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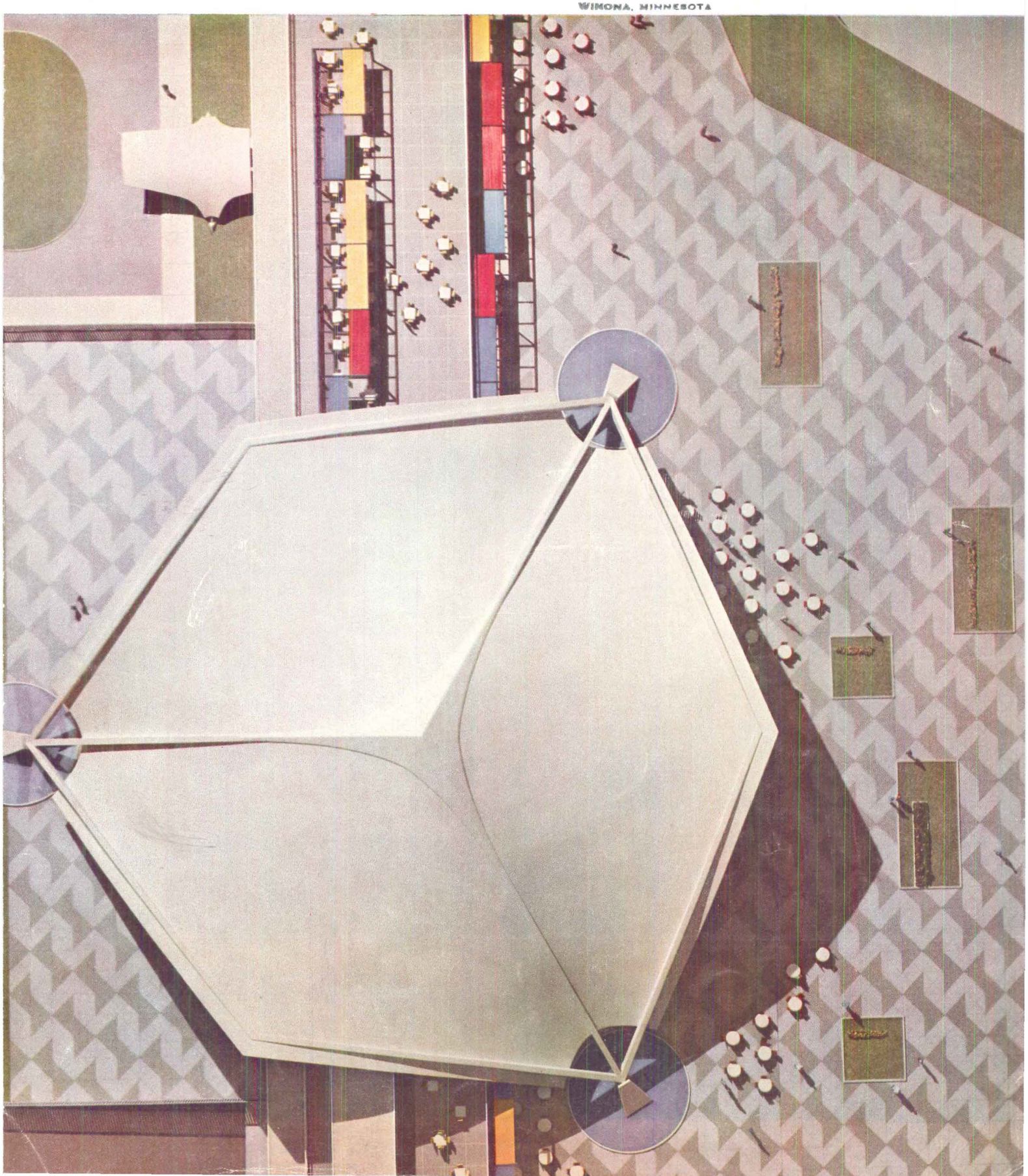

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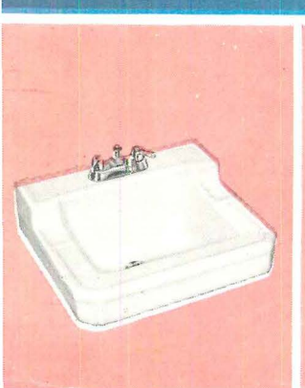

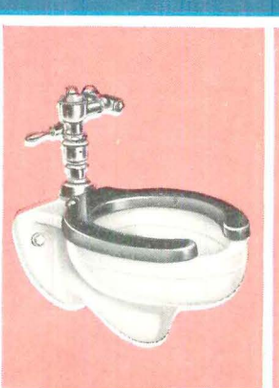

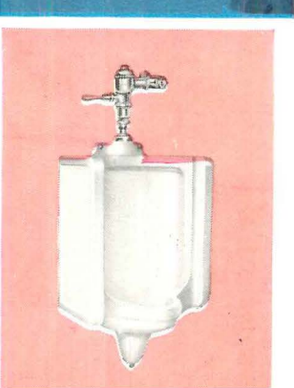

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Cover: Shell concrete structure (see p. 152)
Photograph by Robert Damora

VOLUME 105, NUMBER 8

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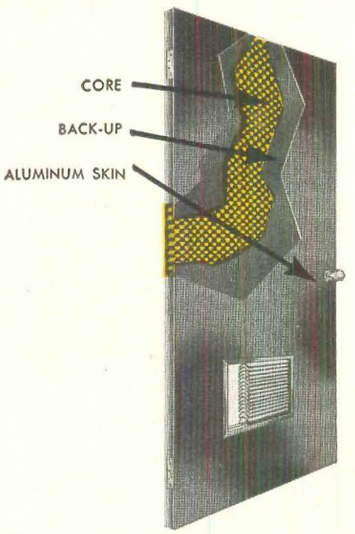

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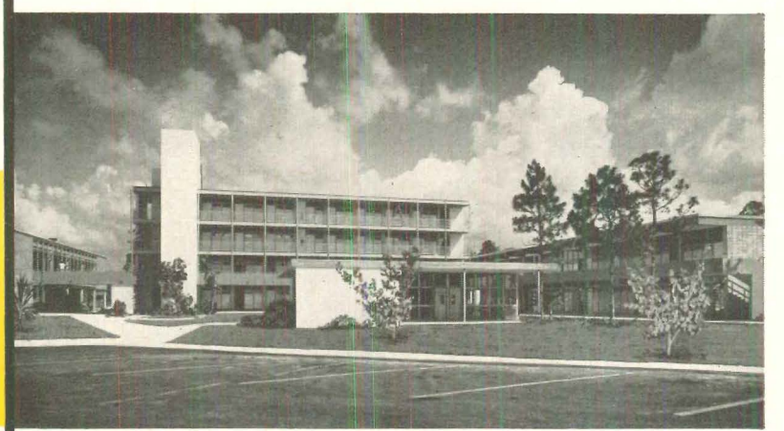

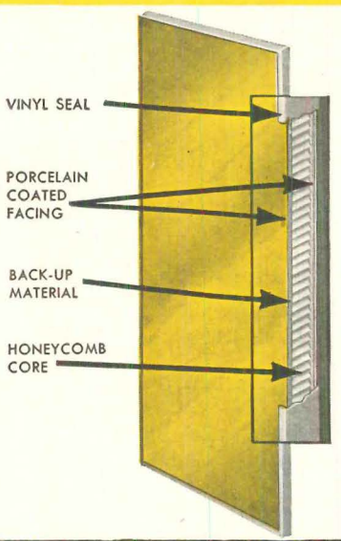

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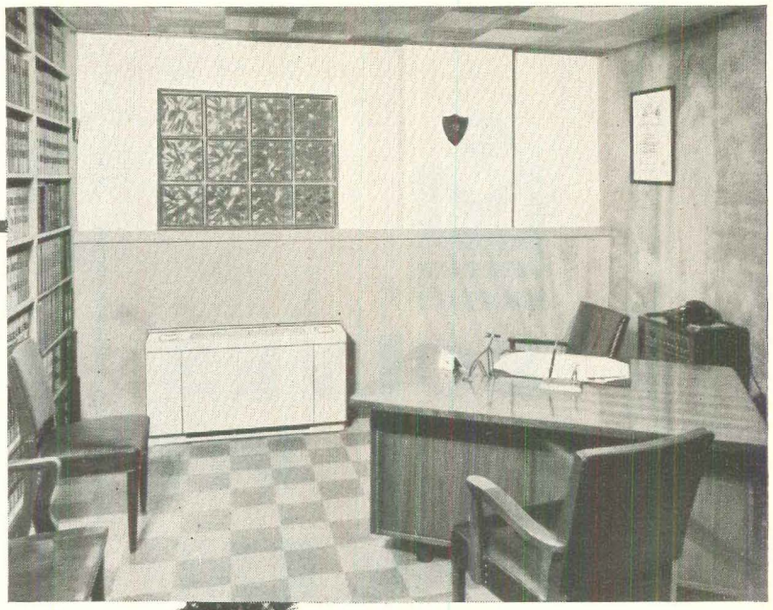

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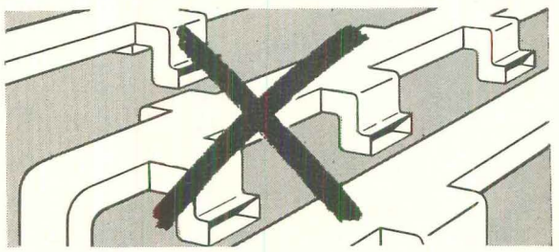

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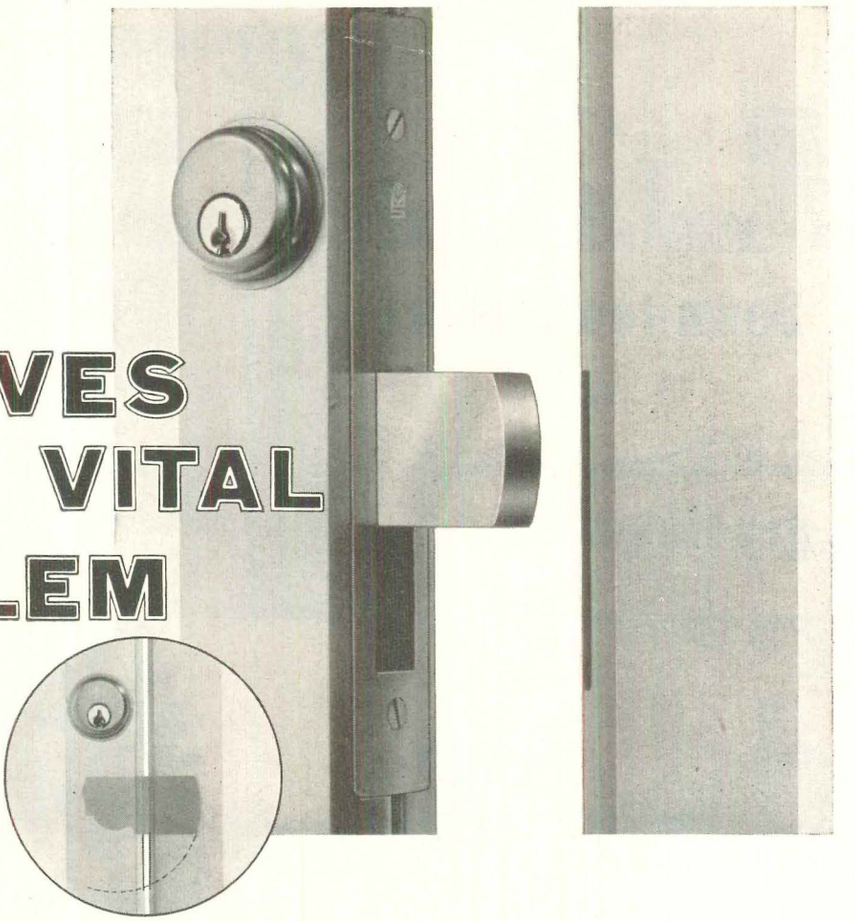

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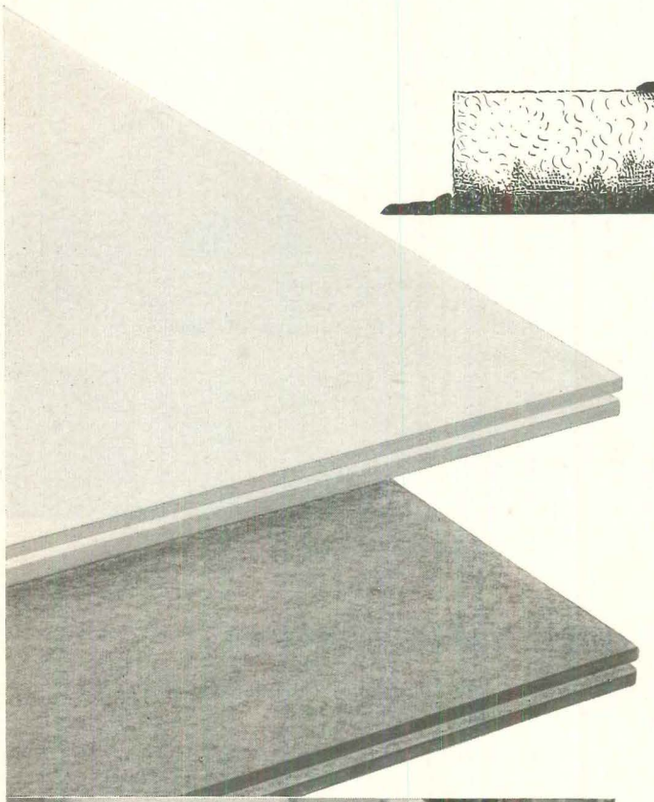

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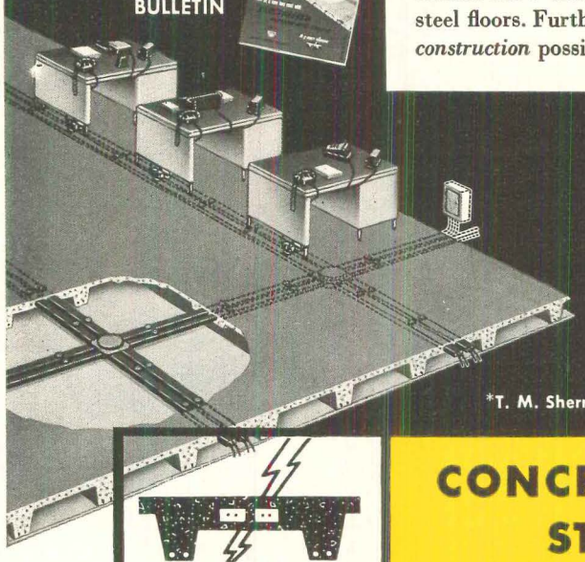

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Los Angeles Police Administration Building	Building
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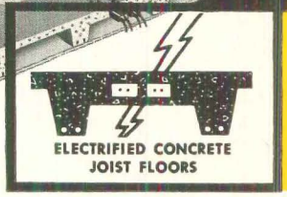
Associated Structural Engineers: Murray Erick and Paul E. Jeffers	Engineers
General Contractors: Morrison-Knudsen Co., Inc. and Ford J. Twaits Co. (joint venture)	Contractors



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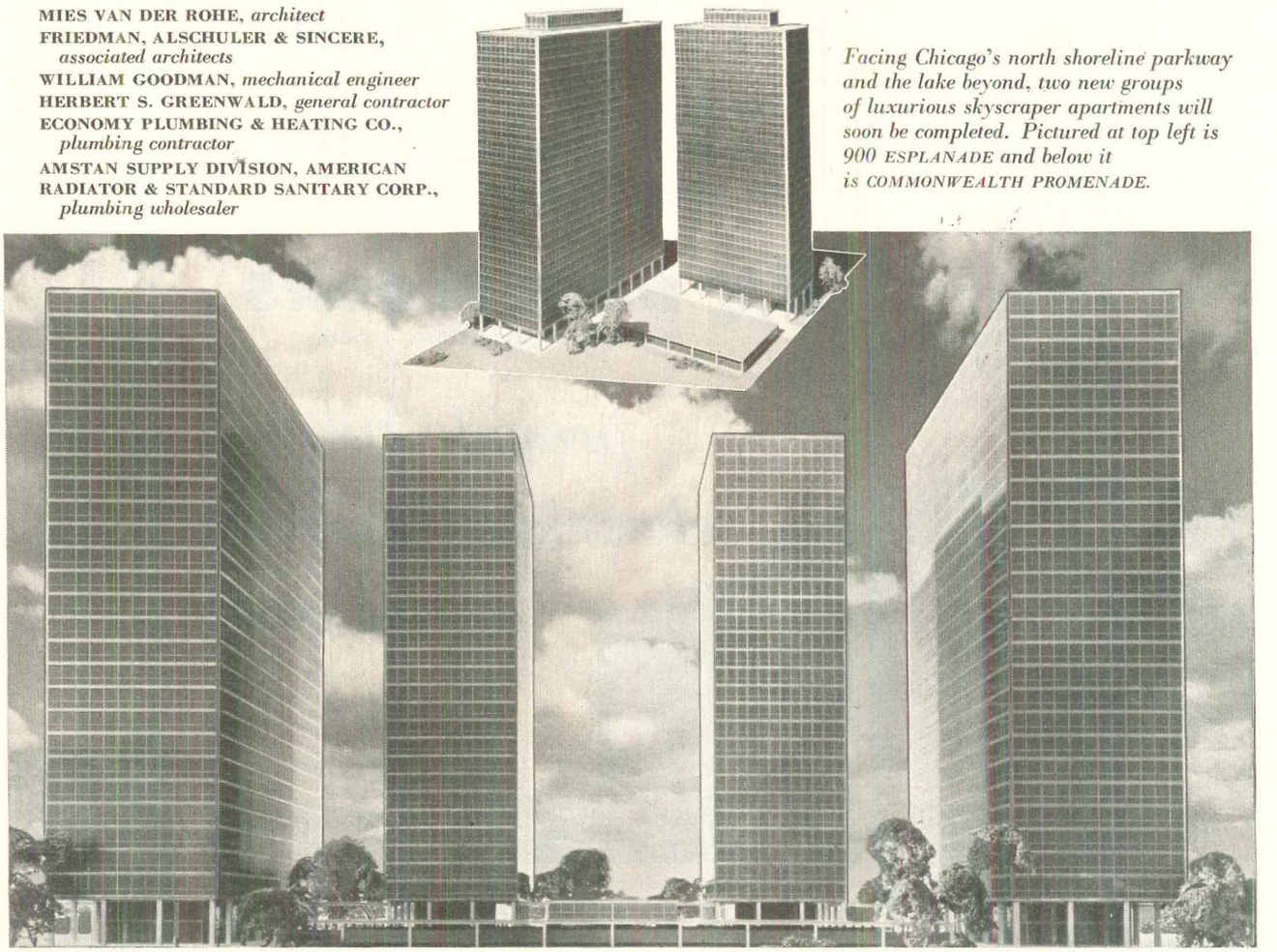
Facing Chicago's north shoreline parkway and the lake beyond, two new groups of luxurious skyscraper apartments will soon be completed. Pictured at top left is 900 ESPLANADE and below it is COMMONWEALTH PROMENADE.



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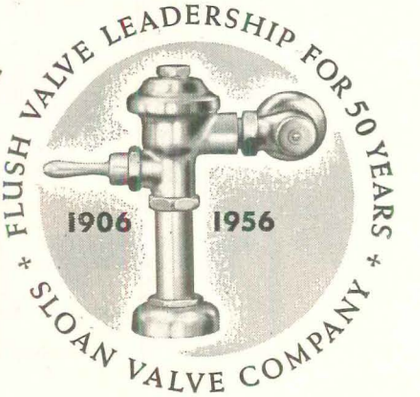


WASHINGTON REPORT

House tables all housing law changes; highway bill passed; school aid killed

Last month as Congress raced to quit and get ready for conventions and campaigning, these Washington events drew the attention of the building industry:

- A worse-than-ever impasse over public housing created the possibility that this year there really might be no new housing legislation or amendments adopted at all.
- The President vetoed the $2.1 billion military construction bill, partly because of a housing proviso. But re-enactment, without proviso, appeared a certainty.
- Federal aid highway legislation that will have a terrific impact on all building was finally enacted.
- Major federal aid for school construction, however, was killed for this year.
- GSA awarded its first lease-purchase contract; revised the terms for others.

Housing bill row. Rejecting the administration's recommendation for 35,000 units a year of new public housing for the next two years, the Senate adopted a bill for 135,000 a year for four years. In the House the administration bill was amended in committee to provide 60,000 units a year for three years. Rather than accept even this increase, the administration, with the help of two Southern Democrats, was able to have the House rules committee vote (6 to 4) to table its own amended bill. This year not so many FHA authorizations as usual required re-enactment or extension. As a result it looked as if there might not be any housing law amendments adopted at all. Ironically, Public Housing Commissioner Charles E. Slusser had pointed out the futility of the Senate bill for 440,000 units over four years. Because of increased building costs since the basic public housing legislation was adopted in 1949, the subsidy authorization still available would only be adequate to finance about 275,000 units at most.

SLUSSER

Military building veto. Two restrictive clauses of the same nature caused President Eisenhower to veto the $2.1 billion military public works bill. One would have barred the Defense Dept. from proceeding with construction of military housing without clearing each project with the Senate and House Armed Forces committees; the other dealt with an Air Force anti-aircraft missile program. Eisenhower said these provisions "violate the fundamental principle of separation of powers" between the legislative and executive branches. Next day the House repassed the bill with these provisions eliminated; the Senate was expected to do so before adjournment. In modified form, other Congressional committees already exercise somewhat similar "review" of GSA lease-purchase construction projects, and NAREB and NAHB both requested the same type of review for privately built military housing under the housing act.

Highway program enacted. A comprehensive national highway program became a reality and opened the road to an estimated $100 billion of all kinds of construction over the next 13 years. The new law, to be financed with an extra penny-a-gallon gas tax already placed in effect, provided for 40,000 miles of modern roads costing $33 billion, but industry observers noted that expressways often generate about twice as much building of other types; new industrial plants and home communities that soon locate along each route, the same as new towns followed the new railroads a century ago. The law earmarked $15 billion for urban areas, including expressways through 50 or more large metropolitan areas. Potentially this would help eliminate traffic strangulation in downtown areas, the American Municipal Assn. pointed out, but only if there was properly coordinated redevelopment and overall metropolitan area zoning. All building would reap immense benefits from the new law, with its first $400 million of highway contracts expected to be let before the end of the year.

School bill killed. Last year Democrats and Republicans tried to pass a major federal-aid school construction law, but never brought up any measure for a vote because of the segregation issue. This year the administration introduced a revised bill for a $1.5 billion school aid program, and it reached a vote. First the House adopted an anti-segregation amendment, but then it voted 224 to 194 against the bill as amended. The President asked for reconsideration for some acceptable substitute program, but for the foreseeable future any such legislation was dead.

GSA lease-purchase contract. Rather reluctantly, after seriously considering calling for new bids, the General Services Administration signed its first lease-purchase contract for construction of a federal building with private funds. Only one qualified bid was received for construction and financing of the first project, a $1.6 million Court House and Post Office in Rock Island, Ill. (AF, July). This was made by Second Ave. and 19th St. Inc., a Dallas firm that was awarded the contract on the basis of a 4% return on the financing—the maximum allowed by the Budget Bureau. To encourage more bids on another 28 projects for about $155 million that will soon be ready to go, GSA decided to set a ten-year amortization base on those costing $2 million or less, rather than 25 years. For all Washington, D.C. projects, under a separate law, it will call for bids based on a maximum 30-year amortization base.

FHA offers easier charters to aid apartment builders

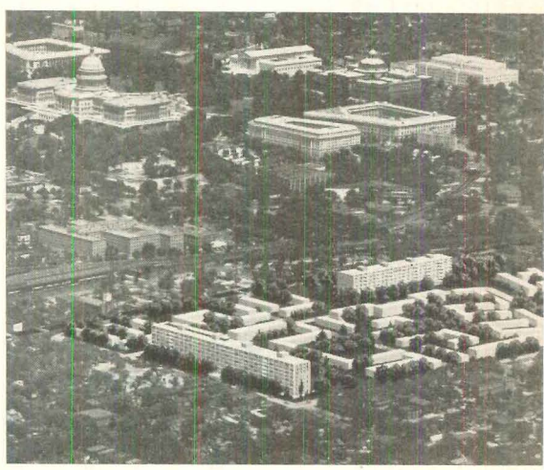
A liberalized standard corporation charter to encourage more FHA rental housing construction was adopted last month. If owners wish, it also can be substituted for the charters of existing projects.

General purpose of the new charter, said FHA General Counsel Robert Wolf, "is to eliminate as much red tape as possible while still protecting FHA's legitimate interests.

"As long as sponsors make their payments and maintain the property, FHA will have no concern about what they do with their cash under the new arrangement," Wolf explained. "But the moment they default they will not be able to take any money out of the corporation."

So long as there is no default, the new

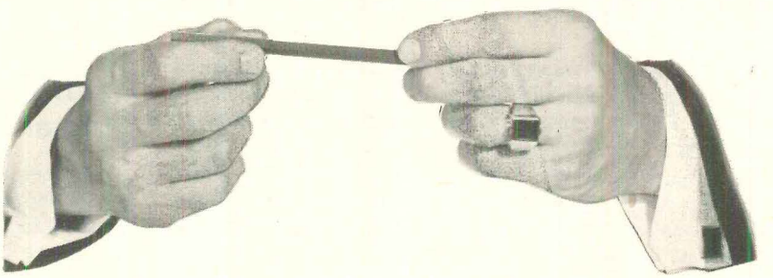
continued on p. 12



Redevelopment to be started in sight of the Capitol

Superimposed artist's sketch shows Area B housing redevelopment finally scheduled to be started in Southwest Washington by February by Developers Roger L. Stevens and James H. Scheuer. (Prior redeveloper abandoned project when he could not obtain FHA approval for mortgage financing allowing a 10% builder-developer profit.) Plans for 1,020 units of high rise and row houses—all air-conditioned—were prepared by Architects Satterlee & Smith, of Washington. Stevens and Scheuer signed 99-year lease for 30-acre site last month at White House ceremonies, have awarded general contract to Hegeman-Harris Co. The 422-acre Area C Southwest project, for which Developer William Zeckendorf has been negotiating with Washington officials, almost completely envelops Area B. District planning officers approved Area C master plan in April.

Your Hands MR. ARCHITECT . . .



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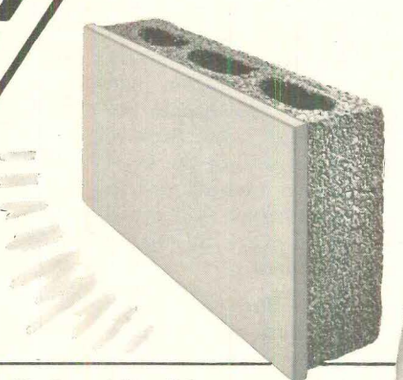

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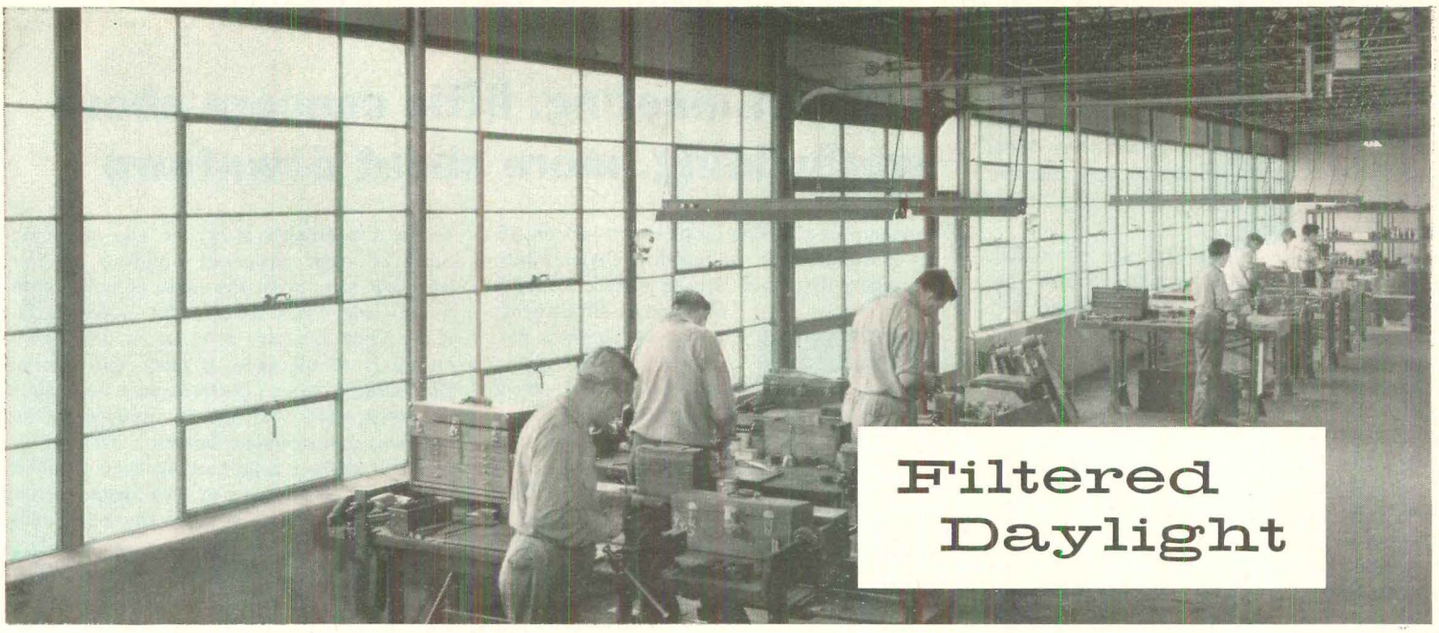

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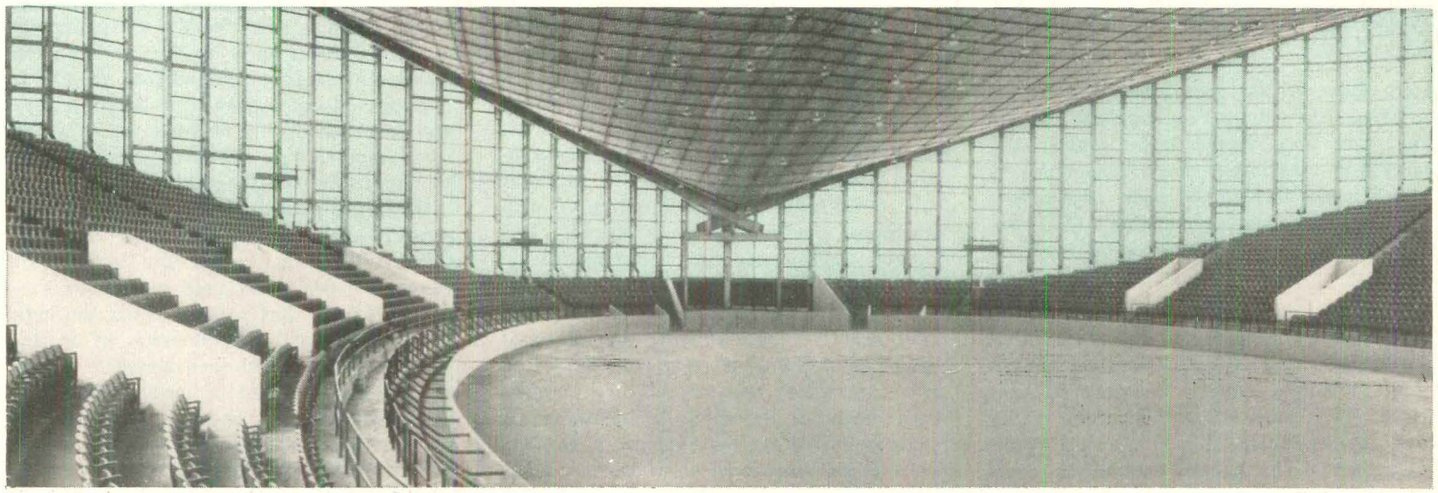

charter drops the rule that stockholders and sponsors can not take any salaries from a rental corporation. It also drops the ban on distribution of excess funds only by dividends. It will now allow them to be invested or loaned in any manner the owner wishes, provided the corporation is not in default.

Rent increase procedures are simplified, but the new charter imposes a new restriction on the use of net income received by the corporation before amortization of its mortgage begins. In the past, said Wolf, concurring with complaints about some New York City situations voiced by Sen. Harry Byrd (D. Va.), there have been two types of "windfall" abuses with rents collected before amortization was officially required to begin: 1) sometimes sponsors pocketed these rents, instead of leaving the money in the corporation, and 2) in other cases sponsors delayed starting amortization even though the corporation was receiving net income. The new charter is aimed at a compromise. It requires creation of an amortization reserve as soon as net income starts, but postpones the start of amortization if there is no net income. This protects the FHA's position on initial rent collections, but still leaves the sponsor an incentive to get the earliest occupancy.

There is also marked improvement in another phase of the FHA's rental projects program. A March survey of all 520,000 units now insured by FHA showed a vacancy rate of only 3.2%, reversing a three-year decline in occupancy that had sent vacancies as high as 4.4% in March '55. (Vacancies in another 22,000 units owned or assigned to FHA under mortgage defaults also declined from 5.1% in March '55 to 4.1% this year.)

NABOM meeting: little concern about overbuilding, more about downtown

Speakers at the 49th annual convention of the National Assn. of Building Owners and Managers displayed only moderate concern over the possibilities of any major business decline or serious overbuilding of new office structures. Instead, the topics that received greatest attention at their Los Angeles sessions were urban renewal and downtown problems, and the role a building's design or layout may play in its management and rental success.

DORIS M. HO

HOKANSON

Minimum pessimism. One of the few scattered admonitions about office overbuilding possibilities was sounded by outgoing President Sterling Bigler. Questioning whether mortgage lenders were really "cautious" enough in financing new structures on the basis of ten-year leases for most of their space, Bigler said:

"If promoters build space beyond the reasonable ability of a city to absorb in the next ten years (the period of such leases) then the market will have been depreciated to a point where the new building itself will suffer on negotiating lease renewals. So I say ten-year lease commitments are not sufficient protection . . . . I feel certain we will reach the overbuilding stage, and money lenders should make a thorough study of the economic need of each proposed building as the *primary test;* with the lease commitments as the secondary reason for making the loan. They all have a stake in downtown buildings of all ages. If they lend money for building where the economic need does not exist, they will find themselves in the building management business eventually. But this danger zone has not been reached except possibly in one or two spots. I only sound this warning because there is much new construction on the drawing boards."

In reviewing the outlook for the office space industry, former President Leo J. Sheridan of Chicago warned that a period of "readjustment," although only an "interruption" in the nation's steady economic expansion, might be anticipated sometime soon. But its duration or scope, he added, would be entirely unpredictable.

On the encouraging side, Sheridan, rental agent for Chicago's new Prudential Insurance Building, said this structure's 600,000 sq. ft. of tenant space is now almost 95% rented at an average of about $6.60 per sq. ft. By encouraging modernization and upgrading rents in other first-class buildings, he said, the Prudential Building actually benefited the entire Chicago market.

Designs for leasing. President Bigler reported a boom in Building Planning Service studies made for owners of proposed new offices by panels of NABOM renting and management experts. These numbered 13 in the past year, producing a welcome $25,600 incidental profit for the association. They included studies of a municipal building for Milwaukee, the Mies-Johnson-designed prestige Park Ave. House of Seagram in New York, and next will cover a structure in Hawaii. "Of most importance," said Bigler, "we are on more friendly terms with architects and engineers than ever before. They are accepting our service as complementary to their work, which it must be. We are primarily interested from an operating and renting standpoint, and we contend that the architect can design a beautiful building that will incorporate the features we know to be so important to efficient operation—and so important to attract tenants."

Outlining procedures to assure the successful renting of a new office building, Gerald T. Hart, agent for several of Denver's newest, referred to various economic factors that usually affect the bulk and other main characteristics of a proposed structure, and then added: "Lastly, from the standpoint of design, the overall architectural pattern must be one which will satisfy the man on the street. We hear unusual structures referred to as 'architects' buildings.' While they may

US drops plaster trades antitrust suit, files another on plaster 'gun' leases

In Chicago federal prosecutors withdrew one type of restraint-of-trade action against plaster and lathe workers and employers, but the very next day filed another type of antitrust suit against two unions and the manufacturer of a plastering machine.

▸ On June 28 the government's antitrust division dropped its four-year-old charges that the plaster and lathe unions and employer association were conspiring to harass and bar out-of-state contractors and suppress local competition. (This action followed a recommendation made in January by a local court—AF, March '56.)

▸ On June 29, however, the antitrust division filed a civil suit against local plaster and bricklayer unions and the E-Z-On Corp. The company is the patent holder and manufacturer of a plastering "gun" described in the suit as capable of covering 150 sq. yd. per hour. This suit charged illegal agreements between the union and the manufacturer that deprive the public of lower plastering costs. Since 1950 under these agreements, the government claims, the manufacturer has refused to sell its product, but only lease it to union-employing contractors within the territorial jurisdiction of the unions.

[Said US Attorney Gen. Brownell in announcing the suit, which seeks to dissolve these agreements and compel the manufacturer to offer its machines for outright sale to anyone: "The distribution of such machines should not be fettered. The alleged agreements have nothing to do with labor relations between E-Z-On Corp. and unions. Those agreements simply prohibit sales . . . and provide that the machines be leased on a restrictive basis . . . give contractors who are eligible to lease such machines an undue competitive advantage over other contractors. If proven, such restrictions run afoul of the Sherman Act."]

generate considerable enthusiasm among the architectural fraternity, unless the design is satisfactory to the broad public base, the problems of rentability will be multiplied."

Stick to modules. Architect Welton Becket described the "evolution" of a modern office building. Advising modular construction, he noted that no perfect module size that is suitable for all buildings has been found —"the usual module is a compromise between the most economical construction-wise, and the most economical space-wise." He also added a warning for the 1,100 owner-manager delegates: "Modular development in building imposes a certain discipline on building management. The module immediately loses its value if management, for any reason, does not stay within the framework of the original concept. If partitions are not held to the module lines, the manager soon finds himself confronted with an underfloor duct which does not work; the lights seem always to be located in the center of the partitions, and it becomes an increasingly expensive operation to change the air-conditioning layout to nonmodular."

The new Los Angeles building Becket designed for Capitol Records was not made circular because the owner was a record manufacturer, said the architect, but primarily because it met the company's needs for departmental units of 5,000 to 6,000 sq. ft. better than designs for conventional structures that were also considered.

His design department had previously determined that the most practical round building should be 90′ in diameter, Becket explained. A radius of less than 45′ would cramp both peripheral offices and central core utilities; a greater radius would waste space or require a second corridor for an outer ring of offices. A 90′ diameter produced a gross 6,300 sq. ft. floor. Allowing 14% of the core area for a compact arrangement of elevators, stairs, utilities, etc. (compared with 20% in most conventional buildings), each floor had 5,400 sq. ft. of useable space, just about what the record makers wanted. A big additional dividend from the circular design, said Becket, was 20% less outer wall surface, which not only cut construction costs, also reduced the cost and operating expense of heating and cooling equipment.

Downtown blues. Scoring "alarming complacency" on downtown problems in some cities, President Bigler declared: "How much the giant downtown business center will be bled, is not yet certain, but the bleeding is certainly taking place." He criticized the outlying area construction of many new insurance company buildings as "inconsistent" with the self-interest of the same companies to protect their downtown mortgage investments.

Downtown's greatest need, Bigler believes, is "mass transportation—modern, convenient, rapid and at low cost. Expressways to relieve congestion are inadequate by the time they are built, as they encourage more private automobiles to be used. Certainly the building of expressways is a subsidy to the motorist. Why hesitate to subsidize mass transportation?"

But despite current complacency, ventured General Counsel Harry J. Gerrity, NABOM's Washington representative, "in future years urban renewal will be of increasing importance to all downtown property owners—because it involves not only housing, but also city planning and the development of commercial real estate, office buildings and other structures."

Shopping Center Expert Larry Smith, however, suggested that exaggerated, overplayed publicity about many proposed but unexecuted projects has started to backfire. He said big newspaper stories gave many readers the impression that more redevelopment has been accomplished than actually has, and then a feeling of frustration, when they subsequently learned that many projects are scarcely beyond the idea stage.

Store rents off downtown. In discussing central business district problems, Leo Sheridan referred to a "disturbing trend" revealed in a recent Chicago office buildings study—a drop in average ground floor store rentals from about $6 per sq. ft. in 1948 to about $4 in 1955. Suggesting that this was "of larger significance than is apparent on the surface," he said: "Because ground floor rentals do not always loom large in the rental income of the average office building, this has not attracted much attention. But it may provide a warning of the lessening business importance of the downtown district."

New officers. In the NABOM election, First Vice President Maynard Hokanson, of Indianapolis, succeeded Bigler as president; Secretary-Treasurer John I. Hill, of Houston, succeeded Hokanson, and Regional Vice President John H. Williams, of Los Angeles became secretary-treasurer. Versatile, energetic Hokanson, 44, earned a law doctorate at Indiana University and also has completed the advanced management program at Harvard's Graduate School of Business Administration. In building management he fills a dual role. He serves in an owner-manager capacity for the Hume Mansur Building, as vice president, secretary and director of the owning corporation. As a Realtor, and a Management Institute Certified Property Manager, he also serves as a fee manager for other Indianapolis buildings. In his civic work he is a member of the Mayor's advisory budget review committee, and secretary and a director of the Indianapolis-Marion County Building Authority, which has been created to build and operate a new city-county office and courts building, an auditorium and a jail and police headquarters.

David A. Lang, management division executive secretary of the NY Real Estate Board, was elected president of NABOM's Associated Secretaries, succeeding Detroit's E. Arthur Edwards.

CAMERA/BILL EARLY

NABOM SPEAKERS on office building problems included George R. Bailey (l), chairman of its Building Planning Service Committee, Los Angeles Architect Welton Becket (c), and Homer Wells, Detroit BOMA president.

Wave of hotels includes new Hiltons for Pittsburgh, Detroit, Kansas City

Under plans announced by various chain executives and individuals last month, new hotels will soon be bustin' out all over.

Announcer of the biggest plans was Conrad Hilton, whose organization claims the biggest number of rooms (26,086) and the greatest gross revenues ($188 million in 1955). Predicting that the ten-year-old Hilton Hotels Corp. will expand even more in its second decade than it did in its first, Hilton during the past month disclosed advanced negotiations for early construction of a new $15 million 800-room building in Pittsburgh, an $18 million, 1,000-room unit in Kansas City, and a $24 million, 1,999-room giant in Detroit. Other cities where preliminary studies for new Hilton units are under way, he added, include Cleveland, Portland, Ore., Atlanta, San Francisco, New Orleans and Baltimore.

FABIAN BACHRACH

HILTON

The 17-story Pittsburgh Hilton would rise in a Y shape in the parklike setting of the Golden Triangle redevelopment on a site leased from Equitable Life next to the insurance firm's three office buildings there. The 14-story Kansas City Hilton would occupy most of the downtown block bounded by Baltimore, Wyandotte, 14th and 15th Sts., already optioned. The site of the Detroit Hilton would be directly opposite that city's new $42 million Civic Center Convention Hall. So far, archi-

continued on p. 17

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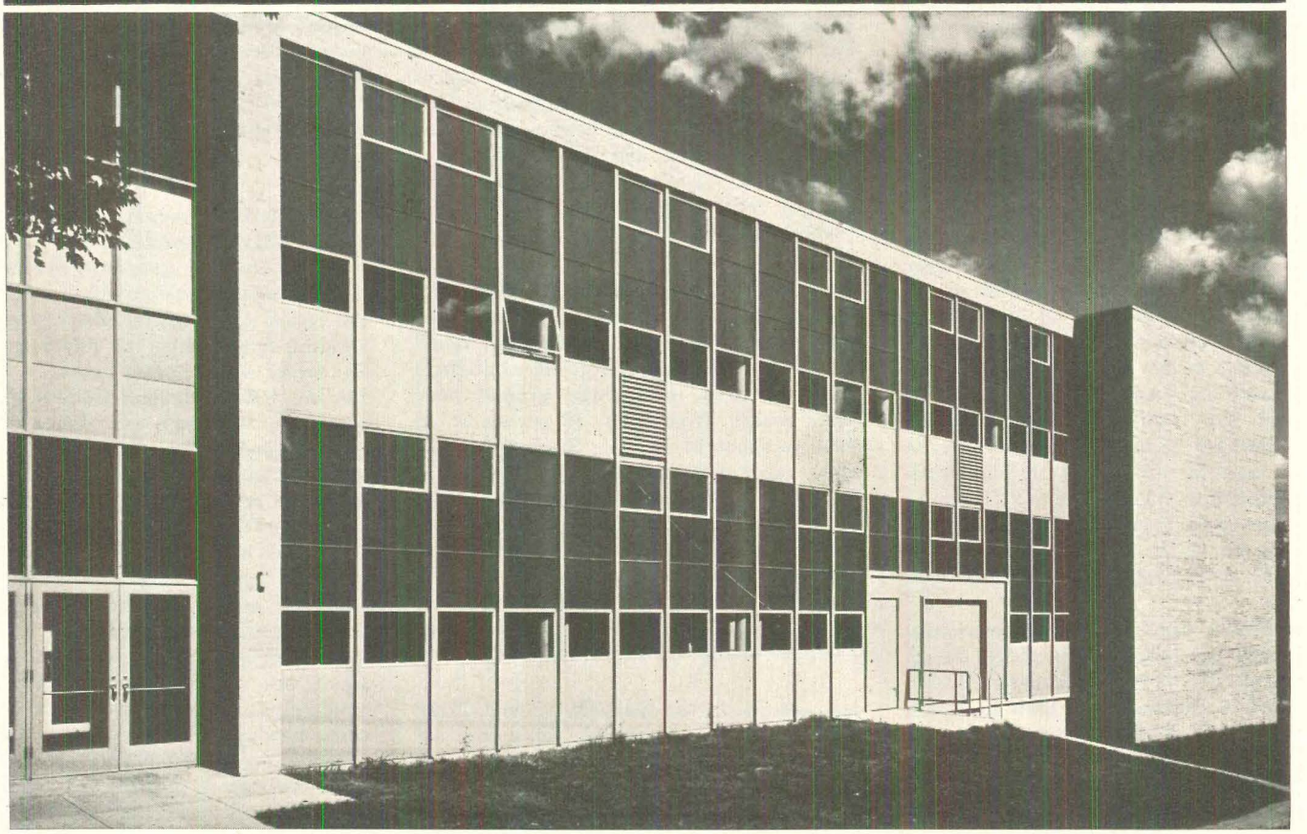

Industrial Arts Addition, West Junior High School, Kansas City, Missouri

Architects—Curtis and Cowling
General Contractors—Bennett Construction Co.

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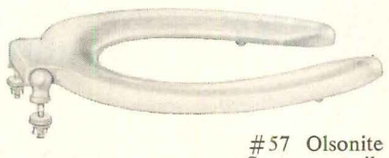

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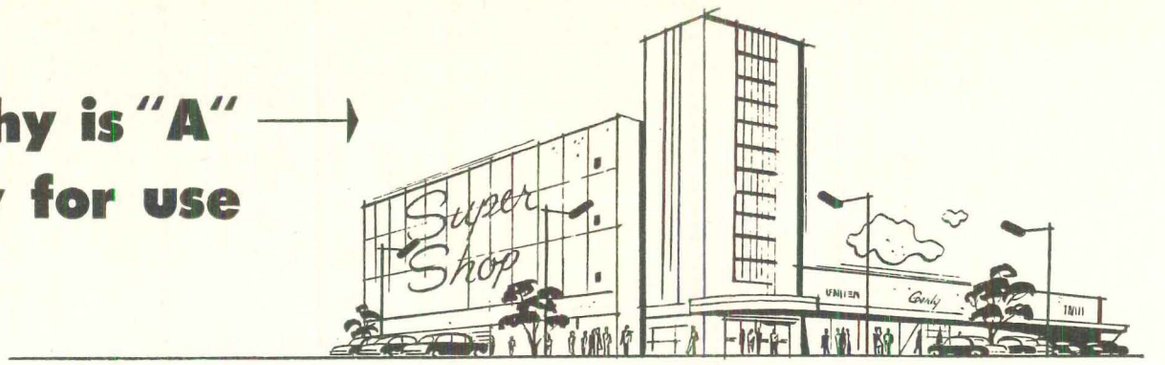
ORIGINATORS OF THE SOLID PLASTIC SEAT

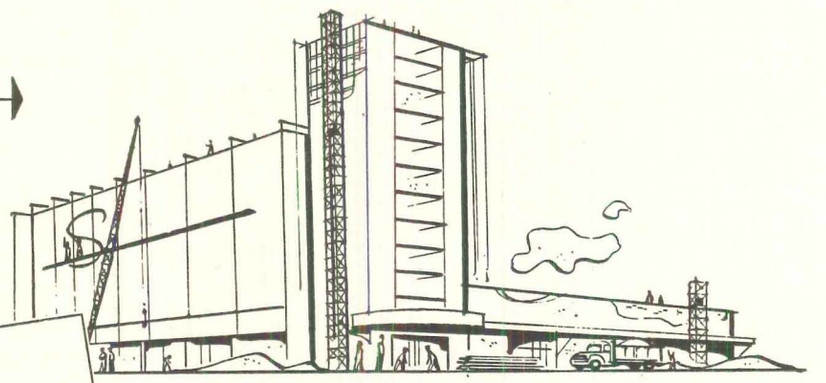
A-5

The Price Tower, Bartlesville, Oklahoma . . . Architect: Frank Lloyd Wright
Owner: H. C. Price Co.
Mechanical Engineer: W. J. Collins, Jr.
Mechanical Contractor: W. A. Landers
Fixture Supplier: Crane Company

Why is "A" ready for use →



...while "B" is incomplete? →



BECAUSE John Watts Electrical Contractor WAS CONSULTED EARLY

Consider two buildings of identical appearance. Plans for both were begun at the same time. Yet one is ready for use while the other still is days — perhaps weeks — from completion. Why?

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tects' names were not announced on any of these projects, but FORUM learned that plans for the proposed Kansas City building (sketch p. 24) were prepared by Los Angeles Architect William S. Beckett in association with Winslow & Johnson, hotel planners.

Sheraton leads in numbers. No small operator, the Sheraton Corp. of America narrowed the present gap between itself and league leader Hilton when it bought the 22-unit chain of Eppley Hotels Co. in a $30 million deal in May. This gave Sheraton a record of 54 hotels in 40 US and Canadian cities, although in rooms (24,360) it still remained in second place. Besides two large conventional hotels under construction in Philadelphia and Dallas, Sheraton also plans four "highway hotels," designed to compete with the motel trade, in Portland, Ore., Binghamton and Tarrytown, N.Y., and Florence, Ala.; also a $3.5 million addition to its Sheraton Belvedere in Baltimore.

Other pending new hostelry projects:

- Knott Hotels Corp. is planning a $2 million 140-room hotel in Towson, Md., just north of Baltimore. Highly satisfied with two new million dollar motels near Pittsburgh and Williamsburg, Va., it also plans three more of these (at a total cost of more than $3 million) near Washington, Groton, Conn., and at another site near Pittsburgh. In New York Knott will operate a new Idlewild Airport hotel designed by Architect William B. Tabler.
- In Miami, Newspaper Publisher John Randolph Hearst was planning to start this year a $20 million 800-room hotel, apartment and office building in the DuPont Plaza downtown district at the juncture of the Miami River and Biscayne Bay, adjacent to a proposed $10 million, 300-room hotel, office, building materials and architects' building.
- In San Francisco a syndicate headed by Hotelman Charles A. Sammons, of Dallas, and Paul Robinson, of Tucson, took an option for a 50-year lease on the 110,000 sq. ft. downtown block bounded by Van Ness Ave. and Post, Geary and Franklin Sts. They said they planned an "ultra modern" office building, a 1,000-car garage and a 500-room luxury hotel, the city's first large Class A hotel in more than 25 years, to be designed by Architects Hertzka & Knowles, of San Francisco, and Thomas Price, of Dallas. Construction would not start for about a year.
- In St. Louis, a $12 million, 15-story, 312-room hotel, office building and merchandising mart for the Memorial Plaza development just west of Kiel Auditorium was being planned for Martin O'Brien Israel, local realty developer, by Architect Edward Francis Gordon.
- In Cleveland plans were announced for a 410-room, five-story, $5 million air-conditioned "motel," largest in the state, on Euclid Ave. near Playhouse Square. Owners would be Bliss Realty, Inc. (headed by Warren Bicknell Jr., and Royal Firman, Jr.) which recently completed a new 100-room motel near the Cleveland airport.

PROFESSIONAL RELATIONS

ASEE, AGC mull courses to avoid shortage of construction executives

How to meet the industry's pressing need for more college educated men for top management posts was explored at a "Summer School of Construction Education" at Iowa State College, at Ames. Sponsor of the school, the first of its kind, was the American Society for Engineering Education. Concurrently at Ames a new joint cooperative committee on construction education of ASEE and the Associated General Contractors of America held its first meeting.

Value of graduate study. In one of the sessions of this school, attended by about 40 educators and industry representatives, Civil Engineering Professor C. H. Oglesby, of Stanford University, related how that institution had developed its undergraduate and graduate courses leading to an MS Civil Engineering-Construction degree. Originally Stanford officials were skeptical about a fifth year of learning. "It was assumed," Oglesby recalled, "That the engineer interested in construction would gain more by going to work. . . . [In recent years] however, our conviction is growing that the [5-year] program is worth while. The most enthusiastic supporters are graduates, who now hold responsible positions in construction, or who are themselves contractors. Also, many large construction firm executives have stated that men with the added training will be much more valuable to them. . . .

"There are probably those who would prefer that the graduate year be weighted more heavily toward engineering. We and our contractor advisors do not agree. We are convinced that no single group of courses can properly cover all areas of importance for any industry as diversified as construction. It is our opinion a flexible program provides the only means by which the student can use his time to best advantage [when he wants to prepare for a particular branch of construction]. We also are convinced that training for management is more important in construction than is technical competence in advanced engineering subjects. Consequently, our program puts major emphasis on problems of management."

Love that job. Industry Representative Manley Osgood, of the Ann Arbor Construction Co., sketched the industry's need for top management personnel. He cited one estimate that 42% of its present executives are over 55 years old. He also referred to an AGC survey last year that indicated contractors would require about 13,000 young engineering graduates during the next three years, or 20,000 over the next five years, compared with a total of only 4,400 new civil engineers graduated this year. Construction, said Osgood, wants men "who have imagination and inquiring minds, men who after observation and experience will question processes and methods in use with the idea that they can be improved . . . men who are practical as well as theoretical. . . . But *first* I would place the love for construction. This may have to be acquired. It is the first fundamental in any activity that a man must love his work to be happy in it and to realize the sense of accomplishment which it provides. If our engineering graduate does not have this love of construction or does not acquire it very early in his professional employment, he should get out of construction."

ASEE-AGC resolutions. The joint ASEE-AGC committee, under cochairmen Professor Frank W. Stubbs, Jr., of Purdue University, and AGC member W. A. Klinger of Sioux City, Iowa, voted to continue its work and to meet next at Cornell University, Ithaca, N.Y. It also adopted a series of resolutions that mostly mirrored discussions of the Ames "school." These resolutions advocated:

- Appropriate revisions to civil engineering curricula to give all students introductory courses to construction and management and special curricula for those wishing to specialize in construction or construction management, offering the latter an MS Civil-Engineering-Construction degree.
- "Contractors and educators alike explore all possible resources to aid civil and architectural engineering departments to keep their facilities adequate and make [their teaching positions] more attractive to qualified personnel through higher salaries and other benefits."
- Greater construction industry support for engineering education, including financial aid to both students and institutions, and summer employment for students.

School jobs go begging, Delaware repeals fee law

Delaware's legislature late in June gave up an abortive effort to cut school construction costs by arbitrarily limiting architects' fees. Realizing that the measure had backfired, it repealed a provision it enacted last winter that limited design payments on state-aided projects to 5%. (Its ambiguous language was interpreted by the state's attorney general to mean a total of 5% to cover both architect and engineering fees.)

At stake was work on a $46 million public school building program. This started to bog down when architects simply de-

continued on p. 21

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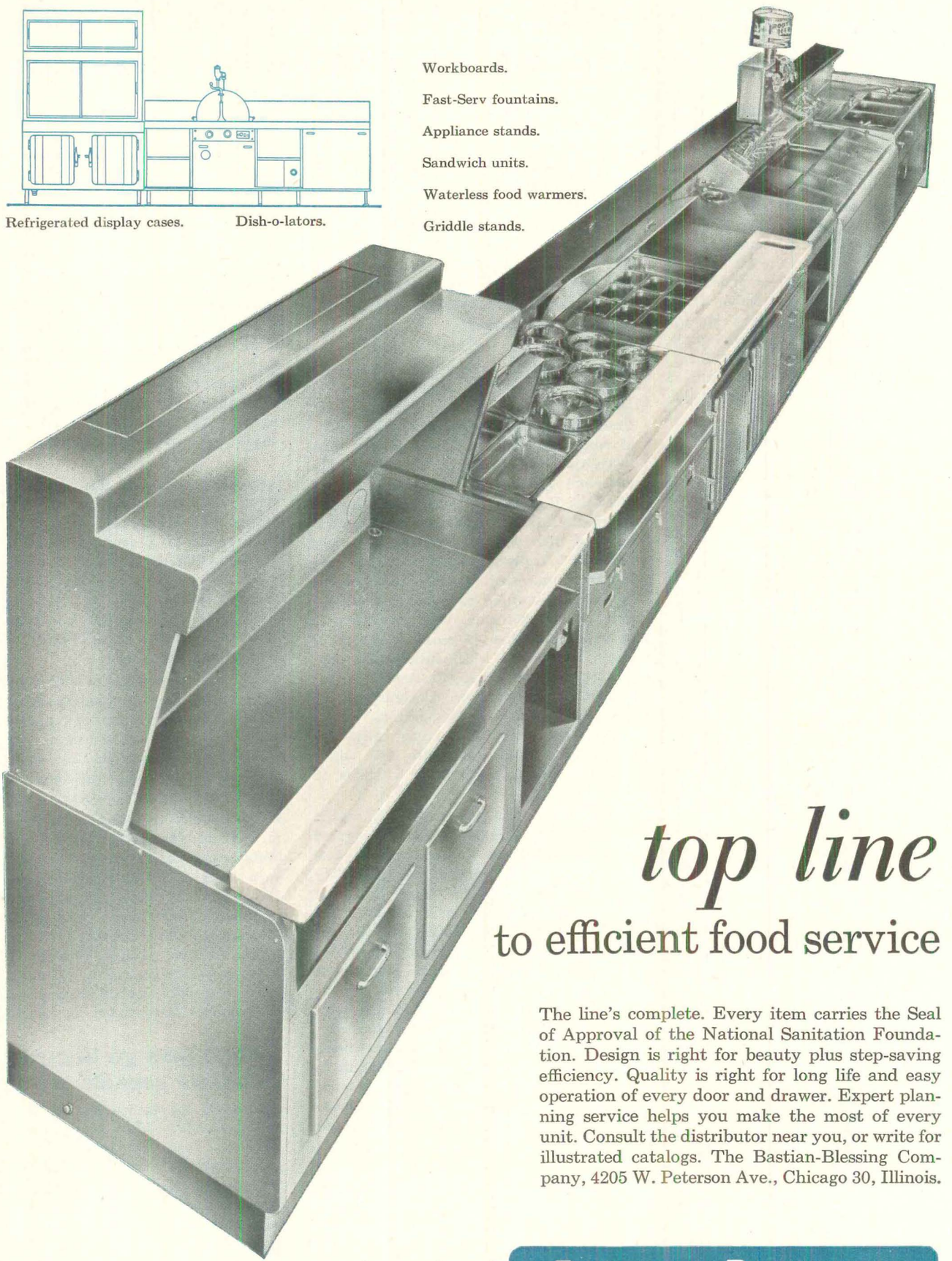

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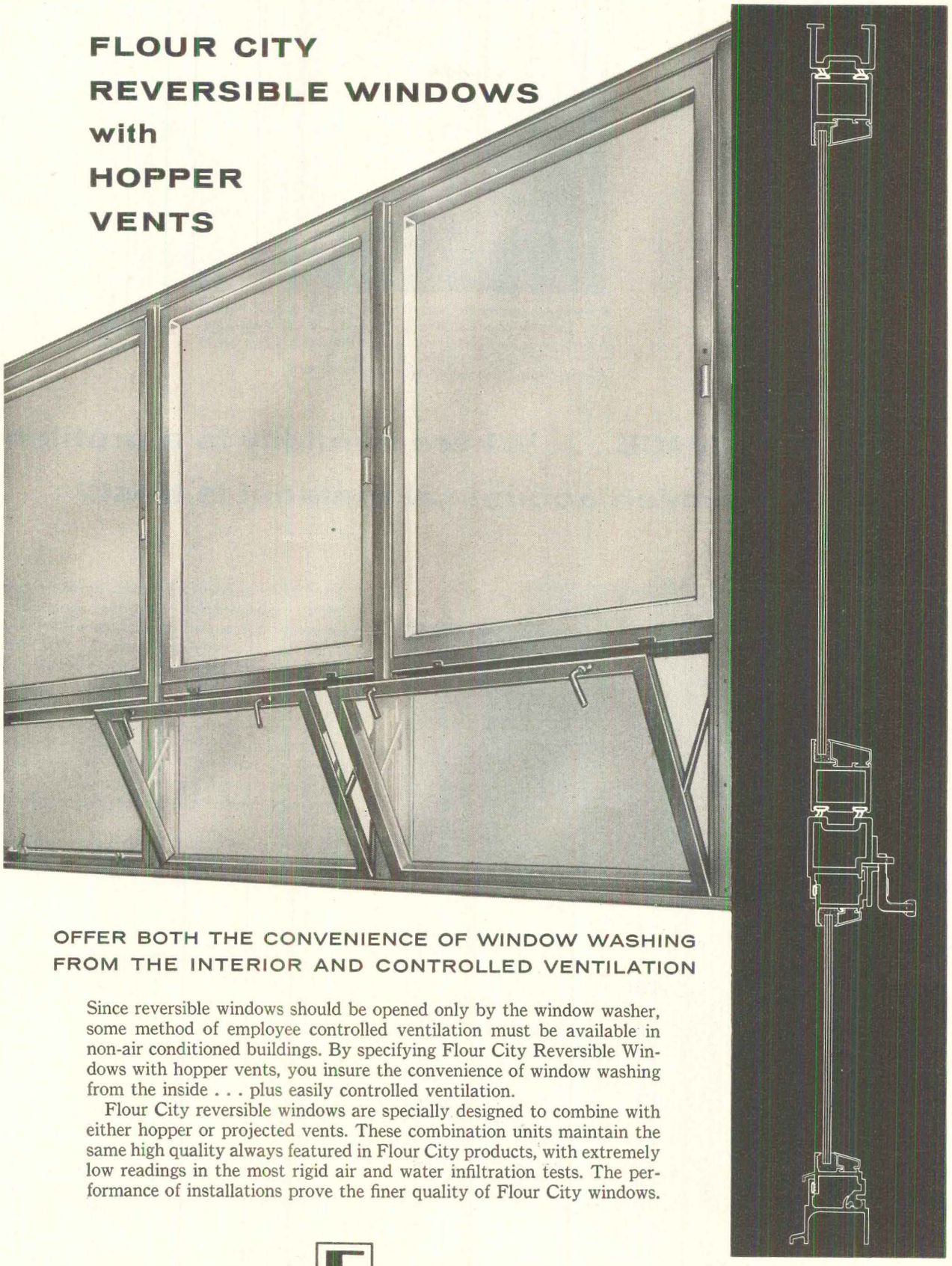

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Frequent washing to meet sanitary standards will not affect the Arrestone ceiling in this kitchen serving area. Arrestone is completely incombustible and soaks up as much as 90% of the sounds that strike it.
Metropolitan Museum of Art, New York, N. Y.

MOISTURE RESISTANCE . . . Where humidity is a problem, which acoustical material is best?

Moisture can't damage this good-looking ceiling of Armstrong Corkoustic nor impair its acoustical efficiency. An all-cork material, Corkoustic is finished with two coats of smooth white paint.
Brownsville Boys' Club, Brooklyn, New York

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clined all new commissions under the 5% proviso, contrasted with former payments that were usually 7% (of which about 2¼% was usually shared with engineer consultants). Leader of the repeal fight was the AIA Delaware chapter, headed by Leon N. Fagnani.

In protesting effects of the fee law to the State Education Board, Fagnani pointed out that the 7% to 5% reduction was a 28% cutback in compensation that would usually wipe out an architect's entire profit on a job. Of the 4¾% the architect usually retained, said Fagnani, about 3¾% went for draftsmen's wages, office salaries, rent and other overhead. He also said Delaware parochial schools usually paid at least 6% fees.

At a meeting with the State Education Board, AIA spokesmen said members would be willing to do school work for a flat 6% as a compromise, and the chapter subsequently adopted a resolution to that effect that was publicized and circulated to legislators and school boards throughout the state. Ultimately Governor J. Caleb Boggs (R) joined the repeal forces, Republican legislators publicly accused the Democratic majority of responsibility for holding up sorely needed school building as a result of the 5% ceiling, and enough Democrats finally joined the Republicans to pass the repealer.

Consulting engineers form new professional council

In Tulsa last month, upon ratification of a constitution, a new organization of engineers was born: the Consulting Engineers Council, a national organization to promote ethical standards and to represent independent consulting engineers in their relations with architects and other professions, legislative bodies and government agencies. CEC is basically a federation of state and local associations of independent consultants. In the interim between a preliminary St. Louis convention last October and its formal creation in Tulsa it has been referred to as a proposed "national federation."

First CEC officers: president, John K. M. Pryke, senior partner of Slocum & Fuller, New York, who was chairman of the committee that drafted its constitution; first vice president, C. C. Pate, Tulsa, president of Oklahoma's Consulting Engineers Assn.; second vice president, B. M. Dornblatt, New Orleans; secretary, Edward J. Wolff; treasurer, C. E. Becker, St. Louis. Temporary headquarters are at 220 E. 42nd St., New York City, until a committee selects a permanent headquarters city. Member associations are expected to pay the council about $75 per capita annually for each of their individual local members to support an initial national budget of almost $50,000 including the salaries of a fulltime director and staff.

ROYCE CRAIG

PRYKE

Pryke said he expected wholehearted cooperation between CEC and the National Society of Professional Engineers, which a month earlier at its Atlantic City convention created a subdivision for consultants, for engineers in private practice and for their employees. (The new NSPE subdivision, chairmanned by A. C. Kirkwood of Kansas City, will also handle all society matters related to architects.) A nationwide poll of consultants, said Pryke, had indicated a need for the creation of CEC, because NSPE is predominantly an employee organization, and only about 3% of its members are independent consulting engineers.

Prefab synagogues offered; but school sales go slow

Prefabricated nonresidential buildings were having both ups and downs last month:

▸ US Steel Homes Inc. (US Steel subsidiary), with cooperation from the Union of Orthodox Jewish Congregations of America, announced plans for marketing theologically approved prefabricated synagogues and Jewish community center and day school buildings. Architect David Moed designed two basic expandable models (L and T shaped) to sell for about $32,000 each. In "package" deals, with UOJCA financing assistance, congregations will also be able to purchase ritualaria and approved interior furnishings. The rapid growth of hundreds of new suburban congregations in need of spiritual centers promoted inauguration of the plan, said UOJCA President Moses L. Feuerstein. (Another US Steel Home line introduced a month earlier: prefabricated drive-in suburban branch banks.)

▸ National Homes, the country's largest prefabricator, received widespread publicity, but scarcely any firm orders, after it showed its prefabricated schools in Lafayette, Ind. last fall (AF, Oct. '55). Most of the potential buyers wanted a good many changes in basic designs, which it was not practical for National to make. Denying reports that they were giving up production of prefab schools (which are now turned out on order), National officials have decided however, to "stop putting emphasis" on their school line. (One consolation for National: in April it won a contract for construction of 36 dormitory courts for 696 unmarried students at Purdue University on a low bid of $1,216,433—an average of $1,743 per student.)

NEWS *continued on p. 24*

MANUFACTURING-PRODUCERS

41 building materials producers on Fortune's list of 500 biggest firms

Forty-one manufacturers of building materials and equipment were included on the second annual list of the 500 largest US industrial corporations published in the July FORTUNE, sister magazine of FORUM. Biggest of these by sales volume was Pittsburgh Plate Glass ($581 million), and last under the honors wire was Congoleum-Nairn ($59.7 million). Sherwin-Williams also would have been on the list, in high rank, the magazine suggested, except for the fact it is one of a small number of top companies that do not release their sales figures.

In the order of sales volume (but omitting such firms as US Steel and Westinghouse that serve construction, but devote their major energies to production of nonbuilding items), the FORTUNE list included the following building materials producers:

	Rank			
Company	1955 sales	1954 sales	1955 assets	1955 net profits
Pittsburgh Plate Glass	57	68	48	27
National Lead	66	72	80	42
Owens-Illinois Glass	91	89	91	85
Am. Radiator & Std.	99	100	107	96
Crane	104	102	114	207
Weyerhaeuser Timber	109	114	75	39
Johns-Manville	123	117	116	92
Libbey-Owens-Ford	126	152	153	61
US Gypsum	137	146	103	54
Armstrong Cork	144	144	165	136
Minneapolis-Honeywell	148	132	149	106
Revere Copper & Brass	151	165	265	169
Glidden	171	154	222	218
Carrier	186	202	182	215
Grinnell	209	203	228	222
Owens-Corning Fibergl.	211	227	218	173
US Plywood	229	246	198	238
National Gypsum	233	241	169	122
Otis Elevator	248	274	235	159
Worthington	250	226	207	243
Certain-teed	257	360	285	226
Diamond Match	268	290	246	206
US Pipe & Foundry	287	312	245	168
Long-Bell Lumber	295	323	259	193
Yale & Towne	297	321	263	330
Flintkote	306	300	292	317
Georgia-Pacific Plywood	326	408	355	270
Lone Star Cement	330	333	232	134
Hines (Edward) Lumber	348	369	440	305
York	362	305	307	423
Ruberoid	365	355	364	336
Square D	378	451	374	220
Murray (Eljer plumbing)	402	265	315	287
Celotex	412	420	375	310
Lehigh Portland Cement	415	429	268	170
Ideal Cement	418	435	302	144
Carey (Philip) Mfg.	424	456	425	405
Robertshaw-Fulton	438	436	439	361
Bird & Son	449	483	447	426
Mullins Mfg.	465	485	434	464
Congoleum-Nairn	466	470	337	434

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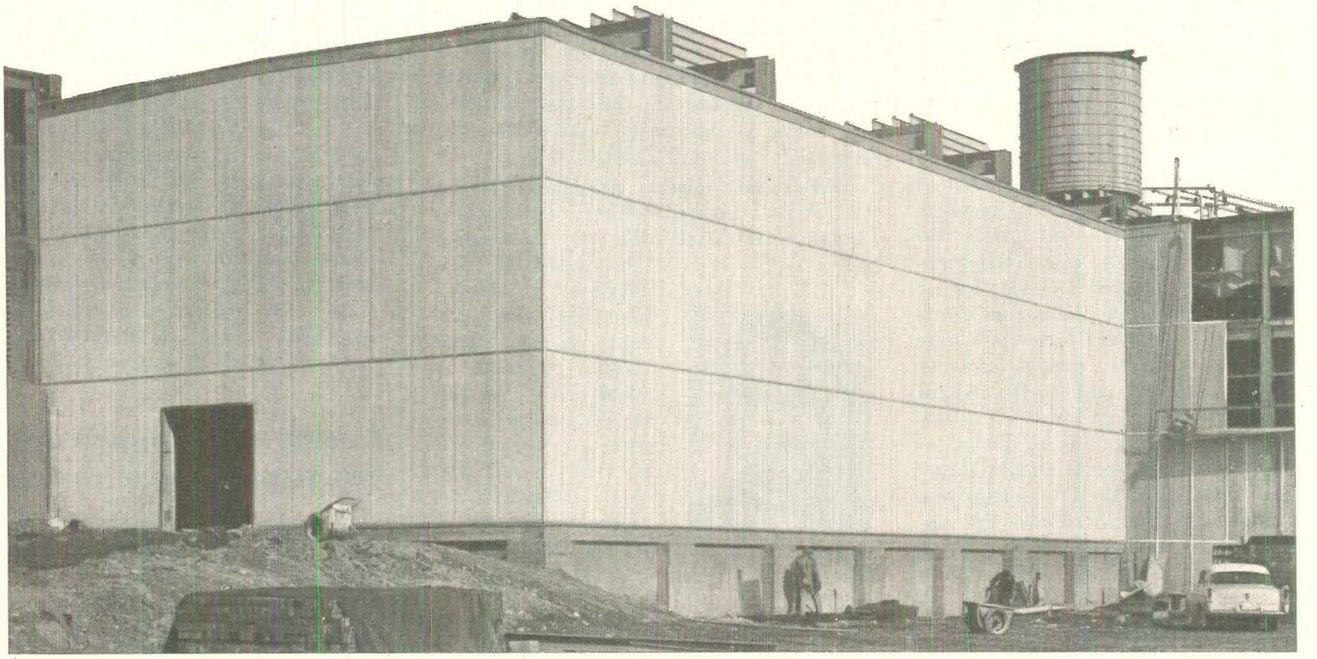


Transitop Panels offer maximum coverage... minimum erection cost

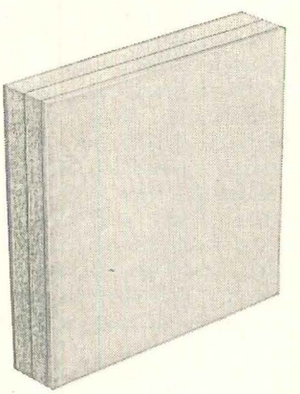
THE MOST striking change in building construction methods in recent years has been the trend toward prefabricated building panels.

This is particularly true in the construction of panelized curtain walls for buildings, large and small. Although curtain wall construction in skyscrapers has been widely publicized, this method of construction is just as applicable to smaller buildings such as schools, hospitals, office buildings, motels and shopping centers. Today, paneled curtain walls probably exceed all other applications in popularity and are rapidly becoming the standard method of building construction.

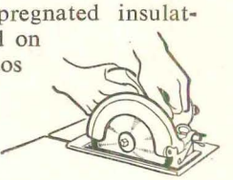
Johns-Manville Transitop offers architects, designers and builders a simple and economical method of providing panelized curtain walls. Transitop is durable, weather resistant, requires minimum maintenance. As a curtain wall, Transitop provides high structural strength, reduces the dead load, increases usable floor space, provides adequate insulation and is easy to erect. Panels are easily applied over wood or steel framing.

The same advantages that make Transitop so suitable for panelized curtain wall construction also make it equally ideal for roof deck construction.

J-M Transitop is a complete 4′ wide by 8′, 9′, 10′, or 12′ long unit, in 1⅛″, 1⅜″, 1⅝″, or 2″ thicknesses. It consists of an integral impregnated insulating board core faced on two sides with Asbestos Flexboard® sheets.



- Facings of tough, weatherproof asbestos-cement Flexboard
- Core of integrally impregnated insulating board
- Waterproof adhesive bonds core to Flexboard sheets



- Transitop is cut to fit and installed with ordinary construction tools

For information on Transitop, write Johns-Manville, Dept. AF, Box 158, New York 16, N. Y.

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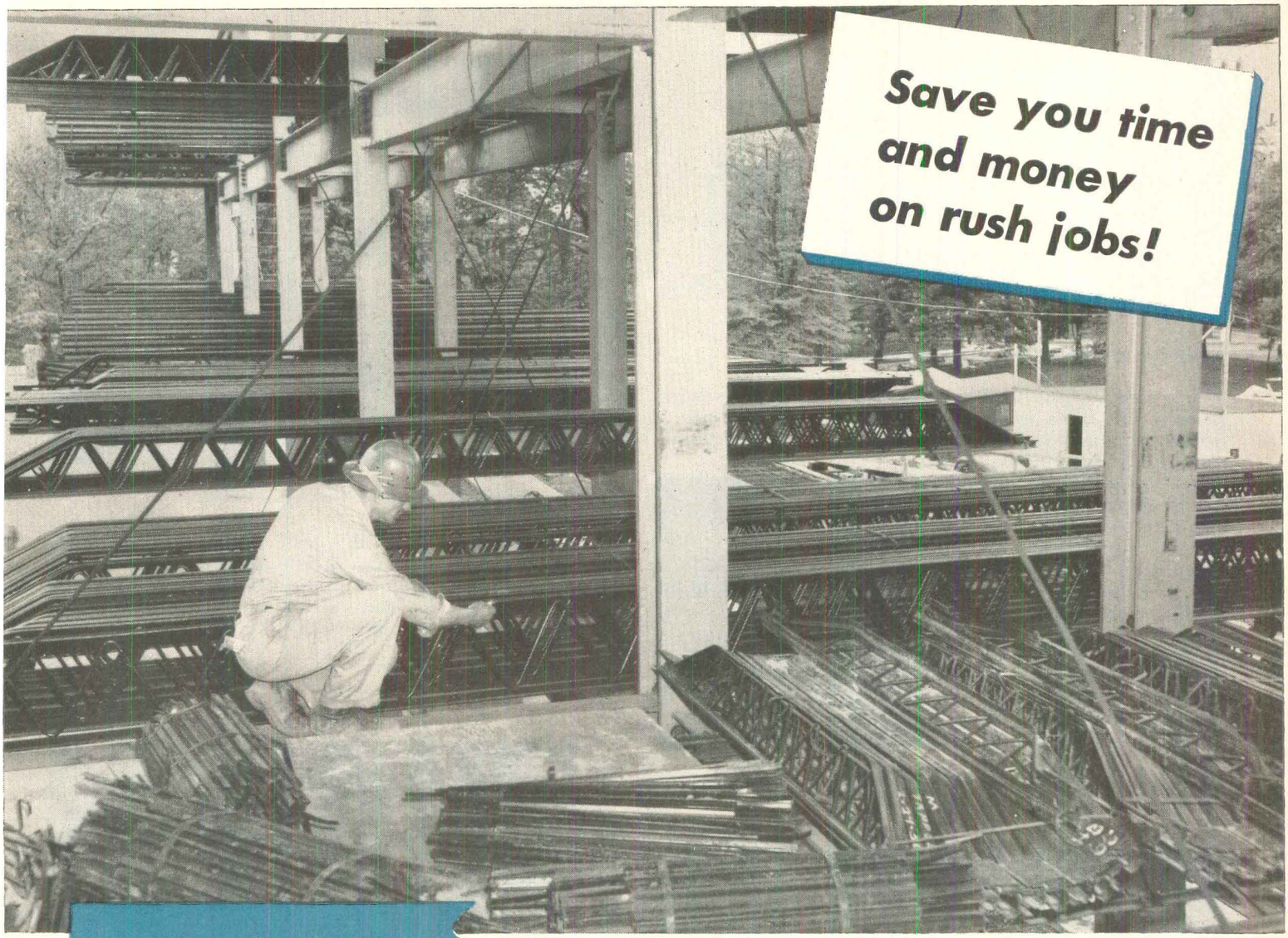

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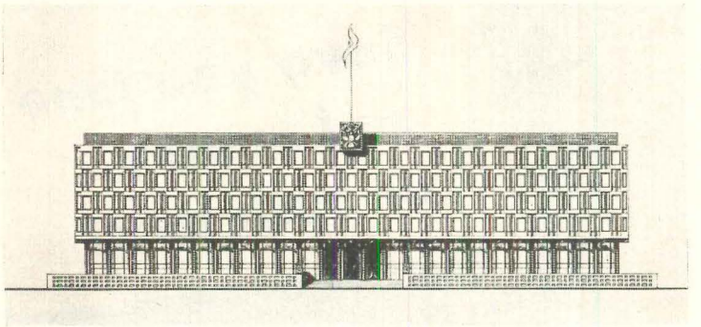
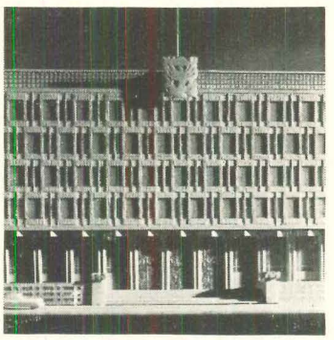
UNITED STATES STEEL

A roundup of significant proposals announced last month



SAARINEN REVISES DESIGN FOR LONDON EMBASSY

Model of revised plan for US Embassy in London by Eero Saarinen (above and r.) incorporates new requirements of State Department that caused several changes from original plan (AF, Apr. '56). In new plan, meeting demand for more public space and greater floor area, first two floors are made a full rectangle, inner-court U shape is used only for upper floors. New plan also slightly recesses first two floors (originally they protruded) to differentiate public floors from private, resets parapet to match recessing, alters window pattern. It also uses only a single material—Portland stone.



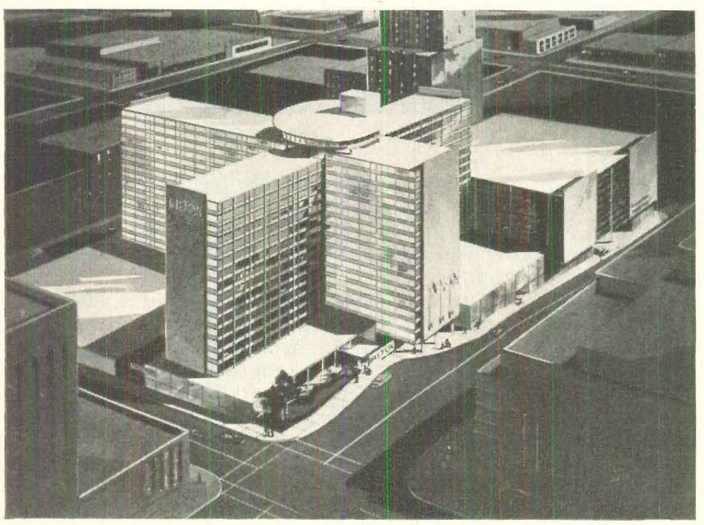
EARTHQUAKE-PROOF HOTEL FOR SAN SALVADOR

Architect William Tabler of New York has designed this seven-story resort hotel for Intercontinental Hotels. Footings are being set on a cushion of volcanic cinders; inside rows of piers are turned 90° for stability. Three guest floors will be built first, three can be added to total 204 rooms.

ADOLPH STUDLY

TOPSY-TURVY HOTEL FOR DOWNTOWN JACKSONVILLE

The basement of this Florida hotel by Architect Tabler is on the third floor. Windowless area in sketch shows where hotel's mechanical, service and laundry area will be. Louvers on upper part are for mechanical ventilation intake. This upsidedown arrangement gives garage space for 150 cars in two basements. Guest floors are concrete frame infilled with local cast block. The 450-room hotel will be called the Robert Meyer; cost will run about $10,000 a room.



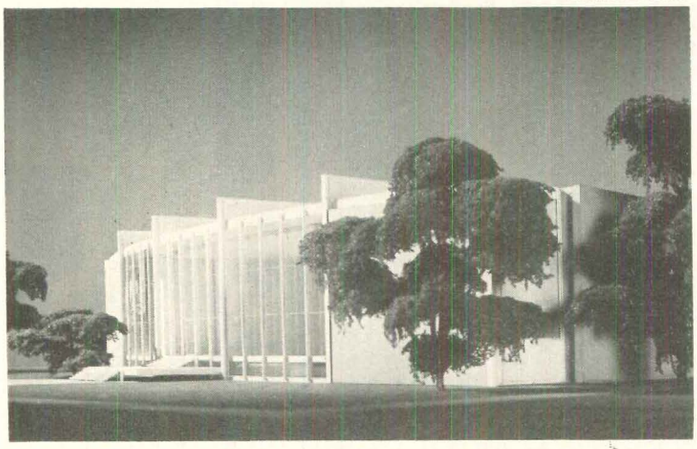
HILTON FOR KANSAS CITY

Proposed $18 million hotel for Kansas City is part of nine-city expansion outlined by Hilton Hotels Corp. (p. 13). The air-conditioned cross-shaped hotel will have 14 stories, a 1,000-car garage (r), and a circular Sky room. Architect William S. Beckett prepared plans in association with Winslow & Johnson.

SNOWFLAKES IN SQUAW VALLEY—1960 WINTER OLYMPICS

Visitors to the Winter Olympics at Squaw Valley, Calif., in 1960 will find five snowflake structures like the one below. They were designed by Malone & Hooper as warming huts.

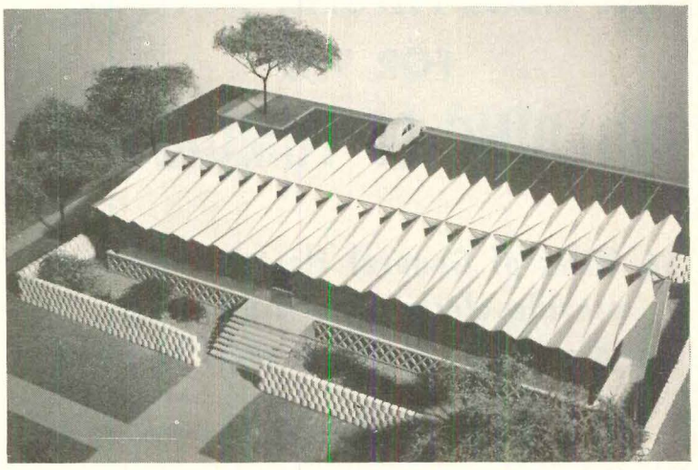
HEDRICH-BLESSING



MIES DRAWS A CURVE FOR HOUSTON MUSEUM OF FINE ARTS

Exhibition space, 30′ high, in the new wing for Houston's Museum of Fine Arts will be spanned by a roof hung from four plate girders, like Mies' new architectural building at Illinois Tech (p. 104). The curved front wall will be of brick and gray tinted glass in steel frames.

LENS-ART



ACCORDION PLEATS AND OPEN GRILLES: ALL CONCRETE

For a dramatic example of interesting uses of its products, the American Concrete Institute commissioned Architect Minoru Yamasaki to design a new headquarters building in Detroit. The result: a roof of folded-plate reinforced concrete cantilevered front and rear from concrete interior corridor walls. Perforated screens at the ends will be formed by sections of colored concrete pipe.

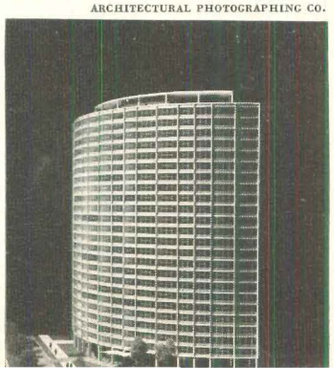
NURSERY IN THE ROUND

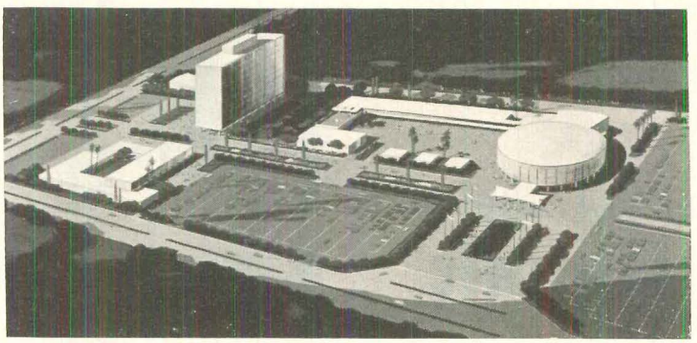
In the open center of this 100′ diameter circular nursery school in Stamford, Conn., there will be a garden. Under the roof will be four large nursery rooms (each opening directly to playground), a kitchen and various staff rooms. Materials for the structure have not been determined yet. Architect: Lester C. Tichy.

CURVED LUXURY APARTMENT

Quarter-circle, 24-story reinforced concrete apartment for Chicago's Lake Shore Dr. designed by Architects Hausner & Macsai for Builders John Mack and Raymond Sher. Horizontal spandrels of the building will be blue.

ARCHITECTURAL PHOTOGRAPHING CO.

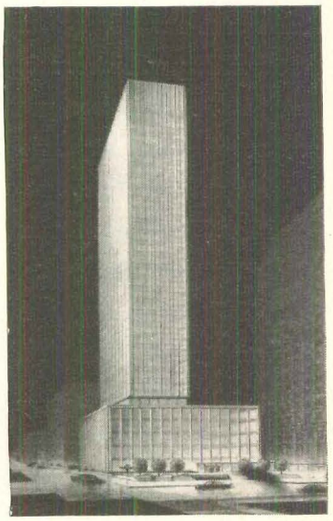




CONVENTION CENTER

Mushroom overhang circular building will be a $4 million Convention Center, the first unit of an ultimate $15 to $20 million civic center in Las Vegas (above). Adrian Wilson & Associates, Los Angeles architects and engineers, designed convention building, for which Clark County voters recently approved $4.5 million bond issue. Reinforced concrete building with thin-shelled dome will be 440′ in diameter, with clear span interior hall 240′ in diameter. It will be fully air conditioned.

DON BERG



HIGH MINNESOTA BANK

A 25-story addition to the skyline is planned by the First National Bank of Minneapolis. The bank will occupy the first five floors; the rest will be office space. A special feature is the plaza with trees and a reflecting pool. Drive-in banking facilities will be provided under the plaza. The architects are Thorshov & Cerny, Inc. of Minneapolis and Holabird & Root & Burgee of Chicago.

HERBERT BRUCE CROSS

KAISER CENTER IN OAKLAND

This new Oakland, Calif. home for the affiliated Kaiser companies was designed by Welton Becket & Associates. It will include 900,000 sq. ft. of office space, parking on four levels, two floors for shops, and possibly a hotel. Approximate cost: $30 million.

for news about TRENDS—*p. 29*

AN ELECTRICAL FUTURE
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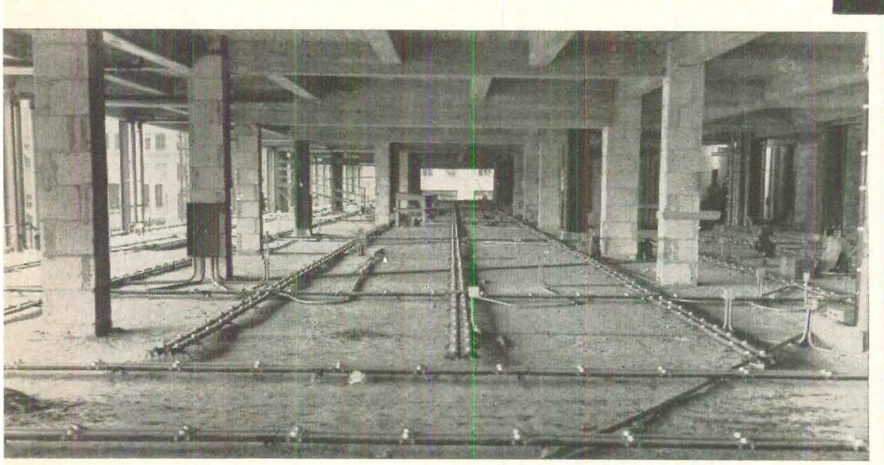

The gleaming stainless steel Socony Mobil Building occupies a full block on 42nd Street near Grand Central Station, New York City.
Owner: Galbreath Corporation; John W. Galbreath, Peter B. Ruffin
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Dept. f-17

Built to Last. Aerial view of Veterans Administration Neuropsychiatric Hospital near Pittsburgh, Pa. All sixteen buildings have Monel nickel-copper alloy flashings and drainage systems. Architects-Engineers: Prack & Prack, Alfred Hopkins & Associates, Bowers & Barbalat. Hospital Contractor: James McHugh Sons, Inc. Sheet Metal Work: Miller & Meyer.

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Another feature — Monel alloy presents no fabrication or installation problems to the experienced roofer. The same tools and techniques employed with other roofing metals work fine with Monel alloy!

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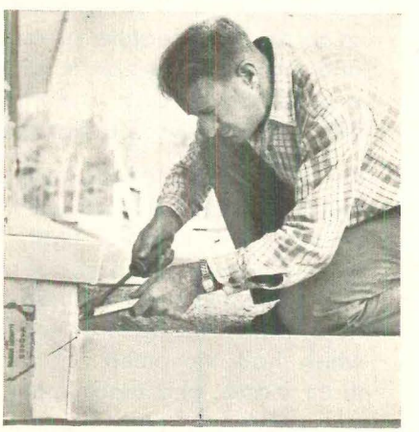

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BUILDING VOLUME: Dollar outlays advance, but discrepancy with labor reports poses real puzzle over actual volume

While the dollar volume was up, and by government forecast was headed higher *(chart and table below)*, a look at recent data on construction employment and wages *(charts at right)* focused attention on great discrepancies between these two government barometers. Actually, there is no basic comparability between these two construction industry surveys, as Commerce and Labor officials explained in a special report in their *Construction Review* for March, 1955. Noting the immense disparity between these two surveys for the first five months of 1956, however, a leading Washington construction expert said part of the explanation was also the "glaring inadequacy" of the government's statistical services for this $60 billion a year industry.

Less building? From January through May this year total construction expenditures were $15,808 million, an increase of $188 million over the same period in 1955, according to the government's reports. But based on its estimates of total workers employed in construction each month, and their gross average weekly earnings (allowing for 4 weeks every month), construction workers were paid $1,016 million more in the same period this year than a year earlier. Largely accounting for this big payroll jump were the reports showing an average of 430,000 more workers actively employed in construction over this five months period. (For May, when total construction employment was reported as a record 3,040,000, the increase over May, 1955, was 514,000, and the increase in building contract construction—excluding highway and other nonbuilding construction—was 491,000 workers.)

Superficially, at least, if the labor payroll was up $1,016 million, and wholesale building material prices were also higher than a year earlier (up 5.5% from May, 1955 to May, 1956), it would seem impossible that anywhere near the same amount of construction was under way for an increased expenditure of only $188 million. But if less construction was underway, how to account for the 514,000 (20%) extra workers employed in May, compared with May, 1955?

A partial explanation was the fact that government's total construction employment report covers workers engaged on maintenance and repair jobs—usually about 400,000 workers—but its construction expenditure reports do not cover outlays for these purposes. Even so, it would take more than a 100% increase in maintenance and repair work to boost employment by 514,000 jobs.

In the accompanying wage chart, the $100.46 average weekly building earnings in construction in May are $22.06 higher than average earnings in all manufacturing which employs almost 25% of the entire labor force. Of added significance for construction, however, was the fact that building workers' average weekly hours to earn $100.46 were only 36.4 while manufacturing workers had to labor an average of 40 hours to earn their $78.40.

Comparable earnings on an hourly basis were $2.76 for all building construction workers, and $1.96 for all manufacturing workers.

Higher peaks ahead. On the dollar scale, Commerce and Labor officials estimated that total new construction expenditures for the first half of 1956 topped comparable 1955 spending by $344 million, or 2%. Six-month expenditures for private work were 1% ahead of the first six months of 1955, and spending for public construction 4% ahead.

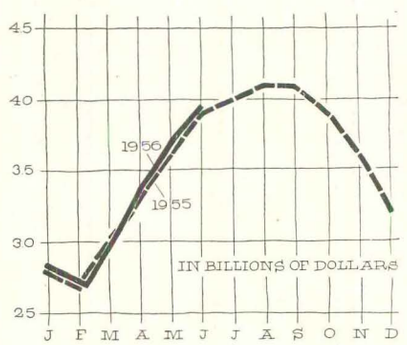
In spite of lagging homebuilding, for the second half of the year the government's construction experts and most industry observers expect a more vigorous advance in the total building rate. Here are the estimates from the midyear Commerce-Labor forecast for total 1956 construction, compared with actual 1955 outlays (the forecast a $500 million revision upward since an initial forecast last November):

EXPENDITURES BY BUILDING TYPES

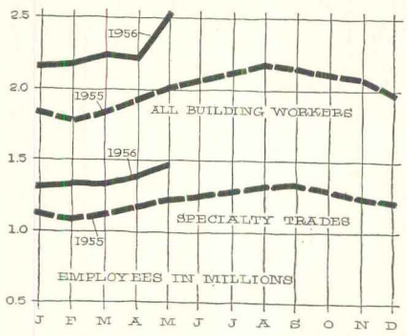
(millions of dollars)

	June '56	First 6 months 1956	1955	%±
PRIVATE BUILDING				
Residential (nonfarm)	1,354	7,029	7,650	—8
Nonresidential	752	4,067	3,429	19
Industrial	257	1,414	1,116	27
Commercial	289	1,568	1,304	20
Offices, lofts; warehouses	105	607	513	18
Stores; restaurants; garages	184	961	791	21
Religious	61	336	335	**
Educational	45	247	229	8
Hospitals; institutions	25	149	172	—13
Public utilities	448	2,321	2,105	10
*PRIVATE TOTAL	2,715	14,185	14,030	1
PUBLIC BUILDING				
Residential	19	115	134	—14
Nonresidential	353	1,888	2,132	—11
Industrial	33	198	456	—57
Educational	220	1,214	1,180	3
Hospitals institutions	27	140	162	—14
Military	122	579	558	4
Highways	545	2,000	1,735	15
Sewer; water	115	577	510	13
*PUBLIC TOTAL	1,278	5,725	5,526	4
*GRAND TOTAL	3,993	19,910	19,556	2

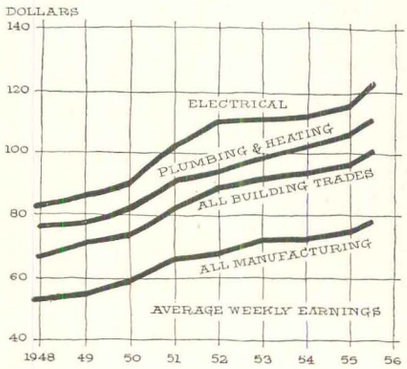
**Minor components not shown, so total exceeds sum of parts.*
***Less than one per cent.*



TOTAL CONSTRUCTION expenditures in June were only a shade under $4 billion, according to the estimates of the Commerce and Labor Depts. At $3,993 million they were 1% higher than $3,936 million in June 1955.



