ARCHITECTURAL RECORD

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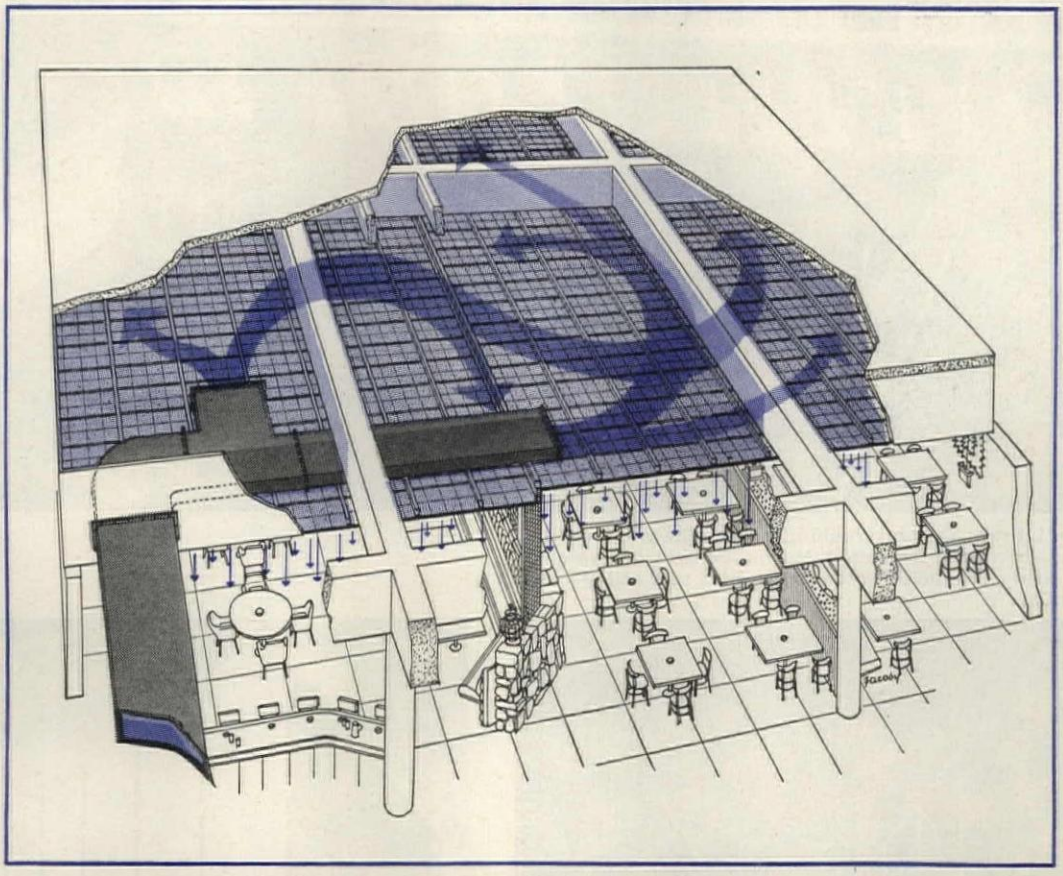
BUILDING TYPES STUDY: APARTMENTS

RECENT WORK OF WILLIAM WURSTER

LEWIS MUMFORD: "BEGINNINGS OF URBAN INTEGRATION"

FULL CONTENTS ON PAGES 4 & 5

In this Oregon motel, Armstrong Ventilating Ceilings achieve superior air distribution with simplicity of design



The attractive motel lounge pictured on the opposite page illustrates how an Armstrong Ventilating Ceiling contributes to interior décor—with an uncluttered ceiling that diffuses air. The rendering above shows how uniform air distribution is designed into the ceiling system for this area. This ceiling at the Doric Portland Motor Hotel, Portland, Oregon, is one of thousands of operating Armstrong Ventilating Ceilings across the nation. For more information write Armstrong, 4201 Rock Street, Lancaster, Pennsylvania.

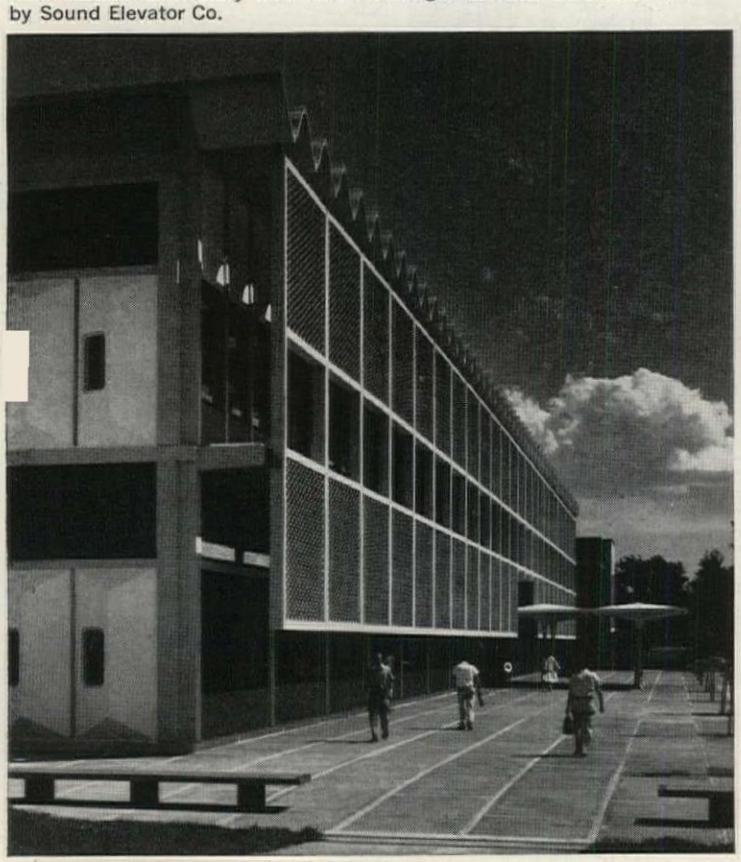
Doric Portland Motor Hotel, Portland, Oregon. *Architect:* Douglas Bacon, 10025 Main Street, Bellevue, Washington. *General Contractor:* University Enterprises Inc., Seattle, Washington. *Mechanical Engineer:* Richard Stern, Seattle, Washington. *Structural Engineer:* George Runciman, Seattle, Washington. *Acoustical Contractor:* Johnson Acoustical & Supply Co., Portland, Oregon.

Photography by Lawrence S. Williams
Rendering by Helmut Jacoby

Armstrong CEILINGS / *acoustical fire-retardant ventilating*

For more data, circle 1 on Inquiry Card

Above and below: Library, Central Washington College of Education, Ellensburg, Wash. **Architects:** Bassetti & Morris. **Contractor:** Newland Construction Co. Rotary Oildraulic Passenger Elevator sold and installed by Sound Elevator Co.



Tutt Library, Colorado College, Colorado Springs. **Architects:** Skidmore, Owings & Merrill. **Contractor:** Lembke Construction Company of Colorado, Inc. Rotary Oildraulic Passenger Elevator sold and installed by Dover Elevator Co.

ROTARY OILDRAULIC®

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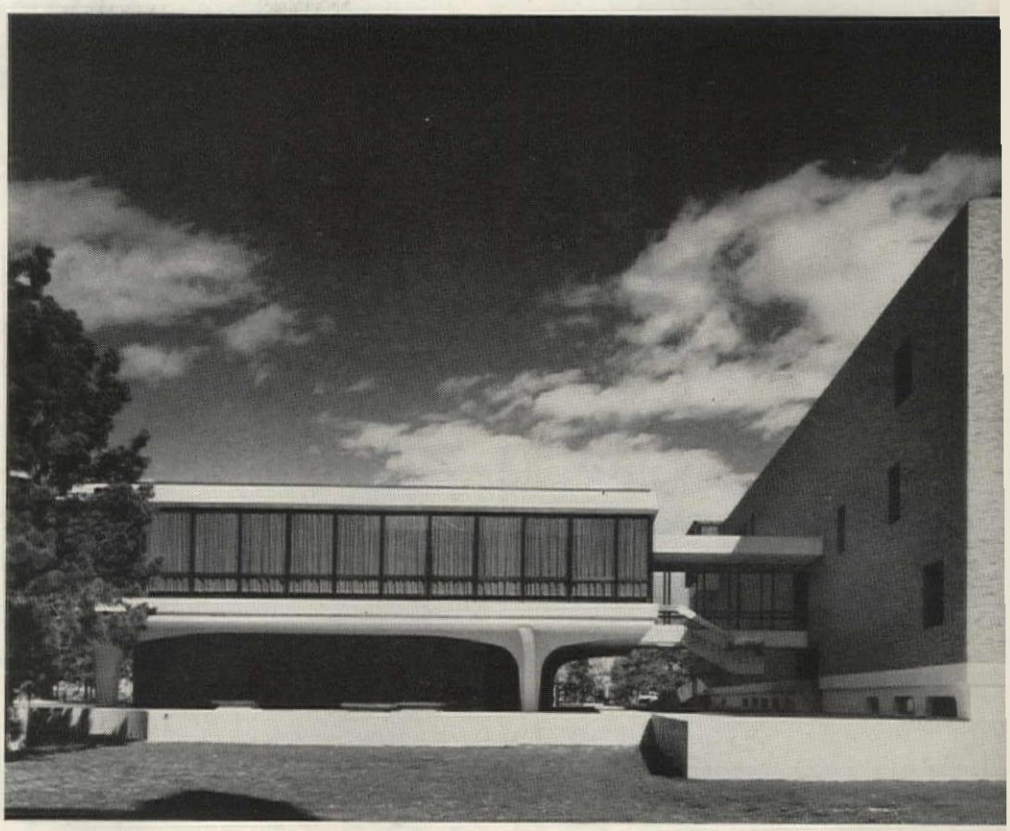
Olin Hall of Science, Colorado College, Colorado Springs. **Architects:** Caudill, Rowlett and Scott. **Contractor:** B. H. Baker, Inc. Rotary Oildraulic Passenger Elevator sold and installed by Dover Elevator Co.



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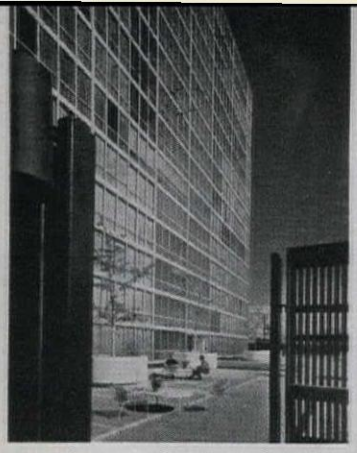

Cover:

Cherry Creek Towers, Denver, Colorado. Architect, Carl Groos Jr.; associate architect, O'Neil Ford. Photograph by Hedrich-Blessing

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Architectural Engineering

ARCHITECTURAL

Record Reports

Architects and Buildings

Authors and Articles

Features

RECORD

Building Types Study 315: Apartments

Coming in the Record

THE FUTURE OF THE CITY

Lewis Mumford's article "Social Complexity and Urban Design" next month will conclude his five-part series for the RECORD *on "The Future of the City" with an eloquent argument for the development of understanding by all concerned with city design that "a truly modern design for a city must be one that allows for both its historic and social complexity and for its continued renewal and reintegration in time."*

DESIGNING SCHOOLS AGAINST OBSOLESCENCE

Next month's Building Types Study on Schools addresses itself to one of the most prevalent and painful problems in school design today—how to cope with unpredictably expanding enrollments and swiftly changing teaching philosophies and their changing space and equipment requirements. The study will examine various approaches to this problem, ranging from new schools with built-in flexibility to pre-planned expansion programs and demountable, portable and mobile classrooms. A special article in the Architectural Engineering section will discuss related construction problems.

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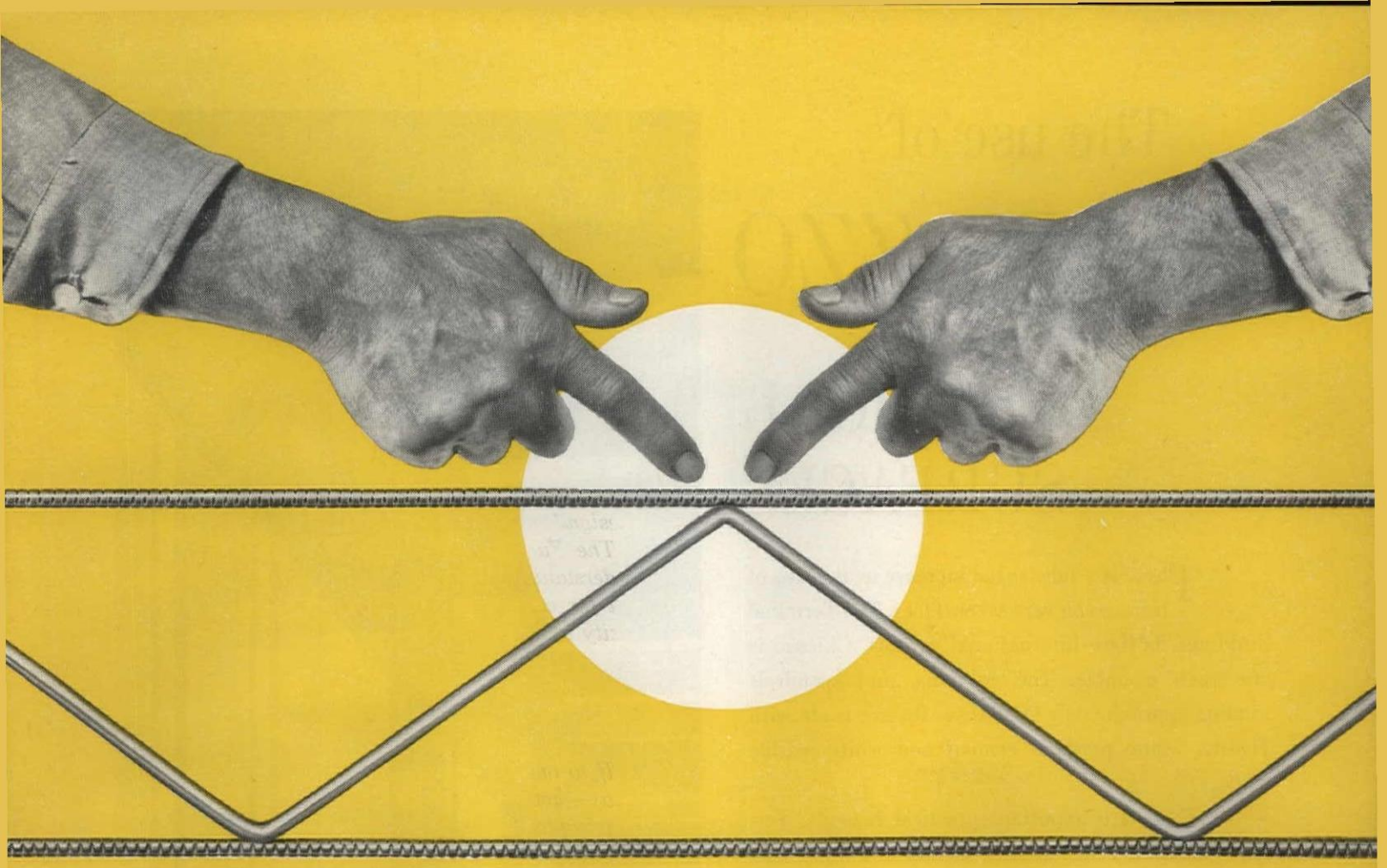

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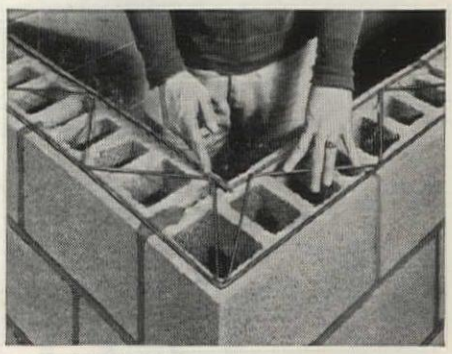

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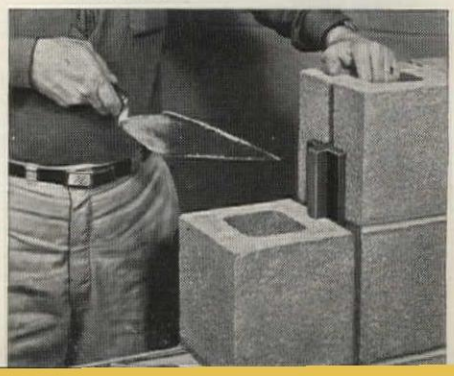

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For more data, circle 3 on Inquiry Card

The use of TERRAZZO on VERTICAL SURFACES

There is a substantial increase in the use of terrazzo on vertical surfaces. The Terminal Buildings, O'Hare International Airport, Chicago is one such example. The columns, and spandrels totaling approximately 90,000 sq. ft., are made with Trinity White portland cement and white marble chips.

There are important practical reasons. Terrazzo provides a high-quality surface at a lower cost than most typical facing materials. Grime and marks are easily removed. Maintenance approaches nil even after a long term of years.

Terrazzo can fill any design requirement. For instance, at O'Hare a monolithic effect was desired and obtained. Likewise, paneled effects are easily achieved. The wide color range can be closely controlled depending on the color of the chips and whether or not the matrix is tinted.

Two views of Terminal Buildings, O'Hare Airport, Chicago. In addition to the vertical terrazzo on columns and spandrels, the floors are also terrazzo.

Architect: C. F. Murphy Associates, Chicago
Terrazzo Contractor: Roman-Caretti Joint Venture
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Facing up to Costs

An architect friend said the other day that architects generally were doing better in the matter of costs. That is, they were more serious about cost estimates they quoted to clients, and their estimates were improving in accuracy. He did not mean, of course, that they were finding any miraculous ways of cutting building costs, or slowing inflationary trends. He meant that architects' clients were getting fewer surprises, when the bids came in. Yes, and that architects were suffering less from the disappointment and wrath of their clients when the bids were out of line with the estimates.

He was quick to point out that indeed there was no magic formula involved, or that this toughest of architects' problems was proving any more tractable. He meant that architects were facing up to it.

I remarked that this was indeed news, and please to tell me more. He answered with a tale of one city and some school projects.

It happened that there were some half dozen schools out for bids at the same time. Most of them came in much too high, and the questions that were asked were embarrassing. Not all were too high. There was no visible common factor or reason for the discrepancies. But the inevitable comparisons seemed to point to the carelessness or hopefulness of certain of the architects.

What to do about it? The architects got together to worry the problem about a bit. Clearly the standing of the profession, locally, was threatened, and clearly the school authorities were not about to roll over and submit to a beating. They were in fact tapping the desk like the proverbial school teacher and telling some architects that they had been naughty.

The architects, the ones with red faces, were ready to admit their embarrassment, but they insisted that they were not expected to guarantee their estimates for accuracy. They pointed out in fact that the A.I.A. standard contract protected them from liability in such cases.

This is, of course, the truth. Through all ages architects have been haunted by the difficulties of cost control, and have taken steps to protect themselves. Unfortunately, as these architects were reminded, the courts have not agreed with their views. At any rate, the unhappy group decided that they couldn't fight city hall, either figuratively or literally, and that they were not going to be able to duck.

The result was that the high-bid schools were redesigned to bring them down. And they were redesigned and redrawn at the architects' own expense. So what had promised to be a good fee turned out as a substantial loss.

The one who told me the story said that this all happened about a year and a half ago, and since then there had not been trouble about estimates.

Well, the story was quickly told, and while it was undoubtedly a true account of the salient facts, I am sure that not all of the pain and trouble was reported. It is not easy to make cost estimates come out closely, especially when there may be a year between the estimates and the bids. And close attention to costs and estimates is no guaranty of accuracy.

But it is undoubtedly also true that more attention is needed than is universally given. As this architect said, architects generally are taking the cost responsibility more seriously. They have to. Good cost estimates are a weapon they cannot afford to give to their arch competitor, the package dealer.

At any rate the world now throws a double challenge at architects, at engineers, at all building planners and builders: first, an increasing awareness of the necessity for cost accuracy; second, better techniques for achieving that accuracy.

—Emerson Goble

KAREL YASKO OF WISCONSIN APPOINTED TO TOP FEDERAL ARCHITECTURE POST

The most important architectural job in the Federal Government, vacant since last summer, has been filled with the appointment of Karel H. Yasko, 51, of Madison, Wis., to the post of assistant commissioner of design and construction in the General Services Administration.

Mr. Yasko, who will take over his new post in Washington this month, is a professional architect and engineer who has been for the last four years Wisconsin state architect. Mr. Yasko, a native of Yonkers, N.Y., got his architecture degree from Yale University and has been in practice, both private and public, since 1939. He is a member of the American Institute of Architects and of the American Society of Civil Engineers.

In announcing Mr. Yasko's appointment, GSA Administrator Bernard L. Boutin said, "We have succeeded in finding for this important post a man of ability commensurate with his responsibilities as chief supervising architect of the Government's nationwide building pogram."

As assistant commissioner of design and construction in GSA's Public Buildings Service, Mr. Yasko succeeds Leonard L. Hunter, who resigned the position in July to join the firm of John Carl Warnecke and Associates in San Francisco.

A.I.A. PLANS A NEW KIND OF CONVENTION

A number of innovations are being tried in the programing of the 95th annual convention of the American Institute of Architects May 5-9 at the Americana Hotel, Miami Beach.

Most important of these are the scheduling of all the business sessions *before* the so-called "professional program" begins and the use of a permanent moderator as a device for correlating all the professional program sessions. Also the entire schedule has been moved back a half day, with the opening convention session scheduled for Monday afternoon (instead of Friday morning). As presently planned, the final event of the convention would be the annual dinner on Thursday night, with presentation of the Gold Medal (as always) and investiture of the new Fellows, which of recent years had been made a separate occasion.

The changes represent an effort to organize the program so that important business sessions (like the final session at Dallas last year) do not find themselves powerless to act for lack of a quorum because the homeward exodus is already too far advanced. The practice of having a half-day business session following the annual dinner and after everything else was over was thought to invite a lame duck atmosphere not conducive to the proper attention for important business.

Thus the first three sessions of the Miami convention—Monday afternoon, Tuesday morning and Tuesday afternoon—will be devoted to business; and the last three—Wednesday morning, Thursday morning and Thursday afternoon—will comprise the professional program.

Revisions to Be Considered

The business sessions will have some very significant and far-reaching matters to act on, for this convention will be asked to consider major revisions in the A.I.A. Standards of Professional Practice as proposed by the Committee on the Profession and approved for submission to the Miami convention at the November meeting of the A.I.A. Board of Directors. Copies of the revised Standards will be sent, probably this month, to all members of the A.I.A. for their review and consideration well in advance of the convention. They had not been released at press time, but the A.I.A. said their major purpose is to make the Standards "more explicitly permissive of today's broader concept of practice." Changes in the Standards are, of course, closely related to the A.I.A.'s current program, sparked by the studies of the Committee on the Profession, to encourage more architects to meet their competitive problems with a "broader concept" of "comprehensive services."

"Quality" Is the Theme

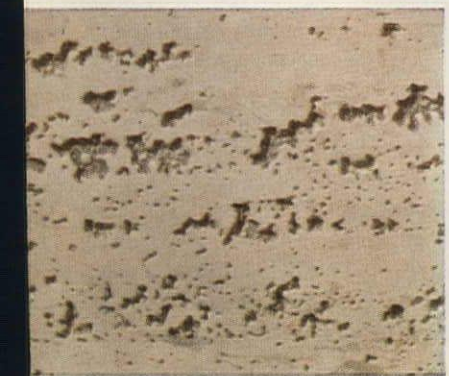
Over-all theme for the professional program is "The Quest for Quality in Architecture," with the three sessions having the successive subtitles of "What Is Quality?," "What and Who Influences Quality?" and "The Attainment of Quality."

Dean Burnham Kelly of the Cornell College of Architecture will be the permanent moderator of the program. The A.I.A. was not ready last month to announce any of the individual speakers, although it said they would include "distinguished architects and noted experts in other related fields."

William W. Eshbach of Philadelphia heads a special committee of A.I.A. directors in charge of planning this year's professional program. Others on the committee are Robert M. Little of Miami, Charles M. Nes Jr. of Baltimore, Oswald H. Thorson of Waterloo, Iowa, and Julius Sandstedt of Oshkosh, Wis.

Samuel H. Kruse of Miami heads the host chapter committee charged with planning the social program and arranging, in general, for some 2,500 expected conventioneers to have a wonderful time.

Floors and walls of this dramatic lobby in new Kentile Vinyl Travertine. Colors: Off White, Forum Grey, and Natural Beige, with contrasting Hot Canary feature strips. Black Wall Base is KenCove® Vinyl.



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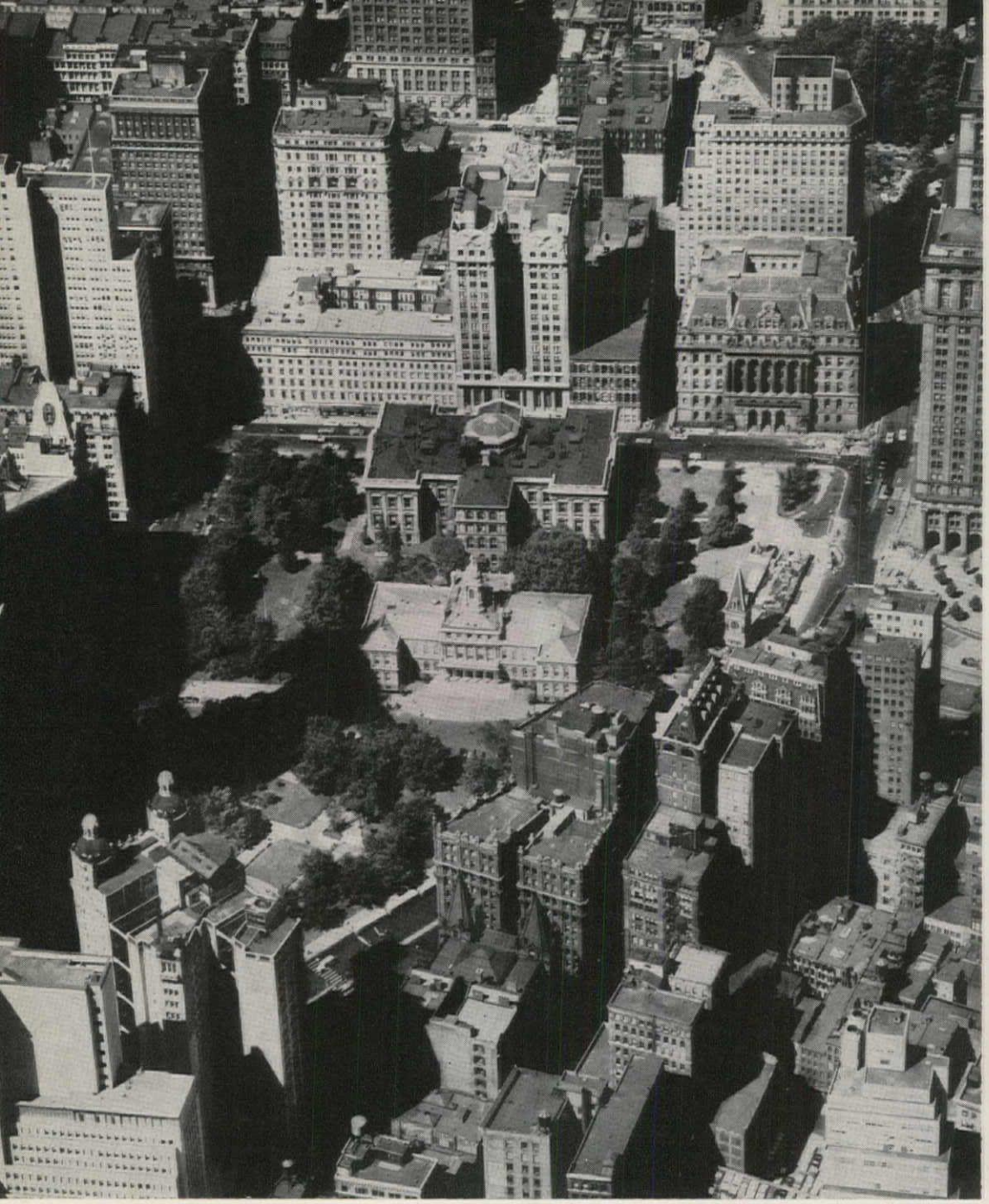
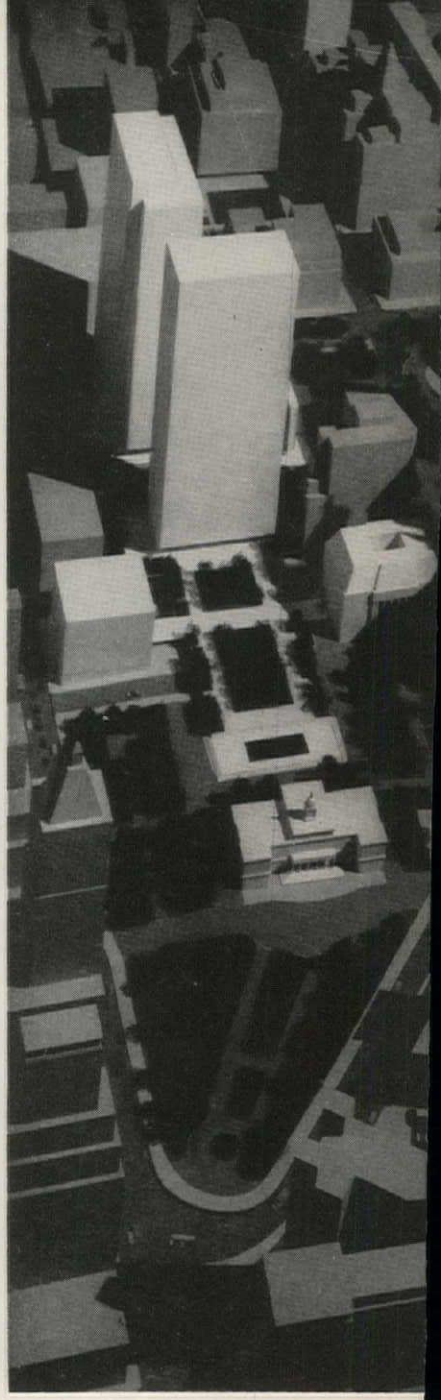


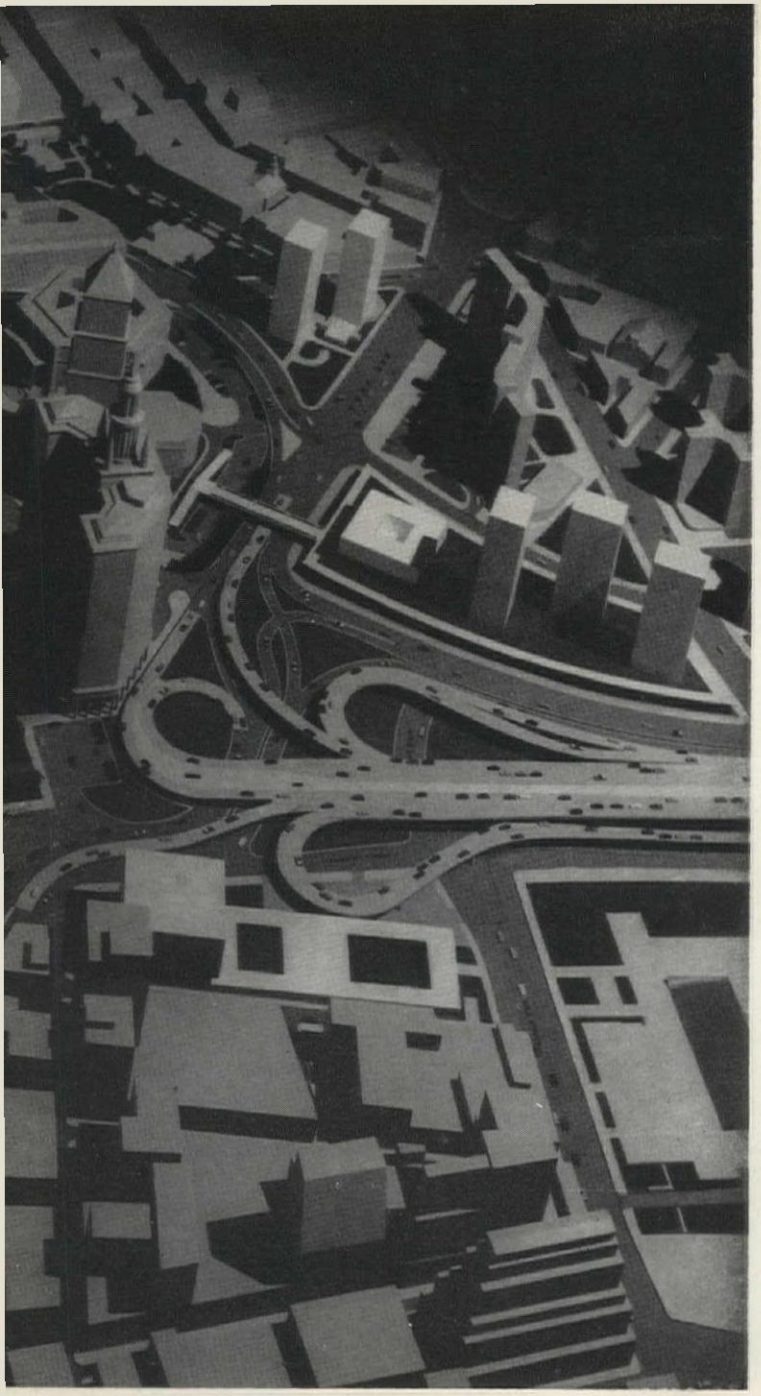


Fairchild aerial surveys

ARCHITECTS PLAN CIVIC CENTER FOR NEW YORK CITY

A panel of noted architects—Max Abramovitz, Simon Breines and Robert Cutler—have conceived a plan for the New York Civic Center which "will create a strong and efficient relationship between city government buildings." The consultants considered authorized and programed projects, major capital improvements in the city's proposed Capital Budget and Program totaling approximately $150 million, and redeployed them. In so doing, they altered through-traffic patterns, provided traffic-free circulation for pedestrians and better bus and service approaches, added 400 parking spaces above the 700 now planned, and made available over six added acres of park. Traffic studies were carried out by Day and Zimmerman, traffic engineers.

Earlier Mayor Wagner appointed a committee to study the location of structures within the projected Civic Center in the City Hall area. Members were: James Felt, then City Planning Commission chairman; Henry A. Barnes, traffic commissioner; Edward R. Dudley, Manhattan borough president; Peter J. Reidy, Public Works commissioner; and William F. Shea, budget director.



Louis Checkman

Far left: View from the south of the existing City Hall area shows County Court House north of City Hall. Scheduled demolition of the Court House will enlarge City Hall Park and create new vistas of City Hall

Left: View from the south of model of the proposed Civic Center shows pedestrian mall extending to the new Municipal Building, beyond which is the new Federal Office Building. Vehicle traffic-free mall is flanked (*left*) by proposed Executive Office Building and (*right*) by the existing Hall of Records Building

The review of future plans, which culminated in the appointment of this committee and the Civic Center plan, followed considerable effort on the part of the New York Chapter, American Institute of Architects, and the New York Society of Architects whose former president, Nathan Ginsburg, in large measure initially triggered the review by his persistent campaigning.

The plan divides the approximately 60-acre Civic Center district into three areas. In Area One, the proposal calls for scheduled removal of the County Court House, just north of City Hall, to permit this historic city capitol to be visible from all sides. The proposed new Municipal Office Building will be located directly north of City Hall. Flanking it will be the Executive Office Building on the southwest and the existing Surrogate's Court (Hall of Records) on the southeast. These four buildings will be connected by a park and multi-level mall and concourse.

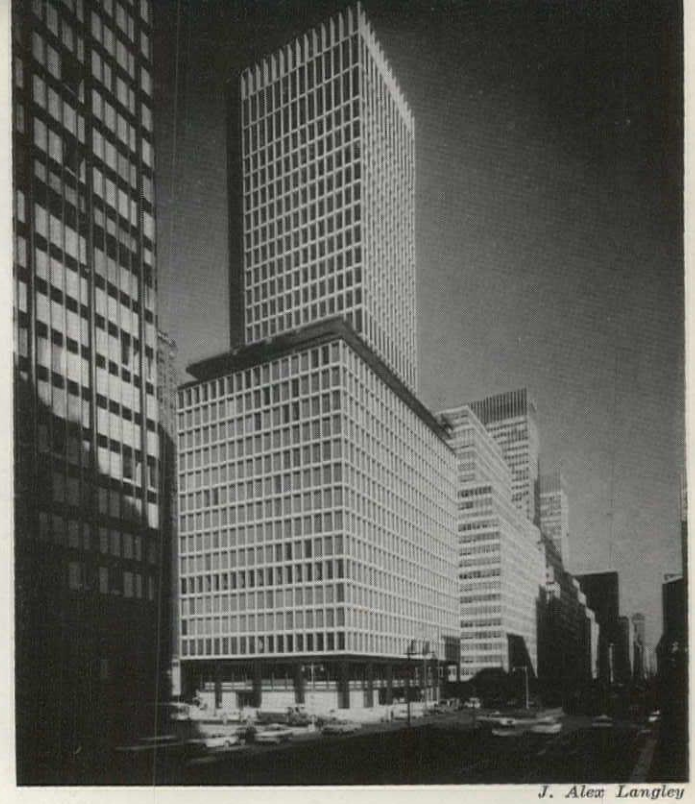
In Area Two, the new Federal Office Building and U.S. Customs Court would rise north of the proposed Municipal Office Building. They are to face their own plaza adjacent to a redesigned Foley Square closed to traffic. For a more harmonious architectural arrangement, changes are recommended in the plans for these proposed buildings.

Plans for Area Three recommend sites for a Family Court Building, Police Headquarters, a Detention Building for Misdemeanants and for the Center's future expansion.

Chairman of the Civic Center Committee, James Felt, whose resignation as chairman of the City Planning Commission was announced last month, called the plan "imaginative and practical, handsome and realistic, functional and alive." "A well-planned, well-coordinated Civic Center," he said, "means greatly improved operations, significant savings in rental costs . . . an opportunity to plan and develop future government facilities efficiently and economically." Stating that the proposals can be implemented at an added investment of less than 10 per cent of capital funds already committed, he said, "We must move ahead with our Civic Center program at this time because we will never again have the opportunity that lies within our grasp."

Industrial Design For Park Avenue

New York's newest skyscraper, the 30-story Bankers Trust Building on Park Avenue between 48th and 49th Streets, opened last month. Architects will have a special interest in the fact that (as the bank's release on the opening did not fail to point out) "Bankers Trust is the first major office structure for which overall design responsibility has been given to an industrial designer." Design credits are given as follows: "overall design," Henry Dreyfuss; "building architecture," Emery Roth & Sons; "interior architecture," Shreve, Lamb & Harmon Associates. Structural engineer was James Ruderman, with Weiskopf and Pickworth consulting; mechanical engineers, Jaros, Baum & Bolles; general contractor, Diesel Construction Co., Inc., Rose Associates.



J. Alex Langley

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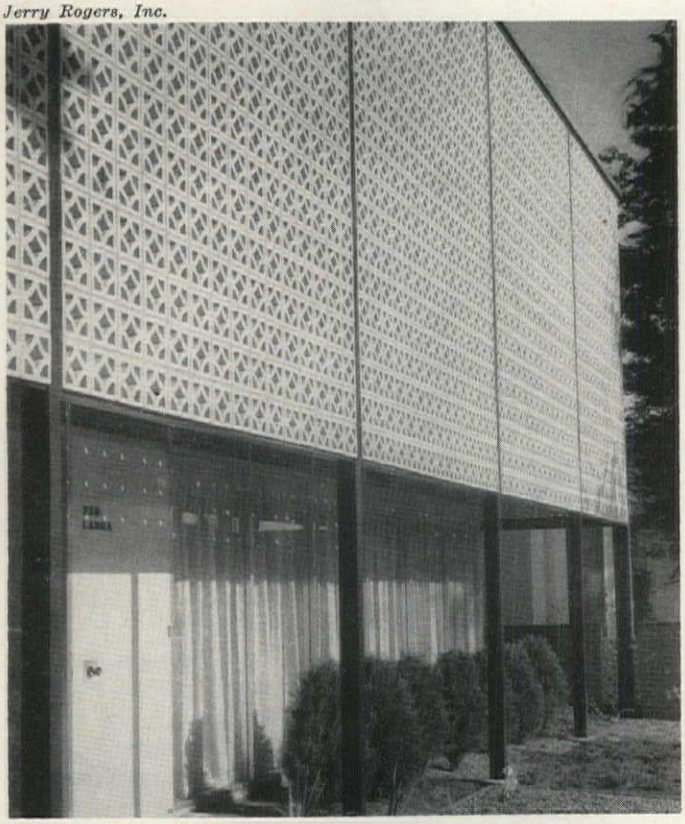
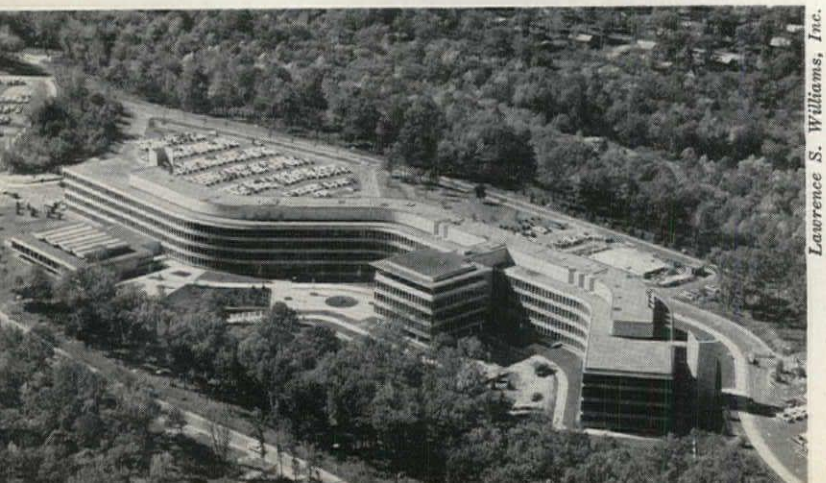


Office Buildings Honored

Office Building, Wichita, Kans., designed by architect Glenn E. Benedick, was recently honored by the Kansas Chapter of the American Institute of Architects. Owned by W. Dudley Williams, the building is basically a 40-foot square glass structure enclosed by a 50-foot square screen. Among occupants is F. W. Dodge Corporation. Contractor was Law-Pollitt Construction Company Inc.

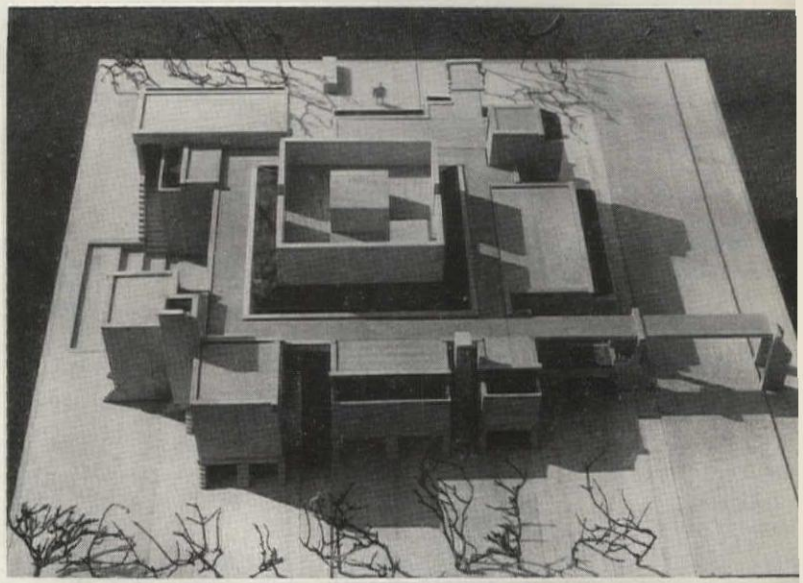


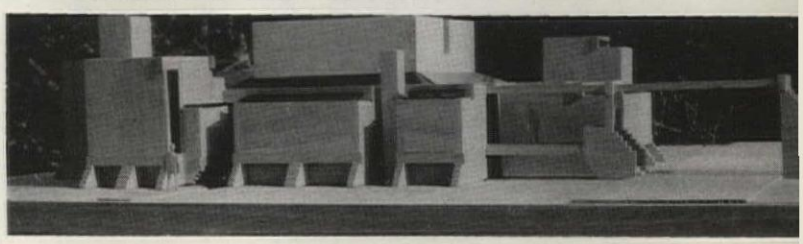
Lawrence S. Williams, Inc.

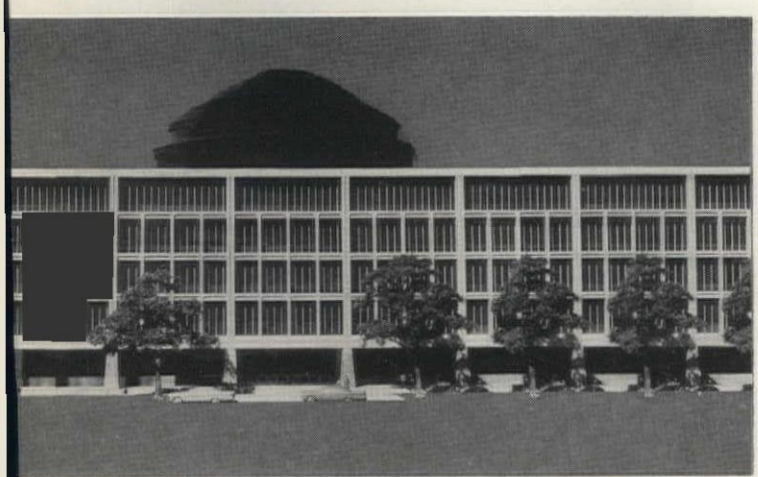
American Cyanamid Company Office Headquarters, Wayne, N.J., recently completed, has won awards from the Pennsylvania Society of Architects and New Jersey Business magazine. Architect was Vincent G. Kling, F.A.I.A. The $12 million, four-story, 935-foot-long building, housing 1,400 employes, curves with the natural contours of the site which overlooks land soon to be flooded to create a reservoir. A five-story executive wing and one-story cafeteria extend from main structure. Structural engineers were Severud-Elstad-Krueger Associates; mechanical and electrical engineers, Meyer, Strong and Jones. Contractor was Frank Briscoe Company.

New Union Building for New Haven

Construction will begin this month on the new Teamsters, Chauffeurs & Helpers Union Building, Local 443, New Haven, Conn. Sited in an industrial zone, surrounded by new light-industry buildings mainly of concrete block, the structure will have concrete block walls with reinforced concrete beams, roof and floor of heavy timber plank. The program called for accommodations for private restricted functions of officers and committees and public functions. A 150-seat meeting hall is in the core about which the officers function. Areas for the elected and electorate are on separate levels, but open visually to each other. Each cell is top lit. Space between the cells and meeting hall is side lit. Meeting hall is top lit with a continuous perimeter skylight. The building was designed by the Office of Architect William Mileto and John Fowler, A.R.I.B.A., and Herman Spiegel—structure, and John Altieri —mechanicals.

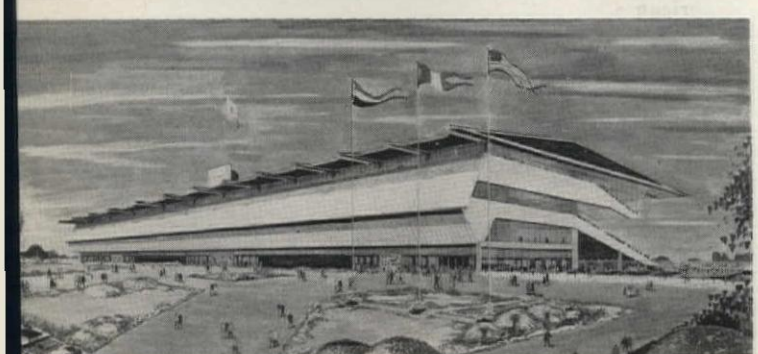






New Center for M.I.T.

On the north side of the domed main building of the Massachusetts Institute of Technology, a $6 million Center for Materials Science and Engineering will soon rise. Skidmore, Owings & Merrill of Chicago are the architects. Construction will start early this year, with occupancy expected to be ready by late 1964. The building was made possible by the M.I.T. Second Century Program and aid from the Defense Department's Advanced Research Projects Agency. Structural elements of the 380-foot-long concrete building which contains 160,000 square feet, will be exposed for harmony of texture and color with the gray limestone and concrete of main building. The structure will stand on piers, with first floor walls set back, to create a kind of colonnade.



Grandstand-Club, Maywood Park

New $3 million grandstand and clubhouse will be built during 1963 at Maywood Park, Chicago. Designed by the Italian architectural firm Impresa Eugenio Grasseto, the prefabricated reinforced concrete building will accommodate more than 25,000 harness racing fans. Five above-ground levels will house viewers, wagerers and diners. A cantilevered roof of reinforced concrete contains quartz infra-red heating units over outdoor grandstand. Glass-enclosed clubhouse runs the full 400 feet of upper level facing track and seats 1,500.

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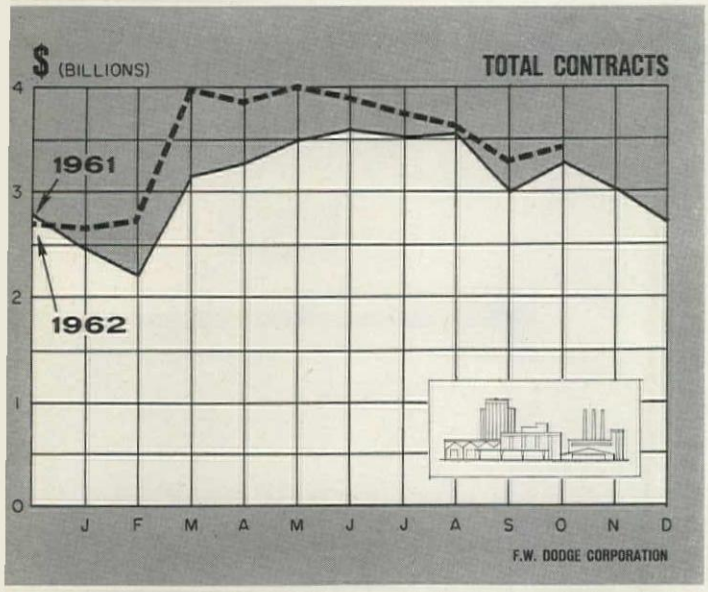
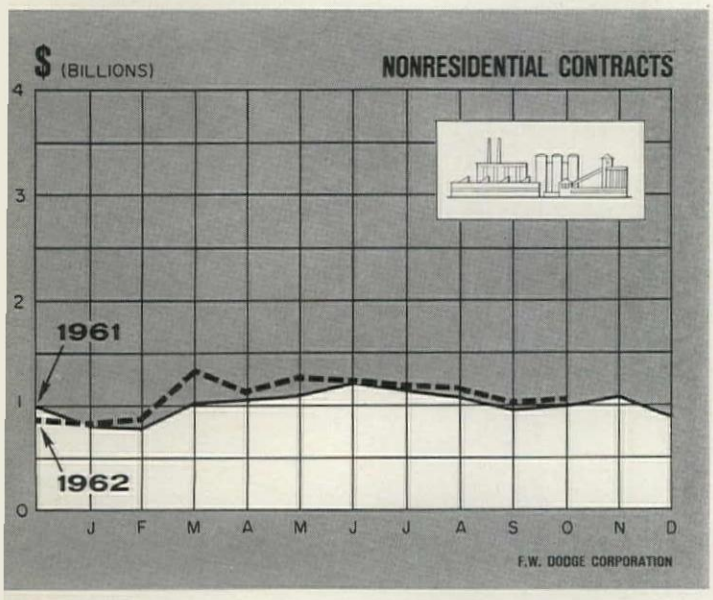
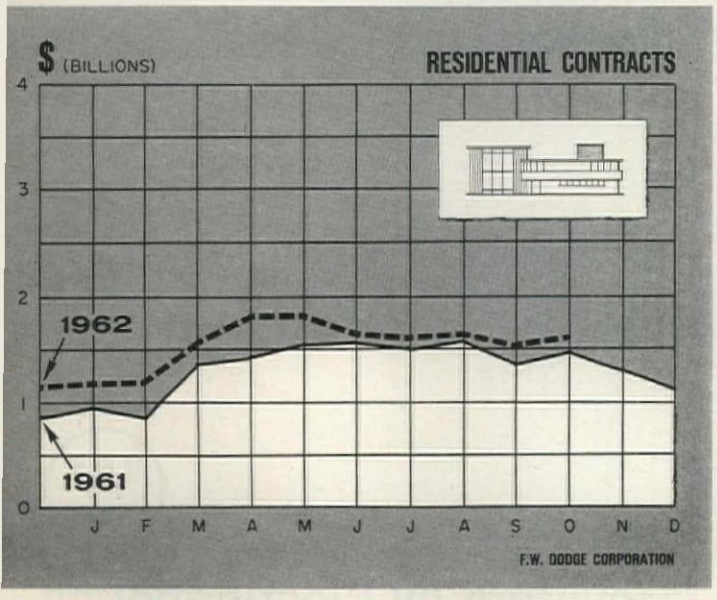


Total contracts include residential, nonresidential, heavy engineering contracts





APARTMENTS SOAR IN '62: TOO MUCH OR NOT ENOUGH?

1962 may well be remembered (for a time, at least) as the "year of the apartment." Based on 10 month's data, there is every indication that the year's contract value for new apartments will be half again as large as in 1961, and well over double the rate of only three years ago.

As outstanding as 1962 has been in the field of apartment building, it still must be viewed not so much as a single unusual event, but as the highest point reached on a recent trend. Back in the middle fifties, when this trend began, only every 10th housing unit built was an apartment; by 1960, apartments had gradually gained in favor to one in five. Last year, a sudden surge brought the ratio to nearly one apartment out of every three new dwelling units.

During this period everything seems to have been working in favor of apartment building. Liberalized depreciation allowances provided by the Housing Act of 1961 increased their attractiveness as investment properties. Urban renewal programs have been a stimulus both through demolition of existing substandard units and through replacement with new low rental projects. The development of cooperative, and the more recent condominium, forms of tenant-ownership provide most of the convenience, tax advantages, and equity appreciation of home ownership for people who don't want to own single family homes.

Even more basic to the rising trend in apartment building have been the recent developments in population growth. Since 1950, about 35 million persons—equal to the entire gain in our population—have settled in cities and towns. The natural increase in existing cities, migration from rural areas, and the growth of rural areas into towns and cities all served to put the squeeze on land available for residential building. By providing so many more rooms per acre, the apartment has been a natural answer to the problem of sharply rising land costs in rapidly growing suburban areas. And in addition to the pressure of sheer numbers, the changing age composition of our population is also a source of accelerated demand for apartment space. Recent experience, and more important, future projections (since apartments, unlike single family homes must be built more with an eye to the future than to current demand) of population clearly show that the fastest growth is, and will continue to be, concentrated among the young marrieds (ages 18-24) and the over 55's. Persons in these two age groups are, more than any others, the hard core of demand for rental units, and rising income levels will help to make them more independent, and consequently better prospects for separate living quarters than ever before.

The sharply rising rate of apartment building in the past few years has led to an increasing number of "viewers with alarm" regarding possible overbuilding. While it is always true that local supply-demand relationships can become quite distorted, nationally there is little to be concerned about. Highly predictable population trends show a continuing need for a higher proportion of apartment units to single family housing. Even at the current high rate of building—31 apartments out of every 100 residential units—we are still short of even maintaining the existing proportion of rental units in our total housing stock. This ratio currently stands at 37 rental units out of every 100 dwellings and has been declining steadily. Instead of being concerned about overbuilding, we might start asking whether enough apartments are being built to meet the demand of the next 10 years.

George A. Christie, Economist
F. W. Dodge Corporation
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Construction Cost Indexes

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

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

NEW YORK

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS, OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1949	243.7	240.8	242.8	246.6	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	274.9	271.8
1952	278.2	274.8	271.9	265.2	262.2
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
1955	293.1	286.0	300.0	308.3	302.4
1956	310.8	302.2	320.1	328.6	324.5
1957	318.5	308.3	333.1	345.2	339.8
1958	328.0	315.1	348.6	365.4	357.3
1959	342.7	329.0	367.7	386.8	374.1
1960	351.6	337.2	377.7	395.8	380.6
1961	362.5	343.0	398.2	422.4	397.0
August 1962	379.2	356.6	422.2	450.1	420.1
September 1962	378.4	356.2	421.8	449.7	419.6
October 1962	377.7	355.3	421.7	449.6	419.4
	% increase over 1939				
October 1962	205.8	190.3	222.6	237.0	222.4

ATLANTA

PERIOD	RESIDENTIAL Brick	RESIDENTIAL Frame	APTS., HOTELS OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Steel
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.0	224.6	221.3	221.8	223.0
1954	219.6	219.1	233.5	225.2	225.4
1955	225.3	225.1	229.0	231.5	231.8
1956	237.2	235.7	241.7	244.4	246.4
1957	241.2	239.0	248.7	252.1	254.7
1958	243.9	239.8	255.7	261.9	262.0
1959	252.2	247.7	266.1	272.7	273.1
1960	259.2	253.3	274.7	282.5	278.8
1961	256.7	249.7	275.8	284.5	275.8
August 1962	265.1	257.4	285.7	295.8	283.9
September 1962	264.9	257.2	285.4	295.6	283.7
October 1962	266.3	259.6	286.6	295.8	284.3
	% increase over 1939				
October 1962	208.6	212.4	201.4	203.7	200.2

ST. LOUIS

1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.0	259.2
1954	266.6	260.2	263.7	273.3	266.2
1955	273.3	266.5	272.2	281.3	276.5
1956	288.7	280.3	287.9	299.2	293.3
1957	292.0	283.4	295.2	307.1	302.9
1958	297.0	278.9	304.9	318.4	313.8
1959	305.4	296.4	315.0	329.8	323.9
1960	311.4	301.0	322.2	337.2	329.2
1961	315.1	302.0	329.0	346.8	332.2
August 1962	324.4	309.7	343.5	362.3	343.7
September 1962	324.4	309.7	343.5	362.3	343.7
October 1962	323.0	307.9	343.2	362.2	343.4
	% increase over 1939				
October 1962	193.1	187.7	189.1	202.3	188.6

SAN FRANCISCO

1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.0	259.7
1954	257.4	249.2	264.1	272.5	267.2
1955	268.0	259.0	275.0	284.4	279.6
1956	279.0	270.0	288.9	298.6	295.8
1957	286.3	274.4	302.9	315.2	310.7
1958	289.8	274.9	311.5	326.7	320.8
1959	299.2	284.4	322.7	338.1	330.1
1960	305.5	288.9	335.3	352.2	342.3
1961	308.7	290.2	345.1	362.9	350.2
August 1962	317.0	296.7	357.6	376.9	361.3
September 1962	324.2	305.1	366.3	383.6	368.1
October 1962	323.5	304.2	366.1	383.4	367.3
	% increase over 1939				
October 1962	206.3	206.3	211.8	214.5	215.3

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

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

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

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

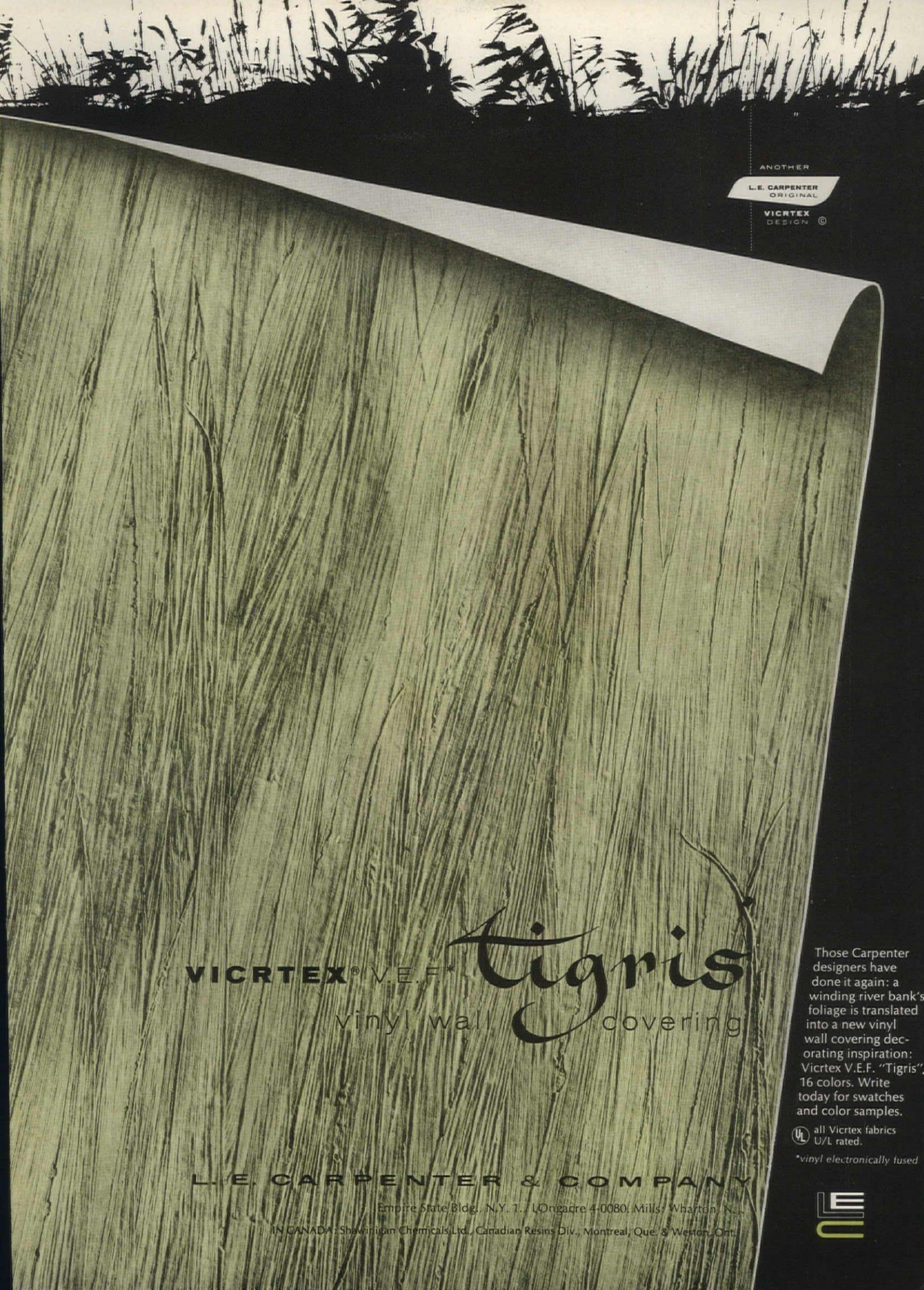
$$\frac{110-95}{95} = 0.158$$

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

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

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

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

CONSULTING ENGINEERS LAUNCH CAMPAIGN TO PROMOTE JOB OPPORTUNITIES ABROAD

Consulting engineers are exploring opportunities which may be available to them in the push to develop American foreign trade and in the new European context created by the Common Market.

The young Consulting Engineers Council, one of the liveliest organizations in the construction industry, has established a special committee to look into foreign job opportunities and identify specific problems to be solved before American engineers can exploit these opportunities.

The committee is working with the Department of Commerce and other Federal agencies to develop information about regulations governing U.S. consulting engineers doing business in foreign countries.

The Council is also cooperating with the University of Colorado in sponsoring the first Institute for International Engineering, to be held January 23-25 at the university campus in Boulder. Overseas business development is the theme and other cooperating organizations include the U.S. Department of Commerce, the Small Business Administration and the Colorado Regional Export Expansion Council.

"The fundamental objective of this new program," says the prospectus, "is the stimulation of international engineering operations by American firms as a contribution to the development of American foreign trade. Emphasis in this program will *not* be on technical engineering data. The entire Institute is designed to interest and acquaint engineering firms with the advantages of engaging in international engineering service contracts and will be geared to the economic, business and political aspects of such services."

Actual promotion of foreign assignments was a major topic at last month's meeting of the C.E.C. Committee in Chicago. The Committee will develop a procedure for nominating a limited number of firms in response to requests for specific assistance. To promote work for U.S. consulting firms generally, a specialized roster of C.E.C. firms interested in foreign work will be compiled and distributed through U.S. government agencies, and directly, to potential foreign clients.

Also discussed was a proposed Department of Commerce survey of foreign service commercial attachés to compile regulations affecting U.S. engineers working abroad.

William W. Moore of Dames and Moore, San Francisco, is chairman of the C.E.C.'s special committee. Other members are: Louis Berger, Louis Berger Associates, Orange, N.J.; Richard Harza, Harza Engineering, Chicago; Orley O. Phillips, Phillips-Carter-Osborn, Denver; Eric B. J. Roos, Seelye, Stevenson, Value & Knecht, New York City; C. M. Stanley, Stanley Engineering, Muscatine, Iowa; and L. J. Sverdrup, Sverdrup and Parcel, St. Louis.

Architects Not Interested?

Apparently architects either doubt the possibility of profitably expanding their business abroad, or feel that they already have sufficient information on which to base any future efforts in this direction. At any rate the American Institute of Architects says it has no program for promoting foreign job opportunities for architects or for collecting data on the professional problems which confront U.S. architects working abroad, and that there has been no discussion with the Consulting Engineers Council of its program.

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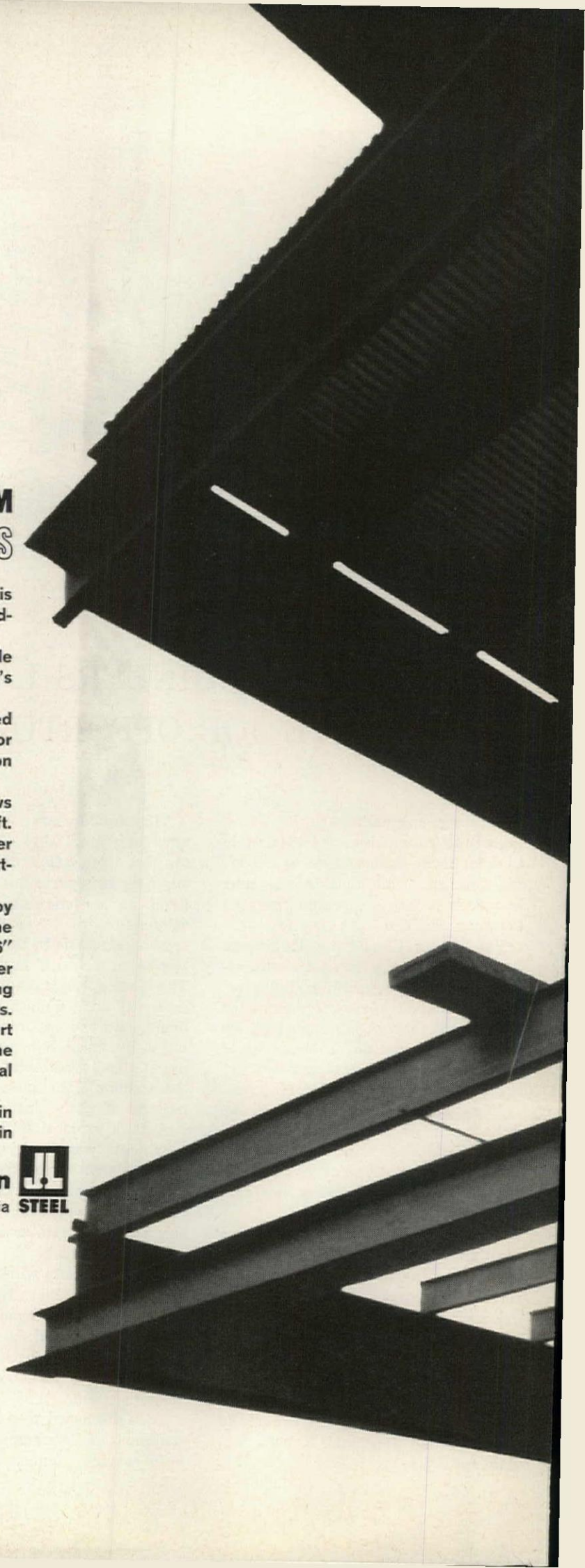

THREE A.I.A. WESTERN REGIONAL CONFERENCES

From left: Speakers Robert Alexander, Robert Hastings, George Kassabaum, regional director Lloyd Snedaker, conference chairman Ashley Carpenter, Utah president Pat Harris

From left: Lloyd Snedaker, Dean Gustavson and Pat Harris of Salt Lake with Mountain States T & T general manager Eric Aaberg, leaders in Salt Lake's downtown plan for 1980

From left: Dr. Frei Otto, Berlin, Germany. Dr. Mario Salvadori, New York and Rome with Cal Poly's George Hasslein, conference program director

From left: Two former regional directors comparing notes: Donald Stewart and Harry Weller. "The Art of Building": Philip Johnson with speaker Robert Alexander

The three A.I.A. Western regions consistently stir up a heady brew for their constituents in the form of their annual conferences, using as ingredients provocative subjects, interesting people as speakers and last but not least, some of the most beautiful places in the country. The combination proves irresistible and the kind of architect attracted adds more to their flavor. No one willingly misses "the regional."

The A.I.A. divides the West into three parts: Northwest, which includes Hawaii and Alaska, Washington, Oregon, Montana and Idaho and is presided over by Robert Durham of Seattle; Western Mountain, which has Arizona, Colorado, New Mexico, Nevada, Utah, Wyoming and whose director is Lloyd Snedaker of Salt Lake City; and California, in the charge of director Malcolm Reynolds of Oakland.

Although each conference had its own particular quality and made its intended points in its own way, the Northwest provided the most spectacular show. The conference, whose theme was "The Art of Doing," was set at Oceanlake, Ore., where the 200-odd conferees were in the direct path of hurricane Frieda, and experienced the fury of 120-mile-an-hour winds and the beauty of the storm-lashed ocean. Conference chairman Robert Wilmsen of Eugene and his committee kept everything going on an even keel, despite a 24-hour isolation from the rest of the world. Speakers Philip Johnson, John Bolles, Robert Alexander, Harold Spitznagel and Alfred Bendiner and artists Tom Hardy, David McCosh, Eugene Bennett and Jane Gehring, who directed the "doers" in water color and sand-cast sculpture performed like veterans. The experiment of getting architects to "do" some art form was a success.

The Western Mountain region, meeting in Sun Valley, Ida., chalked up its most successful conference yet. Like the other two meetings, this program included the Institute feature, "Expanded Services," and as in the other regions, this seemed out of place with the rest of the program. Hit of the program was, however, Dean Gustavson's presentation of the Utah architects' plan for downtown Salt Lake City, now approved and being executed. Institute president Henry Wright, George Kassabaum, Robert E. Alexander, Robert Hastings, O'Neil Ford, Douglas Haskell and Elisabeth Thompson rounded out the speakers' list. Ashley Carpenter, Salt Lake City, was chairman.

California's theme "World Search" drew for most of its speakers on the preceding World Conference on Shell Structures: Mario Salvadori, Rome, New York; Dr. Frei Otto, Berlin; Joseph Allen Stein, New Delhi; and added Sir Hugh Casson of London. Program director George Hasslein of Cal Poly kept the talent in line for an inspiring and provocative program—fit successor to the last convention held in the same place, Monterey, in 1958.

—Elisabeth Kendall Thompson

Shown Here: DECOR PANEL COLUMNS

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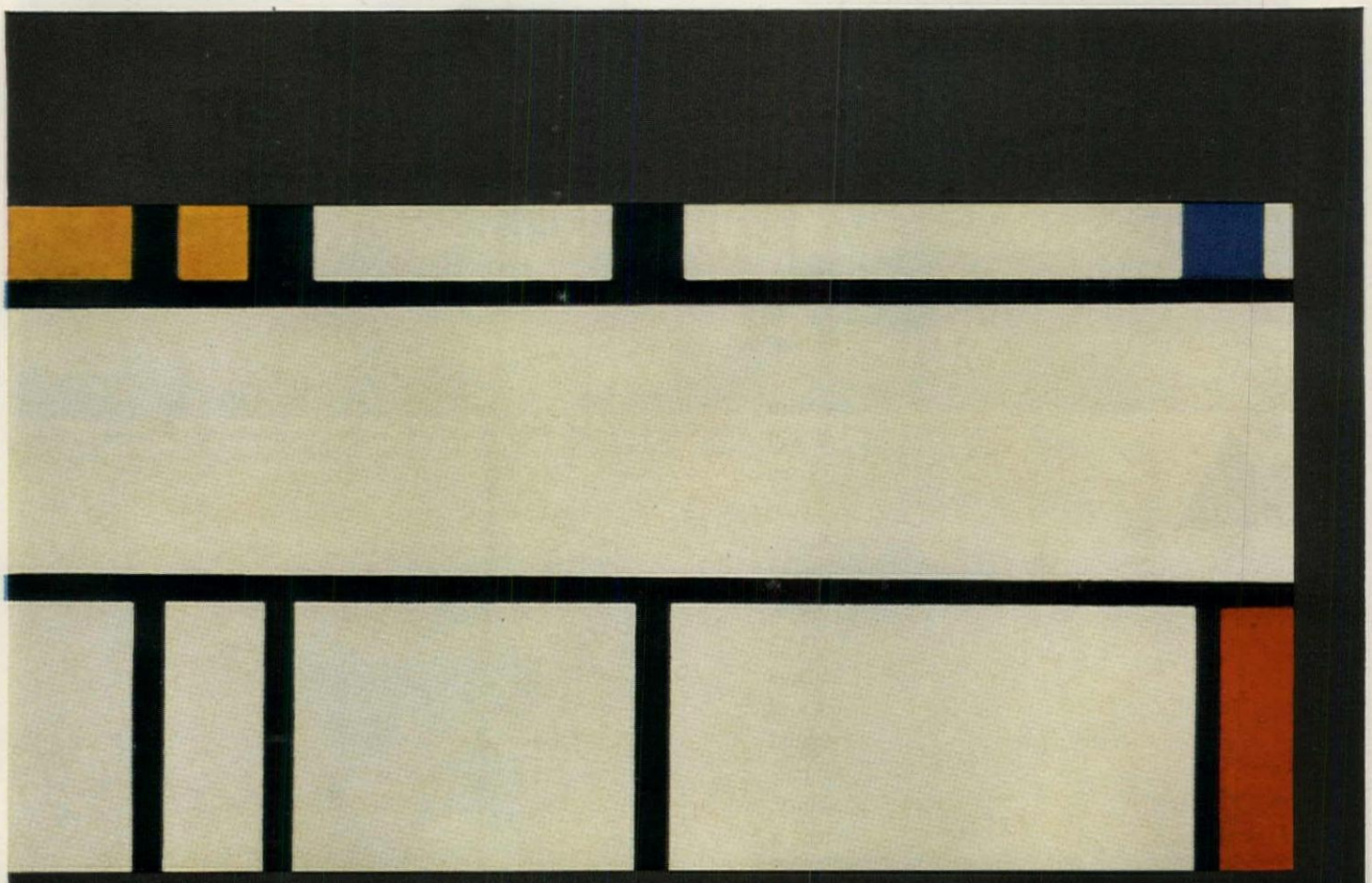

ENDURING BEAUTY BY MONDRIAN. The painting above, by the famed Dutch artist (1872-1944), is titled "Composition in Red, Yellow And Blue." Some admirers of Mondrian have called him one of the fathers of modern architecture, since his juxtaposed space divisions and unique sense of asymmetry have greatly inspired modern architects. (Reproduction by arrangement with Sidney Janis Gallery, New York City.)

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Because the architect is concerned equally with enduring beauty and enduring utility, you will surely welcome the announcement of Lo-Tone vinyl coated mineral acoustical ceilings.

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For samples and further information, find your local Lo-Tone Acoustical Contractor in the Yellow Pages, or write us: Wood Conversion Company, St. Paul 1, Minnesota.

For enduring beauty, specify . . .

LO-TONE® MINERAL CEILING TILES AND BOARDS

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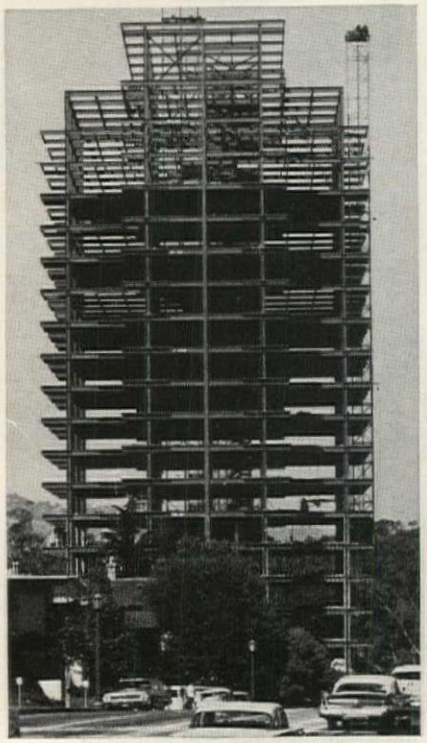
Model of the twin Wilshire Comstock apartments in West Los Angeles, California. Architects and Engineers: Victor Gruen Associates; Edgardo Contini, Partner in Charge.



Economical steel for residential luxury

The Hollywood Hills form the backdrop for the tall, trim Wilshire Comstock apartments. These twin 20-story buildings represent 1962's entry in Tishman Realty and Construction Company's amazing record of a building a year in the Los Angeles area.

Each of these buildings has spacious living areas free of cluttering columns. From lobby to penthouse, each is designed for gracious living. Each apartment is equipped with individually controlled air-conditioning, and has its own terrace. Even tenants' automobiles are pampered in a split-level basement garage.

According to the Tishman organization, completion of steel erection for Wilshire Comstock-West one month ahead of schedule (in only 61 working days) represents a corresponding potential in increased rental revenue. Bethlehem crews, even more recently, have completed erection of structural steel for Wilshire Comstock-East.

The steel framing conforms to the seismic code of Los Angeles. Possible earthquake forces would be carried through welded beam-to-column connections which provide a moment-resistant frame. Another interesting aspect of the structural design lies in the use of alternately rotated columns, which help to equalize rigidity in both directions.

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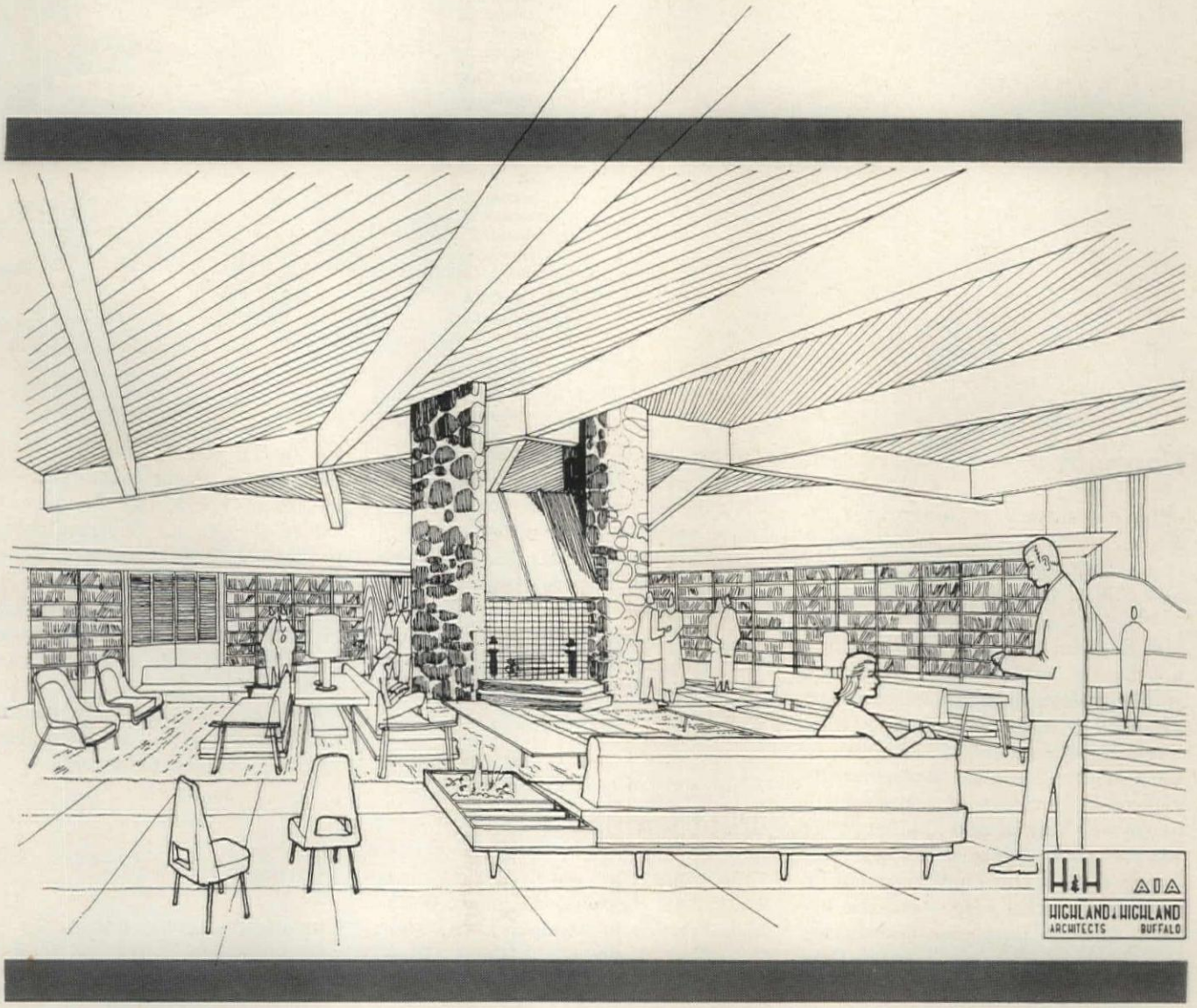

THE CHURCH LOUNGE

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Guggenheim Museum, New York City
—from "Photographing Architecture and Interiors"

Banham

GUIDE TO MODERN ARCHITECTURE. *By Reyner Banham. The Architectural Press, 9-13 Queen Anne's Gate, London S.W.1. 159 pp., illus. 25s.*

Mr. Banham has designed his guide not for the professional nor for the wholly unlettered in architecture, but rather for architecture buffs who, like him, will go out of their way to see a modern building. Deploring the lack of a literature of appreciation, he says of himself and his like, ". . . we are not encouraged to cheer and stamp when a Gio Ponti successfully pulls off a rather *risqué* esthetic effect, when le Corbusier transmutes the flatulence of three hundred flats into a rhetorical exhaust stack in the grandest of all possible manners, or when Mies turns the corner of a facade with the authority and precision of Fangio at Woodcote." To fill this gap, Mr. Banham has written appreciations of modern buildings, from the Bauhaus to Tange's Kurashiki Town Hall, which have in one way or another, at one time or another, moved him to cheer and stamp.

The appreciations are preceded by a four-part introduction: Function, Form, Construction and Space. The latter assumes, for Mr. Banham, the most distinctive area of development in modern architecture, but he is not really insistent on the point. Having no theoretical axe to grind, he finishes the book with a panegyric to Mies's details in Crown Hall. Minor inconsistency is one of the luxuries allowed when enthusiasm is the point, and the buoyancy of Mr. Banham's enthusiasm will forgive even his prose —journalistic, vernacular, occasionally, God save the mark, hip. Behind the rather studied flipness lies a solid respect for good architecture and the men who make it.

Photography

PHOTOGRAPHING ARCHITECTURE AND INTERIORS. *By Julius Shulman. Whitney Library of Design, 18 E. 50th St., New York 22, 154 pp., illus. $14.95.*

As anyone knows who has ever watched an architectural photographer at work, his is a profession requiring a world of patience, an eternity of experience, and a wealth of technical know-how. Photographer Julius Shulman is deservedly well known for his success in accomplishing what is essentially an impossible job—putting three-dimensional buildings onto two-dimensional paper. For the benefit of aspirant photographers and interested architects and designers, Mr. Shulman shares his hard-earned knowledge of the requirements of equipment, angles and photographic perspective, the intricacies of lighting—whether natural or synchronized flash—and darkroom tricks. He has even revealed the famous Shulman portable garden, suitable for framing with. For the budding professional, there is a chapter on markets and fees.

As for experience and patience, these must still be provided by each man for himself.

The book is, expectedly, profusely illustrated, with a photographic analysis of each photograph.

Houses

THE COURT-GARDEN HOUSE. *By Norbert Schoenauer and Stanley Seeman. McGill University Press, 3458 Redpath St., Montreal 25, Canada. 204 pp., illus. $8.*

The increasing popularity of the house designed around a private courtyard led the authors initially to undertake a study of the suitability of the building type for Canadian climate. Finding that there was no comprehensive study of the subject, they have covered it in rather more detail.

American architects are likely to find interest chiefly in the first three chapters. The first gives instances of the design type in history and around the world—the Mediterranean is by

continued on page 62B

SMOOTH GREEN

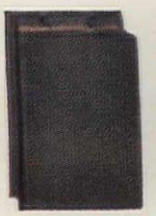
SMOOTH CORAL

SMOOTH GRAY

WEATHERED GREEN

SMOOTH BUFF

WEATHERED RED



WEATHERED BLACK

WEATHERED BROWN

SMOOTH WHITE

BLUE GLAZE ON
DESIGNER PATTERN

YELLOW GLAZE ON
SPANISH PATTERN

GREEN GLAZE ON
DESIGNER PATTERN

Rowsey Memorial Chapel, Muskogee, Oklahoma—Archts.: Bennett & Crittenden, Dallas, Texas—Tile by Ludowici: Early American Gray Range

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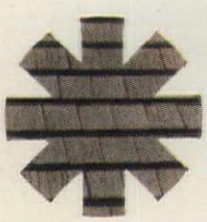

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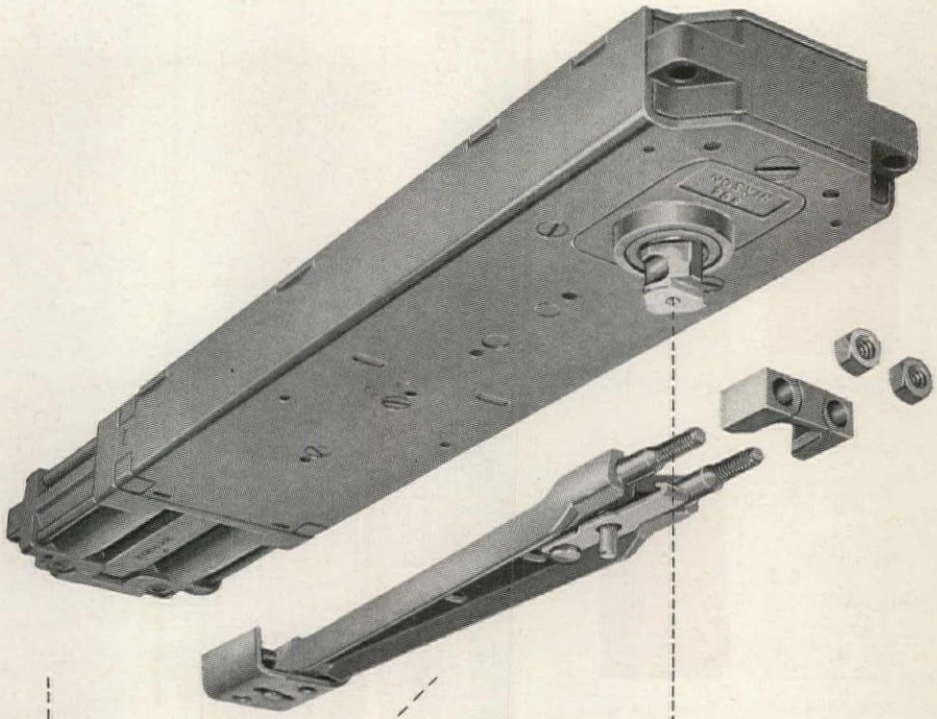

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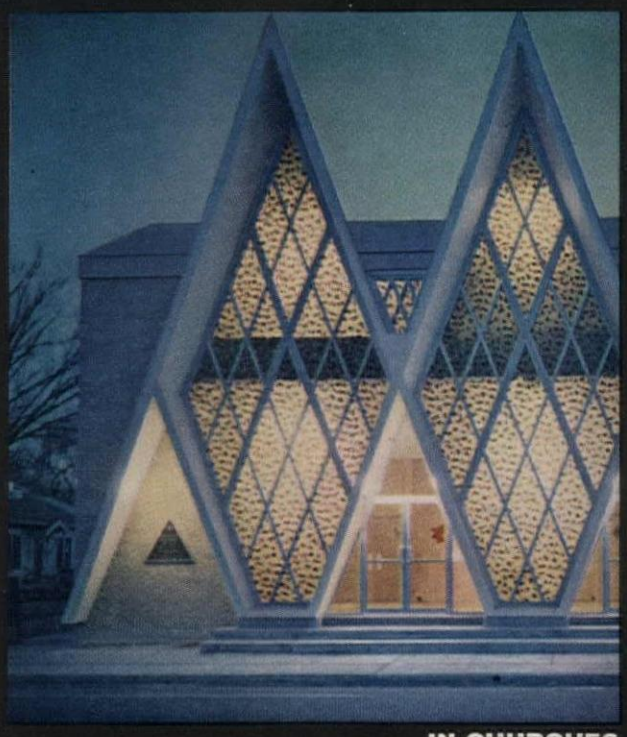
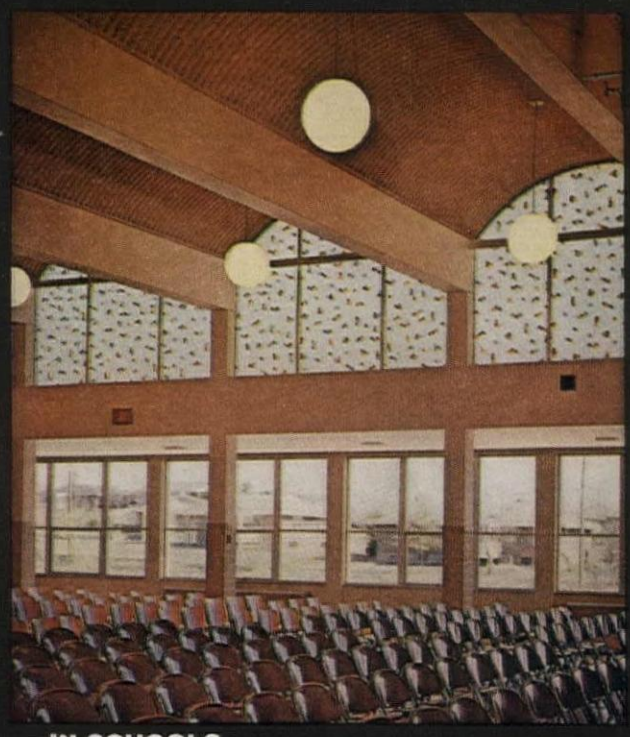
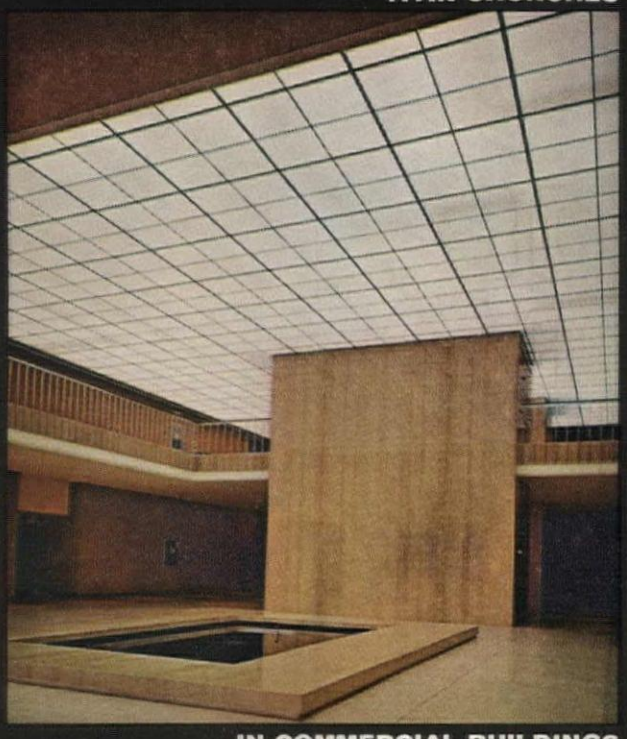


...IN CHURCHES



...IN SCHOOLS



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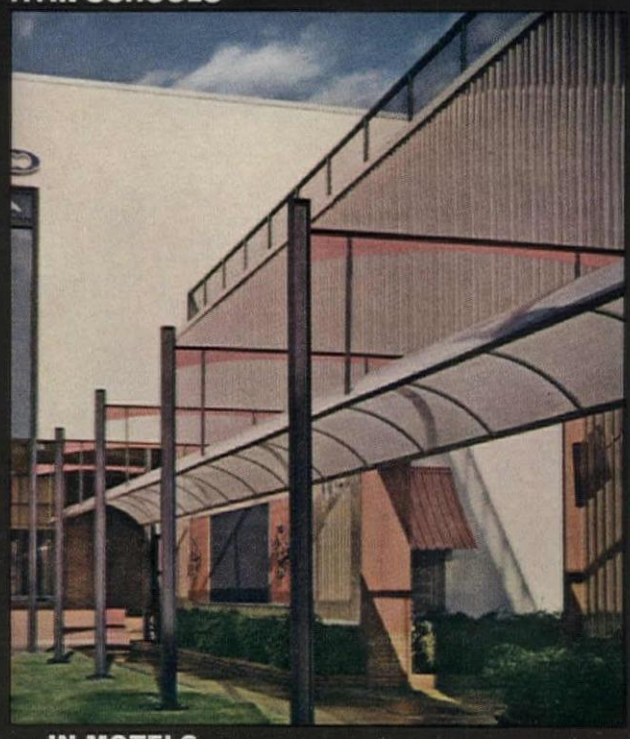

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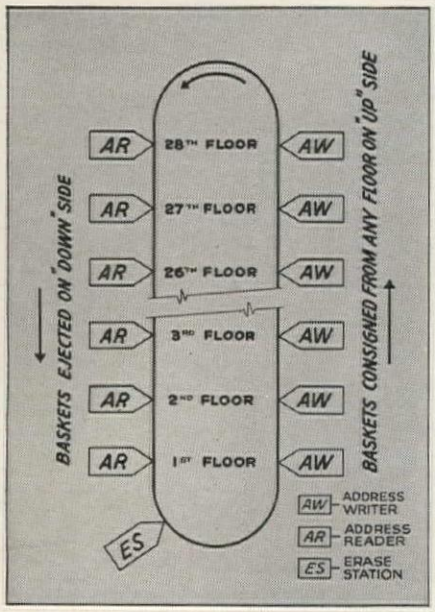
STANDARD CONVEYOR Recordlift distributes a daily volume of mail equal to a 1st class postoffice throughout the 28 stories of the Kaiser Center office building. The operator merely pushes a button to send the mail basket to the proper floor . . . button determines a magnetic code for address tabs on the conveyor carriage.

