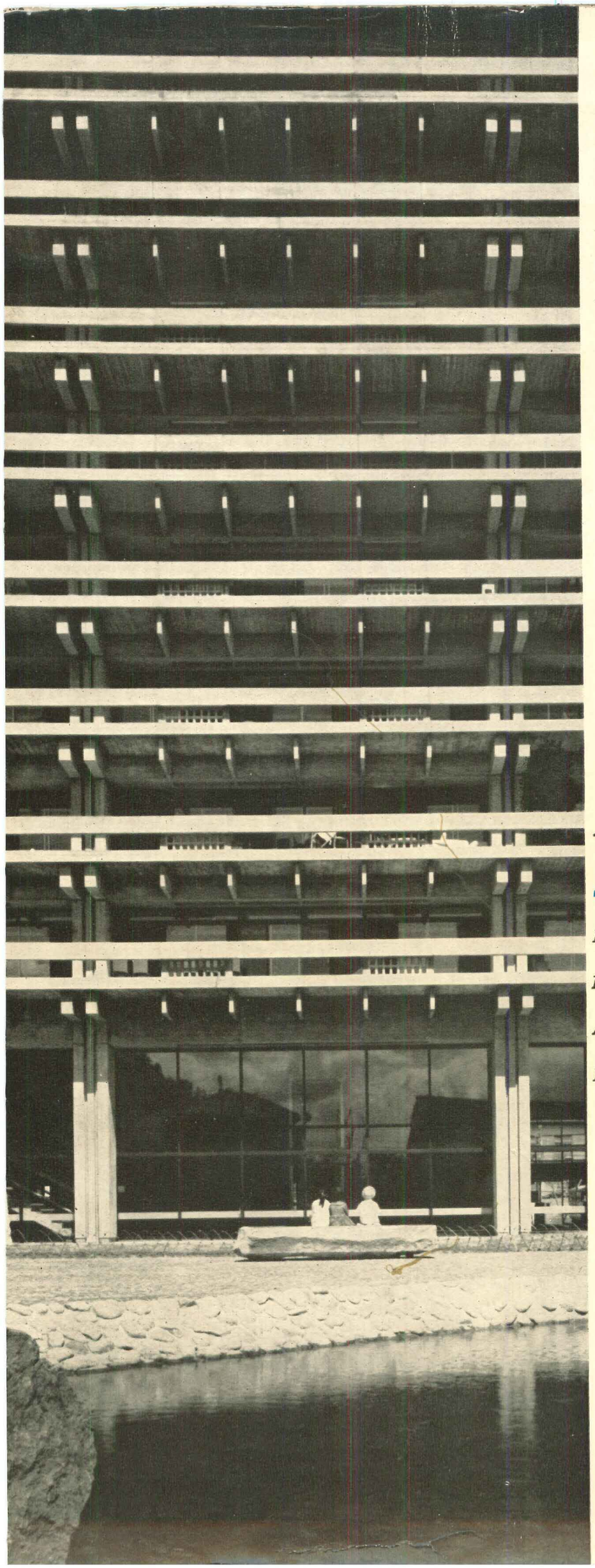


ARCHITECTURAL RECORD

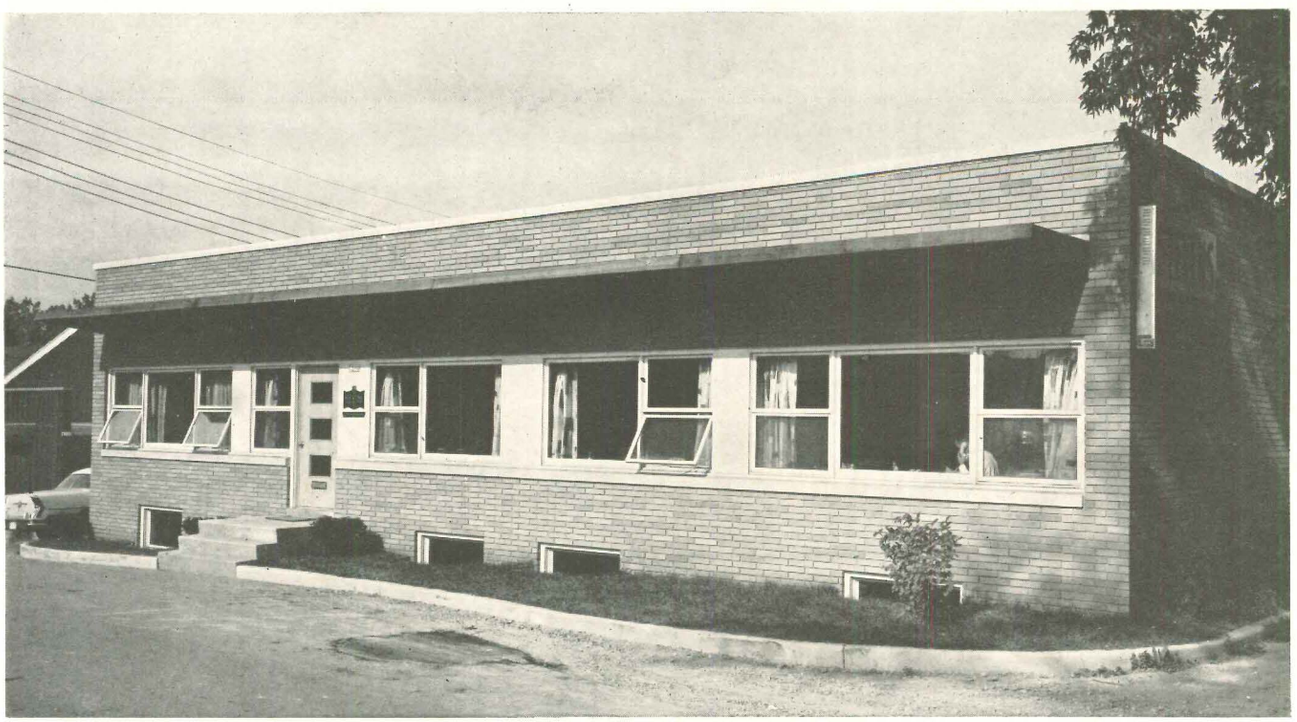
4 *April 1961*

Building Types Study: Schools

New Currents in Japanese Architecture by John E. Burchard

Art vs Science in Education by Richard L. Davies

Full Contents on Pages 4 & 5



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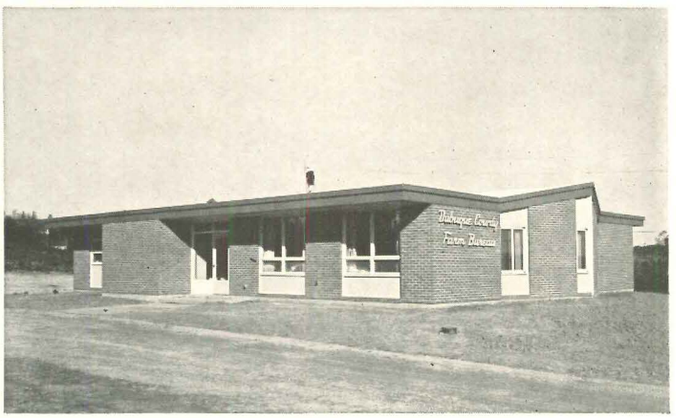

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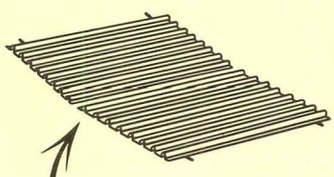
NuTone BARBECUE

for Luxury in your Kitchen .. at a bargain

NuTone's new 48" heavy-duty Barbecue Hood-Fan can be used for both the range as well as the Built-In Barbecue.



Here's the kind of feature home buyers are looking for. NuTone's Built-In Barbecue gives your kitchen a luxury look . . and yet it has glamour with a purpose.

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SEE NEXT PAGE →

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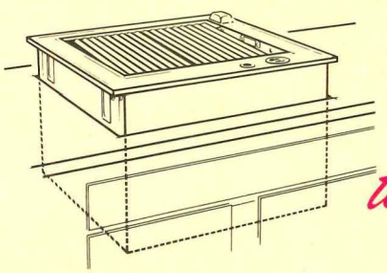

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Write for complete catalogs and Designers Sketches showing many ways to use built-in barbecue in the homes you are planning . .

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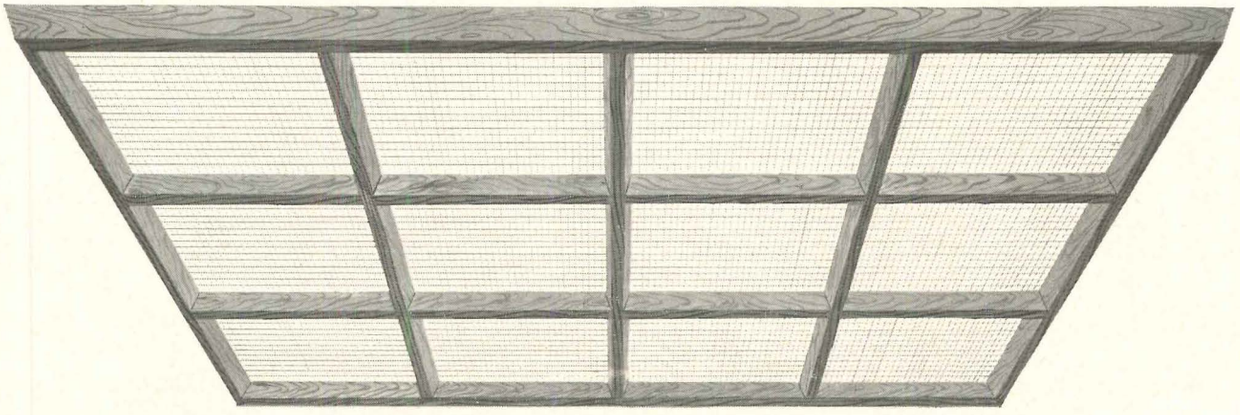

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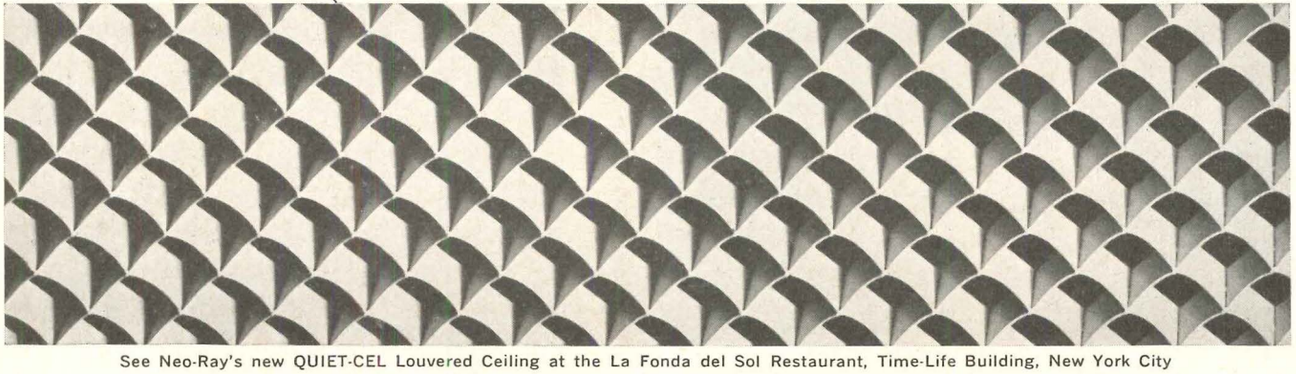
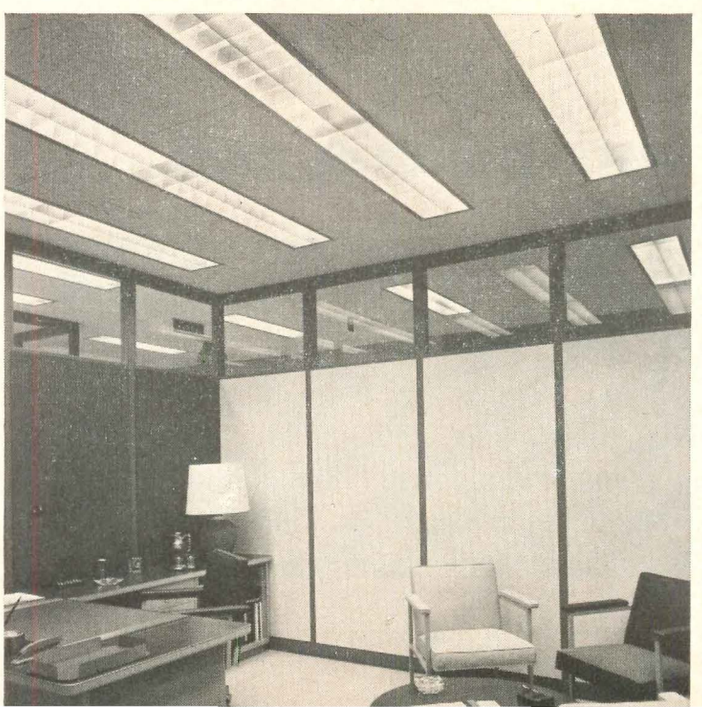


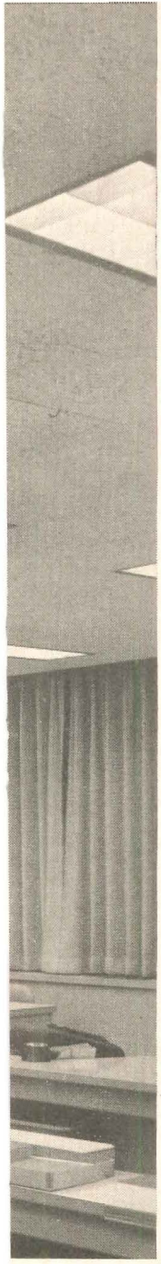
See Neo-Ray's new QUIET-CEL Louvered Ceiling at the La Fonda del Sol Restaurant, Time-Life Building, New York City

Day-Brite PARAFLO® Troffers with patented PARALOUVERS® simplify ceiling appearance and planning by eliminating the need for separate air diffusers . . . deliver 100 footcandles with a minimum of glare. PARAFLO Patent Nos. 2,845,854 - 2,845,855 - 572,565 - 575,897 PARALOUVER Patent Nos. 26,833,799 - 507,541

Sleek fixture appearance complements modern wall treatment throughout building.



Pure Oil Company Building, Palatine, Illinois
Architect: *Perkins & Wills;* Electrical Contractor: *Kelso Burnett Co.*



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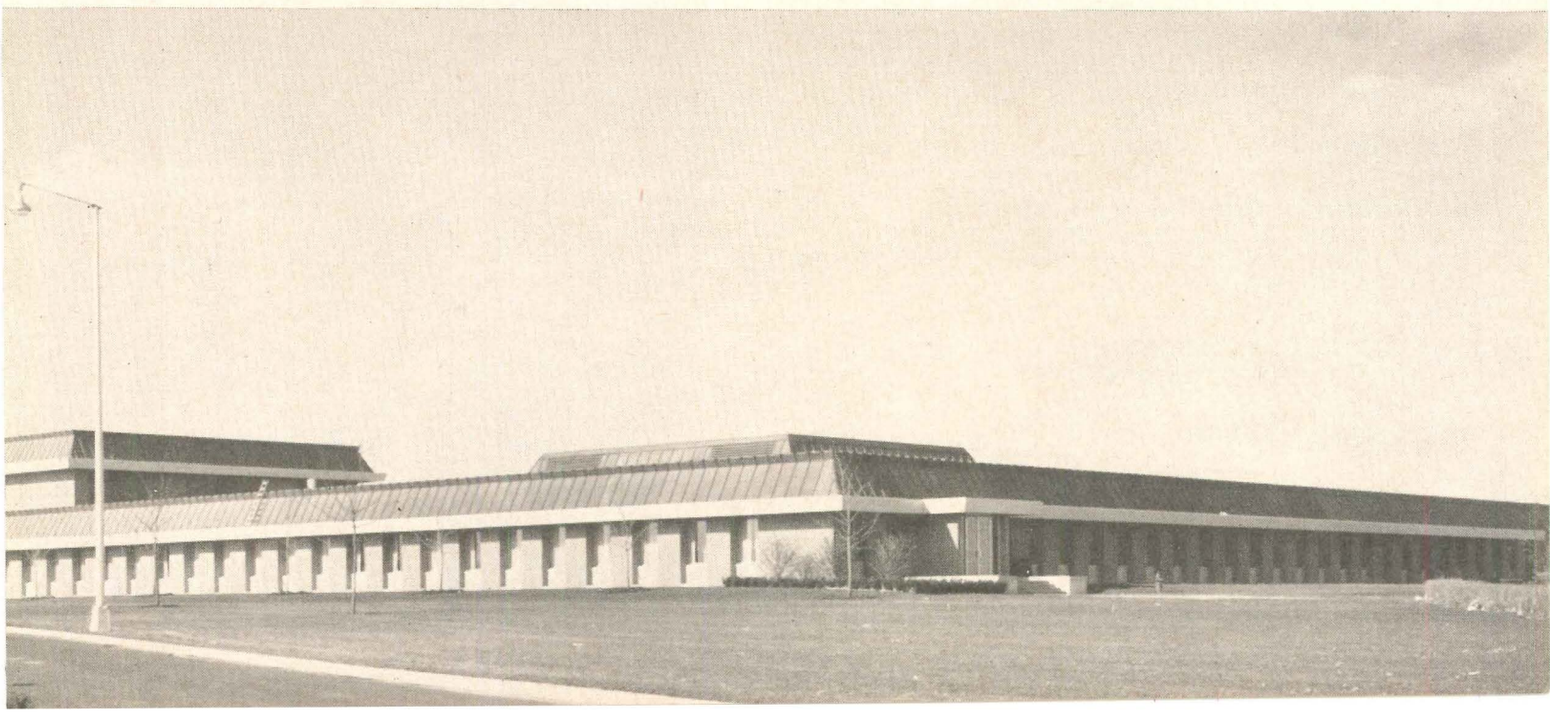
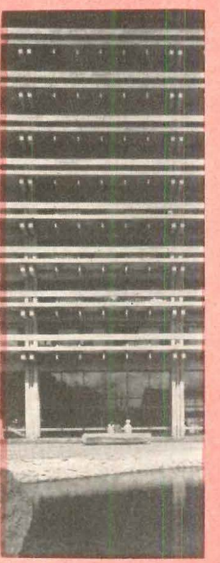


Architectural Engineering



Cover:

Detail, Kagawa Prefecture Hall at Takamatsu, Japan. Kenzo Tange, architect

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ARCHITECTURAL RECORD April 1961 Vol. 129, No. 4

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ARCHITECTURAL

Record Reports

Architects and Buildings

Authors and Articles

Features

RECORD

CONTENTS

April 1961

Building Types Study 293: Special Schools

Coming in the Record

ARCHITECTURE AS URBAN DESIGN

A city planning official who believes in design as both catalyst and technique has created a "Philadelphia story" of the most absorbing significance to architects as their concern with broader problems of urban design increases. The story will be told by Edmund Bacon, A.I.A., executive director of the Philadelphia City Planning Commission, at the A.I.A.'s national convention in Philadelphia later this month; and in a 16-page presentation with very special drawings in the May issue of the RECORD.

BUILDING TYPES STUDY: FACILITIES FOR RETAILING

Shopping centers have come a long way, and now that they are established as community institutions, their concern with making the shopping environment a pleasant *as well as a* practical *merchandising tool has added a new dimension to the functional design of shopping centers. This is the kind of challenge to which arthitects respond with special eagerness, and next month's study will present some nice examples of current architectural results. Also an article on planning principles by an architect of considerable experience with the type, Louis G. Redstone of Detroit.*

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

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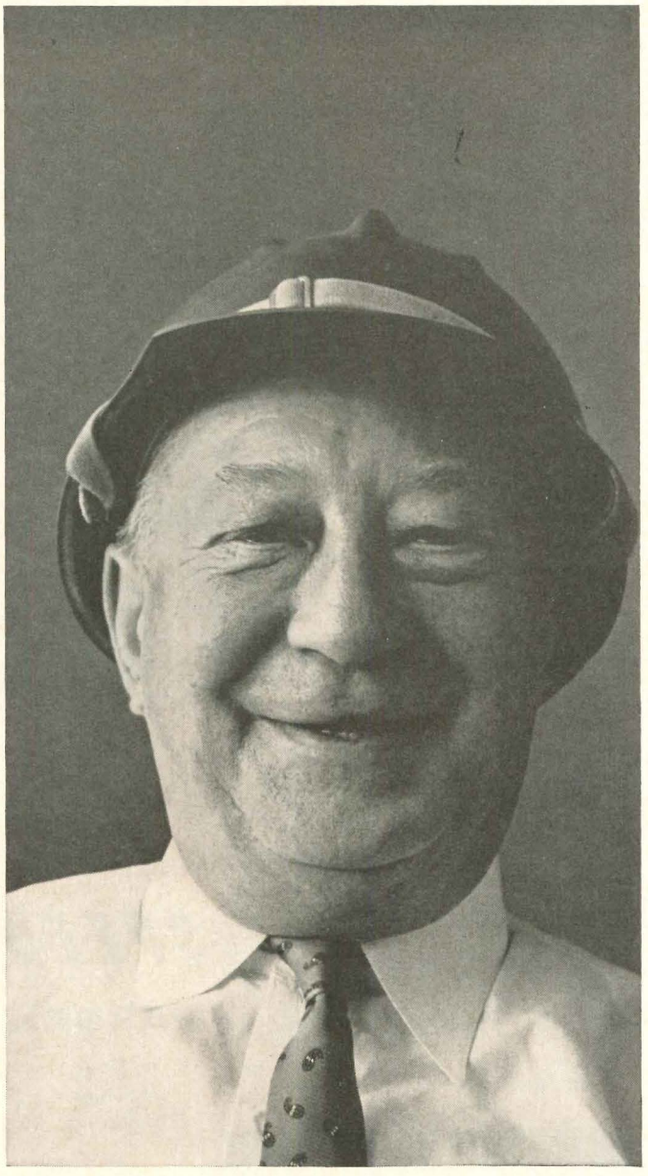

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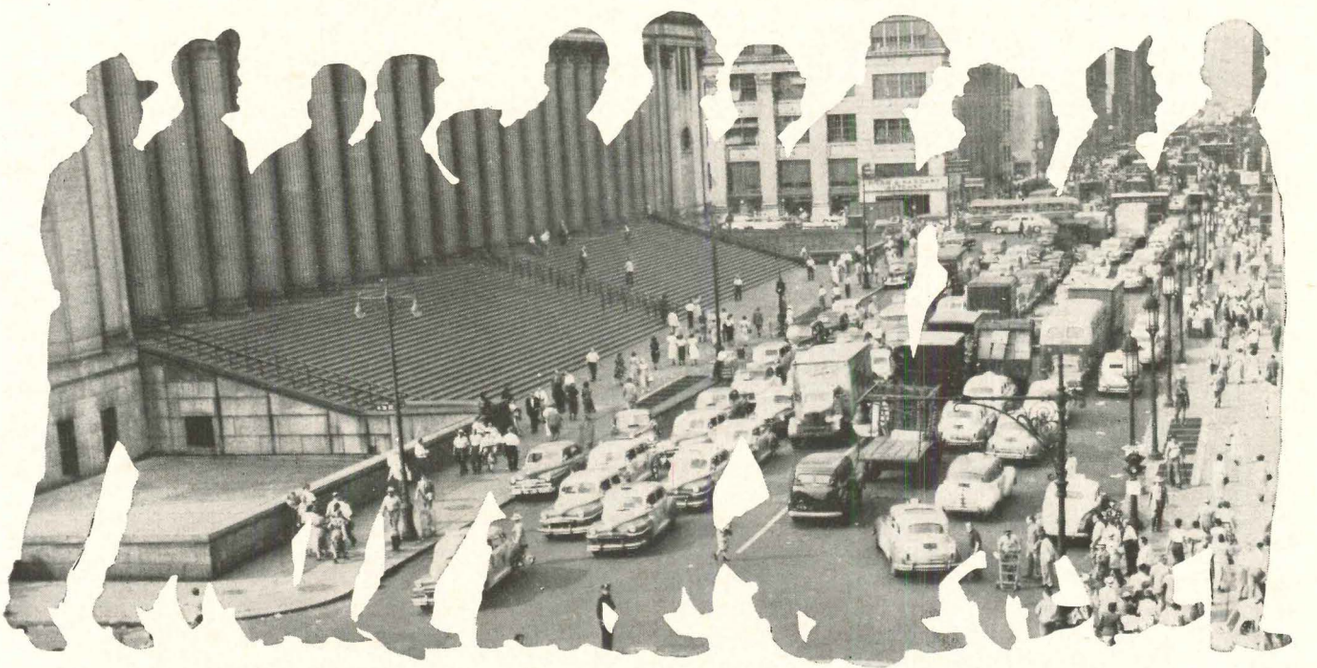

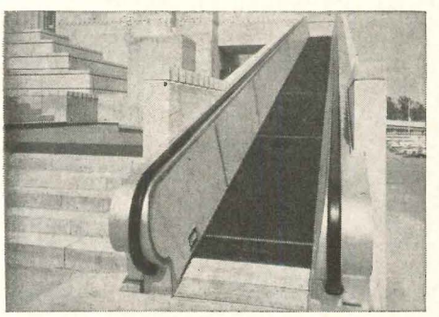

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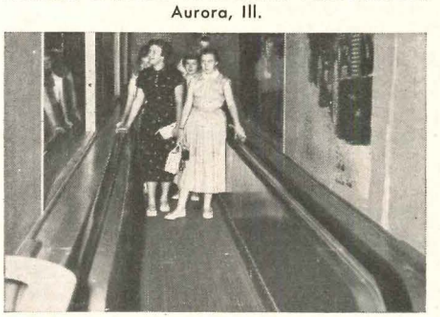

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"Unity in Diversity"

The Piazza San Marco, "this arch example of perfection," said the good doctor in winding up an address (it brought the audience to its feet), "is an ideal illustration of my credo, 'unity in diversity'."

The doctor is of course Walter Gropius, and the occasion was the first of the Four Great Makers convocations in progress at Columbia's School of Architecture. Whether such unity and order could be achieved in our time, and how we might undertake it, had occupied the doctor in what had the sound of a valedictory. He closed with a vision of architectural collaboration which he promised was not easy but which he considered necessary if we are to find any organic order in our present chaotic scramble.

The problem: ". . . confusion and chaos. It seems that the inherent tendencies of an architecture of the twentieth century as they were born fifty years or so ago and appeared then as a deeply felt, indivisible entity to their initiators, have been exploded into so many fractions that it becomes difficult to draw them together to coherence again. Technical innovations, first greeted as delightful new means-to-an-end, were seized separately and set against each other as ends in themselves; personal methods of approach were hardened into hostile dogmas; a new awareness of our relationship to the past was distorted into a revivalist spirit; our financial affluence was mistaken for a free ticket into social irresponsibility and art-for-art's-sake mentality; our young people felt bewildered rather than inspired by the wealth of means at their disposal. They were either trying to head for safe corners with limited objectives or succumbing to a frivolous application of changing patterns of 'styling' or 'mood' architecture. In short, we are supposed to have lost direction, confidence, reverence; and everything goes."

The collaborative approach: ". . . I have tried, since a long time, therefore, to give more incentive to such a state of mind by developing a spirit of voluntary teamwork among groups of architects. But my idea has become almost suspect since so many of my colleagues are still wedded to the 19th century idea that individual genius can only work in splendid isolation. Just as our profession 50 years ago closed their eyes to the fact that the machine had irrefutably entered the building process, so now it is trying to cling to the conception of the architect as a self-sufficient, independent operator, who, with the help of a good staff and competent engineers can solve any problem, and keep his artistic integrity intact. This, in my view, is an isolationist attitude which will be unable to stem the tide of uncontrolled disorder engulfing our living spaces. It runs counter to the concept of Total Architecture which is concerned with the whole of our environmental development and demands collaboration on the broadest basis. Our present casual way of solving problems of collaboration on large projects is simply to throw a few prominent architects together in the hope that five people will automatically produce more beauty than one. The result, as often as not, becomes an unrelated assemblage of individual architectural ideas, not an integrated whole of new and enriched value. It is obvious that we have to learn new and better ways of collaboration.

"In my experience these call first of all for an unprejudiced state of mind and for the firm belief that common thought and action is a precondition for cultural growth. Starting on this basis, we must strive to acquire the methods, the vocabulary, the habits of collaboration with which most architects are unfamiliar. This is not easy to accomplish. It is one thing to condition an individual for cooperation by making him conform; it is another, altogether, to make him keep his identity within a group of equals while he is trying to find common ground with them. It is imperative, though, that we develop such a technique of collaboration to a high degree of refinement since it is our guaranty for the protection of the individual against becoming a mere number and, at the same time, for the development of related expression rather than of pretentious individualism."

Thus the image of the architect, by one of our greatest living practitioners. *Emerson Goble*

Letters

WANTED: MORE ON ANALYSIS

In your May 1959 issue, which I have just seen, you published an article entitled "Architectural Analysis—Prelude" by Mr. William M. Pena and Mr. William W. Caudill. I found this article an excellent one, and I feel that architectural magazines generally do not give enough space to the subject of architectural analysis.

As well as being extremely interesting to practising architects, articles of this nature are particularly valuable to architectural students and lecturers in architecture.

I feel that the prestige of your magazine would be further enhanced if you would publish more articles in this vein. A series of articles giving a complete synopsis of architectural analysis would be very well received.

Norman G. Lehey
Senior Lecturer in Architecture
Technical College, Kuala Lumpur,
Federation of Malaya

EDUCATING CLIENTS

I found your article entitled College Buildings in the November issue extremely interesting; in fact so informative that I would like to get some reprints of the article in order to send them to some college people with whom I work, and have worked.

I have served as Consulting Architect for the University of Texas, Southern Methodist University, and for Hendrix College at Conway, Arkansas, and I believe that the Presidents of these institutions, together with the Regents and Building Committees, would find the article invaluable to them.

Mr. Saarinen has brought out a number of points which this office has advocated, for which we were sometimes criticized severely, even by the local press. In any event, it is a sound article by a man who evidently has had experience in this field and has encountered some of the problems that we have encountered.

If there are no reprints we will want to order some additional copies of this November issue, if there are any available. An early reply to this letter will be appreciated.

Mark Lemmon, Architect
Dallas

RECORD HOUSES AWARDS

Award certificates have recently been sent to the architects and owners of houses selected for inclusion in the RECORD's annual mid-May issue, RECORD HOUSES, from its inception in 1956 till now. Following are excerpts from acknowledgements received.

Many thanks for having forwarded the certificates of award for RECORD HOUSES. One should also say that it is also due to the efforts of magazines such as yourselves that good architecture is possible. That is, through the vast resources of the magazine and the wide distribution, it is possible to encourage the best, by careful and astute choice of what is to be shown.

Howard Barnstone
Houston 6, Texas

Thank you very much for your letter of March 9, with the handsome award certificates from RECORD HOUSES.

I certainly feel that this is an excellent idea and one that promotes good relations not only with the architects, but with his clients. RECORD HOUSES is to be congratulated for its continued leadership in quality.

P. M. Bolton
Houston, Texas

Your certification of award for my residence which was published in the ARCHITECTURAL RECORD in 1956 was appreciated very much. I am keenly aware of the contribution that your magazine is making to the architectural profession, and am happy to have had a small part as a contributor.

Truett H. Coston
Oklahoma City, Oklahoma

I wish to thank you for the handsome sheepskin in recognition of our RECORD HOUSE.

Best wishes to you and the Record.

Harry Weese
Chicago, Illinois

Thank you for your nice note about your award to us on the Barron house. I appreciate both your note and the award.

Minoru Yamasaki
Birmingham, Michigan

I was agreeably surprised to receive the ARCHITECTURAL RECORD award for my house in Cambridge. I want to thank you and the ARCHITECTURAL RECORD for this distinction.

Jose Luis Sert
Cambridge, Massachusetts

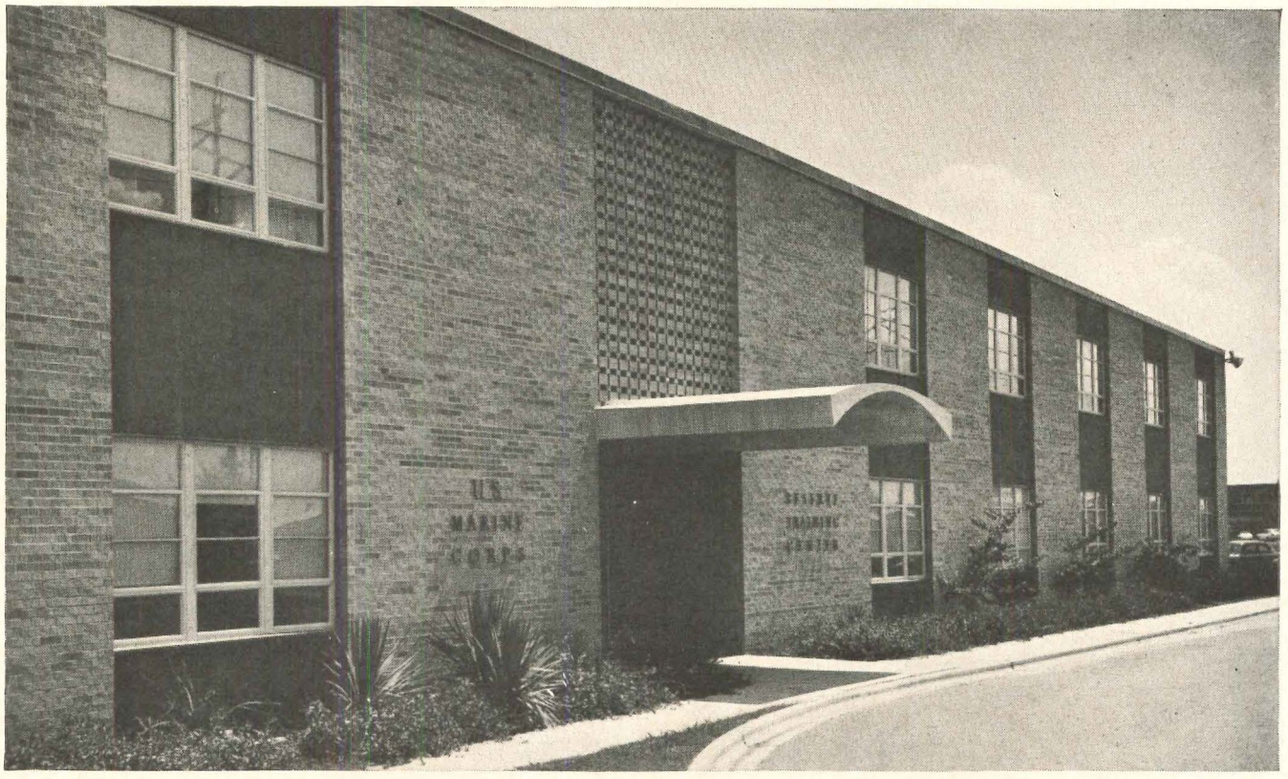
Thank you very much for sending Rufus Nims and my retroactive Record awards. We have always been very proud of having had our work selected by you, and—however immodestly—we have greedily coveted the certificates of award which you at last sent. I'm sure the other architects receiving them feel the same way.

There is one problem however which grows from the pride Rufus and I both have in these awards—and that is how to share the single copy of our joint awards, one for the Miller house and one for the Ratner house, which we did together, since we have separate offices. Could you possibly rescue us from our dilemma and send us a duplicate for these? We'd be most grateful.

Robert B. Browne
Miami, Florida

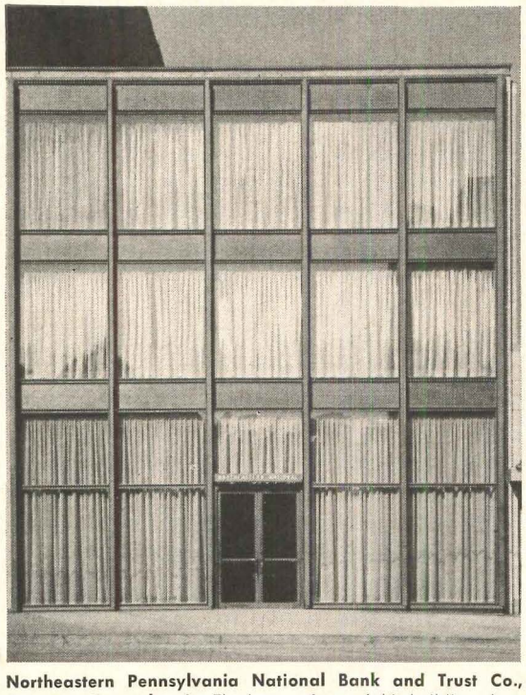
Many thanks for the certificates which you have sent us. We are very much pleased to have them and I have forwarded to the house owners the ones which were indicated for their trophy rooms.

Eliot Noyes
New Canaan, Connecticut



U. S. Marine Corps Reserve Training Center, Houston, Texas. This building has window heads, spandrels and aprons of finely corrugated 24-ounce copper, and copings of plain copper. The copper will be naturally weathered to its pastel blue-green patina. *Architect:* Wilson, Morris, Crain & Anderson, Houston. *General Contractor:* Baxter Construction Company, Inc., Houston. *Sheet Metal Contractor:* A. M. Bowles Company, Houston.

ANACONDA METALS FOR CURTAIN-WALL CONSTRUCTION



Northeastern Pennsylvania National Bank and Trust Co., Scranton, Pennsylvania. The bronze front of this building characterizes modern design employing extruded shapes of Architectural Bronze and sheets of heavy-gage Muntz Metal. The two materials are combined with glass to provide the enduring beauty and feeling of stability so important in banking institutions. All of the bronze was treated to produce a statuary bronze finish. *Architect:* George M. D. Lewis, Scranton. *Fabricator:* Standard Iron Works, Scranton.

No other architectural metals possess the versatility and enduring beauty of copper and its alloys—or lend themselves so readily to forming, fabricating and variable finishing to portray concepts of architectural design. Metals readily adaptable to curtain-wall construction include Copper, Red Brass, Architectural Bronze, Muntz Metal, Nickel Silver and Everdur® (copper-silicon alloy).

One of the great virtues of copper and its family of alloys is that they will weather naturally to a beautiful patina. Or chemical treatment will produce a color effect which rivals the beauty of weathered copper or bronze.

Illustrated here are two examples of curtain-wall design employing different materials and forms. Details of these and other curtain-wall designs are given in our new publication, "Architectural Metals by Anaconda." Its 64 pages also give practical and detailed information on the metals, their compositions, colors, forms, physical properties, architectural applications, instructions for obtaining various finishes, detailed specifications and many pages of fabricators' shop drawings. For *your* copy, address: Anaconda American Brass Co., Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

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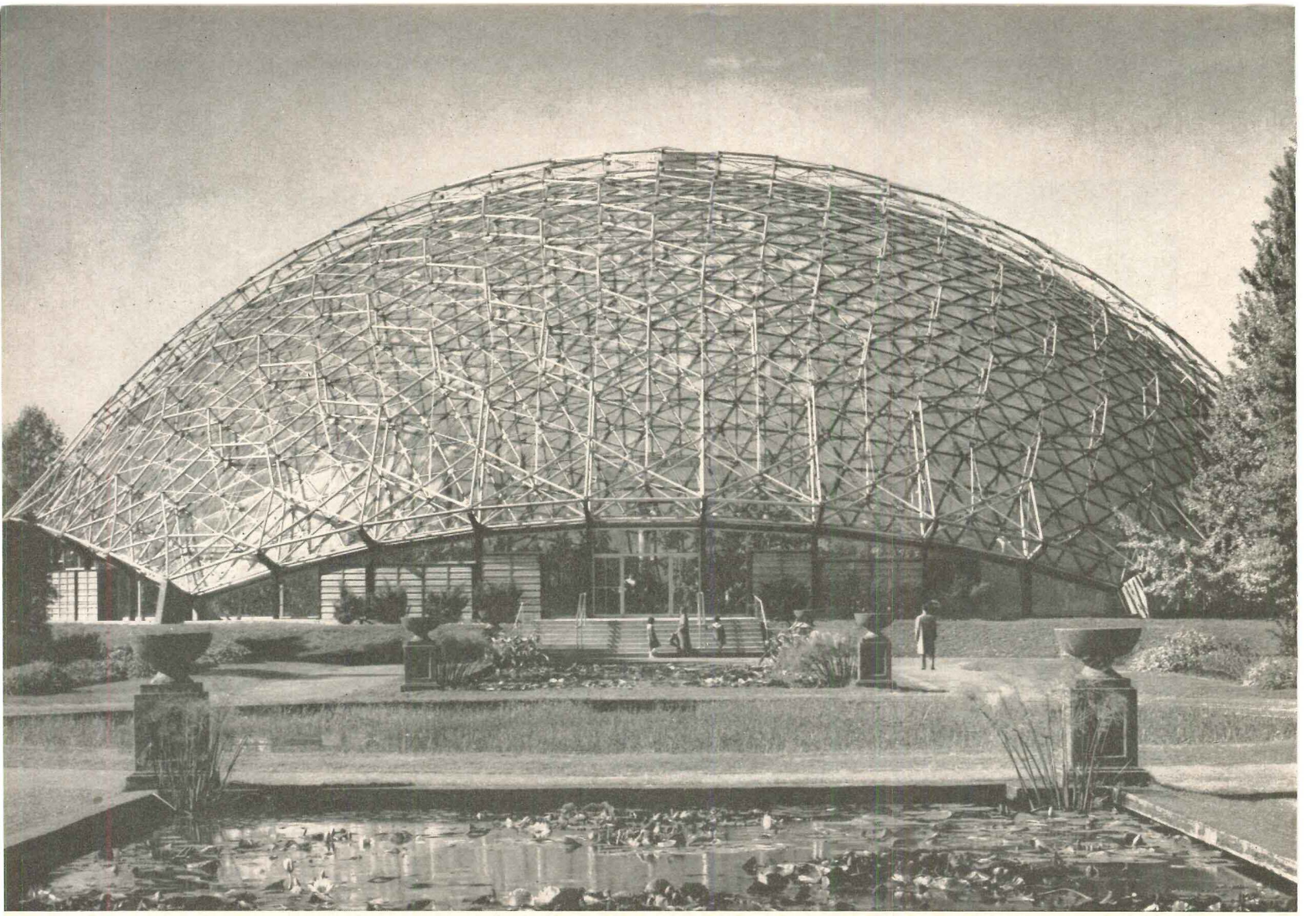

Hedrich-Blessing

MURPHY & MACKEY WIN 1961 REYNOLDS AWARD

For the first time since its inception five years ago, the $25,000 R.S. Reynolds Memorial Award, the largest annual international award for architectural excellence, has been conferred on an American architectural firm. Previous awards having gone to architects in Spain, Belgium, Australia and Switzerland, this year's winner is the St. Louis firm of Murphy and Mackey. The two partners, Joseph D. Murphy, F.A.I.A., and Eugene J. Mackey, A.I.A., were honored for their design of the Climatron, a display greenhouse in the Missouri Botanical Garden in St. Louis.

Working from garden director Dr. Frits Went's concept requiring a dramatic public botanical showcase with closely controlled and varied climatic conditions for research, the architects designed the 175-ft-diameter, 70-ft high Climatron, an aluminum and plexiglass geodesic dome based on the principles of R. Buckminster Fuller. Its precise climate control suggesting its name, the Climatron's displays form four areas, each with its own simulated geographic setting—representing the climate and vegetation of Hawaii, India, Java and the Amazon area. A special air conditioning system permits the varying "climates" without physical compartmentation of the four climate areas.

According to the jury, unanimous in its selection of the winning design, the dome is "sensitively executed and strikingly appropriate to its purpose . . . The tropical lyricism of the botanical displays seems so successfully carried out by the architects that it must be a marvelous experience for the visitor to enter this great space."

Jury members were: Minoru Yamasaki, F.A.I.A.; Paul Thiry, F.A.I.A.; Hugh A. Stubbins Jr., F.A.I.A.; Henrique R. Mindlin, F.A.I.A.; Samuel T. Hurst, A.I.A.

The recipients of the 1961 award for "a significant work of architecture in the creation of which aluminum has been an important contributing factor" are both graduates of Massachusetts Institute of Technology and former professors of architecture at Washington University, St. Louis. Mr. Murphy and Mr. Mackey were also past presidents of the St. Louis A.I.A. chapter.

Collaborators on the project were Paul Londe, mechanical engineer, and James Fitzgibbon, structural consultant. North American Aviation, Inc. fabricated and erected the structure; C. Rallo Contracting Company, Inc. built the foundation.

The jury for the 1961 Reynolds Memorial Award reviews the nominated structures at A.I.A. headquarters, Washington, D.C. Left to right are Hugh A. Stubbins Jr., jury chairman Minoru Yamasaki, Henrique E. Mindlin, Samuel T. Hurst and Paul Thiry

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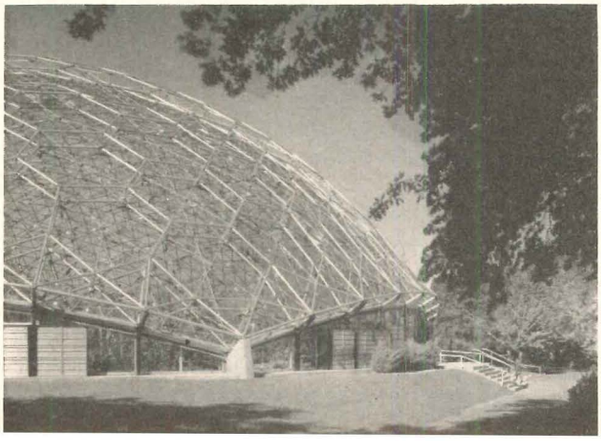


Hedrich-Blessing

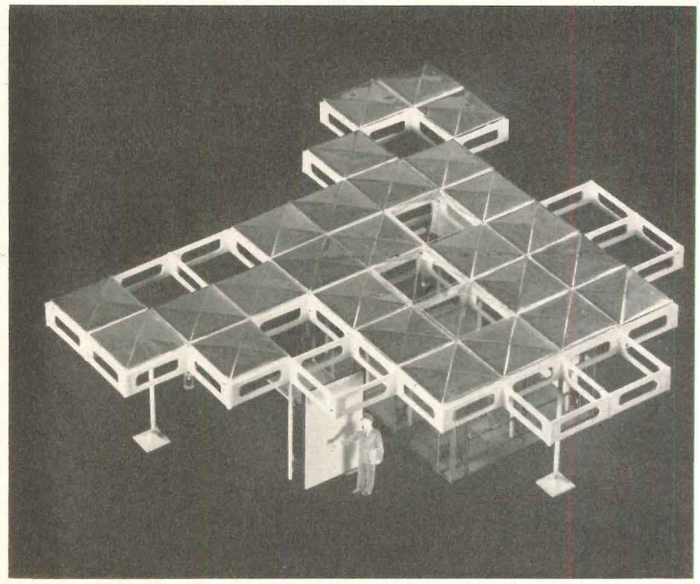
REYNOLDS AWARDS FIRST $5000 STUDENT PRIZE

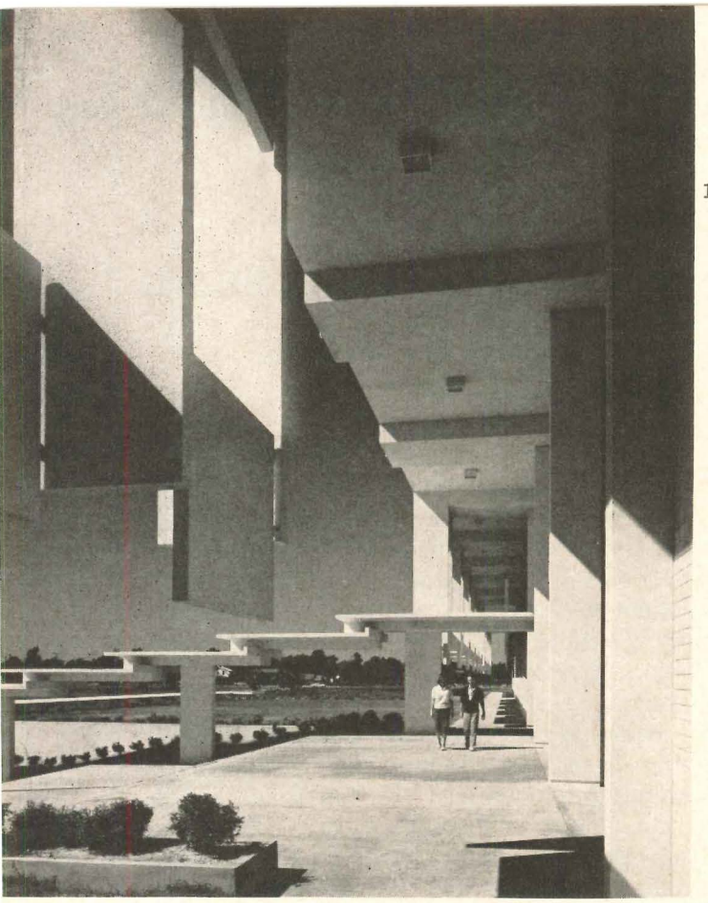
The first annual $5000 Reynolds Aluminum Prize for Architectural Students has been won by John L. Dewey, fifth year student at the University of Cincinnati. The award for "the best original design of a building component in aluminum" will be presented during the April A.I.A. convention in Philadelphia. The prize will be divided equally between the University and Mr. Dewey.

Below is a photo of the model of the winning design, a "Component Structure of Aluminum," intended for downtown pedestrian plazas as display centers, rest areas, information booths or bus stop shelters. Designed to be fast and easy to assemble, the structure is poised on a minimum number of integral columns. Four five-ft truss panels are joined to a column to form a structural "tree", which combine in rectangular or irregular shapes to develop the desired structure. Aluminum roof panels and plastic skylights attach to the frame.

Judging the submissions from 32 schools were: George Matsumoto, A.I.A.; George F. Pierce Jr., A.I.A.; Thomas J. Biggs, A.I.A.

The jury singled out as "runner-up" designs those by Wolfgang Jabs, Stanford University, and Richard B. Norman, University of Michigan. A design by Anthony S. Predock, University of New Mexico, was awarded an honorable mention.





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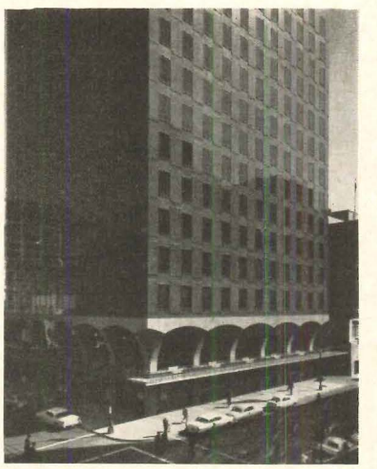

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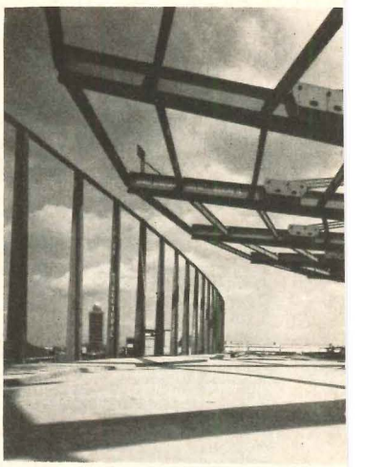


3

1. First Prize: Joseph W. Molitor, photographer. Sarasota High School, Sarasota, Fla. Architect, Paul Rudolph

2. Second Prize: George Knight, photographer. John Hancock Building, San Francisco, Calif. Architect, Skidmore, Owings & Merrill

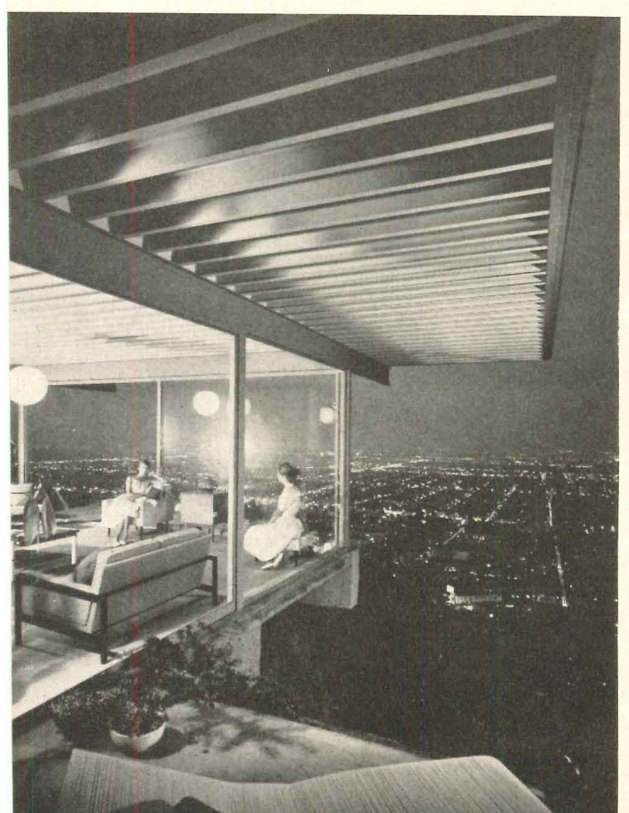
3. Third Prize: David Hirsch, photographer. Pan American Terminal Building, Long Island, N.Y. Architect, Tippets-Abbett-McCarthy-Stratton; Ives, Turano & Gardner, Assoc. Arch. & Engr.

A.I.A.-A.P.A. ANNUAL PHOTOGRAPHY AWARDS

In the fourth competition sponsored by the Architectural Photographers' Association and the American Institute of Architects, six photographs were selected as winners. They are shown here—those in the black and white category above; those in the color category below. (This is the first year color photography was invited.)

On the jury were Robert Lautman, member of the A.P.A.; John H. Kyle, editor, John Hopkins Press; and Charles M. Goodman, F.A.I.A.

An exhibition "to recognize and encourage outstanding work in architectural photography . . ." is being circulated nationally by the Traveling Exhibition Service of the Smithsonian Institution.



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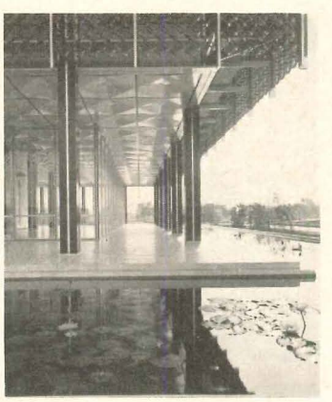

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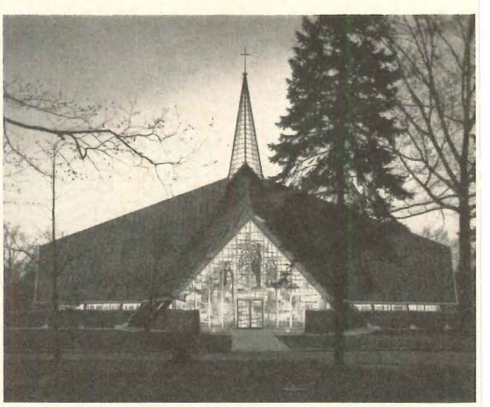


6

4. First Prize: Julius Shulman, photographer. Case Study House No. 22 for the magazine *Arts & Architecture*. Architect, Pierre Koenig

5. Second Prize: Baltazar Korab, photographer. Reynolds Metal Building, Great Lakes Headquarters, Detroit. Architect, M. Yamasaki & Associates

6. Third Prize: Lawrence S. Williams, photographer. Christ Chapel at Episcopal Academy, Philadelphia. Architect, Vincent G. Kling

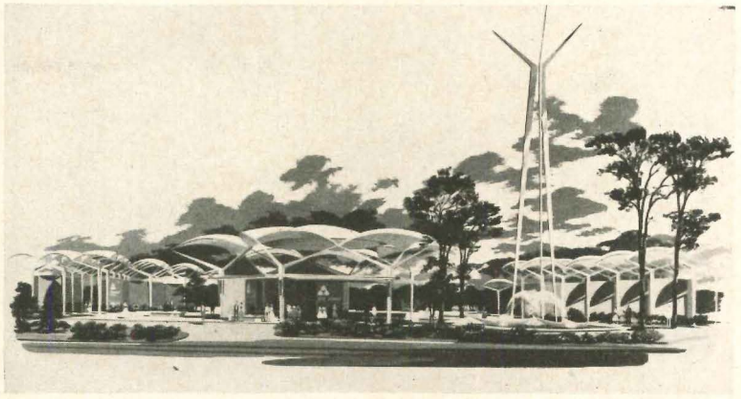
NEW JERSEY NAMES FOUR WINNERS IN WORLD'S FAIR COMPETITION

The first of a two-stage competition for the design of New Jersey's two-acre site of the 1964-65 World's Fair, a focal point for the celebration of New Jersey's 300th anniversary, was completed in February. Preparation time for stage one was from January 3 to February 2.

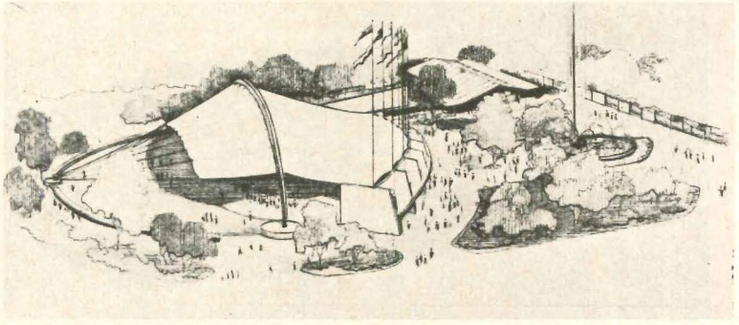
Four winners and five honorable mentions were chosen from 115 New Jersey architects' entries by a jury consisting of Robert S. Hutchins, F.A.I.A.; Percival Goodman, F.A.I.A.; and Robert W. McLaughlin, Director of Princeton University's School of Architecture. Professional advisor is Professor Sherley W. Morgan, F.A.I.A., Director Emeritus of Princeton's School of Architecture.

The four winning designs are shown on this page. On the basis of a new program, the four architects will develop final drawings for the state's exhibit. Each will be given $1000. The eventual winner will be the architect for the building at the Fair.

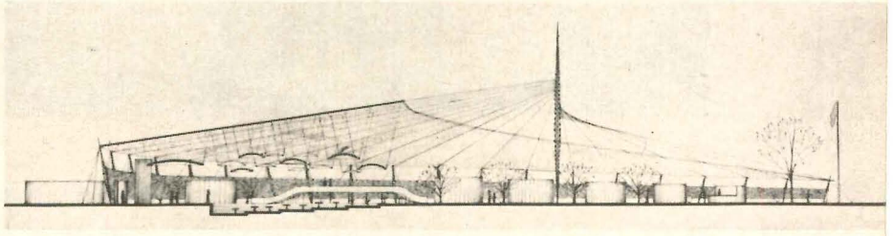
Honorable mentions were won by Martin L. Beck, of Princeton, in collaboration with J. Max Bond Jr.; Anthony V. Genovese, Ridgewood, with Herbert F. Maddalene, Paramus; John McMaster, Fair Lawn; Robert T. Dutter, Newark; Alfred Clauss and William C. Cranmer, Trenton, with associate designer Treat Arnold.



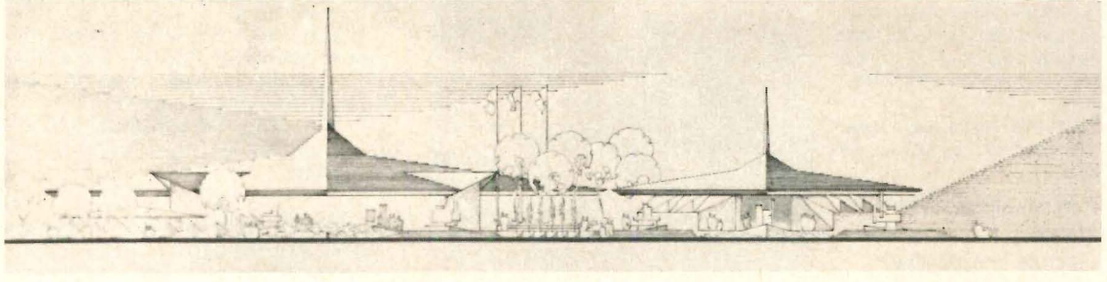
Bernard J. Grad, general partner
Harry B. Mahler, associate and chief designer
Howard N. Horii, designer
Mikio Kawakami, designer
Frank Grad & Sons, Newark, N.J.



John R. Diehl, Princeton, N.J.



Philip Sheridan Collins, Princeton, N.J.



George E. McDowell, Montclair, N.J.

for approximately

By doubling the thermal efficiency of most masonry walls. Zonolite Masonry Fill Insulation saves money and increases comfort.

This new insulation often pays for itself while a building is in the planning stages. Because of its high efficiency, smaller, less costly heating and air conditioning units frequently can be used. Savings on this equipment pays the low cost of Zonolite water-repellent Masonry Fill Insulation.

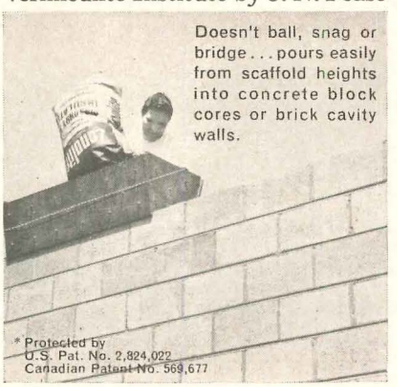
The approximate installed costs per sq. ft. of insulating walls of different sizes are:

10¢ for 6″ concrete block or 10″ brick cavity walls

13¢ for 8″ concrete block walls

21¢ for 12″ concrete block walls

Savings in operating costs were demonstrated in a study of a standard U.S. Corps of Engineers Army Barracks Building, conducted for the Vermiculite Institute by J. N. Pease & Co., architectural and engineering firm of Charlotte, N.C.

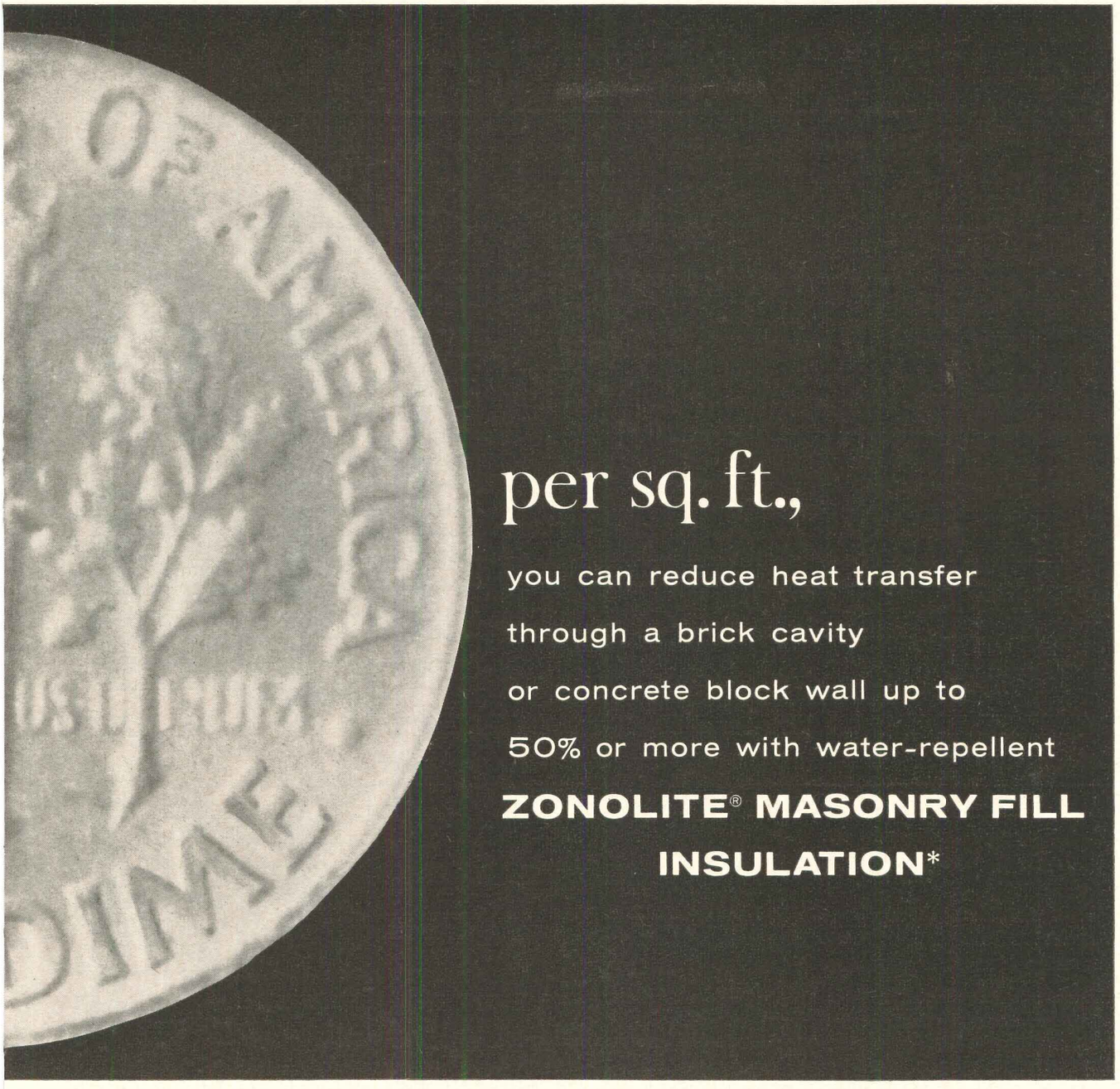


It showed that by insulating the walls of a two-story concrete block barracks, an $800 saving could be realized in the cost of the heating plant, thus paying more than half of the cost of the Zonolite Masonry Fill Insulation.

If the building were air-conditioned, the total cost of the insulation would be recovered before the building was occupied.

This unique insulation offers other benefits as important as its economy:

COMFORT: Interior wall temperatures are brought closer to skin temperatures. Radiant heat exchange is reduced about 30%,



providing greater comfort, winter and summer.

WATER PERMEABILITY: Field experience and laboratory tests prove that even if rain penetrates the exterior wythe (and it probably will) water will not be transmitted across the cavity, due to the patented water-repellency feature of the insulation.

SETTLING: It doesn't.

All these characteristics are confirmed in tests conducted by Penn State University and the Structural Clay Products Research Foundation.

You'll want complete data and specifications on this remarkable new way to insulate masonry walls. Mail the coupon today.

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- ☐ Have Zonolite Sales Engineer call.
- ☐ Send complete information on Zonolite Masonry Fill Insulation.
- ☐ I am interested in Masonry Fill Insulation for the following job:_____

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*City*_____ *Zone*_____ *State*_____

Construction Cost Indexes

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

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

NEW YORK

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1949	243.7	240.8	242.8	246.6	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	274.9	271.8
1952	278.2	274.8	271.9	265.2	262.2
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
1955	293.1	286.0	300.0	308.3	302.4
1956	310.8	302.2	320.1	328.6	324.5
1957	318.5	308.3	333.1	345.2	339.8
1958	328.0	315.1	348.6	365.4	357.3
1959	342.7	329.0	367.7	386.8	374.1
1960	351.6	337.2	377.7	395.8	380.6
Nov. 1960	354.0	338.9	381.0	399.5	381.3
Dec. 1960	354.0	338.9	381.0	399.5	381.3
Jan. 1961	357.2	341.3	385.8	406.3	385.1
	% increase over 1939				
Jan. 1961	189.2	178.8	195.2	204.6	196.0

ATLANTA

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.0	224.6	221.3	221.8	223.0
1954	219.6	219.1	233.5	225.2	225.4
1955	225.3	225.1	229.0	231.5	231.8
1956	237.2	235.7	241.7	244.4	246.4
1957	241.2	239.0	248.7	252.1	254.7
1958	243.9	239.8	255.7	261.9	262.0
1959	252.2	247.7	266.1	272.7	273.1
1960	259.2	253.3	274.7	282.5	278.8
Nov. 1960	259.8	252.9	276.6	285.2	278.9
Dec. 1960	259.8	252.9	276.6	285.2	278.9
Jan. 1961	259.1	252.0	276.5	285.2	278.8
	% increase over 1939				
Jan. 1961	200.2	203.2	190.7	192.8	194.4

ST. LOUIS

1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.0	259.2
1954	266.6	260.2	263.7	273.3	266.2
1955	273.3	266.5	272.2	281.3	276.5
1956	288.7	280.3	287.9	299.2	293.3
1957	292.0	283.4	295.2	307.1	302.9
1958	297.0	278.9	304.9	318.4	313.8
1959	305.4	296.4	315.0	329.8	323.9
1960	311.4	301.0	322.2	337.2	329.2
Nov. 1960	312.8	301.9	324.6	339.6	329.6
Dec. 1960	312.8	301.9	324.6	339.6	329.6
Jan. 1961	313.0	300.7	326.1	343.1	330.7
	% increase over 1939				
Jan. 1961	184.0	181.0	174.7	186.4	177.9

SAN FRANCISCO

1930	90.8	86.8	100.6	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.0	259.7
1954	257.4	249.2	264.1	272.5	267.2
1955	268.0	259.0	275.0	284.4	279.6
1956	279.0	270.0	288.9	298.6	295.8
1957	286.3	274.4	302.9	315.2	310.7
1958	289.8	274.9	311.5	326.7	320.8
1959	299.2	284.4	322.7	338.1	330.1
1960	305.5	288.9	335.3	352.2	342.3
Nov. 1960	303.4	285.4	337.4	355.5	343.9
Dec. 1960	302.0	283.6	337.1	355.3	343.5
Jan. 1961	300.6	281.7	337.0	355.2	343.2
	% increase over 1939				
Jan. 1961	184.6	183.7	187.0	191.4	194.6

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

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

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

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

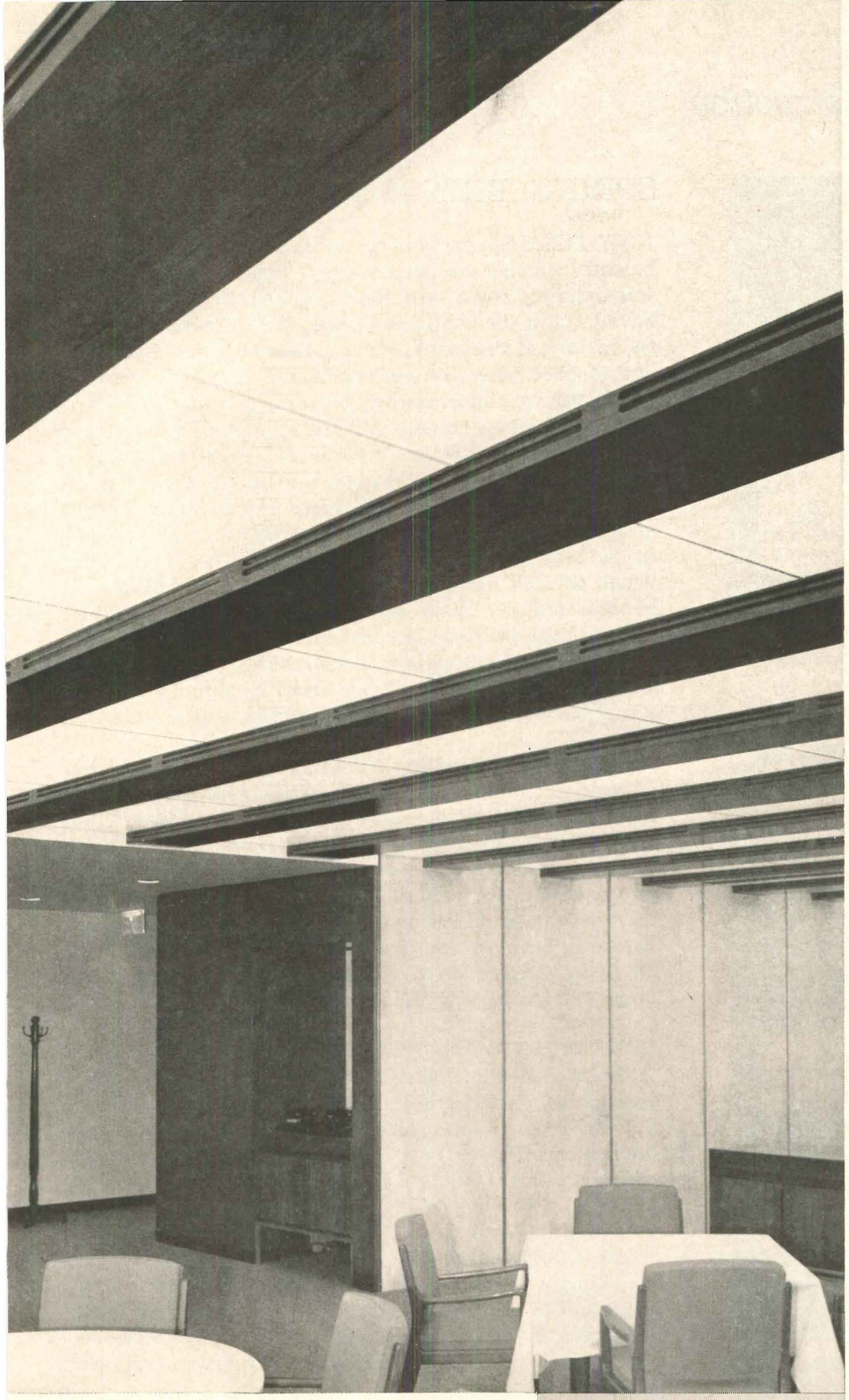
$$\frac{110-95}{95} = 0.158$$

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

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

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

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



Panels cast from Du Pont MONOCITE* provide soft, natural lighting in new Prudential Plaza Building

In the executive dining room and in the president's office of the Prudential Plaza Building, light-fixture panels cast from MONOCITE assure good, evenly balanced lighting.

Softer illumination, together with freedom from maintenance problems, are given as major reasons for the recommendation of cast acrylic sheets by the interior architectural design firm of Maria Bergson Associates, which designed these areas. In the dining room, the ceiling design involves thirty-inch-wide plastic sheets cast from Du Pont MONOCITE, with wooden beams twenty-four and one-half feet long running between the panels.

These panels, by Cast Optics Corporation, are designed to last the life of the lighting fixtures. They will keep their translucent beauty with only occasional cleaning with soap and lukewarm water.

It will pay you to find out how Du Pont's customers are using Du Pont MONOCITE to produce lighting-fixture shields that assure beautiful, glare-free illumination with a minimum of maintenance. For more information, write: E. I. du Pont de Nemours & Co. (Inc.), Department AR-4, Room 2507M, Nemours Bldg., Wilmington 98, Del.

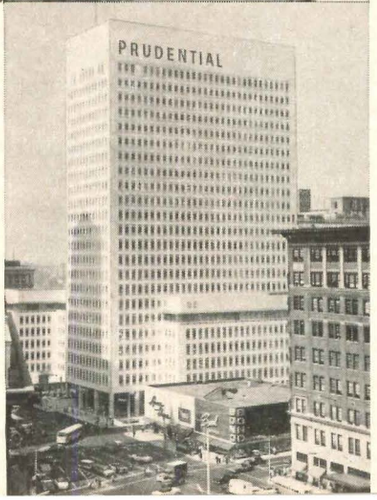
**Trademark for Du Pont's methacrylate monomer*

POLYCHEMICALS DEPARTMENT

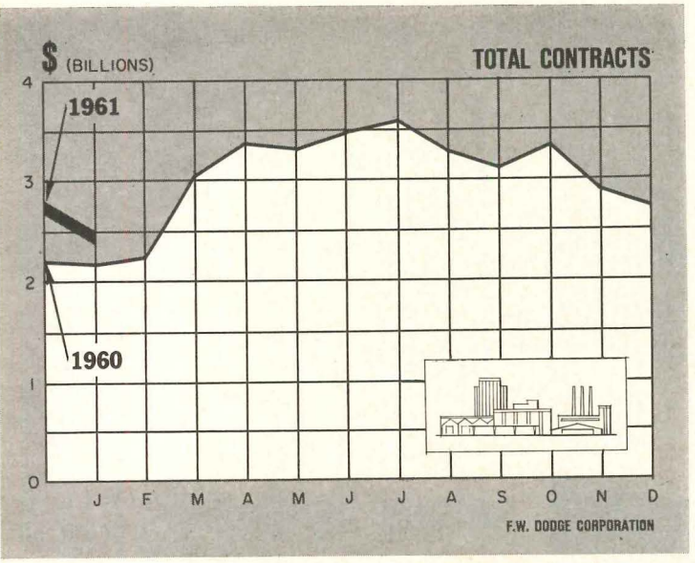
DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

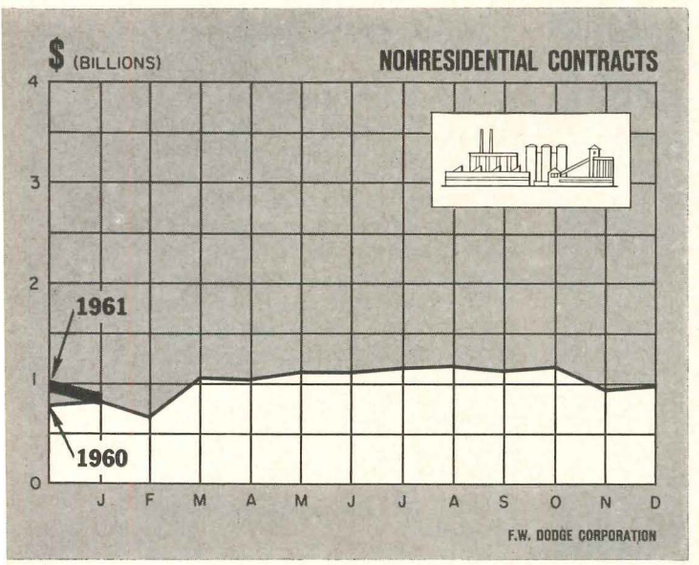
The Plaza Building of Prudential Life Insurance Company of America, 736 Broad Street, Newark, New Jersey. Architects: Voorhees Walker Smith Smith & Haines, N. Y. Interior Architectural Designers for area shown: Maria Bergson Associates, New York, N. Y. Installation: Beach Electric Co., Inc., and Lightning Electric Service Company, East Orange, N. J.

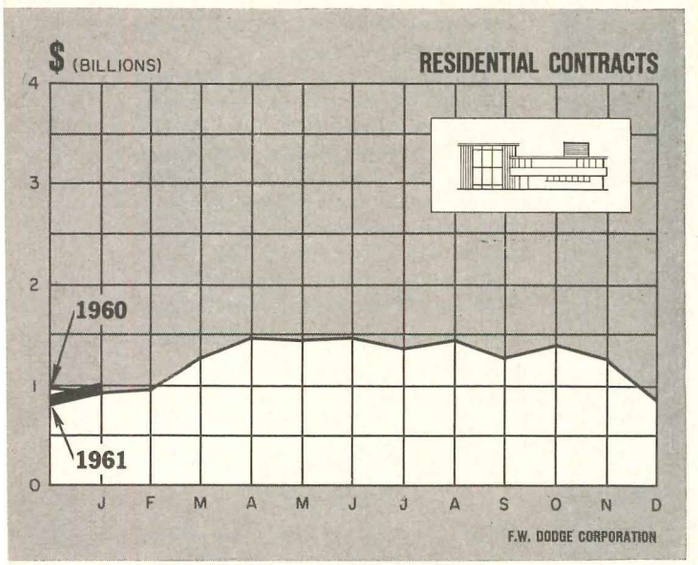


Lighting shield panels made by CAST OPTICS CORPORATION Hackensack, N.J.



Total contracts include residential, nonresidential, heavy engineering contracts





SPRING BRINGS BRIGHTER NEWS

NOW THAT Spring is here, harbingers of a thaw in the business climate are multiplying. Some indicators that were sliding downward have stopped, and others that have been in the depths are beginning to move up. When the history of the era is written, February may well turn out to have been the bottom of the current recession.

Because we almost always look at statistics which have been adjusted to account for the effects of normal seasonal variation, we are inclined to forget that after Christmas, the economy always falls into a state of mild torpor because of the physical and psychological effects of winter weather. And while the weather is always bad in January and February, this year was far worse than usual. In fact, even December set some new records for general misery. We'll probably never know just how much of the business dip this winter was due to purely economic factors, and how much resulted from the worst weather in the memory of the oldest inhabitants, but it's a safe bet that the latter was more than a little to blame.

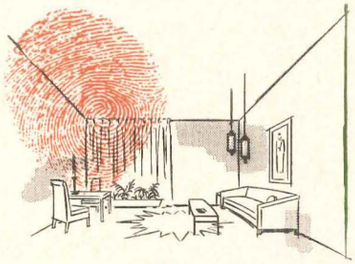
AMONG the cheerful notes: Industrial production stopped declining in February. Auto sales perked up a little in March. Steel consumption has been above the rate of production for months, as inventories were drawn down; and an improvement in production is due as orders go up. Orders for paperboard, used for packaging products, have been rising for three months. The stock market has been gaining in enthusiasm. And most important of all is the construction industry, which is in itself a tail large enough to wag the economic dog.

CONSTRUCTION CONTRACTS, as reported by F. W. Dodge Corporation, have actually been at record levels through all the miserable months of December, January and February. Work performed on jobs under way undoubtedly suffered from the weather, but planning and contract-letting went on at a great rate. The greatest upsurge in activity came in heavy engineering projects, including highways, electric utilities, and pipe lines. Some building types have also done well. Among them: apartments, hotels, public buildings. And, of course, schools. The only really sick area of construction is the single-family house, and as pointed out in this space before, there are hopes that easier money and government actions will soon have some effects.

SCHOOL BUILDING contracts reached a record high in 1960, climbing above three billion dollars for the first time in history. This total was far higher than the figure for industrial buildings or stores or office buildings. And the first reports for 1961 indicate that school contracts are continuing right on up. This is a hopeful sign, both economically and educationally.

GEORGE CLINE SMITH
Vice president and chief economist
F. W. Dodge Corporation

again from L.E. Carpenter, world leader in vinyl wallcoverings, a wonderful new wall treatment as personal as your fingerprint



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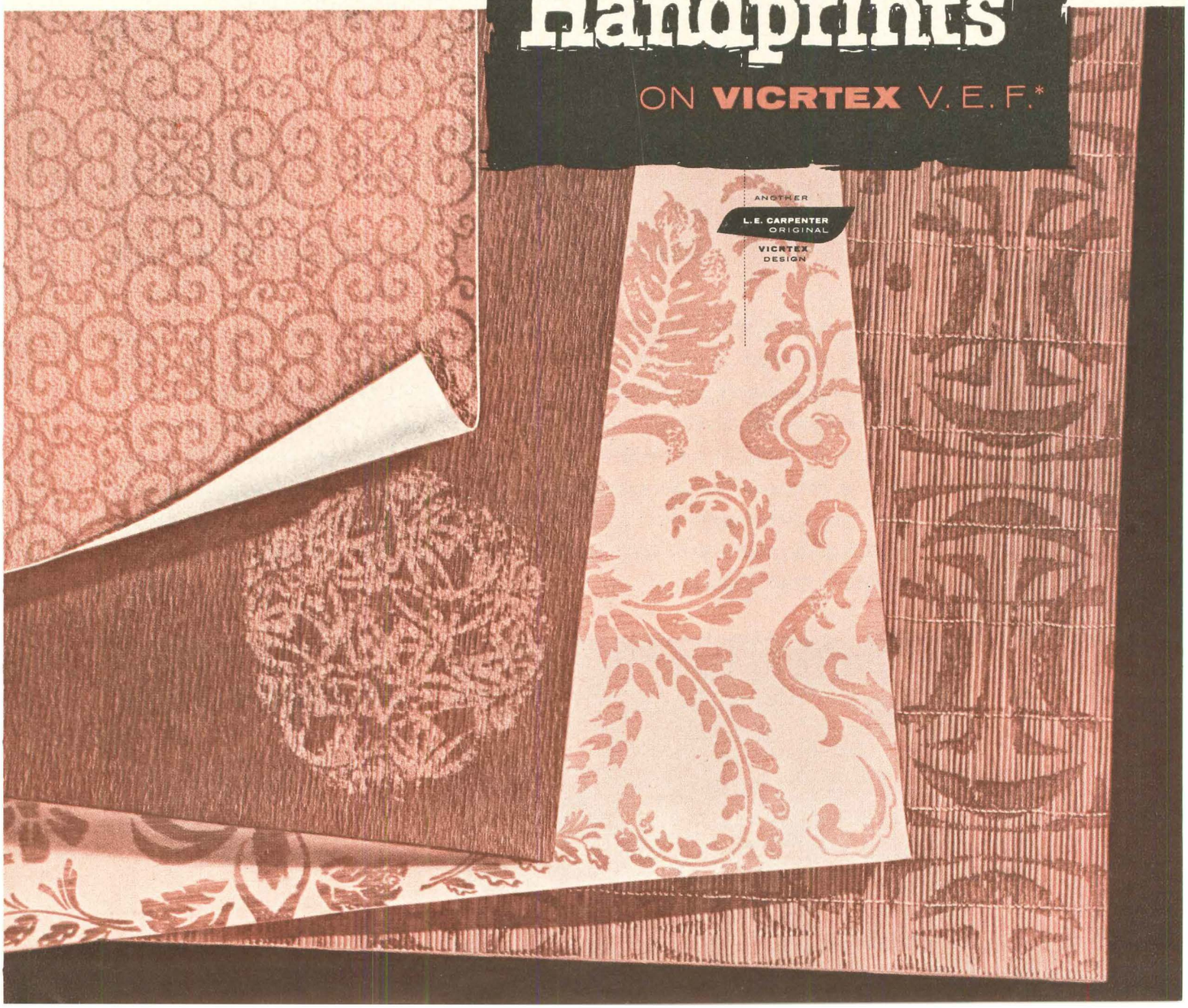
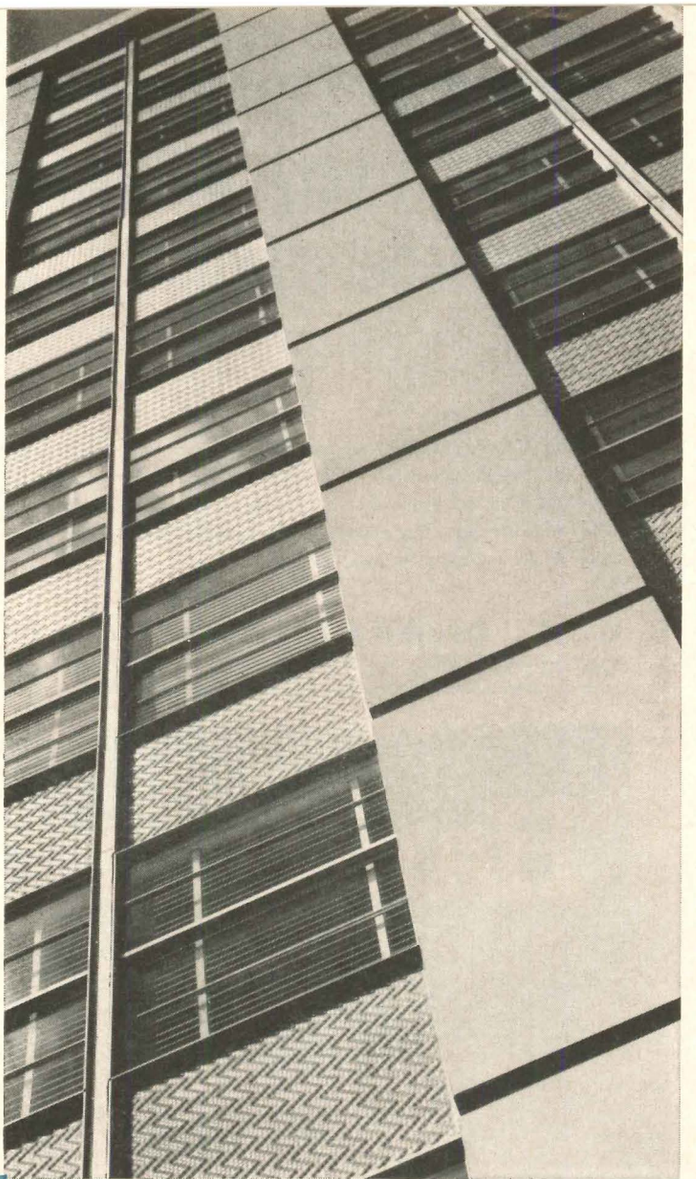
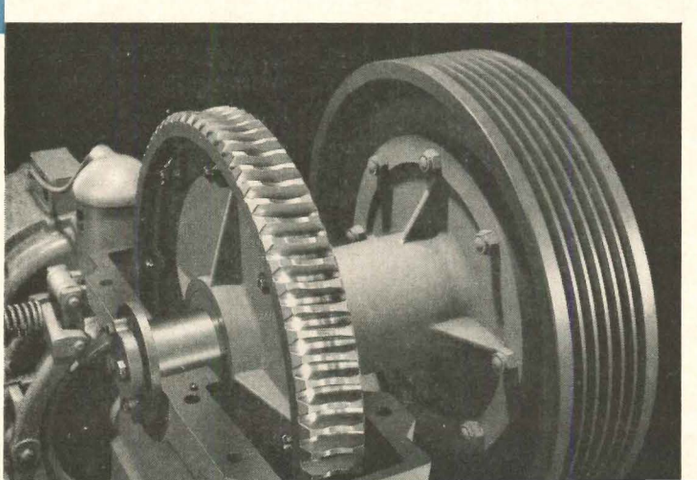




Attention to detail

Details are significant in building design . . . and in the equipment that goes into a building to make it function as the architect planned. For 100 years the manufacturers of Dover Elevators (formerly Shepard Elevators) have consistently improved elevator hoisting machinery with assiduous attention to details. Design of a better worm gear, for instance, contributes materially to long machine life and extremely quiet operation. Dover Elevators, geared and high-speed gearless, are now available throughout the United States and Canada. See our catalog in Sweet's or write Dover Corporation, Elevator Division, 1136 Kansas, Memphis 2, Tenn.



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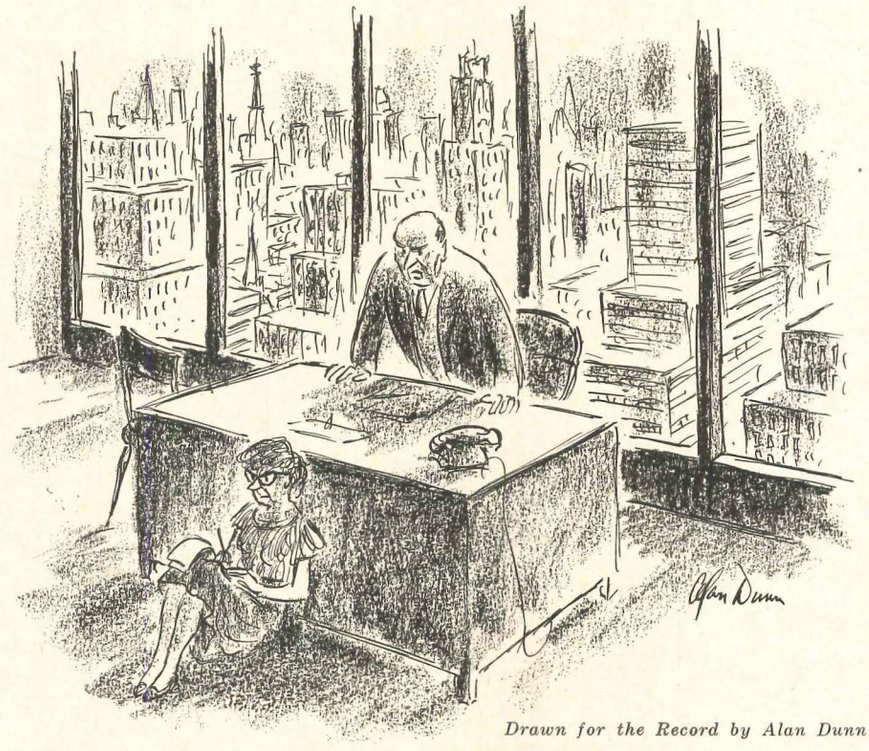


Drawn for the Record by Alan Dunn

"You'll just have to get over your acrophobia, Miss Jones, or look for a job in a sub-standard, old-fashioned, out-of-date building!"

Close to 3000 Expected At A.I.A.'s Philadelphia Convention

One of its largest conventions ever, with a total registration that is expected to reach 3000, is anticipated by the American Institute of Architects for its annual sessions in Philadelphia April 24-28.

"Redesigning Urban America" is the theme, and the professional program will include such speakers as Lewis Mumford, Bruno Zevi, and Edmund Bacon (for details, Feb. 1961, page 19).

LeCorbusier is expected to be present to receive the 1961 Gold Medal of the A.I.A. at the annual dinner.

One of the most active social programs ever has been planned by a host chapter committee headed by Beryl Price; it will be highlighted by a "command performance" of the Philadelphia Orchestra under the direction of Eugene Ormandy at the Academy of Music.

All of the A.I.A.'s incumbent officers have been nominated for re-election, with no contests developing in preconvention nominations.

Edmund Purves Receives Fitzpatrick Memorial Award

Edmund Purves, F.A.I.A., consulting director and former executive director of the American Institute of Architects, has been named as the 1961 recipient of the second annual F. Stuart Fitzpatrick Memorial Award. The award for "outstanding individual achievement in the unification of the building industry" will be given Mr. Purves at the Building Research Institute's Spring Conferences in Washington, D.C. on May 17.

Created last year through donations of more than 100 building industry associations, the award honors the memory of Mr. Fitzpatrick whose long and brilliant personal leadership in unifying diverse elements of the building industry included a pioneering role in the founding and growth of the B.R.I. He was for 25 years manager of the Construction and Civic Development Department of the U.S. Chamber of Commerce.

U.S. Theatre Institute Elects Architect among New Officers

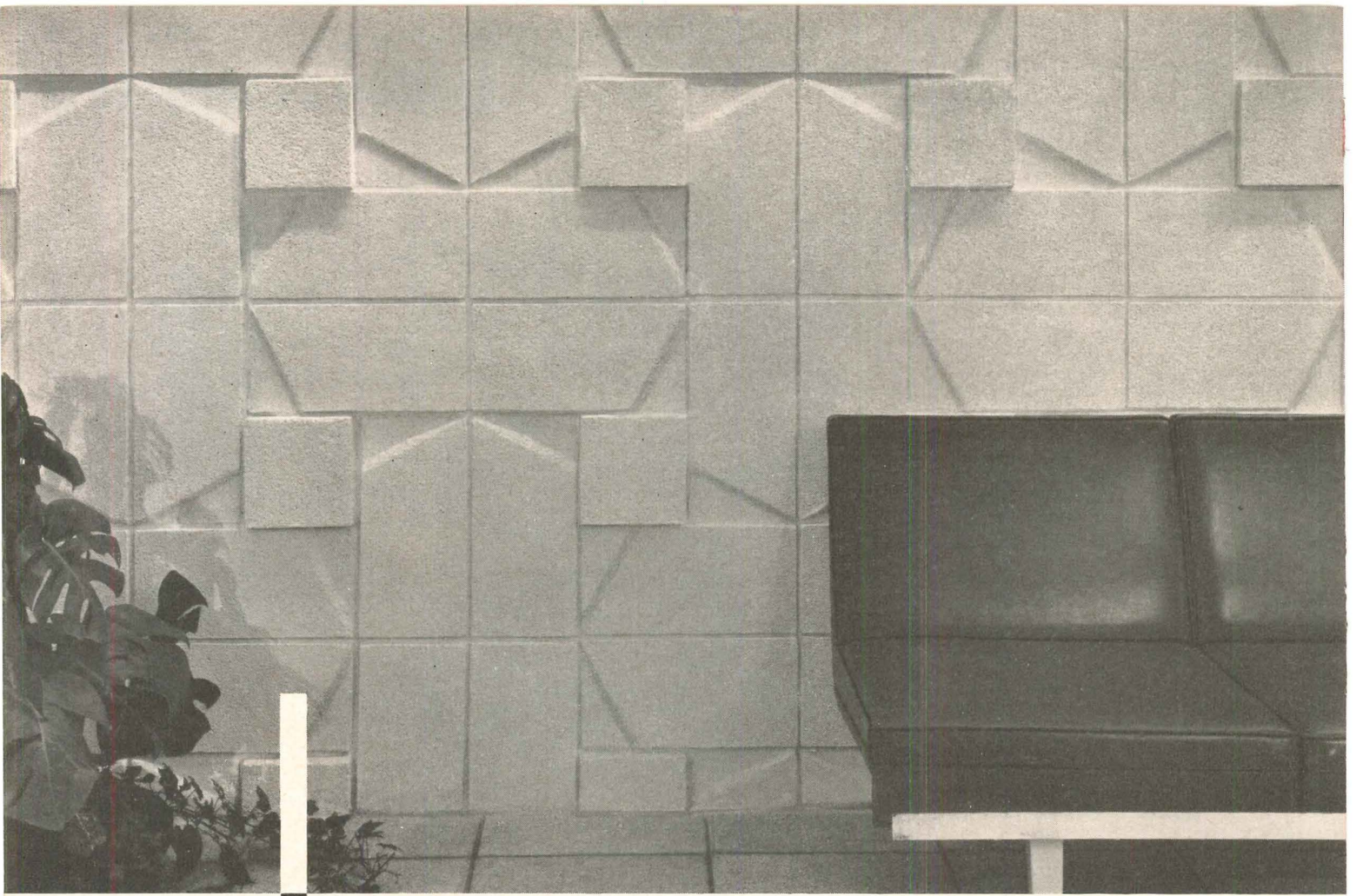
Architect Ben Schlanger, consulting architect on Lincoln Center for the Performing Arts and member of the Board of Standards and Planning of the New York Chapter of ANTA, has been elected vice president of the recently organized United States Institute for Theatre Technology.

Formed to meet an immediate and rapidly growing national need for the exchange of ideas on all aspects of the theater, the U.S. Institute hopes to base the successful planning and design of new theaters and auditoriums in the United States on this collective experience.

The first annual conference was attended by 120 registered participants, including architects, acoustical consultants, theatrical producers and designers. Serving to formalize the organization of the Institute and to begin the work of study and planning theater structures, the conference had general session panels openly discussing various aspects of theater planning, design, total environment and the needs of the theater architect of the future.

Elections were held following the conference. Thomas De Giatani, director of the Stage Department of Juilliard School of Music, having served as president pro tem during the Institute's first organizational year, was elected president; Mr. Schlanger, vice president; Dr. Joel E. Rubin, director of theatrical lighting division of Kliegl Brothers Lighting Company and consultant in theater planning and architecture,

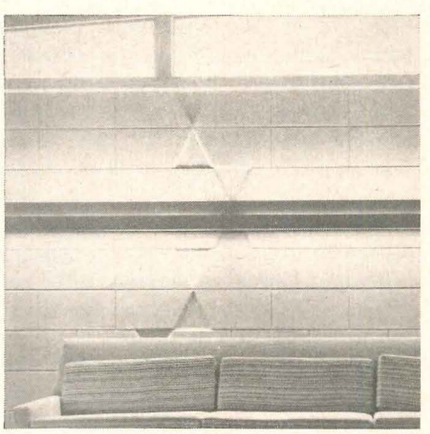
continued on page 26



Architect Mario J. Ciampi of San Francisco blended square units with Shadowal block to form this handsome sculptured wall.

Sculptures in SHADOWAL®

from the wonderful new world of BLOCK



WALLS leap into life, become intriguing patterns of depth and dimension wherever Shadowal block is employed. Here you see five Shadowal block patterns. Each has a character and distinction of its own; each shows the unbelievable versatility of Shadowal concrete masonry. Small wonder it's called the block with 1000 faces. Your local NCMA member will be happy to assist you in working with new Shadowal block.

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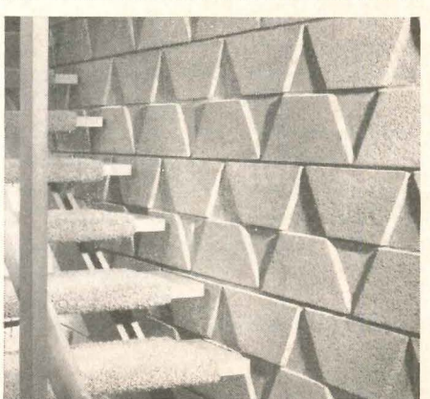
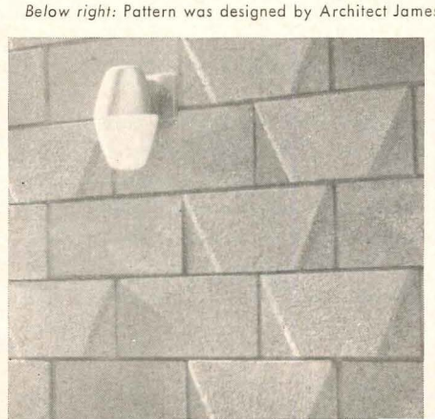
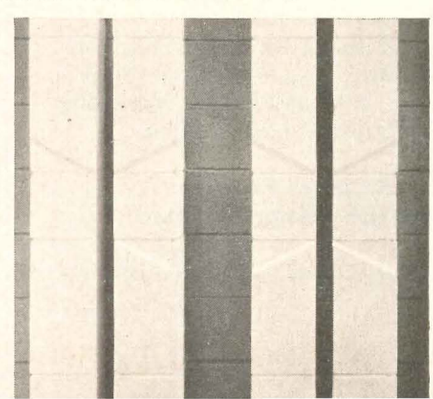
• Plain or fancy, inside or outside, beautiful, versatile Shadowal block gives walls a new and interesting look. *Below right:* Pattern was designed by Architect James R. Lamantia, Jr., of New Orleans.







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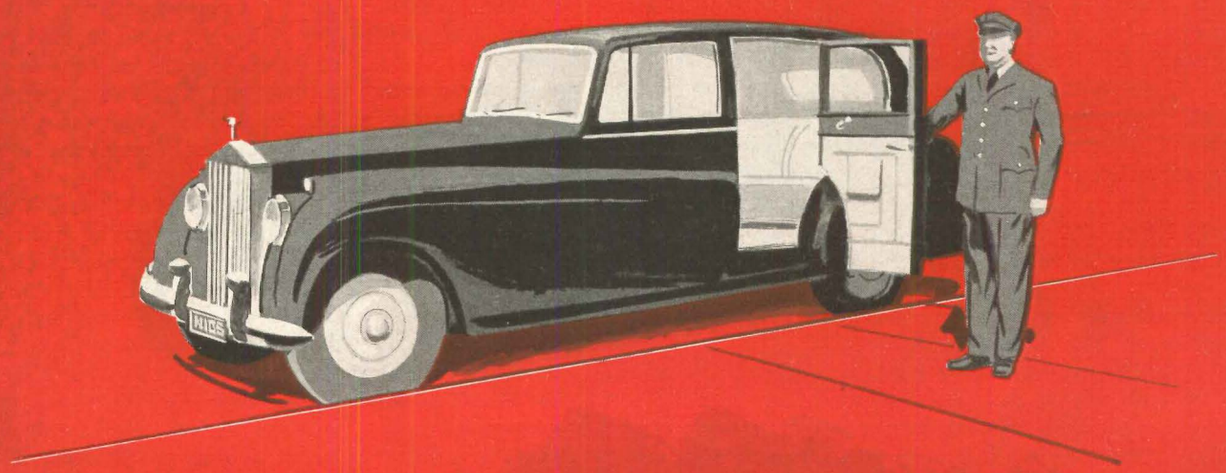

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Meetings and Miscellany

continued from page 23

technical secretary; and John Cornell, chairman of Stage Managers Committee of Actors' Equity, secretary-treasurer.

Eric Pawley, Washington, D.C., Research Secretary of the A.I.A., was appointed chairman of the Committee on Theatrical Architecture, Engineering and Construction, one of the many committees organized to study and recommend solutions to current problems facing the theater.

Among the members of the new Board of Directors are architects: Arthur Benline—New York, Harold Burris-Meyer—Washington, D.C., Felix Graham—New York, Russell Johnson—Cambridge, Mass.; and engineers Eric Pawley, Washington, D.C., Ben Schlanger—New York, Helge Westermann—New York, and Robert E. Fischer of ARCHITECTURAL RECORD, New York.

Bacon Wins 1961 Art Alliance Award

Edmund N. Bacon, A.I.A., executive director of the Philadelphia City Planning Commission since 1949, is the 1961 winner of the Philadelphia Art Alliance Medal of Achievement.

The highest honor the Art Alliance can confer, the medal is presented annually to a person or persons "identified with Philadelphia or its environs for the advancement of, or outstanding achievement in, the arts."

Detention Home Competition Makes No 1961 Award

In the recent 1961 National Honor Awards Competition for Excellence in Design of Small and Large Detention Homes for Children, the jury did not feel any of the projects submitted had the characteristics of the excellence implied by a National Honor Award. Consequently no award was made.

Sponsored by the National Council on Crime and Delinquency in cooperation with the American Institute of Architects, the awards program was for the best large and best small detention home for children awaiting juvenile court disposition.

The jury was composed of Paul Thiry, F.A.I.A., chairman; Sherwood Norman, N.C.C.D.; John C. Downey, N.C.C.D.; Sam T. Hurst, A.I.A.; and Emerson Goble, Editor, ARCHITECTURAL RECORD.

The report submitted by the jury stated the reason it elected not to make an award—". . . either the projects had the functional characteristics for up-to-date operation, but lacked in architectural and environmental quality, or conversely contributed substantially to a new concept in detention home design, but did not fulfill the requirements for proper administration."

The jury believed the submittals represented "a major step forward from what has commonly been considered a Detention Home and which in the years past placed all apprehended children in a prison atmosphere, to buildings more alertly designed for their purpose."

By not recognizing an award this year, the jury "hopes to encourage those designing Detention Homes for Children to strive for keener understanding of the problem and for excellence in their design."

Harold King Elected President of C.E.C.

Harold P. King, California consulting engineer, will be installed as president of the Consulting Engineers Council at the fifth annual Board of Directors Meeting, May 4-6 in Chicago. He succeeds Hueston M. Smith, St. Louis, Mo.

Other newly elected officers include Cedric Robert Acheson, Syracuse, N.Y., first vice president; Sanford K. Fosholt, Muscatine, Ia., second vice president; George J. Toman, Mandan, N.D., secretary; George W. Poulsen Jr., Salt Lake City, Utah, treasurer.

Jury Selected for Red Rock Competition

Three architects and two developers have been named to judge the San Francisco Redevelopment Agency's competition for apartment houses to be built on Red Rock Hill in Diamond Heights (see Feb. AR, p. 48). They are: John Carl Warnecke, A.I.A., of Warnecke & Warnecke, Oakland; Ernest J. Kump, F.A.I.A., Palo Alto; Don Burkholder, of the Agency staff; and developers Joseph Eichler of Palo Alto and Gerson Bakar of San Francisco. Professional advisor is William J. Watson, A.I.A., of San Francisco.

The panel will judge submitted designs anonymously June 13-15, selecting 10. The Agency will then select five of these to offer to developers bidding for the 22-acre site.

The deadline for architects' entries is June 2nd in San Francisco, with postmark at the point of origin no later than 5:00 P.M. May 26th.

Weinberg Is Mellon Professor at Carnegie Institute

Robert C. Weinberg, architect and city planner, has been appointed A. W. Mellon Distinguished Visiting Professor in the College of Fine Arts, Carnegie Institute of Technology. His appointment is made possible under the terms of the recent five million dollar gift from the A. W. Mellon Educational and Charitable Trust to the Carnegie College of Fine Arts.

A graduate of Harvard, Mr. Weinberg also attended the architectural school and the school of city planning at Harvard. His career includes technical consultant for the Mayor's Committee of City Planning in New York City, Associate City Planner on the City Planning Commission in New York, specialist in housing with the National Housing Agency, senior planner on the City Planning Commission, Cleveland, Ohio.

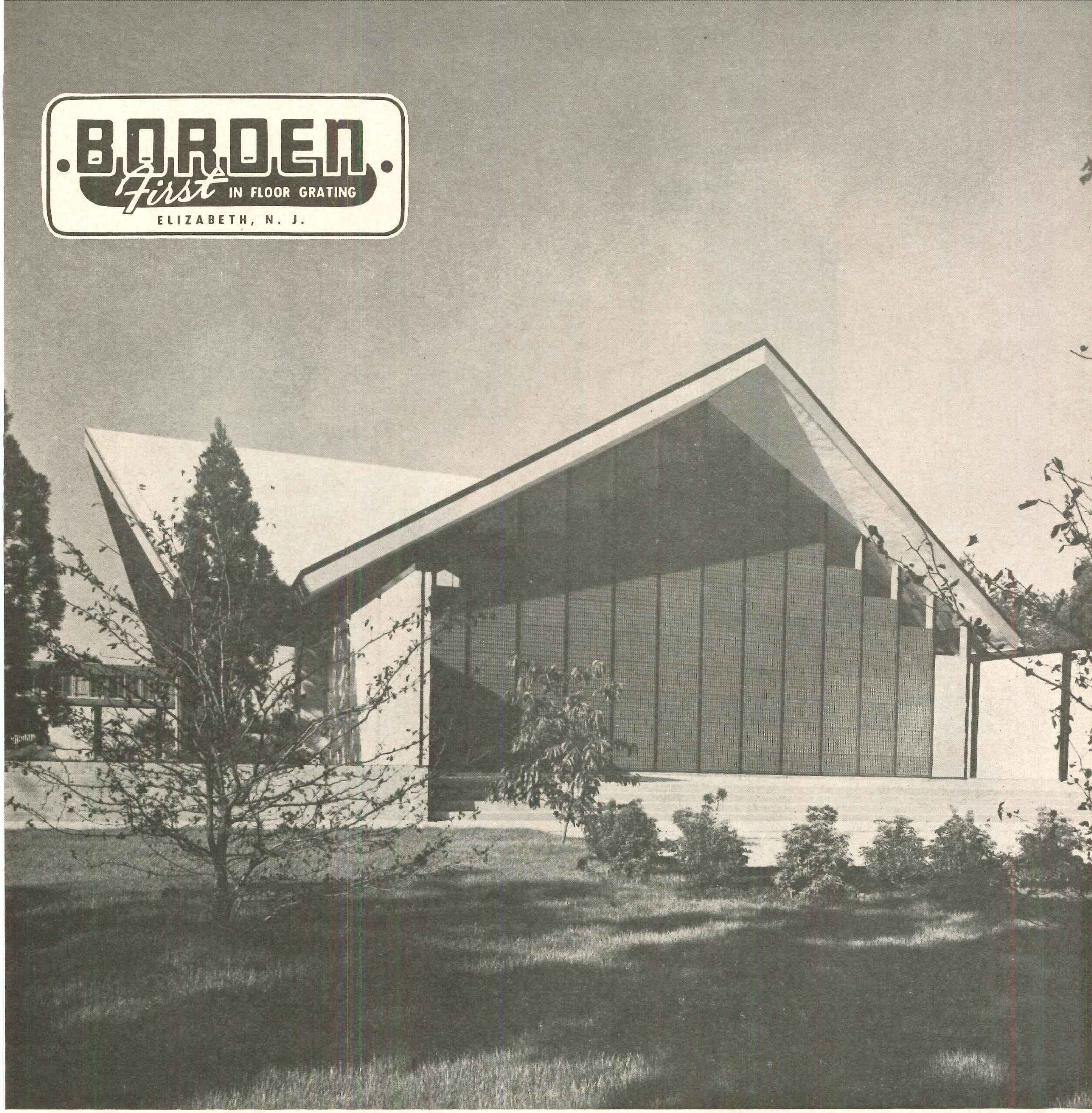
In private practice he has acted as planning consultant to many official agencies and groups, including the Stamford, Conn. Development Committee, the Sullivan County, N.Y. Planning Board, the Riverdale Community Planning Association, New York City.

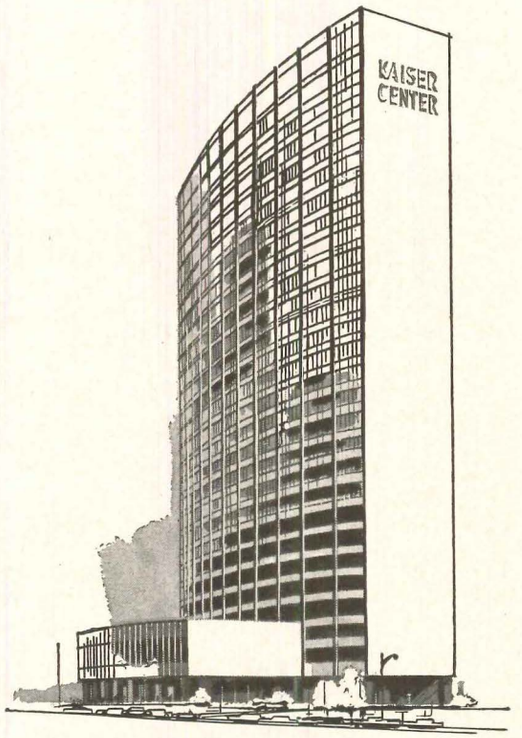
Mr. Weinberg has served as adjunct professor of Urban Planning in the Graduate School of Public Administration at New York University and as lecturer and critic at the New School for Social Research, at Yale and Pratt Institute. He has lectured on city planning in Germany and Norway under the Fulbright program.

He is the co-author of "Planning and Community Appearance," published by the Regional Plan Association.

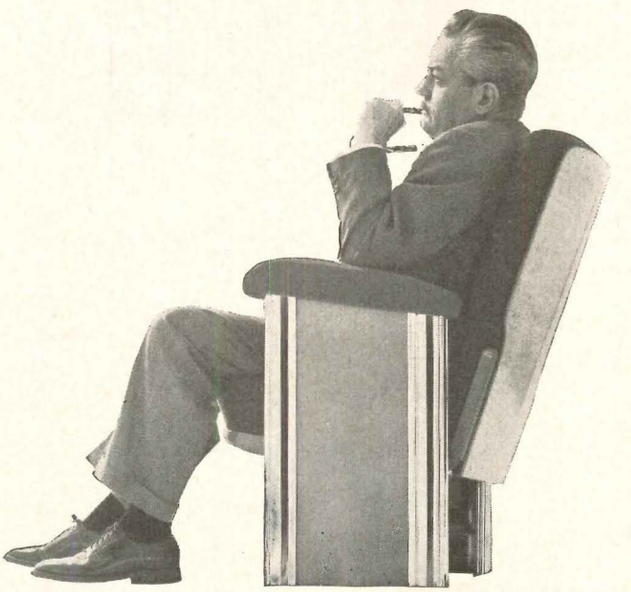
He is a member of the American Institute of Architects, American Institute of Planners, Society of Architectural Historians and the American Society of Planning Officials.

more news on page 44

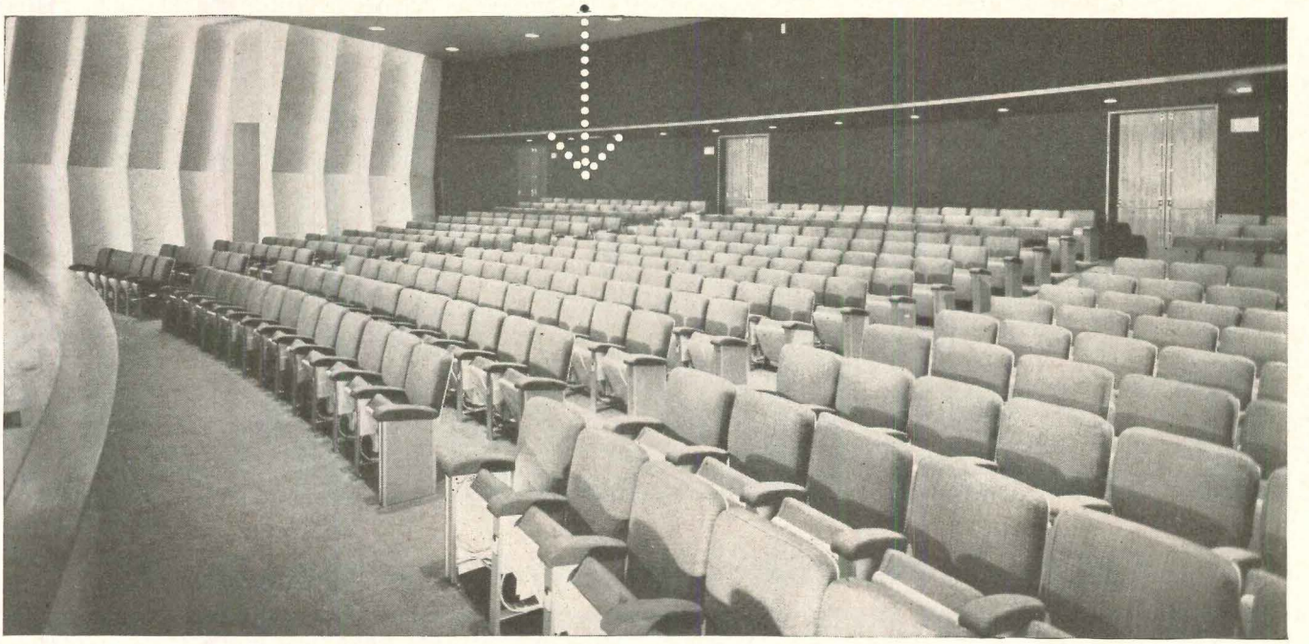




Architects and Engineers: Welton Becket and Associates



SETTING: KAISER CENTER
SEATING: HEYWOOD-WAKEFIELD



Oakland's magnificent new landmark, Kaiser Center, has carried its theme of luxurious quality to its auditorium seating with the choice of 400 "Airflo Rocking Chair Loges" by HEYWOOD-WAKEFIELD. In design, these chairs match the contemporary look of the Center itself. In construction, their coil-spring seats and backs and foam-cushioned armrests assure guests of armchair comfort. The exclusive spring-base mechanism maintains the correct pitch, seat-to-back, no matter how the occupant shifts his weight. Small wonder that the architects of so many of the nation's most impressive new buildings are choosing seating by HEYWOOD-WAKEFIELD—including Chicago's McCormick Place and Detroit's Cobo Hall.

There is a HEYWOOD-WAKEFIELD chair to match the spirit of every building, and to satisfy the most exacting criteria. A portfolio describing the complete HEYWOOD-WAKEFIELD line is yours for the asking—*won't you write and ask for it?*

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on proven product developments

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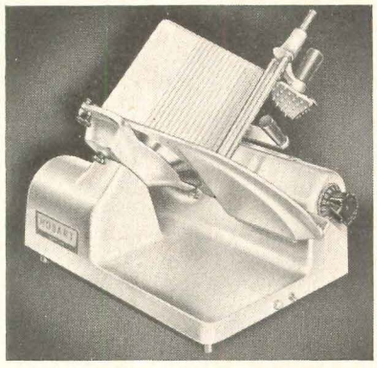

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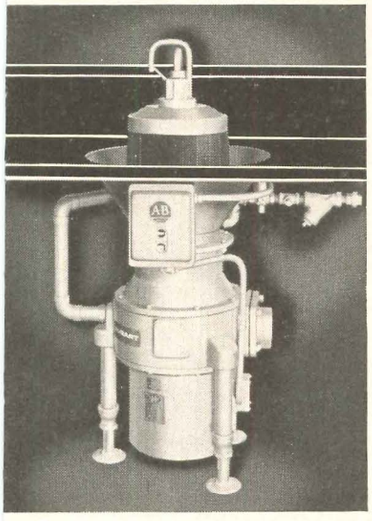
Largest slicing capacity ever—handles largest cuts of meat. Exclusive solid-cast *Stay-Sharp stainless steel* knife. Everything designed for fastest, most efficient performance. Sweeping, crevice-free design for easiest cleaning. Only four parts—1-piece cast basic unit and three other parts instantly removable without tools. Two new accessories add to versatility: tubular food chute for bulk slicing; adjustable fence used in multiples for production slicing.

CONVENIENT, CLEAN-LINED 30-QUART MIXER

Consistent results with minimum operator attention are assured with the Model D-300-T. Easy-to-clean smooth surface construction—there are no louvers or dirt-catching crevices. Sanitary off-floor base design. Exclusive motor cooling system has totally sealed pedestal that locks out ingredient dust and dirt. Controls are centralized for convenience; and feather-touch, counterbalanced bowl lift simplifies bowl handling. Exclusive positive drive, positive speeds, positive Hobart planetary mixing action...*positive results, and positive satisfaction.*



5 H.P. FOOD WASTE DISPOSER

With king-size capacity, the new FW-500 completely eliminates all the nuisances of waste disposal—saves time, handling and space. No more distasteful lugging chores, messy floors, odors; no sanitation problems. Exclusive Hobart 4-stage waste breakdown action insures smooth, continuous discharge. Disposer absorbs only as much waste as can be safely discharged into drain. Exclusive dual upper and lower water injection system—with controlled after-flushing—prevents dry grinding, clogged drains. All food waste goes down the drain—fast, economically, positively—without wasting water.

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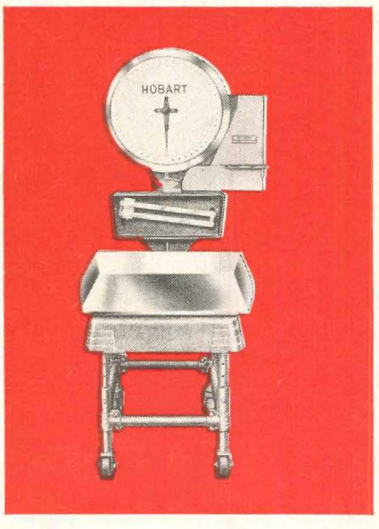

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on the subject of stock doors and entrances

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Consider for a moment these outstanding features and you'll see why architects and building owners are so enthusiastic about Cupples entrance doors and frames.

THE DOOR: Adjustable setting block permits proper alignment after glazing. Choice of offset pivots, butts or concealed overhead closers. Square cut horizontals are easily cut for size adjustment. Tension rod holds styles together at top and bottom. Strong corner construction with plug as integral part of extrusion. Stock push-pull hardware, interchangeable with custom styled hardware. Stock panic device doors also available.

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Now add to all these features the DEPENDABILITY of product, of service and delivery, and the company behind the product... and you'll quickly realize that your client gets more for his money when you specify "Cupples." Write today for Free file copy of our catalog or consult Sweet's, Section 16a/Cu.

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This new Bellevue, Wash., warehouse was *designed* by Frankfurter, Harstad & Associates; *general contractor:* Sellen & Hansen, Inc.; *sub-contractor for roof:* Pioneer Sheet Metal & Roofing, Inc. All are Seattle firms.

Bethlehem Slabform in new warehouse roof saves time, money, and materials

Slabform,* Bethlehem's solid steel formed sheet for floor and roof construction, was used in building the roof of a new drug warehouse in Seattle. Some 30,000 sq ft of Bethlehem's standard Slabform were placed in combination with insulating concrete to form what is known in the trade as an insulating-concrete, high-strength steel roof system. The concrete was placed to a 2½-in. thickness, and covered with conventional built-up roofing.

Here's why Slabform and insulating concrete save money in roof construction:

- RAPID PLACEMENT OF SLABFORM is possible because of the uniformity of dimensions and cross-section of the steel, often resulting in reduced installation costs.
- END-LAP MATERIAL AND HANDLING REDUCED. Slabform in any gage can be provided in long lengths, restricted only by handling and shipping limitations.
- MAXIMUM SPANS OF 10 FT. You can select from five gages of Slabform to accommodate the most economical support spacings.
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Column, partition, and wall-mounted showers serving as many as 5 persons simultaneously.

Circular, semi-circular, and Duo Washfountains serving as many as 8 persons simultaneously.

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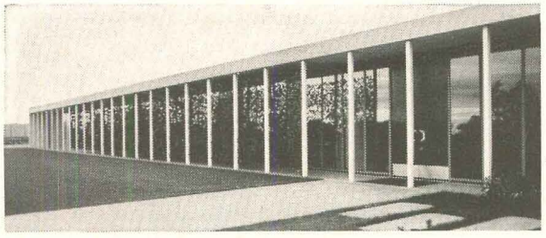

Dux Furniture at home on Armstrong Excelon Tile

For the new Dux, Incorporated, showrooms in Burlingame, California, architects Knorr and Elliott chose a floor of Armstrong Imperial Excelon Tile (style 861). The small chip, terrazzo design provides a constantly attractive background for the changing furniture displays. Even in areas of heaviest traffic the terrazzo design neither disappears nor blurs during the long life of the floor. Imperial Excelon is the original vinyl-asbestos material with a design that truly goes all the way through the thickness of the tile. Yet the cost of Imperial is surprisingly moderate—about 45¢ a sq. ft. installed.

TECHNICAL DATA ON ARMSTRONG IMPERIAL EXCELON TILE: uses: above, on, or below grade; composition: vinyl resins reinforced with asbestos; durability: excellent; static load limits: 25 psi.; underfoot comfort and quiet: fair; grease resistance: excellent; alkali resistance: excellent; ease of maintenance: excellent; gauges: 1/8″ and 3/32″; size: 9″ x 9″; colors: 14; approximate price per sq. ft. installed: 35–45¢.

The Armstrong Architectural-Builder Consultant in your area can furnish you with samples and complete specs on the Imperial Series in Excelon Tile or any other Armstrong floor. Since Armstrong makes all types of resilient floors, he can recommend, without bias, the type of floor best for any job. In addition, he can get for you the services of technical, decorating, and installation experts at Armstrong. Call him at your Armstrong District Office. Or write Armstrong, 1604 Stone Avenue, Lancaster, Pennsylvania.

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Armstrong FLOORS

continued from page 26

Yamasaki Receives Honorary Degree at Michigan University

Minoru Yamasaki was among three recipients of honorary degrees at the University of Michigan mid-year graduation exercises. Also honored were: Chester Bowles, acting U.S. Undersecretary of State and Nobumoto Ohama, educator, jurist, president of Japan's Waseda University. While Mr. Bowles and Mr. Ohama received Doctor of Laws degrees, Mr. Yamasaki received the degree of Doctor of Architecture.

The honorary degree citation read: "American architecture in this century has sought to create the spatial forms appropriate to an industrial age. Rejecting ornamentation as pretense, the contemporary designer has made it his creed to assert chiefly material function and frankly to reveal steel or concrete frames. Too often, however, our modern buildings are revelatory of structure and of little else. And the human spirit, which cannot live by structural logic alone, has longed for the nurture of lightness, of fantasy, of joy.

"It has been the mission of Minoru Yamasaki to supply this deficiency. He conceives of architecture as a pleasurable and festive art. Alone among the moderns, he delights in decorative symmetry, rich screens and curtain walls. In such buildings as the St. Louis Airport Terminal, the Music Conservatory at Oberlin College, and the McGregor Conference Center, the Reynolds Metals Building, and the American Concrete Institute in Detroit, he has once more granted the imagination and emotions the right of autonomous being.

"He is the forerunner, it may be, of a general movement to reconcile the measure of his art to the measure of man. Expressing admiration for his manifold talents and gratitude for his contributions to architectural amenity within our state, the University now confers on him the degree of Doctor of Architecture."

Mies Elected to National Institute of Arts and Letters

Mies Van der Rohe is among the nine distinguished artists, writers and composers elected this year to the National Institute of Arts and Letters. Others are Langston Hughes, poet, playwright and novelist; Carl Van Vechten, novelist and critic; Conrad Richter, novelist; George Biddle, painter; Jacques Lipchitz, sculptor; Norman Dello Joio, composer; Arthur Schlesinger Jr., historian; and Leonard Bernstein, composer and director of the New York Philharmonic Society.

The National Institute of Arts and Letters and its affiliated body, the American Academy of Arts and Letters, are the highest honor societies of creative artists in the United States, and the only ones which have been granted Federal Charters by Congress.

Membership in the Institute is limited to 250, the recent election bringing the number to 246. Formal induction of the new members will take place at the joint Annual Ceremonial on May 24.

more news on page 72

CENTER

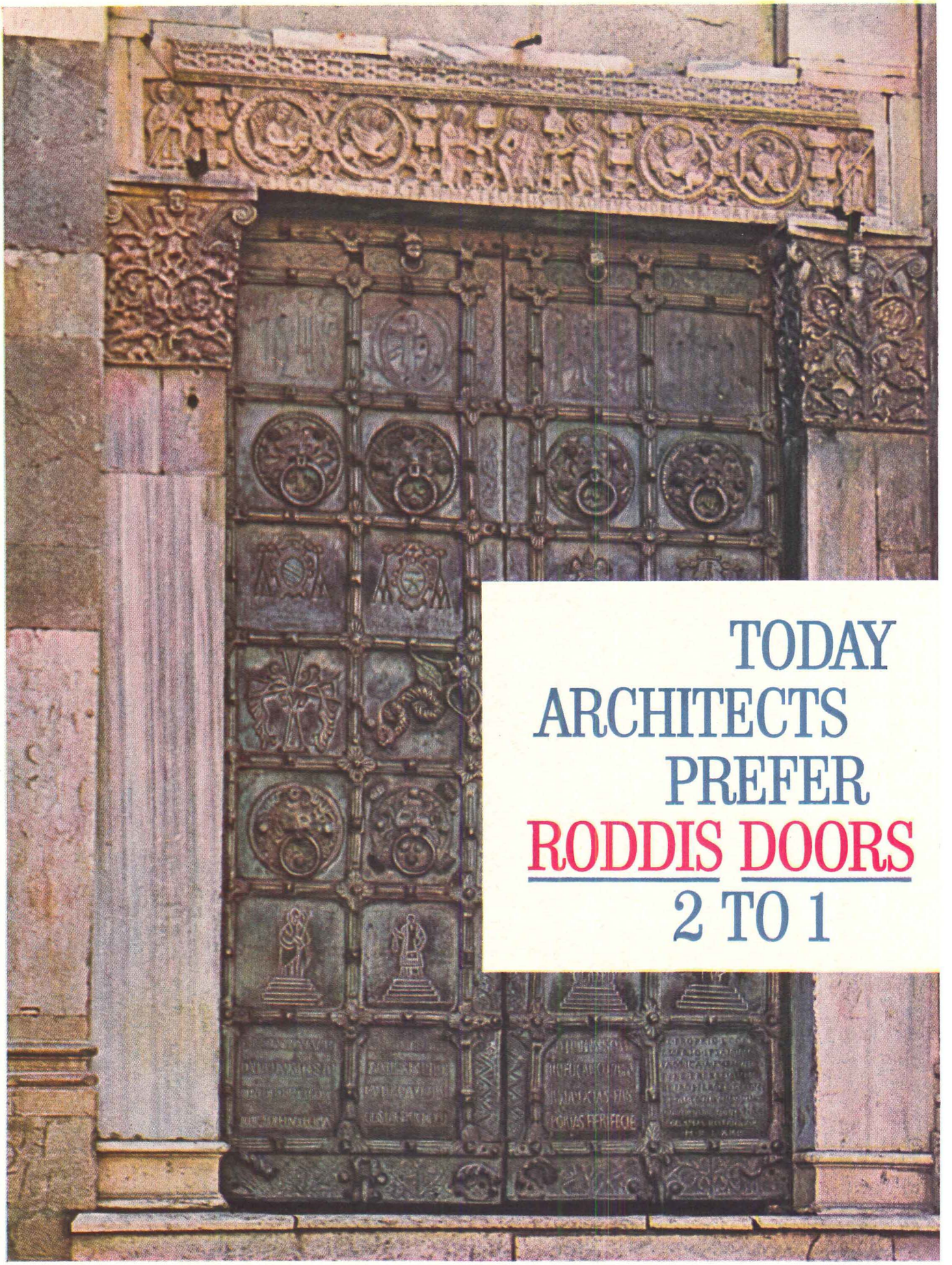
Skyline Motor Inn
10th Ave.—49th St., New York
Architect: Leo Stillman
General Contractor: Diesel Construction Co.
Owner: Hals Corporation

BOTTOM LEFT

Mount Prospect Towers
Newark, New Jersey
Architect: George J. Sole
General Contractor: Radice Construction Co.
Owner: Mount Prospect Towers, Inc.

