



ARCHITECTURAL RECORD

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SEMI-ANNUAL INDEX

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CREDITS: Bob's Juvenile Shoe Store, Baton Rouge, La.
 Owner-Operator: Mr. & Mrs. R. J. Baudry, Baton Rouge, La.
 Architect: John A. Bani, A.I.A., Baton Rouge, La.
 Consulting Engineer: Ingram-Barbay, Baton Rouge, La.
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Armstrong CEILING SYSTEMS

For more data, circle #1 on Inquiry Card.

Architectural Engineering



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Arthur A. Houghton Jr. Library, Corning Community College, Corning, New York. Architects: Warner, Burns, Toan and Lunde; photographer: Joseph W. Molitor

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Coming in the Record

NEW TOWN, U.S.A.

In Europe, where the ravages of war pushed the pressures of expanding population farther faster, the experimentation with "new towns"—not suburbs, but self-contained communities—has played a major role in post-World War II planning and housing. In this country, it has only recently developed significant potential for community architecture. The new town of Reston, Va., which will be the subject of a major feature next month, is one of the first of the new towns U.S.A. to near the occupancy stage, and most important not only for its pioneering design concepts but for the fact that it is entirely privately financed.

ARCHITECTURE IN INDUSTRY'S SERVICE

As industry faces the proliferating problems of automation and diversification in an expanding economy, its plant requirements likewise proliferate and so—for all the competitive intruders—do opportunities for architects. Next month's Building Types Study on Industrial Buildings will report on some of the new opportunities and show some of the notable architectural results.

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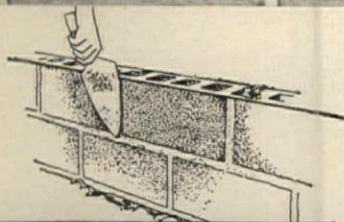
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Why Good Design?

This observer hasn't seemed to have found the time or temerity to visit the New York World's Fair, even though the pursuance of his interests seems to suggest it. He must confess to having sent an emissary to scout the territory and search out any oases or havens. Early reports indicate that there are some nice things that one should see, some worthy of reporting.

It is clear nevertheless that the Fair is something less than a victory for "good design." The early efforts of New York architects to establish the principle of design discipline were a quick and total failure, so the Fair, by intent, became a mammoth competition by exhibitors for the attention of the crowds. Attendance figures are amazingly high, and great queues form at many of the exhibits. Highly automated spectacles are bewitching millions of sightseers. So who wants good design?

Well, one who does, in a different context, is CBS president Frank Stanton. In accepting from The Architectural League of New York the Michael Friedsam Medal, Dr. Stanton put it a little urgently:

"In an age when everyone is seeking to get everyone else's attention, when the demands made upon our senses increase daily in number, in persistence and in complexity, and when a hectic man-made world intrudes more and more upon the orderly and graceful world of nature, respect for superior design seems to me a minimum essential of effective communications and constructive human relationships.

"I do not think that we can be narrow about this or falter by persuading ourselves that good design might matter in some cases but not in others. It is senseless to be concerned about great institutional architecture and then rush tastelessly into the building of offices, stores, factories and laboratories, where we are more continuously served by good design and punished by bad than anywhere else, except possibly our homes. It is witless to preserve carefully the fine artifacts of other times and then surround ourselves with the mis-

shapened and unsightly in our day.

"We all spend our lives in a world of instruments and implements, ranging from buildings to books, from airplanes to appliances, from pianos to pencils. Ugliness, incongruity, distortion, disguise, disproportion—all these can so grate upon the mind and spirit that much of the point and service of the thing designed are lost or warped."

CBS is rather a powerful tastemaker, and it seems hopeful that its president sees where the proliferation of tasteless design is taking us. But the Fair is probably important among the pacesetters in matters of taste—other large fairs have been—and surely it is not leading in the direction of order and grace and serenity.

Of course the Fair is a fair, and glamour and glitter are obviously essential. And what Dr. Stanton was talking about was a living environment. Now I don't suppose that CBS will renounce glamour and glitter, and neither will architects. Through countless eras life has seemed pretty dull to billions of people, and a reasonable indulgence in glamour and glitter seems permissible, however concerned we may be about "good taste."

But it is important to note that fun and games and indulgence sometimes seem to be the total goal of a prosperous and democratic society. "Bad taste" seems to proliferate much faster than "good taste." And the best of taste seems to be contaminated, not refined, as proliferation overwhelms it.

Surely as population and prosperity increase, the demands upon our senses must be restrained by some order and taste. As Dr. Stanton said: ". . . when a hectic man-made world intrudes more and more upon the orderly and graceful world of nature, respect for superior design seems a minimum essential . . ."

And it may not be amiss for the designer to remind himself that he is an important generator in this hectic man-made world. If he should be moved toward a little campaign for restraint, he will know where to begin it.

—Emerson Goble

AIR ACADEMY CHAPEL GETS REYNOLDS AWARD



Stewarts Commercial Photographers, Inc.

The firm of Skidmore, Owings & Merrill will receive the 1964 R. S. Reynolds Memorial Award at the American Institute of Architects Convention in St. Louis for their design of the U.S. Air Force Academy Chapel in Colorado Springs, Colorado (December 1962, pages 85-92). Partner in charge and designer was Walter A. Netsch Jr., of the firm's Chicago office. The jury of architects, selected by the A.I.A., unanimously agreed that the chapel successfully met both criteria for the eighth annual \$25,000 award—a "distinguished achievement in architecture with significant use of aluminum."

The jury especially commended the expressive way in which the chapel's design meets the "challenging problem" of a religious structure for our times: "The light, airy feeling of this beautiful soaring structure, so appropriately placed in the center of a complex of related buildings, is uniquely appropriate to this very special problem of a chapel for the United States Air Force Academy."

The jury consisted of: Hans Maurer, B.D.A., chairman and last year's winner of the award; George F. Pierce Jr., F.A.I.A.; Robert M. Little, F.A.I.A.; and Dahlen Ritchey, A.I.A. A fifth juror, Mario Ciampi, F.A.I.A., was unable to attend the jury review due to illness.

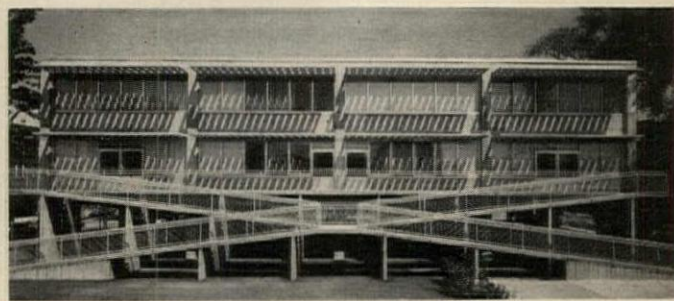
CHICAGO AWARDS HONOR TWO BUILDINGS



Bill Engdahl, Hedrich-Blessing

On the basis of "architectural design, craftsmanship and construction," two Honor Awards (see photos) and 11 Citations of Merit were given to Chicago area buildings in the 10th Annual Honor Awards program of the Chicago Association of Commerce and Industry and the Chicago Chapter, American Institute of Architects.

Members of the jury were: Winston Elting, F.A.I.A., chairman; Harry Weese, F.A.I.A.; G. Kidder Smith, F.A.I.A.; Paul Goodrich, president, Chicago Title and Trust Co. (representing the Chicago Association of Commerce and Industry); and Lyndon H. Lesch, vice-president, L. J. Sheridan Co. (also representing the Association).

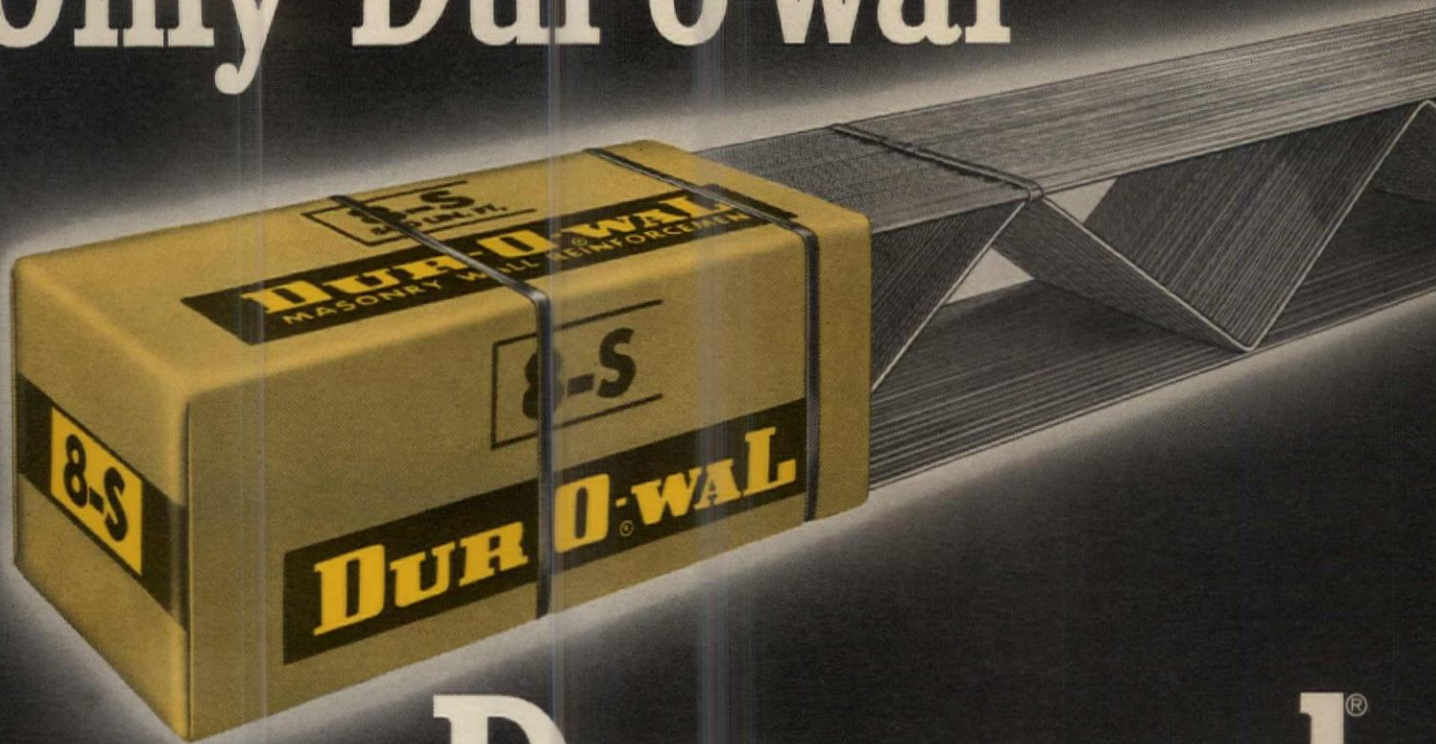


Hube Henry, Hedrich-Blessing

Above: Chicago Child Care Society Building. Architects: George Fred Keck and William Keck; builder: R. C. Wieboldt Co. It "was commended for its honest and unselfconscious suitability to purpose . . . appropriate to its program and to its child users. It is a permanent building yet modest in budget"

Left: Continental Casualty and Assurance Co. Building. Architects: C. F. Murphy Associates; builder: A. L. Jackson Co. Jury comment: ". . . probably the finest commercial office building of recent years. It is commended for its structural expression, sober mien, scale and detail. It is masculine, dignified and belongs to Chicago"

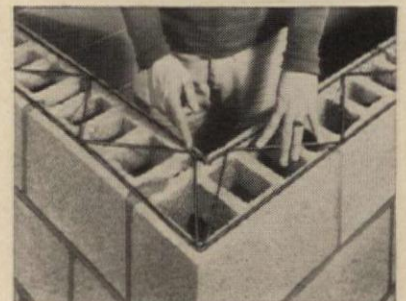
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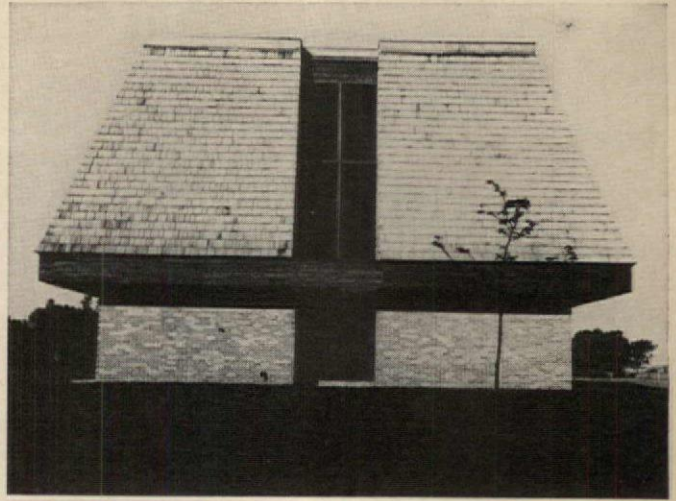
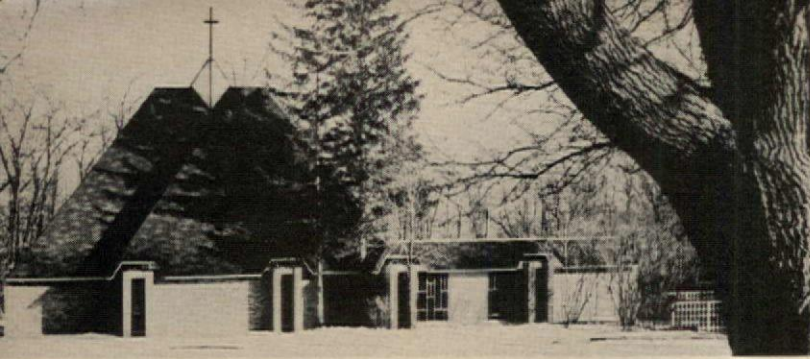
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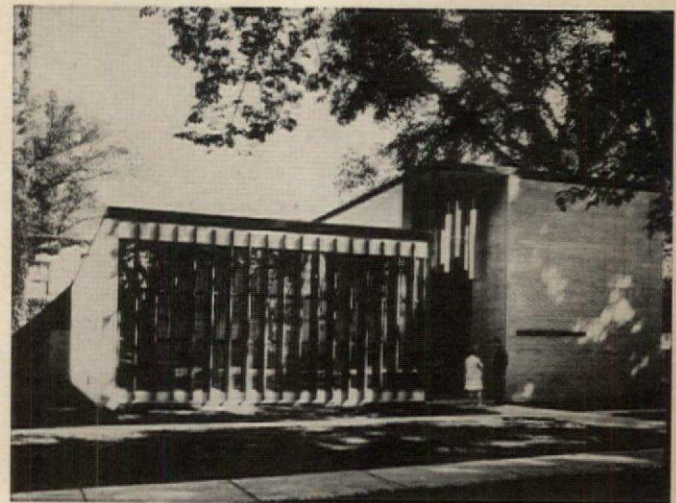
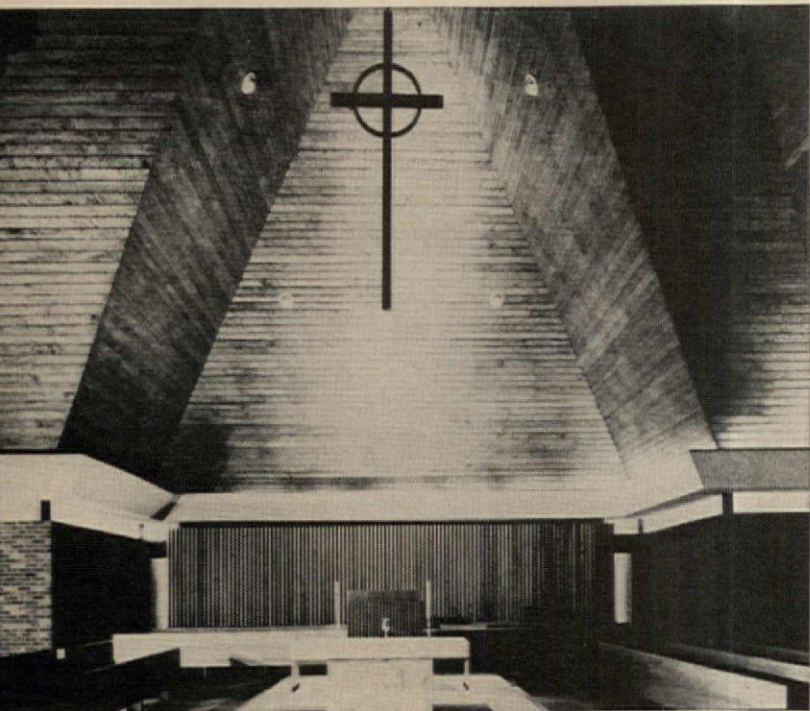
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St. Paul Presbyterian Church, Johnstown, Iowa
Architects: Charles Herbert and Associates
Built in 1963



Parish house, Central Park Presbyterian Church
Cedar Rapids, Iowa
Architects: Kohlmann, Eckman and Hukill
Built in 1962-63

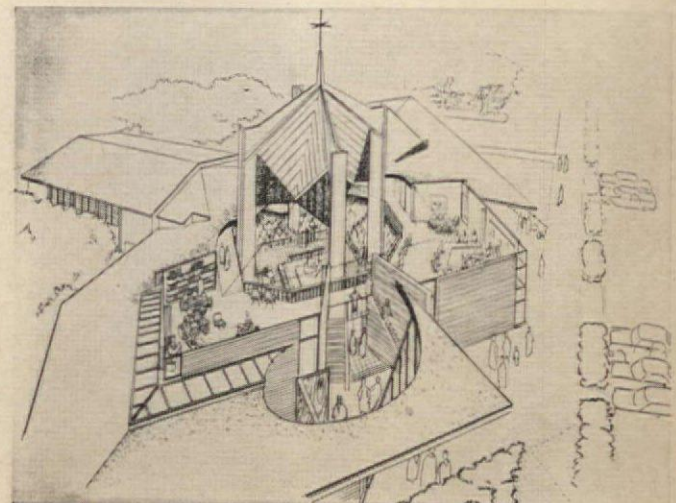
TOP AWARD WINNER
University Presbyterian Church, Rochester, Mich.
Architects: Linn Smith Associates
Built in 1963

NATIONAL PROGRAM HONORS TEN CHURCHES WITH DESIGN AWARDS

Ten churches were singled out for distinction at the 25th National Conference on Church Architecture, held April 7-9 in Dallas, Tex., under the joint sponsorship of the Church Architectural Guild of America and the Department of Church Building and Architecture of the National Council of Churches.

A jury of Protestant church leaders and architects unanimously selected the University Presbyterian Church in Rochester, Mich. as the best design of the 116 that were exhibited. Rev. Edward S. Frey, chairman of the jury, stated that the awards were made "in recognition of total design, including special features."

On the jury were: Rev. Edward S. Frey of New York City, chairman and executive director, Commission on Church Architecture, Lutheran Church in America; Herbert Powell, F.A.I.A., San Marino, Calif.; Theodore Criley, A.I.A., Claremont, Calif.; John E. Stafford, A.I.A., Eugene, Ore.; and Dr. James F. White, Assistant Professor of Worship, Perkins School of Theology, Southern Methodist University, Dallas.



Design for St. Christopher's Episcopal Church, Lanham, Md.
Architect: W. Kent Cooper



Westwood Lutheran Church, St. Louis Park, Minn.
Architects: Sovik, Mathre and Madson
Built in 1963



Education building of the First Baptist Church, Pomona, Calif.
Architect: Everett L. Tozier
Built in 1963-64



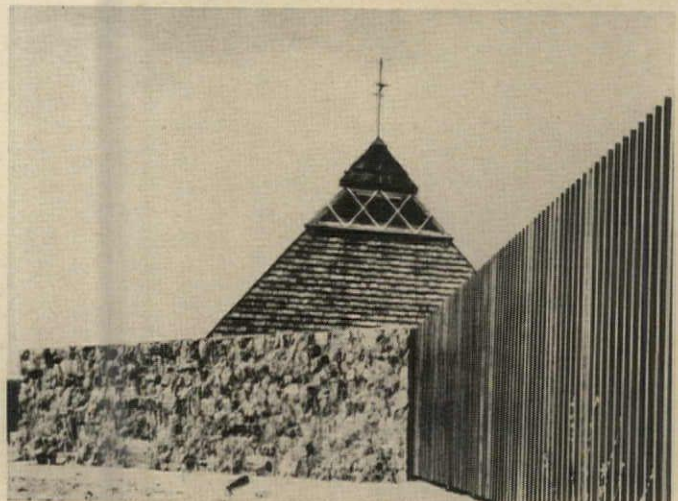
Church of the Holy Spirit, Vashon Island, Wash.
Architects: Durham, Anderson and Reed
Built in 1963



Church of St. Michael and All Angels, Dallas, Tex.
Architects: Harwood K. Smith and Partners
Built in 1961



Hope Lutheran Church, Paradise Valley, Calif.
Architects: Maul and Pulver
Built in 1963



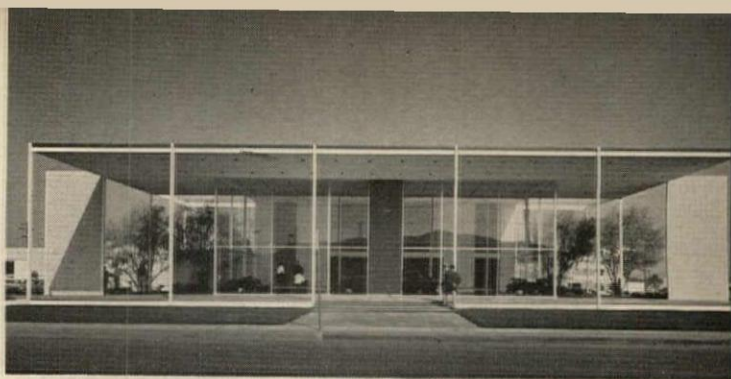
All Saints Lutheran Church, Livonia, Mich.
Architects: Roy D. Murphy and Associates
Built in 1961

CALIFORNIA BUILDINGS RECEIVE HONOR AWARDS

Out of nearly 100 entries, 11 buildings were chosen to merit Honor Awards in the 1963 Triennial Honor Awards program sponsored by the Southern California Chapter of the American Institute of Architects.

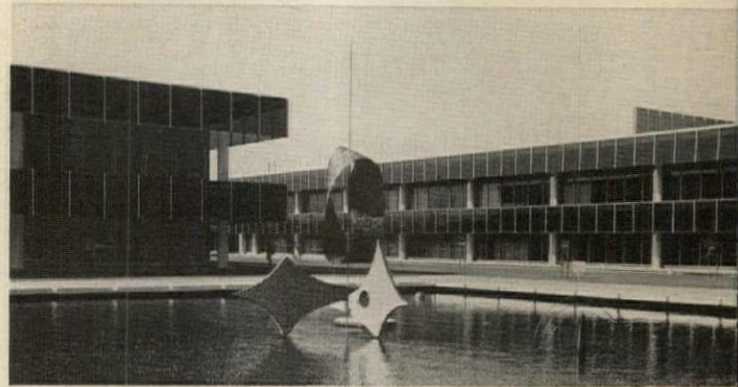
Limited in its choice to projects completed subsequent to January 1958 in the Southern California area and designed by a member of the Southern California Chapter, a five-member international jury nominated 26 entries for award. From this group, a local jury, composed of previous award-winners, selected the outstanding 11 projects. The remaining 15 were included in the Triennial Exhibition.

The international jury consisted of: Sir Basil Spence, London; Otto Glaus, Zurich; Felix Candela, Mexico City; Harry Weese, Chicago; and Ernest Kump, Palo Alto. On the local chapter jury were: David Witmer, F.A.I.A.; Henry Withey, F.A.I.A.; W. L. Risley, F.A.I.A.; Wallace Neff, F.A.I.A.; Ralph C. Flewelling, F.A.I.A.; Graham Latta, A.I.A.; Herbert Powell, F.A.I.A.; Samuel Lunden, F.A.I.A.; Paul Williams, F.A.I.A.; Robert Alexander, F.A.I.A.; Kenneth Johnson, A.I.A.; Henry Eggers, F.A.I.A.; Thornton Abell, A.I.A.; Alfred Chaix, A.I.A.; Ralph Water Johnson, A.I.A.; George Allison, F.A.I.A.; Clinton Ternstrom, A.I.A.; Robert Mayer, A.I.A.; John Lautner, A.I.A.; Walter Reichardt, A.I.A.; John C. Lindsay, A.I.A.; Hugh Gibbs, A.I.A.; Raymond Kappe, A.I.A.; Howard Morgridge, A.I.A.; and Maynard Lyndon, F.A.I.A., Awards Program Chairman.



Julius Shulman

Duffield Lincoln-Mercury Agency, Long Beach. Architects: Killingsworth, Brady, Smith & Associates; contractor: Millie & Severson; owner: Duffield Lincoln-Mercury Agency

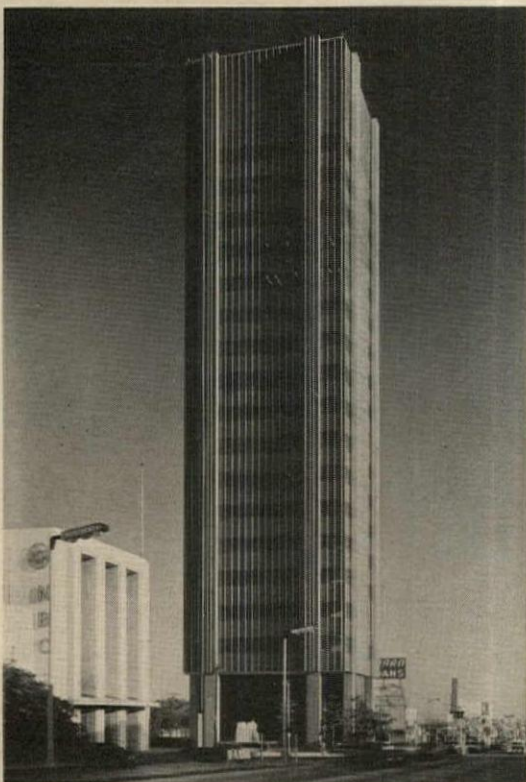


Space Technology Laboratories, Inc., Redondo Beach. Architects: Albert C. Martin and Associates; contractor: Twaits-Wittenberg; owner: Space Technology Laboratories, Inc.



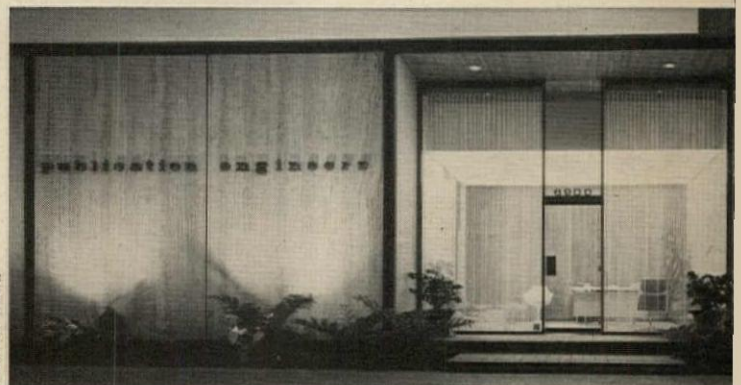
Julius Shulman

Hunt Foods & Industries, Inc., Fullerton. Architects: William L. Pereira & Associates; contractor: Lindgren and Swinerton, Inc.; owner: Hunt Foods & Industries, Inc.



Jack Lazer

Sunset-Vine Tower Office Building, Hollywood. Architects: Honnold and Rex, Architects and Associates; contractor: Integrated, Inc.; owner: Los Angeles Federal Savings and Loan



Marvin Rand

Publication Engineers Building. Architect: Daniel L. Dworsky; contractor: A. L. Miller Construction Co.; owner: Charles Gutentag

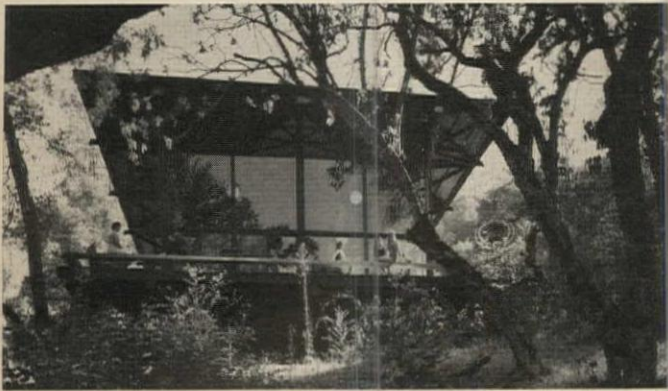


Residence of Mr. and Mrs. Carl Maston. Architect: Carl Maston; contractor: E. W. Hahn, Inc.; owner: Mr. and Mrs. Carl Maston



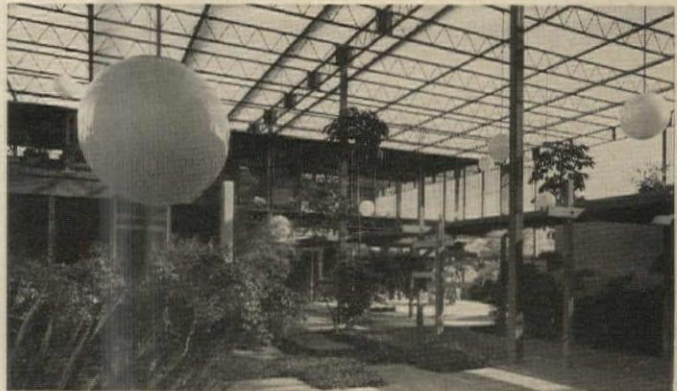
Jack Lazer

Saint John's Seminary College, Camarillo. Architects: Albert C. Martin and Associates; contractor: Fred E. Potts Company; owner: Archdiocese of Los Angeles



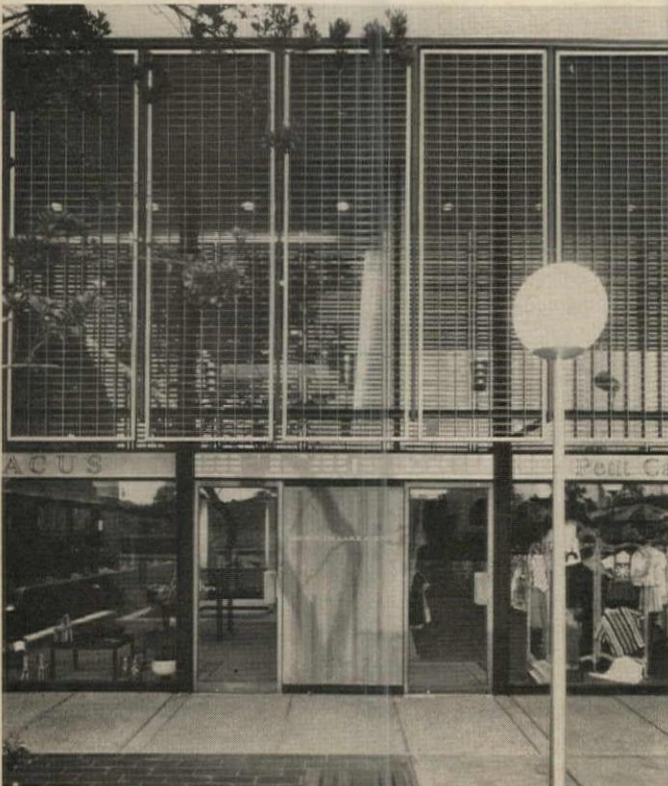
Leland Y. Lee

Wyle Ranch, North Fork. Architects: Honnold & Rex, Architects & Associates; contractor: Mr. Frank Wyle; owner: Mr. Frank Wyle



Marvin Rand

Office Building, South Pasadena. Architects: Whitney R. Smith and Wayne Williams; contractor: Ted Tyler; owner: Whitney R. Smith and Wayne Williams

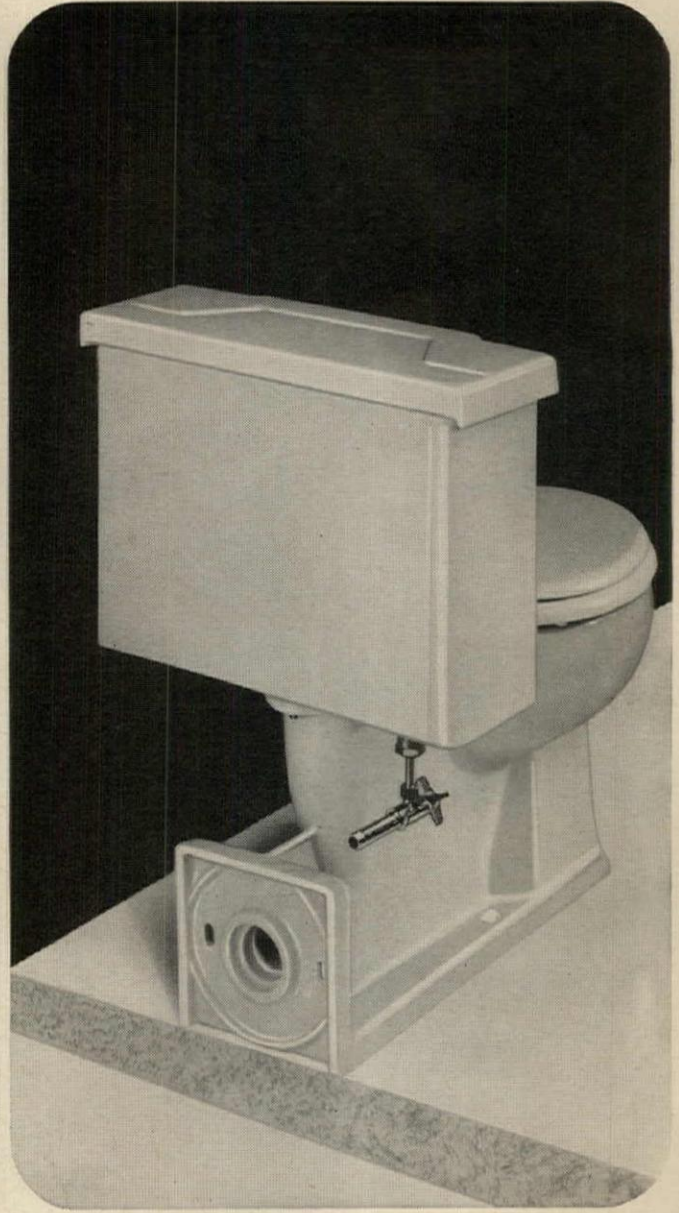


230 South Lake Avenue Building, Pasadena. Architects: James G. Pulliam, Bernard Zimmerman, & M. J. Matthews; contractor: Ted Tyler; owner: H. W. Adams



Judith Shulman

Case Study House No. 25 for Arts and Architecture Magazine. Architects: Killingsworth, Brady, Smith & Associates; contractor: Stromberg and Son; owner: Mr. Edward Frank



Above the floor roughing in... new slab construction economy from Kohler

Kohler now offers a new modification of the well-known Dynametric bathtub and a new closet, the Barlow, especially designed for installation in slab construction and many high-rise buildings. Both fixtures eliminate sleeving and channeling in concrete slabs. There is reduction in labor time and costs. In addition, the installation and the cost of false ceilings to cover pipes is no longer necessary.

The bottom of the Dynametric tub has been raised $2\frac{3}{4}$ inches to provide room for the horizontal drain without altering the appearance or comfort of the tub. The Barlow closet is designed for concealment of the drain, which enters the wall 4 inches above floor level. For complete information on the Dynametric and Barlow see your Kohler Distributor, or write, Kohler Co., Kohler, Wis.

KOHLER OF KOHLER

Kohler Co., Established 1873, Kohler, Wisconsin

ENAMELED IRON AND VITREOUS CHINA PLUMBING FIXTURES • ALL-BRASS FITTINGS ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROLS

For more data, circle 6 on Inquiry Card

A LIGHTING DESIGN IDEA THAT CAN HALVE FIXTURE COSTS

in many Institutional and Commercial Structures

ONE 1000 Watt BULB GIVES MORE LIGHT THAN TWO 500 Watt BULBS . . .

23,000 lumens compared with 21,500 lumens. Even distribution of this additional light is assured by Kirlin wide angle lens and GlasSurfaced reflector.

ONE 1000W FIXTURE* CAN BE INSTALLED FOR LESS THAN TWO 500W FIXTURES . . .

One-half as much for the labor*; and not to be overlooked is one-half the maintenance cost for the life of the building!

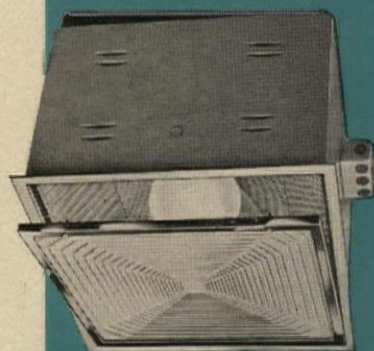
ONE 1000W KIRLIN FIXTURE COSTS LESS THAN TWO 500W KIRLINS . . .

One @ \$72.25 compared with two @ \$65.68 each (\$131.36) retail.

Lighting ideas that hold down construction costs can be expected from Kirlin; the contribution of such cost-reducing ideas is one way a leader achieves the right to first place in his industry. Another way, and one usually necessary to make the ideas practical, is the engineering and manufacturing of "quality" products with their inherent values as found in all Kirlin fixtures.

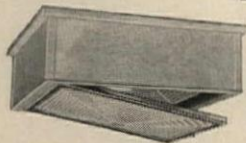
KIRLIN

BUILT-IN
Lighting
FIXTURES



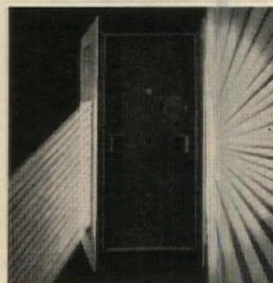
* This is Kirlin #1218 square recessed fixture; at 1000W (90°C supply wire) designed for fire-resistant construction; at 750W (90°C supply wire) and at 500W, and 400W mercury vapor lamps (60°C supply wire) suitable for all types of construction. Installs easily in mechanical and plaster ceilings. Size: 19" square by 13" deep.

—other cost-reducing ideas from the Kirlin Catalog



SURFACE MOUNTED FIXTURES

have all basic advantages of Kirlin recessed fixtures including GlasSurfaced reflectors and large selection of lenses. Aluminum housings for all weather exposures on 60W to 300W. Baked white enamel finish. Cat. #1208SUR to 200W; #1211SUR to 300W; #1218SUR to 600W.



DOUBLE-FACED THRU-THE-WALL FIXTURE

often saves the cost of an extra fixture. It is much used in hospitals with louvered-door one side for subdued room or ward lighting and with wide angle lens other side for off-hour corridor lighting; also in motels for outside passage lighting (with room number) and subdued louver lighting inside; room and bath lighting; room and closet lighting; etc. Catalog #508 2way.



COMPLETE EXIT LINE

Kirlin recessed, all aluminum surface and pendant mountings; fluorescent and incandescent; wide choice of glass with ceramic-fired colors. Maintenance-saving, Kirlin quality construction. (Also 100 year maintenance-free models.)

OVER 500 DIFFERENT MODELS IN STOCK FOR IMMEDIATE SHIPMENT

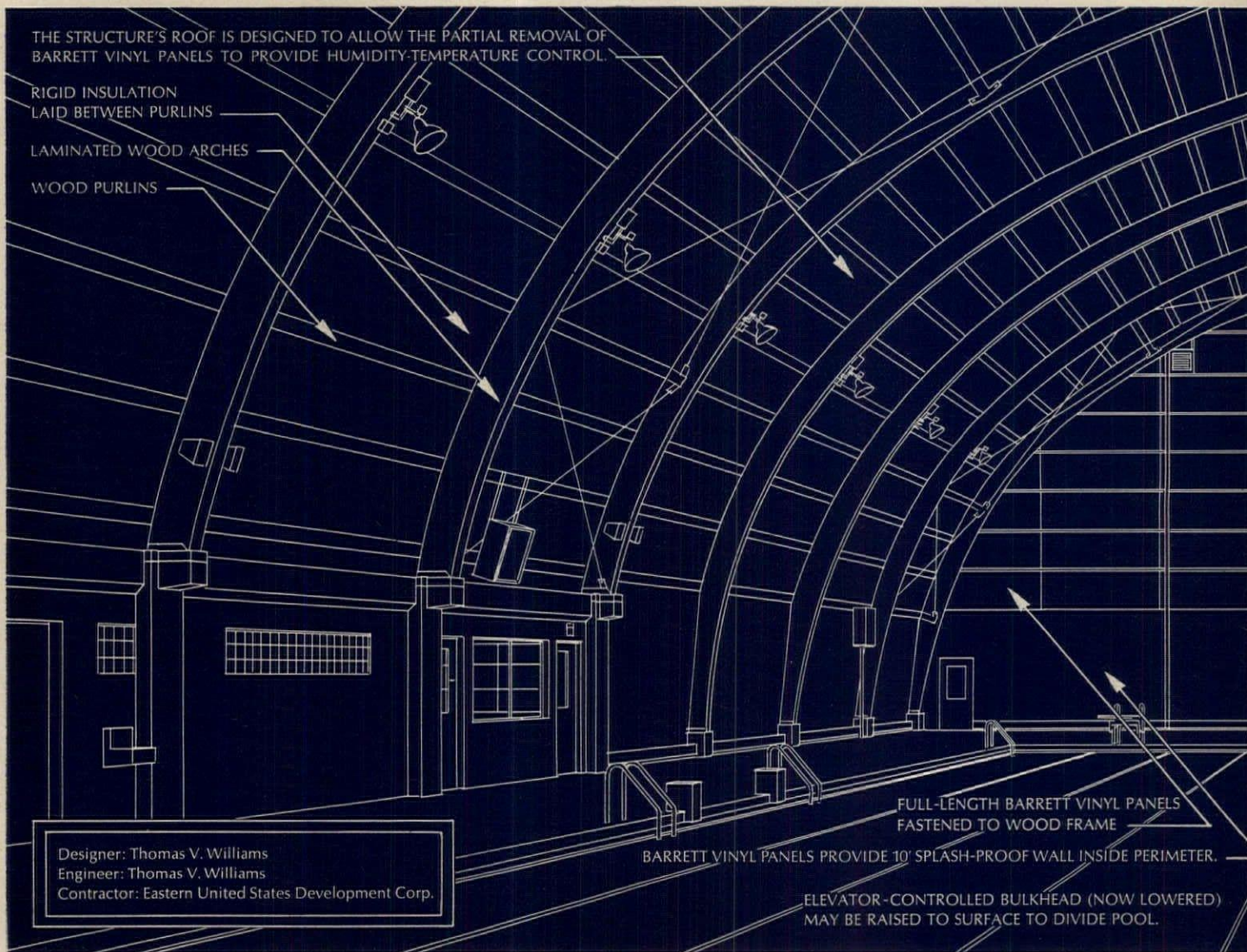
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PHONE: 313 567-1500

For more data, circle 7 on Inquiry Card

Barrett...exciting new building materials from chemistry



Strong Barrett Vinyl Panels bathe a pool with color and softly diffused light!

Problem: design a functional roof that combines strength and color while admitting softly diffused light. Answer: specify Barrett Vinyl Building Panels, the versatile material from Barrett that is adding new dimensions to architectural design.

The owner of the immense Philadelphia Aquatic School chose Barrett panels to enclose the olympic-size pool for year-round swimming. 40,000 sq. ft. of alternating sections of translucent blue and opaque white Greca ribbed Barrett panels were used to provide sturdy yet dramatic roof and sides. This combination admits the pleasant warmth of outdoor light while controlling excessive summer heat.

Barrett panels are immune to most chemical reagents and bacterial degradation. They withstand high winds, rain and snow and are highly resistant to weathering, sunlight and salt air.

Barrett Vinyl Building Panels, as well as many other exciting products from chemistry, can open up new areas of architectural concept and design for your future projects. Ask your Barrett representative for more information, or write the Barrett Division, Allied Chemical Corporation, Department AR 3, 40 Rector Street, New York, New York 10006.



Three 48' sections of flexible 8 oz. Barrett Vinyl Panels were used to make each complete arch over the Philadelphia Aquatic School. This structure is 90' x 197' x 46' 6" high. Exterior steel cables anchor vinyl panels to building's frame.



For more data, circle 8 on Inquiry Card

1964 BRUNNER PRIZE AWARDED TO HARRY WEESE



The Arnold W. Brunner Memorial Prize in Architecture was awarded by the National Institute of Arts and Letters this year to Harry Weese. The citation and \$1,000 award was presented to Mr. Weese on May 20th at the Joint Annual Ceremonial of

the National Institute and the American Academy of Arts and Letters for the "promise" he has shown in "contributing to architecture as an art."

Mr. Weese joins a list of former winners which includes Gordon Bunshaft, John Yeon, John Carl Warnecke, Paul Rudolph, Edward Larabee Barnes, Louis I. Kahn, I. M. Pei, Ulrich Franzen, and, last year's winner, Edward Charles Bassett.

Harry Weese, who now practices in Chicago, was educated at M.I.T., where he received his degree in architecture in 1938. He continued his studies at Yale University and at Cranbrook Academy, where he held a Fellowship in City Planning under Eliel Saarinen. Before establishing

his own practice in 1947, he worked for several years as a designer in the Chicago office of Skidmore, Owings & Merrill.

Among his most important works are the U.S. Embassy and apartments in Accra, Ghana; Arena Stage, Washington, D.C.; and the St. Thomas Episcopal Church in Menasha, Wis. A 16-page feature in the May, 1963 issue of the Record (pages 127-142) presented some of his more recent designs, including the First Baptist Church, Columbus, Ind.; Center for the Visually Handicapped, Chicago; Residence Halls for Cornell College, Mt. Vernon, Iowa; and the Reed College Arts Center, Portland, Ore.; and the Beloit College Science Building, Beloit, Wis.

BREGER GROUP WINS ALLEGHENY COMPETITION

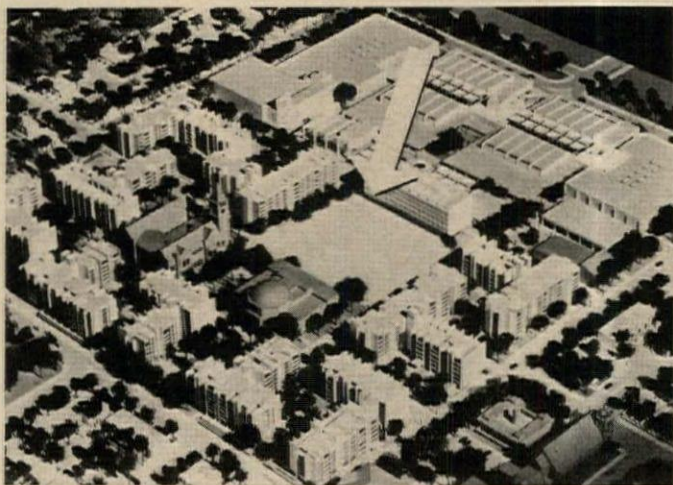
That only one design scheme out of 305 submitted in an international competition for the Allegheny Public Square in Pittsburgh was deemed worthy of an award might perhaps be taken as an oblique indictment of the present state of design for urban renewal projects. In selecting the project of a team headed by William Breger, Chairman of the Department of Architectural Design at Pratt Institute, the seven-member jury decided to eliminate a second stage of

judging, stating that "perhaps architects and designers are yet not able to formulate clear design goals necessary for good urban design."

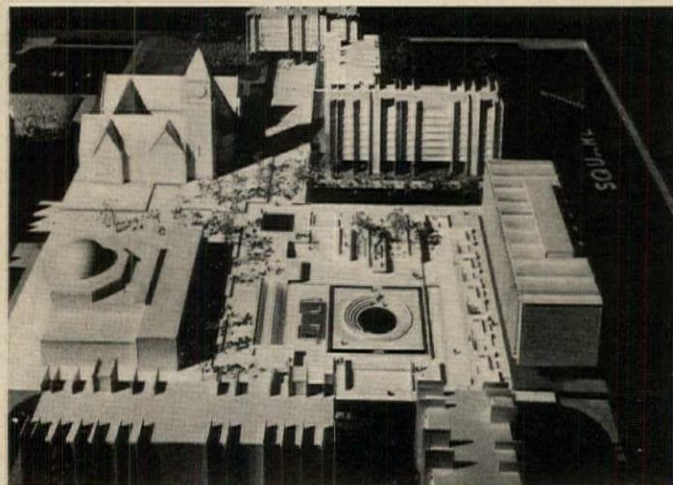
Mr. Breger, assisted by two senior students at Pratt, James Terjesen and Warren Winter, has been designated to receive the commission in addition to being awarded a \$5,000 prize. The winning scheme will become the nucleus of a 79-acre, \$85 million Allegheny Center renewal project—a three-acre public square

to be a transitional area between new residential and commercial areas.

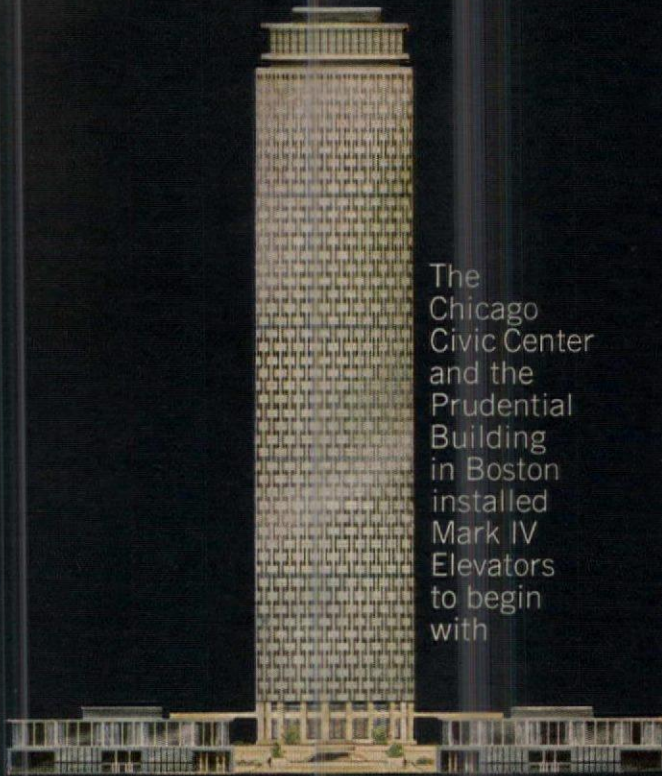
As to the final outcome, the jury, which included five professional members—Hideo Sasaki, Dahlen K. Ritchey, Gordon Bunshaft, John B. Parkin and Hector Mestre—and two non-professionals—H. J. Heinz and Adolph W. Schmidt—stated that whether "a public square can synthesize again a community spirit of civic well being . . . will have to await the test of time."



Above is the total design concept for Allegheny Center as prepared by architects Deeter & Ritchey. Ground will be broken in early June for the first phase, and work on the public square (arrow) will be undertaken by the Urban Redevelopment Authority of Pittsburgh in late 1965 or early 1966

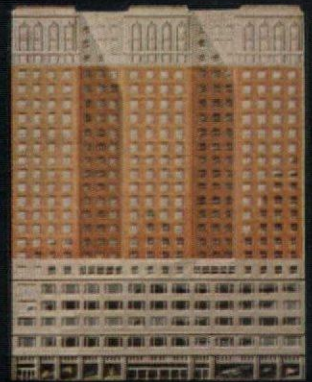


The winning design for Allegheny Public Square bounded on the left by two buildings to be preserved—Buhl Planetarium and Carnegie Library. The jury complimented the "urban quality of the paved plaza" as "simple in concept" and "a receptive place where groups and individuals may gather"



The
Chicago
Civic Center
and the
Prudential
Building
in Boston
installed
Mark IV
Elevators
to begin
with

Rockefeller
Center's
Sinclair Oil
Building
and
Chicago's
Palmer House
picked
Mark IV
Elevators
to modernize
with

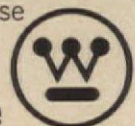


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faster than the most efficient previous system and all floors get substantially equal service. How do building owners rate Mark IV's? They've installed or scheduled them for 162 buildings in the three years they've been available. And all Mark IV's can be kept as efficient as the day they were installed, with skilled Westinghouse maintenance. Why not find out what Mark IV's can do for your building?

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So we question specs. And if we can do better by you, we tell you.

We might warn you to get a tougher carpet if you don't want to be in trouble.

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Now if you still want us to stick to your original specs, okay.

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Sometimes we get specifications that we refuse to follow as they are.

If we did, we'd have to skimp. Or make up a "bar-

gain" carpet. Or an unrealistic carpet. Or a carpet that will look good for a month and die on the floor in a year.

We won't.

We won't sacrifice quality.

We won't make a carpet that isn't right.

But it's not altruism.

If we gave you a second-rate carpet and you got stuck with it, would you come back for more?

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—Drawn for the RECORD by Alan Dunn

“Yamasaki may have started something but you certainly finished it!”

A.I.A. NAMES 59 FOR RANK OF FELLOWSHIP

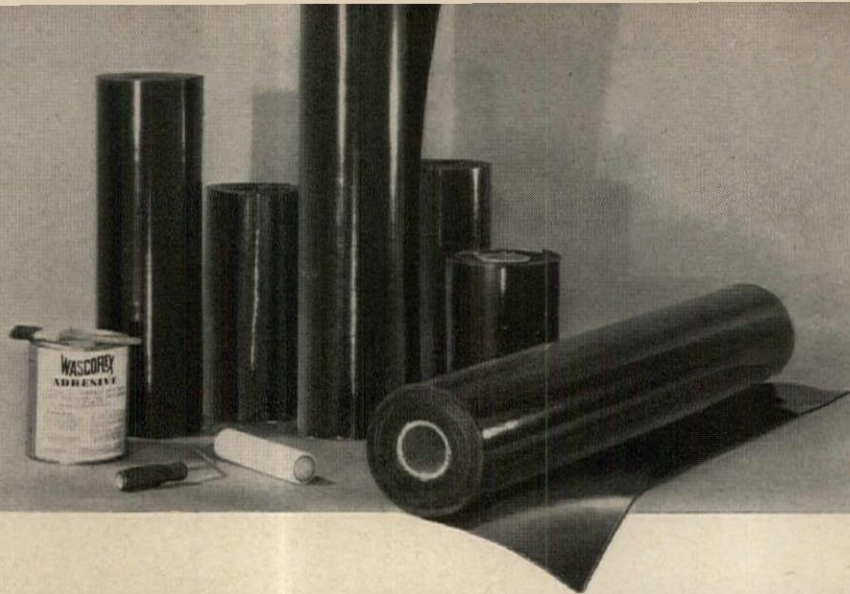
The American Institute of Architects will advance 59 of its members to the rank of Fellow at its 1964 convention this month (June 14-18) in St. Louis. Twenty-four more than last year will receive the honor, among the many others to be conferred, this year.

Selection was made by a seven-member Jury of Fellows: Harold T. Spitznagel, Sioux Falls, S. D., chairman; George B. Allison, Los Angeles; Walter E. Campbell, Boston; Arthur Q. Davis, New Orleans; Samuel E. Homsey, Wilmington, Del.; Alfred Shaw, Chicago; and Linn Smith, Birmingham, Michigan.

Thornton M. Abell, Los Angeles—Design
 Alfred L. Aydelott, Memphis—Design
 William J. Bachman, Hammond, Ind.—Service to the Profession and Public Service
 Herbert Baumer, Columbus, Ohio—Education
 Wallace C. Bonsall, Pasadena—Service to the Profession and Education
 Erdman Walter Burkhardt, Auburn, Ala.—Education
 Robert G. Cerny, Minneapolis—Design and Education
 Alfred V. Chaix, Los Angeles—Design
 James Allan Clark, Lexington, Ky.—Service to the Profession
 Robert Lee Clemmer, Hickory, N.C.—Service to the Profession
 C. Herbert Cowell, Houston—Design and Service to the Profession
 William Plummer Cox, Memphis—Service to the Profession

Vernon DeMars, Berkeley, Calif.—Design
 Charles DuBose, Hartford, Conn.—Design
 William W. Eshbach, Philadelphia—Design and Service to the Profession
 John Joseph Flad, Madison, Wis.—Service to the Profession
 Norman C. Fletcher, Cambridge, Mass.—Design
 Paul Auguste Goettlmann, Washington, D.C.—Education
 John M. Gray, Boston—Service to the Profession
 George Johann Hasslein, San Luis Obispo, Calif.—Education
 Ludwig Karl Hilberseimer, Chicago—Education and Literature
 Samuel T. Hurst, Los Angeles—Education and Service to the Profession
 Paul Frank Jernegan, Mishawaka, Ind.—Service to the Profession and Public Service
 Eino A. Jyring, Hibbing, Minn.—Public Service
 Arthur Hawkins Keyes Jr., Washington, D.C.—Design
 Robert S. Kitchen, San Francisco—Design
 Henry Klumb, San Juan, P.R.—Service to the Profession
 A. Lewis Koue, Oakland, Calif.—Service to the Profession and Public Service
 Jean Labatut, Princeton, N.J.—Education
 John William Lawrence, Metairie, La.—Design
 Herman Charles Light, Los Angeles—Service to the Profession
 William G. Lyles, Columbia, S.C.—Service to the Profession
 Eugene Joseph Mackey, St. Louis—Design
 Sherman Morss, Boston—Public Service
 Charles F. Murphy, Chicago—Public Service
 John Thomas Murphy, Kansas City, Mo.—

Service to the Profession and Public Service
 William Muschenheim, Ann Arbor, Mich.—Education
 Ralph Elbert Myers, Kansas City, Mo.—Design
 Joseph Russell Passonneau, St. Louis—Education
 Ieoh Ming Pei, New York City—Design
 Earl William Pellerin, Southfield, Mich.—Design and Education
 Theodore Jan Prichard, Moscow, Idaho—Education
 John Erwin Ramsay, Salisbury, N.C.—Service to the Profession
 Louis Gordon Redstone, Detroit—Service to the Profession and Public Service
 Norman N. Rice, Philadelphia—Service to the Profession
 Harry Eugene Rodman, Troy, N.Y.—Education
 Frederick G. Roth, Philadelphia—Design
 Maurice E. H. Rotival, Woodstock, Conn.—Design
 Arthur A. Schiller, New York City—Service to the Profession and Public Service
 Francis B. Sellew, Boston—Design and Service to the Profession
 Esmond Shaw, New York City—Education
 Eric Wilburn Smith Jr., Clayton, Mo.—Design
 Lester W. Smith, Stamford, Conn.—Design
 Carl Albert Strauss, Cincinnati—Design
 William Laurens Van Alen, Philadelphia—Public Service
 Hari Van Hoefen, Ladue, Mo.—Service to the Profession
 Garrett Van Pelt, Montecito, Calif.—Design
 Frederick Penn Weaver Jr., Phoenix—Public Service
 Wayne Williams, South Pasadena, Calif.—Design and Literature



THIS IS NEW WASCOFLEX[®]

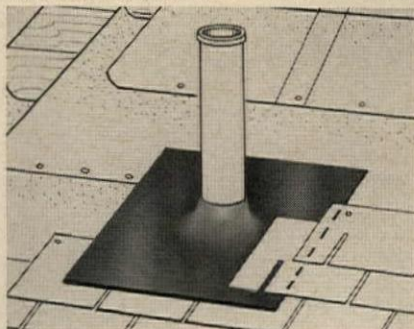
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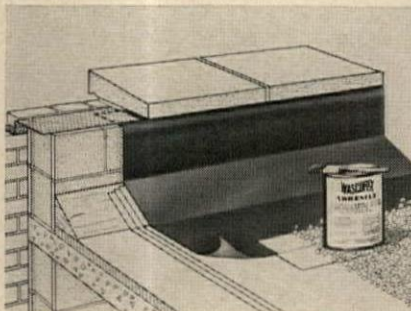
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*ASTM Method E-42-57 Type E, Fed-Test Standard 601 Method 4111



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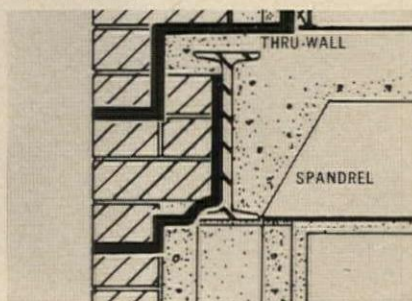
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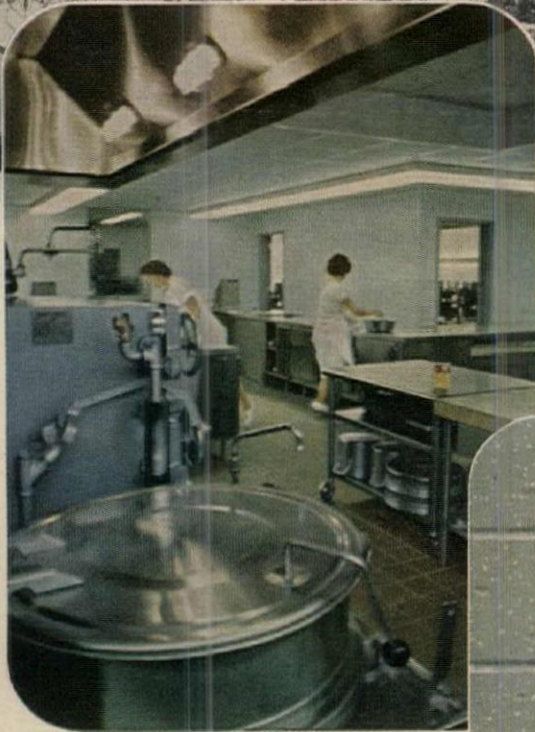
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Concealed flashing



Turn of River Junior High School, Stamford, Conn.; Architects: Sherwood, Mills & Smith, Stamford, Conn.; General Contractor: George L. Hickey, Inc., Stamford, Conn.; Painting Contractor: David H. MacKenzie, Inc., Bridgeport, Conn.



**DEVOE Tru-Glaze
wins academic approval
for combining color excellence
with maintenance superiority**

There's one thing sure about a junior high school: it takes quite a beating from kids. The professionals who planned this new school understood this. They also understood that color choice is important for student comfort as well as for beauty. The use of Devoe Tru-Glaze reflects this knowledge.

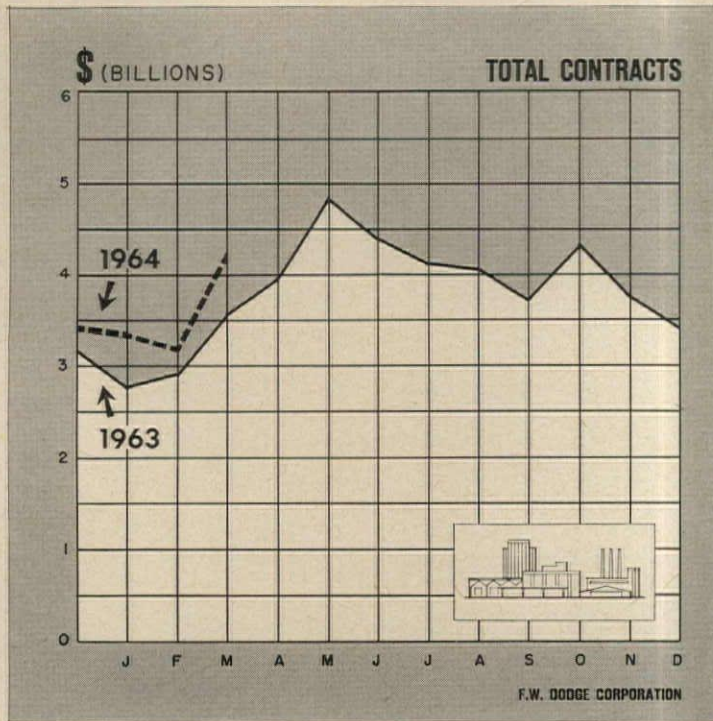
Tru-Glaze gives a tile-like surface at nothing like the cost of tile. It's a permanent, vitreous-glazed surfacing system, including a waterproof filler coat, that makes it ideal for use on masonry. It was applied in the kitchen, dishwashing room, washrooms and corridors — areas that tell you it takes rough going. (Other Devoe finishes used were Wonder-Tones and Blox-Fil—it's a Devoe job *completely!*)

The *Man from Devoe* assisted in all the product and color planning. This is just part of his total service. He also supplies data on paint performance and costs, weather resistance, light reflectivity and special formulations. Call in the *Man from Devoe* on your next project to save you time and money. There's no cost or obligation. Just phone or write the nearest Devoe office.

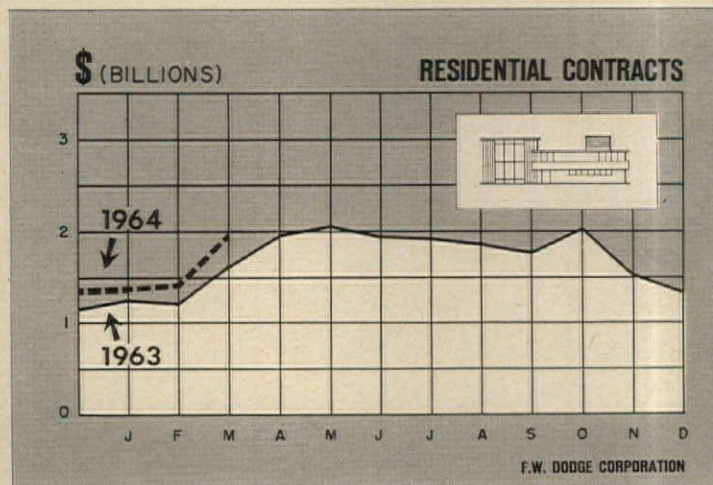
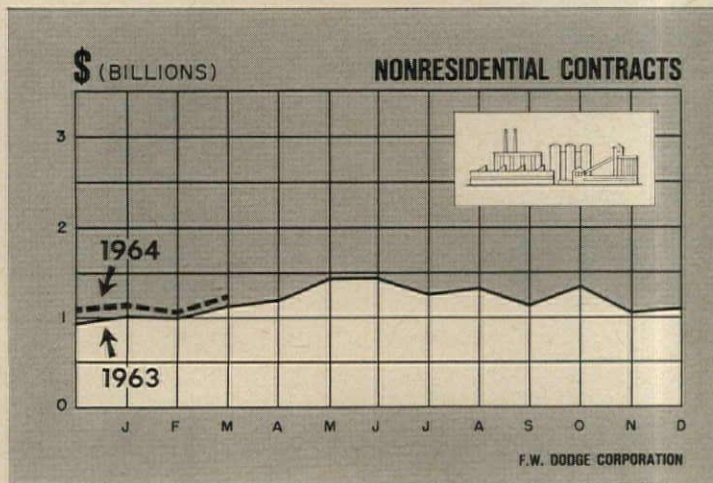


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Total contracts include residential, nonresidential and non-building contracts



STORE BUILDING: FASTER GROWTH THIS YEAR?

1963 was another year of slow, but steady growth in the volume of store building. Contract value increased 4 per cent from 1962's total to a record level of more than \$2.1 billion. From 1961 to 1962, contract volume rose almost 3 per cent. This year, store building activity has perked up: in the first quarter, contract value was 10 per cent higher than it was in the first quarter of 1963. And there are some reasons why store construction should show continued strength and post a bigger gain in 1964 than it has in the past few years.

First of all, store construction has some catching up to do. Over the past decade there has been a close relationship between the value of store contracts and the value of residential contracts. This isn't surprising because as new housing units go up, the new home owners and apartment dwellers need local retail outlets where they can shop conveniently. Retailers recognize that housing developments represent good markets, so they follow their customers and open new stores. To point up how close the relationship between the volume of store and residential construction has been, store contract value as a percentage of residential contract value stayed between 10.4 and 12.4 per cent from 1953-63 with only 1955 as an exception (13.5 per cent).

Since 1961, however, residential building has been growing more rapidly than store construction. Residential contract value jumped 27 per cent from 1961 to 1963, while store contract value was up only 7 per cent; and the ratio between store and residential contracts dropped from 12.4 per cent to 10.4 per cent. Store construction has been lagging behind homebuilding during the last few years. And 1964 is expected to be another good year for residential construction. As a result, the demand for retail outlets should swell this year, and first quarter figures may be signaling this.

Another plus factor is retail sales which, in the first quarter, were 4 per cent higher than in the comparable period of 1963. Some people have been disappointed with the performance of this series because the heralded tax cut law (which affected take-home pay from March 1st on), was expected to provide a substantial boost to retail sales. So far, it hasn't. What's been happening is that many consumers have decided to use their additional income to reduce their installment debt: total repayments in March exceeded \$4.9 billion—a record high. If consumers continue to reduce their outstanding debt, it will put them in a better position to step up their buying later on this year. And retail sales, already ahead of last year, are likely to gain momentum as 1964 draws to a close.

With a healthy housing market and the prospects of higher retail sales, the outlook for store construction for the rest of 1964 is optimistic. The increase in contract value won't be of boom proportions, but the chances are good that it will exceed the slow growth rate of recent years.

Henry C. F. Arnold, Economist
F. W. Dodge Company
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Building Construction Costs

By Myron L. Matthews

Manager-Editor, Dow Building Cost Calculator,
an F. W. Dodge service

The information presented here permits quick approximations of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). The tables and charts can be used independently, or in combination as a system of complementary cost indicators. Information is included on past and present costs, and future cost can be projected by analysis of cost trends.

A. CURRENT BUILDING COST INDEXES—MAY 1964
1941 Average for each city = 100.0

Metropolitan Area	Cost Differential	Current Dow Index		Per Cent Change Year Ago Res. & Nonres.
		Residential	Nonresidential	
U.S. AVERAGE—21 Cities	8.5	263.7	280.9	+2.56
Atlanta	7.1	297.0	315.0	+2.88
Baltimore	8.0	266.1	283.1	+2.05
Birmingham	7.4	244.1	262.5	+2.94
Boston	8.4	236.5	250.3	+2.57
Chicago	8.8	293.6	308.9	+2.66
Cincinnati	8.8	254.5	270.5	+2.46
Cleveland	9.3	266.2	283.0	+2.31
Dallas	7.8	250.2	258.3	+1.70
Denver	8.3	271.9	289.0	+3.78
Detroit	8.9	265.3	278.5	+2.95
Kansas City	8.3	238.1	252.0	+2.47
Los Angeles	8.4	266.4	291.4	+1.97
Miami	8.4	262.7	275.7	+3.34
Minneapolis	8.9	264.9	281.6	+2.43
New Orleans	7.9	240.2	254.5	+1.82
New York	10.0	272.1	292.6	+1.74
Philadelphia	8.7	264.3	277.5	+3.23
Pittsburgh	9.1	249.1	264.8	+2.47
St. Louis	8.9	256.2	271.4	+2.53
San Francisco	7.5	336.0	367.7	+2.66
Seattle	8.5	242.1	270.6	+2.33

B. HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES

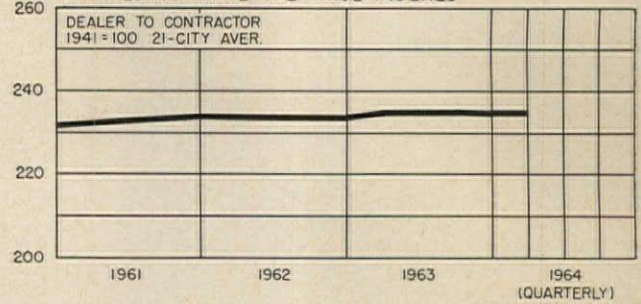
1941 average for each city = 100.0

Metropolitan Area	1952	1957	1958	1959	1960	1961	1962	1963 (Quarterly)				1964 (Quarterly)					
								1st	2nd	3rd	4th	1st	2nd	3rd	4th		
U.S. AVERAGE 21 Cities	213.5	244.1	248.9	255.0	259.2	264.6	266.8	269.4	270.3	273.4	275.0	274.7	274.7	274.7	274.7	274.7	274.7
Atlanta	223.5	269.6	277.7	283.3	289.0	294.7	298.2	302.0	303.0	305.7	307.5	310.0	310.0	310.0	310.0	310.0	310.0
Baltimore	213.3	249.4	251.9	264.5	272.6	269.9	271.8	272.3	272.9	275.5	277.1	277.2	277.2	277.2	277.2	277.2	277.2
Birmingham	208.1	228.6	233.2	233.2	240.2	249.9	250.0	251.3	252.0	256.3	257.8	258.0	258.0	258.0	258.0	258.0	258.0
Boston	199.0	224.0	230.5	230.5	232.8	237.5	239.8	240.4	241.2	244.1	245.6	246.1	246.1	246.1	246.1	246.1	246.1
Chicago	231.2	267.8	273.2	278.6	284.2	289.9	292.0	296.4	296.4	301.0	302.8	302.2	302.2	302.2	302.2	302.2	302.2
Cincinnati	207.7	245.1	250.0	250.0	255.0	257.6	258.8	260.0	260.7	263.9	265.5	265.1	265.1	265.1	265.1	265.1	265.1
Cleveland	220.7	258.0	257.9	260.5	263.1	265.7	268.5	272.3	272.8	275.8	277.4	276.3	276.3	276.3	276.3	276.3	276.3
Dallas	221.9	228.4	230.5	237.5	239.9	244.7	246.9	251.5	252.2	253.0	254.5	253.7	253.7	253.7	253.7	253.7	253.7
Denver	211.8	245.6	252.8	257.9	257.9	270.9	274.9	275.0	275.4	282.5	284.2	282.6	282.6	282.6	282.6	282.6	282.6
Detroit	197.8	237.4	239.8	249.4	259.5	264.7	265.9	267.1	267.9	272.2	273.8	272.7	272.7	272.7	272.7	272.7	272.7
Kansas City	213.3	230.5	235.0	239.6	237.1	237.1	240.1	242.3	242.9	247.8	249.3	246.2	246.2	246.2	246.2	246.2	246.2
Los Angeles	210.3	248.4	253.4	263.5	263.6	274.3	276.3	279.1	279.7	282.5	284.2	284.0	284.0	284.0	284.0	284.0	284.0
Miami	199.4	234.6	239.3	249.0	256.5	259.1	260.3	262.4	266.7	269.3	270.9	270.1	270.1	270.1	270.1	270.1	270.1
Minneapolis	213.5	235.6	249.9	254.9	260.0	267.9	269.0	271.4	272.1	275.3	276.9	275.0	275.0	275.0	275.0	275.0	275.0
New Orleans	207.1	232.8	235.1	237.5	242.3	244.7	245.1	246.5	246.5	248.3	249.8	247.1	247.1	247.1	247.1	247.1	247.1
New York	207.4	240.4	247.6	260.2	265.4	270.8	276.0	280.9	280.9	282.3	284.0	284.8	284.8	284.8	284.8	284.8	284.8
Philadelphia	222.3	255.0	257.6	262.8	262.8	265.4	265.2	265.6	265.6	271.2	272.8	271.1	271.1	271.1	271.1	271.1	271.1
Pittsburgh	204.0	234.1	236.4	241.1	243.5	250.9	251.8	255.0	256.1	258.2	259.7	260.8	260.8	260.8	260.8	260.8	260.8
St. Louis	213.1	237.4	239.7	246.9	251.9	256.9	255.4	260.1	262.4	263.4	265.0	266.8	266.8	266.8	266.8	266.8	266.8
San Francisco	266.4	302.5	308.6	321.1	327.5	337.4	343.3	350.1	350.1	352.4	354.5	358.2	358.2	358.2	358.2	358.2	358.2
Seattle	191.8	221.4	225.8	232.7	237.4	247.0	252.5	256.5	257.8	260.6	262.2	260.1	260.1	260.1	260.1	260.1	260.1

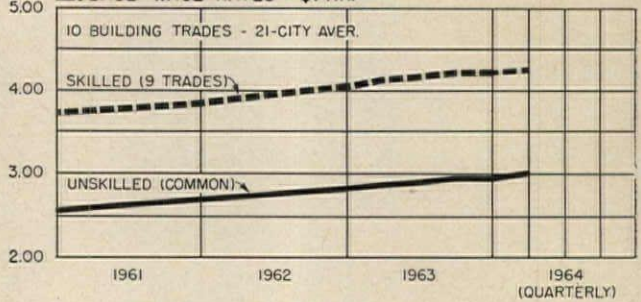
HOW TO USE TABLES AND CHARTS: Building costs may be directly compared to costs in the 1941 base year in tables A and B: an index of 256.3 for a given city for a certain period means that costs in that city for that period are 2.563 times 1941 costs, an increase of 156.3% over 1941 costs.

TABLE A. Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second: if the cost differential of one city (10.0) divided by that of a second (8.0) equals 125%, then costs in first city are 25% higher than costs in second. Also, costs in second city are 80% of those in first (8.0 ÷ 10.0 = 80%) or 20% lower in the second city

1. BUILDING MATERIAL PRICE INDEXES



2. BASE WAGE RATES \$/HR.



3. MONEY RATE & BOND YIELDS %.

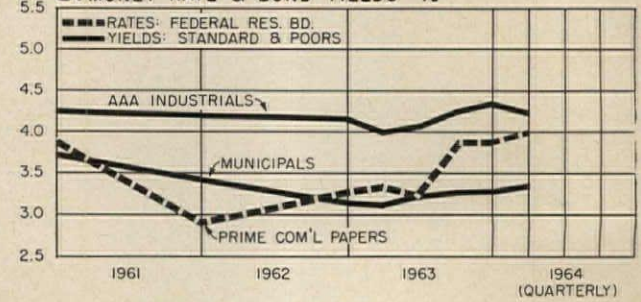
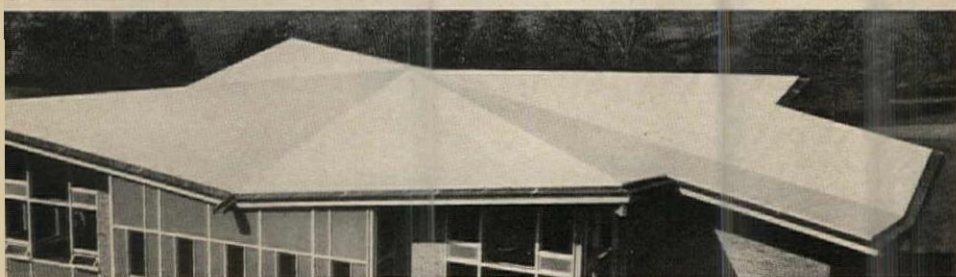
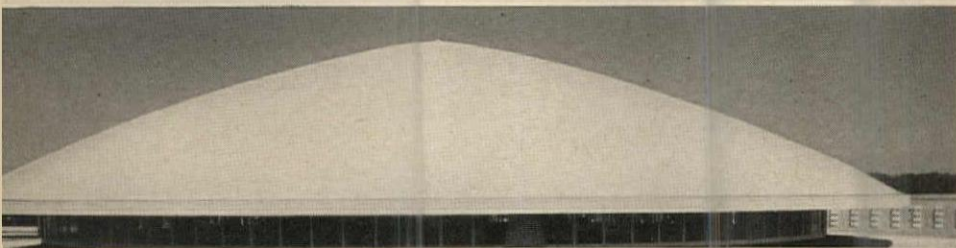


TABLE B. Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other: if index for a city for one period (200.0) divided by index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than those of the other. Also, second period costs are 75% of those of the other date (150.0 ÷ 200.0 = 75%) or 25% lower in the second period. CHART 1. Building materials indexes reflect prices paid by builders for quantity purchases delivered at construction sites. CHART 2. The \$1.20 per hour gap between skilled and unskilled labor has remained fairly constant. CHART 3. Barometric business indicators that reflect variations in the state of the money market

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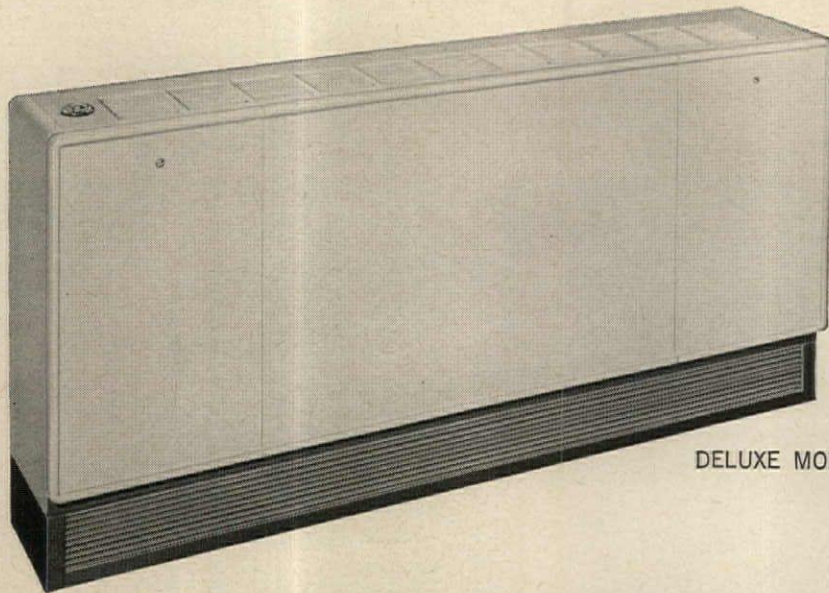
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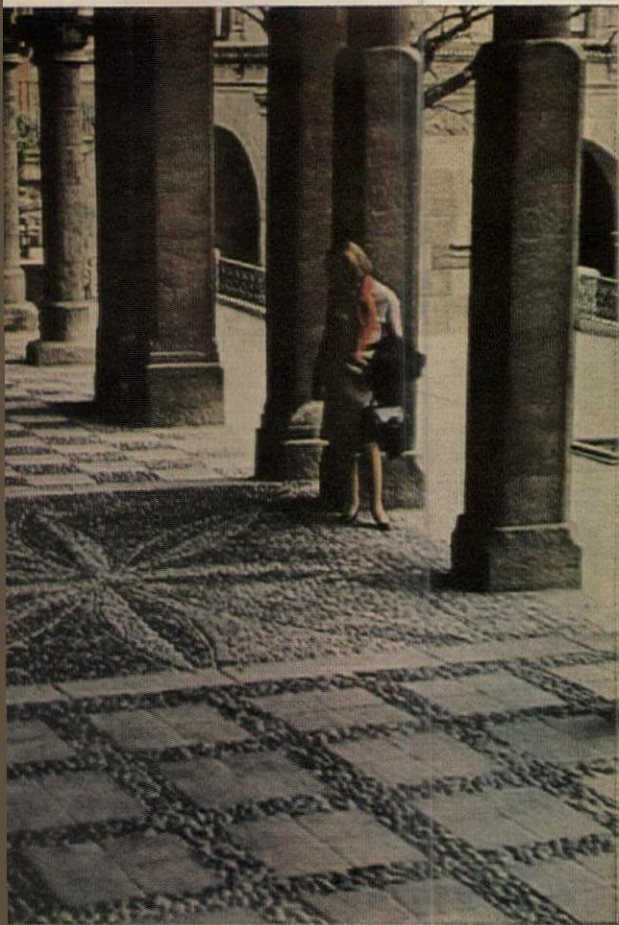


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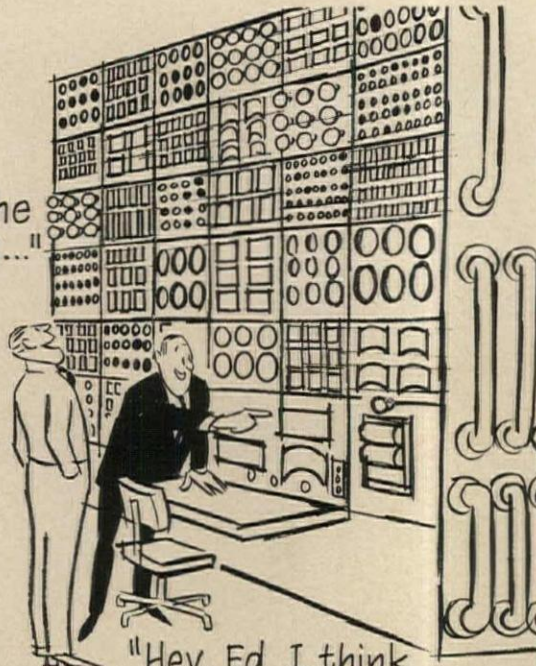
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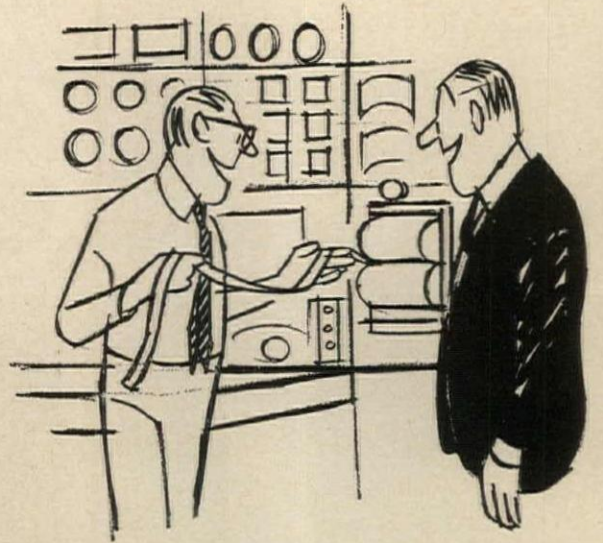
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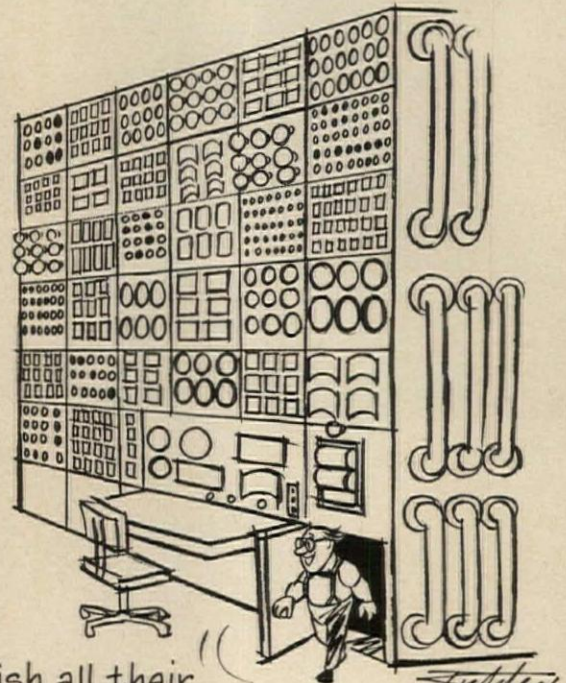
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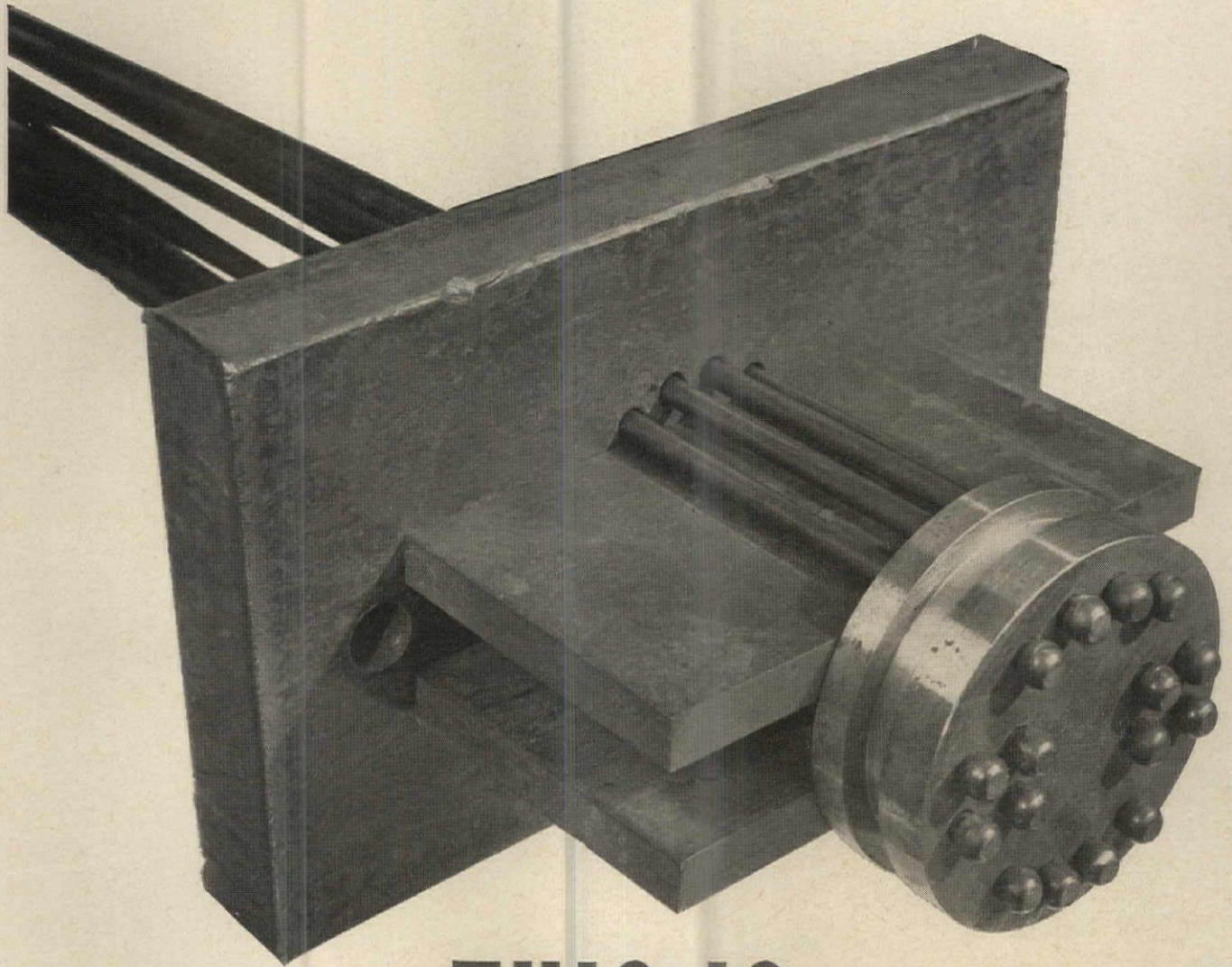
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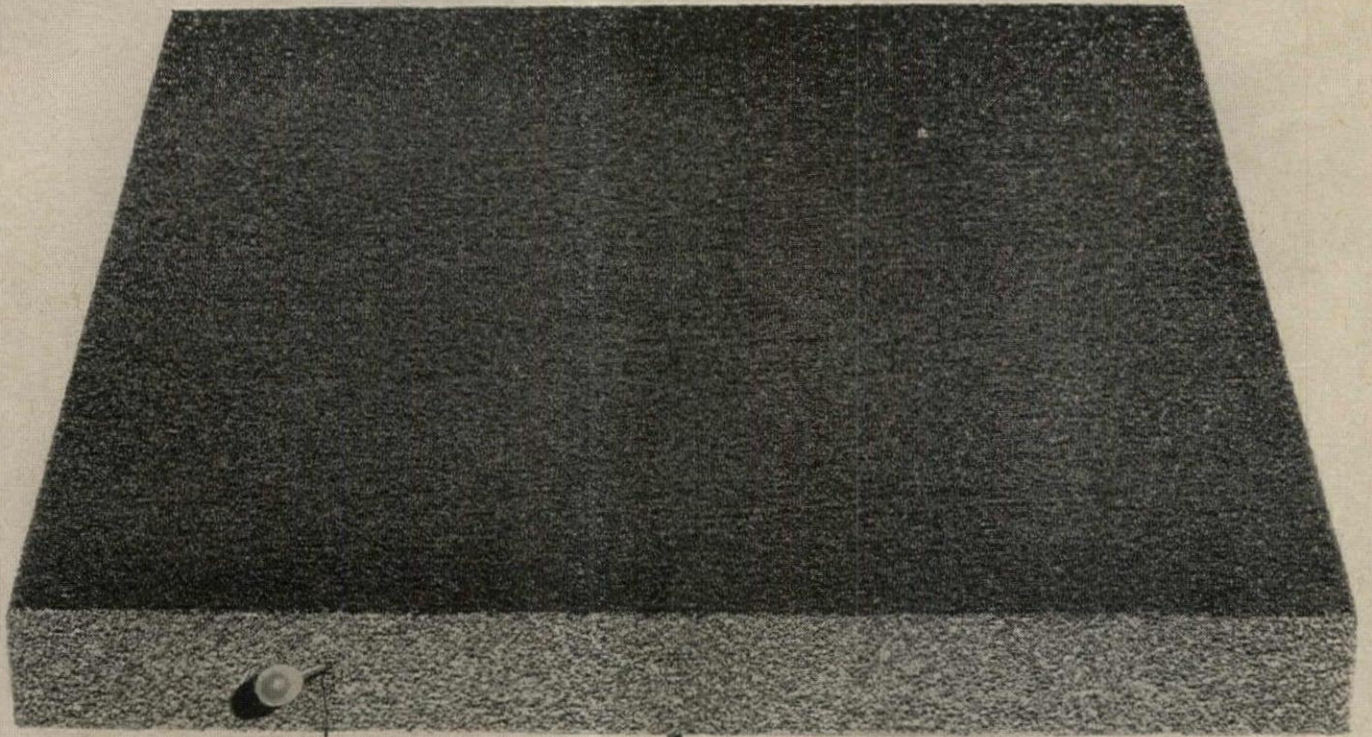
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HOUSING SEMINAR BESTOWS HONORS

At the sixth and final session of a series of regional design seminars dealing with "New Approaches to Housing Design for Low-Income Families and Community Renewal" held in New York, March 4-5, both Albert Mayer, F.A.I.A., organizer of the seminars, and Marie C. McGuire, commissioner of the Public Housing Administration, were honored for their efforts to stimulate better public housing design.