KAISER CENTER, Oakland, California. ARCHITECTS: Welton Becket & Associates. GENERAL CONTRACTOR: Robert E. McKee General Contractors, Inc.

High speed mail distribution streamlines the paper flow in new Kaiser Center



"Magnetic memory" control system has no moving parts, no levers, no between-station wiring . . . nothing to wear out. Diagram shows how address "writers" and "readers" are located between the building's 28 floors. If you are planning a multi-story building where mail distribution can be a problem, get the full details now on fast and efficient Recordlift!

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From a fountain of concrete shells ...inspiring church design

From the lantern-like tower that floods the main altar with natural light, concrete parabolas spill out in widening rings. The second tier forms a clerestory. In the lower cluster, the arches shelter monastic side altars.

On the interior of this new chapel of the Benedictine Priory, near St. Louis, Missouri, twenty parabolas echo the architectural theme. They rise from the floor to converge at the base of the tower.

Only shell concrete, with its fluid look, could bring such easy grace and modern simplicity to this circular plan which is basically one of the most ancient used for churches.

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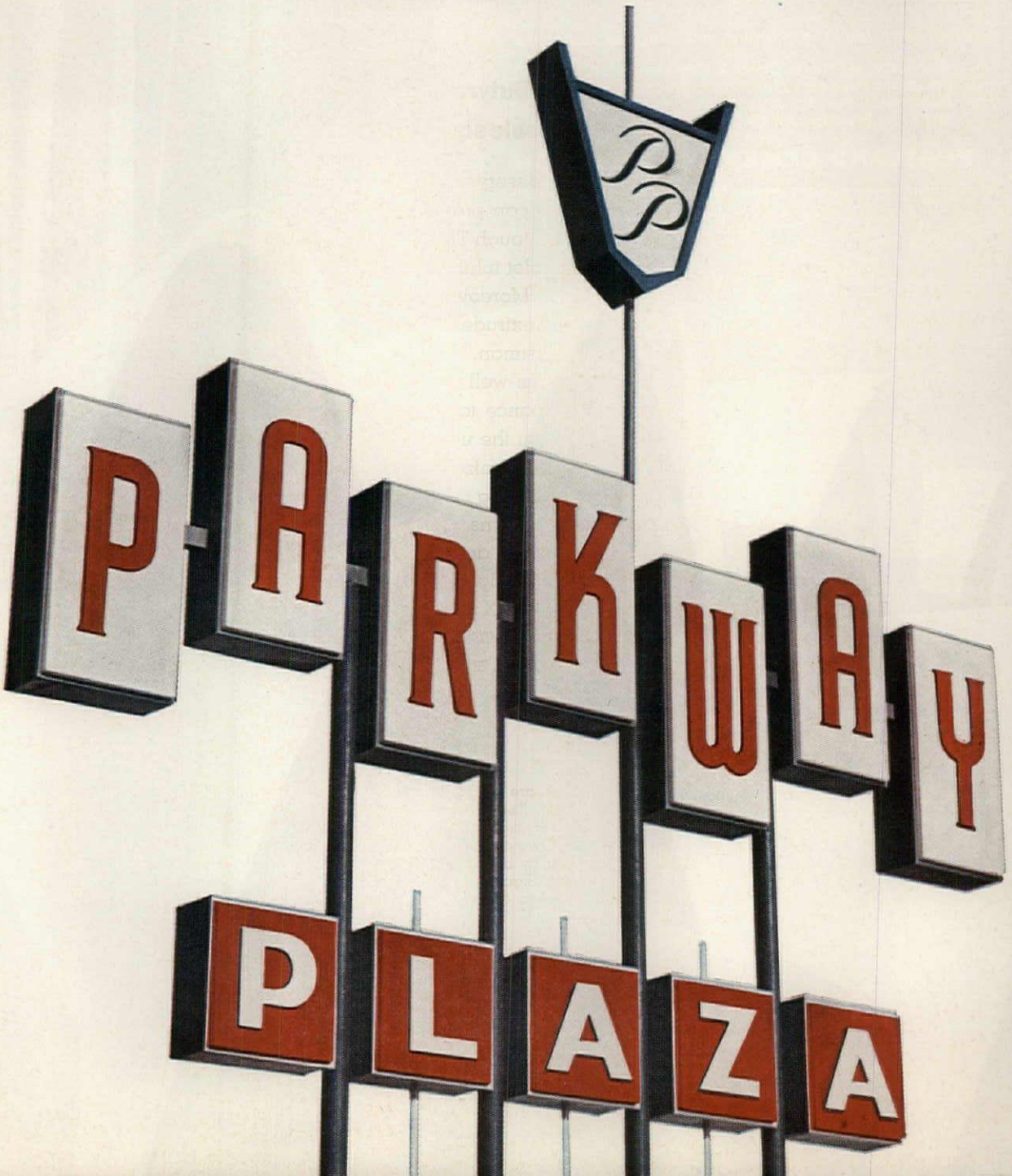

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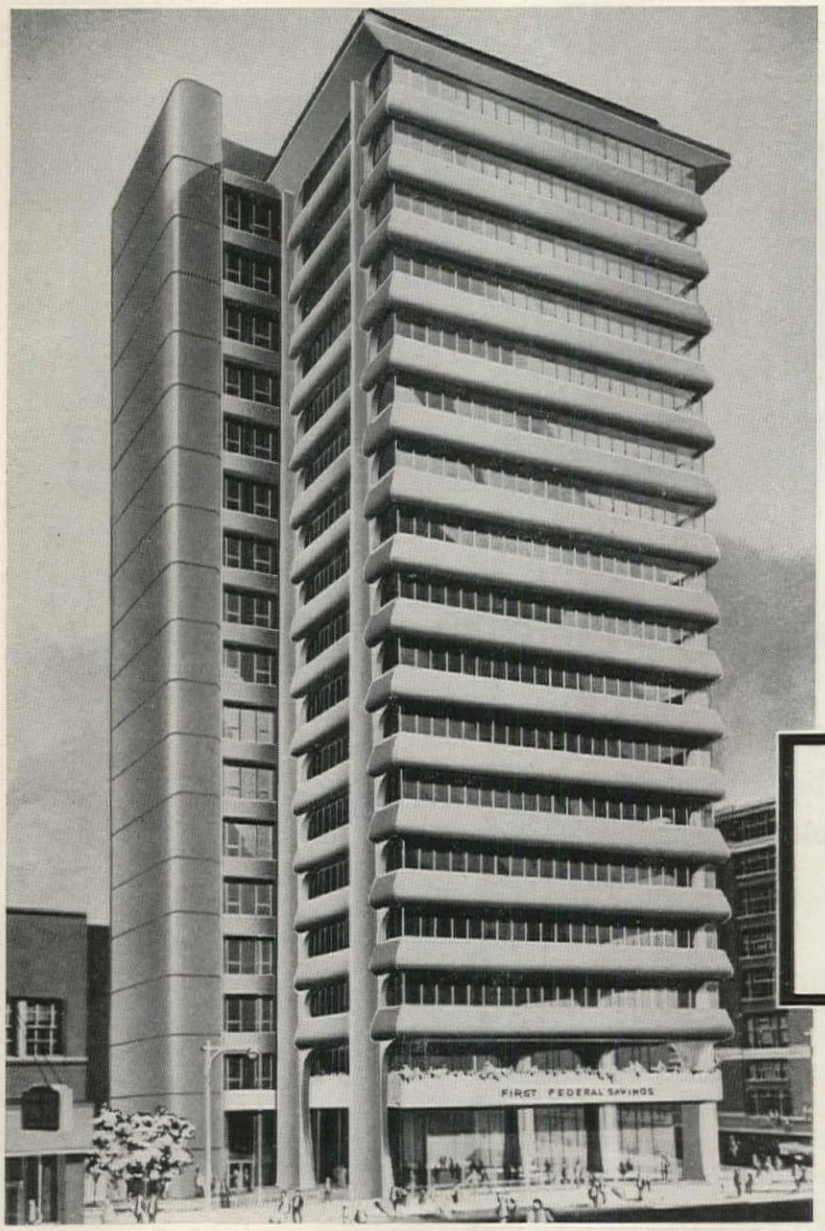
The major elements of this sign for a shopping center are double-faced, internally lighted modules vacuum-formed from 0.125" clear UVEX sheet. The light weight and dimensional stability of UVEX plastic sheet eliminated the need for heavy framing and permitted the modules to be mounted on slim unobtrusive poles. Over-all height is 45 feet. Individual modules are 3' x 6'. Red and white colors were applied by back-spraying after forming. Sign was manufactured for W. B. Greene Co., Inc., by Felix Signs, Inc., both of Kingsport, Tenn. UVEX sheet was extruded by Flex-O-Glass, Inc., Chicago 51, Ill., from a special weather-resistant formulation of Tenite Butyrate plastic.



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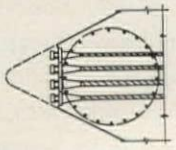

Column section at beam stressing terminal showing post-tensioned tendons stressed thru vertical column steel.

Towering 239 feet above plaza level will be the new post-tensioned prestressed concrete building for First Federal Savings and Loan Association of Atlanta. Mr. George W. West, Jr., President says, "This will be one of the tallest prestressed concrete structural frame buildings in the country and we were able to have completely unobstructed floorspace by using the Prescon System."

The structure is of cast-in-place exposed molded concrete with weathering finish of synthetic rubber. This was chosen for its adaptability to the concept of a unified monolithic entity, expressing a complete sculptured form, free of unnecessary ornamentation, arising from a spacious pedestrian platform.

The frame consists of concrete columns with a beam and slab system spanning 66′-3″ between 6′-4½″ deep spandrel beams. The span members are approximately 22″ wide, 33″ deep and 10 feet on center. Each member will be stressed in two stages to speed up construction by allowing members to carry some construction loads at an early age without overstressing the concrete. Floor-space exceeds 120,000 sq. ft. with a typical floor 100′ x 66′ of unobstructed floor area.

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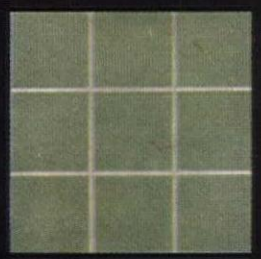
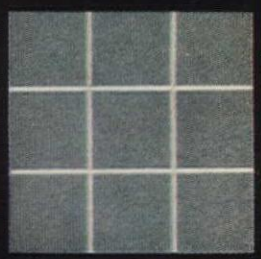
SPRINGTIME HARMONY of blues and greens in new bright and crystal glazed mosaics glamorize this 10′ x 16′ master bath. Floor, Ice Green Crystalettes; tub floor, Regency Blue Crystalettes. Right wall, Surf Green Glazettes; behind sink, Regency Blue Glazettes; rear tub wall, Light Blue glazed wall tile. Counter, Ice Green Crystal Glaze. Design by the Stylon Design Department. Tile Installation by Bruno Ferroli.





In this handsome master bath, Crystalettes, Glazettes and every other piece of tile is Stylon Premier Grade, individually hand-selected for absolute flawlessness. Do **your** bathroom designs full justice with ceramic tile that has Stylon's exclusive controlled quality and ease of installation. Send for folder on 36 Complete Coordinated Color Schemes . . . created by Stylon and famed color consultant Lee Childress to aid in your selection and creative use of color in ceramic tile.

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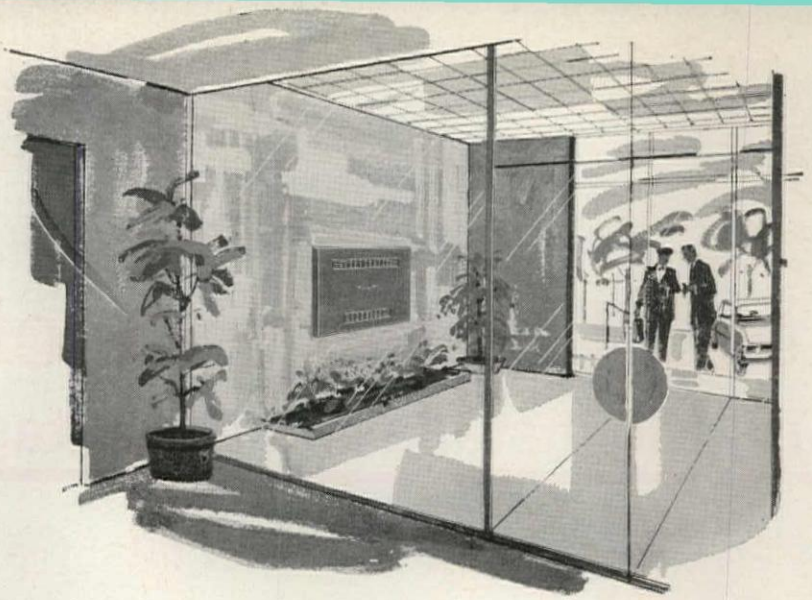

Air conditioning is for *individuals* in *individual spaces;* and Roommate II cabinet air conditioners are the most flexible "personal weather" units ever designed for motels, apartments, offices, hospitals, and similar buildings.

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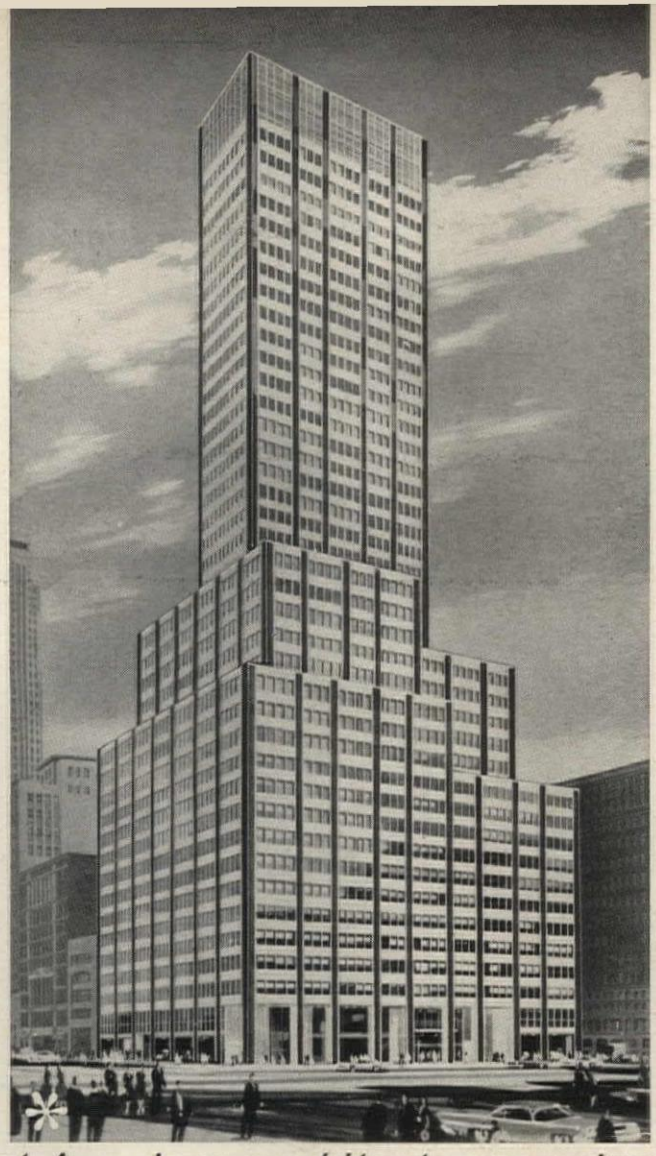

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Required Reading

continued from page 62B

Harry Truman Comfortable. Indeed, many of them were so mobile (these are *American* presidents) that they lived in several homes in the course of their lives.

The explanatory material accompanying the many illustrations is mostly anecdotal. Mr. Jones's aim was not architectural criticism but an effort to discern some of the forces which shaped the men who one by one, all shared the same home.

Sweden

NEW ARCHITECTURE IN SWEDEN. *Introduction by Erik Thelaus. John Wiley & Sons, Inc., 440 Park Ave. South, New York 16. 346 pp., illus. $14.50.*

Most of the problems Swedish architects had to face in the fifties, Mr. Thelaus implies in his introduction, have been not of esthetics but of social necessity. Sweden's housing shortage, despite the construction of 60,000 units yearly, remains severe. This shortage has, however, induced considerable activity both in production and research. The research has been mainly into prefabrication—the results, Mr. Thelaus suggests, have not been wholly encouraging—and into the planning issue of high-rise versus single-family dwellings, technical and economic exigencies against popular and official preference for detached houses. The production, pressed by time and the need for economy, has been on the whole of modest design.

Swedish architects have had an esthetic challenge, too, in the enormous volume of church building—more now, says Mr. Thelaus, than in the Middle Ages.

Unfortunately, the illustrations, which occupy more than three-quarters of the book, are not as informative as Mr. Thelaus's introduction. Particularly in the sections on houses and churches, illustration is confined to one or two photographs, a plan and an identifying caption. A great many buildings are covered, but none in depth.

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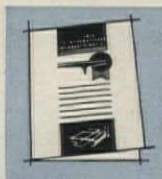
Purpose of the PCI Annual Awards program is to recognize creative architectural and engineering design using prestressed concrete.

Any type of structure, or detail of a structure, may be entered no matter what its size or cost. Entries will be judged on their contribution to the advancement of prestressed concrete. Originality demonstrated in architectural and/or engineering design involving new or novel applications or techniques of assembly, arrangement or use will form the basis of judgment. Any prestressed concrete project completed or under construction before April, 1963, is qualified for entry. Award Jurors will be nationally recognized architects and engineers.

Eligibility: All registered architects and engineers practicing professionally in the United States, its possessions and Canada are eligible to submit one or more entries.

First Award winner will be presented with a handsome plaque testifying to the value of his contribution. An all expense paid trip for two will be provided so the winner may accept the plaque at the PCI Annual Convention in San Francisco, October 5 to 12, then fly to Hawaii for a week of further convention activities. Other distinguished entries will be recognized with Award of Merit certificates.

Get full details about the PCI Annual Awards program from your nearest PCI Active Member (see list below) or send in the coupon for a copy of the PCI Awards Rule Book.



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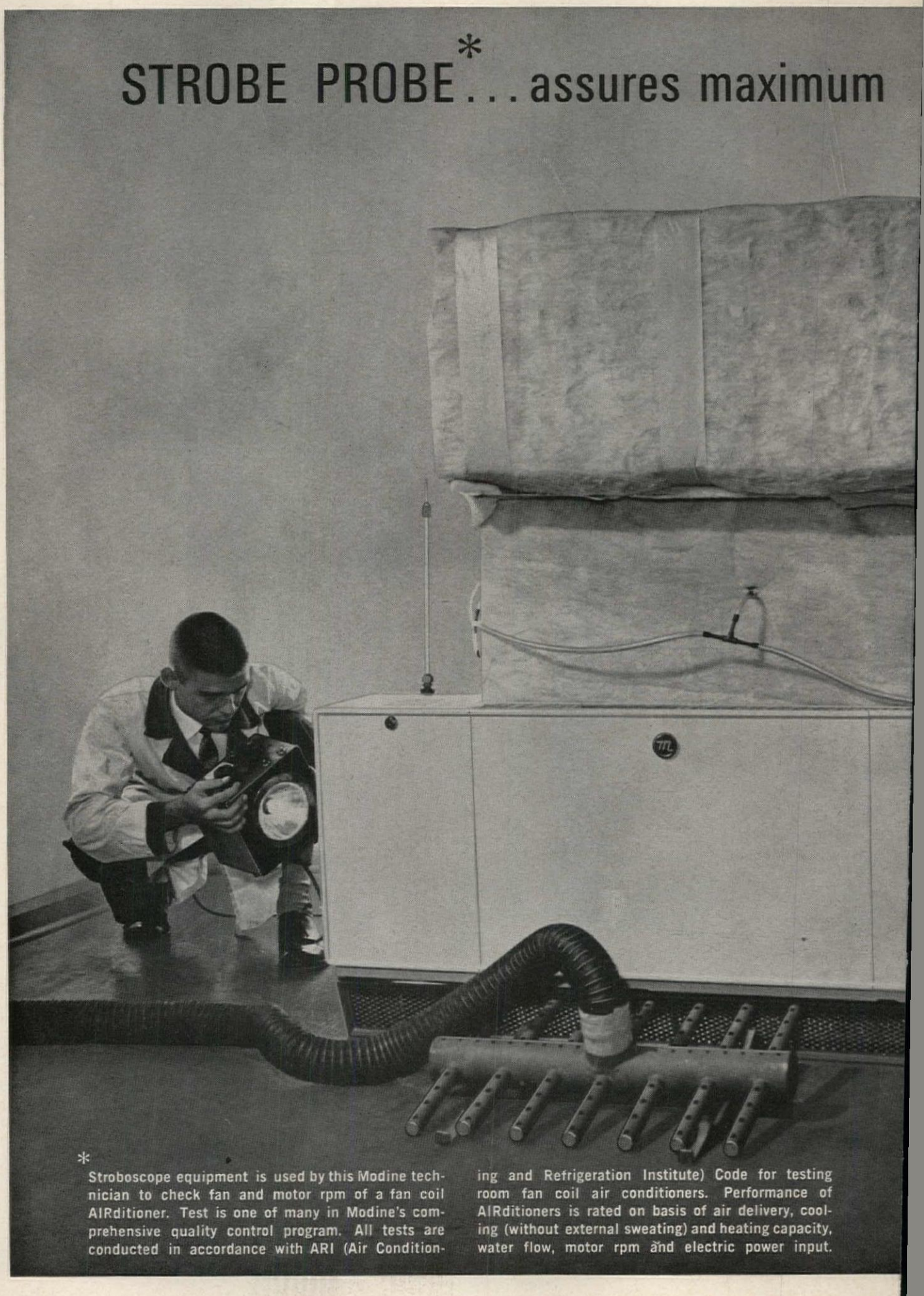
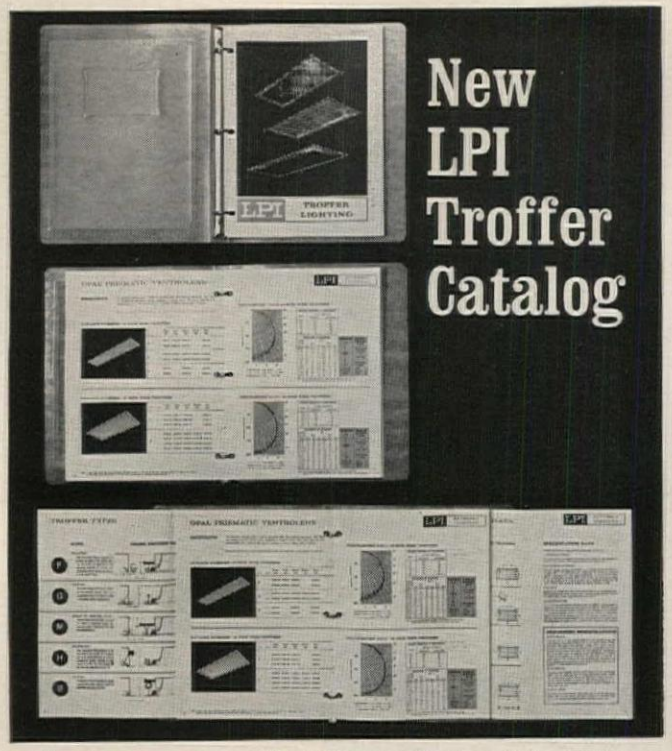


* Stroboscope equipment is used by this Modine technician to check fan and motor rpm of a fan coil AIRditioner. Test is one of many in Modine's comprehensive quality control program. All tests are conducted in accordance with ARI (Air Conditioning and Refrigeration Institute) Code for testing room fan coil air conditioners. Performance of AIRditioners is rated on basis of air delivery, cooling (without external sweating) and heating capacity, water flow, motor rpm and electric power input.



Fold-out covers of new LPI troffer catalog keep information on troffer types and installation details always in view as you refer to ordering data pages. Catalog is standard 8½"x11" size.

With LPI's unique new 32-page catalog, it takes only seconds to determine which type troffer from LPI's all-new line will fit any of 108 mechanical ceiling systems or 21 roof deck systems now in existence. Included is complete data on LPI's new troffer series that adds 40% to ballast life, as well as other outstanding product features. You can easily find the catalog number for the size troffer and type of diffuser you desire by referring to the ordering guide pages. All the information you need is contained in this one convenient, easy-to-use reference source. You save time and eliminate guesswork every time you specify or order.

The catalog contains special Quick Ordering Guides in addition to comprehensive data pages on the most popular diffuser types, plus a wide variety of optional diffuser types. It also provides LPI troffer specifications and dimensions, photometric data, shielding data, general information on construction and features, plus ordering data for optional equipment and accessories.

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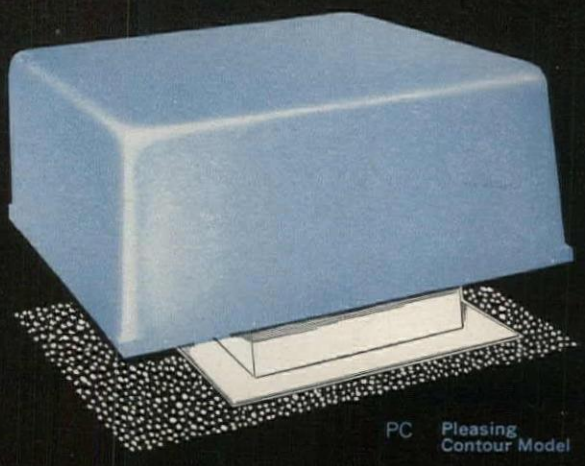

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Housings are fire-resistant, weathertight, and maintenance-free. They deaden sound and withstand heat, cold, moisture and fumes.

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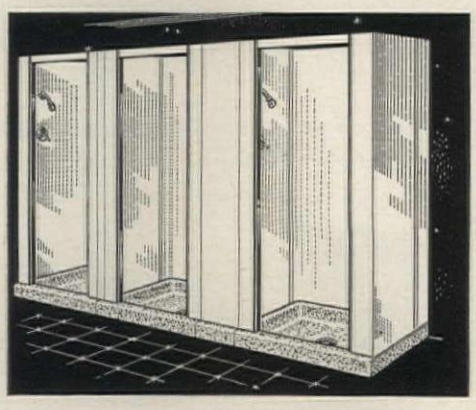


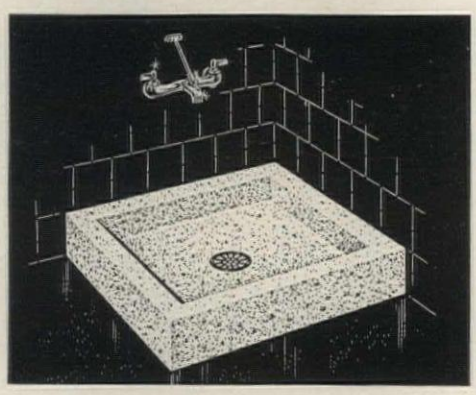
PRODUCT COMMANDER SHOWER

Sandwich panel, rigid wall construction. Installation costs drop because complete cabinet consists of only three factory-fabricated panels that "knife" together by means of double barrier joints attached. Wall panels quickly anchor to 6" deep PreCast terrazzo floor. Available 3 ways: all enamel; all stainless steel; stainless steel inside, baked-enamel outside.

APPLICATION INSTITUTIONS

For school dormitory or gymnasium, club or any other location that requires long, dependable service in spite of heavy traffic and rough use. Designed for individual or battery installation and adaptable to any floor layout. The **Commander** shower cabinet combines with coordinated dressing stalls also made by Fiat. Refer to Architectural File Sweet's $\frac{26C}{Fi}$.

MOP SERVICE BASIN



PRODUCT MOP SERVICE BASIN

PreCast terrazzo with compressive strength of 3,000 PSI produces a permanent unit that withstands rough use day-in, day-out. Tiling-in flange, cast integral, of galvanized-bonderized steel extends 1" above shoulder. High shoulders of basin confine water surge. Chrome plated, brass drain body cast integral. Stainless steel protective cap available as option.

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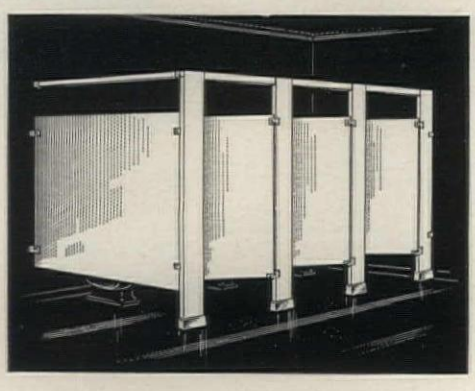
To serve gravity draining of mop trucks and other liquid wastes in office buildings, schools, and public buildings. Permanently leakproof, it requires no sub-pan or double drain. One-piece construction makes quick easy installation. May be placed against wall, in a corner or recessed completely. Standard sizes: 24" x 24"; 36" x 36"; 36" x 24".

TOILET ENCLOSURES



PRODUCT TOILET ENCLOSURE

Duro headrail-braced model shown is the most simple and hence the least expensive toilet enclosure to install. It was deliberately designed to meet popular concepts of clean, modern design and yet was engineered to economize on details that do not detract from its appearance, nor lessen its performance or long-life.

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The Duro model is ideal for replacement, remodeling projects as well as new construction. No special reinforcement of floor, wall or ceiling required. Ceiling-hung and floor-braced models are also available with the "years-ahead" features that have earned a reputation for durability, low maintenance and easy installation.

See Sweet's $\frac{22B}{Fi}$ and $\frac{26C}{Fi}$ or write nearest Fiat office for literature.

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CHICAGO — Franklin Park, Illinois
LOS ANGELES — City of Industry, Calif.
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COMPETITIONS FOR STEEL, PRODUCT LITERATURE

The Design in Steel Award Program, sponsored by the American Iron and Steel Institute, invites entries from any person in behalf of an architect, engineer or designer. Awards are to be given for imaginative use of steel (in eight categories: galvanized sheets, concrete reinforcing bars, welded wire fabric reinforcement, steel plates, drawn wire, hot rolled or cold finished bars, hot and cold rolled sheet and strip and structural steel) in a product, component or structure offered for sale or completed after January 1, 1960. Requirements for entry are a photograph and description of the product or structure.

Jury members are Robert Anshen, Morris Ketchum Jr. and Arthur G. Odell Jr., architects; Jay Doblin, Leon Gordon Miller and Arthur J. Pulos, designers; Edmund Friedman, Robert J. Raudebaugh and Ronald Bromley Smith, engineers.

Entries must be submitted by Jan. 18, 1963 to National Design Center Board of Design. For information, write: National Design Center, 415 East 53d St., New York 22, N.Y.

Consulting Engineers' Council—Producers' Council Joint Committee are sponsoring the second Engineers' Technical and Product Literature Competition. Deadline for entries is Feb. 4, 1963.

Purpose of the competition is "to emphasize the need for manufacturer technical and product literature directed specifically to the consulting engineer; to recognize such outstanding and effective literature; and to encourage other manufacturers to produce literature to fulfill the specialized requirements of this professional group."

On the jury are: Victor B. Aramburu, Lester L. Bozch, David K. Evans, LeRoy H. Nettnin and Richard L. Thacker.

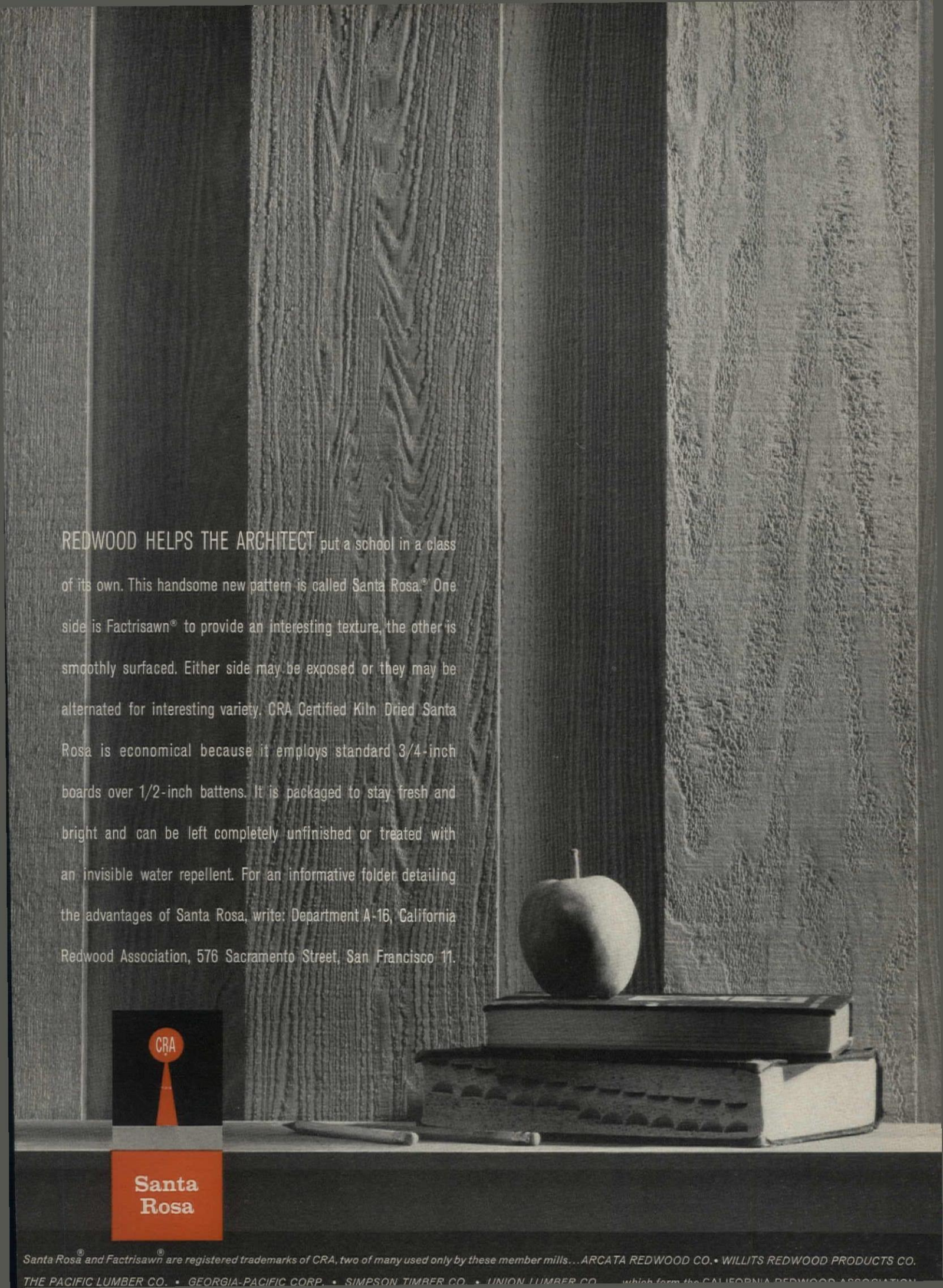
Awards will be presented at the C.E.C. annual meeting May 6-12 in Camden, N.J.

Building product manufacturers, their advertising agencies and associations of manufacturers may write Producers' Council, Inc., 2029 K St. N.W., Washington 6, D.C.

GRADUATE AIDS

Cornell University is offering a number of fellowships, scholarships and assistantships for 1963-64 to qualified students for graduate studies in architecture, landscape architecture, city and regional planning, painting and sculpture.

Applications will be received until February 11. Requests for additional information and application forms should be addressed to: College of Architecture or Department of City and Regional Planning, Cornell University, Ithaca, N.Y.



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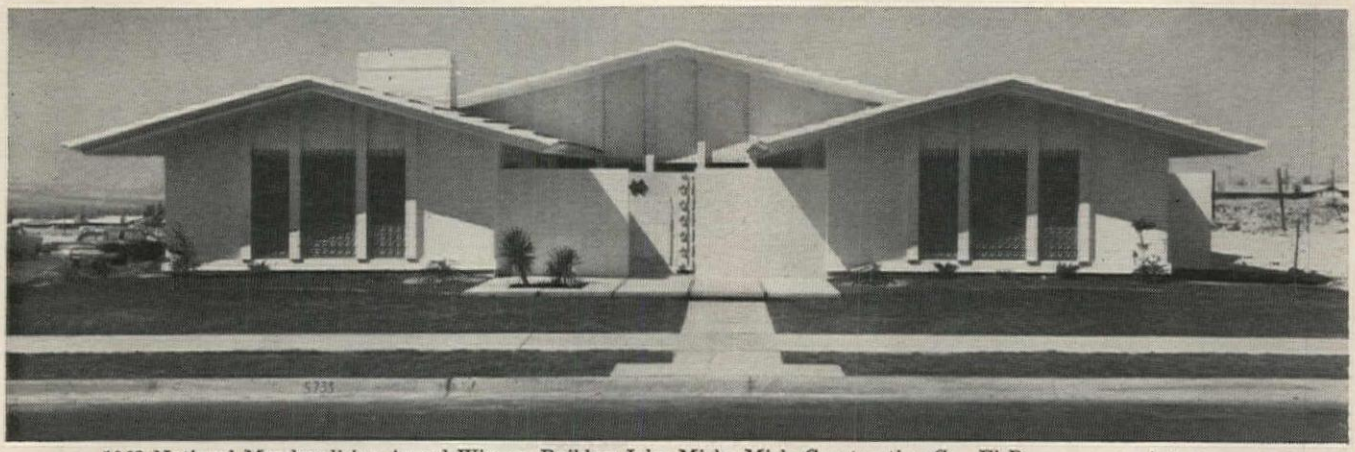

1962 National Merchandising Award Winner. Builder: John Miele, Miele Construction Co., El Paso, Texas. Prize to builder: trip for two to any place in the world.

Plan now to enter this exciting, sales-proven, national awards program

Concrete Industries

1963 HORIZON HOMES

Program

Again in 1963, home builders and architects are offered this unique opportunity to share in a nation-wide program developed expressly to showcase the newest ideas in concrete and actively promote the sale of new homes. Over 150 builder and architect teams already have participated. They have been enthusiastic over the effective publicity and promotional support as well as buyer interest accorded Horizon Homes. Because of this industry interest, the 1963 program will include individual houses *and* row or duplex, multiple-family dwellings.

Each year this continuing program has produced the most imaginative designs . . . the freshest merchandising approaches. Identify yourself in 1963 with this hard-hitting, sales-oriented national program, keyed directly to the home builders' promotional needs. Qualify for the Horizon Homes Award Program—2 major national awards and 7 regional awards for merchandising and design. A total of 16 prizes in all.

For complete details, contact your Portland Cement Association district office.

PORTLAND CEMENT ASSOCIATION
33 W. Grand Ave., Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete.

1962 National Design Award Winner. Architect: Cook & Swaim, AIA, Tucson, Arizona. Prize to architect: trip for two to any place in the world.

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Price isn't the whole story in a fixture ballast. When a ballast fails prematurely, or gives less light, it adds a whole series of costs . . . costs that may involve lost sales and lost production . . . *in addition to extra maintenance costs.*

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Made to specific performance standards, CBM Ballasts are tested and checked by E.T.L. to verify compliance. Result: practical benefits including long ballast life, longer lamp life, and dependable service. You get power factor correction and U.L. listing, too!

Why risk the costs of untested ballasts? Specify Certified CBM Ballasts in *your* fluorescent lighting. For more facts on CBM testing and certification, answers to questions on ballast operation, ask us to send you CBM NEWS.

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Participation in CBM is open to any manufacturer who wishes to qualify.

CBM CERTIFIED by ETL®

. . . MEANS TESTED AND CHECKED BY ETL TO CBM SPECIFICATIONS

1-63

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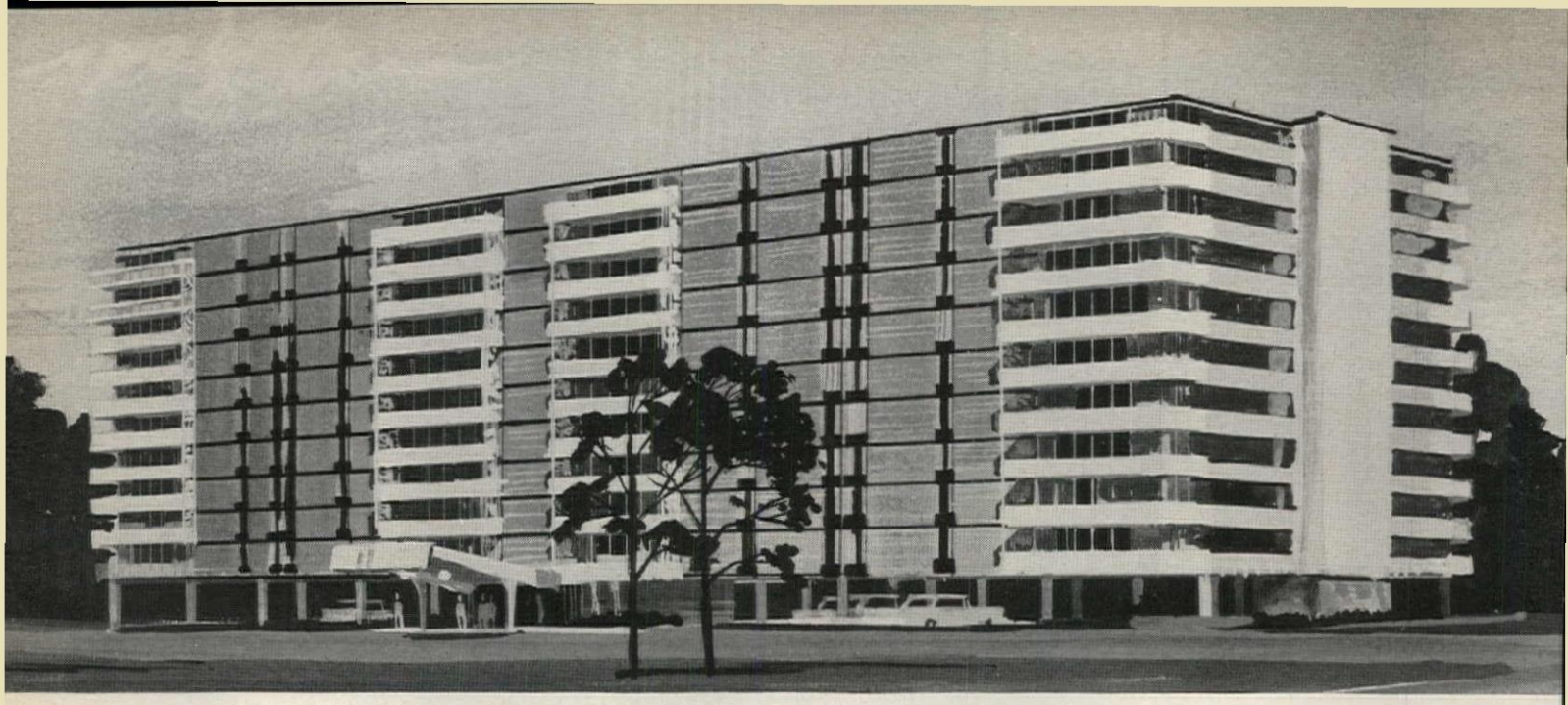


Owner-Builder: BCH Construction Corporation; *architect-engineer:* Backus, Crane & Love; *steelwork:* Bethlehem Steel Company.

"Goal post" steel design proves economical

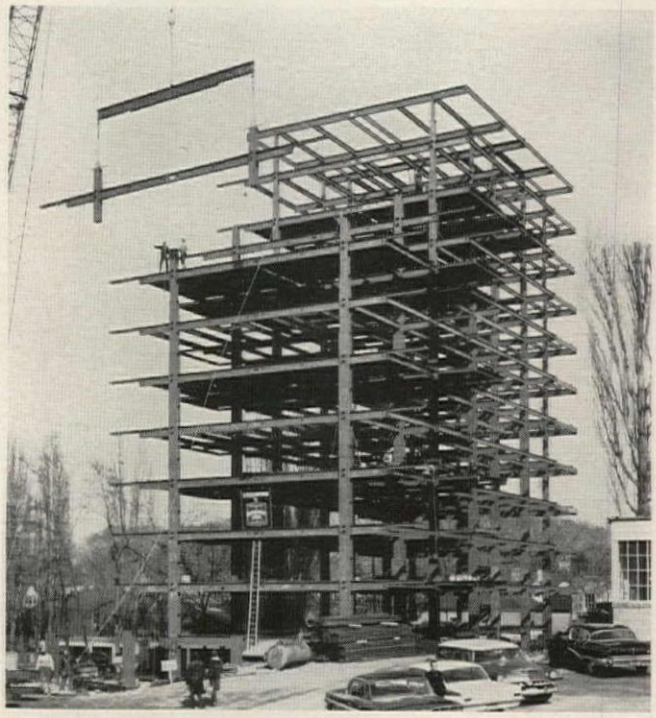
The new apartment building at 1217 Delaware Avenue, Buffalo, is slated for occupancy early in the year. About 190 ft long and 60 ft wide, it has ten floors, eight apartments to a floor, each with a balcony. It will be a very snazzy place to live. But very few of the tenants are likely to appreciate the *really* remarkable things about this building.

Consider: the design problem was to plan a sizable building, with ample landscaped grounds, on a sloping lot only 132 ft wide and totalling less than an acre. To save space and to avoid unsightly parking lots, the design was to provide for parking *under* the building. It was also important to provide a maximum of column-free floor space.

HERE'S HOW THEY DID IT: First, they designed a steel frame with only two rows of eleven columns each, 35 ft on centers. Column spacing was dictated in part by parking requirements at grade level. The columns themselves are unique. They are made up of two wide-flange sections, shop-welded flange-to-flange. Openings were cut through the webs to permit the extension of the main floor girders, which cantilever out a minimum of 7 ft (15 ft where they support balconies), and function as continuous beams.

So, aside from filler beams and miscellaneous members, the steelwork was shop-fabricated into rigid bents, each comprising two built-up column sections, bisected by a beam. Connections were welded. These bents were shipped to the site and erected fully assembled. Columns were spliced with high-strength bolts at mid-story height—and only 6 bolts were required for each column. Filler beams were also bolted into place. Steel erection was *fast.*

HIGHLIGHTS OF THE STRUCTURAL ANALYSIS: First, the designers were able to provide the advantages and economies of welded rigid frames but, at the same time, they avoided field-welding. They also took advantage of the economies inherent in continuous design by running the girders through the columns. In addition, the floors are of composite design. Shear studs were attached to the girders and to most of the floor beams after formed-steel decking (with openings provided where necessary) was installed as a permanent form for the concrete floor.



Topping out a section of the steelwork. It took just 17 working days to erect the complete 775-ton frame.

As a result of all these factors, the designers were able to reduce the weight of steel required—and, by using relatively light and shallow floor beams, they saved 2 to 3 inches in total depth per floor, reducing the total height of structure.

Considering the stringent architectural limitations, it is a most economical structure.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

For more data, circle 45 on Inquiry Card

For more data, circle 46 on Inquiry Card →

part

of the

BEAUTY

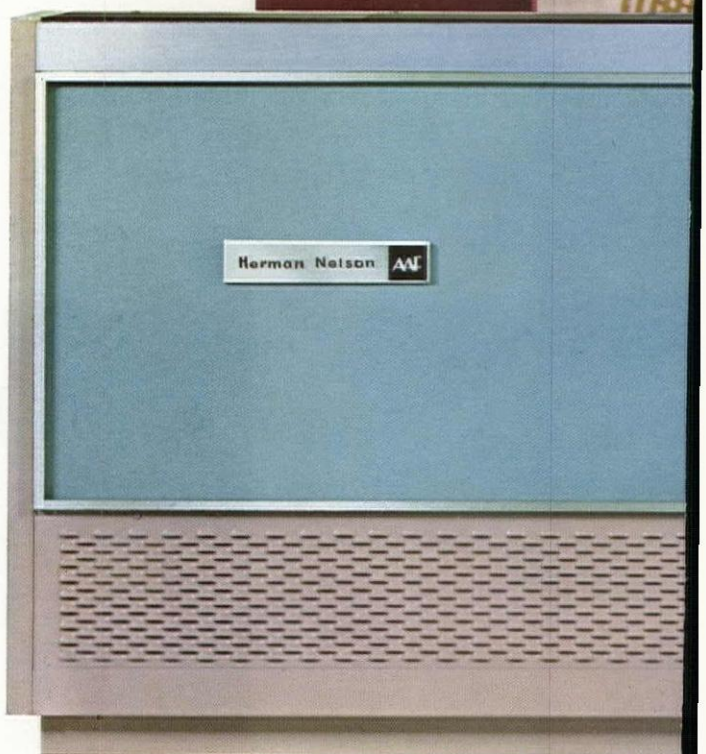
of Herman Nelson

unit ventilators

another Herman Nelson first

Herman Nelson classroom unit ventilators are now warranted for five full years from date of installation. And the warranty covers both parts and labor. To talk about quality is one thing; to *demonstrate* it is another. This 5-year written warranty is your assurance that our talk about Herman Nelson unit ventilators is true. Herman Nelson School Products Department, American Air Filter Company, Inc., 215 Central Avenue, Louisville, Kentucky.

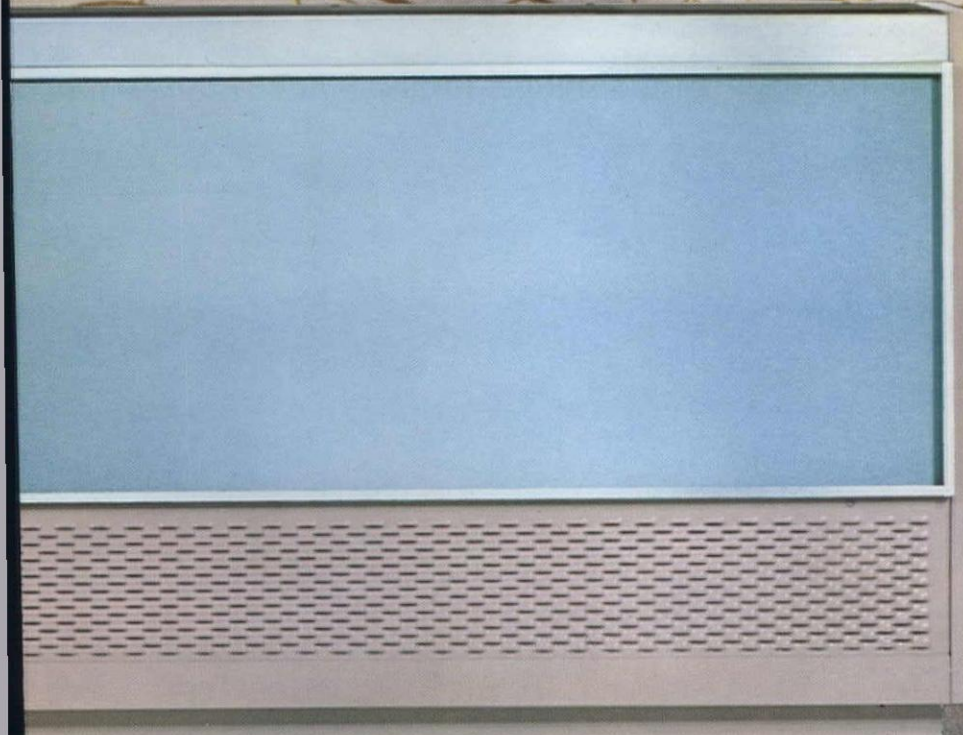
Herman Nelson
SCHOOL PRODUCTS DEPARTMENT



Herman Nelson

5-YEAR WARRANTY

on classroom unit ventilators



ter Company, Inc. at no
This warranty covers the
ntirety – motor, fan shaft
ampers, coil, frame and

bility is limited to mate-
equipment furnished by
mpany, Inc., and involves
sequential damages or

and supersedes any and
xpressed or implied.

Herman Nelson
SCHOOL PRODUCTS DEPARTMENT
AAF

You can depend on this symbol

Herman Nelson AAF

in the classroom of the future

FIRST with classroom unit ventilators

FIRST with heat-free draft control system

FIRST to adapt unit ventilators for hot water

FIRST with air conditioning unit ventilators

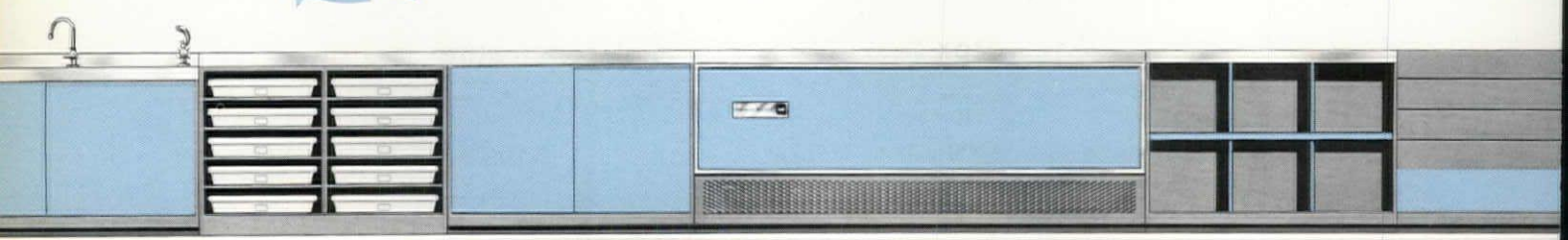
FIRST with award-winning styling

NOW

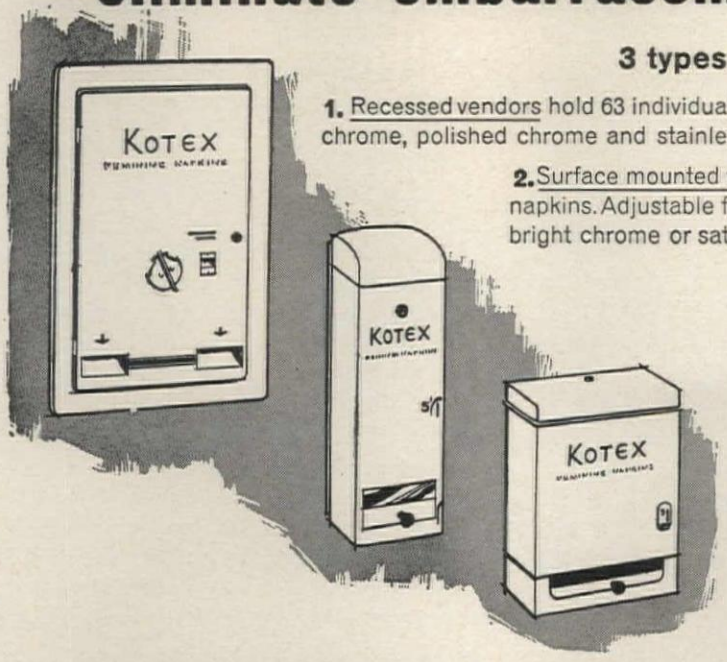
FIRST with a 5-year written warranty

FOLLOW THE LEADER IN SCHOOL THERMAL SYSTEMS

Herman Nelson AAF
SCHOOL PRODUCTS DEPARTMENT



Vendors for Kotex napkins lower absenteeism —eliminate embarrassment—raise morale



3 types to choose from!

1. Recessed vendors hold 63 individually wrapped napkins. Available in white enamel, satin chrome, polished chrome and stainless steel. Can also be surface-mounted, if desired.

2. Surface mounted vendor for boxed Kotex, holds 15 individually boxed napkins. Adjustable for free, five-cent or ten-cent vending. White enamel, bright chrome or satin chrome finishes.

3. Surface mounted vendor for envelope Kotex, dispenses 22 individually packaged napkins. Sturdy, 20-gauge steel cabinet available in white enamel, satin chrome or bright chrome. Operates as nickel, dime or free vendor.

The great convenience of restroom vendors is appreciated by both tenants and employees. And only Kotex offers three types—making it the most complete personal service available for your building. All are easy to install—all have trouble-free, longer-wearing cold-rolled steel coin mechanism.

Vending machines for Kotex belts augment this needed service.

More women prefer Kotex feminine napkins than all other brands

KOTEX is a trademark of KIMBERLY-CLARK CORPORATION

Kimberly-Clark Corporation, Department Number AR-13, Neenah, Wisconsin

Please send complete information on vending machine service for Kotex feminine napkins.

Name_____ Organization_____

Title_____ Address_____

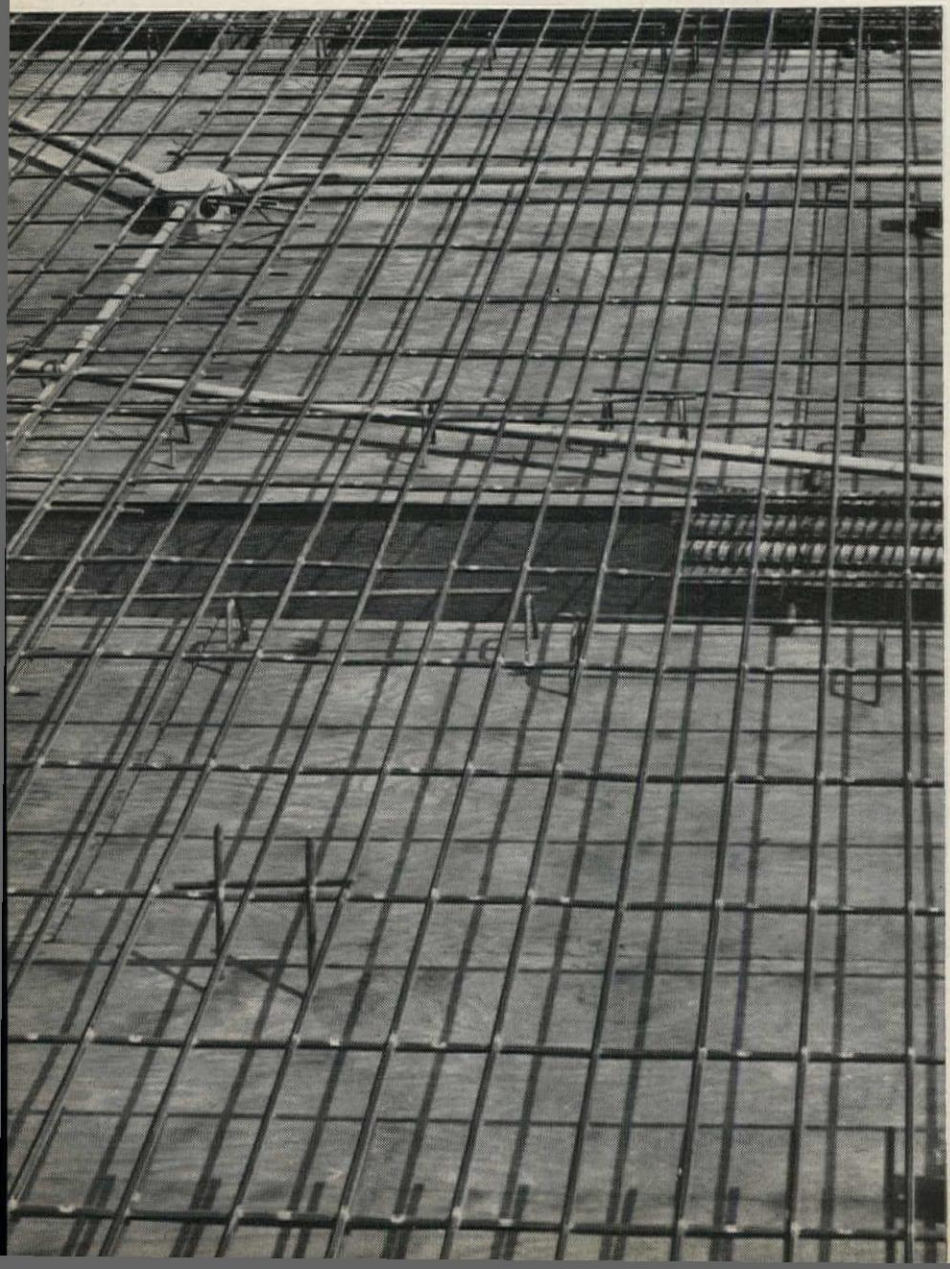
City_____ Zone_____ State_____

For more data, circle 47 on Inquiry Card

8th and Wabash Corporation Parking Garage, Chicago. Designed by Miller Engineering Company; built by Stuparitz Construction Company; both of Chicago. Area: 65,000 sq. ft.

Sheets of welded wire fabric save 42% on placement costs

Completed 63 days ahead of schedule with the help of USS American Structural Welded Wire Fabric Sheets.



Here's a contractor who saved money in *four ways* by using sheets of USS American Structural Welded Wire Fabric. Mr. Charles Stuparitz, President of the Stuparitz Construction Company, Chicago, put it this way:

1. "We saved 42% on placement costs by using sheets of fabric rather than rebars."

2. "We saved an additional 30-32% on accessories using Welded Wire Fabric."

3. "We also saved on finishing labor. We found booster chairs were necessary only around the beams. The use of fabric also results in less scrap plywood after stripping."

4. "Using fabric you obtain the exact steel placement required. It can't spread during vibration of concrete."

On this 8th and Wabash Corporation Parking Garage job in Chicago, USS American Structural Welded Wire Fabric, Style 3x8-3/3, was furnished through Jos. T. Ryerson & Son, Inc. Fabric sheets went in faster, the building was completed in four months, and started making money 63 days ahead of schedule.

Write to American Steel and Wire, Rockefeller Building, Cleveland 13, Ohio, for complete information on the use of American Structural Welded Wire Fabric. USS and American are registered trademarks.

American Steel and Wire Division of United States Steel

USS

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

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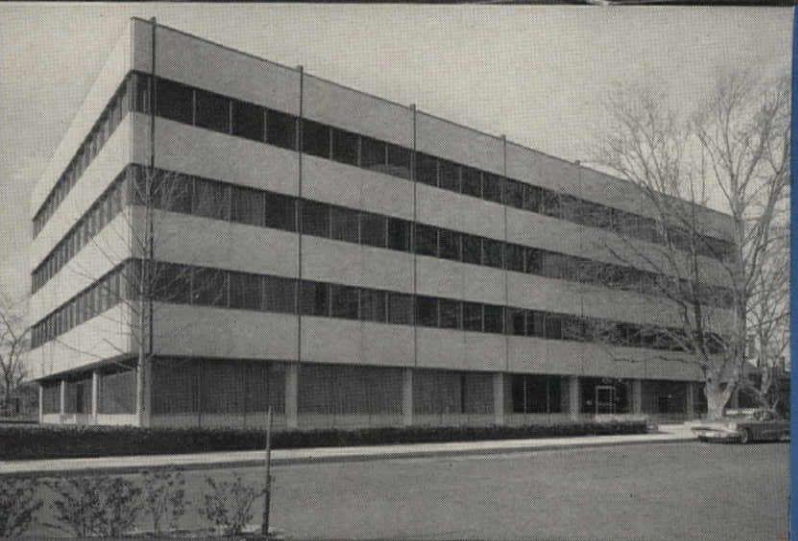

A REPORT FROM

YORK®

ON AN ADVANCED METHOD

OF AIR CONDITIONING

THE YORKAIRE

To achieve optimum comfort conditions—regardless of variations in solar, lighting and occupancy factors—it is necessary to provide simultaneous heating and cooling.

The Yorkaire Three Pipe Air Conditioning System is an effective and economical way to provide each room or area with heating—or cooling—to meet individual requirements.

How it works: The Yorkaire Three Pipe System (whether fan-coil or induction) is piped with three water lines: one for chilled water supply, one for warm water supply, one for return. A valve mounted in the room terminal unit admits just the right amount of warm or chilled water—from full flow to trickle to no flow—depending upon the individual room requirements. On the sunny side of the building, for example, rooms may be cooled—while rooms on the shaded side are being heated, at the same time.

Each space becomes, in effect, its own zone.

In performance, the Yorkaire Three Pipe System represents a major step forward in providing optimum comfort conditions. Costs are low, too, because neither heating nor cooling is wasted; no costly zoning is required; there is no "winter

Here are some of the buildings where the Yorkaire Three Pipe System has been installed:

OFFICE BUILDINGS	ARCHITECT	ENGINEER
Northland Towers, Detroit, Michigan	H. L. Vokes Company	Hyde & Bobbio
Northland Medical Building, Detroit, Michigan	H. L. Vokes Company	Hyde & Bobbio
Jervis B. Webb, Detroit, Michigan	Existing Building	Boddy, Benjamin & Woodhouse
DeSales Office Building, Washington, D. C.	Edwin Weihe	General Engineering Associates
280 Columbine Building, Denver, Colorado	E. A. Anderson & Peter Looms	Francis E. Stark
Kaman Nuclear, Colorado Springs, Colorado	Lusk & Wallace	W. S. Langebartel
First National Bank, Colorado Springs, Colorado	Carlisle B. Guy & Edwin A. Francis	Henningson, Durham & Richardson
United States Gypsum Company, Chicago, Illinois	Perkins & Will	Perkins & Will
Benderson-Chevrolet Building, Buffalo, New York	Howard Bell	Richard Scheunert
LaSalle Jackson Building, Chicago, Illinois	A. Epstein & Sons	A. Epstein & Sons
Riddell Building, Washington, D. C.	Corning, Moore, Elmore & Fisher	General Engineering Associates
First State Bank, Abilene, Texas		Tippett & Gee
Public Service Company of Colorado, Denver, Colorado	Berne, Muchow, Baume, Polivnick	Clint Cator & Associates
Manufacturers Hanover Trust Company, New York, New York	Emery Roth & Sons	Rutherford L. Stinard
Florida National Bank, Jacksonville, Florida	Saxelbye & Powell	Jaros, Baum & Bolles
Penn-17 Office Building, 1717 Pennsylvania Avenue, N.W., Washington, D. C.	Edwin Weihe	General Engineering Associates
1901 Pennsylvania Avenue, Washington, D. C.	Edwin Weihe	General Engineering Associates
Fisk Building, Amarillo, Texas		Bernard Johnson
Toronto Dominion Bank, Montreal, Canada	Ross, Fish, Duchenes & Barrett	James Keith Associates
City & District Savings Bank, Montreal, Quebec	Paul Lambat	LeBlanc & Montecht
First National Bank, 1701 Pennsylvania Avenue, Washington, D. C.	Vlastimil Koubek	Dollar-Blitz & Associates
Gibraltar Savings & Loan, Los Angeles, California	Victor Gruen & Associates	Victor Gruen & Associates
Southern Railway Company, Washington, D. C.	Ammons, McClure & Caldwell	Ammons, McClure & Caldwell
J. B. Lippincott Office Building, Philadelphia, Penna.		Paul H. Yeomans
Rochester Gas & Electric Company, Rochester, New York	Waasdorp, Northrup & Kaelber	Cherne & Dickason
CFCF TV Station, Montreal, Quebec		Wiggs, Walford, Frost & Lindsay
United Airlines, Chicago, Illinois	Skidmore, Owings & Merrill	Skidmore, Owings & Merrill
Warner Brothers Company, Geneva, Illinois	Fletcher-Thompson	Fletcher-Thompson
New England Gas & Electric Association, Boston, Massachusetts	Sert, Jackson & Gourley	Reardon & Turner
Home Federal Savings & Loan Association, Chicago, Illinois	Skidmore, Owings & Merrill	Skidmore, Owings & Merrill
All American Insurance Company, Park Ridge, Illinois	Graham, Anderson, Probst & White	Graham, Anderson, Probst & White
Mueller Brass Company, Decatur, Illinois	Sverdrup & Parcel	Sverdrup & Parcel
Cincinnati Transit Company, Cincinnati, Ohio	Existing Building	Fosdick, Hilmer & Associates
Sylvania Electric, Bayside, New York		Anderson & Nichols
Ingersoll Steel Building, New Castle, Indiana		
Owens Corning Fiberglas, Toledo, Ohio	Existing Bldg.	National Bank Building Corporation
Johnson & Johnson, New Brunswick, New Jersey		(By Owner) Johnson & Johnson
Avon Products, Inc., Newark, Delaware	Whiteside, Moeckel, & Carbonell	John W. Furlow Engineers, Inc.
Toulmin Plaza, Dayton, Ohio	Walker, Norwick & Associates	Walker, Norwick & Associates
San Antonio Savings & Loan, San Antonio, Texas		Bretta, Greenslade
Prudential Building, Denver, Colorado	Ralph D. Peterson	Tracy-Behrent Engineering Company
Municipal Building, Springfield, Illinois	M. D. Turley & Associates	M. D. Turley & Associates
Rockford Clutch Division, Borg-Warner Corporation, Rockford, Illinois	Arthur W. Krieg	
Heublein's, Inc., Hartford, Connecticut	J. Gordon Carr	Pearson & Evans
National Academy of Sciences, Washington, D. C.	Harrison & Abramowitz	Meyer, Strong & Jones
Medical Arts Building, Elkhart, Indiana		
Benderson Building, Buffalo, New York	Howard Bell	Walter Sherry & Associates
First Federal Savings, Fort Smith, Arkansas	E. Chester Nelson & Associates	Leo Landauer & Associates
Gulf Oil Building, Syracuse, New York	S. E. Chambers	E. Fassler

THREE PIPE SYSTEM

changeover;" and, in induction systems, less primary air is required, resulting in less fan power, smaller duct size and smaller fan rooms.

This advanced way to air condition was pioneered by York, and York has furnished the equipment for more of these installations than all other companies combined.

Want more facts? Ask your York Representative for complete application and specification data on the Yorkaire Three Pipe Air Conditioning System; or write directly to York Corporation, York, Pennsylvania.

For more data, circle 49 on Inquiry Card

	ARCHITECT	ENGINEER
HOTELS		
Statler-Hilton, Boston, Massachusetts		Jaros, Baum & Bolles
Lincoln Liberty Center, Houston, Texas		
Broadmoor South Hotel, Colorado Springs, Colorado	Carlisle B. Guy & Edwin A. Francis	Jaros, Baum & Bolles
Indianapolis Airport Hotel, Indianapolis, Indiana		
St. Francis Hotel (Executive Office), San Francisco, California		St. Francis Hotel
Read House, Chattanooga, Tennessee		Jones & Campbell
Hotel Utah, Salt Lake City, Utah		Engineering Sales Company
Stouffer's Northland Inn, Detroit, Mich.	H. L. Vokes Company	Hyde & Bobbio
MOTELS		
Red Cedar Inn, Austin, Minnesota	Hammel & Green	Orr Schelen, Inc.
Magnolia Lodge, Laurel, Mississippi	Hunt & Suffling	
Carlton Motor Hotel, Winnipeg, Manitoba	L. Finch	R. H. Dyson Company
Sahara Motel, Cleveland, Ohio	Norman Giller	Robert Halverstadt
Travelodge Motel, Buffalo, New York	J. Geigand	Jacobus & Babinski
APARTMENTS		
Westminster Apartments, Glendale, California		Vernon Refrigeration Company
Burton Palms, Beverly Hills, California	William Siegelman	William Siegelman
DESCI Apartment Building, Denver, Colorado	Eugene D. Sternberg	W. S. Langebartel
Birch Towers, Fort Lauderdale, Florida	Charles F. McKirahan	E. A. Hussar
Methodist Home, Cincinnati, Ohio	A. M. Kinney Associates	A. M. Kinney Associates
Medalion Apartment Hotel, Colorado Springs, Colorado	Walter H. Weber	W. S. Langebartel
Indian Harbor House, Greenwich, Connecticut	Frost & Pierson	E. Tarnoff
Villa De Napoli, Los Angeles, California		Commercial Refrigeration Company
HOSPITALS		
Mercy Hospital, Denver, Colorado	Linder, Wright & White	Marshall & Johnson
The Golden Age Methodist Home For The Aged, Kerrville, Texas		Marvin Beaver
Physicians Office Building, Rhode Island Hospital, Providence, Rhode Island	Shepley, Bulfinch, Richardson & Abbott	Merrill Associates
Methodist Hospital, Houston, Texas	Milton McGinty	Raymond Jenkins
St. Anthony's Hospital, Rockford, Illinois	Roderick Carmosina	Walter Butler Company
Jackson Parish Hospital, Jonesboro, Louisiana		Bottman-Harris-Jambor, Engineers
Theda Clark Hospital, Neenah, Wisconsin	Schmidt, Garden & Erickson	Schmidt, Garden & Erickson
Harvard University Health Center, Cambridge, Massachusetts	Sert, Jackson & Gourley	Cleverdon, Varney & Pike
St. Elizabeth Hospital, Dayton, Ohio	Lorenz & Williams	Lorenz & Williams
Perth Amboy General Hospital, Perth Amboy, New Jersey	Ferrenz & Taylor	Sears & Kopf
Anderson-Madison County, Anderson, Indiana	Arthur B. Henning	Ammerman, Davis, Stout
Newton Hospital, Cameron, Texas	John Linn Scott & Associates	Marvin Beaver
Rutherford County Hospital, Murfreesboro, Tennessee		I. C. Thommason
Capitol Medical Building, Indianapolis, Indiana	Fleck, Quiebec & Reid, Inc.	Fleck, Quiebec & Reid, Inc.
North Little Rock Hospital, North Little Rock, Arkansas	Erhart, Eichenbaum & Raugh	Turner-McCoy
National Jewish Hospital, Denver, Colorado	Eugene D. Sternberg	W. S. Langebartel
SCHOOLS		
Western Illinois University Library, Macomb, Illinois	Lankton-Ziegele-Terry	Beling Engineering Consultants
Johns Hopkins University, Baltimore, Maryland	Fisher, Nes, Campbell & Associates	Henry Adams Inc.
American College of Surgeons, Chicago, Illinois	Skidmore, Owings & Merrill	Skidmore, Owings & Merrill
Case Institute of Technology, Cleveland, Ohio	McGeorge, Hargett & Hoag	McGeorge, Hargett & Hoag
Southern Illinois University, Carbondale, Illinois	Gatewood & Fields	Brown, Manthei, Davis & Mullins
Harvard Observatory, Cambridge, Massachusetts	Griswold, Boyden, Wylde & Ames	Cleverdon, Varney & Pike
Wesleyan University, Publication Building, Middletown, Connecticut	McKim, Mead & White	R. L. Stinard

Even light for large areas with Toplite Roof Panels

Soft uniform day lighting, free from glare or shadows plus the elimination of excessive heat build up, were prime requirements for the cafeteria and two gymnasia at the new Cardinal Spellman High School. To accomplish these objectives, architects Eggers and Higgins specified PRC Toplight Roof Panels.

Toplight Panels utilize hollow, prismatic glass units which transmit a high percentage of the light from the north sky and the low winter sun, but reject the intense light and heat from the high summer sun. (They transmit about one-third as much heat in summer as conventional skylights). In this way they provide controlled daylight that is ideal for gymnasia, cafeterias, classrooms, corridors—in fact all types of building structure.

Cardinal Spellman High School
Bronx, New York
Architects: Eggers and Higgins
Installation by: Abbott-Redmont Thinlite Corp., New York, New York

Low silhouette Toplite Roof Panels are available in a variety of sizes for easy installation on most roofs. Panels are furnished with light controlling prisms at 45° or 90° to the perimeter, for complete flexibility in any building orientation. 12 page catalog containing architectural detail and design data available on request.

PRC®

PRODUCTS RESEARCH COMPANY

CORPORATE OFFICES and
WESTERN MANUFACTURING DIVISION
2919 Empire Ave., Burbank, Calif., Victoria 9-3992

EASTERN SALES and MANUFACTURING DIVISION
410 Jersey Ave., Gloucester City, N.J., GLenview 6-5700

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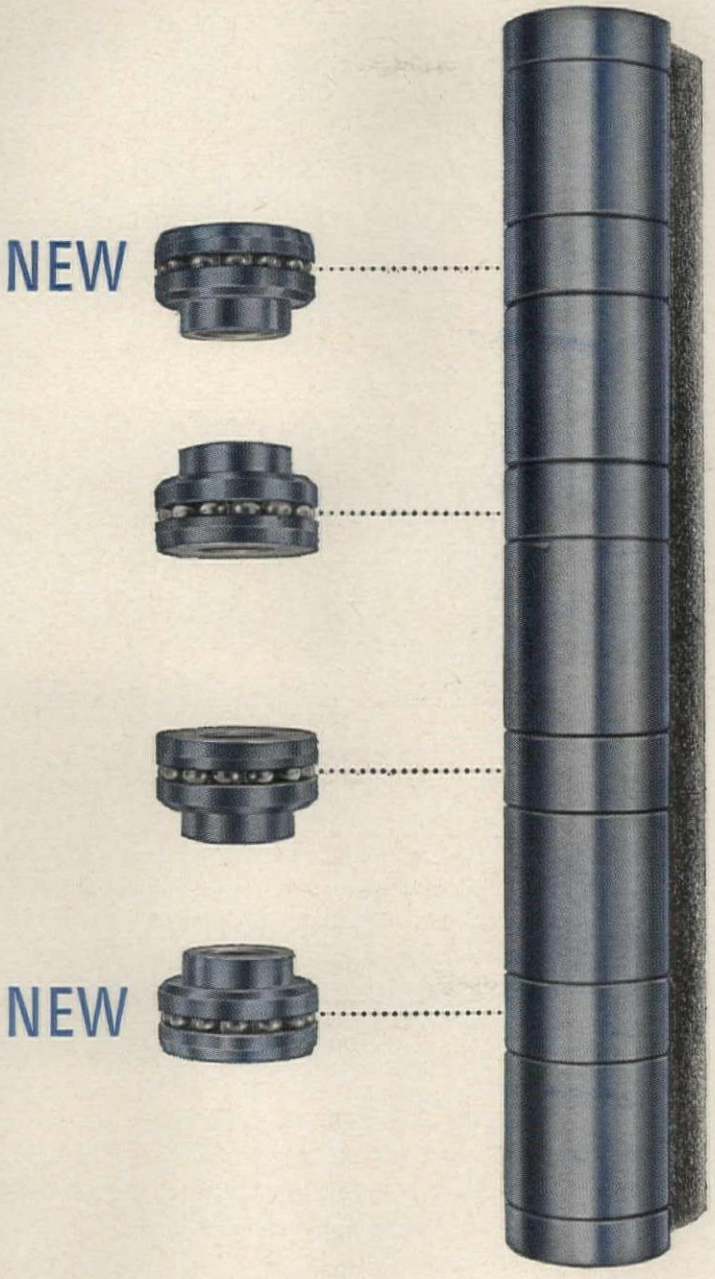


conversation piece...

NEW SLIMLINE 5

WITH 4 BALL BEARINGS

When talk turns to quality and design, architects and builders find this new hinge makes for good conversation. It's the *only* slimline with five knuckles, the *only* slimline with four ball bearings . . . and it's still the slimest of them all. How the four intricate but rugged ball-bearing units integrate without increasing knuckle size is a tribute to hinge craftsmen at Hager.

The five knuckles mean 10% to 20% more strength on lateral pull and twice the bearing surface to support vertical weight. The pin, approximately one-third larger than other slimlines, naturally maintains a much greater protective margin in shear and tensile strength.

Medium and heavy doors move ever so quietly, ever so smoothly, ever so true, on the new four-ball-bearing Slimline 5. Write Hager, or contact your Hager representative for information. C. Hager & Sons Hinge Mfg. Co., St. Louis 4, Mo. Hager Hinge Canada, Limited, Kitchener, Ontario.

Everything hinges on Hager®

Hager

For more data, circle 51 on Inquiry Card

Use Caterpillar Natural Gas Electric Sets for total power. That's the solution at new Rushfair Shopping Center in El Paso, Texas. Three Cat G379 Engines, driving generators, will ensure year-round comfort—at low cost—for Rushfair tenants and shoppers.

The power demands of this shopping center will be great. Contrary to conventional centers with strips of street-front stores, Rushfair will be built entirely under one roof. This means that every square foot of the 5-acre center, including all shops and malls, must be comfortized. To take care of this demand, the Caterpillar Natural Gas Electric Sets will provide 900 kilowatts—enough power to light more than 600 homes.

Two of the units can carry the maximum load. The third unit will be used only to provide service during scheduled maintenance periods. However, since no local utility power will be used at all—not even for standby—the units must be absolutely dependable.

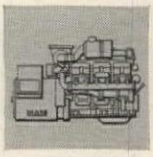
That is one good reason Caterpillar units were chosen. Since all Cat Natural Gas Engines are direct conversions from their diesel counterparts, they give all the advantages of diesel strength. In the less strenuous demands of gas operation, Cat Natural Gas Engines last longer... give thousands of hours of excellent performance before they need to be overhauled.

Besides being dependable, these Cat Natural Gas Engines offer very definite economic advantages. Initial costs are low. 10:1 compression ratios allow maximum fuel economy. Replacement parts are inexpensive.

Another cost-cutting factor: the gas-powered utility center will also produce steam for heating and hot water by utilizing rejected heat from the G379 Engines. Then, in the summer, the steam will be used in a 220-ton gas absorption refrigeration unit to help provide chilled water for low-cost air conditioning.

For full information on how Cat Natural Gas Electric Sets can provide dependable, low-cost power for buildings of every description, see your Caterpillar Dealer. Or write direct for brochure 40-20492.

CATERPILLAR
ENGINE POWER



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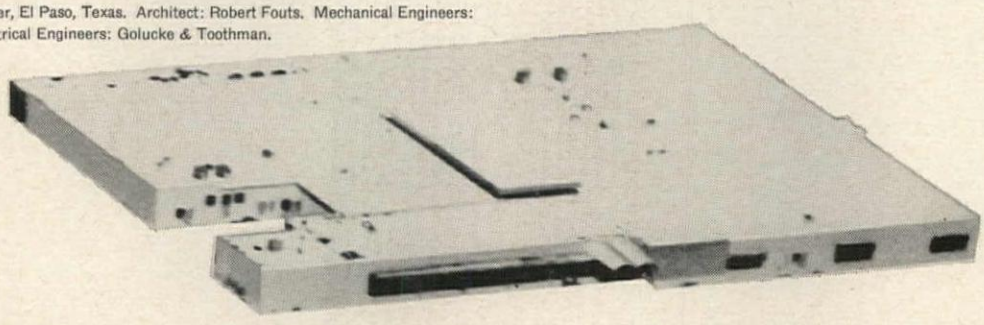
Caterpillar Overseas S.A., Geneva • Caterpillar of Australia Pty. Ltd., Melbourne • Caterpillar Brasil S.A., São Paulo • Caterpillar Tractor Co. Ltd., Glasgow • Caterpillar of Canada Ltd., Toronto • Caterpillar France S.A., Grenoble • Caterpillar (Africa) (Pty.) Ltd., Johannesburg

Rushfair Shopping Center, El Paso, Texas. Architect: Robert Fouts. Mechanical Engineers: Randall and True. Electrical Engineers: Golucke & Toothman.



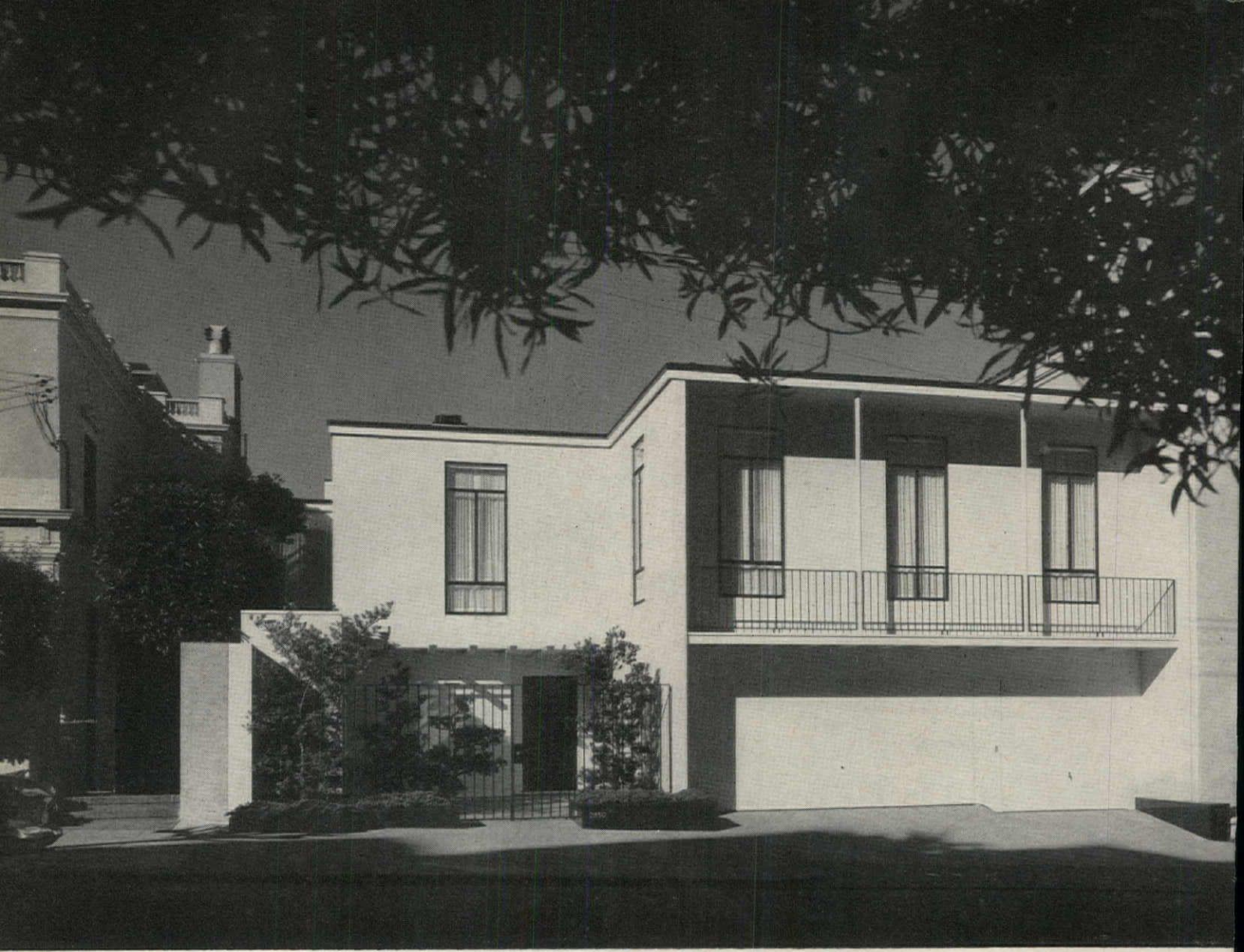
For more data, circle 52 on Inquiry Card

For more data, circle 53 on Inquiry Card →

Recent Work of

WILLIAM WILSON WURSTER

Three new buildings—a house, a church and an office building—
expressing the "basic thinking, uncomplicated by self" which,
with his belief in "doing what will push the horizon of people's lives out,"
has always been the architectural credo
of this internationally-known California architect



William Wilson Wurster

Residence for Mr. and Mrs. James V. Coleman San Francisco, California

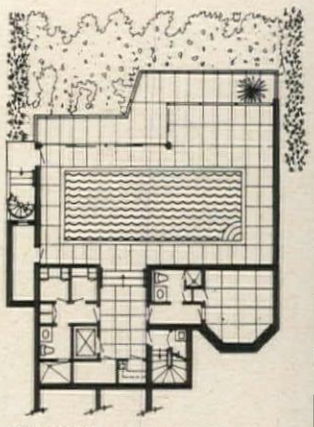
ARCHITECTS:
Wurster, Bernardi and Emmons
CIVIL AND STRUCTURAL ENGINEERS:
Gilbert Forsberg Dielkmann Schmidt
MECHANICAL ENGINEER:
Daniel Yanow
LANDSCAPE ARCHITECTS:
Nagao Sakurai, garden court
Thomas Church, entrance court
INTERIOR DESIGNER:
Mrs. Robert M. Kasper
CONTRACTOR:
Charles Stockholm & Sons

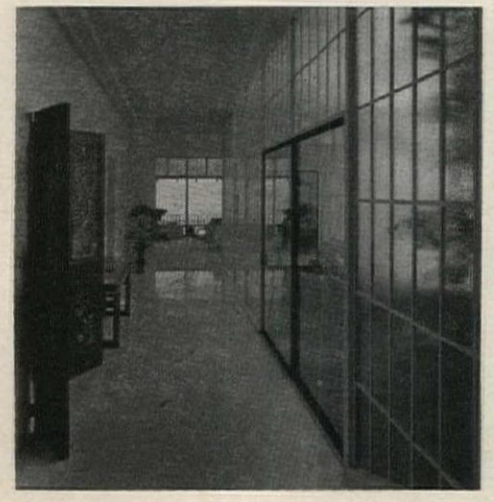
The Coleman house is an elegantly simple house, a natural development of the informal fine house pioneered by William Wilson Wurster in the early nineteen-thirties. It gets its simplicity by eliminating the unnecessary and by using everyday materials in a matter-of-fact way—the "basic thinking, uncomplicated by self" characteristic of this architect's work. Its grace and elegance are a matter of the scale and proportion of its spaces, the preciseness of its detailing, its restraint and lack of pretense. This kind of house, where the processes of living are simplified without sacrifice of the elegance of a more formal environment, is one of the most significant of the many Wurster contributions to architecture. For such a luxurious house, the number of rooms is small and there are no superfluous spaces; the service areas are unusually compact but are lavishly equipped. The house wraps around a street level garden court onto which the gallery opens and from which light, both direct and reflected from the wall of the adjoining house, filters through the obscure glass of the gallery wall. This diffused light plays on the all-white interiors, enhancing their simplicity and elegance and giving them at times a floating quality offset only by the black-painted trim of the steel sash and the stair rail.