UPPER RIGHT

River View Motor Hotel
42nd St., at 12th Ave., New York
Architect: Morris Lapidus, Harle & Liebman
Owner-Builder: Glickman Corporation of Nevada



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This unique wedding of art and science has helped make Roddis one of the most respected names in doors among America's architects. Their trust is expressed in the result of a recent independent survey which reveals: *architects prefer Roddis Doors 2 to 1 over the next leading brand.*

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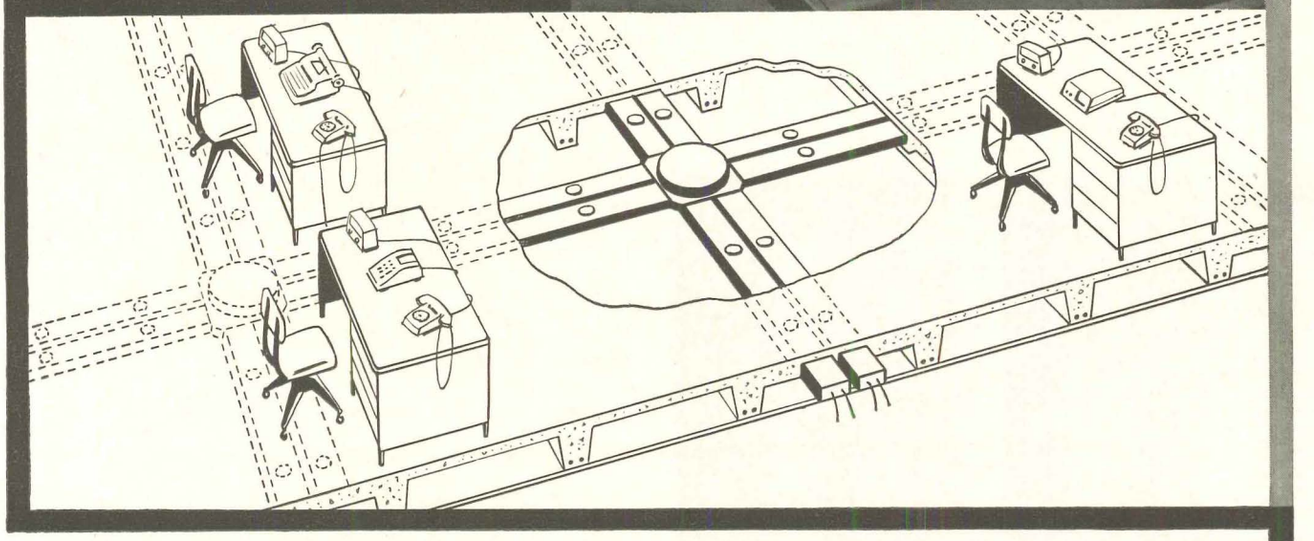

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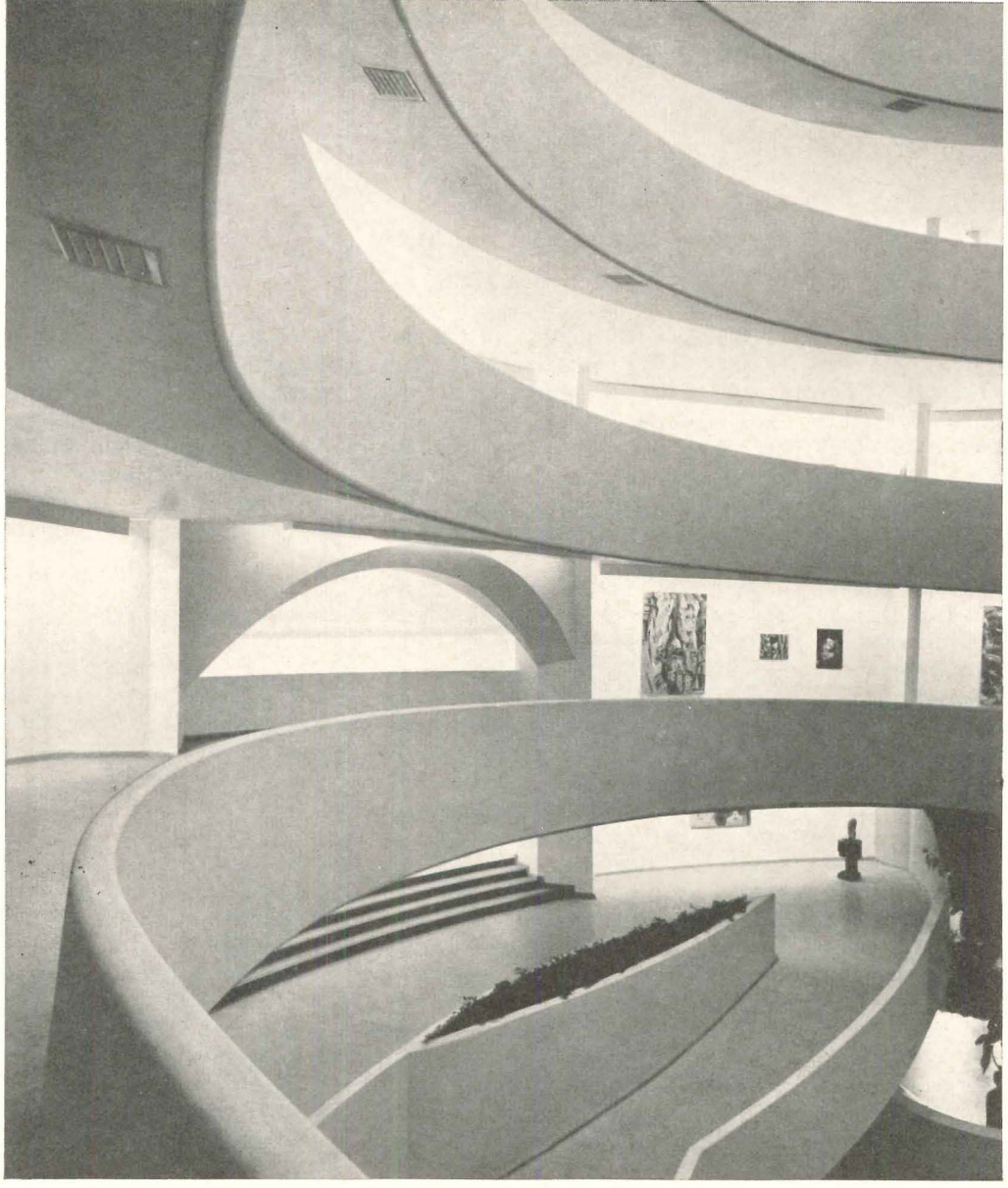

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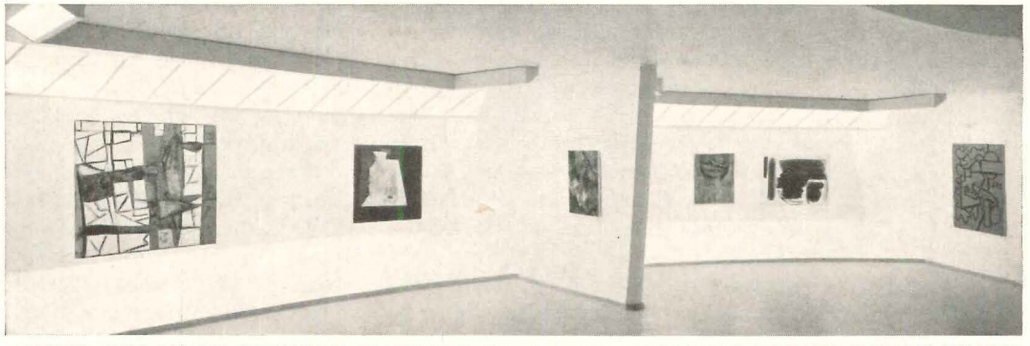

GUGGENHEIM MUSEUM, NEW YORK CITY • PHOTOS BY: LOUIS REENS • LIGHTING INSTALLATION: AMERICAN LIGHTING CORPORATION, HACKENSACK, NEW JERSEY

To achieve the low brightness desired, Sinko Lo-Brite, Gray-Cell Plastic Louvers were used as a diffuser for the lighting fixtures that illuminate the exhibit area in the Guggenheim Museum. Each painting in the exhibit area received the finest light source possible.

The basic building design was such a departure from the ordinary that the materials selected also had to lend themselves to the interior design of the building.

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Required Reading

Corbu's Autobiography

CREATION IS A PATIENT SEARCH. *By Le Corbusier. Frederick A. Praeger, Inc., 64 University Place, New York 3. 312 pp., illus. $15.*

Though neither the author nor the publisher call it such, this is Le Corbusier's autobiography. Like Sullivan's autobiography, it contains a minimum of vital statistics and a maximum of philosophical development. And like Dante's *Inferno*, when published in years to come (as it surely will be), it will require footnotes as copious as the text itself (what, for instance, *was* the French law that scuttled the Loucheur house scheme in 1929, and exactly what *are* "neutralizing walls," invented for the Centrosoyus but never used?).

Aside from a brief and sympathetic introduction by Maurice Jardot, the book is all L-C—text, drawings, captions, layout and dust jacket.

Though *Creation is a Patient Search* is not the call to action that *Vers Une Architecture* was—the title admits as much—it does give some idea of Le Corbusier's view of himself. On the evidence shown here, he is a man greatly (though by no means utterly) lacking humor, as who would not be faced with the dreary list of rejected designs of the 20's, 30's and 40's. The evidence also shows a man of optimism and, per the title, patience. A collection of photographs of finished buildings toward the end of the book including the Unité d'Habitation, Ronchamp, Chandigarh and La Tourette, seem to promise a happy ending.

Guide for Hospital Planning

PLANNING THE SURGICAL SUITE. *By Warwick Smith. F. W. Dodge Corporation, 119 W. 40th St., New York 18. 471 pp., illus. $12.75.*

BY ROBERT S. MYERS, M.D.*

It is regrettable that this immensely readable and provocative storehouse of practical information on the surgical suite was not available 15 years ago when the rash of new community hospitals broke out all over the country. It could have helped prevent the construction of some of the inadequate and impractical suites that were obsolete before they were off the drawing board.

Mr. Smith has put his finger squarely upon the basic difficulty in designing a surgical suite—too little thought is given to function and too much reliance is put in conventional plans designed for hospitals of like size. This is not entirely the fault of the architect: he has had little help from the surgeon, the administrator and the operating room personnel for whom the suite is built. But how can these busy people advise adequately? The guidelines have been few, and the problem is complicated by the thousand-and-one details peculiar to each individual hospital.

There is no longer any reason why the people who work in hospitals cannot participate in the planning of the surgical suite. Mr. Smith leads the novice briskly and surely through the maze of details which must be considered before a single line is drawn on the plans. He presents arguments for and against certain types of layout, of design, and of equipment. He stresses the importance of traffic patterns and use-cycles. He presents tables and figures which summarize the essential information for the reader, and he writes in such a lucid entertaining manner that the mysteries of sterilization, of conductive flooring, and of heating, ventilating and air conditioning are dispelled. Best of all, Mr. Smith has provided a checklist to remind the planner of the many questions he must answer if the suite will be an efficient and pleasant workshop.

The book does contain a few defects. For one thing, there is insufficient consideration of how best to transfer a patient from the contaminated areas of the hospital to the sanctity of the operating room suite, without tracking bacteria all over the place. For another, his methods of entrance of surgeons and operating room personnel into the restricted areas of the suite leave something to be desired. And lastly, the author's suggestion that the supervisor of the surgical suite interview salesmen in her office makes me shudder.

In any event, I like this book and am going to recommend it to the surgeons who ask me for a "set of plans" for their proposed surgical suites.

Baroque in Depth

THE AGE OF GRANDEUR. *Baroque Art and Architecture. By Victor-L. Tapié, trans. by A. Ross Williamson. Grove Press, Inc., 64 University Place, New York 3. 305 pp., illus. $12.50.*

Exhibiting the kind of scholarship-in-depth that is, alas, too often associated with the deadly dull, Mr. Tapié has written a lucid and continually interesting account of Baroque art and, particularly, architecture. His observations are based on an impressive background of geographical, political, economic and cultural facts of the 16th and 17th centuries as well as on the ephemerae of esthetic fashion.

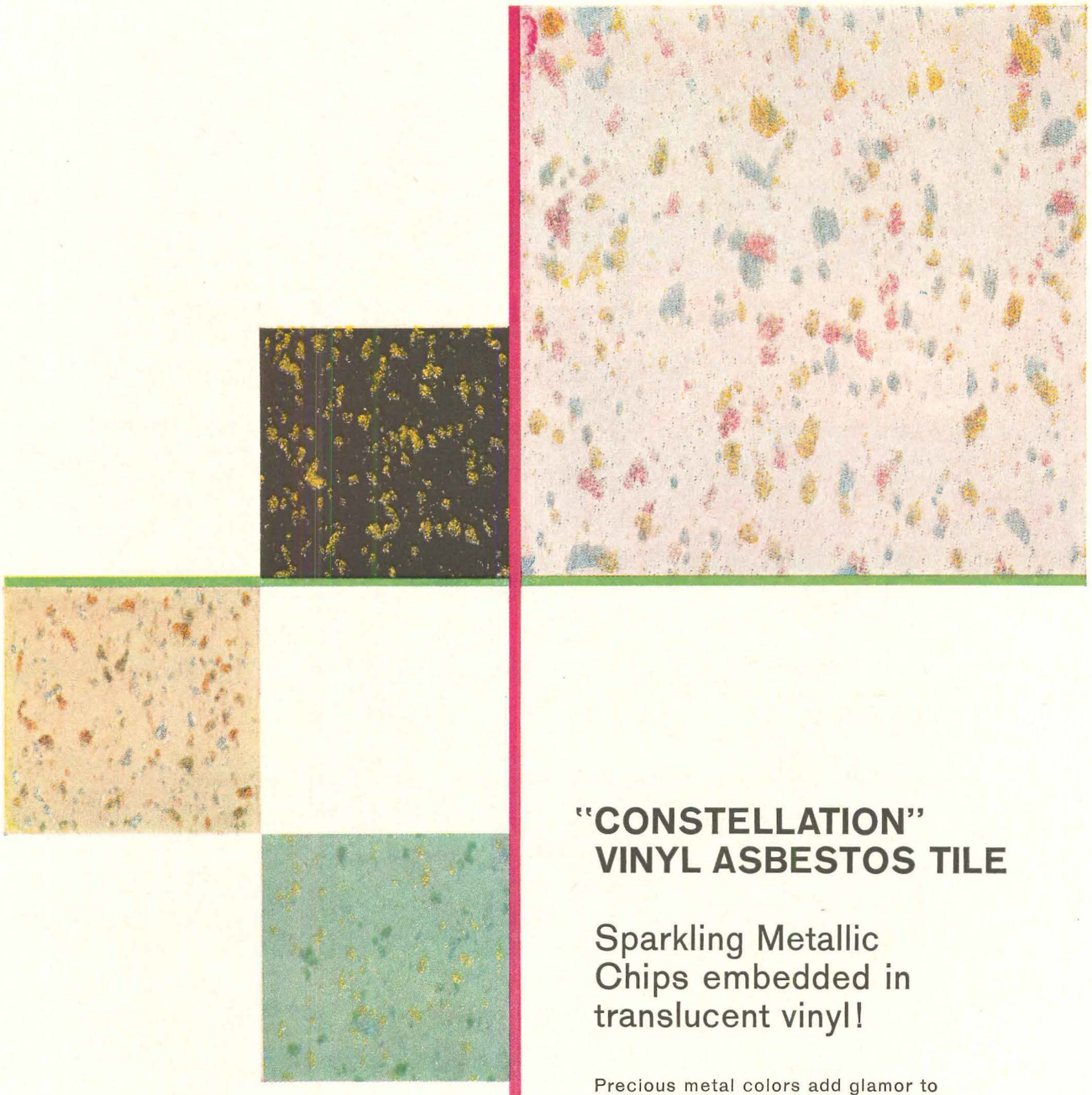
The breadth of the author's general knowledge seems to have led to a similar breadth in his definition of "Baroque"—a definition so broad as not only to include Italy and Central Europe, but also Stuart England and Bourbon France. So inclusive is his view, in fact, that it seems only by a great act of will that the Rococo was not also covered.

Rather obviously excluded from the book is Spanish Baroque, which the author himself admits is a "yawning gap," although Baroque in the New World is considered at some length. The omission is not likely to affect his basic hypothesis that Baroque was a style "at the same time monarchic, aristocratic, religious and attached to the land," but it is a glaring one nonetheless.

The illustrations are excellent, though (and this seems inevitable in books requiring long texts and many illustrations) diabolically arranged to pick up as many sticky fingerprints as possible on the slick coated paper.

continued on page 57

* *Executive assistant director, American College of Surgeons.*



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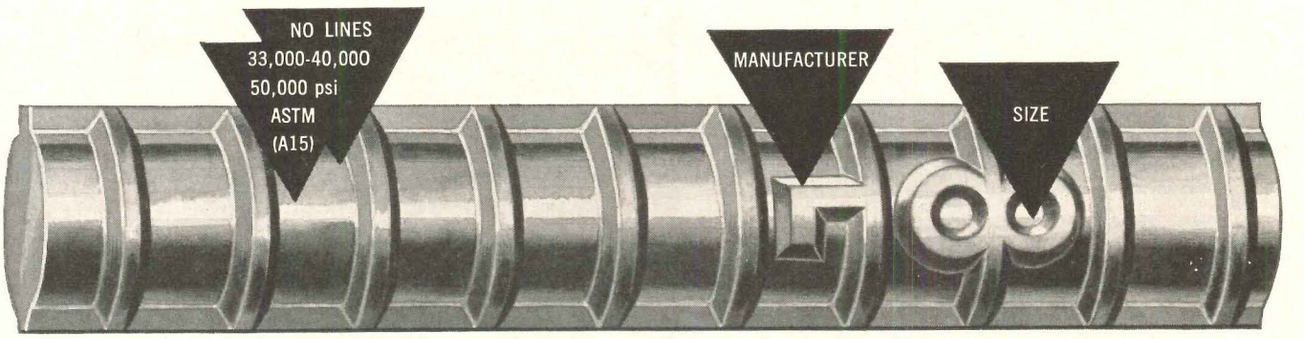

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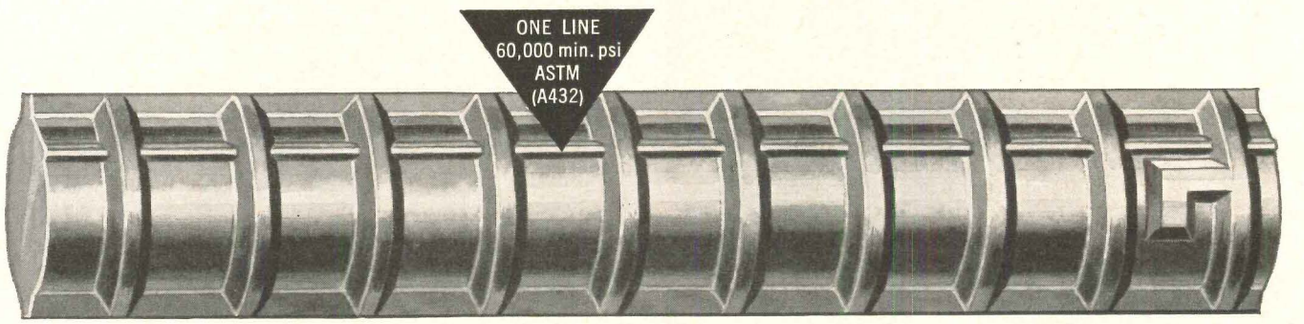

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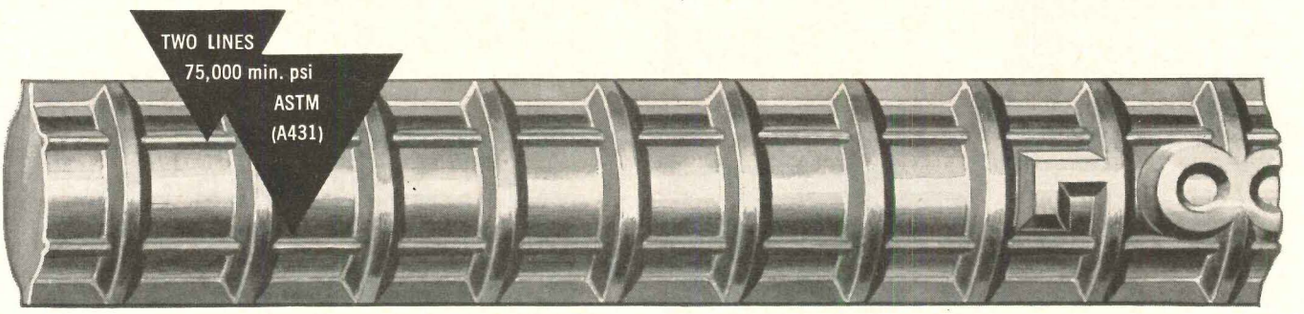

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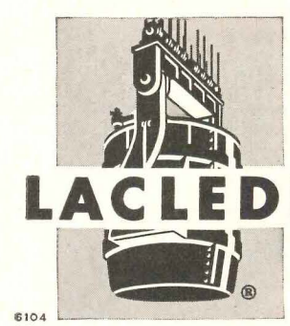

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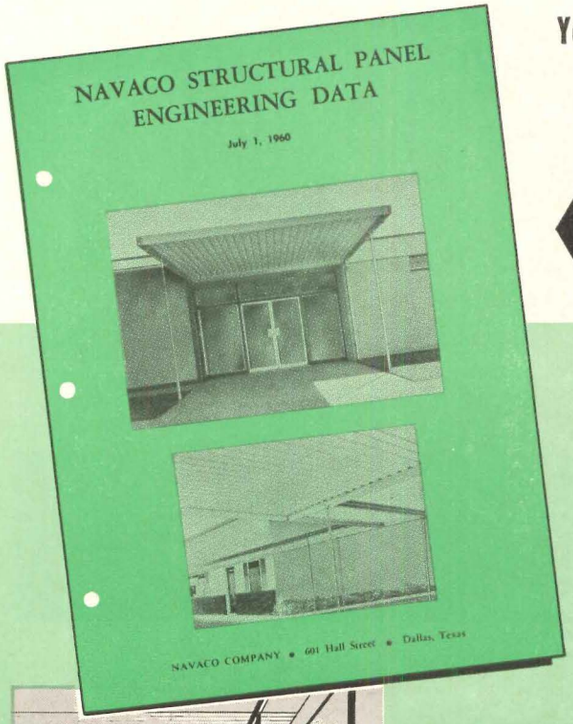

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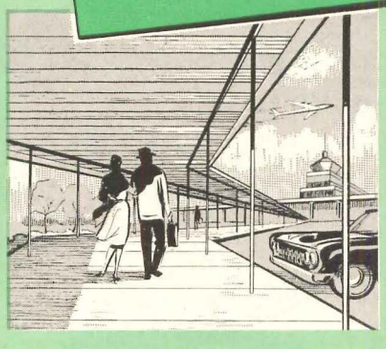

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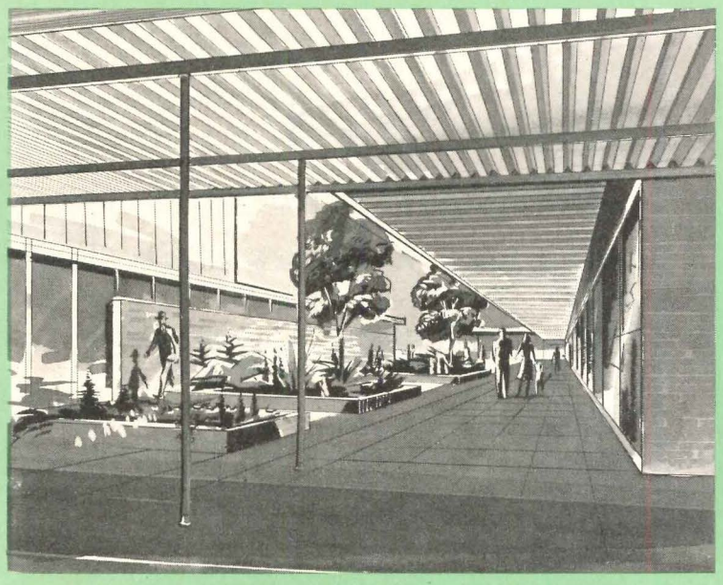

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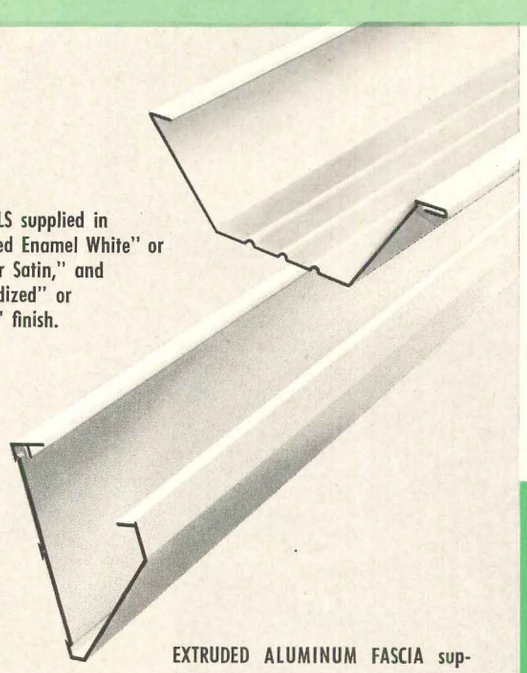

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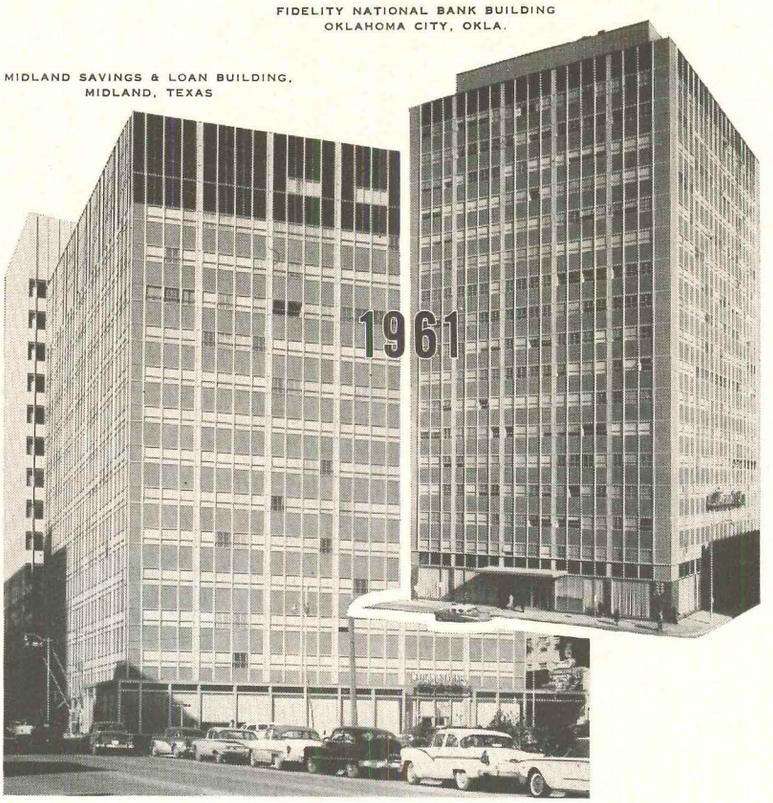

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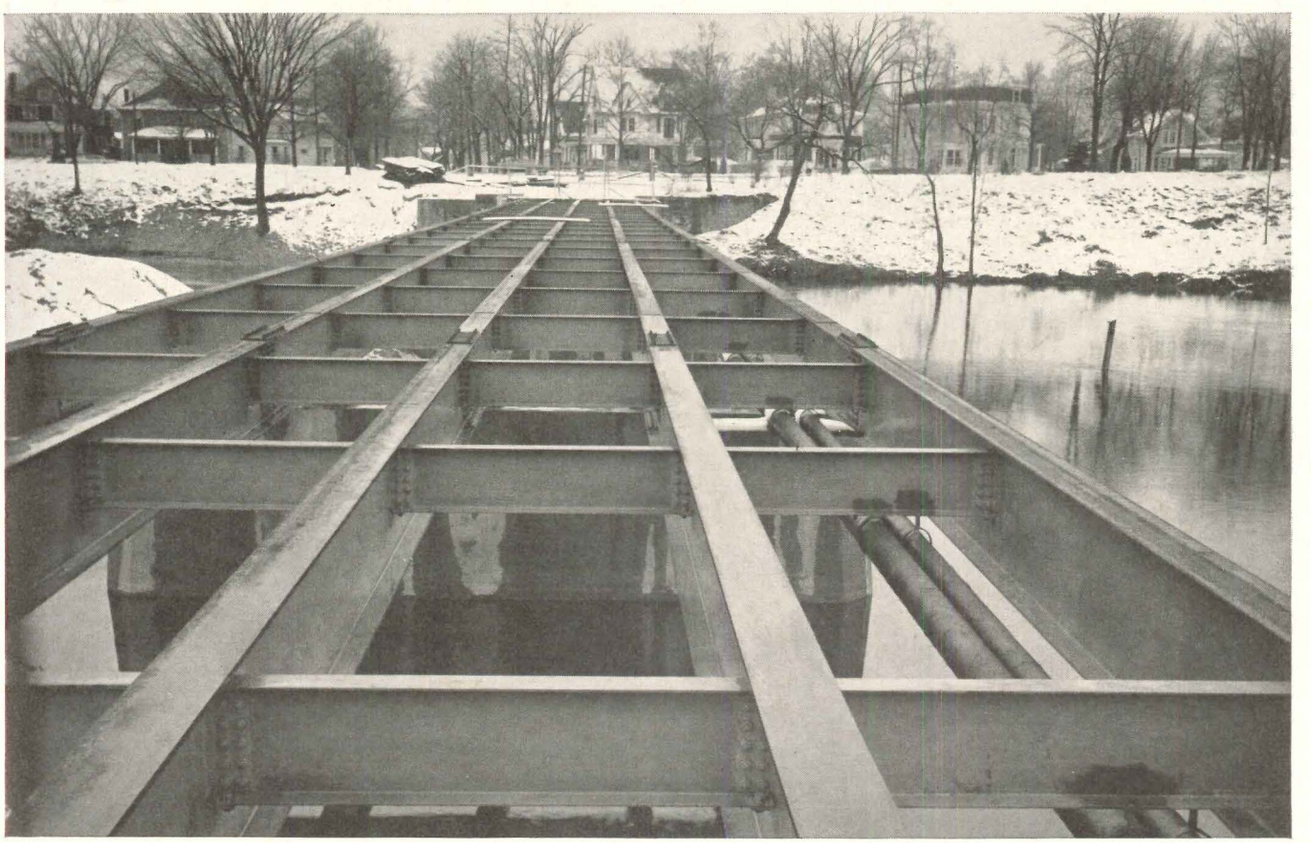

Required Reading

continued from page 50

Japanese Architecture Today

NEW JAPANESE ARCHITECTURE. *By Ugo Kultermann. Frederick A. Praeger, Inc., 64 University Place, New York 3. 37 pp., 180 pp illus. $13.75.*

This concise and comprehensible text should prove useful to anyone interested in the current impressive activities of Japanese architecture, and invaluable to anyone contemplating a trip to Japan which would take in more than the traditional tourists' destinations. The first section of the text gives a history in brief of various Japanese periods and influences, including the modern; the second section describes the postwar problems of Japanese architects and the emerging importance of some building types, particularly of local government administration centers and community cultural centers; the third section comprises brief biographies of the currently active architects.

The plentiful illustrations would seem to indicate that Japanese architectural photographers are as skillful as Japanese architects themselves.

Architectural Biographies

DONATO BRAMANTE. *By Gino Thierici; trans. by Peter Simmons.* PHILIBERT DE L'ORME. *By L. Brion-Guerry, trans. by Peter Simmons.* CHRISTOPHER WREN. *By Nikolaus Pevsner.* ANTONI GAUDI. *By Cesar Martinelli, trans. by Peter Simmons.* LE CORBUSIER. *By Jean Alazard. Universe Books, 381 Fourth Ave., New York 16. Pages unnumbered, all illus. $1.50 each (paperbound).*

These five booklets launch a new series on architects by the publishers of earlier series on artists. The introductory texts are in all cases brief and straightforward, although Pevsner goes beyond a simple chronicle in order to make some interesting comments on the Englishness of Wren. The illustrations, at the price, are fine and liberally provided—the Gau-

continued on page 65

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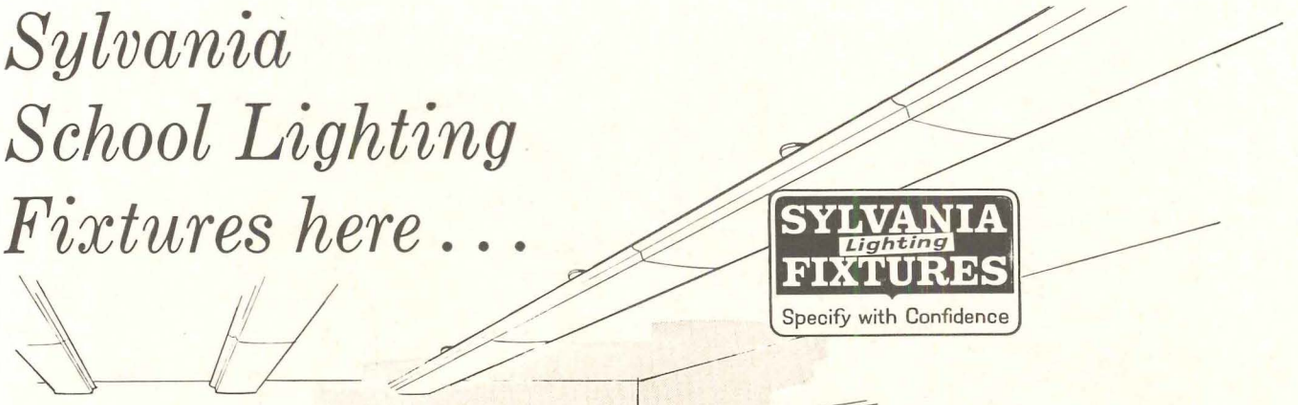

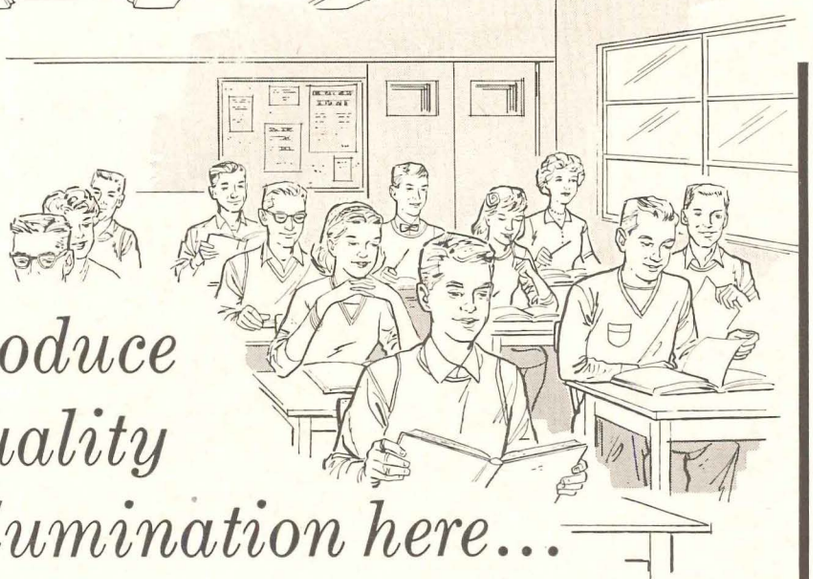

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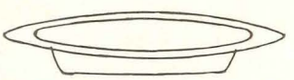

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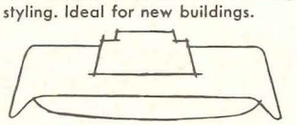

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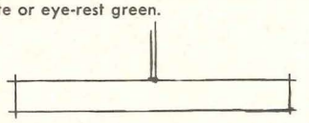
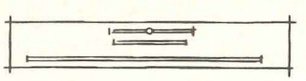
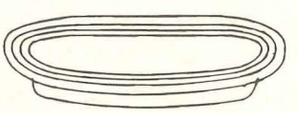


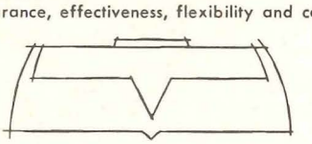
HQ SERIES—Luminous indirect units combining high lighting levels and low brightness. For suspension mounting only. HO or VHO lamps.



MOHAWK SERIES—Rectangular, shallow, surface-mounted units. Especially applicable for low ceilings.



TRIMLINE SERIES—Ideal balance of appearance, effectiveness, flexibility and cost.



TARTAN SERIES—Rugged, versatile and economical. Three different shielding angles with either plastic or steel sides.

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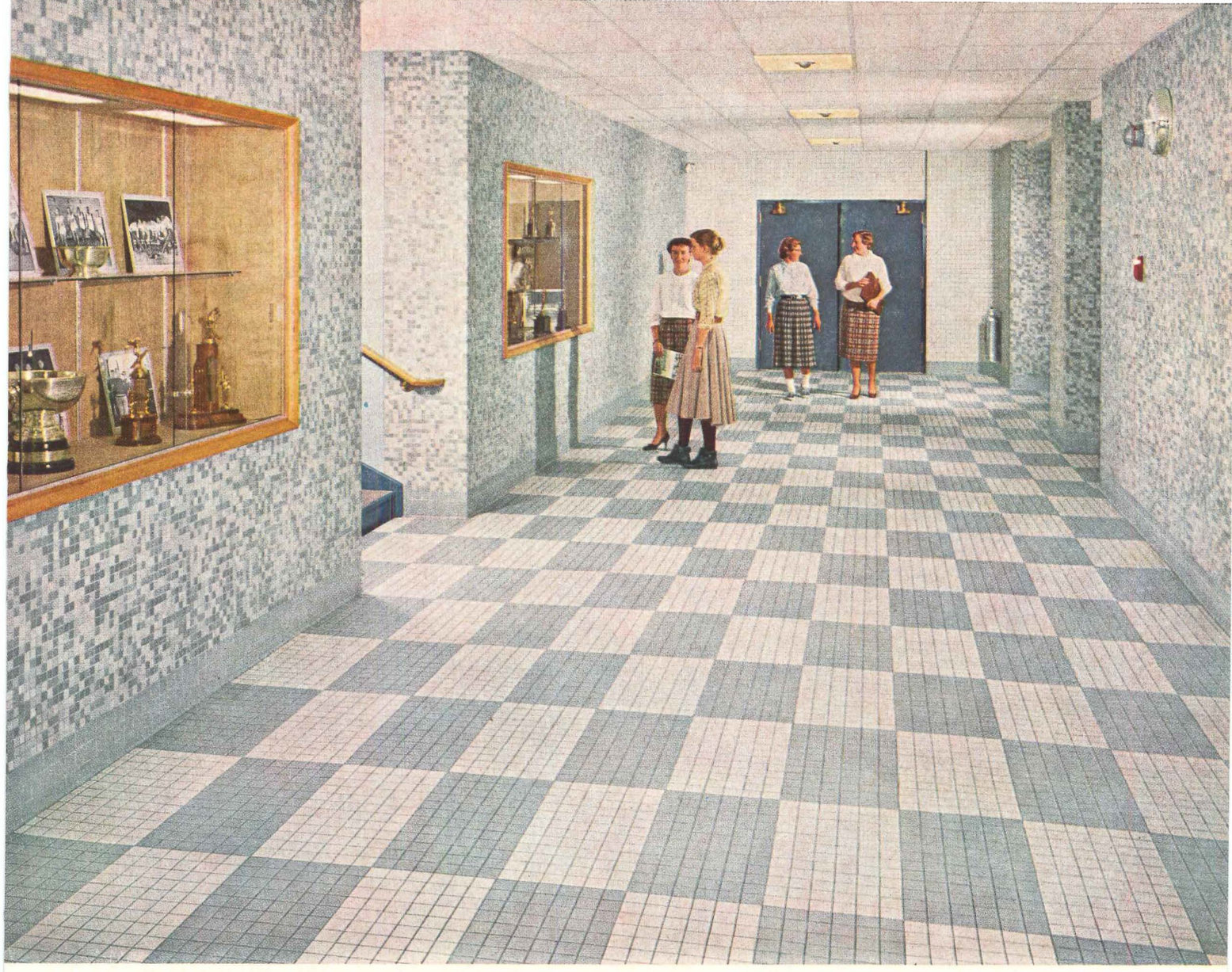

Color Plate 411

Ceramic tile brings new interest to a school corridor—This Boston University gymnasium corridor by Architect Edwin T. Steffian, illustrates a particularly effective use of ceramic tile—combining a random pattern on the walls with a boldly-blocked floor in a handsome monochromatic effect. American Olean's new Perma-Bak® mesh-mounted tile provides lower cost installations in corridors and other areas. Write for booklet 620 and catalog 211, showing other school applications.

CERAMIC TILE
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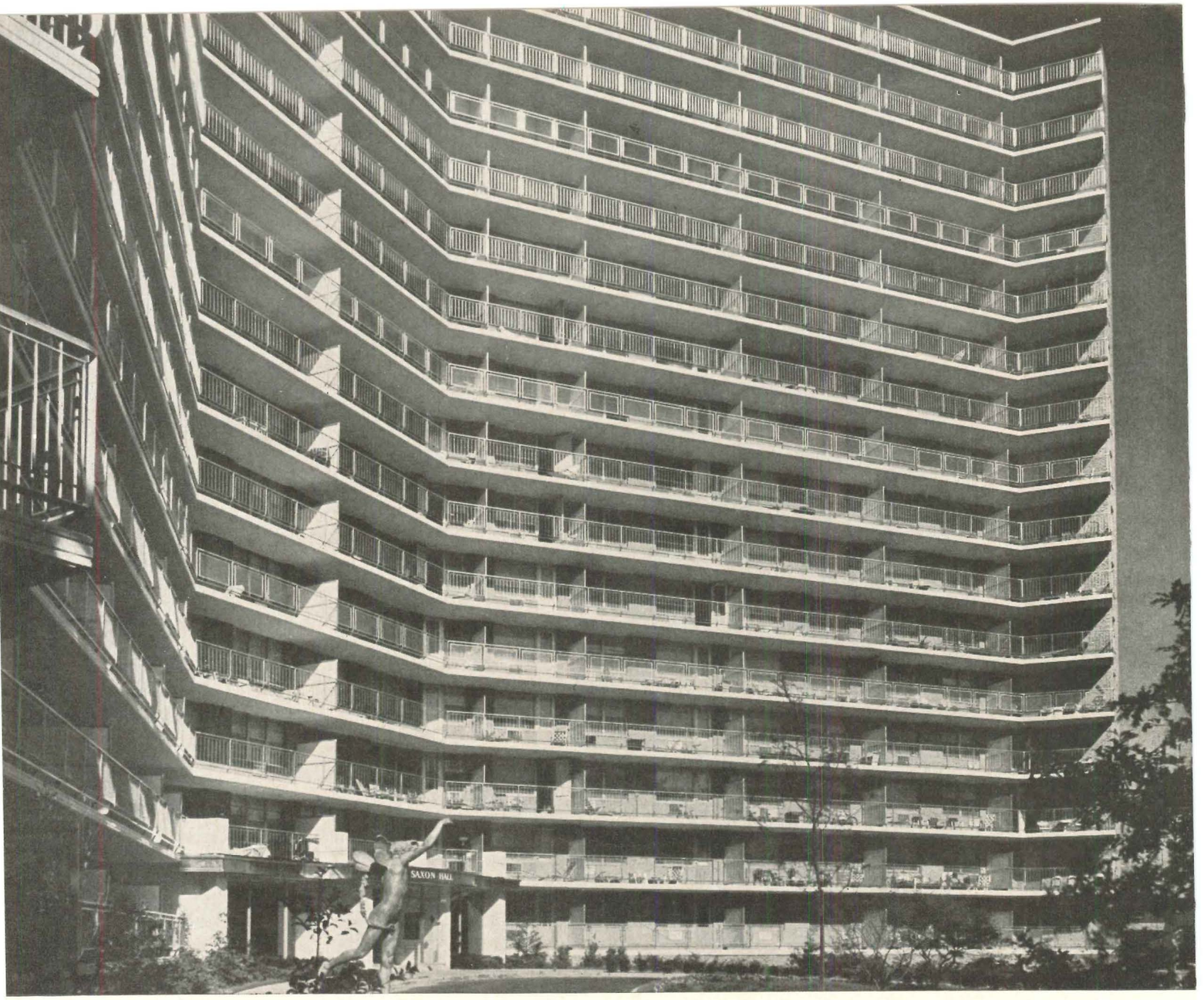

Again, Devoe Paint Colors Complement Modern Design

Saxon Hall Apartments, 99th Street & 62nd Drive, Rego Park, N.Y.C.

The Saxon Hall Apartments in Rego Park, New York City, are another example of the magnificent achievements of modern architecture and modern materials. That Devoe paints were chosen to protect and decorate the interior surfaces is, indeed, a compliment.

Beautiful and durable, Devoe paints are being specified by more and more architects for their industrial, commercial, residential, and institutional projects. And, Devoe's architectural representative, the MAN FROM DEVOE, will work with you and your staff on color planning from drawing board to final construction, without cost or obligation.

As an example of his thoroughness, the MAN FROM DEVOE, if you wish, will draw up your complete painting schedules. He'll consider such vital factors as cost, climate, use, maintenance, and durability, as well as color and appearance. Or, he'll assist your specification writer or color specialist. He'll save you time, costs, and details. Make color schemes to integrate into your presentation to your clients. Build you a color reference library. All without obligation.

A MAN FROM DEVOE is located in major cities throughout the country. Just write: Devoe Color Consultation Service, Devoe & Raynolds Company, Inc., Louisville, Ky.

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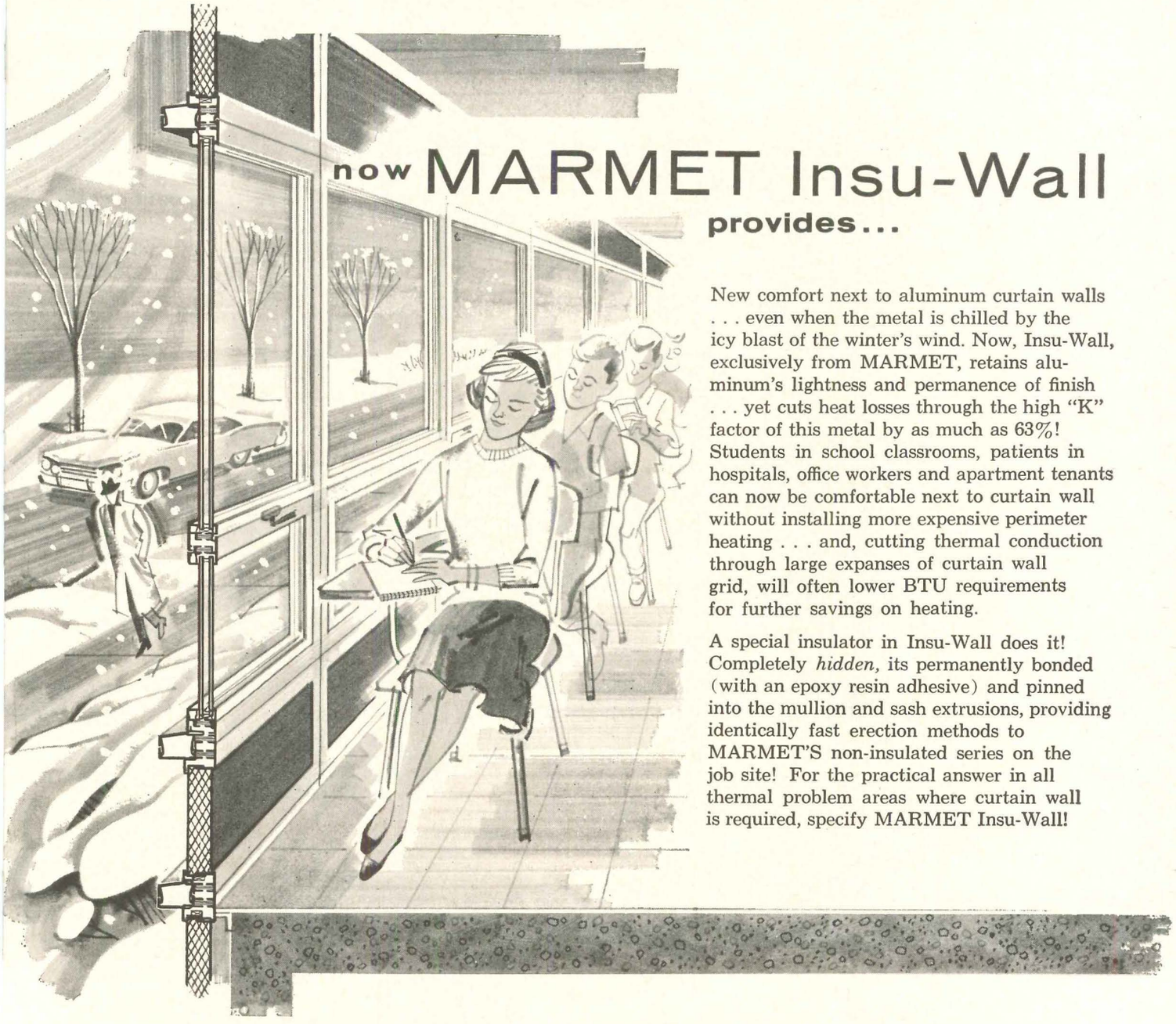

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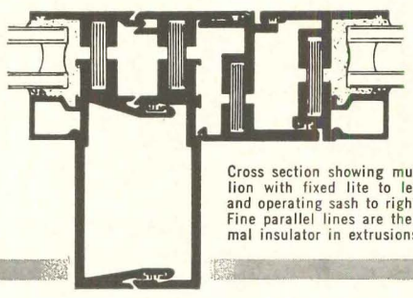
New comfort next to aluminum curtain walls . . . even when the metal is chilled by the icy blast of the winter's wind. Now, Insu-Wall, exclusively from MARMET, retains aluminum's lightness and permanence of finish . . . yet cuts heat losses through the high "K" factor of this metal by as much as 63%! Students in school classrooms, patients in hospitals, office workers and apartment tenants can now be comfortable next to curtain wall without installing more expensive perimeter heating . . . and, cutting thermal conduction through large expanses of curtain wall grid, will often lower BTU requirements for further savings on heating.

A special insulator in Insu-Wall does it! Completely *hidden,* its permanently bonded (with an epoxy resin adhesive) and pinned into the mullion and sash extrusions, providing identically fast erection methods to MARMET'S non-insulated series on the job site! For the practical answer in all thermal problem areas where curtain wall is required, specify MARMET Insu-Wall!

New comfort next to walls...New savings on heating

INSU-WALL cuts heat losses up to 63% through curtain wall grid.



Cross section showing mullion with fixed lite to left and operating sash to right. Fine parallel lines are thermal insulator in extrusions.

Four key advantages in INSU-WALL

- Reduces heat loss through curtain wall metal in severe winter cold. Because the condensation problem does not exist with Insu-Wall, perimeter heating may be replaced with less expensive systems.
- Licks the problem of condensation forming on interior curtain wall metal . . . with attendant possible damage to plaster, wall paneling, carpeting, drapes and furnishings.
- Reduces air conditioning load by preventing heat transfer into building through sun heated curtain wall framing in warm climates or summer temperatures.
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flush cabinet interior...

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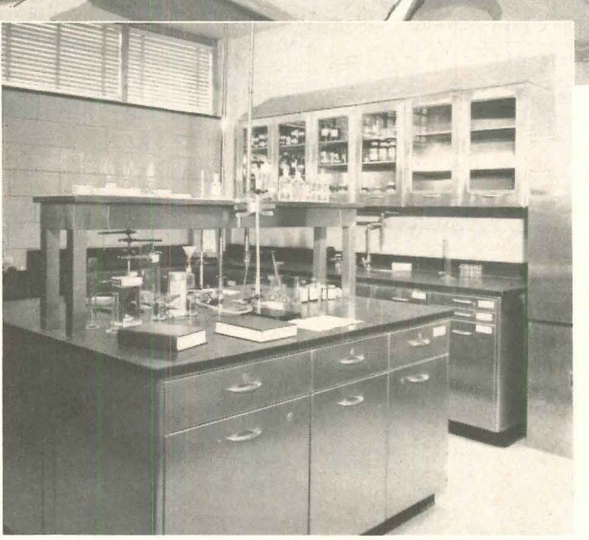

More sanitary . . . reduced maintenance . . . easier accessibility . . . better visibility . . . easier cleaning

Hospital administrators and architects have long recognized the advantages of "flush cabinet interior." Until now this advanced design has only been available on special order and at premium price. Now, Geneva makes "flush cabinet interior" standard in its hospital casework line.

Geneva hospital casework is quality throughout. Heavy duty, 18 gauge steel is *standard*. Cabinets may be ordered . . . with stainless door face . . . stainless door face and lining . . . or in all stainless steel. Cabinets are precision formed and manufactured to the most rigid standards.

Quality features offered by Geneva include . . . door and drawer fronts painted inside and out . . . floating drawer action . . . door and drawer fronts have radius corners and are replaceable. Cabinet hardware is advanced functional design and finest quality.

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Left: Gray and white serpentine terrazzo plaza at Time & Life Building, New York. **Architects:** Harrison & Abramovitz & Harris, New York. **Terrazzo Contractor:** Port Morris Tile & Terrazzo, Inc., New York. Right: 47,328 square feet of terrazzo surrounds Libbey-Owens-Ford Glass Company Building, Toledo. **Architects:** Skidmore, Owings & Merrill, New York. **Terrazzo Contractors:** American Mosaic & Tile Co., Louisville; Port Morris Tile & Terrazzo, Inc., New York.

TERRAZZO

goes out of doors to create plazas that surround a building with light, space and color. Any design, any color combination can be specified. A terrazzo plaza enhances a building, adds prestige, provides a safe walkway surface. Upkeep is negligible. When planning terrazzo plazas, consider ATLAS WHITE portland cement. Only a white cement matrix brings out the true color value of aggregates and pigments. For a brochure of terrazzo color samples with white cement, write Universal Atlas, 100 Park Avenue, New York 17, New York.

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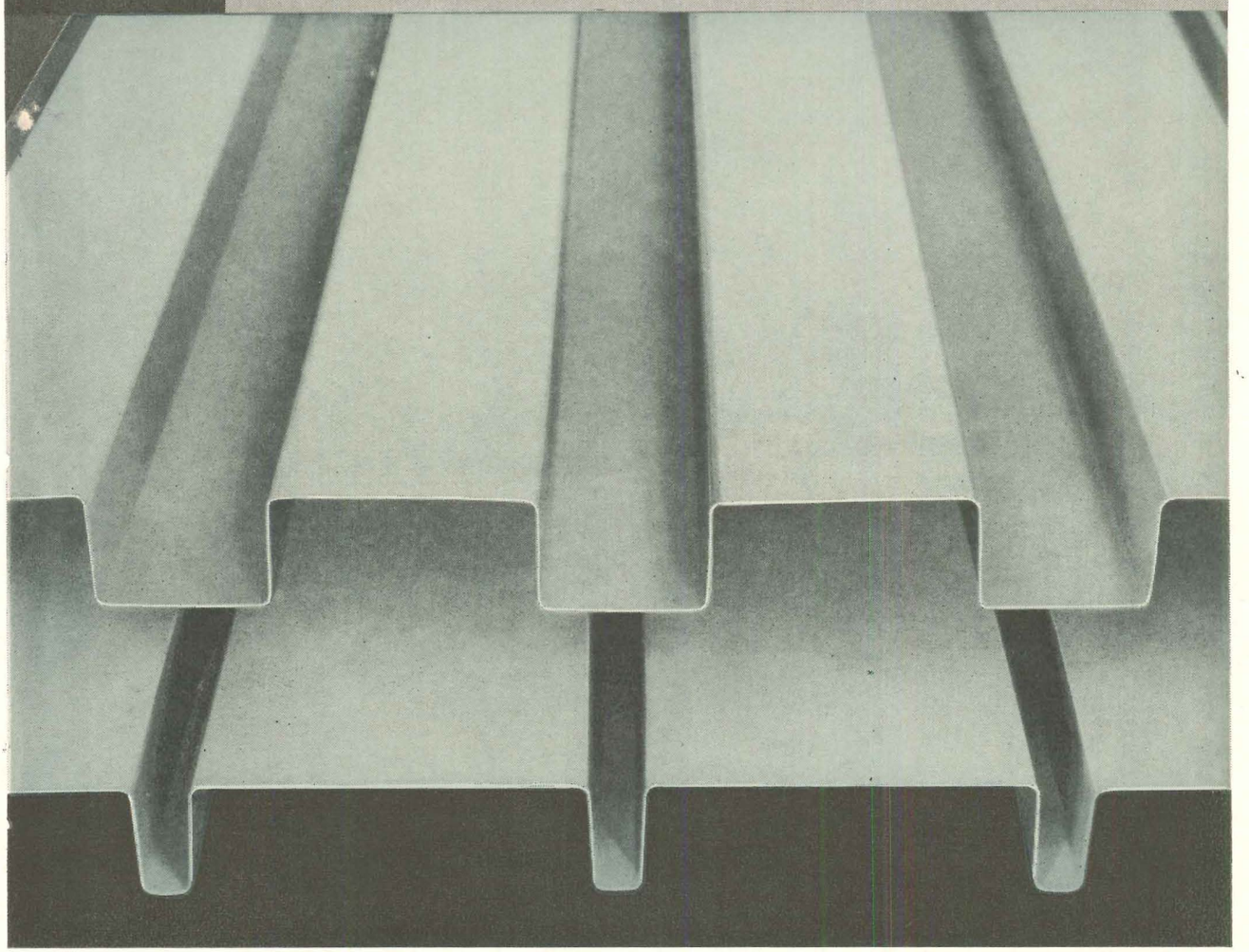
WT-93

STEEL ROOF DECKS BY WHEELING



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TYPE "A" has narrow rib openings of 3/4″ for maximum adhesive contact . . . use with all types of insulations . . . additional protection against wind uplift.

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Get complete facts on Wheeling Super-Rib Decks from Sweet's, or your Wheeling man. Wheeling Corrugating Company, Wheeling, West Virginia.

Wheeling CORRUGATING COMPANY

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Required Reading

continued from page 57

Architectural. . . .

di collection is particularly good in the area of his early buildings. A small format makes the books convenient for, among other things, traveling.

Vitruvius Reprinted

VITRUVIUS: THE TEN BOOKS OF ARCHITECTURE. *Translated by Morris Hicky Morgan. Dover Publications, Inc. 180 Varick St., New York 14. 331 pp., illus. $2 (paperbound).*

This edition of the Vitruvian text is a reprint of the translation published in 1914 by Harvard University.

Hardly anyone would argue for the modern application of Vitruvian principles, written at a time when men considered architecture to have "three departments: the art of building, the making of time pieces and the construction of machinery." On the other hand, even the general reader could hardly fail to be entertained by some of the rules for siting and for proportioning, or to be impressed by Vitruvius' practical attitude toward materials and sanitation, or to be enchanted by the descriptions of military machinery.

Standard Reference Revised

THE CATHEDRALS OF ENGLAND. *By Harry Batsford and Charles Fry; revised by Bryan Little. B. T. Batsford Limited, London; distributed in the U.S.A. by The Macmillan Co., 60 Fifth Ave., New York 11. 224 pp., illus. $3.75.*

Justifiably termed in the publishers' blurb a "standard work," this edition of a book first published 25 years ago has been considerably revised. Aside from very brief historic rundowns on the respective sees, the rather detailed text is strictly architectural. The illustrations are excellent and numerous, though their arrangement is maddeningly inconvenient for reference. In short, a valuable source book, particularly for prospective travelers to England.

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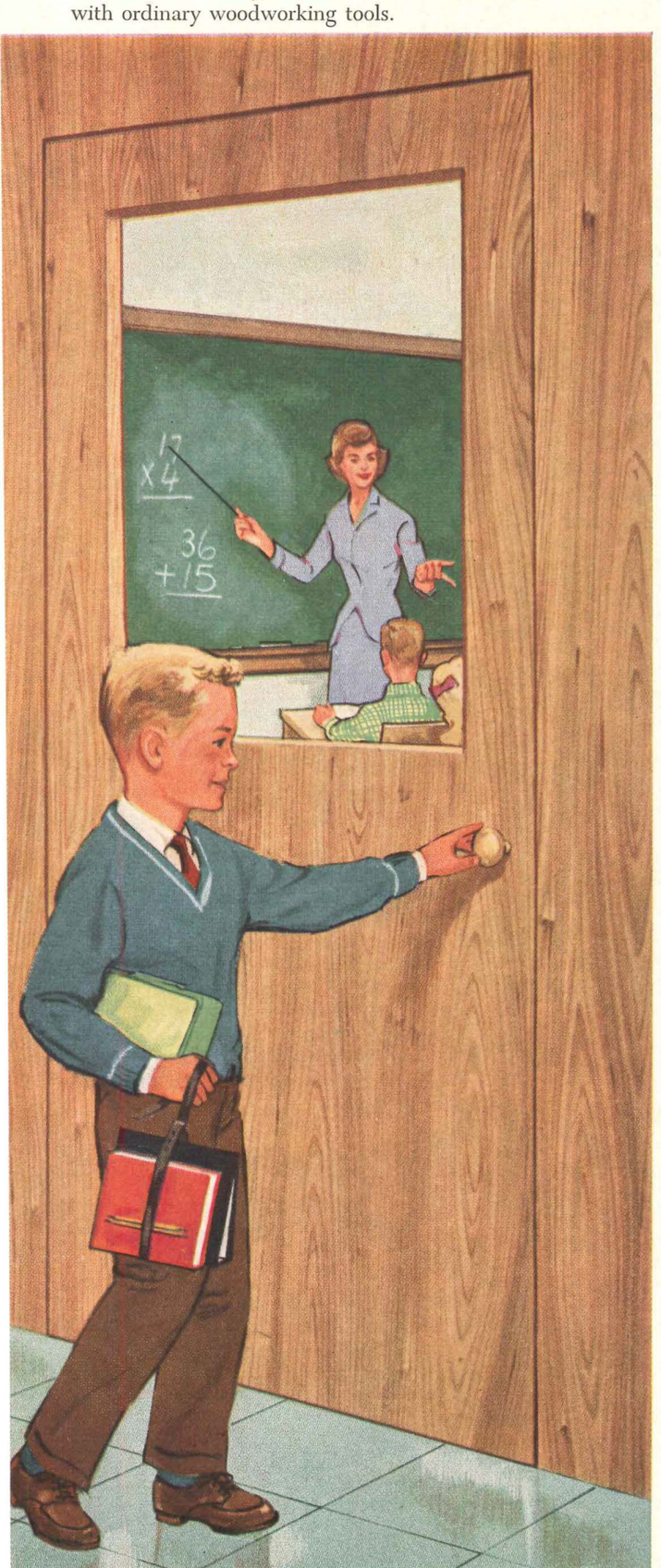
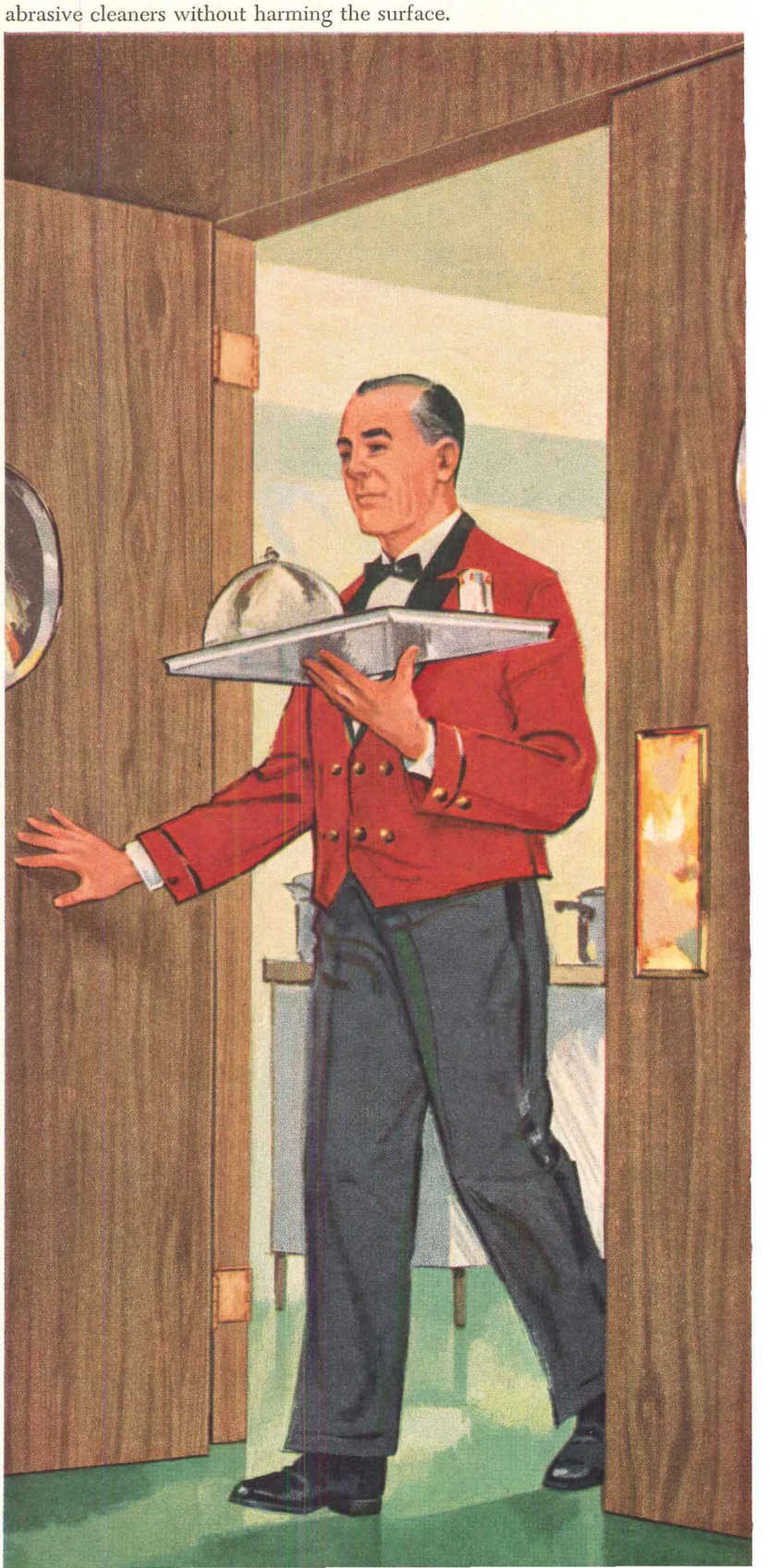
WITHSTANDS SMUDGING AND WEAR. Even in the heaviest traffic areas of schools, hospitals, and other public buildings, dirt and abrasion that would permanently mar paint and other wood finishes leave no impression on Permagard-surfaced Doors and Paneling. The Permagard surface is far more abrasion-resistant than even the best high-pressure laminate's—*at least four times more,* by standard laboratory tests. Permagard-surfaced wood works cleanly, and can be sawed, drilled, and nailed with ordinary woodworking tools.

RESISTS SCUFFING AND STAINING. In commercial interiors . . . such as restaurants, theaters, stores, and hotels . . . cooking fumes, tobacco smoke, food stains—even shoe polish—won't discolor Permagard Paneling and Doors. The satin-smooth Permagard surface provides a protective, nonporous barrier between the wood and dirt, spills, and smudges. A gentle wiping with a damp sponge is usually all that is needed to wipe them away. Stubborn dirt can be removed with standard chemical or abrasive cleaners without harming the surface.





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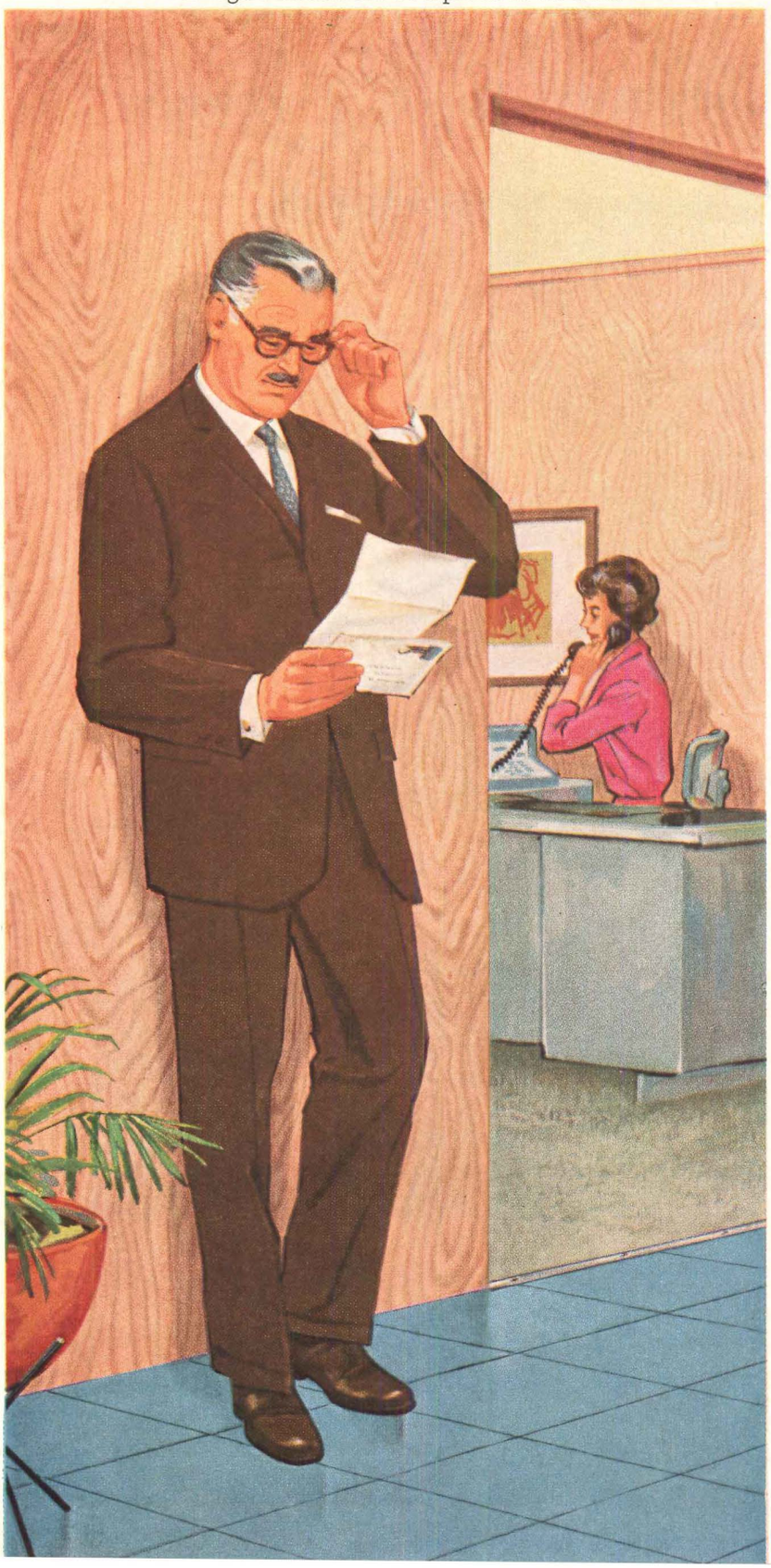
GIVES FREEDOM FROM REDECORATING. From the busiest corridors, lobbies, and lounges to private offices and conference rooms, office building interiors that have Permagard Paneling and Doors by Weldwood *stay* beautiful under all normal conditions, in all climates. Hot, cold, humid, dry, and even rapidly changing weather do not affect the native beauty and color of this luxurious real wood. In the event of severe abuse, the Permagard surface can be repaired in the field.



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The future design opportunities that Weldwood Permagard-surfaced wood promises to architects and decorators are virtually limitless. For a free sample and literature on Permagard Paneling and Doors by Weldwood, mail the coupon.

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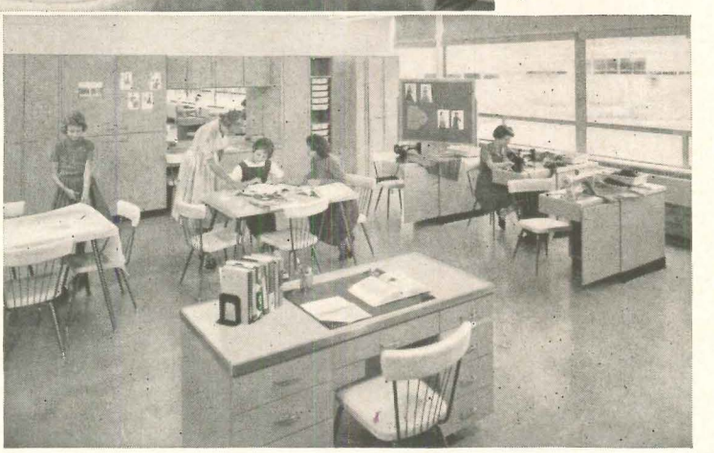

Every St. Charles custom school storage furniture installation—like the two classrooms shown here—reflect the unmistakable quality, flexibility and long-range economy that makes St. Charles equipment the standard across the nation. Let our experts help you and your staff plan new and better classrooms—special instruction classrooms in which it is as much a pleasure to teach as it is to learn!

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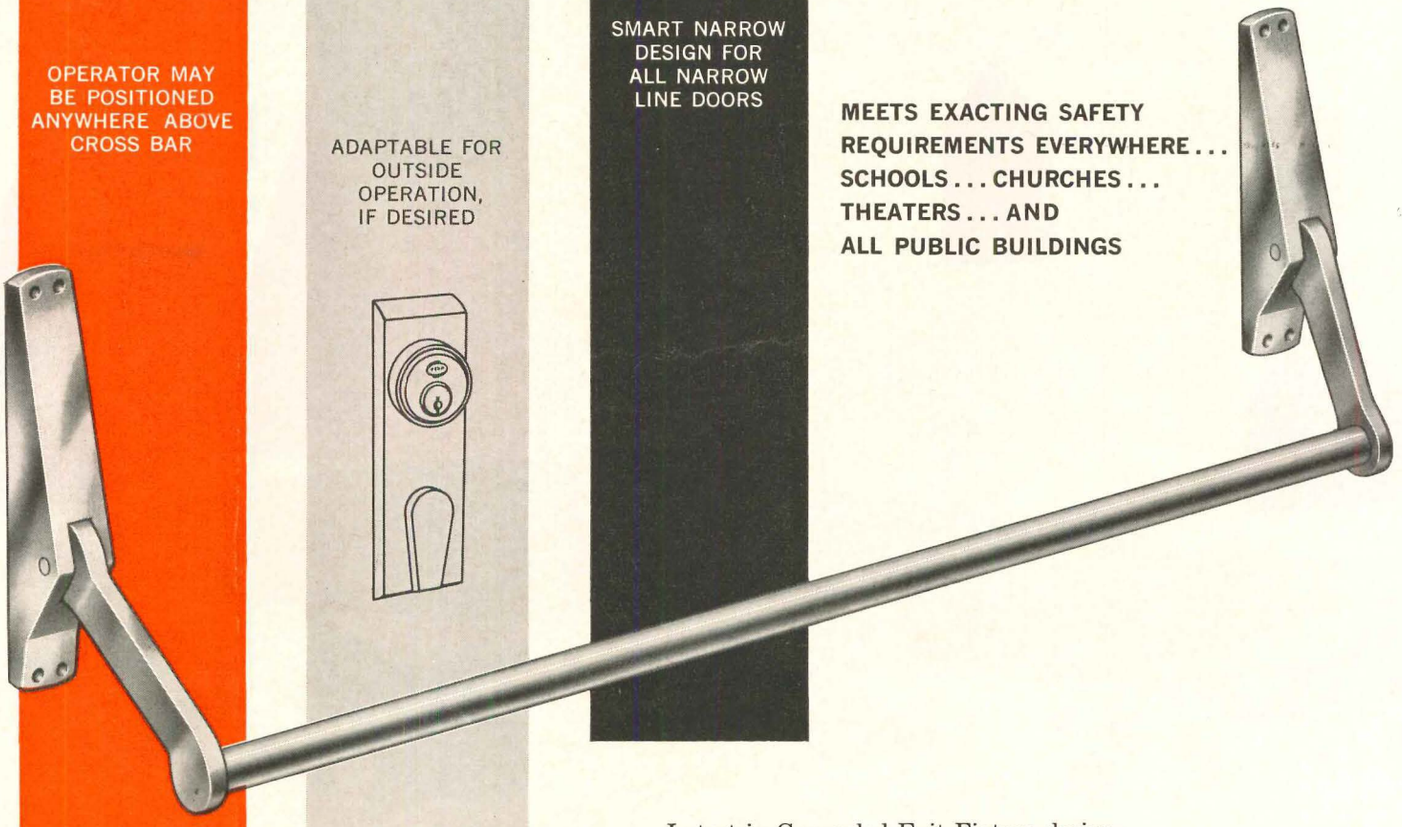

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THE MISSION OF THE PROFESSION OF ARCHITECTURE

By Philip Will, Jr., F.A.I.A. President, The American Institute of Architects

I hold that the architectural profession should assume responsibility for nothing less than the nation's MAN-MADE ENVIRONMENT, including the use of land, water and air, AN ENVIRONMENT IN HARMONY WITH THE ASPIRATIONS OF MAN.

For what aspect of the nation's welfare should the architectural profession be responsible? For what are we (or should we be) educated and trained? For the design of buildings? For groups of buildings? For cosmetics applied to the work of engineers? Or is there a more comprehensive mission to which we may aspire? I hold that there is.

If land is debauched, or streams polluted, our air a nauseous mix of soot, fumes, and the lethal gas of industry; if our cities are exploited jungles of disorder and corrupting ugliness; and, if there is little safety and no amenity, to whom can the public look for help, for guidance, for vision? To the realtor? The developer? The politician?

The answer must be: the architect. In one form or another, the solutions to all of these problems lie in the province of design, which is the special province of the architect.

By common consent, a free society looks to each profession to assume responsibility for that aspect of public welfare for which it is qualified by education and training. The successful discharge by a profession of its responsibilities, both individual and collective, brings great rewards in recognition of leadership, in gains both social and economic, and in freedom of action. All gain. The failure of a profession to discharge its responsibility is not long tolerated by a dissatisfied public — and a dissatisfied public appeals to government. Thus, for example, if the public feels its medical needs are not adequately met, the medical profession loses status, freedom, and independence. Doctors become employees of the State. Patients are assigned and the fees are fixed, with far-reaching consequences to this nation's fundamental philosophies. The point is self-evident that solutions must be found for voids in professional service.

So here is the demand, the challenge. Never before in history has America so needed the design professions. Never before has the opportunity for leadership by the architectural profession been so overwhelming and self-evident.

We are at a crossroads.

To say that the architectural profession is now totally prepared to meet the challenge would be self-deluding. Some individuals recognize the need; a small number are qualified to perform; an even lesser few are willing to act. In reacting to the magnitude of the task, we therefore have much to do and far to go. The longest journey, however, begins with a single step. That first step will have been taken if we can but agree on a definition of our professional mission. The services to be rendered, the skills, education and training required, the necessary organization and methods of practice all will follow as further steps on the way.

The challenge of society's need faces us now — today. The hands of the clock spin with alarming speed. Will we understand and act in time to save the nation from environmental debauchery? Such is unlikely without the vision and leadership of an aroused and dedicated profession of architecture.

As a service to the architectural profession, the building industry, and the general public, the Inland Steel Products Company has published Mr. Will's inspiring concept of "The Mission of the Profession of Architecture," and will provide without charge to all who desire them, reproductions suitable for framing. Write for your copy to Inland Steel Products Company, P. O. Box 394, Milwaukee, Wis.

The Record Reports

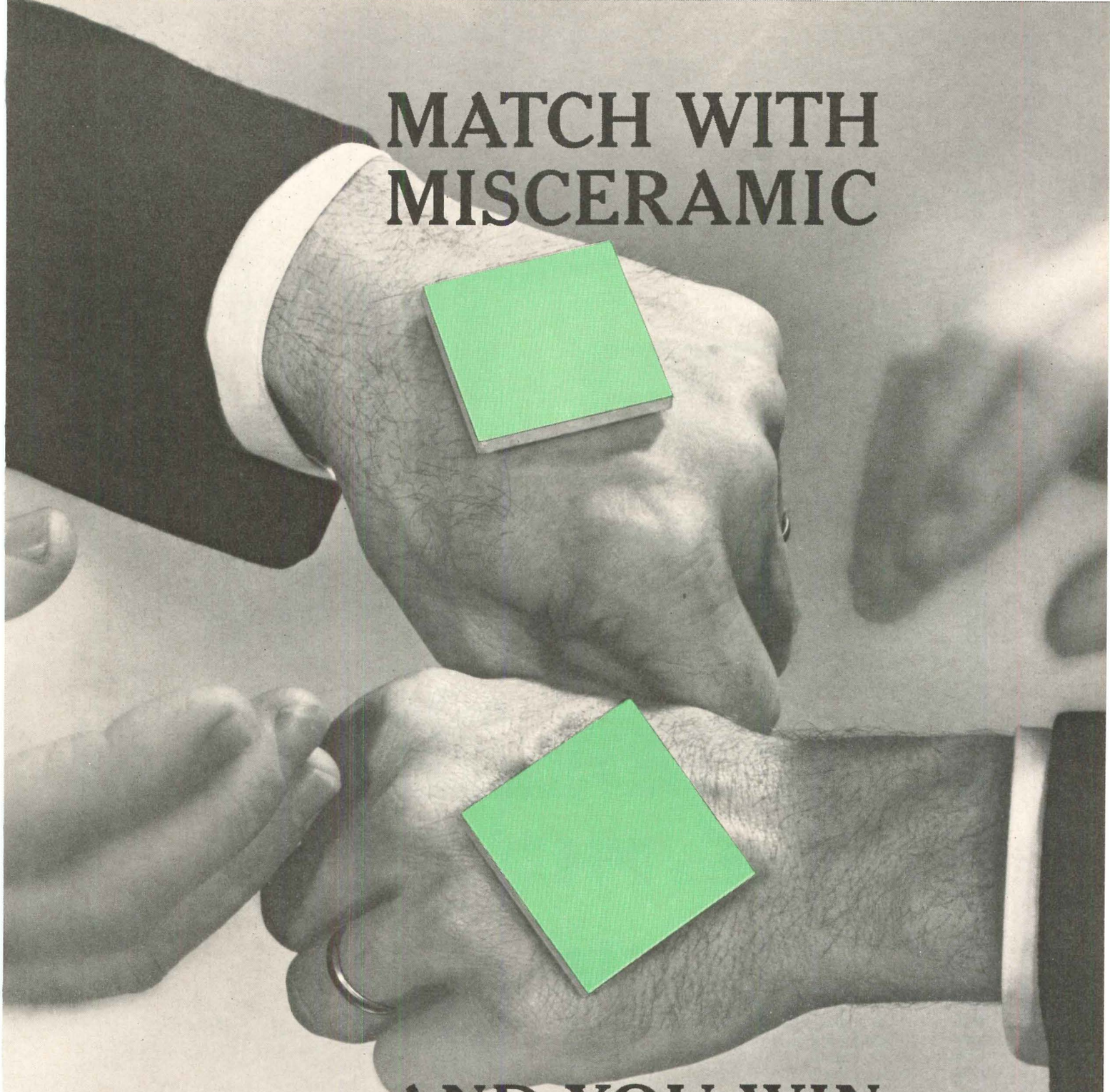
1961 A.C.S.A. Roster

The recently issued roster of members of the Association of Collegiate Schools of Architecture reveals no major changes in the membership. No schools have been dropped since 1960, nor have any been added. There are some changes within the roster. Cooper Union Art School has changed its name to the Cooper Union School of Art and Architecture. Two changes have been made in associate member schools in the designations of departments and schools. University of New Mexico's former Division has become the Department of Architecture. Ohio University's former Department has become the School of Architecture. There were a number of changes among the heads and deans. At Columbia University James G. Van Derpool, formerly Acting Dean of the School of Architecture, is Associate Dean. Charles R. Colbert is Dean. At Cornell University's College of Architecture, Burnham Kelly is Dean. Rev. Lawrence J. Green, S.J., is Acting Chairman of the Department of Architecture at the University of Detroit. At Montana State College School of Architecture, Harold C. Rose is Director. Mendel Glickman is Chairman of the School of Architecture at the University of Oklahoma. Rockwell K. DuMoulin is Acting Chairman of the Division of Architecture at the Rhode Island School of Design. In Rice University's Department of Architecture, Donald Barthelme is Program Chairman; James C. Morehead Jr. is Administrative Chairman. Acting Dean of University of Southern California's School of Architecture is Henry Charles Burge. John W. Lawrence has become Dean of the School of Architecture at Tulane University. Chairman of the Department of Architecture at Western Reserve is William T. Priestley.

Architect-Builder Team Win N.A.H.B.-A.I.A. Honor

The Second Annual Award of Honor from the National Association of Home Builders and the American Institute of Architects has been won by the architectural firm of Keyes, Lethbridge & Condon, A.I.A. and

continued on page 80



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For more information, refer to Sweet's or write Misceramic today.

Misceramic Tile

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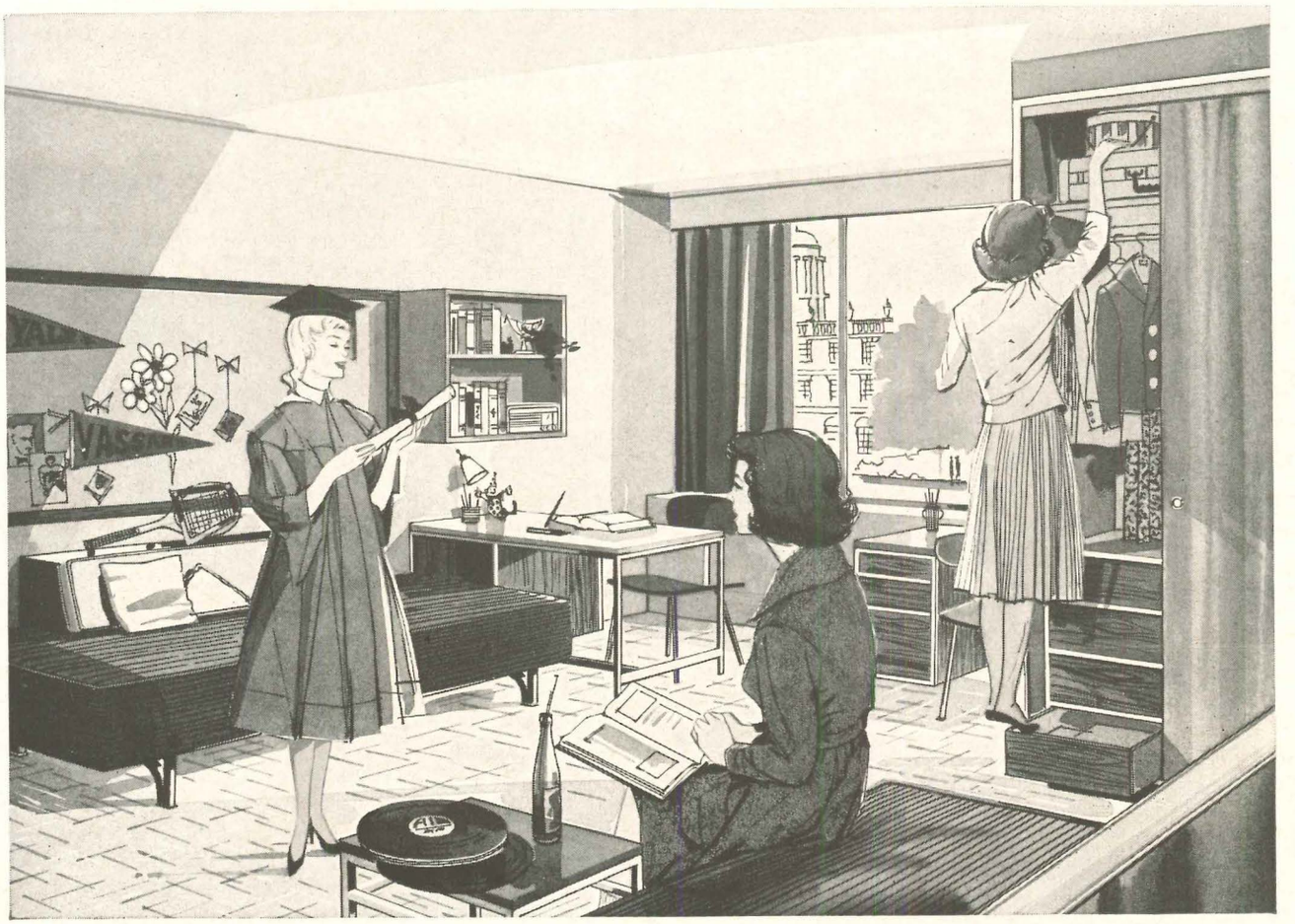

dorms with a **PHD**

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Dorm Line furniture by Simmons is especially designed to graduate with honors from the school of hard knocks, of which exuberant students are the masters. Comfortable Dorm Line provides a pleasant "at-home" atmosphere, too. It's smart, versatile, space-saving. Requires a minimum of maintenance care.

Dorm Line wardrobes, chests, desks, even beds can be built in, thereby qualifying for long-term government financing.

For dorms with a PHD, equip with Dorm Line furniture by Simmons. Dorm Line rooms are easy to plan, easy to finance.

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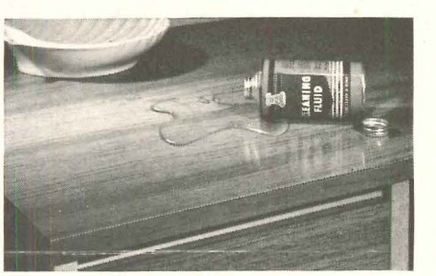
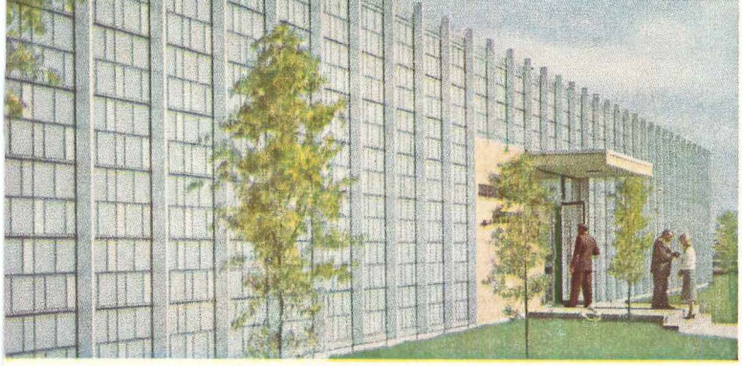
Dorm Line chairs take abuse—even spike-heeled shoes won't harm the tough Naugahyde upholstery. Welded steel frames withstand rough treatment.

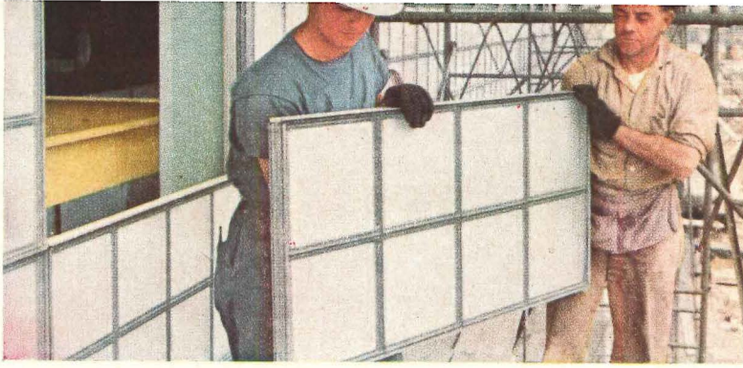
Fiberesin desk and table tops easily pass the "cigarette burn" test. All Dorm Line units, with steel and Fiberesin construction, reduce fire hazards.



No marring or damage from spilled liquids or chemicals—such as cleaning fluid or nail polish remover. Simmons Dorm Line keeps its new look for years!



Prefabricated in modular units . . .



installed quickly and easily

Light and bright inside, yet no glare . . . thanks to Thinlite

Only Thinlite curtain wall gives design freedom plus daylight control—with weather-tight permanence

THINLITE OFFERS the architect an almost infinite variety of design possibilities for any building being planned. In modular units, Thinlite panels are readily available in solid colors or with individual color tiles positioned in each panel according to your specifications.

In addition to the design freedom which Thinlite offers, you are assured of maximum daylight control, for "solar-selecting" Thinlite tiles cut glare and radiant heat, while directing diffused daylight to interior areas.

And, important in curtain wall construction, Thinlite is weather-tight due to its Neoprene gasketing system. Thinlite requires little maintenance, provides a permanent, beautiful exterior surface.

For your free brochure about Thinlite, just write to Kimble Glass, subsidiary of Owens-Illinois, Toledo 1, Ohio.

THINLITE CURTAIN WALL
AN (O) PRODUCT

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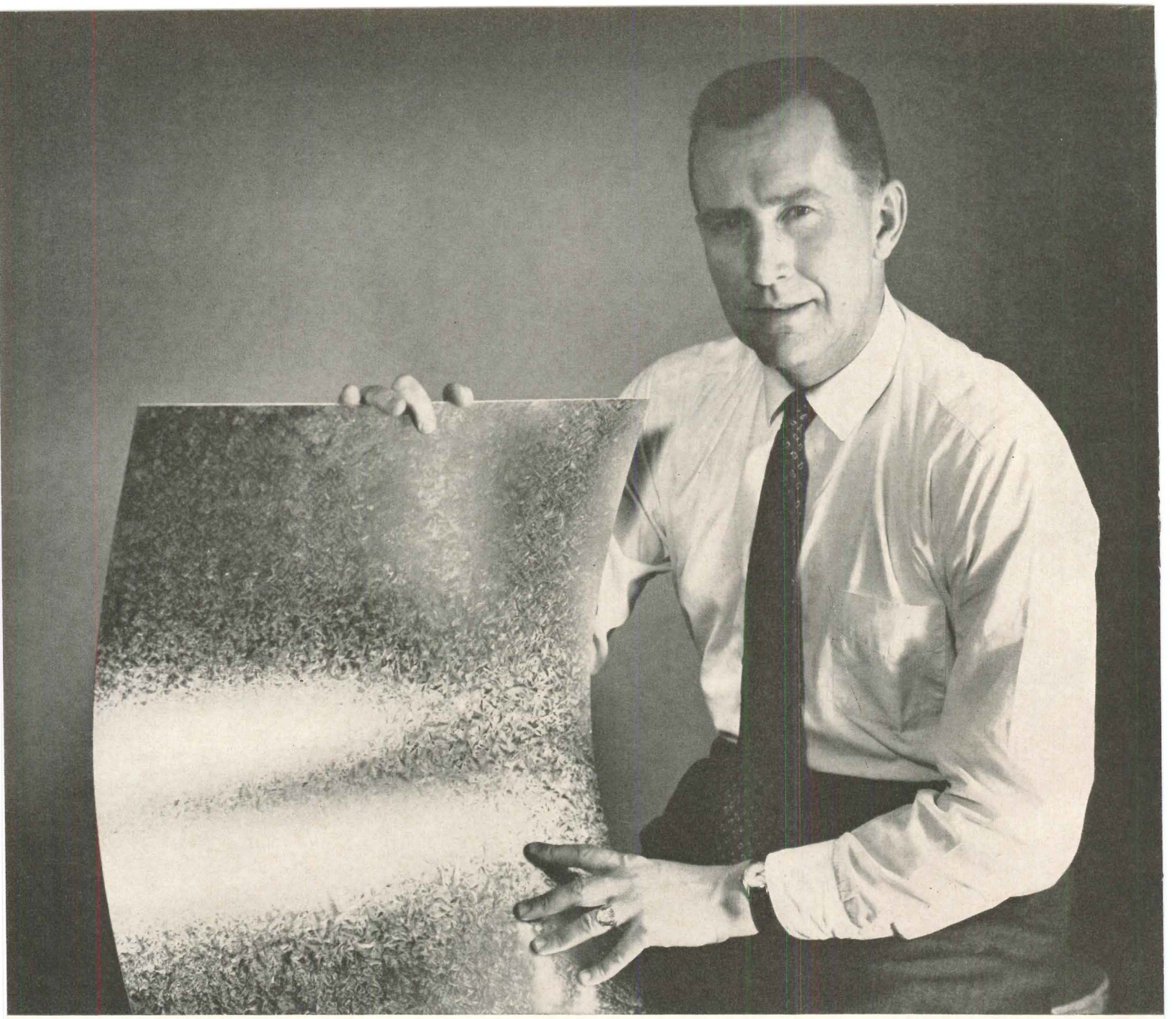
GENERAL OFFICES · TOLEDO 1, OHIO



Why Bethcon Galvanized Sheet makes the best ductwork

When you flex a piece of Bethcon galvanized sheet steel, you notice it has a "feel" of its own, a certain extra something. Liveliness, if you will. Toughness, perhaps. Or strength with ductility. Whatever you choose to call it, you'll find that it sinews the Bethcon sheet to form up into a strong, rigid end product.

There's good reason for Bethcon's unique quality. Bethlehem's continuous galvanizing lines include a special annealing cycle which imparts to the basic steel the strength-with-ductility that makes the sheet so desirable. Seconds later, the rich coating of zinc is applied so tightly that it permits forming never considered practical for galvanized steel.

If you have not yet familiarized yourself with Bethcon, you might like to talk to someone who has. Or perhaps you'd prefer to discuss it with one of Bethlehem's representatives. Either way, you'll get prompt attention by getting in touch with our nearest sales office.

Galvanized Steel

for Strength
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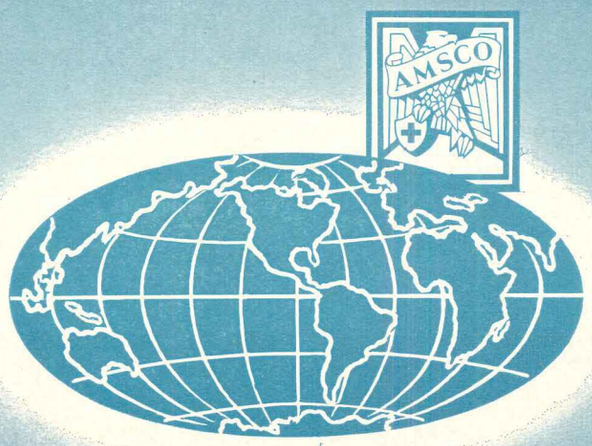
BETHLEHEM STEEL COMPANY, Bethlehem, Pa.
Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL



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of Hospital Technical Departments

We at American Sterilizer know little about current concepts of general building design and construction, except that they advance at a headlong pace.

But we DO have the largest single fund of knowledge concerning the design, function and essential workflow of those specialized technical departments which make a hospital *different from any other Architectural problem.*

This knowledge is *yours to use* in developing, for your hospital designs, Technical Departments which assure the ultimate in *patient protection* with *simplified staff work* and *lower operating costs.* This specialized information is gathered, evaluated, applied and supported by a group activity at Amsco which is not elsewhere equaled . . . for size, completeness or professional stature.

These are its major components

Research Working with a knowledge of hospital problems and procedures gained from equipment installations in more than a hundred countries of the world . . . Amsco Research investigates, evaluates and recommends techniques for the highest standards of patient protection.

Nurse Consultants Six full-time Nurse Consultants assure the vital quality of *practicality* in every procedure involving personnel training.

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Literature or consultation is freely available from our Technical Projects Division

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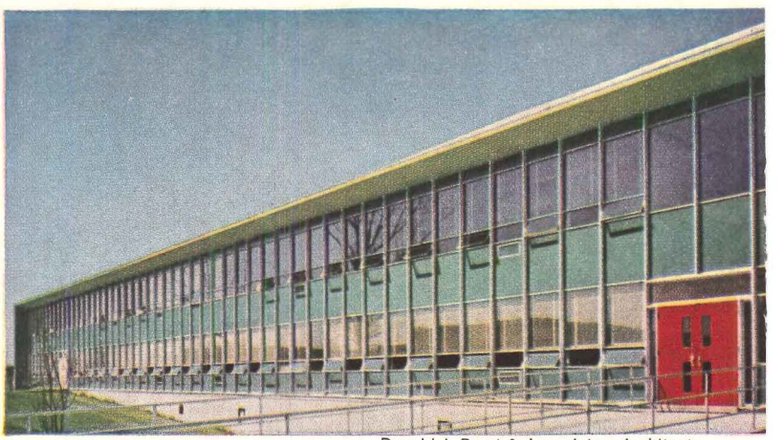
WALLS

MUNICIPAL AUDITORIUM
The huge main auditorium enclosure is formed of big light-colored incombustible Transite sheets.

COLLEGE BUILDING
J-M Transitop forms the window wall spandrels. On the exterior, the Transitop is painted a uniform blue-green; on the inside, the Transitop is painted to suit decorative schemes of individual classrooms.

Here are a few of the many buildings which make imaginative use of Johns-Manville materials for exterior walls. In each case, beauty and efficiency were achieved economically. Not visible in these photographs — but there, all the same — are such important benefits as fast, easy installation and permanence in service.

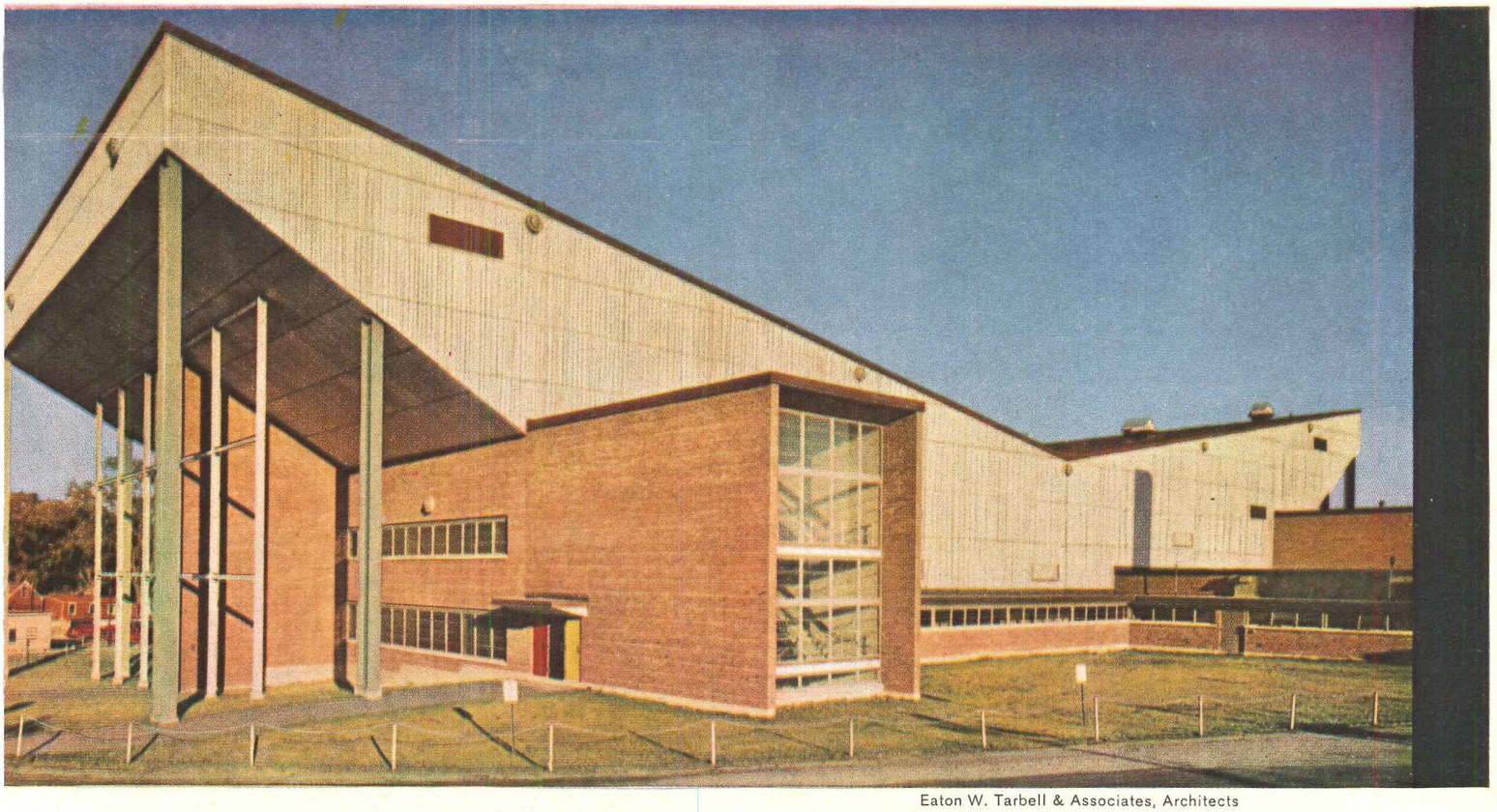
For more than a century, Johns-Manville research has led in the development of quality building materials. If you are planning a new building . . . modernizing an old building . . . or putting up new additions to an existing building . . . you will find many solid advantages in J-M products.



Donald J. Prout & Associates, Architects

AIRPORT BUILDING J-M Corrulux provides a translucent shield for the walkways at either end of this unusual building. This is a unique and imaginative use of Corrulux for sun control

Donald R. Goss Associates, Architects & Engineers

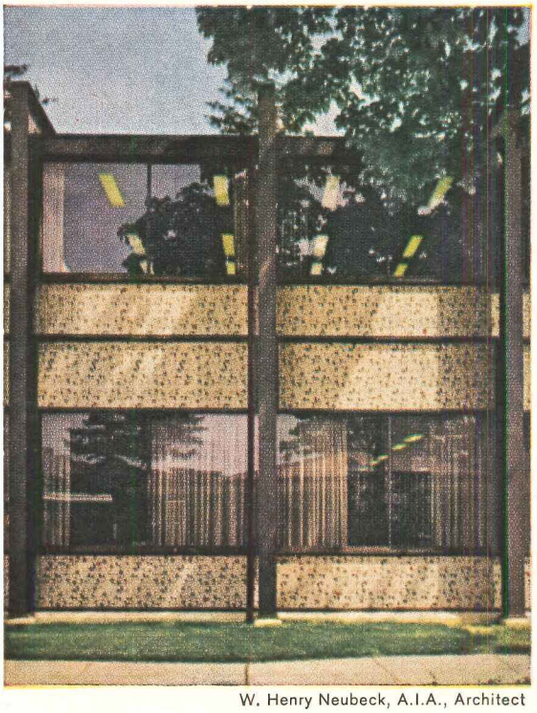


Eaton W. Tarbell & Associates, Architects

Sargent-Webster-Crenshaw & Folley, A.I.A., Architects & Engineers

JUNIOR HIGH SCHOOL
J-M Corrulux attached to the outside of the building columns and beams create a continuous band of translucence above each vision strip of clear glass.

OFFICE BUILDING Window wall panels are of Transitop, veneered with mosaic tile on the outside, painted on the inside. Transitop accepts these and virtually any other finish you specify.



W. Henry Neubeck, A.I.A., Architect

These modern buildings use one of the following Johns-Manville materials for exterior walls.

J-M TRANSITOP®—a "3-in-1" panel that serves as outside wall, inside wall and insulation. Between facings of asbestos Flexboard® is a rigid, durable core of insulation. Transitop panels are 4 ft. wide by up to 12 ft. long, thicknesses to 2 in.

J-M CORRUGATED TRANSITE®—a corrugated asbestos-cement sheet that has stone-like resistance to fire, weather and wear. It is decorative and requires no painting or similar maintenance. Sheets are 42 in. wide and up to 12 ft. long.

J-M CORRULUX® —a translucent building panel of fiber glass-reinforced plastic. Shatterproof . . . either corrugated or flat . . . in wide range of colors. Widths up to 42 in., lengths up to 12 ft.—even longer, on special order.

For more information, write to Johns-Manville, Dept. AR-4, Box 158, New York 16, New York. In Canada, address Port Credit, Ont. Offices throughout the world. Cable: Johnmanvil.

JOHNS-MANVILLE

JOHNS-MANVILLE JM PRODUCTS

The Record Reports

continued from page 72

the building firm of Edmund J. Bennett, both of Washington, D.C. The award is presented to encourage collaboration between architects and builders with the overall goal of constant improvement in the design and construction of homes and communities.

Competition judges were: Philip Will Jr., F.A.I.A., president of the A.I.A.; Edward H. Fickett, A.I.A.; Alfred B. Parker, F.A.I.A.; and builders Robert A. Fox, A. N. Miller and Clarence Kettler.

Obituaries

James Kellum Smith, F.A.I.A., partner in the firm of McKim, Mead & White, died on February 18 at his home in New York City.

A graduate of Amherst College and the University of Pennsylvania School of Architecture, he won the Prix de Rome in architecture in 1920. He was a member and for three years a vice president of the National Institute of Arts and Letters.

Noted for college campus works, Mr. Smith designed buildings at Amherst, Bowdoin, Middlebury, Trinity, and Union Colleges, Colgate, Tufts and Wesleyan Universities and for the Universities of Connecticut, Delaware, Pennsylvania and Vermont. His final work was the Museum of History and Technology, under construction for the Smithsonian Institution in Washington, and scheduled for completion by spring of next year.

William C. Mann, A.I.A., partner in the firm of Mann & Harrover, Memphis, died on December 31, 1960.

Mr. Mann was a graduate of Georgia Tech, a past secretary-treasurer of Memphis Chapter, American Institute of Architects.

He and his firm contributed the winning design on Memphis Arts Center, Overton Park, the first time the city held a competition on a building. Their work has won many awards, including an A.I.A. regional award in 1959; *Progressive Architecture* Magazine award for the Municipal Airport Terminal design, the Reelfoot Motel Development, Memphis Speech and Hearing Center and the Richland School.

PAINTING BY JOHN OTTERSON

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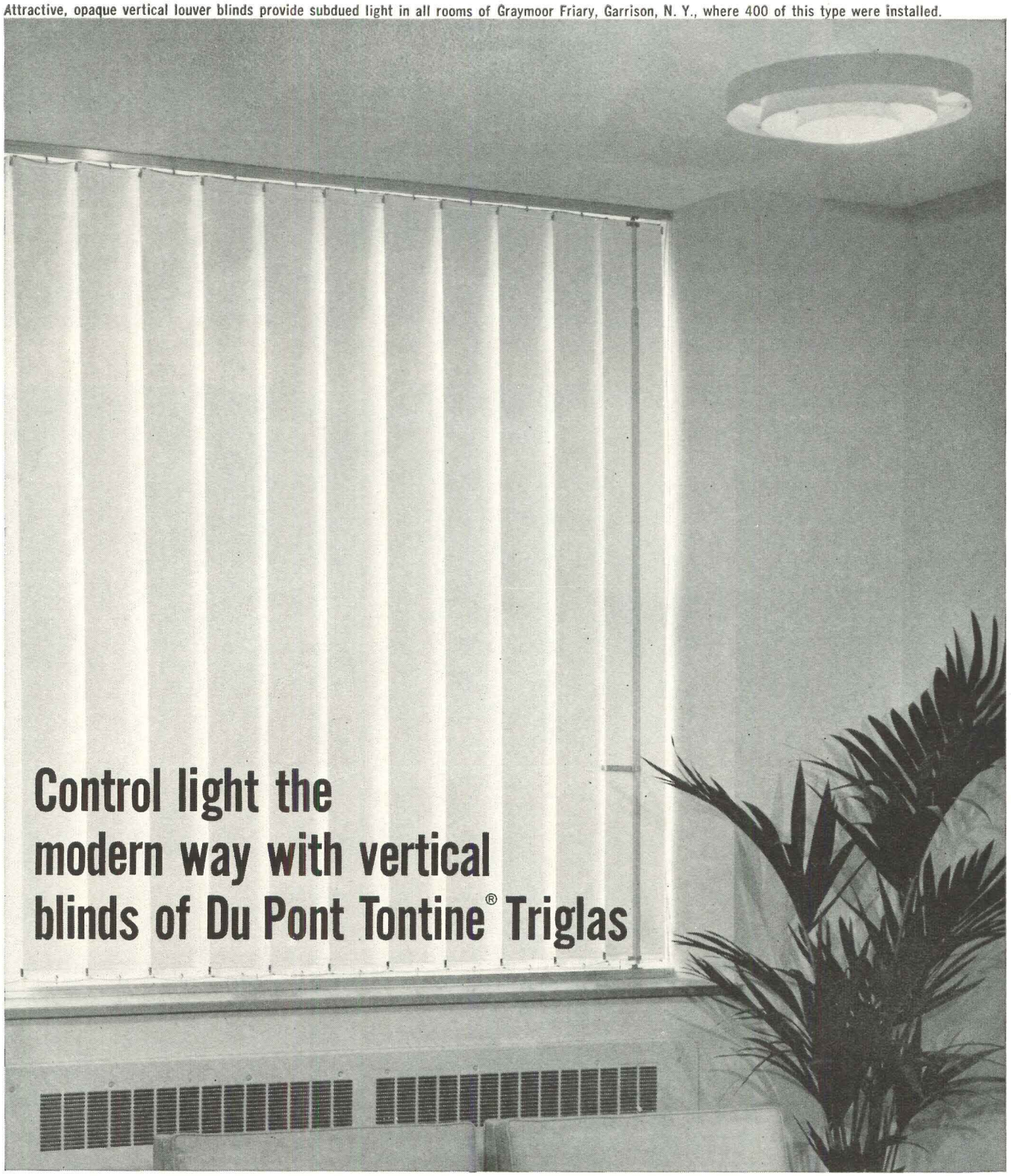

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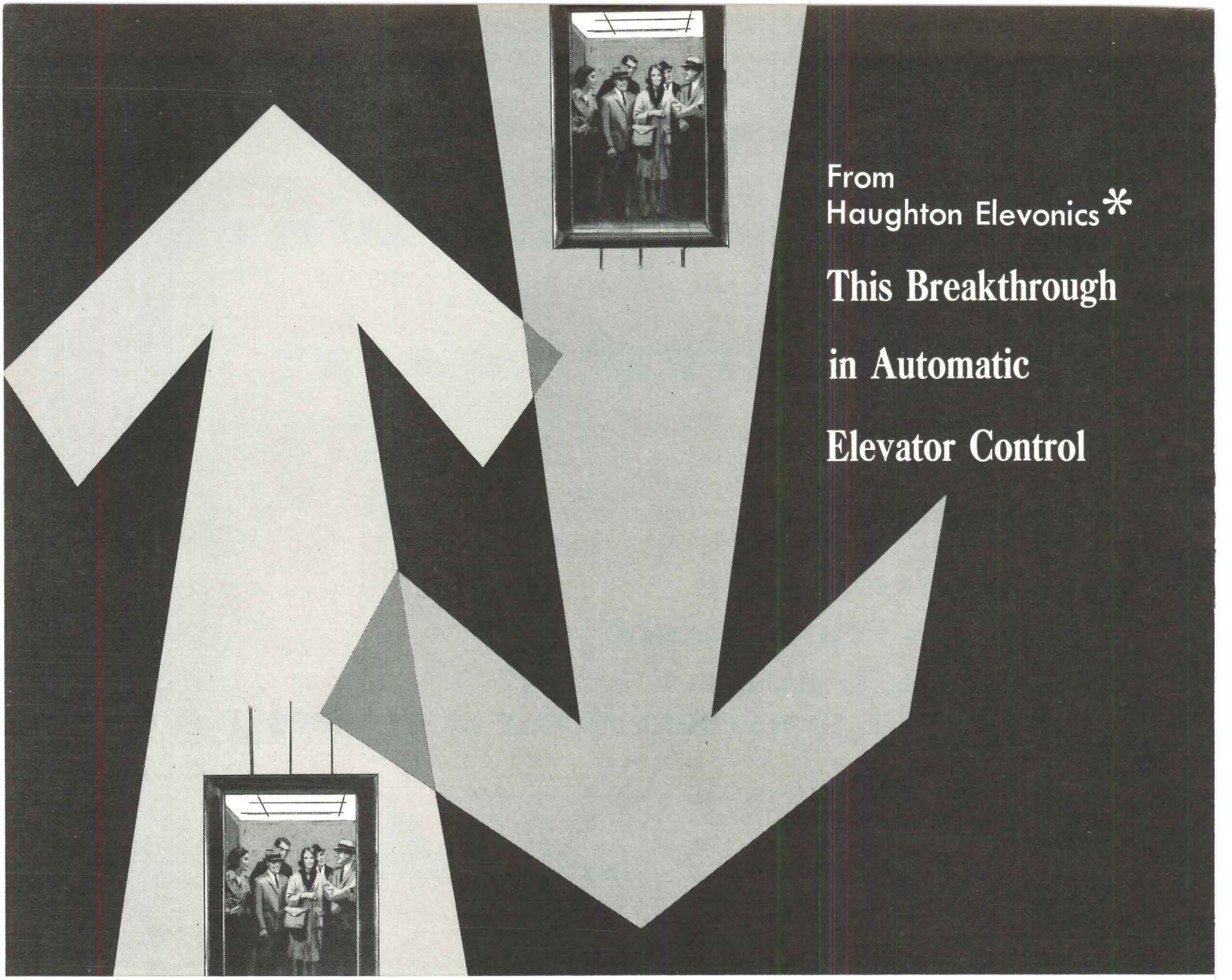

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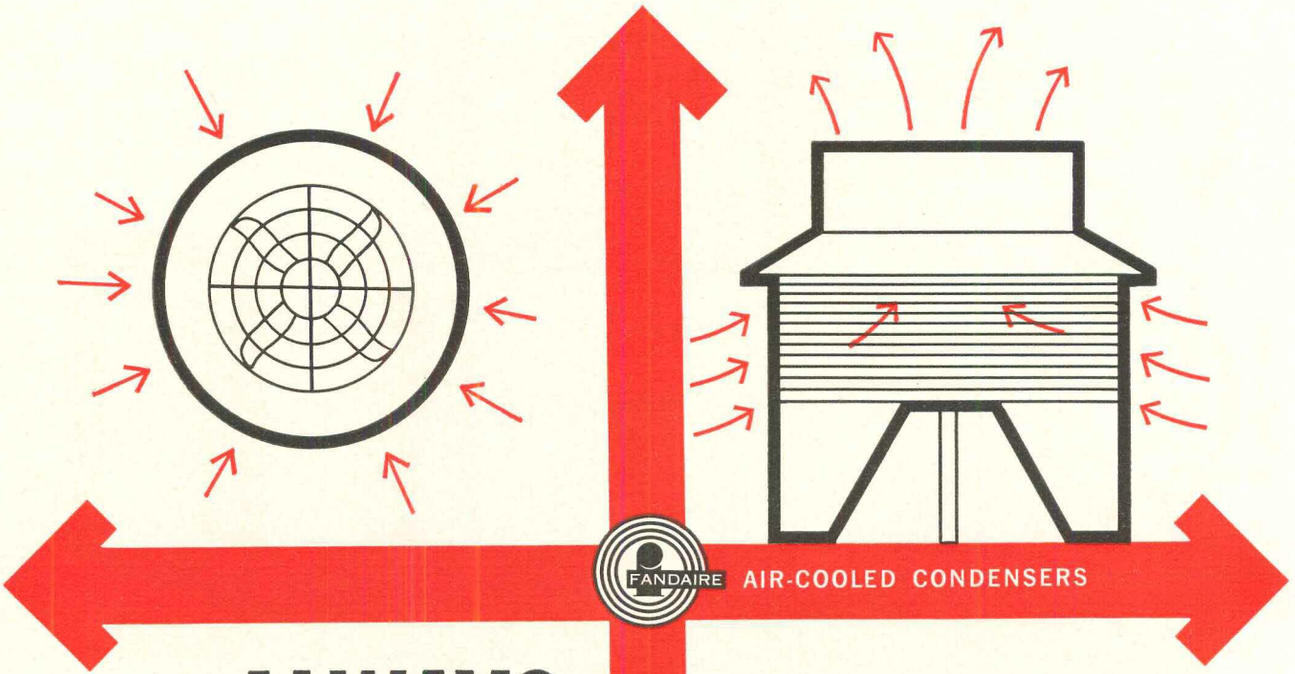

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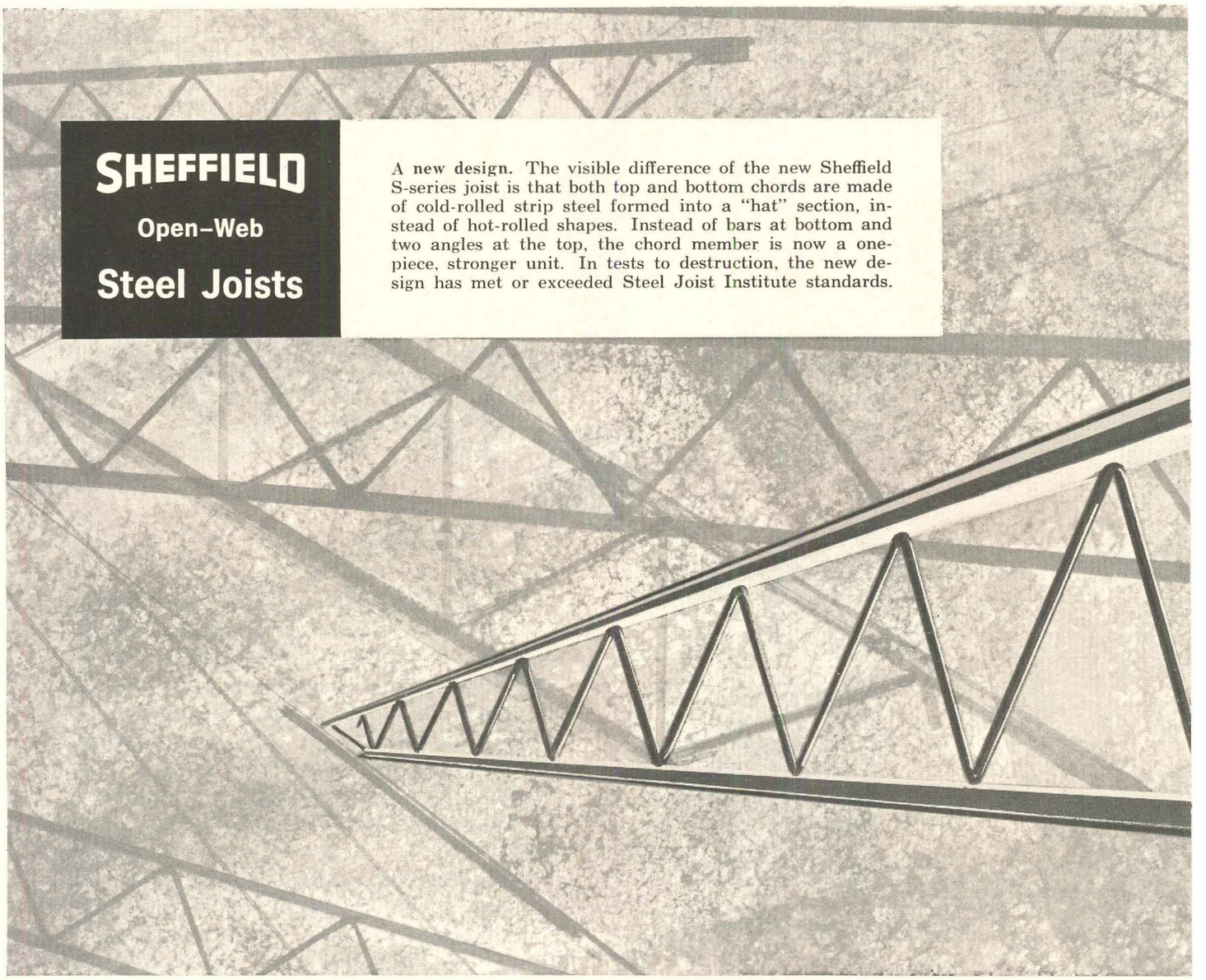

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Sheffield's New Electronically Controlled Steel Joist Production Facilities Are Vast, Fast and Unsurpassed

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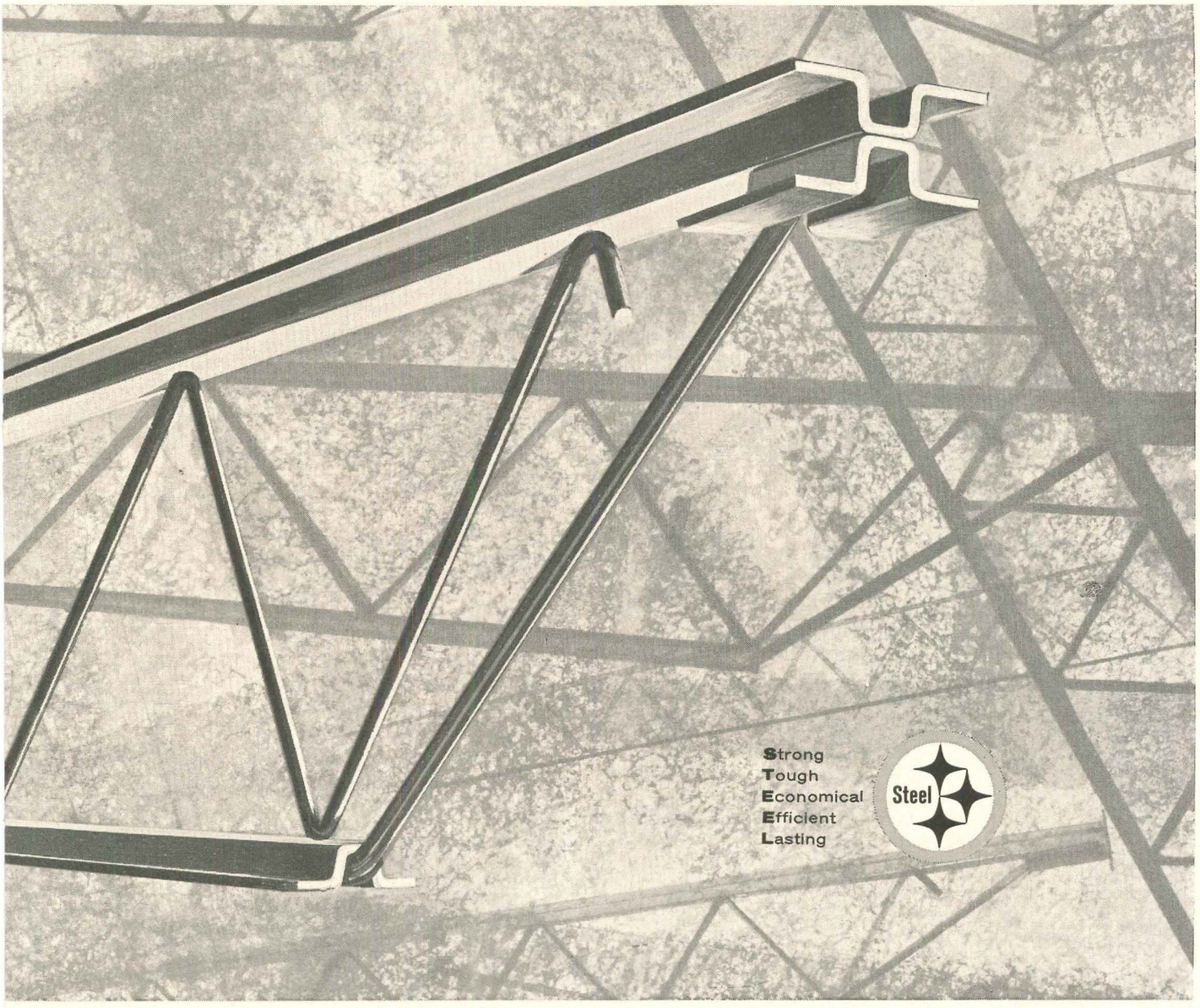
Add these advantages to design economies which stronger, lower deadload joists make possible and you come up with competitively substantial structures at lower cost.

The steel that goes into Sheffield Joists is made in Sheffield's own mills to specifications and under quality controls. This enables Sheffield to make double sure that Sheffield joists meet Steel Joist Institute specifications.

Your Sheffield distributor and nearest Sheffield office will co-operate in making available detailing service on your projects.



