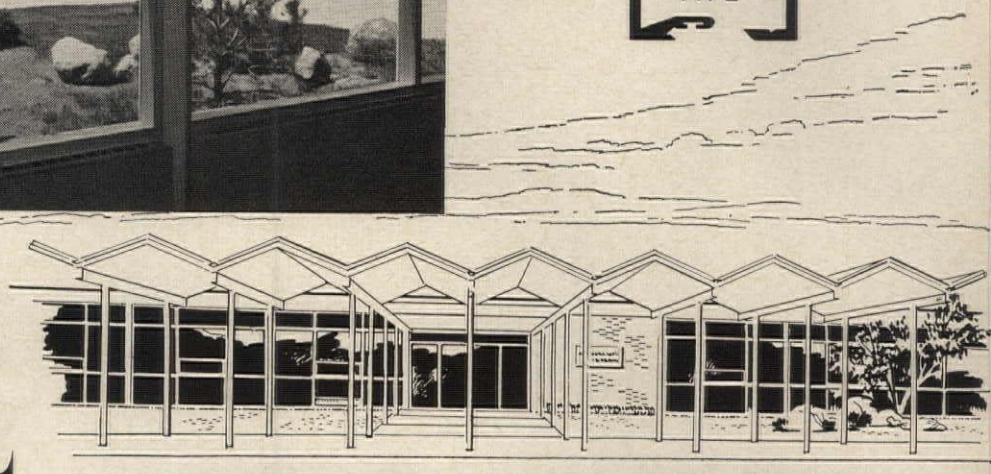

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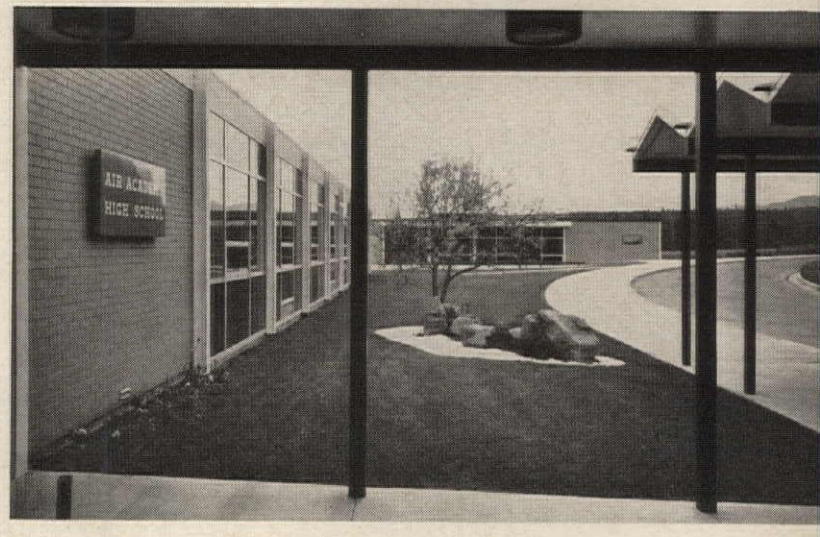

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Stamford, Connecticut
Architects:
Sherwood Mills & Smith
Stamford, Connecticut

In many cases, the stacking assembly of this system saves the time and cost of erecting scaffolding. Wall panel and sash units are often small enough to permit two men, working from inside the building, to complete the wall after vertical mulls have been anchored.

MARMET

Curtain Wall Systems offer the choice you need

Let your freedom of design swing . . . when you plan curtain wall with MARMET systems. From high rise luxury apartments to tight budget one story additions . . . a choice of individual systems tailored to achieve the final effect can be specified. For monumental effect with strong horizontal accent when desired, MARMET's split mull system is available in the 6000 series, (note its use in the Air Academy H. S.) and in the 8400 insulated series which cuts heat losses through the aluminum grid by as much as 63%.