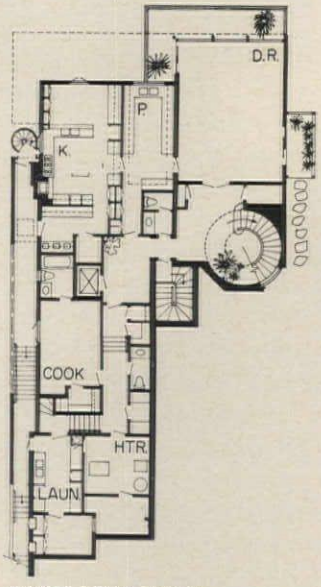
Roger Sturtevant photos

William Wilson Wurster: Coleman Residence

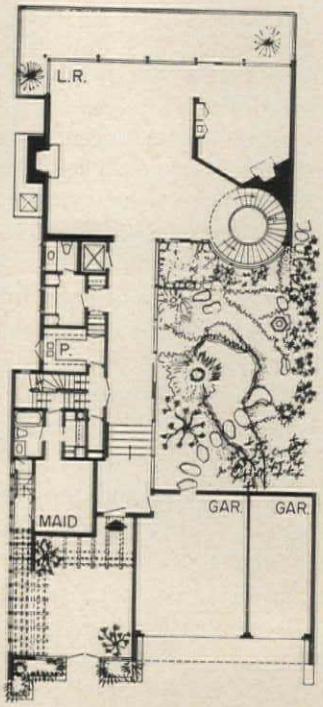
The main rooms on all four floors open, floor to ceiling, wall to wall, to an unusually beautiful view of San Francisco Bay, the Golden Gate and the Marin County hills, but the most dramatic outlook is over the black-rimmed rectangular swimming pool on the lowest level. In contrast to this, the garden court is an area of repose and privacy. The circular stair, white against the white wall but accented by a black rail, connects the three main floors; a simpler but handsome stair leads from the dining room level to the pool.



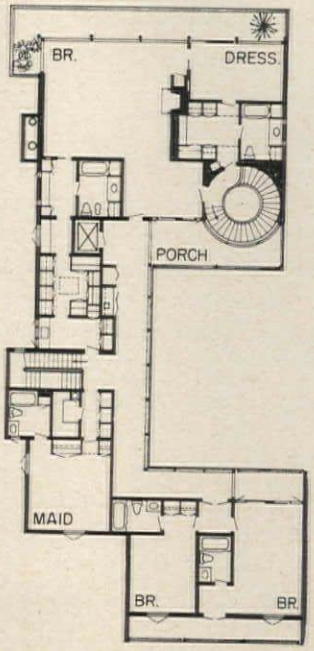




DINING ROOM FLOOR



MAIN FLOOR



BEDROOM FLOOR

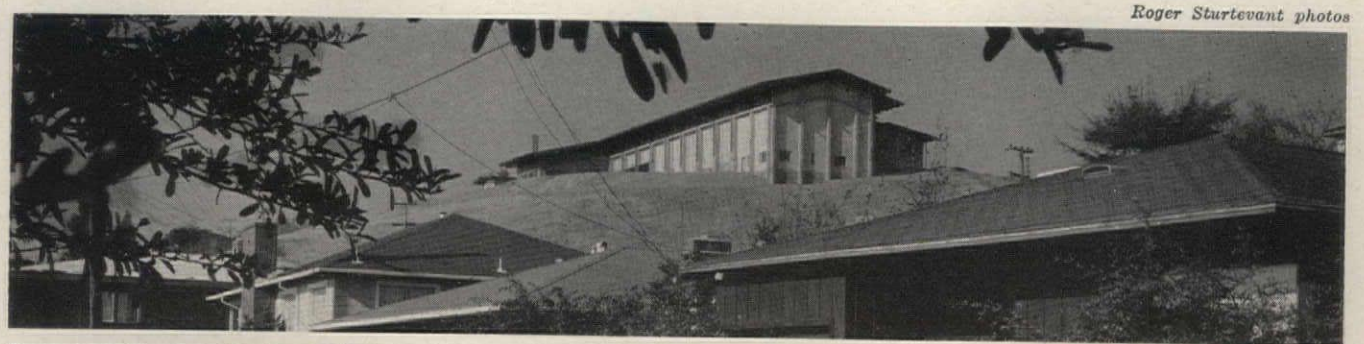
William Wilson Wurster

First Unitarian Church of Berkeley, California

ARCHITECTS:
Wurster, Bernardi and Emmons
CIVIL—STRUCTURAL ENGINEERS:
Gilbert Forsberg Diekmann Schmidt
MECHANICAL AND ELECTRICAL ENGINEER:
G. L. Gendler
LANDSCAPE ARCHITECT:
Geraldine Knight Scott
ARTISTS:
Nancy Genn, lectern
Antonio Prieto, screen
CONTRACTOR:
William L. Dinwiddie Construction Company

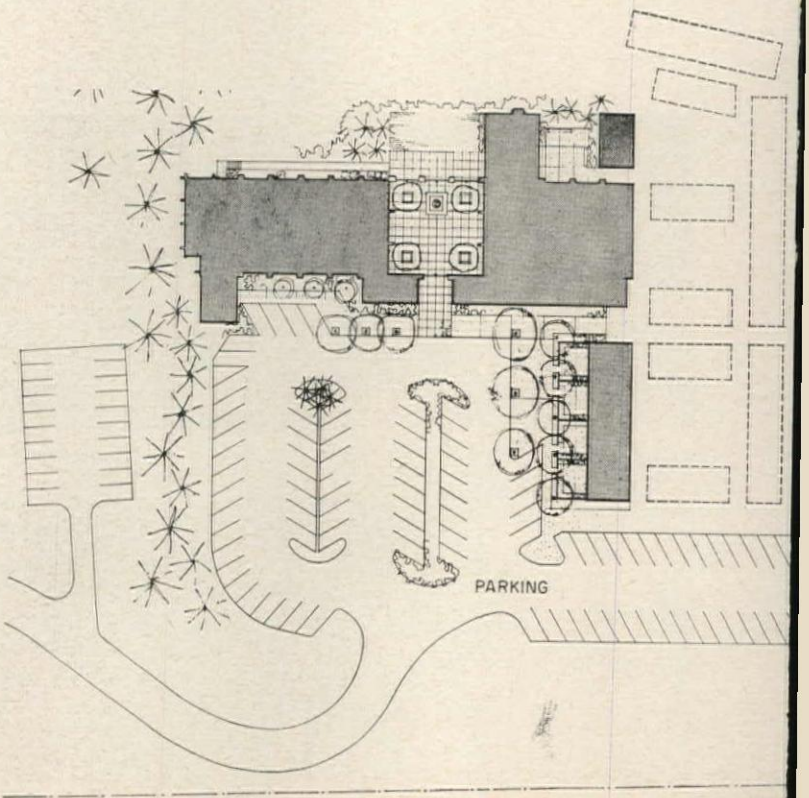
The magnificent site on which these buildings stand is one which the late Bernard Maybeck owned for almost half his lifetime, and the new buildings for the First Unitarian Church fulfill his wish that the hill should be crowned by "a noble institution." The combination of Wurster's credo and Unitarian beliefs results in an architectural concept which, in the architect's words, is "an episode in Unitarianism, a moving together of many facets." Site, building and program needs—places for worship, for church activities and for parking many cars—are brought together with the great central atrium as the unifying element in the plan. The seven-and-a-half-acre site has room to spare for all these needs. The rectangular church and fellowship building lie along the spine of the hill, a symbol in silhouette against the sky. The materials used are simple and direct—concrete columns, tilt-up filler panels of concrete, left plain or surfaced with exposed aggregate, and their effect on the exterior is simple and at times stark. Where people become a part of the building, however, the same materials have a greater richness: there is more redwood, a finer pebble finish surfaces the concrete panels, the work of local artists is integrated into the over-all design, and light, both day and artificial, becomes a dramatic design element.

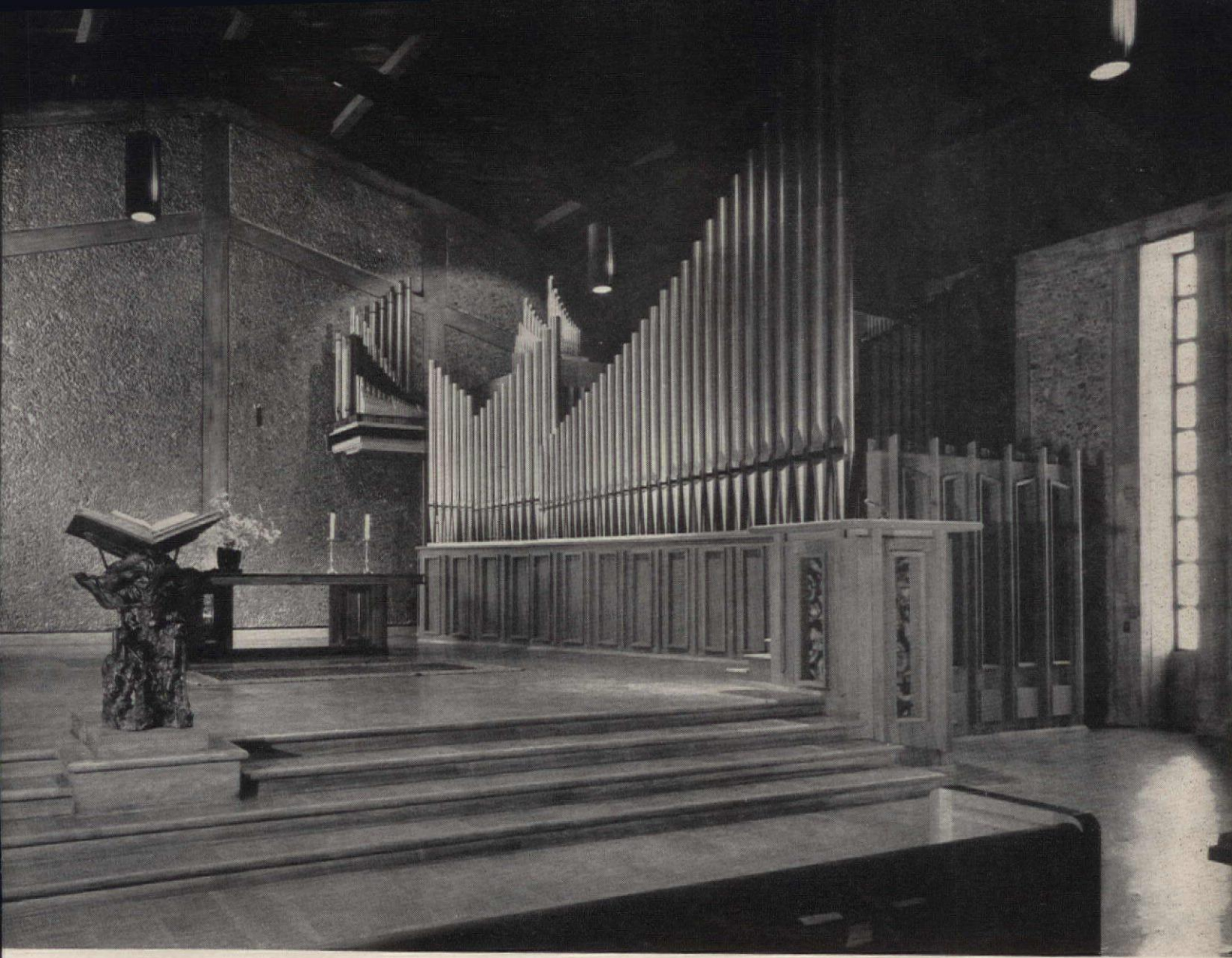
Roger Sturtevant photos

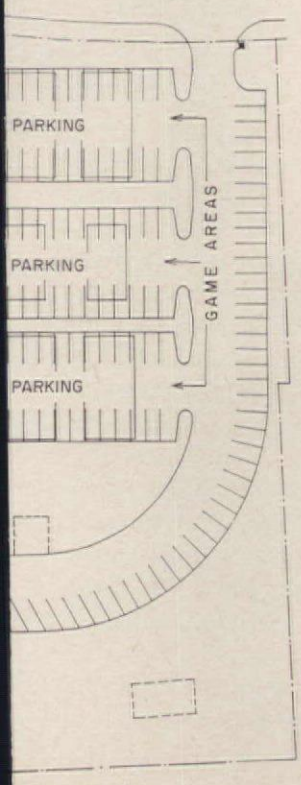


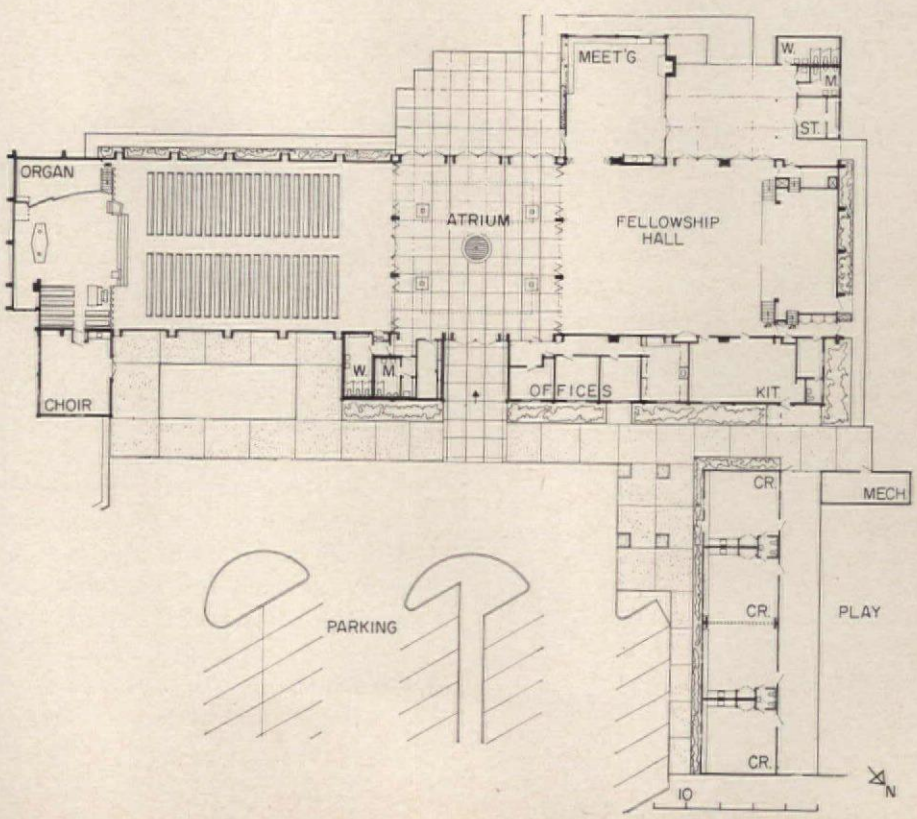
William Wilson Wurster: Unitarian Church

Daylight floods the covered atrium which acts as narthex for the church and as forecourt for the fellowship hall opposite. It opens on the west to a terrace with a panoramic view of San Francisco Bay and provides a unique and handsome place for both formal and informal gatherings. Within the church itself, the subdued light of the nave, coming from long slit windows of colored glass set in the structural columns along the outside wall, leads up to the ampler light of the chancel where Antonio Prieto's enameled copper screen, Nancy Genn's lectern, the gold organ pipes at one side and the full view of the strong wood truss provide a rich setting for the simple table at the end.






PARKING
PARKING
PARKING
GAME AREAS

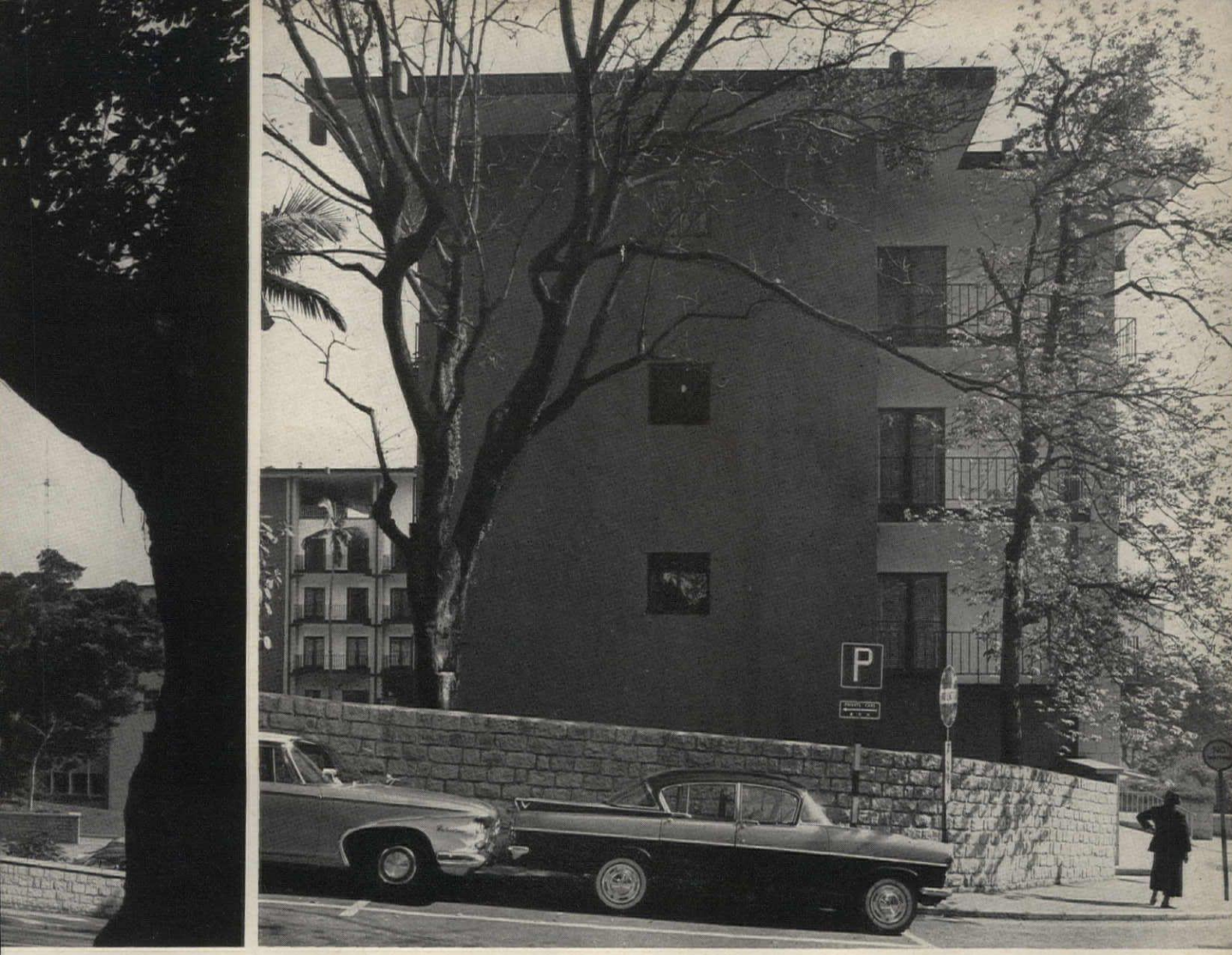

MEET'G
W.
M.
ST.
ORGAN
ATRIUM
FELLOWSHIP HALL
W.
M.
OFFICES
KIT.
CHOIR
CR.
MECH.
CR.
PLAY
CR.
PARKING
10
N

William Wilson Wurster

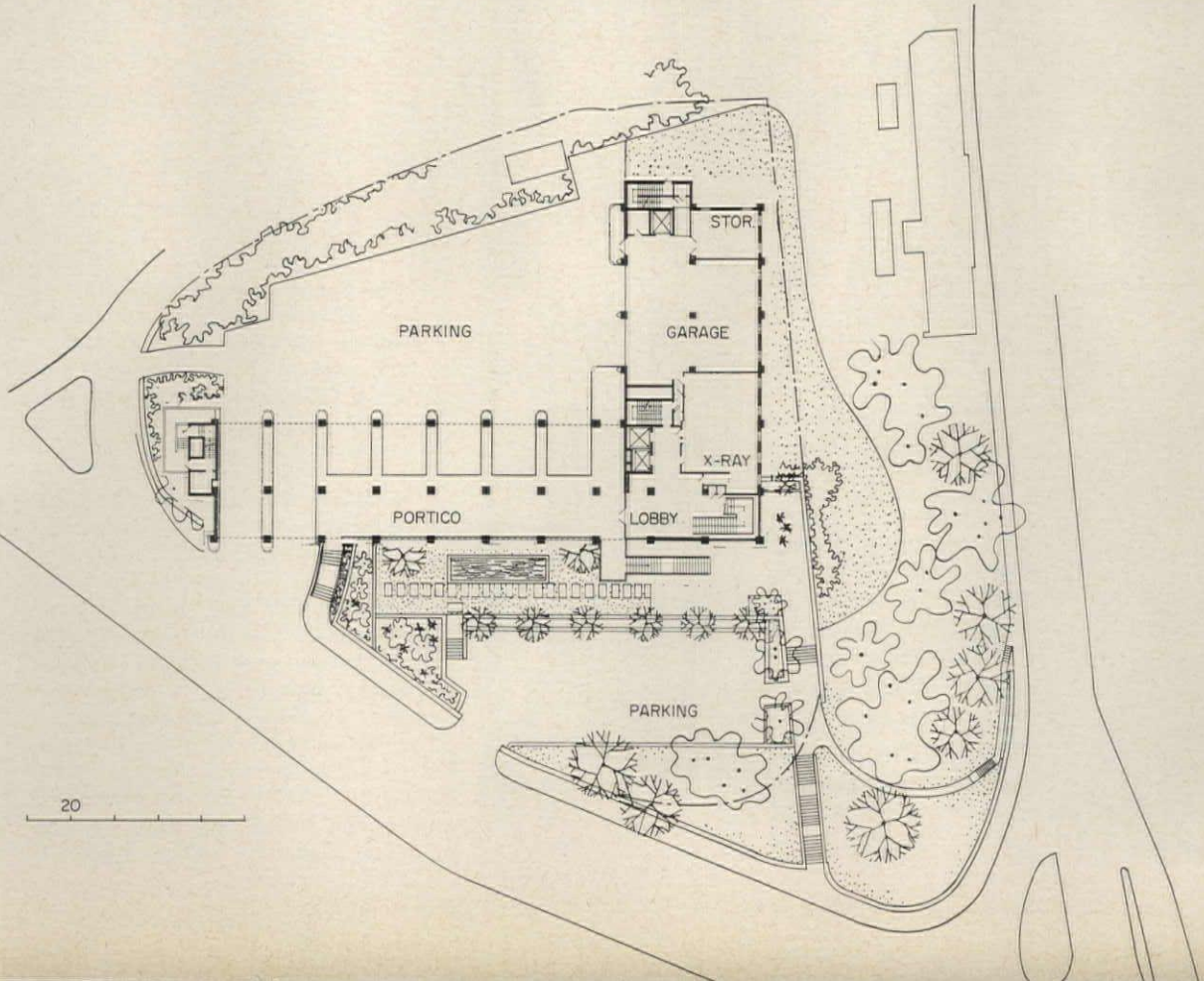
U.S. Consulate Office Building
Hong Kong

ARCHITECTS:
Wurster, Bernardi and Emmons
ASSOCIATE ARCHITECTS:
Feltham and Cumine
CONSULTING ENGINEER:
William B. Gilbert
MECHANICAL AND ELECTRICAL:
G. L. Gendler
LANDSCAPE ARCHITECT:
Lawrence Halprin
CONTRACTOR:
Paul Y Construction Company

This office building for the U.S. Consulate in Hong Kong, one of the State Department's Foreign Buildings Operations program, has the kind of dignity which befits a representative of the American government, but it looks like Hong Kong and it fits into its Hong Kong surroundings quite naturally and without fanfare. Everything about it, from the simplicity and directness of the plan to the bold lines of the downspouts and rain leaders from the balconies, is a straightforward response to an essential need. This is a stylish building in the highest sense, but it is never a lavish one. It is designed for working people and for efficient use of working spaces. Its white plaster and granite exterior, accented by the dark balconies and downspouts, counters the hurly-burly abuse of color which is characteristic of Hong Kong. Wherever possible local materials were used: local granite facing on the reinforced concrete columns; teak on the interior; local tile in the local tradition for roof finish. The site is an unusually difficult one, made more difficult by the fact that an existing stone building on the site had to be retained so that consulate activities could be continued during construction. On-site parking was a necessity since the site is located in the center of the city.



Rondal Partridge photos



WURSTER, BERNARDI
AND EMMONS

PARTNERS:
William Wilson Wurster
Theodore C. Bernardi
Donn Emmons

ASSOCIATES:
James D. Wickenden
Albert Aronson
Willard D. Rand Jr.
George Kennaday
Geoffrey W. Fairfax
Don E. Stover
Ralph O. Butterfield

The Consulate's office building is entered from the high side of the sloping site along a covered gallery or portico, and from the lower side by a free-standing stairway. The plan takes advantage of the sloping triangular site to provide parking on two levels: one in front of the building, the other in the court, with stalls for consular officers immediately adjacent to the portico. Landscaping is used to define the building and site perimeters and is kept simple and discreetly low. A shallow pool with an abstract mosaic pattern on its bottom surface provides a pleasant spot of color when viewed from the portico. The consul's office is in the penthouse; the windows, well shaded by the broad overhang, overlook Hong Kong and its busy harbor.

The Future of the City: a five-part series

By LEWIS MUMFORD

4. BEGINNINGS OF URBAN INTEGRATION

REGIMENTATION AND CHANCE

The two favored images of the city today are the products of a complementary process of regimentation and disintegration. One of them is the City in a Parking Lot, a collection of high-rise slabs and towers linked by multi-laned expressways; the other is the Anti-City, a by-product of urban decomposition, which in the pursuit of nature denatures the countryside and mechanically scatters fragments of the city over the whole landscape.

Whether the urban container explodes upward, in profitably congested "urban renewal" projects, or explodes outward, in suburban and exurban subdivisions, the result is an increasingly homogenized urbanoid mass that lacks the complex social and cultural attributes of the city, at the same time that it levels down the geological and ecological character of the natural landscape and lowers its agricultural potential.

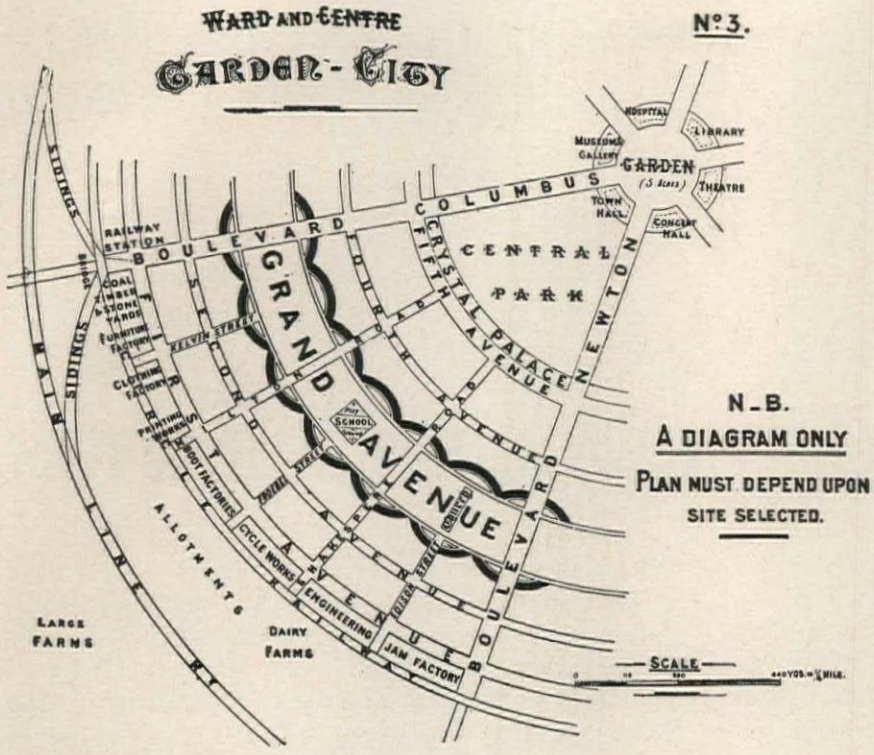
The problem of finding an adequate form for the modern city is increased by the very powers the highway engineer and the architect command when they willingly serve the economic forces making for disintegration. Today the chief mode of urban destruction comes from misdirected construction. This paradox cannot be resolved by holding that formlessness is the determining feature of contemporary urban form. Yet some of our younger architects and planners have been making sketches for an anti-city on the assumption that randomness, accident, deformation, fragmentation—like crime, violence, extermination—have the same order of value as function, purpose, integration, health, moral character or esthetic design.

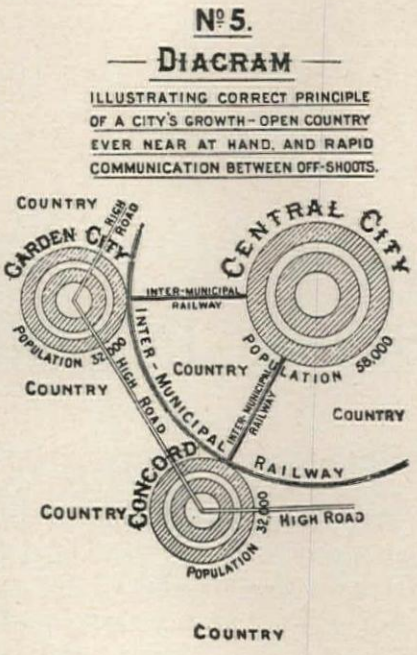
This tendency finds ample support, unfortunately, not merely in the fashionable *avant-garde* literature and drama of our time, but in the practice of some of the most sensitive contemporary painters and sculptors who keep on telling us that the only order possible is willful disorder, that the only valid image of man himself is a horror-skeleton derived from the Nazi extermination camps, and that the only imageable urban form, apart from a collective underground shelter, would be the deliberate equivalent of the debris left by a nuclear bomb. Elizabeth Close's satiric commentary on "Design by Chance," published in the May number of the Journal of the American Institute of Architects, is too close to reality to be funny. If a chimpanzee, a psychotic, and a museum-qualified painter are equally capable of achieving a "modern" painting, the forces that are now vomiting the wreckage of the city over the landscape are doubtless sufficient to produce the "modern" form of the city—formless by intention.

If we are not to follow these irrational forces to their methodical conclusion—the effacement of human culture and the annihilation of man himself—the explosive elements that are now at work must be harnessed to a different and more human set of purposes. As with the mixture that composes gunpowder, the individual components in this urban explosion are in themselves innocuous: motor transportation, mass production, instantaneous communication, automation, are all potentially effective agents for human development, provided that it is the welfare of man, not the untrammeled expansion of his mechanical instruments, that one has in view. Even their explosive mixture, again like gunpowder, may prove serviceable for better human purposes provided we have adequate social instruments to control the explosion, and a rational target to aim at.

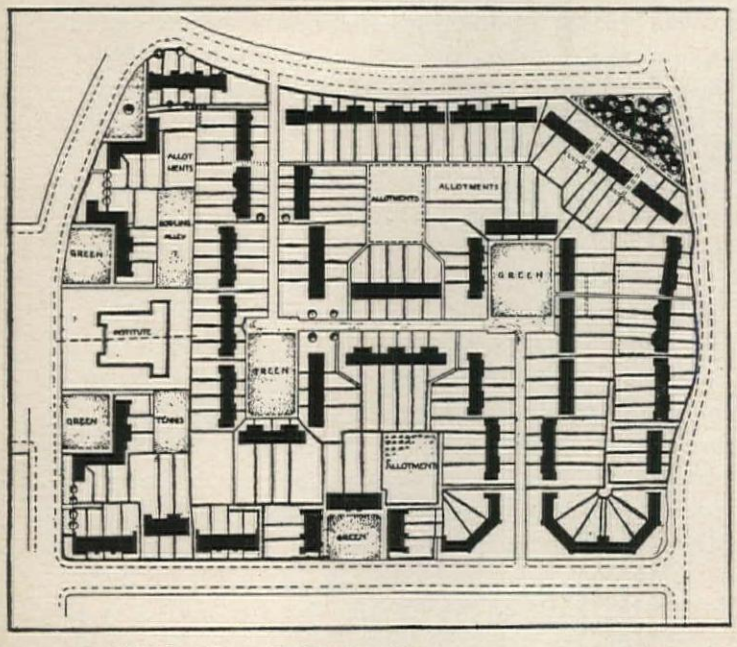
The paramount urban problem today is to invent an adequate urban container which will do for our complex and many-sided culture what the original Stone Age container did for the far simpler cooperations and communications of earlier societies. This problem cannot be answered, then, merely by pointing to the existing metropolis, or the conurbation, or the "megalopolis," and calling one of these the new container, though these big units do in fact point to the scale in which an effective multi-centered container must be conceived, and the vast range of specialized functions and human purposes that must be brought together.

More than a generation before all the dimensions

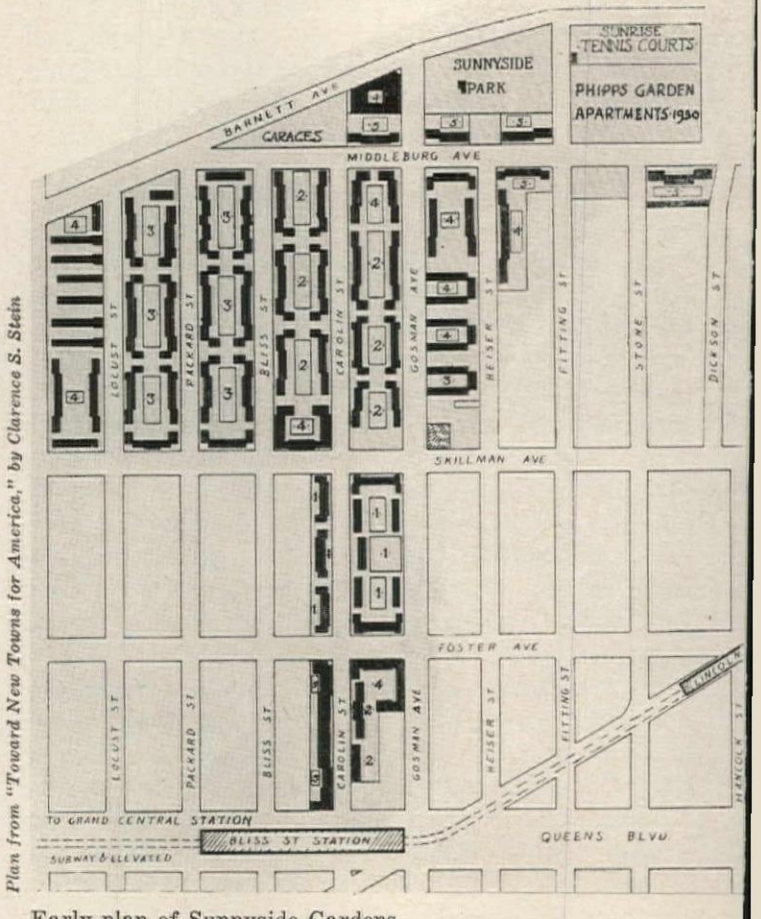




Plan from "Town Planning in Practice," by Raymond Unwin

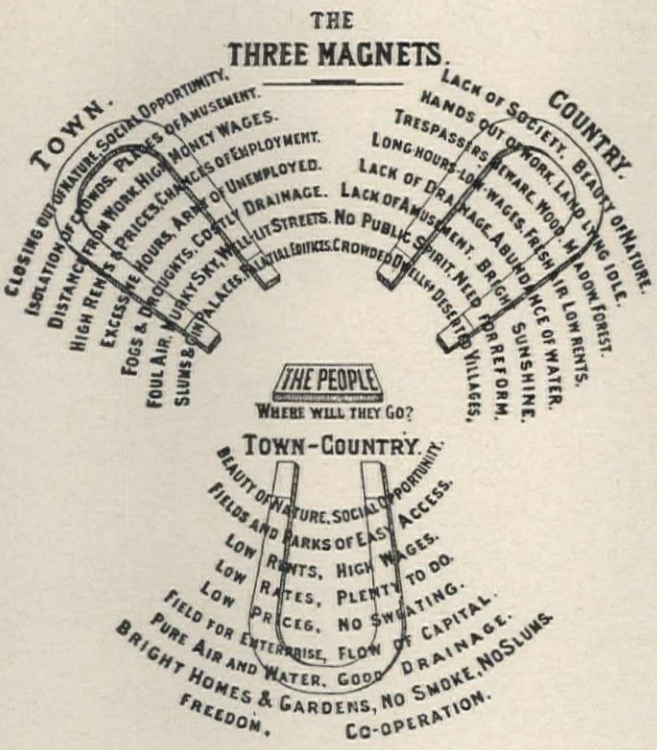


Pixmore Hill, Letchworth Garden City



Plan from "Toward New Towns for America," by Clarence S. Stein

Early plan of Sunnyside Gardens



". . . the first tentative step toward an answer was made by Ebenezer Howard ". . . His dry little prospectus—it is little more than that—"Garden Cities of Tomorrow," first published in 1898, started many fresh ideas sprouting in other minds; and some of the original seeds that remained dormant are now ready at last to germinate."

"The first translation of Howard's idea (far left) . . . was the work of Raymond Unwin and Barry Parker . . . carried further (left) by Clarence Stein and Henry Wright in Sunnyside . . ."

of this problem had become visible, the first tentative step toward an answer was made by Ebenezer Howard. In his concept of the garden city, he restored many of the essential elements that the city, in its mechanical expansion and dispersion, in its human regimentation and biological depression, had lost; for he returned to the human scale, and he conceived of a means of increasing size and complexity of social relations without destroying this scale.

GROWTH AND FORM OF THE CITY

The projector of this urban form was not an architect, a planner or a painter, but an inventor of machines. His dry little prospectus—it is little more than that—"Garden Cities of Tomorrow," first published in 1898, started many fresh ideas sprouting in other minds; and some of the original seeds that remained dormant are now ready at last to germinate.

If I feel obliged once more to outline Howard's leading ideas, it is only because the popular view of them, even in planning circles, is often based, not on his proposals, but upon the strange aberrations of his critics, whose resistance takes the form of attributing to him preconceptions, methods and goals precisely the contrary to those he held. Even Howard's followers have sometimes given to his tentative proposals a rigidity of form and a finality of purpose he did not himself value; for his was an experimental mind, and the worst homage one could do to his way of thinking would be to assume that his experiment is already fixed and finished.

What Howard proposed was both a new image of the modern city and an organic method of handling its continued growth. The new image was that of a city limited in size, not by natural obstacles or poor economic resources or military necessity, but by a deliberate social intention and by the very nature of the contents and purpose of the plan. He sought to handle the problem of continued population growth by continued colonization in a series of self-contained towns with a sufficient variety of industrial, agricultural, and professional occupations to give work to the larger part of their own populations.

These new cities, in contrast to the current mode of urban expansion, were to be limited in area, in density and in population. Howard estimated that the desirable size for such a town would be about 30,000, with 2,000 more inhabitants engaged in market gardening and other rural occupations in the permanent greenbelt that surrounded it and gave the community its visible definition. The number of acres and of people he deemed adequate was a first approximation. It is not any single population figure, but the desirability of establishing limits for the concrete, visible urban form that is important.

The main feature of Howard's idea, apart from

Aerial view of Radburn, New Jersey

Fairchild Aerial Surveys, Inc.

the limitation of population and area, was a notion that he himself introduced with the very concept of the new city: the city was not only to be small enough to be manageable and accessible, but big enough to have variety and diversity. At this point he made a decisive departure both from the plans of "industrial villages" that were being built by a few British manufacturers, bent solely on improving housing conditions of their workers, and from the ordinary residential suburb, wholly dependent for diversity upon a distant urban center.

Howard's prospectus was so fully given over to the practical details of launching such a city that he himself barely sketched in its more fundamental ideas. But if the words "balance" and "organic unity" and "social mixture" are lacking in Howard's book, they underlie the whole conception, and I do him no injustice in emphasizing them, though he himself rather stressed the municipal ownership and control of the land, as a means of maintaining the new pattern.

In outlining a more organic form of the city, Howard sought at the same time to unite town and country: he rightly understood their interdependence and complementarism. In proposing more spacious surroundings both for the buildings and the town as a whole, Howard was only democratizing a process that the aristocracy had long observed in establishing their own quarters in the city. The luxury of space, particularly the luxury of great parks and gardens, was historically the great aristocratic contribution to the city; and Howard felt,

Plan from "Toward New Towns for America"

"To Unwin's demonstration, carried further by Clarence Stein and Henry Wright in Sunnyside and Radburn (here shown) we owe in large part the adoption of the superblock . . ."

again rightly, that for the sake of health and delight the garden and the park were an integral part of every quarter of the city.

In the 19th century this spacious mode of planning had been achieved only in the health spa and the suburb; but by now it has become a basic requirement of all urban design. Howard felt, indeed, that one of the great benefits of building new towns on a large scale would be to reduce the pressure of metropolitan population sufficiently to make it possible to replan every part of London, and make it as attractive and habitable again as it still is around its green core of parks and tree-filled squares

In aiming to deal with the dual problems of congestion and overgrowth Howard had, almost by accident, rediscovered the essential nature of the city itself. The main ingredient of this conception was a population large enough to be diversified; diversified enough to be economically and socially balanced, and balanced sufficiently to permit most of the daily needs of the community to be satisfied within the city's limits, and yet have secure immediate access to the open country.

But Howard was no small town isolationist. Not for a moment did he suppose that a single community of 32,000 people could satisfy all modern man's social and cultural needs, or provide a sufficient variety of economic opportunities. Nor did he underestimate the special advantages of large numbers and plentiful capital resources, though he suspected that the great metropolis exacted too high a price for supplying them. On the contrary, in his chapter on "Social Cities" Howard pointed to a higher order of organization: a new kind of openwork metropolis, with 10 such communities grouped around a larger city at the center, bound closely by public rapid transit, commanding a population within the range of 350,000.

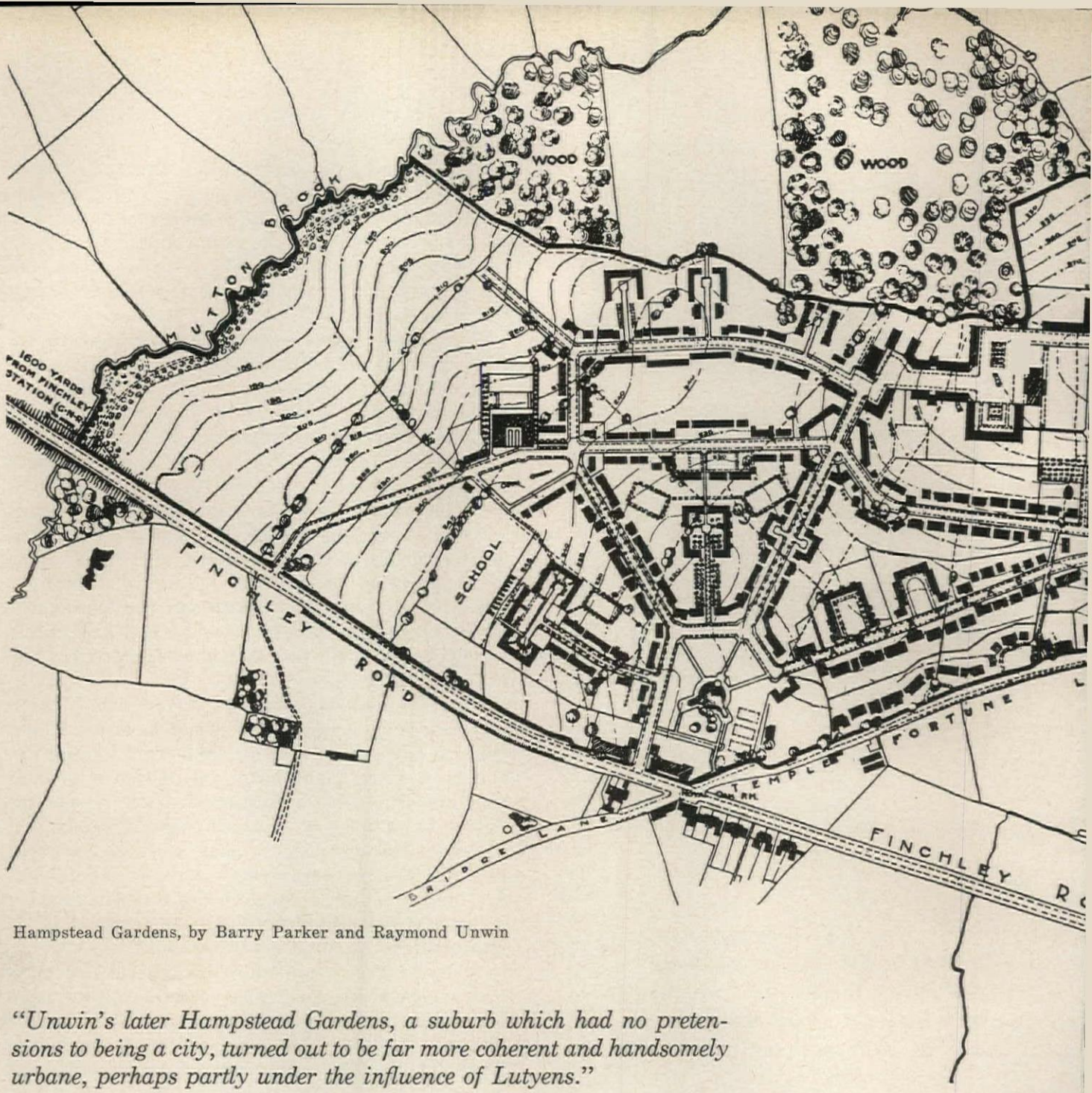
Here Howard suggested that such a constellation of cities or "town clusters" would have social and cultural advantages that no small town could offer. But he saw—as many advocates of continued metropolitan expansion and dispersion still do not see —that as the size of the total regional population increases, its component parts must be gathered together in more concentrated and coherent containers, built to a human scale, with sufficient autonomy to assume responsibilities and make demands, as no scattered, disorganized population can.

To make order again out of the present metropolitan explosion we must begin with its antithesis: a small-scale urban implosion or assemblage of urban elements. Only by first unifying the parts can a larger whole, the "urban grid," a highly organized regional network of cities and urban institutions, come into existence.

THE GARDEN CITY AS TRANSLATED

If I have correctly interpreted the significance of the Garden City, why is it that Howard's leading ideas have often been violently caricatured or disdainfully ignored? Apart from sheer human perversity, there are two reasons for this. The first is that Howard, as a public character, was a far bigger man than his book; and it was his genius for action as well as a certain meagreness of sociological and historic background that kept him from expressing in more effective literary form the full implications of his ideas. That task was left largely to his followers, particularly Unwin, Purdom, Osborn and Stein.

The second reason was that Ebenezer Howard had no pretensions to being a planner and he of-



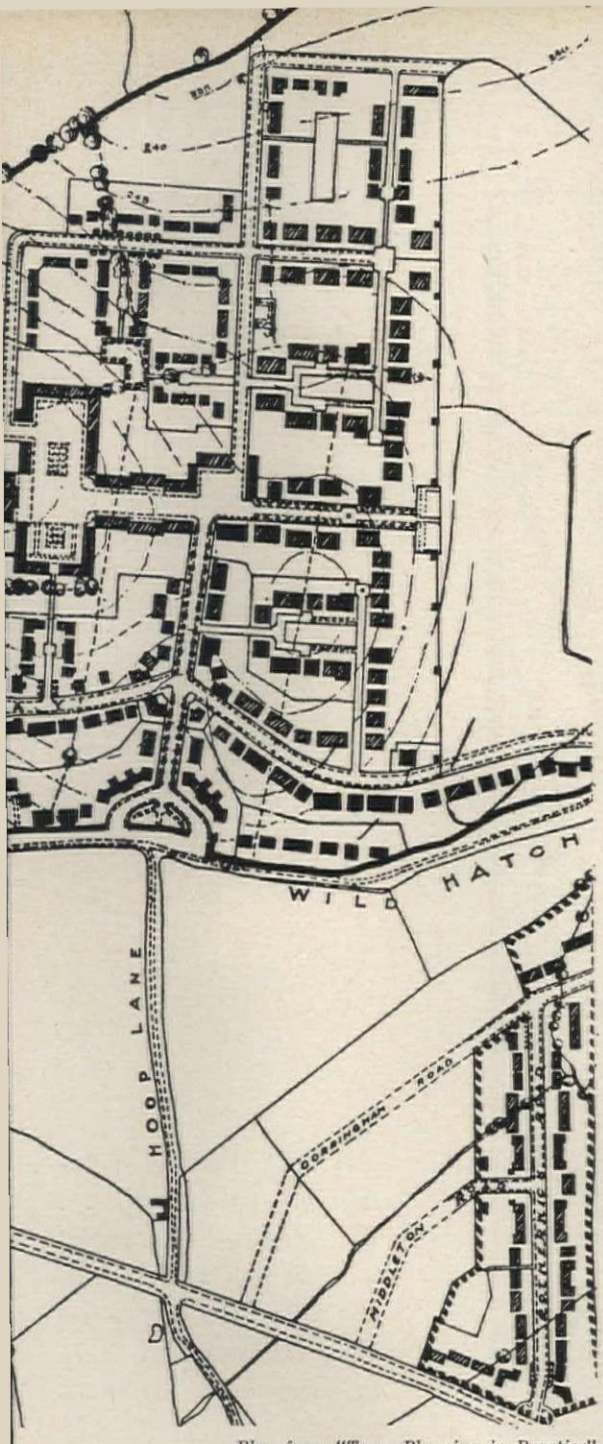
Hampstead Gardens, by Barry Parker and Raymond Unwin

"Unwin's later Hampstead Gardens, a suburb which had no pretensions to being a city, turned out to be far more coherent and handsomely urbane, perhaps partly under the influence of Lutyens."

fered no plans: all his illustrations are plainly labeled as diagrams. In so far as he himself suggested any concrete forms for the new city, they were closer in spirit to Paxton than to William Morris, and were more or less adaptations of the common forms of his own time: a central park as in London; an elongated glass shopping arcade, like that built in Milan or many other European cities; a green belt, collectively owned, such as had always existed, though usually without public protection, around country towns and railroad-suburbs. As to the residential area, if Howard had an image of the city, it was nearer to that of an early Victorian development in London, Ladbroke Grove, than to the cities that came actually to be built as demonstrations of his idea.

The first translation of Howard's idea into an actual urban form, was the work of Raymond Unwin and Barry Parker, two young planners who did not fully share Howard's old-fashioned delight in Victorian invention and mechanical progress: for they were under the corrective humanizing influence of William Morris, and were more interested in recapturing the genial older traditions of domestic architecture than in finding a fresh, striking image for a new kind of city as a whole.

As an historian of city design and a planning theorist, Raymod Unwin was the outstanding figure of his generation, for he carried further the pioneer innovations of Frederick Law Olmsted, and since he had both the literary facility and the cultural background that Howard lacked, his vision of the



Plan from "Town Planning in Practice"

new town carried greater authority. Unwin's analysis of the human insufficiency and economic waste of the "standard bye-law street" imposed by English legislation to achieve a minimum of sanitation and order is a classic little pamphlet: for he showed in residential neighborhoods that capital was being wastefully sunk into an excessive number of streets, paved for heavy traffic that did not exist, and mechanical utilities that were not needed, which could have been turned to better account by eliminating a large number of through streets and converting the space so saved into playgrounds and gardens.

To Unwin's demonstration, carried further by Clarence Stein and Henry Wright in Sunnyside and Radburn, we owe in large part the adoption of the superblock, which has liberated the architect from the rigid constraints of the building lot, the narrow block and the uniform building line.

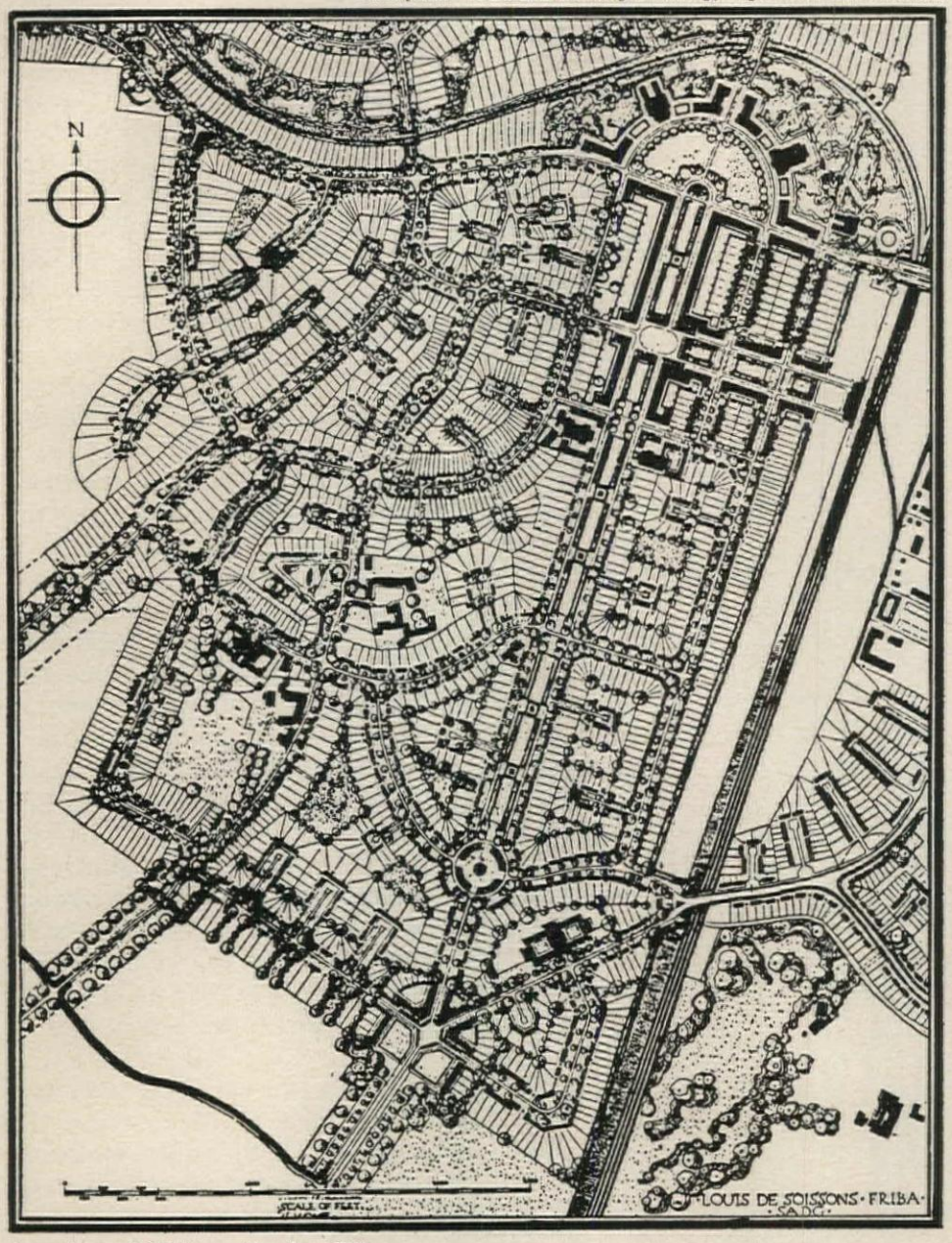
Unfortunately, the plan for Letchworth Garden City was uninspired. In leaning backward to avoid the stark simplicity of Howard's diagrams, the planners managed to avoid any positive visual expression of the idea itself. And though much of the domestic architecture was more fresh and vigorous than anything of comparable cost being built at the time, and an occasional factory, set in the midst of these houses, like the Spirella corset plant, was admirable in design, the total architectural effect was mediocre, and as far as the idea went, esthetically unconvincing. Neither the plan nor the structures articulated the differentiated but balanced structure of the new city. Visually the garden displaced the city.

As a result of this architectural indecisiveness, the handsomely cultivated gardens and open spaces far outshone the architecture and served as the identifying mark of the new idea, though the garden was only one of many ingredients in Howard's new urban formula. In form Letchworth Garden City now seems a cross between a modernized country town and a spread-out contemporary suburb. Unwin's later Hampstead Gardens, a suburb which had no pretensions to being a city, turned out to be far more coherent and handsomely urbane, perhaps partly under the influence of Lutyens. In a word, the still-fermenting New Town wine was poured, at the beginning, into a too familiar suburban milk bottle. That archaic image has retarded the acceptance of the idea itself.

This overemphasis upon the gardens and open spaces was doubtless a natural reaction against the dreary deserts of pavement, with trolley poles and lamp standards taking the place of trees, that stood as sterile symbols of mechanical progress. But by its very over-emphasis it shifted attention from Howard's main idea, which was that of social manifoldness, balance of urban and rural opportunities, functional completeness. As a result the Garden City came to be tied up in many people's minds, even in those of its most powerful proponents, with a general housing standard of 12 to 14 houses per residential acre. This notion was further stereotyped by Unwin himself, for as chief architect to the English Ministry of Health, Unwin introduced this standard on a national scale for public housing estates. He advocated this density for the sensible but limited purpose of providing a subsistence garden for every working class family. And it is this standard layout, not the garden city, that spread everywhere in England from the nineteen-twenties on.

Though Howard himself experimentally promoted group housing design for communal living, the single-family house-and-garden of fixed dimensions became a standard, or rather an over-standardized, requirement. When Welwyn Garden City was built

Plan from "Town and Country Planning," by Brown and Sherrard



A section of Welwyn Garden City

"When Welwyn Garden City was built . . . the Georgian revival was in full swing, and the planner, Louis de Soissons, achieved greater charm and coherence . . ."

some 15 years later, the Georgian revival was in full swing, and the planner, Louis de Soissons, achieved greater charm and coherence here than Letchworth possessed. Yet, except for the admirable industrial zone, the emphasis was again on private functions and traditional forms and ample greenery, rather than on association and intercourse, on public functions, on focal meeting places and social intermixture, all of which call for the pedestrian scale and a more close-textured design.

This failure to convey a more coherent image probably slowed down the acceptance of the idea, but in recent years it has been partly corrected. Indeed, at the very moment that Letchworth was being built, Tony Garnier, in his ideal plans for a new industrial city on the Rhone, was often closer in his architectural forms to the fresh image of the new town than were Unwin and Parker. A generation later Ernst May, once an assistant of Unwin's, came still closer to a valid form in the satellite settlement of Römerstadt, near Frankfurt-am-Main. Today the planners of the New Town of Cumbernauld, near Glasgow, though they have over-reacted against both the excessive spacing and neighborhood segregation of the first batch of British new towns, are approaching in architectural form—without resorting to high-rise structures—the compactness that is needed to make daily encounters and mixtures between people and groups not merely possible but inevitable. In time, both lack of historic structures and lack of modern examples will be overcome: the new image itself will come clear.

APARTMENTS

BUILDING TYPES STUDY 315

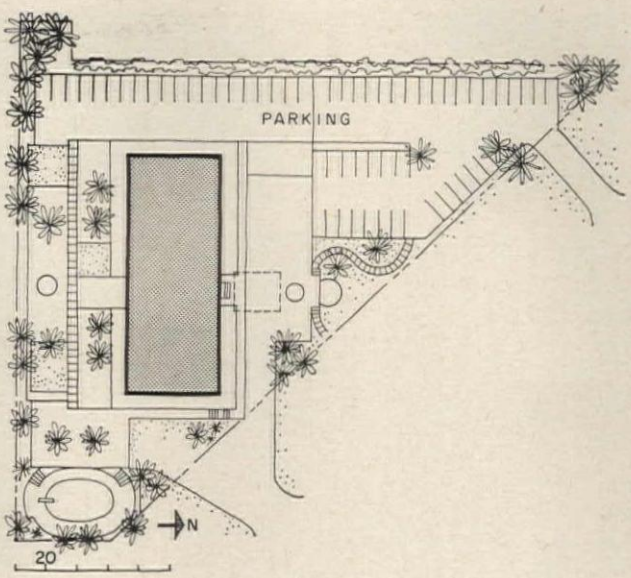
®

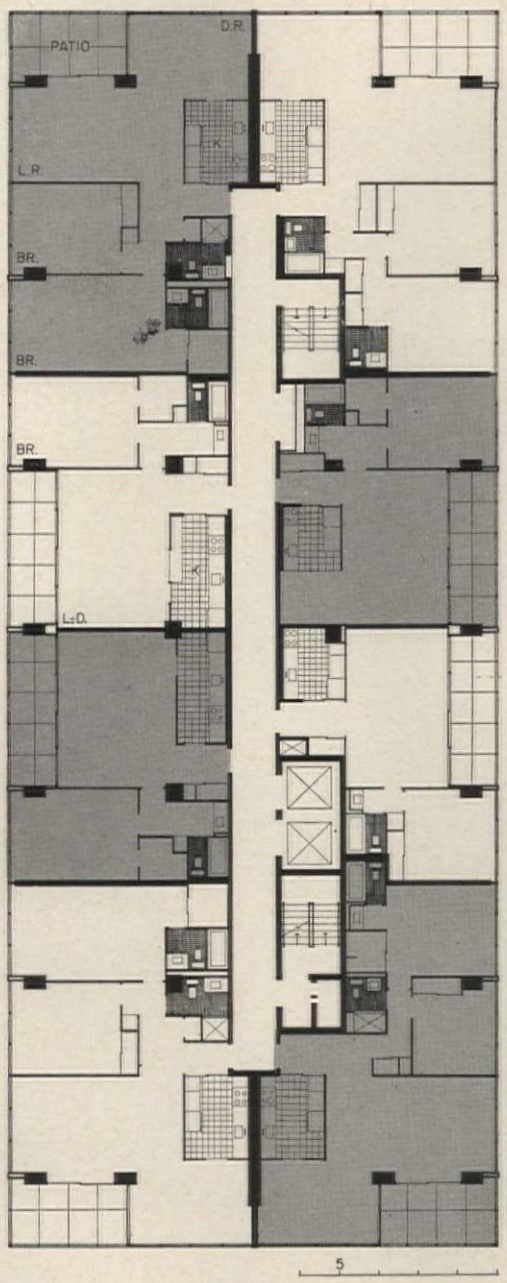
The six apartment buildings in this study were chosen for their good looks; each presents an attractive face to its community. It is pleasant to think that handsome buildings rent more readily, create prestige for tenant and owner, and tend to raise the general tone of the neighborhood—as indeed these do.

In the field of commercial rental housing, construction budgets are usually stringent, with the result that extensive research or study into other considerations is precluded. Such basics as: the size, shape and arrangement of rooms; the grouping (or separation) of living units and their relationship to public and project circulation and the site; the handling of automobiles and services; have not changed a great deal from the accepted standards and patterns of recent years. Structurally, new steels have appeared, and refinements in their use; there have been improvements in concrete quality control, as well as the emergence of a whole new family of precast components. Yet, with few exceptions, apartment buildings continue to be multi-story slab structures with applied skins. True structural continuity in the architectural sense is yet to be realized, as is continuity of structure and skin. Air conditioning and lighting are yet to be integrated into the fabric of construction. It is in dealing creatively with such matters that progress will be made toward the ultimate apartment building of the future. If architects were given a chance to work on some of the basics, better buildings would result, and it is likely they might cost less.

SCREENED TERRACES A FEATURE OF DENVER HIGH-RISE

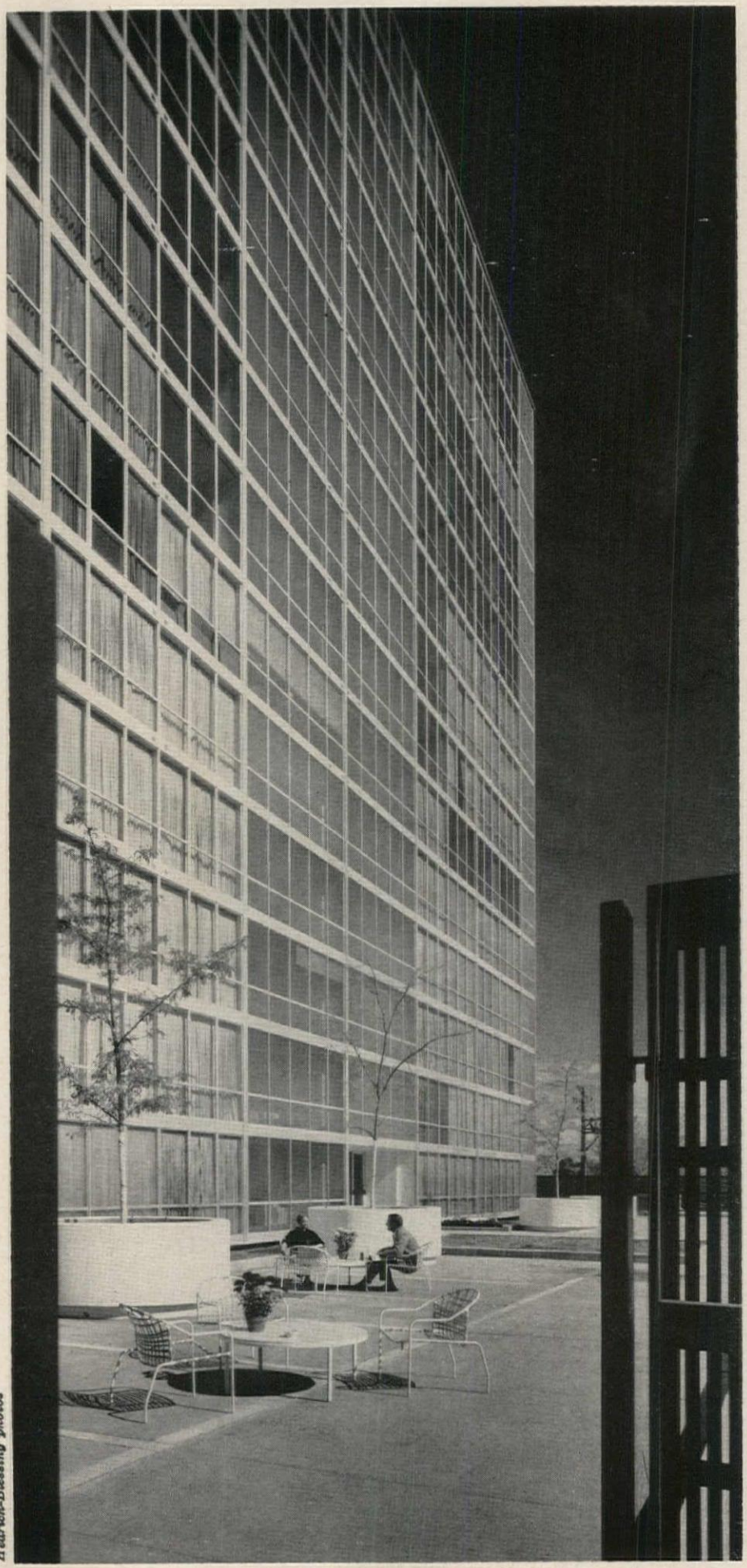
Cherry Creek Towers, Denver, Colorado
ARCHITECT: *Carl Groos Jr.*
ASSOCIATE ARCHITECT: *O'Neil Ford*
SPECIAL DESIGN ASSOCIATE: *Mardi Buell Groos*
STRUCTURAL ENGINEER: *Ib Falk Jorgensen*
ELECTRICAL ENGINEER: *Swanson Rink*
MECHANICAL ENGINEERS: *Stone & Birkle*
LANDSCAPE ARCHITECT: *Chris G. Moritz*
INTERIOR CONSULTANTS: *Castle-West*
GENERAL CONTRACTOR:
Platt Rogers Construction Company





This handsome high-rise apartment block is notable in providing a sheltered, screened-in terrace for each tenant in lieu of the more usual open balcony; and in doing so in such a manner that the terraces are partially protected and do not destroy the integrity of the simple block of the building's shape. The screen frames duplicate the adjacent glass window frames to provide—from outside—a visual continuance of the aluminum and gray glass curtain wall. Inside, one gains the feeling that the terrace is an outdoor room within the boundaries of the apartment, and the corresponding impression of containment and safety means that the terraces are popular and widely used. For cold weather, tenants can, if they wish, have demountable glass panels installed so the terrace becomes a sun room at slight expense.

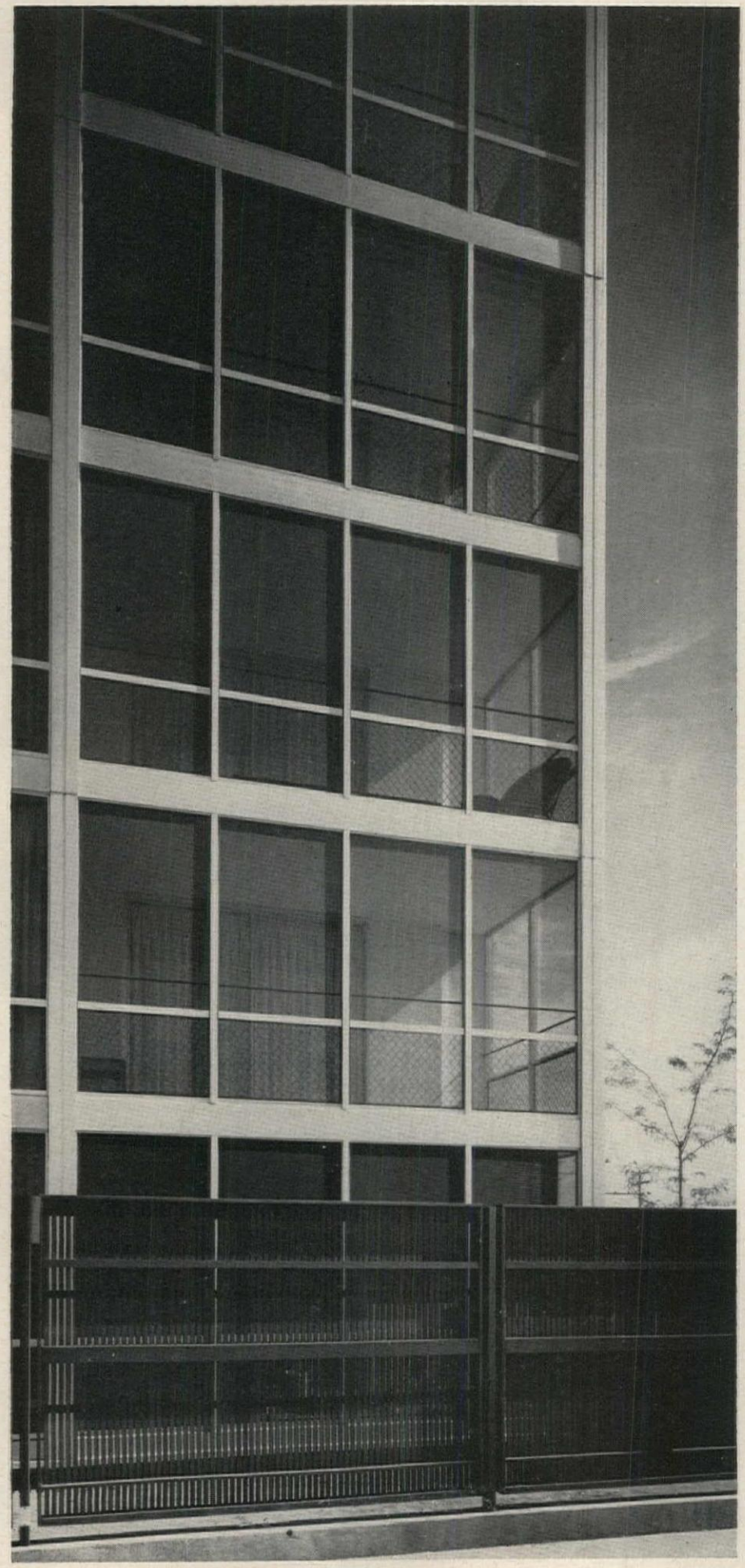
Located in a semi-urban setting five minutes from downtown Denver, this unit is the first of three that will eventually be built on the five-acre property. For this building's triangular third of the plot, the parking garage is under and wrapped around two sides (south and west) of the building and sunk for one-half its height into the ground. The resulting elevation of the first floor—which contains several apartments—improved the entire scheme by giving those living units a better outlook and by making it possible to poise the entire parallelepiped of the building on a slightly raised platform. This platform is developed with fountains, landscaping, terraces and a swimming pool.



Hedrich-Blessing photos

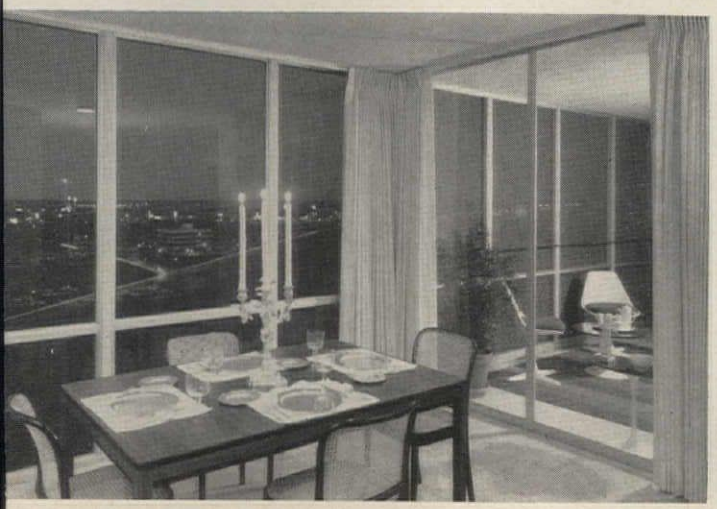
THE SOUTH TERRACE (*left and top right*) has become an outdoor social center for tenants. It is floored in exposed aggregate concrete panels with gray concrete dividing strips. The tree pots and fountains are of concrete; railings are of metal; the outdoor screens are of wood and pierced concrete.

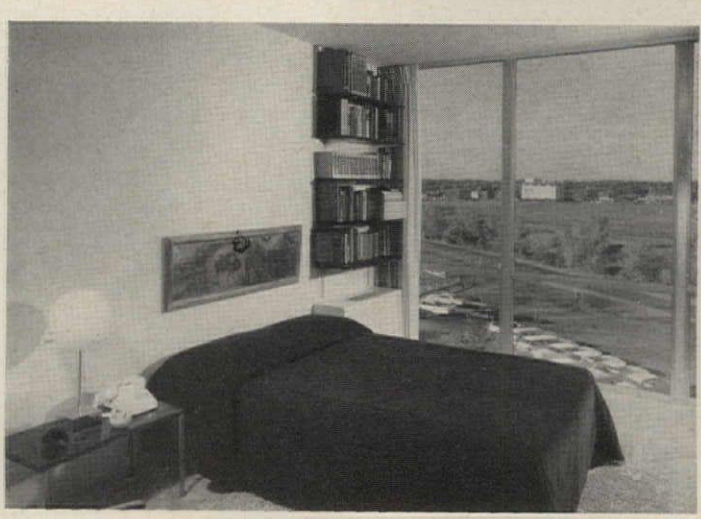
THE LOBBY (*bottom right*) has decorative panels of precast mosaic, imported from Italy; walls are otherwise of plaster; ceilings of acoustical plaster; stainless steel trim; special lighting fixtures are of stainless steel and walnut; the floor is of terrazzo with flush inserts of carpeting.



INTERIOR VIEWS of several apartments (*right*) point out in graphic fashion how the terrace areas become an attractive part of living spaces, whether screened or glassed-in. They are reached by way of floor-to-ceiling sliding doors of aluminum and glass.

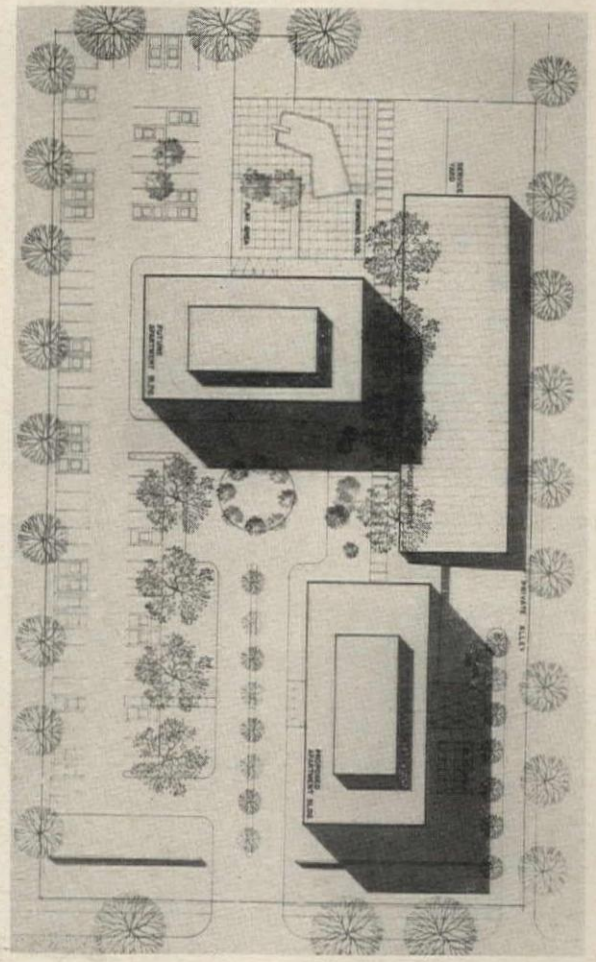
MATERIALS: The structure is of flat concrete slabs and high-strength steel; the curtain wall is aluminum and gray glass; typical interior partitions are solid plaster (on steel studs and gypsum lath between apartments); corridor floors are carpeted; tenants provide finish flooring, except in baths and kitchens, which are vinyl asbestos tile; ceilings are acoustical plaster throughout; except for sliding terrace doors, all glass is fixed; kitchens are equipped with dishwasher, garbage disposal unit, electric range and refrigerator, and wood cabinets with plastic counter tops.





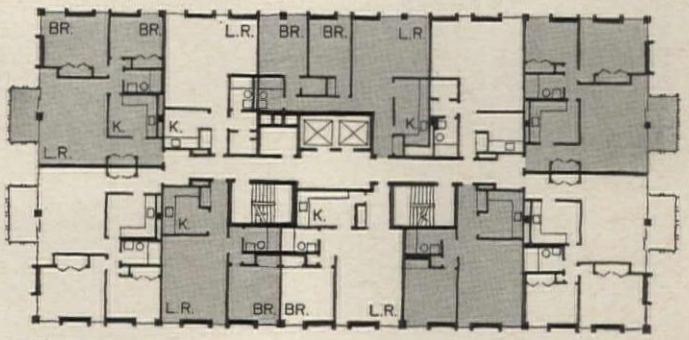
PRECAST FACING FOR MICHIGAN TWO-UNIT SCHEME

Nelson Towers, Jackson, Michigan
ARCHITECTS: *King and Lewis*
STRUCTURAL ENGINEERS: *Cuddie Engineers*
LANDSCAPE ARCHITECT: *Don Geake*
GENERAL CONTRACTOR:
Bentler Construction Company

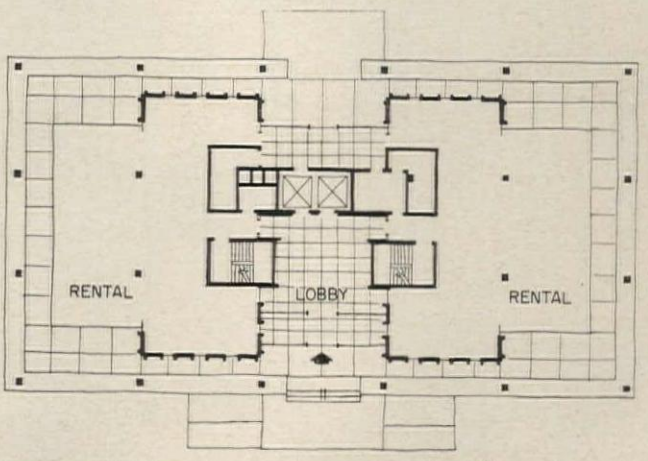


This striking building—which houses seven floors of apartments plus ground level rental area—was designed to blend as successfully as possible with the existing streetscape of 1920's estate-type residences. Thus, in an area where a slick metal and glass envelope would be inappropriate, the building was faced with precast panels with an exposed quartz aggregate. The continuous panels are arranged in a rhythmic bay pattern—alternating with the exposed structural columns—which creates a building envelope in scale with the adjacent large houses. The vertical panels, which actually house heating and cooling risers, are detailed with "wings" at their edges, heightening the chiaroscuro effect. The balcony facias (*top photo*) also add interest to the light and shade pattern. The in situ concrete structure is of the flat plate type. Field stone was used for the carport enclosure and parking area screen walls to further tie in the new construction with the neighborhood.

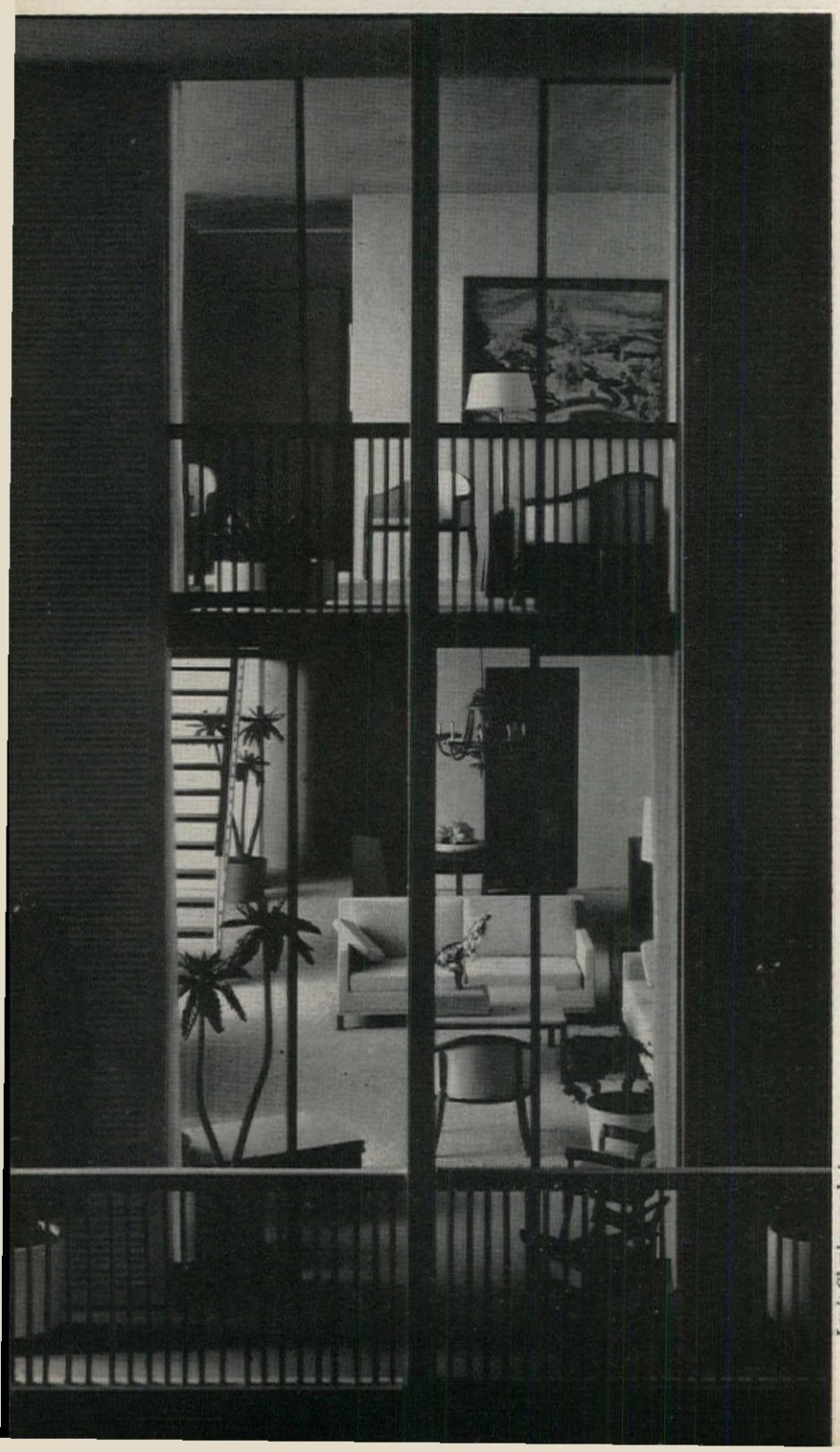
The disposition of the building's 70 apartments emphasizes two-bedroom units, of which there are 35. There are also 21 one-bedroom units and 14 efficiency apartments. In plan, emphasis was placed on living rooms free of circulation. The ground floor lobby has a suspended acoustical ceiling in prismatic forms; the precast, quartz-aggregate panels that face the building are also carried into the lobby. The basement houses a tenant laundry, storage and the mechanical plant.