On behalf of the American Institute of Architects, Morris Ketchum Jr., F.A.I.A., A.I.A. New York regional director, presented Mrs. McGuire with the Institute's Citation of Honor for her "courageous, intelligent and determined efforts to create an enlightened national program for low-income housing."

Mr. Mayer was cited by the National Association of Housing and Redevelopment officials for his role in creating "a new opportunity for public housing architecture."



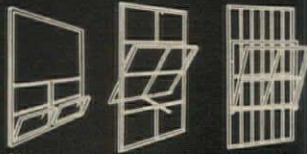
Morris Ketchum Jr., F.A.I.A. (left), presents the American Institute of Architects' Citation of Honor to Marie C. McGuire, commissioner of the Public Housing Administration. At right is Mr. Robbins.

Above: Albert Mayer, F.A.I.A., receives a scroll in appreciation of his contribution to low-rent housing design on behalf of the National Association of Housing and Redevelopment Officials from John D. Lange, executive director of N.A.H.R.O. From left: Robert C. Weaver, administrator of the Housing and Home Finance Agency; Herman D. Hillman, director of the New York Regional Office of the Public Housing Administration, general chairman of the seminar; Mr. Mayer; Mr. Lange; Ira S. Robbins, president of N.A.H.R.O.; and Thomas B. Thompson, assistant commissioner for development of P.H.A.

Basic Types of Bayley Windows



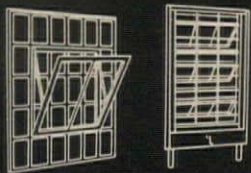
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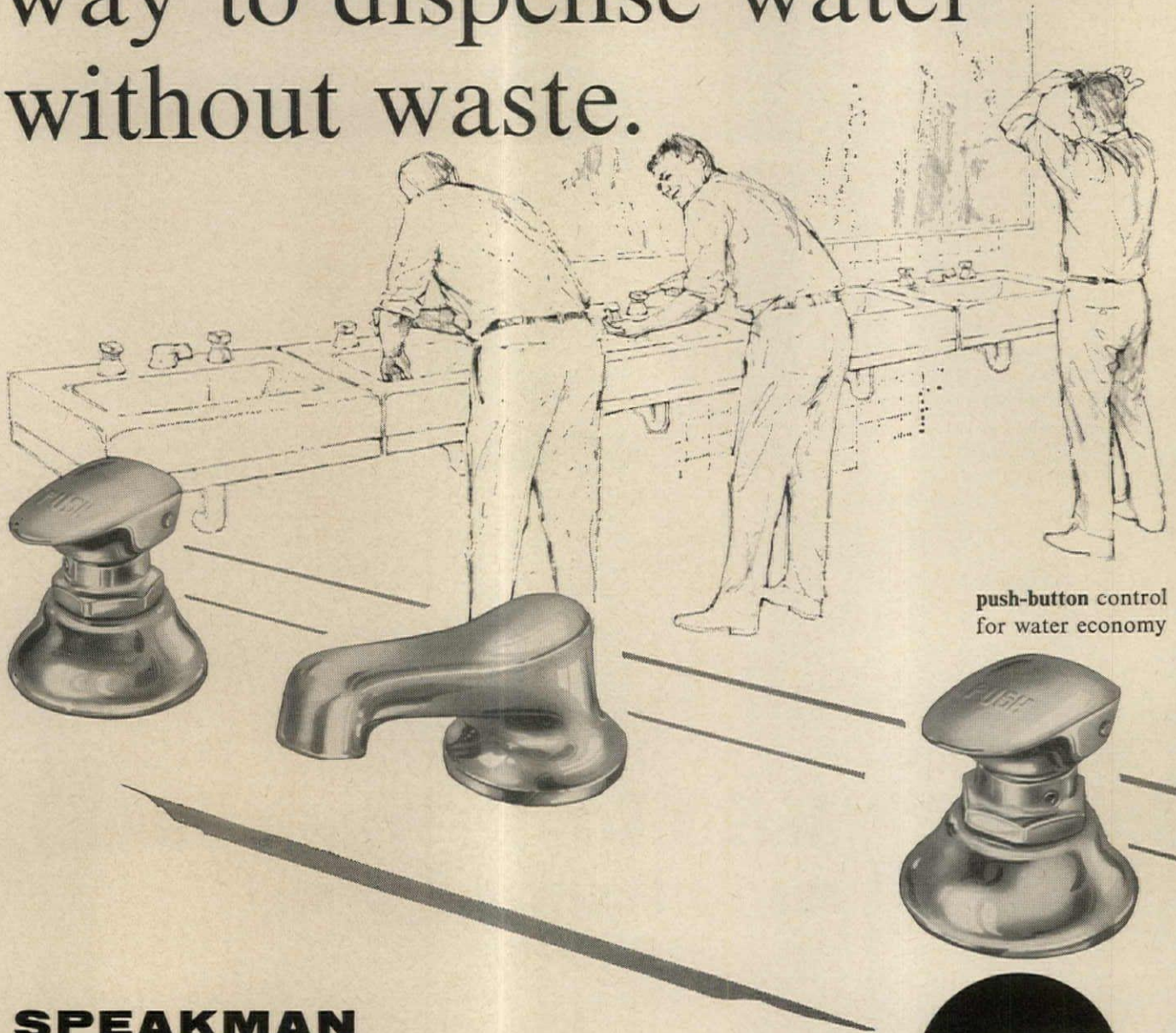
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SPEAKMAN EASY-PUSH[®] self-closing METERING lavatory fittings are one of the world's best water controllers. A fingertip PUSH on the button, and they meter out just enough water to do the job right. Then they shut off—automatically. Saves water—more sanitary, too, because users wash in running water. EASY-PUSH is also available in a wide range of tamper-proof showers and other fittings for all types of buildings. For illustrated data, see our catalog in Sweet's or write for Bulletin S-94.

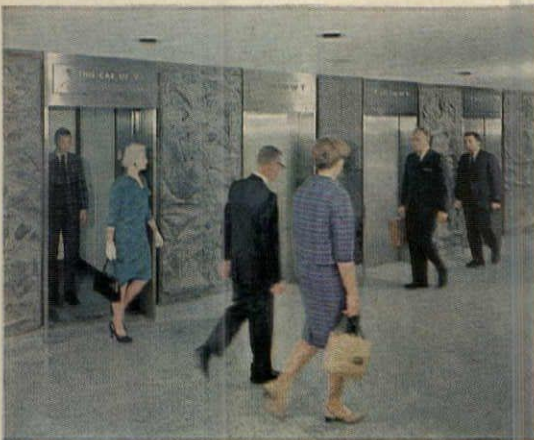
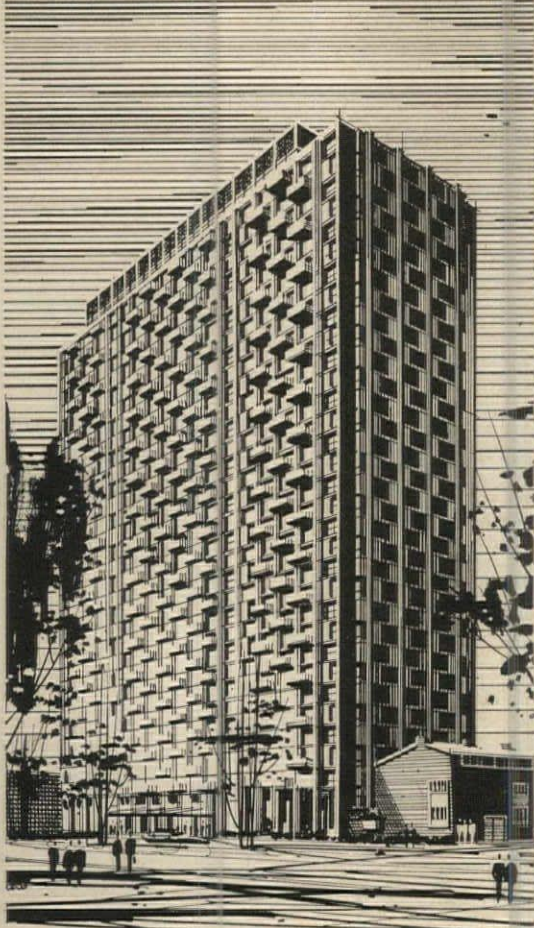


SPEAKMAN[®] COMPANY
Wilmington, Delaware 19899

In Canada write
Cuthbert-Speakman
47 Duke Street
Montreal 3, Quebec

WHEN YOU SPECIFY SPEAKMAN, YOU SPECIFY SPEAKMANSHIP—
THE MODERN APPROACH TO WATER MANAGEMENT IN THE HOME, THE PLANT AND THE INSTITUTION

For more data, circle 45 on Inquiry Card



HAUGHTON ELEVONICS*

Brings TOTAL ELEVATOR AUTOMATION
to Philadelphia's Newest Prestige
Apartment . . . HOPKINSON HOUSE

Total Elevator Automation at luxurious new Hopkinson House means that elevator availability is matched precisely to traffic demand 'round the clock.

A remarkable new automatic computer-control system, created by Haughton Elevonics, constantly monitors traffic demand . . . and relays calls for service instantly to the car-control system in the elevator machine room. Response is immediate. Thus, elevator service is never more than just a few seconds away on any of Hopkinson House's 34 floors. What's more, the ride is a revelation in velvety smoothness and quiet comfort.

Include Haughton **Total Elevator Automation** in your plans for building or modernization. Ask your Haughton Sales Office (listed in the Yellow Pages) to consult with you, or write to us.

HAUGHTON ELEVATOR COMPANY
Division of Toledo Scale Corporation
Toledo, Ohio 43609

Hopkinson House Apartments
Washington Square South, Philadelphia, Pa.
Winner in 1963 of the AIA Philadelphia
Chapter Award for finest design in
residential structures, Philadelphia area

Architect: Stonorov & Haws,
Architects Building, Philadelphia.
Builder: R. M. Shoemaker Company—
Hopkinson House, Inc.
245 South 24th Street, Philadelphia.

* Haughton's advanced program in systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Registered in U.S. Patent Office.

For more data, circle 46 on Inquiry Card



Holding their attention can be a big part of her job. And yours. For when days get warm and kids' thoughts begin to stray, only the most pleasant and most comfortable of interiors have any chance against the irresistible lure of the open air. That's why air conditioning is a major consideration of those who design schools.

Take as an example the Nesbitt Year Round Syncretizer that provides comfort for the classroom above. It's more than just a first-class air conditioning, heating and ventilating unit—it's a first-class morale builder too. Those children's faces make it obvious that learning conditions in this classroom are almost perfect.



The school's architect is contented, too. His morale was boosted by the way this Nesbitt equipment enhances the clean, crisp lines of his contemporary decor. (The wide range of colors and two-tone effects available for Nesbitt equipment made his job easier—and so did the variety of arrangements offered by Nesbitt.)

Nesbitt provides attractive storage cabinets that save space and harmonize with the design and color treatment of the Syncretizer. Write in for more details on this functional classroom equipment. ITT NESBITT INC., a subsidiary of the International Telephone and Telegraph Corporation, Philadelphia, Pennsylvania 19136.

AIR CONDITIONING, HEATING AND VENTILATING EQUIPMENT

ITT Nesbitt

For more data, circle 47 on Inquiry Card

ramism: the doctrines of Petrus Ramus who opposed scholasticism and advocated Calvinism as well as a logic more universal than Aristotelian and designed to be amalgamated with rhetoric

ramist: an advocate of Ramism

ramm: a good-for-nothing scoundrel; WRETCH

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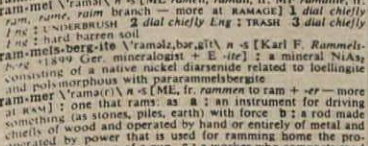
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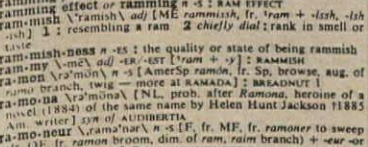
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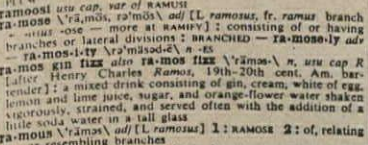
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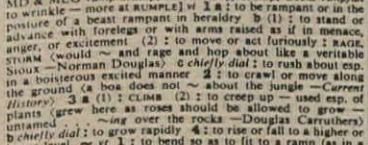
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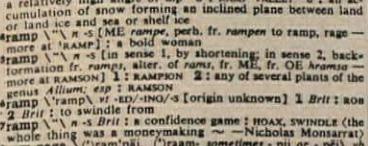
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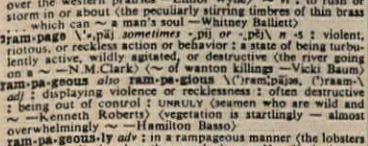
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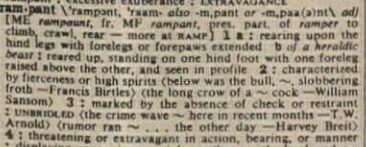
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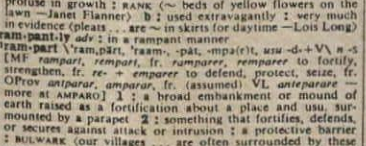
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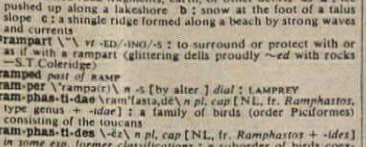
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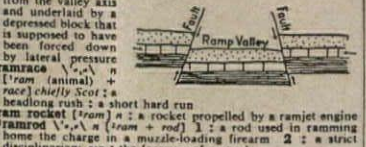
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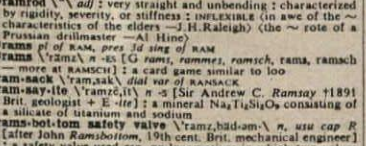
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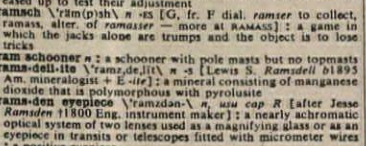
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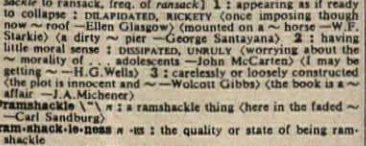
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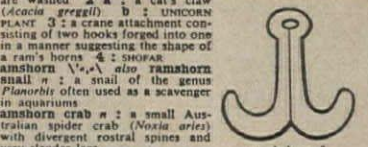
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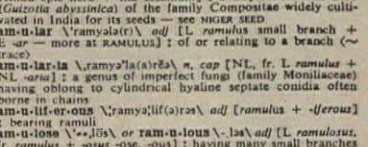
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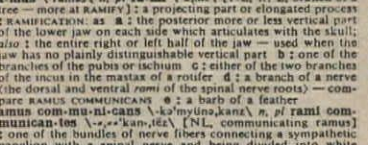
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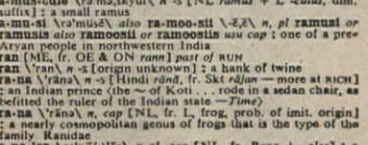
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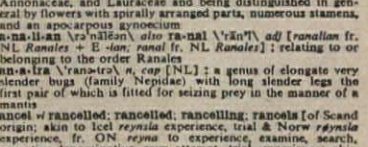
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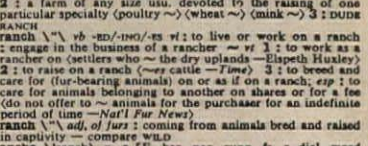
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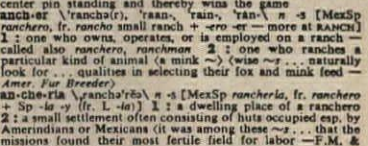
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rammer

¹**ram • set** \ 'ram, set \ *n*: a powder-actuated hand tool that uses energy of a fired blank cartridge to set threaded studs and drive pins into concrete and steel: a fast method of fastening wood, steel to concrete or steel (particularly in building construction)
²**ram • set** \ " \ *n*: studs and drive pins that are set into concrete or steel by a powder-actuated tool. Used to fasten wood, steel to concrete or steel
³**ram • set** \ " \ *vt*-ing -s: To fasten wood, steel to concrete or steel by using a powder-actuated tool



ramset²

Please help us keep our name out of the dictionary.

We've got the same headache the makers of the first "aspirin" had.

"Ramset" also is the first of its kind. (The first powder-actuated fastening system.)

It's also the best known.

And, like "aspirin," it's also being used as a generic term to describe competitors' products.

People are asking for what's-his-name's "Ramset" tool. And whozis's "Ramset" fasteners. Why, we even get blamed when somebody else's product fails!

If this keeps up, our trademark also will become a common noun in the dictionary. Just like "aspirin."

And "cellophane" and "kerosene" and "linoleum." (These also were trademarks once.)

No skin off your nose?

Don't be too sure. In the confusion you could get shortchanged. Because no one else's fastening system quite measures up to Ramset. No one else's is as complete. Or as economical. Or—even more important—as safe.

Now. How can you help us keep our name out of the dictionary?

Just make sure you get the real, genuine, honest-to-goodness article when you specify "Ramset."

Like Ramset Tru-Set® fasteners.

And Ramset Jobmaster® and Flite-Chek® tools.


(The Ramset fastening system also includes Pow-R-Set® piston-operated tools, Shure-Set® hammer-in tools

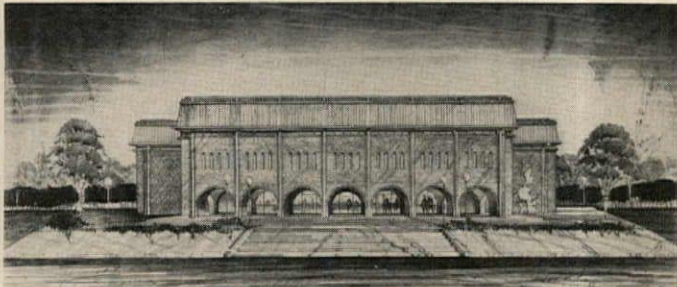
and fasteners, and Dynabolt® masonry anchors.)

And if you must use other people's equipment, please *please* don't call it "Ramset."

Aren't there enough words in the dictionary already?

Ramset®

WINCHESTER-WESTERN DIVISION 



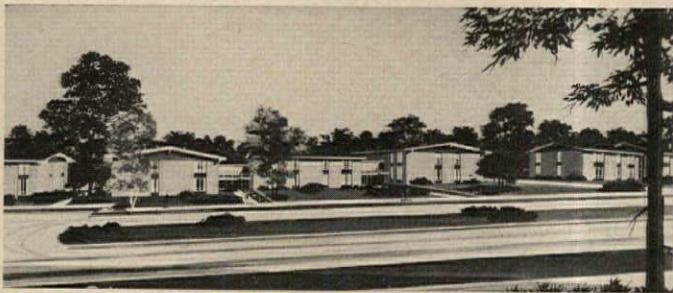
Lawrence S. Williams, Inc.

COLLEGE ARTS CENTER CONVEYS LINKS WITH PAST

Architect Vincent Kling has approached the difficulty often facing modern campus construction, the necessary wedding of new building with existing structures built in a previous area, by designing the \$1,500,000 Grover M. Hermann Fine Arts Center for Marietta College as "a contemporary expression of classical forms." The three-story, 42-foot-high, red brick building will be capped by a gray mansard roof.

The fenestration pattern expresses the three functions of the structure—the first floor houses facilities for the drama department; the second floor provides space for the music department; and the third story, surrounded by continuous window bands and lit from above by skylights, will contain the art studios.

The Karr Construction Company expects to complete the building by summer, 1965. Engineers are Fraioli-Blum-Yesselman (structural) and Jackson and Moreland (mechanical and electrical).



MICHIGAN ACQUIRES FIRST CONDOMINIUM

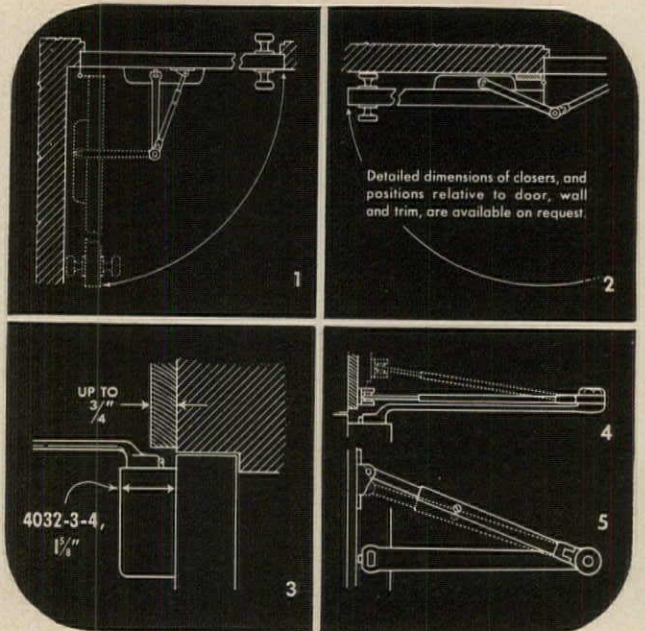
Construction has begun on Michigan's first condominium apartment project, located in the Lafayette Park development area of Detroit. Builders Hillock, Ecclestone & Company envisage this project not only as providing needed housing for senior citizens but also as a spur to the downtown rehabilitation of Detroit.

Architect of Cherboneau North is Ervin E. Kamp. To be built at a cost of over \$1 million are five two-story units, containing in all 72 apartments. Tenants may buy their apartments at prices ranging from \$13,000 to \$17,000 and will share the community spaces, featuring indoor and outdoor recreation areas.

Application Details

for No. 4033 SMOOTHIE® door closer
shown on opposite page
(See diagrams below)

- 1 In corners a "Smoothie" takes less space than most doorknobs between door and wall
- 2 Degree of door opening possible depends mostly on mounting, type of trim and size of butt used
- 3 Arm of "Smoothie" is formed to avoid conflict with almost any trim
- 4 Joints in arm and shoe make it easy to vary height of shoe as needed for beveled trim
- 5 Power of closer at latch may be increased or decreased by simply reversing position of shoe



Detailed dimensions of closers, and positions relative to door, wall and trim, are available on request.

Comprehensive brochure on request—no obligation or see Sweet's '64, Section 19e/Lc

LCN

LCN CLOSERS, PRINCETON, ILLINOIS

A Division of Schlage Lock Company

Canada: LCN Closers of Canada, Ltd.,
P. O. Box 100, Port Credit, Ontario

For more data, circle 49 on Inquiry Card

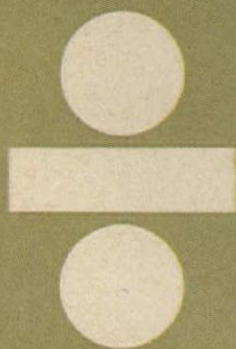


Modern Door Control by
LCN
SMOOTHEE® Door Closers

McNeil Laboratories, Inc.,
Fort Washington, Pennsylvania

Vincent G. Kling, FAIA, Architect

LCN CLOSERS, PRINCETON, ILLINOIS
Application Details on Opposite Page



Take solid, kiln-dried wood members of select fir, join them closely and securely with pre-stressed steel cables. Result—a solid wood partition that divides space beautifully — a wall engineered and built to withstand rough treatment. Coils away in its own unique coil box requiring minimum storage area. Coil-Wal may be curved or straight; small or large. (Single sizes as large as 150 ft. wide by 30 ft. high.) Turn a key and electrical operation moves Coil-Wal on or off its job of sub-dividing any large area for any purpose.

combine beauty
with flexibility

vide by

modernfold
Coil-Wal[®]
good partitions

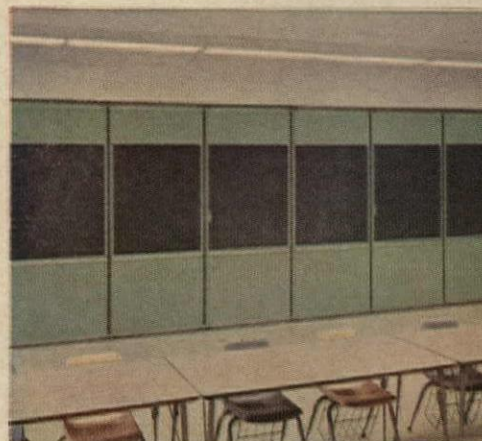
Coil-Wal—newest from the
makers of Modernfold. Perfect for
division of gymnasiums or
auditoriums into smaller, usable
spaces. Ideal as protective
barriers in heavy traffic areas, too.
For complete specifications,
consult your nearby Modernfold
distributor. He is a
partitioning specialist.



Soundmaster—in exclusive new heavy duty vinyl
—a myriad of textures, colors and pattern com-
binations. Seals off sound as it divides space.



Woodmaster—adds the warmth and
beauty of satin-smooth walnut, oak,
mahogany or birch hardwood paneling
to instant space division.



Acousti-Seal—carries a Sound Trans-
mission Class of 51! (Geiger & Hamme
Test NC-27 FT) Makes flat surface wall
division practical for classrooms, audio-
visual rooms, or other critical sound
interference conditions.



NEW CASTLE PRODUCTS, INC.
New Castle, Indiana
In Canada: Modernfold of
Canada, Ltd., St. Lambert, Quebec

Modern-Cote—By utilizing Modern-Cote vinyl wall covering with
Soundmaster or Acousti-Seal, you can contrast or harmonize with any color
scheme. Ends many wall maintenance problems.

NEW CASTLE PRODUCTS, INC.
Dept. A2064, New Castle, Indiana

Please send full information on the complete line of Modernfold
operable walls, and the name of nearest distributor.

Name.....
Firm.....
Address.....
City..... County..... State.....

For more data, circle 50 on Inquiry Card

Relighting with Powerglow® luminaires boosts sales at Belmont Hills



Buck Wiley, Vice-president of Dobbs and Company Realtors, agent for Belmont Hills, Smyrna, Georgia.

"We now have twice the light, with half the fixtures, at 40% lower power cost!"

Results like these make it easy for operator Buck Wiley to talk about the relighting of the Belmont Hills parking lot. "To the tenants, the improved appearance means more than anything else.

Right after the Powerglows went in, they all noticed a definite increase in sales—in spite of a new, competitive center only two miles away. No wonder they all praise the installation."

The old filament lighting at Belmont Hills was spotty and averaged less than one footcandle. The new lighting uses only eight mercury Powerglows. Yet, they light the whole lot to an average of more than two footcandles.

Among the other benefits of the new system, lower pilferage from automobiles counts high with Mr. Wiley. He also noted, "The contractor was delighted at how easy the Powerglows were to install. And with General Electric Credit Corporation handling the financing, we had a turn-key job that saved me lots of time and trouble."

You can have the same sales-pulling lighting at your center . . . new or existing. For more information, call your G-E Area Lighting Agent today. Or, write for bulletin GEA-7585, to: Section 460-40, General Electric Co., Schenectady, N. Y. Outdoor Lighting Dept., Hendersonville, N. C.

Progress Is Our Most Important Product

GENERAL  ELECTRIC



Relighting with eight 4000-watt Powerglow luminaires, mounted 35 feet high at 200-foot spacings, raised light level to an average of over two footcandles.



P-400A mercury Powerflood® unit



PMA-115 post-mounted unit



Custom M-2000 for parking lots



Powerglow luminaire

For more data, circle 51 on Inquiry Card

For more data, circle 52 on Inquiry Card →

new!

NEW! Clear Birch

NEW! Spice Walnut

NEW! Cherry

NEW! Black Walnut

NEW! Rosewood

Create dramatic effects with Consoweld woodgrain patterns



The warm beauty of wood, the permanence of Consoweld Laminated Plastic. Use Consoweld for surfacing your interiors . . . walls, wainscoting, cabinet faces, toilet partitions, doors, fixtures, desks, tables, counters . . . for more individuality and beauty.

Choose from 14 different woodgrain patterns in a complete range of panel sizes. Maintenance-free Consoweld shrugs off wear and stains of all kinds.

There are Consoweld woodgrain patterns to fit any decor, any color scheme . . . in schools, hospitals, motels, lounges, restaurants, office buildings, institutions, and contemporary buildings of all kinds!

We'll be happy to send you samples and promotional material, if you'll direct your request to Consoweld Corporation, Wisconsin Rapids, Wisconsin. (AIA File 35-C-12 and 23-L.)

21A

Honey
Maple

India
Teak

Fruitwood

Native
Walnut

Platinum
Walnut

Cathedral
Walnut

Antique White
Walnut

Heritage
Walnut

Cabinet
Walnut

**NOW! A PORTABLE
POLYSULFIDE CAULKING MACHINE**



METER MIX

... AUTOMATIC CONTINUOUS METERING,
MIXING AND DISPENSING UNIT FOR
TWO-PART JOINT SEALANTS



SAVE MONEY

... INSURE TOP MATERIAL PERFORMANCE

1. Meter Mix eliminates batch mixing and use of cartridges.
2. Cuts material loss to less than 1%. Sealants are mixed only as needed.
3. Positive displacement metering pumps handle both gun and pouring grade materials—easily adjusted for any ratio.
4. Material can be used from 5 gallon machine tank or direct from 55 gallon drums—greatly reduces both material and handling costs.
5. Equipment clean-up takes about 5 minutes. No messy solvents needed.

ARCHITECTS AND ENGINEERS: Include automatic job-site metering, mixing, and dispensing equipment specifications as part of your polysulfide application specification.

CONTRACTORS: Cut your polysulfide sealant labor costs down to oil base caulking costs by using the Meter Mix.

*Equipment is available for rental or sale.
Distributorship inquiries are welcome.*

ITT BELL & GOSSETT INC.

A SUBSIDIARY OF INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

ITT Bell & Gossett Inc., Morton Grove, Illinois, Dept. 1B-32M.

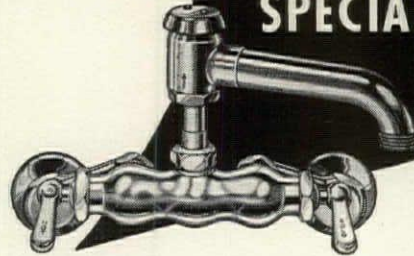
Please send complete information on B&G Meter Mix.

NAME _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

For more data, circle 53 on Inquiry Card

from Chicago Faucet...

**The most complete line of
SPECIAL faucets!**



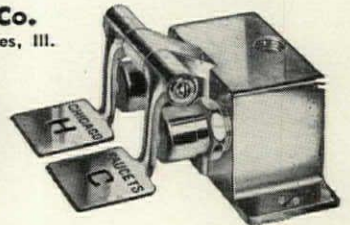
Exposed Sink Faucet No. 886, with vacuum breaker, 3/4" hose thread on spout, adjustable supply arms.

Making faucets has been our specialty for over 50 years. Bubblers; glass fillers; bed pan

flushers; faucets for slop sinks, surgeon's wash-up, laboratory sinks, barber shops—Chicago Faucet makes them all, with interchangeable spouts, supplies and vacuum breakers to fit every condition. Each has the time-proved Chicago Faucet construction which cuts maintenance to a minimum yet permits complete renovation of the operating mechanism in just a few minutes. The price may surprise you. Because many so-called specials are standard with Chicago Faucets, the chances are that you'll pay no more for this premium quality.

The Chicago Faucet Co.

2100 S. Nuclear Dr., Des Plaines, Ill.
(A suburb of Chicago)



Double Pedal Valve No. 625, mixing type. Ideal for hospitals, public washrooms, soda fountains, etc.

Chicago Faucets are distributed through the plumbing trade exclusively.



Bubbler and Basin Faucet No. 722. Bubbler is self-closing, has volume control in shank.



Glass Filler No. 313. Fills glasses quickly, closes without pounding. Volume control in shank.

For more data, circle 54 on Inquiry Card



Quality PreCast Terrazzo

MOP SERVICE BASIN

- For gravity draining of mop trucks and other waste water service
- Easily installed in one quick, simple operation
- One-piece—permanently leakproof; requires no sub-pan or costly double drain
- High shoulders confine surge of water
- Stainless steel curb guard affords permanent protection (optional at extra cost)

SPECIFICATIONS

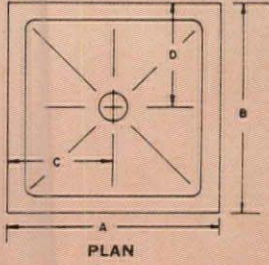
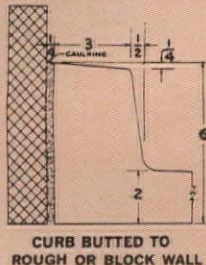
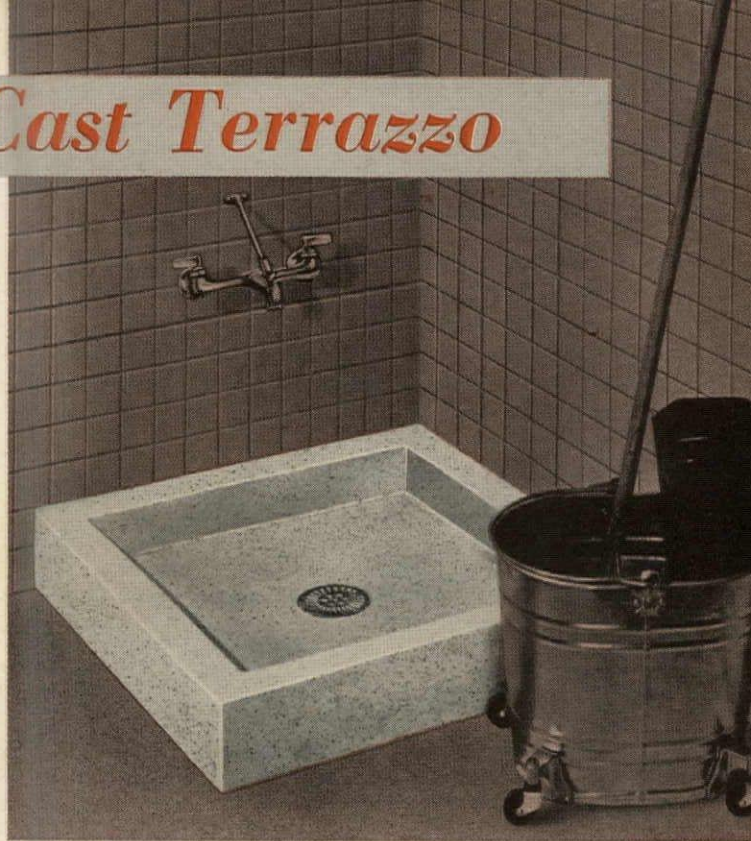
STANDARD SIZES: 24" x 24"—32" x 32"—36" x 36" x 24"

Mop Service Basin shall be of deep type, one-piece PreCast Terrazzo as manufactured by Fiat Metal Manufacturing Co. Shoulders shall be not less than four inches high inside, and not less than three inches wide.

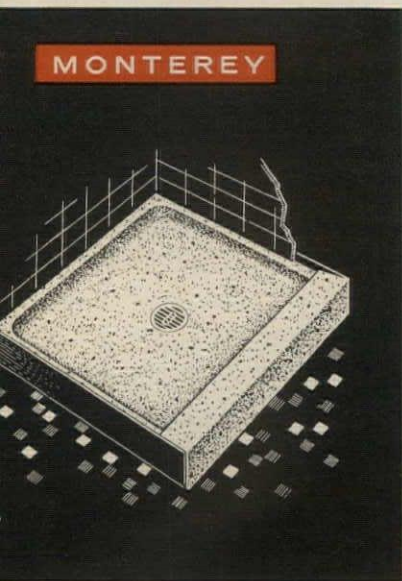
Optional stainless steel protective cap to be cast integral on exposed side(s) (as specified).

Drain body shall be chrome-plated brass, cast integral, and shall provide for a calked lead connection not less than one inch deep to a three-inch pipe.

Terrazzo shall be made of marble chips cast in grey portland cement to produce a compressive strength of not less than 3000 PSI, seven days after casting. Terrazzo surface shall be ground and polished with all air holes and/or pits to be grouted and excess removed.



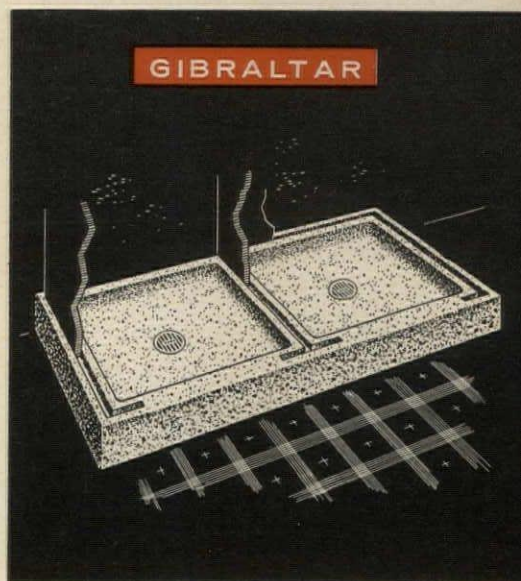
STANDARD SIZES				
SIZE	A	B	C	D
24 x 24	24	24	12	12
32 x 32	32	32	16	16
36 x 36	36	36	18	18
36 x 24	36	24	18	12



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Here is the easy, serviceable base for any shower stall . . . use it with ceramic or plastic tile, plastic sheet or plaster. The *Monterey* is permanently leakproof and requires no sub-pan or double drain. Threshold, tiling-in flange and brass drain body cast integral. Comes in four rectangular sizes and two corner models, three room corner models, and two neo-corner models.

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No more trained personnel to pay, feed and negotiate with. No more massive, expensive, power-devouring equipment. No more linens to be bought, washed, ironed, folded, repaired and ultimately replaced. No more costly linen-storage space.

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Doors
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to
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A special review by Frederick Gutheim, author, critic and president of the Washington Center for Metropolitan Studies, on a recent British report with significant implications for environmental design in the U. S.

Traffic in Towns

The central idea of this important official report is that the urban environment has a definable capacity to accommodate traffic. When more than that amount of traffic enters a given area, changes in the environment must take place. Streets must be widened, parking provided, and in the more extreme cases elaborate multi-level urban centers must be built to separate vehicles and pedestrians. With all this, changes in the urban fabric, the destruction of historical continuity, and a profound alteration in urban life itself occurs. That these changes are costly is readily established. But that the city itself, as an environment for human life, with its amenity, efficiency and economy, is the chief victim of an unlimited, undisciplined and unplanned accommodation of traffic has never before been so brilliantly demonstrated. And never has a rational method been offered to use designers in the transportation planning process, to incorporate their values into the total plan, and to exploit the resources of design in a convincing manner.

Here is a work that will hearten all architects because it puts the human being rather than the auto in the center of the picture; because it recognizes factors of civic appearance and area preservation; because it deals with the contemporary problems of new community planning; and most of all because it recognizes and relies on the potentiality of design rather than analysis and engineering alone in fitting transporta-

Traffic in Towns: A study of the long term problems of traffic in urban areas. Reports of the Steering Group and Working Group appointed by the Minister of Transport. London: Her Majesty's Stationery Office, 1963. 50s. For sale by the British Information Service, New York. \$10.00

¹ Colin D. Buchanan, "Cities in the Motor Age," Potomac Valley Architect, March 1963

² Melvin M. Webber, "Order in Diversity: Community Without Propinquity," in Lowden Wingo, Ed., "Cities and Space" (Baltimore: The Johns Hopkins Press, 1963) pages 23-54

tion solutions to urban problems.

Many of these values are due to Colin D. Buchanan, under whose direction the report was produced. At the time of its inception as a high-level British Cabinet undertaking at the urging of the Minister of Transport, Ernest Marples, Buchanan was Senior Planning Officer in the Ministry of Housing and Local Government. Highway, urban transportation and parking pressures have been building up for some time in Britain (although there is still a ratio of but one car to three families) and the government shrank before the magnitude and cost of these undertakings at an American or Continental scale. When Buchanan was seconded to the Ministry of Transport three years ago it was with quite a different mandate than, in a parallel case, General Lucius Clay had in the United States when he was instructed to get the interstate highway system into motion. With its greater maturity and national unity, its extensive and discretionary planning powers and practical experience, and its freight of historic urban centers, it was obvious that in Great Britain surgery, not butchery would be needed.

At the start a parallel need for urban renewal was also recognized. Hence the British statement of the problem of "traffic in towns" was to modernize roads and mass transportation in the context of extensive urban change. Buchanan's qualifications included an interest in transportation that had led him to write an excellent book, "Unmixed Blessing: The Motor in Britain,"¹ a tough-minded determination to get to the root of things, and an admirable ability to make complicated situations as clear as a diagram. Currently he is also president of the Town Planning Institute and has become a professor of transportation in the Imperial College, South Kensington.

Buchanan formed a technical group and established them in what

This Month's Books


REVIEW

Colin D. Buchanan, *Traffic in Towns* . . . 78
BOOKS RECEIVED . . . 198

seems to have been a combination drafting studio and seminar room while the report was being written. They used a minimum of the computer hardware familiar in American transportation planning, and put a maximum reliance on well-rounded thinking. In this they were aided by a steering group headed by Sir Geoffrey Crowther, editor of *The Economist*, whose job it was to keep the economic and political realities clearly in mind. This procedural innovation could profitably be imitated not only in government but by such related inquiries as that which is being conducted by the A.I.A. Urban Design Committee. It contrasts particularly with the organization and approach of the Penn-Jersey Transportation Study, which also aims at transportation policy determination within an urban planning framework rather than the narrower objectives of highway engineering. Despite the many differences between government in Great Britain and the United States, a recognition of these administrative and political factors seems to be the first of the several values which Americans may derive from the Buchanan Report.

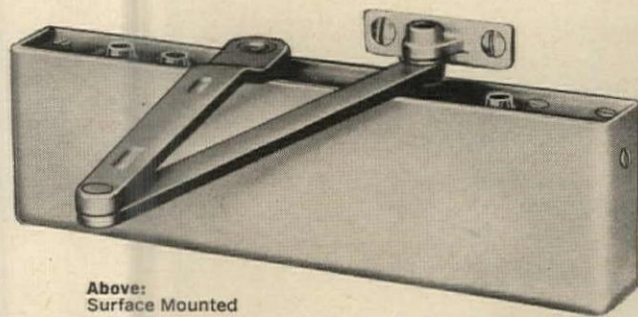
While the British are, in the matter of automobile ownership, about where we were a generation ago, it is difficult to see that either our plethora of cars or experience with auto-dominant highway plans are of much value in arriving at long-term solutions. To be sure, thoughtful observers, like Professor Melvin Webber at the University of California, have seen in the new urban pattern of Los Angeles a revolutionary innovation that may offer a whole alternative direction to our urban civilization.² But that regions of older or more constricted urban development should or could adopt this pattern evolved by a new metropolis with distinctive characteristics of rapid growth, aviation, space and petro-

continued on page 82



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Door Closers by **RUSSWIN**

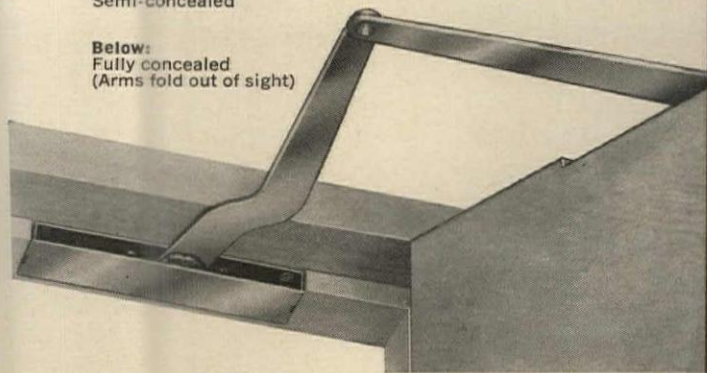
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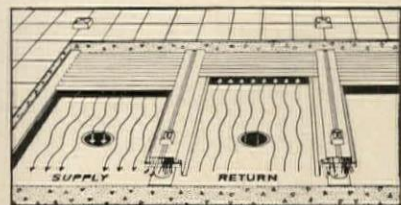
Save space by conducting air over, rather than under or around, obstructions.

Granco's new, compact A-E (Air-Electric) Floor system eliminates bulky ductwork. This saves space at *every* floor level and allows you to design a maximum number of stories into a given building height.

In the illustration above, the 12-story building was designed into an 11-story building height. A-E Floor's shallow air plenum and electrical cells (see detail right) sandwiched between struc-

tural slab and finished floor reduced over-all floor depth 25%... saving enough space for an extra story!

Saving space is just one benefit. For more information on how the A-E Floor system permits continuous grills under floor-to-ceiling windows, luminous or exposed ceilings, full services for cantilevered floors, write for new A-E Floor catalog AE-641, Granco Steel Products Company, 6506 North Broadway, St. Louis, Missouri 63147. A subsidiary of Granite City Steel Company.



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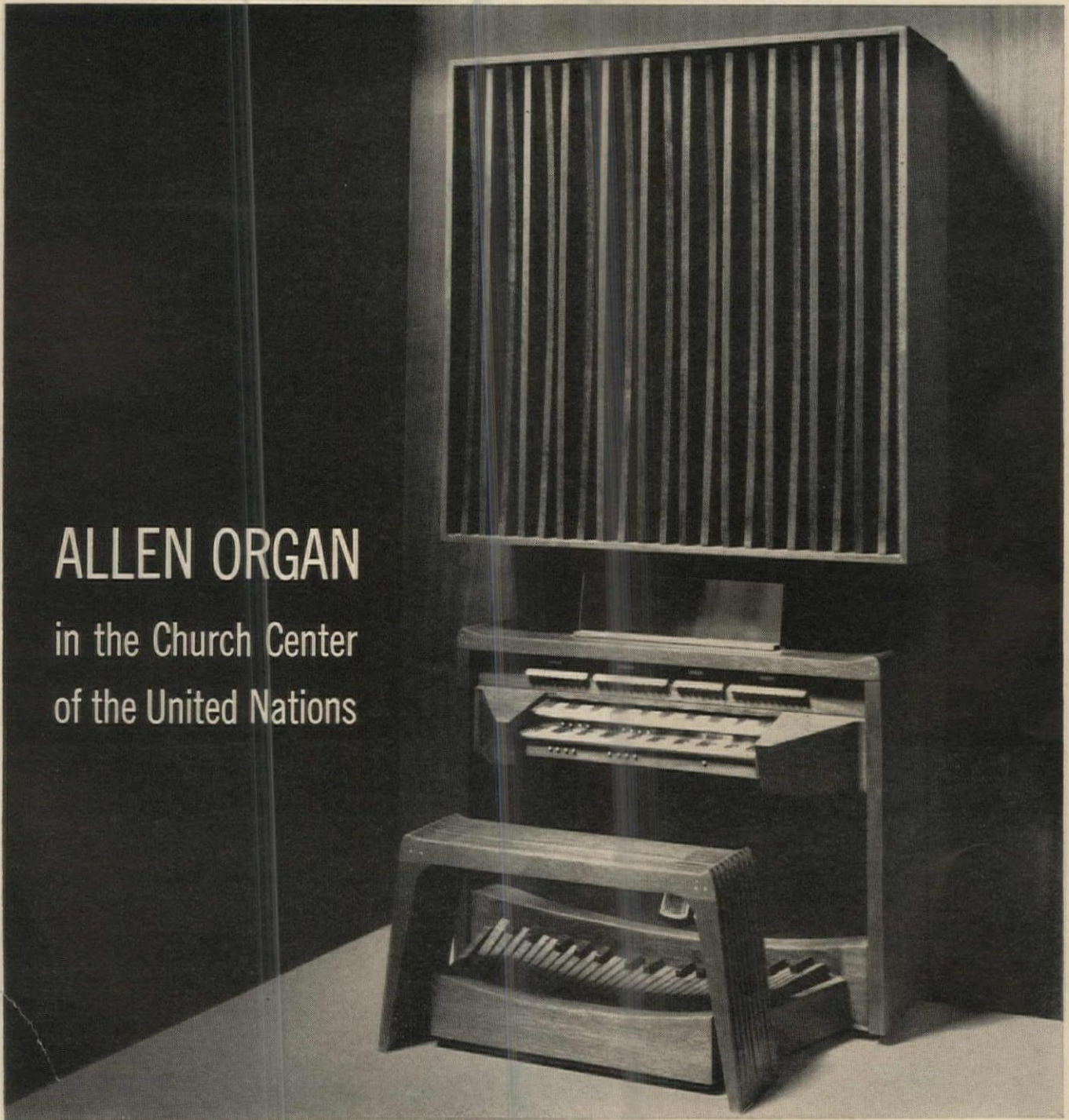


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ALLEN ORGAN

in the Church Center
of the United Nations



A model of the Allen organ in the Church Center of the U. N.

BEAUTIFUL SOUND IN A BEAUTIFUL SETTING

The Church Center of the U. N. faces the United Nations in New York.

On its main floor there is a chapel in contemporary design, of memorable beauty.

Allen was selected to construct the unique electronic organ for the Center. Classic sound was specified, using Allen 'whind,' with pitch range from 32' to 1'. The registration and control make it possible to perform music of all periods.

This is the first self-contained instrument in which each note has its own

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This engineering 'first' marks an advance in church and chapel planning. It suggests how fine tonal performance and architectural beauty can be combined in a compact self-contained organ.

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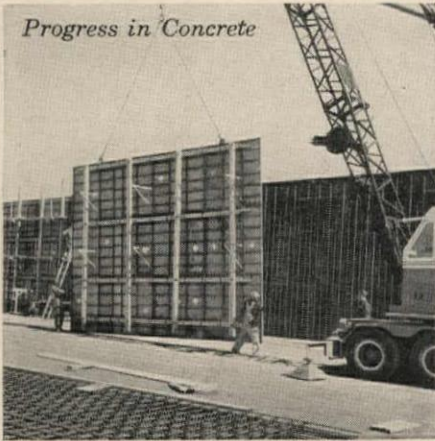
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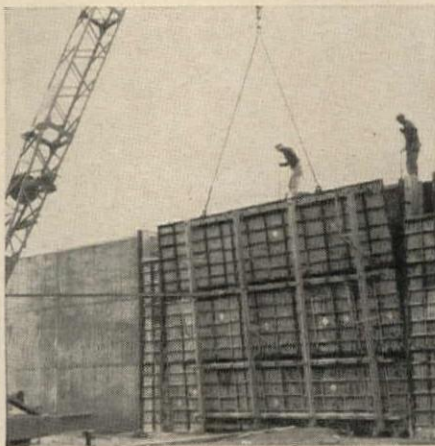
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Progress in Concrete



SYMONS GANG FORMS

SMALL CREW AND INGENUITY
MAKE QUICK WORK OF BIG JOB



Concrete subcontractor, Alsan Masons, Inc., North Brunswick, New Jersey, averaged 56 lineal feet of 18 ft. high, 12 inch thick basement walls (including two projecting concrete pilasters) each working day. The job: A two-story and basement department store (260 by 560 ft.) in Woodbridge, New Jersey, shopping center.

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Alsan ganged both Symons Steel-Ply Forms and steel mesh, and cast the heavily reinforced walls in repetitive bays, each 28 ft. by 18 ft. divided by unreinforced concrete pilasters, 2 ft. 4 in. wide and projecting 1 ft. from the inside wall face.

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For quick stripping of Symons Gang Forms, Alsan used the stationary drum in the crane's cab. A steel hook, attached to the stationary drum, was hooked onto the second line of walers in the gang form. After carpenters pry the top of the gang away from the concrete the crane finishes stripping in one motion by pulling upward with boom hitch and outward at same time with hook from stationary drum cable.

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MORE SAVINGS FROM SYMONS

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Required Reading

continued from page 78

chemical industries, a distinctive and large structure of higher education, and massive scientific research and development operations (and consequent characteristic transport demands) is far from clear. I suspect that where American conditions, as in the Boston-to-Hampton Roads East Coast urban belt, resemble those in Great Britain, Buchanan will speak for us all.

Design as a Tool

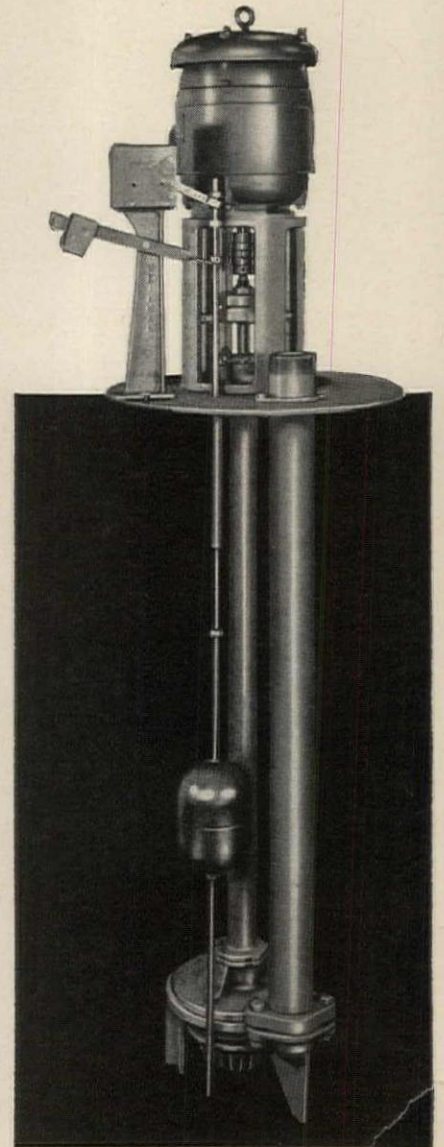
The substance and the method of the Buchanan Report are best illustrated in the several case studies which comprise the body of the document. Dealing with a range of urban situations, from the 30,000 population town of Newbury (Berks.) to a relatively small section of Central London, the case studies test the analytical and design principles offered in the report. The exercise also revealed shortcomings of existing data. It is, however, as an effort of design that the case studies show the recognition of values, the perception of alternatives and their consequences, and the application of professional judgment rather than merely quantitative methods. The result is an impressive overturning of the piecemeal conclusions, resting upon partial bits of data (however much refined) that have led to such absurd recommendations of highway engineering in the United States. The analytical method thus allows the *simultaneous and interacting* development of traffic and environmental proposals.

"The general problem in the town center is the now familiar one of reconciling accessibility and environment. With regard to accessibility, in view of the future great increase in car ownership, the problem is mainly concerned with the provision of sufficient and convenient parking space, and the vehicular access to it. As to environment, we took it to be a reasonable first assumption that the center of Newbury should be retained broadly as it stands without sacrifice of the buildings of architectural and historical interest and the present character and atmosphere. Two other objectives for the center

continued on page 86

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Inexpensive — Dependable
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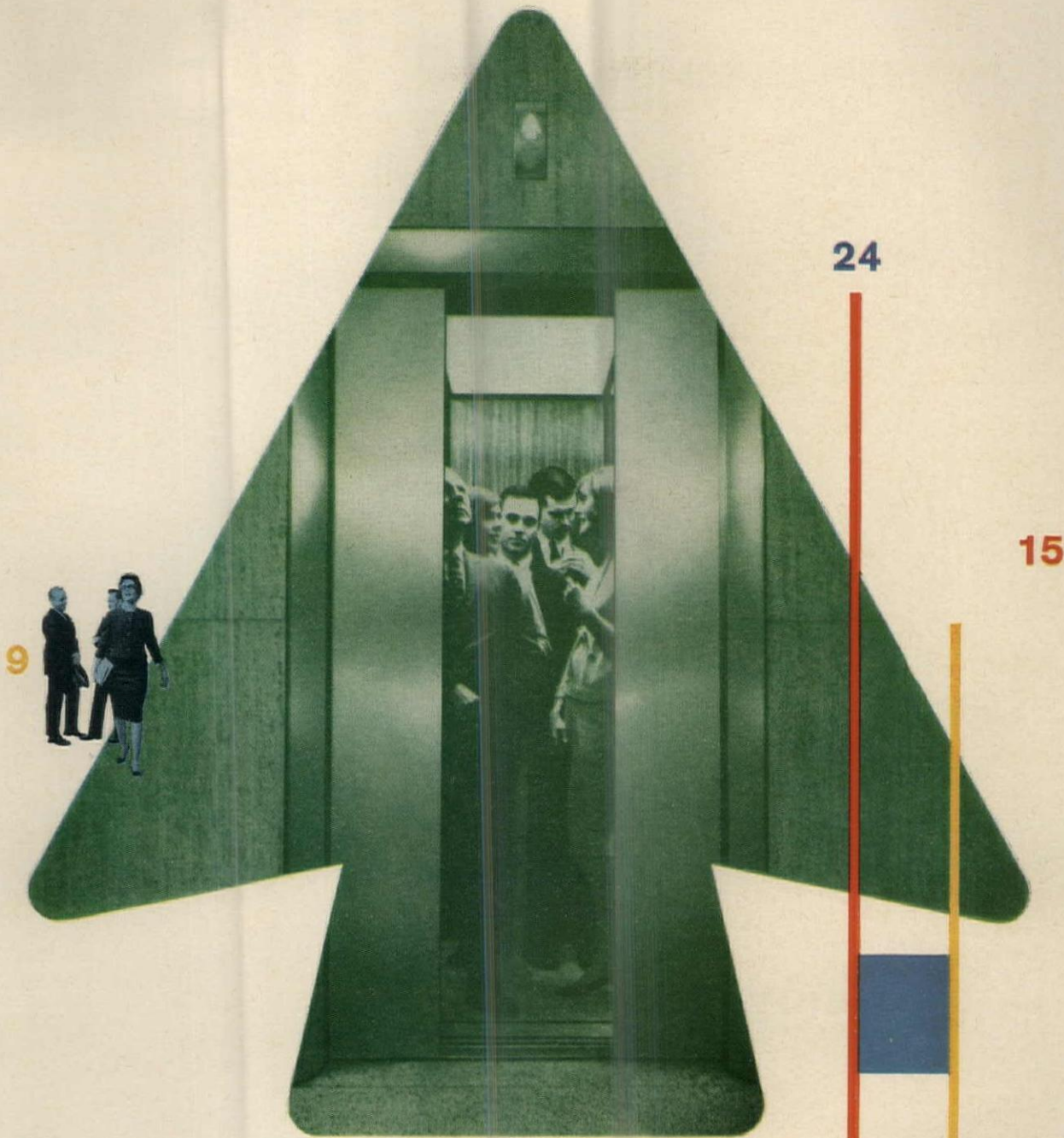


Your most reliable solution to handling drainage water, pumping liquids containing small, non-fibrous trash and prevention of sump flooding is an efficient WEINMAN Sump Pump. Engineers agree Weinman Sump Pumps are the answer to low maintenance costs with little or no downtime. Weinman vertical submerged sewage ejector pumps give the lowest cost performance in handling liquids containing sewage, trash and other foreign matter.

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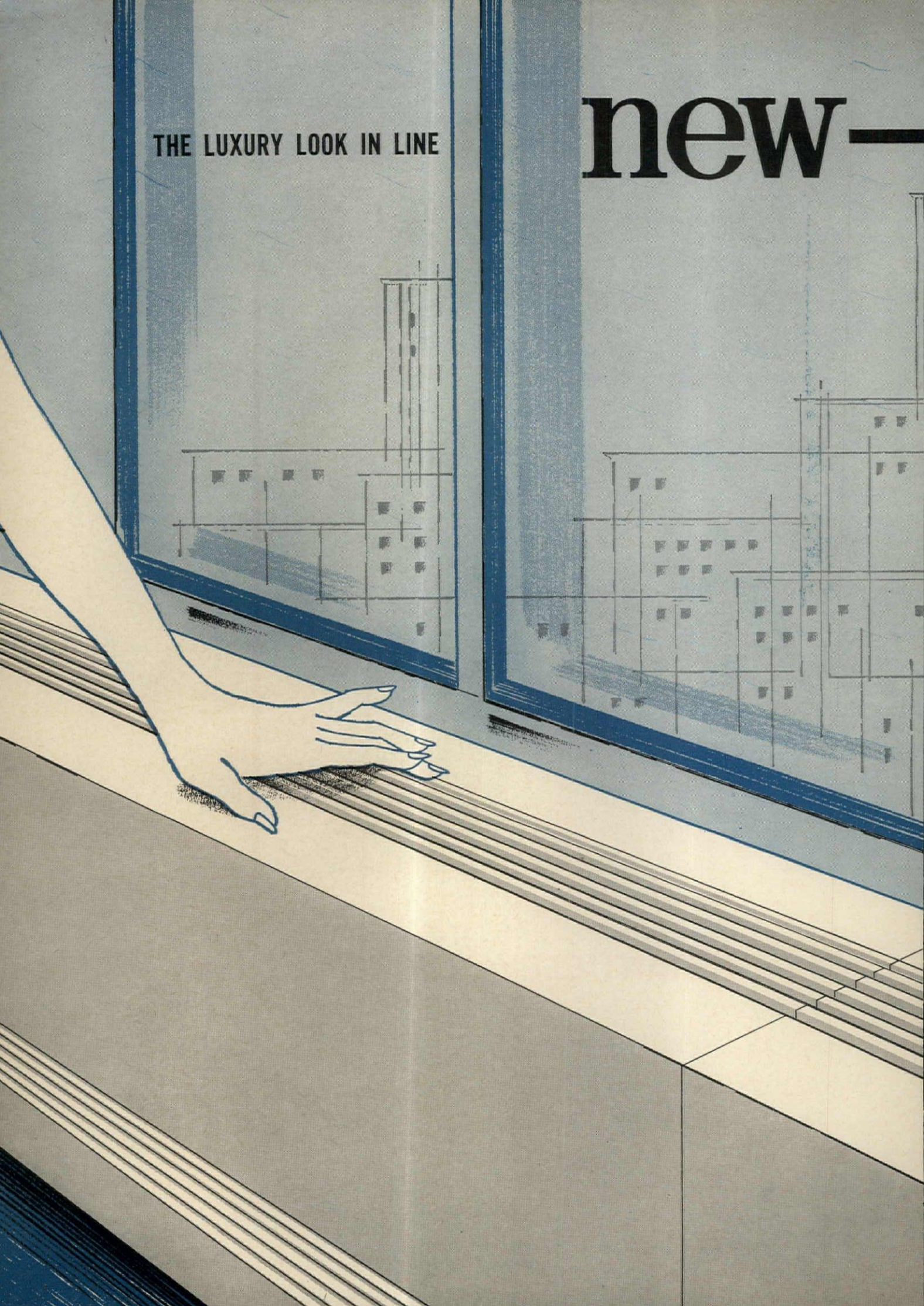
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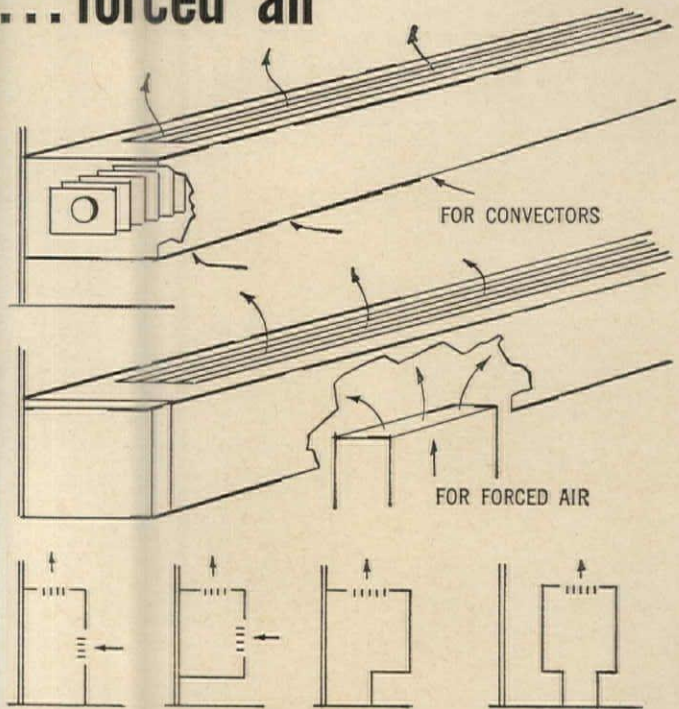
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Here's new beauty in architectural design, new versatility for handling air distribution at the low sidewall and floor levels.

These new, ultra-modern-looking, all-aluminum Titus enclosures are perfect for convectors, radiators — forced air heating and ventilating units. Their attractive linear design can be used to harmonize with, or accent the overall architectural motif.

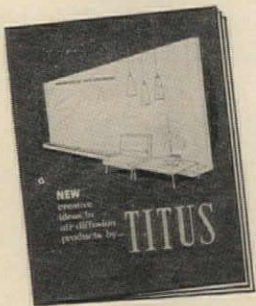
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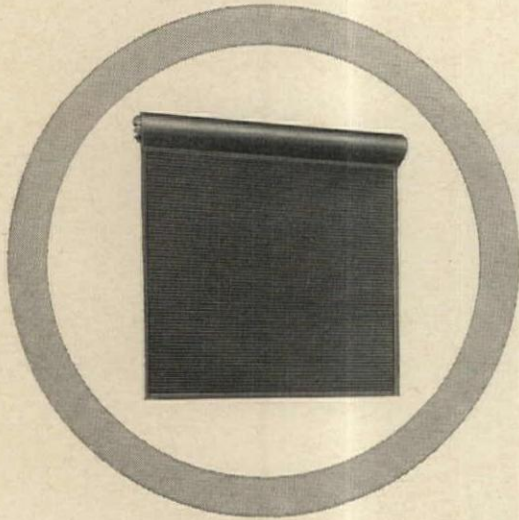
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Required Reading

continued from page 82

were defined: that so far as possible the center should be made safe, and that living and working conditions should be made secure against erosion by the motor vehicle."

Given these objectives, a new methodology was evolved, an important element of which was the "environmental appreciation," a rapid survey technique.

In the final plan several degrees of urban redevelopment are described, each corresponding to a hypothetical future level of traffic requirements. This drives home the main finding of the report: the inseparability of the two interdependent factors. Hence, the report poses the basic question: do we want to accommodate this much traffic if the consequence is (1) the destruction of environmental values; or (2) drastic measures of urban redevelopment? To arrive at a rational choice between such alternatives is, the report assumes, the very essence of planning. That it seems so remarkable to Americans is because it is a choice we have never been allowed to make. To our compartmentalized thinking, the answer to traffic jams is more roads and parking; and when the erosion of cities has advanced far enough, it is time to "redevelop" them.

The Role of Politics

The decisions about how much traffic to accommodate, and what degree of redevelopment to undertake, the two pretty much deciding how much tax money is to be spent or what degree of environmental deterioration to allow, are considered by the Buchanan Report as a political rather than technical matter. As Professor Buchanan said in a BBC broadcast commenting on his report: "We make no recommendations as to the amount of traffic that should be sought or how much money should be spent or the kind of "new look" that should be accepted, these being matters for political decision."

The American reader will find in this sophisticated book not only much that is relevant but some trenchant observations on conditions here. Here is one sample insight:

continued on page 94

**RENAISSANCE IN BOSTON...
WINNING DESIGN FOR CITY HALL
EXPRESSES DARING AND VITALITY**

Rising above historic old Scollay Square, the striking facade of this new city hall marks the rebirth of Boston's core city. The unique design, chosen from 256 entries in a nationwide competition, presents dramatically the structural and decorative potential of modern concrete. □ The 9-story building locates spacious public areas at lower levels, offices on the top floors. In between, ceremonial chambers of varying sizes and shapes are suspended at random levels. The massive concrete columns are cast in place. Their patterned surface texture, derived from the formwork, contrasts effectively with the smooth faces of precast trusses and the frieze of right-angled precast panels. □ Today, the versatility of modern concrete provides unlimited scope for creativity. In the Boston competition, 7 of the 8 finalists had chosen concrete to express their design concepts.

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An organization to improve and extend the uses of concrete

THE BEST IDEAS ARE MORE EXCITING IN CONCRETE



Architects and Engineers for the Boston City Hall, a joint venture, include the following firms: Architects: Kallmann, McKinnell & Knowles (design team) and Campbell & Aldrich. Structural Engineers: Wm. J. LeMessurier & Assoc., Inc.

HEATH

Lightweight Jamison JAMOLITE doors improve appearance and performance in food service installations

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cooler and freezer rooms*



Jamolite Cooler and Freezer Doors in food service use.

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COLORFUL JAMOLITE Doors are available in gleaming white, ivory, salmon, blue and blue-green to harmonize with any interior. It is an all-plastic door insulated with 4" of foamed-in-place polyurethane which forms a permanent, rigid bond with the outer door shell.

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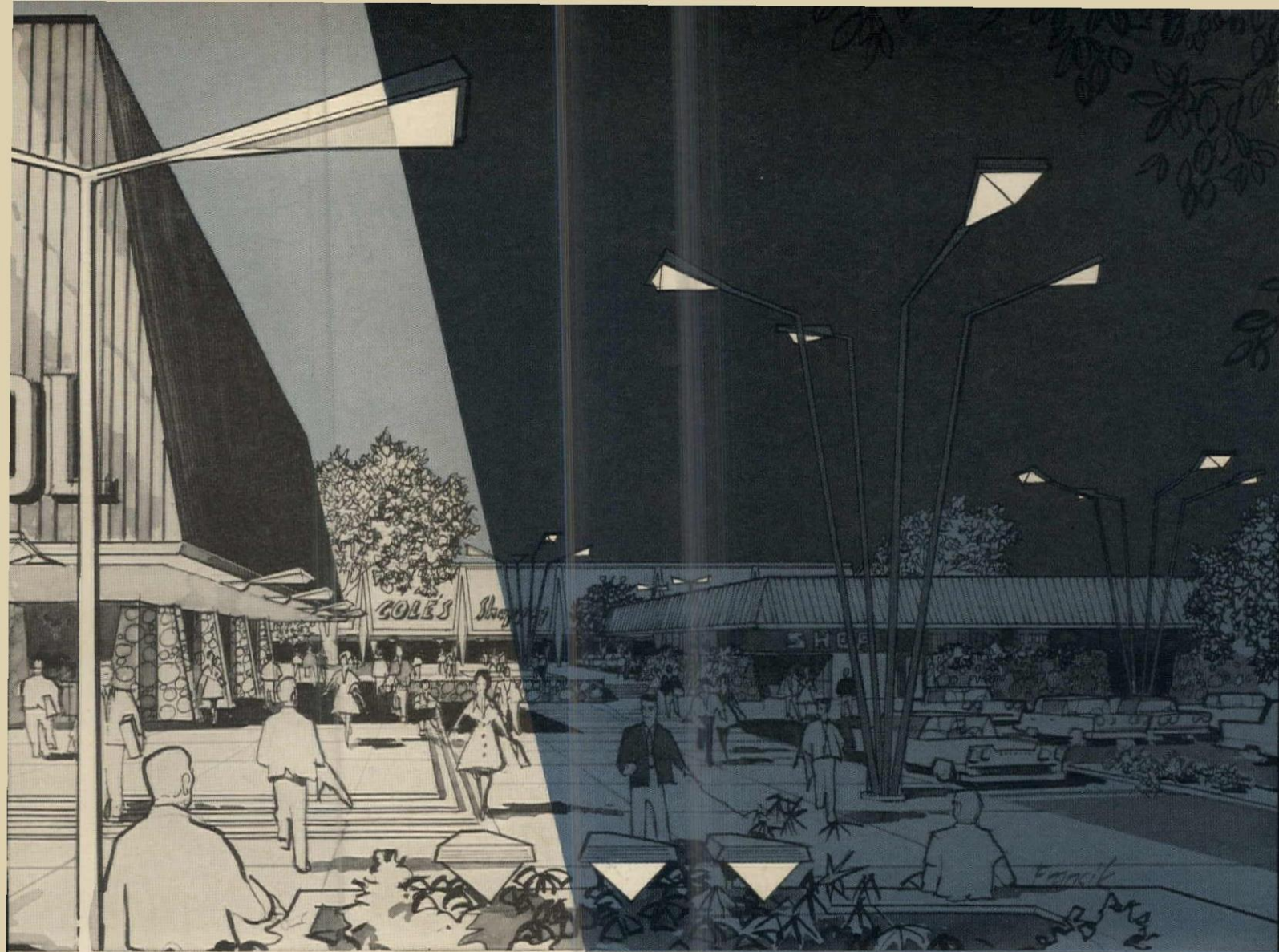
NSF Approval

JAMOLITE Food Service Doors conform to all applicable standards and criteria of the National Sanitation Foundation Testing Laboratory, Inc., meeting high public health standards.

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COLD STORAGE DOORS

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The needs of shopping center lighting are diverse. They range from high-intensity lighting for a large parking lot to low-level mood lighting for a garden or mall. Revere's Concept-5 series does the entire job. It includes appearance-matched luminaires, poles, and brackets that cover every lighting need. It allows the specifier to achieve design harmony throughout the center.

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Concept-5 series luminaires with built-in ballasts are available for 1000-watt, 400-watt, 250-watt, and 100-watt color-improved mercury lamps. Silvermist

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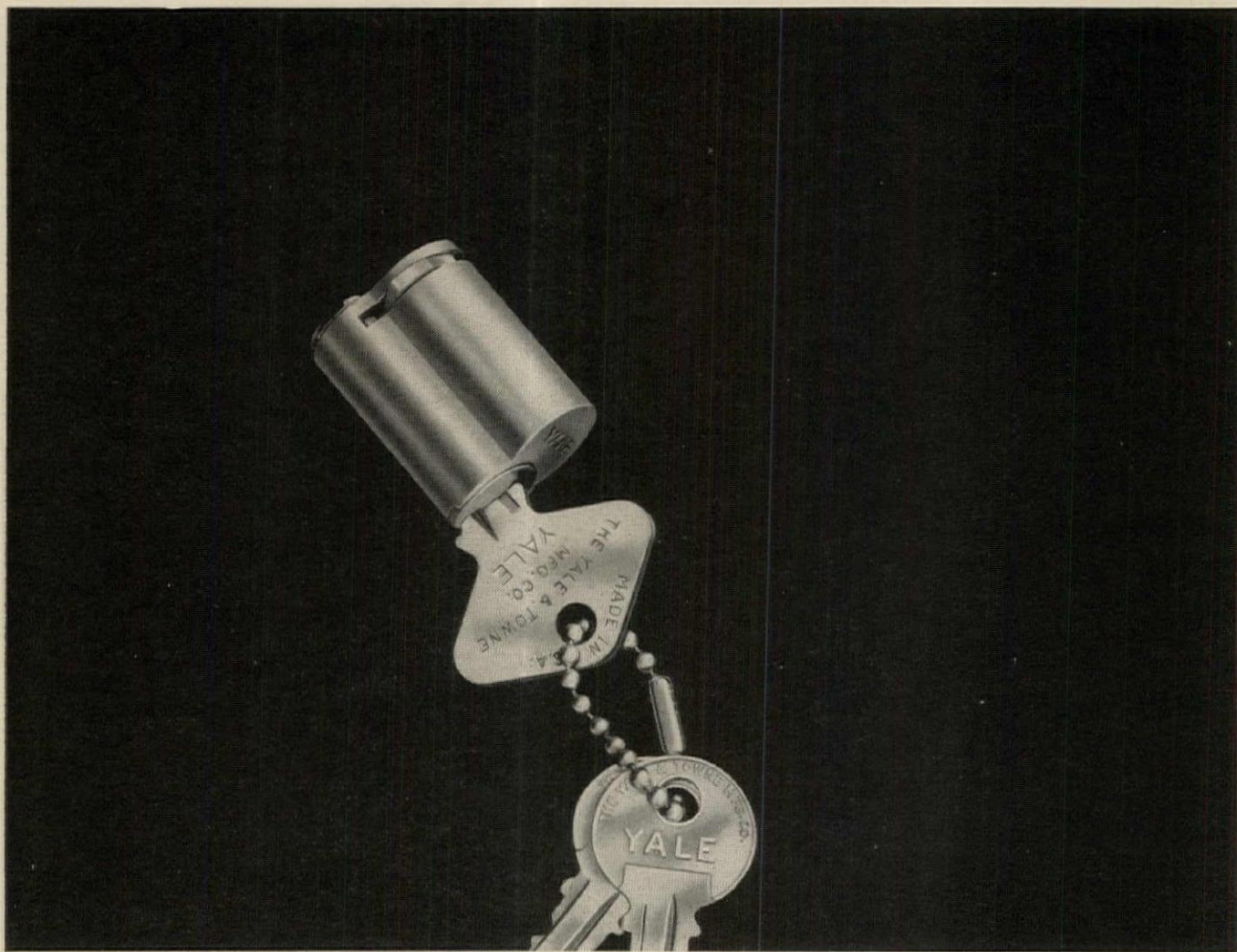
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Yes.

How's that? That's the Yale removable core system—the only complete removable core system. The Yale removable core can be used in six different kinds of locks simply by removing one core and inserting another. Each change gives you the security of a new lock. This eliminates danger

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YALE[®]
THE FINEST NAME IN
LOCKS AND HARDWARE
YALE & TOWNE

For more data, circle 76 on Inquiry Card

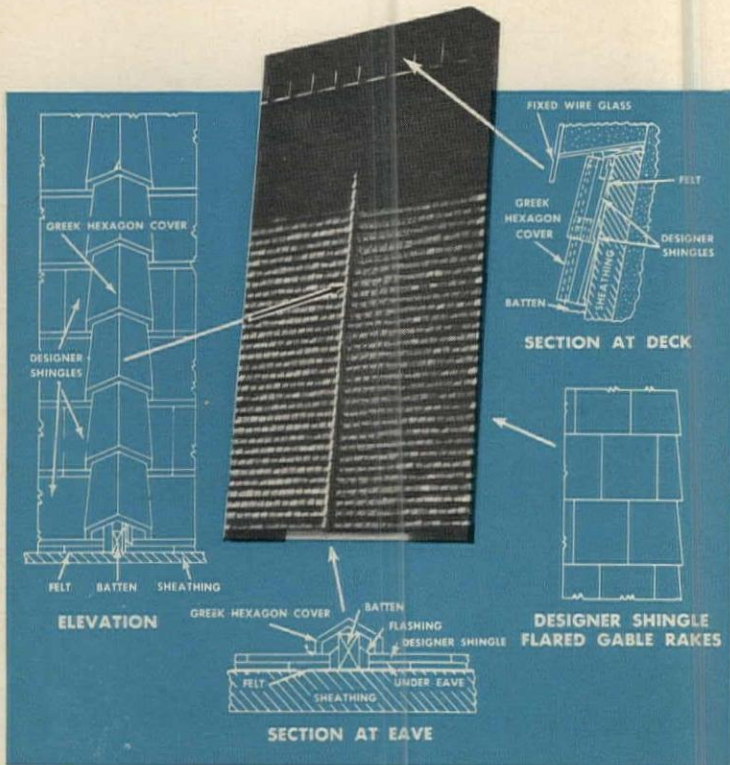


Harris Memorial Methodist Church
Honolulu, Hawaii

Architects:
Wilson Associates, Inc., Honolulu

Roofing Tile:
Ludowici-Celadon

When the Roof Becomes a Major Element in the Design...



Architects depend on Ludowici-Celadon tile roofing for versatility of texture and color . . . In this imposing edifice, modern Designer Gray is accented by the classic Greek tile motif for a pleasing effect . . . but equally important is the fact that the roof will retain its permanent beauty and enduring protectiveness for generations to come. We'd like to send you our free illustrated brochure.

For additional information, write Dept. AR

*** LUDOWICI-CELADON CO.**
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Manufacturers of quarry tile, the nation's largest producer of roofing tile and NAILON Facing Brick

DESIGNER tile roofing is one of the several Ludowici-Celadon patterns and colors offering wide flexibility in exterior design. Here it is combined with Greek tile over the battens.

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manufacturers of the
finest toilet compartments made

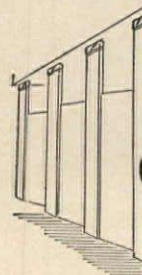
now introduces

GLO-porcel[®]

*an entirely new concept of porcelain enamel
and stainless steel toilet compartments*

GLO-porcel compartments are made of quality verified "QV" stainless porcelain enamel steel sheets bound with 302 stainless steel ● brilliant hard-wearing color panels are engineered into a completely new construction for enduring wear in a new, clean square look ● costs just a bit more than 1/2 of present porcelain compartments ● so new, it's not listed in Sweet's ● so different, you'll love to specify it ● so simple and so far superior to anything you've ever used before, you'll have to see our detail and spec sheets — (may we send you one?) ● ● ● *incidentally, GLOBAL's brochure embracing a complete line of toilet and bathroom accessories also available for the asking.*

GLO-porcel[®] is a
new development of



GLOBAL
STEEL PRODUCTS
Corporation
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All you need to rearrange your lighting is our Universal Lighting Duct,



and a ladder.

It's that simple. No more expensive, extensive lighting jobs. No more rearranging equipment to fit lighting arrangements. Just unplug. Move lights. Or add new lights. Or take lights away. Then plug in again. And you're finished. Any wonder

we call it a *Universal* Lighting Duct? For further information contact your local I-T-E Sales Office or write the Bulldog Division, Box 177, Detroit, Michigan 48232. In Canada: 80 Clayson Rd., Toronto, Ontario.



I-T-E CIRCUIT BREAKER COMPANY

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THE STANDARD DECORATION
**FOR WALLS THAT
 WORK FOR A LIVING!**



MALMFELDT ASSOCIATES, ARCHITECTS
 of the new \$8,825,000
HARTFORD HIGH SCHOOL, CONNECTICUT, say:

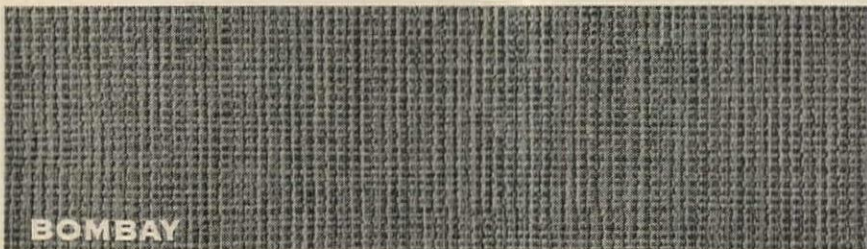
"Wallclad Heavy Duty offered us beauty in its wide selection of colorings. We installed 90,000 square feet of the Bombay pattern in 10 different colors in the cafeterias and classrooms." In addition you'll find that Wallclad has been specifically designed for institutional, commercial and industrial hard wear. It is durable, scuff and stain resistant vinyl that's washable and easy to maintain. Wallclad is made in two weights and can effect savings of up to 50% over comparable products for this reason.

Wallclad is listed by Underwriters' Laboratories, Inc. and meets the specifications of Federal, State and Local agencies.

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 INSTITUTIONS HAVE
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Las Vegas, Nev.
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Wallclad
 VINYL
 FABRIC WALL COVERING
 BY THE MAKERS OF **Sanitas**



BOMBAY

STANDARD COATED PRODUCTS INCORPORATED, Buchanan, New York
GENTLEMEN: Please send me quality samples and specifications on WALLCLAD Vinyl Fabric Wall Covering.