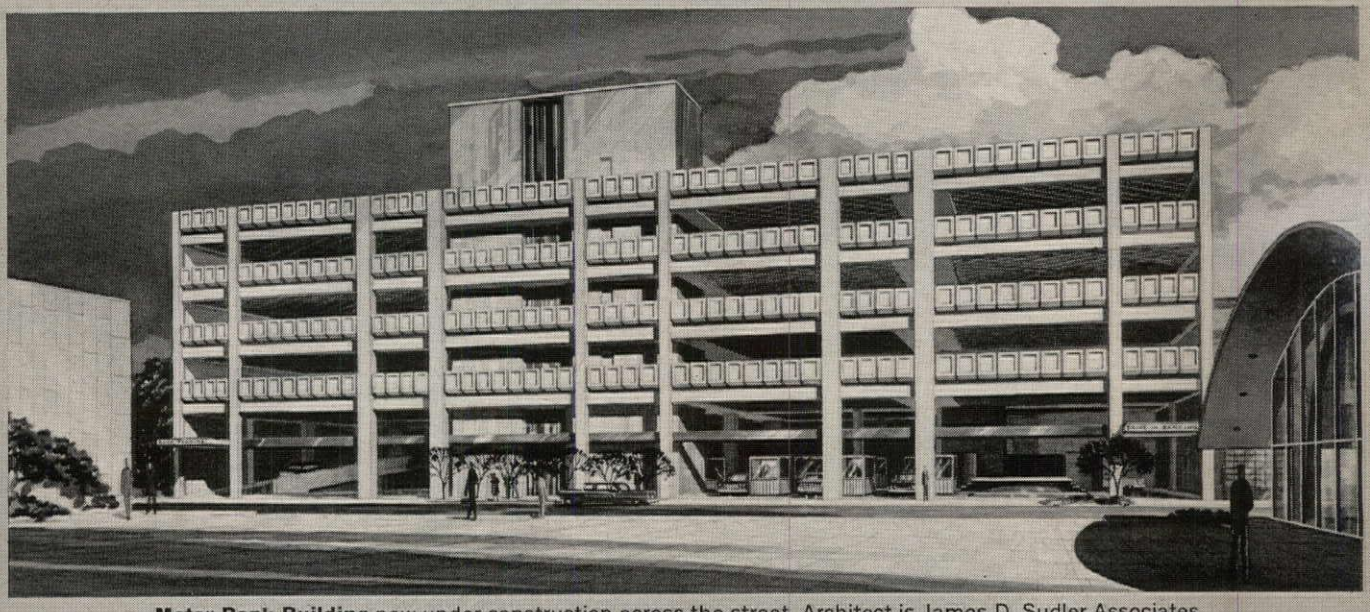
Where strong vertical accents are required, MARMET's stacking panel system offers a variety of heavy mull shapes in the 5000 series. Still another version, the Continental system, provides color anodized finishes in the grid framing for unlimited color accents around spandrel panels. Call your local MARMET representative (or write or phone MARMET for full information).

For additional information on the complete line of MARMET products — consult SWEET'S Catalog File No. 3a/Mar or write to MARMET.