TYPICAL FLOOR



GROUND FLOOR



Louis Checkman photos

DUPLEXES FOCUS ON COURTYARD WITH REFLECTING POOL

400 South Ocean Boulevard, Palm Beach, Florida

ARCHITECT: *Edward Durell Stone*

ASSOCIATE ARCHITECT: *Miles A. Gordon*

LANDSCAPE ARCHITECT: *Edward D. Stone Jr.*

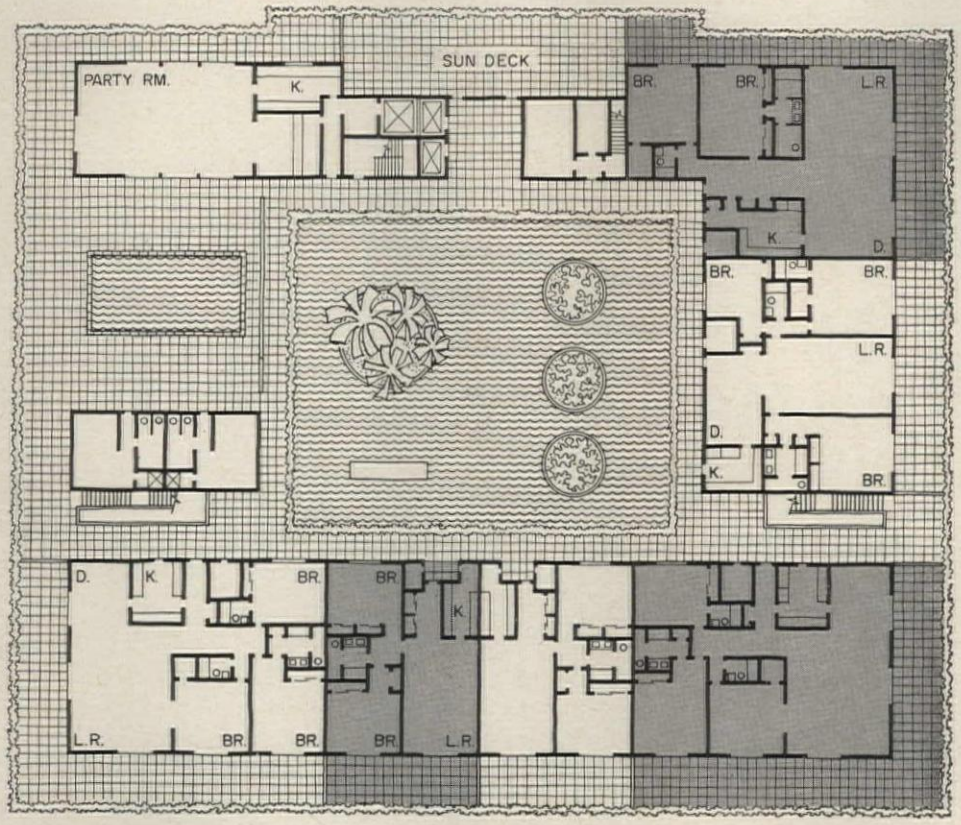
STRUCTURAL ENGINEERS:
Bernard J. Shaw and Associates

ELECTRICAL ENGINEERS:
Brockway, Weber and Brockway

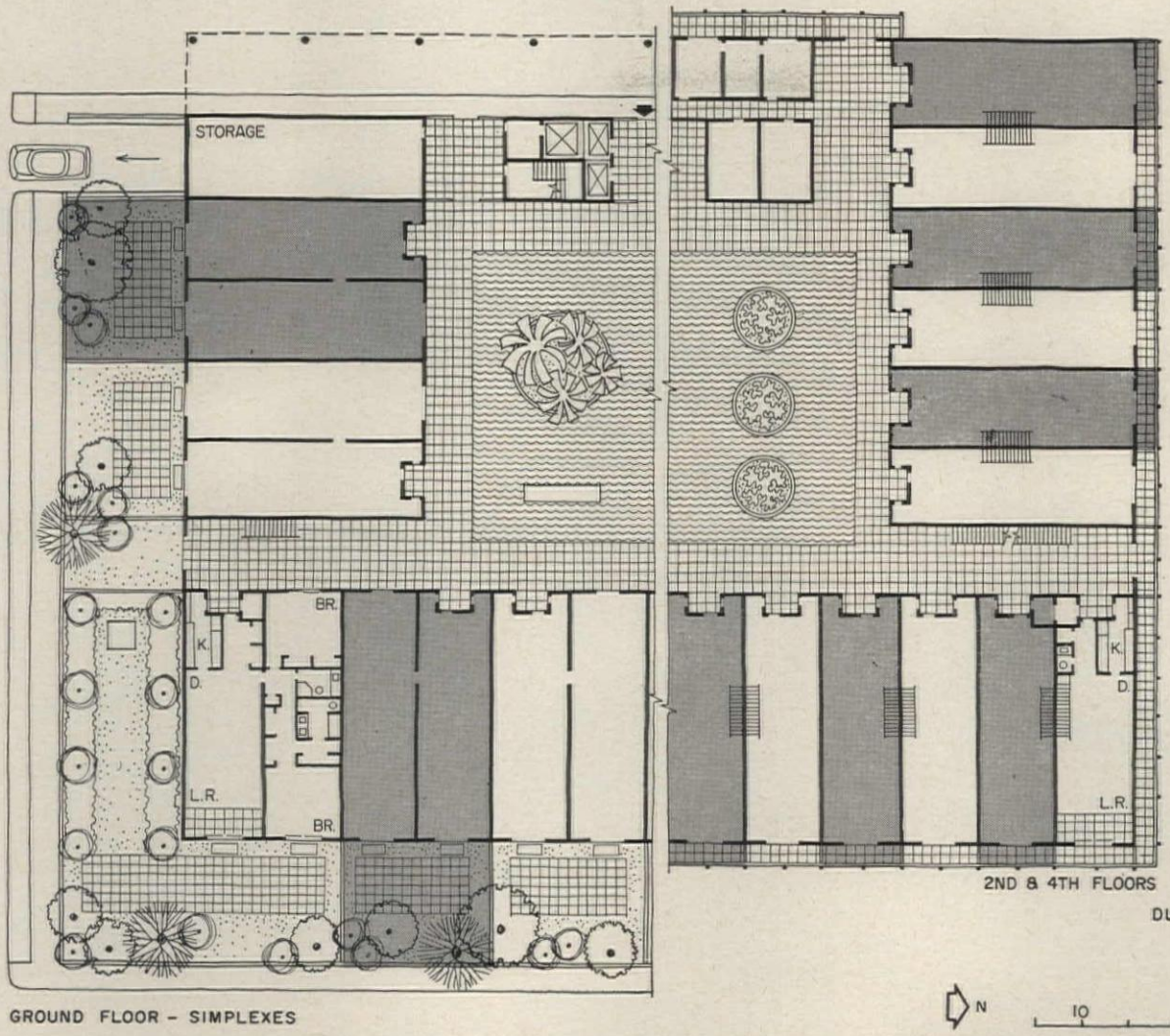
GENERAL CONTRACTOR:
Arnold Construction Company

This design by architect Edward D. Stone for luxury living in Florida features a group of duplex apartments grouped about a central courtyard which contains, at ground level, a reflecting pool with landscaped islands, sculpture and fountains. The 48 duplexes are arranged one above another in a four-story band that forms the principal central portion of the building, but are appropriately expressed as a two-layer block. The ground floor is given over to 10 two-bedroom apartments; the top story houses 6 three-bedroom penthouse apartments. The plan is notable for the fact that there are no interior corridors—a feature calculated to provide maximum privacy for each unit. Folding metal doors, two stories high (*left*), can be closed as desired for hurricane protection. In normal use, sliding glass doors will offer access to the outdoor terraces. Each apartment will have an individual heating and air-conditioning system.

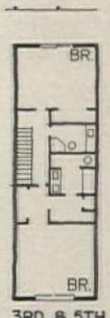
Parking for 96 cars—in a ratio of one and a half places per tenant—is provided in an underground attended garage. At roof level there is a swimming pool, sun deck, cabanas, party room, kitchen and bar; facilities which can be rented for private parties, if desired. A further touch of luxury is provided by a block of furnished guest rooms, which are set aside for the overnight guests of building tenants. Annual rent will range from $5,200 to $11,500.



PENTHOUSE FLOOR



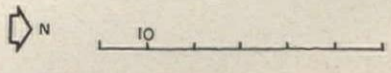
GROUND FLOOR – SIMPLEXES



2ND & 4TH FLOORS

3RD & 5TH FLOORS

DUPLEXES



UNUSUAL HIGH-RISE ATTRACTS NURSES TO CANCER CENTER

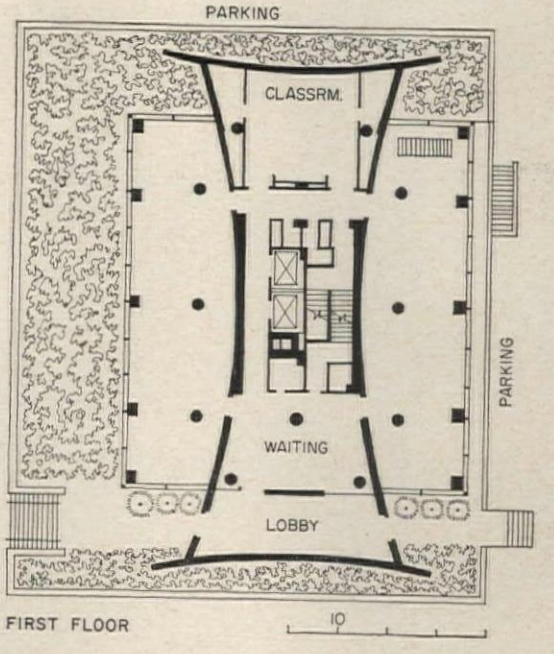
Sloan House,
Memorial Sloan-Kettering Cancer Center, New York
ARCHITECTS: *Harrison & Abramovitz*
STRUCTURAL ENGINEERS: *Edwards & Hjorth*
MECHANICAL ENGINEERS: *Jaros, Baum & Bolles*
ELECTRICAL ENGINEERS: *Ebner Associates*
INTERIORS: *Harrison & Abramovitz, ground floor, Hospital Furniture, Inc., apartments*
GENERAL CONTRACTOR: *George A. Fuller Company*

Thanks to this handsome new 20-story residential apartment building of glazed white brick, gray glass and aluminum, Memorial Hospital in New York now has a full complement of nurses—not at all usual in most hospitals. The apartment building, called Sloan House, is the latest addition to the Memorial Sloan-Kettering Cancer Center, which is located in an area in which it is virtually impossible to locate a medium or low rental apartment. The building houses unmarried resident nurses and provides quarters also for those from all over the country who come to the Center to learn the special skills and techniques necessary in nursing cancer patients.

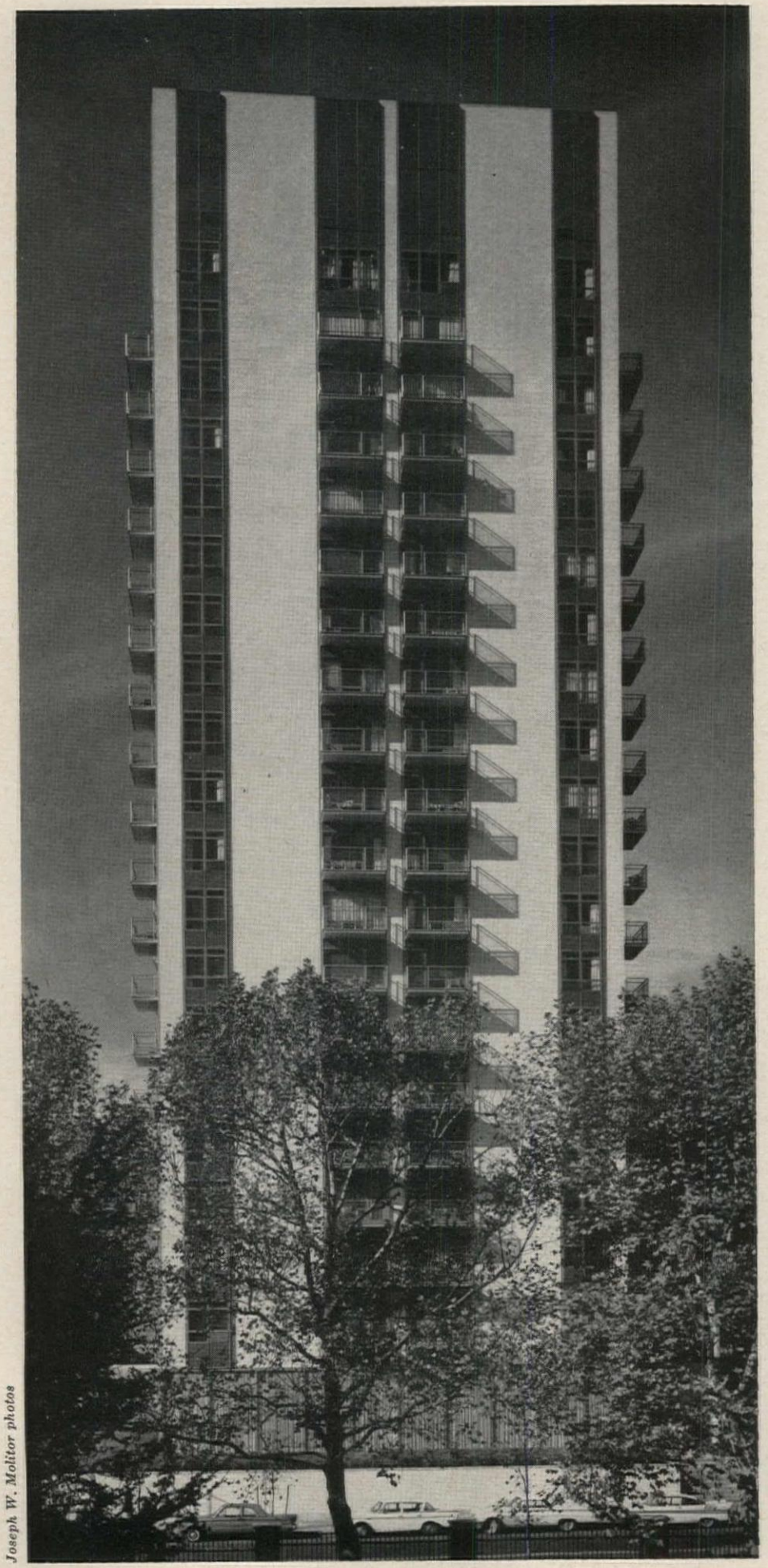
The building accommodates 225 nurses in 150 apartments; 75 in single units and 150 in double. All apartments have living rooms approximately 12 feet by 19 feet; each apartment is carpeted, equipped with Venetian blinds, window hangings and terrace furniture. Balconies throughout are 4 feet by 10 feet. Rentals: studio units $71 unfurnished, $81 furnished; bedroom units $58 per person unfurnished, $66 per person furnished. Apartment interiors and furnishings were designed by Colin Campbell McClean for Hospital Furniture, Inc.

Related to the grounds and buildings of Memorial Hospital and the Rockefeller Institute, the tower is set on a planted terrace raised above the level of the city sidewalk. At ground level there is a large lounge divided by curving walls of limestone into a library-study and a parlor. A multi-purpose room for receptions, dances, parties and meetings extends along one entire side of the building at the same level. On-site parking for approximately 40 cars is provided.

TYPICAL FLOOR



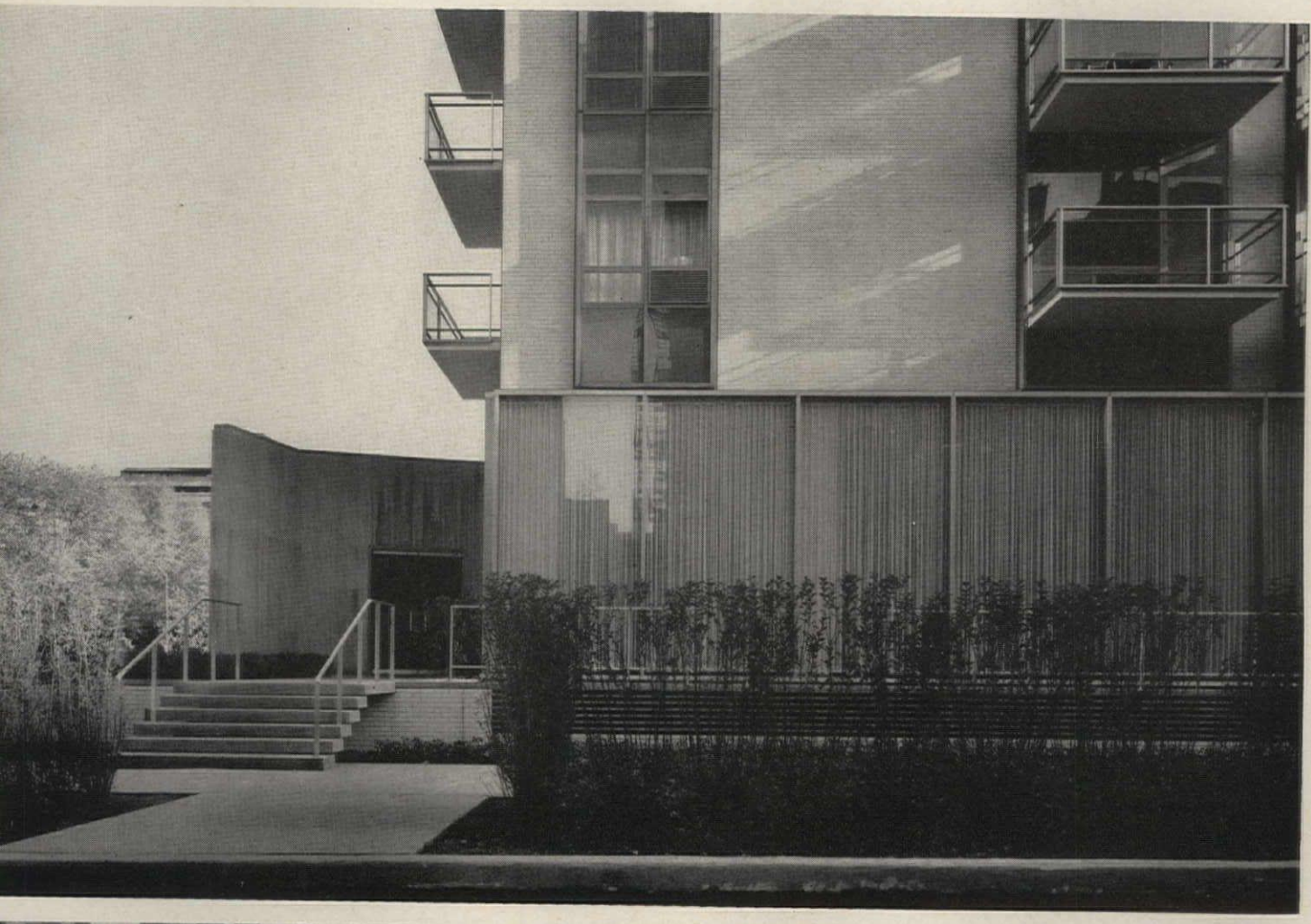
FIRST FLOOR



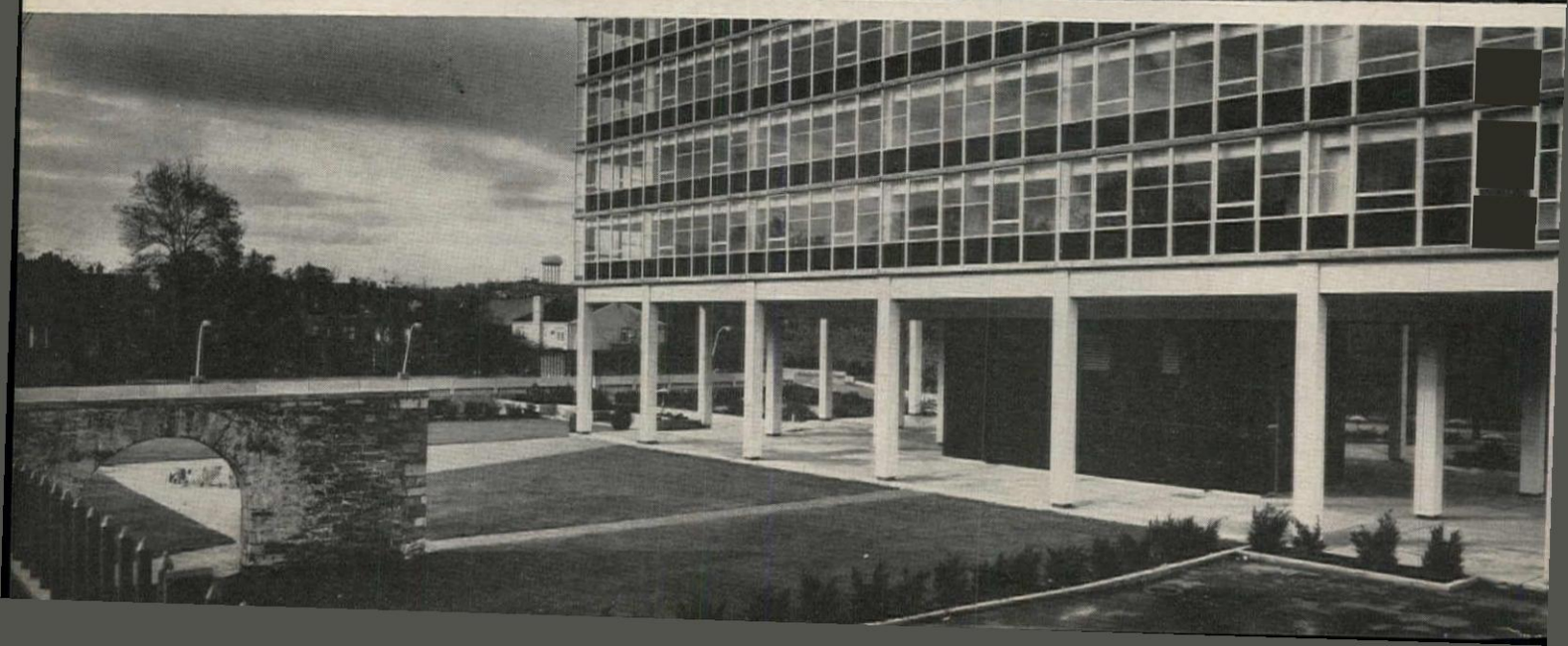
Joseph W. Molitor photos

AT GROUND LEVEL (*photo, right*) the building is seen resting on a landscaped platform raised several steps above sidewalk level. The photo immediately below shows the built-in wardrobe units that are provided in each of the apartment units.

MATERIALS: The structural frame is of reinforced concrete; the exterior skin is of glazed white brick, gray glass spandrel panels and anodized aluminum; partitions are of gypsum block and cinder block, plastered; the ground floor is terrazzo, while upper floors are carpeted throughout, with vinyl-asbestos tile in kitchens and baths; the ground floor ceiling is acoustical tile and upper floors have a skim coat of plaster on the slab soffits.




SLOAN HOUSE
DEDICATED TO THE MEMORY



CURTAIN WALL ARRANGED IN LAYERED TIERS

Highland Tower Apartments,
Pittsburgh, Pennsylvania

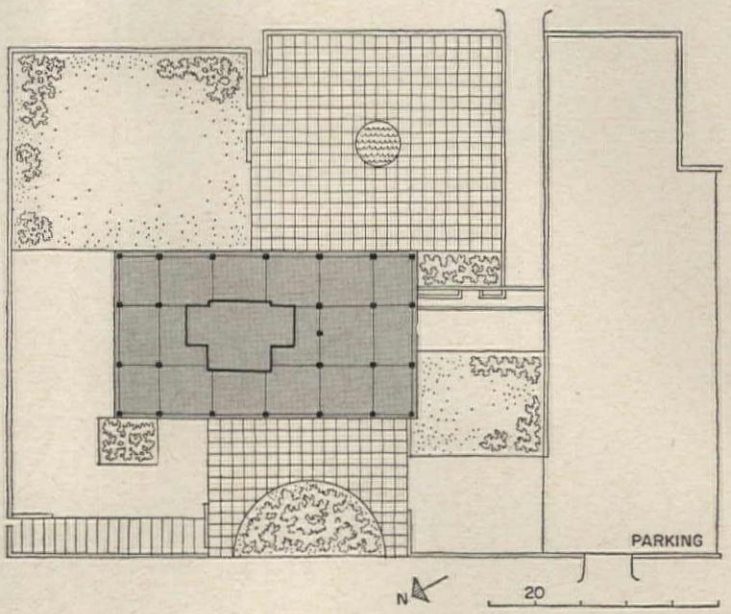
ARCHITECT: *Tasso Katselas*

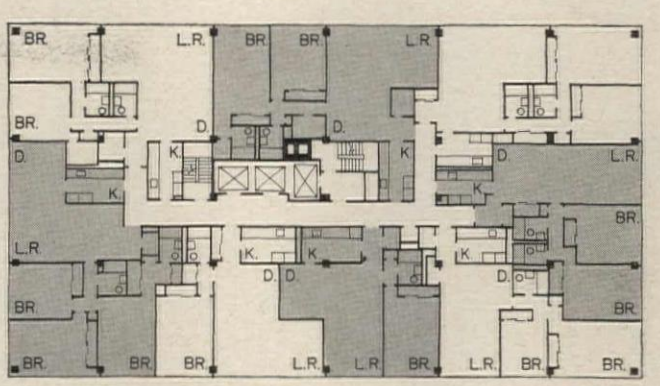
STRUCTURAL ENGINEERS:
R. M. Gensert Associates

MECHANICAL ENGINEERS:
Howard D. Bennett Associates

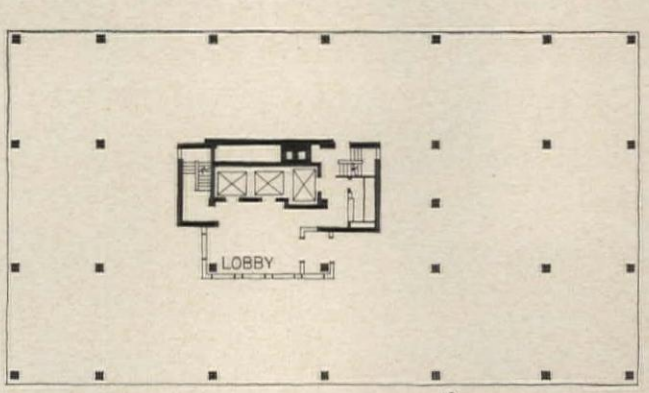
ELECTRICAL ENGINEERS:
Anton J. Eichmuller

GENERAL CONTRACTOR:
Navarro Construction Company





TYPICAL FLOOR



GROUND FLOOR

In an effort to avoid the endless look the curtain wall too often has—acres of glass and metal that appear to start and stop nowhere—architect Katselas has arranged one-story-high metal and glass components in a layered pattern interrupted by thin bands of concrete that mark the slab edges at each floor. The scheme makes articulation of structure and skin possible, allows the structure to be read from the exterior, brings the entire pattern into scale, and has the very practical advantage of enabling the window walls to be erected floor by floor rather than in large units harder to manage.

Located in a park overlooking three reservoirs and the city, the 23-story, 164-unit building was designed to give every apartment a view. To this end, the whole block of living units was raised 20 feet above ground level, a device that gives the first floor of apartments a pleasant prospect, and sets the dwellers apart from the immediate surroundings for privacy.

A budget price for the building was arrived at by working backwards from a rental schedule. Rents were set up at $50 to $55 per room for this purpose. Both steel and concrete structural frames were studied and analyzed at length, and it was finally decided that a welded connection with a semi-composite type of floor system would be most economical. The analysis was based on a combined loading that included floor and wind. The use of A36 steel was also decided upon, with resulting economy. The below-grade parking facilities adjacent to the building were built of precast, prestressed T-beams.

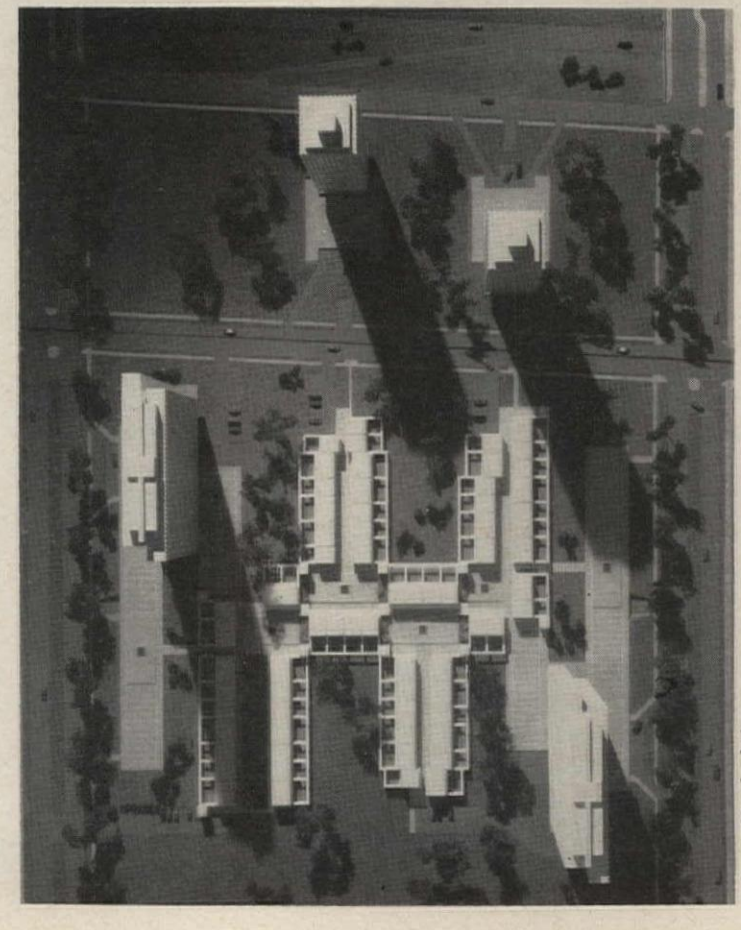
REDEVELOPMENT COMBINES HIGH-RISE AND TOWNHOUSES

1300 Lafayette, Gratiot Redevelopment Area, Detroit, Michigan
ARCHITECTS: *Birkerts & Straub*
DEVELOPERS: *Morton Scholnick Associates*
STRUCTURAL ENGINEERS: *Paul Rogers Associates*
MECHANICAL ENGINEERS: *E. G. Siegel Associates*

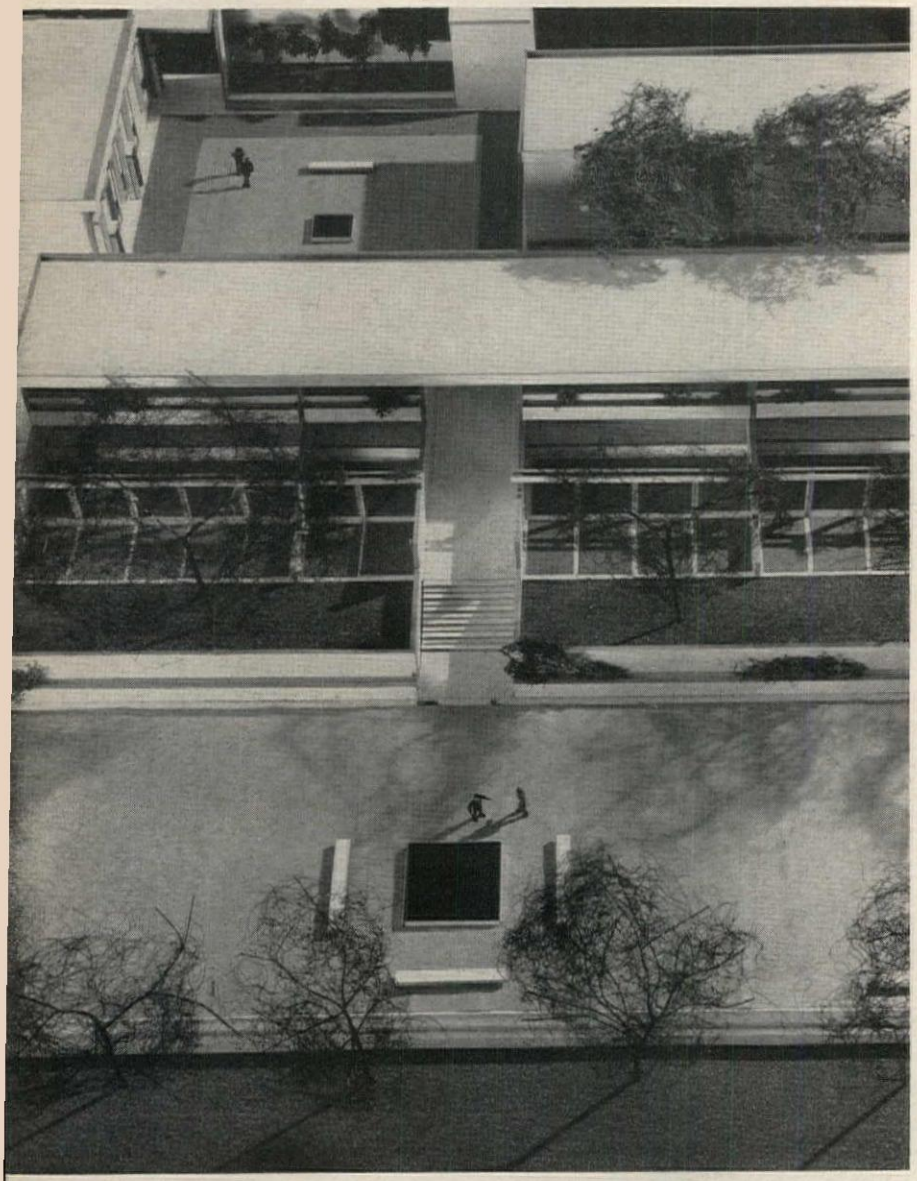
This Detroit project—which will be built in three stages—combines high-rise and townhouse units in noteworthy fashion, and is especially appealing for the way in which parking is handled as well as for the siting and design of the townhouses.

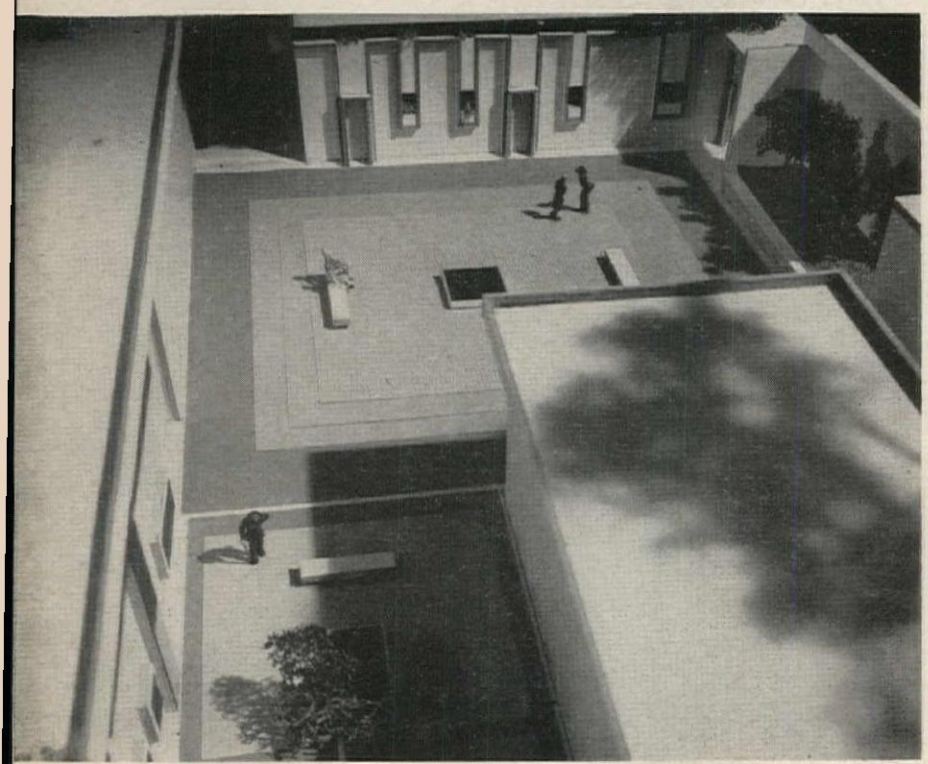
Originally conceived by the architects as a scheme in which all parking was underground and the 13.5-acre site developed as a linked pattern of pedestrian streets and courtyards, FHA requirements forced a revision in which 35 percent of the parking was brought above grade. The arrangement of buildings and site treatment remained substantially the same. Two high-rise units of 336 apartments each (building steps one and two) flank the plot on a diagonal, while 70 townhouses (building step three) occupy the central area. These are reached by tenants from underground parking and by visitors from depressed parking; both by way of a series of streets and courtyards that give the entire complex fine scale. The required surface parking is arranged in strips rather than in spreading areas, and is depressed to be completely screened from the view of passers-by or townhouse dwellers. Entrances to underground parking are on an axis with the high-rise building entrances, to mark them visually as important ingress points.

The entire plot offers protected pedestrian circulation and has been developed with an eye to detail: overhanging planting trays for townhouse privacy; pierced screen walls; lighting pylons; ledges for seating; play and promenade areas. All of these are knitted together to make a designed base for the buildings. Extensive recreational facilities are available in adjacent Lafayette Park.



Baltazar Korab photos





THE TOWNHOUSES are grouped about paved pedestrian streets and courts—reminiscent of Mews—in such a fashion that a pleasing sense of scale and privacy is achieved. The houses proper are designed with wide overhangs to protect their window areas from the view of tenants in the high-rise buildings. The living units are separated laterally by masonry walls two stories in height, and by planted pergolas which enclose the paved patios. The townhouses are of concrete and brick.

Although FHA requires 35 percent of parking above grade, the principal parking facilities for the townhouses are underground, as are service access and storage. Visitors, having parked in the open depressed area, have access to townhouses by a short walk through the streets and courtyards. Tenants and service personnel make use of stairs connecting the streets and the garage.

BUILDINGS FOR THE SPACE PROGRAM

How NASA deals with architects and engineers

The United States Government will put more money into research and development this fiscal year than it spent for that purpose in the entire interval from the American Revolution through and including World War II. The scale of architectural activity this $12.3 billion outlay represents in just one of the burgeoning technologies it covers is conveyed by the construction program of the National Aeronautics and Space Administration, which will invest $1.4 billion in ground support facilities during the next few years for the man-in-space program alone.

Examples of architectural participation in this program and related private building are on following pages. In Texas, five architectural firms joined forces in new professional alignments to design NASA's Manned Spacecraft Center. And in Maine, Perkins and Will used its accustomed talents on Bell's Telstar base for tracking a communications satellite.

HOW ARCHITECTS ARE SELECTED

Architectural and engineering designs for the Texas and many other NASA facilities are being performed by private firms through the contracting agency of the Corps of Engineers.

Lt. Gen. W. K. Wilson Jr., Chief of Engineers, U. S. Army, describes the mission of the Corps of Engineers for NASA as including responsibility for acquisition of real estate and the design and construction of diverse ground facilities. A substantial portion of the design effort, which will be carried out by private architectural and engineering firms, will be administered through offices of division and district engineers in the various parts of the country concerned. General direction of the work is under Brigadier General T. J. Hayes III, assistant to the Chief of Engineers for NASA Support and deputy director of Military Construction for Space Programs (which includes the Texas base).

General Hayes outlines four phases of the Corps' relationship to private architect-engineer on NASA projects: (1) NASA stipulates over-all requirements and geographic location of a needed facility; (2) the district engineer of that location negotiates an architectural and engineering contract to develop a master plan; (3) special studies to develop criteria are conducted by either NASA or the Corps, depending on the technologies involved; (4) design contracts are negotiated by the district engineer for development of complete plans and specifications.

Each district and division maintains files on the capabilities of architectural and engineering firms who work in its area. When a design directive is received by the district, there may be several firms on file who can do the job. The list is studied as to experience, personnel, current work load, etc., and a review board makes a final list of at least three firms in order of priority. The district then starts negotiations with the first firm on the list. If no price agreement is reached, the district goes to the second firm on the list, and so on.

A bulletin outlining policy and procedure on design contracting and listing district offices and their areas is available from the Department of the Army, Office of the Chief of Engineers, Washington, D.C.

Standard design manuals and specification guides of the Corps cover about 95 per cent of the dollar cost of most establishments. A price list of 58 of these is available from the Superintendent of Documents. Subjects run from "Planting Turf" through "Architectural Design of Pumping Stations" to "Protection Against Chemical and Biological Agents and Radiological Fallout."

For unusual projects, says H. B. Zackrison Sr., Chief of Engineering for the Military Construction Directorate, applied investigations develop needed data. One of these studied the dynamic loading of soils to find out how to tie down a static test stand against the 20-million-pound thrust of a rocket engine. Another was to find out how near the launching pad an unprotected human could endure the noise of such an engine.

Some of these investigations are supervised by Perry Wendell, chief of the Technical Development Branch, which concerns itself with developmental engineering for advance planning. Mr. Wendell thinks about such things as how to contain the 20-million-pound thrust of a Nova launching inside a pretty tough building; how to build the first habitable structure on the moon; how to simulate, in an earth building, the gravity, airlessness, temperatures and terrain of a moon landing field.

MANNED SPACECRAFT CENTER

The Manned Spacecraft Center at Clear Lake, 22 miles from Houston, occupies a 1,600-acre site of relatively flat land. Purpose of the establishment is to provide the National Aeronautics and Space Administration with facilities for research and development of systems and vehicles for manned landing on the moon and return to earth. About 200 acres of the site will be given to a campus-like complex of buildings. The rest will contain support testing areas and structures including a 4,000-foot antenna test range, possibly an 18-acre "lunar landing area" for simulation of lunar and earth landings by spacecraft and barge berthing facilities on Clear Lake.

Manned Spacecraft Center, Harris County, Texas

OPERATING AGENCY: *National Aeronautics and Space Administration; Leo T. Zbanek, chief of facilities division*

DESIGN AND CONSTRUCTION AGENCY: *U. S. Army Engineer District, Fort Worth, Texas; Col. R. P. West, district engineer*

ARCHITECT-ENGINEER DESIGN CONTRACTOR: *Brown & Root, Inc.; William M. Rice, project manager; M. P. Anderson, chief engineer*

ARCHITECTS

MASTER PLAN AND ARCHITECTURAL CONCEPT: *Charles Luckman Associates; Brooks & Barr; MacKie & Kamrath; Harvin C. Moore; Wirtz, Calhoun, Tungate, & Jackson*

DESIGN: *latter four firms in limited partnership called Manned Spacecraft Center Architects*

CLA PLANNING TASK FORCE: *Otto Kilian, partner in charge; Nathan Van Osdol Jr., project manager; Richard Niblack, director of design; Harold Munselle, chief designer*

ADMINISTRATIVE ARCHITECT: *Mace Tungate Jr.*

ARCHITECTURAL COMMITTEE: *Harold Calhoun, Harvin C. Moore, Karl Kamrath, R. Max Brooks, Albert Sheppard*

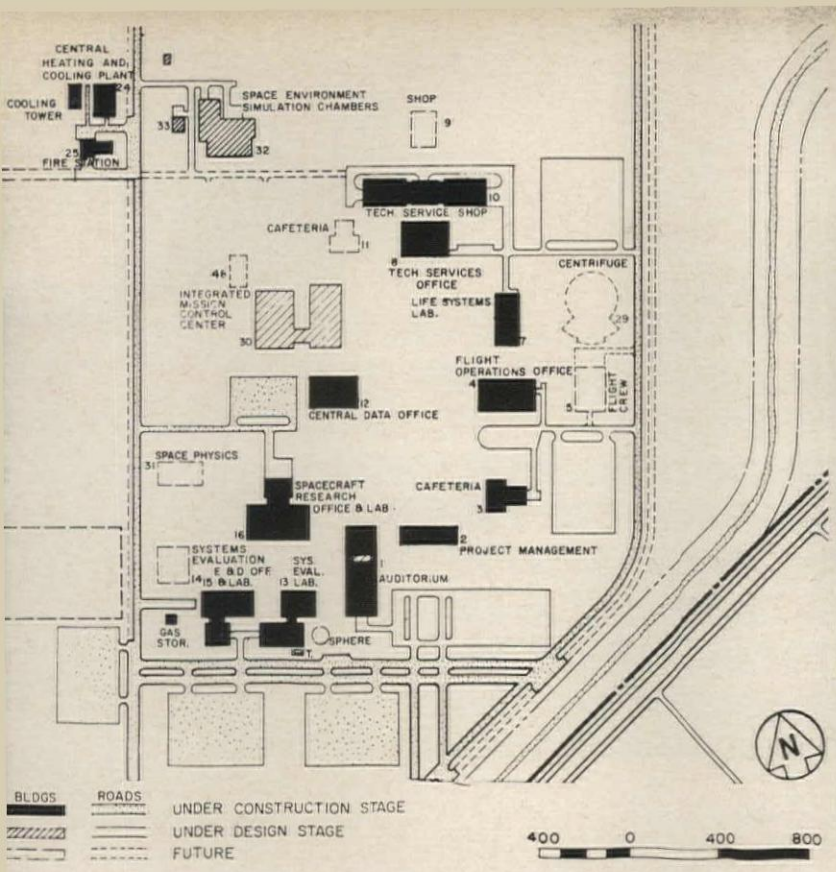
DESIGN COORDINATOR: *David C. Graeber*

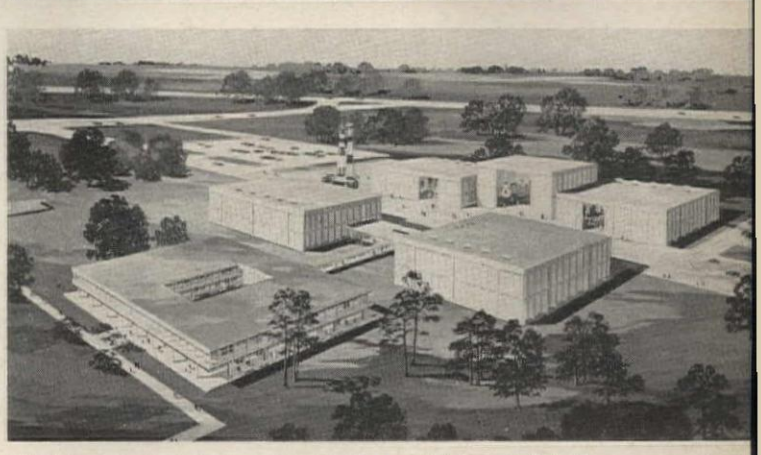
CONSULTANTS: *Bernard Johnson Engineers, Inc., mechanical; Caldwell & Caldwell and Robert F. White and Associates, landscape*

Criteria, program and plans had to be developed concurrently, and changes incorporated as scientists made new determinations of their needs. And this had to be—and was—accomplished on an unprecedented time schedule. NASA's design directive for the master plan became firm in November 1961, that for the structures in December. A comprehensive graphic presentation of the master plan and architectural concept (including some 11 possible variations of the site plan) was made to NASA and the Corps of Engineers on January 4, 1962. Final plans for all scheduled buildings were delivered to the Corps in September.

To accomplish this, a task force recruited from the five architectural firms moved into Brown and Root headquarters as did representatives of NASA and COE.

The architectural program for the main building complex was to produce many buildings of different sizes and functions in a unified campus atmosphere. A basic architectural "vocabulary" for the entire





Rendering *(opposite)* shows the whole campus complex proposed as of May, 1962, for NASA's Manned Spacecraft Center. Plan shows, in black, buildings under construction. *(At top, above)* is early concept of functional group for spacecraft research and evaluation. Building at rear has been deferred, as have central two in technical center *(above)*.

complex was developed in the master planning stage to unify and speed construction through repetitive use of materials, structural systems and architectural details. Precast concrete wall and spandrel panels, for example, are extensively used in a regular structural pattern stated by modular column spacing. Several buildings will have wide overhangs for sun-shading and to give a regional character. A thematic use of various finishing materials, typical details and coordinated colors will contribute to over-all coherence of the campus.

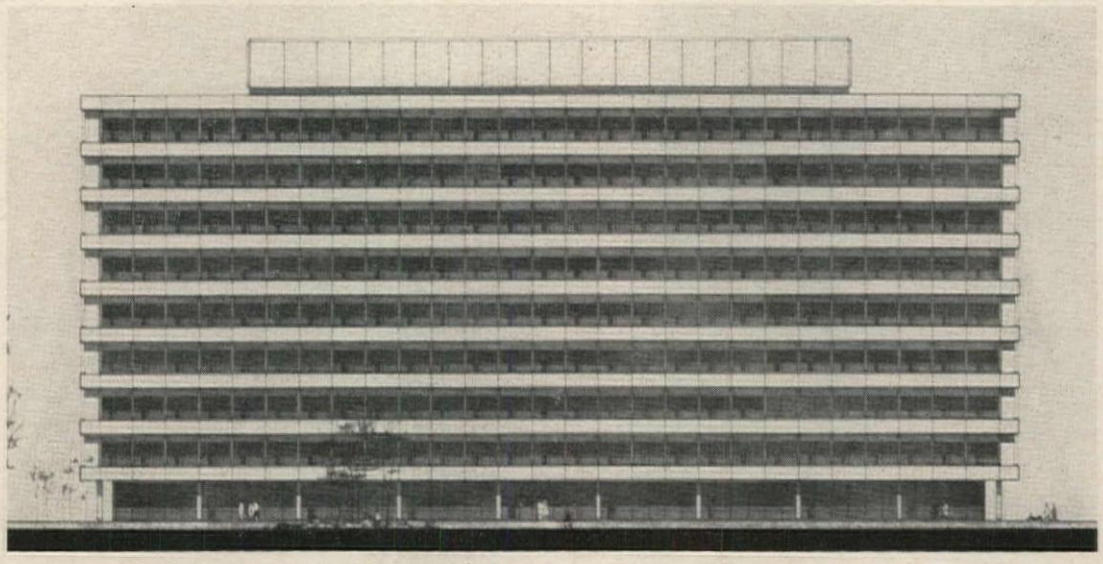
The program also required 100 per cent expansion capability in over-all plan, but within the limits of the present site. Advance planning of land use was, of course, like the entire design process, very much complicated by all of the unknowable factors affecting a pioneering operation. Logical grouping of related functions (such as the "life systems" lab, flight operations and crew training quarters, in all of which astronauts will be active) permits spacing of groups to allow for unknown future requirements. It also permits present economies by placing similar height laboratory spaces in single structures.

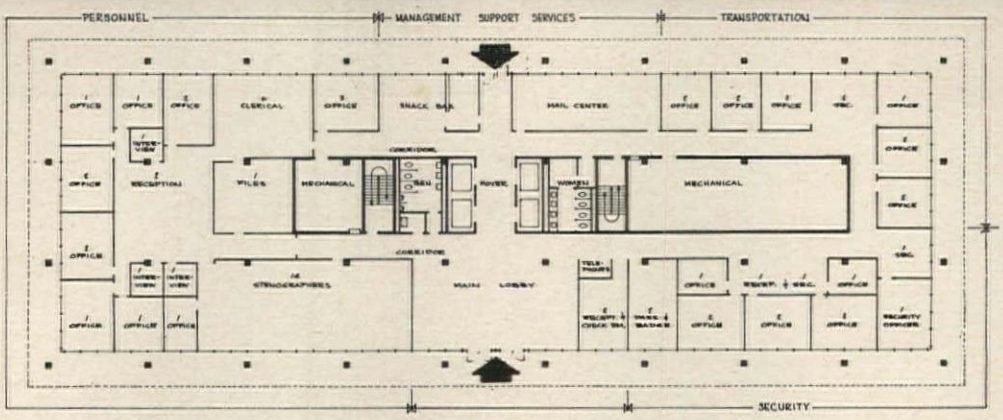
The budget for current above-ground construction is about $18.5 million. This will enclose 880,000 to 900,000 square feet. Considering the special requirements of many of the structures, the budget was an extremely careful one. The computer building and certain laboratories are more costly than conventional office space because of the need for special construction of a true building-within-a-building using separate slab foundations to eliminate even the slightest vibration which might upset delicate testing equipment. A part of one of the laboratories will be used for testing spacecraft by vigorously shaking them. This section must be constructed to withstand such testing without affecting other parts of the building.

Broad steps to cut costs while retaining a pleasant atmosphere were taken whenever possible. While the researchers' need for solitude is amply considered, designs call for maximum use of building space Many interior partitions will be movable for flexibility and expansion. Inside offices will be included in larger buildings. Wide spans will be kept to a minimum. Let no one think the space age means any new freedom from budget.

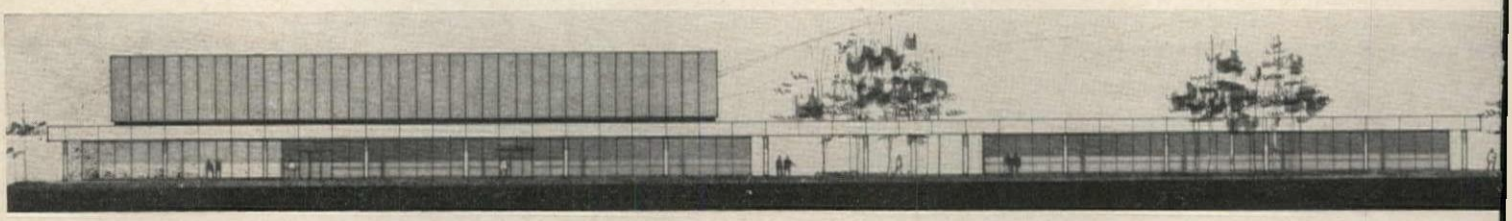
Buildings in the center currently under design by M.S.C.A. include: a nine-story project management building, auditorium, cafeteria, flight operations office, "life systems" laboratory, technical services shop, central data office, systems evaluation laboratory, evaluation and development office and laboratory, spacecraft research office and laboratory, garage, support office and shops and warehouse. Construction completion date anticipated for about 15 of these buildings is in the first quarter of 1964.

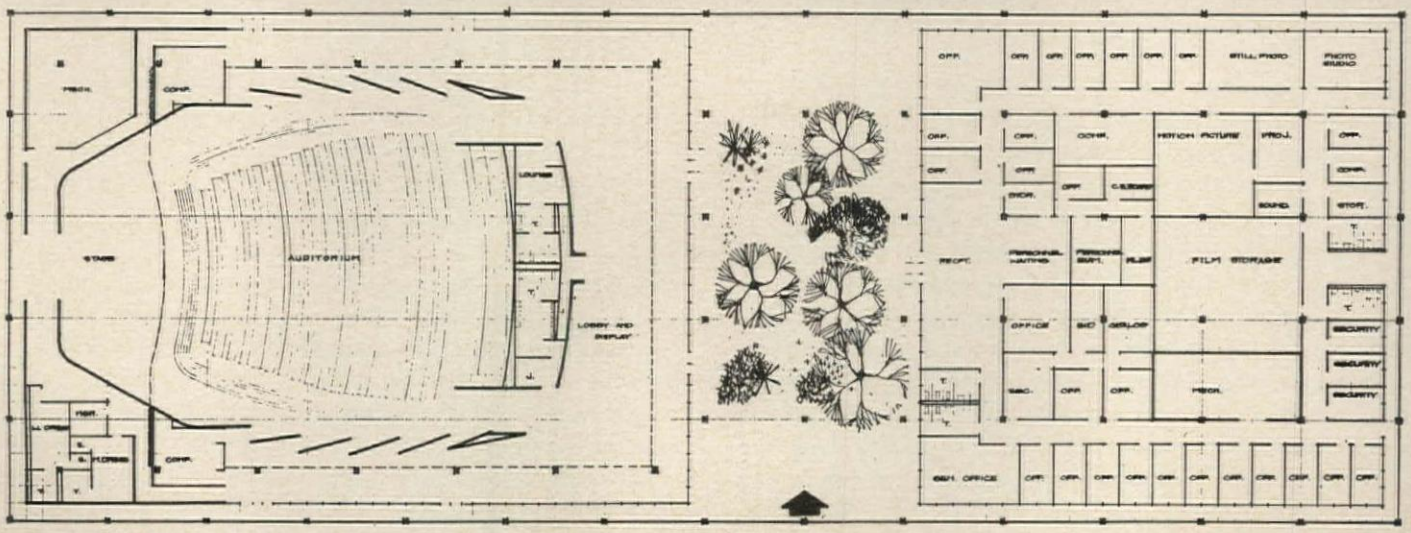
Certain other facilities for which concept studies have been made (and included in higher budget figures sometimes quoted for the center) will house thermo-chemical research, integrated mission control, an environmental chamber complex and a giant centrifuge. These buildings will be added later and are not part of the current under-design complex.

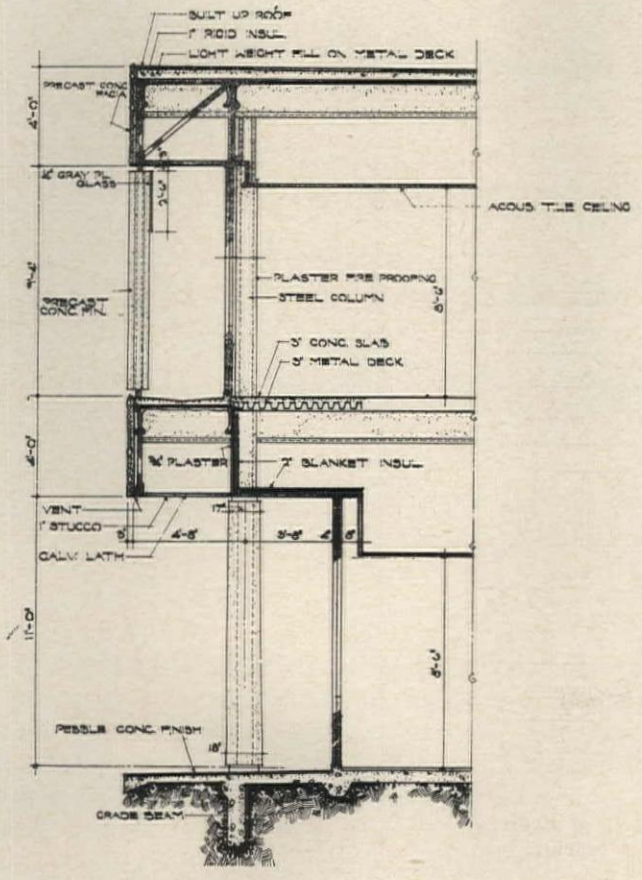


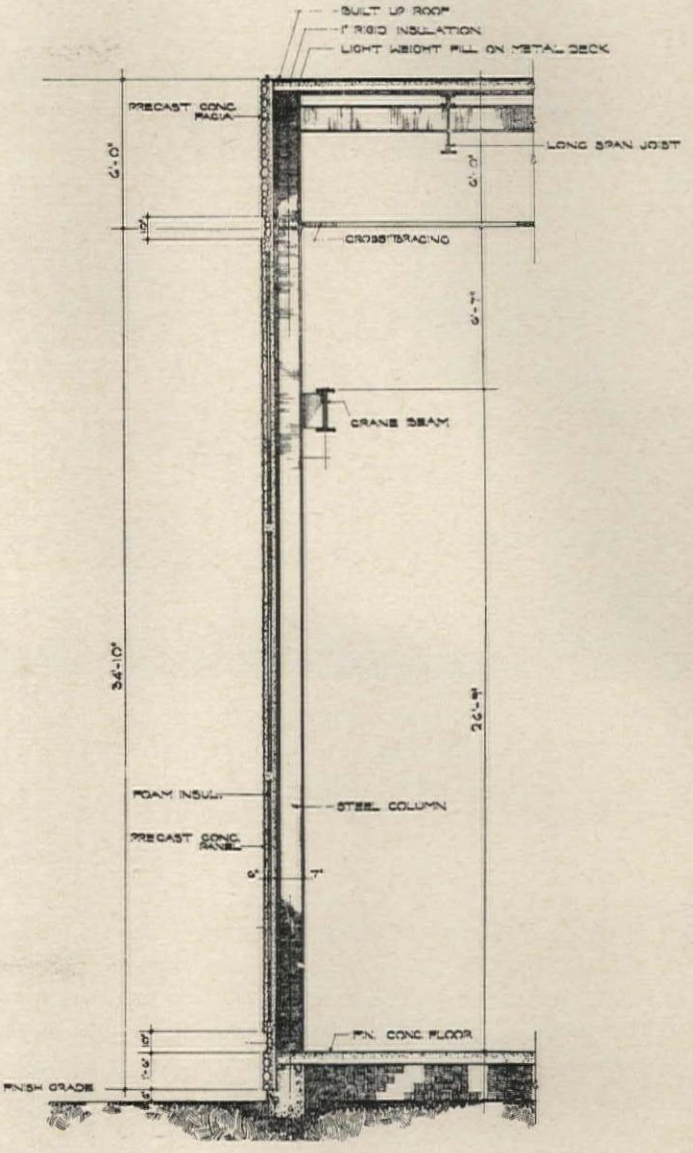


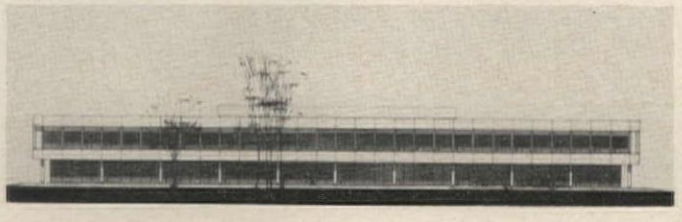
Above: elevation and typical floor plan of Project Management Building
Below: two-section building with auditorium and public contact offices

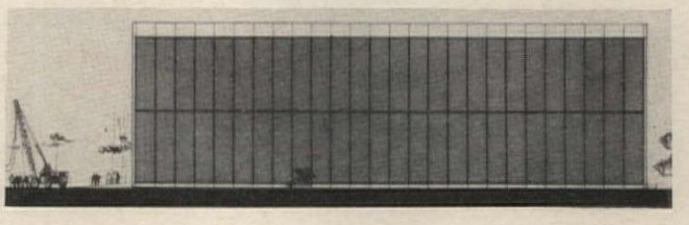












Typical elevations and floor plans of some of the buildings at the Manned Spacecraft Center on these two pages show both the variety and consistency of architectural vocabulary developed for the center. Details above are representative of treatment for a two-story building for offices and laboratories *(above left)*, and a high-bay test facility such as the life systems lab *(above right)*. The nine-story project management building *(top, opposite)* will provide offices for executive, engineering, personnel, transportation, security, financial and other center oriented functions. Design and plan relate diversified project assignments and management liaison requirements. The auditorium *(bottom, opposite)* is a two-section building with space for meetings, briefings and display in one section and for certain procurement, personnel and security functions in the other. These functions are related to the public character of the space in that they deal with interviews, temporary passes, etc. The two-story spacecraft research building *(above left)* will house offices and labs dealing with control and operation of spacecraft. There will be space for computer equipment, mockup and model construction, and a seismic isolation lab to allow optical sighting of navigational stars. The life systems building *(above right)* will house drop towers and space simulators in a high bay area surrounded by a three-floor arrangement of supporting labs and offices dealing with protection of astronauts against exposures, contaminants, impact and other space hazards. Astronauts will be housed in quarters nearby.

Carleton D. Greely

PROJECT TELSTAR

Project Telstar is an experimental earth-satellite communications system owned and operated by the Bell Telephone System. Architectural and engineering work at the Earth Station in Andover, Maine, was divided into two parts. Because the radome and horn antenna were primarily electronic and structural engineering problems, Bell Laboratories contracted for this work directly. A.T. & T., experienced in long lines and microwave relay stations, contracted for design and construction of the control building and all site work.

The 1,000-acre site lies in a bowl surrounded by mountains which shield the site from radio interference but are distant and low enough to permit wide open sky for scanning by antennas.

The control building is a single-story, reinforced concrete frame with windowless concrete block cavity walls and slab floors over a crawl space. It is in fact, says the architect, an air-conditioned shell to house extremely complex mechanical, electrical and electronic equipment and office space for operating personnel. Non-air-conditioned space in this building contains mechanical and electrical equipment.

Interior of the building is painted concrete and concrete block, with some movable partitions for maintenance shops and offices. Floors are concrete with vinyl asbestos covering in offices and some other areas. The tracking room also has a floating floor to permit electrical interconnections between units.

The building was raised above ground over a completely open crawl space to insure easy accessibility and dryness for the literally millions of wires, conduits and pipes interconnecting all the various systems within the center.

Because of the experimental nature of the project, cost had to be kept to a minimum, and many of the criteria were compromises between what was essential to the experiment and what might be needed if the satellite program became fully operable. A fully operating station, for instance, would need as many as five horn antennas and radomes and, of course, the controls to go with them. While the present design is minimal, it makes provision for a 300 per cent expansion of the building both laterally and vertically. The walls can be adapted for lateral expansion at any point by removal of the exterior cavity shell. Vertical expansion is made simple by a roof structure designed for 150-pound live load.

In addition to the relatively simple problem of expansibility, the character of the project posed some out-of-the-ordinary problems for architects and en-

Earth Station, Andover, Maine

GROUND CONTROL AND EXHIBIT BUILDINGS

ARCHITECTS: *Perkins and Will*

William McCoy, project architect

MECHANICAL ENGINEERS: *Segner and Dalton*

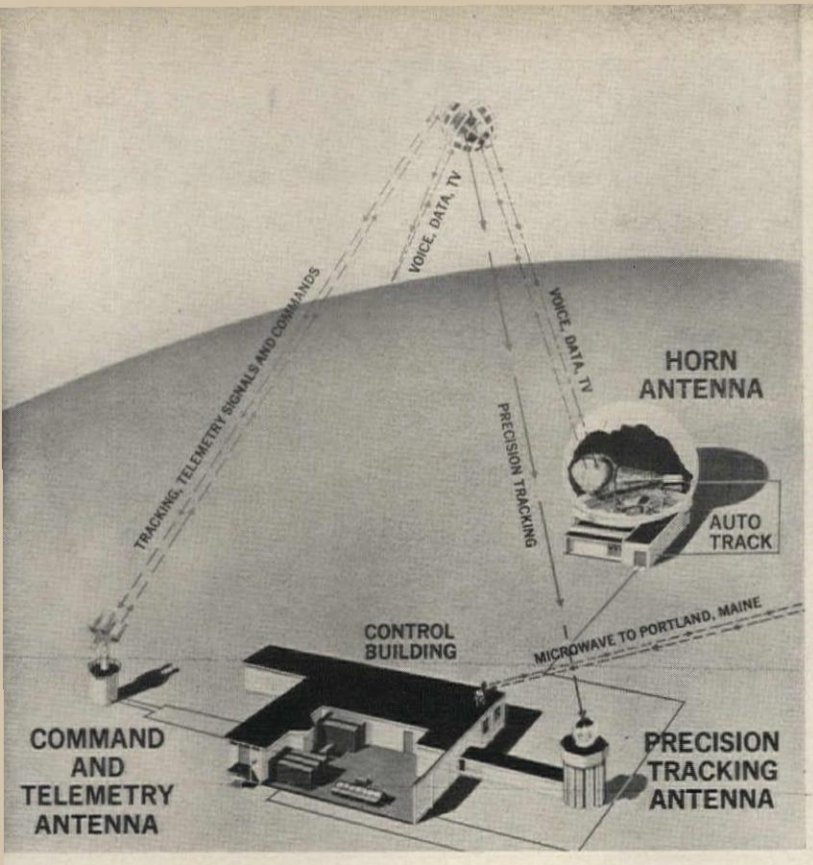
STRUCTURAL ENGINEERS: *Garfinkel and Marenberg*

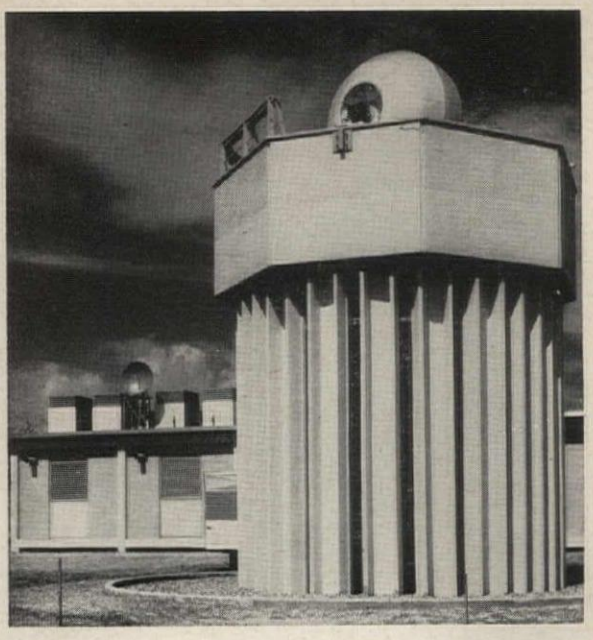
OVER-ALL DESIGN OF RADOME

ARCHITECTS–ENGINEERS: *McKiernan-Terry*

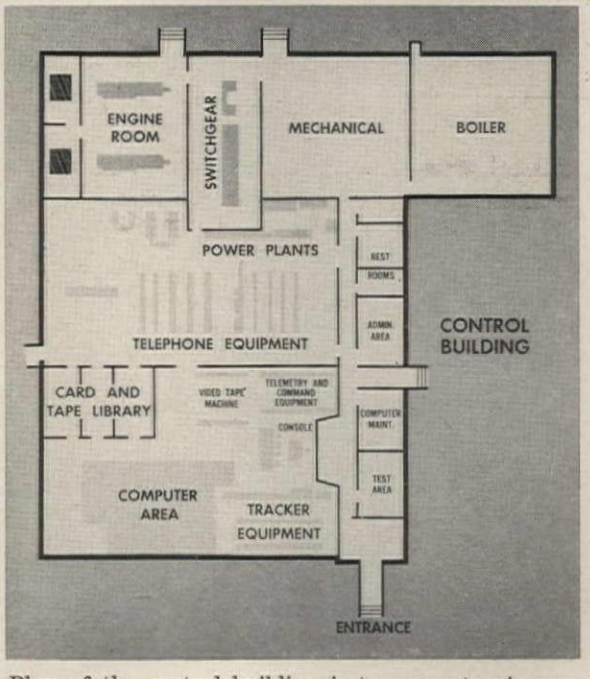
RADOME FOUNDATION: *Burns and Roe, Inc.*

RADOME COVER: *Birdair Structures, Inc.*





The precision tracking tower, 31 feet tall, was designed for stability. Any small accidental movement of the antenna would result in large errors in centering on the satellite. The tower is reinforced concrete with solid walls shaded by precast concrete channels to reduce heat effects of the sun on delicate tracking mechanism. A 3-feet-thick concrete pad protects the tower against ground movement.

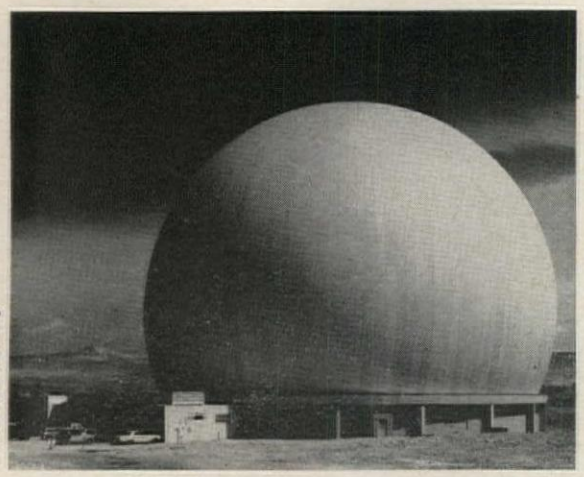


Plan of the control building is to separate air conditioned space for electronic equipment from base mechanical space to allow expansion in any direction. The roof is designed for 150-pound live load as possible future floor. Interior is painted concrete, an austere complement to exotic electronic instruments.

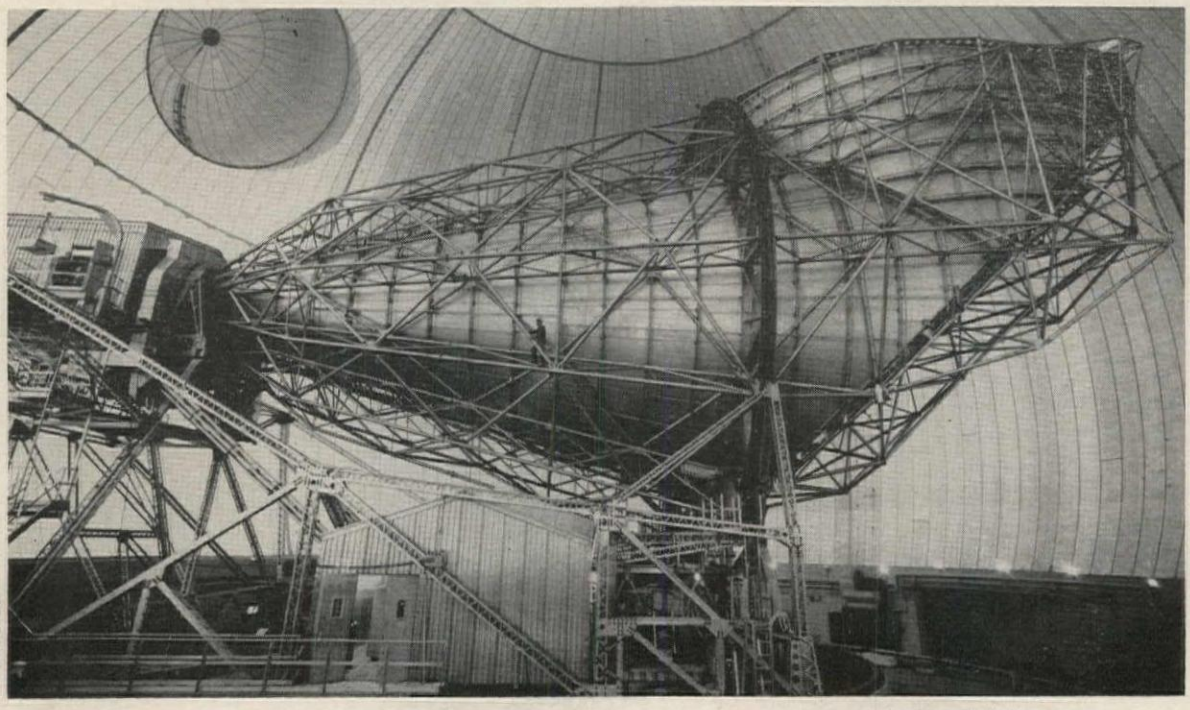
gineers. One of these at the outset of the program was created by the unknown capabilities of the satellite, which scientists were still working to determine. Since these capabilities affected the scope of the Andover project, the architect had to design a control center for systems that could become more elaborate overnight. His building, therefore, had to be flexible internally as well as expansible externally.

Another complicating factor in the design was the division of authority or responsibility for the various kinds of equipment to be housed. Various agencies within the Bell Systems' corporate complex participated in the Andover work. Base utilities, mechanical and electrical, for the whole site were controlled by A.T. & T. Equipment for relaying of messages to the communications network was installed by New England Telephone Company. The satellite, computers and antennas were engineered and controlled by Bell Laboratories.

Requirements for precision in tracking antennas made another problem of unusual refinement. The foundation and 31-foot tower of the precision tracking antenna were designed to hold steady and protect an 8-foot dish focused on the satellite within an arc of 0.2 degree. To control vibration and any possible soil movement a mounting slab of 3 feet of solid concrete was poured below the deep Maine frostline. To shield the driving mechanism against solar heat distortion, the solid concrete walls of the tower were screened by vertical precast concrete channel slabs. The whole project was accomplished in one year.

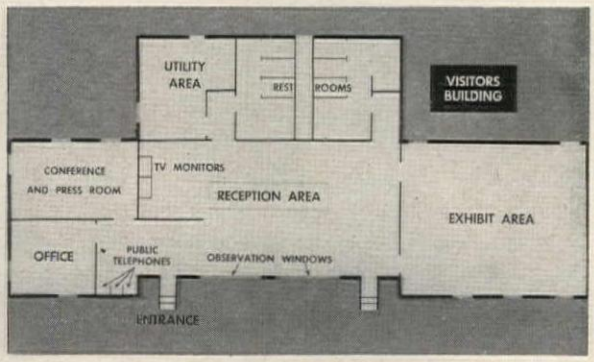


Carleton D. Greely



Hans Knoff

The permanent radome which houses the horn antenna is the world's largest inflated building. Dome is three acres of radio-transparent Dacron and synthetic rubber 1/16 inch thick held up by air pressure of about 1/10 psi. Diameter of the dome is 210 feet. The height is 161 feet. The horn antenna structure is 177 feet long and 94 feet high. The entire horn structure, weighing 380 tons, including upper and lower control cabs, rotates on a precise foundation gear. A verticle gear 70 feet in diameter rotates the horn opening with a pointing accuracy of .002 degree. Base structure of the radome includes truck entry and mechanical spaces for heating and air conditioning. Steel and aluminum framing and horn-shaped metal shielding protect the huge instrument from ground radiation. Area of the horn opening is 3,600 square feet, sufficient to pick up the satellite's signal which is about one trillionth watt.



The visitors' building is a log cabin fitting the Maine countryside and contrasting suitably with the radome toward which it fronts. The exhibit area houses a full-scale model of the Telstar satellite 34 inches in diameter: Wall maps and television monitors show visitors the whole scope of the Telstar operation.

This new system for the organization and analysis of thoughts, facts, methods and estimates is an aid to architects in maintaining positive control of construction time and money

CRITICAL PATH METHOD OF SCHEDULING

By E. R. McCamman, Project Director,
Giffels & Rossetti, Inc., Architects-Engineers

Critical Path Scheduling (familiarly C.P.M.) is a method that makes it possible for architects to apply positive controls to the problems of construction sequences, schedules and costs.

First developed, in 1956, by E. I. duPont as a method for close coordination of the many interrelated construction activities on large projects, C.P.M. has since been adopted by a number of architects, and their clients, because the method has obvious advantages over the older bar-graph type of scheduling. The critical path method makes possible complete analysis, in advance, of construction activities, of any degree of complexity, in whatever degree of detail that seems useful. With C.P.M., management decisions may be made prior to and during construction, on the basis of more reliable information than was formerly available. During all phases of construction, the exact status of activities will be readily apparent. All of this can lead to savings in time; and during construction, time is directly related to money.

A current project involving the rebuilding and expansion of industrial plant office facilities will serve as a demonstration of the critical path method. In this example, the existing office abuts a manufacturing building in a highly congested industrial area. Since no new land is available, the existing office building must be demolished before the new building can be constructed in the cleared area.

As is usual in critical path scheduling, the method can be divided into three phases for this project: planning, scheduling and cost study. In the initial phase—that of planning—the activities that must occur in the construction of a project are defined and the order in which these activities must take place determined. In this phase, the project is subdivided into activities or jobs. In the scheduling phase, project time tables are produced based on the planning phase and costs. In general, the greater the degree of subdivision, the more efficient will be the results obtained from the critical path method of scheduling.

For simplicity, the office building project used as an illustration has been subdivided into only twelve activities: demolition, construction of new foundations, installation of underground services, structural steel erection, exterior wall construction, roof and roofing installation, first floor slab construction, second floor slab construction, start of mechanical and electrical services installation, finish of mechanical and electrical, interior partition construction, and painting and finishing.

The arrow diagram is the key to the planning phase. Each of the twelve activities is represented by an arrow in a diagram, as shown in Figure 1 next page. When completed, the arrow diagram will show the logical flow of work in the project. The time flow of job arrows is from tail to head, with the head representing completion of the job. The length of the arrow has no significance.

Before each arrow is added to the diagram, the relationship of the activity the arrow represents to the over-all project is examined by means of the following questions: (1) what jobs must be finished before this job can begin; (2) what jobs can be accomplished concurrently with this job; and (3) what jobs cannot begin until this job is finished.

In the present example shown in Figure 1, before any new work can be performed, the site must be

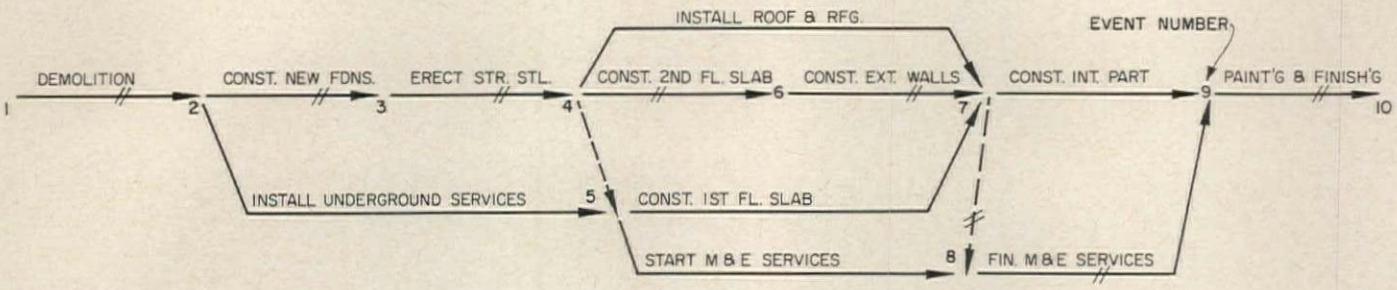


Figure 1

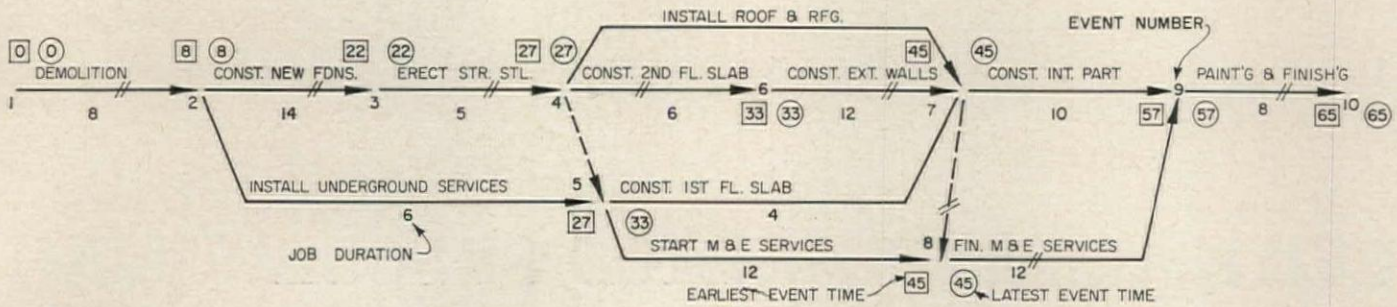


Figure 2

cleared of the existing building. Therefore, demolition is the initial job arrow in the diagram. After the site has been cleared, two other jobs can proceed concurrently: construction of new foundations and installation of underground services. The simultaneity of these two jobs is indicated by job arrows drawn from the head of the demolition job arrow. The process is continued until all of the jobs have been placed in the diagram. The dashed arrows (dummies) are not used to indicate jobs, but rather restraint on jobs that follow. For example, the first floor slab construction cannot begin until both steel erection and underground services are complete.

In the arrow diagram, Figure 1, event numbers have been added at the junctures of the heads and tails of the job arrows. These event numbers provide computer orientation, if this is required. The numbers also make it possible to identify jobs numerically; e.g. demolition is Job 1-2.

Since all subsequent phases of the method are based on this arrow diagram, this initial phase should be prepared by personnel who are thoroughly familiar with construction operations. The next phase, scheduling, determines the timetable for the project. The schedules tell when each job must be done, when deliveries must take place, when the project will be completed, which jobs are critical, how a delay in one job will affect subsequent jobs.

The first step in scheduling is the determination of the normal time duration for each of the activities. This step is accomplished by analysis of the work and the labor force available. Since the effectiveness of the critical path method is dependent on the reliability of the time estimates used, careful analysis should be made of each job. In the example, the time element is a day. However, any time element may be used provided the element is consistent throughout the network.

After the normal time durations of jobs have been determined, they may be shown, as in Figure 2, approximately at mid-points of arrows. Then the earliest event times can be computed and indicated on the arrow diagram. The earliest event time is the earliest time at which a given event can occur, or in other words, the earliest time when the longest job train leading up to that event can be completed. The earliest event times, shown in Figure 2 as the numbers in squares, are computed by working from the start to the finish of the arrow diagram. For example, the earliest event time for event number 5, considering that the project started at zero time, would be the sum of job train 1-2, 2-3, 3-4 and 4-5, and is equal to 8 + 14 + 5 + 0, or 27 days.

If the project can be completed in 65 days, as shown in Figure 2, presumably that is also the latest time it *should* be completed. Allowing any further delay would be wasteful of time and money. Therefore the latest event time for the end event is also 65 days. Working backward through the arrow diagram, the latest event times are computed. The latest event times, shown in Figure 2 as the numbers in circles, are the latest times at which given events can occur if subsequent jobs are not to be delayed.

At this point, the network can be tabulated, as shown in Figure 3, and the earliest and latest job start and finish times and the float can be determined. The earliest job start times are equal to the earliest start event times. The earliest job finish times are equal to the earliest start event times plus the job durations. The latest job start times are

I J	Description	Duration	Earliest		Latest		Float		
			Start	Finish	Start	Finish	Total	Free	Indept.
1 2	Demolition	8	0	8	0	8	0	0	0
2 3	Const. new fdns.	14	8	22	8	22	0	0	0
2 5	Install undergrd.	6	8	14	27	33	19	13	13
3 4	Erect str. steel	5	22	27	22	27	0	0	0
4 5	Dummy	0	27	27	33	33	6	0	0
4 6	Const. 2d fl. slab	6	27	33	27	33	0	0	0
4 7	Install rf. & rfg.	6	27	33	39	45	12	12	12
5 7	Const. 1st fl. slab	4	27	31	41	45	14	14	8
5 8	Start M&E services	12	27	39	33	45	6	6	0
6 7	Const. ext. walls	12	33	45	33	45	0	0	0
7 8	Dummy	0	45	45	45	45	0	0	0
7 9	Const. int. partitions	10	45	55	47	57	2	2	2
8 9	Fin. M&E services	12	45	57	45	57	0	0	0
9 10	Painting & finishing	8	57	65	57	65	0	0	0

Figure 3

equal to the latest finish event times minus the job durations. The latest job finish times are equal to the latest finish event times.

Although every job in a project is important, in practice a few jobs control the completion time of the project. These are called the *critical* jobs, because they must follow in sequence and on schedule if the completion date of the project is to be met. There is no float—the term used for spare time—associated with the critical jobs. The time required for each critical job exactly equals the time available for it. In the diagram, shown in Figure 2, the critical jobs are indicated by slanted parallel lines. All other jobs are noncritical because they have some spare time or float. However, once the float associated with a noncritical job has been used, that job also becomes critical.

Float on noncritical jobs can be used to stabilize the level of manpower demands, to obtain better material or equipment price quotations on the basis of relaxed delivery schedules, or to regulate equipment or material deliveries to a site with limited storage.

The *total float* for a job is the total time available to do the job minus the duration of the job. Consider Job 5-7, construction of first floor slab. This job can start as early as day 27 and be completed as late as day 45. There are 45 minus 27 or 18 days available for performing this job. The job itself requires 4 days. Thus the total float for Job 5-7 is 14 days.

The total float for one particular job often interferes with the total float available for a succeeding job. Consider Job 2-5, installation of underground services, which can be finished as late as day 33. Job 5-7, construction of first floor slab, can start as early as day 27. But Job 5-7 cannot start until Job 2-5 has been completed. If Job 2-5 is not complete until day 33, it has interfered with the total float of Job 5-7 by 33 minus 27, or 6 days. That portion of the total float that remains after subtracting the interfering float is called the *free float*. Stated in another way, the free float is that portion of the total float that is available when all the jobs are started at the earliest event times. The free float is equal to the difference between the earliest event times at the head and tail of the arrow, minus the job duration.

Certain jobs have float that is independent of, or unaffected by, the float of preceding or following jobs. This is called *independent float*. A job having independent float can be shifted backwards or forwards by that amount of time without disturbing the preceding or following jobs. The independent float is equal to the difference between the earliest event time at the head of the job arrow and the latest event time at the tail of the job arrow. Independent float can never be less than zero.

Each phase of the critical path method offers definite benefits to the user. If the system were carried no further than the planning phase, the user would have a clearer picture of the project, the jobs to be performed, and the sequence in which they are to be performed, than would be possible otherwise. Completion of the scheduling phase will enable the user to determine the project completion date and the jobs which must be completed on schedule if that date is to be met. The greatest benefit of all will be obtained when the third phase—costs—is employed.

The critical path method is based on the premise that time and cost are interrelated. Most projects can be performed in a number of different ways from minimum cost-maximum time to minimum time-maximum cost. The method permits an educated choice between the two extremes, a choice that will be best for the particular construction operation under consideration.

For the office building in this example, if the 65 day time duration is unacceptable, time can be saved by expediting one or more of the jobs along the critical path. This is more efficient than placing all jobs along the critical path on a crash basis. In the example, each activity was assigned a normal time duration. For each activity, there is also a crash time duration—a minimum time in which the activity can be performed. For each of the time durations, there are also associated normal and crash costs. Once the normal and crash times and costs are known, the cost slope for each activity can be determined.

$$\text{Cost Slope} = \frac{\text{Crash Cost—Normal Cost}}{\text{Normal Time—Crash Time}}$$

The cost slope gives the rate of increase in cost for decrease in time. The cost data for the present example is shown in Figure 4 on the following page. Now, if a schedule of time less than 65 days is desired for the completion of the project, an intelligent

Job Code	Normal Days	Normal Dollars	Crash Days	Crash Dollars	Cost Slope Dollars/Days
1-2	8	7,200	6	10,000	1,400
2-3	14	25,000	11	31,000	2,000
2-5	6	4,000	4	6,000	1,000
3-4	5	5,000	4	6,500	1,500
4-5	0	0	0	0	—
4-6	6	30,000	3	39,000	3,000
4-7	6	18,000	4	23,000	2,500
5-7	4	18,000	3	22,000	4,000
5-8	12	32,000	8	37,000	1,250
6-7	12	24,000	9	28,500	1,500
7-8	0	0	0	0	—
7-9	10	16,000	6	20,000	1,000
8-9	12	36,000	8	40,000	1,000
9-10	8	9,000	6	14,000	2,500
		224,200			

Figure 4

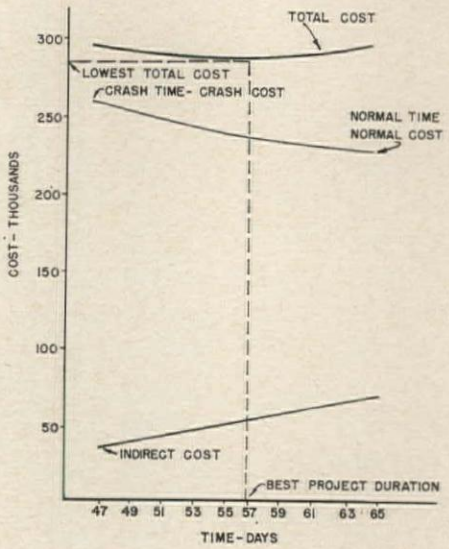


Figure 6

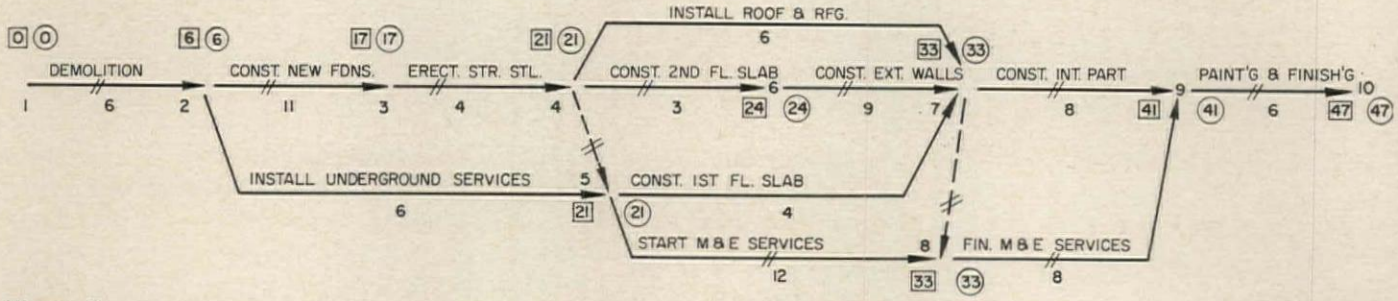


Figure 5

choice of which job to expedite can be made by compressing the time schedule of the critical job with the least cost slope. Starting with Job 8-9, a two day reduction can be effected at an additional cost of $1,000 per day. At this point Job 7-9 also becomes critical and any further reduction in Job 8-9 would also require a reduction in Job 7-9, which would increase the cost by $2,000 per day. However, Job 1-2 can be reduced in duration by two days at a cost of $1,400 per day. This process is repeated until the project duration has been reduced to its minimum time of 47 days as shown in Figure 5.

In making the time reduction, a direct cost for each day interval between 47 and 65 days has been obtained. Since a decrease in project time requires additional capital expenditure, the direct costs obviously rise as the project time is decreased from 65 days. However, the total project cost is comprised of both indirect costs and direct costs. Indirect costs consist of such items as overhead, insurance, interest on capitalization, production loss and liquidated damage clauses. Costs of this type have a tendency to increase in cost with an increase in project duration. The optimum project duration usually falls somewhere between the normal time and the crash time when the total project cost (the sum of indirect and direct costs) is considered. The relationships between these variables are represented, graphically, in Figure 6, for the building of the present example.

Regardless of how thoroughly the scheduling of a project has been studied, some changes will inevitably be required in the construction stage. As such changes appear, their effect on the project as a whole is made immediately apparent by the arrow diagram. If a delayed job is noncritical, and the delay does not exceed the float time for the job, the project completion will not be delayed. If a delay occurs on a critical job, the extension of the project completion and the effect on other related jobs will be apparent.

One of the very real advantages of the critical path method is its simplicity. None of the operations discussed in the example require anything other than paper, pencil and simple arithmetic. If only the first two phases of the method—planning and scheduling—are utilized for small or medium-sized projects, no more than manual computations will probably be required. For large, complex projects or projects for which the cost phase of the system is to be employed, electronic computers are almost a necessity. The almost infinite number of variations and combinations that will be encountered in critical path scheduling for projects of this sort makes manual computation impractical and inaccurate; accordingly, computers are the only practical answer. However, consulting firms as well as computer manufacturers regularly provide programing and computer service.