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 COMPANY _____
 ADDRESS _____
 CITY _____ STATE _____ AR/6

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Required Reading

continued from page 86

"The American policy of providing motorways for commuters can succeed, even in American conditions, only if there is a disregard for all considerations other than the free flow of traffic which sometimes seems to be almost ruthless." Among other shrewd comments on American conditions I might mention the skepticism with which the report views the mandatory provision of parking space in office buildings, and its general treatment of the renaissance of public mass transportation. Further useful observations will be found in the discussion of commuter travel, particularly the case for subsidized mass transportation and user charges (especially parking charges) as a means of limiting the use of private vehicles. "Distasteful though we find the whole idea, we think that some deliberate limitation of the volume of motor traffic in our cities is quite unavoidable. The need for it simply cannot be escaped." This thought is courageously elaborated, and one hopes that some of the technical papers commissioned by the Buchanan group dealing more extensively with these issues will be published.

Limit Traffic and/or Towns

Given this approach, a good deal of the report deals with another heresy: the limitation of motor traffic. Exclusion of vehicles from city centers, whether in whole or in part, is one of these. Control of parking, and the pricing of parking charges to regulate the use of new parking facilities, is another. The regulation of traffic to allow some categories of trips (buses, commercial traffic) and to restrict others (commuting, shopping) is also explored.

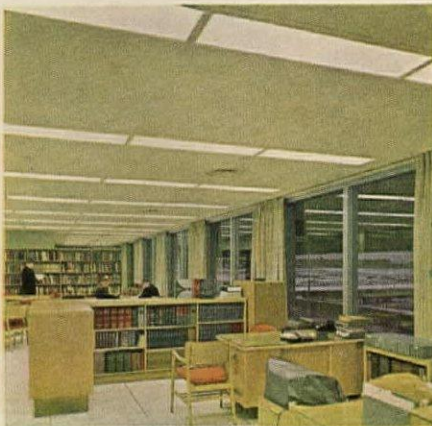
A corollary to the limitation of traffic, of course, is to limit the size of towns. While this implication is recognized, and with it the whole apparatus of metropolitan planning, greenbelts and new towns that have been developed in Great Britain since the war, it is not explicitly discussed. Under British conditions the maximum efficiency of a free-standing town seems to be reached at about 200,000 population. The subdivision

continued on page 102



3M Company Administration Building, St. Paul, Minnesota. Architects & Engineers: Ellerbe, St. Paul.

Lighting for prestige buildings



At the new 3M Company Administration Building in St. Paul, lighting of the highest quality is obtained through nearly 11,000 control lenses injection molded of PLEXIGLAS® acrylic plastic. Each lens is a single, precisely designed, four-foot molding that provides a high level of directed light with minimum surface brightness.

Because the lenses are made of PLEXIGLAS—100% acrylic—they will not discolor. They are also

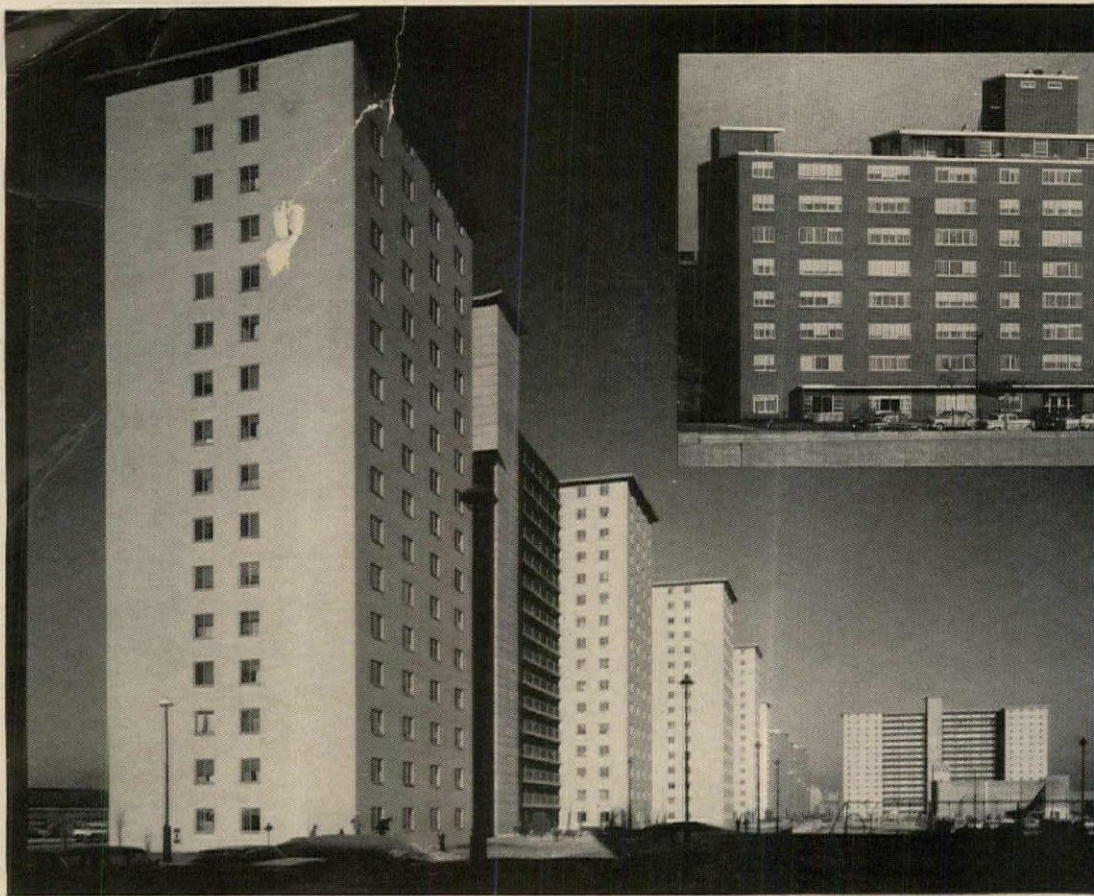
strong, rigid and light in weight. That is why PLEXIGLAS is the best choice for lighting that stands out and stands up.

We will be pleased to send you literature, and the names of manufacturers of lighting equipment utilizing control lenses of PLEXIGLAS.

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FOR THE ELDERLY—Chicago**
 Architect:
 Loewenberg & Loewenberg
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 Sumner Sollitt

**ROBERT TAYLOR
HOMES—Chicago**
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as long as your buildings stand...

Cast Iron Soil Pipe Assures Them a Trouble-Free Plumbing Drainage System

Your pride, reputation, and confidence in your ability as a specifier are part of every structure that comes from your mind and hand. Yet, to sustain your specifications you must rely on the quality and performance of materials and products, and the integrity of the manufacturers.

☪ cast iron soil pipe is one product that never lets you down when you specify for big buildings. More than a century, cast iron drainage piping has endured all specifications for dependability. That's why today it is the *one* piping material approved by every Plumbing Code in the nation!

Cast iron soil pipe resists all ordinary sewage acids and chemicals, and human wastes. Nails can't puncture it. Its joints are gas-tight and water-tight; they

do not open up with ground movement or under the crushing weight of backfill, thus preventing infiltration, sewer backup and exfiltration.

The ☪ mark on soil pipe assures dependable quality and conformance with the commercial standards established for public protection by responsible American manufacturers of cast iron soil pipe and fittings, through the Cast Iron Soil Pipe Institute. Keep this in mind when you specify plumbing drainage piping. The ☪ specification includes quality protection for both you and your clients. To simplify specification writing, let us send you free, the Institute's Book of Standards for Cast Iron Soil Pipe and Fittings. Also a handy pad of gummed ☪ specification forms. Just mail the coupon.



CAST IRON SOIL PIPE INSTITUTE

205 West Wacker Drive, Chicago, Illinois 60606

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CORROSIVES... CAST IRON SOIL PIPE STOPS THEM!

Corrosive acids and alkalis in ordinary sewage are archenemies of plumbing drainage systems in all big buildings. But they have virtually no effect on the strong, dense walls of **☞** cast iron soil pipe—even after generations of service. This one advantage alone makes **☞** cast iron soil pipe the most durable, economical piping for all drain, waste, vent and building sewers. This is an important fact to remember when you specify for big buildings.



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Cast Iron Soil Pipe Institute, Dept. B
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Gentlemen: Please send us:

- Pads of **☞** specification forms
- Book of Standards for Cast Iron Soil Pipe and Fittings (CS188)

Firm name _____

Your name, title _____

Address _____

City _____ State _____ Zip Code _____

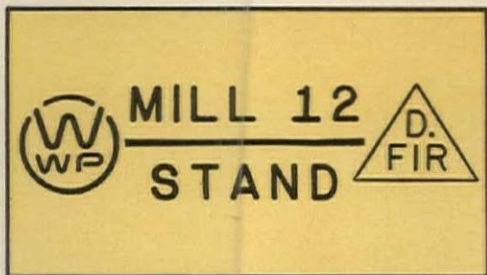


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WATCH FOR

a new hallmark of lumber quality





This is the new grade mark which will soon be found on Western lumber. It has been adopted by the WESTERN WOOD PRODUCTS ASSOCIATION—a group of leading manufacturers, formerly members of the West Coast Lumbermen's Association and Western Pine Association, who have combined into one progressive organization in order to serve you even better than before.

The new WESTERN WOOD PRODUCTS ASSOCIATION includes manufacturers in 13 Western States, an area producing more than 65 per cent of all the softwood lumber in the United States.

The new grade mark, that will appear on lumber produced by the combined member mills, is an assurance of lumber quality for specifiers, sellers and users of lumber.

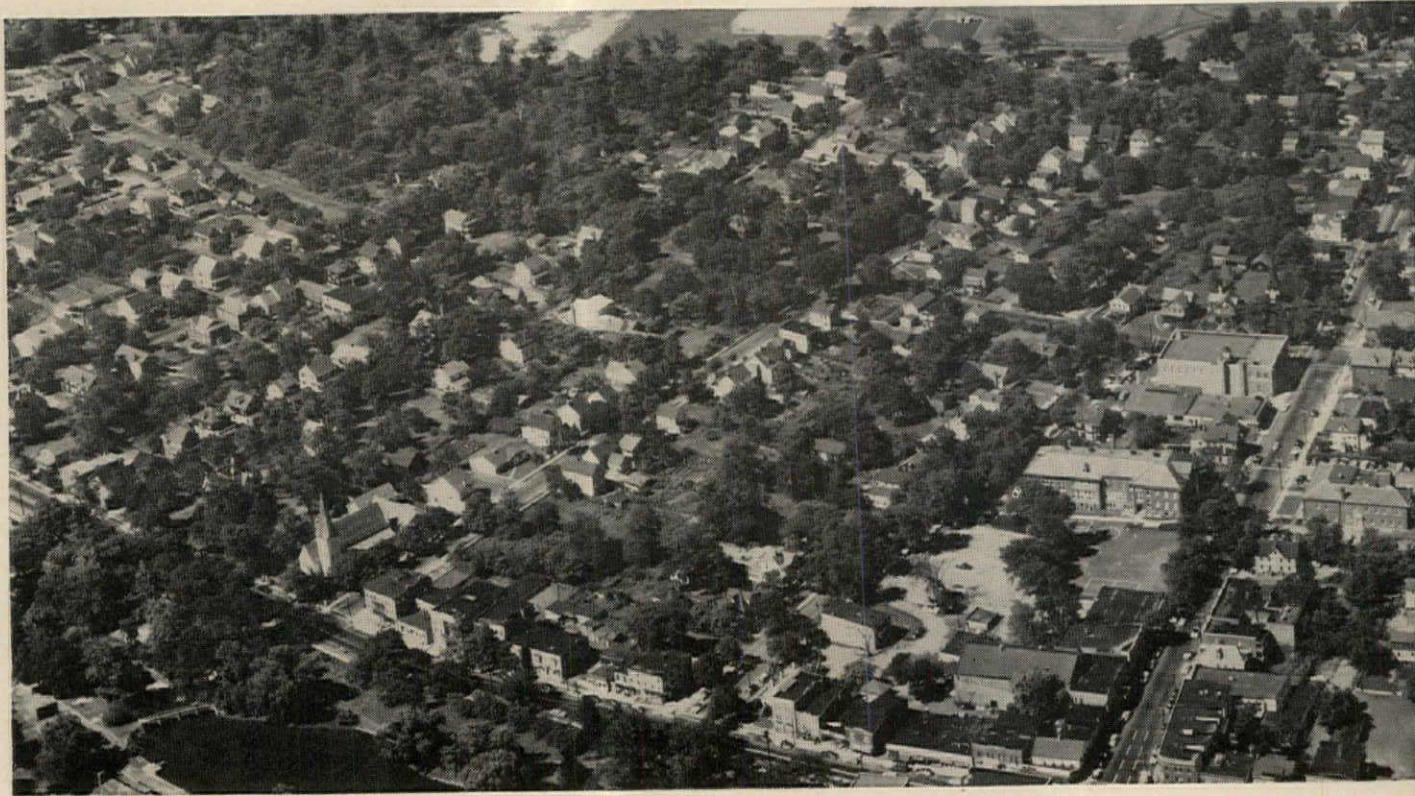
The same practical variety of grades will be available, using the same names. The only difference will be that the one new hallmark of quality will appear on all of them, as your assurance of satisfaction.

The high ethical standards and integrity of both organizations will be combined and continued in the new Association.

The new grade mark will appear on the following species: Douglas Fir, Engelmann Spruce, Idaho White Pine, Incense Cedar, Lodgepole Pine, Larch, Ponderosa Pine, Sitka Spruce, Sugar Pine, Western Hemlock, Western Red Cedar and White Fir.

**For further information, write:
West Coast Lumbermen's Association
1410 S.W. Morrison St., Portland, Ore. 97205**

If you were planning this community
you could heat and cool every building
with Janitrol **because**



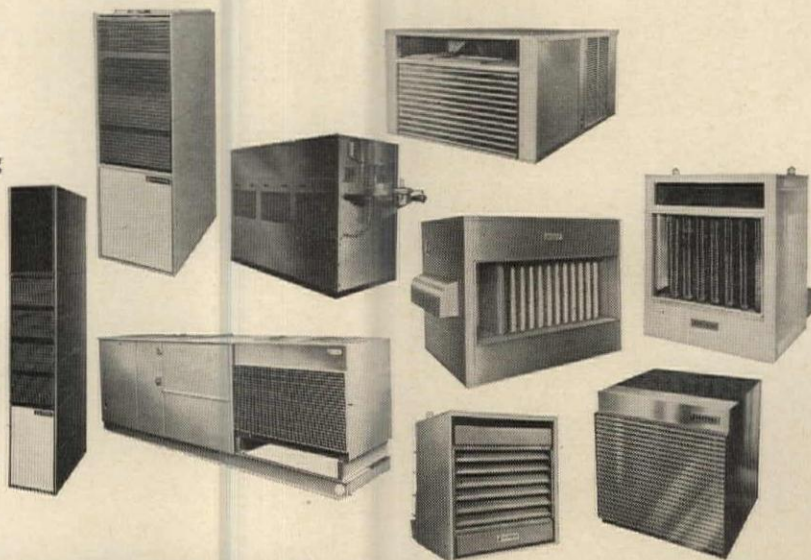
Janitrol gives you more to work with

Start with quality heating and cooling equipment. Then add the factors that make your job easier. That's where Janitrol gives you an edge. When you work with Janitrol you've got more to work with . . .

More products. Janitrol's complete quality line gives you specification flexibility for any cooling or heating application . . . boiler for forced air . . . gas, electric or oil fuels. The Janitrol line is available in a wide variety of heating and cooling capacities covering residential, commercial and industrial applications. Included is take-up air systems, unit heaters, year 'round gas/electric packages, forced air furnaces, add-on cooling, electric heat pumps and gas or electric driven air conditioners.

More engineering know-how. Janitrol's long-time experience shows off in dependable design and engineering. You know when you specify Janitrol equipment it will perform efficiently at or above rated capacity. You know it will give long-life service with a minimum of maintenance. (Words your owner likes to hear.)

More availability. Janitrol's two factories at Columbus, Ohio, and Phoenix, Arizona, plus regional warehouses help meet your completion schedules with products when and where you need them. Twenty-four hour delivery in most areas.

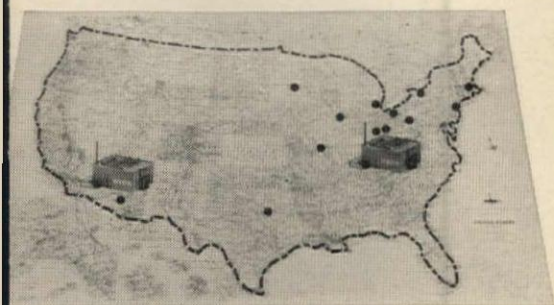


More technical help. Janitrol's expert C&I field force of experienced district managers are on call to help you lick your toughest problems . . . help you select the right equipment to fit your exact requirements, handle layouts, take-offs and whatever is necessary to help you get the job right.

More reliable data. Janitrol technical data and specifications are planned to give you more information of the kind you need—complete, well organized, accurate.

Contact your Janitrol District Manager for full details . . . he's in the yellow pages.

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Midland-Ross Corporation
Columbus, Ohio Phoenix, Arizona



Janitrol gives you more to work with—let's go to work

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THIS BINDER
IN YOUR FILE ?**

Ask for it by name . . .

HAW S Catalog File Binder maintained with catalog sheets as they are issued, thereby providing the finest source for information on:

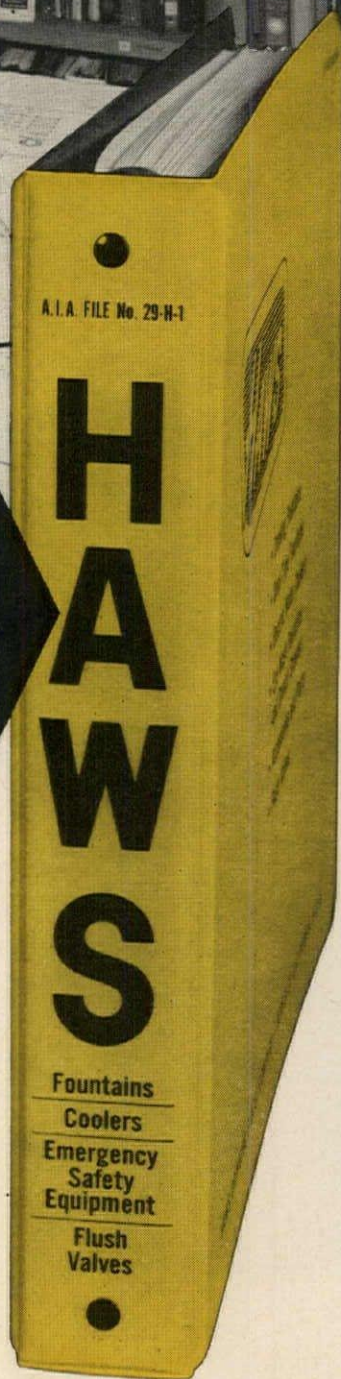
- Drinking Fountains
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- Emergency Safety Equipment

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Required Reading

continued from page 94

of existing cities into "environmental areas" for planning and regulation, and the creation of "new towns," might well aim at this figure rather than the classic 50,000 scale garden city exponents still advocate.

Another similar extension of the report is the case for public mass transportation. In the larger cities, this is obligatory. Compared to the alternative costs in rebuilding cities or making provision for increased traffic (particularly at peak hours) any imaginable transportation subsidies are miniscule.

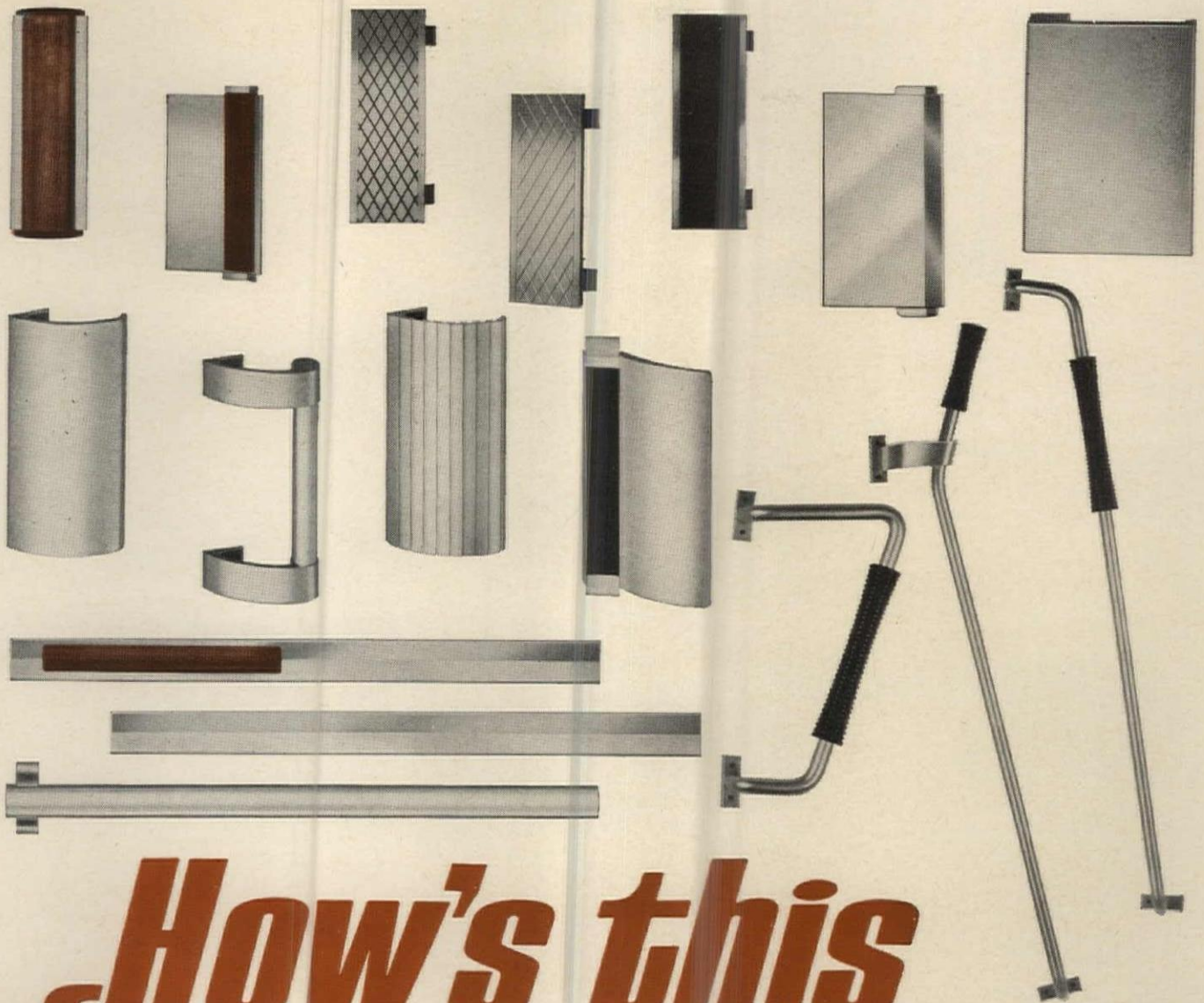
As the Buchanan Report elaborates, it is possible to build at very high densities. But if the environmental standards are not to be sacrificed, the result will be extremely expensive because of the need for double-decking, traffic separations, parking structures and, of course, the large amounts of land required for these features. Since we seldom are given the total amount of such work and the total cost involved, many highway plans have been presented in an exceptionally favorable light—and this has been compounded by the 90-10 Federal grant formula under which most urban expressways have been built. What Buchanan's "law" obliges us to recognize is that something has to give in the highway-dominant solutions: usually it has been the environment. The consequence is the danger, noise, fumes, vibration, the constant movement of traffic and the destruction of residential amenity.

Need for New Urban Form

That we need new kinds of cities to use our automobiles fully nevertheless thus becomes the basic finding of this study. The magnitude of these changes is boldly recognized. As the Crowther group says: "We see no reason to be frightened of [this gigantic program of urban reconstruction]. The central sections of most of our cities were very largely built in a few decades of the 19th century, and the rebuilding necessary to implement the ideas of the Buchanan report—which would be very much less than total reconstruction—should not be beyond the powers of a few decades of our century.

continued on page 199

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How's this for openers?

YES! Specify new aluminum doors by AMARLITE and you have an outstanding selection of hardware... all of the hardware available in the past, plus four new pulls and three new pushbars, including optional Staminawood pulls! You'll like the new hardware... and the new door! It features tie-rod construction, four new glass stop designs... new pivots and butts with ball bearings and stainless steel pins... new AMARLOCK with burglar-proof recessed cylinder! For details contact the office nearest you, or write AMARLITE, P.O. Box 1719, Atlanta, Georgia.

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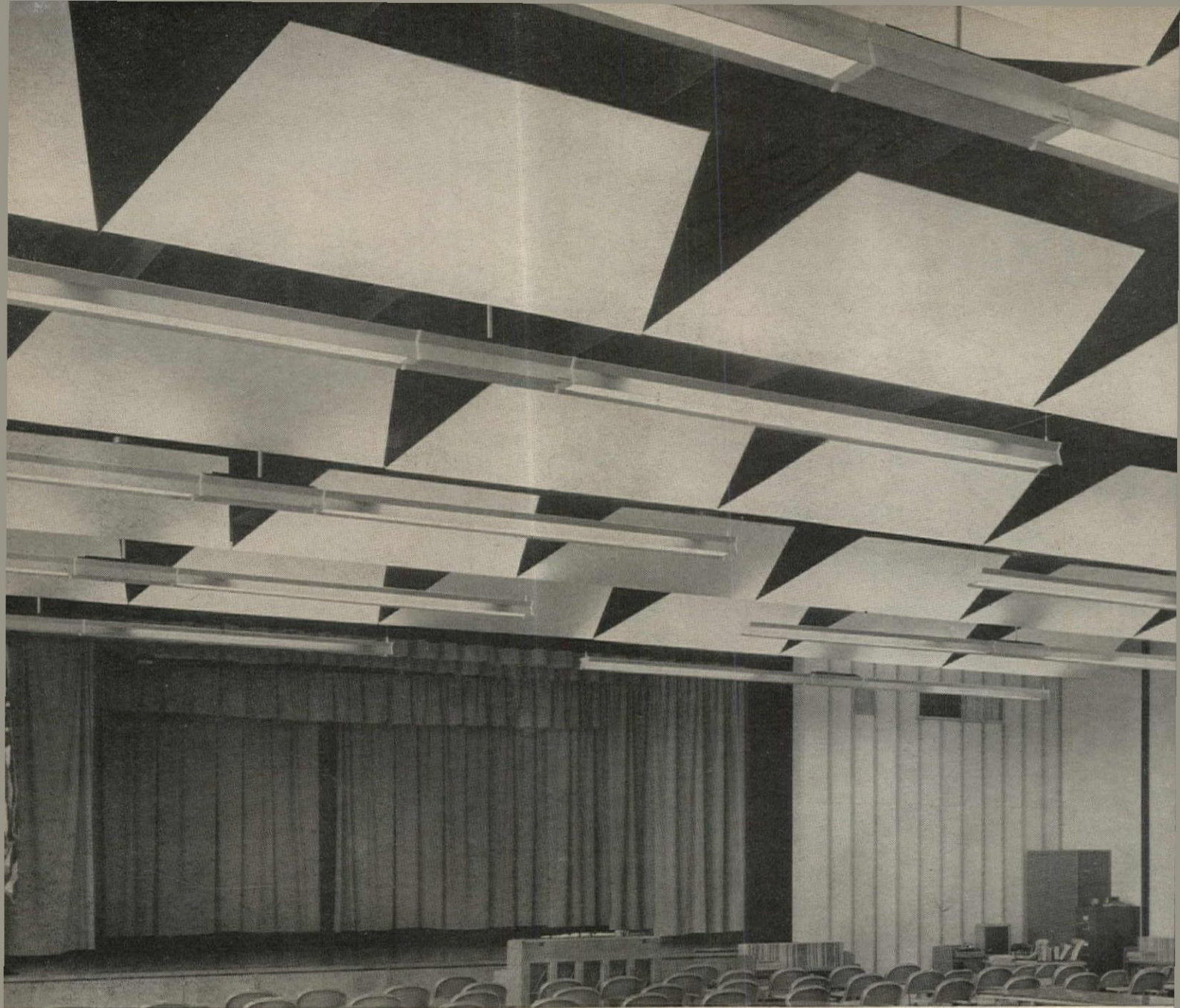
Chicago, Illinois
Cleveland, Ohio

Dallas, Texas
Paramus, New Jersey

Atlanta, Georgia
Los Angeles, California



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Some lighting fixtures “talk” versatility, Encore

Here's a lighting system that's not “just another fluorescent fixture.” Or last year's model with a new latch.

Encore is a “first rate” commercial fluorescent system made of die-cast and extruded aluminum. Best of all, it is the first practical application of the 1500 MA Lamp for commercial lighting.

Even in the unusual and dramatic installation at the Benjamin Franklin Jr. High School in Wayne, Michigan, Encore delivers “classroom level” lighting. It won't discolor, sag, bend, bow, or twist . . . ever. Ten years from now it'll look as good as the day it was installed.

With most of the light reflected from the ceiling there is no glare, and light is evenly distributed over the entire area. Eyes last longer, books read easier and complicated things have a way of making sense . . . faster.

There are reasons for this.

One is the 1500 MA Lamp. An eight foot 1500 MA puts out 15,000 lumens. A 430 MA Slimline, only 5,800.

More light in less space means smaller lighting fixtures.

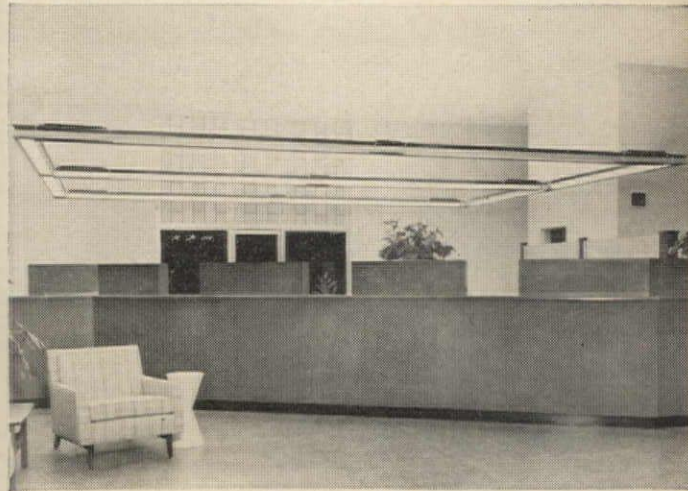
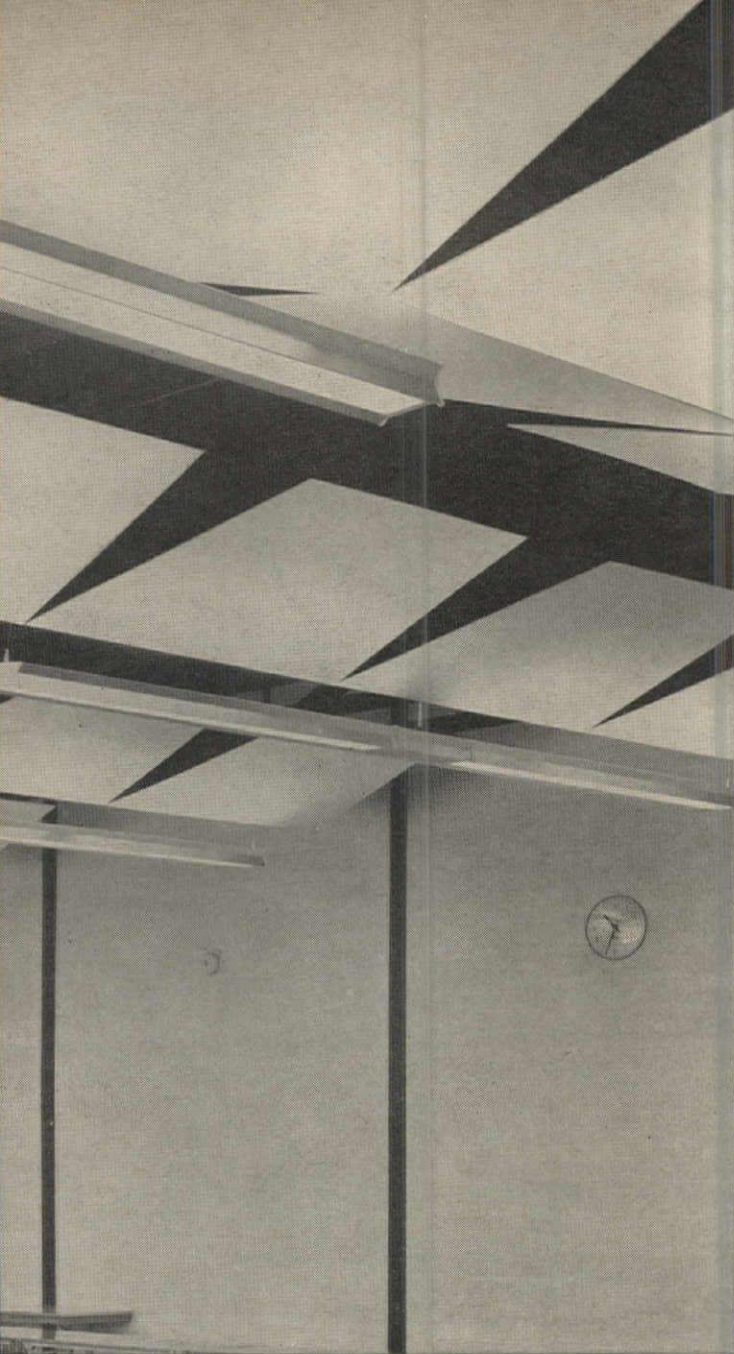
And fewer lamps.

And fewer ballasts.

And fewer replacement of both.

The power unit is so soundproof that “D” rated ballasts in Encore are as quiet as conventionally mounted “B” rated ballasts.

You can hang Encore in rows from ceilings of any height, such as the Tops Save-Cash Supermarket installation in Buffalo, N.Y. Higher ceilings, like this installation, need more light to start with. A brand new two-lamp Encore with 30,000 lumens takes care of situations like this with light to spare.



South End Federal Savings & Loan—Louisville, Kentucky
Gold, single-lamp, large area pattern over office area and tellers' windows.



Tops Save-Cash Supermarket—Buffalo, New York
Natural aluminum, two-lamp units in high ceiling supermarket.



Kent Jr. High School—Prince George County, Maryland
Unique single-lamp, double-row pattern in school library.

demonstrates it!

Encore works beautifully in a geometric pattern system, such as the South End Federal Savings & Loan in Louisville, Kentucky, or the double row pattern at the Kent Jr. High in Maryland.

You can design a spline system with all the ballasts in one row. Mount this row against a wall and you have eliminated outlets in the ceiling!

As a matter of fact, you can forget about ceilings entirely and install a valance system along two, three, or all four walls.

Now if you're curious about costs, want to know if the system meets the scissors curve, or just want to be further illuminated about Encore, write us. We'll be glad to send you our 16-page Encore brochure with illumination data, specifications and samples of the many colors that are available.

BENJAMIN PRODUCTS
THOMAS INDUSTRIES INC.
207 East Broadway, Louisville 2, Kentucky

"For quality control
and uniformity in
all-weather construction,
I prefer
masonry cement"

Rodney R. Antonsen



Rodney Antonsen, president of Martin Antonsen and Sons Mason Contractors, is a second generation contractor. The family experience covers 52 years of masonry construction. He is a director of the Minneapolis Concrete and Masonry Contractors Association and 1964 Chairman, A.I.A. Committee of Masonry Contractors Association of America.



Park Towers Apartments, 4820 Highway #7, Minneapolis, Minnesota. Architect: George Kolinsky, Minneapolis. Mason Contractor: Martin Antonsen and Sons, Minneapolis.

Top mason contractors everywhere will tell you: the full success of any masonry design depends on the mortar used. Masonry cement assures you mortar of the highest quality—uniform in strength, color and workability, batch after batch. More and more, masonry cement is the choice for beautiful, durable walls of concrete block, brick, tile, stone or glass block.

All the vital ingredients—portland cement, air-entraining agents, plasticizers, water repellents—come in one bag. The vital proportioning and blending is already done. No special job skills are needed, less supervision is required.

Masonry cement produced by member companies of the Portland Cement Association passes rigid laboratory and production controls. Every bag meets specifications that cover mortar strength, soundness and air content, as well as time of setting and water retention.

To make your specification writing easier, send for a free copy of standard job specifications for masonry cement mortar. (U.S. and Canada only.)

Portland Cement Association

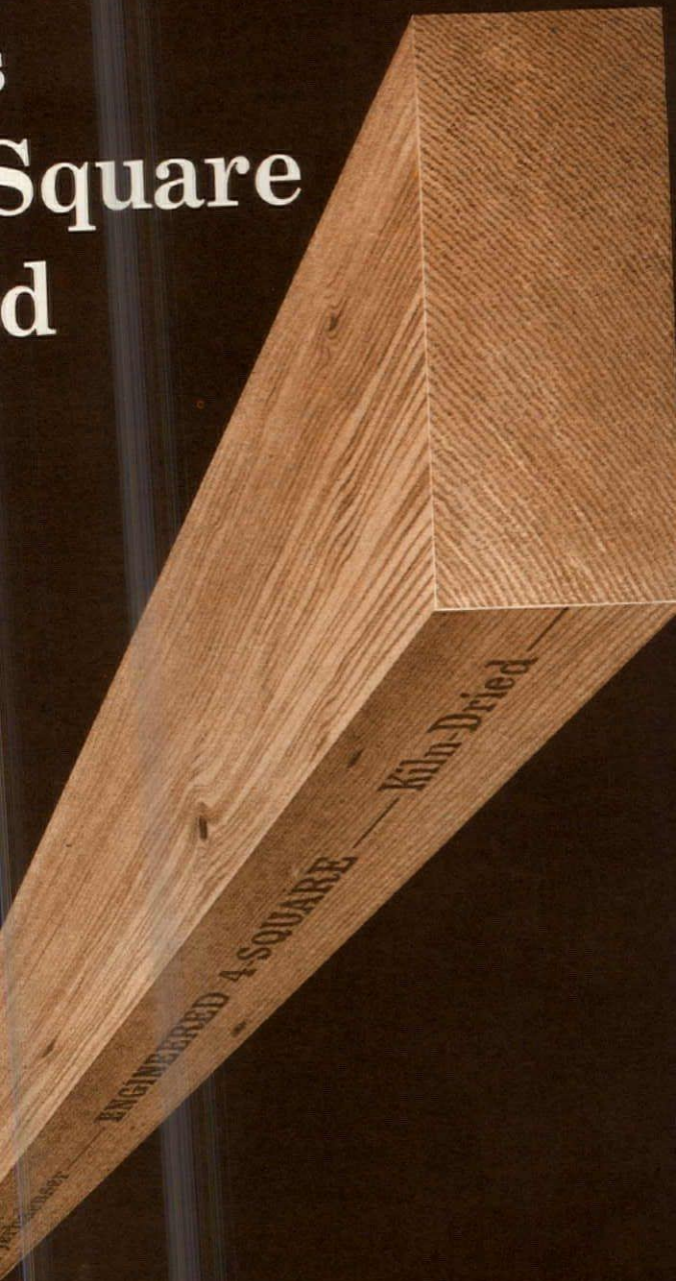
Dept. 6-8, 33 West Grand Ave., Chicago, Illinois 60610

An organization to improve and extend the uses of portland cement and concrete

For more data, circle 88 on Inquiry Card

For more data, circle 89 on Inquiry Card →

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Square
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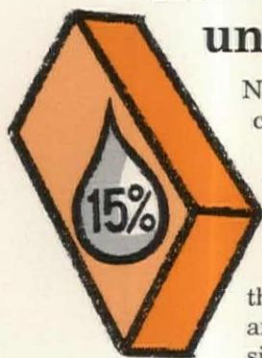


The first rea
in lumber

Weyerhaeuser Extra-Dry Kiln-Dried Lumber

For 36 years Weyerhaeuser
lumber you can specify. It is
Now, a new improvement
drying enables us to literally
4-Square Kiln-Dried lumber is

Extra-dry uniform



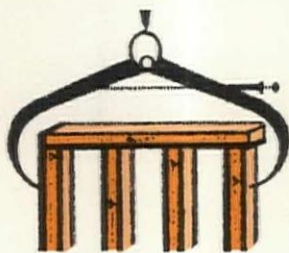
Not one piece
contains a
moisture
range is 1
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ever estab
lished
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controls
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thickness (1
and stiffne
size unseas

Extra-strong lumber

Uniform low moisture content
lighter weight insure the best per
formance architects have yet to c
from framing lumber. Strength, s
tability and stiffness factors are sp
engineered for today's building n

Recognized technical groups
throughout the industry have
confirmed that the new 1½"
thickness at 19% maximum
moisture content meets the stru
Federal Housing Administration

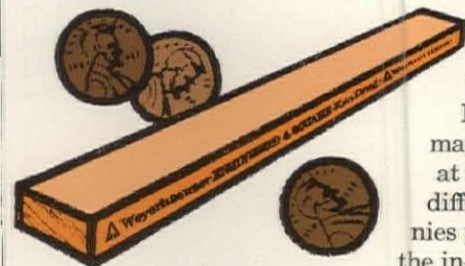
Better construction lower cost for you



Eng
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6 Important reasons why you should specify Engineered 4-Square Kiln-Dried Lumber

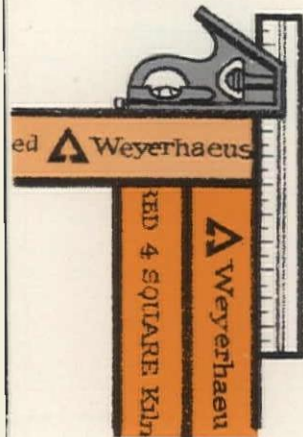
1. Lower in-place costs



Like any quality building material, 4-Square Engineered lumber may cost a little more at the outset. But the difference is only pennies per stud. However, the in-place cost is lower

for these reasons. There is no fall down in grade, no trim waste. Every piece is usable. And there's no costly, time-consuming dry out period between framing and finish.

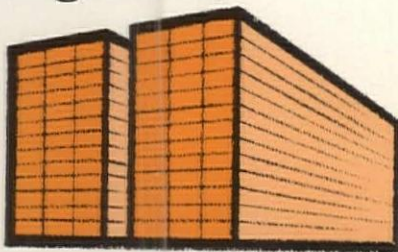
3. Engineered for superior performance



Engineered 4-Square lumber is designed for precisely engineered construction and modular building systems. Because of its greater strength and stability Engineered 4-Square lumber insures tight, strong construction and permanently solid joints. It virtually eliminates such callback problems as cracks in walls, nail popping, squeaky floors and sticky doors and windows.

5. Uniform size and consistent grades

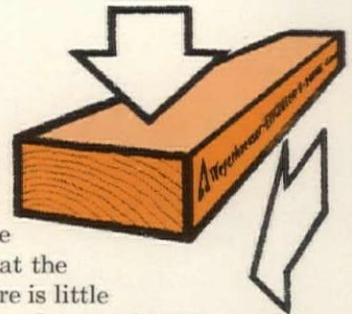
Engineered 4-Square lumber is machine surfaced and squared to an exact size after the electronically controlled drying process is completed. There-



fore, there is virtually no change in dimension after it gets on the job. All grading occurs after seasoning so the grade you specify is the grade your builder gets.

2. Greater strength and stability

Engineered 4-Square lumber at the new uniform low moisture content will carry a third again as much load without breaking as unseasoned wood and it has three times the nail-holding power. Because it is uniformly pre-shrunk at the mill it is highly stable. There is little or no dimensional change in place on the job.



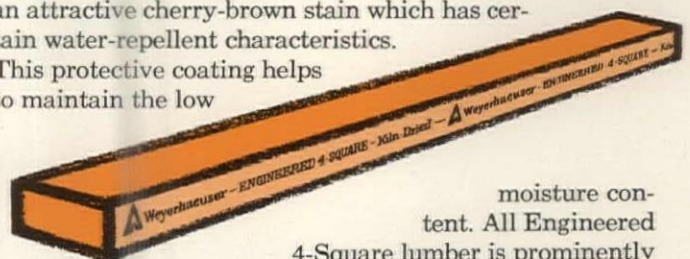
4. Field-tested and widely accepted



More than fifty million board feet of Engineered 4-Square lumber has been used in construction throughout the nation. It was selected as the framing lumber for all three homes at the New York World's Fair House of Good Taste exhibit. The new size and improved moisture content have been endorsed by the American Lumber Standards Committee, the National Association of Home Builders, the West Coast Lumbermen's Association, the Western Pine Association, the United States Savings and Loan League and the American Institute of Architects.

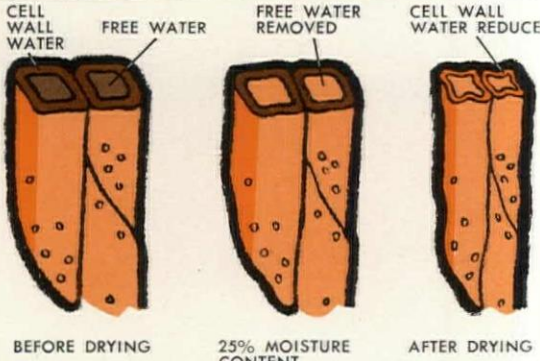
6. Clear identification of quality

Engineered 4-Square lumber is distinctively colored with an attractive cherry-brown stain which has certain water-repellent characteristics. This protective coating helps to maintain the low



moisture content. All Engineered 4-Square lumber is prominently edge-marked and carries the grade stamp "1 1/2" DRY."

The technical story of why Engineered 4-Square Kiln-Dried lumber is your best buy



BEFORE DRYING 25% MOISTURE CONTENT AFTER DRYING

Allowing lumber that has not been Kiln-Dried to "dry-out" within the framework of a house only invites trouble. The wood cell diagrams at the left will explain our point.

As lumber dries out the "free water" between the cells leaves first, then the water in the cell wall. As the cell water evaporates the lumber begins to shrink (at about 25% moisture content). Now if you build a wall with green studs containing various percentages of water you are bound to get uneven shrinkage. The result can be warping, twisting and checking of the lumber. This is what causes uneven walls, sticking doors and windows, plaster cracks and other defects.

With Engineered 4-Square lumber the water that can cause trouble is removed at the mill. Every piece is preshrunk to a narrow margin of moisture uniformity. Nothing is over 19% moisture and the average is 15%.



Green **Kiln-Dried** **Engineered 4-Square**

When it is first cut, a green 8-foot stud may contain as much as three gallons of water. There are about three pints of water in the same stud (at 30% moisture content) when it gets to market.

When the same stud is Kiln-Dried to the prevailing 19 per cent average moisture content (no maximum limit) it will contain about two pints of water. This makes for good lumber, but it no longer fits today's needs in engineered-type building.

A Weyerhaeuser Engineered 4-Square Kiln-Dried stud will contain about one pint of water. This is close to the moisture content the wood will attain in service and it's ideal for all types of precisely engineered wood construction.




Why the smaller size?

There's a place for green lumber. Weyerhaeuser has always made it and probably always will. However, the size of a lumber framing member should be directly related to the moisture content the lumber will attain in use.

Green lumber dressed to 1 5/8" will shrink down to about 1 1/2" when it finally dries out. Since new Engineered 4-Square Kiln-Dried lumber is pre-shrunk at the mill it doesn't make sense to use the larger size when the 1 1/2" thickness will meet the requirements of all existing span tables.

How to specify Engineered Lumber

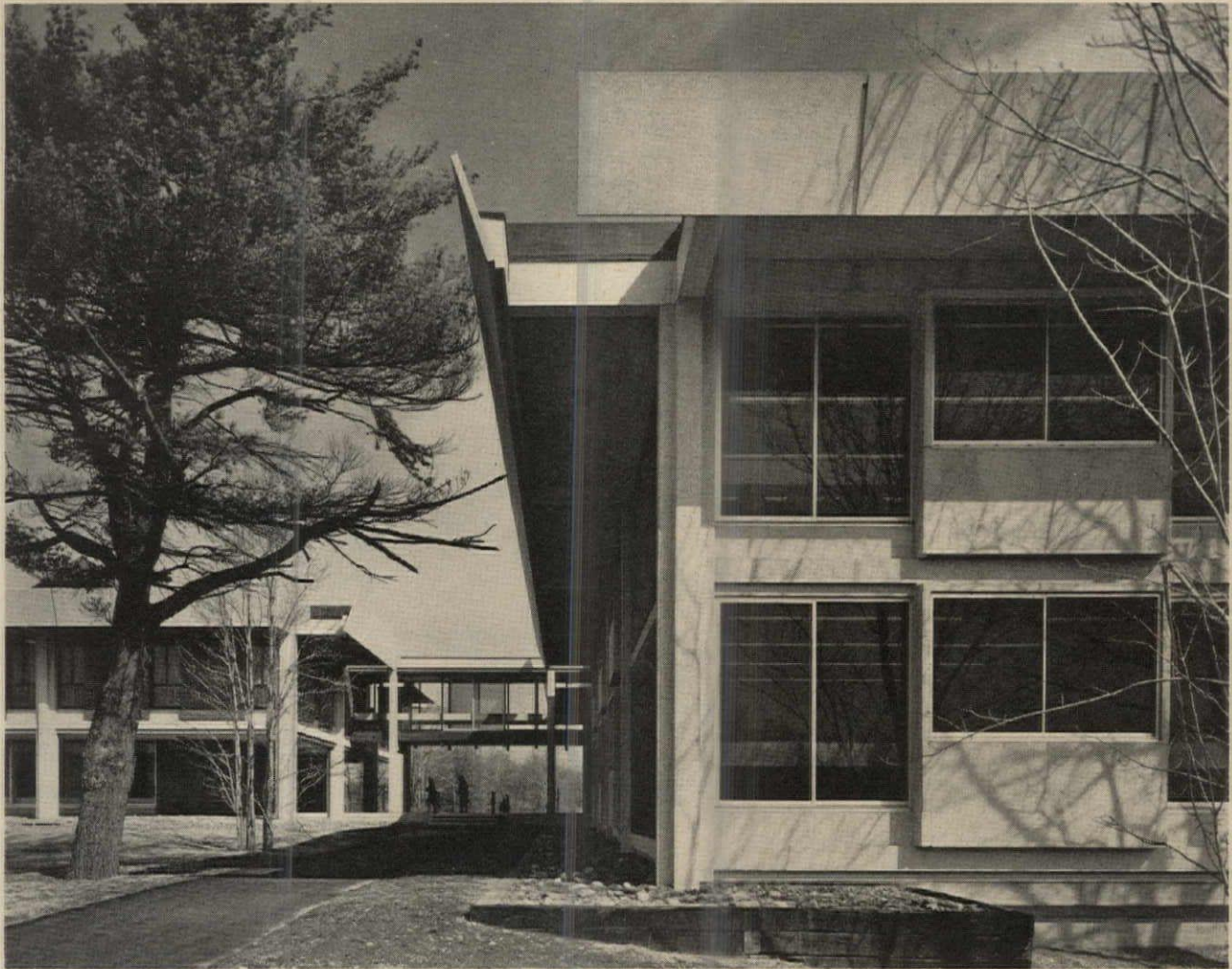
You don't have to complicate your specifications with references to moisture content or dressed sizes. Just use the standard nominal designations for structural members (2x4, 2x8, 4x8, etc.) and specify "all framing lumber to be Weyerhaeuser Engineered 4-Square Kiln-Dried."



For additional information, contact your Weyerhaeuser dealer or write us at Box B-100-A, Tacoma, Washington.



Weyerhaeuser Company



Joseph W. Molitor photos

View to the north. On the east is the liberal arts wing, and on the west the administration building

PLANNING THE COMMUNITY COLLEGE

On old farmland near the town of Corning, New York, is a new campus, one of few conceived as an entity and built all at once, but planned with an eye to the future growth and expansion expected for community colleges.

More such campuses must rapidly be built.

Hopefully some of them will be as well designed as this one by architects Warner, Burns, Toan and Lunde

*Corning Community College
Corning, New York*

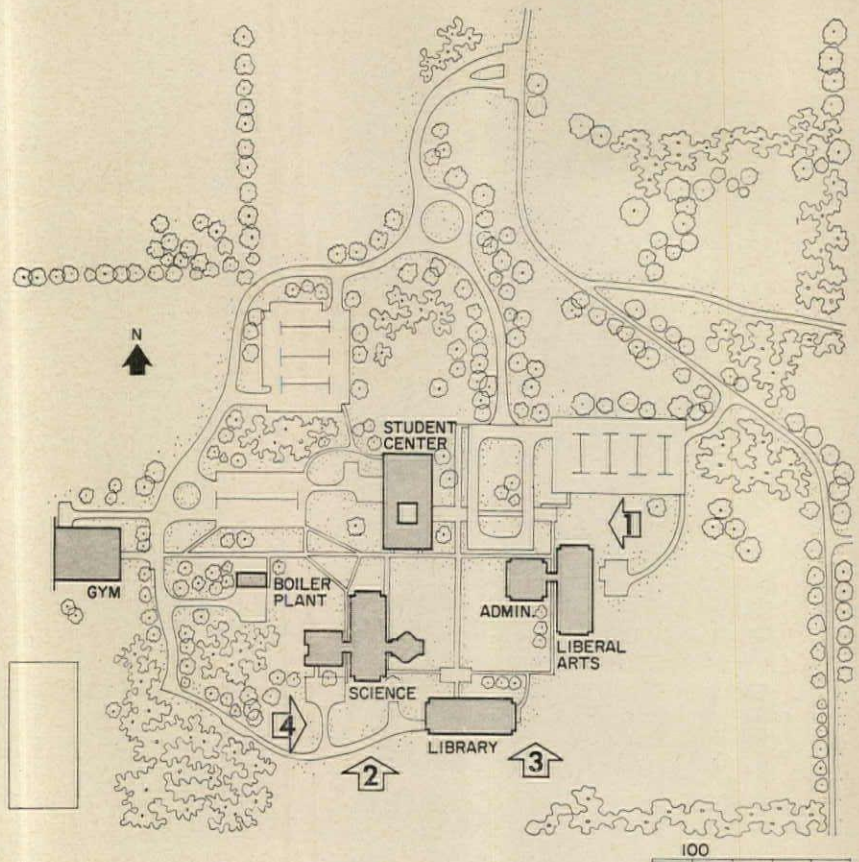
ARCHITECTS:
Warner, Burns, Toan and Lunde

STRUCTURAL ENGINEERS:
Severud-Elstad-Krueger Associates

MECHANICAL AND ELECTRICAL ENGINEERS:
Segner & Dalton

CONSULTING ENGINEERS FOR SITE IMPROVEMENT,
WATER & SEWAGE TREATMENT:
Eberlin & Eberlin

GENERAL CONTRACTOR:
Roger & McCay, Inc.



Because the number of college bound young people has reached a new peak, many will transfer to the established private or state and city colleges at the third and fourth year level, when the attrition of the freshman and sophomore years makes places available. Two year community colleges are planned or are under construction in many locations all over the country to handle these students for whom there are no openings in the first two years of the four year colleges.

The new community colleges are not generally conceived as vocational schools as many junior colleges now are, but instead have full-fledged two year liberal arts programs. They are expected to draw most of the student body from the area.

The Corning Community College is a part of the State University of New York. Under this system the students at Corning pay one third of their tuition and the remaining two thirds of the cost of educating them is shared by the local community and the state. Fifty per cent of the total cost of campus construction was paid for by the state and almost all of the remainder by the Corning Glassworks Foundation, which realized that the presence of a handsome campus nearby would make the town of Corning a better place to live, and at-

tractive to the glass technicians. Glass technology, however, will not be taught in the new college. The four building complexes, the reservoir and pumping system, the central heating plant, roads, site development and all furniture came within a budget of slightly over \$5,000,000. For the buildings alone the architects were held within a budget of \$20 per square foot.

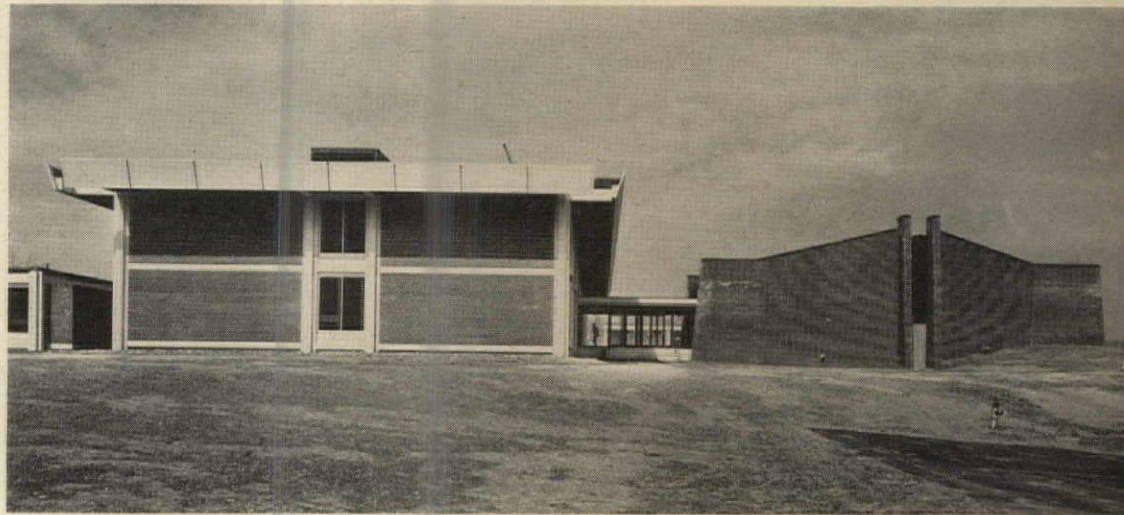
The land selected for the new campus had long been a farm. A broad flat area on the top of a hill became the site for the initial development. Out of the desire to make the most of what was already there, the architects plotted the new buildings and paths within the coordinates of the existing hedges, working carefully within the form of the old farmland. Later new planting which is to be added will reinforce the old landscape. The existence of marshy areas to be avoided was a further determinant of the site plan.

At present over 10 per cent of the students are renting in town while the remainder live at home. To take care of the growing number of students attending college away from home a dormitory complex is at present being planned to the northwest. It will be distinctly separated from the academic sector.



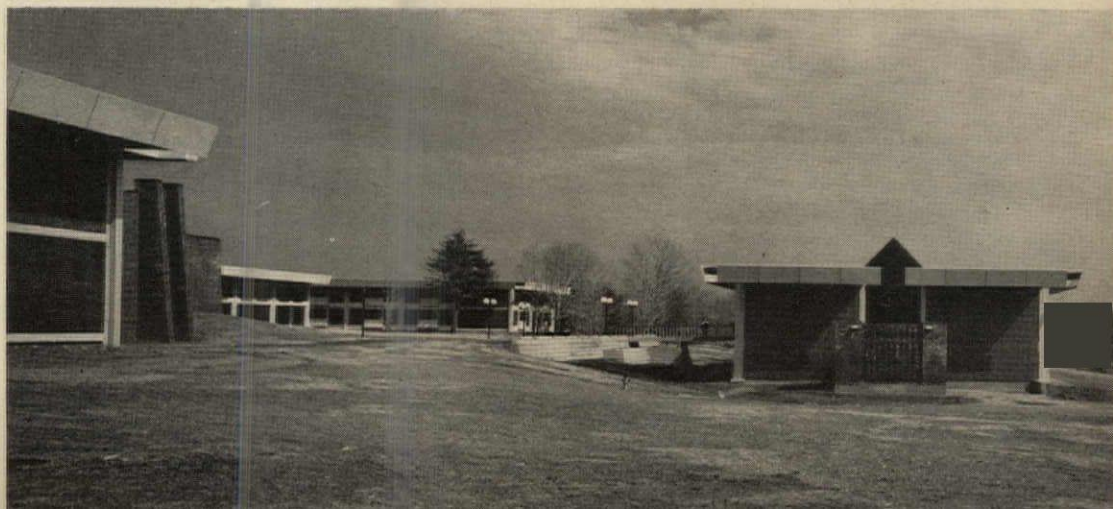
1. Student center looking west showing portion of driveway loop in foreground, an edge of the administration wing to the south, and the gymnasium to the west at the end of the path. The driveway loop may be used by students in their cars and it connects the student center, the administration wing and one of two large student parking lots off the encircling perimeter road. The site plan, however, prevents students from commuting by car from one building to another. The architects believe that once the student is on foot he has committed himself to campus life; in a car he need only press the accelerator and flee. All campus buildings have adjacent faculty parking and service areas served by the perimeter road

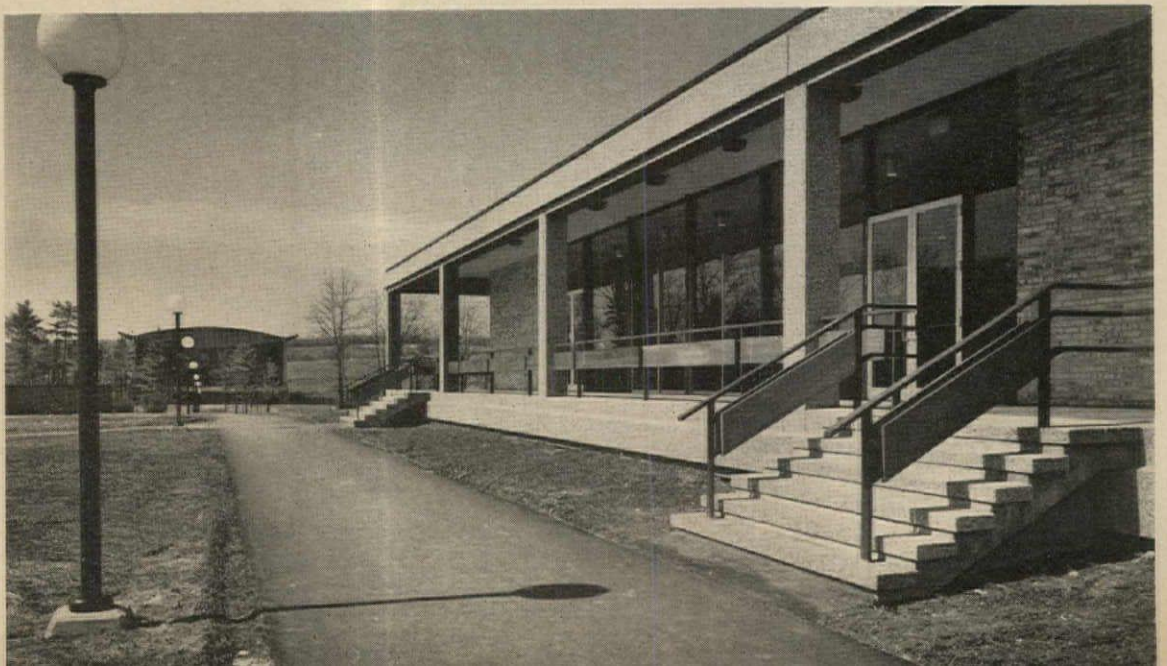
2. Each building has been so placed that a cluster of additional elements may be added to it at a future date, growing outward from the campus core and possessing a consistent character. Present elements are deliberately spaced close together around the central campus so that it should be difficult to place future buildings in the interstices. As architect Danforth Toan points out: "You mustn't produce a situation where the next architect who comes along to do a building on the campus has to work *between* two existing structures." Shown are the science and technology building and the science amphitheater

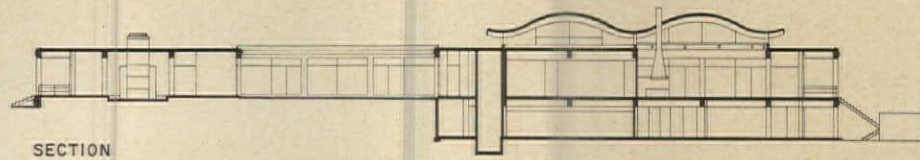


3. The campus core has been deliberately held to a domestic scale. Looking directly north, the administration wing and liberal arts building appear at the crest of a gentle rise. As the plot plan (*opposite page*) makes clear the liberal arts element is free to expand down the slope to the east. The edge of the library appears to the west

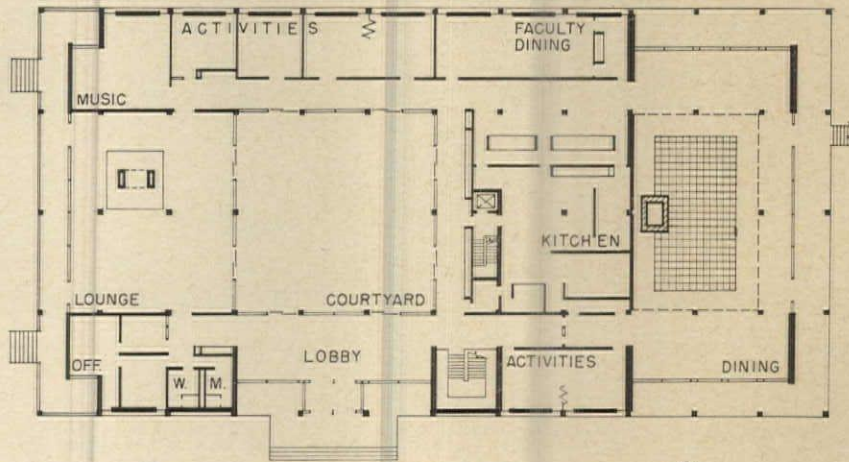
4. The buildings, with the exception of the science amphitheater which has bearing walls, are set on raised bases. This makes the brick walls read correctly as infill, framed by the structure. The raised bases are an advantage for the cold climate in upstate New York, because after a snowfall buildings at grade seem to have sunk. View is to the east showing the end of the library, the edge of the science and technology building and amphitheater. Beyond is the liberal arts and administration complex



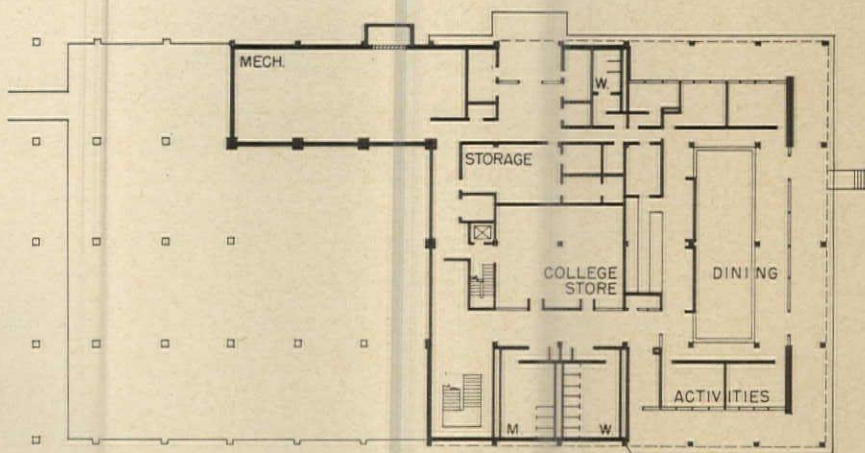




SECTION



FIRST FLOOR



BASEMENT

The Student Center

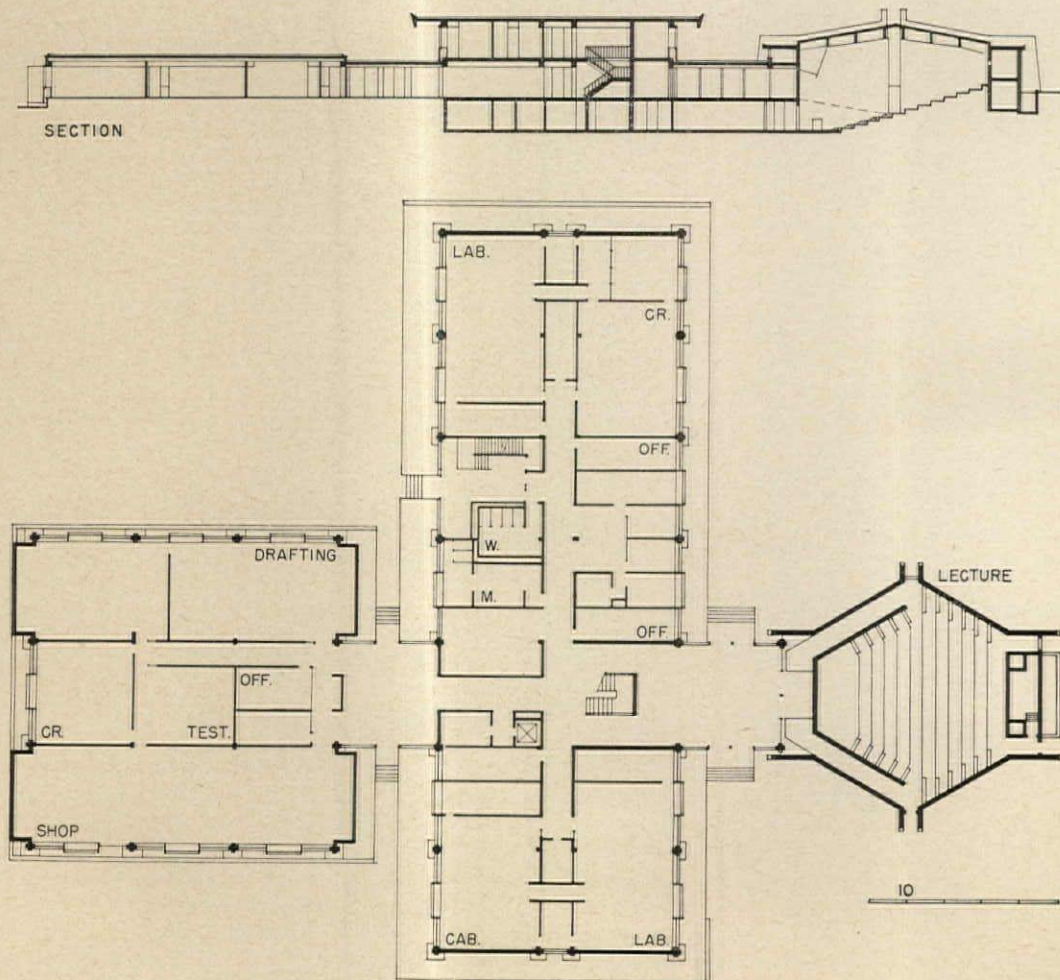
Like all the campus buildings except the science amphitheater, the student center is built of precast reinforced concrete with an exposed finish of beach gravel aggregate. Apart from the doubly curving ceiling of laminated wood beams over the kitchen and dining spaces, the roof in common with the other structures is of precast, prestressed hollow core concrete, as are all the floors. Interior and

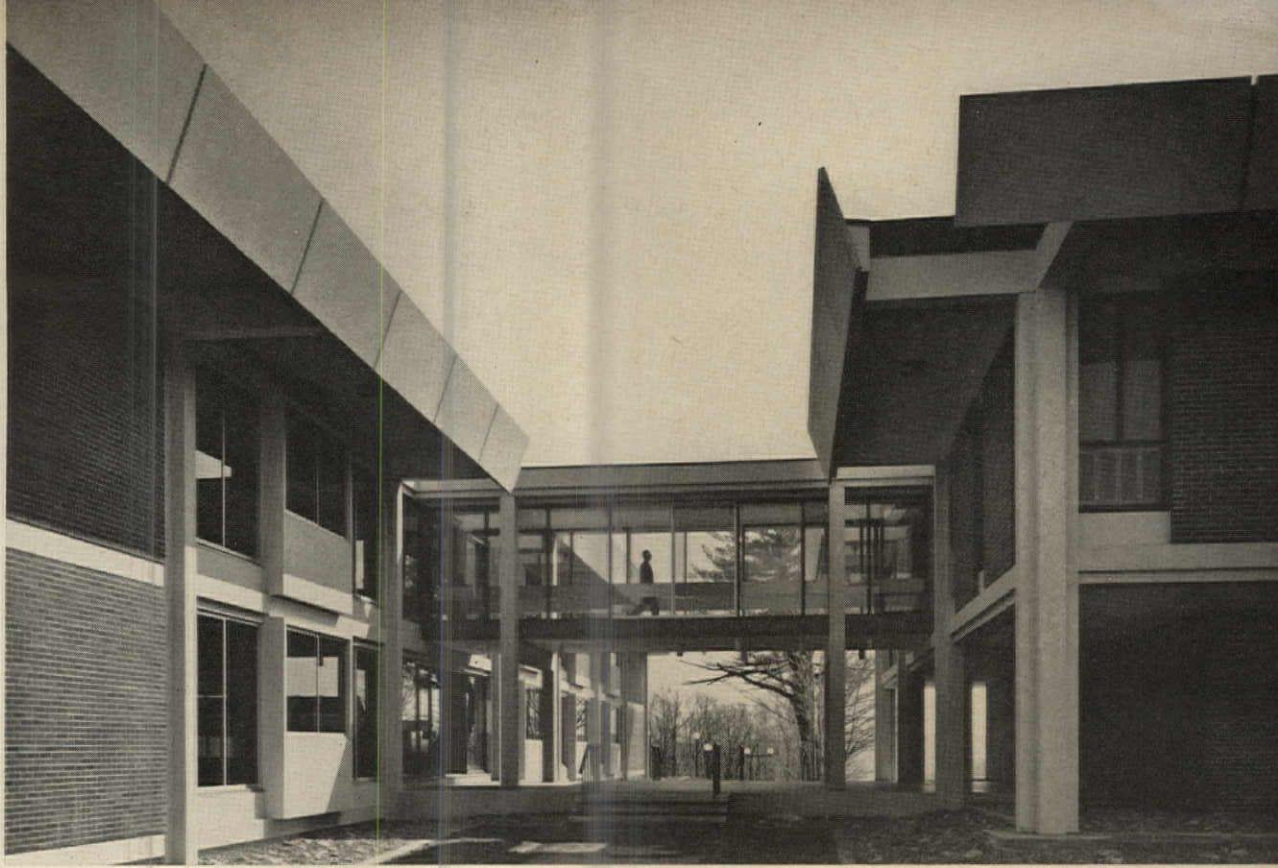
exterior surfaces are of white sand molded brick, in contrast to the other campus structures all of which use a brick almost as brown as mahogany. The architects took advantage of the slope to provide a basement and additional dining space at the lower level. The entrance is well related to the major campus circulation artery as the site plan shows, and is accessible by car



Wall behind lecturer is of porcelainized enamel and doubles as a chalk board and movie screen

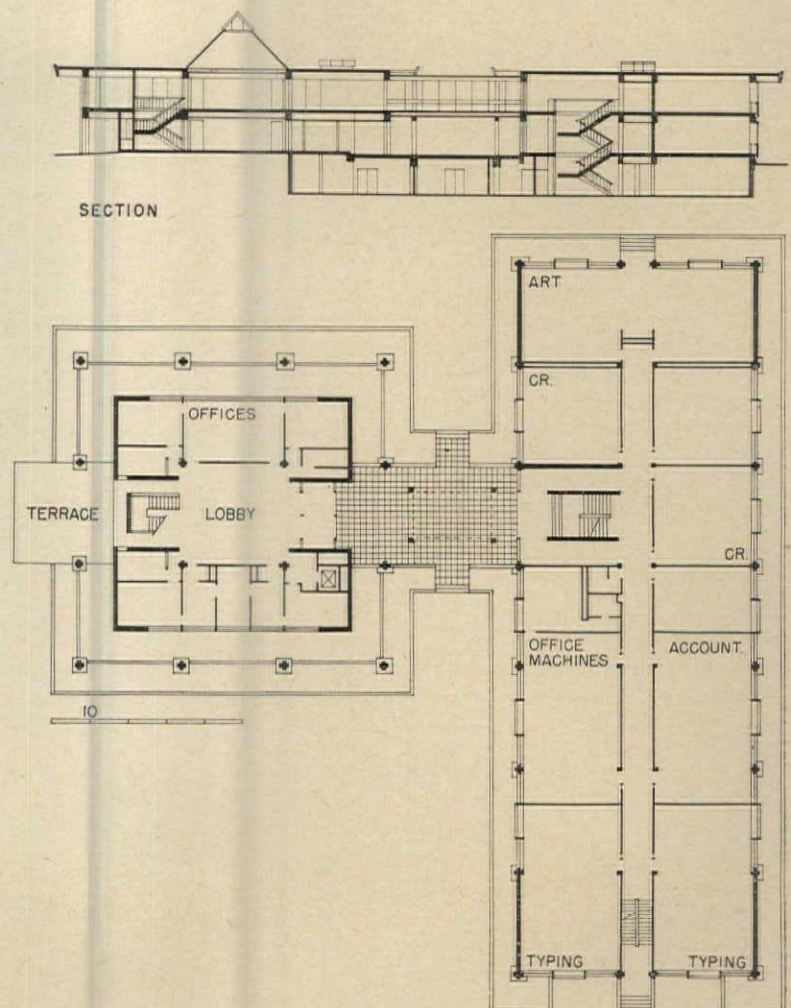
Science and Technology Building and Science Amphitheater



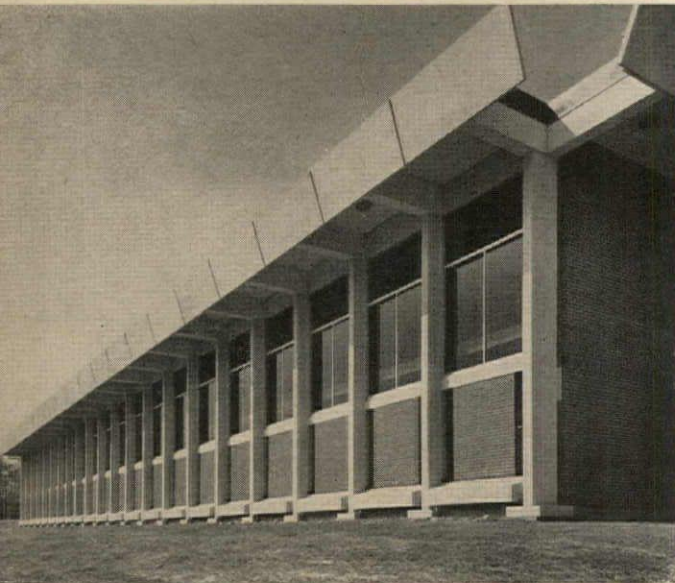


Administration and Liberal Arts

As the section and plan (*opposite page*) indicate, the science amphitheater may be entered by way of a linking element from which one descends to a mid-point and then climbs up or down to a seat; or from the side at this mid-point. Each of the major sciences has a preparation room in the area below the link from which demonstrations, made ready in advance, are wheeled to the lecture platform which is at this lower level. Auditorium seats are upholstered buckets on swivels. At the rear of each row of seats a "modesty panel" supports a hinged tablet desk which readily folds out of the way when not in use. These can be seen in a closed position in the photograph (*opposite page*). Students are thus provided a comfortable working seat or a theater seat

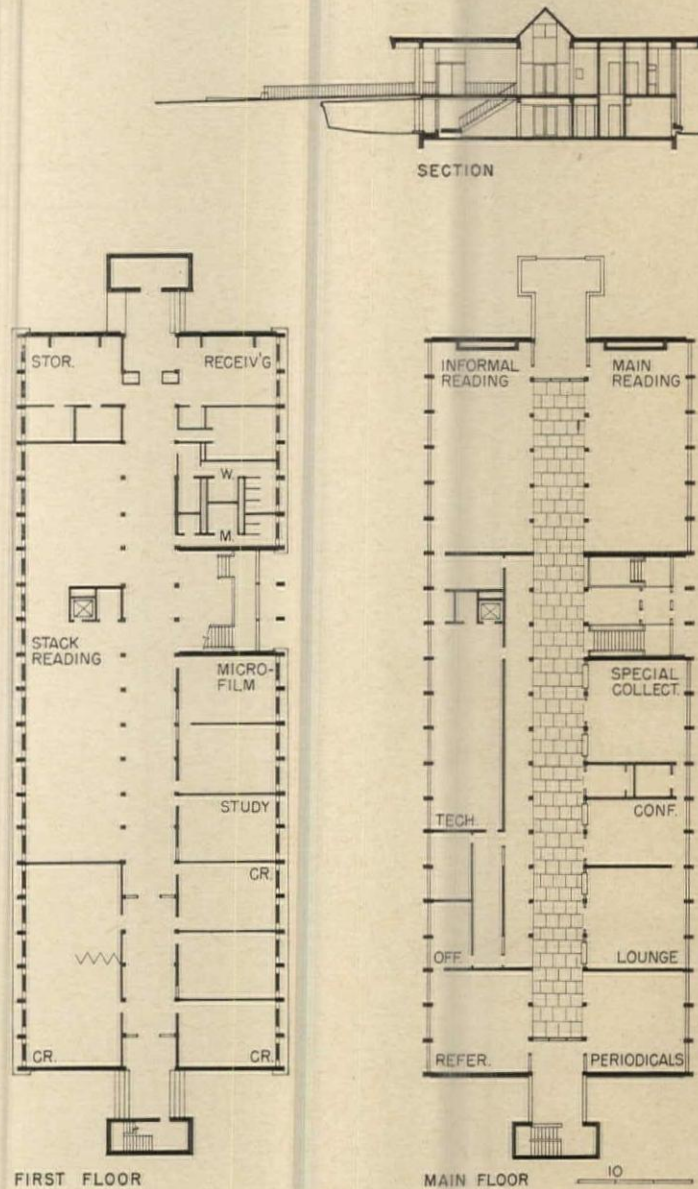


The liberal arts building is at present minimal in size, but has been so located on the site that it can be added to in three directions. The pyramidal roof emphasizes and enhances the administration building lobby



Because the Corning buildings will rarely be lit by brilliant sunshine, their surfaces have been strongly modeled to compensate for this lack. Since precast concrete weathers badly, deep overhangs were devised to keep the rain off and prevent continued thawing and freezing. The overhang fascias are tilted forward to diminish their apparent depth and are designed in short pieces to look like the cladding element they are. The overhangs do not turn the corner on any of the buildings, partly because at this juncture they would cantilever 9 feet at the diagonal and present special mitering problems. The facade of the library building is shown in the photograph (above), but the fenestration of the classroom buildings is handled in a similar manner. The New York State Code for school buildings requires as minimum that glass area used for light equal 10 per cent of the floor area, and that glass equal to 5 per cent of the floor area be movable for ventilation. The Corning classrooms have windows equaling a minimum average of over 20 per cent of the floor area, and over 10 per cent of this glass is operable by means of sliding aluminum sash. The architects feel that this is a better ratio for non-air-conditioned buildings

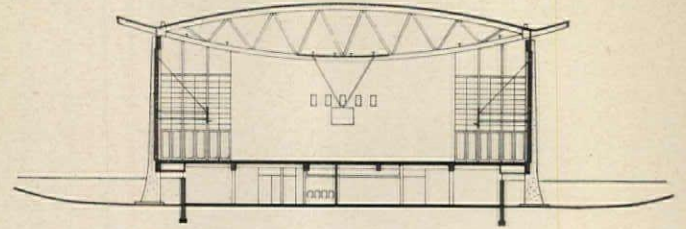
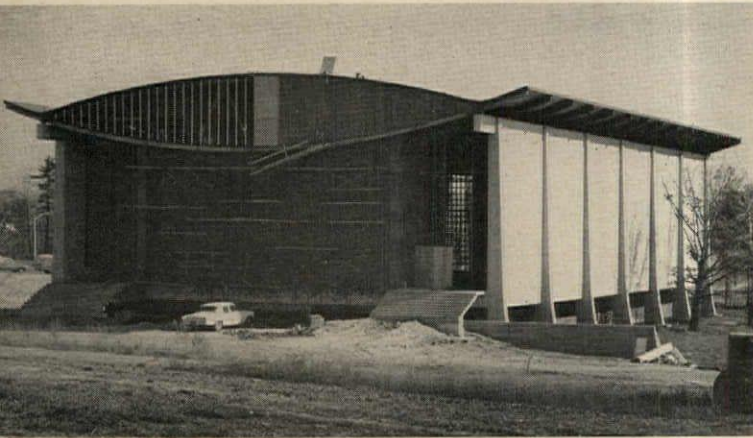




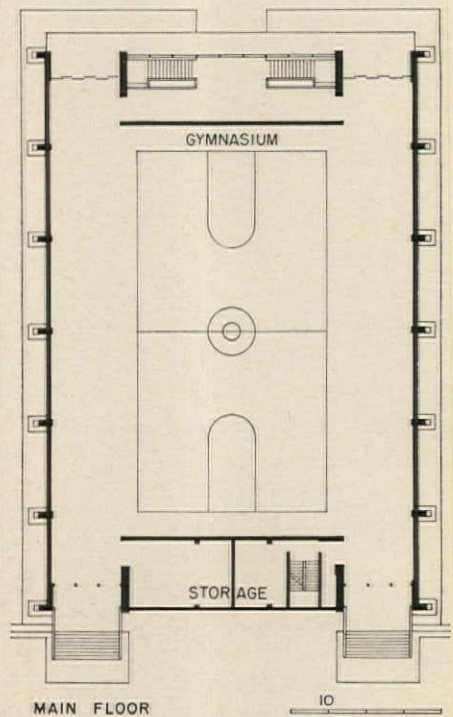
Arthur A. Houghton Jr. Library

The module of all the campus buildings is a 9-foot square forming 27-foot bays. The library, shown in plans and section (*above*) and in the photographs (*opposite page*), is subdivided into 9-foot bays. Designed for beginning students, no special facilities for advanced scholars were required. No monumental reading room or universal space was planned, but rather a series of rooms of moderate size

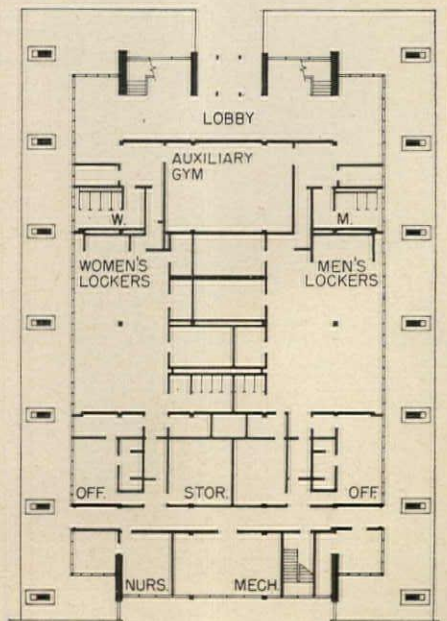
opening onto a central spine or gallery. Sky-lights in the gallery's peaked roof are on 9-foot centers. To enclose the campus proper and prevent "escaped space" the architects deliberately blocked a magnificent view down the valley by putting the library partway down a slope in its path. The view can now be enjoyed from within the building, a reward to those who enter



SECTION



MAIN FLOOR



FIRST FLOOR

Gymnasium

The gym floor is cast in place and the columns are pre-cast. A series of bow trusses made of laminated wood members with the ends turned up to produce gutters, span 100 feet. Between supports are concrete block cavity walls. Vertical redwood strips are used on the short sides

“One outcome of this disorientation is the present habit of seeing art and architecture as mere luxury and status symbol, while it formerly used to be the deeply rooted, unself-conscious imagery of people who shared a common code . . . ”



Early 19th-century New England village, New York Public Library picture collection

TRADITION AND CONTINUITY IN ARCHITECTURE

Beginning last month Architectural Record is presenting in its entirety a major recent address by Walter Gropius. This is the second of three installments

Part 2

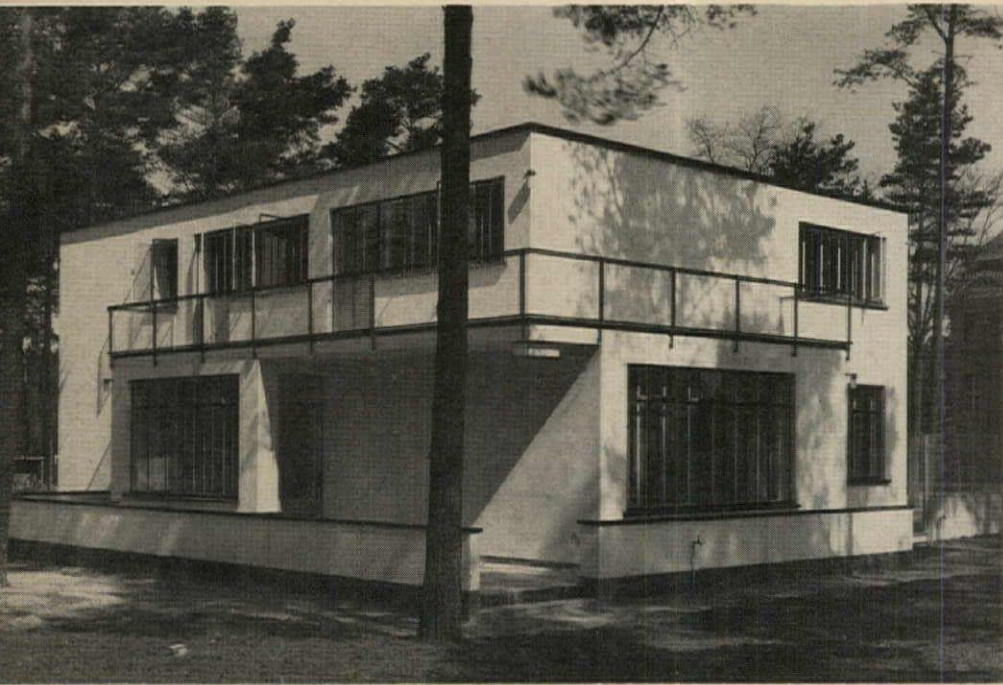
No doubt the visual illiteracy and helplessness, which have become characteristic of the average citizen of industrialized countries the world over, are a formidable handicap for the architect of today and one which can be overcome only by patient, long-term educational influence. To arrive at established standards of evaluation is the slowly accruing result of long efforts made over generations which have made people responsive and sensitive to the meaning of form and its symbolic powers. During the speedy changeover of our civilization from a locally-centered, nationally-bound system of values to the free moving world-exchange of experience, research and material goods, our former values have become obscured, and the new insights have not yet found the voluntary general acceptance which would be needed to make them effective. One outcome of this disorientation is the present habit of seeing art and architecture as mere luxury and status symbol, while it formerly used to be the deeply-rooted, unself-conscious imagery of people who shared a common code and could be sure of response when any one of them raised his voice or hand in creative work.