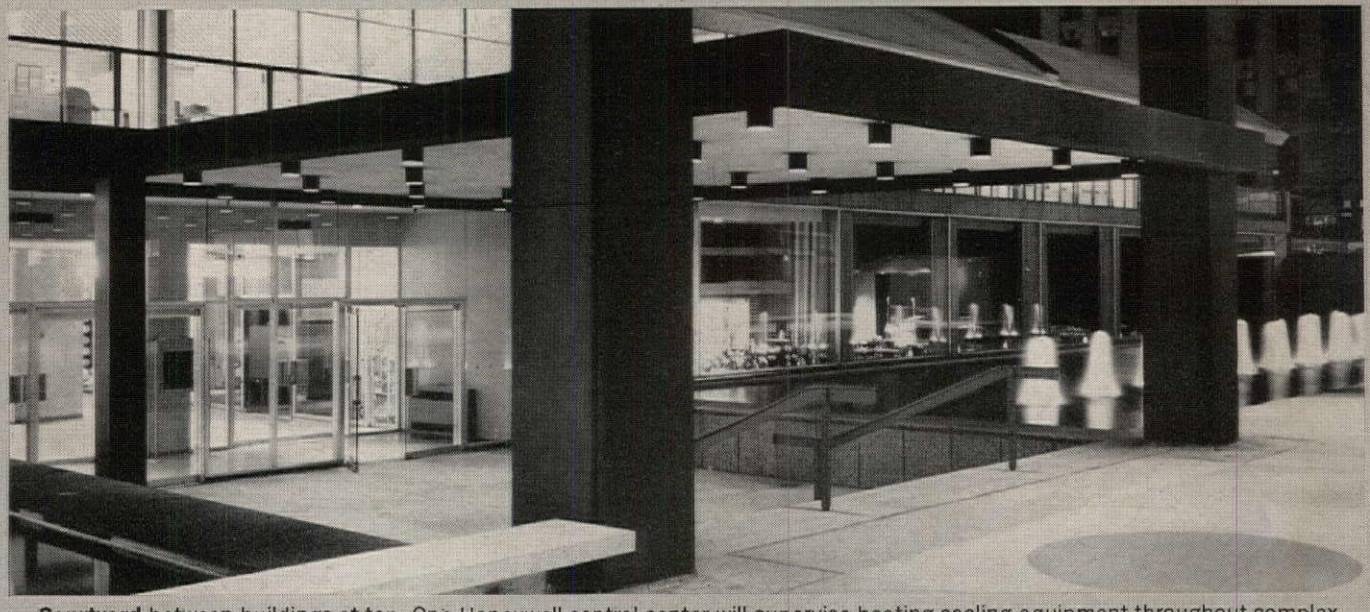
MARMET CORPORATION

300-D Bellis St. • Wausau, Wis.

Office building and part of banking facilities at Denver U.S. National Center. Third building (not shown) at right rear.



Motor Bank Building now under construction across the street. Architect is James D. Sudler Associates.



Courtyard between buildings at top. One Honeywell control center will supervise heating-cooling equipment throughout complex.

How much automation is practical for your buildings?

Centralized automated control will save $17,000 per year at Denver U.S. National Center

Installed as Center adds fourth building
Honeywell automation will return 19% yearly on investment, pay for itself in 5¼ years, in savings on labor, power, depreciation

Whether you are considering automation as an item in planning new construction, or as an improvement to an already existing structure, the experience of the Denver U.S. National Center could be helpful.

Three buildings have been in service for from three to seven years. A fourth is now under construction.

At an early stage in planning the newest building, Honeywell engineers and F. E. Stark, consulting mechanical engineer, made a cost comparison analysis of previous operating methods as against automated centralized control for all four buildings.

The study showed that under the old methods 3,874 manhours per year would be needed just to turn heating and air conditioning equipment on and off, to check temperatures and make adjustments.

But, with a Honeywell Selectographic* DataCenter installed this time would be cut to just 376 manhours per year—saving $10,320 in labor costs alone.

Further, the centralized control system would save $1,728 in electricity and steam each year, plus $5,000 in replacement and depreciation costs.

Altogether, a saving of $17,048 per year—a 19% return on investment—or enough to pay for the control center and installation in just 5¼ years.

Using only present manpower, the Honeywell Selectographic* DataCenter will start and stop all air handling equipment in all four buildings; check and adjust temperatures; give instant reports of machinery operation (with an audible alarm for malfunction); and provide inter-com to every mechanical equipment room.

So helpful in this instance, central control is a basic step in automating *any* building's mechanical-electrical systems to wring maximum efficiency from equipment, cut a surprising waste in manhours, and plug needless leaks in fuel and power costs.

Today, however, central control is only the *beginning* of automation—ranging up to computer-guided systems that digest scores of variables, then instantly allocate the load to equipment for optimum results at minimum cost.

You'll want to keep abreast of the newest Honeywell developments, many of them offering your clients operational savings through concepts that were unavailable a few years ago.

Honeywell automation specialists will gladly discuss them with you, or work with you to make an automation analysis of any building.

Phone your nearest Honeywell office, check coupon, or write: W. N. Wray, Honeywell, Dept. AR6-92, Minneapolis 8, Minn. In Canada, write Honeywell Controls Ltd., Toronto 17, Ont.

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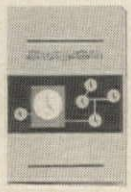
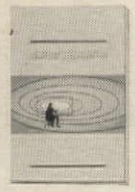

CLOCK PROGRAMMING SYSTEMS


TEMPERATURE CONTROL


SECURITY AND EQUIPMENT SURVEILLANCE SYSTEMS


ELECTRONIC AIR CLEANING


PREVENTIVE MAINTENANCE PROGRAMS

Honeywell, Dept. AR6-92
Minneapolis 8, Minn.

Without obligation, please send Honeywell Planning Guides checked.

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- ☐ I'm interested in an AUTOMATION ANALYSIS of my building.