Architectural Engineering

Expanding Role for Computers in Engineering

A long-term program designed to enhance information handling and data processing machine utilization has been announced by Engineers Joint Council, representing the major engineering societies of the United States. Foremost among their goals is the development of an engineering information center based on modern concepts of information storage and retrieval technology to provide such services as retrospective searches and current literature reports. E.J.C. is currently developing programs to: stimulate the training of undergraduate engineering students in the use of information resources and data processing machines; encourage the wider application of data processing machines in engineering design; train practicing engineers in the use of information resources and data processing machines. A position paper on information resources prepared by Walter Carlson, chairman of E.J.C.'s Information Systems Committee, is available from the Engineers Joint Council, 345 E. 47th St., New York 17, N.Y. for 50 cents.

Some Hazards in Curling

Curling, the game of Scottish origin, in which a player "curls" a spheroid-shaped stone down an ice rink some 40 yards long, apparently can be susceptible to annoyance from the building which houses the rinks, perhaps furthering the irritation arising from poor curling by a player or ineffective sweeping by the team. The building annoyance is condensation which forms on the underside of roof structures. Curling on Canadian rinks sometimes has to be suspended as frost or water from melted frost falls to the ice. The problem and possible solutions were discussed in Building Research News No. 4 issued by the Division of Building Research, National Research Council, Ottawa, Canada. Condensation can be controlled either by (1) lowering the relative humidity by natural ventilation or mechanical dehumidification; or (2) increasing the temperature of room surfaces through use of materials with good insulating value or by introducing heat to the underside of the roof structure with warm air which is exhausted through ridge ventilators.

To Get Breeze for Calcutta Housing

When Whittlesey, Conklin & Echeverria were designing buildings proposed for the Busteen Rehousing Development in Calcutta, India, they were especially concerned about the problem of natural ventilation because of the high population density. For research assistance they turned to the Architectural Research Division of the Texas Engineering Experiment Station. The research involved the preparation and wind-tunnel testing of models and of a concrete block wall designed to allow breeze to pass through. The tests were conducted to: (1) determine the best relation of wall openings to provide breeze in the comfort zone (up to 6 ft above the floor); (2) obtain the depth of eddy currents on the leeward side of buildings to determine their proper spacing; and (3) ascertain the desirable size and proportion of the ventilating wall block designed by the architect. Testing of a full-scale block led to an improved design (a baffle section was provided) which provided good air movement through the comfort zone when used fairly low on the end wall.

Cutting Heat Flow Through Cavity Walls

During the course of research on thermal performance for cavity masonry walls to be used in multiple dwelling housing, the Division of Housing and Community Renewal of the State of New York deduced that a lower-than-expected insulating value determined in testing was caused by condensation forming within a composite material used for the inner wythe. As a result the researchers moved polystyrene insulation from within the cavity to the room side of the inner wythe. A new cavity wall was designed consisting of the following components: outer brick wythe, air space, cinder-aggregate block plus parging (instead of the composite material), polystyrene insulation and two coats of plaster. A prime reason for condensation occurring within the inner wythe of the earlier design, apparently, was the high relative humidity used for the tests (up to 60 per cent r.h.) intended to simulate the high moisture content of rooms, due to washing, cooking, etc., in low-cost New York City housing. Copies of the study, Research Study in the Cost of Housing, are available free of charge from the Division of Housing and Community Renewal, 393 Seventh Ave., New York 1, N. Y.

This Month's AE Section

APARTMENT FRAMING TO RESIST WIND

Nine systems, both in steel and concrete, designed by Richard M. Gensert, Cleveland engineer, are presented along with his notes and diagrams explaining wind-resistant design

Choice of structural system for high-rise apartment buildings depends on a variety of factors such as: shape of building, degree of flexibility required for locating partitions, availability of new construction techniques, local construction practices and material costs, space required for ductwork and pipes, and fenestration design.

Since bearing loads are light in apartment buildings, this article is devoted to structural techniques to resist wind loads, whether in steel or reinforced concrete.

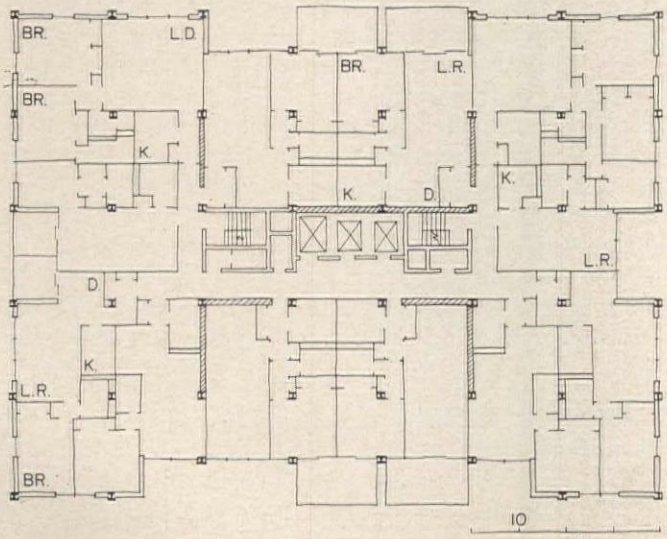
Notes on Examples:

The multiple rigid-frame steel skeleton in Highland Towers (3) is relatively limber and subject to large deflections. These may be controlled by increasing the moment of inertia of the columns.

Cantilevered concrete walls in Columbus Plaza (4) resist wind forces by a combination of shear and flexural stresses.

The grid wall in Grandview Place (6) combines the rigid-frame action of Highland Towers and the cantilevered action of Columbus Plaza.

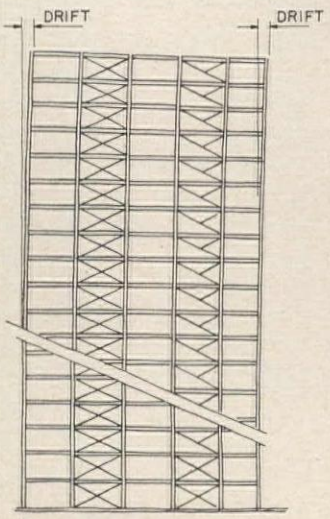
Shear walls (4,5,7,8) can be designed so that the lateral movement due to wind loads is much less than that encountered when bending action (of the whole building) predominates.



1. BRACED STEEL SKELETON

Vertical trusses resist wind loads, preventing major bending moments from being introduced into the columns and beams. Columns joined with diagonal web members form these trusses which are located in the planes of the interior walls, thus not interfering with apartment layout. Such braced bents can be located generally every fourth or fifth bay, although they had to be closer in this case. Elimination of major bending moments allows the use of standard beam-to-column connections designed primarily for shear forces. Rigidity of this skeleton minimizes lateral deflections.

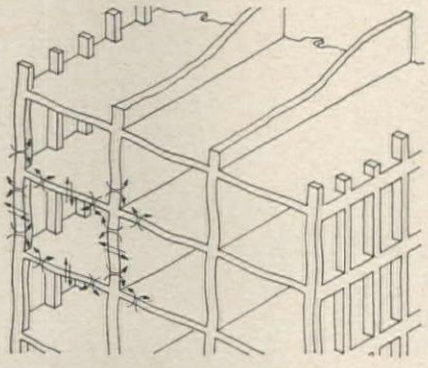
This steel frame, although economical, may present overturning problems in the foundations due to its lightness, and the fact that a single bent may be resisting wind forces over several bays. Thus the foundation must be designed to resist overturning moments. *Crystal Towers (25 stories), East Cleveland, Ohio; architect, Bertram S. Koslen.*

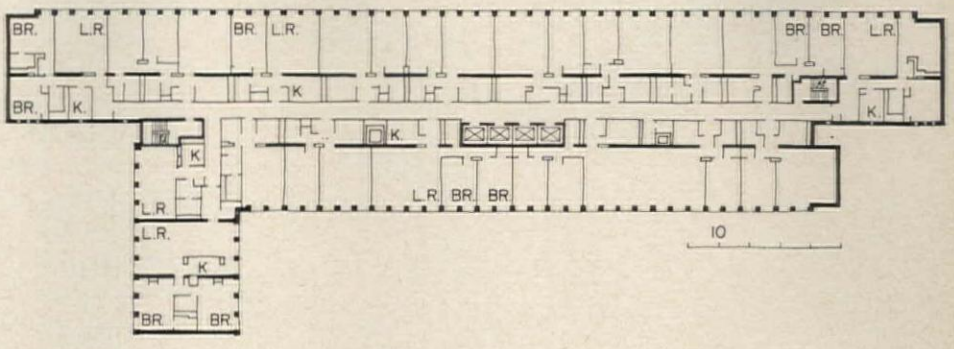


Trussed bays cross-hatched on plan opposite

2. WALL AND SLAB PORTALS

This reinforced concrete frame depends on portal (rigid frame) action for its stability. Closely-spaced exterior columns, corridor walls and floor slabs work together to resist wind moments. If continuous portal action is to be maintained, the exterior of the building should have either bearing walls or relatively close spacing of columns which may become part of the fenestration, as in this example. *Washington Plaza Apartments (23 stories), Pittsburgh, Pa.; architect, I. M. Pei & Associates; associate architects, Deeter & Ritchey.*

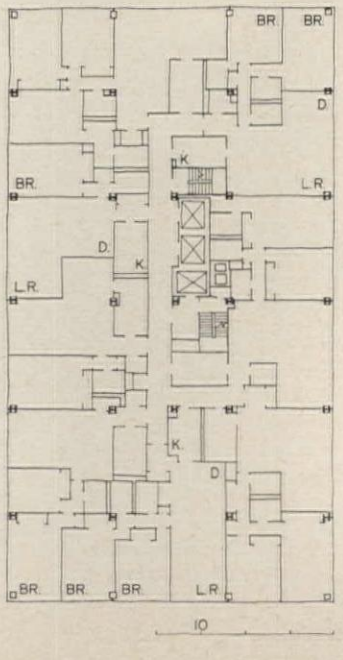


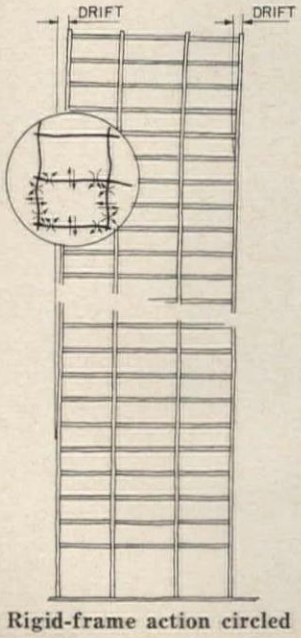


Rigid-frame action of continuous slabs, walls and columns

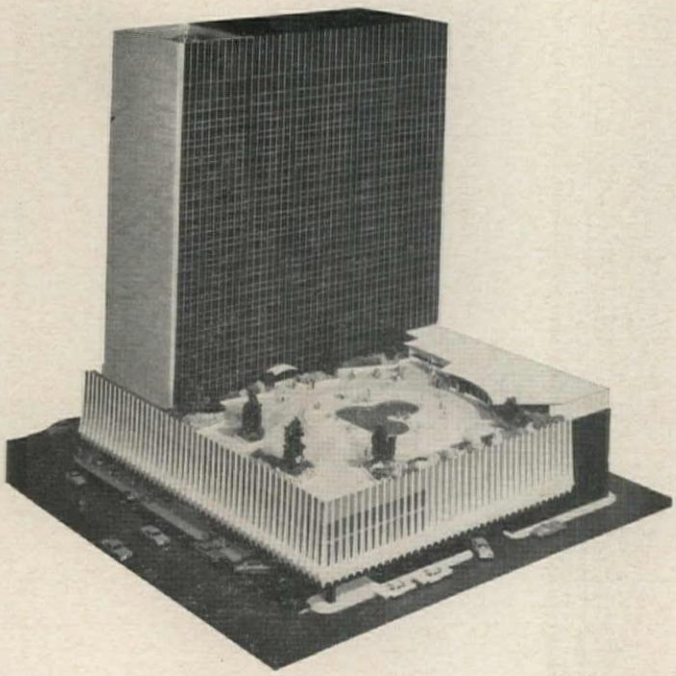
3. CONTINUOUS STEEL FRAME

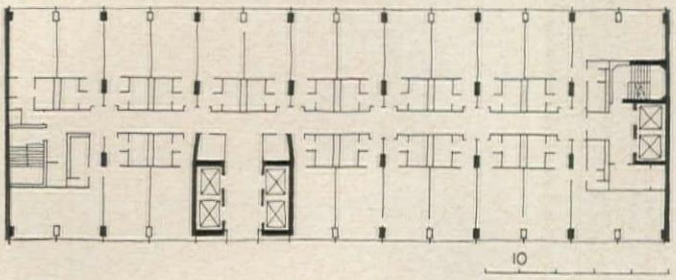
An open plan along with irregular placing of partitions may not allow braced bents in the steel frame. Continuous steel frames offer more flexibility, but require larger beam and column sections, as well as special moment-resisting connections. If wind moments are taken by each column footing, the foundation design is less critical than for the braced frame. *Highland Towers (22 stories), Pittsburgh, Pa.; architect, Tasso Katselas.* *(See also page 164.)*

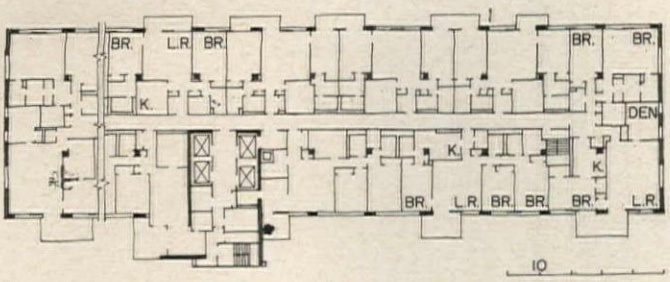


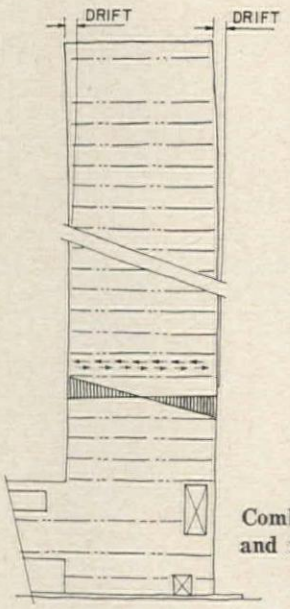


Rigid-frame action circled







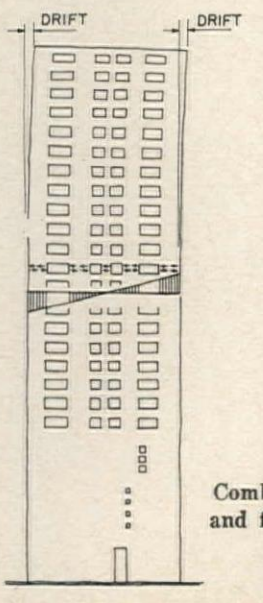


Combined shear and flexure

4. and 5. CONCRETE SHEAR WALLS AND FLAT PLATE FLOORS

As the ratio of height to width of a building increases, deflection of portals (rigid frames) becomes critical, and, in addition, wind moments become large. Shear walls solve the deflection problem, and remove bending stresses from column and slab elements. Shear walls are placed perpendicular to the long axis to take the lateral forces; secondarily they provide vertical support for the slabs. If the floor slabs are considered as horizontal girders, transmitting lateral forces to shear walls, the spacing of walls depends mostly on foundation conditions, since the foundation has to resist overturning forces.

Architectural planning may require openings in the shear walls for doors and windows (*see below*). Location of these openings is critical in design of the wall, since shear and tension stresses must be kept within reasonable limits. 4. *Columbus Plaza (24-story hotel), Columbus, Ohio; architects, Kellam & Foley.* 5. *Claridge Towers (31 stories), Cleveland, Ohio; architects, Richard Hawley Cutting and Associates, Inc.*

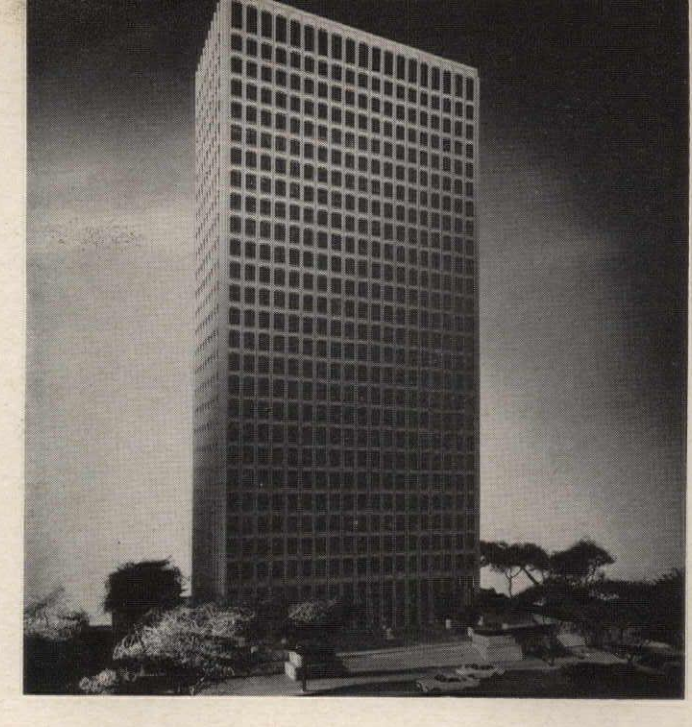


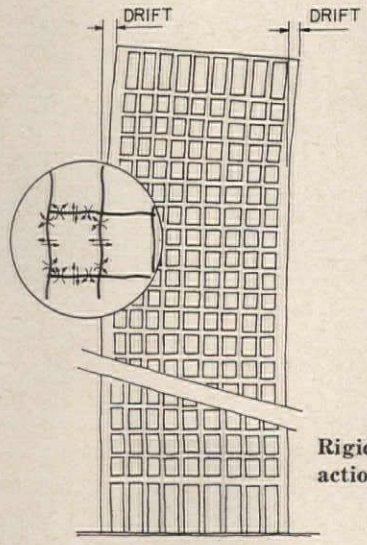
Combined shear and flexure

6. GRID WALLS WITH MINIMUM DISTORTIONS

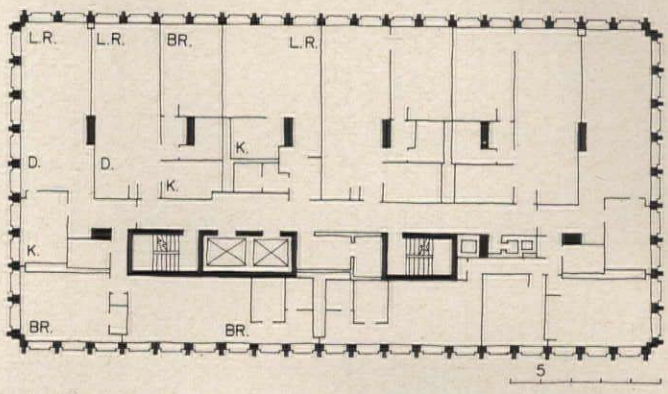
Cast-in-place concrete window mullions and spandrels offer a rectangular grid to resist wind loads. This grid is formed of a series of small portals designed for rigid-frame action. The whole wall acts ,in effect, like a vertical girder, lengthening on one side and shortening on the other

The new IBM office building going up in Pittsburgh, designed by Curtis & Davis, has a form of grid wall, but the orientation of its members is diagonal, rather than rectangular. *Grandview Place Apartments (28 stories), Pittsburgh, Pa.; architect, Don M. Hisaka.*



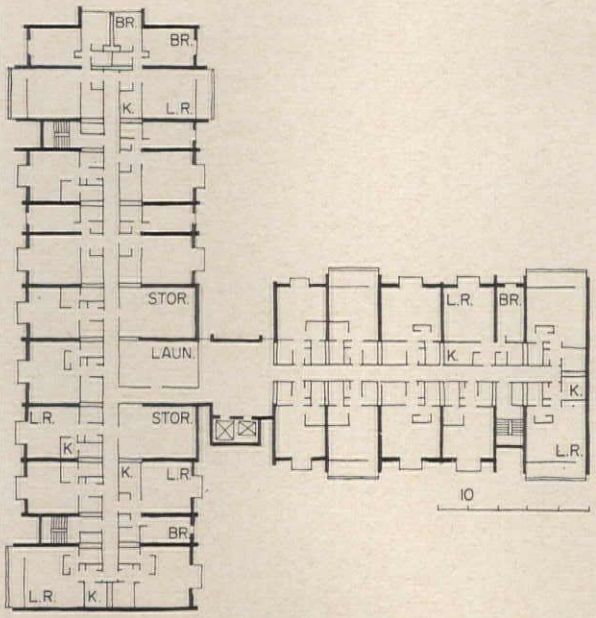


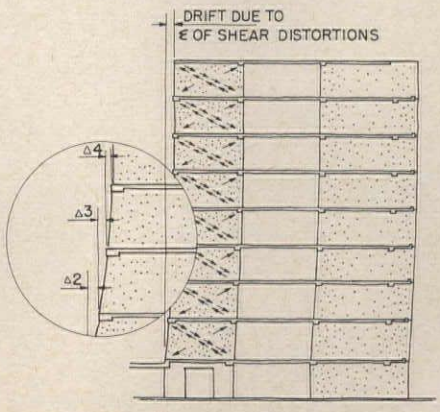
Rigid-frame action circled

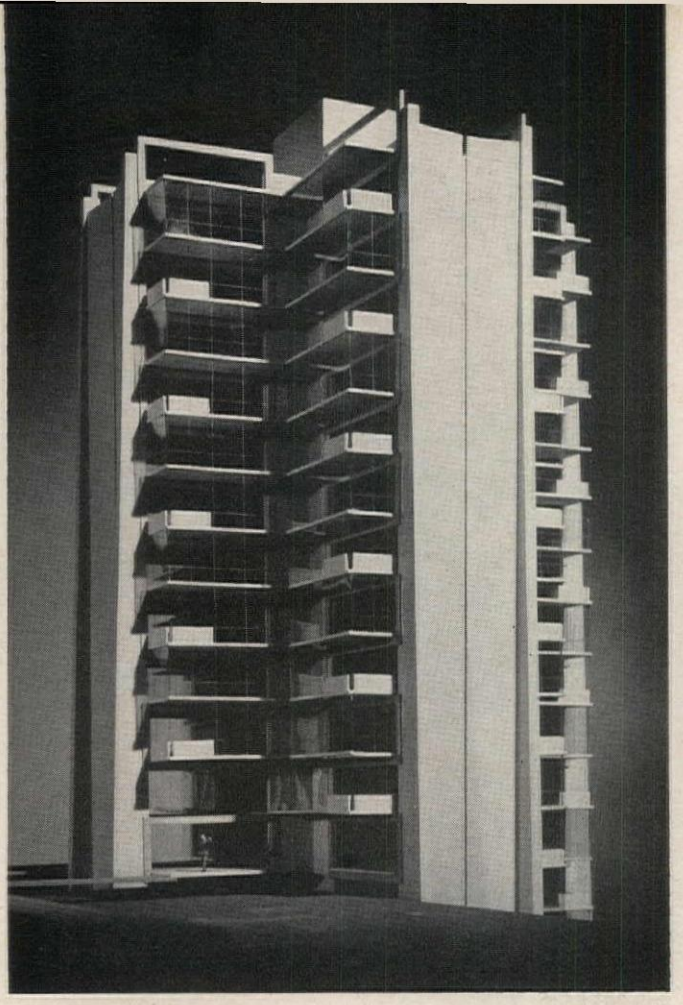


7. PRECAST SHEAR AND BEARING WALLS

Design of this structure contemplates the site precasting of wall and floor panels. The construction process can be likened to that used by children in building structures out of playing cards. A potential economy with this system is the omission of topping over floor slabs. *Allegheny Center Apartments (8 and 10 stories), Pittsburgh, Pa.; architects, Deeter & Ritchey.*

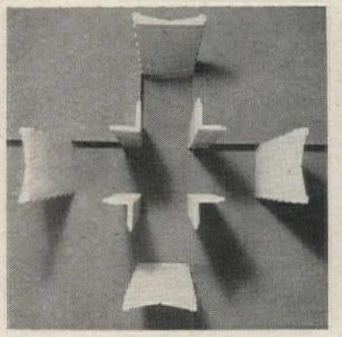


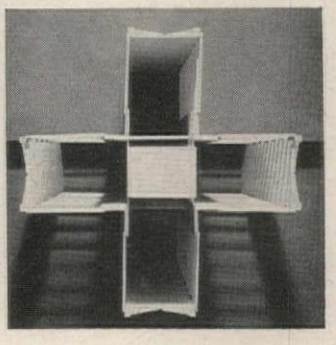


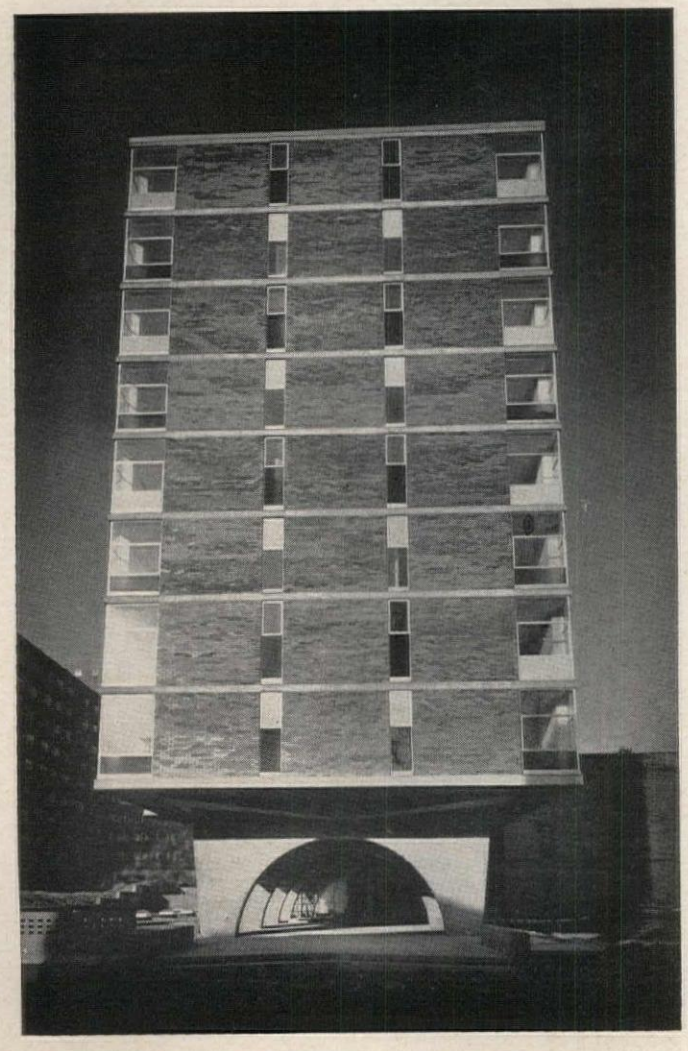


8. POURED CORES SUPPORTING PRECAST SLABS, BEAMS

A judicious arrangement of concrete shear and bearing walls provides structural resistance to horizontal and vertical loads. Slip-form construction offers economies in casting the walls. Beams can be precast and then post-tensioned to avoid expensive moment-resisting connections. *Proposed 18-story apartment; architect, Tasso Katselas.*



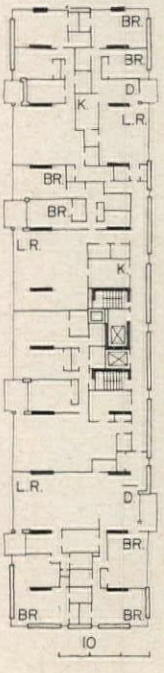


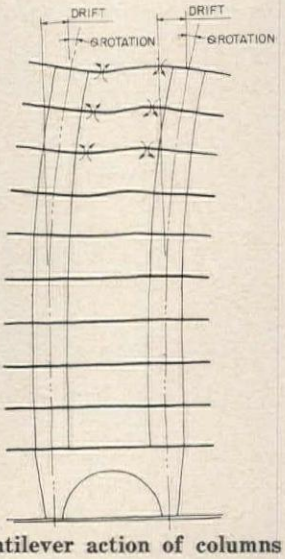


9. CANTILEVERED COLUMNS

When depth of shear walls is limited by the plan, and rigid-frame action between columns and floor slabs is not economically feasible, nor visually desired, cantilevered concrete columns may be used.

With only two columns in each cross section, as here, the height to width ratio should be kept under 2.5. The limiting factor in this design is the extent of column rotation at upper floors, inducing moments in the floor and roof slabs. *Neville House (10 stories), Pittsburgh, Pa.; architect, Tasso Katselas.*





Cantilever action of columns

NEW FHA REQUIREMENTS FOR GLASS*

Increasing use of large areas of glass in residential construction, including high-rise apartments, has prompted FHA to revise its Minimum Property Standards pertaining to glass.

Principal modifications to the standards involve maximum permissible glass areas for various thicknesses based on three wind zones *(see map)*. These specified areas are based on safety considering wind pressure alone. Impact and operational uses were not considered in the calculations.

The new standards call for a manufacturer's label on each pane of glass at the time of installation.

Another portion of the revised glass standards requires some form of safety glass in all exterior doors where glass areas are large and visual barriers are non-existent or ineffectual. At present the standards limit this requirement only to the door glass itself, and not to glass in fixed windows.

The safety glass must be either tempered glass, laminated glass or wired glass.

The new standards also require safety-type glass for doors and walls of shower stalls and tub enclosures.

Maximum areas of panes of glass in windows and doors, including storm windows and doors, must not exceed the values listed in the table. Applicable wind zones may be determined by reference to the map. Insulating glass may exceed by not more than 50 per cent the tabular values for single glass of the same thickness.

Glass used in doors is subject to the following additional requirements:

1. For "single strength" glass the short dimension must not exceed 15 in.
2. For exterior doors, including sliding doors, where glass panes larger than 6 sq ft in area are less than 18 in. from the floor, the glass must be at least $\frac{7}{32}$ in. thick, and horizontal muntins or bars must be provided on the exterior and interior at a height of not more than 36 in. above the floor, *or* "safety glass" must be used.
3. For shower doors and enclosures of either stall or tub type, "safety glass" must be used.

"Safety glass" as required above may be any of the following:

1. *Fully tempered glass.* When tested by fracturing, no individual piece can exceed 0.15 oz. Minimum thickness is $\frac{3}{16}$ in. Maximum size may exceed the values shown in the table by not more than 50 per cent.
2. *Laminated glass* must conform with impact tests No. 9 and 12 of ASA Z26.1-1950. Minimum thickness is $\frac{1}{4}$ in. and maximum size is 60 per cent of the values listed in the table.
3. *Wire glass* must conform with impact test No. 11 of ASA Z26.1-1950. Minimum thickness is $\frac{1}{4}$ in. and maximum length is 60 in.

Maximum Glass Area in Square Feet [1, 2, 3]

Wind Zone	Nominal Glass Thickness (inches)									
	S.S	1/8	D.S.	3/16	13/64	7/32	1/4	5/16	3/8	1/2
Low	10.7	16.1	19.5	40.0	48.0	60.0	75.0	90.0	120.0	160.0
Medium	7.3	11.0	13.2	27.0	32.0	41.0	51.0	62.0	79.0	113.0
High	4.8	7.2	8.7	18.0	21.0	27.0	34.0	41.0	52.0	73.0

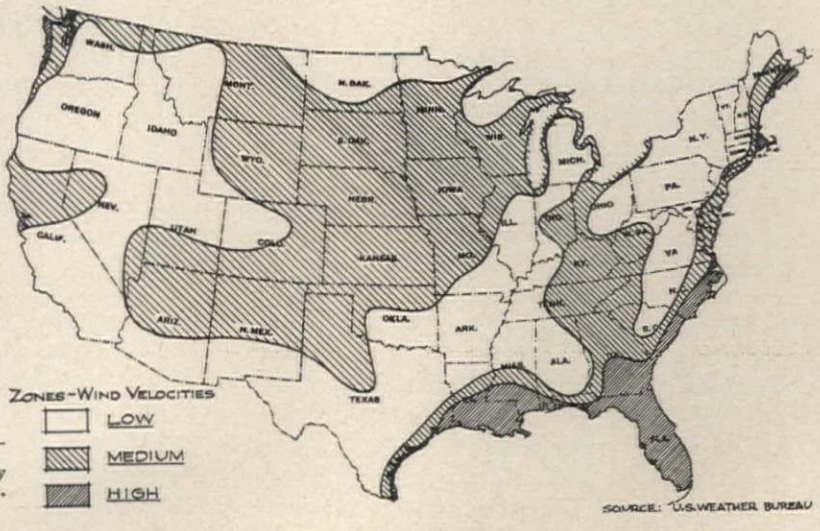
1. Areas in table apply to regular plate or sheet glass only, and do not apply to special types of glass.

2. Areas apply only when glass is not more than 30 ft above grade. Above 30 ft reduce maximum glass areas as follows:

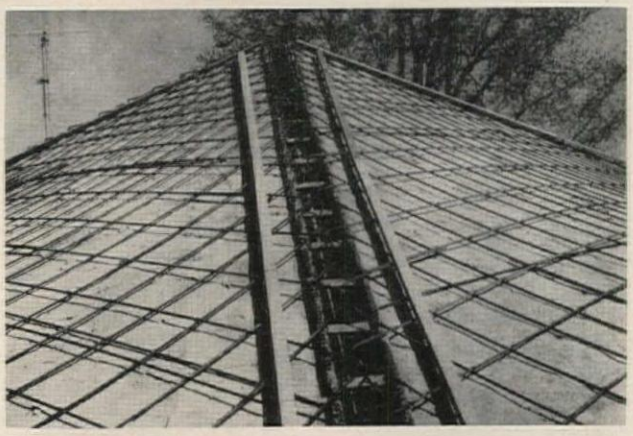
   For 31 ft to 40 ft reduce area to 93 percent of table
   For 41 ft to 60 ft reduce area to 85 percent of table
   For 61 ft to 100 ft reduce area to 75 percent of table
   For 101 ft to 150 ft reduce area to 65 percent of table
   For 151 ft to 200 ft reduce area to 60 percent of table
   For 201 ft to 300 ft reduce area to 55 percent of table

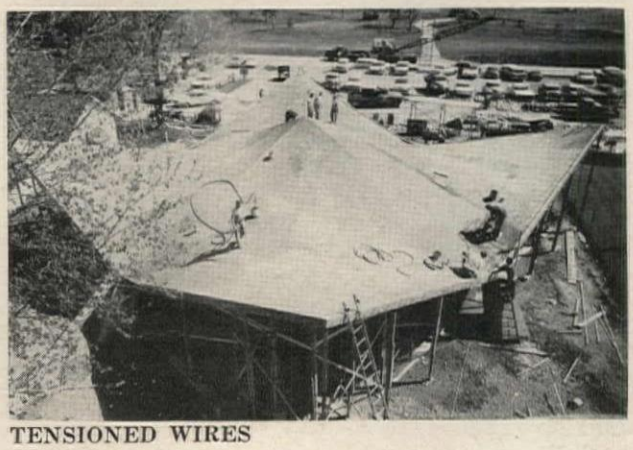
3. Areas are calculated on a length to width ratio of 1 to 2 or less. Maximum glass areas may be increased in accordance with the following:

   From 1-2 to 1-3 ratio—add 20 percent to area in table
   From 1-3 to 1-4 ratio—add 50 percent to area in table
   From 1-4 to 1-5 ratio—add 100 percent to area in table

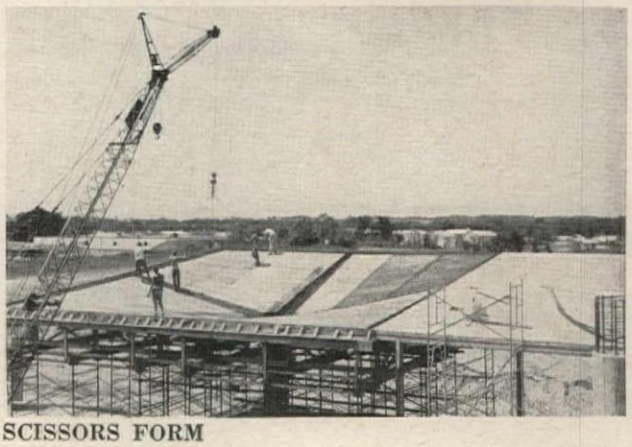


*Interim Revision No. 13 to Minimum Property Standards, Federal Housing Administration. Effective April 1, 1963





TENSIONED WIRES



SCISSORS FORM

TWO NEW FORMING METHODS FOR SHELLS

First stretches wires for plastic form boards, second is a scissors-like movable form on wheels

1. Tensioned Wires Support Plastic Forms

Thin-shell concrete making the hyperbolic paraboloid-roof for a golf clubhouse at Purdue University, Lafayette, Indiana, was supported during its hardening period by foamed polystyrene plastic. The plastic, used as a form, was reinforced with a strong grid of steel wires—one set of wires under and the other above the plastic. Later, the bottom grid was removed.

This method eliminated most of the costly falsework usually necessary to support such concrete shells. In addition, the project made triple use of the plastic. Instead of discarding it, the designer kept the foamed polystyrene bonded to the shell as a permanent insulation and vapor barrier; it also served as a suitable base for plaster and paint.

The structure was described at the World Conference on Shell Structures in San Francisco in September.

2. Scissors Form on Wheels

Nearly five acres of floor space of the John Deere Company's branch building in Bloomington, Minneapolis will be covered by 115 hyperbolic-paraboloid concrete umbrellas.

The designers specified 25- by 9-ft sheets of welded wire fabric reinforcement for the membrane section of the shells to reduce construction time. It was estimated that use of wire fabric would reduce steel placement time by two-thirds.

Because of relatively thin cross section of the fabric (¾ in.) a 2-in.-thick top cover of concrete is possible in a 3½-in. membrane.

For moving and elevating the forms for the shells, the contractor devised a novel four-wheeled, four-way-controlled, movable framework.

A scissors-like beam arrangement elevates the forms hydraulically precisely into position. The form-mover operates both laterally and longitudinally to put a half-form in place around a previously poured circular or square column. With the half form in its near final position, sets of movable lally posts on runners are pulled into position to take over the load from the form mover so that it can be shifted.

PRECAST, PRESTRESSED SLABS FOR LIBRARY

Floor and roof slabs for the new three-story library at the School of the Ozarks, Point Lookout, Missouri were precast and prestressed on the site, set in place atop columns by a crane, fastened to columns and then joined by poured-in-place beams.

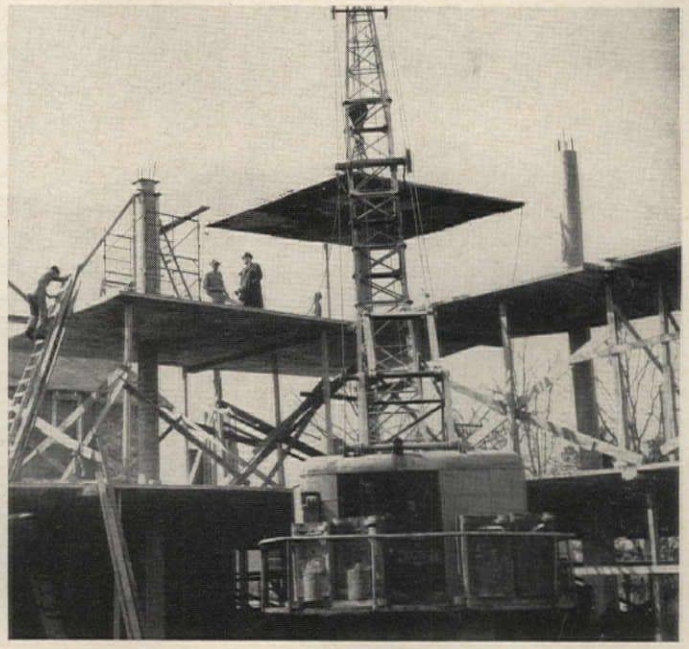
Each slab is approximately 22-ft square, 10 in. thick at the center and 3 in. thick at the outer edge. Eighteen ½-in. cables were pretensioned both ways to give a total of 907,000 lb compression. In all four quadrants, No. 4 bars were laid over the prestressing cables. Lightweight structural concrete was used, giving each precast concrete slab a weight of 12 tons.

Two slabs were poured each day and removed the following day. They were first loaded on a low boy and pulled into the building where a crane picked them up and set them on columns. One of the four vertical bars in the columns is higher than the others, so in setting the slab, it was necessary to get this bar in place in the slab first, with the remaining three bars sliding through the slab as it was lowered. Another column was then placed on the floor slab to receive a slab of the floor above.

The slab sets on a neoprene pad that is fastened to the top of the columns. Large washers are slipped over the column steel and let down on the slab where they are welded.

There are 20 slabs to each floor. Poured-in-place beams, 12 in. wide, are formed by wiring a strip of plywood to the space between slabs.

Architect was Walter Haskew, structural engineer was Windsor Warren. Precasting and prestressing was performed by Prestressed Casting Co. of Springfield, Missouri. Other labor was furnished by the school.

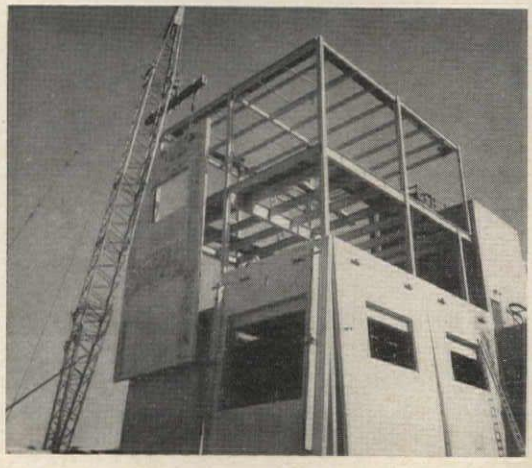


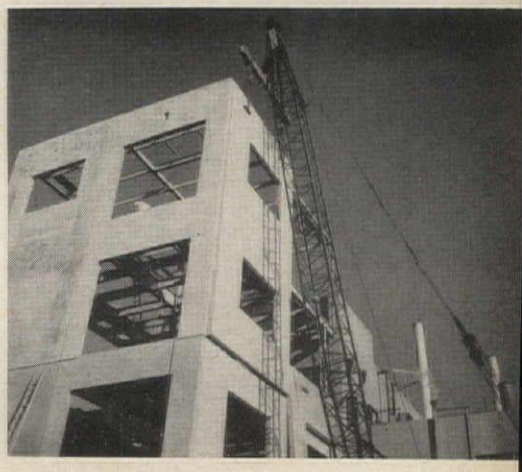
TWO-STORY PRECAST PANELS FOR FACTORY

Two-story-high precast concrete panels enclose the four-story steel-frame addition to a plastics plant for Archer-Daniels-Midland Co. in Los Angeles. Each panel is approximately 20 ft wide, 36 ft high and 8 in. thick and weighs about 34 tons.

The steel frame was designed for vertical loading only, while the concrete walls were designed to transmit heavy lateral loads from production equipment to the ground.

Buttress, McClellan and Markwith, Inc. of Los Angeles designed and built the addition.





SUPPORT METHOD FOR STRESSED-SKIN PANELS

A two-man crew can precut, assemble and install panel roof on shelter in six days

Research on stressed skin panels by Professor G. L. Nelson of Oklahoma State University indicates a number of advantages for the pre-assembled single-skin type. The panels consist of longitudinal members and a single bonded structural cover (skin) of plywood or asbestos cement. A primary purpose of the research was to develop different methods for supporting the ends of the panels. When the bonding of the panel skins to the stringers is essential to develop stiffness and strength, the gluing must be done under carefully controlled conditions if the glue bond is to remain intact during the full life of the structure.

A two-man crew in about three days can pre-cut and assemble enough panels to cover an average size farm shelter, as shown in the photo. In three additional days, they can install the roof deck system.

In addition to covering, stressed skin panels become an integral part of the structure.

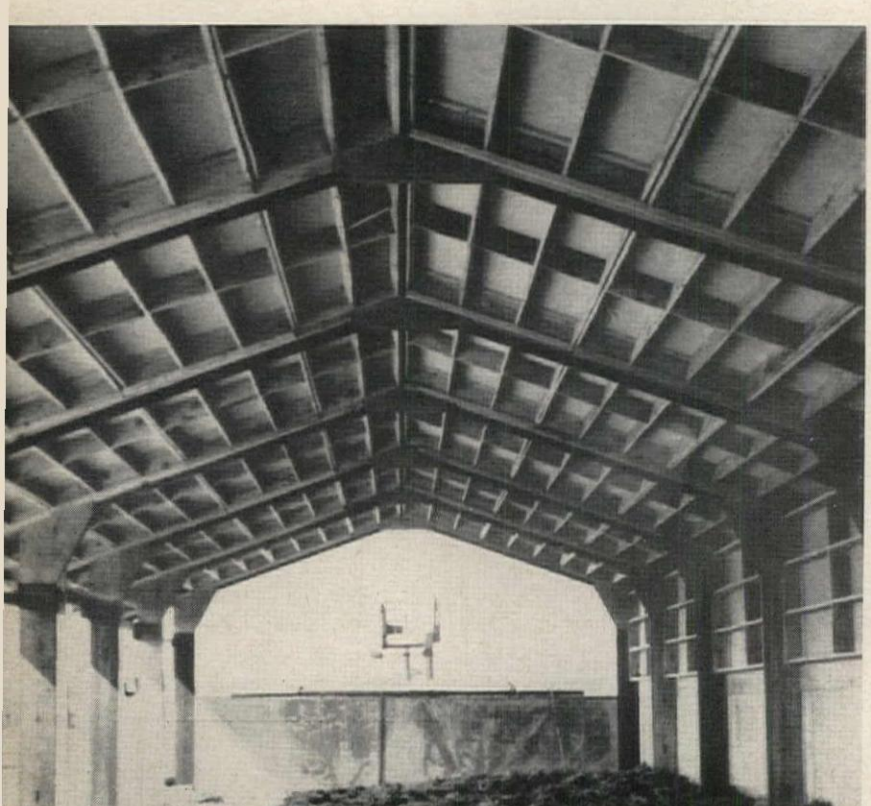
A single-cover stressed skin panel can span from 8 to 12 ft under superimposed loads of 20 lb/sq ft without exceeding normal deflection limitations.

Panels tested at Oklahoma State are supported only by the skin's reinforced lip projecting from panel ends. Panels are fabricated to permit panel-end reaction to be transmitted only through the lip, (Figure 1). The end reactions are transmitted from the main roof frame directly into end lips of plywood covers, rather than through ends of the longitudinals. This allows panels to rest neatly between main frame elements. End headers are not necessary.

Research by Oklahoma State has evaluated stiffness and ultimate strength of stressed-skin panels made with ⅜-in. fir plywood covers placed on 2- by 4-in., S4S, Douglas fir longitudinals and supported on the plywood end lip. Results show panel construction provides a more than adequate margin of safety against peeling failure if the stressed-skin panel ends are reinforced by special nailing.

Addition of stiffener strips (Figure 2) extended 12 in. under panel ends increases the safety factor to approximately eight, based on design load of 20 lb/sq ft. Supporting the panels solely on the projecting lip of the plywood skin produced a safety factor of 6.25 if the ends are reinforced by 10-penny screw-shank nails with 1-in.-sq washers placed under the heads.

Dr. Nelson, Professor of Agricultural Engineering, directs the research which is part of Oklahoma State University's engineering educational program for graduate students.



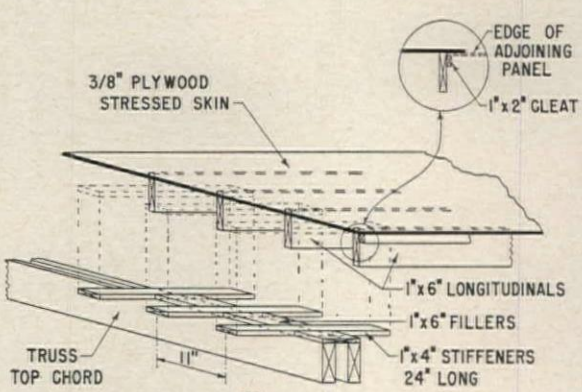


Figure 1

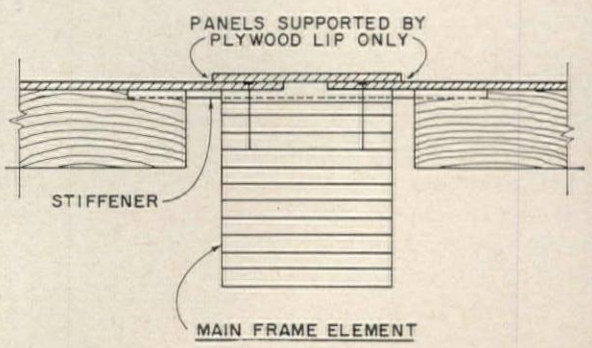
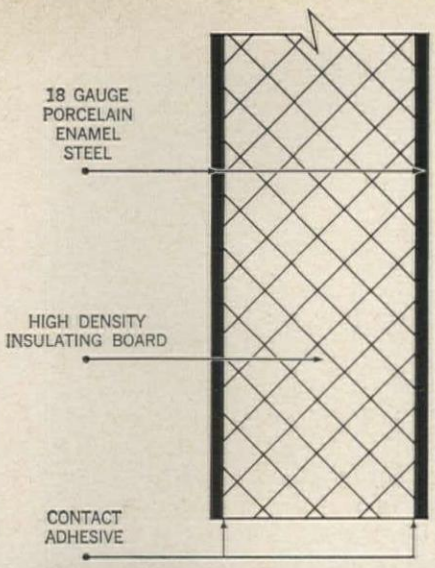
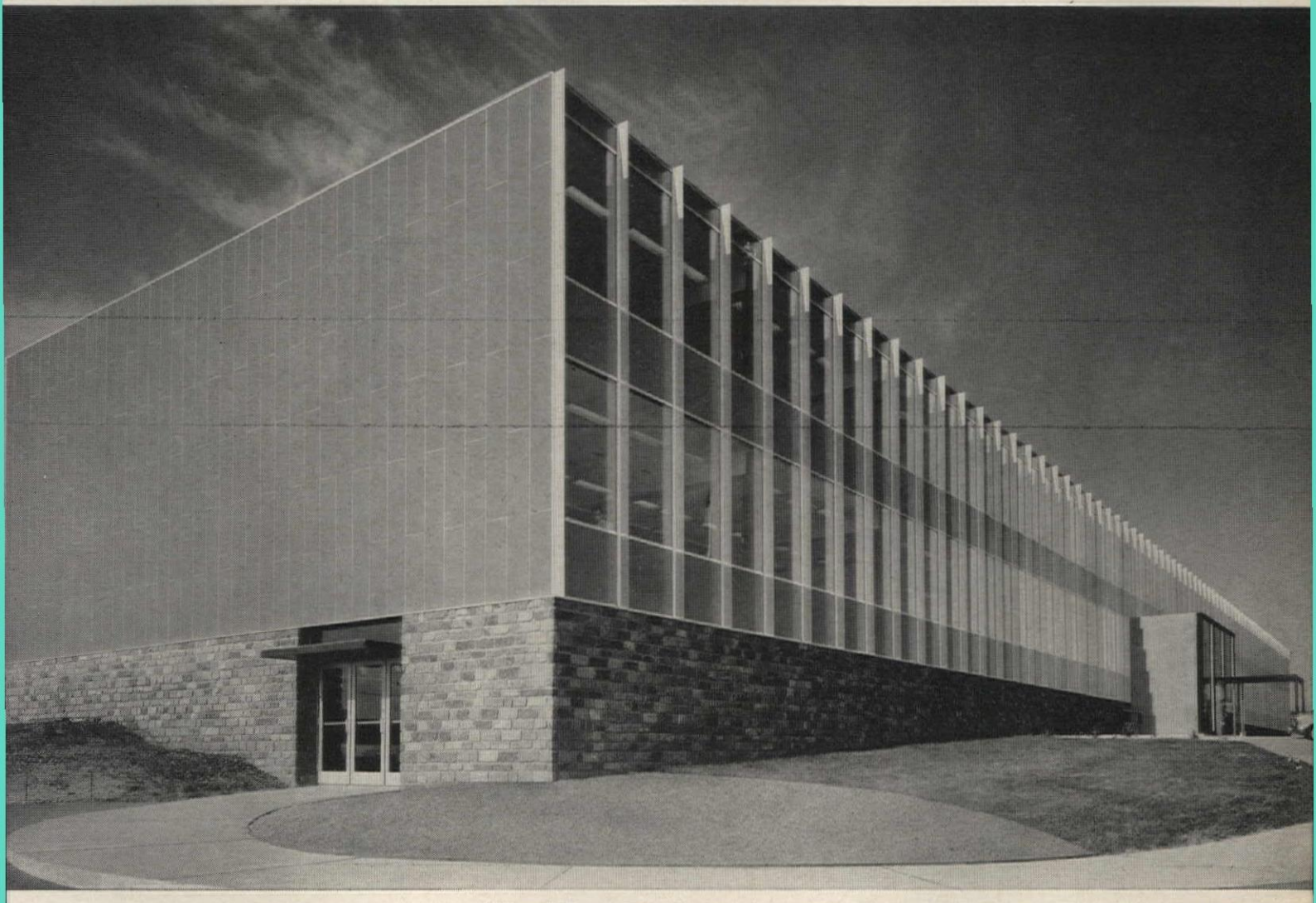


Figure 2



Porcelain-faced laminated panels keep this six-year-old building looking like new



McDonnell Aircraft Corporation Engineering Campus at St. Louis, Mo. Architect: Harris Armstrong, F.A.I.A. Panels made by Atlas Enameling Company, Inc., St. Louis. General contractor, Gamble Construction Company, St. Louis.

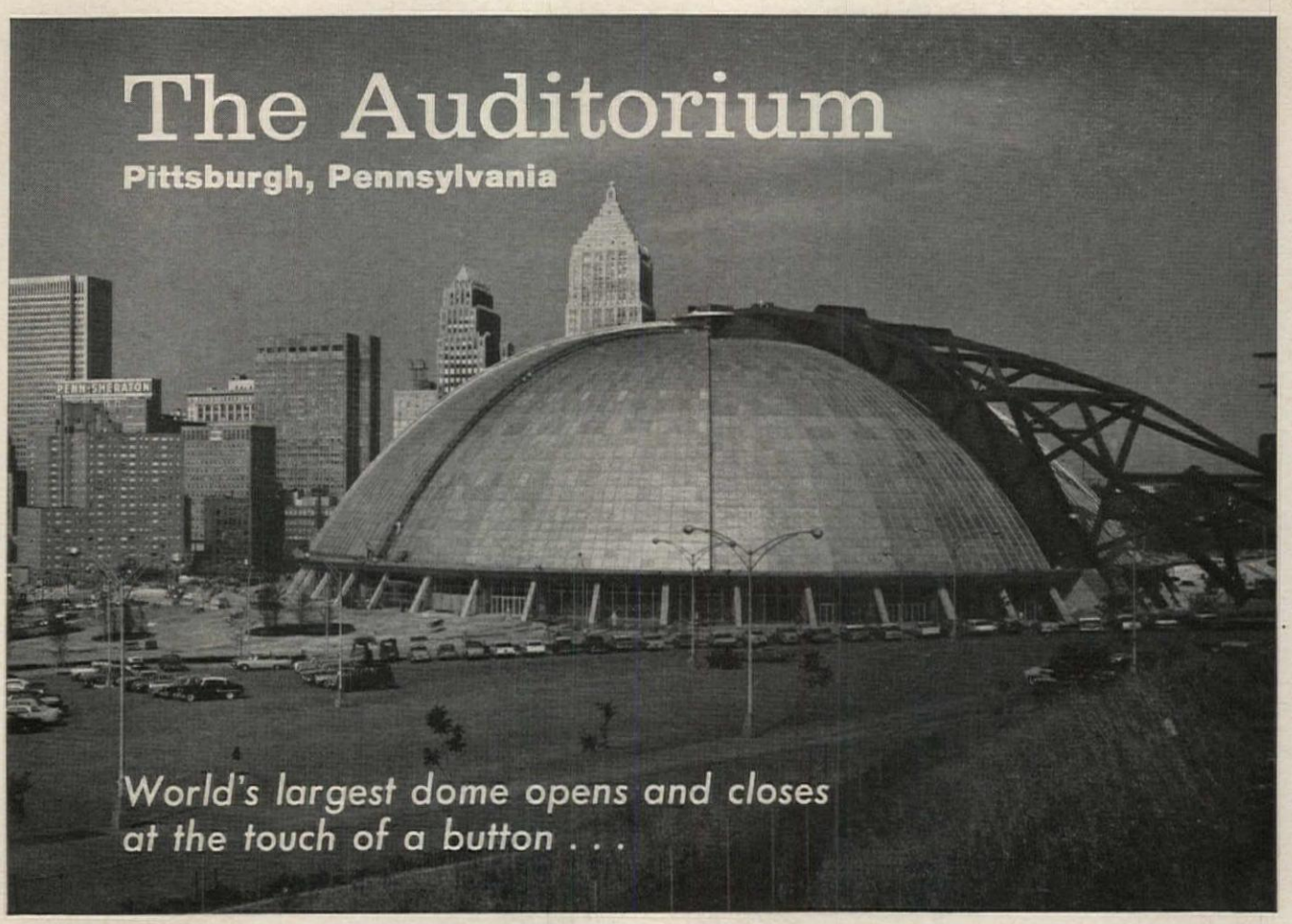
This building at the McDonnell Aircraft Corporation Engineering Campus looks so bright it might have been put up yesterday. Actually it is six years old.

Much of its sparkle and freshness comes from its beautiful and durable laminated panel construction. The panels show a handsome face, both inside and out, and provide thermal insulation as well.

In these panels, skins of porcelain enameled steel are bonded to an insulating core with an Armstrong Contact Adhesive. The panels are strong, rigid, flat, and maintenance free.

Armstrong Contact Adhesives are being used to make attractive and practical panels out of a wide range of core and skin materials. We will be glad to make suggestions on the use of contact adhesives in laminated panel manufacture. Armstrong Cork Company, Industrial Division, 8001 Dunedin Drive, Lancaster, Pennsylvania.

Armstrong ADHESIVES



Mitchell & Ritchey
Pittsburgh
Architects

John Mullin & Associates
Pittsburgh
Mechanical Engineers

Dick Corporation
Large, Pa.
General Contractors

Limbach Company
Pittsburgh
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Aerofin Type B
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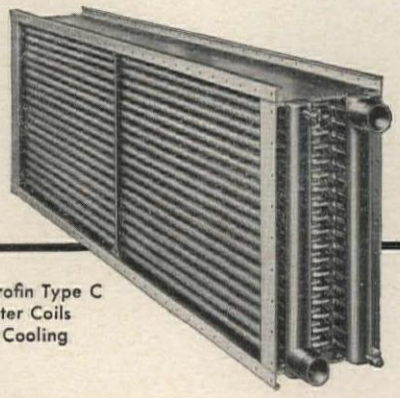

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ENGINEERING OFFICES IN PRINCIPAL CITIES

For more data, circle 54 on Inquiry Card

MODULAR METAL LAB FURNITURE IS TAILORED TO SPECIFIC JOBS

Increased efficiency is the aim, plus amenities for lab workers, in new research facility for Geigy Chemical Company

By Philip Kirk

To insure maximum productivity, while still maintaining amenities for personnel, in our new Laboratory and Service Building, we paid particular attention to the design of laboratory furniture and fume hoods. The equipment was supplied by S. Blickman, Inc. who worked with us in developing the design details. The building facility was designed by Skidmore, Owings & Merrill, Architects.

Our criteria for good working laboratory design include:

1. Facilities should be tailored to the individual jobs, with the proper sizes, surfaces, storage spaces and heights of equipment and work units.
2. Clutter should be minimized by providing adequate storage space and positive housekeeping supervision.
3. A pleasant environment should be provided suitable in scale, color, lighting (offering if possible a relaxing view).
4. Flexibility should be provided for future change and for low maintenance and replacement costs.
5. Distractions to laboratory workers should be minimized.

The new building was planned to accommodate initially the following laboratory facilities: analytical research, pharmaceutical production control, applications research, textile pigment printing and agricultural chemical formulations. Also included are a photographic studio and processing laboratory, and a duplicating and offset printing operation.

It has not been uncommon in the past to install uniform work benches throughout a laboratory and "live" with the inconveniences and inadequacies. Some of the types of difficulties we have observed in the past are:

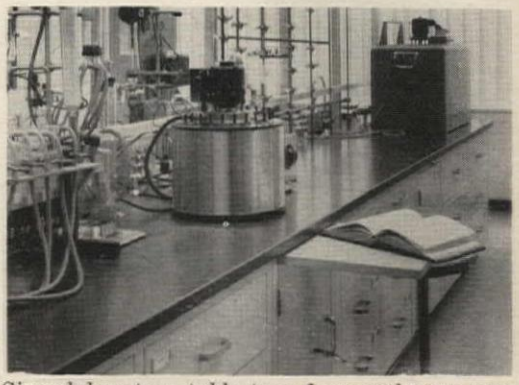
1. It was not unusual to find that drawers in work benches were not planned to store long apparatus needed at some stations.
2. Table tops were frequently too high for jobs that required sit-down concentration.
3. The number and capacity of fume hoods were usually so limited that only the worst or smelliest of vapor-producing activities could be handled.
4. Exceptionally corrosive materials were stored in the same type of cabinets as other materials, with major reliance on the storage vessels for protection, resulting in corrosion of storage equipment.

Furnishings

In the new laboratories, we have made use of laboratory furniture standardization in many ways. We generally have held to standardized-width base cabinets of 18 in., 23 in., 35 in. and 47 in., but we have occasionally varied this, particularly in the analytical laboratory.

Each work bench had its particular arrangement of drawers, doors and cabinets specified in detail so that the laboratory equipment to be used could be accommodated. This meant extra-wide drawers opposite fume hoods to house long equipment like condensers.

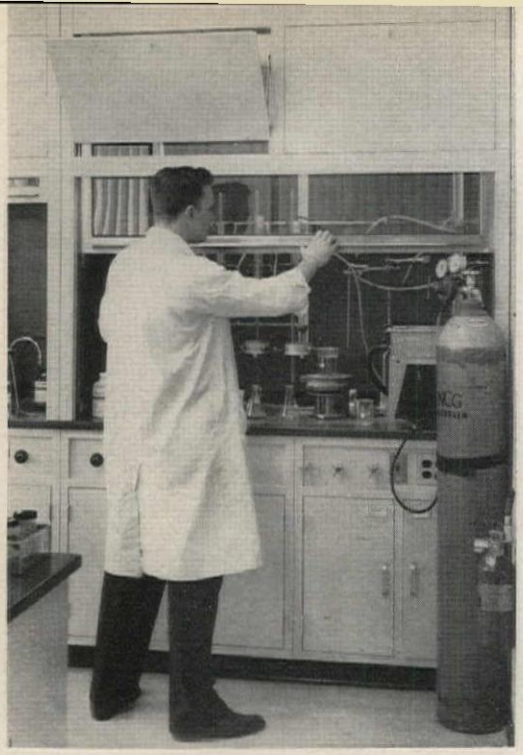
PHILIP KIRK is director of Technical Facilities and assistant to the president, Geigy Research Laboratories, Ardsley, New York



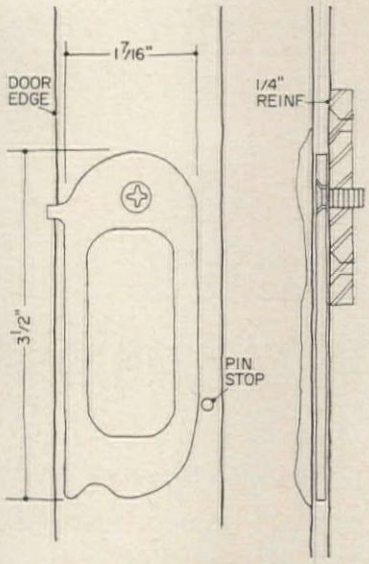
Since laboratory table tops frequently are covered by apparatus, slip-in "steno" slides have been included to provide writing space

While most of the work benches are 37 in. high, those requiring sit-down operations, as shown here, are 31 in. high, with knee space provided for the operator. Vertical channels at back of lab benches provide adjustable supports for shelves and for equipment. All steel cabinets have a bonderized epoxy finish so as to withstand concentrated reagents

Desk space for chemists and technicians is in the same room as work benches, but is separated from the room by partial-height glass partitions which serve also as splash shields. Over the desks are enclosed bookcases. Each desk has a lab-type electrical outlet for plugging in such equipment as microscopes or business machines. Vertical blinds control daylight

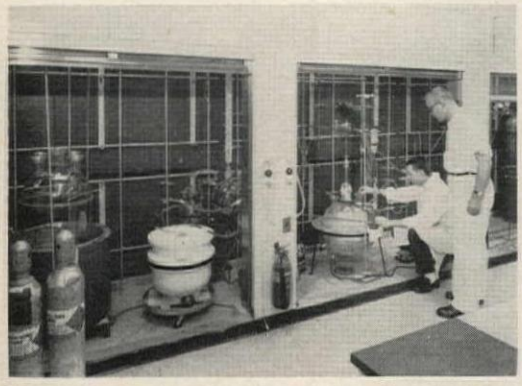


Most of the cabinets below bench-top fume hoods are lined with asbestos cement so that corrosive chemicals could be stored without problems due to fumes or dripping of liquids. Hoods have dampers above sliding doors to control velocity of air across the face of hoods



To aid in minimizing clutter, hallways are lined with storage cabinets which hold reagents, apparatus and supplies. Doors to cabinets open out with the aid of a special thumb-latch designed by the laboratory director. The latch is flipped up exposing a small handle (*sketch above*). Other hinged flush panels conceal ductwork, piping, etc. Recessed between banks of cabinets are safety bays containing eye sprays, showers and first aid supplies

Walk-in fume hoods have aluminum gratings for easy drainage. There is no curb on this hood so that movement of heavy equipment is not restricted. Floor topping of laboratory outside is epoxy resin for corrosion resistance. A roll-down door can close off hood when necessary. Utility fixtures are color coded



A full wall of interconnected fume hoods in the kilo laboratory provides maximum flexibility for equipment set-ups. As with other fume hoods they have dampers to control air velocity across the face. Dampers can be opened and set with sliding friction brackets

Most of the work benches stand 37 in. high. But where long, tedious work calls for a sitting position, cabinet heights have been reduced to 31 in., and an opening has been provided for an operator.

Where records must be kept in detail, and conditions are such that the table top is covered with equipment —the answer has been slip-in "steno" slides (as in a desk).

Corrosive materials are stored in special laboratory cabinets lined with asbestos cement sheets to avoid damage from fumes or spillage. These acid cabinets are exhausted through the fume hoods so that there is no possibility of troublesome accumulations of gases. Most sinks are stainless steel but some are molded plastic. In our duplication laboratory, the stainless steel sink has a back-slanted top so that photostats and other wet process reproductions can be squeegeed conveniently. Work tops are generally of a composition cast stone. A departure from the usual is our cast-stone pegboards for drying glassware.

Our fume hoods are also tailored to do their jobs. The smallest fume hoods are mounted on top of work benches. In some laboratories, where apparatus is especially tall, the fume hoods run floor to ceiling; they are literally "walk-in" affairs, with provision for drainage in the floors, and floor-to-ceiling slide-up closures, as well as openings at the top for additional air circulation, as necessary.

The agricultural formulation laboratory has a floor-mounted hood into which pilot-size production equipment can be wheeled. The floor topping of this laboratory is epoxy resin for maximum corrosion resistance, and the floor of the fume hood is an aluminum grating for easy washability and drainage. There is no curb on this hood so that movement of heavy equipment is not obstructed.

Reducing Clutter

We have reduced clutter to a minimum in a variety of ways.

Our hallways have been put to particularly effective use as they are lined with storage cabinets, but the casual visitor would scarcely know it. The only protrusions are the exit signs at stairways. Inside cabinets we store reagents, apparatus and other supplies not in daily use. The doors to the cabinets open out with the aid of a unique thumb-latch designed by the writer.

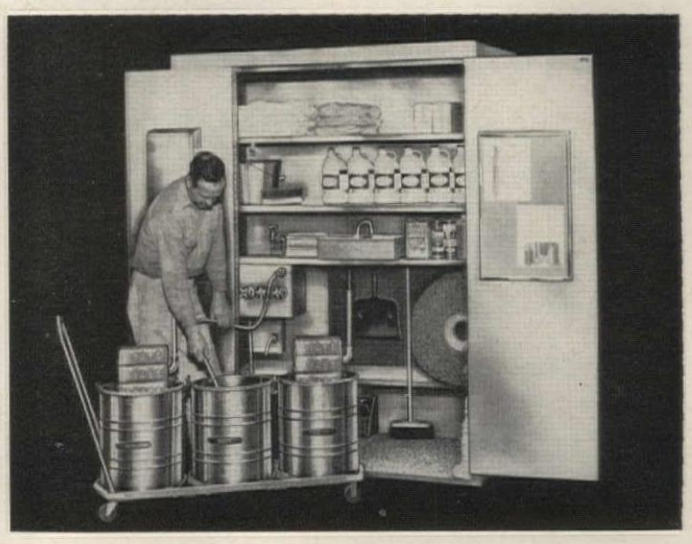
Other hinged flush panels in the hallways are used to conceal ductwork, piping, waste liners, etc. Recessed between banks of cabinets are safety bays containing eye sprays, emergency showers, fire extinguishers and first aid cabinets.

The laboratories illustrate an unusual approach to the storage problem. Instead of installing permanent shelving, which invites clutter, we

(*continued on page 180*)

For more information circle selected item numbers on Reader Service Inquiry Card, pages 197-198

PACKAGED HOSPITAL WORK STATIONS SAVE SPACE



Stainless steel specialized hospital work stations reduce operational time and eliminate waste motions. The prefabricated units are pre-plumbed and prewired and include built-in lighting fixtures. In addition they cost less and take less space than the same facilities conventionally separated. All the units can be either built-in or free standing.

A medicine station *(above, left)* to service a nursing unit's pharmaceutical needs has locked space for narcotics, refrigerator and a sink with cold-water faucet. It comes in two sizes.

A nourishment and ice station *(left)* has a sanitary ice-making and dispensing system and a compact kitchenette with work space. It is 72 in. wide, 80 in. high and 26 in. deep. An ice-making and dispensing system alone is available in a 36-in.-wide unit.

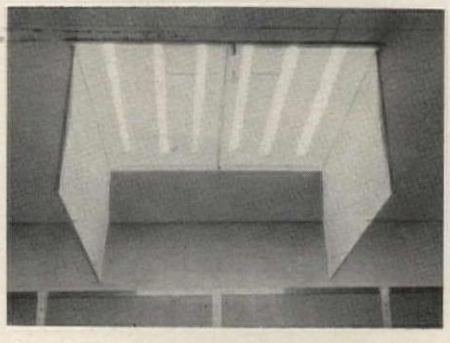
All the facilities for storing and preparing janitor's supplies and equipment are provided in a compact unit *(above, right)* requiring only connection to hot and cold water, drain and electrical supply. *Market Forge Co., Everett 49, Mass.*

CIRCLE 300 ON INQUIRY CARD

SKYLIGHTS HAVE BUILT-IN FLUORESCENT FIXTURES

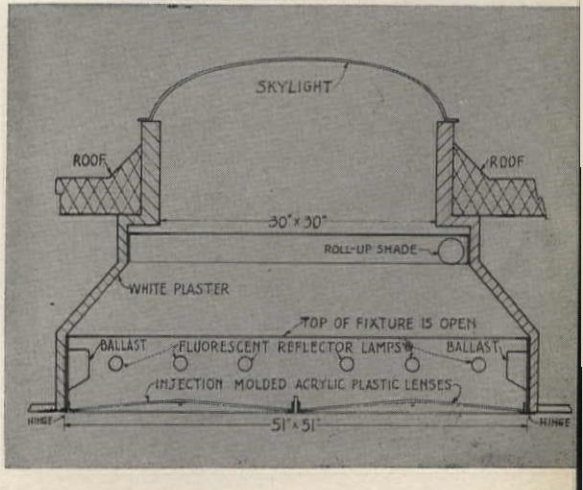
Skylights with built-in lighting fixtures can cut power costs by permitting use of daylight instead of reliance solely on artificial lights. The quality of the lighting is said to be improved by prismatic lenses which confine the light within 120-degree cones to prevent glare.

The acrylic plastic lenses are mounted in frames which are hinged to lighting fixtures and have one longitudinal and two transverse integral stiffening members. When closed the lenses latch together at the center. Window shades under the skylights permit darkening the room during the day. *Holophane Co., Inc., 342 Madison Ave., New York, N.Y.*



CIRCLE 301 ON INQUIRY CARD

more products on page 186



Office Literature

For more information circle selected item numbers on Reader Service Inquiry Card, pages 197–198

THIN SHELLS

(A.I.A. 4-D) "Forming Thin Shells" is a 28-page illustrated booklet on the use of *Styrofoam* as a form liner or semi-structural and structural form board to create a shaped surface and to act as support for application of structural roof materials. The *Styrofoam* remains an integral part of the roof as insulation, vapor barrier and base for interior finishes. *The Dow Chemical Co., Midland, Mich.**

CIRCLE 400 ON INQUIRY CARD

DRYWALL PETITIONS

(A.I.A. 23-L, 23-M) Plans and specifications for three non-load bearing interior partitions (semi-hollow gypsum stud drywall, solid gypsum core drywall and gypsum wallboard-steel stud drywall) are given in booklet on *Celo-Rok* drywall partition systems. *The Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.**

CIRCLE 401 ON INQUIRY CARD

VERTICAL PIVOT WINDOWS

(A.I.A. 16-H) A fold-out data sheet shows five buildings with stainless steel vertical pivot windows. Detailed section drawings, photographs and specifications are included. *U.S. Steel, 525 Wm. Penn Place, Pittsburgh 30, Pa.*

CIRCLE 402 ON INQUIRY CARD

TOILET COMPARTMENTS

(A.I.A. 35-H-6) Toilet compartments, shower stalls and dressing enclosures of baked and porcelain enamel are illustrated in brochure. *Global Steel Products Corp., 80 Smith St., Farmingdale, N.Y.**

CIRCLE 403 ON INQUIRY CARD

COMPONENT WALL SYSTEM

Component wall furniture and storage units for homes, offices and dormitories save space while giving all the necessary items. Brochure gives details. *Hardwood House Inc., 10 St. James St., Rochester 6, N.Y.*

CIRCLE 404 ON INQUIRY CARD

LIGHTING CATALOG

Isometric drawings, cross sections and data sheets on finishes, colors and mounting details for more than 100 incandescent lighting fixtures are given in catalog. *Morris Kurtzon, Inc., 1410 S. Talman Ave., Chicago 8, Ill.*

CIRCLE 405 ON INQUIRY CARD

FACE BRICK

(A.I.A. 3-F) Seven colors and textures of Woodbridge face brick are illustrated in folder. There are both smooth and rough textures, available in a variety of red, pink and tan colors. *Woodbridge Clay Products Co., 450 W. Broad St., Falls Church, Va.*

CIRCLE 406 ON INQUIRY CARD

WOOD ROOF TRUSSES

(A.I.A. 19-B) "Versatility in Wood Roof Trusses" gives design details on a variety of truss types that can be built using the *Teco* connector system. Working dimensions, stress diagrams and material requirements are included for each design. *Timber Engineering Co., 1619 Mass. Ave., N.W., Washington 6, D.C.*

CIRCLE 407 ON INQUIRY CARD

WET-SURFACE PAINTS

Folder gives details on *Damp-Tex*, a tile-like enamel and coating system which adheres to any dry, damp, moist or completely wet surface. *Steelcote Mfg. Co., St. Louis 3, Mo.*

CIRCLE 408 ON INQUIRY CARD

PNEUMATIC PARTITIONS

(A.I.A. 35-H-6) Portable partitions do not need floor or ceiling tracks. After each panel is set in place, addition of air raises telescoping *Airwall Cap* to the ceiling and holds panel in position. Door and filler panels are interchangeable. Special corner panels join for 90-degree turns. Folder gives details. *Air Wall Inc., 16706 S. Garfield Ave., Paramount, Calif.*

CIRCLE 409 ON INQUIRY CARD

STEEL JOIST LOAD TABLES

(A.I.A. 13-6) Standard specifications and load tables for open web steel joists are given in a 60-page book, which has all information necessary for specification of joists carrying uniform loads on spans up to 96 ft. *Steel Joist Institute, DuPont Circle Bldg., 1346 Connecticut Ave., N.W., Washington 6, D.C.**

CIRCLE 410 ON INQUIRY CARD

COATINGS CATALOG

(A.I.A. 25-B-39) Protective coatings for design and waterproofing; epoxy systems for surfacing, patching and sealing floors, and concrete and mortar admixtures are described in eight-page catalog. *Preco Chemical Corp., 589 Main St., Westbury, N.Y.**

CIRCLE 411 ON INQUIRY CARD

STRUCTURAL FRAMING

Connection details for *Penmetal* structural framing when used as an integrated framing system and in conjunction with heavy steel beams, wood framing and masonry are illustrated in 28-page manual of architectural details. Included are floor, ceiling and roof systems, load-bearing walls, curtain walls and high-bay walls. *Penn Metal Co., Inc., P.O. Box 1468, Parkersburg, W. Va.**

CIRCLE 412 ON INQUIRY CARD

CHECKING LOCKERS

Custom-built Sentinel lockers are available in a variety of styles for different uses. Colors are from "audacious to pastel." *The Flxible Co., Loudonville, Ohio*

CIRCLE 413 ON INQUIRY CARD

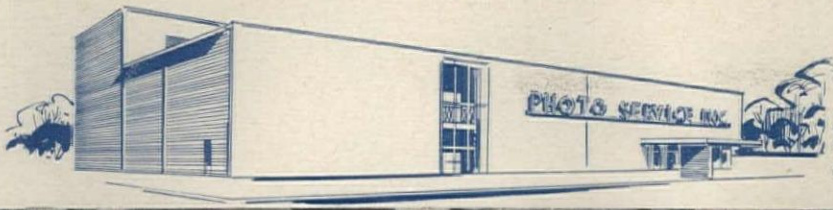
CEMENT FLOORING

(A.I.A. 23-D) Characteristics and advantages of oxychloride cement flooring are given in folder. *FMC Corp., P.O. Box 337, Newark, Calif.*

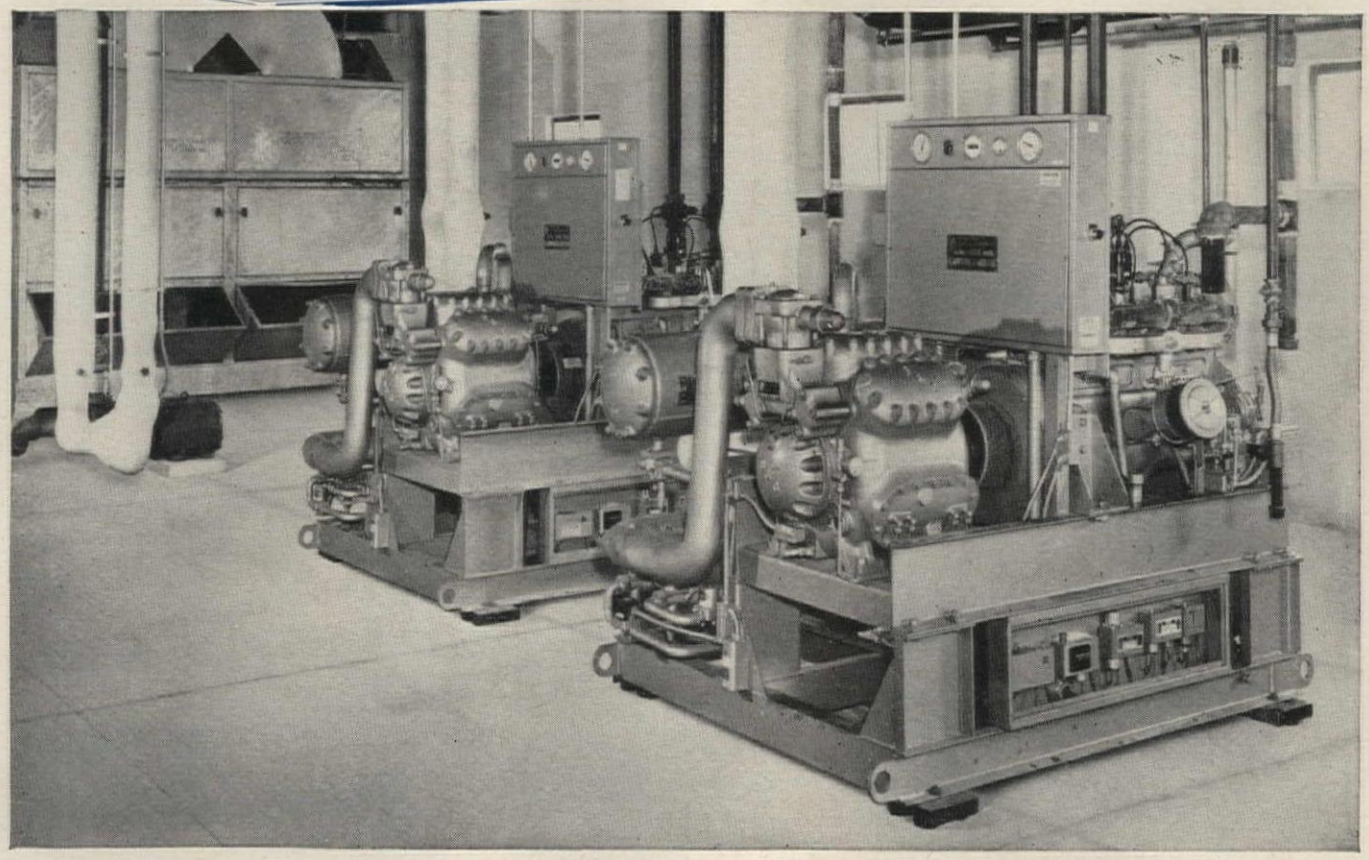
CIRCLE 414 ON INQUIRY CARD

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

more literature on page 227



THE BUILDING:
Photo Service, a subsidiary of Crown-Bremson Industries, Inc.
ARCHITECT: Robert Stauber, Des Plaines, Illinois
CONSULTING ENGINEER: John T. Cartland, Park Ridge, Illinois
CONTRACTOR: James W. Hardy, Des Plaines, Illinois



DOUBLE-DUTY GAS LIQUID COOLER SAVES $3,200 YEARLY

The air conditioning system for Photo Service, Inc., is designed around two 50-ton B&G gas engine driven package liquid coolers. These units not only cool a 45,000 square foot building but also warm the water used for processing films.

This dual service results in operating savings estimated to be $3,200 per year. Between the economies achieved by gas fuel and the reclaiming of waste heat from the engine cooling water, the overall operating cost is reduced to 36¢ per hour. Similar economies can be expected in areas where gas rates are favorable.

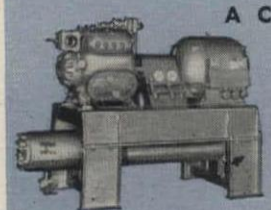
B&G gas powered package liquid coolers are equipped with an industrial type, low speed engine which operates at a maximum of 75% of rated horsepower, an assurance of long life and minimum maintenance. Lubrication is needed only once a cooling season. They are equipped with complete electrical control panels.

An exclusive advantage of B&G Coolers is that they are the only units on the market in which all major components (except the engine) are built and guaranteed by one manufacturer —a single source of responsibility. They are checked, tested and started by a factory serviceman to assure that the equipment is started under optimum conditions.

Send for literature.

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

A COMPLETE LINE OF AIR CONDITIONING COMPONENTS AND PACKAGES


Condensing Units


Compressors


Centrifugal Pumps


Condensers


Evaporators

For more data, circle 57 on Inquiry Card

Light is an element of design with KALWALL

Diffused daylight enhancing the interior by day, glowing radiance by night . . . Kalwall translucent walls present a wide range of possibility for the interplay of light and structure. Whether for functional simplicity in classrooms or, as in this unique church in praise of God, Kalwall's subtle flood of light irradiates your design.

Architectural prerequisites: lightweight, structural strength, durability, weather-proof, thermal and acoustical insulation, easy installation, basic economy . . . no need to sacrifice any of these with translucent Kalwall.

Write for details on this dramatic, proven building material.

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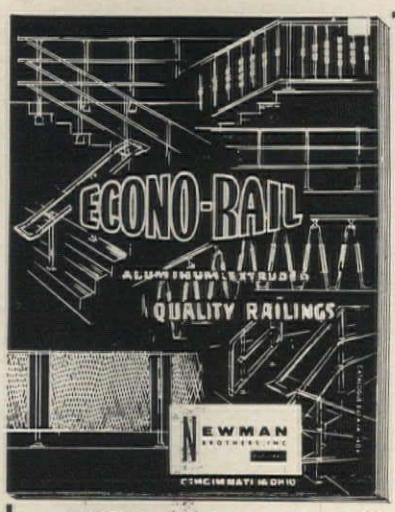
Architects — Hellmuth, Obata and Kassabaum
Contractor — McCarthy Bros. Contracting Company
Kalwall Installation — Karl M. Block Company

KALWALL CORPORATION
Dept. B-122, 43 Union Street, Manchester, N.H.
For more data, circle 58 on Inquiry Card



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- **NEW aluminum post with wood grain Formica insert**
- **NEW PANL-RAIL in striking colors**

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and, of course, a large number of variations in America's Top Seller

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NEWMAN BROTHERS, INC.
EST. 1882

685 West 4th St. Cincinnati 3, Ohio

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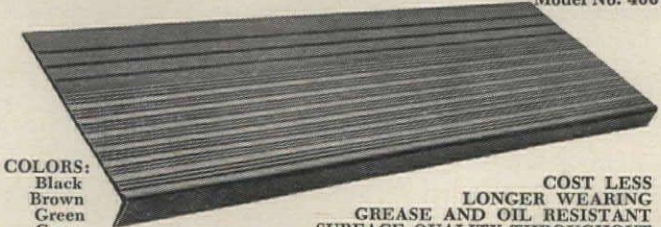
FINE FOR APARTMENTS

RC m MUSSON

SAFETY DESIGNED KOROSEAL-VINYL TREADS

For economy, beauty and safety, the material and design of this tread make it highly desirable for heavy duty service. Covers entire step.

Model No. 400



COLORS:
Black
Brown
Green
Gray
Square or curved nose.

COST LESS
LONGER WEARING
GREASE AND OIL RESISTANT
SURFACE QUALITY THROUGHOUT
NON-POROUS—CLEAN EASIER, QUIETER

Musson Koroseal Treads are heavy duty for the most gruelling service. They are ¼" thick. The safety non-skid ribbed design covers 7" from nose, with 5" smooth corrugated border design across rear. Lengths: 24", 30", 36", 42", 48", 60", 72", 96". Easily installed with Musson No. 400 Stair Tread Cement. Matching Vinyl Covered Stair Risers also available.

MUSSON HEAVY DUTY RUBBER ENTRANCE AND LOBBY MATS
Favorites for lobbies and entrances. Solid or perforated with pyramid safety design, for safety and cleaning efficiency. Rubber feet allow air circulation underneath. Colors: Red, brown, gray, green, black. Thickness: ⅜" or ½". Available in any size up to 6' x 16' in one piece.

ORDER FROM MUSSON—Heavy Duty Molded Rubber Treads, Link Mats, Fatigue Mats, Desk Chair Mats, Runner Matting

Write for Catalog and Factory Prices

THE R. C. MUSSON RUBBER CO.

1322 East Archwood — Akron 6, Ohio

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A NEW LOOK FOR BUILDING EXTERIORS

with JOANNA color-match window shades

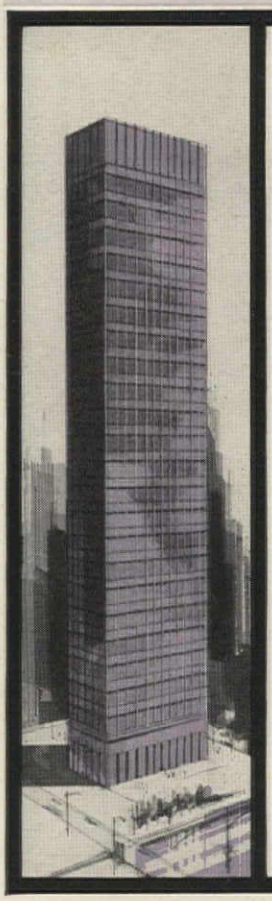
Now you can have window shades that match or blend with colors of building exteriors. Joanna Western will color-match contract orders to your exact specifications.

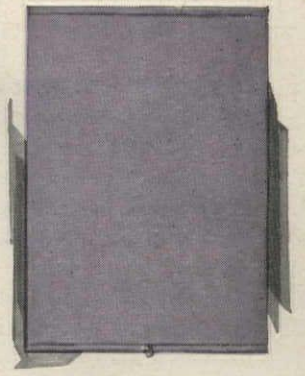
No other window covering offers such unlimited colors.

No other window covering offers such flexibility—outside color uniformity—interior variety. Inside, shades may be white or custom-dyed to go with room decorating plans.

No other window covering can effect so many economies – original cost, installation and maintenance. Plus the fact that Joanna shades have insulating qualities that help keep down fuel and air conditioning costs.

Write or send coupon for more information.





Available in room-darkening and translucent styles.

Mr. W. B. Berry, Contract Sales Dept. AR
Joanna Western Mills Co.
22nd and Jefferson Streets
Chicago 16, Illinois

☐ Please send complete information on Joanna color-match shades.

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Name.....
Firm.....
Address.....
City..... Zone.....
State.....

Sweets Catalog listing: 18c Jo

JOANNA

JOANNA WESTERN MILLS COMPANY

For more data, circle 61 on Inquiry Card

Lab Furniture

continued from page 174

have installed vertical channel supports over most laboratory benches and in backs of fume hoods for shelves which can be increased or respaced as needed.

Utility lines for the benches are brought through dividing spacers (with removable access panels) between back-to-back cabinets. All fittings, fixtures and faucets for utilities are color-coded. Utility valves are installed directly outside of fume hoods and in the walk-in hood for easy connection. Glass pipe was used for drains. Hardware at the desks and cabinets is all brushed aluminum.

Lab benches were painted a bright sandy beige; the same beige was used for desks and bookcases. Chairs are upholstered in bright blue. Cast-stone bench and desk tops are charcoal gray.

Part of the problem of design in a laboratory is providing for writing, sitting and thinking space for chemists and technicians. Lab supervisors have their own offices. But the chemists and technicians need desk space not too far from their work benches. We prefer to have such desk space in the same rooms as the work benches, to permit more effective supervision.