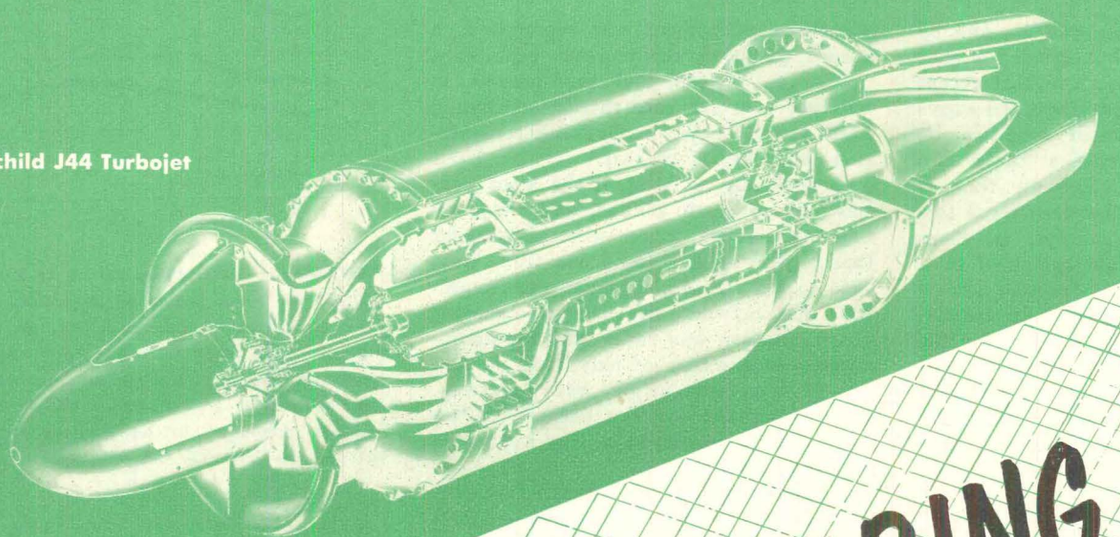
WORKERS in construction soared to a record 3,235,000 in June, compared with 3,040,000 in May, according to BLS statistics. Excluding highway and other "non-building" workers, employed specialty trades building workers reached a total of 1,463,700 in May, and all workers employed in building construction reached the 2,504,000 mark.



AVERAGE WEEKLY EARNINGS of building trades workers since 1948, as contrasted with wages of workers in manfacturing. According to BLS, average manufacturing pay reached $78.40 in May, average building workers' pay $100.46. In the specialty trades, plumbing and heating workers averaged $111.16, and electrical workers (the top) $123.32.

(millions of dollars)	1955	1956 Forecast	% change
PRIVATE			
Residential (nonfarm)	$16,595	15,500	—6.6
Industrial	2,399	3,000	25.0
Commercial	3,043	3,425	13.0
Religious	734	750	2.0
Educational	492	550	12.0
Other Private	6,365	6,750	6.0
TOTAL PRIVATE	30,572	31,000	1.0
TOTAL PUBLIC	12,419	13,500	9.0
GRAND TOTAL	42,991	44,500	4.0

TRENDS *continued on p. 32*



Fairchild J44 Turbojet

ENGINEERING

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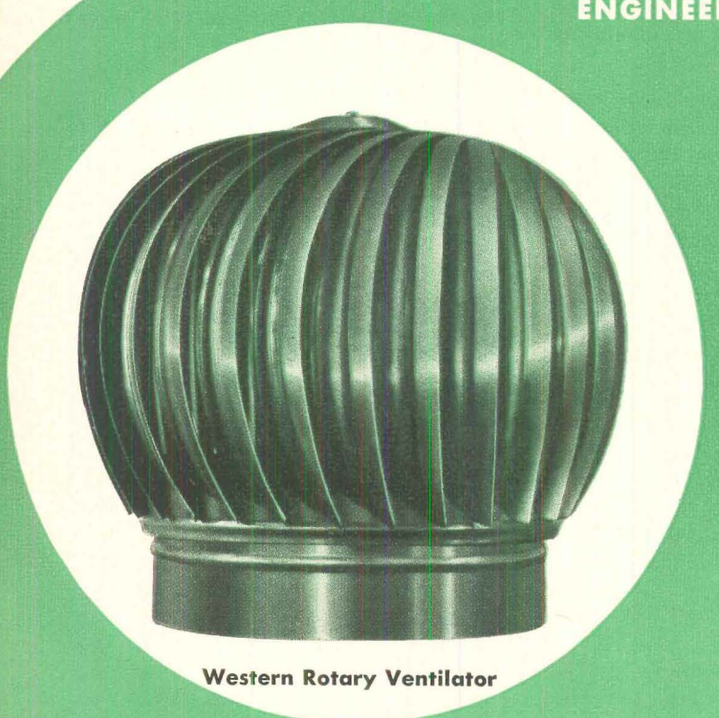


Western Rotary Ventilator

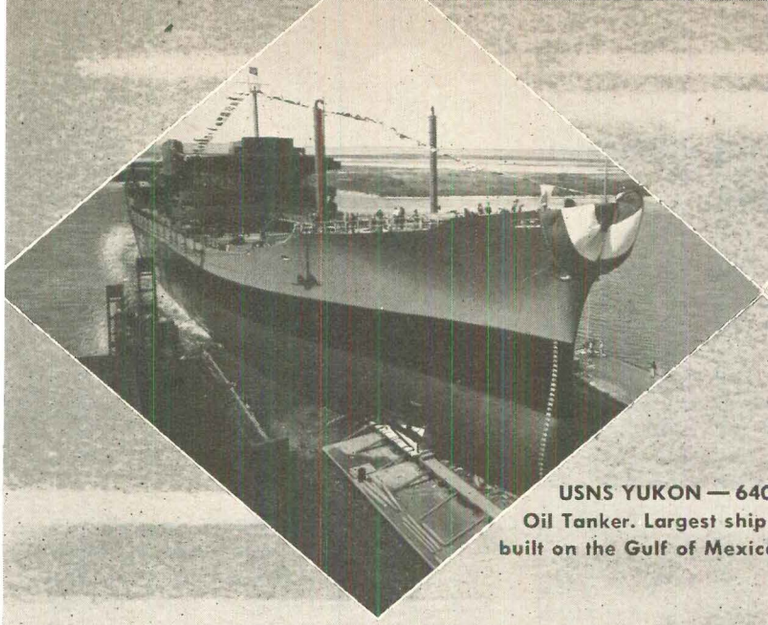
Two concentrated design and development programs at Fairchild and Western have resulted in Fairchild's versatile, rugged J44 Turbojet and Western's trouble-free new Rotary Ventilator series.

Low first cost, low maintenance cost, and unusual efficiency have been designed into both products through wind-tunnel testing, environmental testing, operating-life and efficiency tests at each of several design stages—thus producing simple, efficient designs, matchless in reliability.

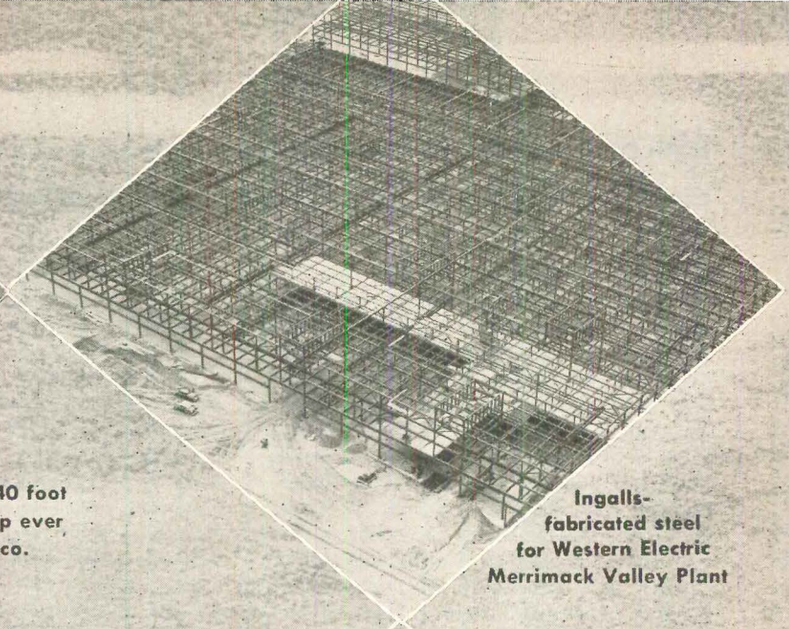
While many of the latest developments in turbojet design are classified, complete engineering and installation data on Western's new Rotary Ventilator series and the rest of their complete line of ventilators can be obtained by writing to:

WESTERN ENGINEERING & MFG. CO.

4114 Glencoe Ave • Venice, California



USNS YUKON — 640 foot Oil Tanker. Largest ship ever built on the Gulf of Mexico.



Ingalls-fabricated steel for Western Electric Merrimack Valley Plant

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Ingalls serves both industry and government, in widely separate fields. Ingalls' KNOWLEDGE of all these fields was earned through practical, intense, hard-working years. This knowledge is at your service today.

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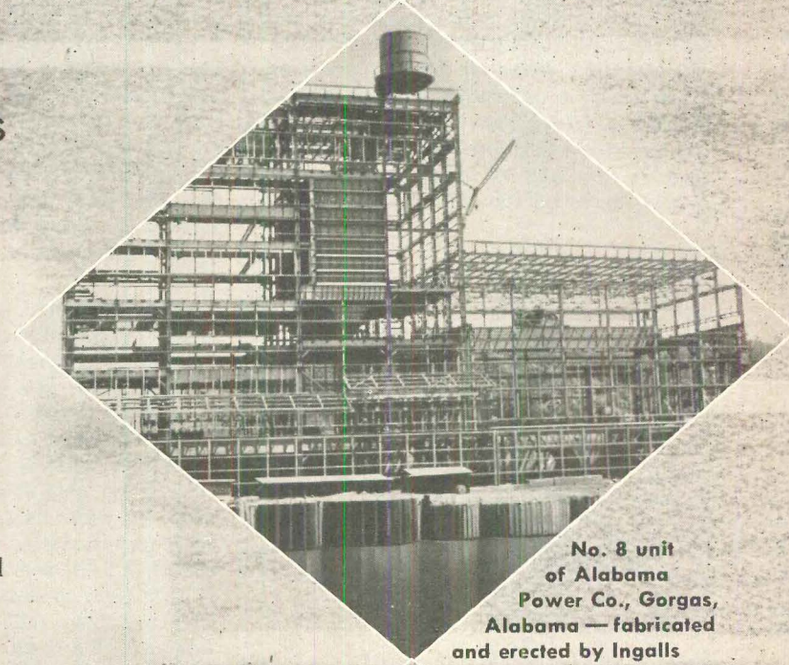
STEEL FABRICATION: The Ingalls Iron Works Company is a major nation-wide fabricator of steel for power houses, all types of buildings, bridges, and any special applications.



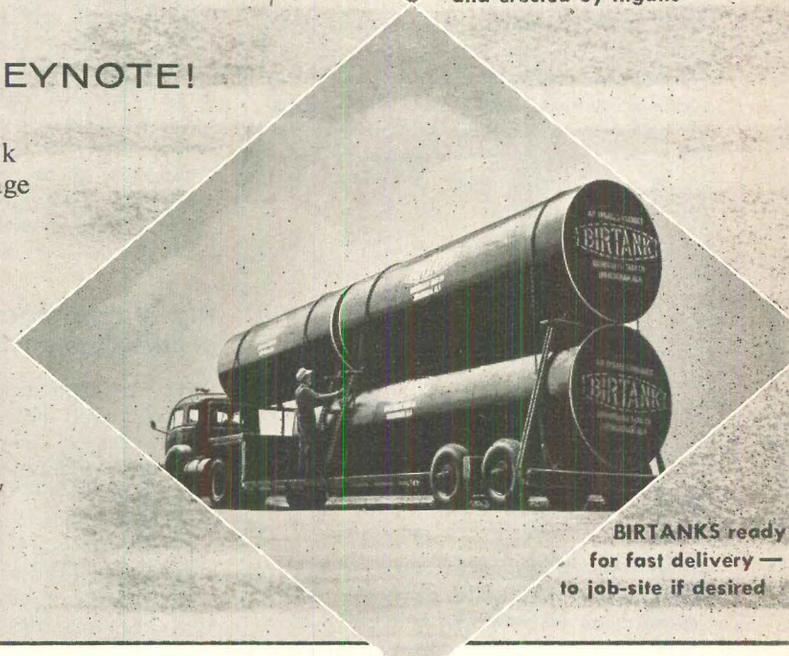
No. 8 unit of Alabama Power Co., Gorgas, Alabama — fabricated and erected by Ingalls

VERSATILITY IS **INGALLS'** KEYNOTE!

PLATE AND TANK WORK: The Birmingham Tank Company, an Ingalls subsidiary, furnishes oil storage tanks, pressure vessels, bins, stacks, rotary kiln dryers, ducts, flues, and blast furnaces; fabricates steel, aluminum, stainless steel, other alloys.

STEEL ERECTION: The Ingalls Steel Construction Company erects structural framework for buildings, power houses, tanks, bins and stacks.

We invite you to write for special literature on any or all of these subjects.



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Offices: New York, Philadelphia, Washington, Houston, New Orleans.

BIRMINGHAM TANK COMPANY
Sales Offices: New York, Chicago, Pittsburgh, Houston, Atlanta, New Orleans, Pascagoula.

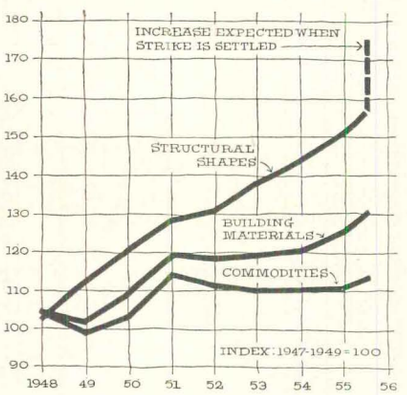
THE INGALLS IRON WORKS COMPANY
Sales Offices: New York, Chicago, Pittsburgh, Houston, Atlanta, New Orleans.

THE INGALLS STEEL CONSTRUCTION COMPANY
Sales Offices: New York, Chicago, Pittsburgh, Houston, Atlanta, New Orleans.

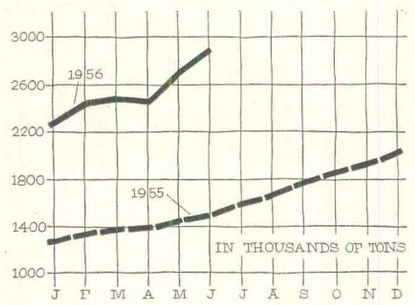
BUILDING MATERIALS: With little prospect of early settlement, steel strike will have delayed effect on construction

Steel manufacturers and their workers appeared to have just settled down for a long summer's strike as FORUM went to press. Initial efforts of federal mediators to rouse either side enough to accept a settlement that would start up the mills again proved fruitless. At midmonth, after two weeks of the shutdown, headlines still reported "no alarm" in Washington, with Commerce Secretary Weeks describing the impact of the strike on the economy up to then as "hardly noticeable."

With auto producers and other users holding inventories large enough to last well over a month, no one anticipated the real pinch of the shutdown until sometime this month. With no bright prospects of an early reconciliation and peace pact in sight, Steelworker Chief David McDonald was said to be expecting the stoppage to continue at least six weeks, or to mid-August at the earliest.



STEEL COSTS, for structural shapes, compared with costs for "all commodities," and for "all building materials," on the basis of the average wholesale price indices of the Depts. of Commerce and Labor. Any strike settlement was expected to send structural prices up 10 to 15%, to an index of at least 175.



STRUCTURAL STEEL unfilled orders on June 1 had advanced to 2,895,660 tons, the highest volume since the American Institute of Steel Construction started tabulating orders on its current basis in 1951. The previous record was 2,771,264 tons, in June 1951. Of the June 1 backlog, 1,224,371 tons were scheduled for fabrication by Sept. 30, but performance became only a matter of conjecture after the steel strike began on July 1.

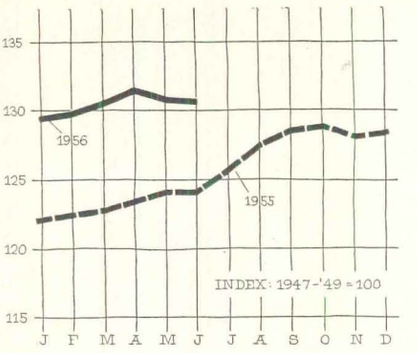
Impact on building. Main effects of the strike on construction would be delayed. With most big steel orders placed as much as six months to a year in advance, relatively few projects were held up immediately by the cutoff of mill production. In event of a prolonged strike, however, the reduced output would soon begin to cause costly, aggravating job delays. The impact on prices would occur immediately, once the strike was settled, and by all accounts would send up structural shapes in the range of $9 to $15 a ton, or minimum of about 10%. Structural steel prices are only a 2.2% component of BLS's index of average wholesale building material prices, but higher basic steel prices would also go into this index indirectly, in higher costs for the metal that would have to be paid by the manufacturers of finished building products made of steel. The slight May and June decline in the BLS materials prices index would soon be cancelled by new advances.

Belgian steel in NY. As a result of the steel industry's inability to meet the construction boom's pyramiding steel requirements as fast as desirable even before the strike, New York Owner-Builder Samuel Friedenberg arranged to import the main steel for a new 30-story office building in the New York insurance district. His contract, arranged by Leon G. Rucquoi, New York representative for producers in Belgium and Luxembourg, called for delivery of 1,200 tons of flat-plate welded I beams from a Belgian mill between October and January. This would be used for the main columns of the building, according to Consulting Engineer Charles Mayer. American bar steel would be used for the structure's reinforced concrete floors. The principals all declined to reveal prices, or even say whether the delivered Belgian steel would cost more or less than domestic steel. The main factor, all insisted, was the assurance of early delivery.

Big gains noted in capacity, production of brick and tile

Brick and structural tile manufacturers increased their production 14% last year —the greatest increase of any major structural building material—and this year expect a further 9% increase to a postwar high of 9.8 billion brick equivalents, according to a survey for Structural Clay Products Institute by Robinson Newcomb Associates. Lumber production increased 4.7% last year, and cement 9.4%, this survey showed.

The structural clay products industry also has expanded its capacity more in the last two years than producers of any other major materials, according to the Newcomb survey. For example, brick capacity rose 9.9% in 1955, cement 7.4%, steel 2.1%.



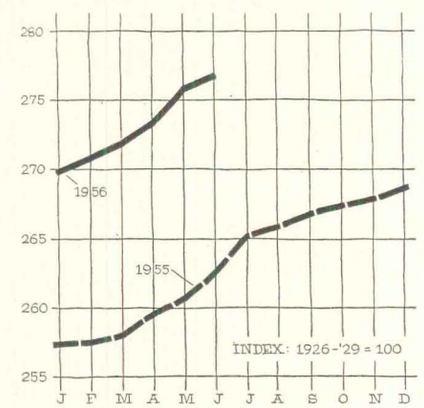
BUILDING MATERIALS PRICES remained virtually stationary in June, declining almost imperceptibly from 130.8 to 130.6 on the BLS index of average wholesale prices. Plywood dropped 1.7%, and lumber 0.4%, but most other items were unchanged from May.

BUILDING COSTS: Agencies see further moderate rise

In typical government manner of speaking (usually understatement), the announcement by Commerce and Labor Depts. of their revised 1956 construction volume forecast (p. 29) contained an official, unelaborated nine-word building cost prediction: "Construction costs are expected to continue to rise moderately."

From May to June, E. H. Boeckh's index of nonresidential building costs stopped its steep climb (see chart), registered an advance of only 0.3%. Boeckh, however, promised only a short pause. He said new labor agreements were already causing marked advances in later cost reports starting to come in for July, and the upward march was regaining momentum.

For the first six months of 1956 the Boeckh Index registered a 3.5% increase in building costs and for June was 5.5% above June 1955. For the second quarter of 1956, the Austin Co.'s index of industrial building costs advanced 2.4%; for six months it was up 4.4%.



CONSTRUCTION COSTS for nonresidential buildings rose a little less steeply in June than during earlier months of the year on the index compiled by E. H. Boeckh & Assoc. The increase (to an index figure of 276.9) was only 0.3%, compared with an 0.8% rise in May.

for news about PEOPLE—*p. 37*

Aggregate Transfer

ADDS BEAUTY AND COLOR TO ARCHITECTURAL CONCRETE

Photograph (approximately ½ size)
of an aggregate transfer area of the Cuming
County Courthouse in West Point, Neb.
Backlund & Jackson is the architect-engineer.
Parsons Construction Co. is the contractor.
Both firms are located in Omaha, Neb.

The Cuming County Courthouse in West Point, Neb. is an example of the warmth and color that can be imparted to architectural concrete structures by using the aggregate transfer method.

The red bands around the courthouse constitute the aggregate transfer area—a total of 1720 sq. ft. The color was achieved by a mixture of 65% dark cedar gray marble aggregate and 35% alpine red marble chips. The resulting blend contrasts pleasantly with the surrounding area of exposed, grout-cleaned concrete walls.

Aggregate transfer is an economical method developed to obtain color in architectural concrete walls. It is economical because the special aggregate needed is limited to a thin layer at the surface.

You attach colored aggregate to a thin form liner of plywood or other material by means of a special adhesive. Erect the reinforcing and back form in usual way and fill with concrete. Strip forms and treat the colored surface to expose the special facing aggregate.

Architects are invited to write for free, illustrated literature, distributed only in the U.S. and Canada, on the aggregate transfer method.

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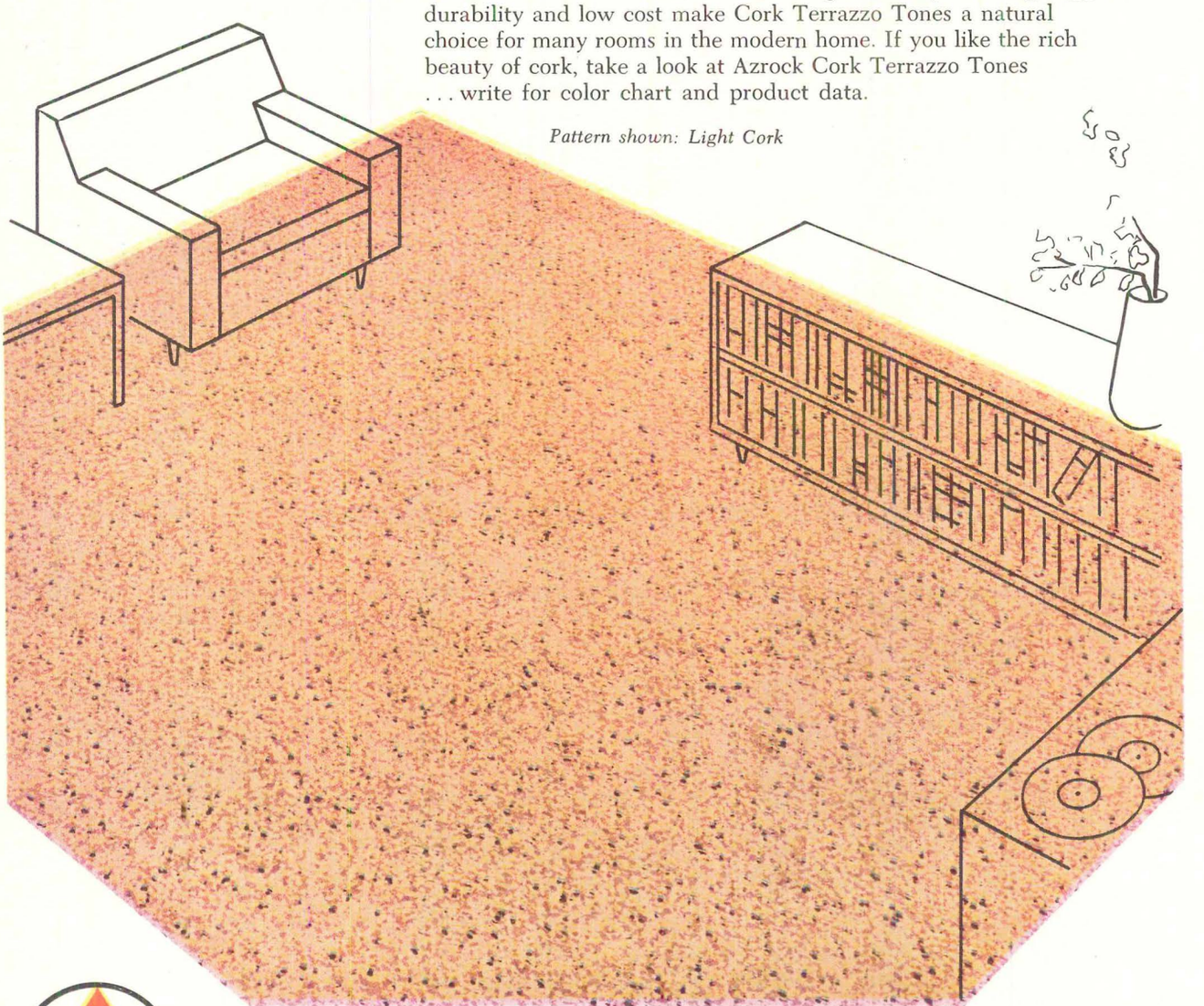
Pattern shown: Light Cork



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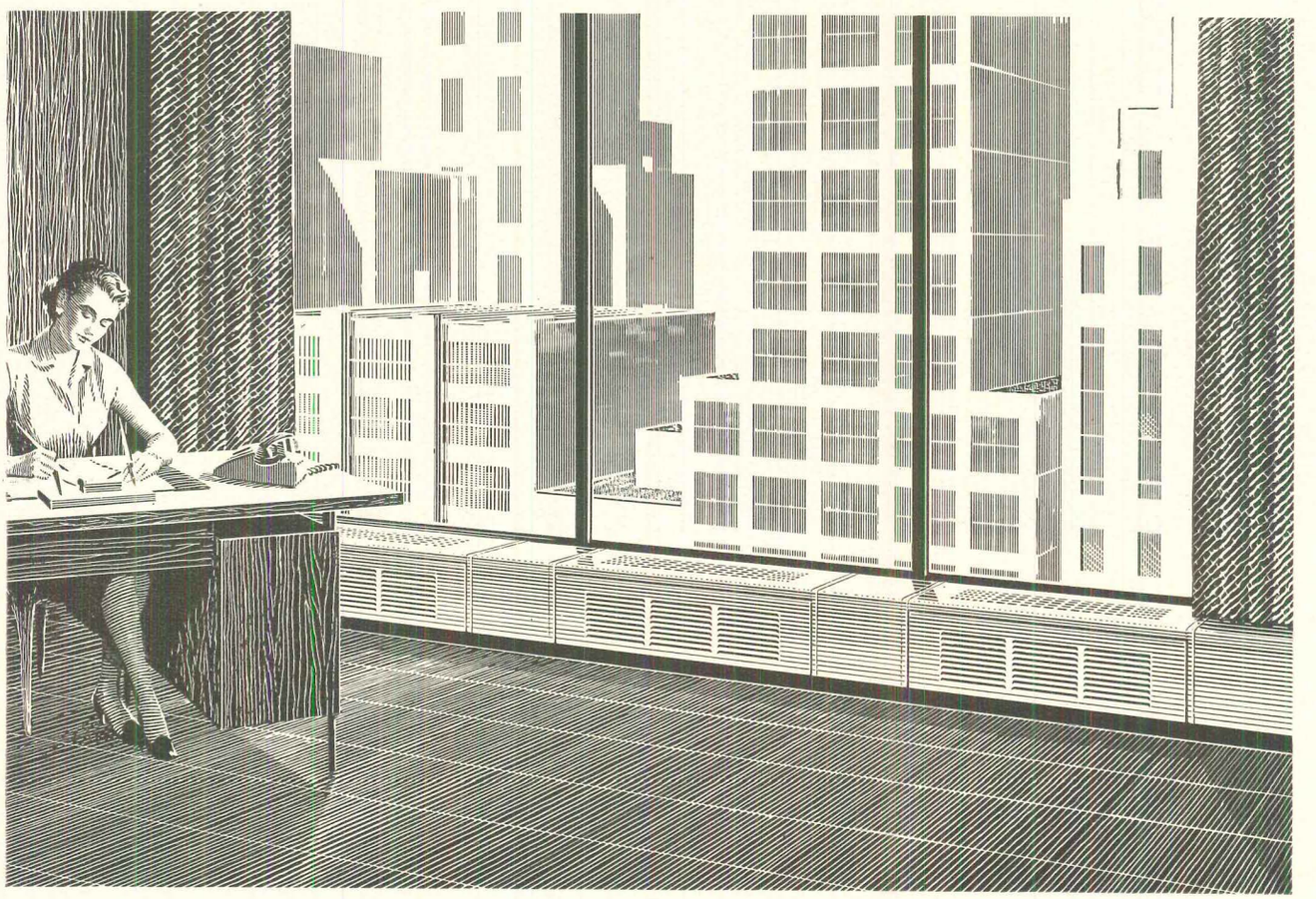

Cyrus Silling directs AIA study of "package services";

Austin J. Paddock heads US Steel's American Bridge Division

SILLING

PACKAGE DEALER STUDY

Objectivity rather than speed was in prospect from the new AIA committee to study the "package services" problem appointed after the close of the Los Angeles convention.

Chairman **Cyrus E. Silling**, of Charleston, W. Va., suggested that committee members should recognize the "competitive spirit in the American economy" that has contributed to the growth of package dealers ("if there's a vacuum into which they have stepped, then we're probably responsible for it"), but pending a "very careful objective survey" he was unwilling to express any further opinions on the problem or its solution. He did add, however, that the committee's study is so premature "we're still looking for a good definition for package services." And despite an AIA newsletter report that the committee is to make recommendations to the fall directors' meeting, Silling said the group will not meet before fall.

Other committee members are **Walter C. Bogner, Herbert C. Millkey, Henry L. Wright, Frank G. Lopez, Aaron N. Kiff, L. Morgan Yost, Alonzo J. Harriman, Vincent G. Kling, John W. Root, Robert H. Wohleb** and **B. Sumner Gruzen.**

AWARDS AND HONORS

Winner of the Grand Architectural Award of the 1956 Boston Arts Festival: the M.I.T. chapel designed by **Eero Saarinen**; a special commendation and commendation, respectively, were awarded the **Coletti Brothers**, of Boston, for their Beach Pavilion in Salisbury, Mass., and **The Architects' Collaborative**, for their Northeast Elementary School, Waltham, Mass.

Belated tribute from fellow architects was accorded **Paul Chalfin**, 82, a month ago, when AIA's Florida South chapter made him an honorary member and gave him a special citation for designing Villa Vizcaya, originally the $15 million-estate of the late James Deering, threshing machine magnate, but now the Dade County Art Museum. Said the citation: "This stately house (and formal gardens) breathes the spirit of the Renaissance, through the sheer splendor of its architecture has invoked the pride of a community and the determination that it be forever preserved."

Recipients of the 1956 Award of the Concrete Reinforcing Steel Institute, for their extensive studies since 1936, including concrete floor slabs for buildings and bridges, dynamic behavior of beams and slabs: **Drs. N. M. Newmark** and **C. P. Siess**, of the Talbot Laboratory, University of Illinois.

PACH BROS.

CUTLER

AIA CHAPTER CHIEFS

New president of the New York City AIA chapter, largest in the nation (at 1,000, its membership is about 9% of AIA's 11,000 total) is **Robert W. Cutler**, partner of Skidmore, Owings & Merrill and a governor of the Building Research Institute and the N. Y. Building Congress.

More than 300 members attending the Minnesota Society of Architects convention in Minneapolis in June elected **Victor Gilbertson**, of Hills, Gilbertson & Hayes, Minneapolis, as president, succeeding **Glynne W. Shifflet**, of Minneapolis.

Formation of AIA's newest chapter, Northwest Florida, was approved by directors during Los Angeles convention sessions. At its first official meeting a few weeks later the chapter elected as first president **Hugh J. Leitch**, of Pensacola, which will be its headquarters city. Leitch said the principal architect who sparked formation of the group was Pensacolan **Roger G. Weeks**, who was elected secretary.

TRINITY COURT

PADDOCK

EXECUTIVE SHIFTS

Engineer **Austin J. Paddock**, previously vice president in charge of manufacturing operations, and since 1954 in charge of contracting, was appointed president of the American Bridge division of US Steel Corp., succeeding **Norman B. Obbard**, transferred to an operations executive position in the parent organization. **Maxwell D. Millard**, director of distribution and availability, was appointed general manager of sales for the corporation's American Steel & Wire division, succeeding **John Graham**, retired.

Boston's Aberthaw Construction Co. elected as president engineer **Ambrose Burton**, who will also continue to hold his post as vice president for engineering with Cabot, Cabot & Forbes, which purchased control of Aberthaw last year.

CAMPUS CHANGES

Yale University appointed as professor of architecture starting with the fall term Architect and City Planner **Louis I. Kahn**, of Philadelphia, who has frequently been a visiting design-critic at the university and was also one of the architects for its art gallery and design center completed in 1953.

To head its new department of architecture, which will begin offering a five-year course in architecture starting next month, Kent State University, Kent, Ohio, named **Professor Joseph F. Morbito**, who previously has taught at Penn State and Western Reserve Universities.

Elected emeritus professor of architecture, and to retire next month from the University of Pennsylvania's School of Fine Arts: **Professor Arthur F. Deam**, on the Penn faculty since 1945, architecture chairman since '50.

ELECTED: **Carlyle M. Ashley**, chief staff engineer of Carrier Corp., holder of more than 40 patents in the field, as president of the American Society of Refrigerating Engineers; **William F. Ryan**, senior consulting engineer of Stone & Webster, nominated (tantamount to election) as president of American Society of Mechanical Engineers, to be installed at its annual convention in N. Y. in November; Architects **Norman Hunter**, of Los Angeles, and **J. Stewart Stein**, of Chicago, as the new president and vice president of the young, vigorous Construction Specification Institute, which has grown to ten chapters with almost 1,000 members since 1949 and expects early formation of another six chapters and a total membership close to 2,000; **J. Ashton Gray**, of Leesburg, Fla., as president of the Prestressed Concrete Institute, succeeding **George W. Ford**, of Ft. Lauderdale; **Robert S. Curtiss**, director of realty for the Port of New York Authority, as president of the Real Estate Board of New York.

DIED: **W. L. (Win) Cooper**, 58, former president of the Michigan Real Estate Assn. and National Institute of Real Estate Brokers, May 27 in Port Huron, Mich.; **Jesse H. Jones**, 82, builder-owner of 33 of Houston's largest buildings, as well as others in New York, Dallas, Ft. Worth and Memphis, although best known as chairman of the RFC, June 1 in Houston; **Charles Loridans**, 78, engineer and builder of many large Georgia, Florida, Alabama and Tennessee educational and commercial structures, June 9 in Atlanta; **Sir Frank Brangwyn**, 89, whose murals in the US include works in the RCA Building main lobby in N.Y., the Cleveland Court House and Missouri State Capitol, June 11, in Ditchling, England; **Emanuel M. (Manny) Spiegel**, 50, secretary of ACTION and former president of NAHB, June 16 in Englewood, N.J., after a heart attack; **Lafayette Anthony Goldstone**, 80, architect for both luxury and public housing apartments in N.Y.C., winner of the 1914 Gold Medal of the AIA chapter there (father of N.Y. Architect Harmon H. Goldstone), June 22 in N.Y.

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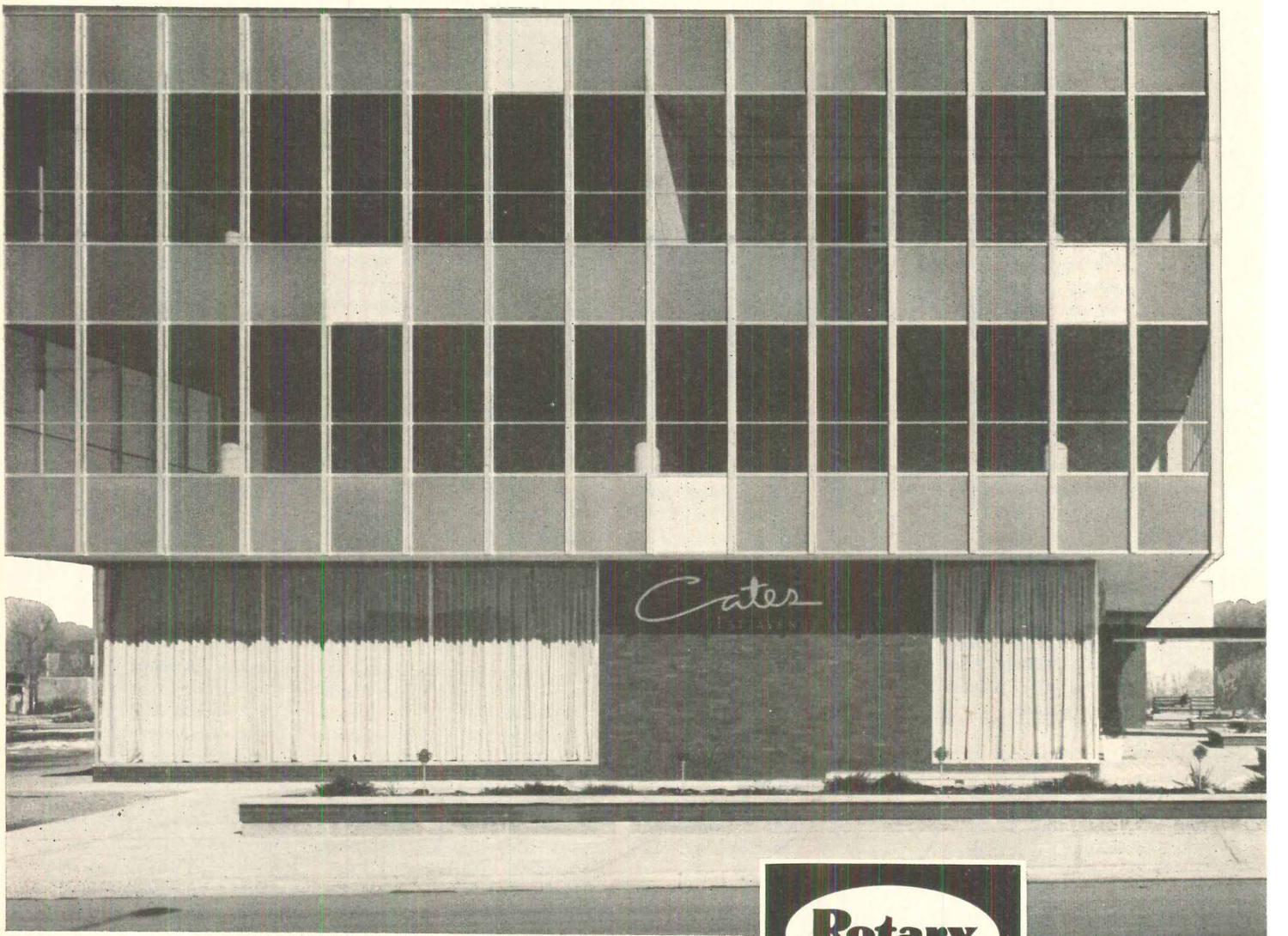
call for
modern elevators



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GENERAL CONTRACTOR:
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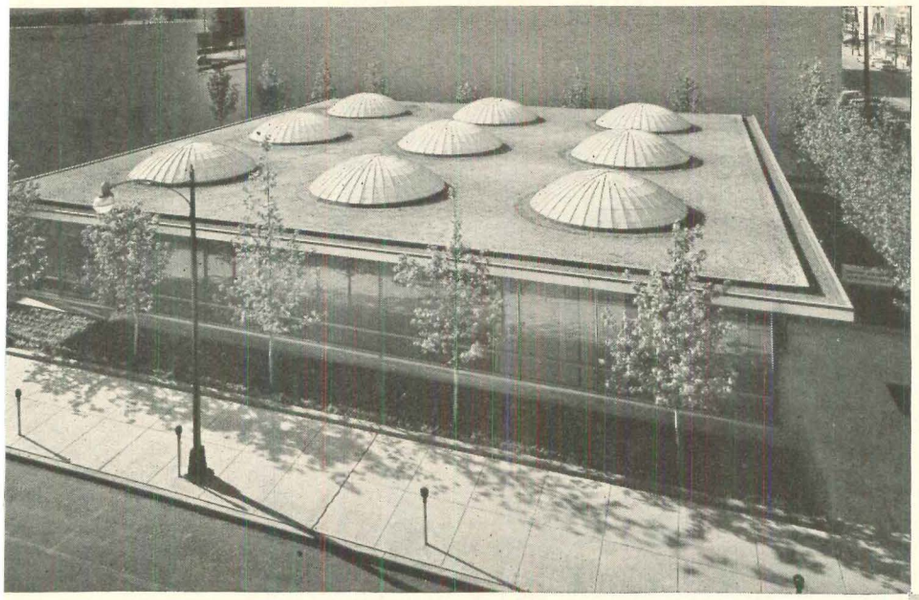

IRWIN UNION BANK AND TRUST CO.,
Columbus, Indiana

ARCHITECTS:
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GENERAL CONTRACTORS:
J. L. Simmons Company, Inc.

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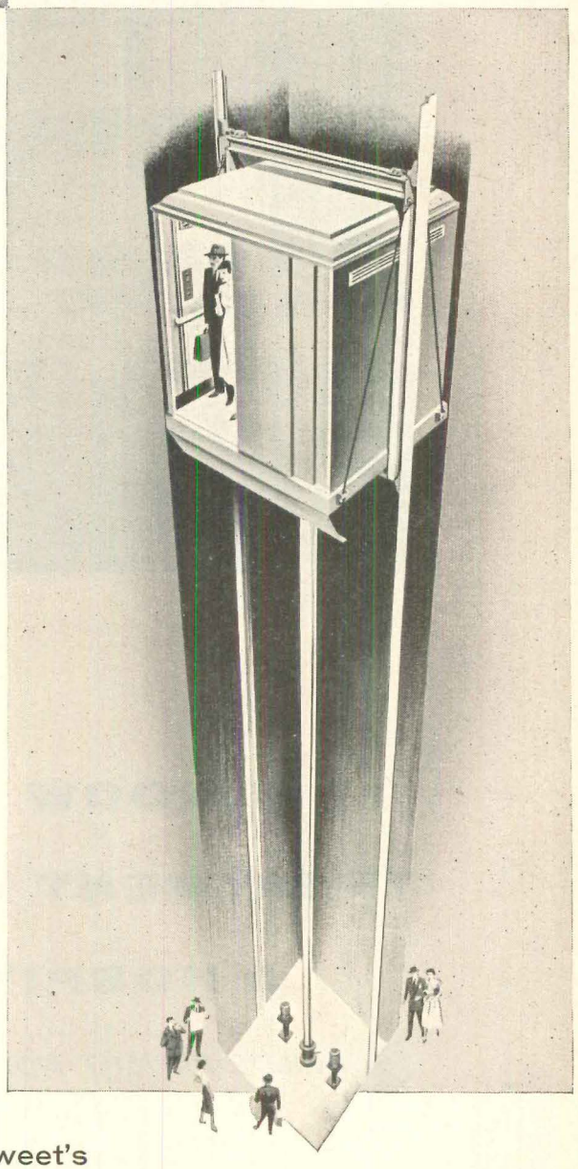

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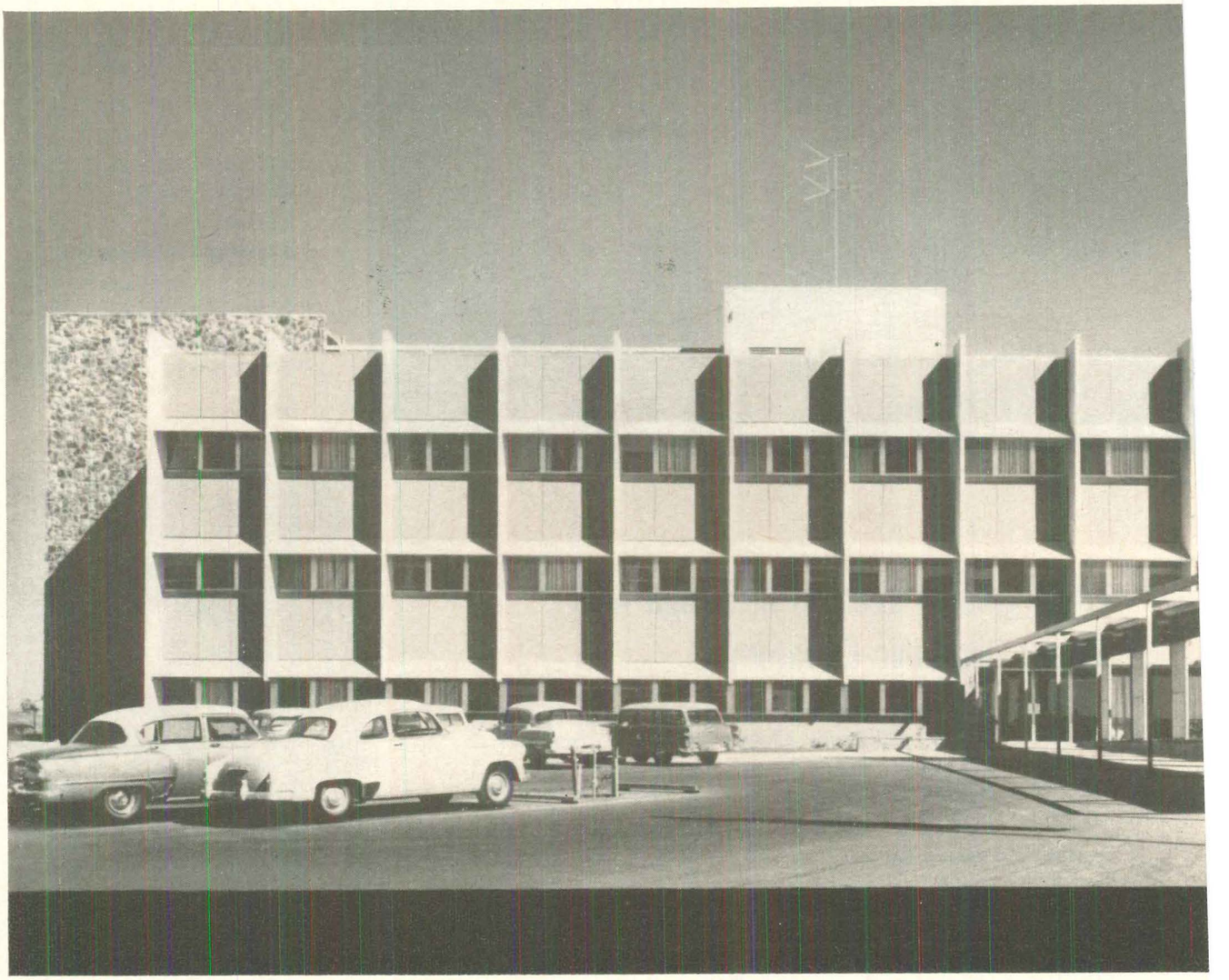
Division of Dover Corporation



WINDOW TREATMENT IN A HOSPITAL

...BUILDS PATIENT MORALE

ONE WHOLE WALL OF EVERY ROOM IS MADE INTO A PICTURE WINDOW BY COMBINING CECO-STERLING ALUMINUM DOUBLE-HUNG AND FIXED WINDOWS . . .

The therapeutic value of sunshine and view had much to do in guiding Pereira & Luckman, planners, architects and engineers of Los Angeles and New York City, in designing the Grossmont District Hospital. To give patients a better outlook they made the whole side of each room into a wall of glass—a picture window bringing in sunshine and acres of view.

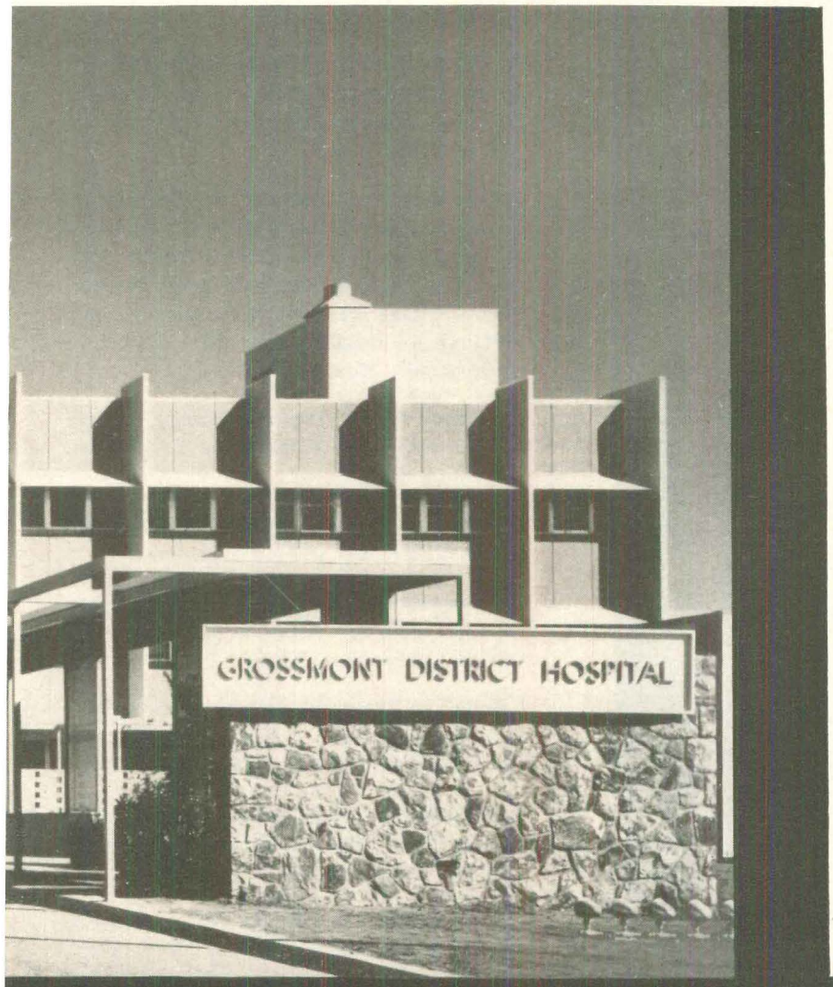
Ceco-Sterling Aluminum Double-Hung and Fixed Windows accomplished the desired effect. Maximum glass was possible because of slender sleeving mullions and narrow sash sections. And important, too, was the tight weather-seal provided by Ceco Windows. On your next building project, consult Ceco Engineers. They will help you make effective use of metal building products.

CECO STEEL PRODUCTS CORPORATION

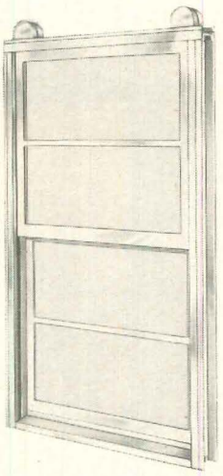
Offices, warehouses and fabricating plants in principal cities
General Offices: 5601 West 26th Street, Chicago 50, Illinois

IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE

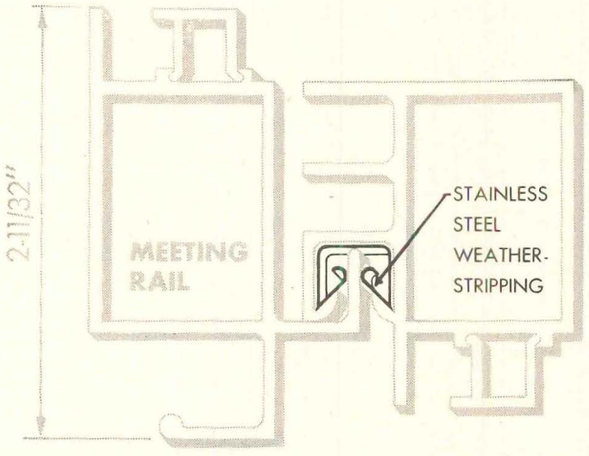
Windows, Screens and Doors / Ceco-Meyer Steelforms / Concrete Reinforcing / Steel Joists / Metal Roof Deck / Metal Lath



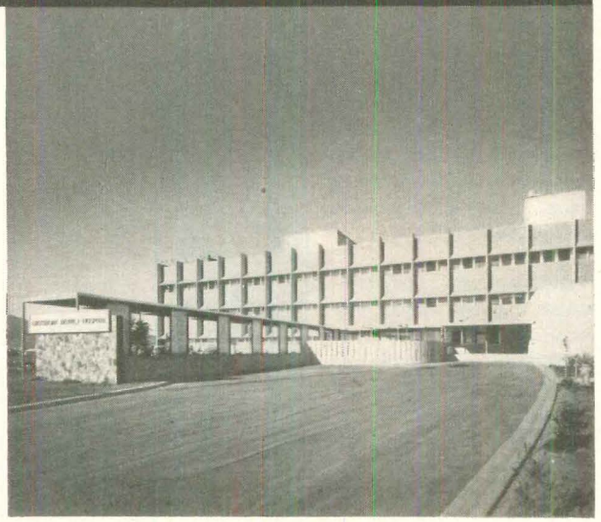
Front elevation of Grossmont District Hospital, San Diego, California presents interesting pattern of light and shade, with Ceco-Sterling Aluminum Double-Hung and Fixed Windows and Screens providing echo accents for the main motif. Pereira & Luckman, planners, architects and engineers.



There's minimum air infiltration with the use of Ceco-Sterling Double-Hung Monumental and Commercial Windows, Series 200-B. That's because the sash float on stainless steel weather stripping, assuring tight, freely operating, vertical sliding windows. They operate silently, so necessary in hospital windows.



Note the heavy extruded box sections for rugged performance, and the double-contact stainless steel weather stripping for tightness. Similar weather strip at jambs provides a spring cushion contact, holds sash clear of frame for easy sliding.



The sweep and pattern of the window treatment lend stately drama to Grossmont. Visors over the windows and right-angle fins control glare while admitting abundant light.

DATES

"**Twenty Years of Photography by Gottscho-Schleisner,**" architectural collection, through summer, Museum of the City of New York, N. Y.

Massachusetts Institute of Technology, special summer programs: "Structural Design for Dynamic Loads," **begins Aug. 6**; "The Artist, Materials, and Technology," **begins Aug. 13**; "City and Regional Planning," **begins Aug. 20,** at M.I.T., Cambridge, Mass.

National Shade Tree Conference, annual convention, **Aug. 20-24,** Royal York Hotel, Toronto, Canada

Lutheran Church Building Convention, Sept. 20-24, Karlsruhe, Germany

Associated General Contractors, midyear board meeting, **Sept. 17-19,** Schroeder Hotel, Milwaukee, Wis.

Building Research Institute, conference on Modern Masonry Construction, at the institute, **Sept. 19-20,** Washington, D.C.

Institute of Traffic Engineers, annual convention, **Sept. 25-28,** Mark Hopkins Hotel; San Francisco

AIA Regional meetings: North Central, **Sep. 28-29,** Pfister Hotel, Milwaukee; Gulf States, **Oct. 7-9,** Chattanooga, Tenn.; Calif. Council of Architects, **Oct. 10-13,** Yosemite Lodge, Yosemite Natl. Park; Western Mountain region, **Oct. 19-20,** Hotel Utah, Salt Lake City; New York State, **Oct. 24-27,** Lake Placid Club, Lake Placid; Tex., **Oct. 31-Nov. 2,** Corpus Christi; Mid-Atlantic and Penna. Society of Architects, **Nov. 14-16,** Hershey Hotel, Hershey, Penn.

Mortgage Bankers Assn., annual convention, **Oct. 8-11,** Conrad Hilton Hotel, Chicago.

American Title Assn., annual convention, **Oct. 17-20,** Fontainbleau Hotel, Miami Beach.

National Assn. of Housing & Development Officials, annual convention, **Oct. 21-24,** Statler Hotel, New York City.

National Assn. of Real Estate Boards, annual convention, **Nov. 11-16,** Jefferson Hotel, St. Louis

19th Ceramic National Exhibition, Nov. 4–Dec. 2, Syracuse Museum of Fine Arts, Syracuse, New York.

Structural Clay Products Institute, annual convention, **Nov. 12-14,** Boca Raton, Fla.

*FIRST COST *can be the* LEAST COST *if it's the* LAST COST

"INFO" for Architects and Builders

1 "AL Stainless Steels for Building"—12 pages on stainless grades, properties, forms, finishes, standard "specs," uses and advantages.

2 "Stainless Steels for Store Fronts and Building Entrances"—40 pages of valuable data on examples and details. AIA File No. 26D.

3 "Stainless Steel Curtain Walls"—A 24-page progress report on methods. AIA File No. 15-H-1.

Write for Details

Address Dept. B-80

Take the lobbies of big buildings as an example, so many of them all agleam with stainless steel on walls, columns, elevator enclosures, etc.

They weren't built that way just to *spend* money. Stainless was used to SAVE money, because of all modern surfacing materials, nothing else is at one and the same time as hard, strong and lastingly beautiful—as resistant to heat, wear and corrosion—as easy to clean and keep clean as stainless steel. *Nothing else lasts as long and costs as little in the long run!*

Lobby interiors are only a case in point. The same advantage of long-term economy holds good for stainless steel curtain wall panels on building exteriors. Or stainless store fronts, marquees and entrances. Or stainless windows and doors, railings, grilles, roofs, drainage systems, etc.

• Wherever a surface or a product has to take a beating and *last*, AL Stainless can save you money. Let us give you any information or technical assistance you may need. ***Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.***

Make it BETTER-and LONGER LASTING-with

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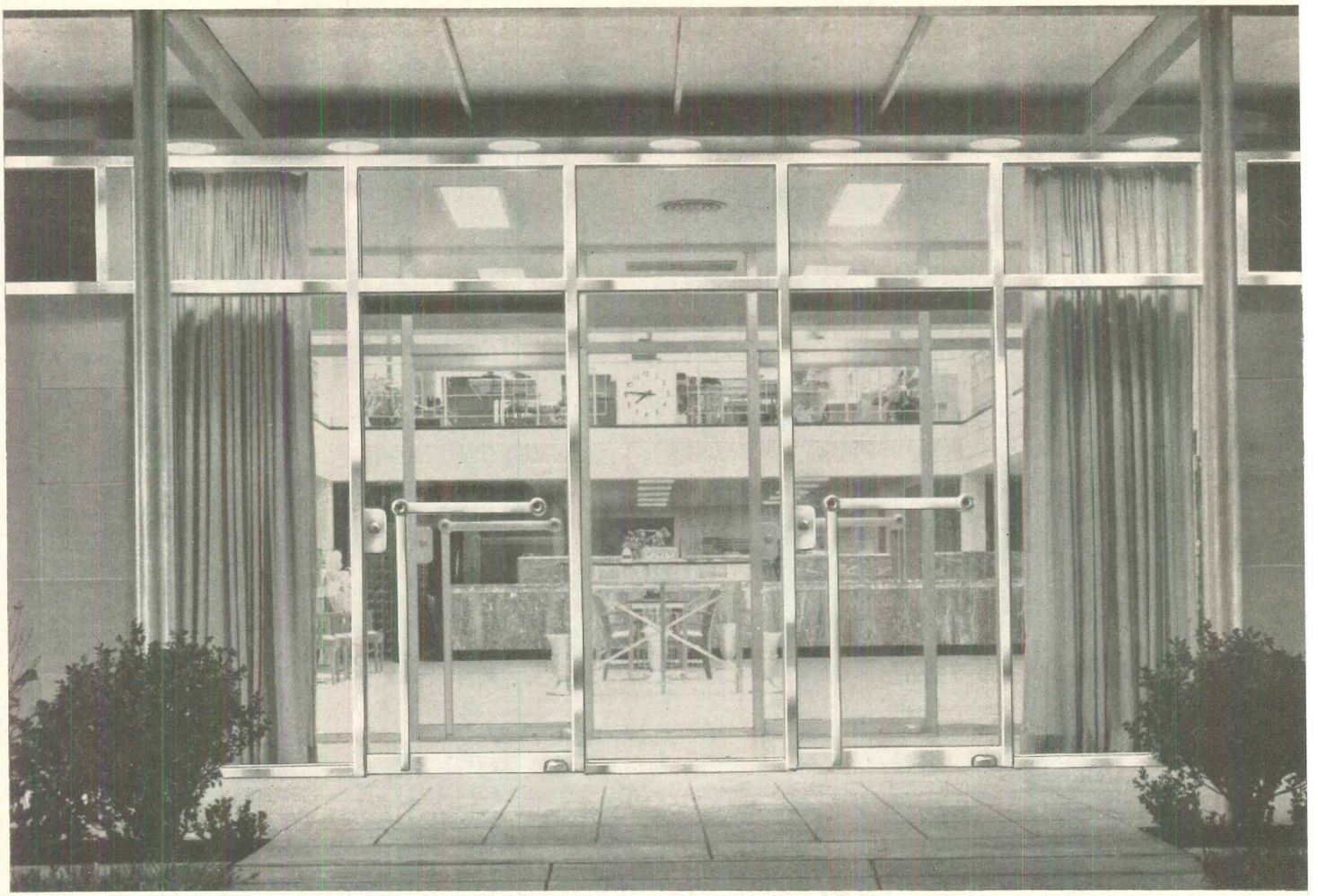
AL® ALLEGHENY LUDLUM

W&D 5732A **Warehouse stocks carried by all Ryerson Steel plants**

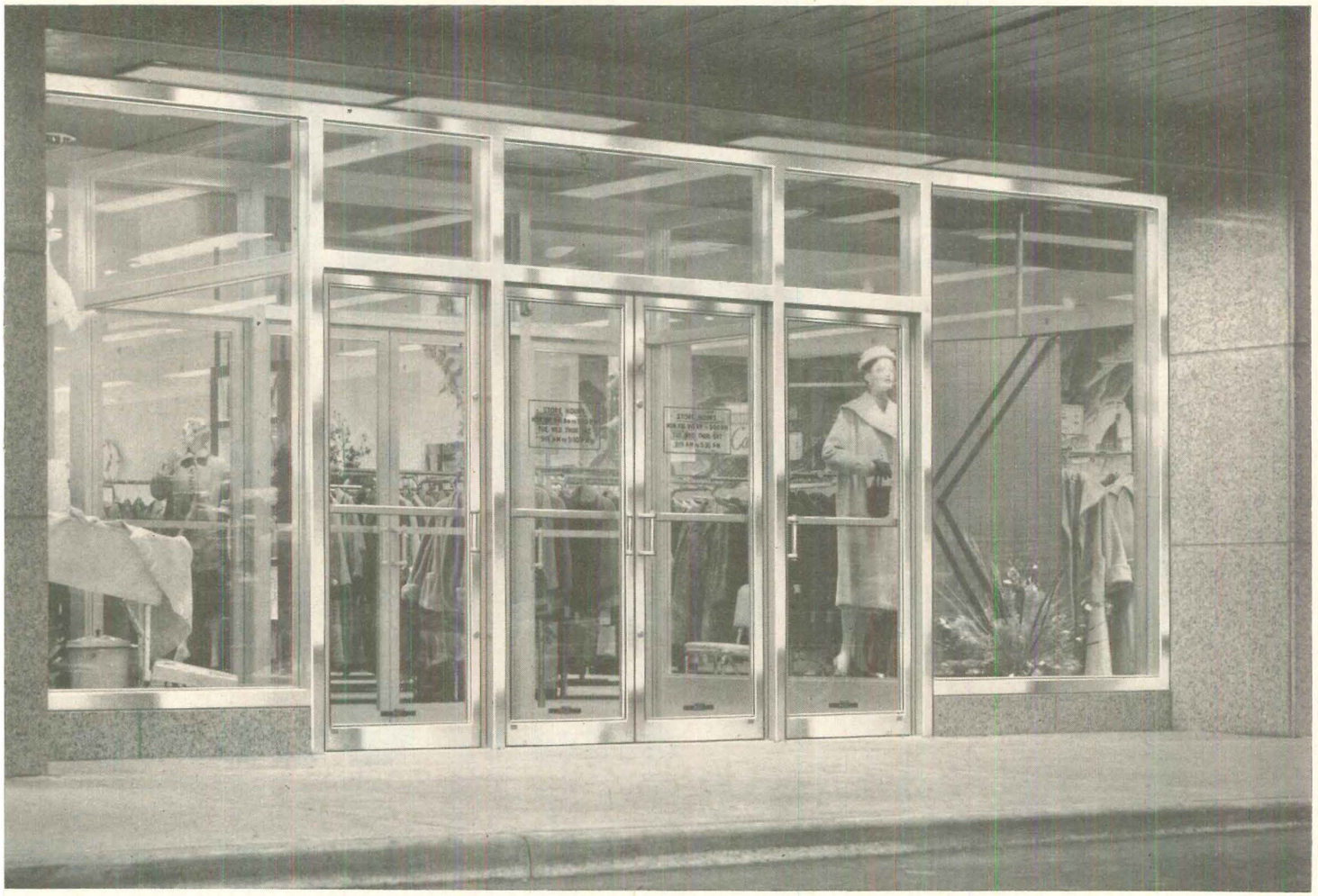


HERCULITE®

The entrance to the Bank of Terrebonne & Trust Company, Houma, Louisiana, utilizes Pittsburgh Herculite Doors to give the front an open, inviting appearance, so necessary to banking operations. For people like to do business with a bank that is modern and progressive looking. Herculite is made from Pittsburgh Polished Plate Glass. This glass undergoes a special tempering process which makes it fou times stronger than ordinary glass of the same thickness Notice that the doors here are equipped with the Pittcomati —"the nation's finest automatic door opener." A light touc and the Herculite Doors open as if by magic! Architect: H. T Underwood, New Orleans, La.

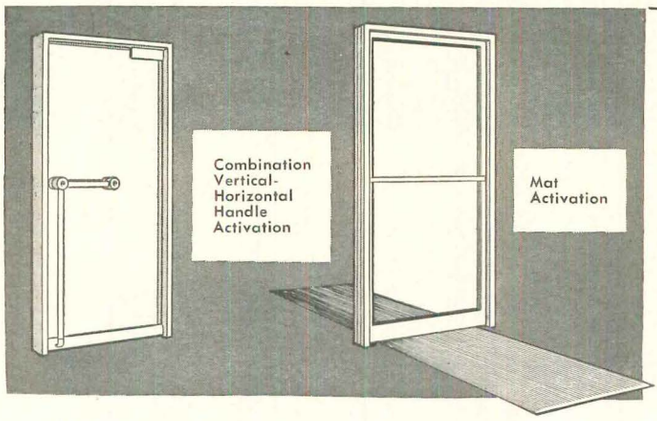
For dependable, long-lived and architecturally flexible doors... specify PITTSBURGH

Architects and building owners all over the country overwhelmingly prefer Pittsburgh Herculite and Tubelite Doors. They know that these doors are noteworthy for their handsome appearance, architectural adaptability, long life and dependable operation. The many thousands of installations of Herculite and Tubelite Doors from coast to coast are proof of their widespreac acceptance. Regardless of your entrance re quirements—whether you need *one* door or *multi-unit* installation – you can depend upo Pittsburgh Herculite and Tubelite Doors to offe you the best possible value and satisfaction. Yo will be wise to insist upon them.



TUBELITE®

In this new building of Sears, Roebuck & Company, Denver, Colorado, Pittsburgh Tubelite Doors were used. The result is one of compelling attraction, through the clean, distinctive, simple lines of these doors. Tubelite Doors and Frames are greatly preferred because their design characteristics make them completely adaptable to almost any architectural scheme. These doors mark an exceptional advance in hollow metal entrance design. Their unique interlocking feature makes them extremely rigid, holds their true shape through long and continued use. Quickly glazed and installed, Tubelite Doors offer the best possible value at moderate cost. Architects: T. H. Buell & Co., Denver, Colorado.



TYPICAL PITTCOMATIC INSTALLATION

The PITTCOMATIC®

opens doors at a touch!

HOW THE PITTCOMATIC OPERATES: Smooth, hydraulic power is supplied by the power unit, through ⅜" copper lines, to the hinge under the door. In the *handle*—or *mat*—there is a 10-volt circuit which passes through the control box and activates the power unit. Adjustments provided in the control box and the hinge regulate the action of the door. The Pittcomatic is the safest automatic door opener to operate. It is the easiest to install and maintain.

FOR DETAILED INFORMATION *on Pittsburgh Doors, see Sweet's Architectural File . . . Sections 16a and 16d . . . or write direct to Pittsburgh Plate Glass Company, Room 6305, 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.*

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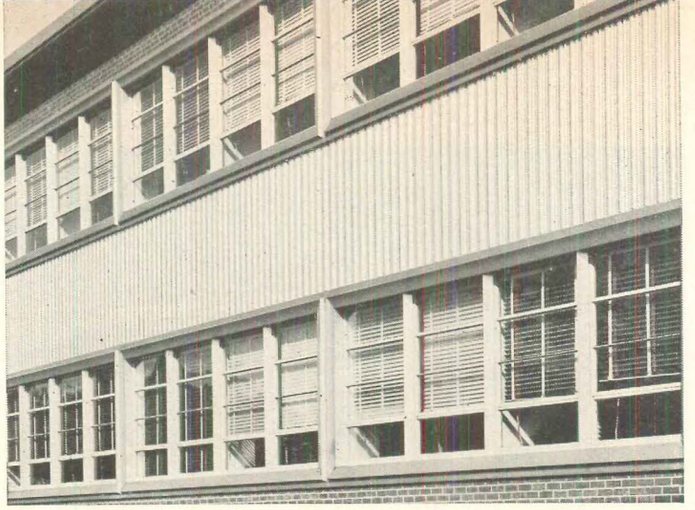
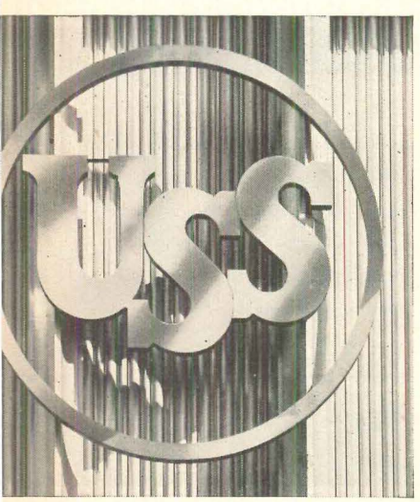
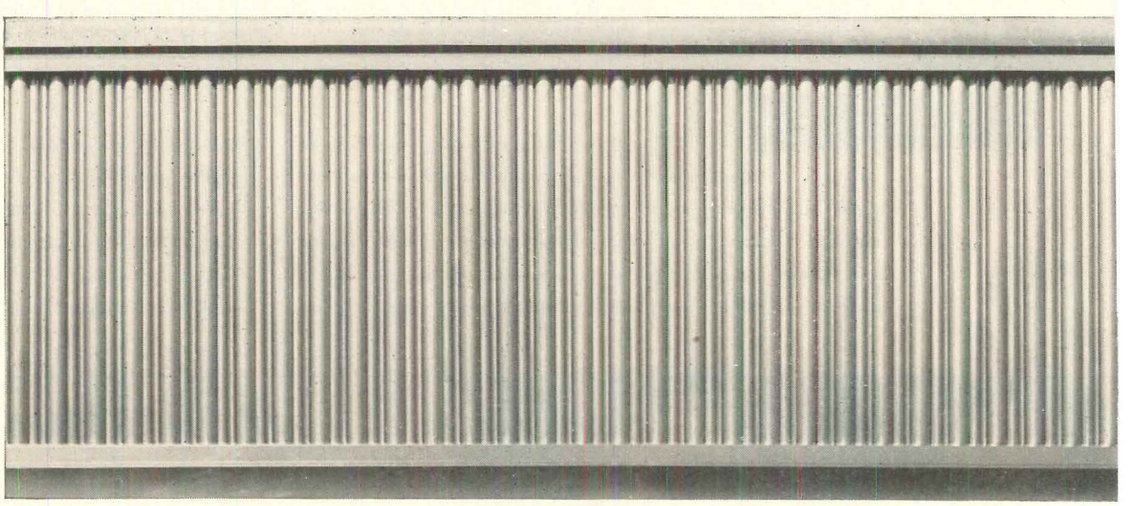


View of stainless steel spandrel construction and window framing treatment crafted and erected by Overly on United States Steel's new Research Center.

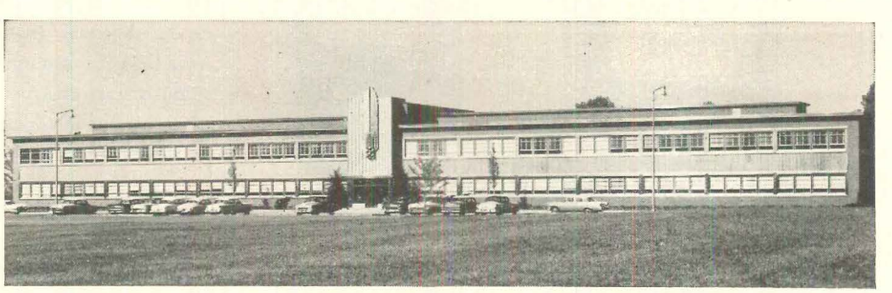
Walls of Stainless Steel on new USS Research Center...

crafted by Overly





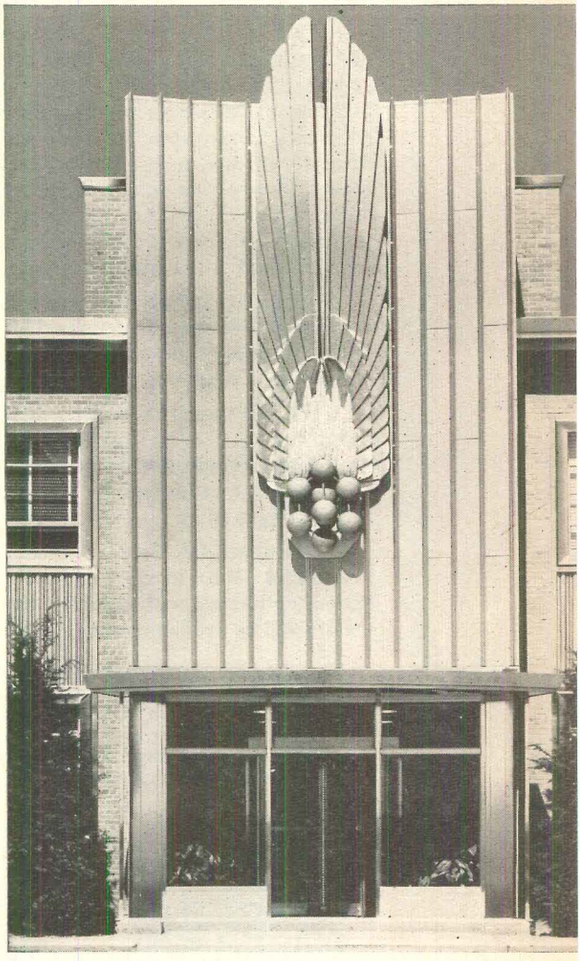
Above, giant U. S. Steel trademark crafted by Overly. Above right, unique fluted spandrel design, crafted by Overly, has no visible joints. Its No. 2D Special finish creates a pleasing contrast with the No. 4 finish used on all other exterior stainless work.

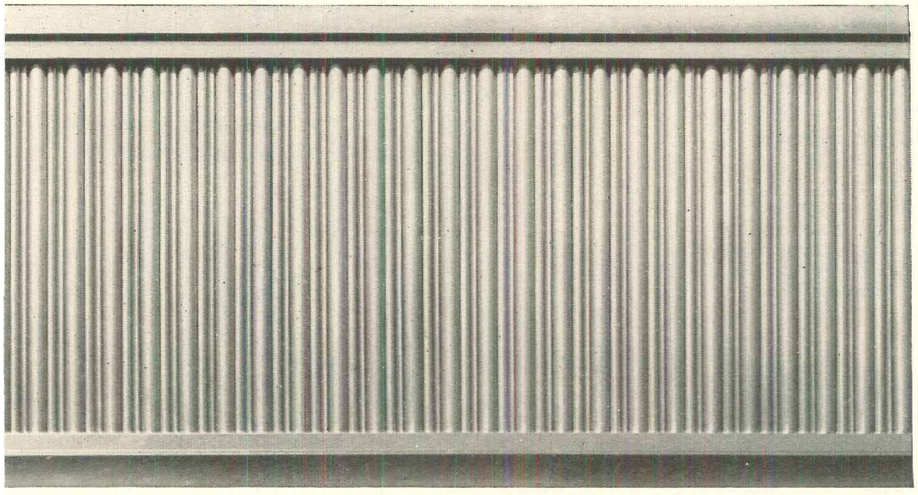


Above right, Building D—Edgar C. Bain Laboratory for Fundamental Research. Bottom, view of Building A—main laboratory in the Applied Research section.

Entrance to Applied Research Laboratory—spandrels, cornice, pylons and insignia were crafted and erected by Overly in enduring stainless steel.

Fundamental Research Building's entrance features a striking winged sculpture on turquoise blue background crafted by Overly. Application of flame to the iron atom symbolizes the steel making process. Wings represent the freedom of thought in research.





In Monroeville, Pennsylvania—just 30 minutes due east of Pittsburgh's Golden Triangle—the United States Steel Corporation has recently completed one of the most advanced, fully equipped research centers in the world. Its new facilities will permit U. S. Steel to intensify, coordinate and broaden its already vast research and development activities covering every aspect of the steel making process.

Overly is proud to have played a major role in bringing this brilliantly designed research center to completion by fabricating and erecting all exterior stainless steel work on two main buildings—the Edgar C. Bain Laboratory for Fundamental Research and the Applied Research Laboratory. Overly stainless work includes: fluted spandrels; window framing units; and all cornice and coping. Entrance construction too, including winged sculpture, "USS" insignia, marquee, cornice and pylons were crafted and erected by Overly.

Overly

MANUFACTURING COMPANY

Greensburg, Pennsylvania • Los Angeles 39, California

METAL PRODUCTS SINCE 1888

(BRICKS OUT OF LAW)

Word comes from Washington that legally you can no longer call any kind of brick simply a brick, unless it really simply is a brick. The new Federal Trade Commission's Trade Practice Rules have postulated, effective July 5, '56, that the only product which may be sold or advertised as brick or structural tile must be 1) made primarily of clay or shale or a mixture of the two, and 2) must be "fused together as a result of the application of heat" or, as the industry expresses it, hard-burned in a kiln.

And what of gold bricks, brick ice cream, and other such brickery? Well, it's all right if you don't simply call them brick. *Concrete* brick, *coral* brick, *plaster* brick, *sand-lime* brick, etc. are qualified, disclosing the fact they are not ceramic, so they are legal. Roman brick is not made of Romans, so it is doubtful. A decision is awaited.

This serves to remind us of a poem composed back in architecture school during a long, long, warm, warm materials lecture on the subject of the proper mortar mix for laying up durable brick walls. The lecturing professor had a pronounced Illinois twang. The illustration is also an old one—old materials notebooks never die.

Chant for a Mason

water in the mortar
warter in the motar
wortar, marter
mator, worter
set set set, my pretty bricks

Yes, those were the poetic days.

(ON LOCATION)

A number of our most important new buildings stand amid dreary city slums, and none more definitely than those on the campus of Illinois Institute of Technology in Chicago's South Side. On one side of the campus is the elevated railroad line of the N.Y.Central, aloofly carrying prosper-

PARENTHESES)

ous travelers to and from the East Coast past the beautiful, begrimed campus buildings. On the other side, less aloof, is the local *elevated,* carrying dwellers of the depressed South Side to and from their labors in the Loop. All around IIT (and penetrating its campus) are the tumbledown brick structures typical of this world's biggest slum, where grit seems sometimes to have replaced mortar as a binder.

Out there in that neighborhood last month to help point the camera at Mies's latest masterpiece, the new Crown Hall of IIT, we were standing with a small group, Photographer Bill Engdahl of Hedrich-Blessing, his assistant, Fred Dutch, David Haid of the Mies office, and a couple of IIT students who were running survey practice. Setting up a picture, we were planning to use the students and their transit as scale figures. Shortly we became aware that our group had been joined by a couple of anonymous looking gents wearing sunglasses and sport shirts, with shirttails rampant, who kept staring over our shoulders as if Marilyn Monroe Miller (M-M-M) were standing across the street.

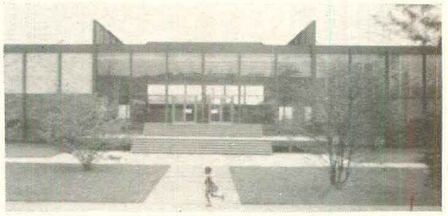
Then one of the pair muttered, corner-of-the-mouth: "Narcotics Squad. . . just don't pay any attention to us. . . we're working on that corner."

And working they were. It turned out there were detectives all over the place, studying the casual comings and goings

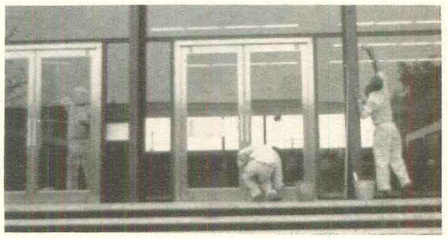
on the opposite sidewalk. All the detectives wore sports shirts and sun glasses, all blended almost perfectly with the Miesian background. At one point we decided to try to use *them* as scale figures, but that didn't really seem wise. Besides, they kept disappearing behind corners of buildings, sliding behind Venetian blinds, etc.

At one point, we volunteered a telephoto lens to them for a closer view of their quarry, and got a hard look in reply, although one of the detectives did make use of the telescope on the transit. What did we get in return? Engdahl's car was ticketed both days we were there.

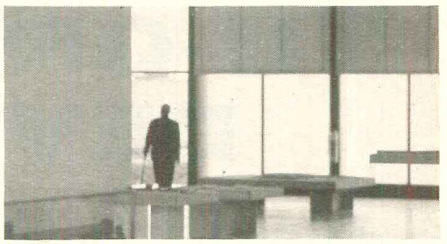
Here are some other scale figures attempted: a passing young resident of the South Side—a little girl running across the



pleasant green island of the campus; some artists at maintenance (with a tremendous



scope for their talent); and *Mies en scène.* For others, including Haid's Austin-Healy,



PHOTOS (ABOVE & LEFT): W. MCQ.

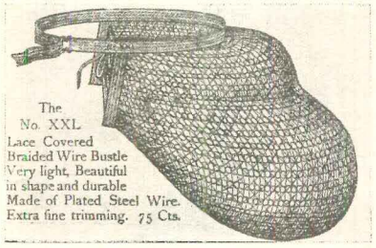
and the surveyors, see story beginning p. 104.

(STRUCTURAL SHAPES)

The US Steel Corp. has sent over some entertaining historical documents in honor of their 125th birthday. US Steel was begun in 1830 when a New England blacksmith developed the first wire-drawing equipment. Another major growth stage came later, when John "Bet-a-million" Gates recognized the repulsive virtues of barbed wire and helped sell enough of it to form the big American Steel & Wire Co. with Judge Elbert Gary.

"And then across the wire industry fell the charm of actress Lillian Russell," says US Steel. *"Her fame and figure in the 'eighties' and 'gay nineties' created a fashion rage featuring wire brassieres, flourishing Gainsboro hats and hatpins, mountainous bustles and sweeping skirts and parasols—all made of wire. Wire orders jumped along with the nation's heart.*

"While Miss Russell captivated the nation, and 'a bicycle built for two' dramatized the fact that millions of wire-wheeled bicycles were rolling the by-ways, Judge Elbert Gary in 1901 drew up plans



for the organization of US Steel Corp. which included American Steel and Wire."

* * *

Ten years ago next month it was our privilege to interview Miss Mae West in Ithaca, N. Y. for the Cornell *Widow,* backstage at a local theater where this famous actress was playing a one-night stand. Outside her dressing room all was tumult and shouting. A delegation of boys from up the hill were waiting to proclaim Mae the Sweetheart of Sigma Chi. Inside the dressing room was a pleasant, languorous calm. Our photographer was busy taking pictures. (He had forgotten to load his camera, it turned out later.)

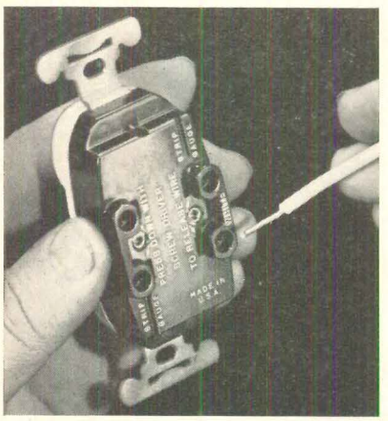
Miss West, chatting, picked up a local newspaper and her eye fell on the advertisement of a local women's store: "Well, boys," she muttered throatily, "Look at this. Wired brassieres, it says. Tell me, boys, wired for what?"

Miss West, meet US Steel. —W. McQ.

Advertisement

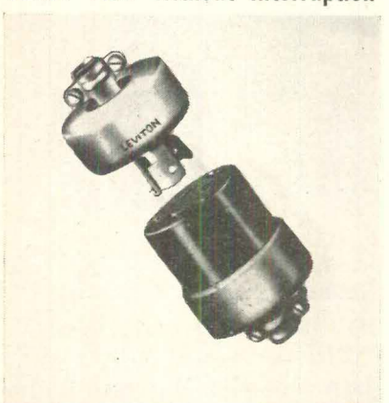
PRODUCT NEWS

Leviton Expands Quickwire Series



T-slotted duplex receptacles, and single and duplex receptacles on covers are now a part of the growing line of QUICKWIRE devices. These "spring type", screwless terminal receptacles and switches make installation quick and easy. No screws to loosen and tighten, wire is stripped and inserted into hole. Permanent contact is assured by the exclusive Leviton coil spring connector. All QUICKWIRE items meet U. L. and C. S. A. specifications.

LEV-O-LOCK Devices Assure Power Flow Without Interruption



Connections that *cannot shake loose* when subjected to jarring motion or vibration are possible with LEV-O-LOCK devices. A simple turn of the cap locks cap and connector or receptacle quickly — and tightly. Sturdy construction features assure long life and latest design makes wiring fast and simple. Interchangeable with other standard interlocking devices, LEV-O-LOCK devices are listed by the Underwriters' Laboratories, of course. Available in 2, 3 and 4 wire 10 and 20 Amp. Caps, Connectors and Receptacles.

For complete information write Leviton Manufacturing Company, Brooklyn 22, N. Y.

Your key to economy and dependability

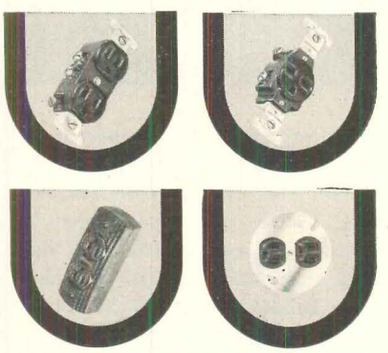
LEVITON U-GROUND DEVICES

Yes, Leviton is your key to cost-*economy* because Leviton has the know-how of mass producing Wiring Devices — gained over almost half a century of manufacturing experience. Leviton knows how to keep quality at the top, and prices at the bottom.

There's no need to sacrifice quality for the sake of economy, either. Leviton has *absolute quality control* — from selected raw materials to completed product. That's your key to *dependability.*

Now available: a new combination switch and U-ground outlet; a complete line of 3-wire U-ground caps and connectors; single and duplex receptacles, receptacles on covers — all in either tandem or parallel types. Duplex receptacles are also available with grounding terminals for individual outlets.

Follow the leaders! **Specify LEVITON U-GROUND WIRING DEVICES.**



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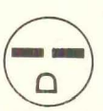

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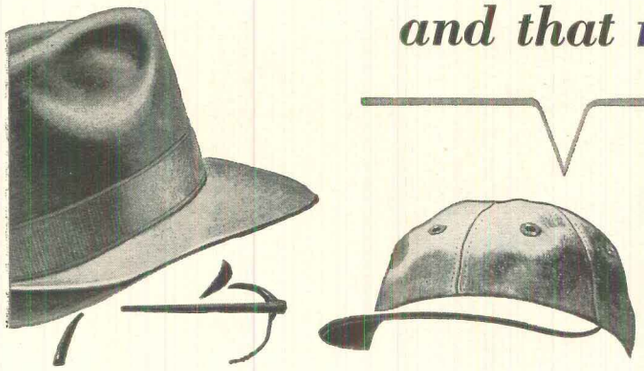
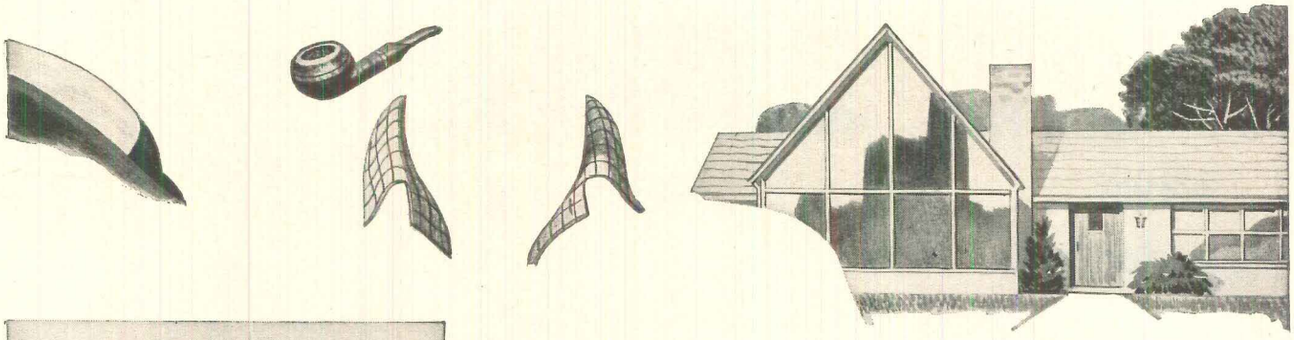
"Sure, why not use it— and that means AMERICAN!"





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LUSTRACRYSTAL—economical heavy sheet glass for larger openings and special applications.

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LUSTRAGRAY—for better television viewing.

BULB EDGE GLASS—for use as counter dividers, wind deflectors and shelves.

THIN GLASS—for microscope slides and covers. Extremely flat and true to tolerance.

SUPRATEST—a laminated safety glass.

PANAL—a fiberglass-reinforced plastic structural panel.

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The man-with-the-pipe is right! The more glassed-in areas there are on your projects, the more important it becomes to use the whitest, clearest, most lustrous glass you can find. And that *does* mean American LUSTRAGLASS or LUSTRACRYSTAL—for top quality at no extra cost.

● Prove it for yourself on your next job. Ask your American distributor how LUSTRAGLASS can give your client the benefit of more light transmission, and afford the least amount of distortion over large areas . . . how LUSTRACRYSTAL can save you as much as 35% in many applications. *Look in your Phone Directory for the name of the American distributor in your territory.*

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LETTERS

FANTASTIC ARCHITECTURE

Forum:

It is articles like "Fantastic Architecture" (AF, April '56) that distinguish FORUM from other magazines. Congratulations.

In this article you presented two photographs of *one* house by Capt. Doullut, a river pilot, and you state "no sane person would dream of copying them." Not only was the dreaming done, but a duplicate house was erected about 200′ behind the first and both are standing today. I will not argue the degree of sanity, as that was your statement.

As for the 1880-82 rebuilding of the old Louisiana State Capitol that was burned

in the Civil War, I would like to quote the following statement: "It is pathetic enough that a whitewashed castle, with turrets and things—materials all ungenuine within and without, pretending to be what they are not—should ever have been built in this otherwise honorable place; but it is much more pathetic to see this architectural falsehood undergoing restoration and perpetuation in our day, when it would have been so easy to let dynamite finish what a charitable fire began, and then devote this restoration money to the building of something genuine.

"Baton Rouge has no patent on imitation castles, however, and no monopoly of them."

This was the opinion of Samuel L. Clemens in *Life on the Mississippi*, copyrighted 1874.

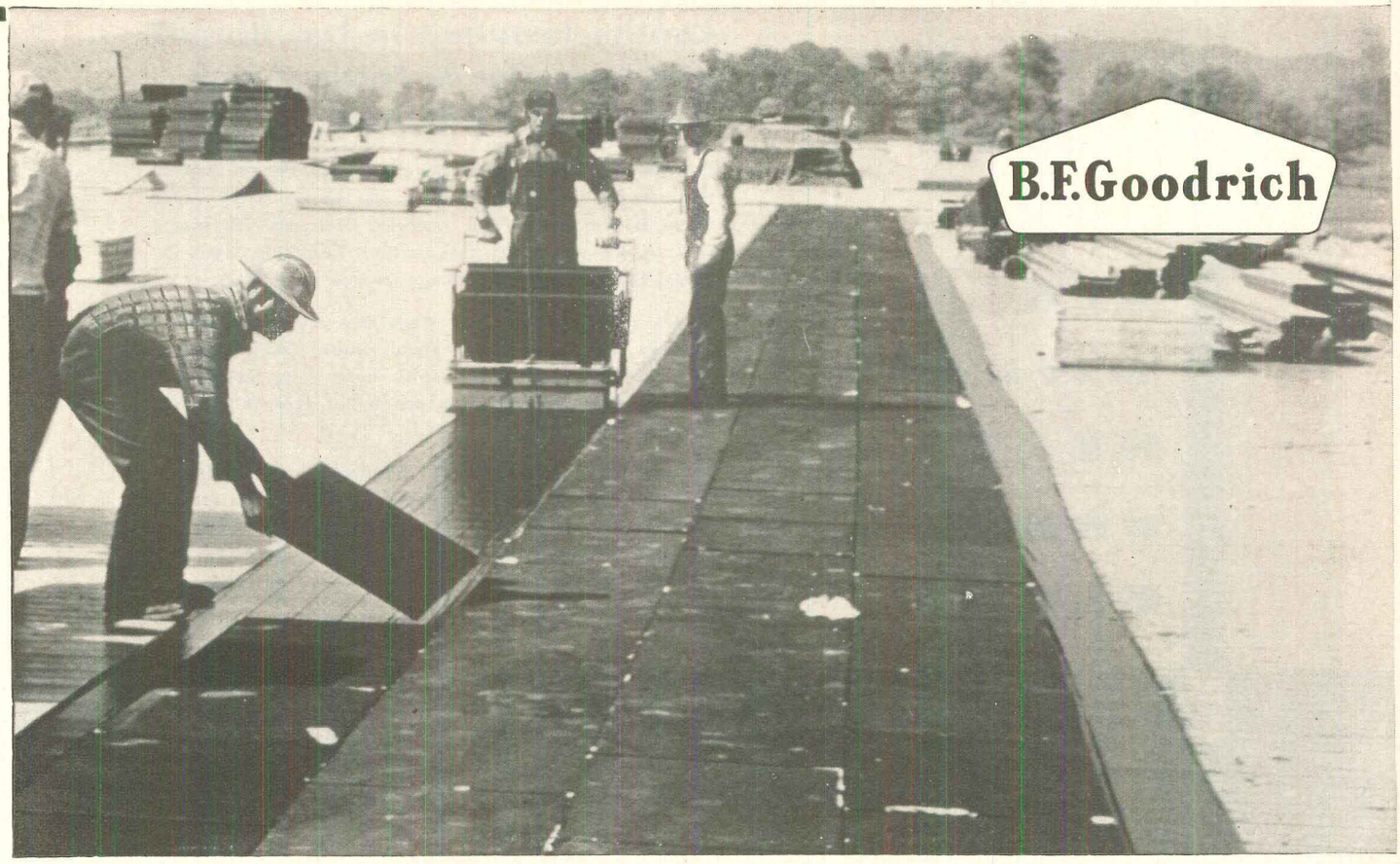
WILLIAM J. BERG, *architect*
Metairie, La.

TECHNICOLOR ON COLOR

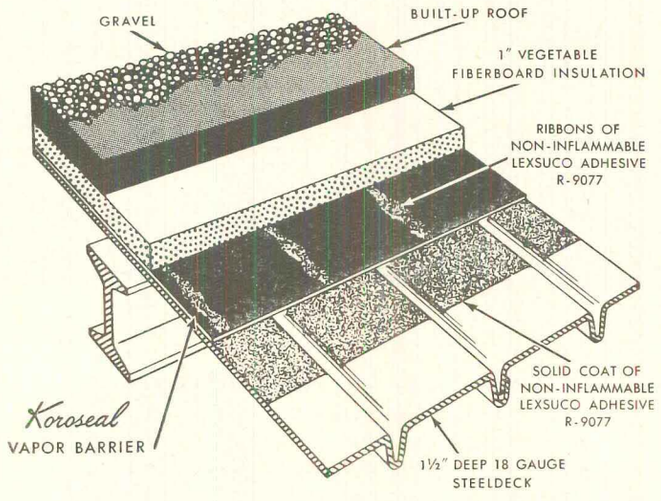
Forum:

In your description of the Beverly Hilton Hotel (AF, April '56) you used the phrase: "Glass walls slide open to technicolor balconies" and said that the opening pomp included "girls on technicolor elephants." While we appreciate the possibly intended compliment, we wish to call to your atten-

continued on p. 62



Lexsuco roof construction with Koroseal vapor barrier gives buildings assured fire protection



Koroseal®

FLEXIBLE MATERIAL BY

B.F.Goodrich

INDUSTRIAL PRODUCTS CO.

MARIETTA, OHIO

FACTORY MUTUAL, after a series of tests, classifies the Lexsuco roof with Koroseal flexible material vapor barrier and securement constructions fire retardant with a Class 1 rating. Here is what Factory Mutual says in their report:

"It is concluded that the Lexsuco Vapor Barrier-Adhesive Combination tested makes no contribution to the spread of fire within a building."

This is in sharp contrast to the old-fashioned vapor barrier method that ". . . contributed considerably to the interior fire and building damage." When you plan or design a new building, keep Lexsuco system with Koroseal vapor barrier in mind. Even without automatic sprinklers, the Lexsuco roof gives positive protection against the spread of fire on the underside of the roof deck. And the possible savings in lives, production and equipment are immeasurable.