In our pathetic rush for at least a token participation in the new world of kaleidoscopic patterns and schemes which has enveloped us, we have forced certain sectors of the human mind into accelerated development while others remained locked in their traditional attitudes. The slowness in correlating our highly developed powers of intellectual reasoning with our half-hidden emotional impulses has produced a deep cleavage in the minds of men. This

splitting up of ones' life into separate segments, unconnected by the driving force of a central conviction, destroys coherence and unity. We seem to have lost control temporarily and continuity in a cultural sense seems threatened. Only the determination and courage consistently to live up to our own insights, to practice what we profess, to draw together what threatens to slip apart, and to pick up the live thread instead of the dead one can help us propel tradition and continuity forward into the future.

You know that I, for my part, have always been identified since the early twenties with the idea of "functionalism" as the only straight and narrow line to take us into this future. But in the interpretation of those with only sectorially developed minds, this line has become indeed so "straight and narrow" that it led straight into a dead end. Its original complexity and psychological implications, as we developed them in the Bauhaus, were forgotten, and it was described as a simple-minded, purely utilitarian approach to design, devoid of any imagination that would give grace and beauty to life. To this I can only say: the revolution of the twenties was total and moral, and its creators looked at beauty not as something self-consciously "added on," but as something that was believed to be inherent in the vitality, appropriateness and psychological significance of a designed object, whether it was a building, a piece of furniture or a stage design. We knew and taught that space relations, proportions and colors control psychological functions which are as vital and real as any performance data for structural and mechanical parts and for the use-value of a plan. If our early attempts looked somewhat stark and sparse, it

Note: illustrations were selected by editors



Lewin House, Berlin Zehlendorf, 1928. Walter Gropius, architect



Erecting a prefabricated house designed by Walter Gropius in the Bauhaus years

"If our early attempts looked somewhat stark and sparse, it is because we had just found a new vocabulary in which to speak out. . . ."

is because we had just found a new vocabulary in which to speak out, and this we wanted to set in the greatest possible contrast to the overstuffed bombast that had gone before. Besides we were often held down to a minimum of expenditure by a public which could only be sold on modern architecture when it promised to be cheaper because it did not yet recognize its esthetic qualities.

As the evolution of form develops always in successive waves of reactions against preceding trends, it is only natural that these early testimonies to a newly-found freedom in architectural design have been followed by a wealth of new conceptions and refinements in the field of space relations and in the use of new techniques. If one compares the typical architecture of the twenties with that of today, the most significant development lies in the increasing accentuation of three-dimensional plasticity. Structural boniness, curved shells, recessed and protruding building parts offer a rich play of light and shadow absent from the flat surfaces of the curtain wall which, for so long, had become the one-sided trademark of modern architecture. Personal interpretations of these fresh experiences have enriched our vocabulary and pleased our audience, and the stage seems to be set for a major contribution to the evolving image of our time . . . if we could only keep from straying into a new eclecticism or from adopting a sort of superfunctionalism that borders on mysticism. Curiously nothing seems harder to achieve right now than a sober, straightforward, balanced approach which would allow us to solve our design problems without bending over backwards too far in our desire to include all possible tricks of a scholarly or a technical nature which are

at our disposal today.

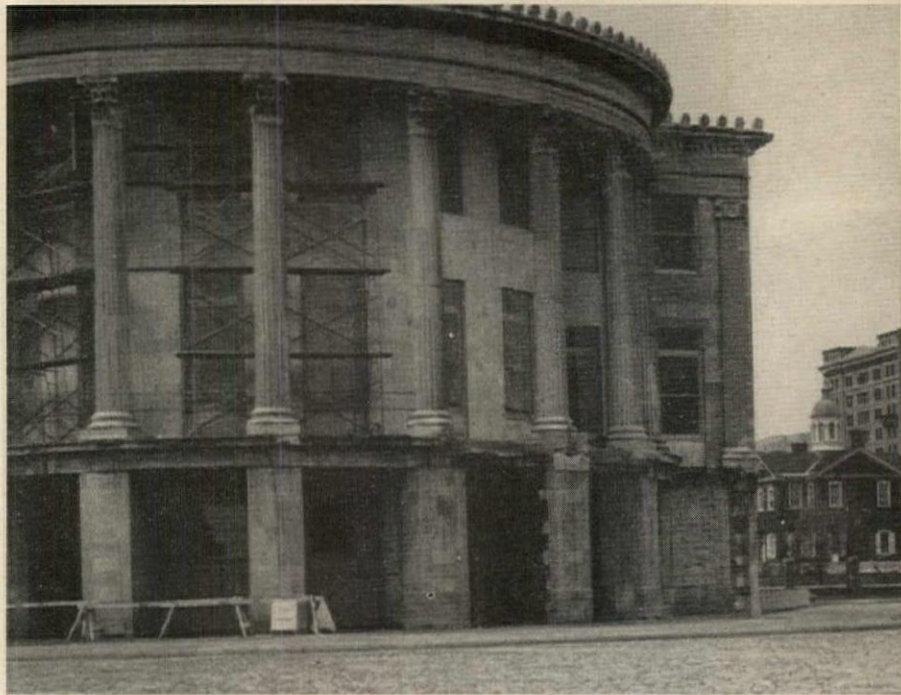
These defects, which weaken our hand, are partly a reflection of the vain efforts of the average citizen to seek an emotional affinity with the past which, in practice, he is unwittingly denying with his every action. Whether the dishonest label "ranch house" is put on a mass-produced little commodity, or whether "home laid eggs" are sold to a nostalgic customer, it all plays up to his longing to be comforted by familiar phrases at least, if not by familiar sights.

Our very real need to develop an understanding for historical continuity is not helped by these flights into make-believe, but these do not only occur at the commercial level; even our best minds succumb sometimes to the urge of galvanizing remnants of the past into an artificial participation in the activities of the present. The problem of what to protect and what to destroy haunts all cities with a proud past. Significant and venerable landmarks should, of course, be incorporated into the growing city pattern as far as possible. Nobody will want to miss, for instance, the old cemetery on busy Tremont Street in Boston. There are some cities, like Rome, for example, that have been remarkably successful in their attempts to preserve the old and even the ancient sections of town in unadulterated fashion, but this can usually be accomplished only in places where the resulting loss in productivity and livability can be offset by their income-producing value as tourist attractions. Without the tourists gazing at its wonders and using them as a backdrop to all kinds of entertainment, the city of Venice—to name only one—would be hard-put to make a decent living in its present setting. As for less famous sites and buildings, it becomes more and more difficult to

Church of the Holy Apostles, New York City, erected in the 1840's, Underhill Studio, N.Y.



"As for less famous sites and buildings, it becomes more and more difficult to maintain, along with the old structures, the specific atmosphere which created them in the first place. . . ."



Philadelphia (Merchant's) Exchange at left. William Strickland, architect. 1832-34. Bank of the

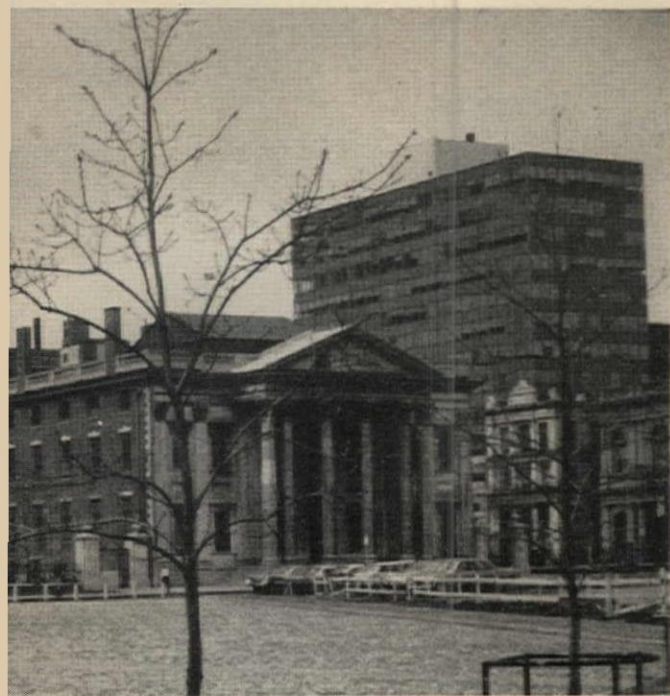
maintain, along with the old structures, the specific atmosphere which created them in the first place and without which they seem unanimated. The concern for preservation per se should not mislead us into creating lifeless, museal islands which cannot be assimilated by the life of the city. There is no *one* answer to the solution of these problems, and each case must be treated on its own merits.

The majority of American cities are less often confronted with these dilemmas than the old European and Asian ones. But the uproar about the changes that have occurred on Park Avenue in New York show that also here the citizen hates to part with familiar sights on the one hand, though, on the other, he precipitates their disappearance in all manners and ways at his disposal. The proposal to freeze certain esthetically pleasant town patterns, which have outlived their compelling usefulness for the actual life that goes on in them, into a memorial for a former social set-up, will always come to grief if the citizen does not share the tenets any more which made this particular set-up possible. Much as he may like the looks of it from long association, he will inevitably destroy it eventually by letting the tools which accommodate his own way of life sweep in, be it in the form of vehicles or buildings. If the citizens of Manhattan had been really serious about wanting to save Park Avenue's spacious, dignified former appearance, they should have protested when the very first skyscraper threatened to go up on its side, because this event spelled the end of a well-worked out system of order and proportion which had distinguished Park Avenue from other thoroughfares.

It has been a break in continuity and tradition when the City of New York neglected to replace the

old zoning law by a new one which would similarly impose a unifying height limit and building line for all buildings in this street, but now geared to the new order of magnitude which was imposed on this part of the city by the gradual transformation of its former functions to its present one as a business and trade center. The failure to act properly at this strategic moment has sanctioned a commercial development in an uncontrolled free-for-all spirit on the Avenue, and unless we want to challenge the very idea of the free enterprise policy, with its vested interest in the property value of land, it becomes pure hypocrisy to cry wolf now when free enterprise asserts itself. It is inconceivable that it should be expected to refrain from using its privileges and assume instead a noble attitude of financial sacrifice when nothing in our national book of conduct taught it so. It is futile and self-deceiving to expect from this, our system of expediency, more than an occasional gesture towards better town planning at the present time. Once it should become generally apparent that good business is not necessarily identical with good living, this attitude may become obsolete, but that time unfortunately is not yet.

This story of the detrimental effect of city inaction shows that mere occupation with studies of the traditional past, as it is exercised today in our general education, obviously does not by itself secure responsible continuity and vigilance. I, myself, have often been accused of having withheld the teaching of art history from the Bauhaus students and to have insisted that such courses were relegated to the later years of studies at the Graduate School of Design in Harvard. I had my very good reasons for this, and they were certainly not the outcome of a presump-



United States at right. Samuel Blodgett Jr., architect. 1795-97

" . . . Even our best minds succumb sometimes to the urge of galvanizing remnants of the past into an artificial participation in the activities of the present. The problem of what to protect and what to destroy haunts all cities with a proud past."



Society Hill, Philadelphia. This and photo above taken April, 1964



Paris, Frank Horvat—Magnum

tuous disregard for the grand achievements of former periods.

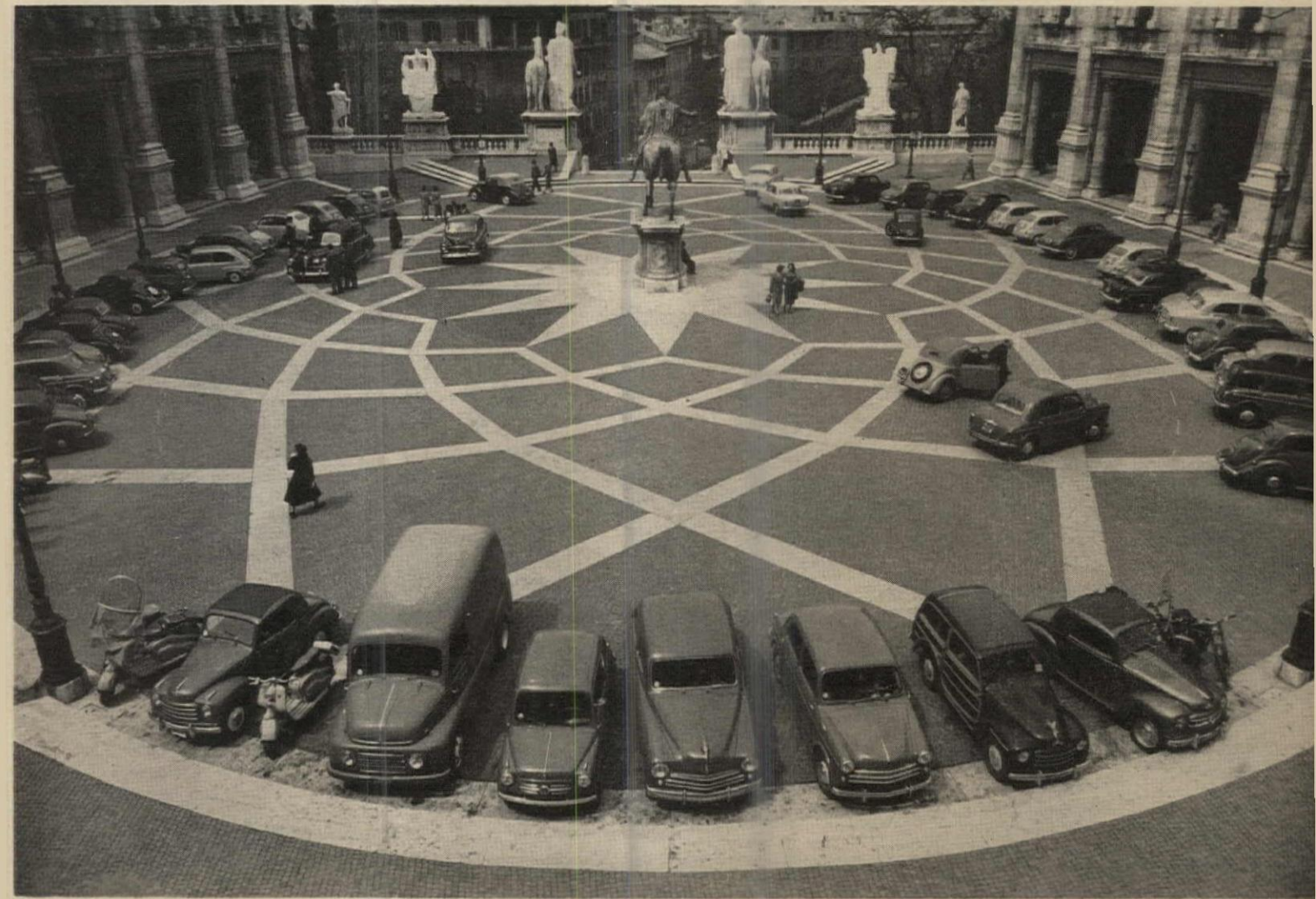
With regard to the students of the Bauhaus, who had just emerged from a long period of frustration with a frozen status quo, the introduction of regular art history courses would have caused an instant emotional defiance. It seemed to be a much more urgent task at that time to release the pent-up creative energies that had been suppressed for generations.

With regard to the Harvard curriculum, I acted upon the experience my own development had taught me: that the study of art history, imposed at a time when the student is pregnant with his own thoughts and works and has not yet felt a genuine curiosity for the works of the past, remains unassimilated, dead knowledge. There had been times when I had shut myself off for years from any studies of the past, only to resume them happily and with better judgment and appreciation later on when I felt firmer ground under my own feet and became more articulate in my own thinking and doing. A new insight, a sudden recognition, may be triggered into consciousness by incidental or planned confrontation with a masterwork of the past, and from there on it is not a guilty conscience, but keenest sympathy, which keeps an individual voluntarily on the track of history, and nobody needs to worry any more about how much he will absorb. At this point, an inspired teacher may be able to open up new worlds of visual experience to him and to deepen his understanding for the underlying conditioning factors that shaped the image of this or that period. If he can awaken a student to the infinite possibilities of visual creativity and to the need to extend his own responsibilities beyond the immediate concerns into

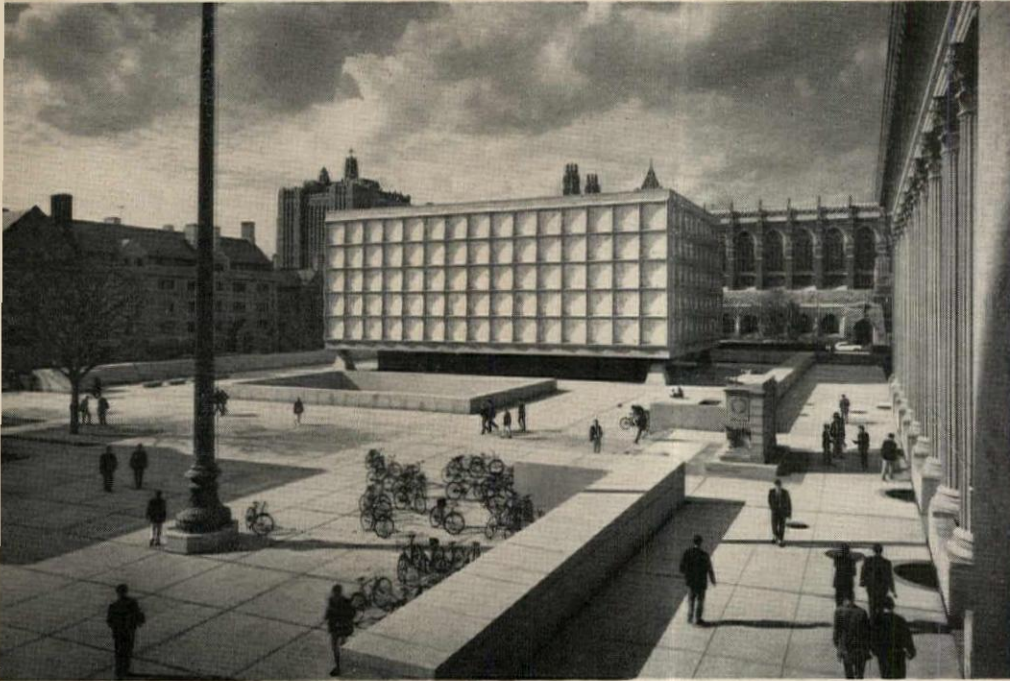
the larger context of past and future, he will have added a new dimension to the student's personal insights and aspirations. But this enriching experience should come only after he has already weathered his own first encounters with the practical process of design. Nothing increases respect and admiration for the masterpieces of the past more than having been face-to-face with one's own inadequacies in solving even a simple task of planning and constructing. When confronted too early with the great works of architectural history, a sensitive beginner may be rather more intimidated than stimulated; and, since, in my view, nothing must ever endanger his developing a creative approach to design right at the start, the studies of art history, I believe, should not be placed at the beginning of the curriculum. They should be put into the later years of the training when time must be found to widen out his knowledge in the humanities, to make him into a well-rounded personality.

Eventually, though, it is only the positive involvement with the forces that shape our *own* time which will generate that identity of belief and action which is so indispensable for a new cultural effort. Sureness and experience come from being exposed to the realities of *present* living and doing, not from renewed sentiment, nor from seeing Pompeii. Those who are endowed with genuine creative talent and who have been taught the age-old obligation of the architect to exercise humility in his personal contribution for the sake of the whole, will almost instinctively achieve a successful co-existence of the new with the old, while the uncreative mind will produce still-born solutions however much he has devoted himself to the study of art history.

"The proposal to freeze certain esthetically pleasant town patterns, which have outlived their compelling usefulness for the actual life that goes on in them, into a memorial for a former social set-up, will always come to grief. . . ."



The Campidoglio, Rome, David Seymour—Magnum



Beinecke Rare Book and Manuscript Library, Yale University. Skidmore Owings & Merrill, architects

"We, however, have become top-heavy with personal contributions of a more-or-less glamorous nature which then fail to find their necessary foil in a dignified, restrained background-architecture of a rather impersonal collective character."

Only *that* type of society takes up the thread of tradition in earnest which has educated itself to convey its own image via a specific visual order, well secured by a self-imposed ethical code. It is this moral force which embodies its quality of permanence while its ever-changing features replace each other in unending continuity. They are only temporary answers, from one time-limited conception to the other, intuitively taken out of the immense reservoir of the unknown and then consciously articulated by ever-growing knowledge.

This deepening and consolidating of a newly-grasped truth, which helps build true tradition, is missing too often in the turbulence of our times. Magazines and newspapers have favored a publicity which applauds the stunning surprise-effect of architecture over the patient and consistent search for fundamental solutions, capable of development, growth and repetition. I want to quote here Sir Christopher Wren who said, "Variety of uniformities make complete beauty." We, however, have become top-heavy with personal contributions of a more-or-less glamorous nature which then *fail* to find their necessary foil in a dignified, restrained background-architecture of a rather impersonal, collective character. The building of extraordinary character and importance *needs* such a background in order to function well in a visual sense. The love and care which other periods have lavished on these more anonymous prototypes of a public spirit of decency and propriety can be admired to this day in the famous street patterns of the Rue Rivoli in Paris, or Beacon Street in Boston, or the brownstone houses in New York. In our own time, architects have left these "gray" areas largely to the commercial builder

to fill up, or they have introduced such a confusing variety of shapes and techniques in one and the same building area that their different structures never attained a common rhythm and close relationship. The modern urge for personal glorification has warped our standards and confused our goals.

How else can we explain, for instance, the indifference with which the architectural profession has looked on one of the true means of coping with this problem: that of prefabrication? For fear that the introduction of prefabrication would impair their commitment to individual expression, the majority of architects bypassed its development almost completely, only to be rewarded finally by the ugly sight of shoddy, commercial minimum housing creeping all over the countryside. We have almost lost *that* battle, but we are in danger of losing more, unless we learn to speak up more forcefully on the cardinal problem facing every planner of our environment: the obstruction to sound development caused by private ownership of land. Though our deeply-rooted belief in the sacred right of private property is undergoing a certain mutation, the process of legalizing a growing awareness that the right of the people must supersede the right of the individual has made little progress in the face of powerful opposition. A beginning of a solution has been established by the public right of expropriation, which, however, is only rarely forcefully enough applied though common interests are at stake. It is obvious that, particularly for a broad and farsighted renewal of urban areas, collective ownership of the land is a necessary precondition. Eventually rentability of land for a lifetime, or for limited periods, may replace outright individual ownership.

ARCHITECTURE AS TOTAL COMMUNITY: THE CHALLENGE AHEAD

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

By ALBERT MAYER

in consultation with CLARENCE STEIN

4. UNDERLYING DYNAMICS OF SOCIAL-PHYSICAL DEVELOPMENT

(first of two parts)

This is the PIVOT ARTICLE. It occupies the pivotal central position because much of its content has become clear from the previous discussion of the character of, and the weaknesses and the gaps in, the development tools. The weaknesses and the gaps stem from inherent underlying conditions which our current measures and our attitudes toward development do not fully recognize. Or they are passively-intellectually recognized, but do not searingly penetrate, and are not adequately coped with.

In this article, we identify these deep-running factors and influences which must be dealt with if the measures already discussed are to become more effective, if the creative policies which we take up in our last three articles are to become realities, to become effective while there is still time. So, this is the pivot around which the whole subject turns, or which links the past-and-present to the creative potential future, if we visualize and determine to actualize it.

Before we embark further on this voyage of blood, sweat and tears as well as of high excitement, let us refresh our spirits and intentions at this point to state again what we seek, what makes the travail worthwhile and transforms it into a great mission. To explain what we want to, *must*, get away from, I quote a compact trenchant statement by Artur Glikson. While I am not in full agreement with it factually, the tone is right: "In the metropolitan concentrations, urbanization has come to mean the uniformization and mechanization of the processes of human interaction and the introduction of a giant incomprehensible scale in the environment, leading to the annihilation of social and environmental complexity. The contrast of the confusion in the metropolitan centers with the monotony of suburbia does not represent a valuable form of environmental di-

versification, but a bundle of environmental incompatibilities. The unsolved traffic problems are only a physical manifestation of the unsolved general problems of human communication and interaction in the focal regions of metropolitan civilization."¹

And on the positive side, quoting the first article in this series: "We should now be able to create for all a life with diminished tensions and more drama; the life of expanded understanding and vision and the daily experiences reinforcing it; diminution of drudgery and its transformation into unforced creative activities; easy accessibility of market place and community, and of the counterpoint of nature and its healing. . . . The purpose of this series is to explore what are the elements in the physical-social planning and development of our urban civilization and how they must be deployed, to much more fully realize the promise of the new forces, and to minimize their wastes and menaces."

Three Master Factors

Now, reinforced and re-equipped, let us set out again. As will soon be clear, there is a considerable number of these dangerous submerged rocks which I have referred to and these will be explored at some length. Three of these elements are picked out for immediate brief consideration (later to be elaborated), because they seem to be the most dramatic and the least viscerally grasped.

The first of these master factors is the population explosion, well recognized, of course, and mentally pigeonholed. But listen to this hair-raising state-

¹ From *Humanisation du Milieu*. No. 4, 1963, of Le Carre bleu Feuille internationale d'Architecture

ment by Dr. Robert Weaver, administrator of the Housing and Home Finance Agency: "In the remaining 40 years of this century, our urban population is expected to more than double, from 125 million to 280 by the year 2000. . . . This means that in the 40-year period we have now entered, we will have to provide homes and all of the facilities needed for urban employment and enjoyment equal to *all that has been built to date in the entire history of our country.*"

Let's just repeat that: 40 years in which to more than duplicate the total of existing living and working structures, and their framework, of the entire country! Is there anything in the programs we have reviewed, or in the visible performance of private builders, or both, to suggest that we can do or are preparing to do this stupendous work, and at the same time to re-do a large part of what is already here?

Quantitatively, this will require a sustained yearly output for the whole period as high as the top figure we have ever reached. And it should mean an imagination, a discipline, a quality of output and habitability and equitable cost range beyond anything we have ever done or now have the machinery to do.

It is overwhelmingly important to have this stupendous job and prospect make a burning and ever-present impact, and not just achieve an intellectual nod: MORE HOMES: massively, MORE HOMES. Let us, for example, not get confused, as a number of leaders are becoming confused by, and excessively preoccupied with, the appeal of rehabilitation and conservation—good in their way, if the limitations are recognized. But all the rehabilitation in the world *does not add one cubit* to the needed supply. Indeed, in many situations it decreases supply because it involves elimination of over-crowding. In others, it effectively decreases low-rent supply because the improvements often price people out. Just don't anybody forget that *it is only new building* that increases supply and gives us the necessary leverage to realistically enforce building codes, etc., and don't anybody get any sloppy or inferential idea that rehabilitation can do it. Let's not get lost in the fine by-ways of rehabilitation, or think that it's the highway.

We come to the second of these still-submerged master points. It is this: that our effective leaders-who-get-things-done are far from realizing the life-and-death importance of the quality, livability, viability-economy of our cities in terms of national efficiency and productive economy. There is a certain amiable agreement that we ought to be improving things, but by no means a sense of urgency, by no means a comprehensive understanding that these aspects are getting so far out of gear that they affect

not only amenity but efficient productivity and our world-competitive place.

Lowdon Wingo has put this cogently: "The national interest arises from the productivity of urban land, not the amount. Urban space represents substantially less than one per cent of the nation's area, but it houses three out of every four people in this nation and produces well over four-fifths of the total economic output. This massive concentration suggests the critical importance of urban efficiency to the national product: increasing inefficiency in the organization and functioning of our major urban areas will in short order militate against the effectiveness of our national economic establishment simply because they will affect the bulk of our economic activities. Although we are not likely to run out of space for urban activities, cities may at some scale become subject to increasing costs which can be traced back in large part to inefficiencies in their spatial organization."¹

Western European nations, and in particular Great Britain, The Netherlands and the Scandinavian countries, have actively recognized this connection, and in the last two decades have hammered out policy and have been taking effective measures. We, in our outstandingly productive pre-eminence and self-confidence, have been overlooking or underestimating the galloping disarrangement in terms of human disarray, and its most palpable reflection in traffic costs and in constantly rising local taxation which, however, just cannot keep up with the need.

I am convinced that IT IS LATER THAN YOU THINK. I am always reminded of the possible similarity of our position to the industrial pre-eminence of Victorian England, its over-weening and static self-confidence. The sands of time were running out, and progress in the United States and Germany was silently but relentlessly undercutting the grimy obsolescence of Manchester and Glasgow and Durham. Suddenly came ultimate awareness, but by then competitive reality had caught up and outstripped England, which has painfully, but not yet fully, recovered from this luxury of unawareness and cocksureness.

The power men have got to begin to realize that the lengthening tiresome and tiring journey to work, increasing costs of such travel, cumulative dissatisfactions and tensions of people extracurricular to their jobs, the cost of massive highway systems and fanciful interchanges are all ultimately part of their production costs. One of the specific diversionary reasons why the heavy direct and indirect costs are considered good business is that they provide work and sales of materials (the oil industry has a heavy budget to push road construction). But surely we can find

"Our effective leaders are far from realizing the life-and-death importance of the quality of our cities to national efficiency and productive economy. . . ."

more socially useful employment than by further promoting expenditure of money, time and energy by mutual centrifugality.

There are many people who are aware of, and who are greatly worried by, the silently ticking time-bomb: planners, sociologists, researchers in many fields. But their statesmanlike worry hasn't penetrated to the power structure of business and its associations, whose worry and gratification in urban development are generally concentrated on the bothersome central slums and their conversion by urban renewal to prestige centers. How to translate their delightful and each-time-satisfying activity of converting one to the other, a readily tangible enterprise, into the big realization, SOON: this is the problem.²

In this probably arbitrary and personal choice of three factors as "first among equals" of the numerous crucial obscured factors to be enumerated and discussed, the third is the thesis that *process* is fully as important as tangible *result* or tangible *product*. If the psychological accompaniment of urban renewal is lasting or long bitterness and resentment on the part of many people, the tangible result, however handsome, is still a negative and of course no major historic change is ever accomplished painlessly. One is demanding, however, that this aspect be creatively minimized. Or, in a less drastic case, if the people affected have merely acquiesced, and the results are beneficial, the undertaking and the experience have still not had their maximum flowering. It is in fact the *process* leading to the result that can galvanize people, give them a lift in terms of morale and of initiative, if their *participation* has been creative and continuing. In fact, the *process itself* can best produce the growth, the met challenge, the conquest for once of the frustration that so permeates so many lives. The touchstone is: have the affected people themselves had a real hand in producing the end results?

The ways are infinitely various: co-exploration, co-planning, consultation, actual construction self-help, in whole or in part. Not every plan or operation lends itself equally; some, probably, not at all. But I go so far as to urge that every planning-development operation should be closely analyzed to see how far and in what way it can lend itself to process-participation from the start; that this be very high among the intentions and priorities; that skill and imagination in evoking and involving positive, disciplined interest be considered a major qualification in the administrator; that here is an added dimension that requires constant recognition, and re-recognition.

We can now discuss and analyze a number of the other major underlying forces.

The Dog-Wagging Developer

Private enterprise, in the form of the speculative land-developer-cum-builder, operates both in the expansion periphery and outlying areas, and in the central areas of the city. In both cases, he thrives on change in land use or its intensity, and on differential obsolescence, following various trends or forcing trend. The essence in both situations is to buy land at a given low cost, convert it into "higher" denser use and make a profit on this differential. In the outlying situation, the major profit is in this land conversion rather than in the building construction; in the central situation, the building profit is more important.

On the periphery and in the suburbs and beyond, the highway system and the super-highways permit and encourage the potential home owner to go farther and farther out, even if his job is in the city; and his ownership of a car permits him to go even farther unidirectionally, because he need not then be even very close to the major highway and bus route. Thus the developer-builder has a wide range of distant ex-farm land which he can buy at very low prices, and he converts it into housing colonies which, because they will then accommodate many times the number of families—i.e., a suburban density instead of a farm density—produce that greater land value and sales price which make this operation worth his while in profit. The very fact that a single large operation of this character has been consummated attracts many others into this or similar more-distant-than-hitherto locations. This is now the characteristic type of outlying development.

This kind of operation is not new in kind. It has always characterized the suburban push and our land development system. But the new mobility (combination of widely expanded car ownership, highways and super-highways), the population splurge, and the new kind of financing available have made it a much more galloping situation, with much more detritus, more gray areas and blighted areas left behind, and much more scatteration ahead.

How does the system of financing encourage and accelerate this process? The fact is that in the building-development industry or business, the promoter-

¹ CITIES AND SPACE, The Future of Urban Land. Edited by Lowdon Wingo Jr. Excerpt from Urban Space in a Policy Perspective. The Issue—page 7

² There are some notable clear-sighted and far-seeing exceptions in the business circles such as the National Planning Association, New York Regional Planning Association, members of the Northeastern Illinois Metropolitan Area Planning Commission. But these are fringe organizations. The real muscle groups are such as the National Association of Manufacturers, the United States Chamber of Commerce and the local Chambers of Commerce, the American Bankers Association, who are either unaware altogether of the national economic importance of the urban structure, or are aggressively and bitterly opposed to positive efforts. The labor unions, too, are tone deaf to this music of the future

builder himself has only a minimum of investment, and that only catalytic and temporary, if he guesses right and his judgment is good. For, in the present general situation, it is he who calls the shots and chooses the locations, while the lender or mortgageholder—the insurance company or the savings bank or the building-and-loan association—is the real but quite passive investor. They and other elements make loans—insured by government or not—of so high a percentage of total cost that the builder need have only a small and temporary investment, and that investment is reduced to zero when the houses are sold. Thus, in this kind of operation, the developer-builder selects his site and completes his operation and gets out, with no long-time investment interest. The main investor is the lending institution. The smaller investor is the home-owner. The man who made all the vital development decisions has moved on. Thus the alert developer tail wags the supine mortgage and investment dog which is the important and significant permanent element. The builder has made his profit or his loss, and goes on again to find new cheap land and another differential-obsolescence situation. As he (generically) has been doing this for decades, leaving once-new neighborhoods behind, and attracting people to the newer ones, there is a growing residue of “gray” areas, semi-blighted or blighted, problem areas which have got to be saved at a later date with government help (if they can be).

Currently, and of great immediacy, the peppering of such residential developments in so many locations, in different locations, and farther and farther out, spoils the land or the map, makes very difficult, and very much limits, rational planned self-contained properly located development such as is suggested in, for example, Baltimore’s regional “Metro-Towns.” And as at best these will take time in terms of years to get well under way and then to develop and complete, this spoiling or interference becomes progressively more destructive of these possibilities, or might dictate a drastic change in their theory and location, distance out from the metropolitan center, etc.

A similar dynamics is at work in the center of cities, with differences appropriate to the different locational circumstances and weight of factors. There, depending for its intensity on whether the city is a national metropolis or a middle-sized city, there is a similar finding or assembling of land, often occupied by older, though by no means always physically worn-out buildings; or there is property assembled by urban renewal. An entrepreneur (or in the big cities, several or a number, in various locations) sees a chance for promoting an operation of greater density and higher rentals, hence supporting considerably

higher land price, and develops a tall office building or an apartment house. This initial success immediately sparks in an upward-optimistic direction the land values or prices of a whole belt or area of parcels which are similarly located, makes it tempting to a number of other developers to follow suit, and makes it difficult for the owner of old or older existing buildings to carry on. Thus, this new cycle tends to empty out or thin out the tenancies of older buildings, their level of proper maintenance can no longer be afforded, and this becomes a contributing cause of blight or slum (residential or commercial or whatever).

Here again the process is accelerated and exacerbated by the financing system: the office building with substantial space leased to a big-name firm can borrow out; and in the case of apartment houses, cooperative purchasers take over the required equity and leave the builder free to move on; in a substantial number of other cases, FHA has insured the high mortgage loans of in-lying apartments. It must be noted that mostly these apartments are for upper-middle-income and beyond, hence do not increase the housing supply in the price-range and location where most needed, and even diminish it by demolition. Thus, again, there is constant change, a large part of whose end product is the deterioration of large areas of the central city. More gray, and darker gray, areas.

The very thin financial interest of the dog-wagging developer, and the temporary nature of that interest, are further ramified even where he has not borrowed out, or nearly so, by the following characteristic of the system. The builder-developer has no particular allegiance to his creation, characteristically sells it for a profit at the earliest moment. In fact, there is a large group of business men in this field, called “operators,” who do *nothing* but buy and re-sell properties. In fact, sometimes a contract is made by an operator to buy a property, and it is *re-sold* to another operator-purchaser even before the first deal is closed and title taken—all in a matter of months. While there are estates and large companies that intentionally keep their own properties, this is not at all characteristic of the system. The significance of this is two-fold. It underlines the temporariness of interest of the developer and of his successors. And it establishes something else: the state of mind and the attitude of those in this field, as far as a real sense of responsibility or commitment or allegiance goes, toward an entity of property which strongly affects the lives and activities of the people who occupy it. It is well to bear in mind this kind of attitude (as well as the factual characteristics of the system which we are describing), in appraising how fitted private enterprise in its present form may be to carry on the

"The alert developer tail wags the supine mortgage and investment dog which is the important and significant permanent element. . . ."

large-scale statesman-like developments that must be contemplated and undertaken. Private enterprise in building entrepreneurship is in this sense much more irresponsible in the U.S. than in England and Europe, or than most other industry in the U.S.A.

New Role for Private Enterprise?

Massively involving other sectors of private enterprise in direct development operation on a new basis could, it seems to me, eliminate a good deal of this basic frivolity and irresponsibility and their wanton result.

The enormously large aggregations of capital in insurance companies, pension funds of big companies and labor unions and savings banks, which now generally play the supine role of mortgage-lender, and make the fantastic operations possible, should be invested in part in direct development 100 per cent equity ownership. Then the actual investor would weigh his policy in terms of income over many years, not the hoped-for killing and moving on. Some insurance companies have made large-scale experiments and have made some very substantial investments, with steady income, and sometimes contributing to positive social development. They have of late years given this up because of public relations considerations such as racial integration, unpopularity resulting from raising rents, etc. As one of their executives has put it, they prefer not to have investments of "high visibility." Perhaps it is understandable business policy not to assume what is considered a special risk that competitors avoid. Obviously the way to get over this hurdle is legislation to require direct capital investment in development of a definite percentage of assets, by *all* these aggregations of capital, so that any real or imagined competitive disadvantage from such investment would be removed, because all would be involved.¹ Similarly, the huge funds in philanthropic foundations should be required to make some investment. They would be peculiarly fitted for this social-economic-explorational function.

Actually, there are a few excellent current examples of pension fund activity in direct investment. In the last article there is briefly described the fine example of St. Francis Square in San Francisco by the fund of the Longshoremen's Warehousemen's Union—Pacific Maritime Association. We find very large-scale examples in Sweden. The Svenska Riksborgen, a housing agency of the building trades unions, accounts for 20 per cent of all residential units. Another is the famous H.S.B., a cooperative building and loan association. In England there are the nonprofit associations or trusts. Such organizations (all are private

enterprise, but they are a quite differently motivated sector of private enterprise) are by no means cure-alls, but they eliminate the anarchy, the differential-obsolescence motivation, the inflation due to sales and re-sales. Certainly we should not lose the drive and initiative of our customary private developer. But the developer can handle the actual building operation, can bring his ingenuity to bear on the cost-reduction possibilities, etc., as part of a quite differently oriented system of private enterprise.²

This account is an over-simplification, but does, I think, present a fair and true picture of the role of the developer in what I have called the underlying dynamics. The purpose here is not to pick out the developer as the moral villain in the piece. The point is that he and they and the mortgage picture are all part of a system which is essentially not geared to optimum planned development and maximum civic-economic, long-run economic value; a system which also makes it acceleratingly more difficult to produce ultimately good solutions.³

Impact of Tax Structure

The other half of this private developer system, which helps push it along, or is a major factor in causing its troubling motivations and results, is *the urban and metropolitan real estate tax rationale and structure.*

In our time, something between one-half and two-thirds of city revenue comes from real estate taxes chiefly, for the well-known reason that other major sources are pre-empted by Federal and State governments. Our system and assessments are based on capital value. The assessors, of course, have a stake in maximum capital value to meet the mounting expenses of local government.

In order to achieve this maximum, it is to the city's (or county's) apparent, or at least short-term, interest to make this tax base as high as possible. One, and a very principal, method is this: when a developer has converted a chunk of ex-farm land into the higher density and value of suburban or ex-urban housing, or a similar job has been done in the central city, as described, the new land value of this area is applied to all similarly located areas, on

¹ It is, of course, the case that there are already similar statutory requirements governing other aspects of investment portfolio

² And could, of course, take on a sizable section whose ground rules and layout have been sensitively established

³ Note that one of the effects of the system as it operates on and beyond the periphery and in the center is to introduce or exacerbate transport problems and problems of peak congestion and part-time use, by further separating areas of work and living in the regions of the larger cities

the theory that if it has been done once, it can be repeated indefinitely. The result of this much higher assessment is multiple: it tempts the owner to sell at a profit; the new high taxes make it uneconomical or financially impossible for him to hold it, and tend to force him to sell; or, if he holds it, he does so because of enhancing land value and not as an economic rental proposition, so that he puts as little as possible into operation and maintenance cost, and he gets marginal or sub-marginal or no tenants. Result: a central well-located slum or drab neglected building right on the main stem—of which there are thousands and thousands around the country.

Thus, the municipal and county tax basis causes or follows or develops these conditions jointly and simultaneously with the private development philosophy and processes. Both are part of the same basic municipal and regional economic-technologic system leading at one and the same time to scatteration, to over-concentration, to anarchic development, to boom-and-bust both in the time-cycle sense and in the areal or regional land use sense (perhaps the latter should be called boom-and-slum).

These forces and this system I identify as the deeply and strongly influential and operating forces which our physical-social planning does not begin to match, and whose characteristic operations and effects must be understood and altered. Yet in my mind there is not on the scene adequate recognition of these realities, or any measures or proposed measures on the part of government to cope with them.

Like so many states of fact and issues raised in this series, they demand drastic and extended attention, but there is simply not space to develop this fully. One may suggest a few points, however, in connection with the taxation dilemma. For example, the British system of property taxation is based on the income of a property, not on its capital value or putative capital value. Thus there is not the frantic urge for premature development in all directions, and/or premature or accelerated obsolescence. A more specific aspect of this, applied elsewhere also, is that farm land continues to be taxed as farm land as long as it is so used, even if there is a subdivision right next to it. This compares with our own system of jumping the assessment of all open land around or "similar" to the subdivision.

Land Policy as a Force

Land policy, land for housing, in the city and in the metropolitan region, is relevant here, but only briefly noted because it enters in more importantly later in other connections. The question in my mind is whether land is not going to have to be considered like a public utility; whether policy will not have to go further to embrace large-scale purchases by government. This has long been policy in Sweden, in

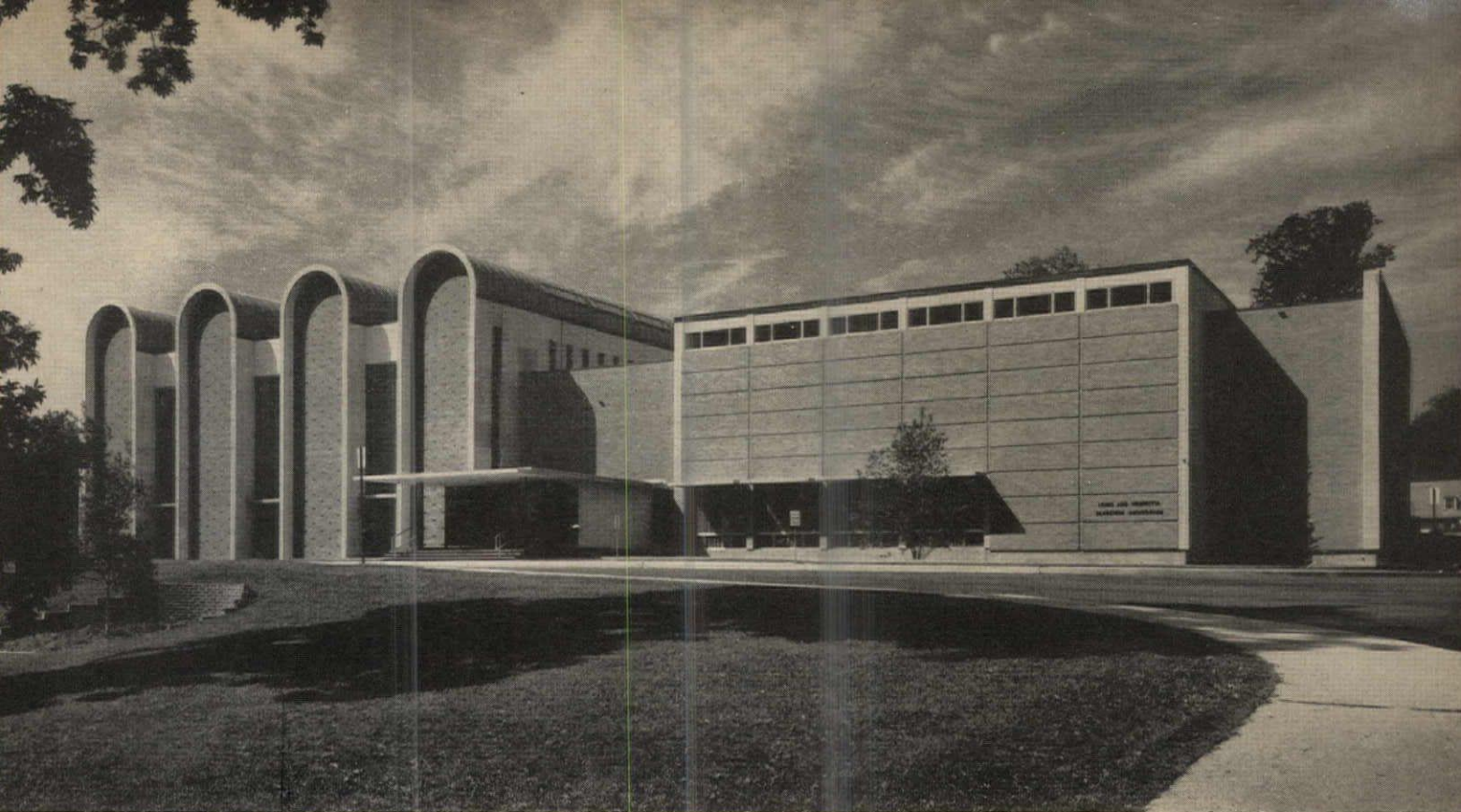
Denmark, in Israel. There is partial precedent for it here, in the acquisition, with help of URA grants, of land for permanently open purposes, and in Land Bank policy in a few cases.

The relation of city, and especially central city, to the metropolitan region is a crucial and vexed question which will be taken up as the great dilemma it is, in the article on the region. But here, in this "hidden dynamics" installment, we must take up a frequently unrecognized facet of it. A matter of the greatest seriousness is the failure to find or to develop "local public agencies established on a . . . regional or unified metropolitan basis . . . to contribute toward the solution of community development or redevelopment problems on . . . a unified metropolitan basis," as envisioned in the Housing Acts. One knows the multiple frustrating effects of the hundreds of separate political jurisdictions in metropolitan areas, and their autistic policies.

But in the case of low-cost or low- and low-medium rental housing, the effect is catastrophic. The vacant land in the central city is almost non-existent, hence expansion of the terribly tight housing supply is all but impossible there. In the suburbs and outlying areas there still is vacant land which could alleviate this supply situation and in many cases permit low-income workers to be nearer their jobs. But by minimum lot zoning for large lots and by other devices, the callous decision has almost everywhere been made to keep these groups out. There are other reasons even more potent why this narrow atomization of metropolitan jurisdictions should be overcome; among them, self-damage to these outlying areas themselves. But how to convince them or overcome the preventers?

As a number of such outlying communities are already themselves seeking and applying urban renewal funds, it may well be possible and practicable for the Federal Government through URA, and others of its financial aid dispensers, to make inducements or to practice withholdings. Some things are more important than the rapid allocation of funds. The National Planning Association's Business Committee notes in its 1963 Report on Urban Renewal and Redevelopment: "It is also necessary to integrate local initiative into a consistent regional pattern of urban renewal projects"; and "One way to reduce local reluctance to participate in a metropolitan or regional plan would involve the provision of financial inducement on the part of the Federal Government." This thinking should be followed through, and coming from this group, it's just possible that there may be real support.

One doesn't mean to suggest that urban renewal must attempt to bear the full brunt of this massive problem; and we will discuss this issue later in a more balanced way, in dealing with the region. But it must be emphasized here, because it is so relevant to the real success of urban efforts.



Louis Reens photos

A BIG TEMPLE FOR BALTIMORE

Temple Oheb Shalom
by architects
Walter Gropius and Sheldon Leavitt
is well planned for worship,
assembly and learning

In 1950 the Oheb Shalom Congregation, which had occupied a series of locations near the center of Baltimore for over 100 years, decided that it should plan to build a new temple in a suburban area to be near the younger members of the Jewish population. The synagogue is now complete.

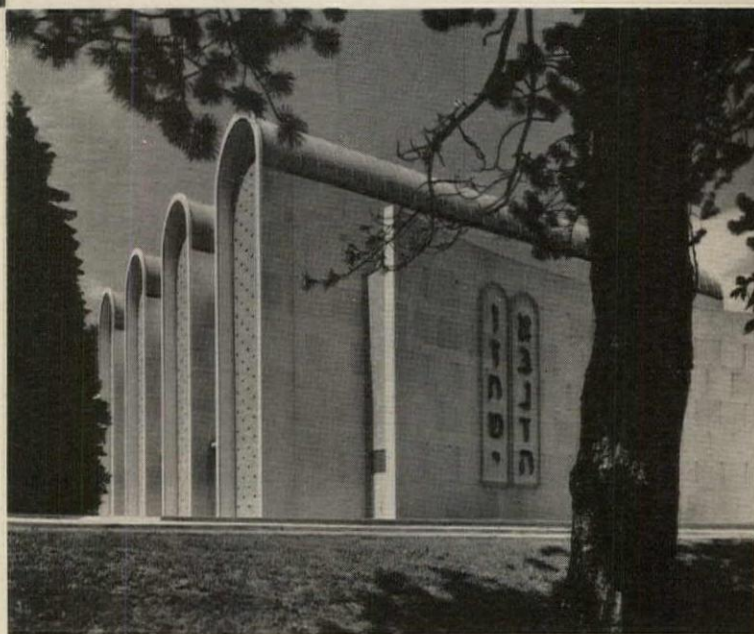
"At a glance, it is apparent that Oheb Shalom Temple is a several-purpose building," writes architect Sheldon Leavitt. "Among the considerations in design was the intent to express a feeling on the exterior of the moods generated within each functional area of the building. Thus the sanctuary is clothed in dignified forms which yield strong, solid shadows. Its roof, in spaced measures, vaults to a great height. The auditorium exhibits a more temporal appearance but retains a suitable dignity of form to make it compatible with the sanctuary; this relationship is intimate when the spaces are combined. The classrooms and administrative blocks express their practical plans and academic uses by crisp straight lines and extensive use of glass.

"Gyorgy Kepes designed the glass mosaic murals seen on each side of the entry. They provide an immediate introduction to the spiritual content of the temple; their transparent colors, grading from dark to light, symbolize the passage from daily activities to the realm of religion. The ceiling here is low, so that upon walking into the temple sanctuary one feels the great rise of space.

"Each of the several reinforced concrete roof sys-

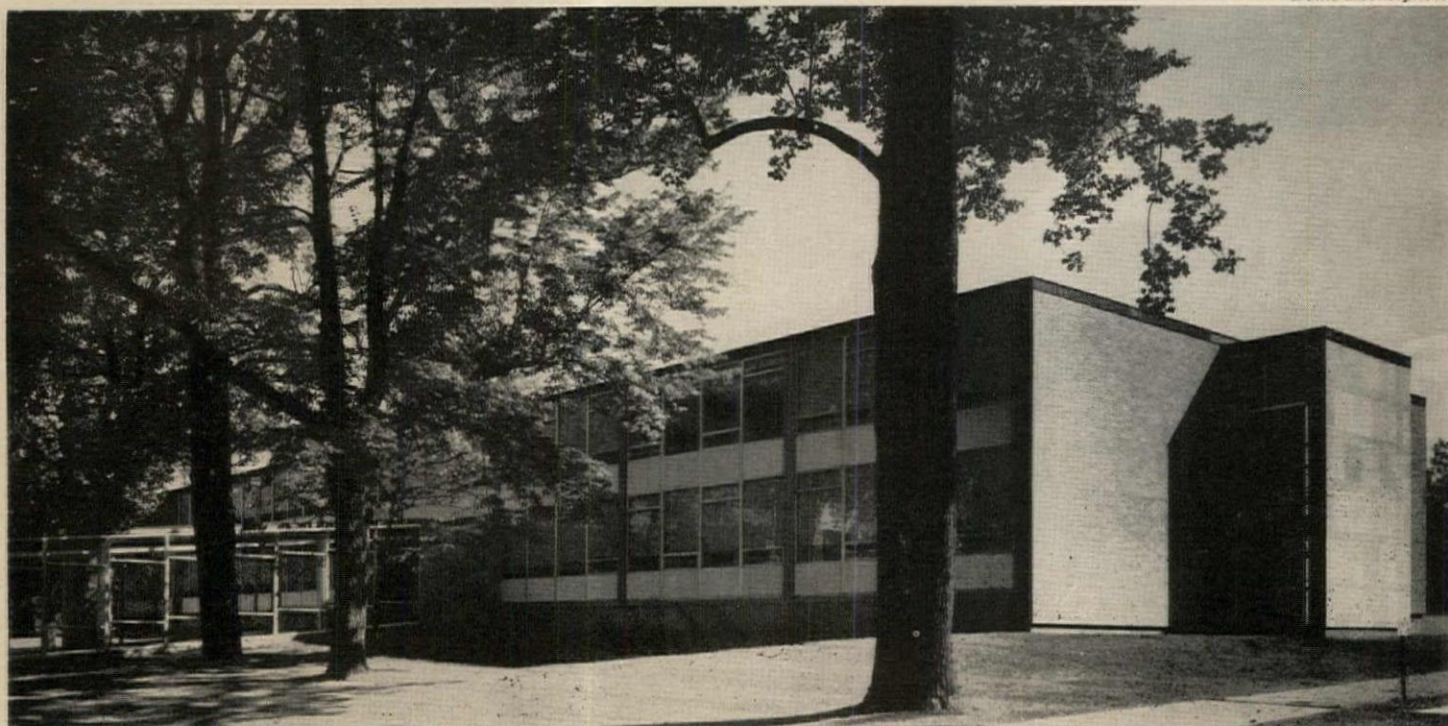


Left and below: The sanctuary roof is a series of 15-foot diameter vaults extending 6 feet beyond each side of the sanctuary. They are connected by 15-foot-wide slabs which continue the roof at an elevation 2 feet below the spring line. On two sides the sanctuary is enclosed by the alternating brick panel walls. The end walls are extensions of the vault surfaces which continue to the ground and are faced with limestone. This system encloses an 83- by 90-foot sanctuary interior, free of supports



Below: In the 900-student school, a pan-type waffle slab reinforced concrete floor and roof is used. Curtain walls are of glass and precast concrete with exposed surface aggregate

Louis Reens photos



Temple Oheb Shalom, Baltimore, Maryland

OWNER: *Oheb Shalom Congregation*

ARCHITECTS: *Leavitt Associates, Architects and Engineers with The Architects Collaborative, Consulting Architects Walter Gropius, partner in charge*

GENERAL CONTRACTOR:

Consolidated Engineering Company, Inc.

MECHANICAL AND ELECTRICAL ENGINEERS: *Silver Associates*

CONSULTING STRUCTURAL ENGINEER: *Paul Weidlinger*

LIGHTING CONSULTANT: *Gerald Ewing*

INTERIOR DESIGN: *Design Research, Inc.,*

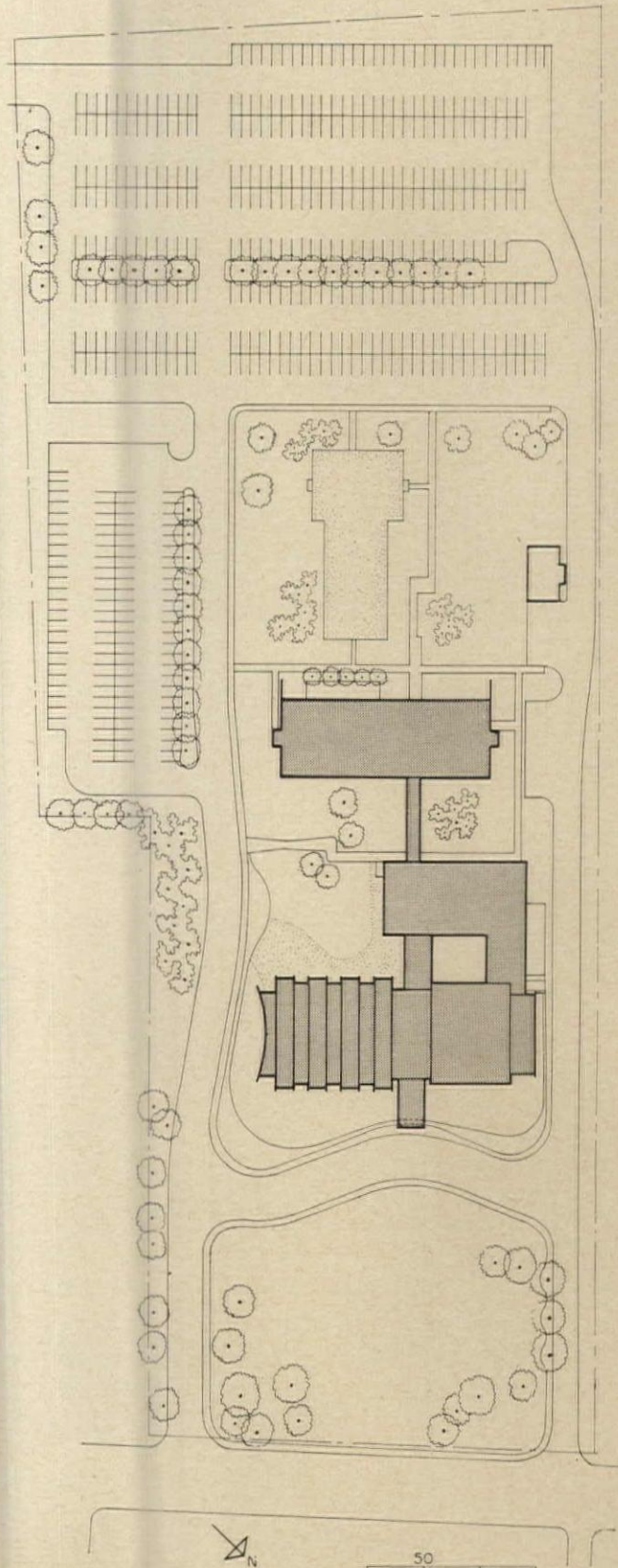
Frederick Miller Interiors

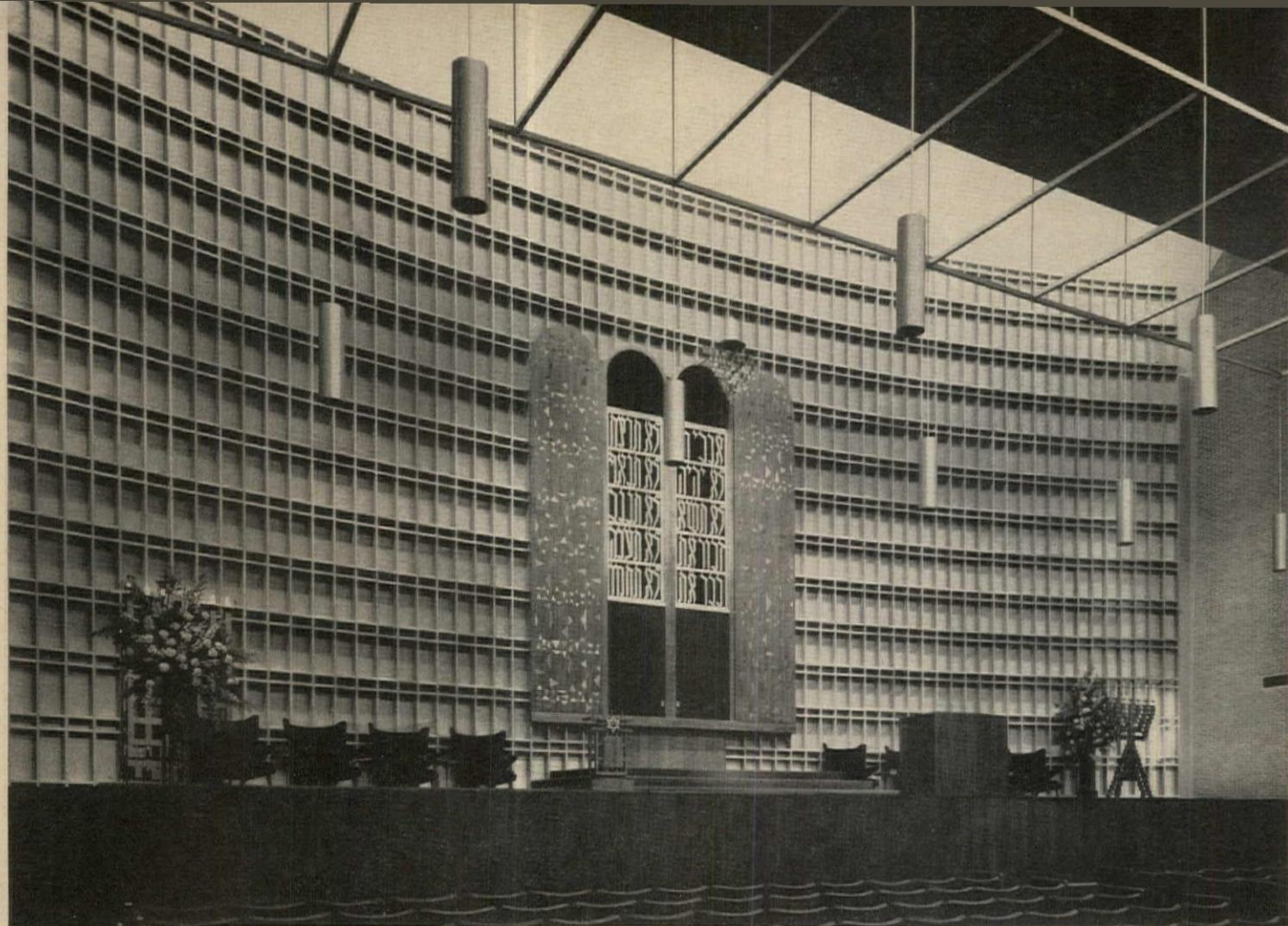
ACOUSTICAL CONSULTANTS: *Bolt, Beranek and Newman, Inc.*

tems helps to express the mood and use of the space which it encloses. In the sanctuary the 40-foot-high vaulted roof creates an enclosure of great rhythms. These vaults are first seen on the exterior where the complementary form is visible. They are constructed of a thin shell of reinforced concrete only 3½ inches thick at the crest and 8 inches thick at the spring line. The vaults span the 90-foot width of the sanctuary and find their supports in reinforced concrete slab legs at each springing. Between these legs are the masonry walls, set alternately at the inside and outside edges, giving the enclosing panel walls of the sanctuary a deep rhythm which harmonizes with the roof but which has a flat form more appropriate for the vertical surface. At the front, a gently curved wood screen, covered with acoustically transparent grill cloth, gives visual privacy to the choir and organ spaces. It forms an apse-like surface against which the tall ark is set.

"Important in setting the mood of the sanctuary as one of reverence, is the careful control of illumination. Everywhere the source of light is obscured or indirect and always it is subdued. Sunlight does not enter the building directly. There are skylights on the northern rises of the roof vaults whose illumination is directed forward toward the ark. Wall fenestration is minimal and where it occurs it is glazed with deeply colored glass. Windows are set behind or above the sight line of the congregation. At the opposite side of the lobby, the auditorium stands as an extension of the great sanctuary. The same materials, concrete, brick and stone, which are used in the temple are employed here, but the resultant shapes are more direct in form. The dark gray terrazzo floor carries throughout the building to illustrate the continuity of the spaces. All of the colors of the building are carefully restrained, leaving to the furnishings and to the people who will occupy it, the opportunity for color emphasis and attention.

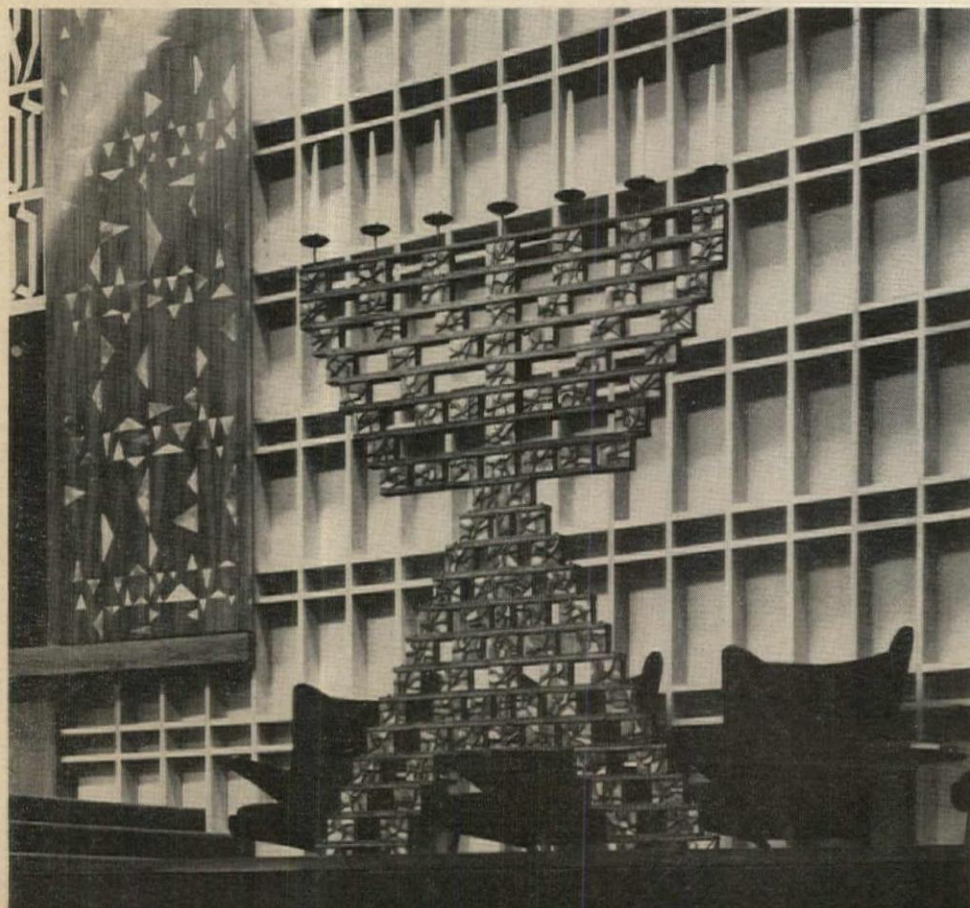
"In the school, the colors are light and cheerful, and the floor, although much lighter, remains a gray color to symbolize its unity with the other portions of the building. As in the other major areas, the roof structure in the school is exposed." Total cost of entire complex was \$2,024,04, not including the cost of land, furnishings or landscaping.

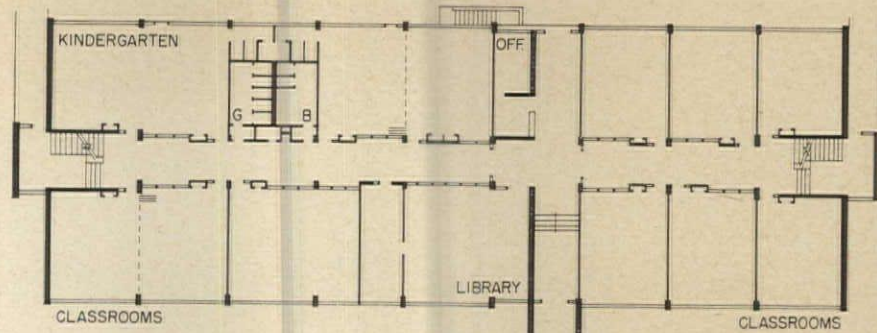




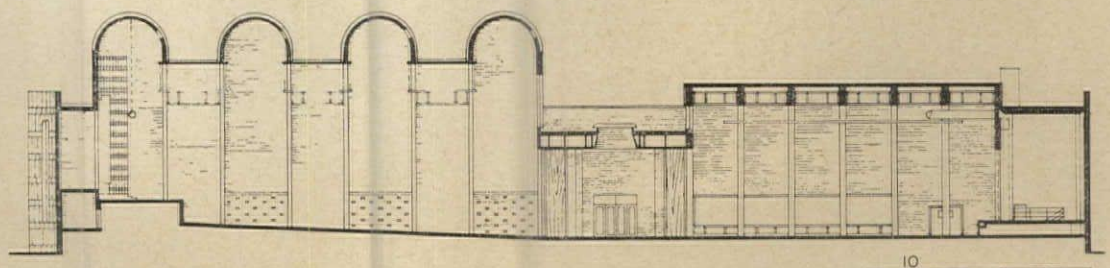
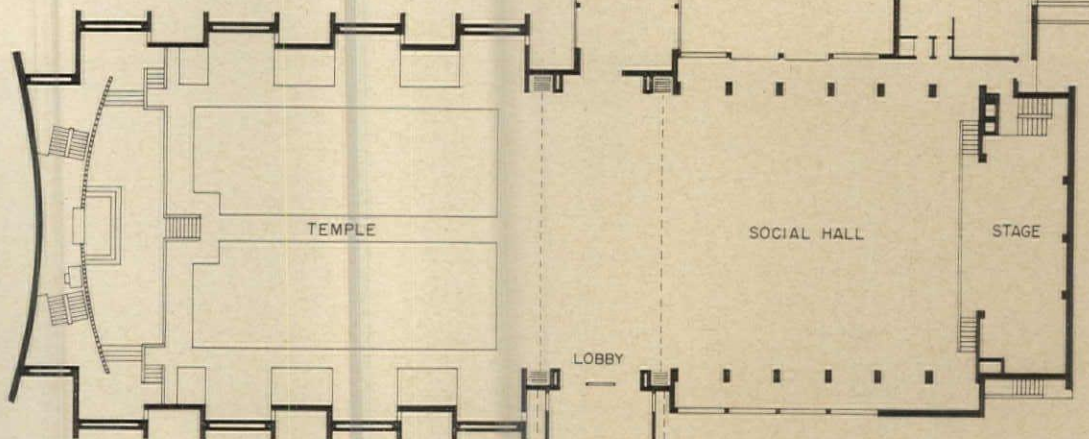
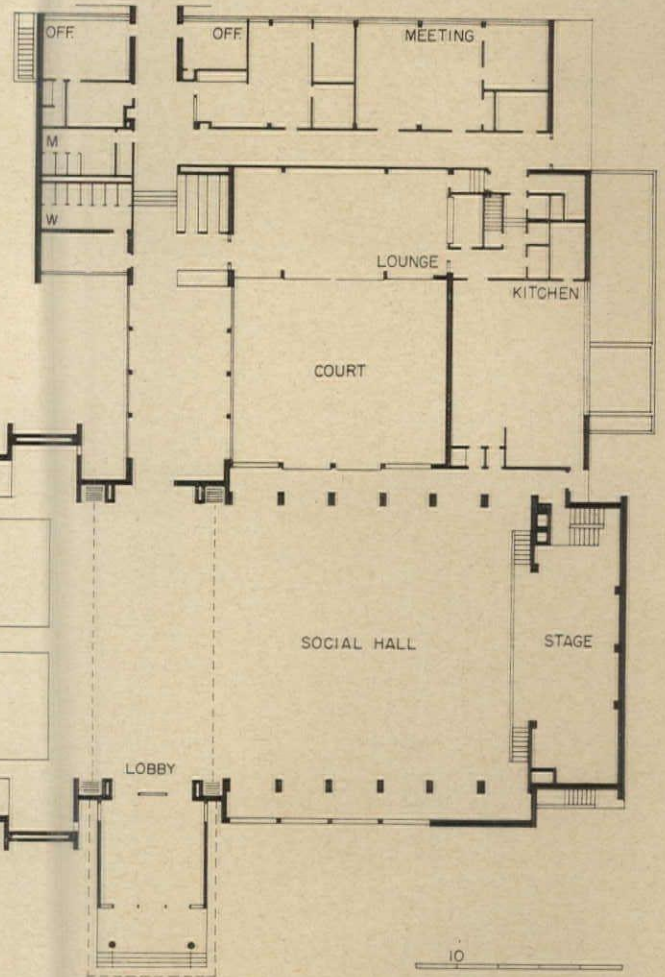
Joseph W. Molitor

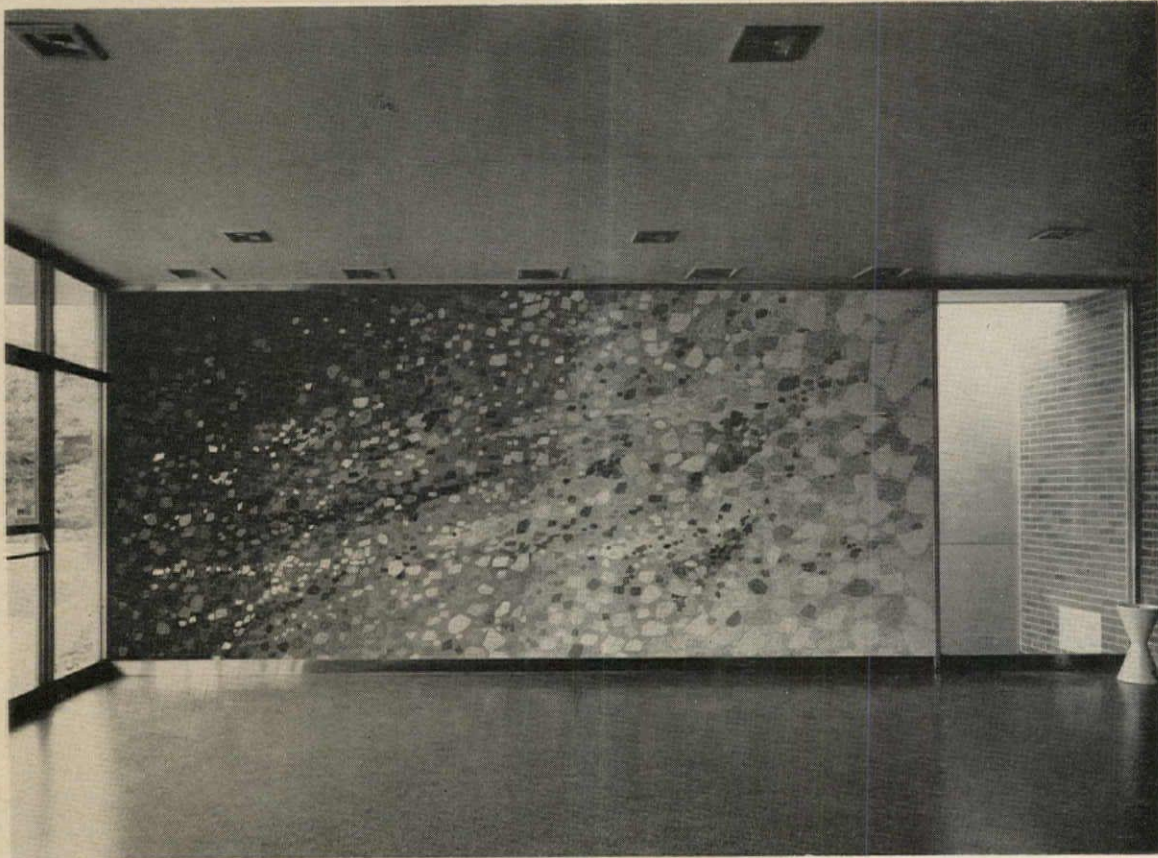
Sanctuary receives sky light from vaults. The ark is 8 feet wide by approximately 20 feet high and is shaped like the Moses tablets. The doors are walnut veneer with an applique in triangular bits of colored metal in a composition based on the theme of the six-pointed Star of David. Hebrew letters are in aluminum against a dark blue velvet lining. Ark and menorahs were designed by Gyorgy Kepes and Robert Preusser. Behind the ark, a beige fabric is stretched behind a golden frame. Chairs are upholstered in black and deep violet





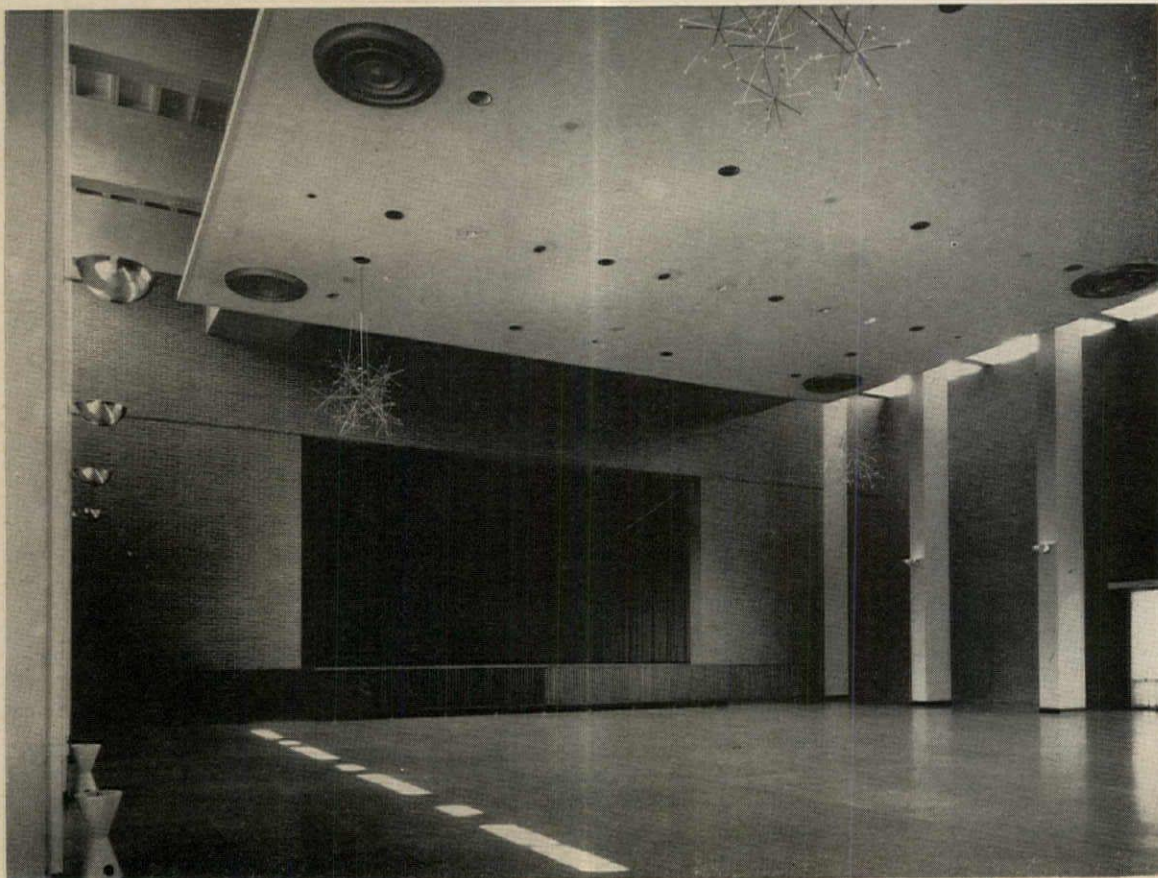
The temple sanctuary had to be designed to be no larger than necessary for the normal services during the year, but with double its space available for the high holy days. This flexibility was achieved by placing the social hall and sanctuary on the same axis and using large folding walnut doors for the lobby walls. This permits the transformation of the sanctuary, the lobby and the social hall into one large space 170 feet long, for over 2,000 people, equipped with a public address system reaching all seats. All parts of the building group are accessible from the lobby and concourse which, like the spine of the plan, stretches from the main entrance at the street side to the back of the children's school. As can be seen in the section (below) the floor rises from the rear of the sanctuary to the bema, enhancing the dramatic effect.





One of two glass mosaic murals designed by Gyorgy Kepes for opposite sides of the entrance lobby. Colors are black, white and gray with a little gold

The auditorium roof is made of precast concrete girders and slabs



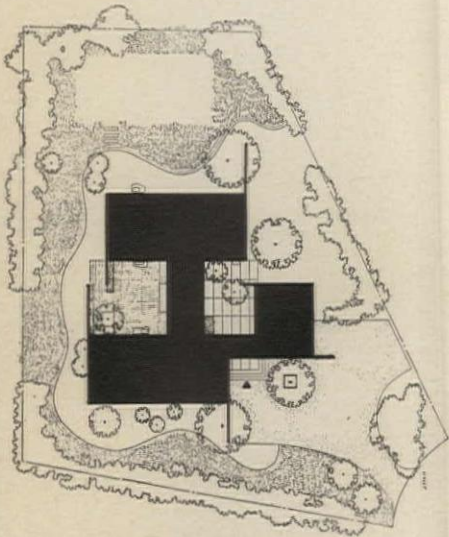
Louis Reens photos



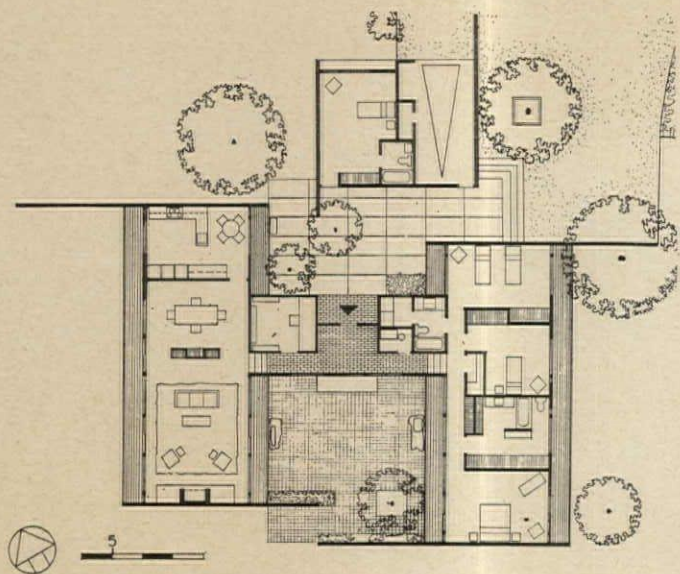
Morley Baer photos

PIN-WHEEL PLAN PROVIDES PRIVACY WITHOUT FENCES

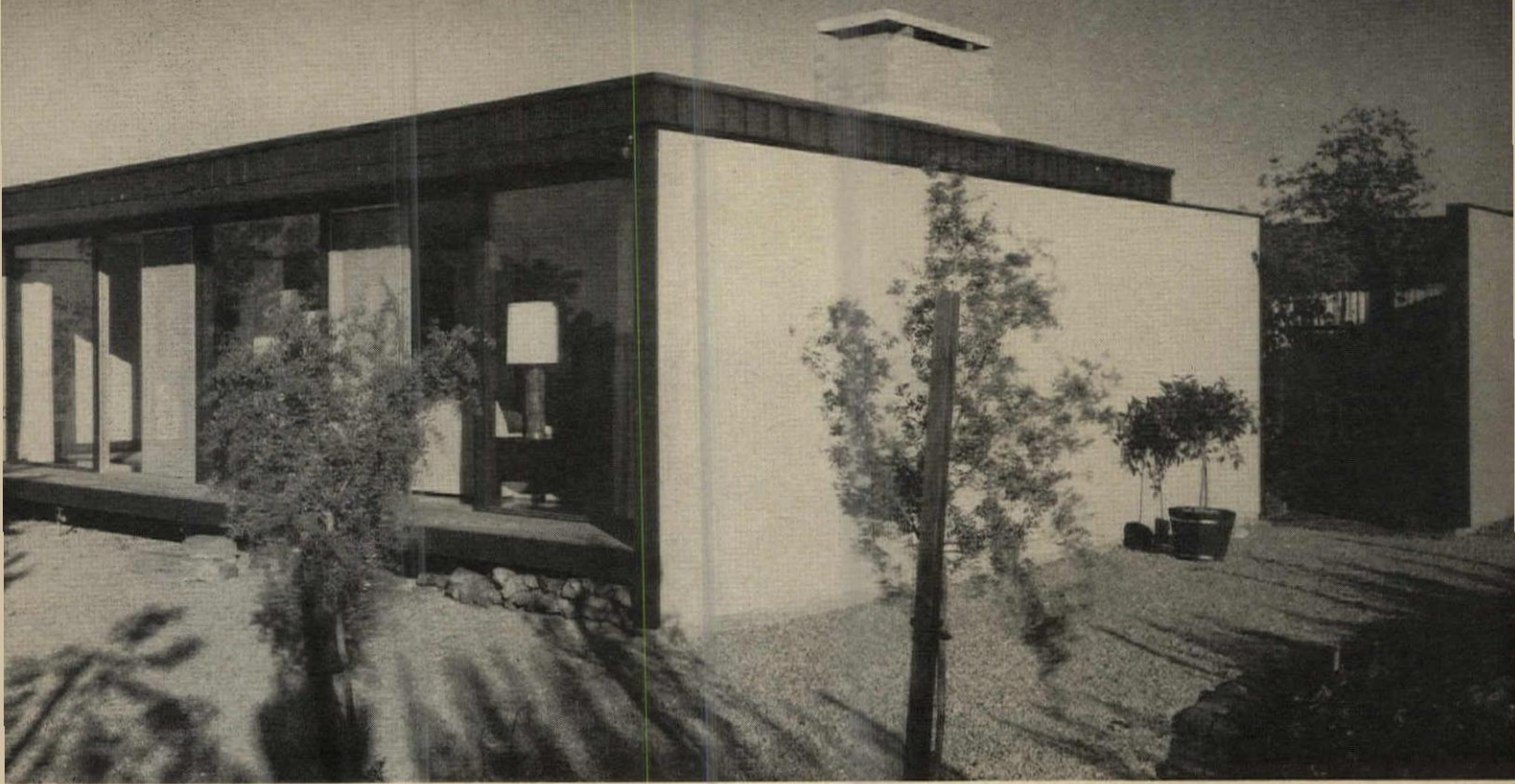
John Field uses fin walls of house to screen pavilion plan



The Packer House



*Residence for
Mr. and Mrs. Herbert Packer
Santa Clara County
California
ARCHITECT:
John L. Field*



The site for this trim house is in a tract of Stanford University land sold for faculty housing; it is surrounded closely by four houses, with only one exposure that is at all private. The other houses in the neighborhood are totally fenced-in, but in this case, the clients wanted privacy achieved without fences. The basic program called for a three-bedroom residence with a separate guest suite for visitors.