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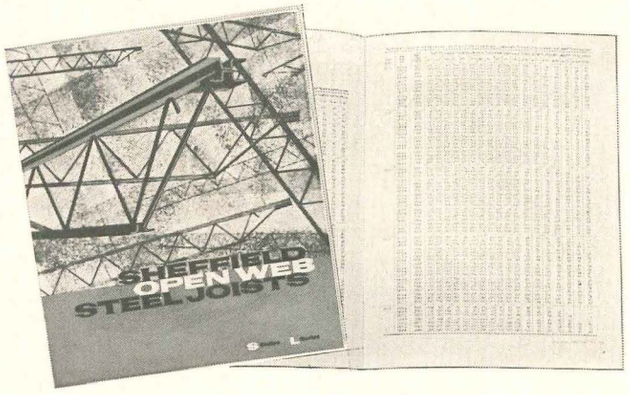
40 pages of up-to-date and complete data on new Sheffield S-series and on Sheffield L-series joists. Contains properties and dimension data, load design tables, floor, roof and ceiling applications and accessories data, revised Steel Joist Institute specifications and recommended code of practices. For this complete working manual, write **Sheffield Division, Armco Steel Corporation, Sheffield Station, Kansas City 25, Missouri.**



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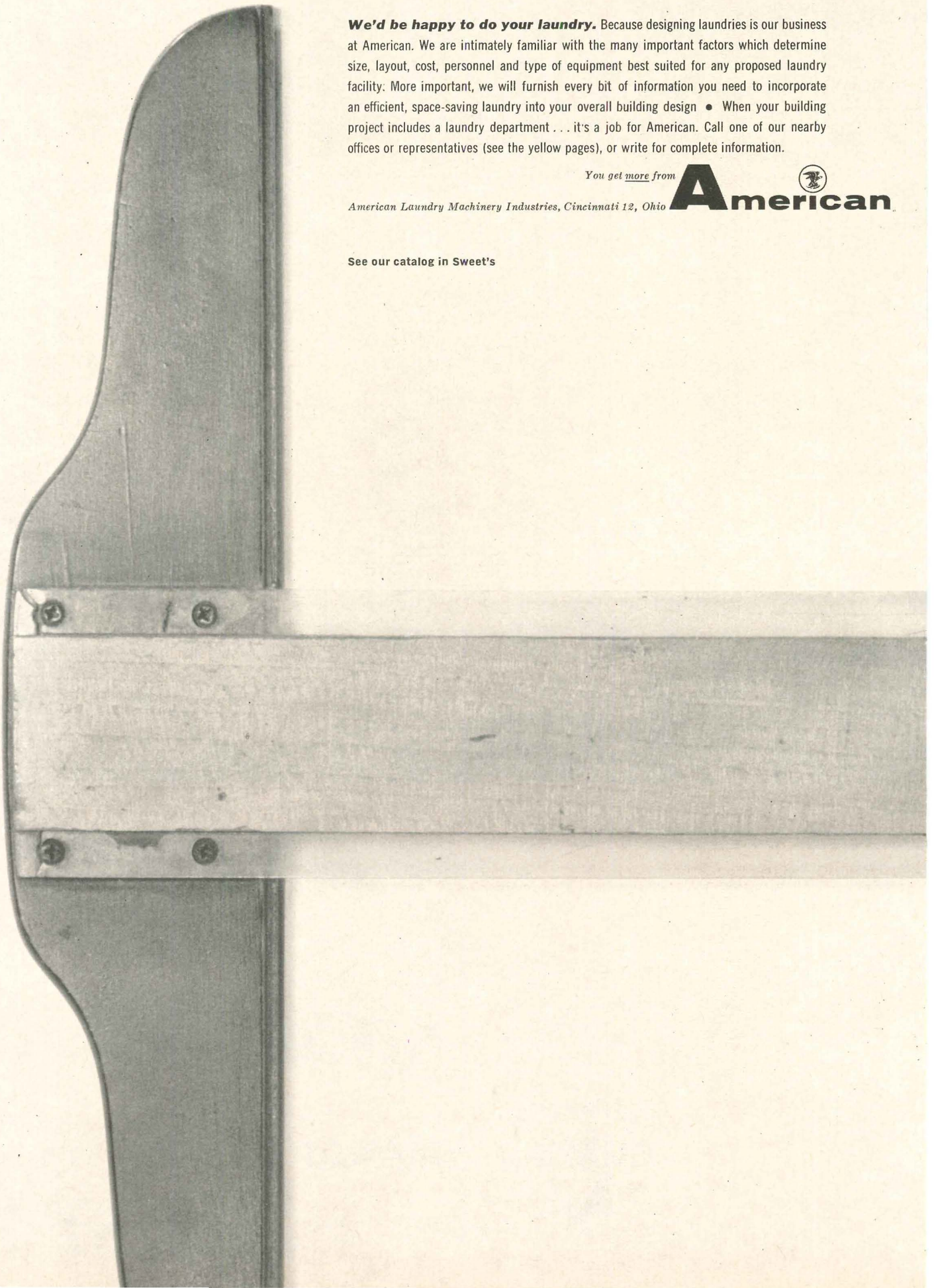

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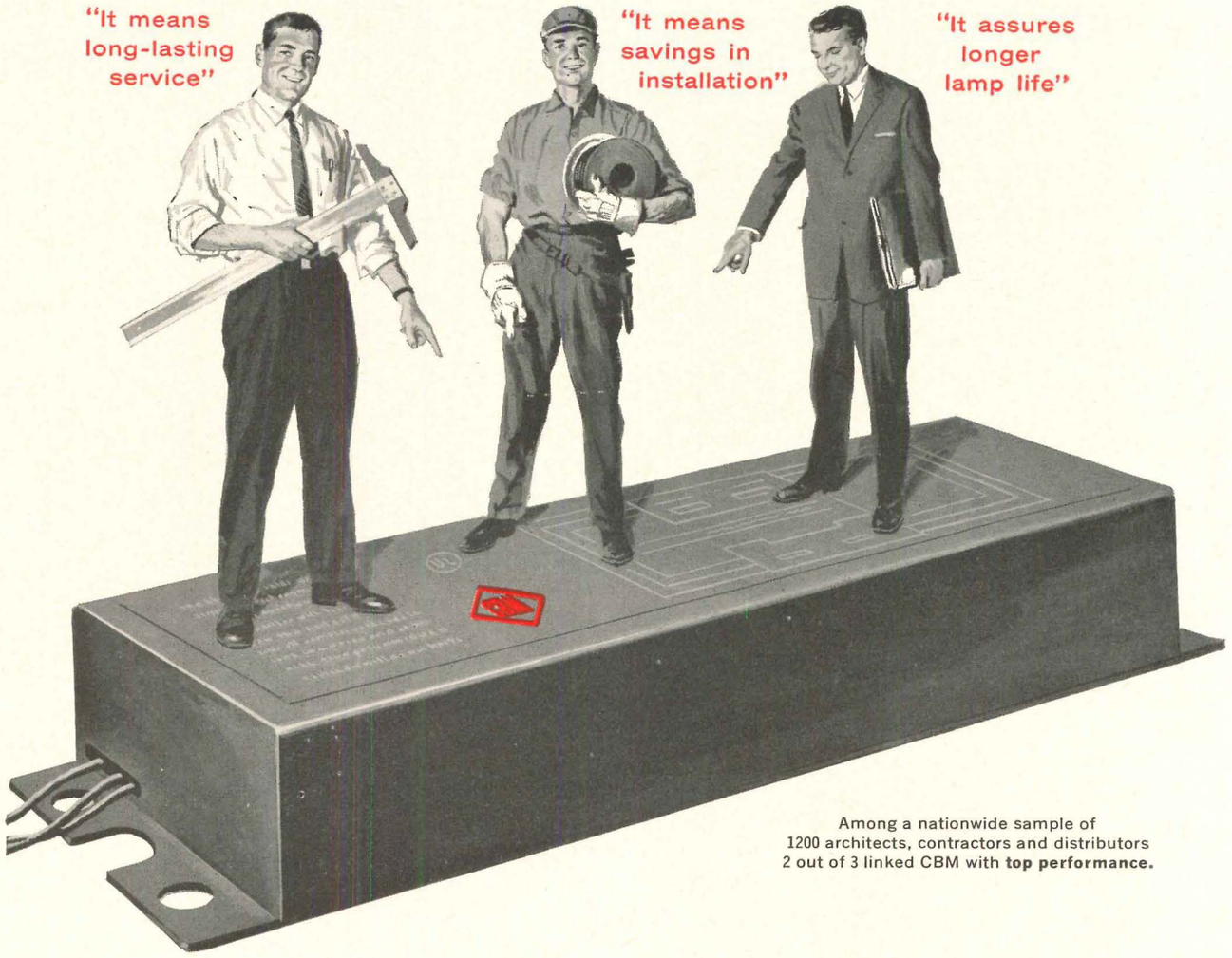

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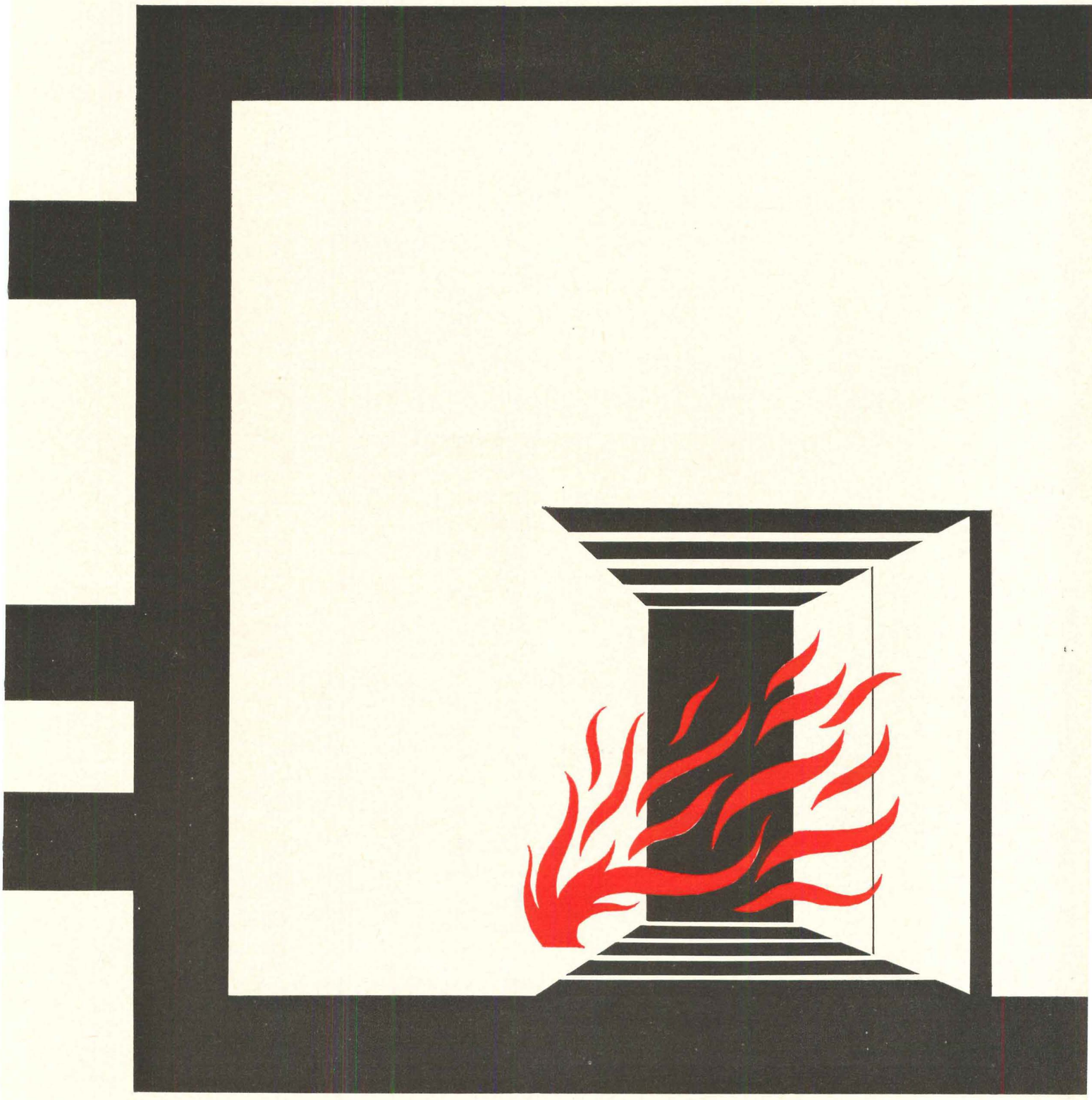

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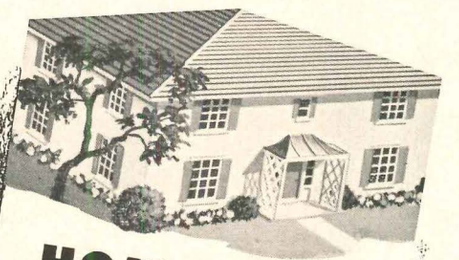


HOMASOTE BIG SHEETS

- Reduce heating and air conditioning costs
- Create a calm and comfortable atmosphere
- Improve your stereo and TV sonics
- Protect you from drafts and dampness
- Guard your health

Ask your lumber dealer for free Homasote Handbook. Its 72 pages tell you how—and you save money doing it.

MAXIMUM SPANS, FLOOR JOISTS, 16″ o.c.
DOUGLAS FIR—CONSTRUCTION GRADE

	30 lb. Live Load	40 lb. Live Load
2x6	10′ 4″	9′ 8″
2x8	14′ 0″	13′ 0″
2x10	17′ 0″	16′ 2″
2x12	19′ 8″	18′ 8″

PRINTED IN U.S.A.

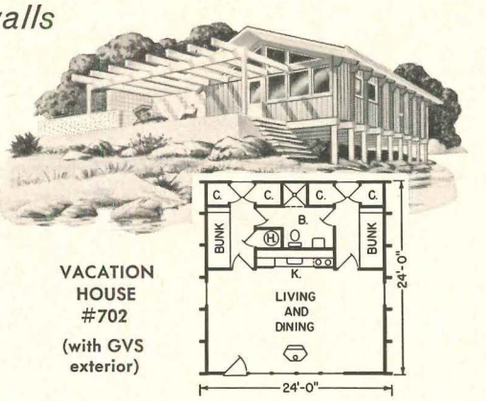
FORM 234

DRY-WALL CONSTRUCTION—

pioneered by Homasote—saves you $297 or more on your interior walls

We have been pioneering in Dry-Wall Construction since 1916. It is now acknowledged that Homasote is the finest Dry-Wall material—and that the Big Sheets (up to 8′ x 14′) save you time and money, eliminate all problems and extra costs arising from taping, nail-popping, moldings and interior trim.

The major facts about each Homasote Product are presented in briefest terms—on a colorful Nutshell Card (as pictured above). Handy reference tables—such as maximum spans for floor joists—are included. Ask your Lumber Dealer—or write us—for a set of these cards. Each shows you where you can save money at some point of construction—and still give the home owner higher quality, finer appearance and more lasting satisfaction. And—be sure you always have available a copy of the latest edition of the 72-page Homasote Handbook. Kindly address Department D-4.



VACATION HOUSE #702 (with GVS exterior)

TO WIDEN YOUR MARKET... get the full facts about Vacation and Small Homes, Farm and Utility Buildings constructed by the new Versitruss-Panel System. Also—ask about Homasote's Vacation and and Small Home Financing Plan.

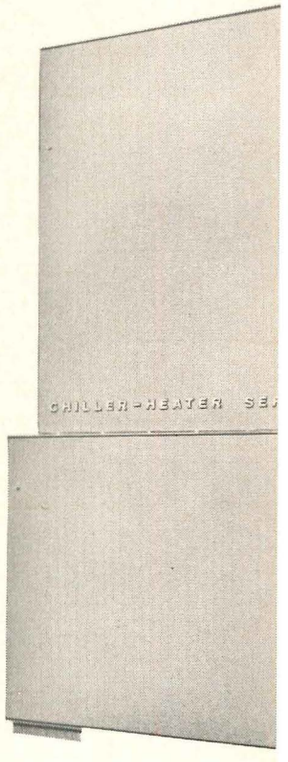
Ask your Lumber Dealer about Homasote P.B. Components

HOMASOTE COMPANY

TRENTON 3, NEW JERSEY

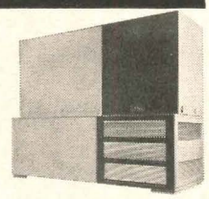
Homasote of Canada, Ltd. • 224 Merton Street • Toronto 7, Ontario

THE GAS INDUSTRY ANNOUNCES . . .



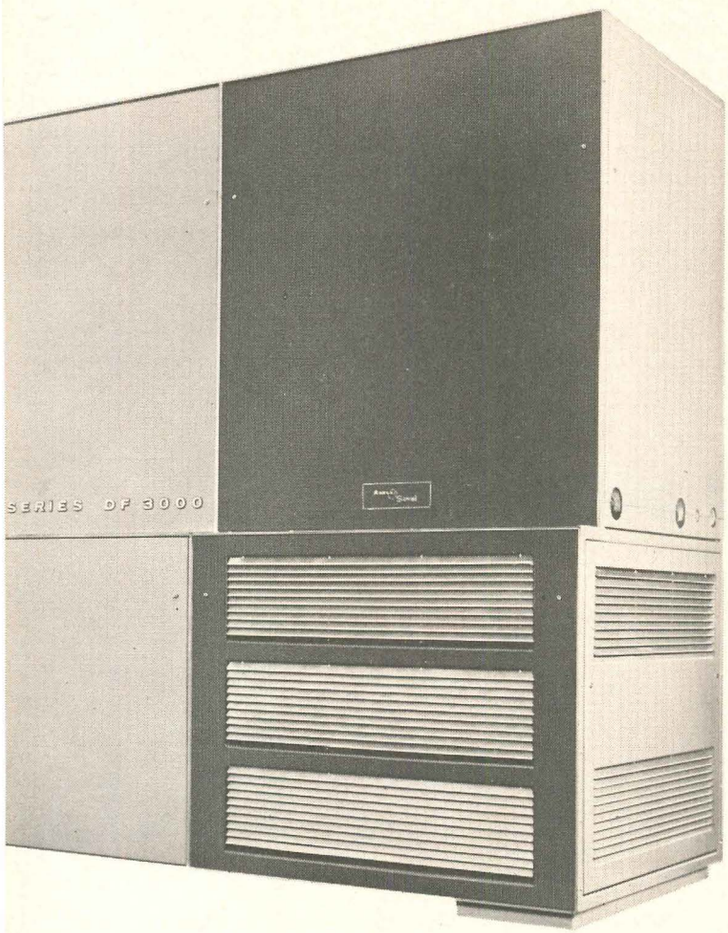
A MAJOR BREAKTHROUGH IN COOLING & HEATING

ARKLA'S NEW 25-TON GAS CHILLER-HEATER



Here it is – the revolutionary new Arkla absorption unit that heats and cools without a steam producing boiler or converter. Gas-fired burners in the generator section energize the system for absorption cooling, or for heating. It's the perfect system for modern year 'round gas air conditioning.

INSTANTLY HEATS AND COOLS AUTOMATICALLY ◀ HEATS WATER WITHOUT A BOILER ◀ COOLS WATER WITHOUT A COMPRESSOR ◀ REQUIRES NO LUBRICATION ◀ SEALED FOR LIFE, REQUIRING MINIMUM MAINTENANCE ◀ MAINTAINS SAME CAPACITY FOR THE LIFE OF THE UNIT ◀ HAS NO MOVING PARTS IN THE HEATING AND COOLING CYCLE ◀ FIRST MEDIUM OR LARGE TONNAGE AIR CONDITIONER THAT HEATS.



Truly revolutionary... investigate for your next building project the new Arkla DF-3000 Gas-Fired All Year® Chiller-Heater.

For details contact your local Gas Company. Or write Arkla Air Conditioning Corporation, 812 Main Street, Little Rock, Arkansas.

American Gas Association

FOR HEATING & COOLING GAS IS GOOD BUSINESS!

RIMCO® WOOD WINDOW UNITS

REFLECT YOUR GOOD JUDGEMENT
BOTH INSIDE AND OUT

Windows are the only product (except doors, and we make them, too) that reflect your good judgement from both inside and outside of the structure. That's why it's doubly important to make the right choice. RIMCO has considered this aspect in designing all of its six window styles . . . to give you a beauty bonus. Clean, crisp lines outside . . . subtly contoured inside, you'll find that these window units constructed of selected ponderosa pine add extra meaning to the word "window." For RIMCO furnishes complete Wood Window Units . . . sash set in frames, hardware and weatherstripping applied, wood bead glazed, and exterior trim applied. All your contractor does is set them, apply interior trim and finish.

Each style has a generous size range to give you fenestration freedom. And, all meet the applicable U. S. Department of Commerce Commercial Standards.

RIMCO®

ROCK ISLAND MILLWORK COMPANY
FACTORY DIVISION, P. O. BOX 97
Rock Island, Illinois

A request on your letterhead will bring you, without cost, the new ARCHITECTURAL TRACING DETAIL SET. Also see our catalog in Sweet's Files.

Cobo Hall covers 10 acres in Detroit's new civic center. It is the world's largest exhibition hall. One area has about 300,000 square feet of exhibit space. National Tube supplied pipe used for air conditioning, plumbing, and sewerage.

How to plumb 51 acres of floor space

There's enough plumbing in Cobo Hall, Detroit's new exhibition building, to serve a city of 70,000 people. It took more than 13 miles of USS National Galvanized Steel Pipe, 2½″ to 12″ diameter, just to connect the fixtures, lavatories, showers, drinking fountains and drains. In addition to four gargantuan exhibition areas, Cobo Hall has 32 meeting rooms, a cafeteria, a coffee shop, and a banquet hall that doubles as a ballroom. USS National Pipe air conditions the 10-acre structure . . . enough of it to handle 10,000 gallons of water a minute. Even the sewerage system soil lines contain USS National Pipe. The architect specified steel pipe because almost all piping had to be suspended from the ceiling. Steel pipe, with its high-strength-to-weight ratio, was faster and cheaper to install and required fewer hangers. □ Whether you're planning a one-roomer or the world's largest, it pays to specify USS National Pipe. You'll get fast delivery of top quality pipe in all sizes for power, heat, utility lines, or air conditioning and you'll also get prompt technical assistance from the most qualified men in the field. National Tube salesmen are backed by the engineers and research scientists from our research laboratory. Just call or write National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

USS and NATIONAL are registered trademarks

This mark tells you a product is made of modern, dependable Steel.

National Tube Division of United States Steel

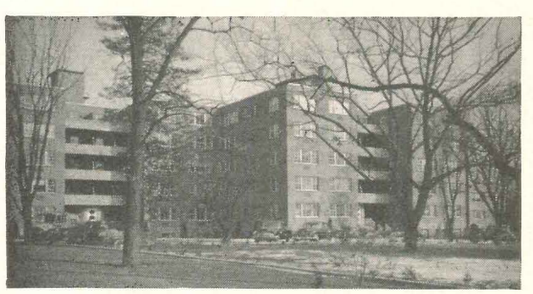
Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York

Finishing up a weldment on the water cooling section of Cobo Hall's air conditioning. The system's output is equal to that of 7,000 window units. ▶

. . . IN A Donley INCINERATOR

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

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



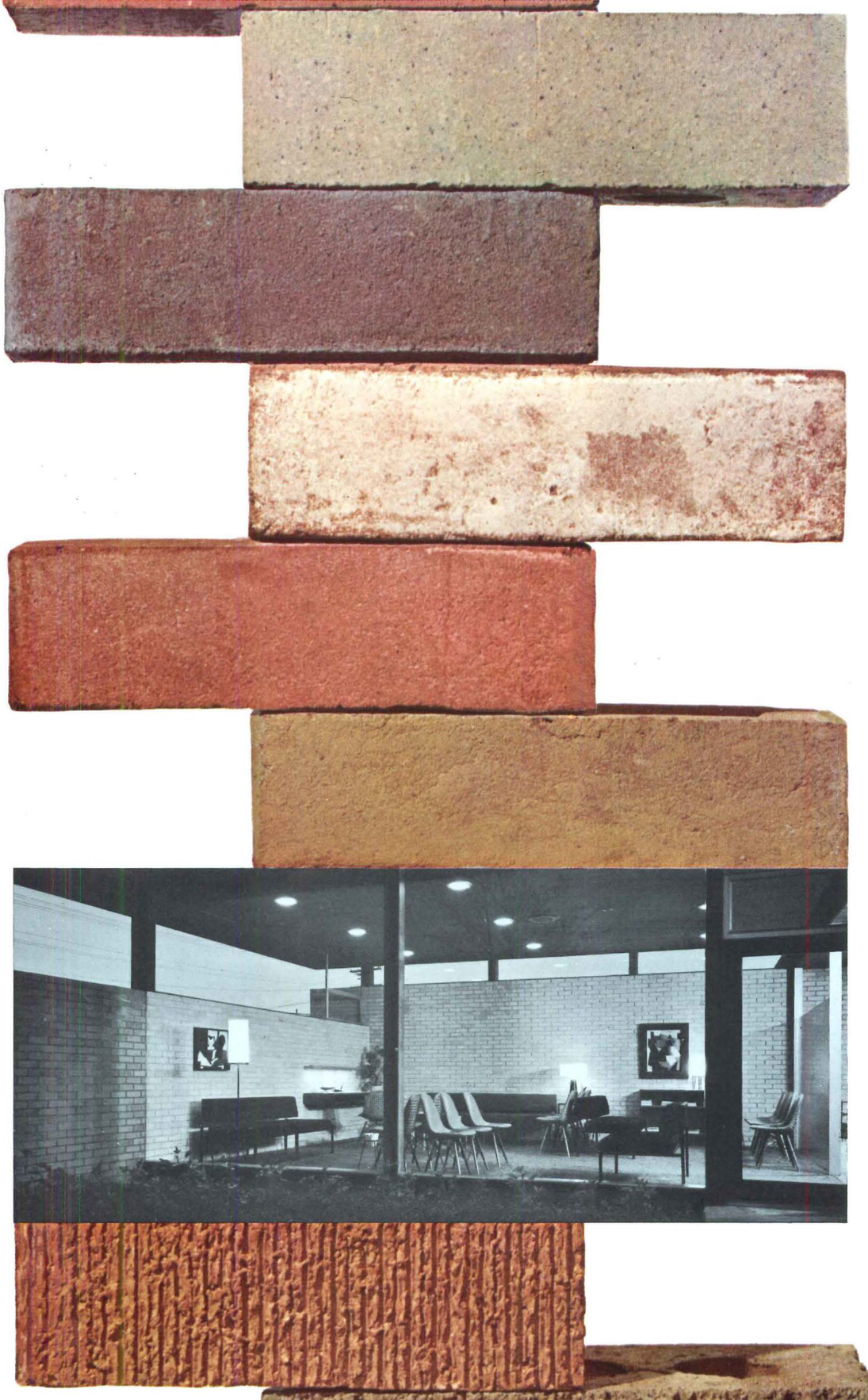
Trouble-free Donley Incinerators were specified for this large residential development in Philadelphia.

INCINERATOR INSTITUTE OF AMERICA MEMBER IIA

THE Donley BROTHERS COMPANY

13972 Miles Avenue Cleveland 5, Ohio

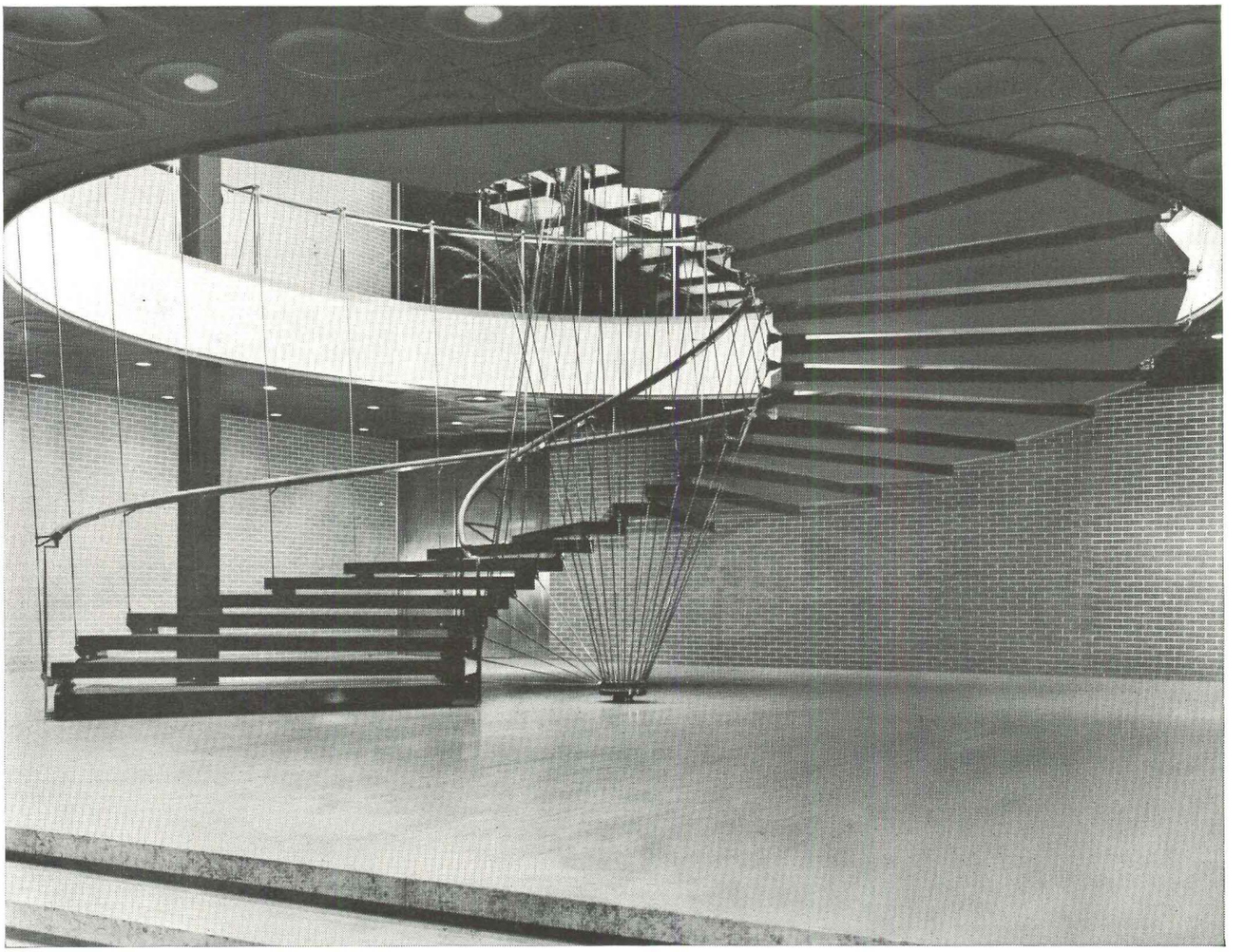
8239-DB



Pattern For People

To the static viewer, pattern, texture, and intimacy of scale are felt even when they are not recognized. In the doctor's clinic by architect Paul Hayden Kirk, the result at the lowest measure of recognition is a pleasing environment. At its highest, it is an awareness of art. The means to both: a skilled architect, a timeless building material.

Structural Clay Products Institute 1520 18th St., N.W. Washington, D.C.



Suspended stairway in administration building of leading manufacturer relies on the supporting strength of Type 18-8 Nickel Stainless Steel rods. Architect: Eero Saarinen and Associates. Engineers: Smith, Hinchman & Grylls. Fabricator: Moynahan Bronze Company, Flatrock, Michigan.

How to create floor-to-floor beauty with Nickel Stainless Steel

When you enter the lobby of this building, your eye is captured by the graceful beauty of the suspended stairway.

This stairway utilizes the strength and natural beauty of Nickel Stainless Steel to achieve a design that is original and fresh. It's a functional design that blends together massive granite treads, wood handrails, and supporting Nickel Stainless rods and wire, *to produce floor-to-floor beauty.*

An important design note is Nickel Stainless Steel. Thanks to the high strength of this material, the architect was able to use graceful, decorative 3/8-inch Nickel Stainless rods to support the entire structure. The wood handrails, which seem to just flow up the stairway, are simply clamped onto these extra-strong Nickel Stainless rods.

This is certainly a beautiful example of what the high mechanical properties of Nickel Stainless Steel can mean to architects who strive for the modern in design. The high strength of this material — plus its high modulus of elasticity — mean that architects can use lighter sections and fewer pounds of Nickel Stainless to get the same strength they would with other, less durable metals.

The result is a graceful structure practically free of maintenance. That's because Nickel Stainless Steel never needs painting or transparent protective coating. No architectural metal is more widely used for resistance to corrosion and pitting.

What are the architectural forms of Nickel Stainless Steel? How can you make the most of them? Get the answers in the 32-page booklet, "Architectural Uses of the Stainless Steels."

Visit our booth (#77) at the A.I.A. Building Products Exhibition in Philadelphia.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.

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NICKEL MAKES STAINLESS STEEL PERFORM BETTER LONGER

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presents the new and versatile

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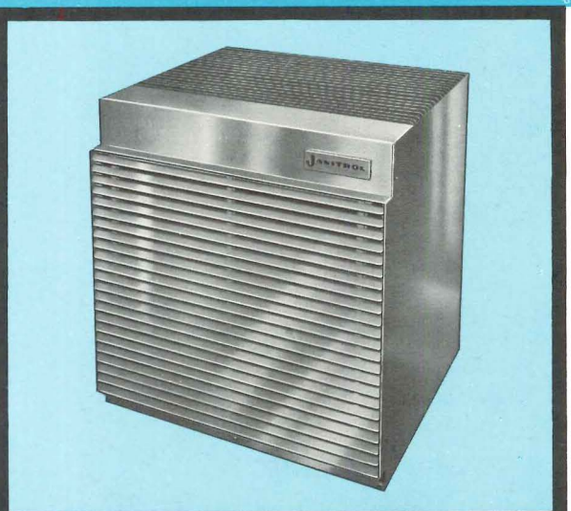
AIR-COOLED AIR-CONDITIONER

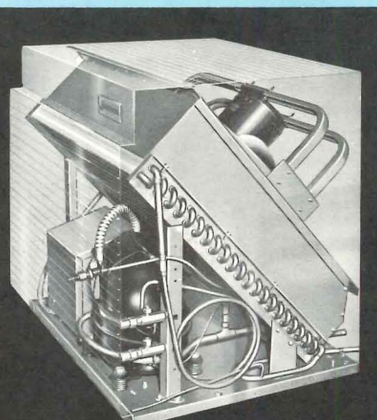
A PRACTICAL APPROACH TO ECONOMICAL,
HIGH EFFICIENCY COOLING FOR COMMERCIAL—
INDUSTRIAL BUILDINGS . . .

UNCHALLENGED COOLING PERFORMANCE...

in all-new JANITROL

52 SERIES CONDENSING UNITS





**A COMPLETE LINE TO MEET ALL NEEDS . . .
CAPACITIES FROM 22,200 TO 110,200 BTU/HR.**

Outwardly beautiful and pleasing to the eye, inwardly rugged and powerful, new Janitrol 52 Series provides low-cost central cooling with matchless reliability and efficiency. Here are some of the many ways new Janitrol 52 Series condensing units are demonstrating their excellence . . .

In Performance . . . condensing coils have greater area to dissipate more heat and to provide higher efficiency. Operation with outside temperatures as high as 125°F.

In Styling . . . modern, simple and functional cabinet that will be in the best of taste in any landscape plan. Finished in beautiful, durable, weather-resistant, automotive-type enamel.

In Economy . . . powerful, top-mounted fan draws in quantities of cooler ground air over the condensing coil, which is shaded from the sun's heat by louvers.

In Quietness . . . compressor and fan are unusually quiet in operation. Cabinet is acoustically treated with a weatherproof, sound-absorbent material.

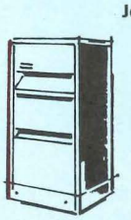
In Safety . . . upflow exhaust protects nearby plants from hot blasts . . . enclosing grilles safeguard pets and children.

In Service . . . all components are easily accessible. Service panels may be removed without affecting operation, to make checks while unit is in full operation.

A.R.I. CERTIFIED

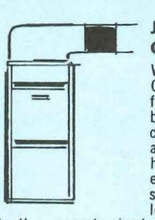
Full A.R.I. certification is your assurance this equipment meets or exceeds standards of the Air Conditioning and Refrigeration Institute. A five-year written warranty backs up your choice.

JANITROL AIR-COOLED SUMMER AND YEAR 'ROUND COMFORT SYSTEMS TO MEET ALL NEEDS



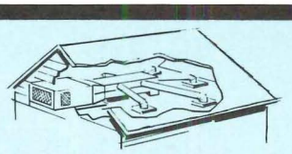
Janitrol Win-Sum-Matic Year 'Round Systems

A complete central heating and cooling unit in a compact, smartly-styled cabinet smaller than most home refrigerators! Features air-cooled summer cooling, thrifty gas heat with Dura-Tube heating heart, guaranteed for 20 years! Exclusive "Season Selector" control allows changing from heat to cool (or vice versa) in seconds. No special tools or service call needed.



Janitrol Add-On Cooling System

With Janitrol Add-On Cooling, most any forced air furnace can be easily adapted to circulate cool, filtered air to every room in the home. The Janitrol evaporator coil is installed in furnace outlet duct and connected to the properly-sized 52 Series condensing unit. The existing furnace blower and duct system circulates the cooled, dehumidified air. Here's full central air conditioning at low, low cost!



New Janitrol J-Line Self-Contained Air Conditioners

The Janitrol J-Line models are an economical answer to cooling needs. In one compact unit are the blower, compressor and evaporator coils. Operation is remarkably quiet. May be used with ducts or as free discharge. Installs through walls in crawl space, in attic or other limited access locations.

Janitrol Schoolroom Cooling and Heating

Janitrol offers a self-contained room heating and ventilating system (with optional cooling) that features perimeter-type, draftless air distribution. Installation economies are noteworthy (savings up to 60% over large central systems). For new schools, additions and modernization.

WRITE TODAY!

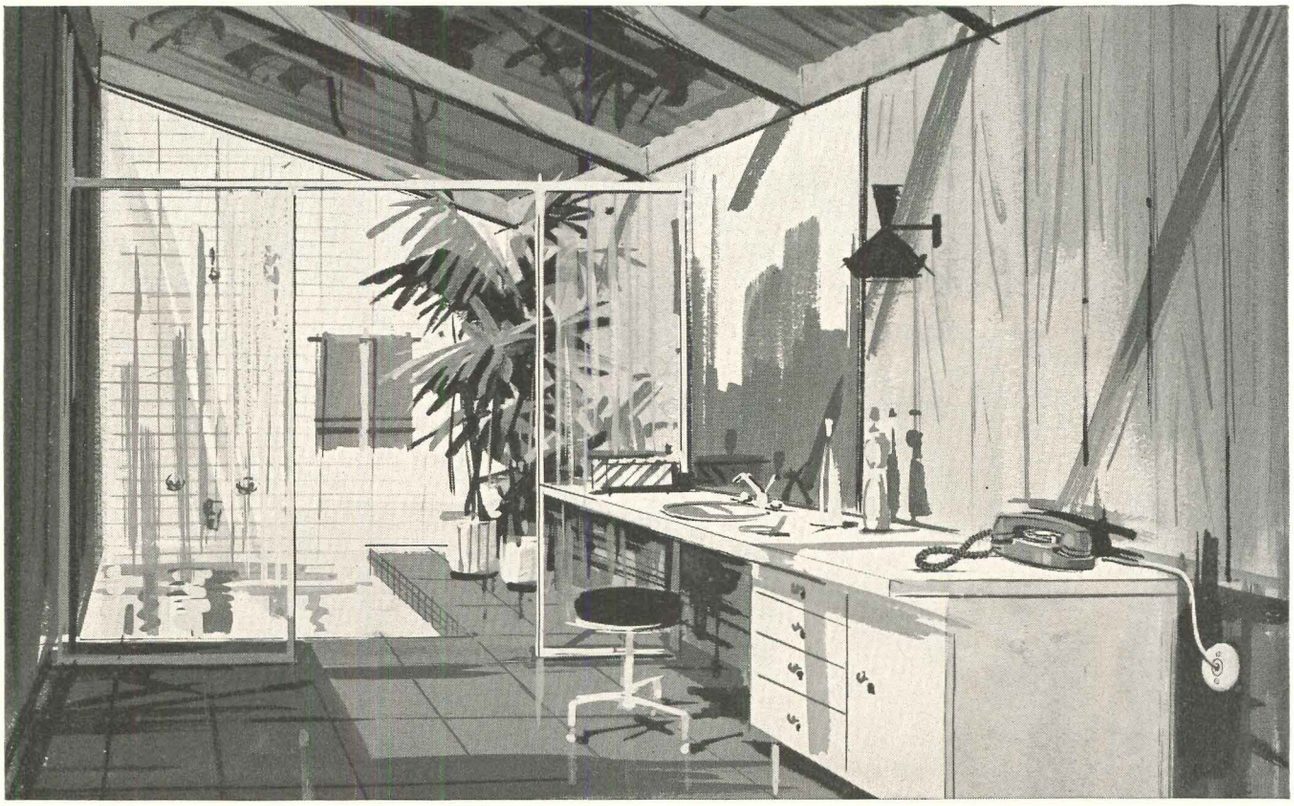
for complete information on Janitrol heating and cooling systems for your business needs. Remember—architects and engineers can specify . . . and dealers can recommend and install *Janitrol* equipment with complete confidence it will provide the finest, most carefree performance possible.

JANITROL

HEATING AND AIR CONDITIONING

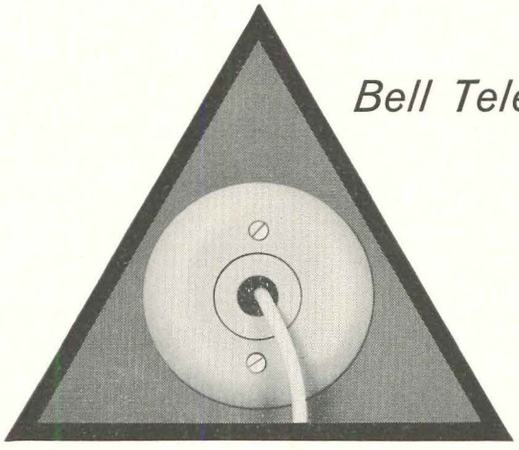
A Division of Midland-Ross Corporation

Columbus 16, Ohio • In Canada: Moffats Ltd., Toronto 15



For details of home installations, see Sweet's Light Construction File, 11c/Be. ▲

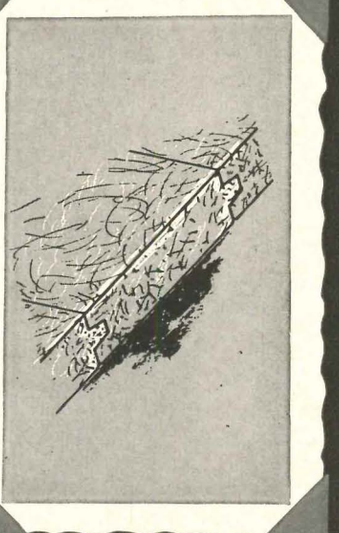
YOU DESIGN *homes that are more livable, more salable, when you specify built-in telephone outlets with wiring concealed. Telephone planning preserves room beauty, provides for a family's future needs.*



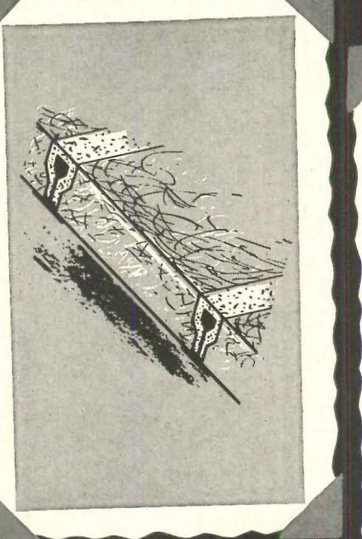
Bell Telephone System

BELL SYSTEM
AMERICAN TELEPHONE & TELEGRAPH CO. AND ASSOCIATED COMPANIES

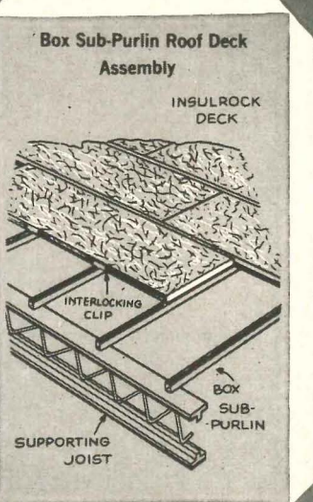
NEW ADDITIONS
that make your best choice
FLINTKOTE INSULROCK® *Roof Decks*



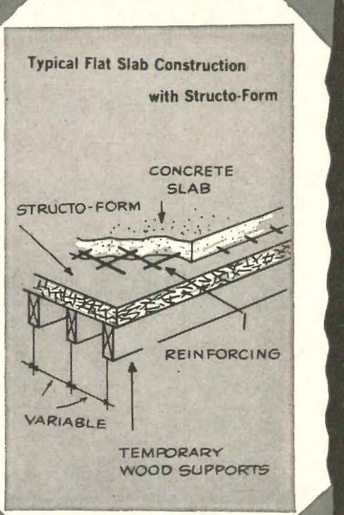
Interlocking Joint, including Painted Bevel, for joist and beam construction aligns roof deck better, installs easier, improves insulation, distributes loads better.



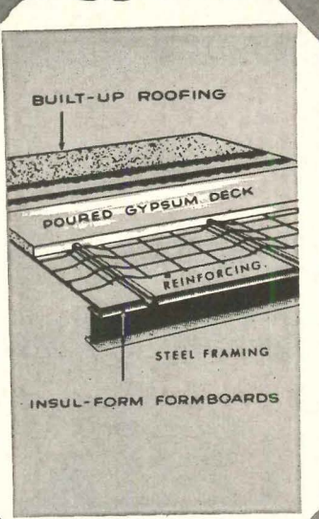
Chamfered Edges of improved Flo-Easy design for sub-purlin construction increase resistance to uplift, make for continuous stronger joints.



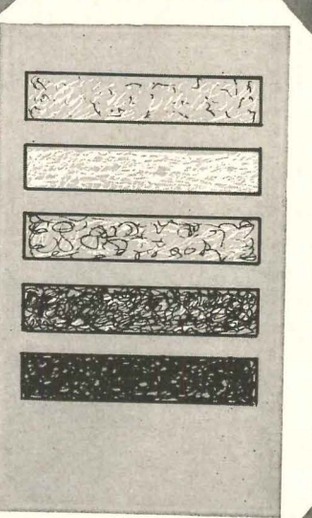
Box Sub-Purlin assembly gives new flexibility to open construction design, reduces costs.



Structo-Form* provides uniform, lightweight, strong building planks for flat slab or reinforced concrete construction, producing a handsome finished ceiling.



Insul-Form* offers great advantages as formboards in poured gypsum or lightweight concrete decks.



Insul-Tones* bring you Insulrock in five striking pastel colors—blue, yellow, green, beige, and pink—an Insulrock exclusive!

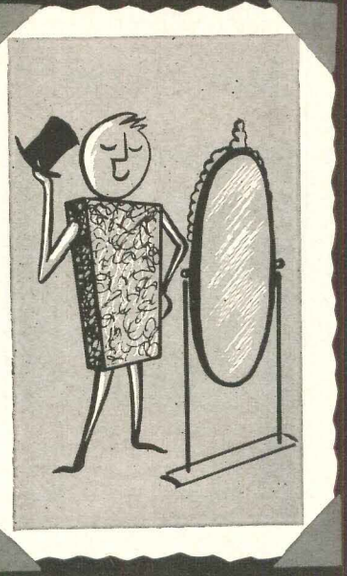
...added to the outstanding advantages of regular

INSULROCK *features such as these:*

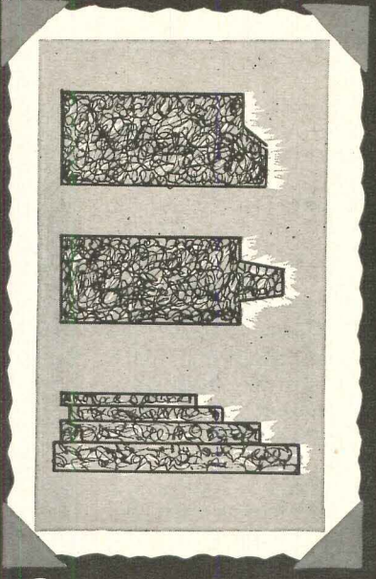
Insulating Insulrock maintains a K factor of 0.51.

Acoustical Insulrock traps up to 85% of incident noise.

Strength & Weatherability of Insulrock protects roof decks against rot, fungi, and termites — strength assured well above ultimate load requirements.



Beautiful Insulrock has random-textured surface with exclusive Insul-Glo 70* finish that makes possible light reflectance of 60-70%.



Special Edge Treatments and Variety of Standard Sizes give you the right Insulrock roof deck for every job.

Executive Office:
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THE FLINTKOTE COMPANY
INSULROCK DIVISION

FLINTKOTE®

Specify the best deck on the market . . . INSULROCK — for beauty that stands up through the years.

*A trademark of The Flintkote Company

Member of the Structural Wood Fiber Products Association

"G-E Remote-Control Wiring has saved money since the day it went into this building in 1953," says Mr. Donnelly, standing in front of 3-story, block-long office building, Menands, N. Y.

"G-E Remote-Control Wiring saved us $20,561 in this N.Y. Telephone building - on installation alone!"

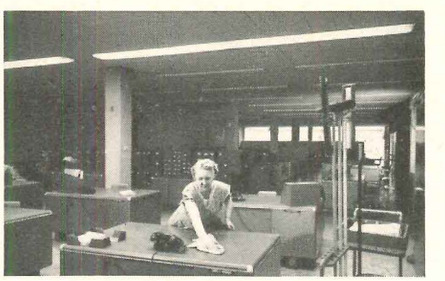
... Mr. H. J. Donnelly, Supervising Electrical Engineer New York Telephone Company, Albany, N.Y.

"We compared General Electric Remote Control with an ordinary switching system that would give us the kind of lighting control we wanted," says Mr. Donnelly. "We were surprised to find that, in addition to its other advantages, the G-E low-voltage system cost $20,561 less to install!

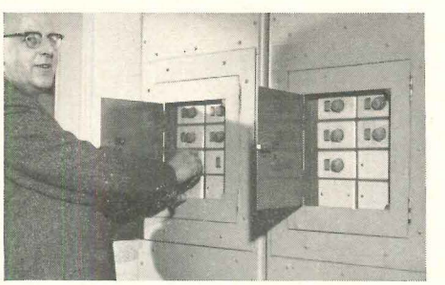
"On top of the initial savings, we reduced our operating costs, because G-E master switching makes it easy for maintenance crews to turn ON only those lights needed, rather than lighting up whole floors. Switches at convenient locations save our men extra steps, too.

"These savings were all in addition to the original reason we considered Remote-Control. That was extra safety in controlling the 480Y/277-volt power system we chose for its saving in branch circuit copper. Remote-Control relays in the ceiling control the 277-volt lighting circuits, so there's only a low, 24 volts at the switches. Of course, the lightweight, 24-volt switch wiring makes it easier to relocate office partitions, too. And the elimination of switch-loop voltage drops that can cut the life and efficiency of lamps, is still another feature."

General Electric would appreciate the opportunity of working with you on the design of a Remote-Control Wiring System tailored to fit your particular needs. Write Commercial Engineer, General Electric Company, Wiring Device Department, Providence 7, Rhode Island.



"Douse the lights you don't need!" is standard procedure for maintenance crew, in building from 5:00 to 11:00 p.m. G-E Remote Control makes it easy.

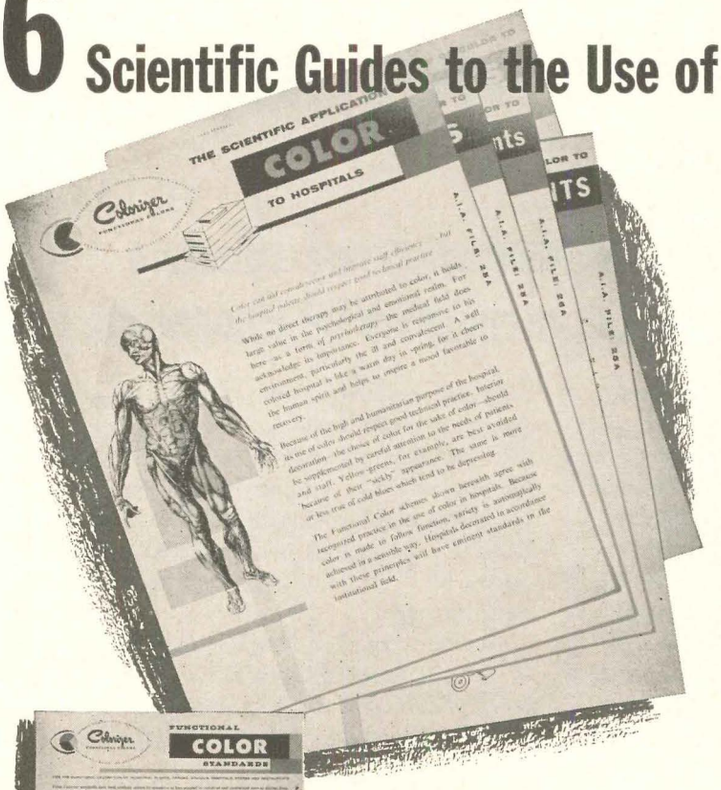


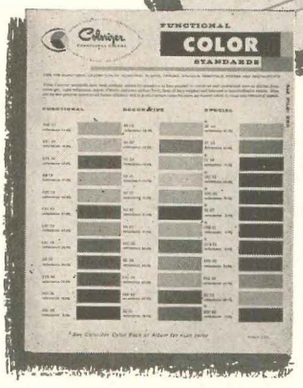
G-E master selector switches at ends and center of each floor control lighting separately for each ½ floor. Building contains 2000 fluorescent lamps.

Progress Is Our Most Important Product

GENERAL ELECTRIC

6 Scientific Guides to the Use of COLOR





in

- **SCHOOLS**
- **HOSPITALS**
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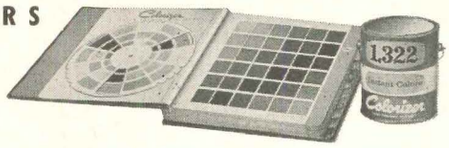

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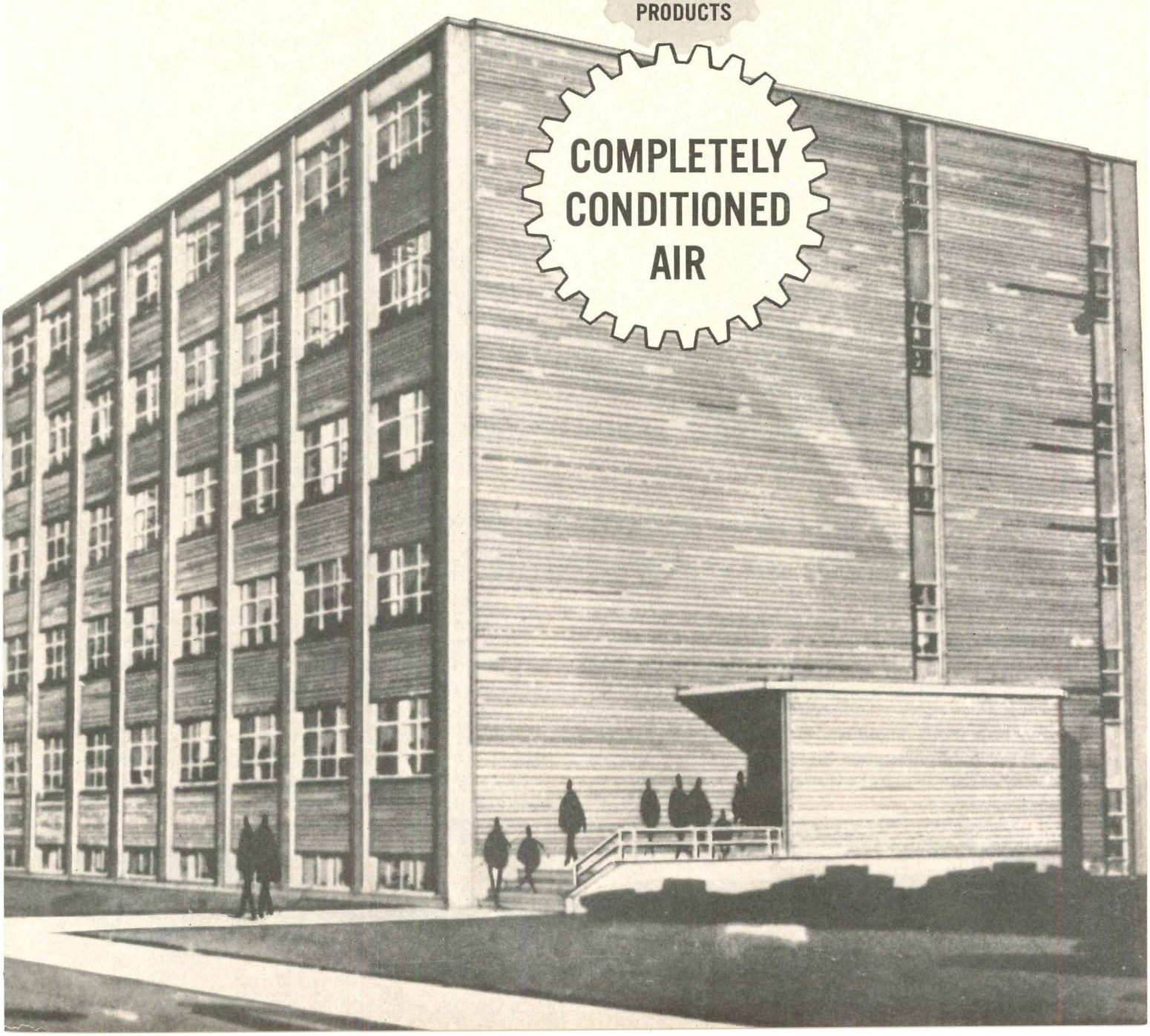

This 10″ pipe of Geon is extruded by Scepter Manufacturing Company, Ltd., Toronto. Because of low temperatures, it is insulated with Fiberglas and a thin coat of aluminum. It has operated successfully through winter temperatures as low as −30°F. B.F.Goodrich Chemical Company supplies the rigid Geon vinyl.

Pipe of rigid Geon lightens sewage system spans, cuts costs

This picture shows how city engineers of Edmonton, Alberta, solved a dual-design problem and saved money, too. Sewage piping was to be carried over rough terrain by spans also designed for pedestrian use. However, the extra weight of ordinary pipe would have required heavy structures, extra cost. By utilizing lightweight, 10″ diameter pipe made of rigid Geon vinyl, the engineers were able to make the spans far less complex, far less costly.

At the same time, the pipe of Geon eliminates internal adhesion of sludge, sand or other material—eliminating the cost of reaming pipe periodically to keep the system operating. Installation is fast and easy, too. Engineers are so satisfied that they are planning additional lines of even larger diameter pipe of rigid Geon vinyl.

Here's another way pipe of Geon cuts costs, makes possible new and improved solutions to problems. Geon is improving applications and making possible new products in many industries. For more information, write Dept. ND-2 B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. In Canada: Kitchener, Ont.

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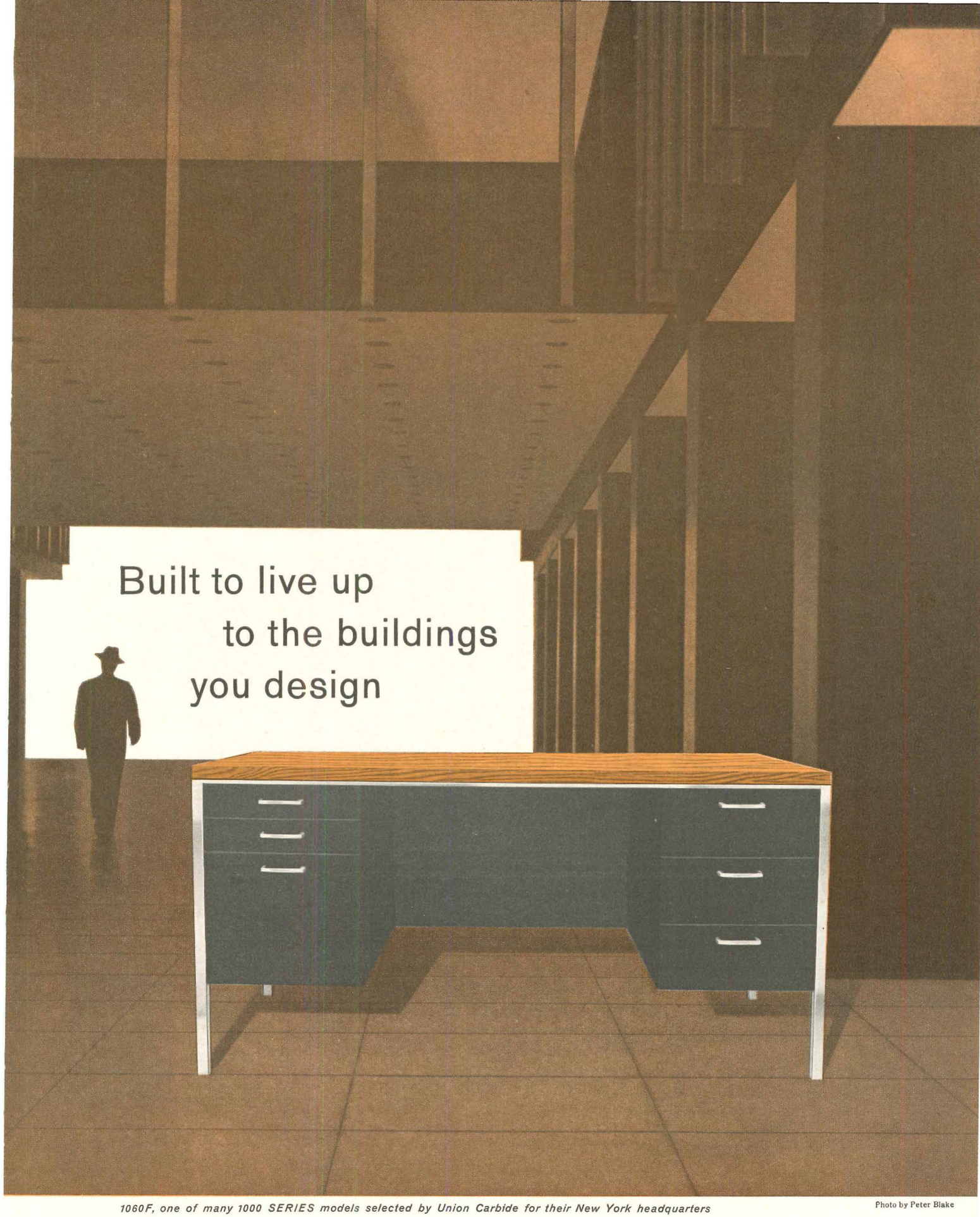

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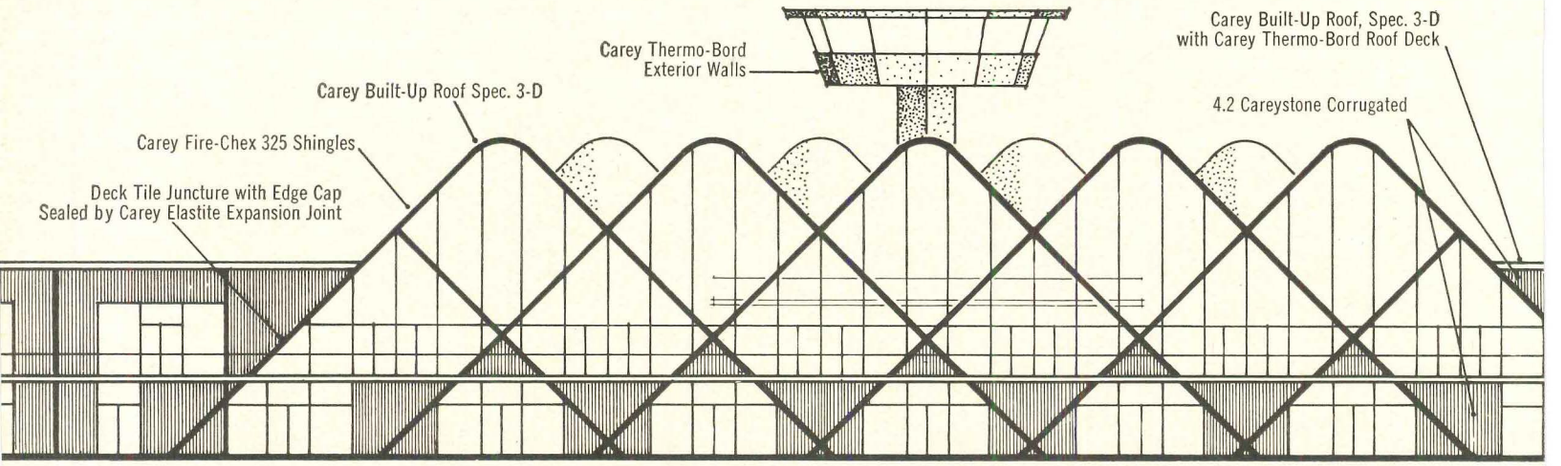
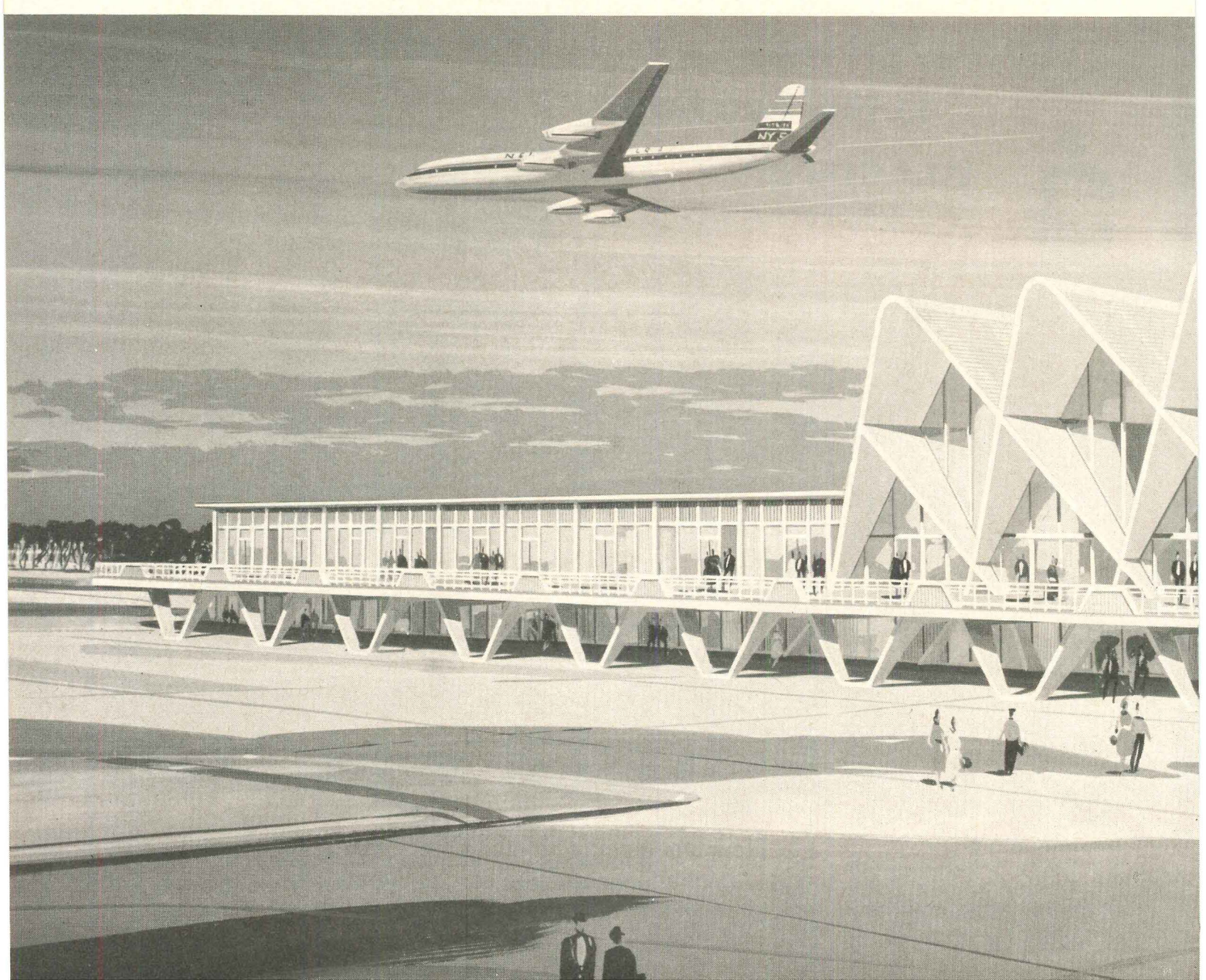
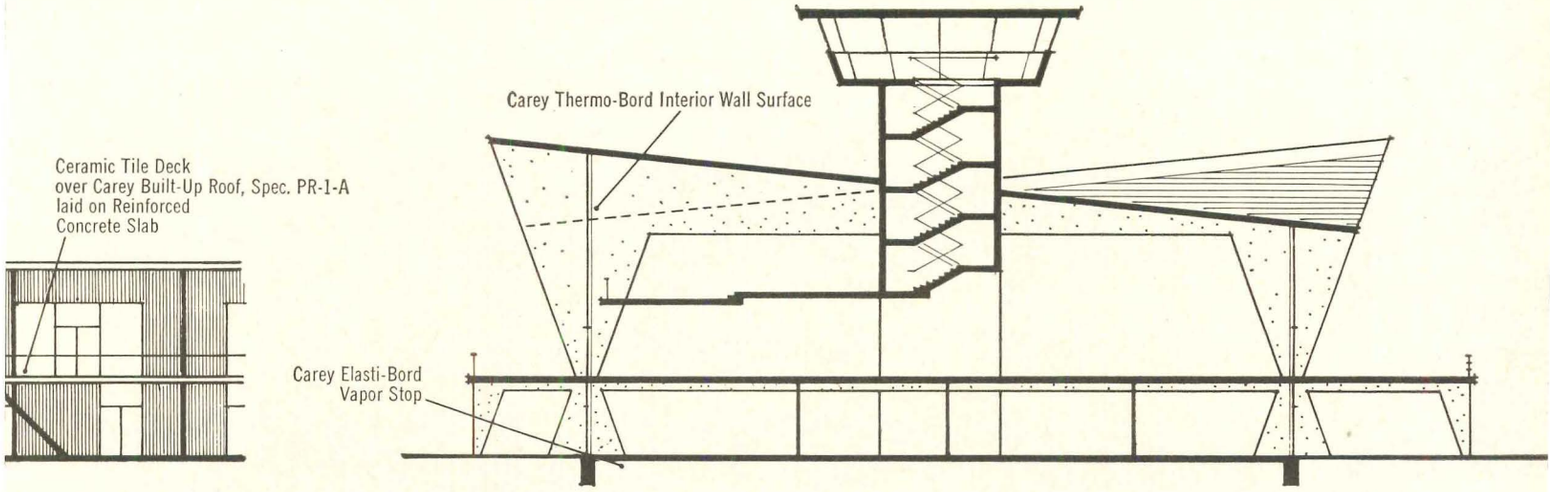


Kahn & Jacobs, a.i.a., design an air terminal

Observers familiar with air traffic expansion predict that more than 2000 jet transports, each carrying approximately 200 passengers, will fill the airways by the end of the decade of the sixties. To these transport flights must be added a growing number of private passenger planes which even today total more than 75,000. These figures do not take into account the non-jet flights which airlines are expanding to serve an increasing number of communities.





In view of this prospect of burgeoning passenger traffic, through airports which are barely adequate for present-day needs, the architectural firm Kahn & Jacobs, A.I.A., of New York City designed their prototype air terminal under a commission from Carey.

The details of this Kahn & Jacobs project suggest uses for a number of Carey building products. The purpose of the detail drawings is to propose solutions for similar problems which could show up on the boards in any office, anytime. Carey materials specifications as incorporated in the Kahn & Jacob details have been assembled in a convenient file folder for your personal use. May we send you a copy? Write Dept. AR-461, a postcard will do.

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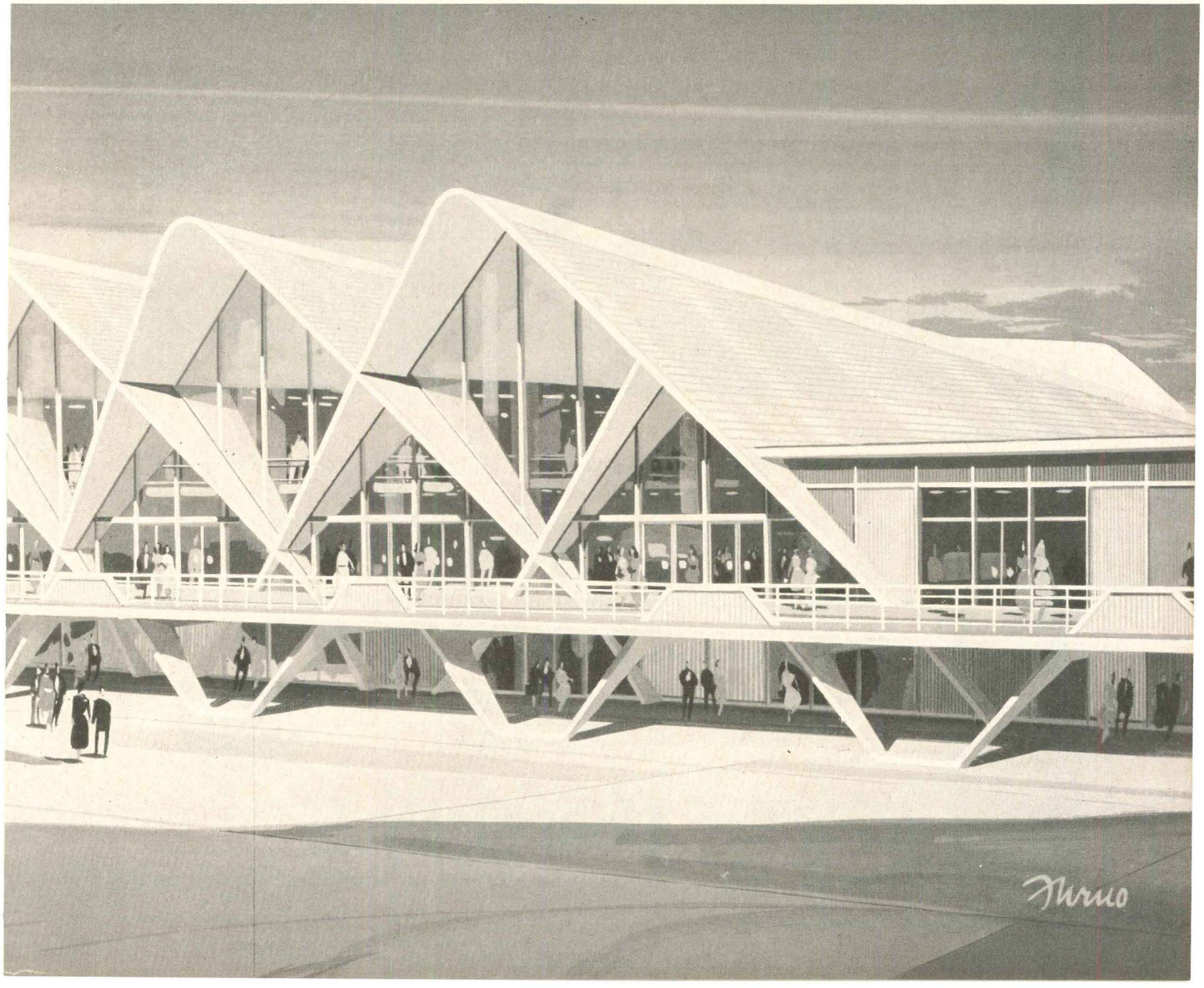

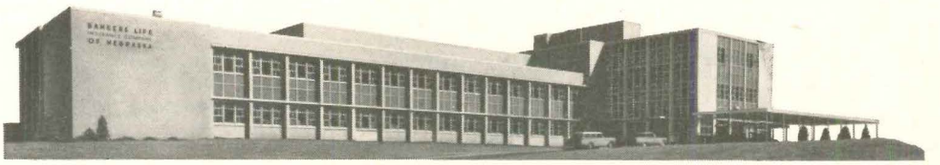

Bankers Life Insurance Company of Nebraska, Lincoln. Architects: Unthank & Unthank. Consulting Architects: Shreve Lamb & Harmon. Serviced by Sanitary Towel & Laundry, Lincoln.

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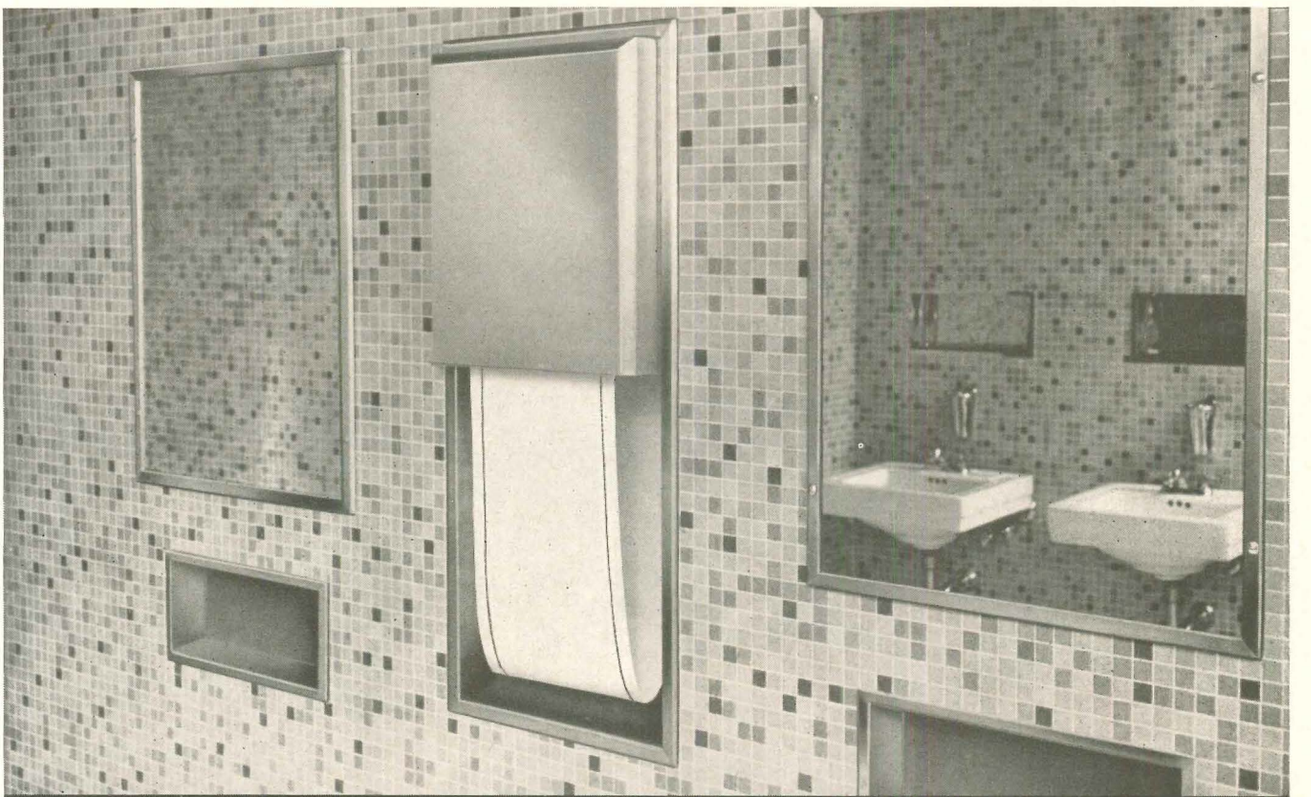
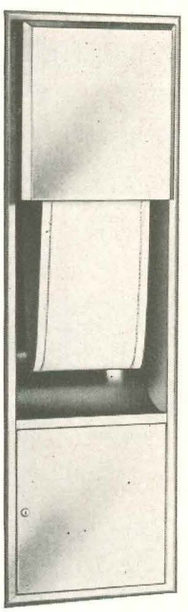


...including Cloth Towel Cabinets in the washrooms!



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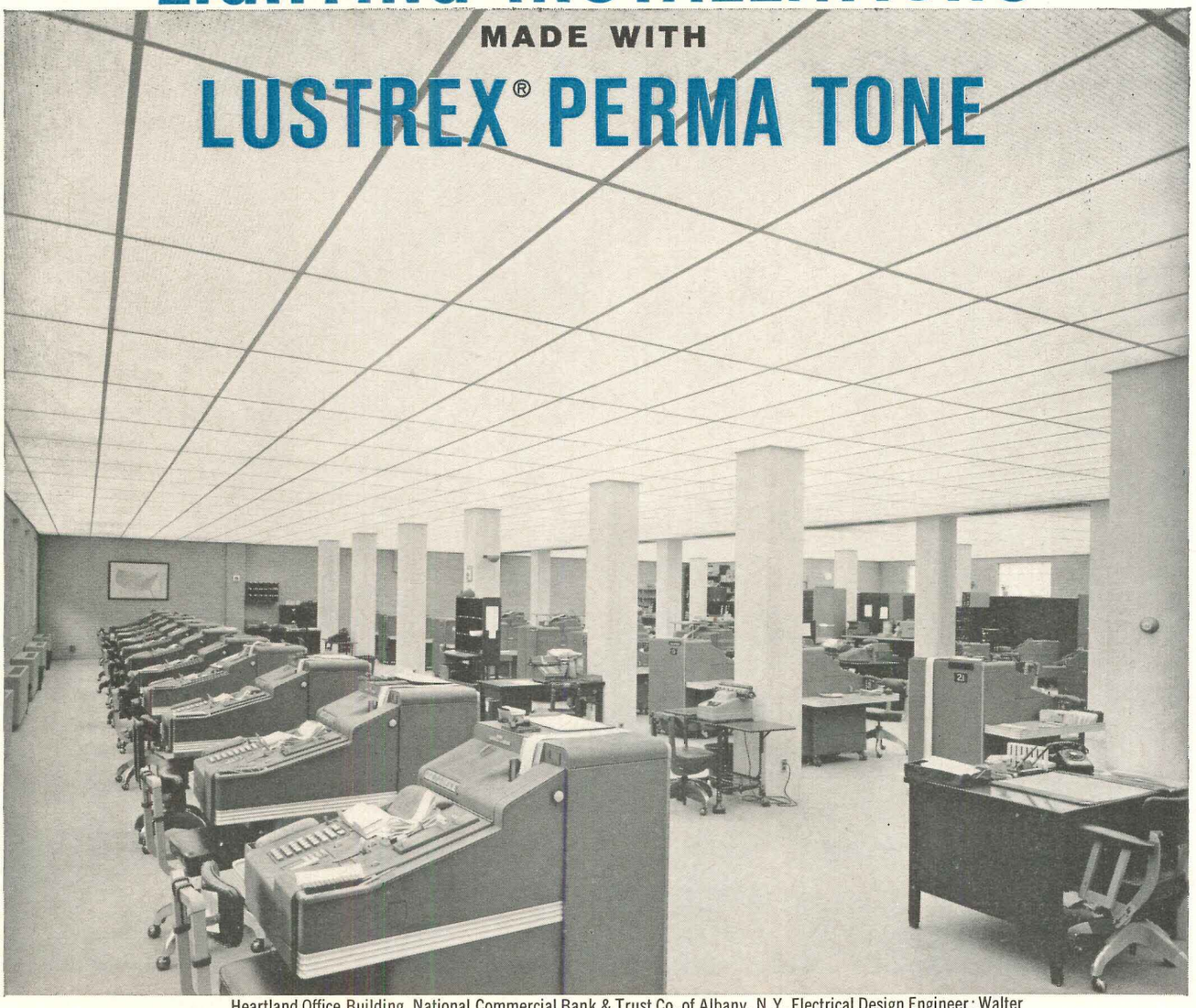

Heartland Office Building, National Commercial Bank & Trust Co. of Albany, N.Y. Electrical Design Engineer: Walter S. Stewman, Albany, N.Y. General Contractor: Rosch Bros. Electrical Contractor: H. A. Collman Electrical Co., Inc.

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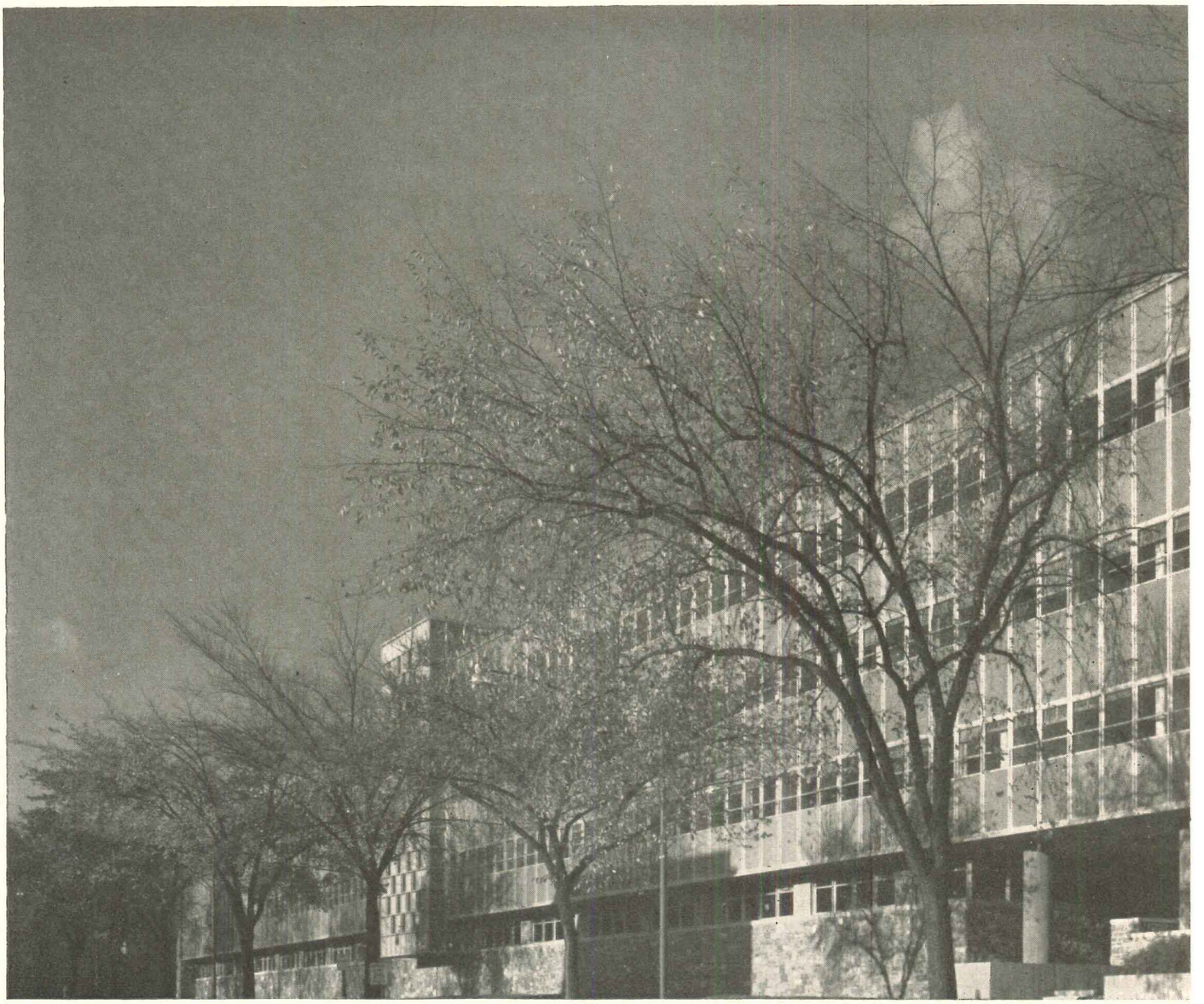

A LUPTON aluminum curtain wall gives a modern, airy facade to Penn State's new engineering building

This dynamic facade of the new Hammond Engineering Building at Pennsylvania State University proves that curtain-wall design can be free and individual. Working with standard LUPTON components, architects created a building of personality, purpose, and warm simplicity.

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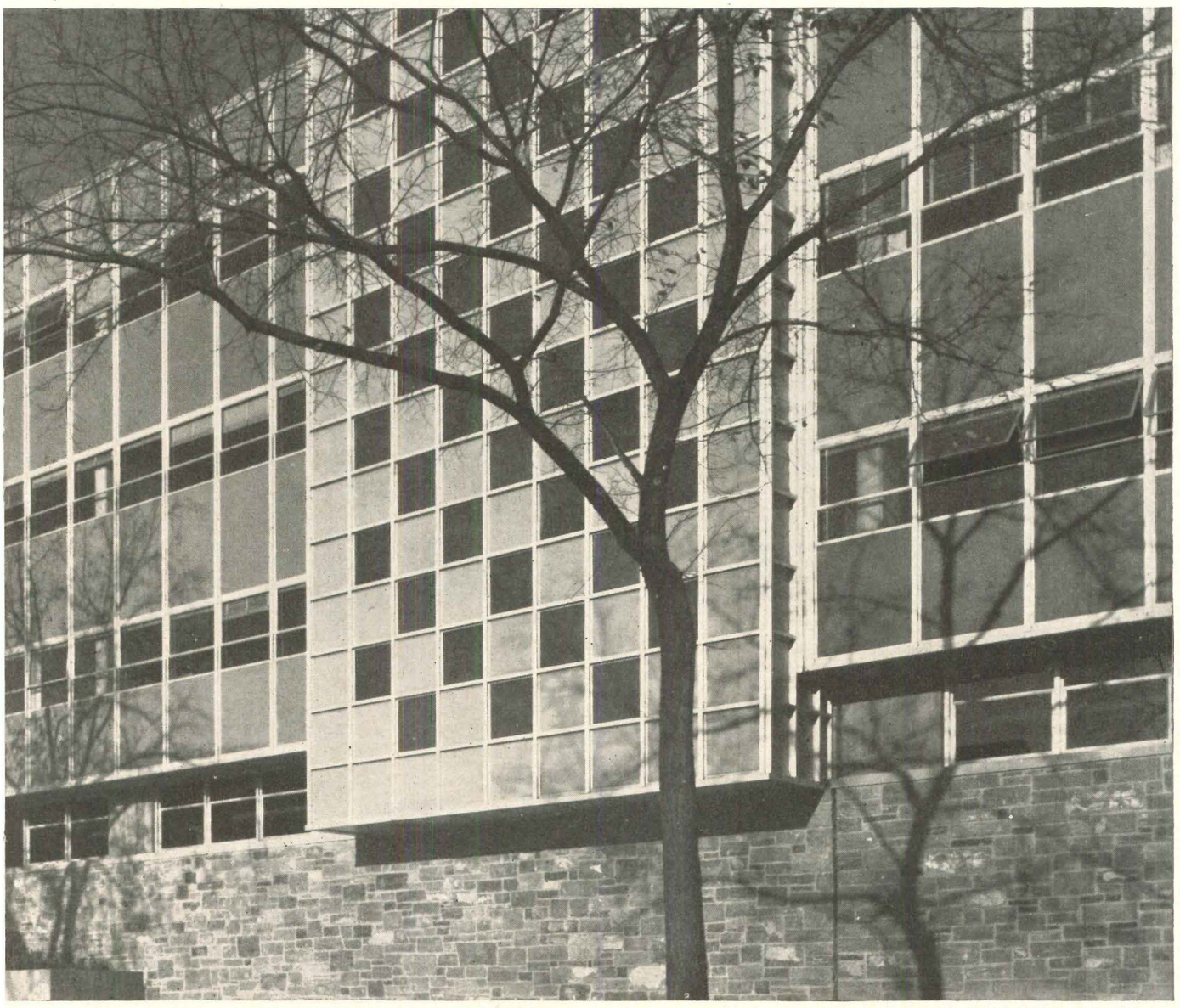
To look deeper into LUPTON advantages, see Sweet's (Sections 3 and 17) for the LUPTON Curtain Wall and Window catalogs. Then talk with your local LUPTON man, or write us for details.



Hammond Engineering Building, Pennsylvania State University, University Park, Pa. Architects and Engineers: Howell Lewis Shay & Associates, Philadelphia, Pa. Contractor: S. H. Evert Co., Inc., Bloomsburg, Pa.

Photograph by C. V. D. Hubbard

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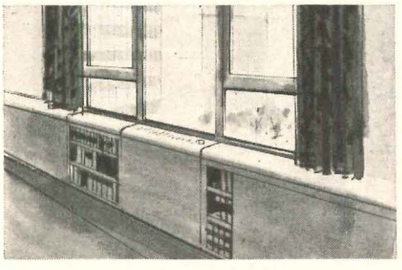

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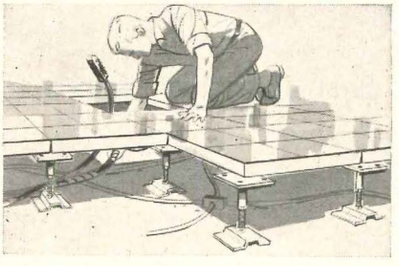

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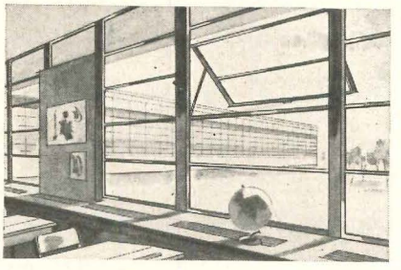

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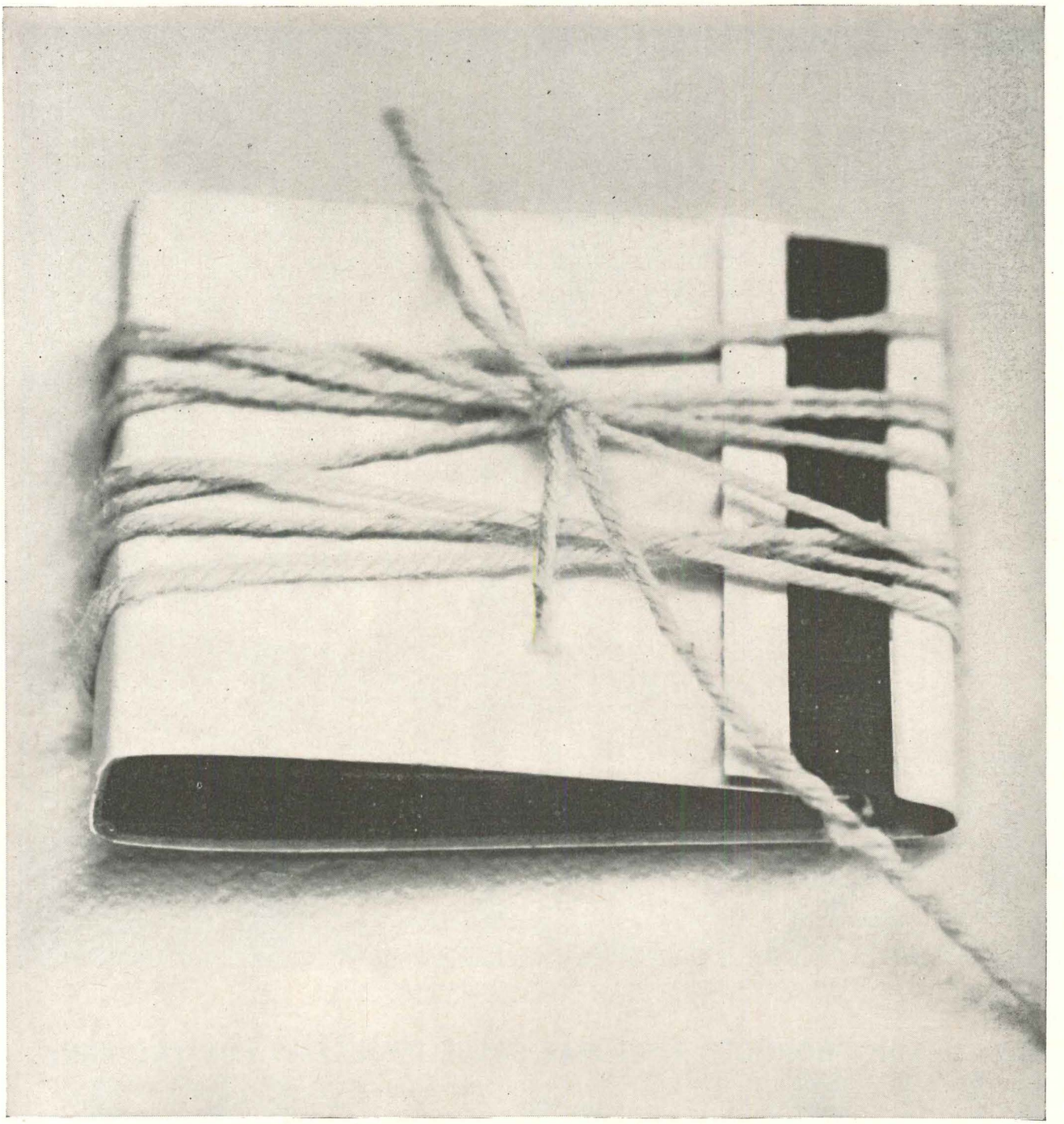

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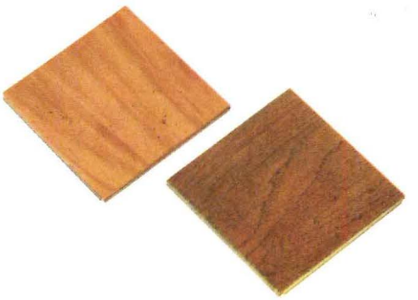

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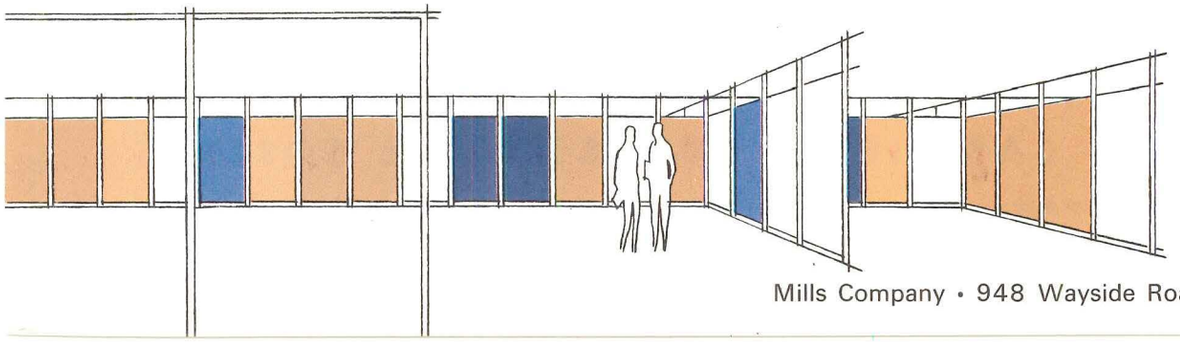

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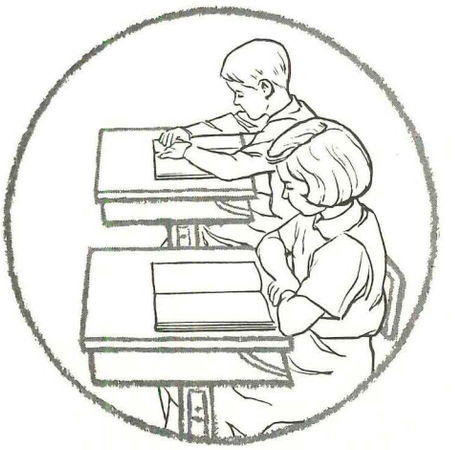

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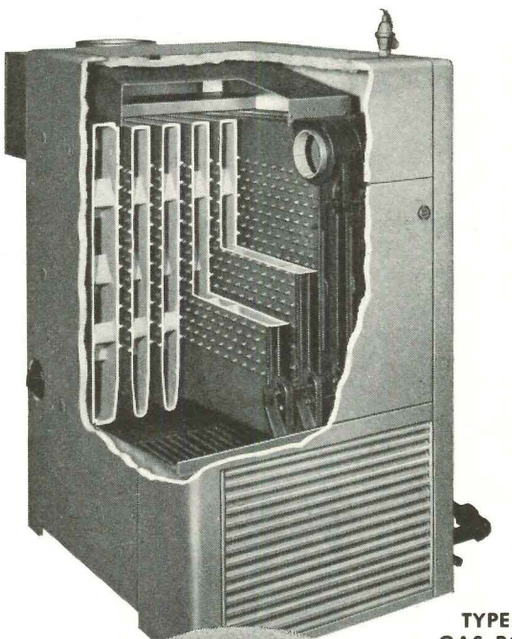

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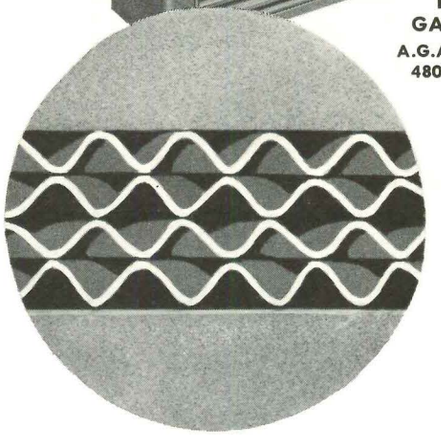

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NEW CURRENTS IN JAPANESE ARCHITECTURE

by John Ely Burchard

Continuing a practice which by now verges on tradition, Burchard, once more returning from abroad, offers some critical observations on the ferment in contemporary Japanese architecture. He finds that Japan, with "some of the best modern buildings in the world," faces the same architectural dilemmas as does the Occident, and expends the same nervous and creative energy in resolving them. She may, however, be nearer success in some areas.

Most of the remaining beauty of Japanese life is a life that comes from the past. It seems to be under constant assault by the Western present and it is, I suppose, steadily yielding to the worst manifestations of our Western habits. Unfortunately, change is here, as elsewhere, always identified with the good and the imaginative and the young and the free, and conservation or maintenance of tradition with the bad and the dull and the old and the chained. This may often be so, but it is not always so, and Japan finds the new way harder than we, for it is less certain that change is always for the better. Yet obsolescence may be even more rapid than for us. It is a country where Tange at the age of 47 has to reconcile himself to being talked of as a member of the Old Guard, along with Mayekawa (55), Murata (54) and Kosaka (48), and where professors, instead of being old men with beards as our imagination might suggest, have to retire at 55.

Yet it is the "ancient" architects who have built and are building some of the best modern buildings in the world, completely reconciled to the modern principles of Western design, especially those of Le Corbusier, yet also completely Japanese. These buildings seem at ease with the remains of the Japanese past and the needs of the Japanese future.

There are many bad new buildings in Japan. Many of them are imitative, tawdry or dull. But so there are in America and England and France and Italy. In Japan, as elsewhere, there are also bold and fresh and fine ones, derivative perhaps, but imitative never. And if some young designers, in Japan as well as here, seem now to think it is wrong ever to be derivative even from oneself, we can only be thankful that that was not the attitude in older Attica, Persia, Egypt, Burgundy, Florence or Bath.

In sum, it seems to me that the best Japanese contemporary architecture ranks with the best in the world. I think it has related itself to its past more successfully than the contemporary work of equally self-conscious Milan. We shall discuss some examples and defend the thesis thereby, and perhaps also hazard some speculations as to why this is so, if it

is so. I hope it is, for it may then mean that contemporary architecture will offer to Japan the protection of an old culture and the amelioration of a new, without compromise but with sensitivity and restraint. This is essential if the beauty that was Japanese is to survive at all.

But it may not guarantee survival. The excesses that run through some current Western architectural work will not go unnoticed and unimitated in Japan. If a Japanese architect ever decides to be a Mannerist or a Brutalist, he will outdo Rudolph or the Smithsons. This may even have happened already. Disease is carried rapidly by the jets and by a world population that is always on the move.

20th Century Beginnings

We must not forget that the modern movement had an early start in Japan. Frank Lloyd Wright cannot be overlooked; the Imperial Hotel is still one of his magnificent works. It is sad to know that its owners, having marred it by a large, vulgar and up-to-date addition, now want to tear it down, claiming that it is unprofitable. There seems little chance that it can be saved by being made a national monument. Save for its anti-earthquake engineering and its scale, the Imperial Hotel was not particularly Japanese. Indeed, it was more like an elegant Midway Gardens transplanted to Tokyo, employing Japanese lava, to be sure, and taking advantage of the skill of Japanese craftsmen. On the other hand, the pool, the foliage, and the wall materials were combined in a way utterly consonant with the Japanese spirit. Though the present fine pieces by Japanese architects owe their origin most directly to Le Corbusier (or less frequently to Mies), we must not forget that they could see, in their capital city, an important example of what was to influence European thinking, and that when they were very young. Tange, for example, was nine when the Imperial Hotel was completed, Mayekawa 17. Wright left other and less famous examples in Japan: the Fukuhara house in Hakone, the Hayashi house in Tokyo, both in the Taliesin wood style; the wood-and-plaster Jiyu Gakuin School, also at Tokyo, which was more obviously Japanese in character; and the unachieved Odawara Hotel project for Nagoya.

Wright's designs for the Imperial Hotel had, in the first instance, been prepared at Taliesin, and he brought them to Tokyo in his baggage. At the same time he brought a 30-year-old Czech, Antonin Raymond. Raymond had come to America in 1910, when he was 21; had worked for six years in the office of Cass Gilbert; had joined Wright in 1917. Towards the completion of the Imperial Hotel, he set out his own shingle and practiced in Japan for the next 16

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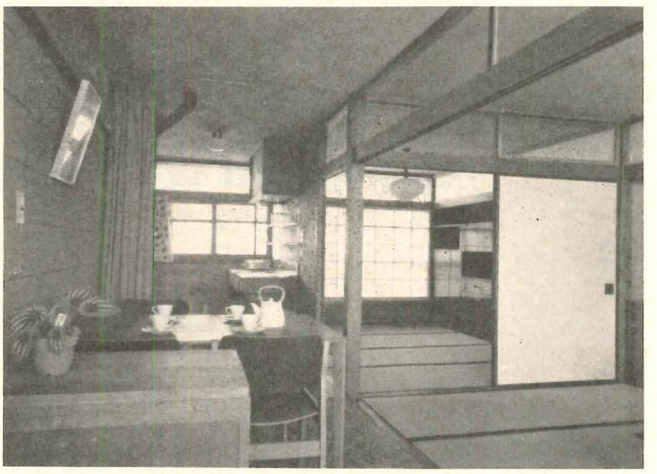


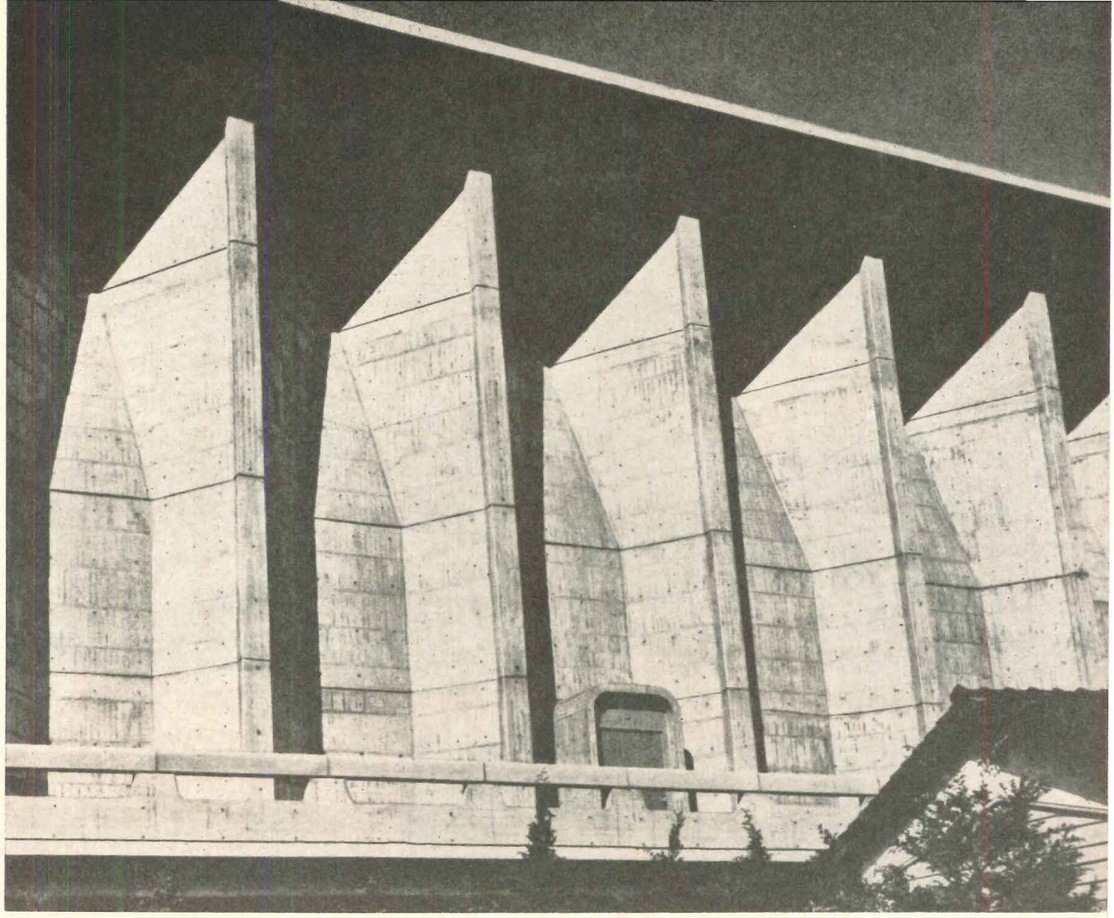
Y. Futagawa

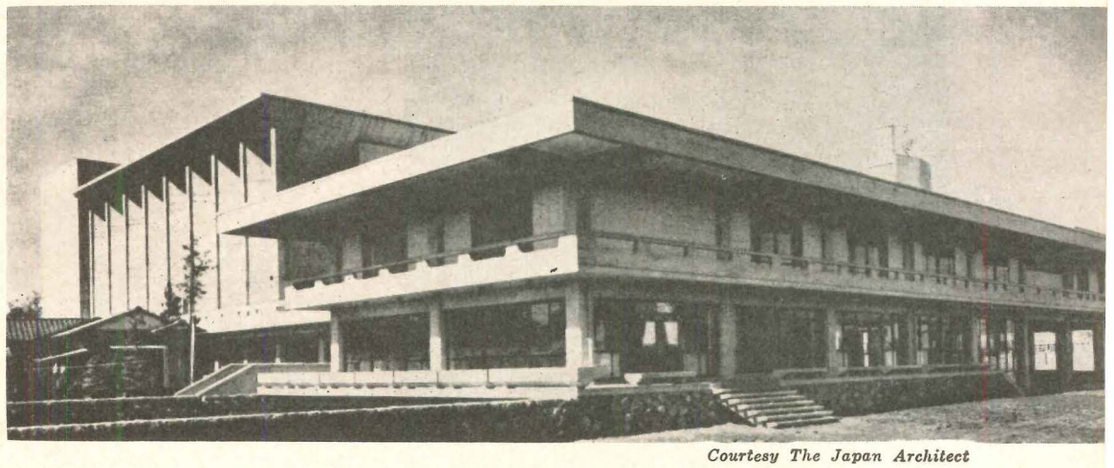
Harumi Apartments, Tokyo; Kunio Mayekawa, architect

KUNIO MAYEKAWA

The man who has been most closely influenced by Le Corbusier is obviously Kunio Mayekawa, 55, currently president of the Japanese Architectural Association. He worked with Corbu in 1928-30 on the Savoye House and the Swiss Pavilion. He followed this by working with Raymond from 1930 to 1935. He is one of the three Japanese collaborators entrusted with the execution of Le Corbusier's design for the National Museum of Western Art (see p. 142). Moreover, he has been an active exponent of CIAM. With Ernesto Rogers, he was one of the few who tried to stop the demobilization of this influential group at Otterlo.

It is possible to observe Mayekawa's as yet uncompleted development over a range of buildings from the Prefectural Hall at Okayama of 1957 through the



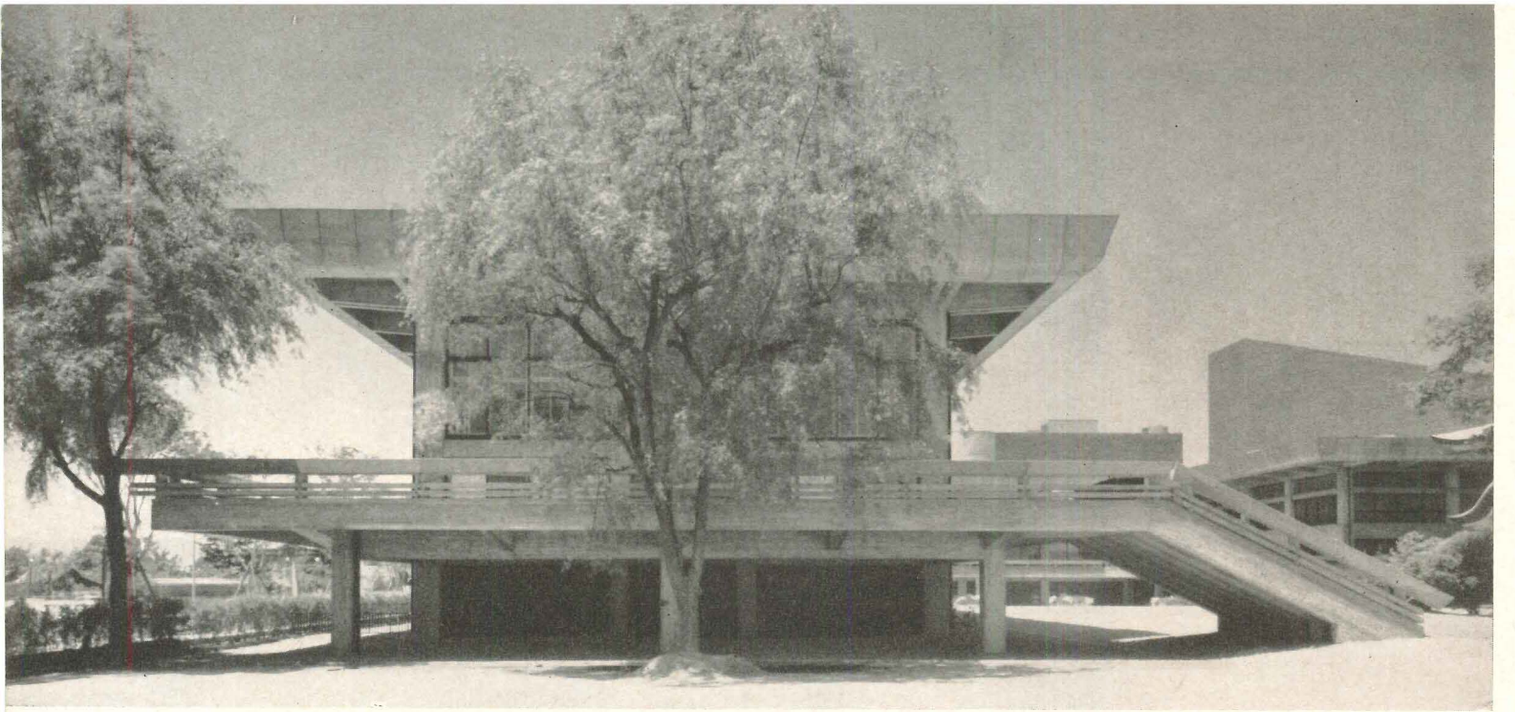


Setagaya Public Hall, Tokyo;
Kunio Mayekawa, architect

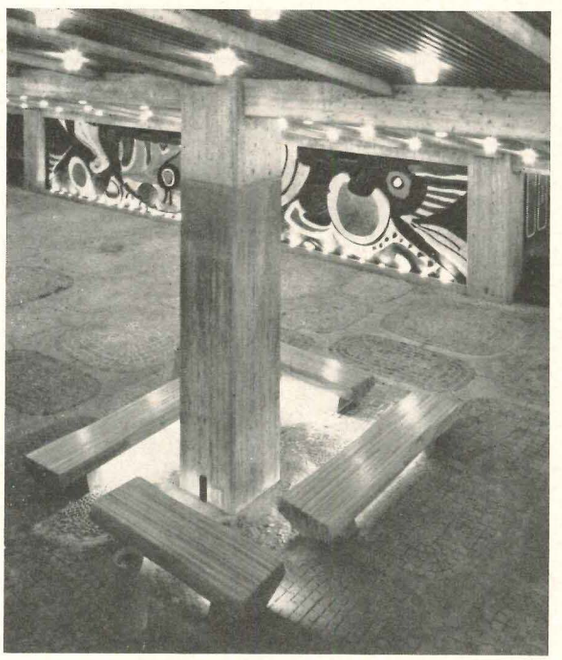
Courtesy The Japan Architect

Harumi Apartments in Tokyo of 1958, the Setagaya Auditorium in Tokyo of 1959, the Kyoto Kaikan of 1960 and the Tokyo Memorial Hall which is nearing completion and will be opened in 1961. In these he has exhibited a steady growth, an increased emancipation from the Master, though clearly not a complete one, a vigor and boldness that is unexcelled by any of the present leaders in Japan. The boldness seems also to breed imperfections, so that almost every building has one or more features that seem insufficiently studied or that one wishes had been left out altogether. But this is often the case for Le Corbusier as well, and it is perhaps true, as Henri Peyre once reminded me, that the juxtaposition of boldness and freedom with the incomplete and the jarring is inescapable and that the truly greatest artists in any field have never, on the whole, been the perfectionists.

The *Harumi Apartments* at Tokyo, of 1958, are a Japanese version of the Unité d'Habitation, but they are Japanese despite their generally international appearance. They contain none of the intervening and controversial services which Le Corbusier introduced at Marseille. The building offers tier on tier of low-cost apartments reached by elevator, stairs and exterior balconies. Three types of floors are provided, each with a different layout, and each of these is repeated at every fourth level. The ceiling heights are lower than ours, to accord with the size of the Japanese people. The apartments are tiny, yet very Japanese. They do not in effect ask Japanese people living in a modern building to abandon long-established ways of life, which are more tenacious, naturally enough, in the lower-income families, in favor of a predetermined modern mode, even though a little Western furniture is sometimes introduced. To Westerners who have seen many apartment blocks of a generally similar arrangement on the outskirts of Paris and elsewhere in Europe, they may not seem highly original, and the building is admittedly, if pleasantly, stark. As in many of Mayekawa's works, there are one or two disturbing tricks such as the cylindrical enclosures for stairs which lead to the apartments on the second floor. But in comparison with the surrounding housing, the distinction of Harumi becomes apparent, and this distinction is, in fact, more than merely comparative.



Y. Watanabe



Culture Hall, Kyoto; Kunio Mayekawa, architect

MAYEKAWA *continued*

The *Setagaya Public Hall* is certainly one of the most powerful and dramatic buildings in modern Japan. The two-story administration building seems heavy, because of the size of the columns, the low ceiling heights and the thickness of the projecting floor slabs. In itself, it is but a strong version of a Japanese modern treatment which is quite common and which has roots clearly embedded in tradition. It is the auditorium which offers the drama. One enters a foyer that seems to be all open stairs and balconies brilliantly though massively laid out in concrete. This is just a preparation for the drama, perhaps even the melodrama (but in my book that is not invariably a pejorative noun), of the auditorium itself. Here mammoth folded slabs provide structure, acoustics and decoration in one bold statement of roof and wall which is also stated outside. It is reminiscent of the Main Assembly Hall at Unesco, Paris, but more powerful, and I expect in the end more rational and engaging; moreover, since it is a lateral treatment rather than an end treatment, it does not work to diminish the size of the humans who are on stage or dais as the wall at Unesco may seem to do.

The *Kyoto Kaikan* or Culture Hall was just being completed when we went by. It is a less complex building than the Setagaya, representing much the same approach as the administrative building of the latter, but done with more refinement. It is a very Japanese building, traditional and modern at the same time. Here it is the ceiling lights of the auditorium that seem to have been a lapse. On the other hand, the murals of the foyer work with the thick free-standing columns in a way which at first seems inappropriate, but with time becomes very convincing.

Of the *Tokyo Memorial Hall*, which will be opened this year, it was possible only to get a foretaste, studying it in the office and paddling around the job in a steady downpour, but it seems likely to be one of Mayekawa's most vigorous buildings. The forms are complicated and diverse and each is powerful, but the integration is greater than the drawings or the model suggest. The deep curved cornice is remarkably effective and a necessary consolidating element.

All in all, it has to be said that Mayekawa is a considerable architect and a considerable man.

J.E.B.

Memorial Hall, Tokyo; Kunio Mayekawa, architect

years. A Westerner, doing modern work in Japan, he was also the leading exponent and interpreter to the West of the brilliance of Japanese detail and the excellence of Japanese craftsmanship. He produced a number of important buildings for the Japanese to observe, and still builds in Japan.

Finally, we must not overlook the venerable Sutemi Horiguchi, who at the age of 65 is now somewhat forgotten, but who must be regarded as the *Japanese* founder of the Japanese modern movement. He worked in Austria and Germany in the early 20's, was a member of the de Stijl and Wendingen movements, visited the Bauhaus, and then built precursors of the contemporary display.

Long Shadows from the West

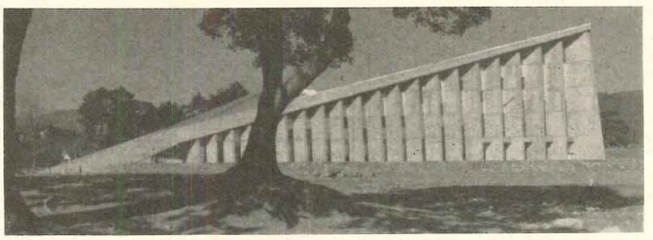
But the present work owes only a remote and ancestral bow to Wright, Raymond and Horiguchi; two men who have never built in Japan have been the principal sources of current Japanese inspiration—Mies the less, Le Corbusier the more. You can go about Japan with a bagful of terms and manage to plaster each label on some building, if not on each man, but the labels will not help much. All the currents and winds that are buffeting Italian and American architects are buffeting Japanese architects too. It is not certain, indeed it seems unlikely, that all of them will stand firm-rooted. But as of now, most of the excesses are not conspicuously important and we can understand what is going on without a close examination of many of the eccentricities.

The Miesian shadow, at least the literal shadow, is not very long. I did not see a major building about which one might exclaim in an uncritical moment, "Ah, that is perhaps by the Master." One can imagine many reasons why this may be so. The available materials do not encourage the steel-and-glass cage, nor do the needed or desired building heights. The Japanese have a good deal of common sense about the relationships of weather and glass. The fundamental Miesian principles of simplicity, proportion and order existed in Japan long before Mies was born, as did the economy of means, the indeterminism of the plan. Mies may have learned more from Japan than Japan could learn from him. So if there are no Miesian buildings of importance, there are Miesian elements in almost all the important buildings. But these are first and foremost Japanese elements, well anchored in tradition. What Mies may have done for Japan was to restate, and in clear contemporary terms, the remembered Japanese past.

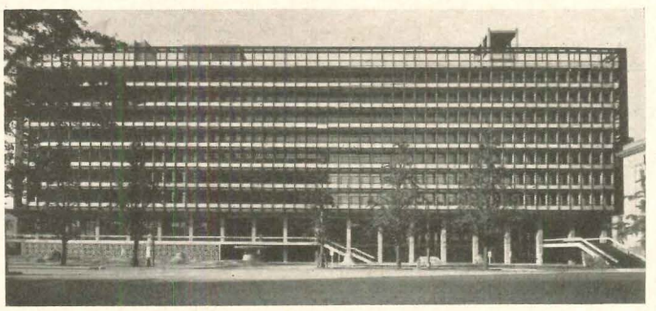
On the other hand, the reminiscences of Le Corbusier cannot be overlooked, for they are at every hand; again, for the most part they are reminiscences and not imitations. The examples on these pages should make this apparent.

continued on page 138

Town Hall, Kurayoshi; Kenzo Tange, architect



Convention Hall, Shizuoka; Kenzo Tange, architect

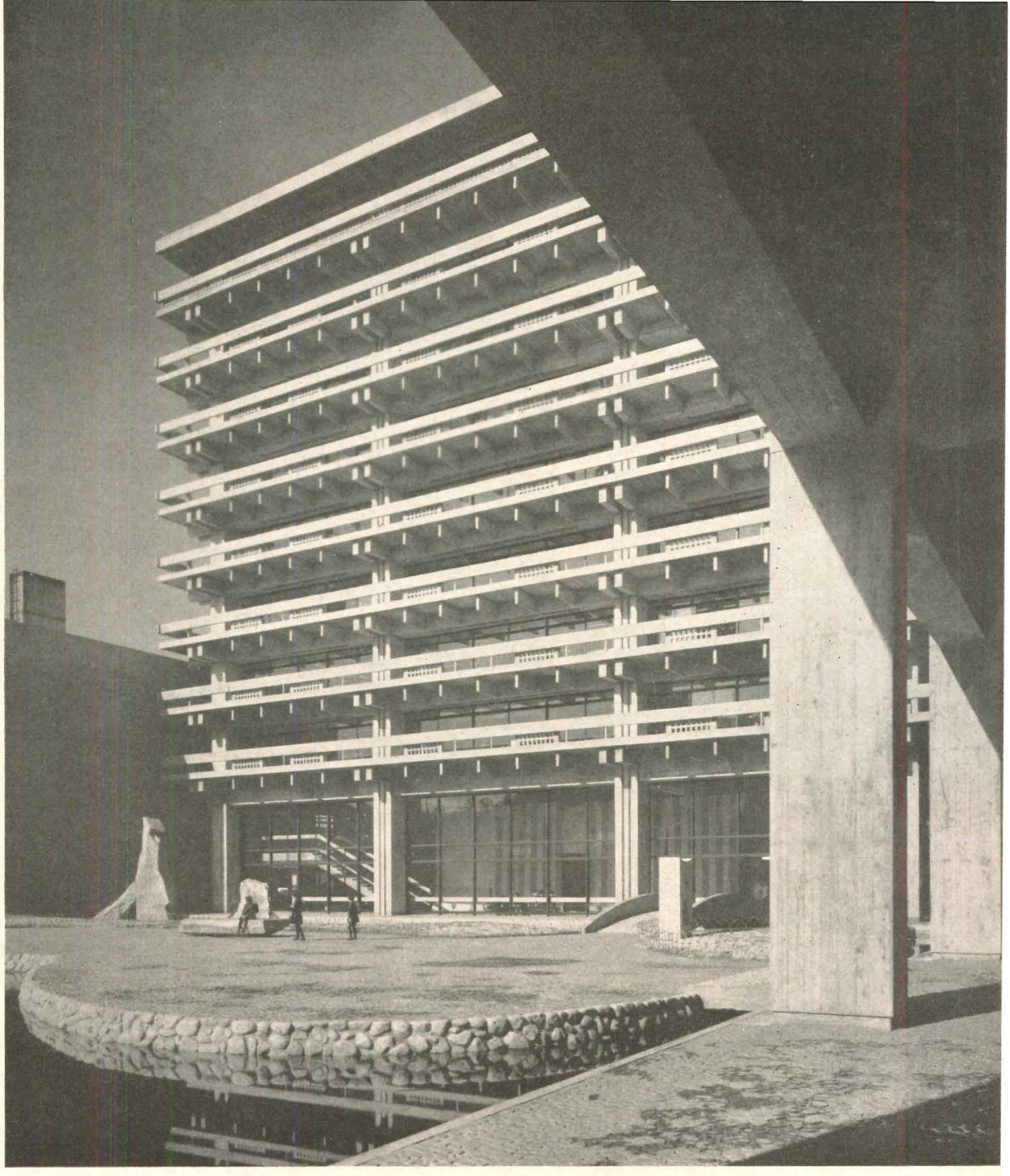


City Hall, Tokyo; Kenzo Tange, architect

KENZO TANGE

Kenzo Tange is better known in America than Mayekawa, as he has been ever since his Peace Center at Hiroshima of 1950-55. But Tange is quite a different dish of tea—more quiet, more careful, perhaps more sensitive. Unlike Mayekawa, he seldom makes an obtrusive mistake. His designs are less exuberant, less experimental perhaps, but that does not mean that they are unoriginal or impersonal. Indeed, if dignity and grace and repose and almost immaculate design are the hallmarks of one kind of great architect (and I think they are), then the works of Kenzo Tange have been telling us ever since Hiroshima that he is a great architect.

I must pass quickly by the *Town Hall*

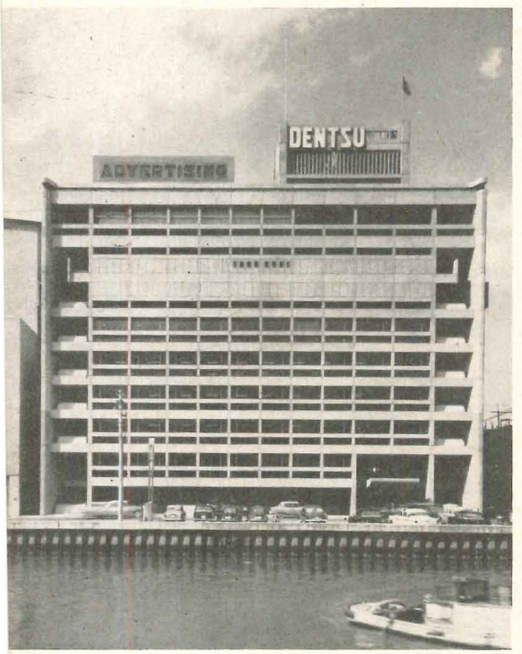


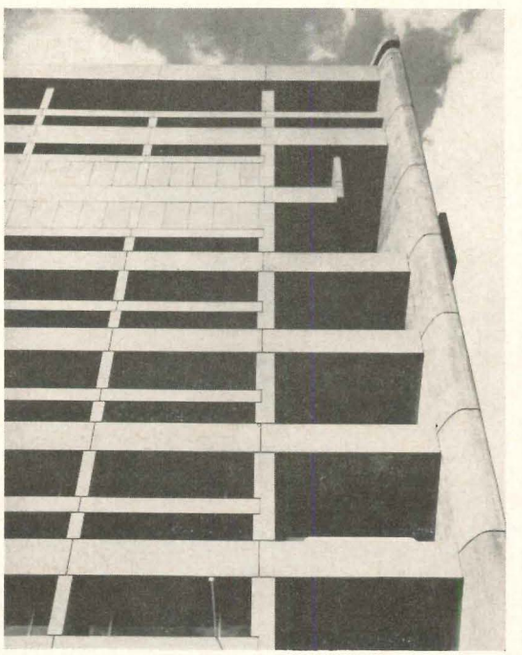
Kagawa Prefectural Hall, Takamatsu; Kenzo Tange, architect

at Kurayoshi (1955-56), a firm expression of heavy concrete columns and beams much in the manner of Mayekawa's fore-pavilion at Setagaya. This building bears already on its second floor a rail which, when studied further and multiplied many times, blossomed at Takamatsu as one of Tange's masterpieces.

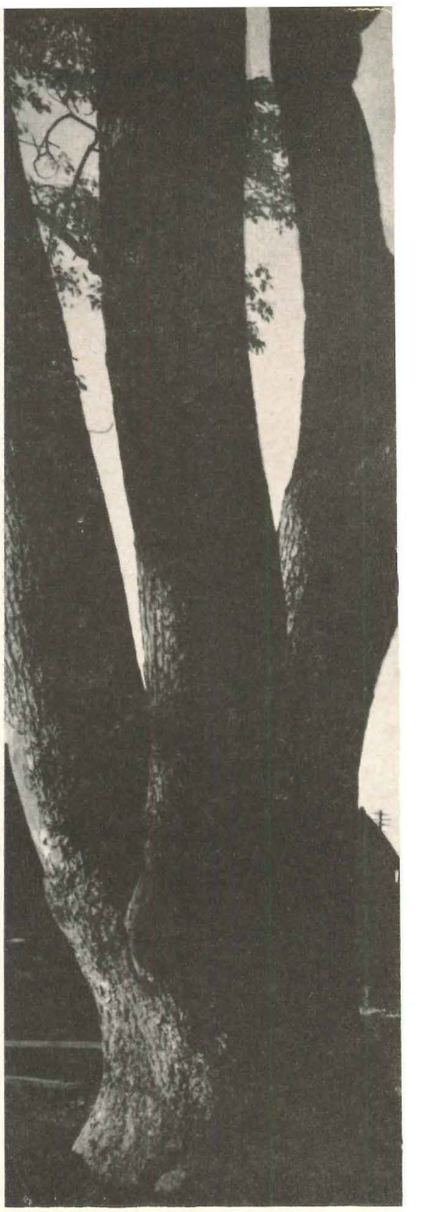
We should go quickly also past the experiment in folded-plate concrete structure that Tange made for his *Convention Hall at Shizuoka* in 1957. This is not so much because it is a bad building; indeed, it is interesting, and it shows that Tange can do experimental work. But having made the experiment, and shown that he could use this métier, Tange withdrew from it, and as things stand the Shizuoka cannot be taken as typical of his mature style. Nor can the *Tokyo City Hall* of 1957 be said to be entirely typical, although it comes nearer to being so. It sits well on the street. The proportions are good, the play of the vertical sunshades again the horizontal ones is delicate; but the relation of principal floor to ground floor, the *pilotis*, and the outside stairs are a little uneasy for Tange. This is still a distinguished building, but not his best.

On the other hand, the *Kagawa Prefectural Hall at Takamatsu* (1958) is one of Tange's masterpieces and one of the great buildings of modern times. Here are all the things he had been studying at Kurayoshi and in the Tokyo City Hall, brought into focus and near perfection. The proportions are sure, the details carefully studied but not overstudied. The thin cantilevered slabs work with the wider rails to give the building a horizontality unmarred by important vertical elements. The sun control and the view out are without flaw. The highlights that catch the ends of the beams dapple the façade as elegantly as a cluster of triglyphs. The penthouses have all become a full partner in the architecture, and on the roofs, stairs and other forms of concrete play a sculptural role in a way to delight as well as remind one of Corbu. The little garden, very Japanese, relates sensibly to the ground floor of the building, while the bounding wall has a sand texture that recalls the raked





Dentsu Building, Osaka; Kenzo Tange, architect



Ch. Hirayama

City Hall, Kurashiki; Kenzo Tange, archit

TANGE *continued*

beds of Zen. There are all sorts of gay and unexpected but not distracting details: the projecting concrete bosses on the penthouse wall, the open stair of the portico, the furniture of the roof garden, the touches of colors. If Tange's hand ever faltered here, it was in the foyer. This contains four interesting abstract ceramic murals by Masanori Kaniko, and in one or two places the mezzanine seems an afterthought and cuts unpleasantly across their line of sight in a way that one would think might have been avoided. But this is a small blemish on a work which is serene, elegant, and incidentally reminiscent of a fine pagoda, which it really does not resemble at all.

After Takamatsu, Tange himself seems to have felt that this approach was exhausted, and we now seem to have to be concerned with a Tange in transition. The next two years witnessed experiments such as the *Dentsu Building in Osaka* of 1960, culminating in what is probably going to be another masterpiece, the City Hall at Kurashiki.

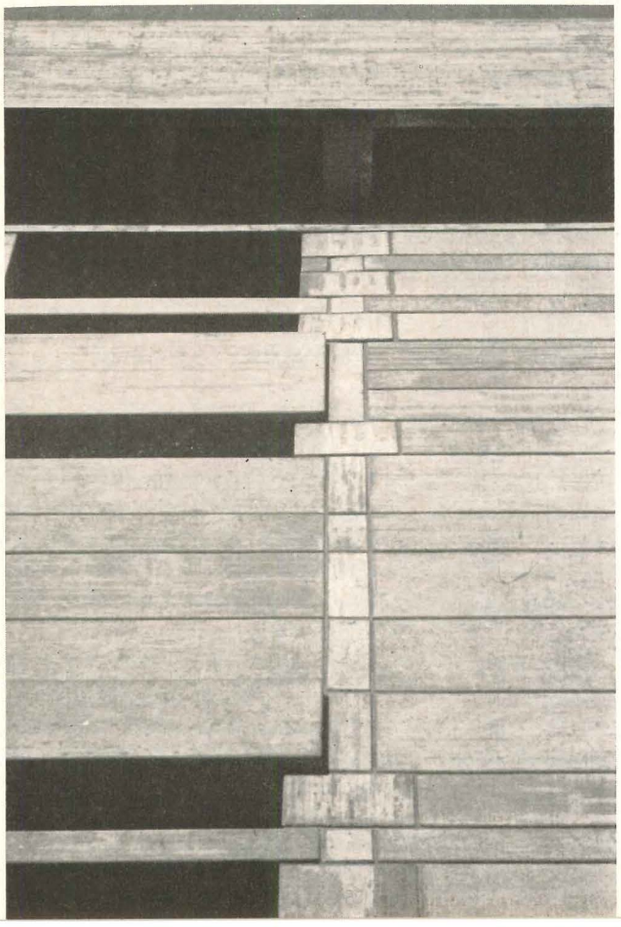
The building in Osaka, for an enormous advertising agency, the Dentsu, is a clear precursor of Kurashiki. Some of the differences in form between the Dentsu and Takamatsu are functional —for example, the blank wall on the sixth and seventh stories, which darkens the television and radio broadcasting studios. The commercially determined and unhappy penthouse, on the other hand, shows that when a good man entertains vulgarity he may outdo the vulgar. The slabs and rails, though reversed as to dominant dimensions, do recall the general organization of Takamatsu which the end stairs rudely interrupt. But the projections are much less, the windows are becoming less tall. Most important is a new approach to the proportions and the joints of precast elements which would be carried to an end result at Kurashiki.

The *City Hall at Kurashiki* was nearing completion as I left, and it was difficult to have an impression of the total organization of the plan or the finish of the interior. But it was apparent at once, I thought, that Tange had struck off another masterpiece and of quite different metal than that of Takamatsu—more Corbusian, perhaps, more formidable, probably less Japanese, surely less traditional. The pic-

tures speak for themselves, and I call special attention to the details and the proportions of the precast slabs.

On the evidence of the buildings, there can be no doubt that Tange is one of the outstanding architects of the world. Though at 47 he may seem to younger Japanese to be of the Old Guard, he seems to me rather to be of a new generation, the transition between Le Corbusier and whatever is to come. Transitional work is not always the weakest work, although we tend to think that it must be. Transitions can be to something worse as well as to something better. But it may be fine in itself. Transitional or not, Tange's work is first class.