We solved this problem with metal desks and overhead bookcase cabinets lined along exterior windows of the labs, in units of two set back-to-back like the lab benches. They are separated from the work benches by glass partitions which also serve as splash shields. Adjacent lab benches (across the aisle) are completely visible. This design saved space over the conventional alternating laboratory-office-laboratory arrangement. Desks themselves have the same cast-stone tops as the lab benches. They consist of a single pedestal with two box drawers and a file drawer, as well as a steno slide and a center drawer. Each desk has a duplex electrical outlet on a lab type fixture mounted above the desktop, for plugging in instruments and business machines. Distraction caused by visits of unauthorized personnel or delivery boys, or by passers-by cuts laboratory efficiency. We have resolved this problem with hallway walls which are almost devoid of windows, the only ones being small ports in doors.

Cutting Maintenance

Interiors of all drawers and cabinets have welded and polished joints rather than being screwed or bolted together.

Sliding doors all have ball-bearing rollers operating on stainless steel tracks. Doors also have stainless steel finger grips and rubber bumper pads with a positive stop device to prevent accidental removal. Glazed doors have glass mounted in rubber channels held in place by glazing strips to permit easy removal.

Bonderized epoxy finish was specified for all steel cabinetry. This was required to withstand concentrated reagents for at least an hour.

All of the labs have been planned for later convenience of expansion and change. Change is accommodated by the base cabinets in that their modular parts are interchangeable on the same base units.


Modern Door Control by LCN Closer Concealed-in-Door
PLANT OF ESCO CORPORATION, PORTLAND, OREGON
Wolff & Zimmer, Architects
•
LCN CLOSERS, PRINCETON, ILLINOIS
Installation Details on Opposite Page

In Texas they lay down Acrilan® by the acre.

The picture above shows a modest, little living room, home on the range in Diamondhead Circle.

Diamondhead Circle is an elegant new apartment house in a good residential section of Dallas. Rents start at $250.00 and go on up to $500.00.

Apartments in Diamondhead Circle are ten-gallon size and carpeted wall-to-wall with Acrilan. Acrilan acrylic fiber in the pile gives carpets a luxurious look yet makes them very tough and very easy to clean.

Why did builder Hal Anderson and architects Smith and Ekblad choose carpeting made with Acrilan? Because of this unique combination of toughness and beauty. The deep pile. The velvety hand. The clear color. The resiliency.

The carpeting is by Cabin Crafts with an 80% Acrilan acrylic, 20% modacrylic pile. Hal Anderson laid down acres of it in Diamondhead Circle.

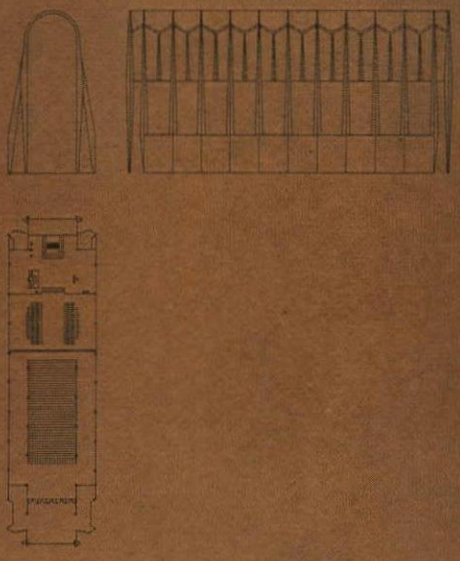
Do you too belong to the new school of builders and architects who believe in pre-carpeting for their tenants? Then trust the big red "A."

ACRILAN® acrylic fiber CHEMSTRAND

CHEMSTRAND, A DIVISION OF MONSANTO CHEMICAL COMPANY • GENERAL OFFICE: 350 FIFTH AVENUE, NEW YORK 1 • DISTRICT SALES OFFICES: NEW YORK 1; AKRON, OHIO; CHARLOTTE, NORTH CAROLINA CANADA: CHEMSTRAND OVERSEAS, S.A., TORONTO • CHEMSTRAND, MAKERS OF FIBERS FOR THE WAY WE LIVE TODAY, MAKES ACRILAN® ACRYLIC FIBER AND CUMULOFT® NYLON FOR AMERICA'S FINEST MILLS. THESE ARE AMONG THE MILLS NOW LICENSED BY CHEMSTRAND FOR ACRILAN: BARWICK, CABIN CRAFTS, CORONET, DOWNS, JAMES LEES, MAGEE, MONARCH, ROXBURY. IN CANADA: HARDING CARPETS

For more data, circle 64 on Inquiry Card

St. Anselm's Abbey Church, Washington, D. C.
Architect: Philip C. Johnson, New York, New York



■ In a design reminiscent of the Gothic and the Roman, the new St. Anselm's Abbey Church will make full use of the exclusive creative advantages of monolithic reinforced concrete.

Especially unusual in modern architecture is the alternation of buttresses and columns. In the interior they emphasize a processional rhythm down the nave and give a unique shape to the side aisles. The architect adds, that this patterning of the supporting members acts as a very practical wind brace.

Today, for every type of architecture, monolithic reinforced concrete is enabling architects to design with greater freedom of expression. On YOUR next project, be sure to investigate the many advantages of this superior construction medium. Also, write for the new booklet entitled "The Economic Advantages of Reinforced Concrete Building Construction."

12th century architecture rediscovered in contemporary monolithic reinforced concrete design

CONCRETE REINFORCING STEEL INSTITUTE
38 SOUTH DEARBORN STREET • CHICAGO 3, ILLINOIS

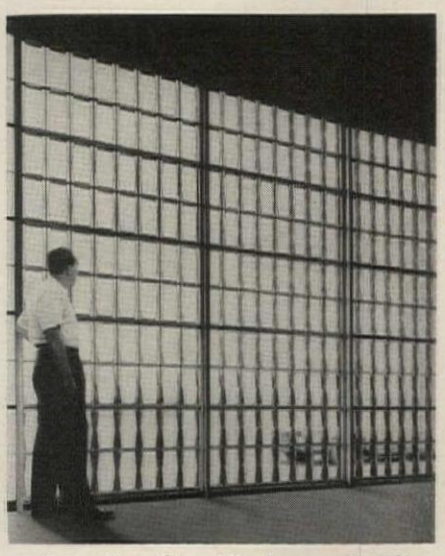
12-62

Product Reports

continued from page 175

HEXAGONAL GLASS TILE

A modified hexagonal shape inside a 12- by 6-in. glass tile has been added to the *Thinlite* curtain wall

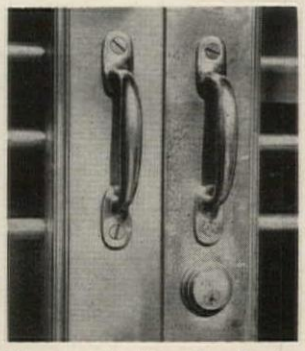


system. Another tile has a longitudinal rib down the center. Both patterns are recessed to give a constantly changing shadow pattern. *Owens-Illinois, Toledo, Ohio*

CIRCLE 302 ON INQUIRY CARD

COPPER PROTECTANT

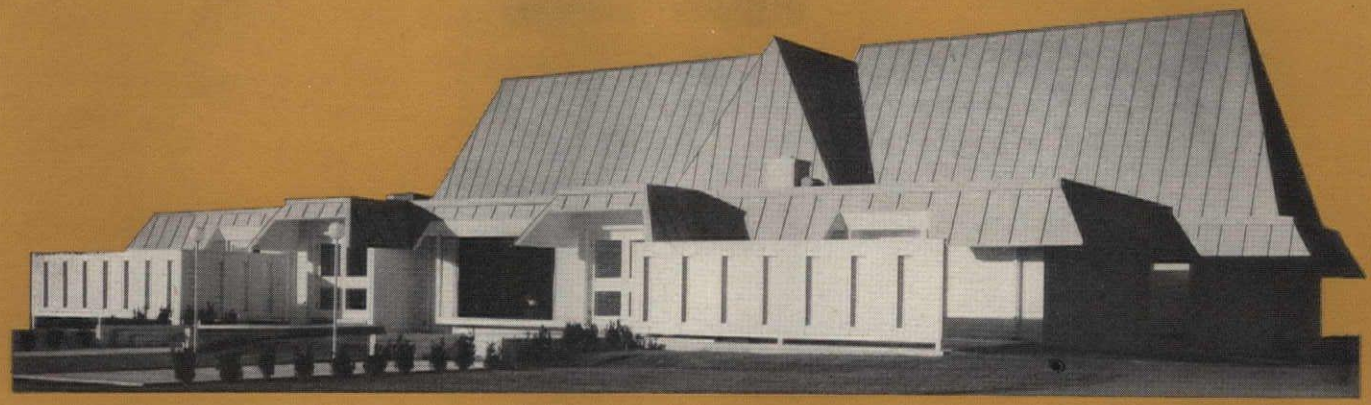
A protective coating system for copper and copper alloys which promises to last indefinitely in indoor applications consists of a silicone primer and acrylic topcoat. Two methods of applying are possible; thermosetting for shop-finishing, and air-drying for metal already installed. Double layers of each material may be used for objects that receive heavy use, and



two silicone solutions by Union Carbide Corp. are available for different needs. The picture, taken after three years exposure, shows the difference between the new system and a nitrocellulose lacquer. *International Copper Research Assoc., Inc., 1271 Ave. of the Americas, New York 20, N. Y.*

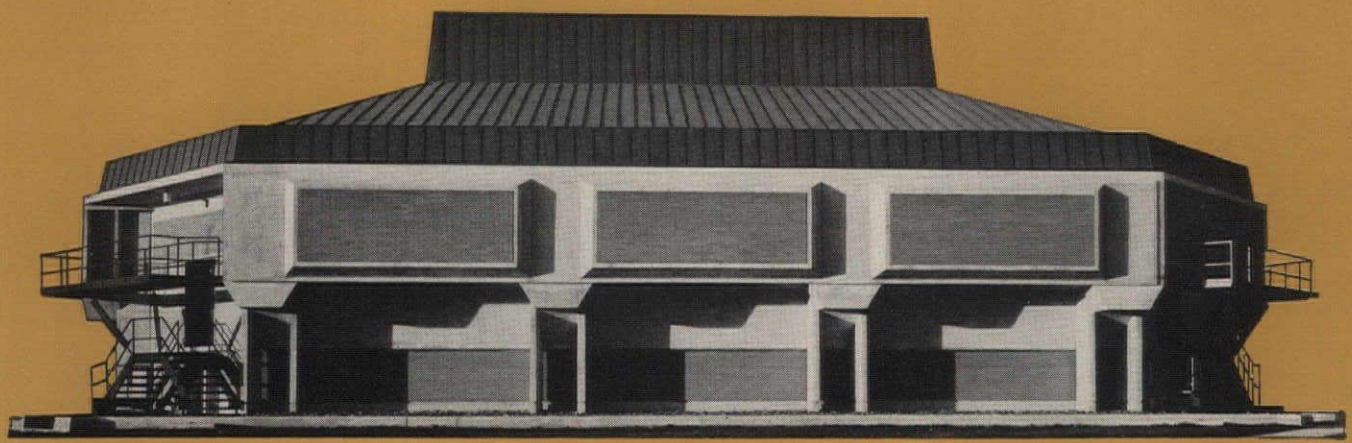
CIRCLE 303 ON INQUIRY CARD

more products on page 194



Haley Funeral Home, Highland Park, Michigan. Architect: Birkerts and Straub, Birmingham, Michigan. Contractor: J. Fred Steyer Roofing Co., Detroit, Michigan.

Alexander Memorial Arena Building, Georgia Tech. Architect: Aeck Associates, Atlanta, Ga. Contractor: R. F. Knox Company, Inc., Atlanta, Ga.



Arena Stage, Washington, D.C. Architect: Harry Weese, Chicago, Ill. Contractor: The Mathy Company, Washington, D.C.

"...THE VERY OLD BECOMES THE VERY NEW." Thus the late Frank Lloyd Wright described Follansbee Terne Roofing. It does seem a singularly apt characterization, for the material's functional integrity is matched by an almost unique affinity to the contemporary idiom. Terne's finest testimonial is the roster of distinguished American architects who have recently specified it for major projects. May we send you further information?

Follansbee is the world's pioneer producer of seamless terne roofing

FOLLANSBEE STEEL CORPORATION
Follansbee, West Virginia

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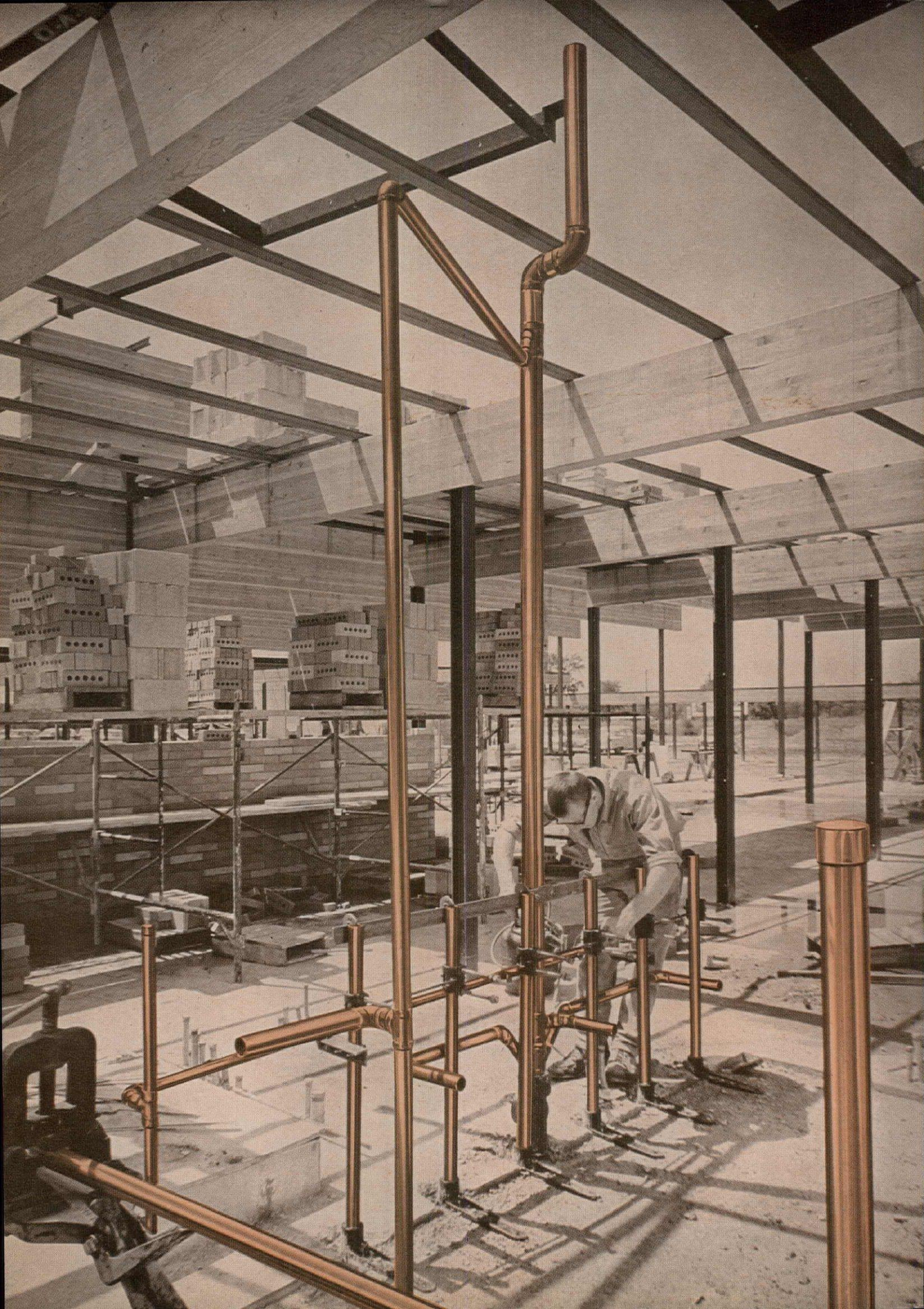
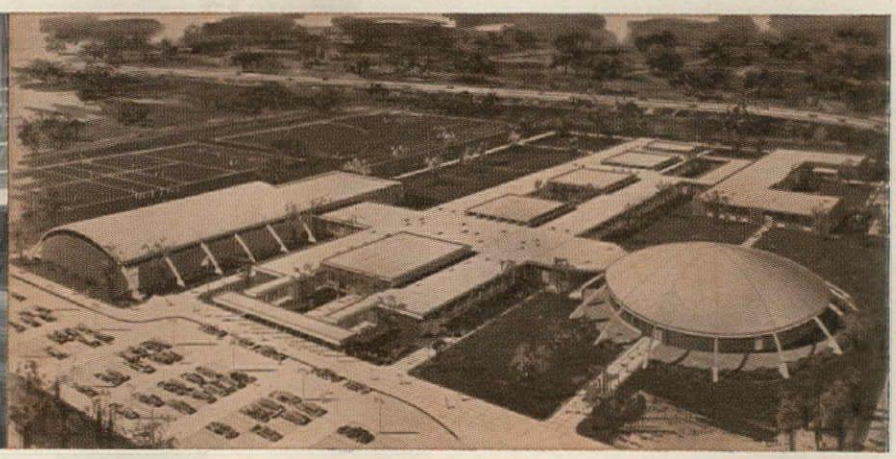
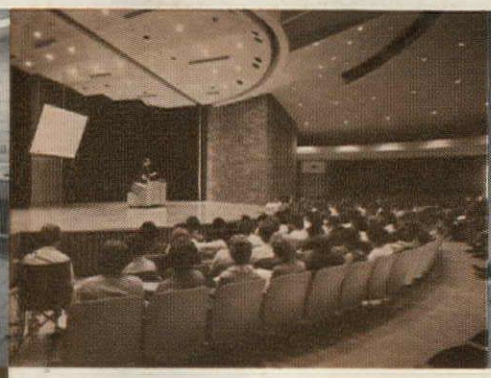




OUTSTANDING NEW HIGH SCHOOL INCORPORATES ALL MODERN FEATURES—INCLUDING Streamline® COPPER TUBE AND FITTINGS— FOR BOTH SUPPLY AND DRAINAGE PLUMBING

Architect: Frederick E. Wigen Architect & Associates, Inc., Saginaw, Michigan
Mechanical Engineering Consultants: Hyde & Bobbio, Inc., Detroit, Michigan
General Contractor: Consolidated Construction Company—Bay City, Michigan
Mechanical Contractor: Budd-Eurich Plumbing & Heating—Saginaw, Michigan



This striking new $2.5 million dollar Community High School in Bridgeport, Michigan, is completely modern . . . inside and out. Built to accommodate 1500 students, the school employs all modern educational aids . . . closed circuit television . . . language laboratories . . . and adjustable classroom areas. This new school has been classed as one of the most outstanding in the nation to be constructed in recent years. The plumbing is as modern as the teaching methods because both the supply and drainage systems were fabricated from Streamline copper tube and solder type fittings. Copper costs no more than rustable materials and the school will enjoy a lifetime of dependable service. All windows, curtainwalls, and entrances were supplied by Valley Metal Products Company, a subsidiary of the Mueller Brass Co.

MUELLER BRASS CO.
PORT HURON 8, MICHIGAN

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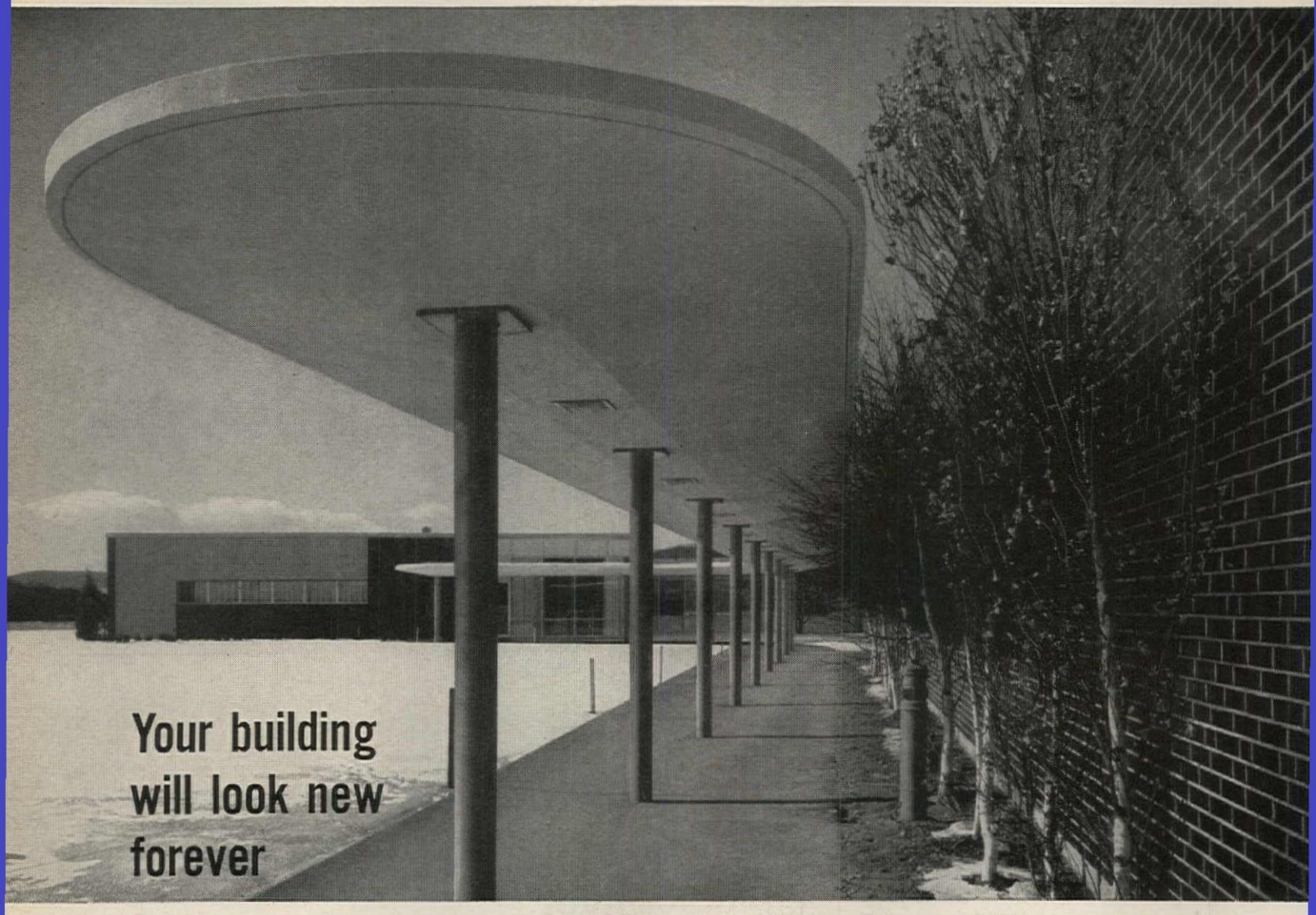
Natco black Glazed Velour Brick was used in the exterior design of the Split Ballbearing plant (Division of Miniature Precision Bearings, Inc.) in Lebanon, N.H. The architect was Carl Koelb & Associates, Weston, Mass.; General Contractor—R. E. Bean Construction Co., Keene, N.H.



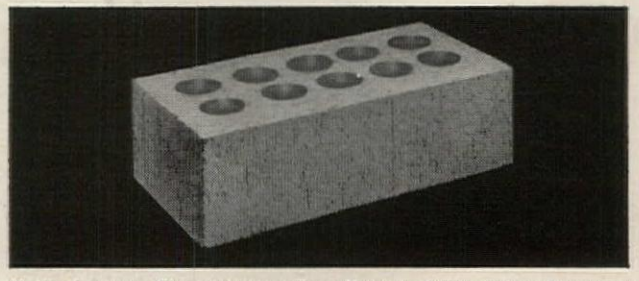
if it's constructed of NATCO Ceramic Glazed Face Brick

The Split Ballbearing plant in Lebanon, New Hampshire, was built in 1958. In 1959, it was awarded one of *Factory Magazine's* coveted "Top Ten" industrial plant awards.

Today, almost five years later, the exterior brick walls look just as good as the day they were completed. The reason? These walls are constructed of Natco Ceramic Glazed Face Brick.

Dirt and grime cannot cling to mar the building's beauty because Natco glazed brick has a hard, ceramic glazed finish. Colors cannot fade because they are permanently "fired in," and the clean, sparkling finish will last for the life of the building.

Why not insure lasting beauty and utility in your new building . . . with durable Natco Ceramic Glazed Face Brick?



Natco Ceramic Glazed Velour Face Brick is furnished in Standard Size, in a variety of pleasing colors, plus black and white.

Available in Standard (2¼" x 3¾" x 8"), Norman (2¼" x 3⅝" x 11⅝") and Jumbo (2¾" x 3¾" x 8") sizes. For more complete information about the many attractive colors that are available in smooth, velour and speckled finishes, write for catalog CGB-50.

natco corporation

GENERAL OFFICES: 327 Fifth Avenue, Pittsburgh 22, Pa. BRANCH SALES OFFICES: Boston • Chicago • Detroit • Houston • New York • Philadelphia • Pittsburgh • Syracuse • Birmingham, Alabama • Brazil, Indiana • IN CANADA: Natco Clay Products Limited, Toronto, Ontario

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ST. FRANCIS GENERAL HOSPITAL
and REHABILITATION INSTITUTE
PITTSBURGH

Architects:
SCHMIDT, GARDEN & ERIKSON
Chicago

Linen Supplier:
EAGLE LINEN SERVICE, INC.
Pittsburgh

Linen Supply Service solved a $300,000 problem for St. Francis General Hospital

Spend $300,000 for a new laundry, when the *real need* was expanded and improved facilities for patient care? This was the problem facing Pittsburgh's St. Francis Hospital in enlarging its capacity to 740 beds. The solution was found in linen supply service. Thus, the funds otherwise required for a new laundry were utilized to expand and improve direct patient care.

Now, St. Francis Hospital leases some 80 different linens, garments and other cotton goods. These items range from bedsheets to surgeons' masks. In a typical month, St. Francis General uses some 300,000 of these articles—all on a rental basis.

Check your local linen supplier to find out how much better hospitals and other institutions you design can operate with linen supply, and how much more planning freedom such service gives *you*. You'll find the name of your linen supplier listed in the Yellow Pages under "Linen Supply" or "Towel Supply."

ARCHITECTS

FREE BOOKLET. Case histories and suggestions for designing the most efficient linen supply services into schools, hospitals, restaurants and motels are available. Mention booklet(s) wanted.

Linen Supply Association of America
and National Cotton Council • P.O. Box 2427, 975 Arthur Godfrey Road, Miami Beach 40, Florida

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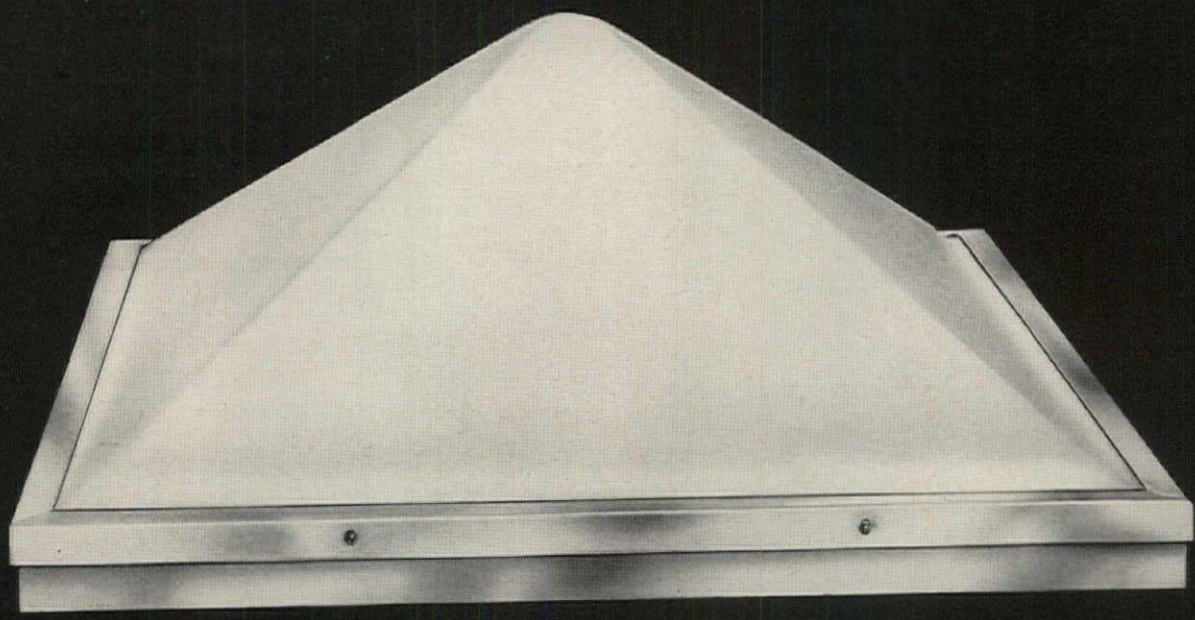
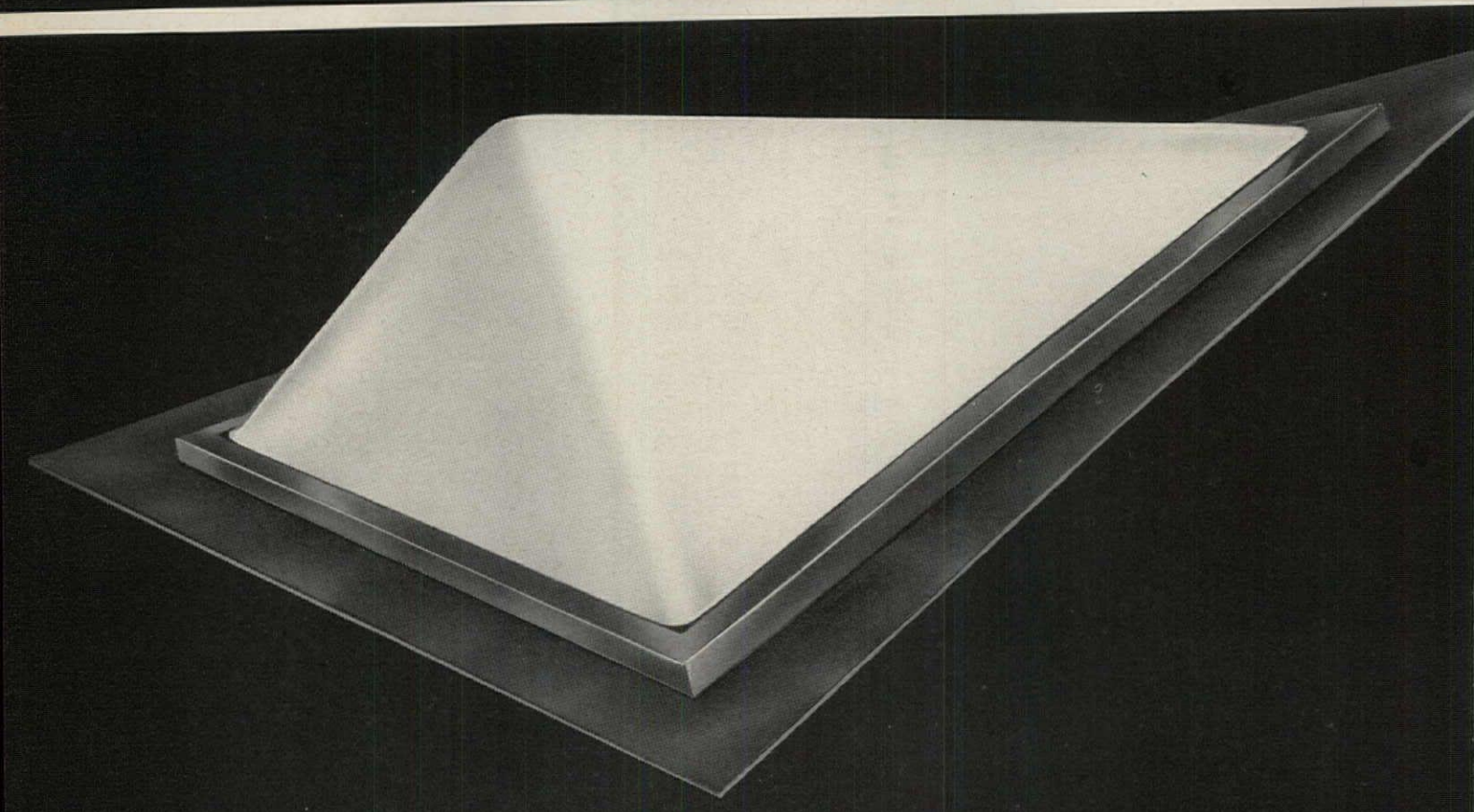
NEW SHAPES IN





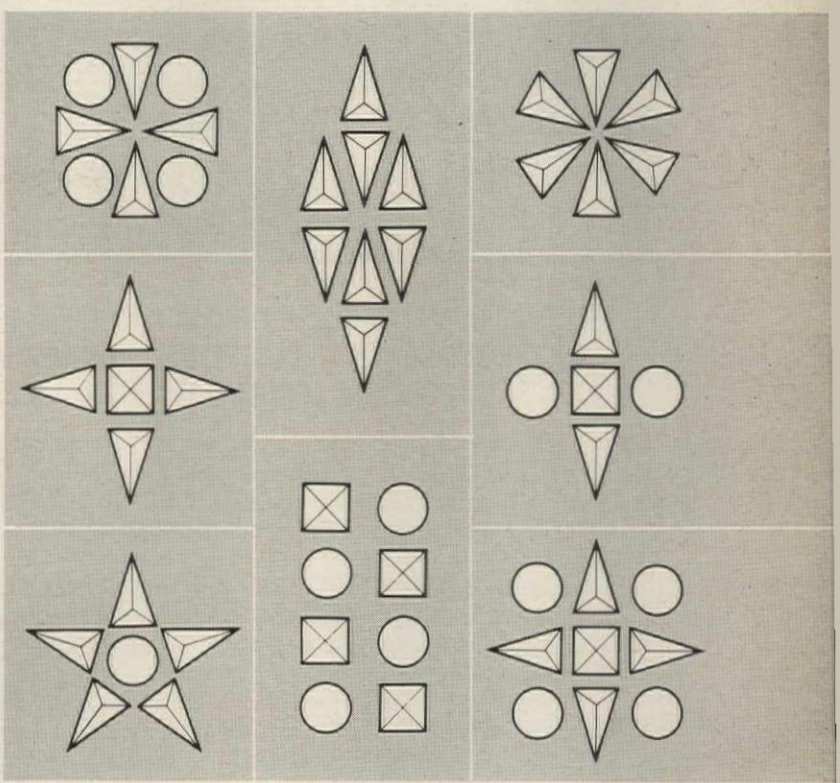
DAYLIGHTING!

NOW . . . UNLIMITED DESIGN IDEAS WITH STANDARD SKYDOME® SKYLIGHTS

Cyanamid offers a versatility in daylighting never before available with standard skylights. Now, you can create a star of daylight over a lobby, a ring of sunshine over a cafeteria, a brilliant diamond over an auditorium.

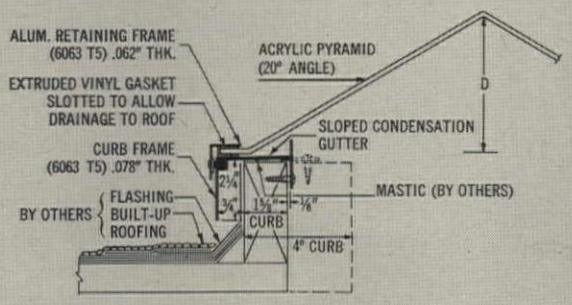
You can custom design distinctive new motifs in daylighting by combining these new units with standard square, rectangular or circular Skydome skylights. And you can achieve dramatic, yet efficient interior lighting effects at a cost much less than that of specially designed skylights. Like all Skydome units, these new models provide brighter work areas, permit fuller use of floor and wall space and trim electric lighting costs.

Design combinations of standard Skydome units are limitless. Ceilings become more exciting, roofs can do more than just keep rooms warm and dry. Whatever the situation, daylighting can be an integral, contributing design element in any building. Here are a few ideas:



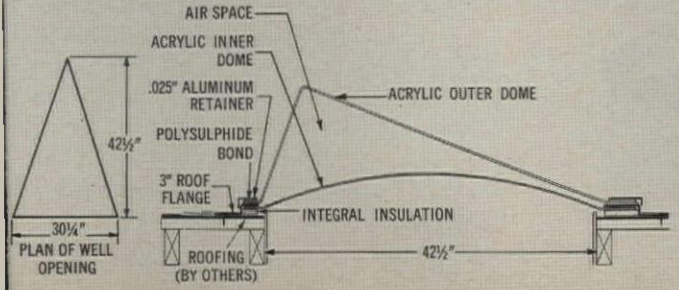
NEW PYRAMID DOME

Add a bright new design element with this Skydome pyramid unit. This skylight was originally produced as a custom unit. However, as a result of a survey among architects, it has been modified to include additional advanced design features and is now available as a standard item in the Skydome line. Installs on 1⅝″ or 4″ curb. 9 sizes. Available in clear, white, or dense white acrylic in durable aluminum frame.



NEW SELF-FLASHING DORMER DOME

This new Skydome unit provides an attractive, efficient method of bringing daylight through both flat and sharply pitched roofs. Double dome design. Features permanent watertight bonding at all critical points and a 3″ aluminum nailing flange for fast, easy installation. The dead air space between the domes provides thermal insulation and eliminates condensation. 30¼ x 42½ size. Both inner dome and outer dome available clear or white.



For complete specifications, see Sweet's Architectural File 20a/Am or Sweet's Industrial Construction File 15c/Am, or write Cyanamid.

WASCO
SKYDOME®
ACRYLIC SKYLIGHTS

BUILDING PRODUCTS DIVISION • AMERICAN CYANAMID COMPANY
CYANAMID
5 Bay State Rd., Cambridge 38, Mass.

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Product Reports

continued from page 186

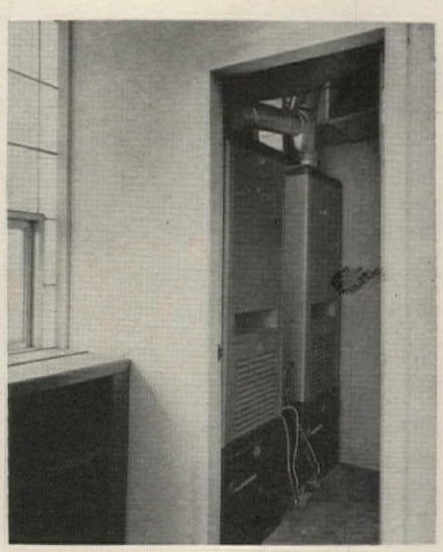
ENAMEL MURALS

Murals executed in porcelain and/or vitreous enamel on metal can be used for interior and exterior walls, elevator doors, wall panels and table tops. A contract series has 20 basic designs which can be interchanged and varied in color and size. Designs can also be made to special order. *Jedwabnik, Kinigstein and Padwee, 130 W. 57th St., New York 19, N.Y.*

CIRCLE 304 ON INQUIRY CARD

CLASSROOM FURNACES HAVE AIR CONDITIONING PLENUM

Individual classroom furnaces installed in closets between rooms are equipped with plenums which would make conversion to year-around air conditioning simple and relatively inexpensive. The plenums are extensions of the furnace casing and in winter serve as warm air supply plenums. In converting the furnace, an evaporator coil and coil base would simply slide into the plenum. *American Furnace Co., St. Louis 10, Mo.*

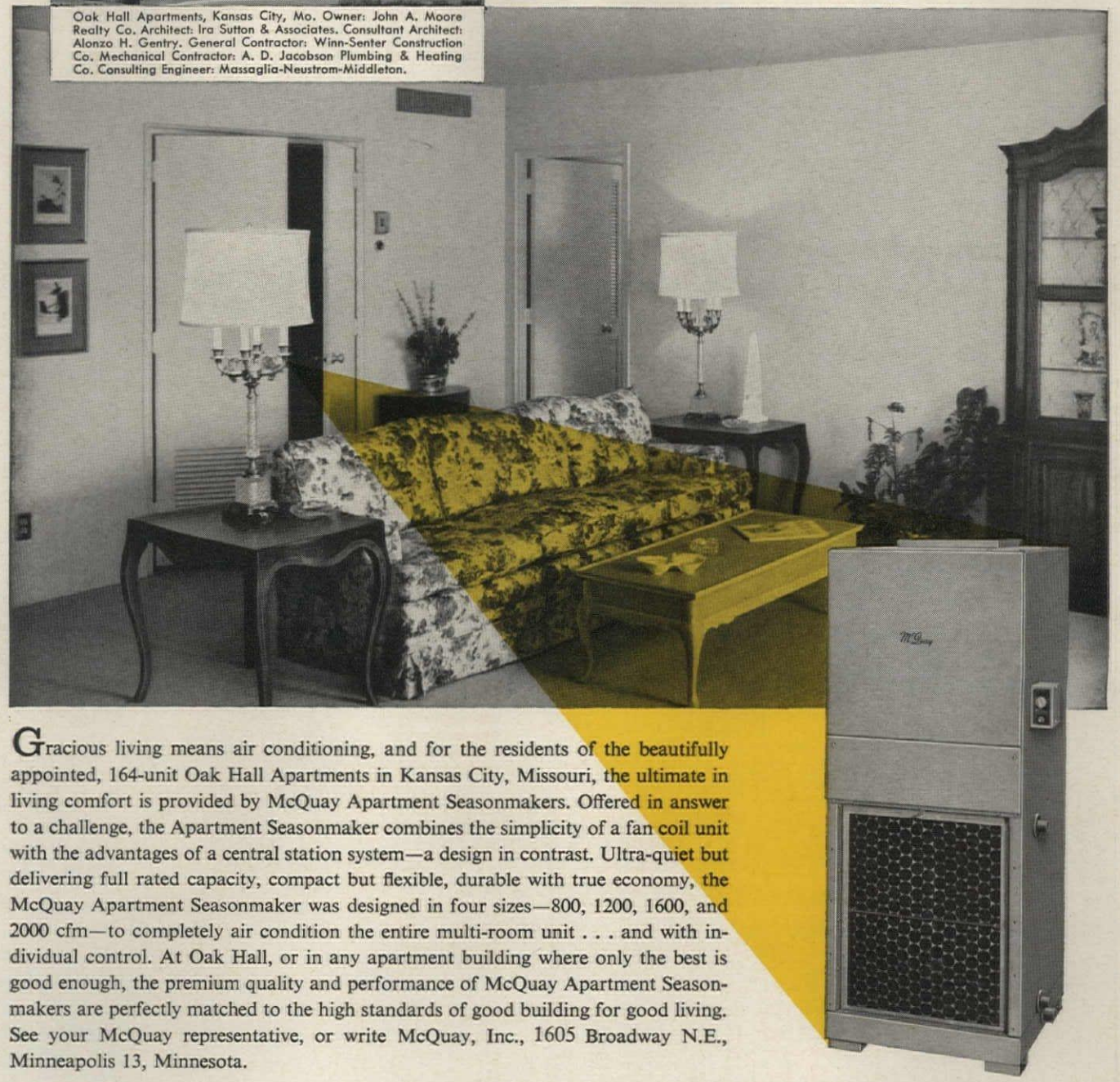


CIRCLE 305 ON INQUIRY CARD

more products on page 202

Oak Hall Apartments, Kansas City, Mo. Owner: John A. Moore Realty Co. Architect: Ira Sutton & Associates. Consultant Architect: Alonzo H. Gentry. General Contractor: Winn-Senter Construction Co. Mechanical Contractor: A. D. Jacobson Plumbing & Heating Co. Consulting Engineer: Massaglia-Neustrom-Middleton.

air condition an entire multi-room unit with one APARTMENT® Seasonmaker



Gracious living means air conditioning, and for the residents of the beautifully appointed, 164-unit Oak Hall Apartments in Kansas City, Missouri, the ultimate in living comfort is provided by McQuay Apartment Seasonmakers. Offered in answer to a challenge, the Apartment Seasonmaker combines the simplicity of a fan coil unit with the advantages of a central station system—a design in contrast. Ultra-quiet but delivering full rated capacity, compact but flexible, durable with true economy, the McQuay Apartment Seasonmaker was designed in four sizes—800, 1200, 1600, and 2000 cfm—to completely air condition the entire multi-room unit . . . and with individual control. At Oak Hall, or in any apartment building where only the best is good enough, the premium quality and performance of McQuay Apartment Seasonmakers are perfectly matched to the high standards of good building for good living. See your McQuay representative, or write McQuay, Inc., 1605 Broadway N.E., Minneapolis 13, Minnesota.

The Apartment Seasonmaker is installed out of the way but in an easily accessible space of its own, as shown above.

McQuay INC. MEANS QUALITY

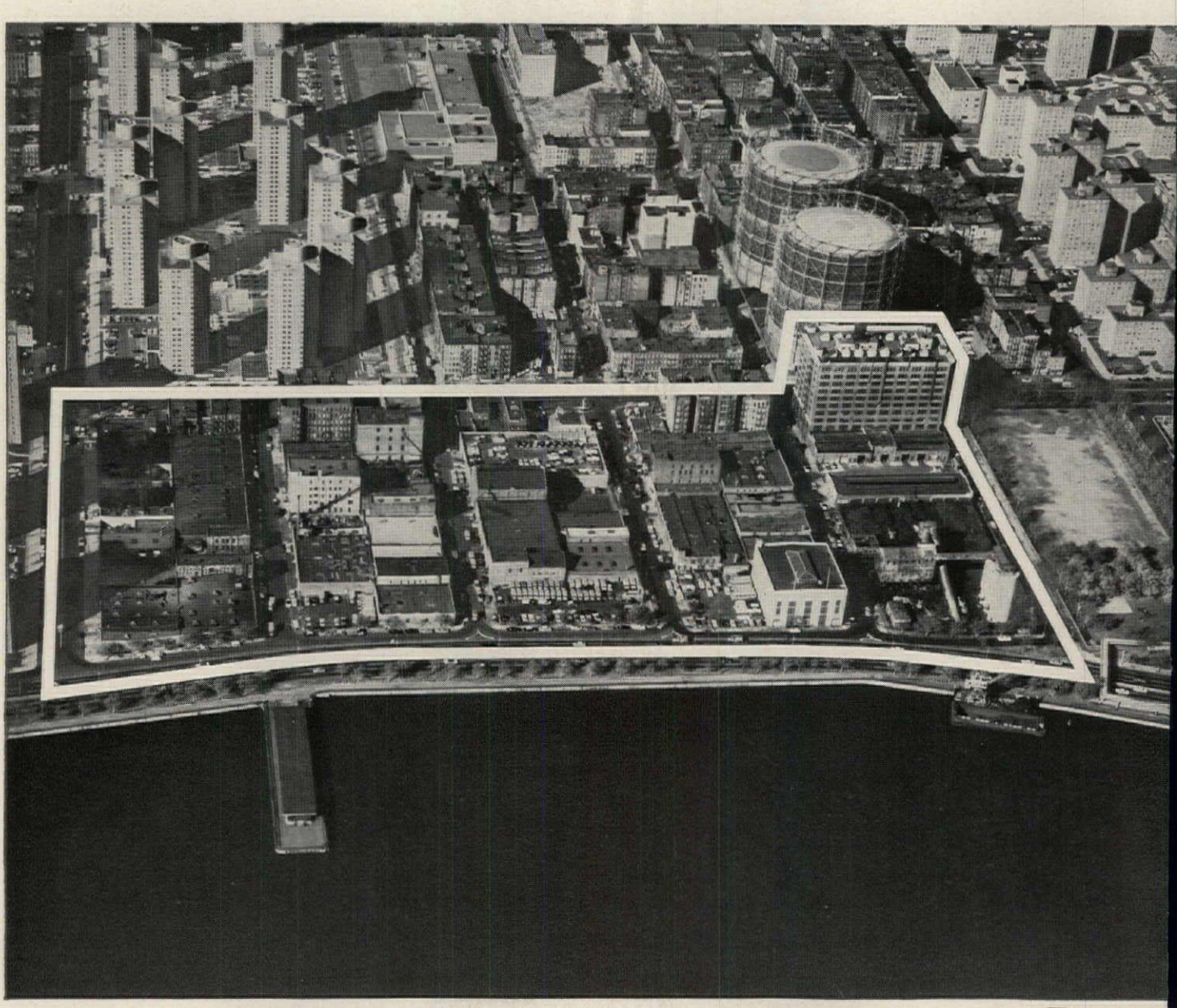
MAKE THE SEASONS COME TO YOU

AIR CONDITIONING • HEATING • REFRIGERATION

MANUFACTURING PLANTS AT FARIBAULT, MINNESOTA • GRENADA, MISSISSIPPI • VISALIA, CALIFORNIA

For more data, circle 73 on Inquiry Card

A CHALLENGE AND NEW YORK'S EAST RIVER



The East River Urban Renewal Area is bounded by East 106th Street, the Franklin Delano Roosevelt Drive, East 111th Street and First Avenue. It contains 22.2 acres. The solution will be based on creative provision for middle income housing, integrated with necessary schools, retail shopping, including development of river front and other facilities for recreation.

OPPORTUNITY TO DESIGN URBAN RENEWAL PROJECT

in the 5th ANNUAL $25,000 RUBEROID DESIGN COMPETITION

The winning concept will receive primary consideration by the City of New York Housing and Redevelopment Board and Project Sponsor for use in construction.

The subject of the 5th Annual Ruberoid Competition will be the design of the East River Urban Renewal area, a project of the Housing and Redevelopment Board of New York City now ready for planning. The Competition will offer a total of sixteen prizes, nine open to all entrants with a grand prize of $10,000 and seven for students only, with a first prize of $2,000.

Adding an exciting new dimension to the Competition is the fact that the Housing and Redevelopment Board will consider the winning concept for adoption and selection of the winning architect in the execution of the project.

A prospectus containing the complete program eligibility rules, etc. is available on request. It has been approved by the A.I.A. Committee on Awards and Competitions.

The Competition will be judged by a jury of distinguished architects and city planners with Mr. B. Sumner Gruzen, F.A.I.A., Kelly & Gruzen, New York as Professional Advisor.

For a prospectus containing full details, send the coupon.

The RUBEROID Co. Dept. 203
P.O. Box 129, New York 46, N. Y.

I intend to enter the Fifth Annual Design Competition.
Please send me a copy of the program.

Name_____

Firm or School_____

Address_____

City_____ Zone_____ State_____

Entrants are requested to register prior to May 15, 1963
Competition closes June 29, 1963

RUBEROID®

The RUBEROID Co., 733 Third Ave., New York 17, N. Y.
Manufacturers of Ruberoid Floor Tile and Ruberoid Building Products.

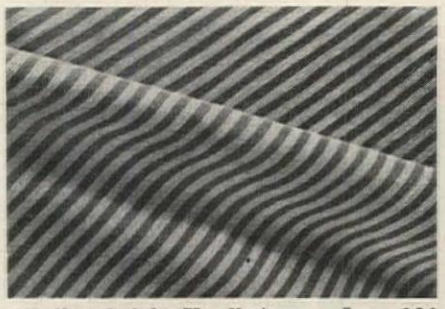
For more data, circle 74 on Inquiry Card

Product Reports

continued from page 194

UPHOLSTERY FABRICS

Stripes and the handwoven-look are important in new upholstery fabrics of wool, nylon and linen. Shown is the *Bangkok Stripe* of intense colors designed to co-ordinate with the solid and two-tone fabrics introduced last year. Neutral and muted shades are available in other fabrics. All have an acrylic backing and *Scotchgard* stain

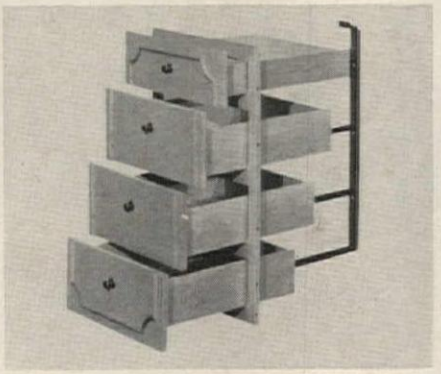


repeller finish. *Knoll Assoc., Inc., 320 Park Ave., New York 22, N.Y.*

CIRCLE 306 ON INQUIRY CARD

PREFAB CABINET DOORS

Unifront cabinet system consists of factory-made door fronts and drawer units which are attached to cabinet boxes made and installed on site. Dowel holes in each door frame as-



sure proper alignment, strength and rigidity. The door and drawer assemblies come in a variety of heights and widths, suitable for use in many rooms of a house. *Belwood Industries, Ackerman, Miss.*

CIRCLE 307 ON INQUIRY CARD

TAPED-ON HARDWARE

An instantly adhering, long lasting adhesive tape called *Quik-Mount* allows flat door trim to be applied to all metal, wood, plastic and glass doors. *Brookline Industries, Inc., 8600 S. Chicago Ave., Chicago 37, Ill.*

CIRCLE 308 ON INQUIRY CARD

ZINC AND EPOXY PREVENTS RUST

Devcon Z, a combination of 95 per cent zinc and 5 per cent epoxy binders, protects iron and steel surfaces by both sealing out moisture and pre-

venting corrosion by galvanic action if the metal becomes exposed. The coating comes in a single container and can be applied by brush, spray, roller or dip. It is reported to be as effective as hot dip galvanizing. *Devcon Corp., Danvers, Mass.*

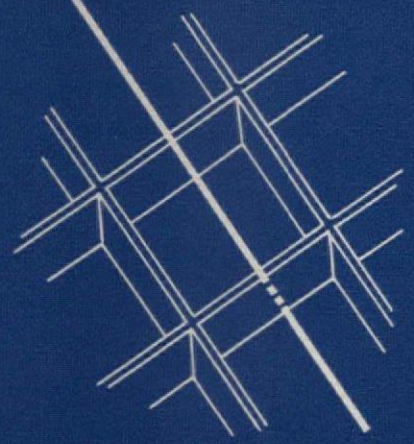
CIRCLE 309 ON INQUIRY CARD

more products on page 214

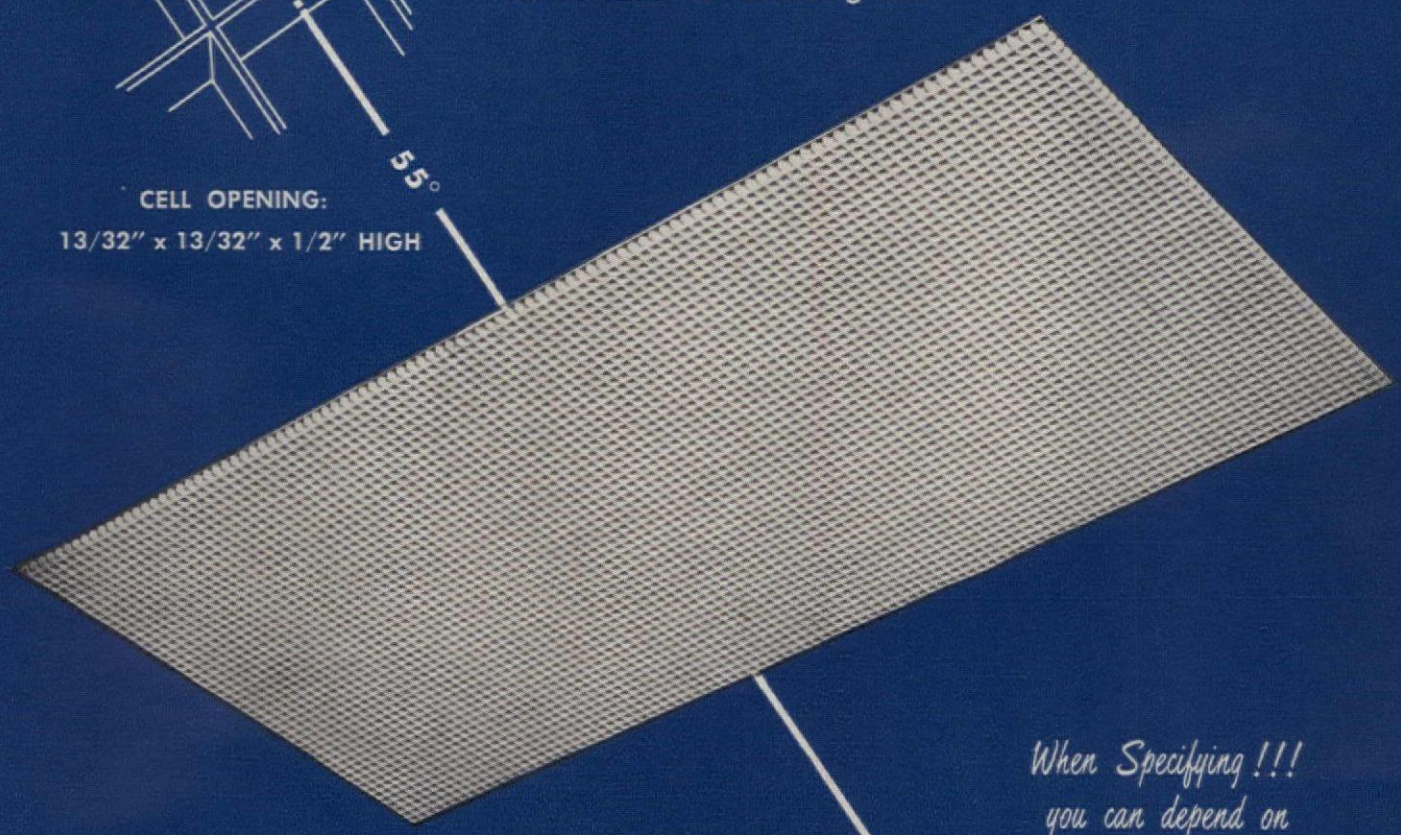
NEW!

Exclusive 55° Angle Lighting Louver Diffuser

Developed to meet todays and tomorrows higher lighting levels—For use in Individual fixtures, Modular or Large Area illumination with unexcelled diffusion—Developed to meet and exceeds IES-NEMA SPI joint specifications for stabilized styrene—True translucent white and a wide range of colors—Light weight for easy handling, installation and maintenance—Dimensionally stable—Low cost—Available in 45° and 42° shielding also.



CELL OPENING:
13/32" x 13/32" x 1/2" HIGH



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you can depend on
American Louvers . . .

Light shielding louvers is our *one and only most important product*, developed, designed and manufactured by American louver, consultants to the lighting industry since 1939, assuring you the finest in Plastic Louvers.

For pertinent facts on American louvers, write for bulletin 33am and new 3 color catalog—Just off the press.

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4240 N. SAYRE AVENUE • CHICAGO 34, ILLINOIS

$3.00

PER SQ. FT.

COST OF NEW HOSPITAL WALL SYSTEM

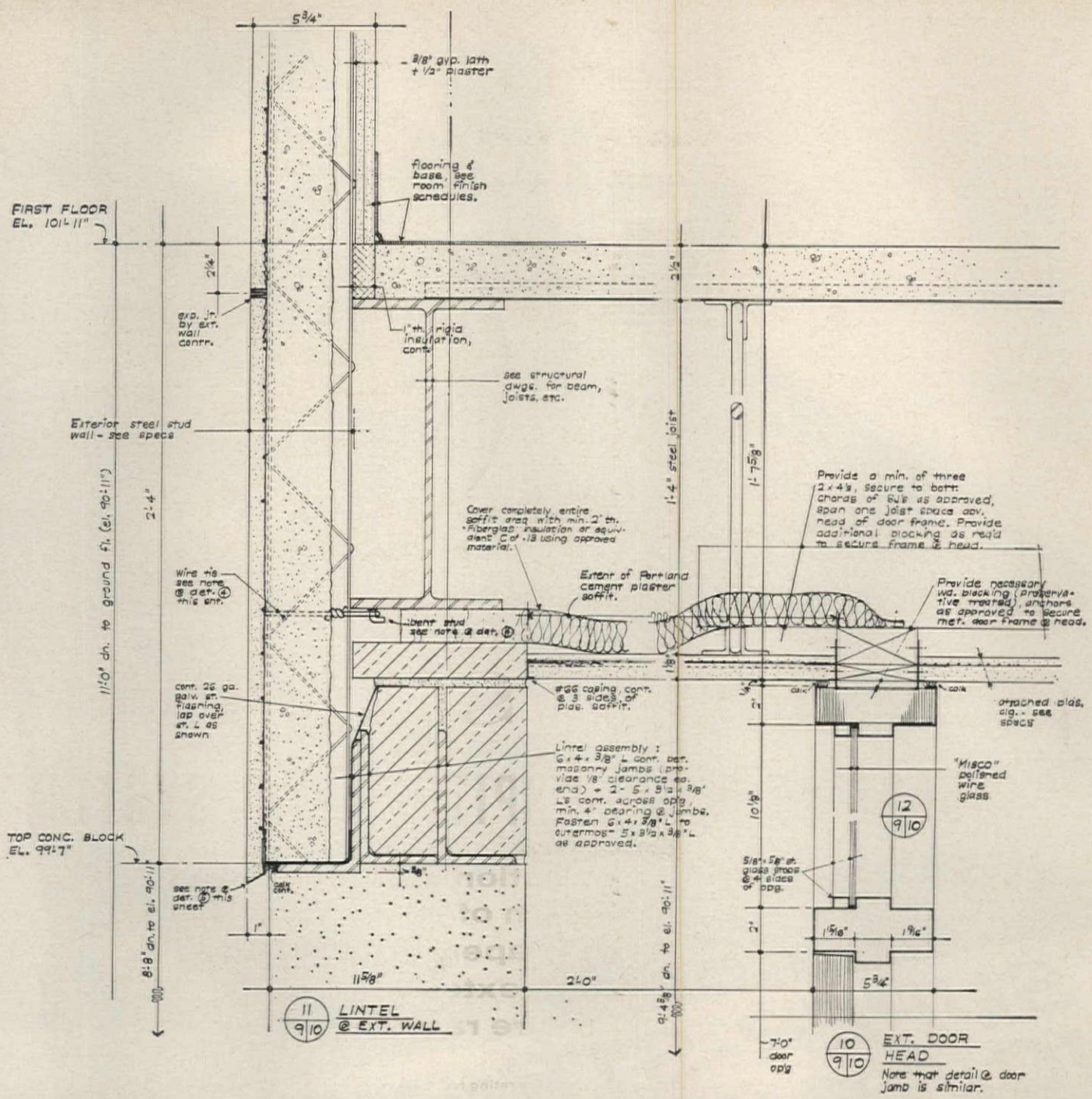
new construction method utilizes simple system of metal studs, KEYMESH® Paperbacked Lath and spray-on exterior wall; gets 2-hour fire rating.*

*This wall meets the 2-hour fire rating for hospitals.

Architectural and engineering ingenuity create an exciting new development in low-cost wall construction for buildings where fire safety is a prime factor. Schools, hospitals, offices and valuable industrial buildings can all use this method of construction—utilizing Keymesh Paperbacked Lath—profitably. Wall surface is flexible to meet any design requirement: Texture, color and finish. For complete information about applying this simple system to your next job, call your Keystone representative, or write

KEYSTONE STEEL & WIRE COMPANY • Peoria, Illinois

MAKERS OF KEYCORNER • KEYSTRIP • KEYWALL • KEYMESH® AND KEYMESH PAPERBACKED LATH • WELDED WIRE FABRIC • NAILS



Eureka Hospital addition,
Eureka, Illinois

Architect: Evan A. Thompson, A.I.A., of
Foley / Hackler / Thompson / Lee, Peoria, Ill.

Plaster Development: L. H. Hobson,
Plaster Development Center, Chicago, Ill.

Mechanical Engineer: S. Alan Baird, *Peoria, Ill.*

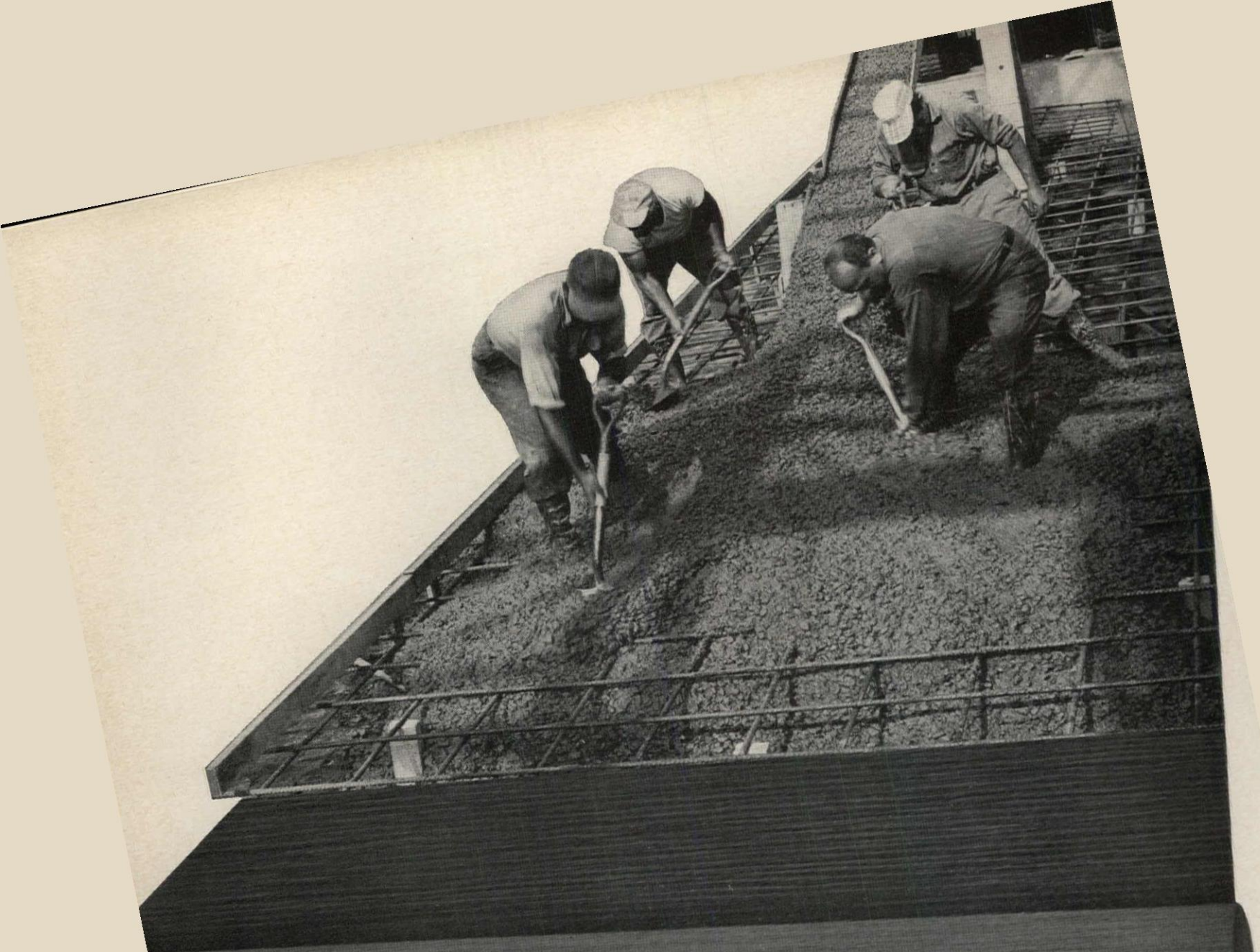
Structural Engineer: Edwin A. Lampitt, *Peoria, Ill.*

General Contractor:
O. Frank Heinz Construction Co., Inc., Peoria, Illinois

Plastering Contractor:
J. J. Kinsella & Son, Peoria, Ill.

(Note: Construction costs in Eureka, Ill., are approximately the same as those in Chicago, a high-cost construction area.)

For more data, circle 77 on Inquiry Card



SUPER-STRENGTH MOISTURE BARRIER

Punch it, poke it, crunch it . . . Moistop resists rips or tears under all kinds of job-site beating, assures an impenetrable barrier (perm rating 0.15) against moisture migration through floors — forever! Combines the inertness of *polyethylene film with the toughness of reinforced, waterproof Sisalkraft. Comes in 1,200 sq. ft. rolls 72", 84", and 96" wide, lays down fast over areas prepared for concrete slabs on grade or basement floors and crawl spaces in homes. Exceeds FHA Minimum Property Requirements. Check complete specifications in SWEET'S Architectural File, 8h/AM. For sample, write: American Sisalkraft Company, Attleboro, Mass.*

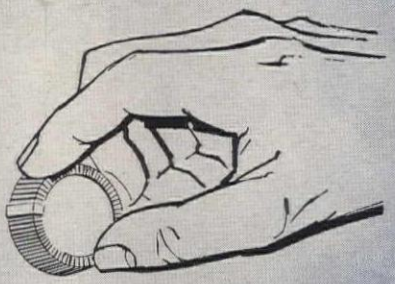
MOISTOP REINFORCED PAPER + POLYETHYLENE

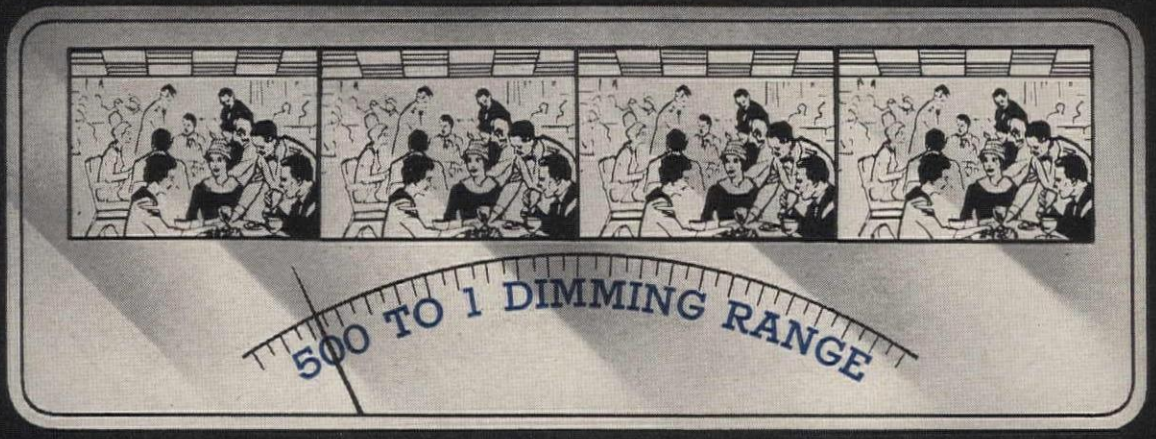
A DEVELOPMENT OF AMERICAN SISALKRAFT COMPANY/DIVISION OF ST. REGIS PAPER COMPANY

For more data, circle 78 on Inquiry Card

DIAL ANY ILLUMINATION LEVEL

WITH THE NEW
ADVANCE
FLUORESCENT
DIMMING
SYSTEM





95% RATED LAMP OUTPUT!

Now control lighting levels from full brightness to soft glowing interiors as the situation demands. This new ADVANCE Fluorescent Dimming System gives fluorescent lighting unlimited applications in stores, restaurants, offices, auditoriums, schools, conference rooms and churches . . . by providing a new range of dimming control (500 to 1) with 95% of rated lamp output.

The ADVANCE Fluorescent Dimming System incorporates two solid state semi-conductors in its auxiliary and permits 12, 40-watt Rapid Start lamps to be operated at full brightness from one dimming auxiliary.

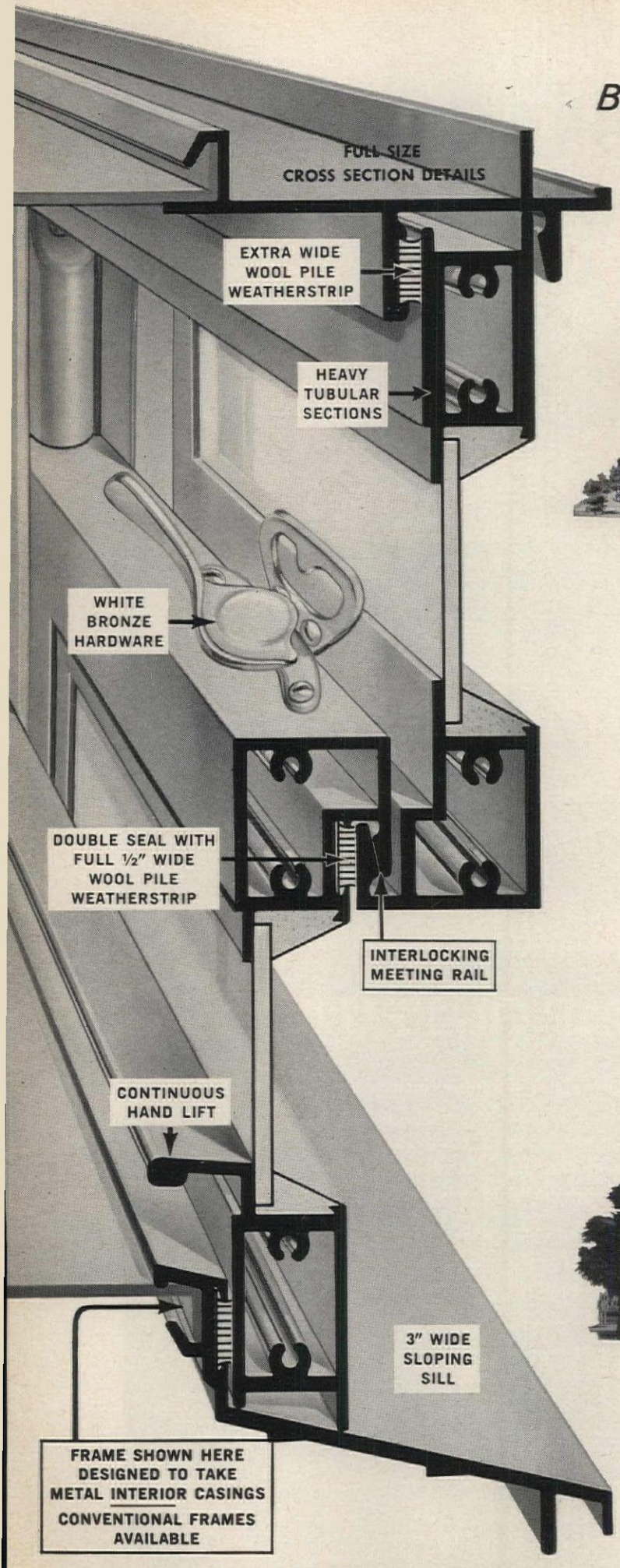
Contact your ADVANCE Ballast Representative or write for Bulletin No. 1227.

ADVANCE® TRANSFORMER CO.
WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF FLUORESCENT LAMP BALLASTS
2950 NO. WESTERN AVE. CHICAGO 18, ILL. U.S.A.

For more data, circle 79 on Inquiry Card

Because Architects asked for it–

we designed this . . . .



World's Largest Apartment House (1321 units)
Ebbets Field Apartments, Brooklyn, N. Y.
Architects: Brown & Guenther
Contractor: H. R. H. Construction Corp.

World's Tallest Hotel (50 stories)
Americana Hotel, New York, N. Y.
Architects: Morris Lapidus, Harle & Liebman
Contractor: Diesel Construction Co.

785 Fifth Avenue Apartments, New York, N. Y.
Architects: Emery Roth & Sons
Contractor: Fisher Bros.

QUALIFIES UNDER DH-A2 SPECIFICATION
Approved for Mitchell-Lama Housing under New York State Division of Housing and Community Renewal

DEPENDABLE **Cupples**

. . Better-operating, stronger, sturdier aluminum window

for Apartments, Hotels, Motels and College Dormitories

Cupples SERIES 300

DOUBLE-HUNG ALUMINUM WINDOW COSTS A FEW DOLLARS MORE BUT ITS HEAVIER SECTIONS AND EXTRA STRENGTH PAY DIVIDENDS IN EXTRA YEARS OF TROUBLE-FREE SERVICE

You told us you wanted an aluminum window that would be strong enough, tough enough to stand up and perform better under the rough, hard treatment of apartment house, hotel, motel or college dormitory use.

Well here it is—your window—Cupples new "Series 300" double-hung aluminum window. Ready for your toughest or most exacting residential window jobs.

The Cupples, "Series 300" double-hung window wasn't designed down to a price, or to fool bargain hunters. Instead, it was designed to do a job—a big job—to satisfy a long felt need. However, even with its heavier tubular sections, better weathertightness and foolproof operating qualities, you'll find it economically priced — only a few dollars more *(approximately $3 to $4)* than the cheapest residential windows. It's a worthwhile investment that will continue to pay dividends for many years to come.

Before you specify or order windows for your next job be sure to investigate the Cupples "Series 300" double-hung window. Remember, too, that when you deal with Cupples you get DEPENDABILITY of product, quality, service, delivery and the Company behind the product (Cupples is a division of ALCOA). Our representative will be glad to consult with you at your convenience. Write for full size details. Address Dept. AR-31.

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2650 SO. HANLEY ROAD, ST. LOUIS, MO.
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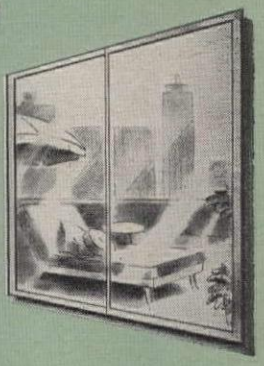
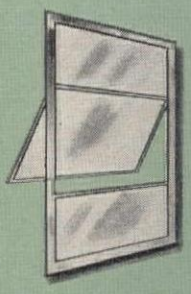
ALCOA
CUPPLES PRODUCTS DIVISION
ST. LOUIS, MO.

OTHER *Cupples* BUILDING PRODUCTS FOR USE IN APARTMENTS, HOTELS, DORMITORIES

CUPPLES SERIES 1100 SLIDING GLASS DOORS

For rooms leading to balcony or terrace. Beautiful Alumilite finish. Extra strong, sturdy construction with tubular vertical rails. Adjustable ball bearing rollers. Interlocking meeting rails plus double wool pile and vinyl weatherstripping. In 2, 3 and 4 door units from 6 ft. to 20 ft. widths. Sliding screens available.





CUPPLES SERIES 600 PROJECTED WINDOWS

These strong, sturdy projected windows will take hard usage for many years. All horizontal rails in frame and sash are tubular for extra rigidity and strength. Adjustable, patented 4-bar operator mechanism. White bronze hardware. 5/8" glass rabbit. Interior or exterior metal snap-in bead glazing optional.

CUPPLES ALUMI-COUSTIC CEILING GRID

For luminous or acoustical ceilings in the lobby, in kitchens and bathrooms. Inexpensive. Easy to hang aluminum grid. Holds 2' x 2' or 2' x 4' panels.

CUPPLES ENTRANCE DOORS

New "40 line" of stock units combine beauty with flexibility of design and simplified installation. Choice of hardware locks and door closers.

For more data, circle 80 on Inquiry Card

Why were Flexalum Twi-Nighter® venetians chosen for the 8,200 windows of the new Equitable Life Assurance Society Building?

It wasn't just because they submitted the lowest bid

It was because Flexalum offered two unique skyscraper modifications that complement the lines of curtain-wall buildings. How? By not having any tapes visible from the outside (we hide them behind the mullions)... and by limiting the tilt cycle, only the special grey exterior tone is visible from the outside. A special off-white was chosen for the inward side of the slats. (The tapes are also 2-tone.) Flexalum's skyscraper modifications fully integrate the venetians with the design of the building.

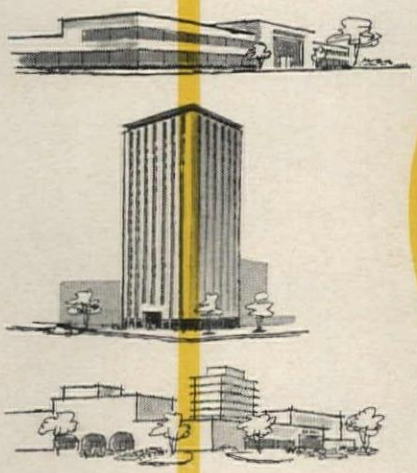
Flexalum Twi-Nighters seldom, if ever, need repairs, look new longer and don't have to be pampered. They're backed by a 5-year Bonded Guarantee. All things considered, maybe the Flexalum Dealer did submit the lowest bid... by far.

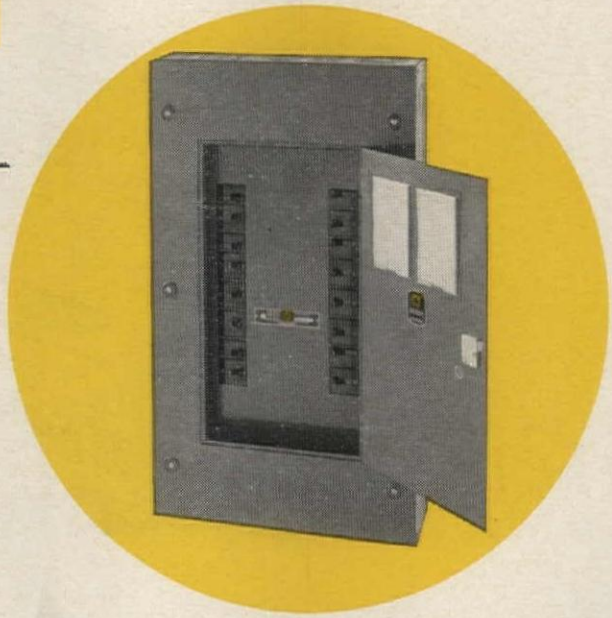
For information on skyscraper modifications, write to Bridgeport Brass Co., Hunter Douglas Division, 30 Grand Street, Bridgeport, Conn.

Flexalum® Twi-Nighter Special-Purpose Venetians

For more data, circle 81 on Inquiry Card

Not a boast...
but an acknowledgement of
the obligation of leadership





SQUARE D SELLS MORE PANELBOARDS THAN ANY OTHER MANUFACTURER

• There are three reasons for Square D's predominance in the panelboard field...

First, the line is complete. Whether the requirement calls for AC or DC or both; lighting or power distribution or both; fusible or circuit breaker; plug-in or bolted construction; Square D has the right panelboard for practically any given job.

Even more important is the quality which is built into every Square D panelboard —difficult to define but a very important combination of many details.

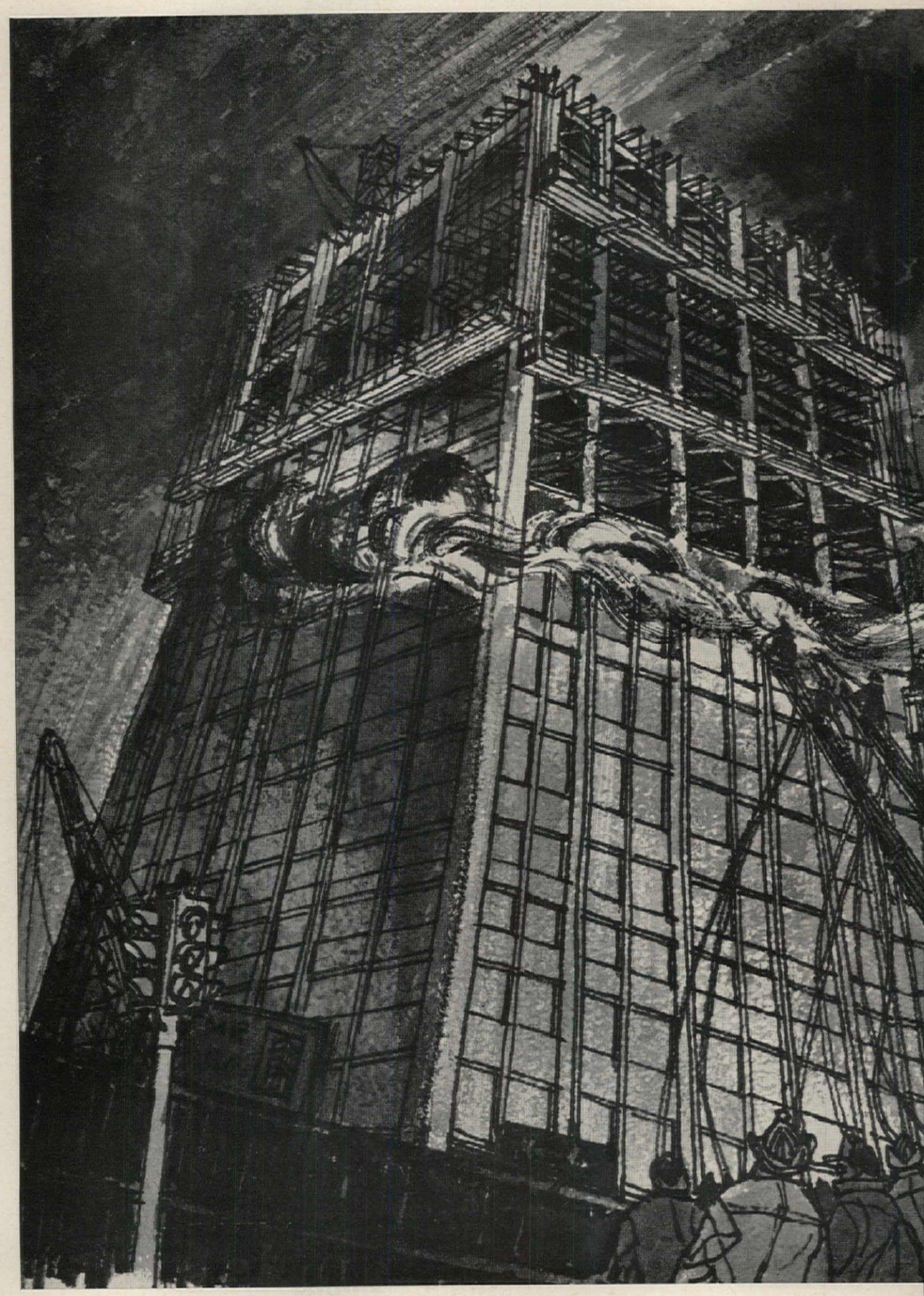
Availability is always an important factor—and here Square D rates especially high. Regional manufacturing and assembly facilities for "specials," combined with a national network of stocking distributors for standard panels, provide exceptional delivery and service.

write for Bulletin SD-126. It tells the quality story in detail
Square D Company, Mercer Road, Lexington, Kentucky

SQUARE D COMPANY

wherever electricity is distributed and controlled

For more data, circle 82 on Inquiry Card



This is a true story, as can be attested to by fire department records, and by two firemen who were nearly killed. Almost assuredly, many would have died if it had not been for the fire protection. This case history shows you how the fire protection you specify actually does work when a fire breaks out.

On August 20, a fire broke out on the eighth floor of an unfinished high rise building in a booming port city. (We are omitting the building name and location at the request of interested parties.)

Over 60 firemen raced to the scene. Because standby pipes hadn't been connected, firemen had to climb more than 100 feet up swaying ladders with heavy hoses that writhed like snakes as water under tremendous pressure coursed through them.

Once on the eighth floor, the firemen trained their hoses on flames roaring through wood partitions that divided a temporary office. After 42 minutes, and after two men had been overcome by heat and smoke, the fire in a temporary office was under control. Under control because the fire stayed put, burning *only* on the eighth floor!

Inspection the following day revealed a number of curious things. The heat was so intense that "incombustible" tiles stored on the floor and in place on the ceiling were burnt to ashes. Typewriters were melted down into metal lumps. Steel stud partitions were warped beyond salvage. Steel channels for the suspended ceiling were completely collapsed.

Yet on the floor of the ninth floor—inches above this holocaust—the paint on electrical junction boxes wasn't even scorched.

The reason: 7/8" of Zonolite spray-on, direct-to-steel Mono-Kote on the deck and 1 1/8" Zonolite Plaster Aggregate and gypsum on metal lath on the beams.

On the eighth floor, less than 1% of the Mono-Kote had come off. This small loss was caused by warping of steel braces which had been sealed to the deck. As the fire warped the braces out of shape they fell and pulled the Mono-Kote that had covered them away. If the braces had been more securely fastened, every bit of Mono-Kote would have stayed in place.

The key to the successful containment of the fire was this: the fire protection was on the steel, where it is needed. A fire-resistant suspended ceiling would have been no good, because much of the fire was between the suspended ceiling and the real ceiling. Even if the ceiling had been completed—of fire-rated ceiling tile—it still would offer no protection from fire breaking out between the suspended ceiling and the real ceiling, because the metal that suspends the ceiling is vulnerable. (Remember the collapsed steel channels? They would have dumped fire-rated tiles right on the floor, and the fire would have consumed the whole building.)

Be sure your fire protection is where it belongs: directly on the steel. It can mean the difference between a contained fire and a deadly inferno.