Applied quickly and inexpensively by hand or a simple mechanical applicator, Lexsuco constructions employing Koroseal vapor barrier give you a fire retardant roof at a minimum of cost. Koroseal vapor barrier is a specially compounded, fire retardant flexible material made by B. F. Goodrich. For complete information, write *Lexsuco, Inc., Dept. K-80, 4815 Lexington Ave., Cleveland, Ohio.*

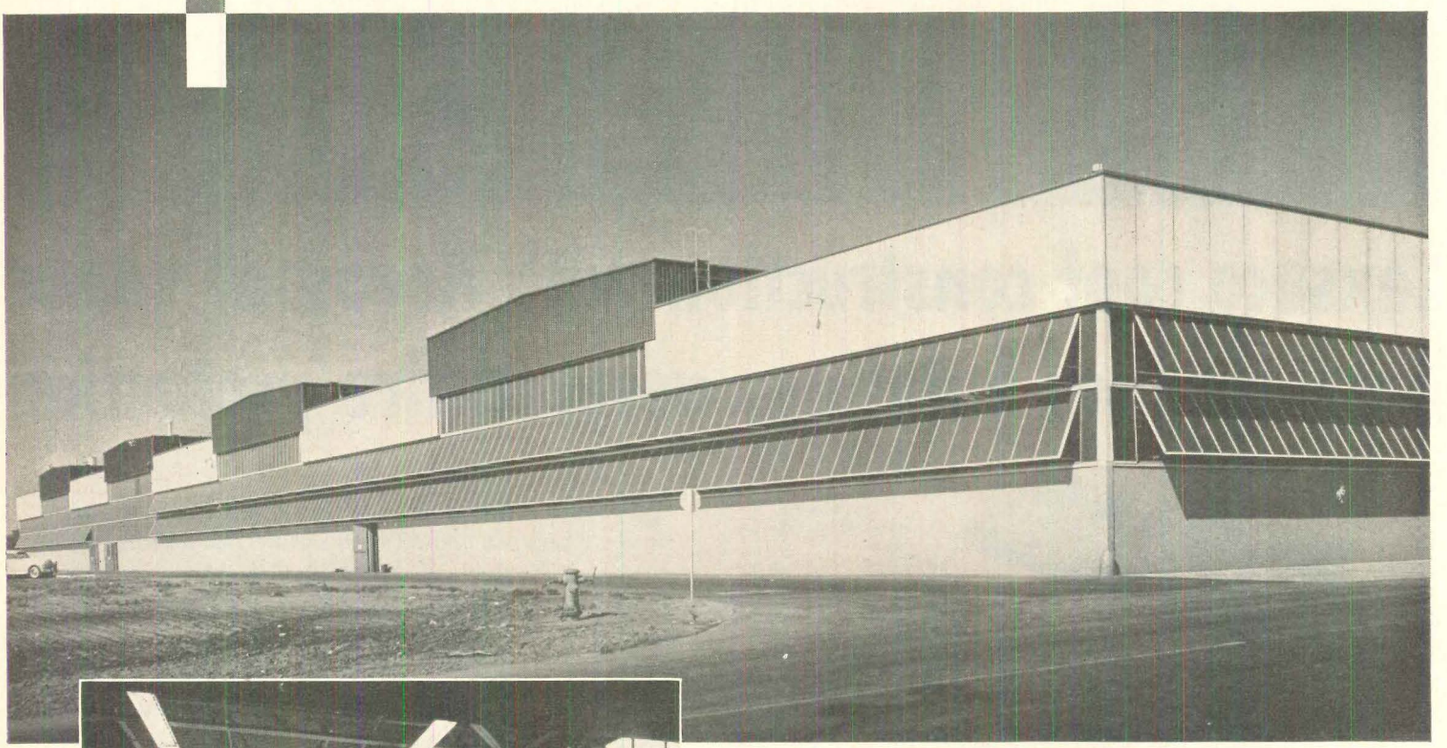
LIGHT and AIR without HEAT and GLARE

Coolite Installed in Top Hinged Windows Floods Factory with Conditioned Daylight

Excellent ventilation and plentiful, eye-easy, natural illumination promote employee efficiency and morale in this United States Electric Motor Plant, Anaheim, California. The hinged windows are glazed with Coolite, Heat Absorbing, Glare Reducing Glass to provide the finest, low-cost daylighting.

Coolite diffuses better light deep into interiors, eliminates contrasts that cause costly visual errors. Coolite absorbs up to 50% of unwanted solar heat rays, helps keep work areas cooler. Employees see better, feel better, work better, under "Cooliting."

This outstanding plant also uses diffusing Wire Glass for excellent daylighting plus protection against breakage and fire in vulnerable areas. Installed in doors, windows, skylights, Mississippi Wire Glass (Approved Fire Retardant No. 32) helps to bottle up small fires . . . keep them from roaring into costly conflagrations.



Architects: Smith, Powell & Morgridge. Three Mississippi patterns were employed in this plant: Coolite, Heat Absorbing, Glare Reducing Glass, 19,212 sq. ft.; Smooth Rough, 5,256 square feet; Coolite Wire, Glare Reduced, 5,377 sq. ft.

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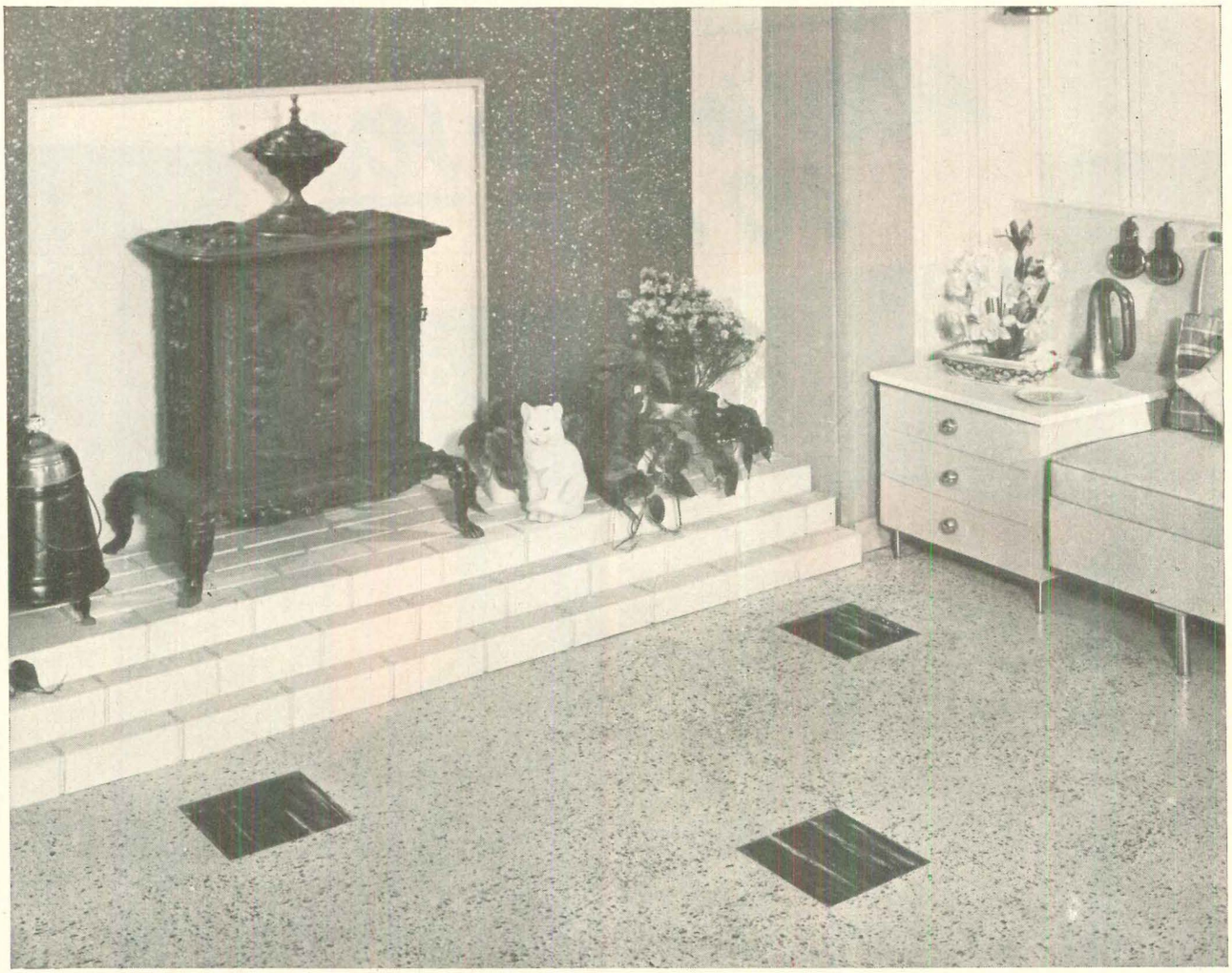


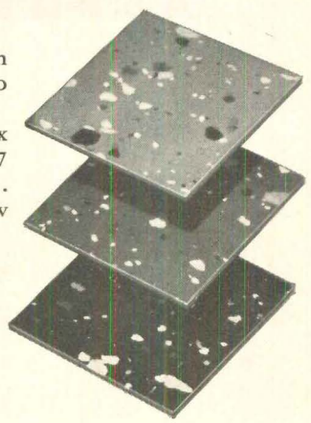
Consumer appeal by Johns-Manville Terraflex Tile

In this living area, the bright, cheerful Terraflex Spatter floor is accented with a marbleized color. A contrasting Spatter color is used as a distinctive wall tile by the stove.

Gay, new Spatter colors add sales-appealing beauty to floors and walls

THE INVITING BEAUTY and cheer of Terraflex® Vinyl Asbestos Tile in 7 new, rich-looking Spatter and 3 Cork-type colors, helps "sell" today's harder-to-please prospects on your home. They know, too, that carefree, no-scrub Terraflex stays spick-and-span with minimum effort. You save on construction costs because exclusive J-M Terraflex brush-on Adhesive makes it easier than ever to install Terraflex Tile.

For full information about new Terraflex Spatter and Cork-type colors . . . and 17 attractive Terraflex marbleized colors . . . write to Johns-Manville, Box 158, New York 16, New York.



See "MEET THE PRESS" on NBC-TV, sponsored on alternate Sundays by Johns-Manville

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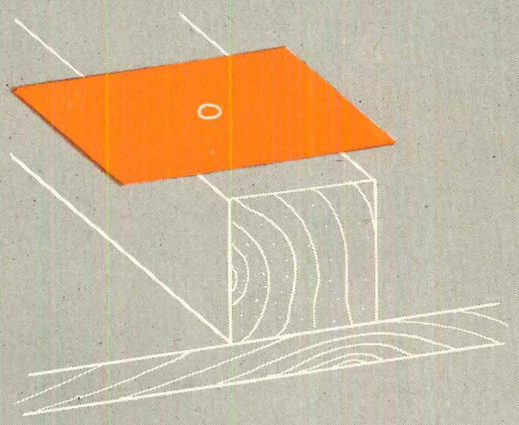
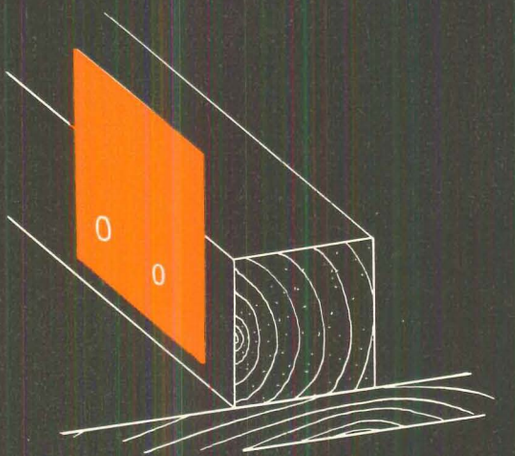
. . . this way?



CLEAT DETAIL
BATTEN SEAM ROOF
Fig 1

. . . or this way?



CLEAT DETAIL
BATTEN SEAM ROOF
Fig 2

In the Fig. 1 detail cleats for a batten seam roof are placed across the top of the batten and secured with one nail.

In Fig. 2 detail cleats are placed on the side of each batten and each cleat is secured by two nails.

While the method shown in Fig. 1 might, at first, seem easier and quicker, it must be remembered that the wind blowing over a roof causes a suction or up-lift on the roofing pans. With the nail placed on top of the batten, the nail is subjected to a straight upward pull, whereas with the nail placed on the side of the batten, the nail is subjected to a shearing action that does not tend to loosen the nail. It is always advisable to use two nails as a single nail never provides a good fastening.

NOTE: The job of attaching the cleats to the side of the battens is made easier if this is done when battens are on the ground.

We do not wish to presume to tell you how to design your structures or dictate their construction. For there are many satisfactory methods of installing gutters, leaders, roofs, flashing, coping covers, etc., which, of necessity, change with the design and type of construction and materials used. The purpose of this advertisement is to point out the methods of installation that have been proved by many years of use, and backed by more than a century and a half of experience in working with copper, to be the most satisfactory techniques. You will find these methods in Revere's 110 page brochure, "COPPER AND COMMON SENSE." Send for a copy today. And remember: Revere has a staff of specialists known as Technical Advisors, whose experience qualifies them to render valuable service and advice regarding the use of metals in the building field. Feel free to consult with them at all times regarding the use of Revere Copper; you incur no obligation. Revere Technical Advisors may be contacted through the Revere Office nearest you.

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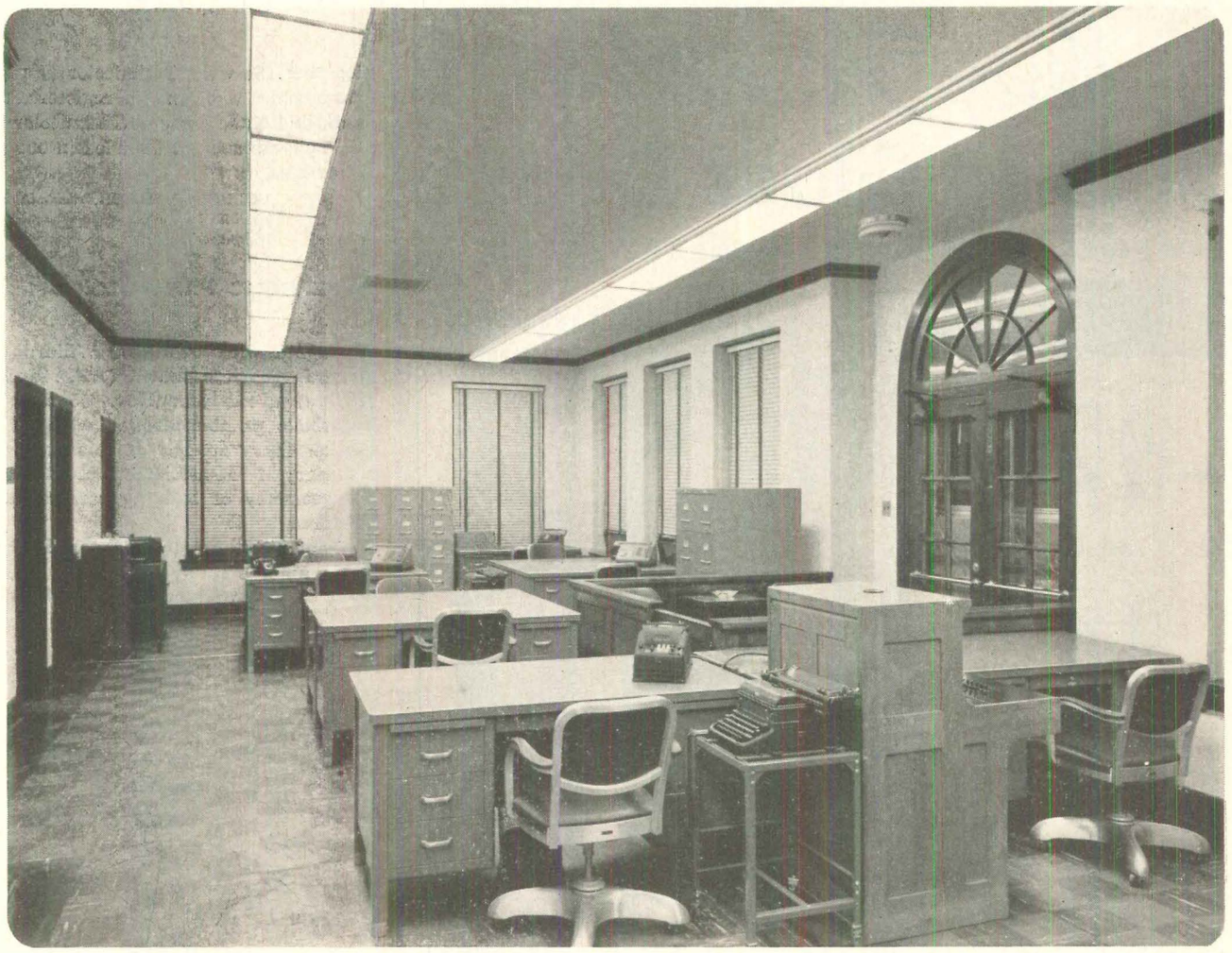

Here is "LIGHTING ENGINEER'S LIGHTING"— Featuring Quality, Design Simplicity and Fast Installation

You're looking at an office of United States Gypsum Company in Philadelphia — illuminated by Litecontrol fixtures. It's easy to see that this office is a pleasant place in which to work. Yes, and the simplicity of the fixture, consisting of only three components (housing, reflector and louver) makes it easy to install and maintain.

Litecontrol louvered No. 5448 fixture in rows casts the proper amount of the correct type of light just where it's needed. The two center lamps may be used alone, or all four lamps may be operated together, for variation in light intensity as outside conditions require.

On your next installation for office, store or public building check with us for *standard* fixtures of the highest quality that will save you time and money.

LIGHTING ENGINEER:
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CEILING HEIGHT: 12′ 0″.

FIXTURES:
Litecontrol No. 5448, wired with two center rows of lamps on one circuit, two outside rows on another.

INTENSITIES:
92 Footcandles average in service, all lamps on. 47 Footcandles average in service, two center rows of lamps on.

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LETTERS *cont'd.*

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Elephants are not included in our goods or services.

VOLNEY F. MORIN, *resident counsel*
Technicolor Corp.
Hollywood, Calif.

HYPERBOLIC PARABOLOIDS

Forum:

I agree with Professor Willard Oberdick's favorable comment (AF, March '56, *Letters*) about your Nov. '55 article on hyperbolic paraboloids and with his suggestion that "articles of this nature are necessary if US architects are to master the geometry of building rather than be mastered by it."

About 15 years ago, Victor di Suvero and I applied for a patent pertaining to many structural types of space buildings,

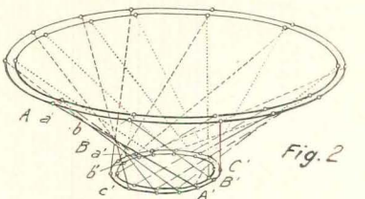
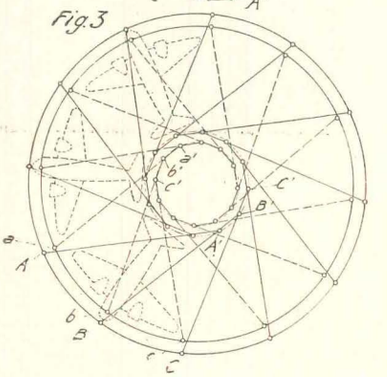


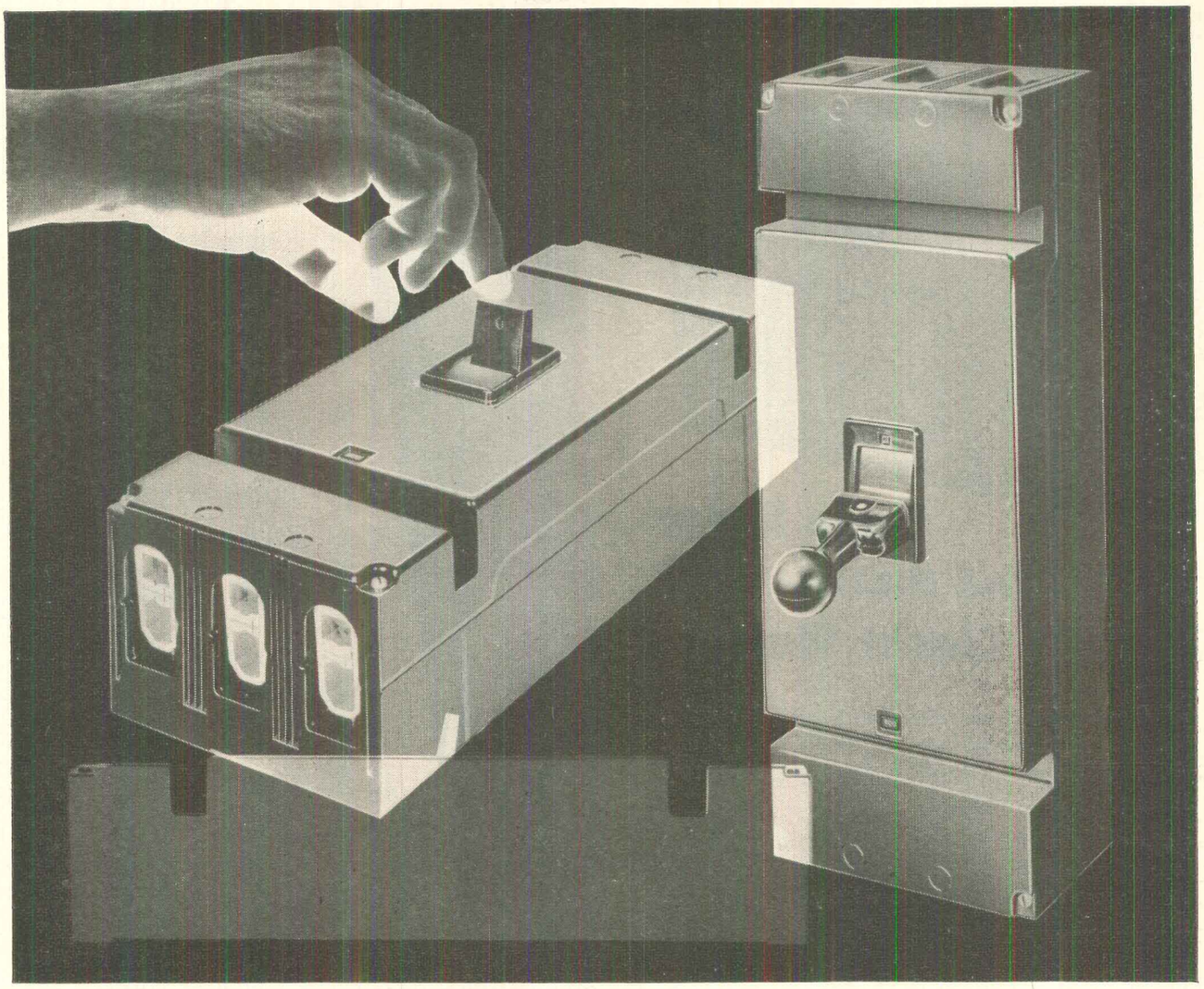
Fig. 2

Fig. 3



including the "big, cheap and column-free hyperbolic paraboloid" and "hung roofs," one of which is illustrated in the accompanying drawings from the original patent application. Some of the basic characteristics of these space structures, as described in the patent application, also pertain to the shapes discussed in your article: "This invention relates to structures, structural members and other bodies having three-dimensional [space] surfaces ruled by substantially straight lines or having a shape of certain conoids. . . . If straight structural members of any material are substituted for the generating lines and are adequately spaced apart and connected at intersections, a very strong and light structural network is obtained, efficiently resisting forces acting in any direction. . . . The advantages of these structural schemes are evident. For example, it is known that a shorter, straight structural member resists greater axial

continued on p. 70



The Westinghouse Type M—only fully rated 800-ampere, molded-case circuit breaker . . .

Saves 3/4 cost of larger devices

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Whether you use it singly enclosed or in a switchboard, you'll find it can save ¾ the cost of a larger air circuit breaker. Space or mounting economies may run the savings even higher—such as the use of this design in building compact distribution panelboards.

Though the smallest device of its rating, the new model will carry its full current rating in normal ambients even when enclosed—something other thermal devices cannot do. This feature of ambient compensation is useful in applications where standard units might unduly penalize system capacities. Both the Westinghouse *true 800-ampere* alternate and the standard thermal magnetic trip types are U.L. listed.

You owe it to yourself to get all the facts on the Westinghouse Type M circuit breaker. Get 'em today from your local Westinghouse sales office—or write direct to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-30214

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Mengel Closet Walls are factory-built modular units, shipped K.D. in individual cartons, in 2′, 3′, 4′, 5′ and 6′ widths. They are all 91½″ high, to permit tilt-up installation with 8′ ceilings.

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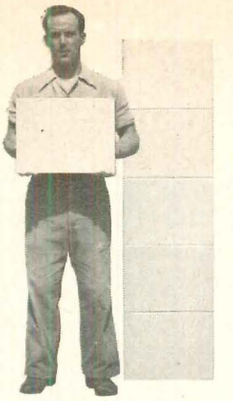

new 12″ x 16″ ceramic tile offers vast design possibilities... exterior, interior! residential, commercial! 15 colors!

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New Stylon MAGNA-TILE matt-glazed 12″ x 16″ wall panels open up for architects and builders an entirely new range in wall design, both interior and exterior. In addition, Magna-Tile meets the demand for handling ease and economy in larger surface units and easily handled modules.

MAGNA-TILE is frostproof. The large rectangular shape means fewer joints, less grouting, and lower cost per square foot of coverage. Either cement or mastic application can be used. Magna-Tile is available in fifteen magnificent solid and decorative finishes.

Stylon MAGNA-TILE is formed by applying an impervious matt surface glaze to an extremely tough body compounded of refined ceramic materials and fused at high kiln temperatures. These massive high-alumina bodies are acid-resistant, extremely durable, and will withstand sharp temperature variations.

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Please send me folder on MAGNA-TILE.
I should also like your most recent Stylon Ceramic Tile catalog.

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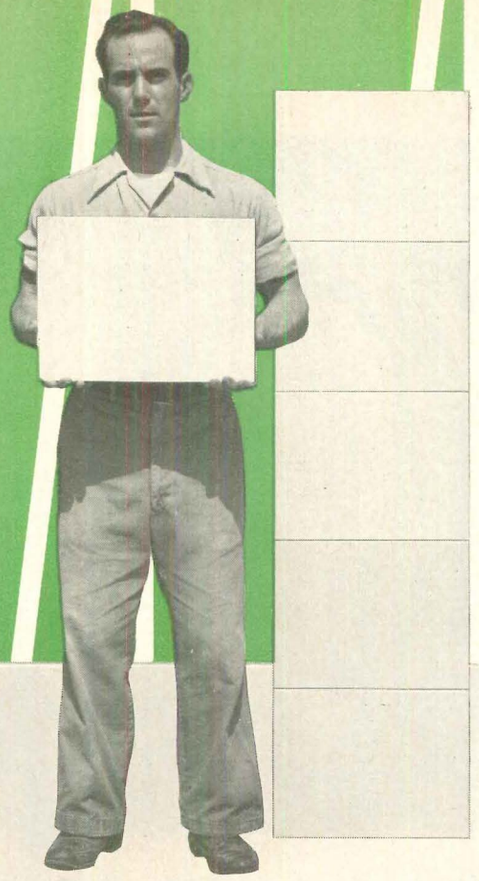

NEW CERAMIC TILE SIZE: 12″ x 16″ FROSTPROOF MAGNA-TILE

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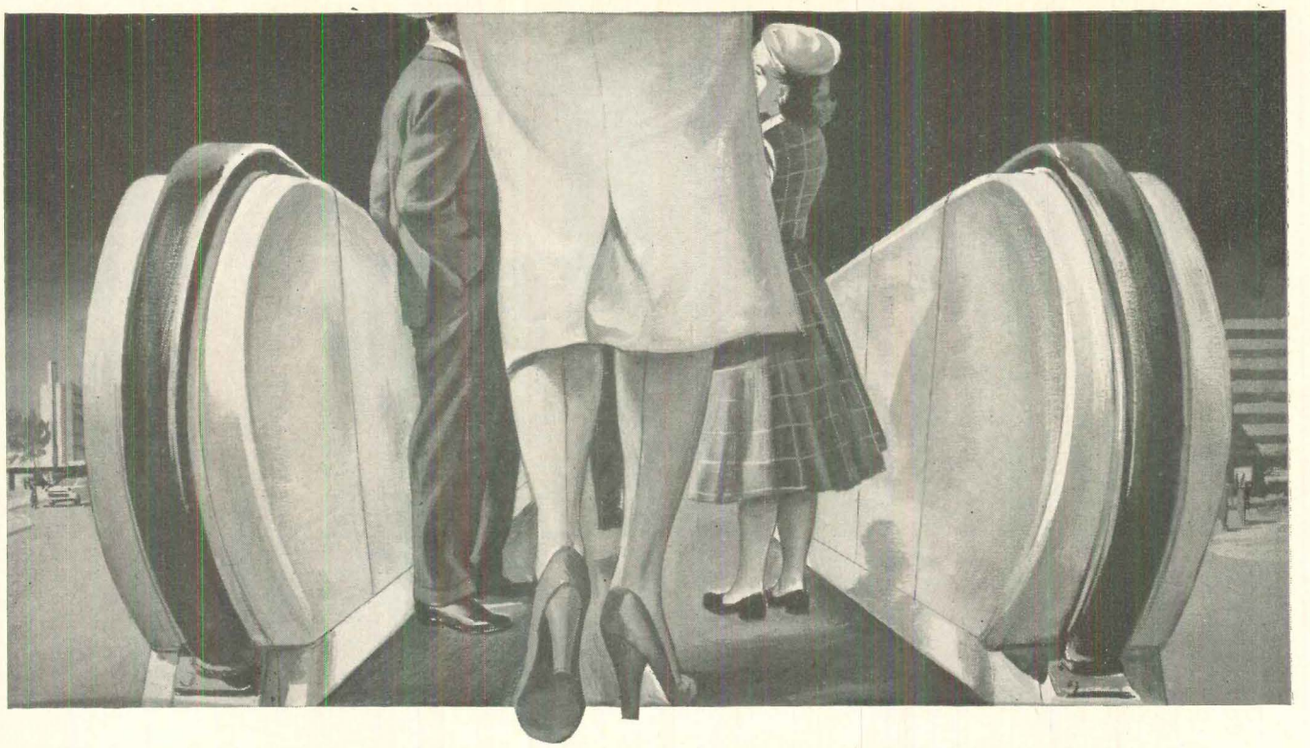
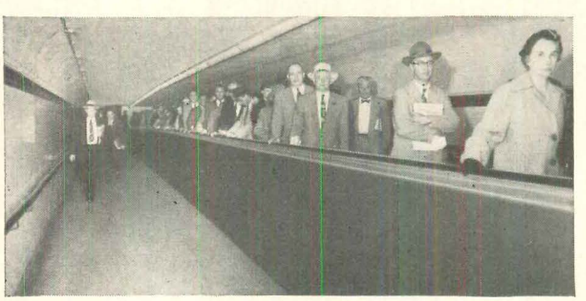
CERAMIC TILE



TOMORROW IS HERE TODAY WHEN YOU MOVE PEOPLE *EN MASSE* WITH SPEEDWALKS!



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227 ft. long, it carries N. Y. commuters from Hudson and Manhattan tube trains to Erie R. R. Terminal. Handles up to 11,000 passengers per hour.

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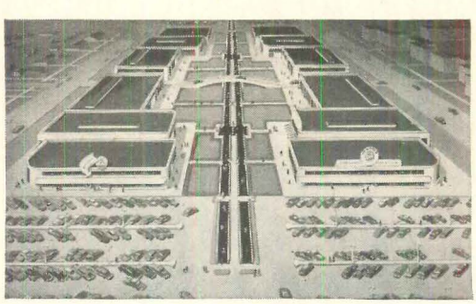
This is the SPEEDWALK, and it's here today, ready to convey human traffic on endless belts with an operational and installation economy heretofore thought impossible. This new concept in mass transportation will soon be operating in department stores, railroad terminals, airports, shopping centers, and many other heavy traffic locations.

From bulk materials conveyors to "people conveyors" was a natural product evolution for the designers of SPEEDWALK. The STEPHENS-ADAMSON Company for over fifty years has been engineering and manufacturing conveying systems for a multiplicity of purposes.

Often in the architect's planning, traffic flow is a vital consideration. You can help America get a move on with SPEEDWALK by examining its boundless possibilities. We invite your inquiries.



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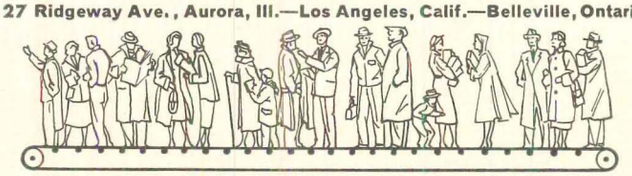
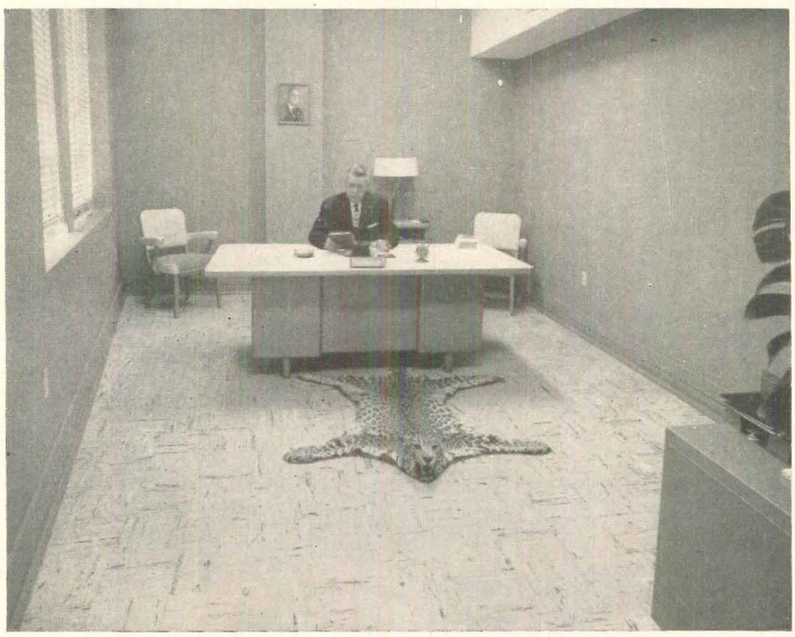




Here's the office of Mr. R. S. Withers, Building Manager. Like all offices in the building, the floor is surfaced with eye-appealing Flexachrome. The tile not only looks wonderful, but it can help make *management* look good too.

• • •

The Milner Building, Jackson, Miss.
10 Story Office Building
Architects: E. L. Malvaney & Associates

140,000 square feet of Colorful Flexachrome chosen for floors of new Mississippi building

"Flexachrome colors stay fast and fresh... Cleaning is easy...Maintenance costs low..."

Manager of modern building reports

Every office . . . every corridor . . . of the Milner office building is floored with colorful, durable Flexachrome.

The color of the flooring varies . . . for every tenant selected his own color scheme. And each tenant made his choice from the wide range of beautiful Flexachrome colors.

"However, *all* colors have proved to be fast. All the tile is equally easy to clean and maintain," writes Mr. R. S. Withers, Building Manager.

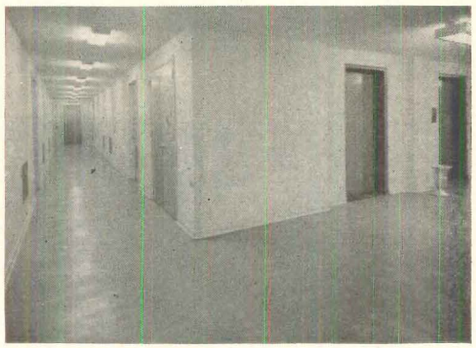
"We are well pleased, in every way, with Flexachrome," he continues. "And from all indications, our flooring maintenance costs over the years will be exceptionally low."

Specify Flexachrome floors for *your* clients!

In fact, this vinyl-asbestos tile is rugged enough to be installed almost anywhere. Flexachrome is greaseproof and resists acids, alkalis, scuffs, stains, fire and moisture. Use it over wood subfloors, in basements or over concrete slabs.

Your Tile-Tex Contractor is listed in the classified pages of your telephone directory. He'll give you expert help in selecting and planning the best kind of floors for your clients. Or write:

see our catalog in Sweet's or write for copy



Here's the finest all-purpose floor covering ever developed . . . Flexachrome Vinyl-Asbestos Tile. So easy and economical to keep clean. No wonder the Morrison's Cafeteria, on the main floor of the building, *also* uses Flexachrome flooring throughout.

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1234 McKinley Avenue, Chicago Heights, Illinois.

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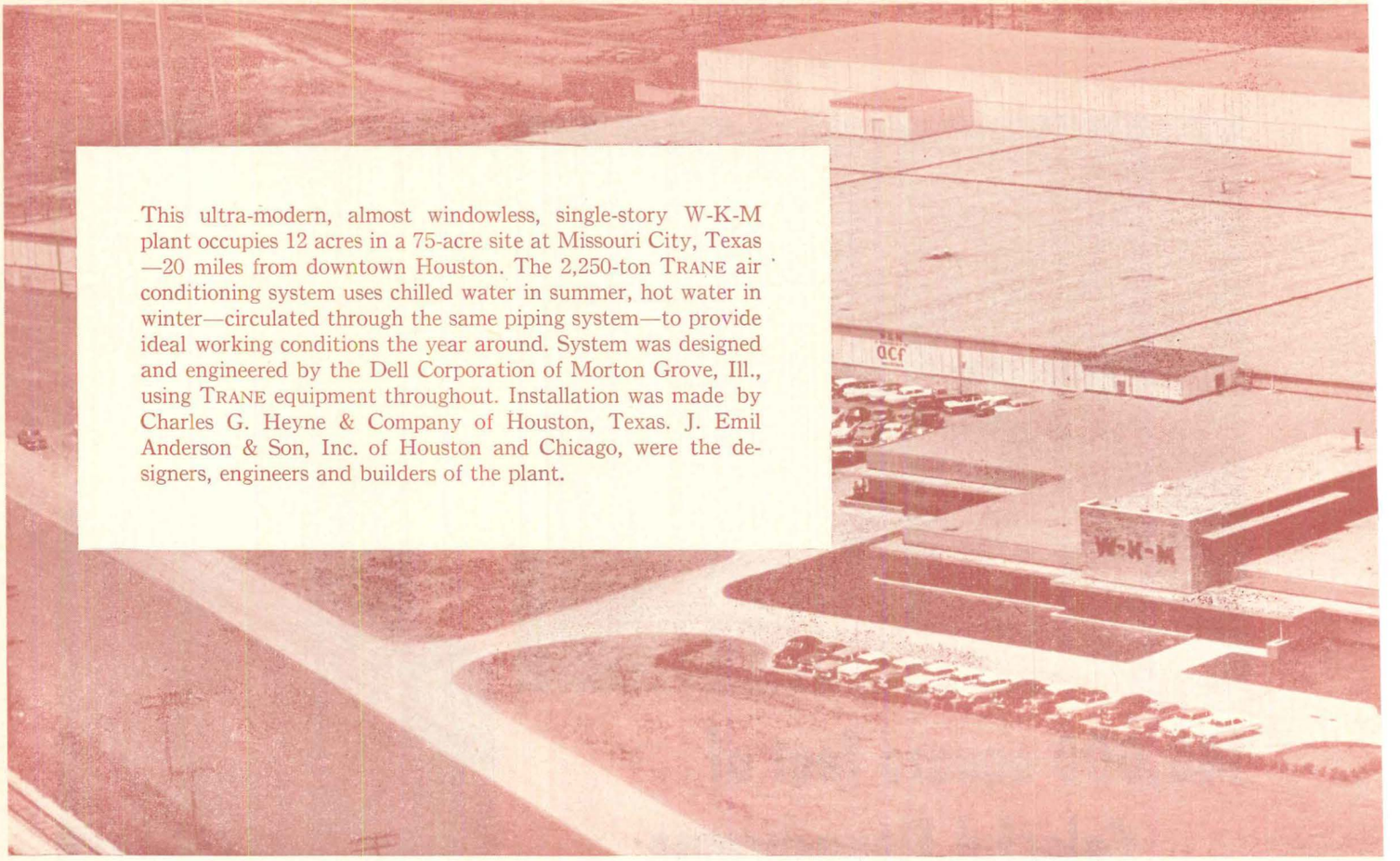
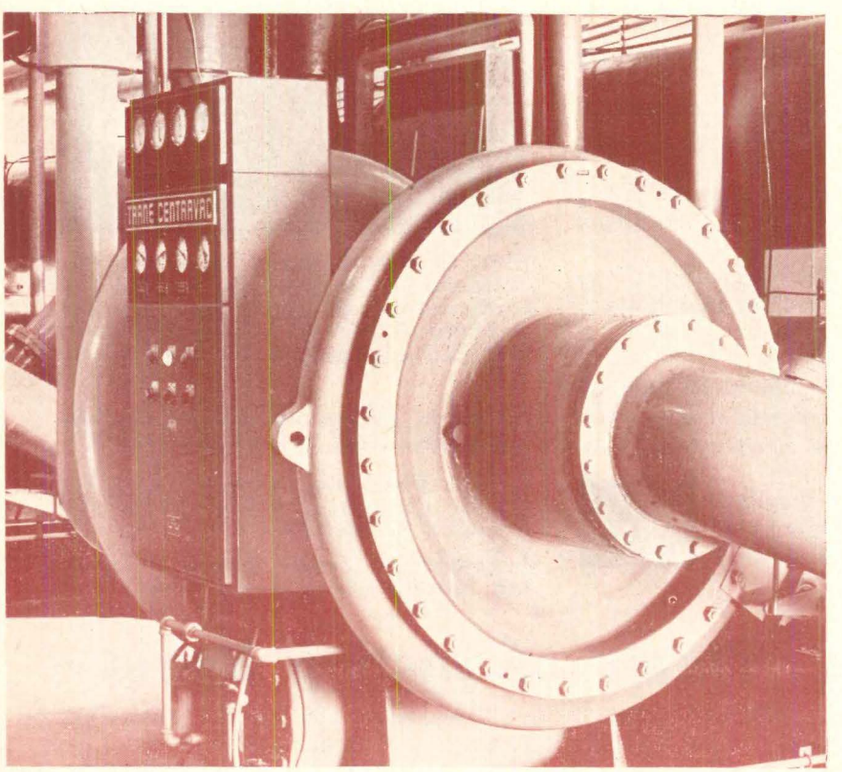
Manufacturers of Flexachrome*. . . Tile-Tex*. . . Tuff-Tex*. . . Vitachrome*. . . Holiday*. . . Mura-Tex* . . . Holiday Flexachrome . . . Korkolor†. . . and Modnar*, the plank-shaped asphalt tile.

*Reg. U. S. Pat. Off. †Trademark of The Flintkote Company



This ultra-modern, almost windowless, single-story W-K-M plant occupies 12 acres in a 75-acre site at Missouri City, Texas —20 miles from downtown Houston. The 2,250-ton TRANE air conditioning system uses chilled water in summer, hot water in winter—circulated through the same piping system—to provide ideal working conditions the year around. System was designed and engineered by the Dell Corporation of Morton Grove, Ill., using TRANE equipment throughout. Installation was made by Charles G. Heyne & Company of Houston, Texas. J. Emil Anderson & Son, Inc. of Houston and Chicago, were the designers, engineers and builders of the plant.

New 500,000 square *comfort* air



Three Trane CenTraVacs like this provide the chilled water for W-K-M's factory air conditioning system. These hermetically sealed compressors have a combined cooling capacity of 2,250 tons . . . chill 324,000 gallons of water per day. TRANE CenTraVacs were chosen for this important cooling job because of their ability to meet the wide variations in cooling demand. One, two or three units may be operated as the load fluctuates. Regulated entirely by automatic controls, they require no attendant.

For heating, cooling, ventilating . . .
For any air condition, turn to

TRANE

MANUFACTURING ENGINEERS

foot factory gets conditioning by Trane

Year-around peak efficiency conditions for 1,100 employees in W-K-M's ultra-modern Houston plant!*

Perfect working conditions the year around are assured for the 1,100 workers in W-K-M's new plant near Houston, Texas. The 500,000 square foot factory building is completely air conditioned by TRANE equipment that cools in summer, heats in winter . . . provides built-in "ideal weather" all year long!

The factory air conditioning system, with an air handling capacity of 585,000 cfm, consists of fourteen electronically controlled zones. High pressure design, with smaller ducts, saves manufacturing space . . . permits lighting equipment that is only 15 feet above floor level.

Three TRANE CenTraVacs—hermetically sealed centrifugal compressors—supply chilled water for the factory system. A fourth CenTraVac handles the requirements of the administrative offices. Engineering offices are cooled by a #50 CT TRANE Condensing unit, with a TRANE Multi-Zone Climate Changer. Roof-mounted, the equipment transmits no noise into the building to disturb occupants.

Each year, more and more manufacturing plants are turning to TRANE for year around air conditioning because they have found that—in their plants or industries—modern air conditioning could more than pay its way by increasing production, boosting efficiency and reducing wasteful employee turnover.

For information on comfort or process air conditioning—for a new or existing plant—just call your nearby TRANE Sales Office. Or write TRANE, La Crosse, Wis.

**W-K-M Manufacturing Company, Inc. is a subsidiary of ACF Industries, Inc., specializing in the manufacture of valves and fittings for use in petroleum, gas, chemical and other process plants.*

THE TRANE COMPANY, LA CROSSE, WIS. • EASTERN MFG. DIV., SCRANTON, PA. • TRANE COMPANY OF CANADA, LTD., TORONTO • 90 U.S. AND 19 CANADIAN OFFICES

LETTERS *cont'd.*

stresses than a longer one with a curved axis. . . . The generating lines can also have slight or even great curvature and can intersect not only in triangles but also in quadrangles or in any other shape and still have high bearing capacity. . . . Flat intersecting members can also be used (plywood, sheet metal, etc.). . . . Better distribution of internal stresses is achieved. . . . These structures are highly resistant to any type of loading in any direction to both external and internal forces, impact, shock, earthquake and vibration. . . . Torsional moments are carried over mostly by direct stresses for which the structural materials have the highest efficiency. . . . Similar characteristics and advantages are valid when tension members (rods, ropes, cables, etc.) in both directions, and with small or larger curvature are used (hung roofs).

Here are some of the applications that were suggested at the time the patent was applied for: hangars, assembly halls, plane factories, swimming pools, gymnasiums theaters, skating rinks and garages; high columns, members of large bents and frames, skeletons of towers and skyscrapers; the skeleton and fuselage of airplanes, boats, submarines and dirigibles; vaults, domes and shell structures; and arched members, bridges and dams.

J. J. POLIVKA, *engineer and architect*
Berkeley, Calif.

9′-14″

Forum:

I once had a sweet old lady client who sent me the width of a hall that she liked, which, according to her, was 6′-15″.

In her case I felt this system of measurement possessed a certain becomingly lay charm—but I am not so sure that I approve of FORUM adopting it as seems to be the case on p. 155 of the April issue.

At least you ought to be consistent: why should public rooms at Tulane be 12′-3″ high and all others 9′-14″?

WILLIAM R. JOHNSON, *architect*
Wyeth, King & Johnson
Palm Beach, Fla.

• FORUM's red-faced 4′-18″ proofreader overlooked the extra 10″ inadvertently added to the height of the "other rooms" in Tulane's new dormitory.—ED.

IT ISN'T THE HEAT . . .

Forum:

Henry Wright's article (AF, May '56) is commendable, readable defense of fresh air addicts, with clear exposition of *some* control problems, and free of engineering jargon.

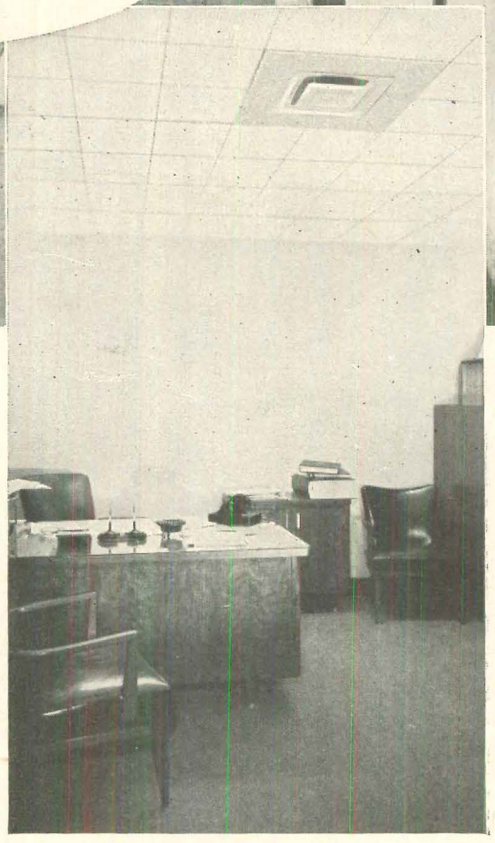
But one very important criterion of comfort, *radiant temperature*, was omitted from the discussion of the technics of the post-Diogenes era.

In an earlier article (AF, Nov. '50),

continued on p. 76

IN THE
HARTFORD STATLER

kno·draft
"ROUNDS" AND "SQUARES"



Engineers: Jaros, Baum and Bolles
Mechanical Contractors: Alvord and Swift

Conditioned air is delivered to all offices and public rooms of the new, modern Statler Hotel in Hartford, Connecticut, through Kno-Draft Adjustable Air Diffusers. Both round and square units are used—and a few of the new slot-type Kno-Drafts (not shown).

Primary reason for selection of Kno-Draft was the greater comfort assured by *draftless* air movement, uniform temperature, and the easy and accurate control of both air volume and flow pattern.

And notice how neatly the Kno-Draft squares fit into acoustical ceilings and how—square or round—the handsome Kno-Draft units blend unobtrusively with the architectural scheme of things.

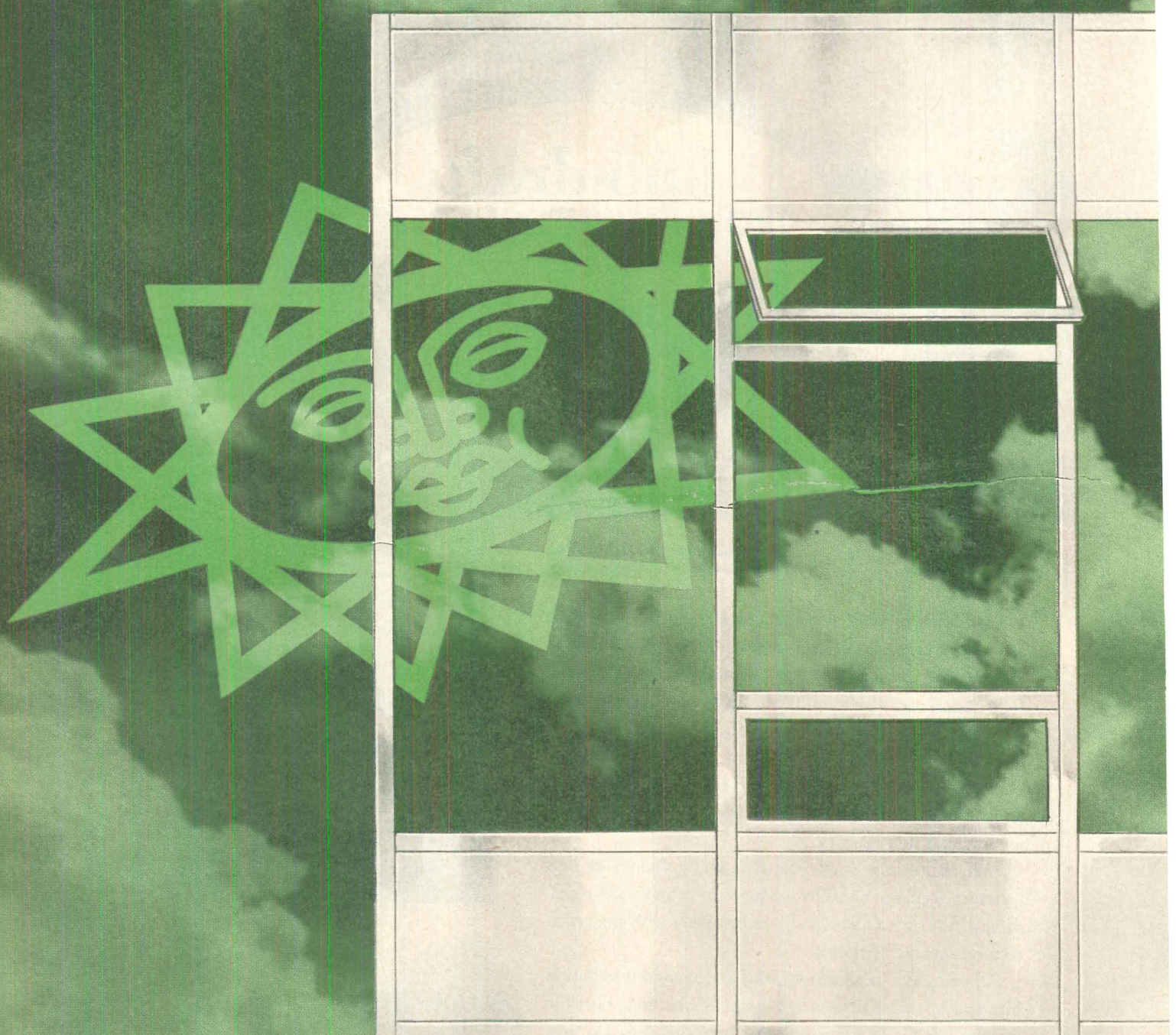
For complete specifications, engineering and installation information on Kno-Draft round, square and slot-type diffusers, simply write on your letterhead to Connor Engineering Corporation, Dept. D-86, Danbury, Conn.

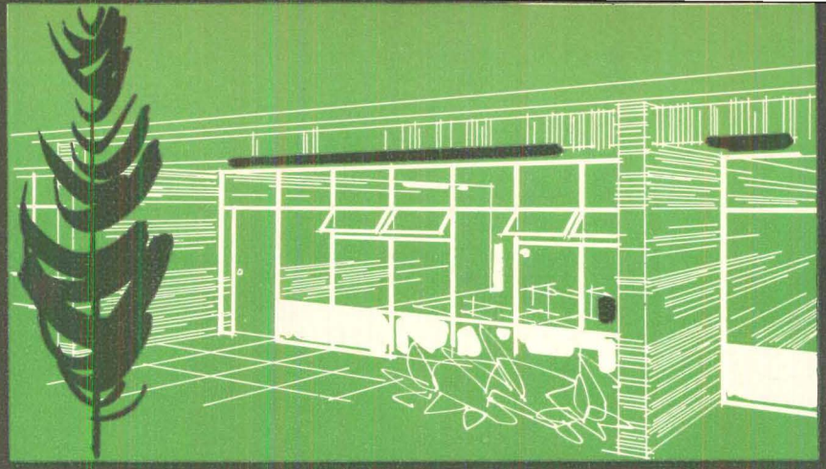
CONNOR
ENGINEERING
CORPORATION

kno·draft®
adjustable air diffusers

NOW-

another new product by Kawneer...





a **unit wall** with all the features you need for contemporary construction

Kawneer announces another new creative tool for the architect . . . the KAWNEER UNIT WALL. This versatile exterior wall system is composed of standard components that provide complete flexibility of design. There is a wide selection of modular components, window units, both operable and fixed, solid panels with colored porcelain and insulation, and a complete variety of flush or glazed doors available in many types and sizes. There is a choice of proportions within the units themselves. All parts are readily available because of the standardized program.

Standard units are factory assembled and shipped complete with insulated panel, sash and doors. Now you have complete design flexibility with attractive window, wall and door panels.

MODULAR COMPONENTS. Standard units are provided in modular sizes. Special filler widths are available where required.

SPLIT MULLION DESIGN. Interlocking mullions provide for horizontal expansion and contraction.

CLEAN SIGHT LINES. Glazing beads for fixed sash are recessed to be flush with the mullion, providing clean sight lines and unobstructed vision.

PUTTYLESS GLAZING. Vinyl weatherstripping throughout, reduces glazing time and provides a clean permanent and easily replaceable glazing system.

NO EXPOSED FASTENERS. Units are assembled with concealed fasteners and glazing beads are installed by a positive toe-heel interlock.

FLUSH INTERIOR DESIGN. Interior face of mullion and muntin bars lie in the same plane, facilitating the installation of interior furnishings.

STANDARD DOOR UNITS. Factory assembled door units are offered as an integral part of the program and are interchangeable with wall units.

QUALITY SASH. Specially designed operable sash is provided with double vinyl weather seal and rugged lifetime hardware.

COMPETENT WORKMANSHIP. Closely controlled fabrication and assembly in the factory result in tight, accurately fitted joints and a high quality uniform finish.

RAPID INSTALLATION. A minimum number of parts handled on the job site and adequate provision for building tolerance insure simple accurate installation.

Write for 12-page illustrated Unit Wall book

50TH ANNIVERSARY

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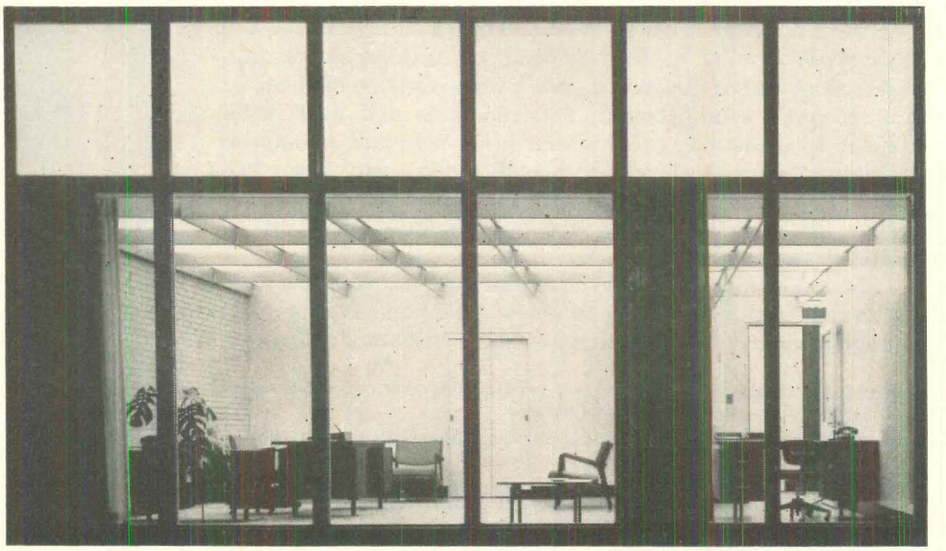
1906 – 1956

WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIG



WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIG

KEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA

The Executive Suite of the new Wakefield office building in Vermilion, Ohio, is typical of the design of the entire single-story, 42′ x 125′, steel, concrete, tan brick and glass building. The building, designed by Outcalt, Guenther and Associates, serves a threefold purpose: it is a graphic exhibit of the company's products; it is a continuing research and methods project; and it provides a fine working environment for the Wakefield office people. The multi-function suspended ceiling known as the Wakefield Sigma extends through the whole building and provides an illumination level of 100 footcandles. It incorporates sprinkler heads. It distributes conditioned air through perforated acoustical baffles that reduce office noise. It gives remarkable space flexibility by the meshing of receiving channels with the tops of steel and steel-glass movable partitions on a 4′ module. Perhaps the most significant feature is the application of the new Wakefield High Frequency Lighting System delivering 400 volts at 840 cycles. Using pygmy-sized capacitors instead of ballasts and operating from a Wakefield designed frequency conversion unit, this new system introduces direct and indirect economies which architects and engineers will want to know more about. One example: it was possible to install a 20-ton capacity air conditioning system rather than the 25-ton system that would have been necessary with large ballasts generating more heat. Write to The Wakefield Company, Vermilion, Ohio. In Canada: Wakefield Lighting Limited, London, Ontario.

AKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA WAKEFIELD SIGMA

LETTERS *cont'd.*

FORUM said: "And with proper radiation conditions, the air circulating in the room might not have to be heated at all, but could be drawn directly from outside and used at outdoor temperature. Much the same would be true about air temperature in summer, scientists knew. Summer air temperature would not have to be lowered greatly for comfort if the human body's excess heat could be radiated away constantly."

This was part of the preface to an article on the house of Dr. Clarence A. Mills, and that house, with others later completed for clients, has borne out the prediction of the FORUM editor, that the system "may be the seed for a great change in today's heating and cooling methods."

Early radiant heating systems in England used a control sensitive to both radiant and convention losses from a miniature "body" powered by a small electrical coil (rather than by meat and potatoes). This eupatheostat fascinated me, and I equipped one with a suit of knitted undies, on which water dripped, to reflect its "awareness" of humidity conditions in the control of my heating system. Its value in cooling might have been greater, but I had the Atlantic Ocean at my door during the summer.

We go along whole-hog with Wright's suggestion to add fresh air, by all means. Large volumes of it put a price on the economy of conventional systems. Purists in comfort control theory feel that "mean radiant temperature" takes priority over dry- and wet-bulb temperature as a comfort criterion, over a wider range of tolerances than those allowable when temperature and humidity alone are considered. I shall refrain from mentioning the classic skier, half-nude, sun-warm and happy, while his credit is frozen in the hotel below. But "the classroom under the tree" is comfortable not only for the obvious psychological reasons, but because it provides a *non-reflective* environment. The leaves and the grass are at a lower temperature than the comfortable skin and the sky is capable of considerable absorption of heat, whereas the walls of the schoolhouse are, as you know, red. Even air motion, which I find as tiresome in summer as it is unbearable in winter, may be compensated for by rather minor changes in the radiant environment, as when the sun comes from behind a cloud in March.

Mr. Wright's recommendation to "supplement the ordinary thermostat with a combined temperature-humidity device" needs amplification. First, to satisfy his first need for fresh air, we need an outdoor thermostat to tell the system when to stop heating or cooling and to start sucking in the spring air. Next, we need a system that gives up part of its heat by radiation in winter, and takes a considerable heat in summer by radiation (of the body's heat to a large and rather cool area). I think

continued on p. 82

Rolling Steel Doors

for Craneway Openings and Dividing Walls in School Gymnasiums

Rolling Steel Doors have proved over many years to be the most practical means of closing overhead craneway openings. This is true regardless of whether the closure be an exterior opening, for an extension of the craneway outside of the building, or a dividing wall inside the building as shown below. In this installation, three separate Mahon power operated rolling steel doors are employed with two swing-up mullions between, and two swing-up closure plates at each end over the crane track-beams—all are power operated and push-button controlled.

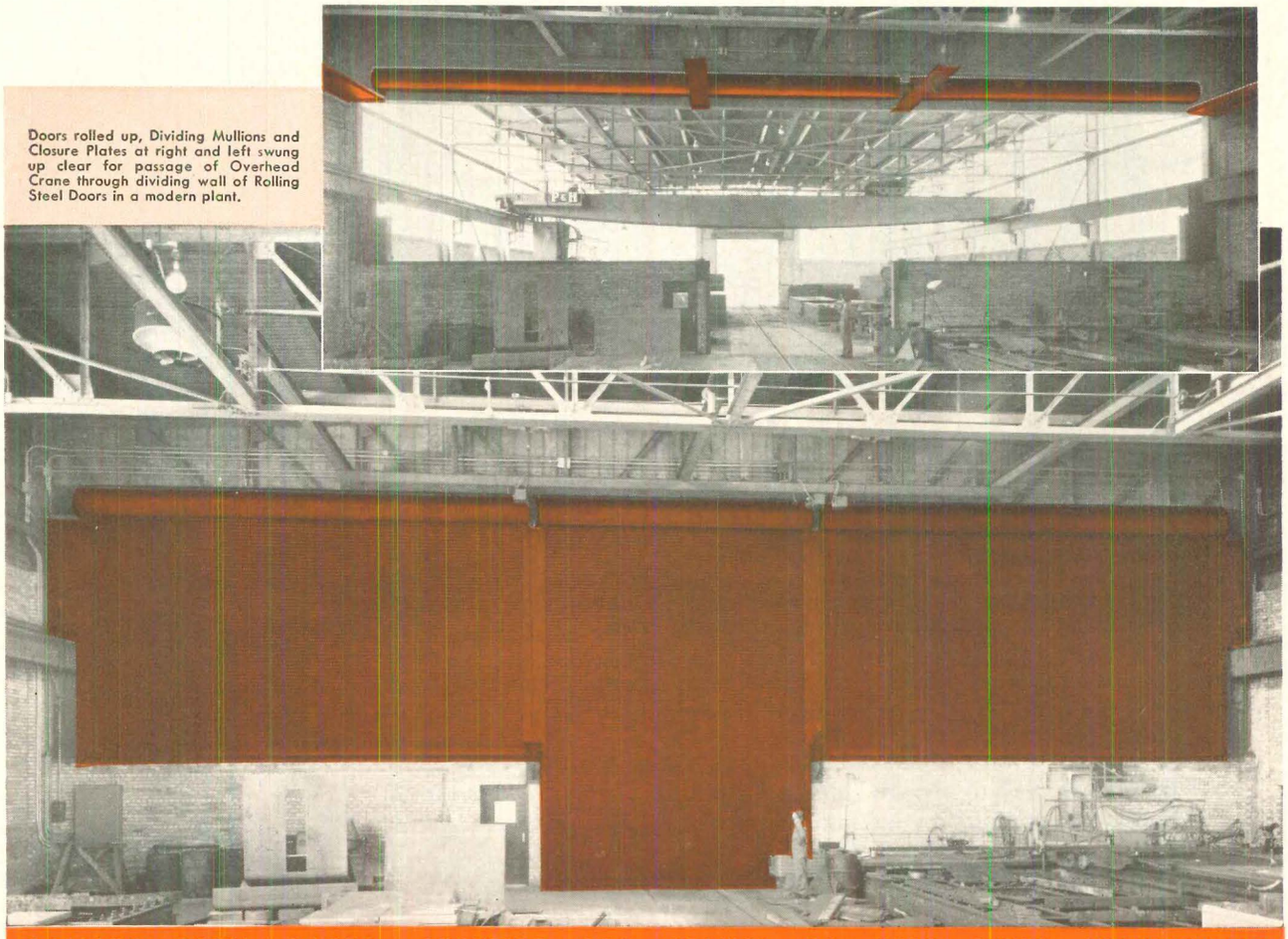
The full length door in the center is a railroad opening—the track enters the building through another Mahon power operated rolling steel door at the far end of the building. This center door can be opened independent of the other two for passage of railroad cars. The two rolling steel doors on either side, above the curb wall, are opened only for passage of the overhead crane.

Similar installations have proved most practical in school gymnasiums where it is desirable to divide the gym floor for certain activities. In these installations, aluminum or stainless steel doors are employed with sliding mullions which are moved to either side clear of the gym floor when the dividing wall is rolled up. The operation is accomplished electrically in a matter of minutes.

Mahon experience in this type of installation is extensive. Mahon engineers will cooperate fully in working out details of rolling steel doors for craneway closures or quick-acting, roll-up dividing walls to meet virtually any requirement.

THE R. C. MAHON COMPANY • Detroit 34, Michigan
Sales-Engineering Offices in Detroit, New York and Chicago
Representatives in all Principal Cities

Doors rolled up, Dividing Mullions and Closure Plates at right and left swung up clear for passage of Overhead Crane through dividing wall of Rolling Steel Doors in a modern plant.



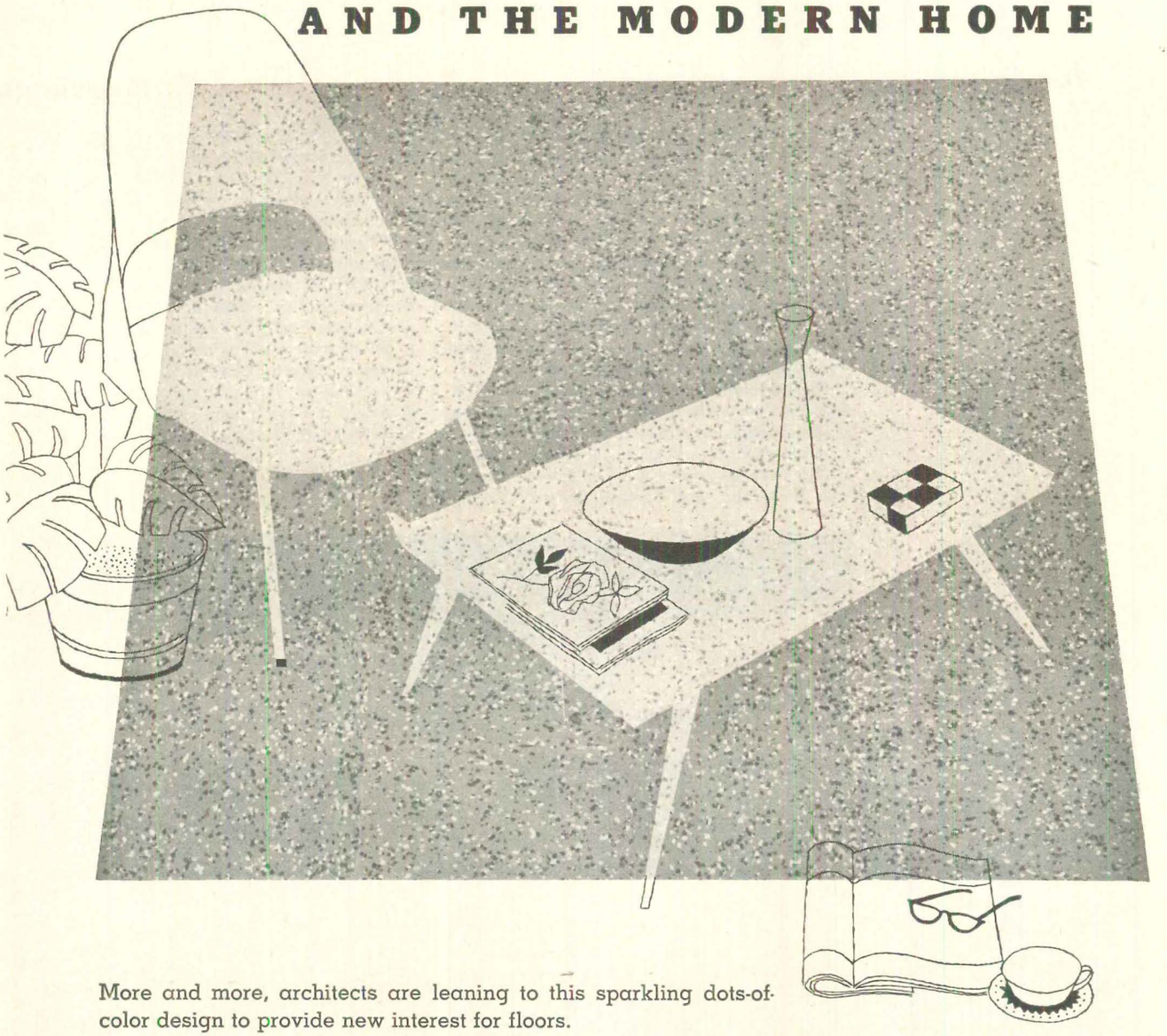
ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Three Mahon Power Operated Rolling Steel Doors form Dividing Wall which permits passage of a 15-ton Overhead Crane in an 80-foot Craneway in the Verson Allsteel Press Company's new plant, Chicago, Illinois.

M A H O N

Moultile JUBILEE TILE FLOORING

AND THE MODERN HOME



More and more, architects are leaning to this sparkling dots-of-color design to provide new interest for floors.

The reason: here is something eye-catching, different . . . yet is a fit companion to *every* style of architecture, *every* kind of decor.

It's not surprising, then, to note Jubilee in the specifications for virtually every room in the house . . . play, utility, living.*

Of particular importance is the fact that Jubilee wears as well as traditional asphalt tile. So here, too, is real economy . . . both in initial cost, installation and maintenance.

We would be happy to send you complete data.

*Nor, may we add, is it surprising to find Moultile Jubilee in virtually every type of *installation.*

Moultile
PRODUCTS
SINCE 1929

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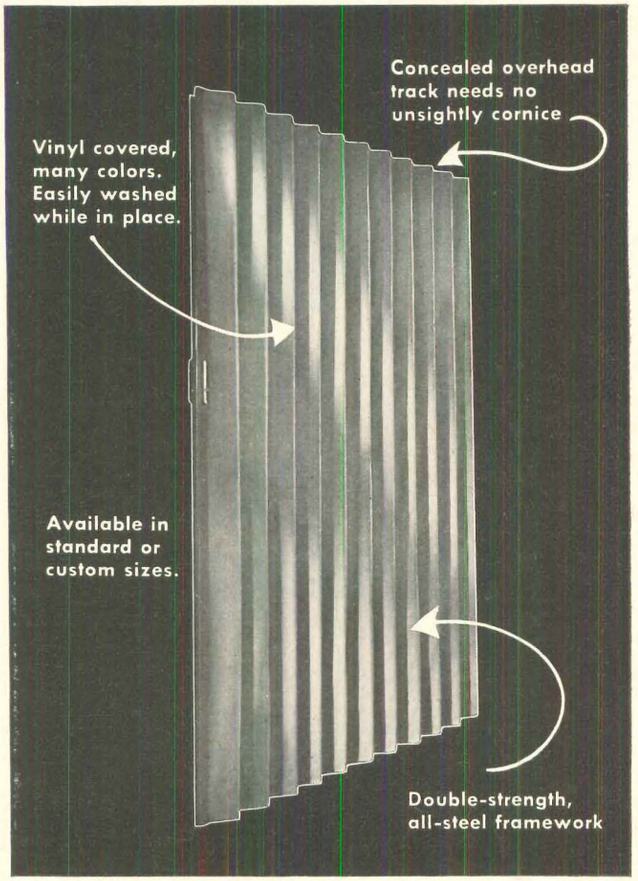
Can this free you of this ?

It has for the hundreds of architects who have used Modernfold Doors to obtain greater freedom of design

No longer is the wavy line a stranger—it's a familiar friend to architects using it to free them of the artificial design limitations imposed by door-swing. For with MODERNFOLD, there *is* no door-swing. You command open, unobstructed spaces!

These folding doors have been successfully employed in countless residential, commercial and institutional installations. Besides being efficient, highly flexible space dividers, MODERNFOLDS are styled to blend with a wide variety of settings.

Sturdy MODERNFOLDS are literally built to last the lifetime of the building, with far less maintenance than old-fashioned hinged doors. When your MODERNFOLD distributor shows you their many quality features, your imagination will be stimulated to find new applications for them.



Superior construction features account for MODERNFOLD'S leadership. *Twice* as many MODERNFOLDS are in use as all other makes of folding doors combined!

modernfold doors have no equal

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Please send me full information on MODERNFOLD Doors.

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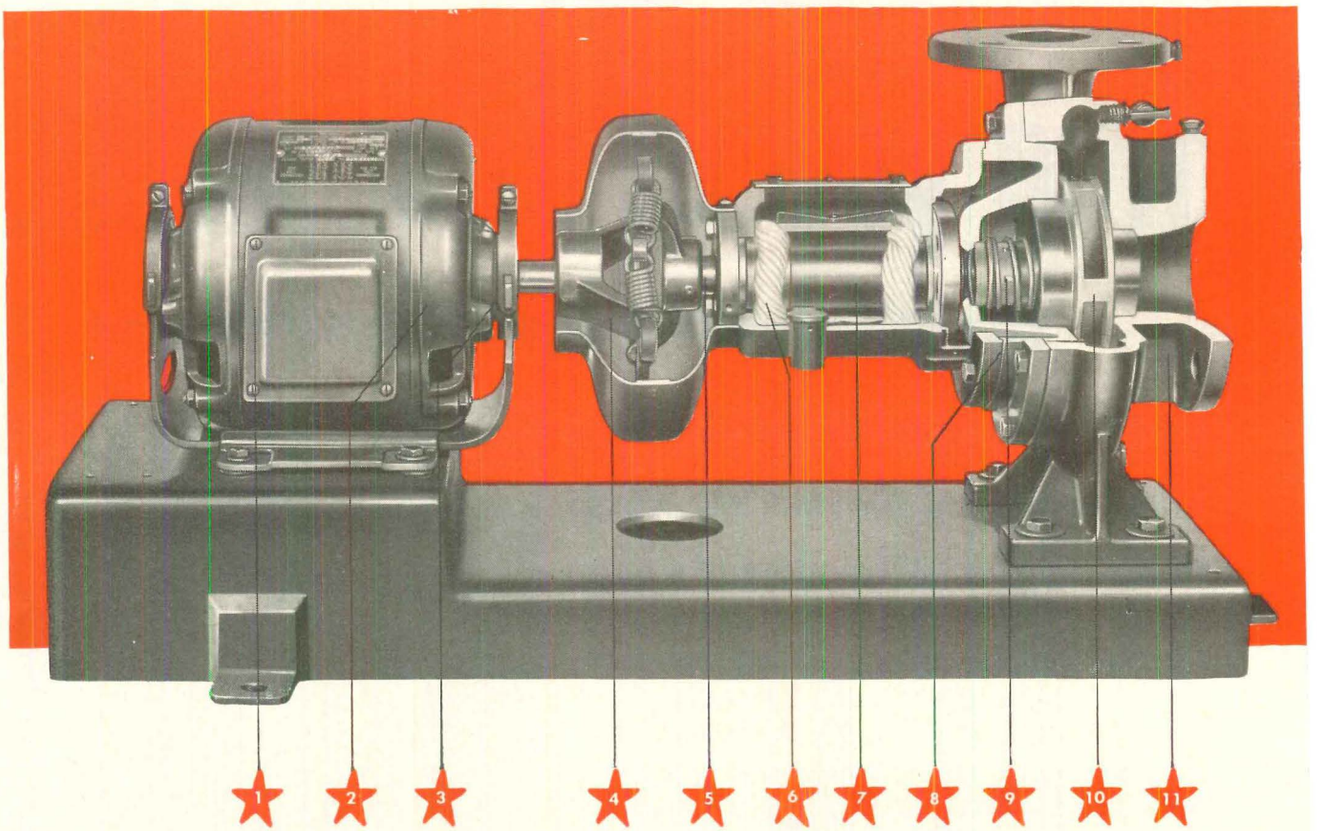
WHY B & G UNIVERSAL PUMPS



DESIGNED SPECIFICALLY FOR *QUIET* OPERATION IN LIQUID HEATING AND COOLING SYSTEMS

The circulating pump in a hot water heating or chilled water cooling system is the connecting link between the mechanical equipment in the boiler room and the structure itself. *Silent, vibrationless* operation is therefore the prime requirement in a pump for this type of service. The features starred above are the reasons why the B&G Universal Pump fully meets this need.

THE MOTOR

1. **Extra quiet.** The Universal Pump motor is specially constructed, tested and hand-picked for extra-quiet operation.

2. **Sleeve bearings.** Motors are equipped with oil lubricated bronze sleeve bearings—essential to silent operation and long life.

3. **Mounting.** Universal motors, through 5 HP, are NEMA ring-type mounted and completely suspended in noise-dampening rubber. All motors are drip-proof.

THE PUMP

4. **Coupler.** Self-aligning, spring-type...another warranty of silent operation, plus excellent pump and motor protection against the stresses of starting torque.

5. **Shaft.** Big—oversized—affording large bearing surfaces. Made of special alloy steel, polished to mirror finish. Heat-treated integral thrust collar absorbs end-thrust... lengthens seal and motor bearing life.

6. **Lubrication.** Genuine oil circulating. No grease to channel or harden. Oil level indicator permits visual check.

7. **Sleeve bearings.** An essential for quiet, vibrationless operation and long life of both pump and motor. An outstanding Universal feature.

8. **Removable bearing frame for easy servicing.** The entire bearing frame assembly with impeller is easily removed from volute. No pipe connections to break or motor to remove...all the advantages of split case design. All bearing frame assemblies are interchangeable.

9. **Mechanical seal.** Positively prevents water leakage up to full design pressures. The seal is self-lubricating and features a floating seat of diamond-hard "Remite"—a B&G development.

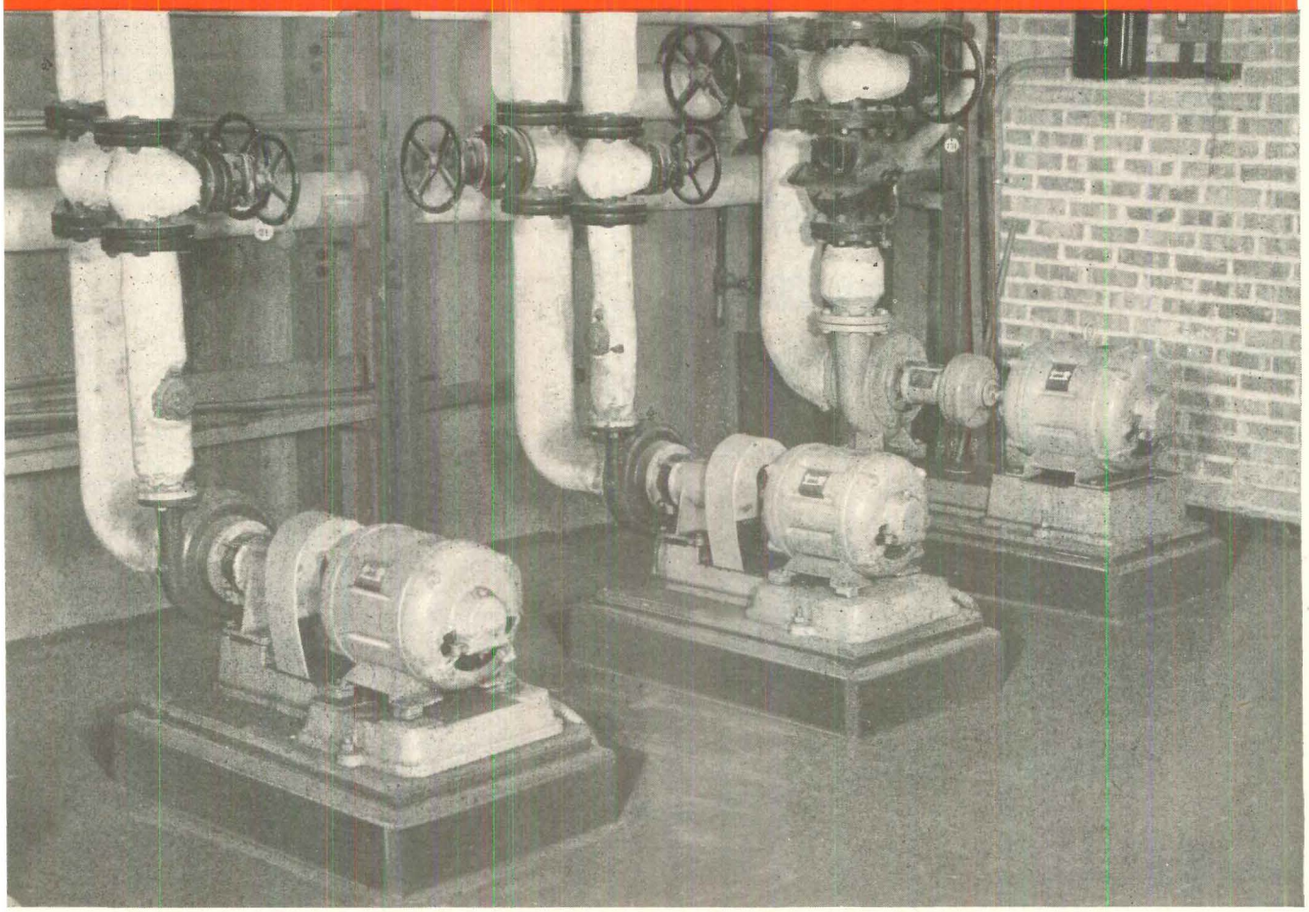
10. **Hydraulically balanced impeller.** Balancing chamber and thrust pressure relief holes in the impeller reduce thrust to a minimum.

11. **Solid volute.** Support feet directly below volute absorb piping strains without distorting pump alignment.

MEET THE TOUGHEST TEST... *QUIET OPERATION!*

The National Home Office of the Allstate Insurance Company, equipped with B&G Universal Pumps.

Architects and Engineers: Dunlap & Esgar, Chicago
Heating Contractor: Economy Plumbing and Heating Co., Chicago



Three B&G Universal Pumps circulate hot water to a split plenum coil system in central fan rooms on the first, second and third floors of the building. The system is also equipped with B&G Flo-Control Valves and Relief Valves.

BELL & GOSSETT
COMPANY
Dept. EL-62, Morton Grove, Illinois
Canadian Licensee: S. A. Armstrong Ltd., 1400 O'Connor Drive, W. Toronto

LETTERS *cont'd.*

we have all the apparatus and knowledge now. What we lack are clients wealthy enough to afford the luxury of "Spring all year 'round," but silly enough to remain in New England, despite wealth, to see if the system works.

JOHN W. LINCOLN
Lincoln, Mass.

• Author Wright's rebuttal follows.—ED.

Forum:

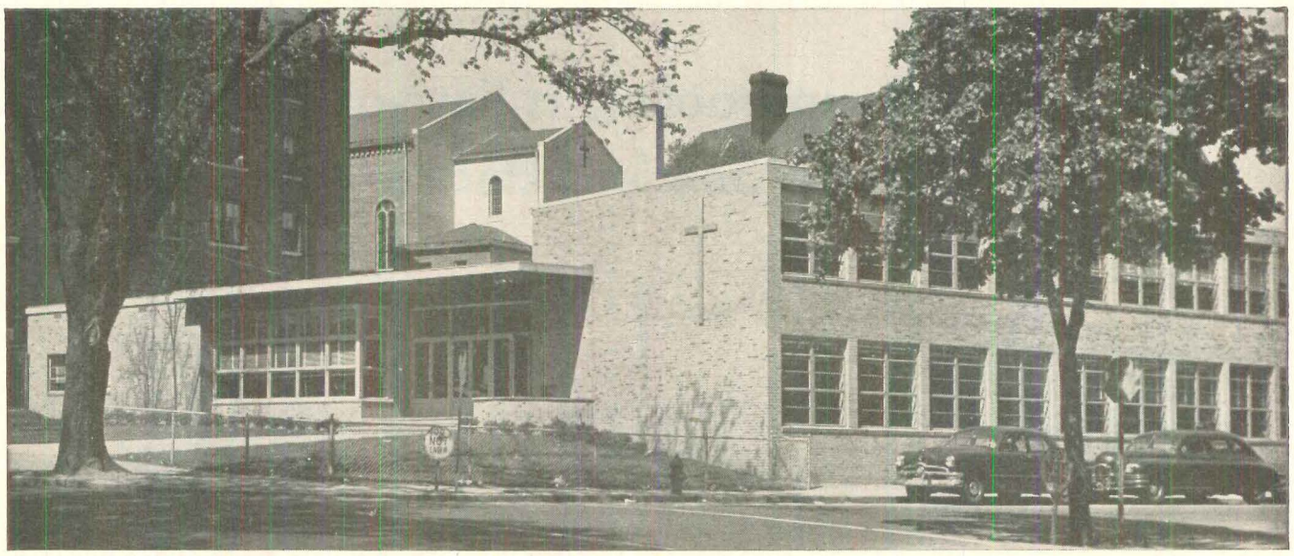
Mention of radiant temperature was omitted from my discussion of thermal comfort for two reasons: 1) to help to simplify an enormously complicated subject, and 2) because, even where "radiant" heating and cooling equipment is employed, indoor differences between the radiant temperature and the ambient temperature are not very significant. Actually, the word "temperature" as used in the article should be read to mean "resultant temperature" rather than "air temperature" The resultant temperature is the temperature which some solid object, such as a hollow globe about 6" in diameter, will assume in a given environment, and is affected by the air temperature, the radiant temperature, and (this also is very important) the rate of air movement in the space. If this is understood, there is no inconsistency between anything I have said and the theories of the most rabid proponents of radiant heating and cooling; it is merely a good deal more inclusive.

Under summer conditions, the indoor resultant temperature is frequently raised quite considerably by radiation from electric lights, especially in modern office space, and this has an important influence on the comfortable *air* temperature in such spaces. Fortunately, most thermostats are affected by radiation to almost the same extent as the human body—as I have shown by some rather elaborate field research; it would be better, perhaps, if they were more so.

Dr. Mills's current radiant cooling installations are equipped with dehumidifying coils to dry the outdoor air admitted for ventilation, and such a coil—along with an electrostatic precipitator—has been added to the system in his own house. Thus, while these systems constitute, in my opinion, an excellent means for maintaining thermal comfort, summer and winter, they are a far cry from the theoretical "ideal" of admitting unmodified outdoor air in hot and cold weather originally propounded. In fact, they suffer from the common defect of most air-conditioning systems that insufficient outdoor air is admitted in intermediate weather.

If Gadgeteer Lincoln actually put a "sock" on a British eupatheostat, I'll bet he didn't succeed in controlling a heating system with it to the satisfaction of anyone but himself. Having played with such devices, I know how hard it is to make them really work.

HENRY WRIGHT
Rye, N.Y.



MECHANICAL CONSULTANT: KARSUNSKY, WELLER & GOOCH CO.

Holy Redeemer School Installs and Insulates 115-Foot Steam Line with Gilsulate® in 24 Man-Hours

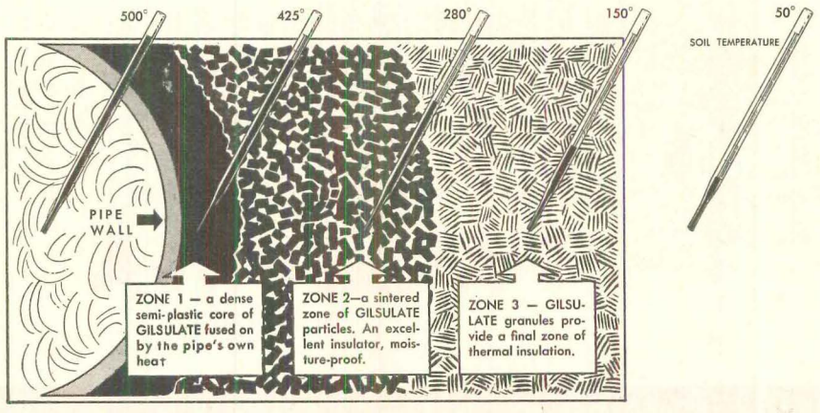
LOW-COST INSTALLATION HAS LIFETIME PROTECTION AGAINST HEAT LOSS AND CORROSION

Here's more proof that GILSULATE can save money for *you*—even on *small* as well as large jobs.

The Holy Redeemer School, Washington, D. C., recently installed 115 feet of 5-inch and 1¼-inch pipe for steam lines and return into their new 16-classroom building. Only 3 men were employed on the job. The installation was made in a trench 6 feet deep. The GILSULATE, after being wheeled to the top of the ditch, was skidded down and poured into forms around the pipes.

Total time for the *complete* job—including form construction, pouring 6½ tons of GILSULATE, and backfilling—was 24 man-hours. No other method for insulating and protecting hot underground pipes can match this performance—*Triple-Zone* GILSULATE *shows the lowest installed cost providing efficiency and permanence.*

Investigate the value of this easily installed, low-cost GILSULATE. Use the coupon below for complete information, or see your local GILSULATE distributor.



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1. *Easy to use*—just pour, tamp and backfill...pipe heat does the rest.
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3. *Needs no housing or mechanical sheaths:* no mixing, special handling or equipment.
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5. *Three types available:*
   Type A for 220°-310° F. temp. range
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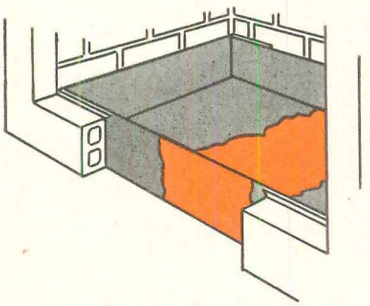
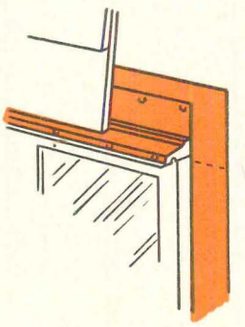
AF

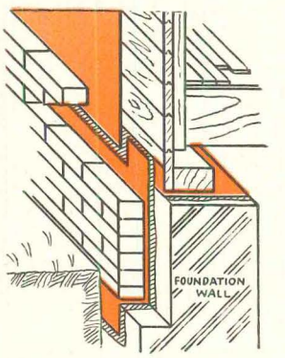
Out-of-sight dampproofing is "out-of-mind" too— when the barrier is *bonded* "Electro-Sheet" copper



"Electro-Sheet" coated with asphaltic compound provides nonrusting, watertight, one-piece shower pan installed below the finish floor tiling.



Door and window flashings of "Electro-Sheet" bonded to building papers seal against air infiltration and moisture penetration.



As a foundation damp course and weatherproofing behind masonry veneer, "Electro-Sheet" bonded materials protect framing.

COPPER has proved itself a lasting barrier to water and water vapor over many, many years. It doesn't rust and it resists most forms of deterioration which impair the protective value of other materials.

Therefore it is an ideal material for flashing and dampproofing which must be built into a structure or buried – concealed flashing that should last the life of the building.

Making a little copper go a long way. Anaconda's development of "Electro-Sheet" made the use of copper in these hidden places practical and economical in all types of building. "Electro-Sheet" is pure thin copper produced in long, wide rolls by electrodeposition in weights of 1 to 7 ounces per square foot. It is furnished to manufacturers who bond it to high-grade building papers and fabrics, or coat it with asphaltic compounds.

Easy to handle and apply. These flashing products incorporating "Electro-Sheet" are extremely flexible, easy to handle and are furnished in rolls up to 60″ wide. They are available through building supply dealers throughout the United States and Canada.

For more information. If you wish more information about ANACONDA "Electro-Sheet," or want a list of manufacturers using it in their products, write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont. 5647

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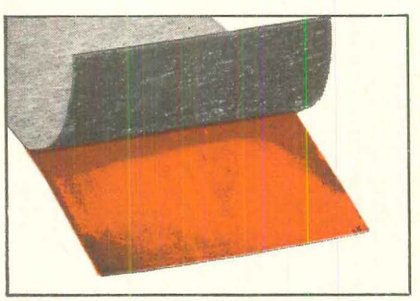
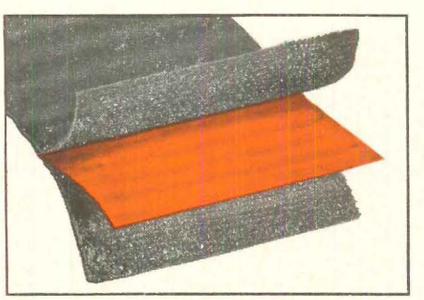
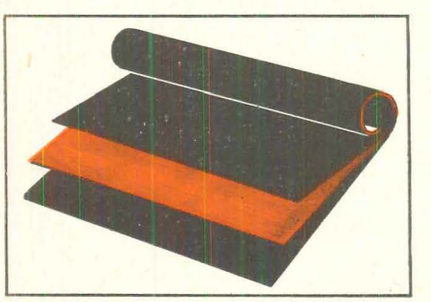


Asphalt-saturated fabrics, with ductile mastic bond.



Tough, "rubbery" asphaltic compounds.



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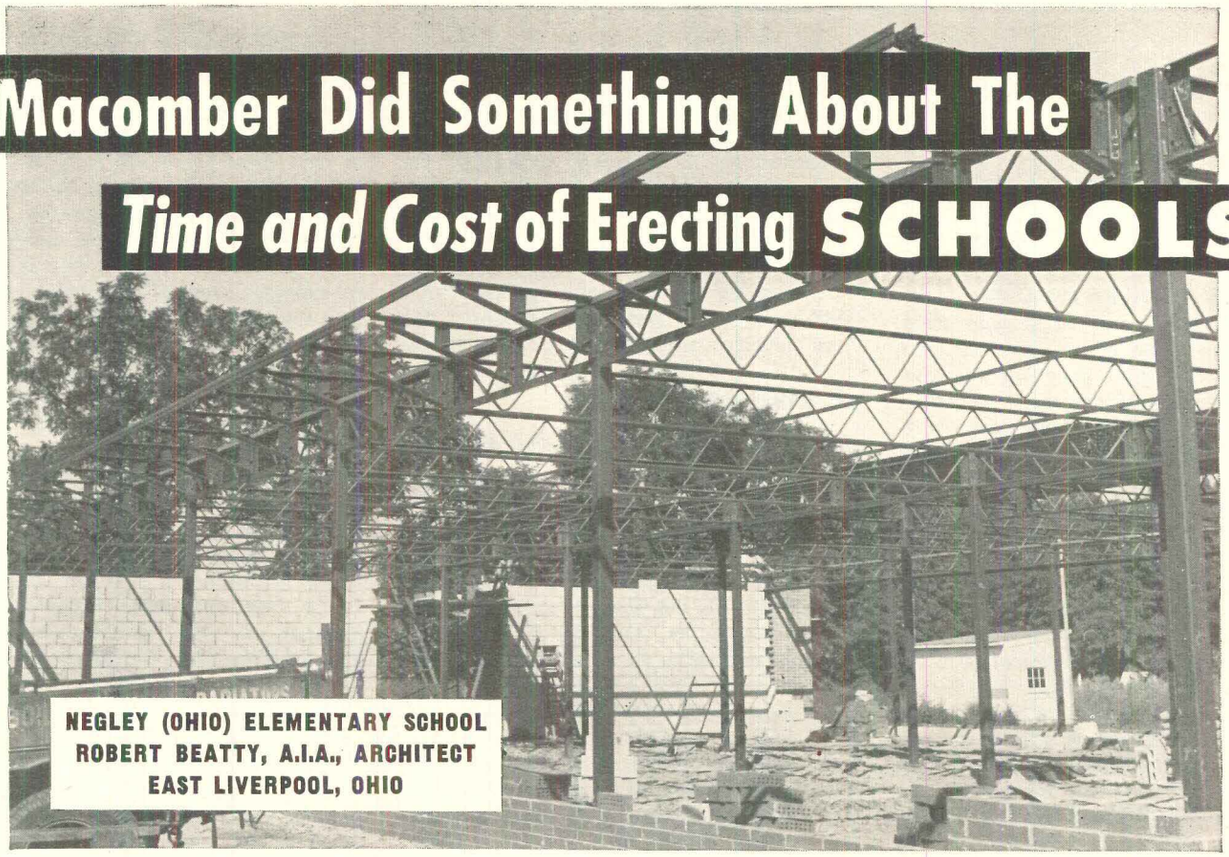

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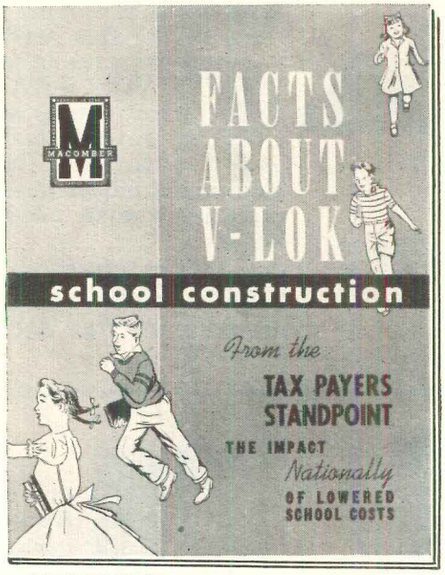

Schools all across the country are being erected at tremendous savings — per square foot — due to the speed of interlocking structural members. Large rambling elementary and secondary schools are erected and under roof in a few days when Architects design with V-LOK. This is just the reverse of the ancient practice of eventually putting a roof over a school when the walls are completed.

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EXCERPTS

Opinions expressed in these excerpts are not necessarily those of FORUM's editors

US architectural heritage

Excerpts from an article by Kenneth W. Sawyer in the Baltimore Sunday Sun

The orthodox opinion these days is that Louis Henry Sullivan (1856-1924) is the founder of contemporary American architecture. This is probably a just estimate of the man who, to all practical purposes, developed the skyscraper as we know it today, who resolved the subsequent half-century's direction with his injunction that form be determined by function, that integrity of material be preserved and that structure be forthright expression of its purpose and time.

