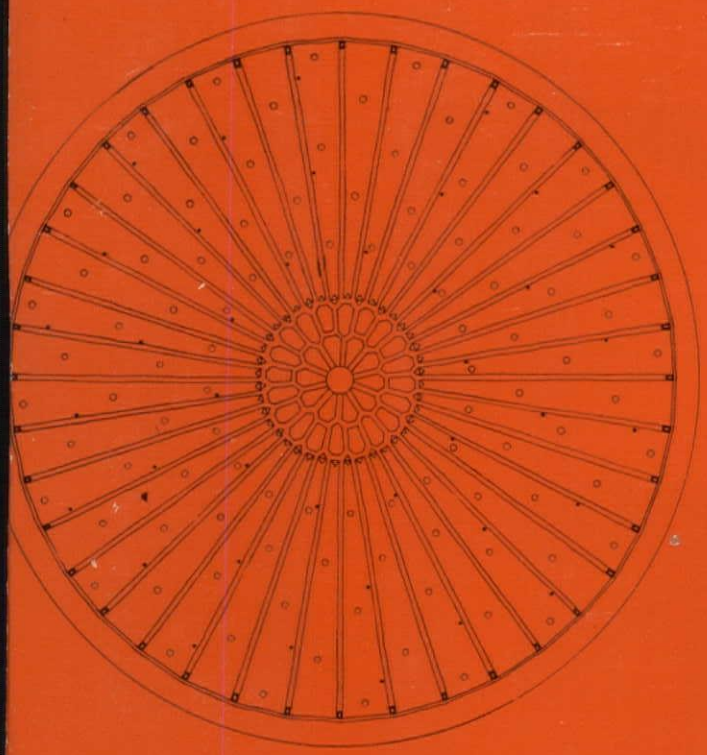

ARCHITECTURAL RECORD

1 *January 1961*

Building Types Study: Schools

Convent in North Dakota by Marcel Breuer

Circular Bank in San Francisco

Full Contents on Pages 4 & 5

SUMMITVILLE QUARRY TILE NEVER WEARS OUT. SUMMITVILLE
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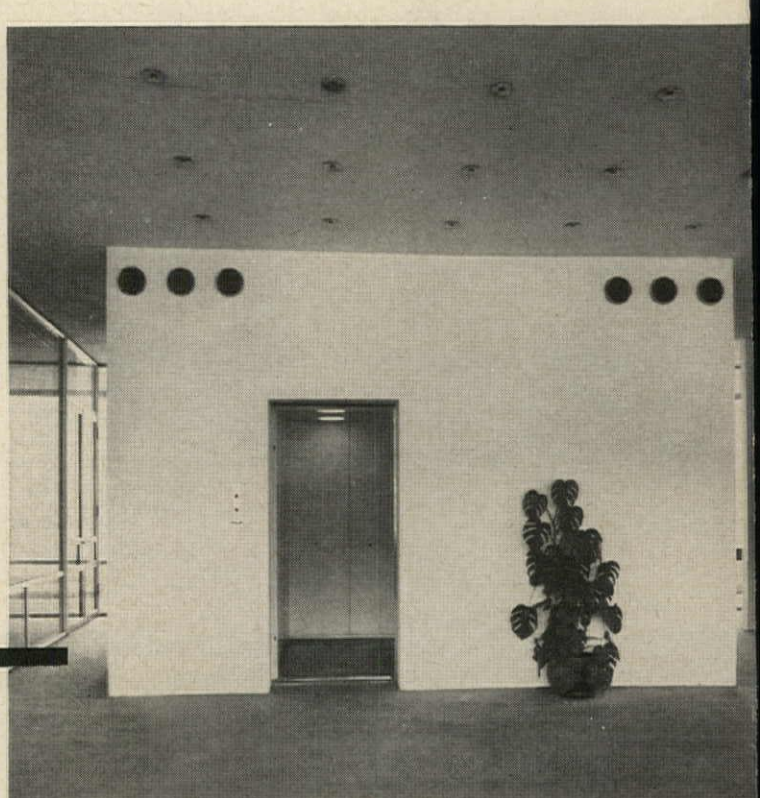

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Advertising Index 264

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(National Edition)

ARCHITECTURAL

Record Reports

Architects and Buildings

Authors

Features

RECORD

January 1961

Building Types Study 290: Schools

Coming in the Record

BAGHDAD BY THE MASTER

Our February feature will be the new drawings of the university which Walter Gropius and his TACI associates have done for Baghdad. Earlier designs were extensively shown in our April '59 issue, but the scheme has been substantially changed. A whole university starting from nothing, it has great visual excitement, shown in a group of very nice drawings by Jacoby.

A NEW JEWELBOX OFFICE BUILDING

The Harris Trust in Chicago is the latest of SOM's highly refined metal and glass office buildings. It achieves a new quality of elegance both inside and out, uses stainless steel curtain wall in a new way, and the Skidmore Chicago office quietly asserts that this is the one they are proudest of.

HOSPITAL STUDY

The Building Types Study for next month combines some new elements by the Architectural and Engineering Branch, and so on and so on, of the U. S. Public Health Service, with a portfolio of several of the latest hospital buildings, ranging from small to large and still larger.

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.

Members of Audit Bureau of Circulations and Associated Business Publications. ARCHITECTURAL RECORD is indexed in Art Index, Industrial Arts Index and Engineering Index.

Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

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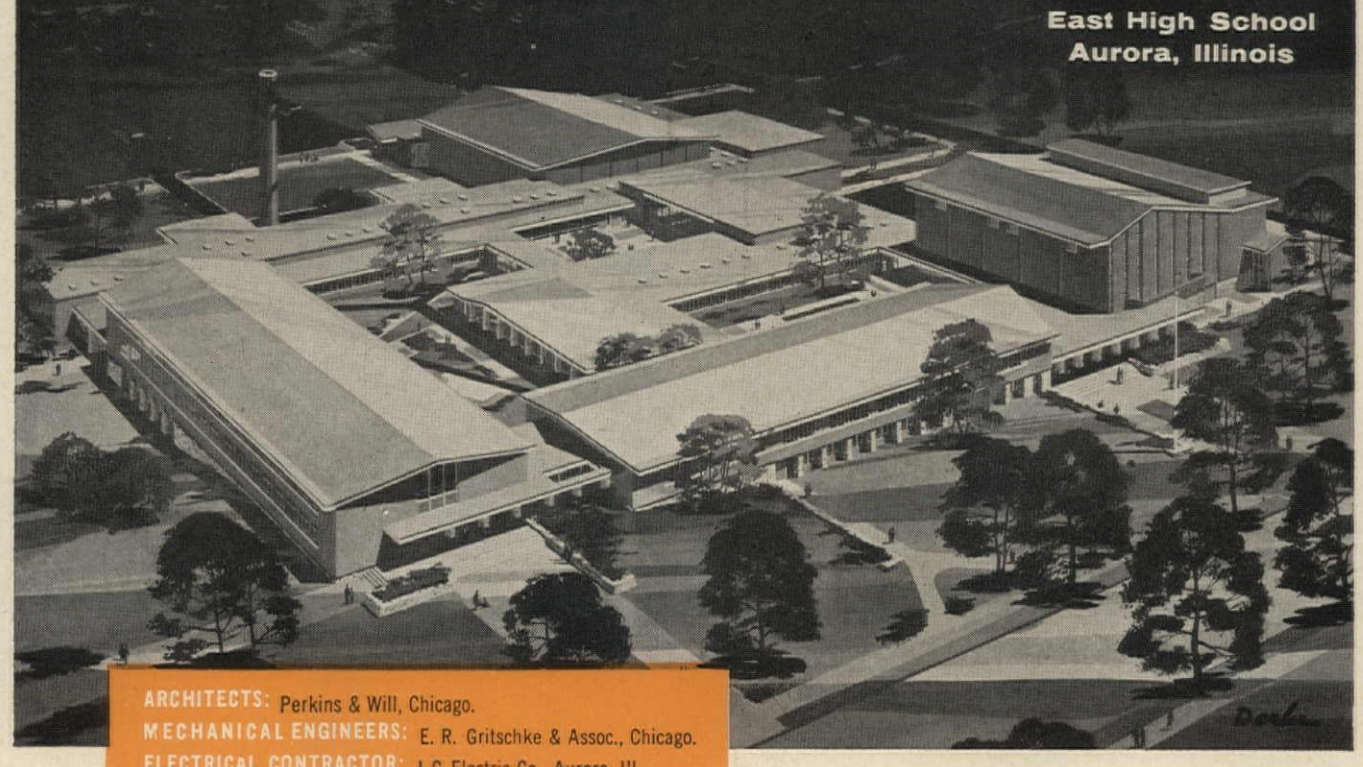
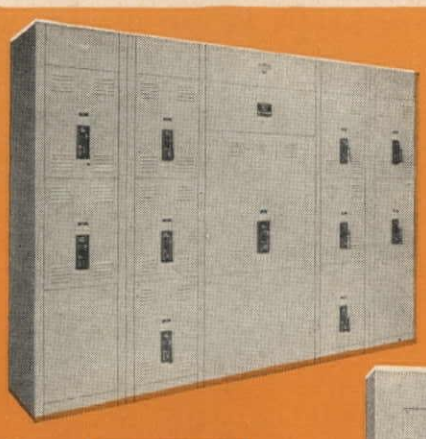
Electrical Equipment By

FRANK ADAM...



East High School
Aurora, Illinois

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



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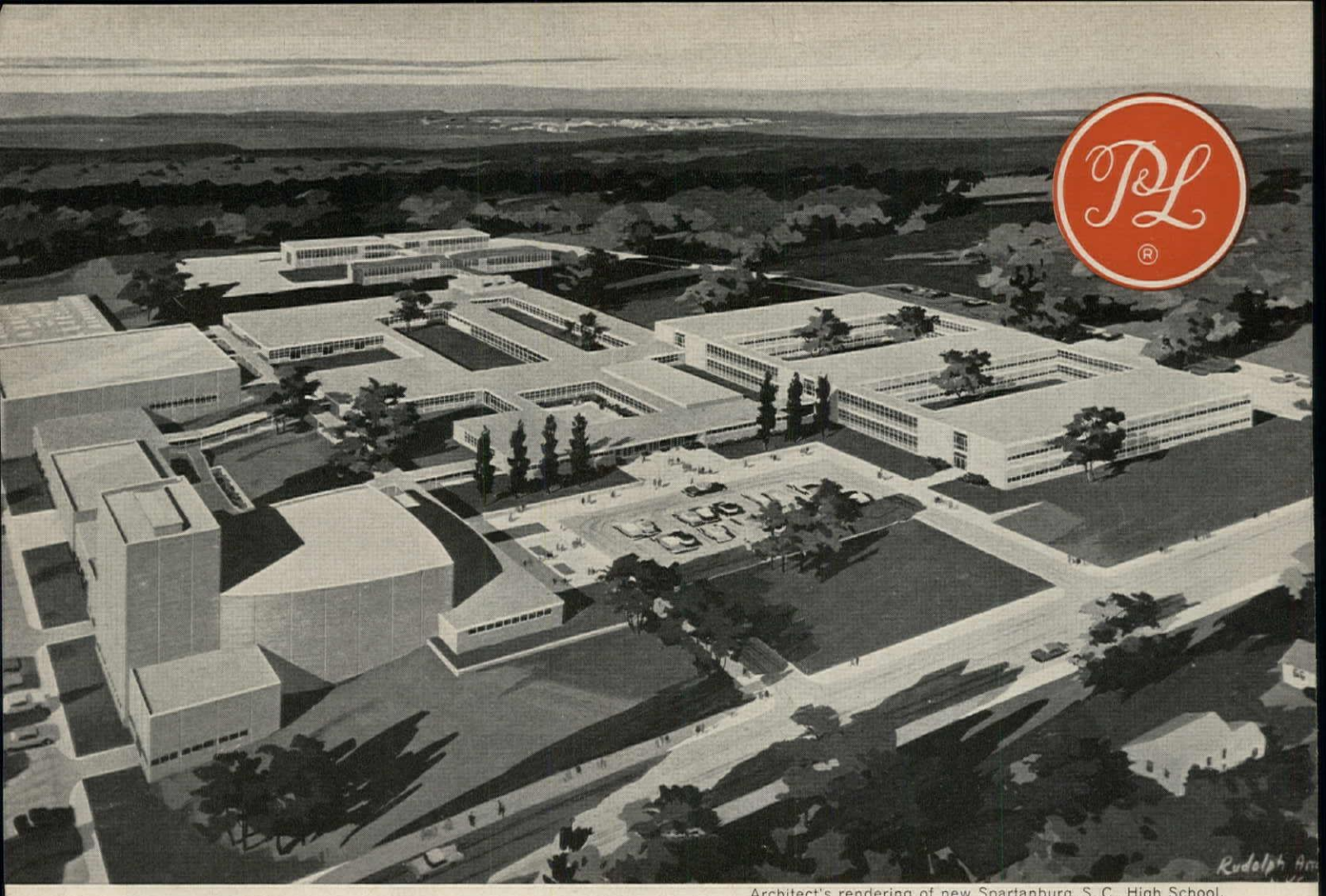

Architect's rendering of new Spartanburg, S. C., High School.

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This new Spartanburg, S. C., High School was cited by the American Association of School Administrators for the excellence of its design. It was one of 29 schools selected from among 250 entries by the Association's School Building Architectural Exhibit Jury at the 91st AASA convention.

Pratt & Lambert products were used throughout: *New* Lyt-all Flowing Flat on interior walls, for example; Solidex on ceilings; "61" Gymnasium Floor Finish on the hardwood gym floor; "61" Floor & Porch Enamel on the bleachers.

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Harold Woodward, A. I. A.
Spartanburg, S. C.

GENERAL CONTRACTOR:
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Architectural Capital?

Building techniques are a topic that keeps cropping up in conversations with foreign architects. Visiting architects are envious of their American confreres. The technical developments so taken for granted here are just not available even in the more industrialized European countries. The materials, manufactured components, systems and gadgets that abound in our advertising pages, say the Europeans, make the practice of architecture much easier here; over there the architect must detail every part of his building.

"No wonder," said Gio Ponti, "that America is the architectural capital of the world. In doing the Pirelli Building we had to detail everything in the building, and manufacturers had to make the parts to our order." He went on to comment on the wealth of prefabricated parts in Sweets files, and to point out how much something like Sweets is needed in Italy.

Speaking in similar vein for Switzerland, Professor Jean Tschumi (1960 winner of the Reynolds Memorial Award) said there is a real movement among younger architects and students to induce the publisher of their 20-year-old, two-in.-thick file of catalogs to bring out something new. He did mention that there is a dilettante group who seem to fear for their control of matters were prefabricated parts and catalogs to become generally available. They fear, too, he said, that the art of architecture might be sullied or at least diluted by assembly-line building components, or in fact by contact with technology in general, whereas, said Prof. Tschumi, "obviously architecture would be improved." In general, however, the essentially practical Swiss tend toward an all-inclusive definition of art in architecture, and welcome technological improvements and use them sensibly.

Just in case any American architects are developing complexes through trying to keep up with technical progress here, it might be profitable to reflect on these remarks from abroad. Architects from Europe admire our technical progress.

We assume here that the architect brings to his client the benefit of all technical knowledge and skill. He can hire consultants, engineers, specialists of any kind, and of course he does as normal practice. He works with them as may be necessary and generally wields the baton. He is legally responsible for the result. Taking it all seriously, the American architect tends to worry about his competence in technical areas; no matter how capable he might be as an individual, or how broad the service of his group, he is always conscious of gaps in his knowledge. Indeed of gaps in knowledge which nobody can fill.

However visible the gaps in European knowledge or practice, the architect over there is by general understanding left out of many technical areas. Frequently the whole technical design of the building is not the architect's responsibility at all; the contractor must make it all come out right. The architect is the dreamer; somebody else will handle the practical side.

If this dreamy role has a happy sound, men like Ponti and Tschumi are not content with it. And, if they aspire to something like the Pirelli Building, they find themselves doing more, not less, of the total job.

If occasionally our technology seems to engulf us, Ponti would like some of that engulfing. As he said, graciously but frankly enviously, "no wonder America is the architectural capital of the world."

—Emerson Goble

Letters

A HERITAGE REVIEWED

May I please note my immense satisfaction with the Frank Lloyd Wright story in the October number.

It is important to review the great work of an inspired architect and we should profit by careful study of his important service to the profession and our cultural heritage.

—Ely Jacques Kahn
Kahn and Jacobs
New York City

PRAISE FOR THE AUTHOR

Please let me compliment you on the fine presentation of the work of Frank Lloyd Wright in the October issue of the RECORD. Fritz Gutheim made a very fine evaluation and I intend to drop him a note complimenting him on his work.

Would you please have your subscription department send me one extra copy of this issue for my personal files and bill me for the same?

—Karl Kamrath, F.A.I.A.
Chairman, Frank Lloyd Wright
Memorial Committee
Houston

Congratulations on the splendid piece on Frank Lloyd Wright in your October issue, with special praise for Fritz Gutheim's excellent article. We need more of the same.

If tear sheets of this are available I would be happy to have a set.

—Stanley M. Sherman
Washington, D. C.

DISSENT ON IMPERIAL

I have to get the following off my chest:

America is not without her share of folklore and mythology. I am referring to the blind faith in the infallibility of Frank Lloyd Wright. Your October 1960 issue which discussed the foundations of the Imperial Hotel in Tokyo started me off on this. There are three popular misconceptions about this building. They are as follows:

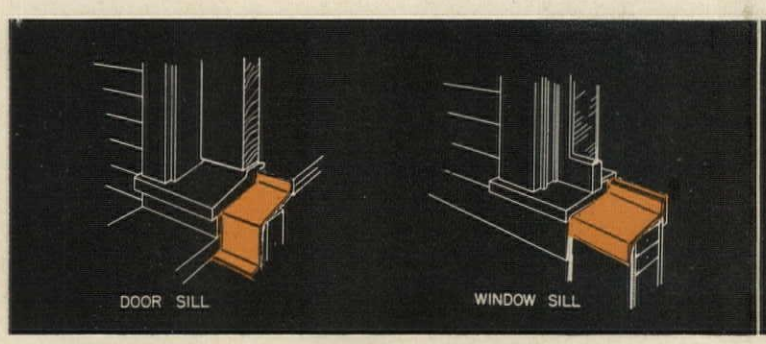
1. The first one is that the Imperial Hotel came through the 1923 earthquake undamaged. I had the opportunity of seeing the insurance underwriter's reports on the 1923 earthquake damages. This consisted of a dry, statistical compilation of damages to structures during the quake. I would estimate that the book had 5 or 6 hundred pages in it. You can be sure that the harsh, economic world of insurance underwriters could not care less who performs the architecture on their insured. They divided all buildings in Tokyo into five categories of damage; Number 1 was undamaged; Number 2 was a small amount of damage; Number 3 was a moderate amount of damage; Number 4 was a severe amount; and Number 5 was a total damage. The above terms are not the exact wording of their report, but they convey the general idea. The Imperial Hotel came through in Category No. 2. A respectable position in which to be; however, many buildings, including some of Tokyo's largest, were in Category No. 1.

2. The second misconception consists of the belief that some new principles of foundation engineering were employed by Frank Lloyd Wright in this building. Before his devoted followers descend upon me with clubs and pitchforks, let them pause at this point and ask themselves if they can state in clear terms exactly what it was he did to the foundations of the hotel. I have asked this question of many architects who firmly believe he did something great, but have no idea what it was. Certainly the gobbledygook quotations by Louis Sullivan quoted in your magazine do not help to clarify the subject. In fact, one can see that the Master learned a good deal more than architecture from Louis Sullivan. He also learned double talk. When one sifts through the "waiter carrying trays," "the earth waves," "cheese foundation," etc., one finds that what the man did was drive piles. It's as simple as that.

3. The third misconception is that the choice of foundations was even a wise one. I have stayed at the Imperial Hotel on three separate trips to Japan. In all of these trips I have also been impressed by the extreme foundation settlements. The floors of this building are so distorted out of level by foundation settlement that it is apparent to even the most casual layman. Frank Lloyd Wright himself gave the tipoff that this is what might have been expected in his book "An American Architecture." Three basic errors in foundation exploration were performed. These were: first, the borings ended 8′ deep at the top of the more compressible soft material; second, pile load tests were performed which are absolutely without meaning in a case like this; and third, and I quote, "This meant a settlement of the building of five inches." Any building that is going to give anything like five inches of settlement is not going to take them uniformly. Perhaps it is significant that the obstinate Japanese have not imitated F.L.W.'s "brilliant" invention on more of their buildings.

To sum it up, the writer will stand hat in hand, respectfully at attention while architects eulogize Frank Lloyd Wright as an architect; but when they make extravagant engineering claims for him, I feel I must speak out. There has been much great engineering performed by various people in the world in the last forty years. Engineers, and I mean the good ones, not the $\frac{WL^2}{8}$ type, look elsewhere than to F.L.W. for leadership engineering. I have found from experience that I am howling into the wind when I criticize the great man in any way whatsoever. India has its sacred cows and we have Frank Lloyd Wright. Anyway, Bob, thanks for listening. I feel better already. I think I will be in New

continued on page 242



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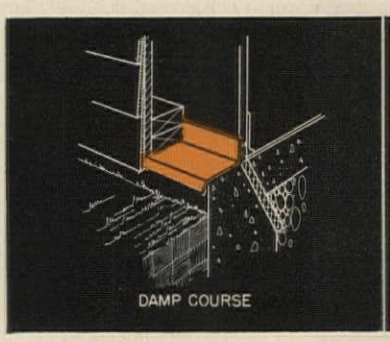
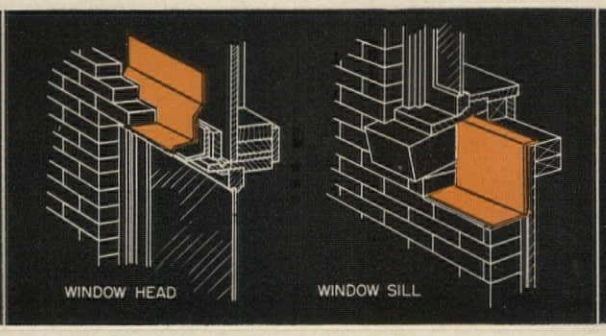
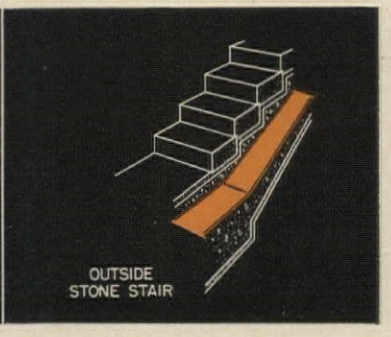


DAMP COURSE under frame wall with concrete slab floor construction.



FLASHING OF WINDOW SILLS and door heads in masonry construction is even more important than in frame structures because of the water permeability of masonry.



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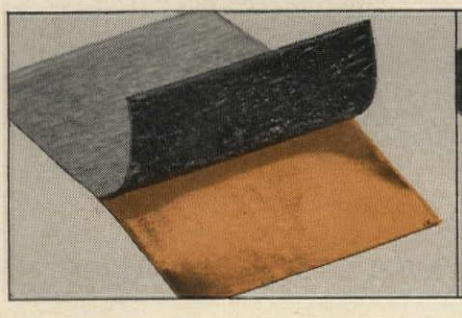
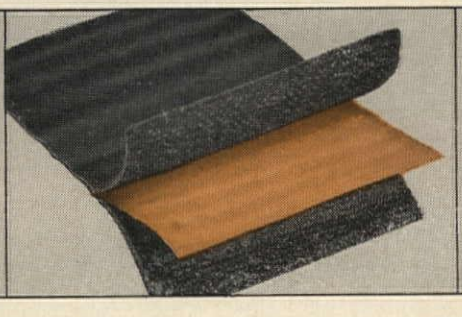
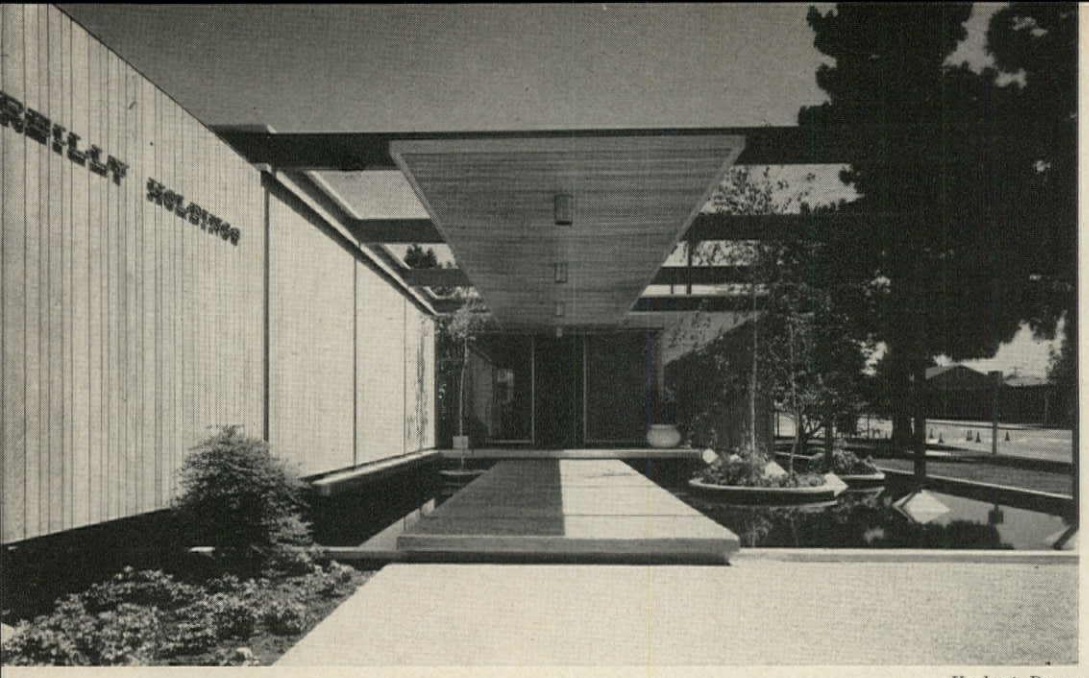


Asphalt-saturated fabrics



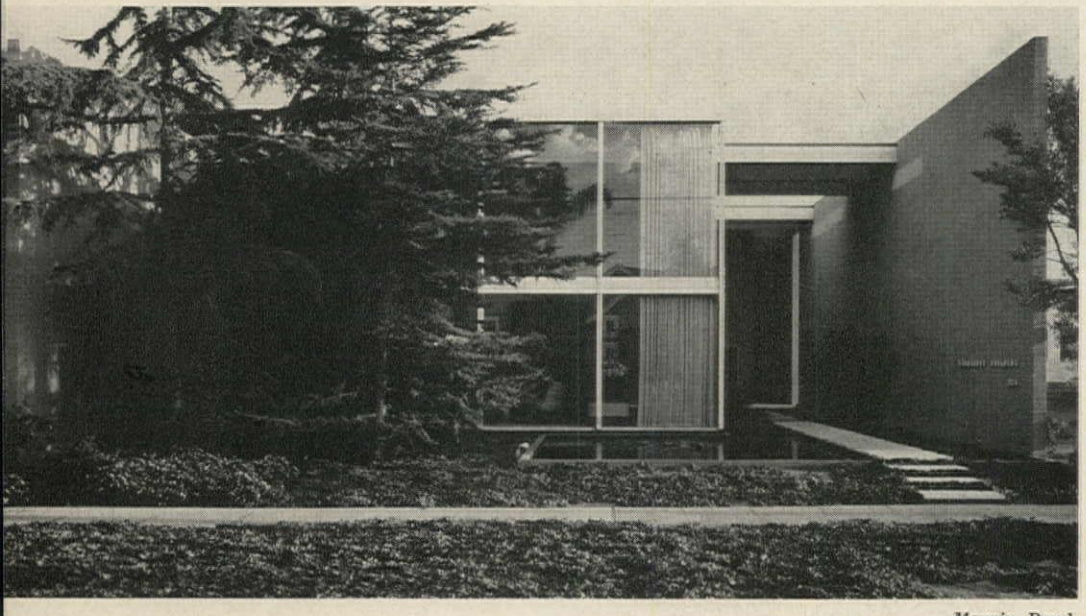
Tough, "rubbery" asphaltic compounds



Herbert Bruce

HONOR AWARDS

Killingsworth, Brady and Smith: Office Building for Cambridge Investments, Inc., Long Beach, Calif. Contractor: John Halas



Marvin Rand

Albert C. Martin and Associates: Office Building for Reilly Enterprises, Whittier, Calif. Contractor: Seacrest & Fish

SOUTHERN CALIFORNIA TRIENNIAL GIVES 20 AWARDS

Two Honor Awards and 18 Merit Awards for buildings representing "good architecture in the community" have been presented to the architects, contractors and owners in the Triennial Honors Program of the Southern California Chapter of the American Institute of Architects. The program, originating in April, 1920, is the country's oldest. It predates even the A.I.A.'s national program and has served as its prototype.

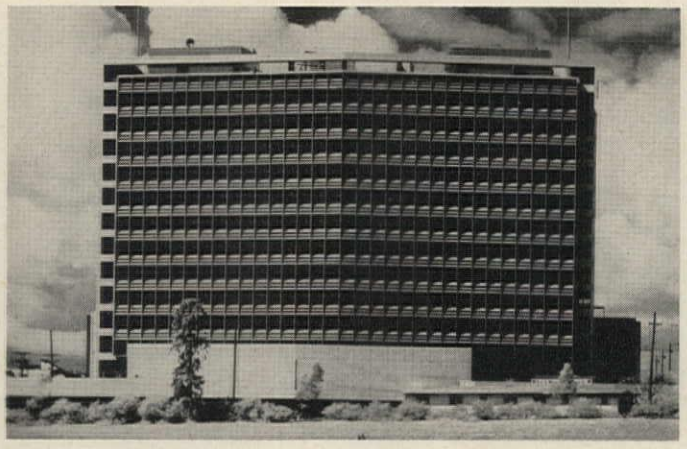
In the program, held every three years, there were no classifications as to building type, use or size. Each project was judged on its own merits, not in competition with any other. Qualities considered were plan, design and solution of program requirements. All buildings had to have been completed by January 1, 1955.

A jury of 18 previous award winners made the selections. On the Awards Committee were: Frederick E. Emmons, awards chairman; C. M. Deasy, program chairman; MacDonald Becket, public relations chairman; and Quincy Jones, chapter president.

Southern California A.I.A. Triennial Awards' purpose is "to create public awareness of the need for better design for improved environment in all living conditions . . . at work, play, school, worship or recreation."

MERIT AWARDS

Photos: Julius Shulman, Jack Laxer, Larry Frost

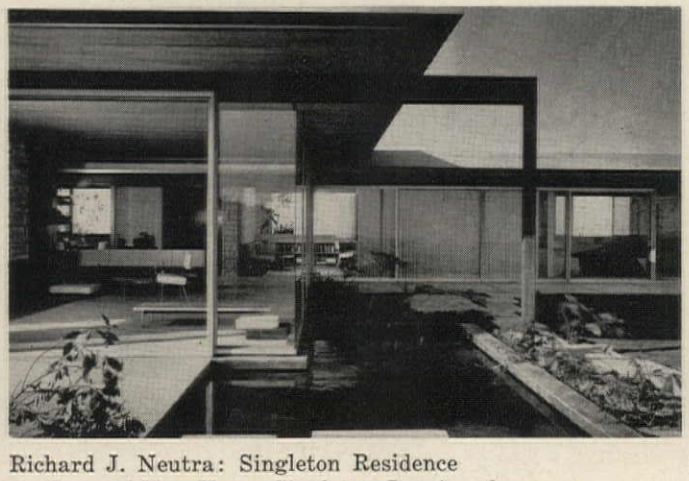


Pereira & Luckman: Union Oil Center
for Union Oil Company of California, Los Angeles.
Contractor: Del E. Webb Construction Company

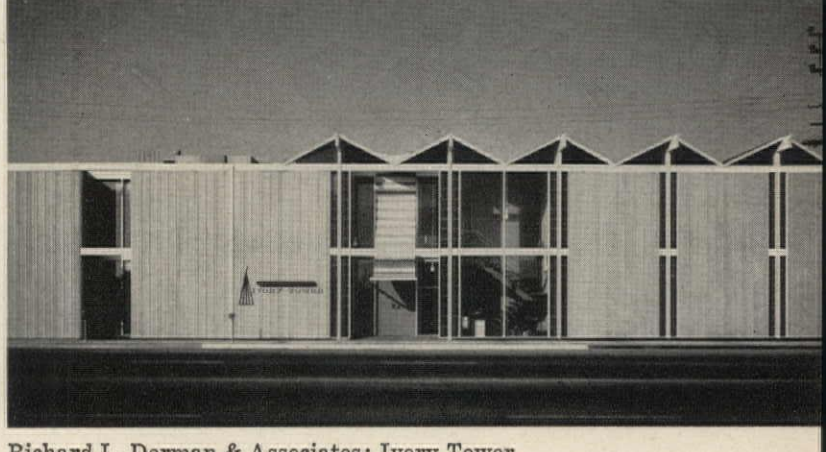
Smith, Powell and Morgridge: Art Building
for Pomona College, Claremont, Calif.
Contractor: J. Putnam Henk

Buff, Straub & Hensman: Mirman Residence
Recreation Pavilion for Dr. and Mrs. Ben Mirman,
Arcadia, Calif. Contractor: Owner

Kistner, Wright and Wright: Science Lecture Hall,
Cerritos Junior College, Norwalk, Calif.
Contractor: Nyland Hurd Construction Company



Richard J. Neutra: Singleton Residence
for Dr. and Mrs. Henry Singleton, Los Angeles.
Contractor: Fordyce Marsh



Richard L. Dorman & Associates: Ivory Tower
Restaurant for Leon Becker and John Stahl,
Santa Monica, Calif. Contractor: Jack McDonald Company

MERIT AWARDS
(continued)

SOUTHERN CALIFORNIA TRIENNIAL AWARDS

Pereira & Luckman: Western Region Headquarters, I.B.M., Los Angeles. Contractor: McNeil Const. Co.

Richard J. Neutra, Robert E. Alexander, Chapel, U.S. Naval Air Station, Miramar, Calif. Contractor: Alan Roger

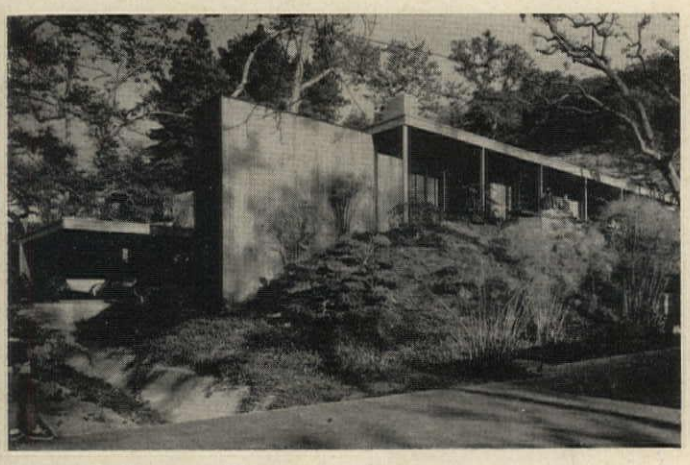
Buff, Straub & Hensman: Van de Kamp Residence for Mr. and Mrs. Walter Van de Kamp, Los Angeles. Contractor: Hugh Gates

Pereira & Luckman: Robinson's, Palm Springs, for J. W. Robinson & Company. Contractor: Robinson & Wilson, Inc.

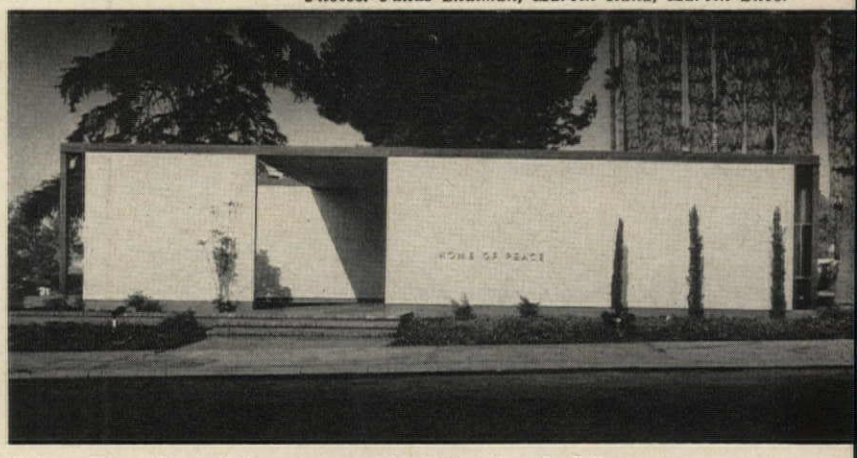
Killingsworth, Brady and Smith & Associates: Robertson Residence for John Robertson, Laguna Beach, Calif. Contractor: John Halas

Killingsworth, Brady and Smith & Associates: Hof's Hut Restaurant for Eldredge Combs and Edward A. Killingsworth, Long Beach, Calif. Contractor: John Halas

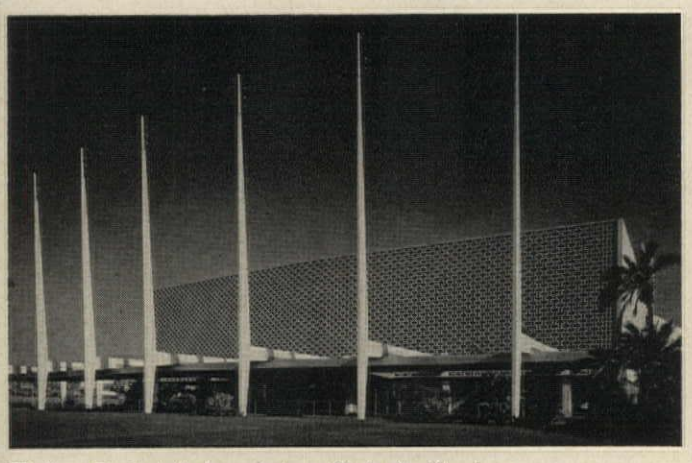
Photos: Julius Shulman, Marvin Rand, Marvin Silver



Robert H. Skinner: Skinner Residence
for Mr. and Mrs. Robert H. Skinner,
Beverly Hills, Calif. Contractor: Owner



Sidney Eisenshtat & Associates: Administration Building,
Home of Peace Cemetery, East Los Angeles,
for Wilshire Temple. Contractor: Feldman Construction Company



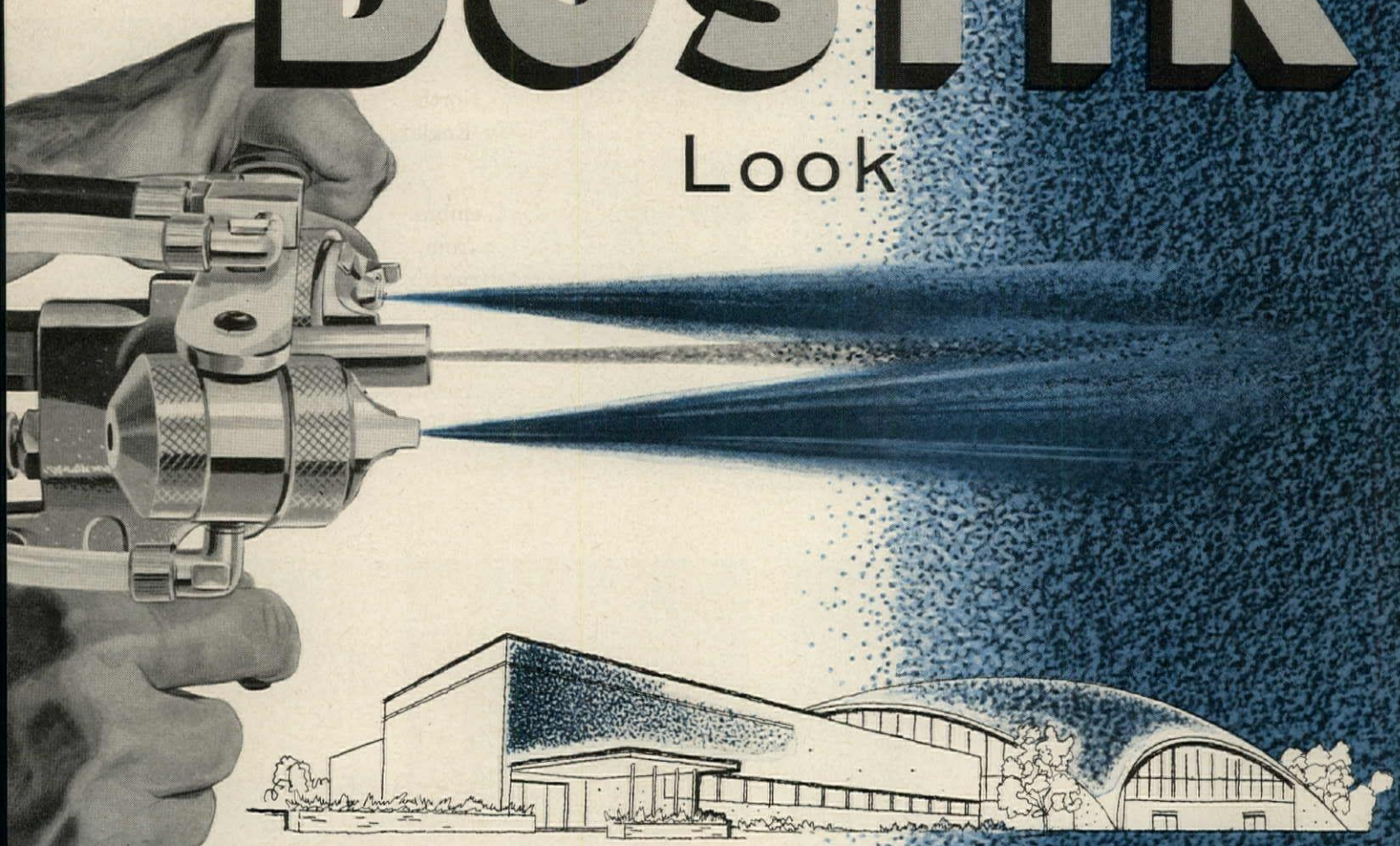
Welton Becket & Associates: Civic Auditorium
for City of Santa Monica, Calif.
Contractor: C. L. Peck and Millie & Severson

Pereira & Luckman: Computer Building
for Aeronutronic, a Division of Ford Motor Company,
Newport Beach, Calif. Contractor: Vinell Company

Carl Maston: Ice Skating Rink
for Ron Priestley, Tarzana, Calif.
Contractor: Raines-McLellan

Risley & Gould: Research Laboratory
for Magnavox Corporation, Torrance, Calif.
Contractor: William Simpson Const. & Robert B. Coleman Jr.

This is the Bostik* Look



...blends a touch of **texture** *with a shade of* **color** *to produce a new concept of* **form**

*BOSTIK is the trademark for BB Chemical Company Coatings.

BOSTIK Coatings with texture added! Protective and decorative, these newcomers bring a unique sense of design expression to poured, precast and prestressed concrete; concrete block, brick and masonry; asbestos board, masonite and overlay plywood.

"The BOSTIK look" is a textured look when aggregates of various sizes are incorporated in the film. This textured effect can be dramatically pronounced or just a bit above smooth.

BOSTIK Coatings embody the best polyurethane chemistry has to offer. Desirable qualities such as weather, abrasion and wear resistance, plus extreme durability when exposed to corrosive atmospheres, initiate a new standard of coating effectiveness for all kinds of masonry surfaces.

BOSTIK Coatings have been application proved in Northern European winters, hot Southern summers, and in New England where all four seasons seem to occur at once.

"The BOSTIK look" puts color in its brightful place too, embraces over a dozen basic tones. When intermixed, colors range from the deepest of hues to the most delicate pastels. All retain their true tones without fading far longer than other types of applied finishes.

The complete BOSTIK Coatings story — from on-location photos to specifications — can be found in Section $9\frac{B}{b}$, Sweet's Architectural Catalog File, 1961. A.I.A. Reference File No. is 25-B-39.

BOSTIK Coatings can provide promising new textured expressions for your present and future projects.

For specific answers on how BOSTIK Coatings for the textured look can be adapted to your needs, please write.

Bostik*

COATINGS

FOR THE TEXTURED LOOK

another polyurethane coating advance from

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Subsidiary of United Shoe Machinery Corporation
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US 0-121

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
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.6	240.0
1950	256.2	254.5	249.6	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
August 1960	353.6	338.7	379.7	399.2	381.1
Sept. 1960	354.3	339.4	380.6	399.2	381.1
Oct. 1960	353.6	338.5	380.5	399.1	380.9
	% increase over 1939				
Oct. 1960	186.3	176.5	191.1	199.2	192.8

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
1948	199.2	202.5	178.8	178.8	178.8
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
August 1960	260.2	253.7	275.5	284.6	278.1
Sept. 1960	261.4	254.9	277.2	285.6	279.5
Oct. 1960	260.0	253.1	276.9	285.4	279.1
	% increase over 1939				
Oct. 1960	201.3	204.6	191.2	193.0	194.7

ST. LOUIS

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	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
1948	227.9	231.2	207.7	210.0	208.1
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
August 1960	311.1	300.5	322.1	337.1	326.7
Sept. 1960	311.1	300.5	322.1	337.1	326.7
Oct. 1960	312.6	301.7	324.3	339.4	329.4
	% increase over 1939				
Oct. 1960	183.7	182.0	173.2	183.3	176.8

SAN FRANCISCO

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	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
1948	218.9	216.6	208.3	214.7	211.1
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
August 1960	307.1	290.1	338.4	356.1	345.0
Sept. 1960	305.0	287.4	338.0	355.9	344.5
Oct. 1960	303.6	285.6	337.7	355.7	344.1
	% increase over 1939				
Oct. 1960	187.5	187.6	187.6	191.8	195.4

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.

ARCHITECTS—INSURE CORRECT FIT AND PLACEMENT OF FLOOR GRATING EVERY TIME

Cut costly field corrections – specify Borden. . . .

1. A shop drawing of the job is submitted to the customer for approval, when necessary. This plan shows the size and shape of the grating area—how grating clears all obstructions.
2. Each finished panel is carefully checked for accuracy of dimensions.
3. Each panel is plainly marked with its number to insure quick, easy installation.
4. The entire platform is laid out on our shop floor. Over-all dimensions and obstruction openings are checked against shop drawings.
5. Erection diagram showing panel mark numbers is supplied for field installation.

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CITY AND STATE.....

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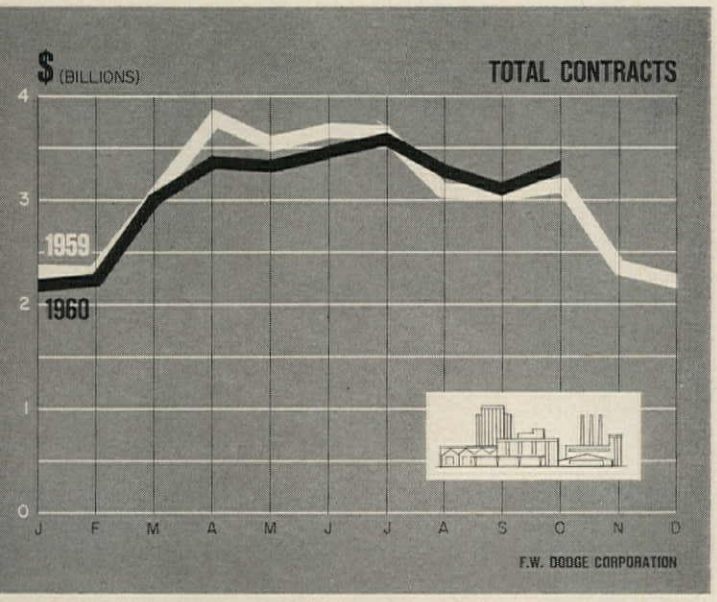
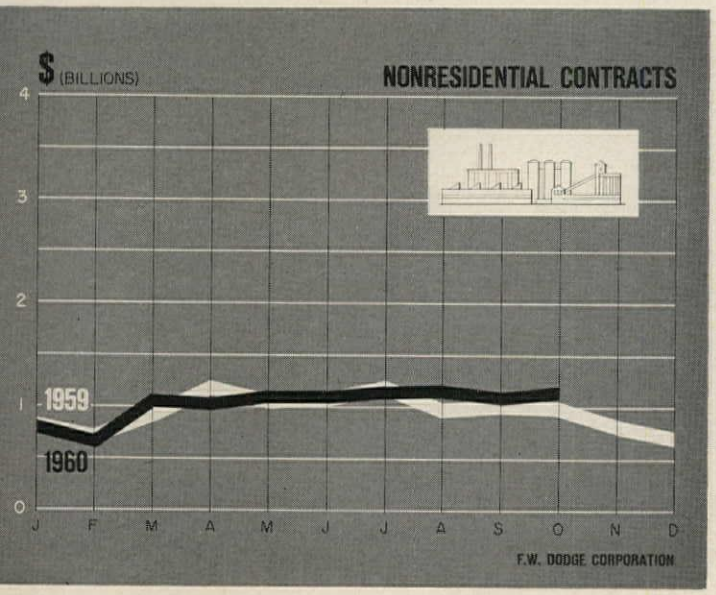
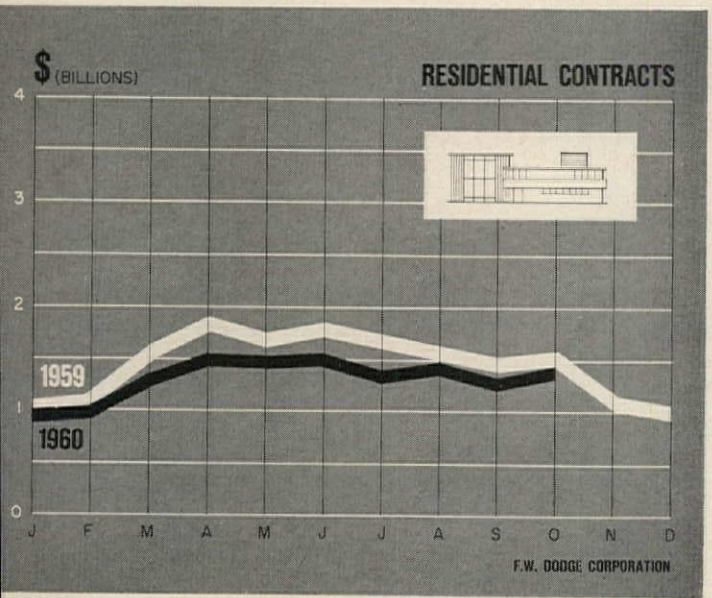
Plants at: **Union, N. J.—Leeds, Ala.**
Conroe, Texas—Beeton, Ontario



Total contracts include residential, nonresidential, heavy engineering contracts





SCHOOL CONSTRUCTION made an excellent pick-up in 1960. Final figures are not yet available, but it appears as this is written that contracts for new school buildings, as reported by Dodge, came very close to equalling the all-time record of $2.9 billion set in 1957. The outlook for 1961 is for another good year, of about the same magnitude. Schools still maintain their importance as the third largest category of building, exceeded only by single-family houses and commercial buildings, and accounting for about 10 per cent of all building contracts.

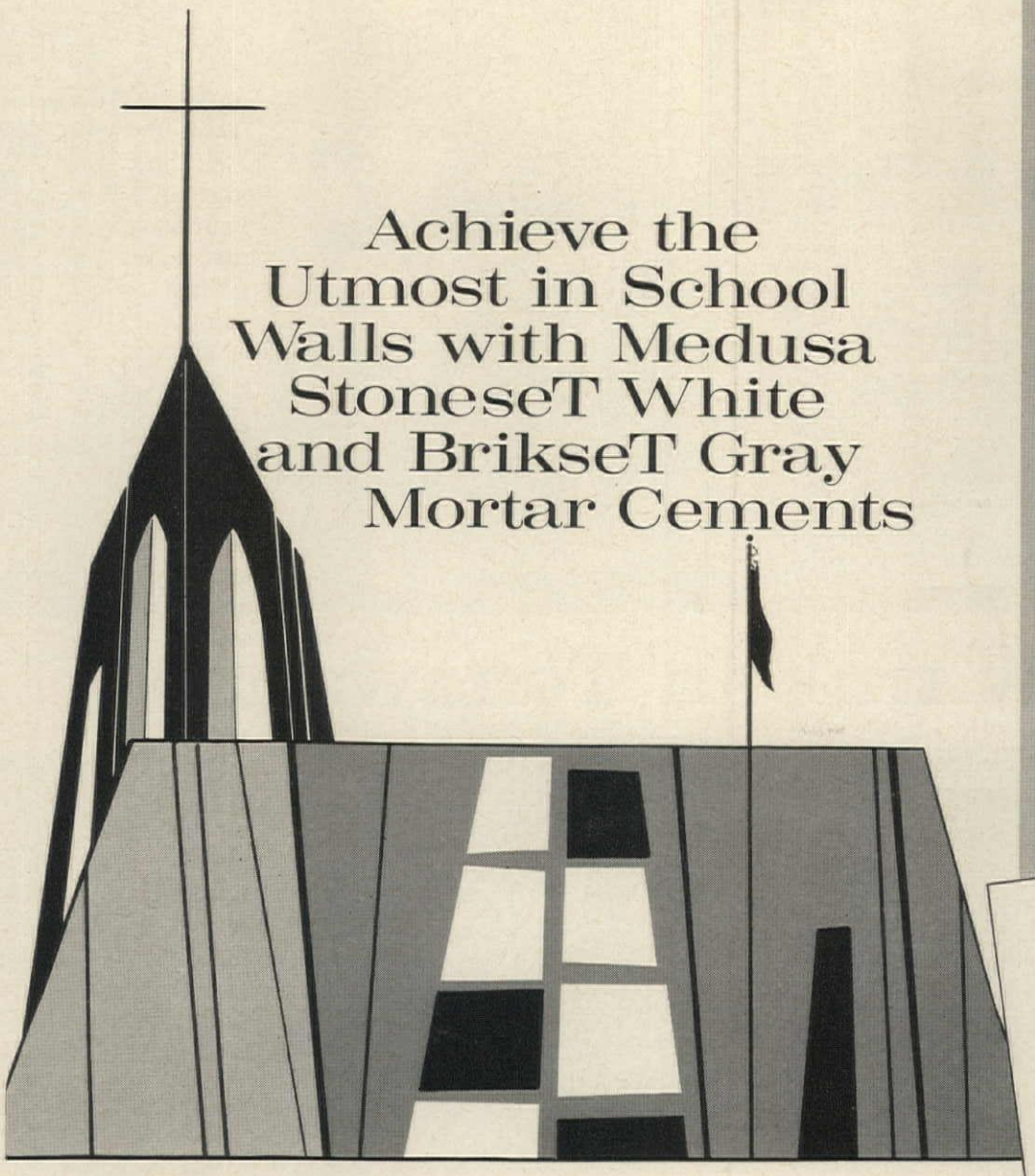
CONTINUED STRENGTH in school building is one of the brighter features of the business outlook. Schools, together with highways, housing, hospitals and some other categories, should offset expected declines in business-connected areas in 1961, pushing total construction contracts up slightly ahead of last year's levels. Since construction is the largest fabricating industry in the nation, this should go far toward moderating some downward tendencies now evident in business activity. In fact, the construction outlook is one of the best reasons for thinking that the current business recession will be neither too long nor too deep.

ONE OF the numerous unknowns which plague the economic forecaster is the weather. Long-range weather forecasting is still in a primitive state, and no one knows what kind of winter we are about to experience. However, December did a pretty good job of setting a record for general misery in many parts of the country. If Christmas trade turns out to have been below expectations, it will be very difficult to tell whether the cause was economic or meteorological, or a combination of both. The worst pre-winter snowstorm in history hit much of the East, after having played havoc with much of the rest of the country on the way. Retail trade was affected by the simple fact that customers couldn't reach the stores; and retail experts are convinced that sales lost to bad weather are never fully made up later.

CONSTRUCTION is perhaps even more vulnerable to bad weather than retail trade, because it is to a large extent an outdoor operation. If shoppers can reach the stores, they can shop; but often, even when workers can reach construction sites, they cannot work. And it seems likely that construction activity lost during bad weather is also never completely made up by offsetting increases at some later date. There is no doubt that in terms of weather, the Winter is off to a bad start. Fortunately, there is nothing in the records to indicate that one bad month makes a winter; perhaps the rest of it won't be so severe.

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

Achieve the Utmost in School Walls with Medusa StoneseT White and BrikseT Gray Mortar Cements



Medusa StoneseT White Non-staining Masonry Cement and BrikseT Gray Masonry Cement were first introduced over 25 years ago. Since then architects and contractors have selected these two outstanding dependable prepared mortar cements to build strong walls of enduring beauty in hundreds of schools.

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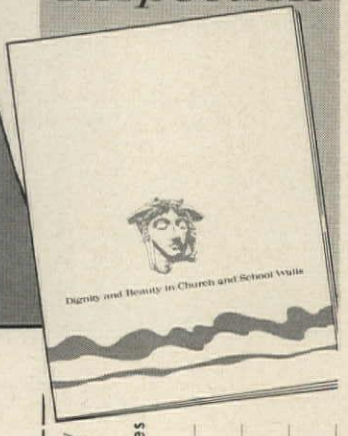

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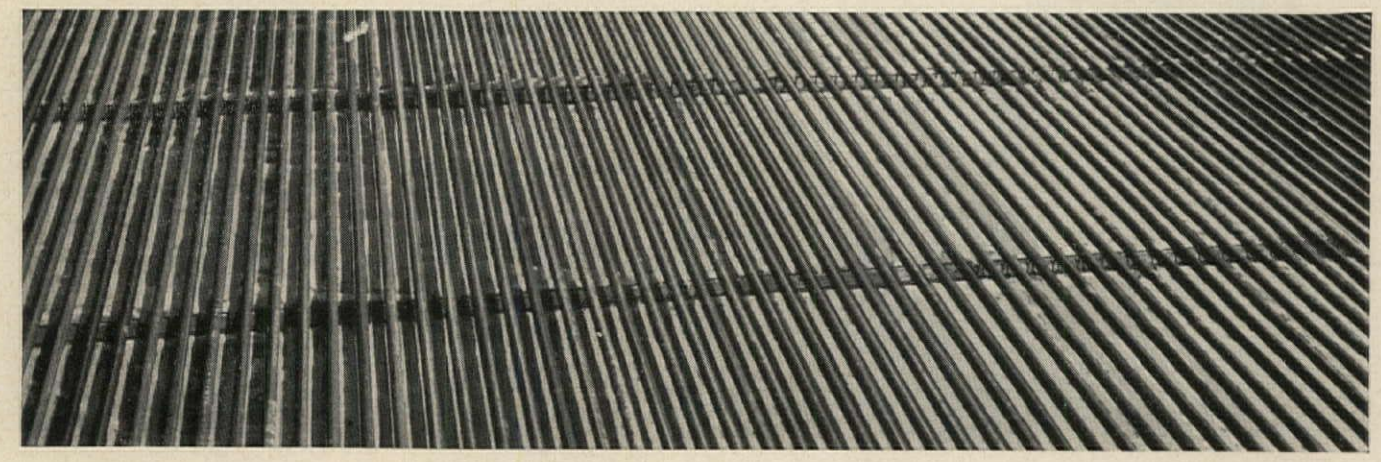
New rink in Tonawanda



built with Ammonoduct Steel Pipe

It's the new 85 by 185 ft Brighton Park Arena, Town of Tonawanda, N. Y., built by *Mollenberg-Betz Machine Company, Inc.* Park and Recreation Consultants: *Tryon & Schwartz & Associates.* Consulting Engineer: *William E. Harries.* The 58 tons of Bethlehem 1¼-in. standard black plain end Ammonoduct steel refrigeration pipe was supplied through *Commercial Pipe and Supply Company.*

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Piping a new ice rink with steel is an easy way to please everyone. Owners find it economical—steel pipe costs considerably less than any other ferrous piping material. Contractors save on installation costs—in double-random lengths, Ammonoduct steel pipe eliminates many field welds; and it can be fabricated *cold* without fracture. Well-designed rinks piped in steel give long, trouble-free service—a boon to rink management.

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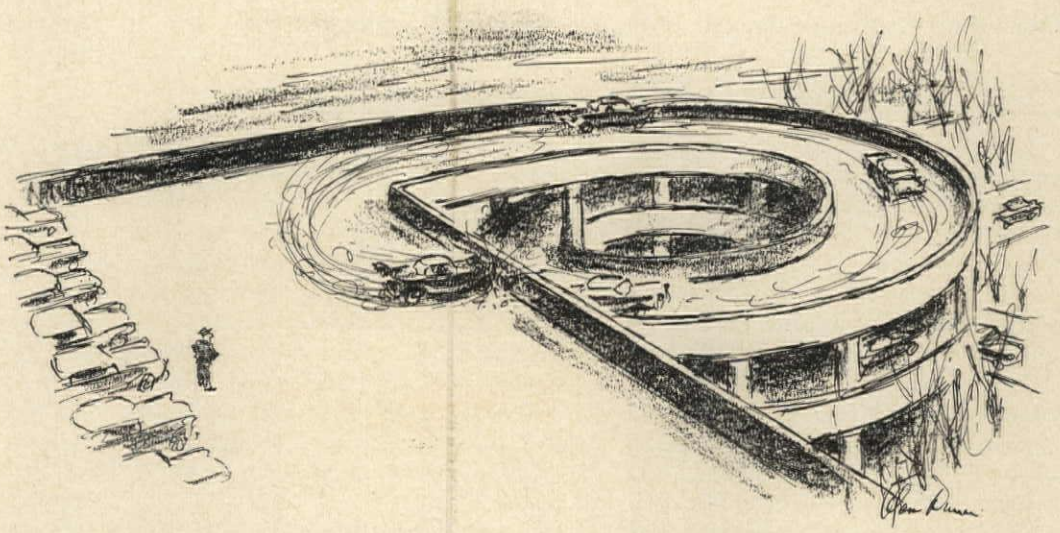


1939 Plan for 1964 Fair?
Design Board Schemes Rejected

The design and plan of the 1964-65 New York World's Fair has been the special concern of the Board of Design during the past few months. Headed by chairman Wallace K. Harrison with members Henry Dreyfuss, Emil H. Praeger, Gordon Bunshaft and Edward Stone, the Board began its work in late summer, drawing up and submitting to Fair officials six or eight plans, one of which it thought was best. This was a giant "doughnut" plan for a single, unifying composition around a central lake.

The Fair Corporation rejected the favored plan and adopted essentially the same layout as the 1939 Fair to make use of existing utilities. Another reason Fair officials gave for their choice was that they wanted a plan that would allow conversion afterward to a permanent park. Then, too, it was decided the building's construction would be too expensive.

With the plan's rejection, Mr. Bunshaft resigned, saying he did not want to participate in something he did not believe in. Other Board members were disappointed, but they remained to develop an overall plan in accord with Fair officials' wishes.

In November Robert Moses, Fair Corporation president, issued a statement that having completed its work, the Design Board has retired, but that Wallace Harrison would continue as a member of the Fair's Executive Committee.

In a brochure put out by the Fair Corporation, the Design Board is quoted: "The design for the Fair is . . . predicated on the framework, inheritances and basic conditions existing at Flushing Meadow including economic factors. Our Committee has therefore agreed to certain compromises regarding the site which are not ideal but which we believe are fully justified under the circumstances. Had we been operating in open, completely undeveloped land, . . . we should no doubt have produced a more original and novel plan.

"The Fair will represent as satisfactory a wedding of beauty and utility as can be produced . . . will preserve much that is valuable left over from the 1939 Fair and the park which succeeded it . . . will represent both conservation and progress."

Controls include building coverage limitation to 60 per cent of the lot and height to 80 ft.

Mr. Harrison, single architect on the Fair's 100-man Board of Directors, has expressed the hope that "new committees" might be formed to advise on landscaping, sculpture, fountains, a possible theme structure and street furniture.

As an expression of its concern with the Fair and the A.I.A.'s role in it, the Executive Committee of the A.I.A.'s New York Chapter has appointed a special World's Fair Committee, its members: Morris Ketchum Jr., Max O. Urbahn and Arvin B. Shaw III.

Applications for space in the 565 Fair ground acres have been numerous. More than one-third of the Industrial area (130 acres in all) has been applied for by 25 exhibitors. They are: Aluminum Co. of America, American Gas Assoc., American Optical Co., American Telephone & Telegraph Co., Arnold Baking Co., P. Ballantine & Sons, Borden Co., Chase Manhattan Bank, Coca Cola Co., Corning Glass Works, du Pont de Nemours & Co., Eastman Kodak Co., Edison Electric Institute, General Electric, I.B.M., Institute of Life Insurance, Liebman Breweries, National Dairy Products, Pavilion of American Interiors, Pepsi Cola Co., R.C.A., Schaefer Brewing Co., Singer Sewing Machine Co., Travelers Insurance Co., Westinghouse Electric Corporation.

In the Transportation sector (80 acres) the Ford Motor Co. and General Motors have applied. The Port of New York Authority is responsible for the design, construction and operation of this section of the Fair.

Of the anticipated 84 countries, 11 have applied for space in the International section (86 acres).

F. W. Dodge Executive Heads
U. S. Business Economists

Dr. George Cline Smith, a vice president and chief economist of F. W. Dodge Corporation, has been elected president of the National Association of Business Economists. Dr. Smith, who had been vice president of the Association, succeeds Adolph G. Abramson, director of economic planning of SKF Industries, Inc.

Dr. Smith is well known to RECORD readers as author of the annual Dodge forecast of the construction outlook, published each November in the RECORD, and of the RECORD's monthly page "Current Trends in Construction."

more news on page 24

Meetings and Miscellany

Consulting Engineers Council Holds Semi-annual Meeting

Delegates from all 32 C.E.C. Member Associations attended the November semi-annual meeting of the Consulting Engineers Council in Pittsburgh. Membership was approved for the C.E.C. of Metropolitan Washington, D.C., J. Gibson Wilson Jr. being welcomed to the Board as the group's official representative.

Believing the majority of firm officials of any corporation offering engineering services to the public should be registered engineers, the Board voted to reject a part of the recently adopted National Council of State Boards of Engineering Examiners Model Law which required registration by employees but not necessarily by firm officials. Whether they must be registered in all states serviced or not is up for clarification.

Other matters on the agenda were: the unveiling of a public relations aid, a brochure to help member firms prepare brochures describing their qualifications, size and experience; progress in the preparation of the proposed C.E.C. Indexing System; legal and ethical violations in private practice; package deals; and competitive bidding between professionals.

The annual meeting of the Council will be held in Chicago May 4-6.

Competition Selects Brackett's Design for 1961 Inaugural Stand

The 1961 Inaugural Presidential Reviewing Stand from which the new President, John F. Kennedy, and Vice President, Lyndon B. Johnson, and their families and other high officials will view the Inaugural Parade following the Inaugural ceremonies on January 20 was designed by architect Robert Paul Brackett of Washington, D.C., winner of a two-hour sketch competition sponsored by the joint Republican-Democratic Committee for the Inaugural and open to all members of the Washington Chapter of the American Institute of Architects. There were 23 participants.

The structure, which was to cost not more than $40,000, is wood frame sheathed in plywood with a clear center span of 40 ft and two side spans of 15 ft each, with a 5-ft roof overhanging. (Total length is 80 ft.) The center ceiling motif is the Great Seal of the United States in 3½-ft relief suspended two ft at the front and 4 ft 6 in. at the rear from the main roof, which also slopes 6 ft from front to rear. The seal of the President decorates the front of the Presidential box with low formal planting extending across the base of the stand, terminating with the radio and TV booths projecting slightly forward and serving as a base for the two five ft high eagles cast in plaster.

Mr. Brackett's winnings included the $100 first prize, a $150 fee for a finished rendering of his winning sketch and consulting services and the autograph of the new President for the rendering, which will be returned to Mr. Brackett after public exhibition.

In the competition, the second prize of $50 went to Victor Spector of Falls Church, Va.; the third prize of $25 was awarded Ernest Daly of Washington.

Regional Director Nomination Ends in N. Y. Stalemate

Nearly 400 architects, wives, exhibitors, and guests attended the "Challenge of the Sixties" Convention of the New York State Association of Architects at Whiteface Inn, Lake Placid, N.Y., from October 12th to 15th.

Guest speaker for the one-day A.I.A. Regional Meeting was Herbert H. Swinburne of Philadelphia, chairman of the national A.I.A. Committee on Research; principal speaker for the Friday night banquet was Vice Admiral William F. Raborn Jr.

Efforts of the A.I.A. Regional Convention to nominate a new Regional Director for the term beginning in 1961 were unsuccessful and the selection will therefore be accomplished by individual mail ballot.

The Thursday seminar on "Adhesives," headed by George J. Schulte of the Building Research Institute, featured as panel members technical representatives from five manufacturers; the Friday seminar on "Arbitration vs Court Settlement" was headed by District Court Judge Bernard Tompson of Nassau County and included as panel members an architect, a lawyer, and an arbitration specialist.

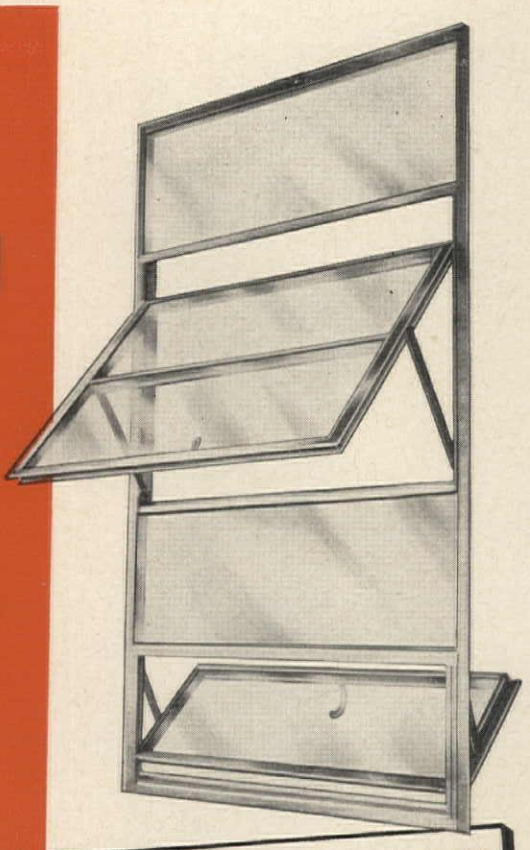
Incumbent officers were reelected to head the Association for the coming year: John W. Briggs, president; Frederick H. Voss, 1st vice president; S. Elmer Chambers, 2nd vice president; 3rd vice president, Simeon Heller; F. Allen Macomber, secretary; Martyn N. Weston, treasurer. Joseph F. Addonizio will continue as full-time Executive Director for the Association.

—James S. Hornbeck

(Left to right) Joseph F. Addonizio, Martyn N. Weston, S. Elmer Chambers, John W. Briggs, Frederick H. Voss, Simeon Heller, and F. Allen Macomber

more news on page 50

SPECIFY WARE ALUMINUM WINDOWS



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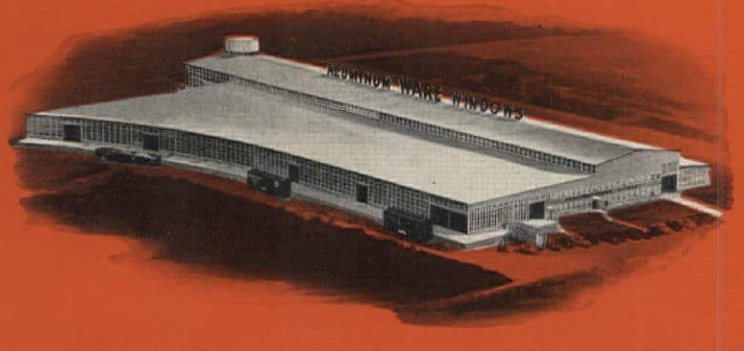

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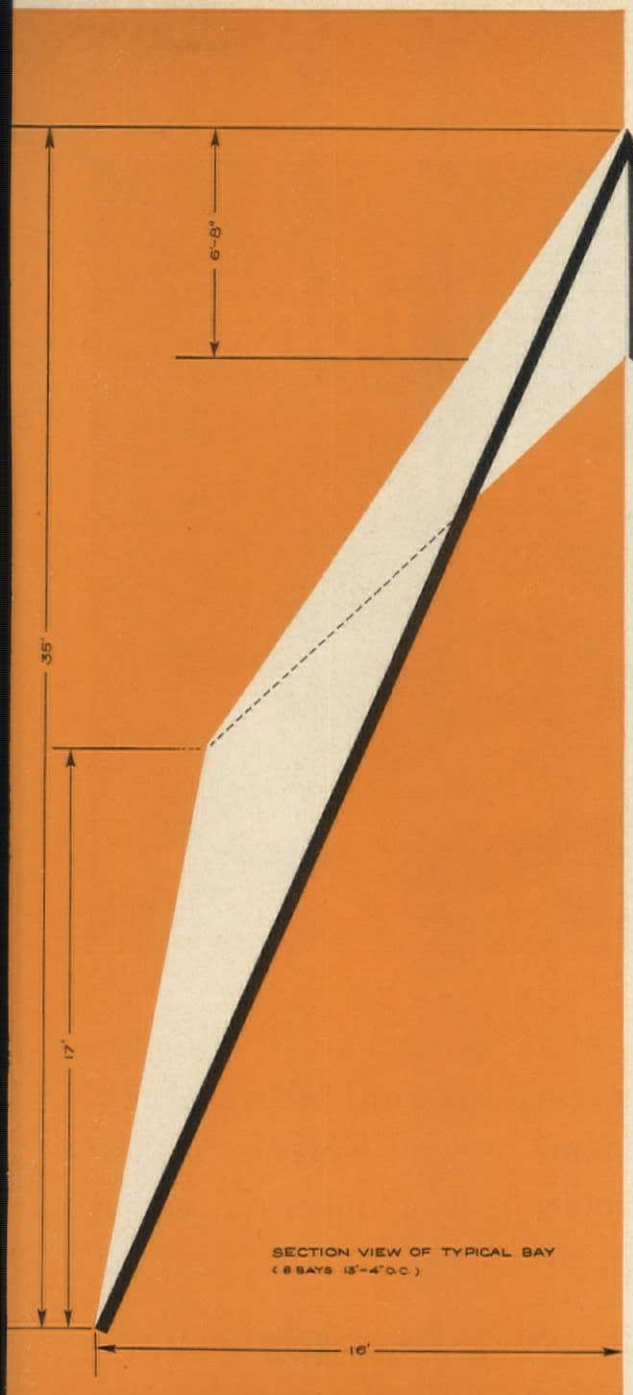
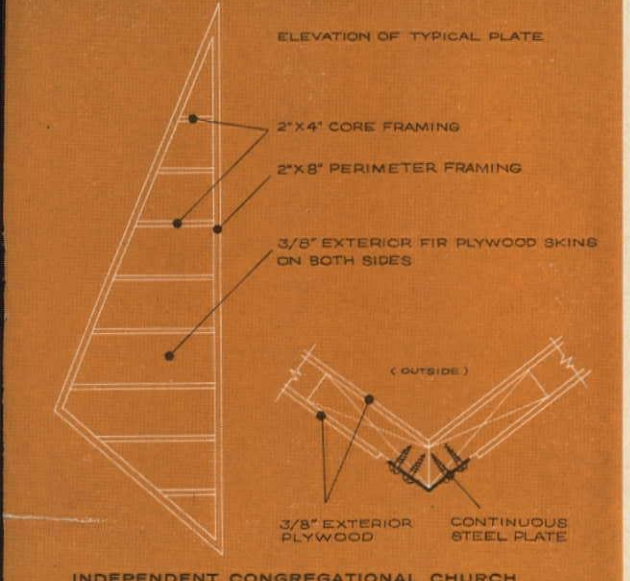


SECTION VIEW OF TYPICAL BAY
(8 BAYS 13'-4" O.C.)



INDEPENDENT CONGREGATIONAL CHURCH

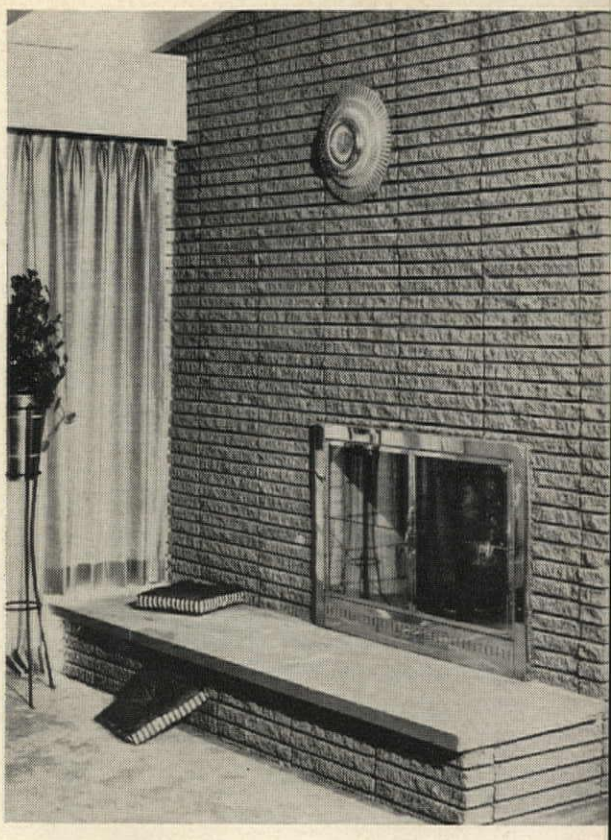
LOCATION:	St. Louis
ARCHITECTS:	Manske & Dieckmann, St. Louis
COMPONENTS:	Roof Structures, Inc., Webster Groves, Mo.
BUILDER:	A. H. Haeseler, St. Louis

THE NINE SOARING PINNACLES of this church, recalling the boldness of Gothic arches, are a vigorous expression of advancing plywood technology. The roof is a space plane, a step beyond the folded plate with more versatility than any other clear-span technique using wood.

Like all folded plates, the space plane acquires strength and rigidity from interaction of inclined plywood diaphragms. But its components may take shapes other than rectangular, to create more complex designs. Here they are triangular stressed skin panels. Forces are transferred from one to another, and the entire multi-faceted roof becomes a lid-like shell, supported only at edges. Steel buttresses anchored to foundations absorb lateral thrusts. Clear-span area is 32′ x 110′.

The absence of framework or posts is only one of several advantages this roof shares with space planes in general. It went up fast (15 days); huge plywood components were precisely fabricated to insure exact fit. Prefabrication also guaranteed close cost control and quality of workmanship and materials. In-place cost compared well with other means of obtaining a similar span.

For basic fir plywood design data, write (USA only) Douglas Fir Plywood Assn., Tacoma 2, Wash.



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National Concrete Masonry Association
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Required Reading

Cowles House, Farmington, Connecticut
—from *Architecture in America*

Three Cheers for Architecture!

IN PRAISE OF ARCHITECTURE. *By Gio Ponti. F. W. Dodge Corporation, 119 W. 40th St., New York 18. 270 pp., illus. $6.95.*

The only word which seems really to apply to Mr. Ponti's book is the awkward "potpourri." Readers expecting a clear, coherent, point-by-point definition of architecture will be delighted or appalled, depending, to find a collection of aphorisms, brief rhapsodic paragraphs, cautionary statements, variegated what-nots. And within these aphorisms, statements and what-nots lie so many paradoxes, contradictions and repetitions that a straight-through reading can leave a reader's head spinning. Mr. Ponti himself suggests that he be read as he writes—at random.

The collection is full of "quotable quotes," tempting for reading aloud —as indeed it may tempt writers seeking "suitable quotes" to use it as a sort of architectural Bartlett's. Chosen, at random: "Love modern architects. . . . Root for one or the other. . . . Love them demandingly and without indulgence. *Give them work.*" "Architecture is easy, very easy, because good architecture is spontaneous, thoroughly spontaneous." "The purpose of a building determines its use, but architecture as an art is used only to be 'looked at'." "Pyramids, both large and small, disturb me." "Art challenges war, challenges it by its own fragility. Art protected Venice; cement protected neither Milan nor London. The best shelter against atom bombs is art." "Italy was made half by God and half by architects." "Nature is cruel. Architecture had better stick to geometry." "Think at night (about architecture) and work during the day (on architecture)."

However much anyone may disagree with some of Mr. Ponti's observations and conclusions (it is inconceivable that he won't: "a book is a dialogue, not a monologue"), he must be struck by a man who thinks always and in all things of architecture, "our enchanting profession."

Let Us Now Praise . . .

THE MASTER BUILDERS: *Le Corbusier, Mies van der Rohe, Frank Lloyd Wright. By Peter Blake. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22. 399 pp. plus index, illus. $6.50.*

Clearly writing for a non-professional, if sophisticated, audience, Mr. Blake has covered all fronts of modern architecture by describing the works and contributions of three 20th century masters. Architects are not likely to find much new information on any of the three, though they may enjoy the tribute paid by one of their fellows to the Greats. (Sullivan fans, Grope fans, *et al.*, may, of course, argue the selection.)

For the laymen, Mr. Blake provides modern architectural history in capsule, and an interpretation of its significance to contemporary buildings and city planning. If scholars might dispute some of the fine interpretive points, none of them is seriously misleading. Occasional personal anecdotes and a great affection for the subject add a touch of permissible popularization.

Stately Buildings, U.S.A.

ARCHITECTURE IN AMERICA. *A Photographic History from the Colonial Period to the Present. By Wayne Andrews; intro. by Russell Lynes. Atheneum Publishers, 162 E. 38th St., New York 16. 179 pp. plus index, illus. $15.*

One of those large picture books which have a way of appearing a month or so before every Christmas, this is typical in being good for little except looking at—which ought to be enough. Indeed, the text is deliberately minimal, consisting of very

continued on page 250

THE ANIMAL MEDICAL CENTER
New York, N. Y.
Architects: Chapman, Evans & Delehanty
Contractor: Irons & Reynolds

another
distinctive building
with...

CURTAIN WALLS and WINDOWS

by GENERAL BRONZE

You may have thought of General Bronze curtain wall and window jobs only in terms of giant skyscrapers such as the Chase Manhattan Bank Building, the Union Carbide Building or the new Time & Life Building in New York City. These are all fine, outstanding architectural masterpieces and General Bronze is indeed proud to have played a part in engineering, fabricating and erecting the curtain wall systems.

However, in addition to these very large buildings, General Bronze is also proud of the many smaller, but equally fine jobs for which its products have been supplied.

Pictured above is the new Animal Medical Center in New York City, designed by architects Chapman, Evans & Delehanty. It is distinctive in appearance and involves the combined use of GB curtain walls for the lower floors and GB Permatite fully reversible aluminum windows in the rest of the structure.

Whether your next job is a giant skyscraper or a small two-story building, it deserves the best in engineering, fabrication and erection. It deserves curtain walls and/or windows by General Bronze. Before your plans get too far along call in the GB representative. You'll find him helpful in many ways. Our catalogs are filed in Sweet's.