J.E.B.



The Sources

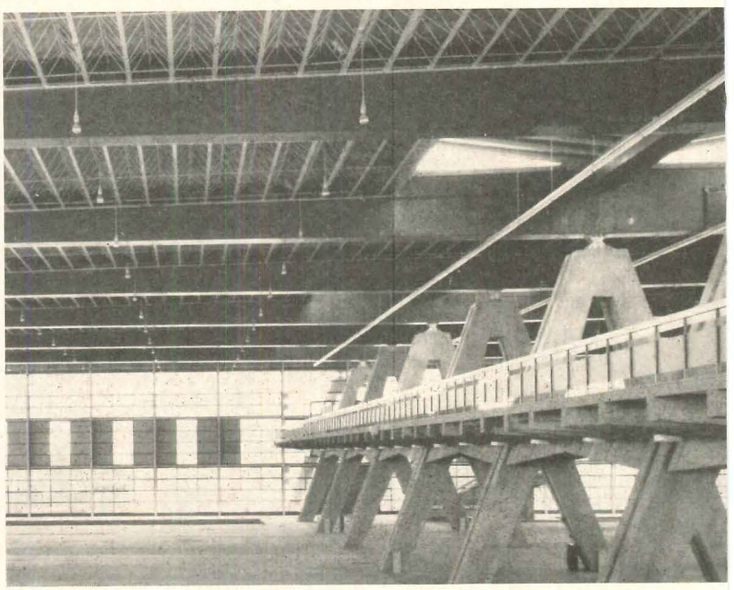
This is not the place to report Japanese architectural history, but it must be said that its evolution over a millennium and a half has been quiet. It was long ago that the door moved from the end to the side of the building, that the open plan demanded a detached wall, the fence. The desire not to separate exterior and interior architectural effects stretches well back behind the fine example at Horyuki.

Since the Japanese did not develop a truss, they had to gain long spans either with enormous timbers or by the use of king-post systems, and either solution limited the depths of buildings and required ingenious planning. The engineering led to ever more complex systems of brackets and corbels. But in the end the depth of the rooms had to be restricted by the difficulty of supporting a heavy roof on a fundamentally trabeated system. The Japanese forests were as cooperative as could have been asked, supplying timbers for the 170-ft depth of the monumental Daibutsuden at Tadaiji, but the difficulties of hauling such long elements limited their use to extravagant situations. Moreover, the Japanese do not seem to care much for awe produced by monumentality in the Western (Roman) imperial sense. And over all the evolution of her architecture, Japan has witnessed no such contrasts as can be seen in Europe from Classic to early Christian, to Romanesque, to Gothic, to Renaissance, to Baroque, to Contemporary. There have been many changes, but never, at least until now, such dramatic things as occur when architecture moves from post and lintel to dome, to groined vault, and finally to structural steel. It is no doubt characteristic of the Japanese spirit that it should make its architectural distinctions in terms of subtle differences of detail rather than through brutal and almost total changes of attitude and expression. This sensitivity seems still to exist even with the new materials, of which reinforced concrete is the clearly dominant one.

A Modest Approach to Concrete

But concrete itself poses problems which the Japanese recognize as well as anybody, and which they approach with more modesty than some. After years of neglect, some American designers, for example, seem to think of this material as a magnificent new plaything. It is in a different vein that the Japanese are thinking. It is all well expressed by Keiichi Okumura, an associate of Mayekawa:

"The idea of creating space with concrete is one which seems to us very promising, but at the same time it poses a number of problems which we do not yet understand. Concrete is still not a familiar building material in Japan, and we still have much to

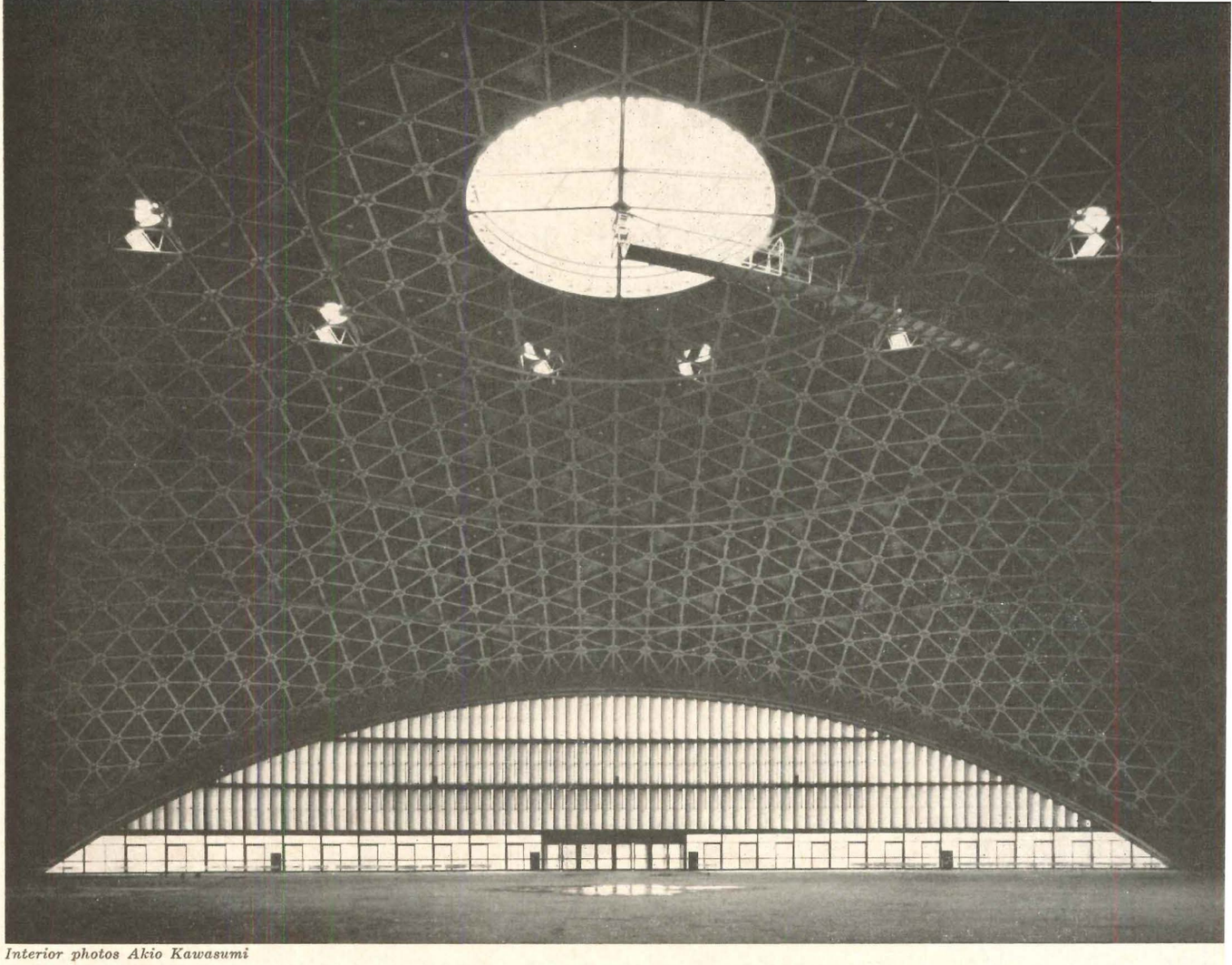


Hall Number One, International Trade Center, Tokyo; Masachiko Murata, architect

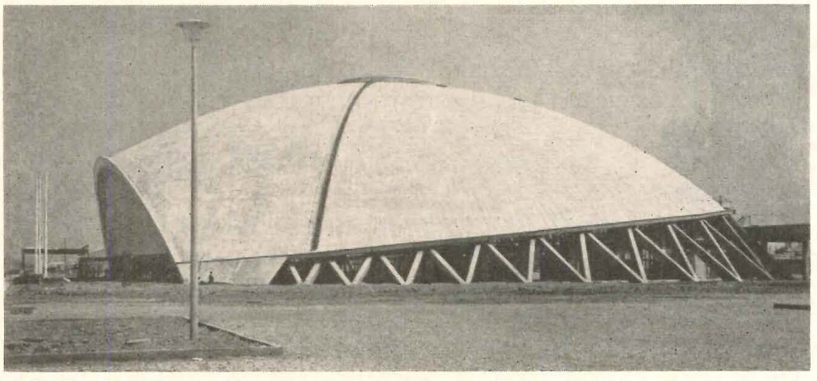
MASACHIKO MURATA

A third man, Masachiko Murata, has produced a group of three buildings for the *Tokyo International Trade Center* whose pictures tell the truth about them and therefore speak for themselves. *Hall Number One* offers an amazing two-story open space supported on a range of precast concrete A-frames rising from pin joints. These run down the middle and from them stretch a series of wide-ranging tapered steel girders, all seeming to balance on the A, although in fact they are received at delicate post supports also hinged at the ends. The construction is interesting, the statement clear, the space useful, the façade simple, direct (and Western).

Hall Number Two, a great truncated dome with diagonal struts à la Nervi, is



Interior photos Akio Kawasumi

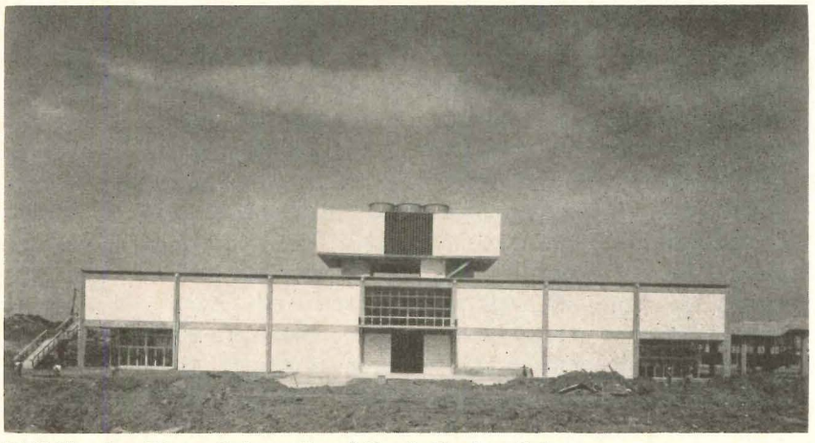


Hall Number Two, International Trade Center, Tokyo;
Masachiko Murata, architect

perhaps a *tour de force,* and seems so until one gets into the dome space with its great oculus, its curved ladder rotating around the inner shell, and its triangularly reticulated ceiling. Then it becomes most expressive.

Hall Three has somewhat more Japanese characteristics, especially in the way it takes advantage of a stand-by reservoir placed there to provide water for fire fighting, but embraced by the architects as a kind of reflecting pool on which some of the building seems to float. Except for this grace note and the fact that all three buildings are good buildings, one has to say that they are not peculiarly Japanese and might quite as well have been found in Turin.

J.E.B.



Hall Number Three, International Trade Center, Tokyo;
Masachiko Murata, architect

learn about its properties—not only its color and texture, but its acoustic and thermal behavior. . . . Concrete is not necessarily suited to any and all needs . . . we felt it necessary to explore the possibilities of concrete as a means of building something both simple and beautiful, something with an air of humanity, transcending mere function. We believe that the suitability of this material in Japan must be thoroughly demonstrated, and having made a step in this direction, we are more than ever convinced that beautiful results are possible. . . . A good building cannot be achieved simply by solving problems that have to do with acoustics, structure or the like. There must be more. Social, technical and economic problems must be worked out, but even more important is the problem of making a building that people will love. When it receives genuine human affection, a building comes to life. . . . Unfortunately, our knowledge of concrete is still elementary. We are still taking our first steps. When the children who are learning to be friendly with the concrete stairs, columns and foyers of this building [Setagaya, see p. 131] have grown up, perhaps concrete will have revealed to us a richness of expression beyond anything we can conceive of today. . . ."*

Giant Steps in Concrete

Although Wright, and especially Raymond, used concrete in Japan years ago, Japanese architects have begun to use it widely only since the war, and thus are taking those "first steps" which in my mind are giant strides.

This does not mean that they are marching hand in hand down a common, broad highway. For concrete is a versatile material, capable of anything, capable almost of too much. It can provide trabeated buildings, but add to them the range provided by continuous spans and rigidity at the columns so that cantilevers, for example, are natural things. This has, in general, been the mood of Tange. It results sometimes in an expression not unlike the trabeation of the older wood, but not because Tange is copying the old form. Yet some of the younger men illogically reject the trabeated expression of concrete and demand that architecture cease to "pile up" members. In such statements they are less certainly expositors of the truth of concrete than opponents of anything that resembles the old. But on the other hand, concrete is "plastic" too, and the forms of Le Corbusier, more observed now but proclaimed long ago, as well as the excessive forms which concrete permits (I do not say encourages) have fascinated some of the younger Japanese, although none as yet has gone to the extremes of some of the buildings of Vigano and Rudolph.

* The Japan Architect, *August 1959, p. 10*

T. Taira

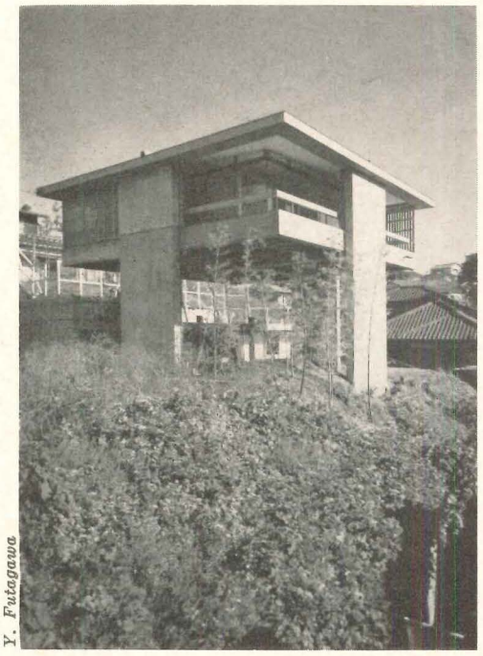
Kabuki Theater, Osaka; Togo Murano, architect

NEW TRENDS

After Murata, Japanese architecture seems about to take off. There is the old-fashioned *Togo Murano* producing a charming new *Kabuki Theater in Osaka* in 1959, a modern version of the Momoyama style but making it a thoroughly engaging place for a 20th century man to visit.

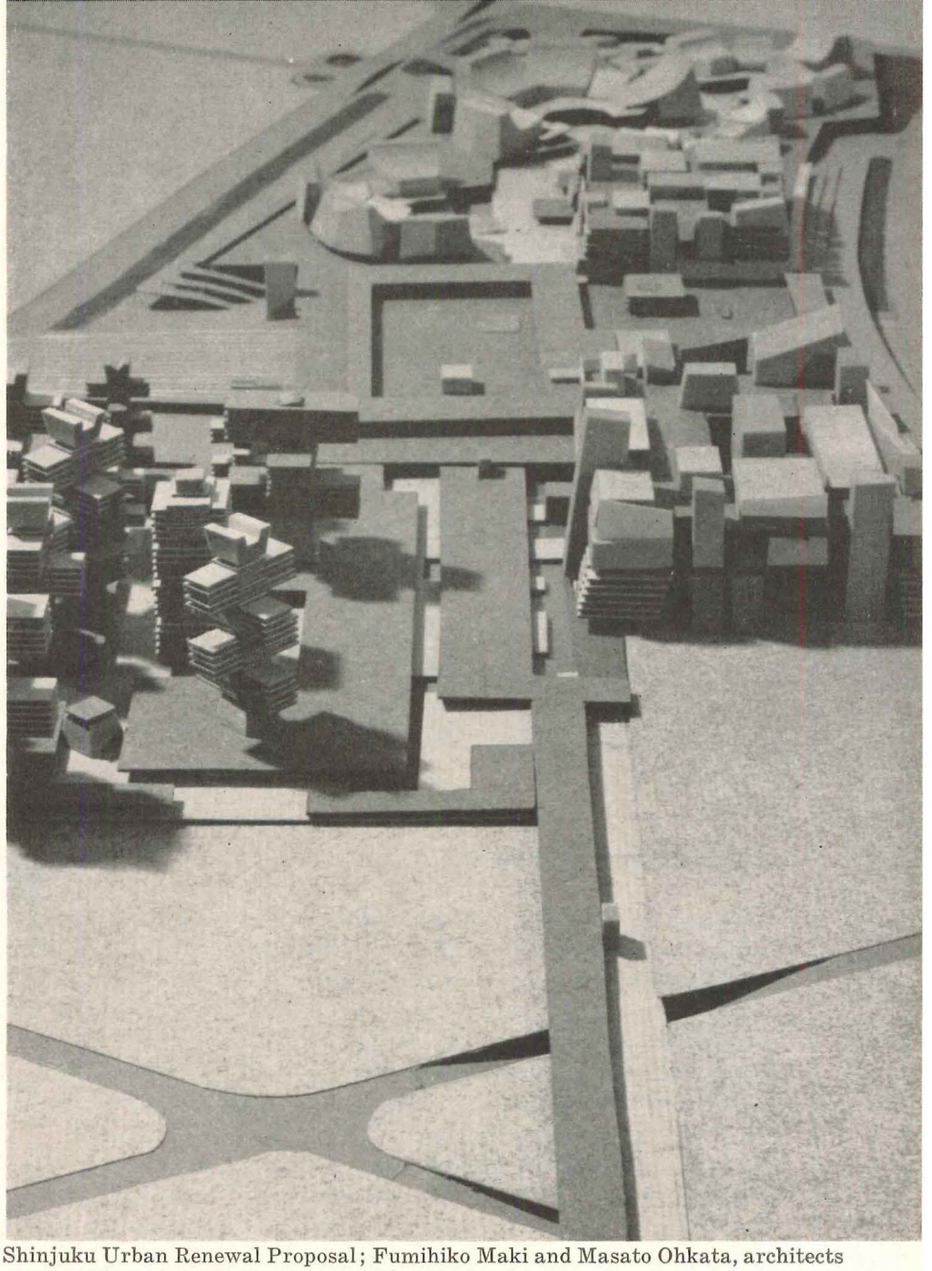
There is young *Kiyonori Kikutake* perching his *Sky House* on a side slope of Tokyo in 1958 so that his family can look out over the closely packed adjacent roofs from their one-story platform with its stair which, like a drawbridge, can be drawn into the platform at night. But this is not quite as much of a *tour de force* as it seems, and the spaces developed on the platform do not betray the principles of conventional Japanese domestic life.

At the end of this trail for the present is *Fumihiko Maki's* just completed *Nagoya University Auditorium,* which I know only from photographs. Maki is a man to watch. A Japanese, a product of Tange's school, a postgraduate in America at Harvard, a professor at Washington University in St. Louis where he produced one or two interest-



Y. Futagawa

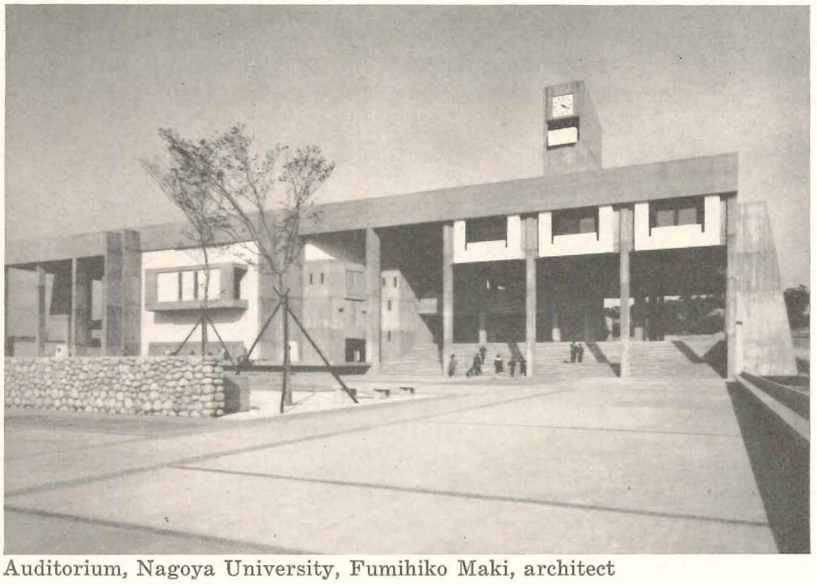
Architect's House, Tokyo;
Kiyonori Kikutake, architect



Shinjuku Urban Renewal Proposal; Fumihiko Maki and Masato Ohkata, architects

ing buildings, he is just returning to the United States after an Indian and Japanese sojourn which came about as the result of his winning a Graham Foundation Fellowship. The Nagoya Building is the most original expression to be found in Japan of what I suppose must be called Brutalism.

Maki seems to me to be a talented man, and I hope this building may prove to be an aberration. But perhaps not, for he and other young Japanese, including *Masato Ohkata* in Mayekawa's office, are not content to follow in the footsteps of either Tange or Mayekawa. Rather they want to cut their own. It is this which has led them to issue a manifesto on Group Form, and to demonstrate this in model form in a proposal for the redevelopment of the *Shinjuku Urban Renewal Project* which to my old eyes is interesting but strange. Since both these young men are able, intelligent and sincere, and by no means show-offs, it is probably my eyes that are too old rather than their ideas which are too young. If so, another article on Japan a decade from now will look nothing like this. J.E.B.



Auditorium, Nagoya University, Fumihiko Maki, architect

Once again, concrete permits the spanning of great spaces in all directions as timbers do not unless they are forced too far. Not many Japanese needs call for such spaces. The Kabuki theater, for example, with its ultra-wide stage, would be lost in a building the shape of Saarinen's auditorium, however great the dome. There will be some occasions for shells and for structures à la Nervi, and we can expect to see them, but perhaps not as the dominating architectural expression. Finally, the Japanese are prepared for many experiments with the surface of concrete, even though the instinct of their craftsmen opposes the leaning of designers to the rough surfaces of Le Corbusier; though they are highly sensitive to the nature of materials, they are not dogmatic about it and they know that there can be no uniquely "honest" expression for the surface of this protean amalgam.

Some Old Building Types

Japanese architecture in the near future will of course be conditioned by the needs of the people. The Japanese need is large and the freedom to supply it is larger than most nations have enjoyed, due to the demolition of war and the flimsy nature of most modest Japanese structures. As in all other places, the history of Japanese architecture has been dominated by the temple, the palace, the castle and the house. The Buddhist and Shinto precincts are not going to change very soon. Some as at Ise, will be ceremonially rebuilt from time to time on a ritualistic calendar; most will be rebuilt periodically on a more flexible schedule as maintenance needs and funds permit. (Funds are hard to come by except in the places tourists love best, now that so many temples and shrines have been declared national monuments but denuded of national financial support.) But most of these will be rebuilt with the ancient materials and in the ancient ways as a matter of course. One or two have been rebuilt in concrete, but in the ancient forms, and although this may minimize the damage by fire, it is not an esthetically happy outcome even when the imitation is extremely clever. But it is quite unlikely that we shall see a spate of exotic new church forms in the service of the major religions, while the effect of Christian, Jewish and Moslem ecclesiastical architecture is bound, now, to remain quite unnoticeable.

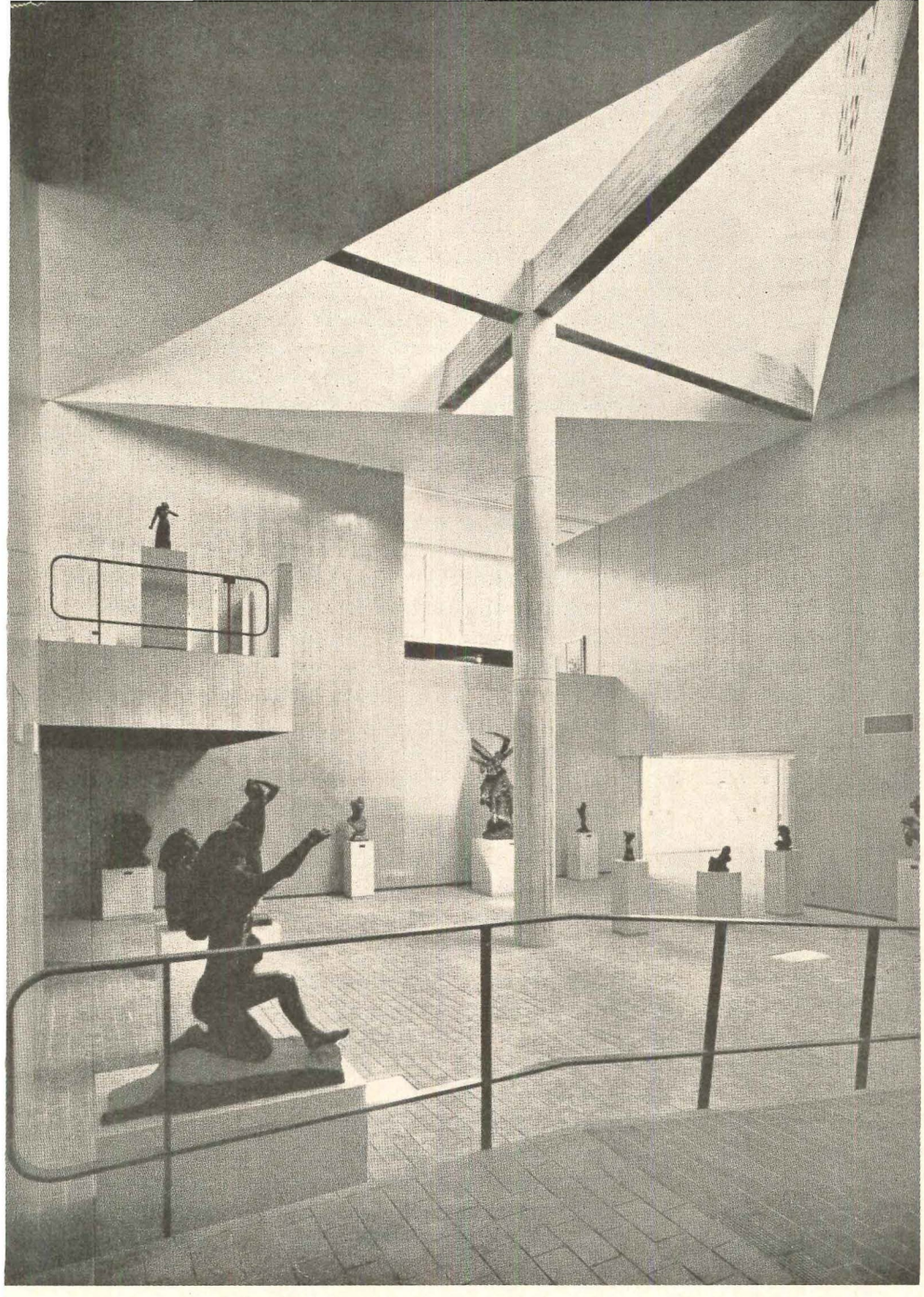
The small houses will probably also follow the ancient patterns, save a few built by rising young architects such as the one Kikutake built for himself (see p. 141), but even these will be remarkably Japanese inside. Group housing, on the other hand, will probably take on Western forms throughout, and the obvious model at the moment seems to be the Unité d'Habitation.

National Museum of Western Art, Tokyo;
Le Corbusier, architect;
Jenzo Sakakura, Kunio Mayekawa,
Takamasa Yoshizaka, supervisors

CORBU IN JAPAN

Despite the many imperfections of the National Museum of Western Art in Tokyo, and despite a number of things done by the collaborators of which it seems Le Corbusier could hardly approve, the building, completed in 1959, is an outstanding one, even before it contains the 500-sq-m. photographic mural to the glory of the 19th century in the Occident which Le Corbusier has begun to study and which he promises to bring to Tokyo at a suitable time and then to give instructions for its proper execution.

The Museum, it may be recalled, was built to house Kojiro Matsukata's collection of 400 works of French 19th and 20th century art. The collection reached Japan after Mr. Matsukata's death and only on condition that the gallery be designed by a suitable French architect. The choice wisely fell on Le Corbusier, who made the prelim-



Courtesy the Japan Architect

inary drawings. These were executed by Mayekawa, in collaboration with Junzo Sakakura and Takamasa Yoshizaka.

There are many fine features about the Museum. The natural circulation offered to the visitor is very good; the unusual skylights afford good though not perfect natural and artificial lighting, much better, for example, than that of the Guggenheim or at Wellesley College; and moreover, the skylights do not suggest anything labored on the exterior. This lighting system deserves a little more detailed attention. Well above the roof a concrete monitor rises to support a solid roof and transparent sides. These let light into a room hung down into the gallery on the long axis. This room in turn has a solid floor perforated by spotlights and forming a ceiling some nine ft above the main floor. Other spots can be moved around inside the room. The walls of the room, moreover, can be translucent, but the panels are sliding and roll blinds are available so that the light can be manipulated to offer some modulation after it has passed through the monitor and the walls of the room at solar angles well below the zenith. The experiment is an interesting one (and incomplete). As it stands, the final results may or may not be worth the effort, but it is to be hoped that further developments in other buildings will carry the idea further and improve upon it.

The façades and entrances of the building are ingratiating, and, in short, it just misses being one of Le Corbusier's masterpieces.

For this there are, I think, two principal reasons. First, the building is a little tricky, and, just as in the Guggenheim, one is too often aware that an architect has passed by and not conscious enough perhaps that painters and sculptors have deposited their works for you to see. Second, the finishes are altogether too refined for the scheme, and certainly not what we have come to expect from Le Corbusier. Either those who executed Le Corbusier's design were insufficiently vigilant to preserve the coarser textures in the face of the modes of the Japanese artisans, or Le Corbusier was wrong to have designed something which called for treatments incompatible with the way the Japanese would work. In such cases, I think, we must always blame the genius, for he is the one who should display the sensitivity and the foresight. But whoever is to blame, the incompatibility is flagrant. J.E.B.

And Some New Building Types

There will be factories and office buildings in contemporary forms. Up to now, anyway, these types have not been served by many of the best pieces of architecture. Indeed, at the moment Japan seems to be a blessed country where the hotels and the private apartments and the halls of commerce are inferior to the public buildings instead of, as with us, the other way around. For some time to come we can expect, I think, that the best architects will be working on buildings for huge masses of people, on city and provincial halls, on auditoria and other cultural centers. All these can expect to be thronged with people, and since Japanese do not wish to be ground down by monumentality, the problem is a grave one. The crowds must be accommodated and they must be accommodated at the Japanese scale, which means that large spaces must somehow be married to intimacy.

I think they will solve it; indeed, they are solving it. It is after all an old Japanese problem. It will be solved because Japanese tradition has deeper roots than those of mere loyal intellectual remembrance or a feeling of dutiful obeisance to a Medicean or a Jeffersonian ancestor. And the new buildings will achieve this in harmony with the old ones, but without being like them, and even with no great self-conscious effort on the part of the Japanese architects.

Quite aside from the Japanese sensitivity, there is, I think, another reason why this is and will be so. The modern movement in Europe owes a great deal to the influence of Japan upon Wright and Taut. It matured in Europe, and now that it comes back to Japan it is not surprising that the new work looks ancestral. It may not be easy to say whether modern architecture is Japanese or Japanese architecture is modern.

It will probably, and unfortunately, be a long time before spectacular successes will be scored at the urban level. The difficulty of accumulating land and of producing sensible urban plans seems fantastic. The economy is not one that will often permit the planning of units even as large as Rockefeller or Lincoln Center. But that the individual results will often be superior seems to me clearly to be beyond debate and already demonstrated.

Drawing Some Conclusions

Japan is worth an architectural pilgrimage even if you never go to Horyuji or Katsura, which would be a silly affectation. Yet the architects who are working so well are not without their quandaries, and in essence they are the same as the quandaries of the rest of us. In the end, they are various statements of the problem of how to reconcile culture with technology, or, better, how to make them into one while being sure that mechanization and rationalism do not destroy individualism and sentiment.

What one does about so majestic a question is naturally a matter of temperament. It has affected different men in Japan differently, just as it has affected different men in Italy, though the gaps between the extremes may not be so wide, for example, as those between Vigano and Ricci on the one hand and Gardella and Ponti on the other; nor as great as those between Yamasaki or Saarinen or Bunshaft.

Meanwhile, we can rest the case for Japan on the work of Mayekawa and Tange and the words of Yusaku Kamekura in an essay called *The Katachi. Katachi* is a Japanese word for which the closest English expression may be "distinctive form." Kamekura pays high respect to the heritage of *Katachi,* but insists that it be not accepted uncritically. The Japanese view, perhaps unlike the modern revolt in the West, is to reject and rebel against the heritage while also trying to love and frankly accept it.

"If it had not been for this spirit of rebellion, we would never have known the balance of the world, we would never have realized the importance of rationality and function, but would have merely gone on carrying on with our old traditions, holding on to our stiff necked artisanship and our festering technique-consciousness.

"One of the problems which have been imposed upon us Japanese designers is the problem of tradition. Tradition is a burden for the designer, but one which he cannot reject. We have the duty to take our tradition apart, and then put it together again in a new way."

Mayekawa and Tange have put the pieces back together in their own fine way. Maki and Ohkata and their contemporaries have the pieces spread out on the floor. They will not put them back in the manner of their predecessors. But they are likely, too, to find a good way. To watch this development is interesting everywhere today, interesting if not always pleasant. In Japan it is pleasant most of the time. It is easy to agree with the statement made by Yasuhiro Nakasone, Minister of Administration, in congratulating the recent World Design Conference in Tokyo: "There should be no doubt, therefore, that our Japanese culture or Oriental culture broadly has much to contribute to the welfare of the whole world." Of this there is no doubt. The contribution will come not only from contemplation of the Katsura Palace of the Miroku Basatu; or of flower arrangements and tea ceremonies; or of the teachings of Zen Buddhism. At Kurashiki and Takamatsu, in Nagoya and Osaka, and Kyoto and Tokyo, it will be found also in completely contemporary terms.

Roger Sturtevant photos

NEW AND OLD ON THE CAMPUS

Book Store and Post Office — *Palo Alto, California*

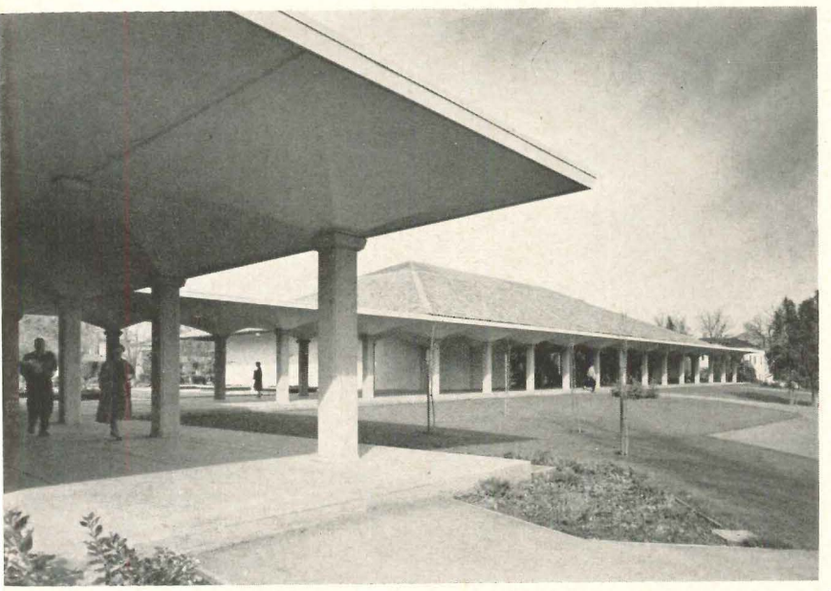
ARCHITECT: *John Carl Warnecke & Associates*

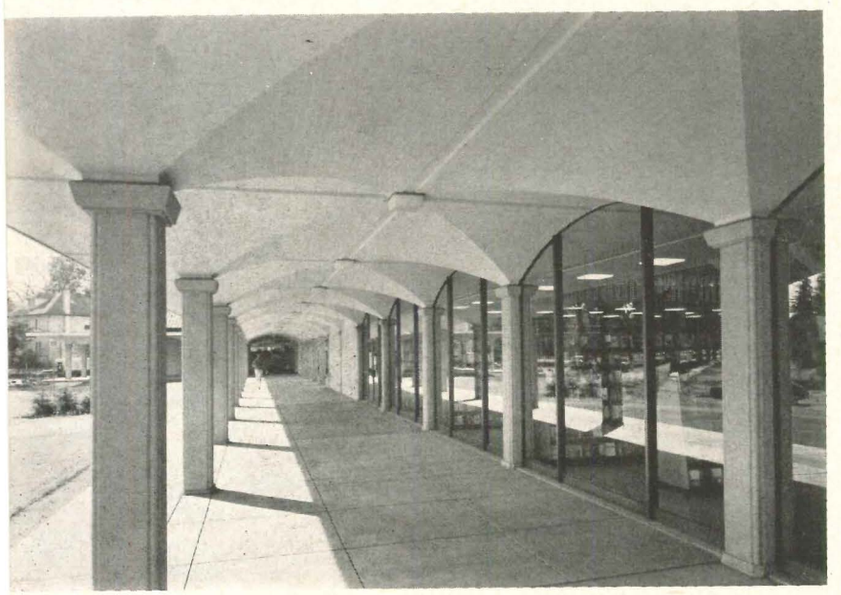
STRUCTURAL ENGINEER: *Isadore Thompson*

MECHANICAL ENGINEER: *Kasin, Guttman and Malayan*

LANDSCAPE ARCHITECT: *Thomas D. Church*

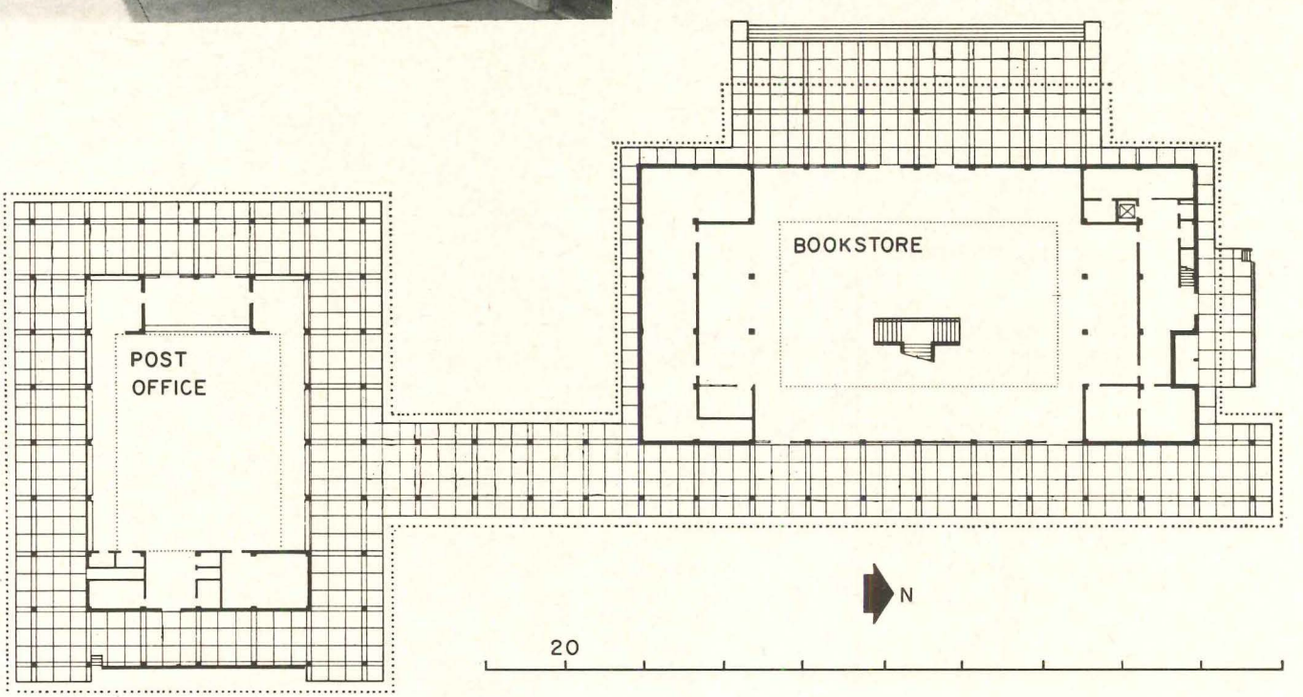
GENERAL CONTRACTOR: *Howard J. White*



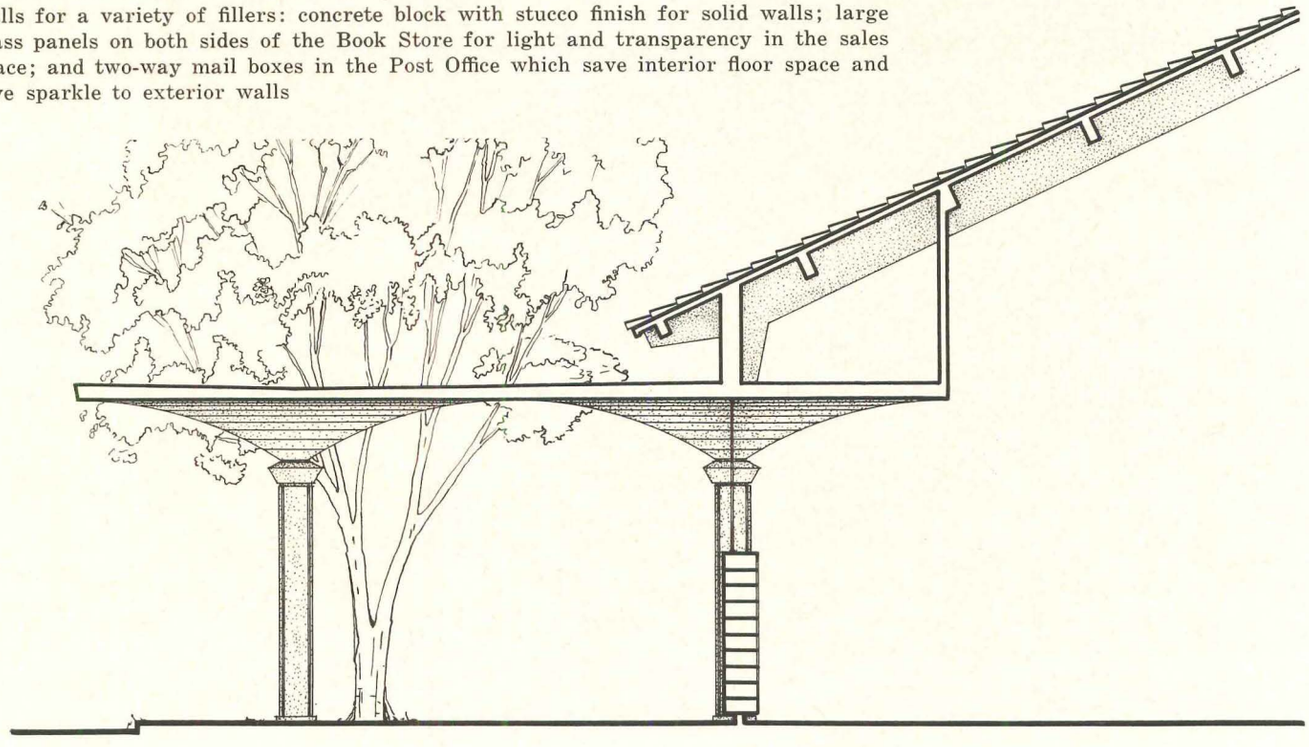


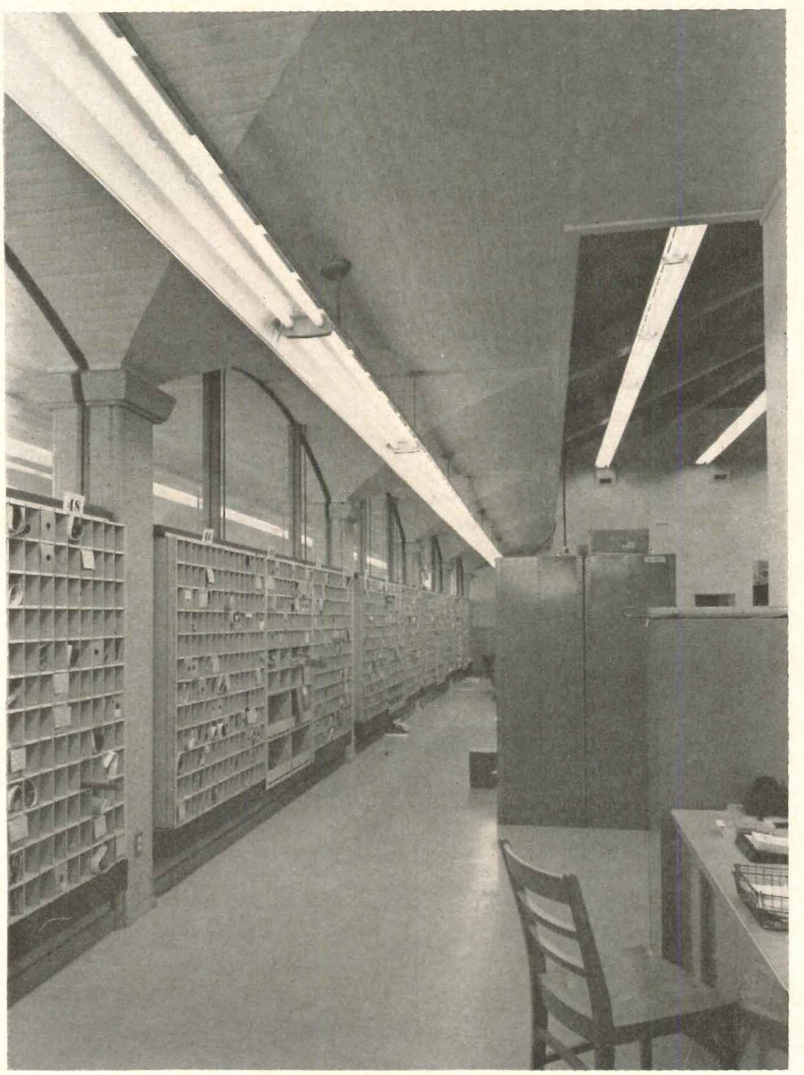
Stanford University
Book Store and Post Office

The new Book Store and Post Office for Stanford University—second phase of a building program which will eventually provide a nine-building student activity center—contribute significantly to the development of a new expression of the University's architectural tradition. For these two buildings, with their graceful, flat-arched arcades and buff-colored concrete, respectfully acknowledge the strong statement of the early "Quad" buildings (by Shepley, Rutan and Coolidge) and the rusticated buff stone, red tile roofs and many arches which are the campus hallmark; but they do this in their own completely contemporary idiom. Materials and technique as much as design make possible this new approach (discussed in ARCHITECTURAL RECORD, March 1960, pp. 146-149). A library building, now being designed for an adjoining location, will continue this approach. Built at a cost of $489,569, the Book Store's main sales area is a clear space 65 by 85 ft, with a 100 ft skylight above; on the balcony are more display shelves (in all, 4000 books can be displayed), and offices.



The vaulted forms were precast and lifted into place on top of the cast-in-place columns; joints were then grouted. Concrete bents for roof and wall framing were also precast; after placing of the vaults, these were hoisted to positions 15 ft o.c. Their loads are transmitted to columns through connections at column tops. The system frees walls for a variety of fillers: concrete block with stucco finish for solid walls; large glass panels on both sides of the Book Store for light and transparency in the sales space; and two-way mail boxes in the Post Office which save interior floor space and give sparkle to exterior walls





Stanford University
Book Store and Post Office

Book store interior (top) keeps the feeling of a single great space, lofty, light and spacious, while accommodating very extensive book stocks in open displays all accessible to customers (or browsers)

"The need for good architects has never been greater than it is today . . . so far we have utterly failed to use these achievements to create an acceptable man-made environment . . ."

ART vs. SCIENCE IN EDUCATION?

by Professor Richard Llewelyn Davies, M.A., F.R.I.B.A.

Professor of Architecture, London University; this paper is his inaugural address

This month, 300 years ago, the Royal Society was founded. One of its Founder members was Christopher Wren, a mathematician, astronomer and architect. Wren saw no conflict between his work as an artist and as a scientist; it would not have occurred to him to draw a line between art and science.[1] But this distinction, which became firmly established in the nineteenth century, is now entrenched in our thinking. It has split our concept of the architect down the middle. Our present pattern of architectural education derives from a time when the division between art and science was widest. Although this division has been challenged in recent times, particularly by Walter Gropius, and is now rarely defended, the form and content of our education has so far undergone little change. We therefore have to review the whole pattern of architectural education, to consider the range of knowledge which an architect needs, and the methods by which he can be trained to use his knowledge as a creative designer.

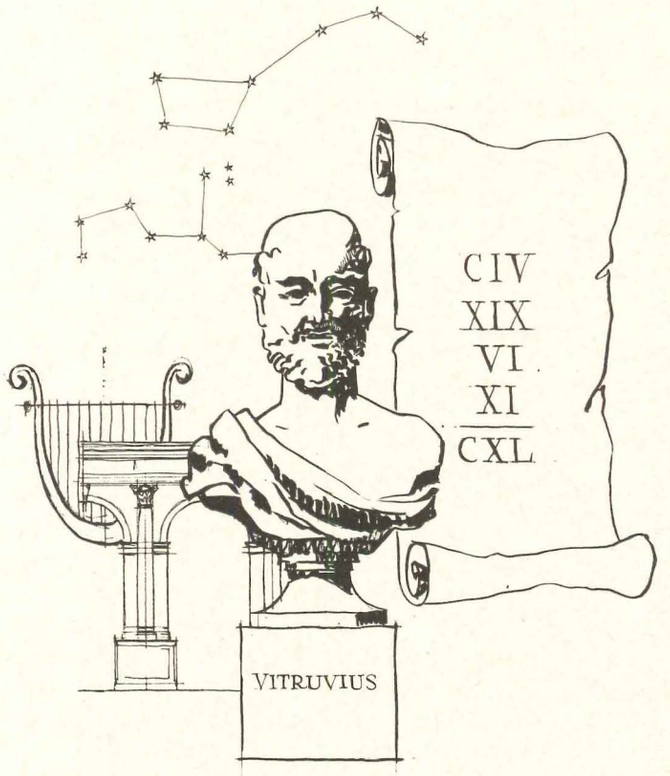
The need for good architects has never been greater than it is to-day. If we review the achievements of civilisation in recent years we can justly claim stupendous advances in our power to control our environment. Daring and triumphant advances are being made every day by science and technology, but so far we have utterly failed to use these achievements to create an acceptable man-made environment in our cities and buildings. Architects are concerned with this environment, from the city plan down to the doorknob, and architecture profoundly affects all our lives.

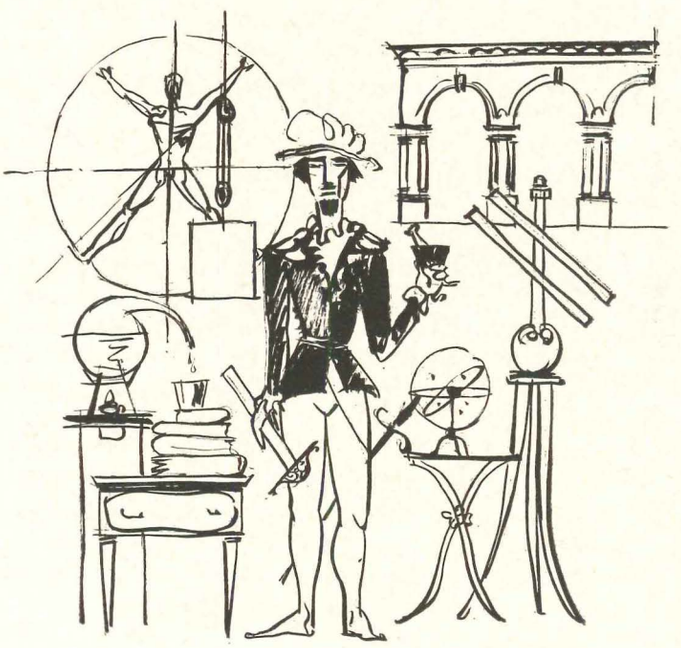
Vitruvius, writing in the time of Augustus, said that an architect should "have a knowledge of letters, be expert in drawing, learned in geometry, not ignorant in optics, instructed in arithmetic, well read in history, to have diligently attended to philosophy, to have a knowledge of music, not a stranger to physic, understanding in the Law, and conversant in astronomy and the aspects of the heavens." He argues the case for each branch of knowledge in detail, explaining the need to study medicine in order that buildings and towns fulfil the needs of public health, and for a knowledge of arithmetic "in order that the expense of the edifice may be calculated and the difficult question of symmetry solved." However, he goes on to say that an architect need not achieve full mastery of these subjects so long as he reaches a general competence in them. Some few men, says Vitruvius, will achieve complete mastery of all these subjects, such men will "surpass the achievements of architects and become mathematicians."[2]

The architects of the Renaissance quoted Vitruvius with approval in their writings, and often fulfilled in their own persons his stringent specifications for an architect. Up to the time of Wren, it was accepted that an architect's education should cover the whole range of human knowledge, and it was possible for it to do so. To an architect of the Renaissance the body of knowledge which he used appeared as an homogeneous whole, and he would not understand any attempt to divide it as between art and science. No theories or rules of architectural composition will be found in Renaissance treatises; they did not try to separate out the act of design, or to legislate for it as an activity on its own.

A different and historically disastrous picture of the architect's training and of the role of the architect was established during the nineteenth century. At this time social change and technical advance

[1] *The Royal Society: Its origins and founders:* London, 1960, p. 99
[2] *The Architecture of Vitruvius,* London, 1791.





Drawings by Walker Cain

had greatly widened the range of knowledge required by an architect and made necessary many new kinds of buildings of a complex and unprecedented kind. The architects of the period reacted to this challenge by abandoning altogether the Renaissance concept of the architect as a universal man, by excluding important branches of knowledge and by establishing the idea that architecture was an art with its own fundamental discipline quite separate from any other art, science or craft. They withdrew both from the study of what was needed in buildings, and from the study of building construction.

They evaded the problems of building need by inventing the concept of the architect's "programme", a written schedule of instructions defining the requirements of the building in detail, even down to the sizes of rooms. It was the task of the building owner or client to work out this programme and present it to the architect. This has proved a disastrous innovation, and has had ill-effects from which we are only just beginning to emerge. (The architect of the Renaissance did not need a programme. If he was asked to design a church or a villa, the breadth of his education ensured that he would share with his client an understanding of what would be needed.)

It was more difficult to evade the problem of building construction and technology. They met this challenge by a determined attempt to limit the forms used in building to a selected range. This range, based as far as possible on classical models, consisted of a number of "elements": the arch, the door, the window, etc. Once this range had been established the constructional details of each could be learnt by rote by the student. Further, the engineer's part was reduced to that of making these elements stand up safely in a building. His role became secondary, and the need for the architect to understand structural principles as a basis for design was made to appear unnecessary.

Architecture could now be defined as an art of assembly, and this was how it was taught at the École des Beaux Arts. Treatises on the "theory of architecture" appear at this period. They deal with principles of assembly; they are concerned with symmetry and balance and postulate various rules: for example, that duality is to be avoided. This meant that two similar objects, such as the two arches of King's Cross Station, should not be put together unless they were dominated by a third, more important, object which was then said to "resolve the duality".

The system of teaching was exactly fitted to the principles I have just described. The students had to learn the basic catalogue of building elements in close detail. For the studio exercises, the students had to prepare a preliminary "esquisse" or sketch. Each student was confined in a separate cubicle for a whole day; he was handed a detailed programme,

prepared by the teacher. During the day he composed the design using an appropriate selection of elements, and in the evening presented his sketch. This whole procedure exactly symbolises the Beaux Arts conception of the architect's role in society: he is cut off from life by his professional expertise—the cubicle. He receives his programme from outside in a rigid and detailed form; he then, by an act of individual inspiration, assembles a number of ingredients into a design.

Even at the height of its influence the Beaux Arts system was attacked as narrow, particularly by the architect and teacher, Viollet-le-Duc. He blamed it for the production of architects who "involve private individuals and public bodies, who entrust works to them, in enormous expense; who are disinclined to study the material requirements of the programme or its practical execution; whose aim is rather to erect buildings that will do honour to themselves than to fulfil all the conditions imposed by the needs and habits of the day." He goes on, "to make architecture a mystery, an art shut up within certain conventional methods, which the profane can neither see nor comprehend, may be (it is true) the means of preserving a kind of monopoly to those who enjoy it; but is it not to be feared the initiated will be left alone with their mysteries?" [3]

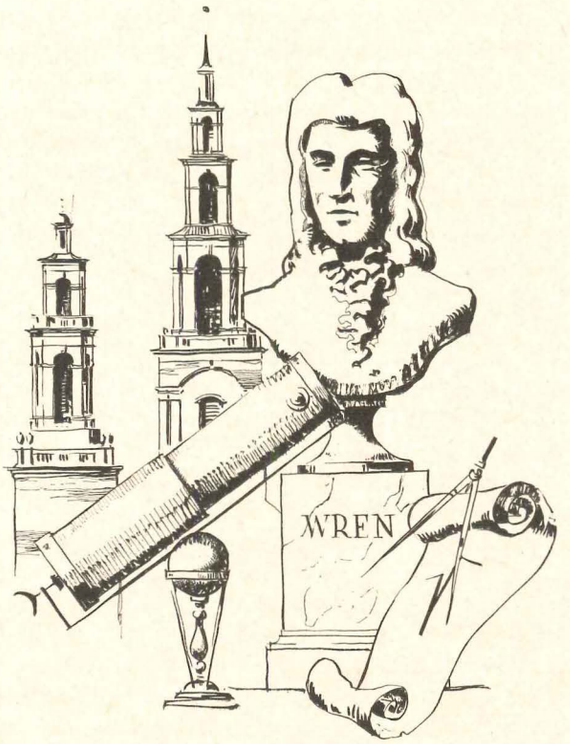
Sixty years later Walter Gropius, at the Bauhaus in Dassau, developed the only really comprehensive and consistent set of principles for architectural education between the Beaux Arts and the present day. In a comparatively short time between its establishment in 1919 and its dissolution under political pressures in 1933, the Bauhaus made a contribution of historic importance. The essential idea behind the Bauhaus was in diametric opposition to that of the Beaux Arts; it was opposed to nineteenth century dualism, separating the individual from the community, and held that art was essentially one with other branches of activity. Its aim was to establish for artists and architects the link with the realities of matter, technique and economy. The student was first subjected to a preparatory course lasting six months, aimed at freeing him from all pre-conceived ideas about form, and helping him to use first-hand experience. After this he pursued parallel courses in the school workshops, and in design. The purpose of the workshop course was not so much to teach practical skills for their own sake as to ensure that the student escaped from the isolation of design on paper, and achieved a direct feeling for form and material. Design was not seen, at the Bauhaus, as a subject on its own; instead the student was taught the psychology of vision and the physics of light. In its short life the Bauhaus made an immense impact. Many of the most famous architects and designers of today were students there; the painters Kandinsky and Klee worked there, and tubular steel furniture was invented in the Bauhaus workshops. The Bauhaus is always referred to with respect, but its theoretical basis is often misunderstood, and the lessons of its achievement have never been fully exploited.

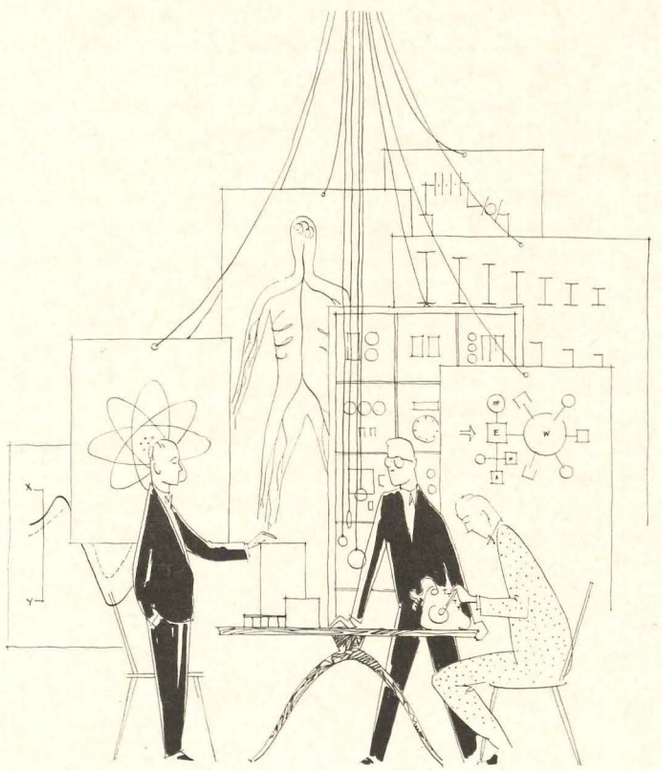
Consider an architect's education at the present time. It is illuminating to contrast the pattern in architecture with other fields where academic education is linked to professional training, such as medicine and engineering. In engineering it is common practice to devote the three years of the university course almost entirely to fundamental theory and leave the more practical aspects of the subject to be learnt after leaving the university, or by postgraduate courses. In medicine the transition is less abrupt but there is a similar progression, starting from the teaching of pure science and ending with clinical experience in a teaching hospital. There are good reasons for this progression; it follows the logic of the subject; and students find it easier to learn the necessary theoretical subjects at the beginning of the course, as these connect directly with what they have been taught at school. But there is one danger. The student may pass through the whole of the early, and most formative part of his education without ever being presented with the totality of his subject, as he will meet it in practice. When he comes to diagnose a patient, build a bridge or design an aeroplane, he must act intuitively, for his decisions will involve weighing a number of incommensurable factors. If his early teaching is completely fragmented into the basic sciences which underlie his subject he will not be trained in the art of balancing the several different aspects of his problems, nor will his powers of intuition be developed. Finally, in every university subject, except architecture, postgraduate studies and research are vigorously pursued. It is through these studies that the subject is advanced, new knowledge developed, and future teachers trained. In the professional subjects postgraduate work is also an introduction to high-level practice, and trains the student in collaboration with men from related disciplines, working as a member of a team.

Architectural education presents a striking contrast. Postgraduate teaching and research hardly exist. The main strength lies in the training it gives in the intuitive and creative process; i.e. design work in the studio. Lectures, with their attendant examinations, are regarded as necessary but rather irritating interruptions. The principal lecture courses are given in three main subjects: history of architecture, structural engineering, and buildings construction. There is little attempt to separate theory from application, or to ensure that theory is taught first. The general pattern I have described applies, with minor modifications, to nearly all schools of architecture in this country—despite a wide variation in character from school to school.

Some schools of architecture are thought of as tra-

[3] Viollet-le-Duc, *Lectures on Architecture*, London, 1877.





ditional, and some as revolutionary, but the difference seems to rest in the flavour imparted to the instruction by the teachers, and not to any real differences in the form or content of the courses.

Do our present courses provide a fit education for an architect? The answer can only be no. The range and character of the knowledge presented to students is obviously inadequate, and our methods of teaching are sufficiently eccentric to warrant serious discussion. The results may not be as bad as we might expect, but this is due mainly to the intrinsic fascination of the subject and the enthusiasm of the students, who indeed often emerge as architects and sometimes as educated men, despite the inadequacies of our system.

What should an architect's education be at the present time? It is certain that we must come out of the narrow private world of nineteenth century architecture, divorced from science and practical life. But can we, in the conditions of to-day, hope to re-establish the architect as an all-round man—the *uomo universale* of the Renaissance? We can, but only if we make a distinction between practice and theory. This was clear enough to Vitruvius: ". . . every art consists of two parts, the practice, and the theory; of these, one is peculiar to those who exercise each particular art, viz. the practice; the other, which is the theory, is common to all the learned." With this distinction in mind we can review the field of knowledge which has to be covered in an architect's education, noting that while he needs to understand the fundamental theory of a very wide range of subjects, he does not have to go far down the path of practical application in all of them. Let us begin with subjects which are wholly neglected at present —the group of sciences which deal with the human being—both as an individual and as a member of a group.[4]

The environment created by an architect impinges on the individual human being through his eyes and his ears, it affects his comfort through his skin and his breathing. To understand what he is doing when he designs a building, an architect must know how it will affect people. Therefore he must be taught something of anatomy, physiology and the psychology of the special senses. He must also understand enough physics to predict the physical conditions which will be produced within his buildings by his design. In our present courses some consideration is given to these questions, but they are dealt with in the wrong way and at the wrong time. Instead of presenting the physics, psychology and physiology of the human environment at the very beginning of the course as part of the theoretical basis of architecture, we usually give the student a short account of the practical problems of heating, lighting and acoustics towards the end of his training. He naturally forms the conclusion that these environmental factors are something additional to the architectural design—something to be solved by calling in a tech-

nical expert. This is a striking example of the consequences of the false opposition of art and science. Perhaps the extreme physical, psychological and aesthetic discomfort which you are suffering this evening in this lecture room can be attributed to the mal-education of its architect in this respect.

The social sciences are equally important, as they provide the means whereby we can fit buildings to the needs of human beings as a group. Modern society is too complex for the architect to have an automatic understanding of what is wanted in a building; the client does not know this either, although he sometimes thinks he does. For many modern buildings, there is no single client. Many people are concerned with the functioning of a hospital or a college, each may understand the workings of some part of it but no one understands it completely, as a whole. Again, the long life of buildings when compared with the rate of change of human organisation, means that people often adjust their pattern of life or work to fit an old building. If they are asked to specify their needs for a new one they think in terms of an old and familiar environment, they cannot break out to see what they really want. Therefore the client's brief is nearly always wrong, and a bad brief inevitably results in disastrous architecture. The solution lies in the joint study of building function by architect and client. The techniques for study are those of the social sciences, and the architect's education must equip him to understand and use these methods.

The idea that these sciences are related to architecture is fairly new and we have still to work out how best to teach them. In doing so we shall be greatly helped by the development of research. There are already several examples which point the way. One is the study of natural lighting in buildings, which involves architecture, physics and psychology. Research in this field has already given us new ways of thinking about light, shape and colour, and stimulated the appearance of completely new forms in architecture. There is also important work on the functional requirements of certain types of buildings—schools, hospitals and laboratories—by research groups which include people from many disciplines working as a team. We must encourage the growth of these studies within university departments of architecture. They provide the essential link between teaching, theory and advanced practice, without which professional education stagnates.[5]

These are new subjects, but we have also to consider the traditional ones. Of these, history of architecture is an ancient and respected example. But it can be challenged. Is it really necessary to the education of an architect to learn about the past? If we think simply in terms of the ancient buildings themselves, I think we must admit that there is a real difficulty in drawing lessons from them for the present. Their beauty may move us deeply, we may get keen pleasure from them—but do they connect closely enough to give us real help when we sit down to design a building ourselves? So long as historical teaching remains concentrated on the outward form of ancient buildings, presenting them in a systematised catalogue, covering all periods and all countries—a sort of architectural fauna and flora—it is hard to answer this question affirmatively. But if instead we consider the recent work of art historians, particularly those working in the Courtauld and Warburg Institutes at this University, we can make much more positive use of history. Take, for example, the study of Renaissance architects by Wittkower, professor of the History of Art at Columbia University. He is able to show how Alberti and Palladio themselves saw their problems, what they aimed to achieve, and how they set about it. His book[6] is a revelation; it brings out the methods and principles which underlie Renaissance architecture. These methods and principles—the use of mathematical proportions, the symbolic purpose of architectural forms—are very close indeed to the problems of our times, or indeed of any time. We now realise that if we take history in this way, concentrating if need be on certain periods, we can make it a very vital part of an architect's education. Once again, art and science interlock, and some of the methods of scientific enquiry which I have mentioned earlier are now giving us fresh insight into the achievements of the past. Studies in light and vision have given us a clue as to why a Georgian sash window is so pleasing to the eye, and why late Gothic church interiors have such a magical, disembodied quality.

Another traditional subject, theory of structure, is absolutely fundamental to architecture. An architect without a strong intuitive sense of the play of forces in a structure has one hand tied behind his back. It is of the utmost importance to get this part of his education right, but there are very great difficulties in doing so. Very few architects have managed to acquire this sense, and few engineers have it either. At the conclusion of his course, an architect can carry out some of the calculations necessary to analyse what is likely to happen to a given structure subjected to a given force. But ask him to imagine a structure appropriate to a particular set of circumstances, or to guess imaginatively at the pattern of stress in a given structure without performing his calculations, and, most often, he will not be able to do it. How are we to teach this? First we must face the hard fact that the concepts of theory of structure are mathematical. There is no easy way of imparting a sense of structure—it can only be done through mathematical understanding. We will therefore need to give more attention in our teaching to the funda-

[4] Richard Llewelyn Davies, *Human Sciences, The Architectural Review*, March 1960.

[5] Richard Llewelyn Davies, *Deeper Knowledge: Better Design, Architectural Record* April 1957.

[6] R. Wittkower, *Architectural Principles in the Age of Humanism*, London, 1953.

mental, mathematical side of engineering design, and to bring the student, through a mastery of theory, to an intuitive grasp of structure. At the same time I hope we can drop some of the teaching in applied structures. No architect to-day designs his own steel frame, and no point is served in trying to train him to do so.

Finally we come to the traditional group of subjects dealing with building construction and building materials. Teaching in these subjects has become a desperate and hopeless race to keep up with the increasing range of materials available in building and the increasingly complicated techniques for assembling them. Fifty years ago an architect could be taught pretty well all there was to know in this field, but even then it was formidable. Then, it was part of his job to design a window, drawing out on paper the precise shape of the joint between the top and side members, specifying how they should be wedged and glued together, and selecting the timber to be used. This never happens today. An aluminum window is not designed by an individual architect but by a factory design team. Only a metallurgist could judge whether the aluminum of which it is made is suitable for its purpose. Even if the architect uses a timber window, it will be jointed with a synthetic resin adhesive which only a highly specialised organic chemist could specify.

Once again, the lesson is that we must go back to the basis of the subject. We must give up the attempt to pursue in an academic course the application of technology in every field of building. These applications will be better learnt by the young architect during his early years of practice, after leaving the school. Our task is to educate a man who can master these problems when he meets them. He needs to be sufficiently literate in physics and chemistry to relate materials and methods of construction to the needs of any particular job. He needs to be able to read and understand discussions of a scientific character and to know how to work with and learn from experts. We should have something to learn from the training of doctors in this matter. The medical profession has also had to face the transition from the days when the doctor mixed his own potions to the circumstances of to-day, when he has to prescribe medicine made by processes outside his experience and whose chemical structure he could not describe.

I have devoted a good deal of time to discussing the theoretical and didactic part of our education. I have done so because this is at present so weak, and not because I consider the other side, training in design, to be any less important. Design work in the studio is our strong point. Indeed there is much that might be learnt from this part of our work by other university departments. In the studio the student is continuously reminded of the one-ness of architectural design, and the barriers between art and science can be effectively broken down. Every problem set to the student can, and should be made to require some synthesis of the different facets of architecture. There are, however, two changes which we must introduce.

First, we must cease to regard drawing as the sole means of communication which architects can use. We must include exercises in which the results are presented in writing and in speech. We must educate architects to use all available methods in communication, and to understand something of the theory of this subject. Undue emphasis on drawing has tended to make architecture a closed shop, and to perpetuate the feeling amongst architects that they are a private group who cannot discuss the mysteries of their work with outsiders.

Second, and this is more important, we must recognise that training in design is not a form of teaching, but something quite different. Teaching involves facts and knowledge which are imparted to the students by a teacher. There are no facts about design, and we should not try to give lectures about it or write books about it. Books have indeed been written, and lectures given on this topic, but they are always disappointing to the student. Somehow they don't seem to tell you just how to design a beautiful building; its rather like the disappointment you feel on reading books about the art of love. Instead of trying to teach design we must go back to the lessons of the Bauhaus, and consider how best we can free students from the things that stop them being able to design. We have to clear away preconceptions, clichés, a whole mass of accretions, which prevent them seeing their problems freshly.

It is difficult to explain just what the essential character of architectural design is. I think it is rather like Nansen's voyage across the Polar ice cap. Nansen had a theory about polar drift. He believed that the ice moved in a particular way, across the North Pole, from East to West. He assembled all available knowledge on this subject and all the scientific data, but his thesis still remained incomplete, unproved. So he turned from thought to action—he designed and built a ship, embarked on it, and deliberately allowed it to become locked in the ice, to drift to his triumphant vindication—or to shipwreck.

The education of an architect should fit him to undertake his polar voyage. He must be capable of the devoted preliminary study, the analysis of every measurable factor, culminating in the imaginative total grasp of his problem. He must then have the courage and toughness to lock himself in the ice, to let the free working of his creative mind take him towards his goal. To survive the trials of the voyage he needs one other quality, moral and intellectual integrity. Mies van der Rohe, who succeeded Gropius at the Bauhaus, and is one of the greatest of living architects, said, "Reason is the basis of all human work. I throw out everything that is not reasonable, even things very dear to my heart. I don't want to be interesting, I want to be good."

All photos © Ezra Stoller Associates, except as noted

TRIPARTITE SCHEME FOR BANK, OFFICE BUILDING, AND GARAGE

The First City National Bank, Houston, Texas

ARCHITECTS: *Skidmore, Owings & Merrill*

CONSULTING ARCHITECTS: *Wilson, Morris, Crain & Anderson*

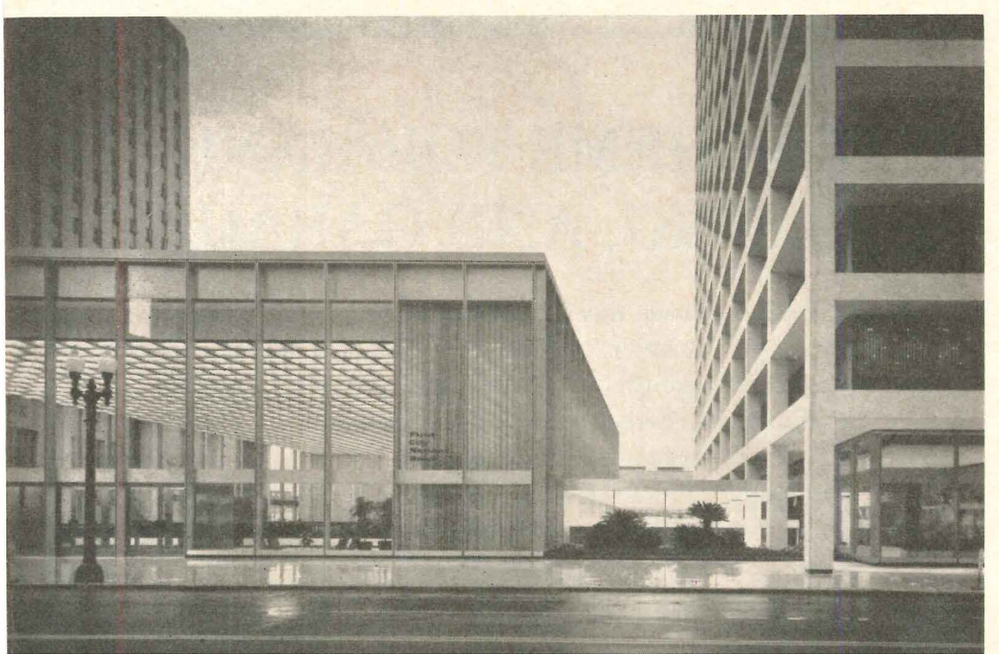
STRUCTURAL ENGINEER: *Robert J. Cummins*

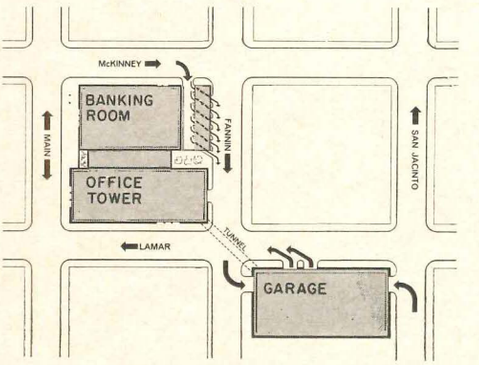
STRUCTURAL CONSULTANT: *Paul Weidlinger*

MECHANICAL ENGINEERS: *Jaros, Baum & Bolles*

CONTRACTOR: *W. S. Bellows Construction Corp.*

Bob Bailey



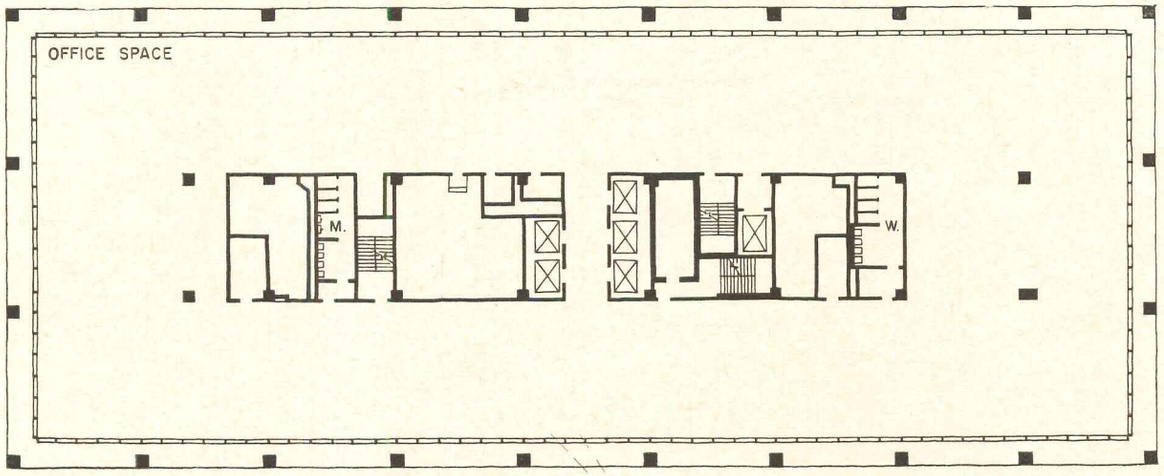


First City National Bank: Program and Parti

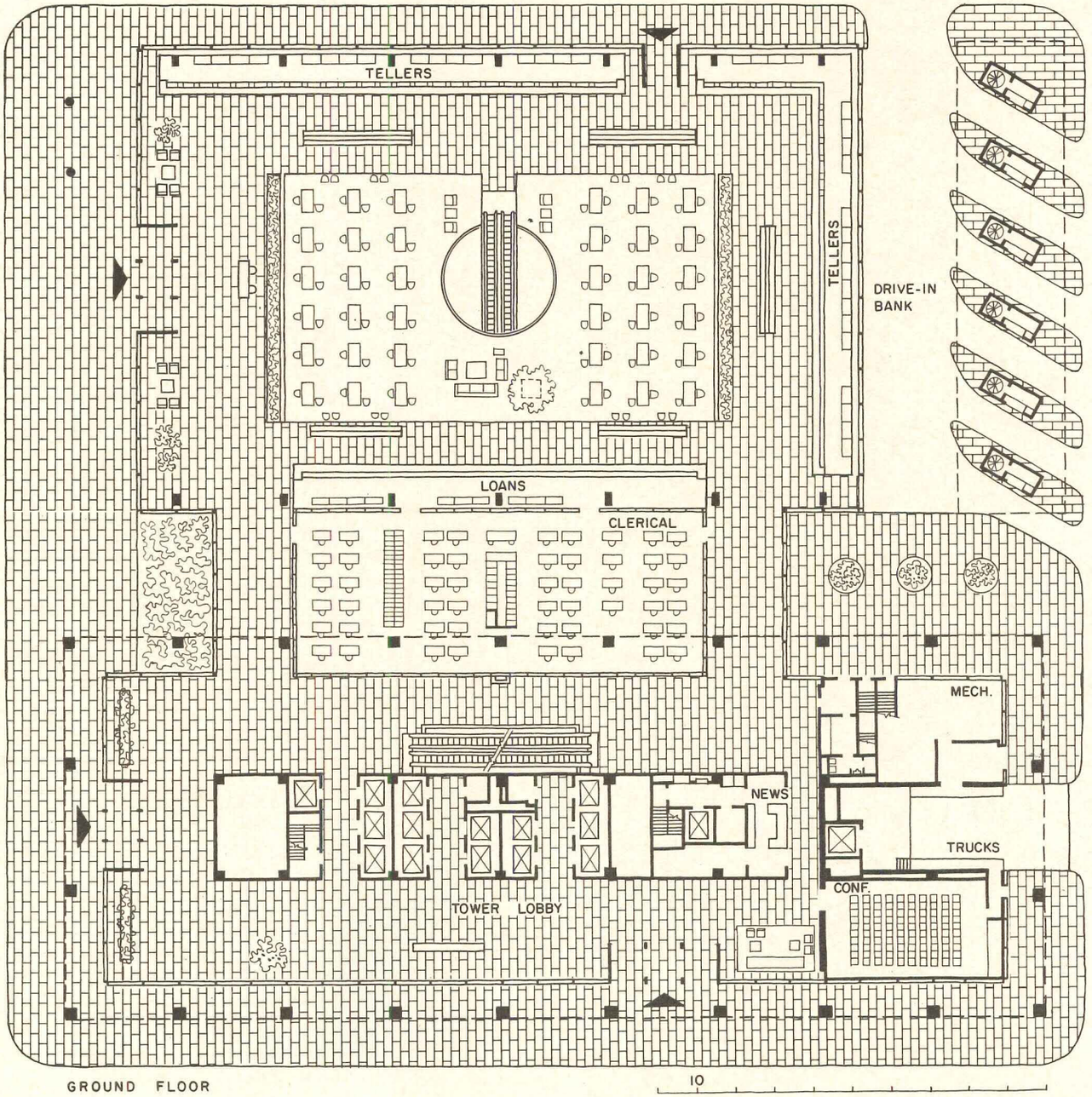
The several requirements of the owner and the nature of the site and subsoil led to the unusual—and successful—arrangement of the elements in this building group, which comprises bank, office building, and parking garage. The bank had to house 75 tellers and 36 officers' desks in one room on one floor; six drive-in windows were required; while in addition, the bank itself had to make a strong architectural statement. The 32-story office tower—which helps pay the freight—had to have entrances and an elevator lobby separated from (but used by) the bank, which devotes the second and third floors to executive offices. Due to subsoil difficulties, parking had to be above grade across the street.

The parti therefore consists of a separated banking room—190 by 123 ft, with a 30 ft ceiling—that appears as a handsome, elegantly detailed glass and aluminum pavilion, linked to the tower lobby by two glass-enclosed passages flanking a clerical and secretarial area; and the drive-in windows become a separate outdoor element serviced from below. Thus, the office building lobby and core do not cut into and spoil the character of the banking room—or vice versa—although the two are interrelated.

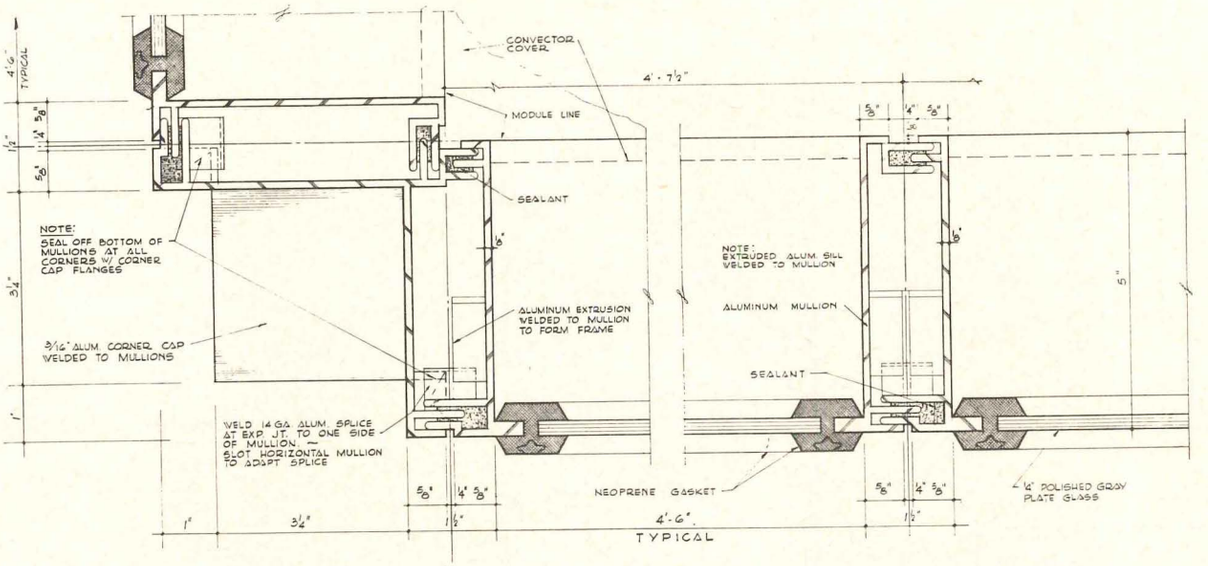
The welded steel cage of the office tower is clad in Vermont white marble; and the gray glass, neoprene, and aluminum window wall is set back five feet for sunshading and window cleaning—see details, page 158. The air-conditioning equipment occupies the top three floors of the tower.



TYPICAL FLOOR

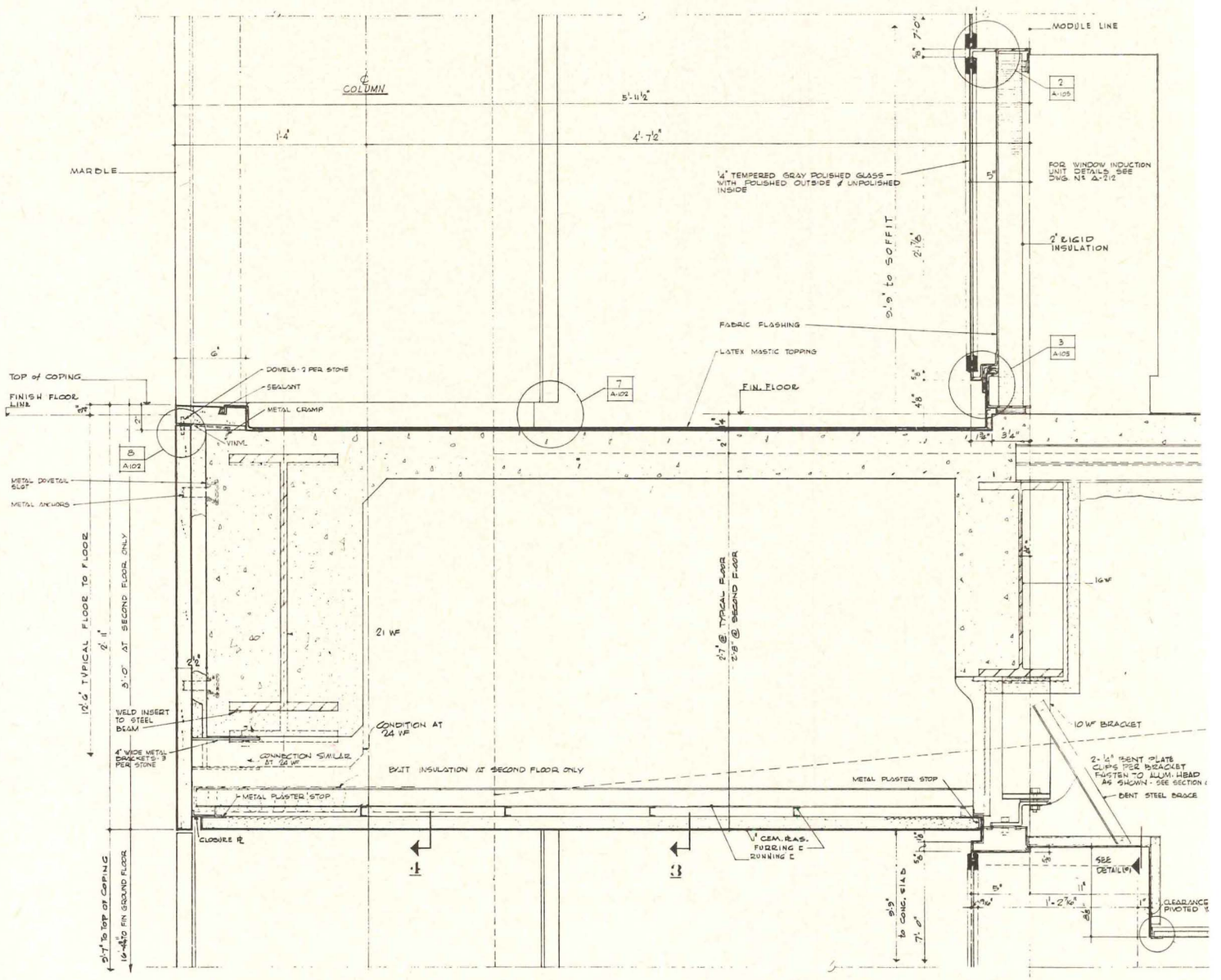


GROUND FLOOR

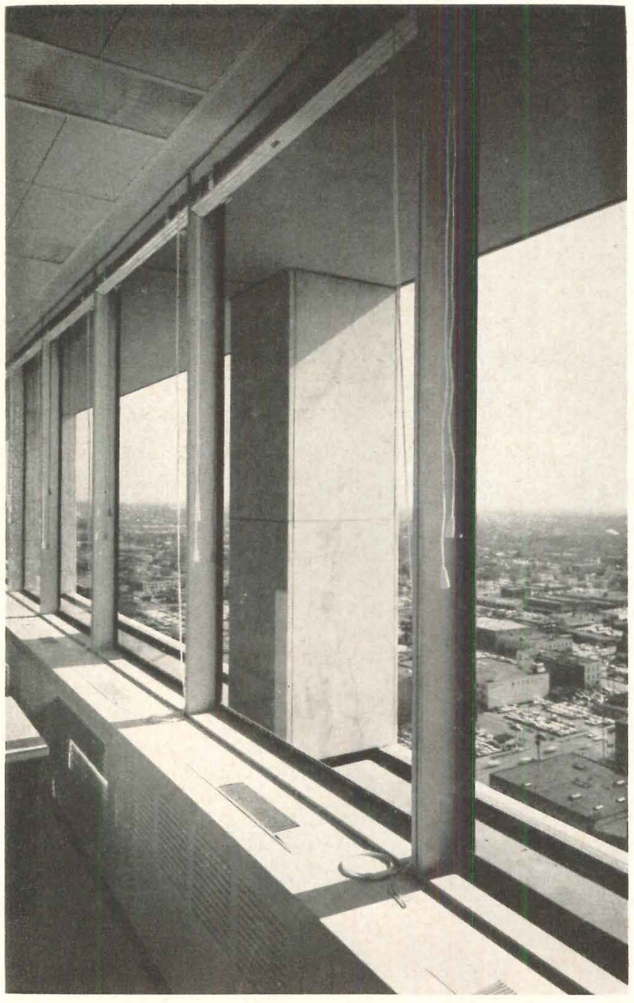


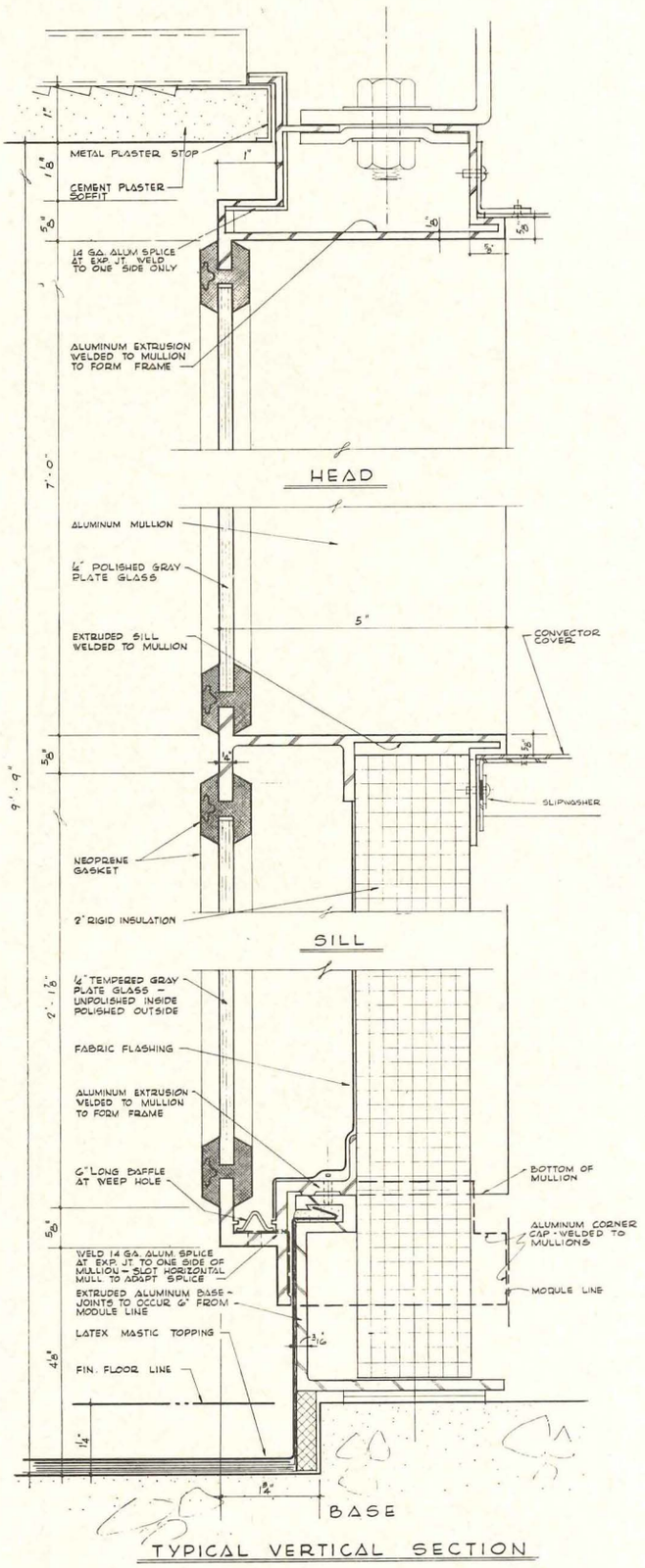
CORNER MULLION

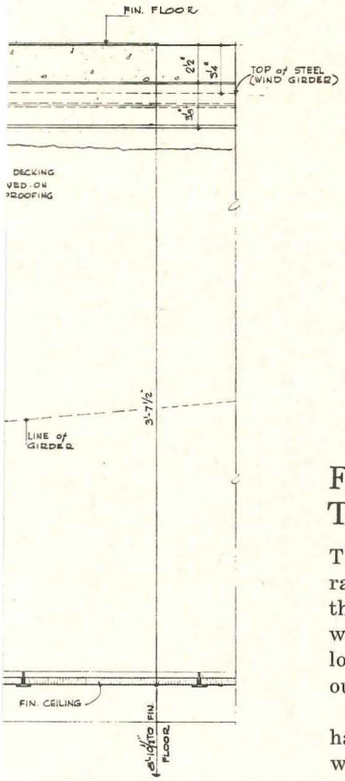
TYPICAL SECTION THRU WINDOW



TYPICAL SPANDREL SECTION



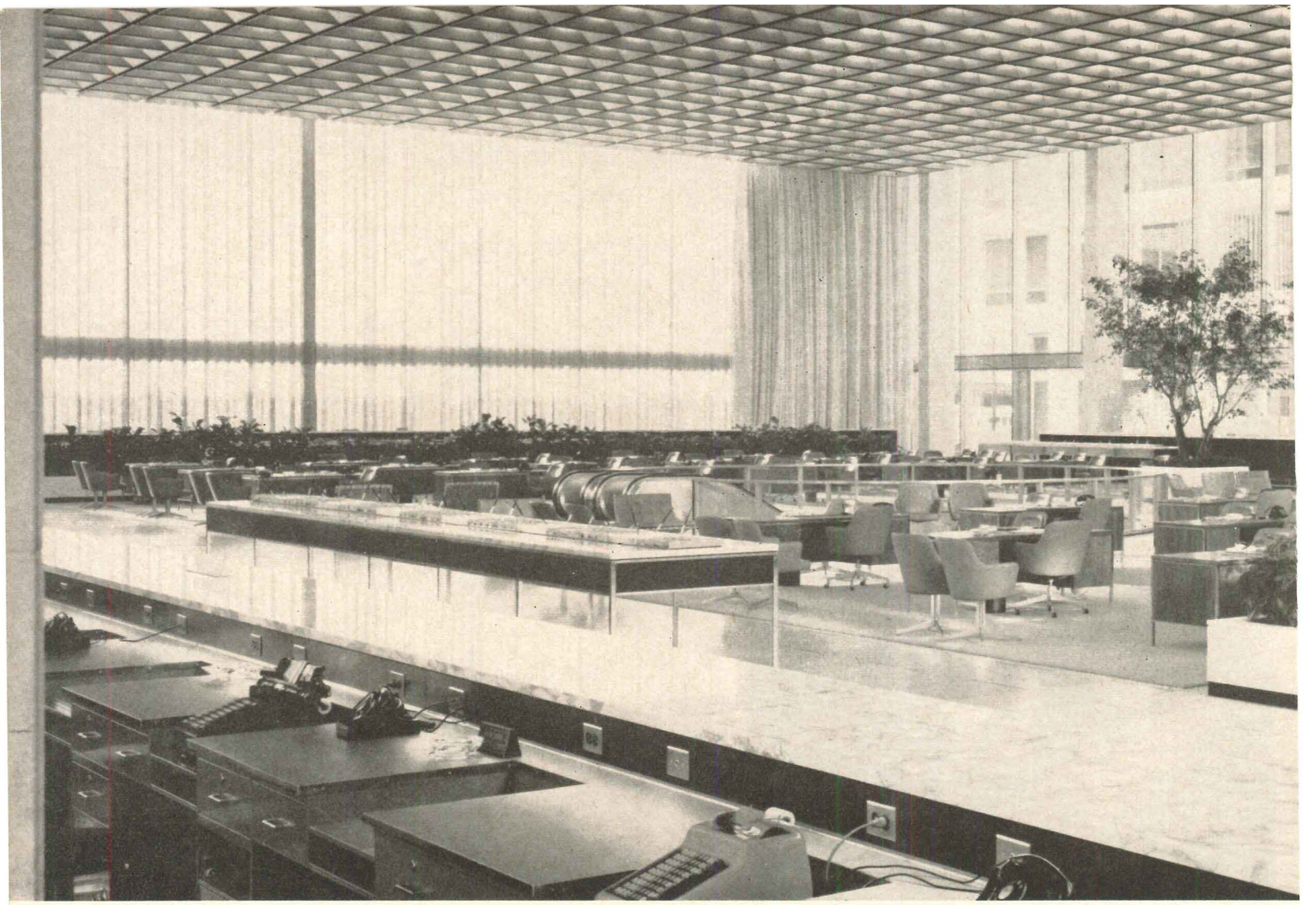


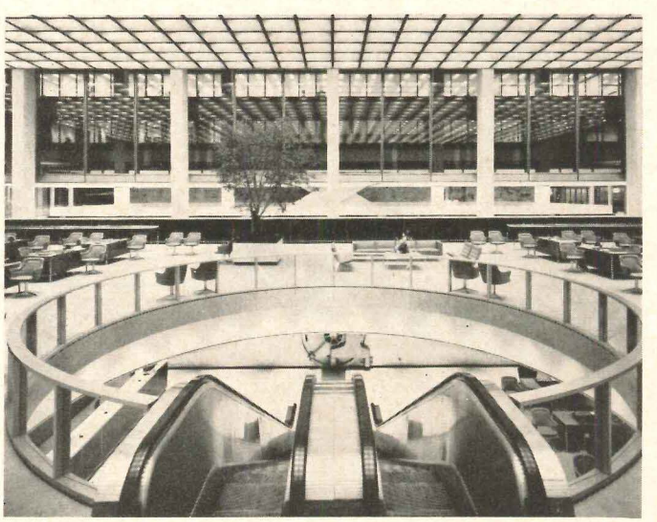


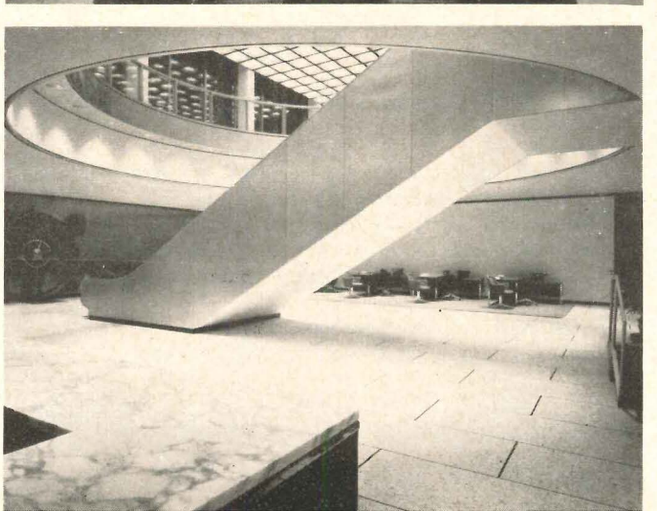
First City National Bank: The Curtain Wall

The recessed window wall is of the "split-mullion" type, conceived as a panel system rather than as stick construction. Neoprene compression gaskets—outside closed—hold the glass and, in covering a portion of the aluminum, visually reduce the apparent width of the mullions, with the result that the glass curtain has an unusually delicate look. The performance of the curtain wall was tested in full-scale mockup under rigorous conditions of wind and rain.

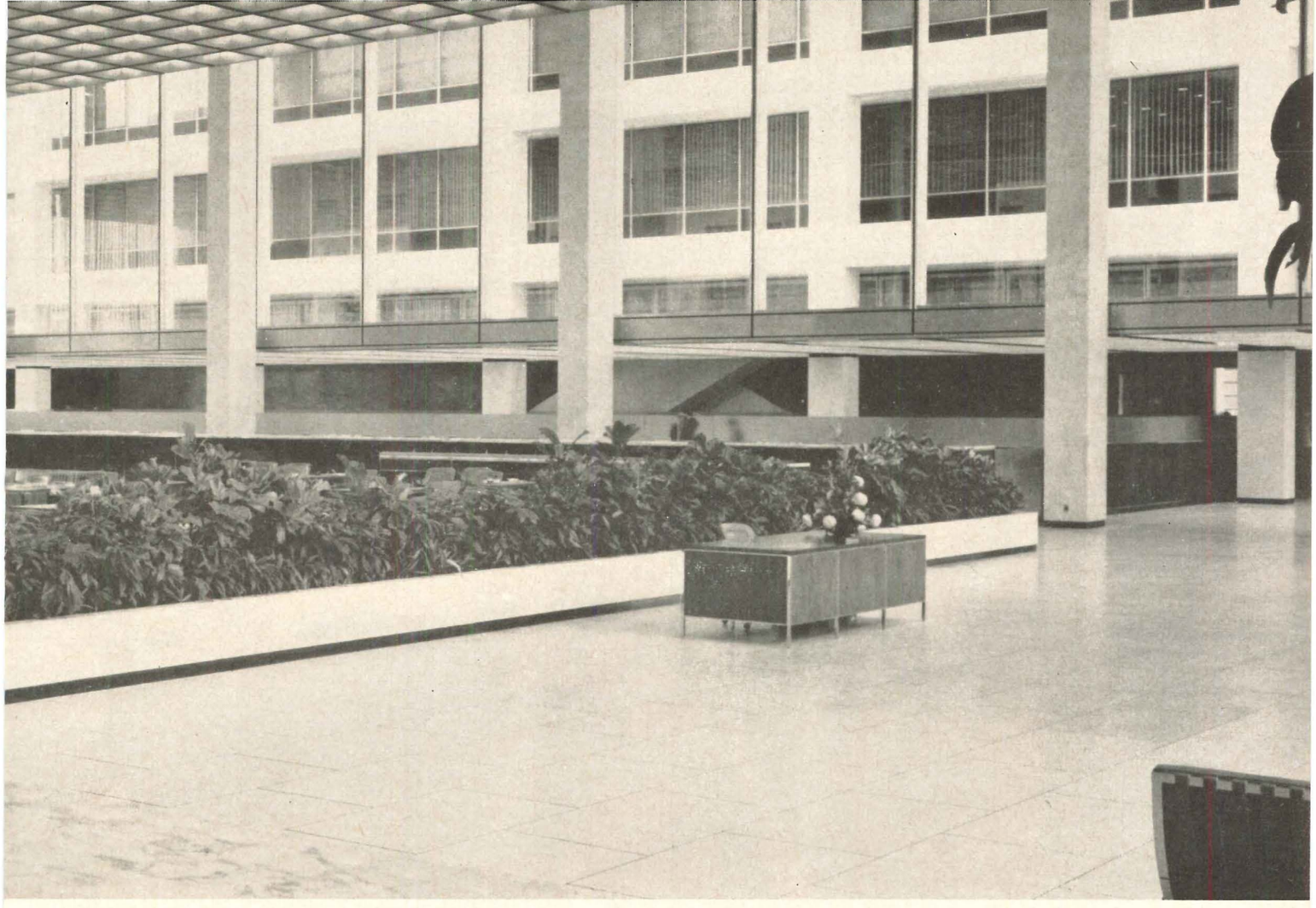
With the marble-clad columns set free of the wall, interior space is completely unhampered, sunshading cuts the air-conditioning tonnage, and window washers can work on the floor slab extensions







First City National Bank:
The Banking Pavilion

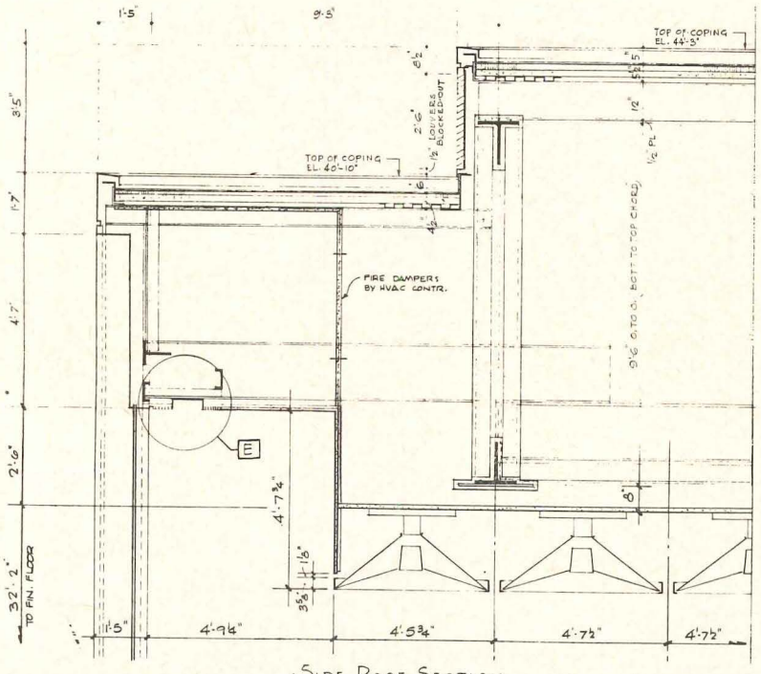


In the big, glass-enclosed banking pavilion, there are 365 ft of tellers' counters, with dies of Canadian black granite held in stainless steel surrounds, and with counter-tops of Italian Cremo marble. The officers' platform is carpeted in beige and holds 36 desks—architect designed—of teak and stainless steel; all chairs are upholstered in natural tan leather. The floor—which extends outward to cover the entire block to the curb lines—is of beige terrazzo with black plastic dividers. The ceiling is discussed in detail on the next page. Electric stairways extend through a circular well to link the bank to the lower level safe deposit vaults. The two photos immediately below show (left) the link between bank and office building, and (right) the office building entrance lobby and the three elevator banks.

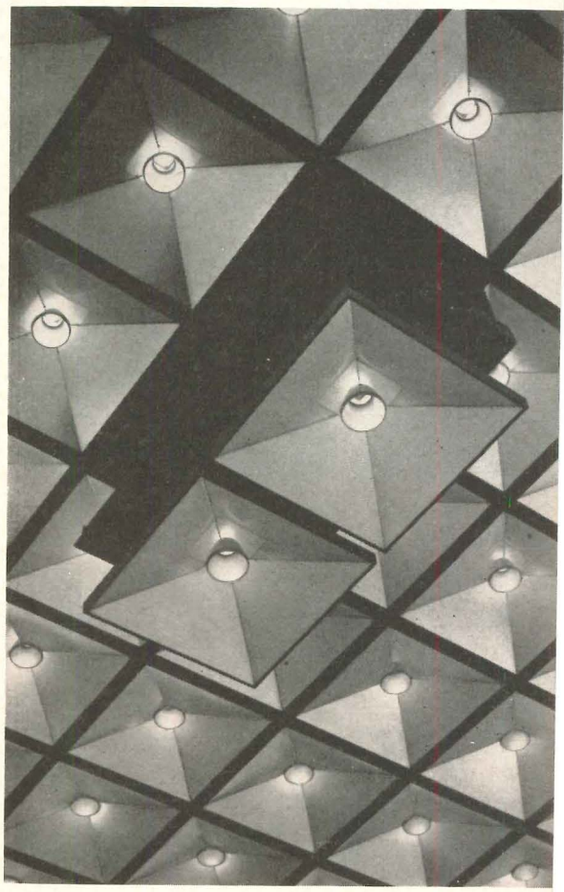
First City National Bank: Unique Ceiling

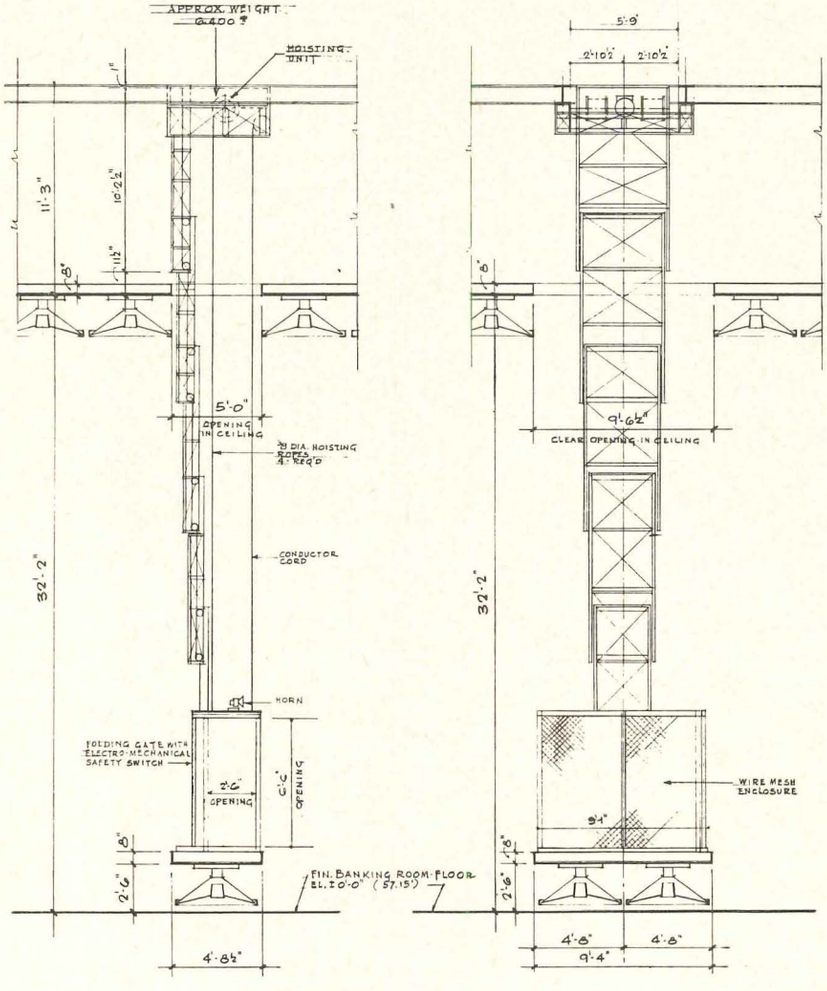
The banking pavilion ceiling—shown in detail on these two pages—is suspended from 9 ft 6 in. deep steel trusses that span the room, and hangs 30 ft clear of the floor. The ceiling grid pattern is 4 ft 4½ in. squares, within which 912 lighting fixtures are placed. A typical fixture consists of a double pyramid of perforated aluminum, gold anodized, within which the light source is arranged to cast illumination both downward and on the ceiling itself. The resulting glow of warm light is most effective, especially as it tends to balance the flood of daylight from all sides.

Air-conditioning equipment for the banking room could be located only above the ceiling. For maintenance, a telescoping hoist was installed in a two-square opening near a corner of the pavilion. Catwalks are provided for equipment servicing.



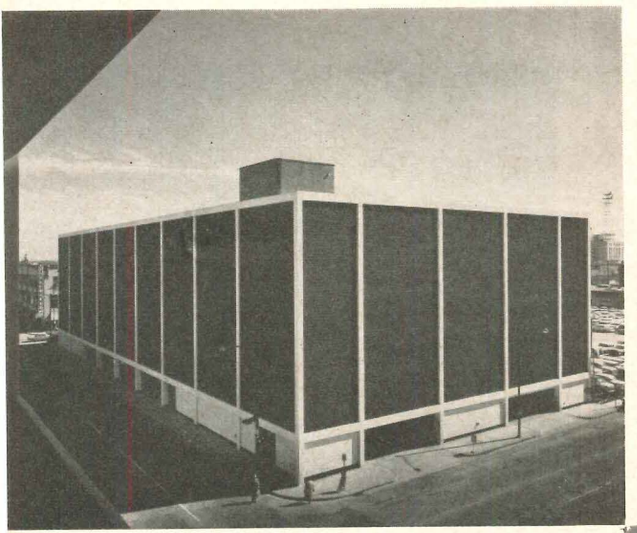
• SIDE ROOF SECTION • EAST & WEST





• SECTIONS THROUGH 500# CAPACITY ELECTRIC LIFT •

Appropriately enough, considering its location, the owners can boast of several Texas-sized facts about their new bank: the largest ½ in. plate glass panels (9 x 23 ft) ever manufactured and installed in a building; the two tallest stainless steel flagpoles (they extend 100 ft above the sidewalk) rising anywhere; the biggest banking room (23,370 sq ft) designed to date by SOM; and (of course) the only illuminated ceiling anyone ever heard of that has its own elevator!



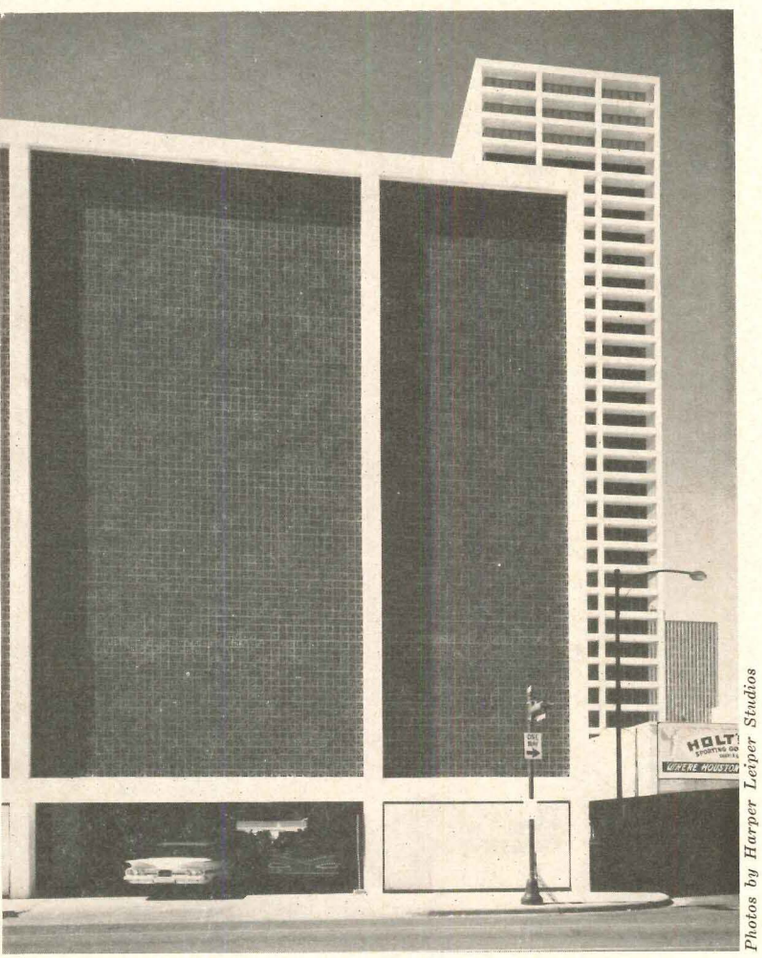
THE PARKING GARAGE

First City National Bank, Houston, Texas

ARCHITECTS: *Wilson, Morris, Crain & Anderson*

STRUCTURAL ENGINEER: *Robert J. Cummins*

PARKING CONSULTANT: *Wilber Smith & Associates*

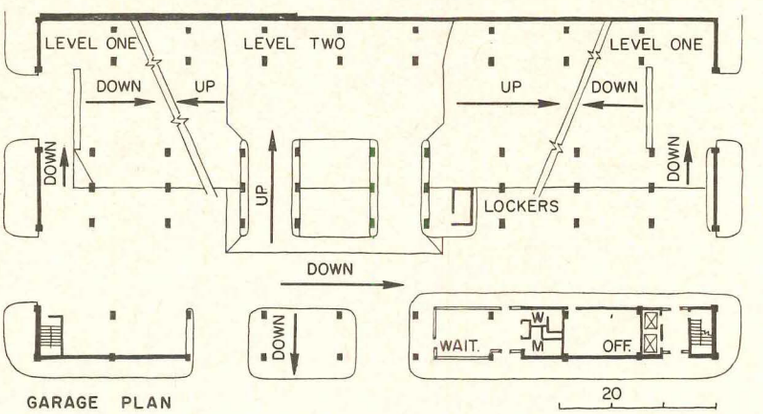


Photos by Harper Leiper Studios

The 800-car parking garage—located diagonally across the street from the bank and tower, and linked to both by a tunnel—consists of a series of seven overlapping, staggered floors. Short ramps are arranged so the driver moves continuously up on one side, or down on the other, with no cross movement. The traffic flow relates to surrounding streets and the pattern of city traffic movement.

The 250 by 125 ft structure features an exposed concrete frame, which is coated with white vinyl. The staggered lines of the floors are concealed behind a perforated screen of charcoal gray tile which recalls the gray glass of the office building. Infilling panels at street level are of the same Vermont white marble that sheathes the tower.

In the main, the garage is designed for self-parking, and is operated by five men. Sufficient facilities are provided so that parking is available to bank customers, bank personnel, office building tenants and visitors, and the public.



GARAGE PLAN

Joseph W. Molitor

FIVE ZONE HOUSE WITH MUCH STYLE FOR $26,000

OWNERS: *Mr. and Mrs. Frank S. Godfrey*
LOCATION: *Sarasota, Florida*
ARCHITECT: *Edward J. Seibert*
MECHANICAL ENGINEER: *L. H. V. Smith*
CONTRACTOR: *William V. Blanton*

Joseph W. Molitor

Godfrey House

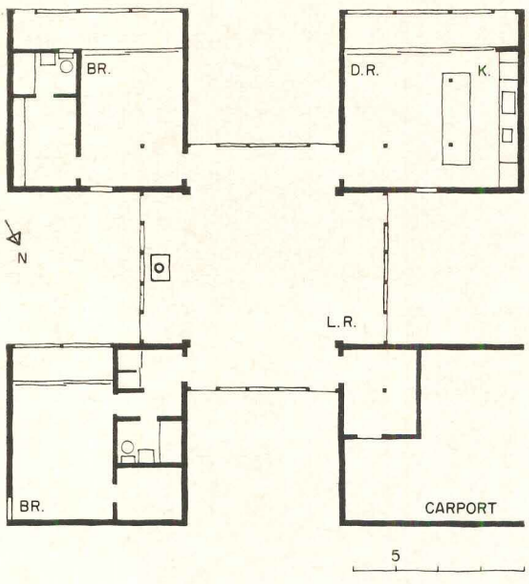
A great clarity of concept in both plan and structure gives a vivid impact in this spacious, yet economical house. It was designed principally as a winter house for an older couple who like to entertain, and who have occasional house guests.

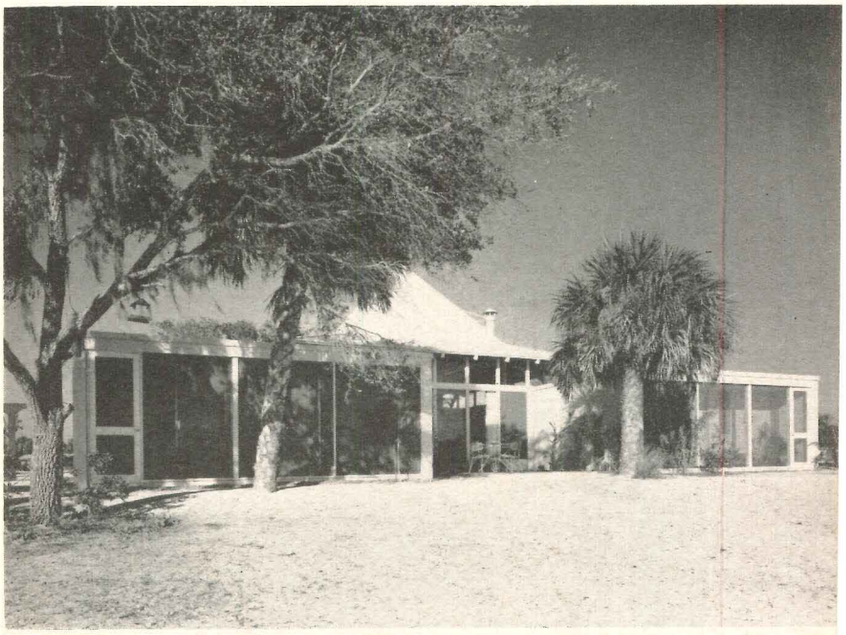
Each of the five main functions of the house is housed in its individual "cube", with the larger and dominant one for entertaining used to link the group together. The four corner "cubes" contain: master bedroom suite; guest suite; family room for sitting, cooking and dining; mechanical equipment, storage and automobiles.

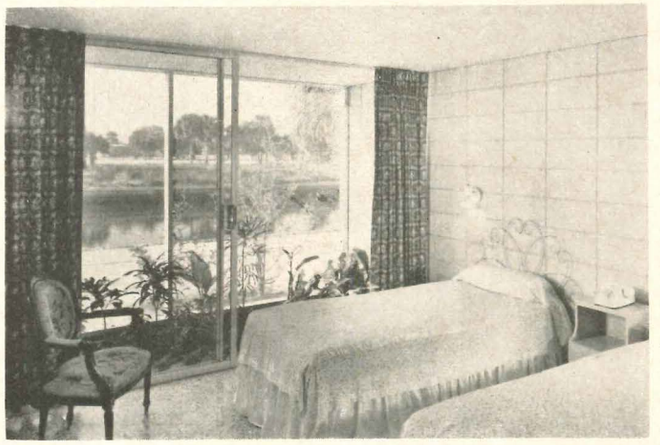
The site is sandy and flanks a water inlet. Thus major landscaping was confined, for best effect and ease of upkeep, to the four little courtyards created by the corner "cubes", and to small screened-in gardens in each of the "cubes" used for living areas. The courtyard as the front serves as a sort of foyer to the house.

The tall, airy central pavilion for entertaining is designed to be light and breezy in the warm Florida weather. A series of solid doors on all sides can be opened at an angle to keep out glare, yet let in breeze. For colder weather, there is an oil-fired furnace with underground ducts and thermostat controls. Kitchen and bath also have electric heaters and exhaust fans.

The frame is fir, with reinforced concrete foundation, terrazzo floors, concrete block walls, asbestos cement shingle roof.



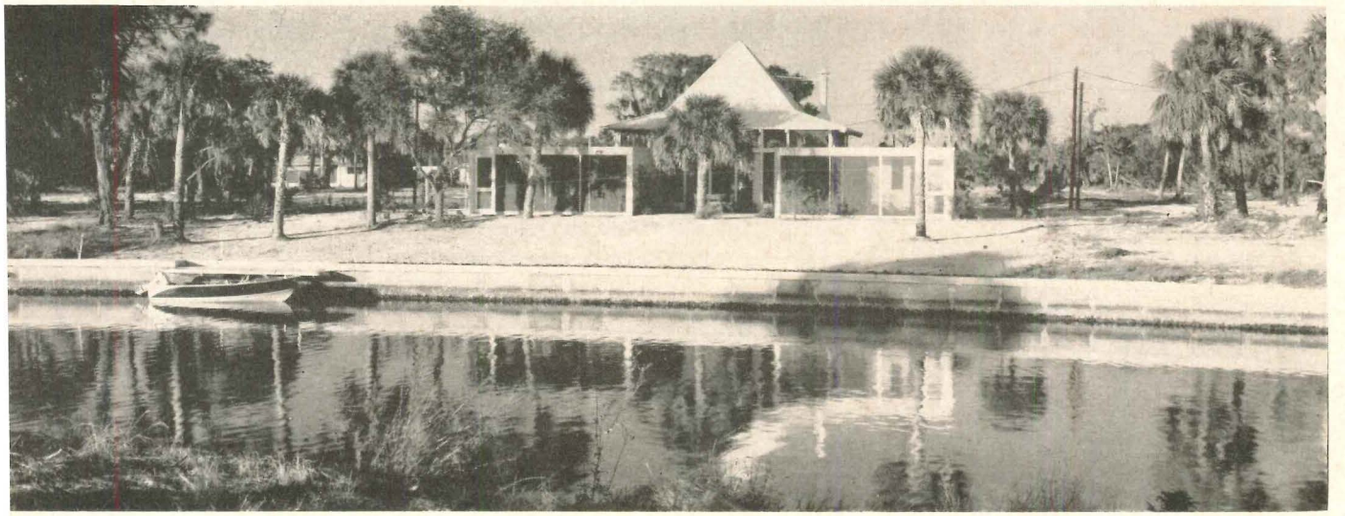




Godfrey House

All living spaces have good vistas, both long range, and little gardens close at hand. All openings have overhangs to cut glare. The interiors at left (top to bottom: living room, master bedroom, and family room) are finished in latex-painted gypsum board and concrete block. The exterior walls are coated with vinyl epoxy masonry paint. The sliding screens and glass are in aluminum frames. Jalousies are wood, doors are flush plywood. The fireplace in the living-entertaining area is a pre-fabricated unit. Kitchen counters are laminated plastic; range and oven are built-in.

Joseph W. Molitor



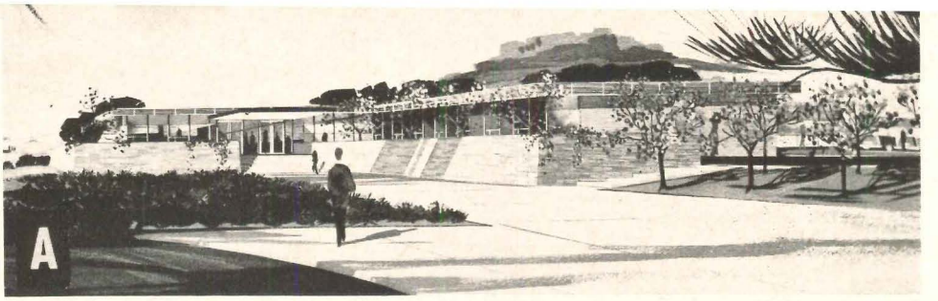
1. CORRECTIONAL INSTITUTION
2. METHODIST DAY CARE CENTER
3. SCHOOL FOR GIFTED CHILDREN
4. BOARDING SCHOOL FOR DEAF
5. SCHOOL FOR MENTALLY RETARDED
6. MULTIPLE-HANDICAPPED CENTER
7. ROMAN CATHOLIC HIGH SCHOOL
8. EPISCOPAL TWELVE-YEAR SCHOOL

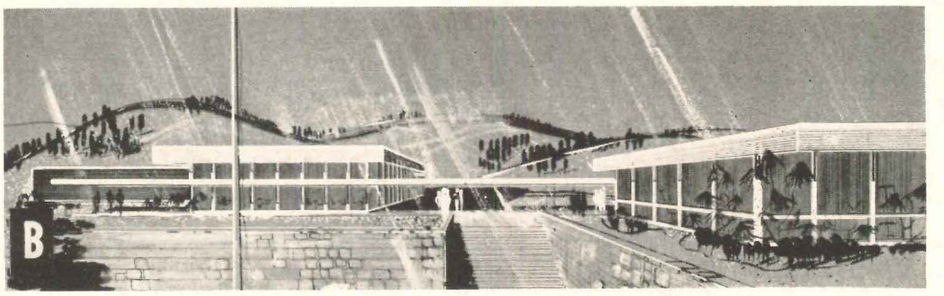
SPECIAL SCHOOLS

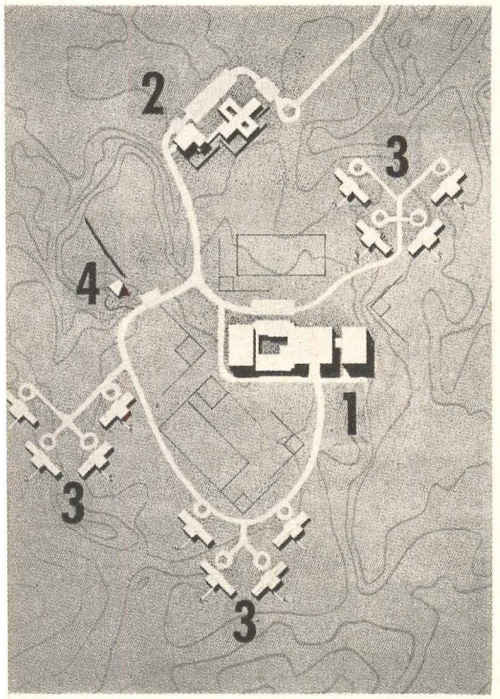
BUILDING TYPES STUDY 293

®

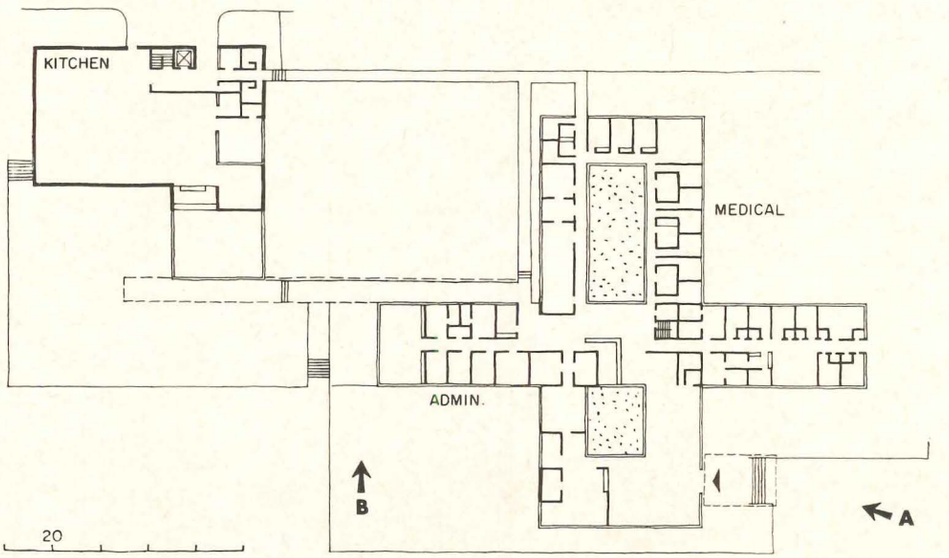
Children, of course, are the actual clients of the architects who do school buildings. And children come in various shapes and sizes, equipped with varying abilities and potentials, possessed of a variety of problems and needs. All of the schools shown in these pages attempt to provide for some of the special needs of the children who use them. All attempt to afford these children some of the benefits of the special educational methods and facilities they need. Other than this, the schools shown may seem—at first glance—to have little in common with each other or with more normal schools. In actuality, much can be learned from these examples about the planning of the special types shown. Vastly more important though is the opportunity to look at these special facilities, keeping in mind that the particular needs present in the children who use them are present in some degree in many of the children in all of our schools.