Our technical bulletin PA-53 gives you detailed information about the spray-on, direct-to-steel fireproofing, Mono-Kote. Write:

ZONOLITE COMPANY
135 SO. LA SALLE STREET □ CHICAGO 3, ILLINOIS

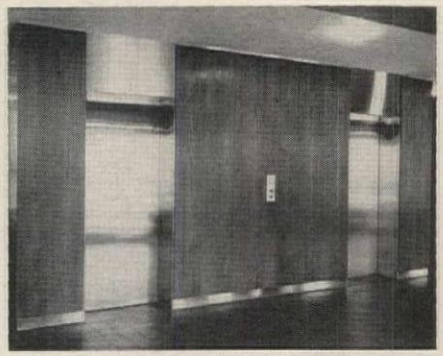
For more data, circle 83 on Inquiry Card

Product Reports

continued from page 202

WOOD VENEER PANELS

Designed especially to meet Class 1 fire codes, *Fyretech 100* hardwood wall panel has an incombustible core made of inorganic fibers. The lightweight, waterproof panel is available in any veneer in sizes up to 5 by 12 ft. *Technoply Div., Industrial Plywood Co., Inc., 182-190 Liberty Ave., Jamaica 33, N.Y.*



CIRCLE 310 ON INQUIRY CARD

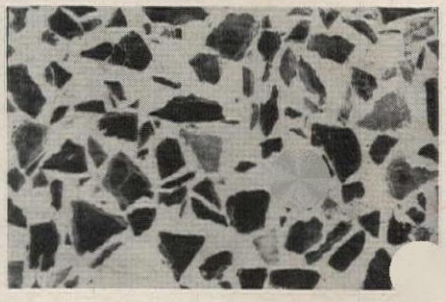
ACOUSTICAL CEILING SUSPENSION SYSTEM

Instand Grid acoustical ceiling suspension system has only three components; 12-ft-long main beams, 8-ft-long cross tees and 8-ft-long intermediate cross tees. The interlocking beams need no lock joints, hooks, clips or tabs. Using main beams and cross tees, 2- by 4-ft and 4- by 4-ft modules can be formed. By adding intermediate cross tees, a 2- by 2-ft module can be formed. *Flangeklamp Corp., 1971 Abbott Road, Buffalo 18, N.Y.*

CIRCLE 311 ON INQUIRY CARD

THIN-SETTING TERRAZZO

Novalite, thin-setting terrazzo, is a mixture of powders, marble chips and resin that gives a true white and pastel colors previously unattainable in the product. It can be installed as thin as 3/8 in. over almost any subfloor. *Selby, Battersby & Co., Inc., 5220 Whitby Ave., Philadelphia 43, Pa.*



CIRCLE 312 ON INQUIRY CARD

NEOPRENE-LEAD SHEET

Pliable neoprene-lead sheeting has one-third the radioactive absorption capacity of pure lead sheet of the same thickness and little more than one-third the weight of the pure lead. The flexibility makes it readily adaptable for protective wrapping. Pads made of the material, called *RL-1736*, can be used for vibration and sound transmission control. It is available in four thicknesses. *Raybestos-Manhattan, Inc., Packing Div., Passaic, N.J.*

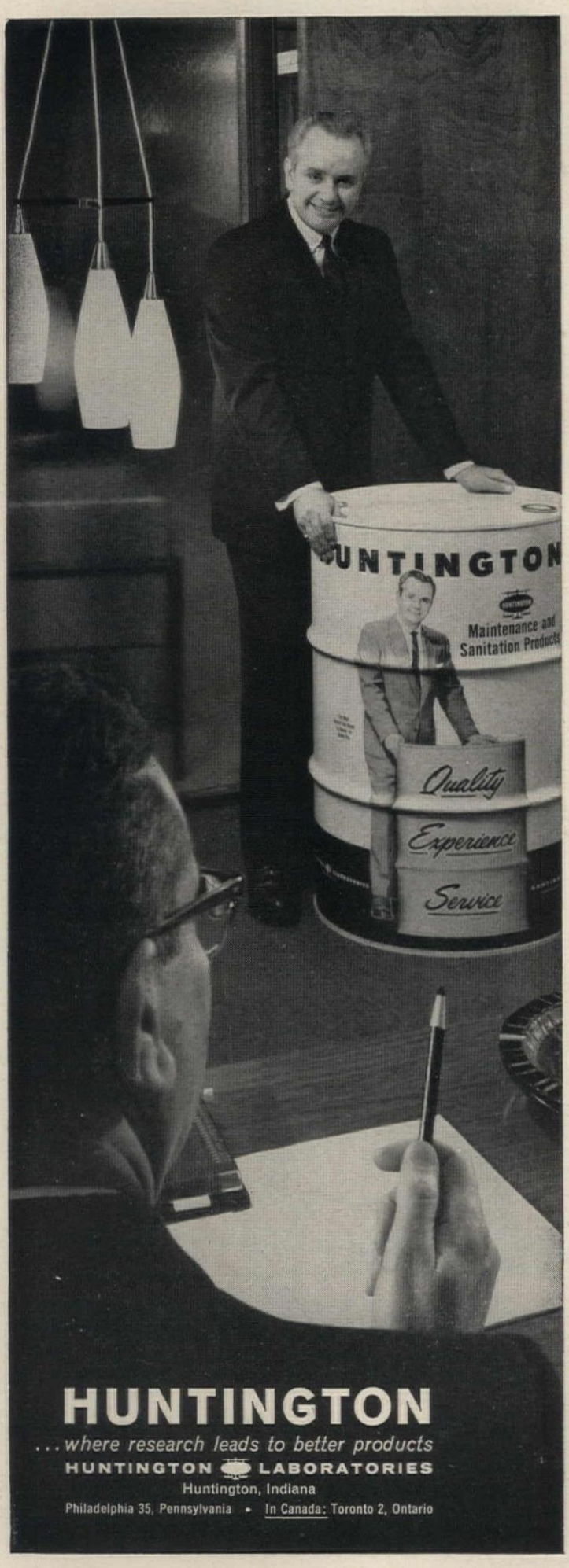
CIRCLE 313 ON INQUIRY CARD

GLASS RADIANT HEATER

A metallic oxide coating on the surface of a glass panel armored with glass fibers produces radiant heat in a residential ceiling heater. A single panel will heat an area about 50-ft square and costs about $30. *Corning Glass Works, Corning, N.Y.*

CIRCLE 314 ON INQUIRY CARD

more products on page 218



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YOU SPECIFY THE FLOORING!

Let him

SOLVE THE MAINTENANCE PROBLEMS

Shoes are murder.

Stiletto-like high heeled slippers. Dress shoes. Work shoes. Day in and day out, they'll pound any flooring you specify . . . grinding in abrasive dust, dirt, even gravel . . . robbing it of its appearance and condition . . . leaving behind the scars of time and traffic.

How do you protect your building *and* your reputation against these floor-killers? Simple. Just hand over your floor maintenance worries and headaches to the gentleman behind the drum. He'll love it. Solving floor maintenance problems has been his way of life for an average of 19 years.

Your Man Behind the Huntington Drum has the ability and experience to create an *overall* maintenance program: for every area of your building . . . for every flooring material you specify. In his zeal, he'll even supervise the maintenance crews to make sure application is proper.

So why not call in our floor-oriented friend? Discuss with him the flooring you're about to specify, and dump the problem of its care into his lap. You'll lose a headache . . . and gain an ally.

SEE OUR CATALOG S IN SWEET'S

FILL OUT AND MAIL THIS COUPON

Huntington Laboratories, Inc.
Huntington, Indiana

Gentlemen: I would like a Man Behind the Huntington Drum to call on me to discuss floor maintenance.

(☐ Ask him to leave his drum outside.)

NAME _____ TITLE _____

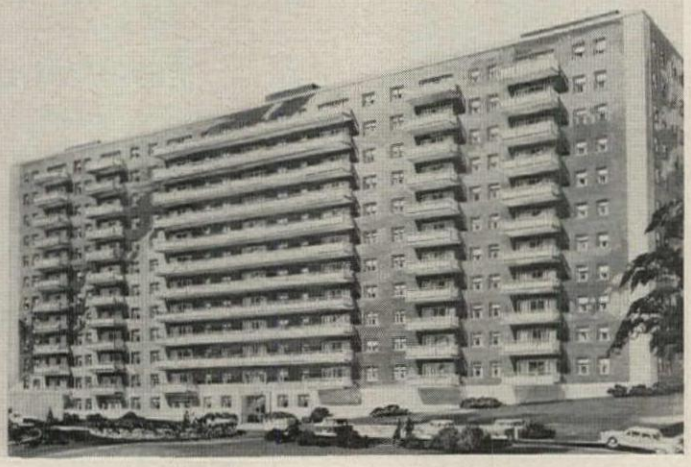
FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

For more data, circle 85 on Inquiry Card

Oak Hall. *In this 165-unit, 12-story building each apartment has its own central air handling unit with ducted air distribution. The same gas-fired boilers that supply hot water to these units for heating also supply steam to operate a 400-ton capacity Carrier Absorption unit which delivers chilled water for cooling.* ***Architect:*** *Alonzo H. Gentry;* ***Consulting Engineer:*** *Massaglia & Associates.*



How to make apartment air conditioning a more attractive investment

Regency House. *Individual, thermostatically controlled, fan-coil room units provide year-round air conditioning in this 134-unit, 20-story luxury apartment. Each unit is supplied with hot or chilled water from a central plant where gas-fired boilers that supply heat, also provide steam to operate the 300-ton capacity Carrier Absorption unit for cooling.* ***Architects:*** *Tanner-Linscott & Associates;* ***Consulting Engineer:*** *James Dukelow.*

Parkway Towers. *Each apartment in this 160-unit, 12-story building has its own central air conditioning unit with ducted air distribution. Chilled or hot water is delivered to each unit from a central plant where a 350-ton capacity Carrier Absorption unit provides cooling with steam from the same gas-fired boilers used for heating.* ***Architects*** *(and mechanical designers): Herbert E. Duncan Associates.*

Product Reports

continued from page 214

PREFAB FOLDING DOORS

Factory assembled wood folding door units, complete with premounted hardware, are available in a variety of popular wood finishes, styles and price ranges. Also available are prefabricated by-pass door packs that cut installation time and reduce chance of error. *Kennatrack Corp., Elkhart, Ind.*

CIRCLE 315 ON INQUIRY CARD

PRODUCT BRIEFS

Flat cable system with adhesive back will stick to virtually any clean surface and can be used for signal, communications and control wiring. *Minnesota Mining and Manufacturing Co., 2501 Hudson Rd., St. Paul 19, Minn.*

CIRCLE 316 ON INQUIRY CARD

Library shelving has only three elements: the supports, shelf brackets and the shelves to give economical functional design. *Reska, Inc., 983 Jefferson Ave., Buffalo, N.Y.*

CIRCLE 317 ON INQUIRY CARD

Light curtain wall section allows a variety of designs using the *Slidarol* window and any type of material to fit the dead-light areas. *IDA Products, 16538 Woodward, Highland Park 3, Mich.*

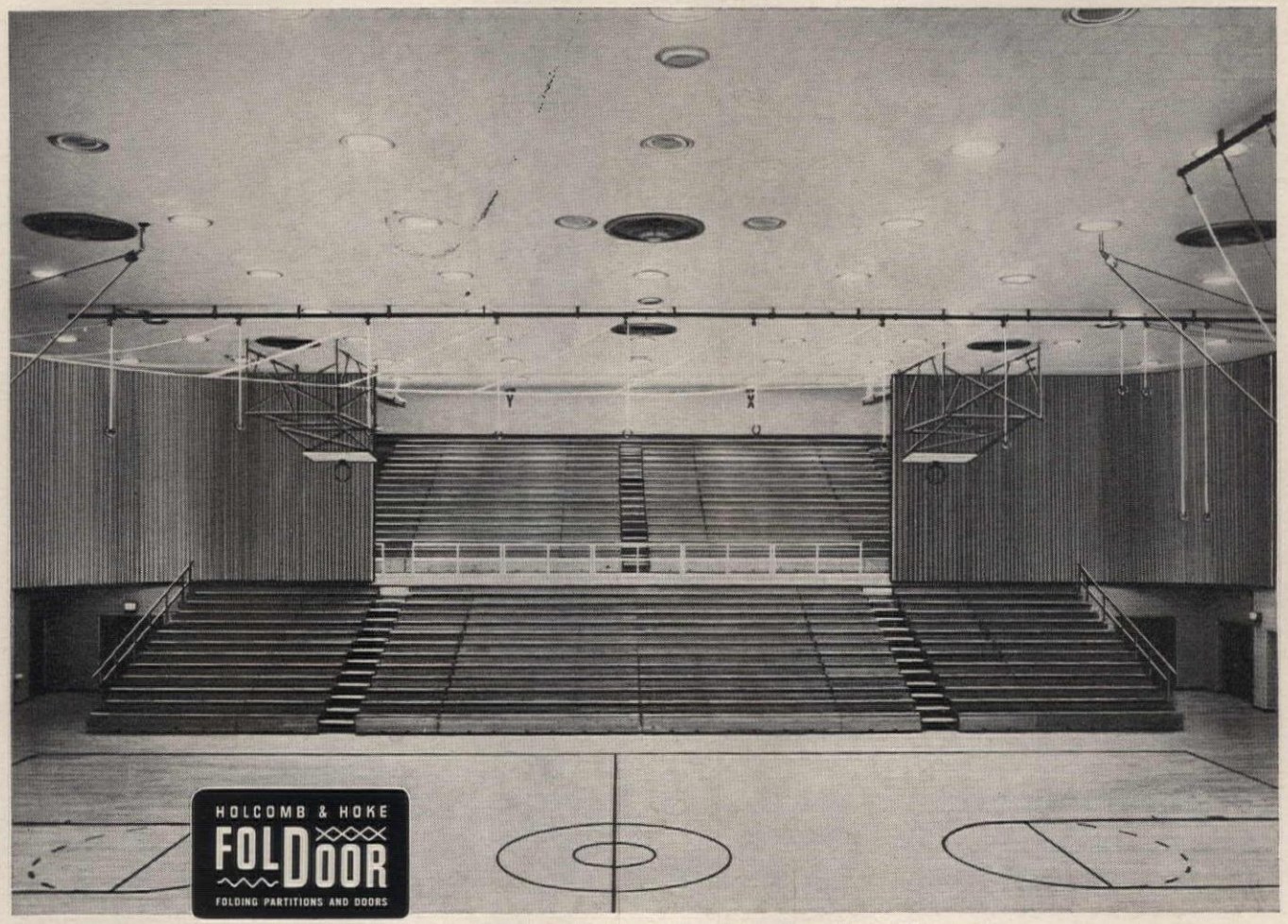
CIRCLE 318 ON INQUIRY CARD

Patient room wardrobes of sound-insulated steel with baked-on finish can be wall-recessed or free standing. *Maysteel Products, Inc., 800 Horicon St., Mayville, Wis.*

CIRCLE 319 ON INQUIRY CARD

Portable proscenium (housing curtains and lights) is made of tubular steel framework for assemblage over a portable stage. *Sico Inc., 5215 Eden Ave. South, Minneapolis 24, Minn.*

CIRCLE 320 ON INQUIRY CARD



Warren Central High School • Architect: Everett I. Brown Co., Indianapolis

FOLDOOR OFFERS SUPERIOR FOLDING PARTITIONS

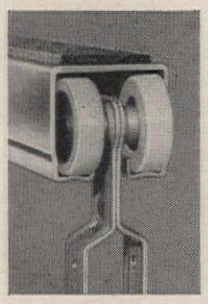
Two pairs of Holcomb & Hoke FolDoors quickly transform this gymnasium into three separate activity areas. Along with the folding bleachers, these FolDoors provide complete gymnasium flexibility for physical training and sports activity at Warren Central High School near Indianapolis.

Each pair of these sound-insulated FolDoor partitions is 127′ long and 20′ high. Its attractive 27 oz. vinyl fabric was selected for its durable resistance to normal gym activity. Each complete partition weighs over 4½ tons; yet this tremendous weight is carried entirely on overhead nylon rollers, operating in FolDoor's standard 16 gauge #30 cold-formed track (see inset). It has functioned smoothly and perfectly since installed in February, 1961. It's engineered for a lifetime.

The curved track and exclusive-design ½ HP electrical operators quickly position these FolDoor halves against the end walls . . . completely removed from every spectator's line of vision. There are no glide switches, pivot switches or manual operations. The complete cycle is quick, foolproof, easy to control.

To the best of our knowledge, our FolDoor engineering staff is the only one to successfully design and install a folding partition of this type and magnitude. We can do the same for you . . . and stand behind it. Ask your FolDoor Distributor about his "Warranty Plus" program.

See SWEET'S ARCHITECTURAL FILE 16f/Ho for complete details and specifications on the entire FolDoor line.



Standard No. 30 contoured track and ball bearing nylon rollers provide long life and easy operation. Track is warranted for life of original installation.

HOLCOMB & HOKE MFG. CO., INC.

1545 Calhoun Street • Dept. D31 • Indianapolis 7, Indiana

☐ Please send information on Complete FolDoor Line

☐ Have job in planning, please call

Name_____

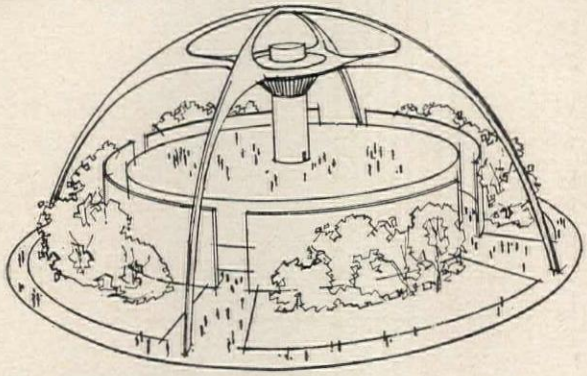
Firm_____

Address_____

City_____ Zone____ State_____

For more data, circle 88 on Inquiry Card

"Theme" Building—highly distinctive focal point of the new air terminal at Los Angeles International Airport.

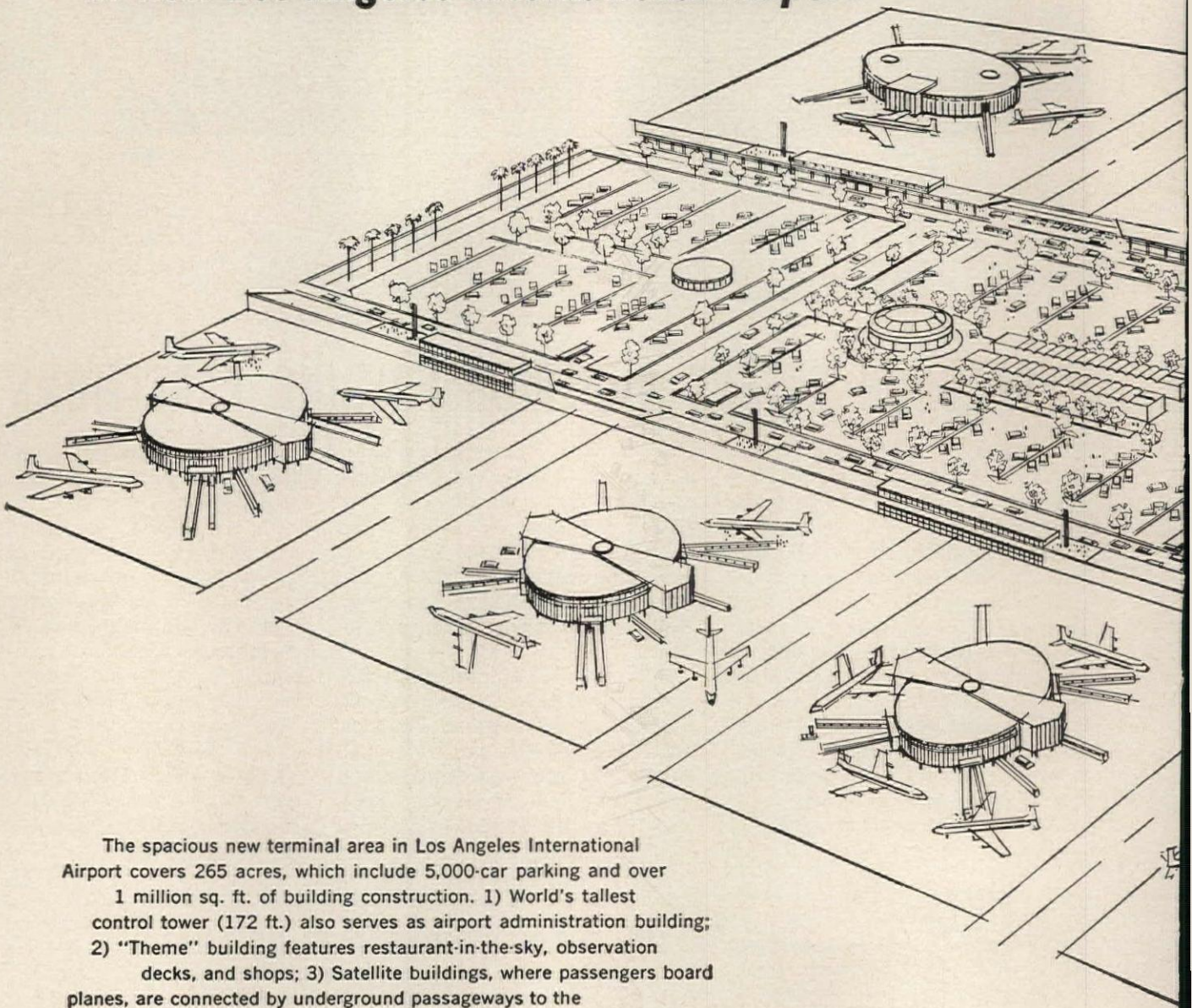


Executone sound chosen by all 17 Airlines at new Los Angeles International Airport

Every square foot of public area in terminal buildings at huge Los Angeles International Airport is within reach of clear crisp sound by Executone.

Although known as the world's first totally designed airport, the choice of sound systems was left to the individual airline tenants. And all 17 tenants chose Executone for installations designed to their own requirements!

Providing sound facilities for such a vast and



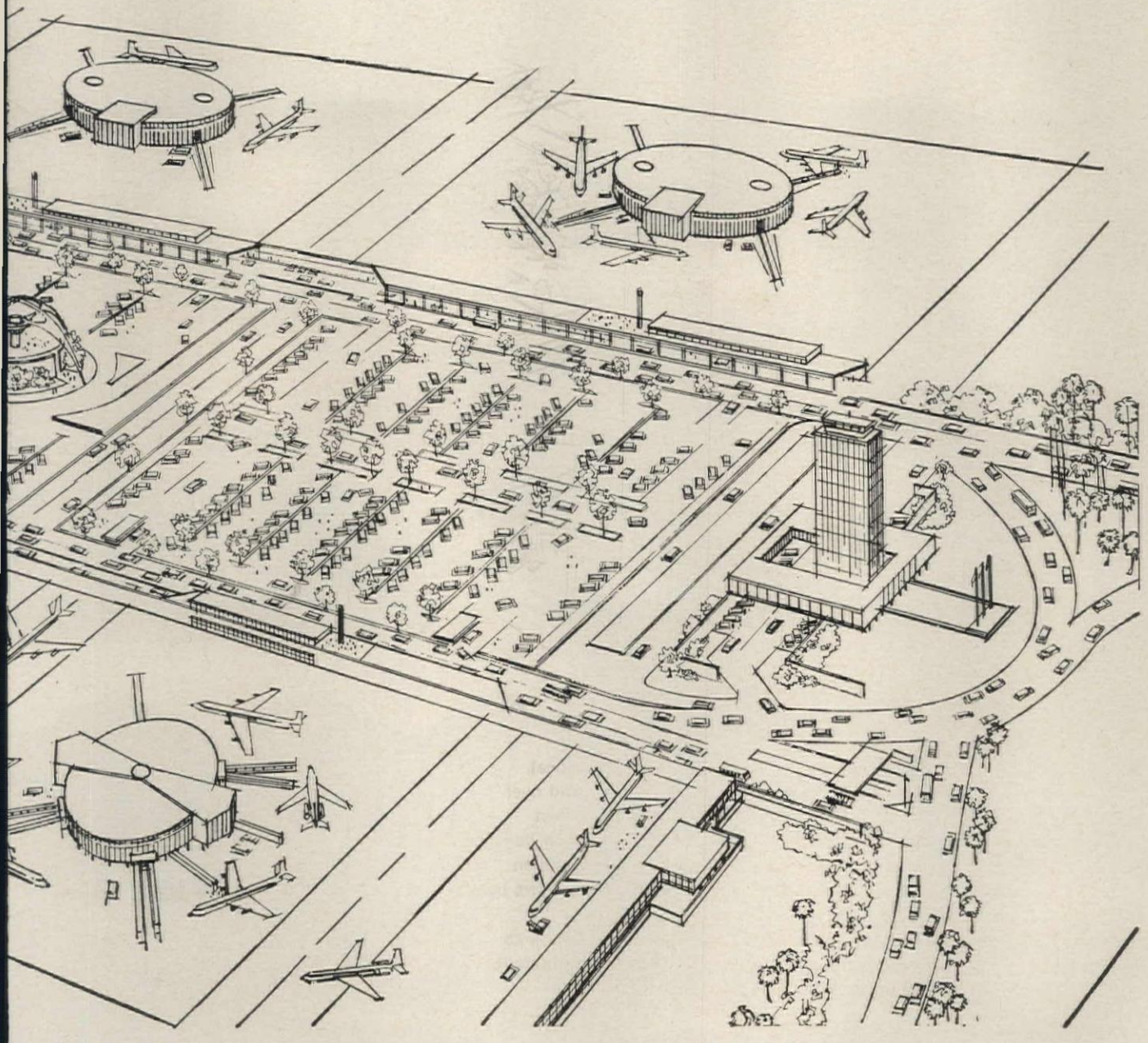
The spacious new terminal area in Los Angeles International Airport covers 265 acres, which include 5,000-car parking and over 1 million sq. ft. of building construction. 1) World's tallest control tower (172 ft.) also serves as airport administration building; 2) "Theme" building features restaurant-in-the-sky, observation decks, and shops; 3) Satellite buildings, where passengers board planes, are connected by underground passageways to the ticketing buildings; 4) Ticketing buildings have, in addition to streamlined ticket and baggage handling facilities, fine restaurants, shops, and a host of other comforts and services.

intricate complex of buildings, ramps and passageways was a mammoth undertaking. Outstanding features include: automatic pre-recorded flight announcements, complete with central and local control selectors; local paging systems that operate independently of the airport public address system; background music systems; outdoor speaker trumpets for selective paging; intercom systems; automatic foreign language translations that follow English announcements of overseas flights.

Sound systems of a magnitude similar to Los Angeles International Airport are not unique for Executone. Dulles International, Moisant, O'Hare and Honolulu International are other installations where Executone's high standards in design and layout, in quality and performance of the equipment, in exceptional local service organizations are delivering great value to owners.

When your projects call for sound or intercom, why not avail yourself of Executone's wide experience? Our architectural files on institutions, industrials, shopping centers, churches and other places of assembly are available without obligation. Write to Executone, Dept. Y-2, Austell Place, Long Island City 1, New York. In Canada, 331 Bartlett Ave., Toronto.

Executone



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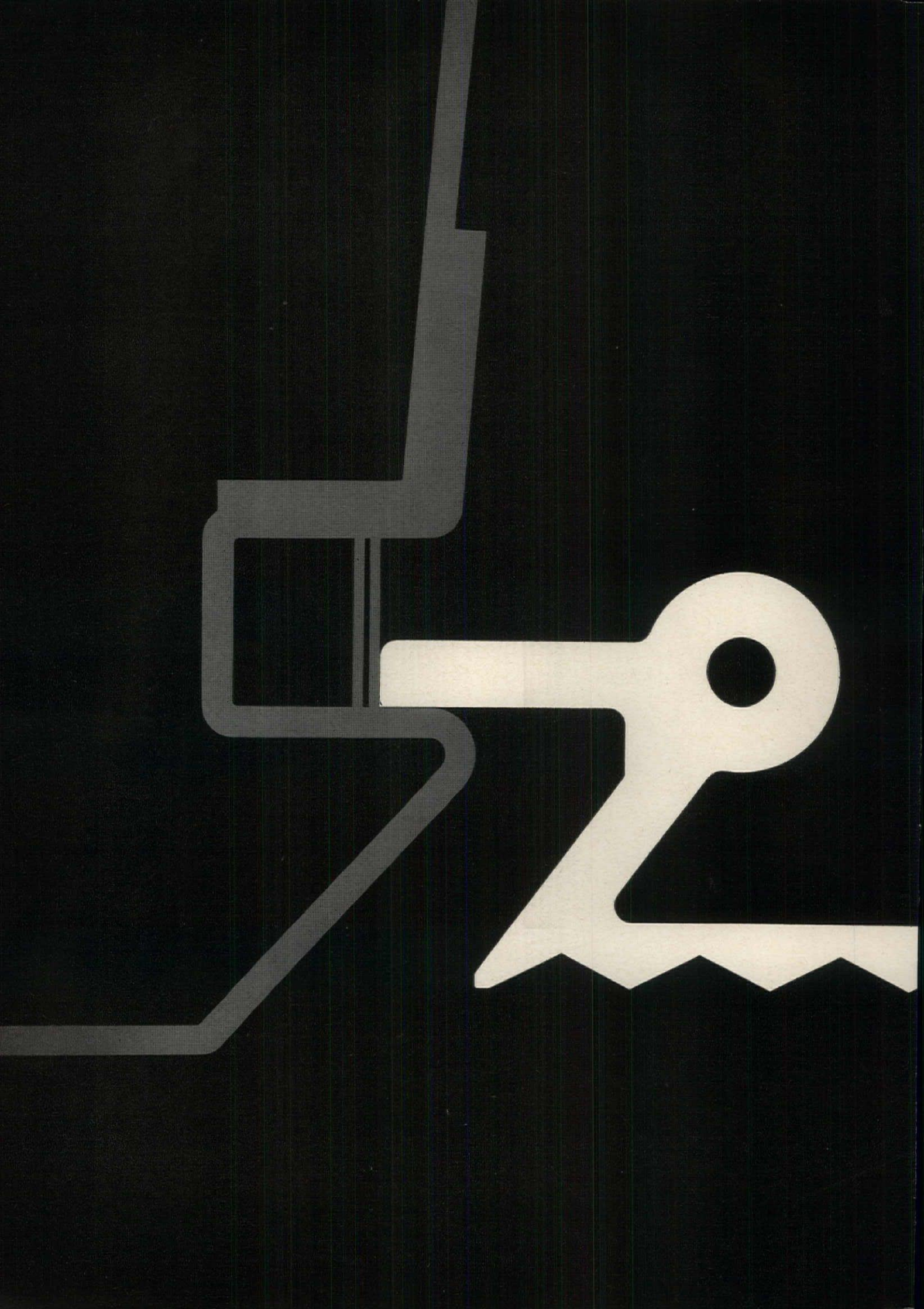
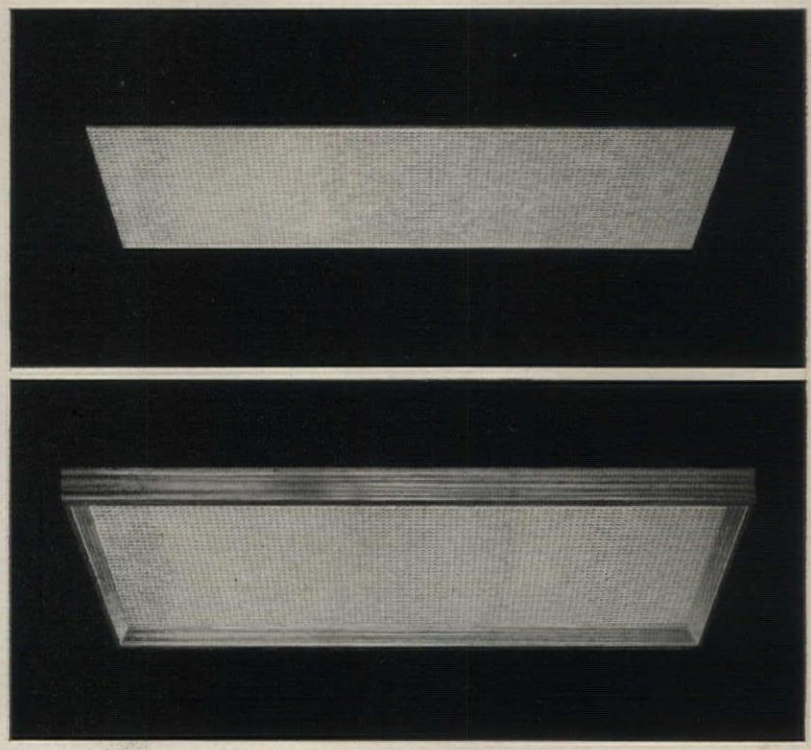
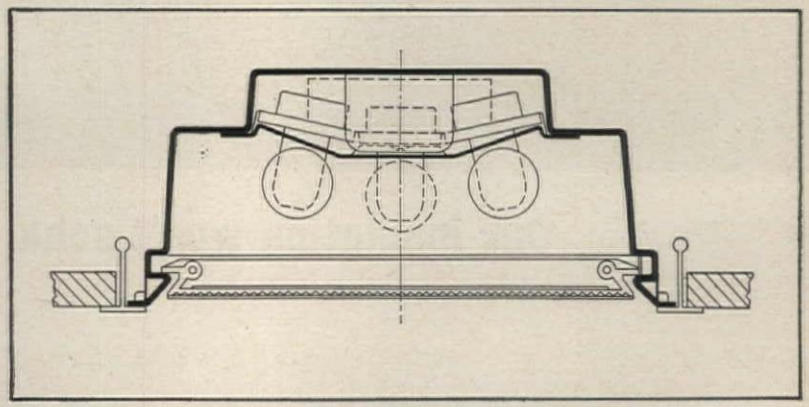


No visible means of support!



No hardware, no gaps, no "frame-within-a-frame." All that meets the eye is a clean, precise rectangle of light. The diagram on the left reveals the secret: ingenious self-supporting shieldings. These were devised by Lightolier engineers to eliminate the mechanical look of so many of today's recessed fixtures.

Lightolier's advanced recessed designs are also available with decorative walnut frames, so that important areas can be accented while over-all design continuity is maintained. Built to Lightolier's high standards of construction and efficiency, these fluorescents are available in 1′ x 4′, 2′ x 4′, and 2′ x 2′ sizes and in a range of wattages—with prismatic or diffuse shieldings—to meet virtually any performance, budget or ceiling requirement. For further information, write for Brochure 39, Lightolier, Jersey City 5, N. J., Dept. AR-1.

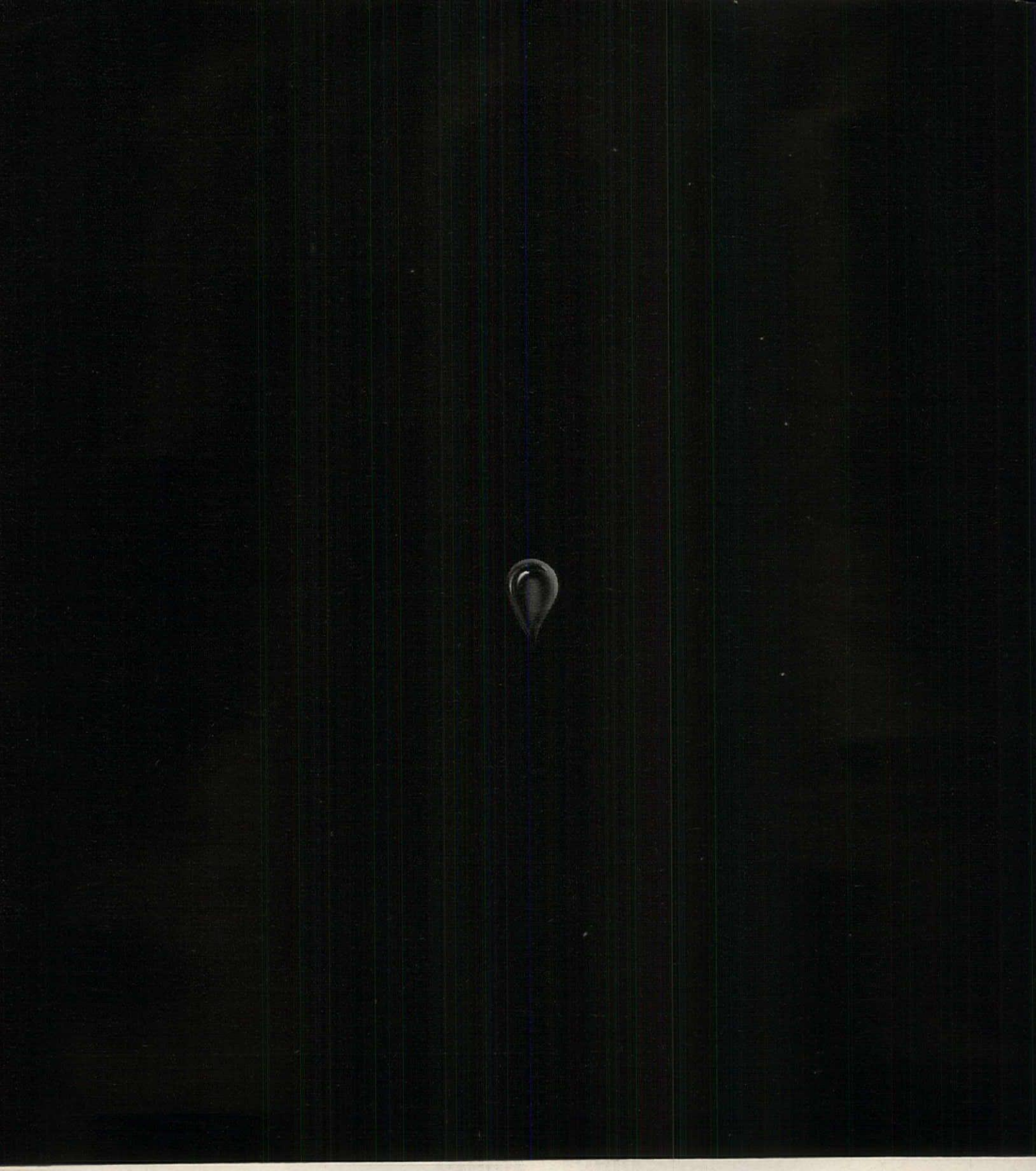


LIGHTOLIER®

New York, Chicago, Dallas, Los Angeles

See the Yellow Pages for the name of your nearest Distributor.

For more data, circle 90 on Inquiry Card



Our insulation won't soak up a drop from inside.

Or out.

Roofmate FR stays dry permanently!

Not a drop of moisture can work up through Roofmate® FR roof insulation. Nor can outside water soak in and destroy the insulating efficiency of Roofmate FR. So it makes a premium-quality roof that costs your client no more to begin with, much less in the long run.

Each Roofmate FR polystyrene foam board is millions of non-interconnecting air cells. These give it a low "k" factor (0.26!), prevent moisture migration and water absorption.

No more wet, soggy insulation that fails its job. No more roof blistering and cracking caused by waterlogged insulation—not with permanently dry Roofmate FR.

Roofmate FR is easy and economical for any roofing contractor to install. It comes in thicknesses conforming to standard "C" factor requirements. Want more data and specifications? Just write us: The Dow Chemical Company, Plastics Sales Dept. 1000N1, Midland, Michigan.

DOW

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on Leisure

There's more time for pure enjoyment when you design for modern living with RIMCO. Besides the inherent advantages of wood, homeowners appreciate the built-in convenience features such as self-storing storms and screens, custom-engineered operators and weathertight sash locks. There's a wide range of handsome styles and sizes to complement any architecture. Compare some of our ideas with your own. Send for RIMCO A.I.A. File No. 16L or the colorful, 20-page booklet, "Accent on Windows" by RIMCO.

RIMCO® **Wood Window Units**

Rock Island Millwork Company, Manufacturing Division, Dept. 3AR1, Rock Island, Illinois

For more data, circle 92 on Inquiry Card

Office Literature

continued from page 176

DECORATIVE VINYL PANELS

(A.I.A. 26-A-9) Decorative vinyl panels using fabrics, cane, metallic and natural fibers and real leaves are illustrated in folder. Applications include space dividers, screens and illuminated ceilings. *Polyplastex United Inc., 870 Springfield Road, Union, N.J.*

CIRCLE 415 ON INQUIRY CARD

SNOW MELTING SYSTEMS

"Steel Pipe Snow Melting and Ice Removal Systems" has 32 pages of technical data on such systems for residential, commercial and public uses. *Committee of Steel Pipe Producers, American Iron and Steel Institute, 633 Third Ave., New York 17, N.Y.*

CIRCLE 416 ON INQUIRY CARD

PRECAST ROOF MEMBERS

Precast, prestressed concrete "Y" members for folded plate roofs in units up to 10 ft wide and 120 ft long, and a variety of flange angles are described in brochure. *Lin Tee Affiliates, 14656 Oxnard St., Van Nuys, Calif.**

CIRCLE 417 ON INQUIRY CARD

INDUSTRIAL PAINTS

Industrial paint catalog suggests colors to use for color coding industrial surfaces and is a guide to more than 30 different finishes available for interior and exterior painting and enameling. *Barreled Sunlight Paint Co., 123 Georgia Ave., Providence 5, R.I.**

CIRCLE 418 ON INQUIRY CARD

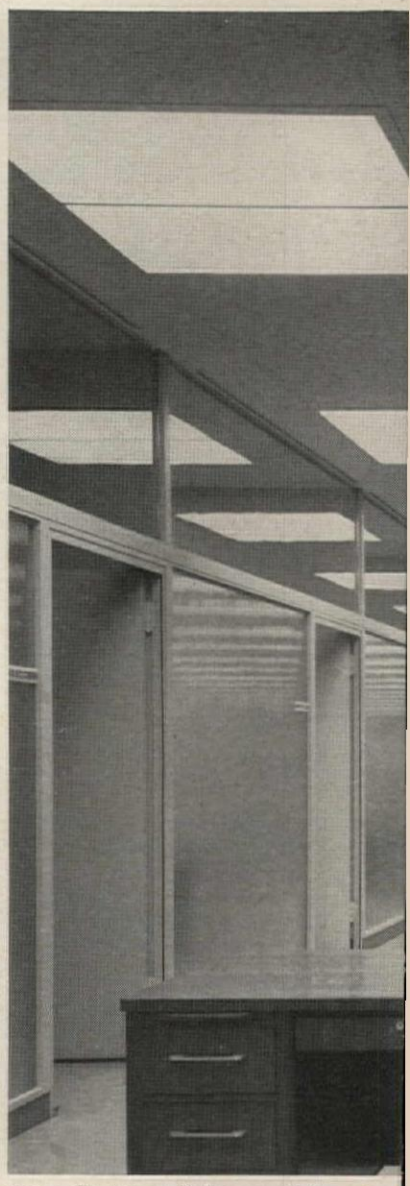
TRANSLUCENT PARTITIONS

(A.I.A. 17-A) New *Colorscreen* translucent butyrate plastic panels for partitions and screens are described in brochure. Included are details on *Sanpan* translucent acrylic modified polyester fiber glass panels for window walls. *Panel Structures, Inc., 45 Greenwood Ave., East Orange, N.J.**

CIRCLE 419 ON INQUIRY CARD

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

more literature on page 238



"You can easily 'dial' lights ON ahead of you or OFF behind you," says Mr. Johnson (above), "with these master selector switches used in our Remote-Control Wiring System. A floor p

"G-E Remote-Control Wiring centralize Raytheon building

...Mr. Robert E. Johnson, Buildi

"We wanted centralized lighting control in new Executive Offices," says Mr. Johnson "— watchmen and maintenance personnel.

"Yet, we didn't want to deprive other emplo of an easy way to turn their own lights ON and

"The problem was solved easily, with a Gen Electric Remote-Control Wiring System.

"Lights for each zone (group of offices) controlled with 12-position G-E Master Sele Switches. Wall boxes containing these switches conveniently located at 15 stations in main c dors. Watchmen and janitors can 'twist' do of lights ON or OFF in a hurry, with these switc Executives and other employees 'dial' their

New Raytheon Executive Offices, completed in 1961. Architects: Anderson, Beckwith, and Haible; General Contractor: George A. Fuller Company; Consulting Electrical Engineer: Edwin Mahard; Electrical Contractor: M. B. Foster Company. (All of Boston.)

taped inside each box — shows which switch and number to dial for each office or area."

Receptionist has fingertip control of regular and emergency lights with G-E Selector Switches built into desk.

G-E system makes it easy to match lighting to needs of the hour, in attractive lobby area at Raytheon.

switching in this new is easily operated by each employee"

Engineer, Raytheon Company Executive Offices, Lexington, Mass.

lights selectively, following numbers on the floor plan attached to the inside cover of each wall box.

"Our 500 employees like this convenient system, and it gives us two other advantages, too.

"First, it provides great flexibility of control at minimum expense. With G-E Remote Control, lighting circuits are controlled by low-voltage relays. The lightweight, 24-volt wiring used for all switches, saves money on installation.

"Second, the G-E low-voltage circuits make it a simple, safe matter to install switches in our movable partitions."

You can save steps and reduce confusion in any building, with G-E Remote-Control Wiring. Write for details to: General Electric Company, Wiring Device Department, Providence 7, Rhode Island.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Accent on VALUE

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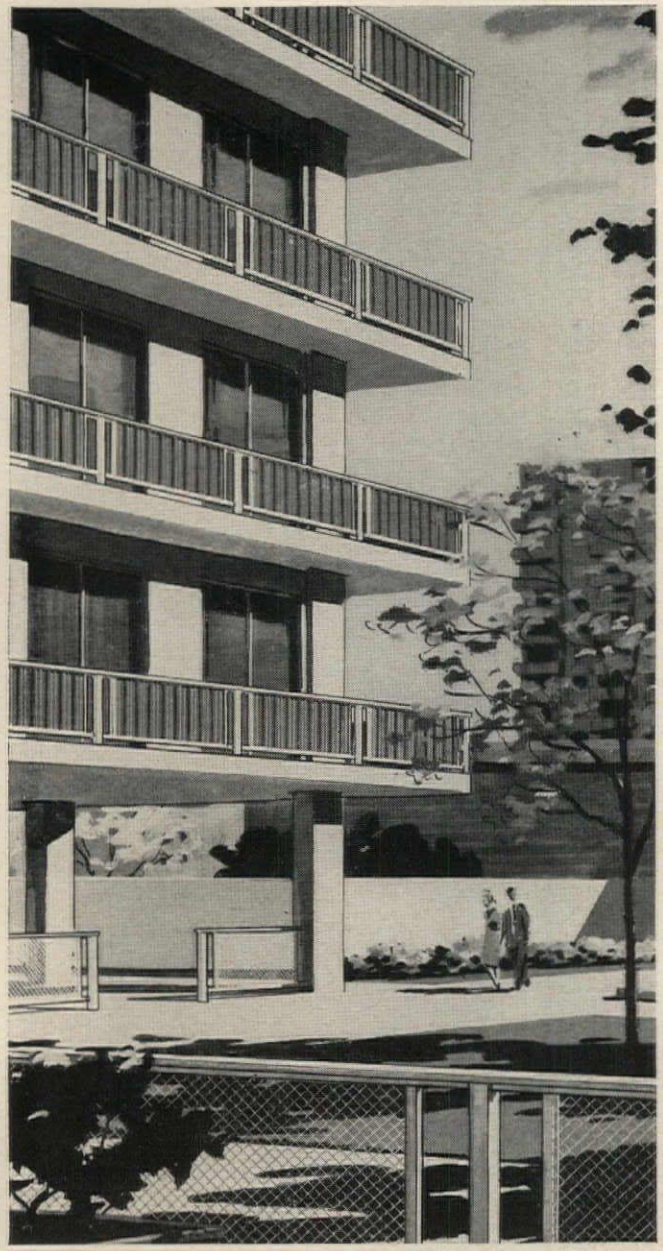

Beautyrail surrounds the balconies; Modernmesh Rail protects the grounds.

NEW BALCONY RAIL

Anchor's new all-aluminum railings rise to any height for lasting beauty . . . in apartment buildings, motels, terminals . . . anywhere safety or appearance is a factor. Colorweld-paneled Beautyrail, bright and light Modernmesh Rail, and smartly-spaced Picket Rail . . . each complements many designs, all provide unusual flexibility in metal railing. And every one is made of rust-proof Reynolds Aluminum, constructed by Anchor Post Products for positive protection, no maintenance, and valuable popular appeal. Anchor's national network of skilled erectors provides quick and efficient installation, too.

For detailed information, call your local Anchor office or write: ANCHOR POST PRODUCTS, INC., 6680 Eastern Ave., Baltimore 24, Md.

ANCHOR POST PRODUCTS, Inc.

Plants in Baltimore, Md.; Houston, Texas; Los Angeles, Calif.

For more data, circle 95 on Inquiry Card

The next building you design will be a better building if you specify a built-in ADT protection system

Better because functionally *complete*, from your client's point of view. Better because protective devices and wiring can be installed more economically, and with minimum exposure to view. Better because security hazards will be minimized from the day your client moves in.

Whether urban, suburban or rural, your project can be protected through one of many versatile, flexible, reliable ADT systems. Three basic types—connected to ADT central station, direct-connected to fire and police headquarters, or to client's proprietary center—adaptable to *any* plant security requirement. See Sweet's File, Section 34-a. Or call nearest ADT office (Yellow Pages) for free consultation, survey or specification data.

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Will you win this award?

Have you or anyone in your company done something to advance the use, application or metallurgy of the copper metals? If so, enter the 1963 Copper & Brass Achievement Award Competition. Awards are given in two categories—Industrial and Architectural. 1st prize in each category is $500 plus the bronze trophy. To receive an entry form and information, mail the coupon to Copper & Brass Research Association.

to: Copper & Brass Research Association
420 Lexington Ave.
New York 17, N.Y.

Deadline for entries is March 31, 1963.

Please send _____ entry blank(s) for 1963 Copper & Brass Award competition.

Name_____

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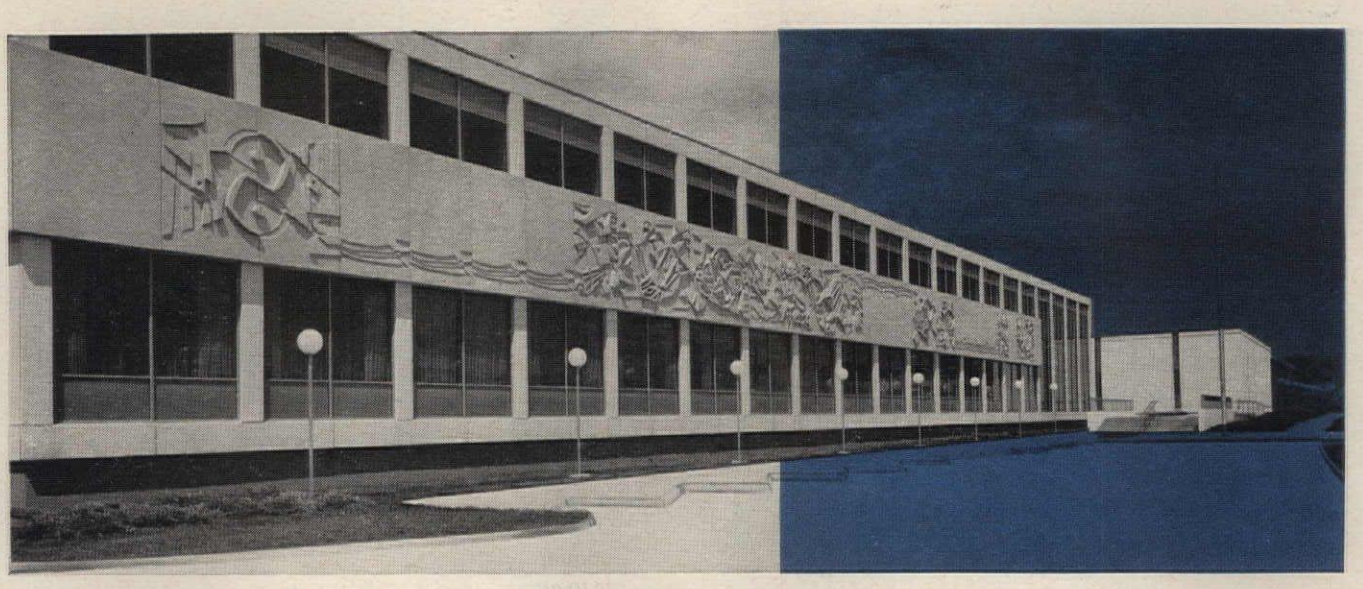
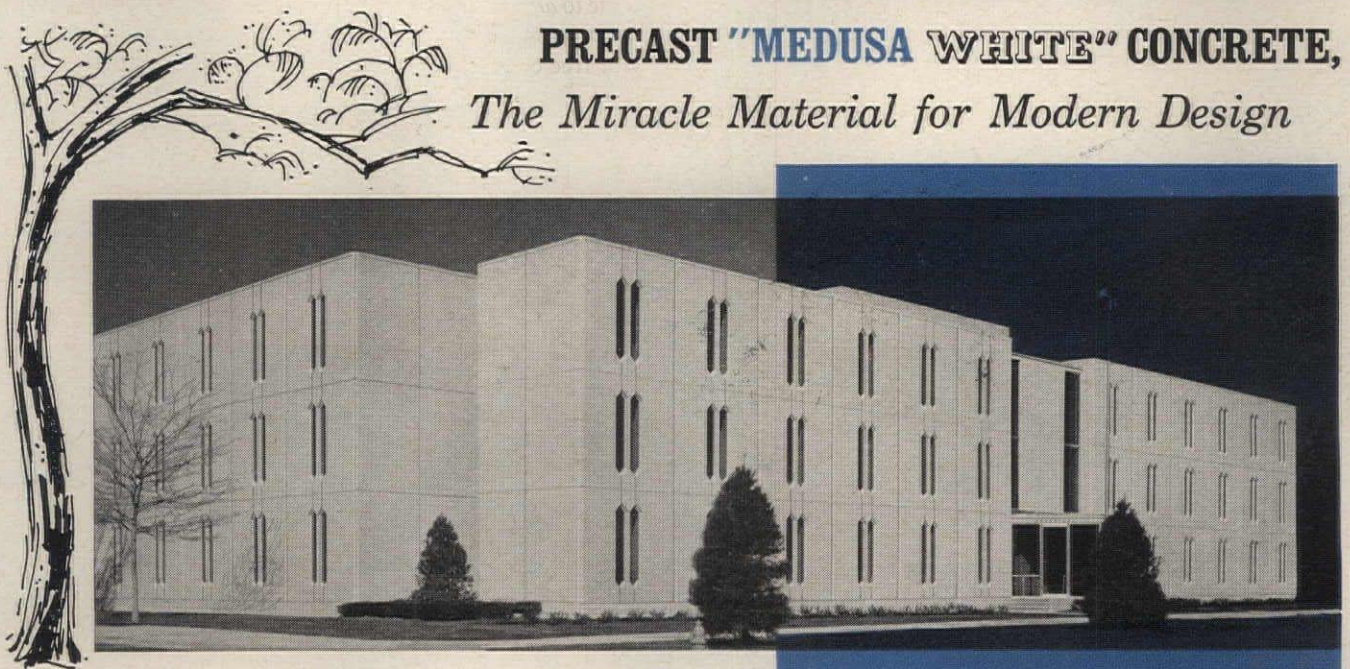


PRECAST "MEDUSA WHITE" CONCRETE,

The Miracle Material for Modern Design



Today on the building horizon we see many magnificent buildings of modern design erected with custom precast concrete units of White Portland Cement. These units are truly *miracle materials* for attaining freedom of expression in newer architectural concepts, at the same time saving on construction and maintenance. They include plain and sculptured curtain wall panels, in unusual shapes, with white and tinted backgrounds and colorful aggregates, often spanning 2 and 3 stories . . . decorative block in a myriad of designs . . . and beautiful white or tinted split block.

Using Medusa, "the original" White Portland Cement and new techniques, concrete products manufacturers are precasting these architecturally designed units to most exact creative requirements in shape, size, color and texture. When designing with precast concrete units, specify Medusa White for its true white color and dependability. Send the coupon for detailed precast concrete unit information.

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Architect — Leo A. Daly, Omaha, Nebraska
General Contractor — Hawkins Construction Co., Omaha, Neb.
Panels by—Midwest Concrete Industries, West Des Moines, Iowa

OBERLIN CONSERVATORY OF MUSIC, OBERLIN, OHIO
Architect — Minoru Yamasaki — Smith, Hinchman & Grylls
Associated Architects and Engineers, Detroit, Michigan
Contractor — Jenning & Churella Const. Co., New London, Ohio
Panels by — Marietta Concrete Division
Martin Marietta Corp., Marietta, Ohio

"Ask Your Products Manufacturer"

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P. O. Box 5668 • Cleveland 1, Ohio

Gentlemen:
We are interested in detailed information on Medusa White Portland Cement for precast units.

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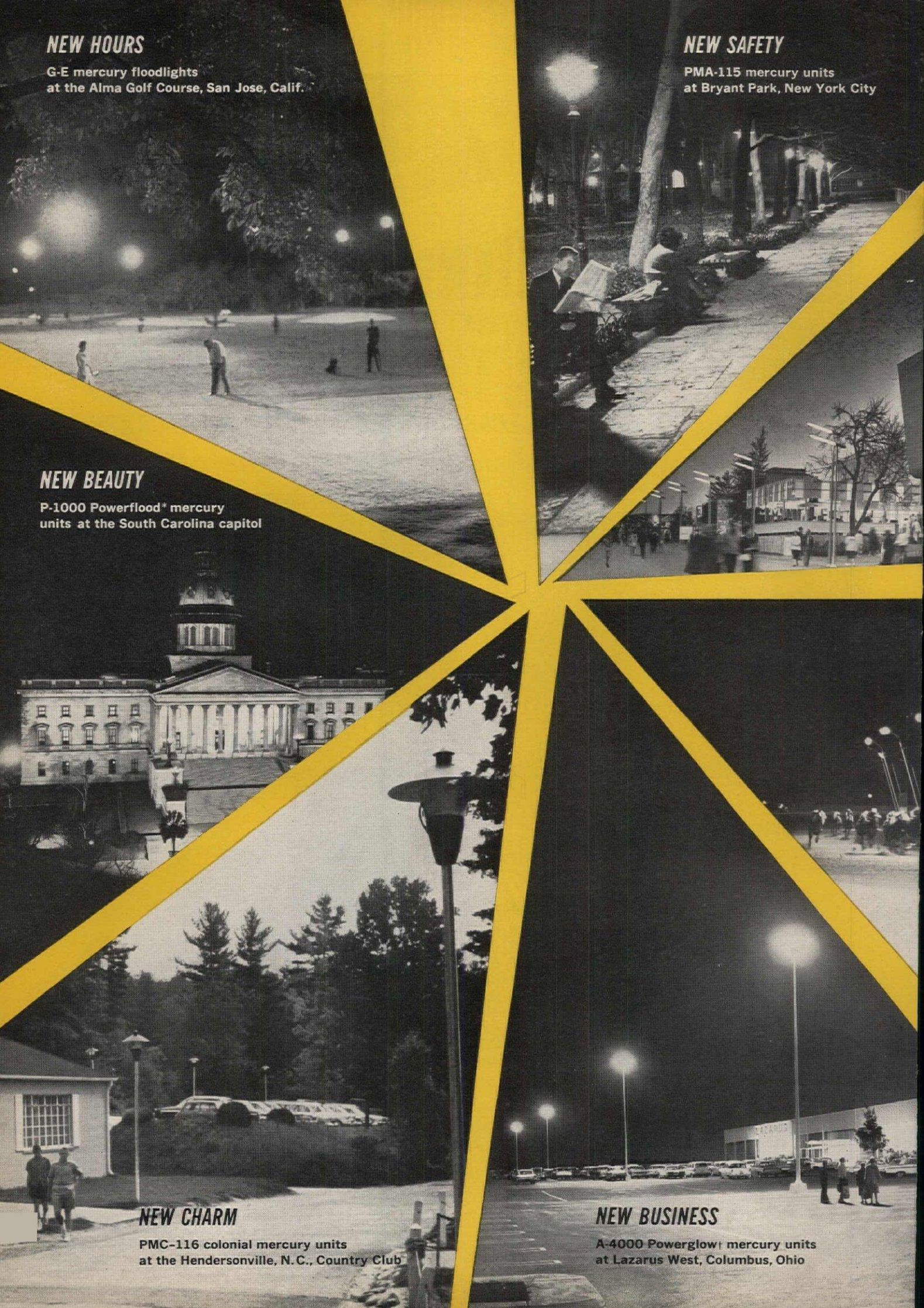
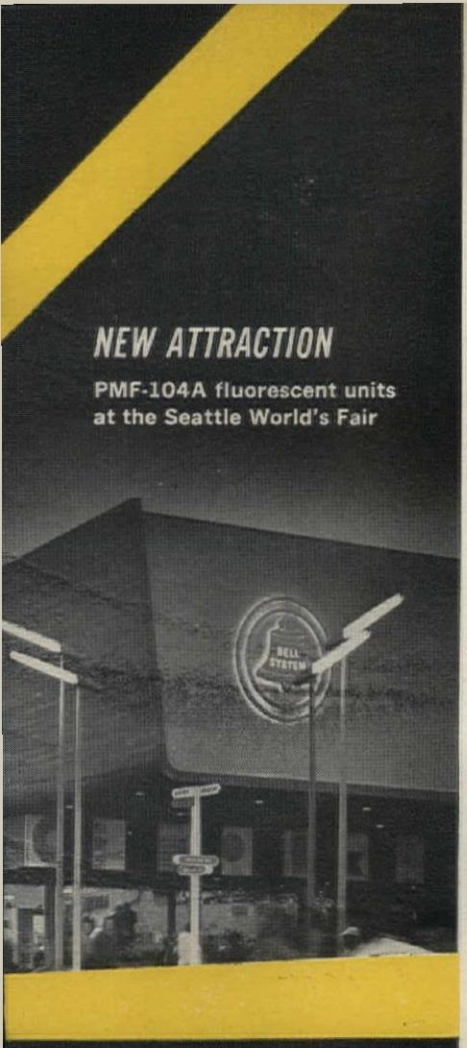
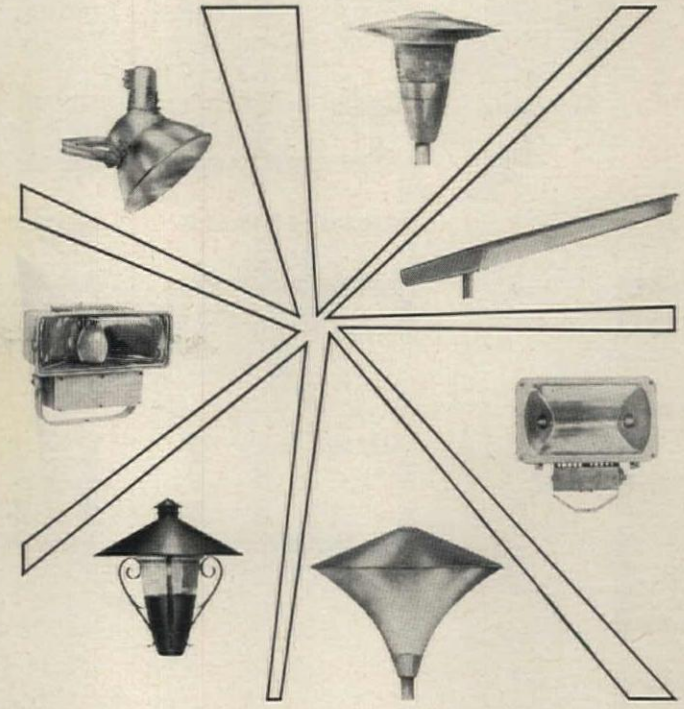

NEW HOURS
G-E mercury floodlights
at the Alma Golf Course, San Jose, Calif.
NEW SAFETY
PMA-115 mercury units
at Bryant Park, New York City
NEW BEAUTY
P-1000 Powerflood* mercury
units at the South Carolina capitol
NEW CHARM
PMC–116 colonial mercury units
at the Hendersonville, N.C., Country Club
NEW BUSINESS
A-4000 Powerglow† mercury units
at Lazarus West, Columbus, Ohio



7 ways to add new value with light



GE ACCENT ON VALUE The General Electric luminaires that added the values

Seven examples of how imaginative planners are using good-looking General Electric luminaires to add value to their projects. For more information on the industry's most complete line of luminaires and poles, see your G-E Area Lighting Agent or write for our new designer's and buyer's guide to Sect. 460-19, General Electric Co., Schenectady, N.Y. *Outdoor Lighting Department, Hendersonville, North Carolina*

*Trade-mark of General Electric Co. †Brand name of General Electric Co.

Progress Is Our Most Important Product

GENERAL ELECTRIC

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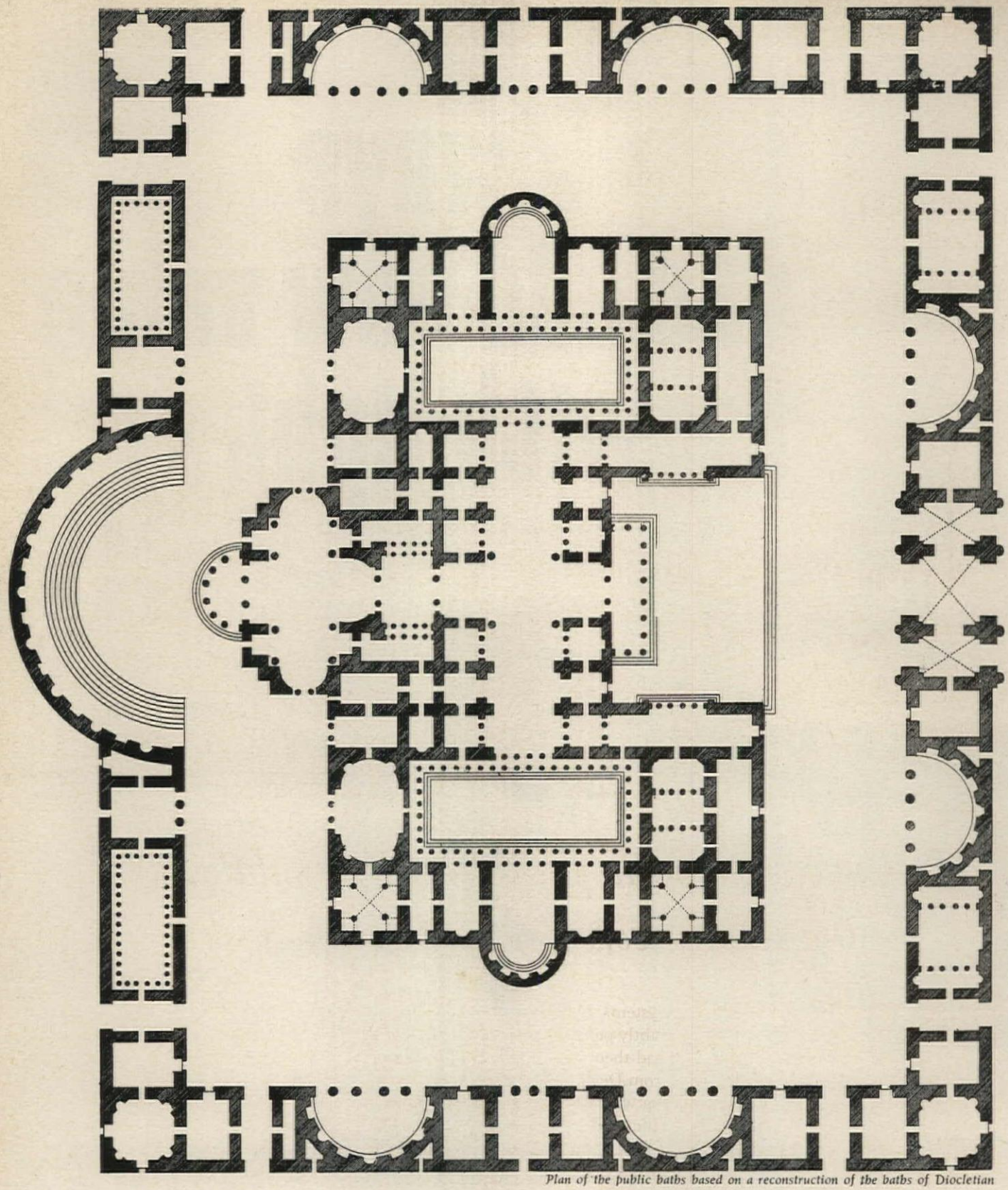

Plan of the public baths based on a reconstruction of the baths of Diocletian

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You get more from **American**

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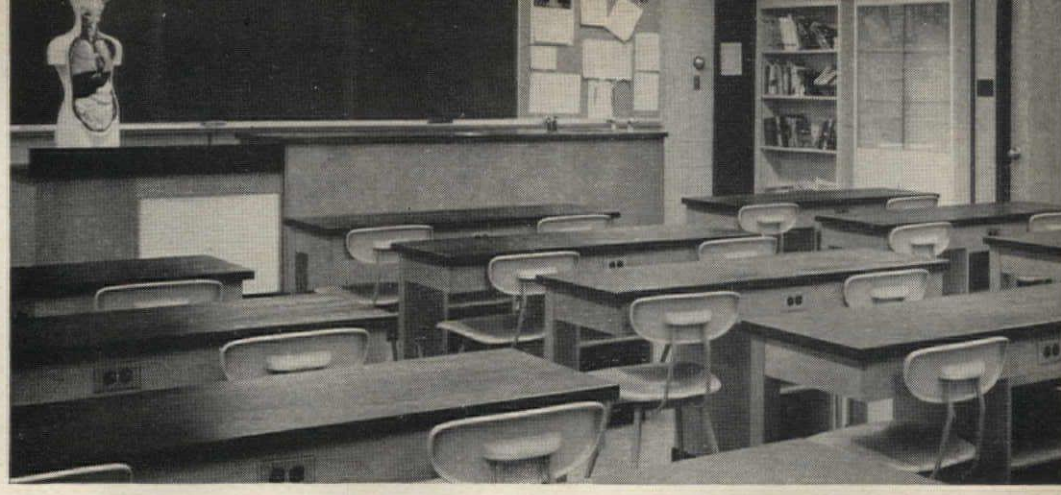
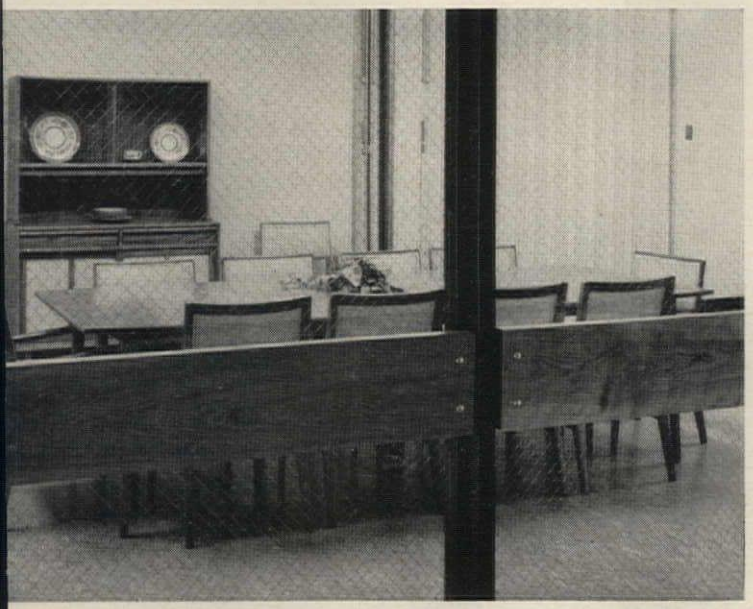
For more data, circle 112 on Inquiry Card





Great Valley Senior High School, planned for maximum flexibility to anticipate changing school needs into the twenty-first century. Architect: Harbeson Hough Livingston & Larson, Philadelphia, Pa.; General Contractor: The Fleming Co., Wynnewood, Pa.; Painting Contractor: M. Schnoll & Sons, Inc., Philadelphia, Pa.

Conceived with paint tones so subtle... the colors weren't even in the book!

Donald J. Monk, Devoe Architectural Representative "on call" to architects in the Philadelphia, Pa., area.

This is the new, strikingly beautiful . . . and beautifully planned . . . Great Valley Senior High School of the Paoli Area High School System, Pennsylvania.

One of the outstanding keynotes of its design is the architect's highly creative use of 19 different colors.

When the Man from Devoe was consulted on technical assistance in color planning, he filled many of the requirements with no trouble . . . from the vast Devoe Library of Colors® System. However, others were so subtly perceived that not even Devoe had them in the book! But the Man from Devoe knew what to do. Working with Devoe technicians in Louisville and Philadelphia he helped assure an exact match . . . including an off-olive, a black-brown and an unusual bronze!

Here is another typical example of how a call to the Man from Devoe can help you tap technical knowledge, service and facilities to meet any problem in interior or exterior paints, including specialized industrial coatings. Ask for whatever you need: supporting data on paint performance and costs, for assistance in color matching, for help in coordinating deliveries, or other follow-up at the building site. Your Man from Devoe will respond completely and willingly. For serving architects is his full-time job. Naturally, there is no obligation. To contact the Man from Devoe, write or phone the Color Consultation Service at your nearest Devoe office.

DEVOE PAINT

DEVOE

DEVOE & RAYNOLDS COMPANY, INC.

A Subsidiary of Merritt-Chapman & Scott Corporation

Atlanta • Boston • Charlotte, N.C. • Chicago • Cincinnati Dallas • Denver • Detroit • Houston • Los Angeles Louisville • Moonachie, N.J. • New Orleans • New York Philadelphia • Stamford, Conn. • Warehouses in all principal cities, coast to coast.

For more data, circle 113 on Inquiry Card

New locations for temperature sensing elements—
ceiling diffusers
air/light diffusers
under-the-window units
—respond 15 times faster than thermostats on the wall.

NEWS *from* BARBER-COLMAN

It's moving day

New Barber-Colman sensing elements are mounted in aspirated air streams. This solves problems of proper thermostat placement, thermal inertia, local thermal effects, and tampering with temperature settings.

Barber-Colman "*Electrionic*" sensing elements are the first ever designed to mount where a thermostat works best . . . right in a *moving flow* of air. This new development in thermostat design and application means the moving air that surrounds the people in a room can be continuously sampled. Changes in temperature are detected and acted upon instantly. Temperature control is more accurate and uniform.

Installation is simple, economical . . . and practically invisible. Adjustments are made from a remote point. The small stainless steel tube, which houses the sensing element, never extends into the room more than 7" when mounted on ceiling diffusers and is completely concealed when mounted in air/light diffusers and under-the-window units.

Low-voltage wires connect the sensing element

Visit Barber-Colman Booth 510 at the International Heating and Air Conditioning Exposition, New York City Coliseum, February 11-14.

THE PRODUCERS' COUNCIL — AFFILIATED WITH THE AMERICAN INSTITUTE OF ARCHITECTS — MEMBER

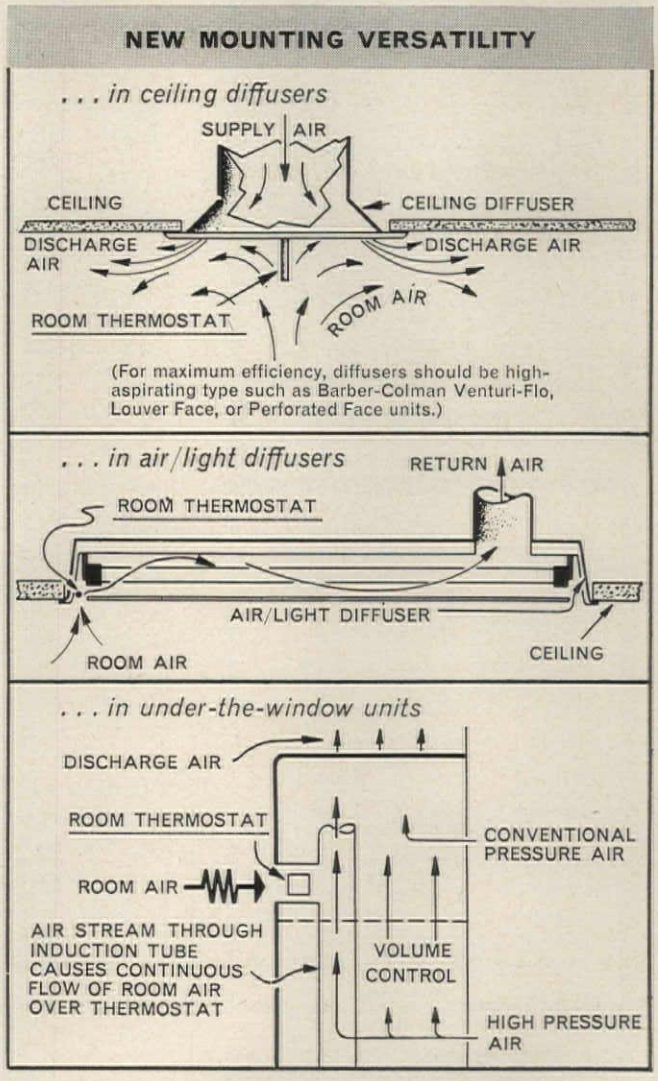
BARBER COLMAN

for thermostats

to the control point. All recommended "off-the-wall" locations permit completely flexible room partitioning. Walls and panel dividers can be moved to accommodate tenant needs without altering the temperature control system. In addition, comfort apparatus can be used as soon as it is installed; it need not remain idle until the walls are up and the controls installed. In no case, do the walls or panels require drilling or channeling for electrical conduit or pneumatic tubing.

New Barber-Colman sensing elements combined with Barber-Colman Uni-Flo engineered air distribution products and *Electrionic* controls provide an ideal integrated system for controlling room and zone temperatures in any type or size building.

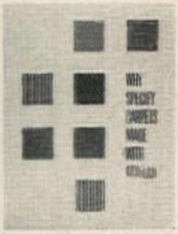
For complete details call your Barber-Colman Automatic Controls field office or write to:



Office Literature

continued from page 227

ACRYLIC FIBER CARPETS



Expected performance and characteristics of carpets made with *Acrilan* acrylic fiber are given in booklet which has pictures of installations in hotels, schools, restaurants and banks. *Chemstrand Corp., 350 Fifth Ave., New York 1, N.Y.*

CIRCLE 420 ON INQUIRY CARD

MASONRY REINFORCING

(A.I.A. 3-M, 5-F) Product information and suggested specifications for masonry reinforcing bonds and ties for masonry walls are given in eight-page booklet. *AA Wire Products Co., 714 E. 61st St., Chicago 37, Ill.**

CIRCLE 421 ON INQUIRY CARD

LAMINATE SAMPLE

(A.I.A. 23-L) *Lamidall* textured decorative plastic laminate has a non-glare surface which does not show finger and smudge marks. Color samples are available to architects. *Woodall Industries Inc., 3500 Oakton St., Skokie, Ill.**

CIRCLE 422 ON INQUIRY CARD

BATHROOM ACCESSORIES

A complete line of recessed washroom cabinets and bath accessories is made of heavy-gage stainless steel. Booklet gives illustrations. *West Chemical Products, Inc., 42-16 West St., Long Island City 1, N.Y.*

CIRCLE 423 ON INQUIRY CARD

GLASS SPANDRELS

(A.I.A. 26-A-2) Twelve projects using *Tempar-Glass* heat strengthened, polished plate glass sprandrels are illustrated in brochure which includes technical data and color samples. *Virginia Glass Products Corp., Martinsville, Va.*

CIRCLE 424 ON INQUIRY CARD

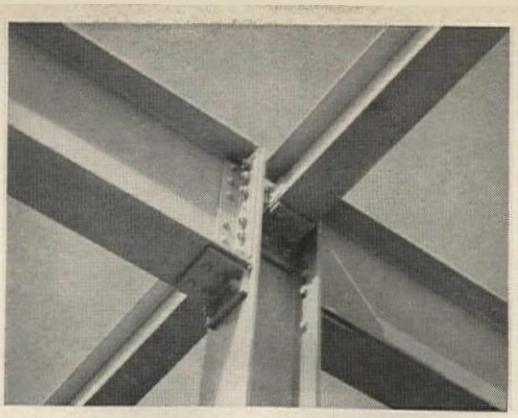
DECORATIVE HOOKS

Decorative hooks, some elegant, others whimsical, for hanging hats, coats, utensils and tools, are shown in booklet. *J. C. DeJong Co., Inc., 105-21 Union Hall St., Jamaica 33, N.Y.*

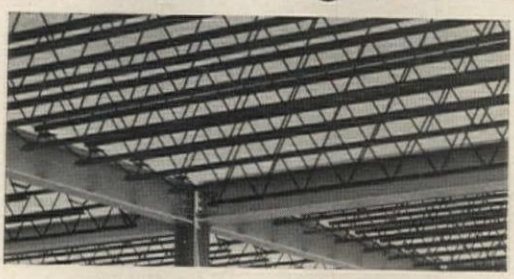
CIRCLE 425 ON INQUIRY CARD

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

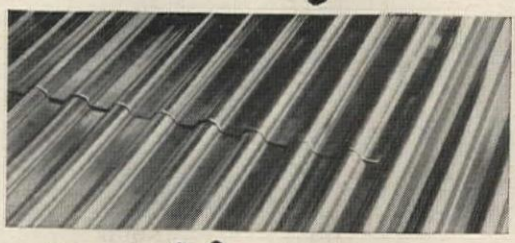
more literature on page 246



Structural steel

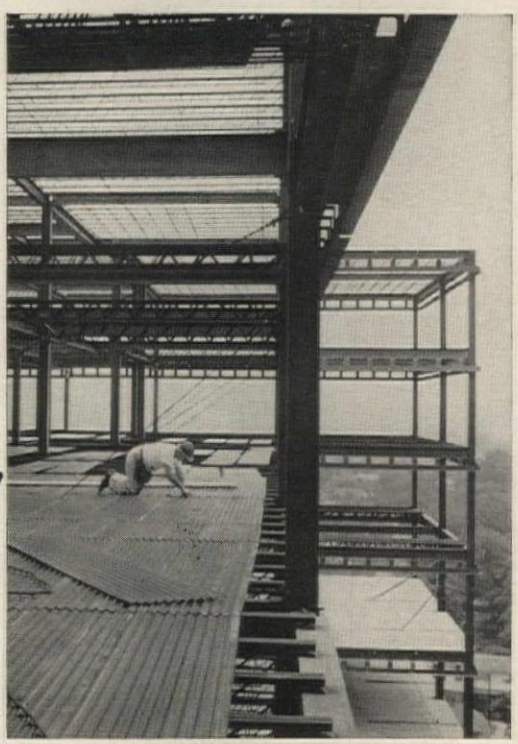


+ steel joists



+ Bethlehem Slabform

add up to a strong, economical framework



A framework of structural steel; Bethlehem joists; and Slabform, our solid steel centering, is ideal for a shopping center, apartment, or school. Here's why:

- Shop-fabricated structurals and joists arrive ready to go up. No falsework, no weather delays.
- Steel has strength to spare. Non-warp, non-sag construction holds down maintenance costs. Fire-safety is up.
- Steel joists allow for easy passage of pipe, wire, and conduit through the open webs—in any direction.
- Slabform saves both time and money compared to flexible-type centerings. It's a safe working platform, too.

We'll be glad to discuss your next building with you. Perhaps we can show you ways you can save time and money with today's steels for construction.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Sales: Bethlehem Steel Export Corporation

Steel

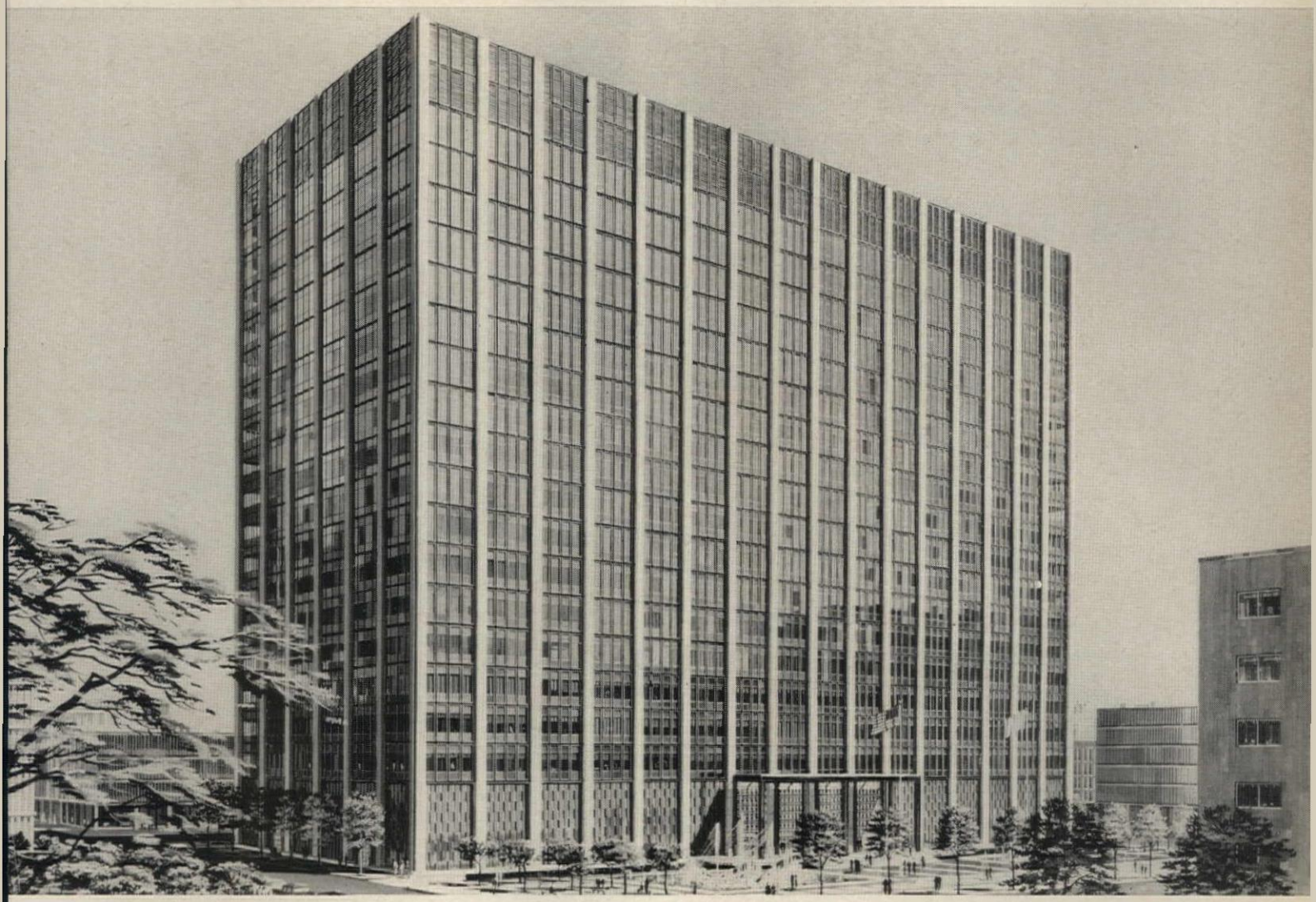
for Strength
. . . Economy
. . Versatility

BETHLEHEM STEEL

BETHLEHEM STEEL

For more data, circle 103 on Inquiry Card

U. S. Courthouse and Federal Office Building, San Francisco, California. Architects and Engineers: Blanchard & Maher; Albert F. Roller; Sone Marraccini & Patterson; John Carl Warnecke. Contractors: (Joint Venturers) Roscoe-Ajax Construction Company, Inc., and Knickerbocker Construction Corporation.



25

TWENTY-FIVE HAUGHTON AUTOMATIC ELEVATORS

will be installed in the new U. S. Courthouse and Federal Office Building now reshaping San Francisco's skyline. They will provide service keyed to the age of automation at every moment day and night for the life of the building. An incredible electronic computer system developed by Haughton Elevonics* will constantly analyze the amount and character of traffic and automatically control each car to meet traffic needs exactly. Haughton Automatic Elevators are available to meet every requirement of speed and load in handling passengers and freight. All are backed by years of design and manufacturing experience, imaginative research and complete maintenance capabilities. Contact your Haughton sales office (listed in the Yellow Pages) for full information. Or write: Haughton Elevator Company, Division of Toledo Scale Corporation, Toledo 9, Ohio. Passenger and Freight Elevators, Escalators, Dumbwaiters.

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

EMBLEM OF EXCELLENCE IN VERTICAL TRANSPORTATION

For more data, circle 107 on Inquiry Card

How Bastian-Blessing helped Southland Lanes attract 30% more business

Open Operation of Snack Bar Achieves Two Goals

"We aimed at (1) delivering our food orders in the fastest possible time, and (2) we planned doing this work with a minimum of personnel," says Mr. F. P. Collins, President of Southland Lanes, Inc., of Lexington, Kentucky. "We achieved both goals, and we are now netting a cost savings over a conventional restaurant operation that is paying off the cost of our Bastian-Blessing equipment in twelve months time."

Careful planning resulted in a unique open design for free access without doors or enclosures to build impulse sales and accommodate maximum customers during peak periods without traffic jams. This free flow, with the snack bar in full view of customers at all times, nets Southland about 30% more business.

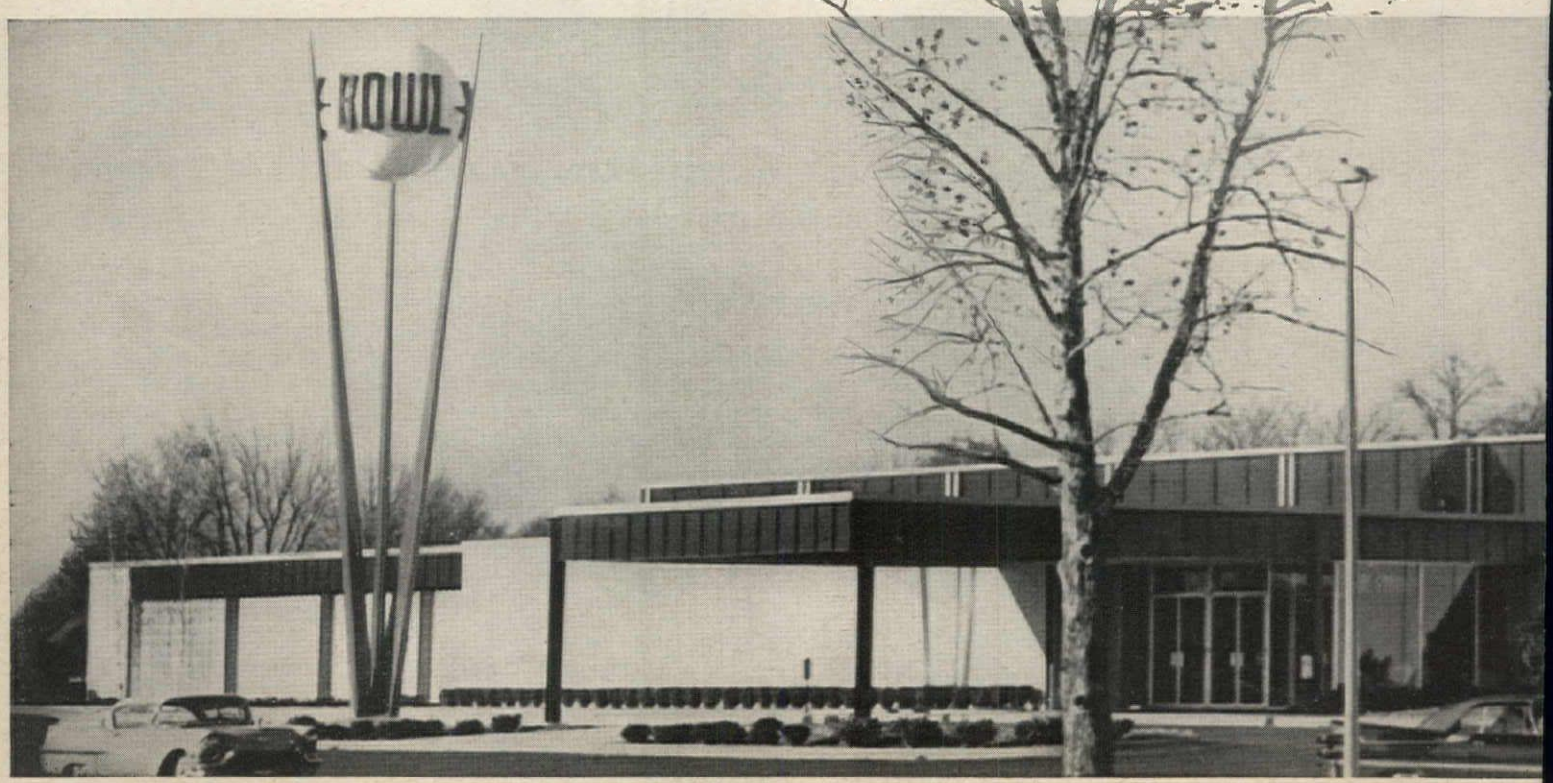
Winning first award in the Kentucky A.I.A. 1961 design contest was a natural outcome of the careful planning that went into every detail of this outstanding recreational facility. Interior decor is striking and colorful, enhanced by the attractive, smartly styled Fiesta equipment in harmonizing colors contributing substantially to the attractiveness of food presentation.

Write for Brochure F-100 for further information about FIESTA food service equipment.