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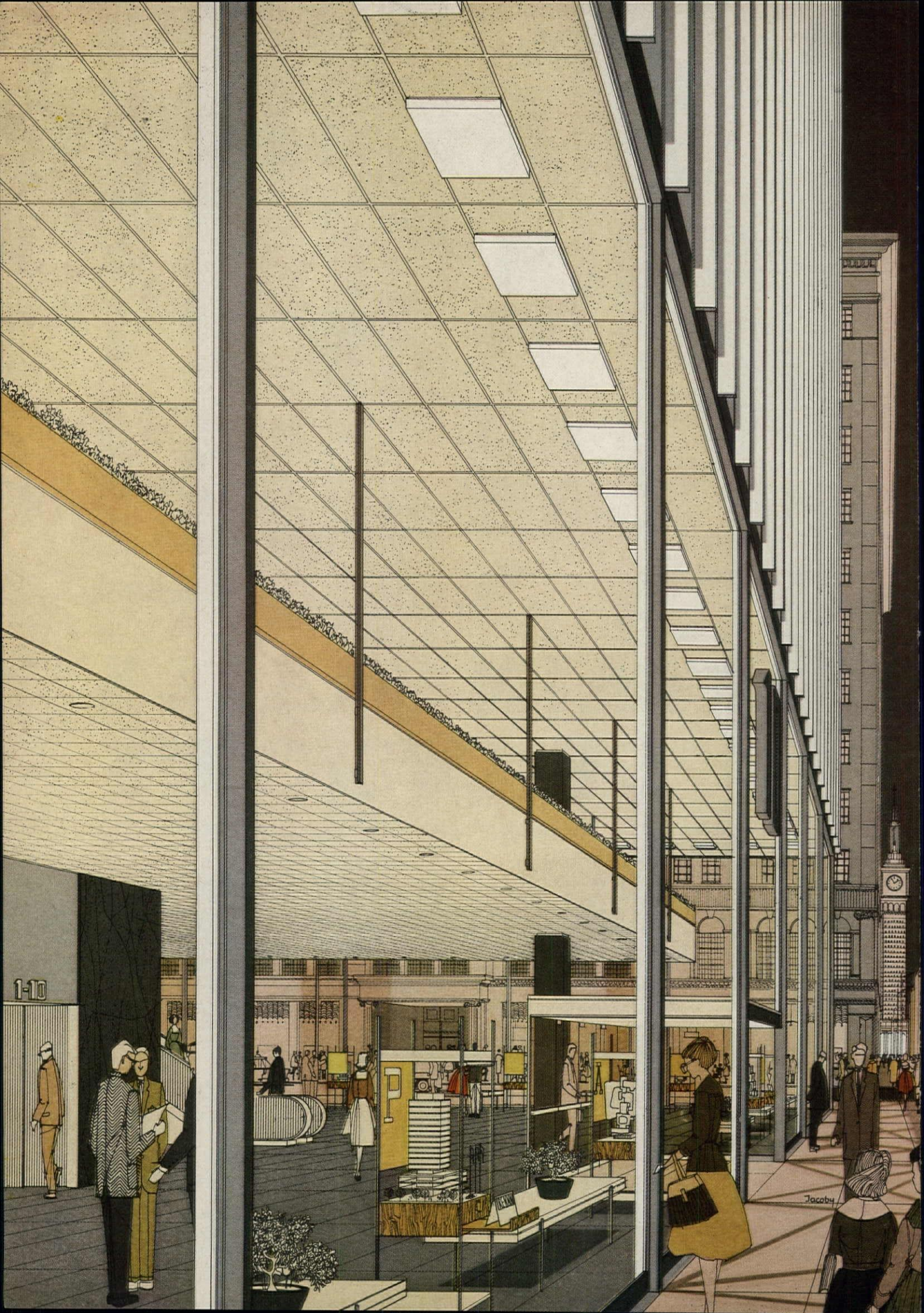

1-10
Jacoby

From Armstrong: a giant step in fire-retardant ceilings

Now, in office buildings, choose from two types of fire-retardant Acoustical Fire Guard —exclusive new lay-in units or 12″ x 12″ tiles

The second floor of the office building on the left has the new Armstrong Acoustical Fire Guard lay-in ceiling. Below, on the first floor, you see a ceiling of Acoustical Fire Guard *tile*.

This tile was the first time-design-rated acoustical tile. The new lay-in system is another significant development in fire-retardant ceilings. Here is why:

Exposed grid system

The Armstrong lay-in ceiling combines the advantages of the exposed grid suspension system—economy and fast installation – with those of a time-design-rated acoustical ceiling.

Like the widely accepted Acoustical Fire Guard tile, the new system protects the structural components of a building by resisting the dangerous transmission of heat from one area to another. This lay-in unit – because of its composition – can withstand exposure to flames and 2,000 degree heat. Ordinary ceiling boards would disintegrate.

Time-design-rated

Underwriters' Laboratories, Inc., has given the new system a beam protection rating of three hours. Assemblies using bar joist and slab, as well as beam and steel floor construction, earned two-hour time-design ratings. In areas which require more protection, Acoustical Fire Guard *tile* can be used. It has U.L. ratings of up to *four* hours.

Saves time and money

The new lay-in ceiling is more economical than other finished ceilings that will provide two- and three-hour protection for structural steel. In most cases, it will cost even less than ordinary plaster ceilings on metal lath.

Armstrong Acoustical Fire Guard tile, in the Classic design, was specified for the new Kiplinger Letters Building in Prince Georges County, Maryland. Architects were Chatelain, Gauger and Nolan, Washington. The acoustical contractor was A & P Contractors, Inc., of Kensington.

And like the tile, it can save builders up to *two months'* construction time. There is no waiting for wet work to dry. This makes it ideal for remodeling jobs. Installation can be done during or after office hours.

The Acoustical Fire Guard lay-in ceiling is now available in the popular Classic design. A Fissured pattern will soon be on the market. There are two nominal sizes: 24″ x 24″ x ⅝″ and 24″ x 48″ x ⅝″.

For more information about either Acoustical Fire Guard tile or lay-in units, call your Armstrong Acoustical Contractor (he's in the Yellow Pages under "Acoustical Ceilings") or your nearest Armstrong District Office. Or write to Armstrong Cork Company, 4201 Rock Street, Lancaster, Pennsylvania.

Armstrong ACOUSTICAL CEILINGS

First in fire-retardant acoustical ceilings

Architectural design and rendering by Helmut Jacoby

1961 National Honor Awards: Detention Homes for Children

The National Council on Crime and Delinquency is sponsoring two National Honor Awards to be given in cooperation with the American Institute of Architects, to the best large and best small detention home for children awaiting juvenile court disposition.

There will be an award in each of two categories: 1) a small detention home designed for not more than 30 children; 2) a large detention home designed for more than 30 children. Each institution may stand independently or it may be included in a juvenile or family court center consisting of one building, or a group of two or more buildings. It must include only those facilities directly relating to the function of a juvenile court.

The awards are open to registered architects practicing professionally in the United States who have within the past ten years designed an institution for the detention and study of children requiring secure custody pending court disposition.

The buildings shall have been erected anywhere in the United States or abroad and must have been completed after January 1, 1950.

The Jury will consist of five persons; two to be selected by N.C.C.D., two by the A.I.A., and the fifth to be agreed on jointly by the two organizations.

The Jury will consider the excellence of submissions on the basis of sound architectural standards and the functional requirements set forth by National Council on Crime and Delinquency in "Standards and Guides for the Detention of Children and Youth."

All entries including photographs, plans and descriptive data must be received at the Octagon, 1735 New York Ave., N.W., Washington 6, D.C., not later than January 31, 1961. Indicate on the envelope, "Detention Home for Children Award."

Following the current awards, it is planned that a second presentation will be made in 1965 and subsequent presentations every five years thereafter.

N. Y. Society of Architects Elects 1961 Officers

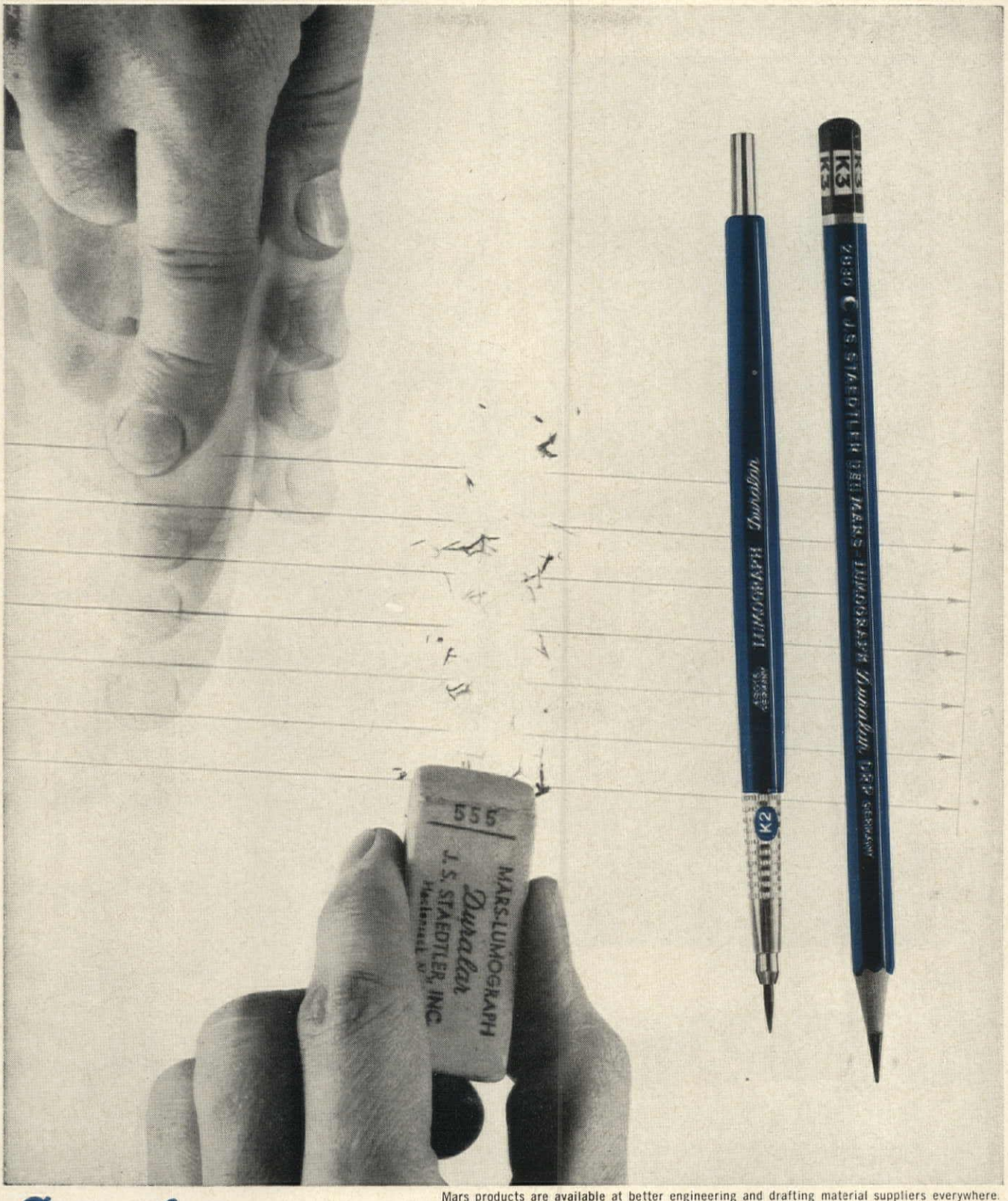
The New York Society of Architects has announced the election of officers for 1961. Nathan R. Ginsburg is president; John N. Linn, vice president; Herbert Epstein, treasurer; John Jos. Carroll, secretary; H. I. Feldman, ex-officio.

Elected to the Board of Directors for three years are Harry Kirshbaum, Fred L. Liebmann, Charles E. Greenberg and Herbert B. Gracer.

National Headquarters of A.S.L.A. Moves to Washington

National Headquarters of the American Society of Landscape Architects, which has since 1899 been in Boston, has moved to Washington, D. C. The address is 2000 K Street, N. W.

more news on page 58



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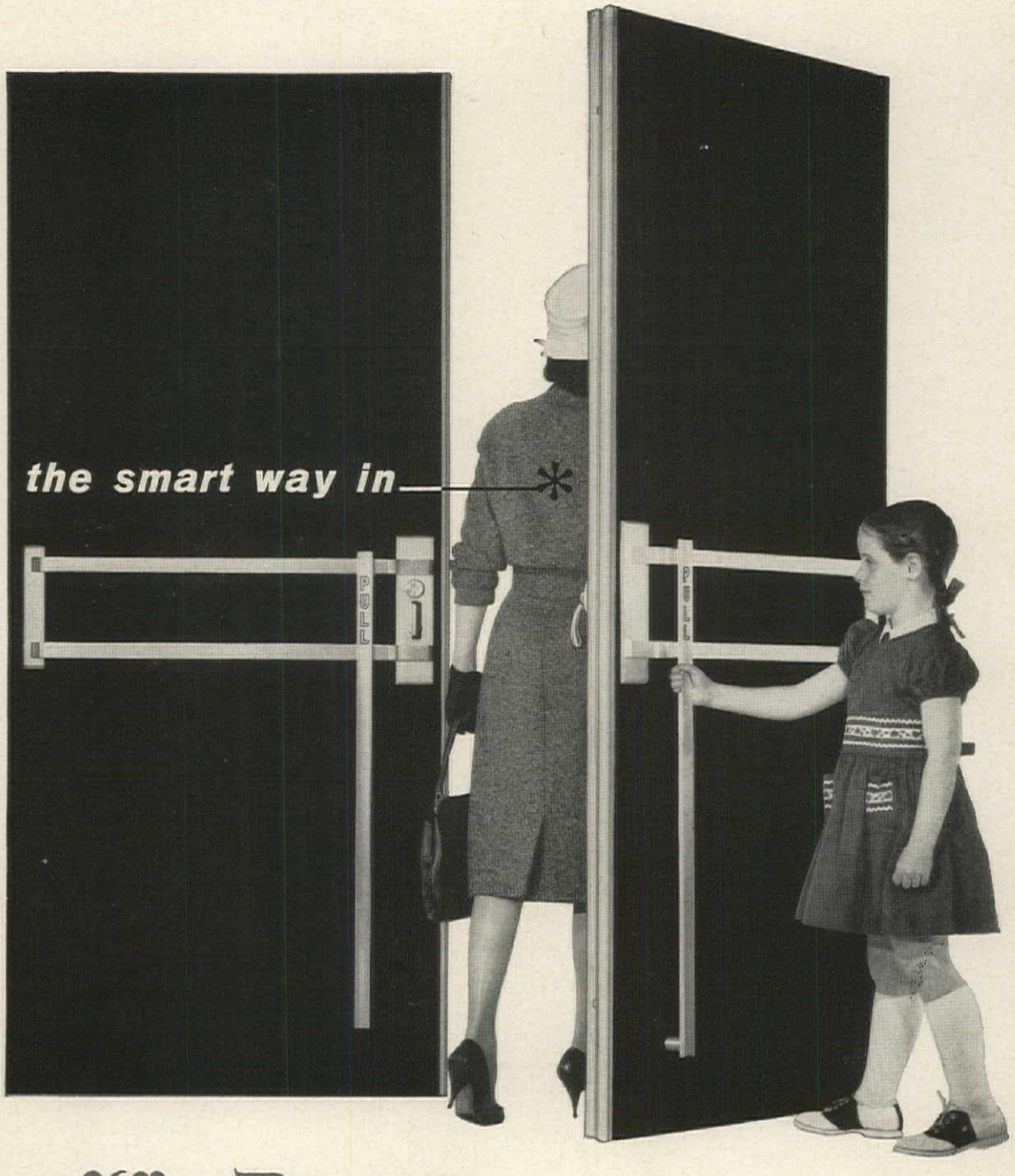

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illustrated above: all extruded aluminum modern design with extended and engraved grips. Catalog number E282-ENG. on active door; E282DT-ENG. on inactive door.

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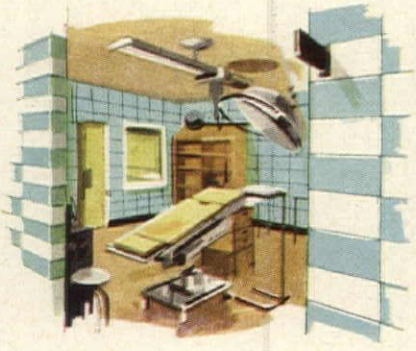
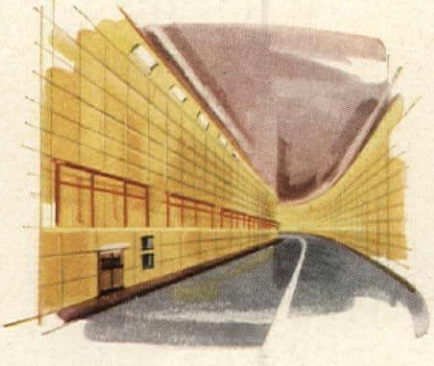


HOSPITAL

ELEMENTARY SCHOOL

RESTAURANT



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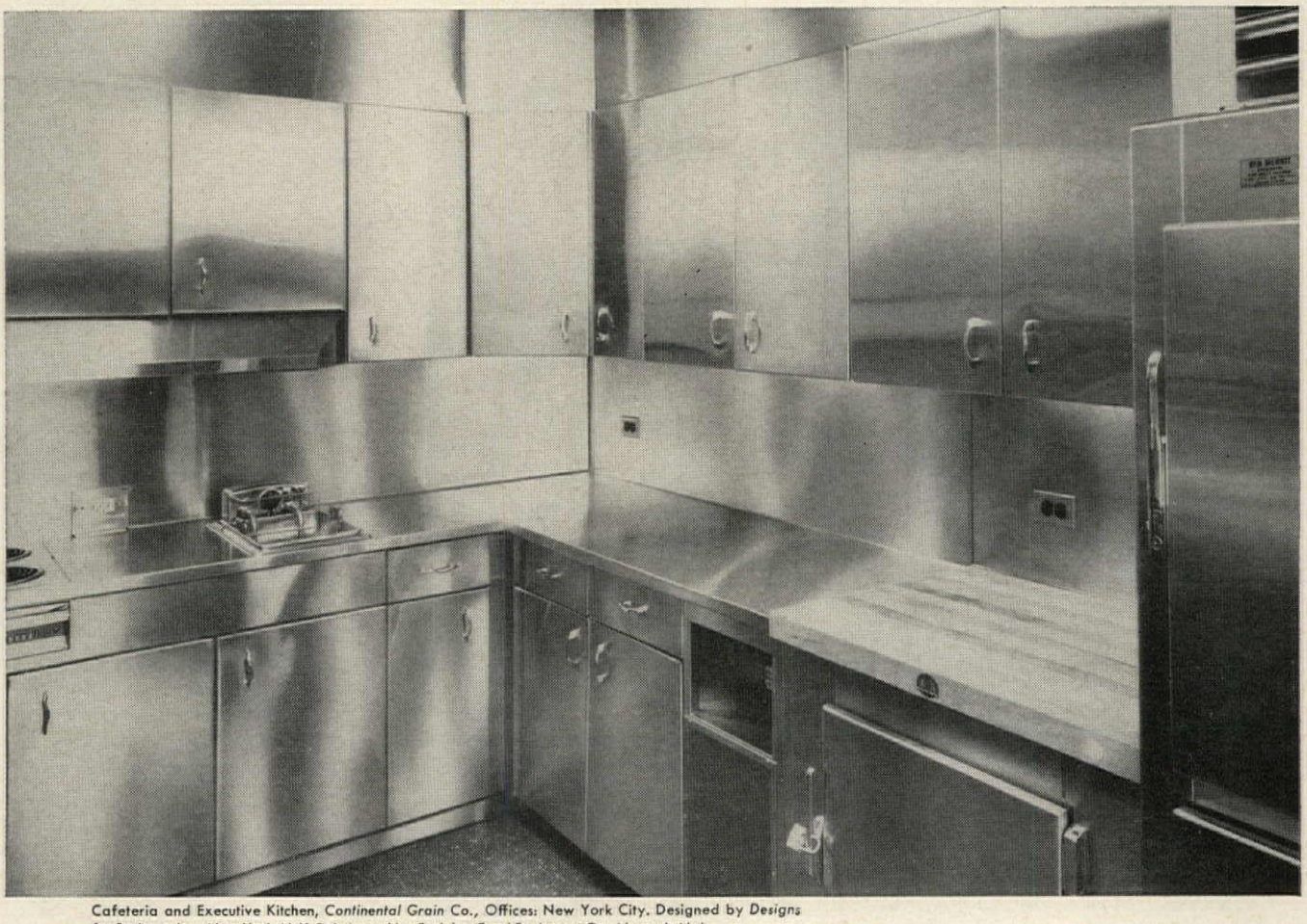

Cafeteria and Executive Kitchen, *Continental Grain Co.*, Offices: New York City. Designed by *Designs for Business, Inc.*, New York, N. Y. Fabricated by *Stainless Food Equipment Co.*, Newark, N. J. Installed by *Ben Mernit*, New York City

The specifications for this executive cafeteria called for all kitchen metal surfaces, both exposed *and* unexposed, to be constructed of stainless steel. Only *lifetime* stainless steel can offer the durability and ease of maintenance necessary for maximum sanitation in food handling.

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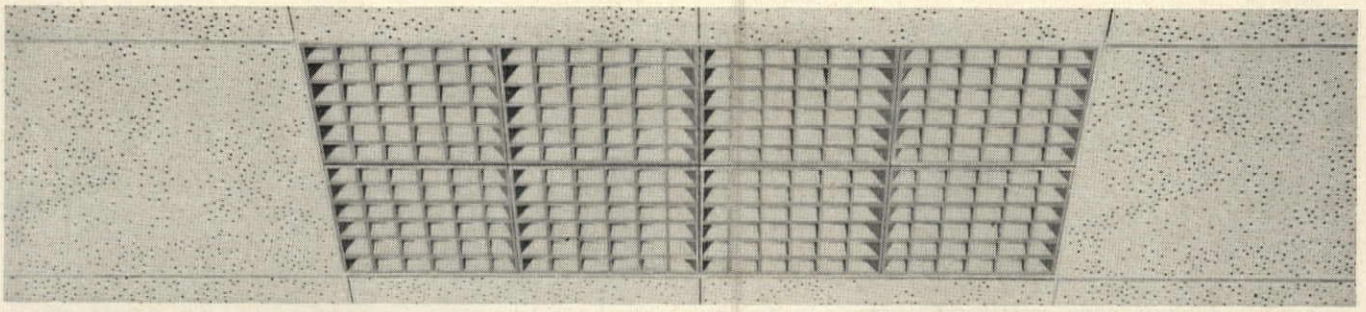

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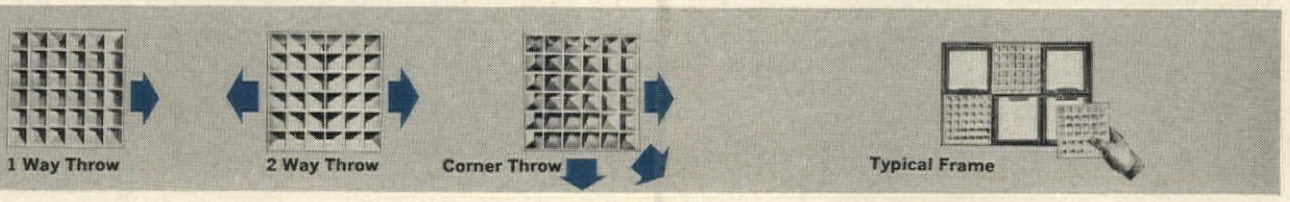

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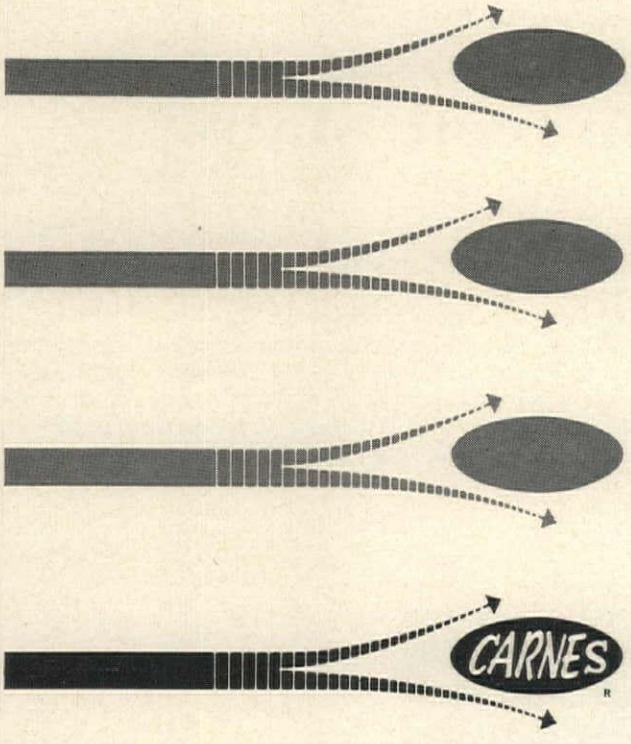

NEW NEW NEW NEW

CARNES CORPORATION, VERONA, WISCONSIN

Homewood Flossmoor Community High School, Flossmoor, Illinois Contractor: Edward Gray Corp. Architect: Perkins & Will

VOIDS hold weight to a minimum in long span concrete slabs

Weight is often a critical problem in the design of long span concrete slabs. However, by using VOIDS to displace non-working concrete in the slab, it is possible to increase span *without* prohibitive increases in weight.

SONOVOID Fibre Tubes were specifically developed by Sonoco to form voids in concrete slabs, decks, and precast members. They reduce weight and the amount of concrete and steel required, without impairing structural strength. Voided flat concrete floor and roof slabs offer many other desirable design features: they permit the use of smaller foundations and supports; provide greater ease of cantilevering; and increase the freedom of locating partitions.

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See our catalog in Sweet's.

For complete information, including slab design tables and prices, write

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SPAN-POWER*

This bridge which spans the wide Missouri at obridge, South Dakota, is he largest bridge between the Mississippi River and the West Coast and includes these MVSS all-welded plate girder spans.

Superstructure Contractor: John F. Beasley Construction Co.

Neither traffic, nor flood stop the "span-power" that MVSS generates to expedite a job. 11 bridges in 5 months is a record just set. At this very moment 6 MVSS plants are completing fabrication for 5 more bridges simultaneously.

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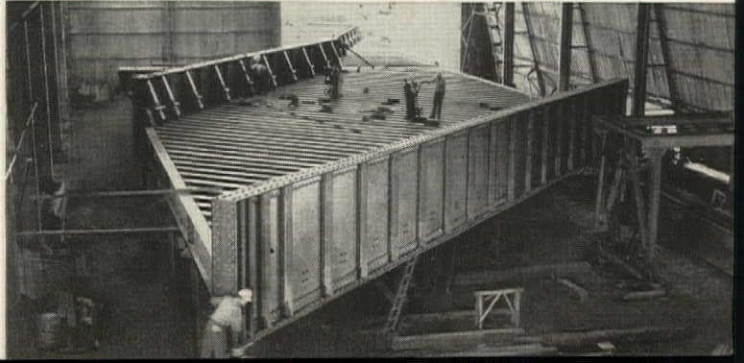
Completely shop assembled bridges, too.—For this State of Illinois bridge (considerably skewed and on a 3.54% grade) MVSS fabricated 717 tons; three spans were shop-assembled and reamed while assembled. CTA bridge crosses over Congress Expressway, Chicago.



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The Record Reports

continued from page 50

Harvard Names Bucky Fuller Norton Professor of Poetry

R. Buckminster Fuller, research professor of design at Southern Illinois University, Carbondale, Illinois, has been named Charles Eliot Norton Professor of Poetry at Harvard University for the 1961-1962 school year.

Not restricted to practicing poets, the distinguished chair is awarded periodically to architects, musicians and other artists who "are interested in putting things together creatively for society."

Mr. Fuller's appointments at Southern allow him wide latitude for travel and other academic commitments. He will be at Harvard for three months between his lectures and research at SIU.

Currently Mr. Fuller is on a speaking and business trip that includes conferences on two proposed baseball stadium domes. One is being planned at Houston, the other in Tokyo, Japan.

Placzek Named Avery Librarian at Columbia University

Adolf K. Placzek has been named Avery Librarian at Columbia University, succeeding James G. Van Derpool, who resigned to become Associate Dean of the School of Architecture. Mr. Placzek comes to this post with a record of 15 years' experience at Avery, first as Reference Librarian upon graduation from the School of Library Service in 1942, and later, in 1949, as Assistant Librarian.

Mr. Placzek was educated in Austria, specializing at the University of Vienna in the History of Art and in European History. His appointment continues a long tradition of subject specialization for the incumbent in this post.

Known nationally and internationally for its broad coverage of the literature of architecture and the allied arts from the 15th century to the present, the Avery Library contains journal and monographic publications of more than 60,000 volumes supplemented by rich holdings of manuscripts, original drawings, prints and photographs.

more news on page 73

The newest fashion in a complete line of architectural hardware. Protect your clients, specify high style locksets, exit devices, door closers and miscellaneous hardware from one manufacturer—Sargent—a single source of quality and responsibility for almost 100 years.

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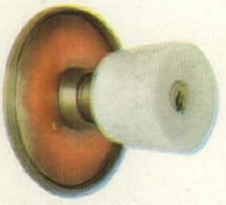

NEWEST FASHION—Fired copper rose and Delrin knob. Turn page for color combinations.

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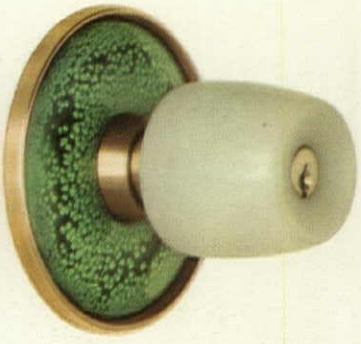
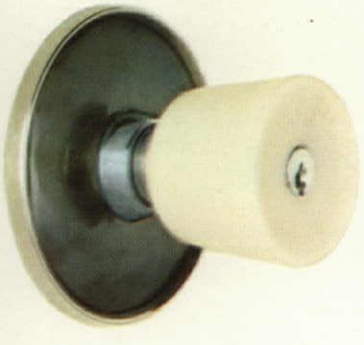


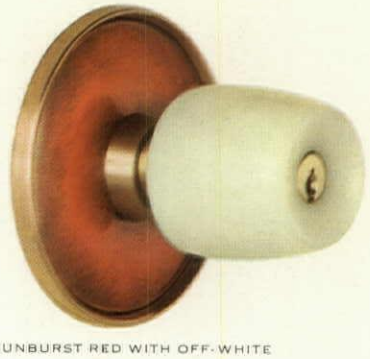
JADE GREEN WITH OFF-WHITE

GALAXY GRAY WITH OFF-WHITE

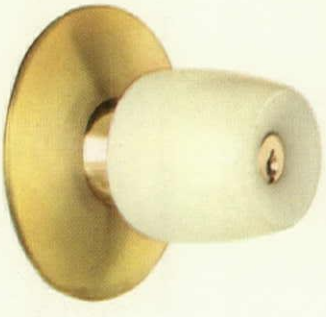
BRONZE WITH MAHOGANY



DUCKS HEAD BLACK WITH OFF-WHITE



SUNBURST RED WITH OFF-WHITE



BRASS WITH OFF-WHITE

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DELRIN® KNOBS AND FIRED COPPER ROSES

Locksets styled to charm . . . to warm a doorway with friendly color.

Non-static, scratch-proof, Delrin knobs combine the strength properties of metal and the drama of color. Choose from Black, Off-White or Mahogany.

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Important Announcement by the Home Ventilating Institute...

NOW YOU CAN BELIEVE AIR DELIVERY CLAIMS!

FANS AND HOODS MAY LOOK ALIKE BUT PERFORM MUCH DIFFERENTLY!

For years builders and home owners have been confused and misled by unreliable "free air" claims for small exhaust fans. Many installations of inadequate fans have resulted in disappointment, even resentment, when rooms were not ventilated satisfactorily . . . . .

This has caused the leading fan manufacturers to form the HOME VENTILATING INSTITUTE in order to arrange for an independent facility to test and certify fan performance.

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EXHAUST FAN LABEL

Here's How...

H.V.I. LABELING PROTECTS YOU

EXHAUST FAN TAG →

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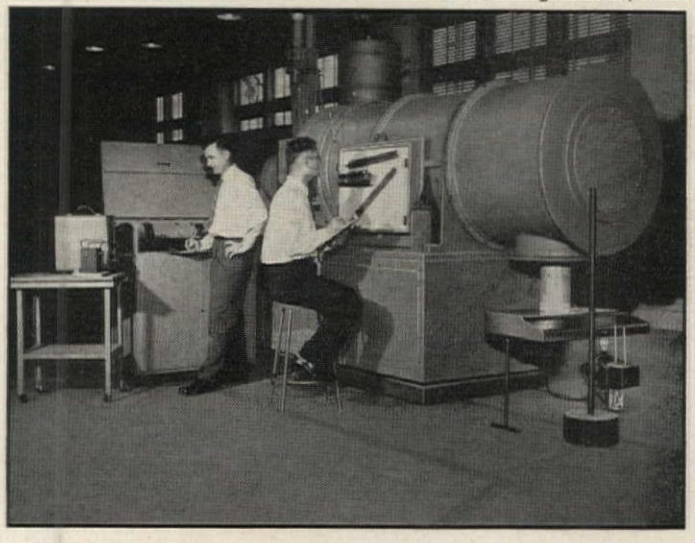

LABORATORY WILL TEST ALL FANS ALIKE

Fans so tested are awarded CERTIFIED AIR DELIVERY RATINGS. These ratings are based upon minimum ventilation standards as established by H.V.I. and in compliance with F.H.A. requirements.

Tests are made by a nationally recognized university laboratory, not by the individual manufacturers. Standards are in accord with known ventilation needs.

LOOK FOR THE H.V.I. CERTIFICATION

It is your assurance that the fan will perform as indicated . . . . . It certifies that the product measures up to H.V.I. ratings.

It indicates, in square feet, the size of the room the fan will adequately ventilate when properly installed. It is your protection against exaggerated claims heretofore expressed in meaningless "free air" figures. Only fans so tested are certified — you may rely upon H.V.I. ratings.

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SEND FOR NEW "HOME VENTILATION GUIDE"
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Illustrated booklet with ideas for the homes you are planning.

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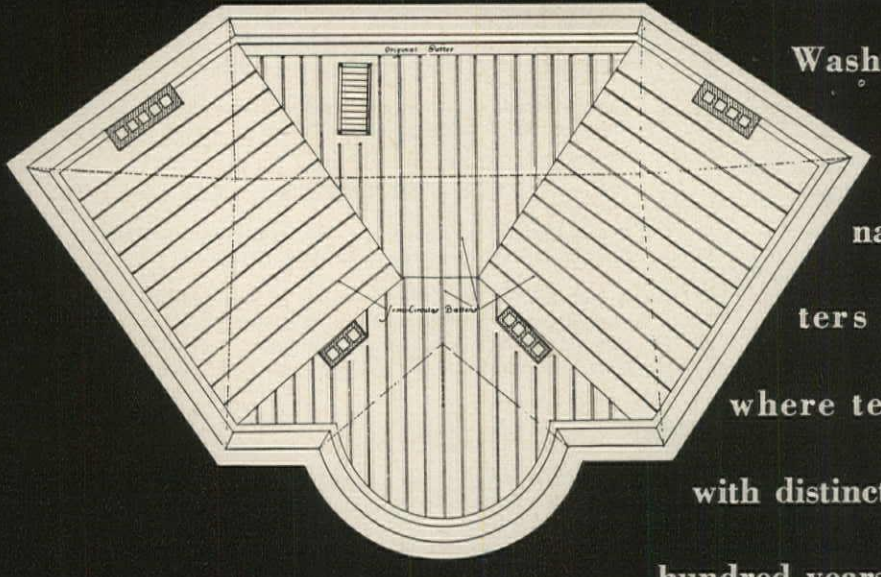
Probably no other structural element so completely symbolizes the inherent quality of shelter — basic to every building — as a visually significant roof. And from a functional standpoint, Follansbee TERNE is almost uniquely adapted to all such roofs. Both statements find striking confirmation in Washington's historic Octagon House, national headquarters of the A. I. A., where terne has served with distinction for nearly a hundred years.

The Octagon House
National Headquarters,
American Institute
of Architects,
Washington, D. C.



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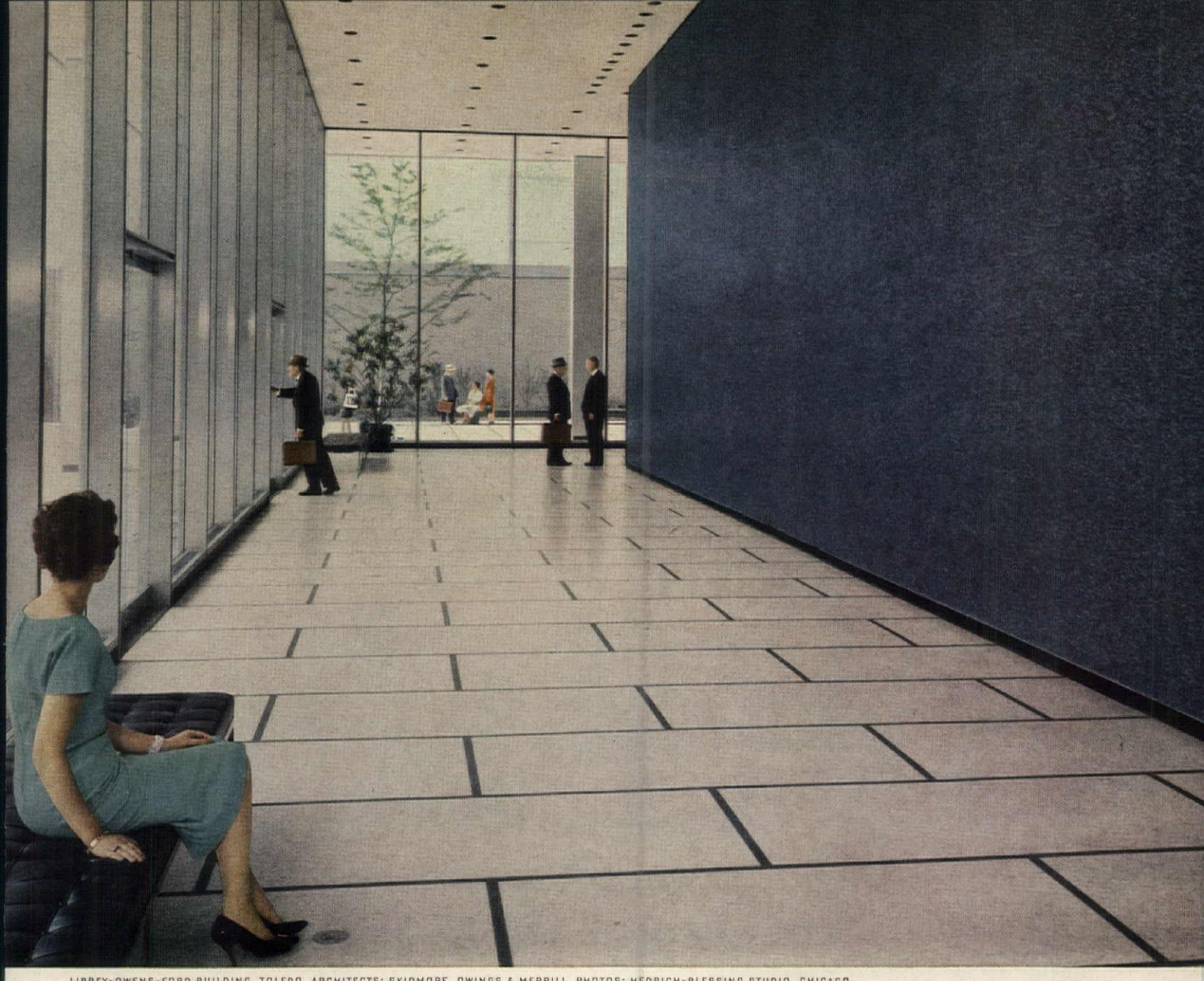


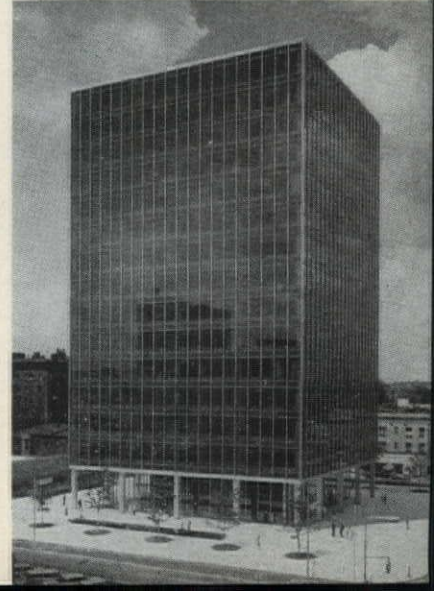
LIBBEY-OWENS-FORD BUILDING, TOLEDO. ARCHITECTS: SKIDMORE, OWINGS & MERRILL. PHOTOS: HEDRICH-BLESSING STUDIO, CHICAGO.

Indoors and Out, Terrazzo Paves the Way to Contemporary, Ageless Beauty

Trim, simple and clean, the L-O-F office building in Toledo offers the look of brisk efficiency associated with modern design. Yet its Terrazzo floor is ageless. Covering radiant coils (used for snow melting) outdoors, and basement area, as well as the entire lobby, 60,000 square feet of decorative Terrazzo offer a marble-hard, jointless surface that is virtually impossible to wear out. The pattern is a basic 6 x 3′ rectangle, outlined with black dividing strips. Slip-proof-treated, requiring only wet cleaning (*no* refinishing, *no* buffing needed), Terrazzo meets practical as well as aesthetic needs.

Co-starred is the lobby's mosaic wall —four million pieces of specially made blue tesserae individually placed in two 25 x 62 x 20′ sections. Not only visually delightful, the mosaics are *permanently* easy to clean.

No pattern or situation is too difficult for Terrazzo. Specify any design you wish, in virtually any combination of colors. Free AIA kit upon request. Catalogued in Sweet's.



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NATIONAL TERRAZZO AND MOSAIC ASSOCIATION
503 N.A.V.A. Bldg., 2000 K Street, N.W., Washington 6, D.C.

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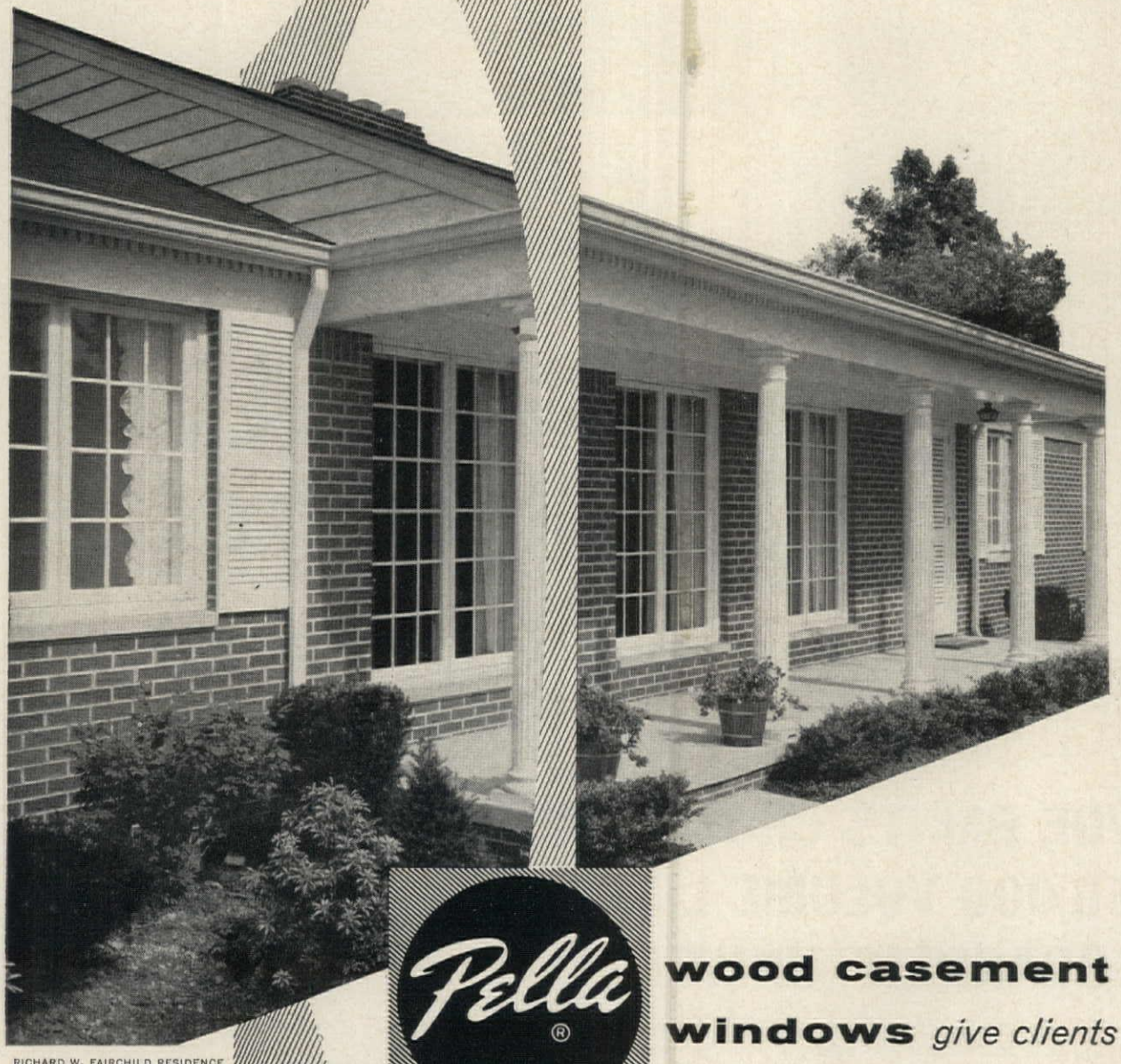

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ARCHITECT: ANDERSON & DRACON

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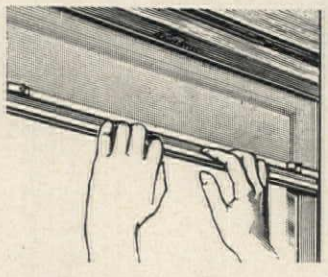
wood casement windows *give clients "talk-about" convenience*

ROLSCREEN®—the famous inside screen that rolls down in the spring and up in the fall is a conversation-piece feature of PELLA WOOD CASEMENT WINDOWS. Clients enjoy demonstrating ROLSCREENS to friends and credit your good judgment in specifying these quality wood windows. Inside storm panels are also self-storing to save labor and storage space. For full design freedom, PELLA WOOD CASEMENTS offer 18 ventilating units up to 24″ x 68″ glass size and 60 fixed units. Removable muntin bars are available in regular, diamond and horizontal styles. 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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the original inside screen that rolls down, up and out of sight.

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DEVOE PAINTS CHOSEN FOR 750,000 VOLUME LIBRARY AT BRANDEIS UNIVERSITY

Goldfarb Library Building, Brandeis University.
Architects: Harrison & Abramovitz, New York City.
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The magnificent new Goldfarb Library Building is the pride of Brandeis University—in itself, one of the most remarkable universities in America. Only 12 years old, it has already gained national prominence. Justifiably, we are proud that Devoe paints were chosen not only for the new Goldfarb Library Building, but for the men's residence, halls, and students' commons room in the North Quadrangle.

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PELLA PRODUCTS THE FOCAL POINT OF QUALITY

CAPITOL PARK APARTMENTS

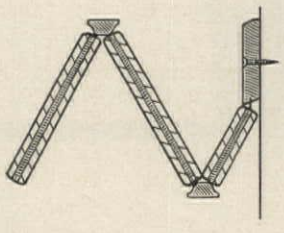
ARCHITECT: SATTERLEE & SMITH

Pella®

wood folding doors

provide space division with "tenant appeal"

Prospective tenants welcome the textural warmth PELLA WOOD FOLDING DOORS impart to brick, tile, glass and plaster surfaces. Installed as space dividers in apartments, motels and hotels, these fine doors combine privacy-at-will with the natural beauty of 6 rich wood veneers. You may specify PELLA FOLDING DOORS factory finished or unfinished. Patented "live action" steel spring hinging assures dependable, effortless operation for even the largest units. Solid wood "Lamicor" construction prevents warping. Available for any width and in heights up to 12′ 1″, PELLA WOOD FOLDING DOORS arrive factory assembled. Full specifications can be found in Sweet's Architectural Catalogs. Consult the classified telephone directory for name of your nearest U.S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.



SPECIAL ALLOY STEEL spring hinges run horizontally and are spaced 14-7/10" apart. Panels come together quietly, flat and compact.

6 FINE WOOD VENEERS • AMERICAN WALNUT • PHILIPPINE MAHOGANY • WHITE ASH • BIRCH • OAK • PINE

PELLA ALSO MAKES QUALITY WOOD FOLDING PARTITIONS, CASEMENT AND MULTI-PURPOSE WINDOWS, ROLSCREENS AND WOOD SLIDING GLASS DOORS

An Invitation

DON TITUS,

president of Titus Manufacturing Corporation,
cordially invites
you to meet the Titus people and
see the very latest in the nation's finest line of Air Distribution Products.

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TITUS EXHIBIT

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Air Conditioning Exposition, Booth 902,
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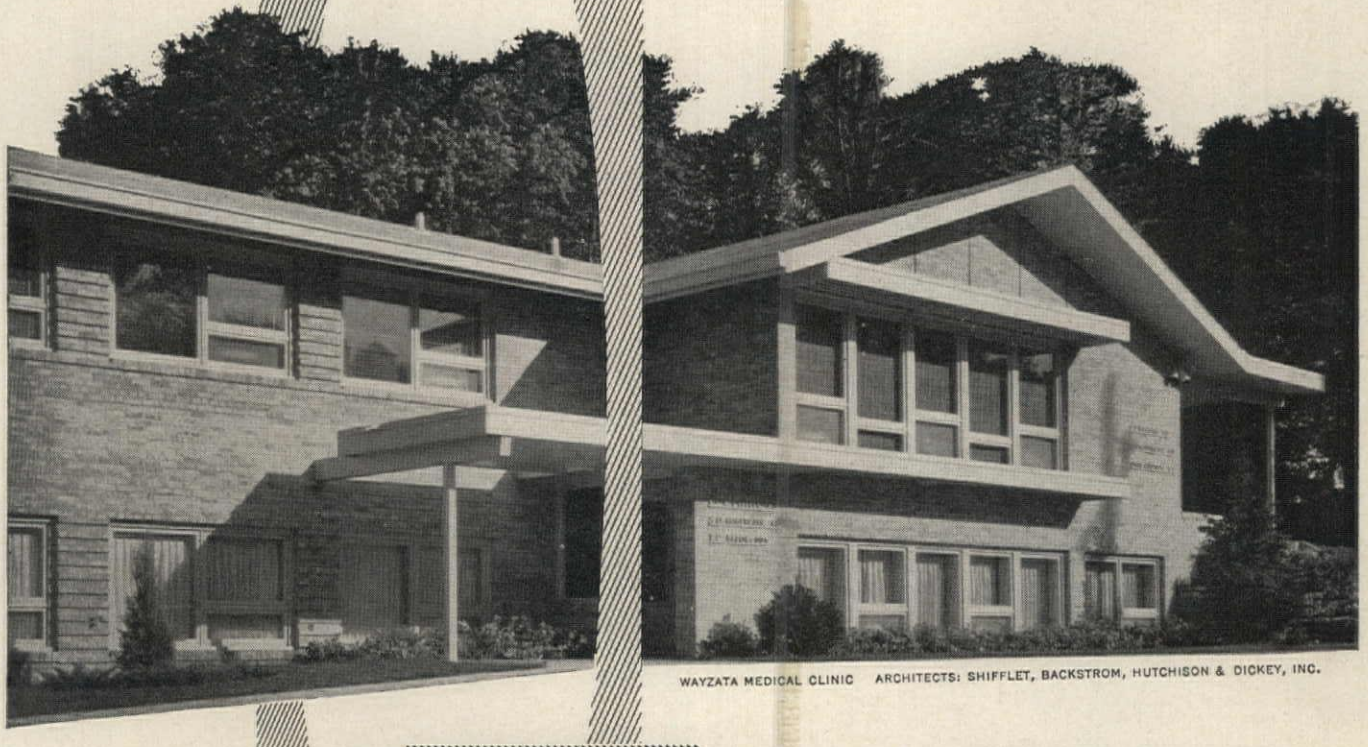


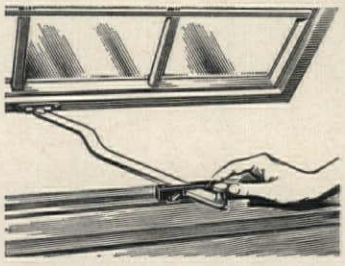
WAYZATA MEDICAL CLINIC ARCHITECTS: SHIFFLET, BACKSTROM, HUTCHISON & DICKEY, INC.

Pella®

wood multi-purpose windows

set residential tone for clinic

PELLA WOOD MULTI-PURPOSE WINDOWS present interesting solutions to the problem of integrating a commercial building within a residential neighborhood. The nicely proportioned wood frames harmonize easily with both natural environment and other construction materials. For planning flexibility, PELLA offers a range of 15 vent or fixed sizes and 5 fixed picture sizes. WOOD M-P WINDOWS may be arranged as awning, hopper or casement units. For user convenience, screens and storm panels are self-storing. PELLA also offers WOOD TWINLITE® WINDOWS, which combine vent utility with the traditional double-hung look. Full specifications in SWEET'S or consult your classified telephone directory for the name of the nearest U. S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.



UNDERSCREEN OPERATOR
is of extruded aluminum. Exclusive nylon GLIDE-LOCK® permits locking M-P window in 10 positions.

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"CERAMIC TILE...A DURABLE MATERIAL

...A DECORATIVE EXTERIOR COVERIN

KAHN & JACOBS

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Design project: a commercial office building entrance. The designers: the New York architectural firm of Kahn & Jacobs. Here's another vivid reflection of architectural awareness of ceramic tile's growing role: for beautiful exterior walls, distinctive floors, colorful spandrels.

Ageless ceramic tile will enhance any commercial or institutional project you may have on the boards. And it will pay its way over the years for your clients with savings on maintenance.

THE MODERN STYLE I

The Record Reports

continued from page 58

Columbia Program Features Gropius, Mies and Corbu

A two-month program of celebrations in honor of "the four great founders of modern architecture"—Walter Gropius, Le Corbusier, Ludwig Mies van der Rohe, and the late Frank Lloyd Wright—will be held at the Columbia School of Architecture in the spring of 1961.

Titled "The Four Great Makers," the program will bring each of the three men and Mrs. Frank Lloyd Wright to the school for a two-week period to meet with a group of international architects, educators and writers. They will participate in a series of exhibitions, seminars, lectures, broadcasts, and social affairs.

Charles R. Colbert, new dean of the School, says the program "is aimed at giving these great men a podium from which to address the world they have played such a large part in shaping. They have been honored in the past, of course—but never before together. Although the contribution of each has been world-shaking and unique, the four together have furnished the bedrock upon which all contemporary architecture rests. By bringing them together for the first time in history, we hope to celebrate this fact."

The seminars will bring together the leading international scholars of each man's work. The retrospective shows, all four of which will be held at Wright's Guggenheim Museum, will be designed by architect Philip Johnson, sculptor Constantino Nivola, Gyorgy Kepes of M.I.T., and Paul Grotz, art director of *Architectural Forum*.

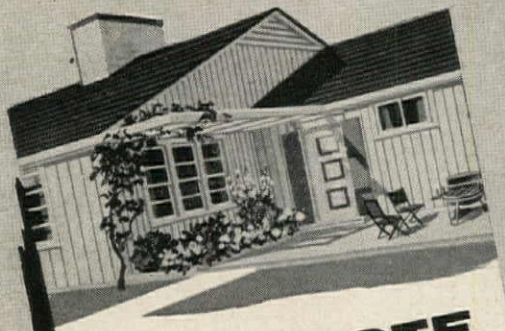
University of Michigan Appointments Made

Recent appointments made under authorization given by the Regents of the University of Michigan, Ann Arbor, Mich., for the 1960-61 University year are: in the College of Architecture and Design, Joseph F. Savin, assistant professor of architecture, three-fourths time; in the College of Engineering, Charles W. McMullen, visiting associate professor of electrical engineering, and Dietrich H. Vincent, associate professor of nuclear engineering, one-half time.

more news on page 78

HOMASOTE PRODUCTS

cut your building costs!



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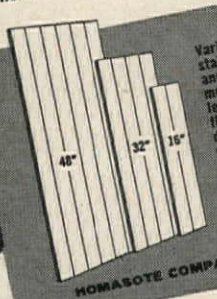
Grooved Vertical Siding

Insulates as it decorates and protects.

Only Homasote Board-and-Batten exterior is more economical than GVS.

⅝" of integrally-waterproofed protection from the weather.



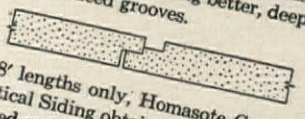
Variable widths help stabilize expansion and contraction movements. Variable lengths increase flexibility of home design. Each package contains 1 each of 16", 32" and 48" widths. Lengths may be 8', 9', 10' or 12'.

HOMASOTE COMPANY, TRENTON 3, N. J.

HERE IS ***ONE*** *EXAMPLE OF* ***MANY!***

HOMASOTE
HIGH DENSITY
GROOVED VERTICAL SIDING

3-stage groove-lap joint gives Homasote Grooved Vertical Siding better, deeper, wider surfaced grooves.



In 8' lengths only, Homasote Grooved Vertical Siding obtainable with groove-lapped ends for horizontal application.

Ask your lumber dealer for free Homasote Handbook. Its 72 pages give you many helpful building hints.

LENGTH OF NAILS

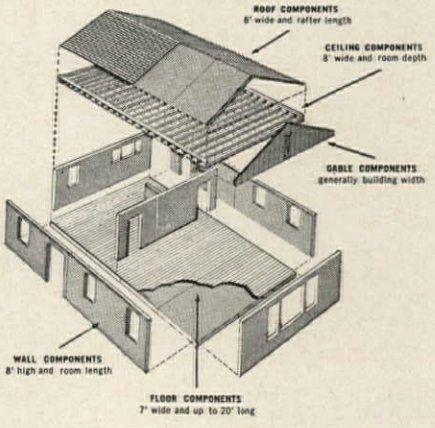
2d	1"	7d	2¼"	16d	3½"
3d	1¼"	8d	2½"	20d	4"
4d	1½"	9d	2¾"	30d	4½"
5d	1¾"	10d	3"	40d	5"
6d	2"	12d	3¼"	50d	5½"

HOMASOTE G-V-S
saves you $175 or more
(on the exterior walls for a house 26' x 36')

Whenever you cut the price of a house by $175, you increase the number of potential customers. If you cut the down payment substantially, many more people can afford to buy.

Homasote can help you cut your costs—either step by step or in terms of the whole structure. Both the size of the Big Sheets (up to 8' x 14') and their *weatherproofness* save you money at every point. Moreover, they permit uses not possible with other materials.

The major facts about each product are presented in briefest terms—on a colorful Nutshell Card (as pictured above). Handy reference figures—such as nail lengths—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 A-4.



To widen your market, reduce your down payment! Send for fully illustrated 8-Page Brochure showing how your use of Precision-Built Components can cut your building costs by $1,150.00 on a 3-bedroom house of 1040 sq. ft.

HOMASOTE COMPANY
TRENTON 3, NEW JERSEY

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

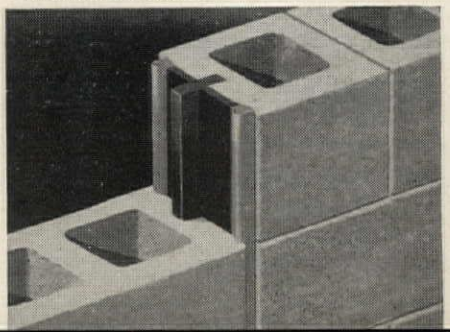
it takes Dur-o-wal to keep them alike!

Two masonry walls: They can be twins in surface charm and solidity. Yet, one can be the better building investment—free of maintenance problems for important extra years. That's the one built with Dur-o-wal, the original steel masonry wall reinforcement.

A wall reinforced every second course with Standard Weight Dur-o-wal has 71 per cent greater flexural strength than its unreinforced counterpart.

With its trussed design, butt-welded construction, scientifically deformed rods, Dur-o-wal is considered the most practical thing of its kind by builders everywhere. Nationally wanted, Dur-o-wal is nationally distributed. Wherever you build a masonry wall, you can get Dur-o-wal.

Two engineered products that meet a need. Dur-o-wal reinforcement, shown above, and Rapid Control Joint, below. Weatherproof neoprene flanges on the latter flex with the joint, simplify the caulking problem.



DUR-O-WAL®

Masonry Wall Reinforcement and Rapid Control Joint

RIGID BACKBONE OF STEEL FOR EVERY MASONRY WALL

DUR-O-WAL MANUFACTURING PLANTS

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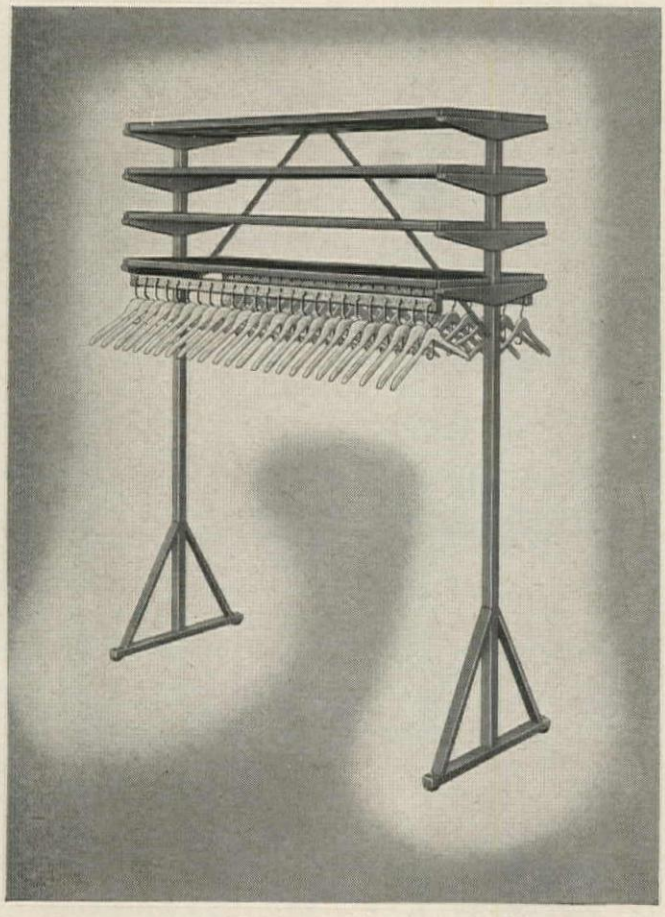
SPECIFY

BORROUGHS

Century LINE

OF FINE CHECK RACKS



America's most advanced design in coat and hat racks . . . gives 20% extra capacity

Borroughs "Century" Check Racks provide the utmost in functional efficiency and garment protection. Their clean lines and distinctive colors assure a fitting complement to any decor. There's a wide selection of models — starting units, add-on units, double-face units, wall models. All have Borroughs' suspended, reversible "Wonder Bar" which holds 4 or 5 hangers per foot plus extra capacities on top of the bar. The "Century" line merits your further consideration, so . . .

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- **So Safe!** Crystal clear "See-Thru" Plastic Cap reveals the blade. No mistaking it for anything but a knife when carried with other capped instruments.
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For immediate improvement in efficiency, accuracy and safety switch to X-acto!

(Here's an idea! The X-acto PenKnife can be imprinted. It makes an excellent business gift. Complete details, with quantity prices, sent upon request.)

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No. 10 — for small, fine general cutting.

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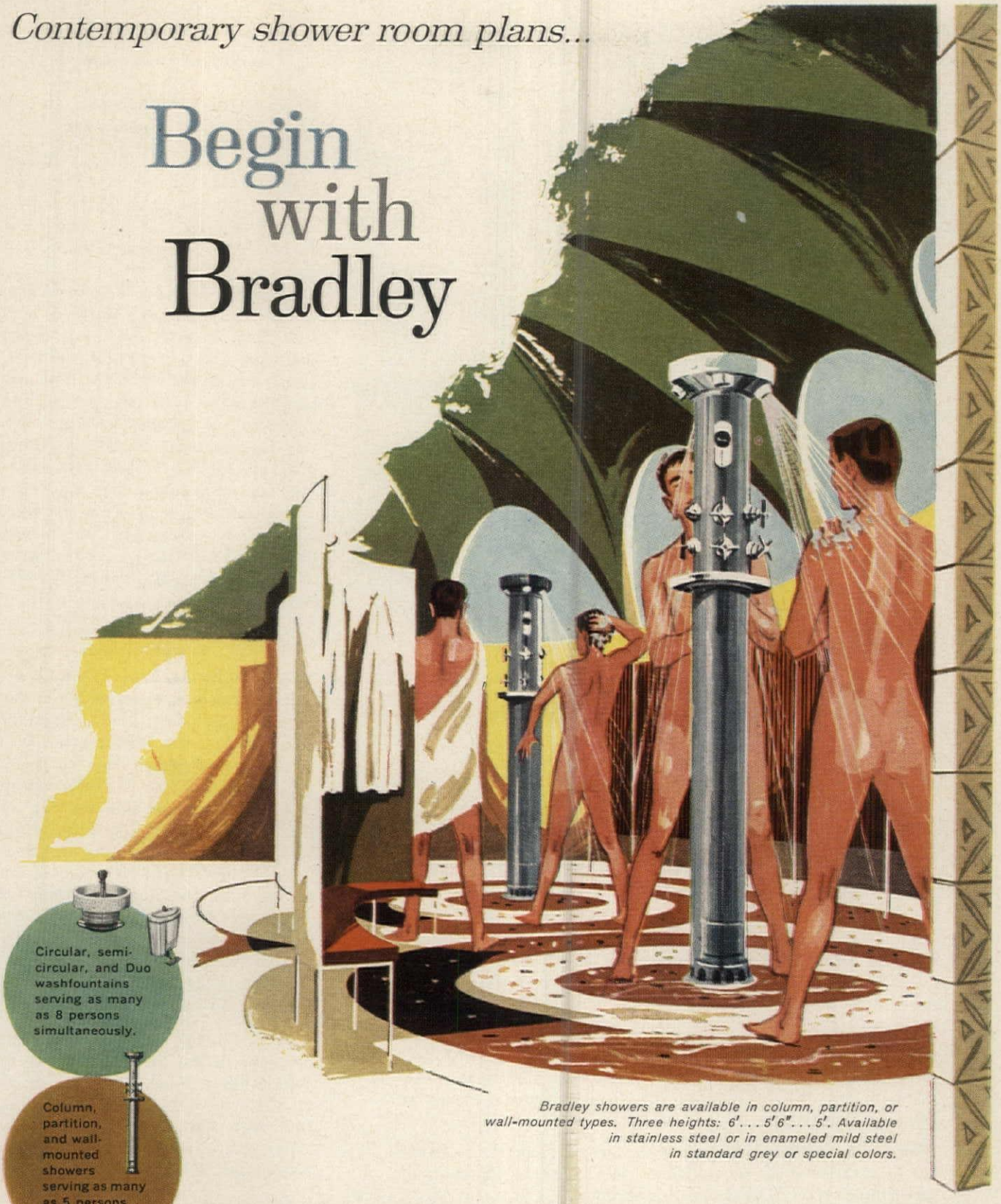
Contemporary shower room plans...

Begin with Bradley



Bradley showers are available in column, partition, or wall-mounted types. Three heights: 6'... 5'6"... 5'. Available in stainless steel or in enameled mild steel in standard grey or special colors.

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

Column, partition, and wall-mounted showers serving as many as 5 persons simultaneously.

Bradley

When you plan your next shower room, use Bradley Column Showers as your nucleus. No other showers give you so much creative latitude for achieving interesting design effects. In addition, they provide pleasant shower conditions for up to five persons, yet require only one set of plumbing connections. This single feature cuts installation costs almost 80%!

Bradley Column Showers are packaged units — so they can be installed in a fraction of the time necessary for conventional showers. They save water, and they save valuable floor space. They speed shower room traffic flow, ending delays. Give your shower rooms new utility, new visual drama—Begin with Bradley!

Bradley Washfountains and Showers provide group facilities for as many as 8 and 5 persons, respectively, in schools and in commercial, industrial, and public buildings everywhere. Your Bradley representative will gladly supply additional facts and assist on specific applications. Or write for catalog No. 6004 to Bradley Washfountain Co., 2227 W. Michigan St., Milwaukee 1, Wis.

The Record Reports

continued from page 73

Garland Elected Chairman of Florida Arts Commission

James E. Garland, A.I.A., Miami architect and former educator, has been elected chairman of the newly-created Florida Arts Commission, appointed by Governor LeRoy Collins.

A partner in the architectural firm of Connell, Pierce, Garland and Friedman, Mr. Garland will direct the many arts commission activities. These include the setting of high cultural standards for the design and placement of public buildings, attracting artists to Florida, handling gifts and bequests of antiques, paintings and sculpture to the state.

One of the first projects Mr. Garland will recommend to the commission is a facelifting of the corridors at the State Capitol Building in Tallahassee.

Obituaries

Theodore Irving Coe, F.A.I.A., architect and long time leader in the building industry, died November 12 at his home in Washington, D.C. at the age of 88.

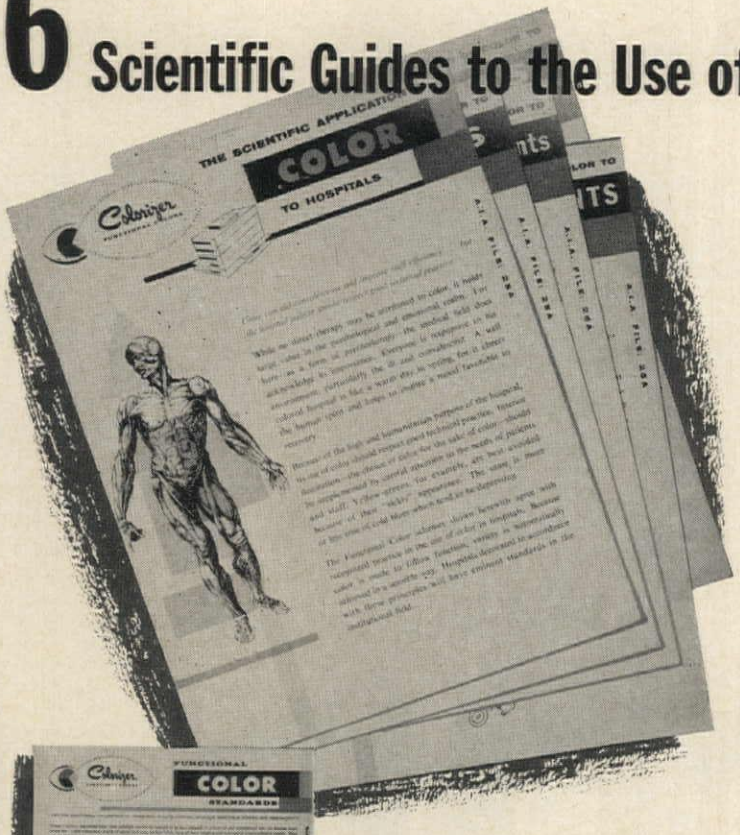
Mr. Coe came to Washington in 1932 to supervise construction of the U.S. Supreme Court Building, as representative of the architect Cass Gilbert. Upon its completion he assumed the dual functions of Technical Secretary of the American Institute of Architects and Executive Secretary of the U.S. Construction League. Later he became full time A.I.A. Technical Secretary.

Earl F. Bankes, A.I.A., a long-time designer in the New York Office of John Russell Pope, died August 14 at his home in Coral Gables, Fla. In recent years he worked with the architectural firm of Weed Johnson Associates, Miami.

Richard Joseph Adams, A.I.A., vice president of the firm of Sherlock, Smith and Adams, Montgomery, Ala., died September 20. A designer of 100 hospitals throughout the world, he worked closely with the hospital planning service of the U.S. Public Health Service. Many of his designs have been accepted as standards in hospital construction.

more news on page 217

6 Scientific Guides to the Use of COLOR



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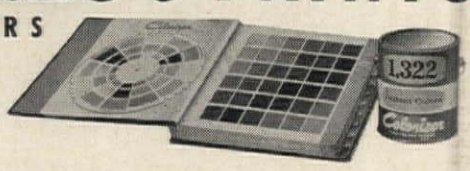

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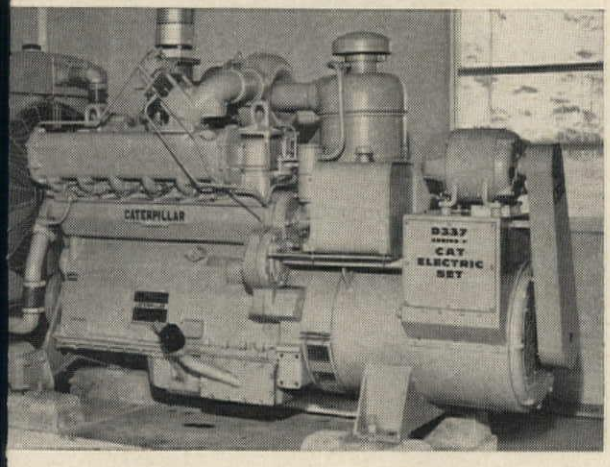
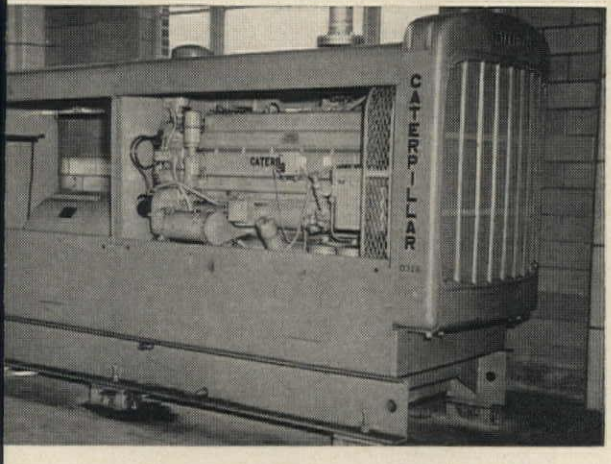
Prime power— Emergency power...

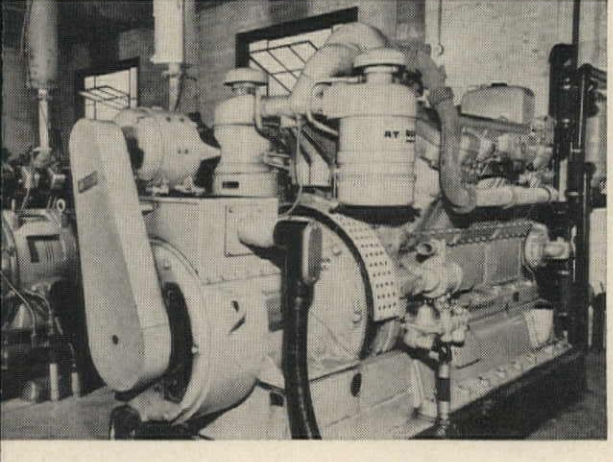
Cat D337 Electric Set in Plant D of Public Utilities Department at Fort Lauderdale, Florida.



Cat D326 Diesel Electric Set is used for standby power at Water Department in Warren, Ohio.



Cat 397 helps furnish power for the village of L'Anse, Michigan, which has a population of 2400.



Whatever the job, Caterpillar engines will provide an economical, reliable investment

In water works, sewage plants, or electric utilities, Caterpillar Engines prove their worth. In the town of L'Anse, Michigan, Caterpillar Diesels furnish power for a population of 2400. "I've been running Caterpillar Engines in our power plant for 20 years," the superintendent says. "During that time we've had only the best from the engines themselves and our Caterpillar Dealer."

At Plant D of the Public Utilities Department in Fort Lauderdale, Florida, Plant Supervisor Vernon Sheesley says, "Although our plant is relatively new, we are well satisfied with our Caterpillar Diesel Electric Set and the excellent service given by our Caterpillar Dealer."

At the water purification plant of the City of Warren, Ohio, three Caterpillar Diesels give dependable power—a D326 Electric Set is used for standby power in the purification plant, a D397 is on a standby pump to keep up water supply when electric pumps are down, and a D318 pumps water from reservoir to purification plant automatically on a low service pump at reservoir.

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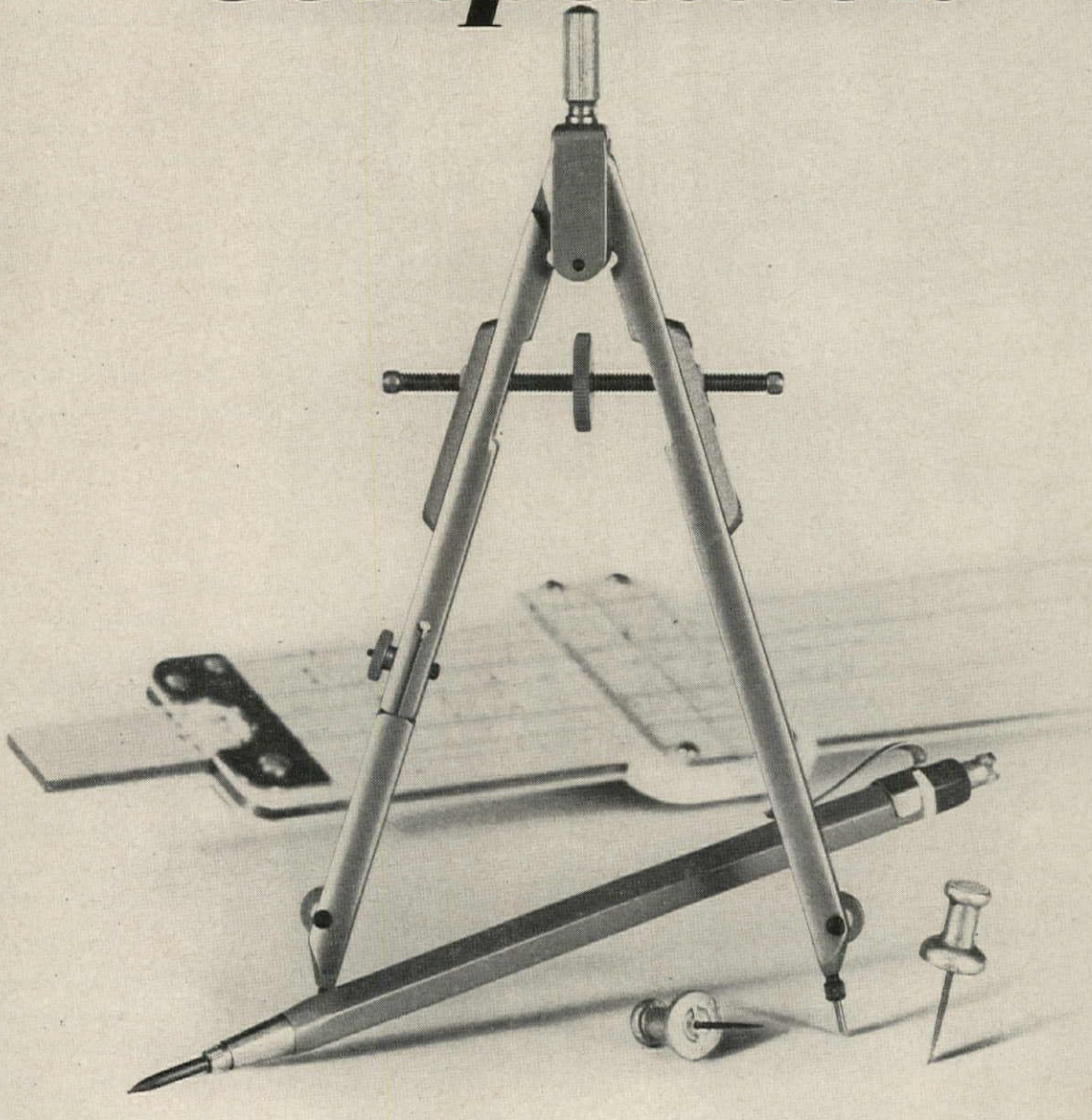
The Third $25,000 Annual Design Competition



to stimulate a major contribution to "Long-range Planning for the Medical Care facilities in the Community"

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Grand prize	$10,000.00
2nd prize	5,000.00
3rd prize	2,500.00
6 merit awards of	500.00

Students Only

1st prize	$ 2,000.00
2nd prize	1,000.00
3rd prize	500.00
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ELIGIBILITY Open To:

Registered architects of the U.S.A.

Architectural assistants to registered architects of U.S.A.

Students of schools which are members or associate members of Collegiate Schools of Architecture as of 1960/61

NOTE: Special awards for students not successful in general competition. Students winning a major award will not be considered for student awards.

Endorsed by the National Institute for Architectural Education

Approved by the Committee on Competitions of the American Institute of Architects

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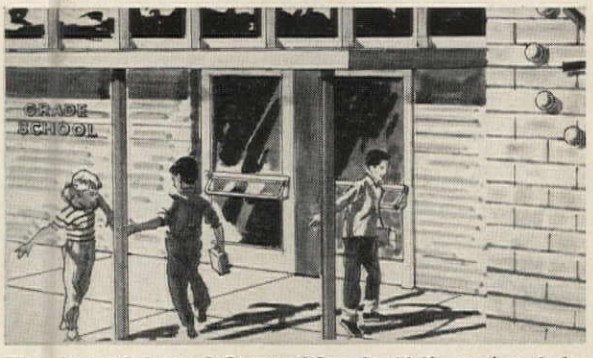
The First Annual Competition in 1959 initiated the concept of an integrated, planned community project premised on "Better Living For The Middle Income Family."



The Second Annual Competition in 1960 continued the development of this planned community with a program designed to create a concept of "Education for Youth and Adult-Recreation For All The Family."

The Third Annual Competition in 1961 moves to the third step in an integrated planned community with the theme "Long-range Planning for the Medical Care Facilities in the Community."

For a prospectus containing complete details concerning this third annual competition please send in the coupon below

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I intend to enter the Third Annual Design Competition.

Please send me_____ copies of the program for the design competition.

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Entrants are requested to register prior to May 15, 1961

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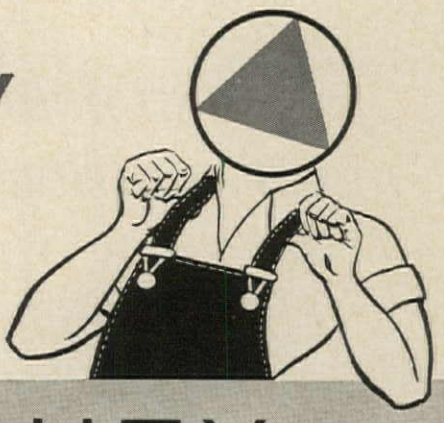

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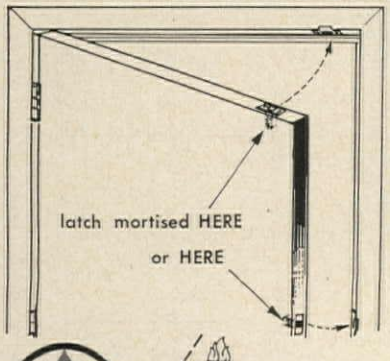

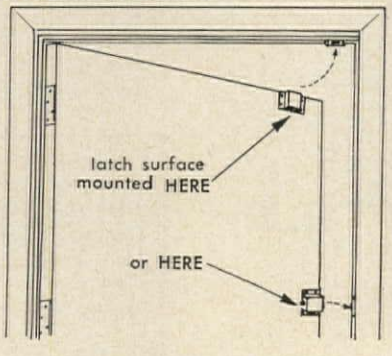

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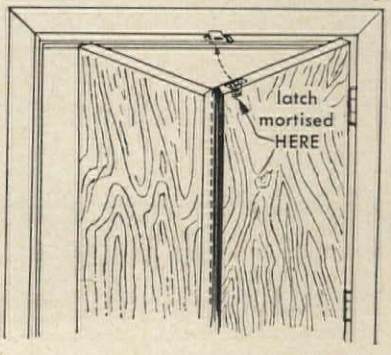

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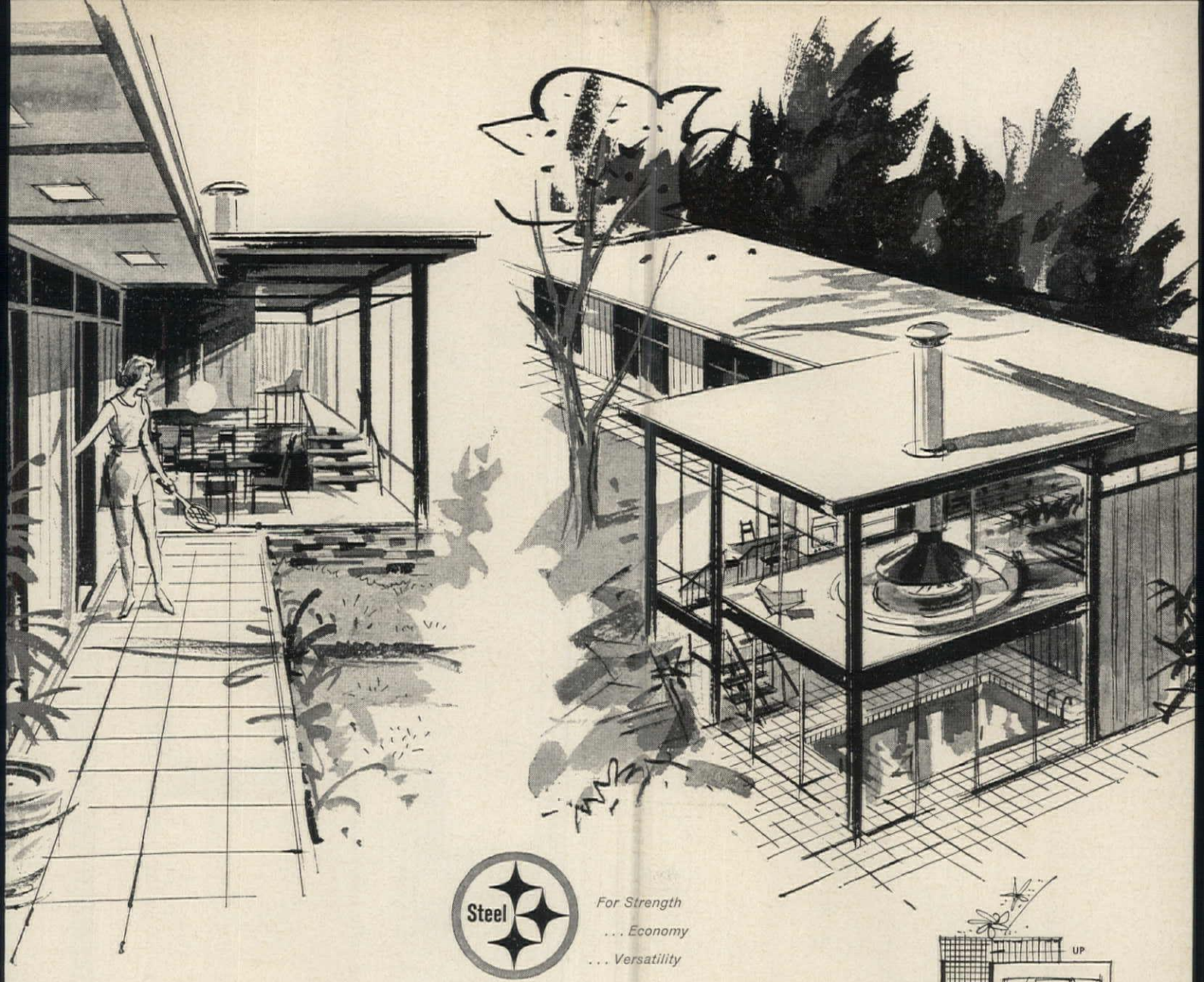
HOW ABOUT THE COST? With "problem" sites, steel commonly *saves* clients money. But even on level lots a steel-framed house need not cost a penny more than any other.