It would be comforting to assert that his contributions effected an immediate change in America's conception of building, that architecture accepted at once the challenge of the times. Alas, this is far from the case. In Sullivan's wake was to come a period of dreary electicism, a froth of confections—many still standing—that will surely rank among the world's absurdities; Gothic bungalows and Classic skyscrapers, Medieval cinemas and Old Dynasty dance palaces.

We are still born in Romanesque basilicas, educated in Tudor manor houses, married in Theban thesauri; we set up housekeeping in Norman cathedrals, do business in Venetian campaniles, board trains in Roman baths, attend theater in T'ang pagodas, join fraternal organizations housed in Chaldean Ziggurats, hoard our savings in Florentine palazze and retire, if we are lucky, to Athenian temples. Such is our architectural heritage.

A visit to Moscow

Excerpts from a first-hand account by the editor of I. F. Stone's Weekly

The city of Moscow is strange and immense, endlessly fascinating as are the people, but unlike them more than slightly repellant. It is not Europe, it is not Asia, it is Russia as America is America; Europe and Asia have affected both but the product is new, sui generis. And it is easy to understand why Peter abandoned it in disgust to build himself a new capital as a window on the West, and why the Panslavist reactionaries of the 19th century dreamed of making it Russia's center again. For despite that marble subway and the new skyscrapers—the overlay of Communist Babbitry engaged in making Moscow the best, biggest and Bolshoi-est of all cities, just like America only better is their dream—the old Holy Moscow lies heavy and inescapable on the new world center of atheist communism. No city could be more incongruous, jumbled, conglomerate; so bedraggled with the past as it struggles toward the future. The Czars and Commissars alike built to strike the visitor with awe at its immensity; everything at first sight seems huge, even monstrous, almost Egyptian. Then as one looks closer one sees a general slovenliness like that of a peasant giant with his shirt tails out of his pants. Elderly crones like caricatures of womanhood endlessly dibble dabble at the dirt of the streets with wisplike brooms. The buildings are flaked, poorly painted, in need of repair. Between new apartment houses and skyscrapers one sees the old-fashioned Russian log houses like the quaint illustrations in old editions of Pushkin, and in the courtyards behind them are glimpses of slums squalid beyond conception.

The Czars like size, and so did their successors. The old yellow walled palaces impress with strangeness rather than beauty, and the new skyscrapers and apartment houses are overlaid by doo-dads

and petty ornament and pretty pastel bits of color. The new university is a kind of Soviet Empire State Building, impressive and striking but a little boring. "Socialist realism" in architecture is about as vulgar and ostentatious as Miami and just about as socialist; the opulent new Moskva hotel would fit perfectly into the Florida resort if it were not built in such a heavy, old-fashioned dark kind of way. The taste is the taste of the *nouveaux riches*. In architecture, painting and sculpture, this revolutionary society is utterly nonrevolutionary, sterile and tasteless. The visual climax are those neoclassic statues of athletes with—not just loincloths—but full underdrawers of stone on them, and the bits of cloth so prudishly carved across the navels of the Graces. In this, too, Moscow is the most mid-Victorian of capitals.

Rebuilding better cities

Excerpts from a talk by Architect Morris Ketchum before a forum sponsored by Cooper Union

Both private builders and public housing agencies have missed two great opportunities: the opportunity to create *complete* neighborhoods with *all* the basic elements of neighborhood life—housing plus shopping, education, recreation, and the opportunity to help solve the city's traffic jam at a profit to themselves. For there is money to be made from properly planned and built neighborhood shopping centers and off-street parking facilities.

Private builders interested in apartment houses have not fully grasped the economic possibilities of built-in shopping and parking; public housing experts with complex housing problems to face forget that neighborhood life needs something more than just good housing. Both are inclined toward little plans for little programs not in scale with the large-scale needs of the whole city.

In every housing project, an economic analysis which scientifically determines the type of housing and the number and type of shops and stores which that housing needs and could support should be incorporated in the building program. This survey should also include a thorough investigation of the size of off-street parking areas that could be used by both the project residents and a profitable proportion of off-street transient traffic. The necessary truck terminals within the project would be a minor problem if incorporaed in the program at this time.

This approach to planning is followed every day in suburban shopping centers. Without it, they would run the risk of financial failure. There is no reason why urban projects should not be as financially sound as suburban projects. The revenue from commercial rentals often creates the margin of profit in any large-scale private development and, at least, could help to make public housing self-supporting.

With the right program and the right site, each redevelopment project could be physically organized both as an ideal neighborhood unit and as an aid to the city's traffic problem.

Armed with the power of land condemnation to close and abandon streets within the project site, as is commonly done in large public housing projects, each rebuilt neighborhood could be organized as a quiet pedestrian island surrounded by motor traffic. All its everyday needs—shops, services, restaurants, gardens, playgrounds, schools —could be located at ground level at the center of the project. The residential apartments, which usually occupy less than 30% of the site, could be distributed along the perimeter. The basement level under the entire site could be used for mechanical services, storage, truck docks and a huge pool for parking. *continued on p. 97*

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FOAMGLAS roof and wall insulation stays dry to solve condensation problems at Port Chester 'Y'

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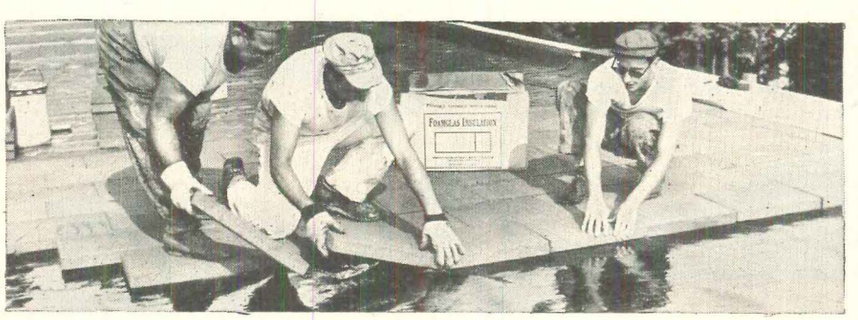

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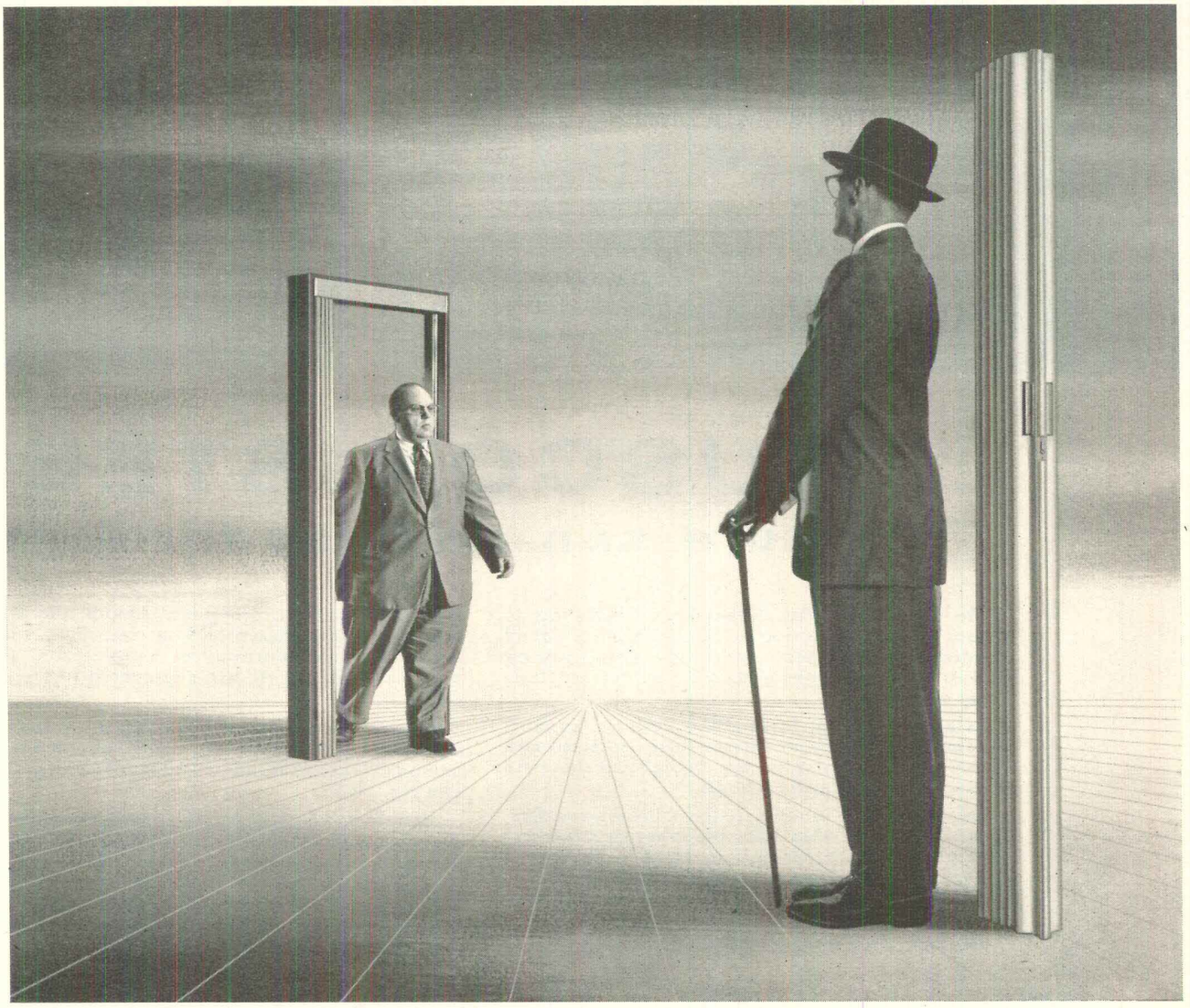

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Sweet's File, section 17b/Tr, has more facts, specifications and details. Or, send coupon for your personal Truscon Window and Door catalog (A.I.A. File No. 16-E).

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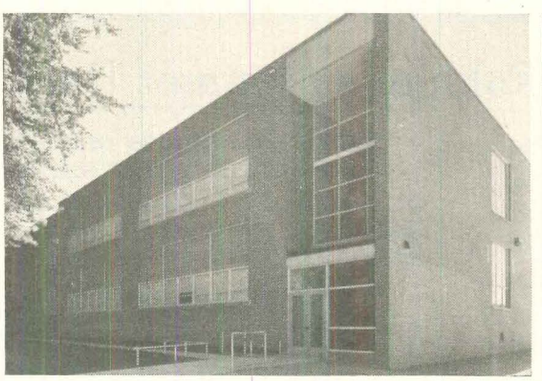

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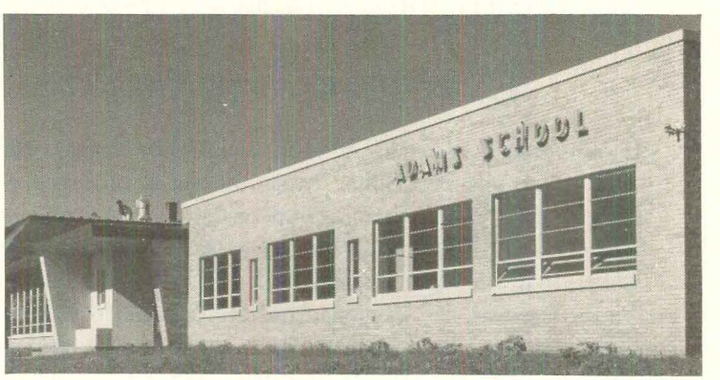
H. W. Stitt Construction Co., contractors.



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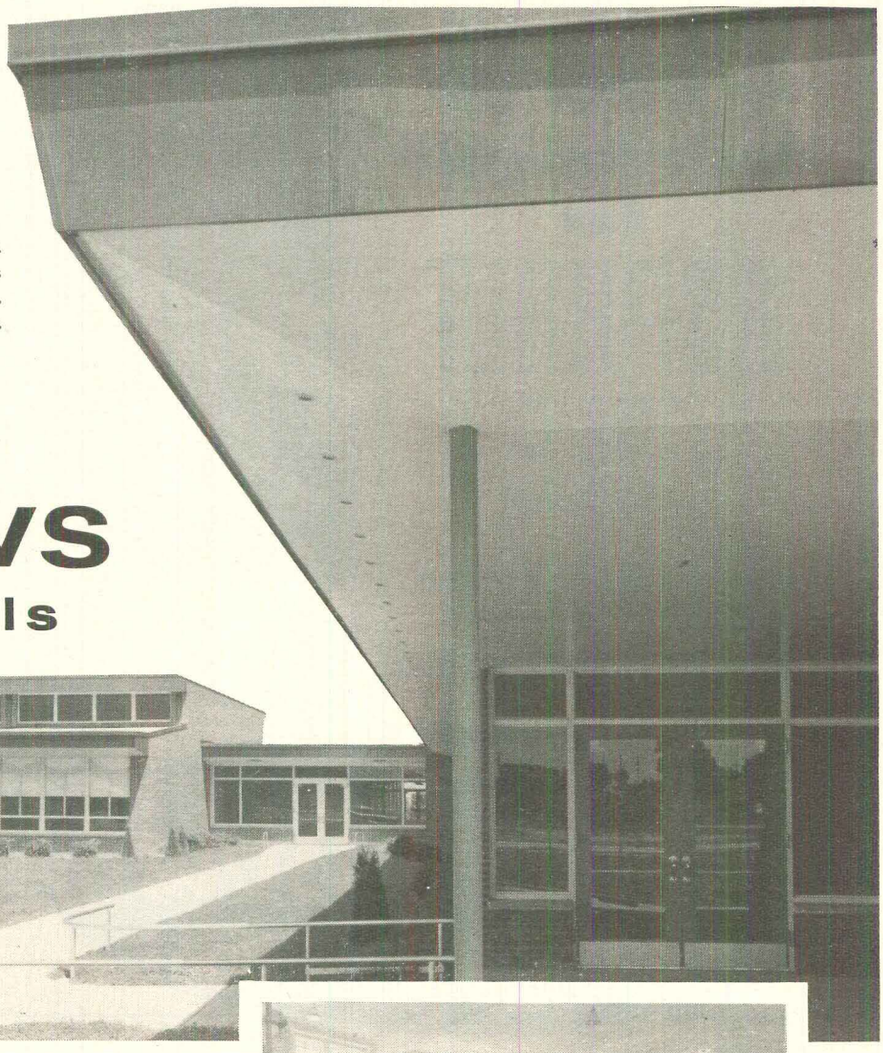

JEFFERSON SCHOOL
Truscon Intermediate Projected Steel Windows
Steele, Sandham and Steele, architects.
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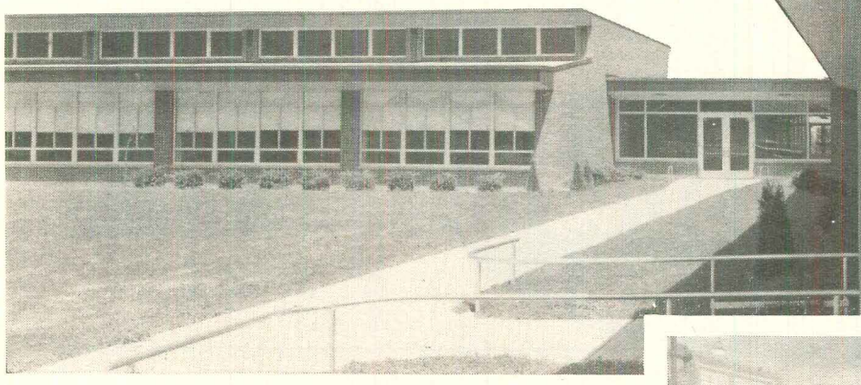
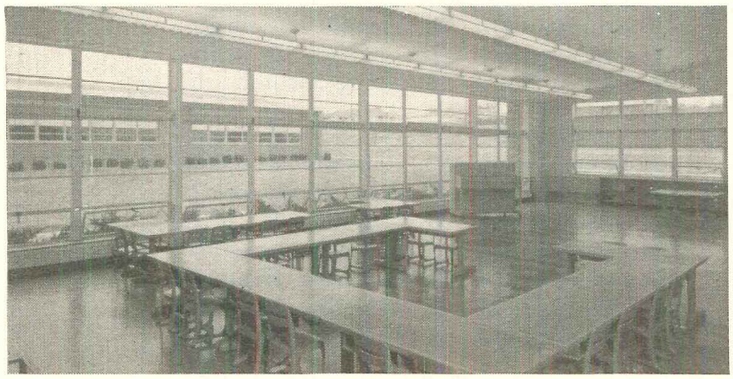
WINDOWS
Omaha schools





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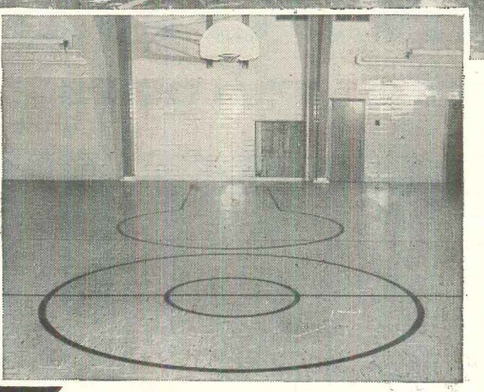
Gymnasium at Platte Valley Elementary School, St. Joseph, R.F.D., Mo., doubles as lunchroom during the noon hour. (Architects: Eckel and Aldrich, St. Joseph, Mo.



Beautiful, fast-play gymnasium floor in Oakwood Junior High, Kalamazoo, Mich. (Architect: M. C. J. Billingham.)

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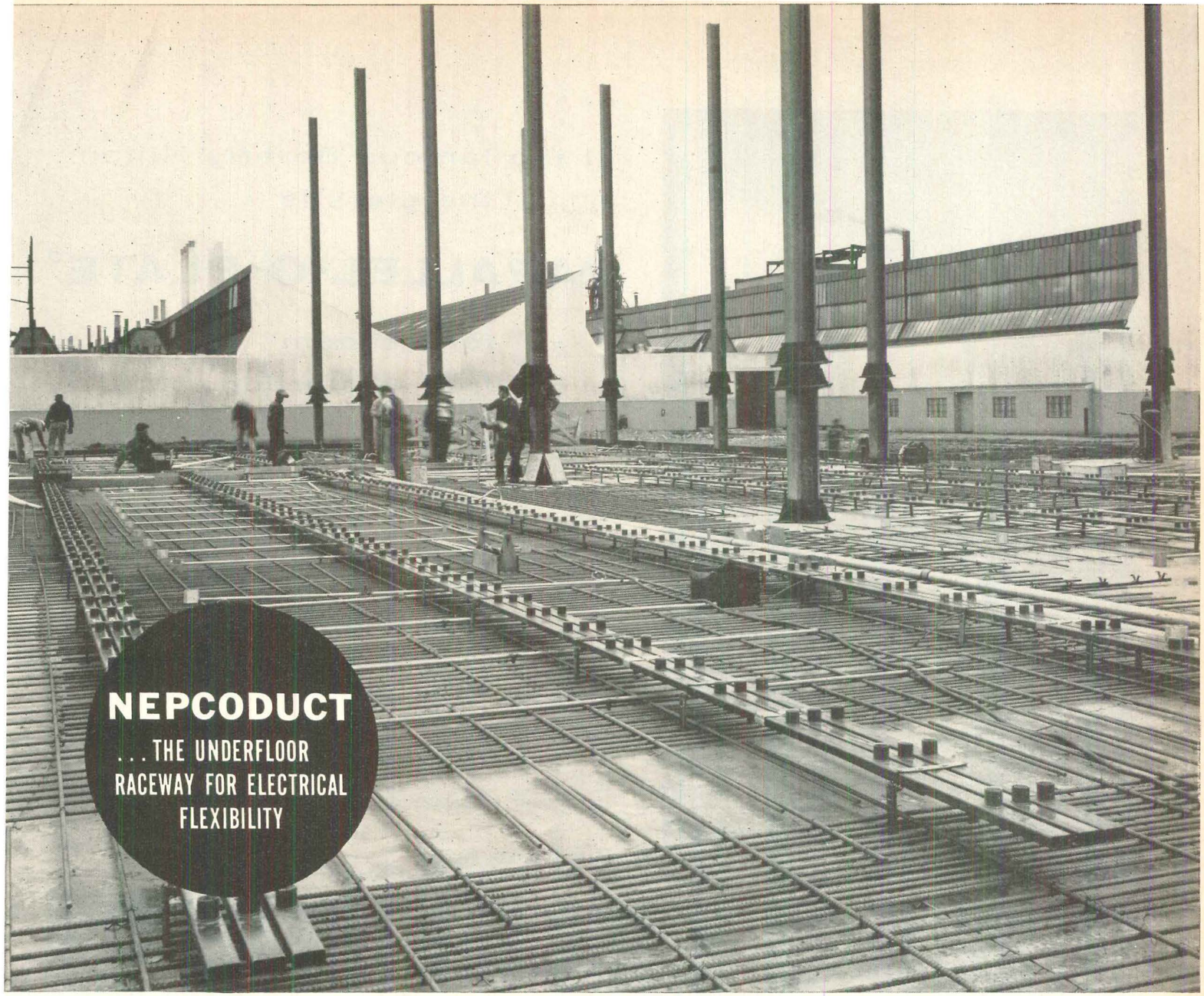

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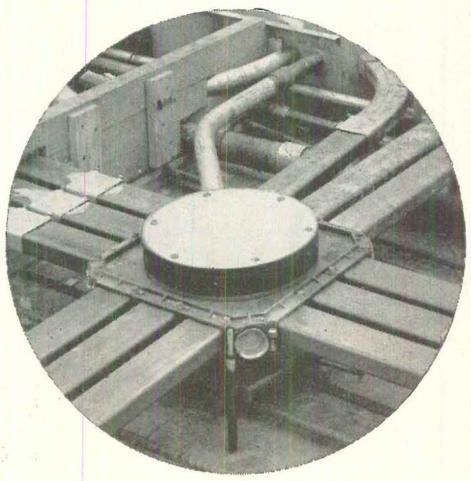

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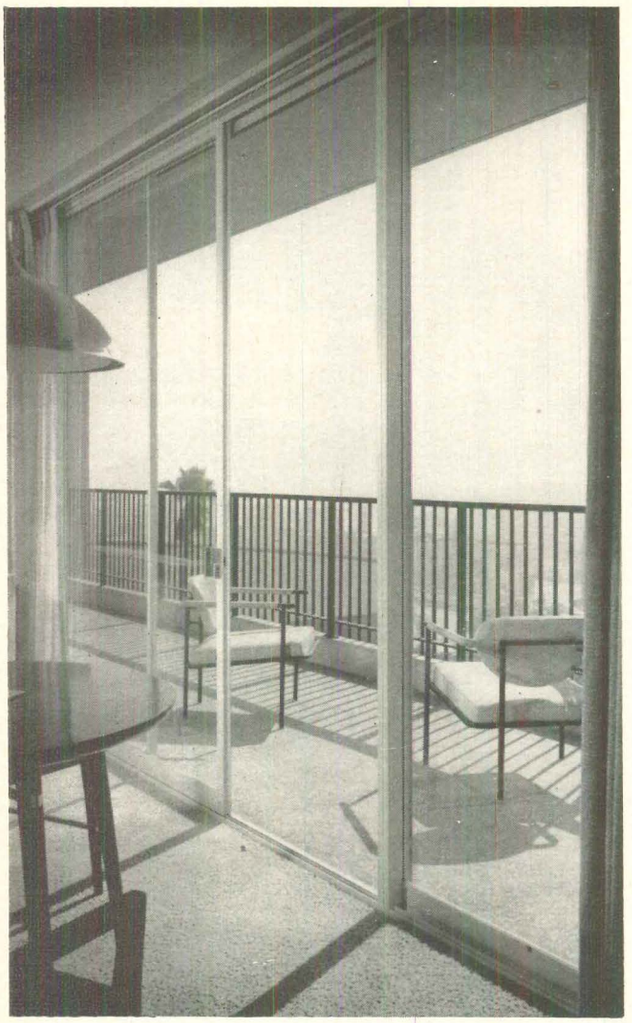

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Architect: Welton Becket & Associates, Los Angeles.

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EXCERPTS *cont'd.*

The new neighborhood unit would then be completely self-sufficient. Its community life would focus on its own central shopping area, its parks and its playgrounds. None of its residents, on their daily errands, would have to cross streets congested with motor traffic. Off-street bus stations, subway entrances and taxi stops would be available for trips to and from work or trips to major shopping, cultural or amusement districts. The inhabitants of such neighborhood units would have all the advantages and very few of the usual disadvantages of city life.

By stacking parking, community activities and living space on successive levels foot traffic is separated from motor traffic, community life from private life and the neighborhood unit itself from the surrounding city. At the same time, neighborhood residents are not prisoners within their own neighborhood. Public and private transportation are easily available; access to the rest of the city and to parkways, suburbs and regional recreation areas is right at hand.

The parking pool under each neighborhood project would be of great value in solving the city's traffic problem. In Manhattan the logical locations for such redeveloped neighborhoods are on blighted land around the edge of the island, at or near its encircling belt highway. The majority of our existing housing projects are so located but there is room for more neighborhood units. There are also sites close to the spine of the island and its major business, industry, shopping and amusements. All these neighborhood sites could be tied in with the belt highway and the interior traffic pattern on the island. Suburbanites driving into the city would be able to reach them readily and to park their cars in the underground parking areas for a reasonable fee. They could then use public transportation of one kind or another to and from their destination, pick up their cars again and drive home.

This would accomplish several things. First, it would provide adequate and accessible off-street parking in contact with the regional traffic arteries; second, it would keep a large percentage of private cars off the streets; third, it would make life safer for pedestrians; fourth, it would make it possible for more and more suburbanites to enjoy all of the city's shopping, amusements and cultural life and, fifth, it would eliminate some of the immense cost of living and doing business in the city.

The loftiest and most difficult problems arise in architecture from the necessity of realizing a synthesis between opposing sets of factors: the harmony of form and the requirements of technology, the heat of inspiration and the coolness of scientific reason, the freedom of imagination and the iron laws of economy.—Pier Luigi Nervi.

Architect: Frank Ehrenthral, San Francisco

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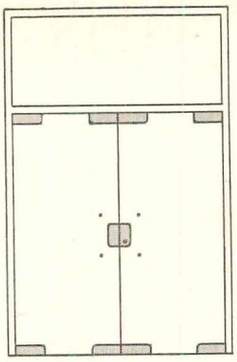

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Salt Lake City's First Security Bank building shows how

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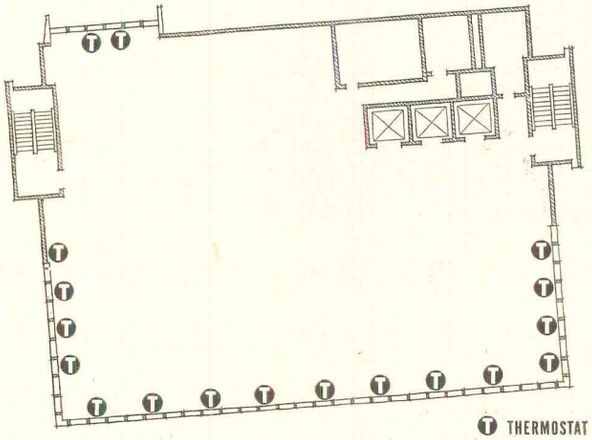

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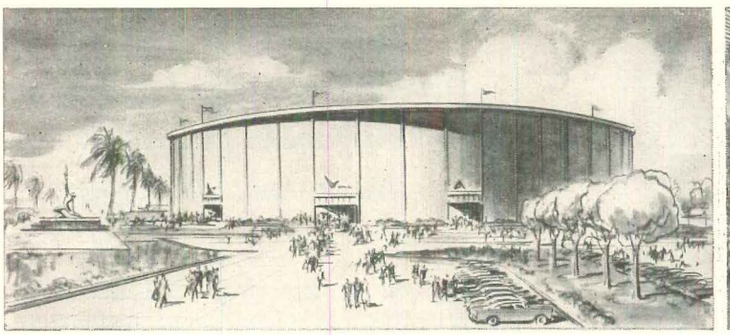
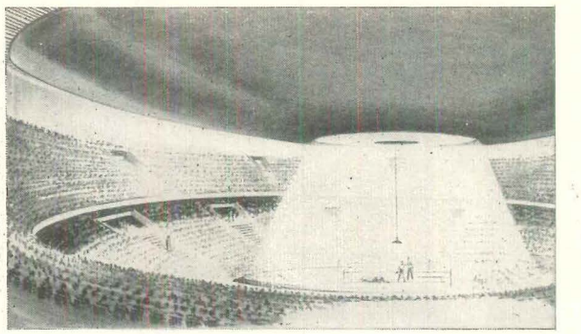
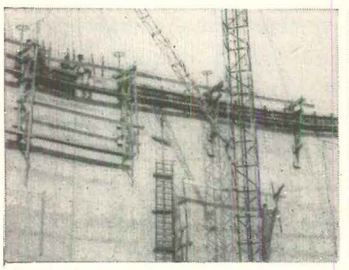
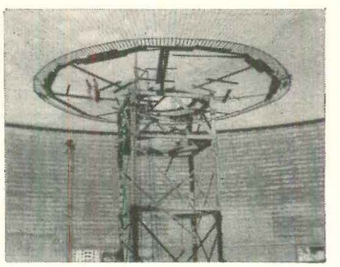




for this 83-ft.-high, 310-ft.-diameter concrete stadium, with 4-in.-thick wall and 850-ton suspended prestressed roof . . .





4"-thick wall was concreted with 'Incor', forms lifted daily. Roof is supported by cables extending from concrete ring atop wall to steel ring at roof's center.

Roof consists of 9000 concrete slabs 2" thick, hooked to cables; prestressed by overloading with brick, then concreting joints, later removing overload.

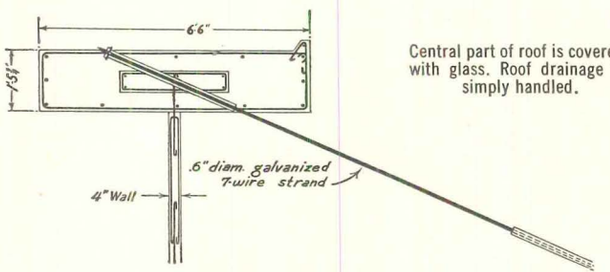
● Montevideo's cylindrical concrete stadium, to seat 20,000, is a masterpiece of simplicity and economy. Wall was built by lift-form method, using 'Incor'* 24-Hour Cement, produced by Lone Star's Uruguayan subsidiary, for speed, economy, quality.

Roof, built without forms or falsework, is supported on 256 seven-strand cables, strung between a ring 6 ft. 6 in. wide and 1 ft. 5¾ in. thick, concreted around top of wall, and an 18-ft.-diameter steel ring at roof's center.

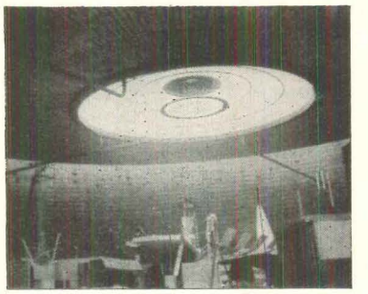
Working out from center, 9,000 precast concrete slabs, 2 in. thick, with reinforcing rods projecting laterally and shaped into hooks, were fastened to the cables. Roof was then prestressed by overloading 50%, placing concrete in slab joints, and removing overload after concrete had hardened.

Central part of roof (65 ft. diameter) was left open and covered with glass, as was a strip next to wall, to provide light and ventilation and to minimize wind suction.

Talk about simplicity! Clearly, the designers solved their problems by taking fullest advantage of concrete's great flexibility and "doing what comes naturally". *Reg. U. S. Pat. Off.



Central part of roof is covered with glass. Roof drainage is simply handled.



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About this month's FORUM

Reports on different groups of buildings will be found bunched in this issue in a number of different places. This is because buildings can give you so many different kinds of things to learn or think about.

For example, up in the News section there are to be found New Buildings that command attention for their size, their location, their economics, their clients or promoters or architects, or their unusual features. They keep you up with the procession.

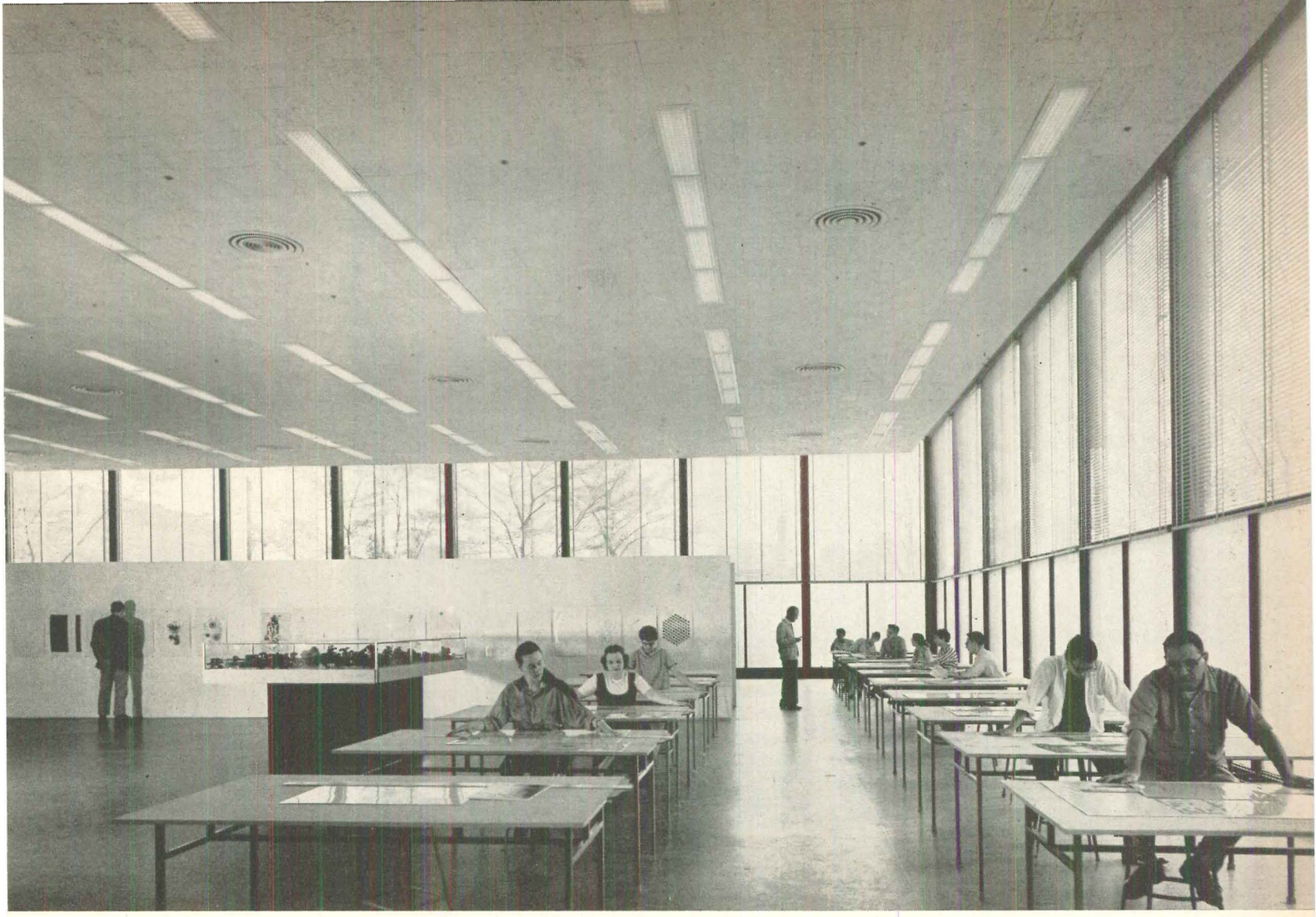
Then there is the sort of recent building on which you might like a more detailed story—and again for any number of possible reasons. The product may be a motel whose owner had the luck or foresight to settle where two of those new country factories turn his patronage from a summer to a full-year patronage and enlarge his profits accordingly (p. 123). Many a reader may wish to tuck into his memory the underlying fact that countryside factories create other new countryside building opportunities as well. —Or again the story may even concern a well known existing structure which FORUM pictured extensively when it was first built. Question: how is it doing now? Such is the story of the Terrace Plaza Hotel—now the *Hilton* Plaza (p. 131). Or the subject may be smaller establishments like our group of stores. The owner may have been an optician whose designer gave him a complete layout in the space of a two-car garage and at not too much greater cost. The experiences reported may be business or design or technological experiences—or other kinds.

There is yet another reason for showing buildings in groups: they may reflect a strong light on one another. This month FORUM is showing you three college buildings, which together make up a chapter called "Architecture turns a corner." One, the new architecture building at Illinois Institute of Technology (p. 104), is a masterpiece by one of the world's great established masters, Mies van der Rohe. His architecture is so pure, so restrained and glassily transparent in its character that he could be said to have perfected here the modern Doric Order of Steel. The other two (p. 112) are by younger masters in the maturing generation, both great admirers of Mies: Eero Saarinen and Minoru Yamasaki. What they have done—still working out of Mies' book—can be seen by comparing all three buildings. To show what the coming generation is thinking about, such demonstrations are worth volumes of essays.

Of course no neat pigeonholing system could contain the wonderful world of architecture. Any reader who thrills to fine building will be as happy with the Hillside School (p. 134) and the magnificent shell structure shown on the cover. Technology was our particular pigeonhole for the shell restaurant, simply because pure mathematics and straight concrete technology were the parents of its bird-wing beauty; without these it could not have been. You might even like to turn back and contrast this characteristic flowing beauty of well used concrete with Mies' superb expression in rectangular steel—both of these basic materials are in FORUM this month at top intensity.

The editors hope, of course, that real estate men will take the time to study these architectural developments. The text is written so they can follow it without T-squares or formulas. Meanwhile we hope that our architect readers will read with special care the story on real estate men and their influence on architecture. There may be a contribution here to better understanding and therefore better collaboration, better and still more profitable building.

—THE EDITORS



Crown Hall, on the campus at Illinois Institute of Technology, is the summation of a century of steel and glass buildings

MIES' ENORMOUS ROOM

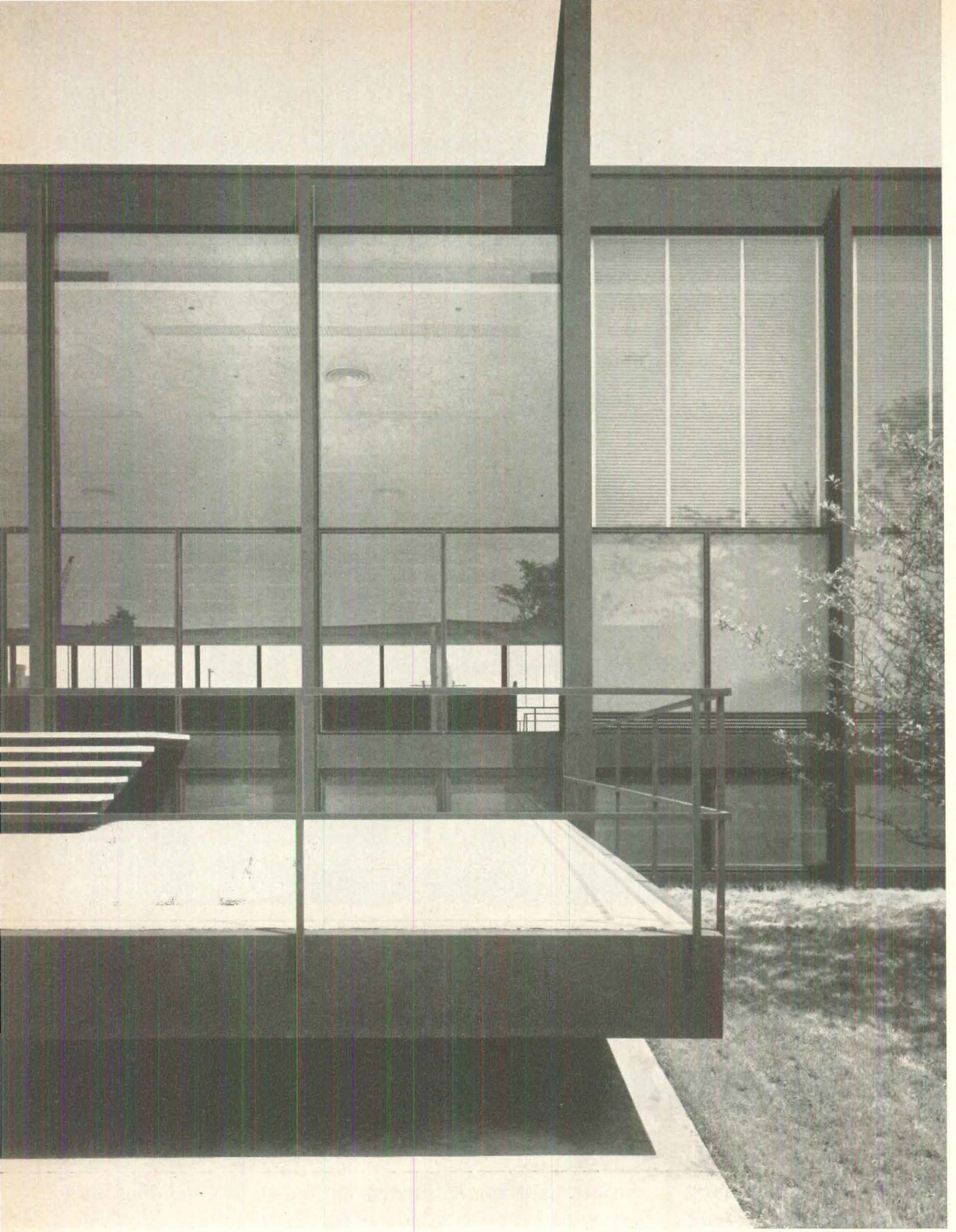
The main floor of Crown Hall is one room, 220′ long, 120′ wide, 19½′ high, walled with panels of obscure and clear glass framed in steel. Within this immense room there is not one structural column, and even the partitions are more inference than actuality—low fencelike planes which define exhibition space and offices in the center and two large student drafting rooms at the ends. At any point in the big room you can see the top part of all four sides of it. Out front is a wide steel-framed porch with steps for sitting between classes, and downstairs are classrooms and shops with high windows.

The structural clarity of IIT's newest building is unlikely ever to be surpassed in steel. "I think this is the clearest structure we have done, the best to express our philosophy," says Architect Ludwig Mies van der Rohe, and it is difficult to see how the next century can contradict this builder, or how he himself can.

This is the first building Mies has completed with his long-sketched plan of suspending the roof from plate girders, getting the girders up out of the building, as an exterior skeleton. It is also his widest span structure, and because it qualifies under the local code as a single story building, the steel framework did not have to be fattened with concrete fireproofing. The steel stands there in the reality of its slim strength.

Beyond this, architecturally, Crown Hall is also the most universal of Mies buildings. This great room would with facility house a factory, a sound stage, a newspaper plant, an insurance company—almost anything. It is a room under an oversheltering structure, a free space to be shaped to its use. And it is very cheap space: $13.71 per sq. ft., 78¢ per cu. ft., a total of $746,850. It needs another expenditure, for summer air conditioning; but this had been anticipated—ductwork and diffusers are in.

So far the building may seem adroit. But behind the facts in all great buildings are the feelings in them; and in this building Mies again shows his ability to



Porch detail. Travertine floor is set in cantilevered steel frame. Lower panels in wall are translucent glass, except in center of building where all are transparent. Bay is 10′.

build a remarkable architectural atmosphere. His enormous, beautifully proportioned room is a very serene place to be. In some intricate way the space is balanced against the assertion of the construction to result in a large calm place for working. It is a good place in which to be alone in a crowd.

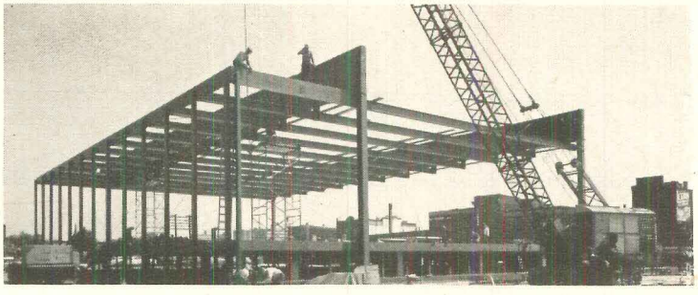
Another demonstration by this building: the powerful Mies idiom, under perfect control, does not depend on elegant execution or perfect material. His idiom can indeed reach a point of frailty, or emptiness, if it is too delicately or perfectly rendered. Crown Hall is welded neatly, nothing more, and derives a part of its great vigor from this kind of simplicity. Like the best poets, Mies uses a simple language.

"What is our philosophy? It is honesty. Years ago when I was designing the German Pavilion for the Fair in Barcelona, my client was an official in the German government at that time, and I wanted him to understand what I wanted to do in this simple building so I explained.

" 'Honesty?' he said, 'Yes I know, my grandmother told me always to be honest. Yes, I know all about that!'

"So I told him, 'Yes, and that's the way you should build.' "

Crown Hall in the Campus. New building houses Dept. of Architecture, Institute of Design and Planning Dept. Also visible are other IIT buildings, emerging from Chicago's stirring slum, the South Side.

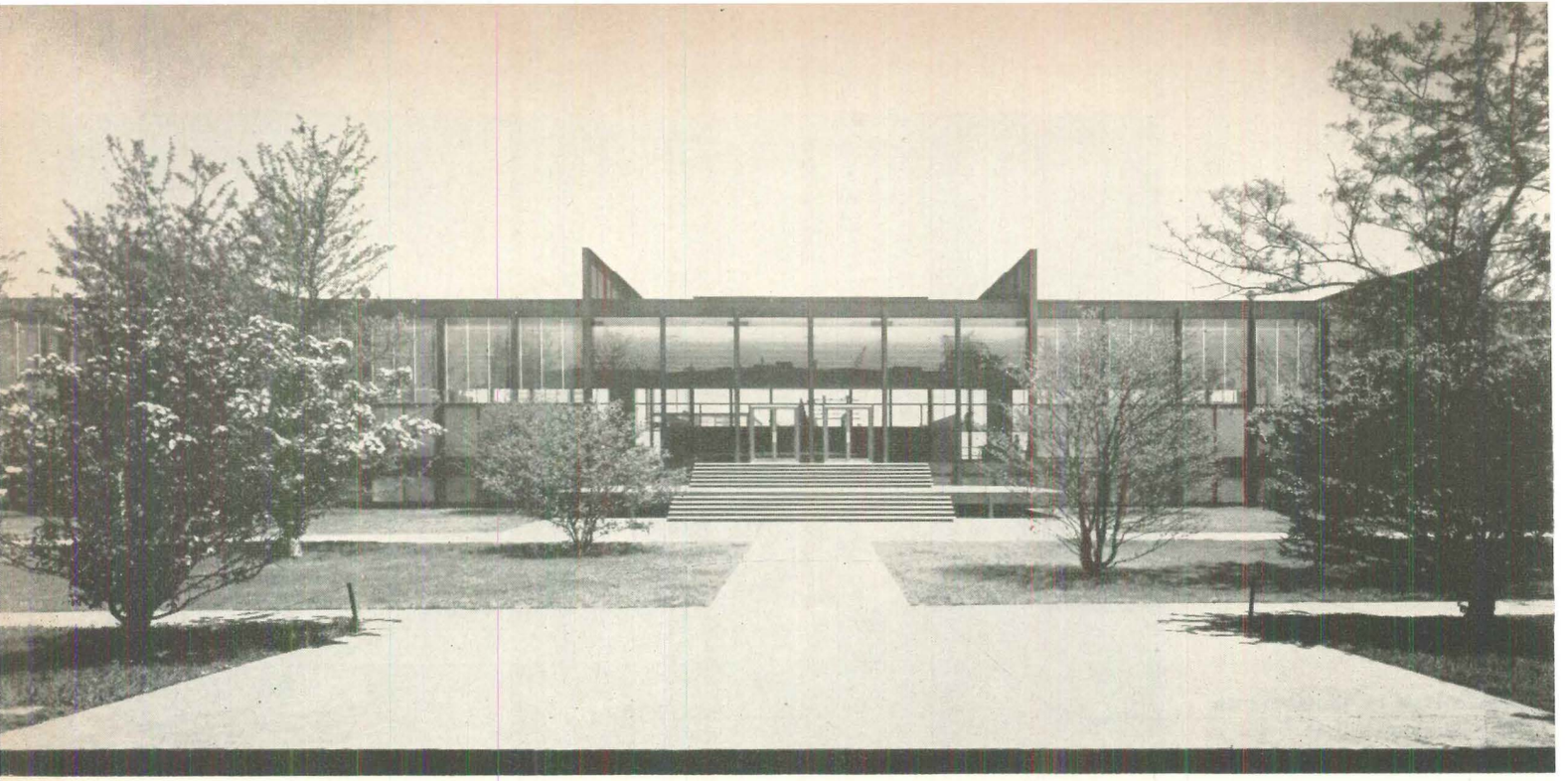


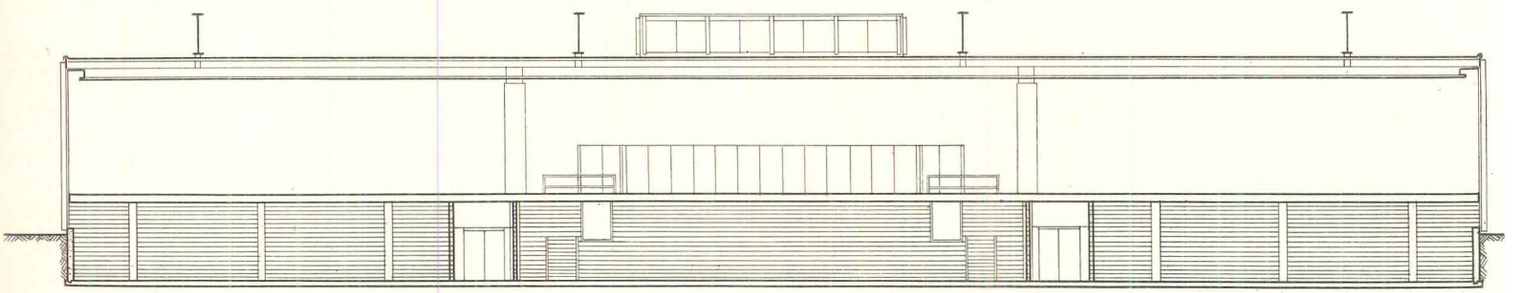
In construction: photo shows two of four immense exposed plate girders in place and framing at one end of the building complete. Ceiling hung from frame leaves a vertical slot around the periphery.

CROWN HALL, ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago, Ill.
ARCHITECT: Ludwig Mies van der Rohe
ASSOCIATE ARCHITECTS: Pace Associates
STRUCTURAL ENGINEER: Frank J. Kornacker & Associates

PHOTOS: (BELOW) RICHARD PYTLIK; (OTHERS) HEDRICH-BLESSING

Entrance has classical character, without historical debris. Porch is an eminent gathering place, observation platform and reviewing stand for students between classes. Low penthouse is for mechanical equipment.





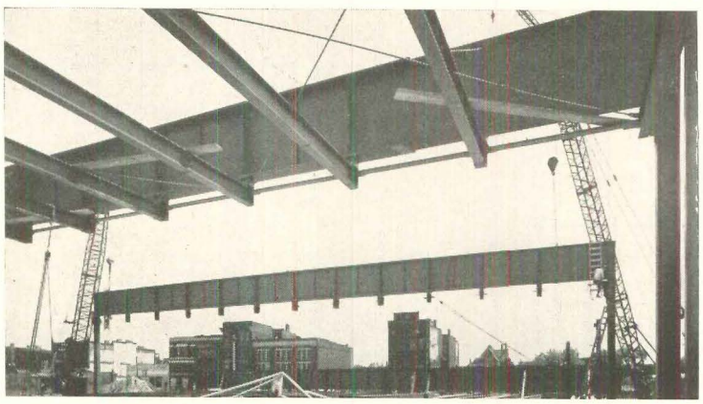
LONGITUDINAL SECTION

10' 10' 10'

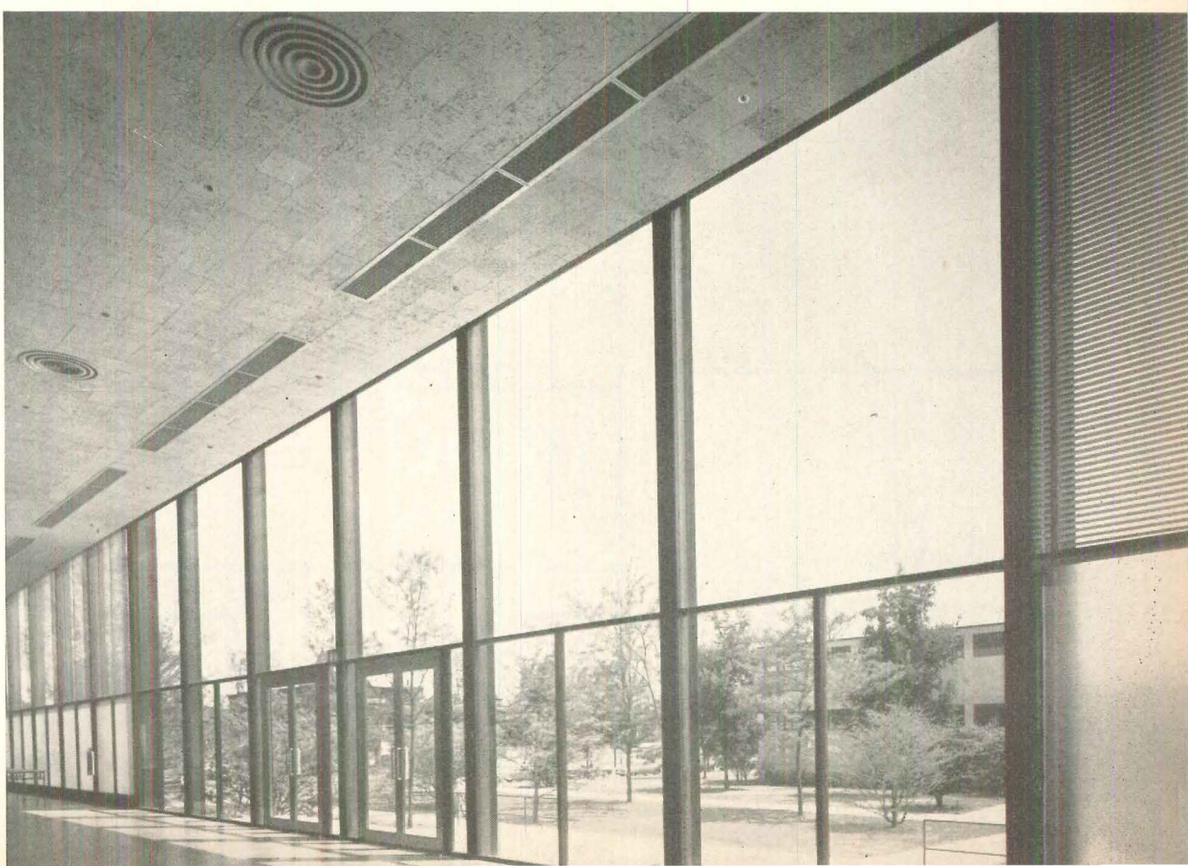
Facade of Crown Hall stands in landscaped symmetry directly across from an earlier Mies building on the campus.

Twin stairways lead to lower floor of classrooms and shops.

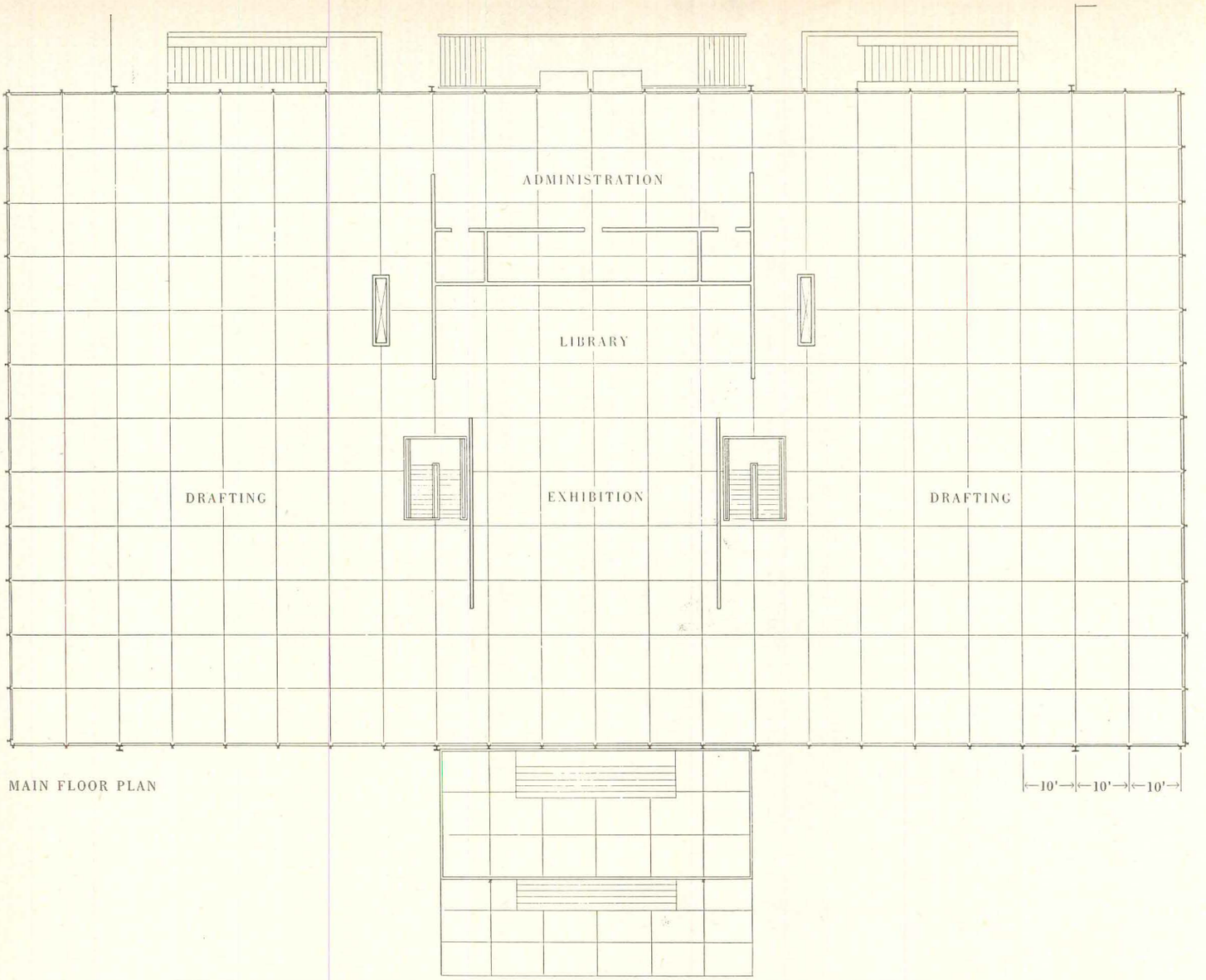
PHOTOS: HEDRICH-BLESSING



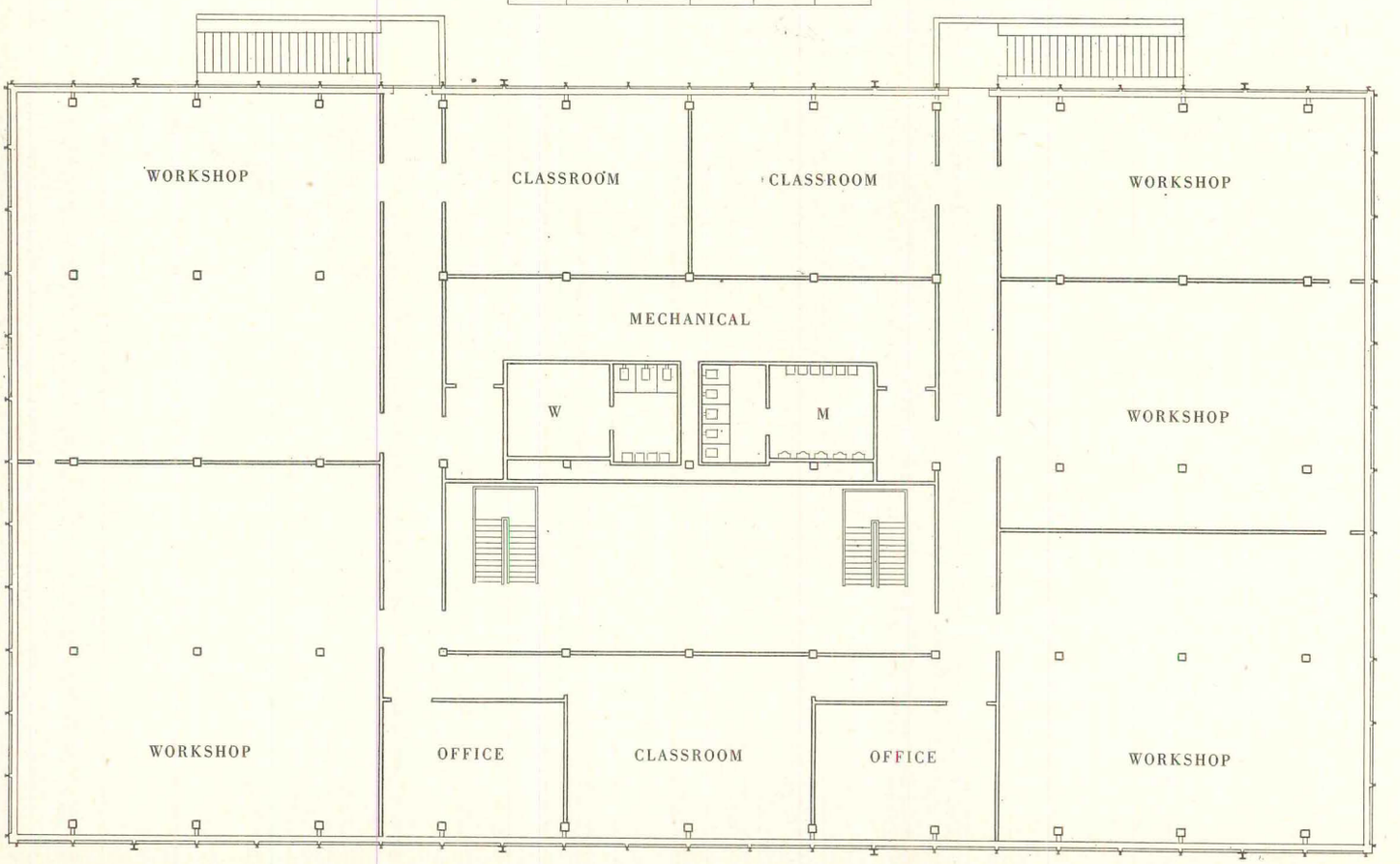
Girders were shop-fabricated, each delivered to site in two 60′ sections, spliced and lifted into place with cranes. Purlins are hung through roofing. Ceiling-high enclosure in photo, left, is not structural, but a box for vertical ducts and wiring.



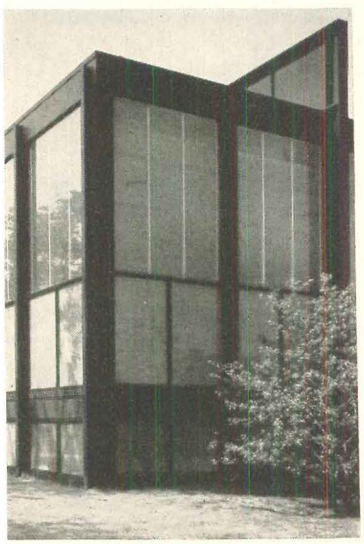
View out entrance wall over porch. Ceiling consolidates lighting, acoustical absorption, and air diffusion. Although building is in use, furnishing is not yet nearly complete.



MAIN FLOOR PLAN



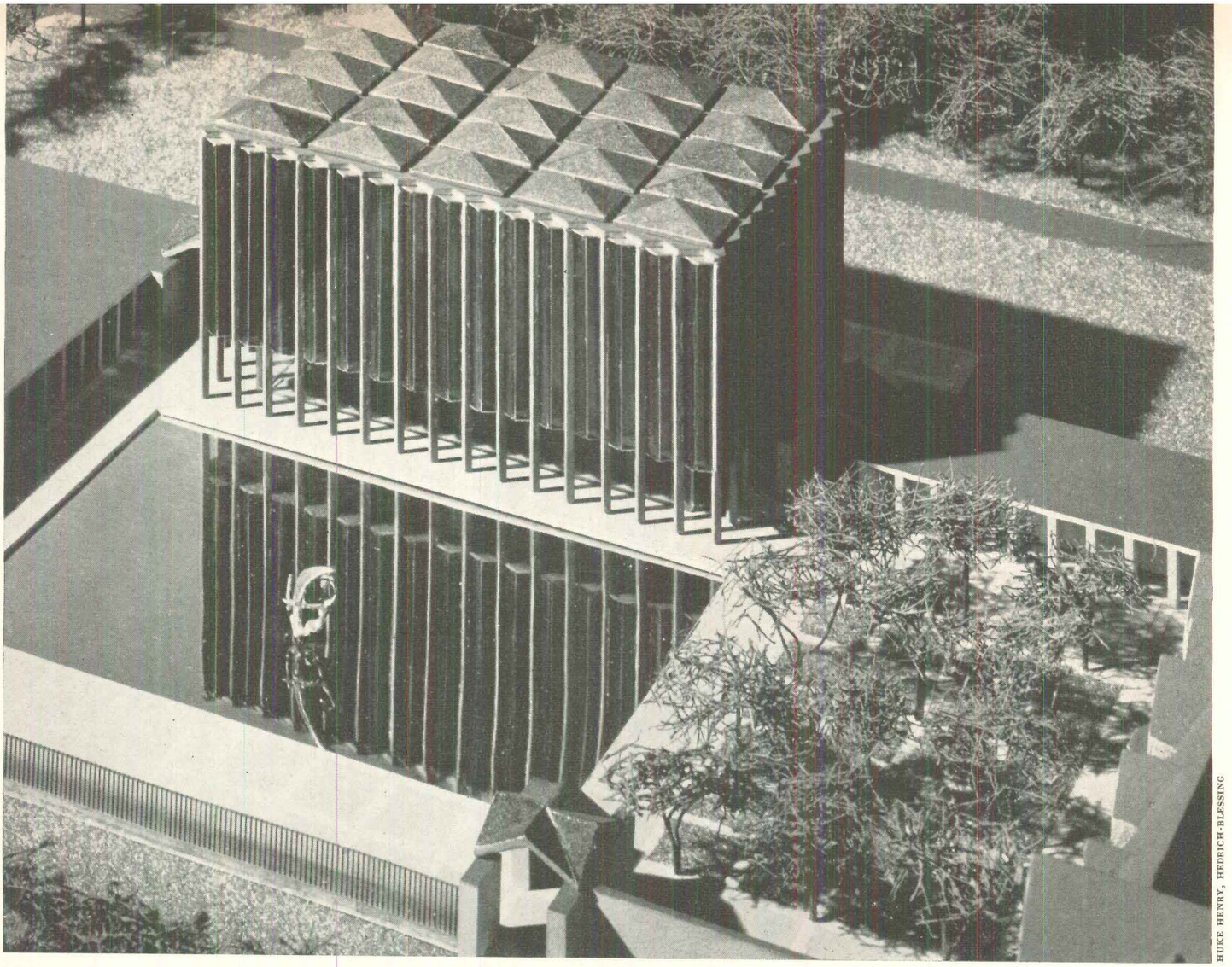
BASEMENT PLAN



Steelwork in Crown Hall weighs 285 tons and is all welded. Steel cost was $76,000 for fabrication and erection, a total of only about $267 per ton.

←

Plan of lower floor shows second exhibition hall between pair of stairs.

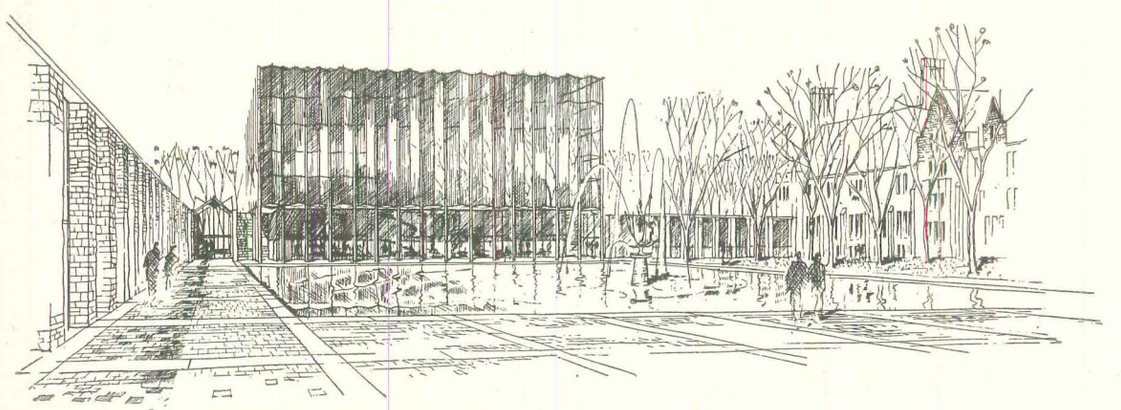


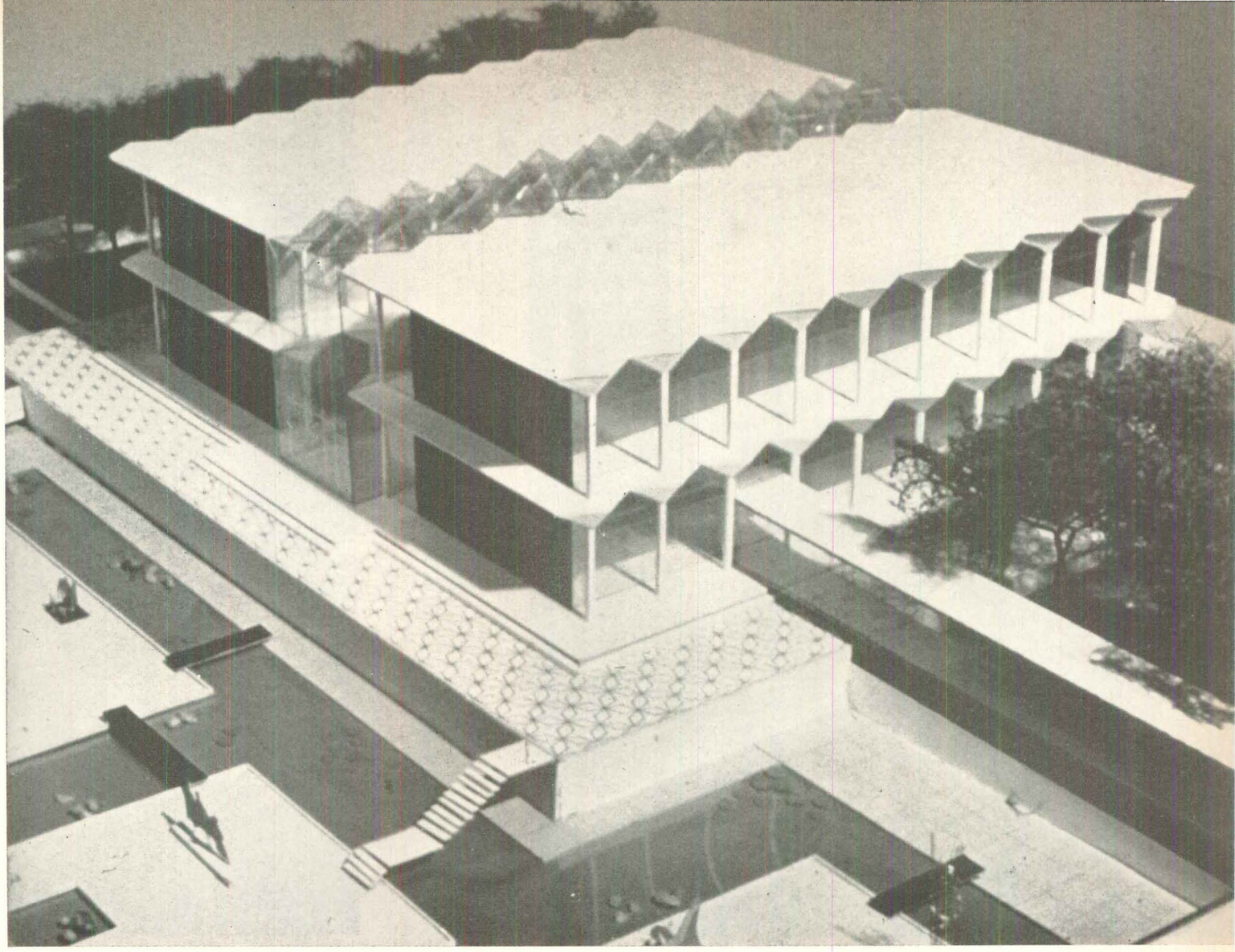
HUKE HENRY, HEDRICH-BLESSING

1. A Gothic cut: Saarinen's law library for the University of Chicago

TWO SPARKLING STONES

Two leading architects, working independently, design comparable buildings for entirely different college campuses. Behind their many-faceted brilliance lies a return to richness in modern architecture





2. A Classic cut: Yamasaki's conference building for Wayne University

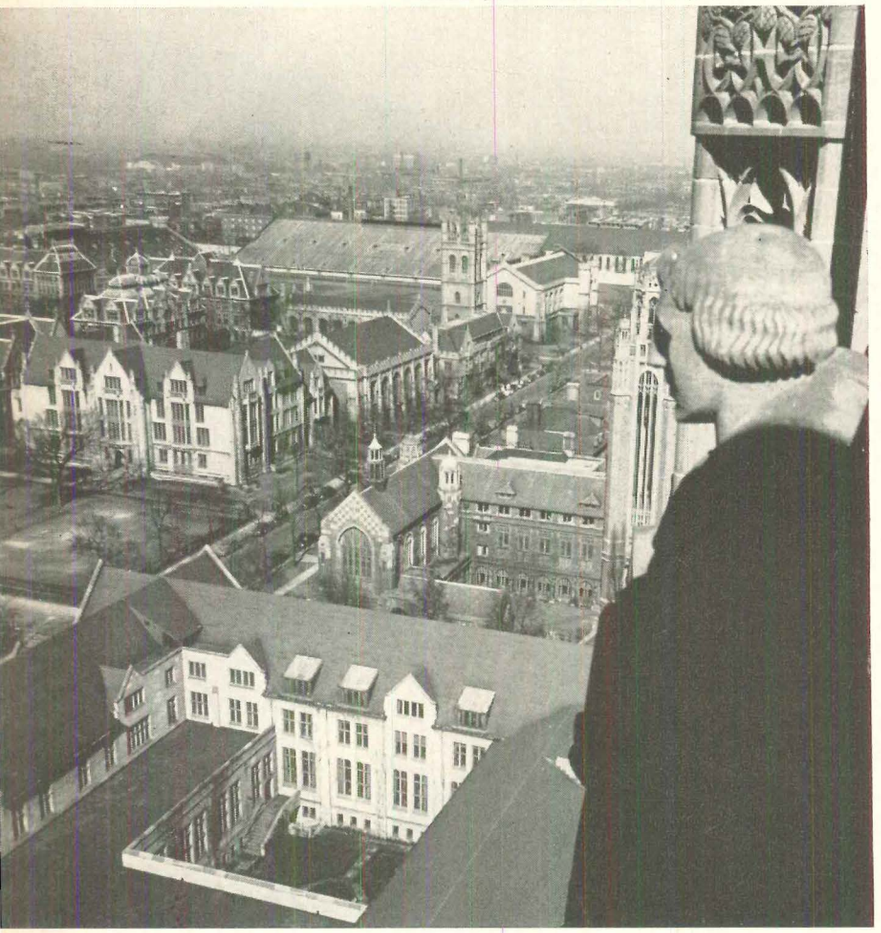
IN DIFFERENT SETTINGS

When two talented architects start mulling over similar college building problems, the results promise to be interesting, but when they come up with strikingly similar proposals, it is real news.

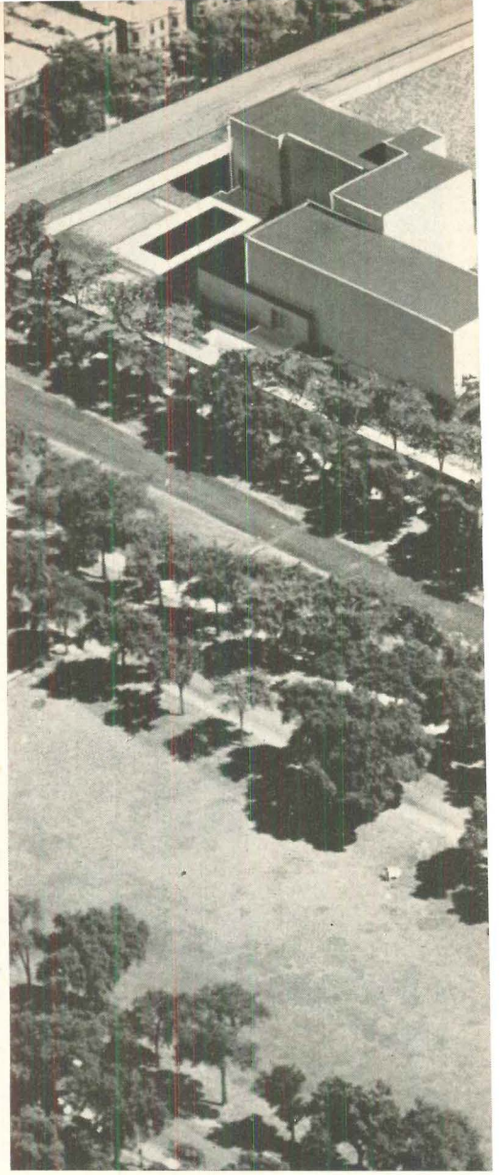
In their latest projects, which happened to come to FORUM's attention on the same day, Eero Saarinen and Minoru Yamasaki use many quite similar ideas in different ways. Saarinen's great pleated façades give a soaring Gothic quality to a law library he is designing for Chicago University's Gothic campus; shown (left) is an early study which has undergone further development. Yet it is a root concept clearly enough stated to be shown in context with Yamasaki's scheme for a memorial conference building at Detroit's Wayne University (right). The latter, now in working drawings, also uses big folded planes, but as triangular floor frames which emerge in a templelike colonnade of many facets. Both designers have set their roofs in motion too, Saarinen with an abstractly Gothic pattern of pyramid vaults, Yamasaki with a lively crystalline skylight. Both men serve up the richer visual fare found in older architectures but missing in sleek, hard "modern": a play of sunlight and shadow on depths and angles, and a patterned movement of lines against the ground and sky. Basically the idea is the same as Mies van der Rohe has been teaching (see preceding pages): the "decorative use of the structure itself." But Yamasaki and Saarinen carry it a step further in practice. Miesian buildings have a linear frame (usually steel) and walls that are big flat-looking curtains, producing cubical-looking buildings. Yamasaki's hollow roof trusses are prismatic, not linear, and Saarinen's curtain wall is pleated, producing faceted buildings.

It is significant that neither building is to be plunked down on campus and left to fight it out with other buildings and open spaces. In its immediate setting, each is raised boldly on a platform, joined to its neighbors by low wings to form a group embracing a broad reflecting pool accented with sculpture. How they fit broader settings is shown on the following pages.

PHOTOS: (BELOW) MYRON DAVIS—LIFE; (RIGHT) HEDRICH-BLESSING



Gothic verticals predominate on University of Chicago campus



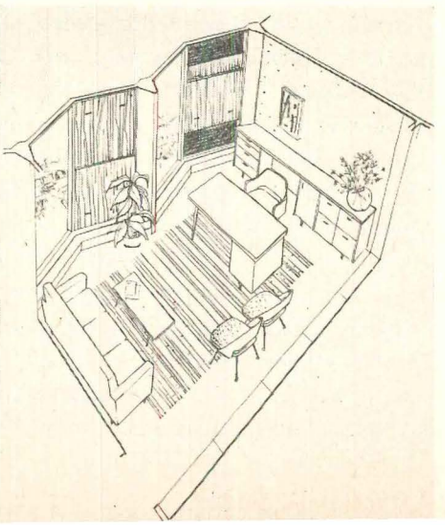
Vertical lines and roof shapes of new law

1. Saarinen's library: a good neighbor for Gothic

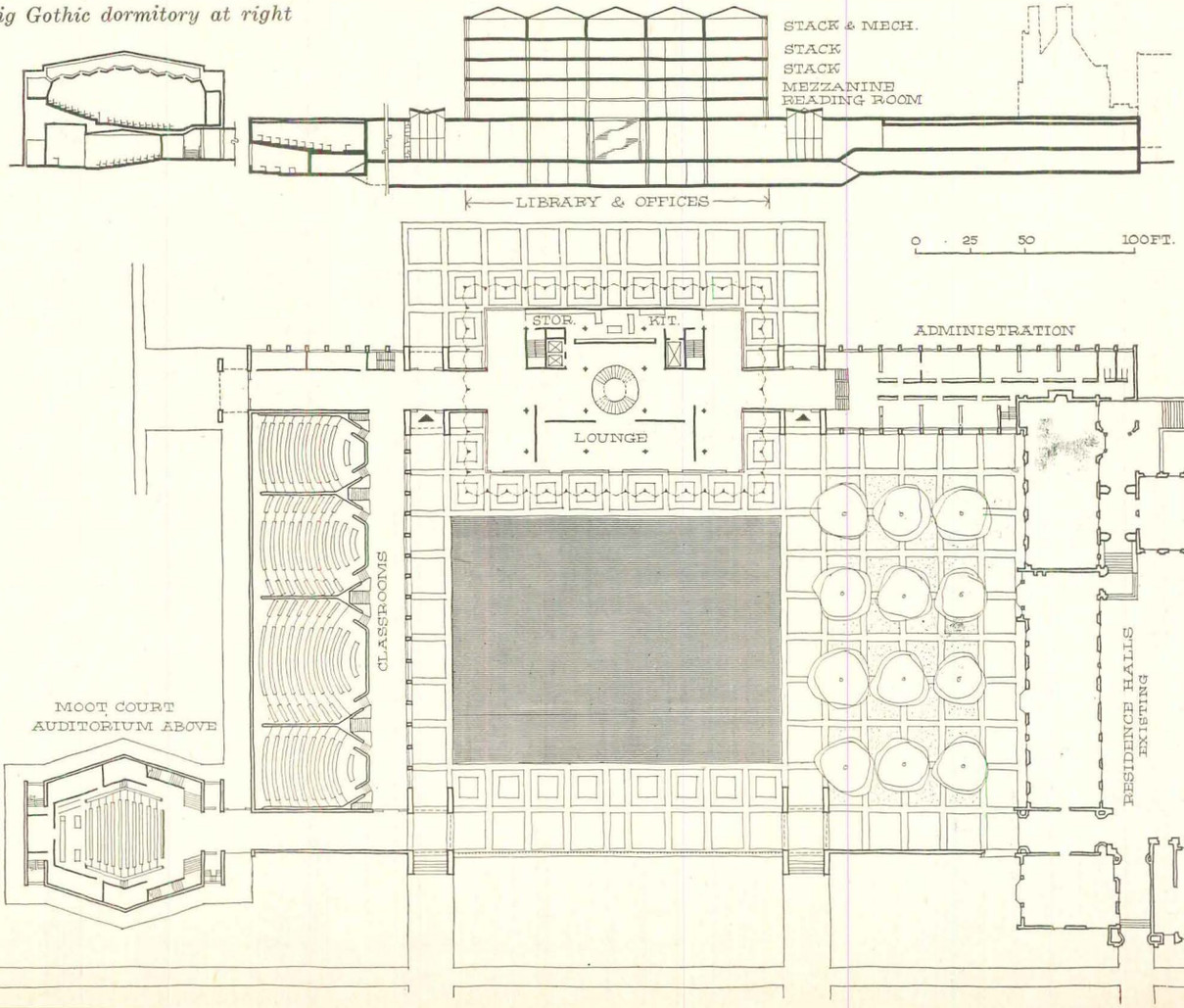
Chicago University's pseudo-Gothic campus (above left) poses an old problem: should new buildings break clean and be themselves, or ape the past? Says Saarinen: "Each building must have its own look, and be a good neighbor as well."

South of the main campus (photo right), Saarinen places his new law school next to a big Gothic dormitory for law students, carefully relating buildings and open spaces. At the back of the raised central court stands the proposed seven-story law library and office building, which with the two vaulted entrance arches in front recall the older Gothic forms. To the right of the pool a small court of trees screens the side of the dormitory and eases the transition to the newer shapes. On the other side of the pool is a cloisterlike colonnade leading to seminars and classrooms on two levels. Attached to this is a hexagonal auditorium building that is still faintly Gothic but is also sympathetic to another neighbor, a plain modern building housing the American Bar Assn.

The sketch (below) shows one way the zigzag walls might shield offices around the library stacks, with opaque vent-panels toward the worst sun, glass toward the view.



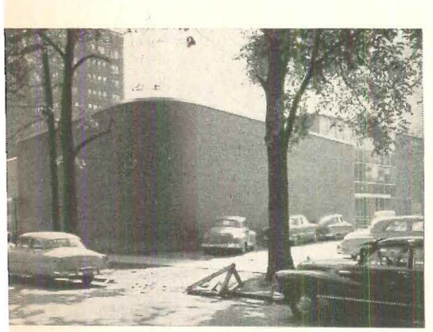
school echo big Gothic dormitory at right



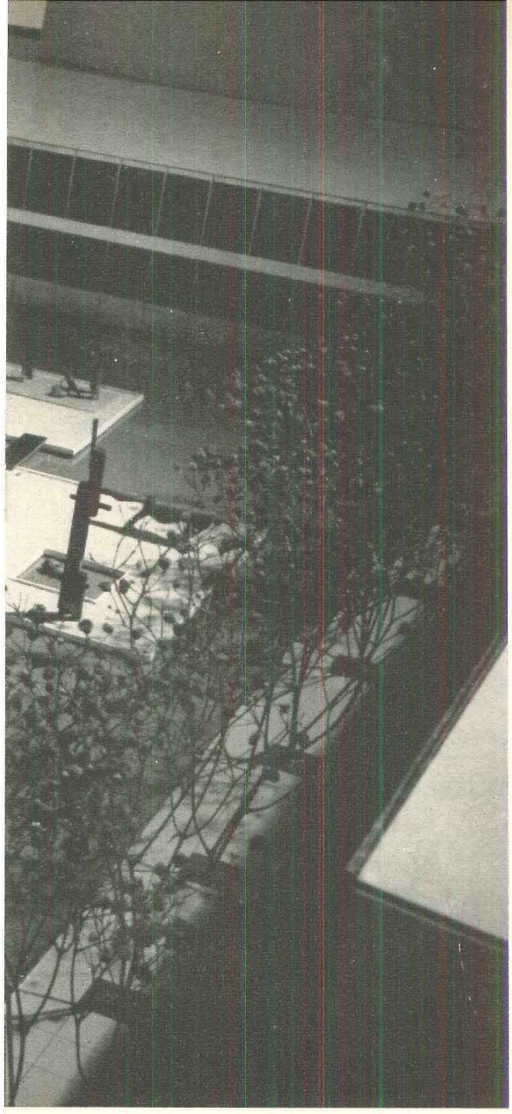
2. Yamasaki's memorial: a good contrast with Modern

This templelike building, striking yet serene, will contain meeting rooms for Wayne University and Detroit community groups, a memorial to the late Philanthropist Tracy McGregor. The site (see photo above) was bordered on two sides by streets, on the others by arts buildings and auditoria of brick, porcelain enamel and glass typical of Wayne's new campus. Since the building is a memorial, Yamasaki set it apart from and above its more functional neighbors, gave it the squarish shape of two temples connected by a glass hall, and carried out the feeling with white marble columns and a traditional stylobate of steps around its base. The slender columns, clearly expressing marble-clad steel rather than bulky solid stone, lend some of the light character of a Japanese pavilion; between them hang decorative aluminum grilles that shade, Japanese-style, the *gray* glass of the window walls behind. Where each column meets the edge of the great corrugated concrete floor frames, 40′ long and 10′ apart, Yamasaki has sealed them with a triangular "capital" that accommodates ventilation ductwork and gives the building its lively facets and zigzag silhouette. This triangular motif is echoed in an ornamental glass skylight over the great center hall and again in the paving.

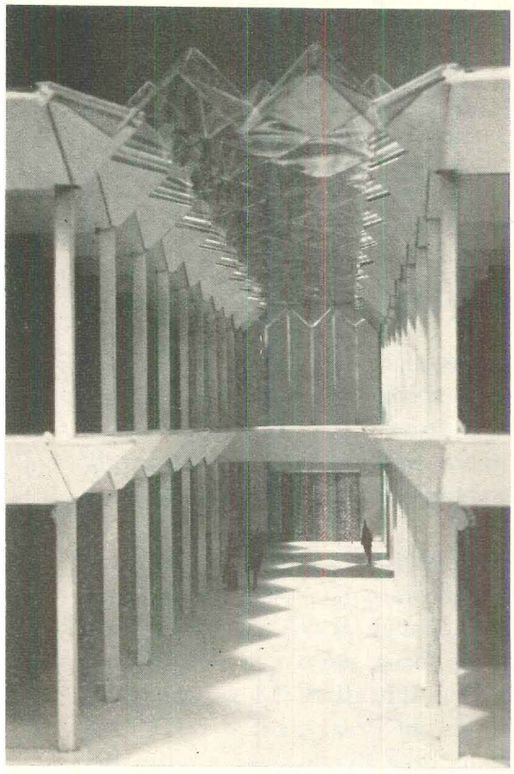
Where Saarinen used a rectangular pool and a single sculpture, both as focal devices, Yamasaki has used an L-shaped pool that separates his building from existing ones yet helps unite them as an arts group. Islands linked by stone bridges make attractive walks dotted with sculpture exhibits.



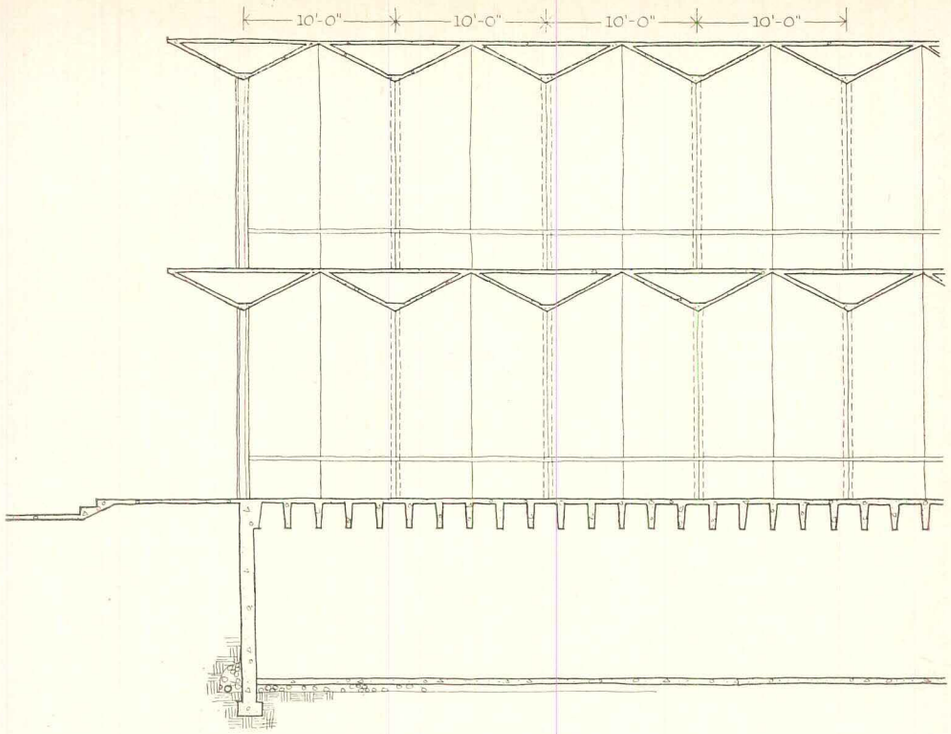
Current campus style is shown in auditorium (above), arts building flanking site.



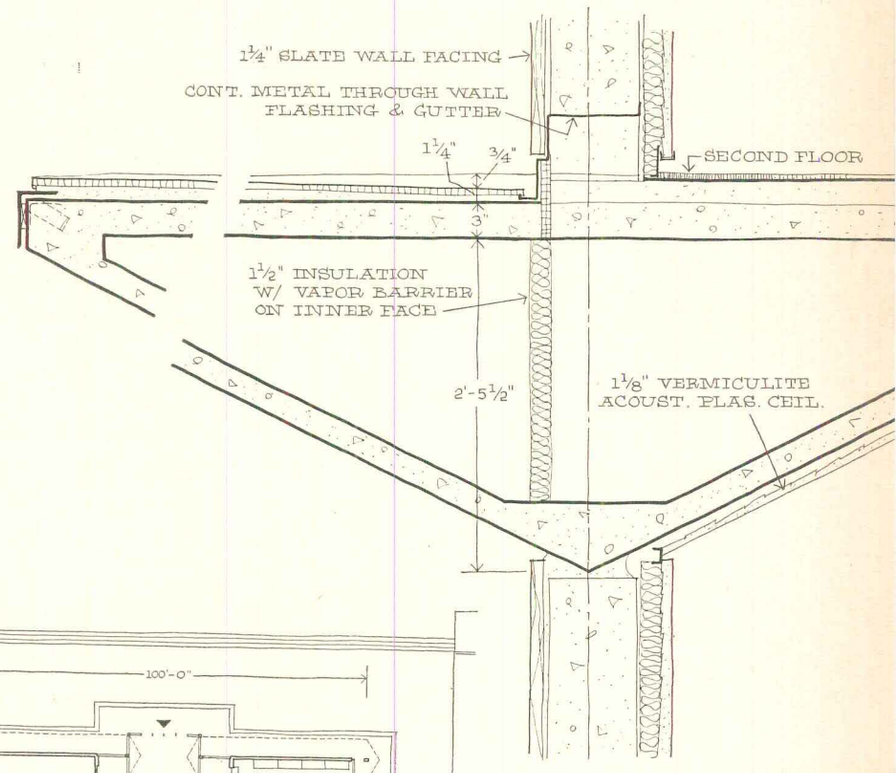
PHOTOS: (ABOVE & BELOW) LENS-ART; (BOT. OPP.P.) W. E. BRADLEY



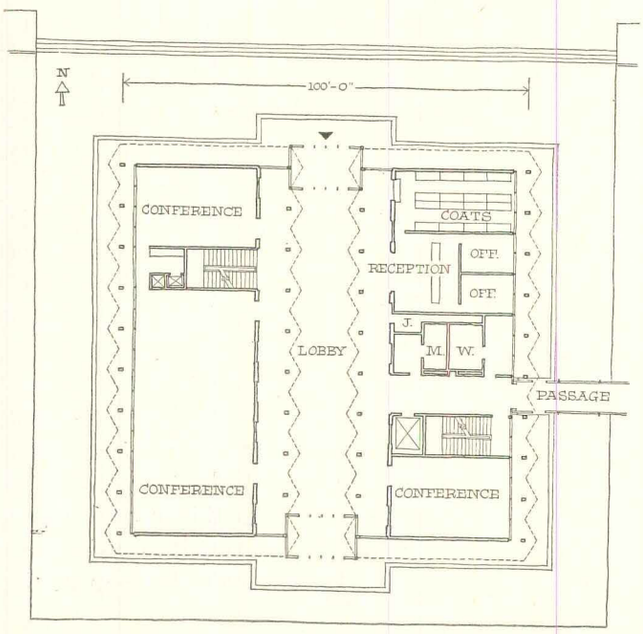
Two-story gallery between meeting rooms makes entrance and corridor space as dramatic as an ancient hypostyle hall-of-columns, with a new twist in skylighting.

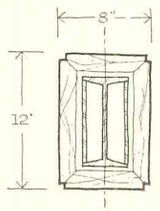


CROSS SECTION - (LOOKING WEST)



END WALL





TYPICAL COLUMN

Last in a series of articles exploring where architecture stands and what is happening to change its future

THE REAL ESTATE OPERATOR

More than any other man in the industry, he has set the pattern of our cities and our suburbs. And, his ideas about building appearance and function exert a positive influence on architecture

By FRANK FOGARTY

Mr. Bigler's plan this time, about which he talked loudly . . . was the building of the Tunkhannock, Rattlesnake and Youngwomenstown railroad, which would not only be a great highway to the west, but would open to the market inexhaustible coal fields and untold millions of lumber. The plan of operations was very simple.