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The grandeur of ancient Mediterrania has been captured in the rich textures and ornate designs of this new supper club. Tectum Pan-L-Art contributes both the acoustical control and the design interpretation for distinctive restaurant decor. Pan-L-Art is available in a wide range of sculptured designs, in geometric shapes, in multi-plane ceiling tiles and in standard acoustical ceiling panels. 23 decorator colors. Tectum distributors are located in principal cities.

Tectum®

TECTUM CORPORATION
535 East Broad St., Columbus 15, Ohio

Pan-L-Art is distributed by Tectum representatives in all principal areas. If you do not have his name, write Tectum for full information.

Write for your copy of this new 16-page catalog!

Sweet's Architectural 1962 File: 3f/St

StanLock neoprene structural gasket is the *proved* way to seal any type of curtainwall construction *permanently*. It is the only structural gasket with the tempered locking strip that provides a more positive seal where it is needed to prevent infiltration of water, air and dust.

In a letter or postcard just say: "Send me a copy of the StanLock catalog." It will be sent to you promptly. Write to . . .

The Standard Products Co.
Structural Gasket Division • 2130 W. 110th Street, Cleveland 2, Ohio

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the modern approach to water management in the home, the plant and the institution
IN ACTION:

WATER CUTTER

Cut your client's water bills in half with AUTOFLO®—the remarkable Speakman water-saving device. In a single shower, used daily, AUTOFLO can save thousands of gallons a year! Lower fuel costs, stretch hot water supplies, reduce overload on waste disposal systems. Works on water pressure alone. Let us show you how AUTOFLO can actually pay for the cost of the shower itself. Available in a wide range of Speakman showers and other plumbing fittings. Get full details by writing.

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amazing new burner never needs adjustment

Janitrol technology makes another giant stride toward heating perfection: *revolutionary new burner delivers ideal gas-air mixture, built-in and permanent, for the ultimate in combustion efficiency.*

Here, for the first time, is a burner that automatically proportions its primary air. No adjustment is needed either at the time of installation or any time during its service life! No air shutters are used. Result? Less time for installation. Consistently better performance. Lower maintenance costs.

The new Janitrol burner, an industry first, was made possible by these outstanding engineering features:

A new "Snap-On" spud is designed to such fine tolerances that it can be installed *only* in exactly the right position for precise centering of the ribbon of intense blue flame in each exchanger tube. This, in turn, eliminates the possibility of flame impingement and damaging hot spots in the exchanger. Precise as it is, the "Snap-On" permits the burner to be removed quickly and easily without using tools of any kind.

Separate burners are used for each exchanger tube. Fabricated of aluminized steel, the burners have integral, parallel, transverse slotted ports. Because of the convex shape of the burner, it does not accumulate debris that might interfere with free flow of the fuel-air mixture at the ports. In effect, the burner is self-cleaning for greater savings in service time.

A new stainless steel cross-lighter is welded to the burner in precisely the correct location for rapid, quiet ignition. Extensive tests have proven ignition to be non-critical at all input adjustments.

At the rare intervals when cleaning of the burners seems desirable, they can be removed quickly and the ports easily cleaned with an ordinary fiber brush.

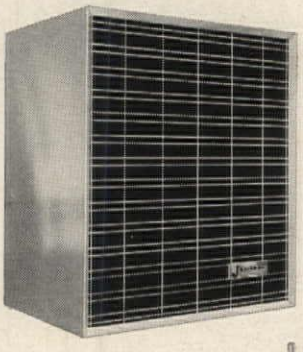
Benefits for both dealer and user are built into this new burner. The dealer saves time by the elimination of service calls caused by faulty primary air adjustment. The user has the satisfaction of knowing that fuel is burned under non-varying, factory-designed conditions to achieve maximum comfort and economy.

This is Janitrol's impressively styled, compact, gas-fired 67-series unit heater, featuring aluminized steel Multi-Thermex heat exchangers. Stainless steel is optional. Installation is fast, requires only connection of gas supply, electricity and outside vent. The 67 Series is available in eleven sizes ranging from 50,000 to 250,000 BTU/hr for added flexibility.