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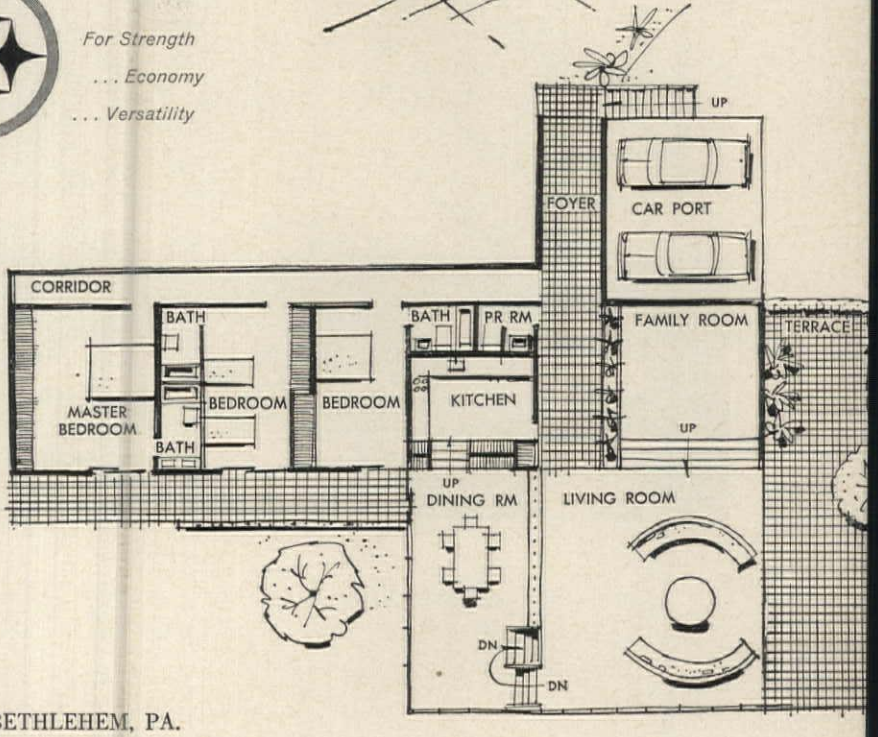

HOW ABOUT TIME? Once you complete the design of a steel-framed house, it can be ready for occupancy faster than any other type. A fabricating shop can prepare the steel in a few days; most likely the entire frame can be put up in a matter of hours—and quickly roofed over—compared with many days required for a carpenter-built house.

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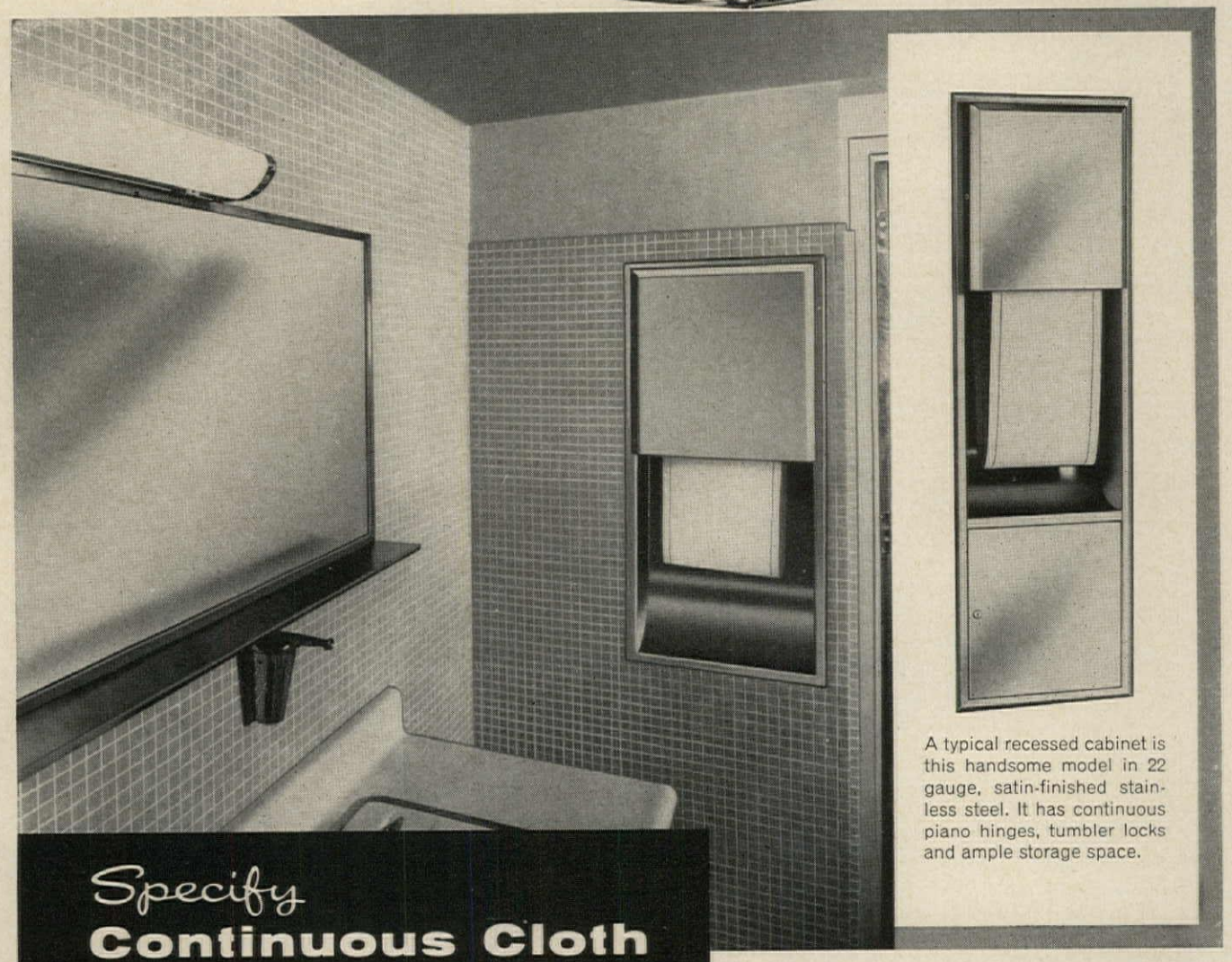
See Bethlehem's exhibit on three of the "Top Ten Plants of 1960"
at the Industrial Building Exposition and Congress, December 12-15, in the New York Coliseum.

Design for beauty and utility with an eye to economy, too...



A typical recessed cabinet is this handsome model in 22 gauge, satin-finished stainless steel. It has continuous piano hinges, tumbler locks and ample storage space.

Specify Continuous Cloth Towel Cabinets

Cloth towel cabinets add smartness to this washroom in the newly-built Prudential Federal Savings Building, Salt Lake City. Architect: Cunneen Co., Philadelphia, Pa. Service is by American Linen Supply Co.

Check the benefits your clients get when your design includes cloth towel cabinets in all washrooms.

- ☐ An end to litter, storage and disposal problems.
- ☐ Reduced maintenance and janitorial costs.
- ☐ Fewer plumbing repairs.
- ☐ Elimination of fire hazard.

One of your local Linen Suppliers will gladly install and service these units at modest cost. And, from then on, each washroom will be kept supplied with fresh, clean cotton toweling automatically. And, remember—your specification does not obligate your client to any particular service.

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EMBLEM OF EXCELLENCE IN VERTICAL TRANSPORTATION

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Designers knew that before and after scheduled events, building traffic would mean a heavy demand for elevator service between parking areas (basement, first and roof floors) and second floor. At other times, comparatively light traffic could be expected between all floors.

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The complete reliability of Haughton vertical transportation is thoroughly recognized by building professionals and owners. We will be glad to provide you with complete information on Haughton design, modernization and maintenance capabilities.

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

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Einstein Medical Center ... another installation with

The Einstein Medical Center (Northern Division).

Take a good look at the clean, simple lines of this striking monument to modern-day medicine. Notice how beautifully everything fits—the synthesis of approximately 11,400 sq. ft. of LUPTON Type "H" curtain-wall units, 549 LUPTON "Master" projected aluminum windows, and 732 LUPTON double-hung aluminum windows with the overall architectural concept of the building.

Functionally, LUPTON aluminum construction is consistently economical. All parts are accurately prefabricated and delivered on schedule for simplified, routinized assembly. And lightweight LUPTON construction lowers foundation and framework costs. You get more usable floor space . . . save on maintenance.

Most advantageous of all, though, is LUPTON's dependability. As proven in hundreds of jobs—including the largest aluminum curtain-wall installation in the world—you can depend on LUPTON to meet your specifications, to deliver as scheduled. You can pinpoint responsibility, because LUPTON can do the whole job—even install!

See SWEET'S (Sections 3 and 17) for the Michael Flynn Aluminum Curtain Wall and Window catalogs, and write for further specific information. Inquire about LUPTON Comfort-Conditioning*—the new curtain-wall system that cools, heats, and ventilates. A call to the nearest LUPTON representative (see the Yellow Pages under "Windows—Metal") will bring fast action without obligation.

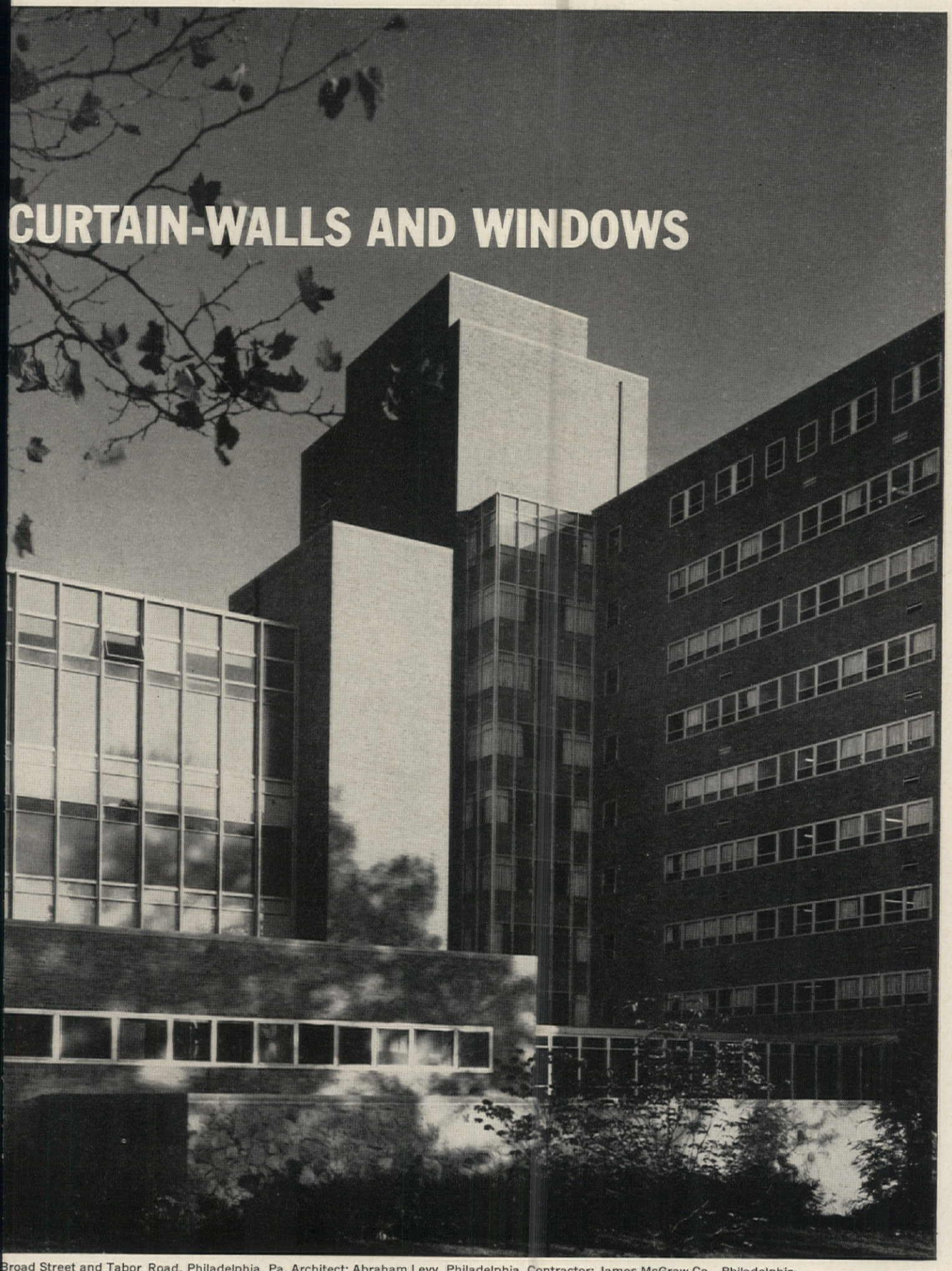
**Trade Mark*

LUPTON®

METAL WINDOWS • CURTAIN-WALLS
MICHAEL FLYNN MANUFACTURING CO.

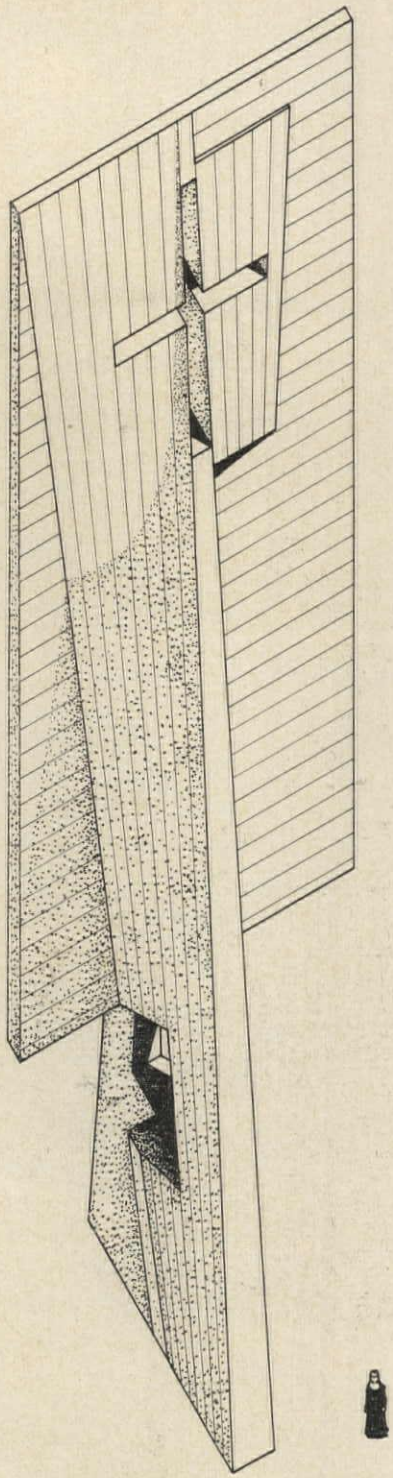
Main Office & Plant: 700 E. Godfrey Ave., Philadelphia 24, Pa.; West Coast Plant: City of Industry, Calif. (Los Angeles County); Stockton, Calif.; Chicago, Ill.; New York, N.Y.; Cincinnati, Ohio; Cleveland, Ohio; Dallas, Texas. Representatives in other principal cities.

CURTAIN-WALLS AND WINDOWS



Broad Street and Tabor Road, Philadelphia, Pa. Architect: Abraham Levy, Philadelphia. Contractor: James McGraw Co., Philadelphia.

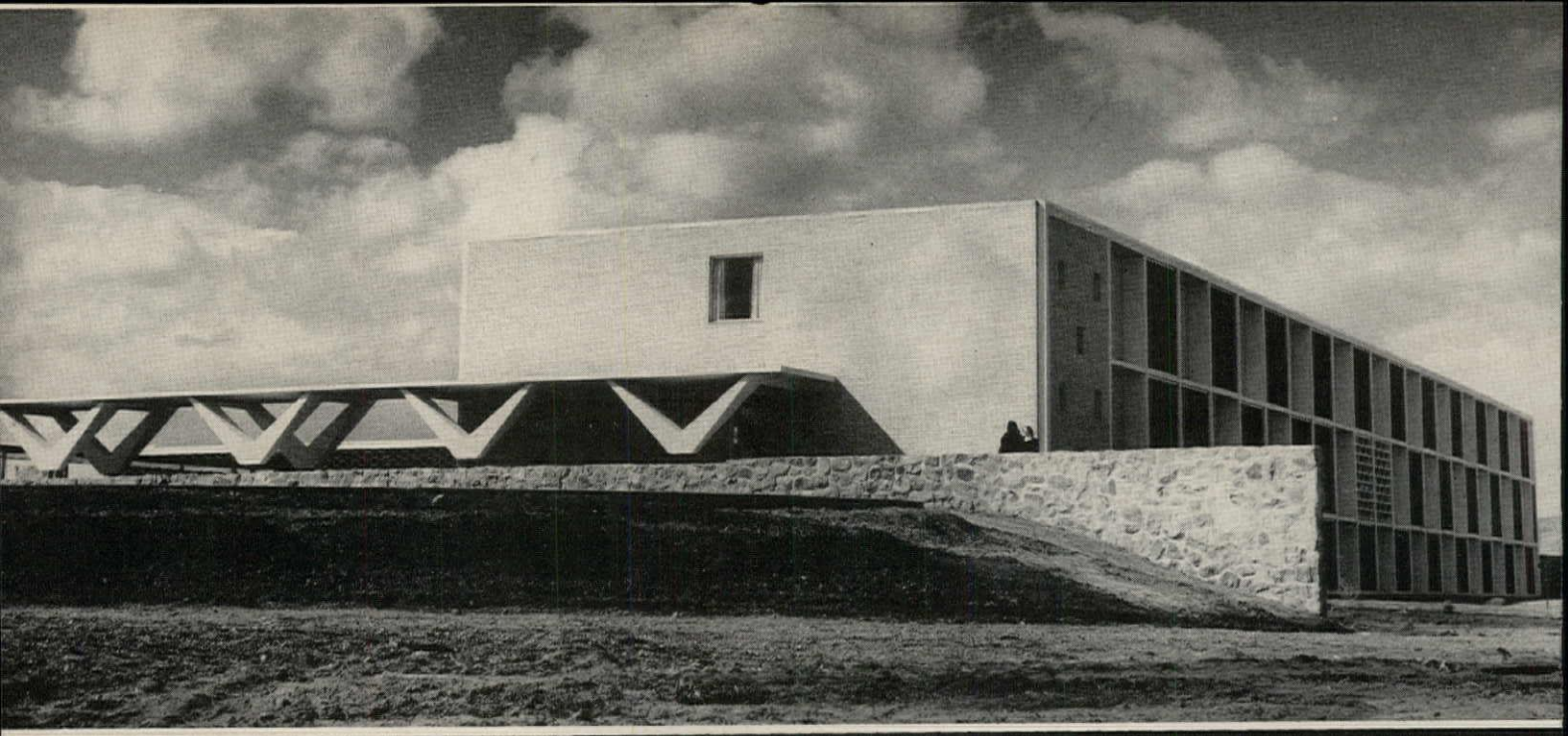
ARCHITECTURAL RECORD
JANUARY 1961



OF MATERIALS THAT AGE GRACEFULLY

Breuer's design for a convent in the hilly, windy emptiness of North Dakota makes use of local stone, local brick, and concrete for reasons of permanence, accessibility and traditionally good handling by workmen in the region

Breuer: "From afar the bell tower will make a distinctive silhouette in the otherwise fairly empty landscape, and from nearby will mark the approach to the chapel. Its bronze bells will strike the hours and announce the daily offices. Its form—generated by straight lines connecting two opposite shapes—lends itself readily to the technology of wood framework and concrete."



Bismarck, North Dakota

ARCHITECTS:
Marcel Breuer and Fred V. Traynor

ASSOCIATES:
Hamilton Smith and Ray T. Hermanson

STRUCTURAL ENGINEERS:
Johnston-Sahlman

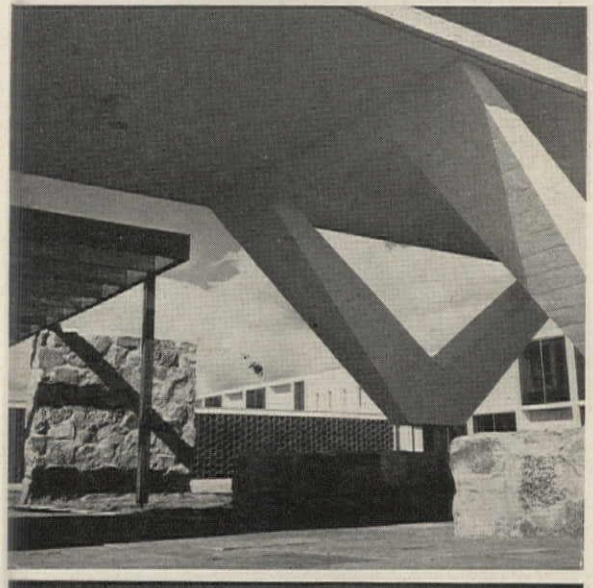
STRUCTURAL CONSULTANT FOR CHAPEL:
Paul Weidlinger

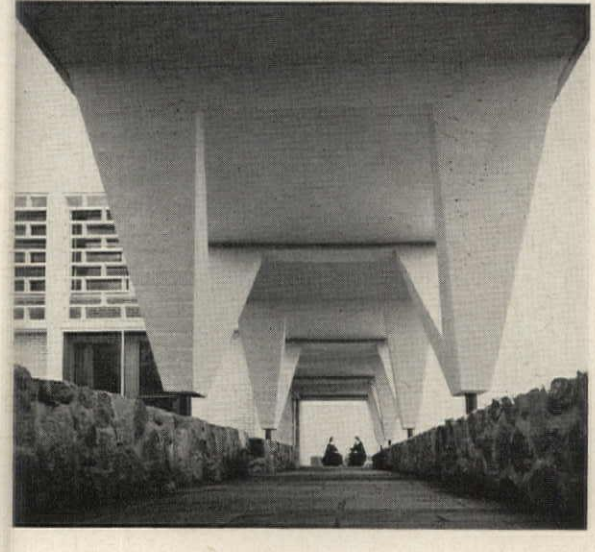
MECHANICAL ENGINEERS:
Gausman & Moore

Priory of the Annunciation

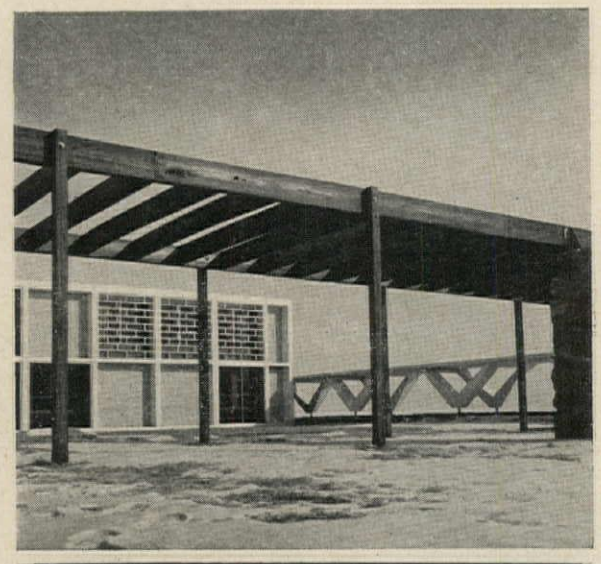
In addition to the basic desire to create a convent group that would possess a permanent character and acquire an attractive patina with aging, the architects selected materials for both exterior and interior that are readily available in the sparsely settled region, and that local builders use well. Fieldstone was collected from surrounding farms at no cost except for haulage; the attractive local brick, rough textured and light buff in color, contrasts nicely with concrete and seemed appropriate; red brick was used for bulkheads—and natural quarry tile for paving and certain floor areas. Designer Breuer has—in typical fashion—played these textures and colors against each other to good effect, and for further counterpoint has contrasted the sculptural form of the bell tower and the undulations of the cloister walkway supports to the rectilinearity of the buildings.

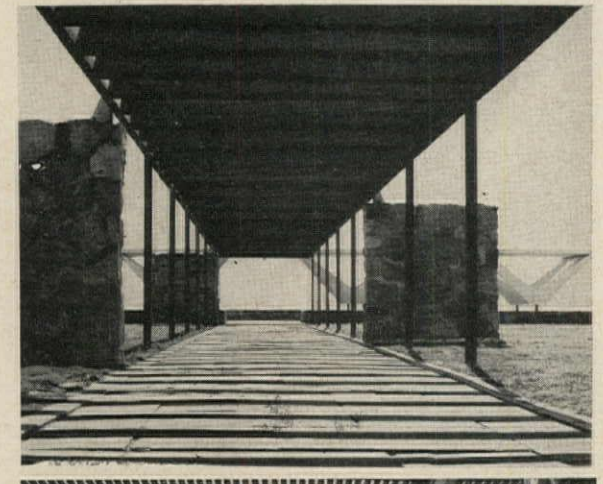
All photos by Shin Koyama

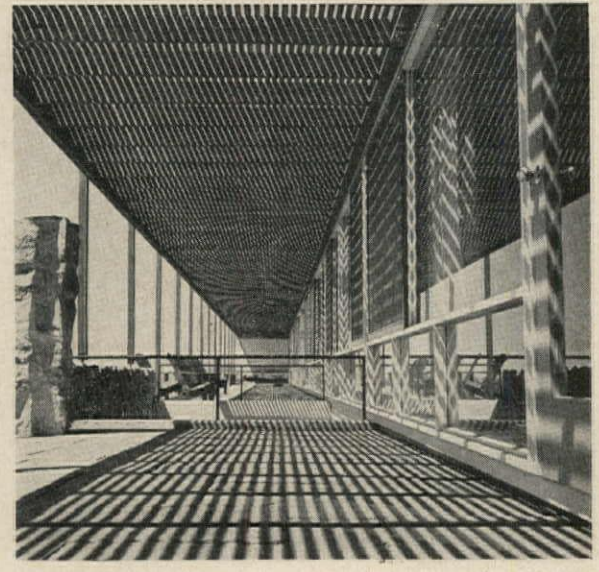




The v-shaped concrete supports for the cloister walkway make a series of undulations opposing—but echoing in reverse—the shapes of the surrounding hills that fall off toward the Missouri River. For both scale and texture, all concrete formwork was constructed of 6-in. boards, and the concrete was left as it appeared upon stripping the forms. All future concrete construction will be handled the same way



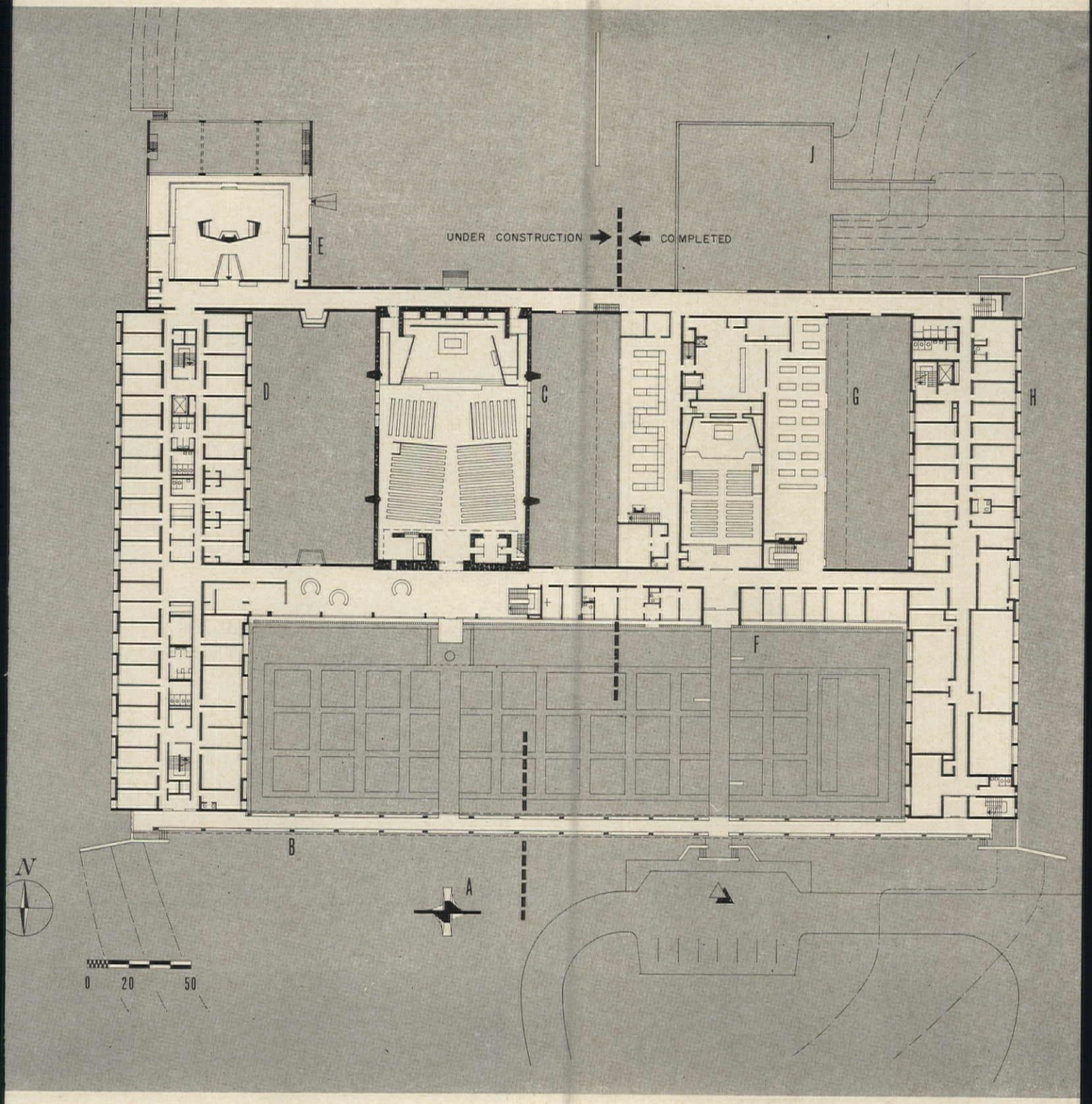




Priory of the Annunciation

As the plan at right explains, the first stage of a several stage building program for this Benedictine convent is now complete—the next stage will be under construction within a few months. The entire scheme will consist of two principal "islands" in the countryside: the convent group shown in the plan, and a future junior college group. In addition, there will be two "satellite" islands: a walled cemetery, and a group of apartments for caretakers, visitors, and lay members of the faculty.

Unit G contains refrectory and dining hall flanking a central temporary chapel and kitchen; F is the administrative area; H serves as temporary quarters for sisters and novices and as a high school—will eventually become school and dormitory when the permanent sisters' quarters, D, are built; C is the main chapel; E the sisters' community hall, which centers on a walk-in fireplace.


UNDER CONSTRUCTION
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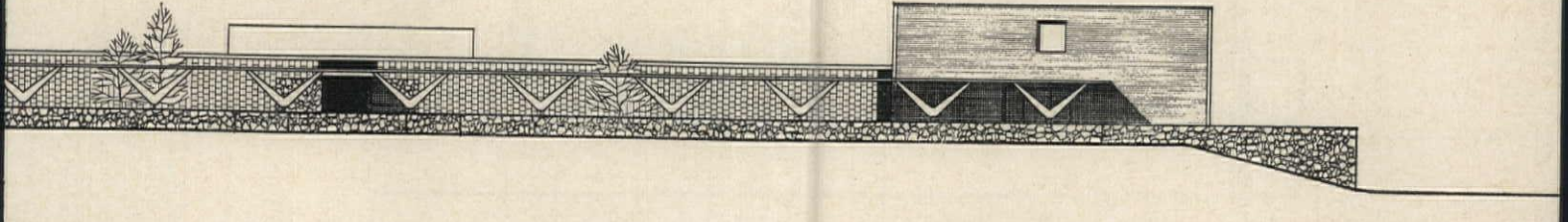
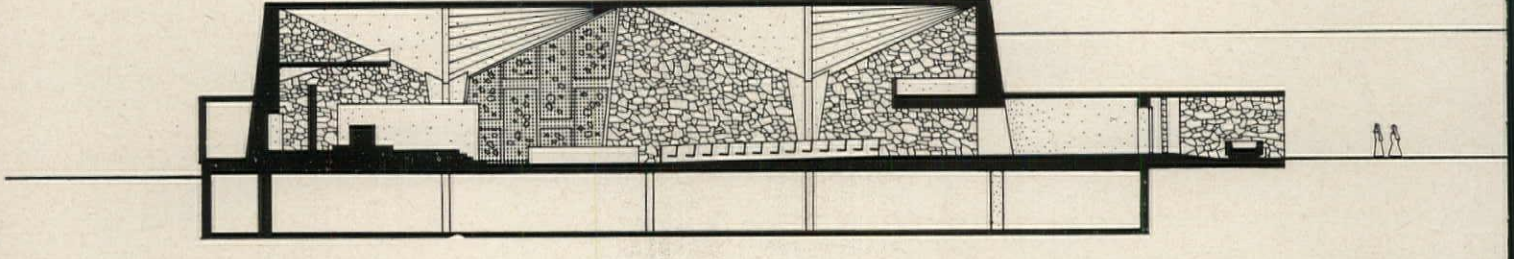
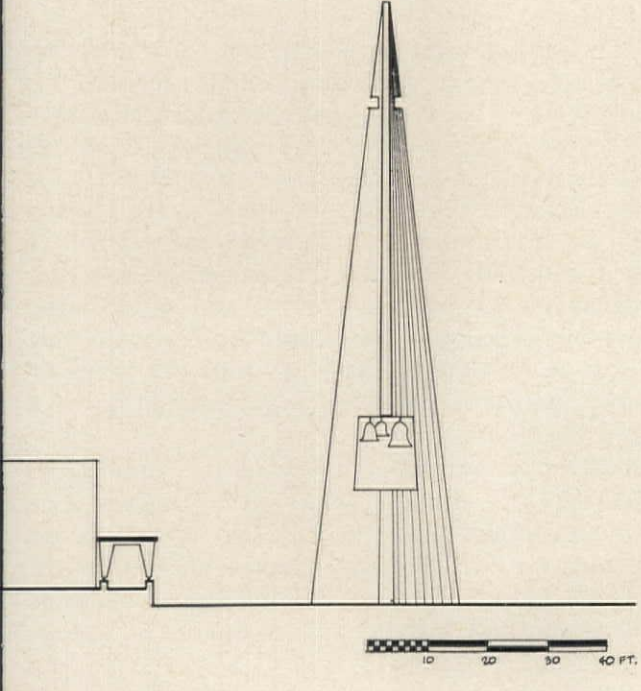




Priory of the Annunciation

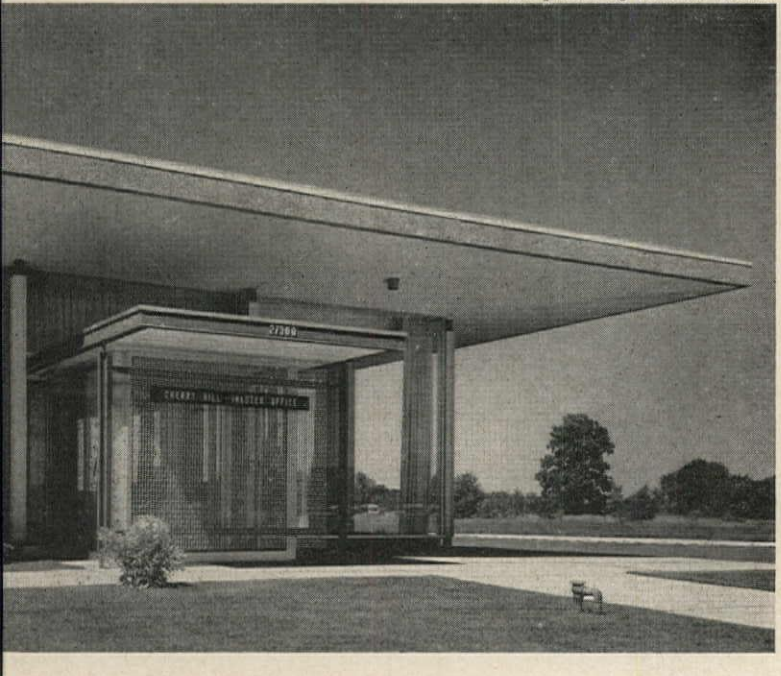
The temporary chapel—shown in these photos—has been so effective in use and so appealing visually that it will remain in the final scheme—first plans called for the space to be otherwise used. The side walls are brick, painted white; the cycloramic shaped altar wall is finished in gold leaf applied over mosaic tile (for texture); its surface glows in a wash of light coming from a concealed skylight by day or a troffer by night. The perforated wood baldachino is painted Chinese red; the reredos screen is of dark stained oak with the recessed joints painted red. The altar platform is covered with natural rush squares; the altar is made of platinum gray granite with honed finish. The benches and ceiling boards are of dark oak; the floor is surfaced with natural quarry tile. Lighting for the congregation comes from pin-point spots.



The larger, permanent chapel (soon to be built) will be constructed with a concrete shell roof, which will be sheathed with copper outside, whitewashed inside, and carried on only four supports (see section on the left page). The chapel's fieldstone walls will be whitewashed, and will contain two large glazed areas of 1-in.-thick stained glass set directly in concrete. The reredos screen wall will be gold leafed, and all woodwork will be walnut stained dark

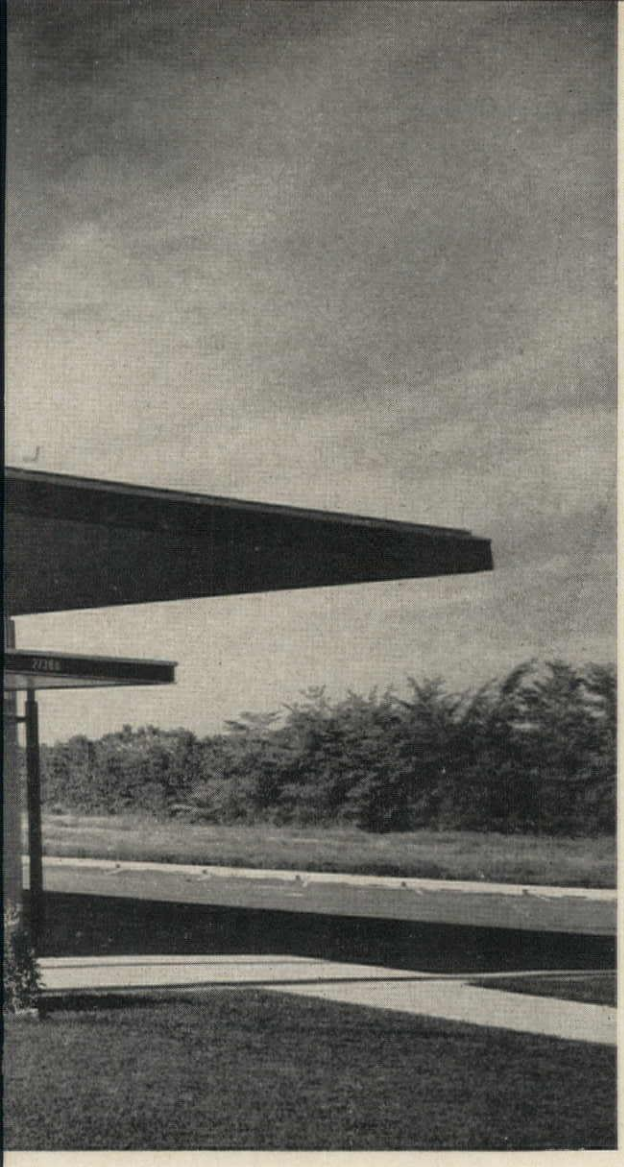
SUBURBAN BANK WITH A FRIENDLY AIR

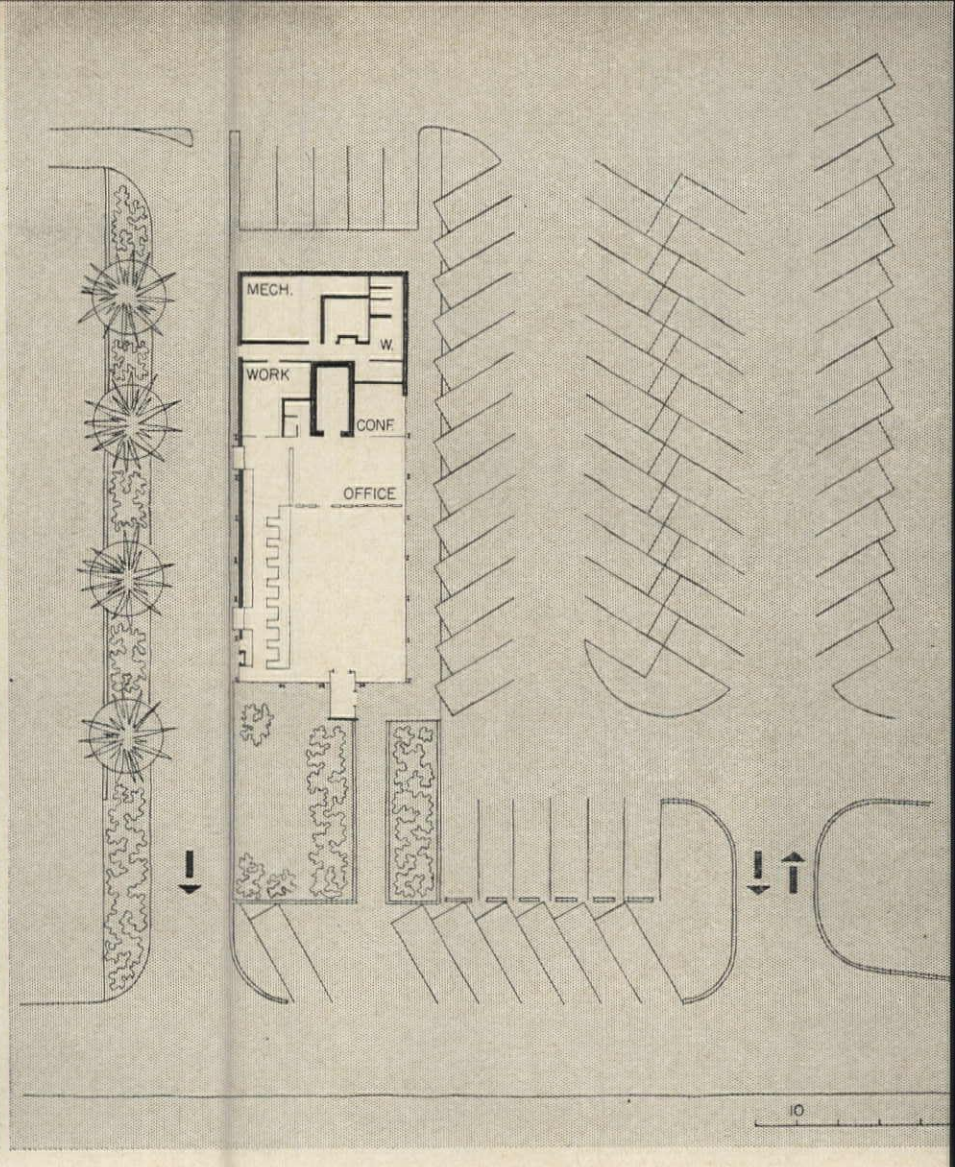
All photos by Baltazar Korab



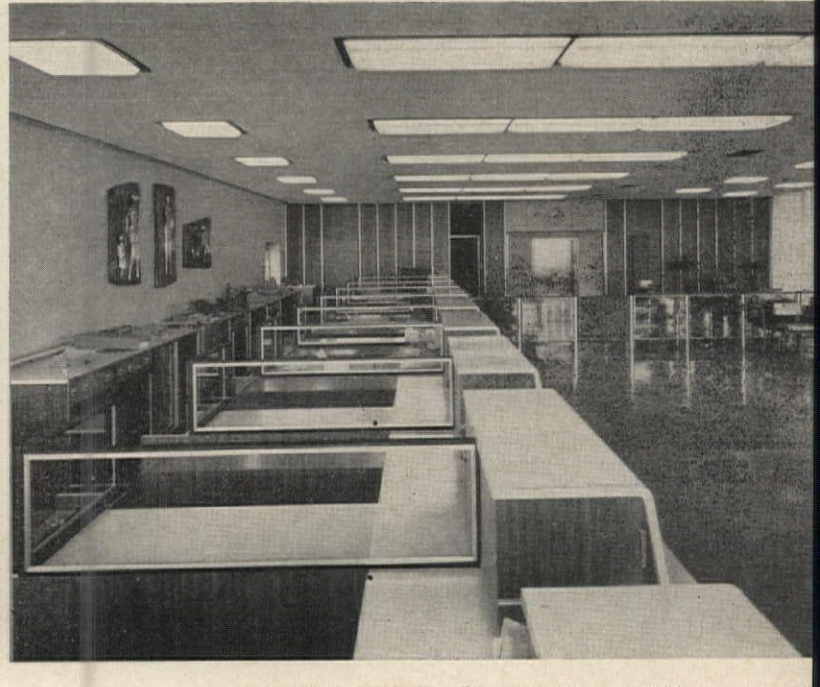
The aim in the design of this branch bank near Detroit was to present an open, friendly look to the passerby and to create, as well, an informal atmosphere for business in which all banking transactions are exposed to view and officers are readily available to the public. To these ends, the steel framed structure (clad in aluminum extrusions) was opened to the east and south, and the interior space was considered as a unit—the glass railing and low banking counter furthering that consideration. The plain west wall that backs up the tellers contains two drive-up windows, with provision for easy installation of a third in the future.

The dividing partition that separates public and service areas is finished with walnut panels and aluminum vertical rails, the vault serving as a visual focus for this wall. The decorative plaques on the blank wall consist of cast aluminum figures mounted on carved walnut panels. The ceiling is acoustical tile; the floor is vinyl tile.

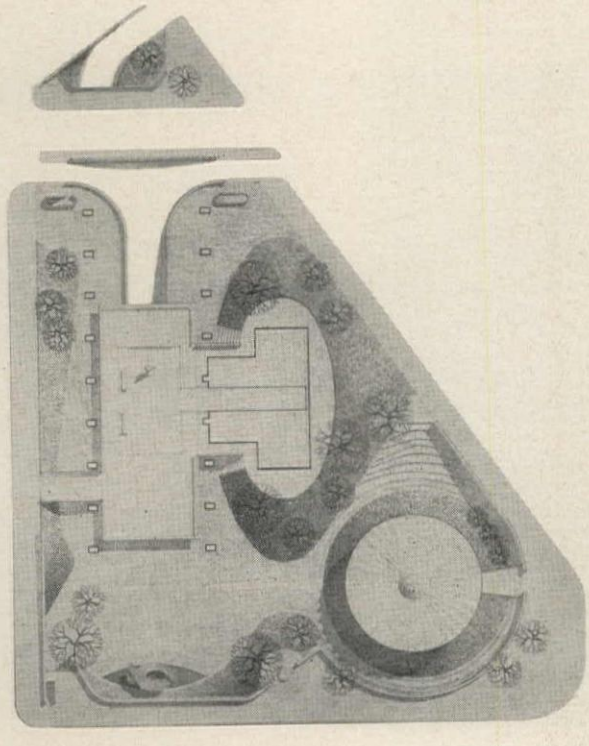




Manufacturers' National Bank of Detroit; Dearborn Township, Michigan;
ARCHITECT: *Louis G. Redstone;* ASSOCIATE: *Avner Naggar;*
GENERAL CONTRACTOR: *Walbridge-Aldinger Co.*

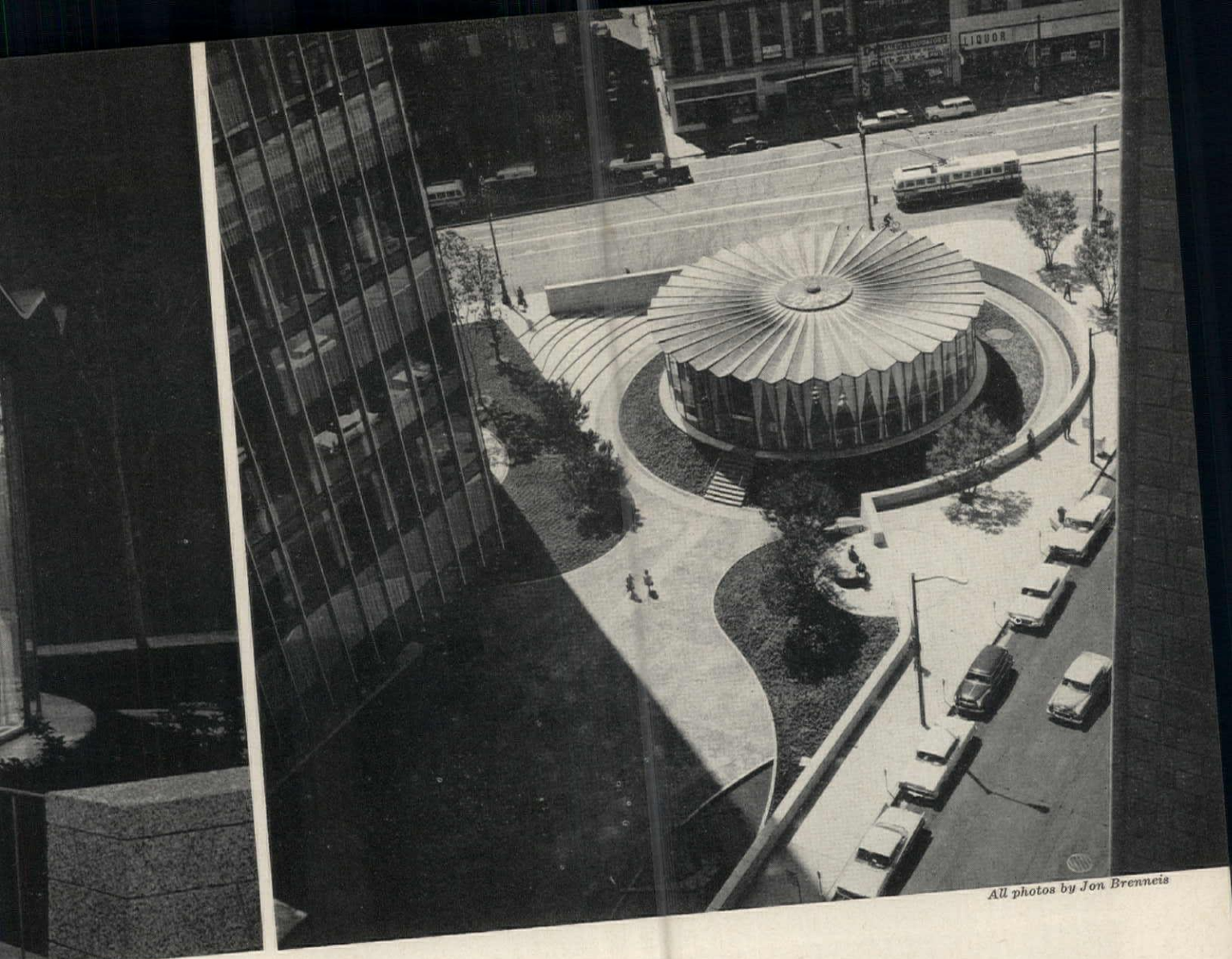


CIRCULAR BANK FOR TRIANGULAR PLAZA



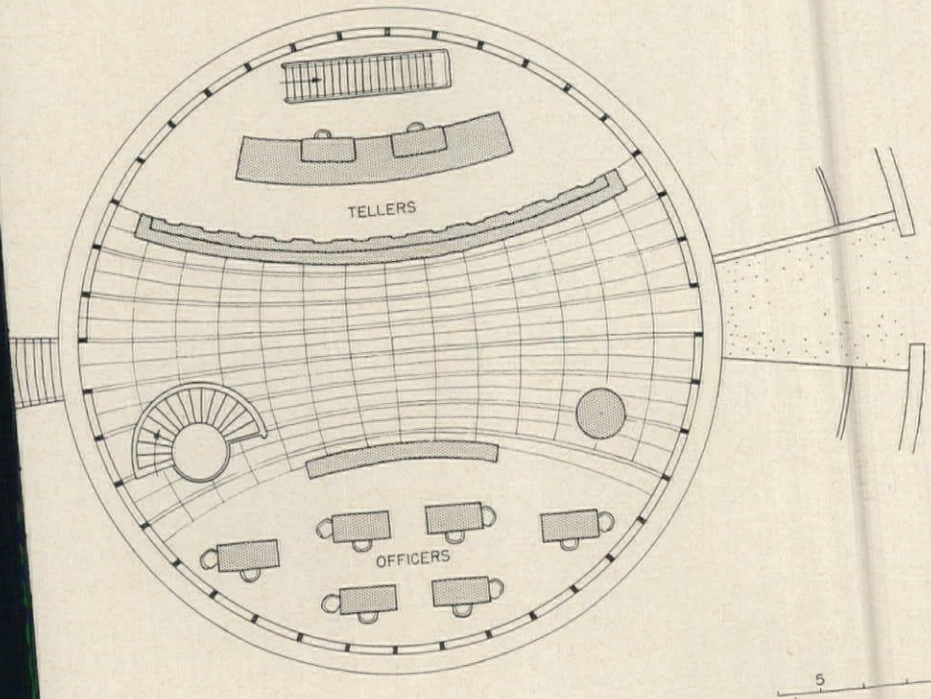
The character and shape of the one and one-third acre, triangular plaza for the 20-story Crown Zellerbach building—set in the heart of downtown San Francisco—were strong determinants in the shaping of the interesting and attractive free-standing bank recently built there. As the plot plan (left) explains, a circular form seemed right for the area; the idea of making the building a glass-walled pavilion with no interior supports appeared appropriate for the situation; while its spreading, small-scale, delicate character offered effective contrast to the massive structures on all sides.

The 3800-sq-ft building is a circular space frame of steel, 70 ft in diameter and supported by 40 columns. The roof structure consists of steel beams radiating from a steel "rose" skylight glazed with wired plate glass. The roof proper is of folded plate precast concrete elements sheathed with copper. The lower floor houses the vault, safe deposit department, conference room, and lunch room.

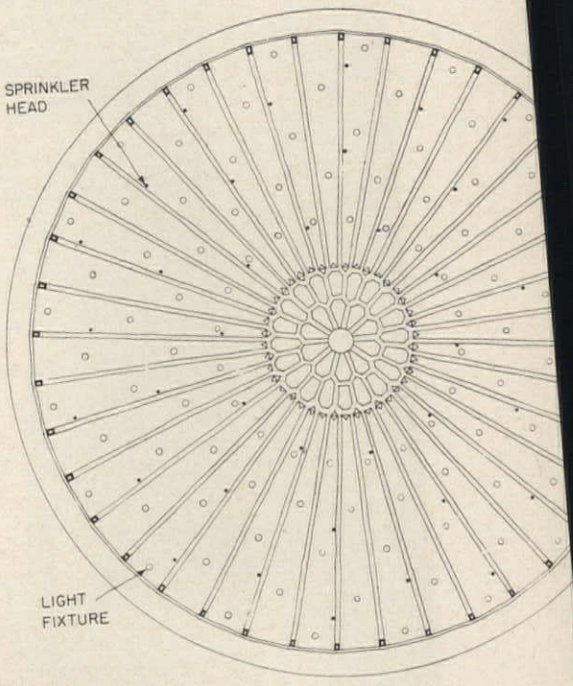


All photos by Jon Brenneis

American Trust Company, Crown Zellerbach Branch, San Francisco;
ARCHITECTS: *Skidmore, Owings & Merrill;* BUILDERS: *Haas & Haynie*

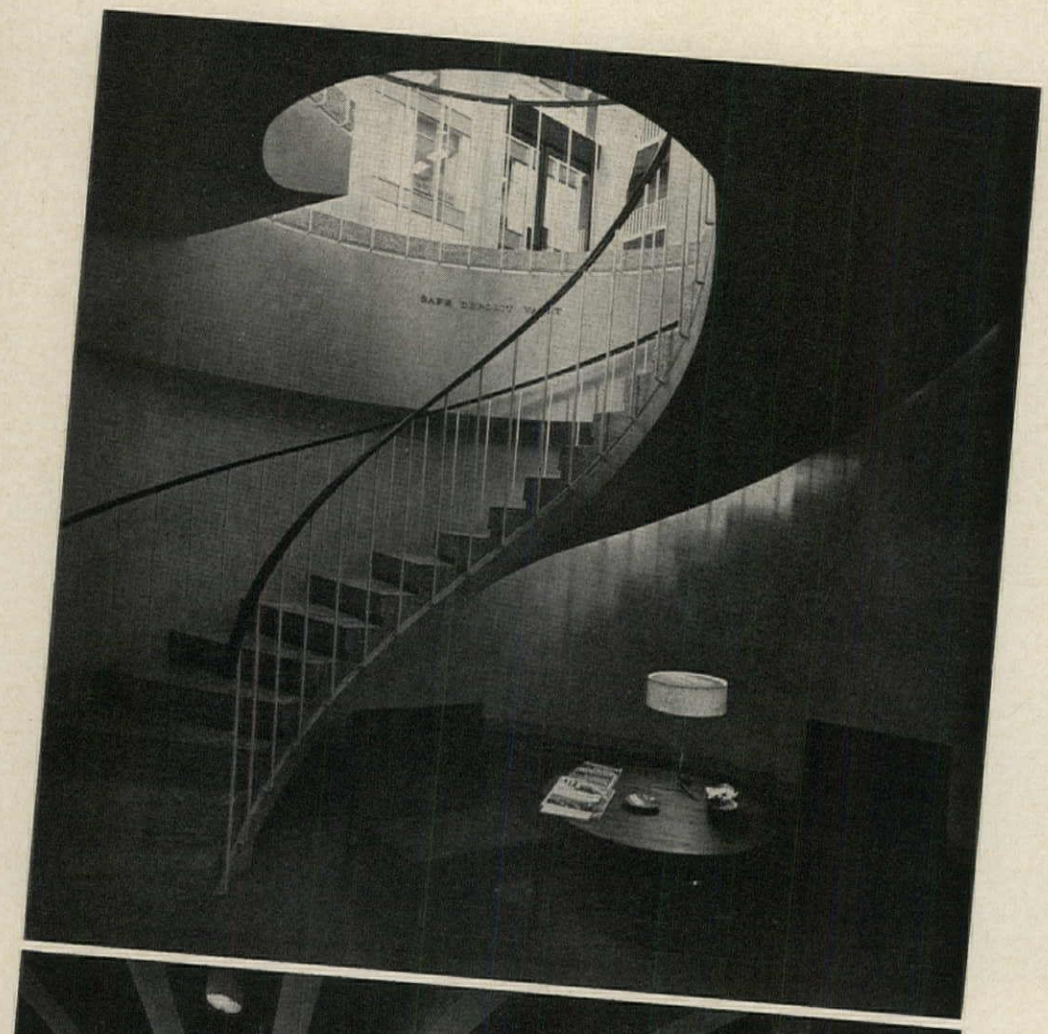


GROUND FLOOR



REFLECTED CEILING PLAN

5



American Trust Company

The interior color scheme is beige, white, black, and teakwood. Counters, desks, and chairs are of teak; the window hangings are of an open weave white fabric; the floor is two-tone terrazzo, except that the officer's section is beige wool carpeting; the circular stair to the lower floor has a teak railing and metal balusters painted white.

The main floor lighting consists of special design cylindrical fixtures, painted bone white, which are arranged in a pattern of six concentric circles and suspended so they are flush with the beam soffits

VENETIAN GLASS WALL ENCLOSES OFFICES

General Office Building,
Atlantic Coast Line Railroad Co.

Jacksonville, Florida

ARCHITECTS:
Kemp, Bunch & Jackson

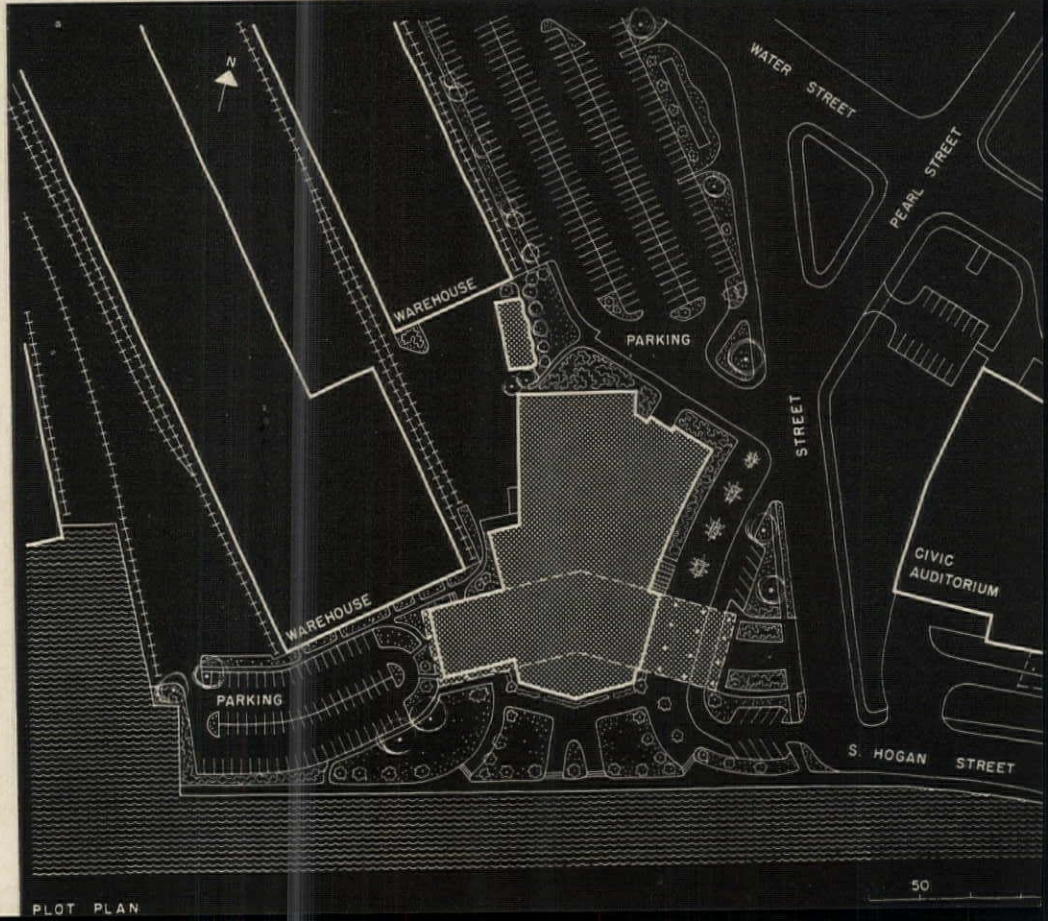
STRUCTURAL ENGINEER:
J. L. McCollough

MECHANICAL AND ELECTRICAL ENGINEERS:
Van Wagenen & Van Wagenen

CIVIL ENGINEERS:
Robert M. Angas & Associates

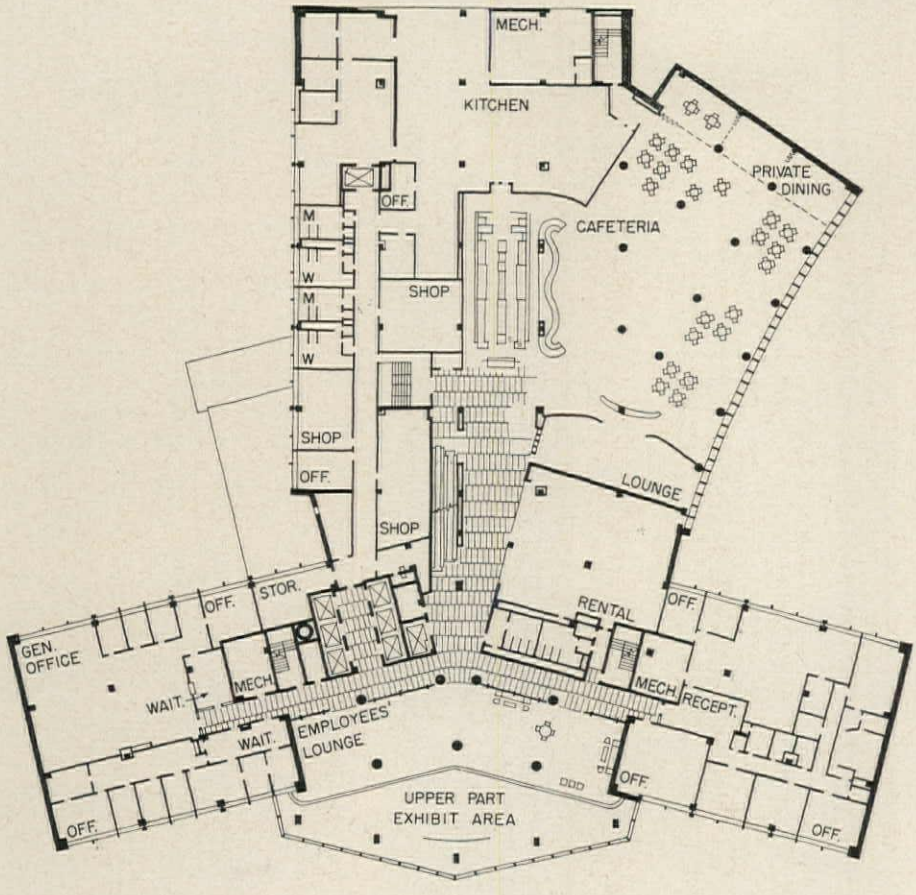
LANDSCAPE ARCHITECTS:
T. Miesse Baumgardner & Assoc.

Baker-Black

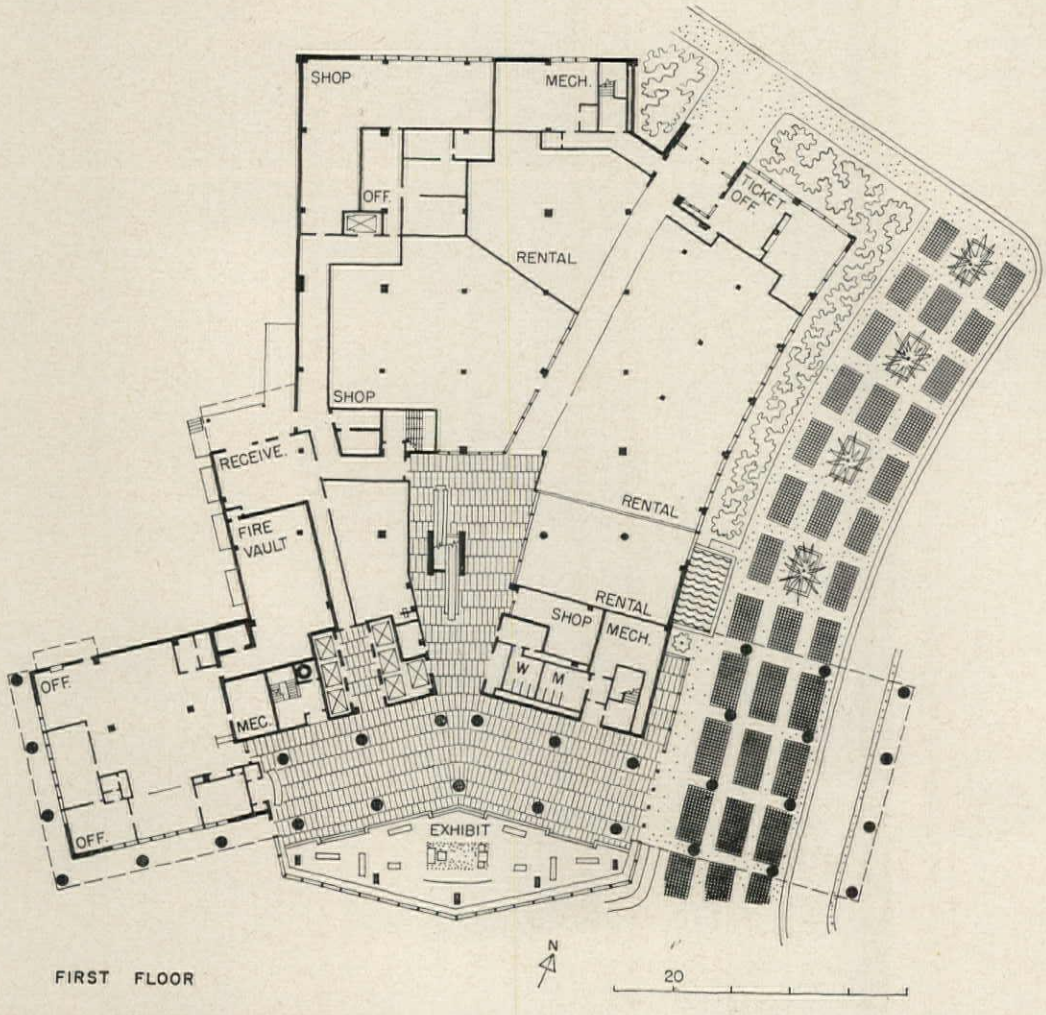


PLOT PLAN

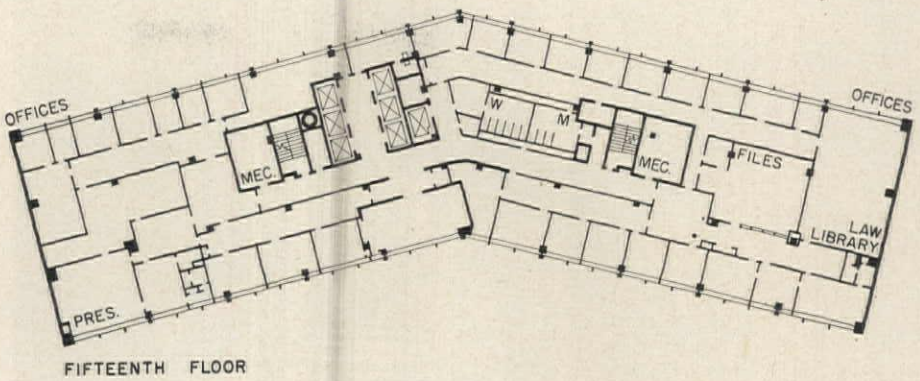
Office Building, Atlantic Coast Line



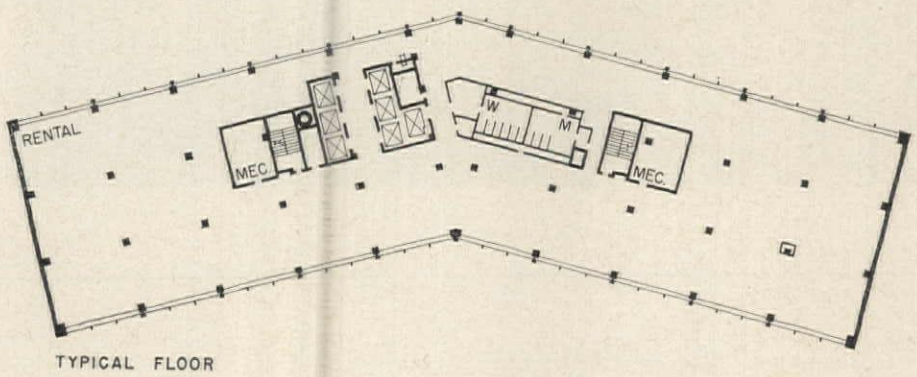
SECOND FLOOR



FIRST FLOOR



FIFTEENTH FLOOR

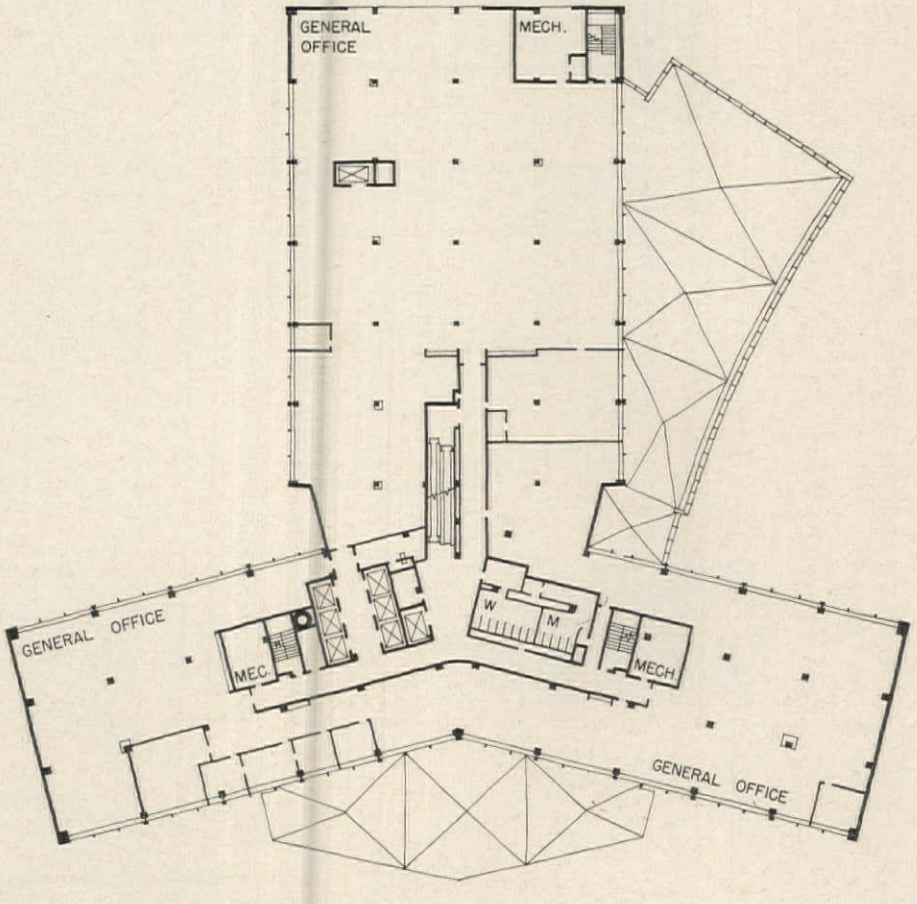


TYPICAL FLOOR

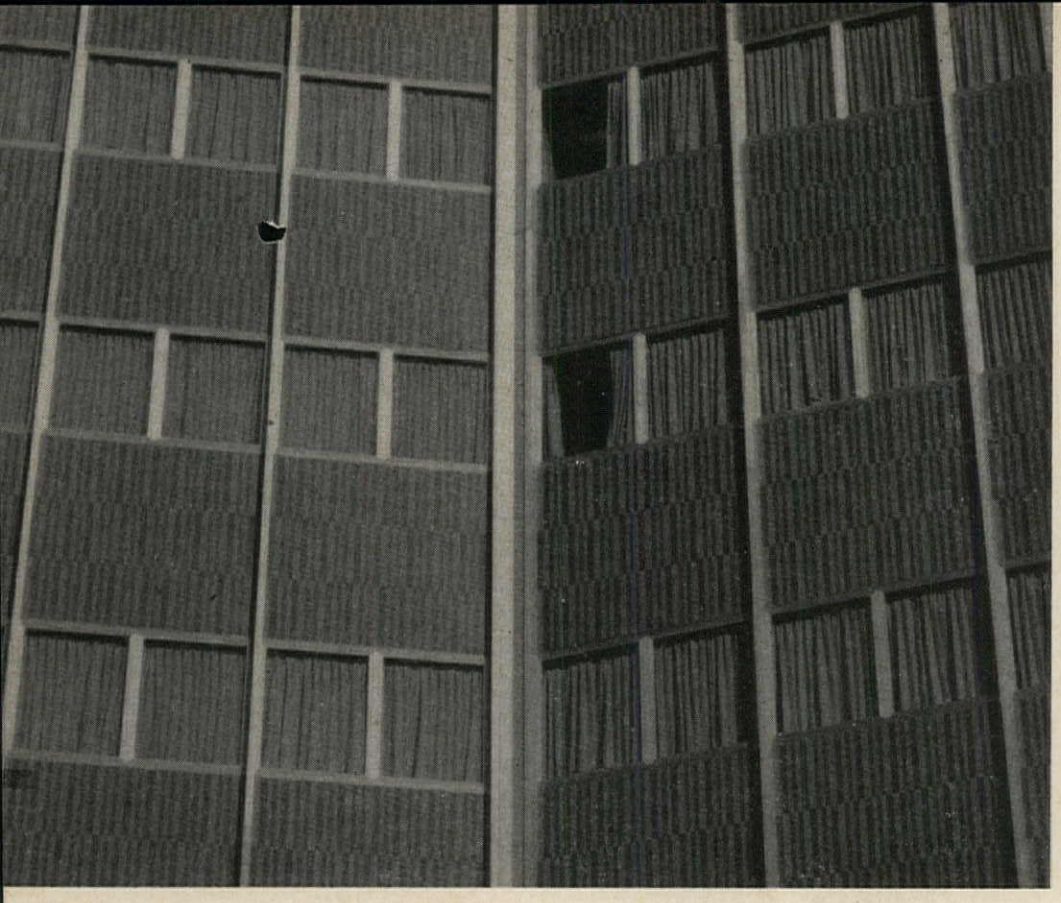
Perhaps the most striking immediate reaction to the new Atlantic Coast Line Building is caused by the blue glass mosaic curtain wall, but the shape of the building and its relationships to the site and surroundings are probably of greater and deeper interest to architects.

The building is located beside the St. Johns River in Jacksonville, on a site which is both limited in size and of an unusual shape. Past it flows commercial traffic—automobiles, ships, and trains. Warehouses hem in the site on one side, a bridge on another, the river on the third, and the new municipal auditorium on the fourth. Large areas are necessary for parking the autos of the more than 1000 people who will use the building. Across the street are other parking spaces which service the auditorium.

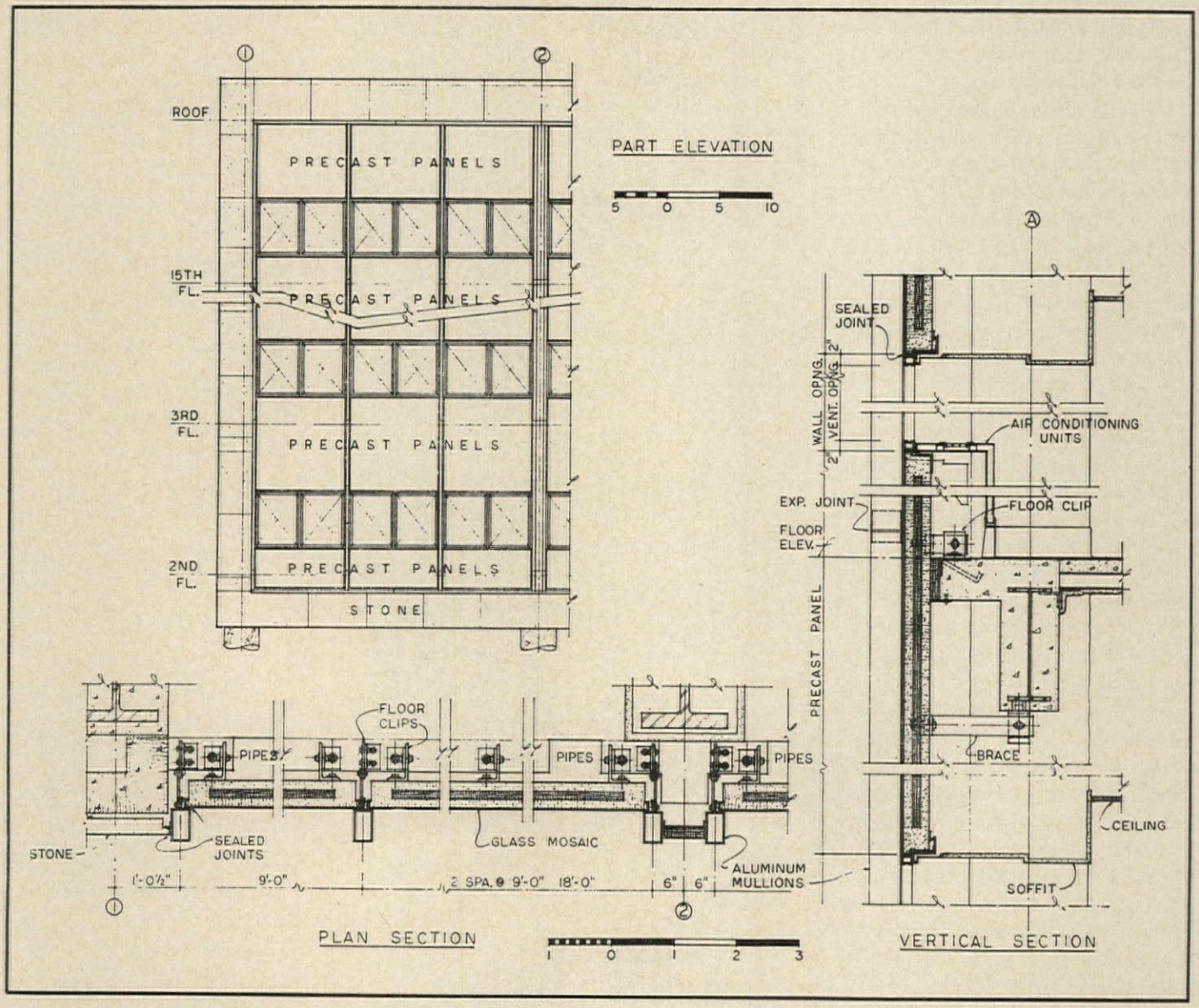
In order to solve the major problems arising from the site and to provide all of the facilities required in a major railroad company's new home office, the architects have made the office tower assume the form of a wide V seventeen stories high. The first four floors spread out in a wing from the V, to form an irregular Y shape. This element contains the lobbies, cafeterias, rental spaces, and other facilities which require relatively large areas and which function to better advantage at the lower levels.