A sort of pin-wheel scheme was developed, with fin walls as visual baffles. The architect describes it as "a contemporary use of the Spanish city house, with its entry court and family inner court all facing a blank wall to the street. The end walls extending as screens, create private spaces surrounded by the glass living or sleeping pavilions. The guest suite with the garage acts as an integral adjunct to the basic house and helps define the entry court. Total privacy is achieved with little landscaping and no fencing."

At one side of the entrance gallery, there is a study for the lady of the house, who is a writer; the room is lined with books, has a couch for use as an extra guest room, and one window only—for the supervision of the play yard behind the garage.

The house derives a great amount of elegance from John Field's typically neat detailing and the dentilated cornice. All the wood structural members and trim are strongly emphasized and finished with a dark stain to contrast with the painted siding.





The neat and careful details apparent on the exterior of the Packer house are also obvious throughout the home, as can be seen in the photos of the kitchen, bath and dressing areas. The kitchen has one window wall overlooking the children's play court for supervision. A separate court is provided for adults and general family living at the rear of the house

STORES

Oakbrook Shopping Center, by Loeb, Schlossman and Bennett, page 166

Dayton's Saint Paul Department Store, by Victor Gruen Associates, page 170

Manoff's Remodeled Specialty Shop, by Paul Vinicoff, page 173

Monmouth Shopping Center, by Kahn & Jacobs, page 174

BASIC NECESSITIES OF STORE DESIGN

By Lawrence J. Israel, partner, Copeland, Novak and Israel

The contemporary department store is a complex design problem, enormous in scale: a typical interior floor is approximately 100,000 square feet in area. Architectural elements which in themselves are desirable must be seen from the perspective of their relationship and compatibility to the merchandise displayed. Fundamentally, the architect's problem is the imposing of an architectural and design discipline on a wide range of elements, establishing a design theme and quality, and developing specific variations within that theme and within the ever-present economic realities of the department store situation.

The architect is usually called in by the store owner to assist in the development of the complete program, many factors of which are already known. These include the anticipated dollar volume and the basic departments the client expects to provide, plus a general image or store identity which is to be sustained or, often, enhanced.

Size

The size of the store in square feet is essentially a mathematical rather than an architectural solution. The relationship of dollar volume to store areas is known through Mean Operating Results published by the National Retail Merchants Association, and organized departmentally so that productivity fig-

ures per basic merchandise department are available. A typical branch store in the \$5 to \$10 million range averages \$75 gross income per square foot. Market surveys are utilized to establish purchasing power and demand anticipated for the new store, then these factors are correlated with the traditional figures.

In establishing the size of the new store, it must be remembered that sales departments represent about 70 to 80 per cent of the entire floor area, with the remainder consisting of non-selling facilities. Factors influencing the size relationships include: the number of branches involved affecting warehousing requirements within the store itself; merchandise marking and shipping procedures; and store policy regarding restaurant and rest room facilities, and public and institutional rooms. If sales area works out to, say, 75 per cent, and sales goal figures are known, this knowledge may be converted mathematically to actual store square footage from which to work.

Ground Coverage and Number of Stories

Once the total floor area of the store is established and its location planned in relation to the shopping center, the next step is the conversion of the square footage into ground coverage. Ground coverage is affected by the number of stores to be developed and

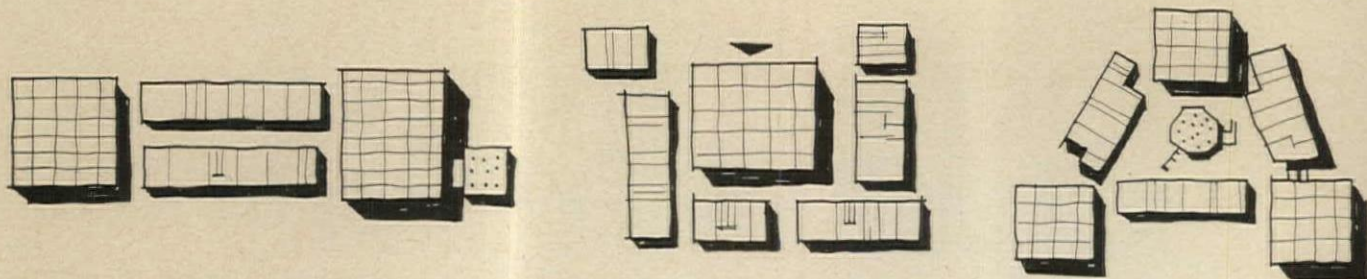


Figure 1. Shopping center arrangements keyed to one, two or three department stores: (left) two department stores connected by mall and small shops; (center) single department

store flanked by small shops; (right) a three-store center in triangular arrangement. Variations of these three are as numerous as the permutations of commercial and siting influences

also by parking ratios and the codes of the communities involved. A widely accepted standard today is one car space per 1,000 square feet of building, and/or a four-to-one ratio of parking site to building. The department store's parking positions must, of course, be coordinated with the over-all parking plan of the center and conveniently accessible from store entrances.

Number of stories is selected to formulate the best possible mix of related selling departments and to provide for possible future expansion. The two-floor mix has been found most satisfactory in a majority of cases. It provides one fashion floor, combining apparel and fashion accessories, and one home fashion floor, each completely self-contained in terms of merchandise. At 100,000 square feet per floor, it is spacious, but not barnlike, and requires minimum vertical transportation cost. A three-floor mix is accepted generally where the store wishes to provide a bargain basement; this also depends on soil conditions and whether you can excavate and develop a full basement.

Four-story stores provide opportunity for a more homogenous floor, but it is difficult to get enough traffic to the upper levels to justify the higher expenses of a multi-story department store building. Generally, where there are three or four stories, there will be "overflows" of merchandise. Sometimes these cannot be avoided. One new store, restricted by its site in town, built three floors totaling 100,000 square feet. No floor is complete; every floor contains areas which do not relate ideally in merchandising terms to the surrounding merchandise.

and for receiving merchandise at truck docks located out of car and pedestrian movement.

Where one department store is the focal point of a shopping center, as is Hudson's at Northland, Michigan, it is effective to make it the central point. Customers are drawn to the department store through the peripheral shops located on all four sides of the store. The only essential cost differential in this plan is the introduction of a truck tunnel to make deliveries to the department store.

In the rare instances where three department stores are included in one shopping center, Randhurst's solution of placing each at the apex of a triangle gives each equal importance and gives the surrounding stores equal traffic potential.

Unfortunately, with the inequalities of customer interest and store drawing power, there will always

Location and Shape

The department store is the anchor for traffic in a shopping center, and most shopping centers are designed for two department stores of similar size. Normally, as a traffic incentive for smaller stores, they are placed at the outer ends, providing a complete ring of parking facilities. This placement of the department stores also provides opportunity for developing exterior facades as identifying elements,

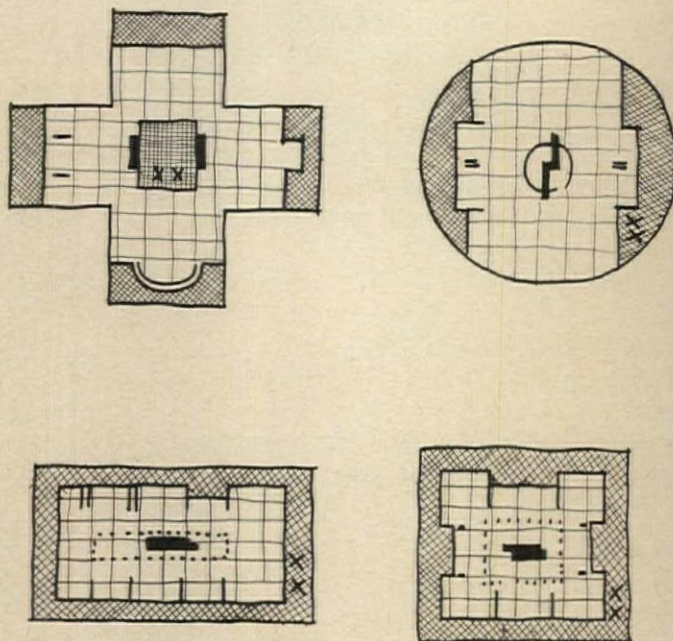


Figure 2. Effect of building shape on store layout. Rectangular shape permits use of end spaces for service areas leaving ample wall space for displays. The square requires skilled development of large center area. The circle poses layout problems and generates high non-selling space ratios. The cross generates four specific sales areas

be a stronger and weaker area within the center, and merchants in general prefer the long mall to all other plans. Figure 1 illustrates store placement in shopping centers.

Building Shapes

In determining the shape of the department store building, the necessity for providing adequate spatial relationships to perimeter walls is vital. The square, while the most economical basic shape, is also probably the most difficult to justify from a merchandising point of view. The enormous amount of interior area far from a square's perimeter wall prevents proper articulation or separation of interior areas.

The rectangle not only provides more workable perimeter space but also adapts easily to a few major traffic aisle directions, and may be ringed with shops which do not interfere visually with each other. The interior form may also be retained with important service areas set at each end of the rectangle, thereby eliminating a minimum of perimeter area and providing easy access to delivery and other related functional areas.

The circle, while more interesting per se, is extremely costly as a merchandising space. Logic dictates structural development by a series of radial columns, with the moving stairway in the direct center. Consequently, every interior element and fixture must be custom made; if straight fixtures are

used, wedge-shaped aisles and wasted space will result. In one store currently under construction, the circle was dictated by the shape of the site and used to develop complete annular rings of parking arranged with entrances to each of the selling floors at quadrant points so that no customer need park further than 100 feet from an entrance.

The interior of the circle was subdivided into coordinated patterns, eliminating most structural problems; the circle was recalled in the interior on two sides and by emphasizing the central moving stairway. Service departments were placed in wedge-shaped sections at two sides of the circle, with a resultant interior that suggests but does not actually reflect the building's shape itself. Figure 2 suggests layout problems of various shapes.

The rectangle is unquestionably the most efficient solution, and its relatively unexciting shape can be developed functionally and esthetically. It can be exploded by wings used for outdoor shops, pavilions or restaurants. At Gimbels, Moorestown, New Jersey, excavation proved impossible due to site conditions, and the basement store was placed alongside the main building as a self-contained wing, preserving the inherent efficiency of the rectangle within an expanded plan. A restaurant, almost always a part of today's department store planning may be placed as a pavilion above the store, accessible to roof parking and thereby functioning independently regardless of store hours. The restaurant may also be used to provide an unusual elevation pattern, as at Diamond's in Thomas Mall, Phoenix, Arizona,



Figure 3. Diamond's (Thomas Mall, Phoenix) entrance near restaurant annex showing exterior stairway and interior access passages to restaurant at between-floors level

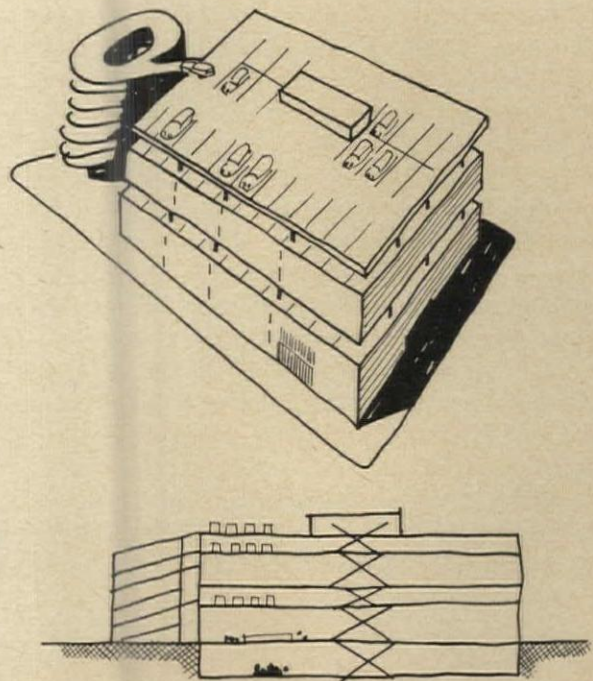


Figure 4. A suggested downtown store design is a rectangle with helix ramp leading to parking floors sandwiched between selling floors, all served by central moving stairways. See also Dayton's St. Paul store, page 170

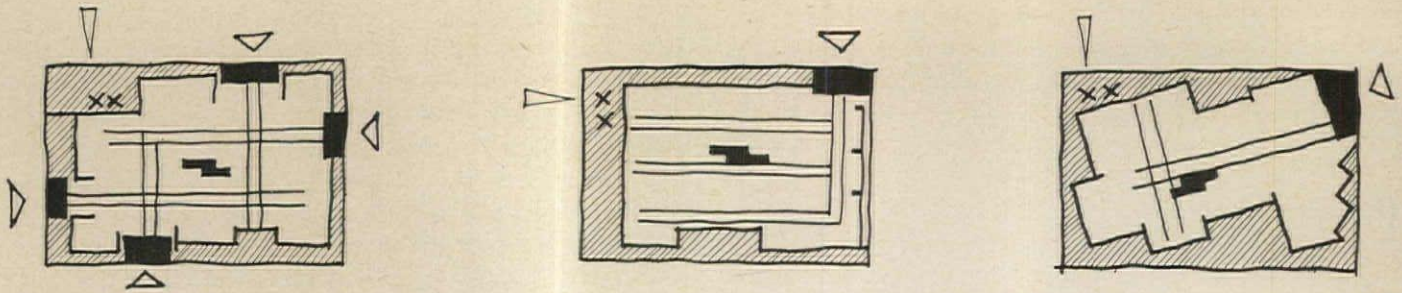


Figure 5. Effect of entrance location on store layout. Balanced arrangement of entrances (*left*) provides flexibility for departmental layout and efficient use of space. Service entrance

is at upper left. Entrance near corner (*center*) restricts corner use and poses traffic problems. Corner entrance (*right*) generates layout and traffic problems

where it is an annex set at an elevation between the two basic levels, accessible to both floors and to the outside by a staircase which crosses a lagoon. (See Figure 3.)

The plan for a new downtown store sketched in Figure 4 provides another variation within the rectangular theme. Set in a city plot, with its complete lack of expansibility, the store has been designed as a rectangle with a helix leading to parking floors sandwiched between selling floors. Not only does this provide access to all floors from parking at minimal distances, it enables a continuous bank of central moving stairways to serve both parking and selling floors. It also provides opportunity to pierce facades with grills at parking floors to add exterior definition and design. The truck dock will be set below the helix for maximum efficiency in getting merchandise in and out. This plan, furthermore, is vertically expansible to any height that may become economically feasible in the future.

While non-selling areas are generally placed along perimeters, a central non-selling core has been developed in a few stores, notably Hudson's at Northland. While this gives a maximum of perimeter exposure and can be developed into a series of elongated shops, enclosed and exploded at any interior point, this pattern will work with reasonable efficiency only in a floor area of 100,000 square feet or more. The problem of merchandise placement and coordination in the four quadrants resulting is a major one, and the loss of flexibility and expansibility must be considered in attempting to utilize this plan. By the same token, the cruciform shape is costly, provides maximum perimeter and a minimum of flexibility; essentially, central service core solutions are suitable for highly specialized stores with rigidly controlled and unvarying departmental requirements, a rarity in today's merchandising world. In both cases, also, a truck tunnel must be provided.

Location of Entrances

Location of entrances is determined by traffic directions and interior merchandising needs. There must

be a sufficient number of entrances so that a 400-foot distance from parking is maximum as is 250 feet a maximum between entrances themselves.

The corner entrance should be avoided. While it may look attractive from the exterior, it may result in an interior angular plan with numerous doglegs. Interior departments are difficult to place around a corner entrance. The entrance should not be less than 75 feet away from a corner. With less than this amount, interior wall depth will be inadequate for any but small departments which do not justify placement at such major traffic points. (Figure 5 illustrates possible entrances and their special features.) It is almost impossible to prejudge which entrance will be the most important one in a multi-entrance store. Many cases have been recorded where interior planning and ultimate major entrance points have conflicted. In one major branch store, men's and boy's departments now frame the main entrance and create an inadequate store im-

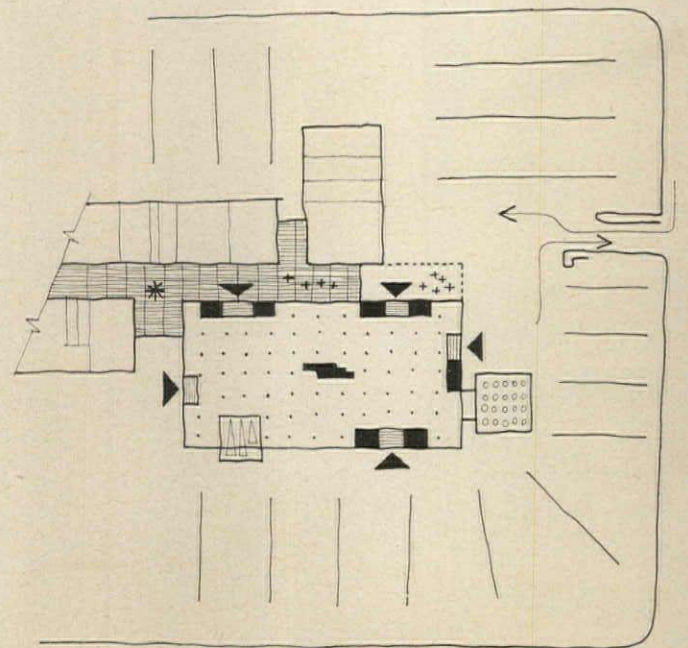


Figure 6. Important entrances for Diamond's are three at top, right and bottom around the right end of plan. Mall entrance is less important. Entrance at left with least access to parking is least important

age. In another instance the main entrance was placed on the main street, but the rear entrance to parking quickly achieved more than double the street traffic pull. In the case of a store like Diamond's, which offered four excellent exposures and one obviously of smaller potential, the architect must make what essentially amounts to an educated guess and attempt to provide strong departmental exposure at each of the major points at which he expects traffic to concentrate. (See Figures 3 and 6.)

It is also important to note that to the department store located in a shopping center, the mall entrance may be among the least important, parking entrances generally are most valuable to the store, with such difficult-to-predict factors as a bad road turning often the key to the success or relative disregard of a particular store entrance.

The Mall Entrance

With shopping centers today more and more completely enclosed, it is more a matter of image than necessity that determines the type and size of the mall entrance. Some stores prefer to minimize the difference between the mall and the store, such as Macy's which in the Walt Whitman Shopping Center, Huntington, New York, is completely open to the mall for approximately 50 per cent of its mall exposure. It is not wise to open the store to the mall more than 50 per cent; valuable perimeter display area is lost; there is visual confusion resulting from the sea of tables, racks and fixtures of all types, and it is impossible to control traffic in and especially out.



Figure 7. Diamond's mall entrance at the Thomas enclosed mall is conventional, flanked by backed-up display windows which preserve interior wall space but need skilled staff

As a general rule, mass merchandise stores will open their mall faces, while higher priced stores will seek to retain their own image and establish an enclosed mall facade. In the Thomas Mall Shopping Center, Diamond's provides conventional doors (Figure 7) while Montgomery Ward, at the other end of the center, is open for a considerable area. Wallachs at Walt Whitman Shopping Center is similarly open to the mall (Figure 8).

Display Windows

There are three types of display windows possible in any store—the backed-up window, the see-through window and the shadowbox. Each has its advantages and disadvantages, although the shadowbox is essentially too small to be more than an extra added attraction.

The backed-up window offers opportunity for the most lavish window displays, and is consequently desirable particularly for quality merchandise. It has the additional advantage of taking a minimum of perimeter space from the interior, and can be highly effective at the mall entrance.

The see-through window used at an entrance actually doubles the impact of the entrance and makes the store interior itself become the display. Furthermore, in shopping centers where a majority of the customers enter from parking, window-shopping from the exterior of the building is practically nonexistent. It must also be realized that branch stores cannot justify the display costs of the typical downtown store, and do not retain a skilled display staff.

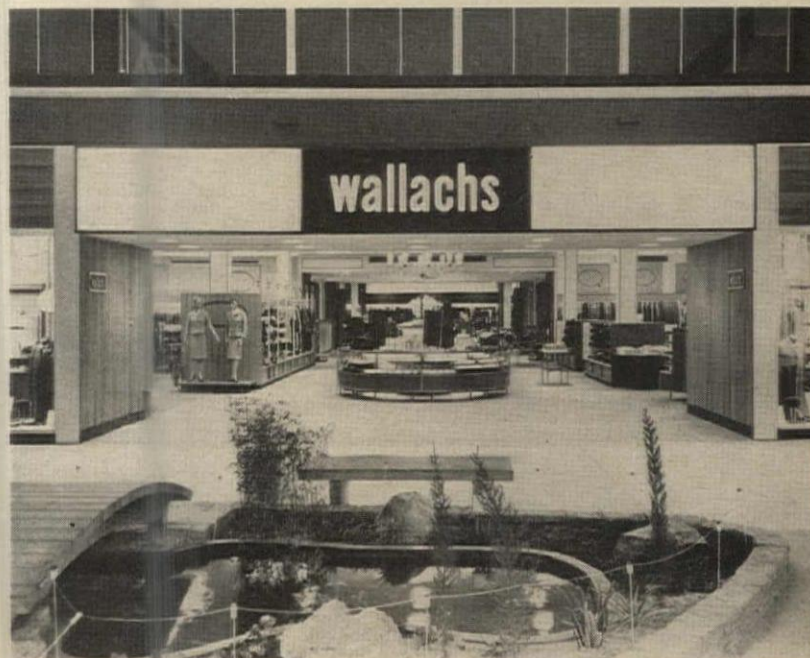


Figure 8. Wallach's store at Walt Whitman Shopping Center, Huntington, New York, opens half of its mall facade, uses store interior as display

Consequently, the see-through window is the best solution for a department store in a shopping center, with backed-up and shadowbox windows used for balance and accent.

Vertical Circulation

Moving stairways are the major vertical circulation in any modern department store, and theoretically should be in the geometric center of the floor. The moving stairway is the store's 100 per cent location, pulling all traffic, with the best flow position. In almost all cases, it should be set parallel to the long building axis to provide ample depth at either end and maximum exposure span on either side. One moving stairway is sufficient for almost any branch store, and while a 24-inch-wide tread is feasible, it is best to specify a 48-inch width, not to handle peak loads but to provide a spacious atmosphere. In the rare cases where a moving stairway is not placed in or near the center, there is almost always a specific reason: a strong emphasis on departmental separation. This may be clearly seen at Lord & Taylor, Garden City, New York, where service areas are built into the rear wall with the moving stairways set directly against them, almost splitting the far side of the store in two, and most effectively helping to develop the store's highly conscious "shop" feeling. Possible arrangements of vertical circulation systems are sketched in Figure 9.

Fixed stairways, required both for convenience and by law, are also sometimes specified for image-building reasons, as in the Diamond's restaurant stairway previously described, or at many Gimbel's stores where a stairway is generally located immedi-

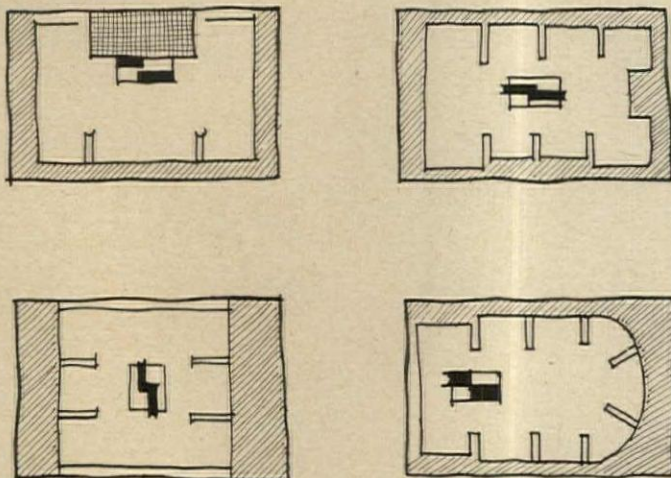


Figure 9. Vertical circulation systems. Moving stairway set against service area near rear wall permits open shop effect. Moving stairway set on store's short axis provides minimum exposed shop span. Central stairway on long axis provides maximum visibility and efficiency. Off-center stairway creates shallow departments and limits visibility

ately adjacent to the moving stairways to suggest spaciousness and elegance. In providing the necessary fire stairs, the architect should try to relate them to vestibules as much as possible to minimize the number of openings onto the street.

The architectural treatment of the moving stairway is a vital factor in establishing interior importance. By piercing the slab and creating an open well, a monumental effect may be achieved. The open well, where permitted by law, must be completely equipped with a sprinkler curtain.

Outstandingly effective examples of moving stairwell treatments include Davison-Paxon, Atlanta (Figure 10), where the parallel up and down white marble moving stairways were separated by a pool containing a two-story fountain, with lighting and color synchronized to the fountain's patterns and providing a constantly changing effect. To enhance this further, a domed ceiling was installed at the upper level, with the entire area becoming the store's single most important and attractive feature. At Diamond's, the glass sided moving stairways were carried through in a completely Diamond-like well treatment, enhanced by glittering artwork, bright uprights, and similarly treated display and structural elements.

Truck Receiving and Materials Handling

The location of the truck dock must be coordinated with interior freight elements, including not only the freight elevator but also near enough to the restaurant to take care of food delivery and garbage disposal. As previously discussed, the truck dock exterior must be removed from customer traffic and



Figure 10. Parallel moving stairways in white marble are separated by a two-story fountain at Davison-Paxon, Lenox Square, Atlanta, providing an effective interior focal point, but at some sacrifice of merchandising space

screened; wherever economically possible, truck tunnels should be provided.

The determination of the size of the truck dock depends on how far the store is from its parent store or warehouse, how much merchandise is received directly from manufacturers, and how much its own warehousing capacities may be. The truck dock varies in capacity from two to six trucks. The average 200,000-square-foot store is usually able to function efficiently with space for three or four trucks.

Normally, one large size freight elevator is adequate to meet almost any delivery situation, regardless of seasonal factors. Mechanical conveyors should be utilized as much as possible for small merchandise boxes, and gravity chutes are an important reason to place freight areas below selling levels.

While it is economically best to have passenger elevators adjacent to the freight elevator, with a consequent saving on structural materials and pent-houses, this rule of thumb can be broken by specific needs. At Diamond's the freight elevator was placed near the least effective customer entrance, since this was also the least crowded parking area and consequently most efficient for service use.

Receiving and marking in a store take up a considerable area, often as much as 15,000 square feet in a 200,000-square-foot store. These services are never located on the main floor. If possible, they should be placed at the lowest level, serviced by gravity chutes. If on an upper level, conveyors must be used at an increase in cost. While major appliance stock is usually placed downstairs, this is not a particularly valid practice since their turnover rate is considerably lower than that of many smaller items; consequently, it is often wiser to place the smaller, more portable and busier items in any easy to handle location since they will be going in and out at a much greater rate.

It is frequently advisable to place all major non-selling elements together in one area, which therefore does not have to be highly designed and decorated. Placement of these areas on lower floors, or as in the case of one store just being built, as one entire floor below ground, will also eliminate possible expansion problems. Service distribution systems are sketched in Figure 11.

Basic Interior Plan

Departments within the net selling area must be considered in terms of both their nature (as to whether they purvey by impulse or demand) and their relationships to other merchandise. Impulse departments must have excellent traffic locations; demand departments will draw traffic no matter where they are located. However, this rule must be modified in such cases as children's departments, where impulse items such as socks must be placed in

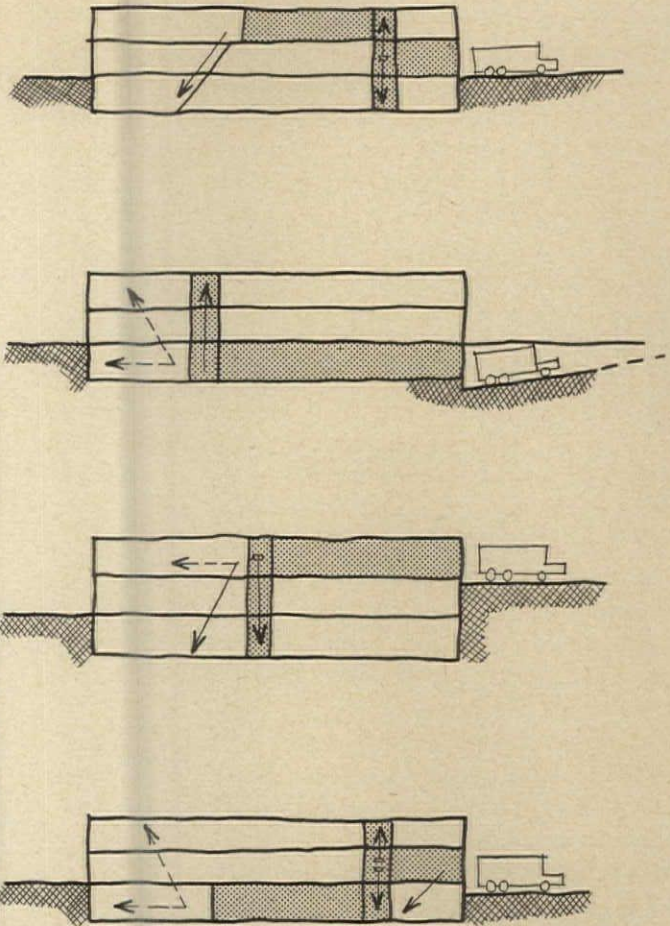


Figure 11. Service distribution systems: (top) receiving on grade with check-in and marking on upper floor requires freight elevator, permits use of gravity conveyor; (next) receiving, check-in and marking on lower level requires freight elevator and mechanical conveyor; (third) receiving, check-in and marking on upper level permits use of gravity conveyor for stock distribution; (bottom) receiving and check-in at parking and lower levels requires upward conveyor and elevator, theoretically the least efficient arrangement



Figure 12. Circular boutique on the main floor at Diamond's, with changes in floor and ceiling treatment, adds variety to a basically rectangular form

the same area as demand items such as nursery furniture to create a departmental cohesion.

The free flow plan, which had a brief flurry of use, is long gone. It proved inflexible, confusing and inefficient, and required custom designing of most fixture elements. The diagonal plan is also inefficient since it creates useless corners and inadequate, inflexible spaces. The simple rectilinear plan is the most efficient, most orderly, most economical, and can be treated with infinite variations depending on the type of store and its image. Diamond's plan on the main floor, essentially rectilinear, nonetheless featured three central boutiques, two square and one circular, with perimeter shops, perimeter variations, and so on. Figure 12 illustrates the effect of this treatment.

A typical mass market store plan is very simple, with a minimum of variations from the rectangular. (Figure 13.) On the other hand, Milgrim's begins as a rectangular plan but explodes in many directions and with many luxurious structural variations. (Figure 14.)

The architect's first specific interior planning problem on an actual job, once location of departments on one floor or another and the allocation of non-selling spaces have been established, is the layout and location of sales departments.

The same statistical factors apply here as in the determination of the size of the entire store itself; each department's sales per square foot and its potential as estimated by the store. These are not bounded by design but by economics. However, it is the architect's function to place the departments in appropriate, coordinating relationships and to provide built-in flexibility for the future.

This departmental siting is done on an area allocation plan and is dependent upon many factors. Departments requiring traffic must be adjacent to entrances or moving stairways, but must also have a logical merchandising and design relationship to other departments. Some departments must have perimeter wall area for proper merchandise housing and display, while others do well in a free central

area. All departments benefit from being against a wall, but since this is obviously impossible, peripheral partitions must be developed on this plan and their heights and traffic determining effects carefully established. All apparel, furniture, rugs and carpeting, shoes, major appliances, curtains and draperies, sporting goods, china and glass, and lamp departments, plus the closet shop, must be against a wall to function properly.

Beyond this, however, departments should be grouped into centers—with fashion, home, leisure and gift as the primary groups—and placed to provide relatively natural bridges of consumer interest. Cosmetics should be near accessories: jewelry, handbags, neckwear, hosiery, etc. Cosmetics also act as a bridge to drug sundry and pharmaceutical departments, and to smallwares: notions, candy, stationery, books, greeting cards.

Very few departments in a store have a genuinely "independent" merchandising existence, and those that do are important in solving area allocation problems. Shoes, a strong demand item, sell almost anywhere in the store, within reasonable boundaries. Although shoes are often considered most effective when placed near apparel, many stores today consolidate all types of shoes within one family shoe department. This provides a saving in the number of sales personnel required, consolidates stock and handling problems, and eliminates the duplication of controls. The family shoe department is most important in branch stores where the family frequently shops as a group.

Area allocation for maximum coordinated sales effectiveness is first drawn in the block plans. Then a preliminary plan, which is the next step for the architect, fills in the area allocation plan, sets aisles, subdivisions of space by walls and partitions, high display elements, islands, displays, and sets, by its density and form, the interior texture of the store.

The architect's knowledge of merchandise needs and fixturing is vitally important in determining the layout, number and type of fixtures on the preliminary plan. For instance, jewelry is sold over the

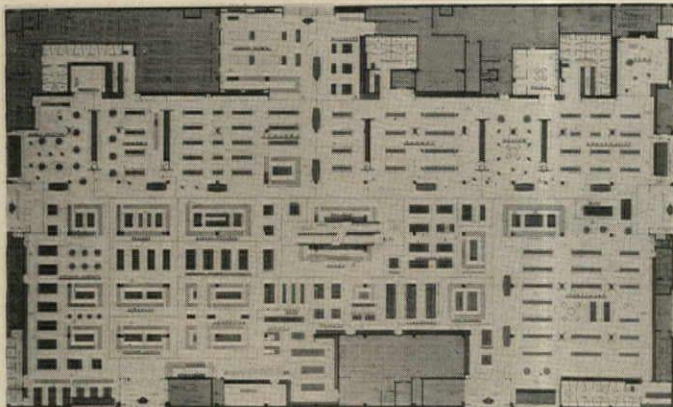


Figure 13. Typical mass market department store plan with rectilinear arrangement of sales fixtures and traffic aisles. Shaded areas are non-selling

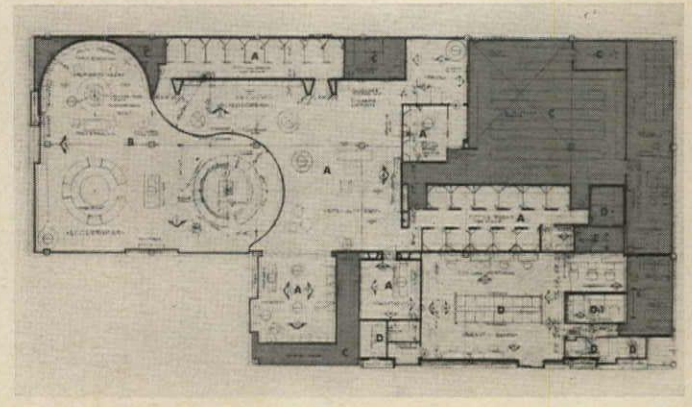


Figure 14. Arrangement of curves within a rectangle as at Milgrims at Severance Plaza, Cleveland, animates rectangular space and defines separation of departments

counter, requiring counter-type fixtures; greeting cards are sold via self-selection fixturing. These factors are determinants in deciding whether to set a showcase line of 15 to 20 feet in tandem in one area, with another department requiring a lighter scale and more specific fixturing.

Showcases and counterline fixtures define the store's roads. Fixtures with legs are lighter in appearance than those with recessed bases and for that reason are generally preferred. However, in large batteries, recessed bases are recommended to avoid a confused floor picture.

Visual Effects

The quality, level and type of illumination throughout the store must now be determined. The level has gradually risen over the past 10 years but still depends to a large extent on accepted standards by geographical region. In the Northeast, where exterior light and atmosphere generally lack brilliance, 30 to 40 foot candles is accepted as a general background level. In the Southwest, a level of 75 foot candles is appropriate and not considered excessive. Generally, a fine specialty shop or the better departments of a store will have a 30 to 35 foot candle level. A discount or variety store may, on the other hand, require 100 foot candles to create its desired, characteristically brilliant effect.

All available instruments and types of light should be utilized as they relate to store image and interior design requirements. All schemes should also use supplemental devices to pinpoint special areas. Wall and floor surfaces must also be considered: their use as light reflectors can be extremely effective, while their darkness may reduce a store lighting concept. Illuminated fixtures are also effective in pinpointing special areas and adding highlights to the over-all lighting plan.

A highly controlled and styled lighting system, such as a counterline plan which follows the fixture layout, is effective only if the store retains its design discipline permanently. This qualification is almost utopian; consequently, it is highly inadvisable to try to establish this tight a lighting control in the average store design plan.

Many effects—domes, coves, etc.—are possible at the ceiling level to set off various departments within the store, and with appropriate lighting will add variety and distinction to the basic ceiling, which should be a concealed spline system in almost all cases. The exposed T suspension system, with its busy and inelegant pattern, should be confined to situations where it is a budgetary necessity.

Flooring materials in a store are basically confined to vinyl asbestos or vinyl tile, with carpeting required for shoe departments and furniture departments, and other appropriate materials for wash-

rooms and delivery areas. There are two basic theories regarding the design use of flooring materials. We have found that it is both more attractive and efficient to combine many of the departmental subdivisions into large groups of flooring patterns, thereby achieving a unity and floor spaciousness and permitting maximum flexibility. The contrary view advocates that the floor be ringed by identifying aisles and changes of color, a plan which, carried to its logical extent, functions only so long as the departmental and fixture plan remains constant.

Structural and Mechanical

Reinforced concrete and steel are the basic department store materials, and their use depends to a large extent on geographical factors: the local tradition of use and haulage efficiency makes concrete more practical in Phoenix, for instance.

While many theoretical studies have been made to develop ingenious long-span systems of column-free store space, the economics of the initial installation combined with the resulting nonproductive truss or dome arch cubage has, for all practical purposes, ruled this out in store design. Practically speaking, the department store requires a simple column, beam and slab structural system, with a long span truss in a multi-story building utilized for stock and non-selling functions. Column placement varies between 25 and 30 feet, with the square pattern preferred for a well-organized interior, providing nondirectional lighting and related elements. The square is more economical in concrete, the rectangle more economical in steel, but the square bay is more pleasing and efficient.

Finished floor to finished ceiling height is generally standardized at 12 to 13 feet, with 3-foot minimum clearance. In recent years, the effectiveness of double-decking stock areas has been proved and store owners today generally demand this feature, resulting in a minimum of 16.5 feet from floor to floor, since about 7 feet is necessary per tier. There are no disadvantages to double-decking stockrooms, which provide excellent extra cubage at no loss to any other store element.

Boiler and air-conditioning equipment should be placed either in the basement or on the roof. Air conditioning is almost always more advisable on the roof, since it will otherwise require extensive ductwork to secure fresh air. The choice between a central air-conditioning system and a cooling plant that pipes chilled water to dispersed air-handling locations is essentially in favor of the former if the roof area is available. At Diamond's the complete plant is centrally located on the roof, giving the simplest possible distribution. The well of the moving stairway is used for return, and of course standby equipment is necessary to guard against mechanical failure.



UNIFIED VARIETY ON A FOUNTAINED MALL

Oakbrook Center, Oak Brook, Illinois

OWNERS:

*Oakbrook Terrace Shopping Center, Inc.
Marshall Field & Company
Sears Roebuck & Company*

ARCHITECTS: *Loebl, Schlossman and Bennett*

STRUCTURAL ENGINEERS:

Nelson, Ostrom, Baskin, Berman & Associates

MECHANICAL AND ELECTRICAL ENGINEERS:

Robert E. Hattis Engineers, Inc.

LANDSCAPE ARCHITECTS:

Lawrence Halprin and Associates

CIVIL ENGINEERS: *Joseph A. Schudt & Associates*

GENERAL CONTRACTOR: *Inland Construction, Inc.*



Peacock's glass front (*below*) reveals imaginative interior (*above*) designed by Walter Sobel

Although the presence of chain stores exerts a pressure toward sameness in the aspect of shopping centers, one to another, as it has on the street fronts of towns in the United States, Richard Bennett discerns encouraging signs of counter-pressures. Community pride, he points out, sets increasing value on the small differences that make for uniqueness. The shopping center, with architectural control sympathetic to local tradition and materials, can display those imaginative differences that create for local shoppers the exceptional store that the chain "did for us." At the same time, the architect can amalgamate and pace those differences from one store to another in his center so that the total effect has its own prideful identity.

Similarly, says Mr. Bennett, the harmony of landscaping and its decorative elements with the truly urban manifestations of paving, street furniture and interplay of plane store facades is more than the conventional exercise of various professions. It is the creation of a coherent, directed, many-faceted environment—a civicscape, if you will.

Oakbrook Center is the thoughtful expression of all this philosophy keyed to the real world of its basic merchandising function. Located at the intersection of a tollway and a limited access freeway about 25 minutes from downtown Chicago, it is laid out in roughly triangular form to present full faces of buildings to incoming traffic. The plan is developed around three terminals: Sears Roebuck





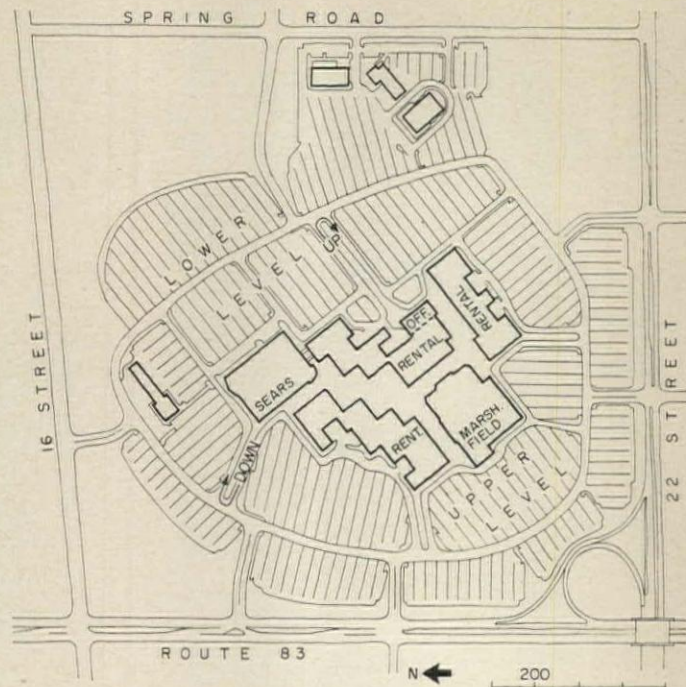
Hedrich-Blessing photos





© Ezra Stoller Associates photo

Above: Stairway approach to mall from lower parking level



Below: Another Sobel interior for Benson and Rixon



and Marshall Field as the principal anchor stores and a one-story food store which adjoins the base of an eight-story office building. A truck receiving dock and central heating and cooling plant for the center and proposed satellite structures are in the basement of the office building.

Marshall Field's three stories posed a problem of achieving human scale and suburban character. The solution, echoing the chain identity, is the tile roofed, low-rise entrance portico uniting the dual use of cut stone and painted brick on exterior walls. Field's delivery area is also underground.

Sears' has entrances on two levels, a separate auto service center in the lower parking area and a distinctive, rounded corner with high carousel overhang overlooking a vista of successive courts toward the tile shingled portico of Marshall Field's. Courts are established by the zig-zag arcade fronting offset facades of rental buildings. They have the effect of shortening the distance between anchor buildings, an effect heightened by the unifying element of seven fountains and pools used as terminals, turning devices or linear motifs.

The atmosphere, says Mr. Bennett, is meant to be an invitation to take one's time to shop with a sense of almost leisurely well-being.

Peripheral buildings shown at the top of the plan represent the owners' determination to avoid chaotic commercial encroachment on the center by developing their own selected neighbors. Future buildings outlined are an office building, theater and motel.





A DOWNTOWN STORE WITH INDOOR PARKING

*The Dayton Company Department Store
St. Paul, Minnesota*

OWNER:

The Dayton Company, Minneapolis, Minnesota

ARCHITECTS AND ENGINEERS:

Victor Gruen Associates

Herman Guttman, Partner in Charge

MERCHANDISING AND INTERIORS:

Raymond Loewy/William Snaith, Inc.

GARAGE PLANNING AND ENGINEERING:

National Garages, Inc. and Enco Engineering Co.

Richard C. Rich, Chief Designer



The decision of the Dayton Company to locate a major store in the heart of downtown St. Paul, says Herman Guttman, partner in charge of Dayton Company projects for Victor Gruen Associates, offered architects an opportunity to apply certain theories and principles that had been successfully tested in postwar suburban stores and shopping centers.

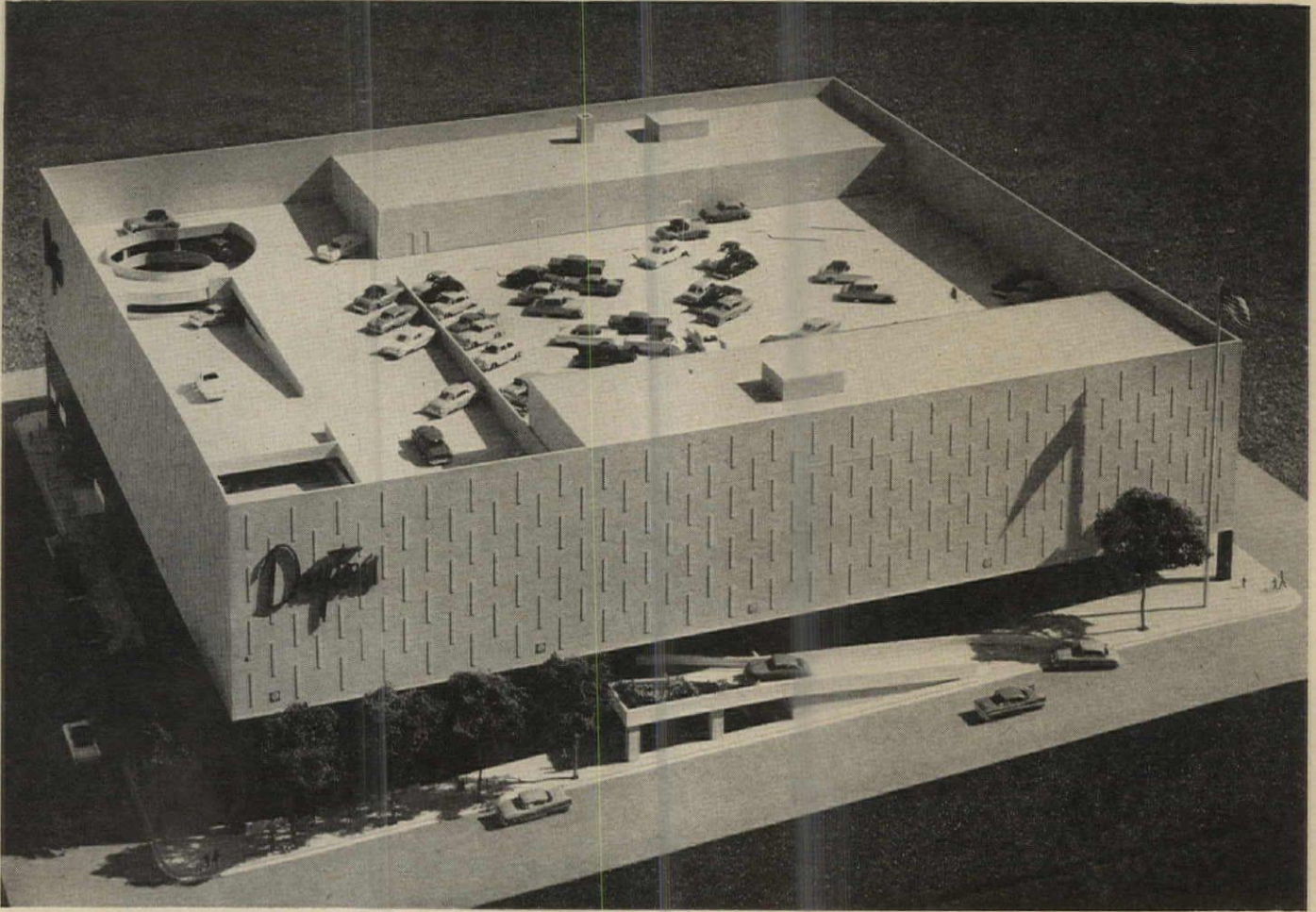
The store occupies an entire block of 96,000 square feet which anchors the southwest corner of the proposed Capitol Center project for redevelopment of about 10 square blocks of downtown St. Paul. The Dayton store plan includes a continuous spiral ramp incorporated with parking space for 650 cars at four levels. Customers arriving by car have elevator access to a main floor, use store's moving stairways to reach other three sales floors.

In addition to parking provisions, the suburban objective of separating pedestrian from vehicular traffic has also been applied in this scheme. All trucking, both incoming and outgoing, is concentrated in an underground loading dock with a single ramp connection to Cedar Street. The entire traffic pattern both trucking and auto, was integrated with the existing one-way system which revolves around the entire city block in a clockwise direction.

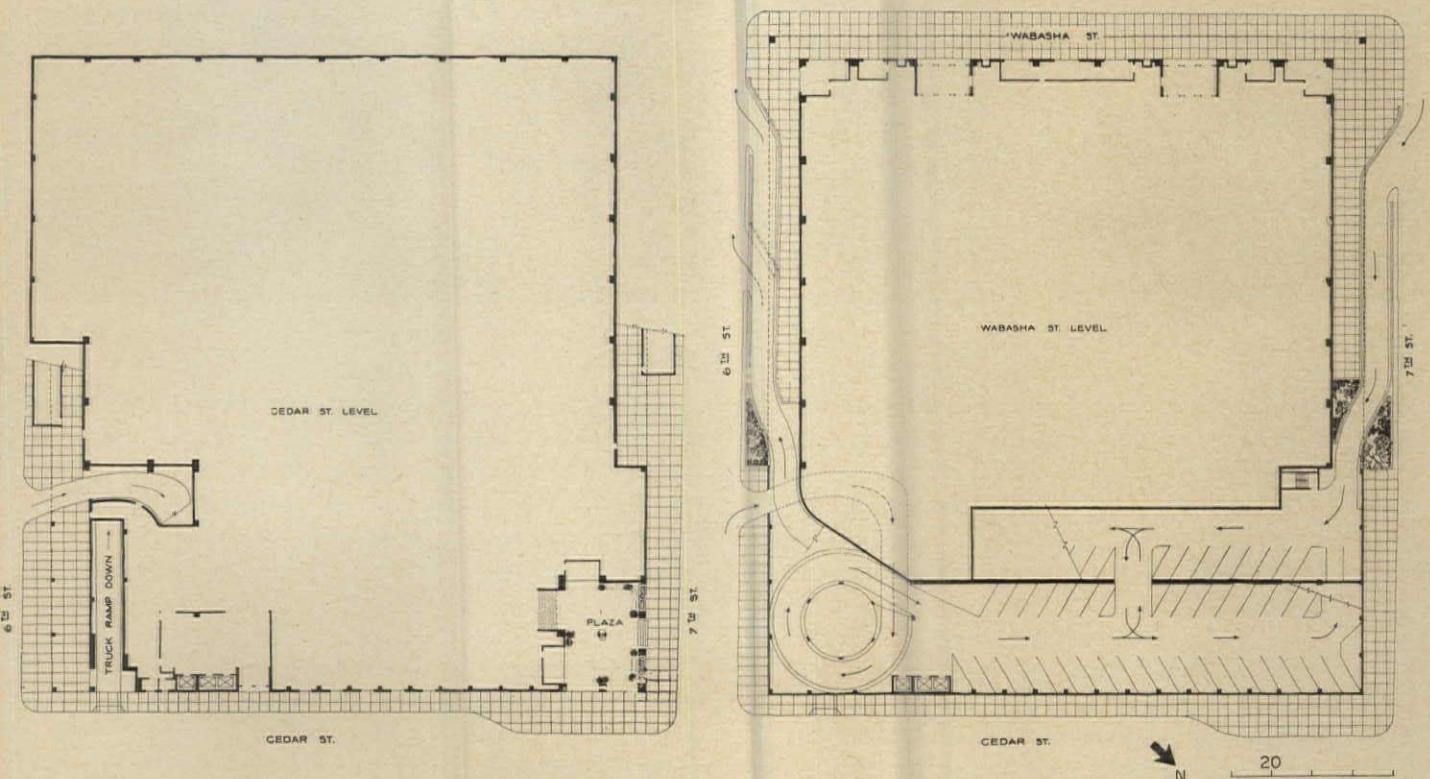
Two of the streets bounding Dayton's store (Sixth and Seventh Streets) fall sharply to the north producing a difference in grade elevation of about 20 feet. Advantage was taken of this grade difference by locating main pedestrian entrances at both first and second merchandising levels thus producing two main floors of equal importance and accessibility. There are two additional sales floors of 61,576 square feet each, making a total store area (including basement and mechanical penthouse) of 380,333 square feet. Garage space (including ramps and roof top parking) adds 253,125 square feet for a total building area of 633,458 square feet. The store is designed to expand to 750,000 square feet which will involve six



Gordon Sommers



Exterior walls faced with buff brick in projected pattern top a darker base of polished panels containing dark granite chips. Walls are inset at both pedestrian access levels to provide sidewalks up to 30 feet in width. Overhead ramps provide a sheltered waiting area at a bus stop on Seventh Street (*above*) radiantly heated by snow melting coils and infrared lamps. Street lights, flush-mounted in walls, are framed in a projecting metal rectangle. Cars admitted at the Sixth Street ramp (*below*) spiral toward the roof on alternate layers sandwiched between those served by the Seventh Street ramp





Store Planning Displays, Retail Reporting Bureau photos



additional merchandising floors and four additional parking decks for a total capacity of 750 cars. Until the expansion occurs, the roof of the department store is used for parking with temporary access to the store elevators.

The windowless exterior has evolved over years of store planning as the most desirable solution for a major merchandising structure, says Mr. Guttman. Space organization dictated by merchandising concepts involves surrounding sales areas with secondary supporting areas, stock and fitting rooms, etc.

The need for constantly controlled lighting in the

merchandising areas coupled with the undesirability of windows in the secondary areas makes the windowless wall a logical solution. The walls become 100 per cent usable in stock areas, and problems of heat loss and heat gain are greatly simplified.

At ground level, however, traditional show windows have been strategically located, encouraging window shopping. The ground floor is recessed on three sides providing a covered arcade, and the sidewalks are radiant heated throughout. A landscaped plaza at the corner of Seventh and Cedar streets provides access to the Cedar level through an air curtain.

LONG SHOP WITH A WIDE LOOK

*Store for R. Alexander Manoff
Philadelphia, Pennsylvania*

ARCHITECT: *Paul Vinicoff*

CONTRACTOR: *Keystone Construction Co.*

Starting with a \$25,000 budget and three straight walls defining a rectangle about 18 by 125 feet, Paul Vinicoff created this store for high quality crystal china and silver in an old Pennsylvania town house.

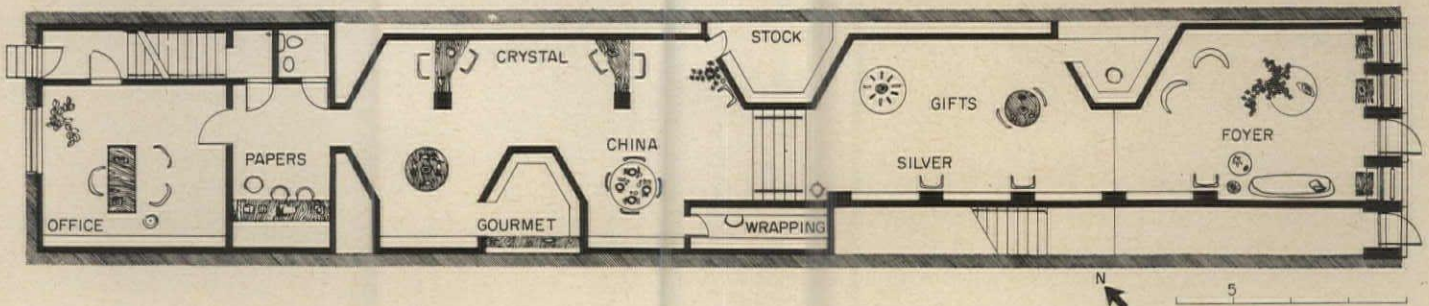
Typically, the entrance level of the original building had been 4 feet above pavement level. Previous business tenants had lowered about half the floor to street level and had inset the entrance about 25 feet to provide street windows for clothing displays. Mr. Vinicoff pulled the entrance to the street front and designed a white marble and glass facade. He completely re-established the interior partitions, using white vinyl-covered wall board to create a store of varying width. Alcoves and two level floor give an impression of spaciousness to this long narrow enclosure.

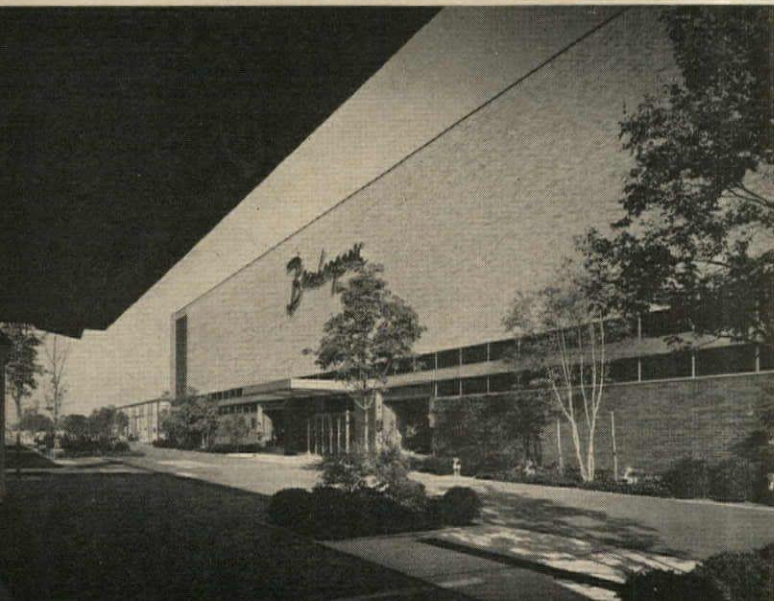
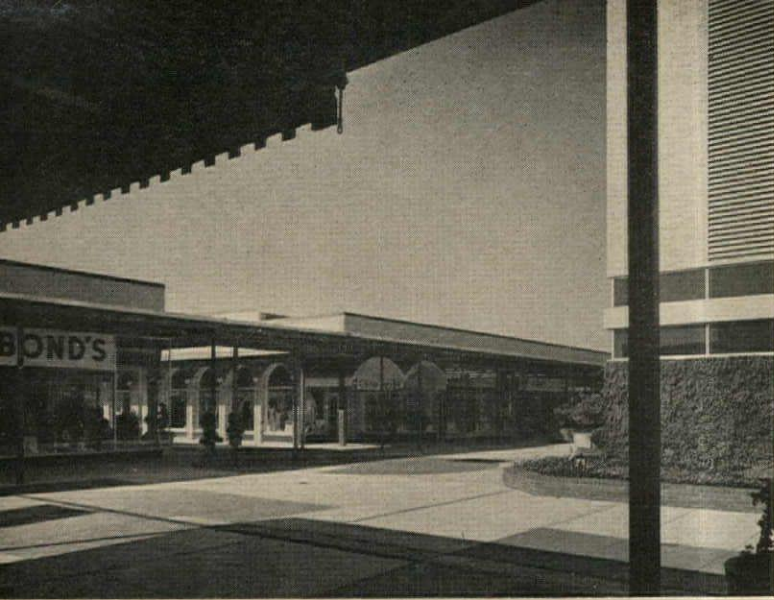
To protect breakable merchandise from store traffic, four pilasters were established near the entrance with shelves bridging the shallow alcoves thus created. Similarly, a recessed display space along the opposite wall provides shelving for glassware in brilliant contrast to a red felt background. A terrazzo floor was provided in the entrance foyer and the rear floor was covered with carpet.

Glass windows at the front are in black anodized frames contrasting with white marble. Aluminum cross bars protect window glass which goes to pavement level.



G. William Holland photos





COLOR AND TEXTURE BRIGHTEN A COMPACT SHOPPING CENTER

Monmouth Shopping Center, Eatontown, New Jersey

OWNERS: *Massachusetts Life Insurance Company*

ARCHITECTS: *Kahn & Jacobs Designs, Inc.*

ENGINEERS: *Abbott Merkt & Company*

GENERAL CONTRACTOR: *Joseph L. Muscarelle
and (for Bamberger) Wm. L. Blanchard Co.*

The Monmouth Shopping Center is on a 64-acre site in Eatontown, New Jersey. It is designed on a cluster plan with most rental stores grouped around the two major department stores, L. Bamberger and Company and Montgomery Ward. Rental stores are also in groups of major shopping categories such as service stores, variety stores and fashion stores. This, according to architect Robert A. Jacobs is an arrangement preferred by customers.

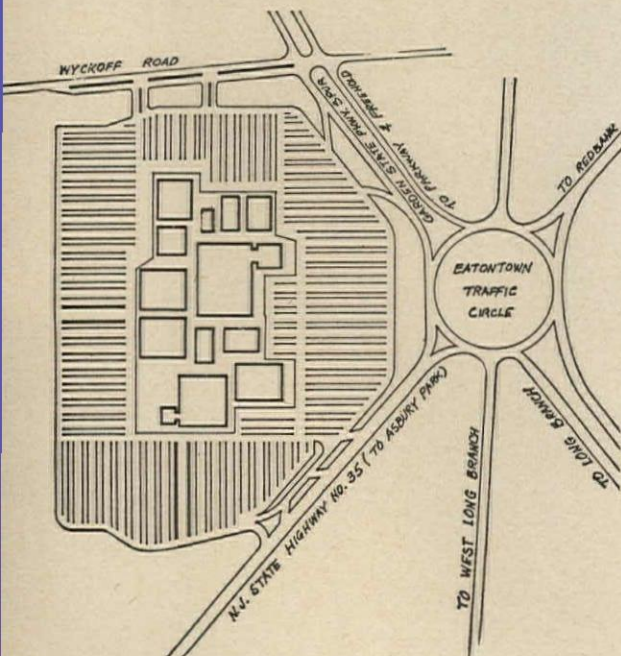
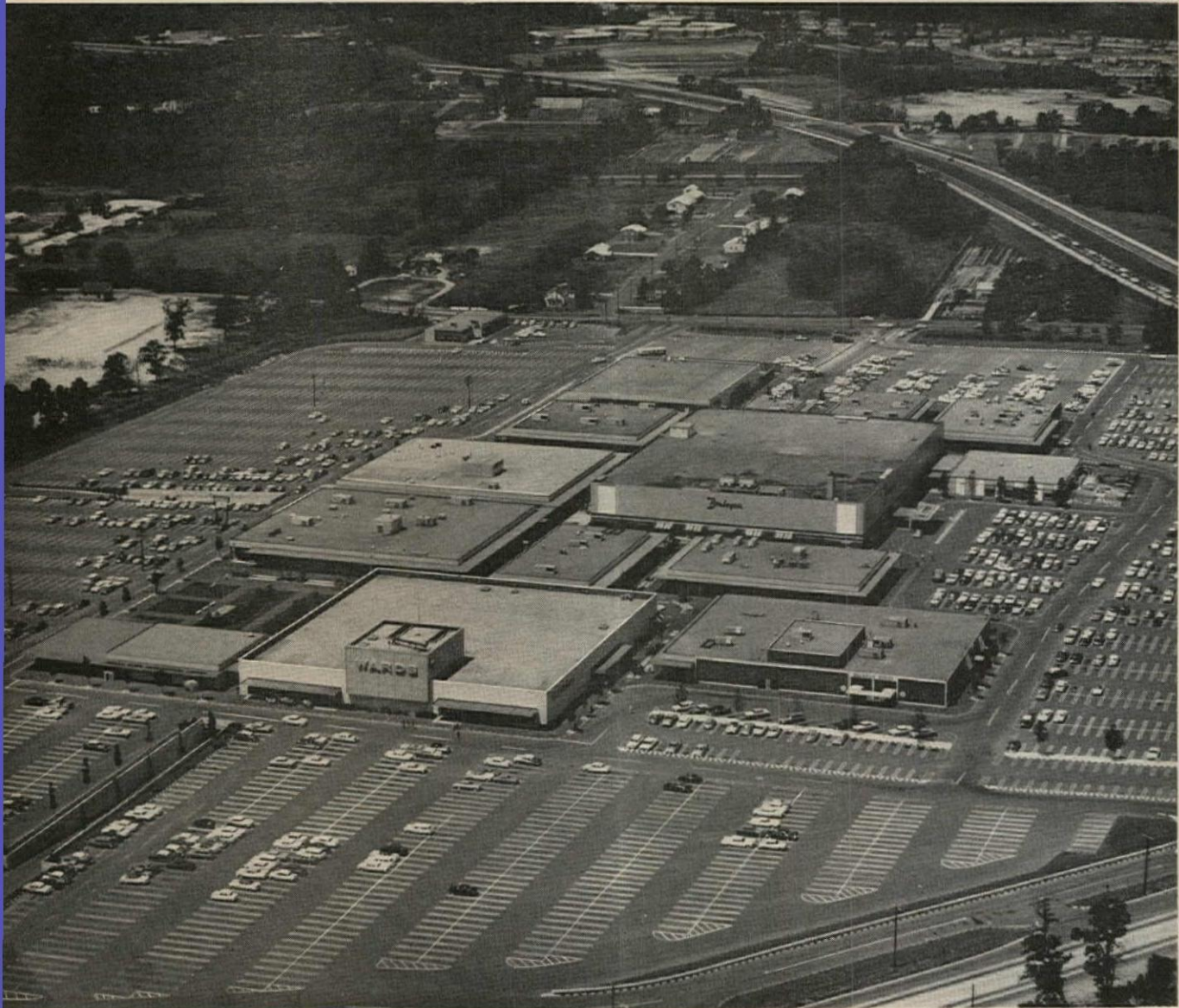
Pedestrian traffic was a dominating consideration in the layout of malls. Provision is made for protection by canopies, while an open spaciousness is enhanced by plantings of trees and shrubs. Variety is further augmented by sidewalk patterns in three basic colors, black, white and beige. Colors are also emphasized in the choice of materials for buildings and canopies. Buildings make an extensive use of rough tapestry brick as background for plantings and sculpture. Variety is achieved by studied use of fieldstone, tinted concrete, mosaics and glazed brick in a coordinated color scheme. Under sides of canopies are robin's egg blue.

Service facilities are planned so that most trucks make deliveries through underground tunnels with access from peripheral roads. Parking space for 4,200 cars completely surrounds the center. There are 10 entrances to the center from a nearby parkway and major subsidiary roads. Parking is planned to permit minimum walking distance to selected store



© Ezra Stoller Associates photos





categories. Area indicators mark each parking field.

Heating, ventilating and air conditioning are accomplished by roof mounted package units for each store. Power for the center is supplied from two transmission lines entering a sub-station on the center property to reduce the likelihood of power failure. Water supply is similarly obtained from two main pump sources to prevent supply failure.

One of the features of the Monmouth Center is a combination multi-purpose room and auditorium which will be made available to community organizations. The room will have a 12- by 24-foot platform stage and will accommodate a public address system and portable motion picture equipment. Two sound-proof folding partitions can be used to divide the 60- by 72-foot space into three smaller spaces for simultaneous meetings. The room has wood panel storage along the walls for auditorium chairs.

Interiors for Bamberger and Franklin Simon stores were designed by Copeland, Novak and Israel.

Architectural Engineering

"Overhead Blight"

Since 1929, a growing number of American communities have enjoyed the more dependable service, and esthetic and lower maintenance advantages offered by buried power lines, according to a report from the Urban Land Institute. This trend to underground wiring has been furthered by reduced costs resulting from more advanced techniques and utility-company disposition to help foot the cost of buried cables.

Despite this favorable picture, nine out of ten *new* housing developments are blighted with a skyscape of wires and utility poles, laments engineer George Bestor in his informative survey of buried electrical distribution for residential land development ("Buried Cables," Technical Bulletin No. 48, \$3.00). In 1958 the writer toured one of the large Dutch farming areas reclaimed from what was once the Zuider Zee. He commented to the Dutch engineer who was showing him around, "The farms and farmhouses are so modern, I should think that rural electrification would have been included in the project." The Dutchman looked surprised and answered, "All the farms are fully electrified." "But where are the power lines?" Mr. Bestor asked. "Underground of course," was the reply.

Fire Test in High-Rise Apartment

In France, full-scale fire tests have been performed in four- and five-story demolished-to-be buildings but building researchers have rarely had the chance to carry out such tests in high-rise buildings. The Scientific and Technical Center for Building, working closely with the Paris Fire Department, realized an "arsonist's dream" in 1962 when they were given permission to perform a full-scale test in a first floor apartment of a new 20-story apartment building (before occupancy).

The test yielded important information on the effectiveness of various smoke-removal devices and methods, and precise knowledge about how smoke is propagated in high-rise buildings. (Dense smoke pockets can make corridors and stairways impassable in a matter of minutes.) Some test conclusions: (1) The speed with which observers reported impassable conditions in all 20 corridors (16 minutes), is conclusive evidence that open stairways should not be permitted in tall buildings—their presence allows smoke to cut off access to enclosed stairways. (In fact, a single enclosed stairway would be less dangerous than one enclosed and one open stairway.); (2) In order to remove smoke at least partially from corridors, fresh air should be introduced by means of air ducts at each floor level, with openings near the floor.

In this test, smoke was produced by a fire in a small room, the fire was controlled to produce a maximum volume of smoke, and the smoke was directed toward the inside of the building. Despite these limiting conditions, the test showed that removal of smoke is one of the most important fire protection problems. Observations and results of the test were published in the January, 1964 edition of the National Fire Protection Association's Quarterly.

Comments Sought On Softwood Lumber Standard Proposals

In April the U. S. Department of Commerce circulated the proposed revision of the softwood lumber standard, submitted by the American Lumber Standards Committee, to determine whether the lumber industry favors a differentiation between dressed sizes of dry and green lumber. (Green lumber is defined as having a moisture content in excess of 19 per cent, and is subject to shrinkage between the time of measurement and use.) The present standard provides for uniform sizes at the time lumber is dressed at the mill, regardless of moisture content. The revision calls for a reduction in the minimum widths and thicknesses of nominal 2-in. lumber: from 1 $\frac{5}{8}$ to 1 $\frac{1}{2}$ -in. for dry, and from 1 $\frac{5}{8}$ to 1 $\frac{17}{32}$ in. for green lumber.

This Month's AE Section

APARTMENT STRUCTURES, p. 178. TV STUDIO AIR CONDITIONING, p. 180. PLASTIC FORMS FOR CONCRETE FACADE, p. 182. CONCRETE PANELS WITH MARBLE STRIPS, p. 184. CABLE ROOF FOR SPORTS PALACE, p. 185. HURRICANE SCREENS, p. 186. BUILDING COMPONENTS: Elevating High-Rise Apartment Buildings, p. 191. Products, p. 193. Literature, p. 195.

VERSATILE STRUCTURES FOR APARTMENT FRAMING

Notes on wind-resistant behavior of various concrete wall and column arrangements

By R. M. Gensert, Consulting Engineer

High-rise apartment buildings offer excellent opportunities for columns and walls to perform other functions besides structural support. For example, closely spaced exterior columns can serve as window mullions, and bearing walls as room dividers. Structural efficiency, hence cost, and freedom from annoying structural obstructions are enhanced if the floor plan and structural schemes are con-

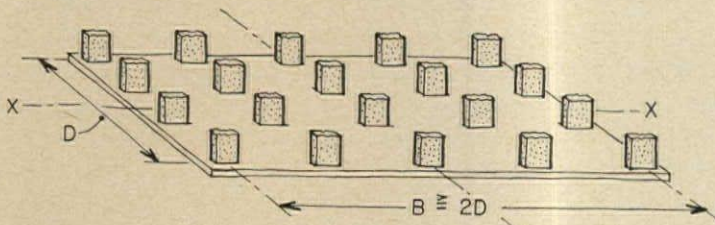
sidered together for compatibility.

Since gravity loads are relatively small in apartment buildings, the prime structural problem in tall ones is wind resistance. Wind loads can be withstood in a variety of ways. Closely spaced columns in exterior walls acting together with spandrel beams can be designed for rigid-frame action; the whole wall, in effect, behaves as a vertical girder. A different technique

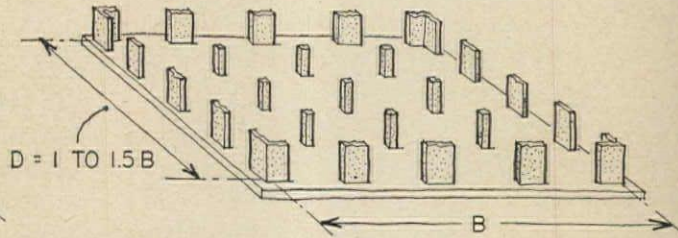
uses wall elements to resist wind loads in shear, in flexure, or a combination of shear and flexure, depending on the height to width ratio of the wall. Some buildings have used exterior wall rigid frames to take wind loads from one direction and shear walls for the opposite direction.

Additional articles on this subject will appear in future issues.

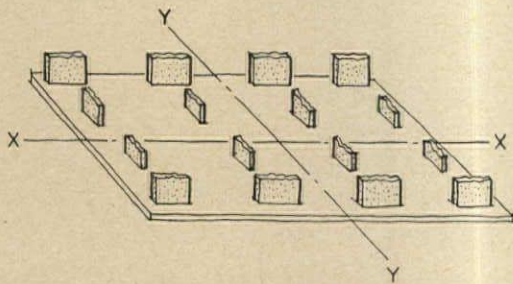
COLUMN, WALL ARRANGEMENTS



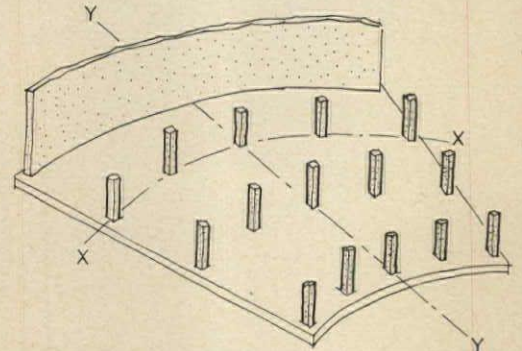
Wind resistance of columns is weak about "x-x" axis



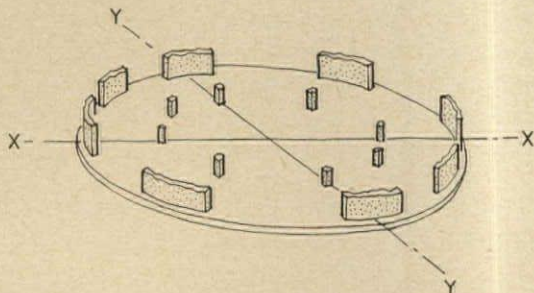
Wind resistance of columns is good about either axis



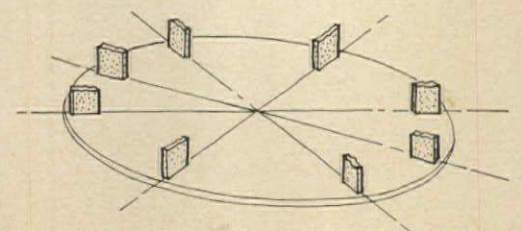
While wind resistance of columns is good about either axis; it is greater about the "y-y" axis due to column orientation



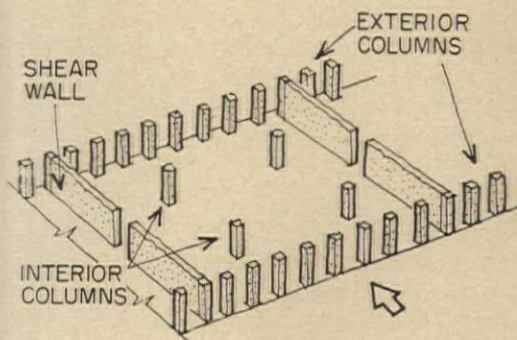
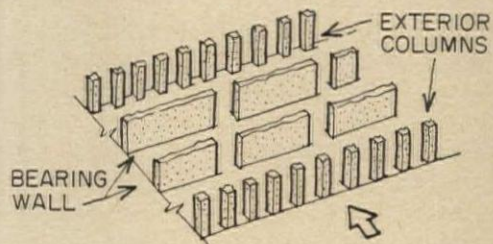
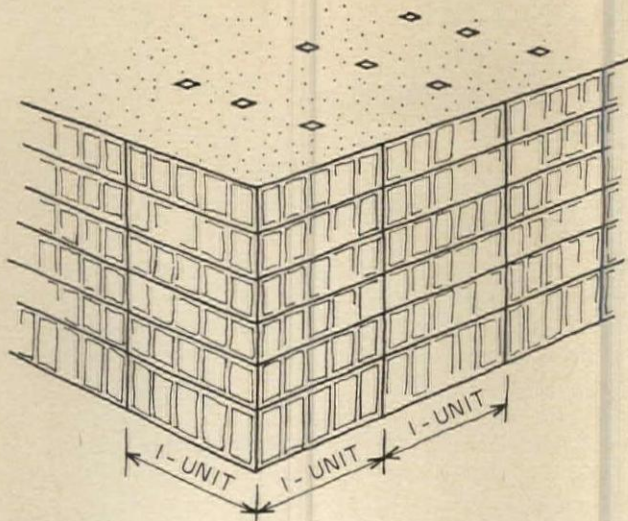
Wind resistance is good about either axis; however, columns and the wall must work together in each direction



Curved walls used for a circular plan give good wind resistance about either axis of the building



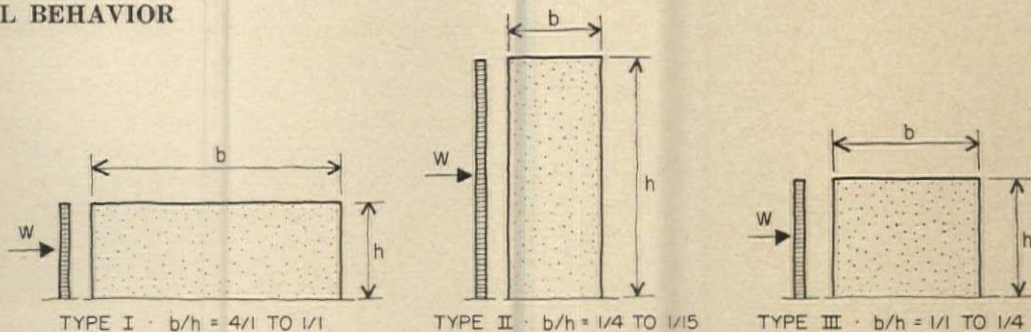
Diagonal walls in pie-shaped plan provide resistance to wind loading about any major axis of the building



Above: Possible structural system employs a precast, load-bearing exterior grill with cast-in-place floor slabs and interior columns. Exterior grid withstands winds by acting as a shear-resisting Vierendeel panel. Interior columns and floor slabs take vertical loads only. If the exterior grill is so light that it can resist vertical loads but not wind loads, then the wind resisting element could be a service core.

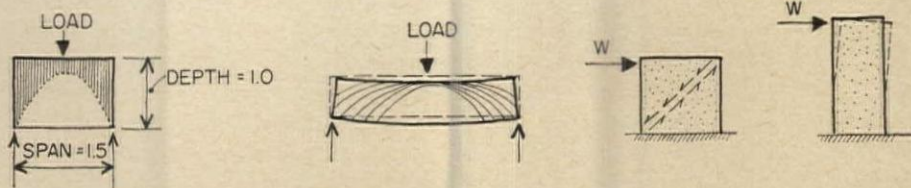
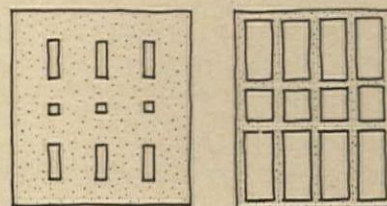
Right: Exterior columns function as window mullions as well as vertical load-bearing elements. In the upper drawing, the columns and the bearing walls are coupled with a one-way slab; thus, in the short direction, the structure works as a rigid frame to resist wind. In the lower drawing, shear walls have been placed at strategic locations on the plan and interior columns have replaced bearing walls. This eliminates wind reinforcing and cost of structure is less than for other scheme

SHEAR WALL BEHAVIOR



Above: Type of stress in a bearing wall depends on the height to width ratio and the percentage of openings. In Type I, wind load results in shear stresses; Type II, bending stresses; Type III, combination of shear and bending stresses.

Right and below: When does the size and spacing of openings in a wall change bearing wall action to frame action? To answer this, consider a horizontal spanning element with length 1.5 times its depth, subjected to a concentrated gravity load at the center span; it responds in arching action rather than bending. As the span increases, bending stresses will prevail. Now consider the effect of wind load on a panel with length equal to height; it reacts primarily in shear rather than bending, but as the height increases, bending stresses increase. These principles can be combined to evaluate the action of a pierced wall



AIR CONDITIONING OF TELEVISION STUDIOS

By Alfred Greenberg, P. E., Consulting Engineer

Design of air conditioning for television studios requires careful attention to the elimination of heat build-up and control of noise. In addition there are problems of air motion and variations in lighting and occupancy load.

DESIGN PARAMETERS

The critical areas of a television studio consist of the performance studio and the control rooms. The audience area may be handled as an auditorium and should have its own air distribution system or, at least, its own zone control off the studio system. The heat generated in the studio area should not be allowed to permeate the audience atmosphere.

Heat Loads

Television studios have very high lighting intensities which may fluctuate over considerable ranges in short periods of time. This is especially true of color television where lighting capacities are up to three times greater than those for black and white TV. In addition, there may be as few as one to as many as several dozen people on stage within narrow spans of time. Thus the air conditioning system must be extremely flexible and capable of handling wide load variations quickly.

Air Movement

It is essential that the air movement within the stage area which will contain scenery and people be kept below 25 fpm. Since scenery is often fragile, it may be set in motion by air velocities above 25 fpm; also actors' hair and clothing may be disturbed. The design criteria usually followed is that the 25 fpm air velocity should not be exceeded anywhere within a 12-ft height from the floor.

In the "on camera" studio, which is the stage of the television studio, air movement must be uniform and draftless so that it will not interfere with studio operation. Since scenery, cameras and equipment may be moving during the performance, the ductwork must be very carefully laid out to avoid interference.

The large heat loads that may de-

velop require that the studio have a high air change rate. This will generally be in the range of 15-20 air changes per hour.

Each studio may have one or more control rooms serving different functions. The video control room, which is occupied by the program and technical directors, contains the monitoring sets and picture effect controls. If conventional electronic tube circuits are employed, this room may have a sensible heat load as high as 300 Btu per sq ft. Transistorized electronic equipment will reduce this load substantially, but the room still requires special system design. The control room will usually require at least 30 air changes to maintain proper conditions.

Noise Control

Television studio noise levels must be kept exceedingly low; the air-conditioning system must be designed not to exceed NC 20-25. Since studio microphones may be moved through many parts of the studio during the course of a performance, they are bound to move past or stop near air outlets or returns. These microphones are very sensitive and have a flat frequency response from about 20 to 15,000 cycles per second. This is more sensitive than the human ear which tends to be insensitive to low and high frequencies at low sound levels. Therefore, the sound measuring apparatus that is used to measure equipment noise in studios must reflect the sensitivity of the studio microphones.

Air Cleanliness

Filtering efficiencies in the range from 20-40 per cent efficiency based on the National Bureau of Standards atmospheric air distribution test are satisfactory for most studio applications.

System Applicability

Based upon the criteria established above, the air distribution system selected should be either dual duct, single duct with cooling and/or heating booster coils or a multi-zone system. A low velocity, low static pressure system is desirable in order to elimi-

nate any potential sources of noise.

Studio loads seldom exceed 50-100 tons of refrigeration. Even if the studio is part of a large communication center or building, it will be desirable for the studio to have its own refrigeration system, in case of emergencies.

Air Distribution

Ductwork must be expertly fabricated and installed so that there are no rough edges, poor turns or improperly installed dampers which may create turbulence and eddy currents within the ducts. Ductwork should contain no holes or openings which might create whistles. The air outlet locations and distribution patterns must be carefully analyzed to eliminate turbulence and eddy currents within the studio, since noise may be produced which can be picked up by the studio microphones.

All supply, return and exhaust ductwork should be internally lined with acoustical material. Any duct serving more than one room should have sound traps to separate each room acoustically. All ductwork should be suspended by means of neoprene or rubber in-shear type vibration mountings. Where ductwork goes through wall or floor slabs, the opening should be sealed with acoustical material. In addition, the supply fan discharge and the return and exhaust fan inlets should have sound traps, and all ductwork connections to fans should be made by means of nonmetallic, flexible material.

Piping Distribution

All piping within the studio area and adjacent areas which might transmit noise to the studio should be supported on suitable vibration eliminating mountings. The velocity of the medium transmitted through the piping should be low enough so that it cannot be heard. Special "soft" flexible pipe connections must be used at the pumps and compressors to prevent transmission of vibration. Piping should not be supported from light structural elements such as joists. It is safer to support the piping from floor or wall mounted stands separated by vibration mountings.

Mechanical Equipment Rooms

These rooms should be located as remotely as possible from the studio. All equipment should be selected for very quiet operation and should be mounted on suitable vibration eliminating supports. Structural separation of these rooms from the studio is desirable.

Offices and Dressing Rooms

Since the functions of these rooms are quite different from each other and from the studio areas, they should each be treated as separate zones with their own controls.

Control Rooms

Each control room should be designed as a separate zone. The large number of air changes required and the low sound level which must be maintained dictate special analysis of the air distribution system. A perforated ceiling with plenum is one excellent solution. Some of the exhaust may have to be taken through the control equipment to prevent it from overheating.

Provisions should be furnished in each control room to enable the air conditioning to be turned on and off.

If a separate control room is furnished for the announcer, the heat load and air distribution problems will not be as critical as those for the program, technical and audio directors.