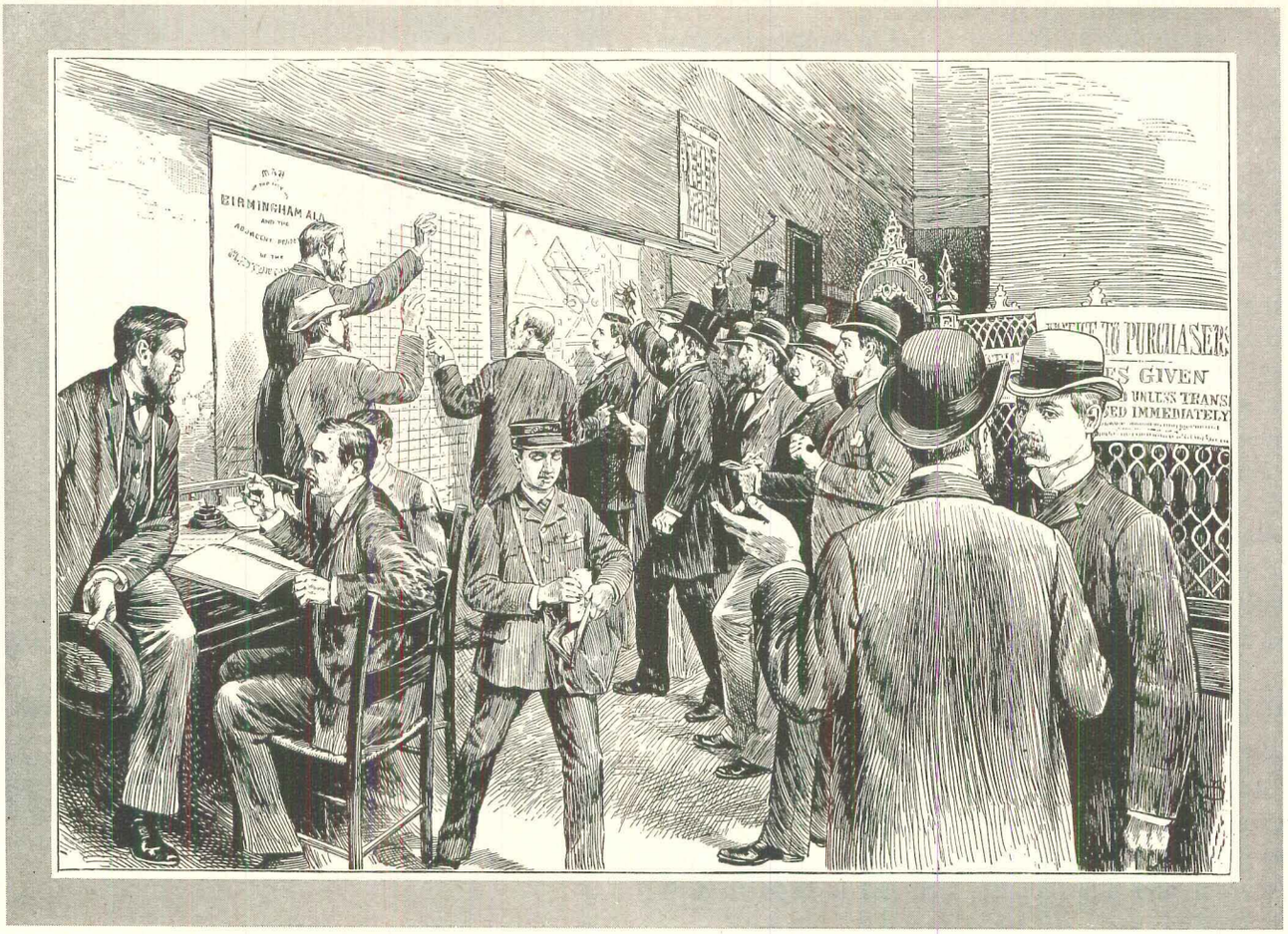
"We'll buy the lands," explained he, "on long time, backed by the notes of good men; and then mortgage them for money enough to get the road well on. . . . We can then sell the rest of the stock on the prospect of the business of the road . . . and sell the lands at a big advance."

Mark Twain and Charles Dudley Warner,
The Gilded Age, a Tale of Today, Harper & Bros., N.Y.C.

To any cataloguer of American business types, Mr. Bigler is today a prize exhibit. No railroader at all, he is a perfect specimen from the middle, or iron-age, period of a tribe of operators that has been shrewdly carving up the US for years and living off its land since the days of the colonies.

This tribe—known variously as land speculators, town jobbers, and just plain real estate men—has shown great daring and imagination, though there has often been serious question as to its exact degree of civilization. Nevertheless, by seizing the initiative, it has prospered, and its view of America as one great tract of real estate to be bought and sold has been firmly implanted in the public mind. While others have waited, it has acted. And the upshot has been that it has left its tracks all over the map of the US.

THE BETTMANN ARCHIVE



BIRMINGHAM, ALABAMA—SCENE IN A REAL ESTATE EXCHANGE—drawn by John Durkin

For years, the school-bookish approach to urban development, with its emphasis on the grand play of economic and geographic forces, has all but overlooked the real estate operator and the role he has played in shaping the city and its architecture. The oversight could hardly be more glaring. For the truth is the American city—the beauty marks on its face, its sores, its character lines—is overwhelmingly the work of the real estate man, perhaps more so than even he himself realizes.

Ernest M. Fisher, professor of urban land economics at Columbia University and a man who probably knows as much about land and buildings as anyone living today, has said that "more facts are known about a single agricultural product like peanuts than about urban real estate." Fisher had in mind the lack of economic data—that no adequate census of real estate exists; that there are only crude estimates about the changes in inventory and the total number of transactions that take place each year; that there are no nation-wide figures about the life of buildings or the intensity of their use. But the same poverty of information exists about the real estate man himself, who he is, what his aims and motivations are, how and why he has influenced American architecture.

There is, for instance, not even an accurate head count of how many people actually qualify as real estate men today. The best figure is the estimate of the National Assn. of Real Estate Boards that there are about 400,000 brokers in the 44 states and the District of Columbia that require licensing. But brokers, though they are by far the most numerous part of the tribe, are by no means all of it. The rest are not only uncounted, but to a great extent undefined as well, at least in the public mind.

In an over-all sense, a real estate man today can be anybody with a skill in the use and development of land and air space, provided he puts that skill to work as a major source of profit. He can be an owner-builder, say, a Robert Dowling, a William Zeckendorf, or a Norman Tishman, in which case he combines his skill with an equity position; he can be a broker or manager —an Alexander Summer or a John Elsbach—whose role is mainly that of an intermediary for others who supply the equity; or he can be a combination of all three, acting sometimes as a principal, sometimes as a broker as New York's Charles F. Noyes, New Orleans' Harry Latter, Columbus' John Galbreath, and the bulk of other big real estate operators do today.

But beyond this, a man can be a real estate man even though he assumes none of these roles. The executive in charge of real estate for an industrial corporation, such as Frederick G. Tykle, of General Motors' Argonaut Division, qualifies for the title. So does the consultant, a relatively new brand of specialist who offers only advice for his fee, and the man who does nothing but appraise property values. The real estate clubhouse

certainly has no shortage of rooms.

A real estate man is, of course, not a lender, a builder or a designer. But, at times, he may absorb these functions and so erase lines that would otherwise circumscribe him neatly. Further, in the course of his business and depending on how wide a swath he chooses to cut, he may buy, develop, plan, assemble, lease, manage and sell all kinds of land and buildings, either for himself or his clients. His activities are not only increasingly complex, but far-reaching. Yet a common denominator does exist in all this, and it not only sets the real estate man apart from the rest of the economy, but it goes far toward explaining the nature of his influence on American architecture.

To a real estate man, land and buildings are a commodity. They are things to buy and sell, to speculate in for a short time, or to invest in, longer range. Whatever functions these physical units may perform, there is only one that really matters to the real estate man: that they return a profit.

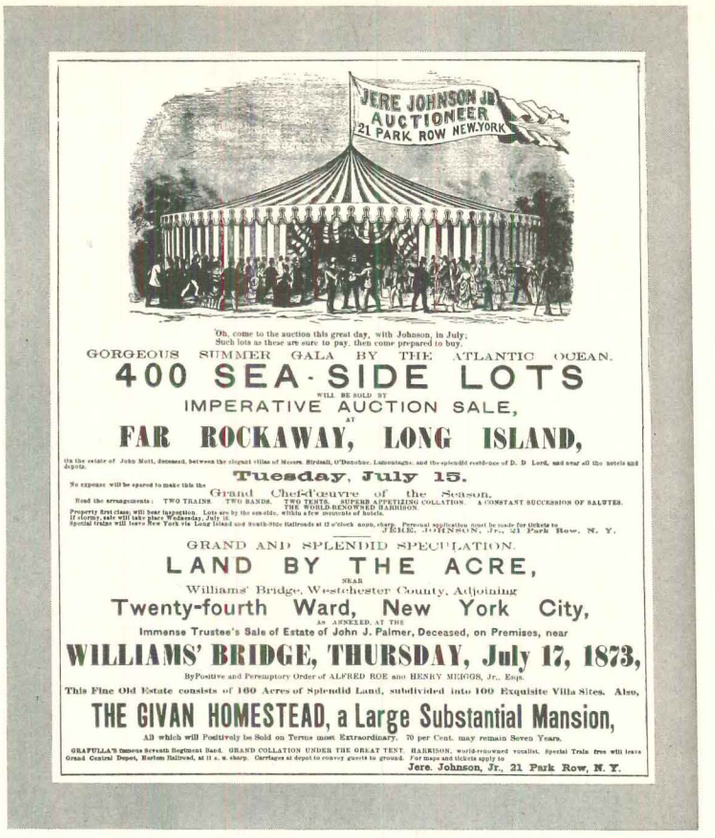
To own and speculate

Christopher Tunnard and Henry Hope Reed in their book, *American Skyline,* point out that in America land has always been looked at differently from the way it has been in Europe. In France and Italy, the aim has been to own and hold; in the US, it has been to own and speculate.

This distinction is important. For in the US, it led directly to the gridiron pattern, which, borrowed from antiquity, was used by city "plans" and homestead acts to rule off the whole country into a series of rectangles that forever conditioned its development. The gridiron plan may not have much for holding. But it was just dandy for speculating.

Although the effect of the gridiron has been treated again and again, Lewis Mumford has probably done the neatest summing up in *The Culture of Cities.* What the grid did, Mumford says, was to make each lot, being of uniform shape, "a unit, like a coin, capable of ready appraisal and exchange. It permitted 'plans' to be made for unlimited future development, without foresight or responsibility. Indeed to permit the progressive intensification of land use, with a corresponding rise in rent and realty values, was the prime virtue, from the capitalist standpoint, of this inorganic type of plan."

Whether the real estate operator actually drew these plans, there is no doubt that his interests were uppermost in the minds of the men who did. In the end, though there were other systems to choose from—the linear of Germantown, the Baroque of Williamsburg and Savannah, the combination radial-grid of L'Enfant's Washington—practically every city wound up with the grid. Not until the City Beautiful movement of the 1890s was the stranglehold broken. In the meantime, the US urban center grew into a box of 25′ fronts and rectangular buildings that pushed their way back with sunless interiors to the depths of their 125′ plots.



THE BETTMANN ARCHIVE

Once having found the formula in the older cities, the real estate operator lost no time in applying it to new ones. In the feverish western expansion that began about 1820 and lasted through most of the century, he created thousands of towns in the image of the grid, which, on his maps at least, assumed the proportions of a metropolis. The railroads alone added a whole new edition to the gazette. Land speculation and town-jobbing reached frenetic proportions, and real estate—not transportation—was the lure of the railroad promoter.

Though many of these real-estate-made towns were short-lived, and others still-born, many survived: Toledo, Ohio; Topeka and Lawrence, Kan.; Tacoma, Wash., and scores of others. The real estate man may have left them little, physically—his aim in those days was not to develop, but to move in and out, quickly taking the unearned increment that came with growth. But he chose their site and stamped them with his plan. If much of the US seems dismal and carbon-copied today, you have only to look at its beginnings to see why.

With the age of the automobile, the emphasis changed. The real estate man no longer fed upon the unearned increment, but sought to create value by building on unimproved land, by improving existing buildings, or by merely improving the earnings possibilities without changing the building itself. But his role remained the same; as before, he was the initiator, the risk-taker, the shaper.

The elaborate suburban development that began with

the twenties and that in time produced a repetition of the city made worse by its lack of services is largely his handwork. The Florida Boom, the Van Sweringen's Shaker Heights, J. C. Nichol's Kansas City Country Club District, Hugh Potter's fabulous River Oaks in Houston, Douglas Elliman's sortie into Park Ave. that transformed it into one of the highest-bracket residential districts in the country, the development of Chicago's near North Side—all were conceptions, good and bad, of real estate men. Today John Galbreath transforms a block of mid-Manhattan miscellany, held by the Goelet Estate, into a Socony-Mobil Building; a Cabot, Cabot & Forbes turns farmland along Boston's circumferential highway, Route 128, into a collection of industrial centers; an Alexander Summer, working as a broker, takes four years to find a client—Allied Stores—to develop what will be the biggest regional shopping center in the US in northern New Jersey. To ask the question, what has been the real estate man's influence, broker and principal alike, is simply to beg the answer: "Look about you. The results are everywhere."

Yet this is not all of it. For the important thing today in assessing the real estate man's influence is to look at it in terms of what is ahead. How far has enlightenment penetrated? How much does the real estate man care now about good design and good America?

Between broker and principal in real estate, there is naturally a great common tie. Actually, it is impossible to separate the two since their functions so often overlap. Yet in assessing their influence a distinction does have to be made. The broker may conceive a plan, propose the eventual land use, perhaps advise on the design of the building itself. But his ideas are always subject to the say-so of others. With the real estate man who is also a principal, the say-so is his—subject, of course, to a lender's approval.

With this in mind, certain generalizations are reasonable:

The real estate man's influence on architecture, unlike the lender's, remains decidedly positive.

The real estate man not only possesses strong ideas about what a building should look like and how much land it should take up, he is apt to regard these ideas as superior to those of the architect, whom he may consider a mere technician, and not a very practical one at that.

The creation of income-producing property, as FORUM has said before (AF, April '55) remains a highly speculative operation. It is a business whose economics revolve around tax angles—the sale-leaseback deal is mainly tax-inspired—and one that still operates on margin. Real estate must compete for its money with other forms of risk venture, and its investors want a quick return of earnings—generally within five years. The dangers of miscalculation are great, and it is for this reason, primarily, that the real estate operator will ride with his own judgment of how best to make a project pay off.

Sometimes his faith is so great that he thinks he requires no architect at all.

Generally, though, the real estate man calls on an architect to execute his ideas. Yet he looks for translation, not innovation.

Most of the time, the realty operator picks as his architect either 1) a specialist in a particular market who has done similar buildings and "who has an instinctive judgment in economics," as one Midwest real estate man puts it; or 2) someone he feels he can dictate to. Only rarely will he put up with a designer who is likely to burden him with considerations not immediately profitable commercially.

Stubborn as he is, the real estate man is not necessarily unenlightened in his approach to design. He is, however, limited.

No one can say that real estate men are unaware of the values—in dollars and cents—that a new approach or a new beauty can create. "Keeping up the neighborhood," and "keeping up values," are themes they have sounded for years. Today, in the buildings they are creating—particularly in the lobbies and in the care given to tenant facilities—there is ample evidence of concern for the earning power of amenities and open space. Why, then, aren't their buildings as a whole better than they are?

The real estate man's main shortcoming is that he sees architecture for its pieces rather than for the whole, and as a handling of appearances rather than a philosophy of building embracing every act.

An illuminating example of this lack of context is provided in Pittsburgh's Gateway Center, where it was obviously the purpose of all concerned to create something mighty fine. Robert W. Dowling, the head of City Investing Co. says that he sketched out the plans (Dowling was consultant to Equitable Life on the project) on the long table that takes up one end of his office. No architect was even present, nor did Dowling see the need for one. He admits that an architect can be "quite valuable" in creating a good-looking skin for a building and a handsome lobby—"after all, most people never look higher than the ground floor"—but he sees no real reason to seek him out while a project is being shaped. (Dowling makes the point that no architect ever sought him out with a profitable idea for initiating a development.)

Now an interesting part of this story is Dowling's pride in the key idea of his scheme—setting down the office buildings in a park instead of setting them on

streets. Yet this idea, "putting cities into parks instead of putting parks into cities," had been in wide-spread circulation among the architectural fraternity for at least a full 30 years. Le Corbusier, the great internationally famous pioneer, published it fully and persuasively in 1922. Applied by "Corbu," first to Paris, it had long since spread. It was the common language of new, large-scale planning in Europe and the US. There was no architect who came out of school later than 1930 who could have possibly been ignorant of it.

The really serious consequence of not knowing about Architect Le Corbusier and his early promotion of the "city in a park" was the consequence that the community did not get the benefit of all the rest of his careful and massive thinking on the subject. For the fact is that this architect not only worked out the idea of putting towers in parks, but he had important guiding ideas about the way the shapes and arrangements should be handled in detail to make them really pleasant *and permanently useful.* Some of these he got out of sculpture, which is the systematic investigation of shapes, standing in the light, and of painting, which systematically investigates color in the light. It was in this way that he helped inaugurate a new architectural age—of which nothing but shreds and patches could drift into the building of those who did not know what the complete model was whose individual fragments they were belatedly trying to appropriate.

Of course, Dowling was very far from being alone in not knowing fully the true origin or the full force of the broad building concepts he was beginning—and wisely beginning—to deal in.

For example there is the mass developer who scatters picture windows promiscuously throughout the country today. By itself the large glass window was a mere detail in a system of thinking and building which men of genius like Frank Lloyd Wright had put together with much suffering and labor. They had been thinking about a new more open way of life, with greater freedom of movement, a finer spaciousness, a closer tie with the beauties of Nature—lost completely when reduced to one large pane which looks out across a cluttered backyard or a busy street to another.

A few real estate men do see beyond the trees to the woods, and their number is slowly increasing.

Herbert Greenwald, who has profitably promoted many of Mies van der Rohe's architectural designs, is one of these. He believes that "people are bright enough and intelligent enough to want to live in buildings built on modern-day technology, rather than latter-day dogmas." Webb & Knapp, which has done most of its important postwar buildings from I. M. Pei designs, is another.

If the list of real estate men using the best architecture is short, the architect is to blame, at least in part. If the real estate man has not listened to the architect, neither has the architect always tried very hard to know the economic problems and to make himself heard. Too many have simply served the wedding cake, as ordered, and gone on to other things. Too few have fought hard enough for good design and waged the campaign long enough to educate the real estate operator to what his commercial course passed over. And too few have learned the realities of the procedure. For example, on occasion, architects have started to dream of a better scheme—possibly a better economic scheme—only to find that the essentials were already frozen. They had failed to realize that you must act before detailed agreements are signed on large collections of leases. Afterwards it is too late. Nobody can afford to go back and change all of them.

The real estate man's approach to design, limited as it is, is also inconsistent. Most real estate men turn what they consider good design off and on as it suits them.

The reason for this is simple: Whether rightly or wrongly, the real estate man feels that good design is expensive. To him, it is worth applying only in a good location, where the market is upper-bracket and can definitely afford a marked-up rental tab.

"It all depends for whom you're building," one West Coast operator says frankly. "If I'm building in an area where all the office space around me is going for $3.50 to $4 a sq. ft., I'm not going to stick my neck out with something I'll have to charge $5 or more for. My market is the popular-priced one, so I'll build wedding cake until somebody comes up with a better way to get a maximum gross out of those $3.50 ft. But give me a location across town, the area where the prestige traffic is moving, and I'll show you amenities. I'll spend more for the design, throw in a better lobby, leave more open space on the site. But I'll get upwards of $5 for the feet I build."

In the end, any assessment of the real estate man's influence must come to two overriding conclusions. The real estate operator, as reflected in his attitude today, has come a long way from the land-jobber of the nineteenth century. He is ready to conceive and tackle projects as integrated wholes, to admit that good design, provided it is not too radical for the mass taste of tenants, is essential in creating long-term values. But he still has a long road to travel.

What remains—and it must inevitably come to this —is the recognition that building is not just business, but an art. It offers "commodity," or usefulness, to be sure. But it is also, as Sir Henry Wotton proclaimed, "firmness and delight." As the real estate man matures, there seems little question that he will realize that "well-building" has these three conditions, and that architecture is the focus.

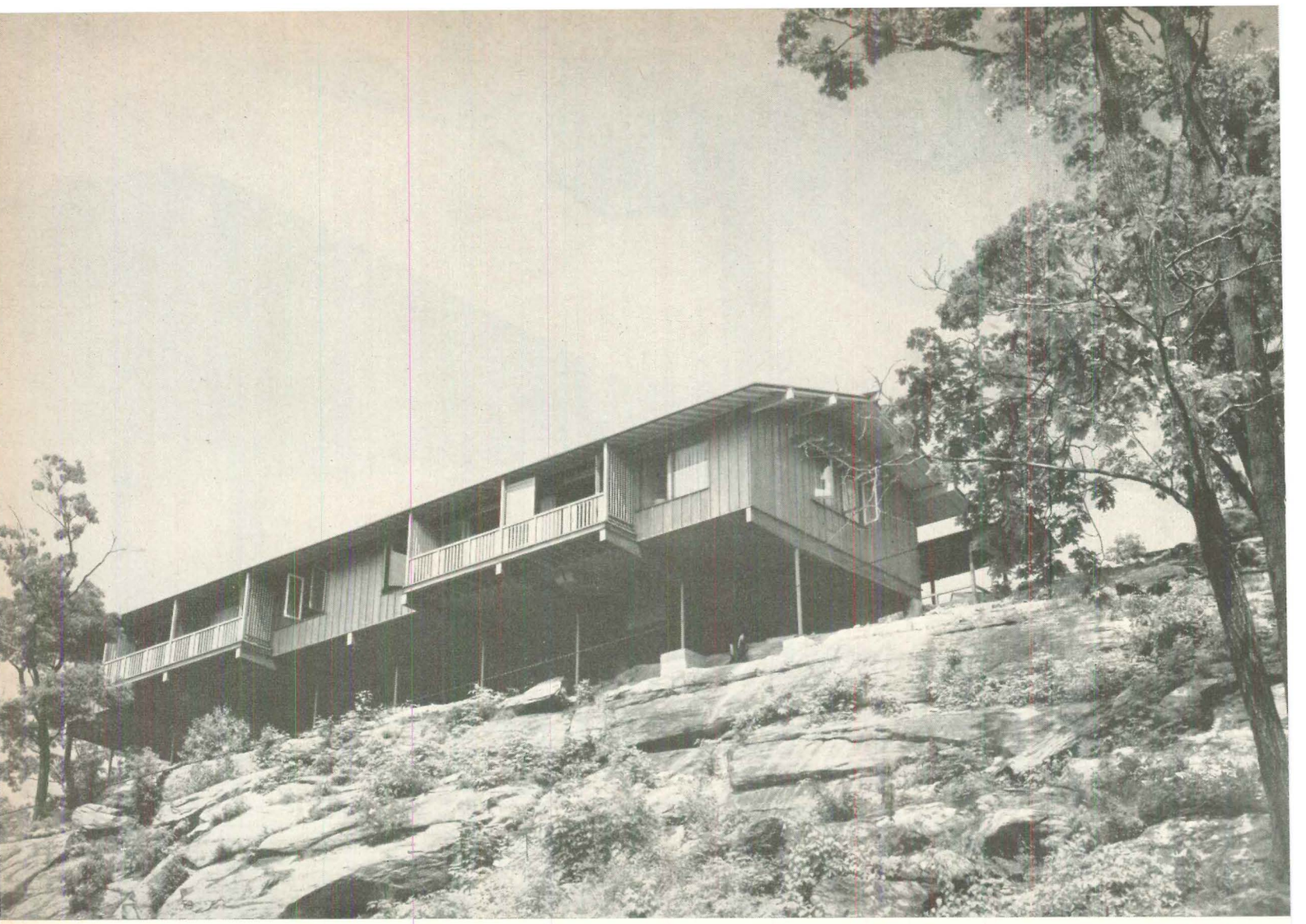
ALEXANDRE GEORGES

1. In New York, perched on a peak over the view (p. 124)

TWO MOTELS

2. In California, stretched on a slope under a fine tree (p. 128)

MORLEY BAER



PHOTOS: ALEXANDRE GEORGES

ARCHITECTS: Harwell Hamilton Harris, Perkins & Will
STRUCTURAL ENGINEERS: Severud-Elstad-Krueger
MECHANICAL ENGINEERS: Jaros, Baum & Bolles
GENERAL CONTRACTOR: William Hanst

1. ATLANTIC COAST MOTEL HAS PACIFIC DESIGN

The "Motel on the Mountain" near Suffern, N.Y., is out to recapture the subtle excitement of Japanese architecture

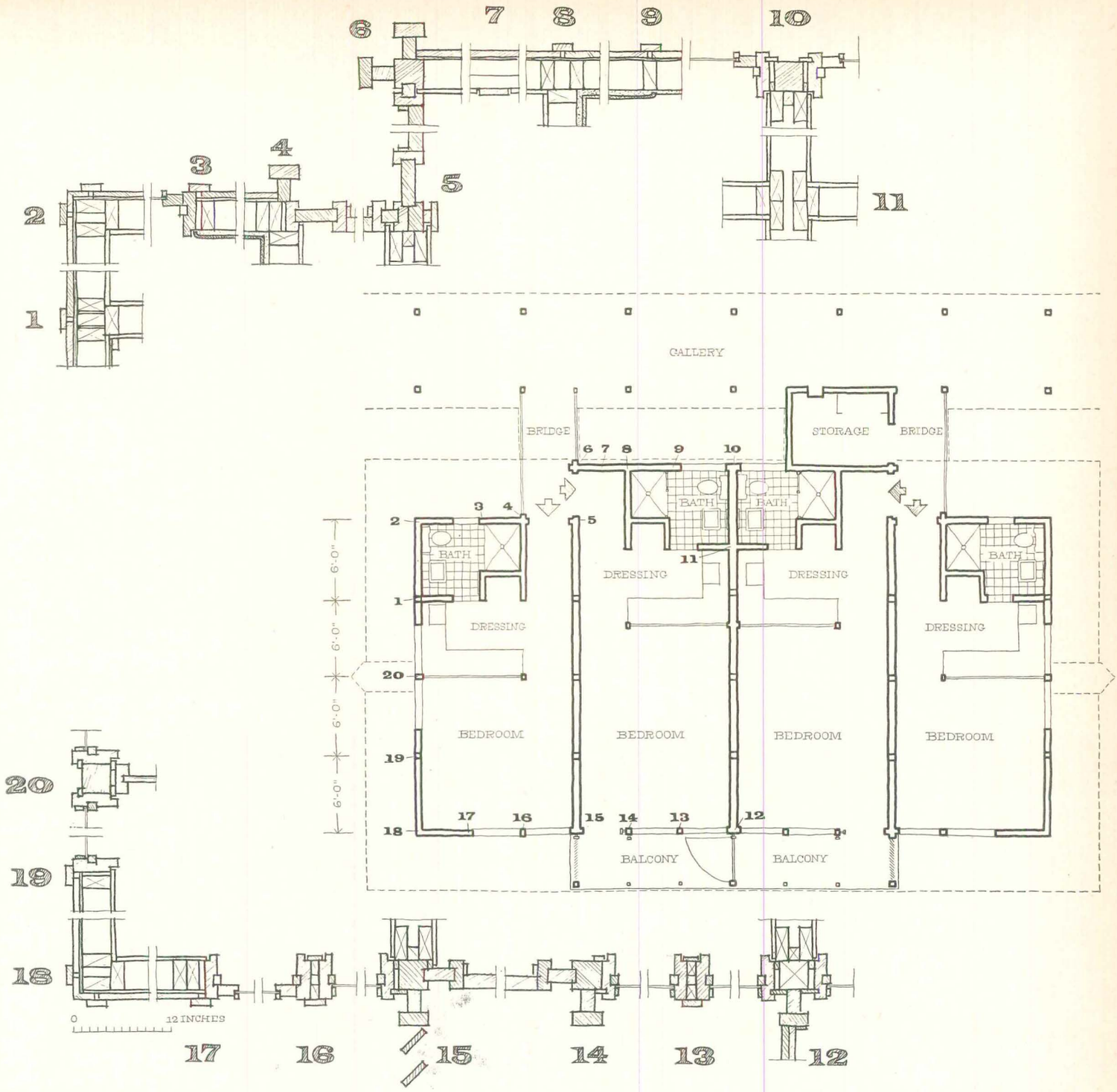
"Our location was 50% inspiration and 50% desperation," says Robert Schwartz, one of the owners of the newest but already most famous motel near New York City. The "Motel on the Mountain" is almost exactly that; it stands 300′ from an interchange on the New York State Thruway where close to 100,000 cars pass every day, but the 300′ is measured *up*. The attraction which has been pulling gratifying numbers of patrons up the 3,200′ approach road is architecture—a set of intriguing silhouettes perched on stilts out from the hilltop. Rates are high too, up to $15 double, but business has been near capacity since the opening less than a year ago. Additional crowds of tourists motor up the hill just to inspect the buildings.

At present 46 units are in operation, but 36 more and a 450-place restaurant (see p. 127) are nearing completion. The ultimate aim is 200 units.

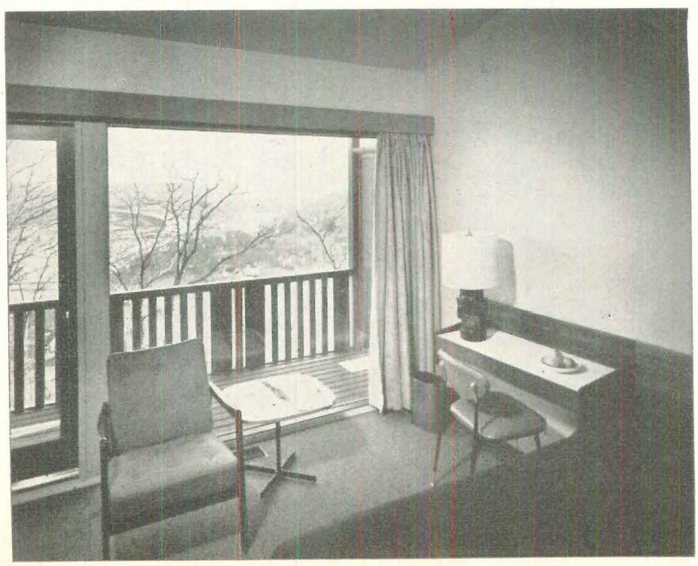
Although the hilltop site is undoubtedly the motel's biggest attraction, the unusual location is almost as strategic horizontally as it is vertically. Down the road a piece from this motel are two new suburban factories: a big Ford assembly plant (5,000 employees) and an equally large pharmaceutical plant of Lederle Laboratories. Between these giants and other nearby plants the motel has already booked 9,000 reservations for the winter months, normally off-season in this area.

When the motel has pulled its admirers uphill it does not disappoint them. The interior atmosphere is tasteful luxury, from dressing rooms to balconies.

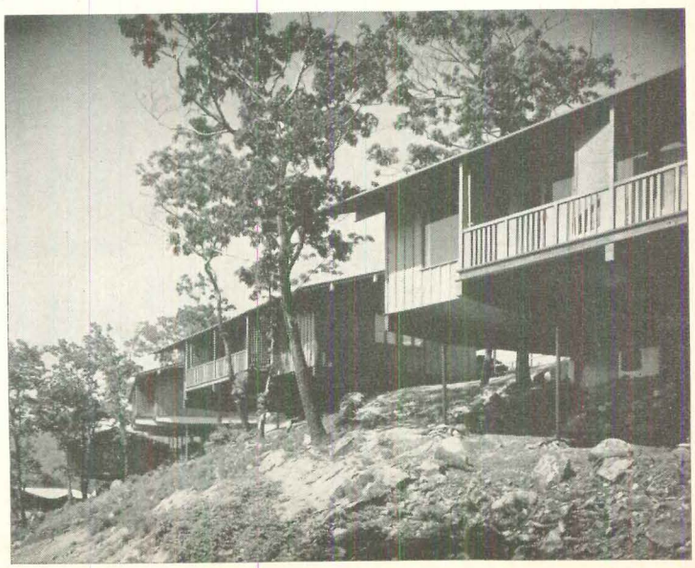
The motel represents a notable array of architectural talent, with Harwell Hamilton Harris drawing first credit from the owners, Perkins & Will executing the working drawings, and Japanese Architect Junzo Yoshimura responsible for over-all development and design of the restaurant and new units, in conjunction with Architects Steinhardt & Thompson.

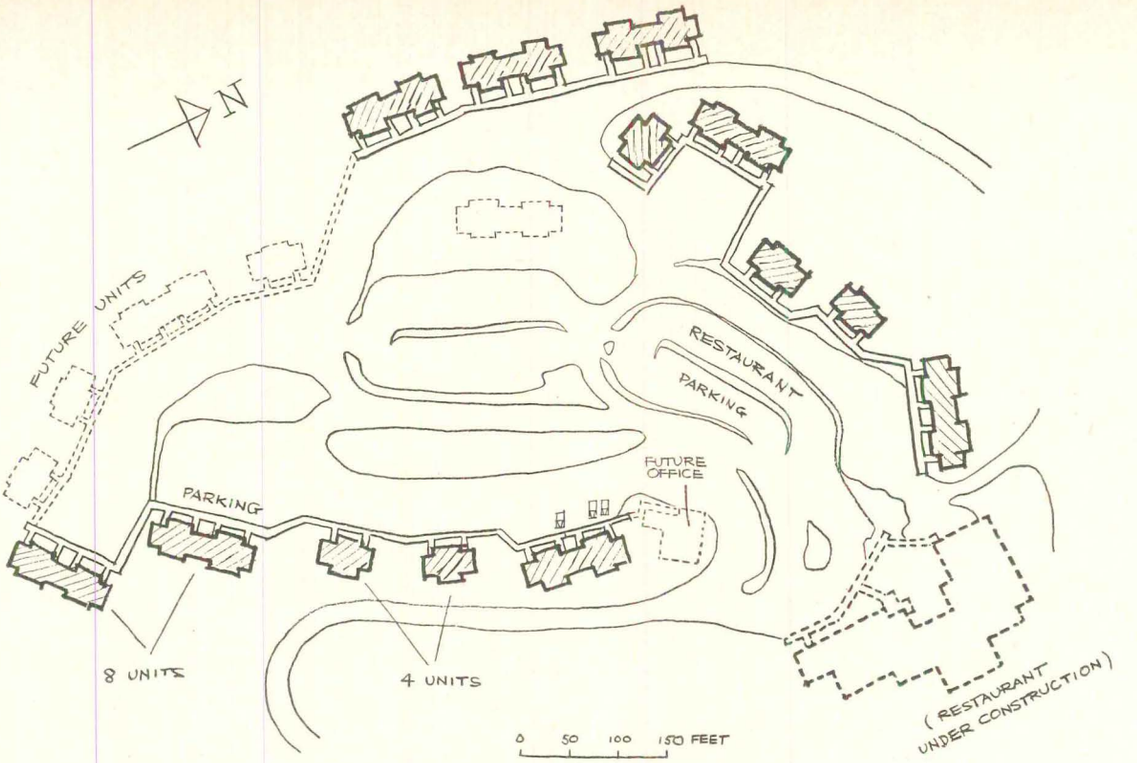


Sliding window opens room to balcony and view

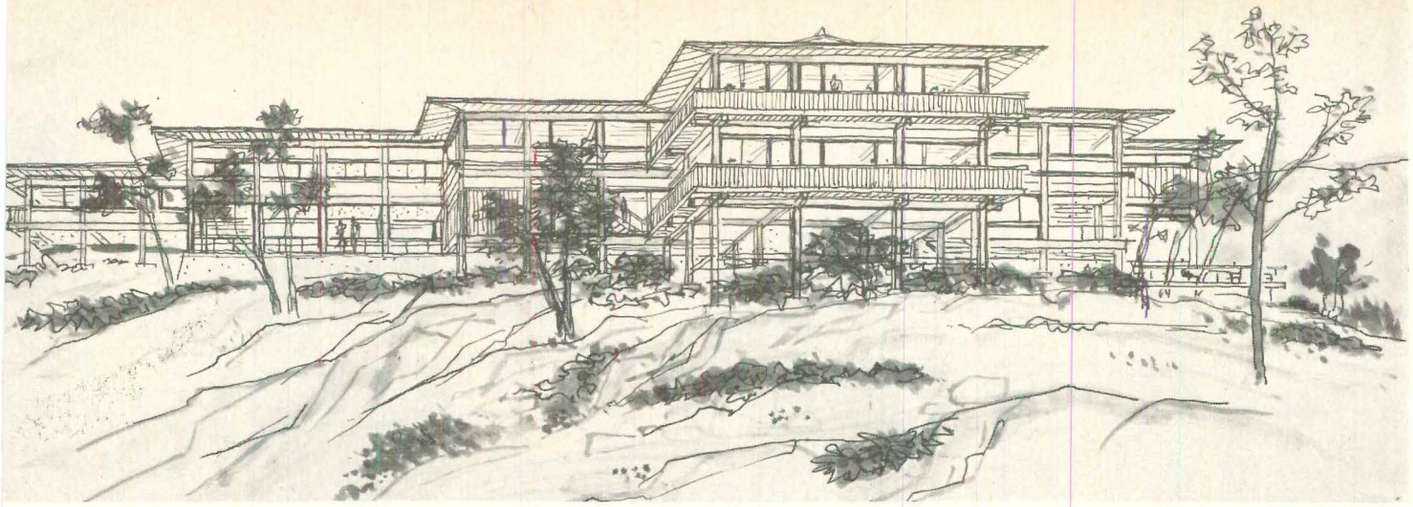


Building projection hides plumbing and TV antennas

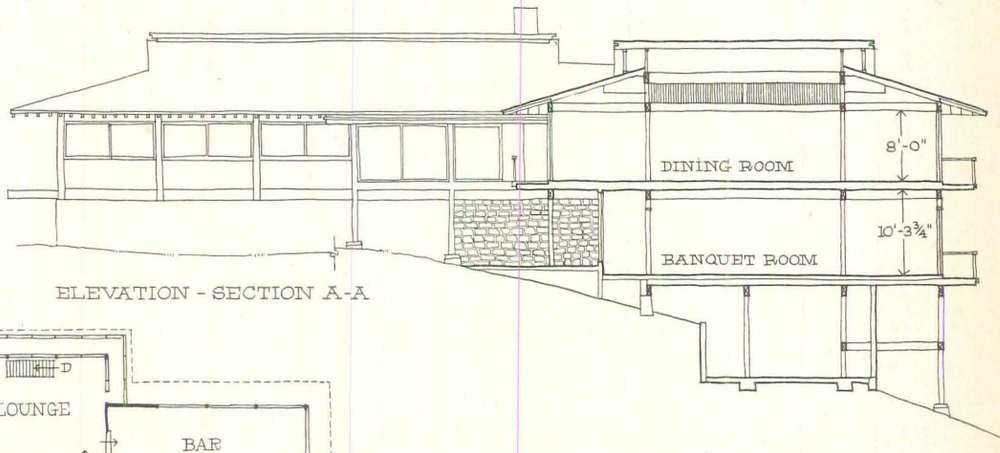




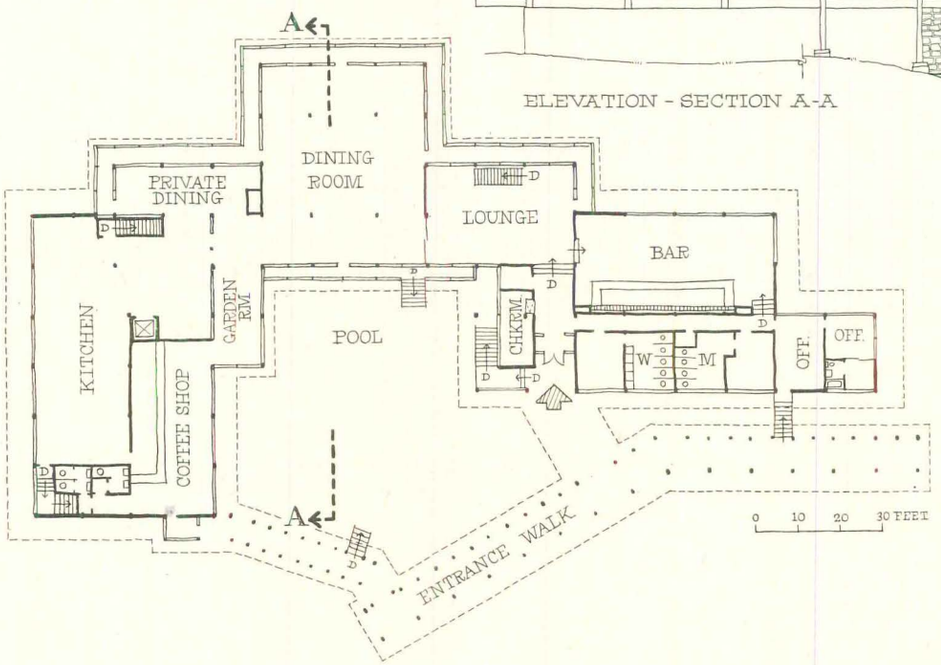
Winding road ascends hill to motel units, combined in four-room and eight-room buildings. On one side of the hill is New York State Thruway; on other side is well-traveled Route 17. Site plan (above) also shows eventual development.



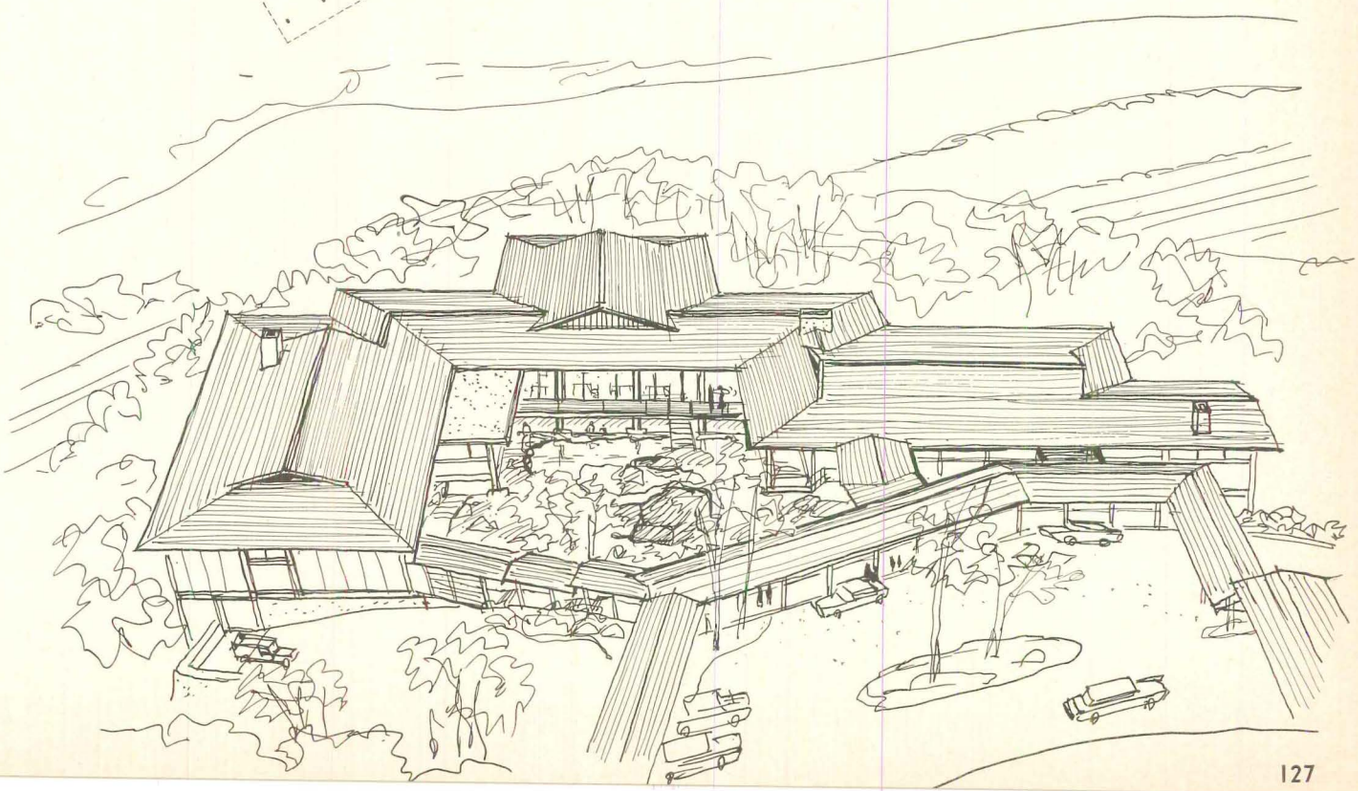
Restaurant now under construction (see site plan on opposite page) will be built toward the view on the downhill side and around a Japanese garden on the approach side. Architects: Junzo Yoshimura and Steinhardt & Thompson.



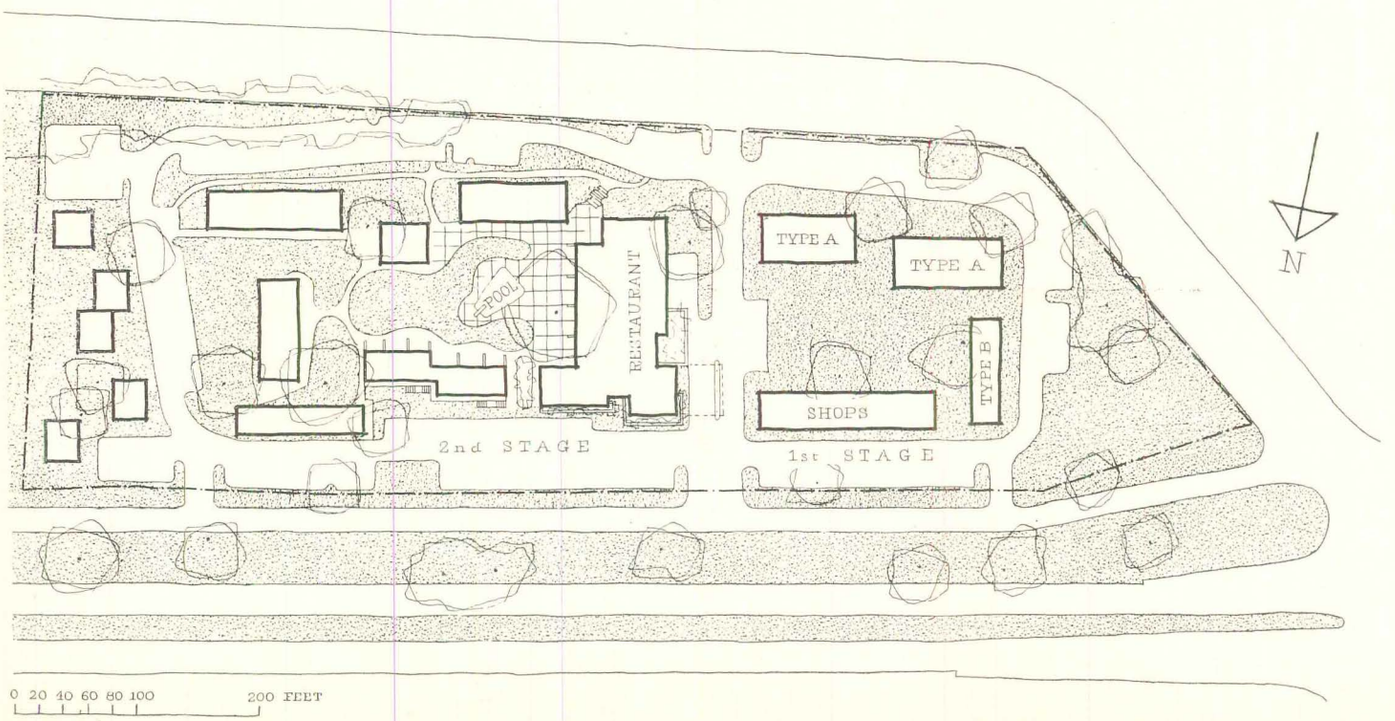
ELEVATION - SECTION A-A

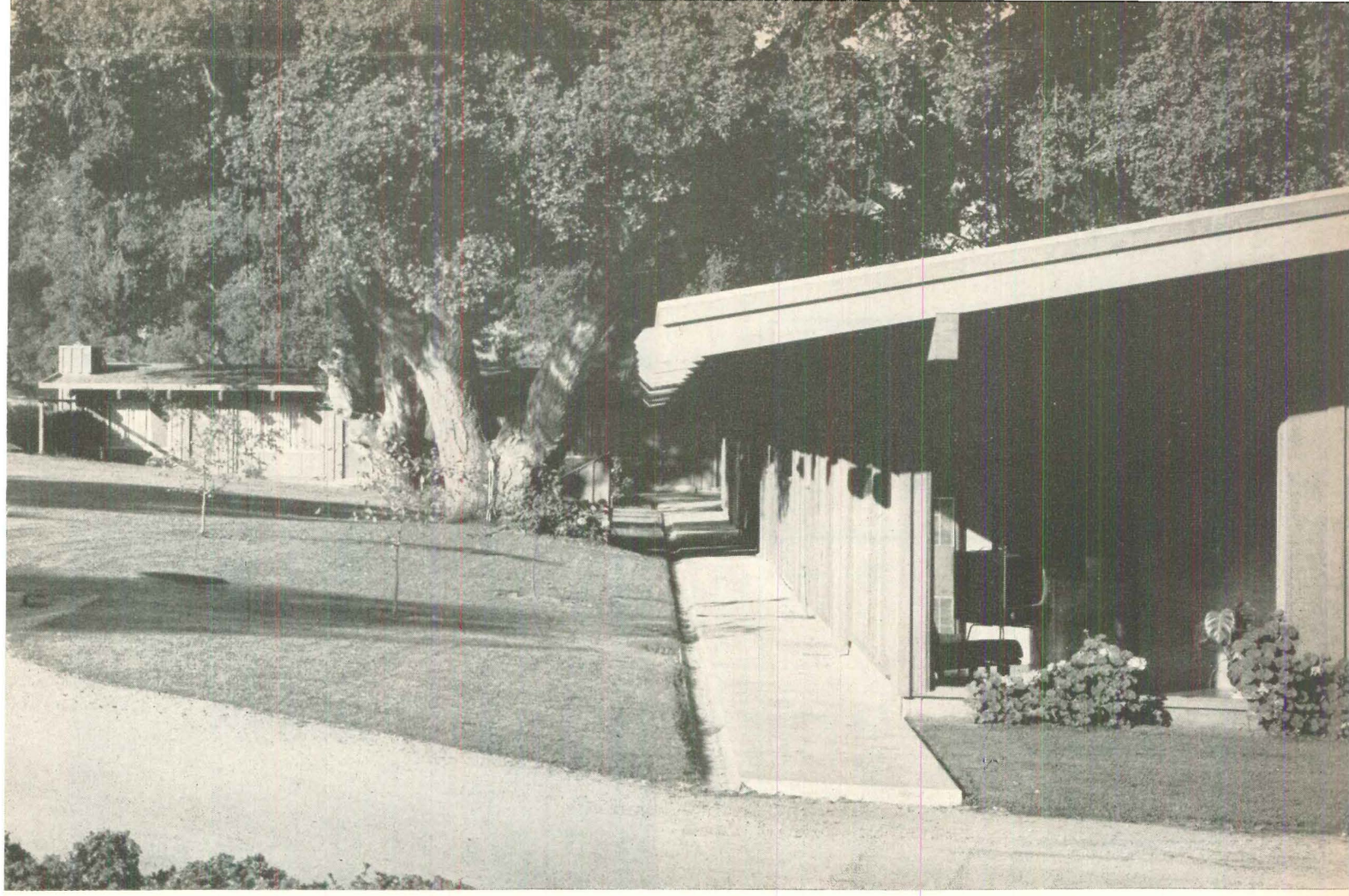


Garden will be at intermediate level, so diners on level above can look down over it, and those below can see it at about eye level. Structure is laminated timber.



2. WEST COAST MOTEL





Outdoor hallways lead under wide overhangs down sides of bedroom rows; parking is consolidated in lots.

IS A COUNTRYSIDE RETREAT

Mark Thomas Inn, a mile from Monterey, is fitted carefully into a low, shaded California landscape

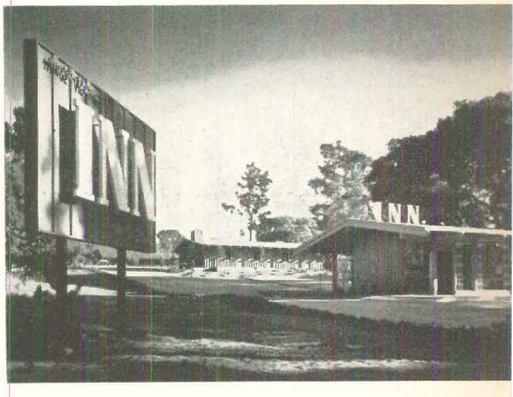
ARCHITECT: John Carl Warnecke
LANDSCAPE ARCHITECT: Lawrence Halprin
STRUCTURAL ENGINEER: John A. Blume
GENERAL CONTRACTOR: Haas & Haynie

This motel, across the country from its companion on these pages, is amazingly similar in many ways. Sprawled on a soft slope, it too, presents a large ingredient of natural grandeur, simply through preservation of several magnificent century-old oaks in its midst. It has wide, pleasant overhangs, is dressed in vertical wood siding and has a number of glass walls. It is also something more inside than most motels try to be. Its rates are too—up to $14 per day for a luxury double with fireplace—but it is a popular success.

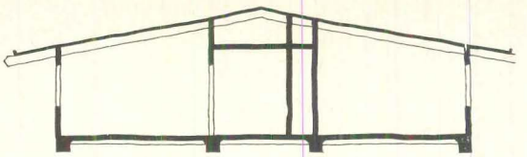
In addition to the first-stage buildings shown above and on p. 130, the project includes a restaurant, cocktail lounge and office, a large swimming pool, cabana dressing rooms, a pair of conference rooms, and 28 additional large bedrooms. With the completion of the second-stage construction, this motel, like many others in resort areas, emerges from a roadside necessity to a retreat beyond the suburbs. The operating theory of this successful hostelry differs from that of the eastern motel; the Mark Thomas, sited beside a golf course, is consciously growing into a resort hotel with seasonal trade.

The first 30 units were built on a stiff time and money schedule. They had to be completed in three months and cost under $170,000. The breakdown: general construction, $130,000; mechanical, $28,000; electrical, $9,500. The site is approximately six acres. Automobiles are grouped, not parked beside bedroom doors. Says Architect Warnecke: "The design theme was simply that the beauty and sculpture of the trees should dominate; the simple wooden structures should fit quietly in between."

PHOTOS: MORLEY BAER

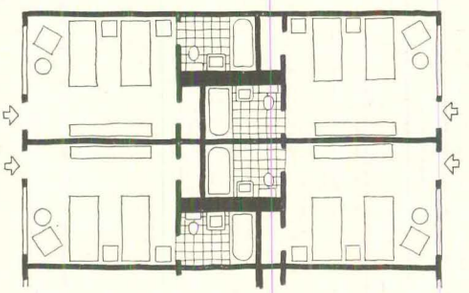


Sign is modest and in same materials as the architecture, a pleasant projection of the building group's personality.

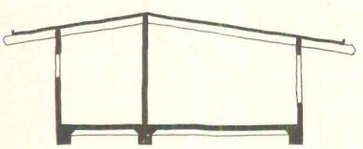


SECTION

PLAN

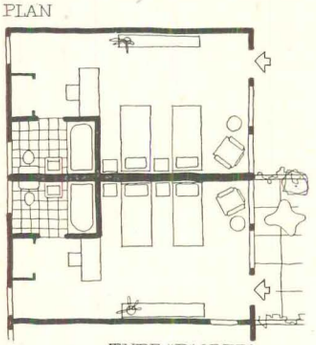


TYPE "A" UNITS



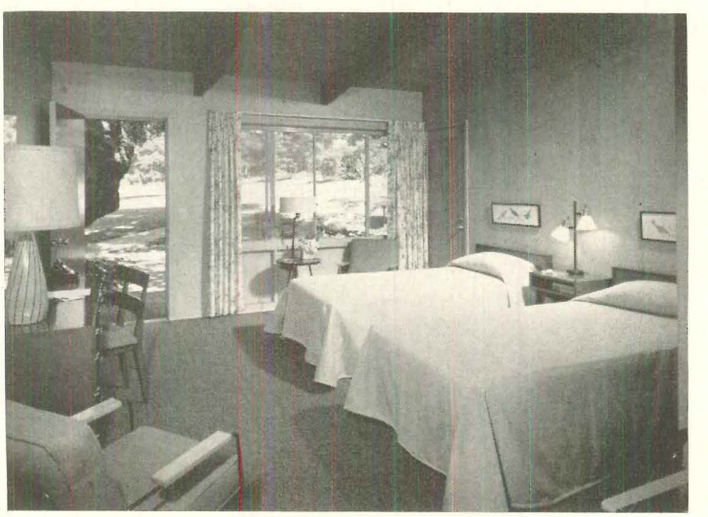
SECTION

PLAN



TYPE "B" UNITS

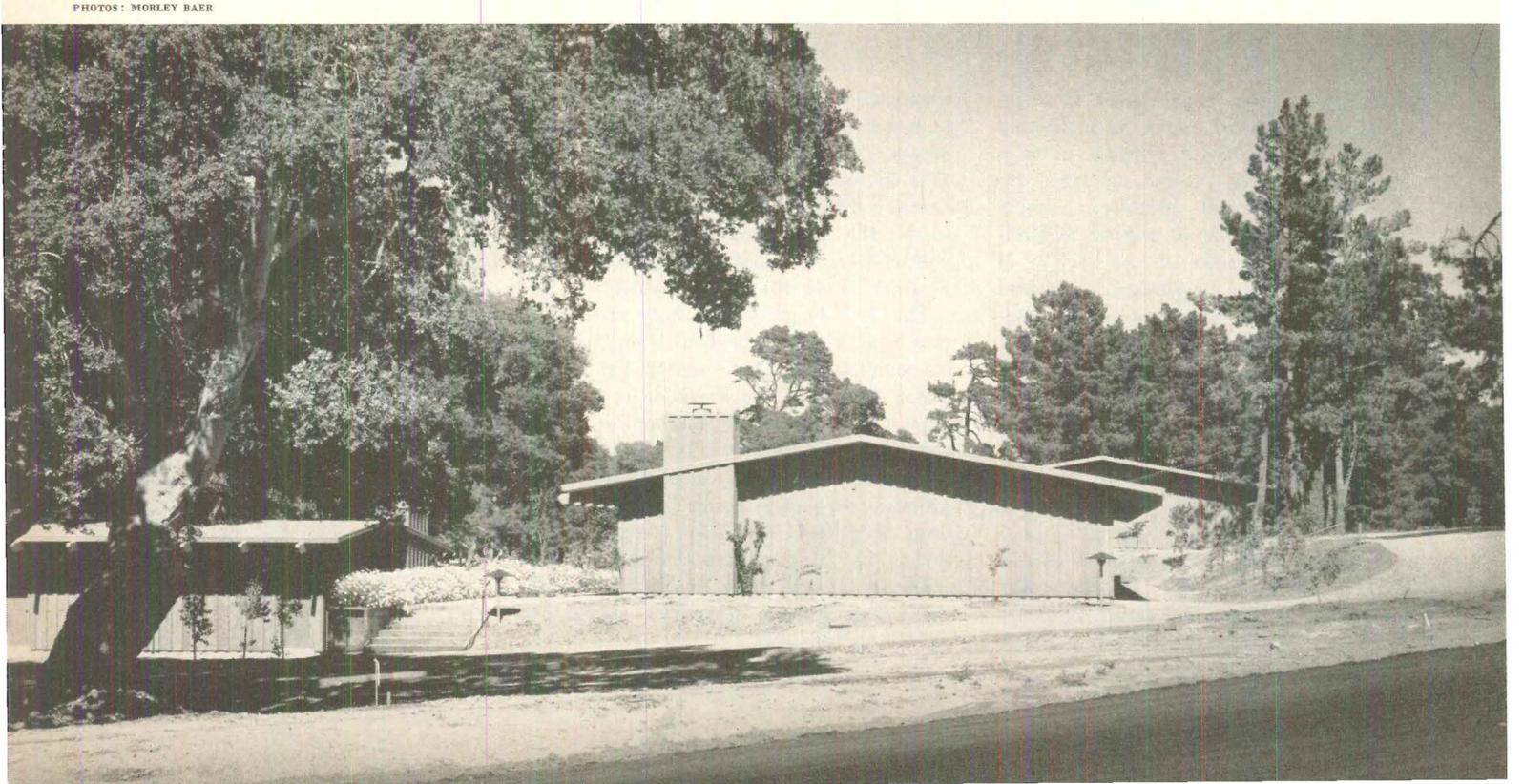
Reception lobby in motel office is finished in gum plywood, stained. The flush doors are painted.



Double room is in back-to-back wing (plan above, left). The concrete floor slab is carpeted wall to wall.

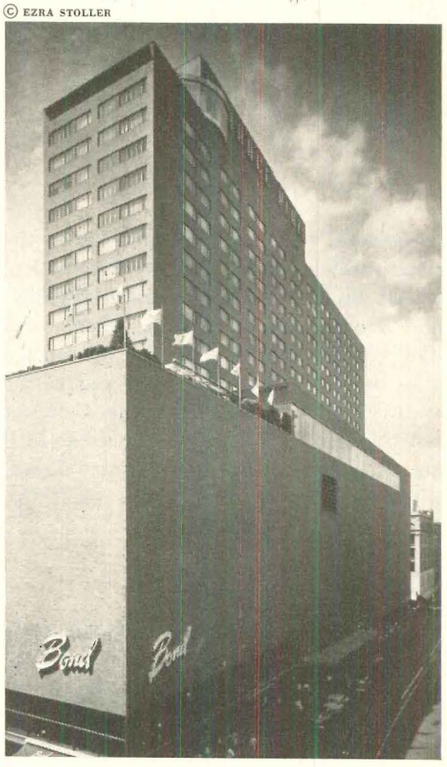
Exterior walls are redwood board and batten. Roof is redwood, stained to blend with bark of adjacent oaks. Large buildings (immediately below) contain small Type A apartments back to back; smaller buildings (left, below) contain larger Type B units.

PHOTOS: MORLEY BAER



In 1948 a new kind of hotel was opened in Cincinnati with great fanfare. Today, a second look reveals that its art has proved even more successful than its architecture, and that its finances are all right, too

TERRACE PLAZA REVISITED



A windowless pedestal of stores and offices piggybacks an eleven-story hotel. At the setback is a landscaped terrace; at the top, the circular Gourmet Room.

For the past eight years, Cincinnati has been looking up and squinting at one of the most unusual buildings in all the US—the Terrace Plaza Hotel. Mounted on a pedestal of store and office space, with a lobby eight stories above street level, it has been a wonder of the Ohio Valley, and its art and strikingly modern interiors have made it a name to be dropped by travelers from coast to coast.

When the Terrace opened in 1948, FORUM called it "a radically new solution both in design and financing" (AF, Dec., 1948). The years since have put that solution to test, although up to now, outsiders have had scant chance to see the actual results. Last month, however, on the heels of the building's sale to Hilton Hotels Corp., FORUM went back to Cincinnati to see specifically how the Terrace had worked out, both as a design and as a business proposition. On the whole what it found stacked up favorably—with some important qualifications.

The Terrace Plaza (new name, the Terrace Hilton) was the first hotel attempted by Architects Skidmore, Owings & Merrill. The owner, Thomas Emery's Sons. Inc., an old-line family firm that holds some of the choicest real estate in downtown Cincinnati, decided on it only after a period of long deliberation. Emery had no set intention to build a hotel, but chose it in the end because it seemed the most profitable type of space to combine with the store facilities it was committed to put up, under long-term lease, for J. C. Penney Co. and Bond Clothing Stores.

As it emerged from S-O-M's boards, the Terrace Plaza building filled the whole of a 90′ x 400′ site with a windowless base, of which more than three quarters of the space went to the Penney and Bond operations (part of the sixth and seventh floors was set aside for offices for other tenants). Above this, the architects raised their hotel, taking all of the required zoning setbacks at the eighth-floor level and climbing upward with another ten stories of guest rooms. At the top, they perched the now-famous Gourmet Room.

Although its over-all concept was the building's most startling innovation, the design sought throughout to prove that beauty and freshness could go hand in hand with practicality. The 360 guest rooms—planned and furnished with an eye to bare-bones maintenance and replacement—were fitted out with built-in furniture, integrated lighting, laminated plastic surfaces, motor-driven day beds that moved in and out at the flick of a switch, and movable walls that converted two rooms into one suite (cost of the rooms ran a good $600 above standard). The lobby and public space used tons of stainless steel and marble, textured fabrics and leather, all with an idea to trimming upkeep. There were three restaurants and a cafeteria, a lounge and a sheltered "quiet" lounge, a mobile by Alexander Calder, murals by Joan Miro and Saul Steinberg, an outdoor terrace for summer dining and winter ice skating, and air conditioning throughout.

The payoff

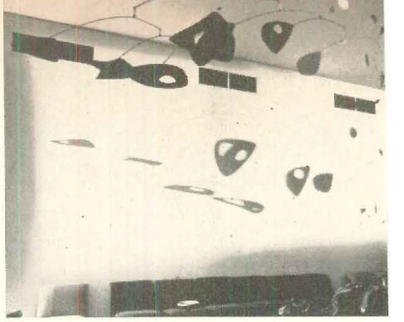
Based on what can be seen now, all this has paid off—not spectacularly to be sure, but apparently well enough to justify the experiment.

There is no way of telling down to the dollar how good an investment the Terrace Plaza has been. The people who know the actual figures won't talk about them. However, the deal with Hilton—a $25 million package which includes the aggregate rental from a 25-year lease on Emery's older hotel, the Netherland Plaza—reveals some facts, and from them real estate men have been able to make educated estimates about the rest.

The finished cost of the Terrace is known to have run close to $16 million—

PHOTOS: © EZRA STOLLER

Dining room overlooks landscaped terrace eight floors above the street.



Mobile by Calder is typical of the hotel's good art.

Mural by Miro is in rooftop Gourmet Room, is as well liked today as it was on opening day.

about double the anticipated outlay when the building was first announced in 1945. The sale to Hilton, which takes effect November 1, probably brought about $12.5 million, or so local sources think. However, it's no secret that the Terrace has been depreciated heavily, perhaps as much as $500,000 a year. Thus the estimate is that its book value today is in the neighborhood of $11.5 million to $12 million. On this basis, Emery made a modest book profit on the sale, though there has been no market appreciation over original cost. (John J. Emery, head of the Emery firm, has hinted that the big reason for the sale was to free his tied-up capital and has said the company is now in a position "to consider seriously other major improvements in the downtown field.")

On a year-to-year basis, the building may have made a profit, too—though again a modest one. The hotel part of the building has definitely been in the black; John Emery, himself, says that. Occupancy has been running at about an 80% average, which though less than the 85% high of the first year, is still better than that of the sister Netherland. The Gourmet Room has been a tremendous success, and so has the cafeteria, which has been serving 3,500 to 4,000 meals a day out of a kitchen originally set up to handle about 2,500. Though the hotel's operating staff has been big—close to 500 people, partly as a result of the booming cafeteria operation and a heavy room-service business—it has been whittled down some this year by the replacement of the eight elevators with self-service cabs.

Fair wear and tear

Whether the commercial space has turned in a profit, though, is a real question. The leases to Bond and Penney are based on a volume percentage, with a fixed guarantee. Presumably, the guarantee has assured at least a breakeven on the rentals. But it's doubtful that either has been paying any overage. Though both stores say they're well satisfied with ther locations, the trade figures that neither has been any threat to the title of most profitable branch in their chains.

Looked at more closely, from the standpoint of daily housekeeping and repairs, the extra cash and care that went into the building's planning seems to have been pretty well justified. John G. Horsman, general manager of both the Terrace and the Netherland, feels that on the basis of eight years experience the things the designers did were correct. Maintenance has been easy and replacement "practically nil," Horsman says, though he admits that "you don't expect a building to go to pieces in the first eight years."

On down the line, the employees bear out the fact that there have been few, if any, serious trouble spots.

"Sure, if you dress up a place with special features," one of them says, "you have to figure on giving them some special attention. People play with the motor-driven beds, for instance—run them in and out. It's a small motor, and we've had to replace some parts. Then, too, the seals broke on two of the double-pane windows in the Gourmet Room. But they're also something special; they're curved. We've had no trouble with glass any other place. The color-changing mechanism for the lights that play on the plastic planes behind the Terrace Room bar went on the fritz, and cost about $500 to replace. But you have to expect things like that, and, anyway, the features are worth it. They give the place its tone."

After eight years, the decision to let the architects choose top-rank muralists to decorate the Gourmet and Skyline Rooms seems to be fully justified. The Miro mural in the Gourmet Room is still one of the finest in America, delightful to the general public and satisfactory to the critics, which makes it a rare combination, indeed. Saul Steinberg's wall for the Skyline Room comes in a close second, and its good-humored kidding of Cincinnati is as much a treat today as it was at the start. On the whole, both the Gourmet and Skyline Rooms, with their great feeling of openness, and the Terrace Room, with its view of the outside plantings, remain subtly effective.

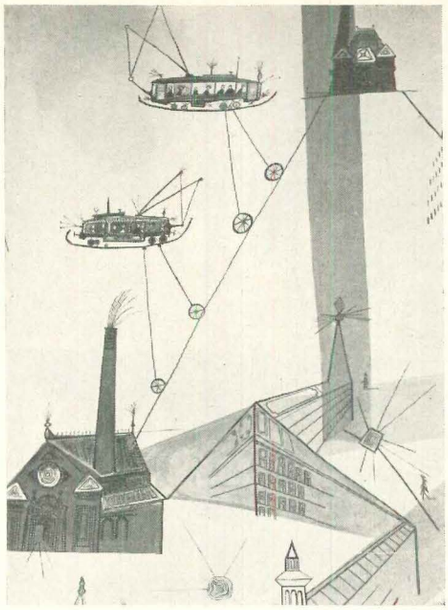
Purity and restraint

The public probably still finds the decor of these rooms and the lobby a little too pure and restrained for its taste. It undoubtedly thinks this way of the guest rooms, too. But, to the credit of the management, it has retained the integrity of the scheme. The Terrace today remains what it was—a welcome relief to the taste that has wearied of mass-produced Dufys and Maxfield Parrishes.

Though there are signs of wear and tear in the hotel today—the most noticeable being a washing-out of its original color sharpness—the over-all effect is one of reasonable freshness. Some materials obviously haven't worked out well—the marble-topped tables in the Terrace Room show chips and stains, the leather on the bar rail has discolored and split in places, the corridor carpets show wear, and some of the fabrics have faded. But the general air is still decidedly trim, and the guest rooms look almost as unmarred and comfortable as they did in the beginning.

Downstairs, though, in the seven stories of store and office space, the picture is somewhat different. Bond and Penney both say publicly that their operations have been "very satisfactory." But privately, they've made it clear that they're something less than delighted.

The main trouble seems to be operating costs; heat and lighting have been running



Mural by Steinberg decorates Skyline Room on main floor.

Penney's lighting fixtures have been a problem because they catch dust and are difficult to clean.

Bond's windows, two stories high, have proved to be too big.

PHOTOS: (ABOVE & BELOW) LISA LARSEN; (RIGHT) © EZRA STOLLER

a lot more than they should, and Penney for one is reported to be in the midst of a study now to pin down the reasons for it. Lighting maintenance has been a problem, too; both stores, though they used their own designers on the interiors, have found their overhead fixtures to be dust traps, and unusually difficult to get at and clean. Bond, which built light panels into the ceiling in a system somewhat similar to the one used in the Fifth Ave., New York, branch of Manufacturers Trust Co., frankly wishes it hadn't.

There have been other complaints, too: that the two-story windows at Bond are handicaps in display, and that the interior light and sunlight fight each other; that there is a needless waste of space in the envelope allotted to the Penney store, footage that can't be used at all for selling; that a freight elevator was made far too small for true efficiency. Against this, though, neither store shows signs of wanting to get out of its lease, and both could probably be close to happy if some changes were made.

Actually, the people who have been responsible for the building feel that there isn't too much they would change, even if they had the chance. William Brown, for instance, who was SOM's partner in charge of the project, feels that the main thing that hits him now is that the design may have been too dense. He thinks a way might have been found to open up the site a little, although he concedes he doesn't know exactly how it could have been done, given the requirements and the shape of the plot. Apart from this—and the thought that had curtain walls been more advanced in 1947, they would probably have been used—Brown sees no major alterations.

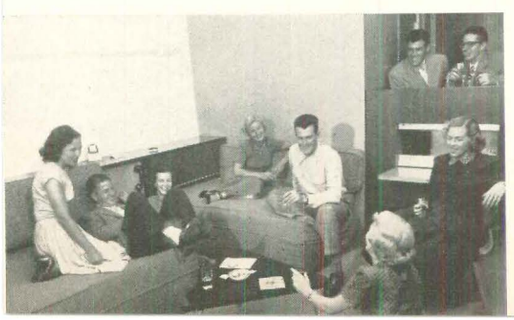
Inside, hotel people feel that the addition of some public rooms would have helped. The concept in the beginning, of course, was that the Terrace would simply be a dormitory annex to the Netherland, which had more-than-adequate dining and meeting space. But in the years since, companies have shown that they like the prestige surroundings the Terrace can offer for luncheons and small meetings. As a result, the hotel has been using suites, corner rooms, its quiet lounge, and even some of its restaurant space to supplement the two small parlors it has. It has made do, but the setup has been something less than ideal.

Rates: too few

In terms of guest rooms, the traffic might have been heavier, too, had there been a greater variety of room rates. The Terrace, which has the highest average rates in the city, has only three single accommodations—a small room at $8.50 (one of these to each floor); the standard room at $10.50; and corner rooms at $16. Most hotel men agree that selling out any house at only three rates is tough indeed.

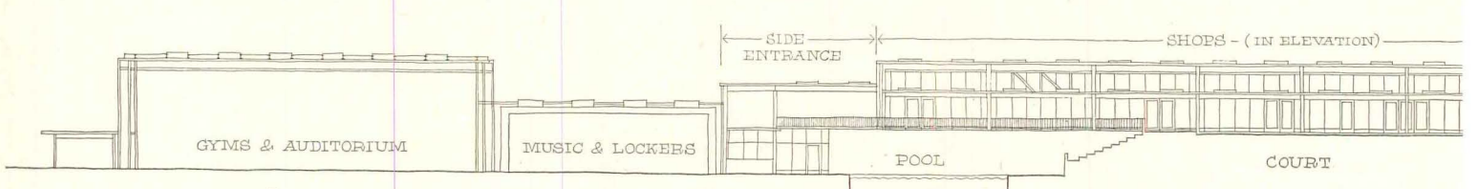
In the end, though, the important point is not whether the Terrace could have been made better, but that it was made as well as it was. Any assessment of it today must, in the last analysis, chalk it up as a success. To an aging downtown, it has been a breath of freshness; to tired travelers, a delightful respite. Even if it hadn't earned its keep, that would have counted for a great deal, indeed.

Bedroom, also designed for use as parlor, easily accommodates a party.



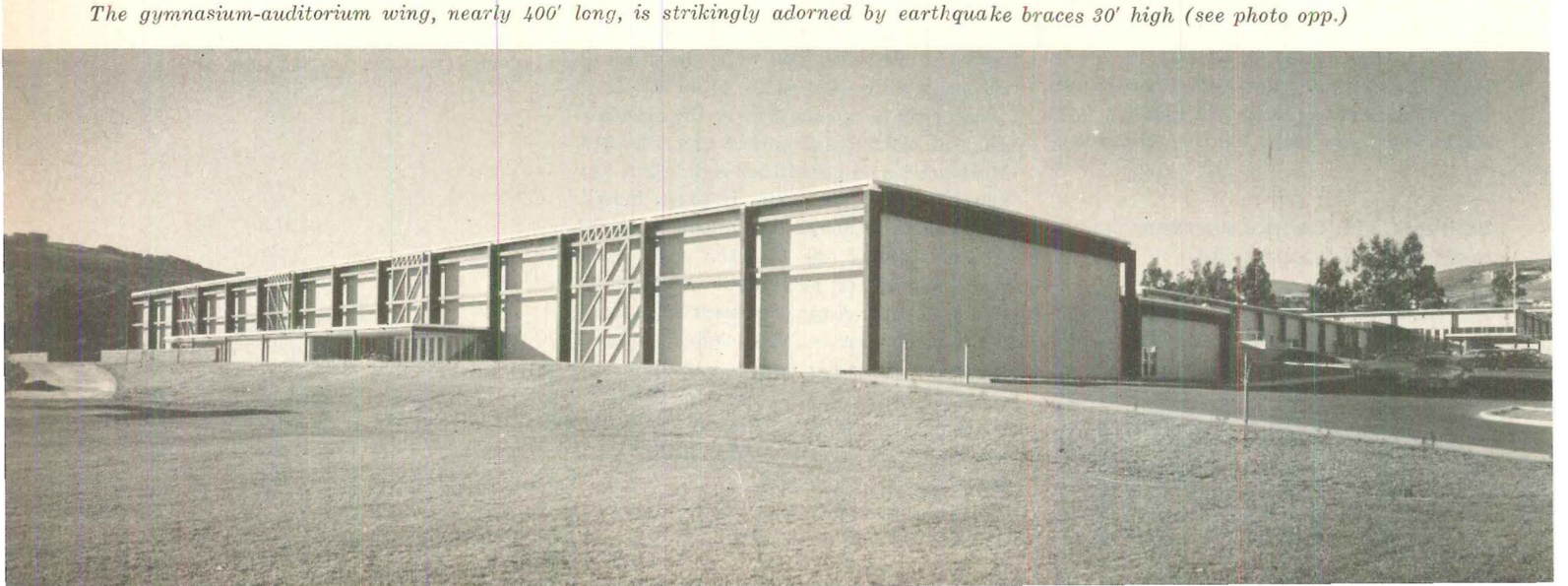
Like a classical atrium, the broad, landscaped passage between classroom blocks offers a grand entrance through to the main court

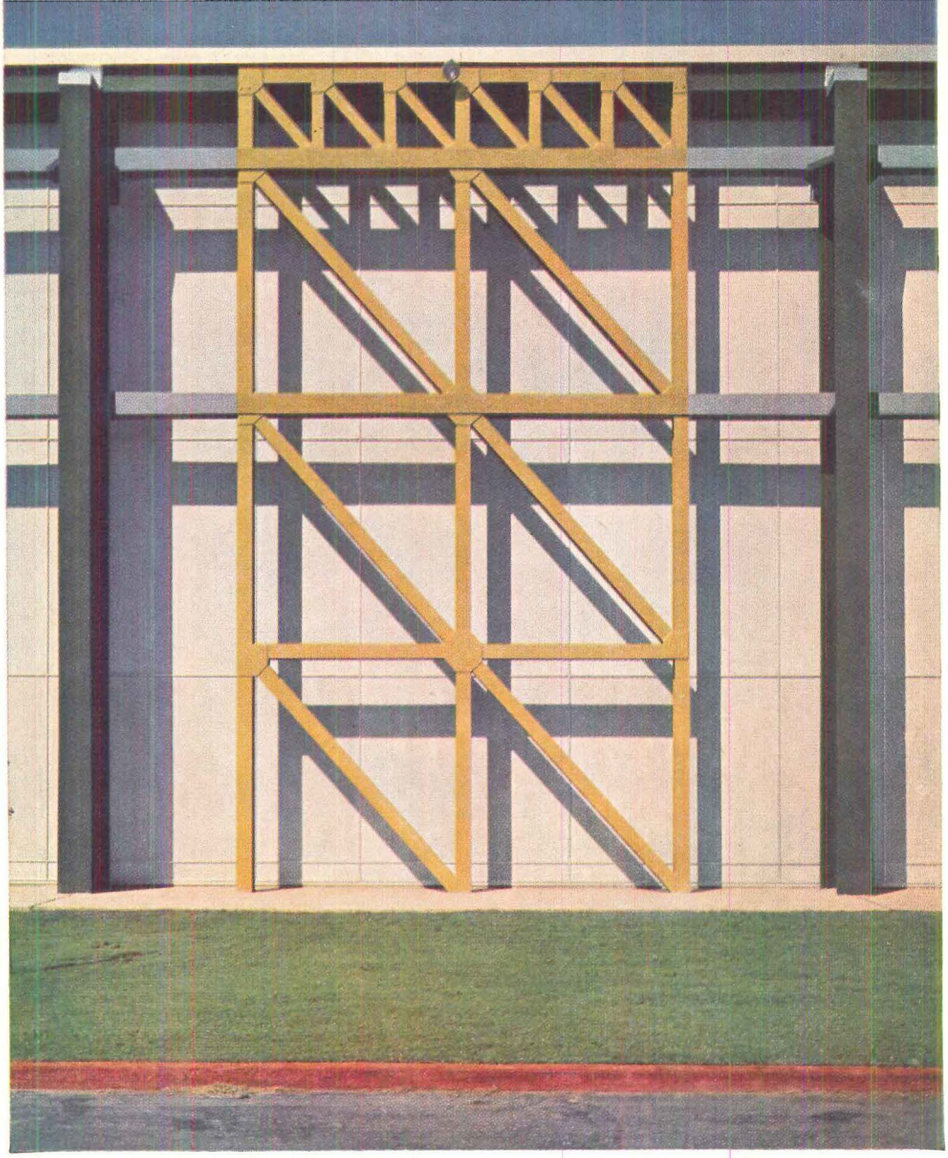
HILLSDALE HIGH SCHOOL, San Mateo, Calif.
ARCHITECTS & ENGINEERS: John Lyon Reid & Partners
Burton Rockwell, partner in charge
Alexander G. Tarics, structural engineer



SECTION ON ℄

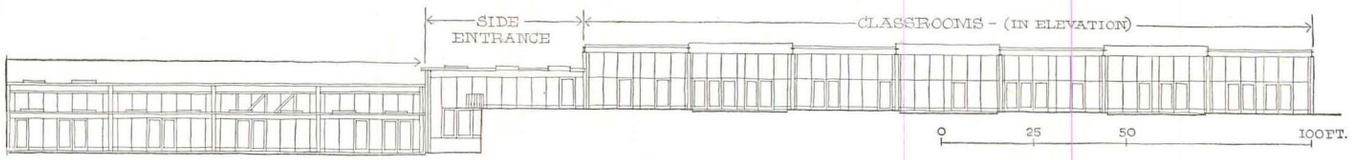
The gymnasium-auditorium wing, nearly 400′ long, is strikingly adorned by earthquake braces 30′ high (see photo opp.)



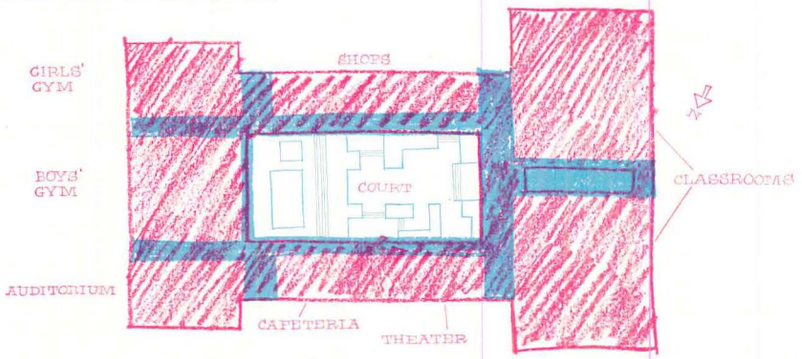


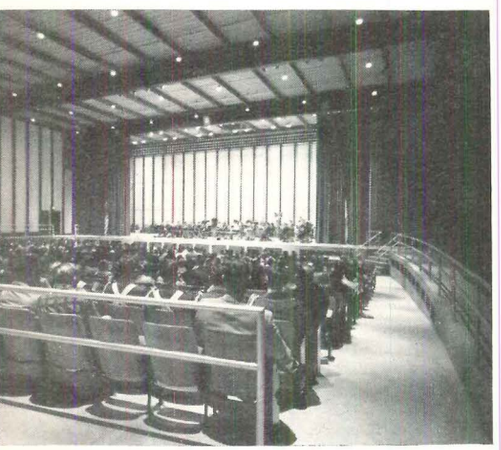
PHOTOS : ROGER STURTEVANT

MODERN SCHOOL, GREEK SPIRIT

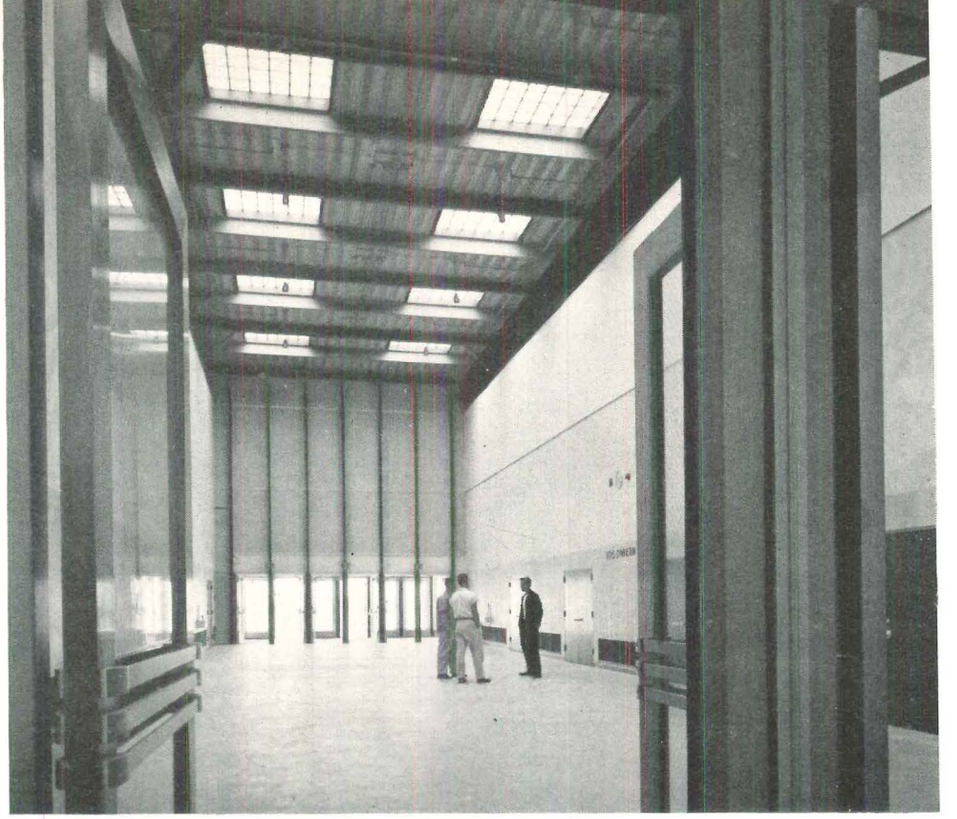


Reported twice before (for its loft type plan and its technical innovations—AF, Oct. '52 & Jan. '56), the Hillsdale School is now complete and more interesting than ever. Its strong, bold classicism is saved from oppressiveness by proportions, detail and color. It is best when full of children.





Big auditorium seating 1,000 has sloping floor scooped from ground between walkways at stage level on either side. Steel roof deck is exposed as ceiling.



Lofty hall serves crowds entering or leaving auditorium (left) and boys' gym (right). Doors in background lead to lower access road and playfields.

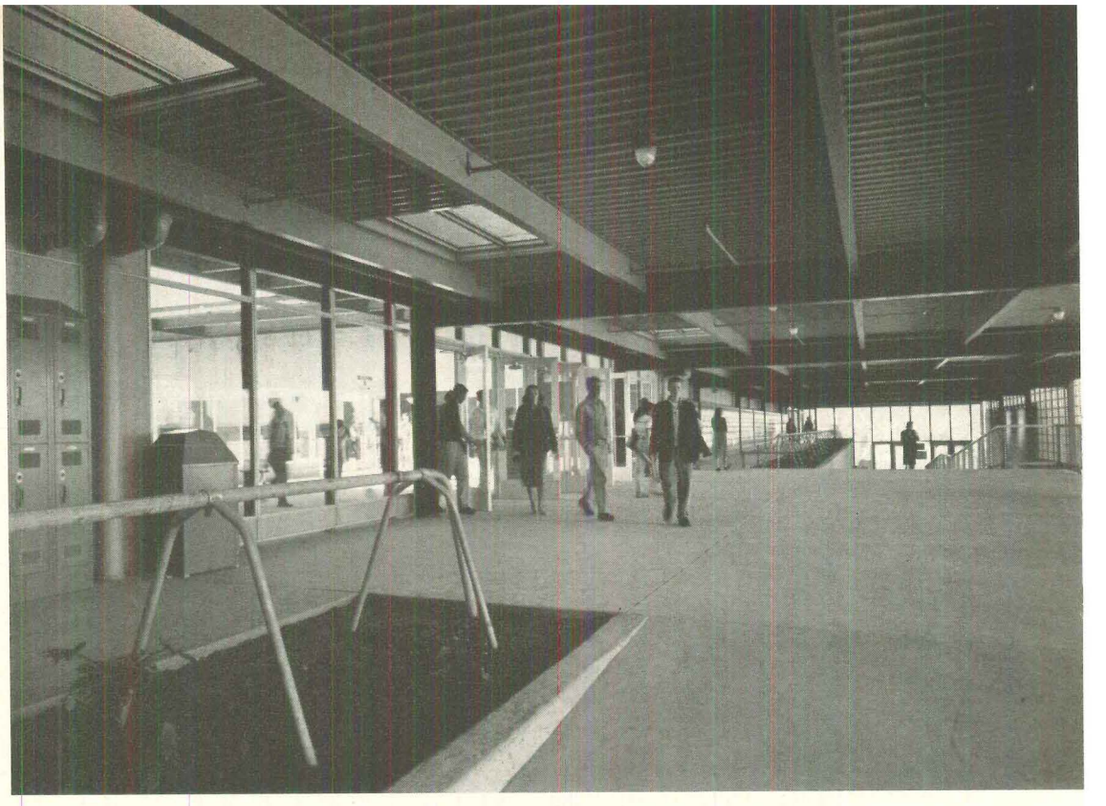
Little theater, seating 300, has handsome earth colors which make it warm and intimate. Wall is of cement asbestos panels and glass set in steel mullions 4′ apart.

Boys' gym is lighted through 6′ x 6′ prismatic block skylights, which cover all parts of school except auditorium and theater. Note folding bleachers on sides.

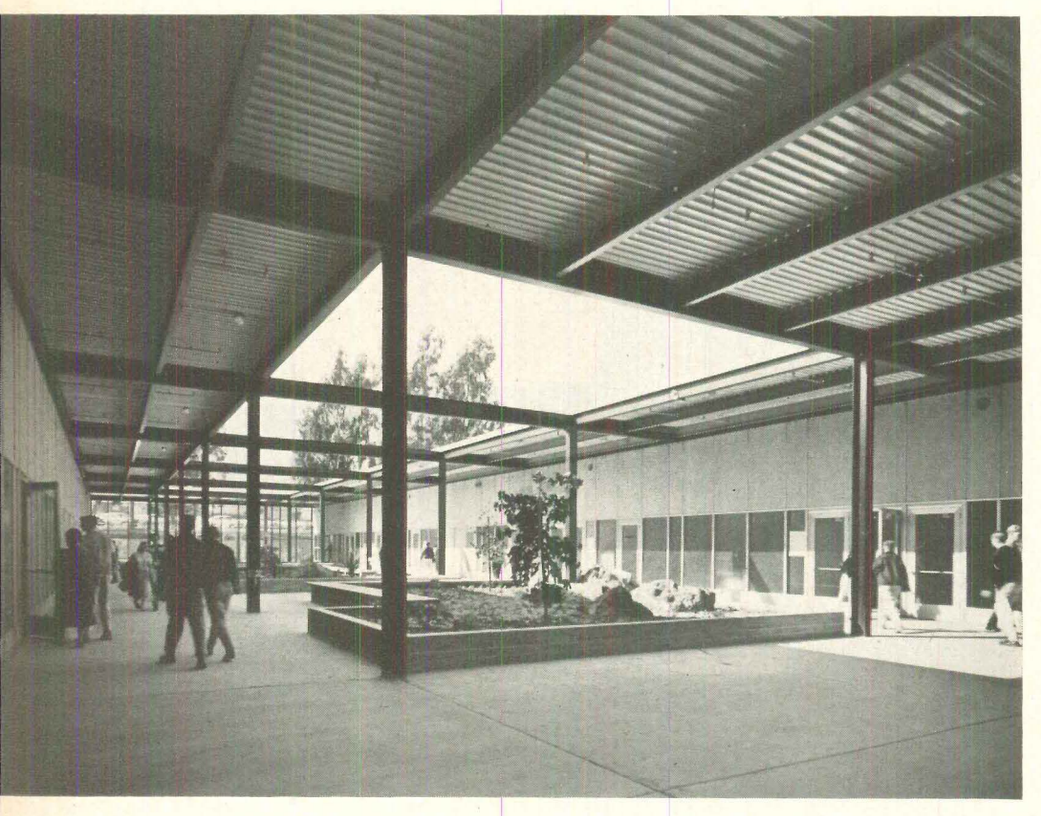
Inside, the structure is the decoration

Some school architects today make it a point not to cover the structural and mechanical "guts" of their buildings in the interior. Neither do they allow stock beams, ducts, pipes, etc. to be changed or distorted by new designs which they would consider "arty." But they do try for a rhythmic arrangement of these necessary commonplaces, as expressive as ship interiors. At Hillsdale the architects have followed this style—but only in large rooms that can absorb it. In smaller, more intimate places like classrooms or corridors, no one is left to feel that a duct might fall on his head: walls and ceilings get their traditional smooth dressing.

Zigzag walls of classroom corridors break long, drab perspectives, reduce echoing between parallel surfaces, provide extra milling-around space in front of classroom doors.



Outside, many views and levels within a serene classical frame

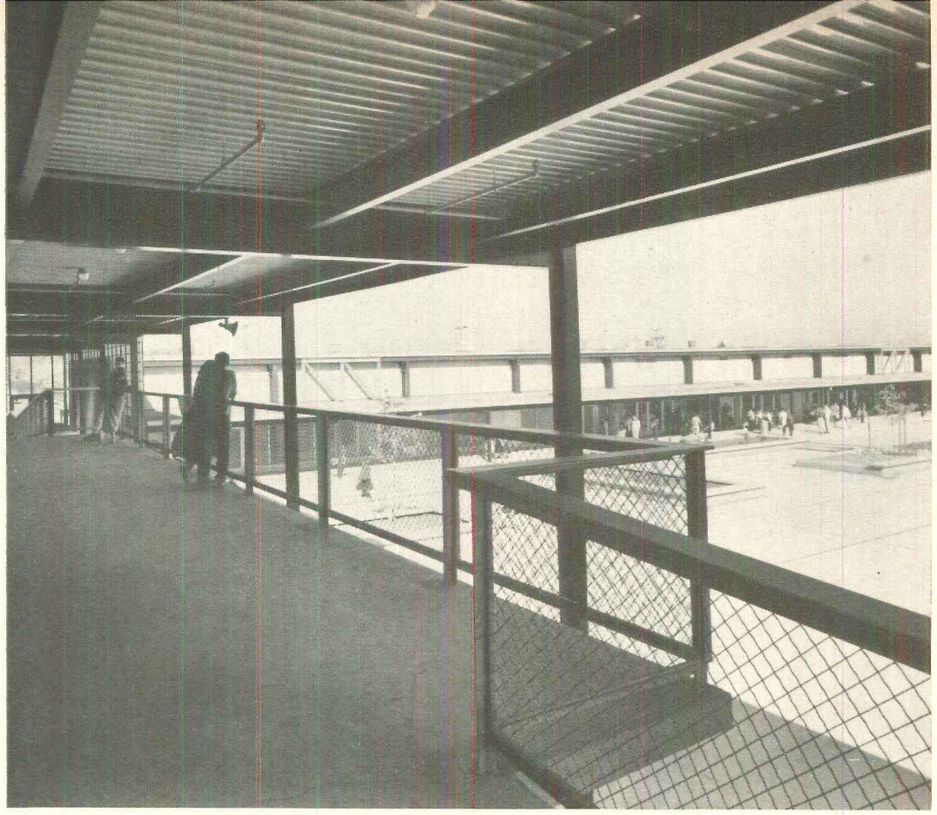


As the ancient Greeks did on the Acropolis, the architects of Hillsdale made an asset out of a hillside site. Changing levels provide lively up and down views, and from the classroom terrace one can actually see out of the school's big enclosure over the top of the taller gymnasia, located farther down the hill. In galleries around the school, students can stroll and look down into a central landscaped forum, or enter it to meet between classes. This is not merely a picturesque assortment of buildings climbing disjointedly up and down a hill. Its classic quality lies in the deft handling of a diversity of levels within a framework that makes a serene and orderly profile against the sky.

Roof overhangs around entrance court protect outside walkways. Raised planting areas with built-in benches provide a pleasant break for students.

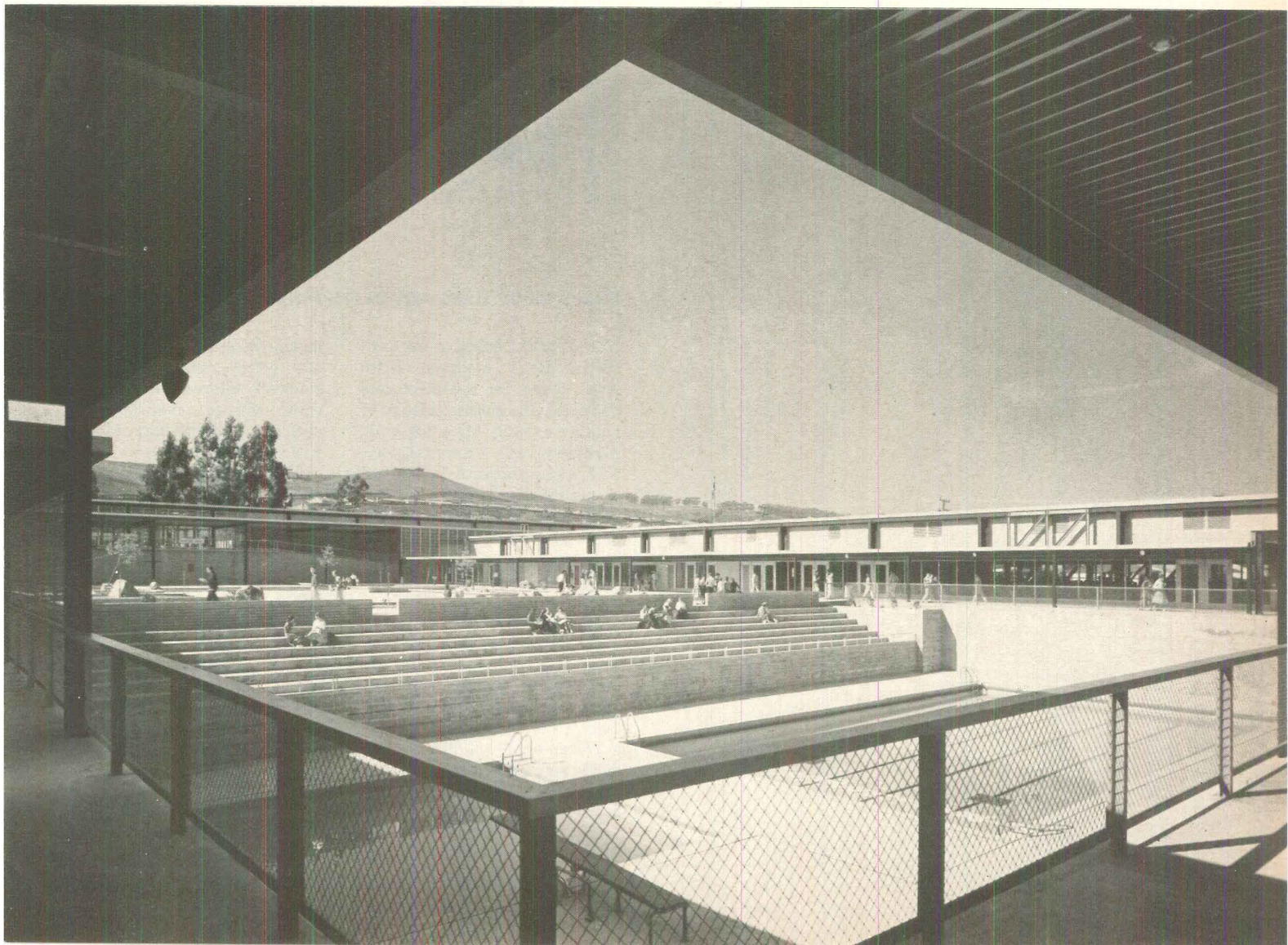
→

The great court takes advantage of the sloping site to gain a natural stadium. Here separate pools for swimming and diving are a major focus of the school.