THIRD FLOOR



One of the dominant features of the A-C-L building exterior is the blue-green curtain wall. Located on the two long sides of the building, the walls are composed of aluminum frames, with lightweight concrete panels finished with Venetian glass mosaic. The aluminum windows are vertically pivoted. The panels were precast with a core of glass fiber insulation. The glass mosaic finish was cast integrally with the panels. The panel color results from a combination of various shades of blue and turquoise tesserae arranged in vertical strips of varied widths. Some idea of the effect of this can be gained from the view on the left. The architects expect this finish will require less cleaning than many other alternatives, an important consideration in a building located on the Jacksonville riverfront. Individual wall panels are larger than is usual, averaging about nine feet square. End walls are covered with limestone panels, also insulated with glass fiber



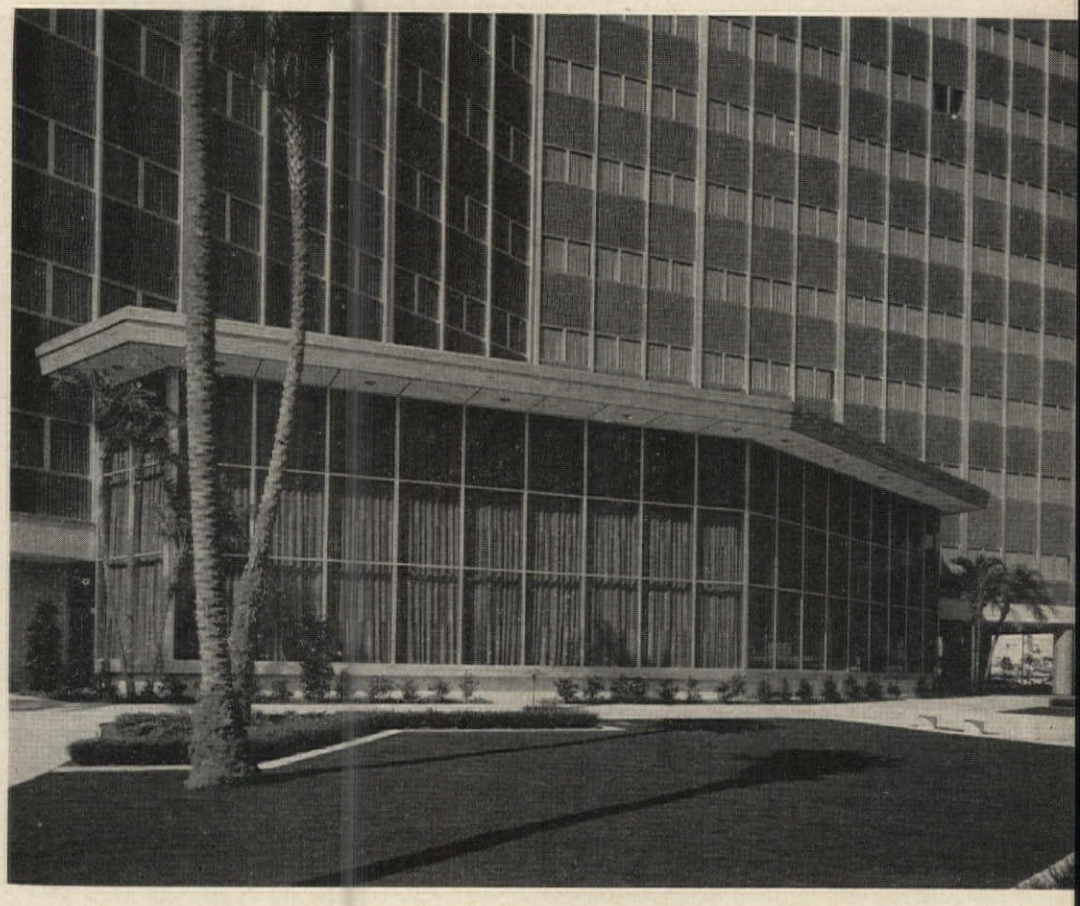
Office Building, Atlantic Coast Line

The shape of the office tower of the Atlantic Coast Line building was partially dictated by the shape of the site. In addition, the need for sun control to combat the heat of the long Florida summers affected the design.

The orientation of the V-shaped office tower helps to reduce the amount of direct sunlight entering the building during the cooling season, thus acting to lower the air-conditioning loads and to spread them more uniformly throughout the building. Direct sunlight in the morning is almost completely excluded from the cafeteria wing by the vertical and horizontal sun shields shown in the lower illustration. Heat-absorbing plate glass is used for glazing. This further reduces the heat loads in summer.

Unusually thorough studies of the operations of the company were made by the architects. A major reason for this was that the railroad operations were previously housed in five separate buildings. Departments were poorly organized, scattered, and crowded. The architects prepared numerous space studies, flow charts, functional diagrams. and the like. As a result, not only was the new building program based on the newly acquired data, but many of the company operations were modified along more functional and efficient lines.

The building structure is fireproofed steel frame. Interior walls are concrete block, metal stud solid plaster partitions, or movable partitions.



Above: the low element projects toward the river and contains an exhibition area. Below: on the opposite side of the building, the cafeteria and rental space wing joins the raised main building tower

Baker-Black photos

Office Building, Atlantic Coast Line

Above: view of information booth, conveniently located in the building lobby. Right, top: ground floor lounge and exhibit area, as seen from main lobby. In the background is shown the wood and bronze screen with a map of all A-C-L routes. Right, middle: lounge area of the cafeteria with the dining room in the background. Below: views of office interiors. On the left is shown a typical office, on the right an area of the executive suite. Lobby walls are finished with marble, walls on office floors plastered, except executive suites are walnut

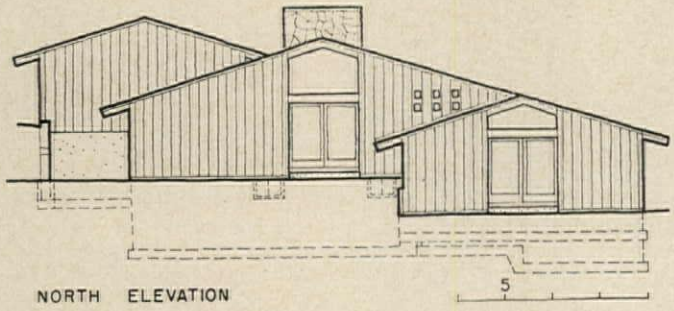
Baker-Black photos

Marc Neuhof

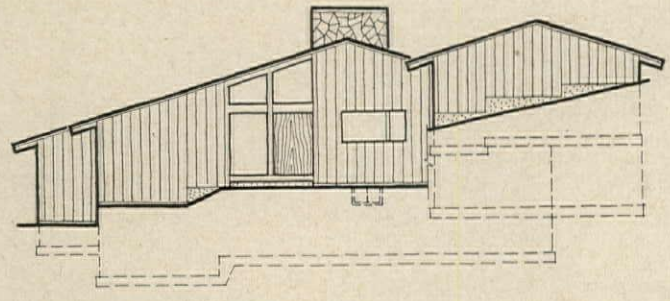
QUIET SOPHISTICATION FOR A SMALL HOUSE

OWNERS: *Mr. and Mrs. E. George Zilliac*
LOCATION: *Pittsburgh, Pennsylvania*
ARCHITECT: *John Pekruhn*
STRUCTURAL ENGINEER: *Joseph E. Spagnuolo*
MECHANICAL ENGINEER: *William R. Jahnke*
CONTRACTOR: *Wetzel Construction Co.*
LANDSCAPE ARCHITECTS: *Griswold, Winters & Swain*

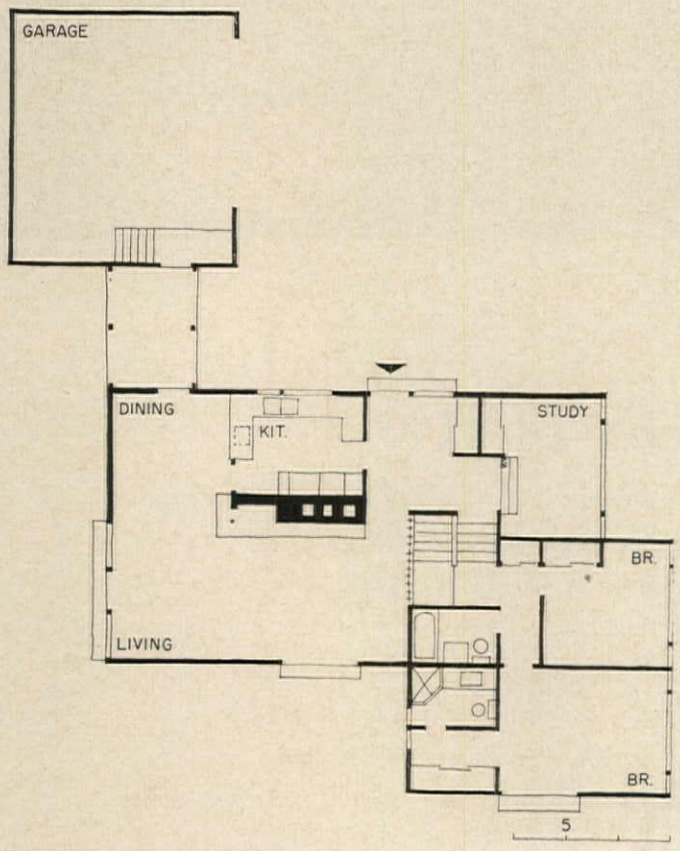
Marc Neuhof

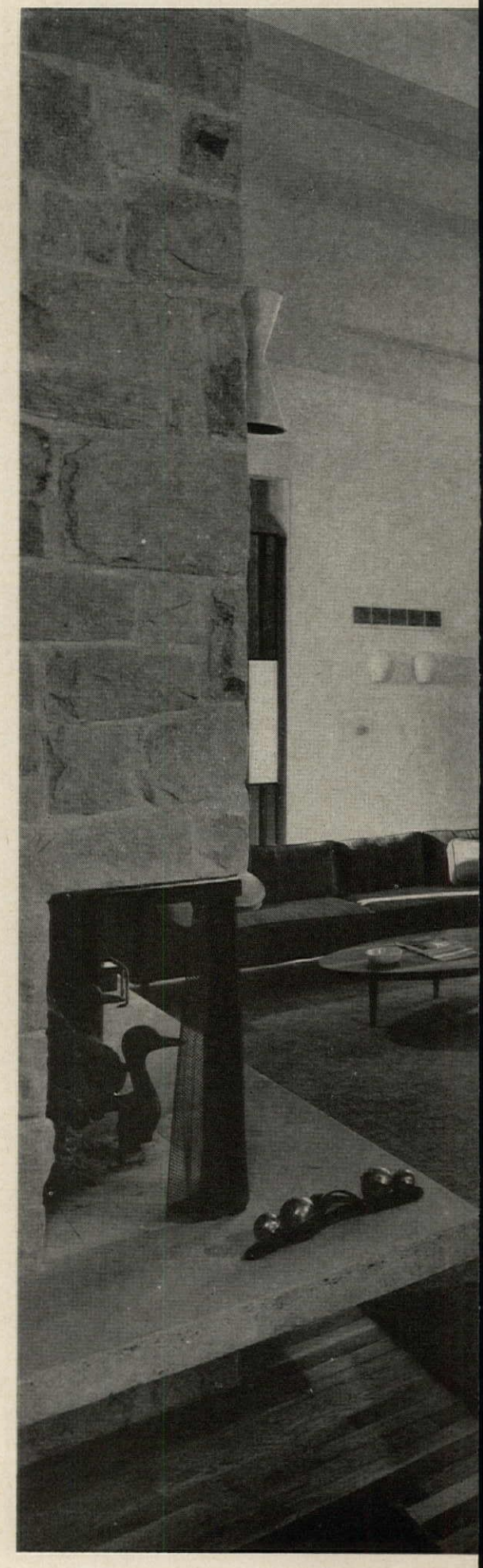


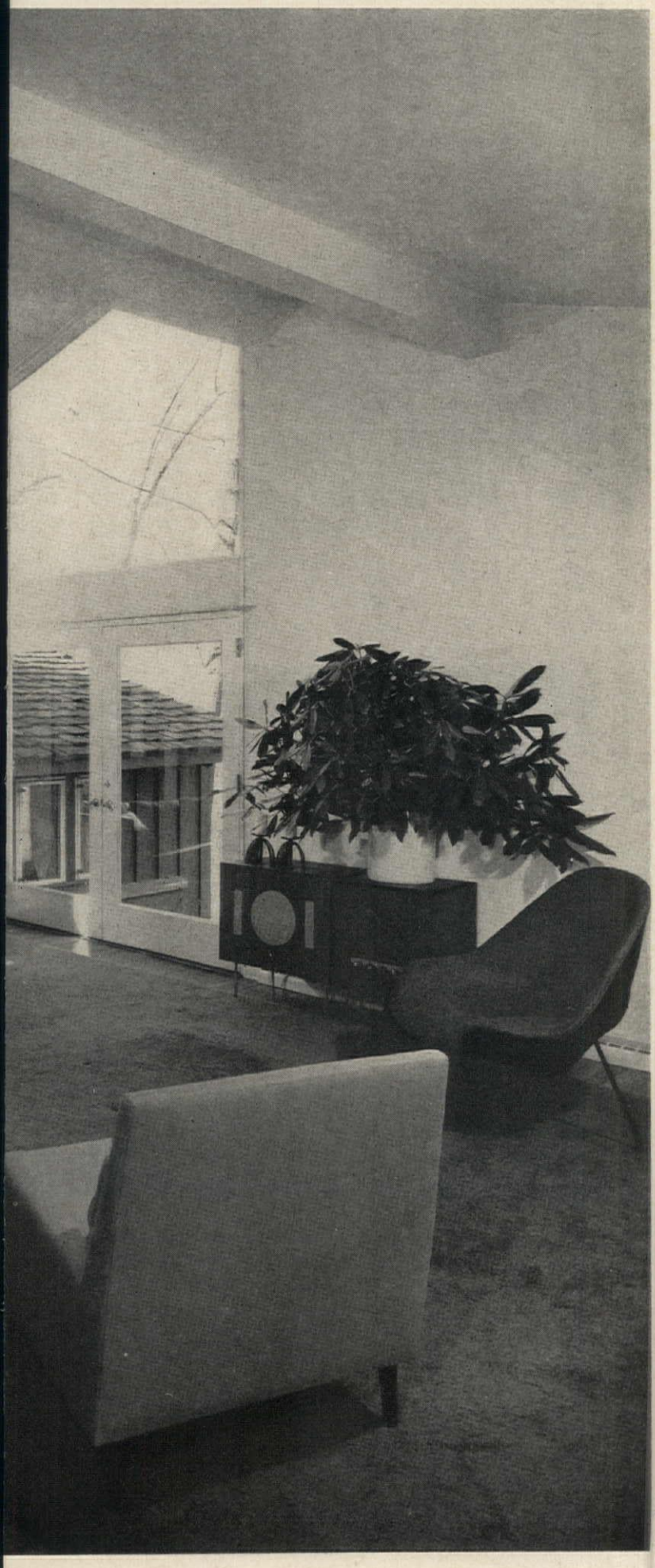
NORTH ELEVATION



SOUTH ELEVATION







Jay Bee

The Zilliac House

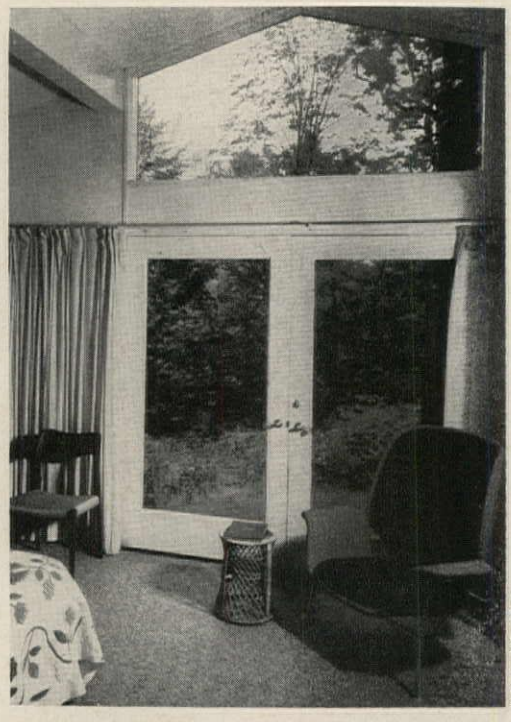
Today's adaptability of "contemporary style" to widely divergent tastes and ways of life is handsomely illustrated by this little house. It is located in Pittsburgh's choice, conservative Fox Chapel suburb—the type of area which, only a short while ago, firmly rejected anything contemporary as incompatible with the existing neighborhood.

Few could, with any validity, hold such an opinion of the quiet restraint of this design. It is built mainly of traditional materials and textures (stained redwood board and battens, cedar shake roof, oak floors, plaster interiors); but these elements are handled in a fresh, highly sophisticated manner. The handling of the plan and the massing also give the prospect of expansion good living in small actual space.

The site, though fairly large, was a difficult one because of a rather sharp slope away from the road. The plan solves this by having the progressive "wings" of the house drop with the slope. This also gives the much needed sense of separation of functional areas in a small house. As one looks down on the house from the road, the roof pattern and texture were made as interesting as possible. Materials were chosen to blend with the woodsy site, but relieved by careful fenestration and white trim.

The Zilliacs are an active couple whose two married sons live elsewhere. Program requirements included a stone fireplace, dining porch and study-guest room.

Jay Bee



Marc Neuhof

The Zilliac House

The motor court and sunken entrance terrace give a "sense of arrival" that is unusual in a small house. All interiors and furnishings are planned for a maximum of comfort and easy maintenance. Ceilings follow the slope of the roof for an added sense of space. The master bedroom is fitted as a secondary sitting area, and has a separate dressing area; an outdoor sitting area adjoins the room

SCHOOLS

BUILDING TYPES STUDY 290

®

The junior high school has recently surged to the front as a major topic for critical study and reevaluation. In part this may be attributed to Dr. James B. Conant's new report on junior high schools (*Recommendations For Education in the Junior High School Years;* Educational Testing Service, Princeton, N.J. 48 pages, 50¢). And in part it is the result of widespread questioning of the role the junior high should play in the total curriculum. There is also the realization that perhaps here is a facility which might well be used to cushion the impact of the recurrent waves of "baby booms" on school facilities: part of the junior high space might be used now with the elementary school, now with the high school.

This Building Types Study presents a number of the many ways the junior high is being handled in different parts of the country. The lead article is a very penetrating paper on the junior high years originally prepared by educator Robert H. Anderson for the stimulating conference "Designs For Learning" held in Sarasota, Florida, November 16; the conference was under the chairmanship of Philip H. Hiss, and sponsored by Educational Facilities Laboratories. Mr. Anderson also makes some comments on the Conant Report. To supplement this educator's point of view, we have asked John Lyon Reid and William Pena to make the following comments on the architectural implications of the report:

"Education in the Junior High School Years" by Dr. James B. Conant is a review of the place in education held by the junior high school in all of its various forms. Dr. Conant in his report recognizes and seems to accept the fact that elementary education is basically a child centered operation while in secondary schools education is related importantly to its subject matter content. Junior high schools function as a transition.

Dr. Conant seems to accept as inevitable a basic change in the educational program somewhere between the two levels. Although it is true that there are great changes physically, mentally and emotionally in children progressing from one level to another, I do not believe that it follows that this must be reflected in a change in educational methods and objectives.

Many if not most educators today hold that knowledge is increasing at such an explosive rate that the knowledge that we acquire is less important than the attitudes and methods that we develop in our children that are necessary to acquire knowledge. Most educators also hold that our increasing knowledge of the nature of children makes it possible for education to minister effectively to the developmental needs of children; the day is perhaps approaching when the need of the individual student will form the basis for our educational program, rather than its organizational aspects. Dr. Conant in my opinion gives evidence of greater interest in the organizational system than in the child it serves. His study addresses itself to the problem of polishing and refining educational machinery that has existed and functioned for generations in America. The architectural implications of his report have little challenge for architects.

Dr. Conant makes recommendations to clarify the functions and relationships of school boards and administrative staffs and speaks with feeling about the necessity of first rate teachers. Implied throughout his report is the belief that a good educational program deserves more money to support it, and deserves the backing of its community."

—John Lyon Reid

"The report does not intend to deal with one organizational scheme, one educational plan, in enough detail to point toward major architectural concepts. We could hold on to the group activities for early adolescents and to the transitional nature of the grades, but these do not become form-giving concepts easily out of the context of a plan.

The report does point out many of the spaces that are required; it is not the function of the report to establish relationships. It does list the efficient sizes under the different organizational patterns, but it does not consider the educational value (if any) of decentralization or centralization of grade groups in relation to size. We must not try to view the report as a set of educational specifications."

William M. Pena
Partner Caudill, Rowlett & Scott

THE JUNIOR HIGH SCHOOL

By Robert H. Anderson, Associate Professor, Graduate School of Education, Harvard University

Adapted from a major paper presented at "The Sarasota Conference—Designs for Learning," under the chairmanship of Philip H. Hiss and sponsored by Educational Facilities Laboratories

American public education is currently undergoing certain fundamental changes of perhaps unprecedented importance. It is, and has been for some time, in a period of turmoil and crisis. At the same time, it has become a period of unparalleled opportunity. Certainly it is an appropriate time to consider the status and the future of the junior high school. For I believe that of all the weaknesses and problems that can be identified in the schools of 1960, the most serious of them come to light at the junior high level.

Part of the problem is that not all children enter the critical junior high period with happy and successful school experiences behind them. The elementary schools are not now organized and staffed in ways that insure adequate instruction and appropriate guidance for each individual child. In my opinion the prevailing arrangements make it impossible for even the best teachers to achieve a reasonable degree of success in their work. At any rate, the child often arrives in the seventh grade with a pessimistic or distorted view of himself and his capabilities, a skeptical attitude toward his teachers' motivations and/or talents, and various prejudices against specific branches of learning. Thus the junior-high staff is often justified in its ritual complaint that it has inherited too many problems "from below."

However, the junior high is little freer of fault. I sometimes feel that among the worst things that are done to children happen to them during the first six or eight weeks of their first year in the junior high. This is usually the first experience the child has with departmental organization, with secondary-oriented and subject-minded teachers, with complicated class schedules, and with a school building of considerable size and complexity. Sometimes it is his first important experience in association with children from other neighborhoods, of widely-varying backgrounds. Usually, too, it is his first exposure to assembly-line teaching, to the often-unreasonable homework requirements of harassed teachers under pressure, and to a variety of distracting and exciting extra-curricular activities that compete for his time.

A BACKGROUND FOR THE MIDDLE SCHOOL

Usually, the term "junior high" refers to grades 7-8-9. I am inclined to favor the term "Middle School" for this period, as some have advocated recently. This middle period might well commence for some children earlier than grade 7, and for others it might well extend beyond grade 9. I would like to comment, by way of introduction, on the rather confused status of junior high (or Middle) school organization in general.

The pattern of public school organization in the fifty United States is rather hodge-podge and multifarious, for a number of reasons. Historically in most states the legal provisions for elementary school operations preceded those for secondary schools, and the two sets of statutes are often uncoordinated. Statutory provisions for urban school children are often quite different from those for rural children, so that even within the same state it is possible (for example) for a K6-3-3 plan to exist in some communities and impossible for it to exist in others. Millions of school children live in neighborhoods that are served by an elementary school district with its own school board and superintendent, and a separate high school district again with its own board and administrative officers. In such situations, there is far less freedom or opportunity for the school officials to establish an articulated and theoretically superior pattern of elementary-secondary organization, than in situations where one board and one superintendent have the total K-12 responsibility.

School organization has also been strongly influenced by factors of community size, wealth, location, and history. It is no secret that thousands of inefficient and otherwise undesirable small schools, both elementary and secondary, remain in existence despite the arguments for consolidation and reorganization, because the local citizens cling stubbornly to "their" school and "their" notions of adequacy. Sometimes, too, wealthy communities insulate themselves against encroachment by less favored neighbors, with the result that excellent and poor conditions may be found alongside each other and appropriate merging of resources and programs is difficult to arrange. Still another phenomenon is the "lava flow" of urban and suburban buildings over school district lines, county lines and even state lines, so that children may be citizens of the same sociocultural community and yet pupils in a number of different and often widely-differing school systems. Those and similar conditions have tended to

frustrate the development over time of any logical pattern of well-articulated K-12 school organization, even if educational theory and research had produced the appropriate blueprint.

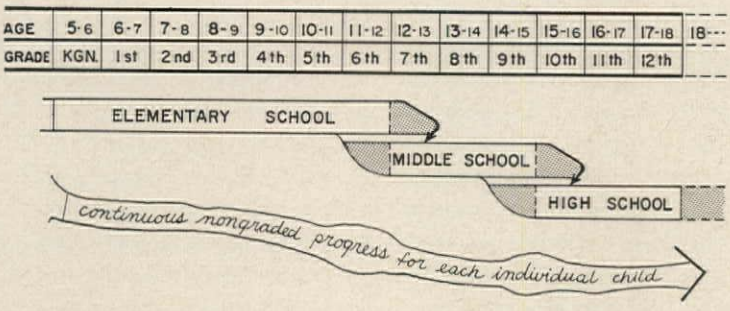
Although the argument becomes circular, it also follows that blueprints have failed to materialize because of the near impossibility of implementing and testing plausible schemes of school organization in the crazy-quilt setting of American schools. The organizational anarchy and chaos that has resulted from the tradition of local school district autonomy, whatever its other virtues, has always prevented the rapid and widespread application of worthy ideas just as it certainly threatens to frustrate any current efforts at nationwide reform and reorganization. Meanwhile, almost every day the cornerstone is being laid on a conventional new building which may simply make it more difficult for the community to consider a different pattern of school organization from the one on which the design of the school was based.

I have as yet found no substantial theoretical justification for the pattern of graded, self-contained classrooms of ca. 800 square feet in size as it currently predominates the educational and architectural scene. All that can be found are *practical* justifications and an imposing array of *ex post facto* arguments or rationalizations as to its merit. I am tempted to wonder whether the one-room school and later the multi-teacher school, did not assume its ultimate shape because the available logs, other building materials, and engineering skills tended to require a certain general shape and size of classrooms. The educator, bless his cooperative and adaptable heart, may then have developed the necessary social and technical arrangement. We know that he made similar accommodations to the agrarian calendar by which his patrons lived, and also to the cultural patterns favoring children born in more fortunate circumstances. By the time the tax-supported public school was becoming more nearly universal, the educators had developed such strong habits and loyalties in these respects that the pattern did not materially change. Even if these allegations are somewhat extreme, it remains that many characteristics of public-school organization in America have little if any support in administrative or instructional theory.

The junior high school is somewhat of an exception to this general rule because it developed more recently. However, we may find at least eight patterns within which the early adolescent is schooled: K-12, K8-4, K7-5, K6-2-4, K6-3-3, K6-6, K8-1-3, K5-3-4, and K4-4-4. The organization problem generally boils down to the questions of when children should enter the Middle School (7th grade, or earlier?) and when they should enter the senior high (9th grade or 10th?). Advocates of K5-3-4 hold that "sixth graders" today are quite different psychologically from sixth graders a generation ago, there being a great increase in knowledge, sophistication, poise, social maturity, and intellectual orientation. They argue that for such children the atmosphere of the Middle School is more appropriate. Similarly, it is argued that today's ninth grader is more mature and belongs in the senior-high setting. I can only report these arguments, I have little reason to defend or reject them. I am bothered by the generalizations that support all such proposals, and unhappy that we find it necessary to create such discrete school units because of our grademinded approach to organization. What is really needed, it seems to me, is a pattern whereby the nongraded equivalent of K-7, 6-10, 8-12 schools would exist alongside each other. Every child's progress through the three overlapping units would be an individual matter, with some youngsters entering the Middle School in the equivalent of sixth grade and some entering it as late as the equivalent of eighth grade. Passage to the senior high unit, similarly, would be earlier for some than for others. Admission to the Middle School unit would be based upon a combination of academic progress of the child, his relative physical-skeletal-sexual development, and (probably the hardest to identify), his relative progress toward achieving that psychological "change of life" which results in his ability to think hypothetically, to look in upon himself, to build systems or theories, and otherwise to build the cognitive and evaluative bases for the eventual assumption of adult roles. Admission to the senior high, similarly, would be based upon the extent to which the youngster has completed this stage of "physiological learning," acquired the necessary social and personal competence, and mastered those skills of research, independent study, and self-discipline he will need in the next stage of his career.

NONGRADED SCHOOLS FOR TEAM TEACHING

The concept of a flexible, nongraded secondary school organization is admittedly at wide variance with present practice, and dozens of questions (especially about varsity athletics and similarly silly concerns) come to mind. Yet a fluid, overlapping, individual-oriented scheme of organization is exactly what our ideals and our philosophy require. The literal graded school is an anomaly and a travesty wherever it's found, at the elementary or the secondary level. I suspect that most educators believe this, and I am happy to observe that most of the current proposals for secondary-school re-organization are essentially geared to the concept of individualizing instruction and modifying graded structure. Thus we have already before us certain models, even



though somewhat primitive, of the nongraded secondary school that may emerge.

American public education is currently in an exciting period of innovation and experimentation. Marvelous new devices are now at our command, various engineering accomplishments promise a far more suitable and adaptable physical environment, sub-professional and other assistants to teachers are on the scene, and patterns of collaborative teaching are emerging. The design of the junior high (or Middle) school will necessarily take them into account.

One of the major new developments is team teaching. As I understand and define them, nongraded school structure and teaching-team organization are very closely related to each other, so much that adoption of one will almost inevitably lead in some ways to the other. As it happens, nongrading has relatively few implications for architecture, whereas team teaching requires radical changes in school lay-out. Since literature on this problem is now quite extensive, I will not elaborate here, but will simply underscore the significance of these developments.

Some have referred to the junior high (or Middle) school as a no-man's-land, or a stepchild, or a mixed-breed institution. A chief reason for the confusion that surrounds the junior high school movement is that too few educators and professional schools have adopted it as their special interest and concern. It should shock us a bit, for example, to realize that Cornell University's new Junior High School Project is essentially the first major and exclusive effort to prepare teachers at this level. There is no national junior high organization, and in general there is no special status for junior high teachers. The number of professors and research workers identified primarily with junior high school is ridiculously small, and hardly any university staffs have offered appropriate and focused instruction for junior-high-bound teachers, administrators, counselors, or other specialists. In general the total published literature of all sorts in this field is a mere fraction of that devoted to the other two levels. We may conclude, as did one of my colleagues recently, that the *junior high school has had an existence, but not an identity.*

What is needed is a renewed and vigorous scholarship of the Middle School, to the end that more accurate data may be organized about the nature and needs of the early adolescent, the kinds of teachers and teaching that he should have, and in general the kind of atmosphere and environment that an excellent Middle School should represent.

Such an inquiry would of course include an examination of the competency and point of view of the professional staff and what it knows and believes about the physical, emotional, social, and intellectual characteristics of boys and girls 11 or 12 to 15 or 16 years of age. We would be especially interested in how loyal they are to the rights of the adolescent to behave as an adolescent. How courageous are they in the face of cultural and intra-professional pressures to tighten the ship? How willing are they to suffer the inevitable ups and downs that would typify a thoroughly appropriate school for adolescents? What magic have they to soothe and guide the parents as they, too, "suffer" through this period?

My implied criteria are of course unreasonable, but we must insure that junior high schools will be characterized by the warmth and the (appropriate) freedom and the adult-adolescent rapport that are so urgently needed. Many school regulations read almost like a penal code, on the assumption that the youngsters don't know how to handle themselves. The schedule is generally rigid, there is little freedom of pupil movement, and class groupings are based more often on administrative than on educational considerations. These things stem in large measure from the make-up of the staff.

ARCHITECTURE AND EDUCATIONAL CLIMATE

The climate of a building, and perhaps especially the climate of a junior-high (or Middle) school, is in many ways as important as what is taught. At no other level are there such contrasts in the physical growth, the social maturity, and the skills of all sorts in the population responding to that climate. Here for some children is the last school experience before drop-out, and for others the first real intellectual excitement and discovery. Here are children with both the tendency to rebellion and the need for support and counsel. Here are children in a period of self-analysis, in a search for their own identity; children in need of privacy (both physical and temporal) and yet a broad social experience. Here are young idealists, wanting to be of service and to achieve status and independence in "adult" roles. Here are young people learning to live within a dramatically changed body, and feeling new and sometimes uncomfortable emotions. Certainly such a situation calls for leadership by adults of uncommon talents.

In the foregoing argument I have apparently over-

simplified the concept of "climate" by likening it to social atmosphere. Two other aspects must be kept in mind. First, the *intellectual* content of the child's class experiences is a major component of the "climate" he senses in the school. In the school where content contributes to personal fulfillment in many dimensions, where dreams and realia are part of the intellectual give-and-take, where beauty and form and faith and purpose are a legitimate inquiry,—in such a school, the climate is almost certain to be better than in a school which limits the course of study to conventional 7-8-9 grade material.

The second aspect of climate is of course architectural. Suffice it to say, at this point in my argument, that the physical environment is a major force in shaping the climate as children perceive it. While the word "climate" is still in our minds, I would like to emphasize something that ought to be obvious, but isn't. One of the needs children ages eleven to fifteen have is to make their own mistakes and to profit by them. Adults are too often embarrassed by the adolescent and his tendency to error, whereas the appropriate adult attitude is one of tolerance, sympathy, and willingness to suffer the occasional inconvenience that adolescent error causes. In the ideal Middle School it will be possible for the child to make the mistakes from which he will learn.

Let us now turn to the educational program in brief detail, turning as appropriate to problems of facilities and arrangements.

THE CONANT REPORT AND CURRICULUM

We may be grateful to Mr. Conant for underlining certain minimum standards of program, personnel, financial support, and space. In his own words, his recommendations "are purposely conservative; they represent established practices in a number of schools." We are indebted to him for his positions on teacher personnel, on competitive athletics, and on school libraries. He has helped us in his warning not to imitate senior high schools. While some will feel otherwise, we should also be grateful that he chose in effect to *name* rather than to describe in detail the course subjects. The exact character of these courses and their relevance to early adolescent needs remain in large measure to be defined in the local setting of each school. Many educators favor the core of "block time" program, organized around a unifying theme such as the study of significant social problems. Often these include immediate personal-social problems, such as making and holding friends; wider community problems, such as citizenship; wider social-economic problems, such as personal economics; and personal development problems, such as personal appearance. There should also be a continual concern with the value conflicts, the soul-searching, the search for autonomy, and the personal dimension through which art, poetry, history, and the like bring conflict and problems under control.

By the time the child leaves the Middle School, he should be in good command of most of the basic skills required in society. Many of these will have been acquired earlier, and some he will continue to build as he moves into later stages of adolescence. In the (senior) high school the youngster launches forward into individuality that builds upon the foundation skills. Crucial among these are skills that equip one to confront new problems. The Middle School must therefore provide opportunities for independent study and reflection for the pursuit of individual interests in a variety of settings, and for a person-to-person relationship with teachers whose talents coincide with the child's tutorial or other needs. This suggests that daily schedules must become more flexible, that laboratories and libraries and other "private" work areas must be available, and that far more leeway must be given the students in the management of their own affairs. Student government in such a situation could be vital and real, not the mere puppet show so often found.

The child of this age should have many experiences in the areas of art, music, dramatics, creative literature, and homemaking in its many dimensions. These offerings require adequate facilities, especially if some of them might frequently be used by individuals or small groups. Homemaking for the boys should focus on "home maintenance," proceeding from simple home repairs (carpentry, electrical, plumbing, simple glazing) in "seventh grade" to the use of common tools, to the use of lathes, power drills, jig saws, and the like. Care of clothes, simple and outdoor cookery, first aid, and other topics would also be covered. For the girls, care of clothes, simple sewing projects of individual interest, and good grooming would be included in the "seventh grade," proceeding to cooking, home purchases of food, furnishings and appliances, and individual projects in "grade eight." In "grade nine," personal budgeting, care of children, simple home repairs and use of tools, and first aid are covered. Some educators urge that pre-school or primary classes ought to exist in connection with a Middle School, in part to afford experience in child care to the older children. Some also urge that certain youngsters ages 14 years and up ought to have some kind of appropriate work experience, as part of preparation for the adult role (cf. Margaret Mead).

FACILITIES FOR SCIENCE

In science, vast changes are taking place and we can only begin to predict the Middle School science program of the future. Abraham S. Fischler of Harvard has proposed that youngsters in the Middle

School should have science experiences in *depth* rather than superficial breadth. He suggests the following organization of content: (1)

1st year—The Environment and Human Needs
1. The Earth is Space
2. The Atmosphere
3. Water Resources
4. Biological Resources

2nd year—Use and Control of Energy
1. Structure of Matter
2. Transformation of Matter
3. Man and Machines
4. The Body and How It Works

3rd year—Frontiers of Science
1. Our Atomic World
2. Frontiers of the Earth
3. Maintaining Body Health
4. Science and Change (The impact of science on the Future)

Note that this program includes only four major areas per year, each centered about one theme. The teacher is encouraged to allow students to explore each area in depth, raise problems, find answers, and conceptualize. A unit is never "finished," and in the study of each unit, pupils are encouraged to look at themselves in relation to their environment and to the world and its problems. Since the program for each year includes areas from several disciplines of science, the cross-field application of information and concepts are encouraged, and the unity of science is exhibited. One chapter of Fischler's volume is devoted to the planning and (flexible) furnishing of science classrooms: the case is made for an area or suite where individuals can read in the science library or work on individual projects, while class discussions are also going on, all under supervision.

Mention has been made frequently to bodily health and the child's adjustment to bodily change. One problem the profession has been afraid to touch with a ten-foot-pole now literally screams for a more courageous solution. I refer to the area of "sex education."

Because of their differing rates of growth and sexual inclinations, their differing cultural-ethical-psychological backgrounds, and other situational variables, young adolescents will have widely differing needs with respect to sex education and sex-related guidance services in the schools. Even if we could assume that the home and the elementary school have done their jobs well (which seems an unjustified assumption), the appropriate role of junior and senior high schools in the area of sex education would be difficult to define. However, after examining the generally inadequate literature on this topic, I would conclude that it is urgent that the junior high school people take a far stronger position on this problem and develop skills and programs in response to the crying need of youngsters 12-16 years old for instruction, guidance, and models of role behavior.

By "stronger position" in the preceding sentence I am referring largely to a non-clinical role that regular teachers should play. Whether clinical facilities, financed by the community's health or social-welfare budget, should be linked to the educational resources of the school is a matter open to argument. Obviously it would be dangerous to invite regular teachers to get deeply involved in the sex problem at a clinical level, but at the same time the school must take more responsibility than it has in the past.

Adolescence is a function not only of physical changes but of psychological-metaphysical changes in the child. These changes obviously take place at different times to different children. The Middle School must provide a setting where a physically and psychologically mixed group can develop and feel comfortable, even though possessing such varied needs.

The general social development of the early adolescent child normally involves a shift from sex-separated, impersonal relationships toward the highly personal, heterosexual social life that characterizes later adolescence. Whereas apparent antagonism toward the opposite sex has characterized the behavior of upper-elementary children, steps are now taken toward emotionally intense boy-girl friendships. Hero worship and intense same-sex friendships serve to provide experience in the business of loving someone other than oneself, and a broader understanding of the skills and qualities necessary to wholesome and self-fulfilling relationships. During this period the child undergoes several stages of changing attitudes toward family and parents, toward own-sex friends, toward opposite-sex friendships, and toward opposite-sex erotic excitation. In the curriculum of the school, in its architecture, in the social program that is offered, and in the organization of its guidance services the school must take these facts into account.

It follows that the school and the home must work together on this problem, and that classes in the area of biology and zoology should cease to avoid, as they now usually do, mention of the human animal. It also follows that a total and coordinated program must exist, including not only technical biological information but all the related topics of homemaking, family living, personality development, hygiene, social philosophy, and other dimensions of psycho-sexual development. To most of these broad topics I have already referred as elements of a Middle School program. Let the elements be joined, let qualified instructors and consultants be brought

[1] *Modern Science, Grades 7-8-9* A monograph in the series produced by the Science Manpower Project. Bureau of Publications, Teachers College, Columbia University, January, 1961.

into the picture, and let us atone for our past sins of omission!

FACILITIES FOR PHYSICAL EDUCATION

Physical education is another "subject" that takes on special significance during the junior high period. Probably the curriculum in sex-education and such related socializing experiences as social dancing and folk dancing should be closely related to the program of physical education and athletics. The latter must run the full gamut from relatively simple games like quoits, croquet, shuffleboard, hopscotch and handball to such "mature" games as football, basketball, swimming, track and field events, tennis, golf, soccer, volleyball, and bowling. The program should emphasize *intramural* rather than *interscholastic* competition, and it should be so arranged that there are opportunities for separate remedial skill-building instruction (e.g. in throwing, catching, jumping) for the less skillful children as well as challenging competition for those already skilled. Most of the program will necessarily involve the sexes separated, but many opportunities can and should be provided for boys and girls to play together (e.g. dancing, table games, badminton, swimming, roller skating, ice skating, tennis and deck tennis). Co-educational camp experience, it might be added, is another highly promising possibility at this age level.

It will be noted that the foregoing program would require more extensive (and expensive) facilities than are usually provided in junior high schools. Some of the necessary facilities might be found in the adjoining community, and hopefully through good community planning some of the community-wide recreation facilities (such as a swimming pool) could be combined with the school plant. One example that comes to mind is the new Byron Junior High School in Shaker Heights, Pennsylvania: the physical education building includes two gymnasiums and an indoor swimming pool with outdoor features that will make it a year-round community recreation facility.

Facilities for *instruction* (e.g. in golf or bowling) need not be as large or as well-developed in certain sports as the areas where the youngsters will ultimately enjoy their acquired talents. Nevertheless, it seems altogether justifiable to claim that our schools must be properly equipped so that their graduates will be inclined to engage in healthful, body-building, and wholesome sports as *participants* rather than as *spectators*. We have before us the horrible example of a generation whose physical-education training consisted largely of watching the school teams playing basketball and football or baseball, and who presently get most of their exercise changing the television channels. Perhaps if the schools are adequately equipped to develop interest and competence in year-round sports (especially swimming, that nearly perfect exercise), at this enchanting age when the adolescent is discovering his remarkable body, a whole nation's vigor and happiness could be improved.

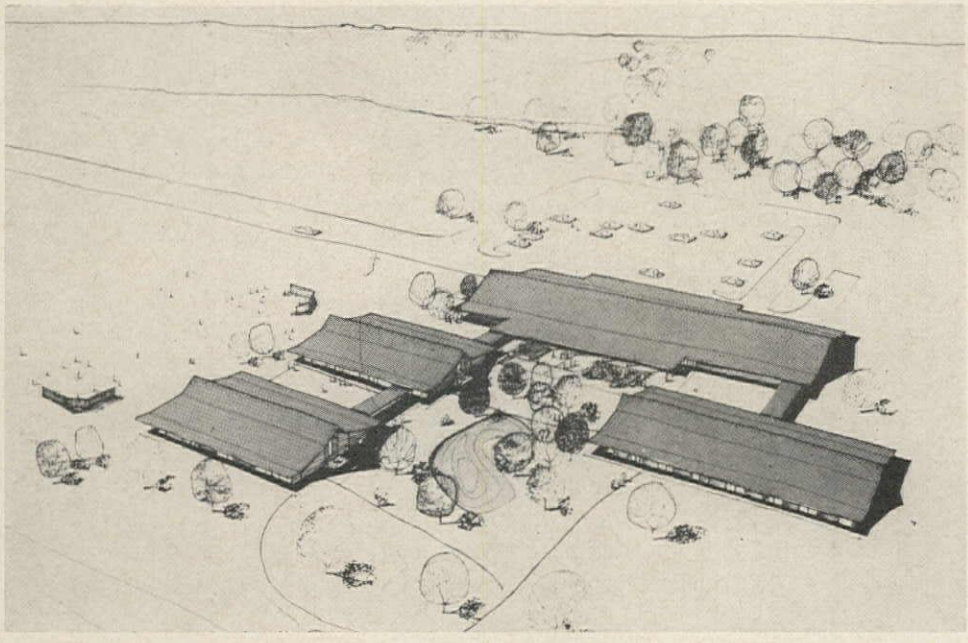
FACILITIES FOR THE ARTS

Implied in much of this paper is that the fine and applied arts will have a prominent place both in emphasis and in architecture in the Middle School of which we dream. I call to your attention as one promising example, the Creative Arts Center in the new high school in Wayland, Massachusetts. Wayland and other schools also illustrate the trend toward "language laboratories."

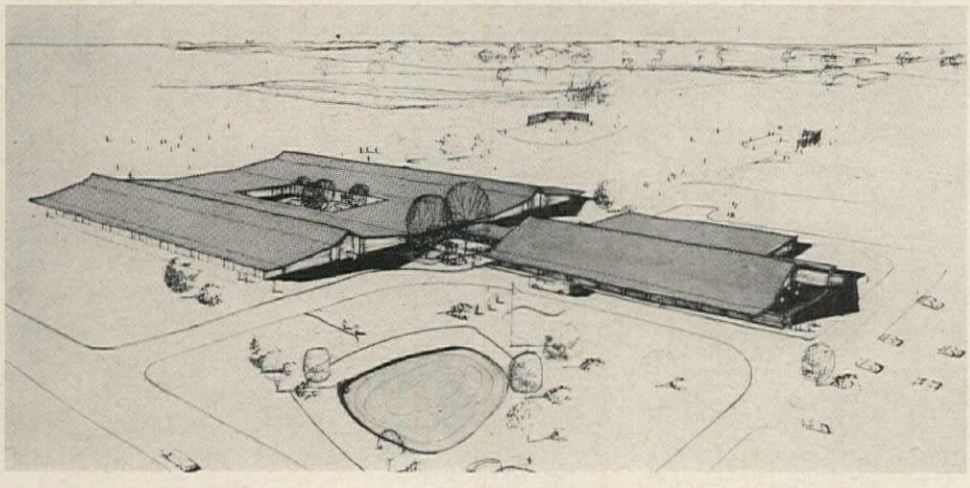
Mathematics is in a stage of healthy ferment at the Middle School level. Two major efforts are underway, one the School Mathematics Study Group headed by Professor Begle of Yale, the other is the University of Illinois Committee on School Mathematics headed by Max Beberman. As I understand them, neither is changing the curriculum topics to any great extent but both are re-organizing the presentation so that pupils see the structure and the logic of mathematics. SMSG is not concerned with pedagogy, and teachers are free to use various methods; but the Illinois program is concerned with development of a methodology as well.

In effect, the 7-8-9 mathematics program of the future is a package somewhat similar to the science package. The package builds a structure and a logic of mathematics by the end of the Middle School period: some of the youngsters would have begun, in fact, to work with trigonometric relations, geometric relations and other advanced material.

Thus we see that in all curriculum areas the pupil in the Middle School is likely to have a rich and varied diet of intellectually-challenging and personally-useful experience. Probably as seldom before in his school experience and seldom later as well, he will have these experiences on a personalized schedule that fits his unique pattern of development. But I find myself using the word "will" instead of the words "might" and "should." Admittedly this Middle School I have been talking about is not on the scene yet, and it will take heroic and imaginative leadership to bring it about. The curriculum worker must help to give the program a viable form, the administrator must help to make the human interplay possible, and the architect must conceive a fluid and appropriate setting. The early-adolescent American, with all his pathetic problems and divine potential, stands waiting for his golden opportunity. Can the gift be given?



The North School (top rendering and plan) is a spread-out cluster plan on 24 acres. Both schools have same amount and kinds of space, and costs were about the same. The programs for the schools are identical

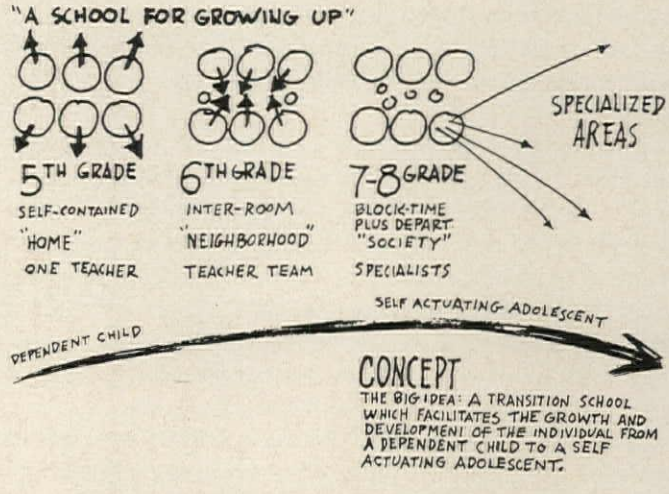


The South School (bottom rendering and plan) is compact, on a limited 18 acre site. The buildings are built of repetitive elements in 15-ft bays. Classrooms are open on one side to multi-use "halls"

CAUDILL BUILDS TWO MIDDLE SCHOOLS

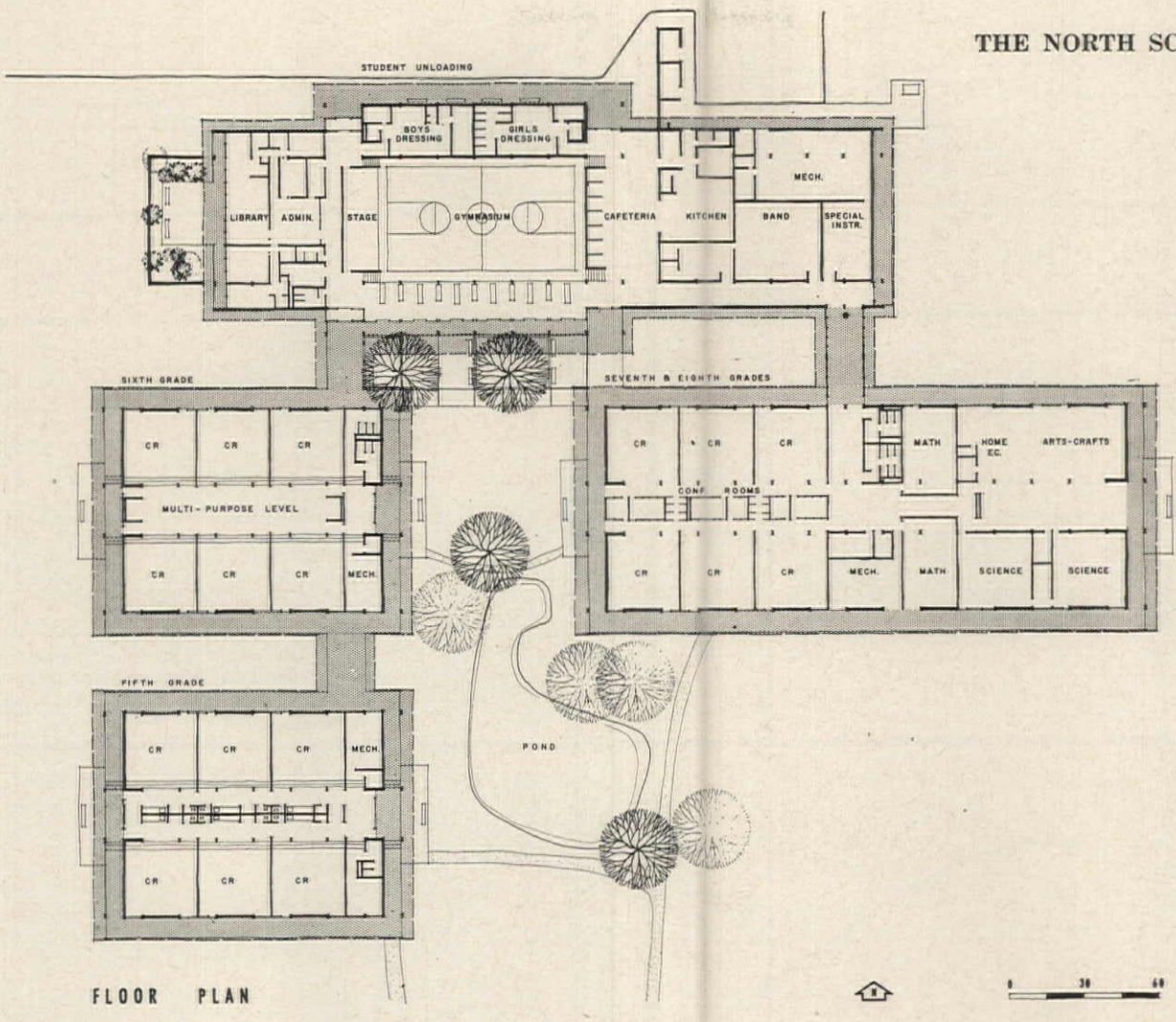
The North and South Middle Schools, Saginaw Township, Michigan; Caudill, Rowlett & Scott, Architects; Daniel W. Toshach, Associate for South School; Spears & Prine, Associate for North School; Collinson Construction Company, Contractor

Among the newsier and more significant developments in junior high schools actually under construction are these two buildings designed to house a new "middle school" program for grades 5-8. One of the basic premises behind the concept is to cushion the abrupt change ordinarily encountered by a child in progressing from the home-room, one teacher set-up of most elementary schools, to the multi-room bigness of the high school. Thus, in these schools, the fifth grade is handled much in the fashion of an ordinary elementary program, but the child is introduced to some of the associations he will meet



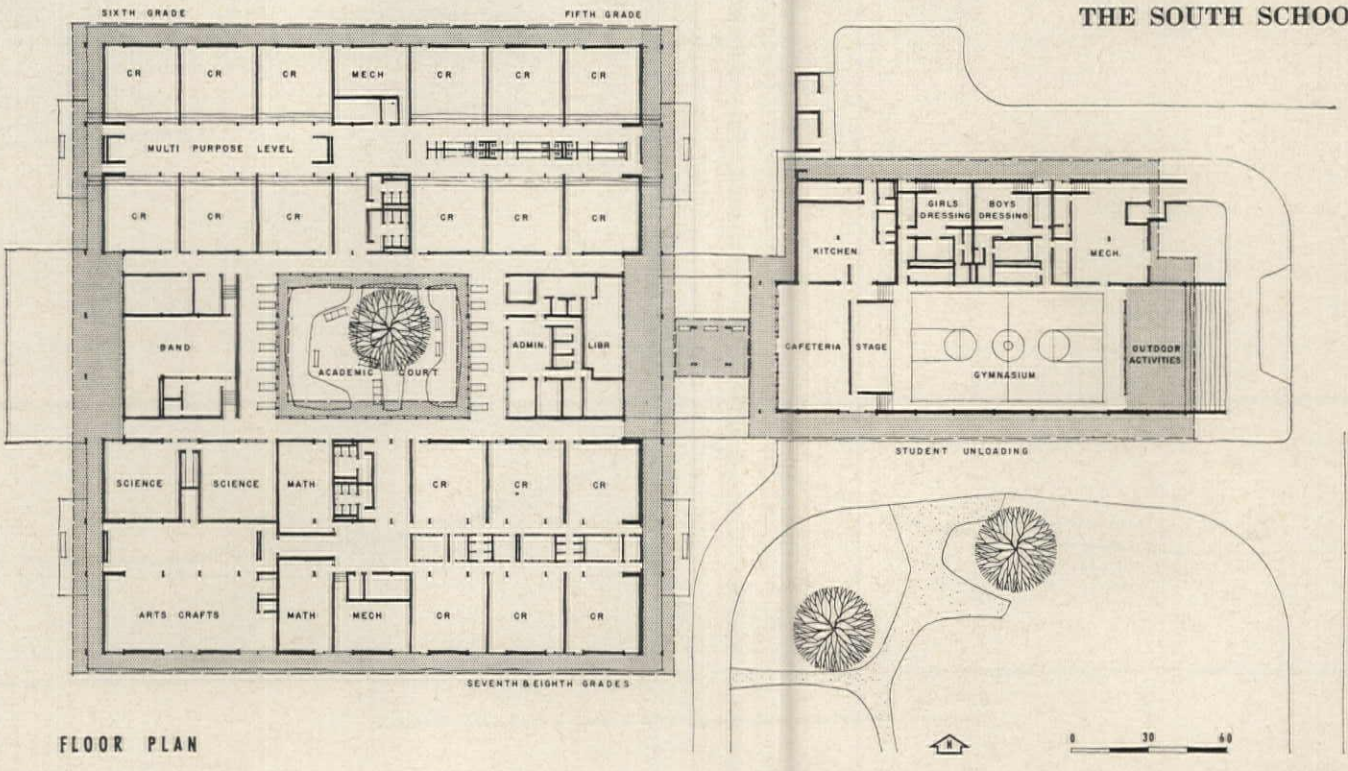
The curriculum calls for three distinctly different programs within each school to form a real transition between elementary and high school. Classrooms are adapted for each

THE NORTH SCHOOL

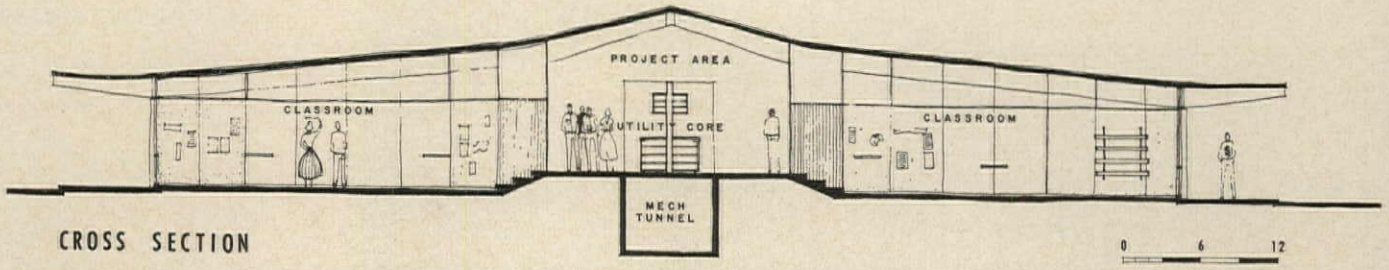


FLOOR PLAN

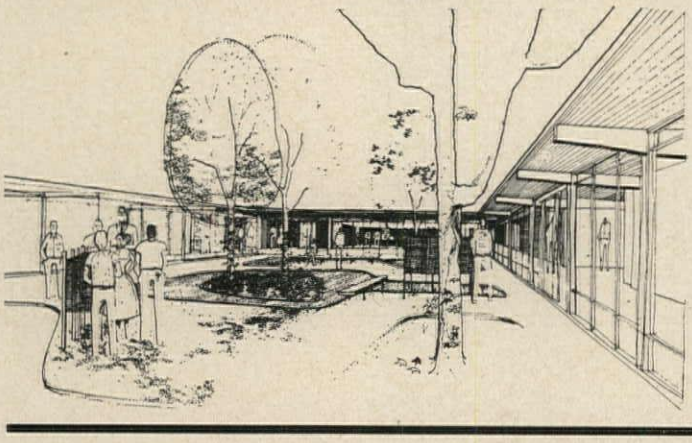
THE SOUTH SCHOOL

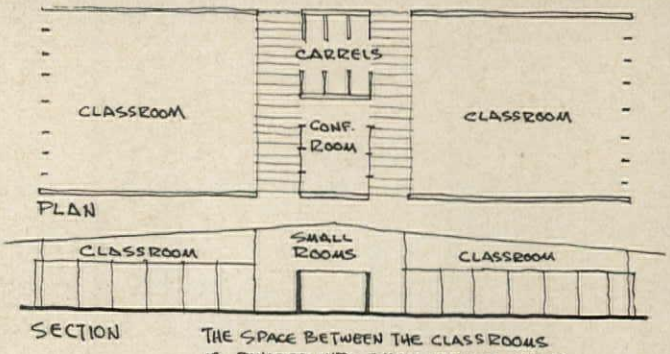


FLOOR PLAN

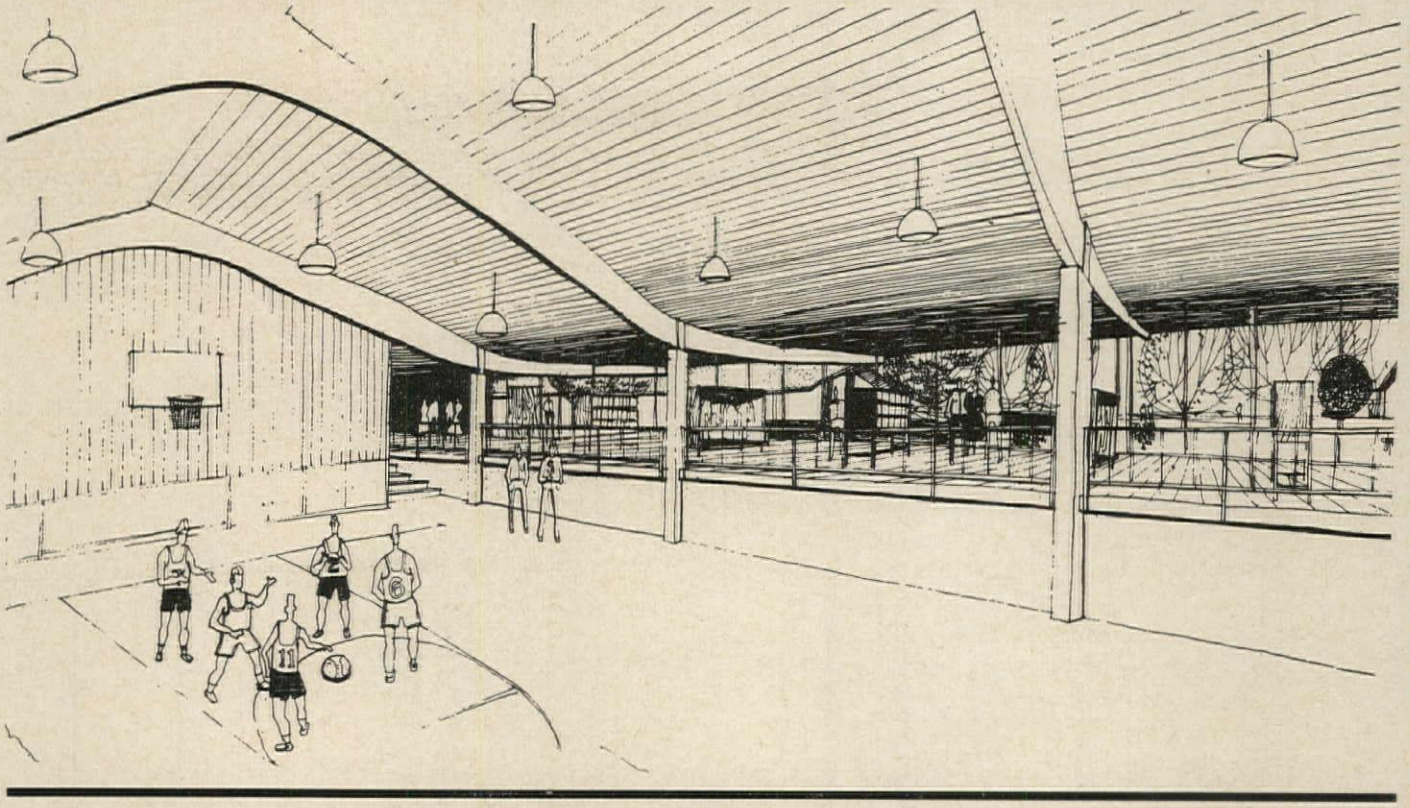


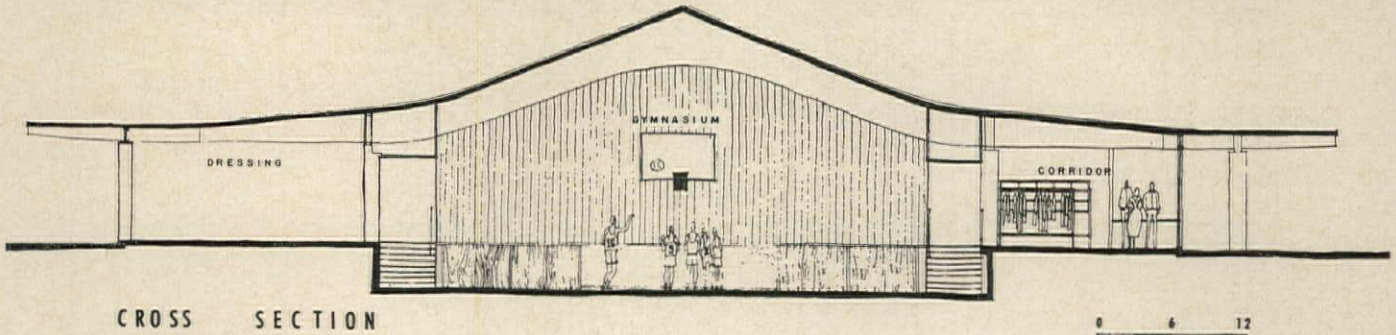
CROSS SECTION





THE SPACE BETWEEN THE CLASSROOMS IS DIVIDED INTO SMALL SPACES WHERE AN INDIVIDUAL CAN STUDY OR A SMALL GROUP CAN DISCUSS.





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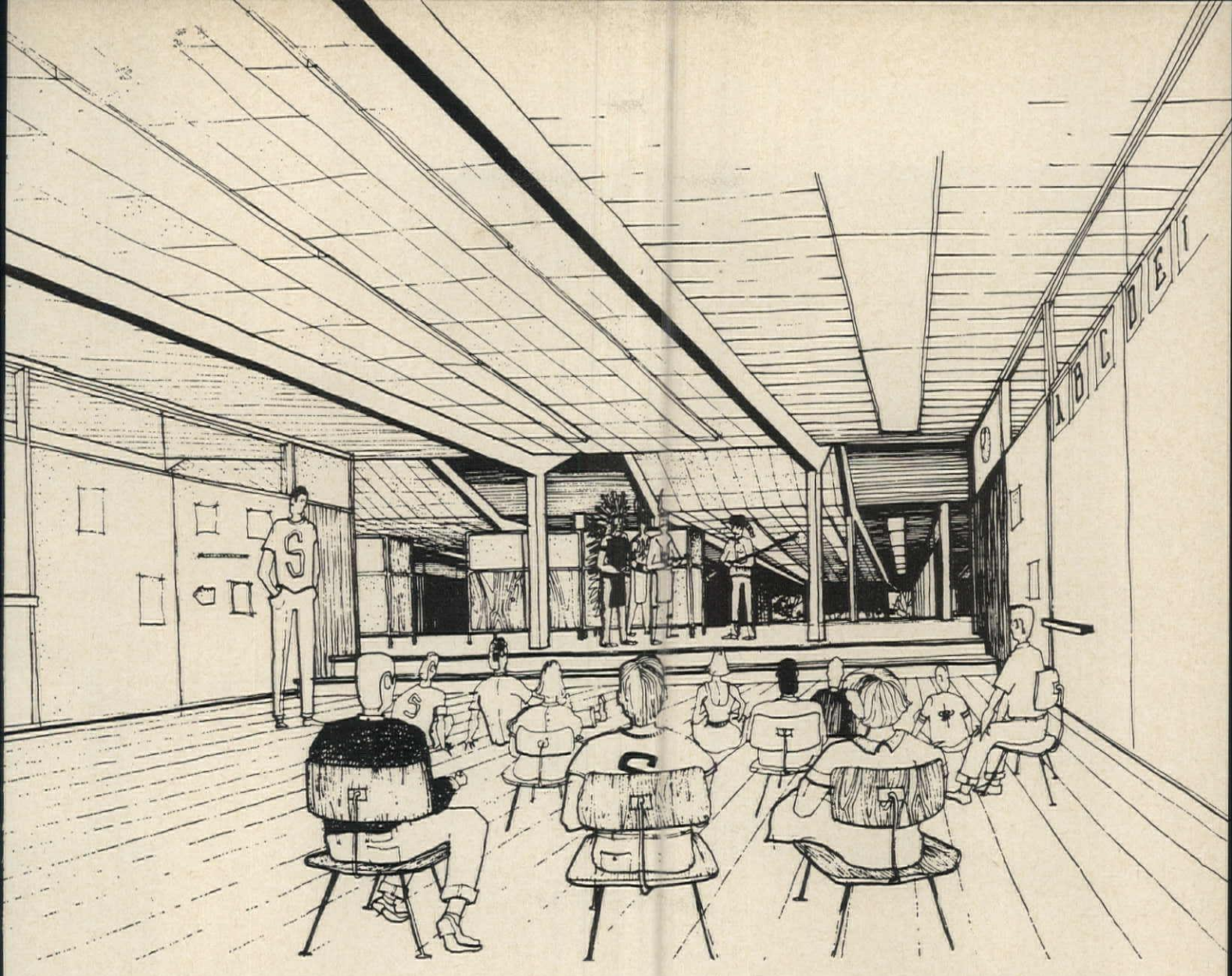


The Saginaw Middle Schools

later on. In the sixth grade, team teaching is started, and more open planning, but still with a permanent home room base. In the seventh and eighth grades team teaching is continued, with the student going from home room to study carrels, to specialized instruction areas.

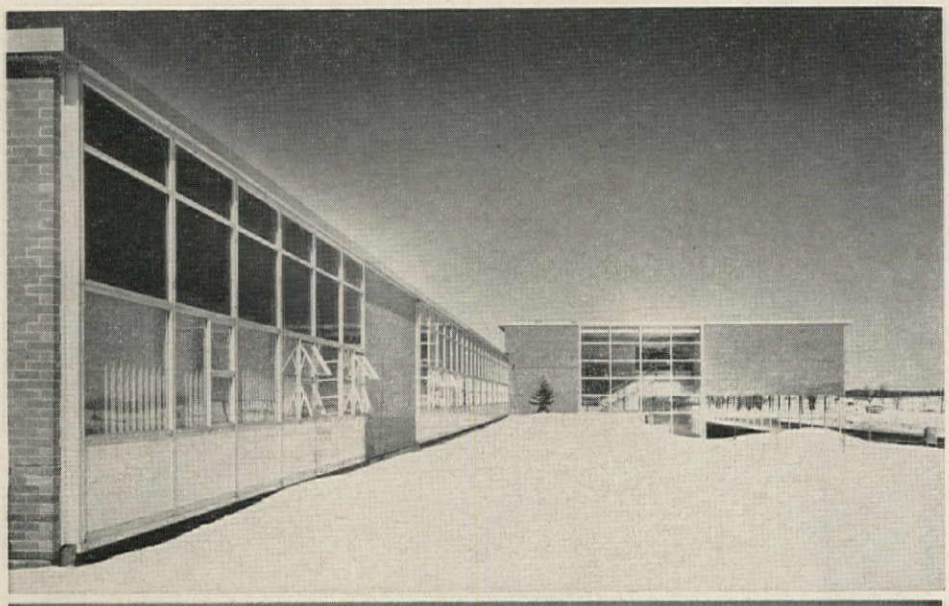
The architectural schemes developed for these programs pairs off classrooms on either side of a "common space", which also serves as a corridor. In the fifth grade, this space is raised and contains a dividing partition and a utility core with sinks and toilets. A mechanical tunnel runs beneath the platform to supply water, waste lines, electrical wiring and heating. (See section at top left.)

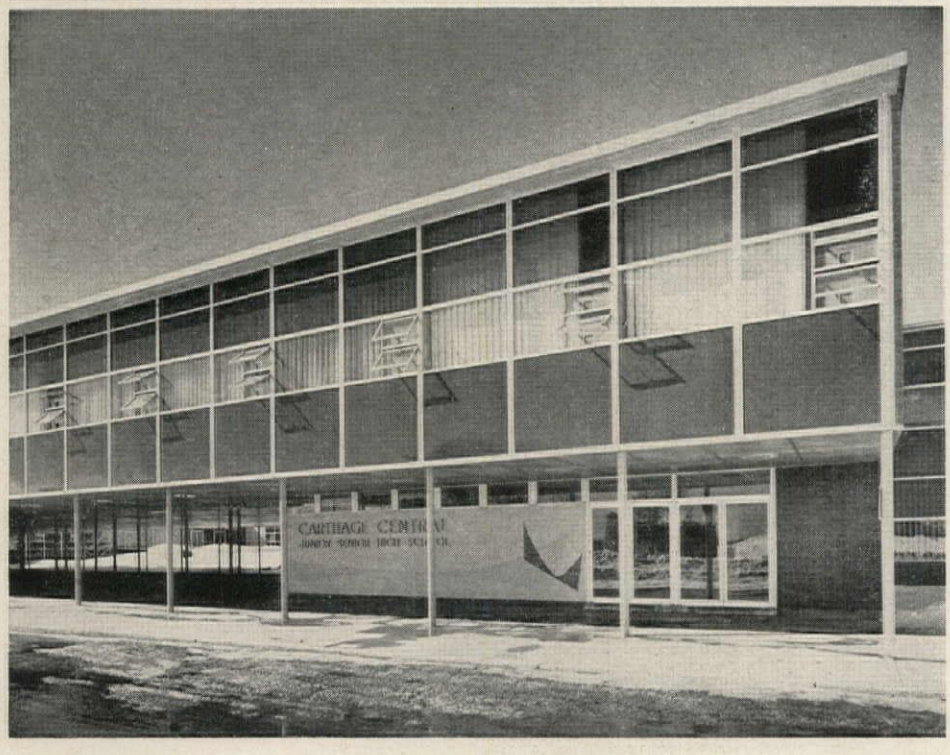
The sixth grade classrooms are designed in the same way, but left open and without the utility core. The platform serves as an activity area or stage (sketch above). There are movable storage units and coat racks which the teachers can rearrange as desired.

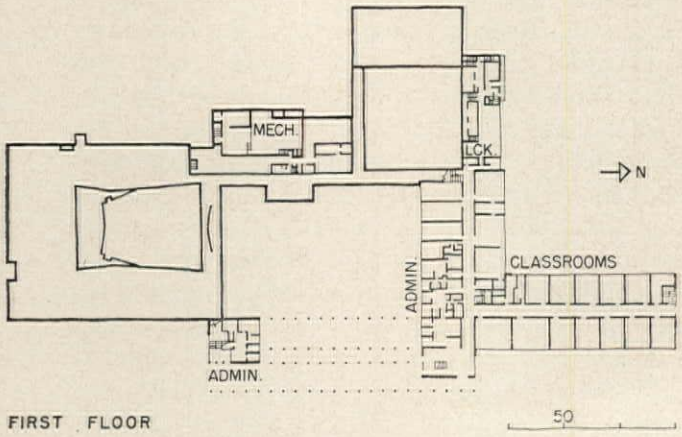
In the seventh and eighth grades, the common space is not raised and contains study carrels and conference rooms. Only partial walls are used to separate the areas (plan and section above left). These grades also have specialized areas for art, science, mathematics, crafts and home economics.

In both schools, separate buildings house such non-academic spaces as gymnasium, cafeteria, kitchen and mechanical room. To preserve a continuity of roof heights, the gym floors are sunk into the ground. (Note section and sketch at left.) The gymnasiums also have a platform at one end for use as assembly hall and auditorium. The cafeterias also double as auxiliary teaching space for special classes and for administering tests.

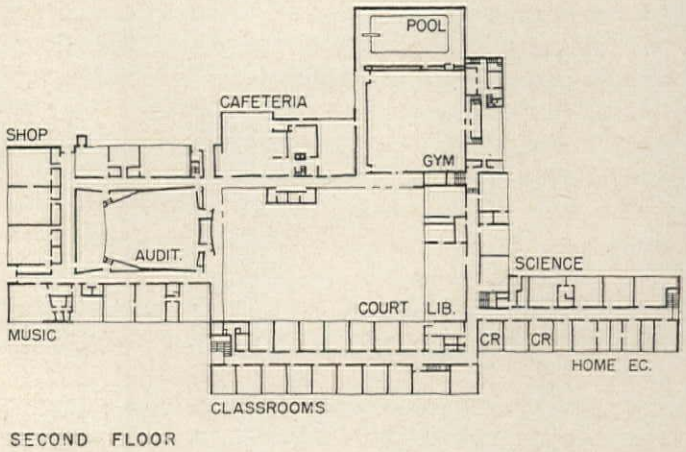
The structures of the two schools use concrete foundations, glued laminated wood beams, and brick exterior walls. The roof is wood decking. Interiors are surfaced with hardboard, plastic laminates, vinyl fabric, chalk and tack board, structural glazed tile and ceramic mosaic tile. Floors are hardened concrete, quarry tile and vinyl asbestos tile. Sound is partially controlled in classes by use of acoustic tile, and adjusted noise of ventilating system.







FIRST FLOOR



SECOND FLOOR

Joseph W. Molitor

JR–SR HIGH HAS TRADE AND COLLEGE PREP COURSES

Carthage Junior-Senior High School; Carthage, New York; Sargent Webster Crenshaw & Folley, Architects and Engineers; Darrel D. Rippeteau, Partner-In-Charge; John W. Rouse Construction Corp., Contractor

This trim, well-finished school links the junior high program with a combination high school providing both twelfth grade finishing courses and college preparation. It also incorporates a strong industrial arts program, in view of the paper mills and other industries in the Carthage vicinity, and a complete agricultural program due to the general character of the region.

The scheme centers on an open court, with raised classrooms at the front creating a covered bus-loading platform on the lower level. Specialized facilities are arrayed at the rear: a 900 seat auditorium with a large stage (the court doubles as an outdoor theater); cafeteria; gymnasium and swimming pool. Locker rooms for the latter areas are split level to reduce the overall cubage: one locker area is slightly below the gym floor, the other above this. Additional classroom expansion is planned, and all mechanical services are sized for this. Heating and ventilation is a "split-system" using temperate air. Lighting is generally fluorescent.

Construction of the first floor is reinforced concrete; the remaining structure is steel frame and masonry, with curtain walls of aluminum and glass panels.

Costs for the school were reasonable for the area: $16.48 a sq ft and $1.06 a cu ft. It was designed to house 1,400 pupils at a per pupil station cost of $1,238. The architects services included analysis of available sites, and recommendation of three; final selection was by public vote.

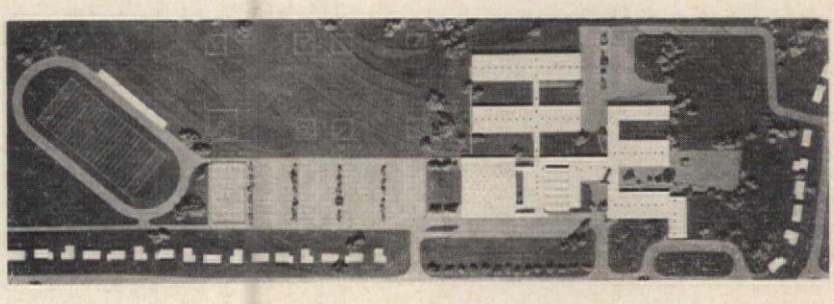
Carthage Jr-Sr High School

Interiors of the school are bright, very pleasant. Wall finishes include painted plaster, structural glazed tile, cork. Floors are wood strip in the gym, others are terrazzo, or tiles of vinyl, asphalt, cork or ceramic. Doors are aluminum and plastic-faced wood. Ceilings are plaster or acoustic tile. Classrooms have vertical blinds

Joseph W. Molitor

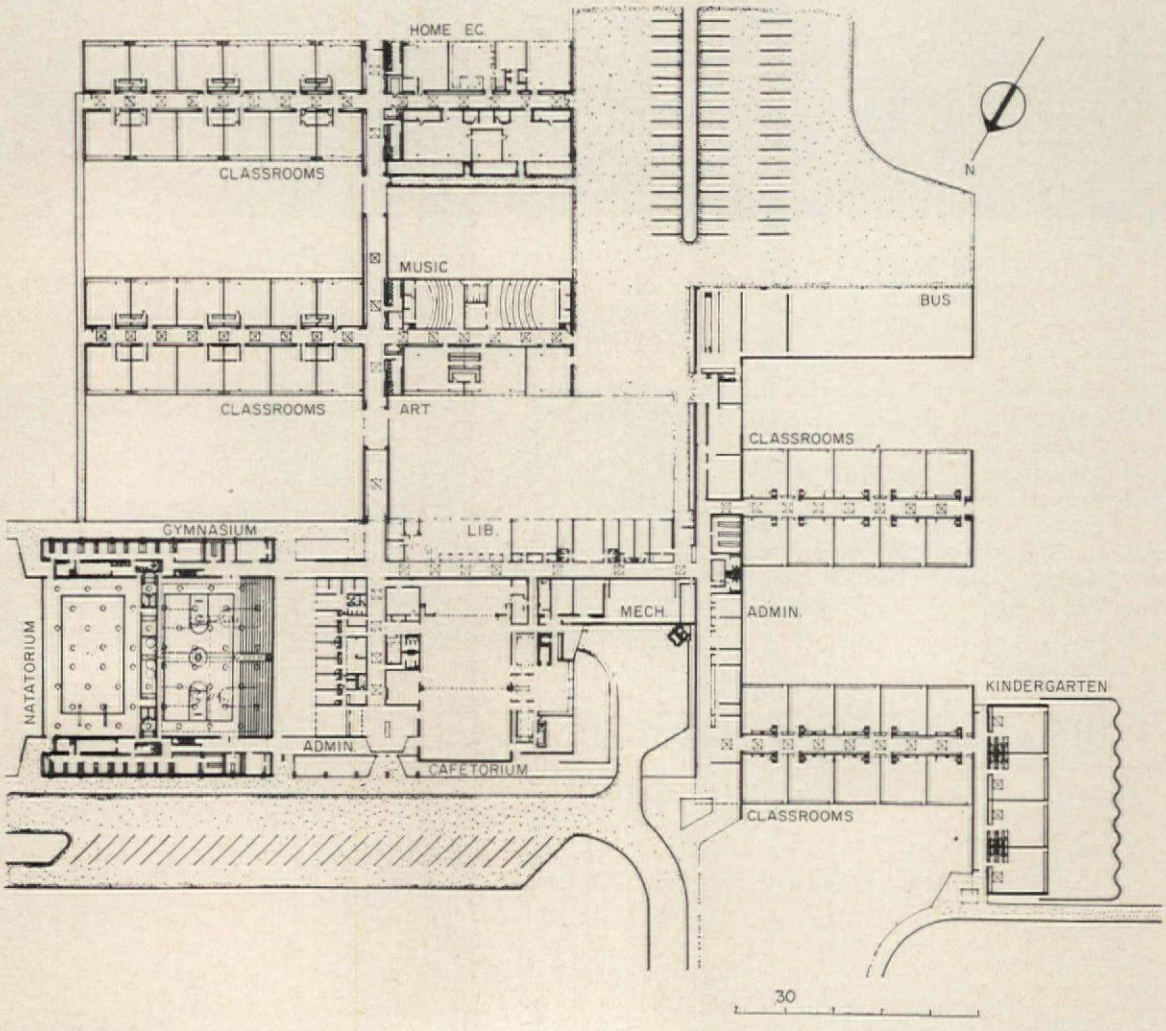
Lawrence S. Williams, Inc.