Air Exhaust

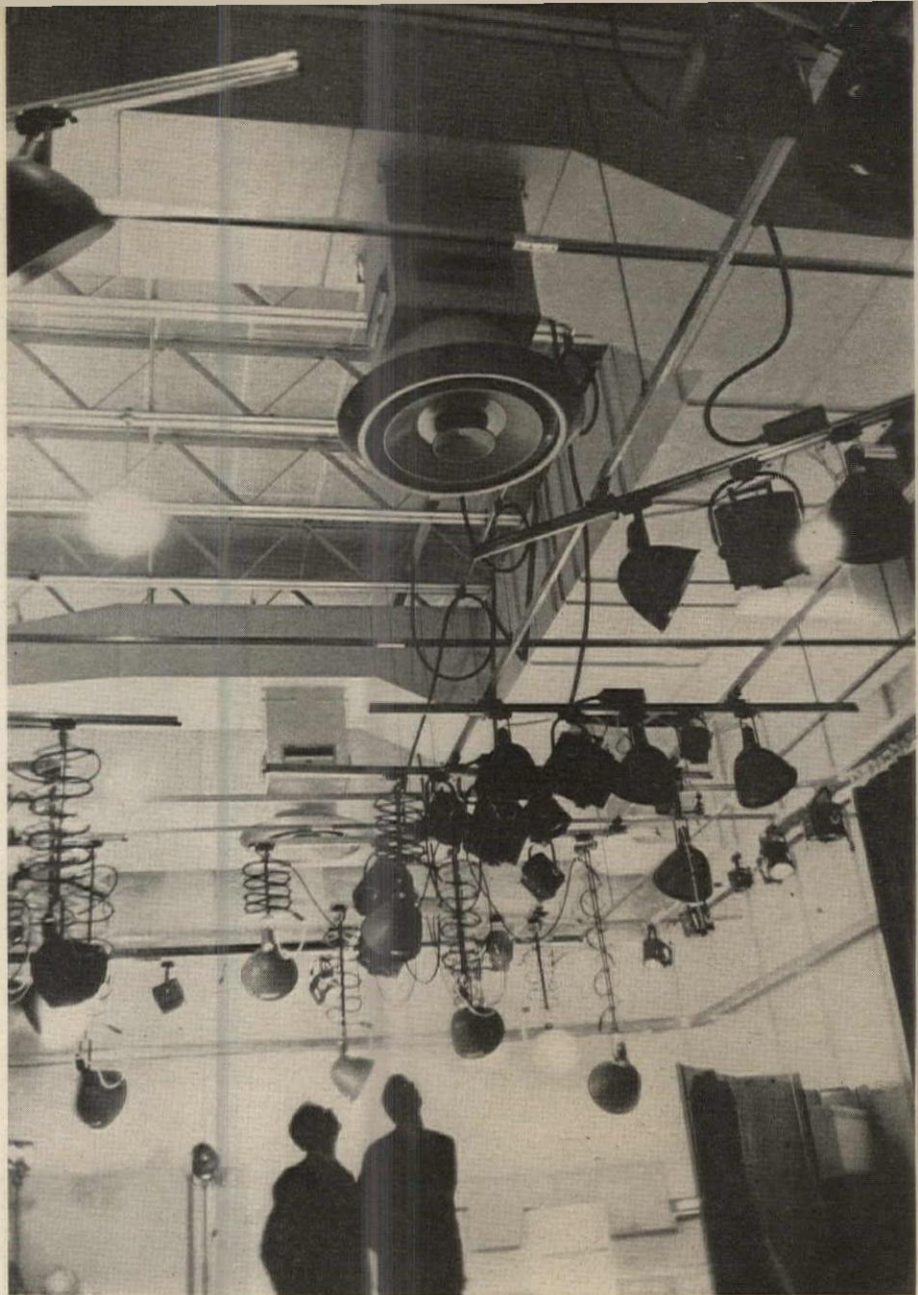
Whenever practicable in the studio, the largest portion of the air should be exhausted over the banks of lights. This is similar to theater stage practice. There should also be sufficient air removed from the high points in the studio to prevent heat buildup.

Special Ductwork Requirements

In some instances, spiral flexible or telescoping ductwork has been used to take care of special supply or exhaust air problems. This type of ductwork requires careful coordination with the equipment served and must have proper maintenance to assure noise free operation.

Testing

All television and radio stations must have complete sound measuring equipment on hand in order to quickly search for and find all unwanted sources of noise.



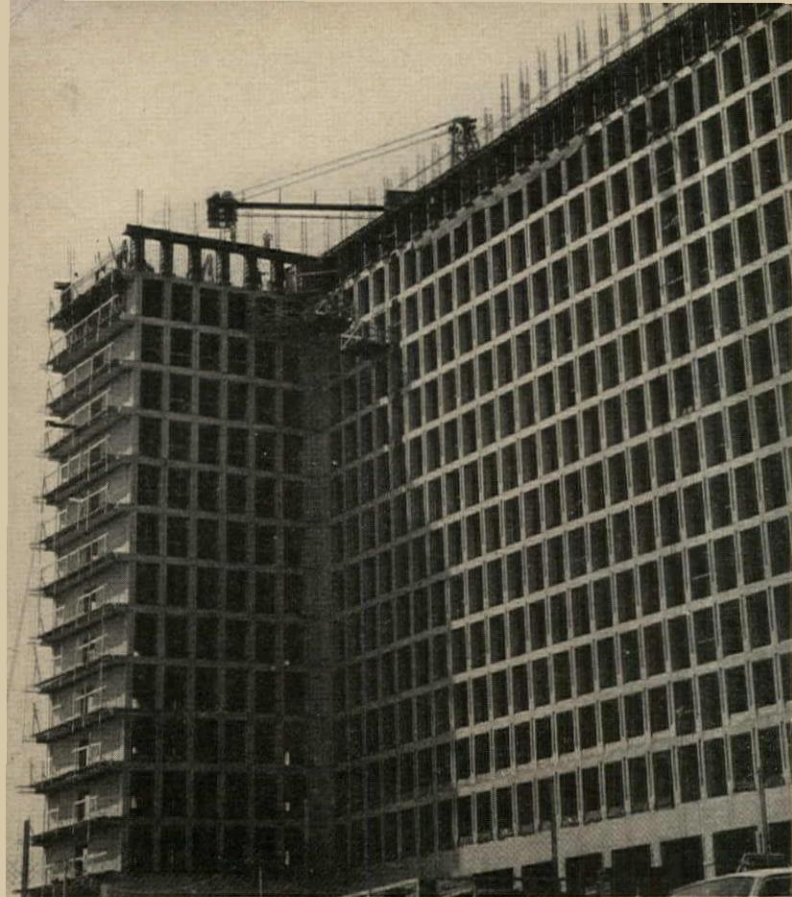
In spite of a maximum concentration of 75 watts per sq ft in the two new TV studios of WJAC, Johnstown, Pennsylvania, temperatures can be maintained at a comfortable level of 75 F at all times. This is achieved with a gas-fueled air-conditioning system that can be operated economically even at minimum cooling loads of 2 per cent of total capacity (about 4-5 tons of a total of 208 tons). The studios and associated offices are housed in a two-story building 46,325 sq ft in area. The two TV studios are two stories high; studio A measures 60 by 80 ft and studio B, 30 by 40 ft.

Studio A has a maximum heat input from lights of 593,765 Btu/hr. It is cooled by a 27,000 cfm built-up air handling unit, incorporating outside air dampers, tempering coils for outside air, return air dampers, electronic filters, steam coils, cooling coils and a two-speed centrifugal fan. In the studio itself, air distribution is through six specially constructed diffusers which direct part of the cooling air downward, while jets at the sides of the diffusers circulate high velocity air horizontal currents of cool air close to the lights and directly to return air ducts located in the ceiling. Thus most of the heat from the lights is prevented from reaching the floor level. Cooling or heating load is controlled by the average reading of four thermostats located in the corners of the studio. (One thermostat might give a false reading if strong lights were operated close to it.) Studio B is served by a 7,100 cfm package air handling unit, two ceiling diffusers and two thermostats.

Both systems were calibrated after installation for sensitive and accurate response to heating and cooling requirements, as well as for noiseless operation. When it was discovered that the air delivery was higher than rated and required, rather than use dampers, the fan drives were reduced in size, making the operation more economical and quiet.

Noise levels from either the machine room or the air outlets are lower than the background noise of the cameras. The machine room has two low-pressure gas-fired boilers and two 104-ton absorption machines.

Architects for the building were Hunter, Cambell & Rea, Johnstown and Altoona, and mechanical engineers was H. F. Lenz & Company, Johnstown



REINFORCED PLASTIC FORMS PRODUCE SHARPLY DETAILED CONCRETE FACADE

Clean detail and edge lines, as well as a high-quality finish, were achieved in a 22-story exposed concrete facade through the use of molded fiber glass reinforced plastic forms of advanced components and configuration.

I. M. Pei and Associates, noted for the consistent color and "fair face" of their on-site, exposed concrete, specified a highly refined surface texture and a deep indentation detail for the facade of this building—the Washington Plaza Apartments in Pittsburgh, Pennsylvania. The basic design element of this cast-in-place apartment building—300 ft long by 60 ft wide—is a repetitive window module created with precision T-shaped forms, 8 ft 7 in. in height.

Project architect Edward Friedman, I. M. Pei's specialist in concrete technology, and the construction firm for the project decided to use molded fiber glass reinforced plastic forms because of their inherent, monolithic, jointless nature—ideal for casting difficult configurations in exposed concrete.

These unique forms had to accomplish several jobs. The columns and spandrel beams, in addition to fram-

ing the windows, serve as a bearing wall, taking both gravity and wind loads. Where the concrete will be seen from the outside, a plastic surface was used in the formwork; the remainder of the forms is of plywood. Besides the smooth finish and deep indentation area, the design also called for clean-cut edges and precision tolerances. The form design finally conceived to accomplish these tasks was a complex of molded fiber glass reinforced plastic (f.r.p.), plywood, rubber stripping, and supporting steel framework.

Some of the solutions decided upon to meet these conditions were:

1. Although wood bracing was used for similarly constructed exposed concrete buildings designed by I. M. Pei's office, steel bracing was chosen for this project. This bracing, starting point for the construction of the individual forms, had to be made within a tolerance of $\frac{1}{16}$ th of an inch—an unusually narrow margin for a welded assembly of this type.
2. The molded f.r.p. skin, having a minimum over-all thickness of $\frac{1}{4}$ in., had to have an extremely smooth surface. This was accomplished primar-

ily through the use of a gel coat—a resin coating that is sprayed into the female mold and allowed to partially cure before the first layer of reinforcing fiber glass is applied.

3. The indentation area—5 ft 8 in. high, $2\frac{1}{2}$ in. deep, 8 in. wide, and beveled in four directions—also presented problems. In order to obtain these precise dimensions as well as edges that were sharp, yet sturdy enough to mold concrete, several reinforcing materials had to be used in the mold.

4. Plywood was used to shape the unexposed areas of the columns and beams.

5. A critical step was the installation of strips of rubber, of precise durometer, which were used as forming surfaces for the "sides" where adjoining T-forms meet. These strips are later removed.

6. Rubber expansion joints were permanently attached to the form edges to absorb expansion of the form's molded f.r.p. skin and metal components.

7. Since the f.r.p. skin and the attached steel bracing have different coefficients of expansion, the forms

were undercut slightly, and the steel bracing designed to be capable of on-site loosening and tightening.

For the most part, handling of the forms on the job site was conventional. However, the building design, the repeated use of each form, and the concern with preserving an unmarred concrete surface, dictated care in alignment and handling. Each T-shaped form was aligned with a transit before being bolted to the adjoining form.

The smooth finish obtained when the forms were stripped eliminated a considerable amount of rubbing, patching or other finishing steps. (The uniform buff color of the cured concrete specified by the architects, was maintained by using river sand and gravel aggregates obtained from a single source.)

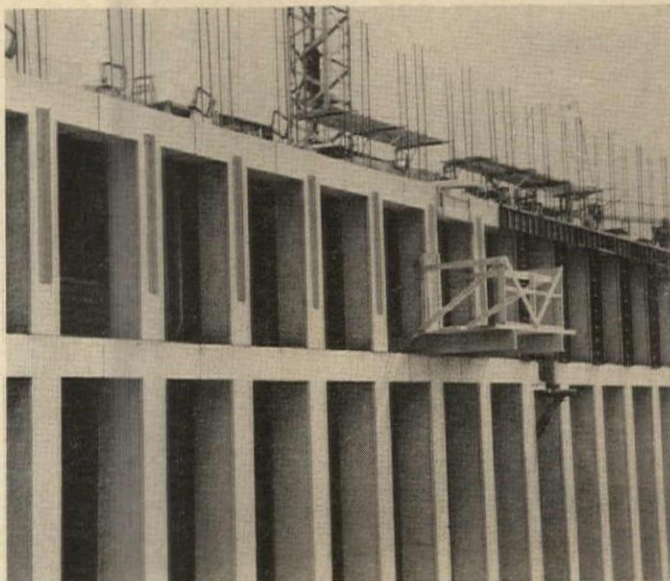
Ninety-four forms, enough to mold exterior columns for an entire floor of the structure, were used on the project. Rate of progress was one reinforced concrete floor every three days. The forms for any one pour were erected, aligned and bolted in one day.

The building is divided into three sections to accommodate shrinkage of the concrete. The 2½ ft wide control joints between sections are poured later.

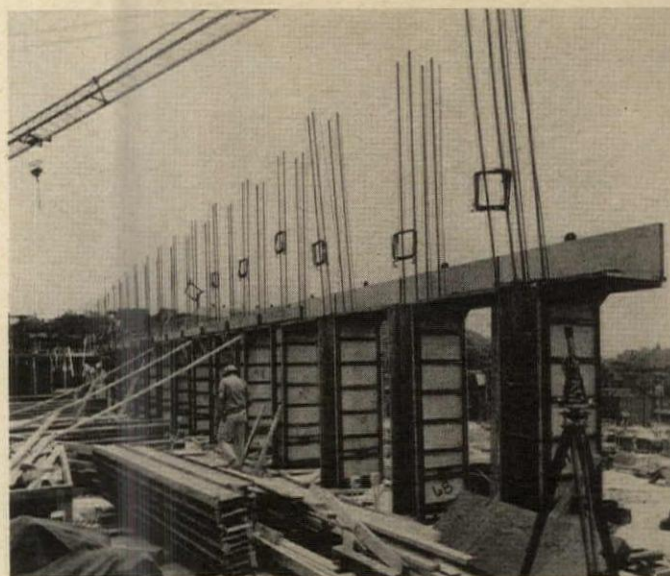
The f.r.p. forms allowed the construction crew to keep the project on schedule, according to the contractor. "While two, even three, sets of forms might have been thought necessary to meet the schedule for the project," he said, "we decided to have just one full set made, and they have worked out exceptionally well."

Accordingly, the same forms were used for 21 floors of the building, and then modified for the taller columns of the 22nd floor. This modification did not permanently alter the forms; they will still be reusable in their original form after the 22nd floor is cast. There is the possibility that the forms, after being repolished, will be used for two more identical apartment buildings which are called for in this apartment project.

The forms were designed by an experienced fiber glass molder (which pioneered in the use of f.r.p. forms for concrete used in the construction of such buildings as the Dulles International Airport Terminal in Washington, D.C.) and a concrete forming accessories company.



This close-up of the completed columns shows the clean lines of the indentation area and the concrete's smooth finish



Transit in foreground is used to align forms individually. Reinforcing rods form continuous links between pours



A plastic gel undercoat, which gives the form its extremely smooth finish, is sprayed into the female mold

MARBLE STRIPS DISTINGUISH PRECAST CONCRETE FACADES



Each precast concrete panel for the Toronto City Hall (scheduled for completion in 1965) has strips of split-faced marble set into it. Special techniques were developed for molding the marble strips into the panels. The building was designed by Viljo Revell, of John B. Parkinson Associates, Architects & Engineers, Toronto, Canada

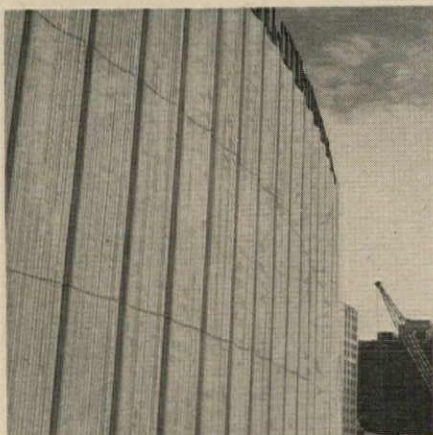
Distinguished by inset vertical strips of Botticino marble, the curved precast concrete panels of Toronto's new city hall office towers demanded new production and construction techniques.

The curving rear walls of each tower, having a total area of 170,000 sq ft, consist of concave precast facing units covering a reinforced concrete structure. Yet visual and textural interest on a human scale is maintained by these slightly projecting strips of split-faced marble. The marble strips, imported from Italy, come in $\frac{3}{4}$ - and $1\frac{3}{4}$ -in. widths, and in random lengths of from 4 to 6 in. The strips are set end to end, by hand, into the special rubber extrusion forms just before the concrete is poured to form the panels. As the concrete is poured, the form is vibrated to insure a close lock between the concrete and marble.

Another attachment measure is the narrow locking groove diamond-sawed into each side of the marble pieces before they are set into the forms. A special machine, equipped with two diamond saws, cuts a groove of the required depth on both sides of the strip as it passes between the blades. The gap between the blades can be adjusted to groove both strip widths.

The precast units go up before the reinforced concrete walls behind them are poured, a reversal of the usual procedure of attaching the finished material to the exterior walls.

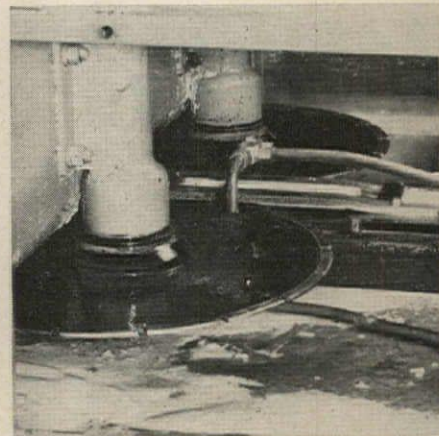
Beer Precast Concrete Limited designed its own production system for manufacturing the precast concrete units, and Marathon Equipment developed the sawing machine.



The rear wall of one office tower takes shape as precast units are fitted into position. The units will become the form for a poured, reinforced concrete wall behind them



Marble pieces are fitted into the rubber extrusion form by hand. Concrete will then be poured into the form and vibrated to insure a close lock with the grooved marble strips



The 12-in.-diameter diamond saws in this specially designed machine saw a groove into each side of the marble strips as they are fed between the water-cooled blades. Gap between blades is adjustable

SUSPENSION ROOF FREES ARENA FROM COLUMN OBSTRUCTIONS

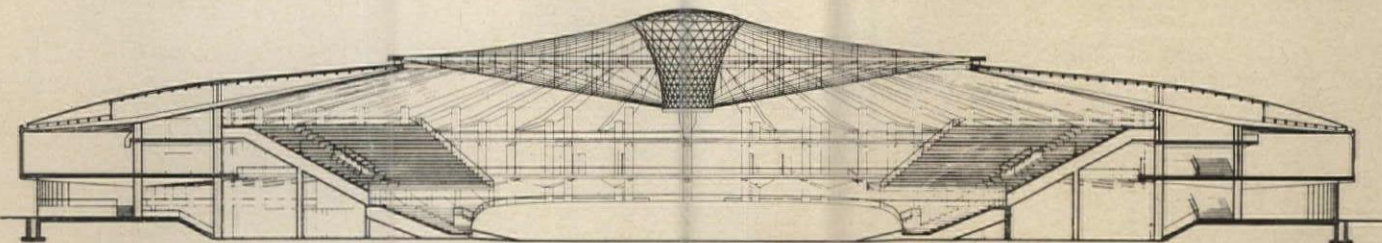
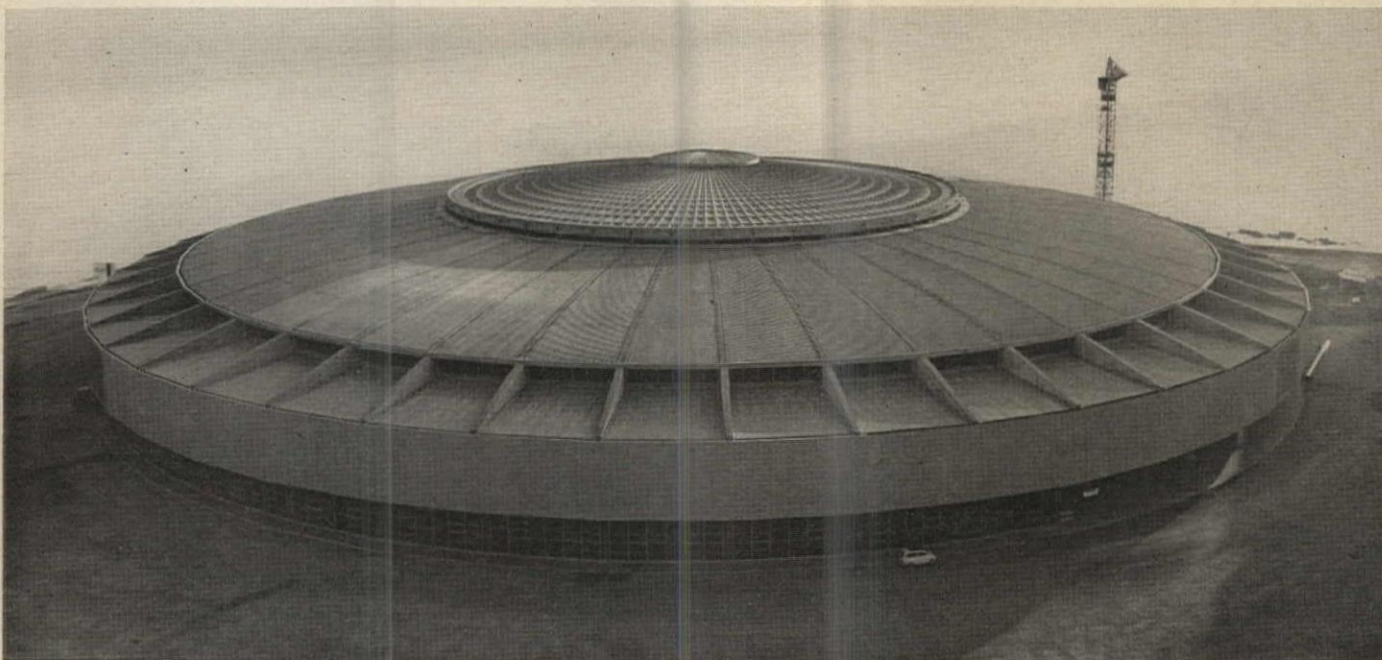
Column-free space for the arena of a new sports and exhibition palace in Genoa, Italy has been achieved by a 230-ft cable suspension structure roofed with translucent plastic. The diameter of the complete building is 525 ft.

The cable structure rests on 48 prestressed concrete cantilevers, and the roof load on these cantilevers is counterbalanced by the weight of the exhibition area around the perimeter of the building.

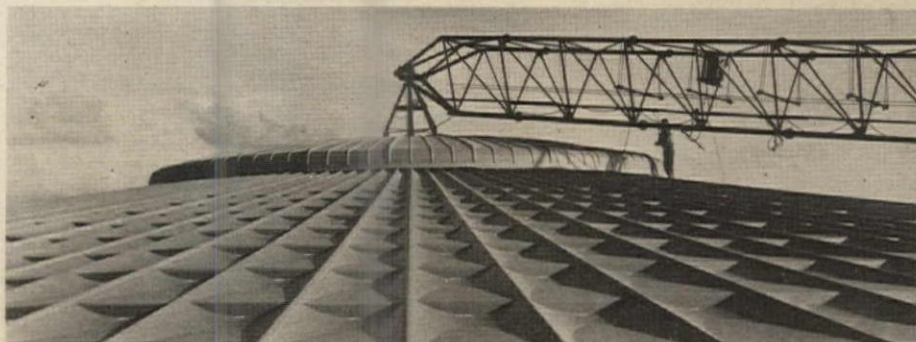
Cables are attached in the center to steel tension rings kept apart by a

light tubular steel structure which, geometrically, is a hyperboloid of revolution. A concrete compression ring which restrains the cables at the perimeter sits slightly above the cantilever supports. In this way the cantilevers need not resist the tensile forces in the cables, but merely the gravity load at the roof.

The building was designed by Gruppo Studio Palasport of Genoa which includes Franco Sironi, coordination; Lorenzo Martinoia, architect; Leo Finzi and Remo Pagani, structural engineers



Cable roof spans 230 ft to cover arena portion of 525-ft diameter building. Cables are covered by translucent plastic; remainder of roof is corrugated aluminum. The "bicycle wheel" roof is supported by 48 prestressed concrete cantilevers which can be seen partly exposed around the perimeter. A hyperboloid-type drum at the center of the suspension roof keeps the two layers of cables apart and adds to the visual interest of the roof



NESTED HURRICANE SCREENS SHIELD WINDOWS



Each window has a nest of three hurricane screens installed between the main and clerestory lights. In closed position, only outer, stainless steel screen is seen



When a storm threatens, outer screen is pushed upward over clerestory window. Two inner screens of corrugated aluminum are then lowered in front of lower light

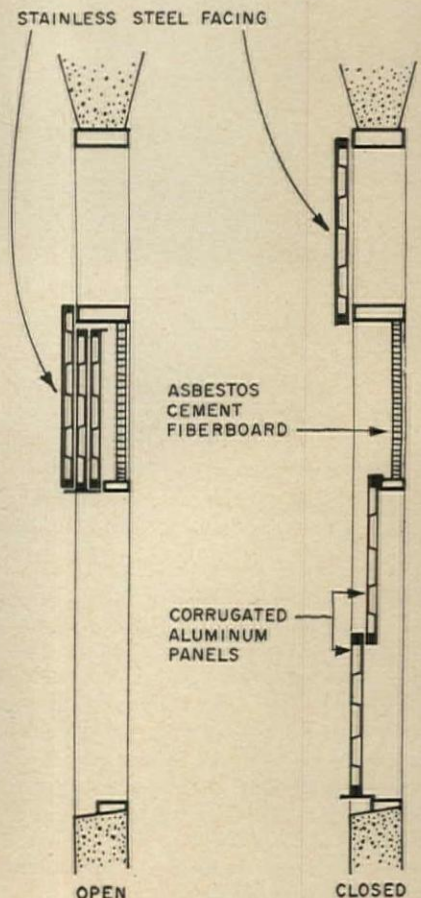
Modernized "shutters"—a nest of three vertically-operating metal screens—provide decorative interest as well as hurricane protection for the window wall of the University of Miami's new Otto Richter Library.

Each window of the building has a nest of screens located between the clerestory and lower, main light. In case of an impending storm, the outer screen is pushed upward with a pole over the clerestory window. This outer screen automatically locks into its raised position, exposing two inner screens of corrugated aluminum. The inner screens are then released and lowered in front of the main light.

When not fulfilling their protective function, only the outer screens are visible. These screens are made from gray-color-coated embossed stainless steel, with the raised portions polished to expose the gleaming metal.

The nested screens were designed to provide shading from sky glare and low-angle sun penetration.

The building was designed by architects Watson, Deutschman and Kruse of Miami, Florida.





Dulles International Airport, Washington, D.C. Architects: Eero Saarinen & Associates, Hamden, Conn.

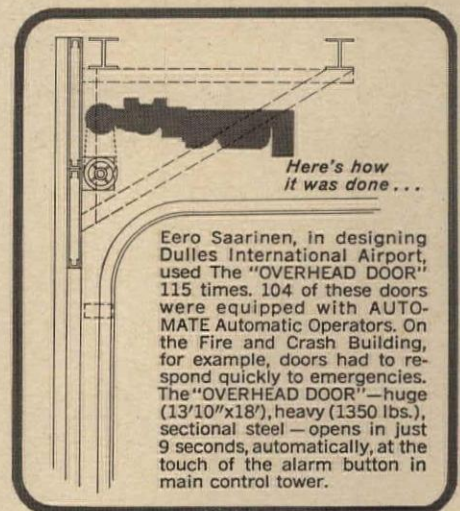
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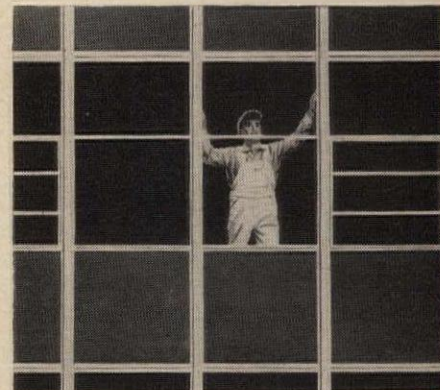
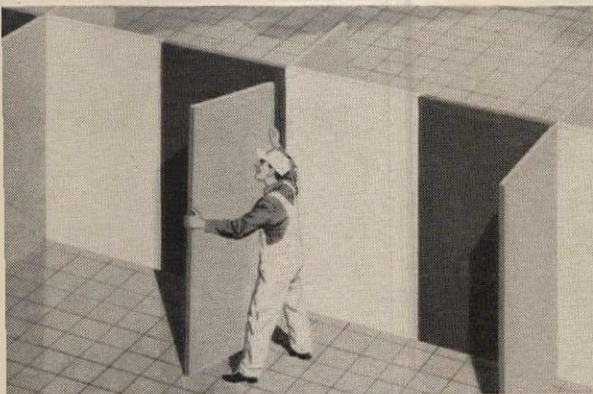
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ELEVATORING HIGH-RISE APARTMENT BUILDINGS

By George R. Strakosch, Traffic Engineer, Otis Elevator Company, New York, New York

Working in office buildings of 25 stories or more is old hat, but the potentialities of "lofty living" are just beginning to be realized. The desirability of high-rise living depends primarily upon the success of the engineer in providing vertical transportation under a virtually new set of conditions; and apartment elevator service requirements are being extensively encountered at heights comparable to office buildings for the first time.

Elevator Service Requirements

An apartment building's needs will differ significantly from those of an office building of equivalent dimensions. Moreover, because service requirements are shaped by factors of design and occupancy distinctive to each structure, no two apartment buildings, however apparently similar, will call for exactly the same elevator capabilities.

Analysis and experience does, however, reveal a few guidelines for the quantity and quality of elevator service a particular apartment building may require.

Service quantity is measured by the number of passengers carried during a prescribed time period, usually five minutes. Traffic volume fluctuates throughout the day, and a building's elevators should have capacity to meet demands during the busiest five-minute period.

The new in-town towers appeal more to working couples and bachelors, both male and female. Under such conditions, heaviest demand for elevator service occurs in the morning when practically the entire building population leaves for work. Every five minutes during the morning or evening peak, elevators may be called on to handle from 5 to 7 per cent of the total building occupancy.

Apartment building elevator traffic is also heavy in early evening, when many tenants are returning

home and others are leaving for dinner or similar engagements.

Service quality has several criteria. The main criterion is the time interval between elevators. While office-building tenants may chafe at waiting more than 25 or 30 seconds, the same people, in an apartment, may accept 50 to 75 second intervals. The interval, however, should be consistent; tenants complain if waiting periods are irregular.

The ride's speed and smoothness are other elements of service quality. In an apartment building, people accept somewhat longer riding time than in an office building but balk if the elevator makes too many intermediate stops, or if total trip time—waiting and riding—exceeds two minutes.

Factors Determining Service Needs

Traffic volume, which depends on building population, determines the quantity of elevator service required. It may be estimated at from 1.5 to 2 persons per bedroom, depending on rental range and other factors.

Design of the building—its size, height and general plan—must also be considered in determining elevator capacity. Special facilities, from basement garage to rooftop swimming pool, create heavier traffic and additional stops which add to the demands for elevator service.

The quality of elevator service varies with rental levels. If upper floor tenants pay premium rentals, they demand comparably superior elevator service. A significant aspect of elevator service in higher-rental apartment buildings is the visual design of entrances and car interiors and the quality of illumination and ventilation. In lower-rental projects, however, the durability of the installation's exposed parts in withstanding abuse by children may assume priority.

Economics, as always, is another important determining factor. While rentability in a tenant's market requires elevator service of appropriate standards, profitability demands that the service be provided with economy in equipment, cost, space consumption and operating expense. To meet this objective of maximum elevator service despite higher rises and more stops, engineers are applying concepts of elevator grouping and automatic control new to apartment buildings.

Planning the Installation

Basically, traffic volume, height of rise, and number of stops determine the size, speed and number of elevators needed to attain desired service standards.

Apartment building passenger elevators should have 2,000 lb lifting capacities with car interiors at least 6 ft wide and 3 ft 8 in. deep. This size can comfortably hold 8 to 10 passengers, or a carriage and two or three standees. The car's wide, shallow shape lets passengers on and off more rapidly at each stop, improving service.

Although higher rises demand faster elevators, the longer runs possible in high risers allow elevators to travel at their top speeds more of the time (see table). Pas-

TYPICAL ELEVATOR TRAVEL SPEEDS (fpm)

Stories	Passenger	Service
10 to 20	200 to 350	200
20 to 30	350 to 500	350
30 to 40	500 to 700	500
40 to 50	700 to 1,000	500
50 to 60	1,000 to 1,200	700
more than 60	1,200 and over	800

senger elevators are usually in the speed range for gearless machines, which have added advantages of smooth, quiet operation, longer life and reduced power consumption.

In relation to the building plan, elevators should be located cen-

trally, within some 150 ft of the farthest apartment. If a building has widely separated wings or towers, each unit may require a bank of cars.

Locating cars together and operating them as a group improves service continuity and frequency. Single elevators at scattered locations make passengers who miss an elevator wait until it completes another round trip, a time which becomes intolerably long in a tall building. Moreover, isolated elevators usually cost more per unit than group installations since each elevator must have its own hall button system.

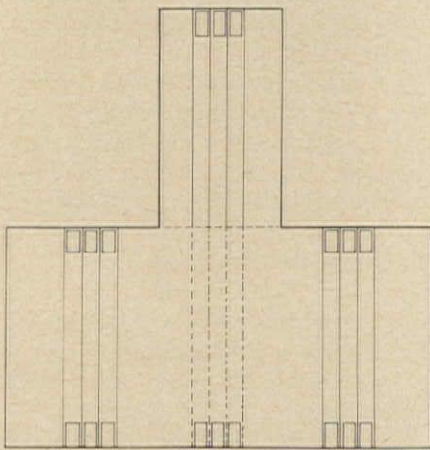


Figure 1. Separate banks of express and local elevators improve service for high-rise apartment buildings. One 34-story building has an express bank in the tower section, while local banks in the wings serve the lower floors

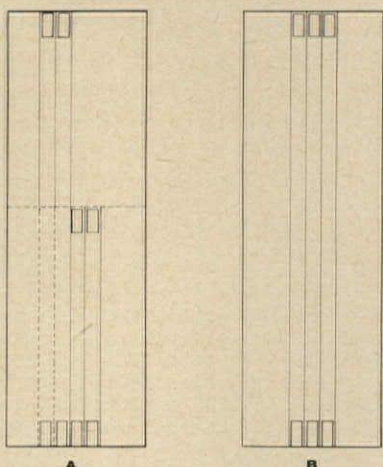


Figure 2. Express-local plan (A)—two express and two local elevators—may offer better service at no substantial cost increase over three local elevators (B). Plan A needs less hoistway construction at upper floors, one-third fewer hoistway entrances

Local and Express Service

If an apartment building requires four or more elevators, they may advantageously be separated into local and express banks. Each bank will then serve fewer floors and, on the average, make fewer stops, improving service quality and handling capacity. Express runs let cars travel longer at full speed and serve upper floor passengers with fewer intermediate stops.

The plans for elevating a 34-story middle-income apartment building with an approximate population of 1,410 suggest the excellent service standards that may be attained with local and express operation. Three 2,000 lb local elevators were recommended for floors 1 to 13 and three express cars of the same size, for the upper, tower floors. (See Figure 1.)

Local elevator speeds of 350 fpm let the three-car group carry 53 persons in a five-minute period, or 6 per cent of the 870 population on the floors served. Average intervals between elevators is 61 seconds. The three express elevators, traveling at 500 fpm, have a five-minute handling capacity of 38 persons, or 7 per cent of the 540 population on the upper floors, with a 62-second interval.

Preliminary studies for a 30-story building with a smaller population indicated that three elevators, serving all floors, would provide adequate carrying capacity and an acceptable interval. But further calculations showed that four elevators, two local for floors 1 to 15 and two express for floors from the 16th up, could provide better service without substantially increasing elevator costs. (See Figure 2.) Instead of three high-speed elevators, the express-local system would need only two high-speed and two slower elevators. Express-local service would require only 60 entrances instead of 90 for all-local operation. Total space requirements for hoistways would be the same with either arrangement. The local-express plan, however, reduces space consumption on upper floors where construction costs more and rentable space can earn greater returns.

Skip-Stop Operation

While express-local systems can improve elevator service, skip-stop

arrangements may have the opposite effect. Skip-stop operations may trim 3 to 5 per cent from total elevating costs by eliminating alternate hoistway entrances, but the impairment of service limits these systems to low-rental housing.

If one car of a pair of skip-stop elevators serves odd floors while the other serves even, the interval for any floor will be excessive: the full round-trip time of a single elevator. If both elevators of a pair serve the same alternate floors, tenants on the other floors will be forced to climb stairs part of the way, a serious inconvenience for handicapped persons and for users of baby carriages and shopping carts.

Service Elevators

Service elevators may be even more essential in the high-rise apartment building than in the office skyscraper. Rapid turnover of downtown apartment tenants produces moving-day traffic which ties up an elevator for prolonged periods, including the morning peak.

Since service traffic slackens in the early evening, a properly located service elevator can supplement the passenger cars during the pre-dinner period of heavy passenger traffic.

Service elevators for apartment buildings should have a minimum capacity of 2,500 lbs and an interior 6 ft 8 in. wide by 4 ft 3 in. deep. A car this size will take larger pieces of furniture, up to 8 ft long. Such elevators require higher cab heights and wider doors.

Control Systems for Elevator Automation

Operating economy is but one reason for the appeal of automatic elevators. The old-time elevator attendant, prone to hold an elevator car for some tenants or to leave his car and run errands for others, delayed rather than expedited service. In taller buildings, automation becomes essential for efficient elevator performance.

Standard control systems for two-elevator groups automatically assign each hall call to the car that can answer the call most promptly. For groups of three or more cars, or for optimum service from a two-car group in a tall tower, advanced control systems an-

continued on page 224

For more information circle selected item numbers on Readers Service Inquiry Card, Pages 233-234

SURFACING IN DEPTH

An extruded multi-lens plastic sheeting giving the illusion of movement and depth has been introduced by the Rowlux Division of Rowland Products, Inc. A plastic sheet only 15/1,000 in. thick gives an illusion of depth of up to 3/4 in.

This optical illusion is due to thousands of parabolic lenses, .010-in. in diameter, embossed on both sides of the sheet as it is extruded. Light is focused by each lens of the top surface on to some section of a lens on the bottom surface. As the viewing angle changes, light is focused on the center, side or edge of a bottom-side lens, creating shimmering moire effects or regular nodular patterns.

An application already in production is signs. Letters silk-screened or lithographed on one side of a translucent sheet seem to float above it; on the other side, they seem to sink

into the sheet. The sheet, though slightly pebbled to the touch, is in fact smooth enough to take four-color process lithography. Signs lithographed on Rowlux sheet have a startling brilliance.

Several World's Fair exhibits are among the first architectural uses of Rowlux in significant quantities. The World's Fair Amphitheater employs thousands of feet of Rowlux as a stage backdrop as well as for a platform at water's edge to simulate a water surface upon which dancers can perform.

The sheet is available in a variety of colors, either translucent or metalized on one surface. In addition, moire patterns have been produced in two-color effects. Rowlux Division, Rowland Products, Inc., Kensington, Conn.

CIRCLE 300 ON INQUIRY CARD

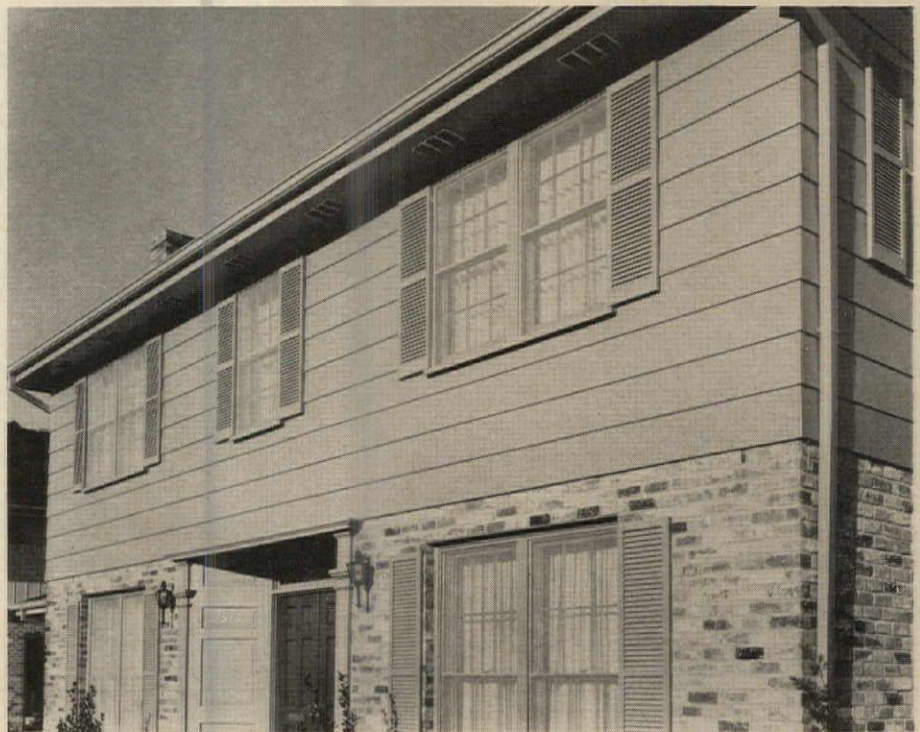


WOOD-ASBESTOS-CEMENT COMBINED INTO NEW INCOMBUSTIBLE BUILDING MATERIAL

A new building material developed by National Gypsum Company looks and cuts like wood but has the strength and fire-resistant qualities of rock. Woodrock is a combination of specially-processed wood and asbestos fibers and cement. First commercial use of the material will be in the form of clapboard siding for new home construction. (It is applied like conventional wood clapboard.)

Composed predominantly of inorganic materials, Woodrock is not affected by termites or rot. Moreover, shrinkage or expansion is negligible because it is preshrunk. Woodrock siding can be painted with either latex or oil-base paints. When painted with water-base paints, moisture vapor will pass freely through the material, preventing the build up of moisture pockets. National Gypsum Company, Buffalo 2, N.Y.

CIRCLE 301 ON INQUIRY CARD
more products on page 244





TORGINOL DURESQUE

SEAMLESS-RESILIENT FLOORING

CONTINUOUS FLOW OF SEAMLESS-RESILIENT FLOORING WITH PERMANENT BEAUTY
Hospitals, recreational centers, office, apartment buildings, and homes now can be beautified with a permanent flow of wall to wall seamless beauty that will not collect dirt, moisture or germs . . . Torginol *Duresque* is a combination of scientifically prepared colored chips and liquid glaze that can be solidified over new or existing floors of wood, concrete, and most other firm surfaces. Torginol *Duresque* can be applied to exteriors as well as interiors and utilized as a coving and wainscot providing a monolithic tough thin wearing surface not attacked by most acids, alkalies or hydrocarbon solvents. Exterior *Duresque* is cushioned with Torginol's rubber-like substance, "Torga-Deck" that waterproofs and furnishes elaborate elongation characteristics.

This majestic flow of three dimensional permanent beauty can be obtained in any combination of colors and patterns giving the architect and decorator desiring uniqueness in flooring design . . . *design latitude*.

For further information, check the Yellow Pages for your nearest Torginol Dealer or write:
Customer Relations Department, Torginol of America, Inc., 6115 Maywood Avenue, Huntington Park, California.
508 Old Country Road, Hicksville, L.I., New York

IF IT'S MODERN IT'S SEAMLESS. . . IF IT'S SEAMLESS IT'S TORGINOL. EIGHTEEN YEARS OF WORLD-WIDE ACCEPTANCE.



For more data, circle 103 on Inquiry Card

For more information circle selected item numbers on Reader Service Inquiry Card, pages 233-234

COMMERCIAL AIR CONDITIONING

An application and engineering manual on the Westinghouse *Type Y* year-round commercial air-conditioning system gives information on its design; applications in various combinations of heating and cooling; specifications of typical systems; and details on operation, maintenance and economics. *Westinghouse Electric Corp., 300 Phillippi Rd., Columbus 16, Ohio**

CIRCLE 400 ON INQUIRY CARD

GUIDE SPECIFICATIONS FOR STAINLESS STEEL DOORS

Four different categories of stainless steel doors are covered in separate guide specifications: revolving doors, rolling doors and grills, sliding doors and frames, and swinging doors and frames. The specifications follow the format of the copyrighted A.I.A. specifications worksheets. Specify category of door when requesting copies of these guides from the *Readers' Service Section, The International Nickel Company, 67 Wall St., New York 5, N.Y.*

CIRCLE 401 ON INQUIRY CARD

CERAMIC FLOOR AND WALL TILE

A 28-page catalog presents, in color, the complete line of *Romany-Spartan* floor and wall tile products. Included is the new 1964 line of 15 earthenware, natural-clay ceramic floor tiles and heavy-duty pavers. Another feature is new and simplified swimming pool design data and drawings. *United States Ceramic Tile Company, Canton, Ohio**

CIRCLE 402 ON INQUIRY CARD

LAMINATED PLASTICS

"Fact Book for Architects and Designers" contains architectural applications, illustrated specifications, and general information on *Formica* laminated plastics for commercial and institutional interiors. Paper reproductions of *Formica* colors, wood-grains and patterns of greatest interest to the architect are featured. *Formica Corp., Dept. 3L27D, 4614 Spring Grove Ave., Cincinnati, Ohio, 45232**

CIRCLE 403 ON INQUIRY CARD

FLUORESCENT LIGHTING

"Surface-Mounted Fluorescent Lighting" consists of photos, diagrams, specification features, and candlepower distribution charts on Lightolier's surface and pendant mounted fluorescent fixtures. *Lightolier, 346 Claremont Ave., Jersey City, N.J., 07305**

CIRCLE 404 ON INQUIRY CARD

STEEL ROOF DECKS

Mahon standard and long-span roof deck, utilized in commercial, industrial and institutional buildings, is described and illustrated in a 16-page catalog, No. D-64. This booklet covers both standard steel and long-span *M-Deck*, including general descriptive information; design, construction and performance advantages; section property and load tables; construction details and specifications. *The R. C. Mahon Company, Building Products Division, 6565 E. Eight Mile Rd., Detroit, Mich., 48234**

CIRCLE 405 ON INQUIRY CARD

SEALANT AND CAULKING GUIDE

In "Sonneborn Sealant and Caulking Guide," prescribed sealing methods are explained, essentially covering the use of the firm's sealing and caulking materials in glass, masonry and metal joints. Specific applications in tight or surrounded joints, metal to masonry joints, and metal curtain wall joints are amplified. Also, various joint types are illustrated showing the reaction of sealant to expansion, contraction and adhesion. *Sonneborn Building Products, Inc., DeSoto Chemical Coatings, Inc., 1700 S. Mt. Prospect Rd., Des Plaines, Ill.**

CIRCLE 406 ON INQUIRY CARD

TRAY SUPPORT SYSTEMS

Two 24-page engineering catalogs explain *Kurlok* ventilated continuous tray support systems of galvanized steel and of aluminum. The systems are used for distribution in the electrical, mechanical, control and communication fields. *Kurlok Division, Unistrut Corp., 4118 S. Wayne Rd., Wayne, Mich., 48184*

CIRCLE 407 ON INQUIRY CARD

LABORATORY FURNITURE

"Illustrated Specifications and Basic Units," a new 28-page catalog, is about Kewaunee's line of metal laboratory furniture.

The publication is prepared in three sections: section one is in the form of an illustrated specification to emphasize the major construction features; section two is a written specification; and section three covers basic units with elevation views of the standard and specific-purpose base cabinets, wall and counter mounted storage cases, and full-height storage cases available. *Kewaunee Manufacturing Company, 5046 S. Center St., Adrian, Mich., 49221*

CIRCLE 408 ON INQUIRY CARD

OPEN-WEB JOISTS

Bethlehem open-web joists are illustrated and described in a 24-page catalog, No. 1897. Tables in the catalog supply information on joist dimensions as well as on safe working loads. Illustrations show how to provide for heating lines, recessed lighting, air conditioning, complicated communications setups and sprinklers. *Bethlehem Steel Company, Room 1020, Bethlehem, Pa.**

CIRCLE 409 ON INQUIRY CARD

READING LABORATORY PLANNING GUIDE

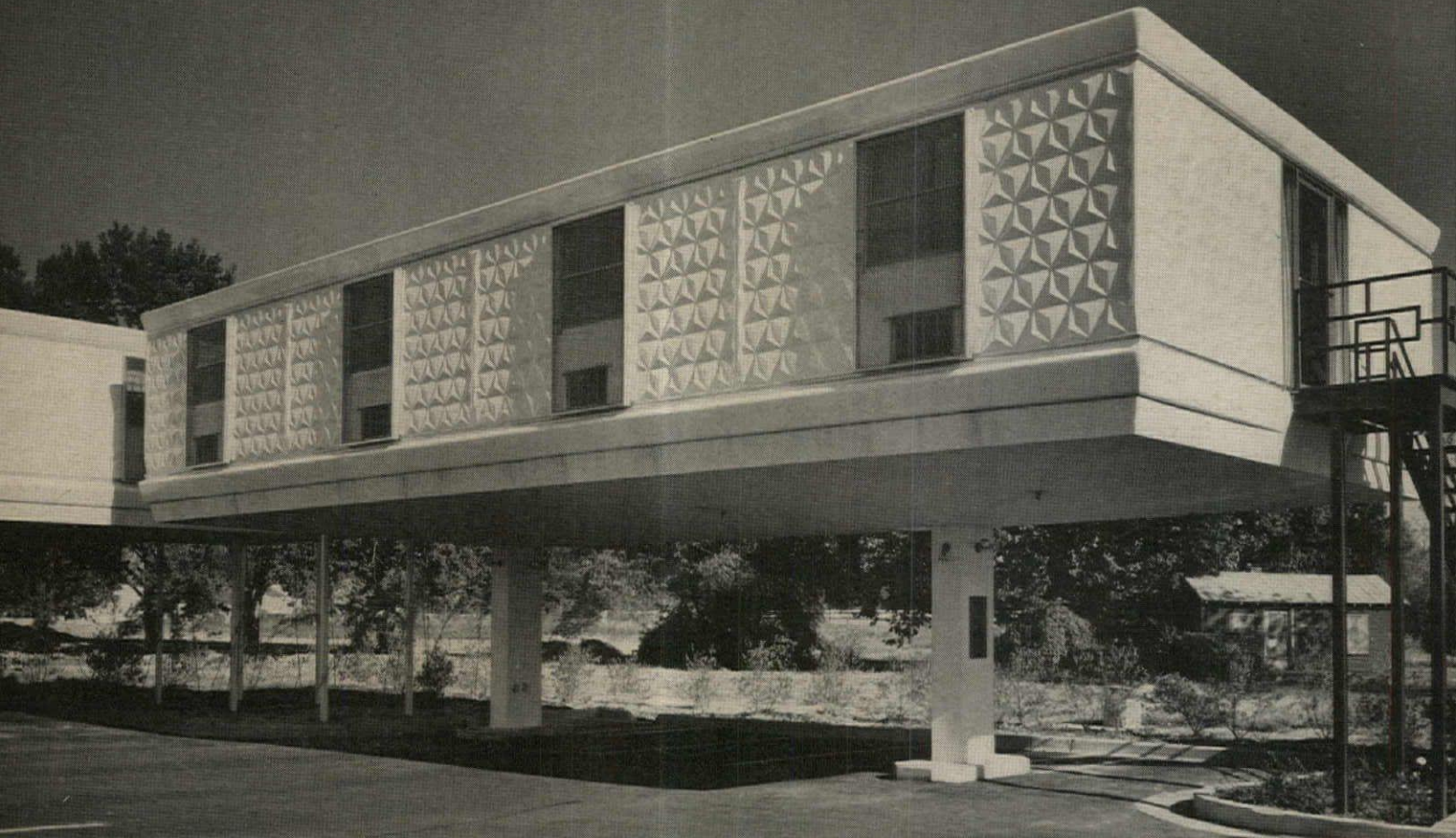
"Reading 300 Planning Guide," for use by architects in designing a laboratory for instruction in developmental reading in junior and senior high schools, has been prepared by the Educational Developmental Laboratories. Fifteen different plans are offered with designs that will allow the labs to serve up to 900 students per semester. Many auto-instructional techniques are employed, with students working in individual "learning stations."

Also available is a "Reading 300 Lab Layout Kit" for planning suitable room arrangements. *Educational Developmental Laboratories, Huntington, N.Y.*

CIRCLE 410 ON INQUIRY CARD

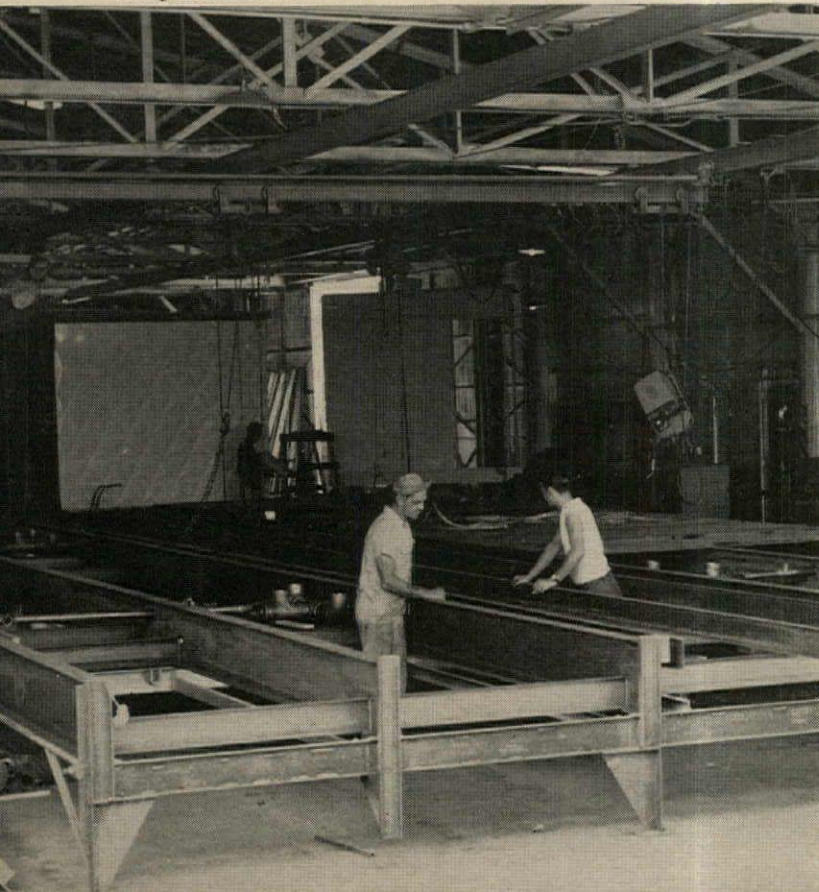
* Additional product information in *Sweet's Architectural File*

more literature on page 228



View of recently completed Holiday Inn Jr. Motel, Memphis, Tennessee, supported by two main pillars.

Frame for each section consists of 14" Light Beam longitudinal members and Junior Beam cross ties overlaid with metal deck.



A four bedroom section being swung into position by crane. Two duplicate sections, facing a corridor, provide a total of sixteen rooms.



A new Holiday Inn Jr. starts here... at 50% less cost



Steel's Symbol of Strength,
Long Life and Economy

Think up one more wonder for this age of instant living." Holiday Manufacturing Company, a division of Holiday Inns of America, Inc., has created complete, factory built, transportable motel units!

Four-room sections of the new Holiday Inn are transportable to the site on demountable running gear and pulled by a compact tractor. Each 56' x 10' compact room-unit is fully self-contained, with its own plumbing, heating, air conditioning, wiring and furniture—down to the rug on the floor!

Support for the Junior, which must resist deflection for both cantilever loading when in place and over the road haul, is fabricated from three 56' 14"-17.2# J&L Light Beams. The floor is a steel deck welded to Light Beams and overlaid with 3/4" wood.

Four-room sections, which can be arranged in multiples, are positioned at the site to face a 6' hallway. The corridor support is prefabricated from 6" Junior Beams bolted to the 14" Light Beams support—each Junior unit.

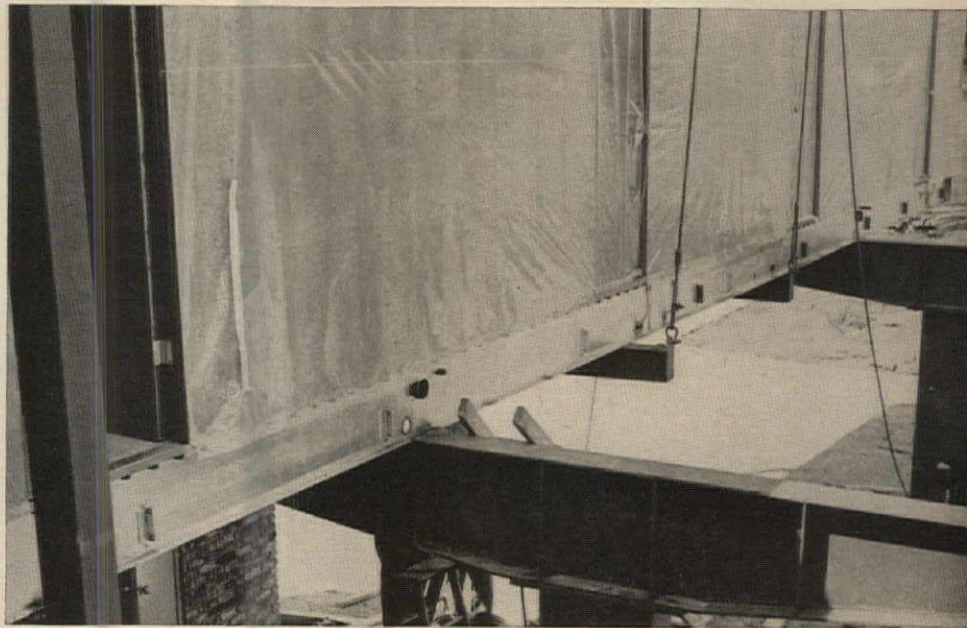
At a cost of building these units, Holiday Manufacturing estimates, is 50% less than constructing a conventionally built motel. Savings stem from factory production methods, ease of transportation and reduced on-site construction costs. For markets, HIA looks to rural areas, not geared to plush super-hotels. Possible sites include airports, truck stops and hospitals.

The Holiday story proves again that creative ingenuity is to be found everywhere on the American scene . . . and that J&L Steel can be an important factor in giving substance to the designer's vision.

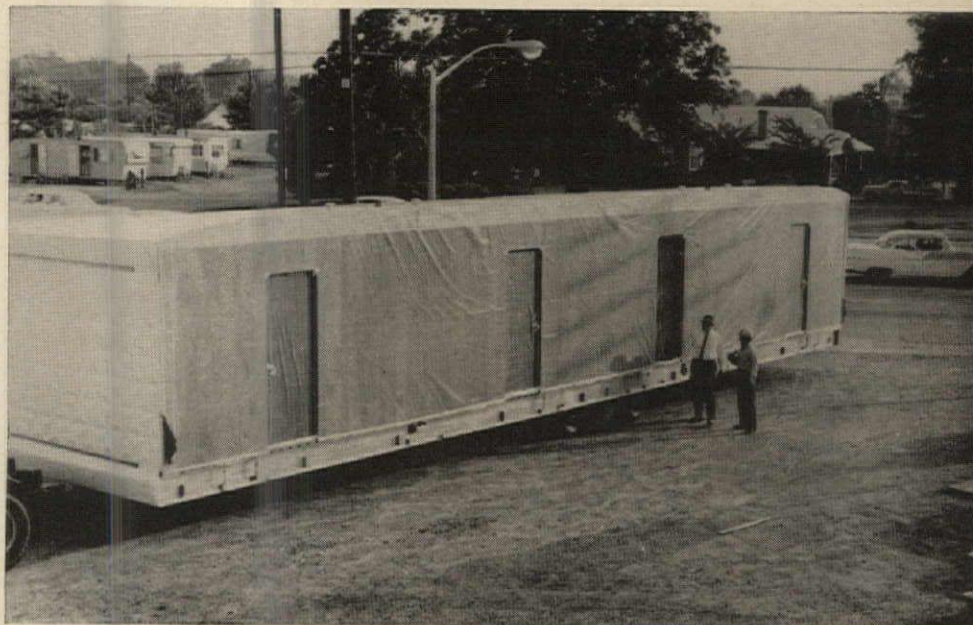
**James & Laughlin
Steel Corporation**



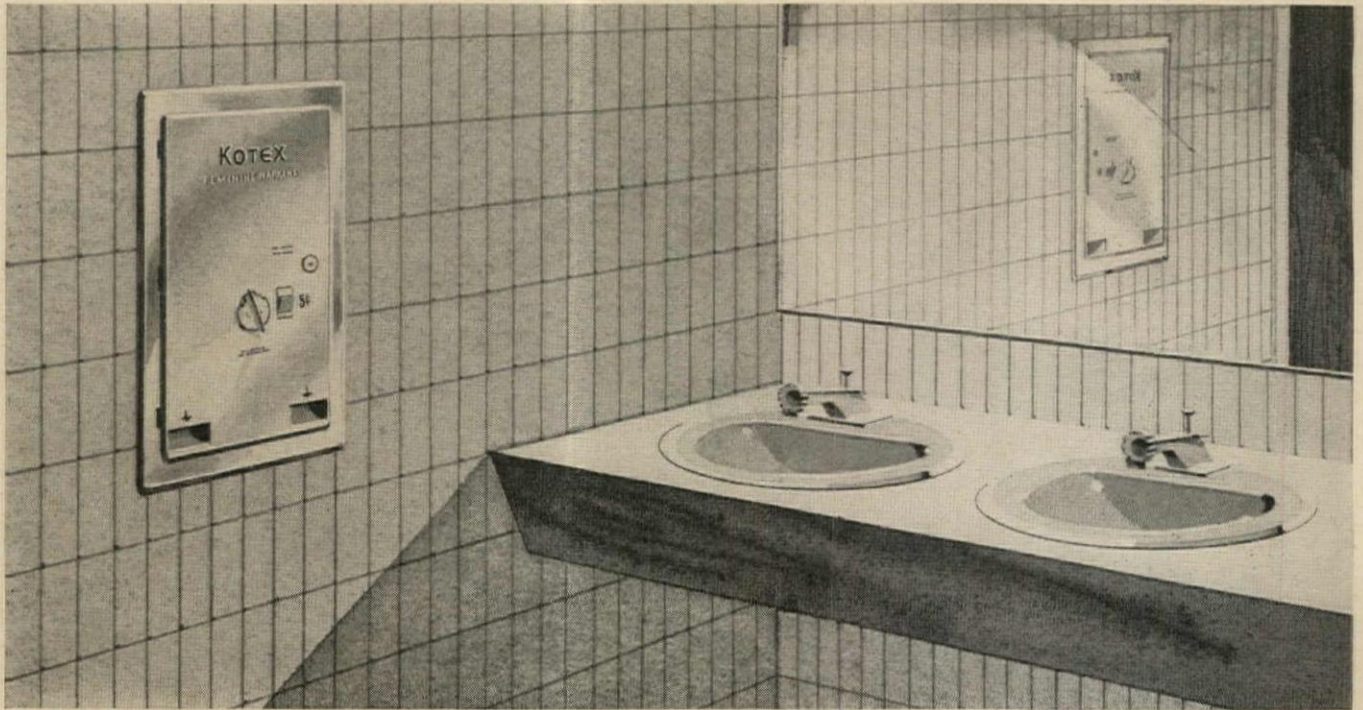
Way Center, Pittsburgh, Pennsylvania 15230



Bolting the unit into position. All savings are the result of factory production methods, plus ease of transportation and reduction of on-site construction costs.



Mounted on demountable running gear, a four-room section is ready to roll. Each unit is fully self-contained, with its own utility equipment and furniture.



*The recessed vendor
for Kotex napkins...*

The simplicity of line that doesn't intrude

This recessed vendor is easy to install and is available in stainless steel with No. 4 finish, white enamel or bright or satin chrome finish. Holds 63 individually boxed napkins. Specify Model R-63 (*shown above*). Dimensions: vendor 25 $\frac{3}{16}$ " x 13 $\frac{3}{4}$ " x 6 $\frac{7}{16}$ ". Frame: 17 $\frac{1}{2}$ " x 29".

Kotex feminine napkins are preferred by more women than all others combined. And now you can provide for a necessary convenience with the modern recessed vending machine that can be designed unobtrusively into the wall.

A surface-mounted dispenser is also available in white enamel, bright or satin chrome finish. Holds 15 individually-boxed napkins. Specify Model MW-15. Dimensions: 7" x 20" x 6".

Kotex vending machines are made of 18 and 20-gauge steel, with trouble-free, long-wearing, cold-rolled steel mechanisms. Five-cent, ten-cent or free vending mechanisms are available for both models.



Model MW-15

Kotex is a trademark of Kimberly-Clark Corporation, Neenah, Wisconsin

Kimberly-Clark Corporation, Department No. AR-6-4 Neenah, Wisconsin

Gentlemen: Please send me complete information about vending machine service for Kotex feminine napkins.

Name _____ Title _____

Organization _____

Address _____

City _____ Zone _____ State _____

For more data, circle 105 on Inquiry Card

Required Reading

continued from page 102

... Indeed, it is possible that such a vigorous program of modernizing our cities, conceived as a whole and carried on in the public eye, would touch a chord of pride in the British people and help give them that economic and spiritual lift of which they stand in need." Accordingly, sweeping reorganization in planning arrangements is proposed, of which the key perhaps is the establishment of a number of regional development agencies for the major urban regions. These proposed arrangements are at least as important as the more immediately applicable planning techniques which are elaborated in the body of the report.

Two assumptions in the Buchanan Report are fundamental to its conclusions and, as the author has said, "for anyone not prepared to accept this proposition, the whole of our report must be meaningless." The first of these is that despite their lack of definition in the present report, objective environmental standards can be developed and are in themselves desirable. The second is that the dispersing tendency of the automobile which, if unchecked, virtually eliminates any kind of new town centers as they have been known in history, must be countered in the name of historical continuity and the implicit values in civic centers. The report concedes that these values might be embodied in some new form of city yet to be developed, but it rejects the idea that the laissez-faire development of sprawling urban areas is itself such a form. Similarly, there is a conspicuous reluctance to endorse the "planetary" model of urban structure, with its central city, satellite towns and greenbelts, which has been favored in postwar British planning. Here one feels the Buchanan Report has deliberately withheld judgment. We need more study, it says, before reaching a wise decision on the form of the future city. We need fundamental political decisions before technical decisions can be made. To admit these shortcomings is not weakness but wisdom. One can only hope, although but faintly, given the response in Britain thus far to the Buchanan Report, that both deficiencies can be remedied.

continued on page 202

NEW

Richards-Wilcox

CLASSROOM FOLDING WALLS

... specifically designed to meet the exact functional and sound-retarding requirements of modern educational facilities



While specifically designed as a standard for classroom applications, the new R-W Classroom Folding Wall is custom-engineered to meet the exact functional requirements of each installation. Furnished in 30, 40, or 50 db rated panels to provide the sound-retarding qualities desired and compatible with the surrounding construction when installed. Available in Automatic, Electrically Operated or Manually Operated Models—both are equipped with a simple, fool-proof *mechanically* actuated device that exerts pressure at the perimeter and panel joints to effectively retard sound leaks at these points—offers the most effective type of perimeter seal ever developed for folding walls. Select a classroom divider that will assure efficient service, dependable operation and complete satisfaction now and for years to come—*this is best accomplished with custom-engineered R-W Classroom Folding Walls.* Write today for complete information.

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RICHARDS-WILCOX DIVISION

116 THIRD STREET • AURORA, ILLINOIS 60507

For more data, circle 106 on Inquiry Card

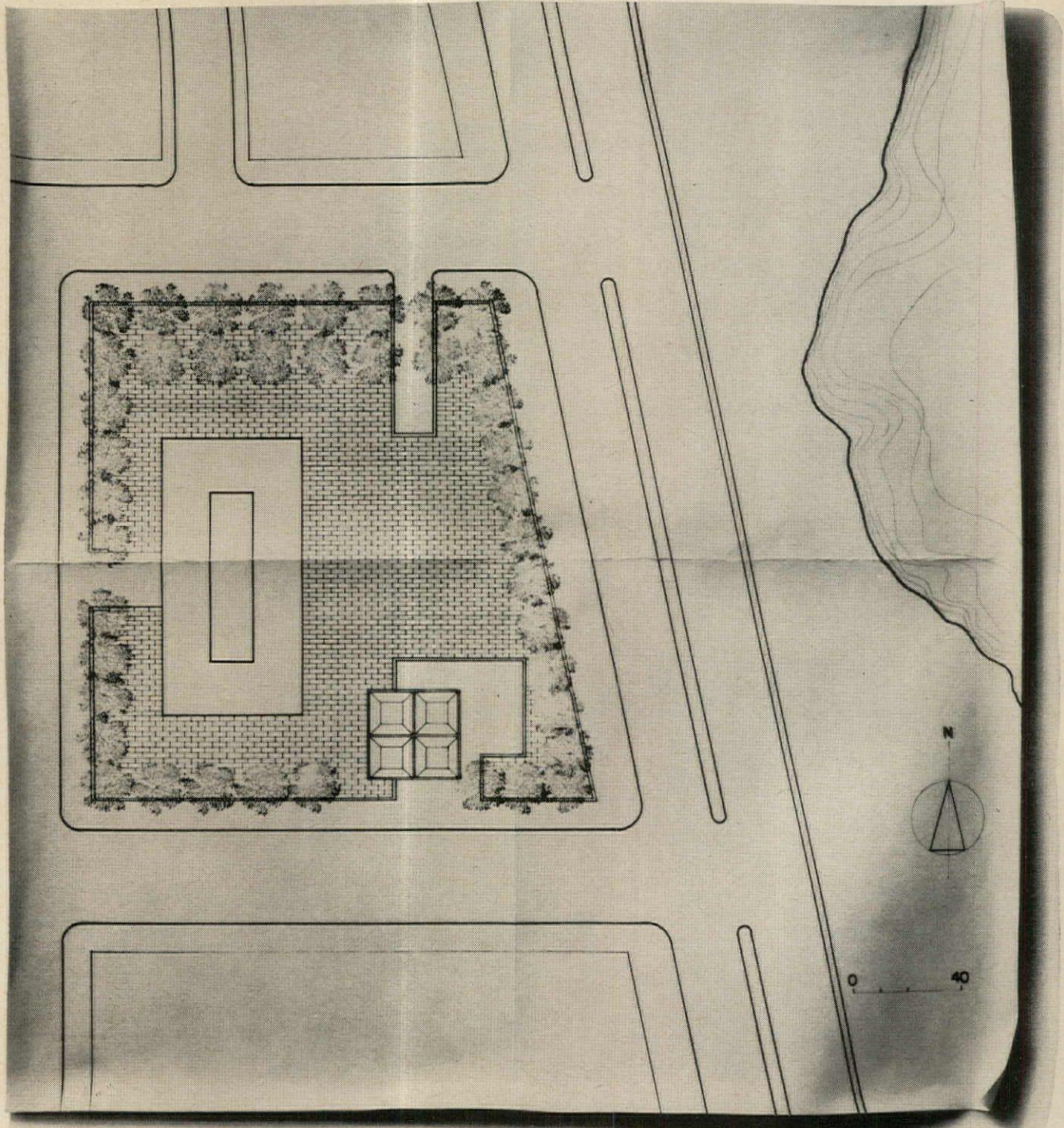
Glass Conditioning*

(a systematic plan for controlling indoor environment with PPG glass products)

Hypothetical Assignment: A projected office building in Chicago, facing Lake Michigan per client's request. Building dimensions: 300 feet high by 100 feet by 50 feet.

Site Conditions: Latitude subject to extremely low temperatures, severe winters with high winds, hot summers. Heating season: approximately 6300 degree days. Air

conditioning season: 120 days of which 90 would have an average of 80F for a 12-hour air conditioning period. Indoor temperature to be maintained at 70F. *Service Mark



Eastern Exposure Site Conditions: Direct morning sunlight, intensified by reflection from lake. Low winter temperatures combined with lack of sun, aggravating afternoon heat loss.

Glass Conditioning Recommendation: SOLARGRAY® TWINDOW®—TWINDOW Insulating Glass to reduce heat loss to a "U" factor of 0.6, significantly reduce downdrafts and cold areas near windows. 1/4-inch SOLARGRAY Plate Glass transmits 42% of visible light (37% when combined with clear glass in a TWINDOW unit), to give natural daylight with substantial softening of sun and lake brightness.



mit 22% of the light. Winter heat loss is also reduced substantially by use of TWINDOW Insulating Glass. Net effect is reduced solar heat gain and improved visual comfort year round, providing more even temperatures and usable space near windows.

Northern Exposure Site Conditions: Little sun exposure.

Glass Conditioning Recommendation: TWINDOW—to reduce heat loss and heat gain through conduction. Result: More even indoor temperatures, increased occupant

Glass Conditioning Recommendation: SOLARGRAY Plate Glass—to reduce heat gain substantially during summer, and soften brightness in all seasons, while providing better control of indoor temperature and environment.

Human Factors: Personal comfort is, after all, the main goal of environmental control. To this end, Glass Conditioning produces pleasant working conditions by improving visual comfort and lessening seasonal extremes of solar heat and severe cold. Glass Conditioning, then, by providing both operating economies and a more attractive working atmosphere, will stimulate rentals and reduce turnover.

For more complete information on

LIGHT TRANSMITTANCE AND THERMAL CONDUCTIVITY DATA

		Visible Transmittance %	Thermal* Conductivity U	MAXIMUM** Heat Gain BTU/hr/sq ft
(PLATE GLASS)				
Regular	1/4	88	1	200
Solex	1/4	75	1	150
Solargray	1/4	42	1	150
Solarbronze	1/4	51	1	150
(SHEET GLASS)				
Clear	3/32	89	1	205
Graylite "31"	1/8	31	1	170
Graylite "61"	3/16	61	1	195
Graylite "56"	7/32	56	1	190
Graylite "14"	7/32	14	1	150
Graylite "52"	1/4	52	1	185
(INSULATING GLASS—1" Metal Edge Twindow—1/2" air space)				
Clear 1/4" Glass, both sides		77	0.6	170
with 1/4" Solex, 1 side		65	0.6	115
with 1/4" Solargray, 1 side		37	0.6	115
with 1/4" Solarbronze, 1 side		45	0.6	115
with 1/4" LHR Solargray, 1 side		22	0.6	90
with 1/4" LHR Solarbronze, 1 side		25	0.6	90

*BTU/hr/sq ft/ degree F indoor-outdoor temperature difference.

**BTU/hr/sq ft/ for July 21 Design Day 40° N. 4 P.M. West Elevation.

Western Exposure Site Conditions: Strong afternoon sunlight in all seasons, with substantial indoor heat gain.

Glass Conditioning Recommendation: LHR™ 140 SOLARGRAY TWINDOW—LHR (Light and Heat Reflective) coating on air space side of the outdoor glass of TWINDOW will reduce heat gain to 90 BTU/sq.ft./hr. maximum, trans-

satisfaction, and lower comfort maintenance costs.

Southern Exposure Site Conditions: Extensive sunlight, summer and winter, introducing solar heat gain as a factor which will be welcome in winter, but will significantly increase air conditioning requirements in summer.

PPG Products for Glass Conditioning, consult the PPG Architectural Representative nearest you. Pittsburgh Plate Glass Company, Pittsburgh, Pennsylvania 15222.

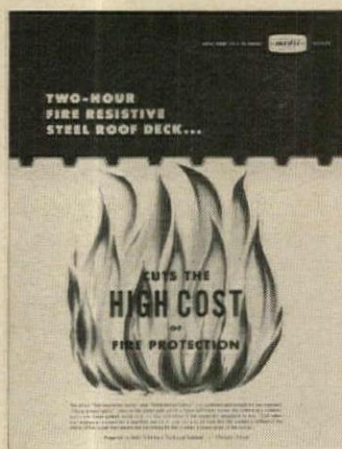


PPG makes the glass that makes the difference

For more data, circle 107 on Inquiry Card

TWO HOUR FIRE RATING with steel roof deck

New Underwriters' Laboratories assignment permits wider use of fast, economical steel construction, with important insurance savings!



U. L. two-hour fire rating for steel roof deck *without concrete covering* means that now you can save as much as ten to twenty percent over conventional fire resistive roof construction! Equally important, you gain the advantages of lighter weight, quick installation, and earlier occupancy.

SEND COUPON FOR FREE BOOKLET or contact your local MRDTI member

METAL ROOF DECK TECHNICAL INSTITUTE 53 WEST JACKSON BOULEVARD • CHICAGO, ILLINOIS 60604

Airtherm Manufacturing Company • Bowman Steel Corporation • Ceco Steel Corporation • Fenestra, Inc. • Granco Steel Products Company • Inland Steel Products Company • Macomber, Inc. • The R. C. Mahon Company • Plasteel Products Corporation • Republic Steel Corporation, Manufacturing Division • H. H. Robertson Company • Sheffield Division, Armco Steel Corporation • Wheeling Corrugating Company



METAL ROOF DECK TECHNICAL INSTITUTE 53 West Jackson Boulevard, Chicago, Illinois 60604

Send new, complete booklet on two-hour fire rating for steel roof deck.

Name _____ Title _____
Company _____
Address _____
City _____ State _____ Zip _____

For more data, circle 108 on Inquiry Card

Required Reading

continued from page 199

To the United States the Buchanan Report offers a new point of attack on urban transportation and urban design problems. It is a document that will be widely studied. Its influence has already been suggested by the week-long conference in Washington led by Colin Buchanan in October, 1962 which allowed a preliminary view of these ideas, their consideration in American settings, and the interaction of strong and representative personalities.* Most of all it led to the very recognition that is central in the report itself—the recognition of design.

* The Impact of Design: Transportation and the Metropolis, A Symposium led by Colin D. Buchanan. Washington. The Washington Center for Metropolitan Studies, 1962. \$5.00

Books Received

NOTES ON THE SYNTHESIS OF FORM. *By Christopher Alexander. Harvard University Press, Cambridge, Mass. 216 pp., illus. \$6.75.*

CONSULTING ENGINEERING. *A Guide for the Engagement of Engineering Services. By the Committee on Professional Practice of the American Society of Civil Engineers. United Engineering Center, 345 E. 47th St., New York 17. 40 pp. \$1.00.*

U.S.A. AND ITS ECONOMIC FUTURE. *By Arnold B. Barach. The Macmillan Company, 60 Fifth Ave., New York 11. 148 pp., graphs. \$1.95.*

THE ANALYSIS OF BRACED DOMES. *By B. S. Benjamin. Asia Publishing House, New York, N.Y. Distributed by Taplinger Publishing Company, Inc., 119 W. 57th St., New York 19. 110 pp., plates, graphs and charts. \$6.50.*

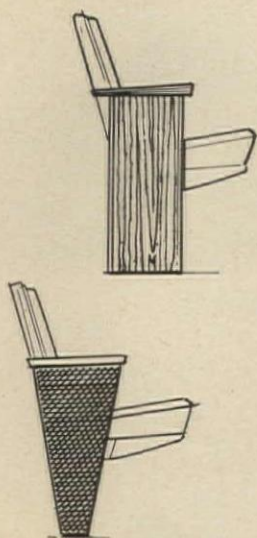
WALTER BURLEY GRIFFIN. *By James Birrell. University of Queensland Press, St. Lucia, Brisbane, Queensland. 205 pp., illus. 105s.*

BUILDINGS OF FRANK LLOYD WRIGHT IN SEVEN MIDDLE WESTERN STATES 1887-1959. *By the Burnham Library of Architecture. Burnham Library of Architecture, Art Institute of Chicago, Chicago, Ill. 28 pp. 30 cents.*

THE JAPANESE HOUSE, A TRADITION FOR CONTEMPORARY ARCHITECTURE. *By Heinrich En-*
continued on page 220

For more data, circle 109 on Inquiry

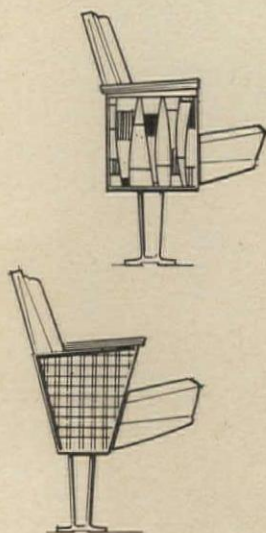
How the Stellar Chair becomes part of your design



Through colors, shapes, and textures. You've a free hand with them all. You can select the style, fabric, aisle standard, seat and back, width and mounting that give you exactly the effect you want. The possible combinations are virtually unlimited. Custom styling? In effect, yes. In cost, no. The Stellar Series is the first and only auditorium seating to offer such wide-open design freedom.



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1. End-panels can be varied in appearance to blend perfectly with your design. You can enrich its inviting atmosphere with the warmth of wood (fig. 1), add brilliance with bright ceramics (fig. 2), lend elegance with luxurious fabrics (fig. 3). It's your choice. And these are just a few of the decorative materials available to you.

2. The continued beauty of your design is assured when you specify American Seating's Stellar Chair. Its durability is second to none. Among other optional features, it boasts—our exclusive

Amerflex® plastic Soil-Guard cap (white in photo) that covers the top of the back to protect it from the wear and tear of grasping, sliding hands.

3. Even the basic Stellar Chair design can be altered to meet special requirements. Shown here: extra-deep back cushions, full upholstery (even armrests and end standards), pedestal mounting for easy floor maintenance. If you've a particular need to fill, or a specific idea in mind for seating in your auditorium, feel free to discuss it with us. Write Dept. AR-6 for details.

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American Seating products are fully covered by patents and patents pending.

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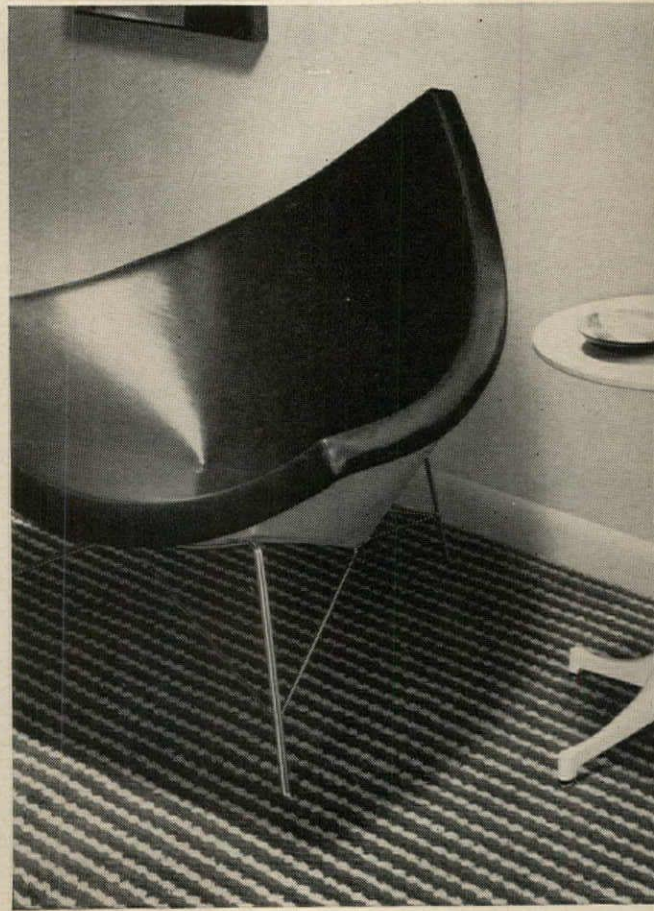
Remember Styrofoam for masonry walls.



Then forget it.



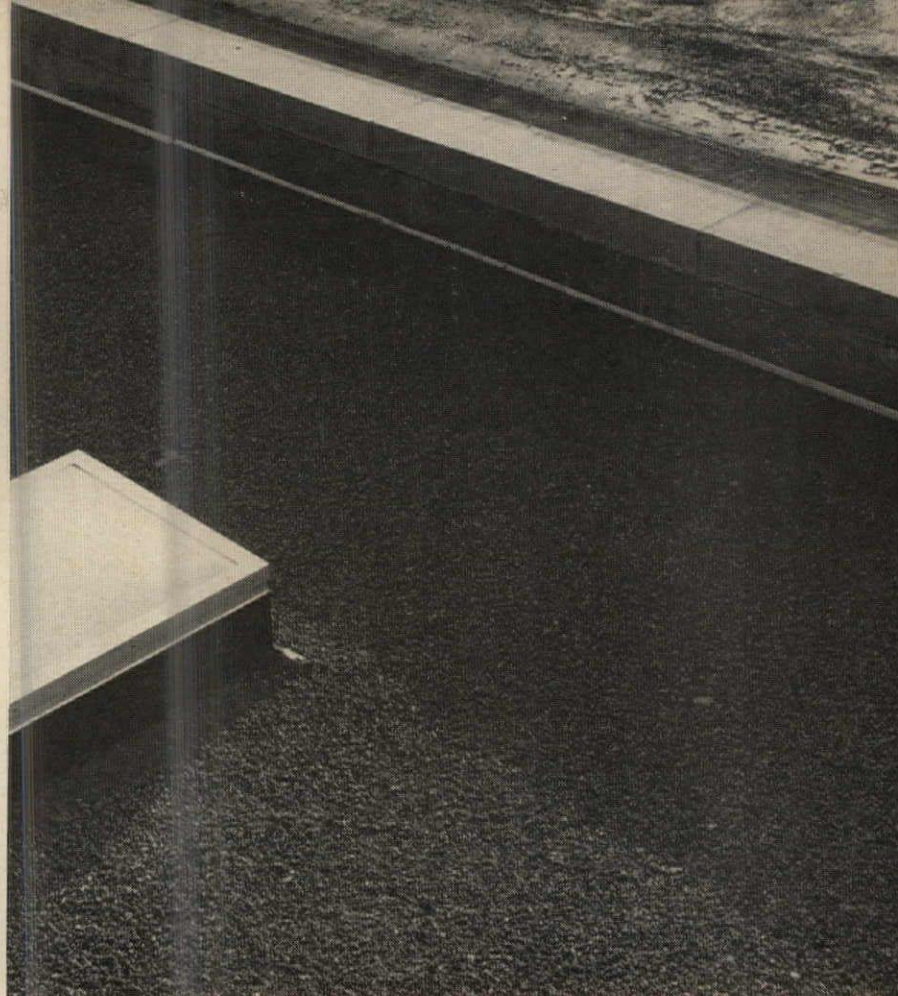
Remember Styrofoam for slabs and foundations.



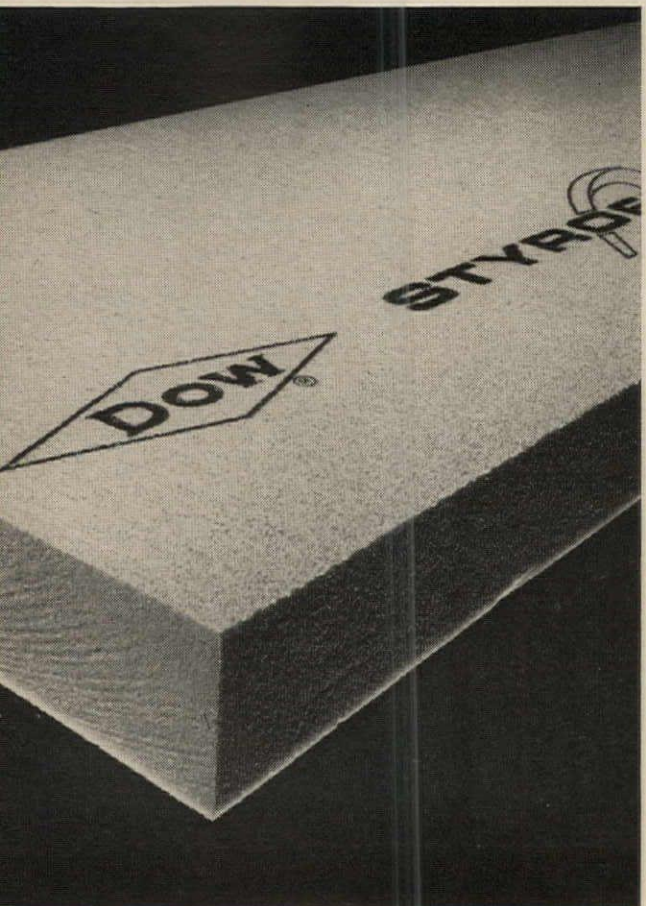
Then forget it.