Wide terrace leads under shelter from entrance court (left), down ramps at sides to main court below. The view from this terrace (photo right) takes in the entire school and the bay beyond.

Broad roof extends beyond upper-level terrace, sheltering ramps (right) which handle traffic between classrooms and court below. Glass screen (left) is a windbreak.



BUILDINGS IN BRIEF — STORES

A quick look at ten new stores of various kinds which make noteworthy contributions to the proving ground of design ideas

MEN'S SHOP USES ART IN ITS POLITE SALES PITCH

New York's finest stretch of shops, along midtown Fifth Ave., poses for architect and merchant the subtle problem of making a really big pitch amid high-powered competition—with an appearance of greatest circumspection.

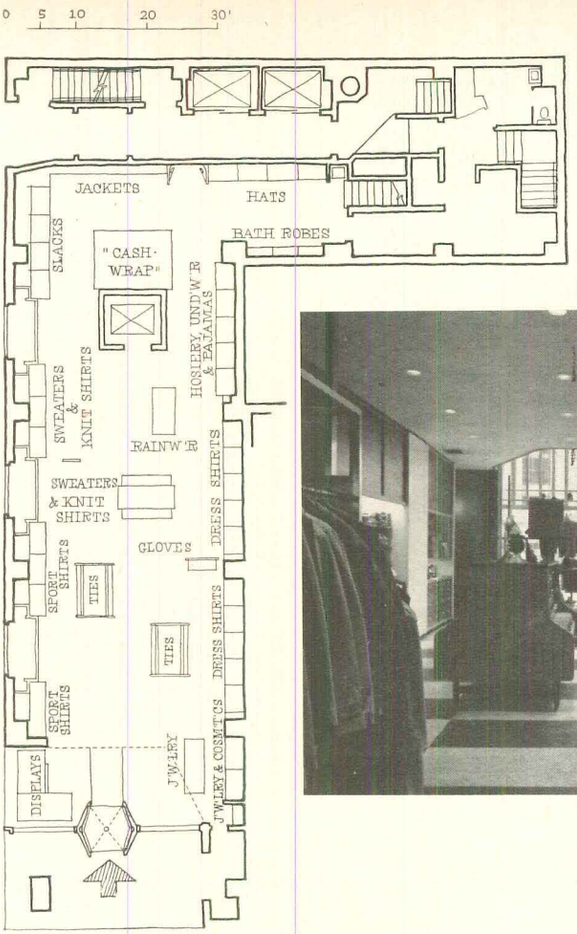
A new Fifth Ave. men's store by Architect Victor Gruen makes several sound contributions to the lore of the polite shout.

Most notable are its seemingly understated side-street show windows arrestingly set in polished granite and surmounted by mosaic murals. This is one of the first uses in a commercial building of the newly revived art of the mosaic tile mural (Ada Korsakaite, artist).

Also noteworthy are the signs, which are dignified without being timid. The extra sidewalk offered the public is both shrewd merchandising and a hospitable way to deal with a street corner.

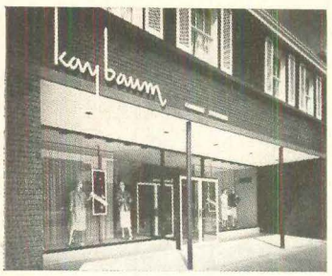
The two-story portico, which might be questioned on the esthetic grounds that it departs from the scale prevailing among neighboring storefronts, does possess other virtues. From the exterior, it makes a small store—almost invisible in its previous incarnation as a drugstore—appear much larger than it is. And on the interior it gives both the ground and mezzanine levels unusually pleasant, wide-open views to Fifth Ave.

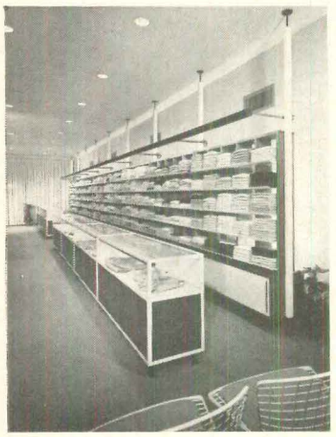
Cost: $196,000 with fixtures and lighting. Construction cost: $18 per sq. ft.



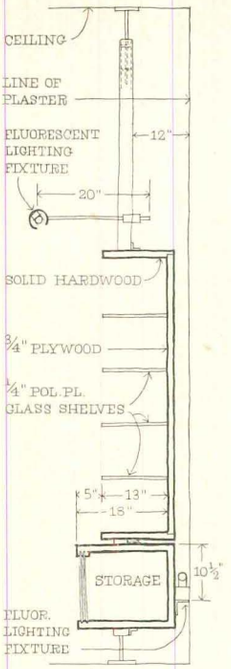
FIRST FLOOR

PHOTOS : MARC NEUHOF





PHOTOS: LENS-ART



STORAGE CABINET SECTION

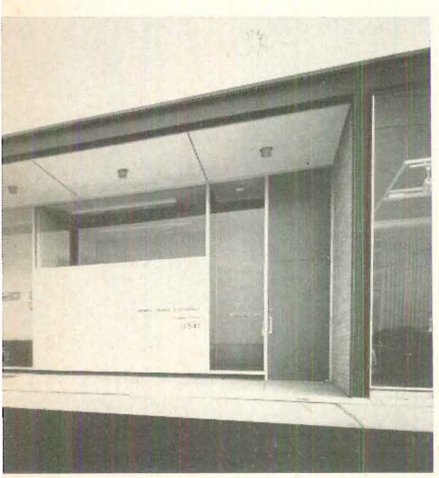
SPECIALTY STORE FORESHORTENED BY TWO-STORY SPACE

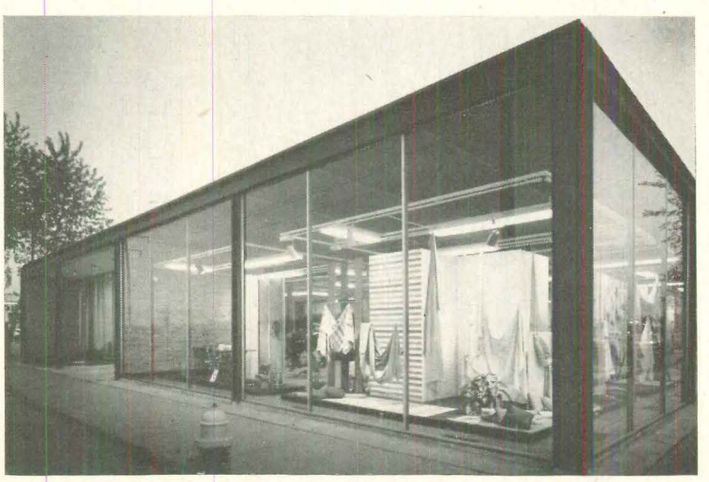
To disguise the bowling alley proportions (40′ x 150′) of this store, Architect Eliot Robinson omitted the second floor over the central portion, thereby creating a 20′ high ceiling. Then he put a bridge across it which functions as an interesting sculptural element as well as a connection between the two second-floor levels. The break in the ceiling plane defines the sales areas on the floor below, creates a source of high-intensity light in the middle of the shop and accents the "control center"—a counter accommodating telephones, microphone, cash register, box storage space and chutes to basement for waste material.

Another innovation: a patented modular system of vertical supports for the wall display fixtures permits overnight rearrangement of the selling floor. Between these adjustable supports (which are lightly secured to floor and ceiling) are suspended interchangeable plastic trays, hanging rods, shelves and storage units designed to create a handsome pattern in any combination.

The Kay Baum store is in Birmingham, Mich.

FABRIC DISPLAY ROOM ALSO DISPLAYS ITS STRUCTURE

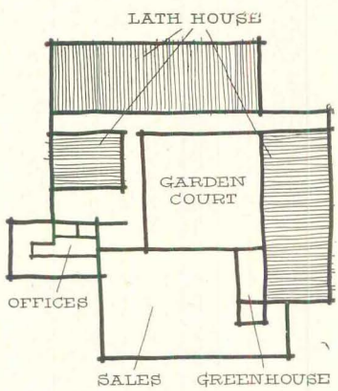




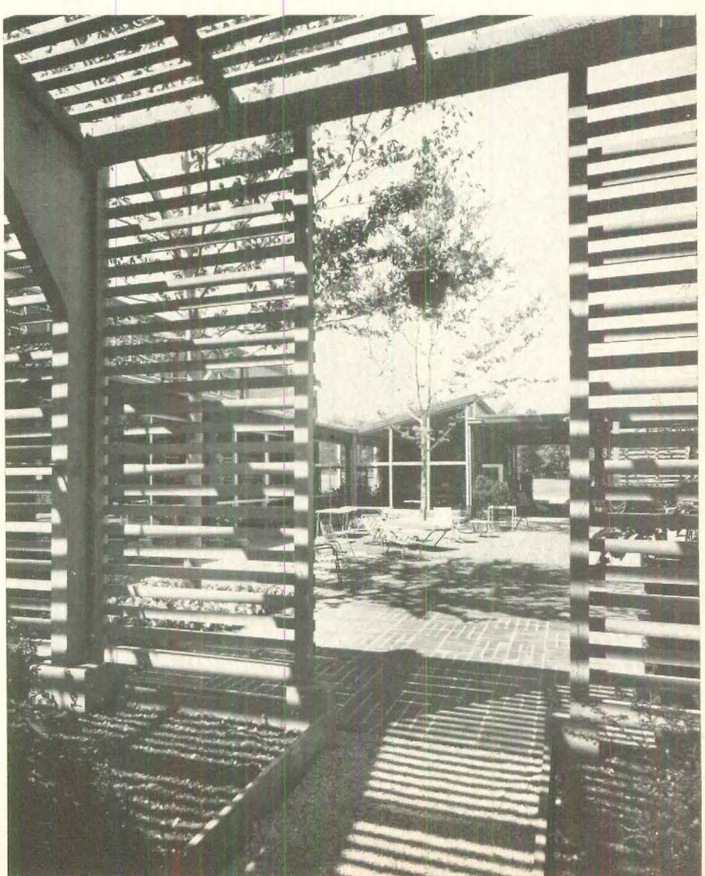
With only three months in which to design and build this showroom for Morris Sklare & Co. in Detroit, there was not time to worry much about finish. Outside, the building is simply framework and glass. Inside, too, the structure is exposed and so are the air-conditioning ducts. From this functional ceiling painted charcoal gray is hung a multi-purpose grid whch carries adjustable lighting fixtures and allows for the hanging of fabrics in an almost endless variety of ways. The result is a feeling of luxury and sophistication (an ideal atmosphere for the display of colorful fabrics) at minimum cost: $8 per sq. ft., including fees. Architects: Harry S. King and Maxwell Lewis, associate.

MARION A. RIVE

GARDEN CENTER IS ITSELF A GARDEN



Most nurserymen have their salesrooms in their greenhouses or in their hats. But not the Siebenthaler Co. of Dayton. It has a new building designed to display and sell plant materials and garden accessories and, in the first year of operation, a 90% increase in sales to prove the wisdom of its policy. Besides showing off its merchandise to advantage, the building is designed to show how the merchandise might be used in landscaped compositions along with various paving, wall and fencing materials and decorative accessories. Most of this salesmanship is designed into the central court which looks more like a patio in California than a sales floor in Ohio. A possible explanation: both the architect, John J. Matthias, and the landscape architect, Douglas Baylis, are California residents.



PHOTOS: DEARBORN-MASSAR

FURNISHINGS SHOWROOM BRIDGED BY OFFICE BALCONY

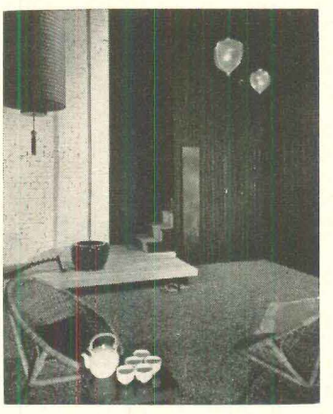
This effective display room in Seattle is the product of an old store, $5,800 cash and the labor and talent of its occupants, Miller-Pollard Design Associates. Its most noteworthy detail is the 600 sq. ft. balcony which accommodates the interior planning department and isolates it from the busy sales floor. To give the balcony the effect of being suspended across the 18′ high room like a bridge, the designers kept the balcony about 35′ back from the shop entrance and held it about 12′ from the rear wall. Light from a skylight at the rear of the building thus reaches the main floor level and back-lights the floating balcony. The balcony is carried on three exposed steel columns which are used decoratively and as supports for display fixtures (photo above). Collaborating architect: A. O. Bumgardner.

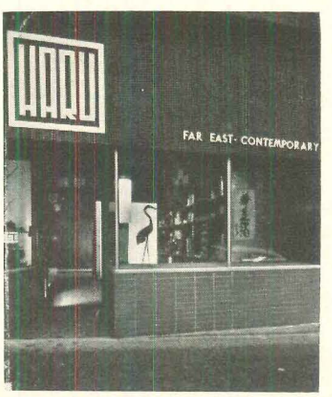
GIFT SHOP FEATURES WALL-TO-WALL GRAVEL

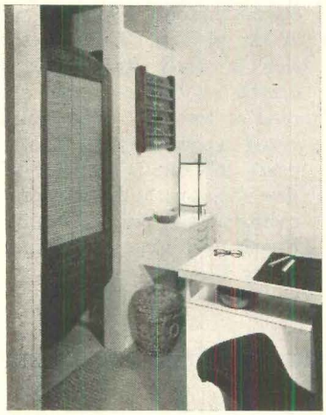
A beautifully simple backdrop for gifts from the Far East, this unusual shop in Seattle features new decorative uses for two common materials:

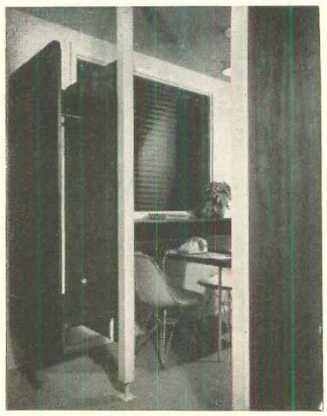
▸ Part of the façade and one inside wall are finished in 1″ x 1″ bean poles of the garden variety, set vertically about ½″ apart and stained dark gray. They cost 35¢ a dozen—$20 for the job.

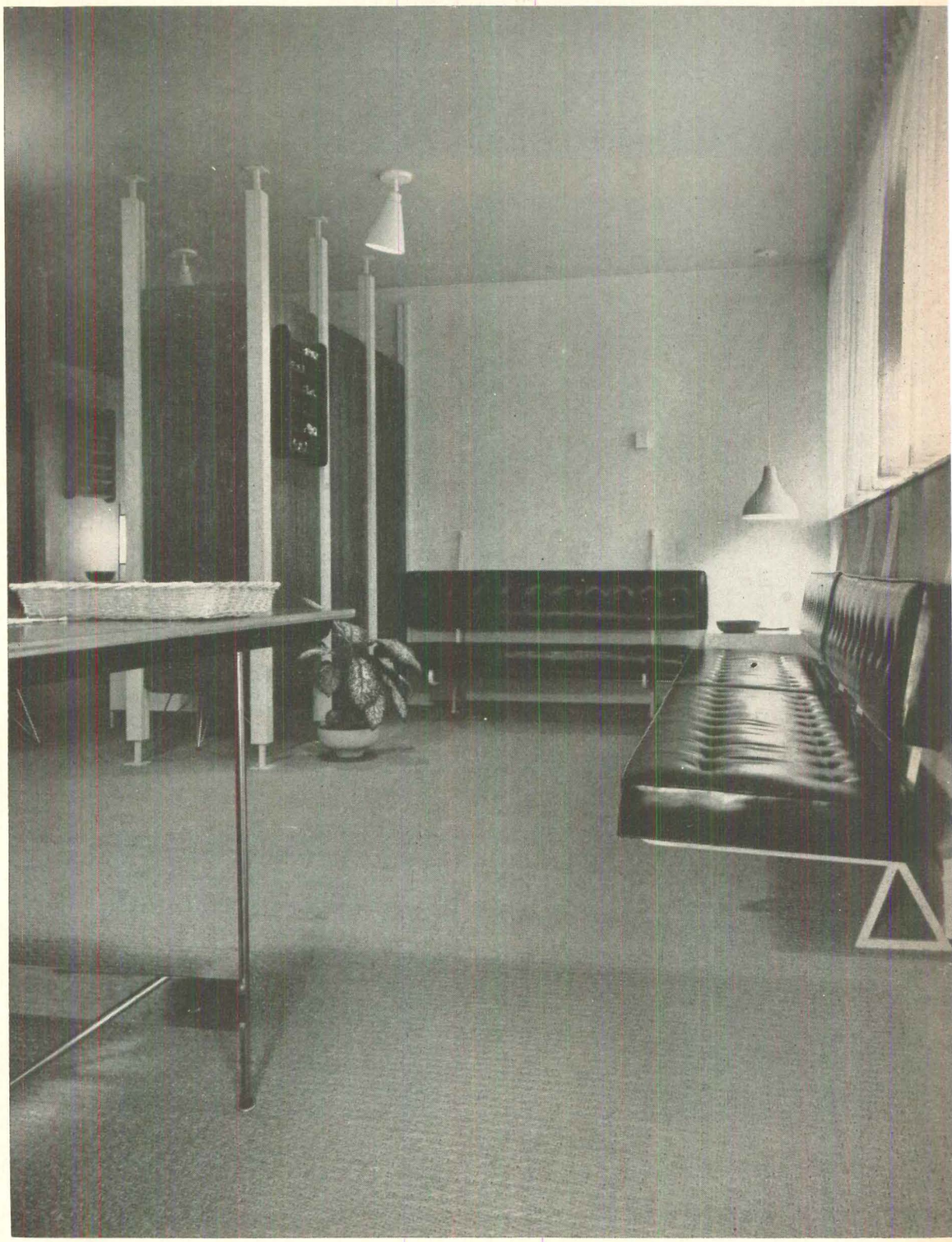
▸ The wall-to-wall "carpeting" consists of pea gravel spread 1″ thick atop some salvaged linoleum, well buttered with tile adhesive. (Materials cost: $6.) Comments the designer-proprietor: "Our floor needs no scrubbing, sweeping or polishing and, except for occasional picking up, it stays a very pleasant mottled gray which suggests a casual gardenlike atmosphere." It is a great success commercially: "People are fascinated by the novelty and can hardly wait to tell their friends to visit 'the odd store with the rocks on the floor.'" Owners and designers: Scott Hattori and Haru Nomura.

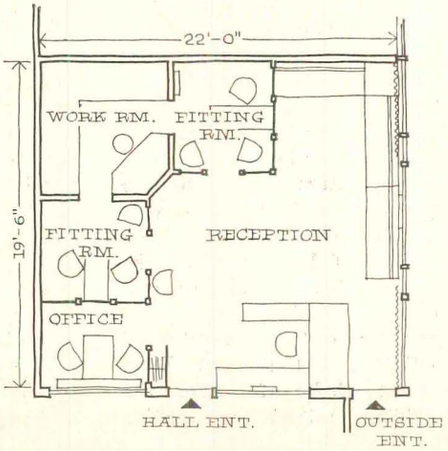








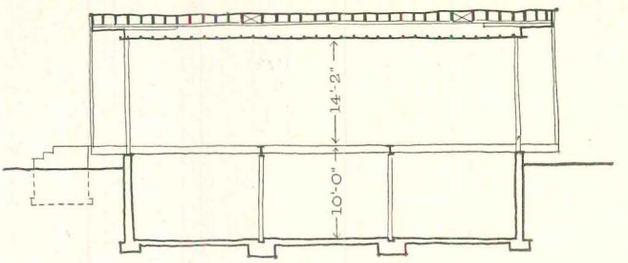




OPTICIAN SHOEHORNS SIX ROOMS INTO 20' X 22'

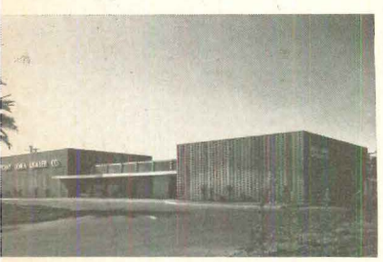
No bigger than a typical two-car garage, this space contains six small "rooms": a reception-display area, a secretarial office, a private office, a laboratory and two fitting rooms. The secret: use of space-saving, built-in furniture and free-standing partitions. Note how the partitions are raised off the floor and stopped short of the ceiling and how in appearance and structure they resemble the dress-shop display fixtures shown on p. 142. The wood panels are oil-finished walnut, the frame is white. Other colors: yellow gold carpet, off-white walls, gray ceiling, white draperies, black and white furniture with accents of blue, orange and yellow. Cost: $4,000. Location: Seattle. Designer: Douglas Bennett.

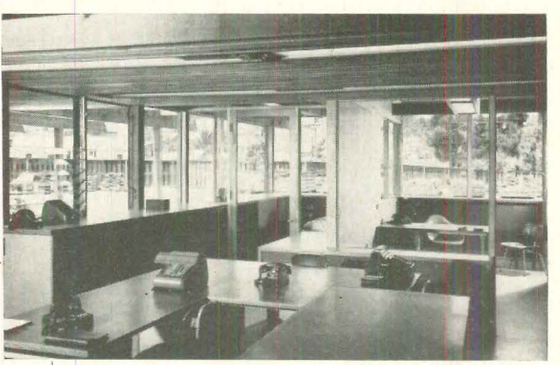
PHOTOS: (ABOVE) MARC NEUHOF; (BELOW) JOHN HARTLEY

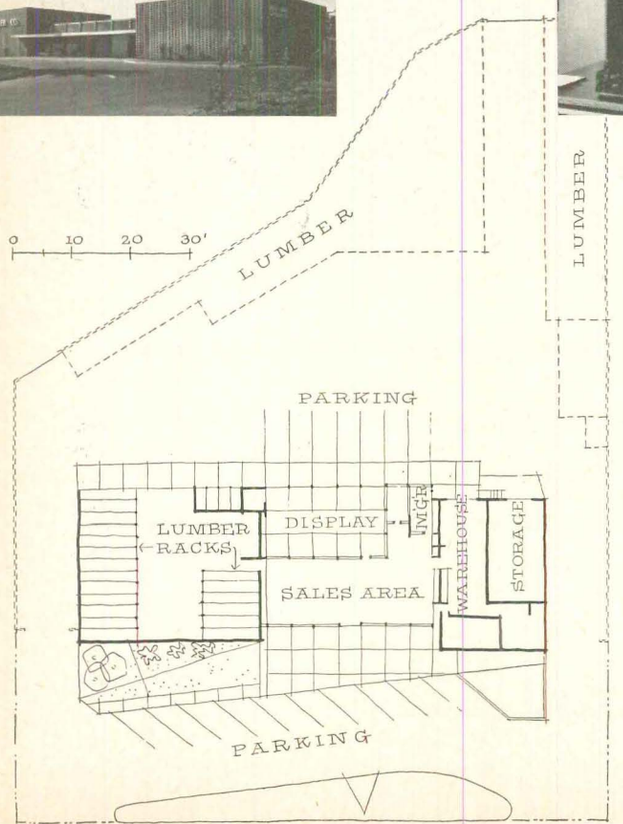


WOMEN'S SHOP ELEGANTLY DRESSED AT BUDGET COST

This attractive little building in suburban Syosset, N.Y. cost less than $66,000, complete with fixtures. That is only about $15 per sq. ft. of main-floor selling space. The attractive appearance of the building derives mainly from its cantilevered floor which seems to float above the ground and from its dropped ceiling which seems to float below the roof. Its low cost is derived mainly from its simple framing and from its use of standard materials. Girders are no longer than necessary to span between columns (43'); they are extended 4'-6" at each end with light steel outriggers to carry the roof out over the cantilevered floor. A ceiling of ⅝" plasterboard is fixed to 2 x 3's resting on the lower flanges of the girders. Wall construction is wood stud, brick veneered on the ends and stuccoed at the rear. The cantilevered space beyond the exposed columns is used for window displays and for dressing rooms at the rear. Architect: Frank Greenhaus. Engineer: Peter W. Bruder.



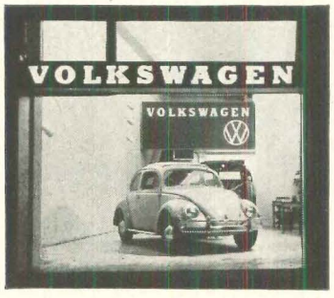




LUMBER YARD MAKES A SHOW OF LUMBER

Recognizing the growing do-it-yourself market for lumber and other homebuilding materials, Point Loma Lumber Co. in San Diego rebuilt its plant to serve the public better. It consists of a well-lighted salesroom in which the smaller merchandise is displayed attractively and in quantity and two flanking "sheds" for the storage and display of bulkier items like finished lumber and cement. (Rough lumber, sand and gravel are stored in detached buildings to the rear.) Built almost wholly of lumber, the building is itself an effective display of the company's main line. It demonstrates in a straightforward way various uses of different kinds of wood and, by minimizing finish and trim, emphasizes the economic and esthetic qualities of wood construction. The woodwork inside and out is finished natural; the only painted parts are three big panels of bright primary colors set into the frame at the right of the entry.

The building cost $48,600, excluding display fixtures and landscaping, or about $6 per sq. ft. Designer: Frederick Liebhardt.

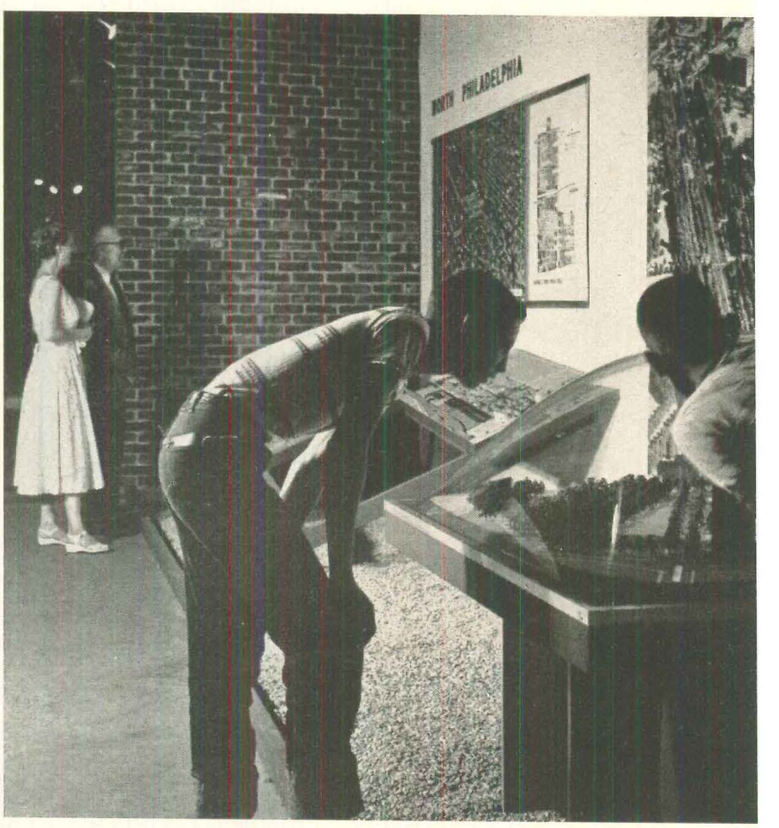


PHOTOS: RICHARD JOKEL

AUTO SALESROOM TUCKED IN AN OLD ARCH

The problem here was to scale down a big two-story window in New York's Savoy Plaza to the size of a diminutive foreign car. The solution was to conceal the high ceiling of the first floor behind four signs and three trade-marked awnings which command the public's attention with all the insistence of a TV commercial but with better taste than most. The awnings are a pale grayed blue; the signs, white on stainless steel. The show window and door slide up in one piece (photo above) to permit cars to be moved in and out and to convert the showroom into an open-air mart. Cost of the front: $8,300. Katz, Waisman, Blumenkranz, Stein & Weber, Architects Associated.

CITY REBUILDING AT THE PEOPLE'S LEVEL



"To live in Philadelphia is to share in the excitement and reward of renewing a city's vitality. . ."

—from a panel at "Philadelphia Panorama," new permanent exhibit of city planning

The interesting thing about that sanguine statement is that it is true.

City rebuilding in Philadelphia is not only the occupation of a topflight staff of professional planners and officials. It also happens to be a major preoccupation of several thousand other people, ranging from fourth graders who build improvement models of their neighborhoods, and school teachers who spend the summer scrutinizing the metropolitan region, to bank presidents and advertising executives who have assumed initiative for planning a regional wholesale food distribution center. Bonds for improvements in Philadelphia get voted. Hearings on housing and redevelopment schemes get attended, and not passively. Proposals for eliminating blight-producing "neighborhood nuisances" get pushed.

This planning ferment—which is hard to believe until you see it—has many yeasty ingredients. But one of the most potent is The Exhibit, a device which Philadelphia has evolved into a new public planning technique.

The Exhibit made its first appearance, temporarily, back in 1947 when the newly chartered City Planning Commission and a lively group called the Citizens' Council for City Planning, put on an eye-filling, idea-filled Better Philadelphia show in Gimbels department store. Summarizing the effect of that two-month show, City Planning Director Edmund Bacon says: "People went there without any idea of what city planning was, and left with the idea that it was desirable, a good thing. In this job of mine I can still see, almost every day, the impact of that '47 exhibit."

Now the '47 exhibit, brought up to date and again handsomely installed by its original designer, Architect Oskar Stonorov, is on permanent display at the Commercial Museum, a 50-year-old Philadelphia landmark whose interior has been beautifully remodeled by Architect Edward Stone. In its new incarnation, renamed Philadelphia Panorama, the exhibit again packs an intellectual and emotional wallop. But this time, its purpose is not to introduce Philadelphians to city planning. That groundwork has been laid. This time it is used more analytically, as a kind of gigantic public schoolroom.

The Citizens' Council on City Planning, one of three sponsoring organizations, has responsibility for use of the exhibit. (The Planning Commission has responsibility for content; the Board of Trade and Conventions for housing the show.) The Council's program is to invite groups (every kind of group: neighborhood associations, recreation services, unions, PTA's, engineering societies, trade associations, churches, fraternities), take the members through on a tour tailored to their special interests and provide a speaker and question-answerer also tailored to the group's interests. As part of its housing responsibility, the Board of Trade provides three auditoriums and rooms for dinner or refreshments. By fall, when the program is in full swing, the Council expects to have all three auditoriums in use most evenings, and three or four groups going through by day—in addition to casual visitors, an estimated half of the million annual visitors to the adjoining convention halls, and school children who contribute models to the exhibit and whose classes come through in droves.

"The beauty of this exhibit," says Council Director Aaron Levine, "is that it is detailed enough so the problems which especially interest any geographical, professional or civic group can be analyzed and studied here; but at the same time these problems are put in the context of the entire city's problems. In our work with citizens' planning groups we have felt the need, for a long time, of pulling those two things together."

In its proposed next phase, with adjoining exhibits on the Delaware valley and

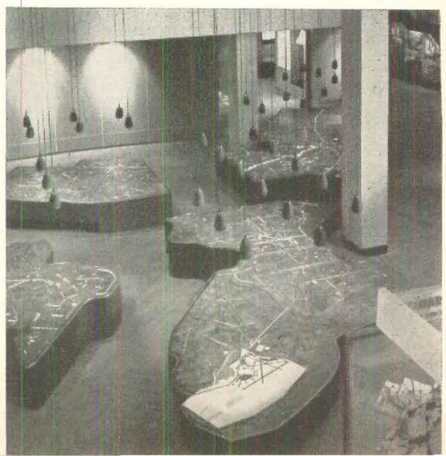
continued on p. 150

PHOTOS: P. E. GUERRERO

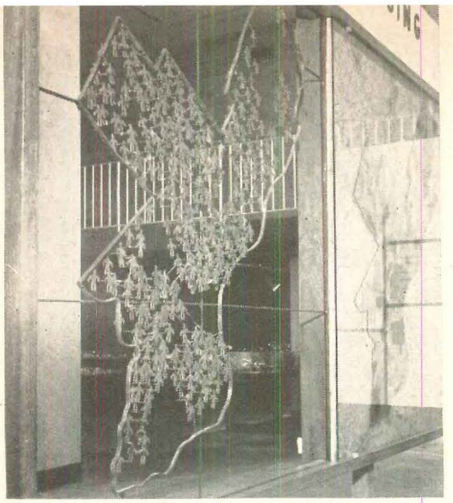
Comprehensive plan section of exhibit makes difficult technical subjects comprehensible and shows relationships.

Exhibit theme, "A better Philadelphia within your grasp," is symbolically expressed by photomural and bronze hand.

Huge map showing capital improvements is broken into segments so visitors may scrutinize any block in entire city.



Exhibits include fresh, freewheeling interpretations by schoolchildren (upper left); models of projects now in work (upper right); introduction to urban renewal, a field in which Philadelphia is preeminent among US cities (lower left); detailed "airview" (lower right) showing every item of public capital improvement recently completed, in work or in plan.



Typical exhibits: Left—technical data is imaginatively and memorably presented, as in this metal population map on transparent plastic. Below—full size replica of rowhouse backyard shows how family can economically create much oasis in little space. Bottom—scale model of downtown area flips over, section by section, to show planned improvements; movement is synchronized with lighting and recording.

CITY REBUILDING *cont'd.*

the state included, the exhibit would go even further: show Philadelphia's problems in the context of regional and state planning. As Architect Stonorov points out: "A regional and urban transportation system, a three-state Delaware river port, a regional expressway system and regional park system, a balanced growth of suburbs and center city, a concept of the core of the city as the shopping and business center of the region: all such major considerations are not decided any more solely within the city, but have become regional and state problems, physically and financially."

The Philadelphia schools, which for eight years have systematically included city planning in the fourth and eighth grade and high school curricula (one of the solid legacies of the '47 exhibit and the interest it stirred) already include tours and study of the Delaware valley as a part of planning study. Philadelphia has come a long way, fast, since 400,000 vistors first gaped in Gimbels at dioramas of their city and began to suspect planning was not so dull a word as it sounds.

The cost for installing the permanent exhibit was $125,000, most of which has been provided directly by the city treasury to the Board of Trade and Conventions. The Housing Authority contributed $6,000; the Redevelopment Authority, $12,000. A small local foundation gave a year's grant of $7,000 to the Citizens' Council for the programming work. To prepare the original exhibit cost $250,000—much of it raised from contributions—and many of the items, warehoused since '47 in anticipation of permanent use, needed merely to be updated. The updating will go on constantly—and the expectation is that the groups and school classes will come back and back again, because the more successful the exhibit and what it stands for, the more and swifter its own changes.

EXCERPTS

Architect Frank Lloyd Wright and Real Estate Developer William Zeckendorf air some marked differences of opinion on the future of the metropolis and the tall building

CITIES: MEDIEVAL OR MODERN

TOMMY WEBER—TIME

Excerpts from a discussion telecast by WRCA-TV and the NBC Network as part of their weekly American Forum *program*

ZECKENDORF: I see New York as the most important triumph of man in any urban effort ever. It is very much in debt to many predecessor civilizations, and very importantly to Mr. Wright. He does not like the urban way of life, but he has made an enormous contribution to it.

WRIGHT: The proportions of your big cities are inhumane. And you can't substitute money for ideas. The skyscrapers grow like weeds. All extinguish each other. Man tramples on man. I can see no further use for the medieval city.

ZECKENDORF: I don't agree. I see the city as the expression of man's gregarious nature. And therefore a natural expression. No great civilization has arisen at any time in history, and I stand to be corrected by you if you can name one, that did not come from urban life.

WRIGHT: In medieval times there were no means of communications whatever; and culture was dependent upon crowding together so that you might get a direct personal connection in order to get anything of culture at all. That necessity no longer exists.

ZECKENDORF: I believe people can live and work at their best in our present cities regardless. I would like your concept if I thought it was practical. I think your concept is a dream existence that in the light of several factors cannot work.

WRIGHT: I think what you mean when you say "practical" is really "expedient." The "practical" is far-reaching, extremely difficult and expensive: requires vision. There is no vision in the present city. Once upon a time the city was the cultural center of humanity and from it we have derived all of the culture that we now possess, which, unfortunately for us, makes it necessary for us now to envision, devise, and create new forms of culture that do not exist. I believe that man, by nature, is in quest, even now, as he always has been, for what we call the Beautiful. (Beauty is a dangerous word to use now; they'll accuse you of being impractical if you talk about beauty.) As a matter of fact, the Beautiful is the only thing that has ever appeared to be practical and has been preserved. So it will be.

ZECKENDORF: I think your ideas are impractical, not because they seek beauty, because we seek beauty too within the framework of what we consider the essential way of life. With the population curve almost vertical I cannot fool myself with a flat horizontal city solution, however beautiful and lovely, however desirable. Your proposal is for a fluid suburbia—a place where no matter how far you travel, no matter where you go, you only wind up where you started. I believe in the concentration of people and a change of pace; a very dramatic, radical change of pace. I believe in the theory of the green belt, but I believe that it should be rigidly controlled.

WRIGHT: No. I don't believe in green belts or suburbia.

ZECKENDORF: Then we can really draw a line, because we totally disagree.

WRIGHT: When the little gas stations first appeared down the road, that was the first symptom of the decay of the present city. Now you'll find that the best people are already gone. Eventually, I think they're going to be very few concentrations like New York to cheat modern civilization.

ZECKENDORF: I think the cities are decaying because they are outmoded, they are obsolete and have not kept pace with the change in circumstance. But I'm very hopeful and optimistic, notwithstanding that, because of the tremendous effort being made toward urban renewal. It indicates that the nation at every level—national, state and city—is alerted to the problem. I believe that under such acts as the Title I Urban Redevelopment Act and certain state laws and city laws these cities are going to renew themselves and refashion themselves in light of new circumstances.

WRIGHT: Only temporary. Decentralization is the normal watchword now, essen-

continued on p. 168

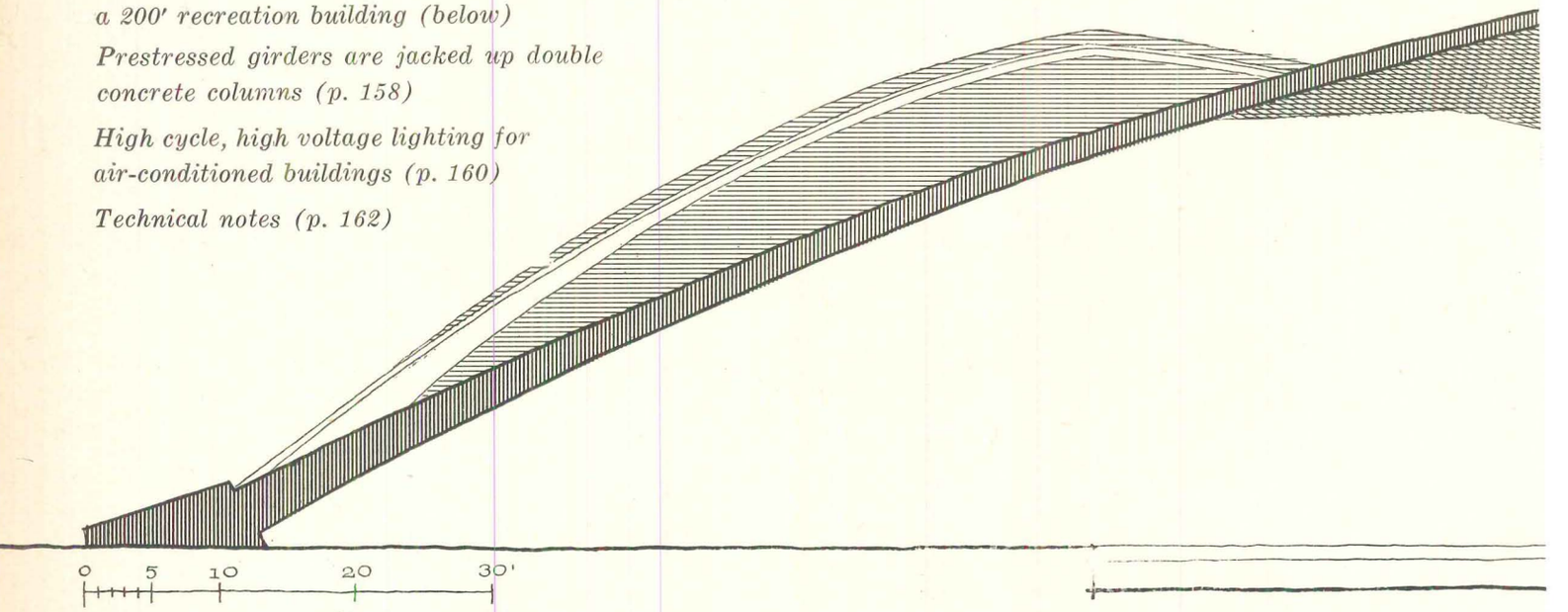
TECHNOLOGY

A concrete shell only 3½" thick spans a 200' recreation building (below)

Prestressed girders are jacked up double concrete columns (p. 158)

High cycle, high voltage lighting for air-conditioned buildings (p. 160)

Technical notes (p. 162)



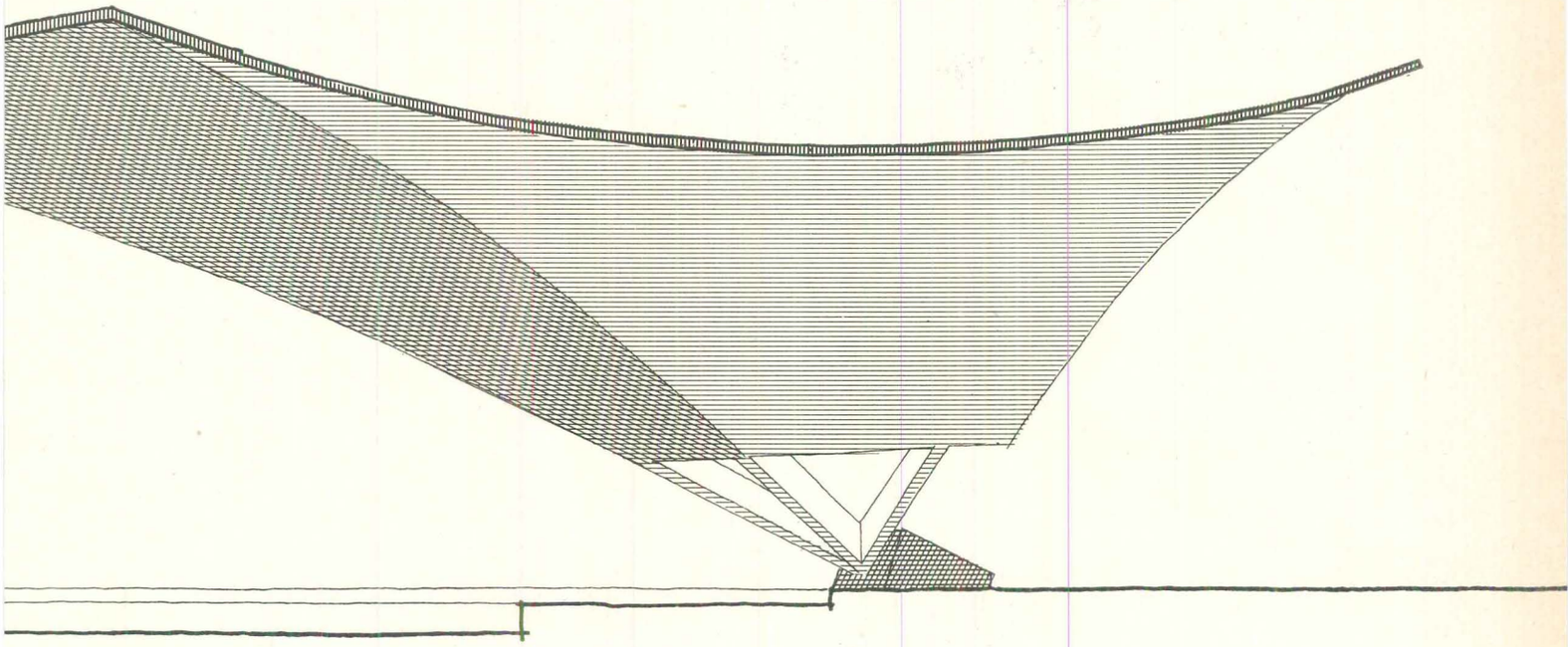
SEEDS FOR ARCHITECTURE

The last decade has seen a heavy harvest of modern architecture, but it has been a period light in seeding. The cause for this is reasonable: few architects and engineers today have much time to spend designing buildings which won't be built immediately but may be built tomorrow—exploratory projects which guarantee future growth in the technology and esthetic of building.

A few months ago the Universal Atlas Cement Co., a division of US Steel, set out to sow some of this essential seed, encouraging architects and engineers to present advanced projects. Atlas asked Architect Robert Damora to select and program these, and to have models constructed and photograph them for presentation in full-page advertisements in mass-circulation consumer magazines with explanatory notes by the designers. This design for a saddle shell is the second such project. (The first was a house design by Architect John McL. Johansen.)

About this program of stimulating and extracting new architectural ideas from top designers, Damora adds these significant comments: "Each month 24 million everyday people are given a glimpse of advanced architecture which is not watered down a bit in the advertisements; already, after the publication of just one project, we have had proof in hundreds of inquiring letters that these people respond to a quality of structural adventure even if they do not entirely comprehend it. They want to know more. When we began, we simply wanted to bring out a potential in the architects and the engineers as creative men, but we know now that there is also a tremendous potential lurking in the public. They are an eager audience for architecture that presses forward."

ROBERT DAMORA



ARCHITECTS: Antonin Raymond & L. L. Rado
STRUCTURAL ENGINEERS: Paul Weidlinger & Mario Salvadori
RECREATION PLANNER: F. Ellwood Allen

SHELL CONCRETE WITH A FLAIR

The feat of putting a great room under a paper-thin roof is carried to a beautiful extreme by a team of architects and engineers

In several ways a shell concrete roof directly contradicts that other great modern structural invention, the ladies' girdle. A girdle is resilient, and is designed to make a tense compromise with the woman contained. A shell concrete roof also is very thin, but it is stiff and holds its *own* shape stubbornly, against exterior forces and gravity.

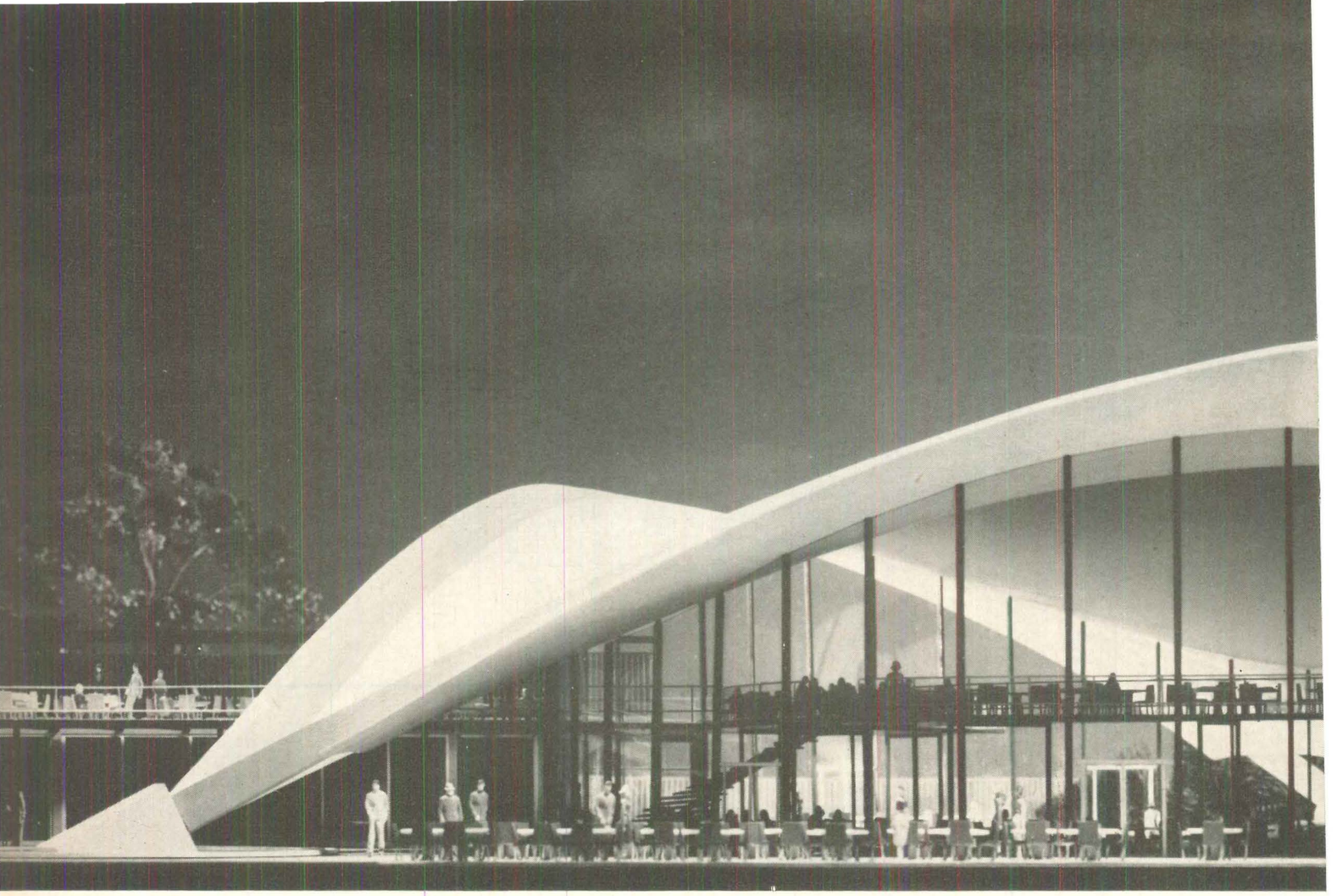
But to both, shape is the important thing, and both are "skin" structures. As in an egg shell or a soap bubble, the load is spread over all the surface, not just received by the surface and transmitted to a skeleton or framework inside.

When you press a sea shell, the organism inhabiting the shell has no bones to resist your pressure; his shell itself is his strength, resisting from every direction. A new understanding of this same kind of "continuous" shell resistance to stress is what is enabling architects and engineers to throw great billows of thin concrete over immense auditoriums, markets and arenas today, without any supporting framework of beams and columns.

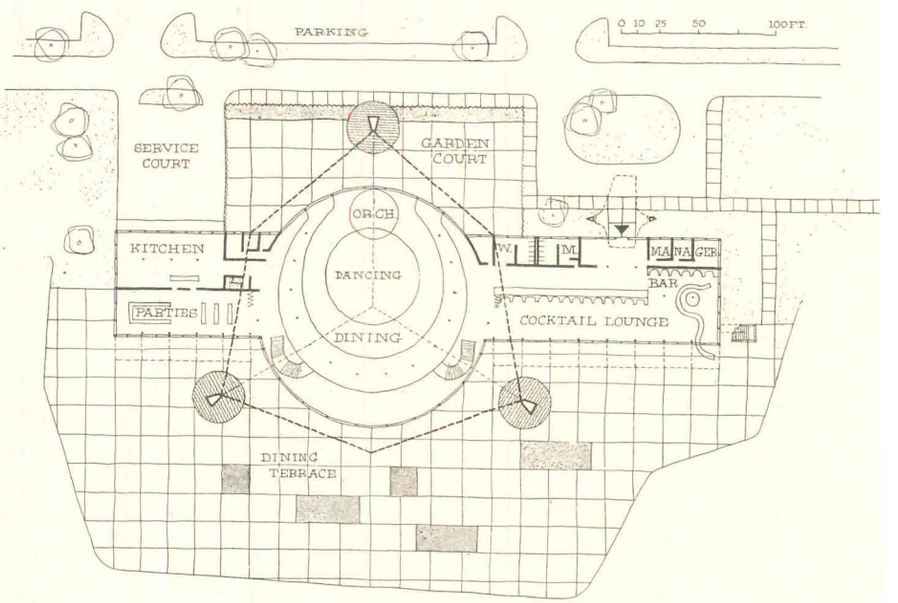
This wide-span shell concrete design for a restaurant in Long Beach, Calif. by Architects Raymond & Rado and Engineers Weidlinger & Salvadori, takes the idea of the shell construction forward several significant steps:

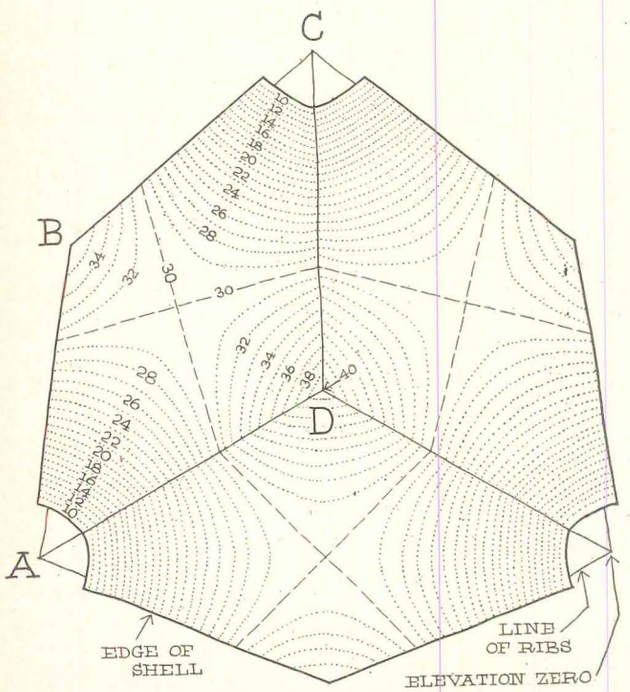
- Its beautiful shape, like that of a shellfish, is not cosmetic, but actual. The form is itself almost a diagram of the stresses it must meet, not a sculptural shape selected by the architect, then made to stand up by the engineer.
- Although the shape of this shell (actually three similar shells of double curvatures joined together by seams—see cover) is exceedingly complex, the supporting formwork, or mold, for pouring the concrete could be quite simple to put

SHELL CONCRETE structure hovering over proposed restaurant has 200′ clear span, an average thickness of 3½″



DRAMATIC CIRCULAR RESTAURANT and supper club seating 1,000 people on ground level and mezzanine contrasts with flowing quality of shell enclosure. This building is part of a large oceanside project to be built in California. Sketch (below) shows contours of roof in plan. Dashed lines are horizontal.





up. No curved framework would be necessary because all these sensuous surfaces actually can be made up by straight lines, and the three sections are identical.

This shell reveals its conceptual grace to the observer because its outside edges are thin. The stiffening ribs are not run around the shell edges, but instead have been set back.

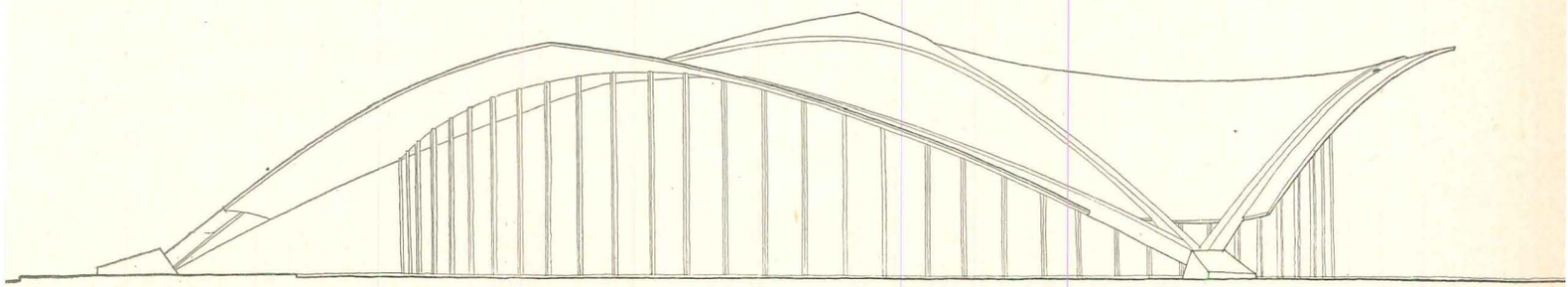
Although shell structures will take a certain amount of perforating, as demonstrated graphically by the German shells which were punched by allied bombing raids during World War II but did not collapse, the fact is that you cannot carve a big segment out of an egg shell without weakening it. The designers of this shell made it easier to open up the sides by cantilevering the shell out over the side walls, balancing the shell's stem stresses. The structure is a real shell all the way down to the buttresses; the engineer says that if soil conditions are satisfactory no underground ties will be necessary from buttress to buttress.

FORUM asked Engineer Weidlinger five questions about this important design in order to place it in technical context:

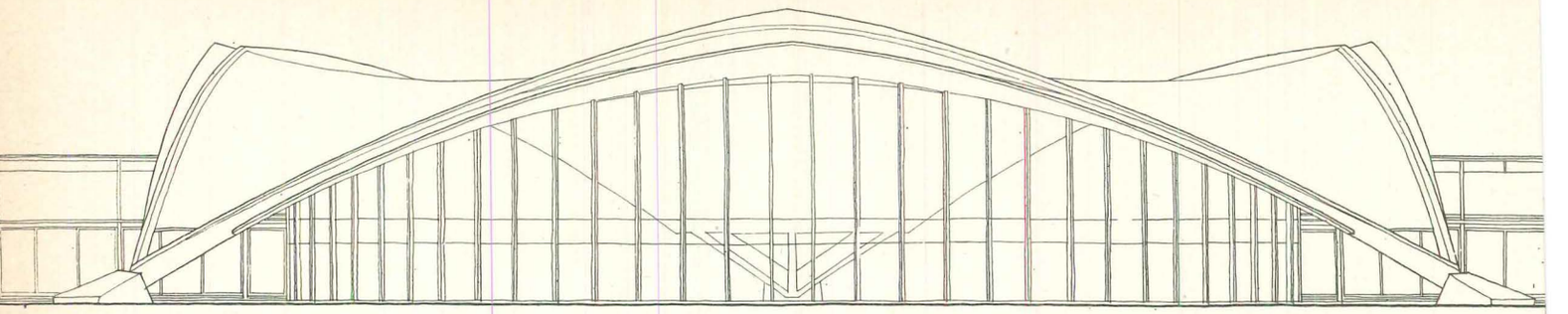
1. Is shell construction new?

"The first theoretical studies on thin shells date back more than 100 years (1828), but the first application of theoretical work appeared only in 1924 when the now famous shell for the Zeiss works in Jena, Germany was executed. Early shells were almost exclusively of the cylindrical, spherical or conical type; only recently have attempts been made to investigate the structural properties of other surfaces. The fact that other more complex surfaces are suitable for shell construction is inherent in the idea of the thin shell.

"Any curved surface can be used as a shell provided that certain conditions as to its manner of supporting are satisfied. The most frequently used shell, the barrel or cylindrical shell, is often confused with the vault or arch, although the action of the shell and that of the vault are entirely different. The vault, essentially a linear structure, is continuously supported along its two parallel edges and can be sliced into a series of parallel arches without impairing its structural integrity. On the other hand, the cylindrical shell acts as a



WEST ELEVATION



NORTH ELEVATION

beam with a curved cross section and is supported on its gable ends."

2. What is a shell, technically?

"Essentially the idea of a shell is a completely continuous surface, such as a complete sphere. As soon as the continuity of the shell is interrupted, it is required to re-establish it at the discontinuous edge by means of stiffeners. The cylindrical shell also is basically a continuous pipe section which is sliced along its generator. At the lines along which it is cut, edge beams are required to stiffen the edge which has lost its continuity. For the same reason spherical shells which are cut out of a completed sphere require stiffeners along the curve on which the cut was made."

3. What is the method of design?

"The analysis of thin shells consists of two steps:

"*First*, the stresses within the shell are ascertained on the assumption that the surface is continuous or uninterrupted.

"These stresses are referred to as membrane stresses. In many of the simpler surfaces the membrance stresses can be found by elementary methods, and the problem of the membrane stresses in these instances is a statically determinate problem.

"*Second*, the stresses and strains resulting from the discontinuity along the boundary lines are computed. These stresses are referred to as "edge disturbances" inasmuch as they essentially represent a disturbance of the original flow of the membrane stresses. In most well-designed shells these edge disturbances are localized since they occur at a relatively narrow strip parallel to the edge. These edge disturbances are taken care of by means of the edge beams or stiffeners. The stresses occuring in and near the stiffener are in most instances rather difficult and tedious to compute."

4. What are the strongest shells?

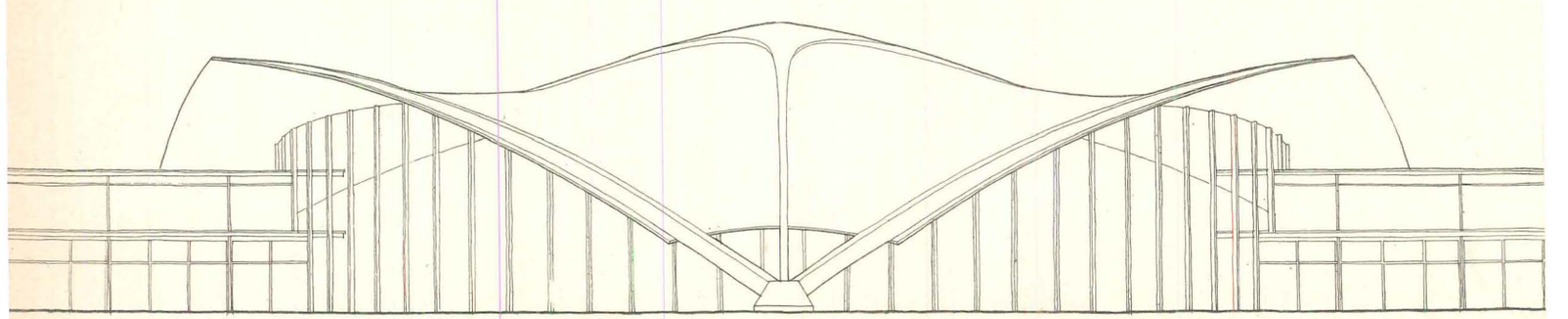
"Surfaces which have double curvatures [such as a sphere] have greater strength and rigidity than those with a single curvature [such as a cylinder or cone]. In addition to this there are a class of surfaces of double curvature in which two curves are in opposite directions, i. e., the center of the radii of curvature are on opposite sides of the surface. The best known examples of these are hyperbolic paraboloids and other saddle-shaped surfaces. These surfaces have an additional advantage which is intuitively clear—in one direction the surface acts in some respects like an arch (in compression) while in the other direction it acts like a cable (in tension). Such surfaces inherently have great rigidity and have probably also a great resistance to buckling, which is one mode of failure of very thin shells. Some of these saddle-shaped surfaces are also known as "ruled surfaces." They have the property that the surface itself is determined by two sets of parallel lines, forming a regular grid. *This has a great practical importance, inasmuch as in reinforced concrete shells this results in a formwork consisting only of straight pieces of lumber.*"

5. What was the evolution of this new design?

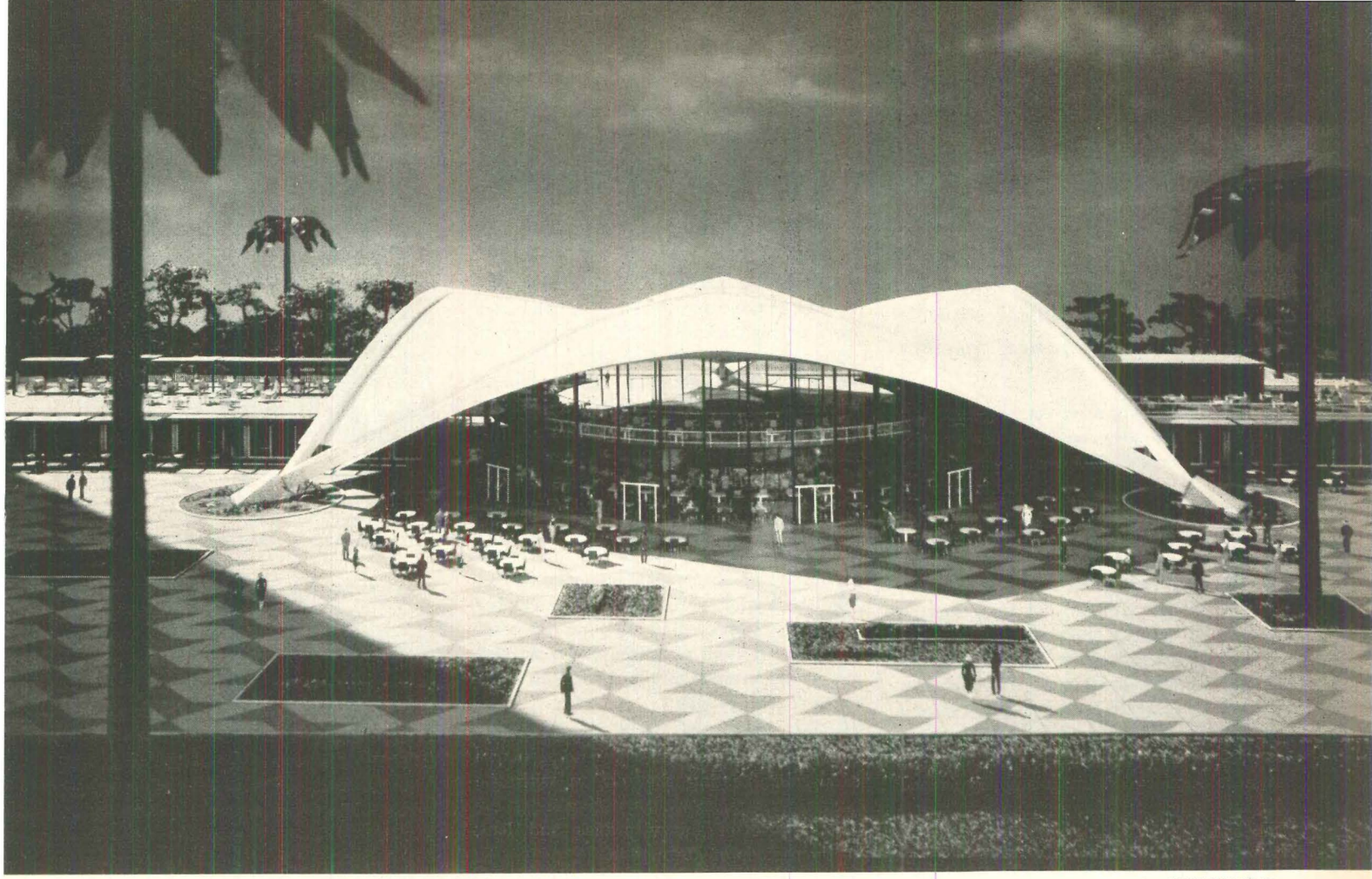
"New theoretical knowledge was accumulated concerning the behavior of complex geometric forms, giving the designer a freedom he has not known before.

"This saddle shell, which fundamentally consists of the interpenetration of the three hyperbolic paraboloids, attempts to exploit to the ultimate the advantages of this complex surface. It can be seen that the resulting shape has a highly complex topography which nevertheless is formed by straight lines only. An attempt was made to obtain a surface which describes visually the required strength and stiffeners at each point of the span.

"The particular surface which has been obtained closely approximates the geometry of the three-pronged hyperbolic paraboloid (also known as the "monkey saddle"). This particular shape was selected also to satisfy functional requirements: to enclose a hexagonal space with the minimum number of supports which will provide sufficient stability. Discontinuous edges are stiffened and at lines of the intersections where the continuity is also disturbed additional stiffeners are provided. At the apex of the surface additional strength is added by widening the interior stiffeners which follow the parabolic section obtained from the hyperbolic paraboloid surface. The maximum span of the reinforced concrete roof structure is 200′; the average thickness of the shell is 3½″. The shell surface will be reinforced with welded wire mesh and reinforcing bars running in the plane of principal curvature. The formwork will be constructed of straight pieces of lumber, parallel to the grid lines which define the surface."



SOUTH ELEVATION



MODEL BY CONRAD

INTRICATE CURVATURE and wide overhangs characterize the combination of hyperbolic paraboloids. According to the engineers the computations are almost as complicated as the resultant curves. Says Weidlinger: "You could look at Brooklyn Bridge and see its stresses, but that day is gone in structural engineering."

PRESTRESSING JACKS ALSO HOIST GIRDERS

Concrete girders 146′ long are jacked up atop double concrete columns and prestressed together

Cooperation among architect, engineer and builder in the early stages of design produced an economical and attractive structure for this high school auditorium in Springfield, Ill.

One of the engineers' first suggestions, quickly accepted by the architect, was that the 146′ long roof girders be cast and prestressed on the ground and that they be raised in place with the prestressing jacks.

The next joint decision was on the shape of the girders and columns. The architect wanted a flat lintel frame and a perfectly level ceiling of precast concrete roof panels carried by the roof girders. The compromise solution called for a slightly arched girder shaped for lifting and prestressing, yet one which would provide continuity between columns and girders. The bottom flange of the girder was designed to accommodate precast roof panels, approximating the architect's flat ceiling requirement.

Design details. To have provided continuity of moments by prestressing the girder and columns joints immediately after erection (and before the full dead load from the roof panels was added) would have meant a strong horizontal thrust at the footing level. This in turn would have meant a large and uneconomical footing to meet this momentary condition. It was therefore decided to erect the girders and support them simply (post and lintel style) until the roof panels were in place. A short section of the largest available railroad rail was used to bridge the space between the twin columns; its slightly rounded surface provided a rocker bearing. To achieve final continuity of moments, the mortised joint between girders and columns, similar to that used in carpentry, was prestressed after the roof was placed.

The columns are of conventional construction, but 4,000 lb. per sq. in. concrete was used to provide sufficient strength for the final prestressing of the columns to girders. The girders are of 5,000 lb. per sq. in. concrete. Their top flanges are equal in width to the outside dimension of the double columns, which enables them to resist the large positive bending moment at midspan. (An opening is provided at midspan to make it easy to walk from bay to bay on the roof and thus to facilitate the laying of roofing material.)

Prestressed girders. The girders are 7′ deep at the center, 5′-6″ at the ends and have a web thickness of 8″. There are 16 prestressing cables in each girder "draped" to follow the maximum tension forces within the girder. Each cable consists of 12 wires ¼″ in diameter and has an ultimate strength of 240,000 lb. per sq. in.

Seven days after casting, the girders were prestressed on the ground. Two 100-ton hollow core jacks, one at each end of the units, stressed the wires to a total elongation of about 10½″. During stressing, the girder's original built-in camber of 2″ was increased by ⅞″, but the total upward deflection was eventually canceled out by the weight of the girders and the precast roof panels.

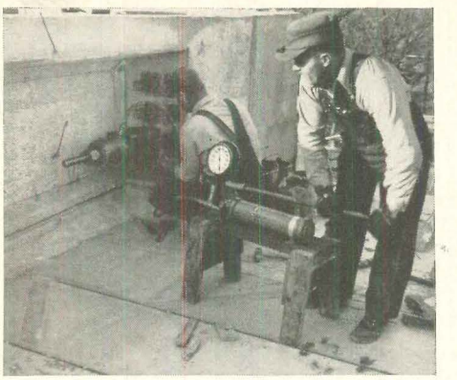
Construction. One of the principal reasons for using the twin column design was to permit hoisting the girders with the prestressing jacks, thus avoiding the intermittent use of heavy cranes and long costly periods of down time.

To lift the girders, the jacks were mounted on a simple lifting yoke atop the columns. Two two-section 2″ lifting rods were attached to the girder by means of an anchor beam. The girder was raised in two lifts, because the rod coupling could not pass through the jacks. While disconnecting the two sections of the lift rod, the girder was supported on two 8″ x 8″ timber uprights.

After all the girders were in place, the precast roof panels were erected by crane. At this time, the girders deflected freely because they could rock on the railroad rails inserted between the twin columns. To provide rigid lateral support to the girders (which the engineer thought necessary, although most codes are not clear on this point) matching anchor plates on panels and girders were welded together and the joints were grouted.

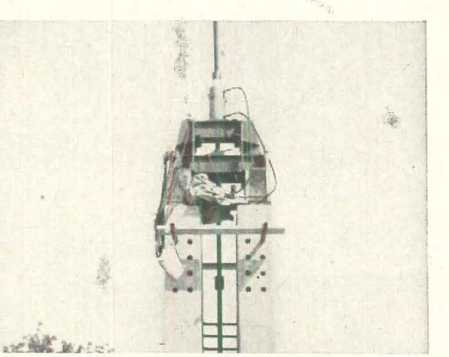
Prestressing of the short wires through the girder-column joints was done on the roof with a 60-ton jack and a hand pump. The required elongation of these short wires was only ⅝″.

Precasting of the girder required only one set of side forms and three sets of soffit forms (two soffit forms were used to provide a base for draping the prestressing cables in advance of pouring) and permitted a weekly casting cycle and the raising of one girder per week. Cost was $8,500 per girder in place, or $170 per cu. yd. of concrete (each girder required 50 cu. yd.). Architect: Richard P. Stahl; engineer: Prestressing Research & Development; contractor: J. E. Pyle.

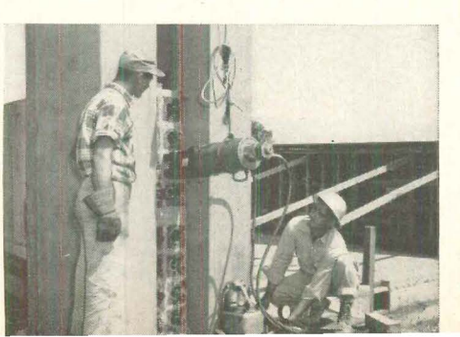


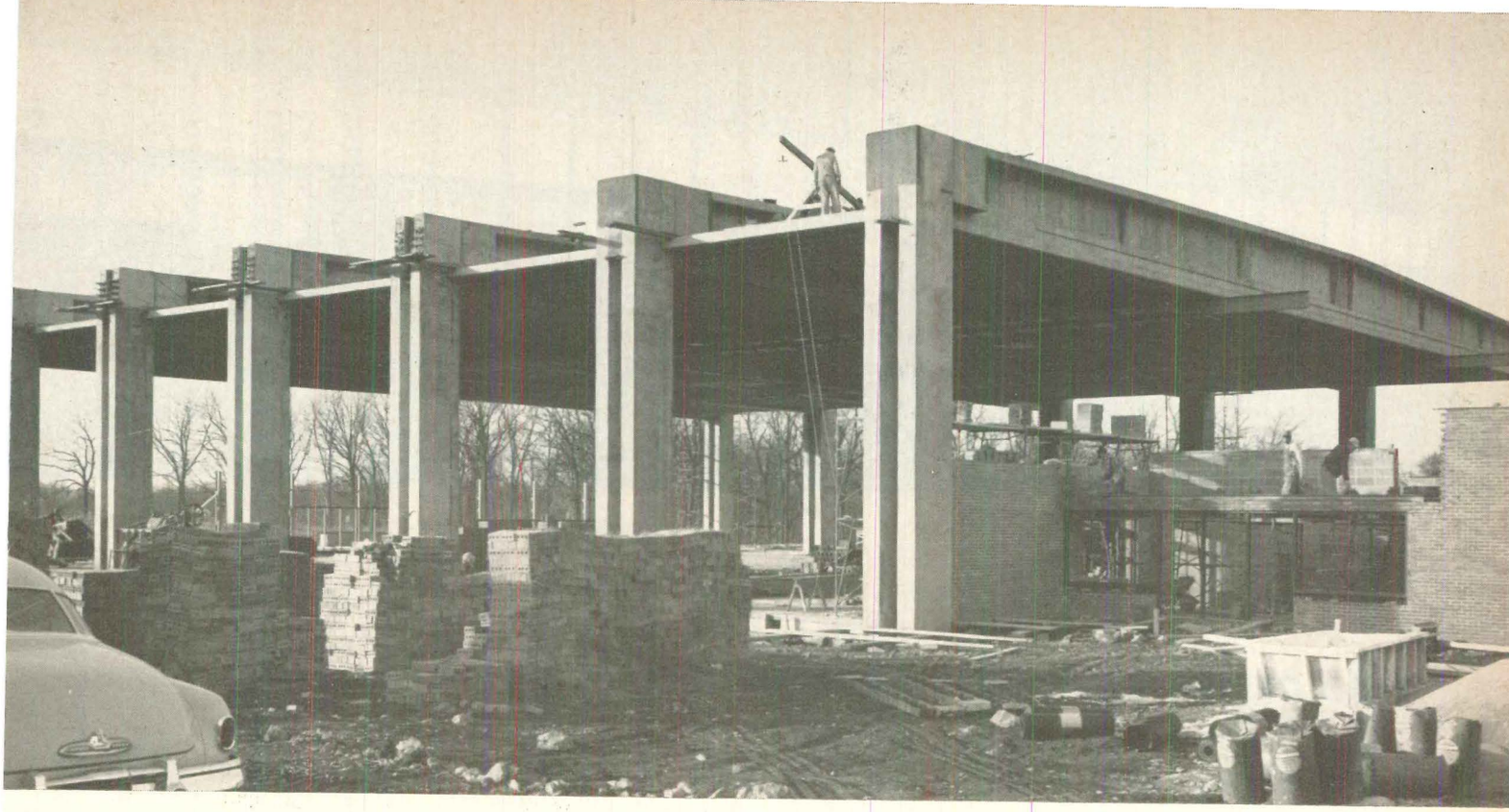
AT TOP OF COLUMN: girder is secured by cables through the girder-column joint which are tensioned with the aid of a 60-ton jack and hand pump. Roof panels are in place.

GOING UP: prestressed girder is economically raised by a 100-ton prestressing jack, instead of the usual cranes. Below: a close-up of the yoke atop the double column.

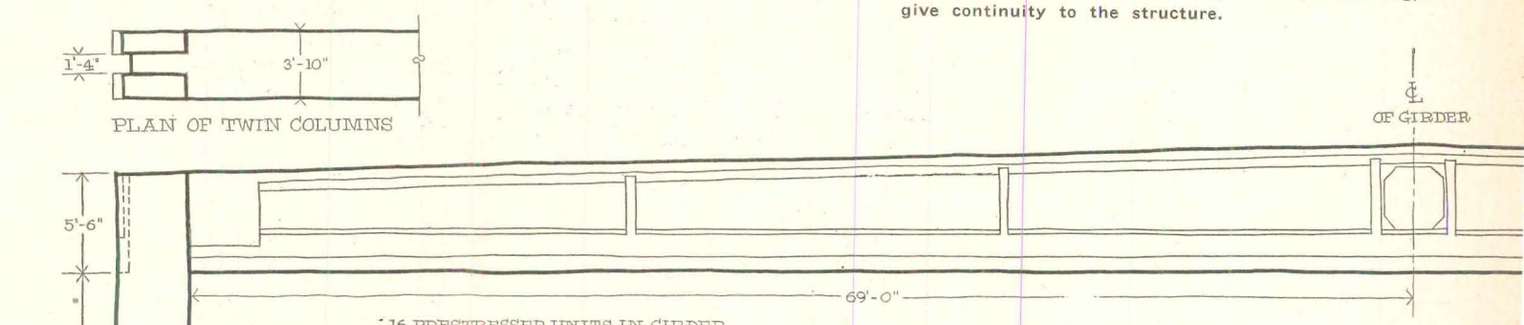


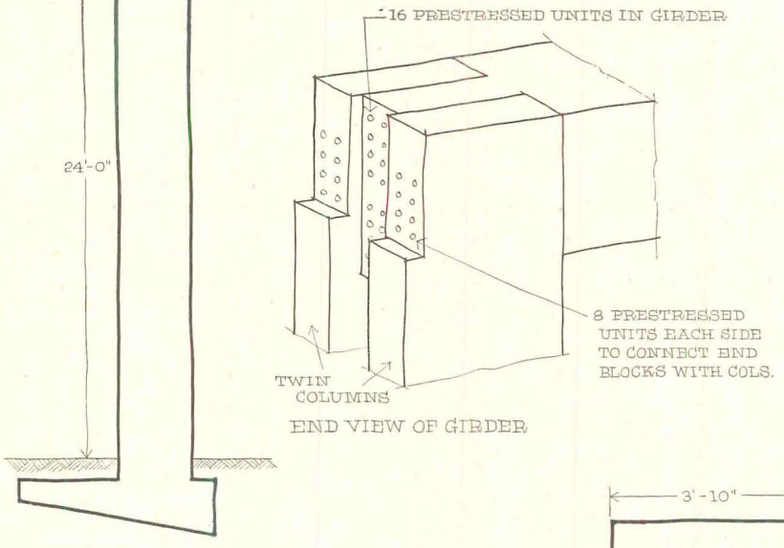
ON THE GROUND (below): seven days after the casting of a girder, a 100-ton jack is used to prestress the cables running through it.

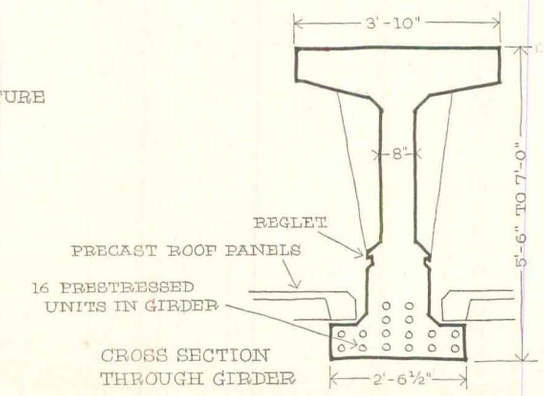




COMPLETED FRAME includes cast-in-place blocks at end of girders which, along with prestressing, give continuity to the structure.

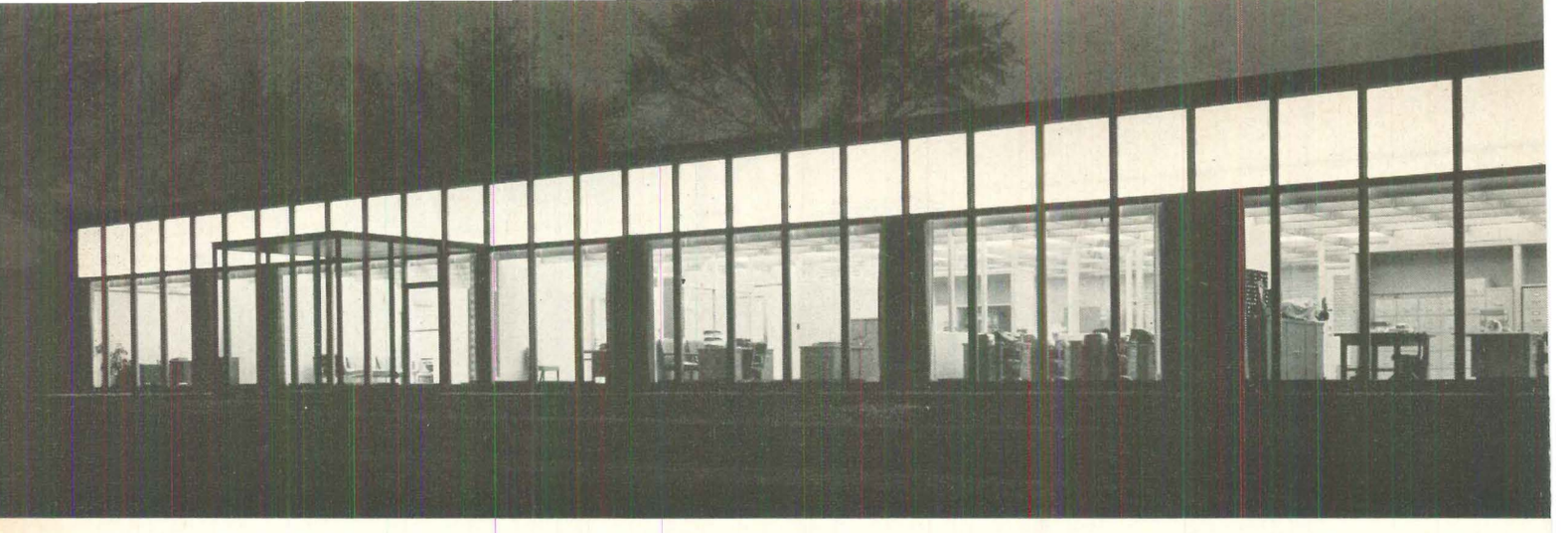






PHOTOS: PAUL R. MIGNARD

PRECAST ROOF SLABS are placed by crane on lower flanges of girders to form an almost level ceiling. Girders are exposed above finished roof.



HIGH CYCLE, HIGH VOLTAGE LIGHTING

Pioneering system promises to save installation and operating costs, particularly in air-conditioned buildings

It takes only 115 v. of ordinary 60-cycle current to power the typical fluorescent lighting system. This one uses 400 v. at 840 cycles! Along with the Union College Field House in Schenectady (AF, June '55), this lighting system in the new Wakefield Co. offices in Vermilion, Ohio, is a pioneering installation of considerable significance. Although its stepped-up dimensions seem to imply higher costs, the reverse is true. Considering everything, Wakefield saved about $1,500 in initial installation costs and hopes to cut operating costs by about 20%.

The visible parts of the new Wakefield lighting system are not new. They comprise a multifunctional suspended ceiling whose 4′ grid of perforated channels distributes air, absorbs noise, hides sprinkler heads and provides a top fastening for prefab partition panels—a ceiling system first used in the GM Technical Center (AF, July '49, *et seq.*). The new developments are above the ceiling and in a back room. Above, small capacitor-type ballasts are substituted for the conventional "brick-type" kind, wiring is simplified and two fluorescent lamps take the place of three. In the back room is a power converter (photo right).

Economies. According to R. D. Burnham, the company engineer responsible for this installation, operating economy is the main reason for using high frequency, high voltage lighting. "The savings start with the lower cost of a small capacitor-type ballast. This pygmy-size capacitor produces from 8% to 12% more light from a lamp operated on 400 v. at 840 cycles than the same lamp operated with a conventional heavier ballast at the usual 118 v. and 60 cycles. Increased light production is measurable economy."

Other economies, actual and potential:

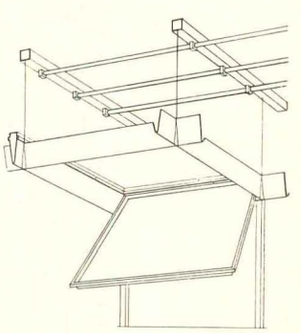
- The one third reduction in the required number of lamps not only saves initial lamp costs, but socket and ballast costs, installation costs and lamp replacement costs.
- Lab tests show that high frequency operation increases lamp life 12%.
- Wiring is simplified—only one capacitor-type ballast is needed to start and operate each lamp, compared with a starter and a large ballast for each lamp in the ordinary system.
- One fifth as many circuits are required for distribution.
- Sizes of distribution panels are materially reduced, and in some cases panels are eliminated entirely.
- Power consumption is reduced between 10% and 20% depending upon the type of lamps used.
- Besides these direct savings, certain indirect economies should eventually be reflected in lower costs. For instance, because of the reduction in the size and weight of ballasts, there should be economies in lighter shipping weights, in smaller channel sizes and in reduced dead loads on structural ceilings. Most important, the cost of air conditioning is reduced. In the Wakefield building, it was found that a 20-ton capacity system was adequate, whereas, with larger ballasts generating more heat, a 25-ton system would have been necessary. The 5-ton difference amounted to about $3,000.

Even without air conditioning, the initial and operating costs of a high-power system are likely to be lower than the cost of an ordinary system. But the reduction in air-conditioning requirements makes it a sure thing.

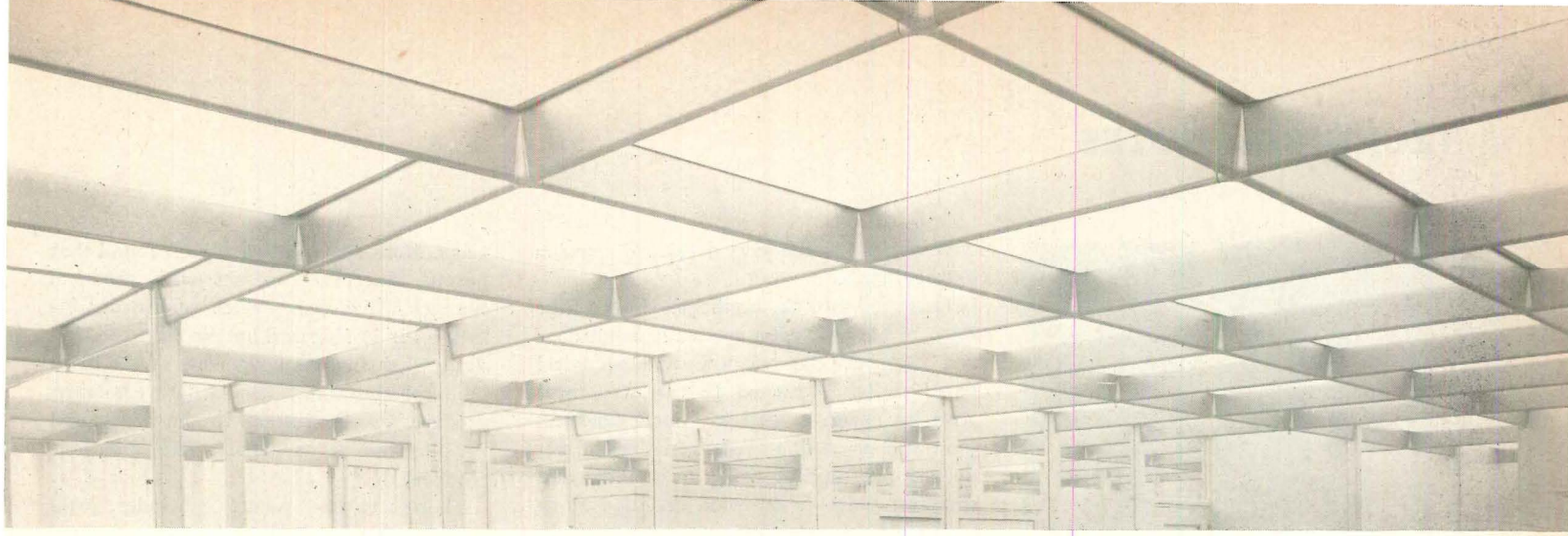
In addition to its dollars-and-cents advantages, 840-cycle power has other properties to commend it. It creates no visible flicker in fluorescent tubes—even to those whose eyes are sensitive to the stroboscopic effect sometimes visible at 60 cycles. And it does not create "feedback" which causes radio interference.

In the new Wakefield office this kind of lighting provides 100 foot-candles on the work surface. It is helped by a secondary ceiling of sheet metal hung between the plastic light diffusers and the structural ceiling and painted white to produce 88% reflectance.

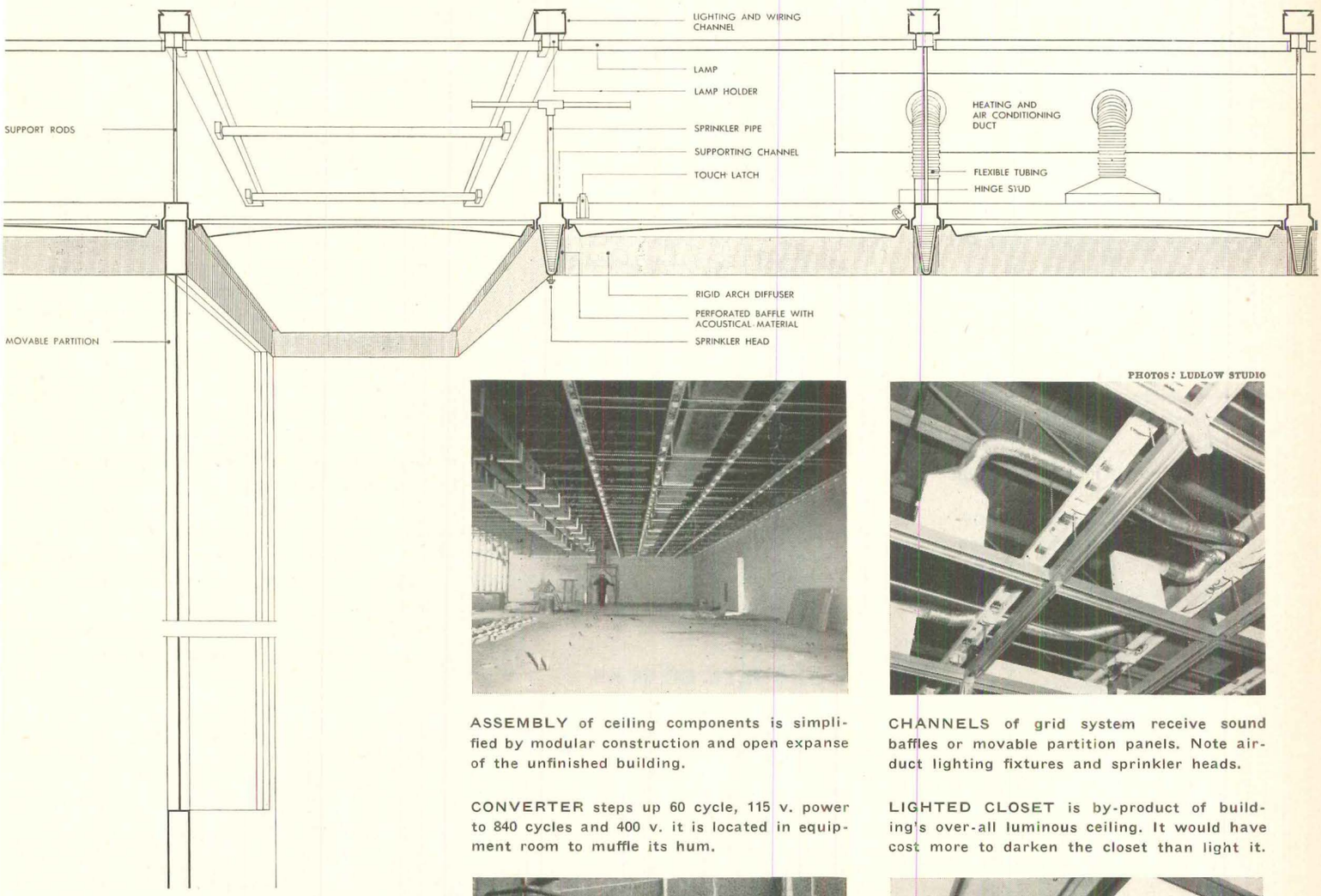
The Wakefield building is a handsome structure of steel, concrete and tan brick with a full front of glass overlooking the Vermilion River valley to the north. (The west and south walls are designed as protection against sky glare and sun heat; they are of cavity brick construction and are windowless.) Architects: Outcault, Guenther & Associates.



MAINTENANCE of lighting system and other overceiling utilities is simplified by easily opened aluminum frame which holds rigid arch acrylic plastic light diffuser.



MODULAR CEILING integrates lighting, acoustical control, fire protection and partitioning. Deep lighting plenum is windowed with obscure glass (see night photo left).

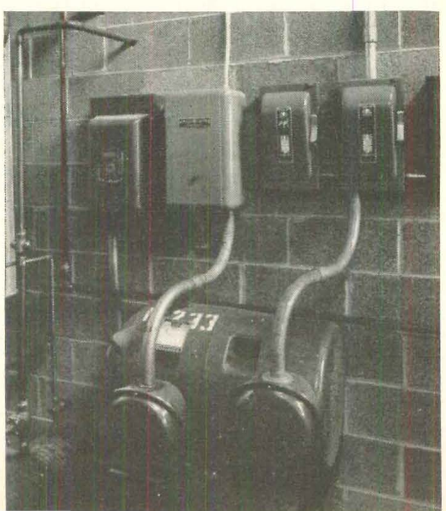


PHOTOS: LUDLOW STUDIO

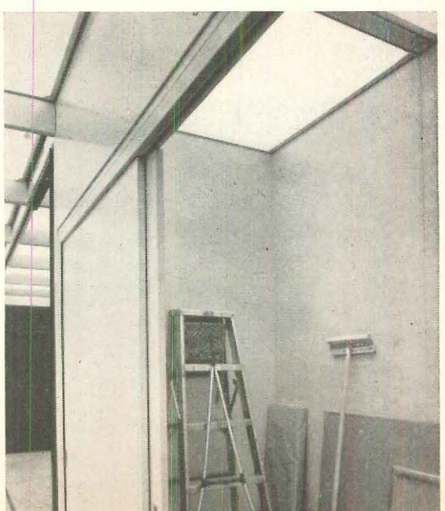
ASSEMBLY of ceiling components is simplified by modular construction and open expanse of the unfinished building.

CHANNELS of grid system receive sound baffles or movable partition panels. Note air-duct lighting fixtures and sprinkler heads.

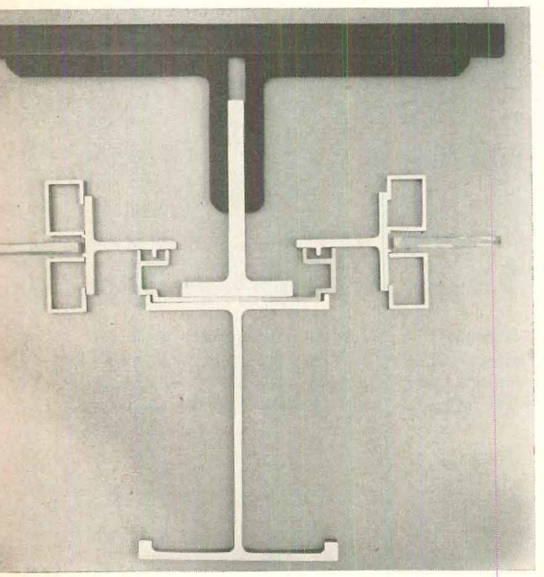
CONVERTER steps up 60 cycle, 115 v. power to 840 cycles and 400 v. it is located in equipment room to muffle its hum.



LIGHTED CLOSET is by-product of building's over-all luminous ceiling. It would have cost more to darken the closet than light it.