An L-shaped plan is used in this scheme to provide separate "schools" for junior high and elementary grades, joined at the hub by common facilities for the use of both: library, physical education areas, cafetorium (above), health suite. The junior high is the pair of wings at top in the air view of the model (right), and the elementary school is the "E" shaped block. The two schools are also connected by corridors; each school has its own play areas



JOINT FACILITIES LINK JR HIGH TO GRADE SCHOOL

Carl Sandburg Junior High and Albert Schweitzer Elementary Schools; Lefittown, Pennsylvania; Haag & d'Entremont, Architects; A. Costanza, Structural Engineer; B. Bornestein & Son, Contractor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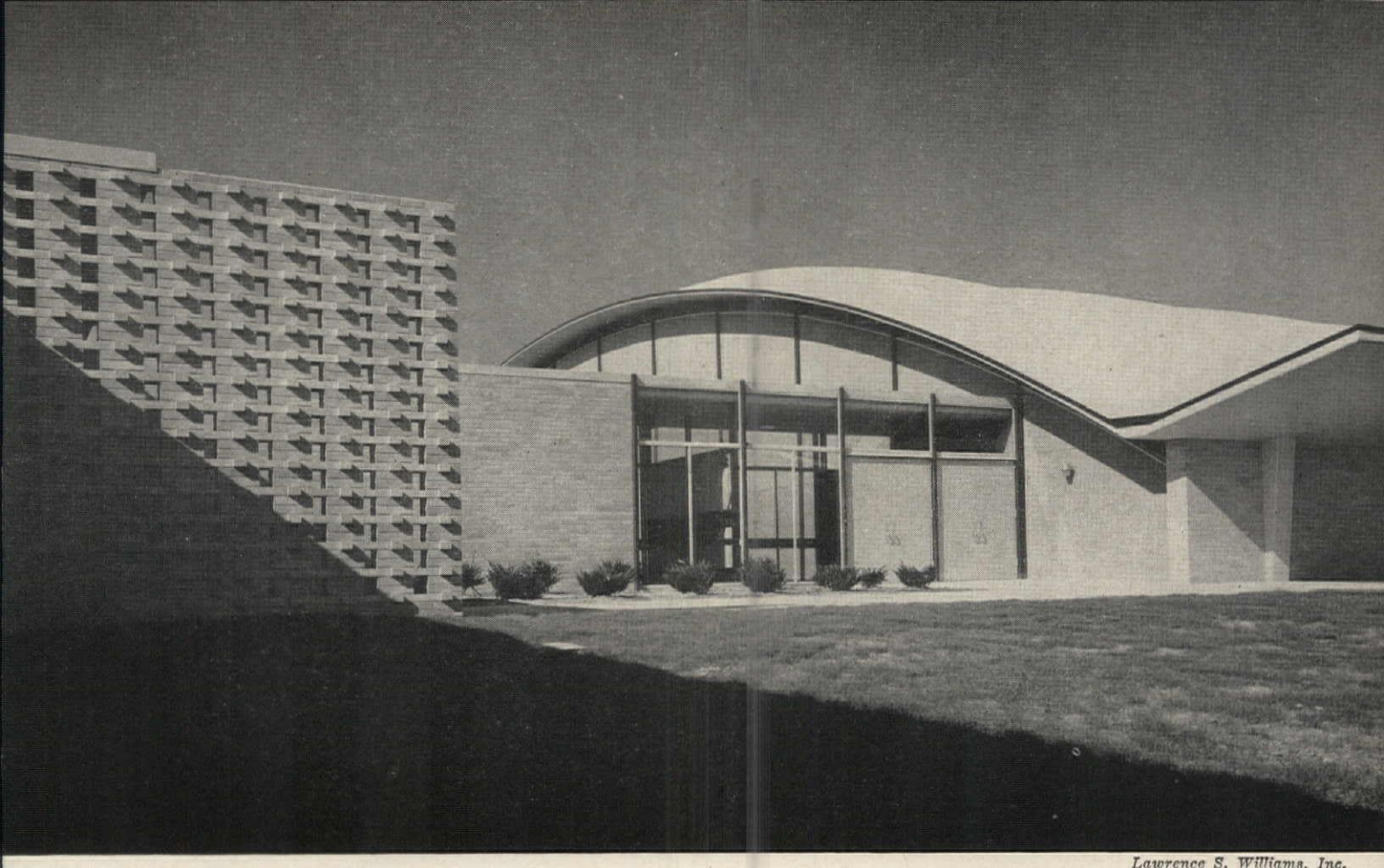
KINDERGARTEN
CLASSROOMS
30



Lawrence S. Williams, Inc.

Carl Sandburg Junior High and Albert Schweitzer Elementary Schools

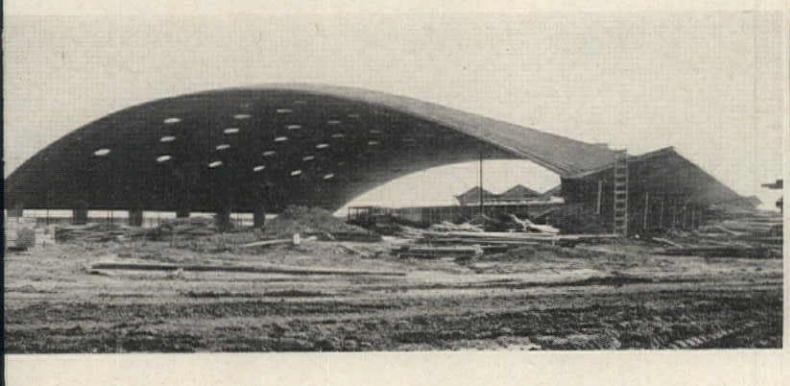
This cheerful school has apparently set a pace for its Neshaminy School District. The regional Superintendent of Schools, Dr. Oliver Heckman, states that "We live in a solid traditional Quaker community, and the architects jarred us loose from our moorings and came up with new ideas that actually influenced our curriculum." Among these items is the use of wood paneling, which seemingly, the children do not carve or deface.

Some other newer ideas that were included are: larger-than ordinary rooms for English and social studies to permit arrangements of small groups, and off each room—small private conference rooms where small groups of students can prepare work jointly without disturbing the class. Another new item: doors are placed at the rear of the sunken music rooms to permit a late student to enter without disturbing anyone. Math and science rooms use mobile labs on wheels for greater flexibility and more intensive use of equipment; science rooms are back to back with storage rooms between. All classrooms have black-out shades for audio-visual use.

The structures are reinforced concrete, contrasted with brick and turquoise panels. Clear glass is used at vision level, tinted glass above. The arch spanning the gym (below) clears 158 ft, and is pierced with 4-ft plastic bubbles.

The junior high has 850 pupils, and with the "common facilities" cost $2,500,000, or $15.40 per sq ft. Another 850 pupils are accommodated in the elementary school built previously.

Classrooms are painted concrete block, with asphalt tile floors, acoustical tile ceilings. Unit ventilators and hot water heating are used.



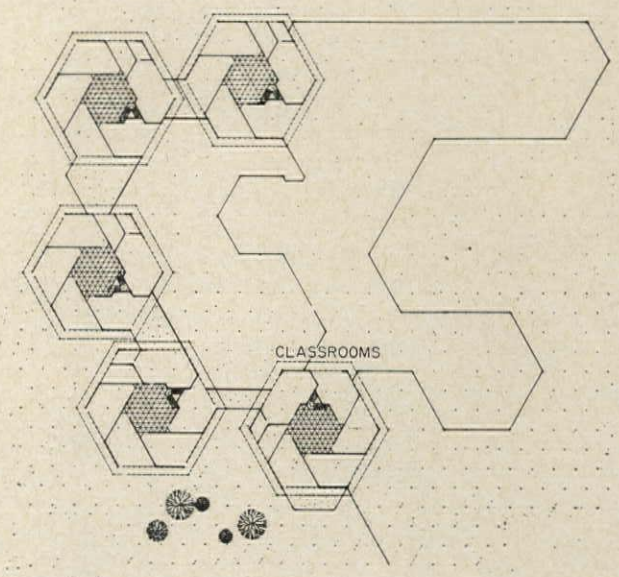
TEAM TEACHING FOR A TRANSITIONAL JR HIGH

Dead Horse Hill Junior High School, Casper, Wyoming; Perkins & Will, and Robert Wehrli of The Architectural Guild, Architects; (for Perkins & Will: Brock Arms, Partner-in-charge; F. Philip Brotherton, Project Architect; William Doemland, Designer)

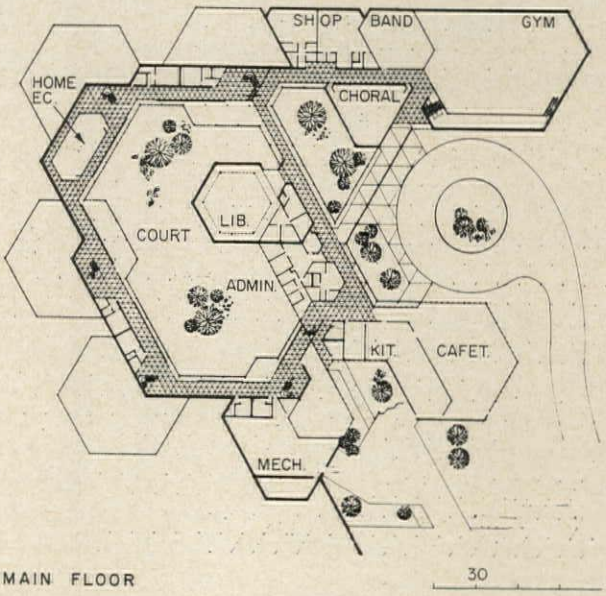
Designed to serve as a new kind of transition between small neighborhood elementary schools and the more massive high schools, this scheme divides the student body into five academic units. These units include four classrooms and a science room clustered in a "self-contained" hexagon. The classrooms wrap around a central space which serves many purposes: corridor, extra classroom, for art and construction projects, visual aids, or for division into individual student carrels. A team-teaching set-up will be used, with a teacher's office opening on this central area.

The five hexagons are arranged around the edge of a "bowl" cut into the hillside, which forms a central planted court. Classrooms open by stairs to a connecting corridor below; each level has fire exits.

Construction of the school is expected to begin in spring 1961, and completed by late summer 1962. Estimated cost is $1,350,000. The five hexagons are identical, and separation permits lighter construction by local building codes. All is planned on a module of 16-ft equilateral triangles.

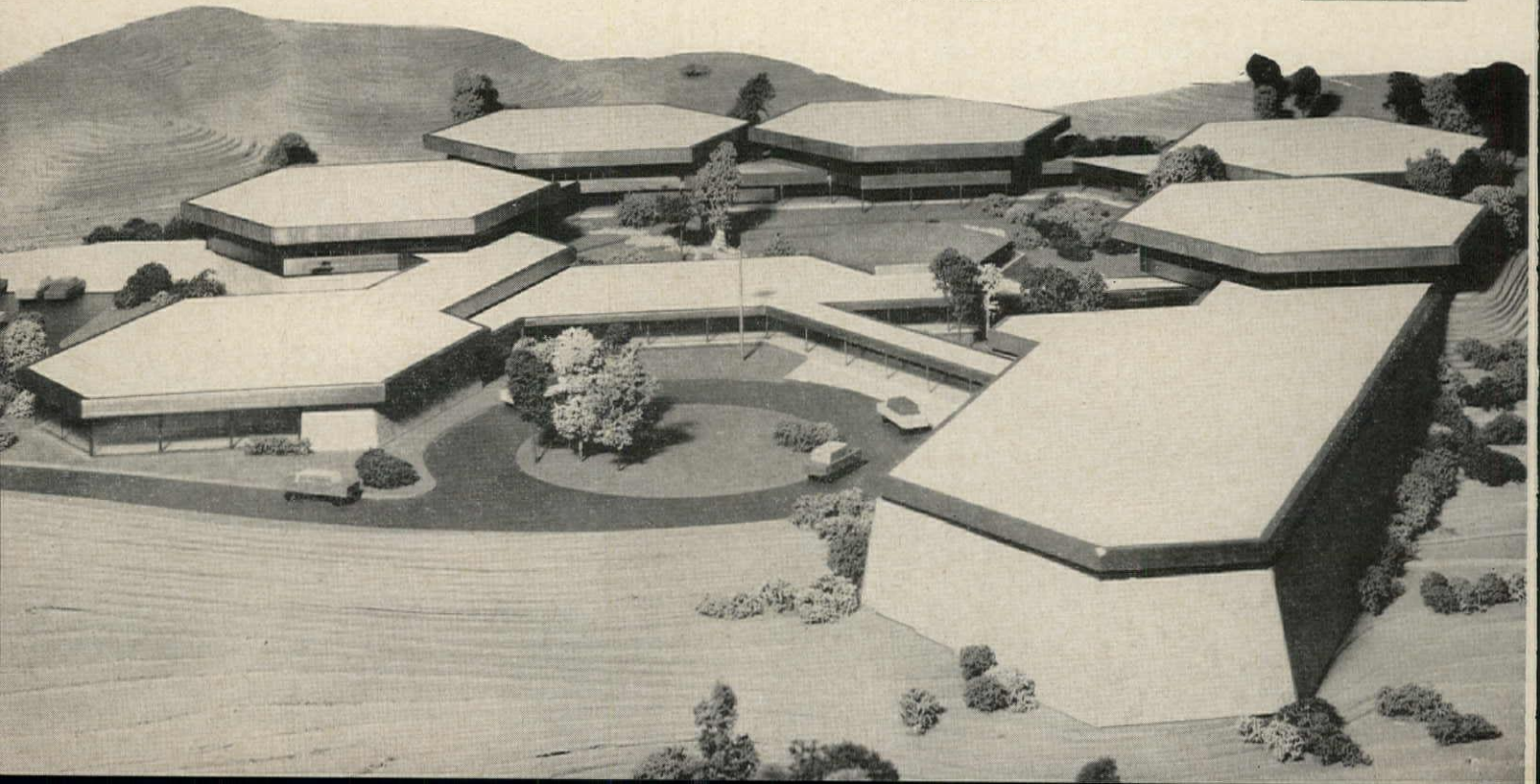


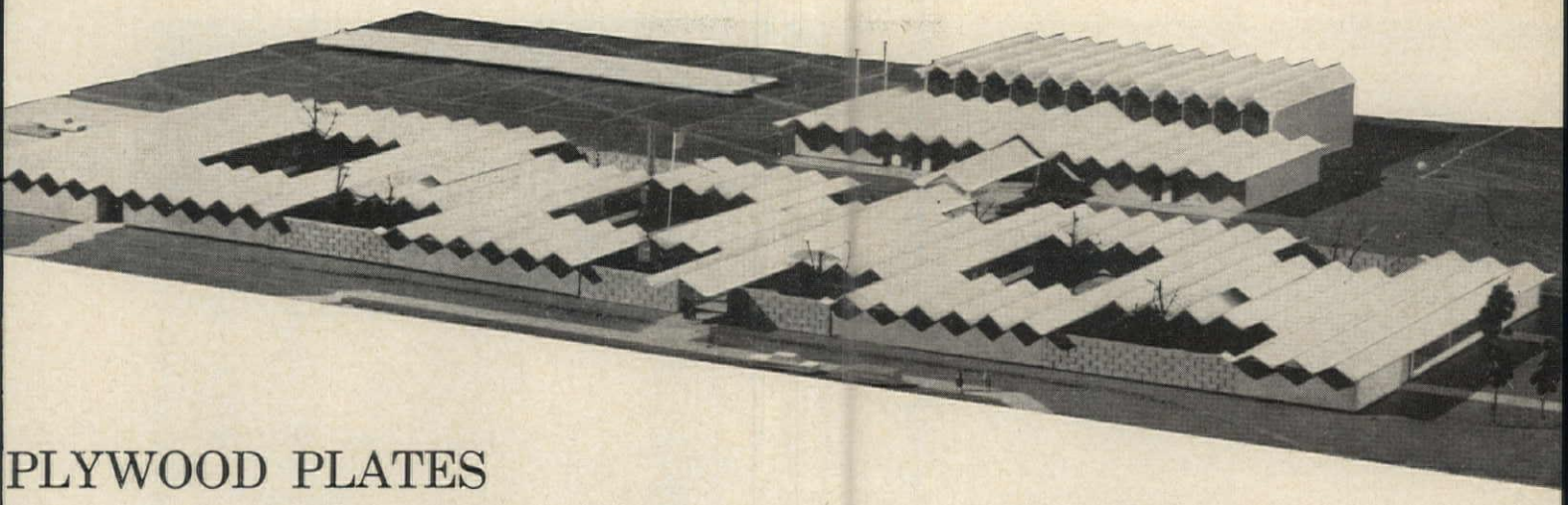
UPPER FLOOR



MAIN FLOOR

30





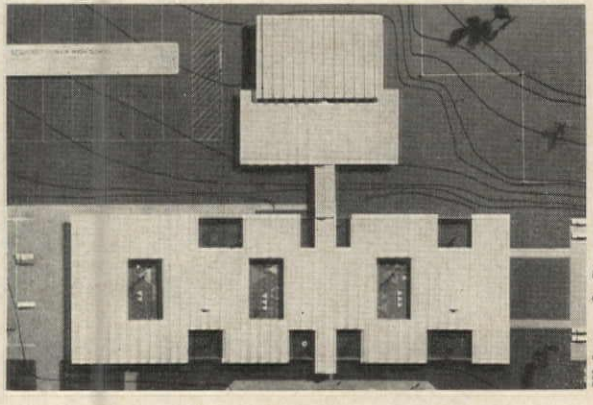
PLYWOOD PLATES

ROOF A JR HIGH UNIT SCHEME

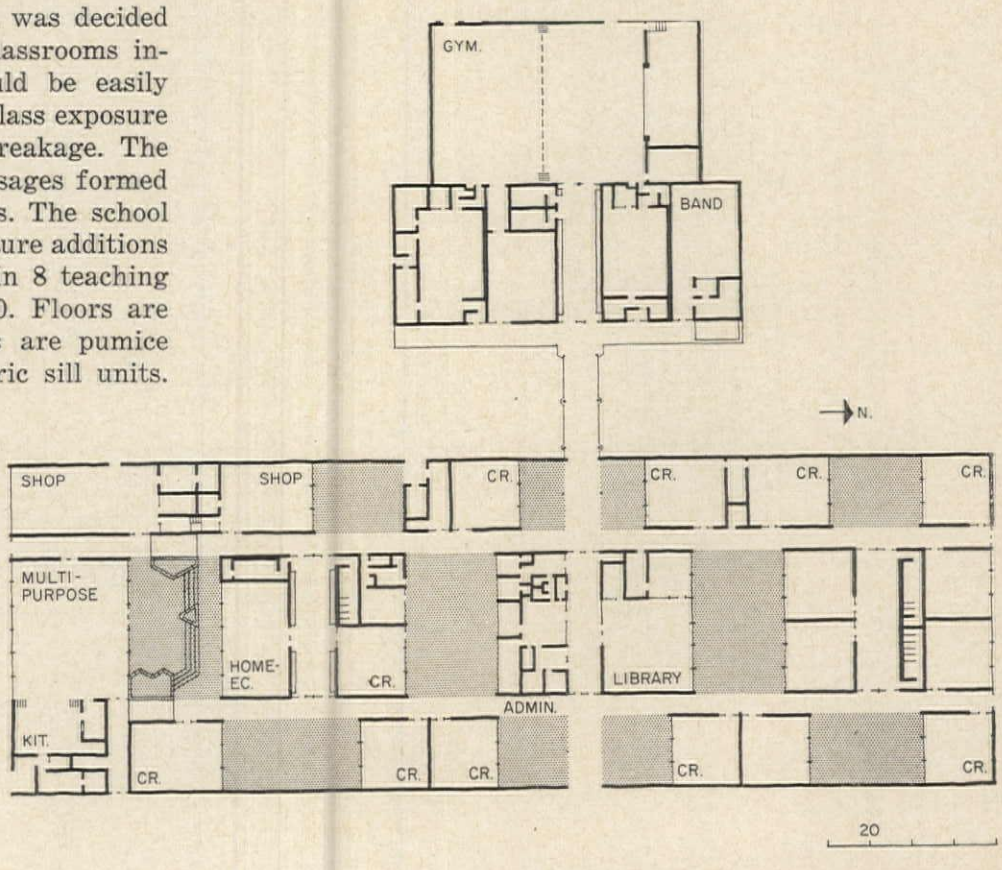
Seahurst Junior High School, Seattle, Washington; Waldron and Dietz, Architects; Kane and Ervin, Mechanical Engineers; Olsen and Ratti, Structural Engineers; Eckbo, Dean and Williams, Landscape Architects

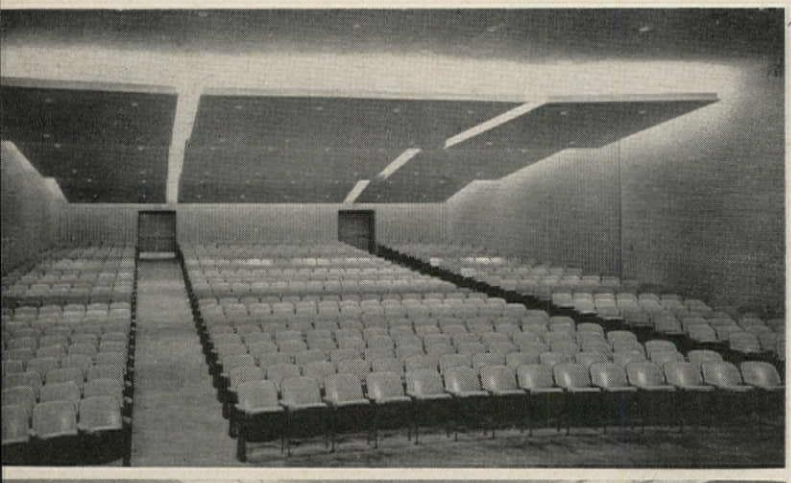
Now nearing completion, this school is sheltered by what is said to be the largest expanse of folded plywood plate roof yet built. The 22 teaching stations of the school are divided into a great number of small units, interspersed by courts, and unified by the roof.

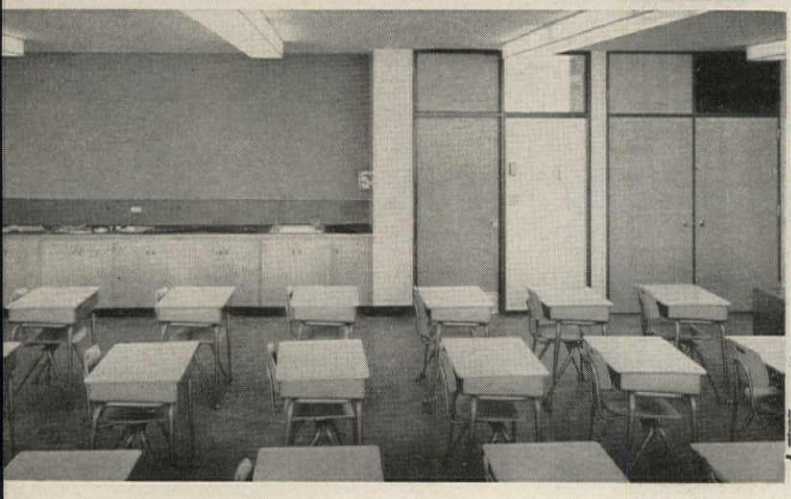
One of the major problems was posed by the site: it is relatively high priced land bordering a busy street in a densely populated area. Since street distraction and noise were a problem, it was decided to enclose the school and orient all classrooms inward on courts. The scheme also could be easily locked up and presents a minimum of glass exposure to the exterior for vandalism and breakage. The units are linked by outside covered passages formed by 10-ft cantilevers of the roof panels. The school now has a capacity of 554 students. Future additions are planned for an extra 200 pupils in 8 teaching stations. Construction cost is $927,000. Floors are concrete slab and asphalt tile; walls are pumice block; heating is by continuous electric sill units.

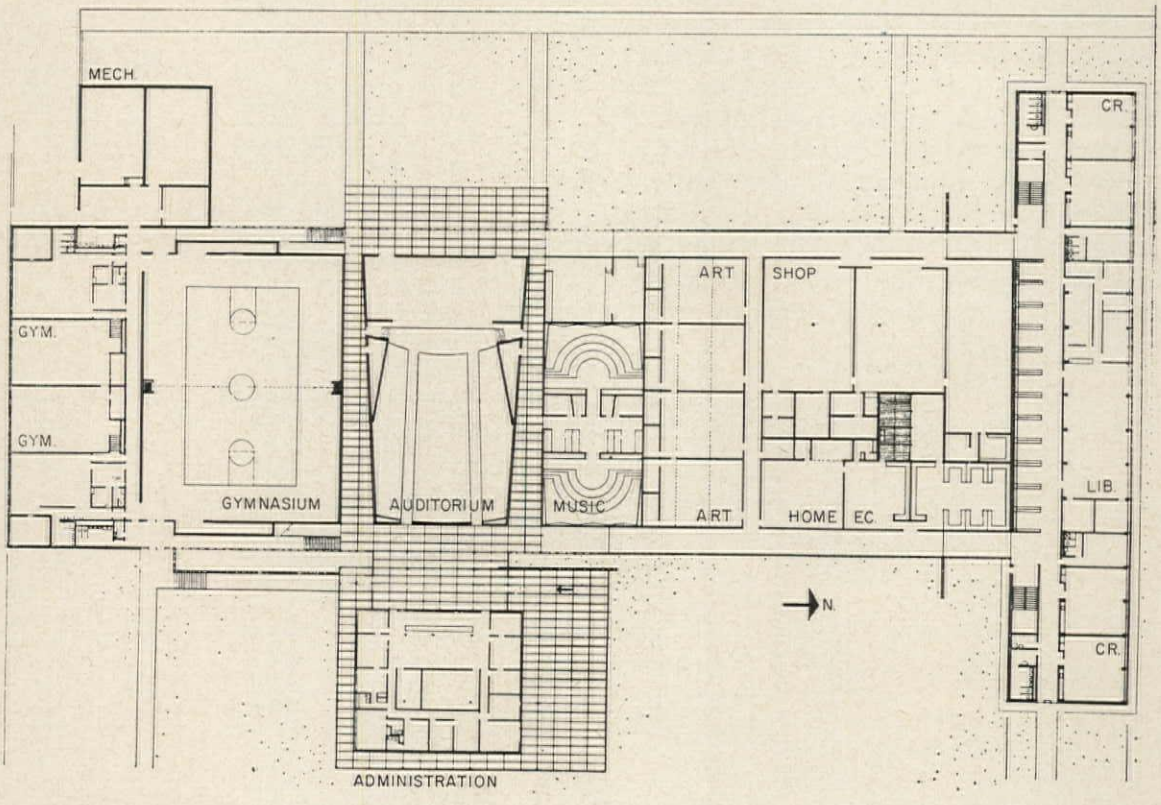


Webster & Stevens





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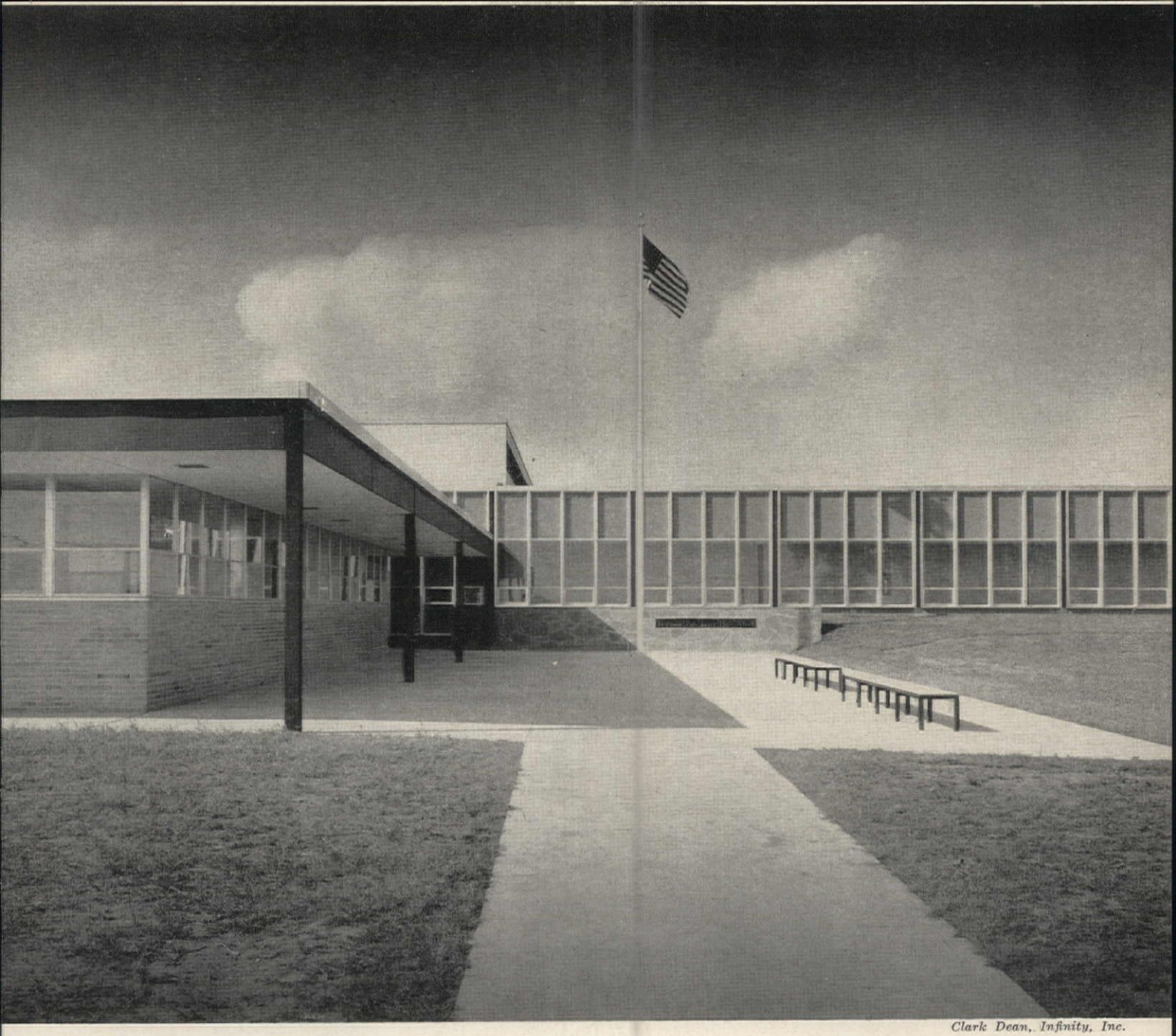


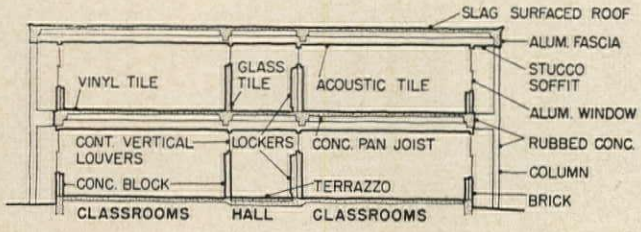
Clark Dean, Infinity, Inc.

JR HIGH PLANNED FOR FUTURE SR HIGH ADDITION

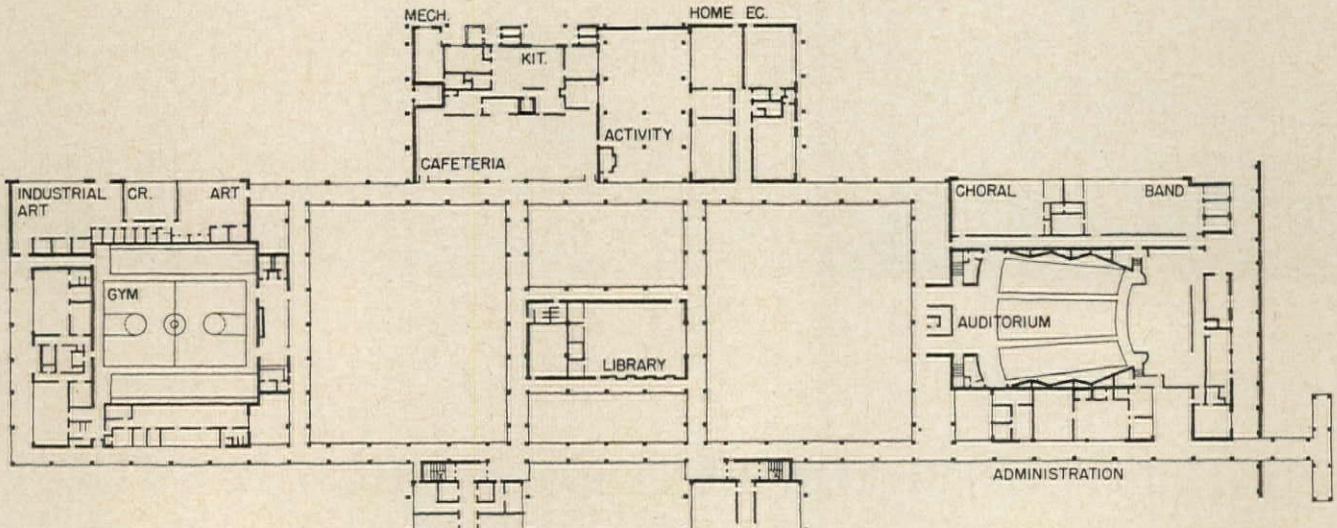
Highland Park Junior High School, Saint Paul, Minnesota; Hammel & Green, Inc., Architects; Bruce Abrahamson, Partner-in-Charge; Eugene G. Flynn, Consulting Architect; Steenberg Construction Co., Contractor

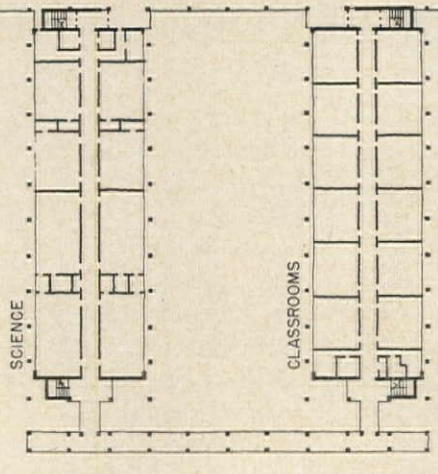
This junior high is located on 35 acres of rolling land adjacent to one of Saint Paul's finest parks. Two of the paramount design concepts were to take advantage of the slope of the site, and to provide for future additions. Among the latter will be a senior high school, which will share the same cafeteria-kitchen and boiler room facilities as the junior high (the cafeteria is located on a level above the small gyms on the plan). The building plan and heating system are also zoned to permit closing off various parts for community and after-school use. Capacity is 1200 students in the school as constructed.

The site slopes from the north end to the south. Classrooms are stacked in a three-story wing at the high end of the site. The wing contains 22 classrooms, lockers, library, staff rooms, toilets and auxiliary spaces. This wing is heated and ventilated by unit ventilators with exhaust air being pulled through lockers and discharged at the roof. The rest of the plan contains larger spaces and higher ceilings; by ramping down with the site, a common roof elevation was maintained over progressively higher ceilings. Additions can be made at any point at bottom or top of plan as shown. The frame is structural steel; exterior walls are brick, aluminum, porcelain enamel; interiors are plaster, glazed tile, acoustic tile, terrazzo and asphalt tile. Cost was $1,889,000.

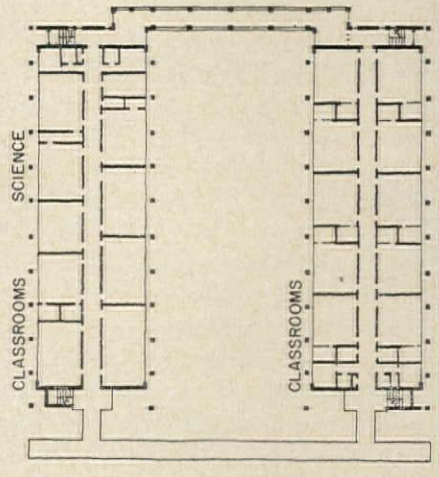


SECTION THRU CLASSROOM BLDG. 5





FIRST FLOOR



SECOND FLOOR

Frank Lotz Miller

A CAMPUS PLAN FOR AN EXPANDING JR-SR HIGH

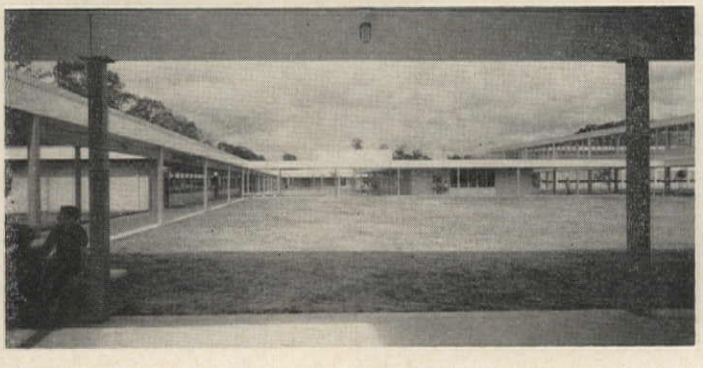
Broadmoor Junior-Senior High School, Baton Rouge, Louisiana; Bodman & Murrell & Smith, Architects and Engineers; Chesson, Forrest and Holland, Consulting Mechanical and Electrical Engineers; Theodore E. and Lou Bird Landry, Consulting Landscape Designers; Steve A. Caldwell, Consultant on Acoustics; George A. Caldwell, Contractor

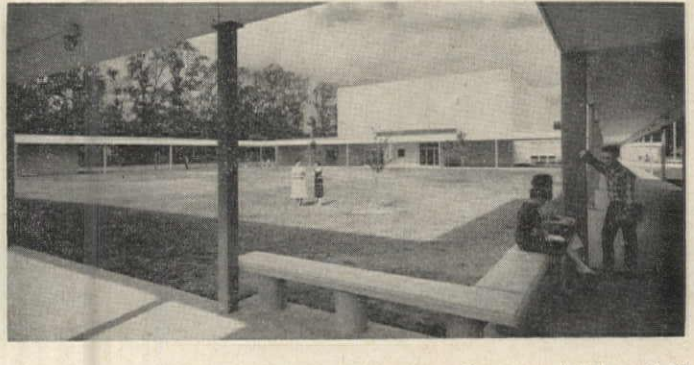
This new combined junior-senior high school is designed to accommodate 1200 students at present, and contains basic facilities (other than classrooms) for an additional 600 students in the future. Due to the varying needs for school facilities, the school was designed for either junior or senior high use; it is used for both now, and may be converted to either one at later dates.

The scheme provides a separate building for each major facility, linked by covered walks in an extended campus plan. Two classroom wings contain a total of 40 teaching stations. Ten of them are "special" classrooms with sinks and small glassed-in conference rooms. Eleven of them are science labs with storage rooms.

The design couples a very pleasant environment with materials selected for economy and ease of maintenance. Such amenities are included as the students' multi-purpose room with snack bar, outdoor patio and barbeque area.

The structure is reinforced concrete and structural steel. The exterior is face brick; interior walls are concrete block. The floor slab is surfaced with terrazzo, ceramic tile, vinyl asbestos or wood (in gym). Ceilings are acoustic tile or plastic.

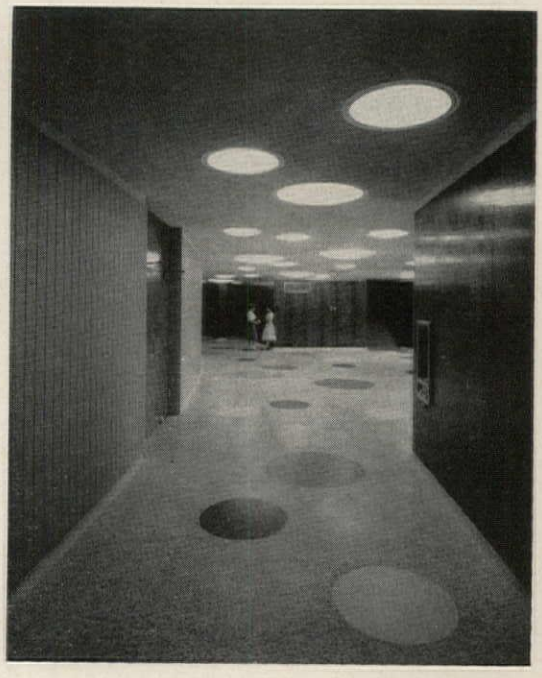




Frank Lotz Miller

Broadmoor Jr-Sr High School

The light, neat corridors and locker areas of the classroom wings is shown in photo at top. At center is the auditorium with 1200 seat capacity and stage designed for theatrical performances (the lobby to the auditorium is shown below). At bottom left is a section of the homemaking department which also has facilities for sewing, fitting, laundry, display



LIGHTING FOR 4 ARCHITECTURE

The Lighting Design: Problem, Program, Procedure

by William M. C. Lam, Consultant: Coordination of Lighting and Architecture

a. Using Light to Render Space and Structure

b. Graphic Tools for Lighting Analysis, Design and Communication

c. The Design Procedure: A Case Study

Many architects assume that well-designed lighting necessarily requires complex engineering and expensive specialized equipment. The opposite is true. A thorough understanding of the material "light," and a program based on the overall architectural objectives as well as on the specific requirements of individual spaces should result in well-designed lighting that is also simple to engineer with simple basic equipment.

The first three articles in this series questioned the adequacy of lighting systems designed solely by selecting fixtures to fulfill listed footcandle standards. To begin with, we pointed out that footcandle levels are only one of many objectives—physiological, psychological and esthetic. Secondly we tried to explain the complex functioning of the human eye and the effect of light on vision, visibility and visual comfort. Third, we outlined the relationships between the light sources and room surfaces which make up the total lighting system, and showed how these relationships can be used to achieve the illumination and brightness objectives.

Having thus rejected the standard lighting "recipe," we should presumably present in this article a new and improved formula for designing perfect lighting. Instead, we shall only repeat that there *is* no recipe for lighting except that used in any phase of architectural design: a reasonable judgement based on a common sense analysis of the specific problem. The diversity of the factors involved in lighting, and the inexact measure of their relative importance, prohibit the arbitrary application of standard techniques to meet arbitrary standards.

Analysis of the possible lighting systems for any space will usually show more than one way to get the desired illumination and brightness ratios. The design of lighting therefore involves choosing the lighting system that will best meet the programmed objectives, producing task illumination that is appropriate in terms of quality and distribution as well as quantity, and brightness patterns that are psychologically and esthetically satisfying as well as comfortable.

If he understands the fundamentals of light, the designer can fulfill these objectives by integrating room surfaces and light sources rather than by merely applying lighting equipment to produce calculated footcandle levels which may be irrelevant to the particular needs and character of the building. Fortunately there is rarely any reason for condoning unattractive lighting on grounds of "efficiency." If one is willing to manipulate *all* the lighting elements—the building as well as the fixtures—the most attractive design will also be the most "efficient" and the most comfortable. The best test of lighting is, "Does the room look and feel right for its purpose?"

In this article we will explore in more detail the relationship of brightness patterns to the rendering of the space and structure, and suggest some simple graphic tools for visualizing the final effect of the lighting systems being considered.

The case study presented summarizes and exemplifies the type of studies and decisions the architect must make and the procedures he must follow in collaborating with the lighting consultant and the illuminating engineer. It also demonstrates the interdependence between the lighting design and other architectural decisions, and the resulting need for greater and earlier participation by the architect at all stages of the lighting design, from resolving the program to manipulating the many elements in its execution.

a. USING LIGHT TO RENDER SPACE AND STRUCTURE

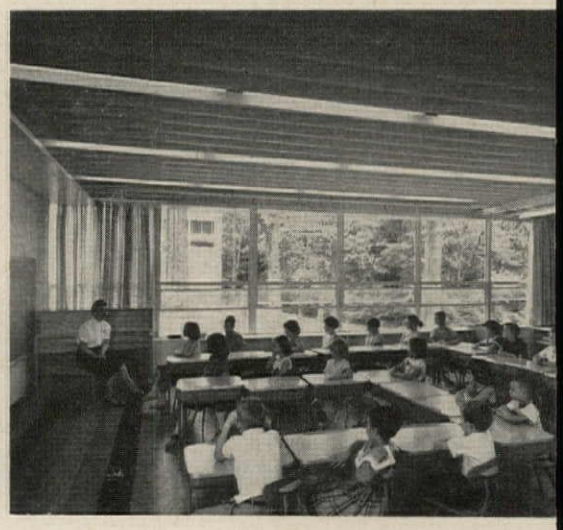
In programming lighting, it is important to remember that such quantitative objectives as illumination and brightness levels should be approximate rather than precise. It is such qualitative requirements as the effect of fixture type and placement on appearance that are the most exacting design criteria.

When a space is enclosed by an expressed structure, the shape and position of primary and secondary sources, and the brightness gradients and shadows they produce, should aid the understanding of the structure, either by emphasizing it or by simply revealing it neutrally.

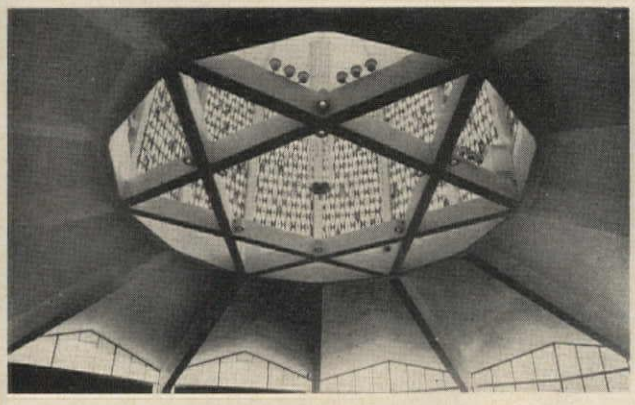
Structural modulations, for example, can be defined by producing brightness gradations parallel to them, using the shape of the structure itself for light control: e.g., vaults for distribution, beams for shielding. Care must be taken, however, to develop such shapes with the lighting in mind, applying the principles which relate brightness on a given surface to its distance from the light source and the angle of incidence. (It should also be remembered that while undulating brightness patterns may be appropriate on undulating shapes, they may confuse or dominate a flat surface.)

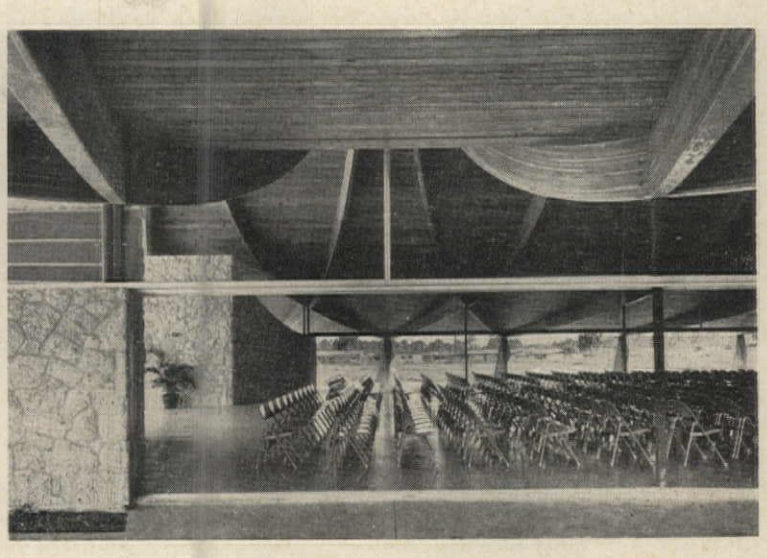
If the structural modulations are so frequent that parallel lighting would require too many rows of fixtures, or too shallow to produce a desirable gradient, or of a shape which prohibits neat integration of the lighting equipment, they can still be defined by using cross lighting from the perimeter to highlight the structural profile. Similarly, small light-trapping cavities may be modified to become larger light controlling shapes, or shapes developed for daylight distribution may be used to distribute artificial light as well.

It is also important to coordinate the general appearance, dimensions and alignment of the lighting equipment itself so that it unifies rather than disorganizes the space. For example, luminous shapes should be selected and located so that they relate to the shape of the space as a whole. Even the number of fixtures should be determined on the basis of the appearance of a room as long as an appropriate range of illumination and brightness can be achieved.

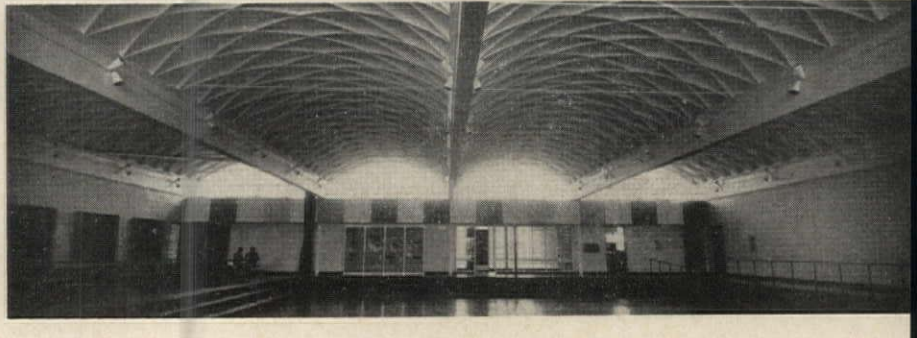


Above: Merely recessing lighting equipment into it does not necessarily define structure. Bands of light in schoolroom at right simply dominate the space; in office at left, enough modules are used for light control to help outline structure. Below: Light pattern from wall-mounted source, and shape of fixture itself, are appropriate to triangular walls. A similar pattern disorganizes rectangular wall at left

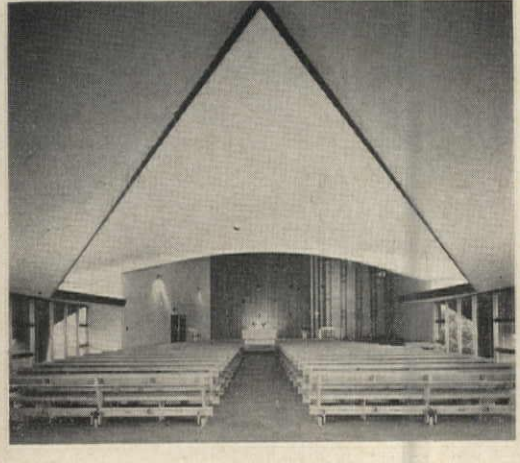


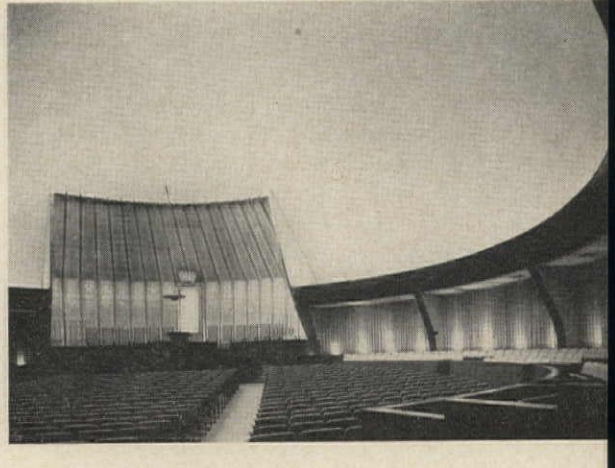


Above: Ceiling profile is highlighted at perimeter; skylight echoes shape of building, downlights accent joints. Right: Coves quietly combined with mullions light roof



Above right: Structure can be accented by controlled reflectances (e.g., light beams against dark ceiling), or by planned brightness gradations. Below right: At night, bullets will throw confusing splotches of light on roof. Above: Globes are logical shapes, logically placed to light high vaulted ceiling and supplement daylighting





Above: Since principal lighting emphasizes shape of these structures, conflicting patterns from wall fixtures are minor blemishes. Far left: Downlights render circular surface neutrally, but change in pattern provides added contrast with surrounding ceiling. Left: Light sources designed to relate to door recesses rather than to deliver "X" footcandles define shape of corridor, aid orientation, provide enough light for circulation

b. GRAPHIC TOOLS FOR LIGHTING ANALYSIS, DESIGN AND COMMUNICATION

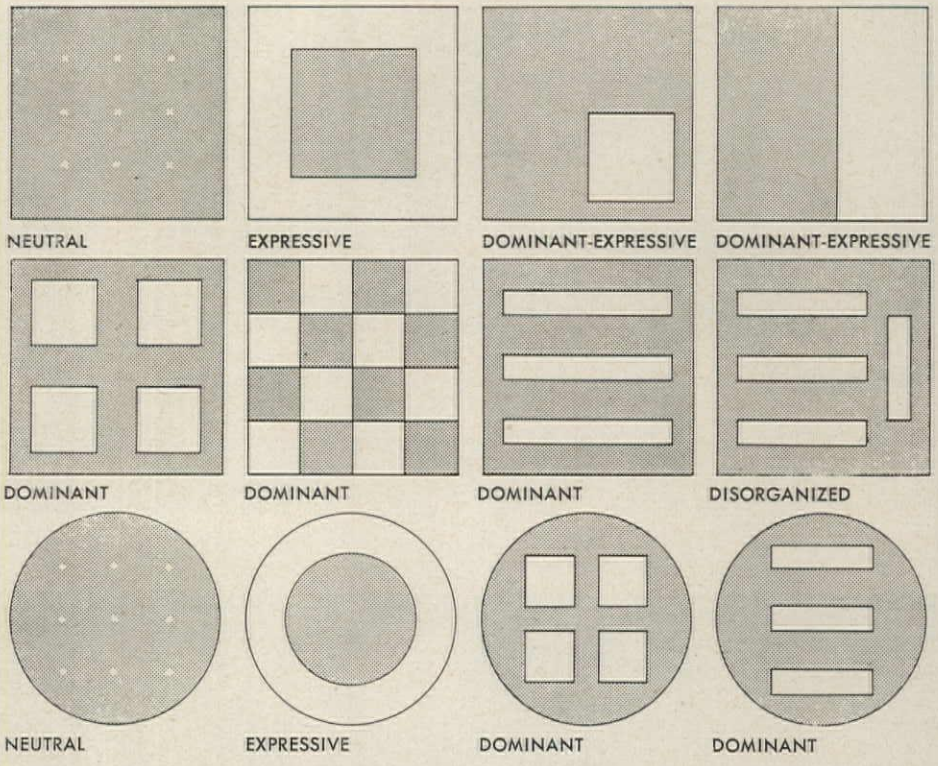
Much lighting design begins and ends with an electrical plan backed by calculations of average footcandle levels. Such a plan is of course the final step, but few designers can visualize light by drawing electrical circuits. Most will benefit from preliminary studies of the appearance and performance of proposed systems.

If appropriate graphic techniques are used, a lighting plan (not an electrical plan) will help in visualizing and communicating the relationship between luminous patterns and the shape and use of a space.

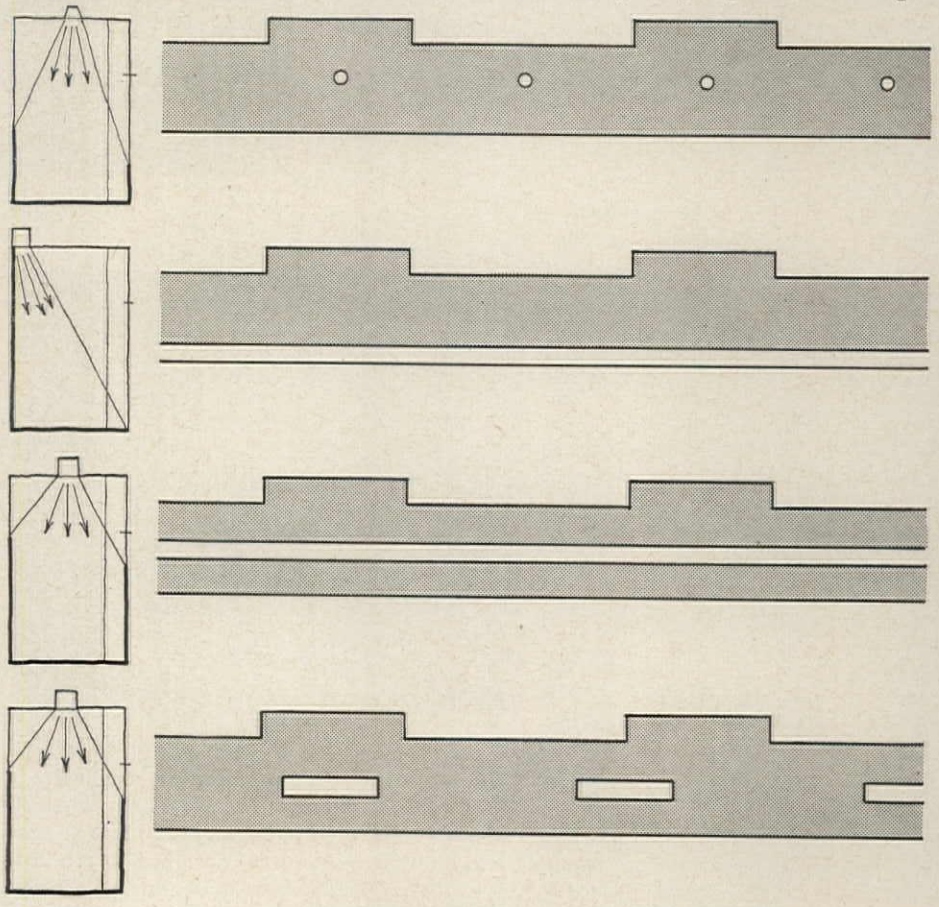
Although the study plan shows specifically only the primary sources, it offers a quick way to screen possibilities for detailed analysis. To predict more accurately both the quality of task illumination and the overall appearance of a space, particularly when dealing with the relatively indefinite brightness patterns produced by such systems as indirect lighting, the plan should be combined with cross section diagrams which indicate the relative positions, sizes and directional characteristics of secondary as well as primary light sources. When the combinations of light sources are studied together with room reflectances, it is possible to predict approximate illumination gradients, brightness relationships and shadows.

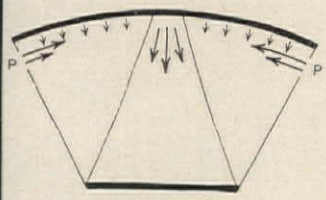
The appearance of a lighting system can then be pretested by rendering the expected patterns of light and shade on perspective sketches. It should be remembered however that light, like space, cannot be precisely reproduced in two-dimensional black-and-white drawings. The eye perceives a lighted space through a series of individual "pictures," each properly exposed. When it sees a single picture of that space, reduced to a fraction of its actual size, the details which define it disappear, and accurately rendered brightnesses may seem over or under exposed.

Rendering apparent rather than real brightnesses, using color, and "blowing up" pictures to something approximating their true scale will help, but in any case, if their limitations are understood, drawings can convey light to the trained mind just as they can convey space.

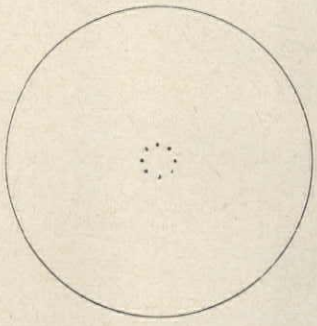


Schematic plans show at a glance how luminous patterns relate to the shape of a space: rendering it neutrally; emphasizing it; dominating it but expressing its use; dominating it without relevance to use; or introducing disorganization that destroys its understanding. Usually when light patterns disrupt a space, the functional requirements are not logically served either. (Note "off-bay" spacing of fixtures in corridor at bottom of page.) If individual spaces are lighted differently, neutral or simply organized patterns are more likely to be harmonious with the building as a whole than dominant "busy" patterns which get cumulatively "busier" as they multiply. If the same busy pattern is used throughout, it is apt to be inappropriate in many of the spaces. Though schematic plans and sections like these quickly show the more obvious results of various fixture arrangements, less definite patterns such as indirect lighting can be effectively visualized only in perspective drawings

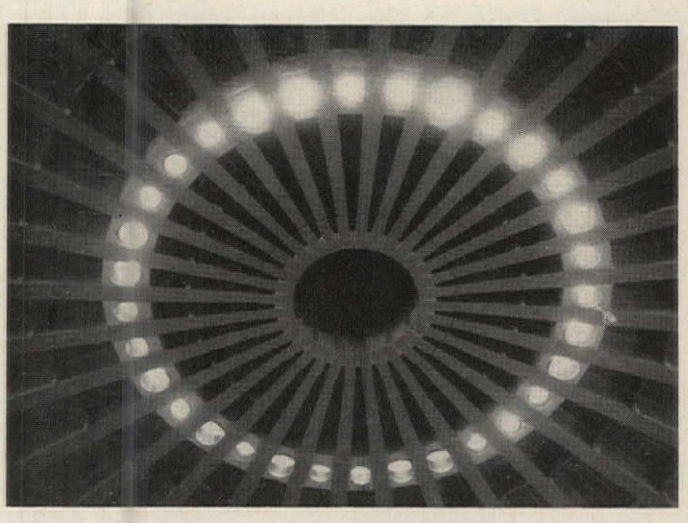




SECTION



PLAN



The importance of using cross section diagrams and/or perspectives as well as plans when studying lighting is demonstrated by the scheme used in the Alexander Memorial Coliseum in Atlanta. (Architects: Aeck Associates)

The function of lighting for sports is to allow the players to comprehend moving objects such as balls and other players from any direction, and at the same time to retain constant visual orientation. The "clear sky" and "sun" concept of lighting shown above successfully fills these functions.

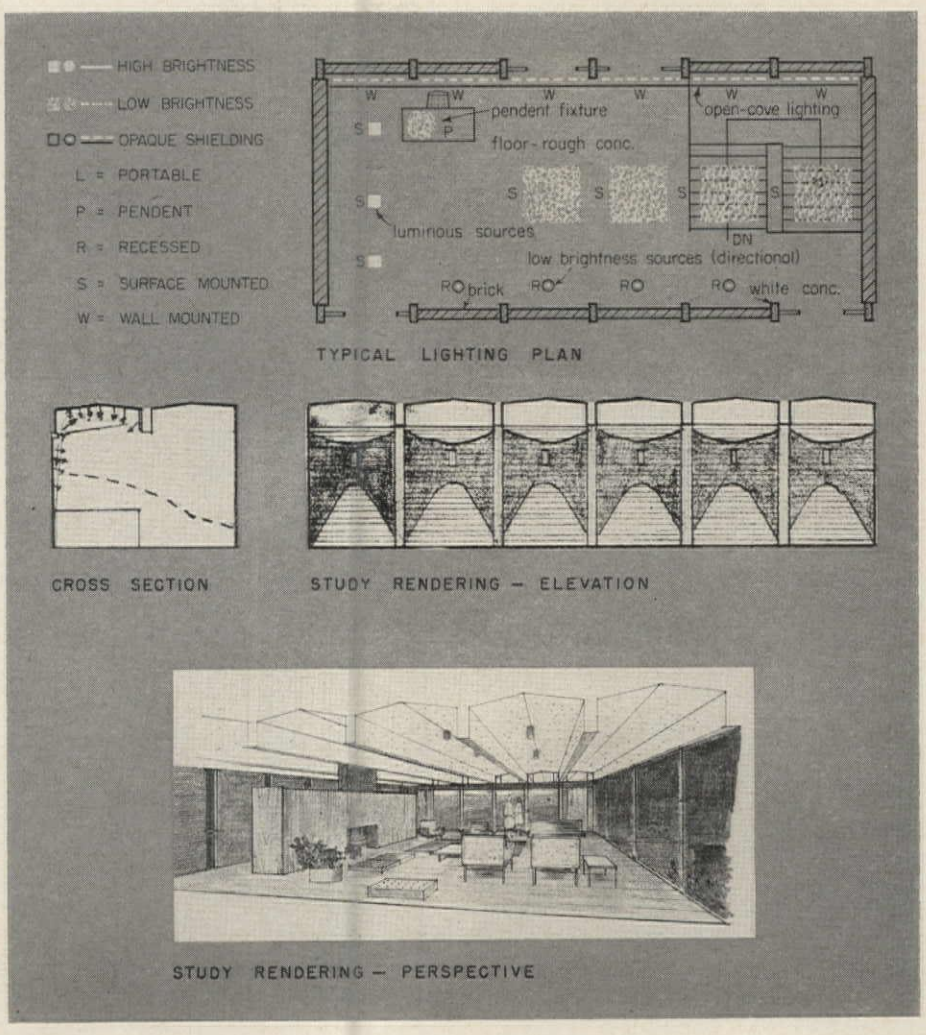
The indirectly-lighted ceiling creates a "sky" that provides smoothly varying quantities of vertical illumination on moving objects plus a uniform background to view them against. The high ceiling allows the use of a single "sun" so that shadows are understandable, and orientation is constant.

A widely spaced pattern of direct sources suspended over the court might seem very similar and quite reasonable if the two schemes were compared only in plan. But the simplest sections would show immediately the confusion the second arrangement would generate by causing moving objects to be lighted from many directions and seen against many "suns"

The illustrations at right show some simple techniques for making drawings done in the normal course of architectural design do double duty as a basis for lighting studies. (The various spaces shown are discussed in detail on the following pages.) Plans, for example, can help in determining the relationship of light to the shape, structure, and use of a space. But to do so, they should: (1) combine floor plan and reflected ceiling plan; (2) show proposed furnishing layouts; (3) indicate materials or approximate reflectances; and (4) show lighting equipment so that its position and appearance can be readily visualized (see legend), omitting electrical symbols.

Although they make it possible to predict more complex lighting relationships, plans as such are most effective in showing definite luminous shapes—fixtures, lamps, etc. Visualization of the "shape" of light from these primary sources, and of the relative importance of secondary sources, is better accomplished by sketching cross section diagrams to supplement the plan. The brightness patterns that can be expected to result from a given system can then be checked by rendering them on elevations or perspectives.

If the structure is too complex to visualize easily, or building surfaces and light sources are to be closely coordinated, it may be necessary to use lighted models, which will give quantitative data as well as qualitative data



TYPICAL LIGHTING PLAN

CROSS SECTION

STUDY RENDERING – ELEVATION

STUDY RENDERING – PERSPECTIVE

C. THE DESIGN PROCEDURE: A CASE STUDY

As in the design of a building itself, the detailed procedure followed in the lighting design will usually be different in each case. The broad outline of the process, however, can be summarized in these steps:

1) Examine the architectural objectives to establish the relative importance of function, esthetics and economy; and analyze the general nature and scope of the problem.

2) Explore the opportunities the building presents for lighting schemes which will enhance the architectural design and meet the specific lighting objectives for each area. Variety with consistency can be achieved by seeking out the common denominators that give the building its particular character and using similar common denominators in the lighting solution.

3) Develop for each area a combination of light sources (including daylight) and reflectances which will render the space and structure as desired and will reflect its use. Study alternate solutions with the aid of diagrams, sketches and renderings.

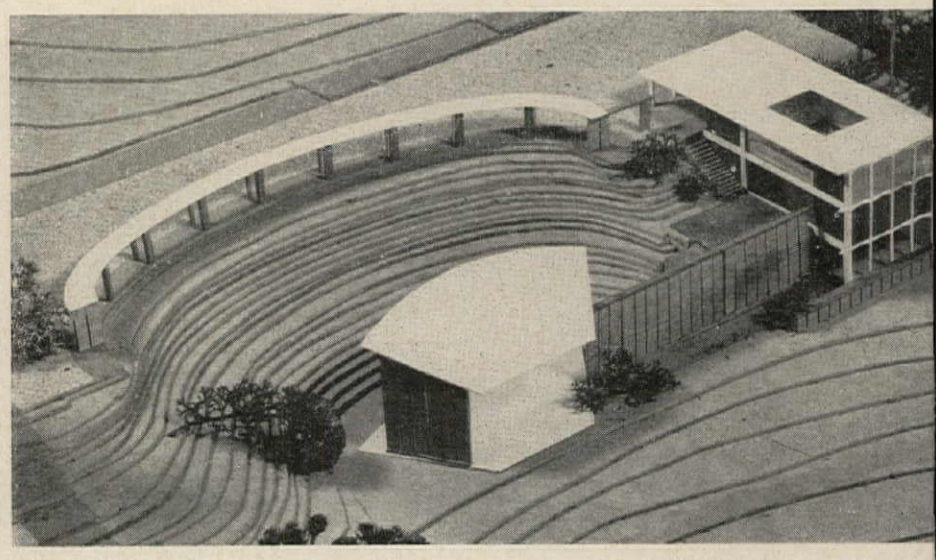
To illustrate how this approach works in practice, the following case study traces the development of a program and schematic design for the lighting of a typical building.

1) *Evaluation of architectural objectives.* The building, a fellowship hall for a girls' college, is a clearly-articulated structure intended to provide an enriching esthetic experience as well as physical facilities for the functions it houses.

2) *The lighting program.* Overall examination of the plans indicates that the lighting requirements are primarily for a comfortable and appropriate environment at night as well as during the day. In the conference room, library, dean's office and fellowship hall, the tasks will be conference work and reading of well-printed material. In the two offices, tasks will be more sustained, but still not excessively difficult.

In general, all spaces should be bright and cheerful, with comfortable brightness patterns that help the understanding of the environment. Brightness patterns should not be dominant unless they aid orientation.

3) *The lighting design.* Before developing a lighting design for each area, the plans for the entire project should be examined to see what op-

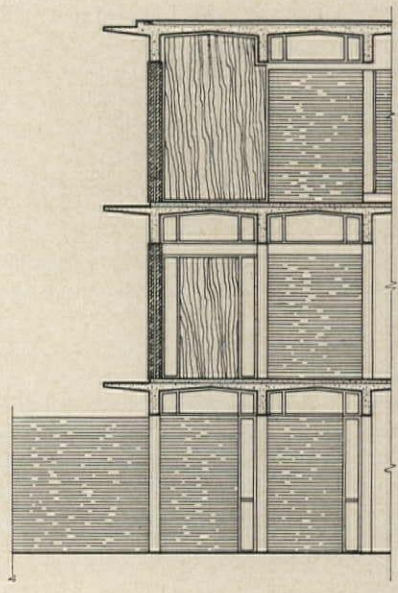


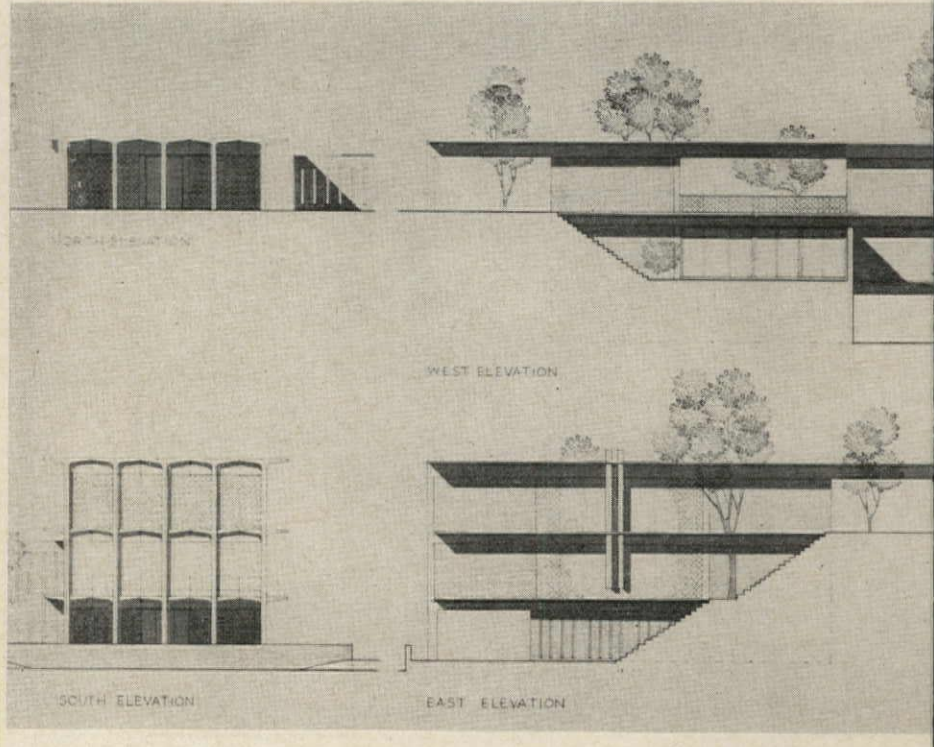
Fellowship House and Amphitheater

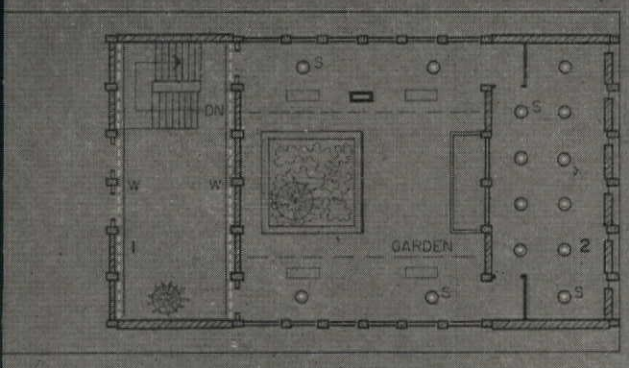
Mount Holyoke College, South Hadley, Mass.

ARCHITECTS:
Carl Koch & Associates

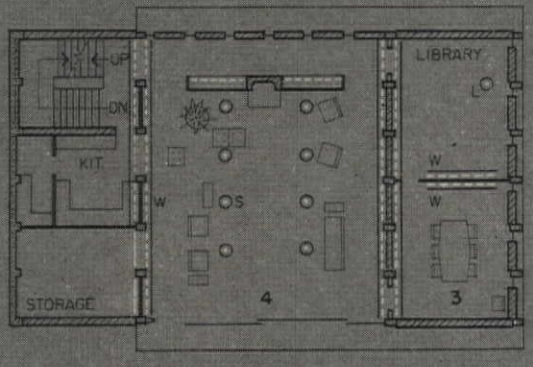
LIGHTING COORDINATION:
William M. C. Lam



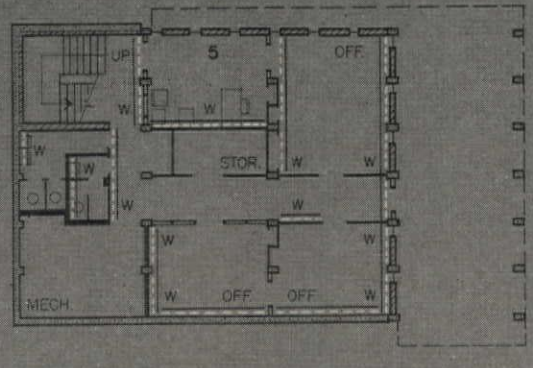




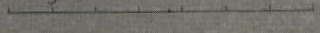
THIRD FLOOR

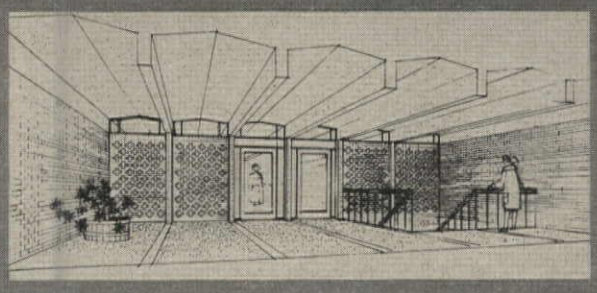


SECOND FLOOR

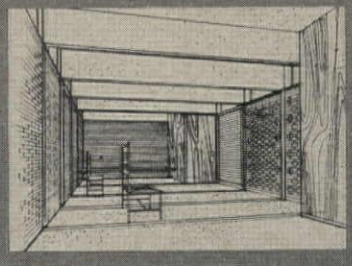


FIRST FLOOR

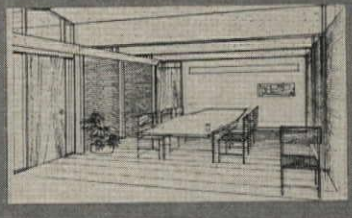




1. LOBBY

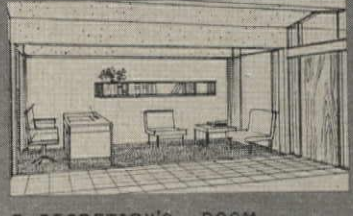


2. MEDITATION ROOM

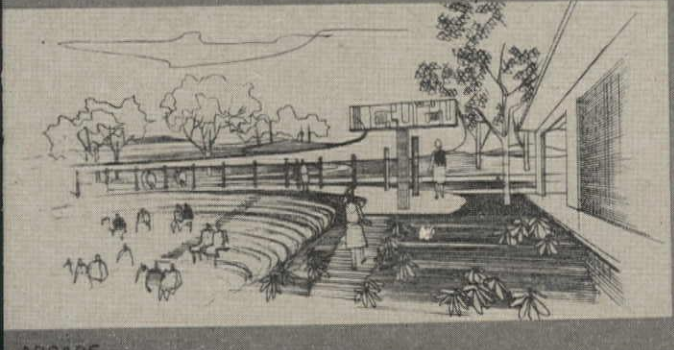


3. CONFERENCE ROOM

4. FELLOWSHIP ROOM



5. SECRETARY'S ROOM



ARCADE

7. SHELL

C. THE DESIGN PROCEDURE:

A CASE STUDY *(continued)*

portunities are presented by the dominant theme of the building, which the lighting scheme should respect, and reinforce if possible.

In this case, the articulated framing and the exposed "T's" are the common denominator of the spaces, whose interconnection is further emphasized by glass transoms between them. Therefore, the first step in the lighting design is to study the various light sources which could be combined with this structure. In addition to the usual physiological considerations of brightness ratios and illumination, each system should be considered on the basis of its rendering of the structure, the visual unity —or disunity—it would produce in combination with the many glass transoms, and its effect on the exterior appearance of the building.

A review of these systems should lead to a tentative selection of those that seem to work best in achieving the broad lighting objectives. Because of the varied room sizes and uses, the choices for most areas should be sources which are relatively neutral, or relate with the structure in such a way as to allow wide variation in light levels and appearance, with harmony of details.

Thus differences in furnishings and finishes, as well as in brightness patterns, can provide the visual change of pace appropriate to the various spaces. More dominant light sources can then be used for emphasis or for local illumination.

The tentative choices for this particular building—open-cove lighting where both brightness and illumination are desired, and downlighting for illumination without overall brightness—were confirmed in the detailed design of the specific areas discussed on the following pages.

In no case was the final lighting design decided upon without a conscious and constant effort to relate the lighting to the building and to weigh the relative importance of the many factors involved. Except in those rare cases where a single factor outweighs all others, lighting, like all aspects of building design, is a compromise. There is no "right" or "wrong", only a reasoned attempt to blend dissimilar and often dissonant elements into a coherent whole.

(See credits page 214)

Open cove lighting (a) offers good flexibility in illumination levels and gradients by varying arrangement (on 1, 2, 3, or 4 walls) and surface reflectances. Lighting surfaces around windows reduces contrast with outdoor brightness; highlighting walls at "people level" adds warmth. Equipment itself blends into walls since horizontal mullion is coordinated with it

Surface-mounted directional downlights (b) blend with structure because of their small size. Brightness created depends on reflectance of floor and furnishings, but ceiling is always darkest surface. Quality of task illumination varies

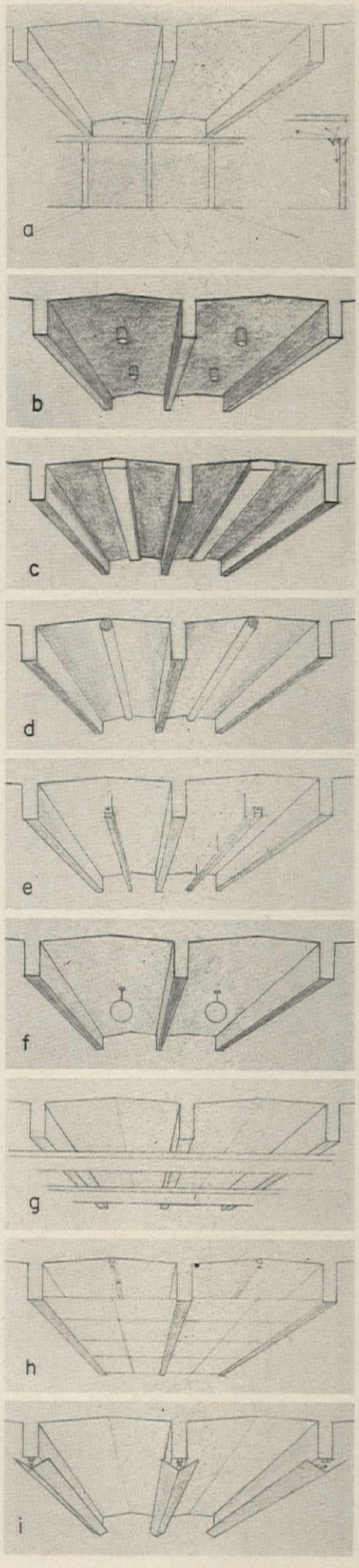
Luminous sources with non-directional diffusing bottoms and opaque (c) or translucent (d) sides dominate structure, causing "busyness" when fixture patterns differ in various areas and definite shapes show through, and are reflected by, glass transoms. Brightness ratios depend on per cent of ceiling surface covered: large fixtures with translucent sides would be best

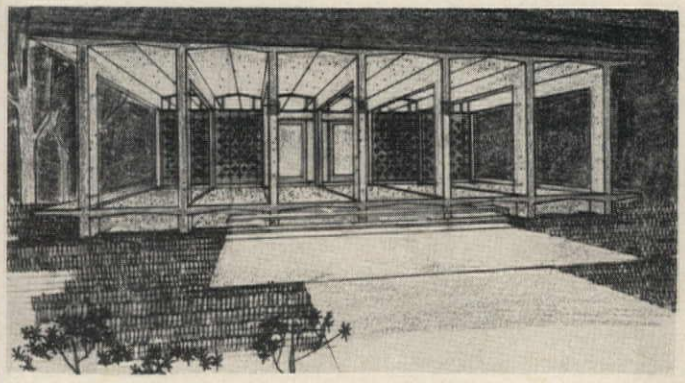
Indirect (e) and luminous indirect (f) sources hung between beams solve the problem of sharply-outlined shapes seen through transoms, and give high quality task illumination. However, spacing must be consistent to avoid "busyness," and stems are conspicuous

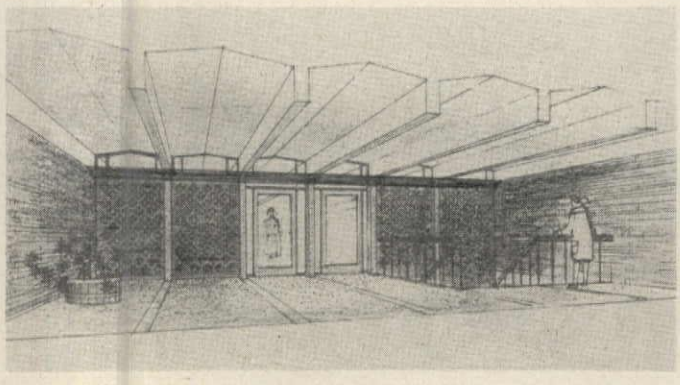
Luminous indirect sources surface-mounted across beams (g) give good transom view, but fixtures and brightness gradients on ceiling would tend to compete with and confuse structure

Luminous ceiling between beams (h) would give good task illumination in library and offices, but more than necessary for "tasks" in other areas. Character remains the same even if light levels vary, and continuous "ceiling" eliminates spatial quality of exposed vaults and flow of space via transoms

Indirect sources mounted on beams (i) would give good rendering of structure, without image in transoms, but would be somewhat inflexible in layout in view of the variety of room sizes and uses. All light is directed to ceiling which becomes a large area source that lights walls indirectly without highlighting them







1. Lobby

Daylighting. On a sunny day the ceiling will be relatively bright because of ground reflected light, but dark-colored brick walls maximize indoor-outdoor contrast.

On an overcast day, when the sky may be several times as bright as a clear sky, the ceiling would receive very little ground reflected light and indoor-outdoor contrast would be even more severe, though a very light-colored floor (or snow-covered ground) would help by reflecting more light to the ceiling.

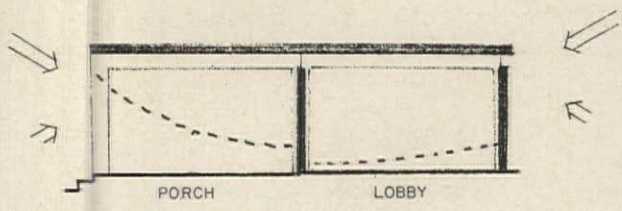
There will always be enough light for circulation, but because of the dark-colored walls, the brightness ratios may be uncomfortable. More important, interior surfaces that are dark in contrast with the outdoors will make the room seem gloomy. Increasing the reflectance—and therefore the brightness—of walls and floors would both increase comfort and add warmth by providing focus within the room. Light-colored furnishings would also add focus, although they would have little effect on the overall lighting balance. A large glass area properly positioned would reduce the need for artificial lighting, not because of added footcandles but by changing the brightness balance.

Artificial lighting. Since the light levels required for the "task" of circulation are negligible, any footcandle calculations would be superfluous. The prime lighting objective is to create the brightness balance desired for comfort and appearance on overcast days. The same system will automatically provide adequate lighting at night, and in fact seem brighter by contrast to the outdoors.

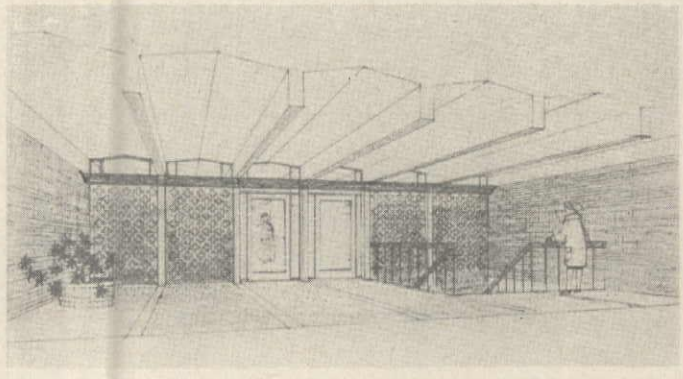
With the combination of materials proposed, open coves across two walls (see plan) will light a large area of interior surfaces, directing most of the light to the light-colored ceiling for maximum efficiency in producing brightness. The highlights on the walls directly below the fixtures add warmth to the room, although all the walls are actually lighted primarily by non-directional light reflected from the ceiling. The consistency of the artificial lighting and daylight gradients is shown in the renderings of night and cloudy day conditions at right.