1. Academic and Maintenance
2. Administration and Food Service
3. Residential Cottages
4. Chapel



Plan: Administration and Food Service

Special School:
1. SOCIAL REHABILITATION OF DELINQUENT BOYS

Kettle Moraine School for Boys

LOCATION:
Plymouth, Wisconsin

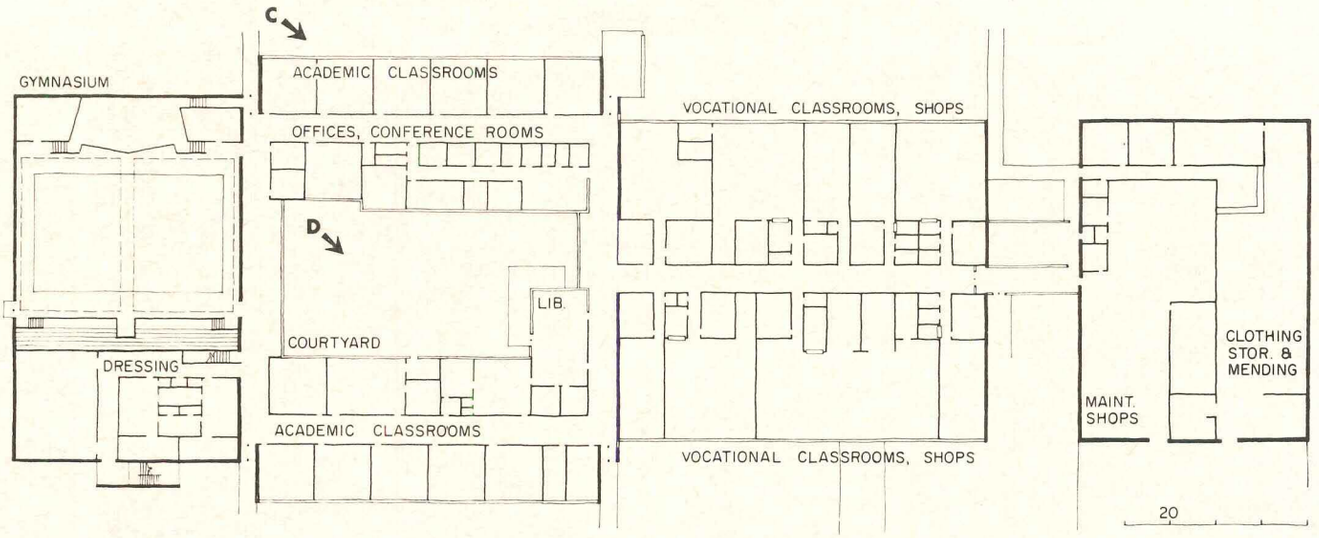
ARCHITECTS & ENGINEERS:
J & G Daverman Company

CONTRACTOR:
Hutter Construction Co.

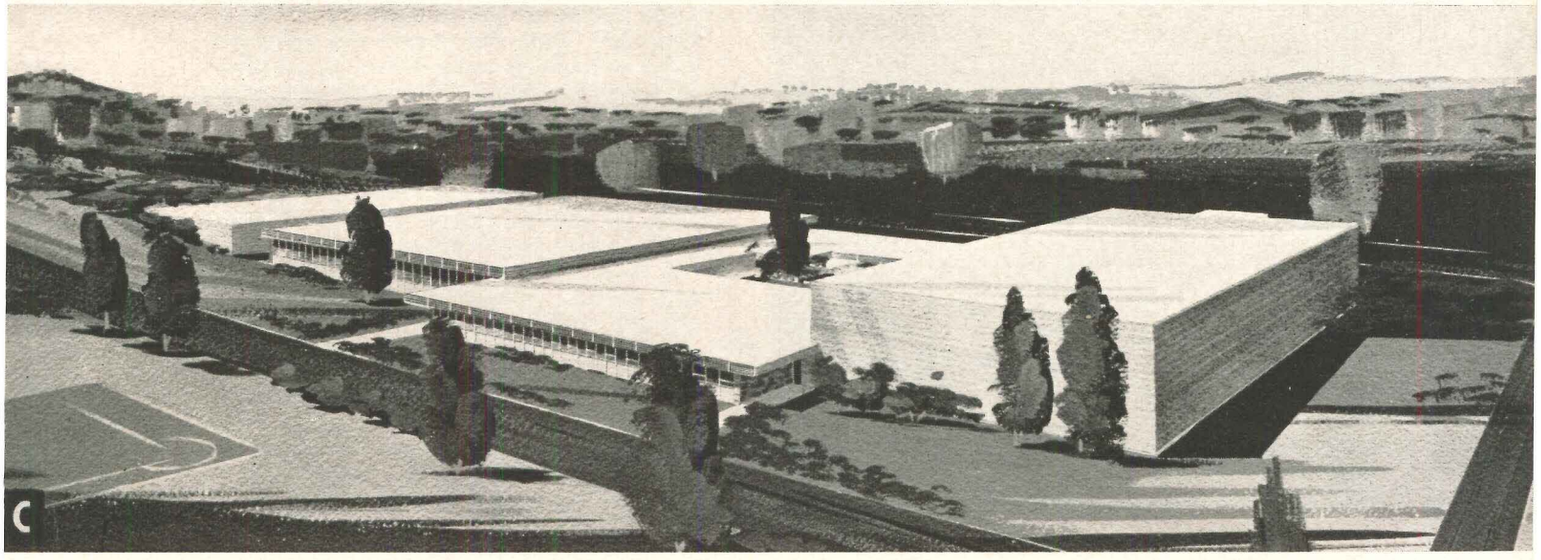
This new correctional institution will eventually house 300 teen-aged boys committed by juvenile courts. It is dedicated to the reclaiming and educating of the delinquents it houses, rather than to their punishment. In a sense, the entire institution is a school in which boys learn to take their places in society and to work at a trade or prepare to go on to college. In many ways, the school is similar to private schools, but the high degree of authority exercised by school officials and mandatory attendance bring about certain significant differences.

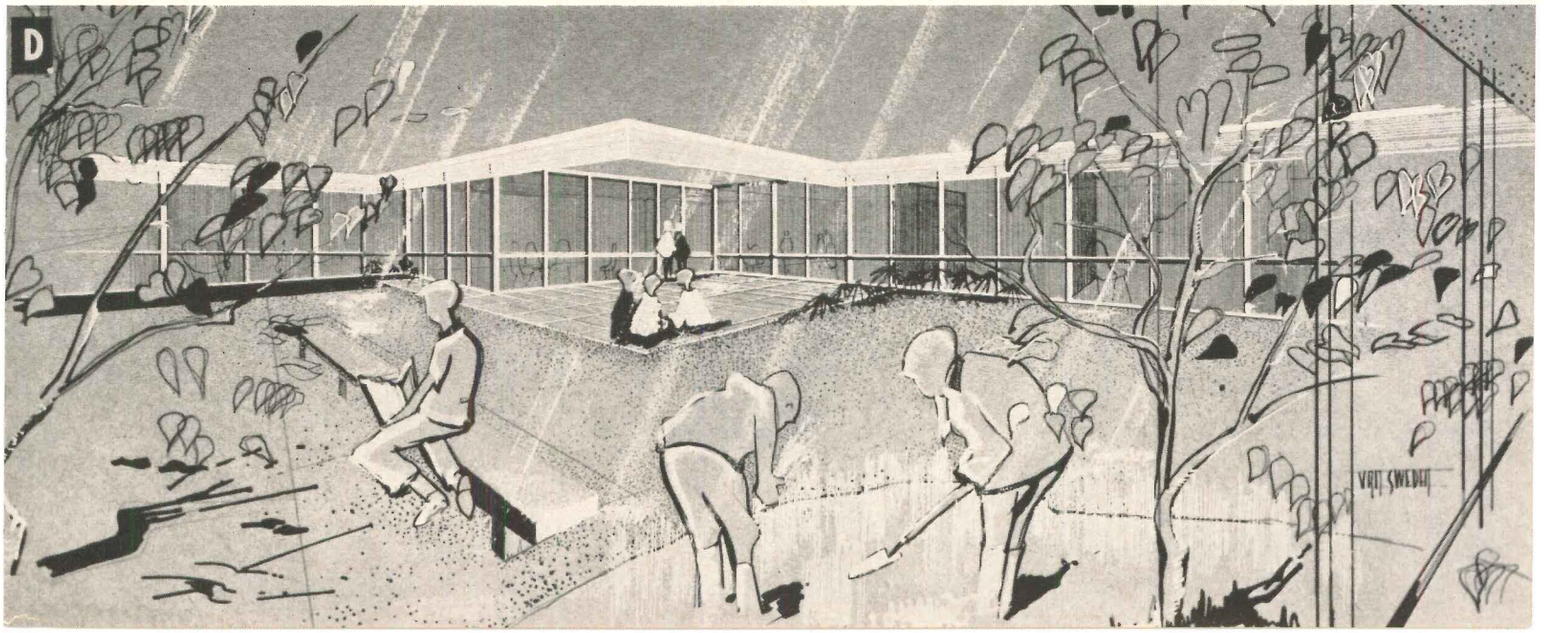
In discussing the design, the architects of the school say, "rehabilitation and education were given priority over custodial and security considerations. After studying several schemes, we developed the concept used, a campus scheme with clusters of relatively small cottages grouped around the academic building and other facilities. This design, with its cottage activity areas and outdoor courts, allows boys to be placed according to their individual emotional and maturity levels. It lends itself to the creation of homogeneous groups. Certain advantages derive from this, such as the possibilities for competition of boys within the clusters and the esprit de corps which comes from competition with other cottages and clusters."

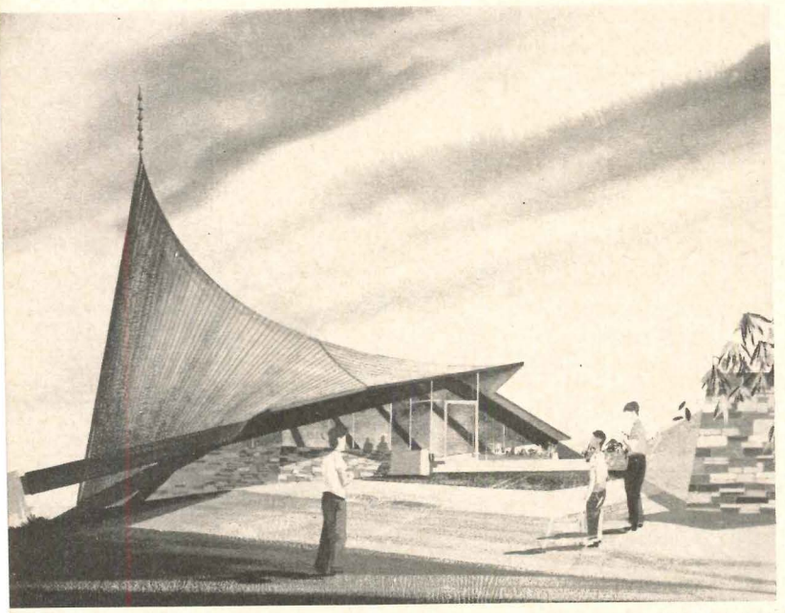
Wisconsin State Director of Corrections, Sanger B. Powers says of the school, "to be effective, the school must make sure that each boy is learning something worthwhile during his every waking moment. He must not feel that he is being submerged in an impersonal institution. This efficient plant is geared to the rehabilitation of youth."

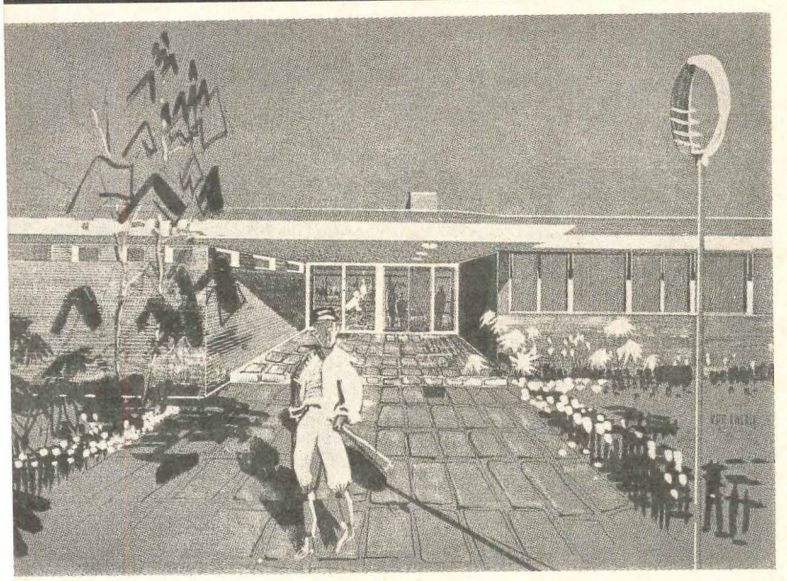


Plan: Academic and Vocational Building, Maintenance



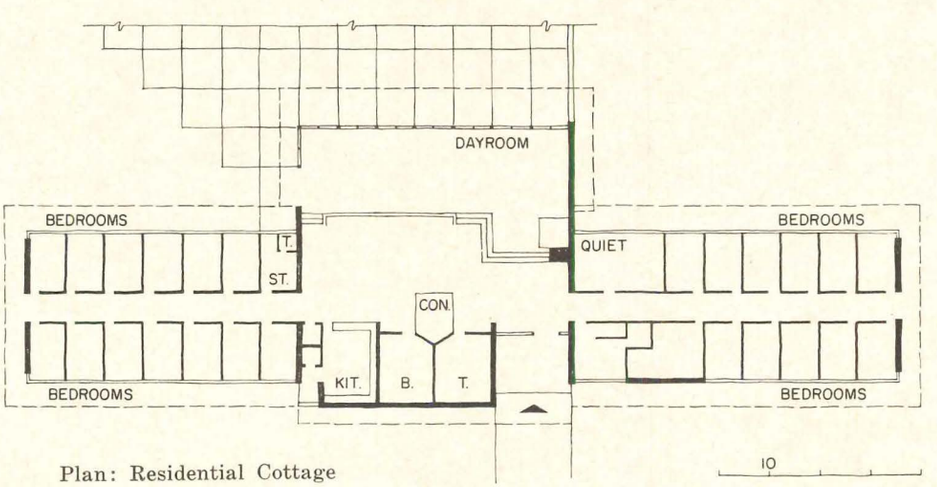




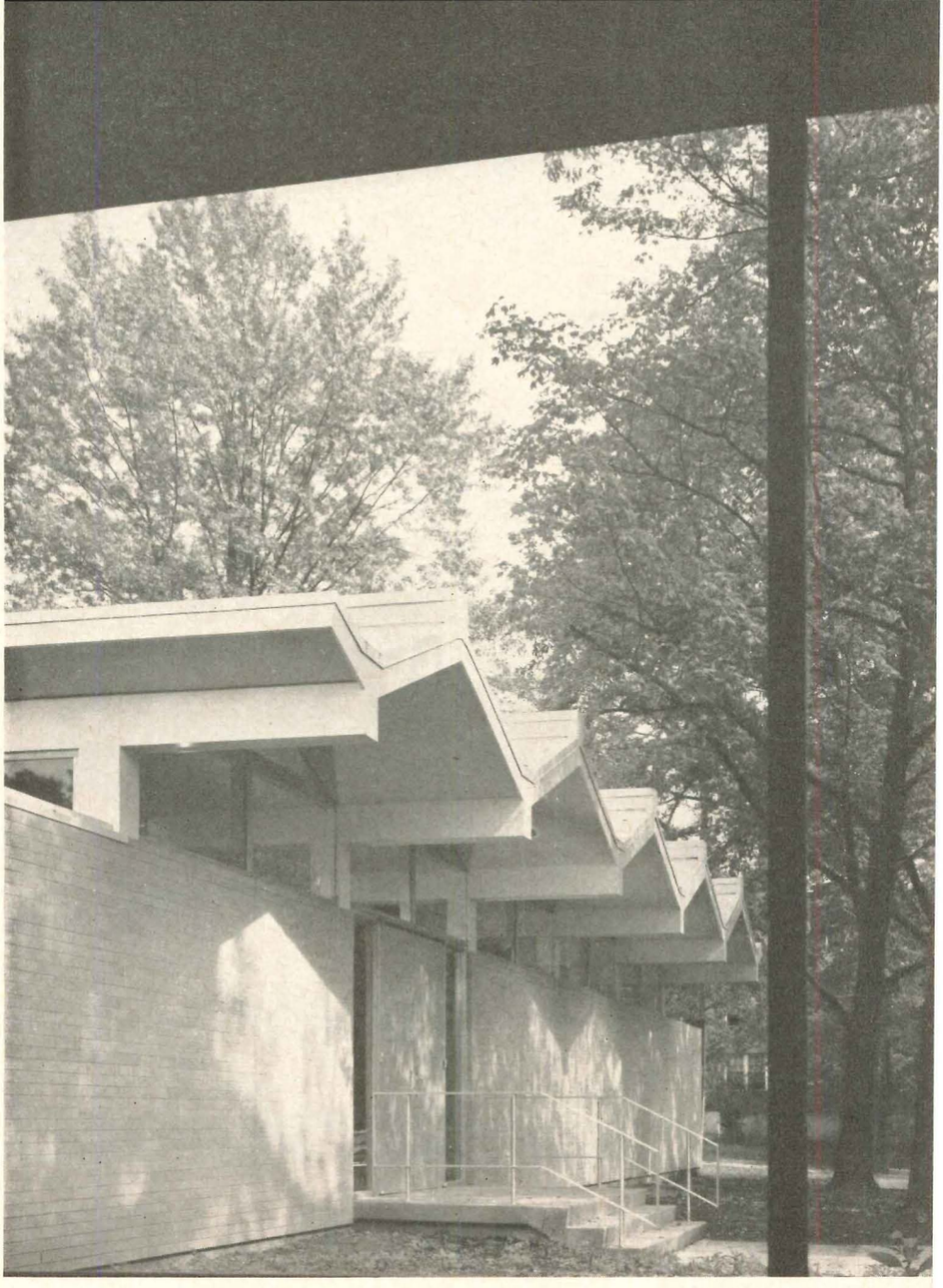


Wisconsin School for Boys

In the process of educating the whole boy, every element of the institution must play an important part. The chapel and residential units at Kettle Moraine School were designed as integral parts of the overall educational scheme, thus allowing the process of rehabilitation to go forward 24 hours a day. The chapel, (left, top) seats 200. On the floor below the chapel proper is a large meeting room used for club and hobby activities. Adjacent to this space are the chaplain's offices. Below the chapel illustration is shown the entrance to a typical residential unit. The plan (below) of each of the units provides private rooms for 24 boys. There will be three neighborhoods, each composed of a cluster of four cottages. Thus, each boy will be part of three communities, of varying in size from the smallest—that of the cottage, through the next larger, the neighborhood cluster to the largest—that of the school as a whole



Plan: Residential Cottage



Joseph Molitor photos

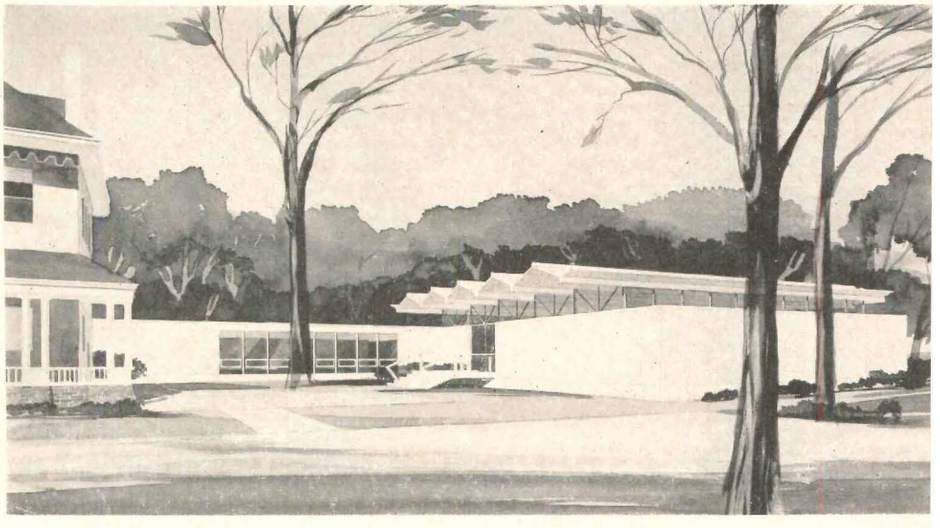
Special School:
2. DAY CARE FOR UNDERPRIVILEGED CHILDREN

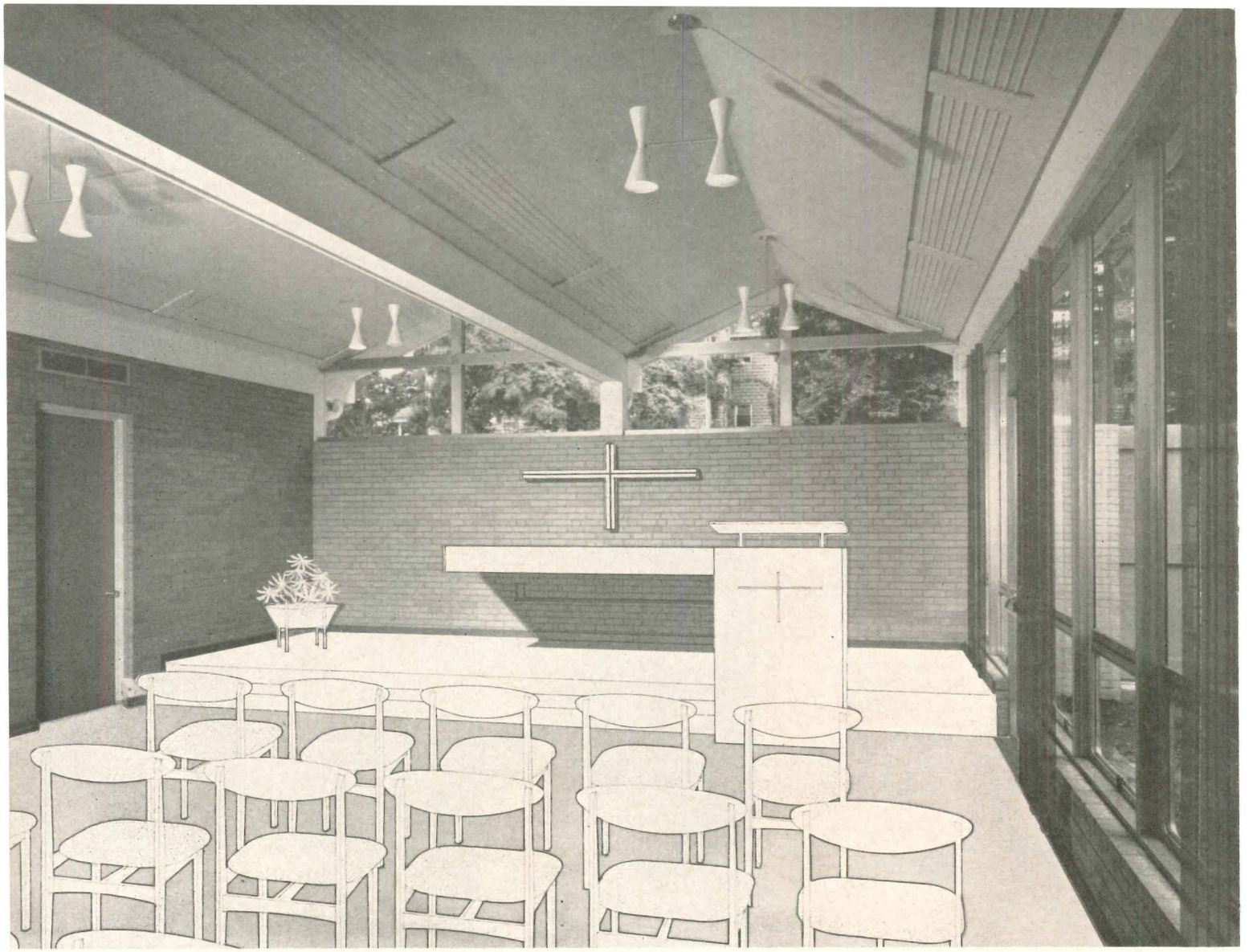
Wesley Child Care Center

LOCATION:
Cincinnati, Ohio

ARCHITECTS & ENGINEERS:
A. M. Kinney Associates-
Charles Burchard, Architect

CONTRACTOR:
Meyer-Hecht Company



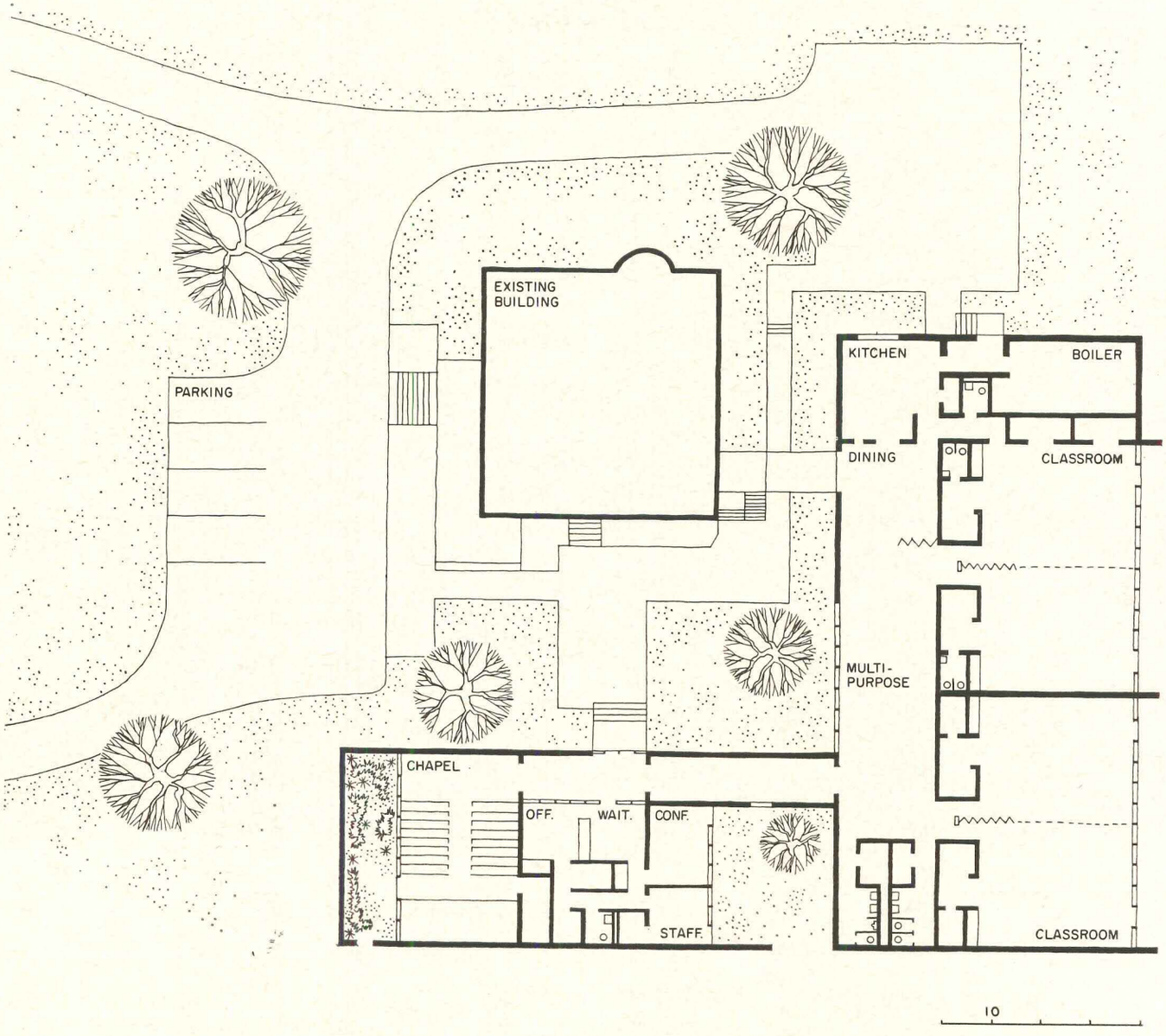


Center provides program of planned activities for children of working mothers

This child care center, sponsored by the women of the Methodist Church, provides all-day care for preschool children and after school care for school children up to the age of ten. The center operates as a charitable institution for working mothers who cannot afford care for their children during the day. While there are no formal classes as such—the program consisting of activities only—the center has much in common with other types of schools, and some problems uniquely its own.

The architects, speaking of the program, say this, "the center was designed to accommodate 80 children between the ages of two and ten. In many ways, the requirements were similar to those of a kindergarten-elementary school. However, since the emphasis is on the activity program, the classroom spaces were designed for variable uses, adaptable to needs as they occur. This is in accordance with the multiple activity concepts of present-day child care. All rooms contain built-in work tables and ample storage areas. Through the use of folding doors, rooms may be divided for certain activities such as afternoon naps, or combined into larger spaces.

"Each of the classrooms has direct access to the outdoor play areas, which are located as far as possible from the street. The building was zoned to allow noisy functions to take place in one area while quieter activities are going on in another. In order to create what seemed like the proper environment for the children, the center was designed as a bright, orderly, clean space."


EXISTING
BUILDING
PARKING
KITCHEN
BOILER
DINING
CLASSROOM
MULTI-
PURPOSE
CHAPEL
OFF.
WAIT.
CONF.
STAFF.
CLASSROOM
10

Robert Earl Cardoff photos

Special School:
3. INDIVIDUALIZED TEACHING FOR GIFTED CHILDREN

City and Country School

LOCATION:
Bloomfield Hills, Mich.

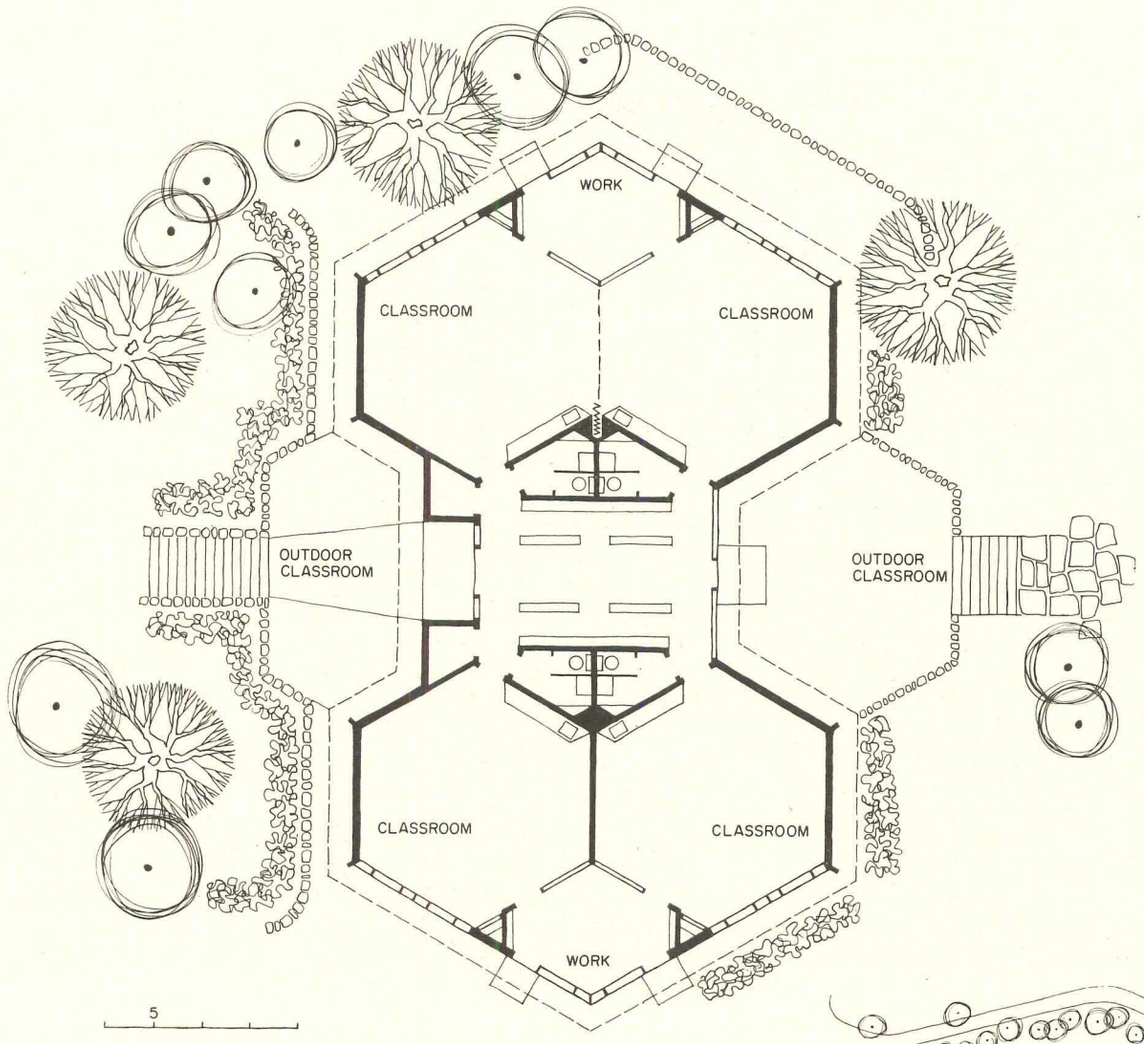
ARCHITECTS:
Begrow & Brown

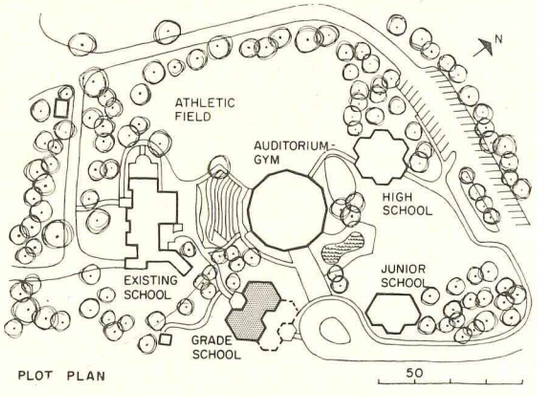
MECHANICAL & ELECTRICAL ENGINEER:
Robert G. Caughey

CONTRACTOR:
Beckner Construction Co.

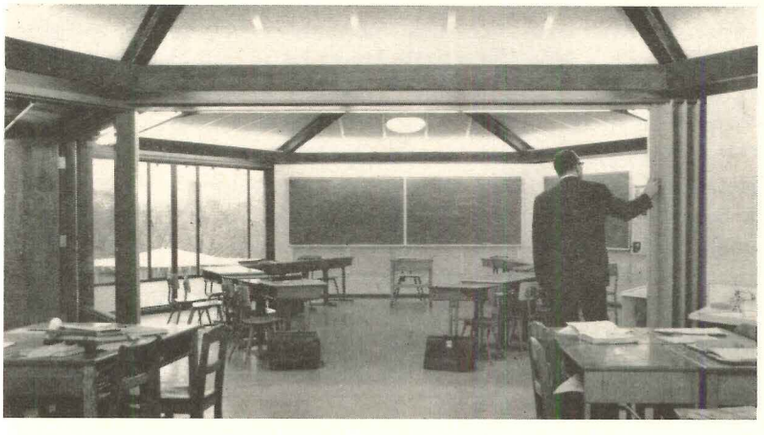
The special considerations in the design of a school for gifted children are no fewer than those present in schools for children with physical, moral, or mental problems. In the school shown here, only children with very high IQ's or unusual talents are admitted. At present, the curriculum runs from kindergarten through the eighth grade, but eventually it will be expanded to include high school. In discussing the characteristics of the school, the architects say, "teaching is highly individualized and advancement in the grades is based on individual progress. In order to accomplish the close supervision for such a program, there are 22 teachers for the 240 pupils.

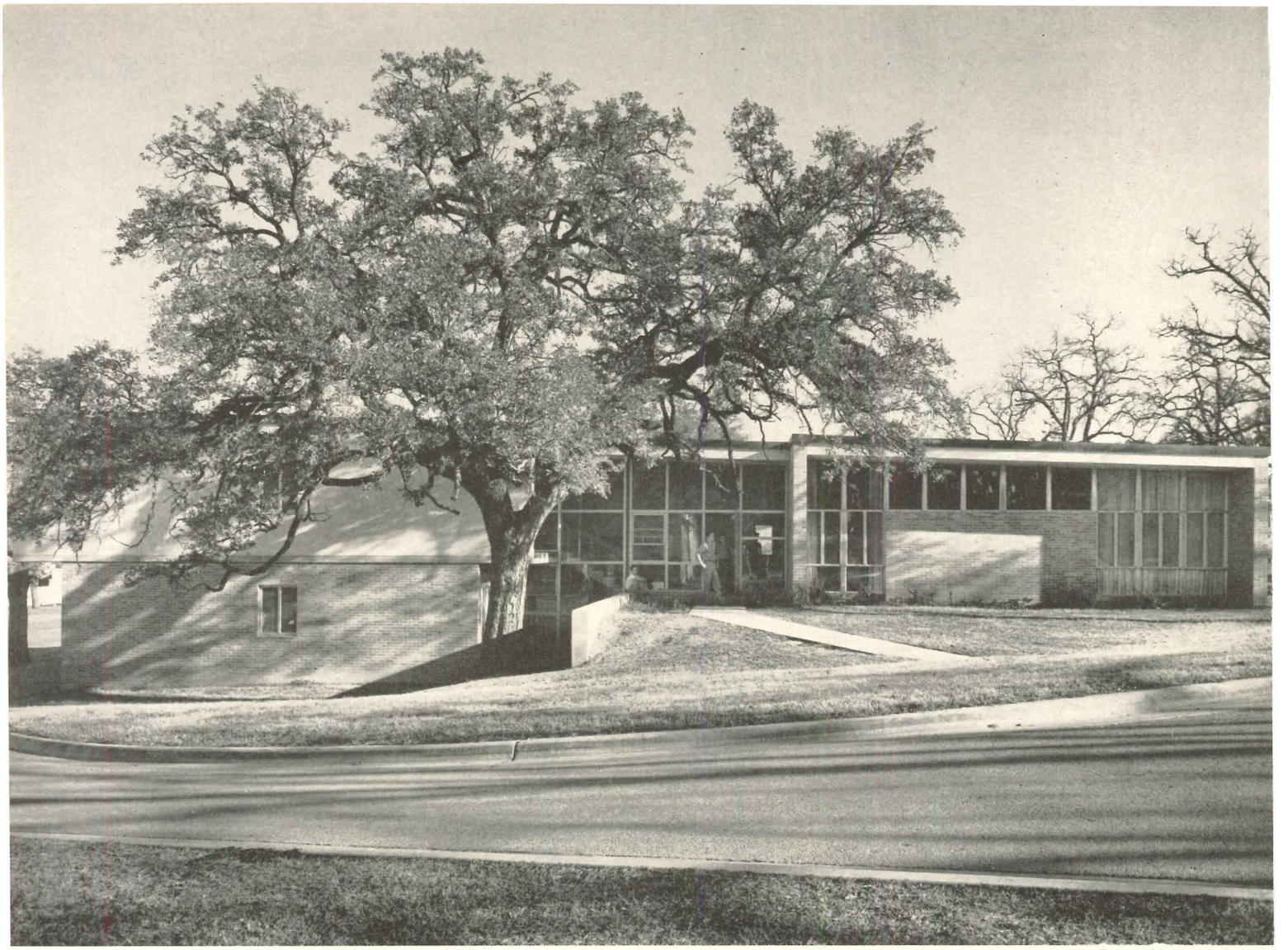
"As the buildings projected in the master plan are constructed, the school will gradually take on a campus atmosphere, with a number of hexagonal classroom clusters—of varying types—grouped around common recreational areas and the auditorium. Classrooms themselves are self-contained. Each has its own toilet and dressing room. Between each pair of classrooms is a common work and conference room. Some pairs are provided with sliding partitions, permitting large groupings of children. The hexagon was chosen for classroom floor plans because we felt it gave the maximum useful teaching space for the floor area enclosed. The domes were constructed of steel sections radiating from the center and tied together with tension rings of steel channels."


WORK
CLASSROOM
CLASSROOM
OUTDOOR CLASSROOM
OUTDOOR CLASSROOM
CLASSROOM
CLASSROOM
WORK
5


N
ATHLETIC FIELD
AUDITORIUM-GYM
HIGH SCHOOL
JUNIOR SCHOOL
EXISTING SCHOOL
GRADE SCHOOL
50

PLOT PLAN





Dewey Mears photos

Special School:
4. EDUCATION OF CHILDREN WITH HEARING DEFECTS

Texas State School for the Deaf

LOCATION:
Austin, Texas

ARCHITECTS:
Fehr & Granger and Niggli & Gustafson

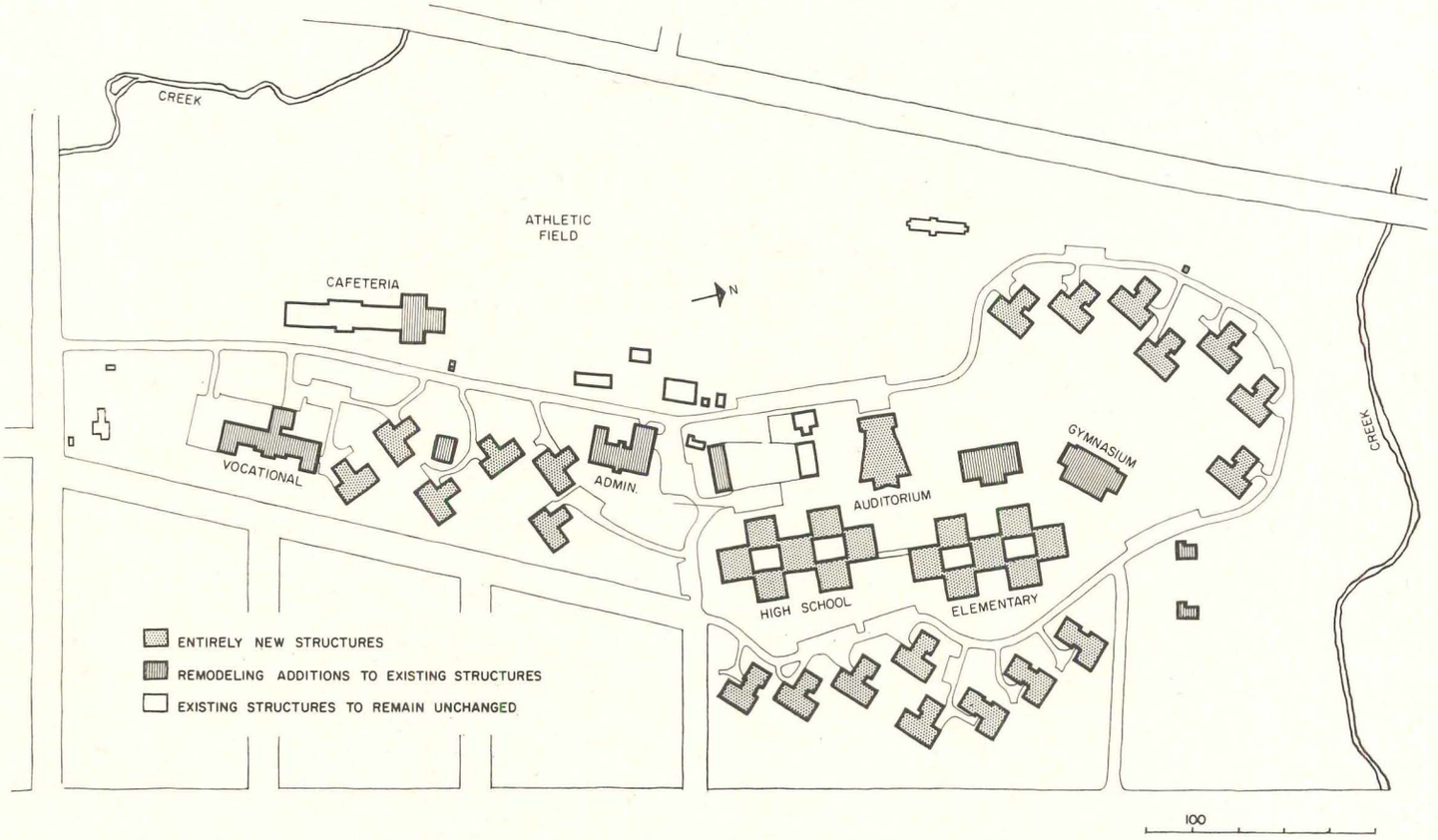
STRUCTURAL ENGINEERS:
Wilson & Cottingham

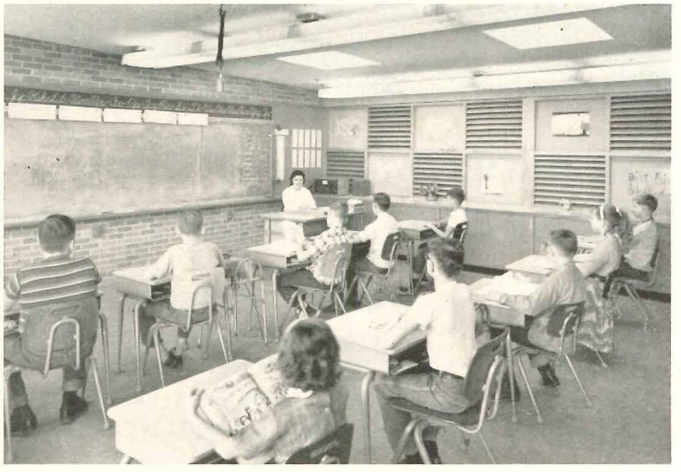
MECHANICAL ENGINEERS:
Blum & Guerrero

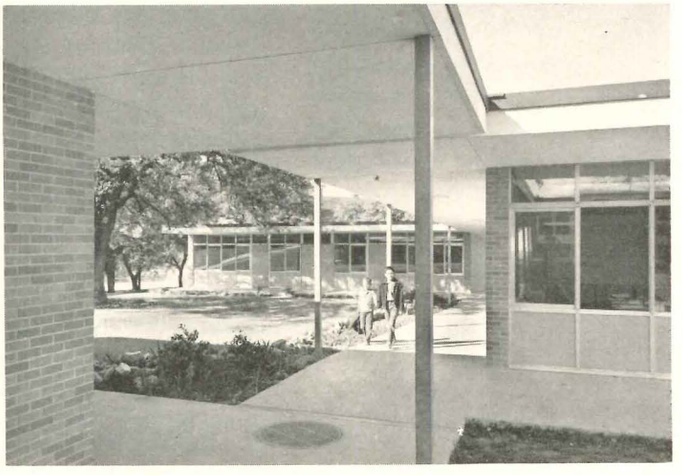
CONTRACTOR:
Yarbrough Construction Co.

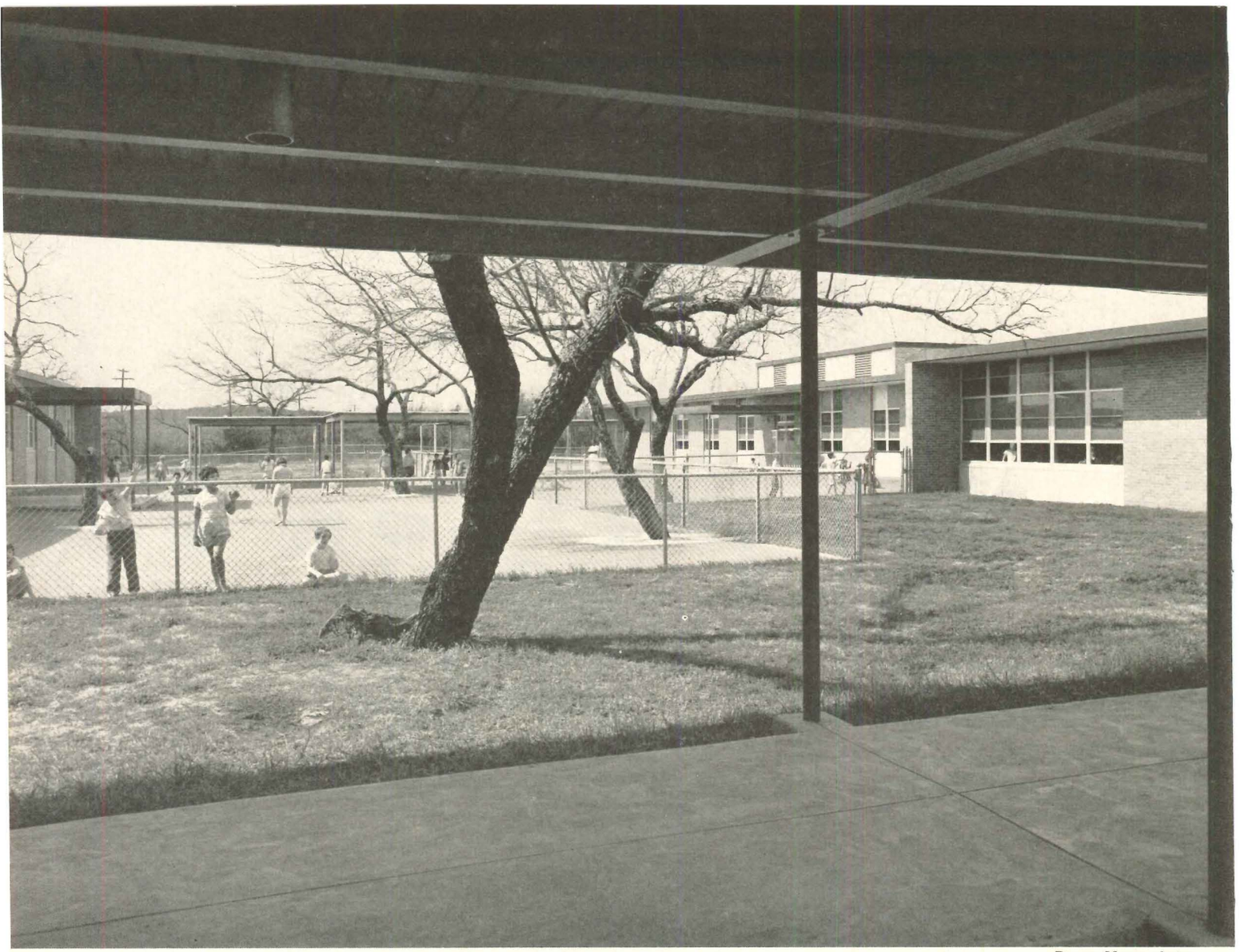
This school trains elementary, junior high, and high school children, who are normal in every way, except that each has a communication problem caused by faulty, reduced, or total lack of hearing. The problems in the design of a school such as this are those common to any boarding school for young children. In addition, there are those problems caused by the need to give much of the instruction by non-aural methods and to impart communicative skills to those who lack the use of the major receptor for communication. Of the school, the architects say, "In addition to their communication problems, the children who come here undergo considerable emotional strain upon leaving their families and homes. We felt it to be desirable, therefore, to provide a design which would be as 'non-institutional' as possible, yet at the same time achieve low-maintenance structures.

"Each cottage houses 12 to 16 children and their houseparents. Children are assigned to the cottages according to age. A considerable amount of auditory training equipment had to be provided for, to enable the teaching of communication to children by several methods. Children who have become deaf after acquiring some degree of speech facility, or those with some hearing left, are largely taught with amplified sound and hearing aids. Those who are more profoundly deaf are helped to develop speech through lip reading. The children who cannot bridge the communication gap using the methods mentioned are placed in special classes where manual alphabets and sign language are used."


CREEK
ATHLETIC FIELD
CAFETERIA
N
VOCATIONAL
ADMIN.
AUDITORIUM
GYMNASIUM
CREEK
HIGH SCHOOL
ELEMENTARY
ENTIRELY NEW STRUCTURES
REMODELING ADDITIONS TO EXISTING STRUCTURES
EXISTING STRUCTURES TO REMAIN UNCHANGED
100







Dewey Mears photos

Special School:
5. TRAINING FACILITY FOR THE MENTALLY RETARDED

Austin State School

LOCATION:
Austin, Texas

ARCHITECTS:
Fehr & Granger

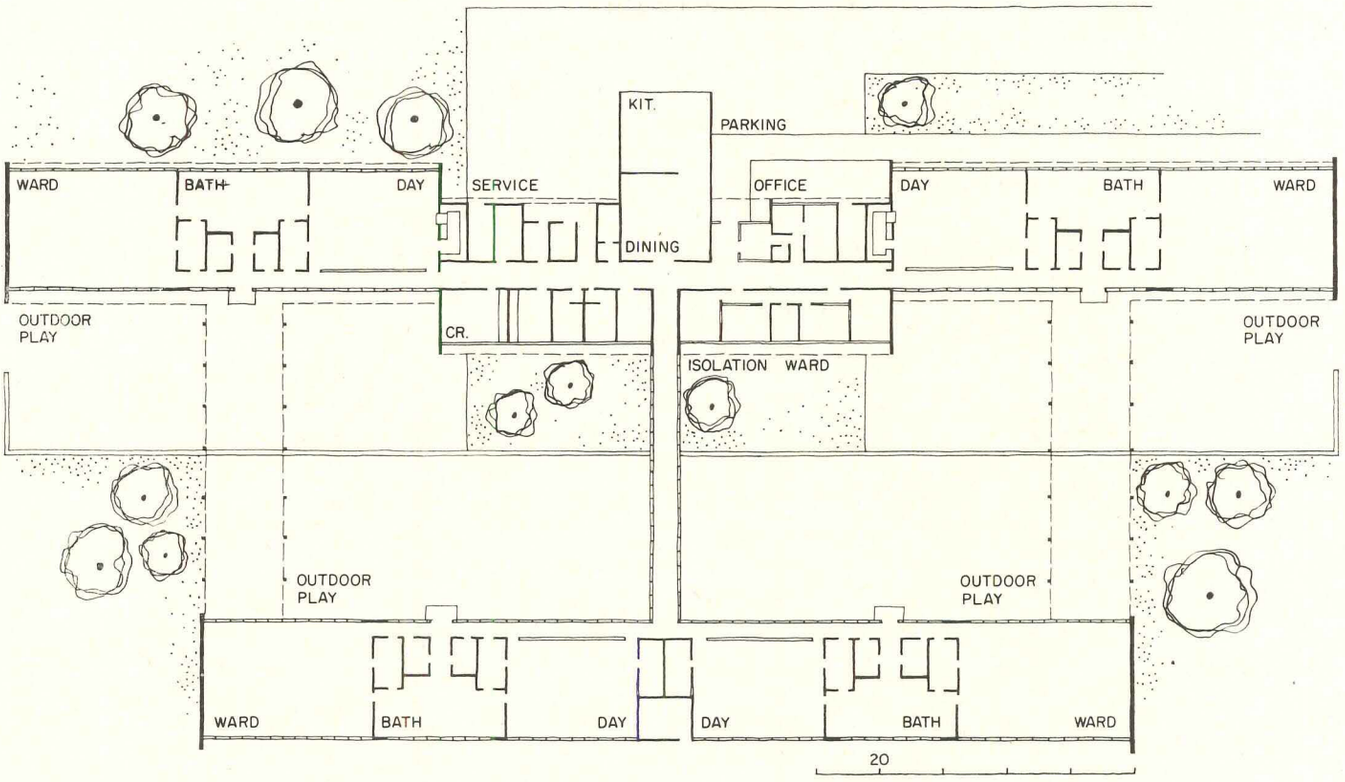
STRUCTURAL ENGINEERS:
Wilson & Cottingham

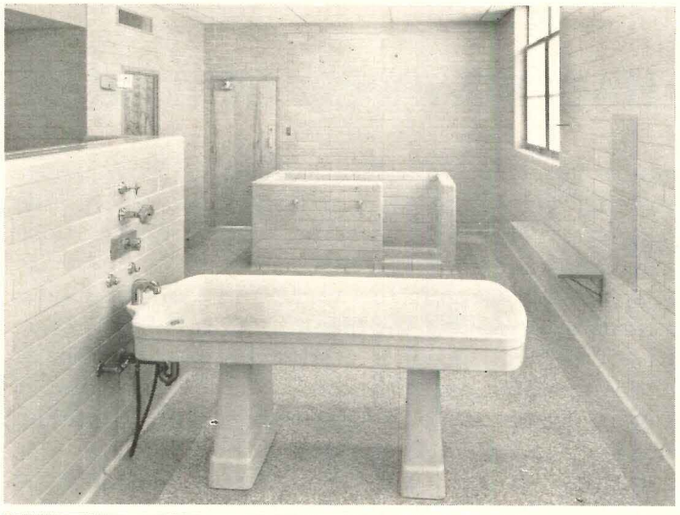
MECHANICAL ENGINEERS:
Blum & Guerrero

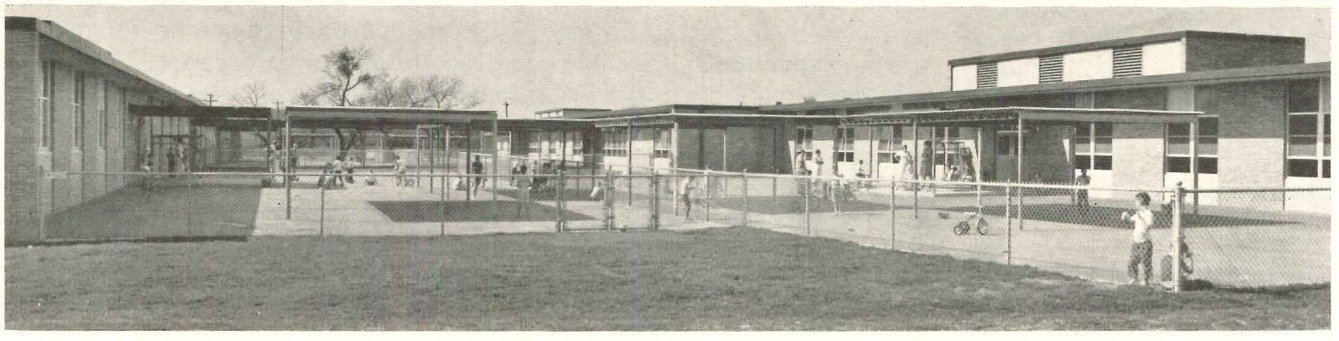
CONTRACTOR:
Archie C. Fitzgerald

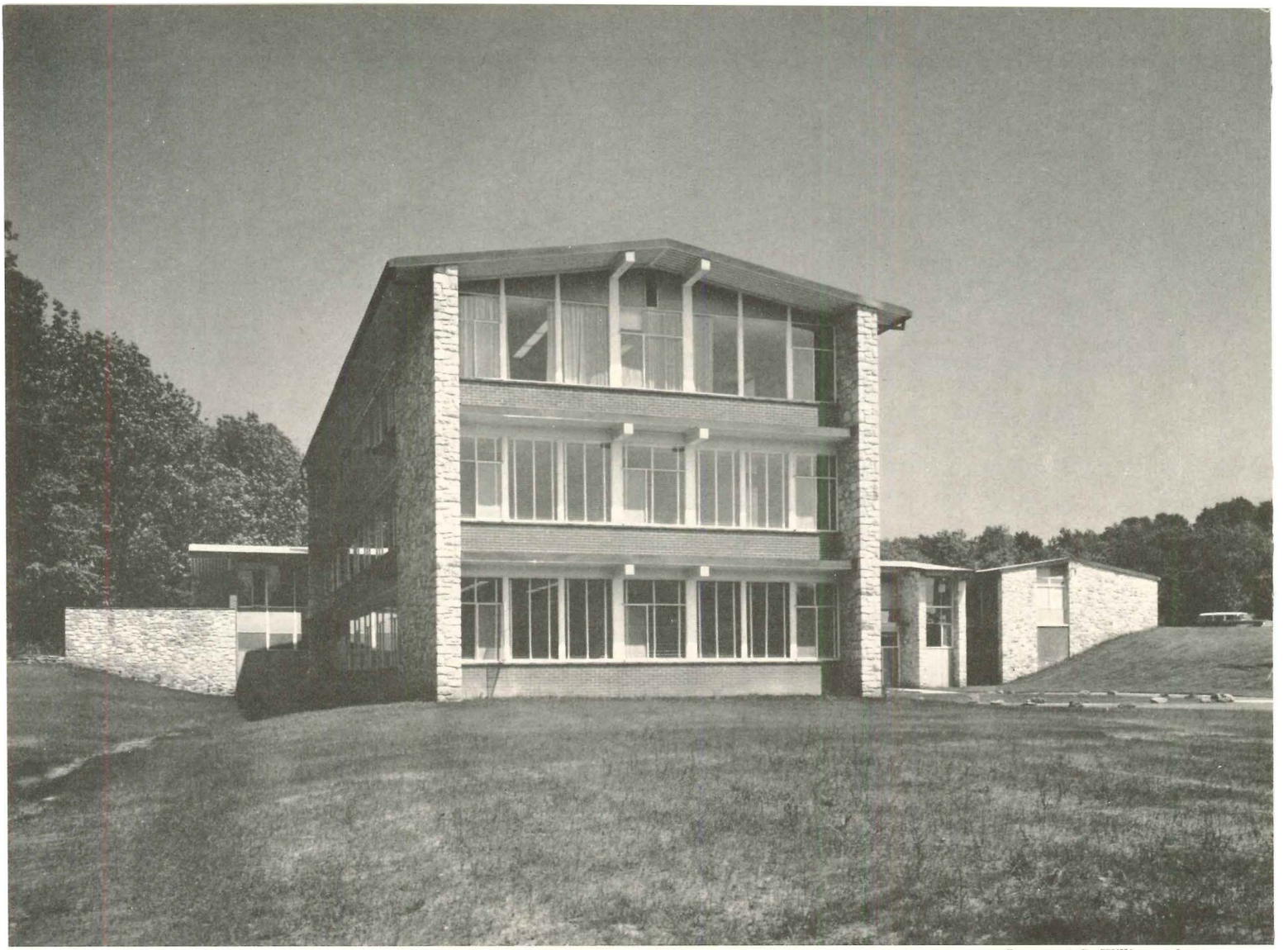
The building shown here houses approximately 100 children between the ages of eight and fourteen. These children are classified as hyperactive—severely retarded, which is to say that they are extremely active physically, but are incapable of dressing or feeding themselves, and are not toilet trained. Naturally, the schooling of these children is not primarily concerned with academic subjects, but rather with the barest fundamentals of caring for themselves. Some very special problems are apparent in what the architects of this building say about it, "one of the biggest problems was the extreme difficulty of providing a building which could be kept clean and sanitary for the health and safety of these children.

"Since the children, for the most part, are as happy on the hard floor as on comfortable furniture, we used radiant heating in the floor slab. For sanitary reasons, floor drains are provided in most of the rooms; these have flush valve controls, located in the walls. For odor removal, rooms were placed for maximum amount of cross-ventilation and a mechanical exhaust system was installed. Bathing the children is a big problem. We installed three types of fixtures—ordinary hospital emergency baths, a low-walled shower with sprays, and a stainless steel wash tub with a water closet waste. All of these allow nurses to move freely around to assist the children in bathing. These children put anything small and movable in their mouths, so play courts are hard surfaced with no planting or grass."


KIT.
PARKING
WARD
BATH
DAY
SERVICE
OFFICE
DAY
BATH
WARD
DINING
OUTDOOR PLAY
CR.
ISOLATION WARD
OUTDOOR PLAY
OUTDOOR PLAY
OUTDOOR PLAY
WARD
BATH
DAY
DAY
BATH
WARD
20







Lawrence S. Williams photos

Special School:
6. EDUCATION FOR MULTIPLE-HANDICAPPED CHILDREN

The Woods Schools Child Study Treatment, and Research Center

LOCATION:
Langhorne, Pennsylvania

ARCHITECTS:
Salmon & Salmon

STRUCTURAL ENGINEER:
M. W. Isenberg

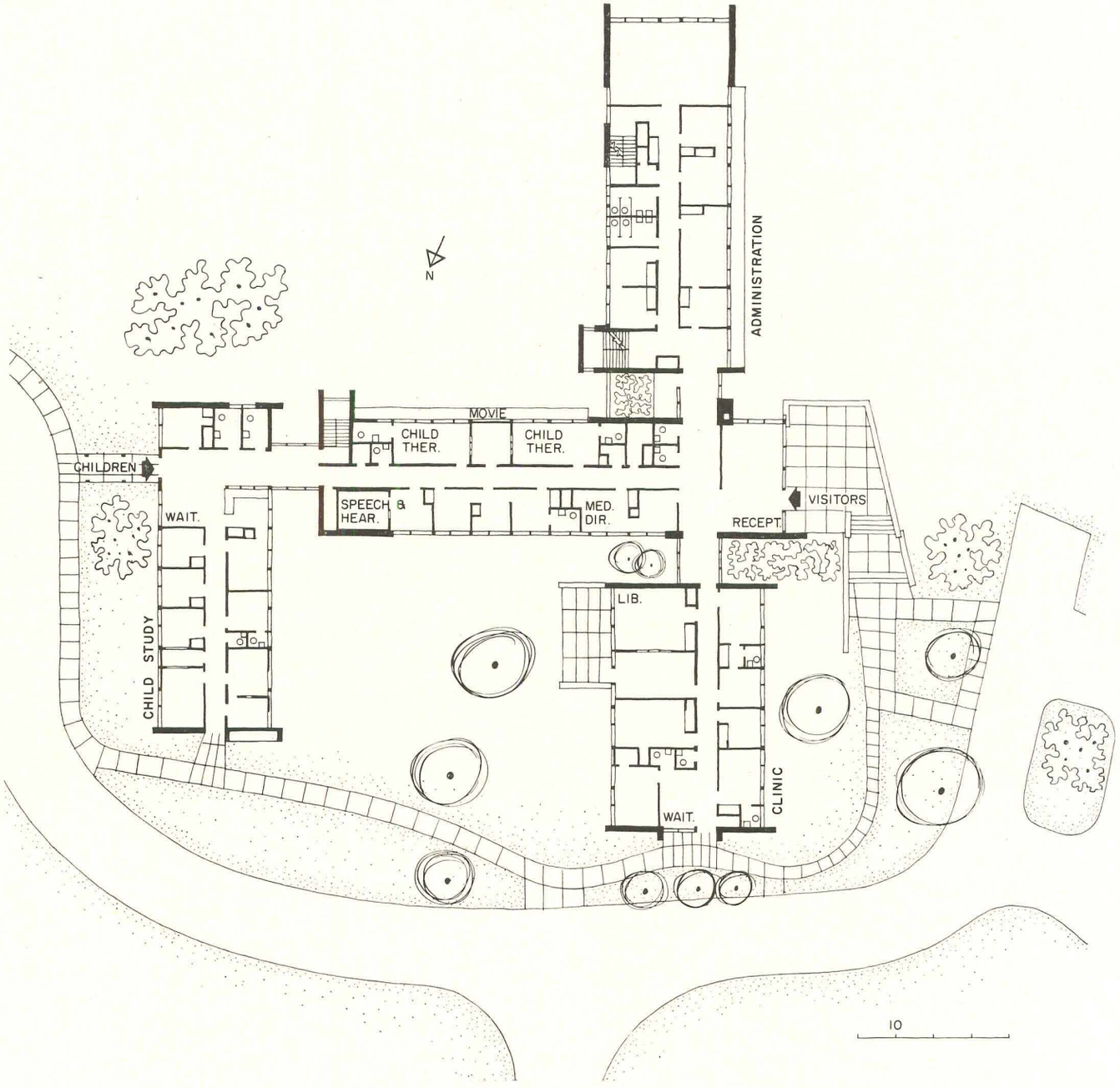
MECHANICAL ENGINEER:
William P. Henszey

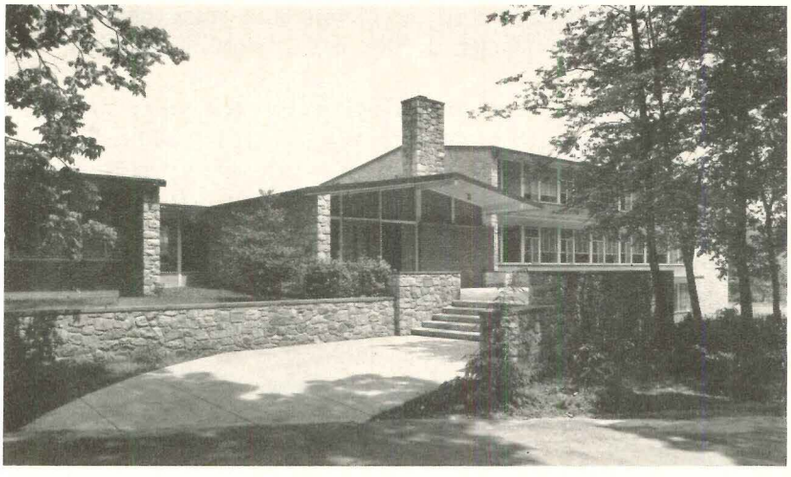
LANDSCAPE ARCHITECT:
George Patton

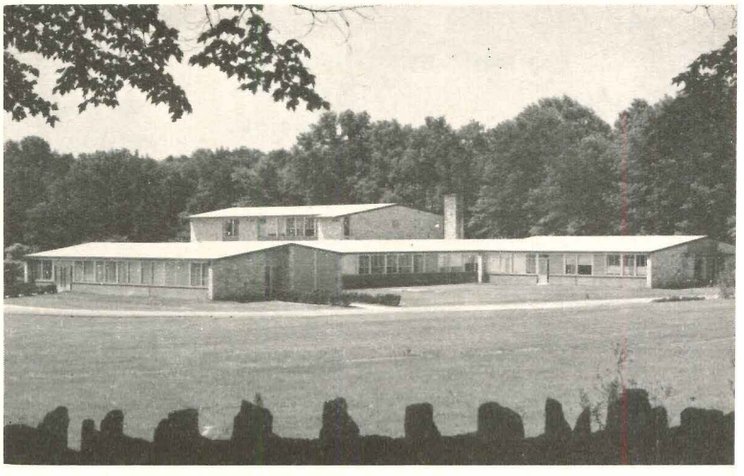
CONTRACTOR:
Jack Steele Construction Co.

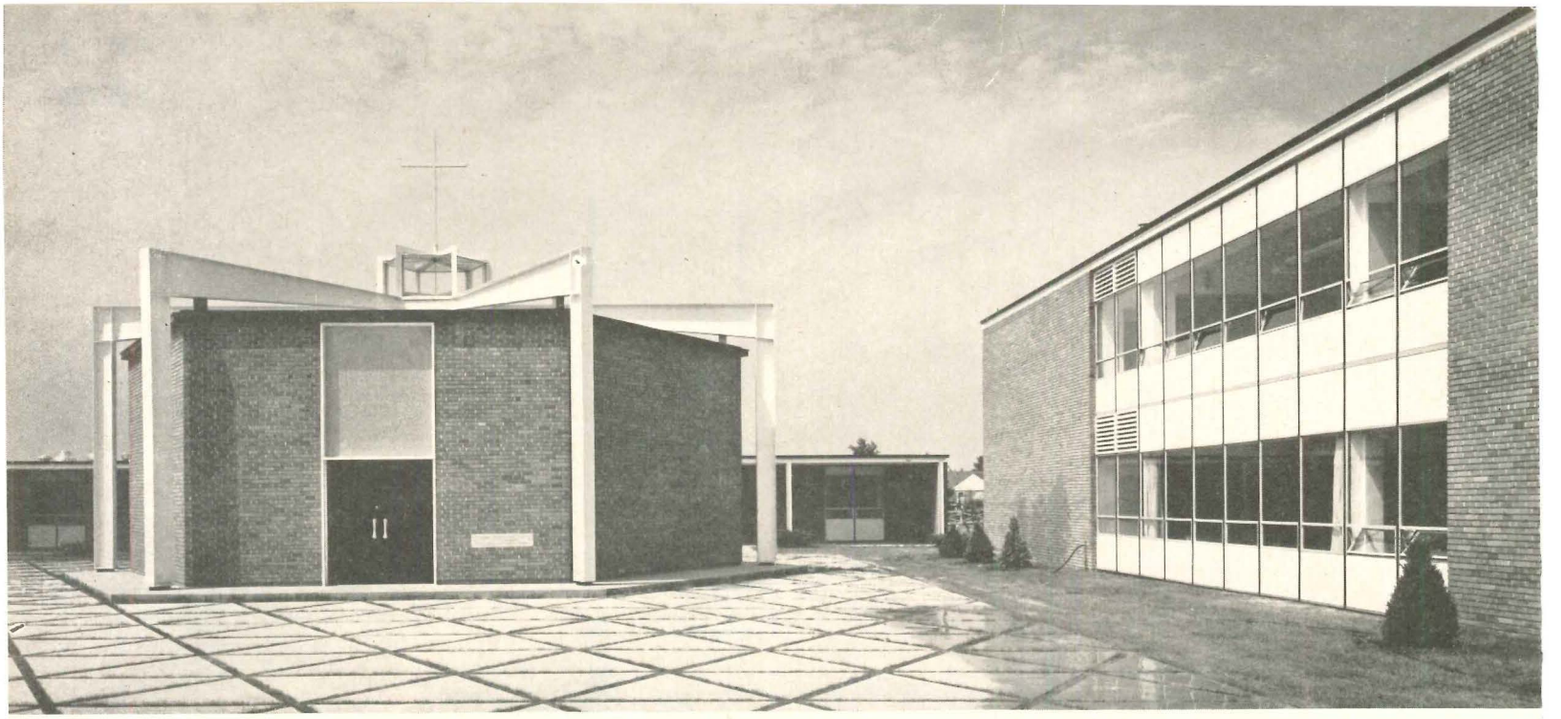
The Center shown here is one element of the Woods Schools, a private, nonsectarian institution for children with multiple handicaps. After diagnosis and treatment in the Center, children are placed in various other sections of the institution for education according to their needs. The Center also has research facilities, a training program for workers in this field, and a consulting service for parents. Regarding the planning of this facility, the architects say, "to satisfy the basic demands of the program, the Center incorporates many diverse facilities under one roof. For the first time, it is now possible to obtain diagnosis, evaluation, treatment, and counseling of parents of multiple handicapped children at one place.

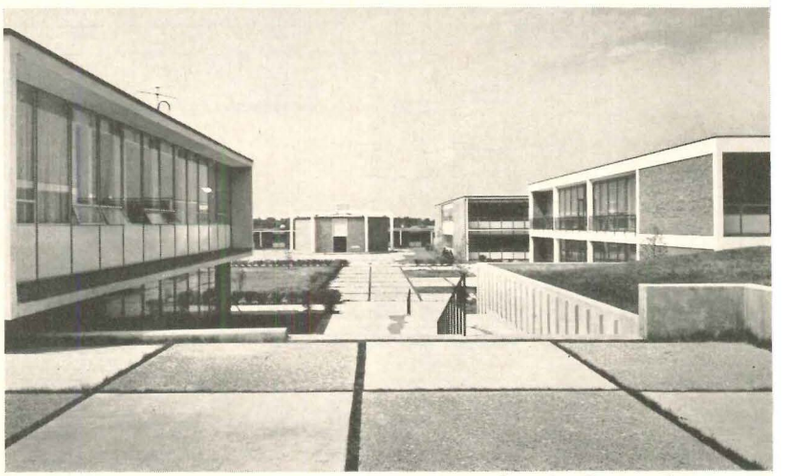
"The structure was designed as four separate elements interconnected with glass-enclosed corridor links. Children—who may be physically, as well as mentally, retarded—use only the main floors of the units. The rolling site permitted units of from one to three stories, providing variety in massing. Many special facilities are incorporated into the scheme. Among them is an acoustically treated testing room for study and correction of speech and hearing defects. Two child therapy rooms are provided. Between these is a central movie and recording studio. From here, recordings—and through one-way vision glass, movies—are made of children's activities at various times during their treatment. These are used for evaluation of progress. All other rooms where children are treated or observed are equipped with microphones permitting the making of recordings."


N
ADMINISTRATION
MOVIE
CHILD THER.
CHILD THER.
CHILDREN
WAIT.
SPEECH & HEAR.
MED. DIR.
VISITORS
RECEPT.
LIB.
CHILD STUDY
CLINIC
WAIT.
10









Alexandre Georges photos

Special School:
7. CATHOLIC HIGH SCHOOL AND CONVENT

St. Thomas Aquinas High School

LOCATION:
Florissant, Missouri

ARCHITECTS:
Hellmuth, Obata & Kassabaum, Inc.

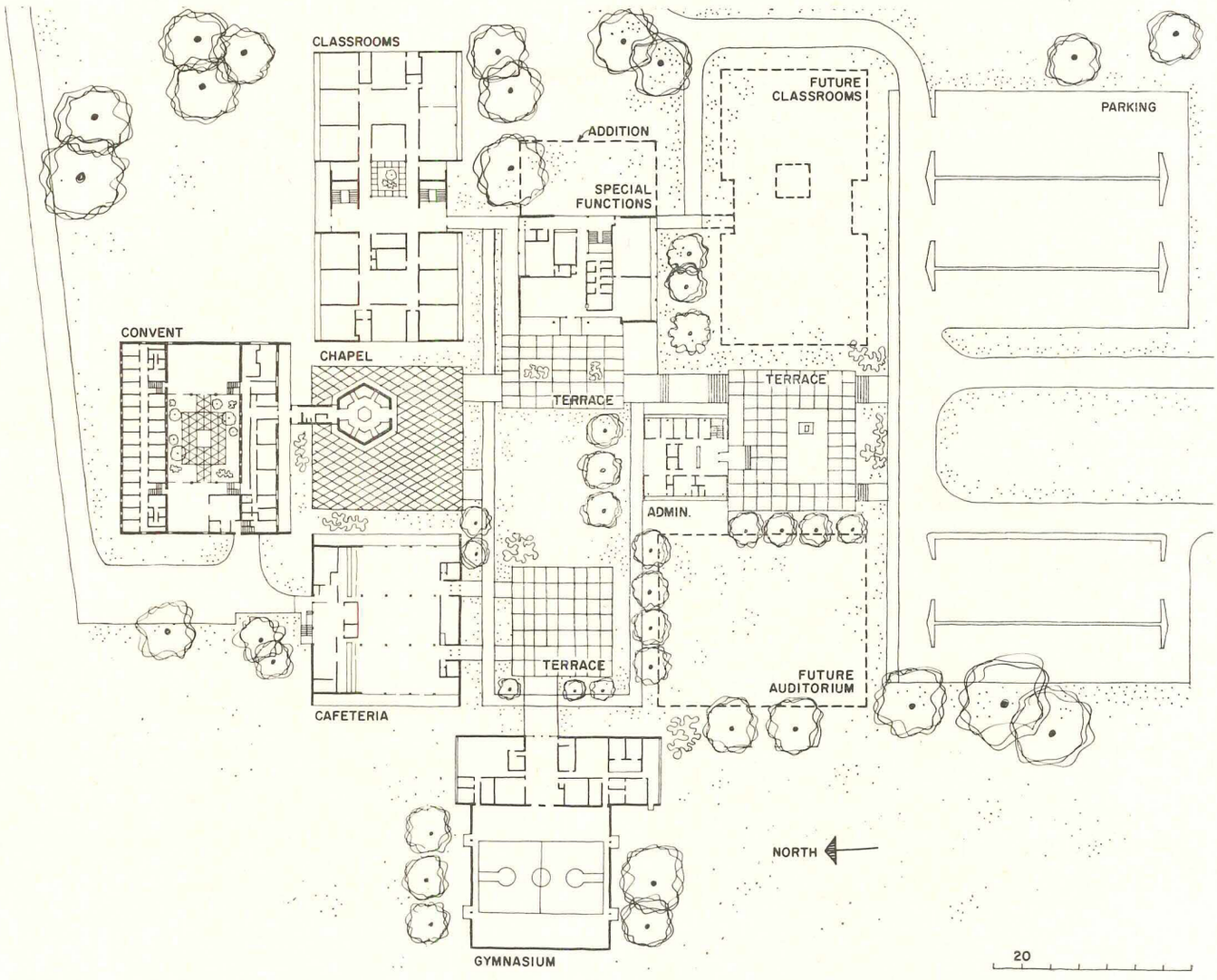
MECHANICAL ENGINEERS:
Ferris & Hamig

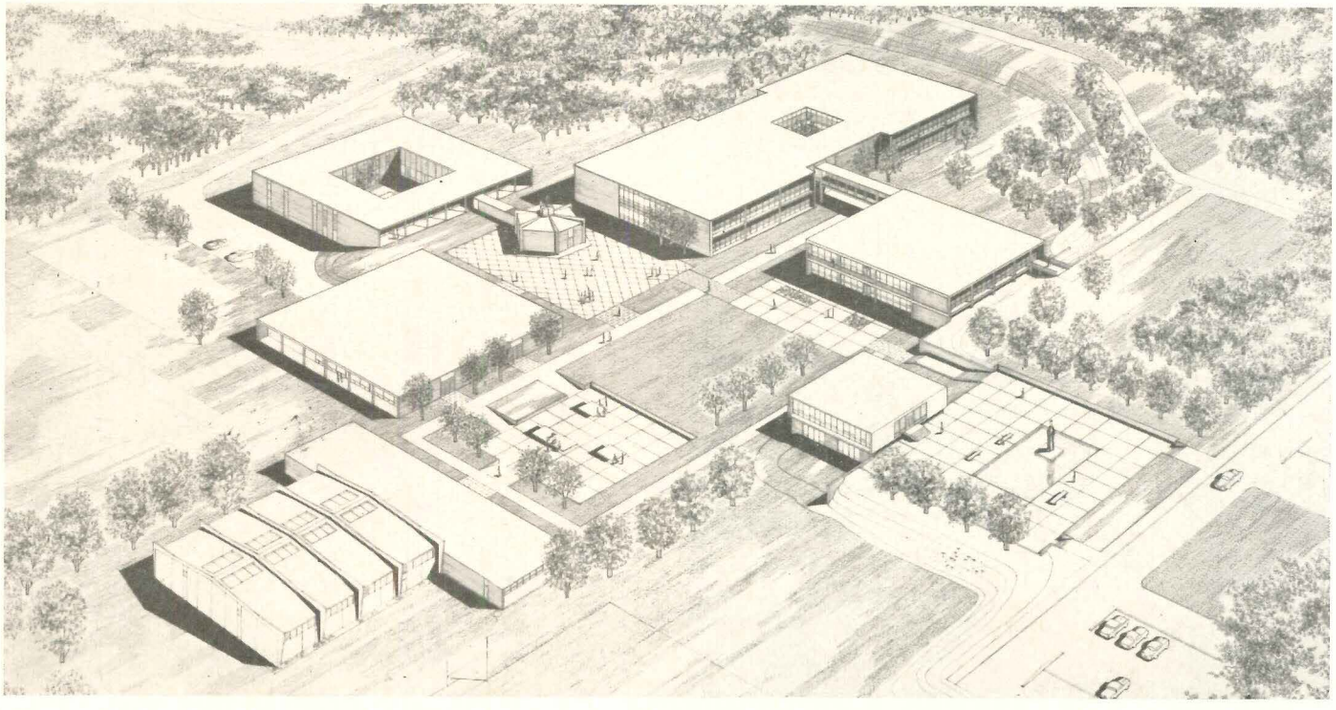
CONTRACTOR:
Lecoutour Construction Co.

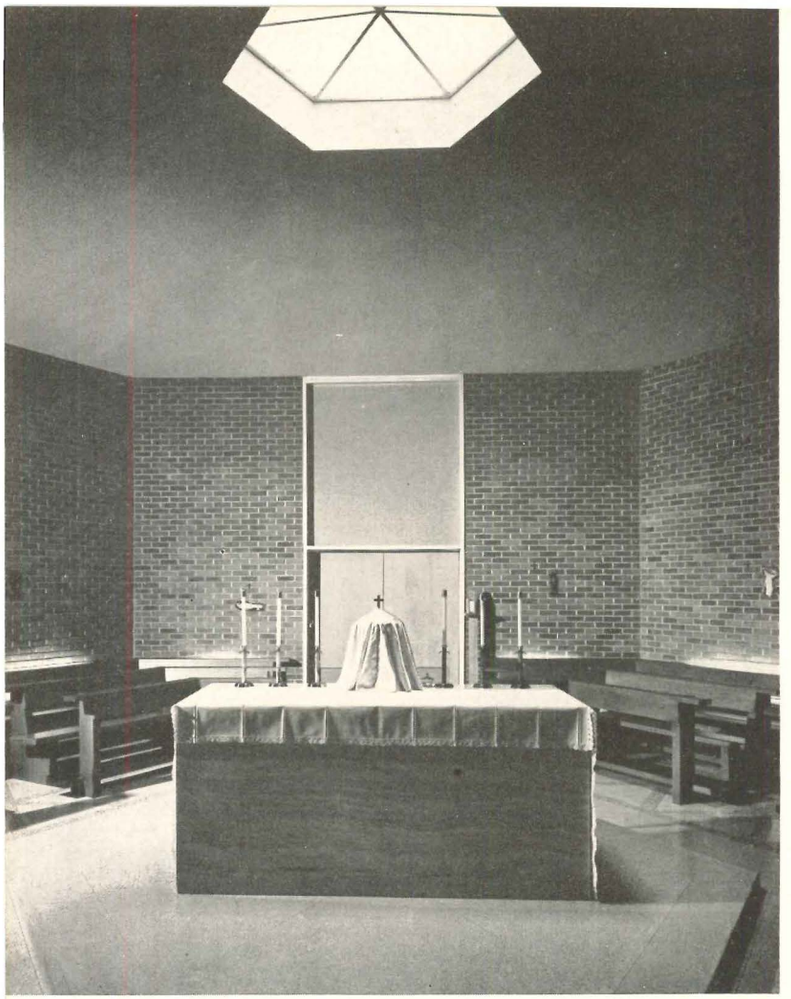
The problems involved in the design of a Catholic high school, such as St. Thomas Aquinas, have much in common with those in the design of a public school. However, in the Catholic school, it is necessary to provide for religious education and worship, and in this case a convent for the nuns who teach here. Regarding the school, the architects have this to say, "the program called for a complete high school, with a convent and small chapel. The school must provide for a student body of 1000 initially and expansion to 1800 in five years.

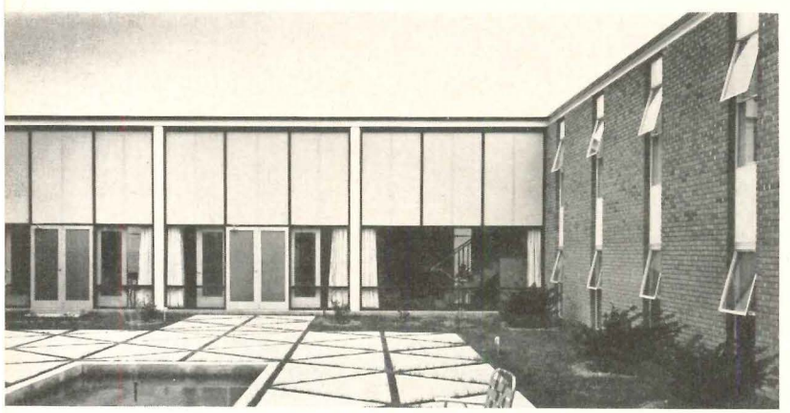
"We designed a campus plan with seven major buildings grouped around a central plaza. This theme is repeated in the smaller courtyards and plazas incorporated into the individual buildings. A feature of the school will be the special functions building. Here will be the student library, lounge, and social center. There will be a bookstore, student publication office, band and music rooms, and four small classrooms for special and advanced classes. On either side of this building will be two-story classroom buildings. Each will contain 25 classrooms, offices, a library, and a project room.

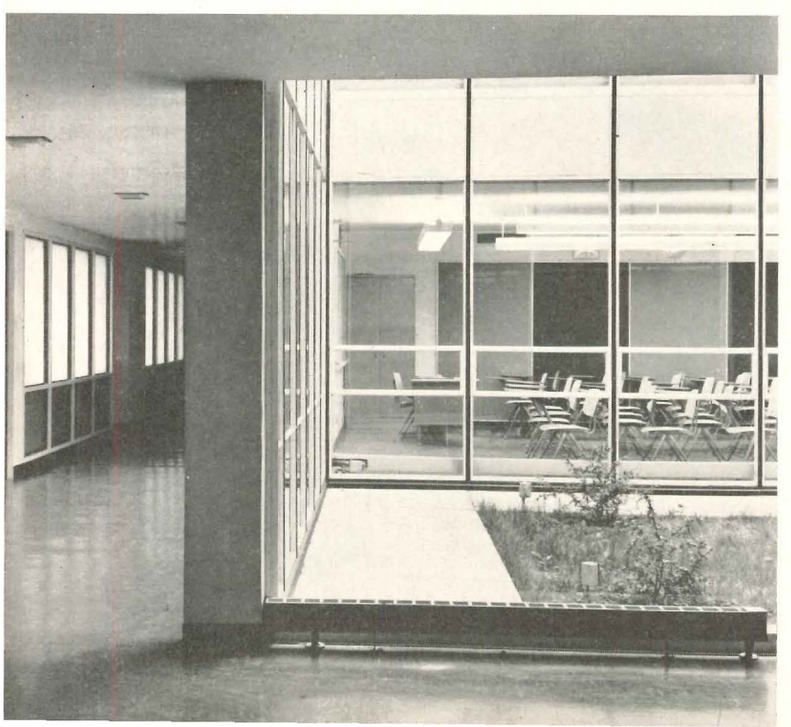
"The gymnasium, located opposite the classrooms across the plaza, will serve as an auditorium for the present. The convent houses 40 nuns. With only narrow strip windows on the exterior, the convent turns in on itself to a central court, thus establishing the desired mood and insuring privacy."


CLASSROOMS
FUTURE CLASSROOMS
PARKING
ADDITION
SPECIAL FUNCTIONS
CONVENT
CHAPEL
TERRACE
TERRACE
ADMIN.
TERRACE
FUTURE AUDITORIUM
CAFETERIA
NORTH
GYMNASIUM
20



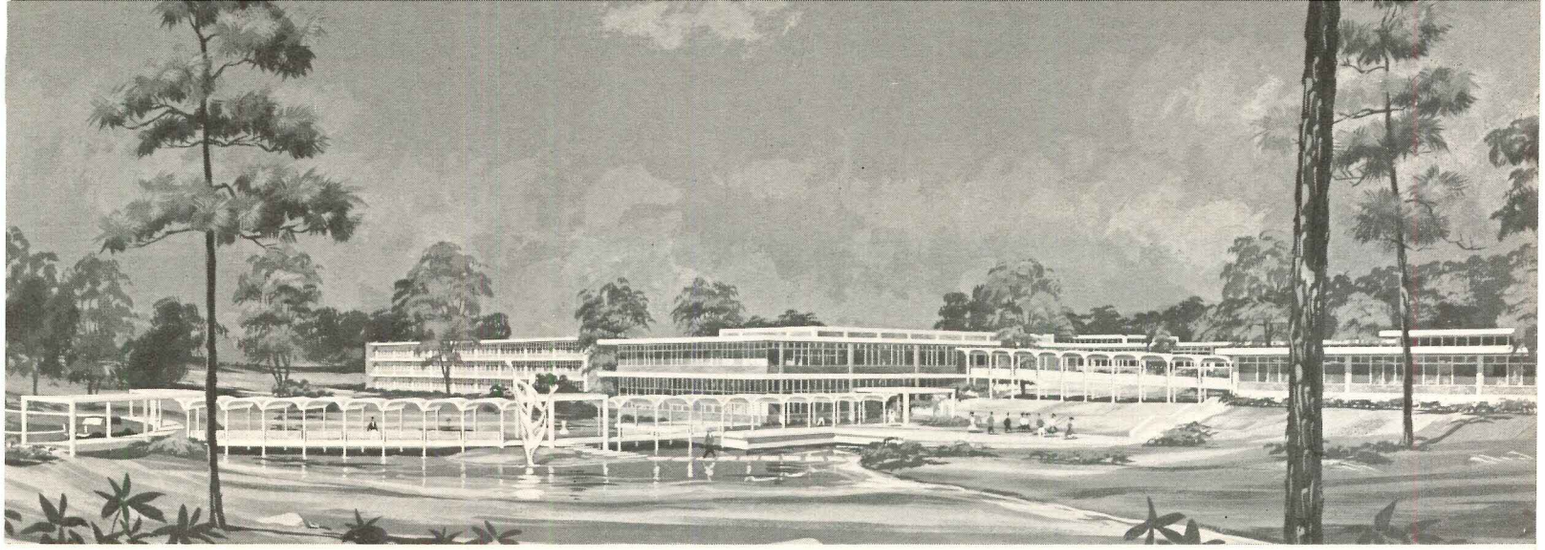


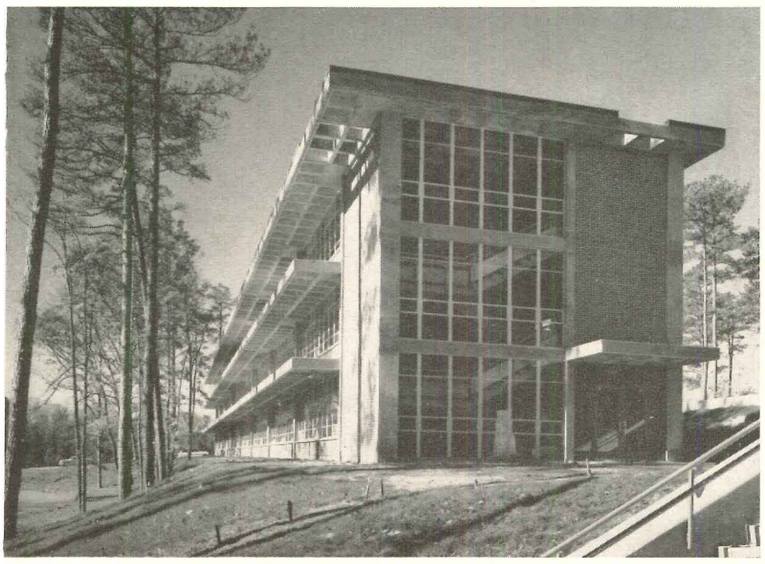


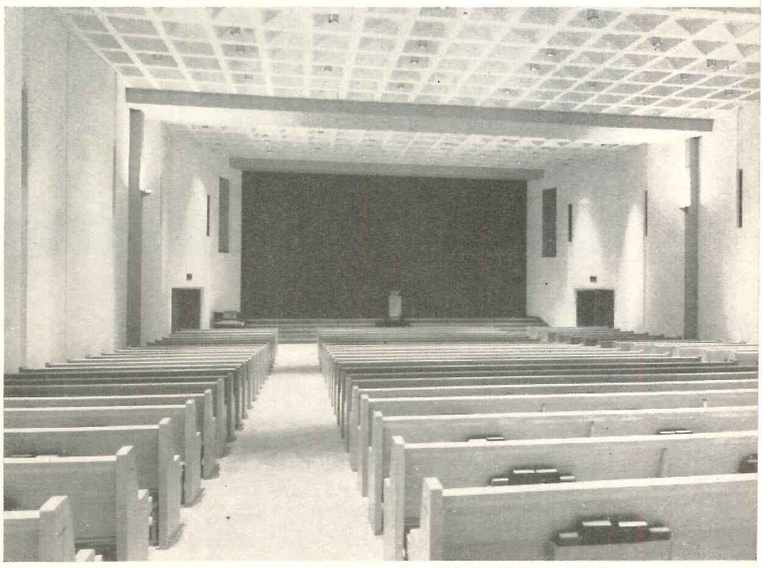


Catholic High School

The chapel (left, top) is hexagonal in shape. It has a raised lantern skylight which admits a shaft of natural light downward to the central altar. The chapel is connected with the convent by an enclosed walk containing the sacristy and confessionals. Left, middle: view of the interior of the convent court. Shown are the strip windows used here and to a lesser extent on the exterior of the building. Accommodating 40 nuns, the convent also contains two guest rooms, three parlors for visiting with family and friends, a music room, conference room, a library, and sewing and laundry rooms. Left, bottom: a view of the corridor and a typical classroom in a main classroom building. This room is adjacent to the interior courtyard







Gabriel Benzur photos

Special School:
8. PROTESTANT ELEMENTARY AND SECONDARY SCHOOL

The Lovett School

LOCATION:
Atlanta, Georgia

ARCHITECTS:
Aeck Associates

STRUCTURAL ENGINEERS:
Chastain & Tindel

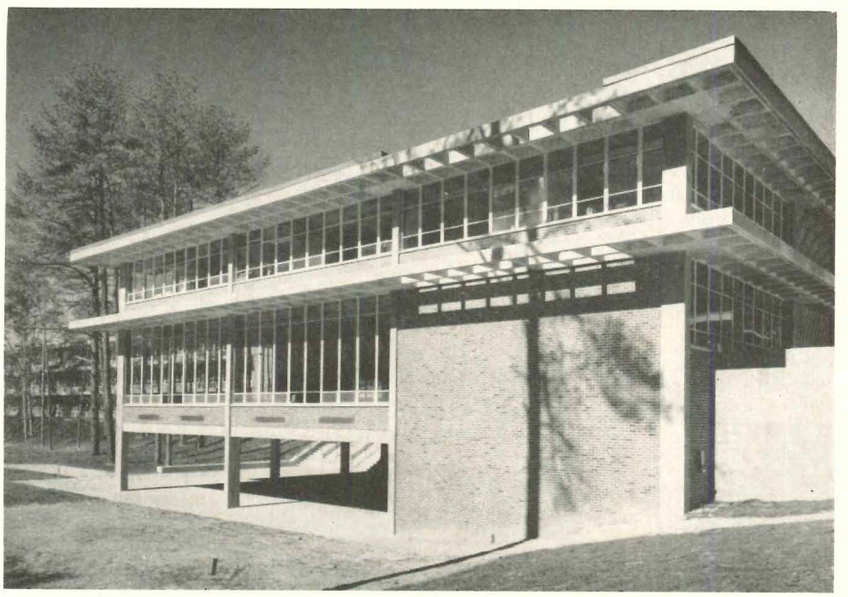
MECHANICAL ENGINEERS:
Lazemby & Borum

ACOUSTICAL CONSULTANTS:
Bolt, Beranek & Newman

CONTRACTOR:
G. F. Howe

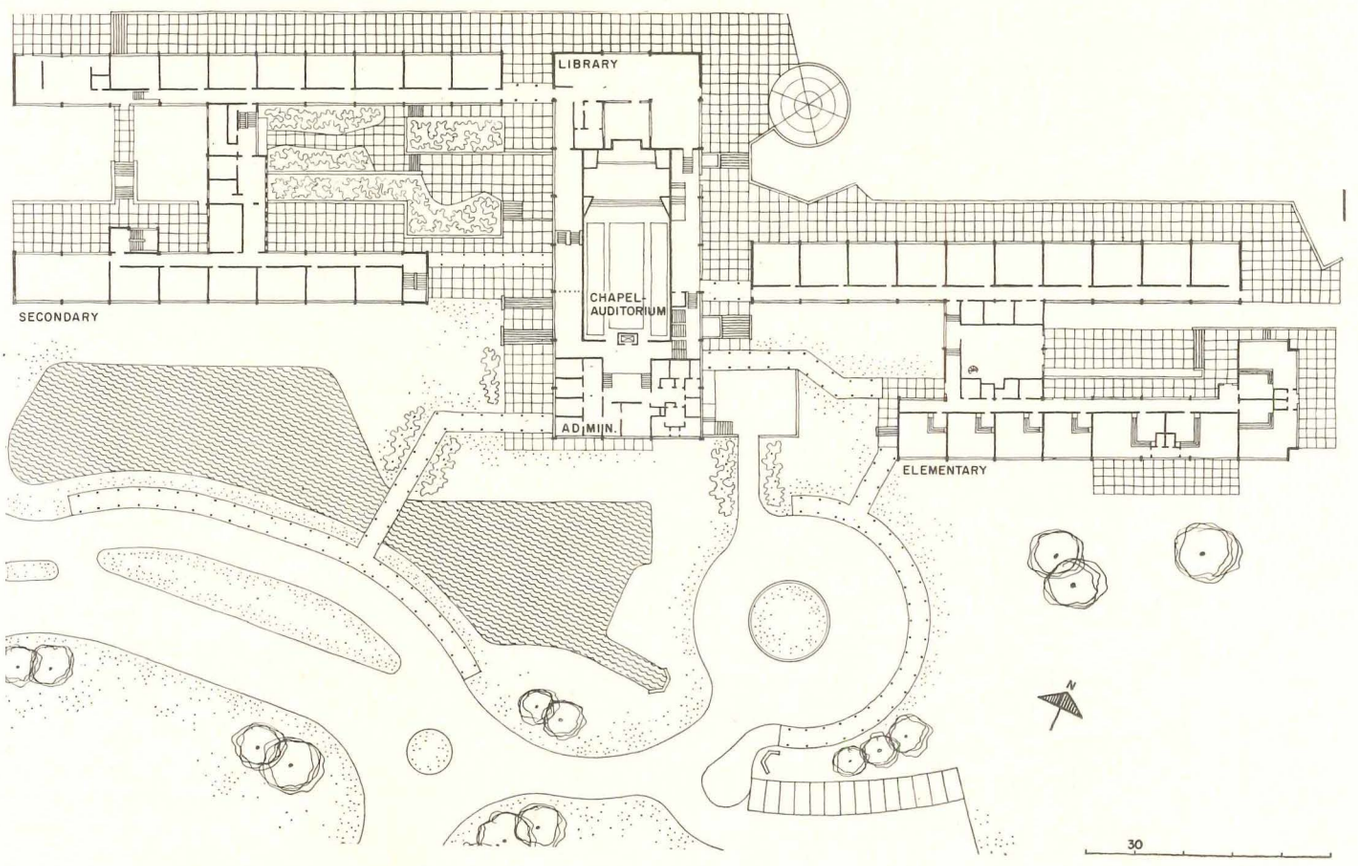
This school is operated under the trusteeship of the Episcopal Diocese of Atlanta. For many years, it had facilities only for the elementary grades. Having expanded to include secondary classes as well, the school authorities went ahead with an extensive building program, in spite of limited funds. Eventually, the school will expand to the total scheme shown in the site plan and will look like the rendering. The architects say, "the north wing of the secondary school and the covered walks are under construction and within three or four years, the physical education building and library will be built. In the meantime, the school is without a gym and part of the central building is used for a library.

"We wanted to spend what funds were available on quality materials and mechanical and electrical systems. So we eliminated all interior finishes, floor coverings, paint, and accoustical ceilings. While this temporarily leaves much to be desired, we feel that such finish work can very well be done in the future, while inferior basic materials could never be made any better. Because of the rugged and rolling terrain, we had to provide, in the original contract, the steps, drives, and walks necessary for students to circulate easily between the buildings. But this meant that we had to defer the provision of proper outdoor recreational and athletic areas. The auditorium is also used as a chapel. It has cyclorama and stage curtains which are opened to convert it into a chapel. The acoustics were designed so that no speaker system is needed."



Protestant Elementary and High School

This school is located on a large rolling site in a residential area of Atlanta. Accordingly, the architects let the plan follow the natural contours of the site and assume a spread-out, almost casual air. As may be seen in the plan, the elementary school and the secondary school are separated from each other by the large administration and auditorium building. The auditorium is also used as an Episcopal chapel. The library, now located in this building, will eventually be moved to a separate building located elsewhere on the site



Architectural Engineering

How Technical Know-How?

What are the obstacles to the application of the results of building research, and how can these results best be made available to those equipped to use them? This question, itself, is currently being investigated as a *research problem* by the Building Research Station, Garston, Herts, England. The staff's precis of the problem, presented in the *Building Research Station Digest: 1 (second series)*, is well worth pondering. Here are a few excerpts:

"The purpose of applied research is not merely the provision of new information: it is to improve practice in design and execution. New knowledge has to be mastered by practitioners before it can be applied. Much can be done to make the results of research assimilable, but ultimately the hard work of assimilation lies with the user.

"It is often remarked that the busy designer or builder has no time to read or study, that he wants his information in a brief cut-and-dried form, accessible to quick reference. This attitude is valid only for one type of information—it leaves out the important distinction between factual data and ideas.

"The preparation of tabulated data, codes, information sheets and other reference material presupposes a certain technological background of professional or technical training. Indeed, it can be said that, with this sort of information, a profession or trade gets the aid appropriate to its technological level. Such data, however, are simply the everyday working tools . . . Alone they do not bring about change in methods.

"In traditional industries, new ideas and methods gain ground slowly. In agriculture, a century or so ago, it was said that a new technique spread through the English countryside at the rate of about a mile a year. In building, of course, the pattern of change is more complex: spectacular innovation and development occur alongside conservatism . . . All such change is the consequence of new ideas and methods being assimilated into the tradition."

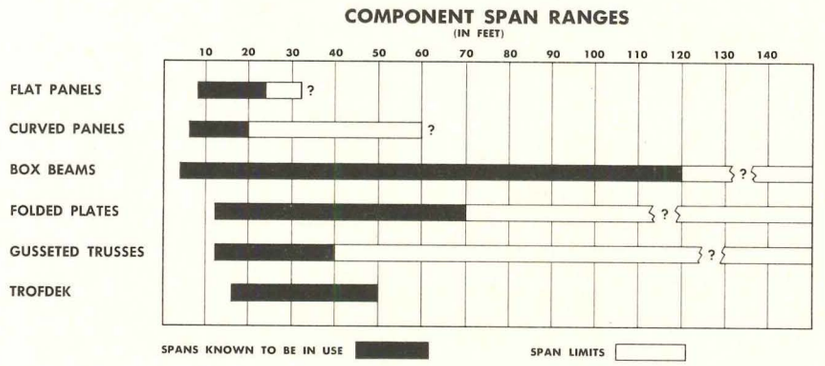
Less is More

Considerable hue and cry has gone up in the general press concerning the sizes of the theaters and halls being designed for Lincoln Center in New York. The question being asked is why the audience capacities are less than for halls already in existence. General Maxwell D. Taylor, new president of Lincoln Center, gave the reasons in a recent talk: "The blunt fact is this: the halls whose capacities are greater are not necessarily the best halls for the performance nor the enjoyment of the arts . . . A theater for dance and operetta requires different dimensions than a hall for orchestra music, and an opera house should differ from these [and so on] . . . The theater and concert hall of tomorrow has a responsibility to the electronic audience that will outnumber its capacity by tens of thousands to one. How music sounds in this hall will be heard in millions of recordings, in tens of millions of living rooms via radio and television." [For a discussion of the effect of size, shape and materials on the acoustics of concert halls and multi-purpose auditoriums see the article "Auditorium Acoustics For Music Performance" by Russell Johnson of Bolt Beranek and Newman in the December AE section].

Spring Bonnets

A while back, a series of Sally Victor hats achieved status of a sort by being patterned after architectural themes. Now word comes from a Canadian publication called *Elizabethan* via the *New York World-Telegram & Sun* that engineers in construction have taken to embellishing their hard hats with all sorts of ornamentation presumably to gain status of a different sort. The description: "Not ordinary safety helmets, mind you, but bonnets with such 'brash assertiveness' they almost defy description." Hats with mysterious lugs and eyebolts, metal scrap, Arctic earflaps, forehead comforters. One hard hat manufacturer may even rival Sally Victor: for career lady engineers, chartreuse picture hats trimmed with resinous forget-me-nots.

This Month's AE Section



FACTORY-BUILT PLYWOOD COMPONENTS

by Howard P. Vermilya, A.I.A.

Engineered plywood components are a relatively recent addition to the architect's design vocabulary, but the signs point to their becoming a byword. New types of components, improved engineering and fabricating techniques, and an industry-wide quality control program are making plywood structural members as versatile and reliable as other factory-produced structural materials.

The stressed skin panel, the first engineered plywood component to be developed, dates back to the early 'thirties and the Forest Product Laboratory's then-new recognition of the "racking" properties or diaphragm action of plywood. Since then, the Douglas Fir Plywood Association, which began research in the field at about the same time, has developed a wide variety of structural elements designed to take full advantage of plywood's ability to resist flexural and shear forces. Full-size components have been tested to failure. Engineering data and design manuals have been prepared. Techniques of fabrication have been studied, tested and formulated. Specifications have been drawn to control the materials, the production methods and conditions, and the inspection and test procedures.

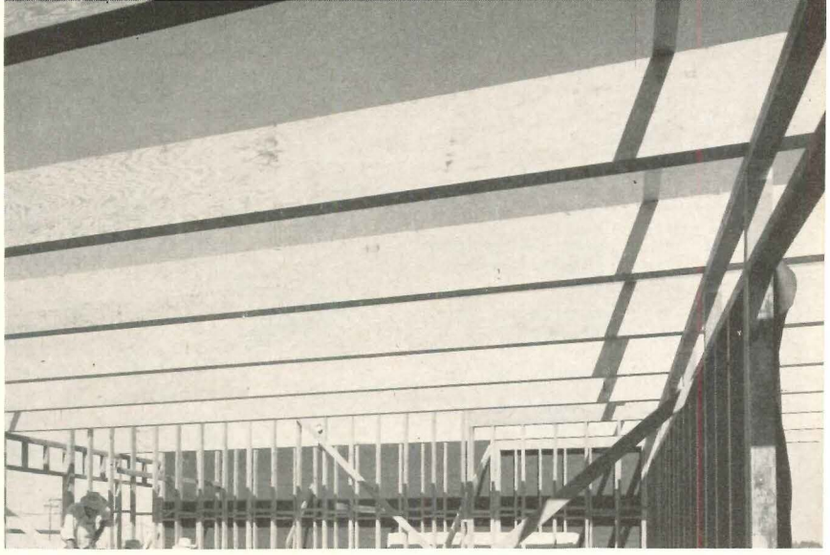
Much of this specialized information on component fabrication was freely distributed to the construction industry through architects and engineers. But even so, it became increasingly apparent to the plywood association that a critical problem existed involving production facilities, the specialized nature of the engineering, and the possibility that without proper care in workmanship, fabrication or engineering, the performance of plywood components would be questionable. At the same time, more complicated components, and more sophisticated combinations, were coming into extensive use in constructing floors, walls, roofs and even entire structures, making it vitally important for the architect to be able to rely on the quality of the materials—lumber, plywood and glue, and upon the quality of the workmanship.

For this reason, DFPA two years ago set up Plywood Fabricators Service, Inc., an affiliate whose program is designed to provide a uniform standard of fabrication and the quality controls necessary to encourage the use of engineered plywood components. Before being permitted to use the trademarks indicating compliance with the DFPA's specifications, fabricators licensed by PFS must qualify in general categories based on the quality of fabrication required: Nail-gluing or pressure-gluing; interior or exterior end use; and standard or critical applications. ("Critical" components are those involving long spans or high design loads: the PFS inspector must examine each lot and himself apply the trademark.) In addition, the fabricator must qualify to produce each type of component, the qualification being controlled by the general categories mentioned. Basic to any qualification at all is a survey of the fabrication facilities and continuing laboratory tests of glue bonds and fabricating techniques.

Box Beams

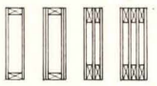
The box beam, which was developed under the stimulus of the war-time steel shortage, is a typical example of the engineered plywood component. Here plywood and lumber are combined in a lightweight section designed to use each material most effectively. Solid lumber is used for the flanges because of its axial strength, while plywood is used as a web because of its ability to resist shear. The section consists of one or more (usually two or more) vertical plywood webs glued to lumber flanges which are separated along the beam's length by vertical lumber spacers. These spacers function as stiffeners to prevent web buckling and distribute concentrated loads.

The assembly is glued under pressure using clamps or presses, which requires the closely controlled conditions usually found in a factory and not at the site. Nail-gluing is acceptable on only the simplest sections.

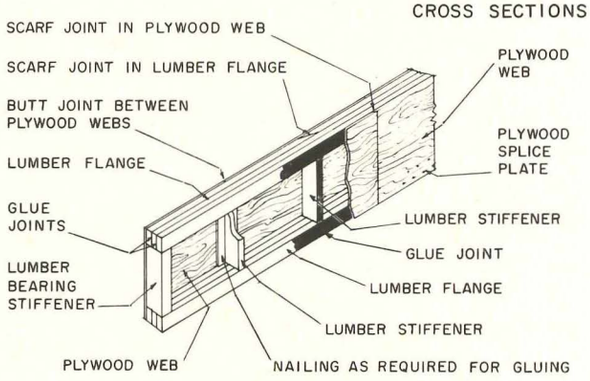


Box beams consisting of vertical plywood webs pressure-glued to lumber flanges are capable of spanning distances up to 120 ft. A basic and highly versatile component, they are often used in combination with other plywood components or with plywood panels to form floors and roofs. The nine 36-ft beams shown above were used with plywood deck to roof a small, low cost school. *Murray School, Dublin, Calif.; Architect: Aitken and Collin*

Detail shows typical box beam: vertical plywood webs for shear resistance glued to lumber flanges for axial strength. Flanges are separated at intervals by vertical spaces which function as stiffeners to prevent web buckling and distribute concentrated loads. Details above right indicate various beam sections that may be used. When flange cross section requires lumber with a least dimension greater than 2-in., flanges must be laminated from lumber 2-in. thick or less

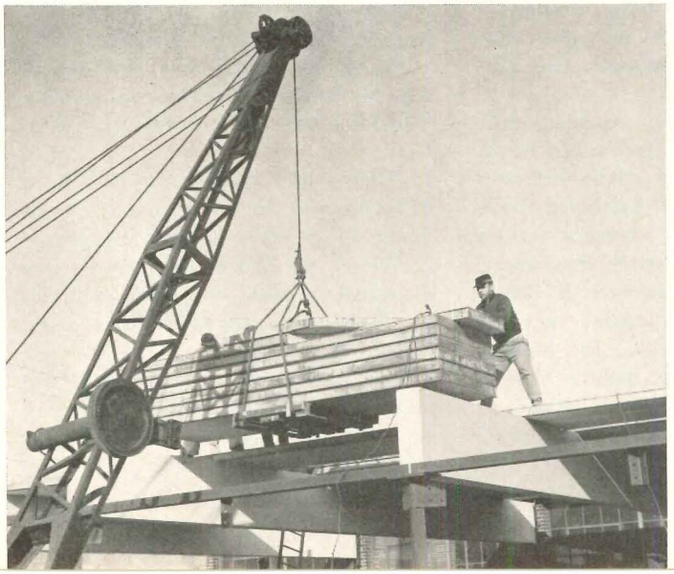


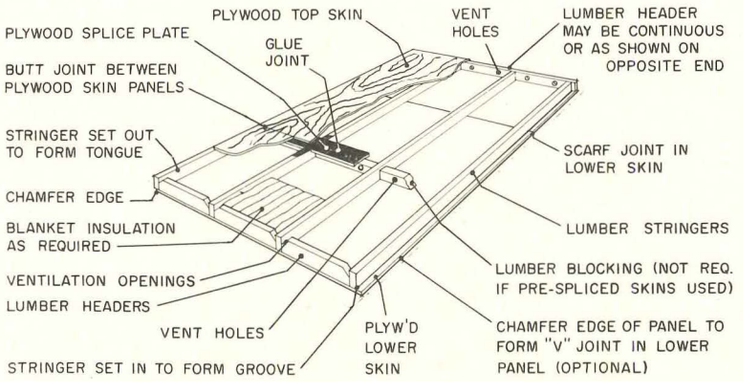
TYPICAL BEAM CROSS SECTIONS



TYPICAL BOX BEAM

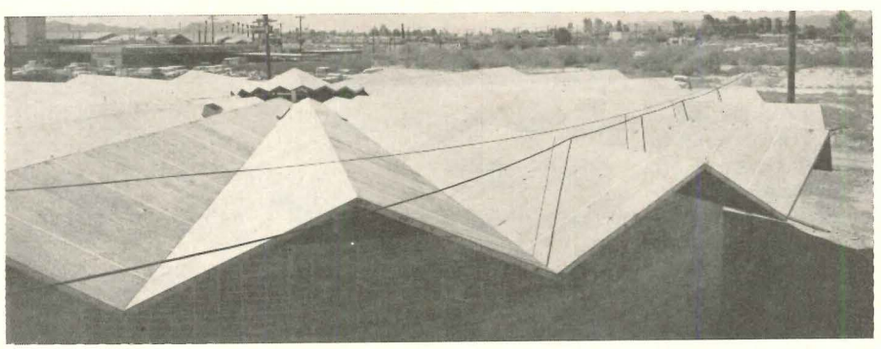
Stressed skin panels, which offer the advantages of economy, strength and fast erection are used as structural coverings for floors, walls and roofs, are probably the most adaptable of the components. For the roof below, 4-ft wide panels laid over box beams serve as both deck and finish ceiling. Typical panels have ½-in. plywood top skins and ⅜-in. bottom skins. Ribs are 2 by 4 and 1 by 4 lumber. *Penn-Jersey Co-op Supermarket Addition, Phillipsburg, N. J. Engineer: Heikki K. Elo*





TYPICAL STRESSED SKIN PANEL

Essentially a box beam laid flat, the stressed skin panel consists of longitudinal stringers to which a top and bottom skin are bonded so that the whole assembly acts as a unit. The plywood skins then are the flanges for a series of I-beams—or T-beams if only one skin is used—while the stringers carry the shear. The lateral framing members serve only as headers or as blocking



A relatively new version of the stressed-skin panel is the space plane, a folded plate with non-parallel chords. The radial folded plate roof above was erected in less than a day. *AA Headquarters Building, Tucson, Ariz. Architect: Arthur Brown*

In the larger sections the box beam is capable of spanning over 100 feet. It is a basic structural component, for it may be combined with components such as stressed skin panels or with plywood panels to provide floor or roof. It may serve as a rafter or purlin, or it can be formed as a bent. It may also be tapered or curved and cantilevers are routine.

Stressed Skin Panels

In these structural coverings for floors, walls or roofs, longitudinal framing members serve as stringers. The skins are usually bonded one to each side of the stringer to form a series of "I" beams. When only one skin is bonded to the stringer, the skin becomes the flange of a series of "T" beams. (See "Stressed Skin Plywood Panels," by William J. LeMessurier and Albert G. H. Dietz, *Time-Saver Standards*, ARCHITECTURAL RECORD, October 1954.)

Stressed skin panels may be fabricated by nail-gluing or pressure-gluing. The latter gives better appearance because of the absence of nail heads and is more efficient when presses or clamps are used in a factory. The panels may also be of sandwich construction, using a honeycomb, foamed plastic or other material as the core between the plywood skins.

The action of the stressed skin panel is similar to that of a box beam laid flat. Where the edges between panels are adequately fastened, these panels can transmit stresses to the walls or ground, greatly increasing the rigidity of the structure. In walls, the skins effectively resist racking, but stressed skin panels in general are designed to resist flexural forces applied perpendicular to whatever shear is involved. They may be used as a basic element in a folded plate design, but generally are used for floors or roofs, often in conjunction with the box beam or with delta frames.

The panels should be ventilated but may contain insulation, electrical wiring, heating and sprinkler pipes or ducts, often inserted at the time of fabrication. Skins and lumber framing may be scarf jointed or butt joints with splice plates may be used in the skins.

Curved Panels

Curved panels are ideal for roof construction because of their light weight and high strength and because of their design possibilities in single or multiple use. They will span as much as 32 ft or more, but spans up to 24 ft are most practical.

Three different types of curved panels are available:

1. The ribbed, stressed skin panel using a curved stringer usually made from laminated plywood strips;
2. The solid core panel, a plywood sheet lamination; and
3. A sandwich core panel.

They can be designed for use with or without tie-rods, but require the sidewalls or side beam-to-wall connection to be designed for horizontal deflection. A fourth possibility is a curved section, designed as a thin-shelled vault in which the beam action built into the curved section eliminates the need for the usual supporting beam.

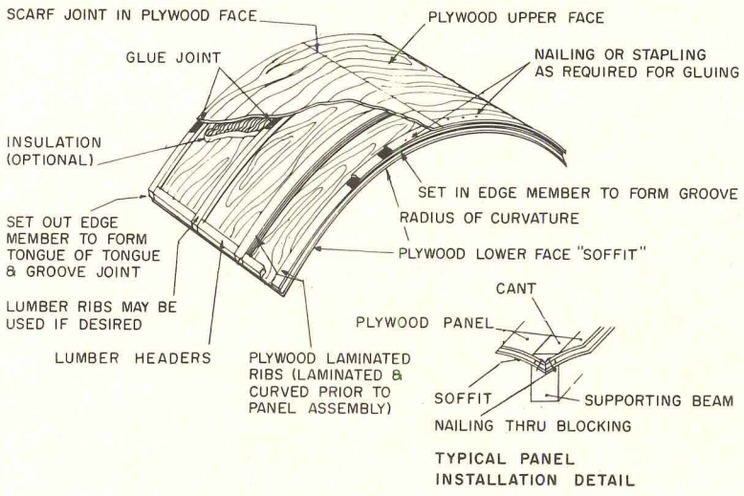
Fabrication is simplified by the use of presses: either a chain clamp press using a male form or a curve platen hot press with heating strips in the rib area. The panels are usually 48-inches long and joined with tongue-and-grooved or shiplap connections.

Folded Plates

Folded plate roofs may be conventionally framed and sheathed with plywood, but many are designed to use plywood structural components. These may be divided into two classes:

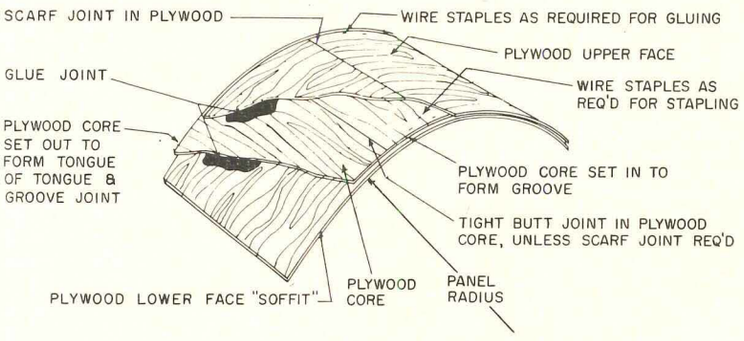
1. Where box beams are the main supports and the individual folds are designed as stressed skin panels.
2. Where the plates themselves are designed as giant box beams and act as diaphrams, thereby eliminating large valley beams.

The folded plate lends itself to many roof designs, either single bay or multiple bays. It is capable of

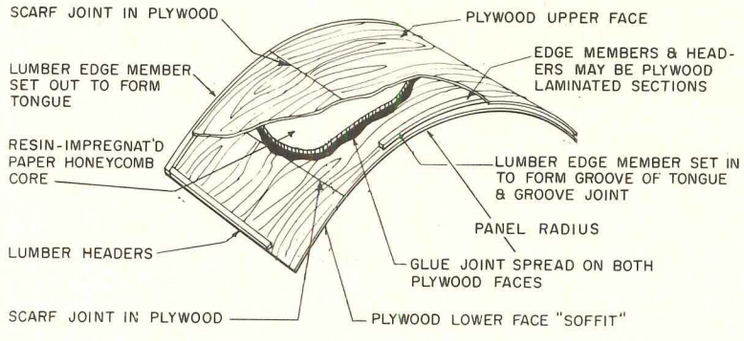


TYPICAL PANEL INSTALLATION DETAIL

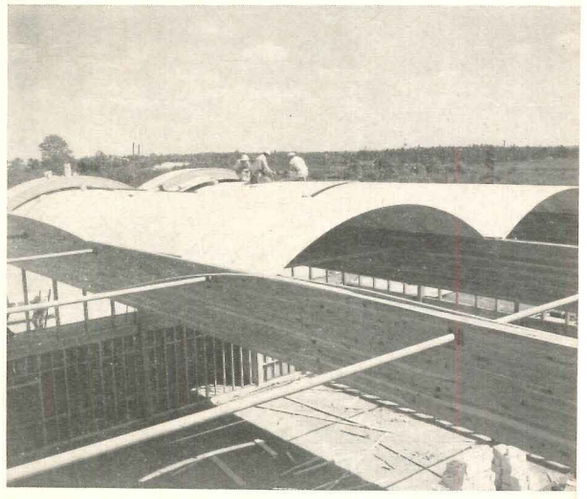
TYPICAL PANEL USING CURVED PLYWOOD RIBS

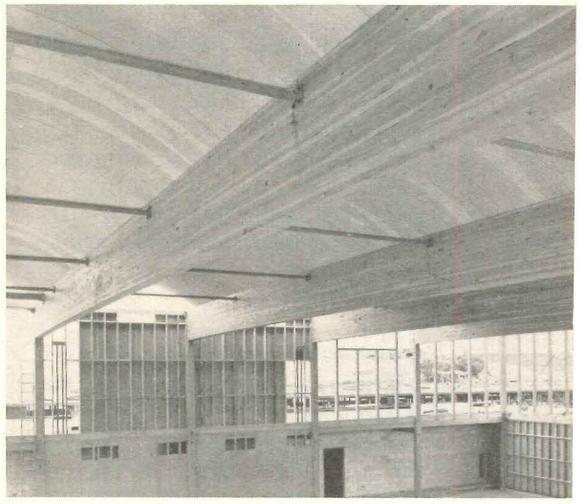


TYPICAL PANEL USING SOLID PLYWOOD CORE

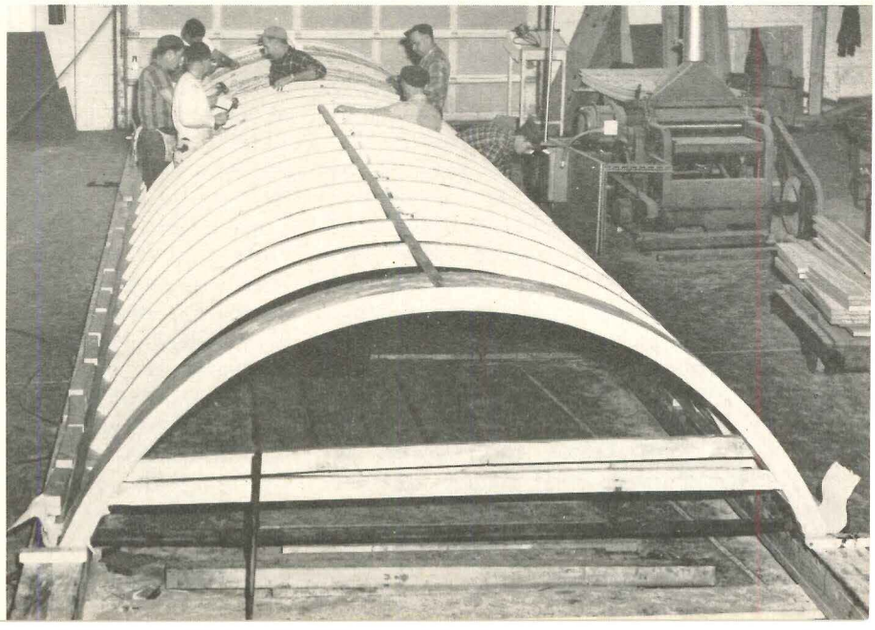


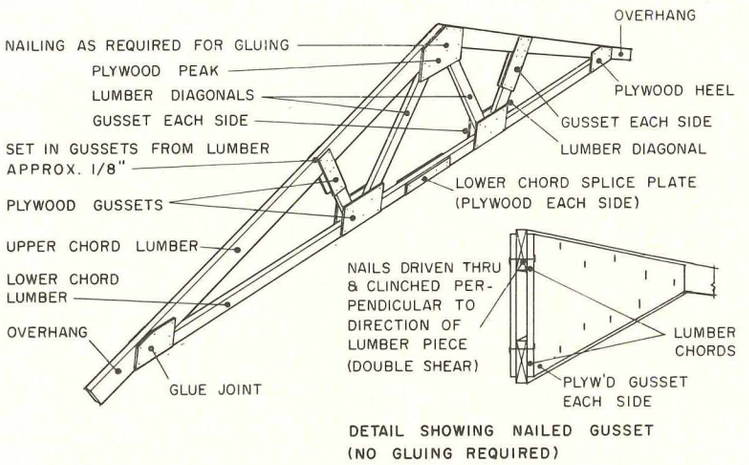
TYPICAL PANEL USING PAPER HONEYCOMB CORE





Curved stressed skin panels are a natural for roof structures because their arching action permits the spanning of great distances with relatively thin cross sections. Three different panels are available: the ribbed panel (photo right), which is similar to the typical stressed skin panel except that the stringers are curved; the solid core panel, a plywood sheet lamination; and the sandwich core panel. All can be used with or without tie-rods. A fourth possibility, the thin shell vault, has the beam action built into the curved section. The curved panel roof shown in the photo sequence (above right) consists of 4-ft wide arches with male and female edge joints nailed and glued into beveled ridges in the laminated supporting beams. *Junt Jr. High School Gymnasium, Tacoma, Wash. Architect: Robert Billsborough Price*





TYPICAL NAIL-GLUED TRUSS

When used as truss joint connectors, plywood gusset plates add strength and rigidity, and reduce weight. Used on both sides of a joint, they also eliminate eccentricity, the major cause of twisting. Depending on the roof slope and span, trusses with nail-glued gussets may be of several designs, including the "W" truss shown

spanning large spaces and may be assembled with nails alone.

A recent addition to the language of folded plate roofs is the "space plane." Whereas the ordinary folded plate roof has parallel chords and is composed of rectangular members of regular dimensions, the space plane is characterized by having non-parallel chords that may or may not intersect. The radial folded plate is the simplest illustration of this principle.

Trusses

Trussed rafters with plywood gusset plates may be of several designs, depending upon the roof slope, the ceiling desired and the span. The plywood web roof-frame in which plywood webs replace intermediate supports, is used on low pitches (1/12) for spans from 20 ft-8 in. to 28 ft-8 in. and with sloped ceilings (3/12 pitch on the roof and a 1.5/12 ceiling) for spans from 20 ft-8 in. to 28 ft-8 in. with 2 by 4's and spans up to 32 ft-8 in. with 2 by 6 chords. The king post is used for slopes from 2/12 to 4/12, with 2 by 4 chords for spans of 18 ft to 24 ft-8 in., and with 2 by 6's for spans up to 32 ft-8 in. The nail-glued "W" truss for slopes over 2/12 is designed for spans of from 20 ft-8 in. to 28 ft-8 in. using 2 by 4 chords and up to 40 ft-8 in. using 2 by 6's.

Since these trusses have rigidly connected joints, their design is based upon actual loading tests of full-sized members. All are designed for a load of at least 40 lbs per sq ft of horizontal projection (15 psf dead load and 25 psf live load). The king post and the 2 by 4 "W" trusses are designed for 50 psf with 3/12 pitch and 60 psf with 4/12 pitch. All designs are based on 24 in. o. c. spacing and are nail-glued.

Certain recent technical advances in truss fabrication are making possible economical production of trusses with pressure-glued gusset plates. These appear to be much stronger than nail-glued trusses and are becoming more widely available.

Trofdek

Trofdek, a patented panel developed in England, is a parallel arrangement of "troughs" fabricated from plywood webs and lumber flanges. It resembles a miniature folded plate with troughs that function as sloped-webbed box beams and are designed as such. It can carry design loads ranging from 10 to 20 times its own weight over clear spans up to 50 feet, but its most advantageous spans will range from 28 to 40 feet, which is farther than is usually practical with stressed skin panels. Five standard sections are available, but nonstandard sections can be designed using box beam methods.

The standard sizes are 16, 32 and 48-in. widths with 9.31, 11.62 and 13.5-in. depths, and 19.2 and 38.4-in. widths with 15.6 and 17.10-in. depths. Standard lengths are in multiples of two feet.

Trofdek may be fabricated by either nail-gluing or pressure-gluing, with the latter preferable for appearance when the deck is left open on the bottom. It can be laid on straight flat supports, pitched supports or curved supports which may be walls, girders, box beams or trusses. It may be used for floors or roofs with the bottom open or surfaced, and the spaces between webs may be used for lighting, as well as for insulation and the usual services.

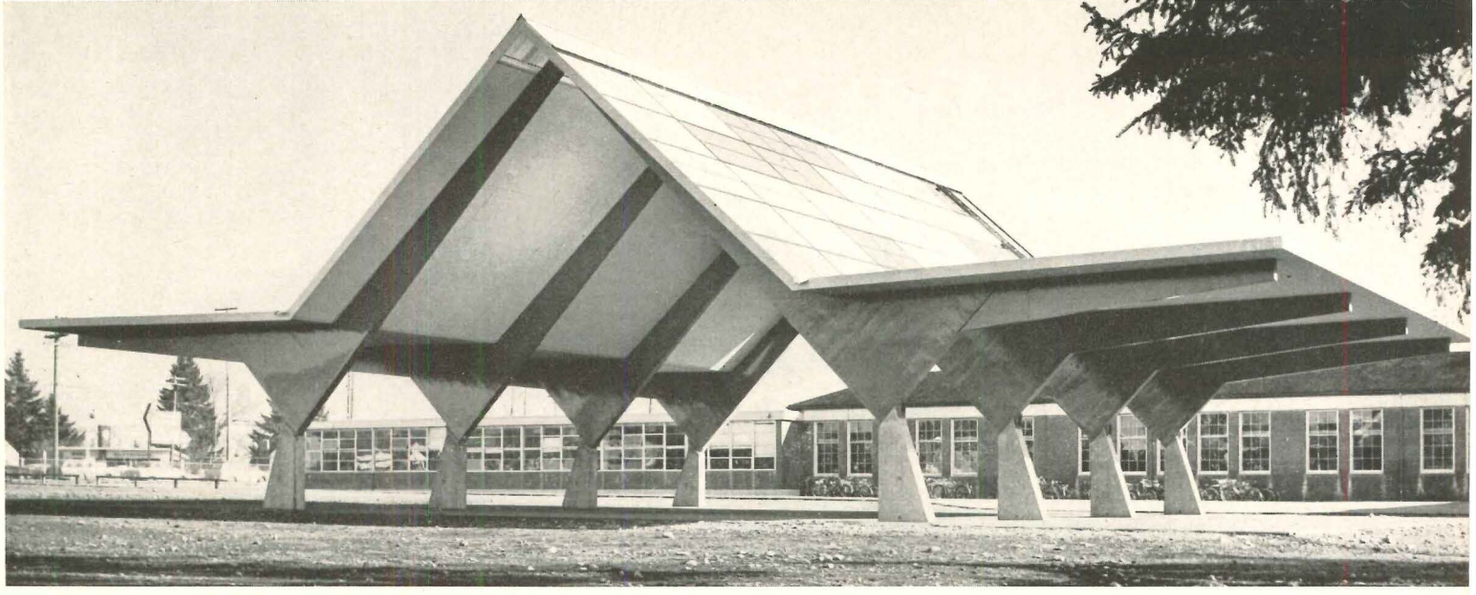
The panels may also be used for temporary or permanent concrete form work, the reinforcing being laid between the webs forming the upper troughs. When left in place, they provide a finish ceiling and an effective means of fastening. If removed, they give the concrete a striking ribbed design.