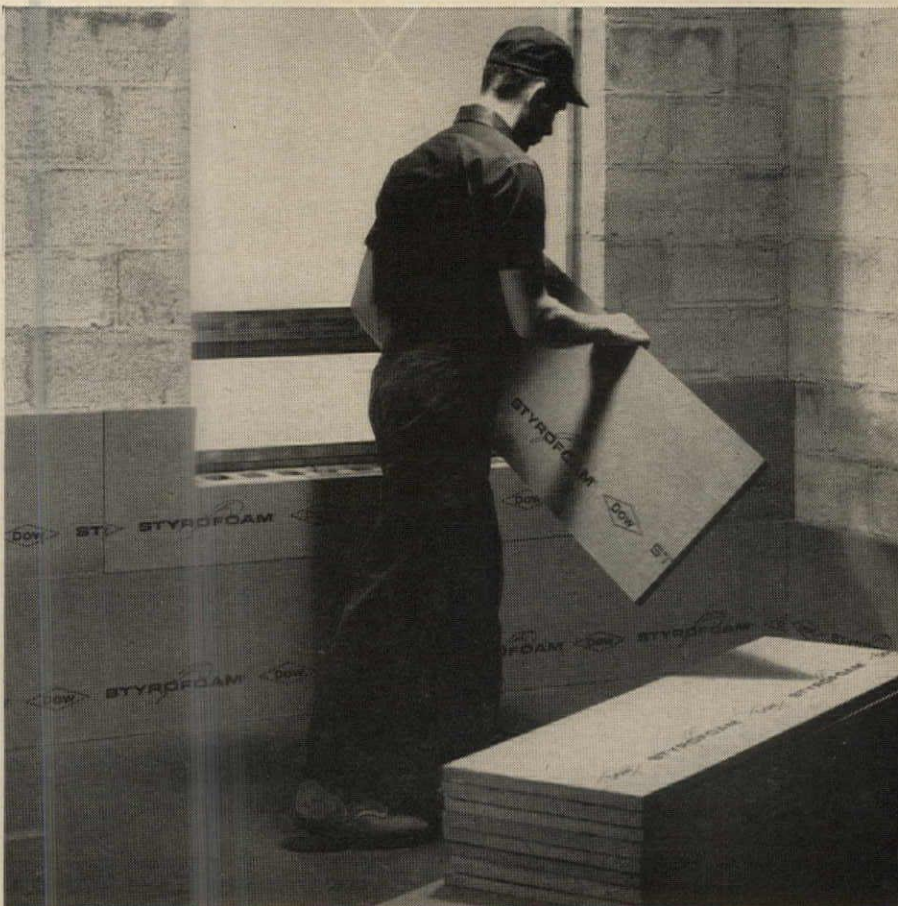
Remember Styrofoam for built-up roofs.



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Then remember it (on your next job). See Sweet's Architectural File 10a/Do. The Dow Chemical Company, Midland, Michigan.



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When winter hits, snow and ice and slush too often detract from building design. But you can assure a clean approach to your buildings...and snow-free walks and drives for your clients. Specify electric Sno-Melter systems beneath concrete and asphalt areas. Pre-wired, roll-out mats, or stock-packaged MI Cable units. A new Sno-Melter Automatic Switch (as shown) detects snowfall, turns system on and off as it is needed. Sno-Melter operates unseen. But the results show. Write for latest illustrated literature.



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Required Reading

continued from page 202

gel. Charles E. Tuttle Company, Rutland Vt. 495 pp., illus. \$27.50.

SPACE BATTERIES. By Howard T. Francis. National Aeronautics and Space Administration, Washington, D.C. 53 pp., illus. 25 cents.

THE NATURE OF ART. By John Gassner and Sidney Thomas. Crown Publishers, 419 Park Ave. South, New York 16. 619 pp., illus. \$7.50.

RELIABLE ELECTRICAL CONNECTIONS. By James A. Gay Jr. National Aeronautics and Space Administration, Washington, D.C. 67 pp., illus. 25 cents.

ENGINEERING GRAPHICS FOR DESIGN AND ANALYSIS. By Robert H. Hammond, Carson P. Buck, William B. Rogers, Gerald W. Walsh Jr. and Hugh P. Ackert. The Ronald Press Company, 15 E. 26th St., New York 10. 531 pp., plates, diagrams and charts. \$9.50.

THE FACE OF NEW YORK. Revised edition. By Susan E. Lyman. Crown Publishers, 411 Park Ave. South, New York 16. Unpaged illus. \$4.95.

BASIC STUDIES FOR THE PLANNING OF SURGICAL SERVICE FACILITIES. By the Office of Hospital Research of the New York Chapter, A.I.A. 115 E. 40th St., New York 16. 24 pp., illus. \$1.00.

PLANNING FOR MAN AND MOTOR. By Paul Ritter. The Macmillan Company, 60 Fifth Ave., New York 11. 384 pp., illus. \$15.00.

RUINS IN JUNGLES. By Stella Snead. London House & Maxwell, 122 E. 55th St., New York 22. Unpaged, illus. \$12.95.

CARPORTS AND GARAGES. By the Editorial Staffs of Sunset Magazine and Sunset Books. Lane Book Company, Menlo Park, Calif. 80 pp., illus. \$1.95.

HOW TO BUILD PATIO ROOFS. By the Editorial Staffs of Sunset Magazine and Sunset Books. Lane Book Company, Menlo Park, Calif. 90 pp., illus. \$1.95.

FOUNDATION DESIGN AND CONSTRUCTION. By M. J. Tomlinson. John Wiley & Sons, Inc. 605 Third Ave., New York. 749 pp., illus. \$13.50.

ARCHITECTURE. By Mario Valmarana. The Odyssey Press, Inc., 850 Third Ave., New York 22. 45 pp., illus. 95 cents.

MOSCOW AND THE ROOTS OF RUSSIAN CULTURE. By Arthur Joyce. The University of Oklahoma Press, Norman, Okla. 194 pp. \$2.75.

SPECIFICATIONS WRITING FOR ARCHITECTS AND ENGINEERS. By Donald A. Watson. McGraw-Hill Book Company, Inc., 330 W. 42nd St. New York 36. 290 pp. \$3.50.

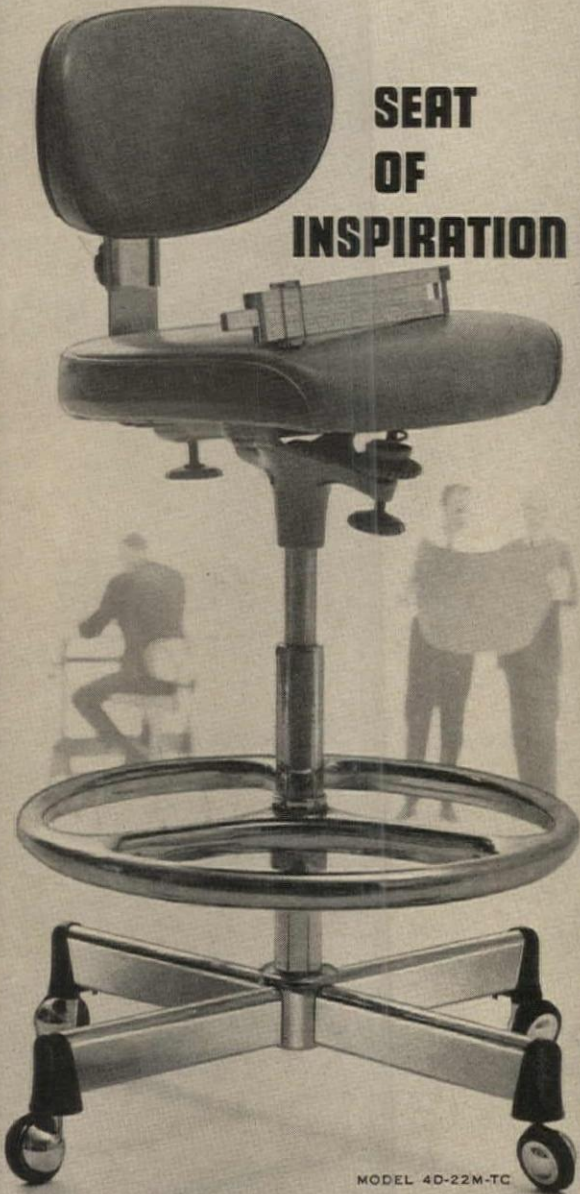
CLUSTER DEVELOPMENT. By William H. Whyte. American Conservation Association, 30 Rockefeller Plaza, New York. 130 pp., illus. \$3.00.

MODEL LD-22M-TC



The Cramer Draftsman's Chair lets a busy man totter on the brink of a big idea without fear of an ignominious fall. ■ Only Cramer gives you a forward tilt seat that relieves under-leg pressure, is adjustable to your comfort. It also rocks back comfortably to give you a long look at your work. The thick, generous seat that adjusts easily and quickly to any height drafting table, is available in a wide choice of cover materials and colors. ■ Only Cramer has an adjustable foot ring that slips up and down in a twinkling. Casters or glides have a sure-footed 22-inch spread. There's also a fingertip adjustment on the back rest so you can set the inch-thick cushion exactly where you want it. ■ For a free descriptive brochure, write: Cramer Posture Chair Company, 625 Adams St., Kansas City, Kansas 66005

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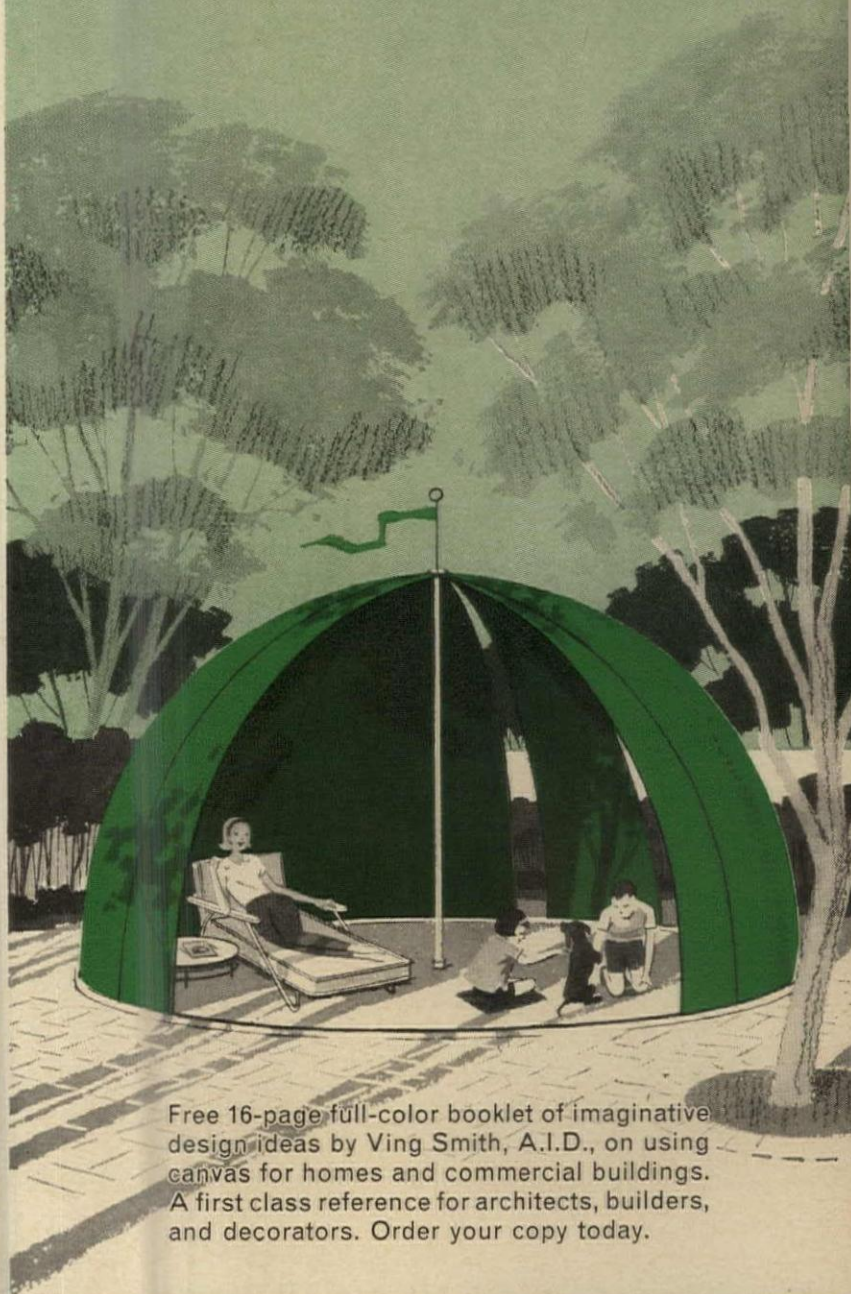
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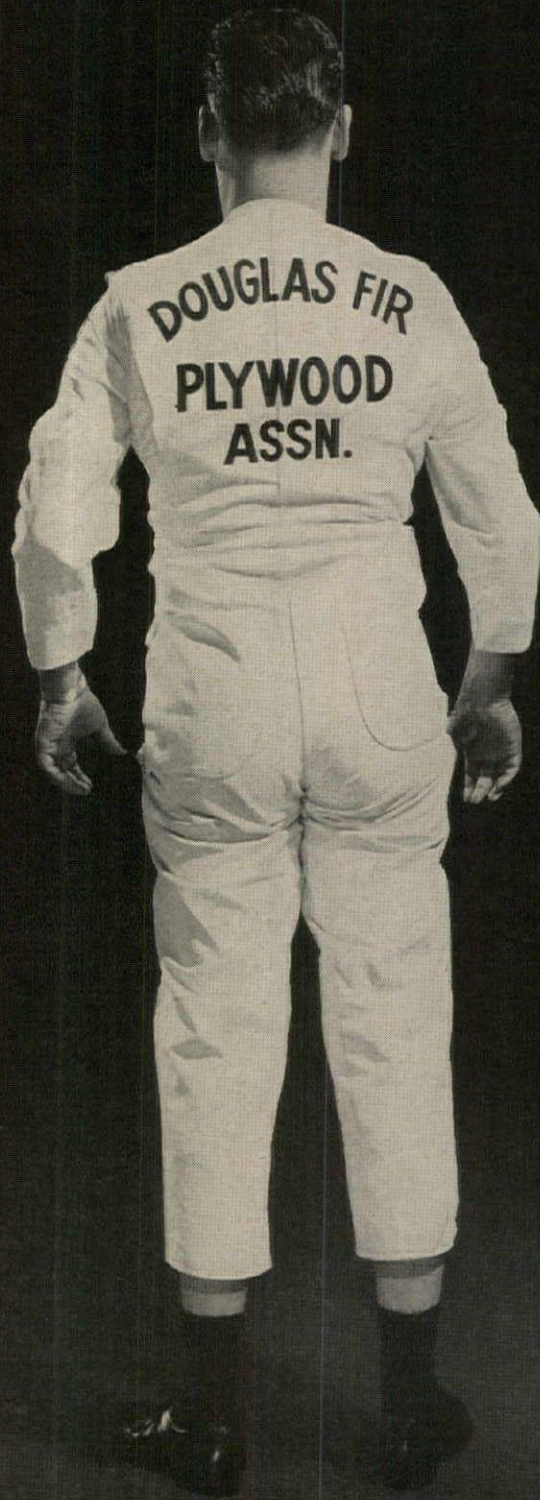
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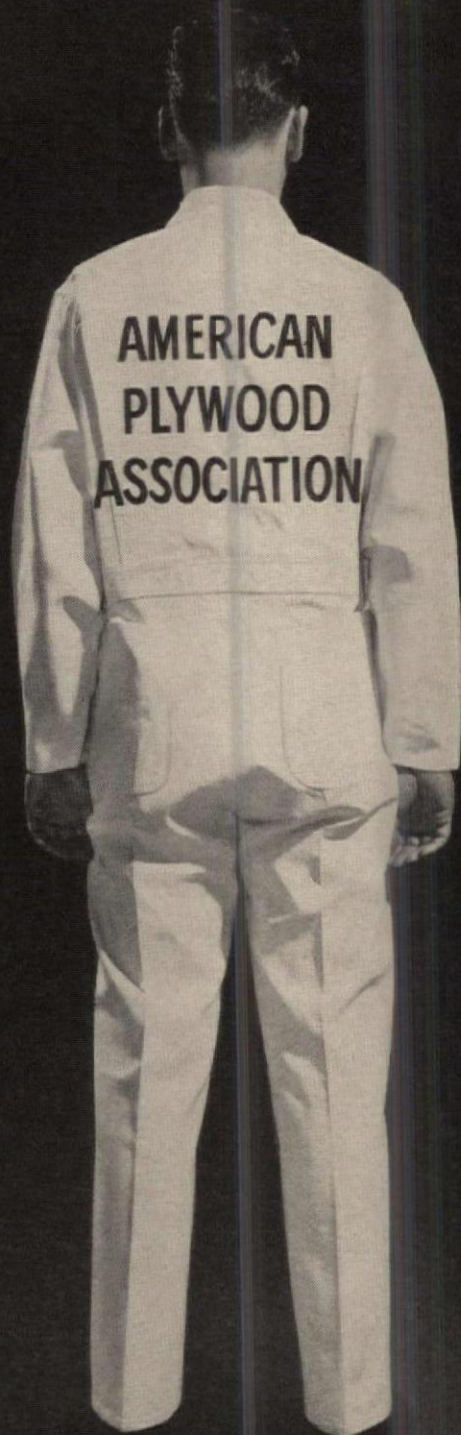
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Douglas Fir Plywood Association has outgrown its name



The industry we represent has undergone some big changes in recent years. Our old name no longer fits.

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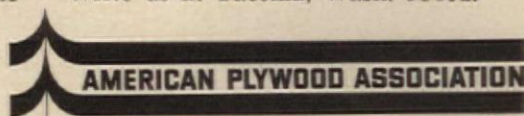
wood—and in plants in many parts of the country.

The new name reflects our members' growth and progress.

Even though the name is new, you can still specify DFPA plywood. These familiar letters still stand for quality in plywood certified by the

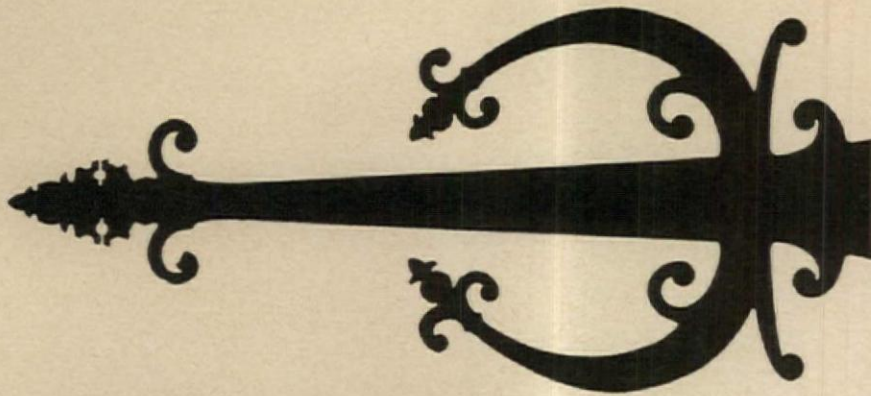
association and you'll continue to see them in our grade trademarks. Instead of Douglas Fir Plywood Association, though, they now stand for Division For Product Approval.

And we're still headquarters for all kinds of plywood information. Write us at Tacoma, Wash. 98401.



The new name for Douglas Fir Plywood Association.
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Creative hardware specifying? This attractive doorway in The Cloisters of the new Wesley Memorial Methodist Church in High Point, N.C., is an outstanding example of it. An imaginative blend of graceful McKinney Wrought Iron straps, pulls, and push plates and the Neo-Gothic Architecture combined to produce a decorous yet elegant entrance.

The Wesley Memorial Church is part of a "hundred years" building program. And the quality McKinney hardware specified here assures dependable, maintenance-free service for its lifetime. McKinney's reputation has been built by this kind of reliable performance. That's why McKinney hardware is found wherever quality installations are demanded.

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McKinney Wrought Iron Cabinet
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**Elevating High-Rise
Apartment Buildings**

continued from page 192

anticipate probable calls and assure the readiness of elevators to serve them. As traffic becomes heavier, special timing circuits start cars at proper intervals and keep them uniformly spaced as they travel up and down the hoistways.

Without such measures to control spacing between elevators, cars tend to bunch when traffic increases. If one car is even slightly delayed, the following elevator will overtake it and accumulated passenger demand will slow down both elevators. Soon the cars are leap-frogging and passengers missing the "cluster" must wait for all the cars to complete another round trip.

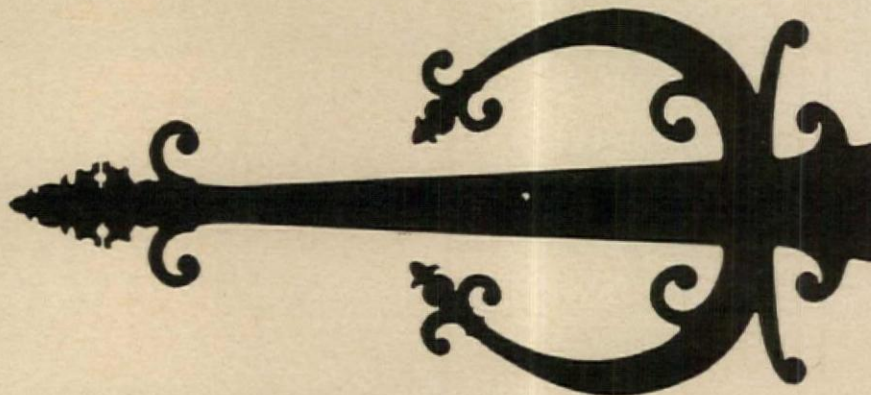
If automatic controls keep cars spaced, every floor enjoys uniformly frequent service, at intervals equal to round-trip time divided by the number of cars. All cars will then share the traffic load, increasing both quantity and quality of service.

While proper coordination of group operation contributes importantly to handling capacity and service frequency, other elements may also be incorporated in the control system to maximize elevator performance.

Automatic load bypass, for instance, electrically weighs the total passenger load in a car. A full car stops only to let people off; bypassed hall calls are assigned to the next available car. When the elevator can again accommodate waiting passengers, it will again serve their calls.

Electronic door closers, which stop and reverse the doors if they come too near a person in their path, make it safe to close doors promptly after each stop. This saves seconds at every stop and appreciably reduces round-trip time.

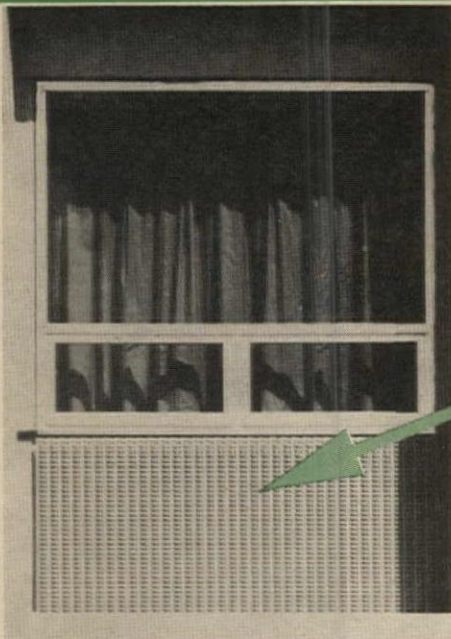
Office building-type signals are finding increasing use in apartment skyscrapers, especially for larger groups of elevators. Directional lanterns inside the car alert a passenger to an elevator going his way, while in-car position indicators show him plainly when he reaches his floor. Such signals encourage faster loading and unloading of cars.



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Imagination unlimited...

NEW CONSTRUCTION WITH EPCO THREE-DIMENSIONAL PANELS

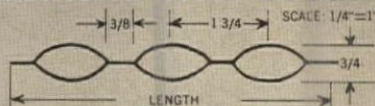


EPCO MONARCH DESIGN THREE-DIMENSIONAL PANELS conceal individual air-conditioning units!

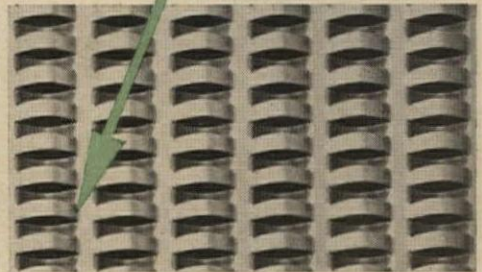
Imagination unlimited resulted in the selection of EPCO's Monarch pattern Three-Dimensional Panels for air-conditioning spandrel covers for the new Mid-Town Motor Inn in New Haven, Conn. These panels are highly decorative in .050 aluminum finished in Epcolure baked enamel.



MONARCH DESIGN



STANDARD SIZE: 48" x 96". Wt. per sq. ft. .784 lbs. Painted or unpainted in .050 aluminum. Special widths, lengths and finishes available on special order.



Catalog sheets on a complete line of EPCO Three Dimensional Panels for new construction and remodeling available through your local representative.

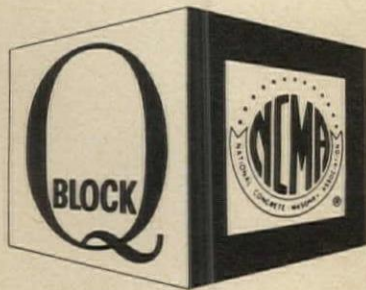
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THREE DIMENSIONAL PANELS

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The new look of luxury that speaks in a whisper

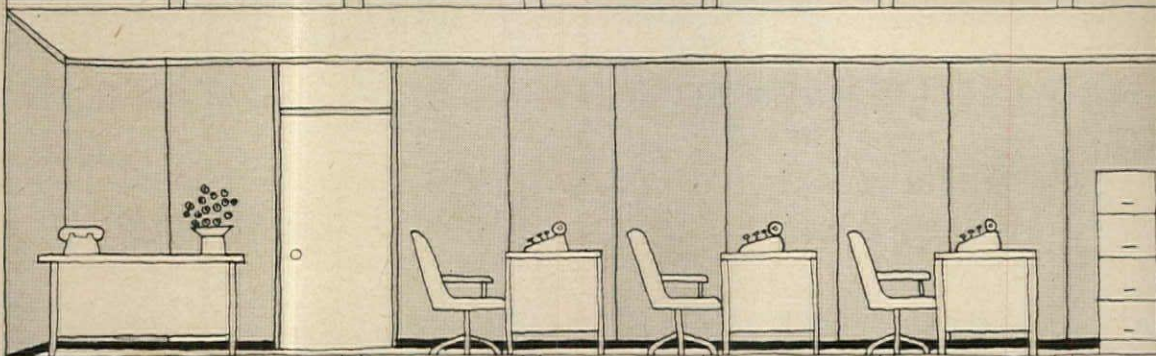
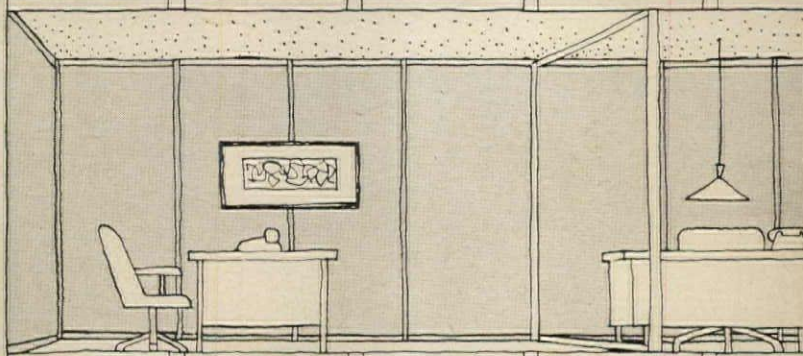
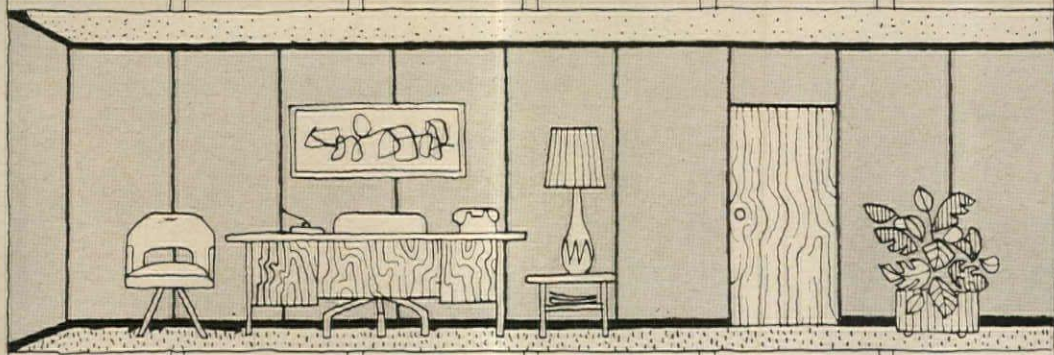
Low silhouette! Elongated bowl! Quieter by far! That's the new Case No. 4100 Silhouette. The price? Just \$123.95*! Yet what features! Positively will not overflow. Flushes on 14 quarts of water. Operates on as little as 15 pounds pressure. Comes in 50 colors, plus sparkling black. Want more details? See Sweet's (26A) or write direct.

*Suggested consumer price in white

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From Hauserman's Total Interior Concept INTEGRATED MOVABLE WALL SYSTEMS TO FIT ANY BUSINESS, ANY BUDGET

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The E. F. Hauserman Company
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Gentlemen: Please send me complete information on the Hauserman Total Interior Concept, and Hauserman products and services.

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City _____ Zone _____ State _____

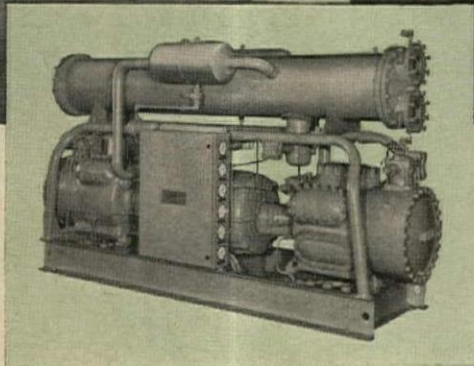
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St. Rita's Church,
West Allis, Wisconsin



Courtesy of The Milwaukee Journal

Air conditioned by a Vilter duplex 320 VMC condensing unit, St. Rita's church is 53 ft. high at its center. Its hyperbolic paraboloids are joined to four concrete buttresses, diagonally tied together at bottom to resist a thrust of 44 tons.



Vilter® is "going places"
... wherever modern construction
demands reliable air conditioning

Modern and efficient, Vilter air conditioning equipment readily fills the comfort cooling requirements of a wide variety of commercial and industrial buildings. Fully adaptable to contemporary design, Vilter's record of reliability assures low operating cost and virtually trouble-free operation. A recent installation is the Vilter duplex 320 VMC condensing unit which helps air condition St. Rita's Church, West Allis, Wis. This uniquely-designed church can accommodate 1,450 parishioners and features a quadruple, hyperbolic paraboloid thin shell roof, the largest installation of its type in the Midwest.

The condensing unit at St. Rita's incorporates two Refrigerant 22 open-type 320 VMC compressors (one four and the other a six cylinder unit, both direct connected to a single electric motor) and a 16" dia. x 9' long condenser. The compressors include a capacity reduction feature which enables them to closely match varying load conditions and thereby effect operating savings.

One of the more important features of the Vilter 320 VMC compressor is its unique piston design which results in quieter operation and longer life as the piston more positively "conforms" to design clearances at all time, regardless of operating temperatures. Other important features include freely interchangeable components and ease of access, both of which result in low service costs.

Vilter offers a full line of compressor units, condensing units and packaged water chillers incorporating the 320 VMC compressor. This equipment is available in capacities from 15-100 tons. Higher capacities can be achieved with duplex units or multiple-unit installations. Contact your nearest Vilter representative or dealer for complete details.

Ask for Bulletins Nos. 143 and 348.

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Architect — Mark F. Pfaller Associates Inc.
Consulting Engineer — Robert J. Miller Associates
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For more data, circle 127 on Inquiry Card

Office Literature

continued from page 195

PERFORATED METALS

"Stock List" illustrates in actual size and describes more than 80 industrial and decorative patterns of perforated metals. Stock includes steel and aluminum sheets, tin plate and brass rolls. *The Harrington & King Perforating Co., Inc., 5624 W. Fillmore St., Chicago, Ill., 60644**

CIRCLE 411 ON INQUIRY CARD

OFFICE FURNITURE

Design and structural features of the Columbia 8000 series of office furniture are presented in a new 16-page catalog. Model numbers, descriptions, dimensions and line drawings for every item are given in a specification summary. *Columbia/SPS, Standard Pressed Steel Company, Box 181, Jenkintown, Pa.*

CIRCLE 412 ON INQUIRY CARD

BRASS VALVES AND FITTINGS

A new combined 31-page catalog and price list covers the firm's complete line of valves and fittings for laboratories, tubs, sinks and laundries, as well as many other accessory products. The catalog is indexed into groups for ready reference. *Central Brass Manufacturing Co., 2950 E. 55th St., Cleveland 27, Ohio*

CIRCLE 413 ON INQUIRY CARD

METAL PRODUCTS

Lawrence metal products, which include railings and dividers, posts and ropes, turnstiles and gates, stair and bar rails, smoking receptacles, and exhibit booths, are shown in a catalog of 19 pages. *Lawrence Metal Products, Inc., 60 Prospect Ave., Lynbrook, N.Y.**

CIRCLE 414 ON INQUIRY CARD

FLUID APPLIED ROOFING

"Armstrong F/A Roofing," explains the roofing problems posed by free form construction and how Armstrong F/A Roofing, a cold-applied, elastomeric roofing system, is designed to satisfy these new structural and decorative requirements. *Armstrong Cork Company, Department PI, Lancaster, Pa.**

CIRCLE 415 ON INQUIRY CARD

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

more literature on page 228D



New see-through skin ~ from Monsanto

Hunt no more for the perfect daylighting panel. It's here — Lustra-Span* Vinyl Panels. They're tough. And give you far more design opportunities, at surprisingly low cost. Panels can bend around 90° corners or lengthwise on 100" radius. They require no maintenance. Non-combustible, non-corrosive.

*LUSTRA-SPAN TRADEMARK MONSANTO COMPANY



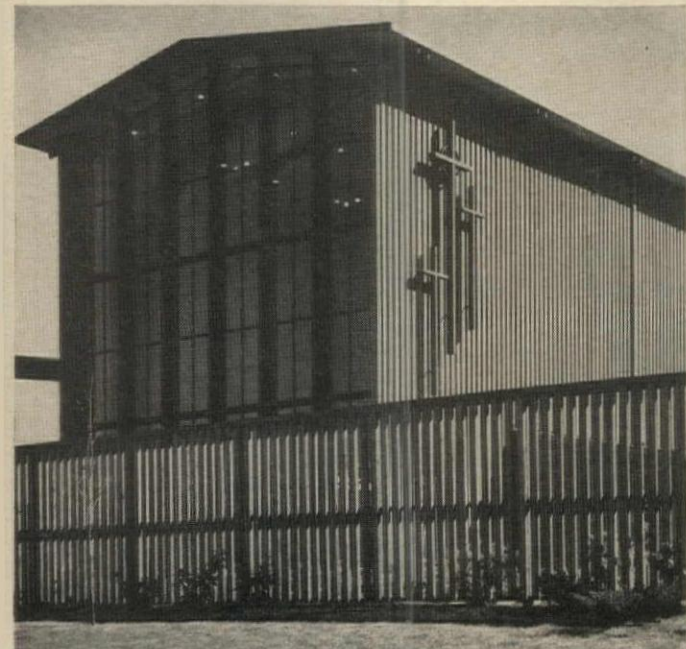
In corrugated or flat sheets, both a snap to install. Sound ideal? Lustra-Span Vinyl panels are — for skylighting and vertical glazing. For more data and installation guide, write: MONSANTO, Building Products, Department 804SG, 800 North Lindbergh Blvd., St. Louis, Missouri 63166.

For more data, circle 128 on Inquiry Card



The Calvary Lutheran Church, San Diego, features three species of wood in beautiful combination with a rough-hewn stone wall. Architect: Des Lauriers-Sigurdson, A.I.A., La Mesa, California.

For citadels of religious freedom
 design with the freedom of **WOOD**



Imposing, yet inviting, St. Michael's Lutheran Church, Portland, Oregon, displays the working-togetherness of wood and windows. Architect: Oliver W. Olson & Associates, A.I.A., Seattle, Wash.

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

Whatever their beliefs or budgets . . . congregations, lay leaders, and clergy respond warmly to places of worship planned with wood. When atmosphere is important, the use of wood is imperative. Wood's wonderfully wide versatility lets you design with the freedom that fulfills the demands of any set of circumstances, beautifully, enduringly.

Consider the acoustical qualities of wood; it keeps outside noise to a minimum . . . sets the mood for meditation. Consider the insulation qualities of wood . . . it comforts the congregation from outside heat or cold. Consider the inspirational qualities of wood . . . its many species, tones and textures show the wondrous hand of its Creator. And, consider wood's remarkable, rapid remodelability . . . it lets a church grow with its congregation. For more information on designing with the freedom of wood, write:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION

Wood Information Center, 1619 Massachusetts Ave., N.W., Washington, D.C. 20036

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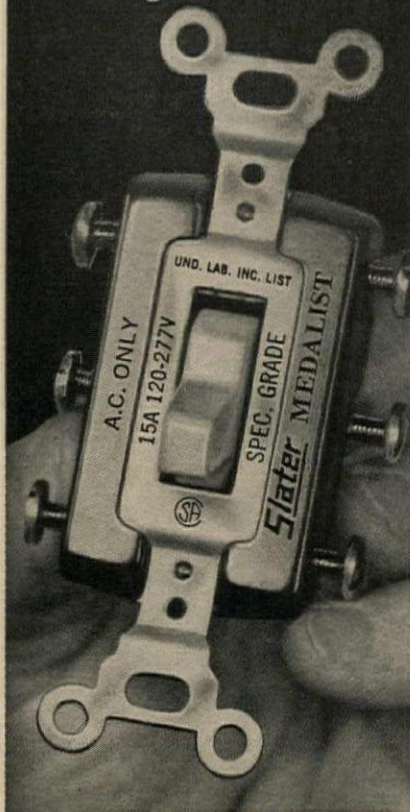
wood



In the Ladera Community Church, near Palo Alto, young and old alike find comfort and companionship amid the wonders of wood. Architects: Thompson and Peterson, Palo Alto, California.

For more data, circle 129 on Inquiry Card

The new
standard
of excellence
in
**SPECIFICATION
GRADE
HEAVY DUTY**
wiring devices



Illustrated: No. 752-IV-DPDT, center off

MEDALIST by SLATER

The only line manufactured for performance... not price. Every Medalist switch, receptacle and combination is triple inspected and backed by the strongest guarantee ever offered. For top quality industrial, heating and air conditioning jobs, only Medalist will do.

Write for specifiers catalog.



MEDALIST: A PRESTIGE PRODUCT LINE OF SLATER ELECTRIC, INC., GLEN COVE, N.Y.

For more data, circle 130 on Inquiry Card

Office Literature

continued from page 228

STEAM, HOT WATER VALVES

A new steam and hot or cold water specialties catalog, No. 164, contains specifications, pictures, and selection guides, for Hoffman's vent valves, traps, supply valves, strainers, float valves, zonal valves, pressure reducing valves and regulators, condensation and vacuum pumps. This new 24 page catalog also includes features, material construction, and cutaways. *Hoffman Specialty Mfg. Corp., Indianapolis, Ind., 46207.*

CIRCLE 416 ON INQUIRY CARD

HIGH-STRENGTH STEELS

The advantages of Bethlehem Steel Company's V steels-high-strength steel for construction and general purposes are described in "Booklet 1997." The booklet contains tables of products with yield point, psi; tensile strength, psi; mechanical and engineering properties; chemical composition; bend test requirements; welding practice; and other pertinent information. *Bethlehem Steel Company, Room 1020, Bethlehem, Pa.**

CIRCLE 417 ON INQUIRY CARD

CABLE TROUGH SYSTEM

The Cope cable trough system of steel or aluminum for the support of electrical power cables, control cables and instrument tubing, is fully described in 15 pages by means of charts, tables and engineering specifications. *Cope Division, Rome Cable Corp., Collegeville, Pa., 19426*

CIRCLE 418 ON INQUIRY CARD

AIR-CONDITIONING, HEATING ENCLOSURES

Individual, free standing, and wall-to-wall enclosures for air-conditioning and heating equipment are shown in photographs and in vertical and horizontal sections.

The company's full line of enclosures, which come in all contemporary metals and alloys, is described. Also included are their custom-built cabinets. *Enclosures by Consolidated, Inc., 19-10 Hazen St., Jackson Heights 70, Long Island, N.Y.*

CIRCLE 419 ON INQUIRY CARD

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

Not a New Issue

This advertisement is not an offer to sell or a solicitation of an offer to buy any of these Shares. The offering is made only by the Prospectus.

125,000 Shares

The Tremco Manufacturing Company

Common Stock

(\$1 Par Value)

Price \$12.50 per share

Copies of the Prospectus may be obtained from only such of the undersigned as may lawfully offer these Shares in this State.

McDonald & Company

Bache & Co.

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Paine, Webber, Jackson & Curtis

Ball, Burge & Kraus

Fulton, Reid & Co., Inc.

Hayden, Miller & Co.

Merrill, Turben & Co., Inc.

Prescott & Co.

Curtiss, House & Co.

Fahey, Clark & Co.

Saunders, Stiver & Co.

Will S. Halle & Co.

Joseph, Mellen & Miller, Inc.

Murch & Co., Inc.

J. N. Russell & Co., Inc.

April 14, 1964

For more data, circle 131 on Inquiry Card

Ageless... because it's stainless




Sperry-Rand Building, N.Y.C., managed by Rockefeller Center. Architects—Emery Roth & Sons. Consulting Architects—Harrison & Abramovitz. General Contractor—Uris Buildings Corp. Revolving Doors—International Steel Co.

A Stainless Steel door is beautiful, strong, corrosion-resistant, durable, easy to maintain, competitively priced.

No other material combines all the characteristics of nickel stainless steel. Its outstanding strength permits the use of thin members where desired, as in these revolving doors. Stainless steel has a subtle sheen that stays attractive for the life of the building with occasional detergent and water cleaning. Under normal conditions, it won't corrode, pit, tarnish or deteriorate. And since it's solid right through, there's no coating to scratch or discolor.

Why not specify the practical advantages and lifetime beauty of stainless steel for all your door and entrance designs. For helpful information and a list of door manufacturers, write for Inco's set of four "Architectural Guide Specifications for Stainless Steel Doors" covering revolving, swinging, sliding and rolling doors.

The International Nickel Company, Inc. 67 Wall Street 
New York 5, New York

For more data, circle 99 on Inquiry Card

Product Reports

continued from page 193

TRAVERTINE VINYL

Travertine Tapistron vinyl wall covering simulates travertine marble in characteristic colors and embossed fissures, corresponding to the surface of unpolished travertine. *United States Plywood Corp.*, 777 Third Ave., New York, N. Y.

CIRCLE 302 ON INQUIRY CARD

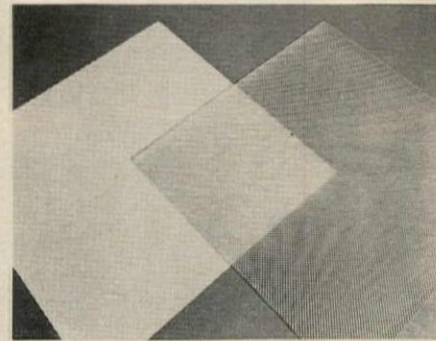
TRACK-TYPE DRAFTER

New design features incorporated into Glideline's *Model 72* tracktype drafter include: a spring-powered counterbalance reel; an extruded aluminum lower-roller housing which holds the vertical rail and vertical support rail in "true" position; and a horizontal-rail lock which is conveniently located for operation from a sitting position. *Glideline Corp.*, Waynesboro, Pa.

CIRCLE 303 ON INQUIRY CARD

LUMINOUS CEILING PANELS

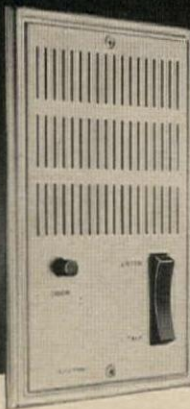
Two new luminous ceiling panels, *Flat White Mist* and *Clear Prismatic* are for use in the Armstrong Suspended Ceiling System. *Flat White Mist* is a milk-white translucent panel of modified acrylic, ideal for residential use and for over-all luminous ceilings. *Clear Prismatic* is a heavy duty 1/8-in.-thick panel featuring an attractive waffle-like texture. It is



especially suitable for installations where a minimum footage of luminous area will be provided in the ceiling. Both of these panels are available in the standard 24- by 48-in. or 24- by 24-in. sizes. Armstrong's original ribbed luminous panel has been discontinued. *Armstrong Cork Company*, Lancaster, Pa.

CIRCLE 304 ON INQUIRY CARD

New TALK-A-PHONE Apartment House Intercom

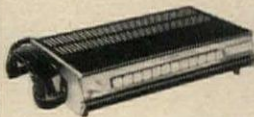


Provides instant and direct 2-way conversation between any Apartment and Vestibule . . . Greater Performance with these Exclusive Talk-A-Phone Features:

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

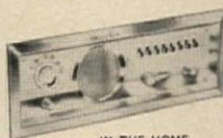
Distinctively styled. Quality Engineered. Built to withstand continuous use.

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



IN OFFICE AND INDUSTRY

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



IN THE HOME

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

Send for Free Catalogs . . .

Dept. AR-6

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

CONCEALED DOOR CLOSERS

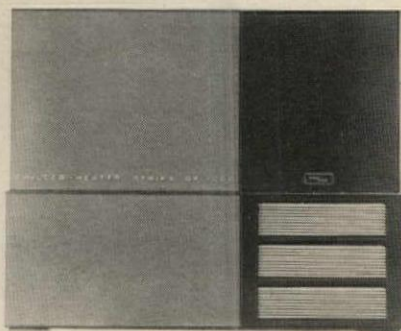
Completely concealed, center-pivoted door controls, known as *No. 70 Double Acting* and *No. 71 Single Acting* door closers, can be used in either wood or hollow metal doors without further need for external hinges or pivots. Self-centering and hold-open devices are integral parts of the closers. *Ellison Bronze Co., Inc.*, Jamestown, N.Y.

CIRCLE 306 ON INQUIRY CARD
more products on page 248

For more data, circle 116 on Inquiry Card



Race track heated and cooled by the same Arkla Gas Unit!



Race fans at Freehold Raceway in New Jersey will now have more than the excitement of the sport to keep them warm on brisk autumn days. And in summer they'll enjoy cool comfort. An Arkla Gas Air Conditioning System was installed with an outside thermostat that compensates at once for changes in weather. This absorption system needs no boiler, no compressor, no lubrication. And because it runs on Gas, fuel costs are low and maintenance minimal. Put a dime on a winner. Call your local Gas Company or write Arkla Air Conditioning Company, General Sales Office, 812 Main Street, Little Rock, Arkansas. AMERICAN GAS ASSOCIATION, INC.

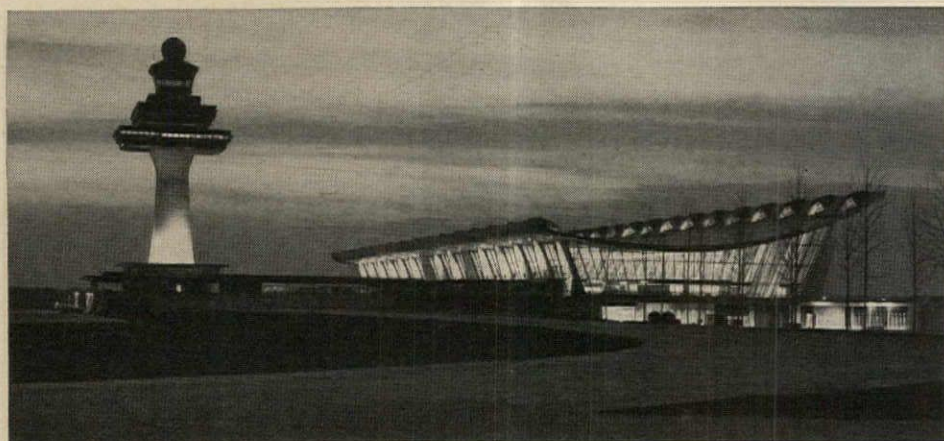
For cooling and heating... Gas is good business!



VISIT THE SPECTACULAR FESTIVAL OF GAS PAVILION AT THE NEW YORK WORLD'S FAIR 1964-1965

For more data, circle 122 on Inquiry Card

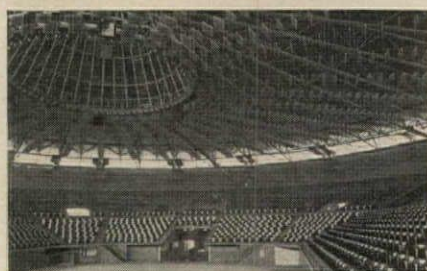
More suspended roofs than ever before. Why?



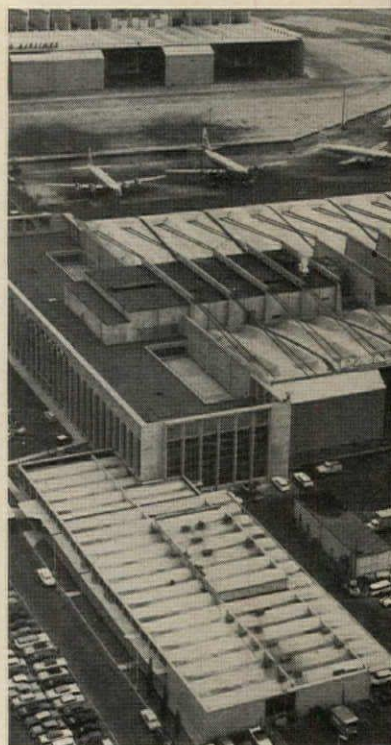
Dulles Terminal, near Washington, D. C.



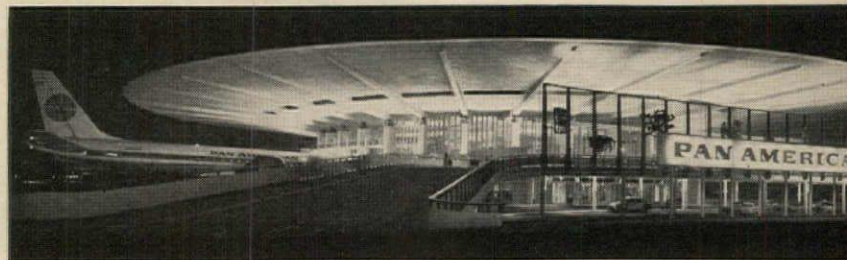
State Fair Arena, Raleigh, N. C.



*Western Kentucky State College
Arena, Bowling Green, Ky.*



Pan American Hangar, New York, N. Y.



Pan American Terminal, New York, N. Y.

A suspended-roof structure employs an interesting principle: "over wide areas the most economical steel span is a cable." (Utilizing normal allowable working stresses and a 10 per cent sag for a suspended cable, a 36-in. wide-flange beam can carry its own weight for about 220 ft, while a steel cable can carry its own weight for approximately 3.3 miles!) This is one reason why more and more architects and engineers are designing cable-roof structures.

Suspended roofs do the "impossible"

The major advantage of the cable-roof principle is that it permits economical column-free construction over longer spans than are allowed by other structural methods.

Suspended roofs reduce costs

By lowering stresses on superstructure, supporting elements, and foundation, suspended roofs permit the use of fewer and lighter materials. The chief reason is that steel strand for cable roofs is much lighter than the conventional-roof elements it replaces. The decreased weight obviously reduces load.

U.S. Designers started it all

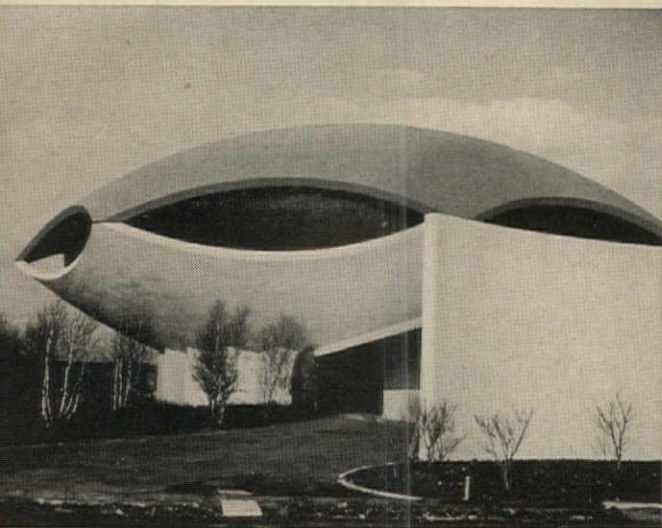
It all began in the early 1950's with the construction of the State Fair Arena, Raleigh, N. C. Scores of suspended-roof structures then started springing up in Europe and Asia, as well as in other portions of this hemisphere. They seemed to be inspired by the Raleigh Arena... now considered a classic. And in the U. S., each year has brought an increasing number of structures with cable-supported roofs either going up or on the drawing boards.

We have design help for you

Shown on these pages are a number of suspended-roof buildings for which Bethlehem supplied the steel cables and some of the engineering data. If you'd like information on cable-roof structures, just get in touch with us. For copies of our booklets on the subject, just mail the coupon. Bethlehem Steel Company, Bethlehem, Pa. Export Sales: Bethlehem Steel Export Corporation



Steel for Strength



Travelers Insurance Pavilion, 1964-5 New York World's Fair



Raytheon Mfg. Co. Building, Bedford, Mass.



TWA Hangar, Philadelphia, Pa.



Villita Assembly Building, San Antonio, Texas



Cyclorama Building, Gettysburg, Pa.

Advertising Department, Room 1049A
 Bethlehem Steel Company
 Bethlehem, Pa. 18016

Please send me "Wire Rope for Structural Uses," No. 593.
 Please send me "Specifications and Standards," No. 1902.

Name _____
 Position _____
 Firm _____
 Street _____
 City _____ State _____ Zip _____

BETHLEHEM STEEL



Product Reports

continued from page 244

MERCURY LAMP BALLAST

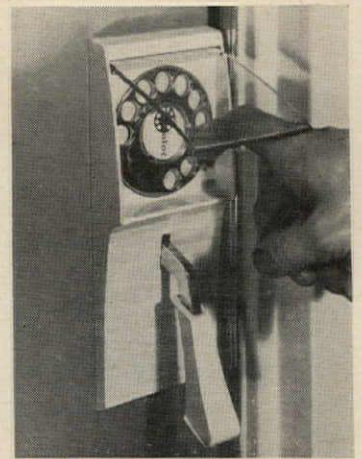
A new type of 100-watt mercury lamp ballast makes it possible to quickly and economically convert outdoor home fixtures from incandescent to mercury lighting. The ballast, which has an outside diameter of 2½ in., can be mounted inside the supporting pipe of a standard post-

top fixture, thus requiring a minimum of wire changes. *Sylvania Electric Products, Inc., Ipswich, Mass.*

CIRCLE 307 ON INQUIRY CARD

DIAL DOOR LOCK

Dialoc, an innovation in door locks, is opened by dialing the correct sequence of four numerals. It is relocked from the outside by pressing the outside handle, or from the inside by turning the inside handle counter-clockwise. The clear plastic



hinged cover, which protects the actuating dial from the weather, raises and holds at a fully open position.

Dialoc incorporates a dead-bolt feature that prevents forced entry through use of knife blades. In addition, the combination of numerals can easily be changed whenever desired. The lock will fit any standard 1⅜- or 1¾-in. door. *Dialoc Corporation of America, 3120-46th Ave. North, St. Petersburg, Fla., 33714*

CIRCLE 308 ON INQUIRY CARD



These outdoor-indoor fabrics don't fade

Guaranteed 5 years not to!

This could be a color ad of our fabric as parabola, fence, chair covers, blinds and canopy. But there are 25 Sunbrella® colors and patterns available, so we'd rather you used your imagination. Woven of 100% Acrilan* acrylic fiber, tests prove Sunbrella astounding. Plus colorfastness, it's mildew and rot proof. Retains its strength. Excellent porosity. Lightweight. Same color underneath as on top. Leave it up safely year 'round. Soft, non-glare finish. Increases efficiency of air-conditioning equipment up to 75%! Write for Sunbrella information and free new design idea booklet. Glen Raven Mills, Inc., Glen Raven, North Carolina. *Reg. T.M. of Chemstrand



For more data, circle 137 on Inquiry Card

MODULAR SHOWER SYSTEM

Wade's new modular shower system consists of three stainless steel, wall-mounted components: shower heads, soap dispensers and water control valves. Shower room layouts are flexible to accommodate small, intermediate and large school needs. The tear-shaped shower head has a single orifice which provides a variety of sprays, from a steady stream of water to a fine mist, with discharge set at 30 degrees from vertical. Head uses 2.6 gal per minute at 50 lbs per sq in. static pressure. *Wade, Inc., 2021 N. 25th Ave., Franklin Park, Ill.*

CIRCLE 309 ON INQUIRY CARD

VENTILATING TILE

A new line of ventilating ceiling products known as Armstrong V-1 Ventilating Lay-in Units has been designed for installations where it is necessary to have different air flow rates through a ceiling served by a common plenum.

The new products are identical to Armstrong's standard ventilating lay-in units, except that they are manufactured with a higher air-flow resistance so that they deliver significantly less air to the conditioned space below.

more products on page 254



In this unusual bath, a single 5-foot-wide Marlite Mural covers the tub wall from corner to corner.

Only Marlite paneling offers your clients such a wide choice of colors and patterns

No matter how imaginative your client's decorating tastes may be, you'll find a beautiful Marlite color and pattern to please him. All are styled by Faber Birren, authority on color trends and preferences.

With Marlite paneling, you can choose an authentic Trendwood® reproduction, a distinctive decorator pattern, a subtle solid color . . . or one of the new Marlite Murals. These new 5-foot-wide mural panels are crafted in gold on a white background. Nine designs in all, they were created by outstanding artists to add a dramatic

new dimension to any room.

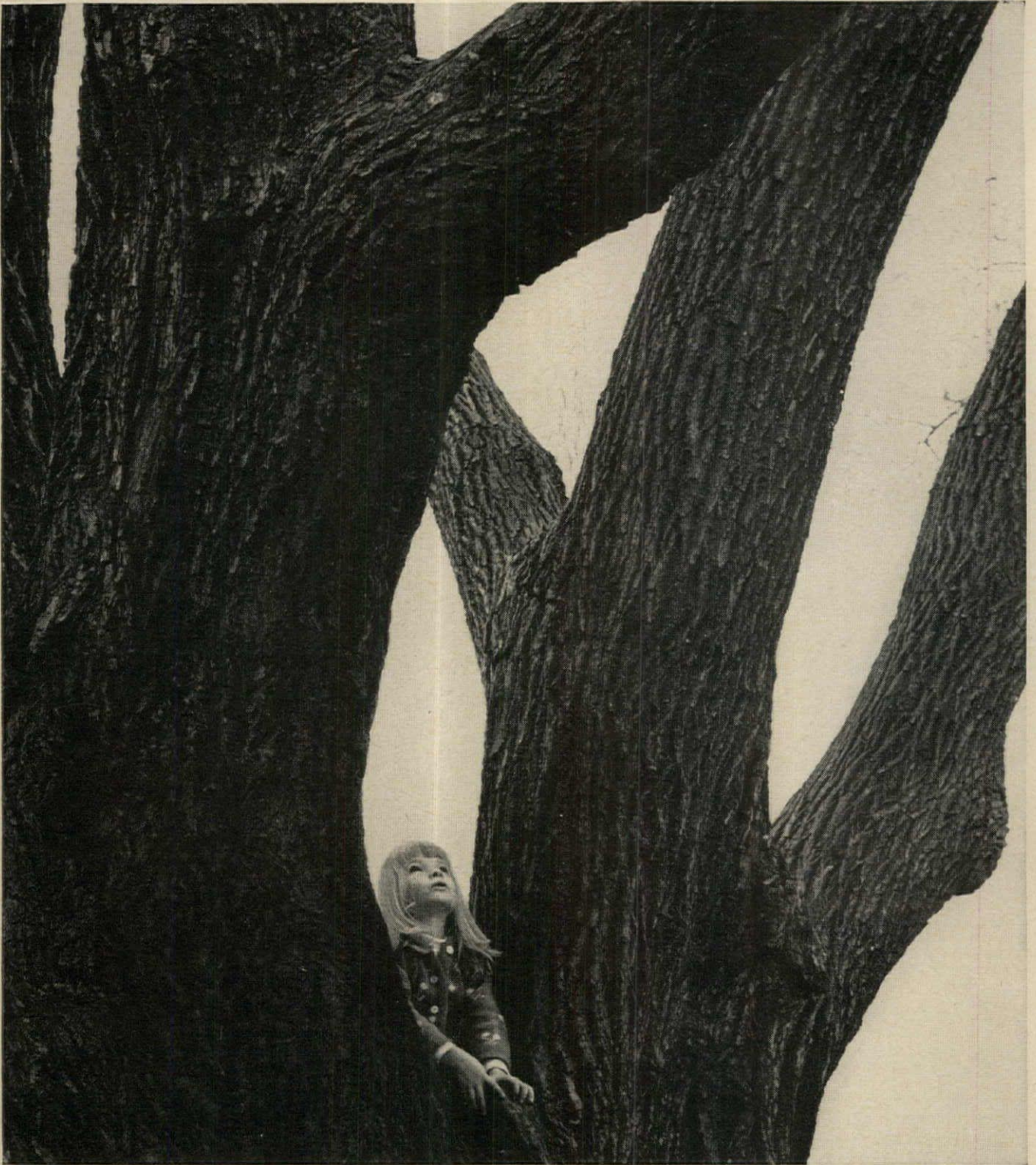
And every Marlite panel has an exclusive soilproof plastic finish that resists heat, moisture, stains and dents. It goes up over old or new walls; never needs refinishing; stays like new for years with an occasional damp cloth wiping.

For complete information on new Marlite Murals and other Marlite paneling, see your building materials dealer, consult Sweet's Files, or write Marlite Division of Masonite Corporation, Dept. 605, Dover, Ohio.

Marlite®
plastic-finished paneling

ANOTHER QUALITY PRODUCT OF MASONITE® RESEARCH

MARLITE BRANCH OFFICES AND WAREHOUSES: 204 Permalume Place N.W., Atlanta 18, Georgia • 18 Moulton Street, Cambridge 38, Mass. • 4545 James Place, Melrose Park, Illinois (Chicago) • 8908 Chancellor Row, Dallas 7, Texas • 1657 Powell Street, Emeryville, California (Oakland) • 3050 Leonis Blvd., Los Angeles 58, California • 39 Windsor Avenue, Mineola, L. I. (New York) • 2440 Sixth Avenue So., Seattle 4, Washington



Tomorrow, scientists may discover the cause of leukemia. But today we need your help.

The American Cancer Society is devoting more research money to leukemia than to any other form of cancer. Many different possibilities are being explored—viruses, anticancer drugs, early diagnosis, immunology, bone marrow transplantation.

Progress is being made. Lives are prolonged by many months, sometimes by years, with drugs and other therapy. The course of leukemia has been slowed and even

temporarily halted by chemicals and blood transfusions.

And today there is *hope*. Many research scientists believe that the next major breakthrough may be against leukemia. But much more could and should be done—now. This will take money—lots of money.

Your dollars will help speed the day of victory. Please give generously. Mail your check to **CANCER**, c/o your local post office.



AMERICAN CANCER SOCIETY

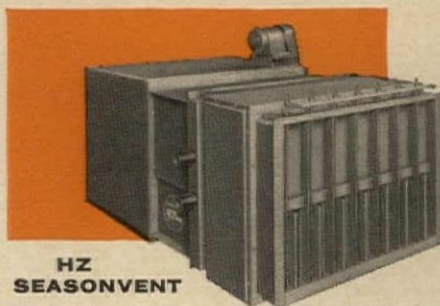
For more data, circle 140 on Inquiry Card ➤

How well can McQuay Seasonvents handle your Heating-Ventilating requirements?

....THIS CATALOG
IS THE BEST WAY
TO
FIND OUT!

SEND FOR IT . . . and you'll receive what many contractors, engineers and architects say is the industry's most complete catalog on selection, sizing and information display. The Seasonvent catalog covers McQuay's five basic models in 65 sizes from 720 to 57,150 cfm for ceiling, floor or wall application. Steam, hot water, high temperature hot water and electric coils are all readily available. The Type HZ Multi-Zone Seasonvent, shown here, for example, has been specifically designed to meet today's demand for individual zone control from a central station heating and ventilating unit.

Available in 11 sizes for horizontal floor or ceiling mounting—1,710 to 57,150 cfm. Full line of accessories are offered. Your McQuay representative has a Seasonvent catalog #345 for you and a strong desire to be of service to you. Or, write directly to: McQuay, Inc., 1600 Broadway N.E., Minneapolis, Minnesota 55413.



HZ
SEASONVENT

LOOK TO THE LEADER

HEATING • VENTILATING
AIR CONDITIONING • REFRIGERATION



McQuay INC.
MEANS QUALITY

1600 Broadway N.E.
Minneapolis, Minnesota 55413

MANUFACTURING PLANTS AT FARIBAULT, MINNESOTA • GRENADA, MISSISSIPPI • VISALIA, CALIFORNIA

For more data, circle 142 on Inquiry Card

Product Reports

continued from page 248

Because of the higher plenum pressures resulting from the use of V-1 Panels, the new products are used for installations where there is insufficient plenum clearance to accommodate standard ventilating ceiling products.

V-1 Panels are available in 2- by 2-ft and 2- by 4-ft *Fire Guard* and

Minaboard lay-in units. *Armstrong Cork Company, Lancaster, Pa.*

CIRCLE 310 ON INQUIRY CARD

COMMERCIAL FIBERGLASS DOOR

Translucent fiber glass upward-acting doors for industrial commercial buildings have been designed for openings up to 24 ft wide and 16 ft high. The *Overhead Door* fiber glass and aluminum sectional doors create a wall of light and at the same time

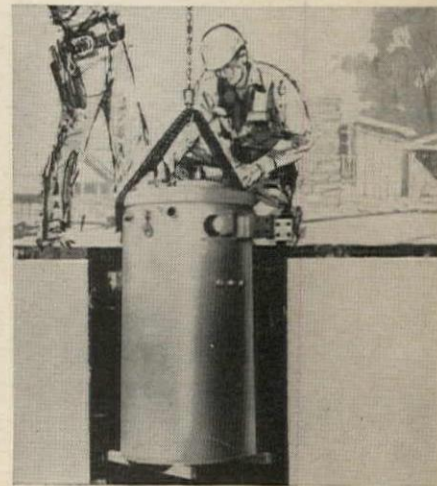
provide security.

Weighing one-third as much as a wood door, the new translucent door is constructed of ribbed fiber glass panels in three colors and framed with specially designed extruded aluminum rails and end stiles. *Overhead Door Corp., Hartford City, Ind.*

CIRCLE 311 ON INQUIRY CARD

UNDERGROUND TRANSFORMER

The first distribution transformer in the electrical industry designed for completely underground installation in residential neighborhoods has been introduced by G.E. Previously, transformers available for residential use have been installed on concrete pads above ground, encased in the base of light poles or mounted overhead on utility poles.



The new residential *Subway* transformer is easily accessible for line servicing via a vault grating. The entire surface of the unit is covered with a tough epoxy-based finish. The transformer is offered in ratings from 25 through 75 kva, 15 kv class and below, 240/120 volt secondary (grounded neutral), either with or without taps. *General Electric, Schenectady 5, N.Y.*

CIRCLE 312 ON INQUIRY CARD

WHITEPRINTER-DEVELOPER

A combination whiteprinter and developer gives dry diazo copies of sheets up to 42 in. wide. The exclusive *Diazolux* lamp is longer, has a larger diameter and higher output than other lamps, resulting in increased printing speed with one lamp simplicity the company reports. Designed to be hung on the wall or used on a table the unit measures 60 by 12¾ in. *Rotolite Sales Corp., Stirling, N.J.*

CIRCLE 313 ON INQUIRY CARD
more products on page 25

ZERO meets all your needs for

- WEATHER STRIPPING
- SOUND-PROOFING
- LIGHT-PROOFING



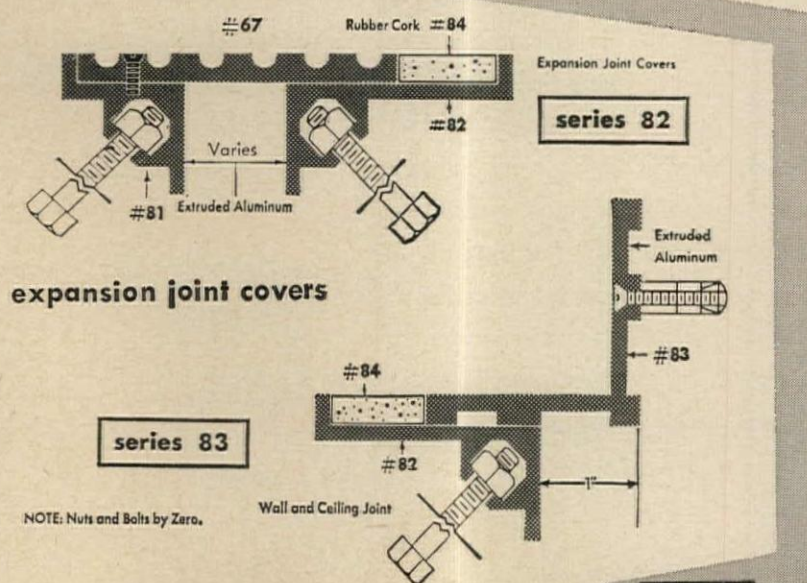
Write for ZERO'S new catalog today.

Contains full size details, 168 drawings of weatherstripping and related products, for

- doors
- sliding doors
- saddles
- windows
- expansion joints

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

our 40th year



ZERO WEATHER STRIPPING CO., INC.

415 Concord Avenue, Bronx 55, New York • (212) LUdlow 5-3230



For more data, circle 143 on Inquiry Card



THIS BOOK HAS SAVED COUNTLESS HOURS

of Costly Designers' Time...

Behind this *36-page manual from the Steel Joist Institute is more than 30 years of research, testing, design, application and standardization of open web steel joists.

From 36,000 psi **J** and **LA** (longspan) series to new 50,000 psi high strength **H** and **LH** (longspan) series... the designer will find everything he needs for fast, accurate specification of open web steel joists for every category of today's building needs.

Steel joists are better and more versatile than ever, thanks to the standardization leadership of the Steel Joist Institute. This handy reference manual shows you how to use these versatile structural members to best advantage. Send for your free copy today.

**Load and Spacing Tables may also be obtained by writing to the Institute.*

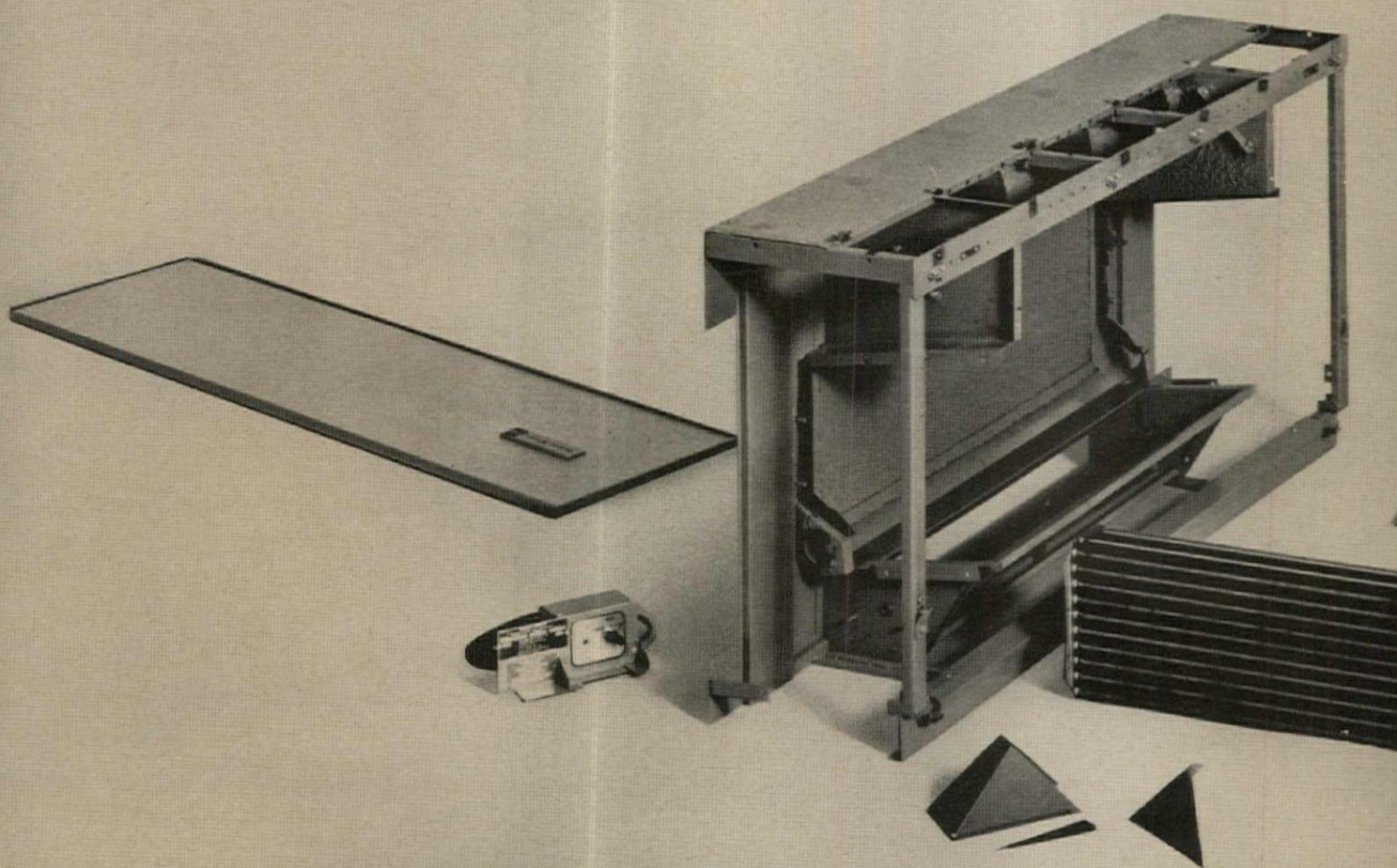


STEEL JOIST INSTITUTE

DuPont Circle Bldg.
Washington, D. C. 20036

For more data, circle 144 on Inquiry Card

Everything in sight is



Herman Nelson classroom unit ventilator

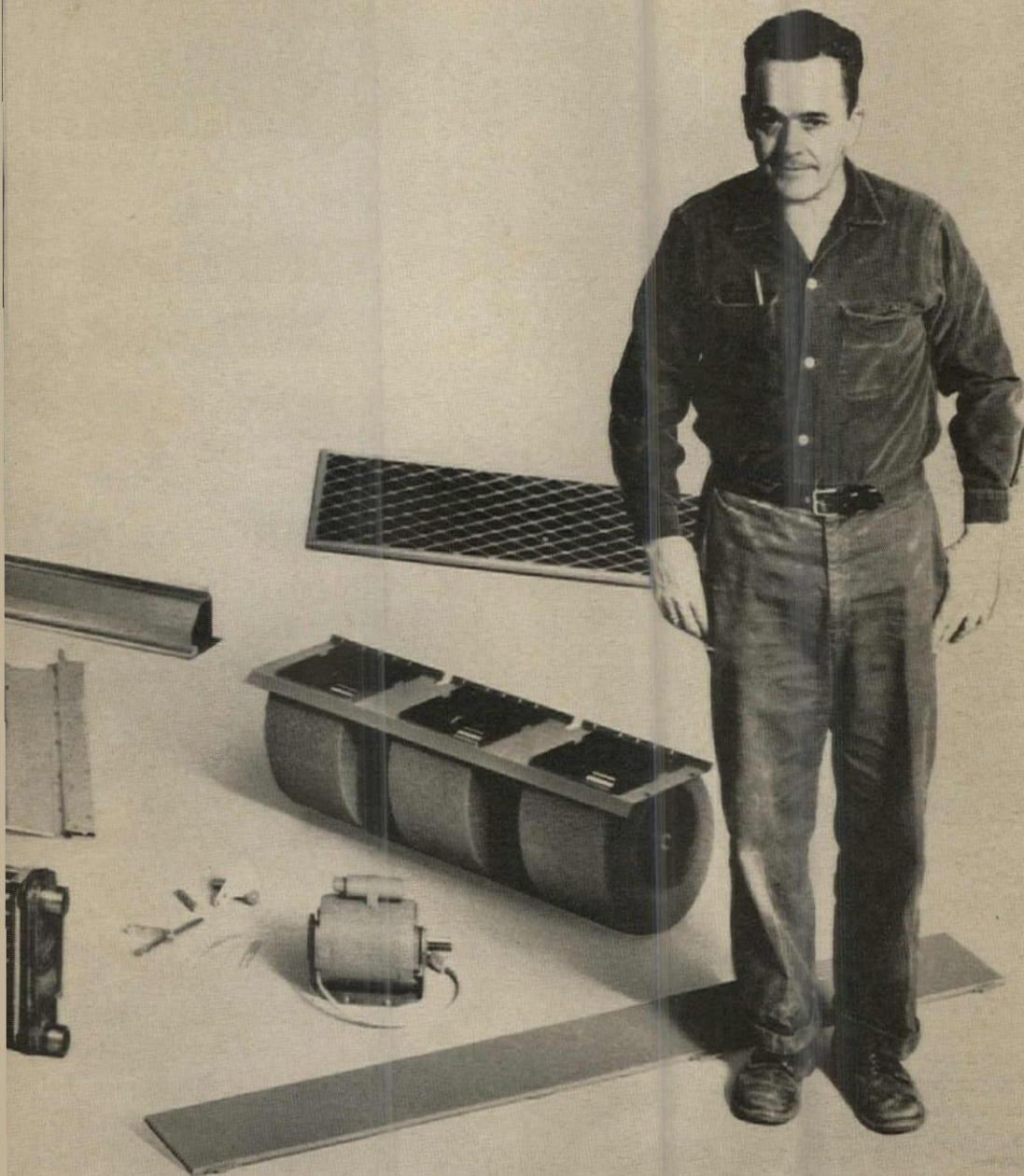
TO TALK about quality is one thing; to *demonstrate* it is another. Herman Nelson not only warrants all unit ventilator parts for five full years but also the *labor* involved in repair!

It's a real, bona fide, nationally published, five-year warranty. In 162 simple words it provides you with the full protection your school should have.

After all, the bricks in your new school are *real*. The mortar is *real*. The unit ventilator equipment is *real*. *The money that pays for it all is real*. Doesn't it make good sense to protect that equipment with a *real* warranty?

Read the Herman Nelson warranty
Write for a copy of the Herman Nelson warranty

warranted for five years



warranty covers both parts and labor

(clearly marked "specimen only"). Compare its simple provisions with all the vague assurances you've ever heard.

Write School Products Department, American Air Filter Company, Inc., 215 Central Avenue, Louisville, Kentucky.

Do it now, while you're thinking of it.

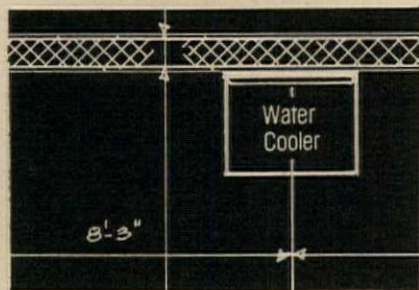


Herman Nelson 
SCHOOL PRODUCTS DEPARTMENT

For more data, circle 145 on Inquiry Card



Westinghouse Wall Line Water Coolers... fit your plans



(and take 26% less space at that)

Compact design projects only 12" from wall . . . takes 26% less space. No exposed plumbing or dirt-catching space behind cooler. Easier and less expensive to install, too, because slip fitting eliminates pipe threading and soldering. Available in 6- to 20-gallon capacities plus "on-the-wall" models in 8-, 11-, and 15-gallon capacities. Full 5-year warranty on all functional parts as well as refrigeration system. Check the Yellow Pages for your local distributor or send in the coupon below.

You can be
sure if it's
Westinghouse



Westinghouse Electric Corporation
Water Cooler Department
Columbus 16, Ohio

Please send me details on Westinghouse Water Coolers.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

For more data, circle 146 on Inquiry Card

Product Reports

continued from page 254

COMBINATION DRAFTING TABLE AND PRINT FILE

Planfile drafting table, a new combination drafting table and vertical print file, holds the equivalent of 16



flat file drawers yet occupies the same amount of floor space as a standard drafting table. The all-steel unit stands 35½ in. high, 43 in. wide and 31 in. deep. The top, adjustable to any position from horizontal to vertical, is a 43- by 31-in. drafting board. On the right hand side is a convenience drawer for instruments, pencils, etc. Art Metal, Inc., Jamestown, N.Y.

CIRCLE 314 ON INQUIRY CARD

CAST STONE LAMPS

Four sculptured lamp designs of cast stone give evenly diffused, indirect light.

The *Asteroid* (shown) is an adjustable lamp for low table or floor. The two inner shells rotate freely around a vertical axis, allowing changes in direction and amount of light desired. The height of the unit

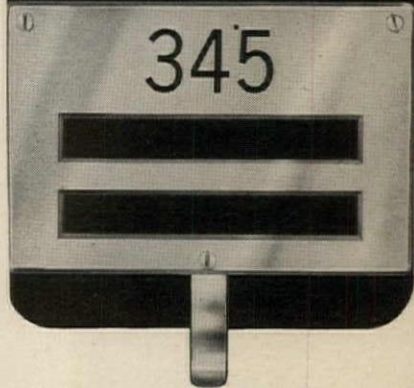


is 14 in. and its maximum diameter is 16½ in. The base is of oiled walnut, teak or polished aluminum. Sculptural Lighting Inc., 2575 Palisade Ave., Riverdale, N.Y., 10463

CIRCLE 315 ON INQUIRY CARD

more products on page 262


NEW! MOLDED PLASTIC COMBINATION PLATE



BY BROOKLINE

1. Displays room number
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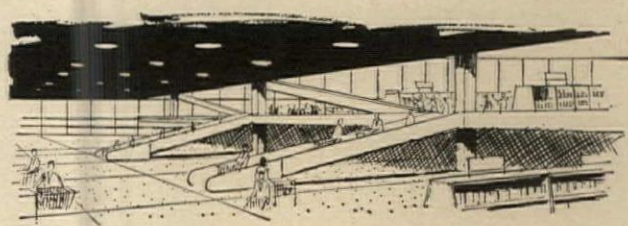
able platform under all conditions. Turnbull Elevator Pedesta-Ride® is the ultimate in continuous transportation — regardless of traffic peaks — for shopping centres, parking facilities, exhibitions, transportation terminals and countless other uses.

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Building at this year's World's Fair. In fact, whenever you want to move people from one place to another, investigate the advantage of Pedesta-Ride. For information write to...

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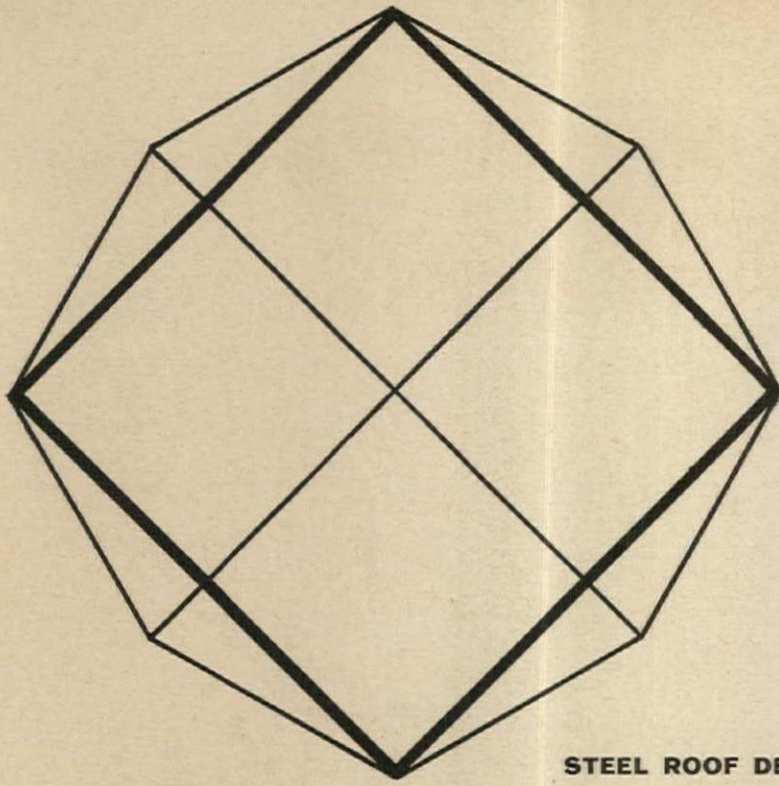


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- Dumbwaiters
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- Moving Walkways
- Power Scaffolds



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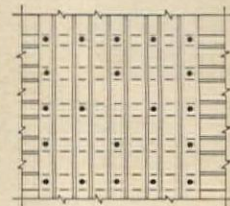
STEEL ROOF DECK FORMS HYPERBOLIC PARABOLOID



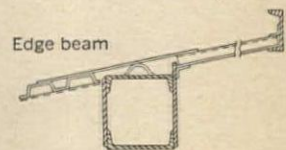
The owners of Frisch's Restaurant, Cincinnati, wanted a striking structure, a square open floor plan, and moderate cost. These requirements were fully satisfied with an economical thin-shell hyperbolic paraboloid roof of steel deck. Here's how it was done: two layers of steel deck were placed at right angles to each other and welded together to form a hyperbolic paraboloid quadrant. The roof structure consists of four quadrants, each 33'6" square having a common column in the center and four corner buttresses. Each paraboloid has a tapered overhang with a maximum cantilever of 9'6" at the peaks. The design load analysis considered the basic square quadrant acting alone and computed the overhang as a simple beam between the edge beam and the fascia beam. The dead load was 22 psf and the live load 25 psf. Design of

the decking followed the AISI Manual on Design of Light Gage Formed Steel. The cost of the completed roof structure, deck, insulation and built-up marble chip roofing was slightly over \$3 per square foot. Similar structures in steel have since been built for about \$2 per square foot. For more information on the USS Family of Steels for design, write United States Steel, Room 7285, 525 William Penn Place, Pittsburgh, Pa. 15230. USS is a registered trademark.

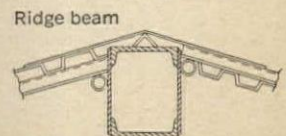
PHOTO: Frisch's Restaurant, Cincinnati, Ohio
 Architects: Woodie Garber & Associates, Cincinnati, Ohio
 Structural Engineers: Hanley and Young (now Truman P. Young & Associates), Cincinnati, Ohio
 General Contractor: William Guentter & Son, Inc., Cincinnati, Ohio
 Roof Deck Contractor: Imbus Roofing Company, Cincinnati, Ohio
 Structural Steel Fabricator: George Rehm Company, Inc., Cincinnati, Ohio
 Roof Deck: H. H. Robertson Company, Pittsburgh, Pa.



Weld pattern for decking, 18 gage lower layer, 20 gage upper layer of 1 1/2" steel decking, plug welded at each intersection.