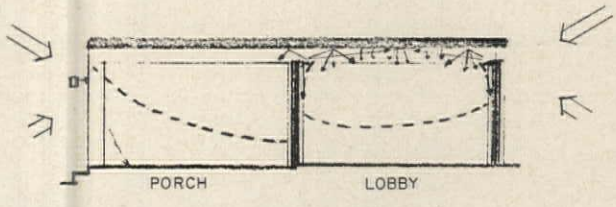
PORCH AND ENTRANCE. No additional lighting is needed during the day. At night, since dark-adapted eyes need very little light, the exterior appearance of the building is the most important consideration, although the light pattern should also help guide circulation.

Fortunately, the open cove lighting in the lobby will spill some light through the transom, giving structural continuity as well as enough ceiling brightness to provide a welcoming glow and adequate light for circulation. Downlights mounted on the central columns add interest by emphasizing the position of the walk and entrance, and light reflected from the ground onto the face of the white concrete structure will also silhouette it against the night

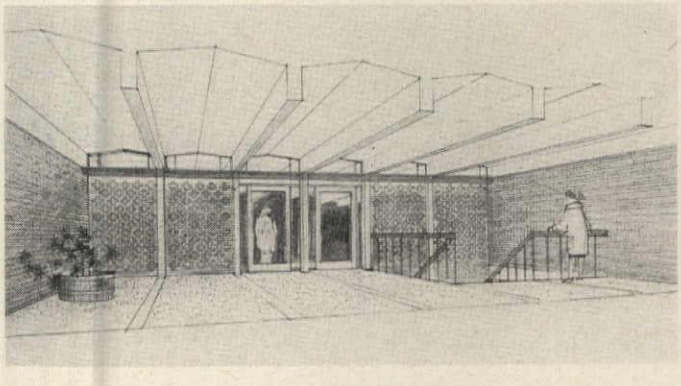


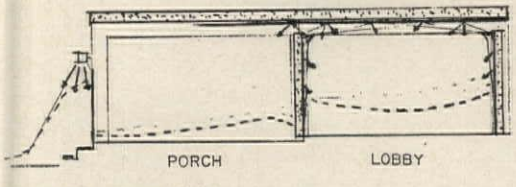
OVERCAST DAY—DAYLIGHT ONLY



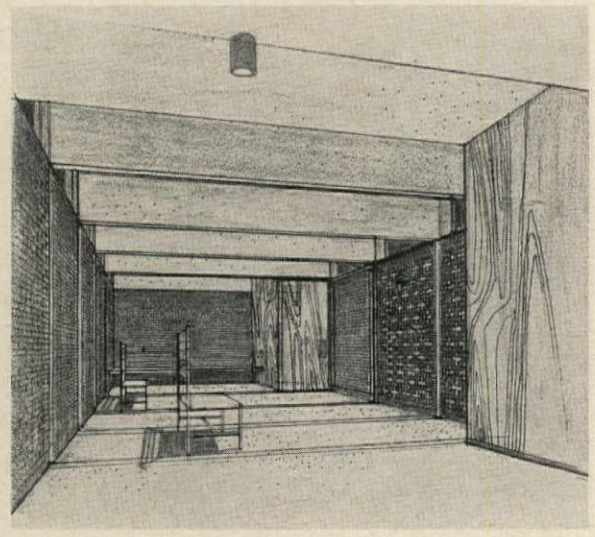


OVERCAST DAY—DAYLIGHT AND ARTIFICIAL LIGHT





NIGHT—ARTIFICIAL LIGHT ONLY

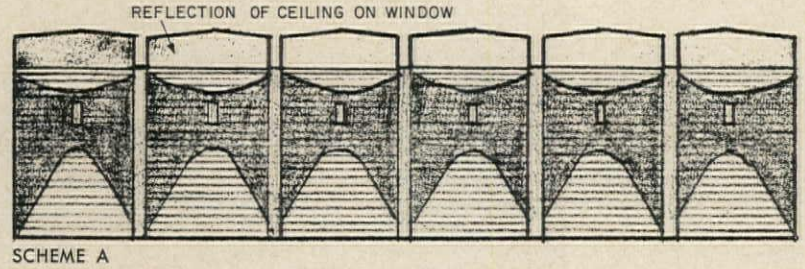


2. Meditation Room

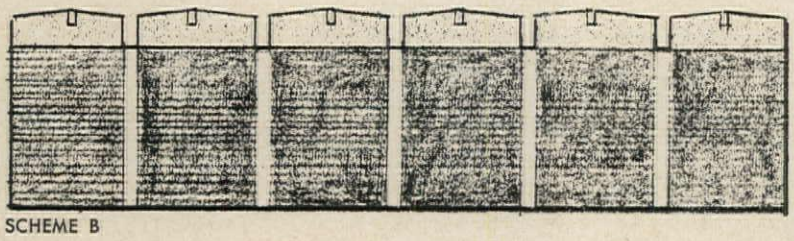
Daylighting. Problems of contrast and relative indoor-outdoor brightness here are similar to those found in the lobby, except that because there is no deep porch the bilateral daylighting is somewhat more balanced.

Artificial lighting objectives. Since the use of this room includes no "tasks" and its special character suggests that it be lighted quite differently from the other rooms, the lighting can be allowed to vary more with changes in daylight conditions as well as from area to area in the room.

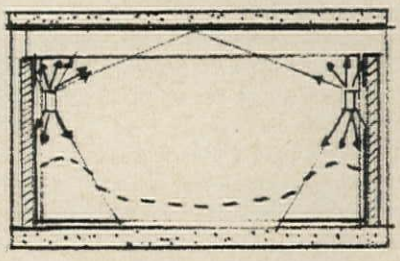
The lighting design. The principal consideration was the brightness pattern, which was studied in schematic diagrams. (See elevations below.) Scheme B, in which downlights leave the walls uninterrupted, was chosen because the neutral rendering would be more restful and would allow more emphasis on a wall-hung sculpture

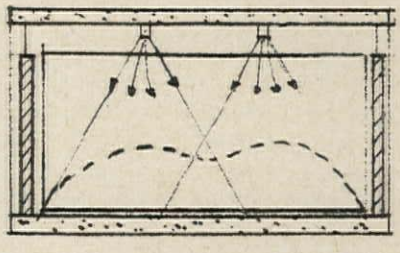


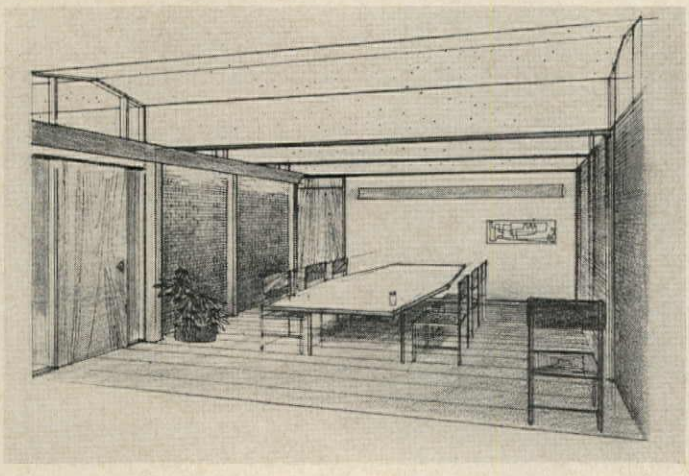
SCHEME A



SCHEME B







3. Conference Room

Daylighting. As in the lobby, the brightness balance is better on sunny days (except when the morning sun comes through the clerestory) than on bright, overcast days. However, the balance is helped by the narrowness of the rooms and by the single white wall. The illumination level, as might be expected, is highest near the window.

Artificial lighting objectives. A moderate footcandle level for conference work and easy tasks is required in addition to the provision of a psychologically satisfying space. Illuminating the interior space to balance the sky brightness on overcast days, and levelling off the daylight gradient would produce adequate task illumination at night as well as during the day. The amount of artificial light required to offset the competing window brightness is reduced by minimizing eye-level windows.

The lighting design. The multi-lateral lighting scheme combines daylight with open cove lighting on the inside wall and wall lighting on the end wall. (Although the tasks are moderate, the lighting coves should be engineered to generate more light than those in areas where there are no tasks at all.) The lighted ceiling and end wall, which also receives outdoor light, reduce the contrast between the windows and the other brick walls, and because they are relatively large secondary light sources, insure good brightness ratios between source and task. A light-colored table top is suggested for focus and to increase the foreground brightness for occupants facing only the dark walls. The proposed cork-tone flooring is light enough to help relieve the darkness of the walls.

At night the illumination gradient will be somewhat asymmetrical, but more uniform than that produced by daylight alone. The quality and quantity of task illumination should, however, be adequate in view of the elimination of window brightness, and the consequent reduction in the lighting required for brightness balance

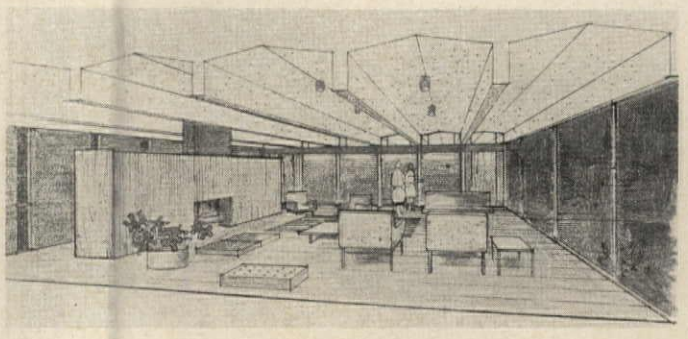
4. Fellowship Hall

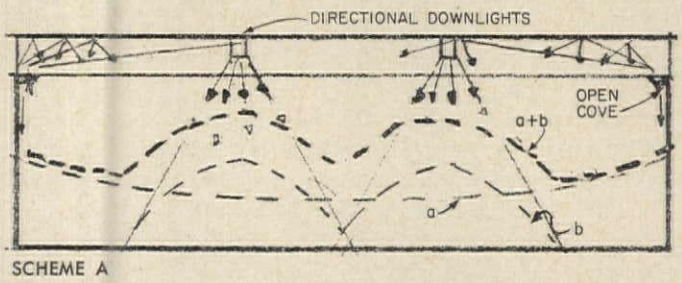
Daylighting. On sunny days, the brightness balance in this large room would tend to be more satisfactory than in the lobby, primarily because of the large expanse of glass to the south and the lighter-colored, wood-faced fireplace wall. On overcast days, additional brightness will be needed in order to create a feeling of warmth.

Artificial lighting objectives. A multi-use room which must provide for casual reading, business-like discussions, TV and slide showings, dinners, and purely social gatherings must also provide a wide range of lighting conditions. As in most outside rooms, the most critical lighting requirement is to partially balance a bright sky by increasing the ambient brightness of room surfaces. Achieving this objective here is more important than doing so in the lobby because periods of occupancy will be longer. Some pools of light logically related to chairs or tables may also be desirable for focus even when overall lighting levels are high enough for the task.

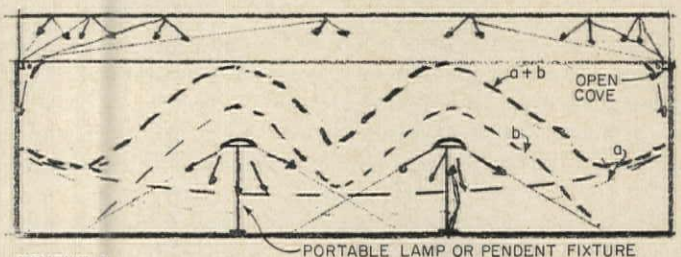
The lighting design. The choice between Schemes A and B at left is a matter of personal preference involving such factors as the flexibility of portable lamps—and the accompanying problems of maintenance and rearrangement, versus less cumbersome downlights—and the accompanying problems of rigid arrangement and large zones of possible glare. However if the downlights and the open-cove lighting on both walls are switched separately and designed to permit changes in light level, a larger range of lighting combinations is possible with Scheme B.

Scheme C would be the simplest way to light this "living room" if it were in a home, but in a college building it might prove to be the most expensive system as well as the least efficient. To get the necessary distribution of brightness for relief of brightness imbalance on overcast days, along with a comfortable shade brightness for long-time viewing at eye level, a fairly large number of lamps would be needed. And these would tend to clutter the room and impede rearrangement of furniture

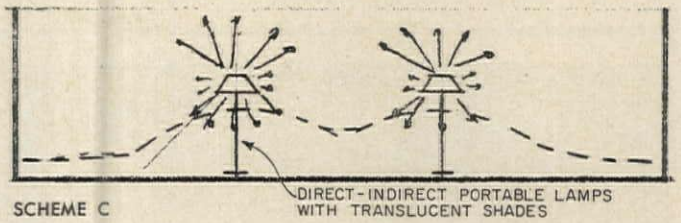




SCHEME A



SCHEME B



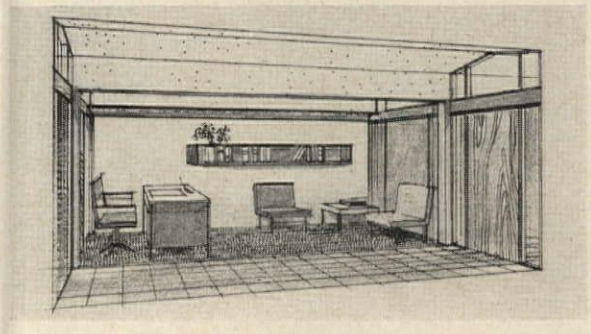
SCHEME C

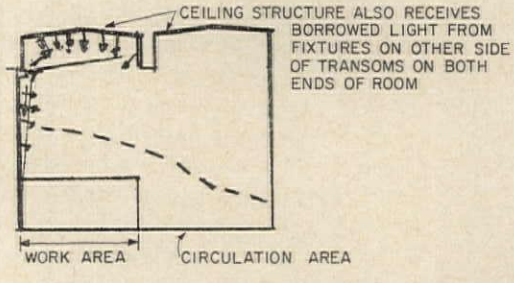
5. Secretary's Office

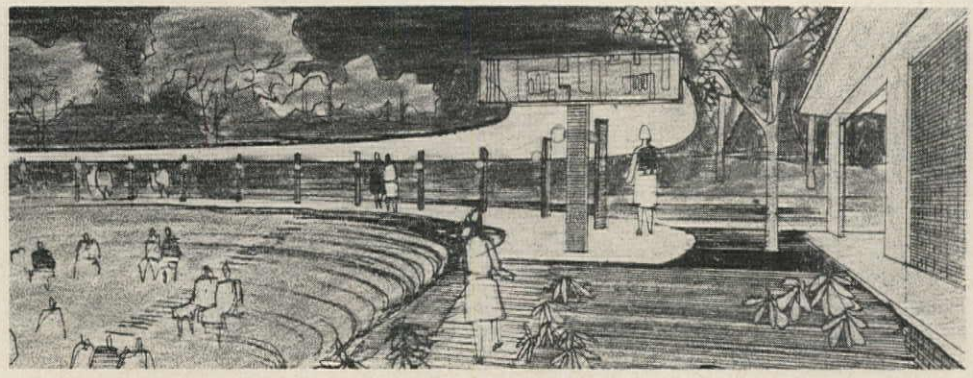
Daylighting. Narrow vertical windows on one dark-colored wall provide little useful illumination, although light colors on ceiling, floor and inside walls would help reduce the contrast between the window wall and the outdoors.

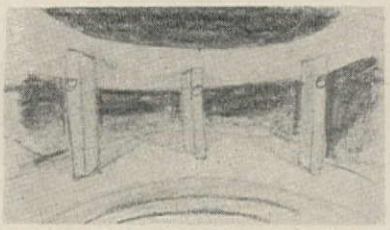
Artificial lighting objectives. The office requires a relatively high quantity and quality of task illumination, attractive rendering of the space, and enough interior brightness to reduce the window contrast.

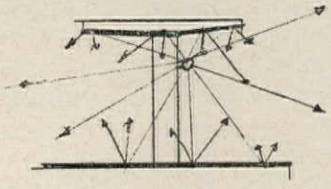
The lighting design. Since an asymmetric furniture arrangement is dictated by the placement of doors, an open cove that lights one vault provides logical footcandle distribution. A light-colored wall provides a large secondary source that reduces the brightness ratio between source and task, and together with the ceiling casts uniform, shadowless light on the vertical and inclined planes used in much desk work (typing, filing, etc.). The same source lights the brick window wall. Note that despite the similar appearance of the equipment, the *lighting* in this room with its light-colored walls will differ substantially from that in such areas as the lobby and fellowship hall











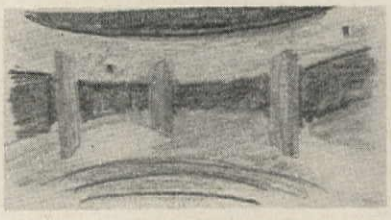
INTERMISSION

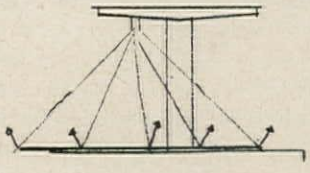
6. Arcade

During the performance, only enough light is needed to separate the light-colored walk from the grass. Uniformity is not important, but sources should not be visible. At intermission, lighting should provide for circulation and outline the arcade. The shell will light the front seating areas and vertical planes facing it, but the arcade, whose curve permits cross-lighting, should also help in lighting the bowl.

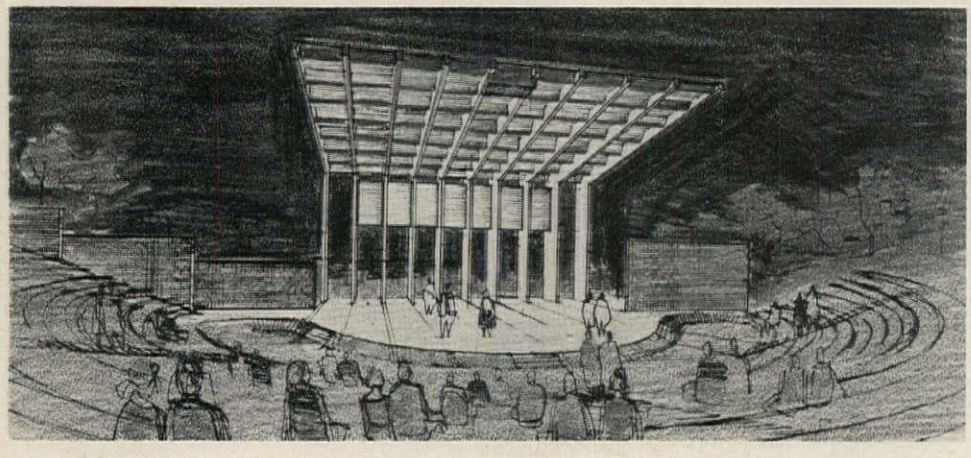
Fixtures recessed into the column faces would light the seating most efficiently, but leave the arcade itself in darkness and create glare spots. Downlights on the canopy, or two-directional "cans" on the column faces, would eliminate the "headlight" effect but give a spotty rendering of the walk and, in the latter case, of the canopy as well. They would add very little light to the bowl.

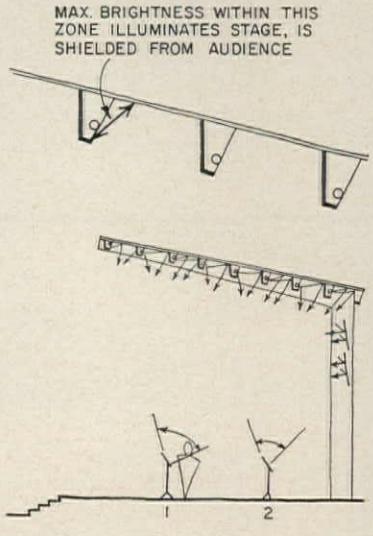
Similarly-located globes, which would light adjacent surfaces, would be better. Mounted on the columns (above) they would emphasize the rhythm of the structure, and because of the greater distance from it, light the canopy more evenly, thus visually framing the arcade and providing uniform light on the walk as well as more light on the seating area. Such globes could be dimmed during performances, but would still tend to be distracting: a few supplementary downlights (right) would give more light on the walk with less distraction for the audience





PERFORMANCE





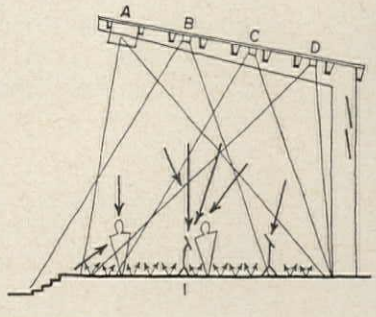
SCHEME A

7. Shell

Since shell is to be used principally for music performances, vertical surfaces of music must be comfortably lighted for performers, and the performers for the audience. The shell could also help light the seating area during intermissions.

Scheme A provides the best quality of light for performers. From the audience, the competing brightness of the shell is minimized by the graded light pattern and shielding of the brightest areas. Point sources in cells make shell a large luminous source that casts almost shadowless, non-directional light on the stage. (Angles at 1 and 2 show areas that provide light on the stands at those points.)

Scheme B provides greater focus on performers, but would be less comfortable for them. Minimum spacing of downlights to provide vertical illumination at any point on the stage is diagrammed. At point 1, row D would throw most light on music stand; row A would light performer's face. There would be more shadows than with Scheme A, and less light on the audience. Ideally, both schemes could be combined to give more flexible lighting for various types of performances

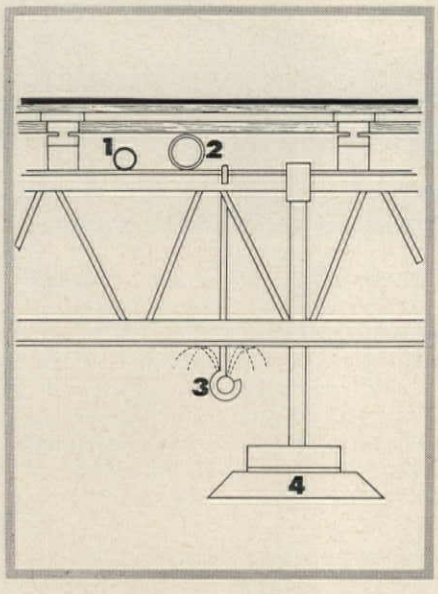


SCHEME B

This space between the Tectum deck and the joist is a valuable contribution to time and material savings in placing conduit, pipe, lighting and other utilities in your new building. Saves time and hanger expense; makes a far neater installation and you don't paint Tectum or the sub-purlins.

FIVE WAYS TO CUT BUILDING COSTS WITH TECTUM BOX SECTION ROOF DECK ASSEMBLY

The space illustrated between box section sub-purlins — between the bottom of the Tectum plank and the joist chord is worth thousands of dollars on your next roof deck plans. Here's how:



1. **ELECTRICAL CONDUIT** can be routed through these spaces; out of the way and neatly tucked up against the ceiling for better appearance as well as simpler erection. *Saves time and hanger costs.*
2. **WATER PIPES** gas or air lines are out of the way, easily installed with minimum fastening.
3. **SPRINKLER SYSTEMS** are easily suspended from the top of the joist in a neat, simple operation. *One contractor estimated he saved $3000.* in the erection of a sprinkler system alone.
4. **LIGHTING** hangers hook over the top of the joist and may be installed as easily after the roof deck is installed as before. *Saves valuable time.*
5. **BOX SECTION SUB-PURLINS** are galvanized and therefore do not require painting.

Tectum, too, is factory finished and normally requires no painting. If pipe and joists are prepainted before erection, think of the reduction in painting costs this can contribute.

And probably most important to the appearance of your building, all pipe and utilities are up against the ceiling for far better appearance, more ceiling height for you to use below. You save effectively with light weight, insulating acoustical Tectum materials in addition to the many subsequent savings the box section system suggests. Ask your Tectum representative for details.

The Material With Built-In PLUS *Values*

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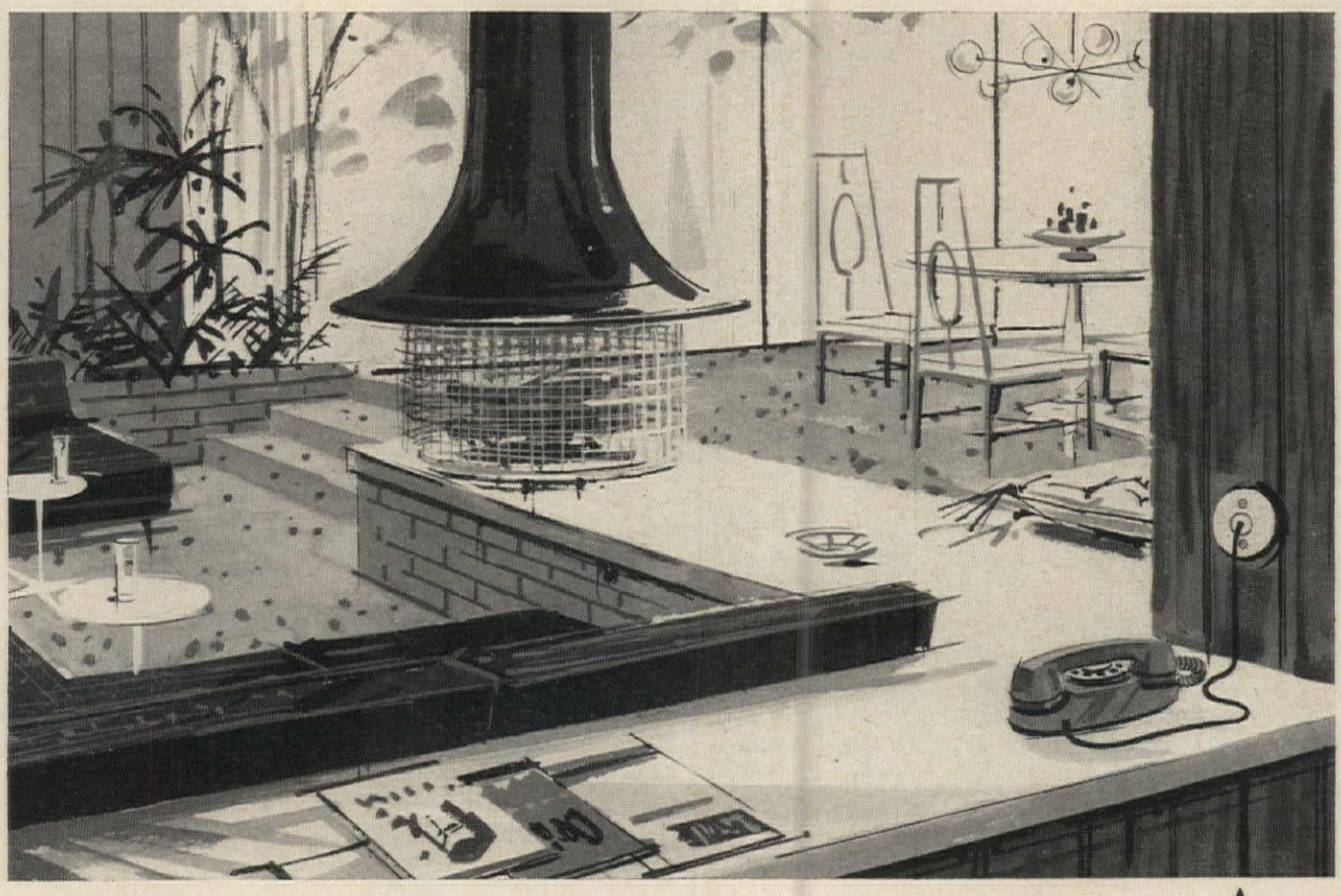
Tectum®



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

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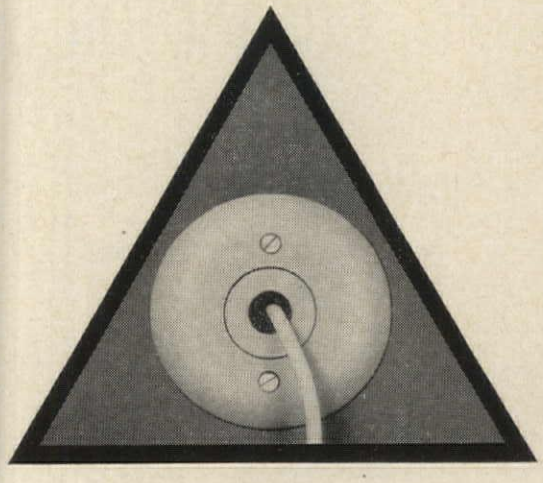

Bell Telephone System

Lakeview Estates designs Built-in Color TV into medium price dwellings. Each of the 100 homes in Lakeview Estates, Pennsburg, Pa., contains RCA Victor built-in Color TV . . . flush with living room walls.

In Tucson, Arizona, The Lusk Corporation includes RCA Victor Built-in Stereo in its Desert Steppes development. These lovely homes are in the $14,000 to $17,000 price bracket.

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Whether you are planning new construction, remodeling, adding to existing structures, plan to build in a home entertai ment center. It's so easy with the variety of RCA Victor instr ments designed just for this purpose.

Texas builder says "TV helps sell homes." Texas builder Frank Carter includes RCA Victor Built-in TV in such attractive installations as this built-in home entertainment treatment in his Dallas, Texas project.

Mentor, Ohio, builder features RCA Victor Built-ins. DeFranco Construction Co., Inc. $35,800 custom homes include an RCAVictor Home Entertainment Center with built-in Color TV, Stereo and Room Divider, to aid sales.

convenience to your homes

attracts customers—helps close sales

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Each RCA Victor instrument is specifically designed for built-ins

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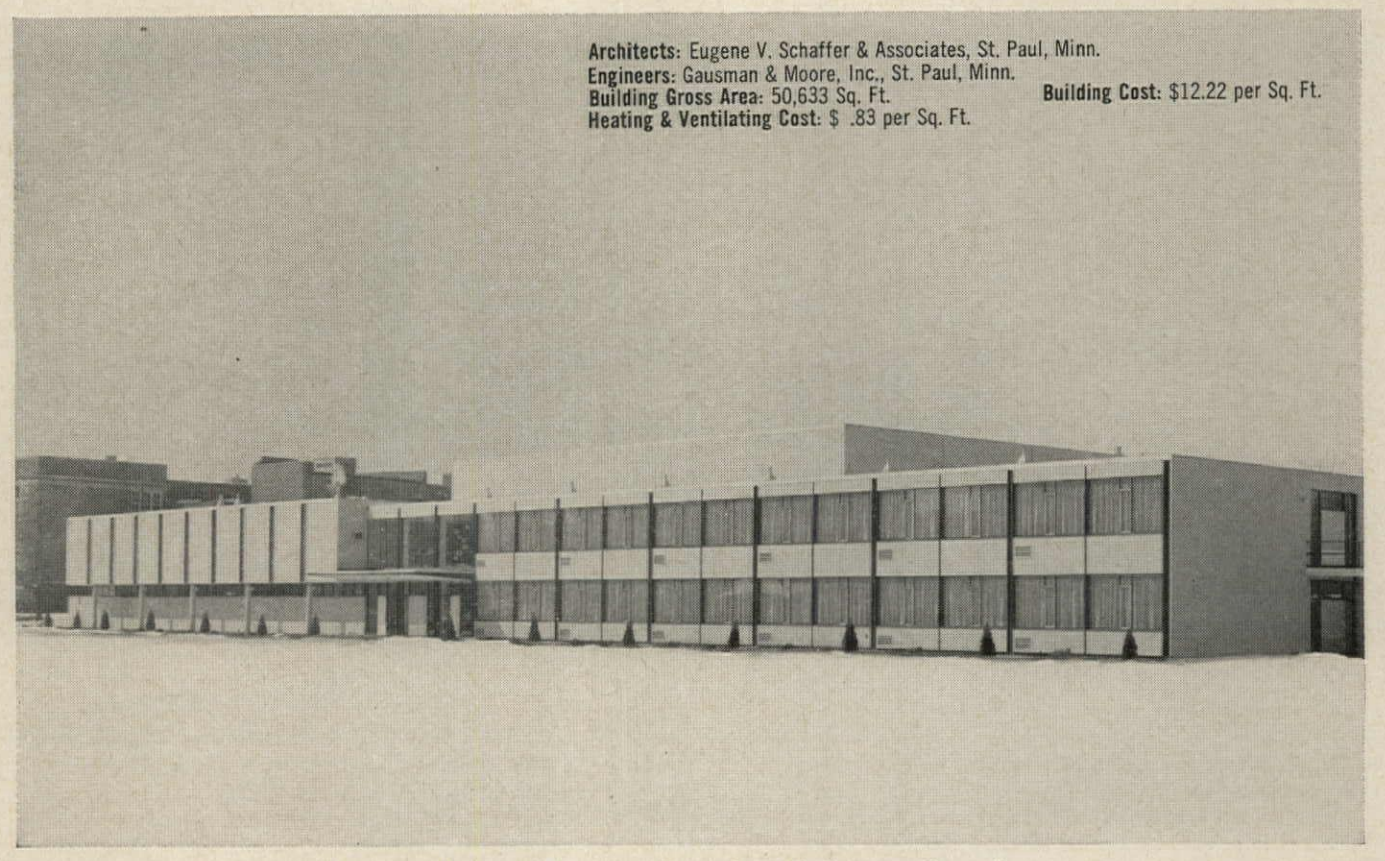

Architects: Eugene V. Schaffer & Associates, St. Paul, Minn.
Engineers: Gausman & Moore, Inc., St. Paul, Minn.
Building Gross Area: 50,633 Sq. Ft.
Building Cost: $12.22 per Sq. Ft.
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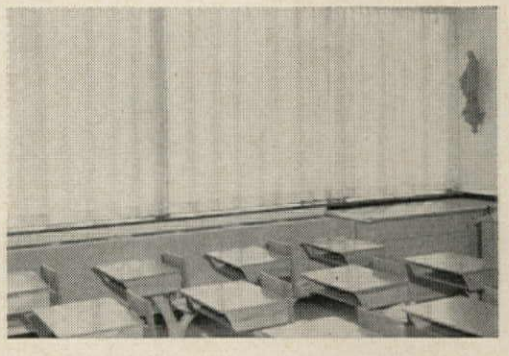

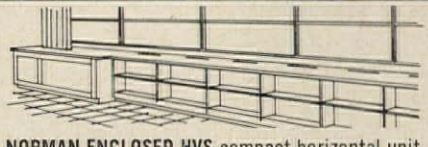

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Gerald R. Weissman, Director Coatings Department
Foster D. Snell Inc., Consulting Chemists, New York, N. Y.

A "hot straight edge" is used to finish epoxy floor. Heat draws epoxy to surface giving finished floor high luster

One of the important reasons epoxies are being used in industrial applications is their outstanding resistance to chemicals of all sorts. Since their effectiveness depends greatly on materials and workmanship, these factors are discussed in some detail. A chart at right indicates their resistance to a variety of chemicals of various strengths.

Epoxies are one of the newest and most promising materials to be used as a topping for industrial floors. Among their outstanding qualities is a high degree of resistance to chemical attack, preventing the deterioration of concrete floor slabs due to acids, alkalis and solvents.

In specifying epoxies for industrial floor toppings, the architect should remember the following:

1) Quality depends greatly on use of the proper constituents in the correct proportions.

2) Epoxies themselves are not equally effective against all chemicals.

3) Epoxy floors become ineffective if the topping has been pierced. Therefore, adhesion and compressive strengths are just as important as chemical resistance. All of these factors are a result of workmanship *and* good materials.

One other point should be remembered. Epoxy toppings, like all toppings, are no better than the base slab on which they are placed. The base slab must, therefore, be meticulously designed with proper attention given to everything from soil compaction to the slump of the base slab mix.

Epoxy Floor Quality

To understand why all epoxy floors may not be of the same quality, it is necessary to know something about the floor's constituent elements. Stated simply, an epoxy floor is a topping ⅛- to ½-in. thick which is placed atop a base slab, usually concrete.

The principal ingredients in an epoxy floor are (1) silica sand, or some material with a high silicate content, or materials like glass cloth or crushed stone, which are inert to most chemical attack; (2) epoxy resin, which in its fully concentrated form also is inert to many chemicals. These ingredients are analogous in function to aggregate and cement in a concrete floor. Epoxy resin is the binder which holds the mass together and bonds it to the base slab. Aggregate adds impact strength and brings the coefficient of thermal expansion of the epoxy closer to that of the concrete to which it is bonded.

In addition, a curing agent and a flexibilizer also are used. The curing agent converts the liquid epoxy resin to a solid. Numerous agents are available, but to withstand industrial floor usage, only one type is normally suitable—an aliphatic amine curing agent that produces the best combination of temperature, chemical and mechanical properties.

The flexibilizer improves crack and impact resistance. Thus, when stresses are set up by differences in thermal expansion between the epoxy and the concrete base, for example during steam cleaning, the epoxy will not crack. The amount of flexibilizer used is critical: too little leaves the floor brittle; too much reduces the floor's strength.

Caution About Aggregates

The importance of aggregate should not be so emphasized that sand loading is viewed as an end in itself.

CHEMICAL RESISTANCE OF EPOXY FLOORING COMPOSITION*

MATERIAL	TIME HR.	APPEARANCE OF TEST SAMPLE	EVALUATION OF CHEMICAL RESISTANCE
MINERAL ACIDS			
Sulfuric-Conc. (96%)	24	Disintegrated	Poor
Sulfuric—50%	312	Discolored	Fair-Good
Sulfuric—20%	312	Unaffected	Good
Sulfuric—10%	312	Unaffected	Good
Nitric-Conc. (78%)	24	Disintegrated	Poor
Nitric—40%	312	Discolored	Good
Nitric—20%	312	Slightly Discolored	Good
Hydrochloric-Conc. (38%)	312	Discolored	Good
Phosphoric-Conc. (86%)	312	Unaffected	Good
ORGANIC ACIDS			
Acetic, Glacial (99.5%)	48	Disintegrated	Poor
Acetic—50%	100	Badly Etched	Poor
Acetic—20%	150	Badly Etched	Poor
Acetic—10%	312	Whitened	Fair-Good
Acetic—5%	312	Slightly Whitened	Good
Lactic (100%)	200	Slightly Etched	Poor-Fair
Oleic (100%)	312	Unaffected	Good
BASES			
Sodium Hydroxide—50%	312	Discolored	Fair-Poor
Sodium Hydroxide—25%	312	Unaffected	Excellent
Ammonium Hydroxide Conc. (57%)	312	Discolored	Good
SALTS			
Sodium Bisulfite (Saturated)	312	Unaffected	Good
SOLVENTS			
Mineral Spirits, Xylol, Benzene, Ethyl Acetate, Methyl Ethyl Ketone, Methyl Cellosolve Acetate, Butyl Cellosolve, Carbitol	312	Unaffected	Excellent (except for Benzene which is rated as good)

* Note: Samples listed were tested at room temperature. Compressive strength before exposure was 14,500 psi.

There are practical limits to sand loading because of the viscosity of the epoxy. From the point of view of practical, on-the-job installation, it is impossible to put a weight of mineral aggregate more than four times the combined weight of epoxy resin and curing agent into a high viscosity mix.

Higher sand loadings can be achieved by diluting the epoxy resin so as to reduce its viscosity. This makes it easier to work the aggregate into the epoxy. However, diluents (or low viscosity formulations) make it difficult to bond the epoxy to the base slab and reduce the effectiveness of the epoxy.

This point is demonstrated in the strength comparisons of a low viscosity formulation with a high viscosity formulation under several test conditions:

Ultimate Compressive Strength, psi	
1000-2000 Centipoise Epoxy Resin*	10,000-15,000 Centipoise Epoxy Resin*
Two weeks in normal atmosphere	
6000-6500 psi	12,000-14,000 psi
Two weeks—conc. Ammonium Hydroxide	
6250 psi	12,000 psi
Two weeks—conc. Hydrochloric	
6000 psi (discolored)	13,500 psi
Two weeks—20% Acetic Acid	
Test not possible (disintegrated)	12,000 psi (surface badly etched)

Since the viscosity of unfilled epoxy formulations used for floor coatings may range from 500 to 15,000 centipoises (at 25 C), it is clear that can quality range can be great.

A floor that uses an unfilled epoxy formulation will be more expensive —the epoxy will cost more and the labor will cost more—but it will produce a floor with the greatest possible chemical resistance.

Resistance to Chemicals

The actual effect that various chemicals have on epoxy floors may be seen in the accompanying chart, which discusses the effect of a range of chemicals on an epoxy surfacing made with a high viscosity formulation. The information in this chart should be considered as indicative only, not absolute, because the destructive effect of any chemical is determined by three things: concentration, temperature, and duration of exposure. The conditions occurring in a given plant are virtually impossible to duplicate in laboratory tests; therefore, whenever possible, it is prudent to subject samples to conditions similar to those which will be encountered in the building being designed. Usually, this can be done by putting various samples in one of the owner's present buildings. It is not necessary to actually install a floor; for the purpose of determining specific corrosive resistance, the samples (e.g., test cubes) can be placed on top of the floor.

* Viscosity of epoxy resin measured before adding mineral filler

Workmanship

Much of the effectiveness of an epoxy floor depends on the way it is installed. A 100 per cent epoxy, correctly formulated, is not in itself a guarantee that the floor will live up to expectations. As in many phases of construction, workmanship is important.

There are two methods, basically, of specifying an epoxy floor: One is to specify a particular type or brand of epoxy formulation (the type or brand which in your tests has not been affected by the destructive condition), leaving it up to the general contractor to apply it himself or hire a sub-contractor to do it. This approach has the obvious hazard of dual responsibility. In the event of a bad job, say lack of adhesion, it is almost impossible to place the responsibility on either the formulator or the contractor since the fault could lie with either the material or the workmanship, or both.

The other method is to specify a particular floor specialist and insist that this particular subcontractor assume the responsibility. This responsibility should cover a guarantee that the epoxy topping will adhere to the base slab and that the formulation applied is the same as that submitted in the samples.

An important factor in connection with adhesion of the epoxy topping to the base slab is adequate preparation of the base slab, which must be clean, dry, and sufficiently roughened so that the epoxy will have something to bond to. Despite epoxy's fame for great adhesion, good bond will not occur unless the surface is clean, dry and roughened. Slab preparation is done either by sand blasting or chemical etching. Workmen must do every inch of the floor carefully since only one defective spot is sufficient to cause trouble.

A properly prepared slab will permit the epoxy to achieve a bond strength greater than the internal strength of concrete, which is assurance that the bond will not fail under stress. Improperly prepared slabs in tests have shown bond strengths ranging from 0 to 80 psi, but too much should not be made of the fact that an 80 psi strength can be achieved with inadequate preparation. Bond strength, or tensile strength, of concrete is about 1/10th of its compressive strength. Therefore, 3000 psi concrete has an internal strength of about 300 psi, which should be matched or exceeded by the bond strength of the epoxy.

Lack of bond will cause cracking and chipping, either as a result of the stresses set up by the lifting of the epoxy topping itself, or by weights such as material handling vehicles as they pass over the spot where the topping failed to adhere. And, as noted above, the floor then ceases to be a corrosion-resistant shield.

One other installation procedure is critical: the temperature. To achieve proper cure, the floor should be applied when the temperature is 70-80 F. Epoxies should never be installed if the temperature is below 60 F or above 105 F. At the lower temperature curing will not occur for an excessively long time, and at the higher temperature curing will occur so fast that it might be impossible to properly install the topping. Generally, full physical and chemical properties will not be reached for about one week, but the floor can be used in two to three days if a minimum 75 F. curing temperature is maintained.

Virtually all epoxy floors will have at least several drains so that the attacking substances can be carried away. It takes workmanship of the highest order to produce a floor sloped so to make the maximum use of drains and at the same time not have any low spots where liquids can gather.

Other Advantages

In addition to its function as a chemical resistant material, epoxy floors offer certain other advantages:

continued on page 210

One-Part Polysulfide Sealant Offers High Performance, Ease of Use

A newly-developed one-part polysulfide sealant promises not only to eliminate many of the problems associated with two-part systems but also to extend their architectural utility.

According to its manufacturer, the single component system, which represents "a radical and sophisticated departure from conventional polysulfide polymer technology," out-performs similar sealants now on the market. Its performance relative to the American Standards Specification for polysulfide-base sealing compounds is documented in Table I.

Since the system is stable and receptive to tinting and/or deep-tone pigmentation, it can be formulated in a variety of colors. The well-balanced modulus properties shown in table II were obtained with a white compound, but it is expected that the colored compounds will give comparable test results.

More subtle, but equally valuable, performance advantages have also been noted. One is the compounds' ability to withstand prolonged exposure to temperatures as high as 250F, or even intermittent periods at 275F, which makes it possible to simplify the design of wiring channels in curtain walls by using the new sealants as primary insulation (assuming proper design allowances). Another is their resistance to deterioration by acids, alkalis, solvents and oils.

Even properties not normally associated with polysulfides—good abrasion resistance, low shrinkage, resilience, and a low water vapor transmission rate—are enhanced, perhaps because of the complete absence of solvents and/or plasticizers.

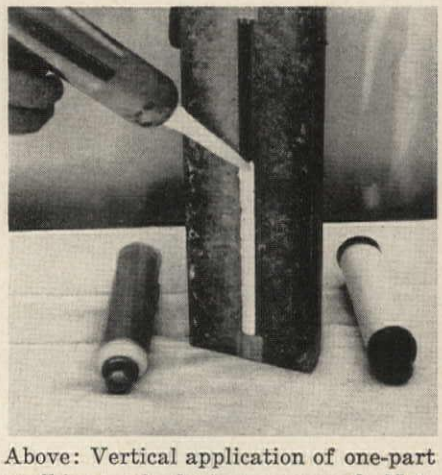
Although the reduced application costs that may be expected with a single component system need little elaboration, some of the contributing factors may be worth noting. For example, the one-part sealant eliminates the need for mixing equipment and the possibility of incomplete mixing; insures a consistent, air-free end product; simplifies handling; minimizes material loss; saves man-hours on clean-up time; eliminates expensive or inaccurate proportioning; does not thicken and become sticky during application; and can be tooled in place.

Also peculiar to the new system is the ease of gun extrusion at relatively high viscosity. Its initial viscosity is nominally adjusted to 12,000 poises, but since standard non-sagging polysulfides in this viscosity range have a rate of extrusion roughly one-half that of the new system, it has, on aging, a practical extrusion viscosity of 25-30,000 poises.

Furthermore it is normally possible to recover over-aged material by warming it at not over 120F for half an hour, giving a viscosity reduction of 25 to 30 per cent.

Applications requiring rapid cure are not out of the question, but carry distinct limitations. Since curing results from heat, moisture, and oxidation—or any combination thereof, a heat gun and/or moisture may be used to effect partial cure. (Early formation of a tough skin is generally enough to obtain satisfactory sealant performance.) In such cases, cure will continue in normal ambients to provide the same ultimate quality obtained with an unaccelerated cure. *Coast Pro-Seal & Mfg. Co., Los Angeles, Calif.*

more products on page 174



Above: Vertical application of one-part caulking and glazing compound. Note sealed tube containers for insertion into extruding gun. Below: Application of compound as seal between glass and aluminum

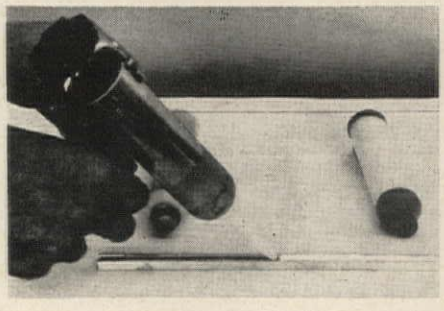


TABLE I

REQUIREMENTS (TYPE B)	NEW POLYSULFIDE SEALANT*
Non-sagging between 40° and 100° F.	Non-sagging between 40° and 120° F.
Adhesive strength in tension, 150% elongation, 10 psi minimum force, no failure.	150% elongation, 30-35 psi, no failure; 400% elongation, 50-55 psi, cohesive failure.
Water resistance, specimens immersed in distilled water, 4 days @ 77° F. Extended 150% for 24 hrs., 10 psi minimum force, no failure.	150% elongation, 25-30 psi, no failure.
Heat aging, specimens heat aged 4 days @ 158° F. Extended 100% for 24 hrs., 10 psi minimum force, no failure.	100% elongation, 30-35 psi, no failure.
Low temperature, specimens placed @ —20° F. for 4 hrs., pulled slowly to 100%, held for 16 hrs., removed and allowed to stand @ 77° F. 20 hrs. Specimens to be cycled 3 times, no failure.	Cycled 3 times to 150% elongation, no failure.
Recovery test, specimens placed @ 120° F. for 3 days, conditioned for not less than 16 hrs. @ 77° F. Extended to 150%, held for 5 minutes at this extension, removed and allowed to recover. Recovery to be not less than 25% within 1 hr. @ 77° F.	Recovery after 1 hr. @ 77° F., 100%.
Accelerated aging, exposed under sunlamp for 4 days. Depth of surface cracking or crazing to be less than 3 mils.	No cracking or crazing after 16 days exposure.
Sunlamp exposure through glass, specimens having an aluminum plate on one side, glass on another exposed to sunlamp for 4 days, immersed in distilled water for 4 days and extended to 100%, 10 psi minimum force, no failure.	Exposed to sunlamp for 5 days and 4 days in distilled water. 250-300% elongation, 40-50 psi, cohesive failure.

* Specimens cured to ultimate hardness (25-30 Shore "A") and run in triplicate.

TABLE II

Color	White, aluminum, grey, black
Ultimate Hardness	25-30 Shore "A"
Ultimate Elongation	300-400%
Tensile Stress at 150% Elongation	30-35 psi
Ultimate Tensile Strength	100-125 psi
Tear Strength	25-30 psi
Adhesive Strength in Tensile Shear	90-110 psi

Office Literature

STANDARD FOR HEAVY TIMBER DECKING (A.I.A. 19-D-3), a new compilation of information on sawn decking, covers species, sizes, patterns, length, moisture content, application, specifications, applicable allowable unit stresses, and roof-load span tables. Section 1200, 28 pp. *American Institute of Timber Construction, 1757 K Street, Washington 6, D. C.*

Unit Structures
(A.I.A. 19-B-3) Gives description and specifications on structural timber decking as well as on clear-panel deck, a custom product featuring western red cedar deck with a permanent glued lamina of oak or birch. Information includes standard patterns, assembly and installation details, how to estimate quantities and description of grades. *Advertising Dept., Unit Structures, Inc., Peshtigo, Wis.*

Kno-Draft Air Diffusers
(A.I.A. 30-C-45) Bulletin K27-A illustrates and describes the linear and rectangular air diffusers in three series—(square, panel, and long-slotted), with dimensional drawings and complete selection and performance data. 12 pp. *Dept. K-D, Connor Engineering Corp., Danbury, Conn.**

Webster Unit Ventilator
Gives product features, cost savings, engineering information and ratings for schoolroom heating, cooling and ventilating. A foldout spread illustrates the Unit Ventilator operation. Also described are matching unitized cabinets and other features. 14 pp. *Warren Webster & Co., Inc., 17th and Federal Sts., Camden 5, N.J.*

Better Fastenings
(A.I.A. 27-A) Covers the complete "Stronghold Line" of improved nails. It gives complete technical data, including lengths, gauges, head sizes and counts per pound, and contains information on packaging and other special features. *Independent Nail & Packing Co., Bridgewater, Mass.**

Weyerhaeuser Hardboards
A Catalog and Guide for Builders and Architects (A.I.A. 23-L, 19-D-2) presents specifications, product data, and working and application instructions for Weyerhaeuser's exterior and interior hardboards. Hardboards presented include pre-finished *Weytone* and a new line of prime-coated tempered *Weytex* for panel siding, gable ends, soffits and fencing. *Silvatek Div., Weyerhaeuser Co., Tacoma, Wash.*

Fluorescent Lighting Fixtures
Gives complete engineering information, cross sections and dimensional data for modular sizes and types of plastic and metal diffusers. Catalog 12A. *Neo-Ray Products, 315 E. 22nd St., New York 10, N.Y.**

Cellular Floor Feeder Raceway
(A.I.A. 31-C-62) Contains product illustrations and detailed information for specifying and installing *Wheatland Headerduct* and service fittings. Also included are suggested architectural specifications for the cellular floor feeder raceway and details covering the various access unit spacings and lengths. *Wheatland Electric Products Co., 500 Logan St., Carnegie, Pa.*

Fintube Airduct Heaters
(A.I.A. 31-K-3) Covers specification data, drawings, illustrations and operating charts for *Chromalox* electric *Fintube* airduct heaters. Applications included are central heating, reheat after dehumidification, auxiliary heating, zone control, old and new duct systems and others. 6 pp. *Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa.*

Vibration and Noise Control
Vibration, Shock, and Noise Control and Measurement (A.I.A. 39-D) gives engineering specifications and performance data for 27 types of products for the control and measurement of machinery shock, vibration and noise. 8 pp. *The Korfund Co., Inc., Cantiague Rd., Westbury, L.I., N.Y.*

A Practical Guide
. . . to Specification, Selection and Use of Vinyl Wallcoverings covers physical requirements, use, selection, fire resistance, hanging and testing. Specifications and requirements for the three most-used weights, and suggested specifications for installing vinyl wallcoverings directly over structural block are also included, as are installation photos and a glossary. 12 pp. *L. E. Carpenter & Co., Inc., Empire State Bldg., New York 1, N. Y.*

Interlocking Steel Framing
(A.I.A. 13-G) Contains a complete structural analysis of Macomber *V-Lok* interlocking steel framing, with detailed data on standard columns, girders and purlins; specific design considerations; design features for external and internal wind forces; seismic loads; and expansion joints. Load tables and details are also included. Design Manual MV-60, 48 pp. *Macomber Inc., Canton 1, Ohio **

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

more literature on page 206

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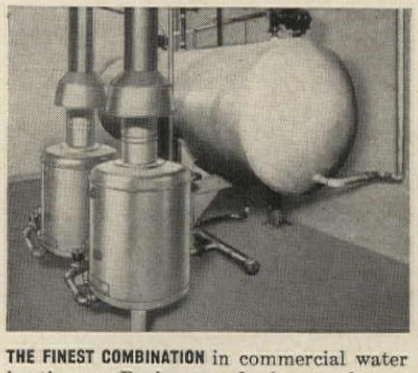

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NATION'S LARGEST MANUFACTURER OF
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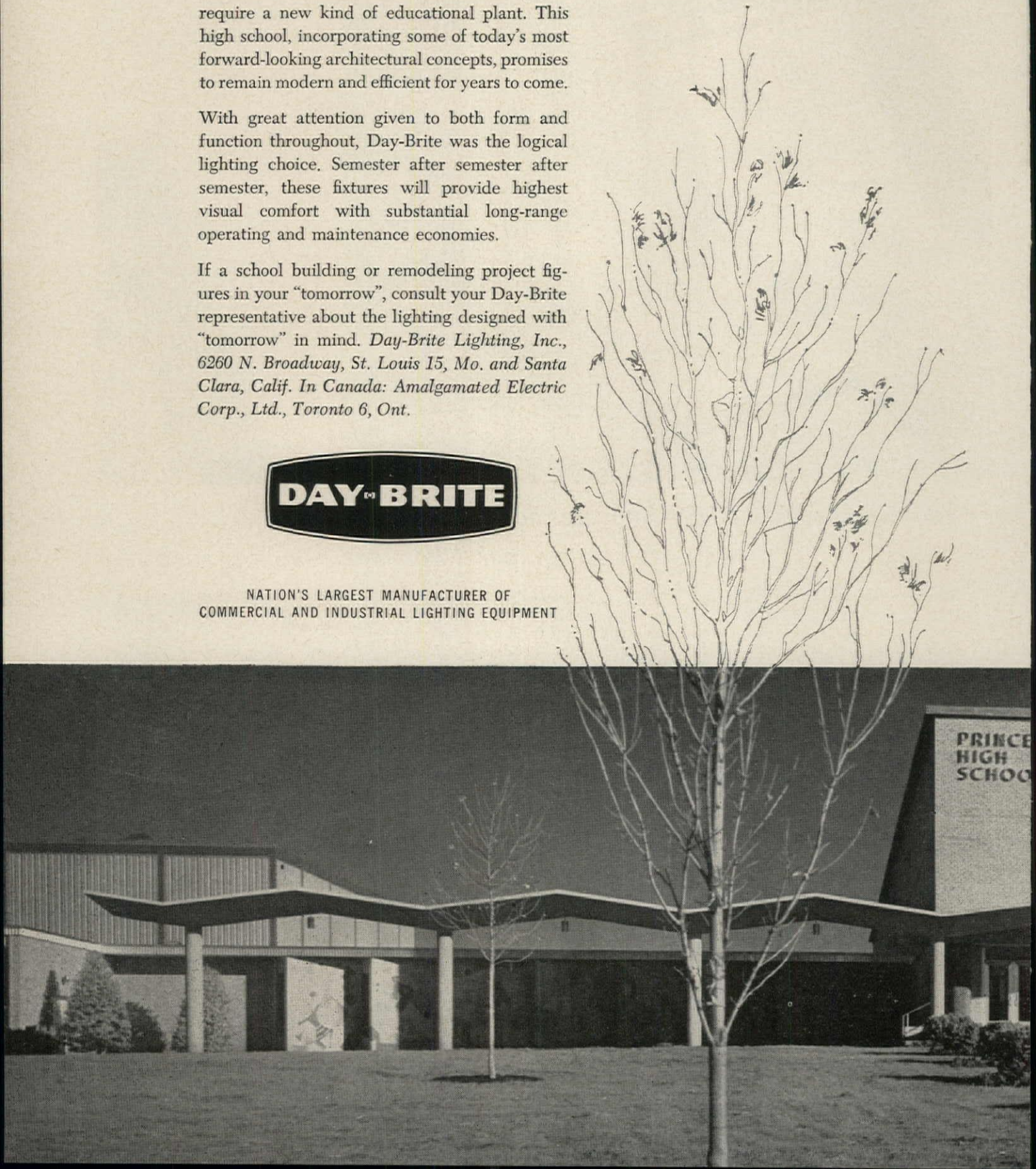

Superb Day-Brite Holiday fixtures maintain a minimum lighting level of 70 footcandles.

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Architect:
Potter, Tyler, Martin and Roth

Consulting Engineer:
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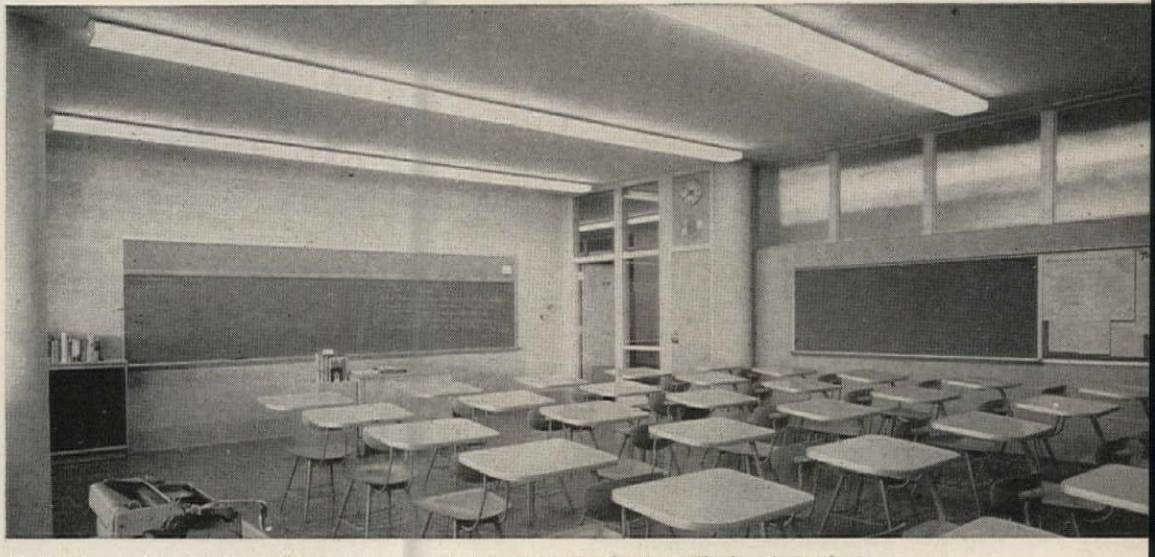
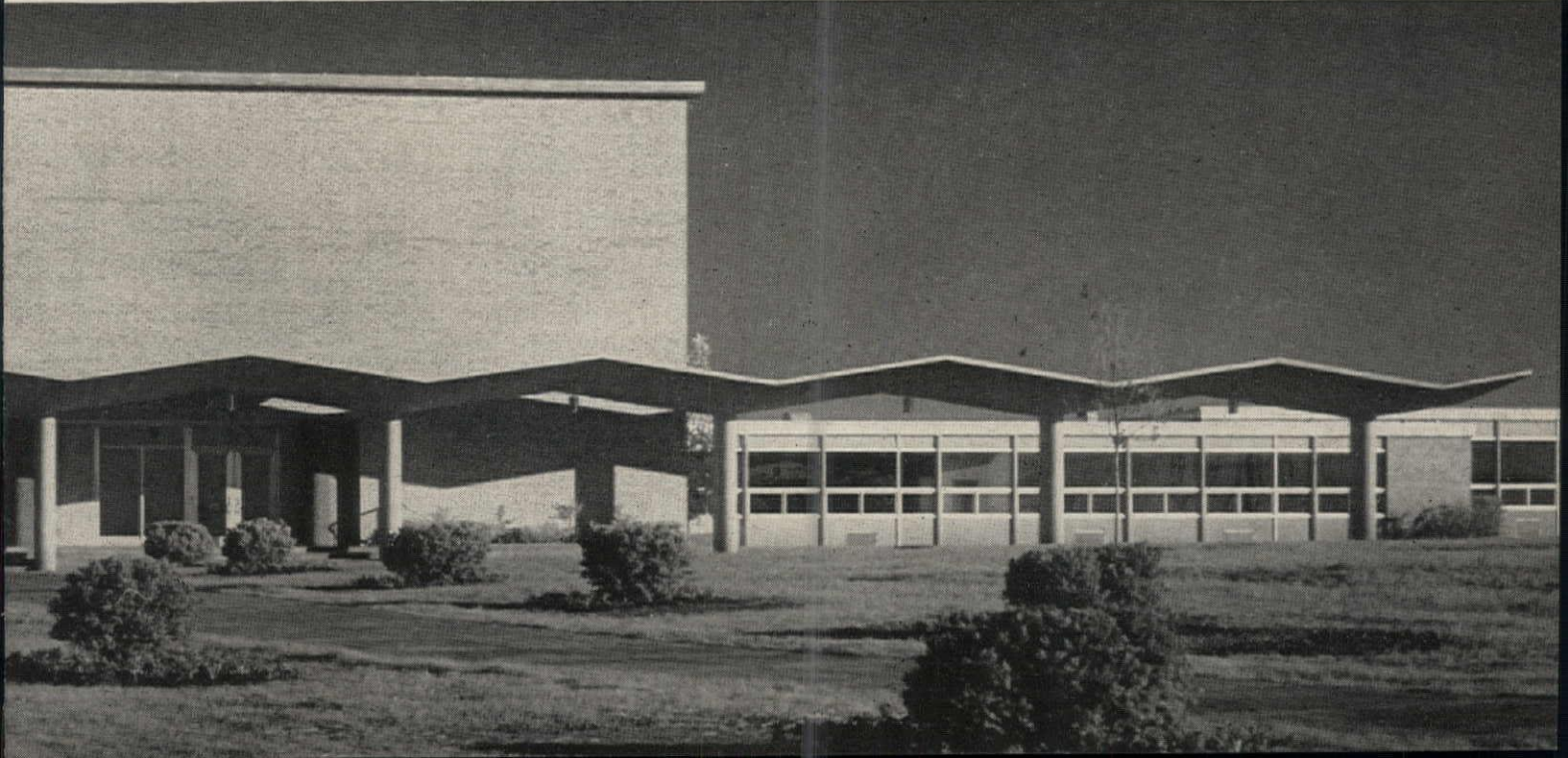


Molded acrylic plastic enclosures control light prismatically, eliminating glare.



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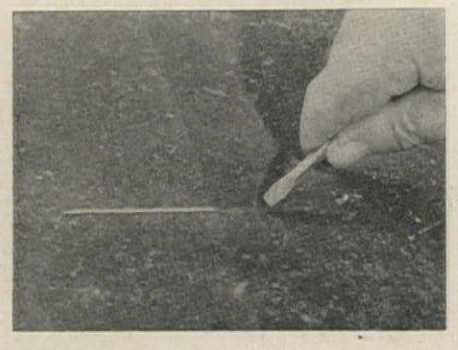
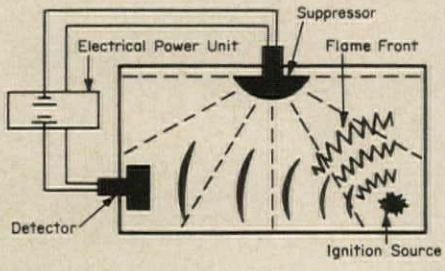


Colorless Liquid Seal
Pliocon, a clear liquid concrete floor treatment, can be applied over new or old concrete surfaces. Effective for sealing, hardening and dustproofing all concrete surfaces, it does not change the surface color or discolor with age. It also resists damage from water, oils and acids. *Monroe Co., Inc., Dept. PCN-1, 10703 Quebec Ave., Cleveland 6, Ohio.*



Explosion Protection System
A unique explosion protection system developed in England during World War II operates so quickly that it can sense an imminent explosion and snuff it out immediately, preventing not only the explosion but any subsequent damage by fire. Suppression is the primary action of the explosion protection system. Other protective measures such as venting, swift isolation of other areas, and automatic shutdown may also be incorporated, but according to the manufacturer, suppression provides positive protection. The system operates during the brief period between ignition and build up of destructive forces, detects the inception of the blast and automatically snuffs it out. After an operation it can be reactivated within a short time. *Fenwal Inc., Ashland, Mass.*

Masonry Facade Coating
A weather-resistant masonry facade coating, available in a wide color range, can be applied over concrete, stucco, cement or cinder block. Special equipment mixes a sand aggregate with the polyurethane coating as it is sprayed so that by varying the size and type of aggregate particle the resultant finish can be varied from a smooth to a rough surface. Standard colors may be custom-mixed to provide a varied range. *United Shoe Machinery Corp., Boston 7, Mass.*

Hinged Doors Weather Proofing
An interlocking saddle wide enough to cover the entire floor hinge mechanism, provides weather proofing for floor hinged doors. Zero No. 150, designed with a pre-cut slot, is adaptable to the hinge located in the door bottom, and is sectional to enable easy access for servicing the floor hinge mechanism. Center sections are available in stock lengths to match standard door widths and can be ordered in special lengths for custom installations. *Zero Weather Stripping Co., Inc., 451 East 136th St., New York 54, N. Y.*

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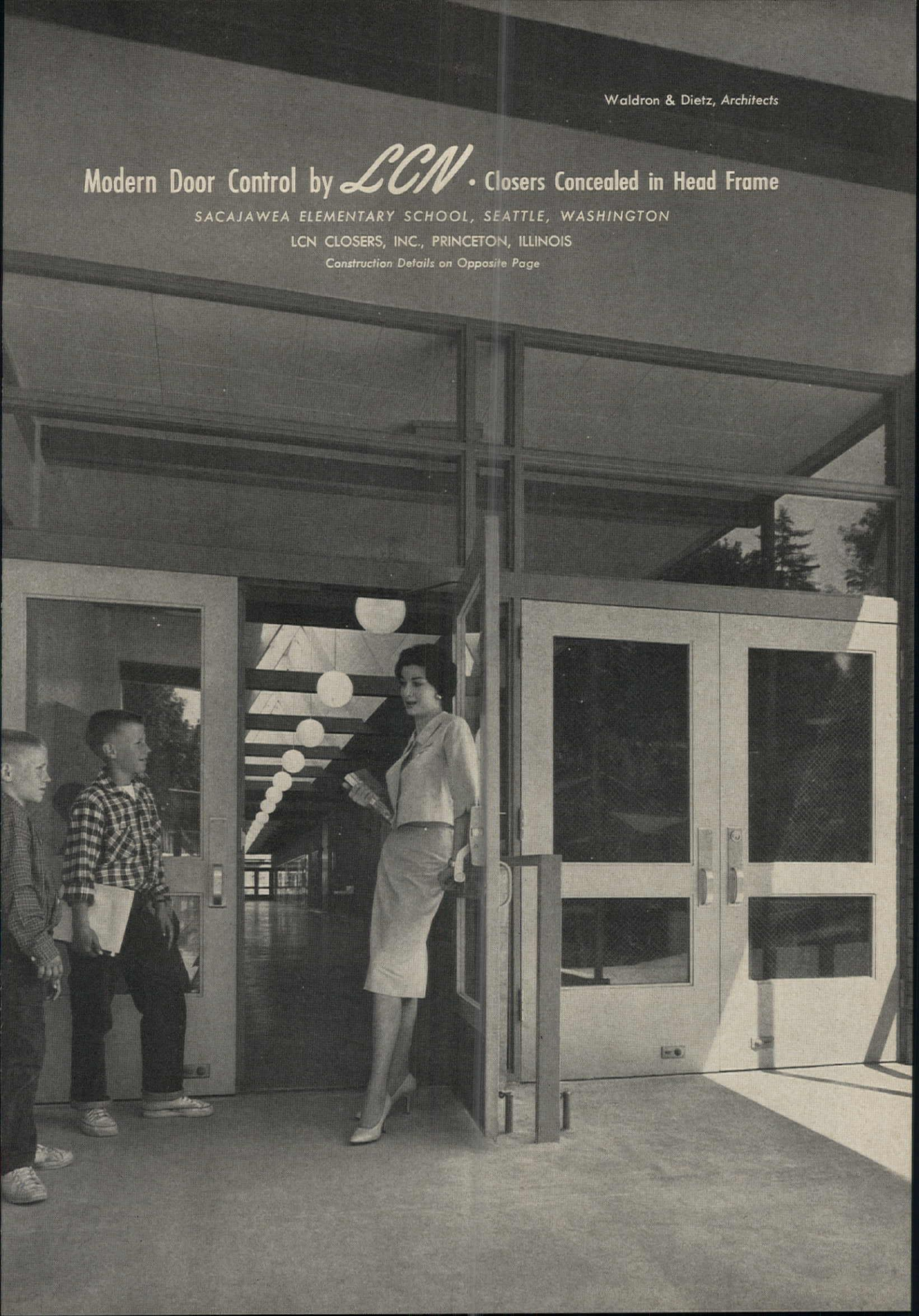

Waldron & Dietz, *Architects*

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

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LCN CLOSERS, INC., PRINCETON, ILLINOIS

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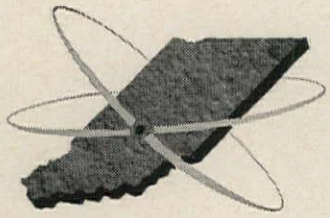
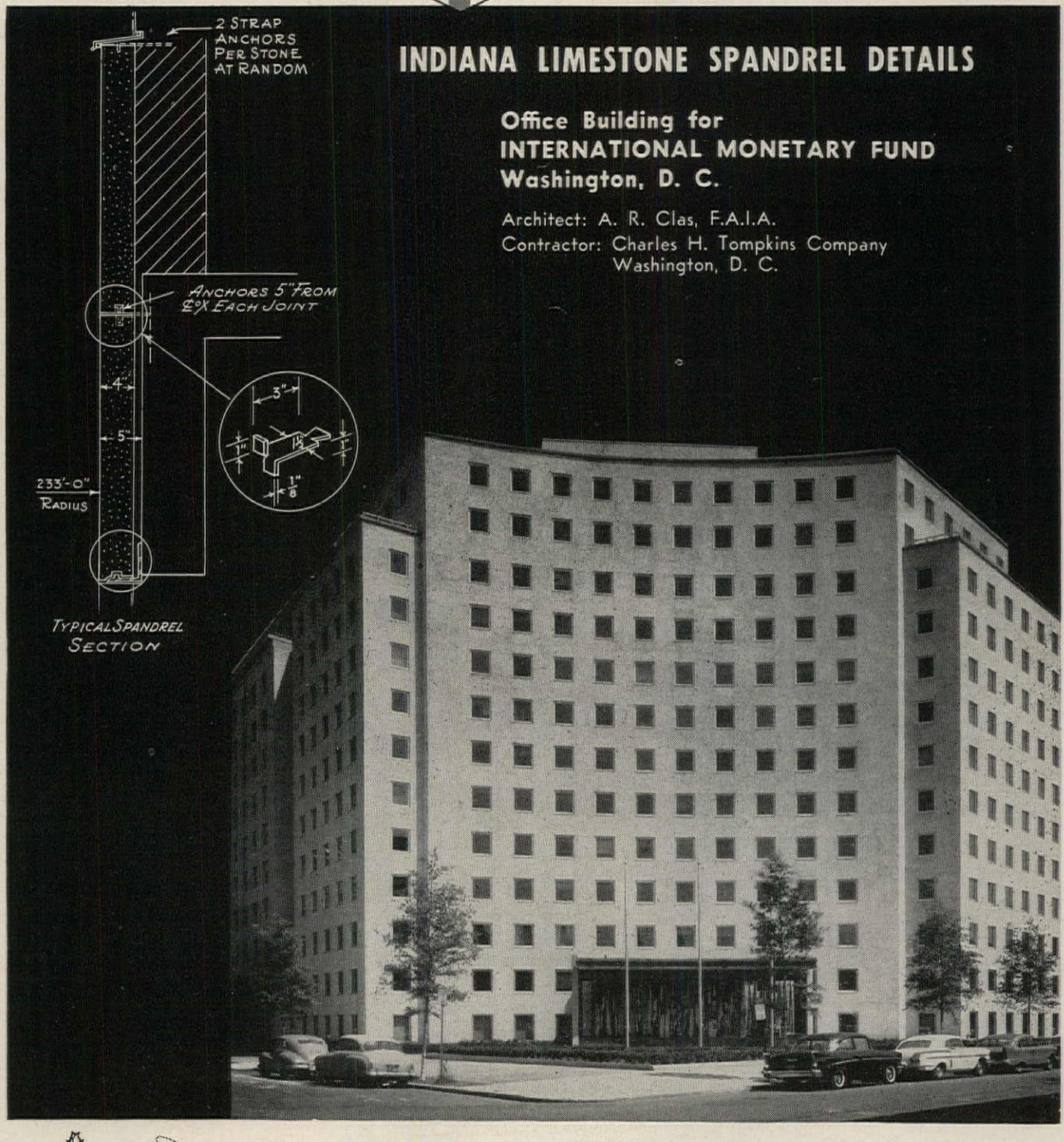
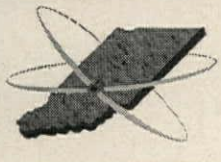


APPLICATIONS IN CONTEMPORARY ARCHITECTURE





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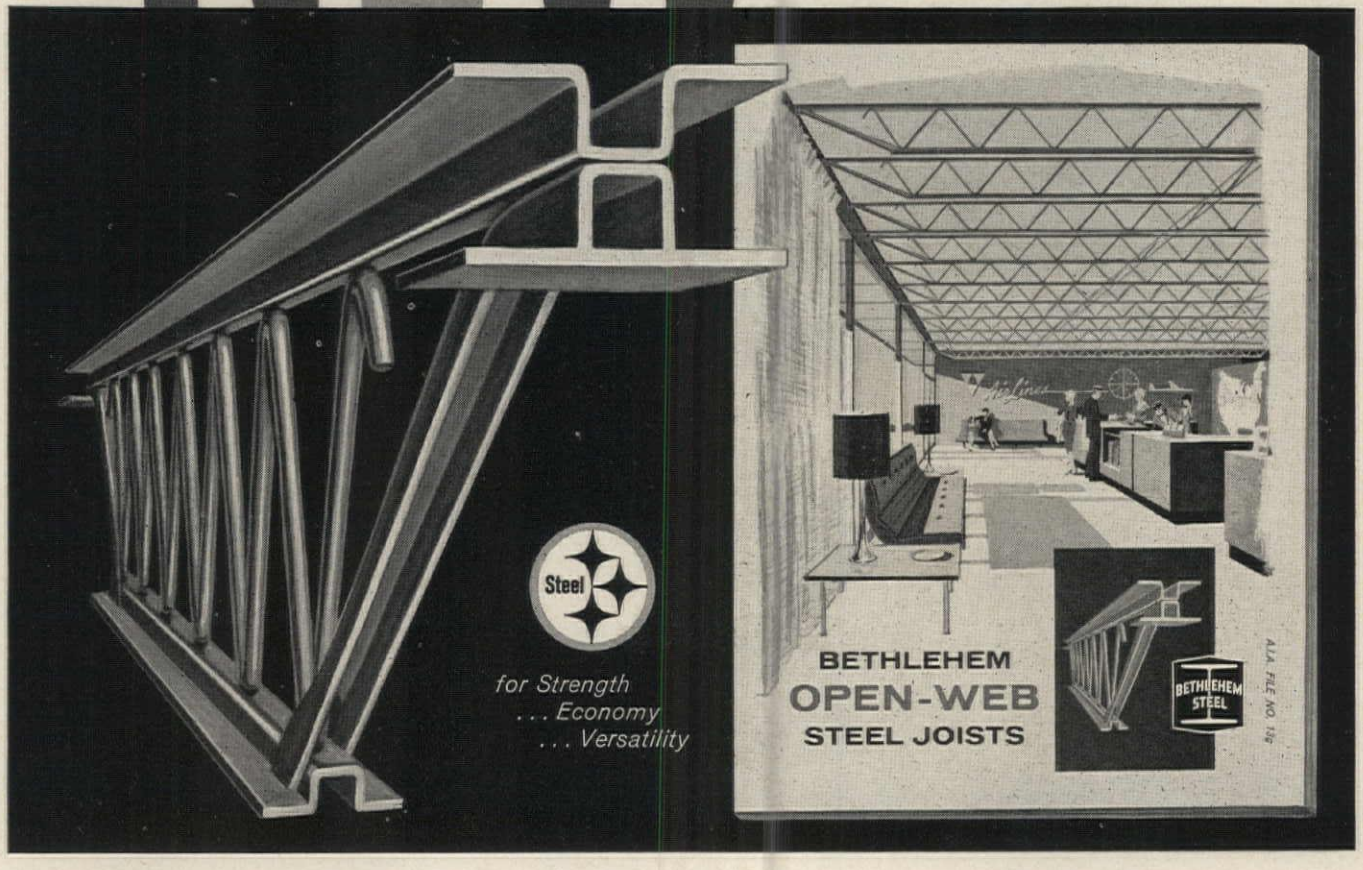

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with cold-formed chords

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**True Slate (Pennsylvania)*

**Limestone with Slaty Cleavage (Imported)*

**The two photos at right show the results of a comparative aging test, one of the many conducted at the Mineral Industries Experiment Station, Pennsylvania State University.*

NATURAL SLATE BLACKBOARD CO.
THE STRUCTURAL SLATE CO.
Pen Argyl, Pennsylvania

true slate . . . 500 million years in the making

IF THE NEW GYM FLOOR BECOMES SLIPPERY,

WHOSE REPUTATION WILL SUFFER?

Stop floor problems before they begin by specifying a floor maintenance program!

Only a year old, but the gym floor looks as if it has been around for at least ten years. Why? Maintenance products that weren't quite right couldn't save the new look. But try and prove to others that poor maintenance is at fault. Other possibilities are usually mulled over first. The wood floor was incorrectly installed. And so on . . . ad infinitum!

This is why Huntington suggests that you specify a complete floor maintenance program for all the floors in the new building. And specify this complete program before the building is constructed; before people who are not experts ruin the floors. Our representative, the Man Behind the Huntington Drum, will be happy to assist you at no obligation. He has had much experience solving (and preventing) floor maintenance problems. And the wide range of Huntington maintenance products for all types of floors has been tested by both time and highly-skilled laboratory technicians. Look for our representative's name, address and telephone number on the back of our insert in Sweet's Catalog, or write us.

see our catalog in Sweet's or write for copy

Please send the following:

- ☐ Your folder with complete floor maintenance specifications and descriptions of Huntington floor care products
- ☐ The new Huntington Gym Floor Manual
- ☐ Have your representative contact me.

NAME _____ TITLE _____

Tear out this coupon and attach it to your firm letterhead for more information.

Where research leads to better products... **HUNTINGTON**

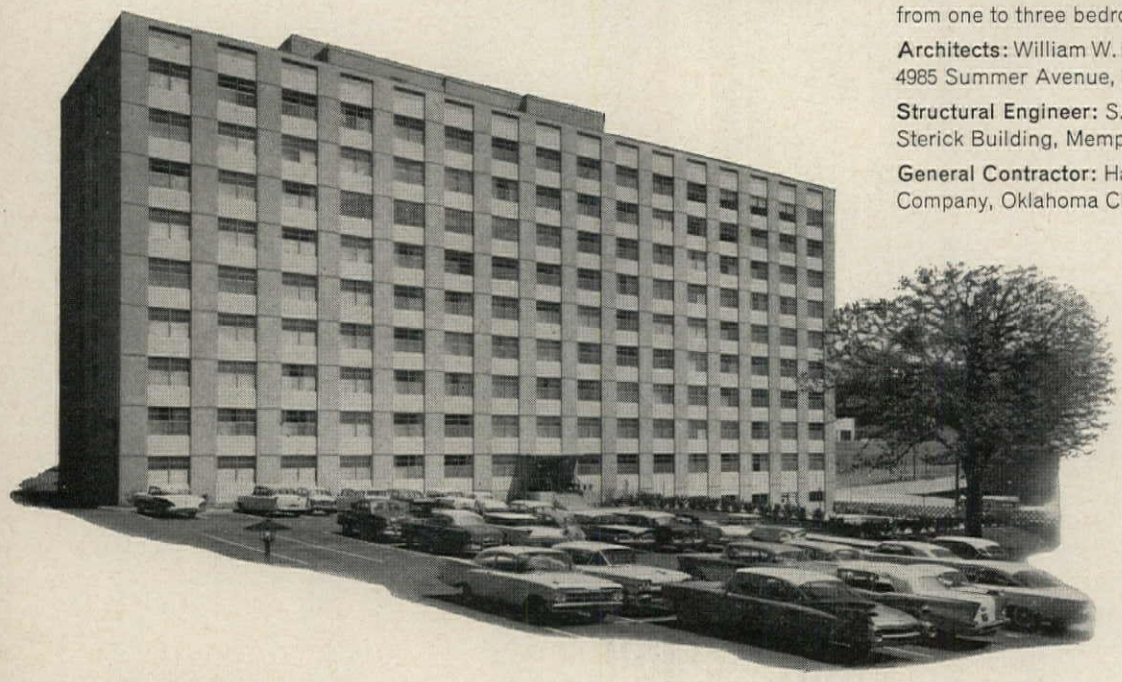
HUNTINGTON LABORATORIES • HUNTINGTON, INDIANA • Philadelphia 35, Pennsylvania • *In Canada:* Toronto 2, Ontario

THE NEW PLAZA TOWERS in Little Rock, Arkansas, has 132 apartments, from one to three bedrooms.

Architects: William W. Bond, Jr., and Louis Ost, Jr., 4985 Summer Avenue, Memphis, Tennessee.

Structural Engineer: S. S. Kenworthy, Sterick Building, Memphis, Tennessee.

General Contractor: Harmon Construction Company, Oklahoma City, Oklahoma.



"We keep corners crack-free with KEYCORNER"

SAYS "TINY" KIRK OF KIRK PLASTERING AND TILE COMPANY, LITTLE ROCK, ARKANSAS

Architects and builders like "Tiny" Kirk's reasons for using Keycorner. And they like what *doesn't* happen afterward. "Test results showed that Keycorner lends more crack resistance," said Tiny. "My experience has proved out those test results. We haven't had a corner crack on us yet. That's why we use Keycorner."

Keycorner comes in easy-to-handle four foot lengths and goes up in a hurry. "But what I like most about Keycorner, it doesn't cut up my hands," says Carl Kennedy, one of Kirk's best workers.

A living room in one of the apartments of Plaza Towers. The owner, W. C. Mason of Little Rock says, "I shudder to think of what the upkeep on our apartments would be if the walls and ceiling weren't plaster. We chose it for its beauty, superior fire resistance and economy as well. And we're happy we did."