TECHNICAL NOTES



BRONZE CURTAIN WALL

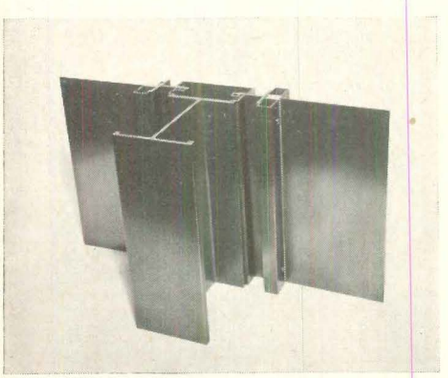
Extruded bronze and rolled sheets make unique curtain wall

Architect Philip Johnson calls it ". . . the most noble material . . . for the design . . ." in explaining why he and Mies van der Rohe chose bronze for their projected Park Ave. Seagram Building. But to produce the first bronze curtain wall required solutions to many unprecedented engineering problems.

One of the most difficult problems was to extrude an "I" shaped mullion from a shape with a 7½" diameter and straight and true in 26' lengths. Previous limits had been 6" and shorter lengths.

Rolling close tolerance (for flatness, dimension and square corners) spandrel sheets ⅛" thick and up to 3'-9" x 4'-0" in size was another severe problem for the brass mills.

Once the mills (four mills will supply the materials) overcame the engineering difficulties, the design became feasible. The effect sought by the architects depends in essence on sharply protruding mullions with arrises which give a third dimension to the façade.



Extruded bronze mullions, shaped like light "I" beams, span vertically from floor and support the window and spandrel panel units. Attached to the structural steel by specially designed steel anchors, the mullions can be aligned in three directions for a perfect fit. The window and spandrel units—4'-7" wide and one story high—will be attached to the mullions in such a way as to allow for expansion and contraction within each unit, thus avoiding cumulative expansion or contraction over the entire wall. Window and spandrel frames will have completely welded corners with continuous gasketing material between them and the supporting mullions. Continuous copper flashing will protect the wall from condensation or other moisture at the window head level on each floor. The fixed window glass, incidentally, will go down to the floor level.

The metallurgical problem posed by the necessity for having two different alloys (one for the extrusions, and another for the plate) was solved by selecting Architectural Bronze (actually a sort of brass) for extrusions and a matching color alloy Muntz Metal for the plate. Rolled shapes which would require a higher copper content and result in a different color after oxidization were avoided. About 3,200,000 lb. of bronze will go into the facade of the building.

Architects: Philip Johnson in association with Mies van der Rohe; associate architects, Kahn & Jacobs; general contractor: George A. Fuller Co.; structural engineers: Severud-Elstad-Krueger; mechanical engineers: Jaros, Baum & Bolles.

CONCRETE CRACKS

How to minimize cracking of concrete face bricks

The cracking of concrete face brick could be minimized by the development of improved criteria for its manufacture and installation, according to a Building Industry Advisory Board report. However, BRAB points out that in many localities cracking is not a problem, probably due to proper manufacture and installation, and, in some cases, to a favorable climate.

The report takes as its premise that the principal cause of cracking in concrete face brick walls is due to movements which occur with moisture, temperature and chemical changes within the concrete itself. In general, concrete expands with increase in moisture content and temperature and contracts with the reverse of those conditions. More recently it has been found that porous concretes contract with chemical changes which occur when carbon dioxide in the air is absorbed by the concrete. Restrained shrinkage movements of the brick units in the wall, from whatever cause, produce tensile stresses in the brick, and in the wall as a whole; the result is cracking.

Therefore, the report concludes, wall cracking can be minimized by the use of a more stable brick. The report took note of the fact that cracking of concrete face brick walls may also result from weaknesses or movements of other structural elements of the building.

PRECAST CONCRETE FRAME

Prestressing helps save $16,000 over conventional framing methods

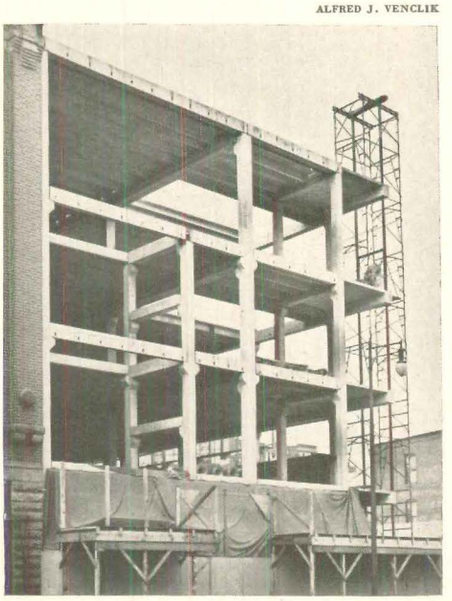
This four-story, 28,000 sq. ft. Denver building is framed entirely with precast and prestressed concrete columns, beams, floor and roof slabs. In competitive bidding, the system was $16,000 lower than any other method of framing.

The main columns are 60' long, precast, with cast-in lugs to form a shelf for the beams. The beams on the 50' side of the 50' x 125' building, were prestressed. The double-tee floor slabs were also prestressed. The prestressing made a cantilevered bay possible at one corner of the building.

The building will be enclosed in brick (8" and 12" to fit code requirements) and will be used for light warehousing with a rating of 125 lb. per sq. ft.

Cost for the complete building with air conditioning, but excluding elevators and

ALFRED J. VENCLIK



architects fees will be $8.50 per sq. ft. Architect: Ralph D. Peterson; general contractor: F. J. Kirchhof Constr. Co.; concrete contractor: Prestressed Concrete of Colorado.

MOUND BUILDING

Heaped up earth from big borrow pit forms Texas stadium

The legendary homesick hill Princess of Babylon would surely have approved of this stadium scooped out of the Texas prairie. The finished elevation of the playing field (and borrow pit) of the San Angelo Stadium averages 14′ below natural ground level. The spoil was heaped up as much as 30′ above ground level on two sides of the bowl shaped excavation.

At a construction cost of only about $445,000 (excluding land) here's what the San Angelo Public School District got: A 12,180-seat stadium; ¼ mi. cinder track; three football fields; one baseball field; press box, concession stands; public toilets; and field house with dressing rooms.

To build the stadium, some 98,000 cu. yd. of earth was moved and roller compacted to a density which resisted hand tool digging on the slopes. The concrete

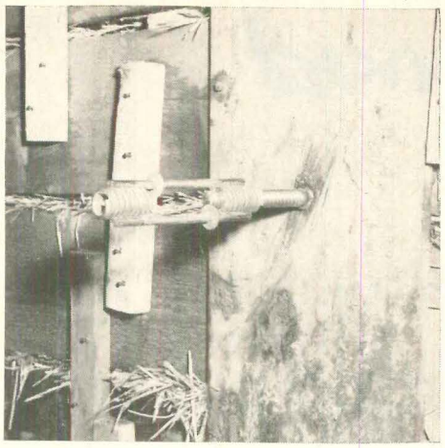
stands were built directly on the earth fill and are finished with wood seat boards.

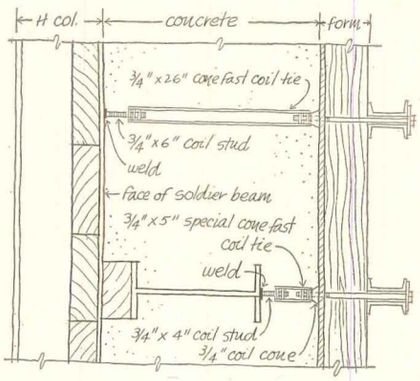
Spectator traffic handling was made easy by limiting access to the seats to the two walks which follow the tops of the two mounds.

Although no seats are planned for the north end of the stadium, the earthen wall was continued around this end as protection against the north winds. South breezes sweep the field and stands through the open south end.

Architect: Max D. Lovett; associated architect engineers: Caudill, Rowlett, Scott & Associates; soil consultants: Spencer J. Buchanan & Associates; contractor: Templeton & Cannon.

NELSON STUD WELDING DIV., GREGORY INDUSTRIES, INC.





NEW FORM TECHNIQUE

Prestressing helps save $16,000 over conventional framing methods

Developed for the construction of the basement walls of the new Court House Square building in Denver, this simple, economical fastening method turns a difficult concrete form job into a fairly easy one. It combines the use of end-welded studs and coil form ties. On the Denver job the studs were ¾″ in diameter and 6″ long, with 5½″ of broad threads sized to fit the coils of the form ties.

The first step in assembling the forming was to end weld the studs to the vertical soldier beams of the basement cofferdam walls. Horizontal sheathing boards were then fitted over the studs and coil form ties were threaded to the studs. Finally, the inside form, consisting of 4′ x 10′ panels of plywood, was bolted to the ties. Walers to reinforce the inside form consisted of 6″ double channels, back to back. The inside form was secured by running ¾″ lag bolts through the waler and threading them into the free end of the coil form tie.

The studs were spaced 6′ center to center horizontally and 2′ o.c. vertically, and theoretically each stud and tie can carry a load of 12,000 lb.

Architects: I. M. Pei & Associates, Kahn & Jacobs, and G. M. Musick; engineers: Severud-Elstad-Krueger; contractor: George A. Fuller Co.

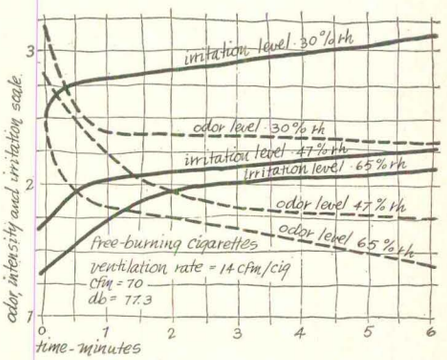
SMOKE SMELL

How much of a problem is the smoke-filled room?

This being the season of the smoke filled room, it is only fitting that some attention being paid to the organoleptic* effects thereof. Let politicians (and air conditioning engineers) pay heed.

The heedful pol will need, among other things, this equipment before stepping into the s.f.r.: thermometer, chronometer and bulbs, wet and dry. He should memorize, among other things, these axioms of the effects of tobacco smoke on his body:

- An increase in humidity has the effect of lowering the odor-perception level of smoke.
- An increase in temperature (at a constant specific humidity) lowers the odor level of smoke slightly.
- Adaptation to smoke takes place more rapidly during initial stages of exposure.
- While the perceptible odor level of smoke decreases with time of exposure, irritation



to the eyes and nose generally increases. The irritation is greater at low relative humidities (below 35%) than above 50%.

Thus armed and thus forewarned, the pol may enter the s.f.r. prepared to do battle, among other things, with the organoleptic effects.

The air-conditioning designer and controller would do well to consider the fact that reducing the relative humidity will increase susceptibility to smoke irritation. To produce minimum discomfort in public rooms where smoking is permitted, the air-conditioning system must be balanced somewhere between the discomfort of high humidity itself and the discomforts of smoke irritation and odor that go with low humidity.

These conclusions are based on research by Engineers W. F. Kerke and C. M. Humphreys.

* The effect on the whole organism.

for all concerned

ROCKEFELLERS IN TOMORROW'S CITY

By 1975 there will be 50 million more Americans living within the same boundaries. This is no idle forecast but the best estimate of "demographers"—those who graph populations.

If the prediction is correct, the babies born in the next 20 years will equal in number all the babies born during the first hundred years of the Republic. There will be some 210 million people living in the same land area now occupied by 160 million people. This means an accelerated increase in density of settlement—in other words, cities.

A new order of architecture and building is not only coming, it is here already: city architecture, city building and rebuilding.

The question is who will take charge of it, who will organize it, who will be responsible for it.

The new order of architecture and building will involve a new order of operations, a new order of planning and design, a new order of management and responsibility. Tools fully adequate for this operation do not even exist—many of the tools must be improvised and created.

The toughest job for our industry and all the professions connected with it is to shift the focus of their thinking.

World War II created a new homebuilding industry. But now the nub of the problem is how to fit these houses with streets and roads and schools and work places and shopping centers so the people can get real joy out of them instead of frustration. Again, since World War II we have made great progress in standardizing the elements of fast-growing downtown buildings. But in cities like New York the new efficiency is producing a cavernous glut on old streets, so that the larger number of people now trying to move and breathe within the same city districts experience ever greater acerbity and frustration. The real problem is how to fit the new production into a new planning pattern.

The new demand is bringing with it a new kind of responsibility taker; and only a new kind of responsibility taker can be of any use in the new situation. The older kind of expert may be all the more nuisance just because he likes to keep on and on doing the secondary thing at which he is adept. We are told by the dean of the Harvard School of Design, who is one of the new men aware of the importance of large-scale planning, that he has trouble getting rid of graduate students who want to go on and on solving the old problem of the individual small house, which used to be one of the finest problems in bringing new materials and new techniques into living architecture, but is only a subsidiary problem now. And building promoters in New York who know how to erect office rental space in no time flat, with the new industrial techniques, are at a loss when asked: "Why has there never been a second attempt to open up the city as Rockefeller Center started to open it 20 years ago?" They say, "We are not Rockefeller, we haven't the resources."

The trick is, of course, to get the Rockefeller result *without* being Rockefeller, simply because 50 million new babies demand that the result must be obtained, Rockefeller or no Rockefeller. And that is precisely what the new responsibility takers are beginning to contrive. The new leadership is a group leadership, and it will manage by means of organization and new techniques what Rockefeller used to manage through the sheer power of individual wealth.

The new leadership is being furnished by the alert elements of the business community and the professional community acting together as a group and a team.

To be sure, men of power and wealth are in it. For example Richard Mellon and the leading families of Pittsburgh are at the core of the powerful Alleghany Conference, which has taken as its job the rebuilding of that city. But there is far more to the story.

Typically the new leadership grows among management men. In Fort Worth it was J. B. Thomas, president of Texas Electric Service, who set the town afire with the Gruen plan; prominent in Cleveland is another utility executive, Elmer L. Lindseth, president of Cleveland Electric Illuminating; in St. Louis the mention of Edgar Queeny, chairman of the great Monsanto Co. or Powell McHaney, president of General American Life Insurance, neglects other business leaders of comparable ability and distinction.

These men do not act alone. They act within groups, like the Greater Milwaukee Committee or the Committee for a greater Anytown.

And beyond these committees in the individual city, there are now men of vision gathered in nation-wide associations. The Advertising Council of America has given a powerful impetus to urban renewal through its ACTION campaign (American Council to Improve our Neighborhoods) and the Chamber of Commerce, too, has taken up the battle on a national plane. Even more encouraging are reports carrying the movement, so to speak, into the grass roots of management: news of nation-wide enterprises whose district managers are now instructed that participation in local urban renewal movements is an operational element of their daily job. Another important new group is the large-scale city redeveloper or "redevelopment sponsor," who differs from the traditional realty promoter as today's large-scale homebuilder differs from yesterday's carpenter builder (see p. 118).

On the professional side, the planners have always been active but the new awakening is among the architects. Old Daniel Burnham is being recalled again, the man who started transformation of a dozen cities, and a Gold Medal went last year to Clarence Stein, pre-eminently a pioneer in garden city planning.

In 1957 the American Institute of Architects will celebrate its first centennial as a professional organization. Will the event serve only to give architecture splendid burial? If not, then we commend to the AIA that it turn attention to the future too, and use the event to set its focus on those 50 million babies of the next 20 years, which must be served in communities. This is the biggest responsibility of architecture and it is here now.

* * *

Next month FORUM will devote most of its issue to new forces shaping cities.

Douglas Haskell

REYNOLDS ALUMINUM IN MODERN ARCHITECTURE

REYNOLDS

Northwestern Bell Telephone Company, Tenth Street Building, Des Moines, Iowa

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Architects:
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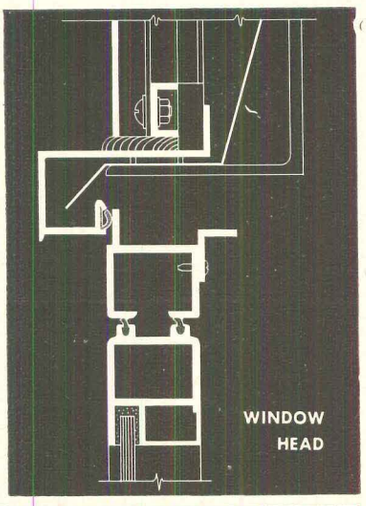

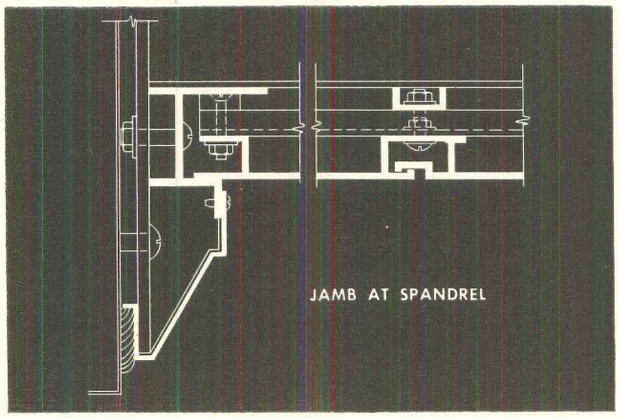

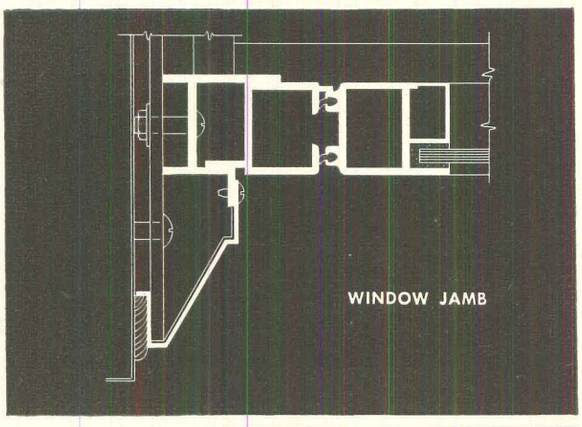

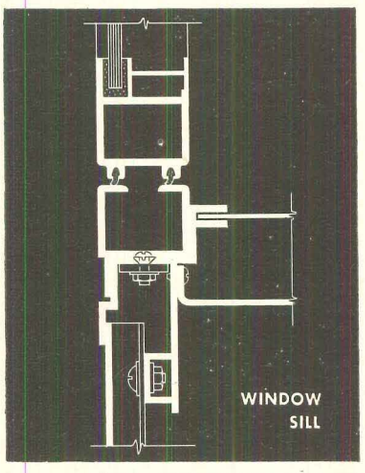

Reynolds Aluminum Applications in this Building

Aluminum Wall Window Units consisting of Reynolds Series 100 Vertically Pivoted Windows, Interlocking Extruded Spandrels and Aluminum Metal Wall Accessories.

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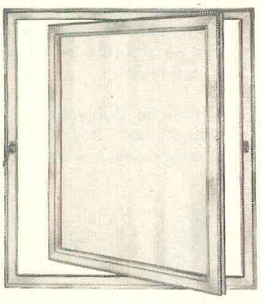
Reynolds Architect Service Representatives offer specialized assistance on aluminum design problems, on applications of standard aluminum mill products, and on the use of commercially fabricated aluminum building products. They can help to coordinate varied aluminum requirements for procurement efficiency and economy. Inquiries should be addressed to...Architect Service, **Reynolds Metals Company,** Louisville 1, Ky.



REYNOLDS SERIES 100 VERTICALLY PIVOTED WINDOW as used for Northwestern Bell Telephone. Provides minimum air infiltration, positive locking. Revolves easily for washing from the inside. All welded frame construction. Self-draining.

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ALUMINUM

CITIES *cont'd.*

tial to any vision of our American future.

ZECKENDORF: Decentralization isn't new. You're a product of decentralization, and I am too. But in an inverse ratio to decentralization. Take the example of New York City. New York was the great hub of industry in this country. But New York has lost its industry through just what you're talking about. Industry had a horizontal growth. It had to go to the periphery. It had to go to the suburbs or it had to go out into the open spaces, and New York is no longer an industrial city. New York did recapture something in inverse ratio to the decentralization of manufacturing. New York recaptured the things that decentralization meant. Every time a factory went out to Iowa, Indiana or down to Carolina, it had to have a showroom somewhere in the midtown of New York.

WRIGHT: To sell its merchandise. A good place in which to sell fish but there are no fish in its streams.

ZECKENDORF: We want to get rid of the industries. We're getting rid of our manufacturing at 50¢ a ft. and getting back the opposite space at $5. That's a good trade. People don't come to New York to stay at a hotel room in a chain hotel. They come here to buy, sell, or to go to theater or enjoy cultural activities. It's a market; and it's a place to borrow money and to lend money, however ugly the word may sound. It is a place where the very life blood of the nation generates and pulsates, and it has the benefits that probably are found in the very communities that you wish to build your towers.

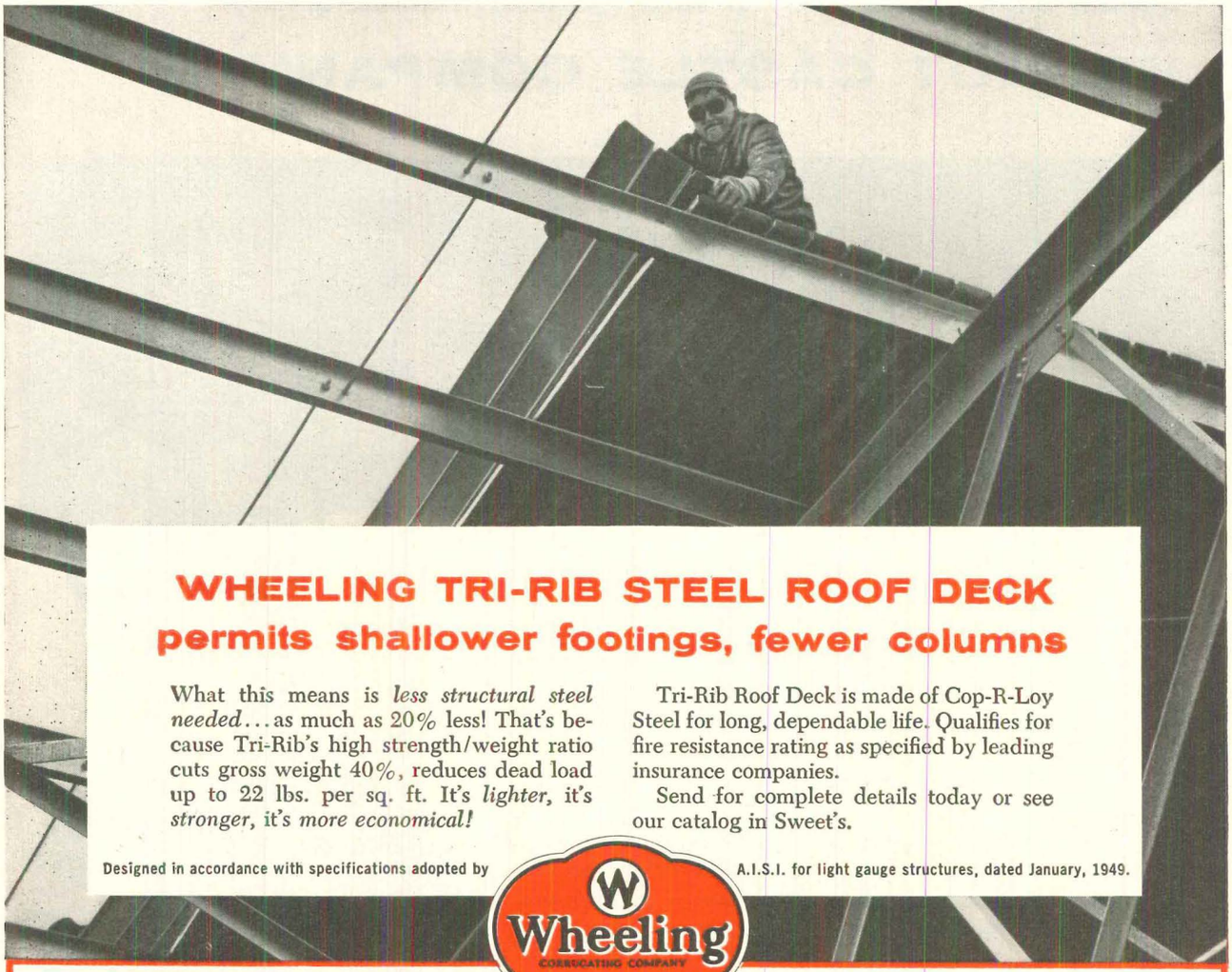
WRIGHT: The advance that we've tried to give to building by the building of the Price Tower out on the Oklahoma plain is, "Stay home and do your own stuff; don't impinge on Mr. Zeckendorf in his New York City." Stay there, where you live, spend to make your own town beautiful. If you want a skyscraper, it's a natural American achievement. Use it! The country is the place for it.

ZECKENDORF: I can't see the logic to a skyscraper in the open spaces.

WRIGHT: Well, but the Price "skyscraper" *is not in "the open spaces."* The skyscraper is in a pleasant small town that can absorb the skyscraper. Because it is an economic, beautiful form, and should cast its shadow on its own ground, a likely circumstance in a town by itself. Every town should have one or two or three of them. They have churches and steeples? Why not a beautiful feature that is utilitarian though tall.

ZECKENDORF: You're talking about art for art's sake.

continued on p. 172



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Tri-Rib Roof Deck is made of Cop-R-Loy Steel for long, dependable life. Qualifies for fire resistance rating as specified by leading insurance companies.

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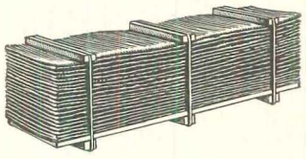

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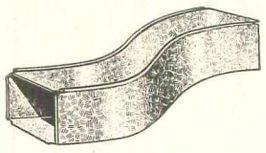

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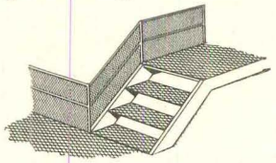

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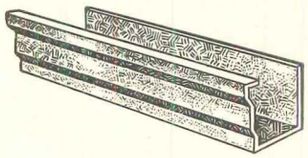

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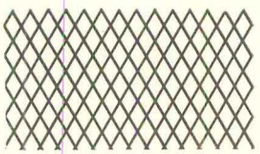

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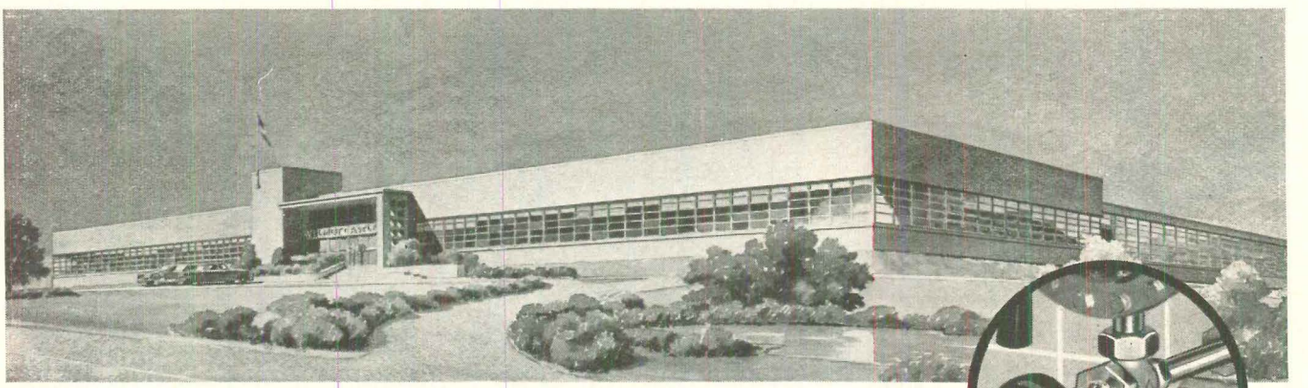

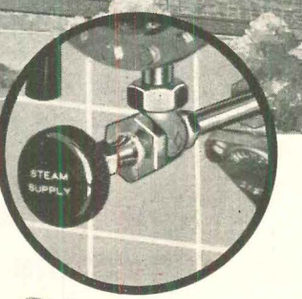

Architect: CARL L. TRAVER *General Contractor:* JOHN B. PIKE & SON, INC.
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JENKINS VALVES

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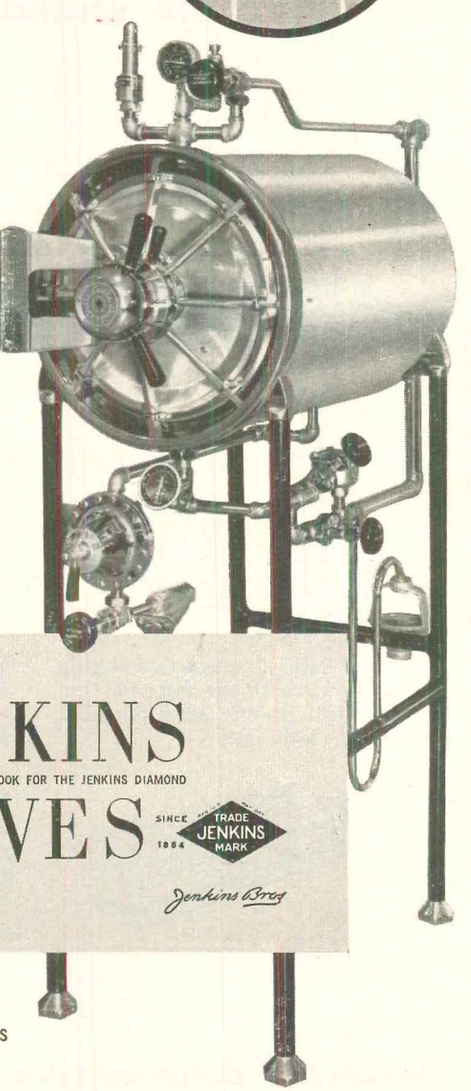
In selecting valves for the plant, the company could depend on their long experience with the faultless performance of the valves used on Castle Sterilizers, recognizing that all Jenkins Valves — bronze, iron, steel, and corrosion resistant — are made to the same high standards.

For *both plant and product,* the time-proved *extra value* of Jenkins Valves is dependable assurance of lasting efficiency, safety, and operating economy. Jenkins Bros., 100 Park Ave., New York 17.



THE LABORATORY AUTOCLAVE illustrated is one of the many types of Castle Sterilizers, and shows typical use of Jenkins Valves on the steam, water supply, and drain lines. Valves are renewable composition disc type, and have special heat-resistant, non-staining Bakelite handles, with each valve's function moulded in the top. Jenkins Valves provide the sturdy construction, safety, and good appearance required They also permit quick, easy maintenance, since the renewable discs, made also by Jenkins Bros., are available anywhere from Jenkins Distributors.

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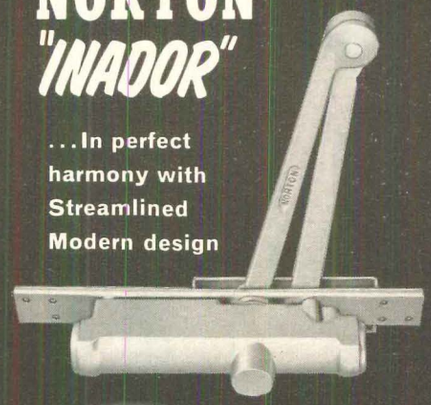

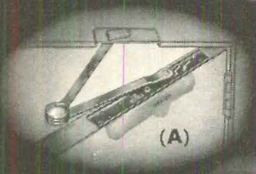

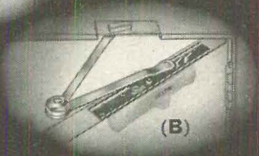

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WRIGHT: No, I'm not. I'm talking of the life of the people in the town. The pride and joy they take in their own town and in seeing things there that are dignified and *beautiful* and utilitarian.

ZECKENDORF: In giving a town an office building, could you justify it as you would a church?

WRIGHT: Yes. I think an office building is quite as important as a church or a museum. And I think it has a function and a future, a countenance, too, that can be as beautiful and spirited as Mt.-St.-Michel, or as any other building ever built.

ZECKENDORF: I'm sure it can be beautiful, but should things be built for beauty alone?

WRIGHT: No. There is no such thing. Whoever saw Beauty "standing alone" (independent of reality)? I never have.

ZECKENDORF: I've been under the illusion that I have.

WRIGHT: Ordinary buildings commit a sin that we have tried to abolish in the Price Tower. We want not only privacy for people but beauty of environment. We don't want to encircle and environ them like grains of wheat in a bushel!

ZECKENDORF: Doesn't that depend upon site planning?

WRIGHT: How can you "site-plan" in a place like New York City?

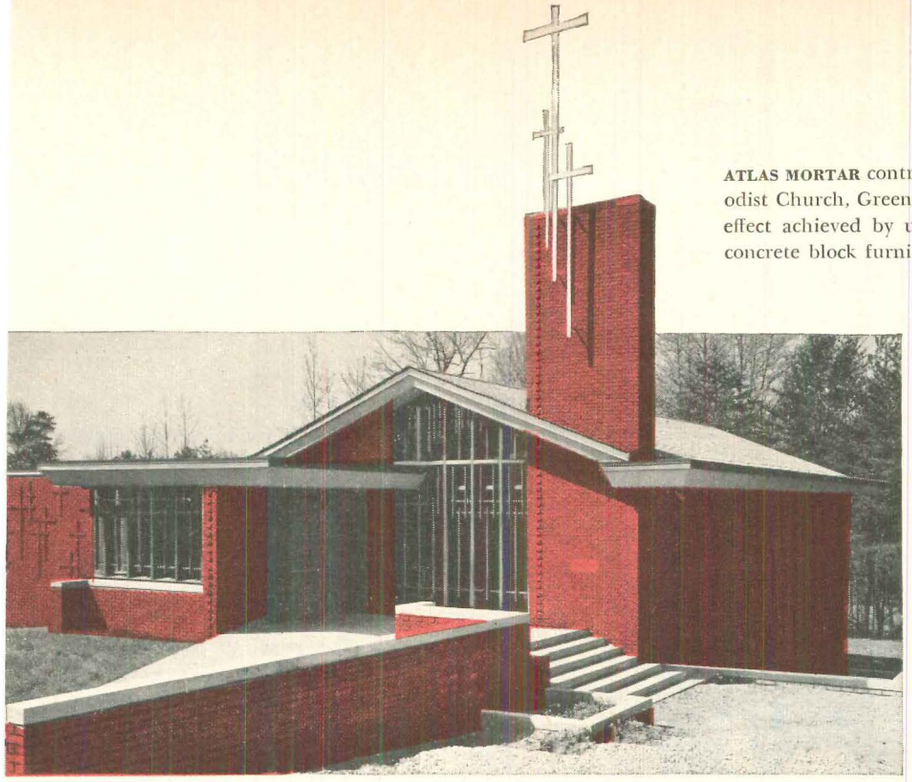
ZECKENDORF: It can be done, and I predict that it will be done. The city pattern will change. We'll get away from the gridiron streets.

WRIGHT: But what's going to maintain the necessity for the city? Why are people going to come and crowd in upon each other when they become better conditioned, and more intelligent? And more enlightened? The more enlightened they become the less they're going to impinge on one another. What are these great spaces for now lying all around here and everywhere else? What is this impulse to impinge upon everybody, your elbows in somebody's ribs and standing on somebody's feet? What is this impulse to crowd now that the real basis for crowding no longer exists and you have no more than the gregarious animal left?

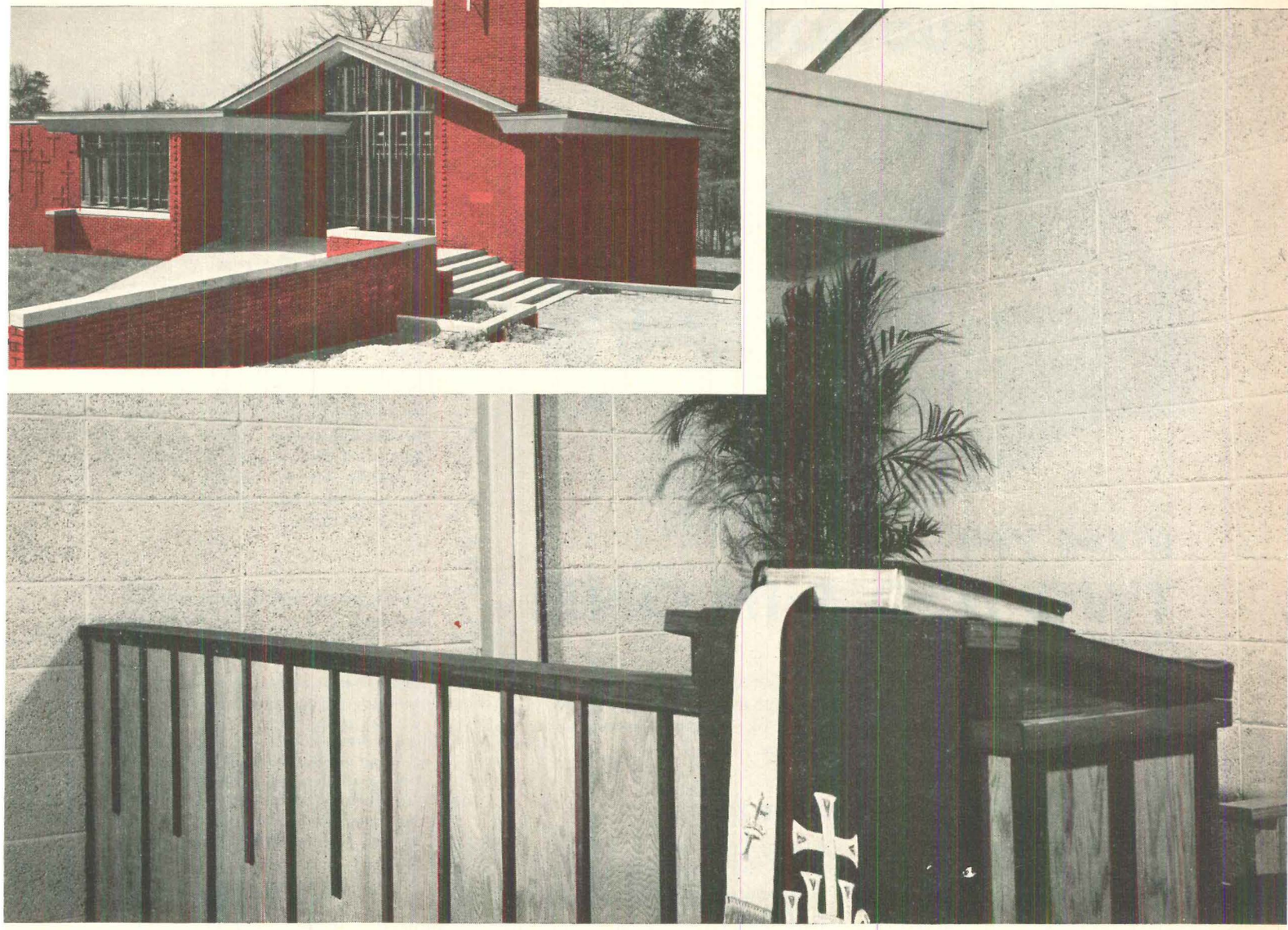
ZECKENDORF: I believe that many like a little bit of crowding, as shocking as it may sound to you. I feel that perhaps your way of life might not be the same as mine.

WRIGHT: Your way of life, then, is for the crowding?

ZECKENDORF: I like to have a man get a little of both; that's why I believe in the green belt theory, in the belief that one and one equals three if two good ideas are exchanged.



ATLAS MORTAR contributes to the fine modern appearance of Northside Methodist Church, Greenville, S. C. Interior view, below, shows excellent textural effect achieved by use of concrete-block masonry. Ready-mix concrete and concrete block furnished by Greenville Concrete Company, Greenville, S. C.



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RESEARCH

A spotlight on new tests, new standards, new studies

THE USE OF LUMBER

From time to time this column will assist the building industry by reviewing broad fields of building science activity and reporting what is being done in those fields and the sources of latest information.

This month's summary covers research related to timber construction and forest product use that is active now or has been active within the past 18 months. The table below includes a selected group of colleges and universities, government agencies, trade associations and a private commercial research organization. The selection was made to indicate the range of topics under study in this field. The breadth of interest in several of the topics is also illustrated. (Wood product manufacturers and lumber producers are responsible for an equally extensive program of research covering about the same range of topics.)

SOURCES OF WOOD RESEARCH

Subject	Source (key below)
Timber resources	1, 15, 20, 24
Quality effect of plantation spacing	24
Strength of young growth timber	5, 24
Lumber grade use	1, 15, 20, 24
Wood procurement	1, 17, 20, 21, 24
Cutting characteristics of wood saws	4
Degradation of wood by machining	5
Structure and identification	15
Seasoning studies	5, 15, 17, 20
Physical and mechanical properties tests	1, 5, 11, 15, 17, 19

Table continued on p. 178

1. Michigan College of Mining and Technology
2. Virginia Polytechnic Institute
3. University of Texas
4. University of Michigan
5. Oregon Forest Products Laboratory
6. University of Denver
7. University of Maryland
8. University of Southern California
9. University of Louisville
10. Southern Methodist University
11. Purdue University
12. University of Nebraska
13. Illinois Institute of Technology
14. University of Mississippi
15. Forest Products Laboratory, US Dept. of Agriculture
16. American Institute of Timber Construction
17. Timber Engineering Co.
18. Architectural Woodwork Institute
19. National Woodwork Manufacturers Assn.
20. California Redwood Assn.
21. American Wood Preservers Institute
22. National Pest Control Assn.
23. Hardwood Plywood Institute
24. Southern Pine Assn.

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*Architectural Record, May 1956.

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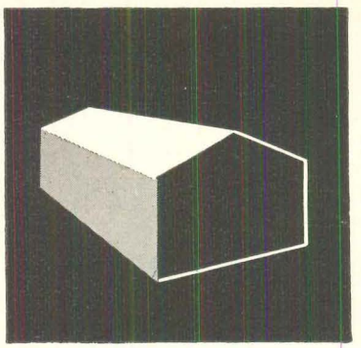

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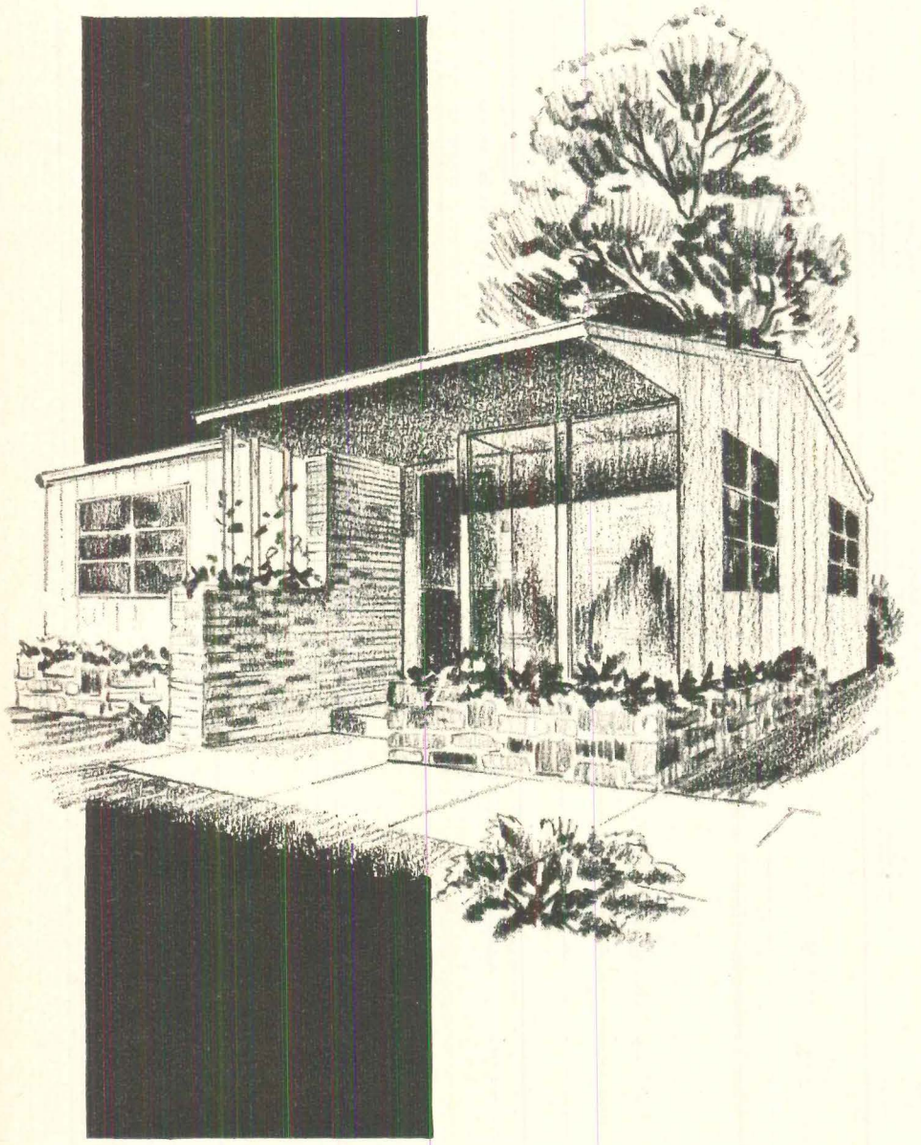

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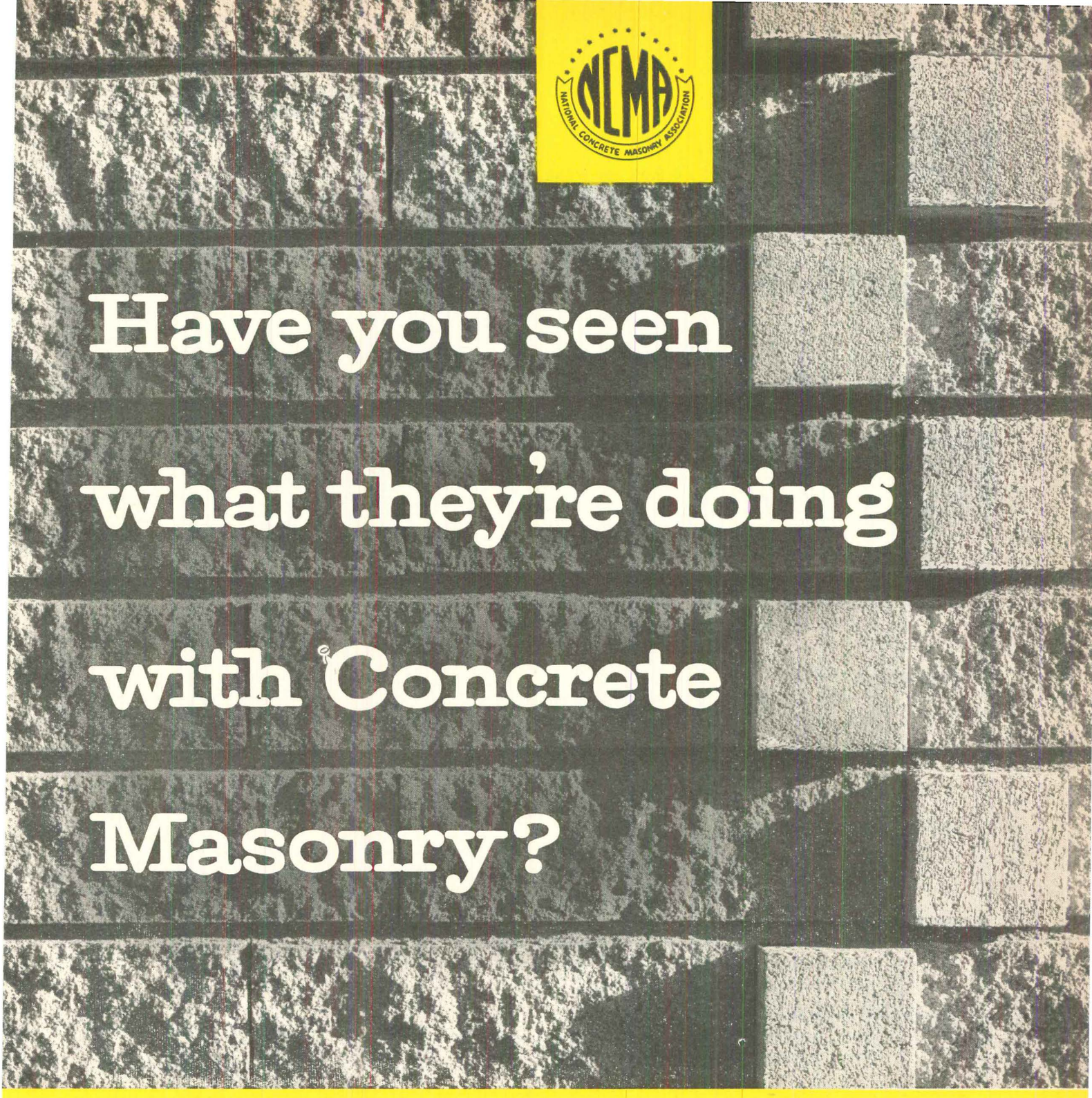

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Block is now available in many localities in green, ocher, red, ivory, blue, yellow, gray, black and other decorator colors.

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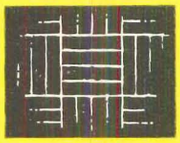
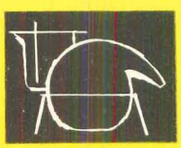
You can build extra distinction into a wall at little extra cost with any of the new concrete block wall patterns.



NEW RESEARCH

NCMA'S engineering staff has produced technical studies which can help you. Ask your local block plant for a copy of "Sound Reduction Properties of Concrete Masonry Walls."



THERE'S always something new about concrete block—the nation's most versatile building material. In fact there are so many new things going on in the industry that it's pretty hard for a very busy man like an architect or an engineer to keep up with the newest improvements.

Here's where your local NCMA member can be a big help to you. Ask him to show you some of the new improvements in block—he's a good man to know.

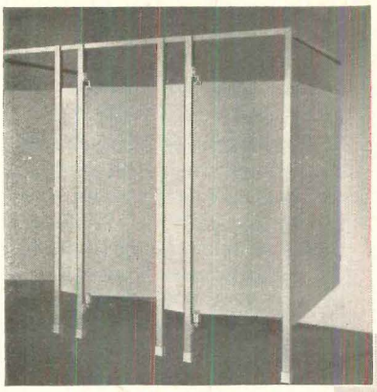
NATIONAL CONCRETE MASONRY ASSOCIATION • 58 SOUTH DEARBORN • CHICAGO

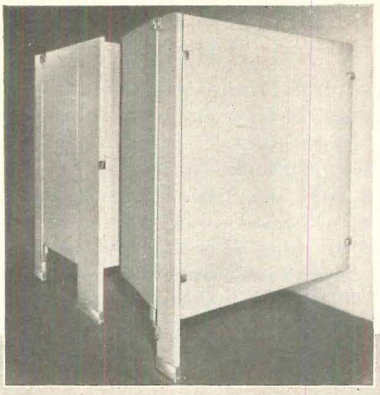
RESEARCH *cont'd.*

SOURCES OF WOOD RESEARCH

Subject	Source (key below)
Wood product development	1, 15, 17, 18, 19, 20, 23, 24
Woodworking industrial engineering	1, 15, 16, 17, 18, 19, 23
Relation of modulus of elasticity to moisture content	7
Laminated structural members	15, 16, 17, 21
Wood windows	18
Cabinet construction	18
Color stability of exposed wood	17
Studies of wood finishes	1, 17, 19, 20, 24
Development of synthetic finishes	4, 15, 17
Resistance of Western woods to industrial chemicals	5, 20
Wood preservative chemicals	4, 5, 6, 15, 17, 21
Decay of wood	15, 21
Termite damage and protection	15, 21, 22
Rodent resistance of woods	22
Warpage control	19
Long-term tests on roof trusses	17
Plywood webbed trusses analysis	12
Wood joints tests	8, 10, 15, 17, 20
Prefabricated building design	9, 15
Strength of plywood sheathed panels	5, 15
Static and dynamic loading on nailed crates	3, 15, 17
Nailed trussed rafters	2, 17
Nails and nailing procedures	2, 15, 17
Hardboard production and development	1,6, 13, 14, 19, 20
Development of particle boards	15, 17, 19, 20
Wood plastics development	15, 17
Utilization of wood waste	9, 15, 17, 19
Glues and glued wood products	15, 16, 17, 19, 23, 24
Fire protection of wood	15, 16, 21
Trees and shrubbery control	2

1. Michigan College of Mining and Technology
2. Virginia Polytechnic Institute
3. University of Texas
4. University of Michigan
5. Oregon Forest Products Laboratory
6. University of Denver
7. University of Maryland
8. University of Southern California
9. University of Louisville
10. Southern Methodist University
11. Purdue University
12. University of Nebraska
13. Illinois Institute of Technology
14. University of Mississippi
15. Forest Products Laboratory, US Dept. of Agriculture
16. American Institute of Timber Construction
17. Timber Engineering Co.
18. Architectural Woodwork Institute
19. National Woodwork Manufacturers Assn.
20. California Redwood Assn.
21. American Wood Preservers Institute
22. National Pest Control Assn.
23. Hardwood Plywood Institute
24. Southern Pine Assn.





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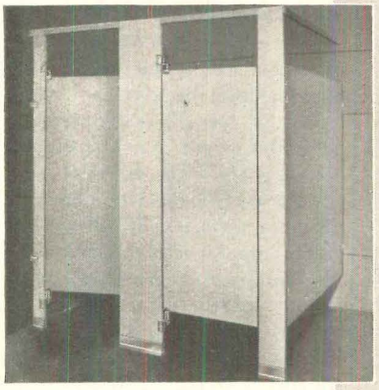

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BOOKS

LIFE AND HUMAN HABITAT. By Richard Neutra. Published by Wittenborn & Co., 38 E. 57 St., New York, N. Y. 317 pp. 8½" x 12". Illus. $18

At first glance this appears to be a picture book of Neutra's deservedly celebrated houses. While it is both instructive and enjoyable on that level, this is a book with a further mission. It begins with a delightful essay on the need for architectural design to be broadly and consciously based on man's biology, on his whole physiological nature—a point of view Neutra has previously expounded in *Survival through Design* (AF, Jan. '54). The photographs and plans of houses (interspersed with shorter essays) which form the body of the book are chosen to illustrate what Neutra means by "biological realism." The point could have been made with other buildings as well; Neutra limited himself to dwellings because these are presumably most widely understood as a building type.

What Neutra is talking about, it becomes clear from the illustrations, is sensuous architecture — architecture calculated to satisfy not only the visual sense, but the senses of touch, of hearing, of smell, and the multitudinous kinesthetic senses that have to do with movement, space and location in space. This is architecture calculated to satisfy, too, a multitude of desires usually classified as psychological—the sense of privacy, for instance, or of gregariousness or the safety of the unchanging or the excitement of the changing.

Neutra's architecture coordinates the messages which the various senses carry. For instance, he gives a house on a long, low ridge an offset approach stair which not only serves the practical purpose of breaking the walk upward into two parts, but serves the subtler purpose of incorporating a definite horizontal walk between flights; the kinesthetic senses of movement thus reinforce precisely what the eye says of this terrain. Neutra lights up the night, but he does not dispel it; the manner of his lighting emphasizes that night hovers over. Where floor surfaces make the transition from indoors to outdoors they are apt to become open-slatted—not only for water drainage but to let the eye and the soles of the feet reinforce what the skin says about the transition. As for water—many of these houses are enchanting demonstrations of its sensuous possibilities in architecture.

To make his points about the larger social groupings of man, Neutra has mostly used sketches. Those that most successfully illustrate his meanings—say of "neighborliness and neighborhoods" for instance—are drawn from other cultures, an obliquely sad but true commentary on the US art of townscape.

The text is in English; captions are repeated in German.

HEATING, VENTILATING, AIR CONDITIONING GUIDE 1956. Published by American Society of Heating and Air Conditioning Engineers, 62 Worth St., New York 13, N.Y. 1696 pp. 6¼" x 9¼". Illus. $12

This annual opus on the technicalities of heating and air conditioning is bigger than ever—the technical section alone covers 1,176 pp. (Balance of the book is made up of product descriptions.) This year particular attention has been given to the presentation of heat transmission coefficients of building materials. The design values for conductivity and conductance are included for many more materials than in previous editions. The increased number of tables make it easy to compute the effect of adding air spaces or insulations to walls, ceilings or floors.

continued on p. 184

New York Coliseum

This $35 million structure has a 26 story office building, a large underground garage, and a 9 acre four level exhibition area with the most modern facilities obtainable.

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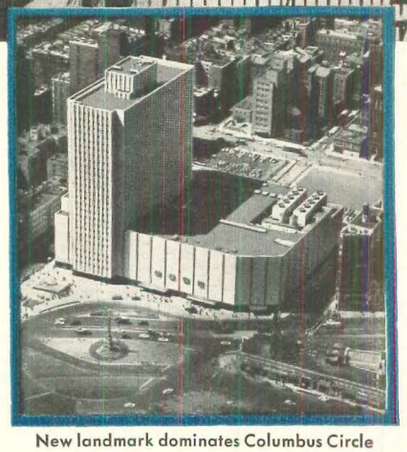

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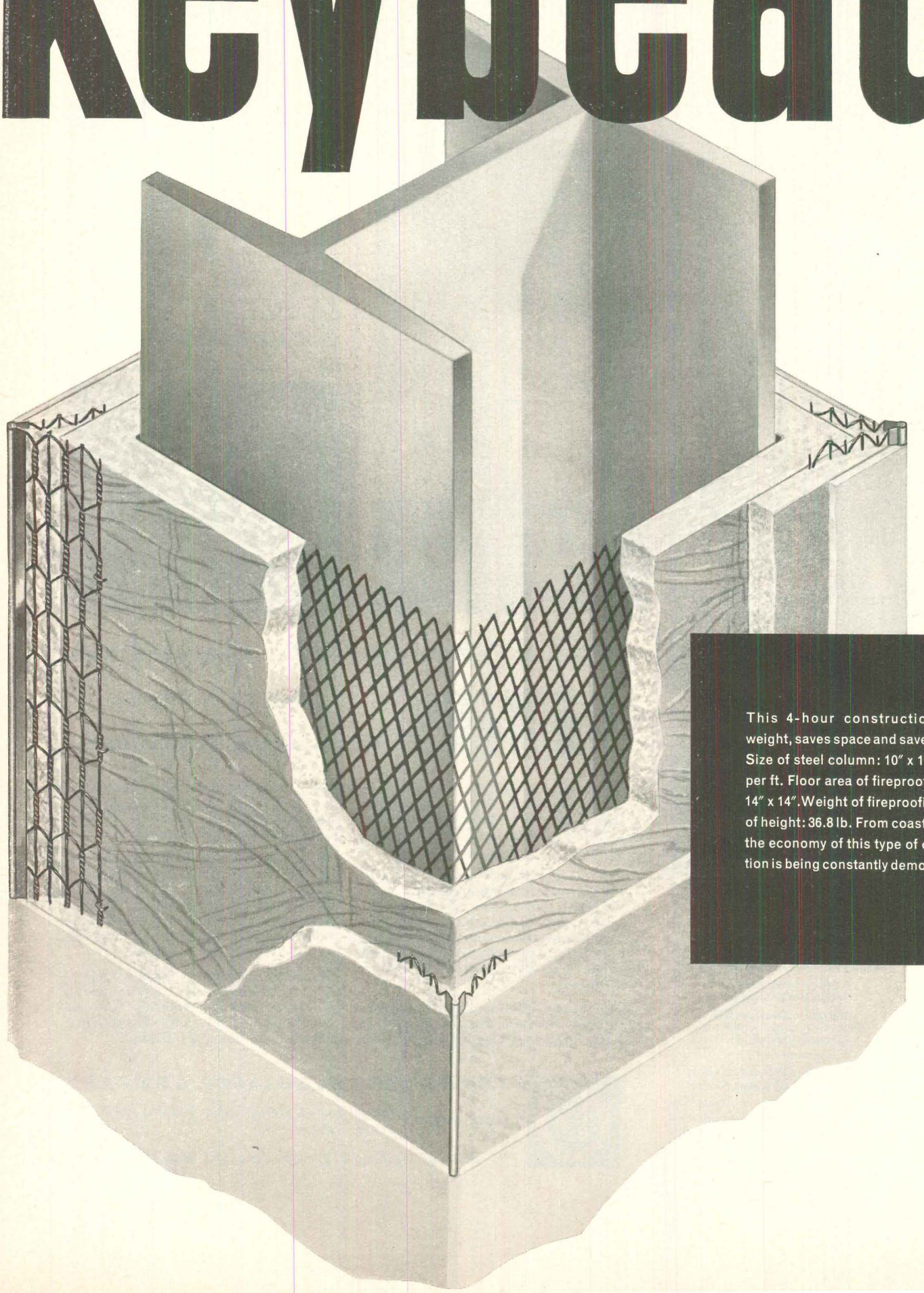

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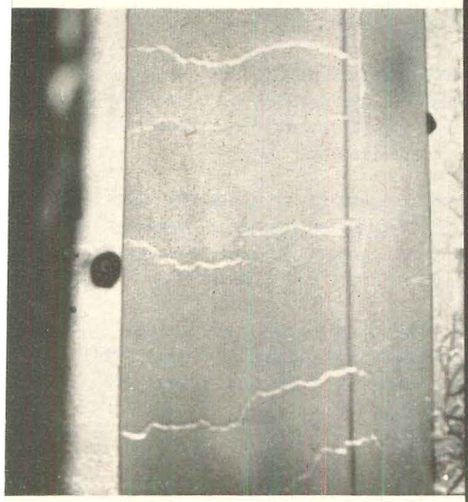
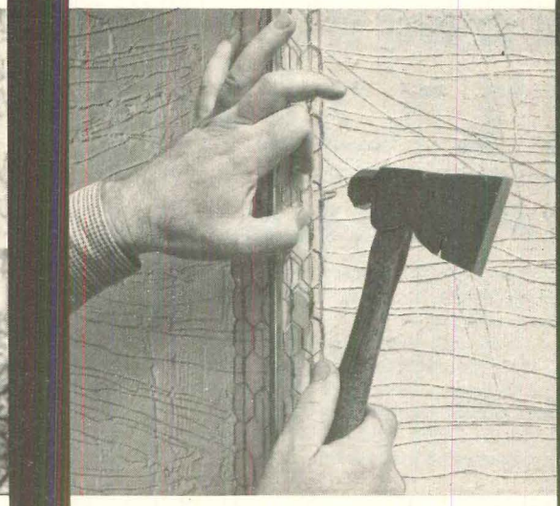


View of test column in furnace near end of test, during which temperature reached 2,000 degrees F. Note absence of cracks along the Keybead.



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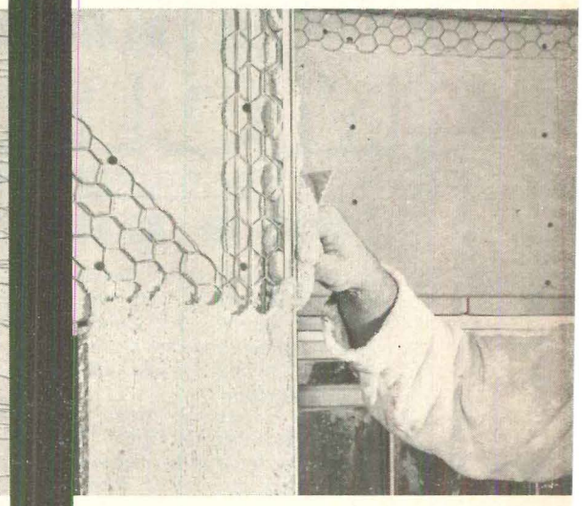

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DESIGN OF REINFORCED CONCRETE.

By Boris W. Boguslavsky. Published by The Macmillan Co., 60 Fifth Ave., New York 11, N.Y. 428 pp. 6¼° x 9½". Illus. $7.50

This is primarily a college textbook. It presents to the beginning student, in simple detail, the fundamentals of structural theory as it applies to the analysis and design of reinforced concrete members, and acquaints him with the design procedures and techniques commonly used in structural engineering offices. It also gives the practicing engineer a series of outlines which will guide him through the design of many a reinforced concrete member or structure.

ESTIMATING CONSTRUCTION COSTS.

By R. L. Peurifoy. Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N.Y. 315 pp. 6" x 9¼". Illus. $8.50

According to the preface, the purpose of this book is to assist the reader in understanding the methods of estimating the cost of constructing engineering projects. Tables involving labor give the approximate man-hours required to perform a specified quantity of work. Unit prices are included for materials, labor and equipment in order to complete each estimate. While these prices are representative of current prices, they should be modified for any particular project.

BOOKS RECEIVED

THE ANALYSIS OF STRUCTURES. By N. J. Hoff. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y. 493 pp. 6" x 9¼". Illus. $9.50

WREN AND HIS PLACE IN EUROPEAN ARCHITECTURE. By Eduard Sekler. Published by The Macmillan Co., 60 Fifth Ave., New York 11, N.Y. 217 pp. plus illustrations. 6¼" x 10". $12

FOUNDATION ENGINEERING. By Rolt Hammond. Published by Philosophical Library, Inc., 15 E. 40th St., New York 16, N.Y. 192 pp. 6" x 9". Illus. $10

TEN BOOKS ON ARCHITECTURE. By Leone Battista Alberti. Distributed by Transatlantic Arts, Inc., Hollywood-by-the-Sea, Fla. 256 pp. plus illustrations. 7" x 10". $8.50

BOECKH'S MANUAL OF APPRAISALS. Fifth Ed. Published by E. H. Boeckh & Associates, 1406 M St., N.W., Washington 5, D.C. 840 pp. 5½" x 8¾". Illus. $18

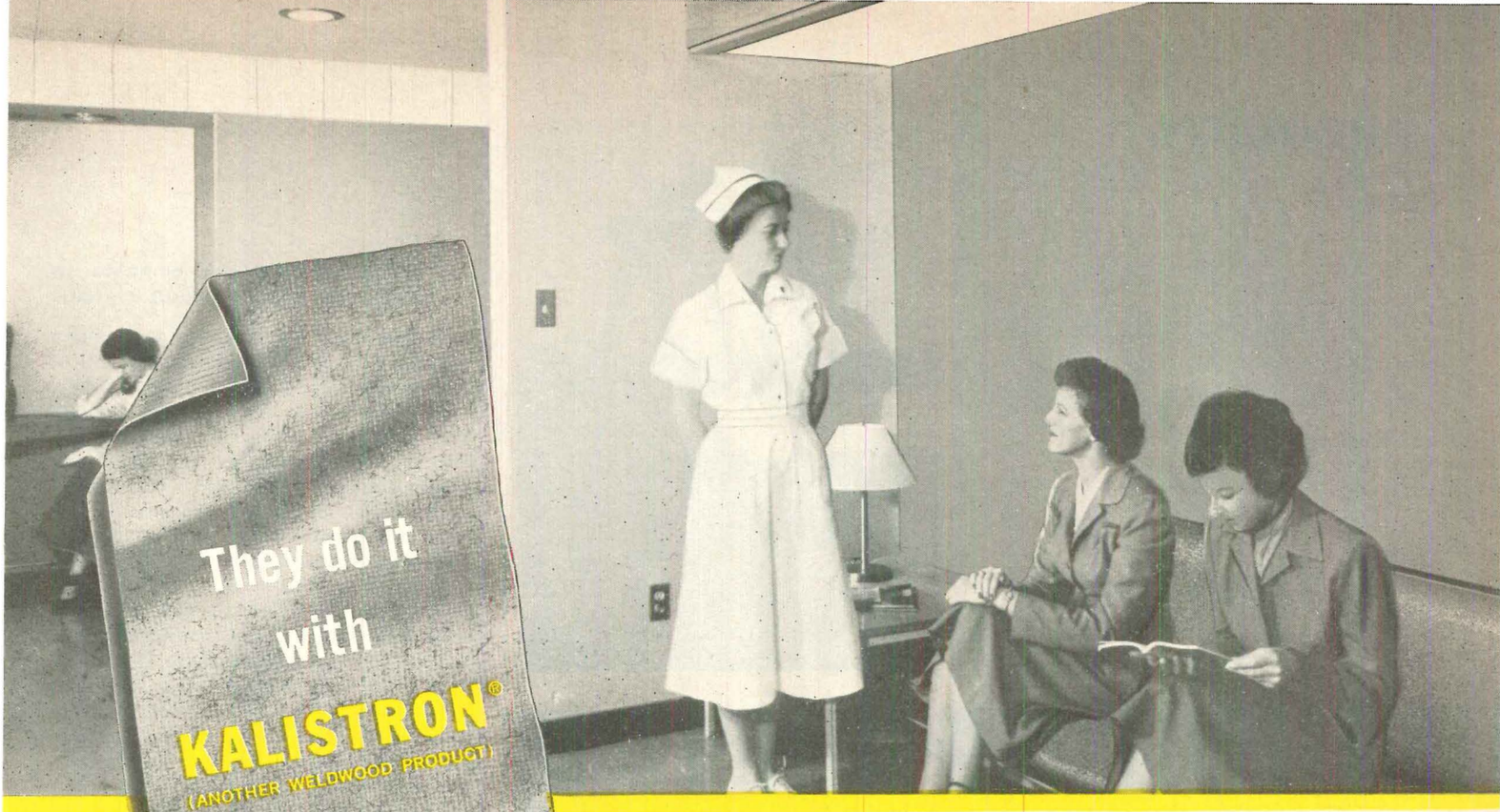
FOUNDATIONS: DESIGN AND PRACTICE. By Elwyn E. Seelye. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y. 8" x 10¼". Illus. $16

THE ENGLISHNESS OF ENGLISH ART. By Nikolaus Pevsner. Published by Frederick A. Praeger, 105 W. 40th St., New York 18, N.Y. 208. pp. 5½" x 8¾". Illus. $4.50

ROMANESQUE ART. By Juan Eduardo Cirlot. Published by Philosophical Library, 15 E. 40th St., New York 16, N.Y. 93 pp. 8¾" x 11¼". Illus. $10

BUILDINGS OF TOMORROW. Guide for Planning Settlements and Community Buildings. By Fern M. Colborn. Published by William Morrow and Co., Inc., 425 Fourth Ave., New York 16, N.Y. 159 pp. 5½" x 8¼". Illus. $3.50

A TREATISE ON SURVEYING. Sixth Ed. Vol. I, Instruments and Basic Techniques; Vol. II, More Advanced Techniques and Modern Developments. By Middleton & Chadwick. Published by Philosophical Library, Inc., 15 E. 40th St., New York 16, N.Y. 381 and 438 pp. 5¾" x 9". Illus. $20 per set

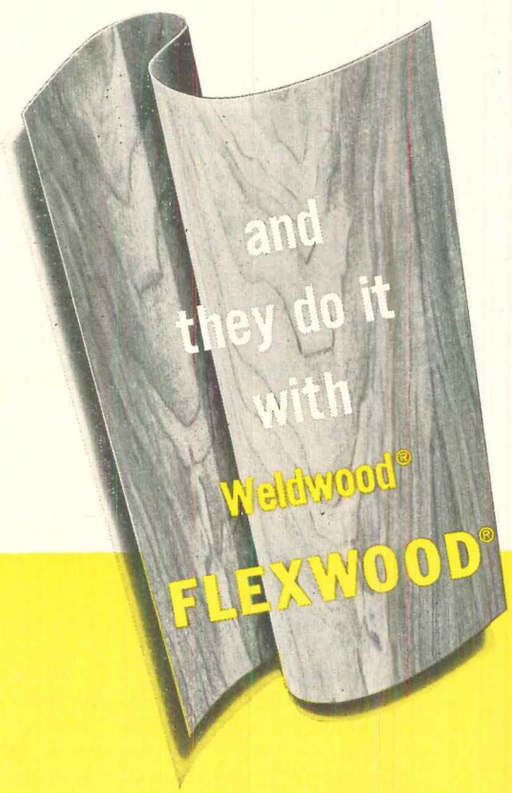


The University of Texas M. D. Anderson Hospital & Tumor Institute. Architect: MacKie and Kamrath.

We wish we could pin a sample of Kalistron's new Shadowline pattern to this page. Then you could see its beauty of design, feel its deep texture, conjure up dozens of new decorative ideas and applications it makes possible. There's absolutely nothing like it on the market — certainly nothing with such a rich texture that will yet stand up to brutal punishment, careless use or hard wear.

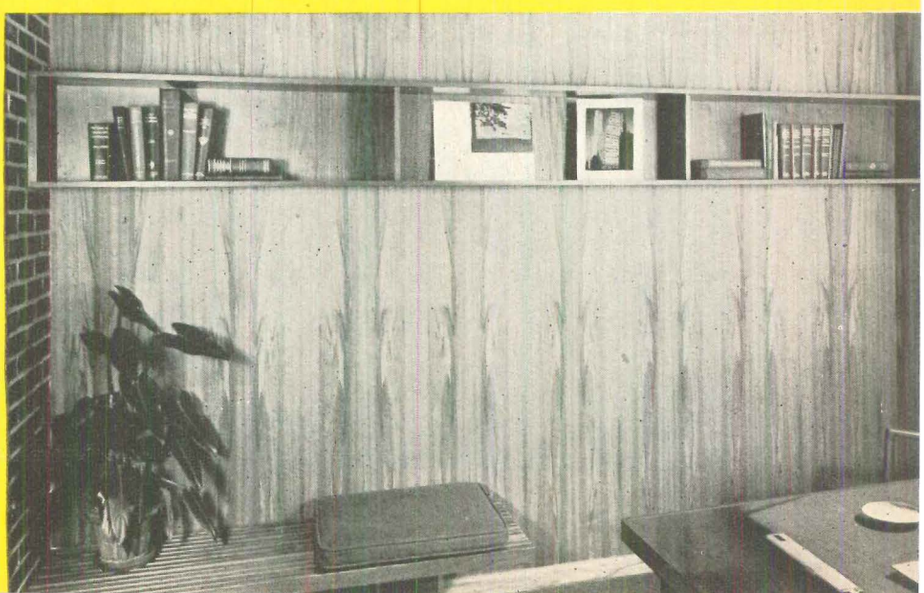
Kalistron gives walls living, glowing beauty — shielded by a coat of tough, transparent vinyl against scratching, scraping, scuffing, marring. And it cleans in seconds with a damp cloth. We can't pin Kalistron's Shadowline to this page, of course. But we *can* do the next best thing: send you samples and color card. Write today and they're yours promptly.

•



For many interior walls, there's nothing that can take the place of rich-grained wood paneling. But is it practical on a curved wall or round pillar? Certainly it is, with new improved Flexwood—real wood paneling in flexible form. It hugs a curved wall as easily as a flat wall . . . you can even wrap it around columns. Beautiful matched grain effects, in your choice of 40 beautiful woods, in architectural and random grades. Flexwood meets all fire code requirements . . . for new construction or alterations in offices, banks, public institutions, homes, etc. *Every installation guaranteed.*

Office of John Tishman, Tishman Realty & Construction Co., Inc., New York, N. Y. Architect: M. Saphier.

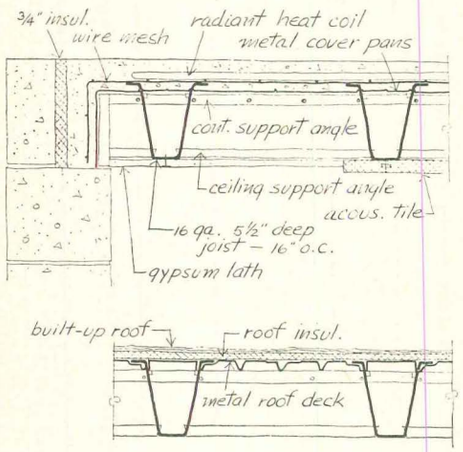


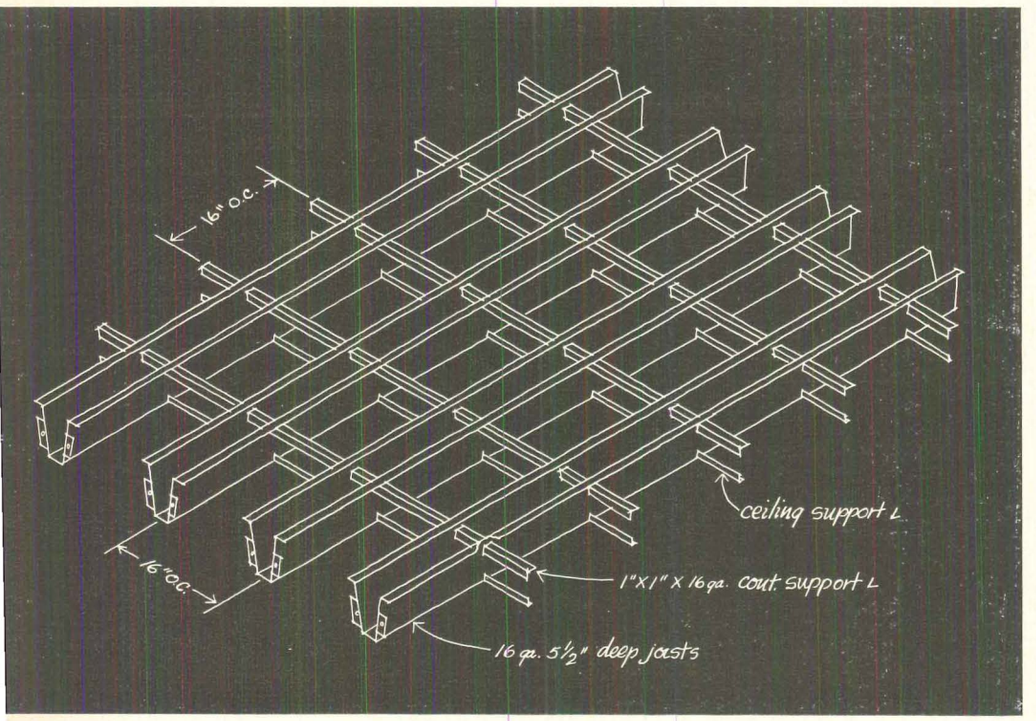
Weldwood

UNITED STATES PLYWOOD CORPORATION
New York 36, N. Y.

Flexible Materials Division
2921 So. Floyd St., Louisville 13, Ky.

PRODUCTS





(1) STEEL JOISTS can compete in price with wood framing systems

A hollow steel beam system competitive costwise with lumber in light construction, *Websteel* can carry cast-in-place concrete, metal roof deck or finished wood flooring. The panels of beams are designed for efficient load distribution and consist of trough-shaped joists and cold-formed metal angles which are delivered knock-down and assembled into grids on the job. Two men can put together the four-beam sections at the rate of 10 sq. ft. a minute. Flanges on each side of the tapered beams make *Websteel* adaptable to different kinds of roof and floor construction. Used with mesh reinforced concrete (top diagram, left) the grid is covered with shallow metal cover pans. Joist flanges are left exposed to become embedded in concrete and thus provide reinforced compression members while the steel below acts in tension—ideal conditions for both materials. No removable pans are needed; *Websteel* serves as the permanent form, supporting the pour on long spans without shoring.

On jobs calling for wood floors, 1 x 4 nailer strips are wedged under the flanges, and the finish floor applied crosswise directly on the top of the joists. *Websteel* also is furnished with metal decking (center diagram left) which is gripped by the flanges to interlock without any clips or welding. The joists have holes every 4″ to facilitate installation of utility lines and so can also act as a cellular floor for electrical distribution. The 5½″-deep joists spaced 16″ o.c. span 16′. In-place cost, including nailers for a wood floor, is approximately 68¢ per sq. ft., and *Websteel* for spans up to 26′ runs 78¢.

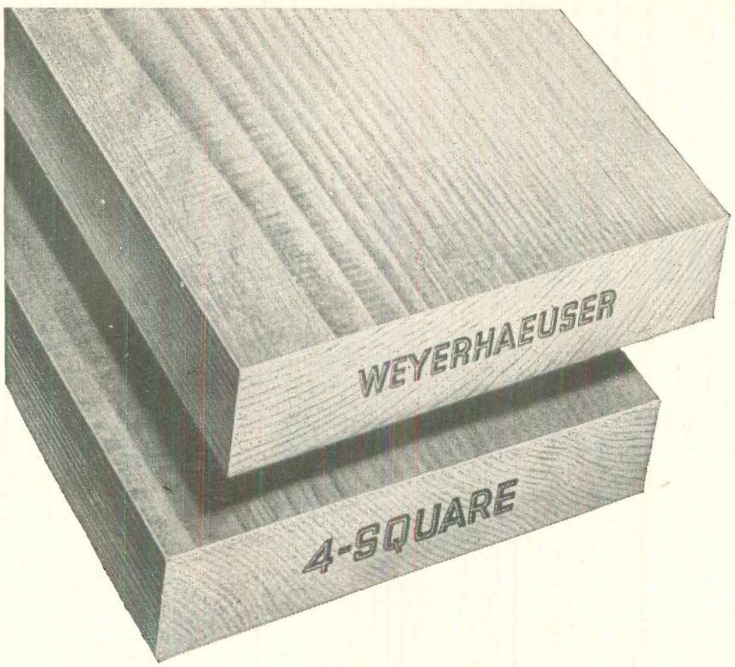
Manufacturer: Websteel Framing Systems, Inc.

For more data use coupon, p. 224

(2) POLYESTER PANS molded into forms for coffered ceiling

The structural and acoustical values of a waffled concrete ceiling for a garage, warehouse or factory can be achieved quite easily with these new lightweight reinforced plastic forms. Molded under 300° heat and 1 ton pressure, the chemical resistant polyester resin and glass fiber domed pans measure 1′-6″ square by 8″, 10″, 12″ and 1′-2″ deep and in many ways are as strong as steel forms of comparable size. The noncorrosive plastic surface leaves a smooth concrete surface and is said to reduce the number of voids. Weighing only 7 to 8 lb. each, the forms are easy to handle and can be stripped

continued on p. 190



This brand name also means...

Kiln-dried Lumber

Seasoned lumber delivers sound building values— and gives builders an important sales point

● When you design homes for today's competitive market, consider this fact: a home is easier to sell if it is framed and sheathed with Weyerhaeuser 4-Square Kiln-dried Lumber.

There are several reasons for this increased value.

For example, Kiln-dried Framing is an important sales feature because the public has learned that seasoned lumber is strong...that it has dimensional stability... that it contributes to sound, reliable construction.

Kiln-dried Lumber Sheathing on a new home is a feature that helps close many sales. Lumber is strong . . . it holds nails firmly. Also, lumber sheathing permits the use of shingles, vertical siding, and other special coverings without furring strips. These are a few of the reasons why lumber sheathing has been the accepted standard for generations . . . and is still a mark of high quality construction in homes, farm buildings and commercial structures.

The Weyerhaeuser 4-Square brand name, nationally advertised, is well-known to the public... a quality mark of sound building value.

All lumber bearing the brand name Weyerhaeuser 4-Square is scientifically kiln-dried, precision-manufactured, properly graded and carefully loaded for shipment. It is available in a wide range of species and grades, in commons and clears. There are Weyerhaeuser 4-Square Lumber products, from dimension to moldings, to meet every need in light construction.

Weyerhaeuser Sales Company

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OPERATION '56—the year to FIX HOME IMPROVEMENT


When All things are
...the better lighting
Louvers on Varsity units may be opened from either side to facilitate servicing.
All these things considered...
1. Specific Units for Every Need
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make BENJAMIN the choice for better lighting!
Benjamin translucent louvers are easy to keep clean by simply dipping in detergent-and-water solution.
Certified Lighting for a Better America
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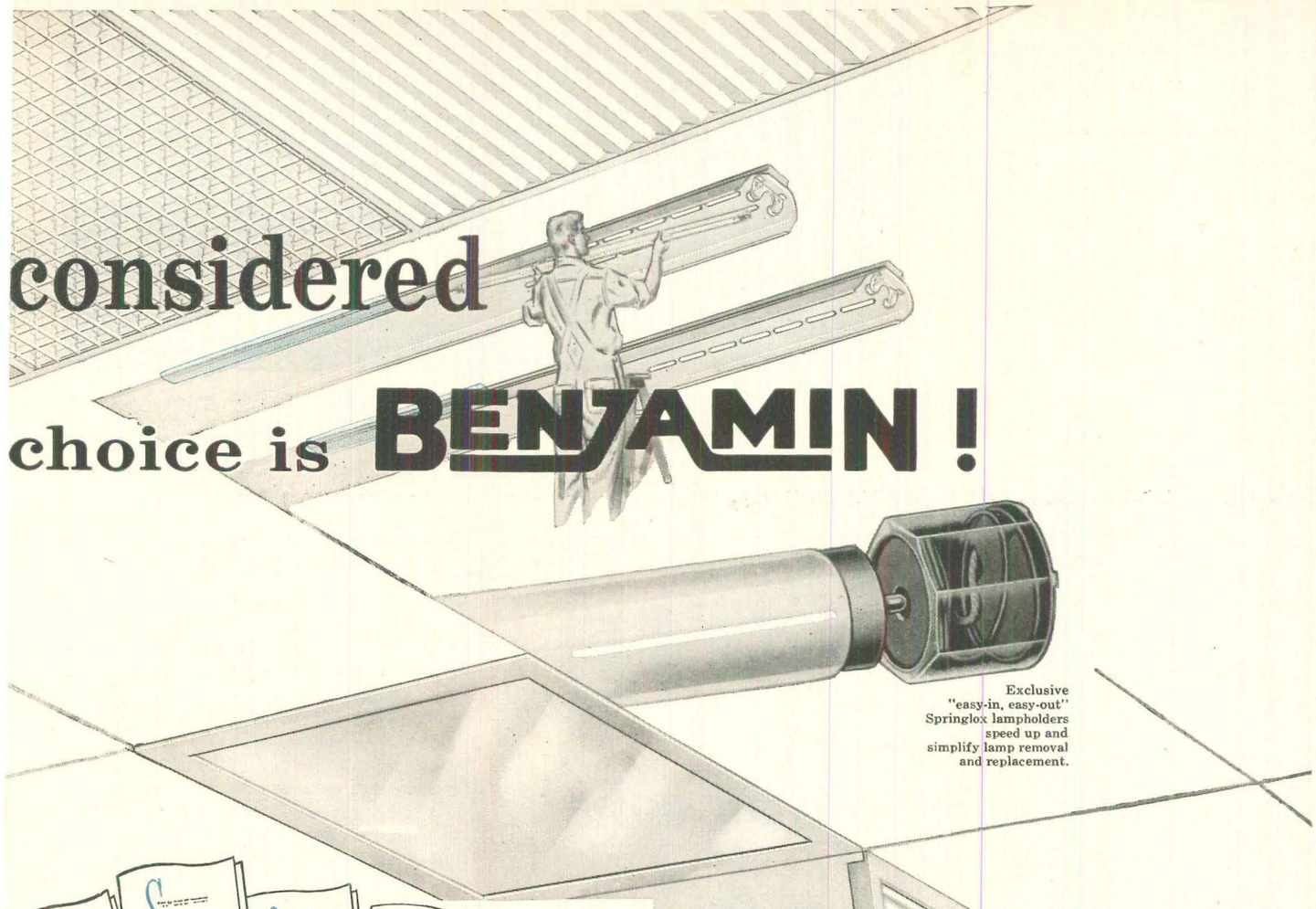
considered choice is BENJAMIN !



Exclusive "easy-in, easy-out" Springlox lampholders speed up and simplify lamp removal and replacement.

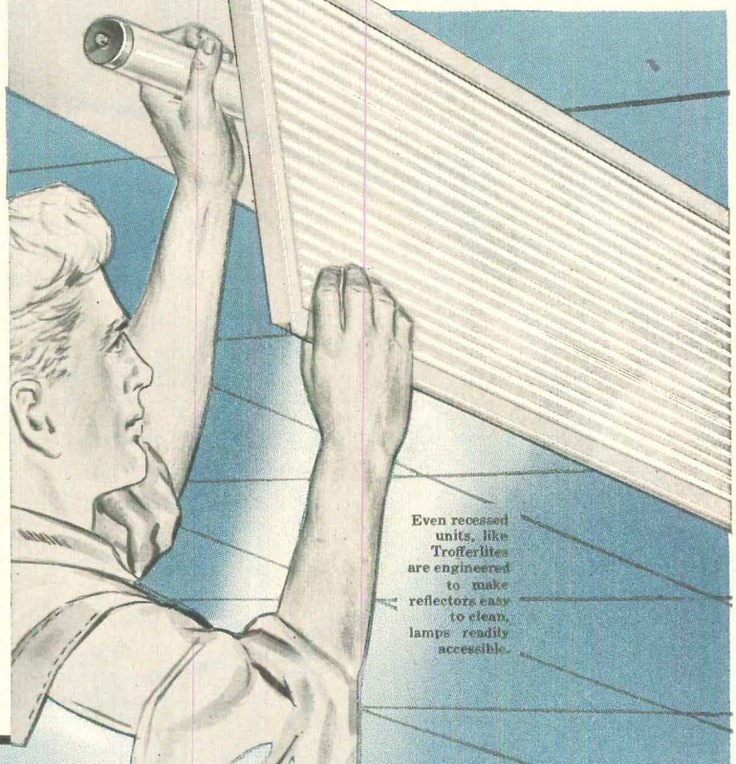
Send for your FREE copy of one or all of these interesting lighting bulletins!

consider:
Minimum maintenance cost!

When you look into the maintenance features of Benjamin Line lighting units, you will find important cost-cutting advancements such as shown above. These features not only make sure that the lighting system will stand up year-after-year, but also that the cleaning, re-lamping and servicing operations can be performed at lowest possible cost. Such time and labor-saving features are typical of the entire Benjamin Line . . . they are another reason why Benjamin advises specifiers and buyers to consider *all* things when selecting lighting equipment. They prove that a few pennies more invested in Benjamin quality, returns many dollars in better performance at minimum maintenance cost.

Benjamin Electric Mfg. Co., Dept. YY, Des Plaines, Ill.

XB-1038-IS



Even recessed units, like Trofferlites are engineered to make reflectors easy to clean, lamps readily accessible.

BENJAMIN TRADE MARK **LIGHTING EQUIPMENT**

SOLD EXCLUSIVELY THROUGH ELECTRICAL DISTRIBUTORS

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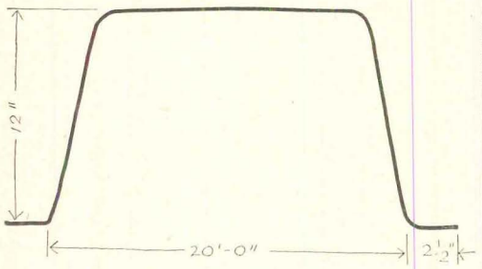
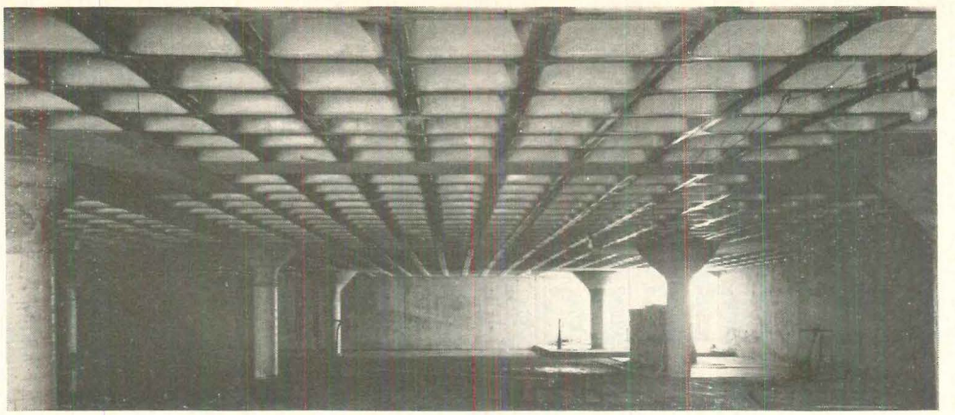


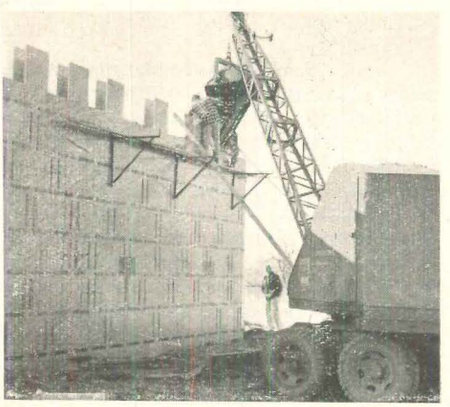


from the concrete with a shot of compressed air. The forms are leased on a sq. ft. basis, the rate depending on amount of reuses. Average cost is about 18¢ a sq. ft.

Manufacturer: American Fiberglass Corp.

(3) TWO-FACED FORMS for concrete made of plywood, bolts, clamps

Using plain 1⅛ exterior plywood counterbored fasteners and steel clamps, Formco's method of constructing formwork for concrete is fast and economical. The reversible panels are adaptable to foundations of any thickness, height and length. The system is also well suited for stepped up footings, pilasters, columns and beams, according to several contractors who reported labor costs cut from 45¢ down to 6¢ per sq. ft. of form. Weighing about 3 lb. a ft., the 7 or 9 ply sheets are predrilled and fitted with rust resistant Phillips head bolts which are counterbored and held in place by nuts. Steel clamps attached to the plywood on the job are provided with grooved slots for snap ties. Inner and outer form walls can be built separately or at the same time. All panels are interchangeable and can be used horizontally or vertically. As the concrete sets up, bottom panels may be detached and used for the formwork at top. When one side of the plywood is worn, the



hardware can be reversed and the other fresher surface used. *Formco* panels and clamps are said to take up ¼ the truck and storage space of standard forms with protruding hardware and framing. Sold in any size panel from 8" to 24" wide and 3' to 8' long, the *Formco* system costs about $1.45 to $1.60 per sq. ft. with hardware.

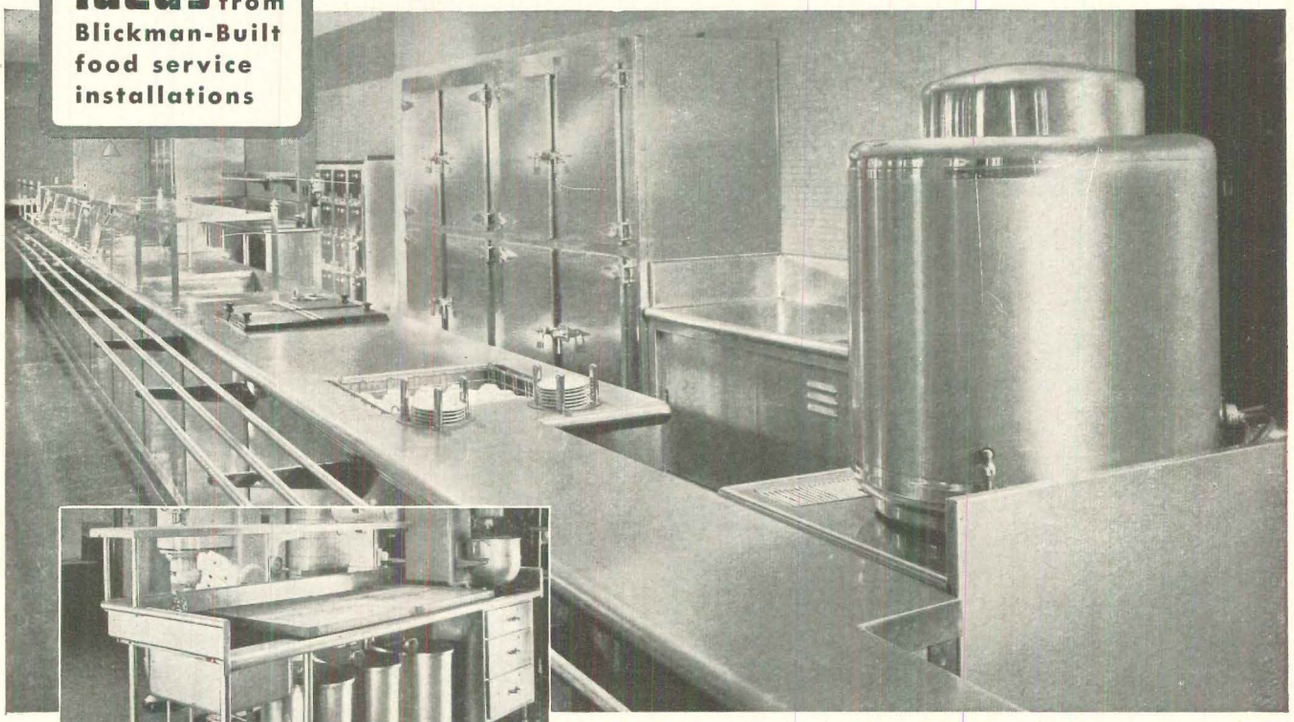
Manufacturer: Formco, Inc.

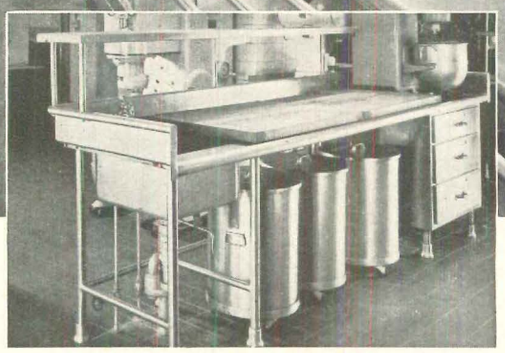
continued on p. 194

direct food flow cuts steps, speeds service

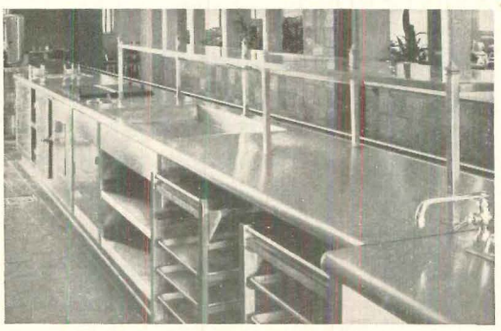
AT UNIVERSITY OF MICHIGAN, WOMEN'S LEAGUE BUILDING

ideas from Blickman-Built food service installations





PORTABLE BINS ELIMINATE WASTE MOTION — Stainless steel baker's tables with portable bins underneath. Bins are wheeled directly to supply section and filled with ingredients. Rehandling is eliminated — waste motion reduced to a minimum. When bins are removed, area beneath table can be cleaned easily.



MOVABLE CARTS SAVE LABOR — Working side of stainless steel cafeteria counter. Movable carts beneath counter can be loaded with food, avoiding unnecessary handling of separate dishes.

SPEEDY CAFETERIA SERVICE is aided by proximity of serving counter to cooking section in kitchen. Heated and cold pass-through cabinets back of the counter, placement of salad preparation unit in a direct line with salad display case, automatic Lowerator dispenser units for plates, cups and saucers — are among the many facilities to help speed service. Equipment is of all stainless steel construction.