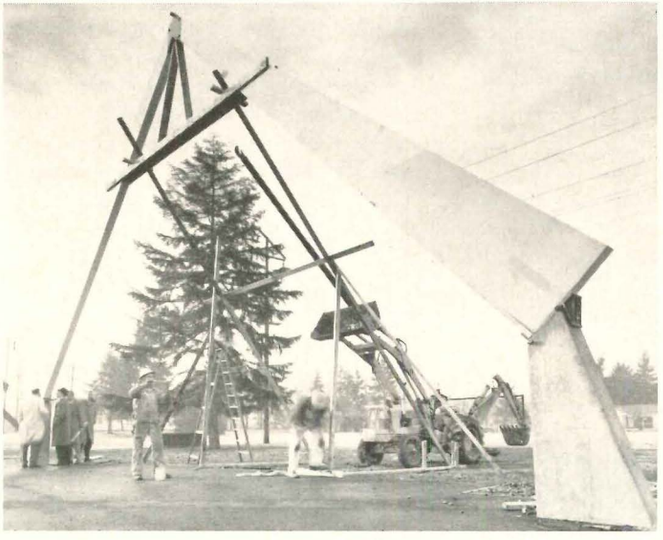
Delta Frames

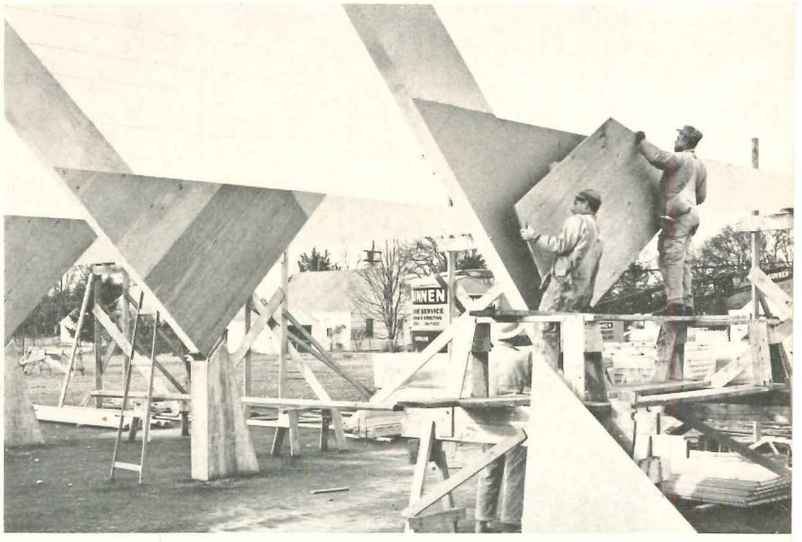
The delta structure uses a number of types of stressed skin panels and box beams in its assembly. Rigid bents composed of two tapered box beams form the predominant delta shape, and additional tapered beams cantilever from each side of this bent, partially balancing moments that would otherwise be quite large. Stressed skin panels, curved panels, *Trofdek* or folded plate roofs may be used to span between the frames.

The delta frame is capable of as many as 608 variations for use in utility structures where economy is desired. The frames also have design potential for use in schools, churches and other structures, and can be used in combination with other components in either square, rectangular or circular buildings. The cantilevered sides may be omitted, used on one side only or propped up to increase their widths.

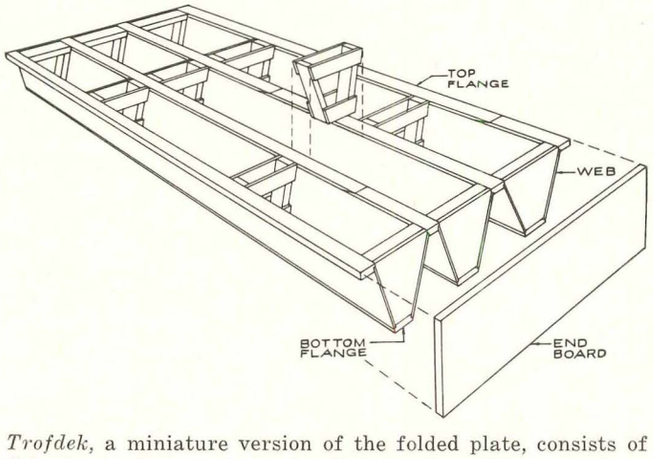
Delta frames may be of various sizes. An illustration of what is possible would be a structure with the frames resting on 5-ft concrete piers and the bents rising at a slope of 45 degrees, forming a span of 40 ft and a ceiling height of 25 ft as in the prototype shown at right. The sides could then cantilever out another 8 to 28 ft. The bay spacing between frames could be 12 ft, 16 ft, 20 ft or 24 ft, and the structure could consist of any number of bays, thus lending itself to expansion when additional space is required.







The structure shown above is the DFPA-built prototype of the "delta frame," a rigid bent composed of two tapered box beams with additional tapered box beams cantilevered from each side. The photo above left shows the first of the four 40-ft span A-sections that form the skeleton. At right above, the wing beams are joined to the bent with large plywood gussets. *Play Shelter, Park Lodge Elementary School, Tacoma, Washington*



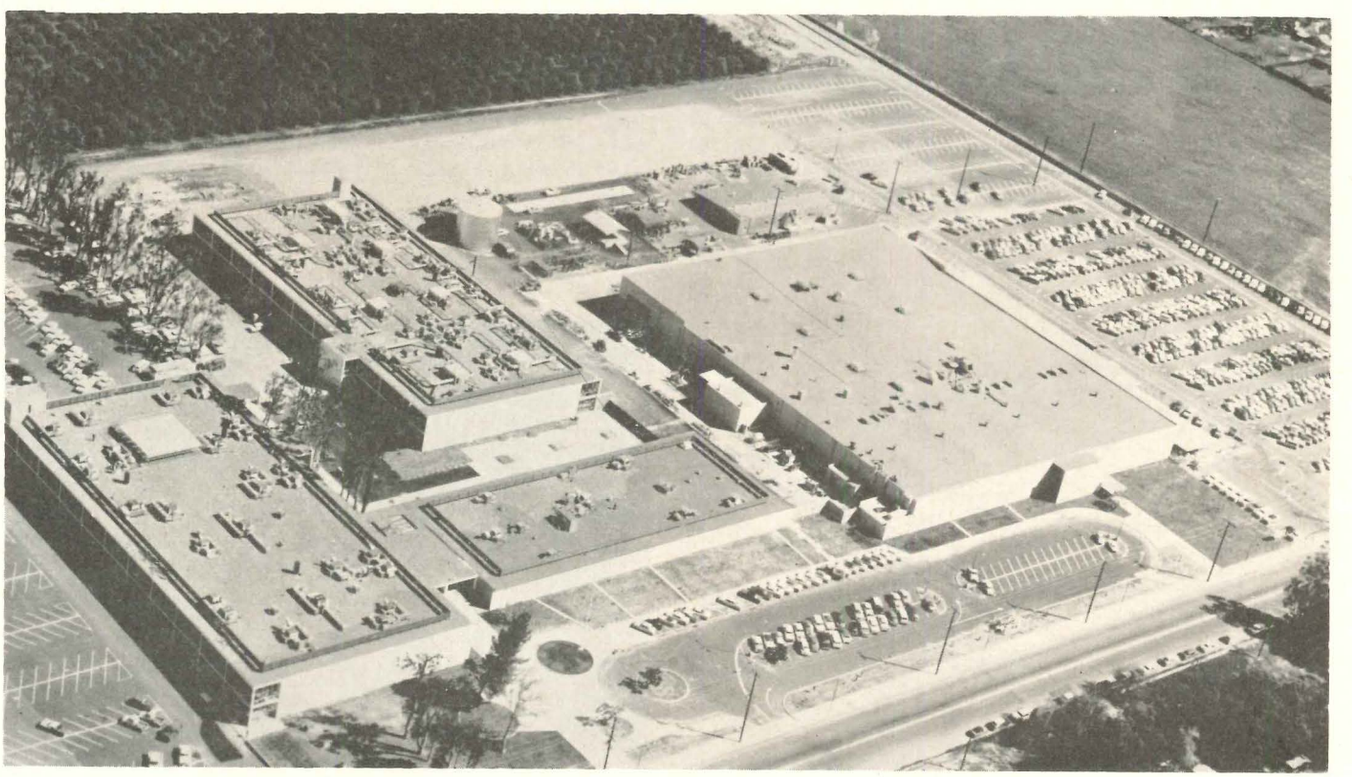
Trofdek, a miniature version of the folded plate, consists of thin sheets of plywood glued to light lumber stiffeners to form a series of troughs. The resulting roof or floor component is extremely light weight but capable of carrying loads of from 10 to 20 times its own weight over clear spans up to 50 ft. At right, it serves as structural roof and finished ceiling. *Heath Ceramics Company warehouse, Sausalito, California*

ROOF-MOUNTED HEAT PUMPS SOLVE MULTI-ZONE PROBLEM

Adding a three-building complex to the Canoga Park, California, plant of Atomics International, Division of North American Aviation, Inc., posed problems in multiple zoning and flexibility. Albert C. Martin & Associates, Architect-Engineers, studied six solutions and selected modular combinations of stock heat pump sizes to serve 76 separate zones in the plant. Moveable partitions in conjunction with adaptable ductwork throughout make future interior changes easy. General Contractor was C. L. Peck Construction & Realty Co.

Unlike air conditioning an office building where cooling and heating loads vary predictably with the sun and seasons, air conditioning industrial buildings can be an ever changing, complex, control and distribution problem. Industrial buildings, often keyed to new technologies, have to be designed for rapid, economical changes. Industrial air conditioning systems must be flexible; and positive ventilation is a requirement not only for human comfort but for safety as well.

In the design of an air conditioning system for two, two-story buildings and one single-story structure comprising a new 250,000-sq ft addition to facilities of Atomics International division of North American Aviation, Inc., emphasis was even more than usual on providing a flexible system. The new plant in Canoga Park, California, had to be adaptable and re-adaptable at will. All partitions, except in radioactivity lab areas, had to be moveable. Offices might become research labs, research labs might change from projects at ordinary temperatures to high or low temperature experiments, or from research to production activity.



Aerial view of Canoga Park, California, plant of Atomics International, Division of North American Aviation, Inc. Three new buildings at left, recently added to manufacturing plant, right, on 80-acre site, comprise 76 separate heating-cooling zones. Roof of new laboratory building, top center, also carries round ductwork system exhausting radioactivity areas and terminating in absolute filters. Helicopter landing pad is shown on roof of engineering and office building at left. Single-story structure, center, is service building housing cafeteria and lounges. Basementless buildings are on cast-in-place friction piles. Framing is reinforced concrete. Walls are reinforced concrete block. Roof is built up tar on steel

The air conditioning system had to be able to respond as heat load conditions or ventilation requirements changed anywhere in the facility.

Packaged Flexibility

Packaged equipment of large capacity is offering designers one method of dividing up such a problem into zone segments and then simply matching available packaged units to the specific load condition present in each zone.

Albert C. Martin & Associates, architects and engineers for the new AI facility, used the divide-and-conquer approach to the 1050-ton total air conditioning load calculated for the Canoga Park plant. The result was a complex of 76 zones served by 76 separate roof-mounted air-to-air heat pump systems, each tailored to meet the design needs of the zone served, and each capable of being expanded should load requirements change.

Capacities of the heat pumps varied from a single five-ton unit supplying one of the zones in the single story personnel service building, to a 24-ton combination supplying one of the research zones in the laboratory building. Factory assembled units were built for the specific need each was to meet. Four basic compressor sizes—3, 5, 7.5, and 10 hp—were combined as needed with three different coil sizes, in four different cabinet sizes.

In some zones, where winter and summer loads were balanced, the packaged units were set up as heat pumps. In other cases, where the seasonal loads varied, the units might comprise two or three compressors in a heat pump arrangement with an additional two or three compressors to supply the extra capacity for summer loads.

In one area in the laboratory building, for example, zone 27, the package contains a heat pump circuit of seven-ton capacity and an additional cooling circuit with a 10-ton capacity. During the summer there are four stages totaling 17 tons available for cooling, and in the winter only the seven-ton heating capacity is run.

Zone 26, serving an immediately adjacent lab area, has 12 tons of heat pump capacity and an additional seven tons of cooling capacity. Four cooling stages totaling 19 tons are available in the summer in this zone and two heating stages (12 tons) in stages specificed by the department:

Not Only Flexibility

Flexibility was not the only requirement set down by Atomics International's plant engineering department in the preliminary design stage. The unitary approach also resulted in a number of other important advantages specified by the department:

Reliability: Since most of the laboratory areas involve use of toxic, odorous, flammable, and/or radioactive materials, the continuing functioning of the system must be assured. With multiple packaged units, even if the entire refrigerant system in one of the packages fails, the blowers can operate independently to maintain air pressure required for proper exhaust.

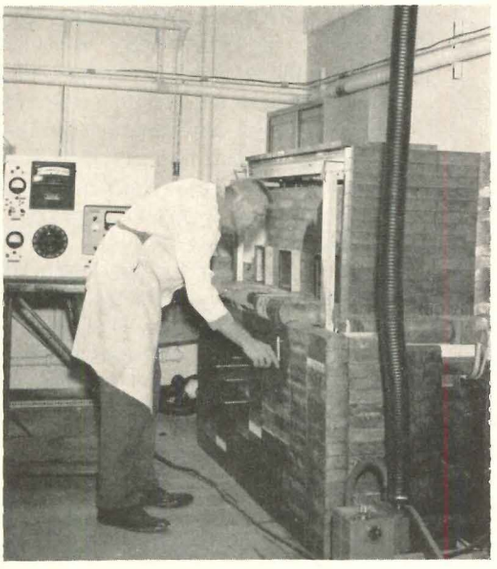
Accessibility: Roof mounting makes maintenance easy, prevents building routine from being interrupted when adjustments are needed; eliminates problems of admitting service personnel to restricted areas in the plant.

Space saving: Putting the mechanical equipment on the roof meant that space normally lost to mechanical equipment rooms was available for productive use; the only interior floor space occupied by the systems was shaftway space four feet square on top floors for each two zones in two-story buildings.

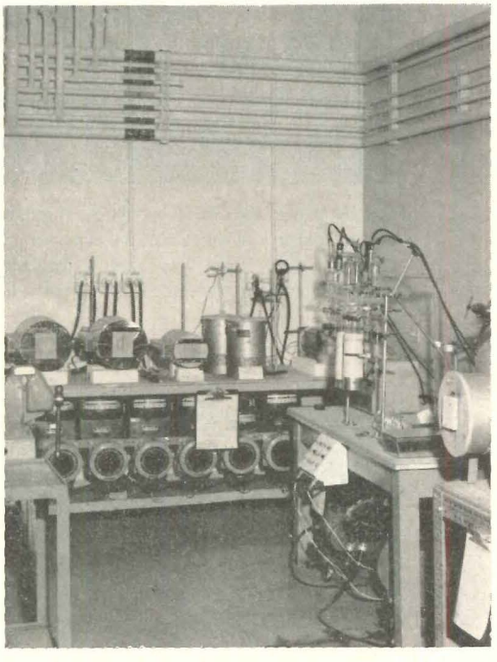
Economy: First cost of the packaged heat pump system was more than $200,000 below that of conventional systems considered. Heat pumps eliminated need for a separate heating system. Careful sizing of equipment and favorable co-efficient of performance of the heat pumps promised savings in operating costs. Data accumulated so far indicate costs are as favorable as the design study projected. Due to the light weight of the equipment, minimum amounts of special roof bracing and platforms were required. Using packaged equipment virtually eliminated refrigerant piping in the field, and air cooled equipment saved the cost of water piping and cooling towers.

Comparative Costs

Since roof mounting eliminated several thousand square feet of covered building space normally set aside to



Scientist operating a remotely controlled vacuum furnace in laboratory. Flexible tubing carries furnace exhaust to filtering system on roof, but furnace walls add greatly to cooling load in this area



Battery of moveable electric furnaces add to cooling load in this zone today, perhaps another tomorrow, putting new demands on flexibility of air conditioning system. Labs are furnished with seven, color-coded, piped utilities: Hot water, cold water, chilled water, distilled water, compressed air, natural gas, and vacuum. Mains are on outside first floor walls. Branches run horizontally to bays, vertically to second floor. Electrical services, handled similarly, provide 120-volt single phase and 480-volt three phase current.

house mechanical equipment, estimates made by A. C. Martin & Associates showed a saving of more than $1.40 per sq ft available with the heat pump approach compared to a central project air conditioning system with 20 per cent reserve capacity.

Packaged heat pumps offered an advantage of at least $1.10 per sq ft over central systems with no standby capacity in each individual building. A comparison of installed costs of six approaches to this design problem showed packaged heat pumps lowest by at least fifty cents a square foot.

Design Conditions

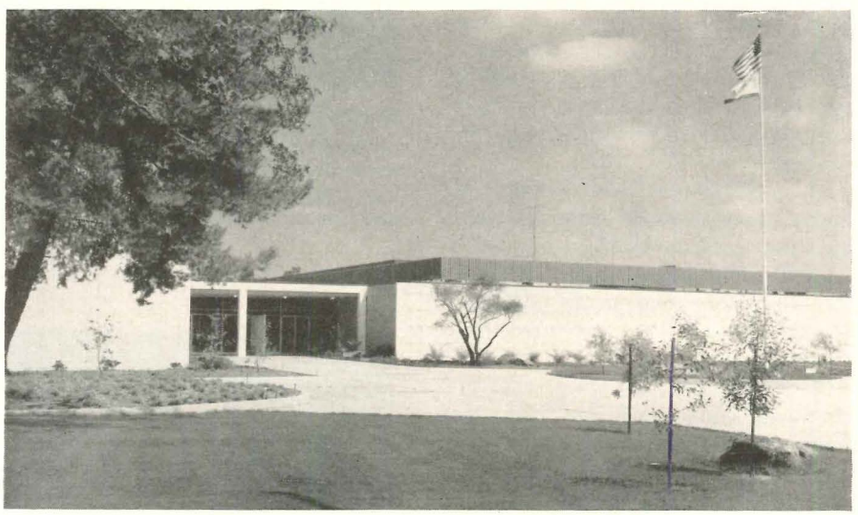
Summer: The conditioned areas are maintained at 80 F dry bulb and 50 per cent relative humidity continuously. Design was based on a summer outside temperature of 100 F dry bulb and 72 F wet bulb with a wind velocity of eight mph.

Winter: In the winter the conditioned areas are maintained at 72 F dry bulb with an outside design condition of 30 F dry bulb and a 15 mph wind velocity.

Control: Temperatures are controlled within two degrees in all areas except in executive offices where control is within 1.5 degrees, and in the Standards Laboratory where control is held very closely within one degree.

Sound: Maximum of 55 decibels flat response is maintained in most general areas with the executive area held at 35 decibels maximum.

Outside air: Maximum amounts are used wherever possible. Minimum requirements were set at 25 per cent in non-critical areas, 50 per cent in executive areas, and 100 per cent in areas with radioactivity conditions. Return air ducts in radioactivity areas terminate in "absolute" filters and air pressures within those areas are held below those in surrounding areas to prevent any outward flow of air into other areas of the building.



Lobby entrance joins engineering building, left, with service building. Exterior block walls are natural desert tan. Windows, used only as a design element in this project, have sea blue porcelain panels at top and bottom. Roof-mounted equipment is screened from ground view by dark brown fluted metal decking

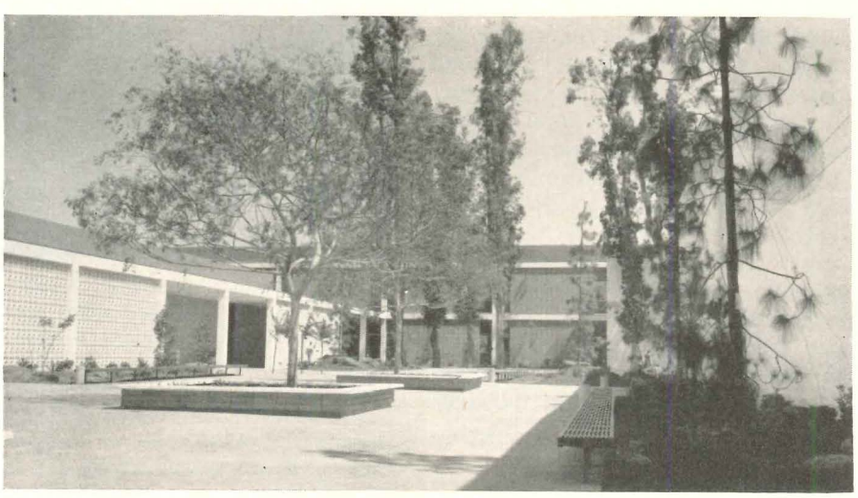
Duct System

For the two new buildings in the AI facility which were two stories high, a novel duct system was designed to provide the shortest possible duct runs. Shafts with sufficient space for future duct enlargement were run from the roof through to the ceiling of the first floors in the laboratory and engineering buildings (nine shafts were required in the laboratory building). In general each of these shafts houses two supply ducts, serving adjacent zones, and the shaft itself serves as the return air duct. Since excessive humidity in the Canoga Park area is no problem, the supply ducts in the shaftways were sufficiently insulated by glass fiber liners installed for noise control.

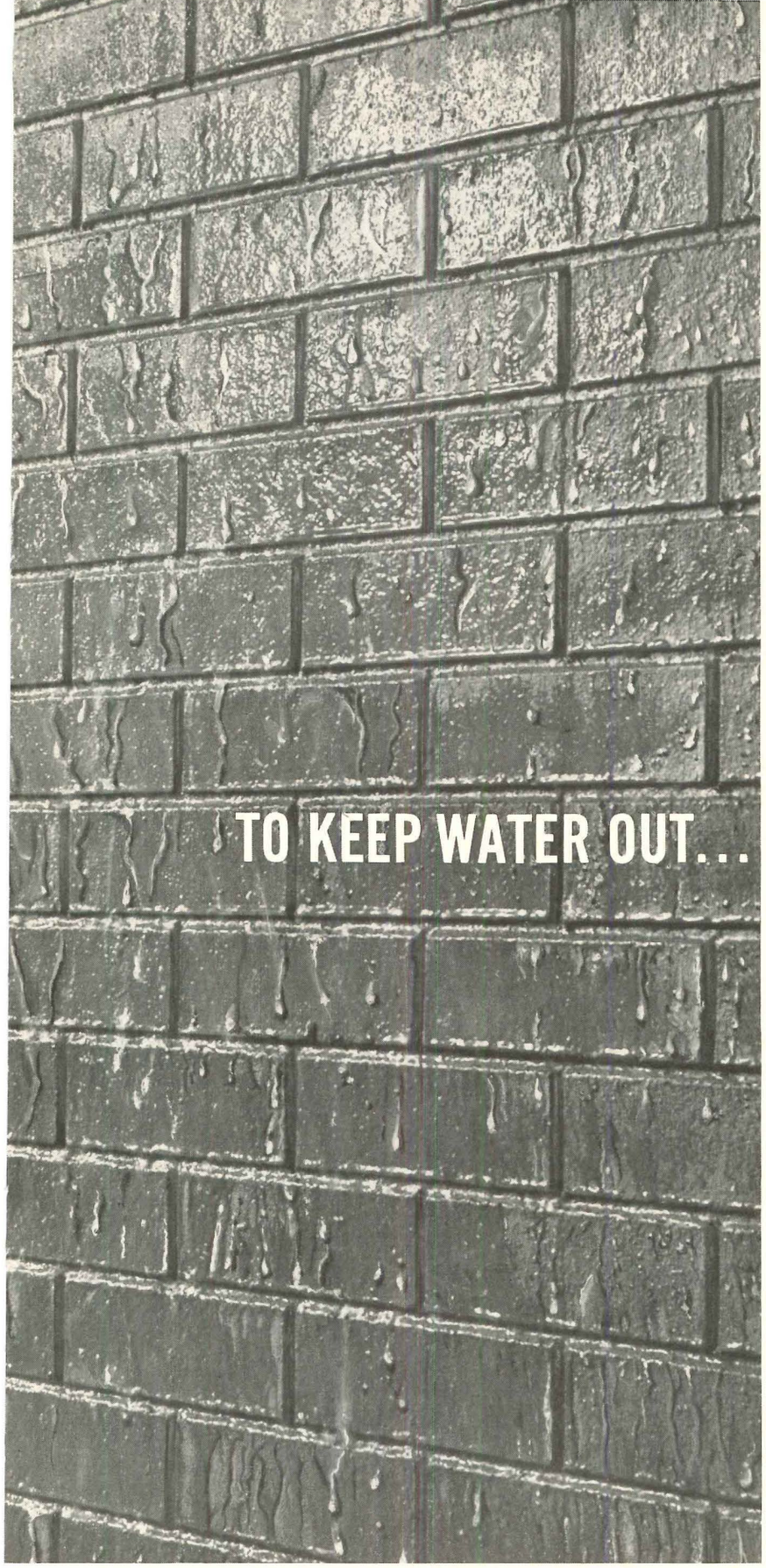
Partitions

Interior finish of outside walls is rough painted concrete block. Windows are solar screen glass. Moveable partitions inside are two-foot wide gypsum sandwich panels fitted toung-and-groove edge to edge. Panels are made up of 5/8-inch gypsum board glued on each side of a 1-inch gypsum core. Panels are held top and bottom in aluminum channel bolted to ceiling and floor. Channel and panels can be easily relocated. Through-bolts and backing boards are used in mounting heavy equipment on walls.

The Canoga Park heat pump systems provide a flexible, low cost means of heating and cooling an expanding, changeable, technical, research and manufacturing industrial plant complex.



Mall between service building and laboratory, right, looking toward engineering building. Ornamental concrete grilles, left, and slat shading, center, shield covered walkways reducing heat load and providing shaded passage between buildings



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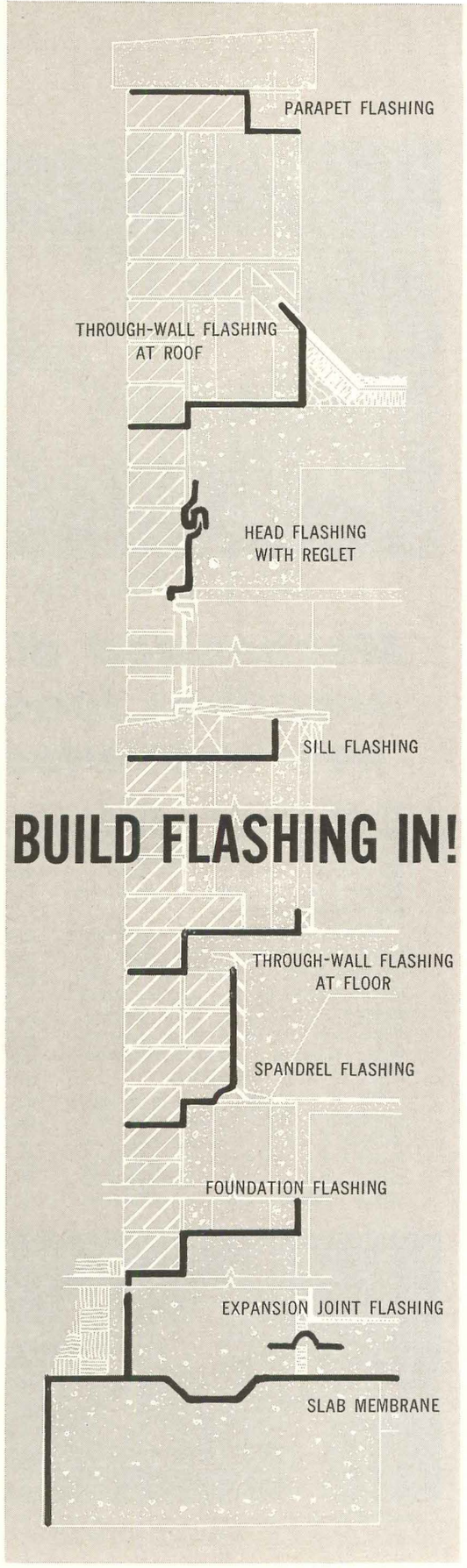

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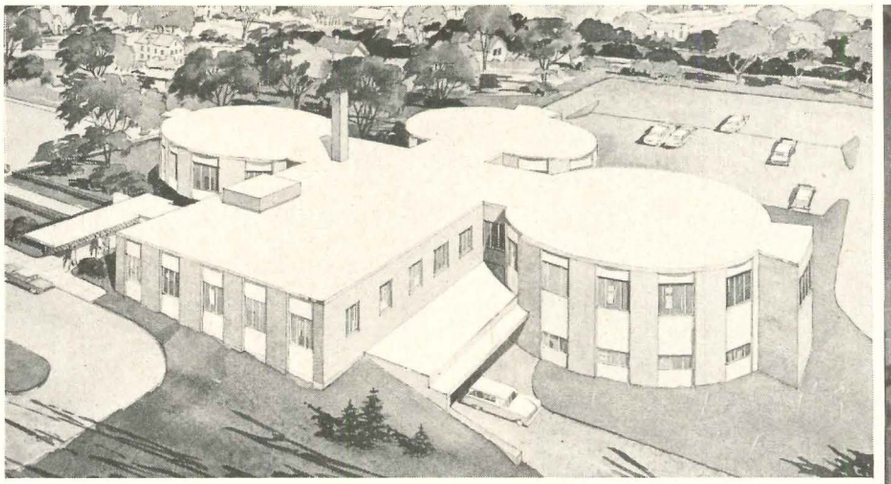


LAKEVIEW MEMORIAL HOSPITAL, Stillwater, Minn. ARCHITECTS: Ellerbe & Company. CONTRACTORS: C. H. Peterson Construction Co.

Mechanized dish handling simplifies food service at new "cloverleaf" hospital

The first general acute hospital in the United States to use the new "cloverleaf" design, Lakeview Memorial Hospital at Stillwater, Minn., is a marvel of planned functional efficiency.

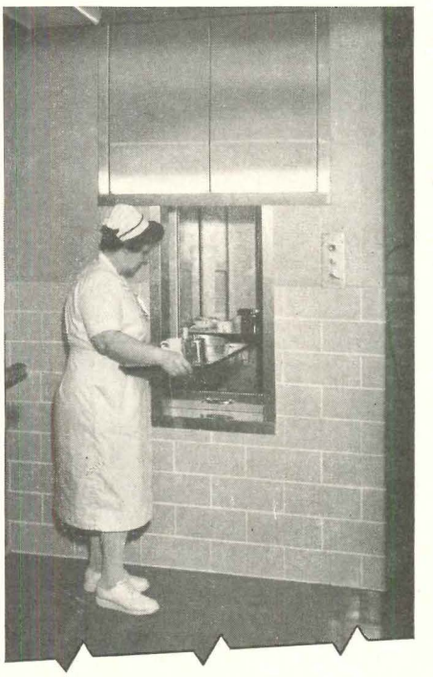
Three circular wings extend from a rectangular center section. Rooms with 67 beds are at the outer edges of the circles with nurses stations in the centers. Nurses never lose visual contact with patients . . . are never more than 20 feet from them.

Food service, too, is ultra-modern. A STANDARD CONVEYOR *Traylift* (right) carries trays of food from kitchen to serving areas, carries soiled dishes down again—swiftly, silently and safely.

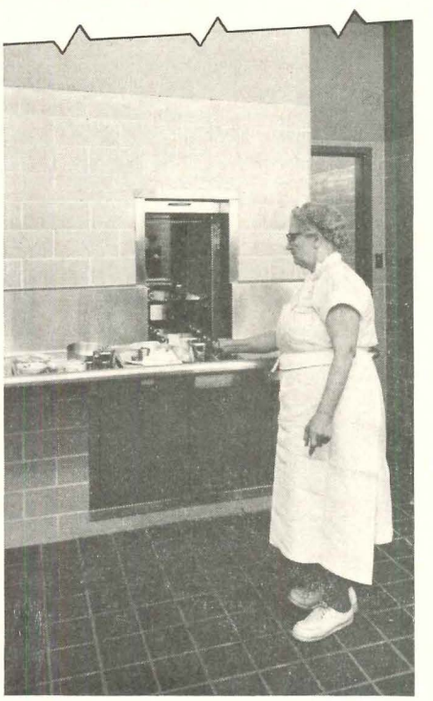
In the ground floor kitchen a STANDARD CONVEYOR *Traybelt* (below) simplifies make up of individual food trays and speeds them to the *Traylift.*

As the modern way to efficient food service, STANDARD CONVEYOR mechanized dish handling systems offer many advantages.

By providing a fast and economical way to transport trays, they let you locate kitchen and dish washing areas remote from dining areas. They allow planning for efficient service with reduced personnel requirements. They provide faster food service with reduced dish breakage. And best of all, they pay for themselves fast out of operational savings.



Standard Traylift makes quick work of carrying soiled dishes down from first-floor serving area (above) to ground-floor dishwashing room (below). Reversible model also allows up-service for food trays from kitchen to patient floor. Other models featuring simultaneous up-and-down service, push-button selection for serving more than two floors, and completely automatic loading and unloading are also available.



Standard Traybelt speeds make up of food trays, carries them safely to the Traylift. Many other models are available to meet a wide variety of food service requirements.

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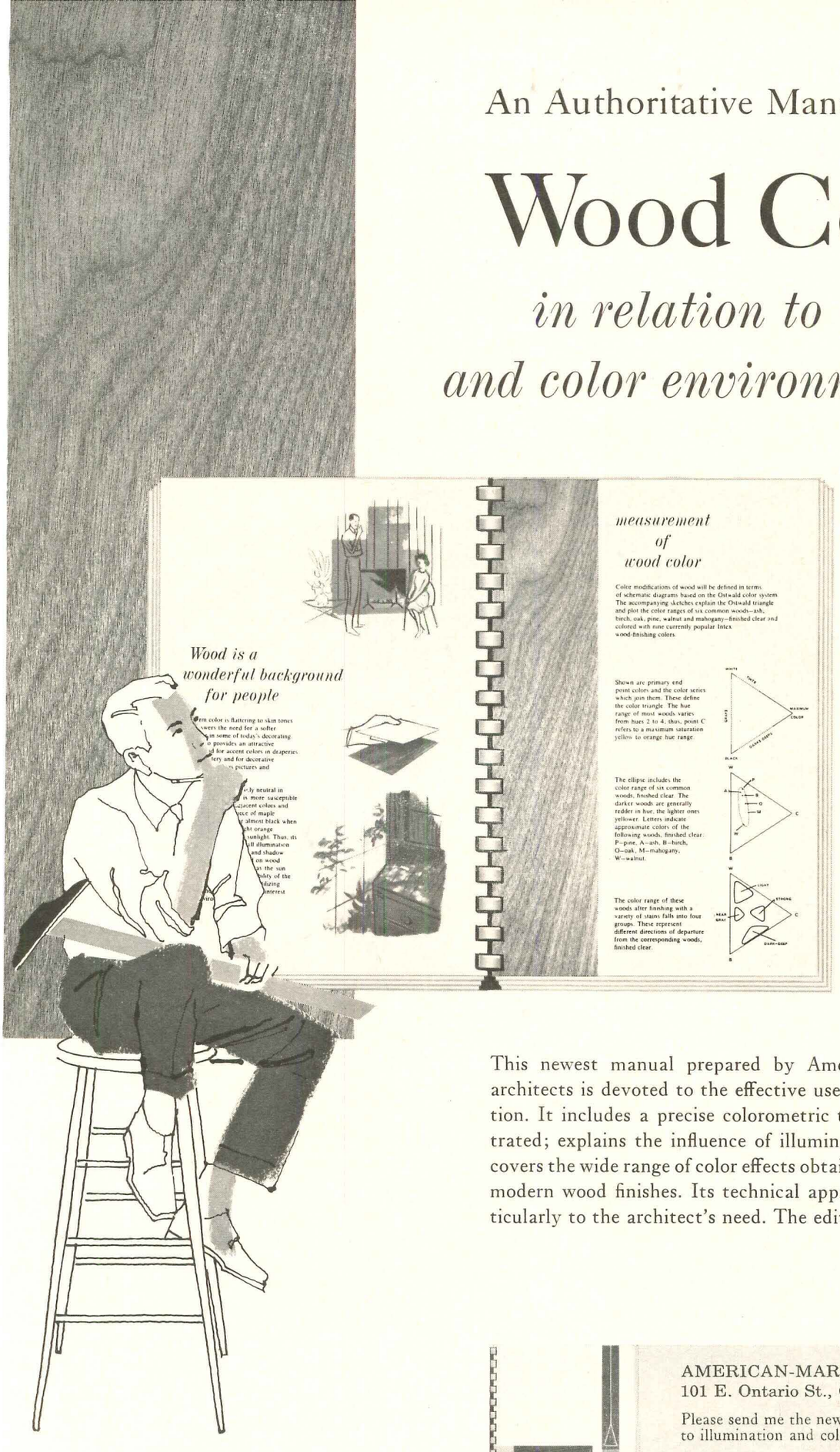
in relation to illumination and color environment



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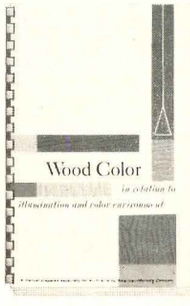

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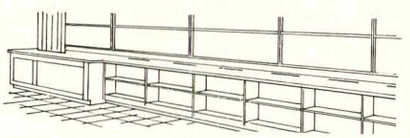
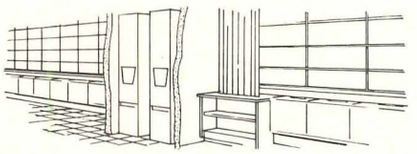
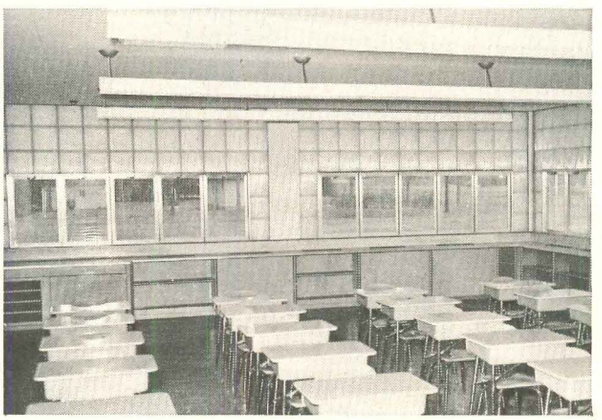


NORMAN ENCLOSED HVS compact horizontal unit illustrated with Util-i-Duct bookshelf sections



NORMAN INN-A-WAL counter flow furnace in separate heater room, illustrated with economical Wall-i-Duct sections



School: St. Francis Xavier High School, Sartell, Minn. **Pastor:** The Rev. Frank H. Ebner

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SELECTING FOOD SERVICE EQUIPMENT

Part 1 of 2

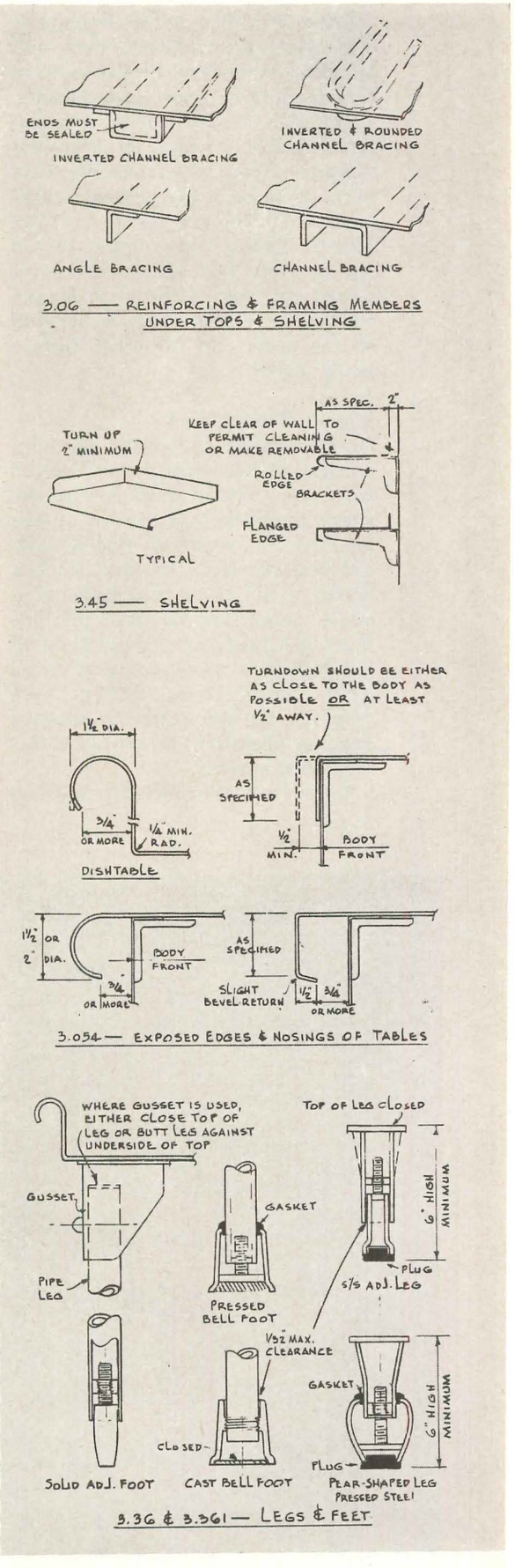
Although the innards of food service facilities are usually planned by a consultant, the overall responsibility for the installation remains with the architect. Its success depends on his knowledge of the factors that affect the job to be done and of the general criteria for selecting equipment to do it.

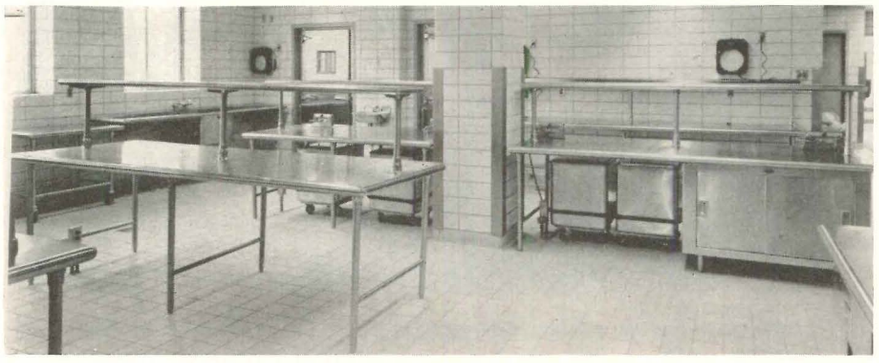
Whether a food service installation is to be a simple space set aside for vending machines, such as might be found in a factory, or a spacious cafeteria-dining room taking up an entire floor in an office skyscraper, its purpose is to process and distribute food in a sanitary and efficient manner. Its success depends on the proper selection of materials and equipment, and on the application of certain planning principles early in the design of the building. In most large installations, the architect will retain a food consultant, but he will be able to contribute more to planning, and coordinate the work better if he understands the problems involved.

Space Requirement

1. *What type of service is desired?* Before the architect can begin to consider space allotment for food areas, he must learn from the client the type and extent of the service desired. Does he want formal, sit-down dining . . . a cafeteria system . . . simple facilities to handle coffee-breaks . . . one, two or three meals a day . . . a combination of several of these?
2. *How many meals a day?* How many people must be served in what period of time? How will meals be scheduled? Will there be several feeding periods?
3. *What kind of menu is desired?* Will most customers be executives, factory workers, men, women or children? What price range? How much of a menu selection is desired?
4. *What is the most convenient, accessible location* for the food service area? Does this area conflict with any other building requirements?
5. *What is the food supply situation?* Does the geographic location of the building permit daily food deliveries? Will baked goods be bought,

NOTE: All details shown are from National Science Foundation Standard 2.





TABLES AND SHELVES are found in all food preparation areas. Exposed tops should be in one piece or all seams filled and made smooth. Where top butts adjacent equipment, it should have integral splashback or rim. All external corners or angles should be closed and finished smooth. They should be made tight by welding, tack welding and soldering. Open stand tables with or without cross rails should be constructed of tubular frame design. Vertical angle frame and cross framing is not acceptable. Above: *Fordham University, Bronx, N. Y. Ben Perlstein, Designer; H. Friedman & Sons, Fabricator*

or prepared on the premises? The supply situation will affect storage space required.

These are some of the basic questions which the architect, client, and food consultant must resolve early in the planning of space requirements. In addition, a rule of thumb is sometimes applied: Formal, sit-down restaurant—15 sq ft per person; cafeteria—12½ sq ft per person; luncheonette service—down to 10 sq ft per person. These figures refer to the dining area. The kitchen space required will vary from 30 to 60 per cent of the dining space, depending on the menu and the other factors noted above.

Layout Requirements

Once a general agreement has been reached on the space needed for the particular type of food service desired, a preliminary layout of the area can be considered. One consultant remarks that the ideal kitchen layout would be in the shape of a circle, permitting the staff to come in at one point and proceed through the area with no retracing of steps. There should be no crossing over from one kitchen section to another, and one operation should not interfere with another.

Layout not only includes preparation and service of food, but also communications, office space, cleaning supplies, garbage disposal, water and fuel provision, storage and movement of food and other necessities, employee locker rooms. A layout which works well for one operator will not necessarily solve the problems of another. However, the National Sanitation Foundation Standard No. 2 for fabricated equipment makes recommendations for layouts which will aid sanitation and give an idea of minimum space requirements.

Equipment Selection

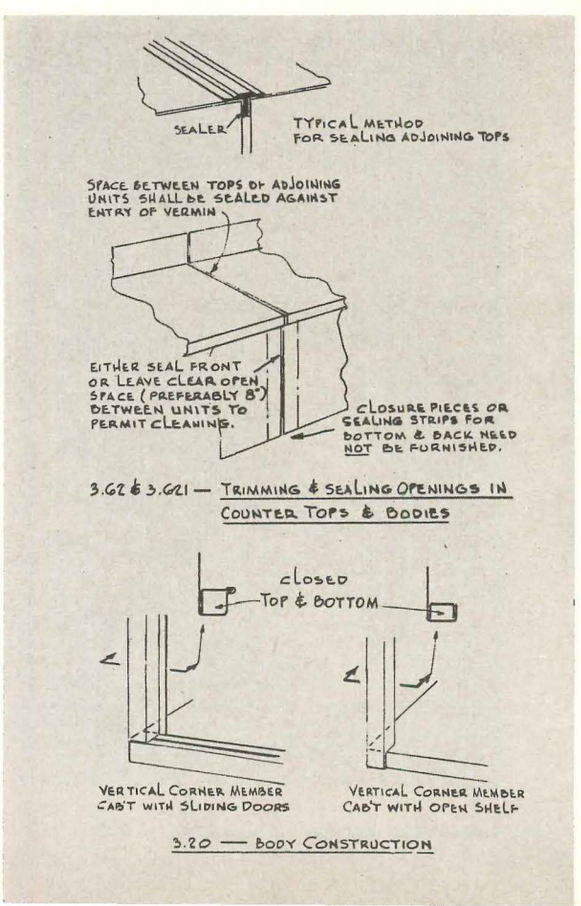
Layout will be greatly affected by selection of equipment—size, type, and number of units. In any extensive food service installation, most architects will have the benefit of a specialist—an independent consultant or someone on their own staff or on the staff of an equipment manufacturer, although in some cases, especially on smaller jobs, the architect may be called on to design and select the equipment himself.

Food service areas will generally require both special and/or standard fabricated equipment and manufactured equipment. Included in fabricated equipment are cafeteria counters, dish tables, work tables, sinks, and some types of refrigerators. Such heavy-duty custom equipment is often not made until the fabricator's shop drawings are approved. Some suppliers, however, have standard models available from stock lines. Manufactured equipment, on the other hand, includes such machine equipment as dish washers, ranges, ovens, broilers, some carts, fryers, refrigerators, and miscellaneous appliances.

In selecting manufactured equipment the architect should consider general simplicity of design and operation. These characteristics will cut costs of maintenance and repair, and be a help to unskilled kitchen workers. Another important factor is availability of service.

Specifying fabricated equipment is a much more detailed job requiring thorough knowledge of design criteria. Some general points should be considered in this phase of food service.

1. Function: What is the piece of equipment for . . . what job must it perform . . . what must its dimensions and shape be . . . how do they affect the overall layout?
2. Sanitation: Are proven design details which aid sanitation and cleaning applied in the equipment: coved corners, absence of crevices,



CABINETS, like other food service equipment, should be of vermin proof construction, with all posts, uprights and so forth of seamless stainless steel tubing. All doors, drawers and bins should be made removable for easy cleaning, as should racks for trays or pans. Drawers may be die stamped or welded and soldered to give seamless, rounded corners. Tops of cabinets should be sloped where possible to prevent accumulation of dirt and grease and to allow for easy cleaning. Cabinets for storage of utensils and small mechanical equipment should be near, or adjacent to, use point. Above: *Clara Maass Memorial Hospital, Belleville, N. J. Raymond B. Flatt, Architect; S. Blickman, Inc., Food Consultant and Fabricator*

joints welded or sealed off, rounded edges and corners, accessibility of parts, removable drawers? Does its design meet the minimum requirements of the National Sanitation Foundation Code? Does its design and placement meet local health ordinances? Can it be wall hung? If not, is it placed at least 3 in. from the wall?

3. Structural stability: How much abuse must it take? Are its supporting legs and frame braced against wiggling? Will the top saucer or belly? Are most connections welded for strength and cleanability?

4. Appearance: A good-looking installation costs no more than an unsightly one. Attractiveness in the kitchen and serving area will keep employees on the job, can be a showpiece for patrons.

5. Flexibility: Can the unit be used for other purposes? Can it be moved easily?

6. Materials: Is the best material being used, and is it in line with budget considerations? Because it is strong, corrosion resistant, easily cleaned, attractive and can be formed readily, stainless steel is still considered the most desirable material for food equipment. It is considered mandatory for parts which contact food, although other materials, including aluminum and plastic, are being used for less demanding applications such as non-wearing surfaces and containers.

Check List for Fabricated Equipment

Where there are joints, pieces should fit together and be perfectly leveled.

Edges and corners of tables, drawers, sinks and serving equipment should be welded and polished and practically invisible. Welding may be better than forming for very deep equipment because deep-drawing thins the metal and subjects it to stresses.

Fully-enclosed gussets should eliminate recesses where dirt and vermin can collect. There should be no protruding bolts to catch cleaning cloths.

Fully-enclosed reinforcing channels should be welded to the underside of work-tops. These eliminate crevices and are easy to clean.

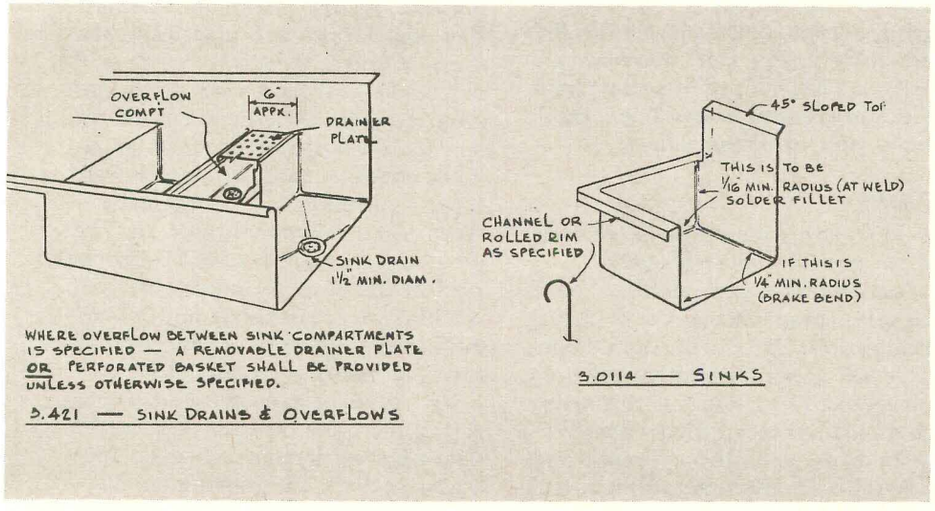
Intersections of tubular members should have generous fillets, polished smooth and free of pits or crevices.

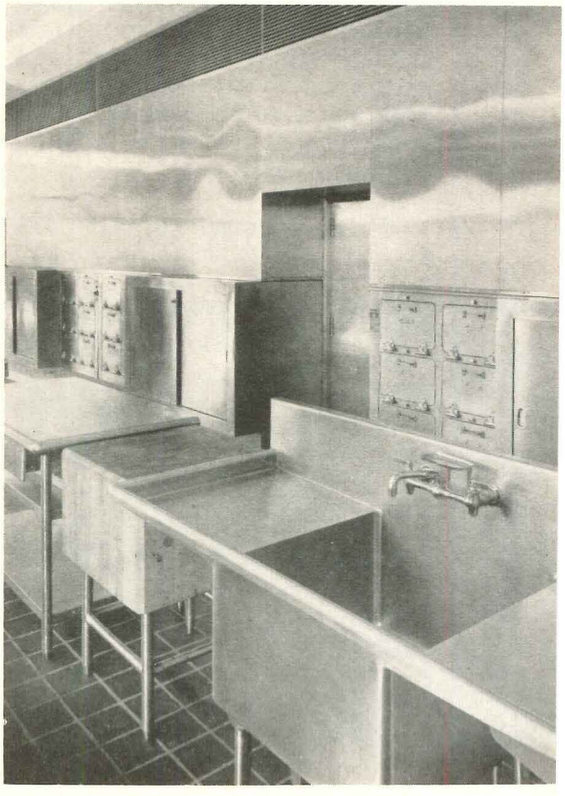
Equipment feet should have vibration dampers for control of noise and rattle, be adjustable for non-level floors. Bullet-feet present fewer crevices for dirt catching.

Drawers should be removable, have rounded corners for easy cleaning. Check for overhead suspensions and roller bearings on sliding doors. Recessed handles will not break off, eliminate protrusions which might cause injuries.

Check the manufacturer's follow-through. A reliable firm supervises installation at the food area, checks to be sure equipment fits properly, and that plumbing, electrical and other contract work is coordinated with the food equipment.

The National Sanitation Foundation, with headquarters at the University of Michigan in Ann Arbor, is the only group in the country that has published standards for all types of food equipment. Most food equipment manufacturers claim to surpass the minimum standards set up by the Foundation, but the standards will insure at least a certain minimum level of quality. As a general practice, many architects include a reference in food equipment specifications that "all equipment must meet, or go beyond, the standards of the National Sanitation Foundation." Many architects use design details that reflect the National Sanitation Foundation specs. Others use the National Sanitation Foundation code as a check.





SINKS. The overriding factor governing sink construction should be the maintenance of the highest degree of sanitation with the minimum amount of labor. Sinks should be made of seamless, welded stainless steel with rounded corner construction throughout to eliminate any possibility of vermin. Sink compartments should be integral with the dish or wash tables, with all crevices eliminated. Any fixtures such as strainer baskets, strainer plates, sliding trays, false bottoms, and so forth, should be of similar contruction and easily removable. They should be heavy enough to resist both normal wear and anticipated abuse. Right: *Connecticut General Life Insurance Company Building, Hartford, Conn. Skidmore, Owings & Merrill, Architect; Arthur Dana, Food Consultant; S. Blickman, Inc., Fabricator*

WHAT ARCHITECTS WANT TO KNOW ABOUT BRONZE

by John M. Foehl, Development Engineer, Anaconda American Brass Company *Part 2*

FABRICATION

24. Does the fabrication of bronze present special problems as compared to aluminum or stainless steel?

On the contrary, bronze is the easiest to work with, both from the standpoint of fabrication and finishing.

25. What is the general rule for sharpness of corner bends on red brass and Muntz metal when produced by roll forming or "brake"?

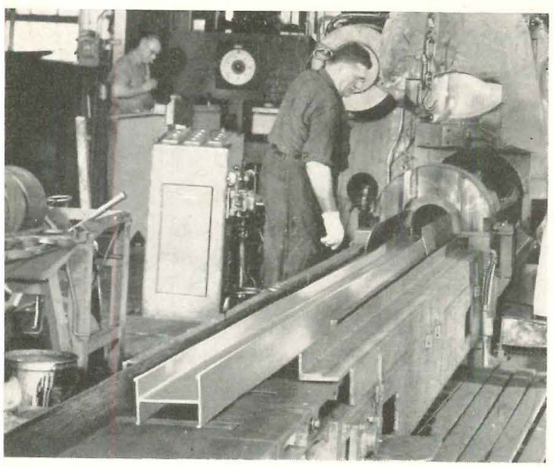
Where copper-alloy sheets are roll- or brake-formed, the corners will not be as sharp as those achieved in extrusion. As a general rule, with copper alloys it should be possible to form a 90-degree outside corner with a minimum radius equal to the thickness of the metal when the gage of the metal is $\frac{1}{16}$ in. or less. For metal ranging in thickness from $\frac{1}{16}$ in. to $\frac{1}{8}$ in., the minimum radius for a 90-degree outside corner will equal the thickness of the metal plus $\frac{1}{32}$ in.

26. Does welding or brazing affect the color of copper metals?

Temperatures required for welding and brazing will discolor the surfaces of the metal adjacent to the joints. This discoloration can be removed by steel wooling, or by sanding on a belt, but in extreme cases it may be necessary to first swab the discolored area with a 5 to 10 per cent solution of sulfuric acid, followed by a thorough water rinse.

27. Under what conditions are brazing or welding performed in fabricating copper-alloys? Can all alloys be welded or brazed easily?

All alloys can be brazed easily, but not all are readily welded. Brazing and welding always produce distortion; therefore, they are used only where means can be provided to offset the distortion or where corrective measures can be applied to the completed joints. Brazing is preferred because its lower temperatures produce less distortion, and it avoids joint porosity and color differences that are encountered in welding some of the metals. Silicon bronze can be welded by oxyacetylene and arc processes, and its use as filler metal gives sound, color-matching joints. Sound color-matching joints can be made in copper by inert-gas-arc welding using suitable copper filler metal. Sound welds with fair color match can be made in red brass by oxyacetylene welding with silicon bronze rods. Arc welding is difficult on zinc-bearing metals, so oxyacetylene welding is advised. Oxyacetylene welds with low-fuming bronze in Muntz metal and yellow brass are sound and color matching. So also are oxyacetylene welds in nickel silver when made with suitable nickel silver welding rods. Since it contains lead, welds in architectural bronze tend to be porous, but fair color match and minimum porosity can be obtained by using strips of the base metal as the filler metal, and a very oxidizing flame.



Architectural bronze extruded I-beam

COSTS

28. Is there a wide range in the costs of the various copper alloys?

Considering sheet material only, the price spread among the principal architectural alloys in the copper family is not great for widths which do not exceed 24-in. Beyond this point the spread increases, with copper lowest in price and silicon bronze and nickel silver highest. Muntz metal and red brass are about midway between.

29. Does it cost more to maintain bronze in good appearance than aluminum or stainless steel?

Definitely not. Specialists of long experience in refinishing architectural metals report that:

Anodized Aluminum, either in color or plain, will last several years in a favorable climate, but it cannot be refinished, nor satisfactorily lacquered. Removing the lacquer destroys the anodized finish to such an extent that the metal has to be given a flash of aluminum with a spray gun and then recoated with lacquer.

Stainless Steel is said to require only washing with soap and water. This is not actually so unless the owner is willing to accept a progressive soiling or graying of the metal. Because of the smooth, dense surface, stainless steel cannot be lacquered; therefore, the standard procedure in maintaining stainless steel is to clean the metal with an abrasive, such as pumice and water, once a month.

Bronze is the easiest to maintain because it can always be refinished without damaging the surface, and requires just an ordinary amount of care, or even less. Allowed to weather naturally, it will maintain itself.

30. What is the approximate installed cost comparison, percentagewise, of copper-alloy metals versus aluminum and stainless steel?

The first cost of architectural metal work favors aluminum because of its lighter weight. The cost of fabricating and erecting aluminum, stainless steel and bronze are practically the same. Work in extruded bronze will cost 25 per cent more than plain-anodized extruded aluminum, and 15 per cent more than color-anodized aluminum. Stainless steel is not extruded.

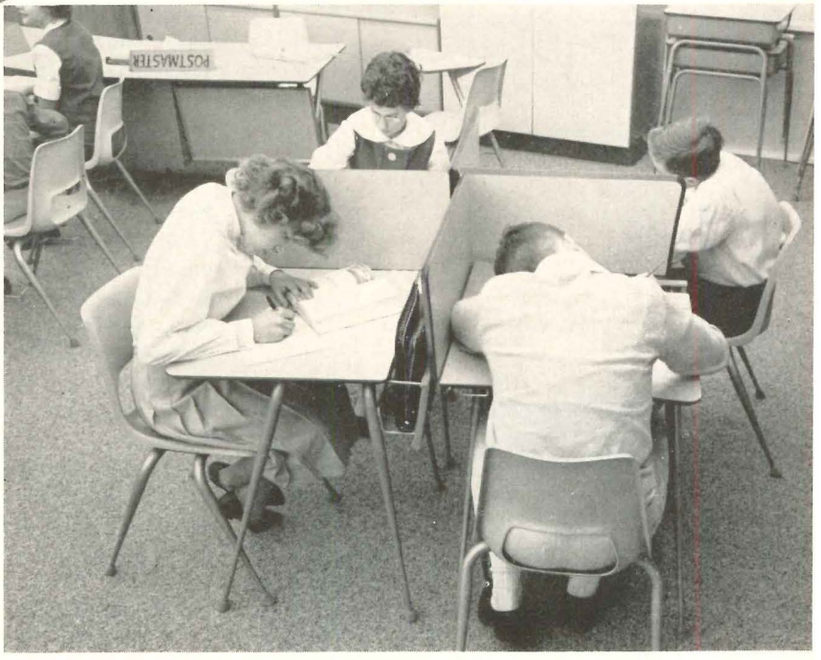
For paneling and wrap-around sheet metal, aluminum still has the price advantage, although it is seldom used in this way. Stainless steel and red brass are the metals most suited to this style. The cost is nearly equal, favoring stainless steel slightly.

For ribbed or corrugated roofing or siding the costs are probably in the following proportion: Bronze, 100; Stainless Steel, 95; Aluminum, 50.

For windows, the development of roll-formed silicon bronze sash and frame members has made this type of bronze window competitive to roll-formed stainless steel. By comparison, an aluminum window fabricated from extruded shapes and plain anodized, would cost approximately 15 per cent less. Color anodizing would reduce this differential.

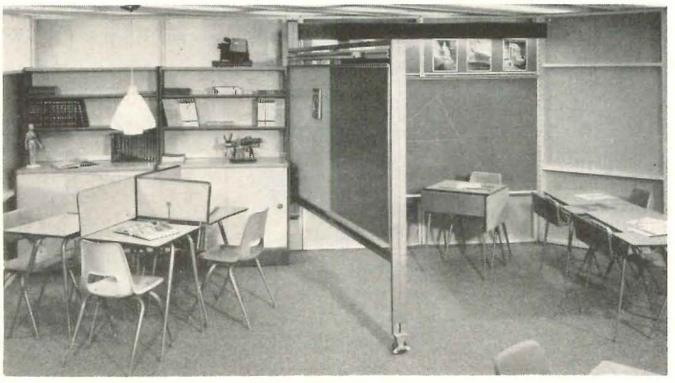
"IDEAL CLASSROOM" FEATURES NEW IDEAS, NEW EQUIPMENT

Taking its cues from recent studies on the subject, the Brunswick Corporation has created a model classroom to show how available components—including the new ones shown below—can better meet today's educational needs. One notable feature of the classroom is corner orientation, with focal points in the corners and student seating arranged in wedges facing them (photo left). In one corner is the teacher's work center, with reference materials, supplies and controls for electronic devices within easy reach. The room also features carpeting for better acoustics, special wall lighting, and several new classroom furniture designs by Dave Chapman, Inc.



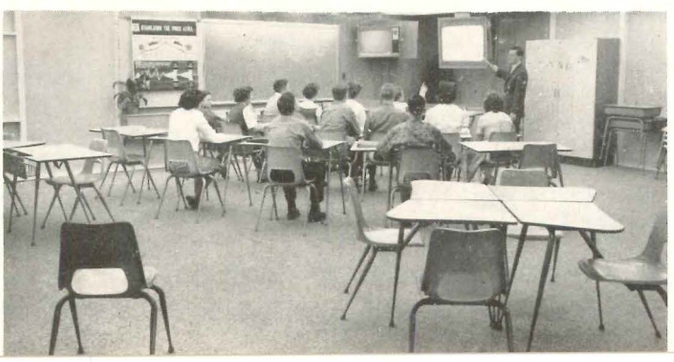
THE TRIZOID DESK. A new unit designed to serve the requirements of large groups (lecture), small groups (committee work and team study) and individual private study, the trizoid desk is essentially a rectangular work desk with a hinged drop leaf that can be set in three positions: lowered, horizontal or vertical. With the leaf lowered, the trizoid itself provides a large (21 by 23½ in.) basic work area. With the 24 by 11½-in. leaf placed horizontally, the desk provides a still larger surface for reference work or projects. When the drop leaf is locked in its vertical position, at right angles to the basic work area as shown at right, the desk becomes an isolated study center or carrel, providing the student privacy needed for testing or library work. The trizoid also features a book storage compartment located desk high at the forward edge of the desk top. It comes in 27 and 29-in. heights to meet the requirements of high schools and colleges.

THE SWINGING SPACE DIVIDER. To add to its flexibility, the model classroom is also equipped with a swinging space divider that can be swung flush against the wall or out at any angle from it to block off areas for special group activities. The divider itself is composed of a heavy metal framing member, 99 in. long and 79 in. high, fitted with standards from which can be hung such teaching aids as chalkboard, tackboard, pegboard, bookshelves and cabinets. One end of the unit is hinged to the wall; the free end is fitted with casters to permit rotation up to 180 degrees.

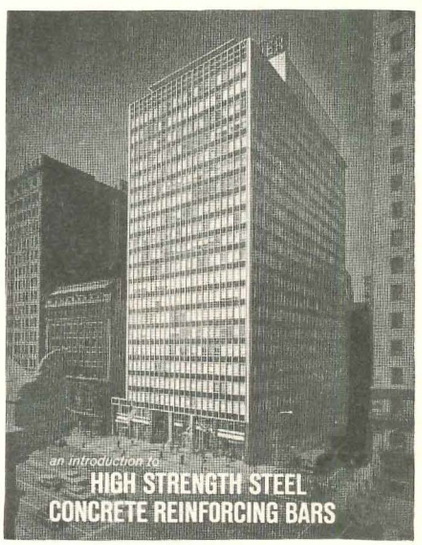


THE CLUSTER COMBINATION DESK. A one-piece chair and work surface unit, the cluster combination features a trapezoidal top with a gentle curve in the student side, instead of a regular rectangular top. Units can be grouped side by side in a fan-shaped line, or grouped in clusters of four (foreground, photo left) for student project work groups. Since each top is large enough to hold a cafeteria tray, the units are also useful for lunchrooms and cafeterias. *School Equipment Div., Brunswick Corp., 2605 E. Kilgore Rd., Kalamazoo, Mich.*

more products on page 218



Office Literature



AN INTRODUCTION TO HIGH STRENGTH . . . *Steel Concrete Reinforcing Bars* discusses the advantages and uses of high strength reinforcing bars and gives general instructions for their selection and use. Appendixes cover bend test requirements; minimum elongation requirements; use of hooks; welded joint details and types of joints, and welding methods and procedures; and ASTM specifications. A bibliography is also included. 28 pp. *Committee of Concrete Reinforcing Bar Producers, American Iron and Steel Institute, 150 East 42nd St., New York 17, N. Y.*

Glazing Specifications
. . . *for Vision Glass* (A.I.A. 7-D, 26-A-51, 26-B) reports the principal causes of glazing failures, factors governing sealant selection and placement, minimum standards and basic glazing recommendations for aluminum, steel and wood sash. Brochure F-5795B, 12 pp. *Tremco Manufacturing Co., 10701 Shaker Blvd., Cleveland 4, Ohio**

Recessed Fluorescent Lighting
(A.I.A. 31-F-2) Contains technical data and general information on *Skyway* series of recessed fluorescent lighting fixtures, including construction features, specifications, maintenance features, a diffuser check chart, illustrated mounting methods, accessories, trim details, and ordering information. Brochure B-1, 40 pp. *Globe Illumination Co., 2121 S. Main St., Los Angeles 7, Calif.*

1961 Manual of Design
(A.I.A. 19-B-3) Gives complete technical data related to the proper use of laminated wood structural members. Features included are: arch and beam design procedures, connection details, recommendations on adhesives and treatments, a color selection chart for stain finishes, and description and specifications for *Unit Deck* and *Clear Panel* roof decking systems. *Unit Structures, Inc., Peshtigo, Wis.**

Insulating Glass
Semi-technical manual gives a detailed comparison of *Bondermetic* and *GlasSeal Thermopane,* revised data on sound insulation values, a diagrammatic presentation of the various combinations of glass and air spaces, strength calculations, and installation photos. Manual TP-25, 15 pp. *Libbey-Owens-Ford Glass Co., 811 Madison Ave., Toledo 1, Ohio**

Guide to Architects' Specifications
. . . *for Resilient Tile* contains complete specifications for asphalt, vinyl-asbestos, solid vinyl and *Polymerite* tile. 14 pp. *Mastic Div., Ruberoid Co., 500 Fifth Ave., New York, N. Y.**

All About Polyethylene Pipe
Discusses quality, type, density and proper application of polyethylene pipe. 8 pp. *Union Carbide Plastics Co., 270 Park Ave., New York 17, N. Y.**

Multi-Purpose School Furniture
Covers complete line of chairs and tables, including classroom and library seating equipment, and a new line of furniture designed for use in faculty rooms and offices. 12 pp. *National School Furniture Co., Dept. SC-2, Odenton, Md.*

Modern Formica Interiors
Shows commercial and institutional interiors using *Formica* laminated plastic, and contains reproductions of available colors, patterns and woodgrains. 12 pp. *Formica Corp., 4614 Spring Grove Ave., Cincinnati 32, Ohio**

Performance of Lath and Plaster
Reports on 7-year research project on performance of suspended plaster ceilings; describes variables of lath and plaster tested, and conclusions reached; and outlines resulting changes in recommended lath and plaster design, specifications and usage. 8 pp. *Gypsum Assn., 203 N. Wells St., Chicago 6, Ill.*

Anodized Aluminum Grilles
(A.I.A. 14-P) Provides specifications on patterns, dimensions and colors, and construction details of applications, of *Anotec* architectural anodized aluminum grilles. *Klemp International, 1132 W. Blackhawk St., Chicago 22, Ill.**

Mineral Wool Insulation Standard
Defines thermal performance categories in terms of both "U" values and installed resistance units ("R"); details physical requirements of mineral wool insulation; specifies tolerances for vapor permeance of facings, dimensions, resistance to mold and decay, thermal performance and fire resistance; and prescribes a standard method of determining thermal performance ("R") values. *National Mineral Wool Insulation Assn., 1270 Sixth Ave., New York 20, N. Y.*

Expanded Metals for Architecture
Pictures applications of decorative meshes; and gives framing, fastening and finishing details for 4-in. *Armorweave,* 1-in. *Cathedral* and other meshes. 16 pp. *United States Gypsum Co., Dept. 122, 300 W. Adams St., Chicago 6, Ill.**

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

more literature on page 238

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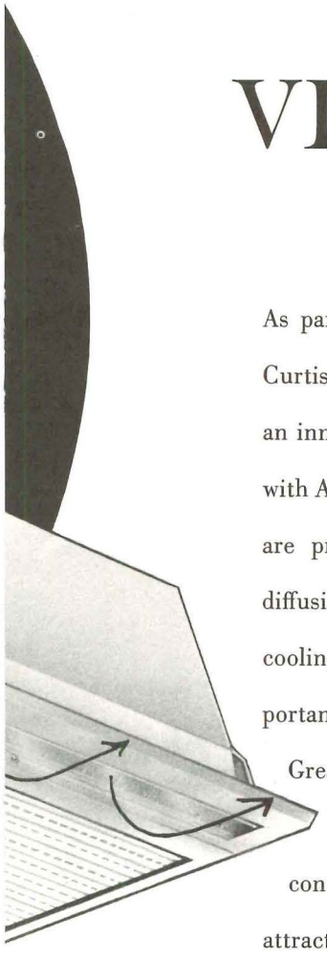

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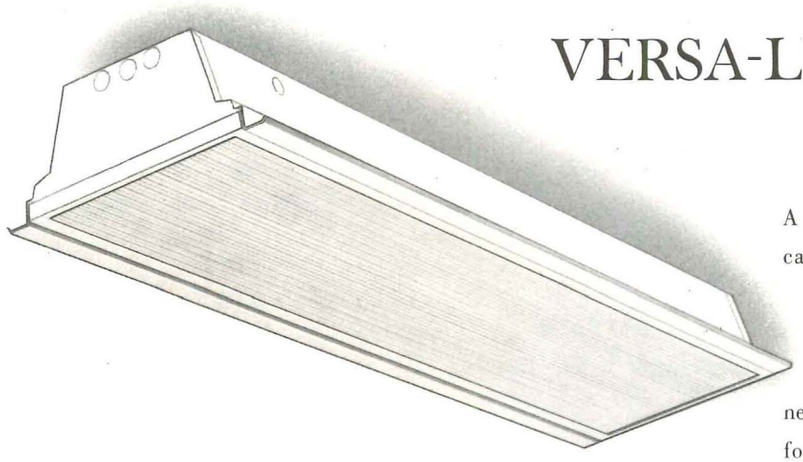

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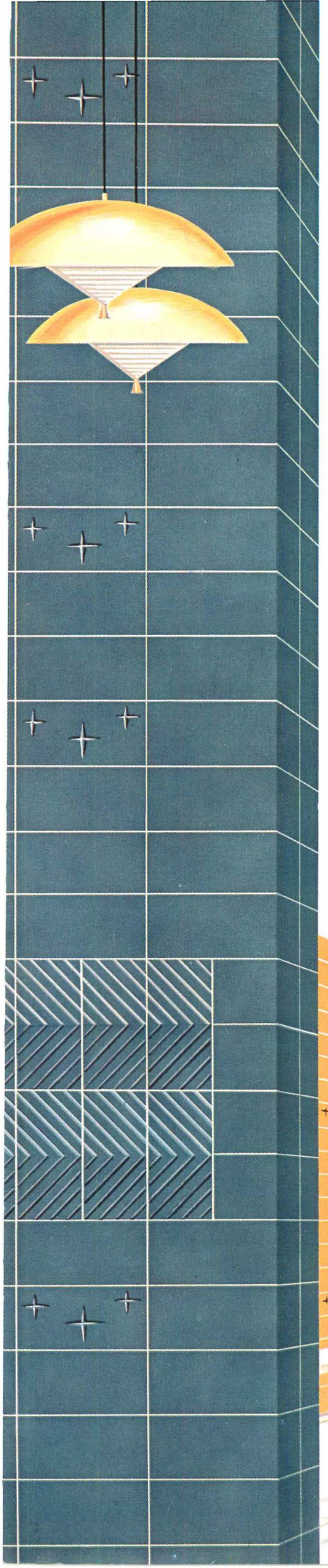
- More individual product listings (approximately 2,500—up 92% over first edition)
- More abstracts of technical standards and specifications (approximately 1,000—up 66% over first edition)
- More major categories of building products covered (technical data and performance criteria for 24 categories will be provided—33% more than first edition)
- Revised format, based upon suggestions from architects and manufacturers after experience with first edition, making it easier to use
- Addition of trade names index for easy identification

The Register's great value to users—assembling in one reference work data formerly spread over several—makes it a valuable medium. It places accurate information, expressed in terms an architect and engineer need, before a designer *at the time products are selected.* Manufacturers renewing listings for 1961—99% of respondents to a preliminary survey—are increasing the number of their product listings an average of 30%. Product listings are $50 each, with reduced costs for extra listings. For complete information about listing your products, write

AIA Building Products Register,
The American Institute of Architects
1735 New York Avenue, N. W., Washington 6, D. C.



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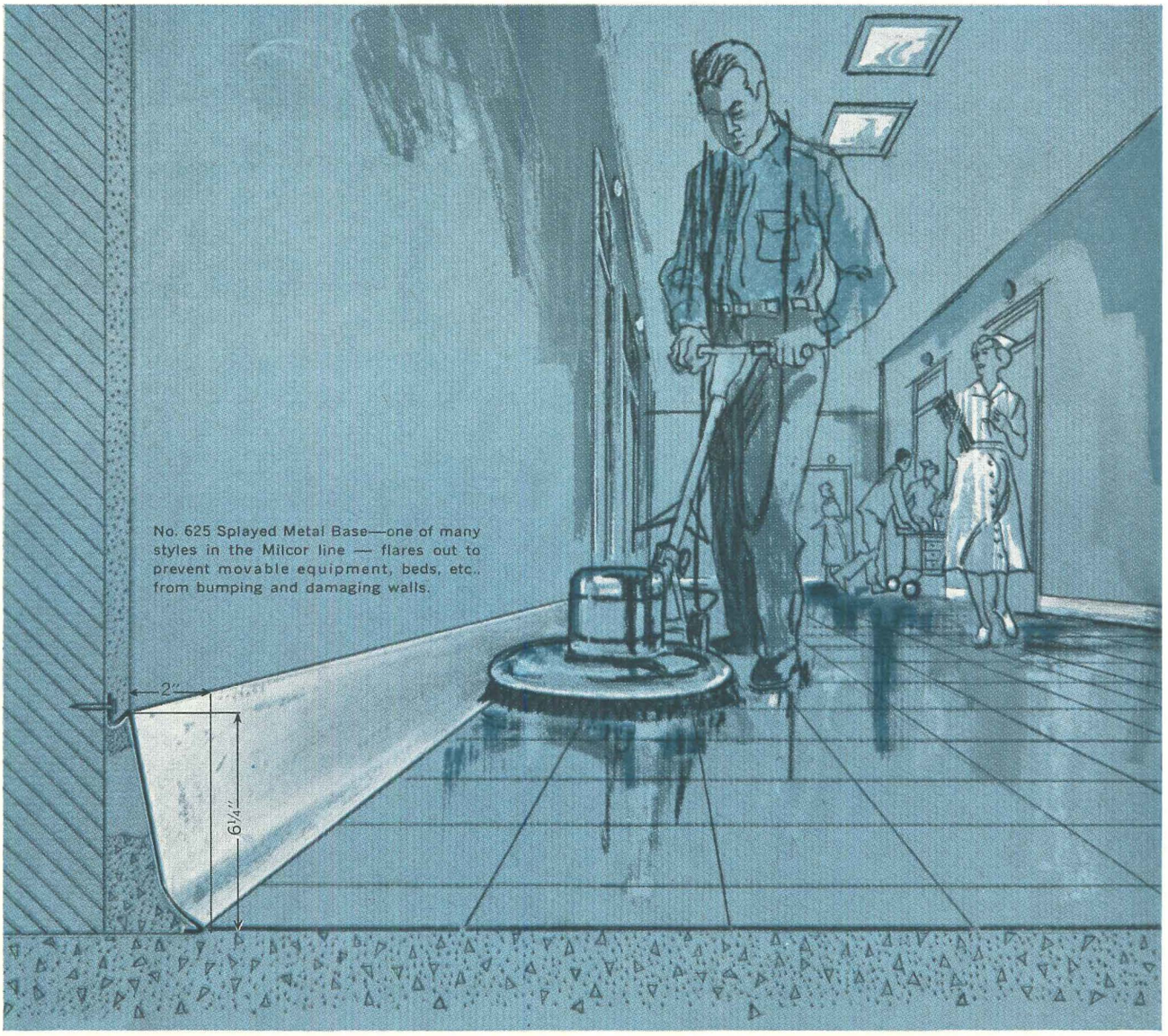

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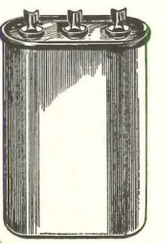

New Thermal Link deep within capacitor roll protects against excessive internal temperatures which may cause rupture of the capacitor case. Also, a new bushing assembly acts as an effective barrier to seal against bushing seepage. Result: longer ballast life.

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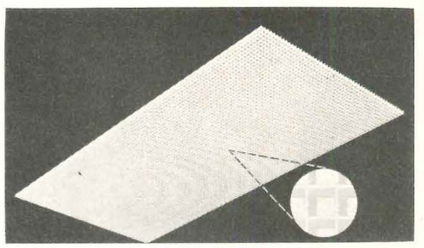
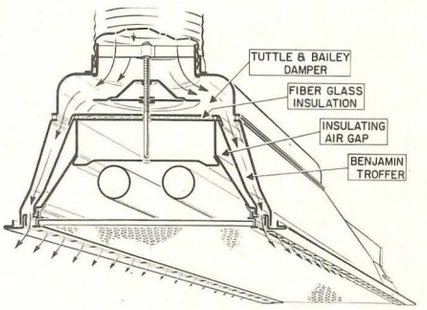
GENERAL ELECTRIC

continued from page 207



Modular Louver Diffuser
The 2 ft by 4 ft module *Gratelite* louver diffuser now includes ⅜″ open plastic cubicles with optimum 45 degree by 45 degree shielding which produces superior light diffusion for illumination in fixtures or overall ceilings. These cubes feature tapered vanes for extra strength and rigidity. *Edwin F. Guth Co., P.O. Box 7079, St. Louis 77, Mo.*



Air-Handling Lighting Troffers
One of the important features of *Triple-Shell Lumi-Flo,* a new air-handling troffer, is that the air passageway is isolated from the troffer housing by fiberglass insulation and an insulating air gap, thus eliminating temperature variations affecting the light output of the unit. Air handling capacity has also been increased so that a 1 by 4 or 2 by 4 ft unit now handles from 0 to 200 cu ft per minute. Installation time is greatly reduced by the use of a snap-in damper assembly and a side-mount hanger. *Benjamin Div., Thomas Industries Inc., 207 E. Broadway, Louisville, Ky.*

Smaller, Less Costly Dimmer
A smaller, less expensive *Luxtrol* light control, designed for use where only a few lamps are to be dimmed, brightened or blended, will control up to 200 watts of incandescent light or five rapid-start fluorescent lamps. The unit, which is easily installed in a standard 4-in. wall, is faced by a 5-by-5-in. wallplate in brushed brass or stainless steel with ivory, gray or black control knob. The faceplate may also be had prime painted. *Superior Electric Co., Bristol, Conn.*

Nailable-Stud Partition System
The *Permalock* non-bearing, nailable-stud partition system has been redesigned to incorporate a number of new features. One change is a new locking device that holds the 24-gage steel channels together with a clinch grip. This increases the rigidity of the stud and improves the holding qualities of the nailing groove, which can be used for either ratchet nails or screws. Stud openings have also been changed to permit a choice of sections for both runners and bridging. For bridging, either notched sections or conventional cold-rolled channel can be used. Studs are made in five sizes, and practically all types of material can be nailed or screwed to them. *Penn Metal Co., Inc., 40 Central St., Boston, Mass.*

more products on page 222

Eggers & Higgins
Supervising Architects

A. M. Strauss & Associates, Inc.
Architects and Engineers

Modern Door Control by *LCN* Closers Concealed in Head Frame

LAW BUILDING, INDIANA UNIVERSITY, BLOOMINGTON, INDIANA

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

The Finish is part of the Floor

Here's a beautiful and versatile floor. Properly maintained, it takes punishment in stride. But—far more hazardous than scuffing feet or tracked-in grime, are improper and inferior floor treatments. Instead of protecting the floor, such treatments may actually damage it!

Avoid costly mis-matching of **floor** and **treatment.** Follow the recommendations of the Asphalt and Vinyl Asbestos Tile Institute*; choose the specialized treatments that fit the flooring. Then specify maintenance, to hold "new floor" beauty.

Cafeteria, Notre Dame High School, Bridgeport, Conn.
Architects: Lyons & Mather, Bridgeport

* **SCRUB** "with a good, mild neutral cleaner . . . no oils, organic solvents or other injurious materials." Hillyard **Super Shine-All®** is the famous neutral chemical cleaner with 6-fold cleansing action, formulated safe for all flooring. UL listed "as to slip resistance".

* **FINISH** "with an approved water emulsion wax... containing no gasoline, naphtha, turpentine or mineral solvents." Hillyard **Super Hil-Brite®** is the finest of water emulsion, self-polishing waxes, made from 100% No. 1 imported Carnauba. Long-wearing—eliminates 2 re-waxings out of 3. UL listed "as to slip resistance".

* **SWEEP** "using recommended compound where necessary to keep down the dust . . . no oil or solvent base compounds." Hillyard **Super Hil-Sweep®** dressing is formulated safe for resilient flooring, contains no oils, effectively controls dust. Non-slip, safe on the floor.

ON ASPHALT TILE • VINYL • RUBBER • TERRAZZO
WOOD • CONCRETE OR GYMNASIUM—

*"Maintenance of Vinyl Asbestos Tile and Asphalt Tile Floors," published by the Institute, N. Y. 17, N. Y.

IN SWEET'S ARCHITECTURAL FILE

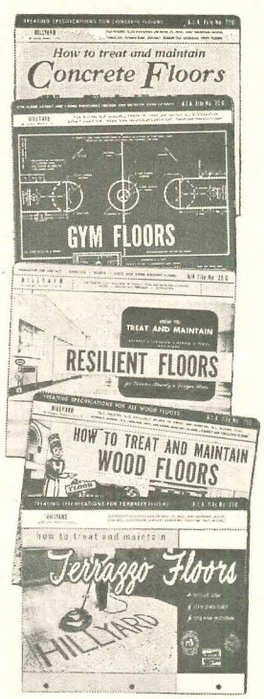
You'll Finish Ahead with HILLYARD

BRANCHES AND WAREHOUSES IN PRINCIPAL CITIES
A-2
San Jose, Calif. ST. JOSEPH, MISSOURI Passaic, N.J.

Let the Hillyard "Maintaineer®" recommend treatments that meet flooring manufacturer or association specifications, and give you professional "Job Captain" service. He's

"On Your Staff. Not Your Payroll"

SINCE 1907



Write for Free Hillyard A.I.A. Files. Practical treating guides, one for each type of flooring.

Structurally efficient!

EGSCO® insulated metal wall panels in Colorgard are architecturally effective for all building types

Whether the building design is industrial, institutional or commercial, the EGSCO system of interlocking metal wall panels offers simple, low cost and fast erection, ample insulation, pleasing wall configuration and built-in contemporary color finish.

For most modern buildings the extreme panel lengths available eliminate unsightly horizontal panel laps. Fasteners are exposed to neither view nor weather. This, coupled with factory caulking of vertical joints, eliminates any weak point of entry for weather corrosion.

The shimmering beauty of Colorgard is protected by Peelcote, a strippable polyethylene skin, until erection is complete.

EGSCO engineers provide the architect and engineer with structural standards to reduce drawing board time. Specify EGSCO for a sure bet. For complete information see Sweet's File 3a/Sm or write for Bulletin 61W.

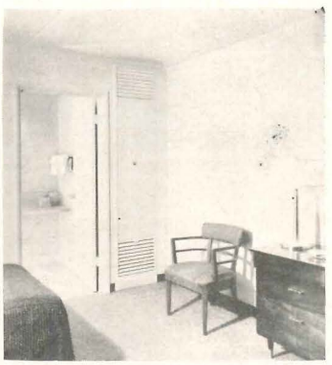
ELWIN G. SMITH & CO., INC.
Manufacturers of EGSCO® Metal Wall Products
Pittsburgh 2, Pa.
BOSTON • CHICAGO • CINCINNATI • CLEVELAND • DETROIT
TOLEDO • NEW YORK • PHILADELPHIA • PITTSBURGH

(top) EGSCO insulated wall panels with Colorgard in tan and gold were erected on this recently completed Williamsport, Pa., plant of The M. W. Kellogg Company, where the Power Piping Division is located, including engineering, research and field erection and the manufacture of power piping systems. Engineer and architect is Lester B. Knight and Associates, Inc., Chicago.

(middle) This is the new, modern Pittsburgh office of Carson, Pirie, Scott & Co., nationally known wholesale distributors of floor coverings. The architecture is enhanced by EGSCO Shadowall panels in Colorgard Gold. The architect is J. Kenneth Myers; the contracting engineers are Mellon-Stuart Co., both of Pittsburgh.

(lower) A close-up view of a curtainwall of EGSCO Contourwall in Colorgard Green. The panels form the colorful insulated metal wall for a penthouse on the roof of a modern factory-type building.

Product Reports



Heating, Air Conditioning System
The *Combinex* system, while utilizing hot and chilled water from a central system, makes use of a new concept of air circulation. For heating, return air is withdrawn at floor level and discharged at the ceiling; for cooling, return air is withdrawn at ceiling level and discharged at the floor. By working with natural air circulation, the system produces a more comfortable, steady flow of air. The units are available in a wide selection of capacities and with features to meet any application requirements. *Kritzer Products, Div. of Peerless of America, Inc., 5800 N. Pulaski Rd., Chicago 46, Ill.*

Foamed Plastic for Insulation
Foamthane, a polyurethane foam that has approximately the same density as polystyrene foam is said to have about twice the insulating efficiency. Its effective insulating range is from minus 330 degrees F. to plus 200 degrees F. In addition, *Foamthane* is an excellent base for plaster, resists most solvents and has good acid resistance. *Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.*

more products on page 226

NOW IT'S SQUARE D GATEWAYDUCT

Here are some recent Gatewayduct installations

- Amity Leather
- Equitable Life Assurance Co.
- Federal Government Office Buildings
- Maytag Company
- National Institute of Health
- Ryerson Steel
- Seaboard & Western Airlines, Idlewild
- Smithsonian Institution

You're ahead two ways when you choose this superior underfloor duct for power, signal and telephone systems...

GATEWAYDUCT is now manufactured by Square D and is available exclusively through Square D distributors. This underfloor duct system has gained tremendous acceptance among electrical contractors, consulting engineers and architects because of its significant design and installation features. Now the same field service on which Square D has built its national standing is behind every Gatewayduct installation.

SQUARE D COMPANY, MERCER ROAD, LEXINGTON, KENTUCKY

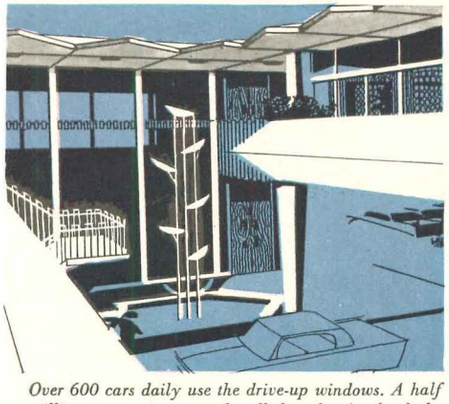
SQUARE D COMPANY

wherever electricity is distributed and controlled

The best ideas are more exciting in concrete

First National Autobank, Tulsa, Oklahoma. Architects & Engineers: McCune, McCune & Associates. Contractor: Tulsa Rig, Reel & Manufacturing Company, Tulsa.

Folded roof to glamour walls... concrete adds new attraction to drive-in banking



Over 600 cars daily use the drive-up windows. A half million transactions were handled at the Autobank the first year. Tom-Tom Room, to the right of two-story bank lobby, is provided for meetings of Tulsa civic groups. It's reached directly from upper parking deck.

Out of a need for drive-up tellers' windows, as well as parking facilities, came this handsome banking center. Tulsa's First National Autobank is a delightful example of the many ways concrete can combine structural practicality with good design.

Here, concrete plays a major decorative role in many different ways. You see everything from folded plate canopies over the parking arcade to walls and sunscreens in high-style masonry shapes. Drives are black concrete. Upper deck parking area is a hollow-core concrete deck.

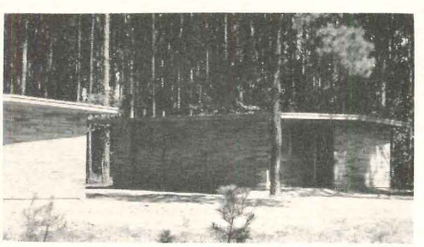
Today's architects find there is no ceiling on imagination when they design with modern concrete.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

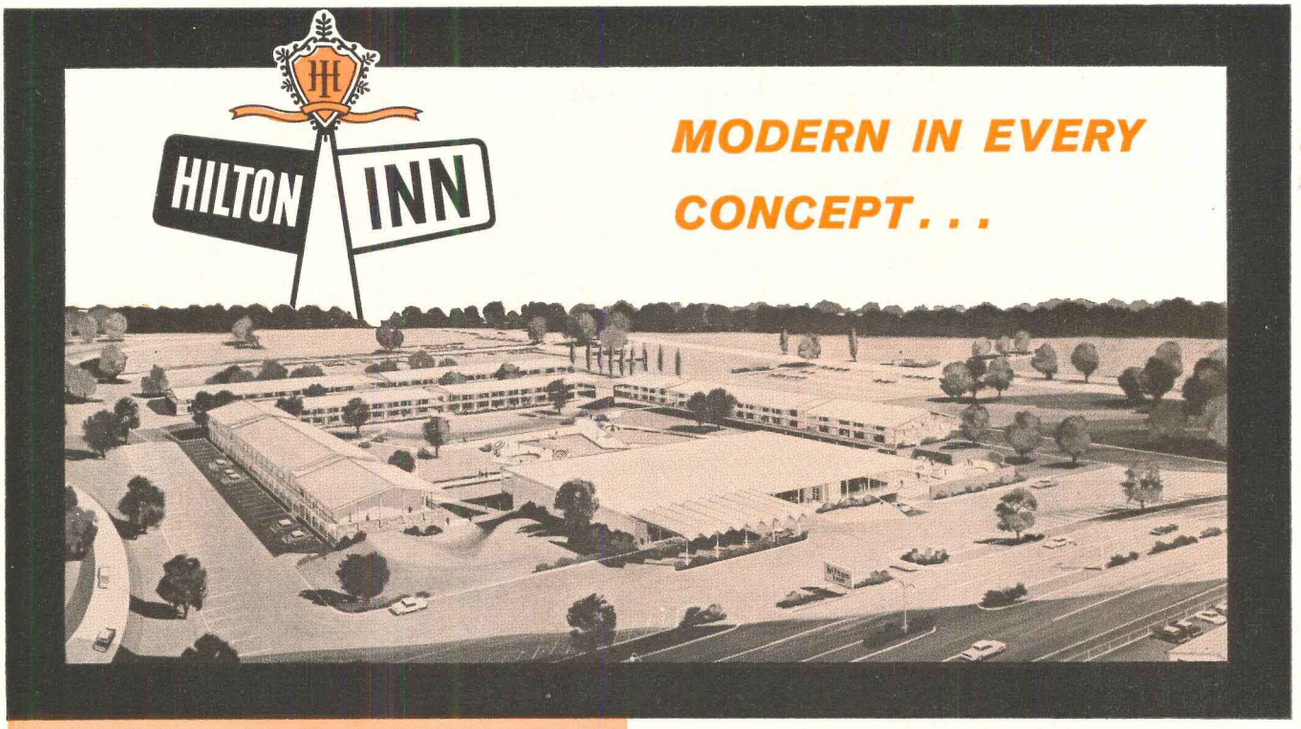
Product Reports

Plastic Coated Wood
U.S. Plywood in conjunction with The Goodyear Tire & Rubber Company has developed a line of decorative plywood wall paneling and doors coated with a clear thermoplastic. *Permagard* is wear-resistant, stain-resistant and heat-resistant and will not discolor from toxic fumes, smoke or grease. In addition to ease of installation and economy in cleaning and maintenance, *Permagard's* roll-lamination eliminates costly job site finishing. *U.S. Plywood, 55 West 44th St., New York 36, N.Y.*



Wood Bricks For Houses
Wood bricks with the strength and attractiveness of wood do triple duty in house construction as exterior finish, structure, and interior finish. They also give an insulating value equal to that of a 24-in. masonry wall. Each 3⅝ in. square brick, available in different lengths, is factory drilled for two nails, and glue is applied between bricks for additional strength. Small wood strips are inserted in grooves in the vertical joints. Construction is both fast and simple and skilled labor is not required. *Southern Settlement and Development Co., 229 N. Bowie St., Jasper, Tex.*

more products on page 230



MODERN IN EVERY CONCEPT . . .

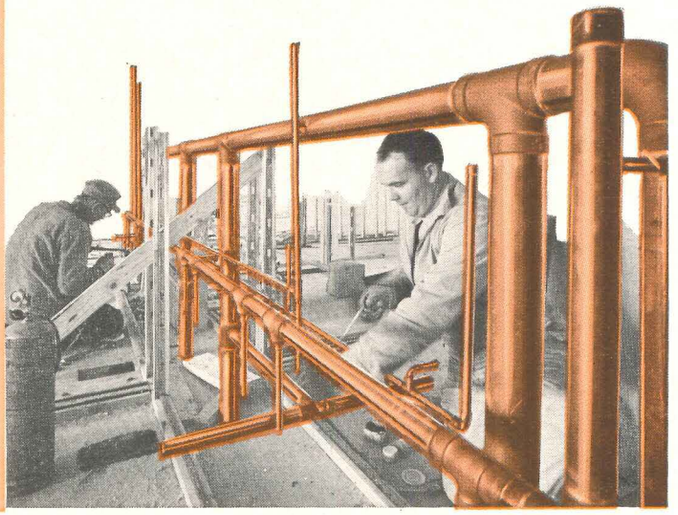
The three and a half million dollar Atlanta Hilton Inn was developed and constructed by Hogan Bros., Inc. of Metairie, La. The architect was George Saunders, Walter E. Blessey handled the structural engineering, and Edward Sanford was in charge of mechanical engineering. The installation of the plumbing system was made by Hoffman-Wolfe Southern Corporation of Atlanta.

When it comes to modern, rust-proof, clog-proof, life-time supply and drainage plumbing systems, more and more architects, builders and plumbers are saying: "All copper". The jet-age Hilton Inn, just opened in Atlanta, Georgia, is an excellent example because Streamline copper tube and solder-type fittings are used for supply and drainage plumbing in this ultra-modern 310 room structure.

Because of solder joint strength and lighter weight of copper, even complex plumbing assemblies can be quickly shop prefabricated or assembled on the site with a minimum number of solder joints. With copper there's more actual useable area in the building because furring-out is eliminated. The standard 20 foot lengths, uniform dimensions, complete range of sizes, weight-savings and lower labor costs make Streamline copper tube and fittings more economical, too.

Send for catalog D-459, for all the latest facts on Streamline DWV copper tube and solder-type fittings, the modern, sanitary drainage piping material.

INCLUDING THE Streamline® COPPER TUBE AND FITTINGS USED IN THE PLUMBING SYSTEM



318-R

MUELLER BRASS CO. PORT HURON 8, MICHIGAN

2 POSITIVE ADVANTAGES IN 1 WALL

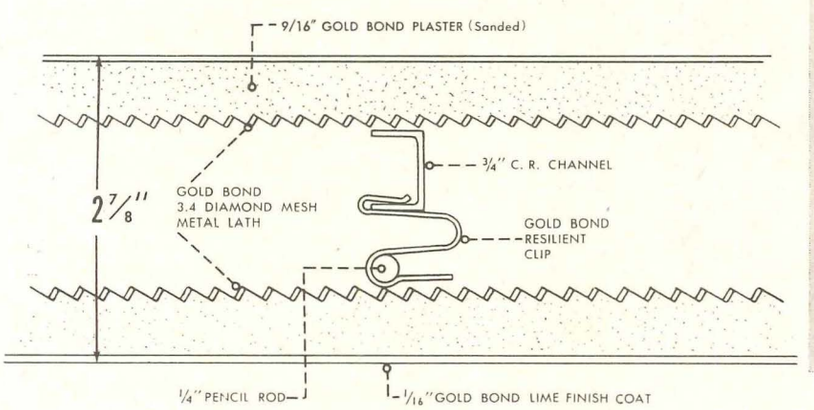
SPACE-SAVING NOISE-STOPPING

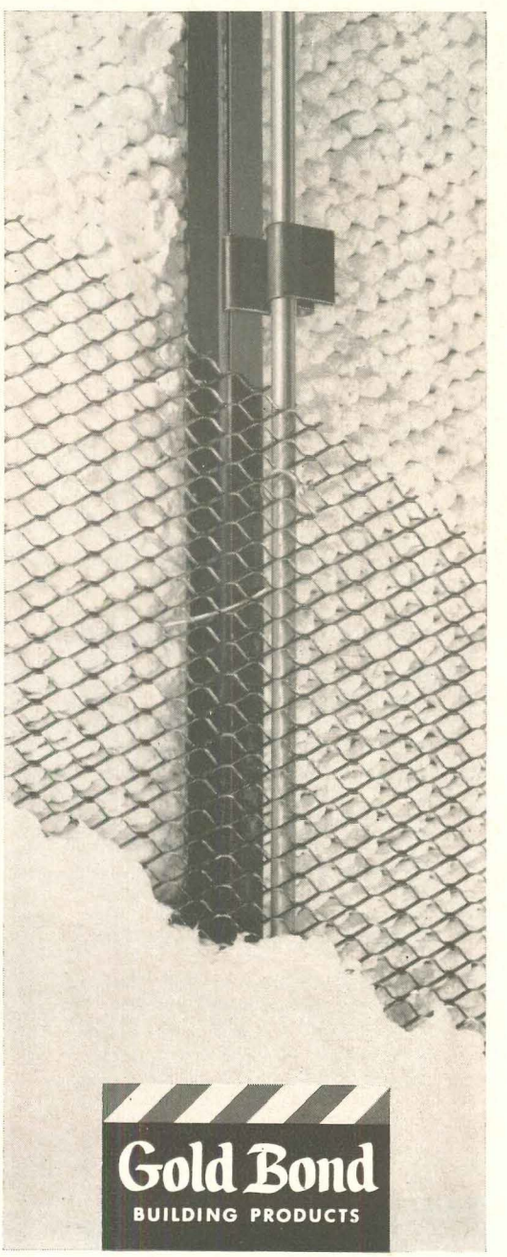
A total thickness of only 2-7/8"...a sound transmission loss rating of 42 db...both, big advantages found in this new Gold Bond space-saving partition.

It's constructed of 3/4" channel studs, with pencil rod attached to one side by resilient clips. Metal lath is then wire-tied to the pencil rods and also to the opposite side of the 3/4" channel studs. A 9/16" thickness of sanded plaster is then applied to both sides of the partition with a 1/16" lime putty finish coat.

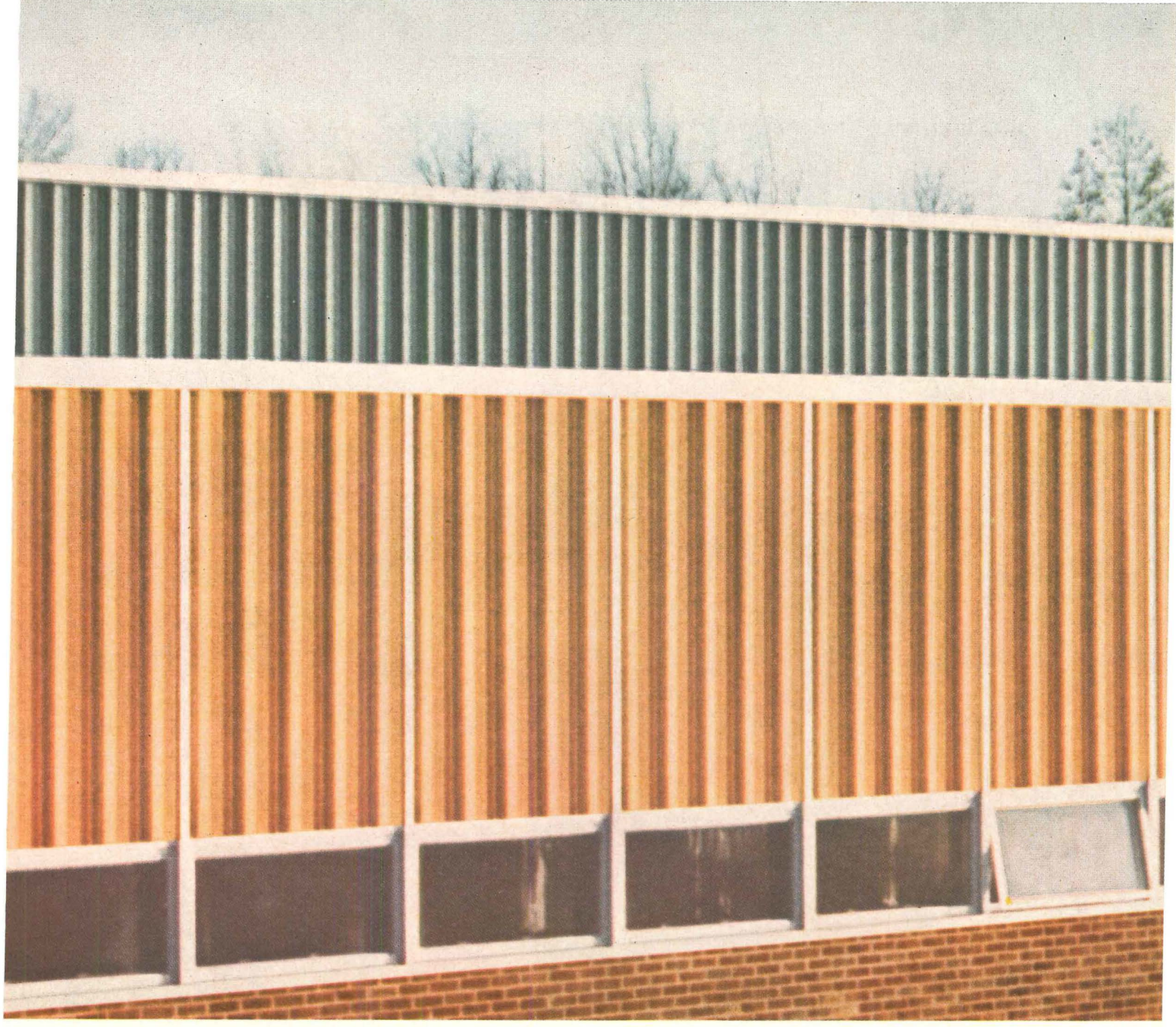
The accumulated space saved can mean reduced construction cost per square foot of floor space. Add the bonus of excellent sound control and you have a quality system that satisfies everyone. Familiarize yourself with this unique partition system. Ask your Gold Bond® Representative for a demonstration, or write Dept. AR-41 for complete technical information.

NATIONAL GYPSUM COMPANY, BUFFALO 13, NEW YORK





a step ahead of tomorrow



In Alcoa Aluminum, EGSCO Panels give you low-cost color on a corrosion-resistant base!

Now offer your clients handsome, lasting color at little more than the cost of ordinary corrugated sheet. Specify EGSCO* insulated curtain walls or wall panels of Alcoa® Aluminum.

In bright baked enamels or glowing transparent colors, EGSCO coatings are uniform and stable; won't check or peel. Accidental surface damage does not result in rust. Drilled, punched or sheared in fabrication, Alcoa Aluminum has *natural* protection against weather. Requires little maintenance, replacement or repair.

*Registered Trademark of Elwin G. Smith & Co., Inc.

Fluted EGSCO Wall Panels give industrial and commercial buildings a pleasing face of color and attractive shadow lines, unbroken by structural joints . . . and unmarred by visible fastenings. Lightweight Alcoa Aluminum curtain walls are easy to erect, even in lengths of 40 ft or more.

You'll find complete specifications on EGSCO Wall Panels in Sweet's Architectural and Industrial Construction files; or write: Aluminum Company of America, 815-D Alcoa Building, Pittsburgh 19, Pa.

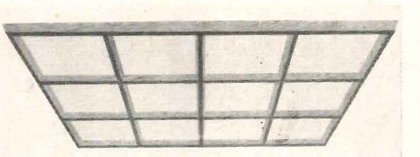
BUILDING: Philco Corp., Lansdale Div., Lansdale, Pa.; ARCHITECT: Wallace and Warner, Architects and Engineers, Bryn Mawr, Pa.; GENERAL CONTRACTOR: Wallace Engineering and Construction Co., Bryn Mawr, Pa.; EGSCO ALUMINUM WALL PANELS: Elwin G. Smith & Co., Inc., Pittsburgh, Pa.

ALCOA ALUMINUM

THE ARCHITECT'S METAL

Product Reports

Rubber Tile Flooring
New 9 in. by 9 in. rubber tiles offer the combination of bright colors and smooth surface with cushioned softness and quiet underfoot. The tiles are dimensionally stable, with colors that go all the way through the ⅛-in. thickness. *The Danbury Rubber Co., Inc., Danbury, Conn.*



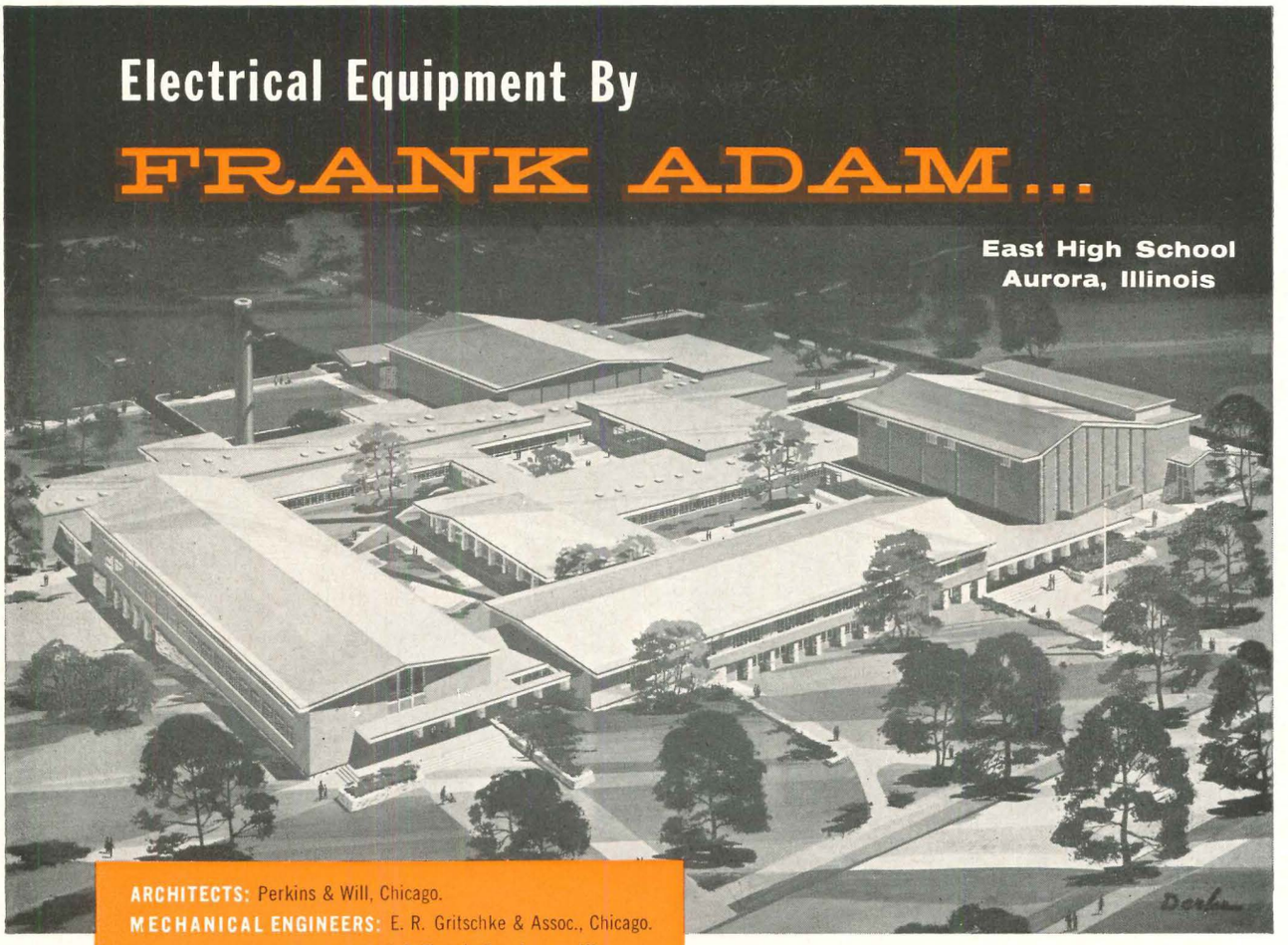
Wood-Beam Suspension System
A new suspension system for luminous ceilings permits the installation of a wood beam grid hung from the structural slab on ¼ in. threaded adjustable rods. The complete floating modular grid is positioned so that its perimeters are spaced away from the wall surfaces to overcome room irregularities. The beams come in prefinished walnut, mahogany or Limba wood. *Neo-Ray Products, Inc., 315 East 22nd St., New York 10, N.Y.*

Portable Refrigerator-Cooler
A portable service refrigerator-cooler with anodized aluminum legs and service shelf is a convenient addition for kitchen or patio cooking areas. The top opening with sliding lid permits easy access and the stainless steel top portion is equipped with an electrical outlet. *Beverage-Air Co., P.O. Box 1981, Spartanburg, S. C.*

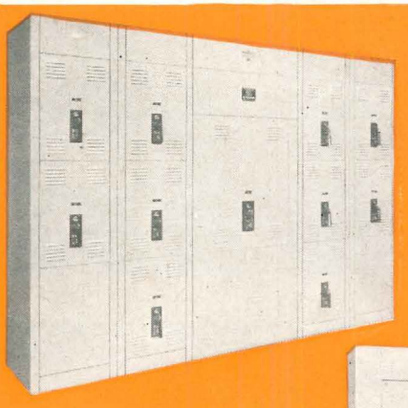
more products on page 234

Electrical Equipment By

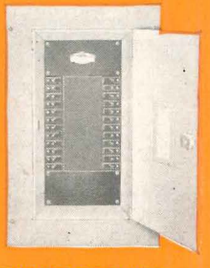
FRANK ADAM...



ARCHITECTS: Perkins & Will, Chicago.
MECHANICAL ENGINEERS: E. R. Gritschke & Assoc., Chicago.
ELECTRICAL CONTRACTOR: J-C Electric Co., Aurora, Ill.



CIRCUIT BREAKER SWITCHBOARD



CIRCUIT BREAKER LIGHTING PANELBOARDS

CIRCUIT BREAKER FEEDER PANELBOARDS

OTHER EQUIPMENT: Fusible Distribution Panelboard, Stage Lighting Control System, High Efficiency Ventilated Busduct, Power-Plugin Busduct.

Electrical equipment has a dual function—to deliver an adequate flow of power wherever and whenever it's needed, and to protect the electrical system, the building, the power-using equipment and the occupants.

That Frank Adam equipment performs these functions with unsurpassed efficiency, dependability and economy is proved again and again by the consistency with which it is specified by leading architects and engineers for structures like East High School shown above.

To give your clients the finest the industry produces—to insure they will get the reliable performance and safety you intend and which they expect—specify Frank Adam Electrical Equipment. Experienced engineering representatives are always at your service on every problem of secondary power distribution and control.

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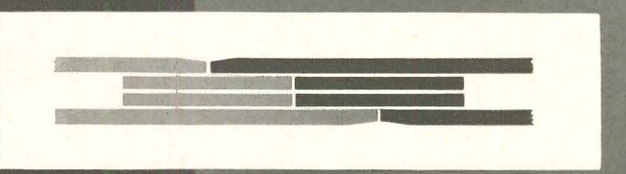
busduct · panelboards · switchboards · service equipment
safety switches · load centers · Quikheter

PRODUCERS' COUNCIL
See our catalog in SWEET'S
KEEP PACE WITH ELECTRICITY

Bestwall Hummer "B" System. This is the **original** system for constructing non-load bearing smooth surfaced partitions entirely of laminated gypsum wallboard. Erected only by approved contractors—permits faster occupancy—provides 1-3 hours fire rating—rapidly installed at low cost—reduces sound transmission—insures stronger walls, no nails to pop, no joint beading.



IT MUST BE BEST...because Bestwall Hummer System "B" is the most copied, respected and proven system for constructing incombustible, non-load bearing partitions of gypsum wallboard. Walls like these are being specified and erected in commercial, high-rise buildings everywhere. Bestwall Gypsum Co. / Ardmore, Pa. Plants and Offices throughout the United States

FIREPROOF GYPSUM
BESTWALL
BUILDING PRODUCTS

Spandrel panels of textured green PLEXIGLAS *at Research and Engineering Building, Rohm & Haas Company plant, Bristol, Pa.*

New concept in spandrel panels

Now buildings of *modest* size can have the distinctive appearance provided by custom-designed spandrel panels. Faces of PLEXIGLAS® acrylic plastic make it possible.

Spandrel faces of PLEXIGLAS can be formed to custom shapes and patterns at low cost, even when limited numbers are required. Architects designing small buildings, therefore, can achieve design effects that formerly were restricted because of cost to structures using large numbers of formed metal panels. In addition, spandrel faces of PLEXIGLAS can be formed in a wide range of colors that have been time-proved for color stability by years of outdoor use in the building field.

For further details about spandrel faces of PLEXIGLAS —just one of the many uses of PLEXIGLAS as an architectural material—and the names of manufacturers, write for folder PL-459.

ROHM & HAAS

PHILADELPHIA 5, PA.

In Canada: *Rohm & Haas Co. of Canada, Ltd., West Hill, Ontario*

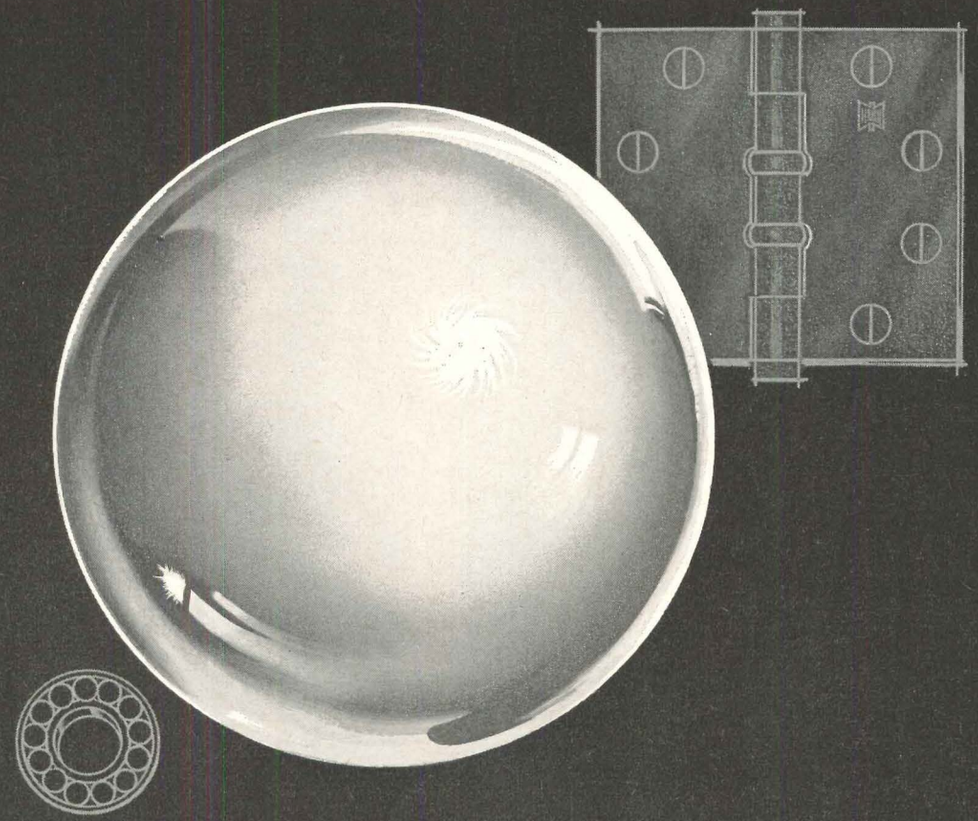
PLEXIGLAS

Product Reports

Thermostatic Water Mixer
The *Hydroguard* Type H-5, a new low-capacity thermostatic water mixer for showers and tubs, offers hot water savings plus improved response for bather comfort and safety. Mounted on the shower or tub wall, the mixer maintains water at the temperature dialed by the user, regardless of fluctuations in the supply lines. A built-in safety limit that prevents delivery of water hotter than 110 F protects against scalds. The new *Hydroguard,* the smallest available, has a 5 gpm capacity to match the performance of most shower heads. *The Powers Regulator Co., 3434 Oakton St., Skokie, Ill.*

Teakwood Parquetry Floor
According to its manufacturer, a handsome parquetry floor of *Thai-Teak* teakwood blocks will out-perform any available natural or synthetic flooring in dimensional stability, durability, and ease of maintenance. The wood's natural resistance to vermin and rot, its ability to withstand heavy traffic, and its water resistance make it suitable for even such rooms as kitchens and bathrooms where a hardwood floor would otherwise be impractical at best. The 5/16-in.-thick parquetry blocks come in Straitline, Foursquare, Swirl and Diamond patterns for application with mastic. *Thai-Teak* flooring also comes in random width planks and tongue and groove strips. *Bangkok Industries, Inc., 1545 Passayunk Ave., Philadelphia 45, Pa.*

Outdoor Compressor-Condenser
Janitrol's new 52 Series outdoor compressor-condenser for residential cooling systems features larger coils (for better heat dissipation) positioned diagonally in the cabinet (for more efficient arrangement of components). Its compressor and fan are said to be unusually quiet in operation, and noise is reduced further by an acoustically-treated cabinet and rubber fan-mountings. The unobtrusive, green-finished cabinet can be located near planting since all hot exhaust air flows upward away from the plants. The unit comes in capacities from 22,200 to 110,200 Btuh. *Janitrol Heating and Air Conditioning, 440 Dublin Ave., Columbus 16, Ohio*



26*-Jeweled movement

All 26 *Keep Rolling Forever*—not Part of the Time—in a Hager *"Life-Time Bearing"* Butt Hinge!

The bearings *stay there* for *life!* Upper and lower raceways ride *forever*—on the *full count* of ball *bearings*—in a Hager *Life-Time Bearing* Butt Hinge!

Tough case-hardened steel ball bearing raceways are press-fitted into direct contact with knuckle on Hager ball bearing butt hinges.

No soft brass retaining jacket (or crimped shell) lies between the knuckle and the raceway . . . nothing to eventually wear away and allow the bearings to slip out.

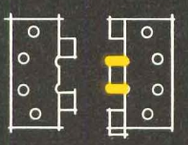
Both raceways and *all* 26 ball bearings are hard at work in Hager Ball Bearing Butt Hinges—in fine jeweled movement—forever providing life-time trouble-free silent door operation.

You'd expect finer performance from *Hager* Ball Bearing Butt Hinges, naturally—and naturally, you have a right to!

If it's expected to *stay* for *life*, then, of course

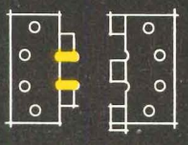
EVERYTHING HINGES ON HAGER!

*26 Balls in 4½" x 4½" 2-bearing Butt Hinges



NOT THIS . . .

One-knuckle-bored construction. Bearings anchored with wear-away brass bushings. (Bearings eventually fall out, when pin is removed.)



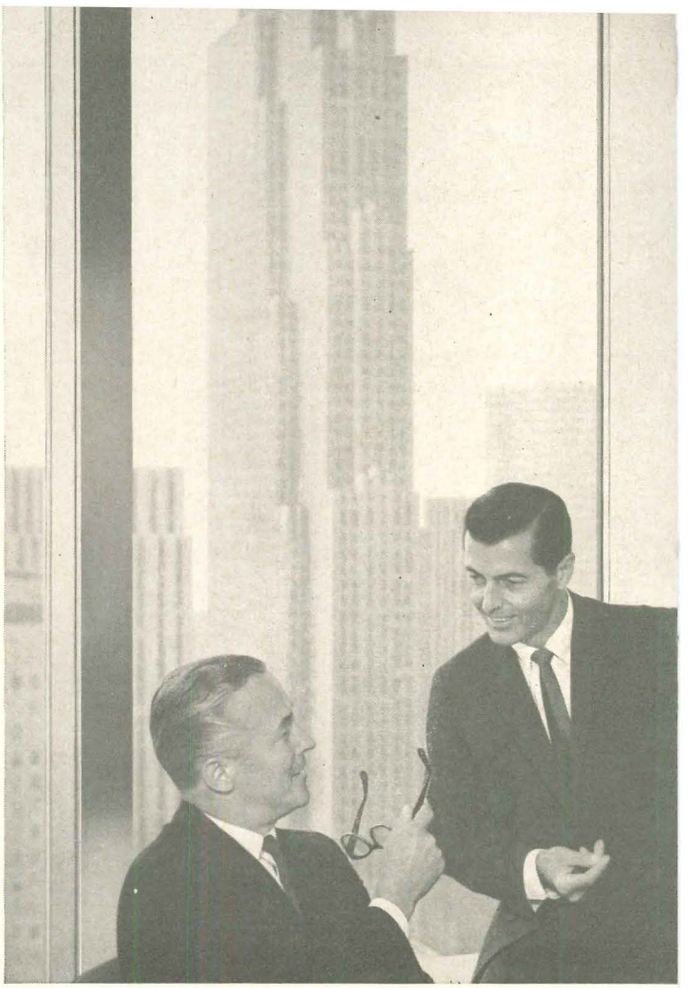
BUT THIS . . .

Hager **TWO**-knuckle-bored construction. Bearings anchored with case-hardened steel raceways.

Hager®

EVERYTHING HINGES ON *Hager!* • C. HAGER & SONS HINGE MFG. CO., ST. LOUIS 4, MO., U.S.A.
HAGER HINGE CANADA LIMITED, KITCHENER, ONTARIO

OPEN WORLD OF LIVING. L·O·F Glass enlarges your life with big picture-window walls, sliding glass doors. And when *Thermopane*® insulating glass is in all the windows, your home is warmer in winter, cooler in summer, quieter the year 'round.



OPEN WORLD OF WORKING. Big windows like this let you look out at the world to keep the walls from closing in. In many office buildings, these windows are L·O·F *Parallel-O-Plate*® glass — twin ground for better looking inside and outside.

Architecture and the

History is built of straw and mud. Of brick and stone. Wood and metal. And of glass.

As you leaf through the pages of time, you will find each chapter headed by the kind of structure in which men lived, loved and died.

For man's architecture has always been his attitude. An expression of his heritage and his hopes. His fears and his faith.

A Place to Hide

Often his house, whether castle or hovel, was first and foremost a place to hide.

The drawbridge, the lookout towers, the dwellings hacked out of high cliffs — these were things built not for a man's better living but so that his life would not be abruptly ended.

Even now, in 1961, much of the world is still in hiding. Behind closed doors, shuttered windows. Behind walls of stone and fear and ignorance. Not because it wants to. But because it must.

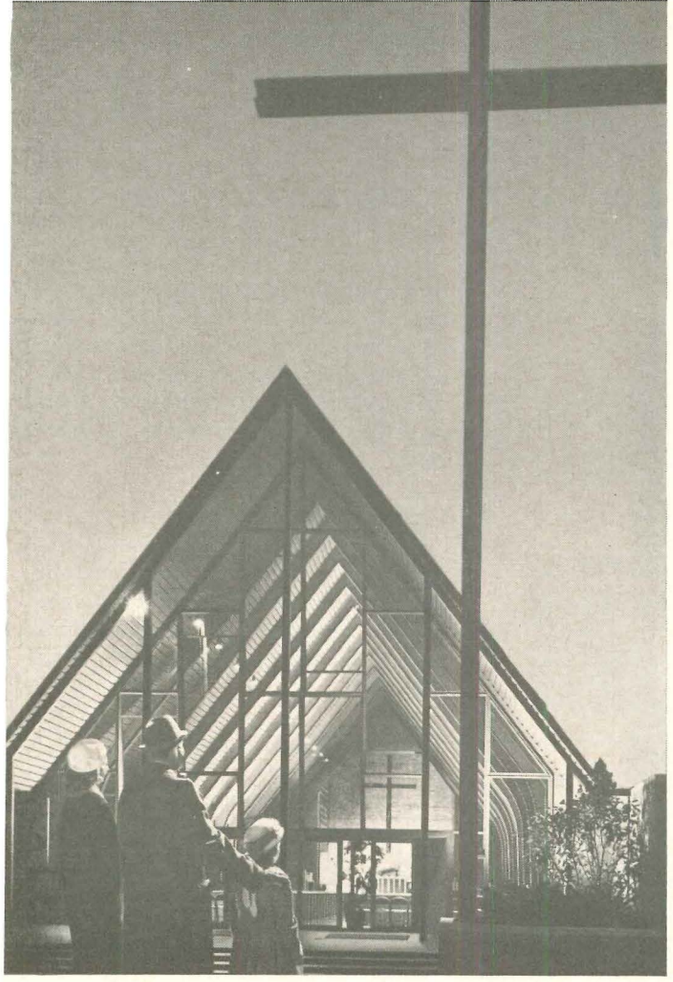
In America

How differently we live in America. Here in the capital of the free world . . . the open world. Here the shutters have come off, the walls have come down, and the love of liberty is expressed with eloquence everywhere. We live in freedom, and our houses show it. We work in freedom, and you can see it in our buildings.

We are free to worship as we please, and that freedom shines out of our churches and our synagogues. And the more we learn about being free, the more clearly our architecture shows it. The better it shelters us without shackling us. The more it turns to the one magic material that encloses without imprisoning. *Glass.*

Glass Makes the Difference

Homes that once were only as wide as their walls



ITS HEART OPEN TO THE WORLD, this lovely church abides in quiet confidence. Nature and structure blend into one, where they meet at the great glass wall. And its feeling of freedom is so fitting for those who worship in an open world.

OPEN WORLD OF LEARNING. Children are more alert, learn faster, feel less confined in classrooms opened to daylight and the outside world by walls of glass. That's why so many award-winning schools have clear L·O·F Glass sill-to-ceiling.

Open World©

now seem big as all outdoors. Schoolrooms that once seemed more like cells now have a cheerful, open feeling of freedom. And today, instead of a few items stacked in a store window, the whole store is on display. Banks look hospitable instead of hostile. Office buildings say "Come in", instead of "Keep out".

And inside, space seems much less encumbered than ever before. Light passes uninterrupted through translucent glass partitions. And big, wide ribbons of windows help keep the walls from closing in.

This is architecture that encloses without imprisoning . . . this is comfort without confinement. This is the world of picture windows, daylight walls, sliding glass doors, curtain walls, visual store fronts, panoramic windshields and backlights. The world of *Thermopane Insulating Glass, Parallel-O-Plate Glass, Heat Absorbing Plate Glass, Parallel-O-Grey® Plate Glass.* This is the "Open World".

L·O·F advertisements, appearing in leading consumer, professional and business publications throughout 1961 will stimulate the desire for "open world" living.

For information on L·O·F Glass, refer to Sweet's Architectural File 26-A, or call your nearby L·O·F Distributor or Dealer (listed under "Glass" in the Yellow Pages).