KEYCORNER is another fine product of

KEYSTONE STEEL & WIRE COMPANY

Peoria, Illinois

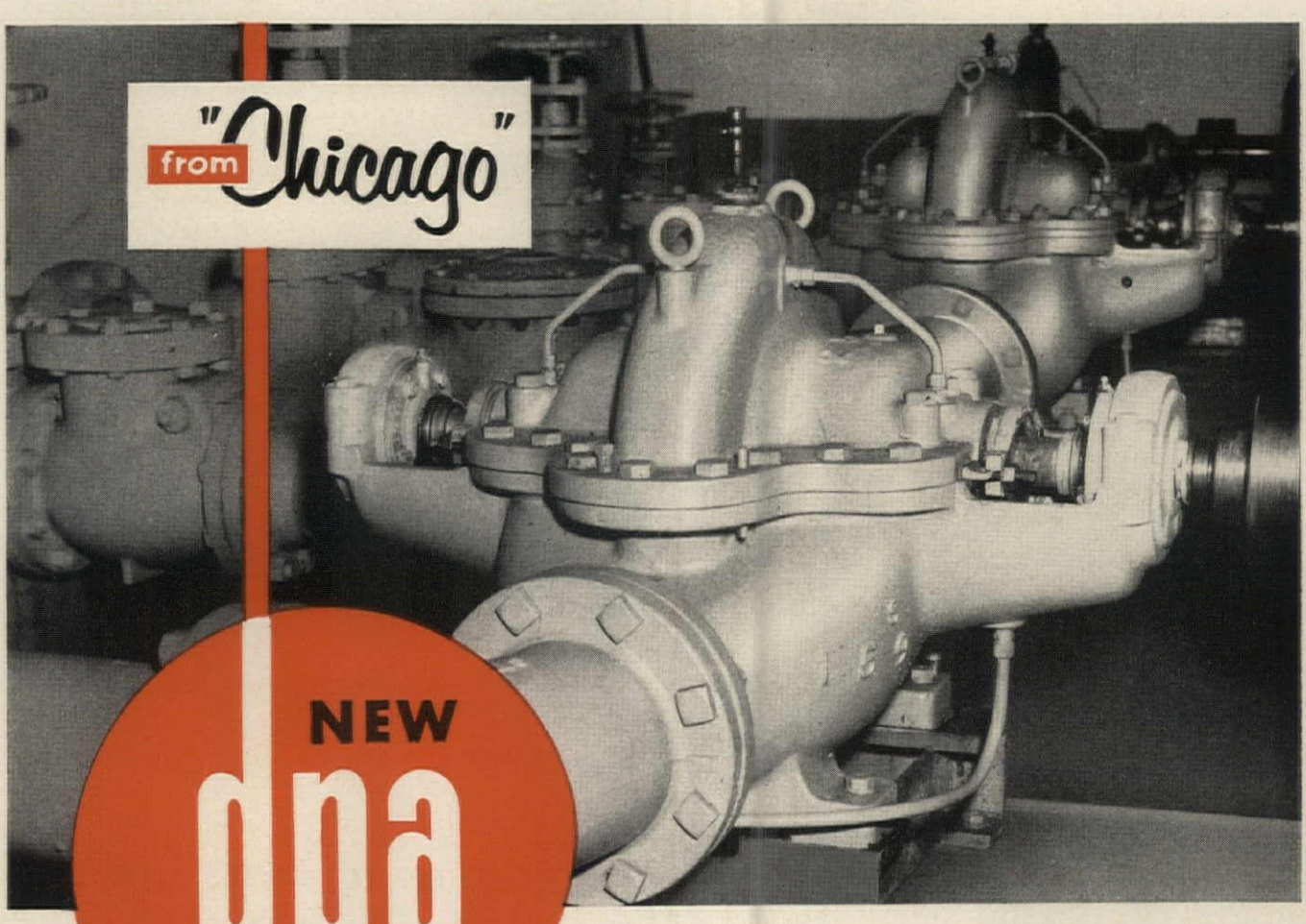
Makers of KEYSTRIP • KEYCORNER • WELDED WIRE
NAILS • FABRIC • TIE WIRE • KEYDECK • KEYWALL

Product Reports

Roofing Insulation
A lightweight, incombustible, cellular glass material is now available in board form for roof insulation. *Foamglas-Board* is produced by sandwiching several 1½-in.-thisk blocks of *Foamglas* between two layers of laminated kraft paper, using a special asphalt for adherence. The laminating paper is held back ⅛ in. from the edge of the board allowing tightly butted joints that can be sealed with roofing bitumen. Advantages include greater compressive strength, insulating efficiency and easier installation. *Foamglas-Board* is produced in 24-in. by 48-in. boards, each weighing about 10 pounds. *Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa.*

New Uses for Stainless Steel
The Mirawal Division of Birdsboro Corp. has perfected a new bonding agent which permits ultra-thin stainless steel to be bonded to a variety of back-up materials. Although the company will not reveal its ingredients, except to report that it is a plastic type adhesive that moves with thermal expansion and contraction, the bonding agent has successfully withstood repeated tests. A flat panel is achieved by bonding the stainless steel to the backup boards, which can be used on both interiors and exteriors. The boards are resistant to surface impact damage, have little or no thermal conductivity, and are easily erected in standard 4- by 10-ft sections. There is a veneer type panel and an insulated type panel in thicknesses ranging from $1\frac{1}{16}$ to 3 in. *Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.*

more products on page 189



NEW

dpa

HORIZONTAL SPLIT CASE— DOUBLE SUCTION, SINGLE STAGE PACKED PUMP

A NEW, QUIET, VIBRATIONLESS PUMP

The new Chicago DPA pump is an exceedingly sturdy, quiet unit providing maximum hydraulic efficiency at all times. Suction, discharge openings and bearing housings are integrally cast into the lower case for maximum rigidity and perfect alignment.

Positive impeller positioning is assured at all times due to a novel and proven design of the rotating assembly. Removal of the entire rotating assembly for inspection is made easy and exact re-alignment assured.

The cast bronze impeller is hydraulically and dynamically balanced and the water passageways hand ground for smooth vibrationless operation. The extra deep stuffing boxes are tapped and bronze lantern rings provided for connection of water sealing.

Capacities to 2800 GPM

Heads to 290 Feet

Discharge Sizes 1½ to 8 inches inclusive

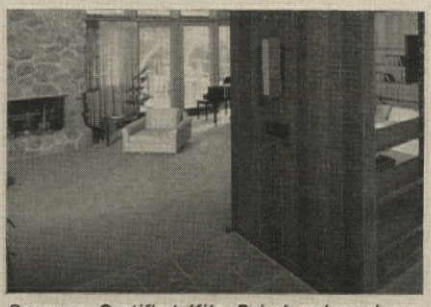
Temperatures to 250° F.

For further information contact your local Chicago Pump Distributor or write direct for Bulletin 102-A.

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION
HYDRODYNAMICS DIVISION
CHICAGO PUMP
622M DIVERSEY PRKWY • CHICAGO 14, ILLINOIS



***Because Certified Kiln Dried redwood** provides far greater dimensional stability than most woods, it is often specified for paneling, room dividers and fine cabinet work.*

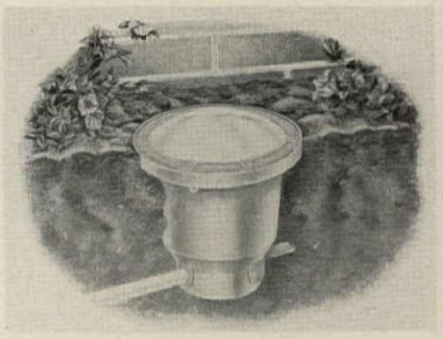
***Redwood was also specified for the kitchen,** including the cupboard doors. Note the insert panels of vertical grain redwood plywood, an interesting detail.*

***Saw-textured redwood** siding can be left to weather naturally and beautifully or simply treated with an easy-to-apply water-repellent.*

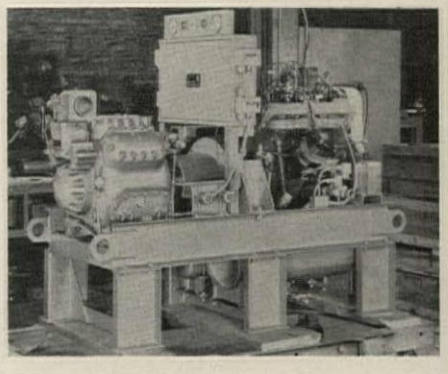
***The all-heartwood grades of redwood** are ideal for terrace decking as they offer exceptional resistance to decay and weathering.*

Architect: Goodwin Steinberg, A. I. A.

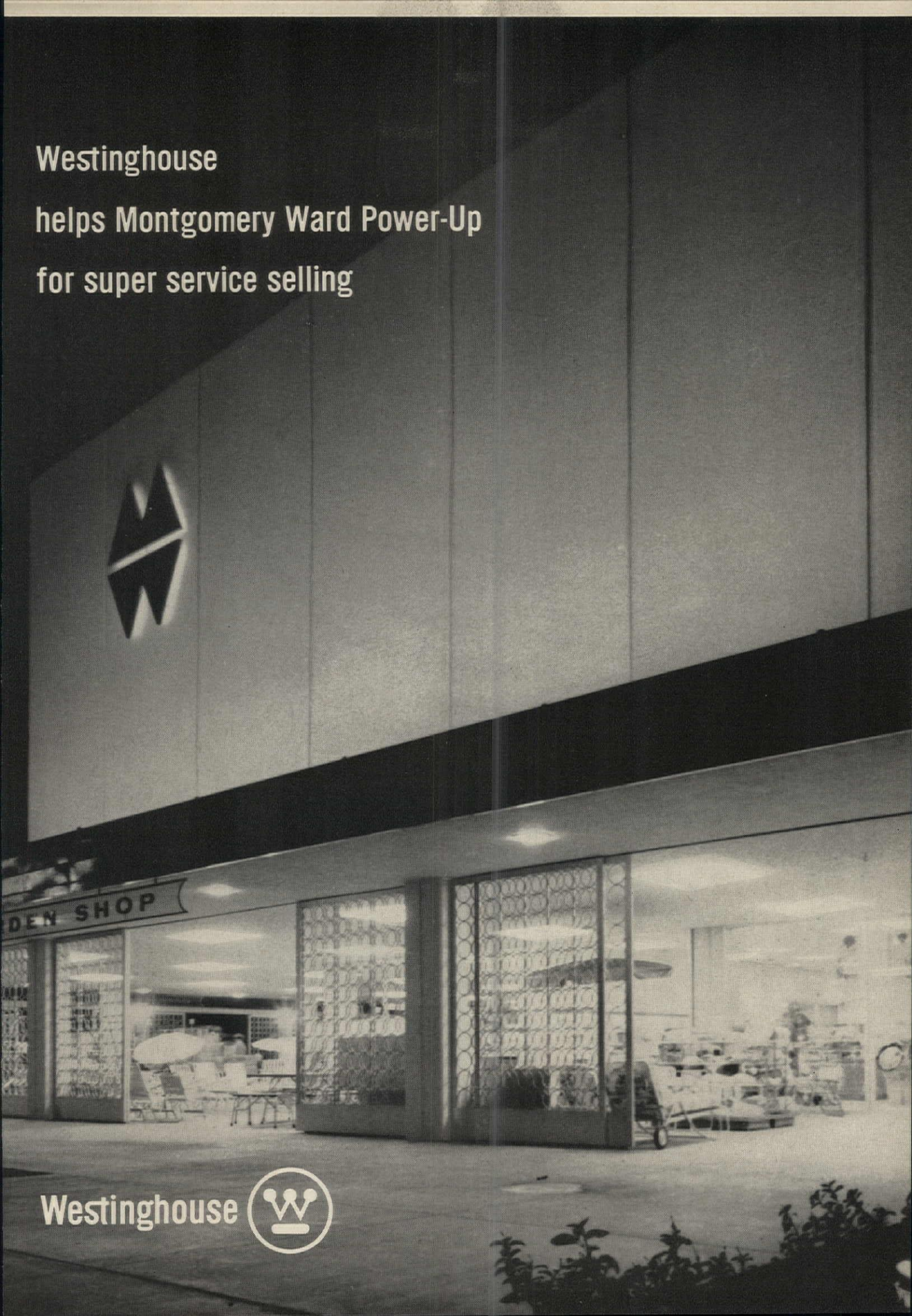
Product Reports



Outdoor Lighting Fixture
A weather-proof fixture for flush installation in earth, concrete or plaster is fully sealed to meet all weather and grade conditions. The fixture is designed for 150W Par 38 flood or spot lamp, sealed under a clear-crystal tempered lens. The all cast aluminum construction assures maximum corrosion resistance and the lamp can be aimed in any direction up to 30 deg. off the vertical. The standard unit measures 9 in. by 9 in. and is tapped for ½-in. conduit side entry. Other sizes available when specified. *Prescolite Mfg. Corp., 2229 Fourth St., Berkeley, Calif.*



Package Cooling Units
Bell & Gossett is offering three basic cooling units for industrial and commercial use: a package liquid cooler unit, a refrigeration condensing unit series and an engine compressor unit. All three are said to operate economically and quietly because they are powered by natural gas-fueled engines. The liquid cooler unit is complete with compressor, condenser, heat exchanger, centrifugal pumps and evaporator. The refrigeration condensing unit series includes 12 units ranging in capacity from 7½ tons to 150 tons. The new engine compressor unit has a modulation range from 1800 rpm. to 1200 rpm. *Bell & Gossett Co., Market Development Div., Morton Grove, Ill.*


Westinghouse
helps Montgomery Ward Power-Up
for super service selling
DEN SHOP
Westinghouse

Bathing the interior with the latest in "selling" illumination are Westinghouse Mainliner fluorescent fixtures. 30° x 30° steel louver shielding diffuses the light and spreads it gently, complementing the merchandise. Ideal for large-area lighting, 700 of these handsome luminaires are used throughout the store. In photo, above, are W. K. Ostler, WESCO Branch Manager; F. L. Newlin, Ward Store Manager; C. H. Behr, Westinghouse Sales Engineer; and M. J. Muus, V. P. Newbery Electric Corp.

J-94153-2

Shopping convenience and comfort

backed by reliable power distribution system

Every foot a handsome, service-packed department store, Montgomery Ward's new Richmond, California, unit is the largest retailer in the Oakland Bay area. This facility is part of Ward's $500,000,000 nationwide expansion and modernization program. Vital statistics include: 165,000 sq ft, 42 sales departments, 500 employes, 2000-car parking lot, and a declared policy of charming atmosphere, convenience and fast service.

Lighting the customers' way as well as the displayed merchandise are Westinghouse Mainliner luminaires. Seven hundred of these recessed and shielded fluorescent fixtures provide a high level of illumination throughout the store . . . in selling areas, offices, and in the semiopen-air garden shop. Modular construction of Mainliner units, in many combinations, readily lends itself to the various ceiling construction techniques and lighting requirements of selling areas. Westinghouse color-corrected mercury-vapor luminaires sparkle over the 2000-car parking area.

Providing a solid base for lighting and power activity throughout the building is an array of Westinghouse distribution equipment. This modern facility is equipped with Westinghouse lighting and power panelboards, motor starters, safety switches, dry-type transformers and heat pumps for year-round air comfort control. All are expertly applied and engineered to work together. Thus, Westinghouse assists one of the nation's giant retailers to Power-Up for profit. *You can be sure . . . if it's*

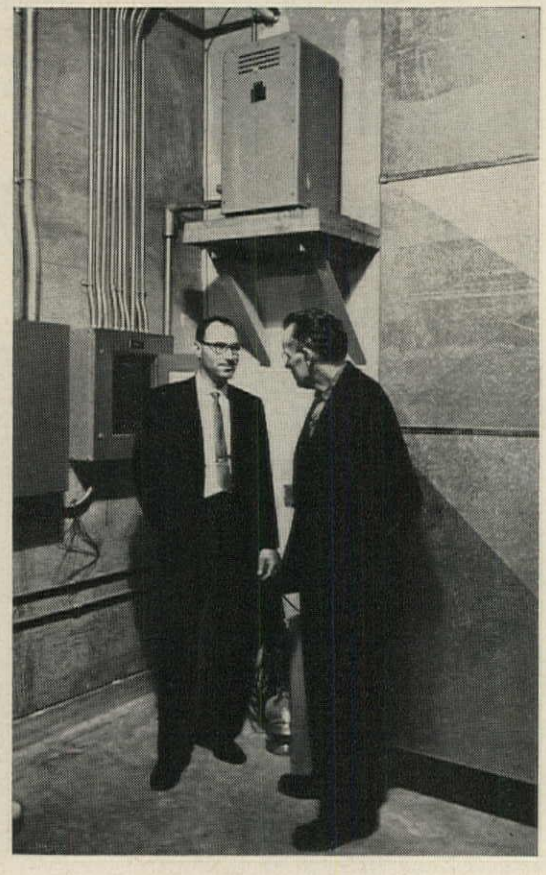
Westinghouse

Welcome shines everywhere . . . for the convenience of Ward's nighttime shoppers, Westinghouse OV-35 mercury-vapor luminaires are placed strategically throughout the parking area. Sixty-five of these units serve the 2000-car lot. A specially designed optical system directs a major portion of the color-corrected light to the roadway surface, providing high utilization levels. Supporting the luminaires are aluminum monotube, double-arm street lighting standards.

P. R. Cunliffe, Chief Mechanical Engineer; E. A. Kendall, Chief Electrical Engineer, both of Montgomery Ward; and M. Brasseur, Westinghouse Chain Marketing Representative, exchange views on store layout. Reliable Westinghouse equipment has long been the standard in electrical specifications for Montgomery Ward construction.

J-94153-3

Customer comfort is paramount . . . here J. R. Miller, Westinghouse Construction Engineer, and H. D. Carter, Building Superintendent, examine one of two Westinghouse air-to-air heat pumps in the auto service building, separate from the main store. These heat pumps quietly distribute air to the sales area, automatically heating or cooling as required. Attractive two-tone charcoal floor cabinets blend with any building design.



TOP: Reviewing construction plans in the mechanical equipment room are C. H. Behr, H. D. Carter and J. R. Miller. Four Westinghouse magnetic reversing Life-Linestarters, mounted on the wall, control motors driving auxiliary equipment. At the right is a Westinghouse CDP distribution panelboard, feeding power circuits in the room. Famed Westinghouse AB De-ion® circuit breakers insure foolproof protection for equipment against short circuits and dangerous overloads.

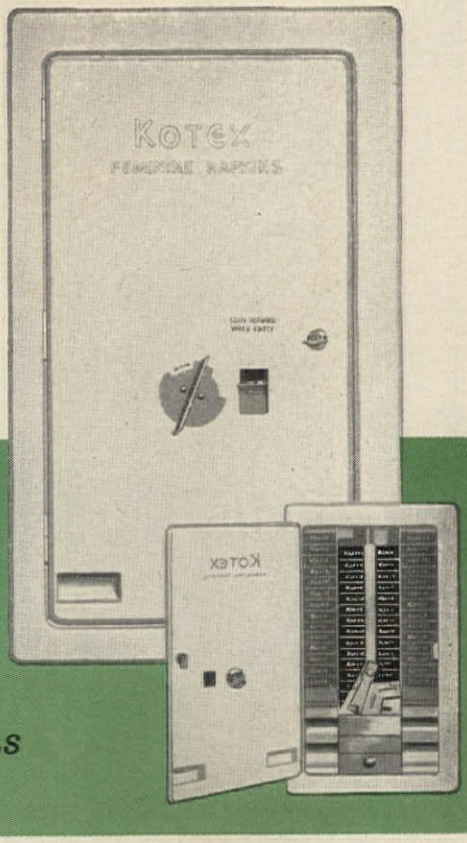
CENTER: A preliminary stage of the project sees C. H. Krieger, Consulting Electrical Engineer; T. Rhodes, President, Hilp & Rhodes, General Contractors; and A. E. Alexander, Architect, reviewing store electrical system.

BOTTOM: C. H. Behr and H. D. Carter converse normally beneath a quiet Westinghouse 15-kva DS-3 dry-type transformer. Many of these small, lightweight units are installed adjacent to selling areas where noise would be objectionable. Wherever quiet operation is essential, specify Westinghouse transformers. They test below 45 db in an ambient of 24 db and only Westinghouse sound-tests every production line dry-type transformer. This DS-3 transformer provides 120/240 volts for distribution by the NPLAB lighting panelboard shown below.

J-94153-4

OWNER: Montgomery Ward & Co., Chicago, Ill.
ARCHITECT: A. E. Alexander, San Francisco, Calif.
CONSULTING ELECTRICAL ENGINEER: Charles H. Krieger, San Francisco, Calif.
GENERAL CONTRACTOR: Hilp & Rhodes, San Francisco, Calif.
ELECTRICAL CONTRACTOR: Newbery Electric Corp., Richmond, Calif.
DISTRIBUTOR: WESCO, Oakland Calif.

Westinghouse



The ultimate in built-in convenience...

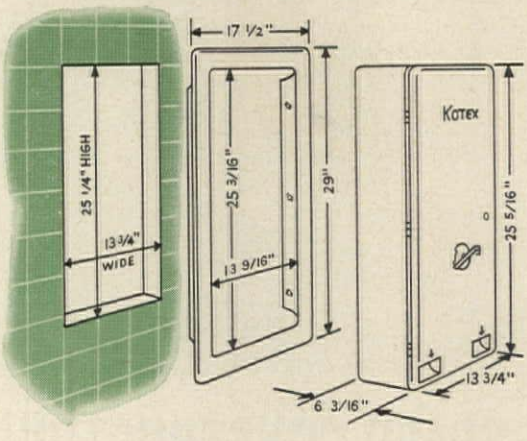
RECESSED VENDORS

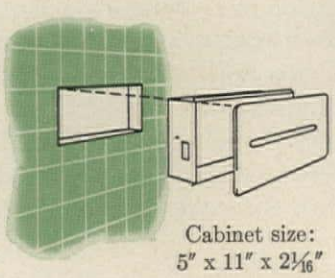
for KOTEX *feminine napkins*

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

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

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





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

RECESSED DISPENSER FOR KLEENEX TISSUES

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

For further details on how these attractive new recessed dispensers for Kotex napkins and Kleenex tissues can fit into your plans, see Sweet's Architectural File Cat., Section 27e/Ki. or write to Kimberly-Clark Corp., Dept. AR-11, Neenah, Wisconsin.

KOTEX and KLEENEX are trademarks of KIMBERLY-CLARK CORPORATION

KIMBERLY-CLARK CORPORATION NEENAH, WISCONSIN

THIS NEW, MORE UNIFORM SHAPE!

..and Tensilform can be installed in any weather.
- Excellent "U" factors with low initial cost.
- Lower fire as well as extended coverage rates.
- Cleaner construction because precision-formed

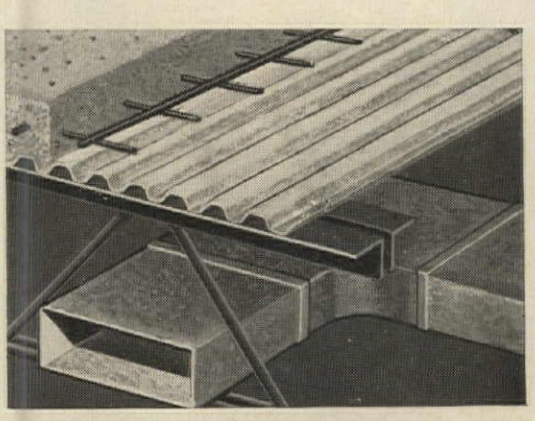
Wheeling Tensilform cuts cement seepage.

Get the complete story on Tensilform for floor and roof slabs from your Sweet's File. Or write to Wheeling Corrugating Company, Wheeling, West Virginia.

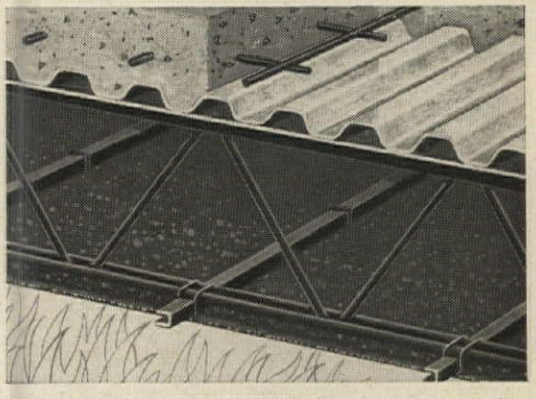
Steel

IT'S WHEELING STEEL!

Philadelphia, Richmond, St. Louis. Sales Offices: *Atlanta, Houston.*

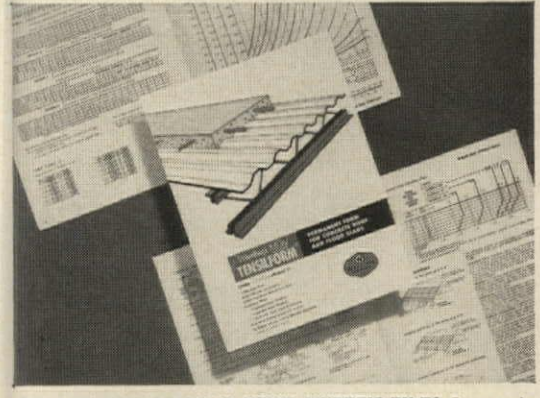


EXCELLENT "U" FACTORS AT LOW INITIAL COST! Save your client money by (1) lowering construction costs, and (2) minimizing heating and cooling costs throughout building's life.



SUPERIOR FIRE RESISTANCE! Cuts annual costs because this superior fire resistance is reflected in reduced fire and extended coverage rating.

IMMEDIATE, SAFE WORKING DECK! As soon as it's laid, Tensilform speeds construction by providing a sturdy, safe working deck that's used by all crafts.



FULL INFORMATION IN YOUR SWEET'S FILE! Our catalog is in Sweet's. It has complete load tables, deflection charts; in fact, everything you'll need to specify Wheeling Tensilform. (Extra copies upon request!)

Office Literature

continued from page 170

Guide to Custom Stereo
Discusses selection and arrangement of stereo components, and gives technical information on specifications and ratings. *H. H. Scott, Inc., Dept. P, 111 Powdermill Rd., Maynard, Mass.*

Residential Building Sewers
BRAB report to FHA deals with the use of asbestos-cement, bituminized fiber, cast iron, plastic, and vitrified clay sewer pipe, and the jointing methods and materials and installation procedures used with each. Plumbing codes, existing standards, causes of failure, and needed inspection and maintenance procedures are also treated. NAS-NRC Publication 787, $2. *Printing and Publishing Office, National Academy of Sciences, National Research Council, 210 Constitution Ave., Washington 25, D. C.*

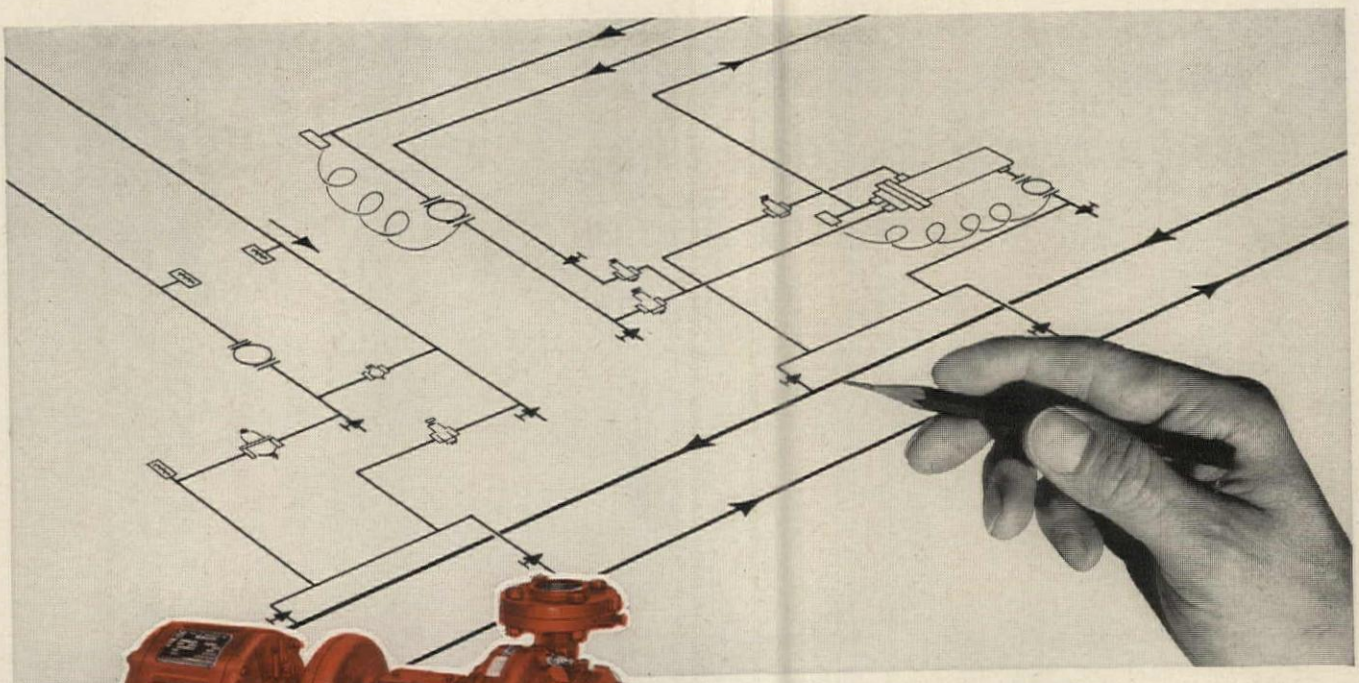
Making Multi-Purpose Use of Space
Describes, and illustrates use of, complete line of folding tables. 10 pp. *Howe Folding Furniture, Inc., One Park Ave., New York 16, N. Y.*

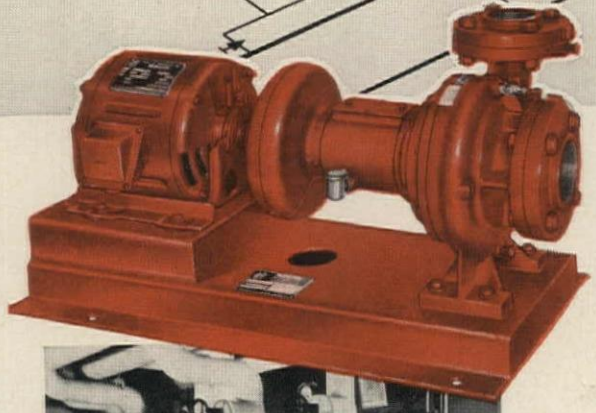
Sound Control Products
(A.I.A. 39-B) Lists sound absorptive, sound isolating and special purpose acoustical materials, with general and technical information on their sound absorption, sound transmission loss, combustibility and method of application. Catalog 61, 20 pp. *Elof Hansson, Inc., Acoustical Div., 711 Third Ave., New York 17, N. Y.**

Omnia Concrete Floors and Roofs
Describes Omnia floor system, illustrates its use, and gives structural details and load tables. 24 pp. *Omnia Industries, Inc., 51 East 42nd St., New York 17, N. Y.**

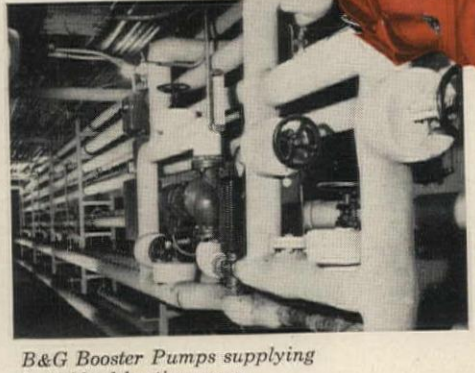
DoxPlank Technical Manual
Covers basic design theory, safe load tables, acoustical and thermal properties, specification and construction details, as well as the manufacture and installation of *Finished-Ceiling DoxPlank.* 68 pp. *DoxPlank Manufacturers Assn., 1032 Book Bldg., Detroit 26, Mich.**

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





B&G Universal Pumps circulating primary mains.



B&G Booster Pumps supplying individual heating zones.

Primary and secondary pumping as developed by B&G® cuts heating system operating costs

Where multiple buildings or multiple zones within a building are to be heated with circulated water, *Primary and Secondary Pumping*, as conceived and developed by Bell & Gossett engineers, both reduces pump horsepower and saves fuel by improving heat control.

A typical system consists of a primary main continuously circulated by a B&G Universal Pump, with smaller B&G Booster Pumps drawing on the main to supply separate heating zones. Each zone pump is under individual thermostat control, so that each zone can be supplied with exactly the amount of heat required by its function or exposure.

Write for free booklet which gives detailed information on this more efficient, more economical method of heating with circulated water.

BELL & GOSSETT
COMPANY
Dept. GM-32, Morton Grove, Illinois
Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

A DIVERSIFIED LINE OF HIGHEST QUALITY PRODUCTS

Booster Pumps

Package Liquid Coolers

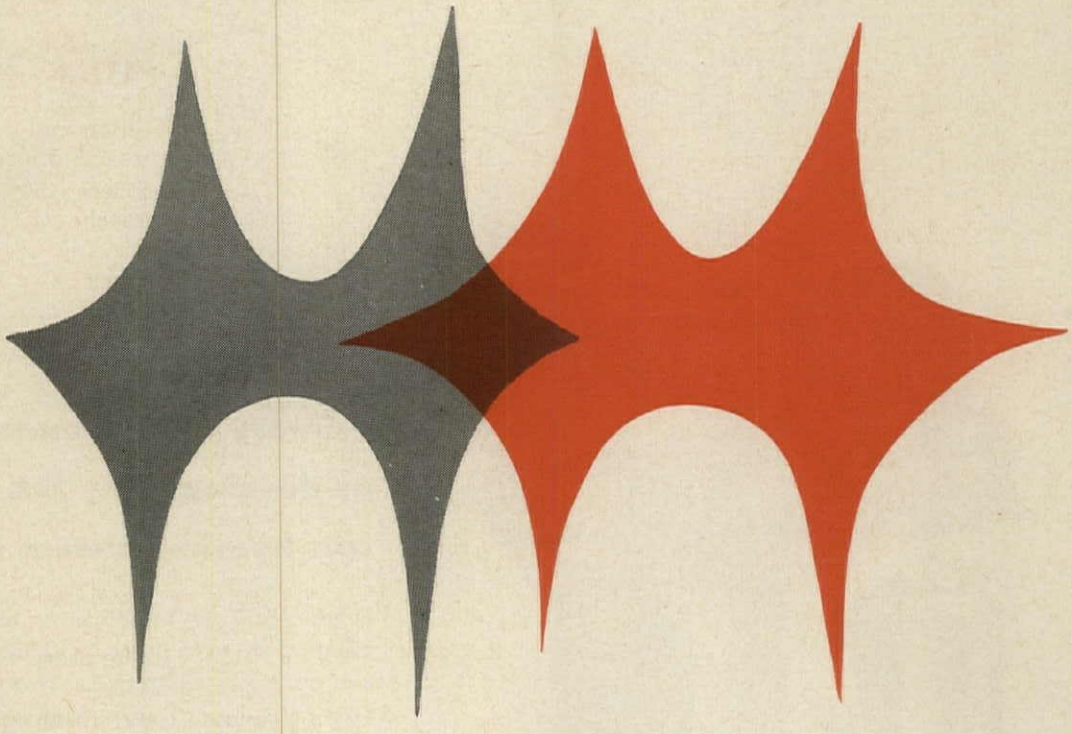
Refrigeration Compressors

Marlow Pumps

Heat Exchangers

Oil-less Air Compressors

NATIONAL CONCRETE MASONRY ASSOCIATION,
NATIONAL READY-MIXED CONCRETE ASSOCIATION,
PORTLAND CEMENT ASSOCIATION,
ANNOUNCE THE



Concrete Industries

HORIZON HOMES

Program

A national program to provide more livability and encourage better design in merchant-builder houses.

REGIONAL AND NATIONAL AWARDS

KEY FACTS ABOUT THE PROGRAM...

To architects interested in the design of merchant-builder houses, the Concrete Industries Horizon Homes Program offers a unique opportunity to express originality and creativity, and gain national recognition as leading designers in this important industry.

Program is keyed directly to the National Association of Home Builders' major national promotional effort: The annual National Home Week activities and "Parade of Homes" showings in communities across the country.

All elements in the Horizon Homes Program are carefully planned to give maximum support at the LOCAL LEVEL to LOCAL PARTICIPATION by LOCAL BUILDERS AND ARCHITECTS.

HOW YOU'LL BENEFIT FROM PARTICIPATION IN THE PROGRAM...

An opportunity to contribute important design direction and project the elements and concepts you believe should be incorporated into home design.

Work with the many new and exciting forms of modern concrete . . . unique chance to achieve newer, fresher, more versatile approaches through the application of textures, patterns and shapes in concrete.

Work with a progressive builder in establishing yourself as a leading designer in this most exciting and profitable industry.

Benefit from strong local and national publicity planned as part of the program by each of the national sponsoring organizations.

Have the opportunity to enter the Horizon Homes National Competition offering seven major regional awards for design—plus a fabulous national design award.

SIMPLE, BASIC REQUIREMENTS

Architect must be a member—either corporate or associate—of the American Institute of Architects.

Architect must agree to incorporate specific concrete usage requirements in his design.

Sale price of the model home (excluding land and furnishings) is not to exceed a total of $20,000.

Architect must agree to abide by rules of Horizon Homes Program.

TIMETABLE

JANUARY, 1961 . . . Registration in Concrete Industries Horizon Homes Program

SEPTEMBER, 1961 . . . Home to be completed, furnished and ready for showing during National Home Week

NOVEMBER, 1961 . . . Architect Design Award winners to be selected

DECEMBER, 1961 . . . Announcement of winners during NAHB national convention

FOR COMPLETE DETAILS GET IN TOUCH WITH THE PCA OFFICE IN YOUR AREA NOW!

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120 Madeira Drive, NE

ATLANTA 3, GA.
507 Mortgage Guarantee Bldg.

AUSTIN 1, TEXAS
110 East Eighth St.

BALTIMORE 2, MD.
512 Keyser Bldg.

BIRMINGHAM 5, ALA.
1214 South 20th St.

BOSTON 16, MASS.
20 Providence St.

CHICAGO 2, ILL.
111 West Washington St.

COLUMBUS 15, OHIO
50 West Broad St.

DENVER 2, COLO.
721 Boston Bldg.

DES MOINES 9, IOWA
408 Hubbell Bldg.

HELENA, MONT.
Mezzanine—Placer Hotel

HONOLULU 13, HAWAII
688 Alexander Young Bldg.

INDIANAPOLIS 4, IND.
612 Merchants Bank Bldg.

KANSAS CITY 6, MO.
811 Home Savings Bldg.

LANSING 8, MICH.
2108 Michigan National Tower

LOS ANGELES 17, CALIF.
816 West Fifth St.

LOUISVILLE 2, KY.
805 Commonwealth Bldg.

MEMPHIS 3, TENN.
815 Falls Bldg.

MILWAUKEE 2, WIS.
735 North Water St.

MINNEAPOLIS 2, MINN.
1490 Northwestern Bank Bldg.

NEW ORLEANS 12, LA.
611 Gravier St.

NEW YORK 17, N.Y.
250 Park Ave.

OKLAHOMA CITY 2, OKLA.
1308 First National Bldg.

OMAHA 2, NEB.
720 City National Bank Bldg.

ORLANDO, FLA.
1612 East Colonial Drive

PHILADELPHIA 2, PA.
1528 Walnut St.

PHOENIX, ARIZONA
2727 North Central Avenue

PORTLAND 3, MAINE
142 High St.

RICHMOND 19, VA.
1401 State Planters Bank Bldg.

ST. LOUIS 1, MO.
913 Syndicate Trust Bldg.

SALT LAKE CITY 11, UTAH
425 Newhouse Bldg.

SEATTLE 1, WASH.
903 Seaboard Bldg.

TRENTON 8, N.J.
234 West State St.

WASHINGTON 4, D.C.
837 National Press Bldg.

Canada
(British Columbia only)
VANCOUVER, B.C.
1687 West Broadway

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

Building Components

Epoxy Toppings

continued from page 168

1) From the maintenance point of view, epoxy floors are easy to keep clean since they have no joints, and the problem of periodically pointing these joints is eliminated.

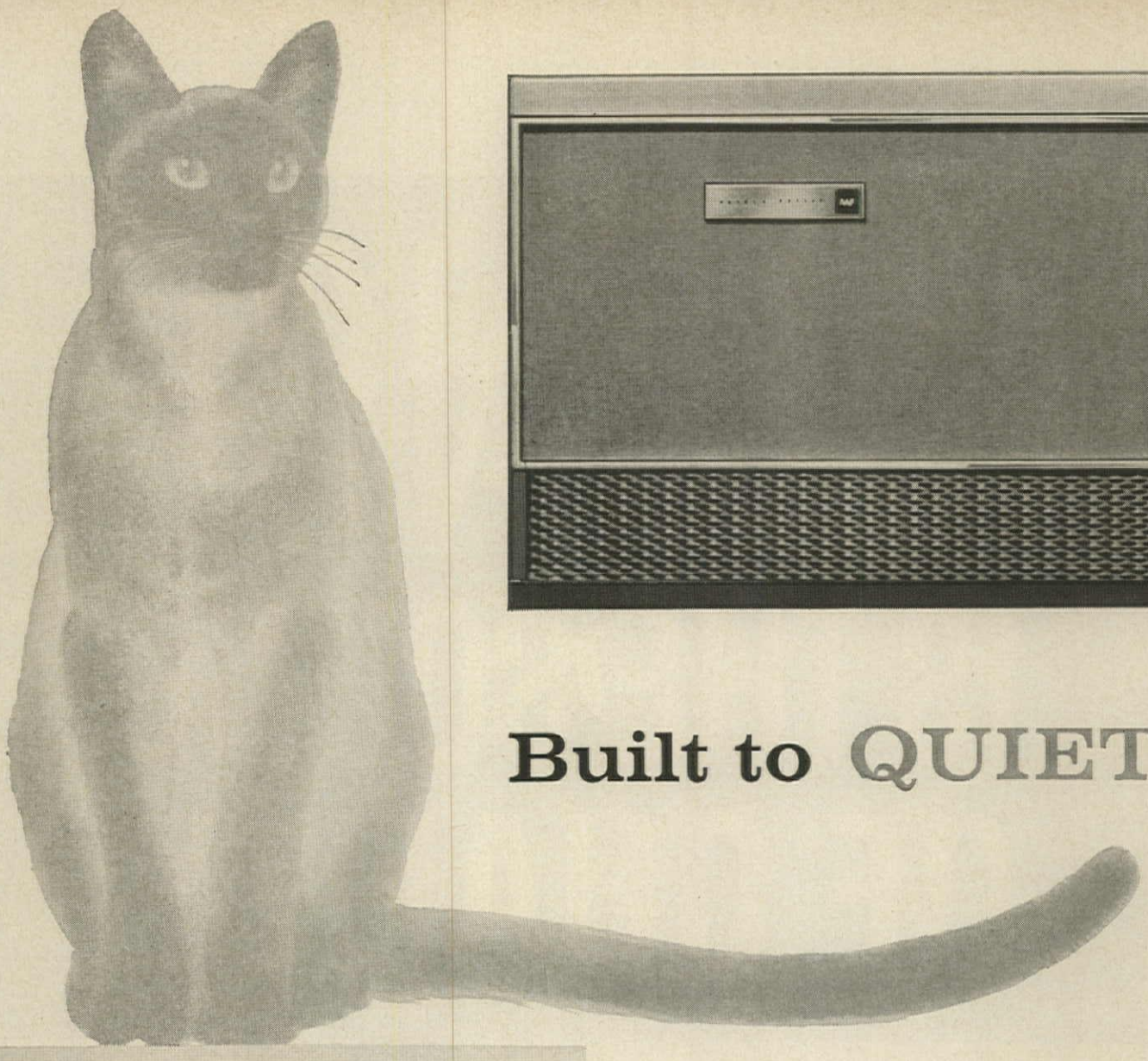
2) Since epoxy is non-porous, corrosive materials cannot seep through to attack the base slab, and the subsurface will not become a breeding place for bacteria.

3) They offer wide design possibilities since they can be installed in virtually any color. Sometimes this is not important since in places like plating rooms the floor is really a giant basin always covered with water or chemicals, and the floor itself is not seen because wooden duck boards are put on the surface to facilitate foot traffic. But in places like bakeries and breweries where "show case" considerations enter into the design, epoxies offer the architect a wonderful opportunity to use floor colors to harmonize with the rest of the structure. The finished surface can be made quite glossy where slipperiness is not a problem; when safety is a factor, it can be made skid-resistant by casting a mineral with a high aluminum oxide content onto the surface before the epoxy sets.

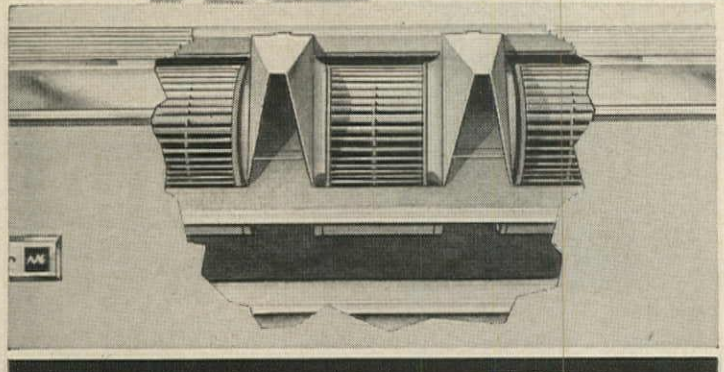
Epoxy for Resurfacing

Epoxies also have a potential use as a resurfacing material. For one thing, epoxy floors can be returned to service more quickly than concrete. Epoxies can be used for light duty in one to three days, and reach their peak strength in about one week, providing the proper curing temperature has been maintained. Concrete floors, on the other hand, require about 10 to 14 days. (However, even with concrete, immediate service can be obtained by using plywood to protect it while curing.)

A point to note is that while epoxy floors have better abrasion resistance than some concrete floors, they do not have as much abrasion resistance as a good concrete topping. Also, there is a price disadvantage. On small areas the price differential will be nil, but on larger areas, an epoxy floor will cost about 25 per cent more than the best concrete topping, including slab preparation.

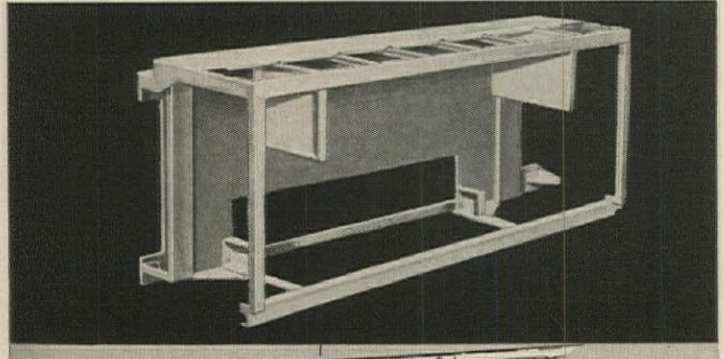


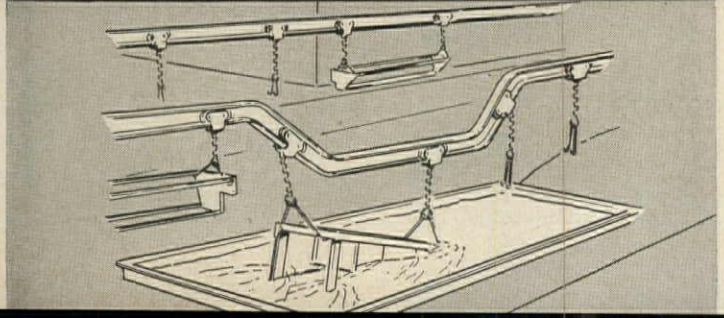
Built to QUIETI



QUIETER...50% QUIETER THAN OTHER UNIT VENTILATORS

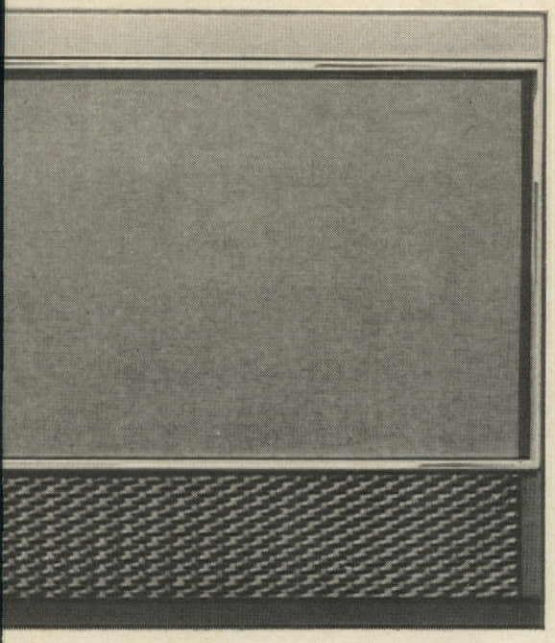
A unique new fan housing design hushes sound level. Herman Nelson unit ventilators are 50% quieter than other makes. Extruded top discharge grille design and "modular" fan construction are combined with a new first in fan housing design to keep the sound level extremely low.





LIFE-OF-THE-BUILDING CONSTRUCTION

New single-unit, all-welded frame construction is an important feature of every Herman Nelson Unit Ventilator. Structural maintenance is eliminated. The entire frame, after fabrication, is dipped into a permanent corrosion- and rust-resistant solution. Outdoor and room air damper frames are also dipped for maximum protection against rusting.



ADVANCED ARCHITECTURAL STYLING

New Herman Nelson Unit Ventilator styling was inspired by the distinctive patterns of modern school architecture. This new styling was acclaimed by Product Engineering magazine as an "outstanding achievement in product engineering and design". Decorator panels are available in six beautiful colors. Basic unit color is charcoal with aluminum trim. Gracefully "lanced" intake grilles and extruded aluminum top discharge grilles help the unit efficiently "breathe" fresh-air atmosphere into the school classrooms.

utlive the school you put it in!

EVERY Herman Nelson Unit Ventilator is expertly designed from the inside out to provide accurate room-by-room thermal control *for the life of your new school building.*

Here are four of the many special Herman Nelson features which assure long, reliable unit ventilator service:

1 Single-unit welded frame construction

2 Corrosion-resistant "bath" for unit and damper frames

3 Special low-sound-level fan housing design

4 One-piece filter system

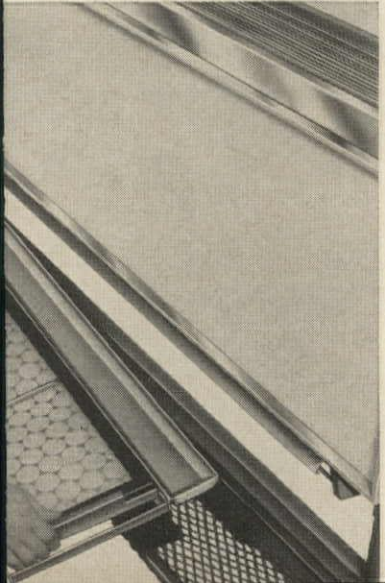
Consistent product improvements have led architects and school officials to expect the best *first* from Herman Nelson for over 50 years. Herman Nelson developed the *first* commercially successful unit ventilator, the *first* hot water heating element for unit ventilators, the *first* downdraft control system, and most recently, the *first* air conditioning unit ventilator.

Write for a free copy of the new full-color Herman Nelson Equipment Guide for Schools. Herman Nelson School Air Systems Division, American Air Filter Company, Inc., 259 Central Avenue, Louisville, Kentucky.

Herman Nelson AAF

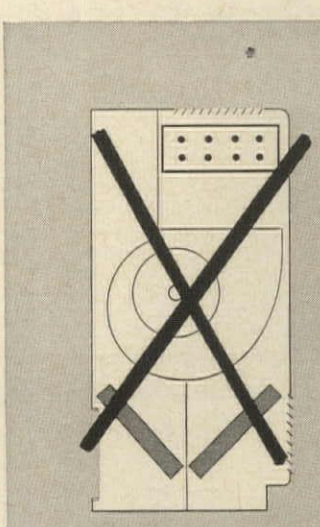
SCHOOL AIR SYSTEMS DIVISION

American Air Filter Company, Inc., Louisville, Kentucky

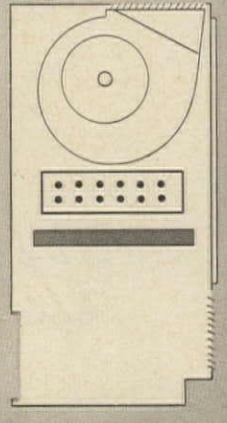


EFFICIENT ONE-PIECE FILTER SYSTEM

Herman Nelson's one-piece filter system permits the mixture of outdoor and room air to pass through the entire filter area at all times. This is important. Split filter systems "hide" the second filter which is often overlooked when time comes to change the filters. This damages filter efficiency by reducing full outdoor air delivery and restricting cooling capacity. Filters on Herman Nelson Unit Ventilators are easily accessible through lower front panel (see photo).



Less efficient split filter system



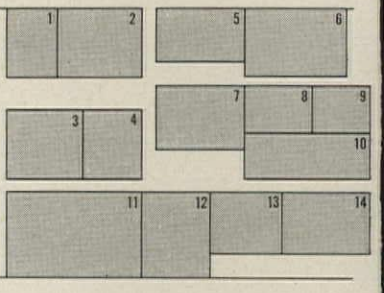
Herman Nelson's efficient one-piece filter system.

The Lighting Design: Problem, Program and Procedure

CREDITS

pages 150-151

a.



1. University of Pennsylvania, Philadelphia, Pa. Geddes, Brecher & Cunningham, Archts. Photo: P. E. Guerrero
2. Hilltop Elementary School, Wyoming, Ohio. Charles Burchard, A. M. Kinney Associates, Archts and Engrs. Photo: Joseph W. Molitor
3. Rich's Department Store, Lennox Shopping Center, Atlanta, Ga. Toombs, Amisano & Wells, Archts. Photo: Wallace Litwin
4. Zion Evangelistical and Reform Church, Milwaukee, Wis. William P. Wenzler, Archt. Photo: Big Cedar Studios
5. Synagogue for Temple Adath Israel, Merion, Pa. Pietro Belluschi, Charles Frederick Wise, Archts. Photo: Joseph W. Molitor
6. St. Paul's Lutheran Church, Melbourne, Fla. Victor Lundy, Archt. Photo: George Czerna
7. John Hancock Building, San Francisco, Calif. Skidmore, Owings & Merrill, Archts. Photo: Morley Baer
8. First Lutheran Church, Boston, Mass. Pietro Belluschi, Archt. Photo: Joseph W. Molitor
9. Fitchburg Library, Fitchburg, Mass. Carl Koch & Associates, Archt. Photo: Ezra Stoller
10. Warson Woods Elementary School, Webster Groves, Mo. Hellmuth, Obata & Kassabaum, Archts; Caudill, Rowlett & Scott, Associated Archts. Photo: Piaget Studio
11. Colorado Federal Savings & Loan Association Building, Denver, Colo. W. C. Muchow Associates, Archts.
12. Air Force Academy, Colorado Springs, Colo. Skidmore, Owings & Merrill, Archts. Photo: Stewart's
13. St. Edmunds Episcopal Church, Elm Grove, Wis. William P. Wenzler, Archt.
14. Park Synagogue, Cleveland, Ohio. Eric Mendelsohn, Archt. Photo: Courtesy General Electric Co.

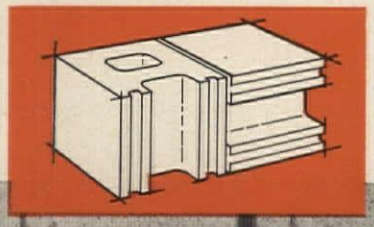
b. page 153

Alexander Memorial Coliseum, Atlanta, Ga. Aeck Associates, Archts. Photo: Courtesy Illuminating Engineering Society Journal

c. pages 154-160

Renderings: Gardner Ertman, Carl Koch & Associates; Drawings: Sigmund-Ward and William M. C. Lam

Great new things are shaping up in concrete block



Wall designed by Architect Alfred B. Parker, Miami. Photo courtesy of National Concrete Masonry Association.

Atlas Masonry Cement provides the right mortar

A notable thing about the new look in concrete masonry is what is being done with standard block. Here, for instance, a closed-lattice effect is achieved by laying up "stretcher" type concrete block, so that the ends are exposed. This basket-weave pattern creates an interesting exposed masonry wall resembling hand-hewn stone. For laying up this block, or any concrete masonry unit, ATLAS MASONRY CEMENT continues to be the preferred cementing material in mortar. It produces a smooth, workable mix, provides a strong bond, gives weathertight joints that are uniform in color. And ATLAS MASONRY CEMENT complies fully with ASTM and Federal Specifications. For information on masonry cement write: Universal Atlas, Dept. M, 100 Park Avenue, New York 17, N. Y.

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The Record Reports

On The Calendar

January

7-10 National Exposition and Convention, National Swimming Pool Institute—Dallas

9-12 White House Conference on Aging—Washington, D.C.

18-19 16th Annual Short Course in Residential Construction, University of Illinois Small Homes Council-Building Research Council—University of Illinois campus, Urbana, Ill.

23-26 12th annual Plant Maintenance and Engineering Show: theme: "Maintenance Operation Meets the Needs of Increased Production"—International Amphitheater and Palmer House, Chicago

24-27 17th Annual Technical Conference, Society of Plastics Engineers—Shoreham Hotel, Washington, D.C.

29ff Convention and Exposition, National Association of Home Builders: through Feb. 2—Convention Hall, Chicago

30ff 12th Biennial Concrete Industries Exposition, sponsored by National Concrete Masonry Association; through Feb. 2—Cobo Hall, Detroit

February

9-11 Fifth annual Home Improve-Show, sponsored by the Home Improvement Products Association—the Coliseum, New York

13-16 Semi-annual meeting, American Society of Heating, Refrigerating and Air-Conditioning Engineers—Chicago

20-23 57th Annual Convention, American Concrete Institute—Chase-Park Plaza Hotels, St. Louis, Mo.

March

5-8 Third Annual Lighting Exposition and World Lighting Forum, sponsored by Lighting, Lamps and Electrical Manufacturers Salesmen's Association, Inc.—the Coliseum, New York

continued on page 222

Here

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MORE THAN SKIN DEEP!

All 19 Hager finishes are PRE-finished at no extra cost to you!*

FIFTY MILLION POLISHING PARTICLES

produce Hager matchless mirror-like finishes!

Before a Hager contract grade butt hinge receives one of its 19 electroplated finishes or natural finishes, it must be *pre*-finished . . . *not once . . . but twice!* Millions of dry, then wet, polishing particles pre-finish the un-plated metal surface to mirror-like smoothness . . . readying it flawlessly to receive a plated or natural finish.

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Genuine Mo-Sai®

precast facing provides unequalled design flexibility for imaginative architects

Architects for the new Massachusetts Blue Cross-Blue Shield building in Boston used versatile Mo-Sai precast facing in several imaginative ways that combine function and beauty. Since Mo-Sai can be precast under precise factory controls in virtually any size and shape, *Mo-Sai fascia units* not only cover the bold exterior structural columns, but also house ducts for the high velocity hot and cold air system. The Mo-Sai built-in anchor straps were ramset to the concrete columns. *Mo-Sai spandrels and sills* were cast in varying "V" and inverted "V" shapes for design effect and sun control. It would have been very difficult for the architects to achieve the unique design effect of this building with any other material.

Massachusetts Blue Cross-Blue Shield Office Building, Boston, Massachusetts
Associated architects: Anderson, Beckwith & Haible and Paul Rudolph
General Contractor: George A. Fuller Co.

SWEET'S FILE 4d/Mos

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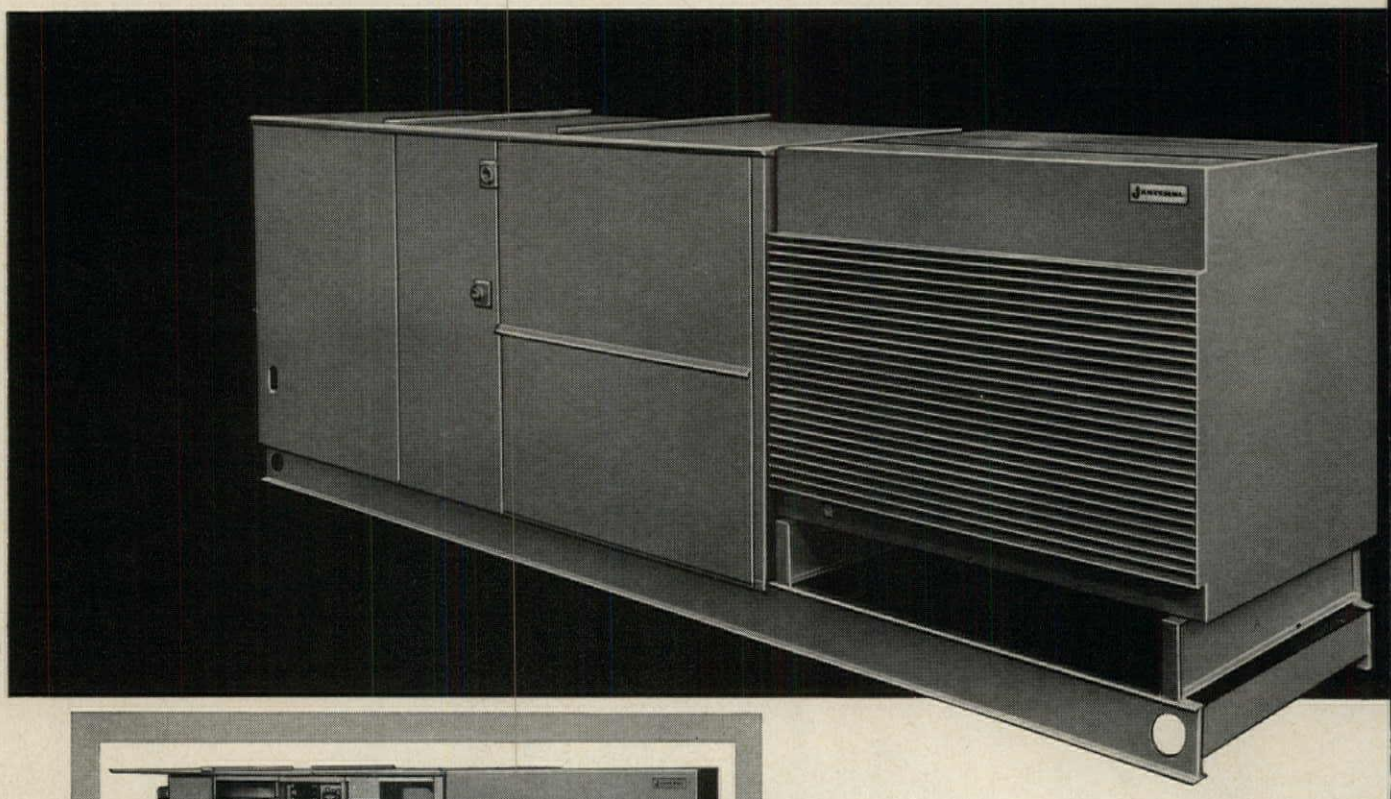
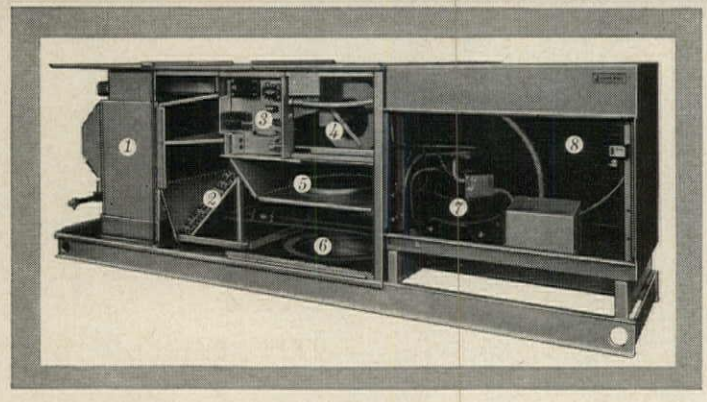
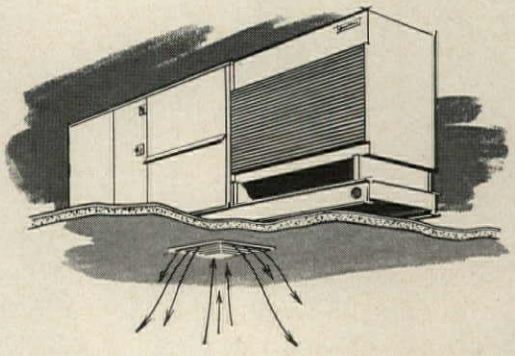
Photographs by: Joseph W. Molitor







SKYLINER FEATURES

1 **Armor-coated heating section**—gas-fired, two-pass, heavy-duty type, with all joints and surfaces coated, inside and out, with fire-fused A-19 corrosion resistant ceramic coating. A.G.A. approved.

2 **Cooling evaporator coil**—aluminum finned-copper tube type for peak performance. Located downstream of heating unit, adjacent to outlet.

3 **Factory-wired electrical panel**—standardized and tested to simplify installation and eliminate costly trouble-shooting.

4 **Permanently lubricated blower assembly** — heavy-duty, lube-packed, sealed ball bearings in blower and motor eliminate need for periodic lubrication service.

5 **Fresh air inlet**—provides for blending of filtered make-up air with return air. Adjustable up to ⅓ of total volume.

6 **Conditioned air outlet**—connects directly to a short, pre-insulated combination supply-return duct. There are no transmission losses.

7 **Quality Compressor**—operates up to 125°F. outside temperatures. Standard Tecumseh or Copeland, easily serviced or replaced in any section of the country.

8 **Oversize Condensing Coil**—the larger area dissipates more heat to provide greater cooling efficiency.

TECHNICAL INFORMATION SERVICE

Detailed information and product specification sheets on the Skyliner may be obtained from your local Janitrol representative or by writing the factory. There's no obligation, so why not bring your files up to date?

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NEW ROOF TOP HEATING-COOLING SYSTEM HAS BROAD COST & COMFORT ADVANTAGES *for single story buildings*

SKYLINER by JANITROL

DOESN'T USE INSIDE SPACE... ELIMINATES DUCT SYSTEM... ALLOWS REDUCTION IN BUILDING HEIGHT... INSTALLS *FAST* WITH LESS LABOR

Whether you should specify the Janitrol Skyliner depends on the job, of course. But if the budget is tight, and you're looking for ways to chop costs without penalizing quality, by all means consider the Skyliner.

Shipped completely factory assembled, tested and ready for installation on the roof, the Skyliner "package" provides *really* economical heating, cooling or year 'round conditioning. Conditioned air is circulated through a ceiling diffuser (located beneath the unit) in the conditioned area. No duct system is needed . . . total building height can be reduced. It has an unobtrusive, low silhouette . . . no stack is required . . . flue gas exhauster is furnished. And not a single cubic foot of usable inside space is used by the Skyliner system!

One or more Skyliner units may be used to provide a simple, efficient zone-controlled comfort system, with each Skyliner controlled by its individual thermostat. A wide range of capacities is offered to match the needs of each zone.

The Skyliner is completely enclosed in a weatherproof, insulated, aluminized steel cabinet. The unit has been operationally tested in 60 m.p.h. winds and for two hours at 12-inch/hr. rainfall. No water or sewage service, no refrigerant piping or charging and no complicated electrical wiring are required. All important factors in cutting costs and speeding up installation!

Here are Some Points to Remember about the Janitrol Skyliner

Multiple Unit Zone Control Type—You can have an individually sized and controlled unit for each occupancy area. Each unit operates only for its own zone, without standby or transmission losses. Multiple units assure continuity of service, since the shut down of a single unit for service or maintenance will not affect performance of other units.

Low Installed System Cost—A Skyliner packaged system offers substantial savings over a conventional site-fabricated central system by:

Elimination of equipment room.
Elimination of duct system.
Elimination of wiring, assembly, installation and checking of individual system components.
Elimination of water or sewage service.

Meets or exceeds national standards—All Skyliner units carry the certification seal for capacity and performance according to the rigid standards of the Air-Conditioning and Refrigeration Institute. Components are listed by Underwriters' Laboratory and the American Gas Association.

Leasing Plan to Save Capital Investment A complete Skyliner system can be leased on a long-term basis. Permits owners to keep their working capital working.

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A DIVISION OF MIDLAND-ROSS CORPORATION, COLUMBUS 16, OHIO
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The Record Reports

continued from page 217

Office Notes

Offices Opened

Architects Vernon D. Lamp, A.I.A., and Charles S. Broward, Jr., A.I.A., announce the formation of a new firm, Lamp-Broward & Associates, Architects, and the opening of their new office at 3434 West Flagler St., Miami.

New Firms, Firm Changes

R. William Clayton, Jr. announces the new firm of R. William Clayton, Jr., Architect and Engineers, at 9301 Northeast 6th Avenue, Miami Shores, Fla.

George T. Rockrise and William J. Watson, Architects A.I.A., announce the formation of the firm of Rockrise and Watson for the practice of architecture at 405 Sansome St., San Francisco 11, Calif. Associates are Robert C. Mountjoy, architect, and J. Matthew Myers.

Louis Gardner, A.I.A., formerly a partner of Turano-Gardner Associates which has been dissolved, will continue the practice of architecture at his offices at 65 East 55th Street, New York City.

De Leuw, Cather & Brill has moved its architectural-engineering offices to new and larger quarters at 220 Church Street, New York 13. The offices of Colonel Clinton B. F. Brill are now also at this new address.

The partnership of Schachtman & Velikonia has been expanded to include John M. Hogg, architect, A.I.A. The address of the firm of Schachtman, Velikonia & Hogg is 1020 Sonoma Blvd., Vallejo, Calif.

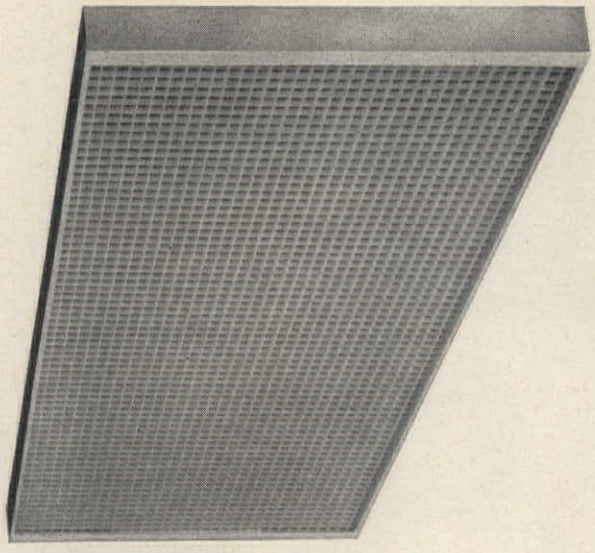
Celli-Flynn, Architects and Engineers of 335 Shaw Ave., McKeesport, Pa., announce the expansion of the partnership to include Mason H. Aldrich, A.I.A., as a partner and John W. Morgan II, P.E., as an associate.

Kurt Perlsee has joined Erwin Carl Schmidt and Leslie Black as partner in the new firm of Schmidt, Perlsee, & Black Architects. The address remains 9430 Manchester Rd., St. Louis 19, Mo.

Alex Bernstein has been appointed chief mechanical engineer with S. W. Brown, consulting engineers, 405 Lexington Ave., New York 17.

more news on page 226

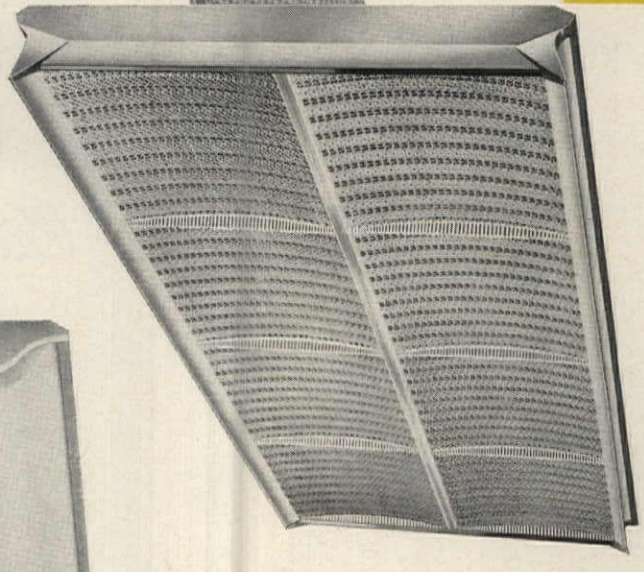
QPLM6500 for thin-lined architectural appeal.



QPCX7400 "Wrap-around" all-plastic enclosure.

QRH7500 (Sculpturama®) with all-curved styling.

QUICK CHANGE LIGHTING



QP8500 (Shallorama®) pioneer in shallow surface-mounted lighting.

In these days of expanding and shifting school districts a new degree of flexibility is needed to meet change head-on. Open plans, movable partitions, suspended ceilings and quick-change lighting are as fundamental to modern school construction as the alphabet is to language. Therefore, when you specify Sunbeam Lighting Visionaires® #6500, #7400, #7500 or #8500 you are automatically planning ahead. The diffusers to these versatile fixtures are all interchangeable. They give you a wide choice of 16 different lighting possibilities. The principal might select QP8500 (Shallorama®) because of its recessed look and wide light distribution, the teacher might select QRH7500 (Sculpturama®) for its sculptured look and its excellent low brightness control, and the schoolboard might select QPCX7400 ("Wrap-around") for its soft diffusion and low maintenance.

Investigate how Sunbeam Lighting today can save tomorrow!

SUNBEAM LIGHTING COMPANY

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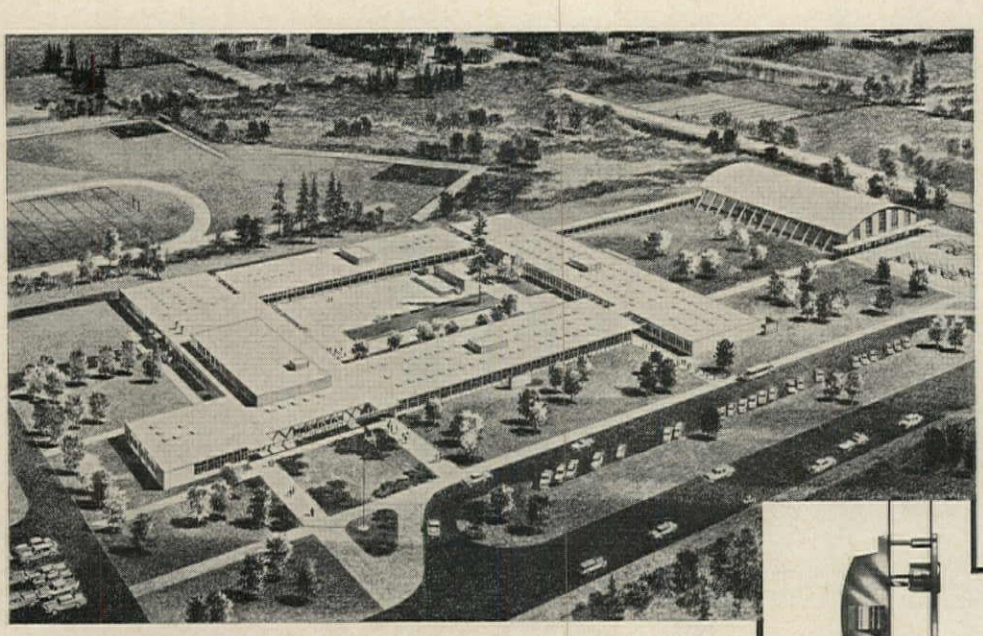

Sammamish High School

Belleview, Washington

Architects & Engineers:
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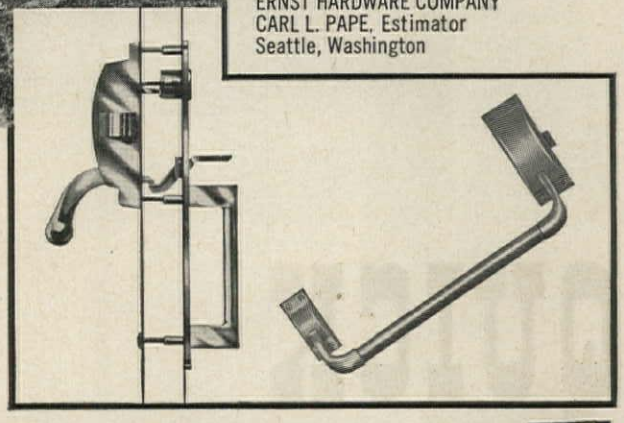
Seattle, Washington

General Contractors:
GEORGE E. TEUFEL CO.
Seattle, Washington

Hardware Supplier:
ERNST HARDWARE COMPANY
CARL L. PAPE, Estimator
Seattle, Washington



Sixty-one SG-5300 Series Exit Devices with Uni-Trim and mullions were selected by the Belleview, Washington, School District No. 405 for added security, less maintenance and assurance of safe exit.

UNI-TRIM EXIT DEVICES precisely align trim and lock, forming a co-ordinated unit providing rigid fastening of lock and trim. The clean, modern design of Uni-Trim presents a handsome appearance combined with strength and durability. The selection of superior hardware always complements superior buildings.

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Now on standard concrete block shapes . . .

1/8" THICK GLAZED FACES

in 44 Colors

With the perfection of new S-G glass silica sand forming a continuous surface, SPECTRA-GLAZE exceeds requirements of ASTM-C-126 for glazed surfaces. However, the glaze of SPECTRA-GLAZE units is more than just a surface. It's a full eighth-inch thick —the same all the way through. You can climb it, walk on it, even sandblast it without damage.

$ See SWEET'S CATALOG 4g/Bu for details or write for "Construction Details" and "Test Reports."

New 1961 *Spectra-Glaze**

Glazed concrete masonry units

* is a registered trademark for the product of The Burns & Russell Co.

THE BURNS & RUSSELL COMPANY, Box 6063, Baltimore 31, Maryland

Manufactured in 27 cities and distributed throughout the U.S., Canada and England

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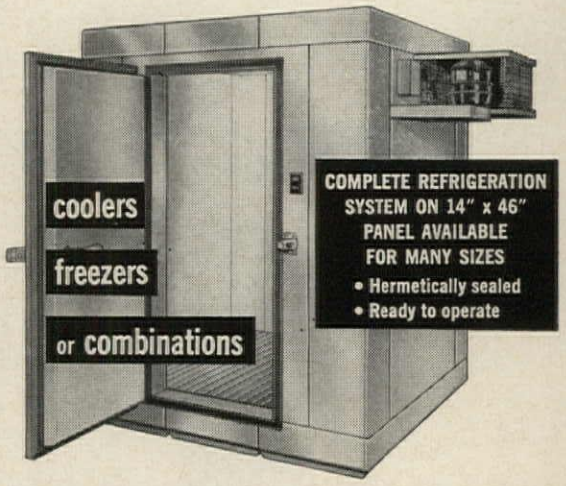
Bally walk-ins

Aluminum or steel sectional construction



Sanitary! Strong! Efficient! You can assemble any size cooler, freezer or combination in any shape from standard sections. Add sections to increase size as your requirements grow. Easy to disassemble for relocation.

ARCHITECTS: see 8 pages of engineering data in Sect. 26/A of Sweet's Catalog.

Bally Case and Cooler, Inc., Bally, Pa.

Get details—write Dept. AR-1 for FREE book.

Beauty COMES TO THE LAB SINK

GONE, the drab brown — the dull black.

Here, in ageless chemical porcelain, cool "surf-green," soft "mist-gray" and sparkling white.

All made from the one material which requires no corrosion guide — no warning sign "don't put sulphuric and chromic acids here" — for these incomparable porcelain laboratory sinks will handle any corrosive, weak or strong, hot or cold — and without time limit.

Match the beauty of your new lab with the beauty of these impervious sinks, as permanent as the building in which they are installed.

Contact your Laboratory Furniture Manufacturer or write direct for Bulletin L8-R.

Chemical Ceramics Division

U. S. STONEWARE
AKRON 9, OHIO

341-G

The Record Reports

continued from page 222

1961 Copper and Brass Awards Include Architecture Category

A special Architectural Award category is being featured this year by the Copper and Brass Research Association, national trade association of the U.S. brass mill industry, in the 1961 Copper and Brass Achievement Awards.

The award will honor the year's outstanding design or concept advancing the use or application of copper, brass, bronze, or other copper-base alloys in building construction. First prize winner will receive $500 and a bronze trophy to be presented at the Association's annual meeting in May at Hot Springs, Va.

Entries may include architectural designs (commercial, residential, or other), a concept for the application of materials, engineering designs or concepts, or other creative uses of copper in building design and construction.

Judges for the 1961 awards are: Joseph F. Hobbins, advertising manager, The Anaconda Company; Glenn P. Bakken, president, Copper & Brass Research Association; T. E. Veltfort, managing director Copper & Brass Research Association; Alvin W. Knoerr, Editor, *Engineering & Mining Journal;* and Archer W. P. Trench, publisher, *American Metal Market.*

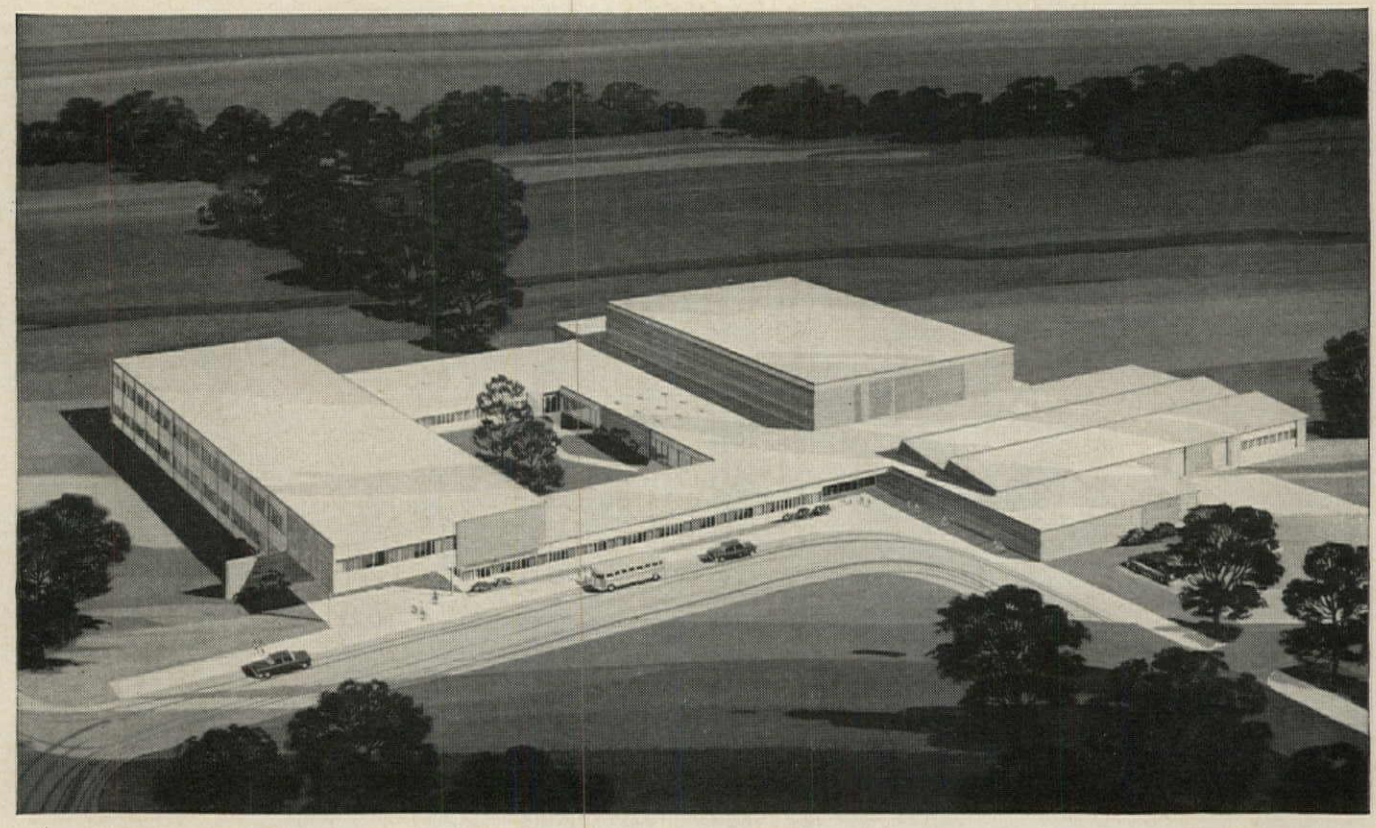
Nominations must be submitted before March 31, 1961. Entry forms and information may be had from the Copper and Brass Research Association, 420 Lexington Ave., New York 17, N. Y.