Edge beam

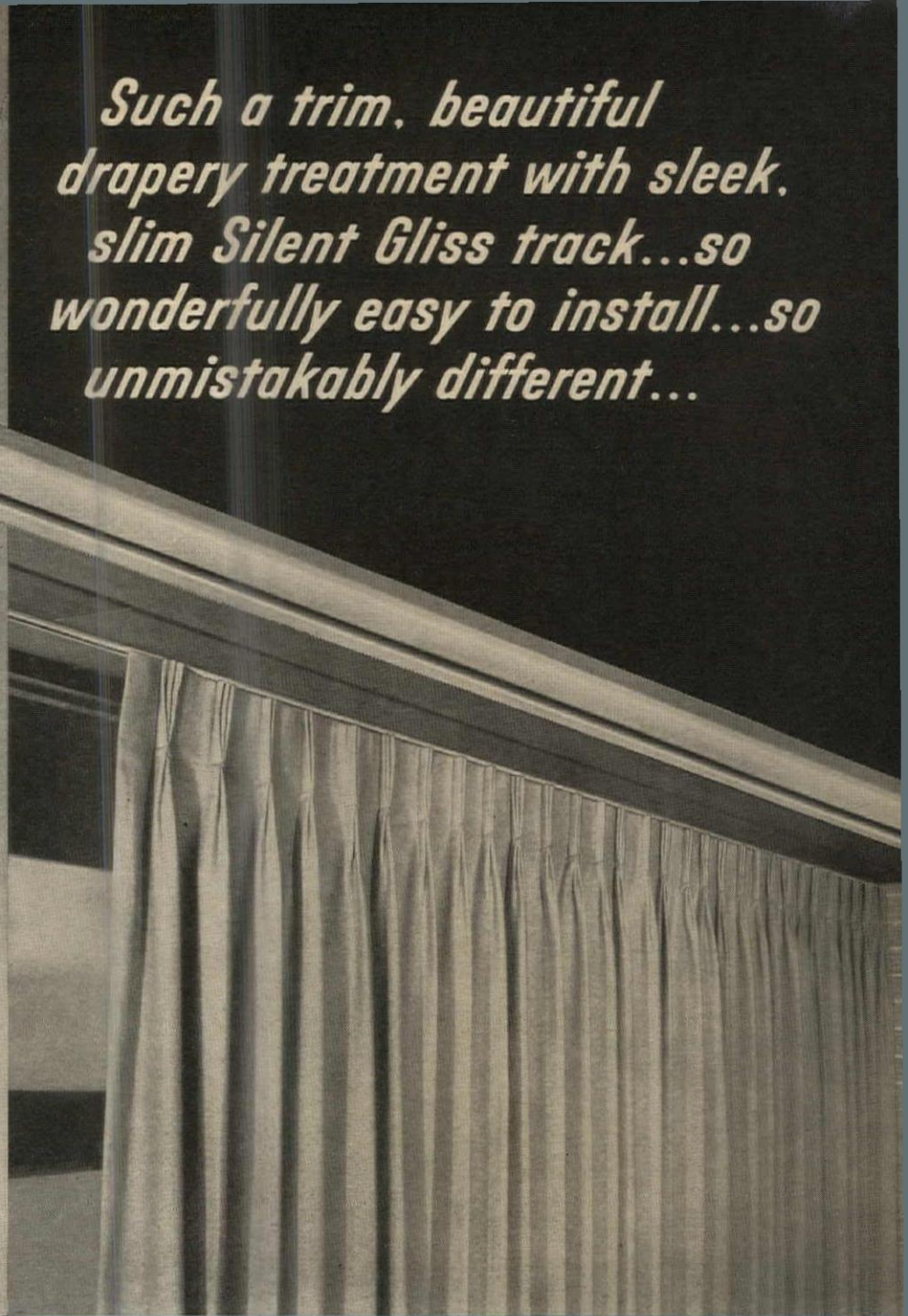
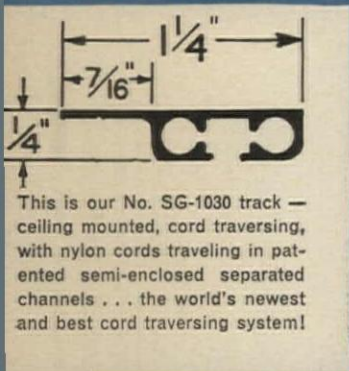


Ridge beam

Edge members and ridge members were made of channels and plates to form box sections. The decking was connected at the beams by welding to pipe sections and angles which formed easy-to-weld seats.

For more data, circle 149 on Inquiry Card

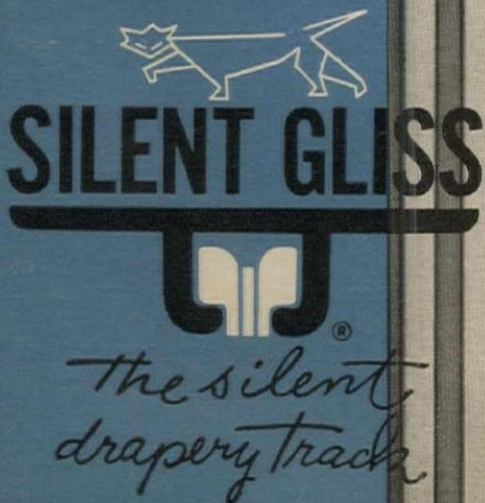
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drapery treatment with sleek,
slim Silent Gliss track...so
wonderfully easy to install...so
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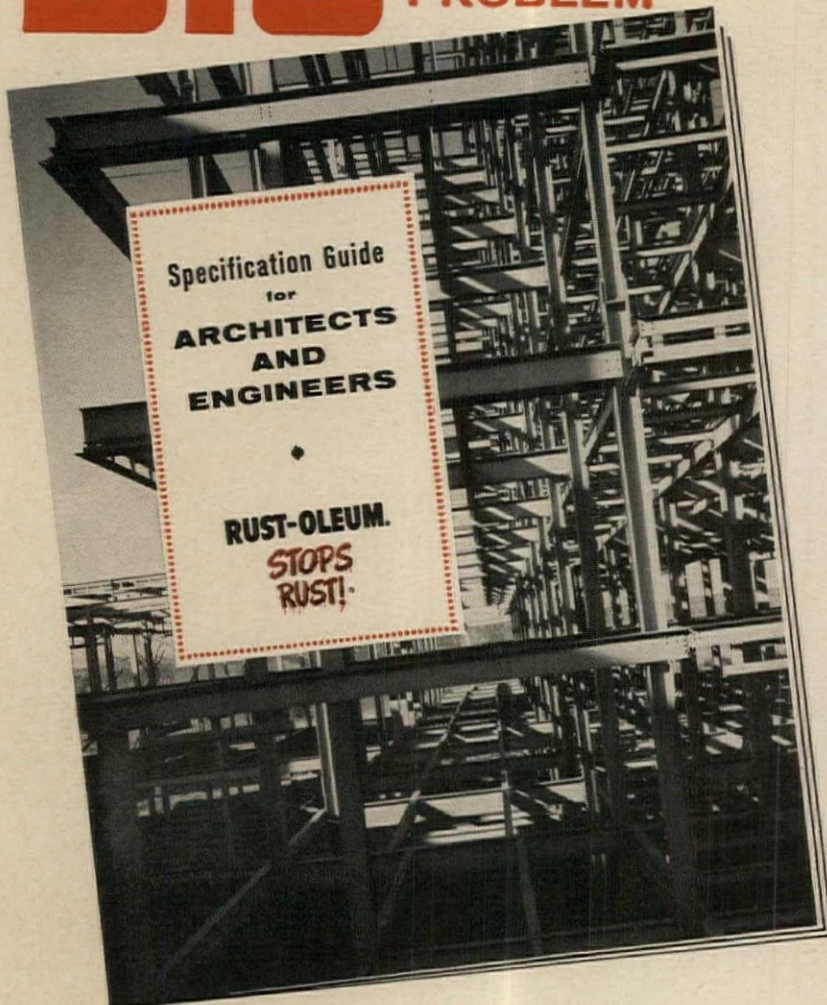
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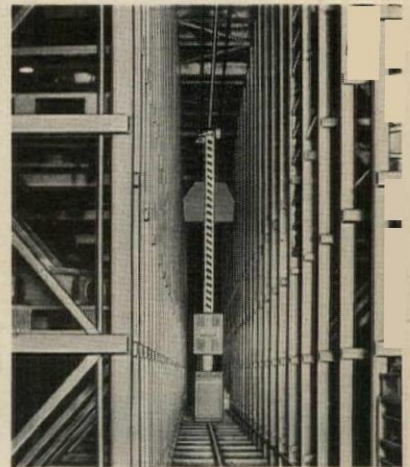
For more data, circle 151 on Inquiry Card

Product Reports

continued from page 258

AUTOMATED CRANE CONTROL STORAGE SYSTEM

Automated Crane Control Storage System is a warehousing system for handling unitized loads. The system consists of two rows of storage racks with a traveling stacker operating in the aisle between. An advanced control concept, employing solid-state components, permits simultaneous horizontal and vertical movement on the carriage and stacker. The unit is programmed by an operator at the end of the aisle.



Loads may be stacked up to 45 ft high, and aisles may be kept as narrow as the width of the load plus 4 in. Called *ACCESS*, the system employs magnetic sensing for accurate load positioning. The load is carried on cantilevered forks which operate in relation to the racks rather than on them. As a result of these two features, there is no contact between the stacker and the racks. *Hartman Engineering, Division of Hartman Metal Fabricators, Inc., Waterloo, N.Y., 13165*

CIRCLE 316 ON INQUIRY CARD

FLUORESCENT AIR-HANDLING TROFFER

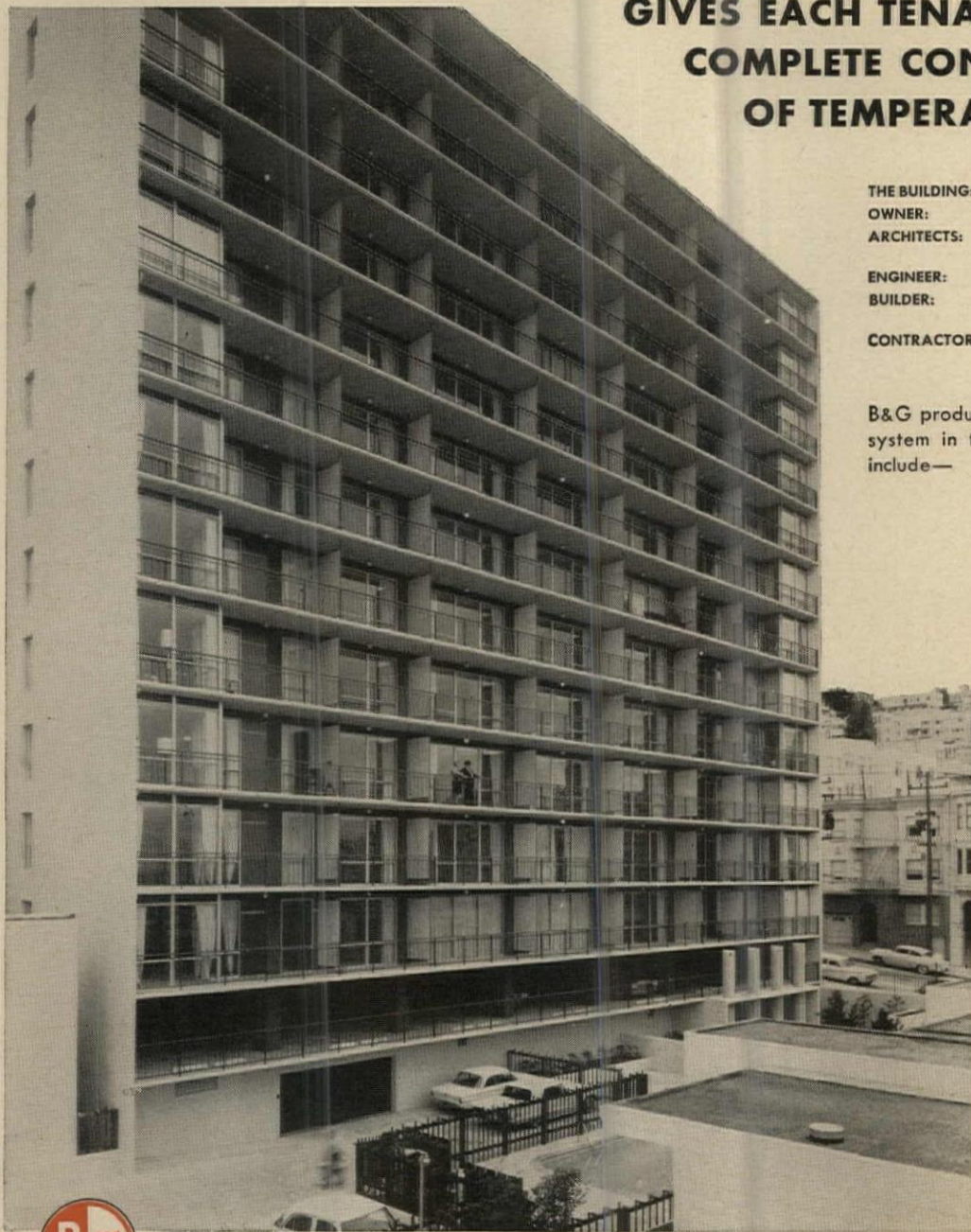
A new line of flange and lay-in style fluorescent air-handling troffers are available in all standard sizes. Usable in both individual and continuous row installations, they are designed to operate in conjunction with Lighting Products' *Titus* air diffusers. The troffers offer light-tight construction. *Lighting Products Inc., Highland Park, Ill., 60036*

CIRCLE 317 ON INQUIRY CARD

more products on page 268

B&G *Hydro-Flo* PRIMARY-SECONDARY PUMPING

GIVES EACH TENANT COMPLETE CONTROL OF TEMPERATURE

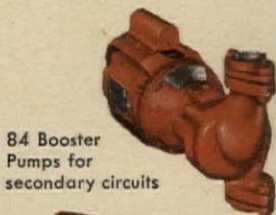


THE BUILDING: Crystal Tower, San Francisco, Cal.
OWNER: Crystal Court Apartments, Inc.
ARCHITECTS: Schram & White, A.I.A.,
San Francisco, Cal.
ENGINEER: D. Coddington, San Francisco, Cal.
BUILDER: Peter Kiewit & Sons Co.,
San Francisco, Cal.
CONTRACTOR: Mitchell Plumbing & Heating,
San Francisco, Cal.

B&G products used in the hot water heating system in this modern apartment building include—



1 Universal Pump
for primary main



84 Booster
Pumps for
secondary circuits



1 Series 1522 Pump and
3 all-bronze Boosters
for domestic hot water



1 Series 1531 Pump
for pressure boosting



84 Flo-Control
Valves

324 Monoflo
Fittings



In this apartment building, the problem of providing comfort for *all* tenants is solved with a B&G *Hydro-Flo Primary-Secondary* pumping system. This method of zone control, as developed by B&G engineers, is proving the ideal

way to provide automatic, balanced temperature control in multi-unit buildings. In the Crystal Tower, each apartment is on a separate zone, with its temperature individually controlled by a B&G circulating pump.

Zoning with pumps offers many exclusive advantages. Pumps do not require complex adjustments and assure positive control of circulation in secondary zones, even with high head pumps in the primary circuit. By designing the system with higher temperature drops, a substantial reduction in pump sizes and power requirements can be made.

For Primary-Secondary Pumping Design Data, write I.T.T. Bell & Gossett Inc., Morton Grove, Illinois, Dept. IB-32.

I.T.T.

BELL & GOSSETT INC.

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NOW: architectural panels surfaced with Du Pont TEDLAR®

A finish of TEDLAR* PVF film was specified for these architectural building panels. Typical of the increasing number of building products available with TEDLAR, these "Shadowall"† panels by Elwin G. Smith Co. offer the architect flexibility in design and practical application. They look good, go up fast, cost relatively little and combine inner and outer walls and insulation in each modular unit.

More and more architects are specifying TEDLAR on siding and roofing. This film finish is available on standard building products as well as on building panels and accent panels produced by custom fabricators to the architect's original design.

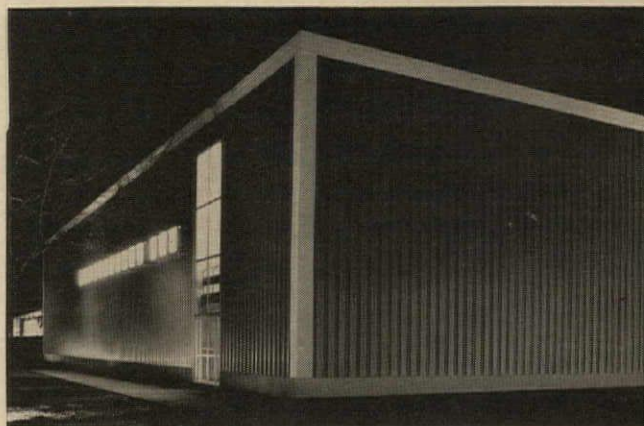
Find out more about TEDLAR. Write
Du Pont Film Dept., Box 602-A,
Wilmington, Delaware 19898.

Channellock Inc., Meadville, Pa.
Architects-Engineers:
Lauren & Lenn Reagle, Meadville, Pa.
General Contractor:
Associated Contractors of Conneaut Lake, Pa.

*Du Pont registered trademark.
†Elwin G. Smith Co. registered trademark.

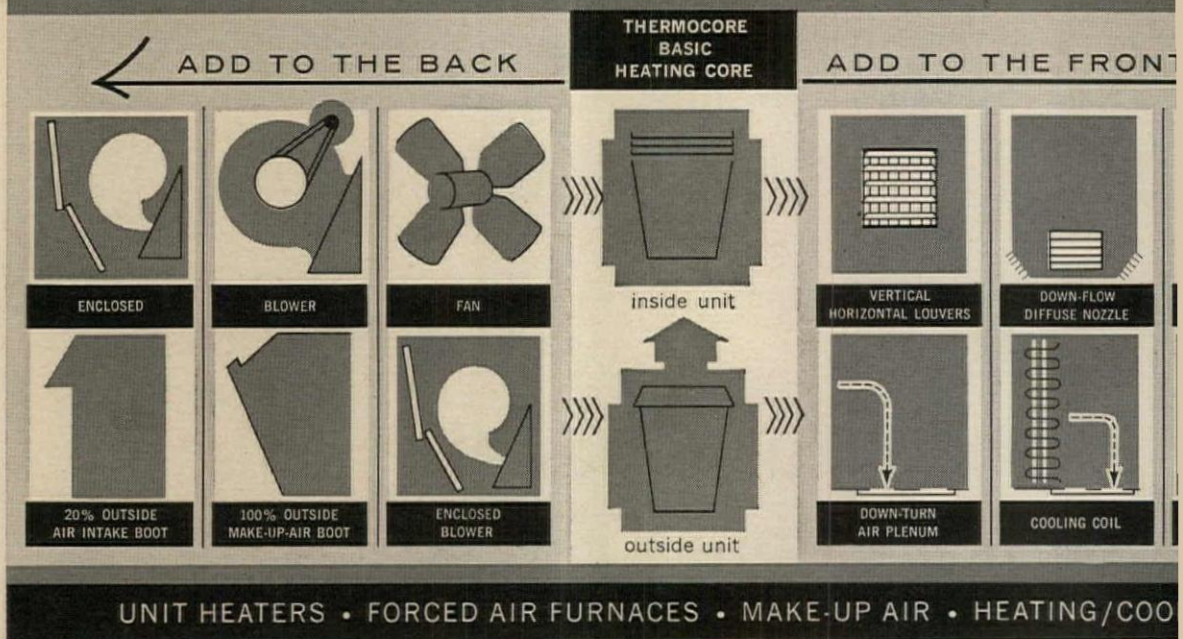


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Only Pyro-Kure® assures permanent non-combustibility!

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The U/L Flame Spread Rating of Pyro-Kure Vapor Barriers is "25 or less" without any qualification. This results from the use of an exclusive Pyro-Kure laminating adhesive that will not leach out, corrode, or migrate. Other U/L Rated barriers use chemicals that are water soluble, and can lose their flame resistance when subjected to water or repeated high humidity. Leading architects and engineers recognize the importance of per-

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Send for Data Kit and specifications that will assure your clients additional protection against the start and spread of fire for the life of the structure. Write: American Sisalkraft, 73-P Starkey Avenue, Attleboro, Massachusetts.

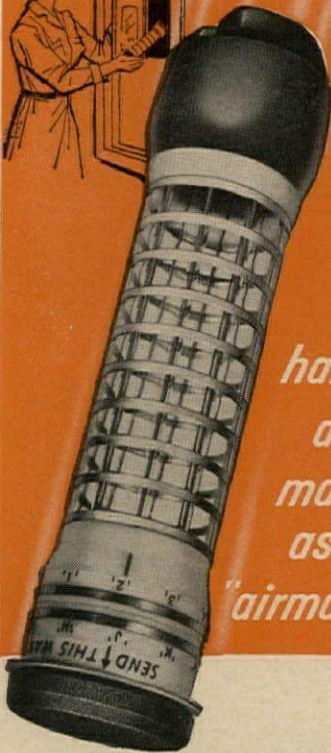
Pyro-Kure is also available as an integral part of insulation products made by these leading manufacturers: Baldwin-Ehret-Hill, Inc., Gustin-Bacon Mfg. Co., Johns-Manville, Pittsburgh Plate Glass Co., Owens-Corning Fiberglas Corp.



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LAMSON

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...automatically

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Check LAMSON before specifying any other method. Send for the new AIRTUBE catalog. Just clip this advertisement to your letterhead and mail to 102 Lamson Street, Syracuse, New York.

LAMSON
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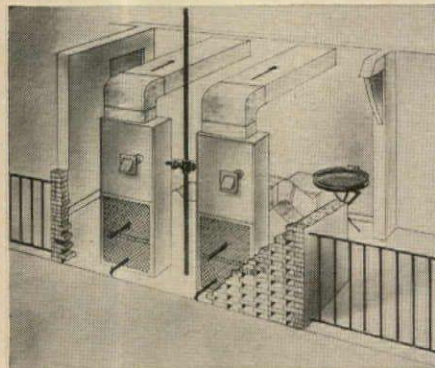
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Product Reports

continued from page 262

RESIDENTIAL HEATING-COOLING UNIT

A self-contained central heating and cooling system is reported to take up one-half the floor space required by conventional units of the same capacity. The new Delco 365 Conditionair provides 80,000 Btu per hour of input heating capacity, and 23,000 Btu per hour of cooling capacity. The vertically mounted unit measures 80 in. high, 13 in. deep and 30 in. wide, and fits into less than 2¾ sq ft of floor space.



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CIRCLE 318 ON INQUIRY CARD

SNOW MELTING SYSTEM

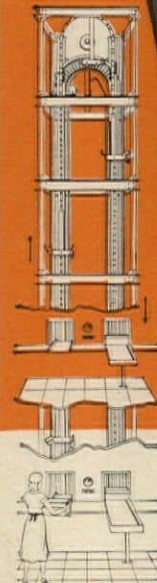
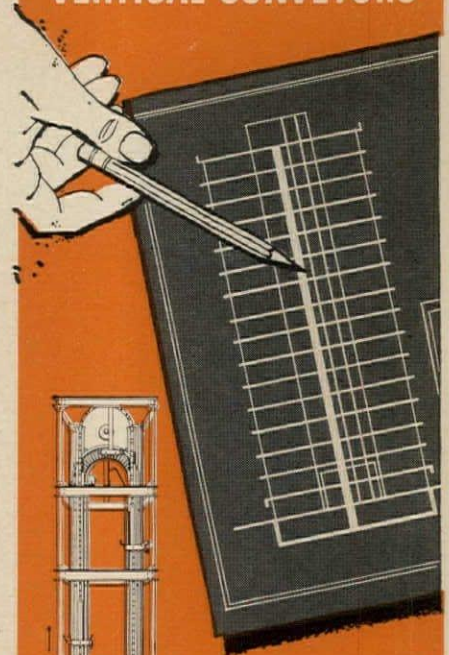
A new snow detector and automatic control for electric snow melting systems contains two sensing devices: a thermostat to sense temperature as it approaches freezing, and an ambient-compensated bimetal "bridge" sensitive to moisture.

The Sno-Melter automatic switch may be connected to any new or previously installed system. *Easy-Heat, Wire Kraft Division, Dept. 450, Lakeville, Ind.*

CIRCLE 319 ON INQUIRY CARD

LAMSON

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*yet . . .
deliver twice
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New LAMSON SELECTIVE VERTICALS are slimmer and faster than ever. Improved design has reduced outside measurements and increased trayload service per floor from 8 to 16 per minute.

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Check LAMSON before specifying paper flow systems for any new building. Just clip this advertisement to your letterhead and mail to 102 Lamson Street, Syracuse, N. Y.

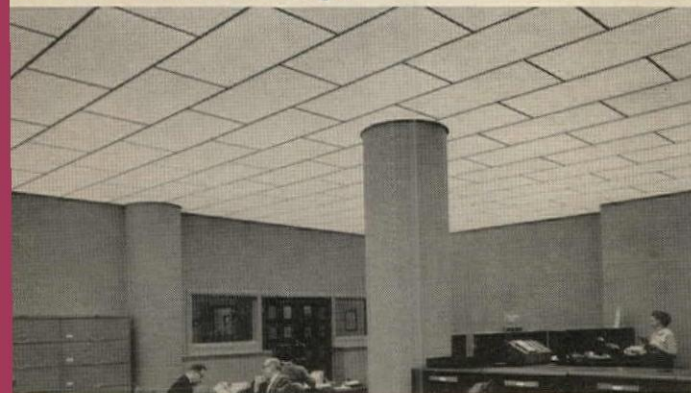
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Cutting circles for columns is simple in this bank renovation where louvers are used in ashlar design.



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

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

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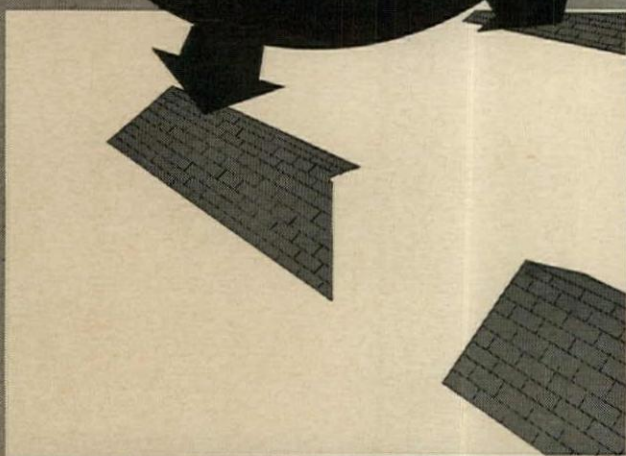
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'325 Shingles

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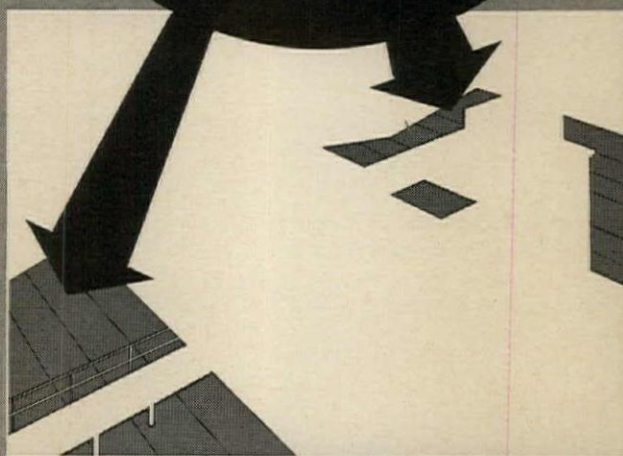


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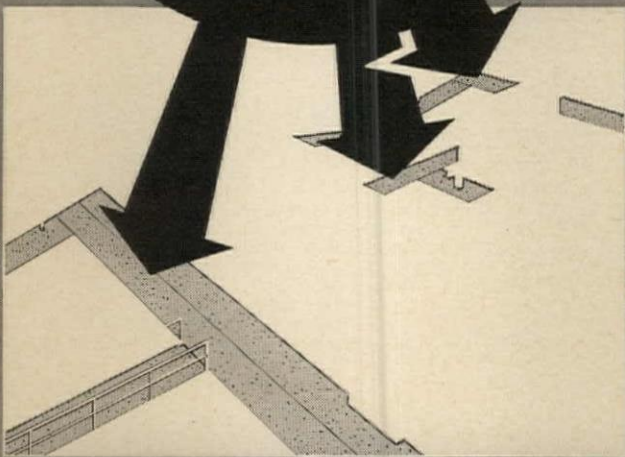


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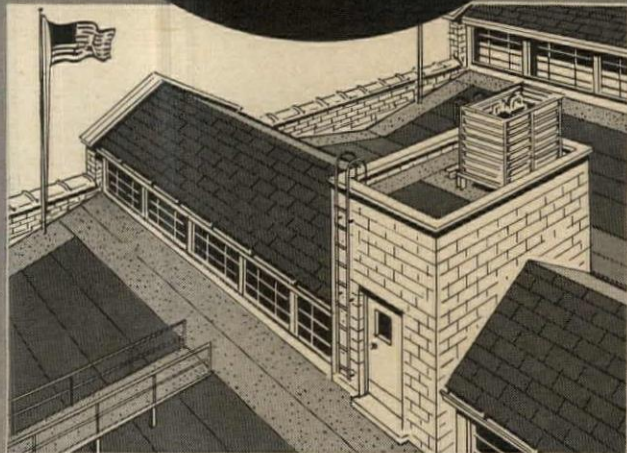
FOR NEW BUILT-UP ROOFING MANUAL, WRITE DEPT. A-664, THE PHILI

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How to use new structural techniques in architectural design

Here is complete coverage of up-to-date structural systems: thin shells, space structures, rectilinear frames, suspension structures, and component systems—those now in use and likely to be used for many years to come. *What* these new structural systems are; *how* they work; *how* they relate to building design and to integration with mechanical elements; *how* they are designed and built—these and other aspects are clearly shown.

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ASPEN CONFERENCE NAMES SPEAKERS

The 1964 International Design Conference in Aspen, Colorado, will draw upon the talents of designers, architects and critics to discuss the subject of "Design '64: Directions and Dilemmas." Chairman of the program, to be held June 21-27, is architect Eliot Noyes.

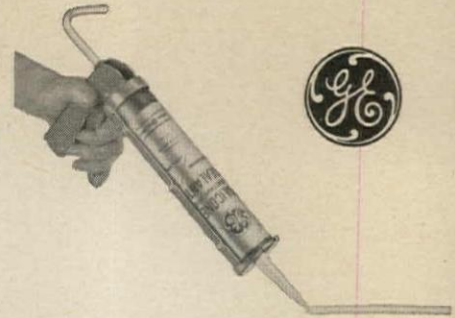
Among the speakers are: Philip Johnson, architect; Ivan Chermayeff, graphic designer; Dr. Reyner Banham of *Architectural Review*, London; Seymour Silverman, industrial designer, from Westinghouse Electric Corporation; and André François, graphics designer and cartoonist.

Other speaker-panelists include: Allen Hurlburt, art director, Look; Paul Rudolph, architect; Jay Doblin, Chairman of Design, Illinois Institute of Technology; Joseph Passonneau, Dean of the Washington University School of Architecture, St. Louis; Robin Boyd, Australian architect; William Bernbach of Doyle Dane Bernbach, Inc.; Dexter Masters, consulting editor, *Consumer Reports*; and Ralph Caplan, author and former editor of *Industrial Design*.

CRAFTSMEN LAUNCH WORLD CONGRESS

The American Craftsmen's Council is sponsoring the First World Congress of Craftsmen, June 8-19, at Columbia University, New York. A formidable group of speakers, drawn from all areas of the world and from all branches of craft design, will gather to discuss the role of the handcraftsman in an "industrialized international society."

The first five days will be devoted to the topic, "Tradition and Progress." From June 15-19 the subject of "Vistas of the Future" will be discussed by a number of speakers including: Jane Jacobs, author; Louis I. Kahn, architect; Paolo Soleri, architect; and Roberto Burle-Marx, landscape architect. Speaker at the final session will be August Hecksher, Director of the Twentieth Century Fund.



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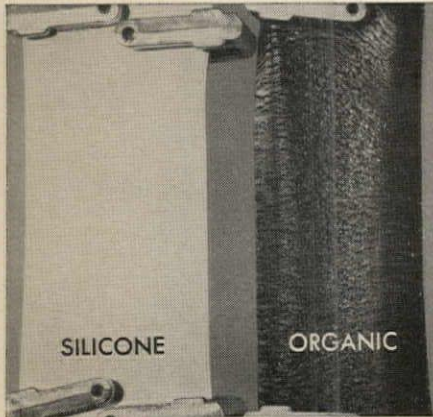
GENERAL ELECTRIC

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SILICONE CONSTRUCTION SEALANT

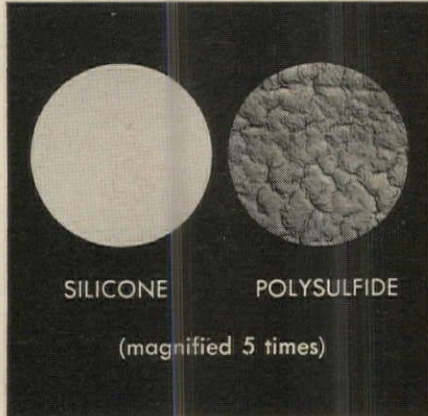
*proved most resistant of all sealants to weather,
time and joint movement*



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ORGANIC

RESISTS AGING Because it is a rubber, G-E Silicone Construction Sealant is resilient and waterproof. And because it is a *silicone* rubber, it is virtually unaffected by organic rubber's worst enemy, ozone. In accelerated aging tests, silicone rubber is unaffected by ozone, in any concentration, over thousands of hours.

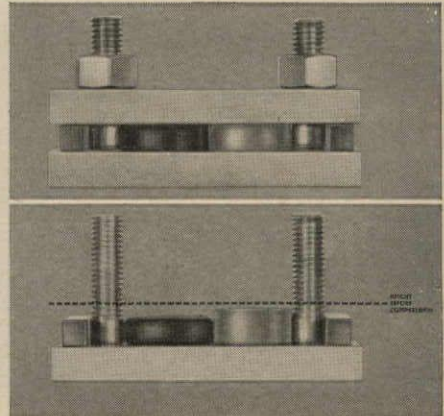


SILICONE

POLYSULFIDE

(magnified 5 times)

DOESN'T "WEATHER" Samples of silicone rubber have been exposed outdoors for as long as 15 years with no significant deterioration. Severe weathering tests, in which silicone and polysulfide sealants were exposed to Florida sunlight and salt spray, proved silicone's superiority after only one year. Note "checking" in polysulfide.



GREATEST LONG-TERM RESILIENCE The recovery or "comeback" of silicone sealant after compression is far better than any other type of sealant, particularly at extreme temperatures. In this standard ASTM test, cured samples were compressed 40% for 22 hours at 160°F. Silicone recovered 92%, polysulfide only 20-40%.



COMPRESSION-EXTENSION CYCLE This is a major cause of sealant failure. Because other elastomeric sealants take a set during *compression* (see above), they put a severe strain on the bond during *extension*. Silicone sealant, with almost 100% recovery after compression, withstands repeated cycling, while maintaining an effective seal.



STABLE COLORS, NON-STAINING G-E Silicone Sealant comes in five non-fading stock colors: translucent, white, black, aluminum, neutral. Unlimited colors can be ordered. No chance of staining, since nothing in the pigments or the rubber itself will stain building materials. Accelerated weathering test above demonstrates color permanence, lack of staining.



STRONG BOND AT ANY TEMPERATURE G-E Silicone Sealant can be applied year-round from -35°F to +140°F. Flows easily at low temperatures. Bonds well to hot or cold surfaces. When cured, it will not stiffen in cold or soften with heat. Adheres to all common building materials. A one-part material, it needs no mixing or catalyst.

Years of testing and performance in rigorous applications have proved that silicone rubber is the most durable and dependable elastomer available today. General Electric has made this material available as a sealant formulated specifically to meet the needs of the construction industry.

To further assure reliability, General Electric performs the entire manufacturing operation, from the

manufacture of the basic gum through formulation and final packaging. No steps are trusted to formulators or satellite plants. This is your assurance of the finest and most consistent quality.

For more information contact your G-E Silicone Construction Sealant Distributor shown on the opposite page. Or write Section BG6110-R Silicone Products Department, General Electric Company, Waterford, N. Y.

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New EVERGLEAM— the first heavy-duty solid vinyl wall covering!

From Goodyear: EVERGLEAM, a remarkable new wall covering of all-vinyl compounds from front to back—to withstand the wear-and-tear of heavy traffic. Applied in corridors, lobbies, elevators and other heavy traffic areas—it offers wall beauty that's easy to clean; that will outlast other flexible coverings.

The low cost and easy application of EVERGLEAM result in a low installed cost, ranging from 30 to 40 cents per square foot.

EVERGLEAM has a nubby textured surface which helps hide wall irregularities and also gives them a soft, satiny luster. A variety of striking patterns is offered in key interior colors.

New EVERGLEAM comes in 54-inch-wide continuous rolls for seamless wainscoting applica-

tion. It is flexible—virtually tearproof; can be applied over most wall surfaces.

Mail this coupon today for complete information and specifications!

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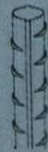
GOODYEAR

Evergleam—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

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monolithic reinforced concrete sets new height record in world's tallest hotel

■ The new 50-story, 2000-room, Americana of New York is said to be the world's tallest and finest luxury hotel. It also establishes a new height record of 501 feet for monolithic reinforced concrete frame hotels in the United States. Through the versatility of monolithic reinforced concrete, the architects for this outstanding structure were able to incorporate many new concepts in hotel design and services. Among its unique features are a 30,000 sq. ft. convention center with heavy-duty elevators, a truck-trailer lift, and a 26,000 sq. ft. pillar-less ballroom. Monolithic reinforced concrete is the modern construction material for high-rise and low-level buildings. Its design advantages are unlimited as it offers many cost and timesaving features. On your next project, investigate all of the advantages of this superior construction method.



Americana of New York Hotel
Owners: Loew's Hotels, Inc.
Architect: Morris Lapidus,
Liebman & Associates
Structural Engineer: Farkas and Baron
General Contractor: Diesel Construction Company

CONCRETE REINFORCING STEEL INSTITUTE
228 North La Salle Street • Chicago, Illinois 60601

10-63



Mayer Central
Plaza Building,
Phoenix, Ariz.

Architect:
Irving E. Finical,
Tucson

General Contractor:
TGK Construction Co.,
Phoenix

Plastering Contractors:
Erb Plastering Co.,
Hopper and Son,
Phoenix

The Gold Bond difference: Uniform consistency wins 27-story job for machine-applied Fire-Shield Plaster

Arizona's tallest skyscraper, the Mayer Central Plaza Building, is now nearing completion. The steel supporting beams were fireproofed with Gold Bond Fire-Shield Plaster. It was machine-mixed on the ground and pumped to each level, where the plaster was sprayed directly onto beam surfaces. A three- to four-man crew completed the fireproofing at an average of a floor every four days. Says Mr. Ora B. Hopper, of Hopper and Son, plastering contractors, "Since the pumping system was to be employed, uniformity of material and pumping qualities

were extremely important. We found these qualities in Gold Bond Fire-Shield Plaster. Consistency remained constant throughout the job so we were able to maintain a steady rate of progress. And less plaster was required to obtain the desired four-hour fire rating." See your Gold Bond® Representative for latest developments in plaster and lath. Or write to National Gypsum Company, Dept. AR-64B, Buffalo, New York 14225.

Gold Bond materials and methods make the difference in modern building



For more data, circle 163 on Inquiry Card

More and more top architects are going Gold Bond



**The Gold Bond difference: Autoclaved Asbestos
Ceiling Panels work wonders
in Kansas City's Jones Store**

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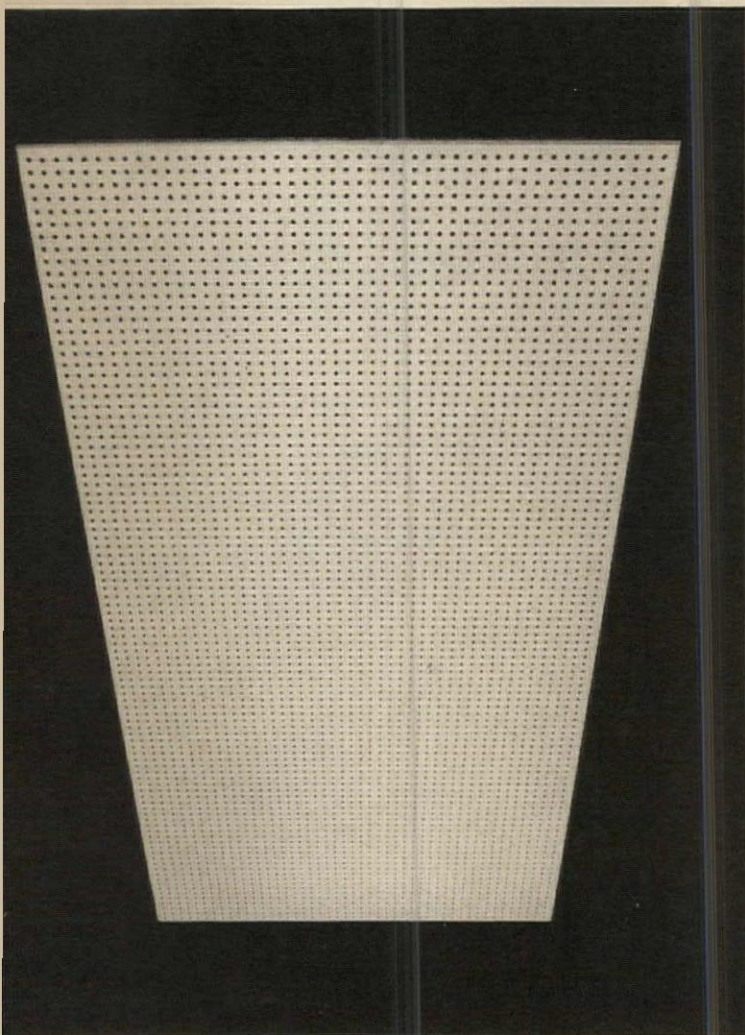
The Jones Store, Blue Ridge Mall, Kansas City, Mo.

Owner: The Jones Store Company, Kansas City

Architects: William B. Fullerton and Assoc., Kansas City

Interior Design: Raymond Loewy/William Snaith Co., New York City

Acoustical Contractor: George Will Company, Kansas City

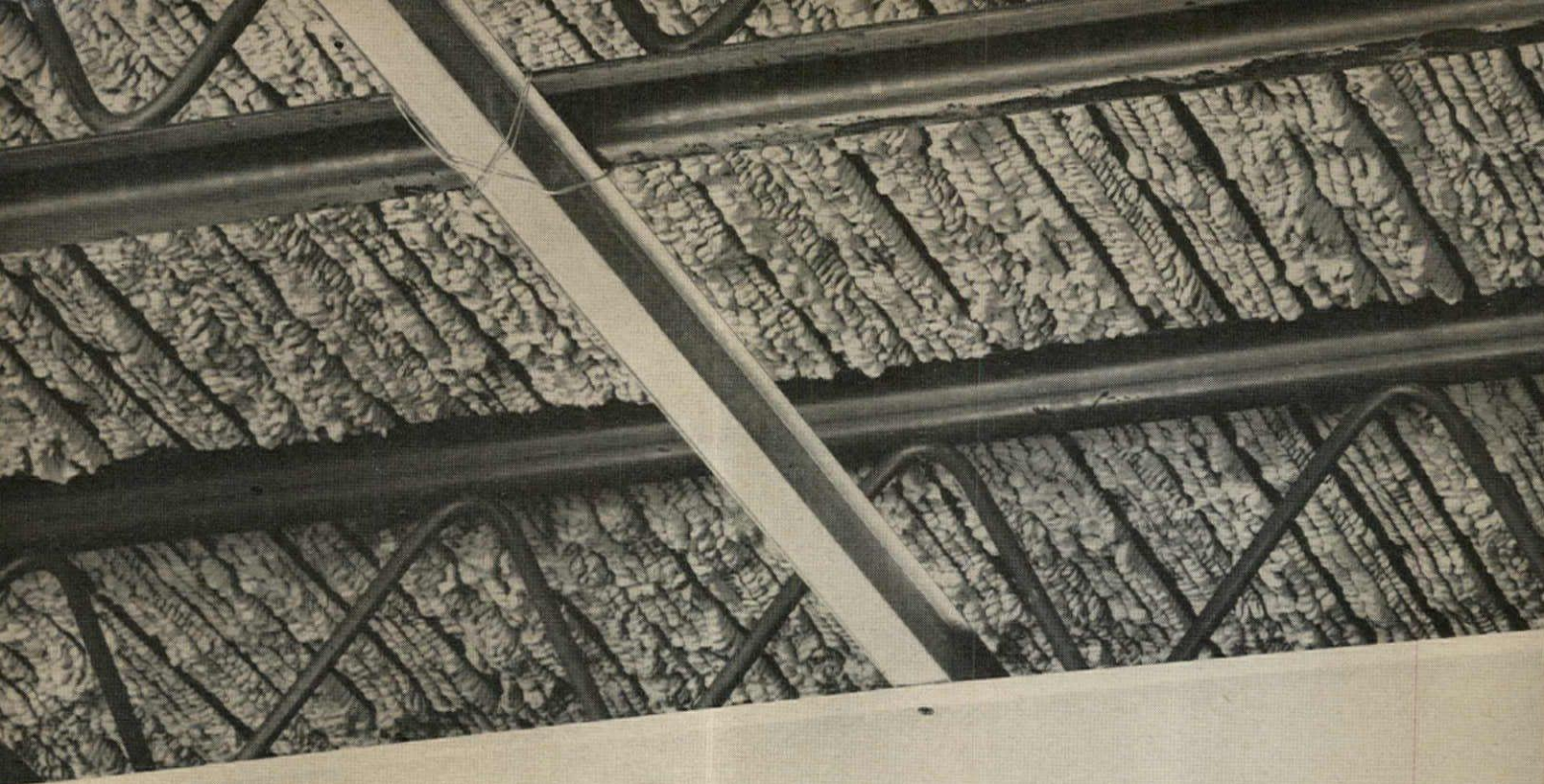


Gold Bond Perforated Asbestos Panels provide a whole new approach to the treatment of large ceiling areas. A good example is the Jones Store in Kansas City. First of all, Asbestos Panels are autoclaved. Won't sag, warp or shrink. There's no other product like Asbestos Panels. And the years will not diminish the beauty. The baked-on, white Ripple-Tone finish is washable — provides a high degree of light reflectivity. Sound passes through the perforated panels and most of it is *absorbed* in the

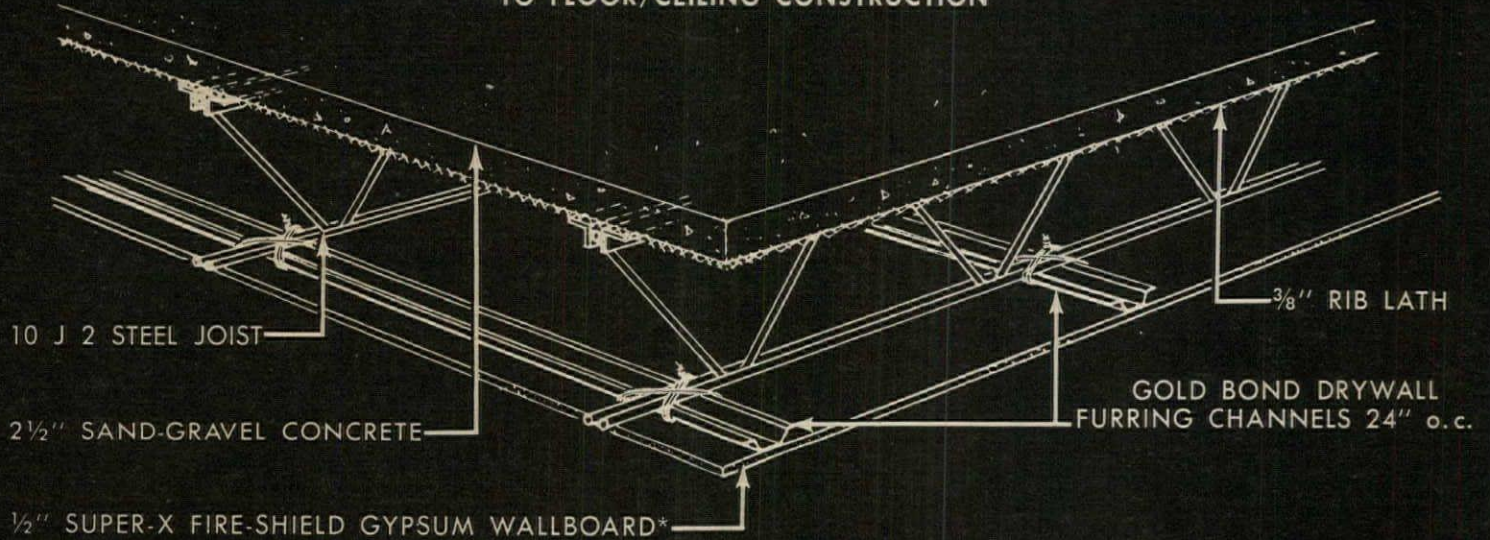
plenum. These panels also have a Class A noncombustibility rating. In this exposed ceiling-grid system, there's easy access to hidden utilities in the plenum chamber. (Gold Bond ceiling tiles and panels do so much for so little.) Want free samples? Just ask your Gold Bond® Representative. Or write to Dept. AR-64, National Gypsum Company, Buffalo, New York 14225.

Gold Bond materials and methods make the difference in modern building





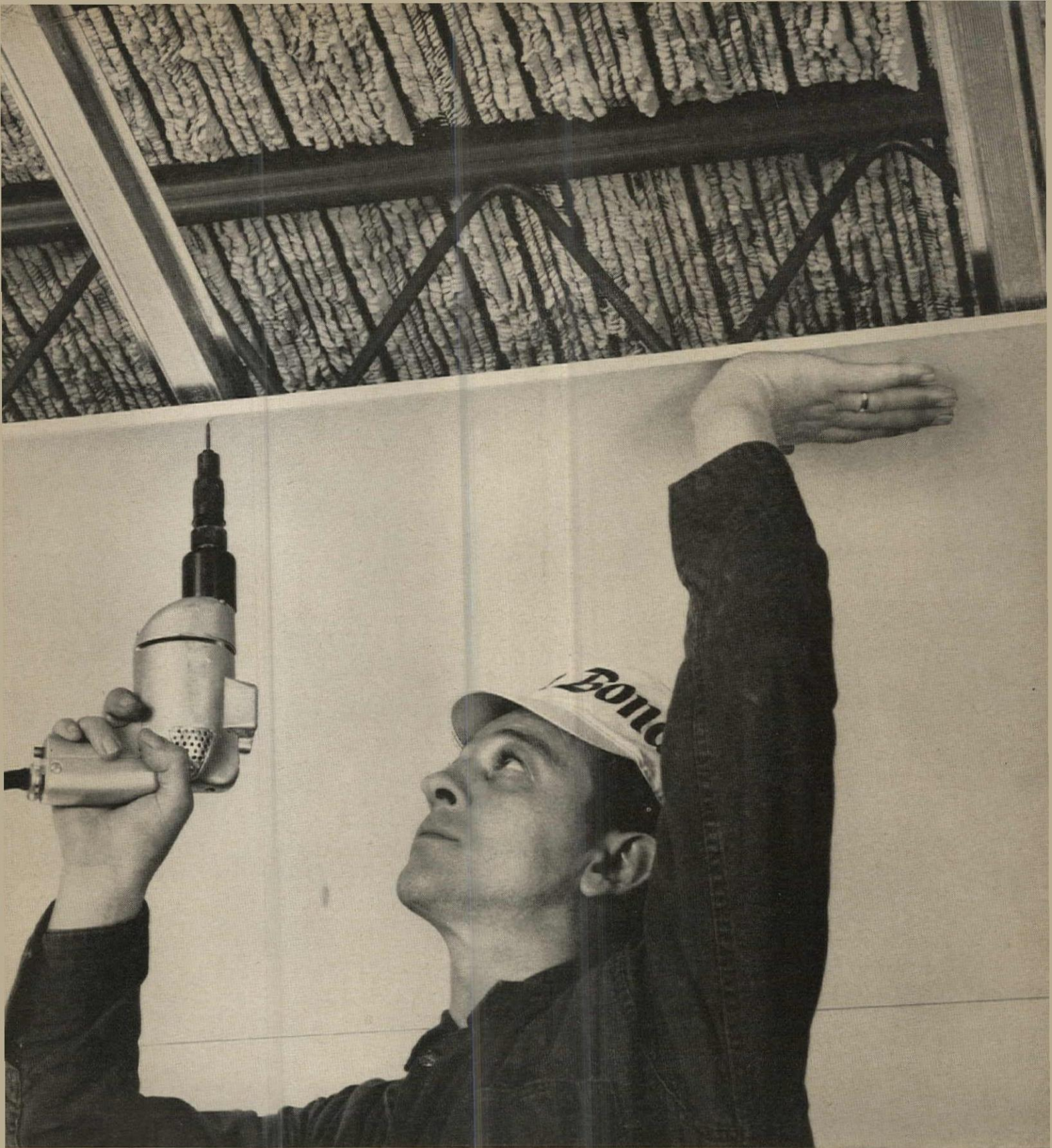
NEW 1/2" SUPER-X GYPSUM WALLBOARD GIVES 2-HOUR FIRE RATING TO FLOOR/CEILING CONSTRUCTION



*Listed by Underwriters' Laboratories, Inc.

Fire Resistance Classification: Type FSW 1 Floor and Ceiling Design No. 94 - 2 hr.

**The Gold Bond difference: New 1/2" Super-X
Fire-Shield Gypsum Wallboard
weighs less, costs less...yet has
a 2-hour fire rating!**



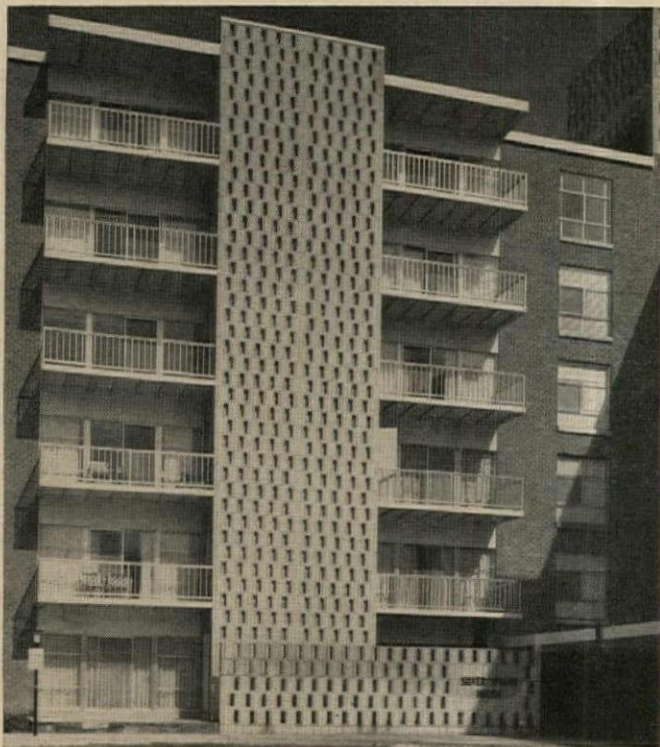
Now floor-ceiling drywall construction with a two-hour fire rating is possible using only a single layer of ½"-thick gypsum wallboard called Gold Bond Super-X Fire-Shield. And the cost is less, it's lighter in weight, and it's easier to handle than ⅝" fire-rated wallboard. To earn the two-hour fire rating, specially formulated Super-X panels should be attached by 1" Phillips head screws every 12" to furring channels spaced every 24". Construction rating is predicated on using a base of 2½"

of poured concrete on metal lath over bar joists; screw channels are attached to the lower cord of the bar joist. Gold Bond ½" Super-X Fire-Shield Gypsum Wallboard is now available nationally in 6' through 14' stock lengths, 4' wide with tapered edges. For additional information, call your Gold Bond® Representative. Or write Dept. AR-64A, National Gypsum Co., Buffalo, New York 14225.

Gold Bond
GYPSUM WALLBOARD

First with better ways to build

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Silver Spring House,
Wagman Construction Co.—Builders, Wheaton, Md.

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Luxury appearance at low cost.

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Specify Bally all-metal sectional walk-in refrigerators

(with features you can't get in "built-ins"
and at lower cubic foot cost than "reach-ins")



for normal temperature or low temperature

Bally Walk-Ins can be assembled in any size or shape from prefabricated sections. Easy to increase size by adding sections . . . easy to disassemble to relocate. New design features!

1. 4-inch moisture-proof urethane "foamed-in-place" equals 8½-inch fiberglass
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4. Lightweight door with automatic self-closing hinges . . . improved hand lock (inside safety release) and foot treadle . . . opens and closes easily
5. Self-contained refrigeration systems . . . factory-tested and hermetically sealed . . . eliminate service problems
6. Galvanized or aluminum interior and exterior assure maximum sanitation. Stainless steel available.

Because of mass-production, Bally Walk-Ins cost less than built-ins constructed by building trades. And cubic foot cost is less than half that of reach-ins.

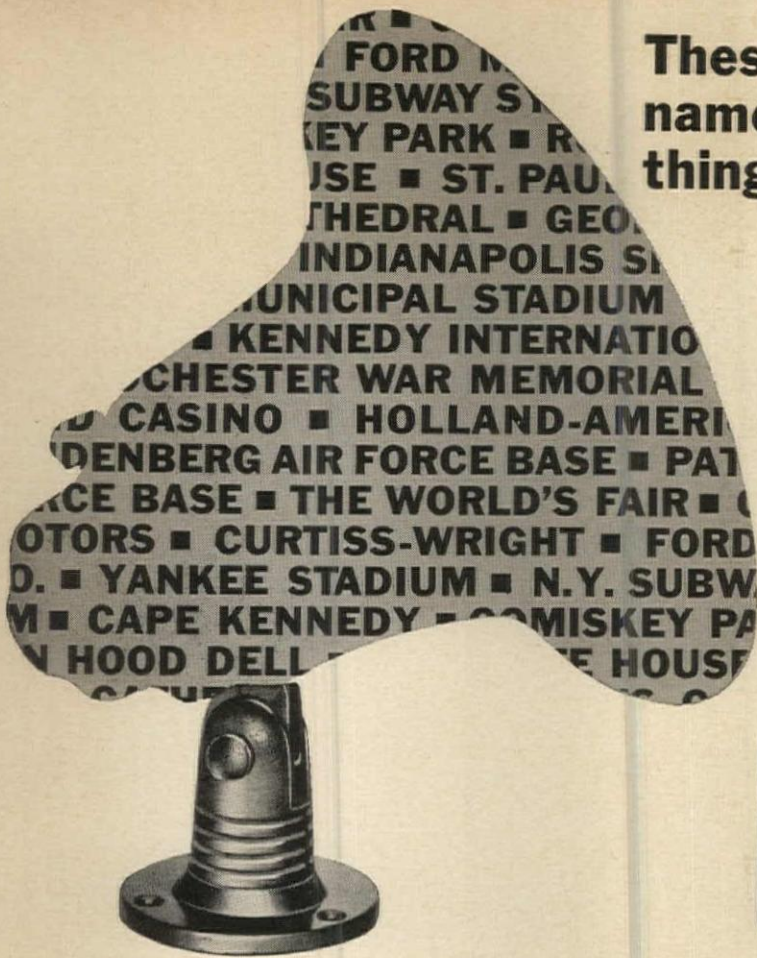
Available everywhere through thousands of dealers and contractors . . . no need to ever accept a substitute.



Write for 12 page brochure
and sample of urethane wall.

Bally Case and Cooler, Inc.
Bally, Pennsylvania

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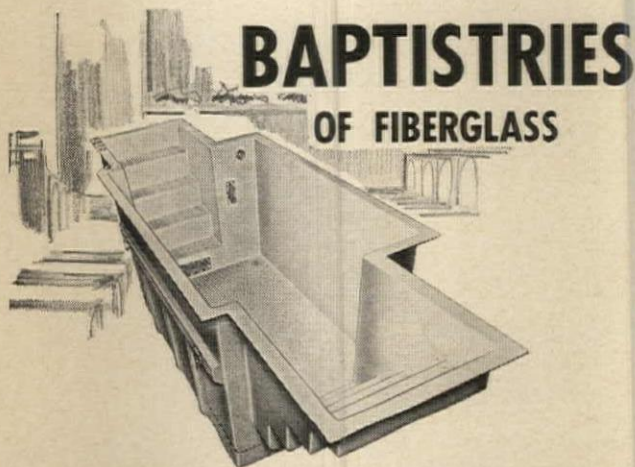
These distinguished names have one thing in common: University Loudspeakers

How do you choose public address loudspeakers when you are called upon for a professional recommendation? You could make tests. You could listen to a number of brands. Or, you could specify University (more University speakers are used by commercial sound specialists than all other makes combined.) Reasons: High "A" (High Audibility) design provides a degree of intelligibility that has never been matched; and the kind of dependability that caused a missionary to tell us that after five years of outdoor use—in a torrential rain region of Africa—his University speakers never failed him! And we can quote you thousands of similar reports on University Speakers used throughout the world.

FREE! 66-page Sound Planning Handbook. Price: \$1.00—but free to architects and engineers. Write: Desk AR-6, LTV/University, Div. Ling-Temco-Vought, Inc., 9500 West Reno, Oklahoma City, Oklahoma.

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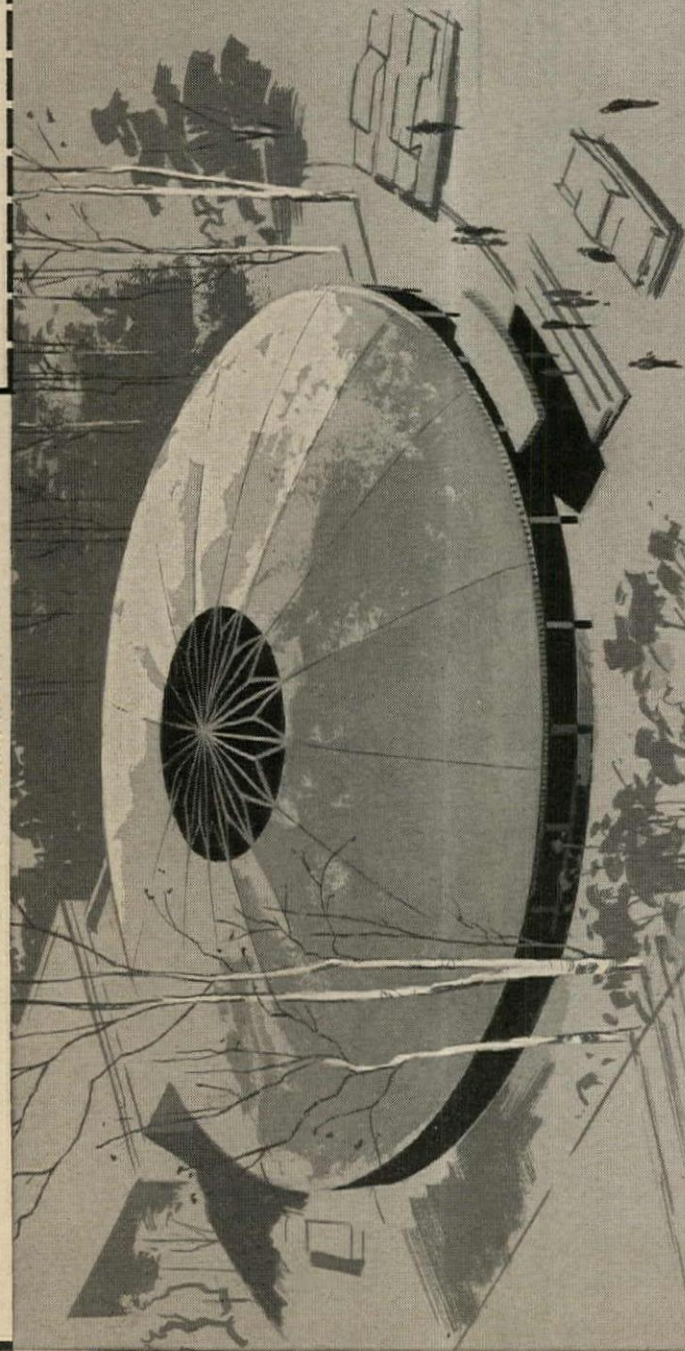
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dome shell roofs

a.i.a. file: 4-a

Prepared as a service to architects by Portland Cement Association

Clip along dotted line



Designing for long spans and column-free space. The basic dome shell of concrete is architecturally important today for both practical and esthetic reasons. Because strength is inherent in the shape, shell roofs in the United States are being designed with thicknesses of as little as 2½ inches.

Dome shells are especially suitable for structures such as gymnasiums where spans are long and column-free space is required. As seen from the table below, shell thickness varies with length of span and curvature of dome.

Domes may be pierced as desired for natural light, or appropriate domed or flat-fixed lights may be used.

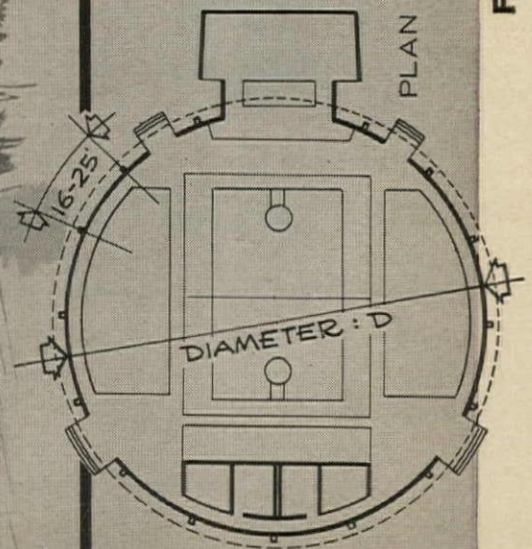
Get complete technical literature on additional aspects of concrete dome shell design, as well as other applications of concrete. (U.S. and Canada only.) Send a request on your letterhead.

Volume of concrete in the dome (cu. yd.)

$$D^2 (t+1)$$

360

D in feet, t in inches



DOMES/SPAN DATA

D	t	φ	a	R
100'	3'	30	13.4'	100'
		45	20.7'	70.7'
125'	3'	30	16.8'	125'
		45	25.9'	88.4'
150'	3½'	30	20.1'	150'
	(3')	45	31.0'	106.0'
175'	4'	30	23.5'	175'
	(3½')	45	36.2'	123.7'
200'	4½'	30	26.8'	200'
	(4')	45	41.4'	141.4'

*Note: Shell thickness "t" is usually increased by 50 to 75 per cent near the periphery.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

33 West Grand Avenue, Chicago, Illinois 60610

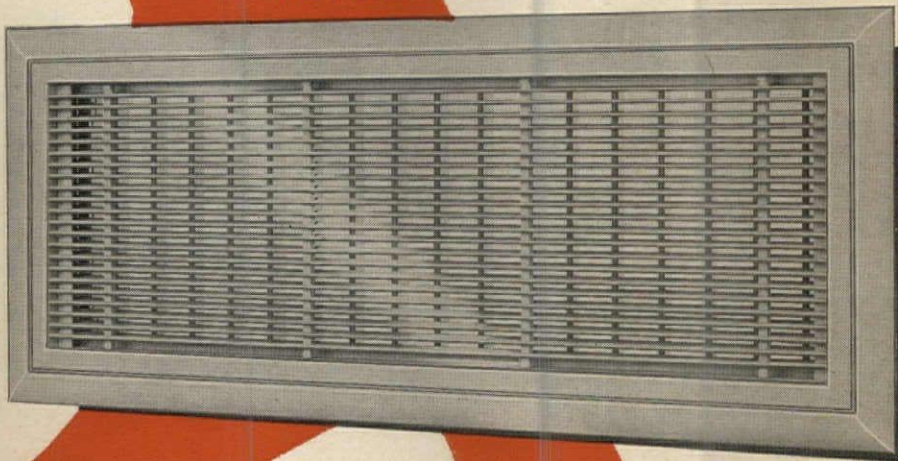
What's in a Finish?

PLENTY! - - - finish is the difference between being first or just playing the game.

Waterloo goes all-out to finish Registers and Grilles that are pleasing to the critical eye of the owner and occupant.

Air outlets are often the only equipment visible in a central heating and air conditioning system.

WATERLOO REGISTERS AND GRILLES



Have a fine aluminum lacquer prime coat finish designed to blend with interior decor - - - attractive enough to be the final finish on many installations.

A lasting paint bond is achieved by means of a phosphatized etch, followed by a conveyORIZED dipping process. The final smooth coating is hand sprayed.

For demanding job requirements WATERLOO offers color matched baked or air dry finishes.

WATERLOO REGISTERS AND GRILLES ARE BETTER THAN EQUAL

IN DESIGN, CONSTRUCTION AND APPEARANCE

See your Waterloo representative for convincing proof or write Waterloo Register Company for complete details.

BETTER! EQUAL?

Member of Air Diffusion Council



WATERLOO REGISTER COMPANY
Division of Dynamics Corporation of America
Cedar Falls, Iowa

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LATH, PLASTER & WALLBOARD

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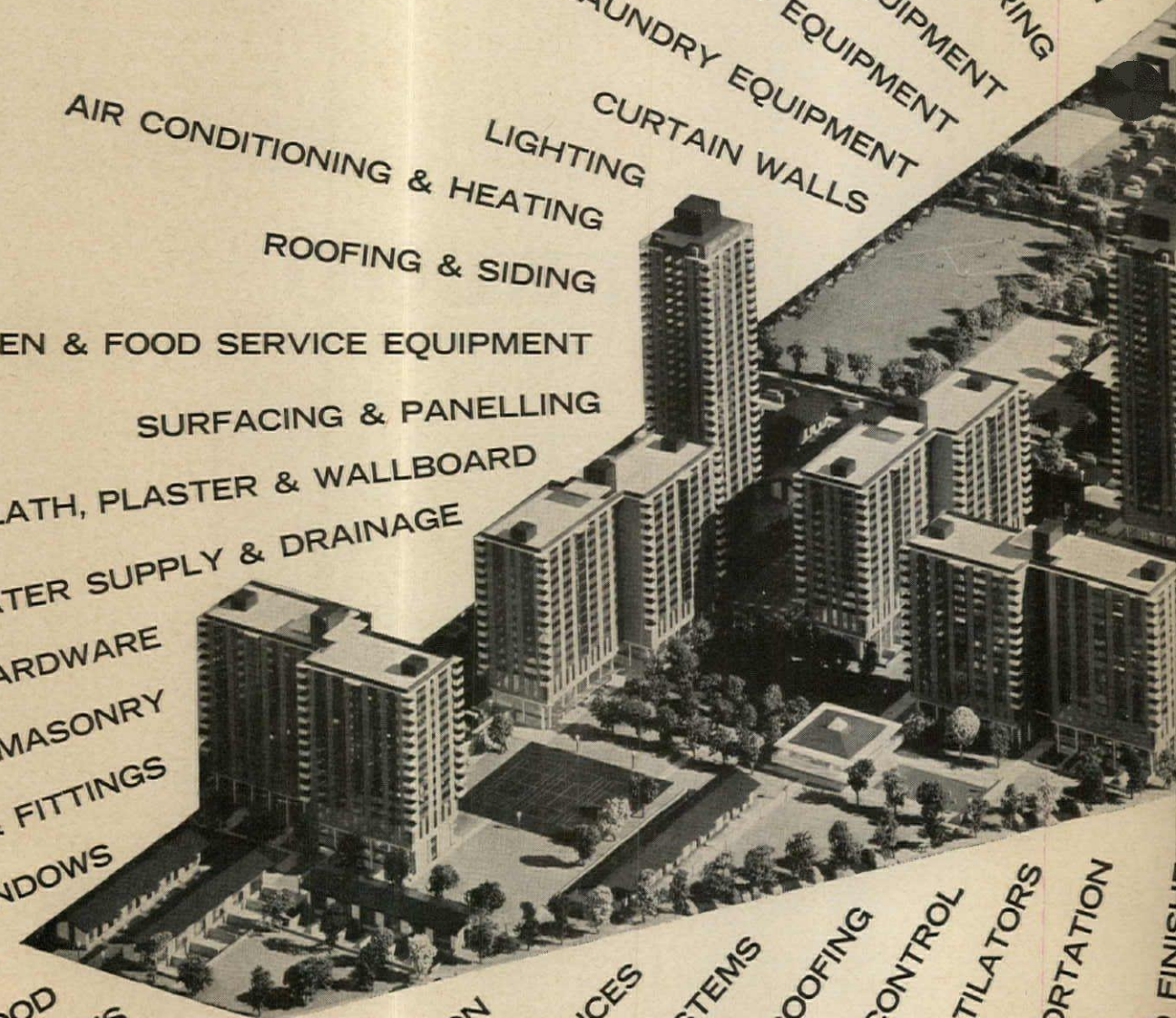
WATERPROOFING & DAMPPROOFING

SOUND CONTROL

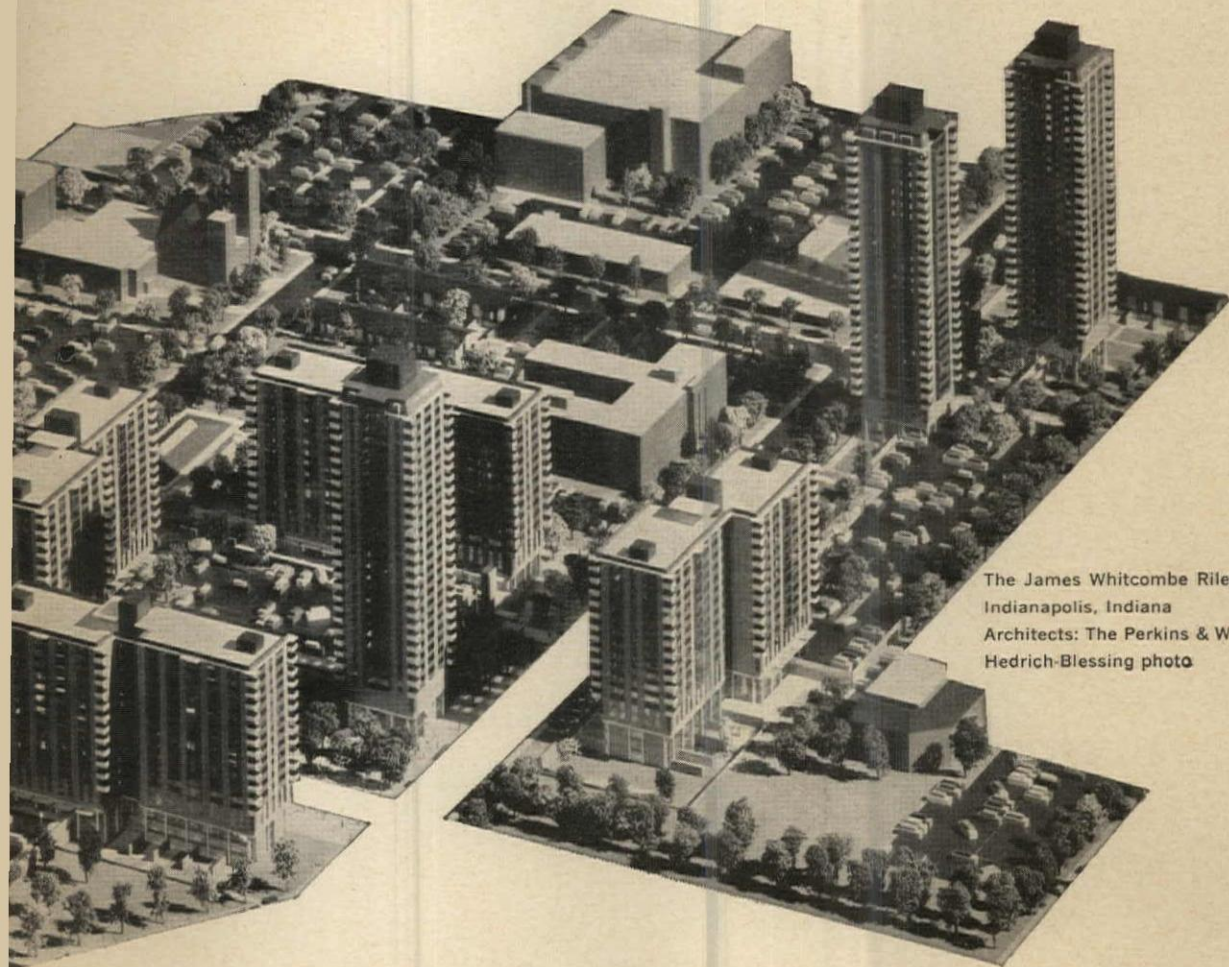
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PAINTS AND FINISHES



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The James Whitcombe Riley Center
Indianapolis, Indiana
Architects: The Perkins & Will Partnership
Hedrich-Blessing photo

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Building product manufacturers know that when one top advertising value leads to another . . . and another . . . they’ve located the leader. That’s why year after year more of just about everything—including the kitchen sink—is advertised in Architectural Record.



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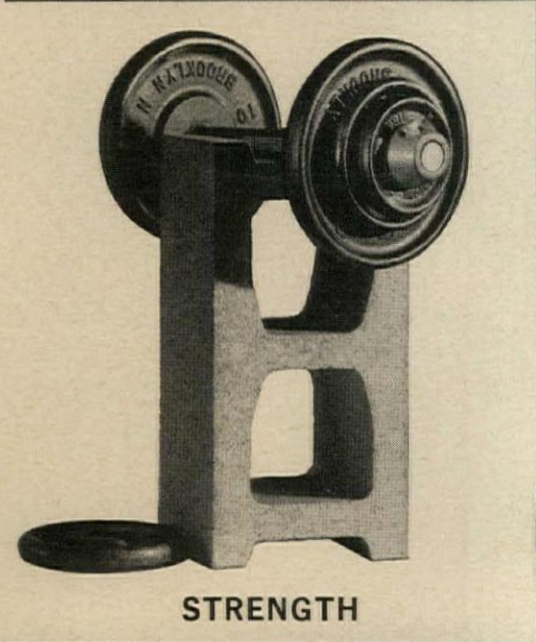




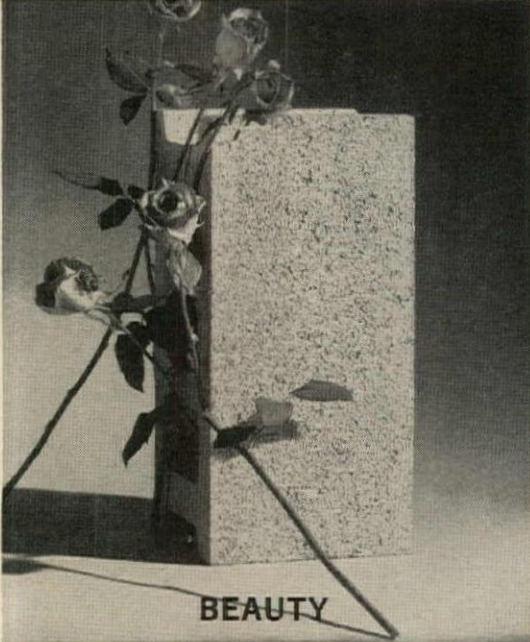
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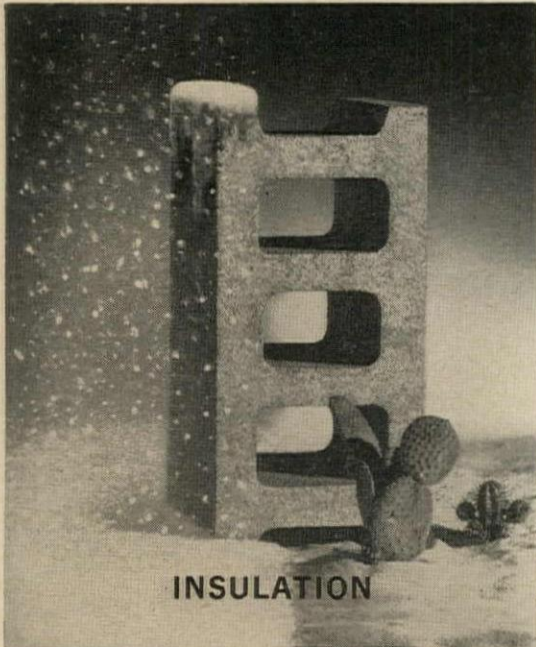
SOUND ABSORPTION



STRENGTH



BEAUTY



INSULATION

Important unseen benefits for your designs

■ An individual concrete block may look commonplace. But in an interesting wall pattern, it offers your client many important unseen benefits. ■ As you consider a new design, check with local block manufacturers for new ideas with standard units . . . also for the new shapes, sizes and textures available. ■ And remember, when you design in masonry you can approve Lehigh Mortar Cement with the assurance that it exceeds the most rigid A.S.T.M. and Federal specifications. ■ Lehigh Portland Cement Company, Allentown, Pa.

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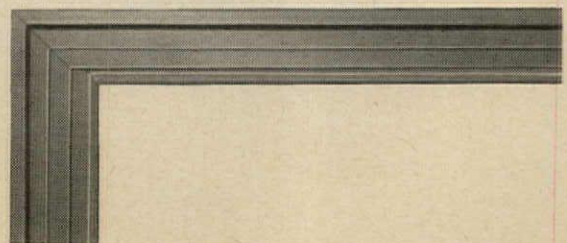
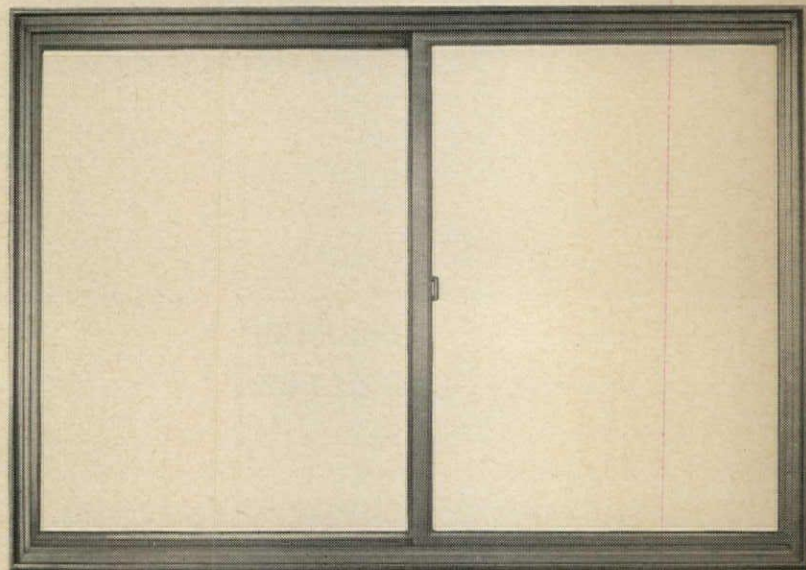
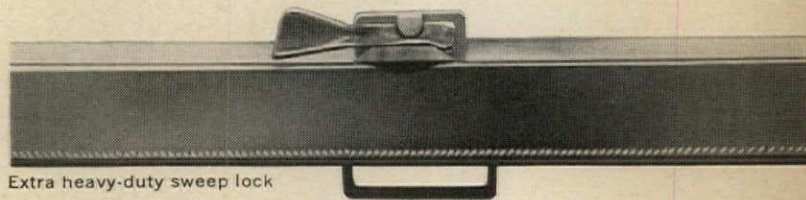
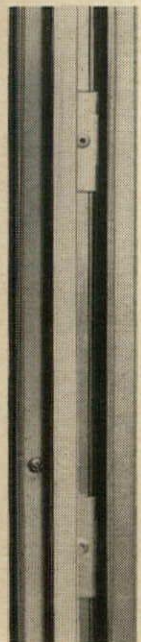
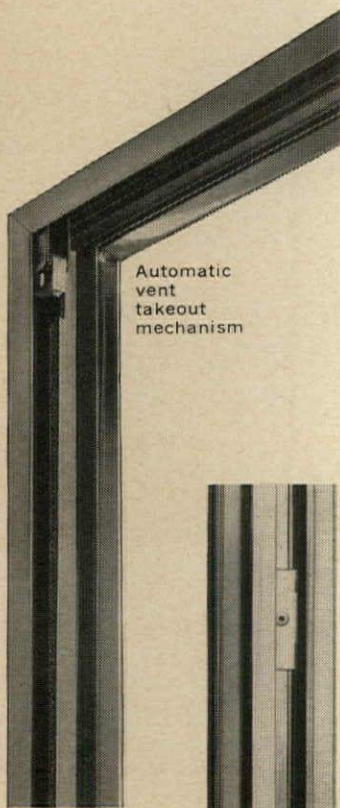
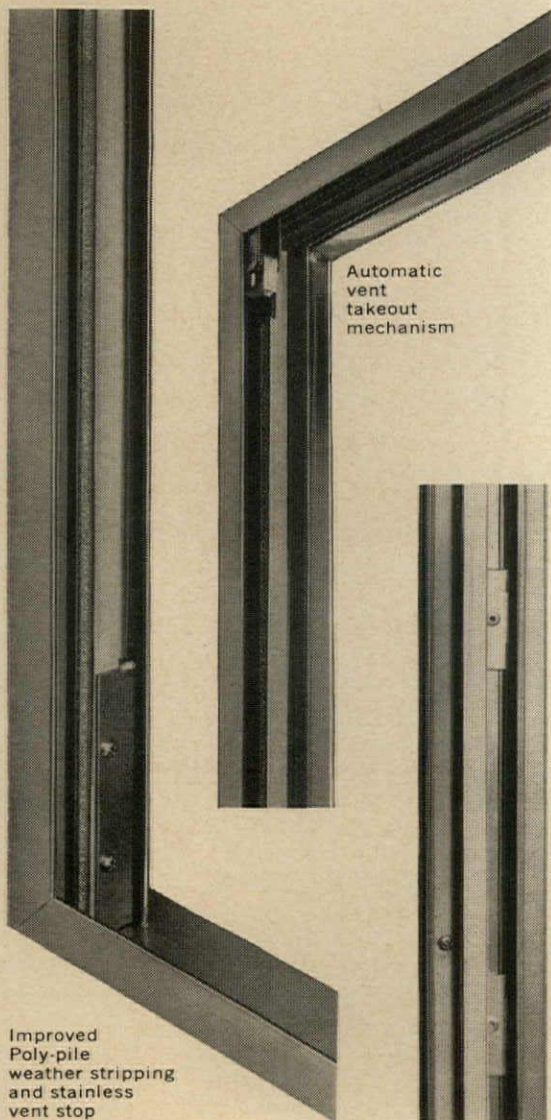
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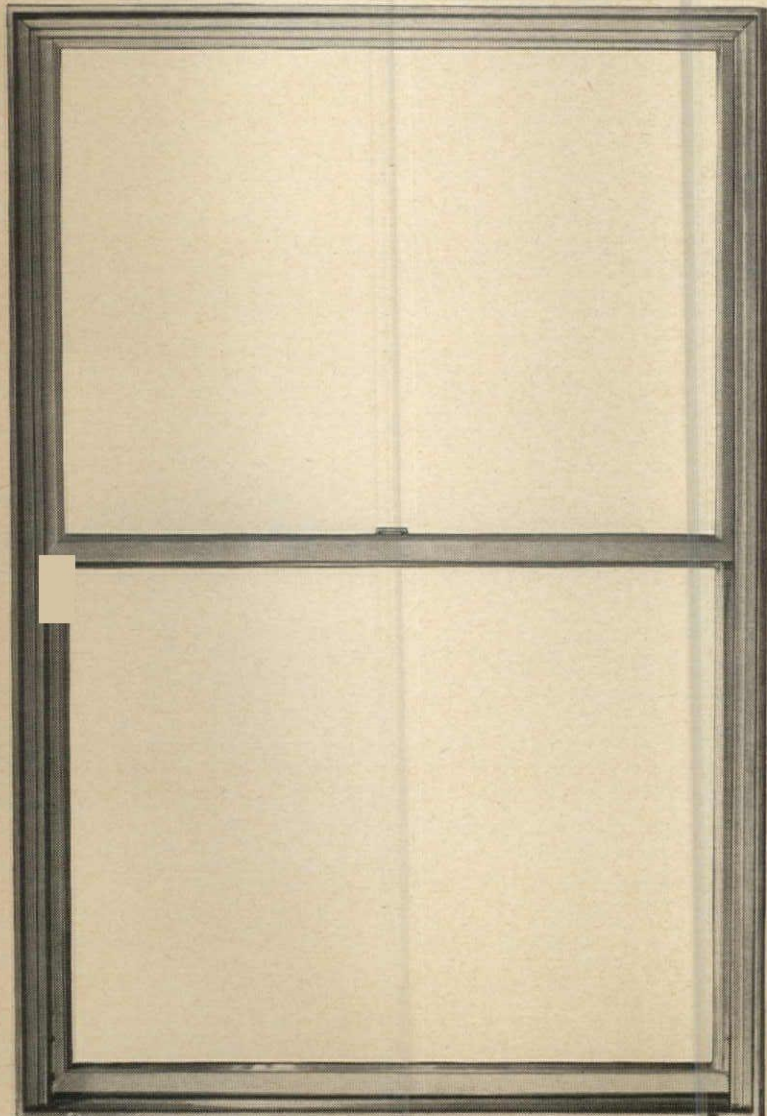


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ABBREVIATIONS: BTS—Building Types Study; AE—Architectural Engineering; TSS—Time-Saver Standards; BC—Building Components

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