LIBBEY·OWENS·FORD, TOLEDO 1, OHIO

L·O·F GLASS®

THE QUALITY MARK TO LOOK FOR

Office Literature

continued from page 208

Fully Ventilated Athletic Lockers
(A.I.A. 35-H-42) Describes, and gives specifications and details for *All-American* line of ventilated athletic lockers. 4 pp. *DeBourgh Mfg. Co., 2924 27th Ave. South, Minneapolis, Minn.**

Michaels' Curtain Wall Index
Includes scaled details for nine different aluminum and steel curtain wall systems, plus standard doors, louvers, and vertically pivoted windows. *Michaels Art Bronze Co., Box 668, Covington, Ky.**

Southern Pine Millwork
(A.I.A. 19-A-1) Architects' Bulletin No. 13 presents a specification guide, recommendations for treatment, information on designing special millwork, a pattern guide and cross index for mouldings and trim, and standard details for window and door frames. 12 pp. *Southern Pine Assn., P.O. Box 1170, New Orleans 4, La.*

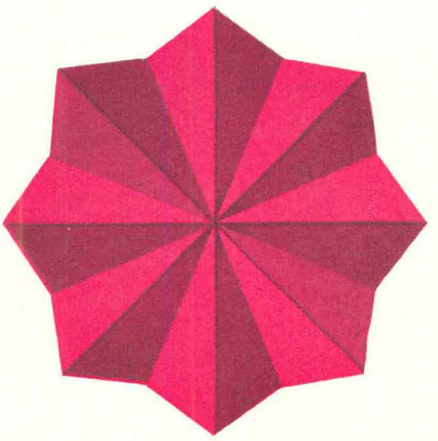
How to Select and Apply Floodlights
Describes floodlight classifications and general principles of floodlighting; tells how to calculate light levels in floodlighting vertical and horizontal surfaces; and gives sample problems and solutions, recommended footcandle levels for various applications, and photometric data for GE floodlights with filament and mercury vapor lamps. Bulletin 6175C, revised, 16 pp. *General Electrical Co., Schenectady 5, N. Y.**

Permalite Plaster Aggregate
(A.I.A. 21-A-5) Covers applications of *Permalite* expanded lightweight aggregate in general plastering, fireproofing and curtain wall construction. Information on the various mixes, thermal conductivity and sound reduction, and fire-ratings is included. Bulletin P-13-1961. *Perlite Dept., 612 S. Flower St., Los Angeles 17, Calif.**

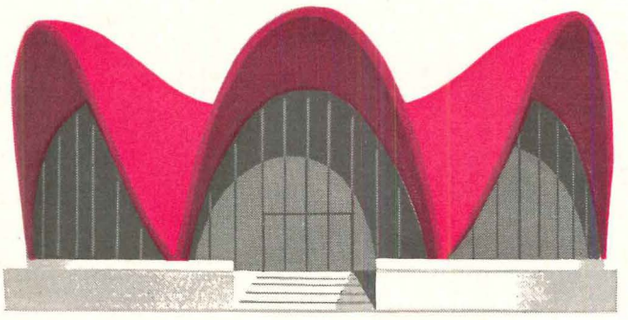
Registers, Grilles, Diffusers
Catalogs, and gives engineering data on full line of heating-cooling registers, grilles and diffusers. 44 pp. *Lima Register Co., Lima, Ohio*

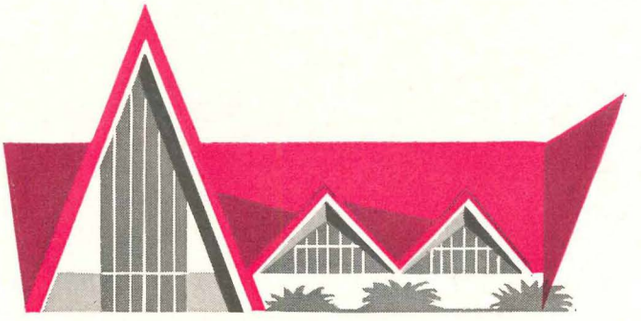
** Additional product information in Sweet's Architectural File*

more literature on page 242



In today's most unconventional roof designs...





New NEOPRENE–HYPALON® roofing systems assure lasting beauty and protection

Imaginative roof designs, embodying geometric forms of every shape and contour, are today being made practical by neoprene and HYPALON—a pair of versatile Du Pont synthetic rubbers.

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Moreover, they retain these properties despite continual outdoor exposure, neither soften with heat nor embrittle with cold, expand and contract with the roof deck. As a roofing system, neoprene provides low-cost film build-up; HYPALON, a wide choice of stable, attractive topcoat colors. Separately or in combination, resilient neoprene and HYPALON assure lasting protection with minimum upkeep.

Du Pont produces only the elastomers, neoprene and HYPALON; not the finished roofing materials themselves. For a list of suppliers and our booklet, "Colorful, Durable Roof Coatings Made with Neoprene and HYPALON," just fill in and mail the coupon. There is no obligation whatsoever. E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Dept. AR-4, Wilmington 98, Delaware.

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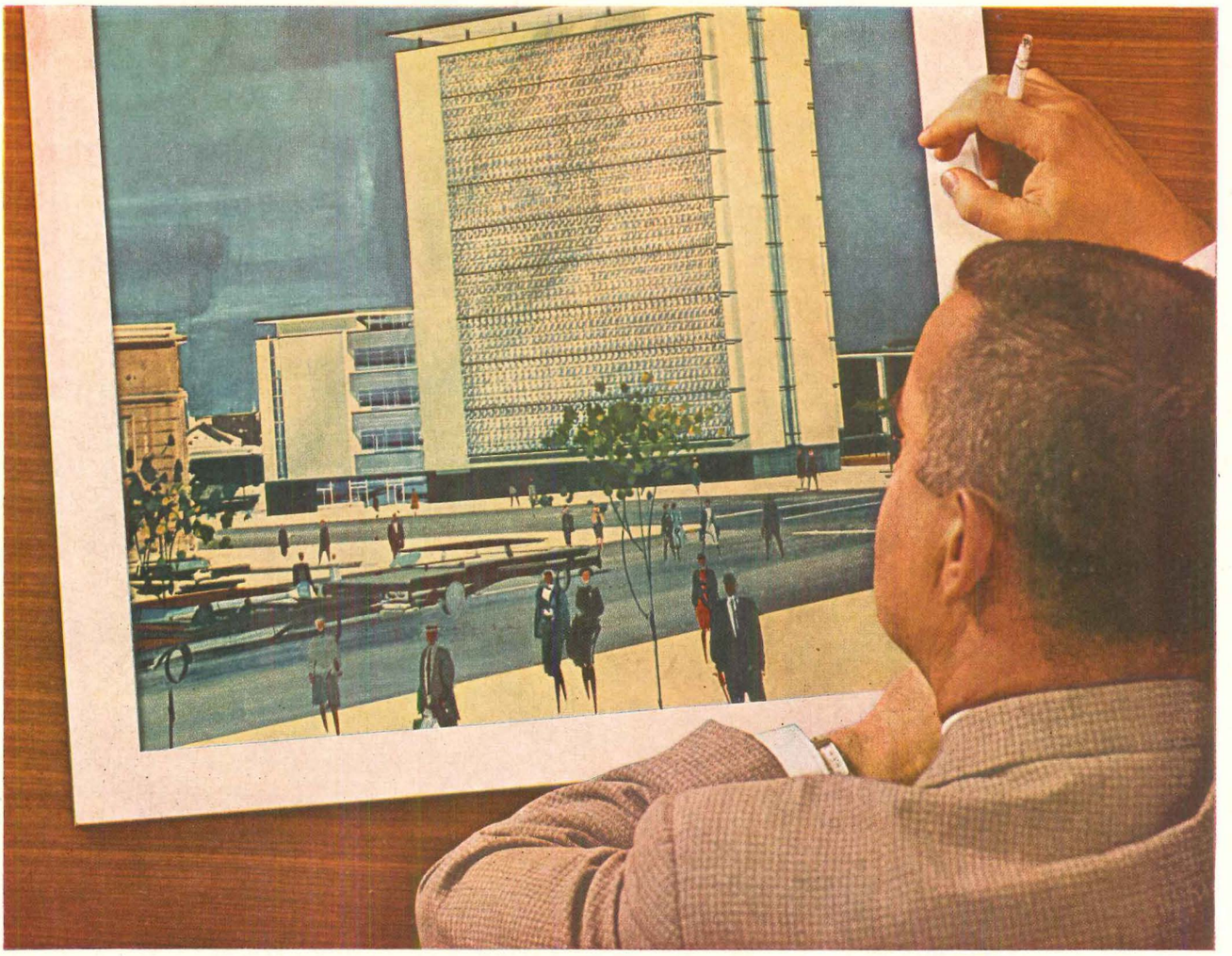


Design for solar screen by Confer, Willis and Anderson, AIA, Oakland, Calif.

Oakland architect envisions office center with Alcoa Sol-Dec Screens

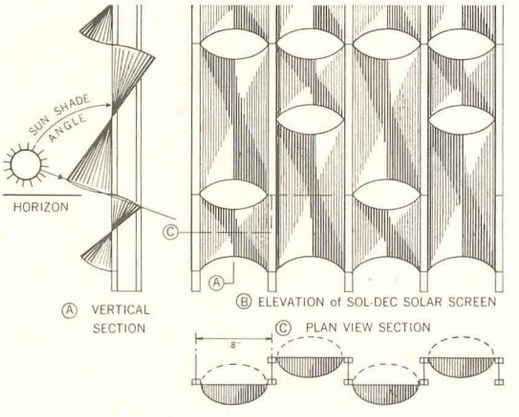
Here is an architect who achieved 100 per cent sun cutoff with Alcoa* Sol-Dec Screens—as described in the design detail. But office centers with a shading problem during sunlight hours are merely one application. Other architects are exploring striking new decorative treatments, as in facings for new or old schools, hospitals and commercial buildings; overlays on cooling towers, penthouses, lobby walls and canopy soffits; vision screens and barriers for rooms, patios and gardens.

Sol-Dec Screens come in 11 standard patterns, or your own designs, at reasonable cost. Their surprising economy is a product of design simplicity and the ease and speed of the extrusion process.

What can YOU do with Sol-Dec Screens?

Alcoa's veteran counsel is available without obligation. Describe your requirements in a letter to: Aluminum Company of America, 1821-D Alcoa Building, Pittsburgh 19, Pa. World-wide sales through Alcoa International, Inc., 230 Park Avenue, New York 17, New York.

*Trademarks of Aluminum Company of America



Face of basic panel is twisted out of vertical mounting plane to form a hooded opening. Angle of sun cutoff can be varied easily from project to project according to orientation limits. Percentage of openness of screen can be varied by length of the units cut.

ALCOA ALUMINUM

THE ARCHITECT'S METAL

Office Literature

High-Bay Lighting
Defines basic factors involved in industrial lighting; compares advantages of mercury-vapor and incandescent units for various applications; and describes the *High-Bay* line of industrial lighting fixtures. Bulletin H. *Advertising Dept., Benjamin Div., Thomas Industries, Inc., 207 E. Broadway, Louisville, Ky.*

Heavy-Duty Industrial Heaters
Contains descriptions, technical information, and application and performance data on the OG4 line of combination oil-gas industrial heaters. 12 pp. *Lennox Industries Inc., 200 South 12th Ave., Marshalltown, Iowa**

Glazed Structural Masonry Units
(A.I.A. 10-B) Describes features and advantages of *Spectra-Glaze* glazed concrete masonry units; gives data on physical and chemical properties; and shows construction details. Full-color plates of available colors are also included. 16 pp. *Burns & Russell Co., Box 6063, Baltimore 31, Md.**

Lightfast Color Finishes
Lightfast Architectural Anodic Finishes (A.I.A. 15-E) presents information and data on the anodizing process that produces lightfast color finishes on aluminum. *Kaiser Aluminum & Chemical Sales, Inc., Kaiser Center, 300 Lakeside Drive, Oakland 12, Calif.**

Forest Products
(A.I.A. 23-L) A series of four catalogs gives information and data on decorative paneling; siding, fir paneling, sheathing and combination subfloor-underlayment; overlaid and standard fir plywoods; and hardboards. *Georgia-Pacific Corp., Equitable Bldg., Portland 4, Ore.**

Movable Partitions 1961
(A.I.A. 35-H-6) Contains drawings of systems and applications of prefinished movable partition panels. Also included is technical information, installation tips, specifications and data on physical properties. 8 pp. *Simpson Timber Co., 2040 Washington Bldg., Seattle 1, Wash.**

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

more literature on page 246

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Quietly beautiful...Beautifully quiet...

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- Quietly beautiful—the only incombustible* glass fiber ceiling board with *travertine* texture.
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- The ideal ceiling board for any suspended ceiling application where appearance and acoustical efficiency are important. . . offers uniformity without monotony.

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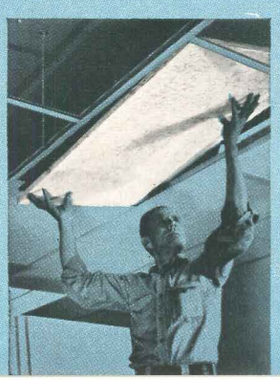
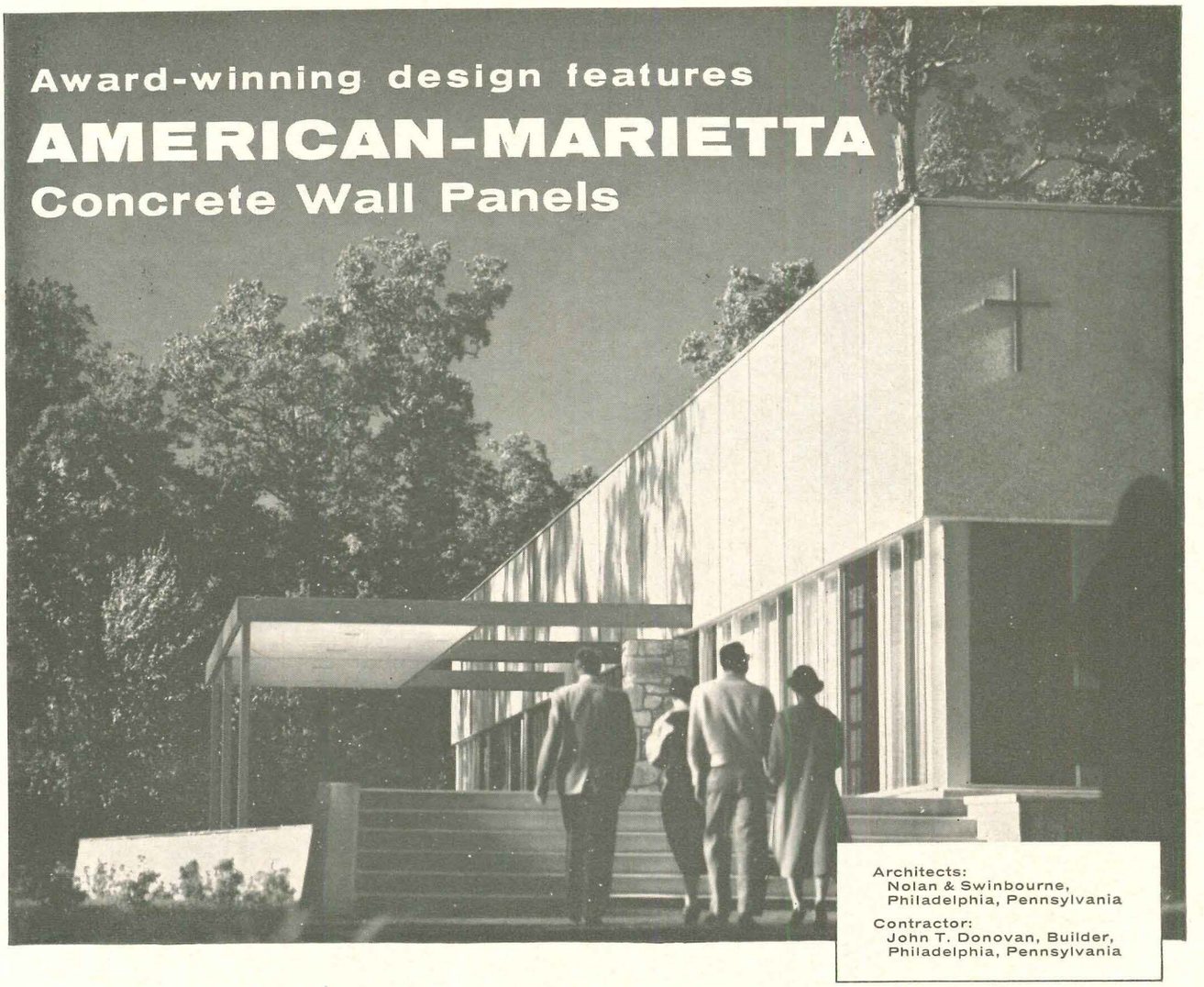


*Carries Underwriters' Laboratory label



This beautiful library building of the Gwynedd Mercy Junior College near Philadelphia won the 1959-60 Design Award presented by the A.I.A. Local Chapter, Pennsylvania Society of Architects.

A feature of the award winning design, and one that adds much to its attractiveness, is the use of American-Marietta Concrete Wall Panels along the top of the building.

Plain concrete or exposed aggregate panels, of load bearing or curtain type, cut construction time and provide a decorative appearance to schools, offices, warehouses, apartment and industrial buildings. Other precast concrete elements such as roof and floor systems, beams, columns and foundation grade beams may be combined with American-Marietta Wall Panels to offer a variety of unique architectural designs.

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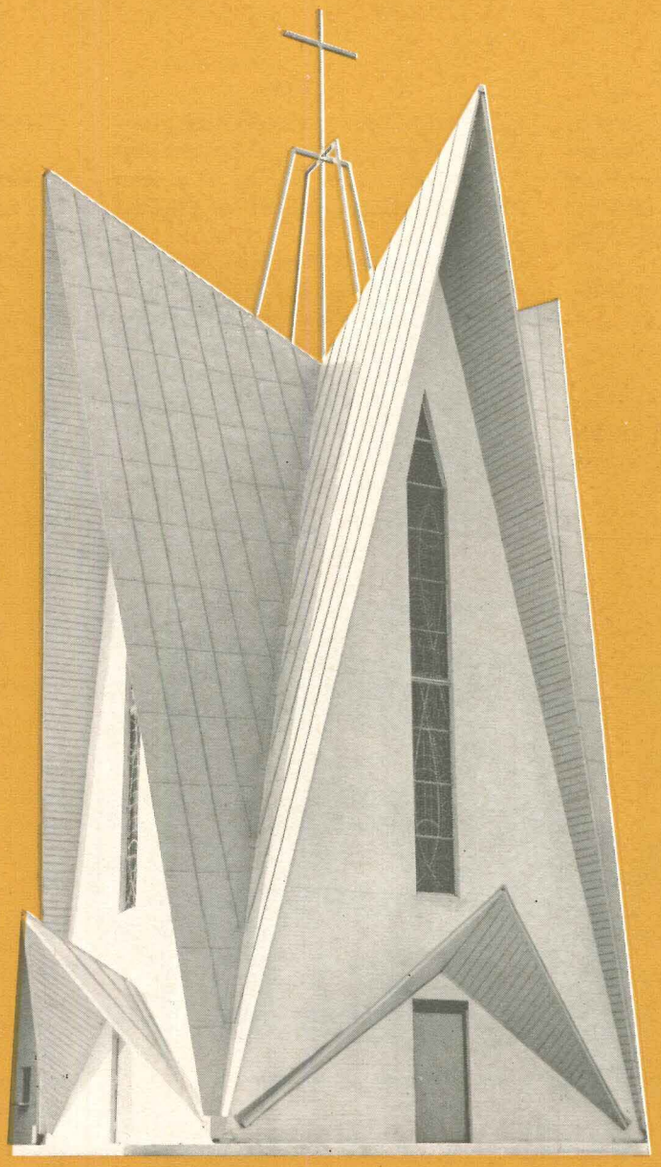
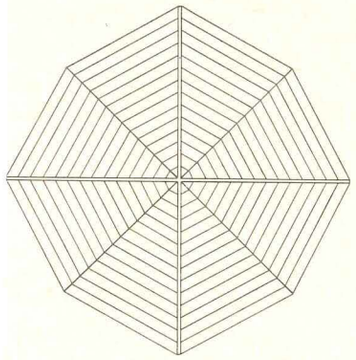


The Chapel of Norman Park College, Norman Park, Georgia



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A trend of major significance in contemporary architecture—and architects everywhere are finding that Follansbee Terne almost uniquely incorporates the essential values of form, color and function in such roofs. For terne's durability is measured in generations rather than years; it has a natural affinity for color; and no other material provides a greater freedom in design. Your inquiry is solicited.

Architects: Michael Hack, A.I.A., Designer
Henry Whitehead, Jr., A.I.A.
Atlanta, Georgia

Roofer: Maxwell Sheet Metals Works, Inc.,
Thomasville, Georgia

Follansbee is the world's pioneer producer of seamless terne roofing

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Follansbee, West Virginia

Signaling Equipment and Hardware
Describes electrical signaling equipment, annunciators, apartment house mailboxes, non-electric door chimes, and apartment house bell systems. Catalog BSM, 30 pp. *Product Div., Auth Electric Co., Inc., 34-20 45th St., Long Island City 1, N. Y.*

Aluminum in Architecture
Six new booklets cover *Alcoa* aluminum gravel stops and copings, industrial building products, roofing and siding products, exterior wall products, and architectural alloys and finishes. *Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.**

Electric Comfort Heating
(A.I.A. 31-K-3) Describes, illustrates, and gives engineering and application data for *Chromalox* line of electric comfort heating equipment. Catalog 975-D, 16 pp. *Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa.*

Plexiglas in Architecture
(A.I.A. 24) Discusses properties and characteristics of sheet *Plexiglas*, and covers its use in skylights, window glazing, spandrel panels and luminous walls, luminaires and luminous ceiling panels, and illuminated facades, pylons and letters. Catalog PL-446, 20 pp. *Rohm & Haas Co., Philadelphia 5, Pa.**

Non-Slip Floor Products
Describes, and gives specifications for *Alundum* vitrified floor products: abrasives, aggregates, and stair and floor tile. Catalog 1935-17, 8 pp. *Norton Co., Worcester 6, Mass.**

Your Guide to the Latest
. . . *in Recessed Lighting* includes complete illustrated descriptions of a recessed troffer line, supplemented by detailed mounting information, and coefficients of utilization and photometric data for each fixture with various light controlling panels. 36 pp. *Smoot-Holman Co., P. O. Box 4097, Inglewood, Calif.*

White Concrete in Architecture
(A.I.A. 4-K-1) Discusses and illustrates architectural uses of precast concrete panels, facings and cast stone units. Included are sections on exposed aggregates, color, texture, pattern, shape, size, insulation, strength and durability, moisture and fire resistance; and typical installation details. 32 pp. *Atlas White Sales, Universal Atlas Cement Div., United States Steel Corp., 100 Park Ave., New York 17, N. Y.**

Heavy Timber Construction Details
(A.I.A. 19-B) Gives framing and fastening details for heavy timber columns, floors, roofs and walls. WCD No. 5, 32 pp. *Technical Services Div., National Lumber Manufacturers Assn., 1319 18th St., N.W., Washington 6, D. C.*

Literature Requested
J. W. Hollis, Jr., Professional Engineer, Box 1735, Laurinburg, N. C.

CORRECTION:
"How Europeans Use Polystyrene Foams," by Dr. Helmuth Osken, ARCHITECTURAL RECORD, February 1961. Translated by Dr. C. F. Winans, European Representative, Koppers Co., Inc., Research Dept.

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

TRIA

TIMBER STRUCTURES, INC.

Gymnasium of Mountlake Terrace High School, near Seattle, Washington. Architect: Ralph H. Burkhard, Seattle. Engineers: Anderson, Bjornstad & Kane, Seattle. Contractor: Brazier Construction Company, Seattle.

Space provided: full size basketball court with seating for 2500 spectators. *Roof framing:* 125-foot Triax dome by Timber Structures, Inc., with dome segments of glulam timber. *Exterior walls:* tilt-up concrete panels with exposed crushed marble aggregate; glass panels set in aluminum frames. *Interior walls:* painted concrete and glass. *Heating:* peripheral hot air circulating system with ducts below floor level. *Ventilation:* mechanical and natural systems. *Lighting:* mercury vapor fixtures; Everlite skylights. *Floor:* maple over criss cross spring system. *Roof surface:* 20-year bonded glass type over heavy timber decking; ceiling of sprayed asbestos fibre. *Area:* 12,272 square feet. *Volume:* 307,000 cubic feet. *Cost:* $11.50 a square foot including architect's fee and sales tax. Dome structure $1.72 a square foot, erected in place.

PHOTOGRAPH COURTESY OF ALSYNITE

Timber Structures, Inc., with thirty-two years of experience in timber laminating and fabricating, assisted the architect in providing this attractive, permanent structure for $35,000 less than the cost of equal space provided by conventional construction. Thorough quality control assures lasting beauty and maintenance-free service of the dome structure.

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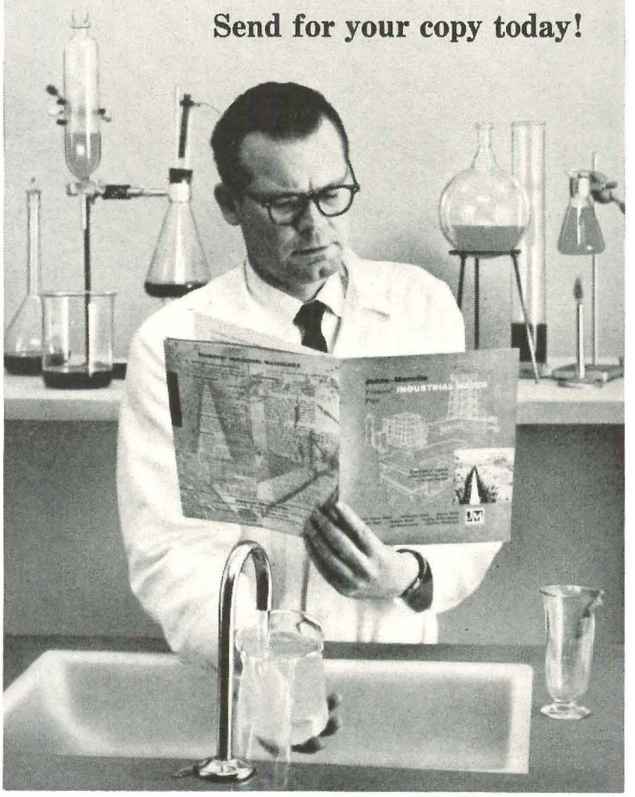

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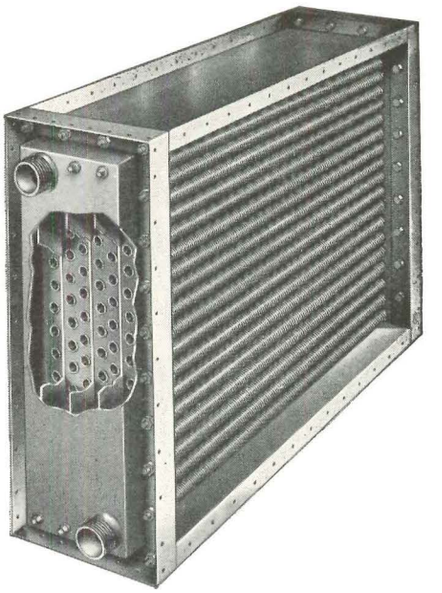

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Completely drainable and easily cleaned, Aerofin Type "R" coils are specially designed for installations where frequent mechanical cleaning of the inside of the tubes is required.

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The finned tubes are staggered in the direction of air flow, resulting in maximum heat transfer. Casings are standardized for easy installation. *Write for Bulletin No. R-50.*

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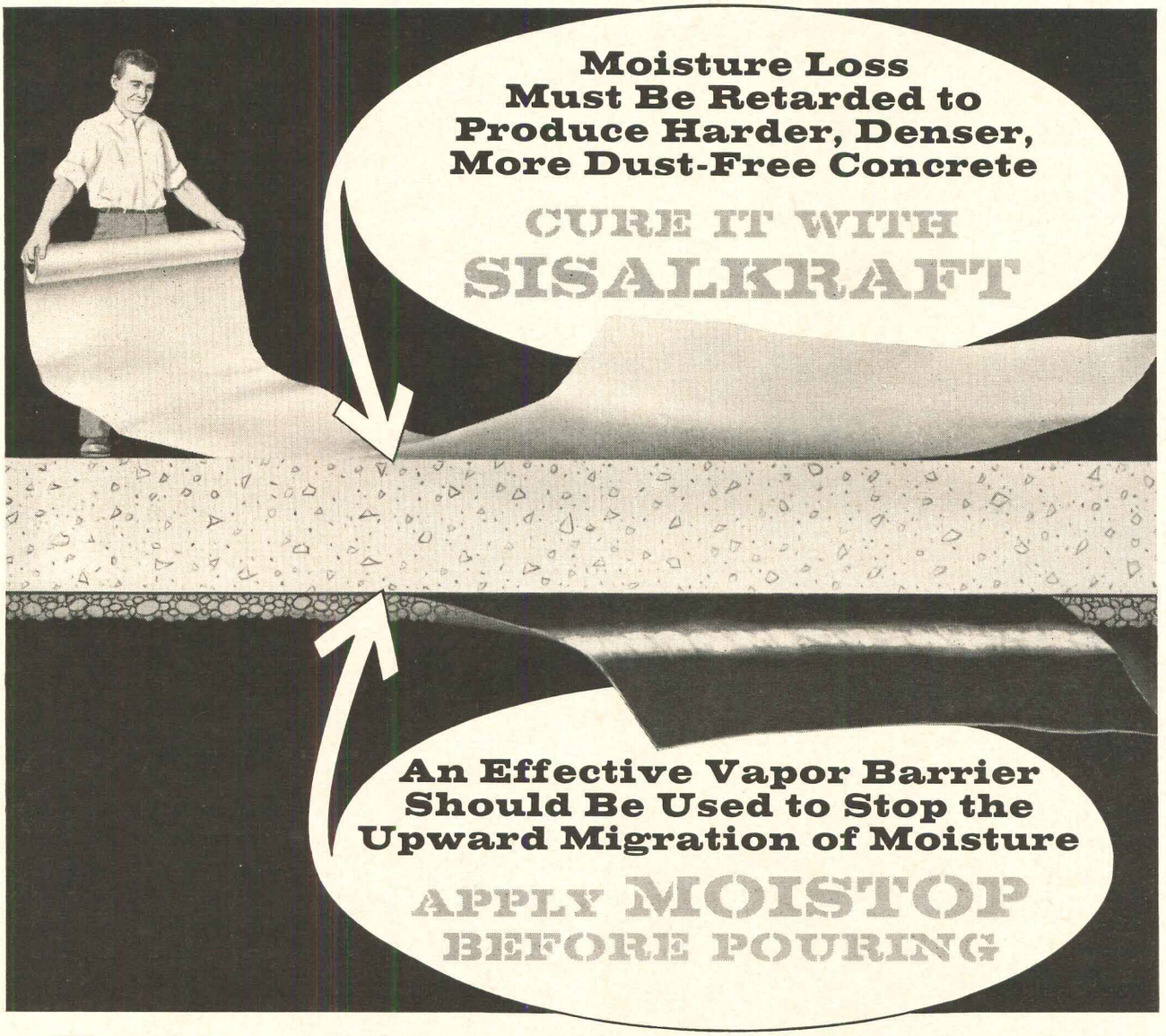

These two quality products warrant your careful consideration for most concrete floor construction

MOISTOP — A combination of fungicide-treated reinforced paper laminated to polyethylene film with a perm rating of 0.15, Moistop is a *permanent* barrier against transfer of moisture vapor. Applied over fill before pouring, its strength will resist tearing, puncturing and abrasion from workmen and equipment. Wide widths mean faster application with minimum lapping.

SISALKRAFT — Tough reinforced paper of 101 uses. This product will prevent rapid drying of newly poured concrete. It is also an excellent protective cover for the slab during subsequent construction — keeping debris, mortar, etc., from damaging or marring the floor. The durability of Sisalkraft permits re-use, bringing its low cost per square foot down even more.

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Literature and samples on either or both products will be sent promptly upon request.

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MOISTOP — 72", 84", 96" containing 1200 sq. ft.

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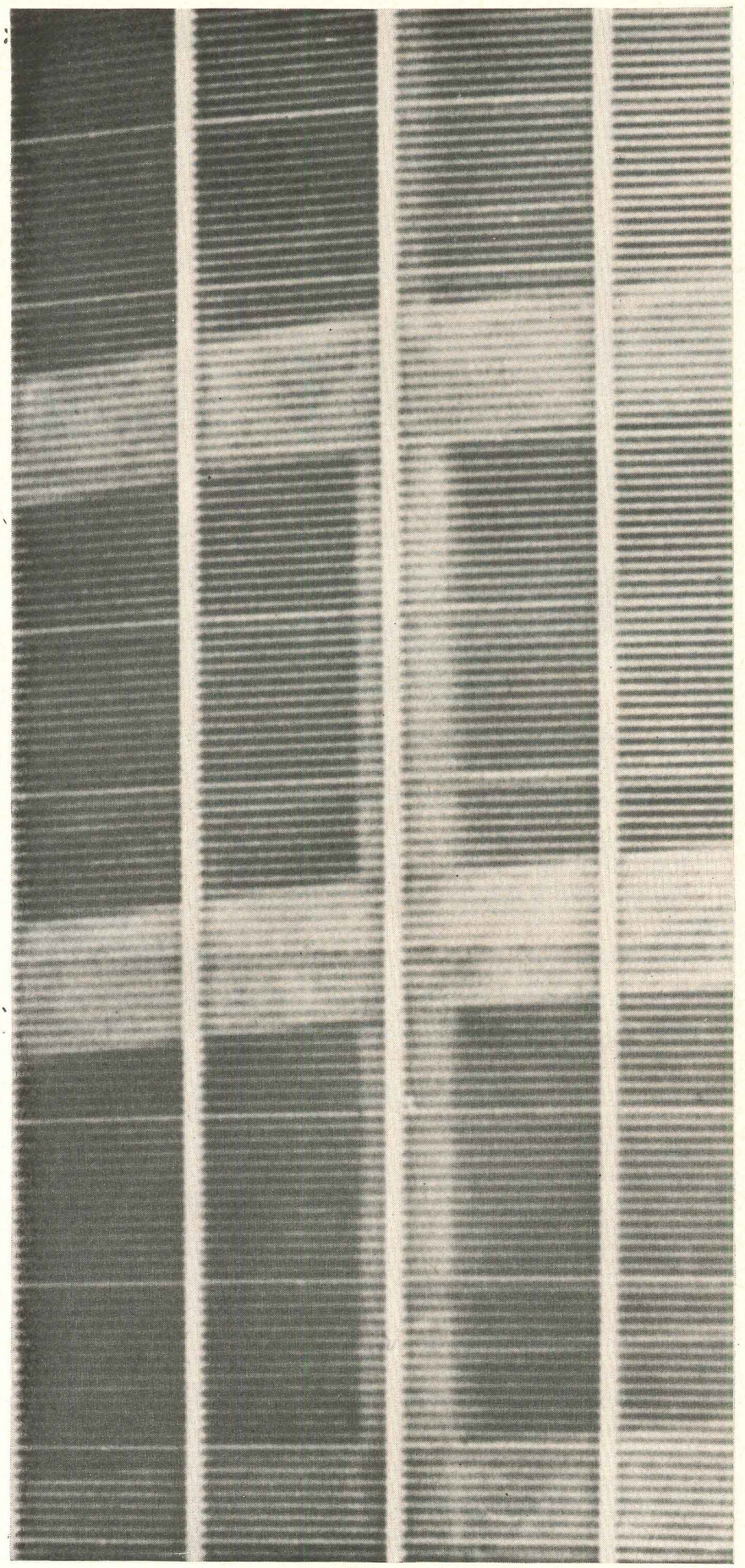

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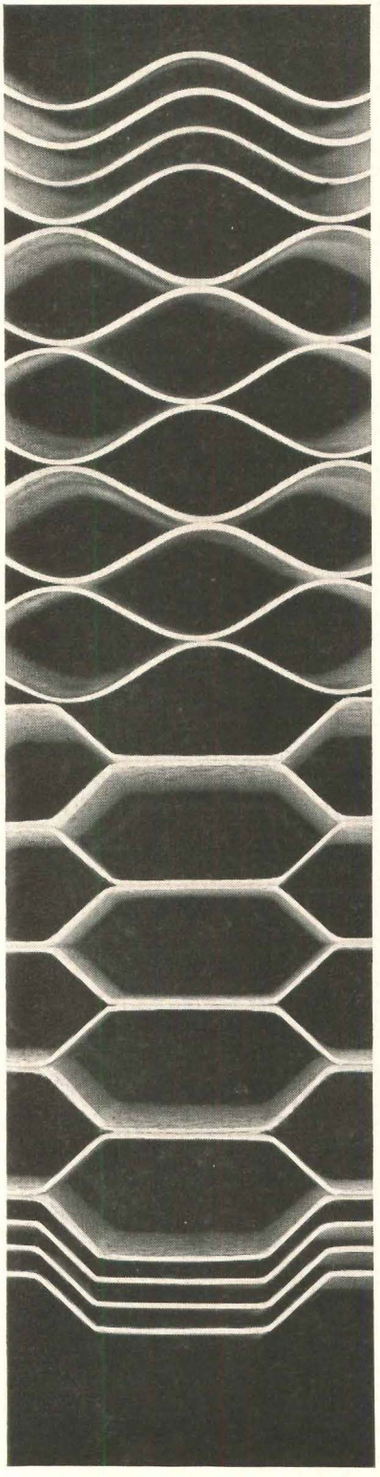
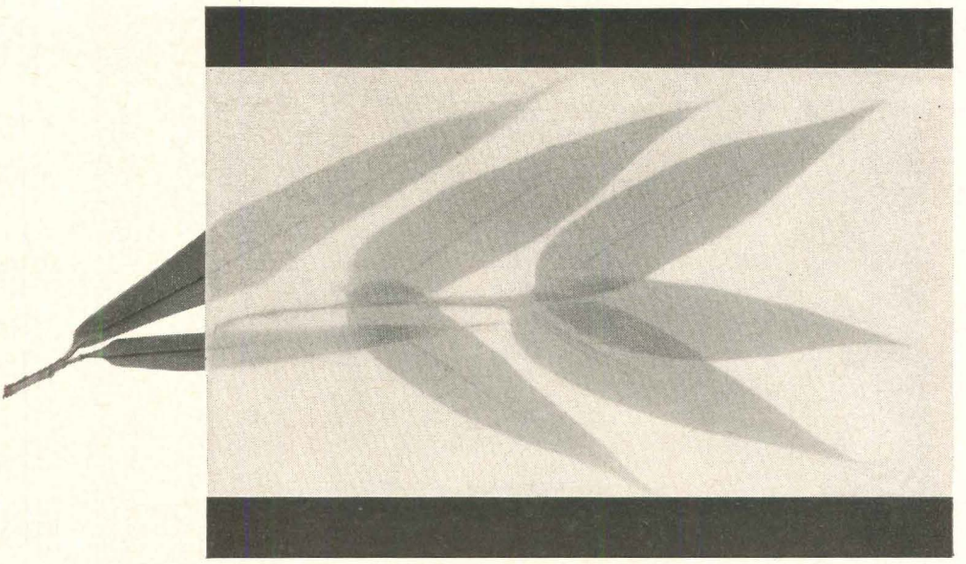
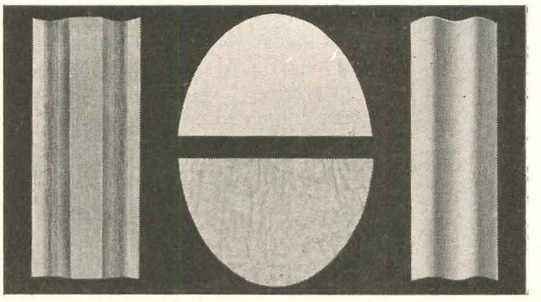
FORM – with function and beauty. Alsynite translucent panels are yours in a variety of useful flat panels and corrugations that nest with standard materials – or offer intriguing new possibilities. Reinforced with millions of glass fibers, Alsynite is shatterproof, needs only minimum structural supports.

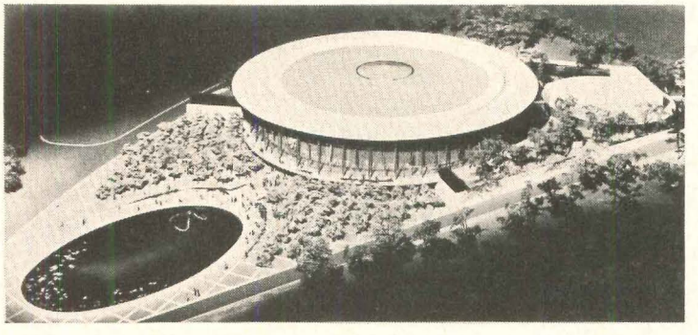




ILLUMINATION without glare. Translucent Alsynite diffuses and softens light, yet provides privacy. An economical choice for daylighting, Alsynite can be unusually dramatic when used in muted colors.

TEXTURE that contributes to the over-all character of the finished structure. Alsynite offers impressive variety in one easy-to-handle material. Various configurations and flat panes in textured or smooth surfaces – even panels with decorative shoji-style embedments.





STRUCTURAL characteristics leading architects rely on. Used in light-diffusing roof of the U.S. Pavilion, Brussels World's Fair, Alsynite offers the user guaranteed quality.

Alsynite's own guarantee is backed by the resources of RCI, a great name in chemicals. For details, consult Sweet's Catalog Index No. $\frac{10a}{A1}$ or see your dealer, listed in the Yellow Pages under plastic products. Or for free literature, write Alsynite, San Diego 9, Calif., Dept. AR-461.

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The Record Reports

On The Calendar

April

9-15 23rd annual convention, National Association of Architectural Metal Manufacturers—Plaza Hotel, New York City

10-15 National convention (first of three in 1961), American Society of Civil Engineers; theme: "Water Resources"—Westward Ho Hotel, Phoenix, Ariz.

11-13 12th annual convention, Wisconsin Chapter, A.I.A.—Lake Lawn Lodge, Delavan, Wis.

16-20 30th annual conference, American Institute of Decorators—Roosevelt Hotel, New Orleans

18-20 Fifth Annual Industrial Mutual Aid and Disaster Control Seminar, sponsored by the National Institute for Disaster Mobilization and the Channel Industries Mutual Aids—Shamrock-Hilton Hotel, Houston

18-20 1961 Conference on Church Architecture, sponsored jointly by the Church Architectural Guild of America and Department of Church Building and Architecture of the National Council of the Churches of Christ in the U.S.A., with the cooperation of the Pittsburgh Chapter, American Institute of Architects and the Pittsburgh Architectural Club—Penn-Sheraton Hotel, Pittsburgh, Pa.

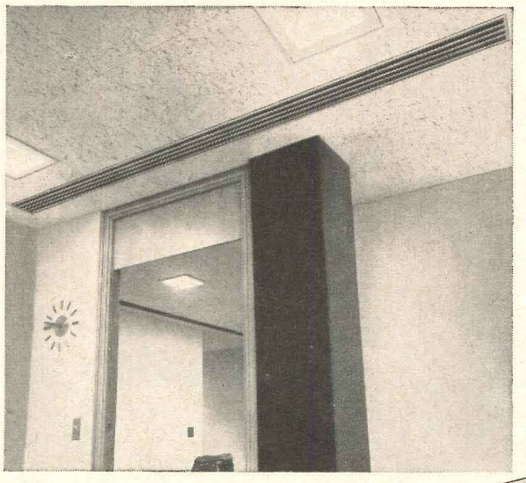
20-22 76th annual convention, Illinois Society of Professional Engineers—Peoria, Ill.

24-28 National Convention, American Institute of Architects—Bellevue-Stratford, Philadelphia

29ff 24th Annual Maryland House and Garden Pilgrimage, sponsored by the Federated Garden Clubs of Md.; Society for the Preservation of Md. Antiquities; National Society of Colonial Dames of Md.; Md. Historical Society; Baltimore Museum of Art; House tours and cruises through May 28 —Baltimore, Md.

continued on page 256

New Anemostat Architectural Straight Line Diffusers at Cornell University



Here is the new Anemostat ASL Architectural Straight Line Air Diffuser installed in the Willard Straight Hall of Cornell University at Ithaca, New York. This new ASL unit for ceiling or wall application combines the superior air diffusion characteristics of all Anemostat air diffusers with the esthetic appearance of a slender unit with symmetrical vanes. The ASL diffusers are easy to install; no screws, nuts or bolts are needed.

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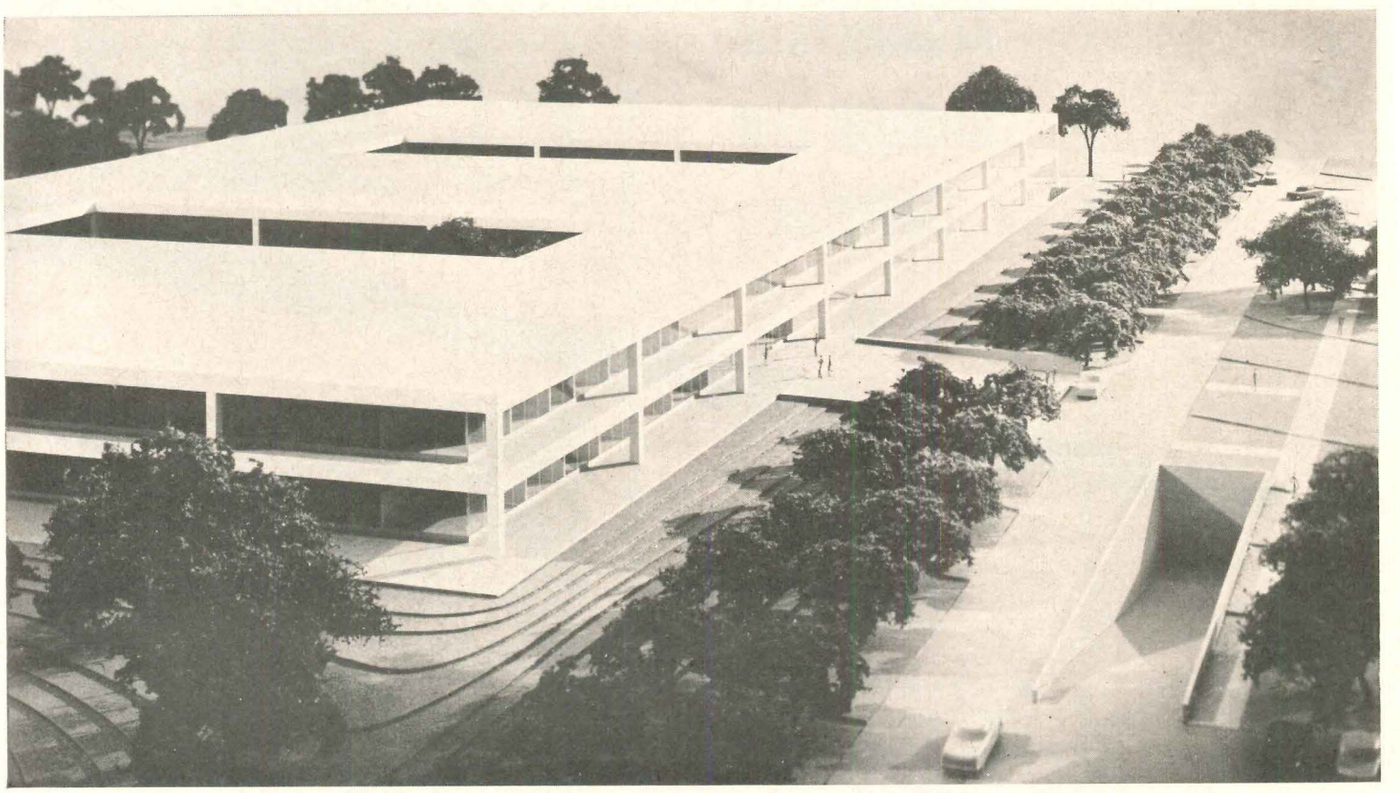
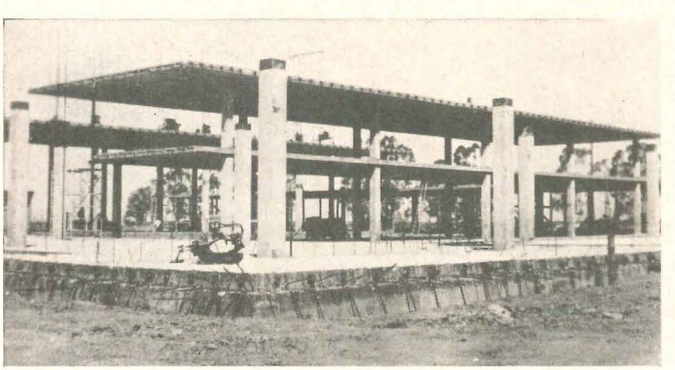
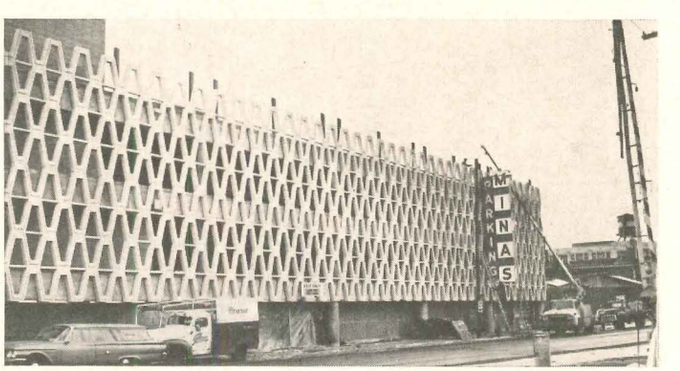
NEW...IN PRESTRESSED CONCRETE these dramatic projects post-tensioned by Ryerson



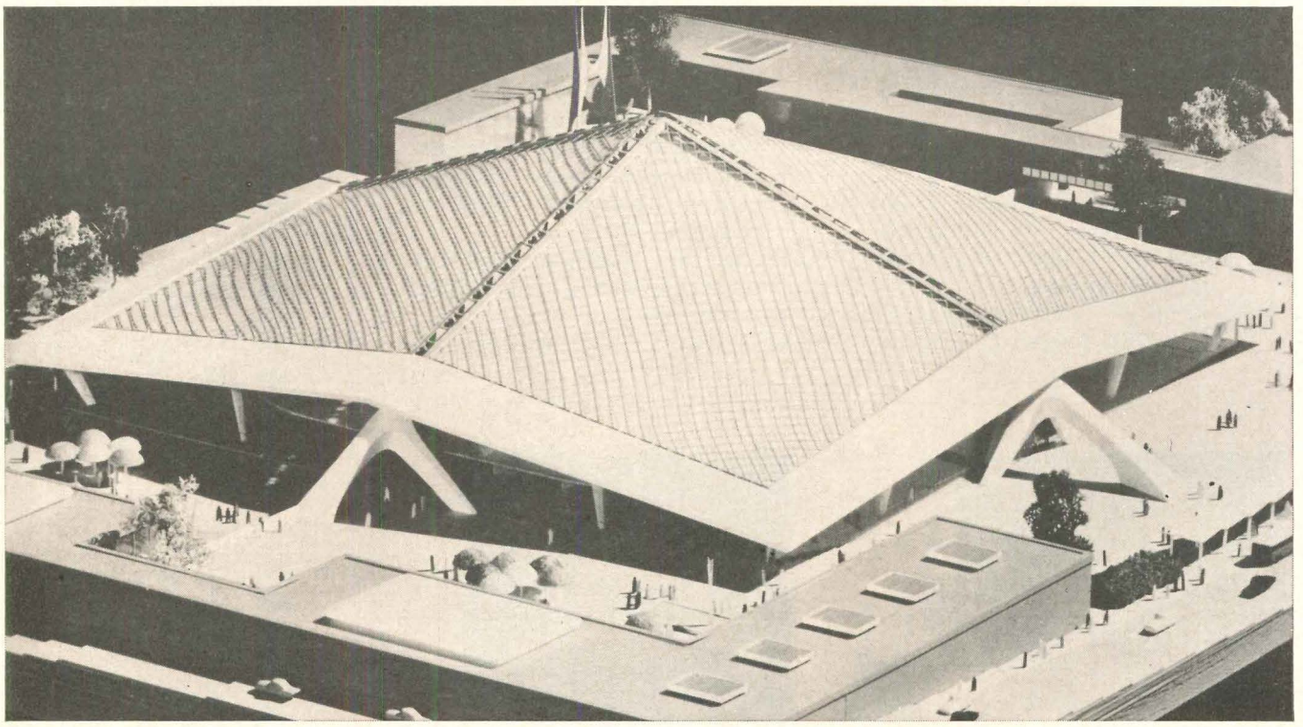
United Air Lines Executive Offices—Chicago. Continuous 2-way, waffle-type slabs 2′6″ thick. Column spacing 60′x66′. Now under construction. **ARCHITECT:** Skidmore, Owings & Merrill. **CONTRACTOR:** Gust K. Newberg Construction Co.



St. Pius X Seminary—Galt, Calif. Lift-slab construction. 9″ flat slab and approximately 30′ column spacing. **OWNER:** Roman Catholic Diocese of Sacramento. **ARCHITECT:** Harry J. Devine. **ENGINEER:** Ernest Francis. **GENERAL CONTRACTOR:** Continental Construction Co. **LIFT-SLAB CONTRACTOR:** Vagtborg Lift-Slab Corporation, Los Angeles, Calif.



Multi-Level Parking Deck for Minas Department Store, Hammond, Indiana. Non-structural 2″ to 6″ topping on precast T beams post-tensioned two ways to provide crack-free weatherproof slab. Edge beams cast in place with conventional reinforcing. **BUILDER:** Triangle Parking Corp. **ARCHITECT & ENGINEER:** DeLeuw, Cather & Co. **CONTRACTOR:** Roy C. Clark, Inc.



Century 21 Exposition Coliseum—Seattle. Column-free interior 400′ square, 115′ high. Edge beams are post-tensioned and aluminum roof panels are supported by tensioned cables of galvanized wire. **BUILDER:** State of Washington, Dept. of Commerce & Economic Development. **ARCHITECT:** Paul Thiry. **CONTRACTOR:** Howard S. Wright Construction Co.

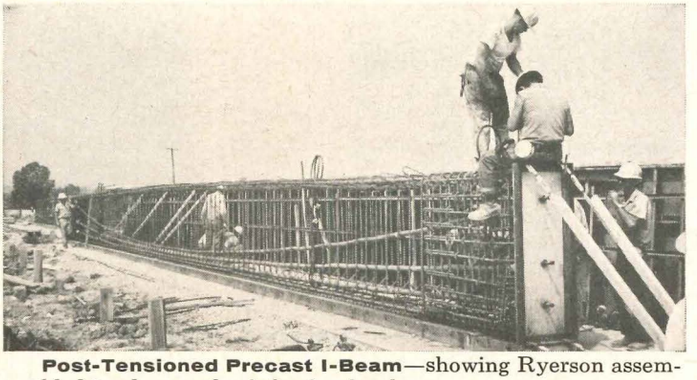
Presents new opportunities

As use of prestressed concrete gains momentum, Ryerson continues to set the pace with a complete service for this type of construction. Using the BBRV system, Ryerson post-tensioning service makes prestressing more practical and economical than ever—and presents new and dramatic construction opportunities such as those illustrated here.

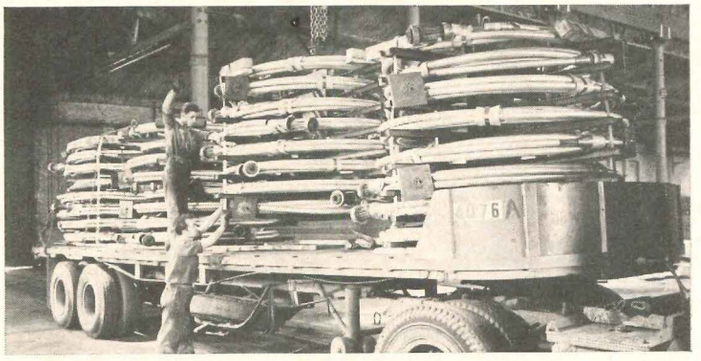
Covers every operation

This unique Ryerson service covers prestressed concrete application completely—from adaption of the engineers' design through the final stages of field erection . . . including force development calculations, quality-controlled tendon and anchorage assembly, equipment for precise stressing and positive grouting, job-site technical assistance and dependably scheduled deliveries. And the entire service is all wrapped up in a complete, single-price post-tensioning package.

For further information on post-tensioning and other Ryerson products and services for the construction industry, contact your nearby Ryerson plant.



Post-Tensioned Precast I-Beam—showing Ryerson assembled tendons and reinforcing in place.



Completely Assembled Tendons—are shipped on specially designed incoiling racks ready for easy installation.

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The Record Reports

continued from page 252

30ff American Society of Planning Officials' National Planning Conference; through May 4 —Denver Hilton Hotel, Denver

May

4-6 Fifth annual meeting, Board of Directors, Consulting Engineers Council—Executive House, Chicago

7-10 International Conference and Office Equipment Exposition, sponsored by National Office Management Association—Sheraton-Jefferson Hotel and Kiel Auditorium, St. Louis

12-14 South Atlantic American Institute of Architect's Regional Conference; theme: "Continuing Education"—Winston-Salem, N.C.

14-18 Annual meeting, National Fire Protection Association —Detroit

16-18 Building Research Institute 1961 Spring Conferences—Shoreham Hotel, Washington, D.C.

17-20 1961 convention, Royal Architectural Institute of Canada; theme: "The Building Community"—Chateau Frontenac, Quebec City, Canada

22-24 Fifth annual convention, Construction Specifications Institute—Commodore Hotel, N.Y.

22-26 41st International Conference and Office Exposition of the National Office Management Association—Queen Elizabeth Hotel and Show Mart, Montreal

June

5-7 First Inter-governmental Symposium on Urban Renewal, organized by the United Nations Economic Commission for Europe's Housing Committee—Palais des Nations, Geneva, Switzerland

5-9 Ninth National Plastics Exposition, sponsored by the Society of the Plastics Industry Inc.—The Coliseum, New York

25-30 Annual meeting, American Society for Testing Materials —Chalfonte-Haddon Hall, Atlantic City

26-28 Annual meeting, American Society of Heating, Refrigerating and Air-Conditioning Engineers—Denver

Office Notes

Offices Opened

The firm of Allan & Olsson, Architects, Phoenix, Ariz., has opened a branch office at Suite No. 1, Union Building, 112 West Gurley, Prescott, Ariz.

New Firms, Firm Changes

A limited partnership has been formed by Max W. Moody and Howard O. Wallace to offer professional services in the fields of architectural, structural and civil engineering under the name of Wallace & Moody, Planners and Engineers. The firm's address is 861 Mapunapuna St., Honolulu 17, Hawaii

Carl F. Burmeister Jr. and Thomas B. Bealle Jr. announce the formation of a partnership for the

continued on page 264

ARCADIA BAPTIST CHURCH, SPARTANBURG, SOUTH CAROLINA.
A. HUGH CHAPMAN, JR., ARCHITECT

PERFECT ALLIANCE OF SHINGLE AND DESIGN

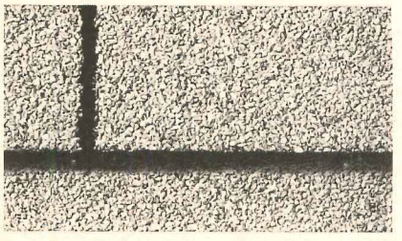
THE BIRD KING-TAB ARCHITECT GIVES MAJESTY AND WEIGHT TO A MODERN HIGH-GABLE ROOF

A sweeping expanse of roof is the dominant feature of this distinguished house of worship — another example of the Bird King-Tab Architect Shingle's perfect conformity with the design. In this instance, Gothic Slate Blende was used, with a slatelike effect.

Conformity with Design achieved by the Architect's 18″ King-Tabs — 50% less vertical lines accentuate the horizontal.

Uniformity of Surfacing in even distribution of jumbo color granules controlled in manufacture — no unsightly application on site.

Greater Safety, Triple Protection: 300 lbs. per square, thick as standard slate; 3 full layers at every point, with 5″ exposure. Flatter roofs, pitched as low as 2″ in 12″, use it with complete safety.



See Specifications in SWEETS FILE 8C/Bi or 3C/Bi

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MOISTURE AND TERMITES A PROBLEM? *Write for details on Bird Termite Prevention System and Vapor Barrier*

IMPORTANT
ANNOUNCEMENT

New York Testing Laboratories, Inc.
Confirms the Dramatic Superiorities of
New Competitively Priced

MATICO POLYMERITE™ FLOOR TILE

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GREASE RESISTANT
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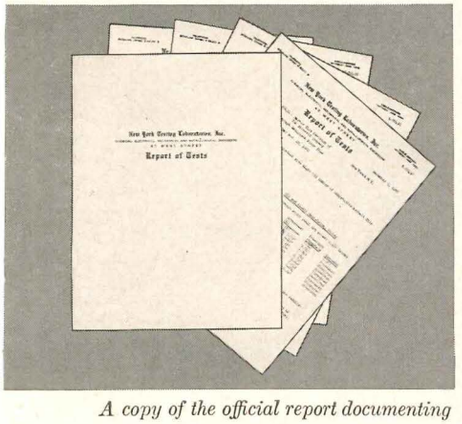
IMPORTANT ANNOUNCEMENT

Proved Grease Resistance in unbiased, authoritative tests by this world-famous Research Laboratory. Matico Polymerite is the ONLY Low-Price Floor Tile offering this proof. New York Testing Laboratories, Inc. evaluated new Matico Polymerite Floor Tile *vs.* eight competitive brands of Asphalt Tile (purchased on the open market). Test standards were Federal Specification SS-T-307, Grease Resistant Asphalt Tile. Polymerite conformed fully to specifications for Oil and Alkali Resistance. *All eight competitive brands failed .*

Proved Flame Retardance—the ONLY Low-Price Floor Tile tested to pass evaluations at New York Testing Laboratories. Matico Polymerite Tile met strict U.S. Navy requirements for Flame Retardance under Military Specifications MIL-T-18830 (Ships). *Eight competitive brands of Asphalt Tile tested failed!* Polymerite Tile is one of the *safest* floorings for home and industry.

Proved Durability—the ONLY Low-Price Floor Tile tested to meet stringent Navy Wear Resistance Tests. Matico Polymerite Floor Tile conformed fully with Resistance to Wear requirements under Military Specifications MIL-T-18830 (Ships). *All eight competitive brands of Asphalt Tile failed this test.* Other measuring factors indicate that Matico Polymerite Floor Tile provides up to twice the wear of ordinary Asphalt Tile.



A copy of the official report documenting these findings is available on request. Write Mastic Tile Division, The RUBEROID Co. P. O. Box 128, Vails Gate, N. Y.

Backed by eight years of research... and a multi-million dollar plant investment

Matico Polymerite Floor Tile is a *new* concept in flooring . . . a technological triumph made possible by eight years of research, culminating in a revolutionary resin.

Perfected as a joint venture of The RUBEROID Co., and the Air Reduction Corporation, this new resin is made in a giant plant designed for its large-scale production.

Polymerite makes possible a floor tile with the characteristics of fine tile: brilliant, clear colors...resiliency...tight, smooth, easily-maintained surface...greater light reflection ...grease and stain resistance...flame retardance...greater resistance to wear. *Yet its price compares with the most economical types of tile.*

To our best knowledge, Matico Polymerite is the *only* floor tile with all the superiorities described, at such a low competitive price.

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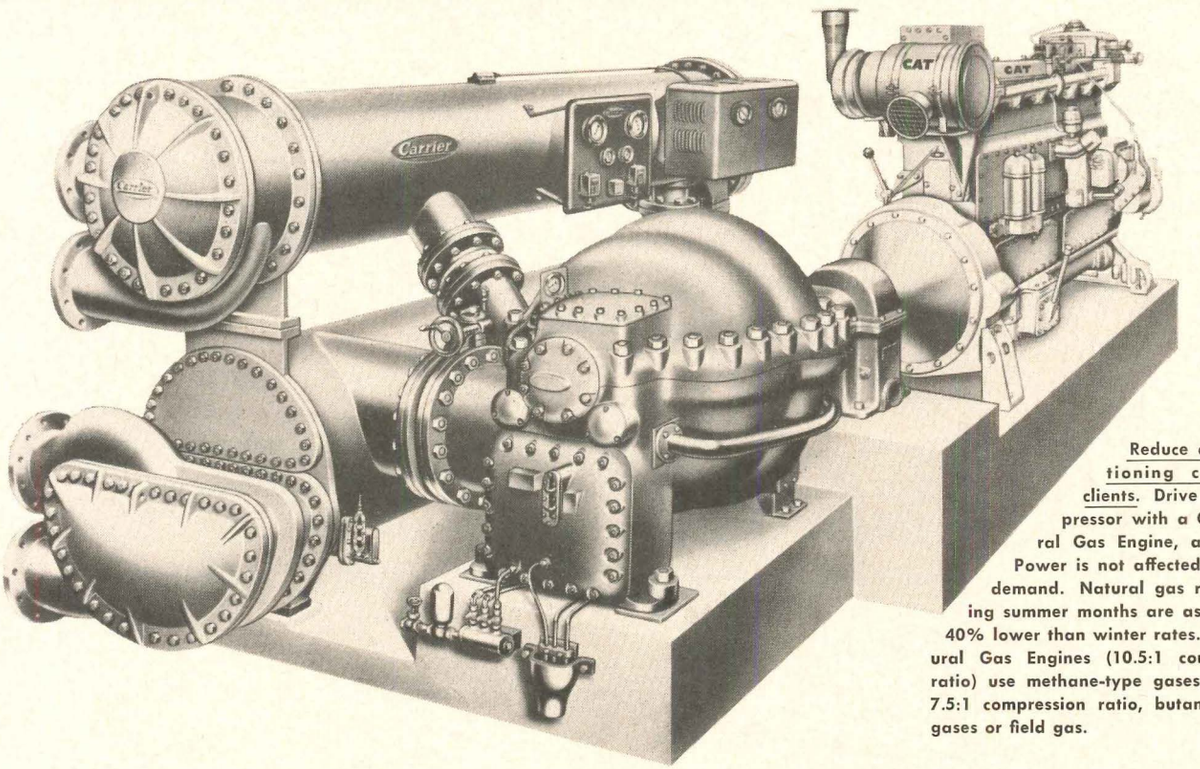
engine power BY CATERPILLAR

HAVE YOU CONSIDERED THIS UNUSUAL APPROACH TO LOWERED AIR CONDITIONING BILLS?



Reduce air conditioning costs for clients. Drive the compressor with a Cat Natural Gas Engine, as shown. Power is not affected by peak demand. Natural gas rates during summer months are as much as 40% lower than winter rates. Cat Natural Gas Engines (10.5:1 compression ratio) use methane-type gases or, with 7.5:1 compression ratio, butane, mixed gases or field gas.

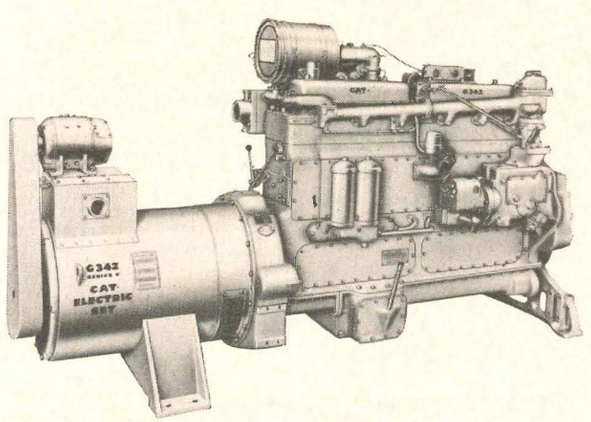
When you design or install air conditioning for commercial buildings around a Caterpillar Natural Gas Engine, you can insure clients materially lower operating costs.

Cat Natural Gas Engines often pay for themselves in only a few seasons. Calculations show that a Cat G342 can power a centrifugal compressor for less than ½¢ per ton hour, based on a natural gas rate of 60¢/MCF. This includes fuel, engine depreciation, and maintenance.

Cat Natural Gas Engines operate up to 30,000 hours before major overhaul—or about 10 years of air conditioning service. Furthermore, Cat Natural Gas Engines do not have to be derated because they are built on a basic diesel frame—with all the diesel strength intact. With some types of natural gas engines, it is necessary to reduce output in order to achieve reasonable life.

The Cat Natural Gas Engine is as easily maintained as a Cat Diesel. No special technical training is needed. Caterpillar Dealers located throughout the country insure that parts and service will be available for the life of the engine.

If your clients are seeking every opportunity to reduce costs, we urge you to investigate the Cat Natural Gas Engine for air conditioning. Write to us direct, call your Caterpillar Dealer, or talk with air conditioning equipment manufacturers.



The Cat Turbocharged-Aftercooled G342 Natural Gas Engine produces 280 continuous HP @ 1200 RPM in the 10.5:1 compression ratio and 235 continuous HP @ 1000 RPM in the 7.5:1 compression ratio. The six-cylinder, four-cycle G342 Natural Gas Engine utilizes a low-tension ignition system. The electric set shown here produces 175 KW continuous or 200 KW on an emergency basis.

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Relighting the Library, Butler Hall, Columbia University... *(Mercury Vapor)*

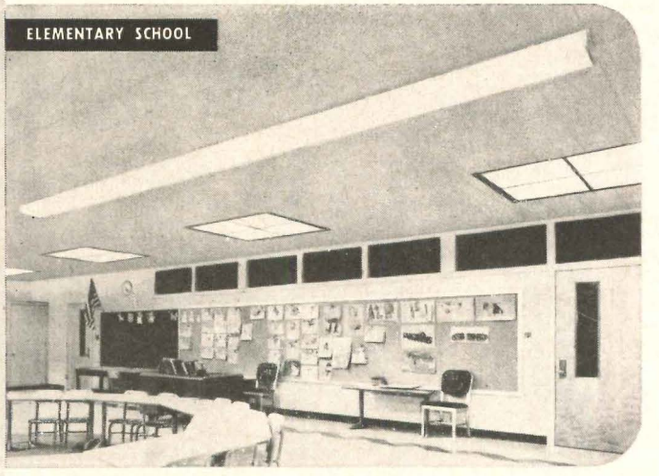
Holophane No. 640 Prismatic Reflectors with color-corrected lamps... Result: vastly increased illumination, economical installation and maintenance.

Art Classroom, High School, Newport Beach, Cal. ... *(Incandescent)*

Maximum lighting on the work areas provided by Holophane In-Bilt No. F-1570 luminaires with 300 watt lamps.

Kindergarten, Roosevelt Elementary School, Worcester, Massachusetts... *(Fluorescent)*

For effective, comfortable illumination of this study-play room—Holophane No. 6500 REALITE® combined with No. 6024 Two-Foot-Square CONTROLENS®.



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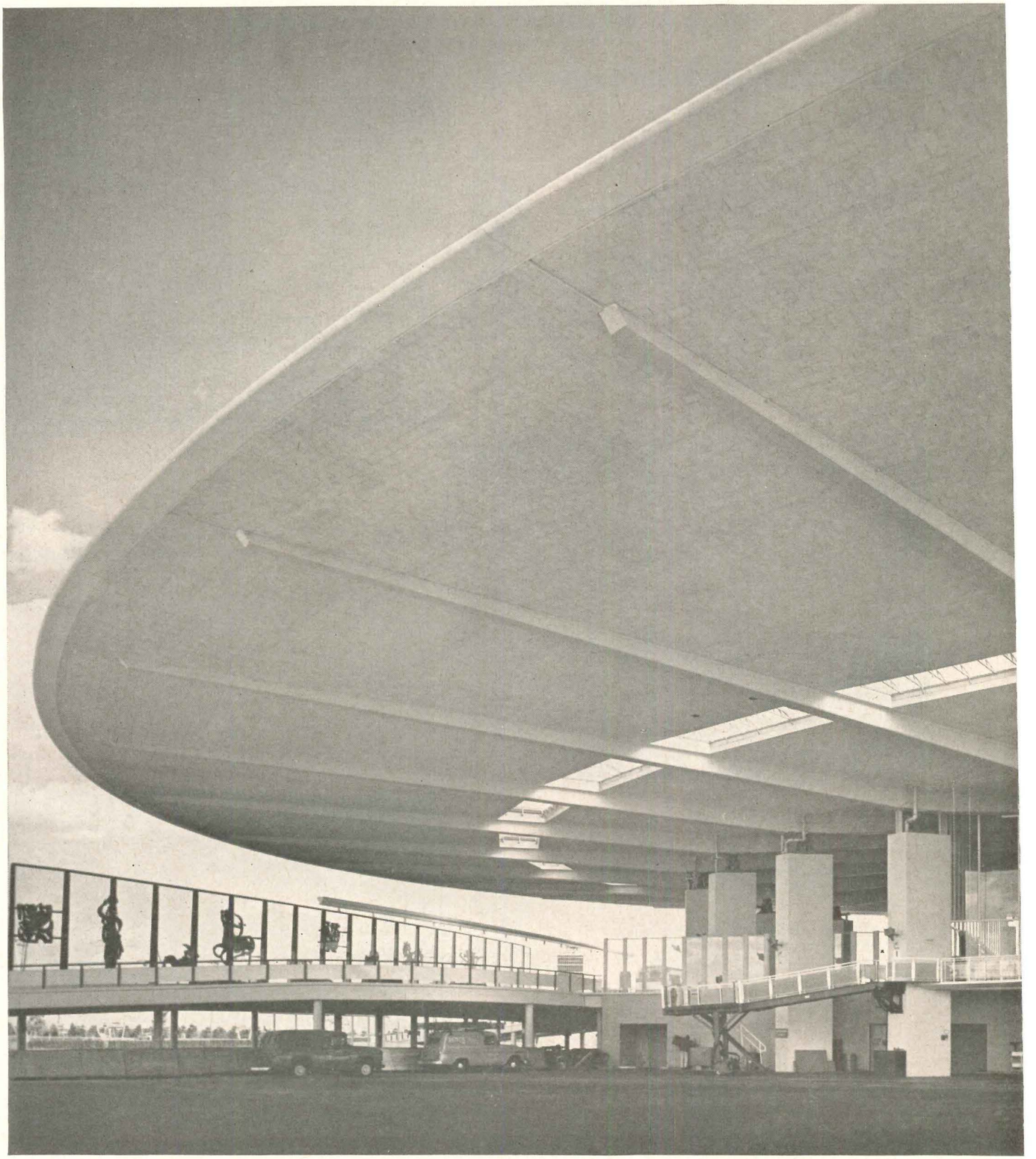
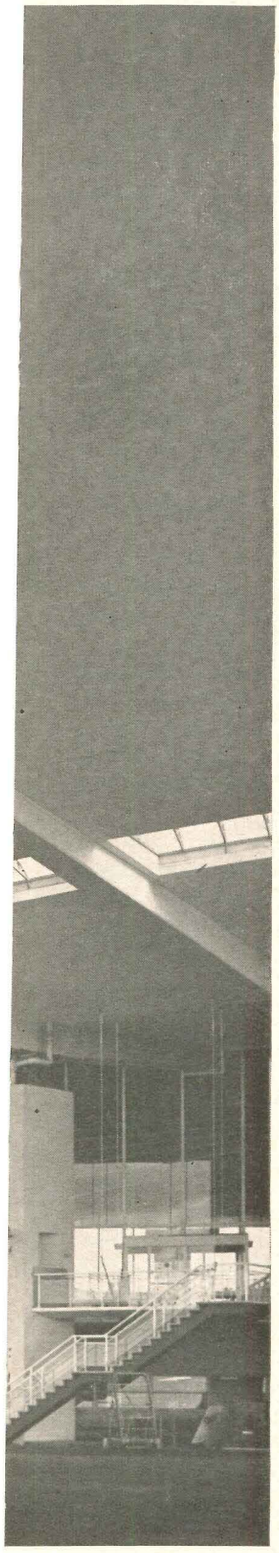


New Pan American World Airways Passenger Terminal, New York International Airport.



Architects and Engineers: Tippetts-Abbett-McCarthy-Stratton, New York.
Associated Architects: Ives, Turano and Gardner.

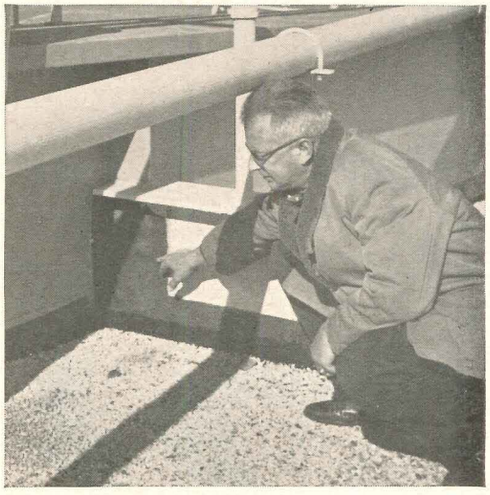
SARALOY® 400

frees design from conventional flashing limitations, cuts flashing labor costs 25% for new air terminal

45,000 square feet of Saraloy 400 roof flashing provide hundreds of *permanent* moisture seals for this ultra-modern air terminal. Among the many critical flashing problems solved by Saraloy 400 were: sealing 875 acute and obtuse angles created by almost inaccessible junctures of structural steel beams and purlins; flashing steel-to-concrete joints and lining scupper holes.

The design of the terminal's elliptical cantilevered roof produced 144 different odd shapes and angles where beams, purlins and equipment housing shells meet. Flashing with conventional materials would require that each seal be specially cut and custom-fitted, often to match curved contours. The labor costs for installing metal flashing would have been prohibitive. Because Saraloy 400 could be quickly and easily cut and formed on the job, labor costs were about 25% less than the cost of installing conventional flashing materials. And each seal is permanent.

Saraloy 400 is Dow's brand of flexible roof flashing. It can be bonded to almost any construction material, such as concrete, wood, metal, ceramic, and it can be painted. It provides a permanent watertight seal which won't check, peel or crack . . . and which moves with building contraction and expansion. For more information write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Dept. 1501 M4.



Saraloy accomplishes difficult flashing of bolted girder-purlin intersection

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STYROFOAM* — Long-lasting insulation for cavity walls; effective insulating base for plaster and wallboard. Rigid, low "K" factor, highly resistant to water and water vapor.

SCORBORD* (pat. applied for)—Superior rigid insulation for foundation perimeters, slab floors. Exclusive pre-scoring speeds installation.

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THE DOW CHEMICAL COMPANY DOW Midland, Michigan

continued from page 256

general practice of architecture under the firm name of Burmeister and Bealle-Architects, 1914½ Grant St., Mobile, Ala.

Monroe Schwartz has been named an associate of Jack Alan Bialosky, Associates, Cleveland architectural firm. He will be in charge of the production department.

Maynard D. Houston has joined the management group of Charles Luckman Associates, planning-architecture-engineering firm, Los Angeles and New York, as an executive architect. Since 1954 he has headed the firm of Maynard D. Houston & Associates, Beverly Hills, Calif.

William B. Heller has become a partner in the firm of Carson, Lundin & Shaw, Architects at 425 Park Ave., New York 22.

In November architect Richard G. Millman joined the Ann Arbor, Mich. firm of Kainlauri, MacMullan & Associates, Inc. as one of the principals. The company name has now been changed to Kainlauri, MacMullan, Millman, Associates, Inc., Architects and Engineers.

The formation of Leo Kornblath Associates, architectural and design firm, with offices at 18 E. 41st St., New York City and in Hato Rey, Santurce, Puerto Rico, marks the end of a 14-year association with the architectural team of Morris Lapidus, Kornblath, Harle & Leibman. Mr. Kornblath has been a partner for the past eight years.

Kelly & Gruzen, architects and engineers of New York and Newark, has elected Richard H. Gordon, R.A., to the rank of Associate. He will be concerned with architectural planning for urban renewal and other large scale housing programs.

Joseph S. Ward and Associates, Consulting Soils and Foundation Engineers of Caldwell, N.J., has admitted Joseph M. De Salvo to general partnership. With the firm since 1952, Mr. De Salvo is presently vice president of Joseph S. Ward, Inc., also in Caldwell, and executive vice president of the firm's Philadelphia affiliate.

William S. Lewis Jr., architect, has been appointed vice president of the San Diego, Calif., firm of Deems-Martin, Associates.

Barry J. Callari has been named a new partner in the firm of G. Ross Murrell, Jr., Architect, 2987 Government St., Baton Rouge, La. The firm name has been changed to: Ross Murrell and Barry Callari, Architects. A new associate member of the company is Betty Redding Lee.

Formerly a principal in Magney, Setter, Leach and Lindstrom, Inc., Minneapolis, Minn., John R. Magney has opened offices in Suite 808, Foshay Tower, Minneapolis for the practice of architecture under his own name. Mr. Magney is president of the Minnesota Society of Architects.

Francis B. Jacobberger, Everett B. Franks and Richard W. Norman announce their partnership in the firm of Jacobberger-Franks-and-Norman, Architects, 512 McKay Building, Portland 4, Ore.

Martin Reinheimer is now a partner in the architectural firm of Hirschfeld & Pawlan, M. Reinheimer, Associate. The firm name has been changed to Hirschfeld,

continued on page 268

FROM THE ROOF... THIS CARRIER UNIT CAN HEAT AND COOL A ONE-STORY BUILDING

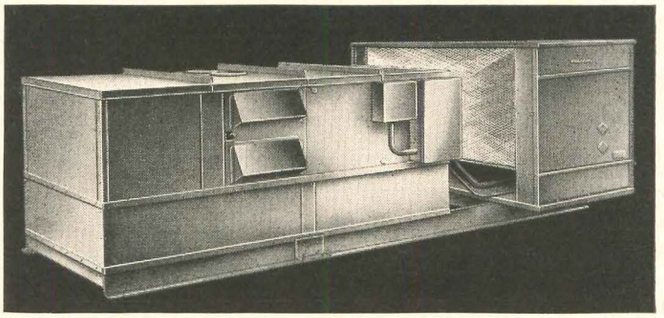
without using any floor or wall space!

Designed for installation on the roof of one-story buildings, this low-silhouette Carrier Air-Cooled Weathermaker* permits complete utilization of floor and wall space. Two capacities fit most heating and cooling requirements—7.5 and 10 tons for cooling; 160,000 and 200,000 Btus for heating. For larger requirements, it can be installed in multiples.

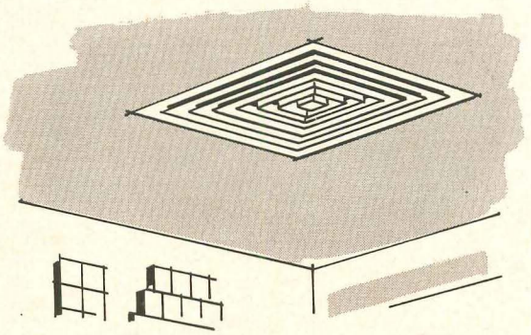
Installation is fast, simple and economical. Expensive ductwork is eliminated, since the unit installs with a single supply and return air duct, thereby requiring only one duct passage to be cut through the roof. Installation is further simplified with only three service connections.

Besides the 48B for heating and cooling, there are two other on-the-roof Weathermakers—the 50AA for cooling only and the 64AA Heat Pump. For information, call your Carrier dealer, listed in the Yellow Pages. Or write Carrier Air Conditioning Company, Syracuse 1, New York.

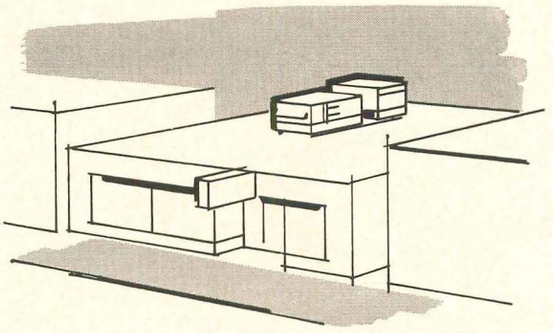
*Reg. U.S. Pat. Off.



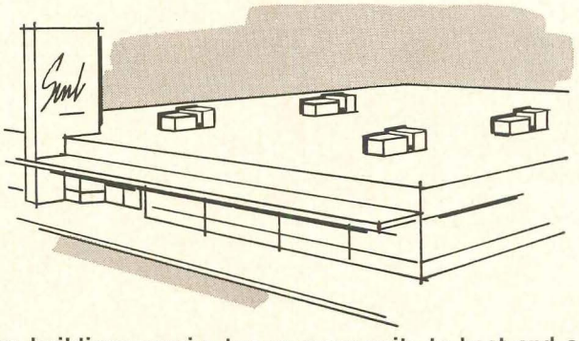
Carrier 48B Air-Cooled On-the-Roof Weathermaker consists of a gas-fired heating section, a fan section and an air-cooled refrigeration section for cooling—all enclosed in a weatherproof casing and mounted on rails. The refrigerant piping is installed and the unit is dehydrated, charged with refrigerant and tested at the factory. Unit is also completely factory wired.



One supply and return air grille fits flush to ceiling—leaves ceiling, floor and walls clear and uncluttered.

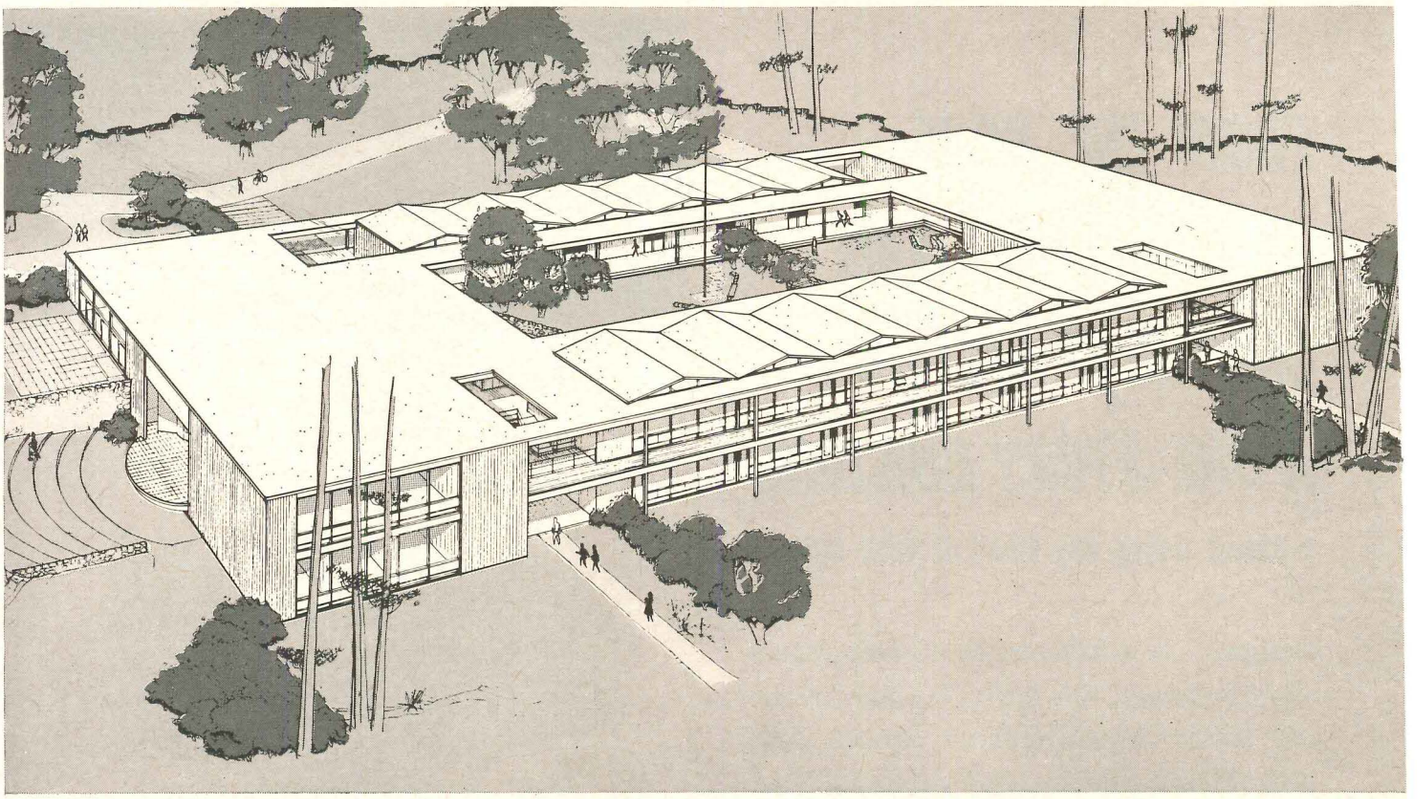


A single unit will both heat and cool a small store or plant.

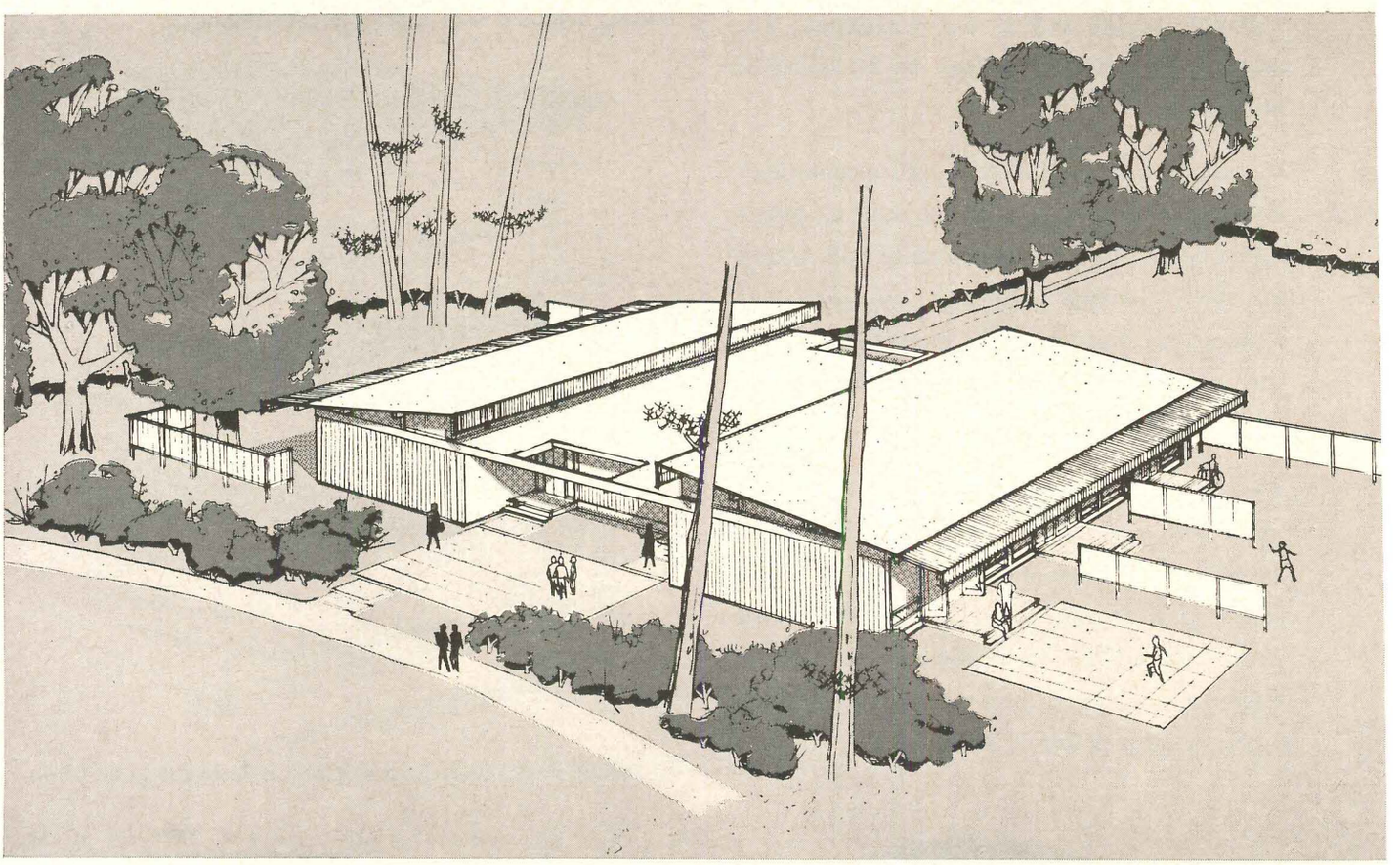


Large buildings require two or more units to heat and cool.

Carrier Air Conditioning Company



The Hillside School is one of three concepts developed for NLMA's new book, *"Blueprint for Better Schools."* An inner court allows excellent lighting and easy access to lower classrooms on the downhill side. Modular modified mill construction offers prefabrication of many components.



The Pavilion School stands for economy, is adaptable to practically any site and designed for expansion using additional units. This structure provides six classrooms around a main room, all with standard frame construction and wood paneling. Exterior permits a choice of siding.

continued from page 264

Pawlan & Reinheimer. Offices are at 327 South La Salle St., Chicago.

The firm name of Warren W. Kane, Architect has been changed to Kane and Graves, Architects. The address has also been changed to 101 S.W. 24th St., Austin, Minn.

Bolton White, Jack Hermann and Allan Steinau announce an association with Don Hatch to form the firm of Don Hatch-Bolton White-Jack Hermann-Allan Steinau, Architects A.I.A. The address is 680 Beach St., San Francisco 9.

Harold R. Wright, architect and registered professional engineer, is now president of Cuddie Engineers, Inc. of Birmingham, Mich. William Gillett has been made office manager and Calvin J. Saari, manager of structural detailing department.

Charles A. Pearson Jr. is now a partner with Joseph H. Saunders, Alexandria, Va. and Washington, D.C. The firm name is now Saunders & Pearson, Architects.

Milton B. Steinmann, Alexander S. Corrigill, Walker O. Cain and Cornelius J. White, who have long been associated with McKim Mead & White, have formed the firm of Steinmann, Corrigill, Cain & White. They will practice architecture in association with McKim Mead & White, 101 Park Ave., New York 17.

A new associate in the firm of McKim Mead & White, New York, is John Gray Faron.

New Addresses

Mr. Paul Ettington, Vern E. Alden Company, Engineers, 173 West Madison St., Chicago 2, Ill.

Robert D. Haugaard Jr., A.I.A., 127 South Los Robles, Pasadena, Calif.

Elections

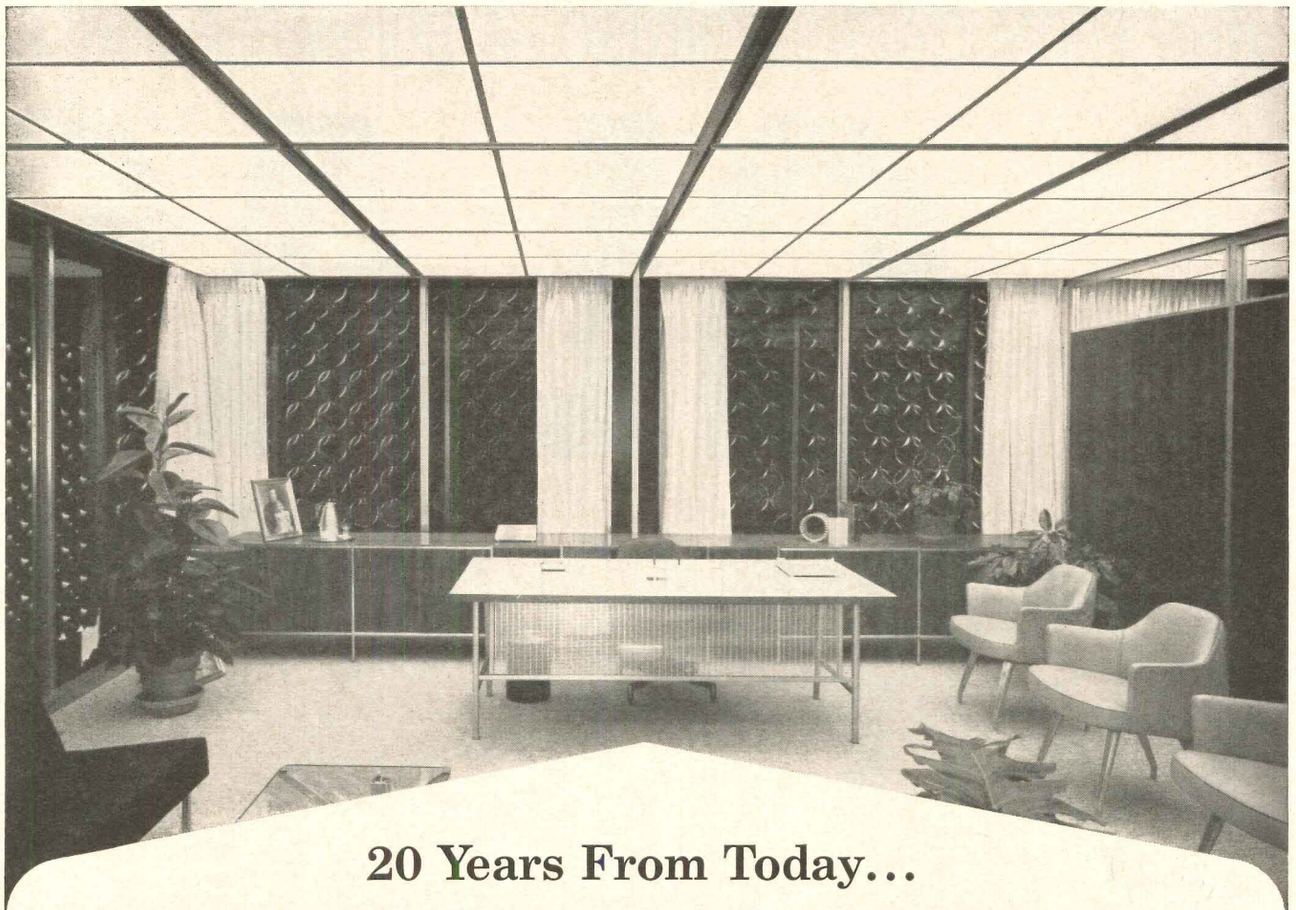
John W. Handy Jr. has been named president of the Connecticut Society of Architects at the group's 22nd annual meeting. Other officers are: Sinclair A. Adam, vice president; Arthur E. Thomas, second vice president; Henry T. Moeckle Jr., secretary; and James L. Meagher Jr., treasurer. Additions to the executive committee for a three year term include Malcolm R. Knox, Walter R. Furey and Norman L. Raymond.

Serving his second term as president of the National Sculpture Society is C. Paul Jennewein, known for his architectural and memorial sculpture. Other officers are: Adolph Block, first vice president; Lewis G. Adams, A.I.A., second vice president; Frances K. Trees, treasurer; Herbert L. Kammerer, secretary; Eleanor Platt, recording secretary.

Irving L. Lazere, executive vice president of Psaty & Fuhrman, Inc., New York, has been elected president of the General Building Contractors Association of New York State. Also elected were: Philip Thoin, Buffalo, N.Y., first vice president; Adam G. Friederich, Rochester, N.Y., second vice president; and I. Slutzky, Hunter, N.Y., secretary and treasurer.

Richard Roth, A.I.A., past president of the New York Society of Architects, partner in Emery Roth & Sons,

more news on page 276



20 Years From Today...

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Architect:
Minoru Yamasaki & Associates

from HONEYLITE Luminous Ceilings*

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HONEYLITE's aluminum, open-cell construction is responsible for its unique lighting performance and installation advantages. Completely fire-proof, HONEYLITE is listed by Underwriters' Laboratories, Inc. with a Flame Spread rating of Zero, a Smoke-Developed rating of Negligible. HONEYLITE is further listed by UL for installation *under* fire-sprinkling systems, permitting sprinkler, heating, air-conditioning and ventilating units to be concealed and integrated without loss of performance. Inherently non-static, HONEYLITE is dust resistant . . . requires only occasional cleaning *at a maintenance cost less than that required by an equivalent floor area.*

For lighting requirements, Hexcel Products Inc. manufactures HONEYGLO plastic light diffusers, in addition to open-cell HONEYLITE. For building requirements, Hexcel aluminum honeycomb, paper honeycomb, and urethane foam resins are finding increasing application. For complete information on Hexcel lighting and building products, write Dept. H-4.

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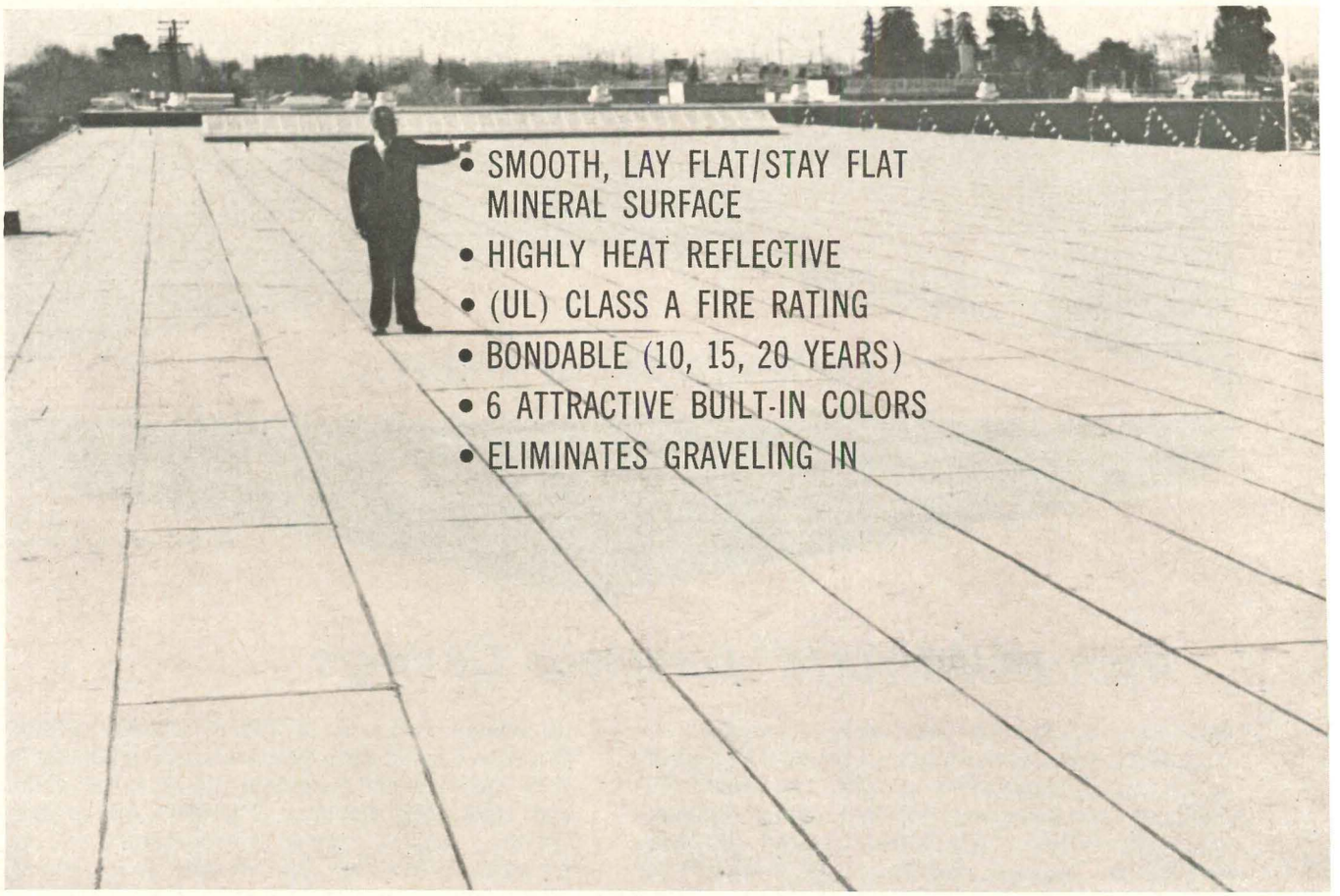
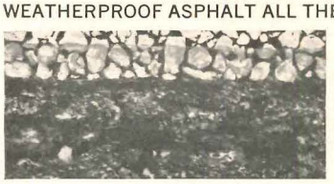
NEW FROM OWENS-CORNING—A BONDABLE MINERAL-

GLAS



Glas Guard† is the modern answer to many old problems of applying a satisfactory, trouble-free roof to dead-level decks. The secret is Fiberglas* Perma Cap, applied over any standard Fiberglas Built-up Roof assembly. Perma Cap* consists entirely of stabilized weatherproof asphalt reinforced with a tough mat of interwoven glass fibers and coated with colorful mineral granules. Because the glass fibers are non-wicking, exposed edges of Perma Cap will not absorb water, the cause of curling in ordinary mineral-surfaced roofings. The Class A Glas Guard specification

WEATHERPROOF ASPHALT ALL THE WAY THROUGH



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uses 72 lb. Perma Cap and can be bonded for 20 years. For further information on Glas Guard or Dividend Engineering, see your Fiberglas representative or write: Owens-Corning Fiberglas Corp., Industrial and Commercial Division, 717 Fifth Avenue, New York 22, N. Y.

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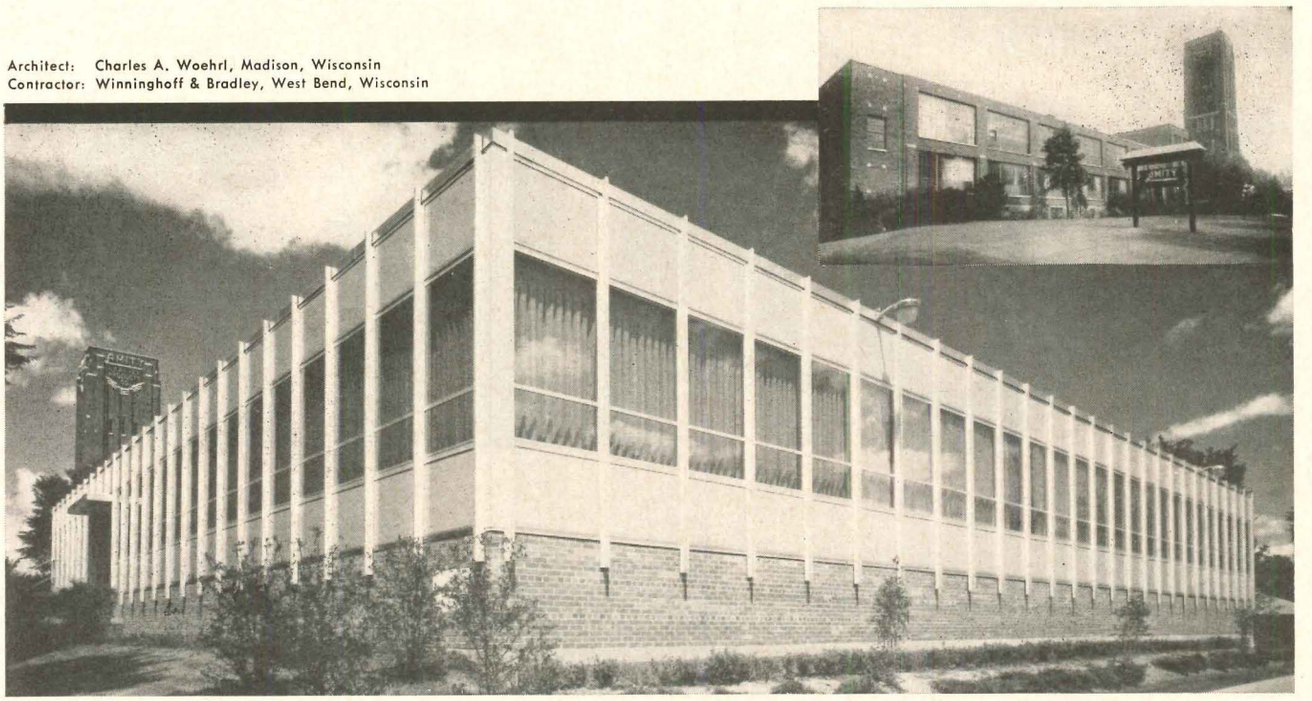
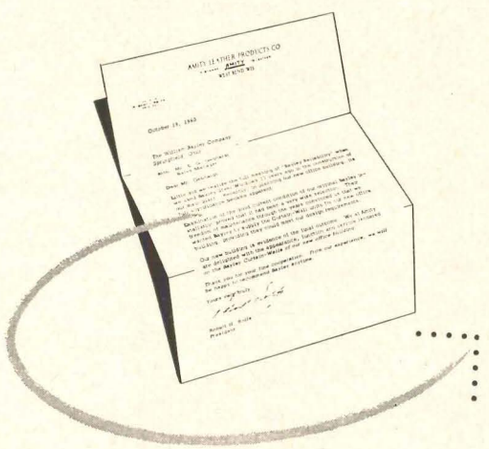
Architect: Charles A. Woehrl, Madison, Wisconsin
Contractor: Winninghoff & Bradley, West Bend, Wisconsin



33 years of reliable performance convinced AMITY LEATHER that their new office building should have a —

Bayley

Curtain-Wall System



• Amity Leather Products Company, West Bend, Wisconsin, manufactures the world-famous Amity and Rolf Lines of personal leather goods. Sponsoring "quality" in every phase of their endeavor for the past forty years, they found in Bayley a supplier with comparable standards of quality and service.

Report in user's own words —

"Little did we realize the full meaning of 'Bayley Reliability' when we used Bayley Steel Windows 33 years ago in the construction of our main plant. Recently, in planning our new office building, its full significance became apparent.

"Examination of the current good condition of our original Bayley installation proved that it had been a very wise selection. Freedom from window maintenance through the years convinced us that we wanted Bayley to supply the Curtain-Wall units for our new office building, providing they could meet our design requirements.

"Our new building is evidence of the final outcome. We at Amity are delighted with the appearance, function and service rendered on the Bayley Curtain-Wall of our new office building.

"Thank you for your fine cooperation. From our experience, we will be happy to recommend Bayley anytime."

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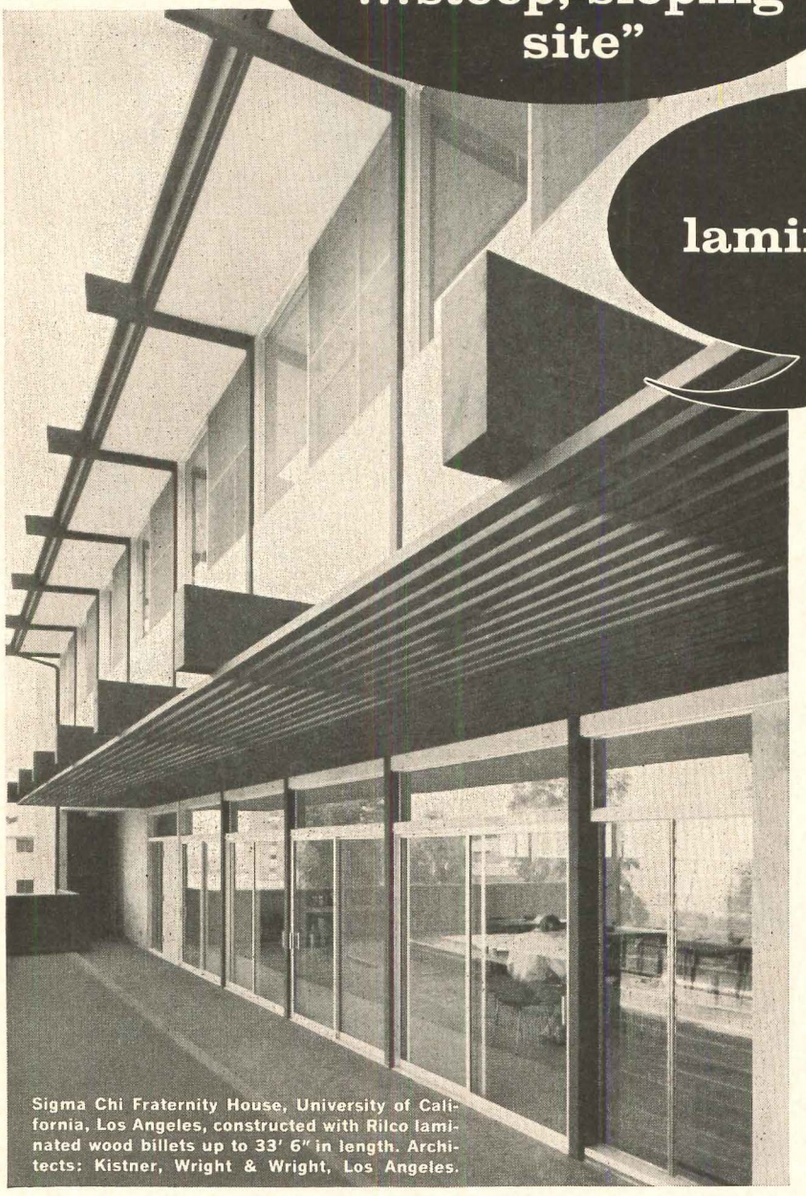

Sigma Chi Fraternity House, University of California, Los Angeles, constructed with Rilco laminated wood billets up to 33' 6" in length. Architects: Kistner, Wright & Wright, Los Angeles.

Two problems challenged the designers of the new Sigma Chi Fraternity House, University of California: "A limited budget and steep, sloping site. One of the basic factors contributing to the success of the project," state the architects, Kistner, Wright & Wright, Los Angeles, "was the use of a simple structural system incorporating laminated wood beams. It offset the relatively high site preparation cost . . . lent itself well to future expansion plans, and allowed finishing on a 'do-it-yourself' basis by fraternity men."

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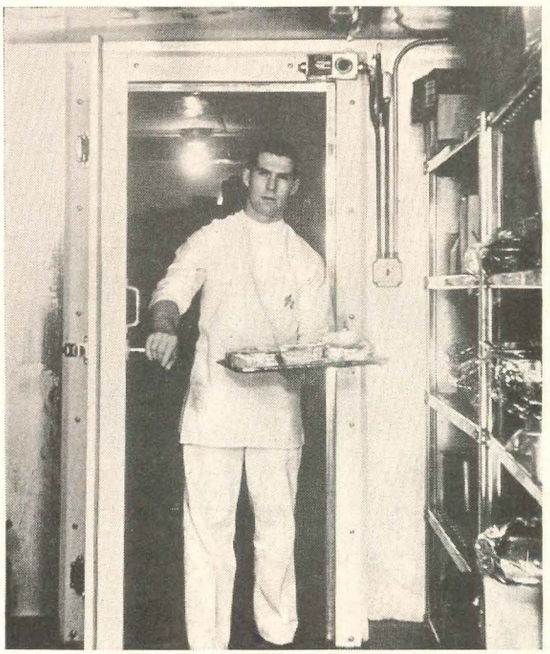
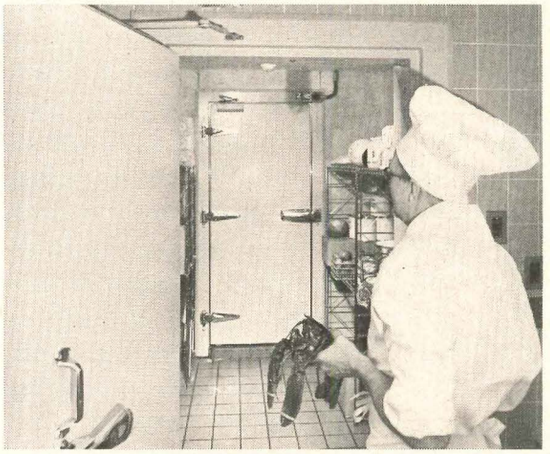
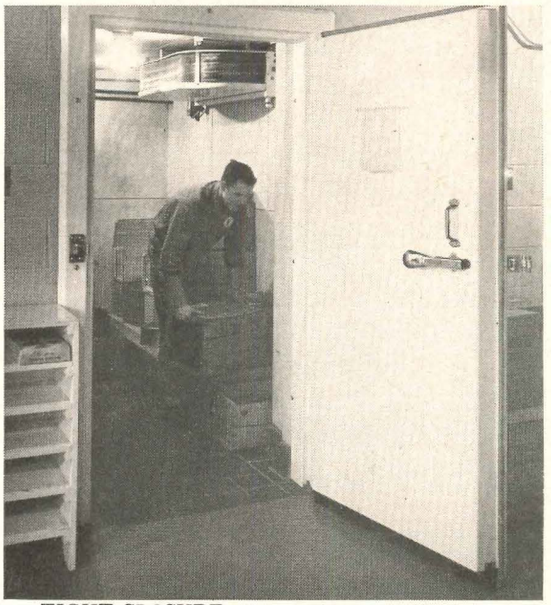


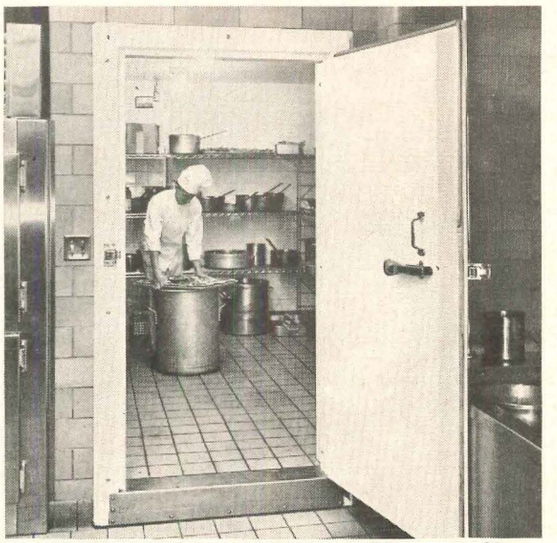
LIGHTWEIGHT JAMOLITE DOORS open easily for one-hand operation, speed traffic.



MODERN APPEARANCE—smooth door surface fits flush with frame.



TIGHT CLOSURE—no warping or swelling since Jamolite is impervious to vapor and moisture.



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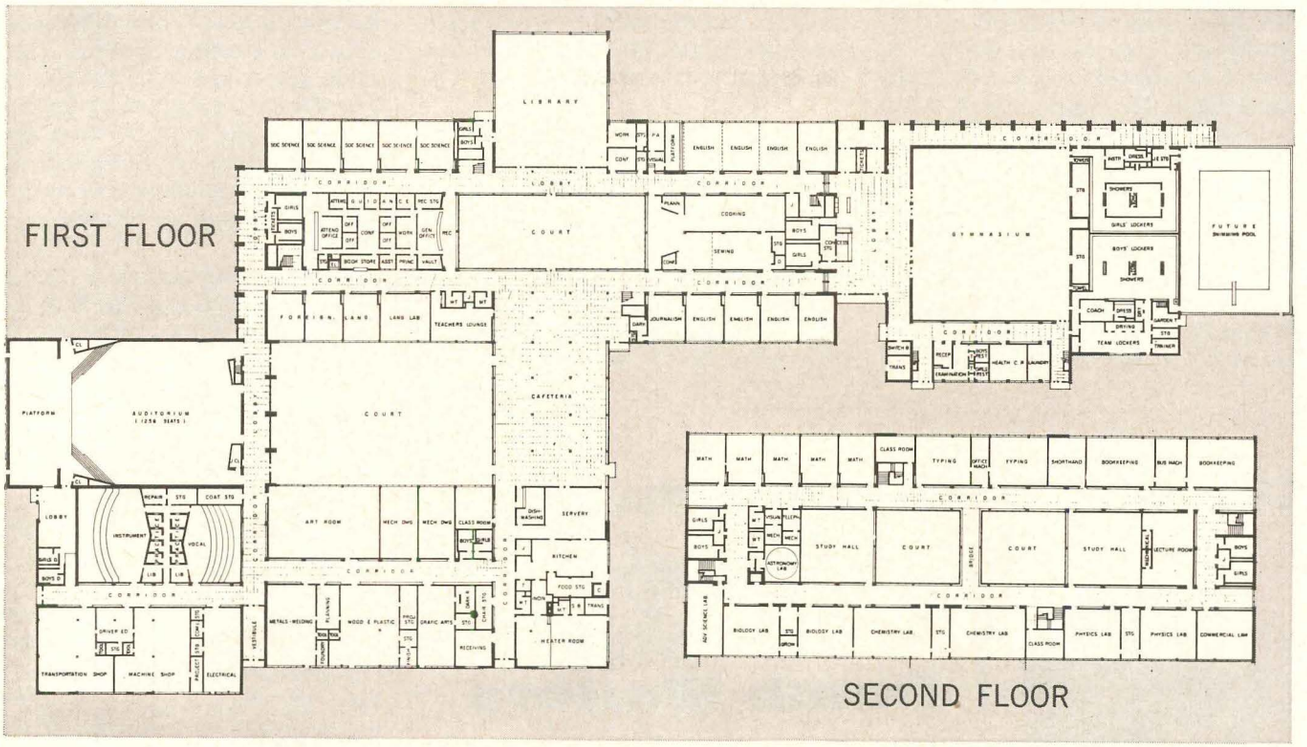
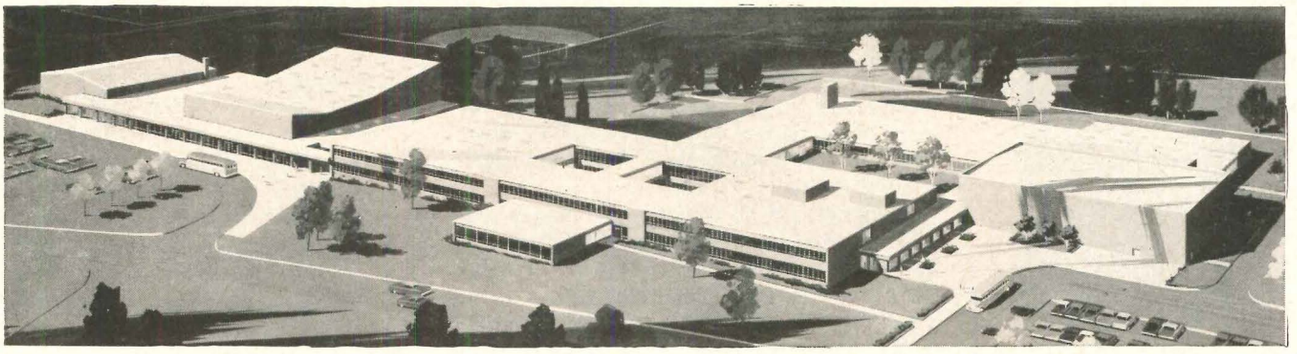


AT PARMA... the size and scope of the new Valley Forge High School put special emphasis on the need for an efficient Time Control and Program system, free of operational and maintenance problems. This lead to the selection of Stromberg timing. Dependably correct clocks and signals are assured by the precision Master Time Control. This modern time system operates from ordinary lighting circuits. Complete uniformity of time is maintained by supervisory pulses each hour and every 12 hours over a control circuit. Stromberg maintains installation and maintenance service throughout the U.S.A.

A complete catalog — TIME AND SIGNAL EQUIPMENT — prepared for Architects and Engineers — is yours for the asking.



PLANNING THE NEW SCHOOL

A population explosion at Parma, Ohio completely overtaxed secondary school facilities. Rather than expand the old school, construction of the new Valley Forge High School was started in May of 1960 and scheduled for completion in advance of the school year beginning September 1961 at a completed cost of $4,000,000. The new structures — containing 70 classrooms, adequate library, science, language, shop and music facilities, as well as an ample auditorium, cafeteria and gymnasium — is planned to accommodate 2,000 students. Despite these impressive new facilities, plans are now being made for a third secondary school.

The Parma Public Schools, Mr. Paul W. Briggs, Superintendent — were advised in their choice and installation of Time Controls by:

Fulton, Dela Motte, Larson, Nassau & Associates—Architects
Mr. Vincent A. Lombardi — Electrical Engineer
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MAKERS OF THE WORLD'S FINEST TIME EQUIPMENT

continued from page 268

has been elected president of the Architects Council of New York City. Also elected to serve for 1961 were: Max M. Simon, A.I.A., vice president; Donald E. Peters, A.I.A., secretary; and George J. Cavalieri, A.I.A., treasurer.

H. Earl Fullilove has been named chairman of the Board of Governors of the Building Trades Employers' Association. Vice-chairman of the board since 1959, Mr. Fullilove succeeds Peter W. Eller, board chairman since 1949. Mr. Eller continues as consultant to B.T.E.A.

New officers of the California State Board of Architectural Examiners are: Howard A. Friedman, A.I.A., president; Joseph L. Johnson, A.I.A., secretary.

Clifford F. Young, partner in McAuliffe, Young & Associates, Honolulu, has been elected president of the Hawaii Chapter of the American Institute of Architects. Other new officers are: Gordon A. Bradley, vice president; George V. Whisenand, secretary; and Paul D. Jones, treasurer. Directors are George J. Wimberly, Kenji Onodera and outgoing president Frank S. Haines.

The new administration for the Groupe Americain of the Societé des Architectes Diplomes-Par-Le Gouvernement is: president, Lucien David; vice president, Lewis G. Adams; secretary-treasurer, Charles Rieger. Other members of the Board are: Lyman Dudley, Jacques E. Guiton, Caleb Hornbostel, Julian Clarence Levi, John C. B. Moore and Alexander P. Morgan.

At the annual meeting of the Academicians of the National Academy of Design, John F. Harbeson, F.A.I.A., was elected president. Elected to Academicianship was Richard Kimball, A.I.A.

New president of the National Association of Real Estate Boards is O. G. Powell, Des Moines, Ia. Daniel F. Sheehan, St. Louis, Mo., is treasurer.

Appointments

James Johnson Sweeney, director of the Guggenheim Museum since 1952, has been appointed director of the Museum of Fine Arts of Houston. The new director, who visited Houston in 1958 to lecture at the University of St. Thomas, sees the museum as greatly enhanced by two recent major gifts: Cullinan Hall, designed by Mies van der Rohe, and Miss Ima Hogg's collection of American paintings and furniture. The appointment of Mr. Sweeney is the first step of an ambitious and energetic plan to establish Houston as a national center of the arts on an international plane.

New director of the Solomon R. Guggenheim Museum in New York is Thomas M. Messer. He has been director of the Roswell Museum in New Mexico, director of the American Federation of Arts in New York, director of the Institute of Contemporary Arts in Boston.

"In the development of his program," said Harry F. Guggenheim, president of the Guggenheim Foundation, "Mr. Messer will work in close

continued on page 284

IMPORTANT ANNOUNCEMENT

to people who hear voices*

*voices that intrude or disrupt and noises that project when they should be hushed.

The new Aircoustat® Model W Return Air-Vent Silencers stop the transmission of noise without blocking air flow

Aircoustat Return Air-Vent Silencers eliminate the distracting sound of voices that spill from one area to another. Their slim design gives you a choice of installation. You can install them within a wall or ceiling or hang them on doors or walls. Let Koppers long experience in sound control help you. Write today for information to: KOPPERS COMPANY, INC., 3004 Scott Street, Baltimore 3, Maryland.

Model W Return Air-Vent Silencer

In sizes for all applications:

Model	Thickness	Width	Length
W-1	3½″	30″	48″
W-2	3½″	42″	48″
W-3	5″	30″	48″
W-4	5″	42″	48″
W-5	7″	30″	48″
W-6	7″	42″	48″

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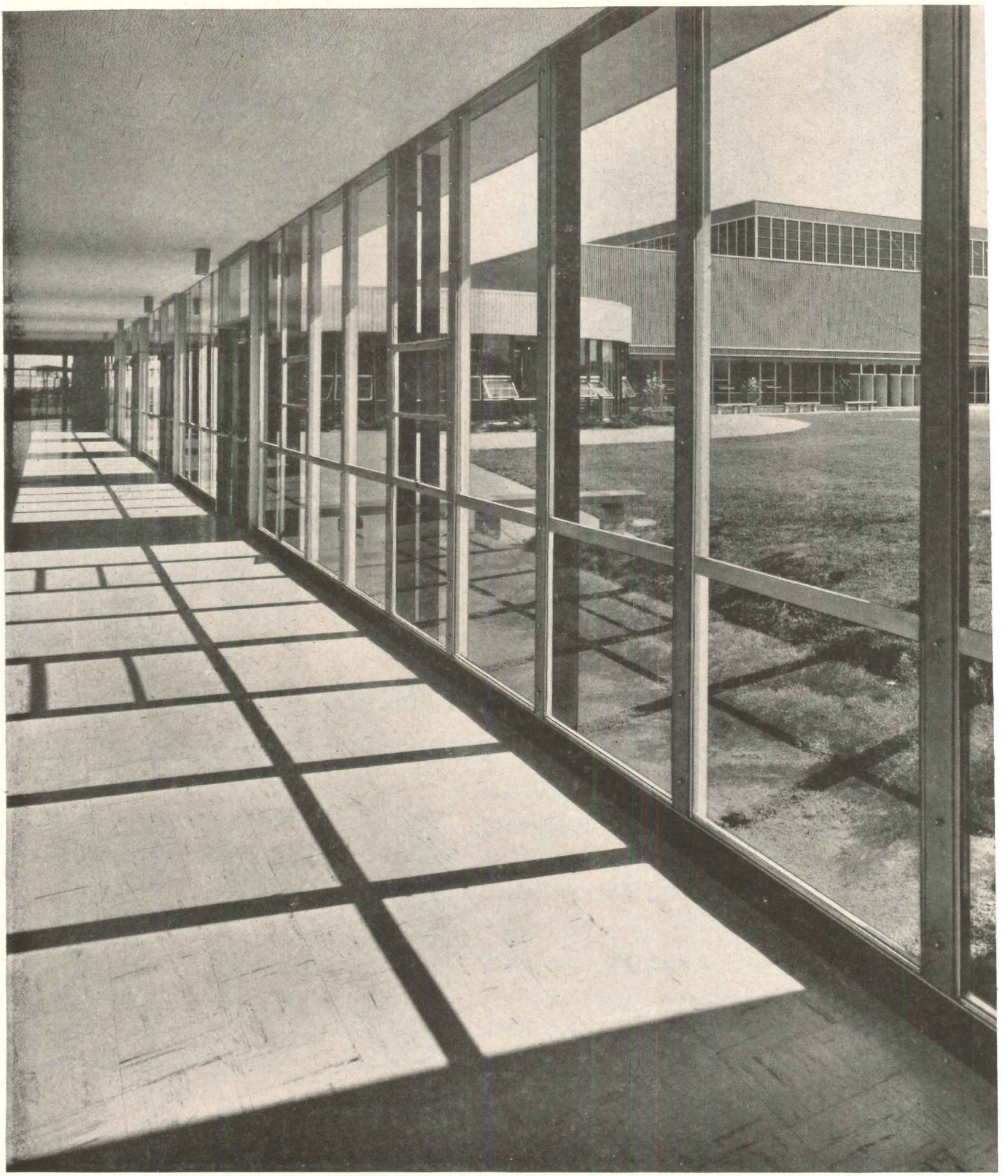
SOLEX® glass protects their eyes..



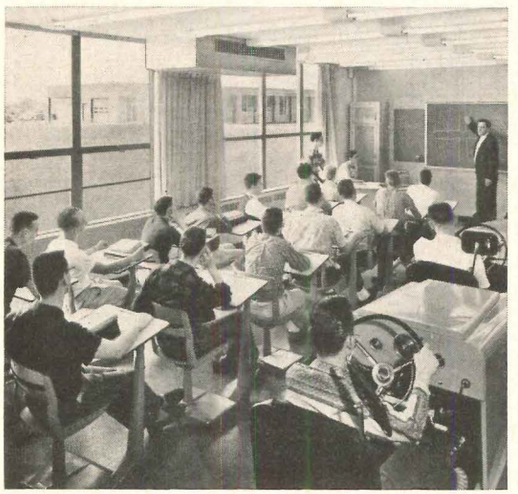
In the corridors, PPG polished plate glass was used in the upper sections and HERCULITE shock-resisting tempered plate glass was below where damage could occur.

HERCULITE® protects the school

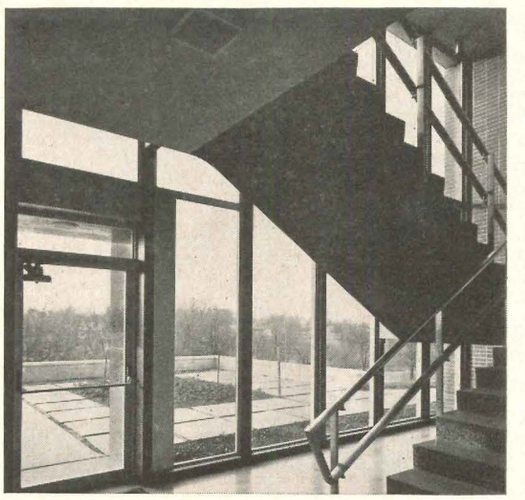
Large expanses of glass create a feeling of unlimited spaciousness in the new Quincy, Illinois, Senior High School. Glass performs many practical functions, too. PPG SOLEX green tint, glare-reducing, heat-absorbing glass not only protects young eyes from solar glare but keeps classrooms cooler in summer. HERCULITE tempered plate glass, because it is four to five times stronger than regular plate glass of the same thickness, provides plenty of impact resistance in corridor areas likely to receive the most abuse.

Polished plate glass, SOLEX and HERCULITE are deftly woven into the design pattern to produce a brilliant, modern look which opens the building to the whole outdoors.

For more information on any of these products, write Pittsburgh Plate Glass Company, Room 1101, 632 Fort Duquesne Boulevard, Pittsburgh 22, Pennsylvania.



The driver training classroom gets plenty of light but glare and solar heat are greatly reduced by SOLEX green tint plate glass.



TUBELITE doors, surrounded by large panels of PPG polished plate glass, accentuate the open-vision theme.

Architects and Engineers: Charles F. Behrensmeyer & Frank W. Horn, Quincy, Illinois
Contractor: Simmons Construction Company, Decatur, Illinois.

PPG glass products for schools:

SOLEX® Plate Glass—green tint, heat-absorbing, glare-reducing glass
SOLARGRAY® Plate Glass—a neutral gray, heat-absorbing, glare-reducing glass
PENNVERNON® GRAYLITE™—a neutral gray, heat-absorbing, glare-reducing, heavy sheet glass
HERCULITE®—shock-resisting tempered plate glass
TWINDOW®—the world's finest insulating window
Polished Plate Glass—for clear, true vision
PENNVERNON® Window Glass—window glass at its best.