Four Architects Join Illinois Architectural Faculty

Four architects have joined the University of Illinois architectural faculty. Stephen Tang of Park Forest, Ill., project engineer with Skidmore, Owings & Merrill, Chicago, has been named associate professor of architectural engineering.

The three assistant professors in architectural design are Jacques Collin, Paris, France; Norman D. Day, Salt Lake City; and William Eng, Birmingham, Mich.

more news on page 230



In the new Batavia Senior High School, Batavia, New York...

NEW CARRIER HEATING AND VENTILATING SYSTEM PROVIDES 9 MAJOR ADVANTAGES YET COSTS LESS

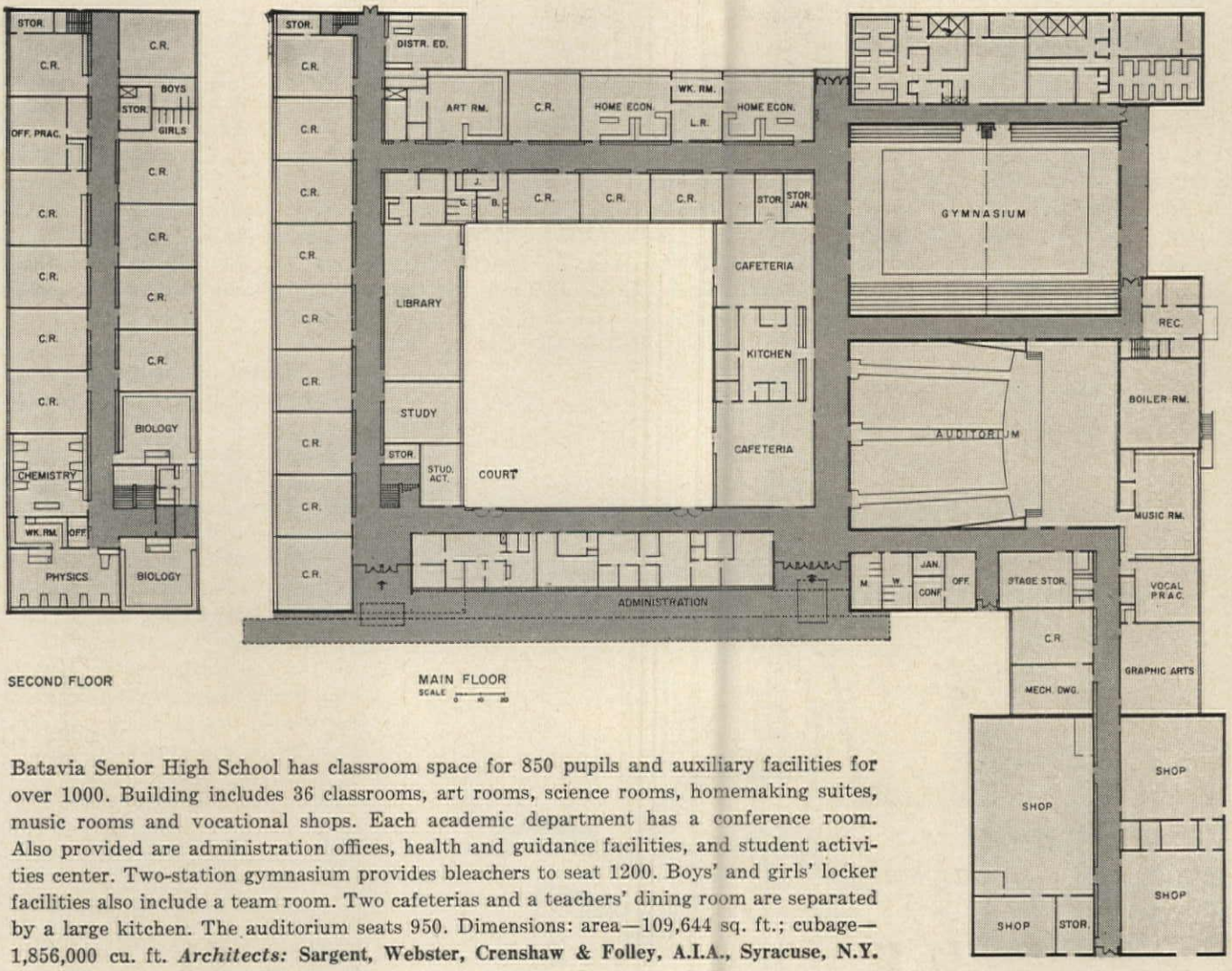
This modern high school offers an excellent example of how any new school can enjoy a superior heating and ventilating system at less than the cost of ordinary unit ventilators. And this new kind of system is ready for immediate conversion to year-round air conditioning with the simple addition of packaged refrigeration equipment in the machine room.

In planning Batavia Senior High, the architects considered unit ventilators and several popular central station systems. They carefully compared the performance characteristics, maintenance requirements, first cost and operating cost of each method. Their conclusion: The new Carrier 37E All-Air Weathermaster* System provides the highest quality automatic heating and ventilation currently available to schools. It is the easiest to convert to complete year-round air conditioning. It costs 10% less, installed, than the next best method. And it costs less to operate and to maintain than other automatic systems.

The nine important advantages of the 37E Weathermaster System which led to these conclusions are listed on the opposite page. They are unique because Carrier 37E units are the only room terminals which combine the performance benefits of the induction principle with either high or low velocity air distribution and the superiorities inherent in all central station systems.

If you are designing a new school, it should be well worth your while to look into the Carrier 37E All-Air Weathermaster System—either for heating and ventilation only, or with an eye to future air conditioning. The nearby Carrier office will be glad to give you complete facts on this advanced system. Or you may write to Carrier Air Conditioning Company, Syracuse 1, New York.

*Reg. U.S. Pat. Off.



Batavia Senior High School has classroom space for 850 pupils and auxiliary facilities for over 1000. Building includes 36 classrooms, art rooms, science rooms, homemaking suites, music rooms and vocational shops. Each academic department has a conference room. Also provided are administration offices, health and guidance facilities, and student activities center. Two-station gymnasium provides bleachers to seat 1200. Boys' and girls' locker facilities also include a team room. Two cafeterias and a teachers' dining room are separated by a large kitchen. The auditorium seats 950. Dimensions: area—109,644 sq. ft.; cubage—1,856,000 cu. ft. *Architects:* **Sargent, Webster, Crenshaw & Folley, A.I.A., Syracuse, N.Y.**

continued from page 226

26 Texas Architects Lecture at University of Texas

Twenty-six leading Texas architects will serve as special lecturers in the University of Texas School of Architecture during 1961. They will participate in departmental critiques and serve on juries studying student projects during their one-day visits.

Houston architects scheduled to participate are Howard Barnstone, Donald Barthelme, Albert S. Golemon, Karl F. Kamrath, Charles E. Lawrence, Walter T. Rolfe and Harwood Taylor.

Austin architects visiting in the department will be R. Max Brooks, David C. Graeber, Harold E. Jessen, Don Edward Legge, George M. Page, Claude M. Pendley and Victor G. Probst.

Dallas architects to participate are J. H. Fisher, Howard R. Meyer, Enslie O. Oglesby Jr., William M. Pena, James Reece Pratt and Downing A. Thomas.

Other architects will include: Richard S. Colley, Corpus Christi; O'Neil Ford and Reginald H. Roberts, San Antonio; Robert D. Garland Jr., El Paso; and Alan Y. Taniguchi and John G. York, Harlingen.

$2400 Grant-in-Aid Available To Ohio State Graduate Student

The J. C. Nichols Foundation of the Urban Land Institute, Washington, D.C., will award a $2400 grant-in-aid to a graduate student in the field of urban planning attending Ohio State University during the 1961-1962 academic year.

Established in memory of Mr. Nichols, an authority in city planning and community development in the United States, the grant aims at stimulating research on the problems of the urban environment.

Any person eligible for admission or presently enrolled in Ohio State's graduate school will be considered for the award. The winner will be expected to carry on a program of research while working toward an advanced degree.

Chairman of the Ohio State faculty committee named to select the award recipient is Israel Stollman, associate professor of city and regional planning. Other members are Dr. John T. Bonner, associate professor in the department of business organization; Dr. Henry L. Hunker, associate professor in the department of geography; Dr. Christen T. Jonassen, associate professor in the department of sociology and anthropology; Dr. Edward Q. Moulton, associate professor of civil engineering and assistant dean of the Graduate School; and Elliot L. Whitaker, director of the School of Architecture and Landscape Architecture.

Application for the award should be made by letter to Professor Stollman, 190 W. 17th Ave., Columbus 10, Ohio. Due by April 15, 1961, applications should be accompanied by a transcript of record, statements of experience and qualifications for research, three letters of recommendation and a brief description of the research proposal.

more news on page 232

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Vienna

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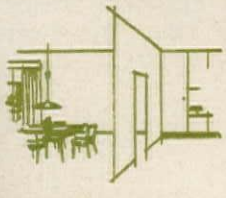

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Vicrtex Wallcoverings conforming to U/L specifications now available on request.

The Record Reports

continued from page 230

Fritz Award Goes to Bechtel

One of the engineering profession's top awards, the John Fritz Medal, was presented to Stephen D. Bechtel, president of Bechtel Corporation, San Francisco, at the October convention of the American Society of Civil Engineers.

The gold medal award, established in 1902, is made annually for notable scientific or industrial achievement in the engineering profession.

This year was one of the few times the award has been given to a man whose principal professional interest has been in construction engineering.

The award is sponsored by A.S.C.E., of which Mr. Bechtel is a Fellow, the American Institute of Mining Engineers, the American Society of Mechanical Engineers, American Institute of Electrical Engineers and the American Institute of Chemical Engineers.

The citation read: "Engineer, builder, industrialist and leader of broad vision in large construction undertakings, nationally and internationally—a pioneer in the creation and development of the modern construction industry, which is unequalled throughout the world and which has made possible the preeminence of our country in time of war and in time of peace."

First Urban Renewal Award for Mpls. Given Stolte

The first annual award for Minneapolis urban renewal and redevelopment was given S. L. Stolte, St. Paul, Minnesota architect, engineer, and chairman of the Minneapolis Housing and Redevelopment Authority for the past eight years.

The award was sponsored by the Minneapolis Area Chamber of Commerce in cooperation with the Sperry and Hutchinson Company. The board of judges was composed of Mayor P. Kenneth Peterson; E. W. Boyer, Chamber of Commerce president; Downtown Council president Henry T. Rutledge; and Dr. Bernhard Christenson, president of Augsburg College.

more news on page 234

New 55° LIGHT SHIELDING LOUVERS
MAKE THE DIFFERENCE
in future lighting standards—available today!

IBM DATACENTER — CHICAGO, ILLINOIS

American's New 55° deep-cell styrene louver diffusers installed in IBM DATACENTER, CHICAGO, ILLINOIS — The deep-cell ½" high louvers provide better shielding from the light source, with optimum efficiency — higher lighting levels with exceptional unexcelled glare-free low brightness, comfort and appearance. The 55° angle shielding of uniform light distribution is the proven louver for today's and tomorrow's recommended higher lighting levels.

Louvers available in translucent white and a wide range of colors for use in individual fixtures, modular units and large areas of illumination. They may be cut, grooved or sized to meet the Architect, Designer or Fixture Manufacturers' most exacting requirements. Cell size $^{25}/_{64}$" x $^{25}/_{64}$" x ½" high.

Exclusive process by American Louver Company

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Canadian Patent No. 484,346
U.S.A. Patent No. 2,607,455
Canadian Patent No. 497,047

Engineers are available in your area to help with your lighting problems — or write American Louver Company direct: Consultants to the lighting industry since 1939.

american louver company

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continued from page 232

Elections

The Southwest Washington Chapter of the American Institute of Architects has elected the following officers for the 1960-61 year: president, John E. McGuire; vice president, Louis M. Pederson; secretary, G. Burleigh Krona; treasurer, Arthur Forbes; and trustees, Robert T. Olson and Warren A. Brown.

New officers of the Building Research Institute are: Harold L. Humes, vice president of Baldwin-Ehret-Hill Company, Trenton, N. J., president; Robert W. Cutler, F.A.I.A., of Skidmore, Owings & Merrill, New York, vice president; Graham J. Morgan, president, U.S. Gypsum Company, Chicago, vice president; Peter B. Gordon, vice president, Wolff & Munier, Inc., New York, vice president. Serving on the BRI Board of Governors are: Jack E. Gaston; Grayson Gill, T. F. Olt, Howard C. Hardy, and Walter Sanders. The chairmen of the various BRI Standing Committees are Leon Chatelain Jr., Robert W. Cutler, Professor Glenn H. Beyer, Peter B. Gordon, H. E. B. Anderson, and Jack E. Gaston.

Glenn W. Holcomb, head of the department of Civil Engineering at Oregon State College, is president of the American Society of Civil Engineers for 1961. Vice presidents are: Donald H. Mattern, Knoxville, Tenn.; and William J. Hedley, St. Louis, Mo.

Cleveland Architect Conducts Research Project In France

Michael M. Kane, A.I.A., of Cleveland is currently conducting research in France on a project titled "An Analysis of the Intracultural Influence of City and Planning and Architecture Under the U.S.A. Construction Program Completed in France since World War II." He has the cooperation of the French section of the Union Internationale des Architects and of the French Ministry of Education.

Ten Graduate Fellowships At University of Pennsylvania

Ten graduate fellowships in Architecture, Landscape Architecture, City Planning and Fine Arts for 1961-1962 are available to students in these professional programs at the University of Pennsylvania.

The fellowships are: $1000 Paul Philippe Cret Fellowship; $1100 Albert Kahn Memorial Fellowship; Ellen L. Matlock Fellowship of $1200; $1600 Theophilus Parsons Chandler Fellowships; $1200 G. Howard Perkins Fellowship; $1000 Alumni Fellowships in Architecture; $1000 to $1600 University Scholarships; $1700 to $2200 Graduate Assistantships; $1000 to $2100 Research Fellowships in City Planning; and University of Pennsylvania Foreign Scholarships, available to students recommended by the Institute for International Education, which provide for free tuition, free room, and a stipend of $500.

Applications must be received by March 1, 1961.

For information, write to the Dean, the School of Fine Arts, University of Pennsylvania, Philadelphia 4, Pa.

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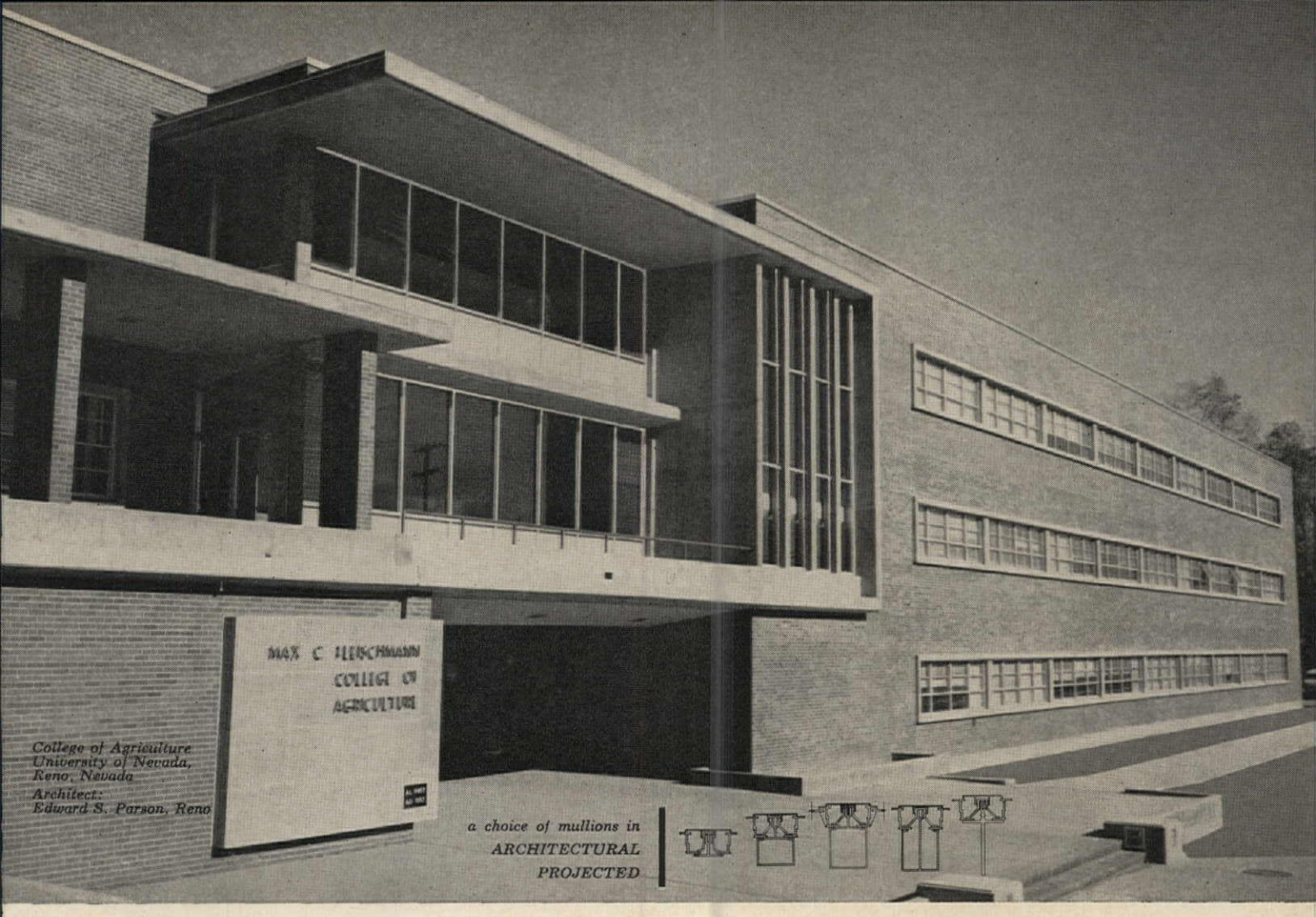


College of Agriculture
University of Nevada,
Reno, Nevada
Architect:
Edward S. Parson, Reno

a choice of mullions in
ARCHITECTURAL
PROJECTED

superlative effects

...with standard window systems from MARMET

A surprising versatility in MARMET standard window systems gives you full freedom of design . . . even when planning closely budgeted jobs. In MARMET's standard Architectural Projected system (so ably employed by Edward S. Parson to accent the masonry in the College of Agriculture above), a choice of vertical mulls available in two series, permits a variety of face treatment in the design. In achieving the total effect planned by the architect, the choice of mulls is complemented by a choice of either thick or slimline extrusions, producing varying shadow patterns across the building's face.

MARMET AP's are made in many fixed lite arrangements with outward projected, hopper or casement type sash. Windows in the 5142 series are 1½" in depth and 2⅛" in depth in the 5212 series. Tubular sash is available in either series for ventilating lites where window design requires large expanses of glass. In AP's or in Curtain Wall, the flexibility of MARMET window systems gives you monumental treatment at standard engineered systems' cost. For superlative effects on your next job . . . *specify* MARMET.

North Junior High School,
Moorhead, Minn.

Architect:
Foss & Company,
Moorhead, Minn.

Series 6442 Curtain Wall

The 6442 series permits doors to be hung right in the curtain wall section without special framing. Operating windows are built into the grid sections at the factory . . . saving the cost of installing and "plumbing" at the job site.

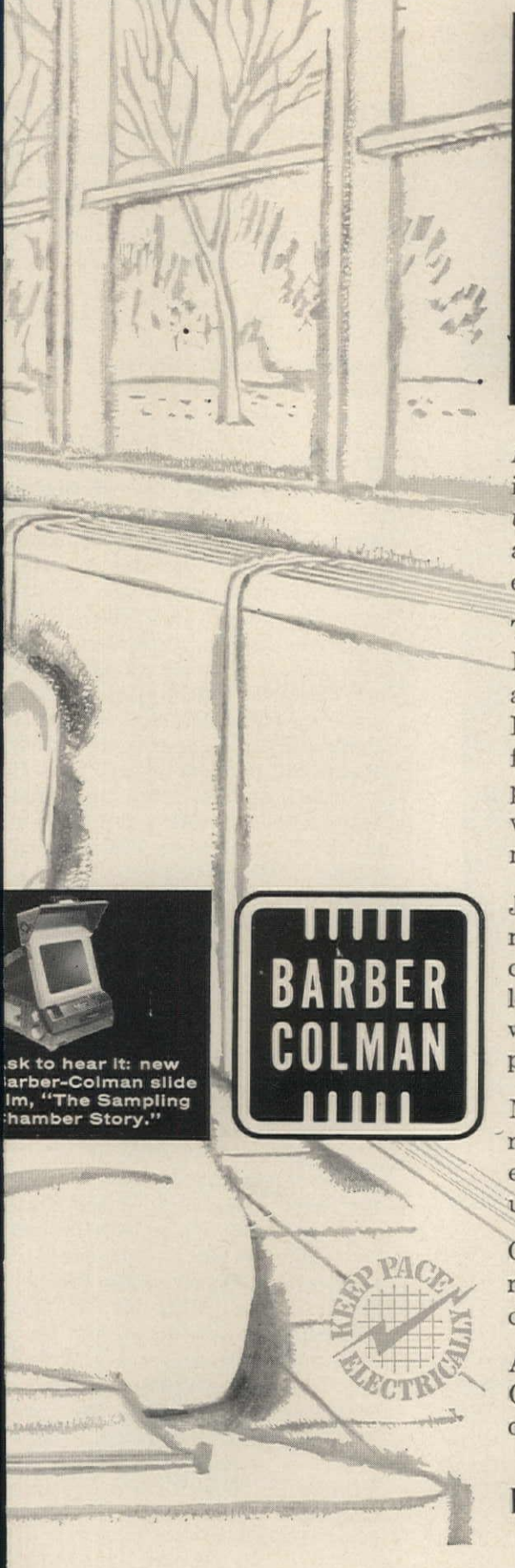
NO LINTELS - NO JAMBS

A gridwall system which lends strong accents to horizontal building lines. Mating sections, pre-assembled at the factory, simply mate as they are anchored to the building . . . cutting labor erection costs on the job site.

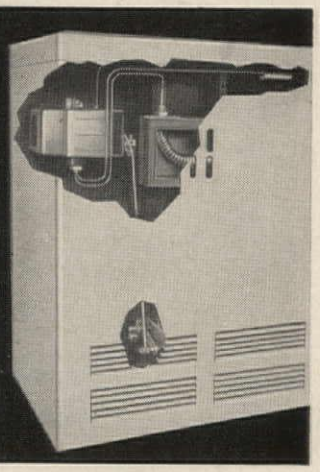
For additional information on the complete line of MARMET products—consult Sweet's Catalog File No. 3a or write to MARMET for catalog. Mar

MARMET CORPORATION
300 E. Bellis Street, Wausau, Wisconsin

"student-level" thermostats



Barber-Colman has taken the thermostat off the wall and placed it inside the unit ventilator



All elements of Barber-Colman automatic controls — including the thermostat — are mounted *inside the unit ventilator enclosure.* Classroom air is constantly sampled at the level of the seated students to provide continuous, even "atmospheres" for learning.

The need for a wall-mounted thermostat is eliminated. No additional runs of piping or wiring are required — as a result, installation costs are substantially reduced. Equally important, improved control accuracy results from use of the "dual-element" aspirated thermostat principle — so reliable it is used in technical laboratories where the most dependable temperature control is demanded for exacting research work.

Just like the school's system of fire protection or automatic clock programing, Barber-Colman unit ventilator controls are electrically/electronically operated for tireless dependability that can't forget — can't be tampered with. They use the same convenient electric energy that powers the unit ventilator.

Maintenance is virtually eliminated. Barber-Colman thermostats, conveniently located inside the unit ventilator enclosure, have no moving parts to wear out — they're unaffected by chalk dust and dirt.

Of course Barber-Colman automatic controls permit manual adjustment by authorized persons whenever a change in controlled room temperature is desired.

Ask for your copy of "Adequate Control for Schools." Call your Barber-Colman Automatic Control field office, or write today.

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lm, "The Sampling
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KEEP PACE ELECTRICALLY

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continued from page 234

AEC Aids Study of Nuclear Engineering Education

September saw the beginning of a trail-blazing study on the education of the nation's nuclear engineers under a grant made by the Atomic Energy Commission. Sponsored jointly by the American Society for Engineering Education and the American Nuclear Society, a committee of 30 nuclear engineering experts from educational institutions, industry and government research groups will take a close look at this educational offspring of the nuclear age, where it stands, and the direction it should go.

In announcing the AEC grant, Dr. Glenn Murphy, head of the department of Theoretical and Applied Mechanics at Iowa State University, chairman of the study committee, said, "There has been enough experience in nuclear engineering in the United States now for us to profit by a study of the philosophies underlying programs and objects. Proceeding from the excellent programs that have been developed, the Committee will endeavor to establish guideposts for the use of universities in the future."

The group, whose official name is the Committee on Objective Criteria for Nuclear Engineering Education, will spend a year in the study. Its work will be to some extent patterned after the influential work in 1955 of the A.S.E.E. committee on the Evaluation of Engineering Education.

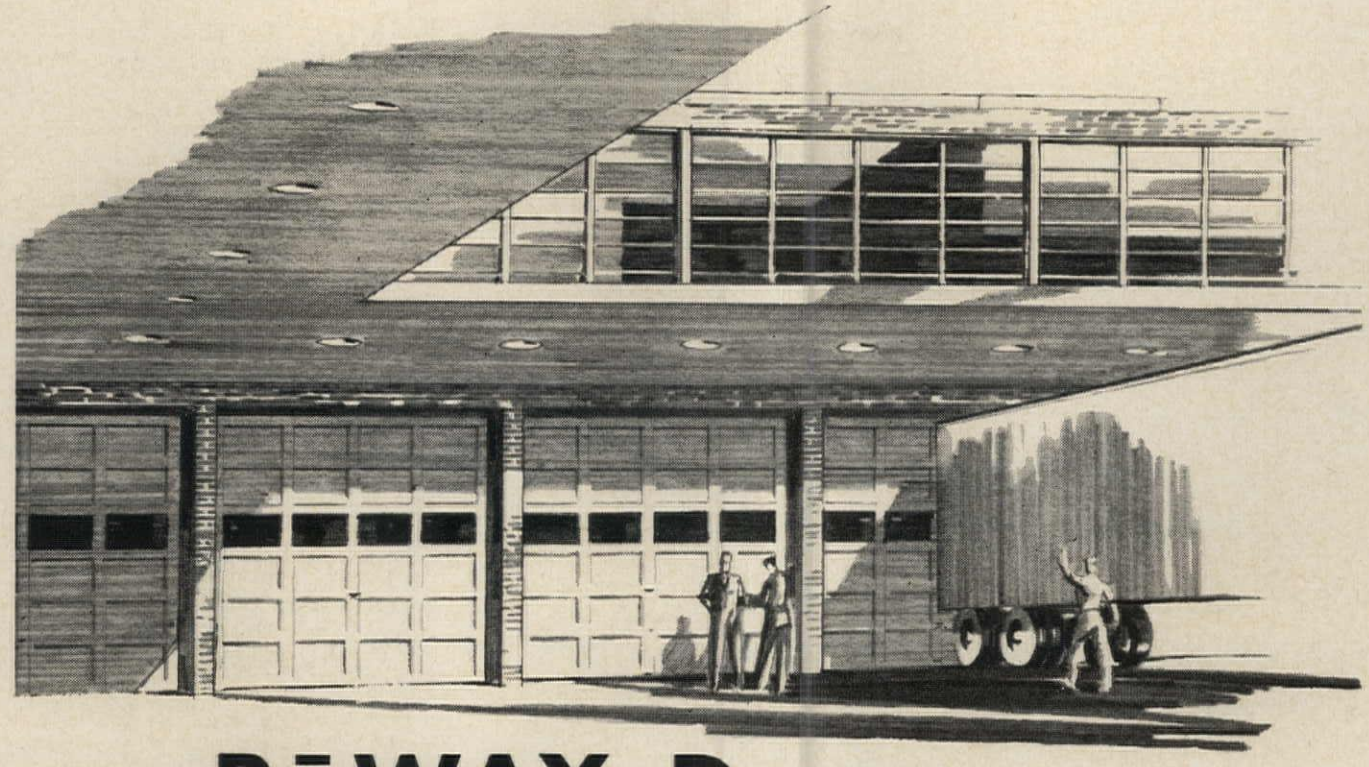
Appointments Announced to Three New USPHS Posts

U. S. Surgeon-General Leroy E. Burney announced appointments to three newly created Public Health Service positions. All were effective November 1. Dr. James M. Hundley now is fourth in command in PHS. He will serve directly under the assistant Surgeon General with specific responsibilities in the areas of field relationships with the regional medical directors. Harry Hanson was named associate chief of the Service's Bureau of State Services, with rank of assistant Surgeon General. He will function in the area of environmental health activities. (He is also director of the PHS Sanitary Engineering Center in Cincinnati.)

Dr. Aaron W. Christensen was appointed to the second new associate chief position in the Bureau of State Services, with rank of assistant Surgeon General. He will be concerned with community health services.

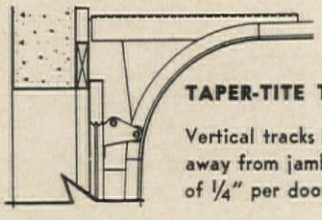
Slauer Heads Illuminating Engineering Society

At the recent annual conference of the Illuminating Engineering Society, Richard G. Slauer was elected president. Mr. Slauer is manager of engineering for Sylvania Electric Products, Inc., Wheeling, W. Va. Other national officers elected were G. Franklin Dean, Toronto Hydro-Electric System, Toronto, vice president; J. Dixon Mitchell, Westinghouse Electric Corporation, Chamblee, Ga., general secretary; and William P. Lowell Jr., Sylvania Lighting Products Inc., Salem, Mass., treasurer.



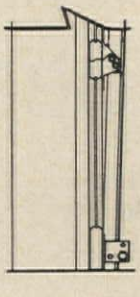
RōWAY Doors

COMBINE DESIGN BEAUTY WITH WEATHERTIGHT CONVENIENCE



TAPER-TITE TRACK

Vertical tracks taper away from jambs at a pitch of 1/4" per door section.



SEAL-A-MATIC HINGES

Seal-A-Matic hinges of graduated height guide the closing door firmly against jambs and — for opening — free the door from jambs for easy, frictionless lifting operation.

Your commercial and industrial clients gain important advantages when you specify RoWay Overhead Commercial Doors.

First, the modern, trim design of RoWay Doors adapts handsomely to any contemporary building. Lasting good appearance is assured by Masonite Dorlux panels guaranteed for the life of the door. Second, these fine doors are completely weathertight to seal out snow, rain and dust. BECAUSE ROWAY DOORS ARE COMPLETELY FABRICATED IN ONE PLANT, you're assured of strict quality control in the manufacture of all components. All-under-one-roof fabrication also makes possible "power-metered" springs which are custom-wound according to the exact weight of each door. For your next job, work with client-pleasing RoWay Doors.

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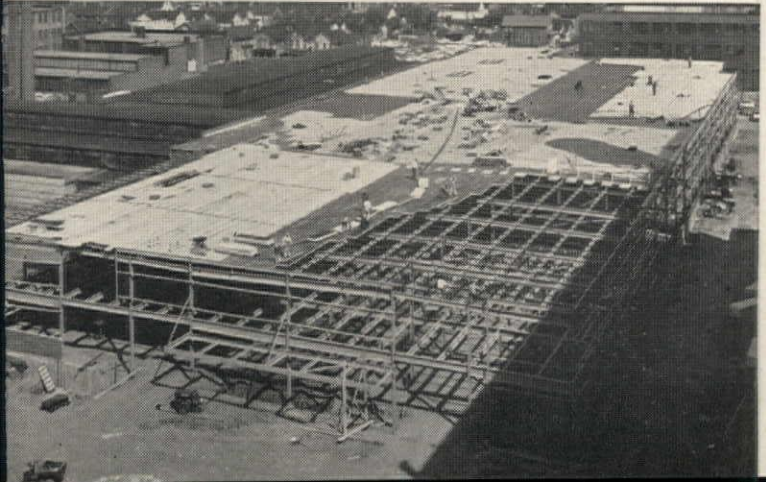
Harrison & Abramovitz & Harris, Architects, wanted the durability of stainless steel. This material resists corrosion, scuffs, scratches, and dents. It will not bleed or discolor with age.

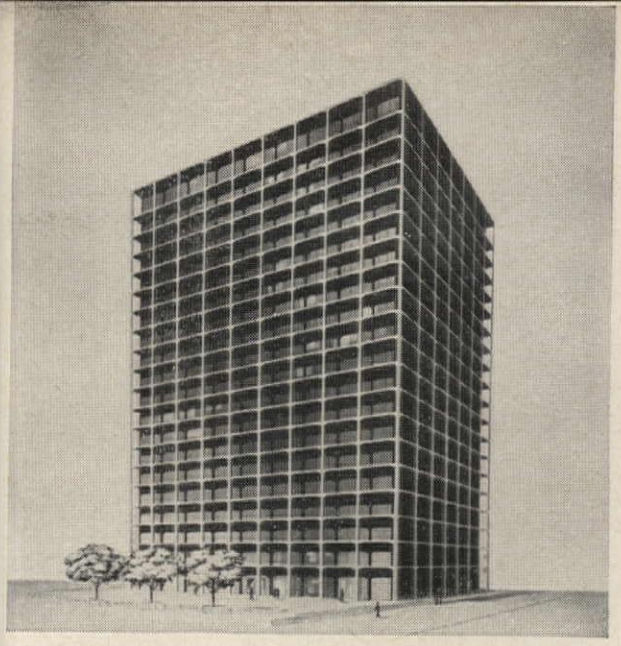
They also wanted the cleanability of stainless. Hard, nonporous surfaces stay cleaner longer. *Hard, nonporous* surfaces wash bright as new with simple soap and water cleaning.

For complete information on stainless steel for architectural applications, contact your nearest Republic representative or mail the coupon. Or, check Sweet's Architectural Catalog File, Section 6c/Re.

GENERAL BRONZE CORPORATION fabricated more than 20 tons of Republic Stainless Steel (Type 302 with a 2B finish) for wall- and column-panels, entrance ways, elevator doors, and other applications. Time & Life Building, Rockfeller Center, New York 20, New York.

CLEVELAND, OHIO: Republic High Strength Bolts were used to advantage in the construction of the new Bobbie Brooks, Inc., warehouse. Two-man crews installed the bolts quickly and easily on the 80-foot, double-pitched main trusses. Erection schedules are easily met or even shortened with Republic High Strength Bolts. Send for illustrated folder.





CHICAGO, ILLINOIS: Republic Steel Pipe was specified for complete domestic water, gas, and steam distribution systems in the new Hartford Building (to be occupied in part as Western Department Headquarters of Hartford Fire Insurance Company Group). Use of steel pipe—black and galvanized—saved thousands of dollars.

MONTERREY, MEXICO: architects utilized Republic's Truscon VISION-VENT® Window Wall System for the new "Edificio Banco Popular" (Popular Bank Building). Use of this advanced system netted the immediate economies of mass-production, fast erection, design flexibility, and 5% gain in usable floor space (made possible by insulated panels less than 1½" thick).

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Letters

continued from page 10

York in a couple of weeks and I will look you up.

Richard R. Bradshaw
Structural Engineer
Van Nuys, Calif.

WRIGHT AND IANNELLI

My experience has acquainted me with the problems that beset an editor and I am sending this letter, requesting suitable redress, for Alfonso Iannelli with a feeling that my purpose will have your sympathy and with my regret that it is necessary to trouble you about the matter.

The matter that calls for redress is contained in the incorrect captions accompanying the pictures of Midway Garden sculpture in your October issue, which in one instance lists the "Sprites" as having been designed by "Wright" and "Cast in plaster by Alfonso Iannelli" and in another, the sculptured cement terminals on the garden piers, as "by Alfonso Iannelli, executed from designs by Wright."

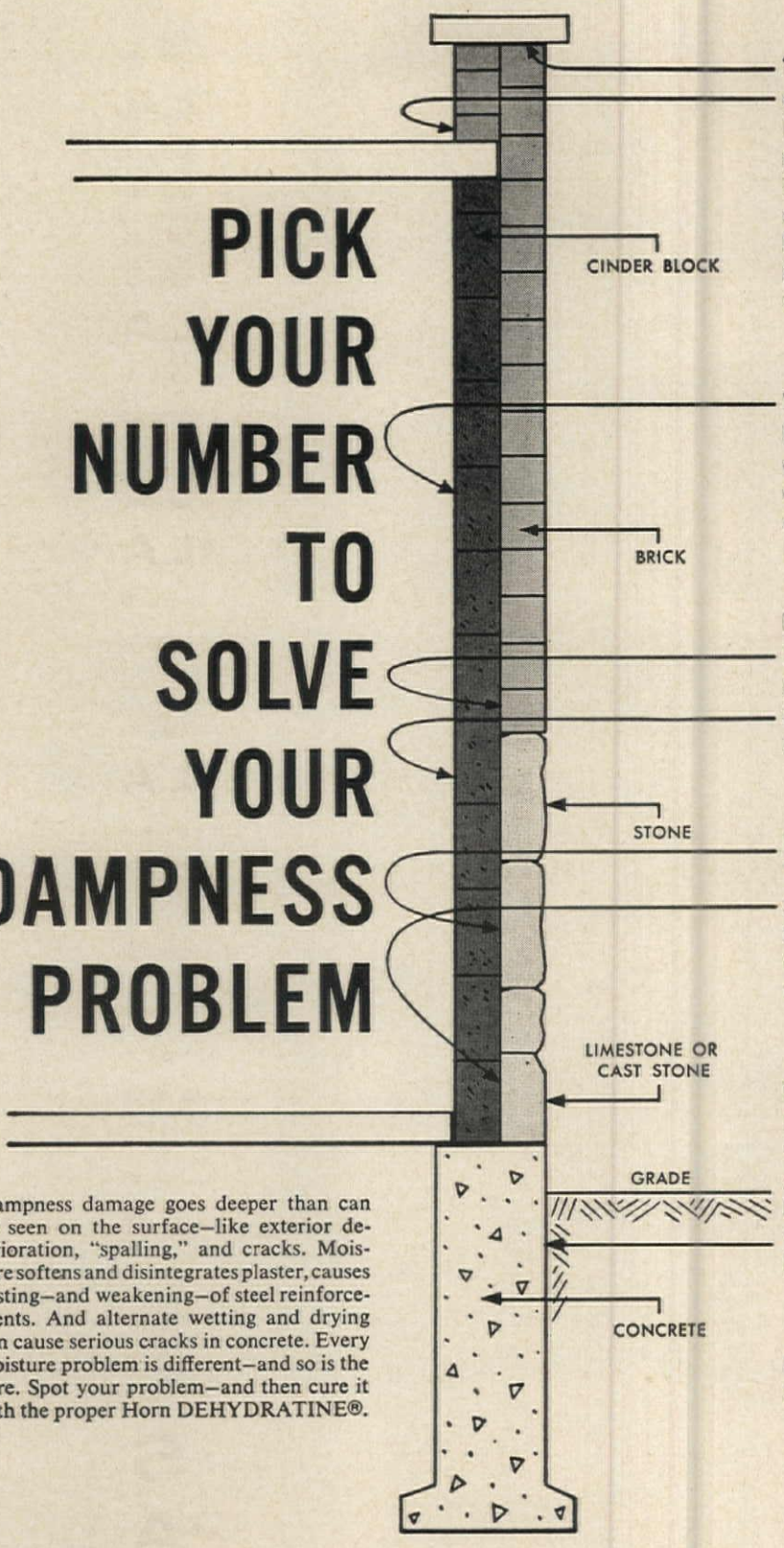
These statements do not agree with the substantiated facts and I hope for your sympathetic understanding of the need for justice in the case of a devoted, creative artist like Mr. Iannelli. If these captions are to be accepted as true to the facts he is reduced in reputation from his rightful status of an able, creative artist, to that of a mechanic. In my view, which, considering my oft repeated regard for my former master may be taken as impersonal, such injustice and falsification should not be tolerated.

I would be as eager to defend Mr. Wright, as may sometime be necessary, if an eager-beaver of an art historian undertakes to wade through the large unpublished manuscript of Marion Mahony Griffon, on file at the Congressional Library and the Burnham Library as well as the Library of the New York Historical Society, which I am reliably informed ridiculously and falsely indicts the master as an archplagiarist. Such historian will then conclude that cutting Frank Lloyd

continued on page 246

SEE PAGES 30 & 31!

PICK YOUR NUMBER TO SOLVE YOUR DAMPNESS PROBLEM



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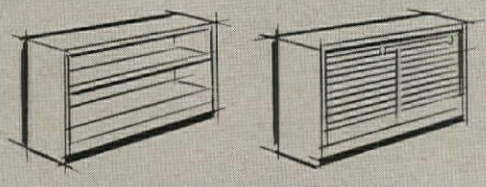

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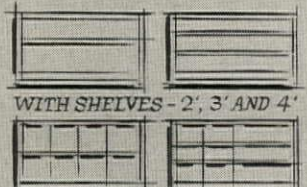

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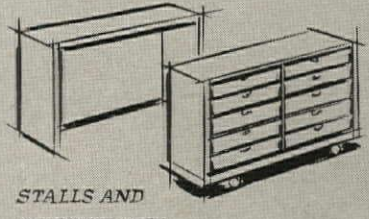

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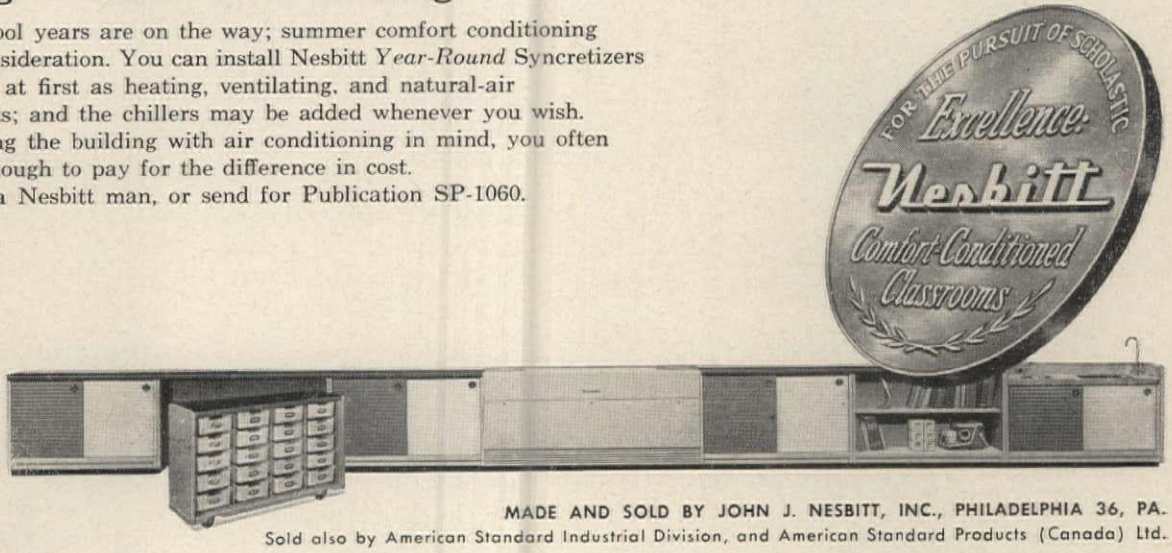

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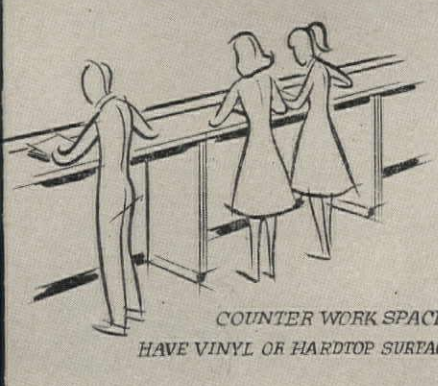
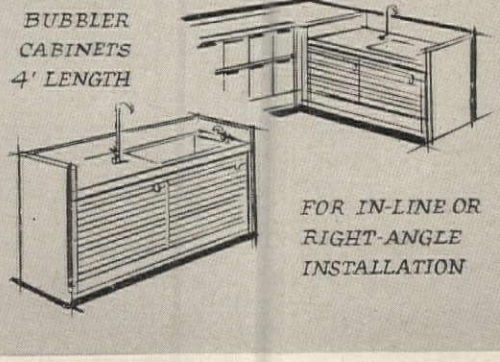
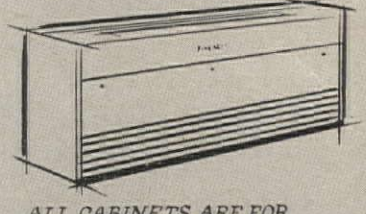


COUNTER WORK SPACES HAVE VINYL OR HARDTOP SURFACE

SINK AND BUBBLER CABINETS 4' LENGTH



FOR IN-LINE OR RIGHT-ANGLE INSTALLATION



ALL CABINETS ARE FOR INTEGRATION WITH THE NESBITT UNIT VENTILATOR OR AIR CONDITIONER

Letters

continued from page 242

Wright down to size will command a new and wide audience. I think you will agree with me that, in the case of an over-adulated personage like Mr. Wright, the reversal of attitude is inevitable and that an equivalent falsity must mark both extremes. With full recollection of my seven years of work under him, I say the truth about Wright amply suffices to testify to his greatness as an architect. His personal and intellectual limitations and superman foibles were apart from his work.

As to the Iannelli credits; photographs of the Midway Garden, and sculpture were first published in the now defunct Studio, in 1914. The captions accompanying the sculpture were then much the same as those used in the October RECORD. Mr. Iannelli, who had returned to Los Angeles, from Chicago wrote in protest to Mr. Wright and there was an exchange of letters between them.

Referring to copies of this correspondence I find that Mr. Iannelli's first letter, and complaint, bears the date of May 21, 1915 and Mr. Wright's final letter to Iannelli was dated May 26, 1915. In this concluding letter Wright states, anent published, disputed credits; "I think that Wright-Architect, Iannelli-Sculptor, is nearest to a solution. I should have put it so, were it left to me." This was evidently in full accord with Wright's belief and purpose as the printed folder of his exhibition of Midway Gardens photographs, held with the Chicago Architectural Club Exhibition at the Art Institute in May 1914, also listed Wright as Architect and Iannelli as Sculptor, without any qualifying matter.

John Wright, his brother Lloyd and I shared an apartment in Los Angeles in 1913. It was there that we got to know Alfonso Iannelli and to esteem his unusual talent. John returned to Chicago in 1913 and joined his father's office as superintendent of construction at Midway Gardens. He then brought Iannelli's work to Mr. Wright's attention with the result that this sculptor was retained for the work in question.

Barry Byrne, Architect
Evanston, Illinois

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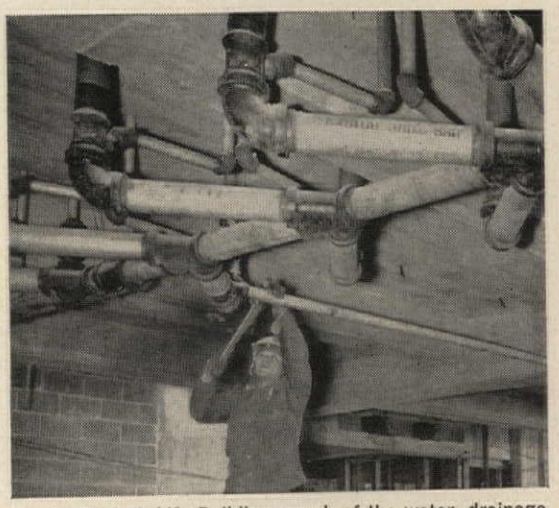

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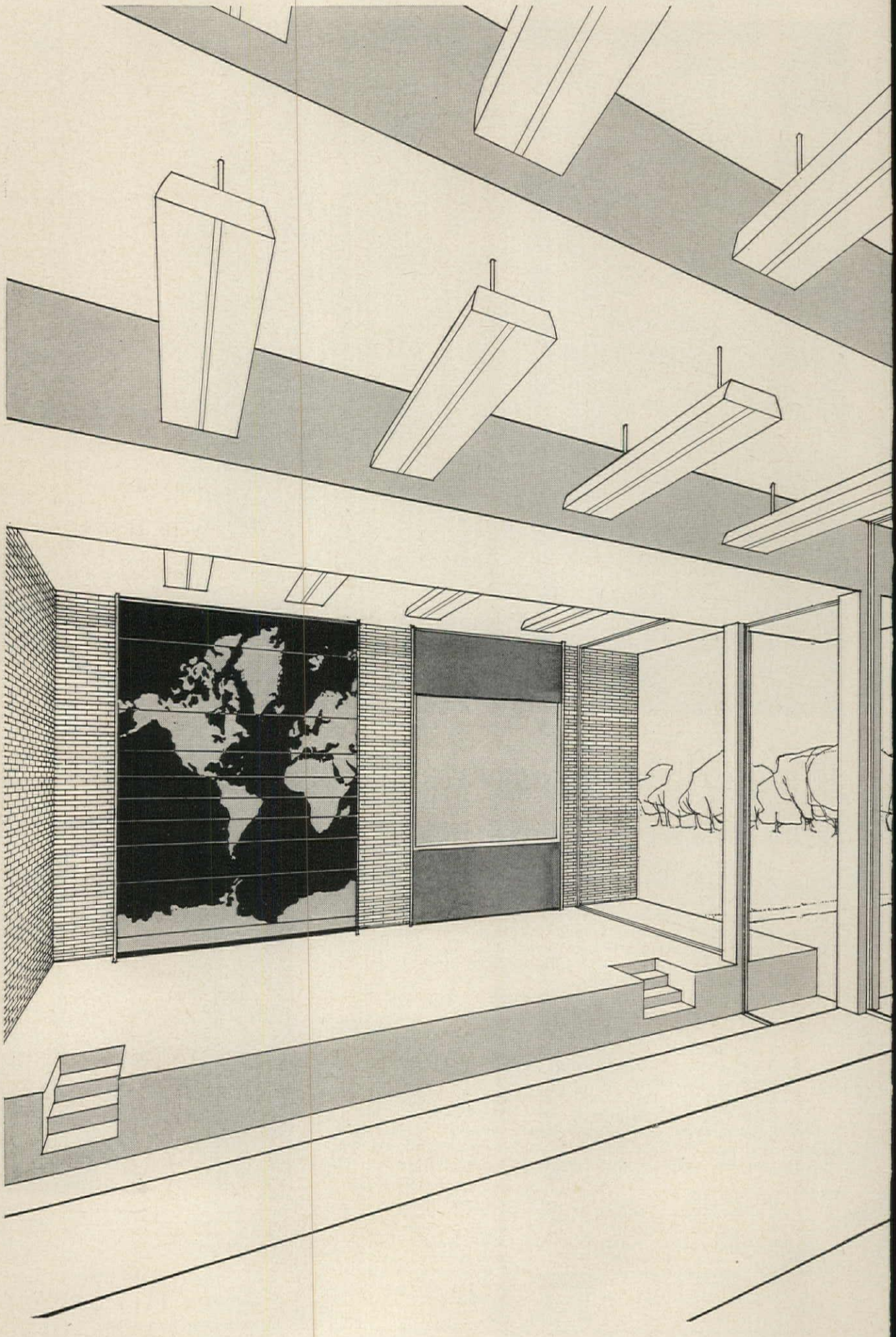

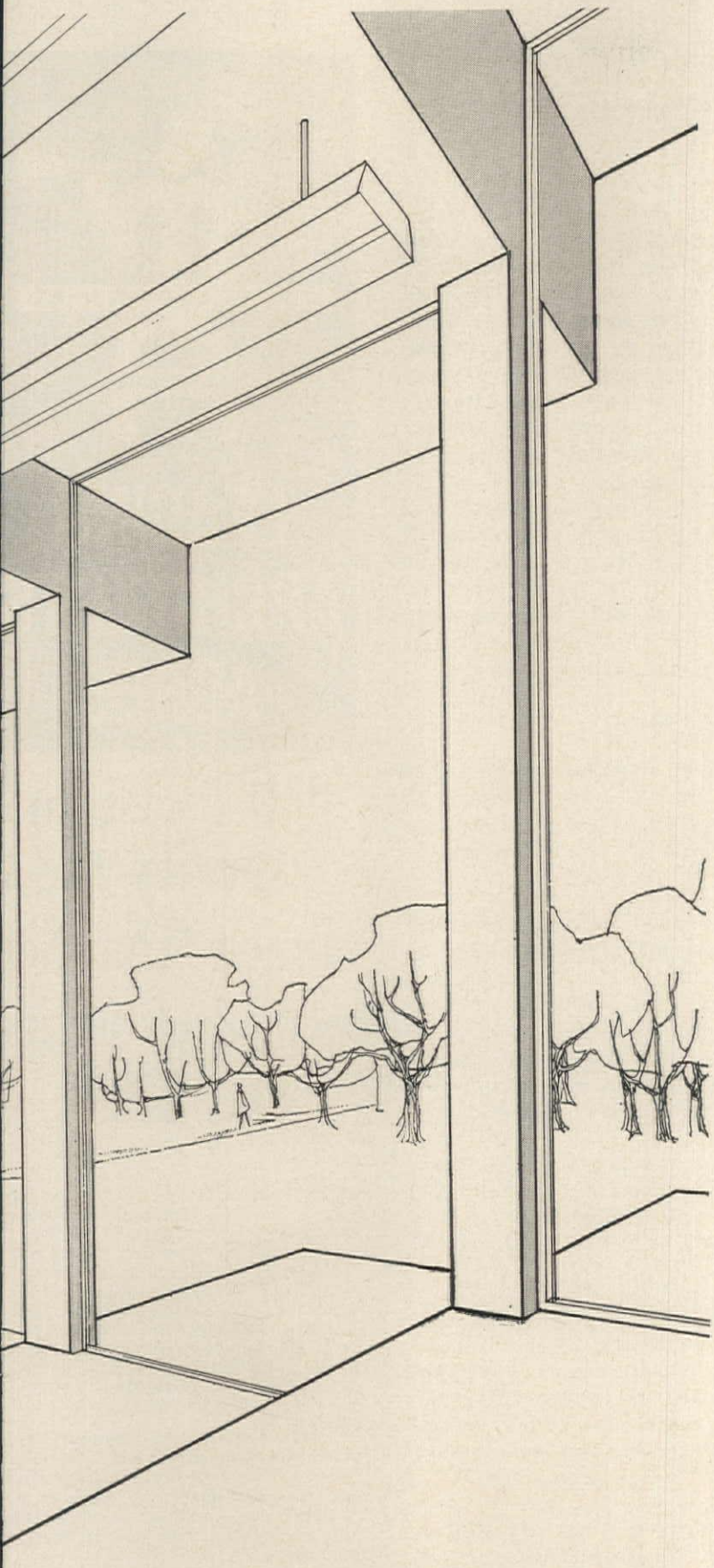

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Required Reading

continued from page 44

Stately . . .

brief introductions to each of the major periods of American architecture, and even briefer captions for each building. The bulk of the book is taken up by better than 250 photographs taken by the author. If the selection of recent buildings seems both arbitrary and inadequate, the space gained for coverage of Colonial, Federal and Romantic buildings was worth the sacrifice.

Preservationists may chortle maliciously to observe that razers of historic buildings are not allowed to get away with it in Mr. Andrews' book—if a building is no longer to be seen (except on film), he matter-of-factly explains why, and who.

Technical Books

DESIGN OF PRESTRESSED CONCRETE BEAMS. *By William H. Connolly. F. W. Dodge Corporation, 119 W. 40th St., New York 18. 252 pp., illus. $11.50.*

Designed as an office reference, and as an "attempt to reduce the amount of trial and error" so often involved in the design of simple concrete beams, this book concentrates on design methods rather than theory, utilizing formulas and tables for determining beam cross sections.

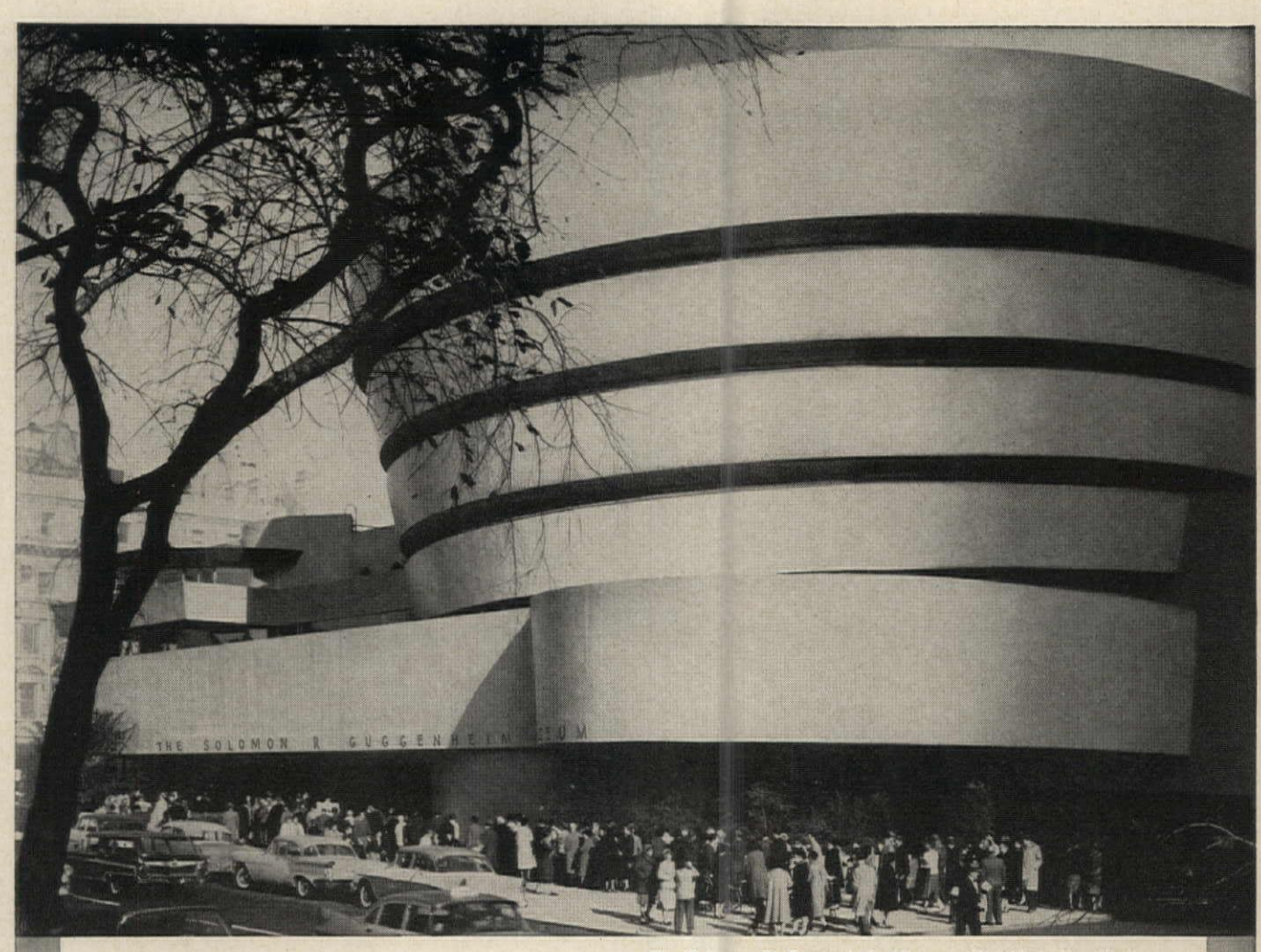
MECHANICAL-ELECTRICAL EQUIPMENT HANDBOOK FOR SCHOOL BUILDINGS. *By Harry Terry. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. 412 pp., illus. $9.50.*

With sections on heating and ventilating, plumbing, sewage disposal, kitchen and cafeteria equipment and illumination and electric wiring, this manual covers installation requirements as well as operation and maintenance.

BUILDING WITH STEEL. *By Don A. Halperin. American Technical Society, 848 E. 58th St., Chicago 37. 254 pp., illus. $6.*

Though designed as an introductory text, this covers the field thoroughly enough to be useful as elementary reference; it includes a section on

continued on page 258



The Solomon R. Guggenheim Museum, New York, New York
Architect: Frank Lloyd Wright
General Contractor: Euclid Contracting Corp., New York, New York

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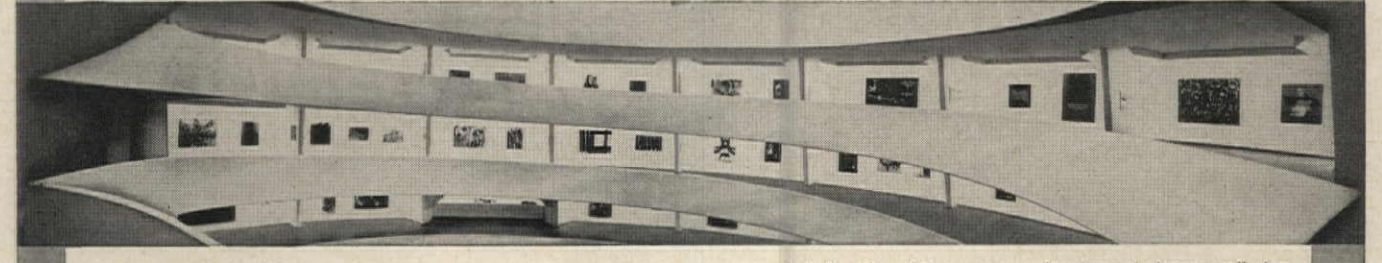

Interior view of the museum showing spiral ramp galleries.

As a pioneer in contemporary building design, Frank Lloyd Wright used reinforced concrete freely in the achievement of his most outstanding building designs. His famous Guggenheim Museum in New York City is a monument to his creative genius and an excellent example of the design freedom possible with this flexible construction material.

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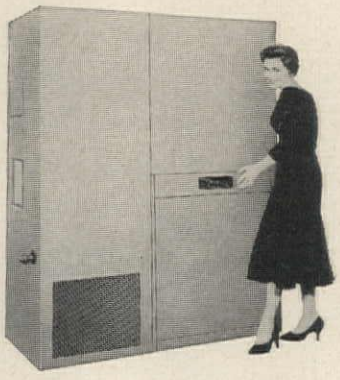

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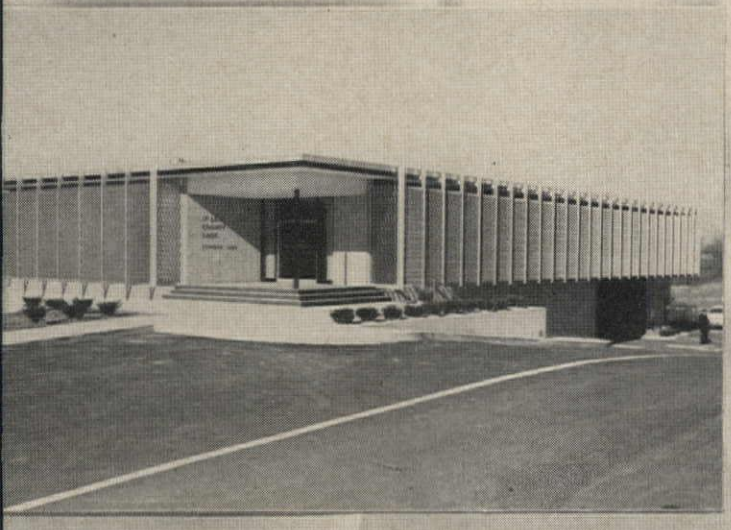

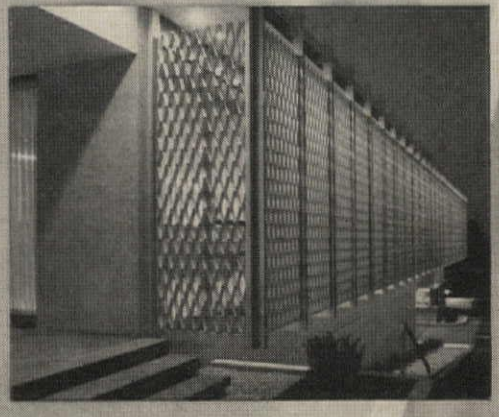

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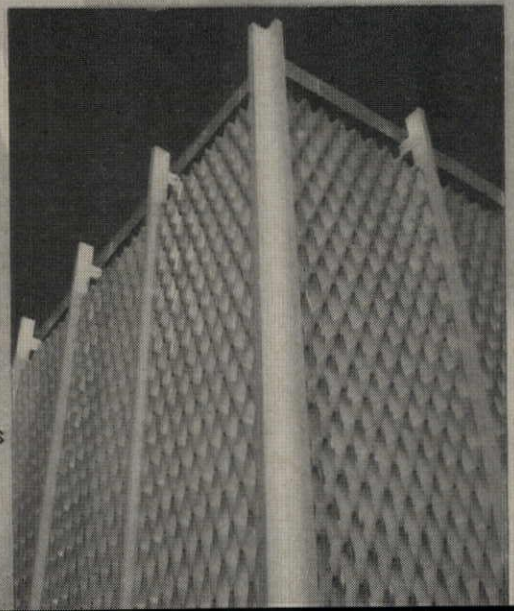

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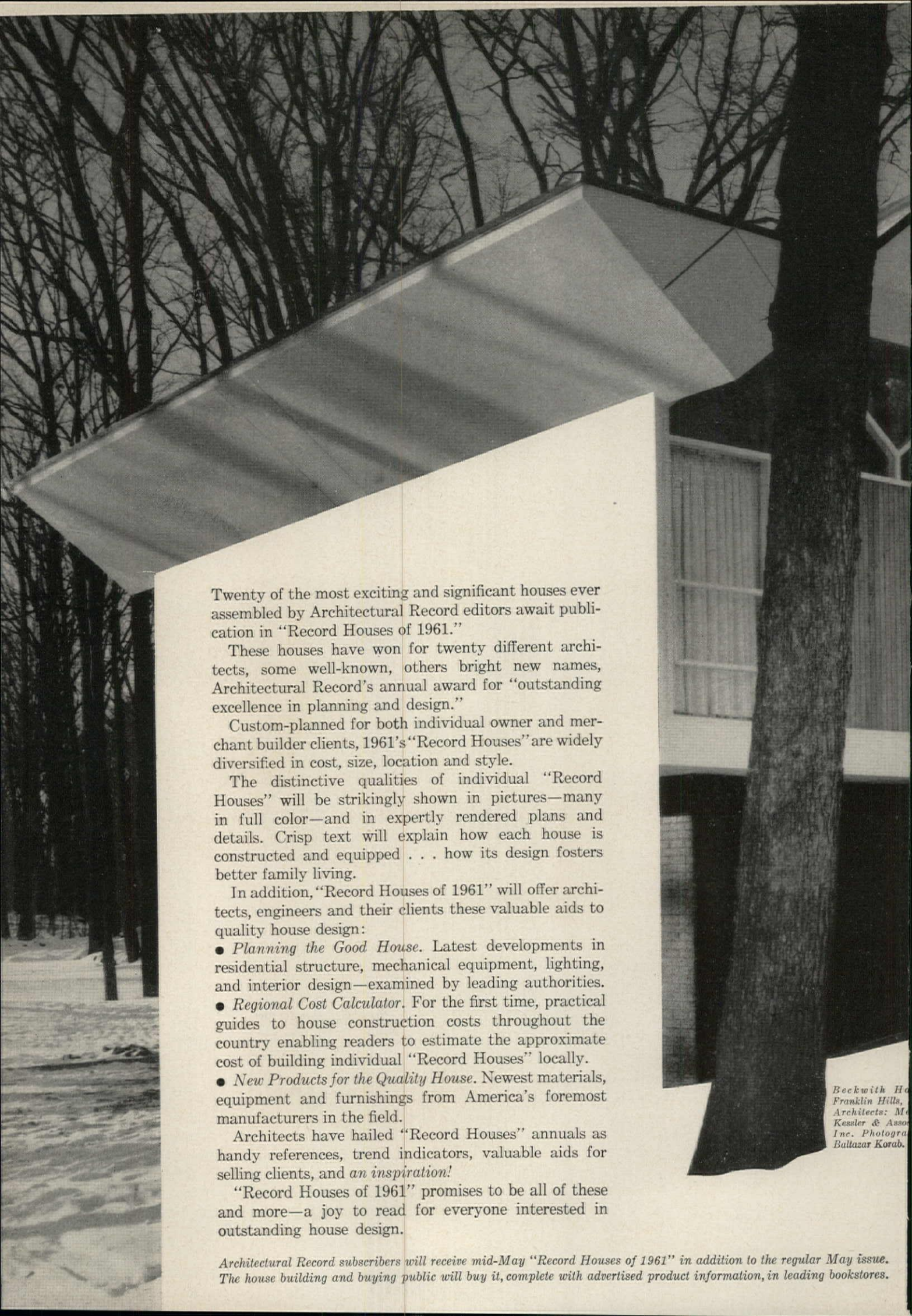

Twenty of the most exciting and significant houses ever assembled by Architectural Record editors await publication in "Record Houses of 1961."

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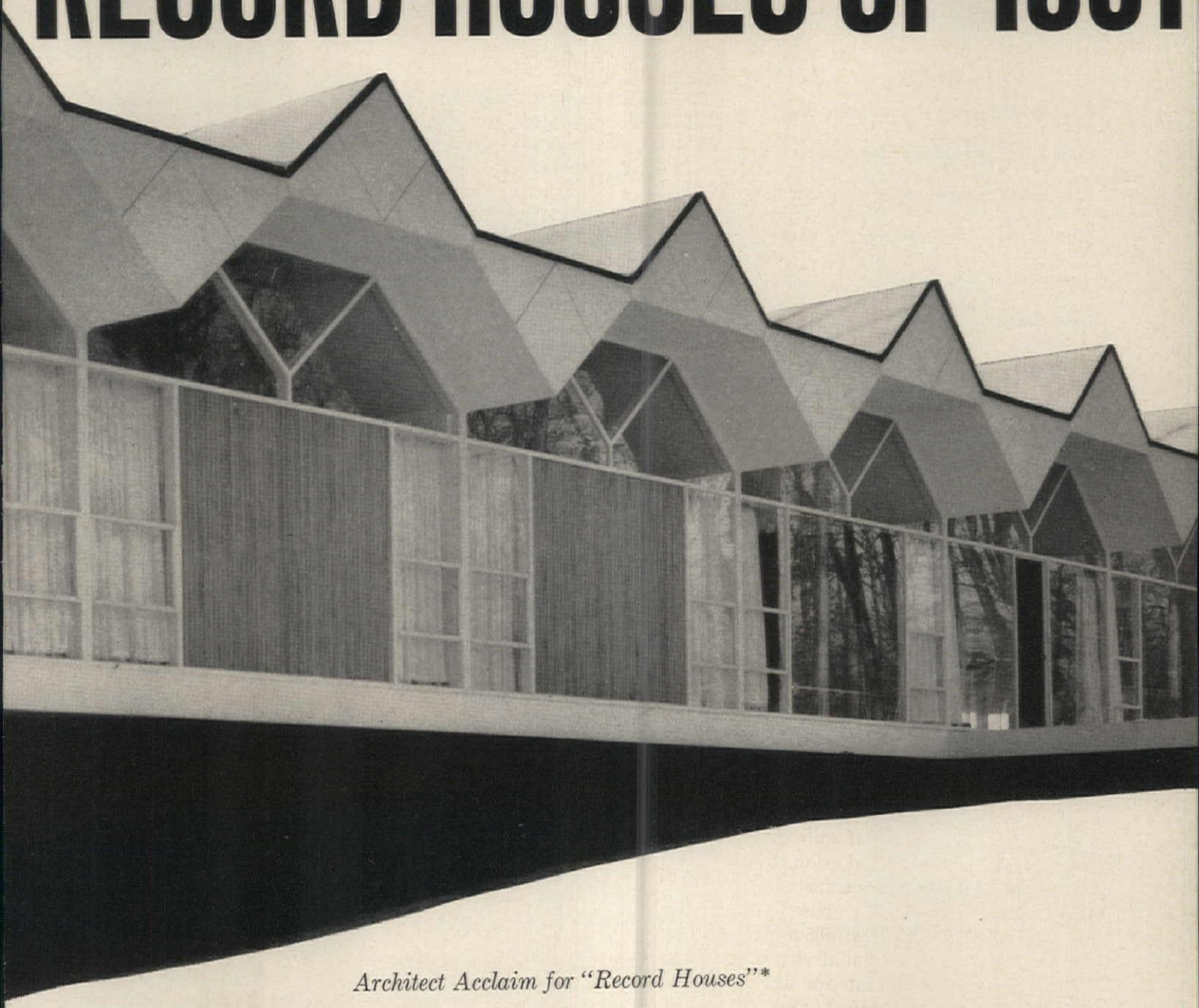

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Required Reading

continued from page 250

Technical . . .

prefabricated elements: curtain walls, movable partitions, decks and framing, doors and windows.

ERECTING STRUCTURAL STEEL. *By Samuel P. Oppenheimer. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. 264 pp., illus. $9.50.*

As its title indicates, this book is concerned mainly with structural procedures, and is likely to be of most use to construction supervisors and contractors.

UNFIRED PRESSURE VESSELS. *By Robert Chuse. F. W. Dodge Corporation, 119 W. 40th St., New York 18. 154 pp., illus. $8.75.*

The fourth edition, completely revised, of a guide to the A.S.M.E. Boiler and Pressure Vessel Code.

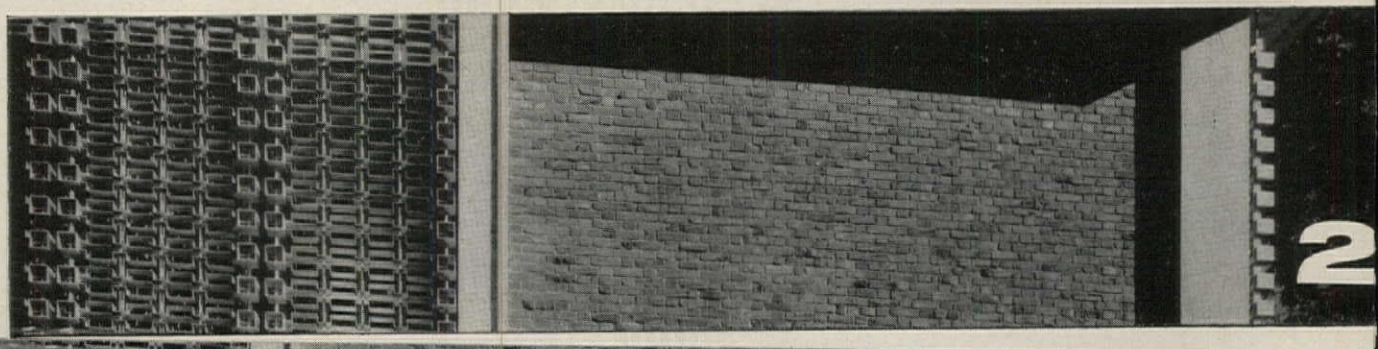
For Budding Bibliophiles

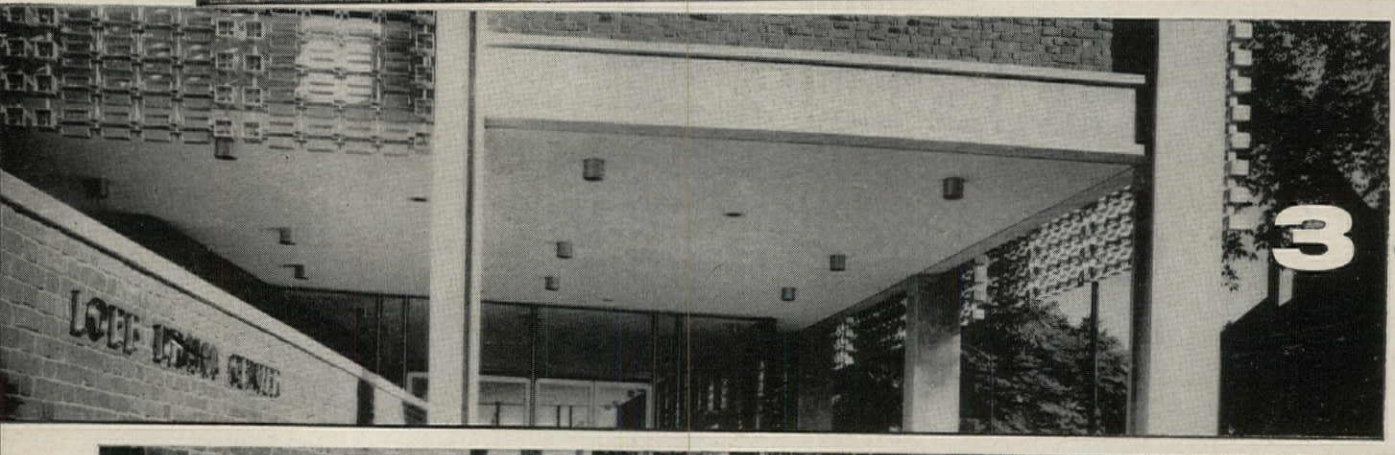
PRINTED BOOKS ON ARCHITECTURE 1485-1805. *Adah Patton Memorial Fund, College of Fine and Applied Arts and Department of Architecture, University of Illinois, Urbana. 39 pp., illus.*

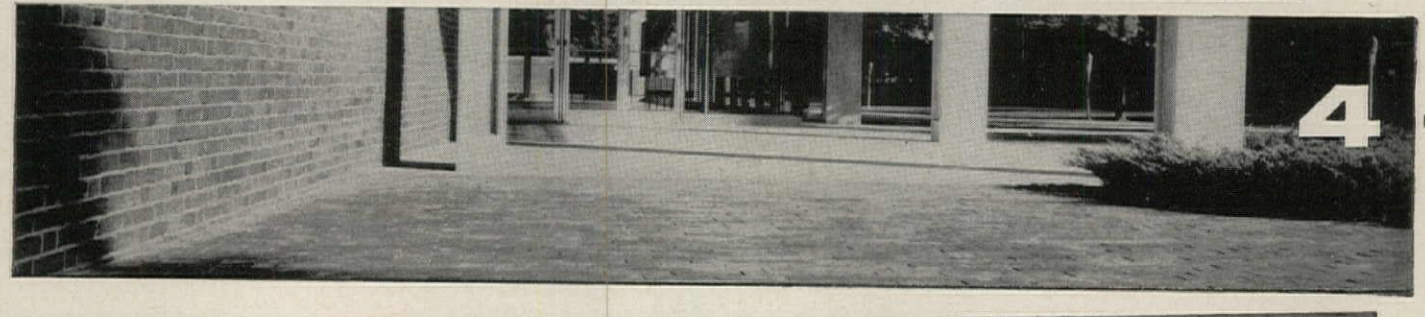
The University of Illinois's Ricker Library of Architecture, proud of a rare book collection which goes back to a 1485 first edition of Alberti, arranged an exhibition of its more prized possession last spring. At the same time, it issued this catalog to describe the significances of the various items on display.

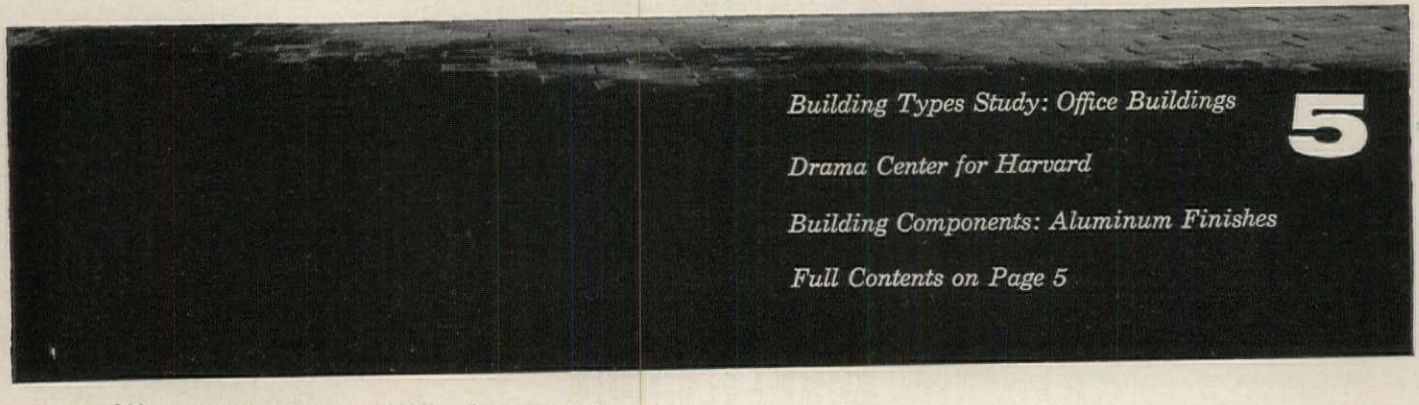
Introducing the catalog is a brief and, to at least one hitherto ignorant reader, absorbing history of architectural publishing by associate professor Ernest Allan Connally of Illinois' department of architecture. The history begins with an account of the architectural incunabula (incunabula, in bibliographical circles, are books published before 1500), of which there are five: Alberti, three editions of Vitruvius, and Grapaldi; it proceeds through various French, Spanish, German and English works, and ends with the early American "how-to" books by Asher Benjamin and Owen Biddle.

all 5 ingredients of combine in









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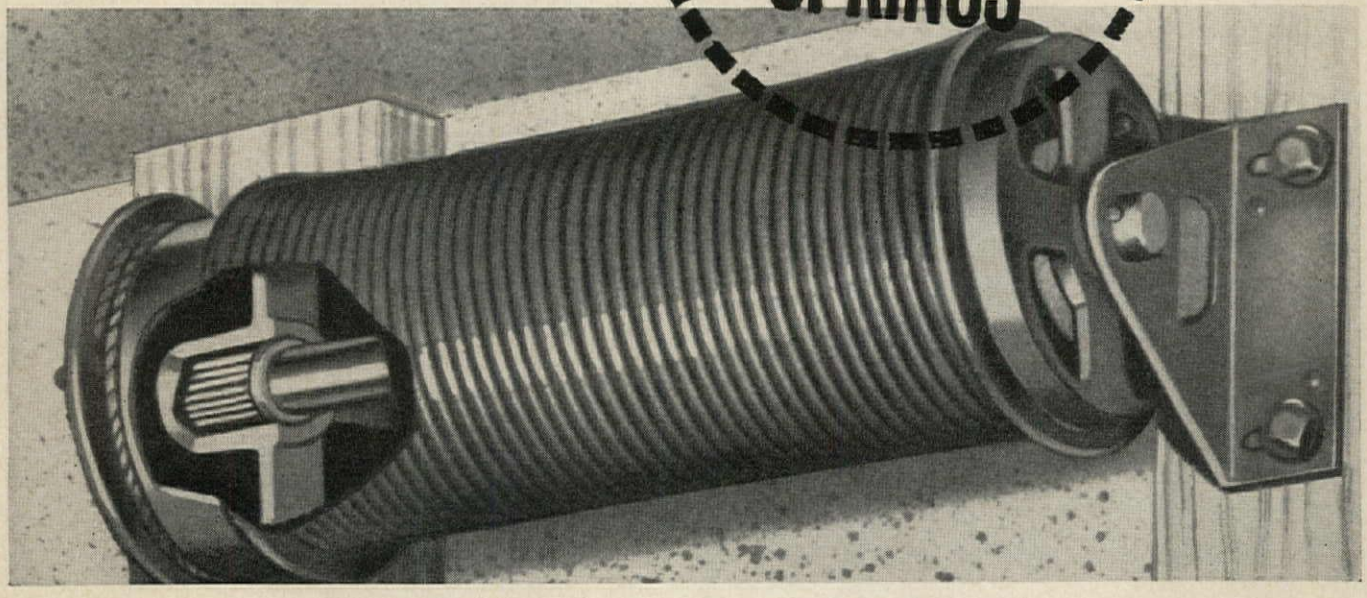

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