Another application of the new Janitrol burner is in commercial and industrial duct furnaces. Shown here is one of the 72 Series. Available with either aluminized or stainless steel heat exchangers, these furnaces are approved for installation downstream from cooling coils, air washers and evaporative coolers when equipped with Series 09F00 condensate pans. They are designed for easy suspension from ceilings and the hangers are reversible to permit their use as legs for floor installation. These duct furnaces are available in a total of fifteen sizes, ranging in capacity from 50,000 BTU/hr to 600,000 BTU/hr input with natural, mixed, manufactured or LP gas.

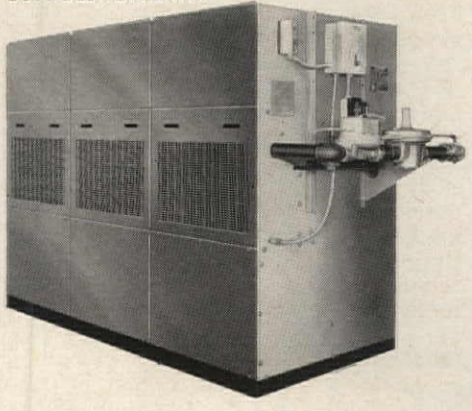
The 82 Series Heavy Duty Units are AGA approved as unit heaters for non-residential heating when equipped with free discharge outlet louvers or with ducts (operation up to 1" W. C. external static.) Series 82 units are equipped with Janitrol's exclusive Multi-Thermex aluminized steel heat exchangers, offering unusual benefits unavailable with conventional construction. Units are designed for maximum quietness of operation. Blower bearings are rubber-cushioned and resilient mounted sleeve bearing motors are available on order. Capacities range from 250,000 BTU/hr to 1,750,000 BTU/hr.

Complete information about any of the world-famous Janitrol products is available from . . .



"67" SERIES UNIT HEATER CABINET

72-300-3 DUCT FURNACE



82-075 TYPE D HEAVY DUTY BLOWER HEATER

JANITROL® HEATING & AIR CONDITIONING

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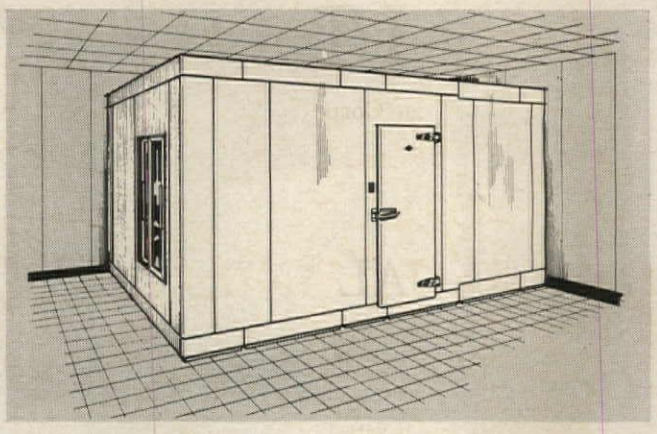

Installation in Out Door Country Club, York, Pa. Specifications prepared by Associated Architects and Engineers, 138 East Market Street, York, Pa.

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Sectional construction! Expandable any time! Costs less than built-ins!*

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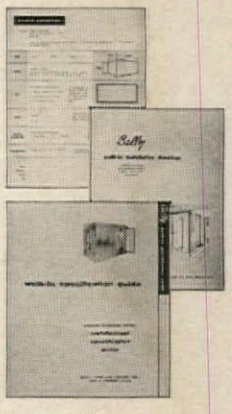
Includes guide for specification writers . . . 16-page Walk-In book . . . portfolio of 48 installation drawings and specifications. Also included is a Walk-In description form to request plans and specifications from Bally engineers for individual installations. **Write on your company letterhead.**



See Sweet's File section 26a/Ba.

*Based on cost scales in Metropolitan areas.

Bally

Bally Case and Cooler, Inc.
Bally, Pennsylvania

ARCHITECTURAL RECORD

Published by F. W. Dodge Corporation. 119 West 40th Street, New York 18.

SEMI-ANNUAL INDEX VOLUME 131 JAN.-JUNE 1962

Readers using the index will find buildings, with only a few exceptions, entered in three ways: by architect's name, by owner's name, and by building type (apartments, hospitals, schools, etc.). Still other categories cover the special subjects dealt with in the magazine's engineering section (concrete, lighting, prefabrication, etc.).

ABBREVIATIONS: BTS—Building Types Study; AE—Architectural Engineering; TSS—Time-Saver Standards; BC—Building Components

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