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Paints · Glass · Chemicals · Fiber Glass
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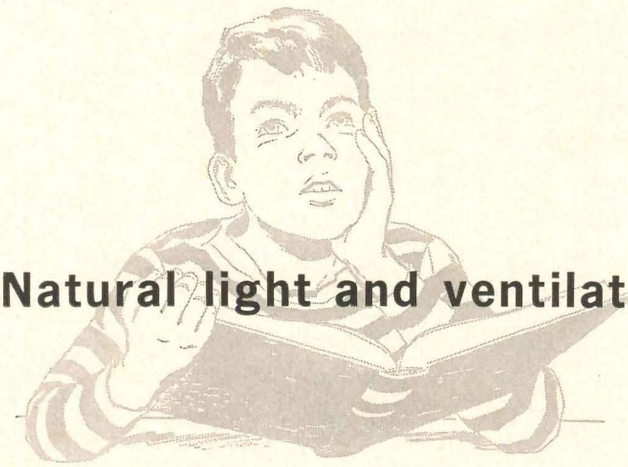
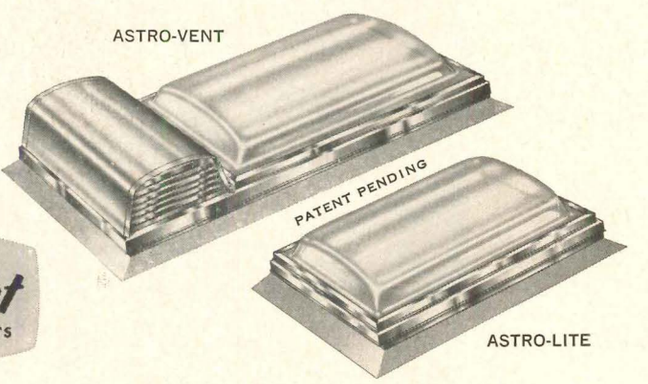


Natural light and ventilation for eager young minds

add both to your school design with

JENN-AIR

Astro-Vent
VENTILATED SKYLIGHTS



In the words of John Ruskin, a building "should do its practical duty well, and be graceful and pleasing in doing it." To help you achieve this ideal in school design, Jenn-Air has developed ASTRO-VENT, combining acrylic resin skylight and centrifugal fan into one handsome "low silhouette" unit.

With air moving capacities from 180 to 4400 cfm, ASTRO-VENT is the first dual-purpose unit to satisfy heavy-duty institutional requirements. It can be used in any corridor or room, even where noise control is a critical factor.

Jenn-Air offers ASTRO-VENT in a wide range of sizes and in combinations of single vent with one or two lights and double vent with one light. Use these in conjunction with Jenn-Air ASTRO-LITE Skylights, and you have an unlimited array of geometric patterns at your command. You circumvent the problems of glare, distraction and heat loss created by window walls and the need for expensive indirect ventilation as well. What better way to assure fresh air and perfect light diffusion throughout every room?

ASTRO-VENT and ASTRO-LITE are fully described in Jenn-Air Bulletin 60-LV. Let us send you a copy.

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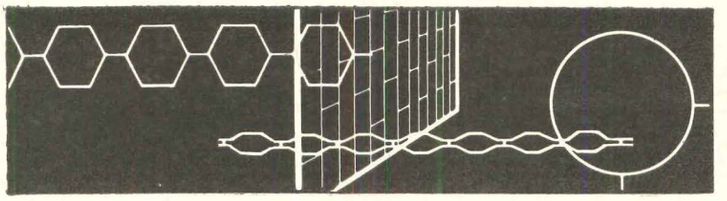

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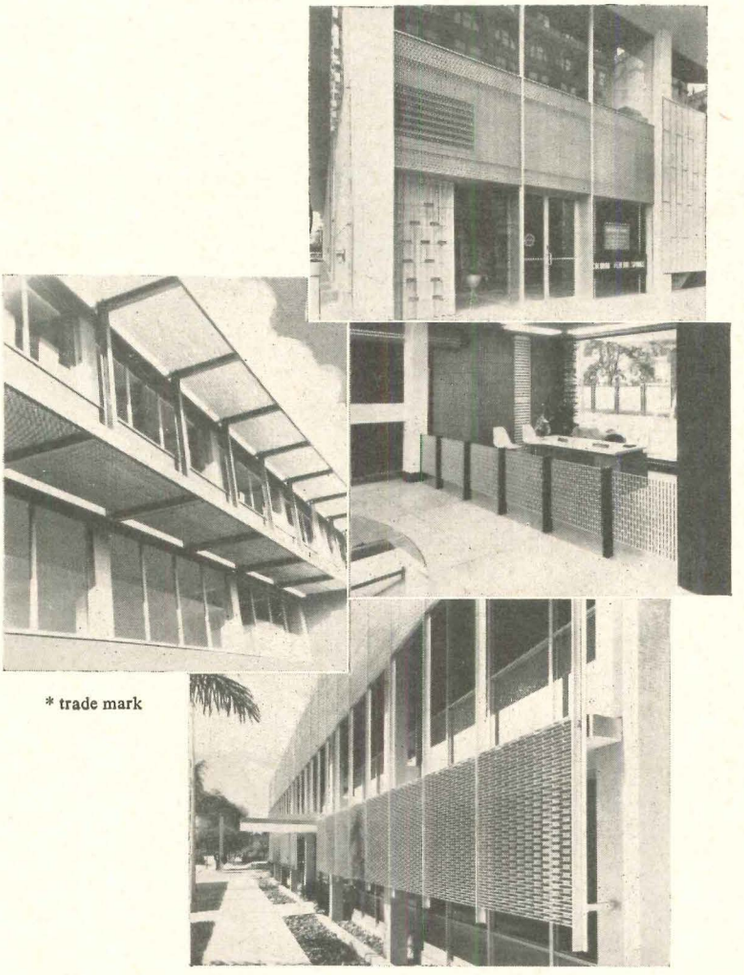

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Koppers has a unique group of building materials that bear directly on the problem of keeping quality up and costs down. These Koppers products and materials are either permanent in themselves or give permanence to other materials. The following stories show

New Haven protects its investment with coal-tar pitch

Almost every major building you see here in New Haven has a Koppers Coal-Tar Pitch Built-up Roof—a watertight roof, bonded for 20 years of trouble-free service. Comparative studies of existing buildings have proved that coal-tar pitch built-up roofs perform better and last longer than any other type. There are now more than 370 Koppers bonded roofs in this one city protecting New Haven's investment in buildings.

And because New Haven's current redevelopment program puts special attention on the use of the best possible materials, coal-tar pitch built-up roofs are being specified for new construction and modernization.

Hundreds of Koppers Built-up Roofs throughout the country have already far outlived their 20-year guarantees. In many cases protection up to 40 years has been experienced.

Check the coupon for complete information about coal-tar pitch built-up roofs.

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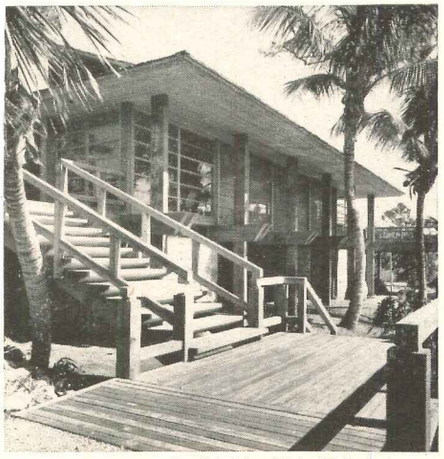
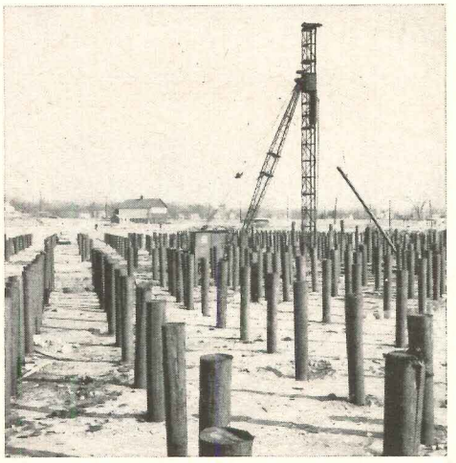
now Koppers products can also give you greater design flexibility because they protect the basic construction materials. And this greater flexibility and permanence are frequently possible with lower initial costs and lower maintenance cost.



Donald E. Nick and Richard W. Morris, Architects

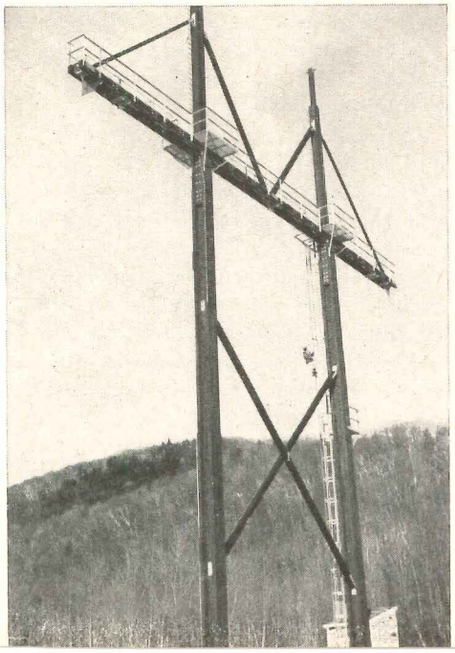
Wood that won't rot

In Florida's Everglades if untreated wood doesn't rot, it's eaten by termites. But the architects wanted the clean look of natural wood for this pavilion at Caribbean Gardens, so the lumber was treated with a WOLMAN® preservative solution. In a large pressure vessel, air was drawn out of the wood cells and the WOLMAN solution forced in under high pressure. It *permanently* protects the wood from termites and decay; leaves no odor or discoloration. This WOLMANIZED® lumber can stand for decades. Check the coupon for complete information.



Creosoted wood piling saves money

Koppers pressure-creosoted wood piling, permanent and economical, can safely support working loads of more than *40 tons per pile*. This is twice the maximum working load previously associated with wood piles, and makes possible significant savings in foundation construction costs. Recent tests in Chicago with pressure-creosoted wood piles show that 40-ton loads can be safely carried in Chicago-type soils. Loads considerably in excess of 40 tons per pile are possible under other soil conditions. Check the coupon for more information.



Wood towers for high-voltage lines

Seeking to demonstrate new materials for improved high-voltage transmission towers, RILCO DIVISION OF WEYERHAEUSER supplied GENERAL ELECTRIC'S Project EHV with a 135-foot tower made from laminated *wood*. The timbers were glued with PENACOLITE® adhesive, a Koppers product which is 100% waterproof and makes a bond as strong as the wood it joins. The laminated beams have excellent structural strength, and because these timbers were pressure creosoted they won't corrode—will never need paint. The wood towers have low installed cost and low maintenance cost . . . a solid idea for many types of construction. Check the coupon.

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continued from page 276

cooperation with Mr. H. H. Arnason who, as vice president for Art Administration, will be the fulltime representative of the President and Board of Trustees to the director, business manager, and staff of the museum."

Northwestern Engineer Program Gets Three Major Grants

Three major grants totaling $310,000 have been made to the environmental engineering program at Northwestern University by the U.S. Public Health Service. To be awarded over a five year period, the grants provide for 1) graduate fellowships to permit more students to enter the field 2) broadening Northwestern's course offerings and research to include air pollution, urban planning aspects of environmental engineering and sanitary chemistry.

A $150,000 research training grant provides for four or five graduate fellowships, which will permit more postgraduate students to join the 15 already studying environmental engineering at Northwestern. The grant also permits offering courses in air pollution. Dr. Jimmie Quon from the University of California has joined the faculty and is organizing air pollution courses and a laboratory.

A second grant of $100,000 provides for adding a professor of environmental engineering who specializes in urban planning.

The $60,000 third grant provides for an added faculty member, new courses and research in sanitary chemistry.

City Planning Undergraduate Program at Cincinnati U.

Newly established at the College of Applied Arts, University of Cincinnati, Cincinnati, Ohio, is an undergraduate program in city planning based upon the co-operative system of education.

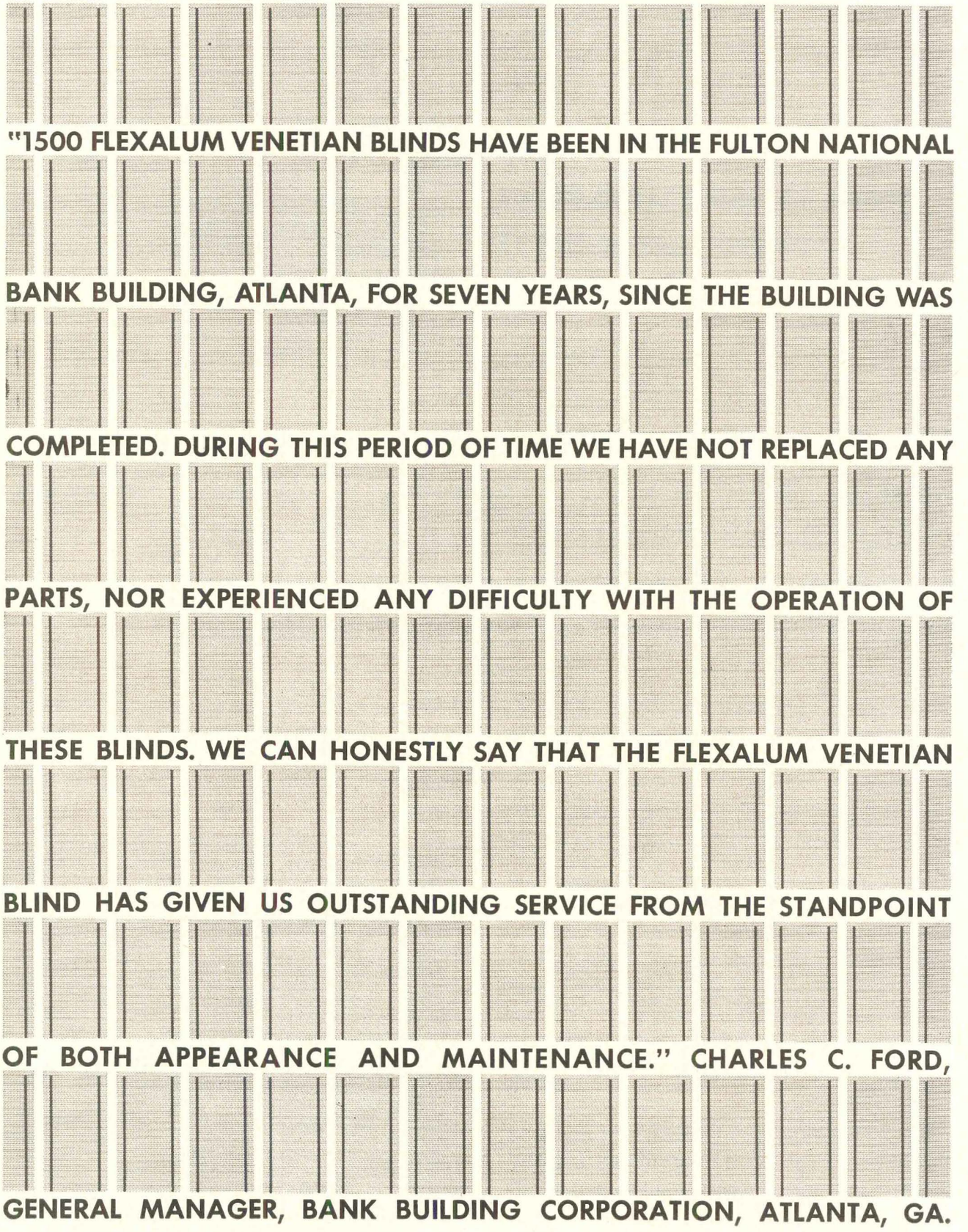
The curriculum presents a balanced program of both general and technical subjects. Included in the five-year program are: liberal studies in literature, history, mathematics, philosophy, etc.; socio-economic studies in the social economic and political sciences and in related fields; and physical planning dealing with design, land use, highways, subdivisions, etc. The student can draw upon the resources of several colleges of the University as he takes required or elective courses.

The degree granted is Bachelor of Science-major in city planning.

The co-operative plan of education, originated at the University of Cincinnati in 1906, combines theory and practice in one comprehensive educational program. The student receives practical experience while enrolled as a student.

The first year in the College of Applied Arts consists of a full-time nine months' program. Co-operative work begins at the end of the freshman year and continues through later years with alternating periods of school studies and practical work experience. All details dealing with co-operative jobs are handled by special co-ordinators who make all necessary arrangements about pay, working conditions and length of time assigned to a particular type of training.

more news on page 292



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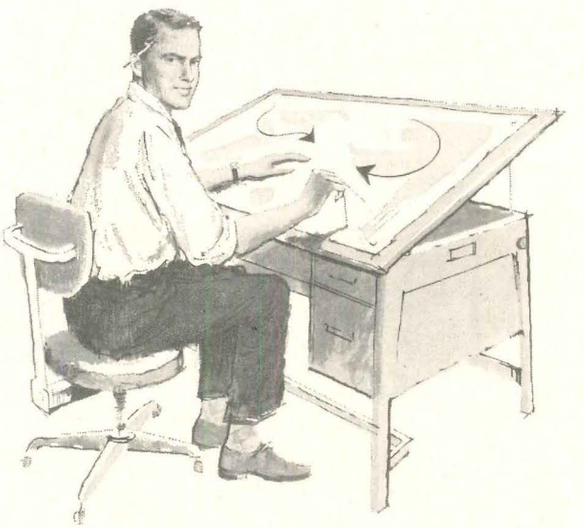


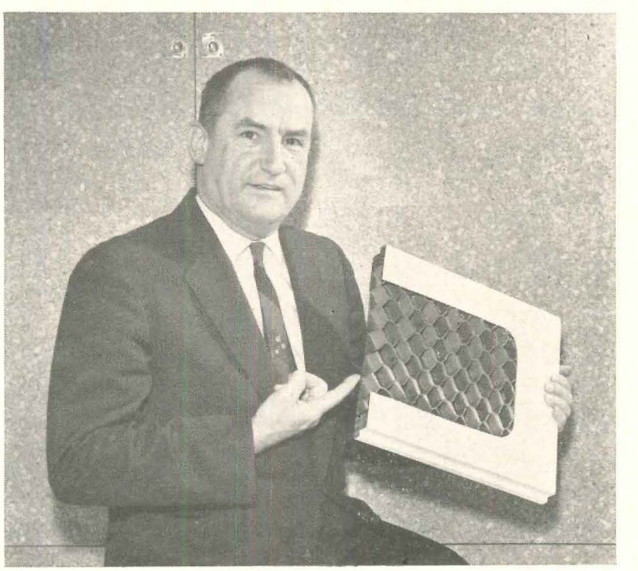
If you have this problem in new plant design or in existing buildings . . . exclusive BARBER-COLMAN WEATHER-KING FLUSH and CAM ACTION OVERdoors will save you more money in over-all plant operation costs and production efficiency!

When plant function and design require controlled temperature, humidity, air pressure, or dust-free areas—the fundamental performance of doors must be dependable. Control of door opening-closing, tight sealing, as well as insulating properties, has direct bearing on air control . . . and its cost!

This is why Barber-Colman OVERdoors are being specified in more plants today. They offer the double dependability factor of exclusive Cam Action and Weather-King Flush construction. This combination of standard equipment seals tighter . . . guards against air leakage . . . and meets a broader range of insulating requirements. The cost is so little more . . . the performance benefits so much greater!

What is Weather-King Flush construction? How does it meet extra performance requirements? How does it decrease operating costs?

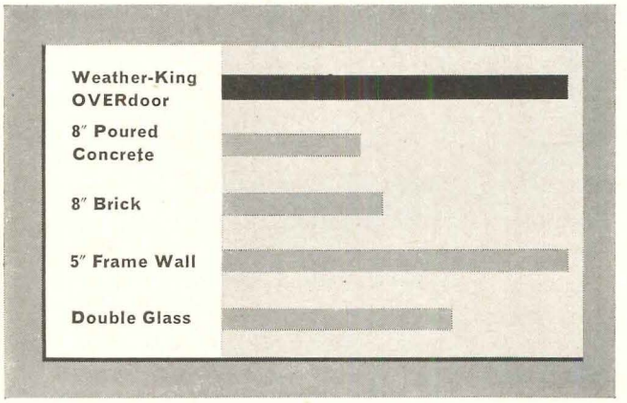
Standard, lifetime-guaranteed, Weather-King Flush 1¾" door sections have vermin and decayproof, honeycomb core . . . provide better insulating properties of isolated dead-air cells. Special retempered hardboard facings are bonded to each side . . . vapor-sealed . . . provide greater impact resistance and structural strength. Further, standard Weather-King Flush is furnished with a complete factory-applied, two-coat prime paint . . . selected for its excellent "hold-out" and resiliency qualities.



The insulating factor of Weather-King Flush OVERdoors (U = .259) compares with other materials as follows:

Continued next page

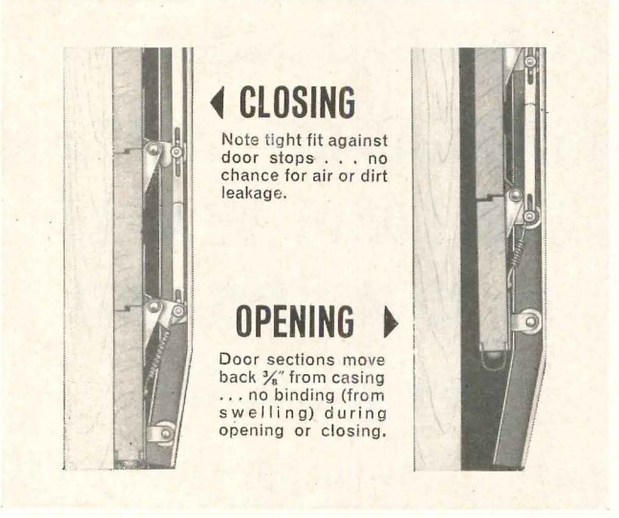
Two and one half times better than 8″ poured concrete. Almost two times better than 8″ brick. Same as a standard 5″ frame house wall (including plaster). Over one and a half times better than double glass windows.



Comparative insulating property of a Standard Barber-Colman Weather-King Flush Section

For special insulating requirements, Weather-King Flush Sections are available in varying thicknesses up to 5″ . . . with either styrofoam or polyurethane core and a selection of 26-gauge galvanized steel, stainless steel, or fiberglas facings.

How does Cam Action work? How can it seal so tightly . . . yet operate so easily?

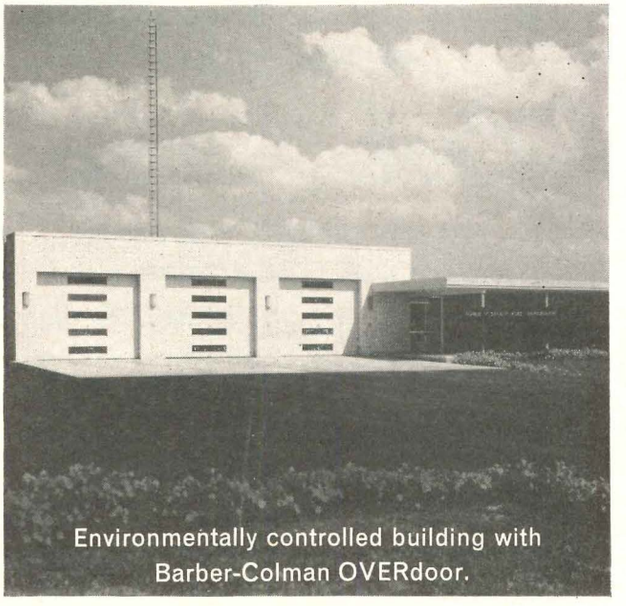


When the door is nearly closed, this unique Cam Action automatically moves the entire door unit tightly against jamb stops . . . sealing all sides. When opening, the door is automatically released ⅜″ from jamb . . . moves freely and easily upward . . . never binding or sticking.

Cam Action has been tested and performance-proved on government dehumidification warehouses, meat-packing plants, dairies, manufacturing industries. Laboratory test results of Cam-Action closing against a gasketed jamb show:

Wind velocity	Air leakage
45.6 mph	0 cu ft min/ft door edge
69.2 mph	0.05 cu ft min/ft door edge
122.4 mph	0.225 cu ft min/ft door edge

Exclusive Barber-Colman Cam Action and Weather-King Flush OVERdoors work hand in glove to give you double dependability . . . pay off in better product quality control, employee comfort, much lower in-plant cleaning and maintenance costs!


Environmentally controlled building with Barber-Colman OVERdoor.

Let your Barber-Colman specialist (see yellow or white pages) show you the Barber-Colman Door Inventory Plan for integrating plant doors to building function . . . to help you anticipate . . . plan . . . prevent unnecessary plant operating costs!

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Mo-Sai®

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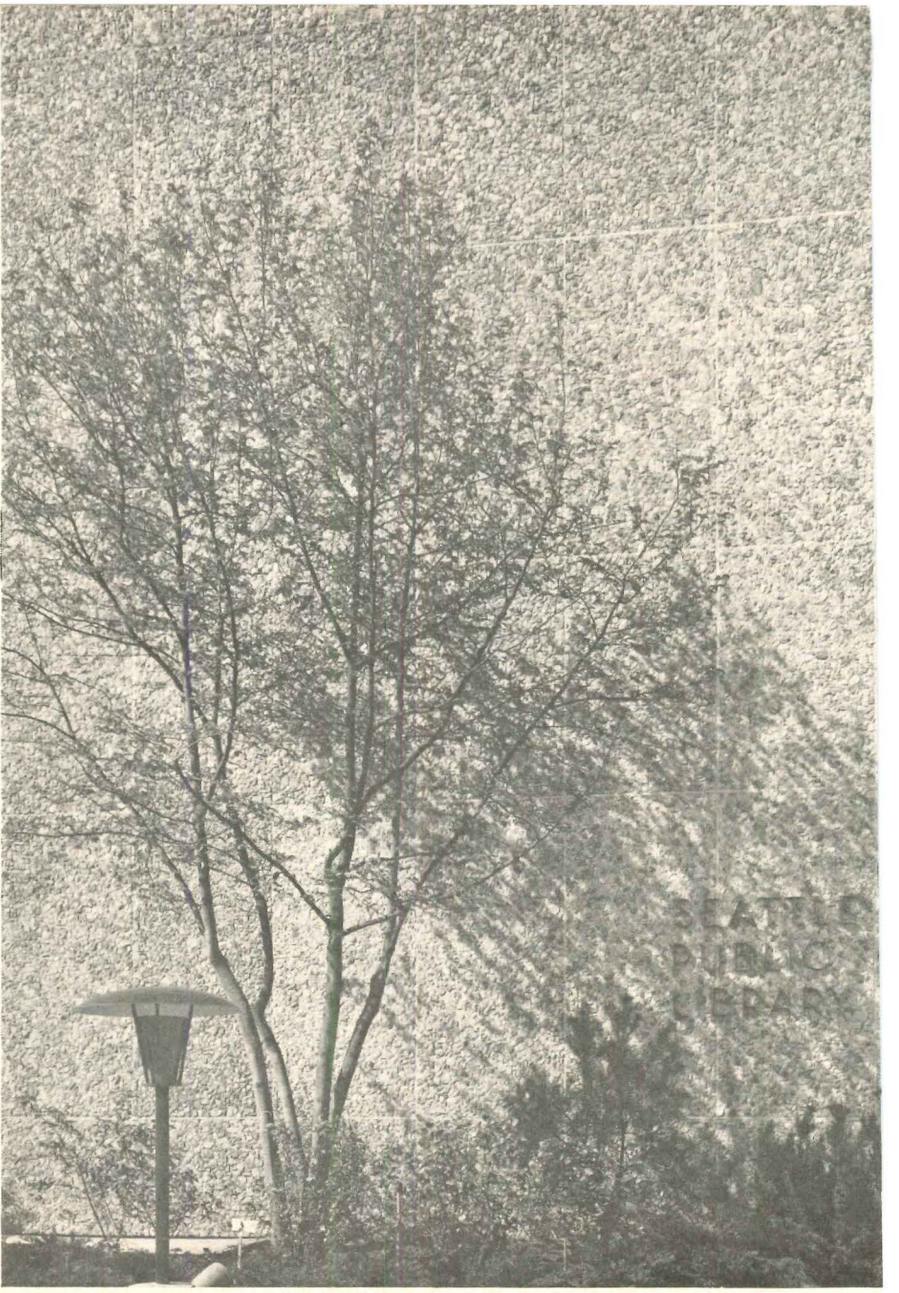

The Mo-Sai panels form a pleasant backdrop for artistic landscaping.

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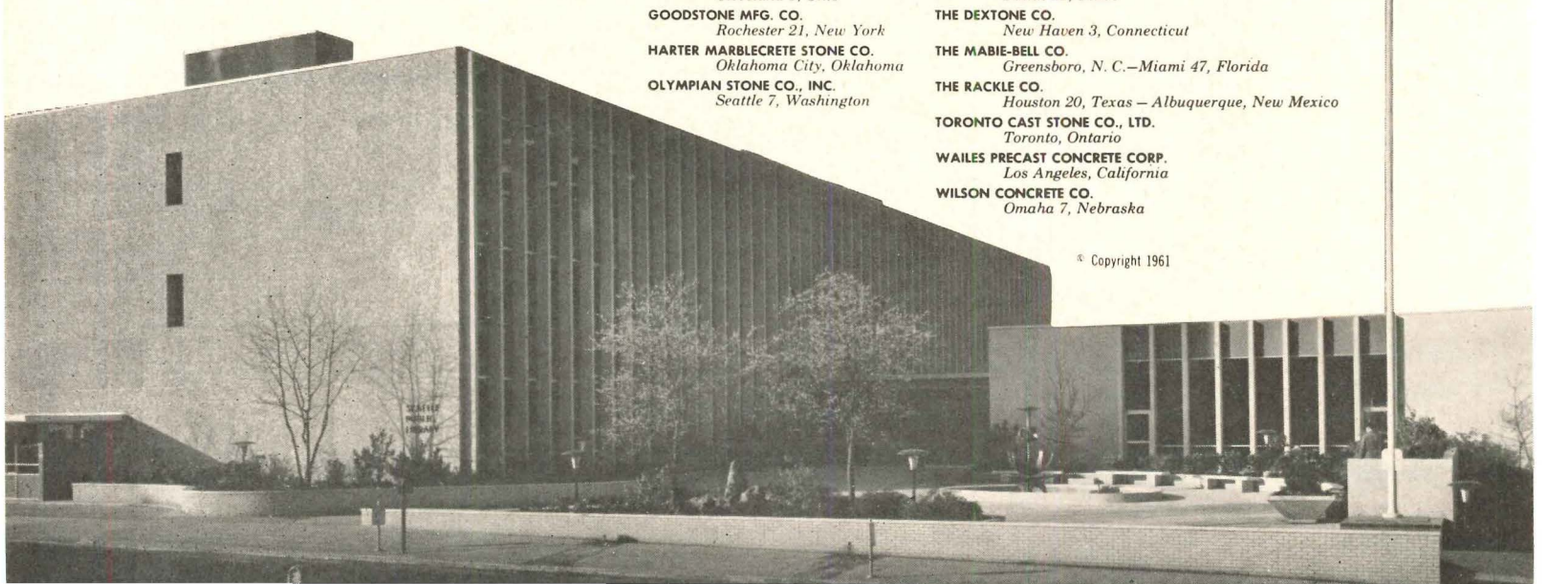

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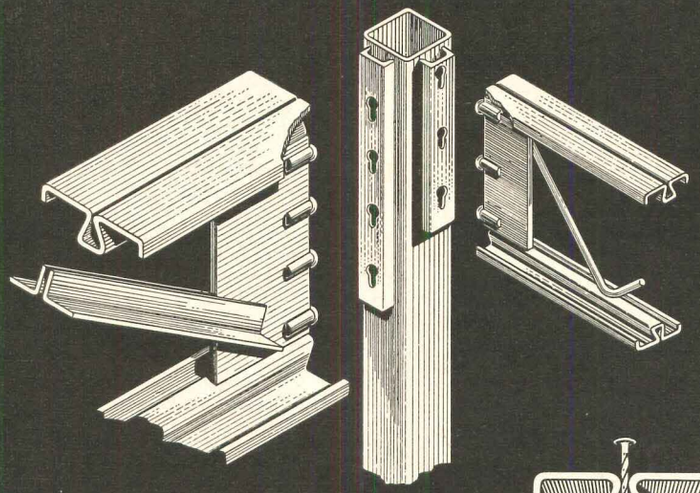

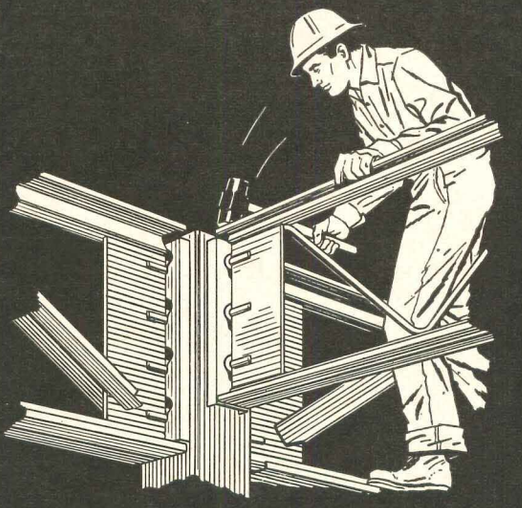

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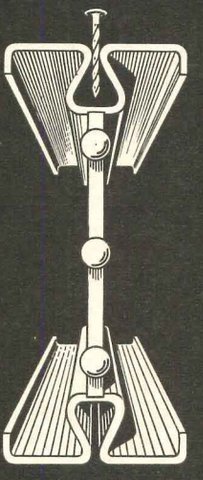

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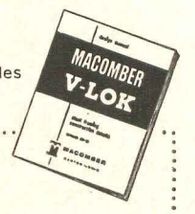

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continued from page 284

A.I.A.-A.S.C.A. Seminar: Cranbrook Academy in June

A ten day seminar for some 50 teachers of architecture from as many schools will be held June 6-16 at Cranbrook Academy of Art, Bloomfield Hills, Michigan.

Sponsored jointly by the American Institute of Architects and the Association of Collegiate Schools of Architecture, the seminar is another in the series held annually since 1956 to provide an informal exchange of views and experiences and to help improve architectural education.

Arrangements for the seminar are being made by a newly appointed Policy and Guidance Committee comprising: James M. Hunter, F.A.I.A., representing the A.I.A.; Buford L. Pickens, A.I.A., representing A.C.S.A.; Harold Bush-Brown, F.A.I.A., chairman; and Theodore W. Dominick, A.I.A., staff executive.

In appointing this committee, the A.I.A. Board of Directors at its recently concluded annual meeting also voted to increase A.I.A.'s financial assistance for the teachers' summer seminars from special educational funds. A.I.A.'s assistance is supplemented by contributions from its chapters and state associations, the schools and from other sponsors. They help defray expenses of teachers of architecture from the United States and Canada who otherwise could not attend, in the form of one-half expense scholarships awarded by the committee.

The Cranbrook seminar will discuss environment as well as professional responsibilities and teaching aims.

Nuclear Engineering Ph.D. Approved at Illinois

The Board of Trustees at the University of Illinois has approved the establishment of an advanced educational program leading to the Doctor of Philosophy degree in the field of nuclear engineering. Action on the new program has come two years after the University's initiation of nuclear engineering at the master's degree level. During that period 13 degrees have been awarded, and physical facilities now include the Illinois TRIGA nuclear reactor, three sub-critical assemblies, a heat transfer loop, a radio chemistry laboratory and a nuclear metallurgy laboratory. The reactor began operation last July.

Professor Ross J. Martin, chairman of the nuclear committee, said, "The program is based on assumption that nuclear engineering is a new field, building on existing engineering disciplines and physical sciences, and dealing with the applications of nuclear reactions and radiations to engineering.

"Nuclear engineering uses knowledge from many areas of engineering and science. For this reason, the new doctoral program, like the existing master's degree program, will be directed by a committee with members of the graduate faculty from all departments of the College of Engineering."

Demand for the doctoral program is strong among the nuclear engineering graduate students. More than a third have already expressed

continued on page 300

IF THE NEW FLOOR DISCOLORS,

WHOSE REPUTATION WILL SUFFER?

Stop floor problems before they begin by specifying a floor maintenance program!

The new floor is beautiful. Everybody's happy. Happy, that is, until the floor begins to change color. The culprit? Improper maintenance. But how hard it is to convince others of this! When a new floor begins to look old, poor maintenance habits are usually the last to be blamed. "Should this type of floor have been specified in the first place?" ..."Was the floor laid correctly?"...and countless other thoughts may be running through their heads.

This is why Huntington suggests you prevent future floor problems by specifying a simple and correct floor maintenance program before construction begins. Our representative, the Man Behind the Huntington Drum, will be happy to assist you, at no obligation. His experience and wide range of laboratory-tested products will come in mighty handy. You'll find his name, address and telephone number on the back of our insert in Sweet's Catalog, 13m/Hu, or write us.

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- ☐ The new Huntington Gym Floor Manual
- ☐ Have your representative contact me.

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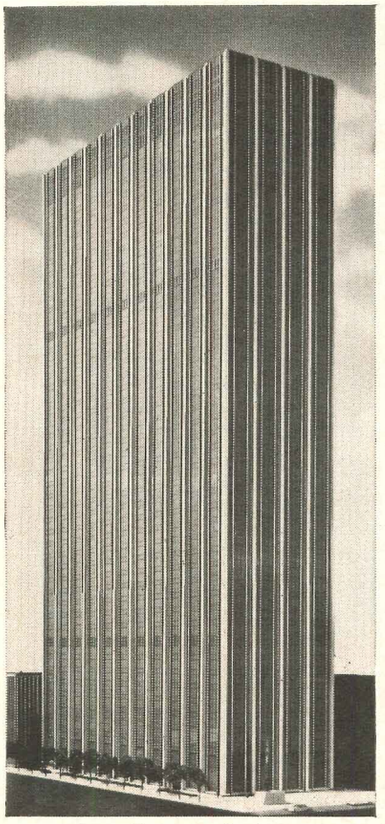
Steel Pipe . . . the versatile "common carrier" for the nation's hidden "transportation" needs

Behind the towering facades of the nation's ever growing skylines, *steel pipe* efficiently and economically meets the needs for dependable heat, waste, water and vent lines. And when the lights flick on, telephones ring, elevators move, their power is conveyed and protected in rigid *steel conduit*. In fact, the reliable performance of *steel pipe* for a wide variety of uses makes it acceptable without question in the nation's commercial, industrial and residential structures.

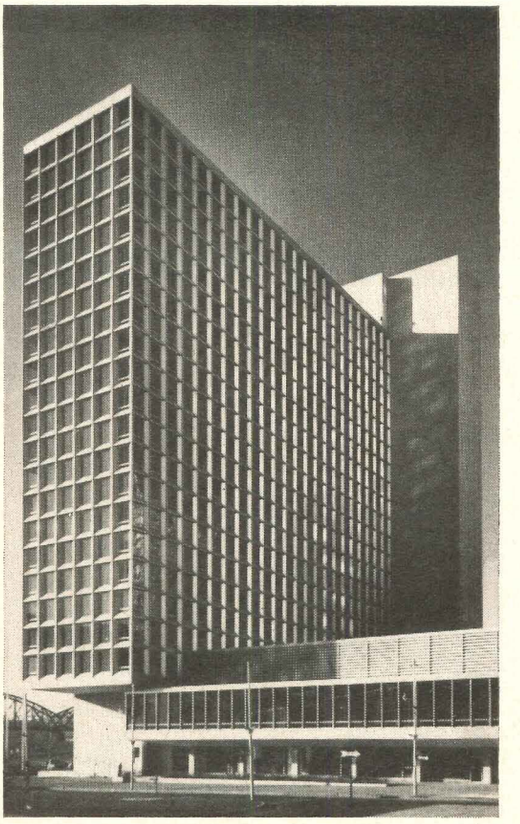
Versatile *steel pipe* has inherent strength and rigidity. It is easy to join and form into the most intricate shapes. *Steel pipe* is economical . . . no other metal tubular product provides the ready availability, low initial cost and low installed cost.

These are some of the reasons why *steel pipe* is widely used for vent and drainage lines, heating and cooling, snow and ice melting, refrigeration and ice making, fire protection systems, electrical conduit, structural uses and water, steam and gas lines.



In New York—**Steel pipe** serves Rockefeller Center's Time & Life Building. Architects: Harrison & Abramovitz & Harris. Contractors: George A. Fuller Co. and John Lowry, Inc.

In San Francisco—**Steel pipe** serves the Crown Zellerbach Building and its sunken plaza. Hertzka & Knowles and Skidmore, Owings & Merrill, Associated Architects. General Contractor: Haas & Haynie.



In Pittsburgh—**Steel pipe** serves the Pittsburgh Hilton Hotel, showplace of the City's Golden Triangle Renaissance. Architect: William B. Tabler. Contractor: Turner Construction Co.

Vent and Drainage: Galvanized *Steel Pipe* is quickly, easily installed on the job. Joints are sturdy, dependable, need minimum horizontal bracing which permits economical installation, even in long runs.

Heating and Cooling: Joinable, formable into any required panel size. Embedded in concrete it lends support to heavy loads. Coefficient of expansion of steel pipe and concrete are compatible so joints don't give.

Water, Air and Gas: Superior strength protects water, air and gas lines against crushing loads. Easily joined systems remain in reliable service for years. Closed systems carry gases without fear of internal corrosion.

Electrical and Communications Conduit: Rugged, doesn't get damaged during construction. Bends from 15 to 90 degrees. Cuts and joins quickly. Presents no danger of galvanic action when buried in concrete.

STEEL PIPE IS FIRST CHOICE

- Low cost with durability
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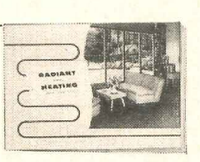
- Threads smoothly, cleanly
- Sound joints, welded or coupled
- Grades, finishes for all purposes
- Available everywhere from stock

Insist on MADE IN USA Steel Pipe

C-12

For your information:

Two useful booklets, "Radiant Panel Heating with Steel Pipe" and "Steel Pipe Snow Melting and Ice Removal Systems". Write today for the copies you need.



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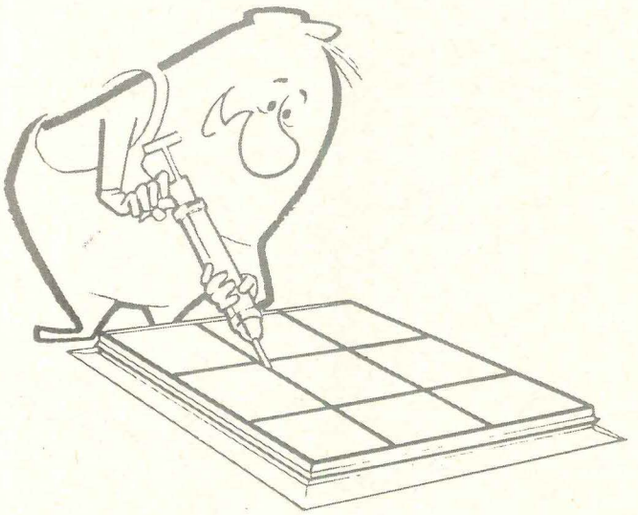

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PRC Toplite, the only roof panel with prismatic, hollow, evacuated glass blocks, controls sun glare and heat while reducing excessive brightness and apparent shadow. PRC Rubber Calk is applied during manufacture, sealing these panels against the most severe weather conditions. Maintenance-free performance and long life of Toplite panels is assured even under extreme temperature changes.

In addition to Rubber Calk, PRC also manufactures other quality calking compounds, as well as glazing and coating products for the construction industry. Please fill in the coupon below for colorful, descriptive catalog. Complete sales and manufacturing facilities on both East and West Coasts.

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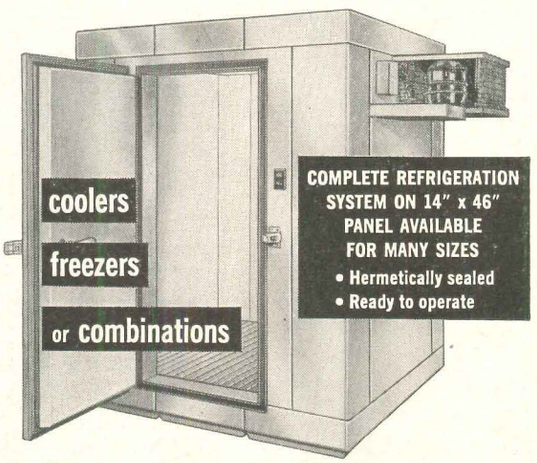
Aluminum or steel sectional construction



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ARCHITECTS: see 8 pages of engineering data in Sect. 26/A of Sweet's Catalog.

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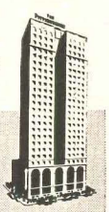

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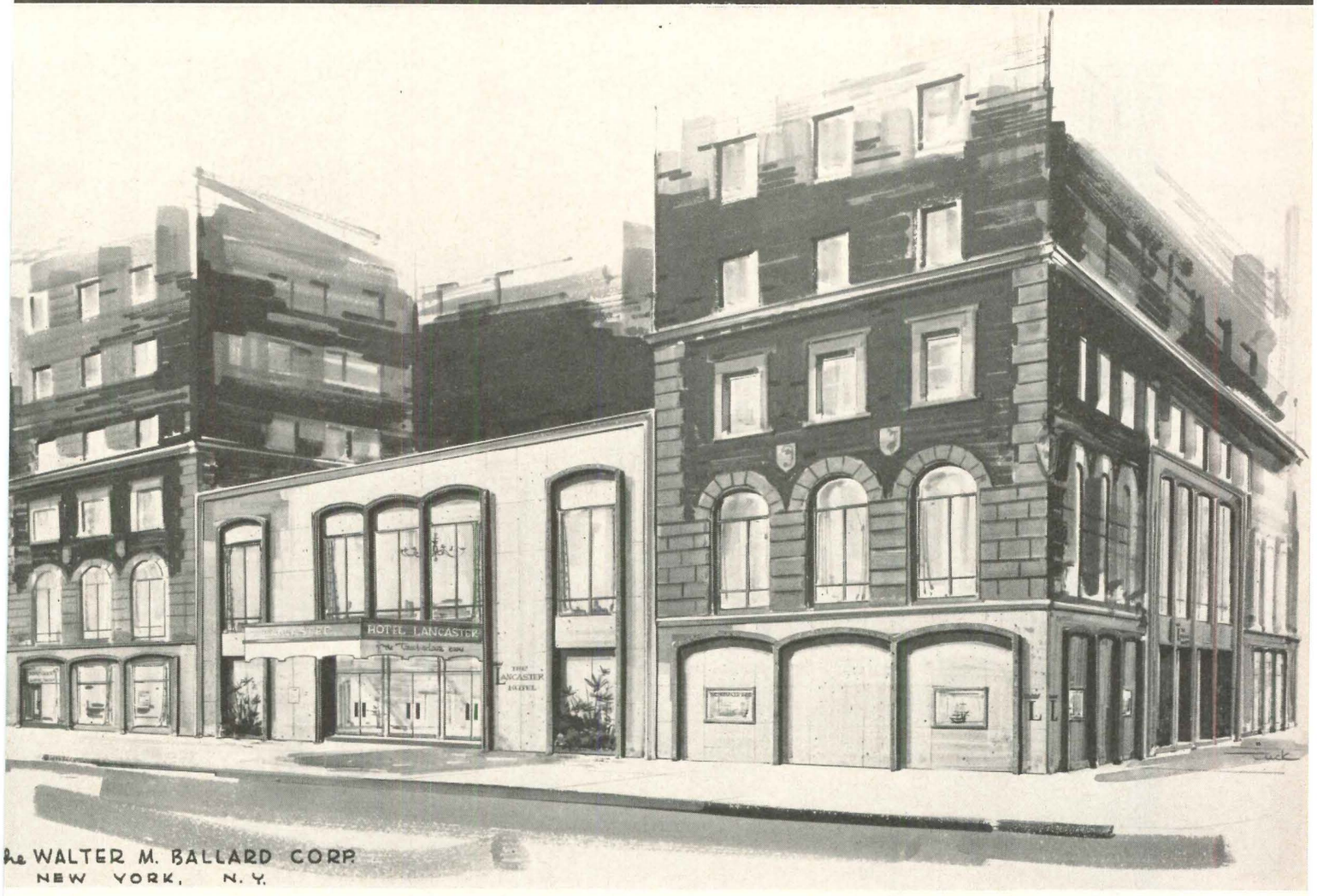

To change the "face" and the interior of a building and still retain the essence, the character, the flavor, the best of a tradition is one of the problems of architects and designers. An example of how this can be accomplished is the Midston House at 38th Street at Madison Avenue. To be known as the Hotel Lancaster, the metamorphisis is one of the most comprehensive ever undertaken on New York's East Side.

Combining tradition with progress is solved by using materials that are timeless because in the areas of use, taste, beauty, and durability they belong to every age . . . to every school.

Such a material is granite.

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New York City, New York

Designers: The Walter M. Ballard Corporation
General Contractor: Herbert Construction Company
Granite: "Kershaw" for Facing and Trim

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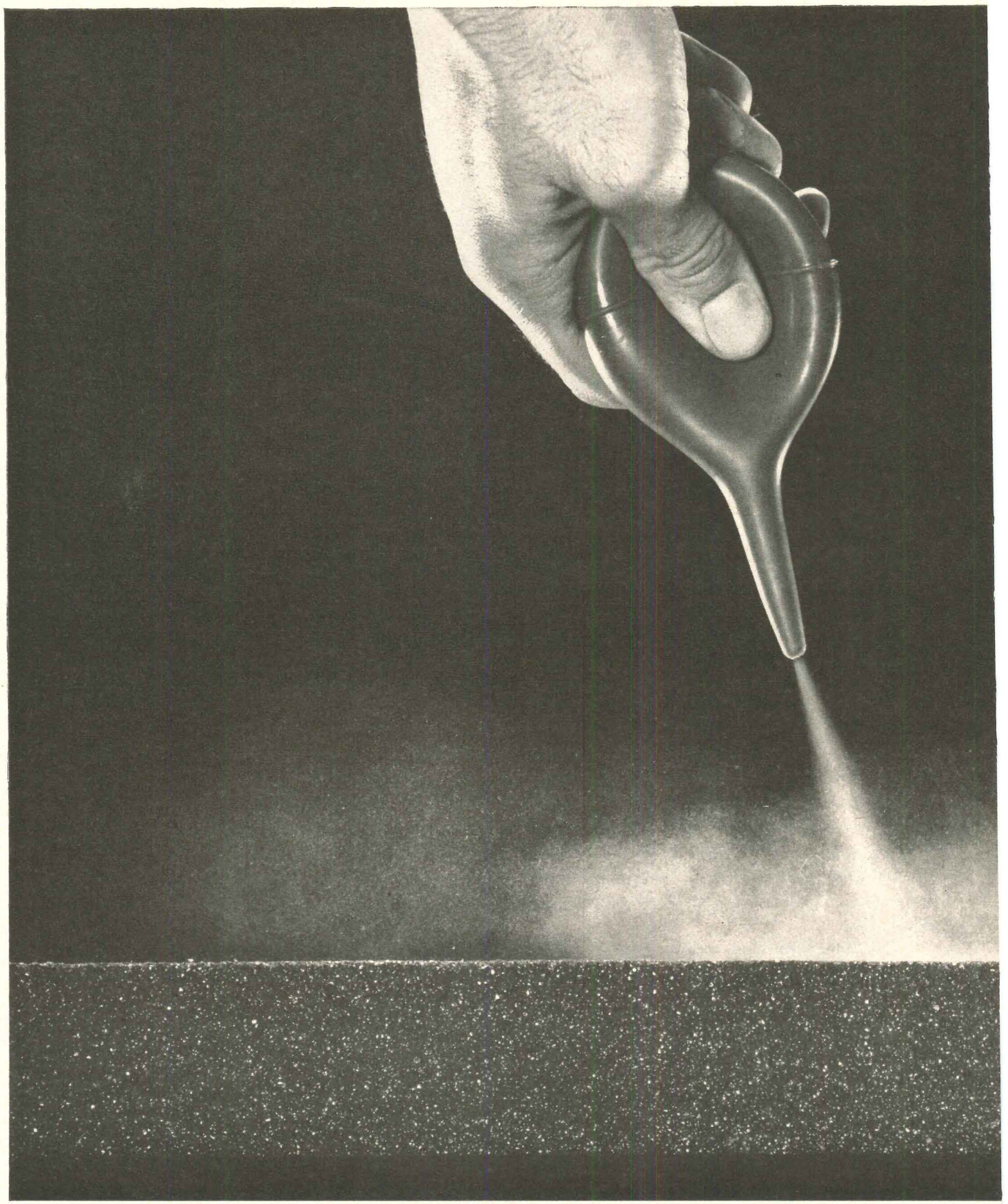
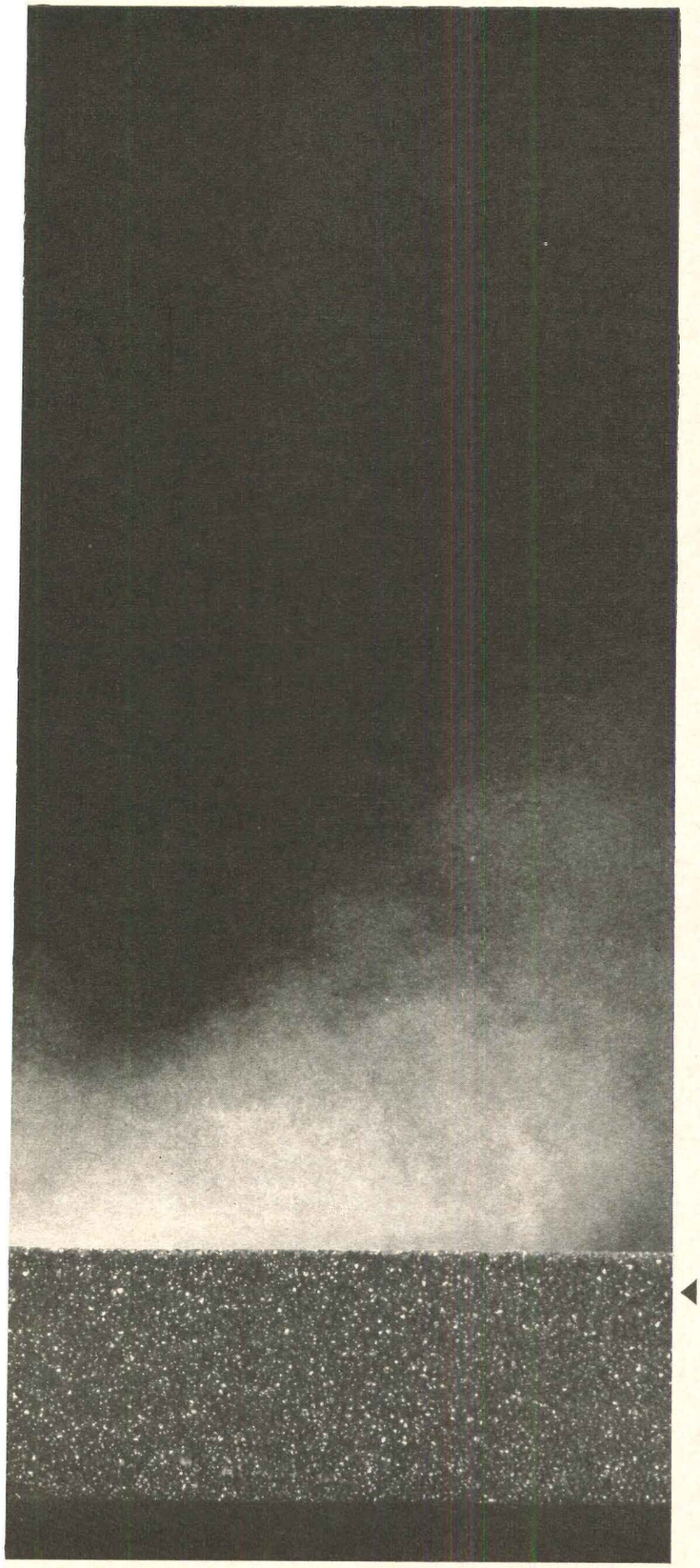
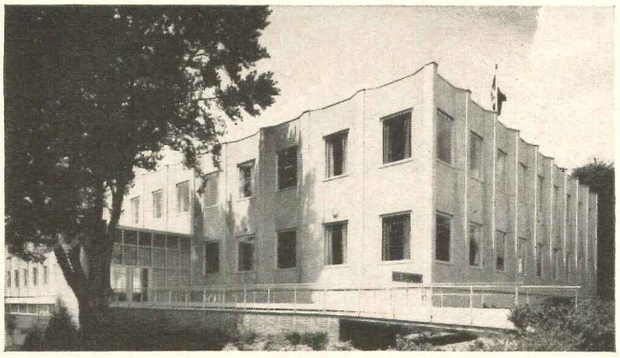
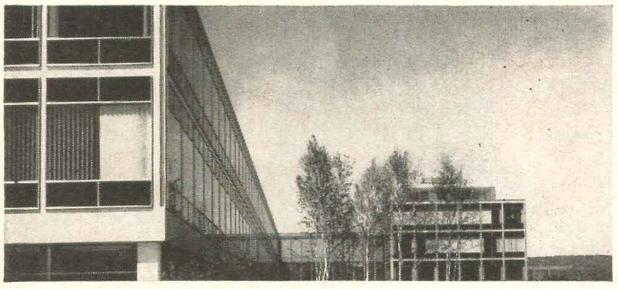


building material because it's **vaporproof** it's cellular glass

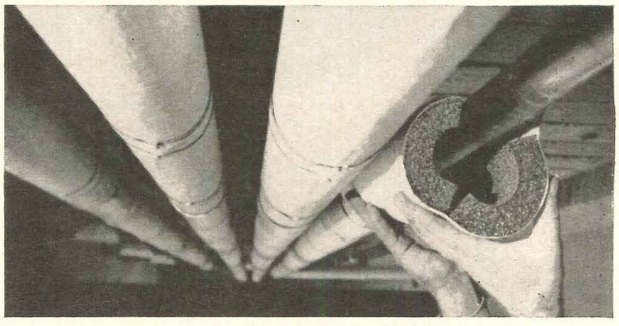




An unusual curtain wall panel makes unusual demands on its insulation. FOAMGLAS complements this Bell Telephone design, Conshohocken, Pa., where panels are projected to create vertical accents in depth. The cellular glass insulation stays impervious to vapor and water, maintaining its high compressive strength, firmness, rigidity and dimensional stability.



Over 82,000 sq. ft. of FOAMGLAS insulates these glass spandrel panels at the Connecticut General Life Insurance Building, Bloomington, Conn. Fabricated right on the job, FOAMGLAS protects the steel from air and moisture damage while it serves as the backing for the metal flashing that rings the building.



FOAMGLAS Stay-Dry Pipe Insulation provides the important benefits of FOAMGLAS for all building service lines; iced water, chilled water, low-pressure steam or dual temperature runs. In addition to the vapor and moisture protection, the insulation is fireproof, will not slump or sag, and will not compress around saddle supports.

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PITTSBURGH

CORNING

The Record Reports

continued from page 292

interest in entering the new program.

The program is expected to provide stimulus to the College of Engineering's research in nuclear engineering. "In order to utilize fully our capabilities for productive research," said Professor Martin, "we must have graduate students identified primarily with the program during the time period required for the doctorate. Only with this much time can a continuity of training and research experience be achieved."

The new program will provide men with advanced training in a field that is growing rapidly in importance in virtually all fields of industry, research and the nation's defense effort. Nuclear power and propulsion plants are coming into use for both civilian and military applications. Uses for nuclear technology are being found in industry and agriculture both as research tools and as aids to testing and production.

As these uses increase, the need for trained nuclear engineers for research, design and operations threatens to remain far ahead of the supply. According to Professor Martin, the establishment of the nuclear engineering educational program at the University of Illinois, planned and developed over a period of years, will help increase that supply.

Chavez Named Professor at Syracuse University

Edward Chavez, painter and sculptor, has been named assistant professor in the School of Architecture at Syracuse University. He will teach drawing in various media to freshman and sophomore architecture students. He will also teach advanced painting in the art school.

The artist's background includes teaching drawing and painting at the Art Students League of New York and in the School of Art of Colorado College, advanced studies in Italy through a Fulbright grant, exhibitions at the Chicago Art Institute, National Academy of Design, Whitney Museum, Metropolitan Museum of Art, Carnegie Institute, San Francisco Museum of Art and the University of Illinois.

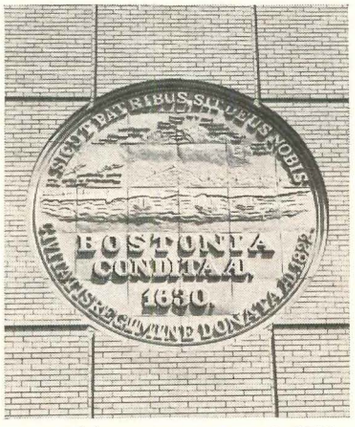
more news on page 304

INTERESTING DESIGN+NATCO BRICK=MODERN GARAGE

Graceful, modern architectural design, plus the beauty of smooth, unglazed, buff-colored Natco face brick sets this new downtown Boston parking garage apart as one of the finest in the country.

Apart from being simply a functional structure capable of handling 734 automobiles, this 12-level garage makes an aesthetic, architecturally pleasing contribution to the City of Boston's redevelopment program.

Clear ceramic glazed Vitritile, also made by Natco, was used to face interior walls in the garage office, wash rooms, attendants' quarters and warming rooms for elevator operators. Low maintenance costs result since this structural facing tile requires only a periodic wiping to retain a clean, cool, new appearance.



The architect, Mr. S. S. Eisenberg, referring to the new parking garage stated, "We tried to provide modern design with the best materials available."

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See the 1961 Sweet's Catalog Service for complete specifications on Westinghouse Water Coolers described in Architectural File and Industrial Construction File . . . 21 model selection . . . or call the Westinghouse Water Cooler Distributor listed under "Water Coolers" in the Yellow Pages. Better yet, mail this coupon right now for your personal copy of the 1961 Westinghouse A.I.A. Catalog.

The Record Reports

continued from page 300

Graduate Program Reactivated at Syracuse University

Plans have been announced to reactivate a graduate program in city and regional planning, leading to the degree of Master in Architecture, at Syracuse University's School of Architecture.

In charge of the program is associate professor Peter B. Andrews, who was named to the Syracuse faculty in September. Professor Andrews earned his A.B. degree from Williams and his Bachelor of Architecture and Master of Regional Planning degrees at Cornell University. He has been working on community and regional planning projects since 1957. He was project manager for the design of the soon-to-be-built Memphis Civic Center.

The graduate city and regional planning program will include courses given by the Maxwell Graduate School of Citizenship and Public Affairs and the colleges of Business Administration, Law and Engineering.

Professor Andrews said that candidates for the master's degree are required to pass 30 credit hours, of which at least 10 are to be taken in the School of Architecture, at least 12 in other graduate divisions of the university. Students may elect to submit a thesis or may elect to fulfill all requirements through course studies and research. Programs will be arranged for each individual to meet his needs and objectives, giving attention to balance and relationships of subjects and the value of the whole program.

Among new courses being offered are architectural design, physical planning, architectural construction, research work and a seminar.

Faculty Additions at Columbia University

New additions to the faculty of Columbia University's School of Architecture are: Edward J. Romieniec in Design; Samuel G. Wiener in Visual Communication; Sigurd Grava in Planning; and Henry Wright in Environmental Control.

more news on page 312

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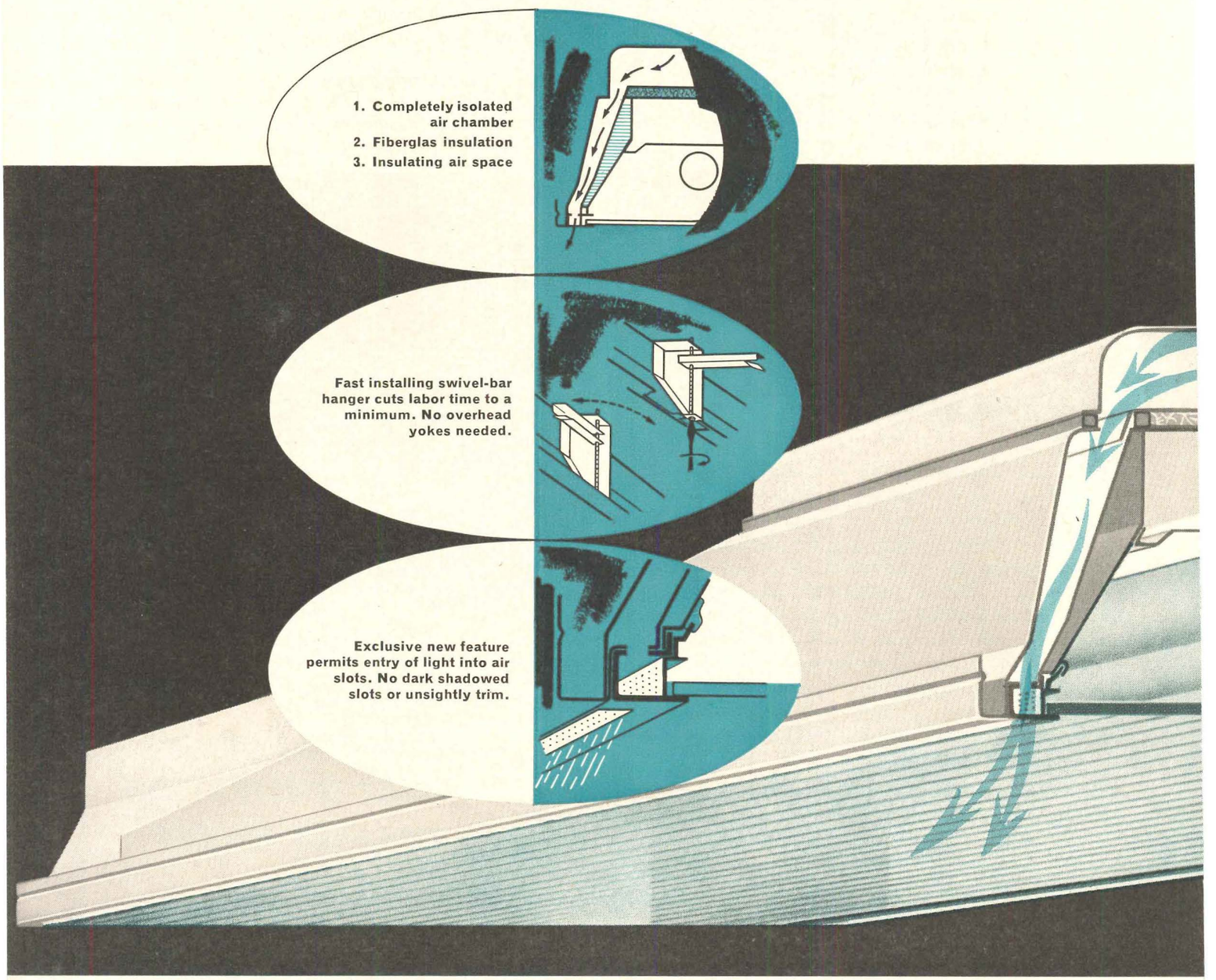

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Announcing . . . another big break-through by Benjamin engineering and research . . . a high capacity air-handling troffer that isolates lighting from air flow so effectively that temperature variations cannot affect light output in any way. High lamp efficiency and color is maintained even under the most demanding air handling requirements. And . . . it's all done by means of the amazing new TRIPLE-SHELL construction that completely separates air passages from troffer housing with fiberglas and insulating air spaces.

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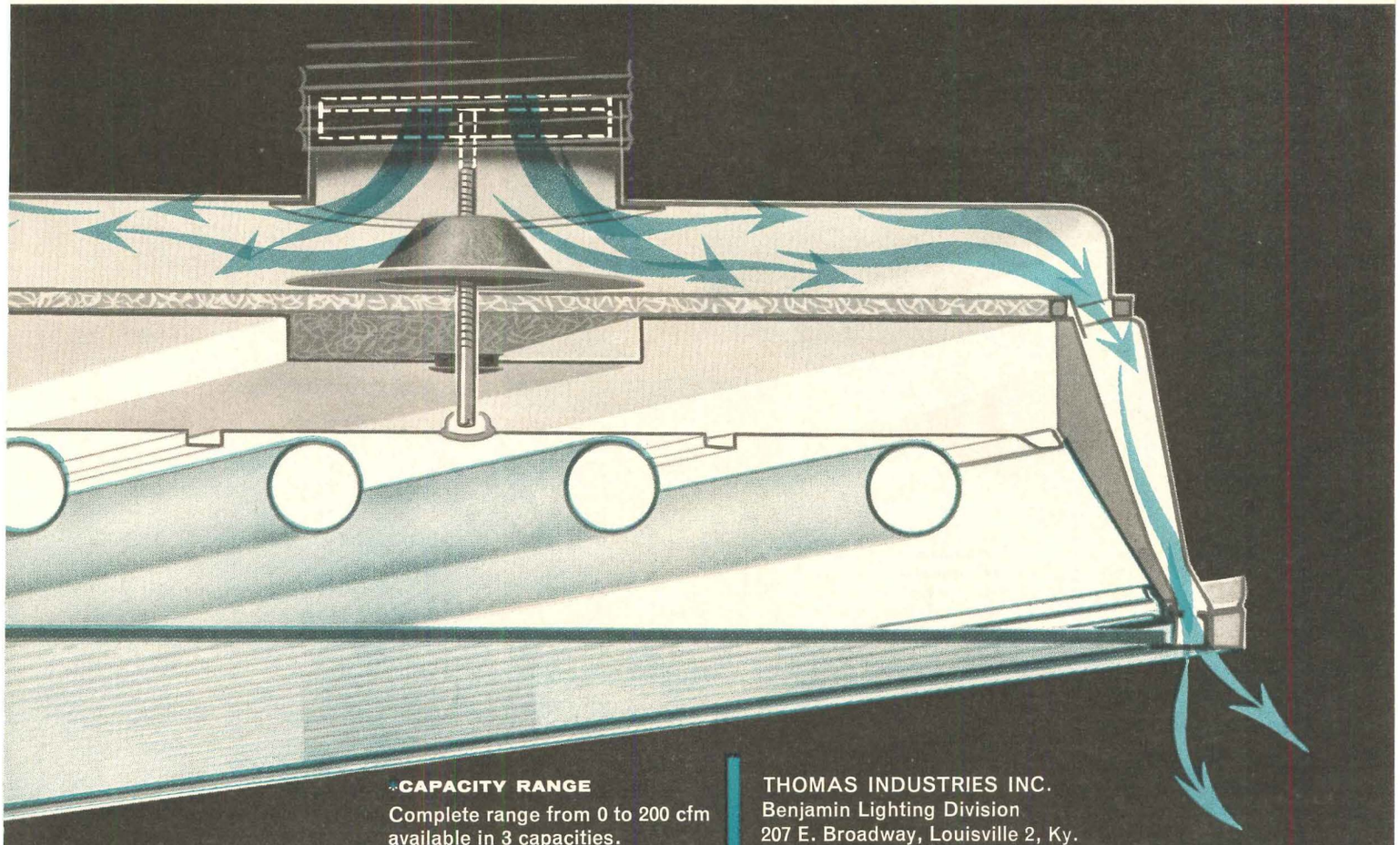
A new look in trim design features new shallow 4⅞" troffer housing which embodies many distinctive features for faster installation and easier maintenance not found on competitive models. TRIPLE-SHELL Lumi-Flo troffers are available for use with all basic ceiling systems . . . in a wide selection of louvered, glass or plastic closures.

Benjamin, the manufacturer of over 90% of all air-handling troffers now in service, is continually researching new improvements. Its extensive research and development facilities have recently been expanded to include a modern air test laboratory where air and lighting designs can be verified under actual job conditions.

*Air diffusing dampers have been developed especially for Lumi-Flo by **TUTTLE & BAILEY,** foremost design engineers and manufacturers of air distribution equipment.*



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Clemson Schedules Eleven Visiting Experts

Through the Clemson Architectural Foundation, Clemson College School of Architecture has scheduled 11 visiting lecturers and critics for this semester. They are: Moreland Smith, hospital architect, Montgomery, Ala.; Dr. Thomas Howarth, former professor of architecture, University of Manchester, England, now director of the University of Toronto School of Architecture; Martin Stephen Kermacy, professor of architecture at the University of Texas; Professor Lawrence Anderson, head of the department of architecture, School of Architecture and Planning at M.I.T.; George Rockrise, practicing architect; Brian Shorecroft, visiting instructor from England, now teaching at North Carolina State College; James Souder, hospital architect; Samuel Sabean, professor of sculpture at Pennsylvania State University; Guilio Pizzetti, Italian architect on tour of American universities; Miss Katherine Pollack-Daniels, The Hague, Holland, president of the Dutch Society of Landscape Architects; and Garrett Eckbo, California landscape architect.

A.S.C.E. Research Prizes Awarded Five Educators

Five engineering educators have been named recipients of the 1960 Research Prizes of the American Society of Civil Engineers. The prizes, awarded to members of the Society for notable achievements in research related to civil engineering, consist of cash awards and appropriate certificates. They will be formally presented at the A.S.C.E. National Convention in Phoenix, Arizona, April 10-14.

The 1960 winners are: Professor David K. Todd, civil engineering department, University of California; Professor Bruno Thurlimann, department of civil engineering, Swiss Federal Institute of Technology, Zurich, Switzerland; Professor Donald R. F. Harleman, Hydrodynamics Laboratory, M.I.T.; Professor Phil M. Ferguson, department of civil engineering, University of Texas; and Professor Raymond Clough, department of civil engineering, University of California.

Lincoln Arc Welding Foundation Awards Engineer Undergrads

The James F. Lincoln Arc Welding Foundation of Cleveland, Ohio has announced the 13th annual awards for engineering undergraduate papers on welded machine and structural design. A total of $5000 in 46 awards were made to engineering undergraduates in 21 different engineering colleges. Awards were made for papers explaining how the efficient application of welded steel to the design of a machine or structure contributed to its improvement or cost reduction.

The $1250 first award went to Glenn F. Balfanz Jr., Cicero, Ill., for his paper, submitted from the Department of Mechanical Engineering, Northwestern University, on the redesign of a pump dis-

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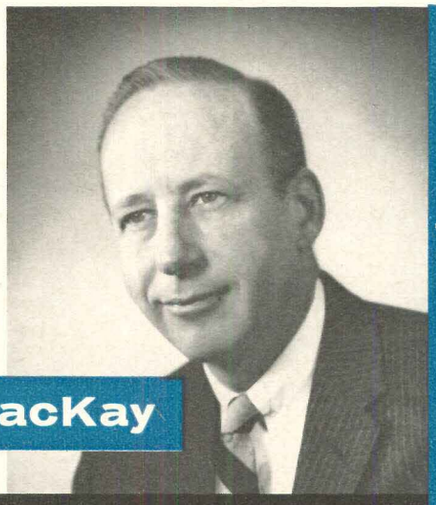

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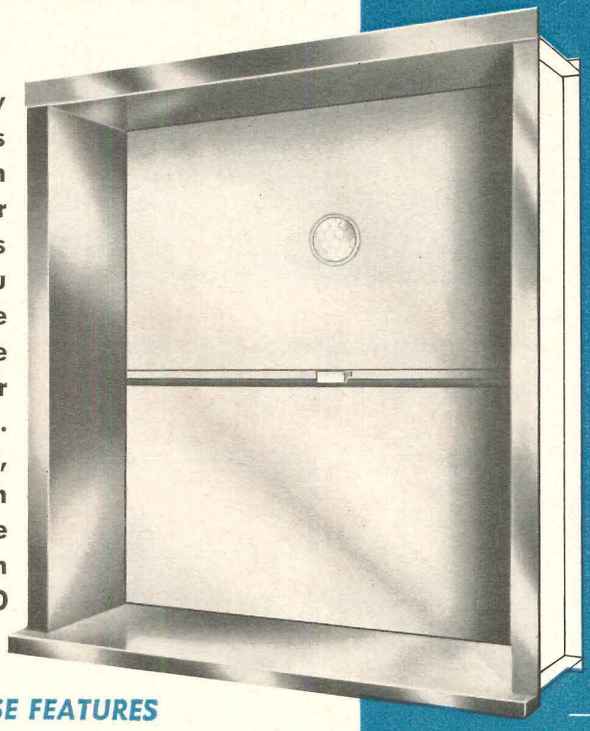

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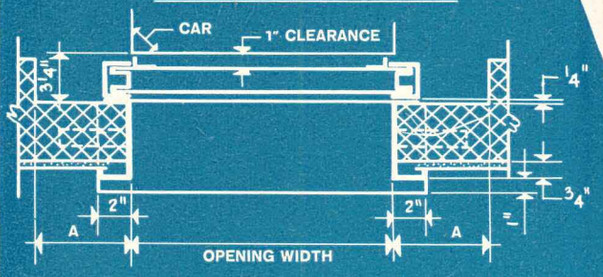

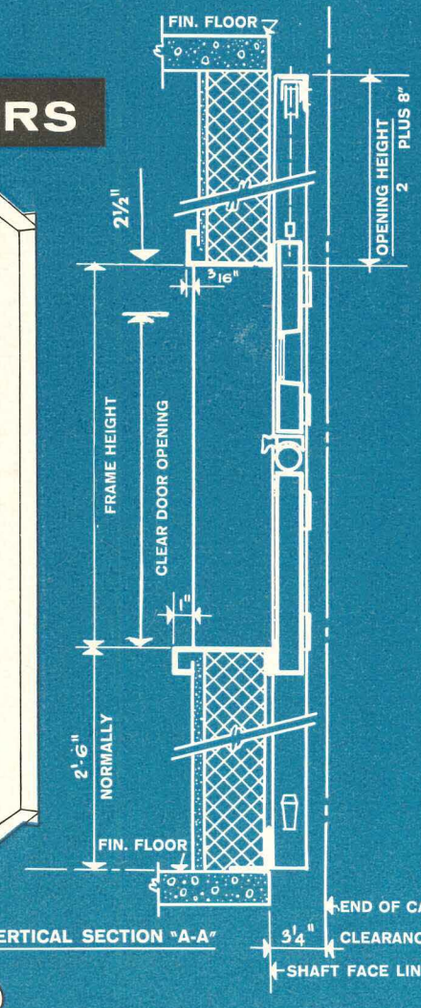

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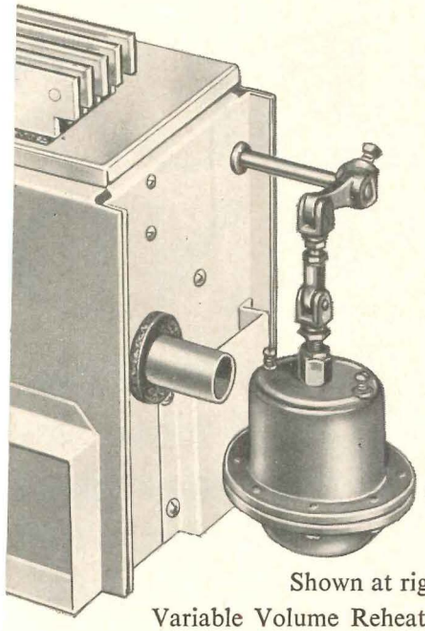

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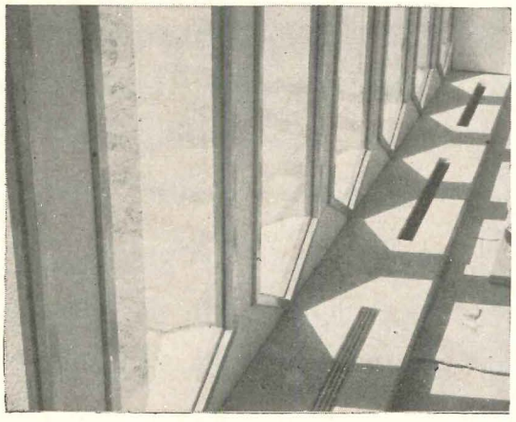
Shown at right is actual photo of new Titus Variable Volume Reheat units installed in mock-up of Michigan Consolidated Gas Company Office Building. The units were installed under the floor with a 3-inch pre-cast concrete sill containing Titus extruded aluminum Linear Grilles as outlets. *The new Titus VVR units fully met all requirements of the variable volume reheat system.* They proved capable of maintaining room temperature within 1 F—with varying heating and cooling loads.



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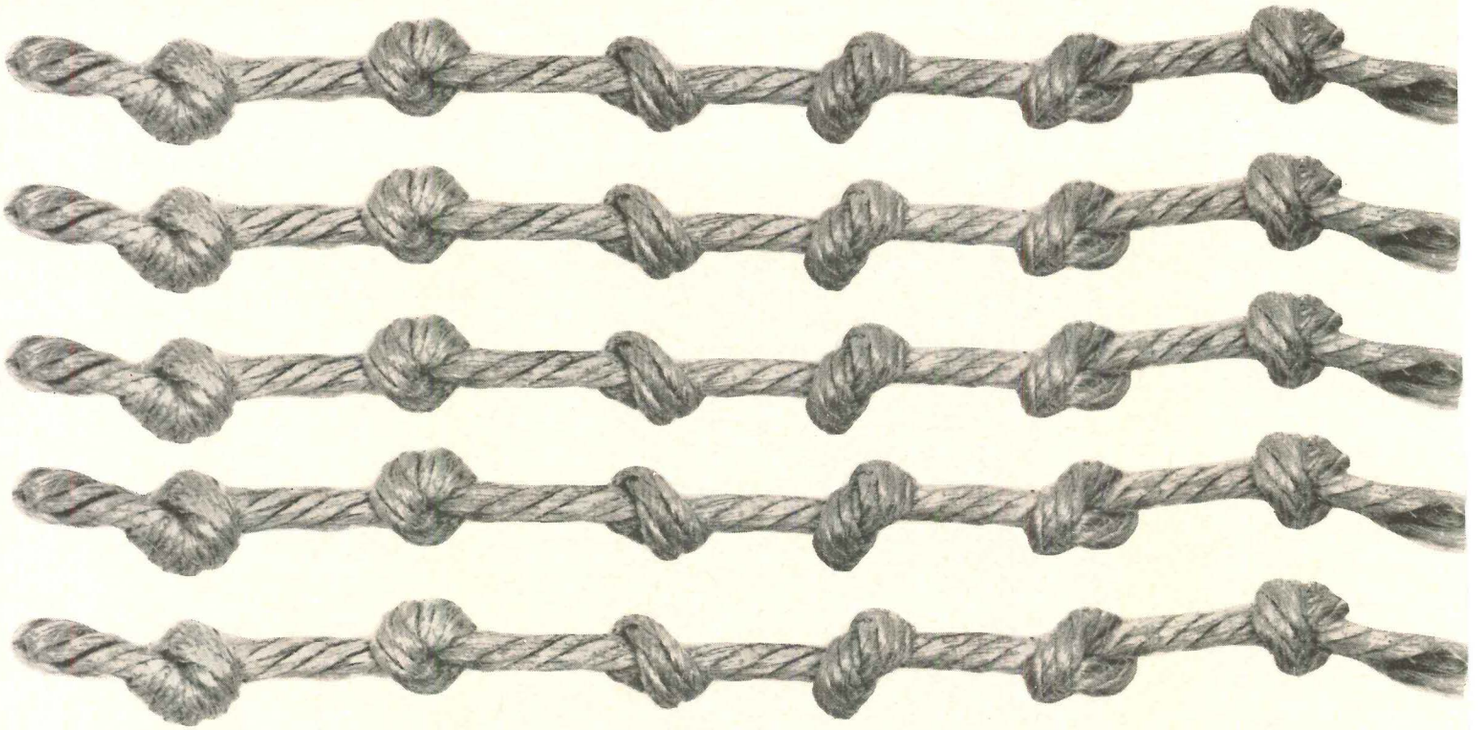

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Senior Partner of Morris Lapidus, Harle & Liebman, architects of New York and Miami Beach, says: "In thirty years, I've formed close ties with Sweet's Files. Because I've learned that we can rely on the catalogs in Sweet's for information we need to select building materials and equipment, my associates and I regard our Sweet's Files as old friends – always there, always ready to answer questions on a moment's notice."

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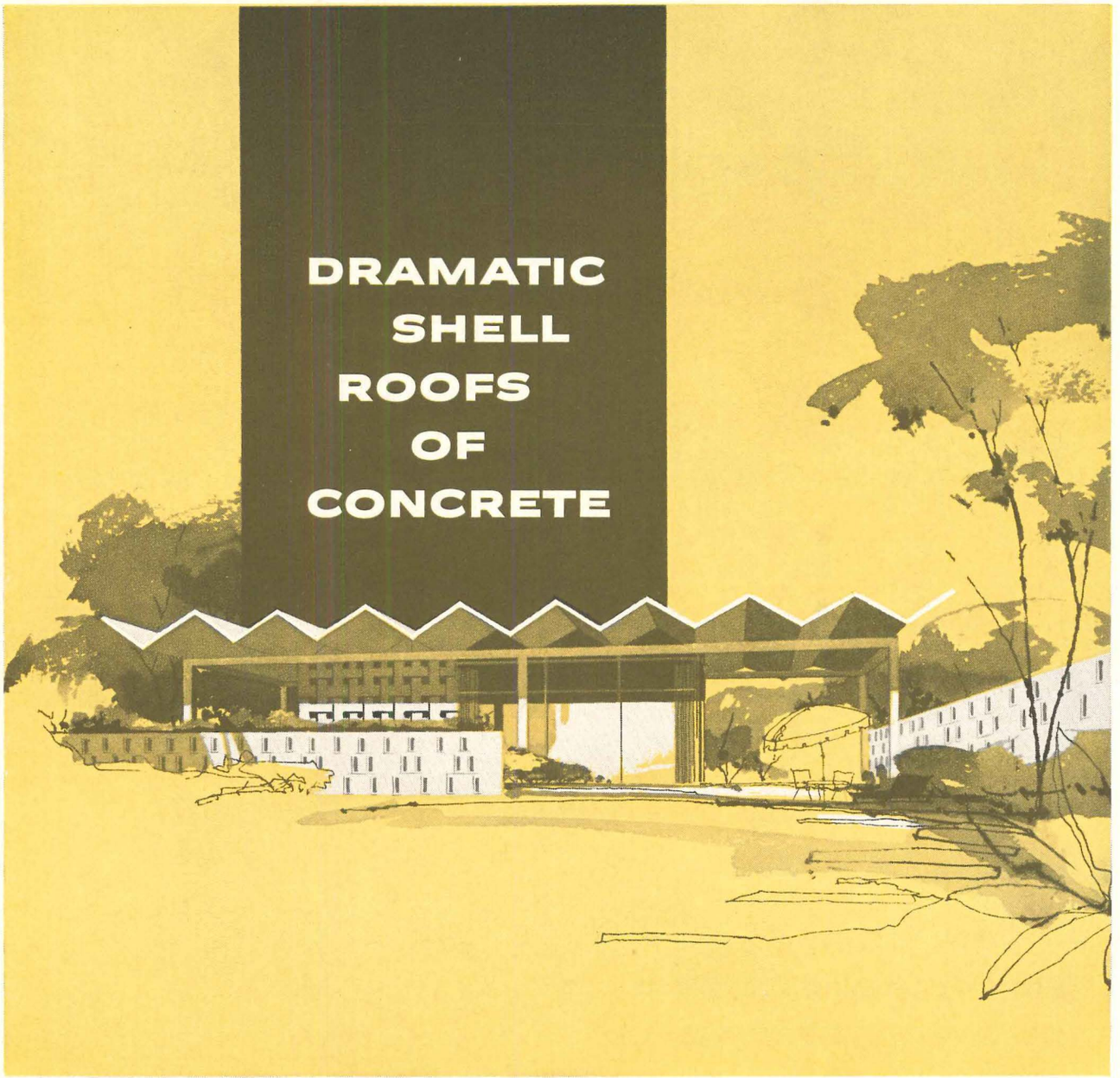

New imaginative approaches to residential design open up to the architect through the use of modern shell roofs of concrete. Angular folded plate, barrels, curving hyperbolic paraboloids—all permit a departure from conventional roof lines that insures good design and efficiency. Concrete shells have shown remarkable results in beauty, economy and spanning ability. Progress in form fabrication and construction is making the concrete shell roof even more practical. Today, this versatile material truly can be called "living concrete," for it shapes readily to fresh, imaginative design and the needs of modern living.

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. . . A national organization to improve and extend the uses of concrete

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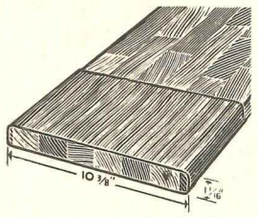
Pella® wood folding partitions

offer $10^{3}/_{8}$" x $1^{1}/_{16}$" panel dimensions

The panel dimensions of PELLA WOOD FOLDING PARTITIONS integrate easily with a wide range of interior details and materials. Available for any opening width and heights up to 20' 1", these heavy-duty partitions also add the textural warmth of natural wood to commercial, religious and institutional interiors. Specify factory-finished or for finishing on the job. Stable core panel construction prevents warpage. With Pella's patented "live-action" steel spring hinging system, the partition requires only about 1 lb. pressure per panel to operate (regardless of height). For large area space division, try working with PELLA WOOD FOLDING PARTITIONS. Consult your classified telephone directory for nearest U.S. or Canadian PELLA distributor, or write for literature. ROLSCREEN COMPANY, PELLA, IOWA.



SOLID WOOD BLOCK CORE of each panel is laminated with water-resistant plastic glue and faced with wood veneer.

6 Fine Wood Veneers *ASH • OAK • PHILIPPINE MAHOGANY AMERICAN WALNUT • BIRCH • PINE*

PELLA ALSO MAKES QUALITY WOOD FOLDING DOORS, CASEMENT AND MULTI-PURPOSE WINDOWS, ROLSCREENS AND WOOD SLIDING GLASS DOORS

The Record Reports

continued from page 308

charge head. The $1000 second award was received by John R. Cortelyou, Los Angeles, who submitted a paper as a student at California State Polytechnic College on the redesign of a foot bridge. Donald Belz and Martin Skeer, of Glendale and Brooklyn, N.Y., shared the $500 third award for their joint paper on a marine salvage float. They submitted the paper as students in the Civil Engineering Department of the Cooper Union in New York.

The schools in which these students enrolled received equal amounts to use as scholarships in the respective departments.

1961 A.S.C.E. Award Given N.Y. International Airport

New York International Airport has been selected by the American Society of Civil Engineers for its 1961 award as the Outstanding Civil Engineering Achievement of the Year.

Won by the St. Lawrence Seaway and Power Project in 1960, the competition drew 11 nominations this year: Niagara Falls Power Development; Portage Lake Bridge, linking Houghton and Hancock, Mich.; Intelex Post Office Building, Providence, R.I.; Pan American World Airways Terminal at International Airport; Chase Manhattan Bank, New York City; Dresden Nuclear Power Station, Chicago; Hyperion Effluent Outfall, El Segundo, Calif.; Geysers Power Plant, Sonoma, Calif.; Lloyd Shopping Center, Portland, Ore.; Grand Isle Sulphur Mine, Gulf of Mexico; and New York International Airport.

Judging was made by a jury of engineering magazine editors, its decision ratified by the Society's Board of Direction. Three general categories formed the basis of judging: engineering skill demonstrated; evident engineering progress; and value of the project to mankind.

Most of the varied activities of civil engineering were involved in International Airport, including air transport, city planning, construction, highway, irrigation and drainage, engineering mechanics, sanitation, surveying, hydraulics, soil mechanics and foundations and

continued on page 324

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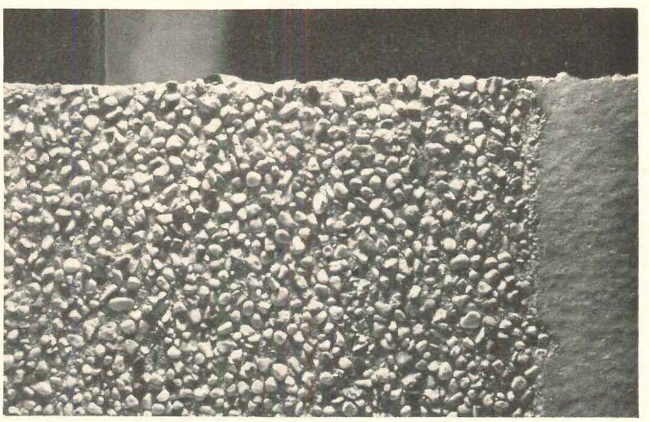

exposed aggregate

A retarder for making exposed aggregate concrete can be applied to the surface of freshly placed concrete or to the formwork before placing. Retarder does not hinder the hardening of the concrete mass while chemically retarding the set of ⅛ inch of mortar at the surface. After 12 to 24 hours the retarded surface is washed away with a jet of water. Greater depths than ⅛ inch of retarding requires a heavier application. Material leaves no discoloring film on the surface. Ceresit Corp., 3227 Shields Ave., Chicago 16, Illinois.

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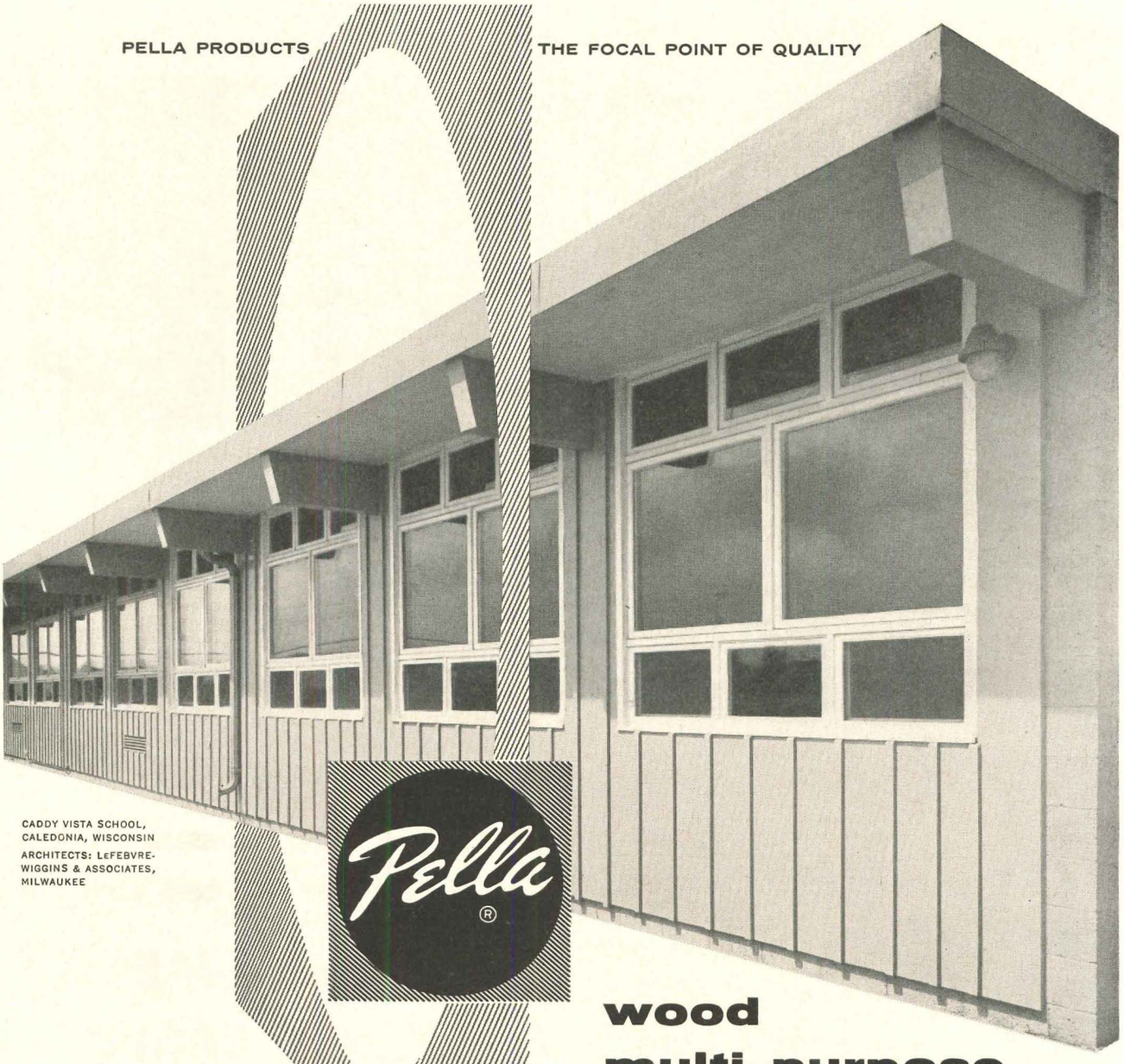

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ARCHITECTS: LeFEBVRE-
WIGGINS & ASSOCIATES,
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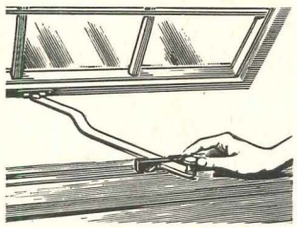
wood multi-purpose windows

combine into major design attraction

Whenever you place design emphasis on glass division, PELLA WOOD MULTI-PURPOSE WINDOWS instantly meet the challenge. In this case, M-P vent and fixed units form an 8-window pattern that pleasingly repeats itself. In all, 15 vent or fixed and 5 fixed picture sizes put hundreds of combinations at your pencil tip. For variety, WOOD M-P WINDOWS may be arranged as awning, hopper or casement units. Even with expansive glass areas, these handsome wood windows contribute to the efficiency of both heating and air conditioning systems. Screens and storm panels are self-storing. Roto operators are also available. Full specifications in SWEET'S or consult the classified telephone directory for the name of the nearest U.S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.



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is of extruded aluminum. Exclusive nylon GLIDE-LOCK® permits locking M-P window in 10 positions.

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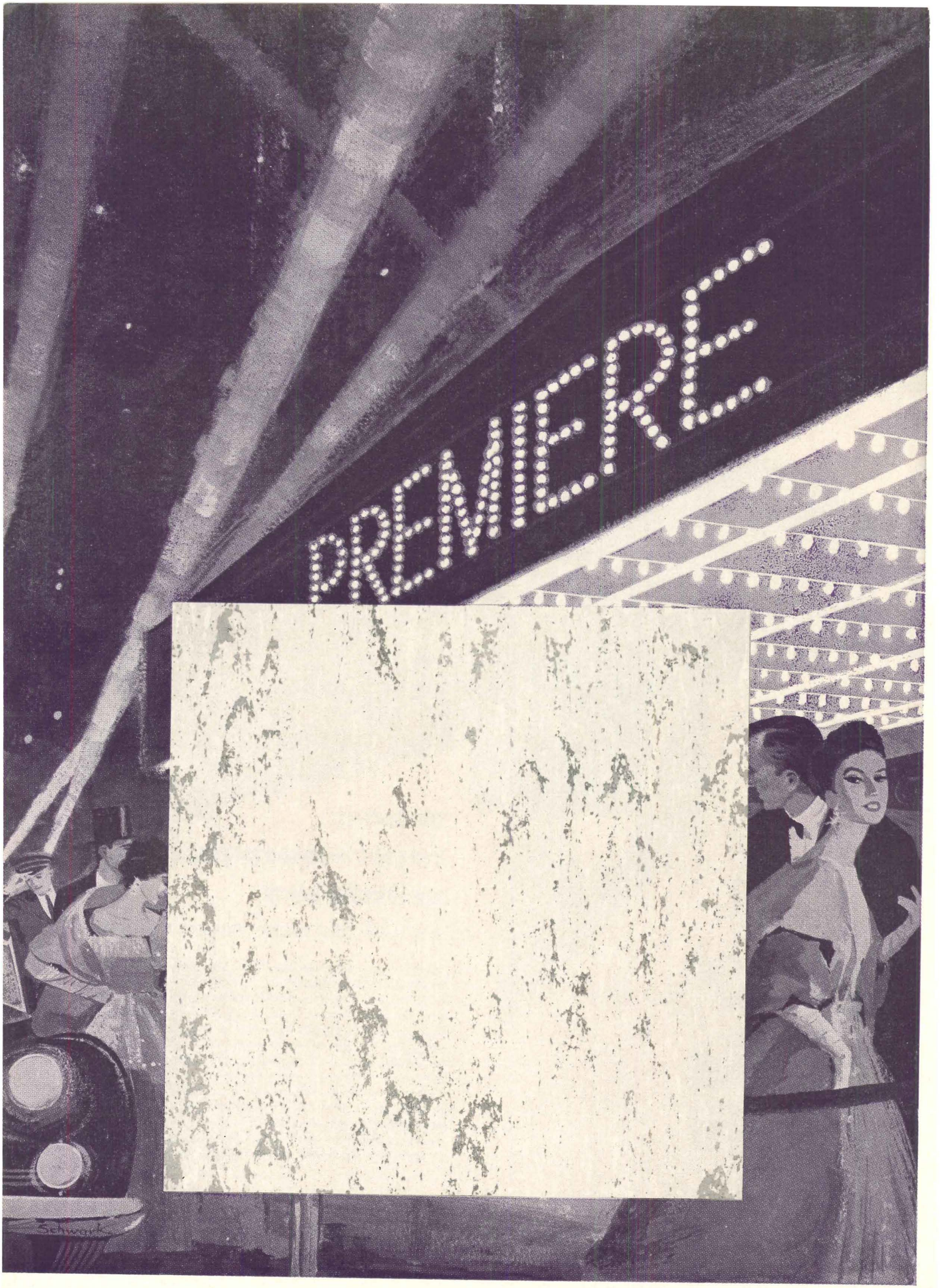
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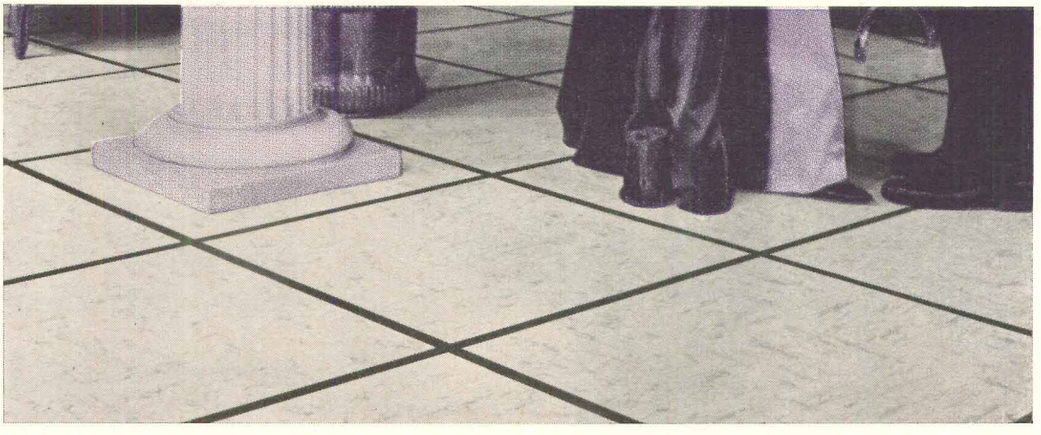
A style achievement which begins a new era of classic elegance in vinyl asbestos floor tile

Now from Azrock . . . an artistic achievement in vinyl asbestos tile which brings custom floor styling within reach of virtually any flooring budget. Vina-Lux Premiere Series has the luxurious, subtle patterning of expensive flooring — at the same price as regular vinyl asbestos tile.

Durability, too — Premiere beauty is more than "skin deep." It can be specified with confidence for heavy-traffic commercial and institutional areas because the pattern is evenly distributed throughout the *full thickness* of the tile — it is not a surface decoration. It can be installed over concrete — above, on or below grade; or over wood or plywood subfloors. And like all Vina-Lux, Premiere is grease proof, alkali resistant, economical to maintain.



Available in 9″ x 9″ size; 1/8″, 3/32″ and 1/16″ gauges; seven magnificent colors, including two metallics. Consult your flooring contractor or write us for samples and complete specifications.

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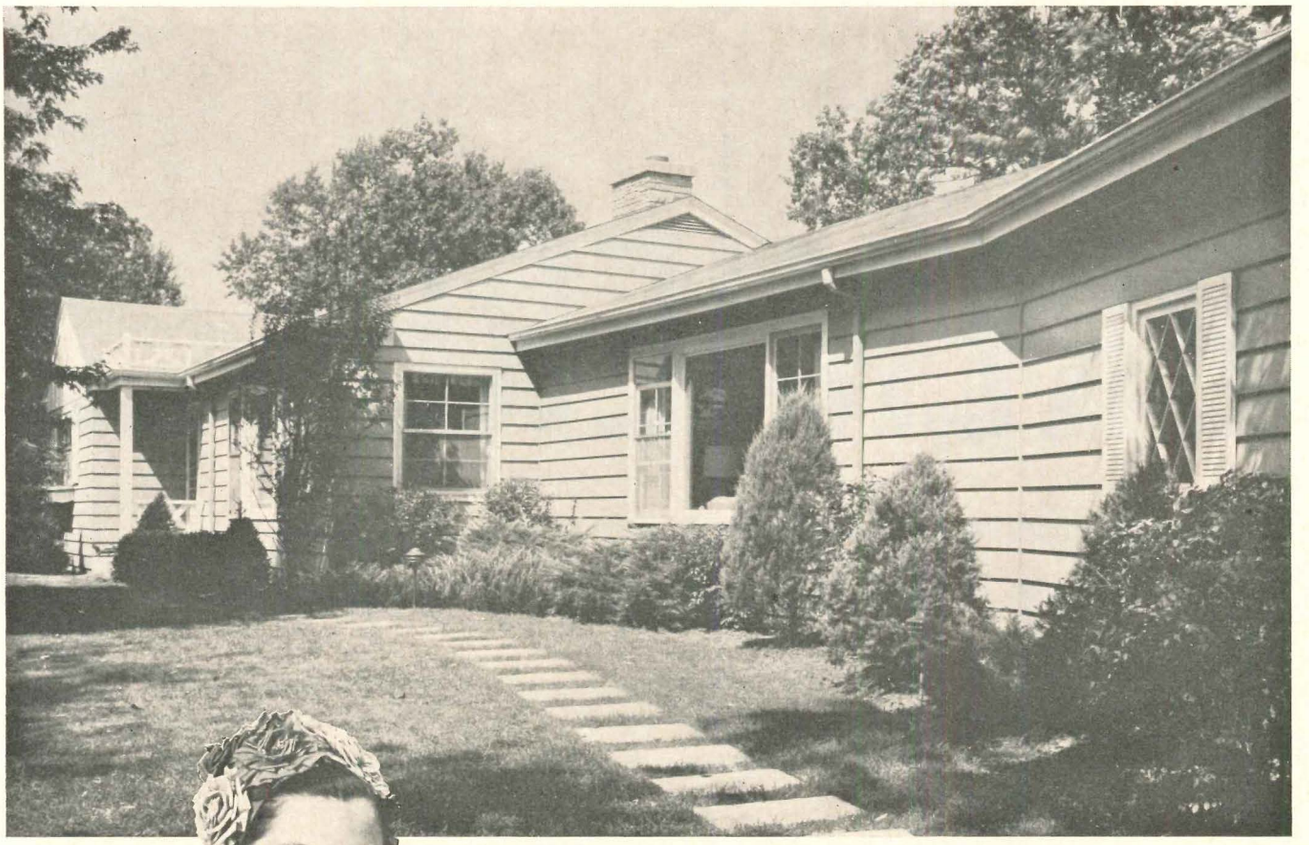

When it comes to "clothing" her home or her person,

she prefers the real –the genuine!

Her good taste and fashionable appearance are reflected in the authentic–genuine furs . . . genuine wood siding. She looks to you with confidence for professional guidance in planning and styling her home. The lady, like so many discerning clients, will want the ultimate in home exteriors.

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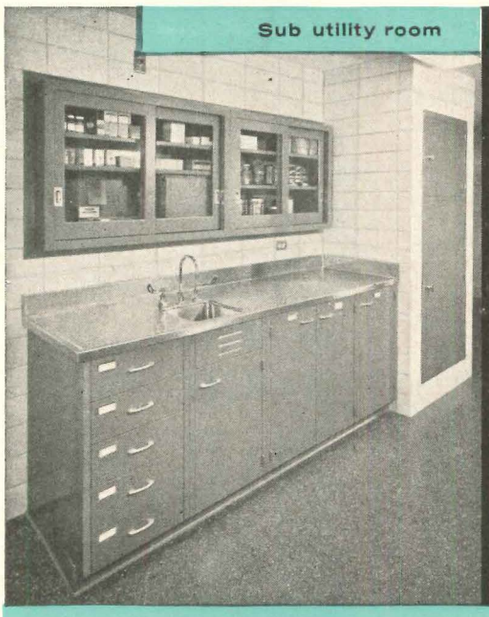
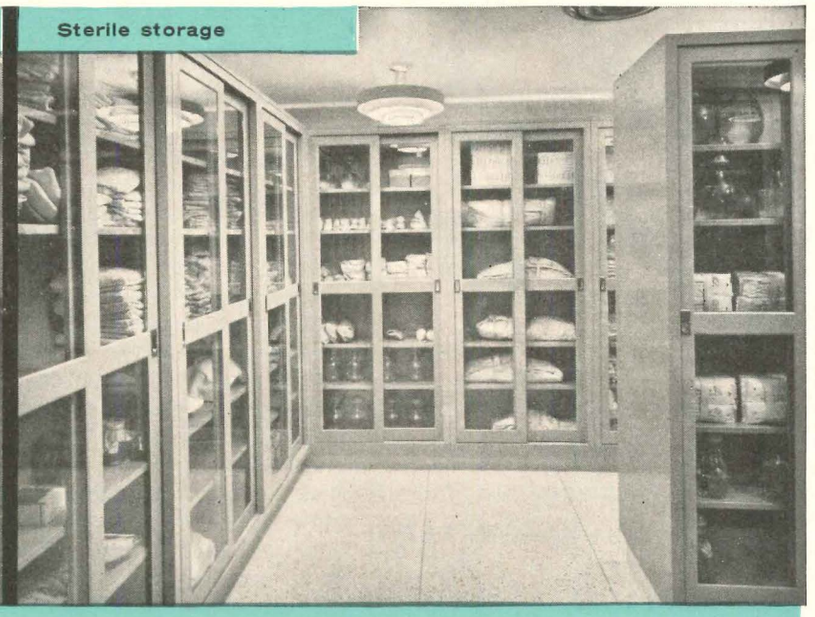


Sub utility room



Sterile storage

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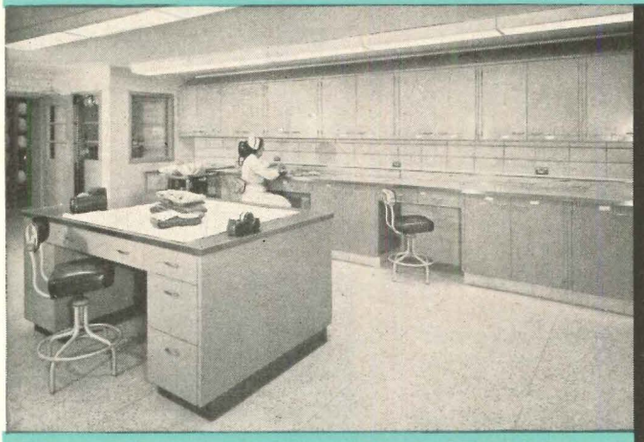
HORSTMAN & MOTT, *Architects* • ROSS GARRETT & ASSOCIATES, *Consultant*



Central sterile supply

Nurses' station

St. Charles acceptance and reputation as quality hospital casework is due to the careful attention given planning and construction details. Complete custom building, too, means casework flexibility to meet individual specifications, even to the most exacting demands.

In this issue:
More examples of St. Charles Hospital Casework . . . *See articles featuring new Hot Springs County Memorial Hospital, Thermopolis, Wyoming . . . and new North Kansas City Memorial Hospital, North Kansas City, Kansas.*

Send For Catalog. This complete catalog, "St. Charles Hospital Casework," is available at request on your letterhead.

St. Charles

CASEWORK SYSTEMS FOR HOSPITALS

St. Charles Manufacturing Co.,
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The Record Reports

continued from page 316

structural. Started about 20 years ago, New York International became eligible for this year's award because it was deemed 75 per cent operational, in accordance with the rules of the competition. Work is still proceeding to complete the present construction program.

The jury decided that the civil engineering involved in New York International (which covers an area of 4900 acres) is of a magnitude unprecedented in the history of airport planning, design and construction. Designed to handle nearly all of the New York metropolitan area's international air traffic, half of its domestic long-haul traffic and one-quarter of its domestic short-and-medium air traffic, the airport is the center for the operation of 38 airlines (16 American and 22 foreign); its Terminal City has a total of ten terminals. The runway and taxiway system now includes five runways and 20 miles of taxiways.

By the end of 1960, a total of $288 million had been spent on its construction by New York Port Authority.

The A.S.C.E. award will be presented this spring to the Port of New York Authority, which developed and operates the airport under a lease with the city of New York.

Memphis Chapter, A.I.A. Honors Walter P. Armstrong Jr.

The Memphis Chapter of the American Institute of Architects has presented its first Distinguished Service Award to Walter P. Armstrong Jr., president of the Memphis Board of Education.

Robert Day Smith, Chapter president, presented the citation to Mr. Armstrong for his contributions to the general welfare and civic good of Memphis and his service on the Board of Education.

Having received his award, Mr. Armstrong replied with a citation to the Memphis chapter: "To the architects of the city of Memphis, . . . who in a decade have changed the face of a city . . . who, while building for the present, continuously plan for the future; in grateful recognition of their contribution to the improvement of the environment in which we and they live . . ."

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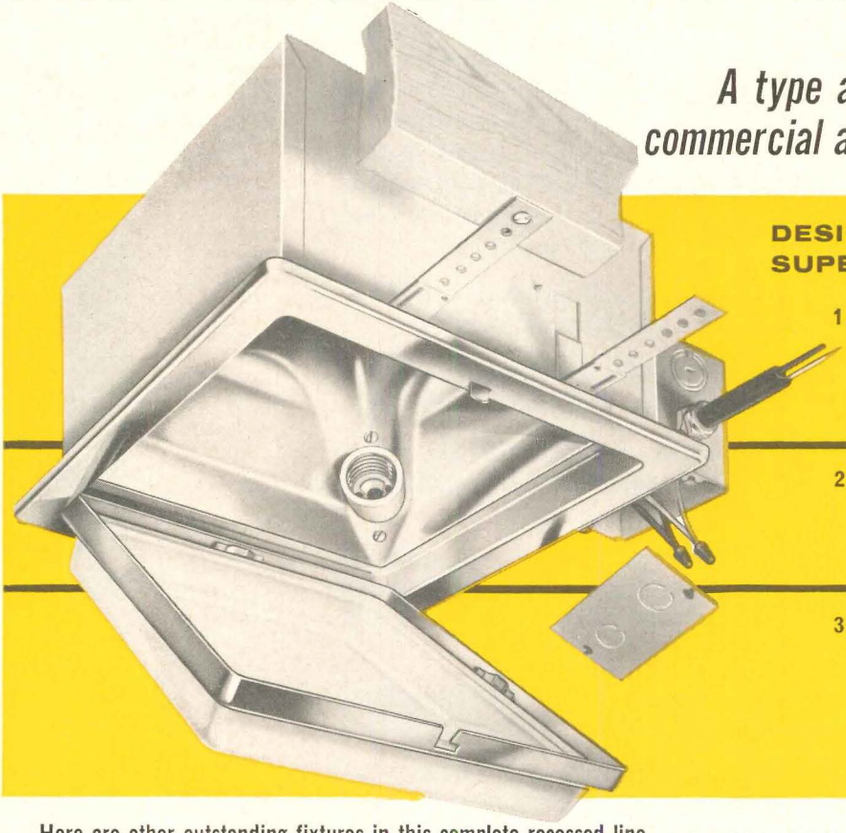

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DESIGN-ENGINEERED to be SUPERIOR 3-WAYS

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2. **PUSH-LATCH**
   Push-latch releases glass easily. No tools needed for cleaning or re-lamping.

3. **FULL REFLECTOR**
   Full-size, one-piece interlocking aluminum reflector with Polspec finish (300 watts has Alzak finish). Drawn seamless trim, modern narrow design to blend with contemporary interiors.

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7. Round Adjustable Unit


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8. Round Recessed


4. Rectangular Flat Alba-Lite


6. Square Drop Opal


3. Round "Drop Opal"


5. Downlight with Pin-Point Aperture

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how Architectural Record builds

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That's what happens in Architectural Record.

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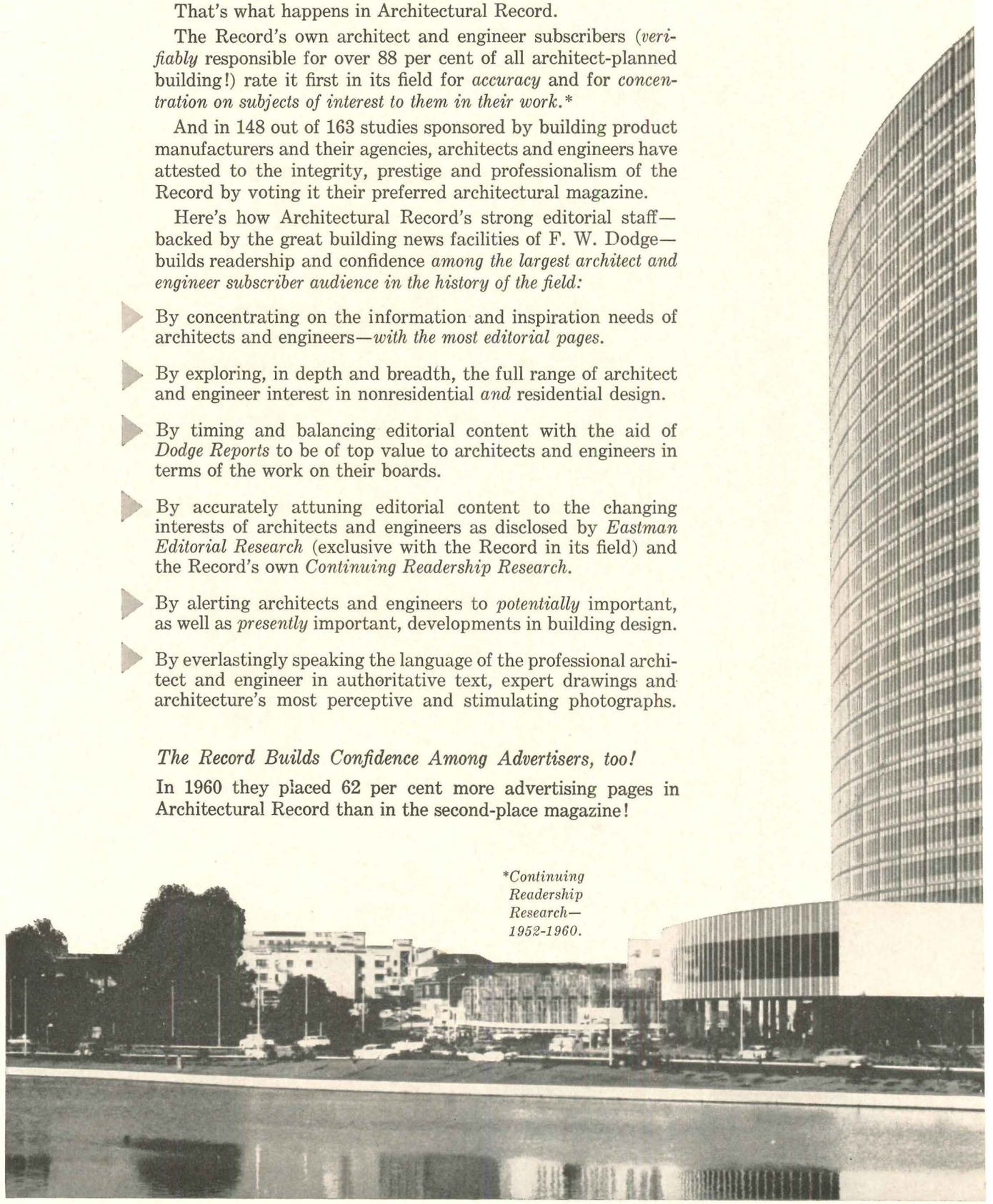
And in 148 out of 163 studies sponsored by building product manufacturers and their agencies, architects and engineers have attested to the integrity, prestige and professionalism of the Record by voting it their preferred architectural magazine.

Here's how Architectural Record's strong editorial staff—backed by the great building news facilities of F. W. Dodge—builds readership and confidence *among the largest architect and engineer subscriber audience in the history of the field:*

- By concentrating on the information and inspiration needs of architects and engineers—*with the most editorial pages.*
- By exploring, in depth and breadth, the full range of architect and engineer interest in nonresidential *and* residential design.
- By timing and balancing editorial content with the aid of *Dodge Reports* to be of top value to architects and engineers in terms of the work on their boards.
- By accurately attuning editorial content to the changing interests of architects and engineers as disclosed by *Eastman Editorial Research* (exclusive with the Record in its field) and the Record's own *Continuing Readership Research.*
- By alerting architects and engineers to *potentially* important, as well as *presently* important, developments in building design.
- By everlastingly speaking the language of the professional architect and engineer in authoritative text, expert drawings and architecture's most perceptive and stimulating photographs.

The Record Builds Confidence Among Advertisers, too!

In 1960 they placed 62 per cent more advertising pages in Architectural Record than in the second-place magazine!



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Architects:
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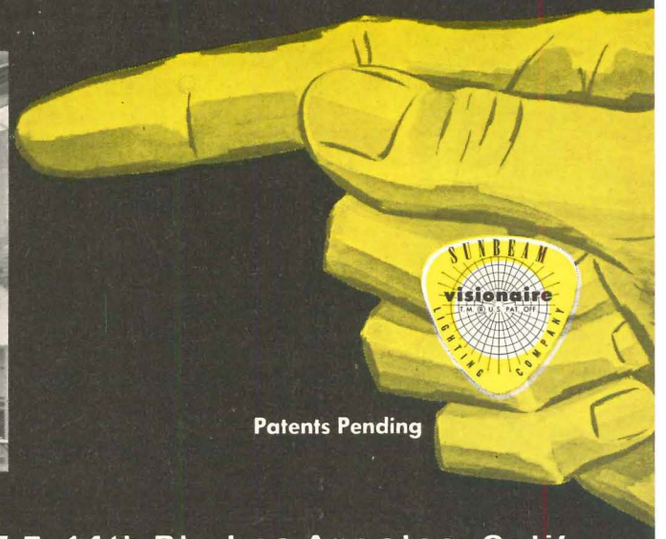

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Twenty of the most exciting and significant houses ever assembled by Architectural Record editors await publication in "Record Houses of 1961."

These houses have won for twenty different architects, some well-known, others bright new names, Architectural Record's annual award for "outstanding excellence in planning and design."

Custom-planned for both individual owner and merchant builder clients, 1961's "Record Houses" are widely diversified in cost, size, location and style.

The distinctive qualities of individual "Record Houses" will be strikingly shown in pictures—many in full color—and in expertly rendered plans and details. Crisp text will explain how each house is constructed and equipped . . . how its design fosters better family living.

In addition, "Record Houses of 1961" will offer architects, engineers and their clients these valuable aids to quality house design:

- *Planning the Good House.* Latest developments in residential structure, mechanical equipment, lighting, and interior design—examined by leading authorities.
- *Regional Cost Calculator.* For the first time, practical guides to house construction costs throughout the country enabling readers to estimate the approximate cost of building individual "Record Houses" locally.
- *New Products for the Quality House.* Newest materials, equipment and furnishings from America's foremost manufacturers in the field.

Architects have hailed "Record Houses" annuals as handy references, trend indicators, valuable aids for selling clients, and *an inspiration!*

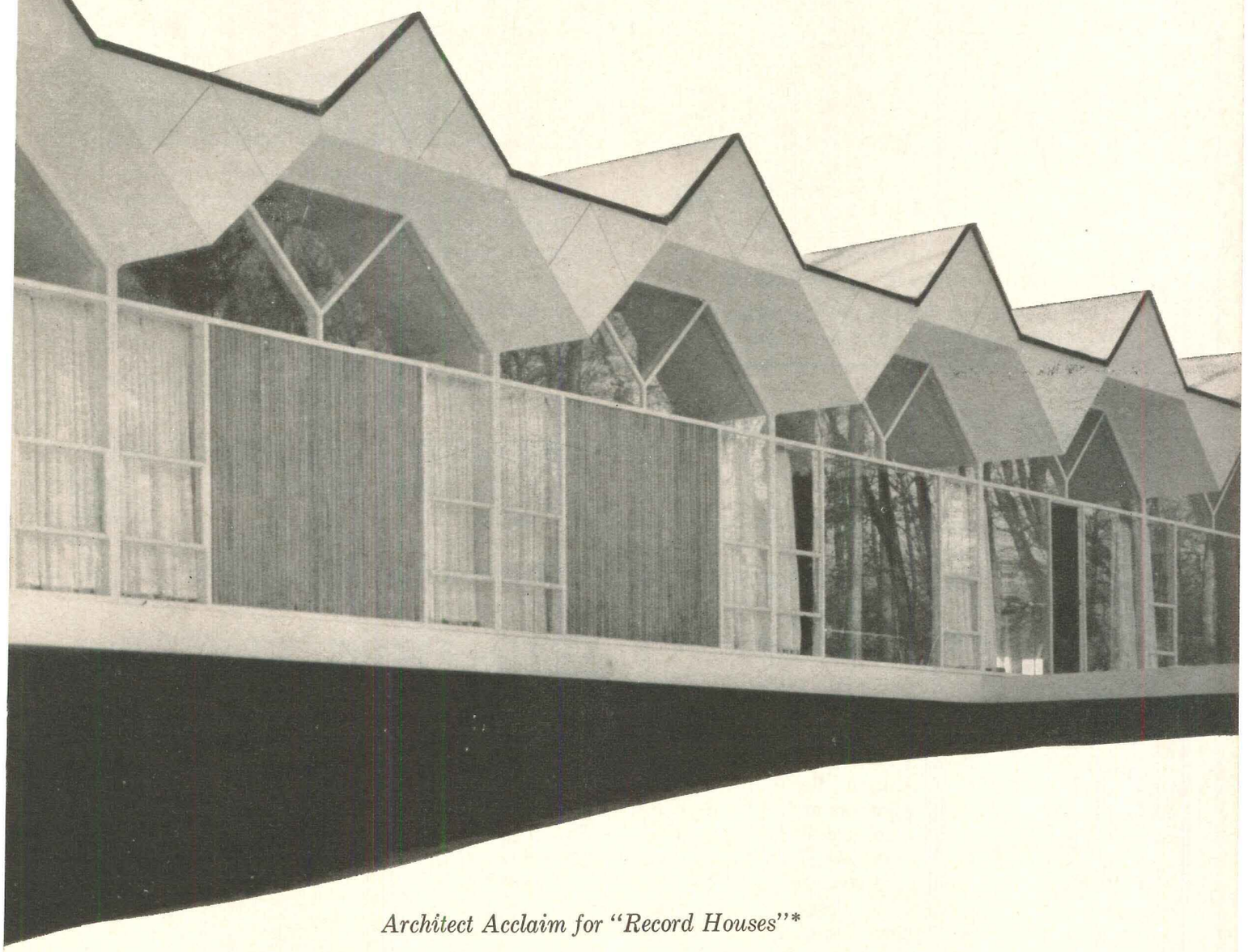
"Record Houses of 1961" promises to be all of these and more—a joy to read for everyone interested in outstanding house design.

Beckwith House, Franklin Hills, Mich. Architects: Meathe, Kessler & Associates, Inc. Photographer: Baltazar Korab.

Architectural Record subscribers will receive mid-May "Record Houses of 1961" in addition to the regular May issue. The house building and buying public will buy it, complete with advertised product information, in leading bookstores.

Coming in Mid-May... **sixth annual** yearbook of the year's best architect-planned houses

RECORD HOUSES OF 1961



*Architect Acclaim for "Record Houses"**

"Top-notch houses in a single volume, showing an assortment of designs." *Sheperdstown, Pa.*

"Recognizes good contemporary work by the relatively unknown architects as well as by the known ones. Emphasizes fresh interpretations of the same basic problems." *Mt. Carmel, Ill.*

"Cross-sectional, country-wide survey of what's being done in residential architecture." *San Francisco, Calif.*

"Only collection I know of that is all high caliber design." *Torrington, Conn.*

"Helps me explain points concerning my own design to clients. I use 'Record Houses' as a standard of design." *Columbus, Ohio.*

"Provides a fresh approach to design and execution, both in the residences *and* the publication!" *Baytown, Tex.*

"Gives a comprehensive approach to housing in the U. S. all in one annual." *Los Angeles, Calif.*

"Presents homes in one reference, and features quality work." *Jersey City, N. J.*

"Best single collection of top design." *Benton Harbor, Mich.*

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RECORD HOUSES OF 1961

"the standard of quality house design"

ARCHITECTURAL RECORD

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Index to Advertising

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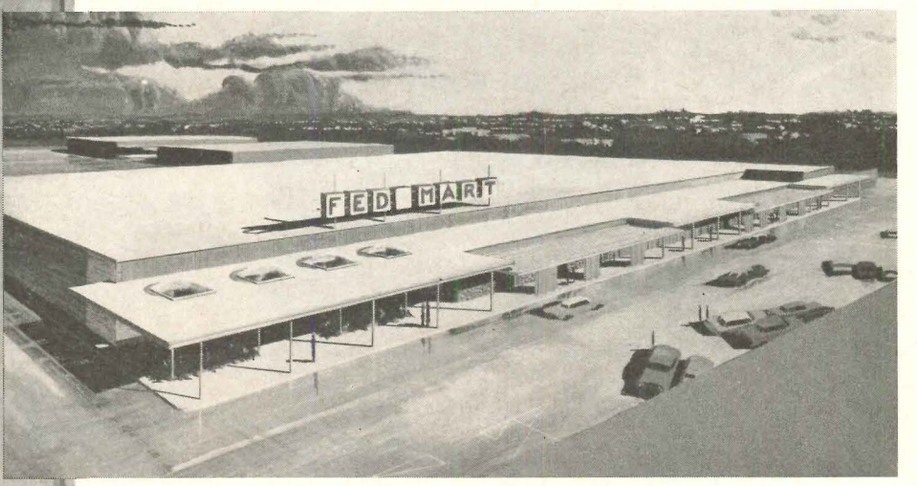
Finish on time, skip the overtime ...with STEEL



When it's important to get a job done in a hurry, use steel. Fed-Mart, Inc., Houston, Texas, knew they had to open their retail merchandising center by November 26, 1960 in time for the pre-Christmas shopping season.

To save time, structural steel was chosen by the owners and also the general contractor, Jaffe & Martin Builders, Inc., San Antonio. So in just 80 working days the 116,000 sq. ft. building was ready for opening—on schedule.

Here's what the owners say that meant to them:

Several million dollars of Christmas sales
gained because the store opened on time.

$50,000 savings in overtime
provided for but not required.

STEEL pays off—
—even with demanding construction schedules.

American Institute of Steel Construction
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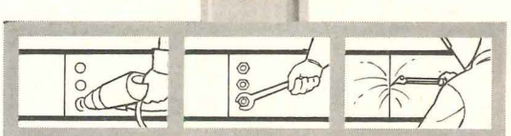
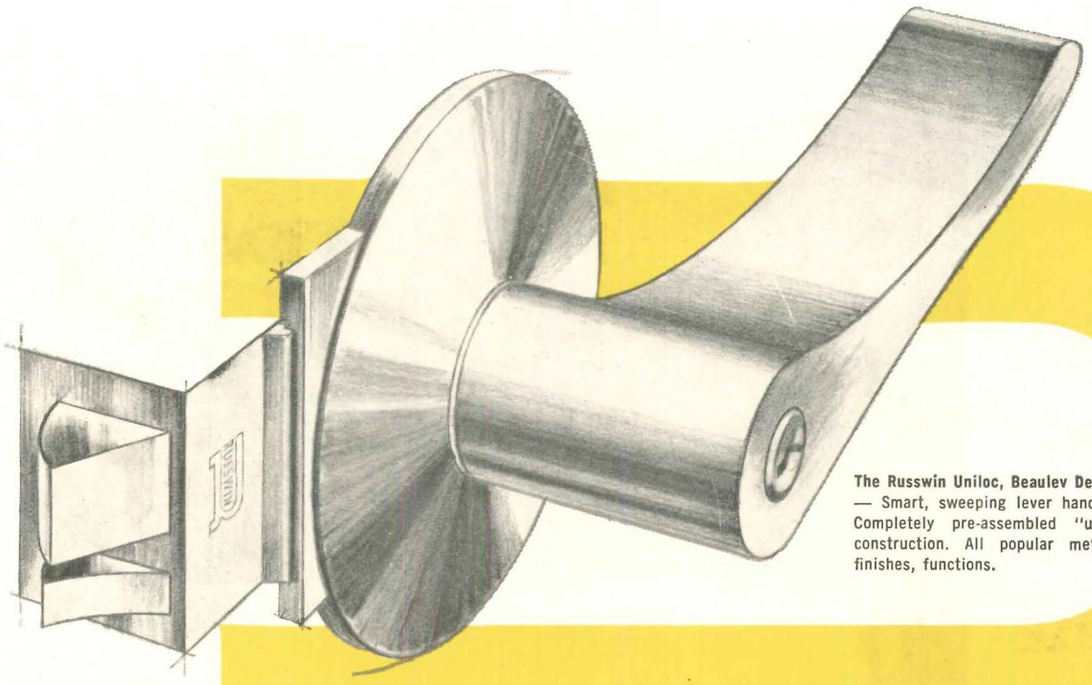


Steel *Steel* **STANDS** *for the future* AISC



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