BASTIAN-BLESSING

4201 West Peterson Avenue, Chicago 46, Illinois, Dept. 4-A,
World's largest manufacturer of Fountain-Food Service Equipment

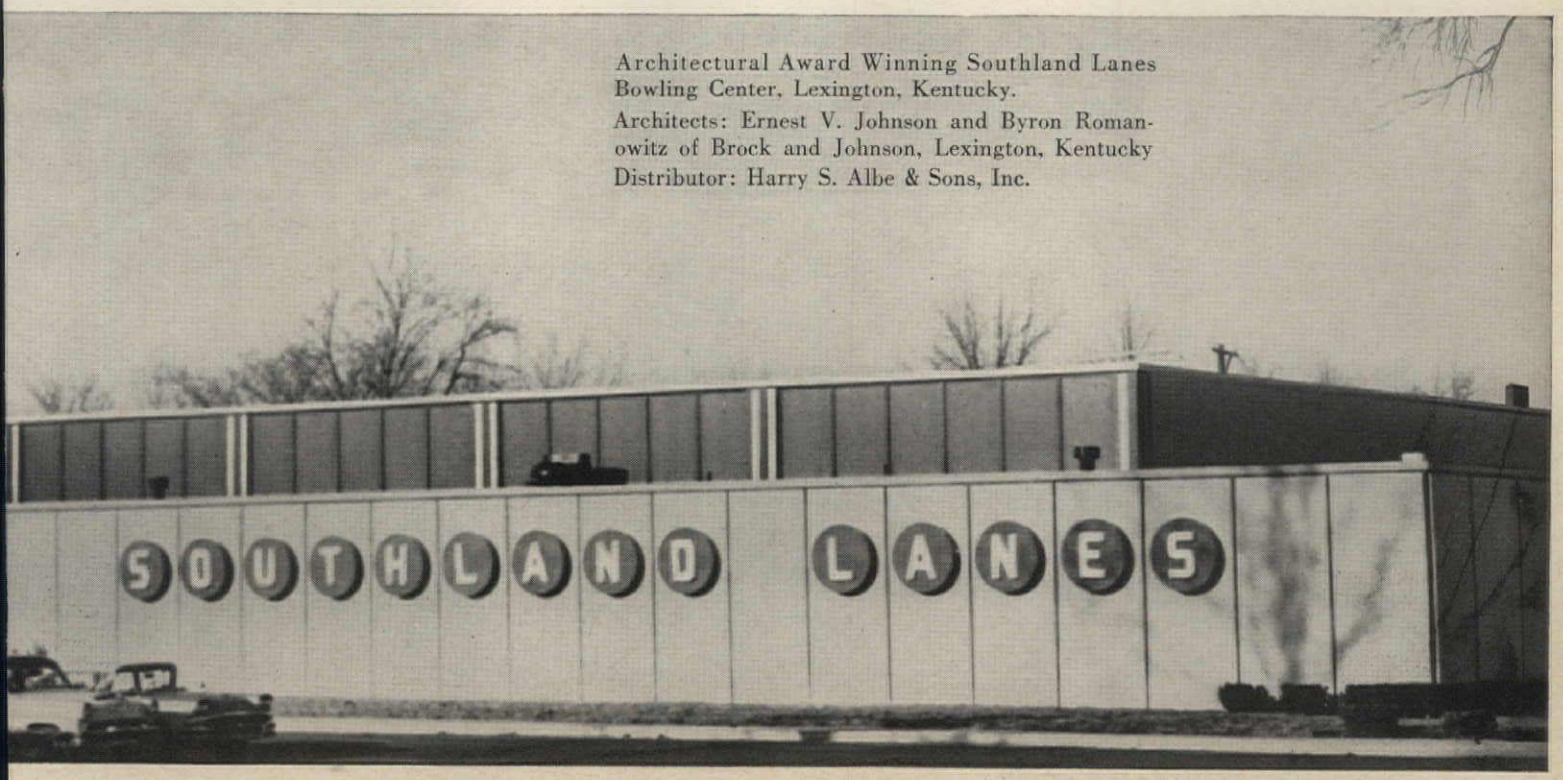
For more data, circle 108 on Inquiry Card



Planned for efficient use of space and labor, the snack bar utilizes Fiesta equipment selected to keep waste motion to a minimum. A Fast-Serv® fountain with Flomatic® beverage dispensing station installed at the front counter provides fast "one-finger" service of soft drinks. All Fiesta equipment has quick-and-easy operating magnetic action doors, recessed handles, hair-line joints and the many other labor and cost saving features incorporated in the years-ahead design of Bastian-Blessing fountain-food service equipment.

Fiesta back bar equipment faced with colorful plastic laminates harmonizes with the surrounding decor of the concourse . . . provides a fast-service, high-turnover "open" operation to invite sales. The griddle stand, designed for compactness and fast operation, has refrigerator, shelving, and sandwich units integrated within easy reach of the griddle man. Pass-thru Viewmatic® display case is kept replenished from the kitchen to save steps.

Architectural Award Winning Southland Lanes Bowling Center, Lexington, Kentucky.
Architects: Ernest V. Johnson and Byron Romanowitz of Brock and Johnson, Lexington, Kentucky
Distributor: Harry S. Albe & Sons, Inc.



Look to RōWAY for a door to fit your plans

RōWAY Overhead Doors are designed to enhance **any** style of architecture.

No restrictions . . . no harsh contrast . . . for RōWAY Doors give an appearance of "belonging" to every plan you create.

Fit a RōWAY Door into your design . . . you'll be doing justice to your own creative talents . . . and your customers' budget. RōWAY Doors stress attractive appearance, strength, ease of operation and economy.

No other door offers more!

there's a RōWay for every Doorway!

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RōWAY OVERHEAD DOORS

ROWE MANUFACTURING COMPANY
Department A, Galesburg, Illinois

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Quality is high...quality is why

leading architects specify SPEEDHIDE® paints

Leo A. Daly Company, architects and engineers for new LaClede Park development, shown at left, chose SPEEDHIDE Paints for their dependable quality, in both appearance and performance, inside and out.

• **SPEEDHIDE Paints** were specified for new multimillion-dollar LaClede Park, quality housing project in the Mill Creek Valley section of St. Louis. Shown here is one of the downtown residential buildings in which apartments range from studio to two-bedroom units, at rentals from $98 to $175 per month.

• **You can specify** Pittsburgh SPEEDHIDE for all your buildings with complete confidence in the ability of these finishes to do the kind of job you want done.

• **High-quality SPEEDHIDE** offers a complete line of interior and exterior paints which provide high-hiding characteristics with excellent color retention and extreme durability. Wide range of beautiful colors and finishes.

NOTE: Specifications for the new SPEEDHIDE line can be found in Section 15 Pi, Sweet's Architectural File.

FREE—illustrated brochure explaining the modern Pittsburgh COLOR DYNAMICS® Painting System

• **Color Dynamics** is scientifically based on known psychological reactions of people to the energy in color. For an interesting FREE Color Dynamics brochure, just mail the coupon at right, or contact your local PPG representative.

PITTSBURGH® PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Pittsburgh Plate Glass Company,
Paint Div., Dept. AR-13,
Pittsburgh 22, Pa.

☐ Please send booklet with full information on new Pittsburgh SPEEDHIDE line.
☐ Please send me your free brochure on COLOR DYNAMICS.
☐ Please have your Architectural Representative contact me.

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

For more data, circle 139 on Inquiry Card

Installation: Sts. Philip and James School-Church-Auditorium, St. James, New York. Architect: John O'Malley and Associates. General Contractor: Schumacher & Forelle, Inc. Roofing: John Schneider Roofing Contractors, Inc.

Drains nothing but rain

This gleaming Nickel Stainless Steel gutter keeps maintenance money in the treasury

Few people will ever see the gleaming inside of this trough. Few people will have to, because maintenance is virtually eliminated with a Nickel Stainless Steel gutter.

The standard finish you see will stay bright for the life of the building. Corrosion-resistant all the way through, Nickel Stainless Steel can stand up against chemicals much more aggressive than plain rain water.

Designed to last for generations, this gutter is on the roof of a church. For lasting value, the architect specified Type 302 Nickel Stainless Steel not only for gutters, but for all downspouts and flashings as well. Even the nails are Nickel Stainless.

Strong enough for light, economical gauges, Nickel Stainless Steel delivers value right from the start. This gutter is only .018" thick, but its great strength-weight ratio will withstand all expected wind stresses and snow loads. Why not specify the practical advantages—and lifetime beauty—of Nickel Stainless Steel for all *your* sheet metal work? There's helpful information in the 26-page *Architect's Guide to Nickel Stainless Steel Flashings.* A postcard will bring it to you.

THE INTERNATIONAL NICKEL COMPANY, INC.

67 Wall Street INCO New York 5, N. Y.

NICKEL
...ITS CONTRIBUTION IS
QUALITY

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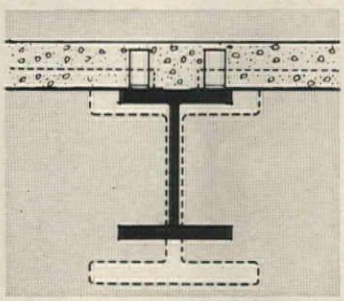
New Cofar® shear connectors reduce the cost of composite construction

utilizing new AISC specification

Important savings in materials, space and money begin with *Cofar* composite construction. *Cofar—now available with shear connectors* (see photo). When field-welded to the beams, these "J"-shaped pieces of steel make the slab work as an integral part of the supporting members; thus beam sizes may be reduced.

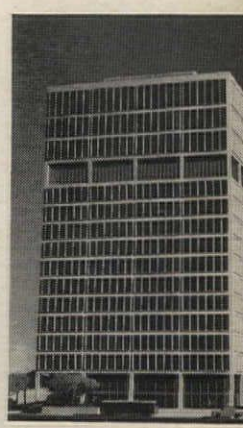


The main benefit of Cofar composite construction is the substantial reduction in steel tonnage because you get equivalent strength with lighter beams. Additional benefits are gained by: (1) Longer spans (2) More usable space with the same building cubage (3) Increased beam stiffness (4) Less deflection (5) Reduced building height.

Cofar's economy has been well established in the building industry. Cofar is the 4-in-1 product—form, working deck, bottom reinforcing steel and temperature steel for a structural concrete slab. Construction is fast—proven—economical. Now with the development of the Cofar shear connector, even greater economies are yours by using Cofar composite design.

For more information, write for Catalog No. 103-B-62: GRANCO STEEL PRODUCTS COMPANY, 6506 North Broadway, St. Louis 15, Missouri. A subsidiary of Granite City Steel Co. Our catalogs are filed in Sweet's.

Illustrated at right: 16-story Pierre Laclede Building, now under construction, Clayton, Missouri, which utilizes Cofar composite construction.



Architect:
Smith and Entzeroth
Engineer:
Fruco and Associates, Inc.
Contractor:
Fruin-Colnon Contracting Co.

COFAR®

COMPOSITE CONSTRUCTION

GRANCO

GRANCO

DISTRICT OFFICES: Atlanta • Chicago • Cincinnati Dallas • Houston • Kansas City • Los Angeles • New York • Minneapolis • St. Louis • San Francisco • Tampa
DISTRICT REPRESENTATIVES: Greenville, S. C. Little Rock • Washington, D. C.

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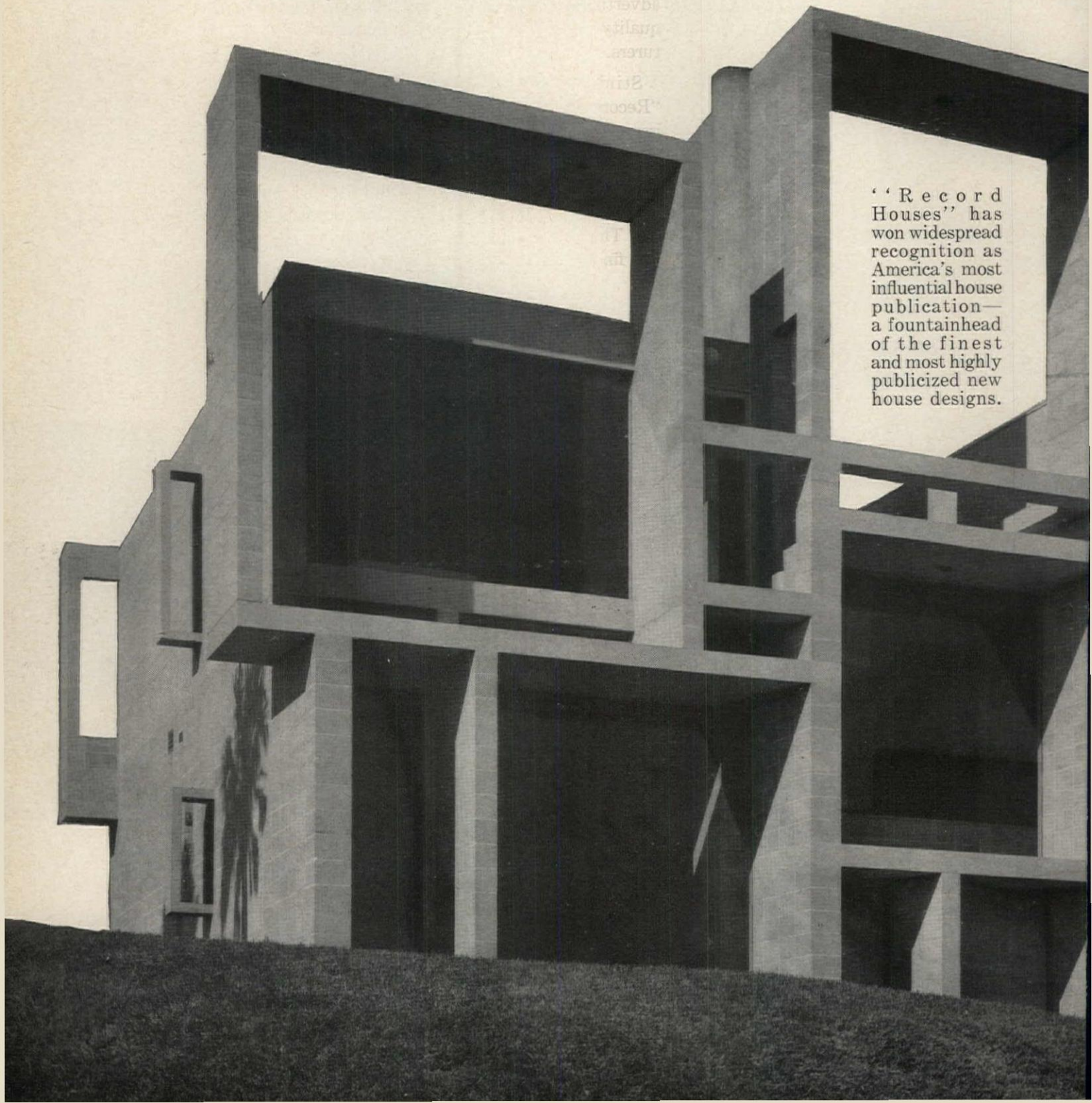
COMING . . .
ARCHITECTURAL RECORD'S 8TH MID-MAY
"RECORD HOUSES" ISSUE FEATURING . . .

America's Best New Houses



"Record Houses" has won widespread recognition as America's most influential house publication—a fountainhead of the finest and most highly publicized new house designs.

"Record Houses of 1963" will focus on notable new achievements in U. S. residential architecture—including the finest architect-planned houses of the year.

Devoted completely to house design and the materials and equipment of house construction, "Record Houses of 1963" will be a unique single-issue source of trendworthy developments in one-family housing from coast to coast . . . a practical aid to planning . . . a stimulus to creative design . . . and a visual delight—with some 200 professional plans, drawings and photographs (many in full color)!

Among the highlights:

- *The Best Architect-Designed Houses of 1963.* Multi-page presentations of each of 20 houses which win for their architects Architectural Record's coveted *Annual Award of Excellence for House Design.* These houses represent all major regions of the U. S., cover a broad spectrum of structure, style and cost.
- *The Grand Alliance.* Demonstration of how architect-builder collaboration achieves high quality and more saleable design in tract housing.
- *Design for Comfort and Efficiency.* New approaches to perennial problem areas of house planning, including the kitchen.
- *Comparative Cost Calculator.* Handy guide to estimating the cost of building each Record house locally.
- *Progress in Products.* Editorial roundup of quality residential products—*plus* timely advertising messages from America's most quality-minded building product manufacturers.

Stimulating and useful throughout, "Record Houses of 1963" will be the house issue of the year for architects, engineers and their clients.

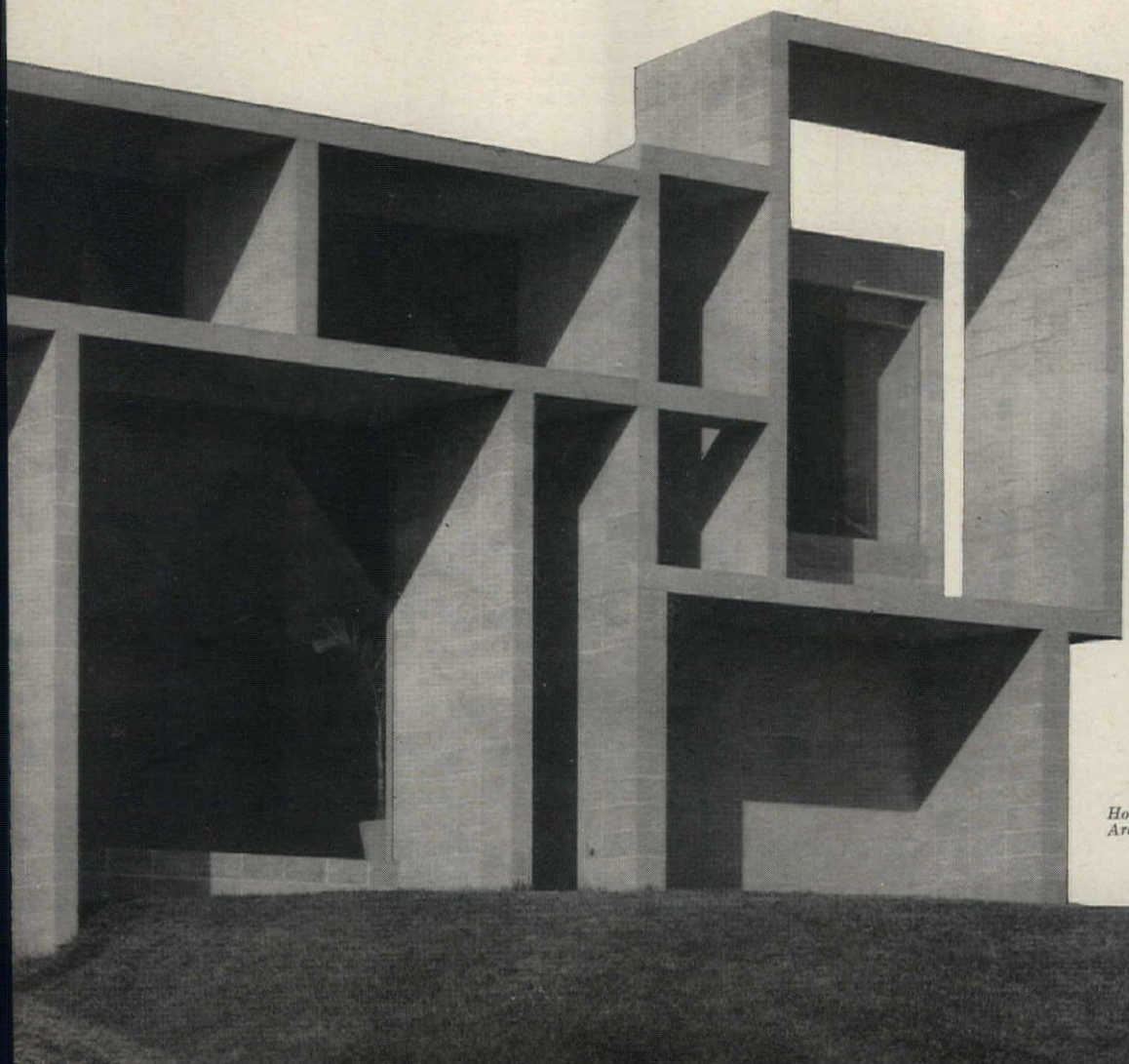
"Record Houses" comes to you as part of your subscription to Architectural Record. The house building and buying public will find it on sale at leading bookstores.

SPECIAL ANNOUNCEMENT

In 1962, for the first time, "Record Houses" was distributed to leading builders as well as to Architectural Record subscribers.

The aim: to accelerate the healthy trend toward greater architect-builder collaboration on tract housing.

Because of the enthusiastic reaction of builders to "Record Houses," and the growing stake of builders in more sophisticated and marketable house design, "Record Houses of 1963" will again bring the finest examples of architect planning to the nation's 20,000 top builders.



House for Arthur W. Milam, St. Johns County, Fla. Architect: Paul Rudolph; Photo: Joseph Molitor

Record Houses of 1963

"standard of quality house design"

Architectural Record

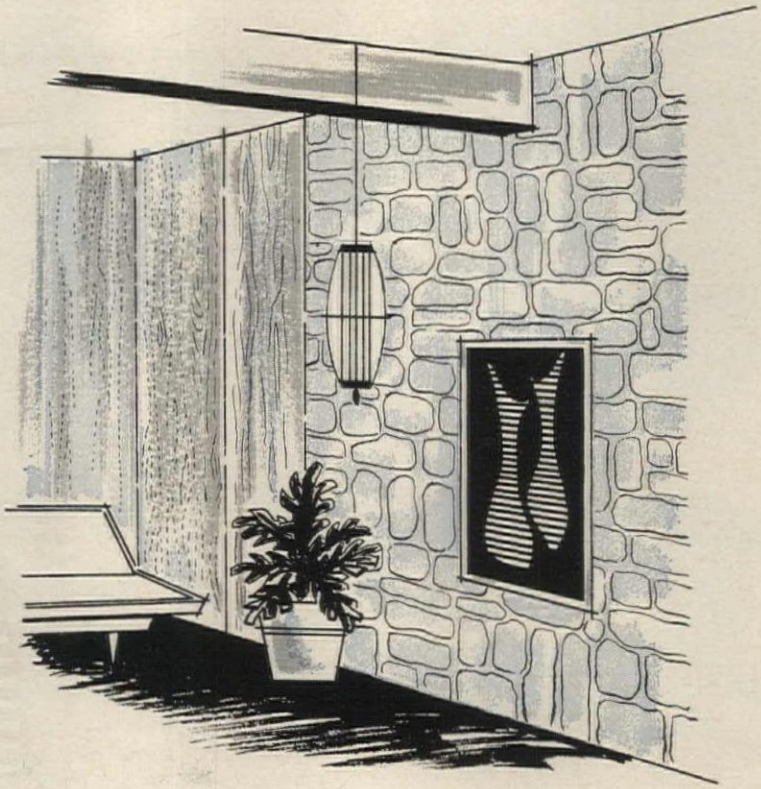
F. W. DODGE CORPORATION
A McGraw-Hill Company

119 West 40th Street
New York 18, N.Y.

a new dimension in architectural air grille design . . . . . .

Custom Staccato

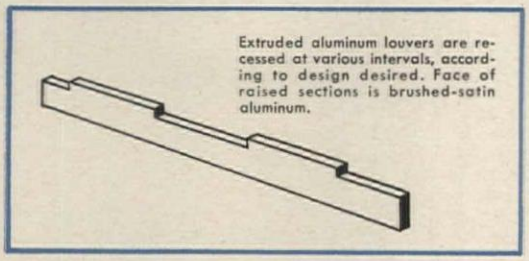
air grilles



Highlight "notes" of vibrant aluminum, *in the design of your choice*, accented in relief against a recessed background of dark anodized color; air handling efficiency to match the distinctive beauty. That's superb new Custom Staccato by Titus!

Yes, here's truly the refreshingly new and different—EXTRUDED ALUMINUM AIR GRILLES WITH FACE *CUSTOM MADE* TO THE DECORATIVE DESIGN THAT YOU SPECIFY.

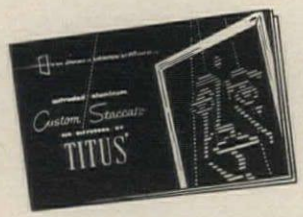
Think what this means! Now the grille face, *with your exclusive design* can be the focal point to harmonize with, or accent the overall architectural motif. Return air grilles need no longer be a problem—with Custom Staccato they can be a decorative asset to enhance your decor.



Extruded aluminum louvers are recessed at various intervals, according to design desired. Face of raised sections is brushed-satin aluminum.

The applications and design possibilities of Custom Staccato air grilles are endless. Use them with religious symbols in churches; abstract designs, emblems—and yes, even trade marks and trade names—in lobbies and other interior applications.

Send us your requirements (a rough sketch will do) . . . let us design a Custom Staccato for you.



New 12-page, full-color Custom Staccato Idea Catalog gives complete details, many suggested designs and applications. Mail coupon for your copy.

by

TITUS®

TITUS MANUFACTURING CORPORATION, Waterloo, Iowa

Branch Mfg. Plants: Hialeah, Fla.; Terrell, Texas; Phoenix, Ariz.

☐ Please send 12-page Idea Catalog on new Titus Custom Staccato air grilles.

☐ I would like to see sample Custom Staccato air grille. Have your representative call on me.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

For more data, circle 114 on Inquiry Card

For more data, circle 115 on Inquiry Card

Office Literature

continued from page 238

METAL ACOUSTICAL PANEL
(A.I.A. 39-B) *SoundLock* metal acoustical ceiling panels using cellular core construction are described in booklet. *The SoundLock Corp., 210 Skokie Valley Road, Highland Park, Ill.*

CIRCLE 426 ON INQUIRY CARD

LAMINATES
(A.I.A. 35-C-12) "Architectural File Folder" gives technical data on Parkwood laminates, including *Genuwoods*, real wood veneers laminated with a protective melamine overlay. *Parkwood Laminates, Inc., 134 Water St., Wakefield, Mass.**

CIRCLE 427 ON INQUIRY CARD

ROOF AIR CONDITIONER
Brochure gives details on *Market-Aire*, commercial roof-top air-conditioning unit which carries a five-year guarantee on all parts. *Texas Products Mfg. Co., 919 Taylor St., Waco, Tex.*

CIRCLE 428 ON INQUIRY CARD

SCULPTURED WALL PANELS
A low-cost line of sculptured wall panels, cast in lightweight concrete, is illustrated in a 12-page booklet. *Architectural Elements Corp., 124 E. 40th St., New York 16, N.Y.*

CIRCLE 429 ON INQUIRY CARD

CERAMIC-LIKE COATING
(A.I.A. 23-G) Brochure gives details on *Sanitile*, a ceramic-like coating for use over all coated or uncoated walls and ceilings. *The Master Mechanics Co., 4475 E. 175th St., Cleveland 28, Ohio*

CIRCLE 430 ON INQUIRY CARD

INTERIOR MARBLE
Recommended specifications and detail plates showing interior marble installations are given in 120-page book which is offered free to architects who write on letterhead paper. *Marble Institute of America, Inc., 32 S. Fifth Ave., Mount Vernon, N.Y.**

DAYLIGHTING
A 46-page book, "I.E.S. Recommended Practice of Daylighting," gives data on design evaluation, visual requirements and factors affecting visual recognition and performance. 50 cents each. *Illuminating Engineering Society, 345 E. 47th St., New York 17, N.Y.*

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

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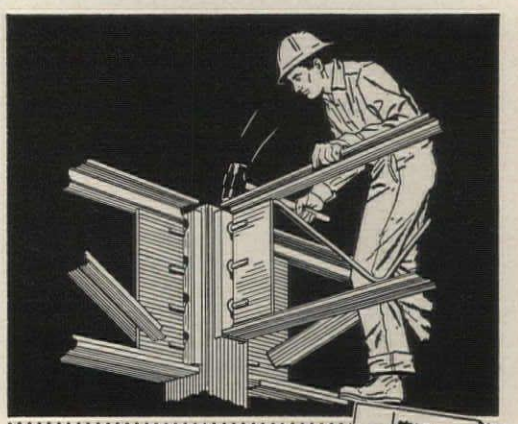

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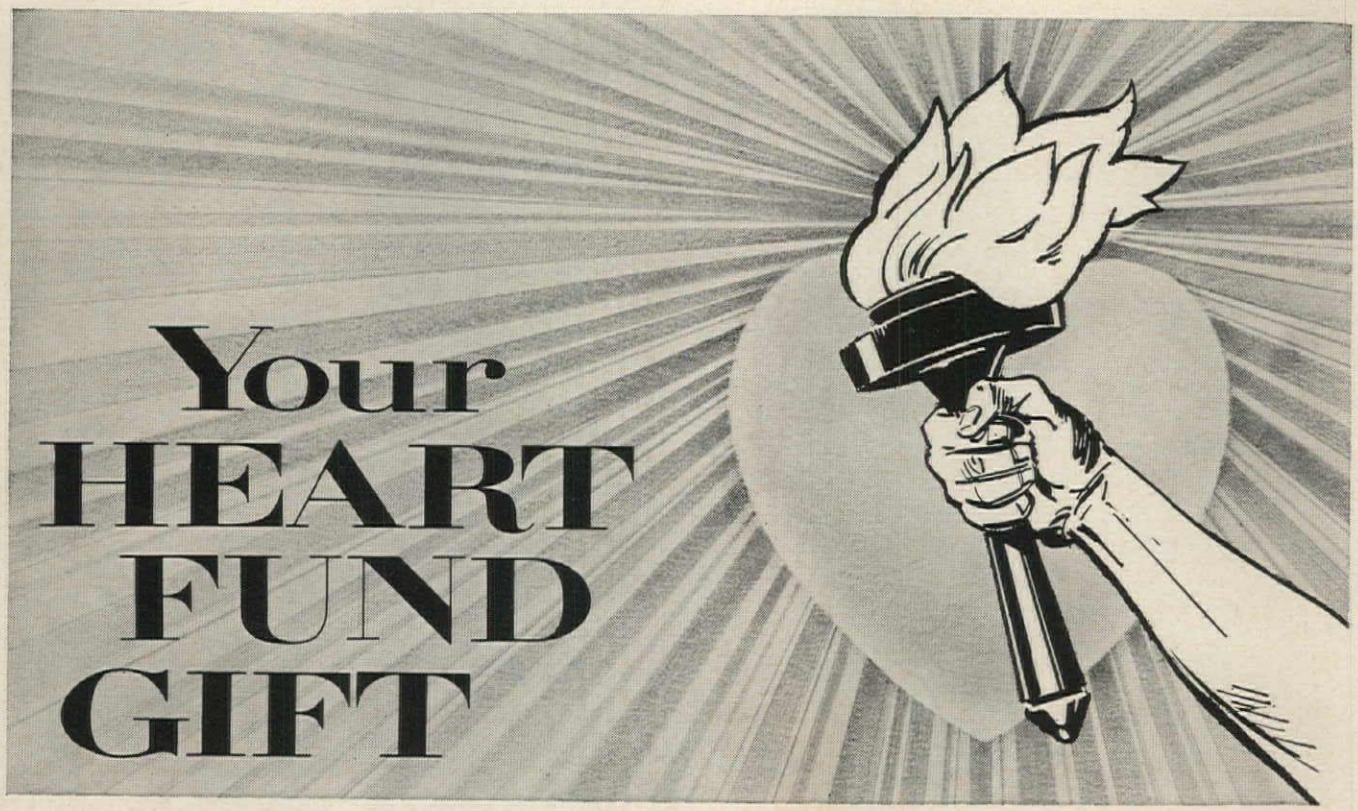

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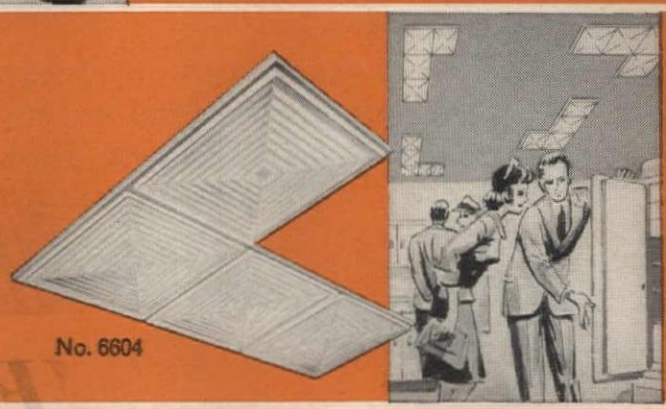

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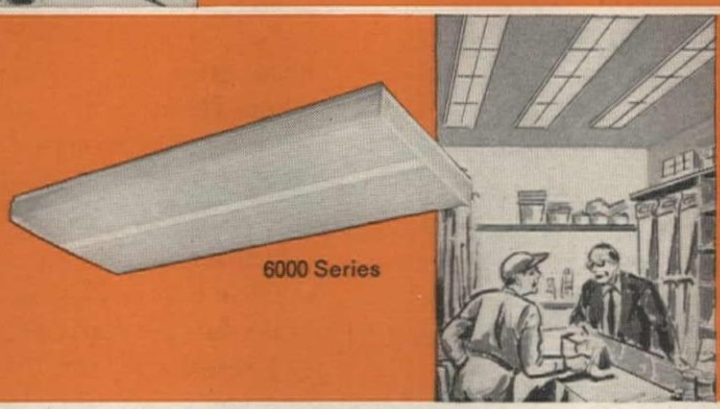

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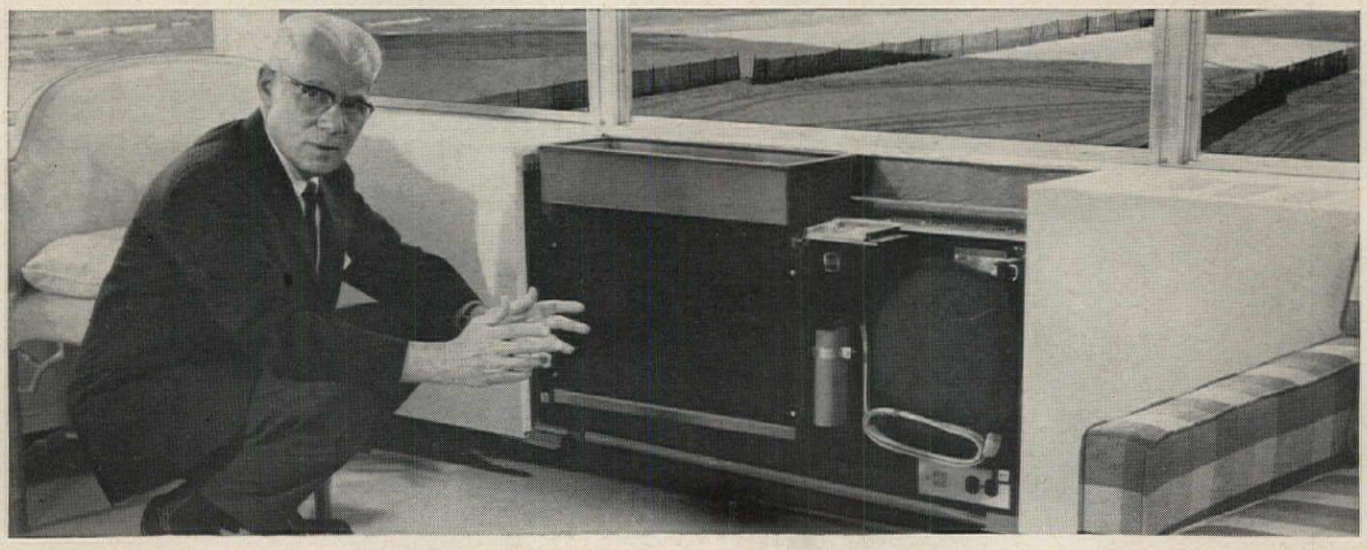

"What we wanted, we got—475 General Electric Zoneline 42's."

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"We're completely sold on zonal air conditioning systems. They let tenants control their own temperature. They can bring in fresh, filtered air without opening windows, too. And, of course, if a central-plant system goes out, the whole building suffers. No danger of that with a zonal system.

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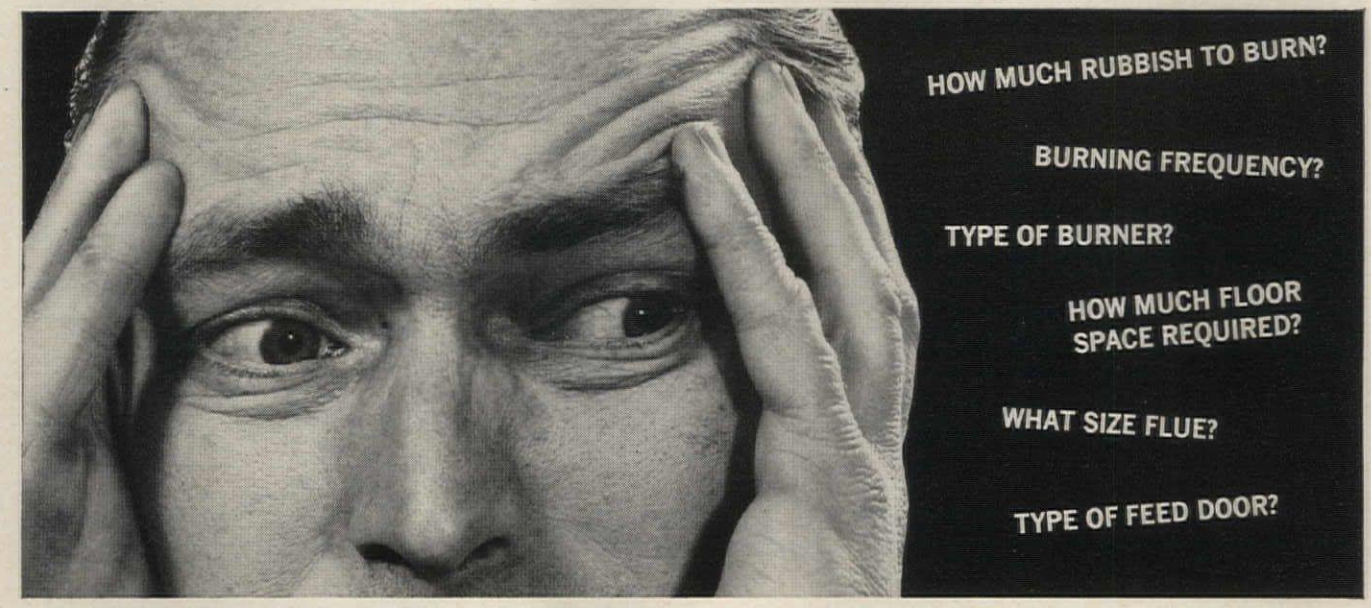

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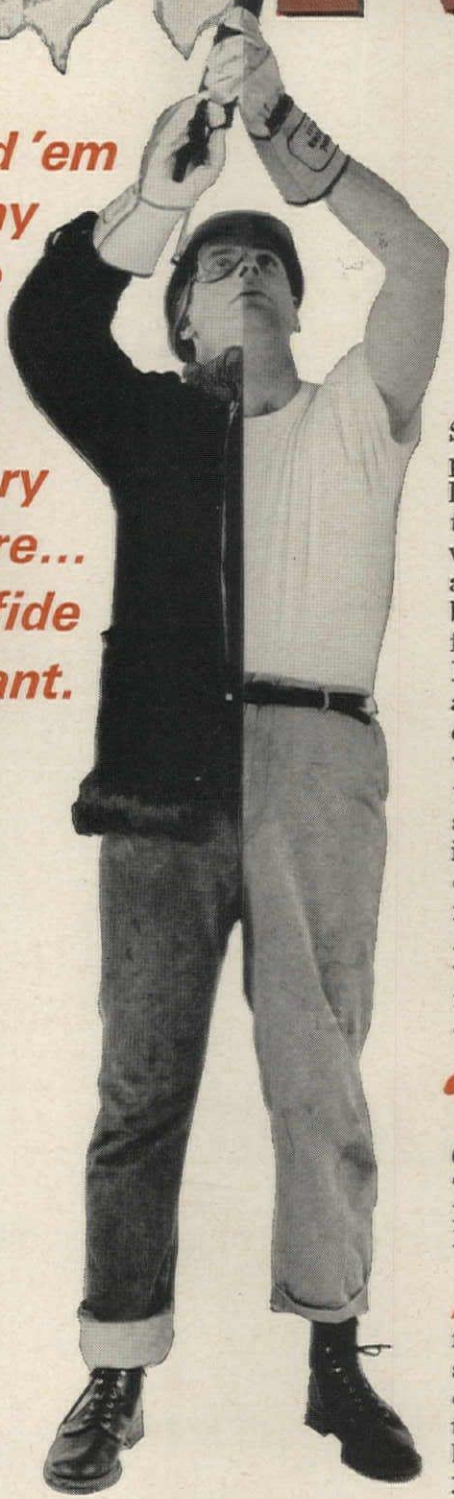

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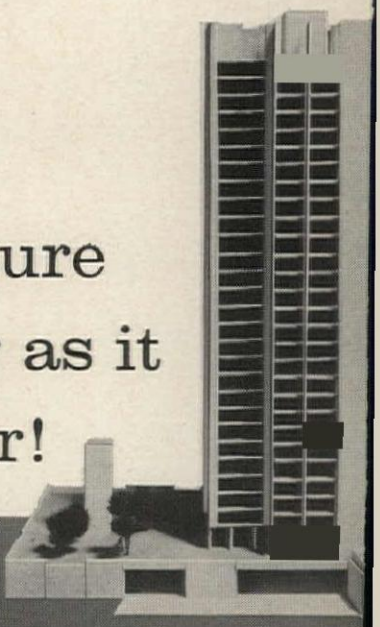

Building Model courtesy
Washington University (St. Louis)
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Complete Comfort Conditioning with light and air!

From Day-Brite and Barber-Colman, leaders in lighting and air-handling equipment, comes a *new dimension* in dynamic integration of building illuminating and air-conditioning systems by combining lighting, air distribution and automatic temperature control in *one* ceiling element.

CLYMATRON can reduce space cooling problems by exhausting lighting heat before it enters the space, while *simultaneously* supplying conditioned air *and* returning room air. Delivers more light . . . lowers air quantity requirements.

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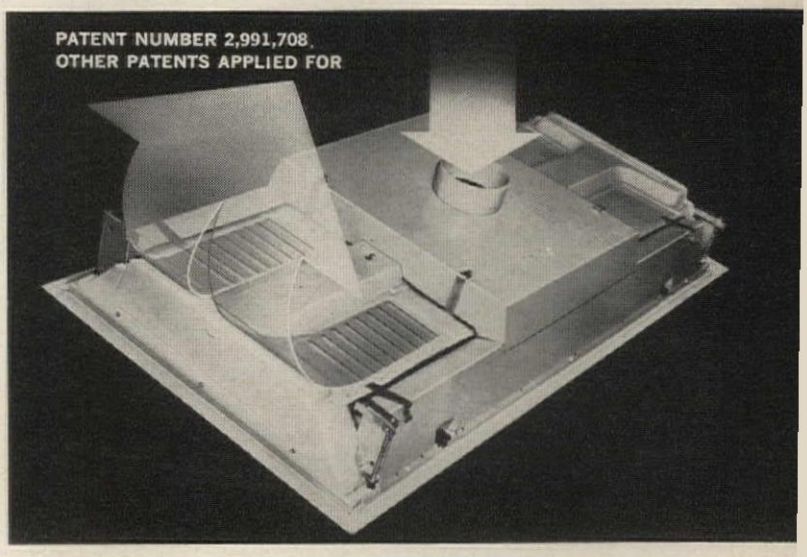
CLYMATRON locates electronic temperature sensing elements in the return air flow to provide faster response. It eliminates wall thermostats.

CLYMATRON housing is separated from supply air by a *new insulation* combining sound absorption, radiant reflection and fire resistance. Lamp operating conditions are controlled for peak light output and color match. Return air is filtered by baffled inlets to reduce maintenance.



Barber-Colman air-handling components snap on quickly. Division of trade jurisdiction is clearly defined and union endorsed.

BARBER COLMAN

CLYMATRON is available in modular sizes for all types of ceilings and in a wide choice of plastic and glass enclosures. For detailed information, write for 8-page illustrated brochure. *Day-Brite Lighting, 6260 N. Broadway, St. Louis 15, Mo.*

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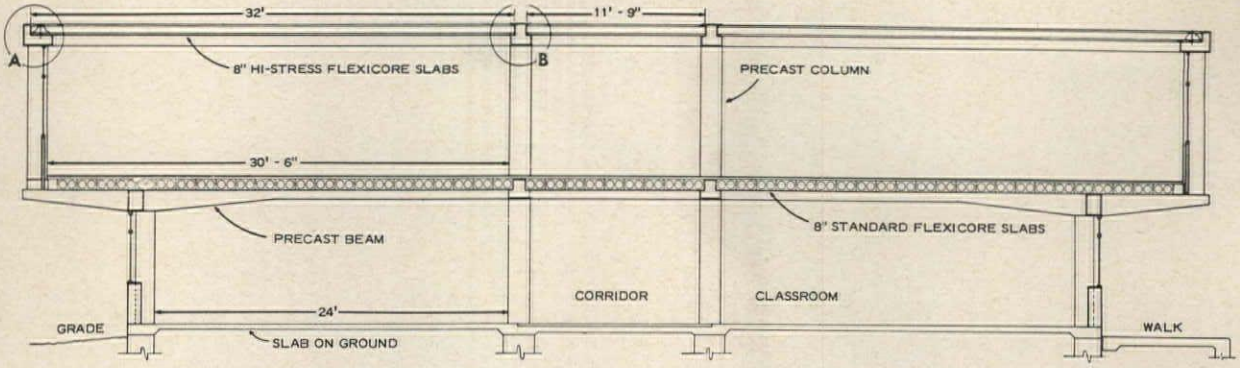
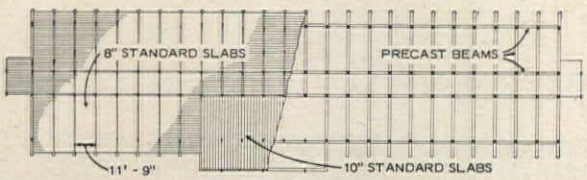
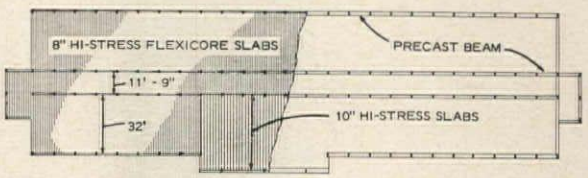


LATERAL SECTION. Hi-Stress Flexicore slabs, 32' in length, are used for long-span ceilings on second floor of classroom wing of Rutherford B. Hayes High School, Delaware, Ohio. The entire frame is precast concrete columns and beams.

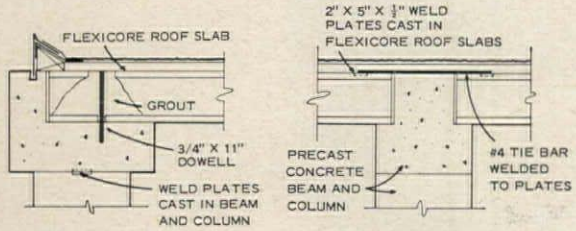
New Hi-Stress Flexicore Slabs Give Improved Performance On 32-Foot Roof Span



SECOND FLOOR FRAMING, CLASSROOM WING. Lateral precast beams serve as bearing for standard Flexicore slabs. Both 8" and 10" slabs used.



ROOF FRAMING, CLASSROOM WING. Longitudinal precast beams support Hi-Stress roof slabs which are tied to beams to provide lateral bracing.



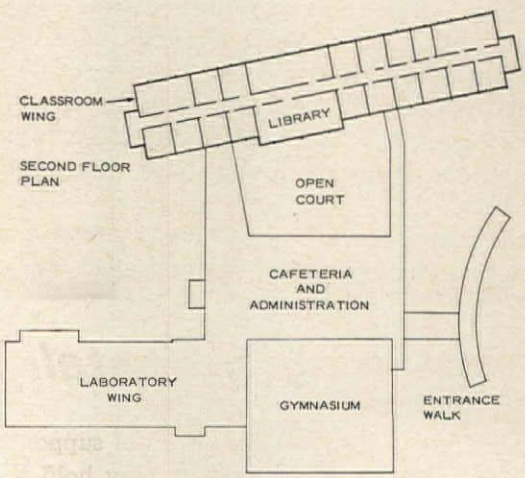
DETAIL A **DETAIL B**

New Hi-Stress Flexicore slabs use high-tensile 7-wire stress-relieved strands to produce fully prestressed units. These slabs provide long, clear spans, high load carrying capacity and give improved performance.

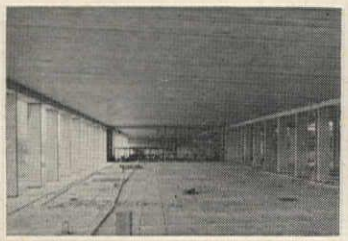
The steel strands are accurately pretensioned, before the slabs are cast, and introduce a controlled camber into the units.

In this project, Hi-Stress Flexicore slabs were used for 32-foot roof spans, and 12 months after erection, show excellent performance. Standard Flexicore units (with mildly pre-tensioned reinforcing rods) were used for floors at second story.

Ask for "Flexicore Facts 96" on this project and "Hi-Stress Flexicore" Bulletins. Write The Flexicore Co., Inc., Dayton 1, Ohio, the Flexicore Manufacturers Association, 297 South High Street, Columbus 15, Ohio, or look under "Flexicore" in the white pages of your telephone book.



RUTHERFORD B. HAYES HIGH SCHOOL, Delaware, Ohio has frame of precast concrete columns and beams, and floors and roofs of Flexicore precast decks. Kline & Swartz of Chillicothe, Ohio are the architects.



Long span Hi-Stress ceiling before partitions installed.

Lateral beams at second floor cantilever 7'-3".

flexicore®
PRECAST CONCRETE DECKS

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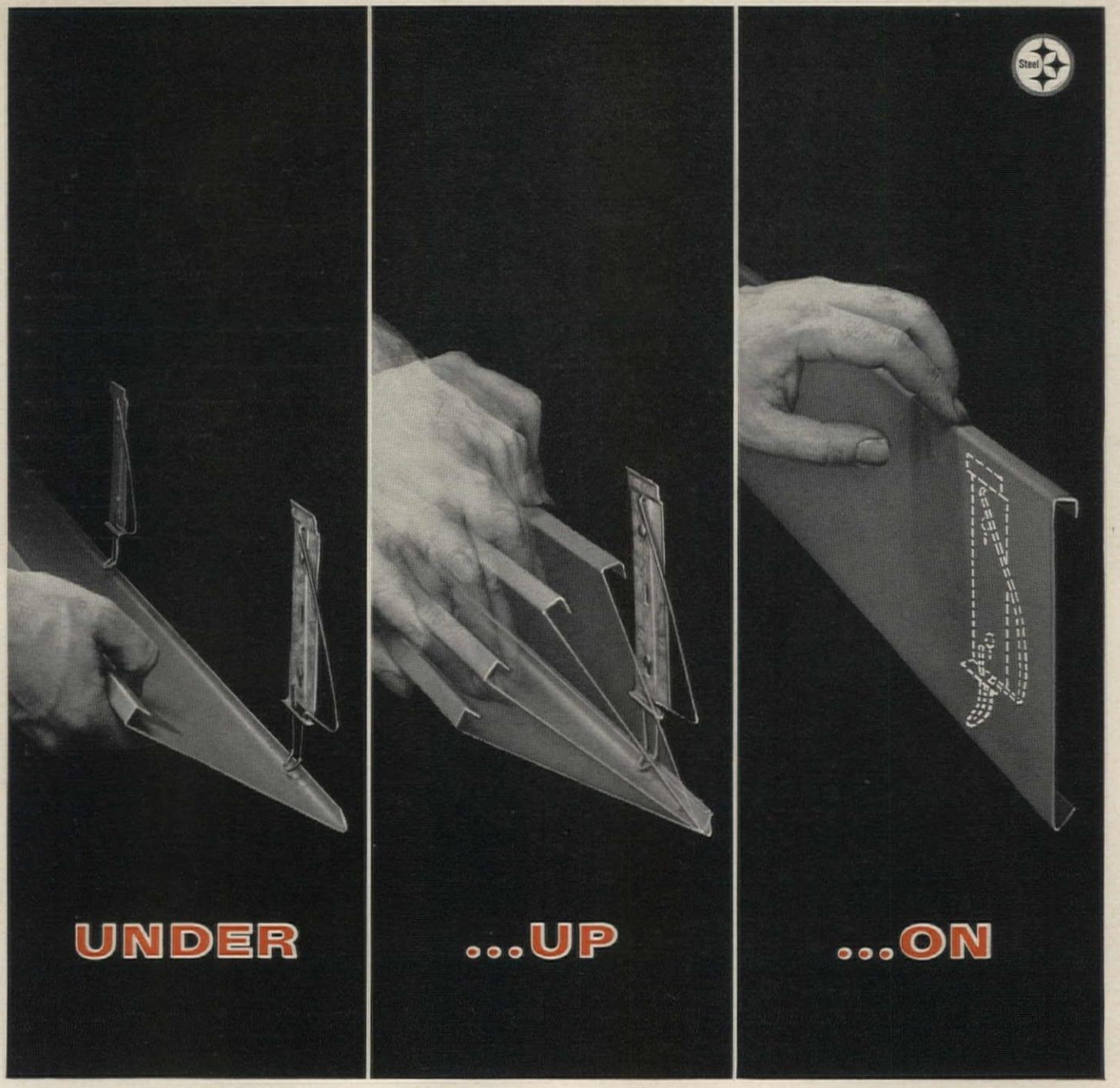

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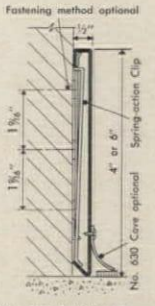
Here's metal base with no visible means of support. The secret is in unique, patented spring-action clips. Hidden behind the base, they hold it securely and also serve as splice plates where sections join. There are no exposed screw heads. ◆ In addition to the speed of the three-step installation method, Milcor Clip-On Metal Bases offer other desirable advantages. The spring tension of the clips compensates automatically for minor variations in floor level — makes it easier to make vertical adjustments. The base can also be removed and re-installed at any time without damage or loss of material. ◆ Like all Milcor metal bases, a Milcor Clip-On Base provides the durability and impact resistance of steel at an installed cost competitive with other materials. ◆ For detailed information on these and other products in the Milcor line of interior metal trim, see Sweet's section 12a/In, or write for catalog 202.



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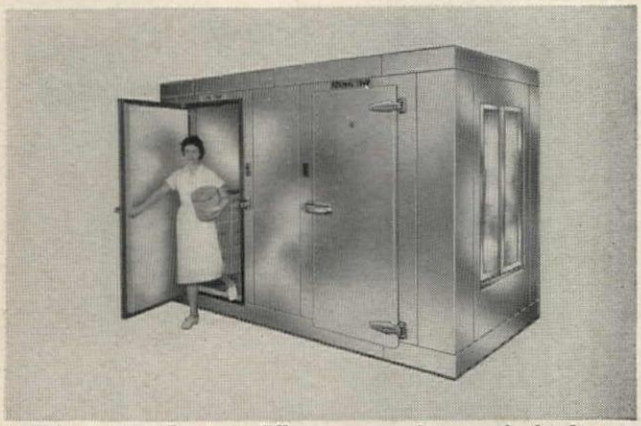

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The advantages of this new insulation represent a major design achievement that obsoletes all conventional insulated Walk-Ins ♦ With 97% closed cells it cannot absorb moisture . . . maintains peak efficiency, indoors or outdoors ♦ Insulating value is double . . . Bally 4" urethane equals 8½" of conventional insulation. Standard models ideal for use as minus 30° freezers ♦ Urethane, poured as a liquid, foams in place and binds tenaciously to the metal for great strength. Eliminates need for structural members. Replaces that space with insulation ♦ Lightweight urethane reduces weight to one-third for big freight savings . . . makes erection fast and easy ♦ Foamed door is extremely light in weight to open and close with little effort. Magnetic gasket provides positive seal ♦ Thinner walls increase usable space.

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Bally

Bally Case and Cooler, Inc.
Bally, Pennsylvania
Write Department A.R.

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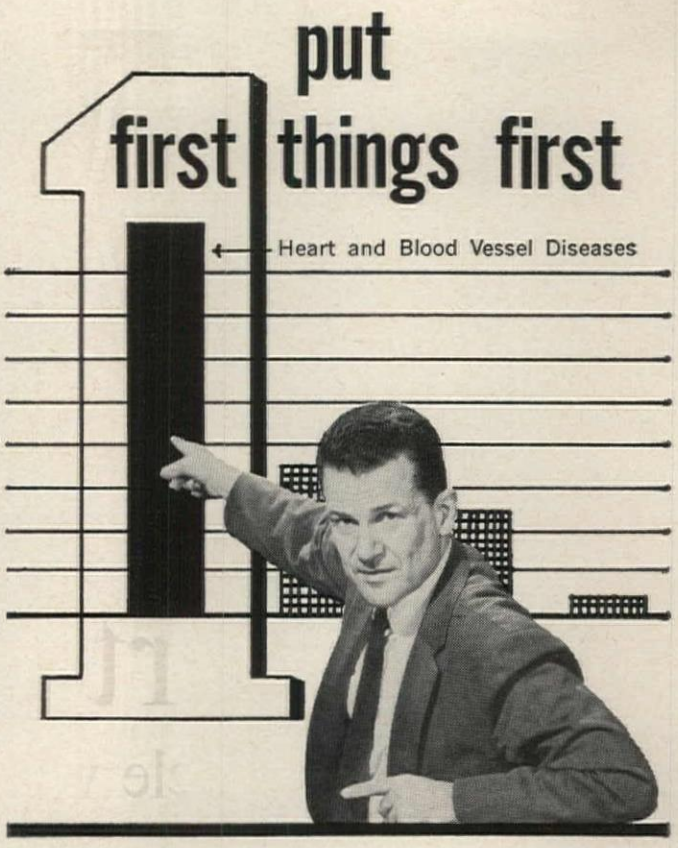

You probably can't give to every worthy health appeal. But how can you choose among them? Why not give *first* to those causes that mean the most to you, your family and your business?

#1 Health Enemy

The heart and blood vessel diseases are the #1 health enemy in the United States today. They take more lives each year than all other causes combined. They afflict more than 10 million adults and children. They cause a work-loss of 69 million man-days annually at an estimated cost of a billion dollars.

HEART DISEASE IS THE #1 KILLER. So, put first things first. Put your Heart Fund at the top of your gift list for health.

GIVE to your HEART FUND

vana weve

fact report on Vanaweve

...the multi-miracle wall covering fabric

Art and chemistry combine to create a new form of beauty in Vanaweve, one of the most practical and durable wall coverings ever known. Some of its advantages:

What is it made of? Vanaweve is woven with Rovana* monofilament, a new textile development of The Dow Chemical Company.

How does it look? Styled by Remy Chatain of Stockwell, it has esthetic qualities, texture, surface interest and dimension only weaving can give. An infinite variety of colors and patterns can be created – used naturally or as beautiful backgrounds for printing.

Very Versatile. Vanaweve complements contemporary or traditional settings – formal or informal. Can be used with matching or coordinated Vanaweve drapery fabrics.

Durable. Offers excellent protection against scuffing, rubbing, tearing and abrasions. When properly installed, will not rot – is not affected by mildew, fungus, vermin – even in warm humid climates.

Easier to care for. Non-toxic. Mild soap or detergent and a moist sponge easily remove surface dirt. Non-absorbent. Dirt cannot penetrate. Contains no materials considered injurious or toxic under normal conditions.

Dimensional stability. Contains no plasticizers, is impervious to extreme temperature variations. Shrinkage less than 1.5%, tested under Federal Specifications CCC-C-408.

Stain resistant. Latex adhesive forms a seal which protects the paper backing from water-borne stains and soiling beneath the surface fabric.

It is breathable. Fabrics of Vanaweve are laminated with a breathable acrylic latex adhesive that allows moisture vapor to pass through easily.

It is colorfast. Tests of 200 hours made in an Atlas Fade-o-meter, method 5660, Federal Specifications CCC-T-191 show no appreciable change in color.

Application. Vanaweve adheres perfectly to regular plaster, sand plaster, dry walls, plywood, foam insulation or steel panels. Normal wallpapering methods are all that are required.

Summary. Vanaweve is a new form of beauty, a completely new kind of fabric wall covering with amazing textural and dimensional appeal. It is versatile, more durable, fire resistant, easier to clean, requires less care. It is colorfast, rot and mildew resistant, dimensionally stable. It is the multi-miracle fabric wall covering. Available now. Write to the following sources for further information:

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Stockwell Wallpaper Company
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Los Angeles 5, California

Richard E. Thibaut, Inc.
P.O. Box 1541, General Post Office
New York 1, New York

Seabrook Wallpapers
421 South Main Street
Memphis, Tennessee

Cassidy Hicks Wallpaper Company
1721-23 Lawrence Street
Denver 1, Colorado

*REG. T.M.

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Practical... Design Oriented... Curtain Wall Framing Systems from PPG

Neat, clean-lined PITTCO® Framing Systems are engineered to withstand the extremes of temperature, humidity and precipitation encountered in even the most critical applications. Integral weep and vent designs handle condensate problems and permit breathing of spandrel pockets.

In addition to the standard PITTCO Framing Systems shown, PPG offers architects custom design and fabrication service to meet any specialized curtain-wall design requirement. A PPG Architectural Representative will be pleased to consult with you at any time regarding application of standard or custom PPG curtain wall components—framing, spandrel and vision-area materials, doors and entrance ways.

For detailed curtain wall information, see Sweet's Architectural File, Section 3a. For data on complementary PPG product lines for entrances, spandrels, glazing, see Sections 16e, 19e, 7a, 21, 3e, 16d.

Complete glass curtain wall systems from one source

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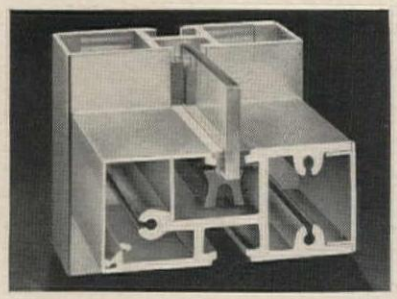
Originally engineered as "systems," PPG curtain walls assure fast, precise erection . . . and PPG will accept full responsibility for installation, if you so specify.



Versatile . . . for single- and multi-story . . . PITTCO 900 Series

The all-aluminum PITTCO 900 Series consists of these basic components:

A Three major vertical mullion extrusions with various load-bearing characteristics. Standard: 1⅞" x 4⅝"; Premier: 1⅞" x 4½"; Heavy-Duty: 2½" x 6⅛".

B Four major horizontal extrusions that permit flexibility in exterior reveals yet provide flush interior mullion and spandrel pocket surfaces.

C Special sill, head and expansion members, as well as transom bar units and fittings, to accept all PPG door styles and compatible with all other PITTCO Framing Systems.

Members are fully interchangeable to meet the framing requirements of any design. The PITTCO 900 Series accepts ⅛", 3/16" and ¼" glazing.

LUTHERAN THEOLOGICAL SEMINARY, Columbia, S.C. • Architect: Lyles, Bissett, Carlisle & Wolff, Columbia. PPG Products: 900 Series Curtain Wall Framing; SOLARGRAY Glare-reducing Glass; polished Pittsburgh Plate Glass; TUBELITE® Doors and Frames.

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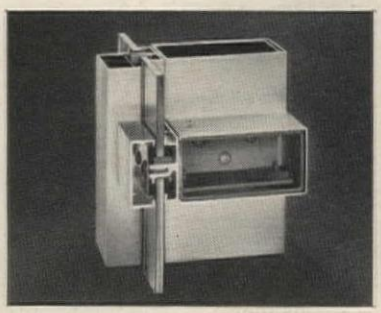
Crisp, clean, strong lines for almost any multi-story structure! Patented PPG design features a continuous exterior stainless steel glazing retainer with snap-on cover moldings for both vertical and horizontal mullions.

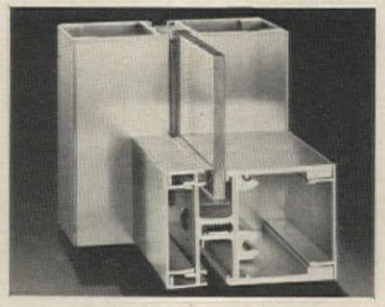
A variety of 2" steel structural tube members ranging in depths from 1" to 6" are available to meet specified wind and shear loads. Face moldings permit wide flexibility in sight-lines with reveals variable from ¾" to 5". Face members and tube covers are rolled or extruded from aluminum, bronze or stainless steel.

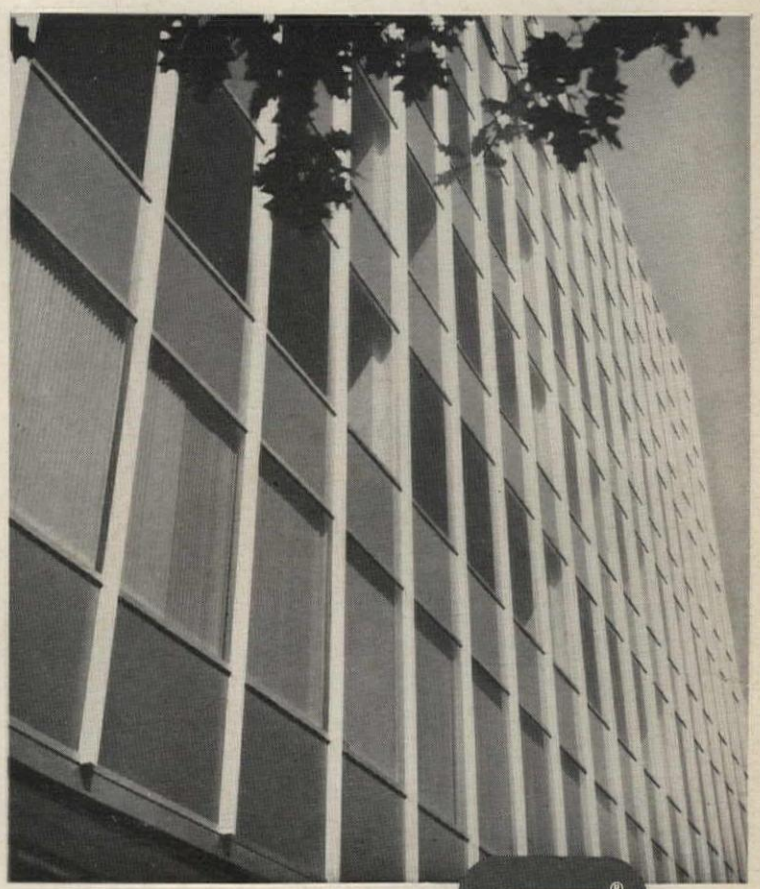
For insulating-glass . . . PITTCO 25-X

A variation of the PITTCO 82-X system, employing 2½" wide mullions to permit glazing with 1" PPG TWINDOW® Insulating Glass.

808 OFFICE BUILDING, Washington, D.C. • Architect: Vlastimil Koubek, A.I.A., Washington, D.C. • PPG Products: 82-X Curtain Wall Framing; White CARRARA® Spandrels; WEST and TUBELITE Doors.







Flexibility at moderate cost . . . PITTCO 670

A basic 2 1/16" by 2⅛" aluminum extrusion is used interchangeably for both horizontal and vertical mullions. 2 1/16" by ¾", 1½", or 2" screw-on, compression-type face unit extrusions permit variable exterior mullion reveals. Members are secured through use of the unique PITTCO C-670 spline clip and self-tapping screws. The 670 system accepts 7/32" and ¼" glazing and spandrel materials. Special body extrusion permits use of 1" TWINDOW® Insulating Glass.

MUTUAL OF OMAHA BUILDING, Washington, D.C. • PPG Products: 670 Curtain Wall Framing; SOLARGRAY® Glare-reducing Glass; Custom Gray SPANDRELITE®.

PITTCO Architectural Metals from . . .

Pittsburgh Plate Glass Company

Paints • Glass • Chemicals • Fiber Glass
In Canada: Canadian Pittsburgh Industries Limited

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Building on **sandy** soil...

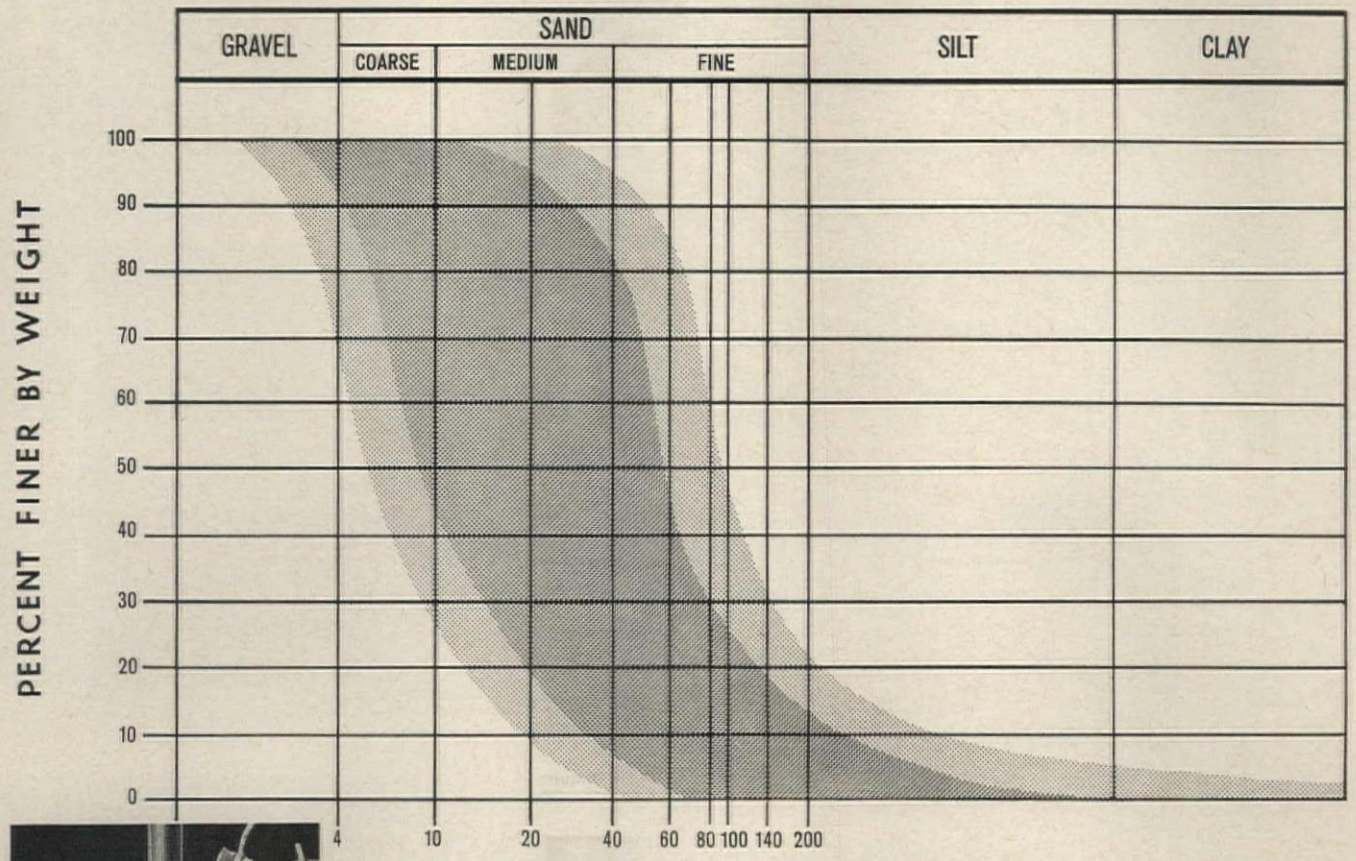

Diagram shows the lower end of a Vibroflot® machine in action to presettle sandy soil. Compaction is accomplished by a simultaneous saturation and vibration of the granular materials involved. During the application, fresh sand is added at the surface to compensate for the loss in volume caused by the increase in density (bearing capacity) of the compacted soil.

Range of Granular Soil Suitable for Compaction by Vibroflotation® is shown in the shaded area of this sieve analysis chart.

When percentages of clay or silt are excessive, the material can often be excavated and back-filled with suitable soil and then compacted by Vibroflotation at a reasonable cost.

A uniformly dense foundation can be achieved by Vibroflotation.

Write for Booklet A-36

VIBROFLOTATION FOUNDATION CO.

930 FORT DUQUESNE BOULEVARD, PITTSBURGH 22, PA.

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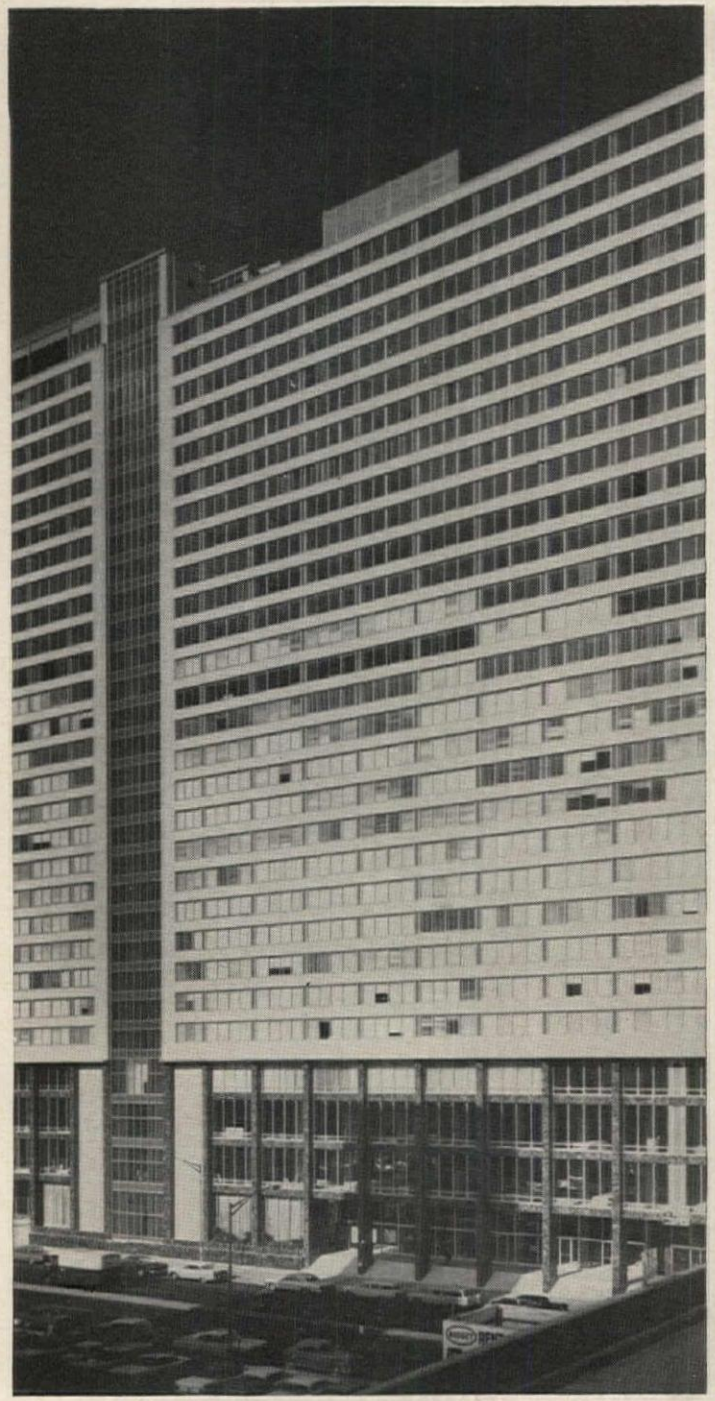
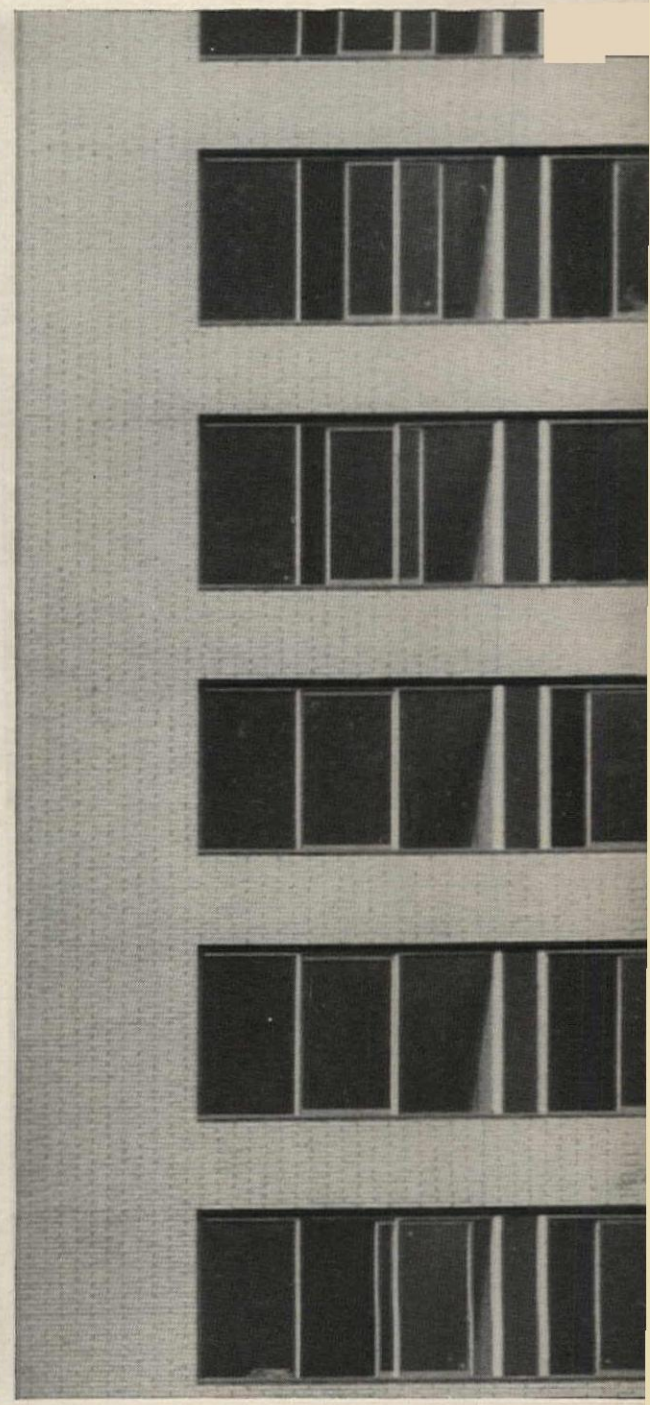


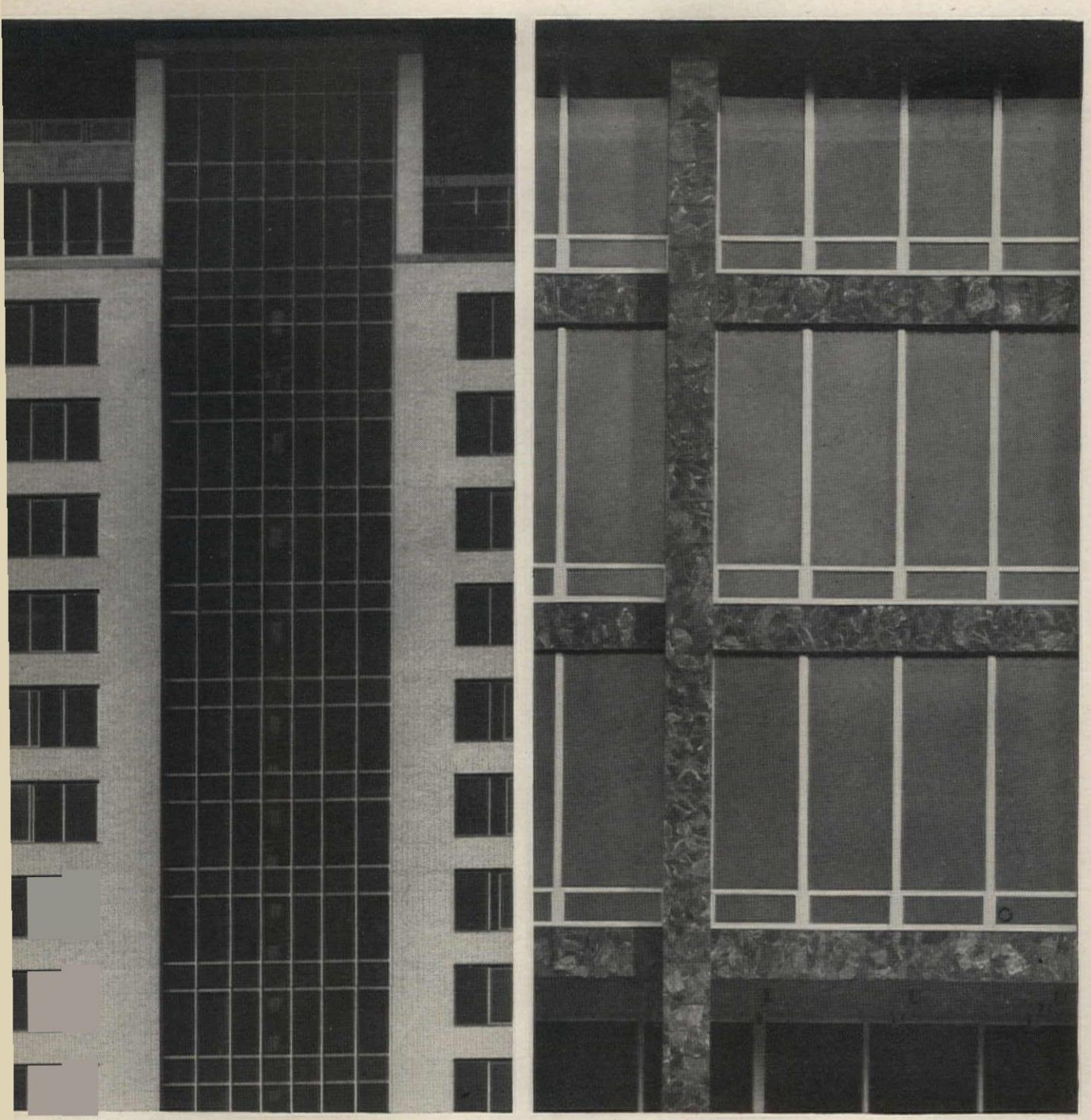


Penn Towers, most imposing structure in Phila.'s Penn Center, enclosed by 1152 LUPTON aluminum windows, features 30-story LUPTON curtain wall center panel.

New status address reflects ultra-modernity

Philadelphia's 30-story Penn Towers, a self contained "island" for total living, marks the first apartment-office building in the country. Its ground level is an imposing setting for stores, a restaurant, bank, and other services . . . framed by a broad two-story piazza. Topping this is a block-long, three-story modern office building. Rising above that are 518 apartments with all built-in conveniences. And crowning all, a roof-top pool, cabanas, and recreation area.

Penn Towers was conceived by a developer who has pioneered many advances in high-rise apartment dwellings and by an architect internationally famous for his forward-looking urban design. The reputation of aluminum curtain walls and windows by LUPTON made their use in Penn Towers a logical decision. In a word . . . there is an integrity of LUPTON engineering and design that you can count on. Why not plan this integrity into your next project?



Architect: Samuel I. Oshiver, Philadelphia, Pa. Owner-Builder: Penn Towers, Inc., Sylvester J. Lowery, President, Philadelphia, Pa.

with Lupton windows and curtain walls

Make exacting creative demands on us then watch your most imaginative uses of aluminum windows or curtain wall systems realized to the fullest. Responsibility is equally assured by our company's 25-year reputation for reliability.

Rely on LUPTON, then, for the ability to bring your ideas into the reality you visualize. For more about us, see Sweet's Architectural File (sections 3 & 17) for the Michael Flynn Aluminum Curtain Wall and Window catalogs. Talk to your local LUPTON man, too . . . or write us direct.

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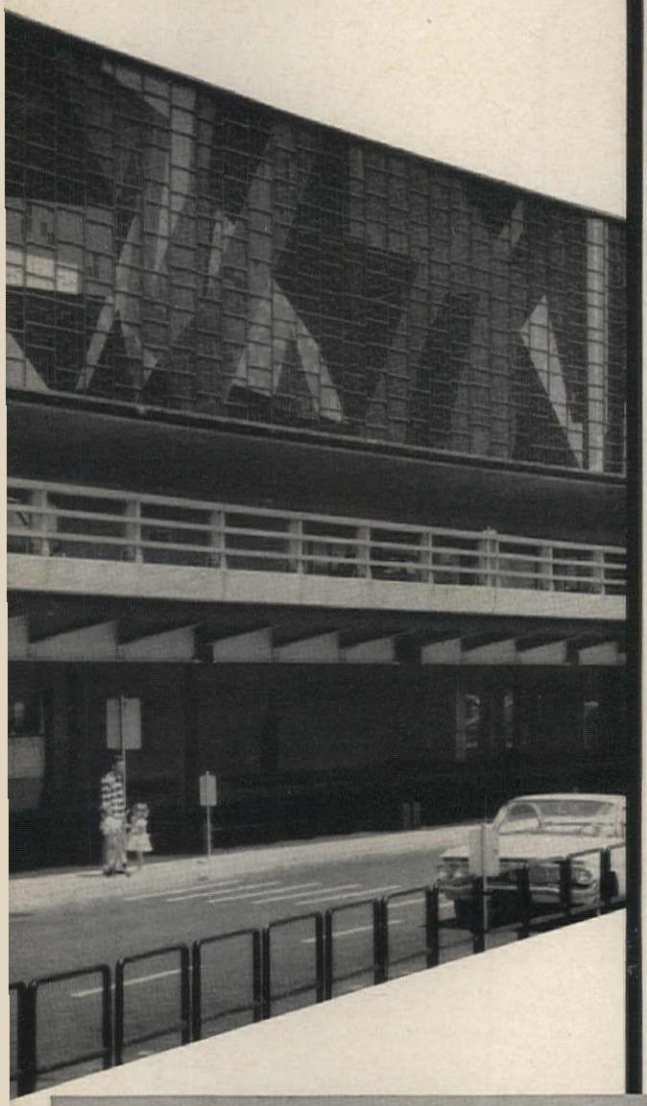

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1. Source: June 1962 ABC Publisher's Statement.
2. Estimate: Continuing Readership Research (1962).
3. Ask for Record's "Market Coverage" folder.
4. June 1962 ABC Publisher's Statements and rate cards.
5. Source: 1961 and 1962 Surveys: New Castle Products, Inc., Adams-Rite Mfg. Co., Ceco Steel Products Corp., Carthage Marble Co.
6. Ask for "Summary of Preference Studies."

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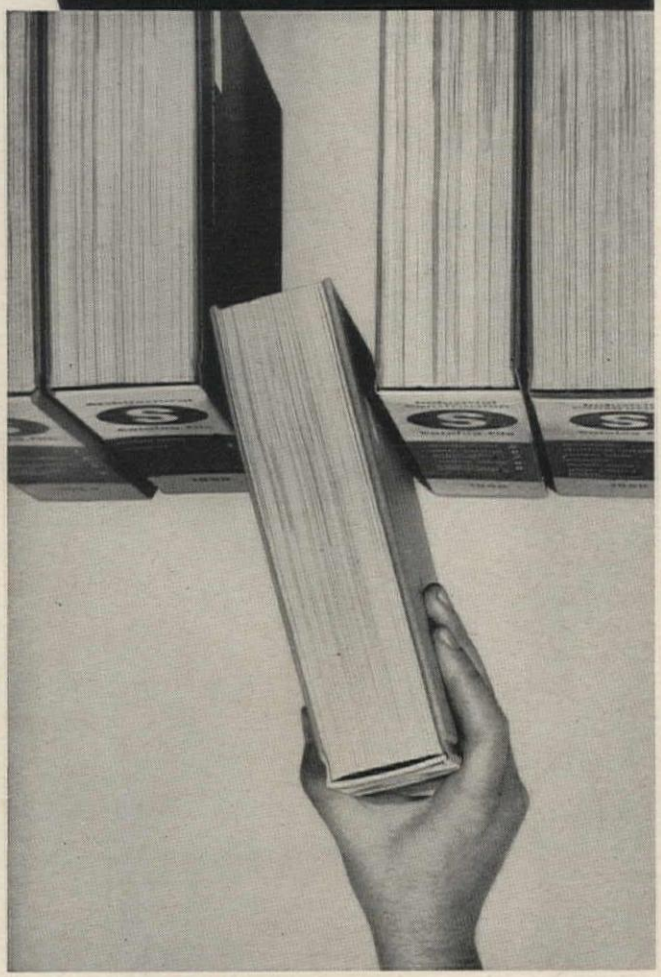

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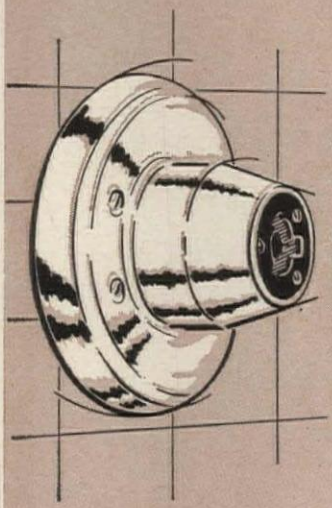
SG-62

Protects children or irresponsible adults from shock if they push metal objects into slots because it shunts current away from inserted object. Power flows only when plug is in place. Also grounds 3-wire cords from appliances and tools. UL listed. 15 A., 125 V., brown or ivorine. See Page 126-T in our Catalog 29.



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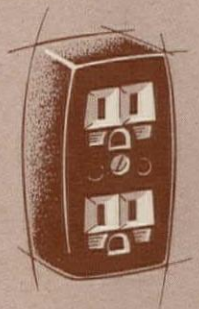
No. 24303 et al

For all Class I, Group C or D, atmospheres in operating, delivery, anesthesia, or incubator rooms or industrial areas. UL listed and described in NFPA Bulletin 56.

Safety-chambered Hubbellock® outlet cannot arc while plug is being inserted or removed. Mechanically actuated micro-switches remain electrically dead until a specially keyed Hubbellock® plug is seated and rotated clockwise. Can't be energized by other plugs.

Special epoxy-filled, grounding plug No. 24312 for 3-wire cords is washable and contains no air spaces where explosive gases can accumulate. For new work or remodeling. 20 A., 125 V., 60-cycle AC only. See Page 32-A in our Catalog 29.



DUPLEX OUTLET GROUNDING ADAPTER

No. 5291

Plugs and screws into parallel or T-slot duplex outlets and converts them to 3-wire grounding outlets for plugs with U-shaped grounding blades. Useful in remodeling when occupancy can't be delayed for rewiring. Nothing in existing system is removed except outlet's cover plate screw. No rewiring needed with grounded systems. Also usable with ungrounded systems. UL listed. Brown or ivorine. 15 A., 125 V. See Page 127-I in our Catalog 29.

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