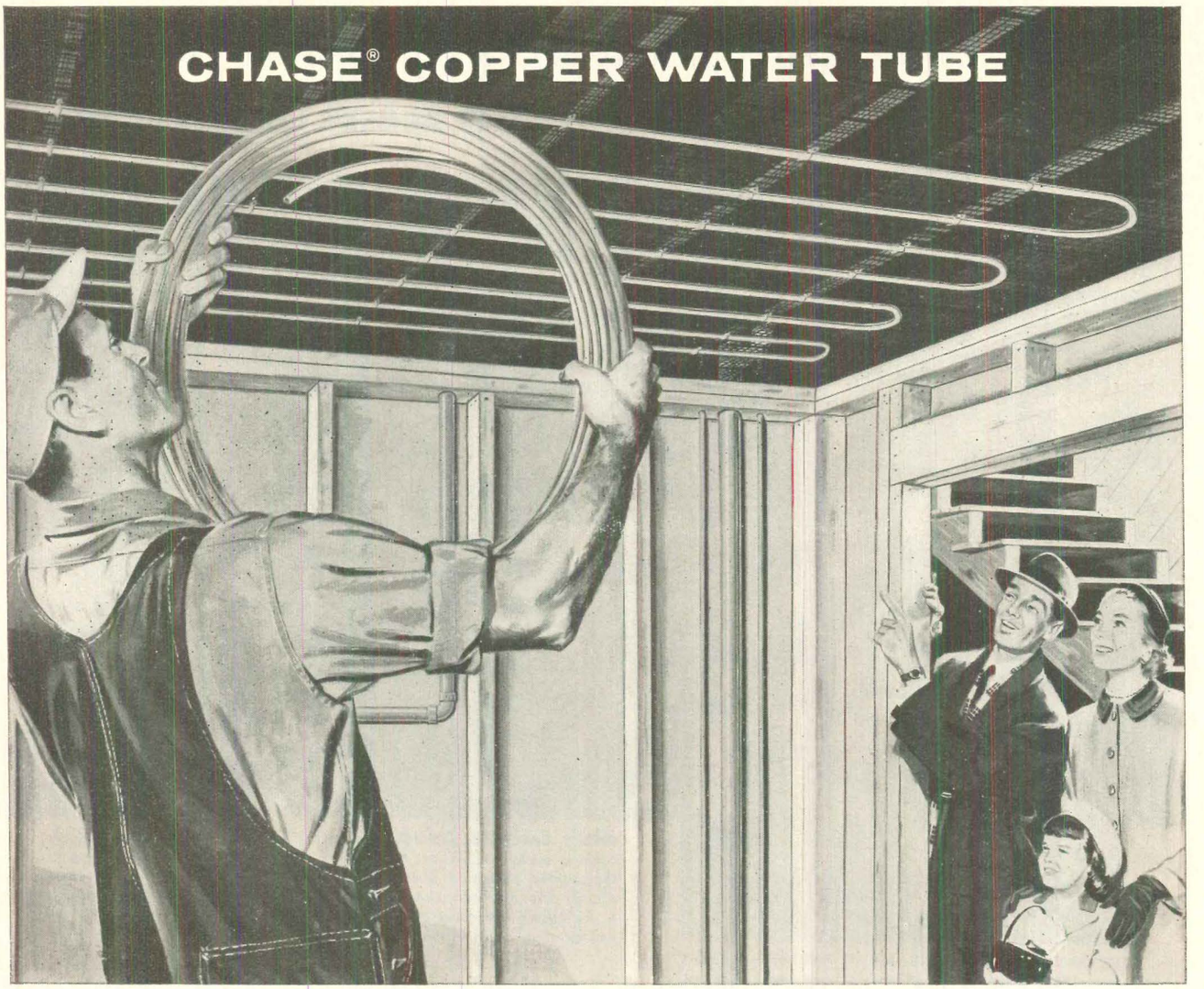
● Reflecting careful planning, compact arrangement of equipment in this installation cuts down steps in the processing of foods. In the kitchen, food flows smoothly in direct lines from receiving to storage and refrigerators, and thence to the preparation areas and cooking section. From these locations, the distances to the storage spaces in the cafeteria line are short and direct. Speedy, step-saving service is further aided by portable bins, under-counter carts and pass-through facilities. These features eliminate waste motion and increase operating efficiency. Stainless steel equipment with rounded corners, rolled edges and crevice-free surfaces make cleaning easy, aid sanitation. When you plan your mass-feeding installation, you, too, can obtain substantial savings in labor and maintenance costs by specifying "Blickman-Built."

This illustrated folder gives more information about Blickman-Built food service installations. Send for your free copy today.

Blickman-Built
MASS FEEDING EQUIPMENT
EST. 1889

For Service Life Measured In Decades

S. BLICKMAN, INC., 5808 GREGORY AVENUE, WEEHAWKEN, N. J.



NO CEILING ON COMFORT HERE !

But, plenty of ceiling on cost! That's because lightweight, easy-handling Chase copper tube for radiant heating *installs faster!* Perfectly tempered, it easily unrolls into position on ceiling or floor. Comes in long 60 and 100-foot lengths that result in fewer joints. Connections are quickly made with simple soldering techniques.

Even the rugged carton for Chase copper water tube is designed to speed handling... save time! It's color-coded for easy identification of type and size. Has a center hole big enough for a firm grip. Can be stacked, rolled or carried with ease!

Proof that Chase copper water tube cuts installation time is the fact that it is being used in many of the largest housing developments where over-all costs *must be low!*

If it's radiant heating, be sure the system is made with Chase copper tube and solder-joint fittings.

Chase

BRASS & COPPER CO.

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The Nation's Headquarters for Brass, Copper and Stainless Steel

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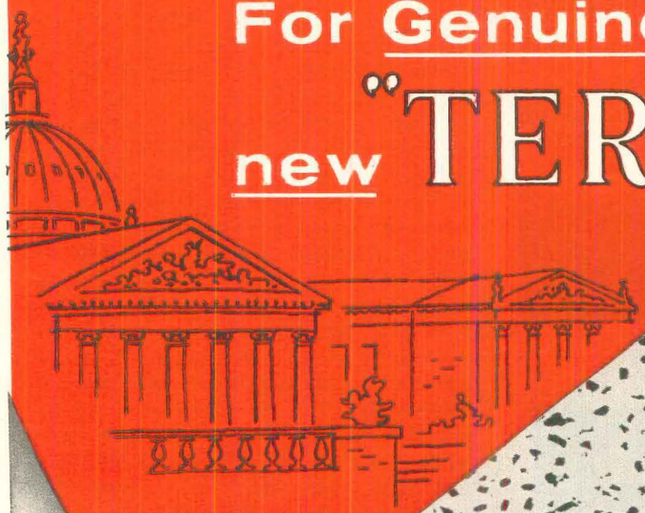
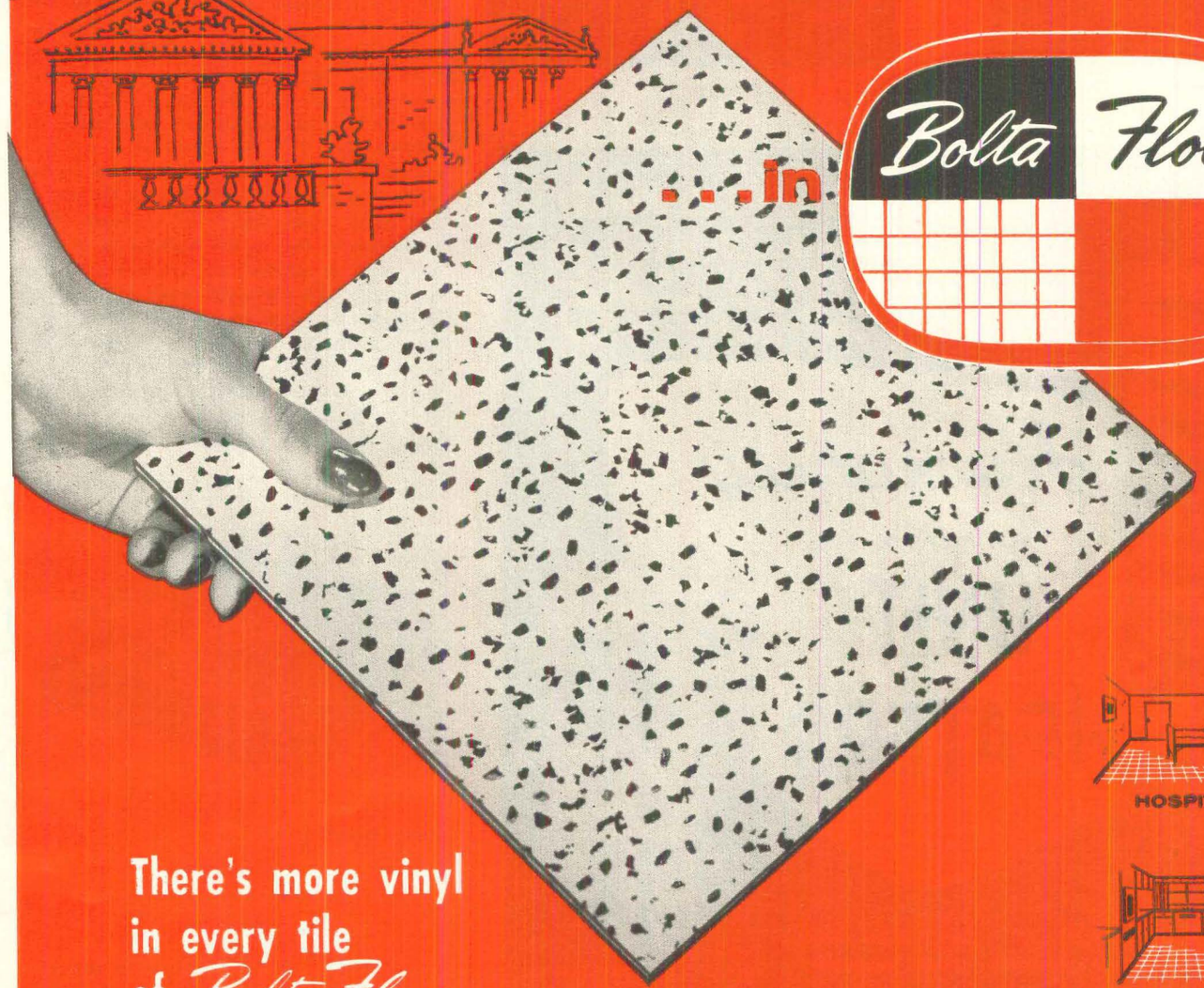
For Genuine Beauty . . . specify new "TERRAZZO" pattern



. . . in Bolta Floor®



There's more vinyl in every tile of *Bolta Floor*... stays beautiful longer ...with or without wax!

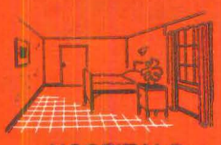
■

Also available in 22 marbleized and solid colors!

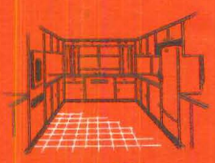
Here is the rich, authentic beauty of old-world terrazzo—in wonderful, modern, "soft-to-the-step" Bolta-Floor vinyl tile! Bolta-Floor is a high-content, *homogeneous* vinyl floor tile that assures longest wear and lowest possible maintenance costs. Bolta-Floor will keep its gleaming beauty through *years* of hard use!

"Terrazzo" Bolta-Floor is produced in 15 beautiful decorator colors—and in 6 x 6, 9 x 9, 12 x 12 and 18 x 18 tile sizes (⅛" or .080" gauge).

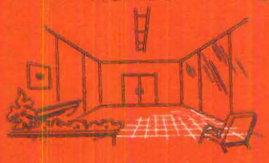
Don't settle for less! Get the *genuine* beauty of new Bolta-Floor "Terrazzo."



HOSPITALS



HOMES



THEATRES

SCHOOLS

For samples write:

THE GENERAL TIRE & RUBBER COMPANY

FLOORING DIVISION • AKRON 9, OHIO

PRODUCTS *cont'd.*

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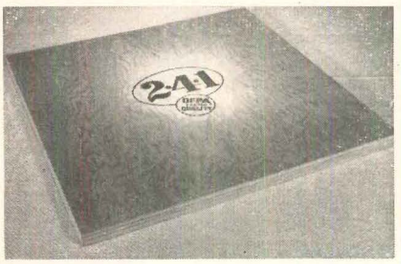
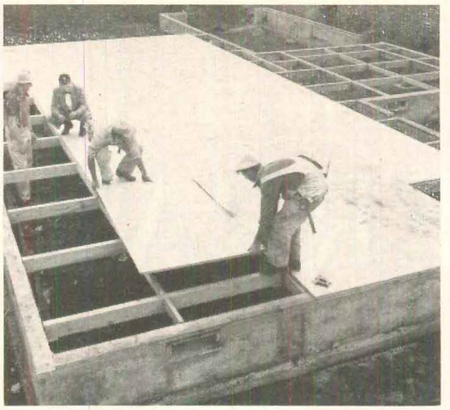
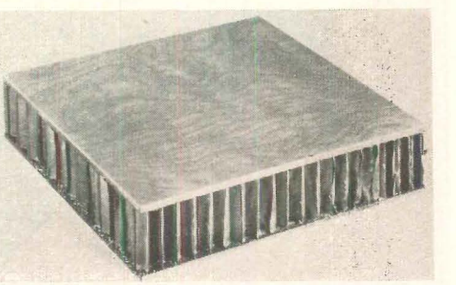




(4) PLYWOOD PANEL serves both as subflooring and underlayment

Instead of applying thin plywood or hardboard over a standard subfloor and wood joist construction, Seattle Homebuilder Kenneth Larsen found he could get heavier 1⅛" plywood laid over 4 x 6 joists 4' o.c. to double as subflooring and underlayment and save about $500 a house on material and labor. Larsen's technique, applicable to many types of small commercial buildings, was approved by the local FHA and got the attention of the Douglas Fir Plywood Assn. which is now selling the rugged unsanded, 7-ply floor base as *Panel 2.4.1* and distributing framing diagrams on how to use it. Creating a stiff, creakless floor under resilient tile, hardwood or carpet, the 4' x 8' sheets of *2.4.1* are nailed (with ring shank or threaded nails) with face grain running across the joists and panel edges supported by them. The joists can be tied to the foundation in several ways or notched into pockets with the tops flush with the plate to cut wall height. Because the walls are carried directly on the foundation, the trouble of shrinking joists and subsequent sticky doors and windows can be avoided. Approximate cost of *2.4.1* is *34¢* a sq. ft.

Manufacturer: Douglas Fir Plywood Assn.



(5) HONEYCOMB PANEL with plastic face made in continuous lengths

Continental Can is putting up a package for the building industry. Sandwiching its *Conolite* polyester countertopping around phenolic impregnated honeycomb or high density foamed styrene cores, it has produced a lightweight structural panel 3' wide by any length for furniture, wall paneling and partition applications. The scratch and stain resistant surface comes in patterns and solid permanent colors, with a smooth gloss finish or with the fine weave of its glass-fiber reinforcement showing as a decorative texture. *Conolite* is said to withstand boiling water, acid, grease and temperatures up to 350° F. It can be wiped clean with a damp cloth. Prices for 1" thick sandwich are about $1.25 to $1.50 a sq. ft.

Manufacturer: Honeycomb Div. and Conolite Div., Continental Can Co.

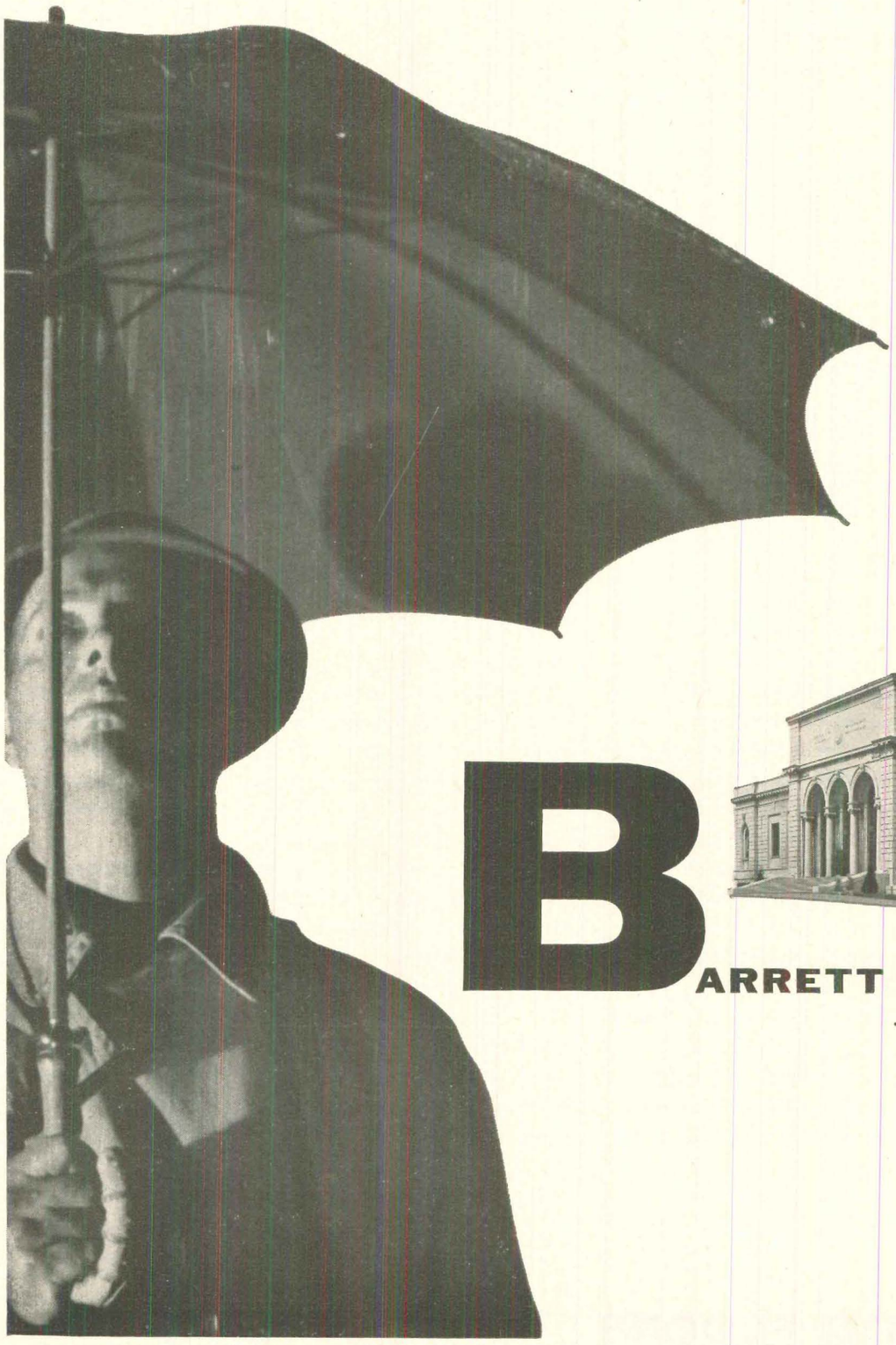
continued on p. 198

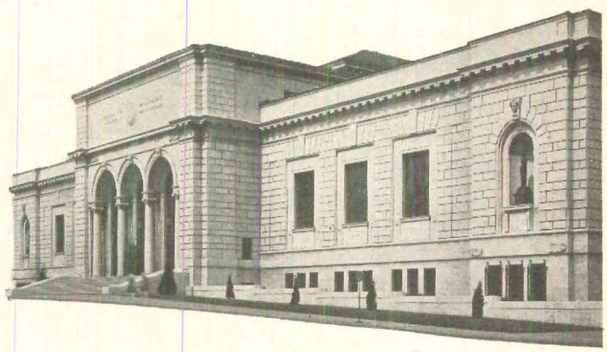
UMBRELLA OVER PRIZED COLLECTIONS of the Detroit Institute of Arts has always been a Barrett SPECIFICATION* Roof. As a matter of policy, the Institute recently replaced the vital roof (although it remained in water-tight condition after 27 years). They insisted that the new roof again be constructed according to Barrett's famous published specifications. That means application by approved roofers . . . inspection by Barrett experts . . . and a Surety Bond against maintenance expenses for up to 20 years. But more important than *any* bond is the Institute's assurance that Detroit's art treasures are safe beneath the most modern and dependable of all built-up roofs. BARRETT DIVISION, Allied Chemical & Dye Corporation, 40 Rector St., New York 6, N. Y. In Canada: The Barrett Co., Ltd., 5551 St. Hubert St., Montreal, Que.

Barrett Specification Roofs*

*Reg. U. S. Pat. Off.

Allied Chemical





BARRETT ROOFS

. . . they outlive the bond!

Significant changes have taken place in . . .

GAUGES OF RESILIENT FLOORING

The most obvious reason for concern with the gauge or thickness of a resilient floor is its effect on the length of service it will give. Once this was the most important factor in the selection of flooring. Until recently, the gauges manufactured in the United States closely followed the example of those made in Europe. There, construction was expected to last for centuries and demanded the thickest gauges that could be produced, with little or no heed to the cost of such materials. "Battleship" linoleum, for instance, meant 3/16" or thicker and was actually made in both 1/4" gauge (0.250") and occasionally 8mm. gauge (0.315") to special order.

Today, long experience in the resilient flooring industry has resulted in superior manufacturing methods and improved materials. These impart far greater durability—and economy—to traditionally favorite floors, so that gauges which were once regarded as being too "light" for satisfactory performance now appear more than adequate for most residential and commercial areas. In addition, new resilient floors have been introduced, with superior compositions and newly developed synthetic binders. These, in thinner gauges, provide durability equal to or better than that supplied by thicker gauges of more traditional materials.

Along with these product improvements, the modern trend toward frequent redecoration, which often necessitates the replacement of a floor long before it has worn out, has made durability a somewhat less important consideration in the selection of a floor than it has been in the past. There are, however, other properties of resilient flooring that are affected by its gauge . . . notably appearance and comfort. The thicker the gauge, the better the resilient floor hides subfloor irregularities, and the better the appearance. The floor's comfort value and quietness also increase with the gauge.

In any resilient flooring installation, of course, it is necessary to take into consideration a number of factors other than the gauge or thickness of the material. In choosing a flooring material, the proper **composition** for the type of service it will undergo must be decided **first.** Then the gauge of that material is considered.

Homogeneous Resilient Tiles

In the case of homogeneous, unbacked tile floors, gauges exceeding 1/8" are seldom used except in commercial installations where maintenance and traffic conditions are extremely severe. From the point of view of durability, the thinner gauges of the chosen composition will meet most requirements where the amount of maintenance is expected to be reasonable. But if quietness and comfort are of major importance, thicker gauges should be chosen. For locations where poor maintenance or severe traffic conditions are involved, the thickest available gauge in the correct flooring material should be chosen.

There are some compositions of tile such as Linotile in which only one "all-purpose" gauge is available. Here it is safe to assume that the nature of the tile makes it applicable to a broad range of conditions in the type of service for which it was designed.

Linoleum and Sheet Plastic Floors

Backings were originally used on resilient floors merely as a carrier to support the flooring materials during processing. Now they make important contributions to the flooring by adding even greater resilience and comfort. Recent developments include special felts such as Armstrong Armofelt®. This backing material, saturated with resins, gives very superior performance. As a result of the variety of backings used, and their effects on the qualities of a floor, the gauge of "backed" resilient flooring materials cannot be considered without reference to backing as well as the surface composition.

In choosing linoleum, Light and Standard gauges should be used only in areas of light service or where initial cost dominates considerations of durability. Heavy gauge linoleum should be used for most commercial installations, since such floors are subjected to concentrated traffic.

The durability of the new plastic compositions permits plastic flooring materials to be manufactured in thinner gauges with serviceability equal to that of linoleum in heavier gauges. For example, the thinner gauges of Armstrong Corlon plastic flooring can be regarded as equal to Standard gauge linoleum.

Installation guide—resilient floors by type and gauge

Flooring materials suitable for severe service conditions also can be used in lighter service areas. These recommendations, however, take into account the cost factor and eliminate heavier gauges where a thinner gauge represents a more economical value.

HOMOGENEOUS FLOORS
Made without backing. Wearing surface extends full thickness of tile.

WEARING THICKNESS		Severe Commercial	Commercial	Light Commercial	Residential	Light Residential
CUSTOM CORLON TILE (Vinyl)	1/8"					
	3/32"					
EXCELON TILE (Vinyl-asbestos)	1/8"					
Service Gauge	1/16"					
CORK TILE	5/16"					
	3/16"					
	1/8"					
CUSTOM CORK TILE	3/16"					
LINOTILE	1/8"					
RUBBER TILE	3/16"					
	1/8"					
ASPHALT TILE *Standard*	3/16"					
	1/8"					
ASPHALT TILE *Conductive* Not for use in hospital operating rooms.	3/16"	Heavy industrial for static control				
	1/8"	Industrial for static control				

BURLAP-BACKED FLOORS
Over-all gauge—1/8-inch.
Wearing thickness—.090-inch.
Backing—.035-inch.

WEARING THICKNESS / BACKING		Severe Commercial	Commercial	Light Commercial	Residential	Light Residential
HEAVY GAUGE LINOLEUM	Plain (Including "Battleship")					
	Jaspé					
	Marbelle					
	Textelle					

FELT-BACKED FLOORS
Over-all gauge—.090-inch.
Wearing thickness—.050-inch.
Backing—.040-inch.

WEARING THICKNESS / BACKING		Severe Commercial	Commercial	Light Commercial	Residential	Light Residential
STANDARD GAUGE LINOLEUM	Plain					
	Jaspe					
	Marbelle					
	Raybelle (Incl. Tile)					
	Royelle (Incl. Tile)					
	Spatter					
	Embossed Inlaid					
	Craftline Inlaid					
	Town House Inlaid					
	Straight Line Inlaid					

FELT-BACKED FLOORS
Over-all gauge—.070-inch.
Wearing thickness—.030-inch.
Backing—.040-inch.

WEARING THICKNESS / BACKING		Severe Commercial	Commercial	Light Commercial	Residential	Light Residential
CORLON (Sheet vinyl)	Granette					
	Decoresq					
	Terrazzo					
LIGHT GAUGE LINOLEUM	Marbelle					
	Decoray (Incl. Tile)					
	Newray					

ARMSTRONG CORK COMPANY makes all types of resilient floors for all types of interiors. Almost any flooring problem can be met with one or more of the floors in the Armstrong Line. As a result, we have no special bias toward any one type and can offer impartial recommendations on any flooring problem. Our main interest is to aid you in making a sound flooring selection. Armstrong Architectural-Builder Consultants throughout the country are glad to assist architects and make specific recommendations for individual jobs. Your Armstrong representative can also call upon the Armstrong Research and Development Center and the Bureau of Interior Decoration for assistance. For helpful information on any flooring question, call your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, Lancaster, Pennsylvania.

Armstrong a b c ARCHITECTURAL BUILDER CONSULTANTS

PLASTICS
CUSTOM CORLON® TILE
EXCELON® TILE
DECORESQ® CORLON
GRANETTE® CORLON
TERRAZZO* CORLON

RESILIENT TILES
ASPHALT TILE
Standard
Corkstyle*
Greaseproof
Conductive
RUBBER TILE
LINOTILE®
CORK TILE
CUSTOM CORK TILE
LINOLEUM TILE

*TRADE-MARK

PRODUCTS *cont'd.*

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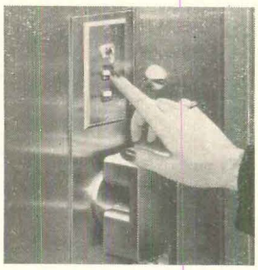


(6) BANK EQUIPMENT operates on push buttons and hydraulics

Putting security operations of the modern bank in electronic hands, Herring-Hall-Marvin Safe Co. is producing a line of automatically controlled equipment that includes push-button vault doors, drive-in windows, electronic night depositories and roll-top tellers' stations. To open the weighty vault door, all that is needed is knowledge of the combination and finger pressure on the small button. A concealed hydraulic mechanism automatically withdraws the massive locking bolts, swings the door open and lowers the footbridge. For closing, the procedure works in reverse. In case of power failure the door can be controlled manually.

The bank teller's counter, a mechanized modification of the old roll-top desk, has a concealed steel top beneath the counter which rolls over the work surface at the touch of a hidden button to lock the drawers and counter. Each station can be shut tight in a moment without interferring with the other stations. The *Electraposit* night depository not only takes money after hours but actually deposits it in the vault. It cannot get stuck in the chute. After the deposit is made, the hydraulic unit locks up automatically.

Another of the mechanized items is a drive-in window. No physical contact can be made between the teller and customer. The teller operates a push-button panel to turn on a two-way intercom, to slide out a steel tray for the customers' deposit, and to return the passbook. Checks are verified by the main office via closed circuit TV and direct line phone.

Manufacturer: Herring-Hall-Marvin Safe Co.

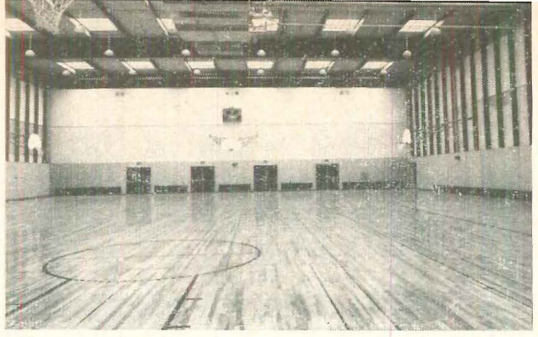
(7) AIR DIFFUSER engineered in modular squares and rectangles

While the architect often, and wisely, leaves the mechanics of air distribution to the engineer, he still is concerned with the appearance of the air outlets and their integration with other building materials. Acknowledging the importance of both form and function, the Connor Architect's Group of draftless diffusers is designed so that at constant neck velocities, the static pressure will not vary from a 4" to 1'-2" neck unit. The line includes square combination supply-return units and substan-

continued on p. 204

IN OFFICE BUILDINGS

Mile High Center, Denver, Colorado. I. M. Pei, architect. Toplite Roof Panels contribute smart, distinctive styling to the canopy for this modern office building.

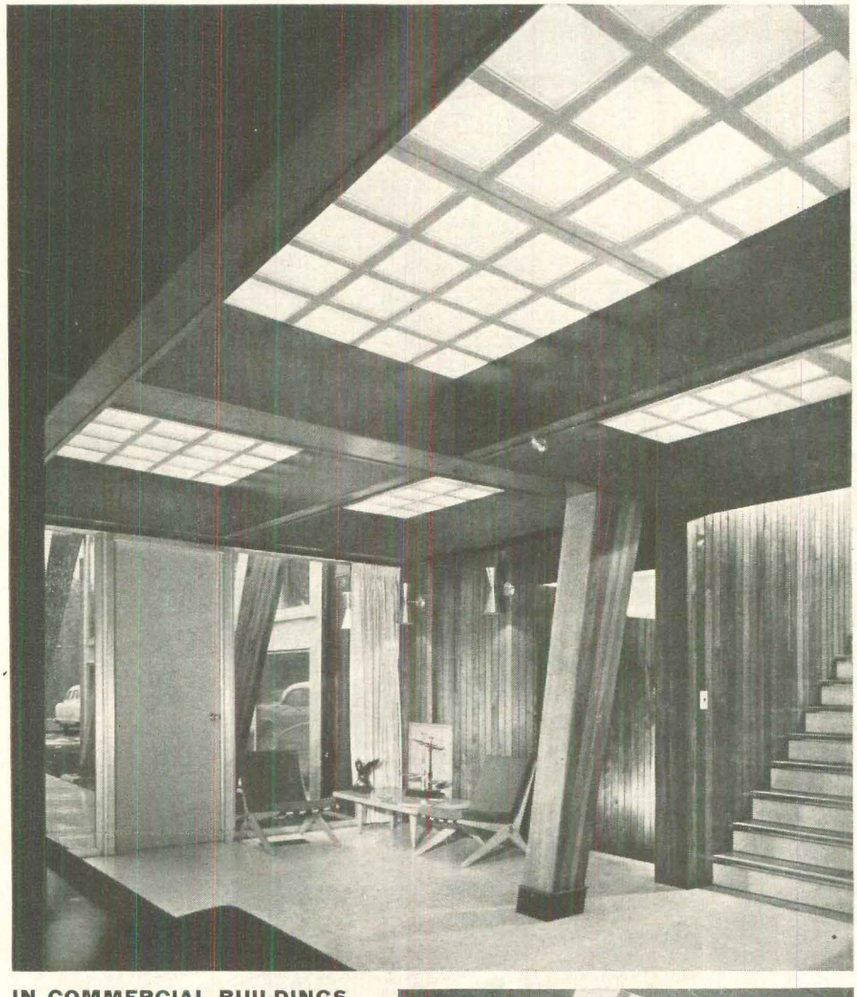


IN SCHOOLS

Hillsdale High School, San Mateo, California. John Lyon Reid and Partners, architect-engineers. Toplite panels evenly distribute daylight throughout the gymnasium.

IN HOMES

The activities room in this residence is well-lighted all day long because O-I Toplite Roof Panels permit daylighting without "hot spots" or glare.



IN COMMERCIAL BUILDINGS

T. A. Schutz Company, Morton Grove, Illinois. Seymour S. Goldstein, architect. Toplite panels may be installed in continuous strip, multiple or individual panels. Use a Toplite Panel as you would a lighting strip.

IN CHURCHES

Marian College, Poughkeepsie, New York. Ashton, Huntress and Pratt Associates, Lawrence, Massachusetts, architects. Toplite floods this handsome chapel with shadowless, well-distributed, diffused daylight. Glare of old-fashioned skylights is eliminated.

OWENS-ILLINOIS TOPLITE ROOF PANELS...

for better daylighting everywhere!

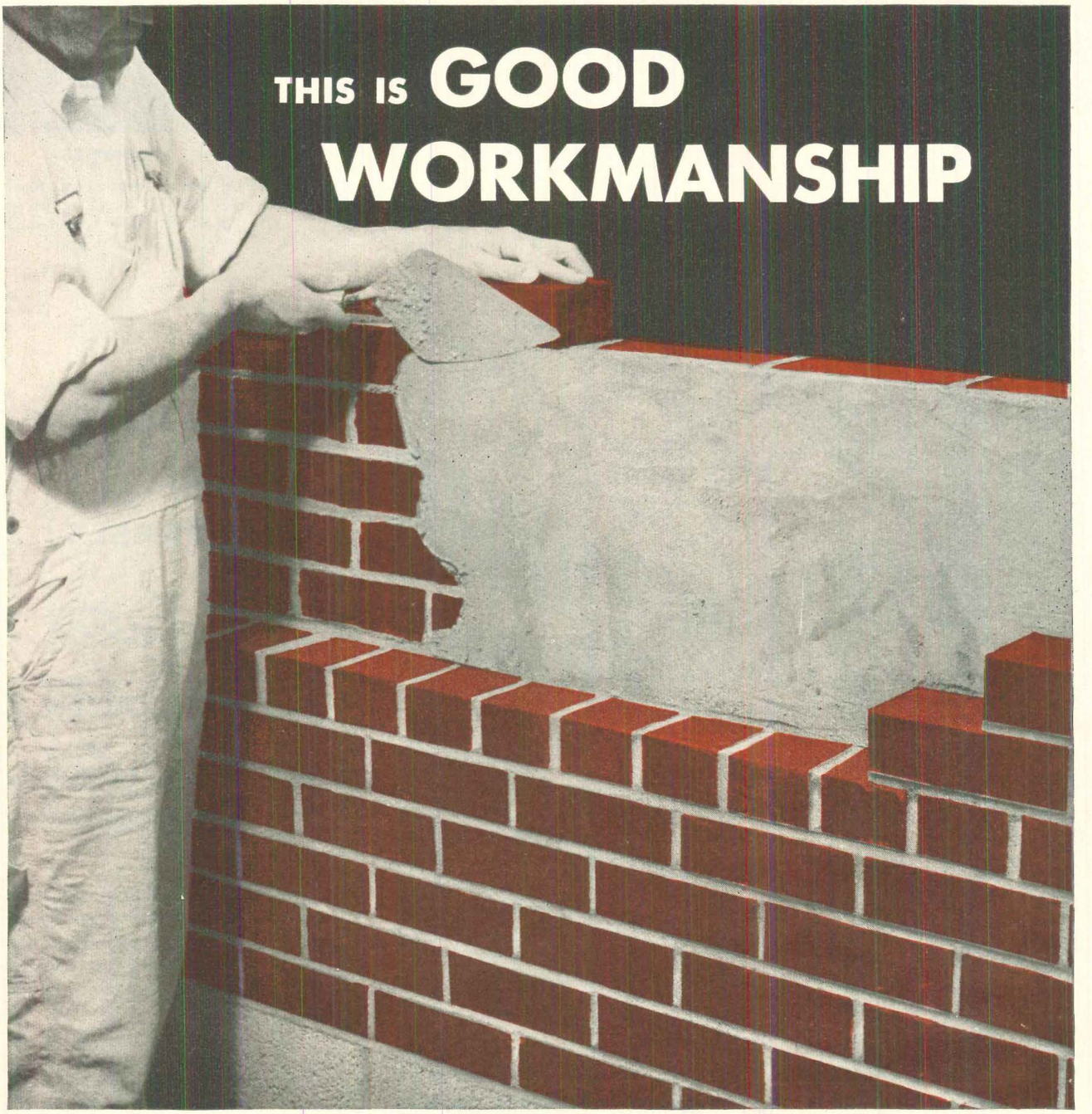
Here are five dramatic case histories of Owens-Illinois Toplite Roof Panels in action . . . five diverse examples of how this great advance in daylighting is solving lighting problems all over the country.

Toplite Roof Panels supplement light from sidewalls in deep areas or completely daylight windowless areas. Glare and heat of old-fashioned skylights are eliminated because prismatic glass units built into Toplite "think" before they transmit the sun's rays. Needed North light and the soft, low rays from the South are readily accepted while high summer sun rays are rejected.

The complete story of this important new improvement in efficient utilization of free daylight is available in a new booklet on Toplite Roof Panels. For your free copy, write Kimble Glass Company, subsidiary of Owens-Illinois, Dept. AF-8, Toledo 1, Ohio.

TOPLITE ROOF PANELS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO



GOOD workmanship is one of the most important factors in preventing leaky brick walls.

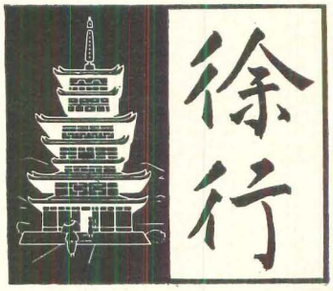
Good workmanship includes wetting the brick—completely filling the head and bed joints—and back-plastering the face brick before the back-up units are laid.

Expect trouble when the face brick are not parged. Even if the space between the face brick and the back-up units is slushed, it cannot be completely filled with mortar. Voids are left between the mortar and the brick, through which water may enter, trickle down and leak to the inside of the wall.

Brixment mortar enables the bricklayer to back-plaster quickly and easily. Brixment mortar has great plasticity, high water-retaining capacity and bonding quality, great resistance to freezing and thawing, and freedom from efflorescence. Because of this *combination* of advantages, Brixment is the leading masonry cement on the market.

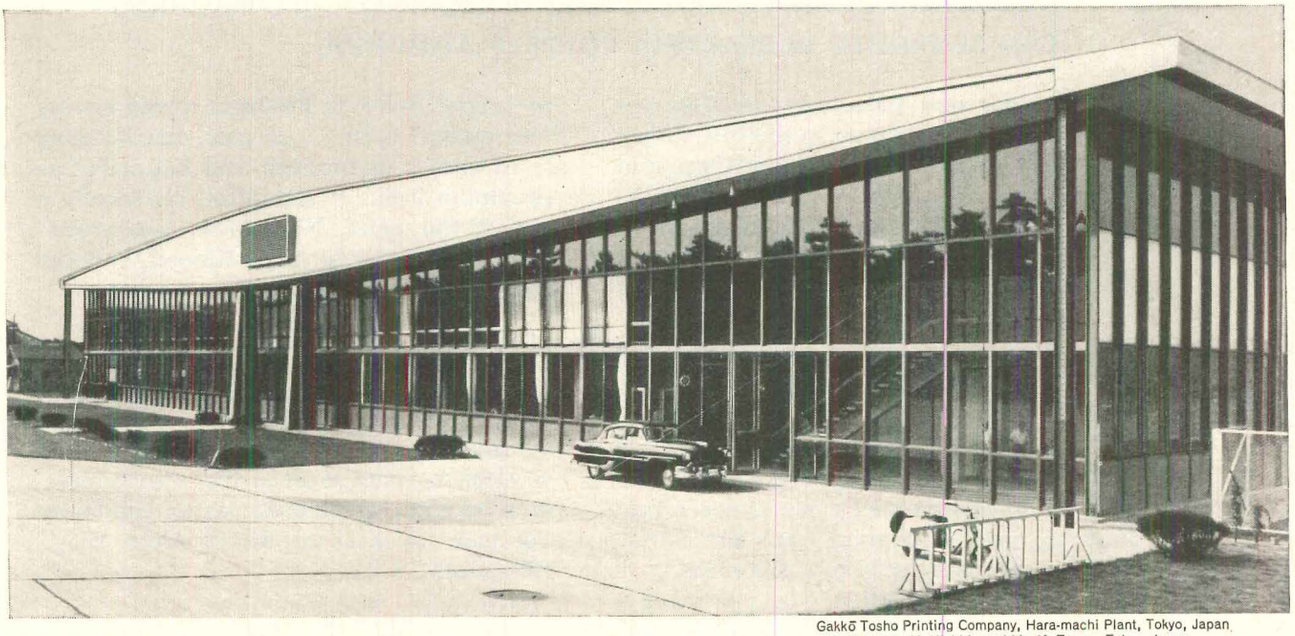
BRIXMENT

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY



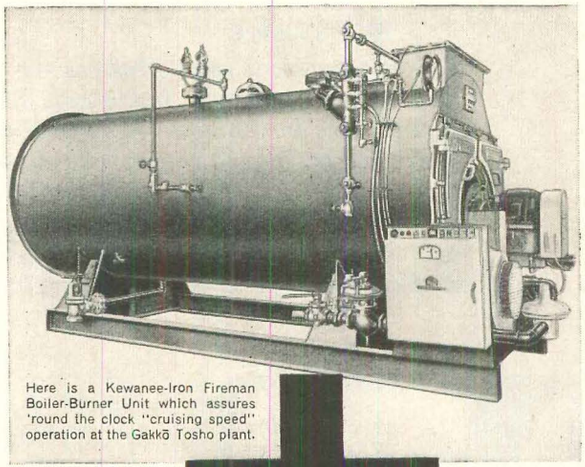
EAST MAY BE EAST . . . WEST MAY BE WEST . . .

but *"Cruising Speed"* boiler operation is best . . . *anywhere*



Gakkō Tosho Printing Company, Hara-machi Plant, Tokyo, Japan
Architect: Mr. H. Kishida and Mr. K. Tange, Tokyo, Japan
Engineer: Mr. K. Kawai, Toyohashi, Japan
Heating Contractor: Matsuhisa Industrial Company, Numazu, Japan

In Far Away Tokyo, Kewanee Boilers Were Selected by Gakkō Tosho Company Because They Provide Reserve Power to Meet Fluctuating Needs. No matter how you say it, in English or Japanese, "cruising speed" boiler operation adds up to the same thing in any language . . . higher efficiency, lower fuel cost, lower maintenance, less wear and tear, longer boiler life. And that's what management at Gakkō Tosho Company wanted in their modern Tokyo printing plant. So they selected Kewanee Reserve Plus Rated Boilers. Here they were assured reserve power to automatically supply steam quickly to operate automatic printing equipment. Reserve power in boilers means "cruising speed" operation . . . dependability . . . with enough power always on tap faster, surer. It means boilers rated on nominal capacity. Boilers rated on maximum capacity run at constant top speed, pile up maintenance and fuel costs—cut boiler life. Next time, choose Kewanee Boilers. Just call for the Kewanee man—in English, Japanese or Sanskrit—and he'll come running to serve you. KEWANEE BOILER DIVISION of AMERICAN-STANDARD, 101 Franklin Street, Kewanee, Illinois



Here is a Kewanee-Iron Fireman Boiler-Burner Unit which assures 'round the clock "cruising speed" operation at the Gakkō Tosho plant.

KEWANEE
reserve plus rated

KEWANEE BOILERS

You can depend on Kewanee engineering

Now! COLOR in ALCOA® Aluminum for Industrial Buildings

NOW WAREHOUSES, FACTORIES AND OTHER INDUSTRIAL BUILDINGS CAN BE ERECTED IN BEAUTIFUL COLORED ALUMINUM

Picture your new industrial buildings, regardless of size or purpose, in this soft, lovely green now available in all Alcoa Aluminum Industrial Building Products. It's an intriguing picture. Alcoa, working with American Chemical Paint Co., has made it possible.

This new joint development gives Alcoa Industrial Building Products a long-lasting "sea-green" color . . . a cool, harmonizing color that's as modern and beautiful as aluminum itself. It is sunfast, chemically a part of the metal. New Alcoa "sea-green" color is available in Alcoa Ribbed, V-Beam and Corrugated Sheet.

NEW COLOR MAKES INDUSTRIAL BUILDINGS OF ALUMINUM A BETTER BUY THAN EVER

Light, corrosion-resistant, beautiful roofing and siding of Alcoa Aluminum can be built at far lower cost than masonry. Quicker, too. Framing and foundation costs are lower. Maintenance is reduced to a minimum.

If you want insulation, you can erect a sandwich wall building with thermal efficiency three times better than eight inches of masonry!

FREE SAMPLE

Your nearby Alcoa sales office has the complete story on Alcoa Industrial Building Products in the new "sea-green" color. They will be happy to put you in touch with selected Alcoa-approved applicators who offer a complete service in the supply and erection of these low-cost industrial building materials. If you would like further information and a one-foot-square section of Alcoa V-Beam sheet in the new architectural Alodine* green color, write Aluminum Company of America, 852-H Alcoa Bldg., Pittsburgh 19, Pa.

*Product of American Chemical Paint Co.

NOW! Alcoa Industrial Building Products Offer

- lower first cost
- lower maintenance cost
- more value for years
- New Green Color

ALCOA ALUMINUM BUILDING SHEET
ALUMINUM COMPANY OF AMERICA
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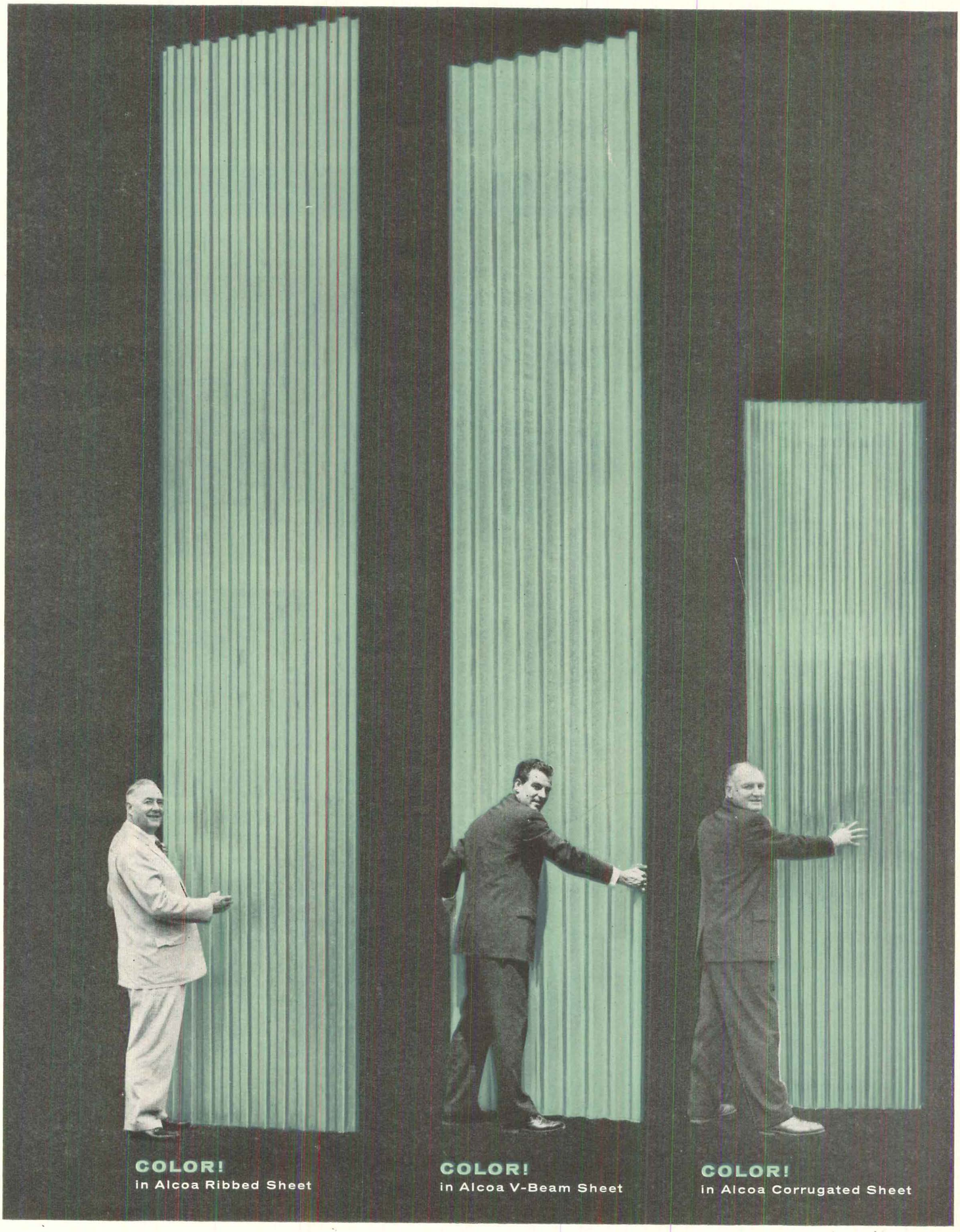
Your Guide to the Best in Aluminum Value

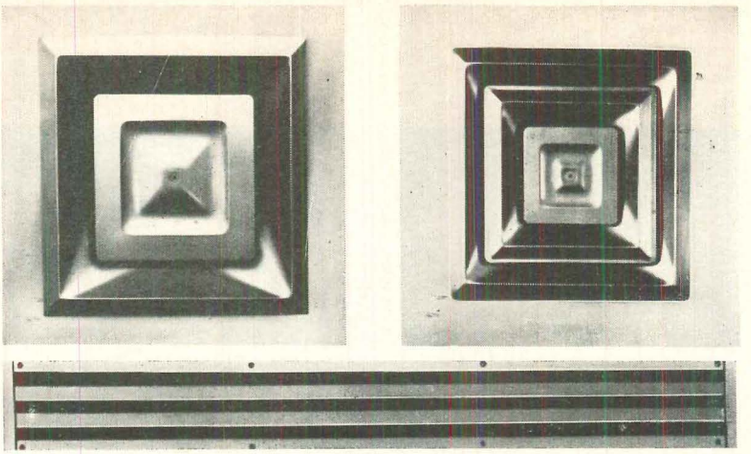
THE ALCOA HOUR
TELEVISION'S FINEST LIVE DRAMA
ALTERNATE SUNDAY EVENINGS


COLOR!
in Alcoa Ribbed Sheet
COLOR!
in Alcoa V-Beam Sheet
COLOR!
in Alcoa Corrugated Sheet

PRODUCTS *cont'd.*

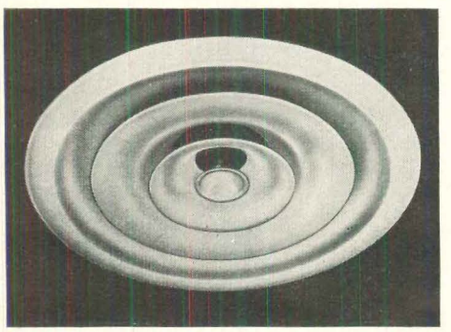
For more data use coupon, p. 224

tial-looking linear diffusers with extruded aluminum vanes. All the squares discharge air in a circular pattern. The *KPSR* units which handle both return and supply air, are designed to prevent short circuiting of supply air into the return air opening. One of the squares, Model *KPT*, merely snaps into a *T*-bar ceiling system. For really sooty conditions or installations in textured ceilings, type *A/S* is supplied with an antismudge frame. List prices run from about $10 to $48.



Connor's slotted diffuser, available in 2′, 3′, 4′ and 6′ modules, can be butted without end flanges in a continuous strip. The 3½″ wide and 6″ wide *KSL-1* is made for single air stream and the 1′-1½″ wide *KSL-2*, for multidirectional discharge. Both have extruded vanes with rounded edges to prevent the whistling and whining of fold-over sheet metal vanes. The diffuser's grid type damper can be adjusted to equalize air distribution along the length of the diffuser, and vanes are hinged for positioning at any angle. Capacities range from 50 to 300 cfm per ft. of diffuser length. The *KSL-1* is about $20 a lin. ft.; the *KSL-2*, $32.

Manufacturer: Connor Engineering Corp.



(8) CEILING DIFFUSERS adjust to any pattern of air discharge

Handling all patterns of air distribution from direct downward to full horizontal, *Titus* curved cone ceiling diffusers work efficiently in heating and ventilating as well as cooling jobs. Regardless of the air direction (regulated by turning the small center cone) the three contoured cones stay in the same position. In a room where several diffusers are each discharging at a different angle they still have a uniform appearance. For installation, the center cone is removed and the outside cone fastened to the duct collar. A twist snaps the center assembly back in place. Available in a wide range of sizes in fixed cone models (TM) as well as adjustable (TMA), *Titus* diffusers can be used on exposed ductwork or installed flush with the ceiling. They are constructed of rigid steel sheet and are sprayed with a metallic aluminum finish.

Manufacturer: Titus Mfg. Corp.

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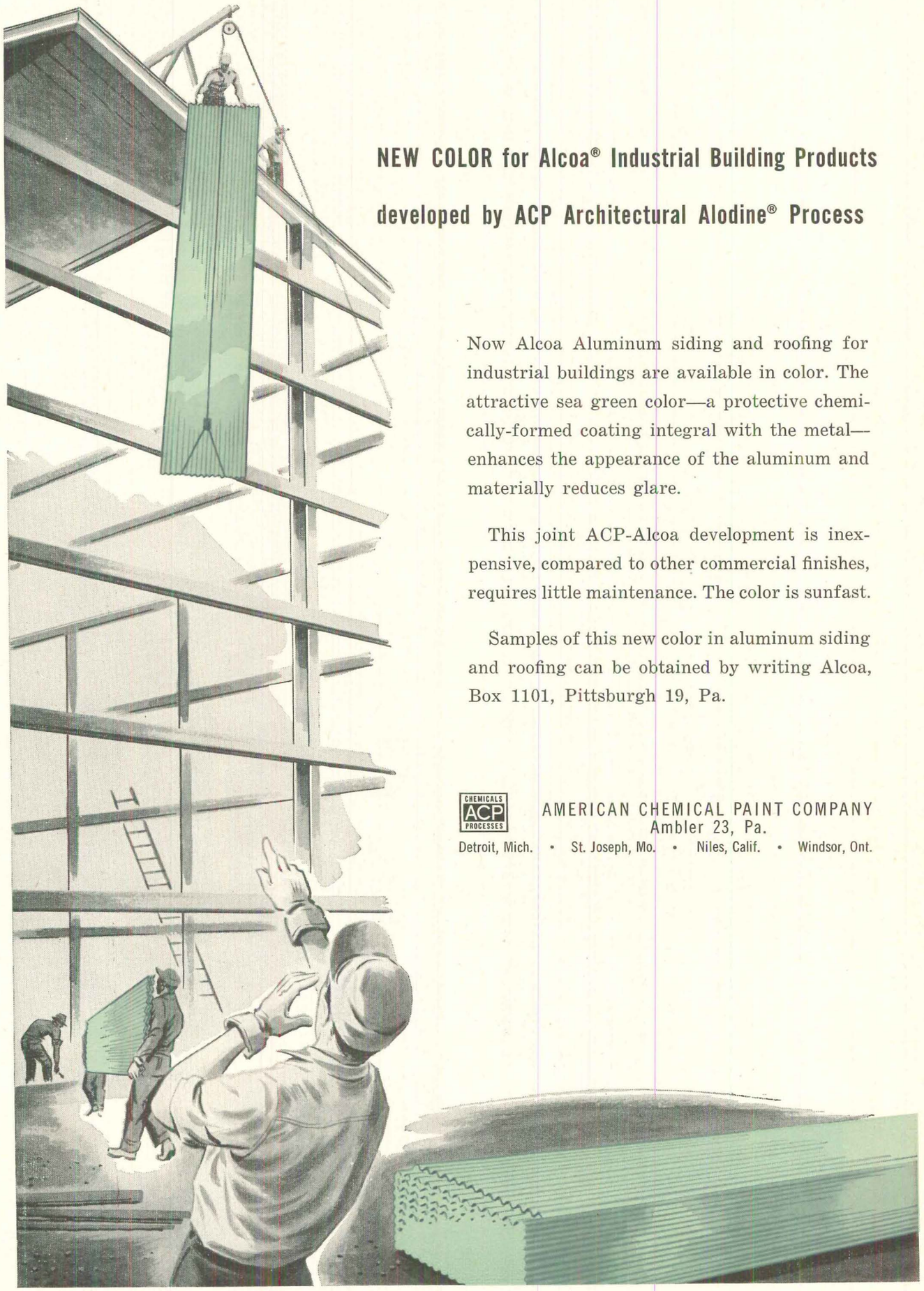

NEW COLOR for Alcoa® Industrial Building Products developed by ACP Architectural Alodine® Process

Now Alcoa Aluminum siding and roofing for industrial buildings are available in color. The attractive sea green color—a protective chemically-formed coating integral with the metal—enhances the appearance of the aluminum and materially reduces glare.

This joint ACP-Alcoa development is inexpensive, compared to other commercial finishes, requires little maintenance. The color is sunfast.

Samples of this new color in aluminum siding and roofing can be obtained by writing Alcoa, Box 1101, Pittsburgh 19, Pa.

CHEMICALS ACP PROCESSES

AMERICAN CHEMICAL PAINT COMPANY
Ambler 23, Pa.
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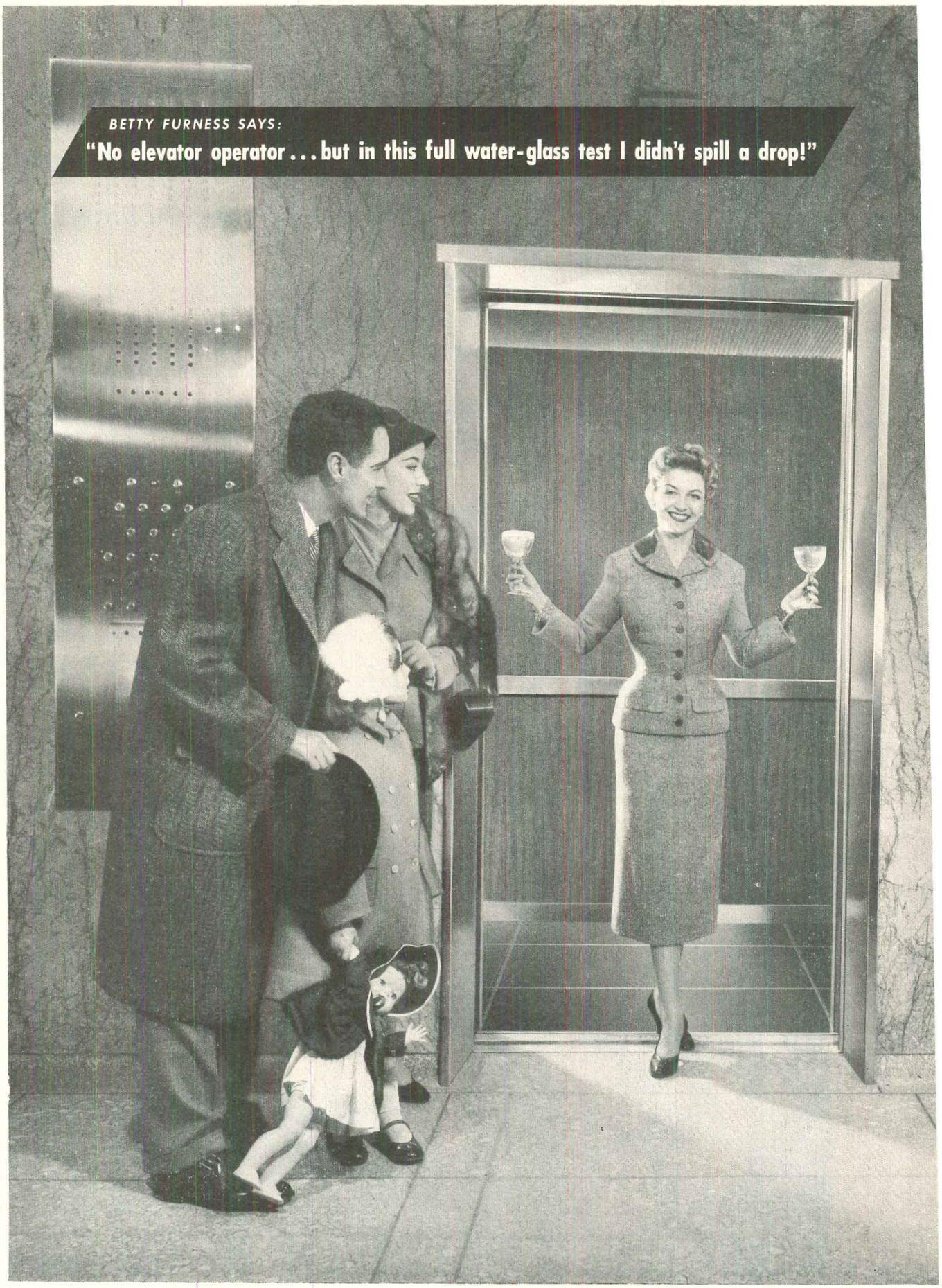

BETTY FURNESS SAYS:
"No elevator operator . . . but in this full water-glass test I didn't spill a drop!"

New Westinghouse Elevator Control Ends Annoying "Door-Scare" Forever

Delighted passengers in heavy-traffic buildings report complete confidence in Westinghouse Operatorless Elevators with exclusive new TRAFFIC SENTINEL.®

The last objection to heavy-duty operatorless elevators has been overcome once and for all by exclusive new Westinghouse TRAFFIC SENTINEL. This remarkable elevator door control forever eliminates frightening, irksome, premature door-closing movements which can startle passengers.

Proved By Water Glass Test

On Westinghouse Operatorless Elevators, equipped with exclusive new TRAFFIC SENTINEL, the car and corridor doors remain completely motionless while passengers are entering or leaving.

There is positively no movement of the open doors—a full glass of water held next to them will not spill a drop.

Gone is any trace of passenger anxiety, worry, or "door-scare." TRAFFIC SENTINEL guides Westinghouse Operatorless Elevator doors with its "electronic hand" far more expertly than the most highly trained attendant.

Invisible Beams Control Doors

Invisible infra-red beams "watch" passenger movement and synchronize door closings automatically according to traffic flow. They adjust door-open time differently for passengers entering and leaving the car, and close doors only after the last passenger passes safely through.

Tenants—to a man, woman, and child—are delighted and amazed at this mind-reading marvel.

Cuts Door-Open Time

TRAFFIC SENTINEL not only inspires complete confidence among passengers *but* speeds traffic movement by eliminating all unnecessary door-open time.

If you are thinking of new building or modernization, we'd like to show you TRAFFIC SENTINEL and discuss elevatoring in general. Call our nearest office today, or write Westinghouse Elevator Division, Dept. SPX, 9 Rockefeller Plaza, New York City.

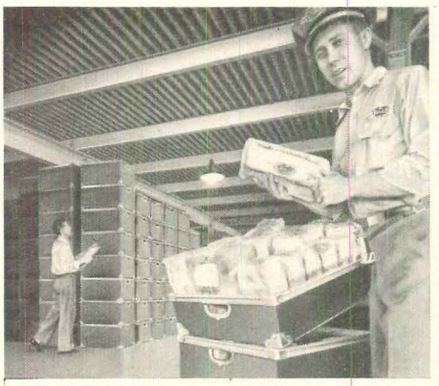
Westinghouse Elevators

YOU CAN BE SURE... IF IT'S Westinghouse

J-98717

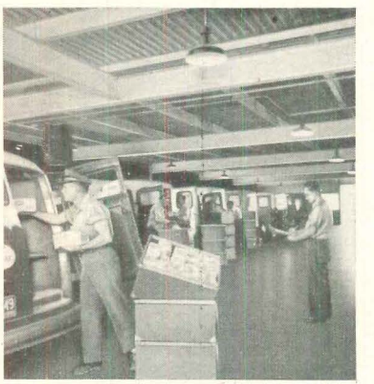
"Give us all the advantages of your standardization . . . in buildings that meet all the requirements of our distribution operation." And Luria did!

WHY OMAR, INC. CONTINUES TO BUILD WITH LURIA...31 BUILDINGS IN SIX YEARS!

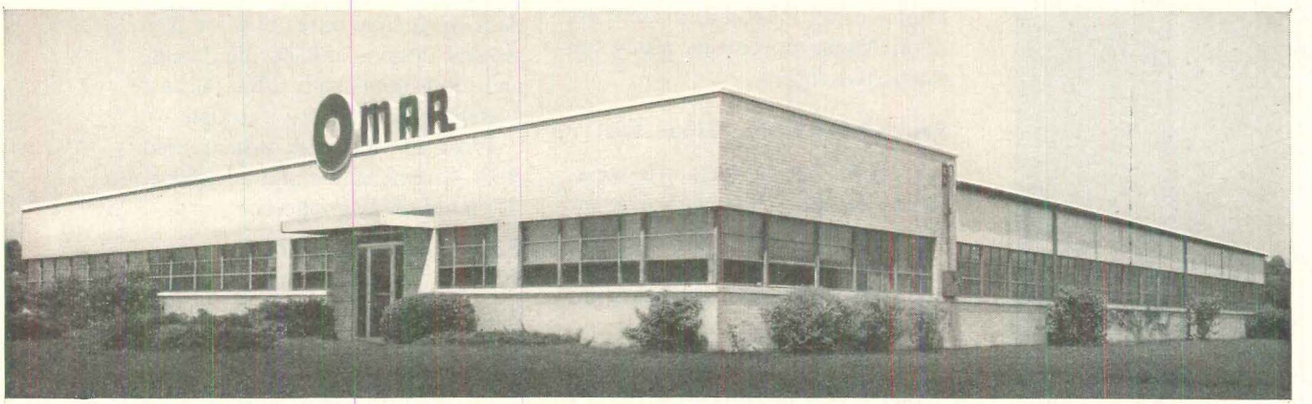


$10,000,000 Expansion for aggressive midwest baking concern includes 31 Luria Steel Frame Buildings of flat roof type.

Operations Sections are efficient, pleasant working spaces incorporating general offices, managers offices, meeting and utility rooms.



Internal Loading. All units contain internal garaging facilities and underground gasoline storage.



Standard Design of all 31 buildings for Omar, Inc., America's fastest growing bakers, includes handsome buff brick walls, built-up roofing, steel sash and doors. Identical floor plans make every Omar branch familiar to all route men.

There is a standardized solution to your building problem—and Luria has it! Today, in the distribution field, Luria Buildings are as well-known for their ability to *adapt* to individual requirements as for their standardized economies.

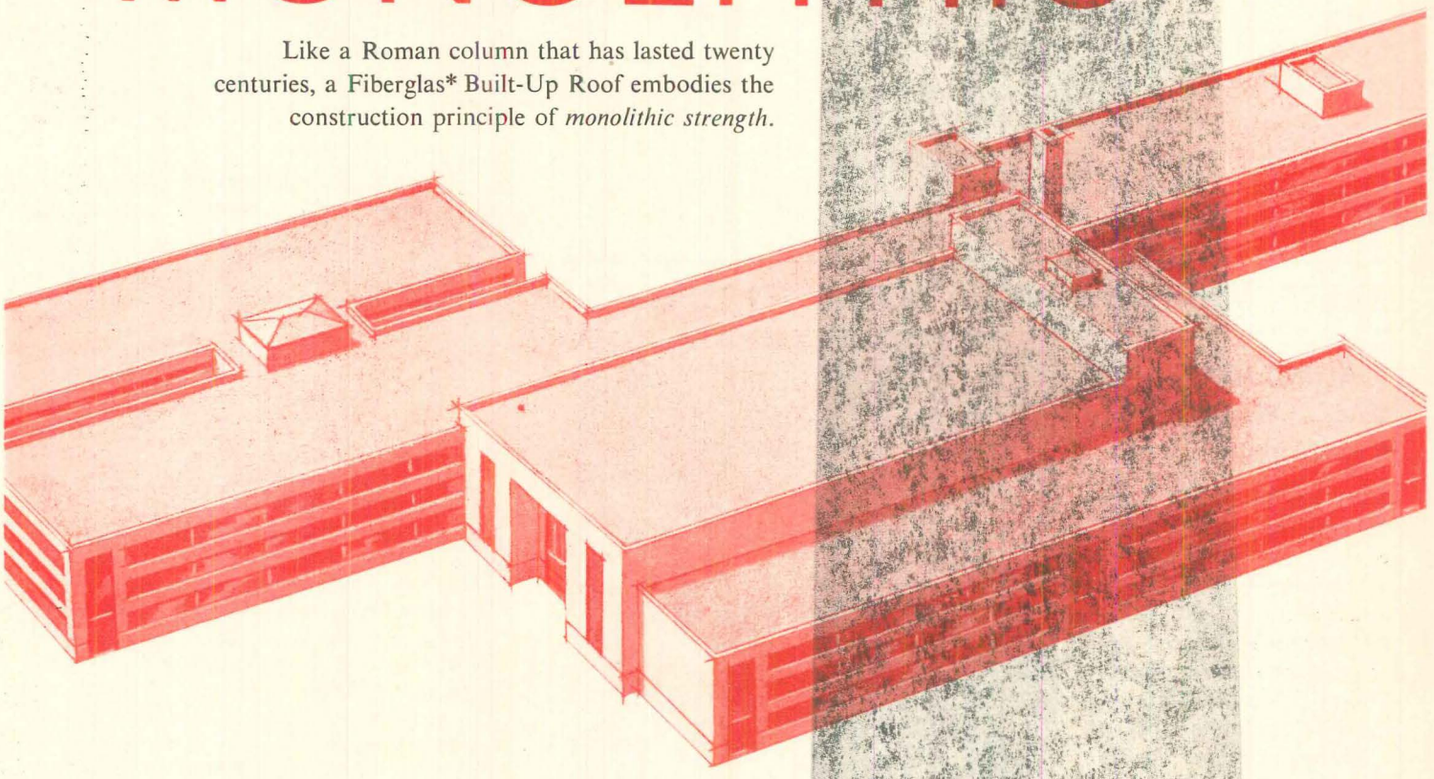
And Luria structures are built for *permanence*—engineered to surpass the most stringent building code requirements. You'll find more and more important companies in your field ordering—and re-ordering—Luria Buildings. Contact your nearest Luria representative; *it pays!*

LURIA ENGINEERING Company

511 Fifth Avenue, New York 17, New York • Plant: BETHLEHEM, PENNSYLVANIA
District Offices: ATLANTA, PHILADELPHIA, BOSTON, CHICAGO, WASHINGTON, D. C.

MONOLITHIC

Like a Roman column that has lasted twenty centuries, a Fiberglas* Built-Up Roof embodies the construction principle of *monolithic strength.*



This great new advance in built-up roof construction now promises a virtual end to failures due to faulty bonding of bitumen and felt. Though applied in layers, Fiberglas Built-Up Roofing and bitumen are immediately welded into one continuous monolithic sheath whose inherent solidarity helps prevent buckling, peeling or cracking. The roofing is reinforced by the same ageless glass fibers used in Fiberglas-reinforced fishing rods and boat hulls.

Because Fiberglas Built-Up Roofing is reinforced as a single, monolithic unit, 40% more bitumen can be applied without risk of cracking—*giving 40% more weather and water protection!* Field-tested and proved in use for 9 years in 6 million square feet of roofing, Fiberglas materials can outlast the bitumen itself! And with Fiberglas Roof Insulation under a Fiberglas Built-Up Roof, you have a quality roof from top to bottom. *It's amazing the* difference *Fiberglas makes!*

SEND FOR FREE SPECIFICATION BOOK — *Reinforced Built-Up Roofs*—containing 32 pages of technical and design data later than current *Sweet's Files.* Address Owens-Corning Fiberglas Corporation, Dept. 171-H, Toledo 1, Ohio.

OWENS-CORNING FIBERGLAS

*T-M (Reg. U. S. Pat. Off.) O-C. F. Corp.

Roofing Products

FIBERGLAS PERMA-PLY* NO. 6 • FIBERGLAS ROOF MAT • FIBERGLAS BASE SHEET • FIBERGLAS ROOFING COMBINATION SHEET • FIBERGLAS ROOF INSULATION • FIBERGLAS FORM BOARD • FIBERGLAS MOP YARN • FIBERGLAS COROTOP* (Cold-application roof resurfacing)

Ordinary roofing felts *separate* bitumen layers—voids between layers may result in premature failure.

Fiberglas roofing *bonds* bitumen applications together —creates a single reinforced monolithic sheath.

PRODUCTS *cont'd.*

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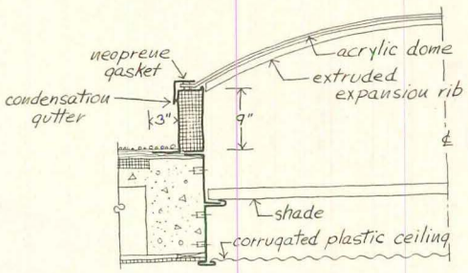
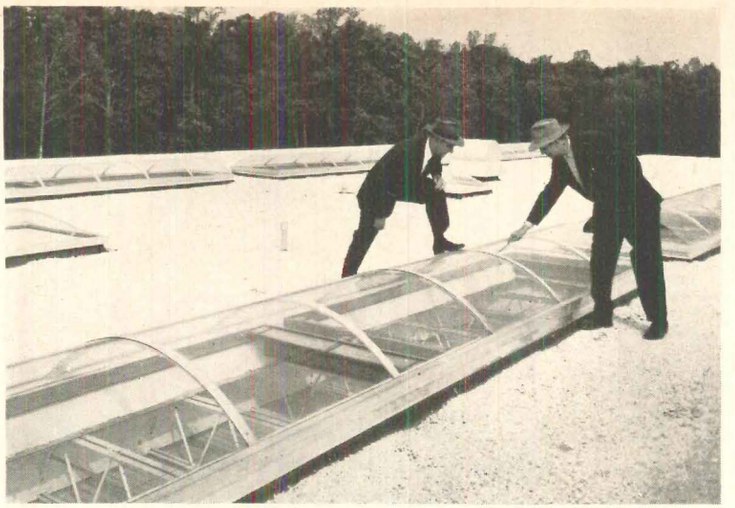




(9) ARCHED SKYLIGHT mounted in tandem for effective daylighting

Going from the conventional vacuum formed dome to a simple curve, *Magna* acrylic skylights can be installed in a continuous run easily and economically. Requiring less curb, flashing and fewer roof breaks than a series of individual skylights, the arched plastic sheets are supplied in single sections up to 72″ across (at the well opening) by 8′ long. These can be strung together for the entire roof length if necessary to daylight a corridor, classroom, office or production area. Because the sheets are bent into shape under heat, not stretched, their thickness is uniform and there are no strain spots. Extruded joints, curved to the contour of the weather and chemical resistant plastic, are fitted between sections to take up lengthwise expansion and contraction and the skylight's side edges float in gaskets. *Magna* units are furnished with a frame of galvanized or stainless steel or copper. An internal condensation gutter disposes of any moisture collecting inside the dome through weep holes in the outside curb. The skylight can be ordered clear or translucent, in colorless or tinted acrylic. Special well fittings, draw shades and corrugated translucent polyester ceilings are made to specification (see detail above). Standard *Magna* skylights run about $5 a sq. ft.; with shade and plastic ceiling, about $8. The firm also makes standard *Rite Lite* fixed and ventilating domes as well as roof hatchways of similar construction in sizes 20″ x 20″ up to 63″ x 95½″ with dome rises of 5″ to 16″. A 28″ fixed square is about $22.

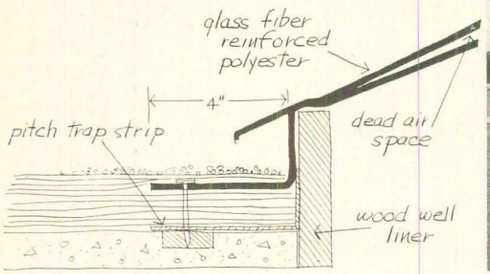
Manufacturer: The By-Products Co.

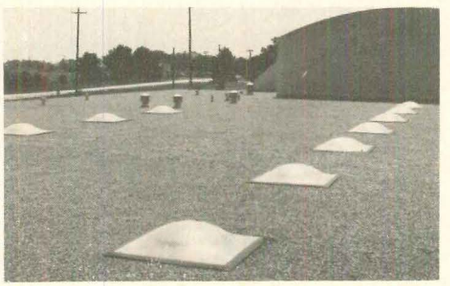
(10) DOUBLE DOME of polyester and glass fiber molded with flange

A self-flashing, insulated skylight yielding 80% light transmission, *Consolite* is formed of two layers of glass-fiber reinforced plastic with an integral flange. The dead air space between the pale green double dome not only has a thermal value equal to a 2½″ gypsum roof deck but also eliminates any problem of condensate drip or detailing drains to handle it. Merely set down over a hole cut in any kind of flat or sloped roof, the flanges of the curb-

continued on p. 212

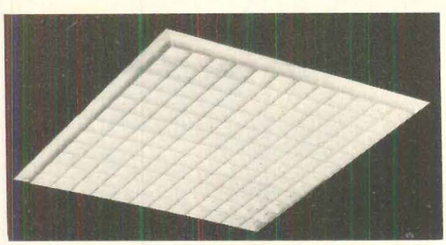
For more data use coupon, p. 224





less, leakproof *Consolite* rest flush with the concrete slab or deck and are anchored with lead head nails 4" apart. Layers of pitch and felt are applied up to the counter flashing (indicated by a painted black border). A special *Bond-type Consolite* with a 6" rise between flashing and counterflashing has been approved by major roofing companies such as Barrett, Philip Carey and Ruberoid, who will take responsibility for the *Consolite* installation and guarantee the skylight for the life of the roof. Rounds and squares come 1'-6" x 1'-6" (weight 6 lb.) up to 3' x 3' and rectangular shapes from 1'-6" x 3' up to 3' x 6'. Prices for single units range from $22 to $104 with discounts on quantity orders.

Manufacturer: Consolidated General Products, Inc.



(11) VINYL GRID fused to flat sheet in combination louver-diffuser

Curticell light louvers sensibly combine the shielding job of a cellular grid and the diffusing work of a flat translucent panel in a single molded unit. Formed of shatterproof, self-extinguishing vinyl chloride, the new diffusers are 2' x 2', 2' x 4' (a 4' square is in development) and may be used with fluorescent fixtures, recessed troffers or rested on standard suspension systems. Direct lamp glare is controlled by the 13/16"-deep cross fins forming a 1-51/64" waffle pattern. The frosted finish top sheet breaks up reflected glare to assure even illumination without disturbing surface brightness. Weighing only 4 oz. a sq. ft., the *Curticell* shields are cleaned by a dunking in mild detergent. Top sheet and grid are electronically fused to prevent any water from getting inside and cells are rounded to keep dust from collecting in the corners. Price is about $1 a sq. ft.

Manufacturer: Curtis Lighting, Inc.

(12) CURTAIN WALL, frame and all, packaged for one-story building

A complete wall system for schools, motels and commercial buildings, Kawneer's *Unit Wall* brings the economy of off-site construction methods down to a one-story level. Factory assembled, the wall units are shipped complete with in-

continued on p. 216

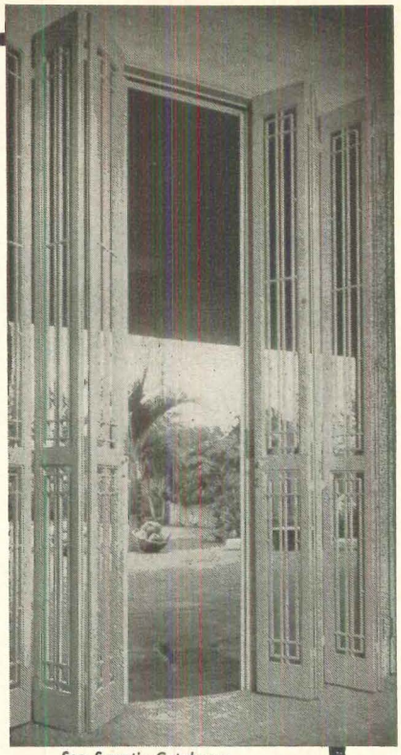
NEW—

Shoji SHUTTERS

BY

Paul Heinley

Paul Heinley has adapted these ancient Polynesian shutters into delightful modern decorative accompaniments. Some in-stock designs are carried, but most applications are created to order. Variety is infinite. Panels and designs are made in unlimited variations, and Paul Heinley's sources, through his own Hawaiian Island operation, offer imported and domestic grills, authentic hardware, permanently laminated rice paper, grills, and other special materials for inserts. However you desire Shoji Shutters to be made, Paul Heinley has the exacting facilities to accomplish the desired results. Write for free brochure.



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See Sweet's Catalogue, Section 19e/He *and* 6b/He

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ORIGINATORS OF TODAY'S MOVABLE SHUTTERS

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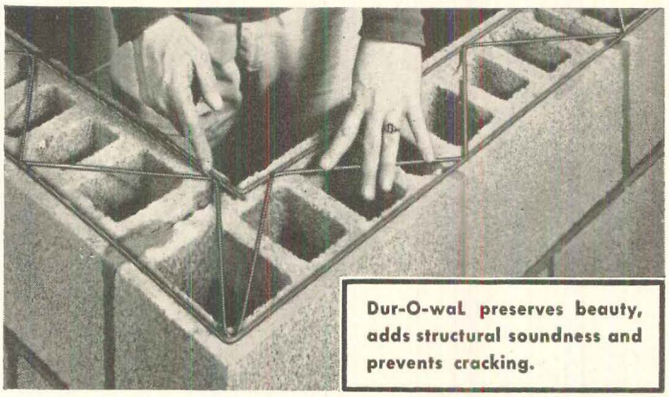

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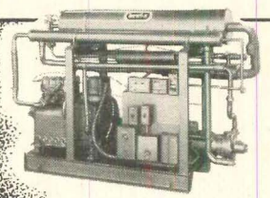
Request free bulletins describing the Heat-X chillers designed to meet *your* particular needs. And for capable engineering assistance on any package chiller problem, contact the experienced Heat-X sales engineer in your area.



'PC' Package Chiller

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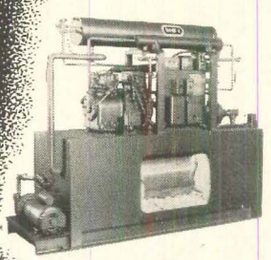

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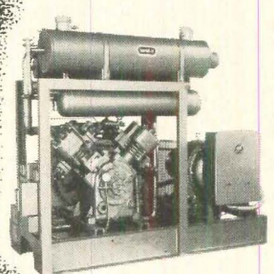
'RPC' Residential Package Chiller

For domestic applications. Available in 2, 3 and 5 H.P. models. Hermetic Compressors. 230/1/60.



'APC' Chiller

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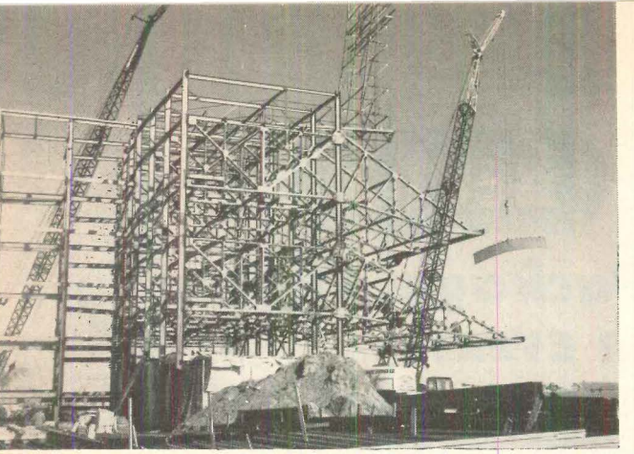


STRUCTURAL STEEL FRAMEWORK under construction, February 27, 1956. Erection of the 1,555 tons of Structural Steel was under the supervision of American Bridge Division of United States Steel.

CLOSE-UP of the post-free grandstand showing Structural Steel supporting members for cantilever overhang. Notice large sections of steel decking.

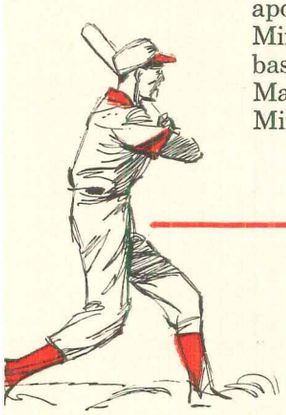
USS STRUCTURAL

UNITED STATES STEEL

with Structural Steel

seat a good seat

in this new Minneapolis stadium



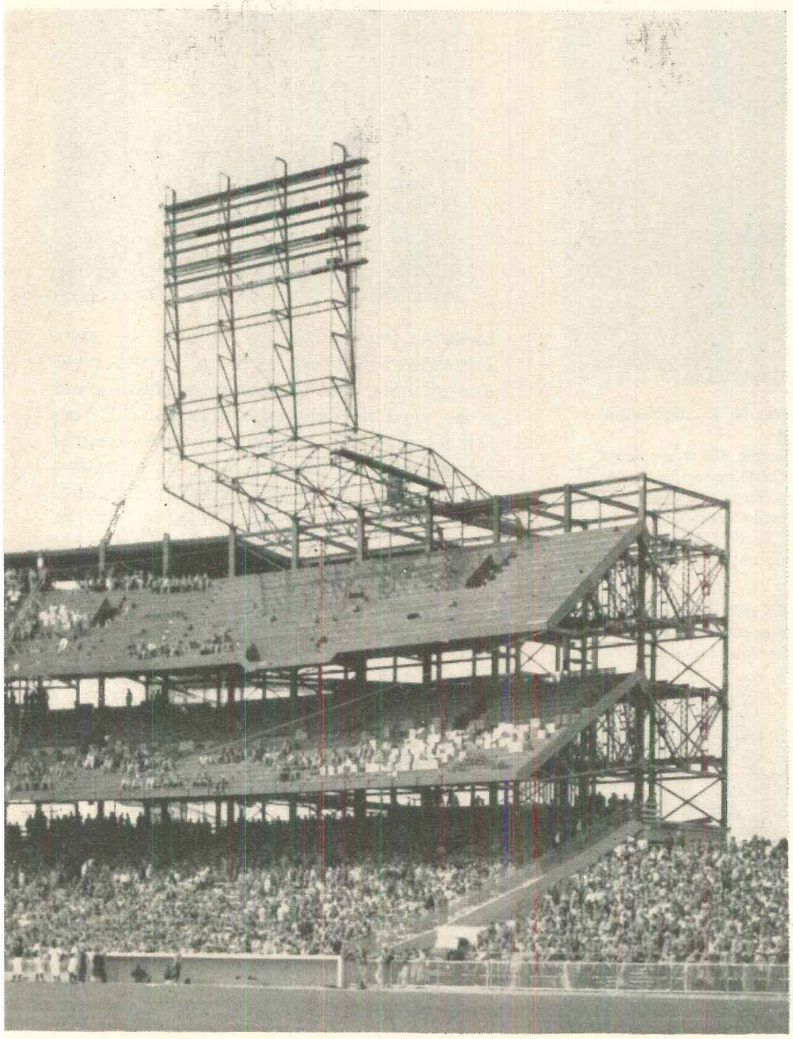
The Metropolitan Sports Area Stadium in Bloomington, Minnesota, just outside Minneapolis, is the fabulous new home of the Minneapolis Millers. Claimed to be the finest baseball stadium in existence, it is actually a Major League size park, although used by a Minor League club. The stadium backers, however, hope that it will house a Major League team in the not-too-distant future.

Remarkably enough, not one dollar of public tax money was used to build this $4,500,000 stadium. It was completely financed through the sale of revenue bonds to more than 2,500 Upper Midwest baseball fans!

Approximately 1,555 tons of Structural Steel were used in the framing of the 30,000-seat stadium. And every seat's a good one, since the cantilevered tiers keep the viewing area entirely post-free. The lower tier is concrete. The upper tiers, roof, exterior ramps, decks, and elevator shafts are of steel. Erection was accomplished with welding and high tensile bolts.

Here is an application which called for a construction material of tremendous load-bearing capacity, great versatility, and honest-to-goodness economy. What other material could possibly have been chosen? Structural Steel is certainly the strongest of load-bearing construction materials, yet the most economical. It can take more abuse than other structural materials, successfully resisting torsion, tension, compression and shear. Enclose it in buildings and it lasts indefinitely—requiring no maintenance. And, of course, it may be welded, bolted, or riveted—erected in any weather. Steel members are fabricated indoors, too, where weather can have no effect on the quality of workmanship. Return the coupon for further information.

OPENING DAY at Metropolitan Sports Area Stadium. *Architects & Engineers:* Thorshov & Cerny, Inc., Minneapolis, Minn., and Toltz, King, Duvall, Anderson & Associates, St. Paul, Minn. *General Contractor:* Johnson, Drake & Piper, Inc., Minneapolis, Minn.



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PRODUCTS *cont'd.*

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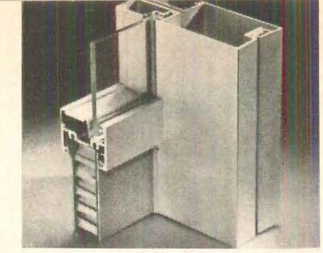
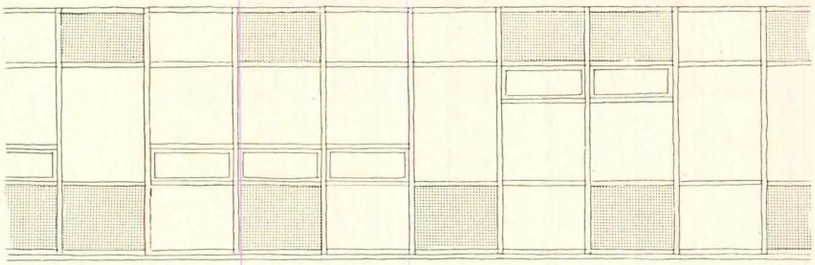
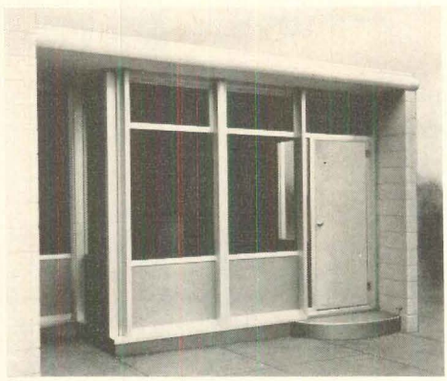


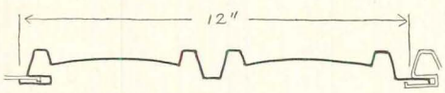


sulated panels, operable awning and hopper sash, and doors. They are set up by trained crews and glazed from inside on the job for a total cost of about $9 a sq. ft. Textured aluminum skins of the 1-⅜" thick sandwich panels—constructed over an impregnated paper honeycomb and tempered hardboard innerbands—can be obtained with aluminite finish or porcelain enameled in blue, red, green or black. The framing has a satin finish. Both narrow stile and flush doors come prehung in



modular frames 3'-4", 4', 5' on 6'-4" wide. Extruded vinyl is used for all weatherseal and gaskets, and the concealed flush glass stops need no exposed fasteners. Sills below fixed lights are designed with integral condensation gutters. The interlocking split mullion design simplifies erection and, once up, allows for horizontal expansion and contraction. Wall units are available from 9' to 12' high in widths of 3'-4" with sash and in 5' widths without sash. Close to 3,000 combinations can be worked out from the stock size sash, panel and door components.

Other products recently announced by Kawneer include *Color Sash*, a vinyl-on-metal stripe which can be inserted on store front window sash to complement *Kawneer* vinyl clad flush doors; operable *Klouvers* for sun control; and *Bold Face*

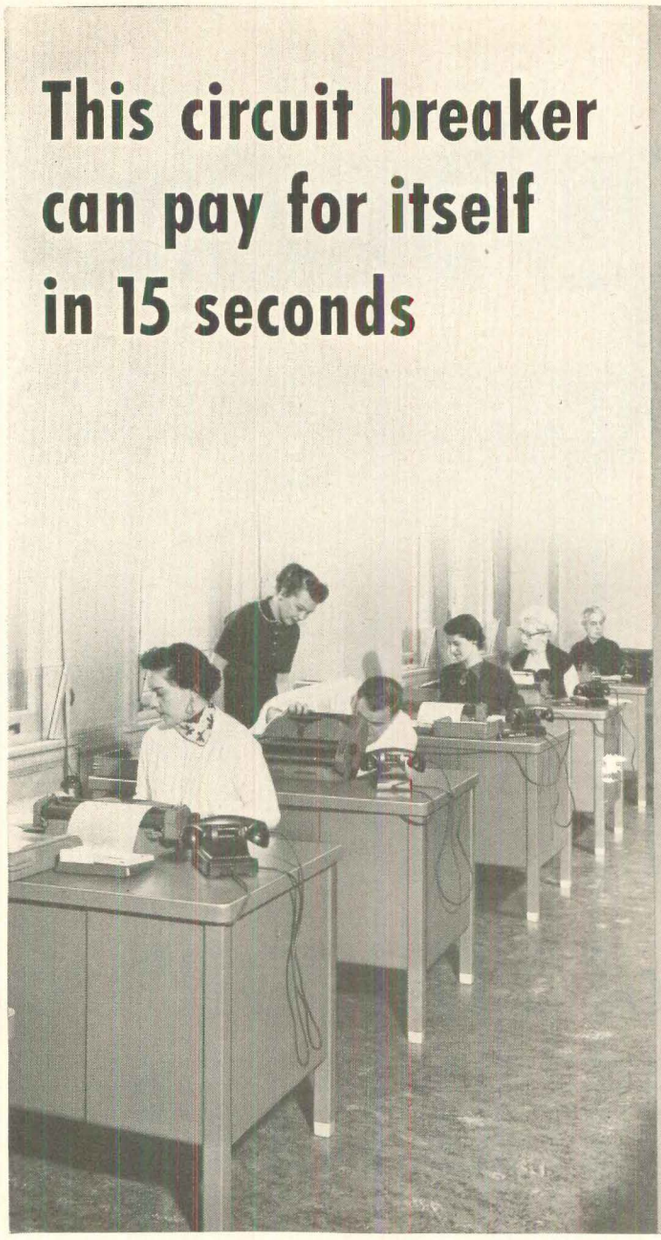


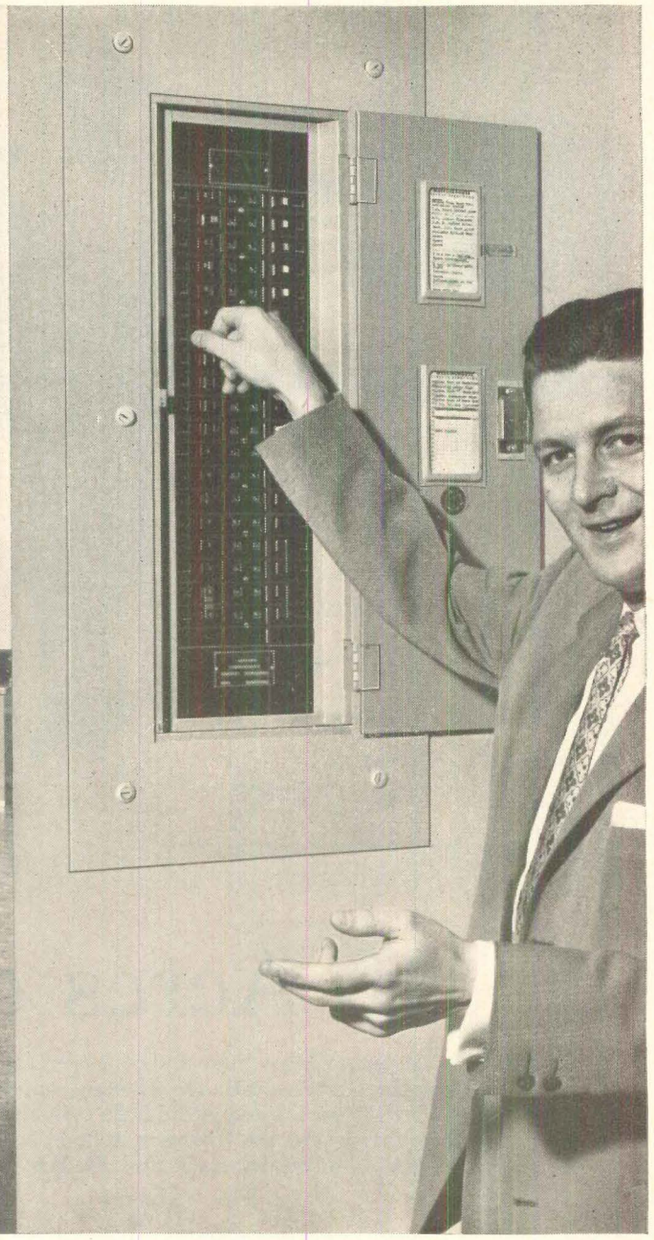
Zourite, an enameled aluminum facing made on a 6" module for large expanses of exterior wall.

Manufacturer: Kawneer Co.

continued on p. 220

This circuit breaker can pay for itself in 15 seconds





Snap! And the power is on again. It's that simple with a Westinghouse AB De-ion® circuit breaker. Unlike other protective devices, it quickly restores power with just a simple flick of the finger—no valuable time wasted looking for fuses, no fuse replacement costs, no need even to call a maintenance man. The trip position of the breaker handle quickly identifies the affected circuit.

Today's buildings—with a wide range of electrical equipment from fans to floodlights—require positive insurance against overloads and short circuits. And when overloaded circuits go dead and business stops cold, that's when Westinghouse circuit breaker protection pays for itself many times over by restoring electrical service quickly, effortlessly—with practically no loss of valuable time.

When you consider circuit protection for today's buildings, it will pay you (and your clients) to specify Westinghouse AB circuit breakers. Your Westinghouse representative can offer you a complete range of circuit breakers for every application. Call him, or write to: Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pennsylvania. J-30193

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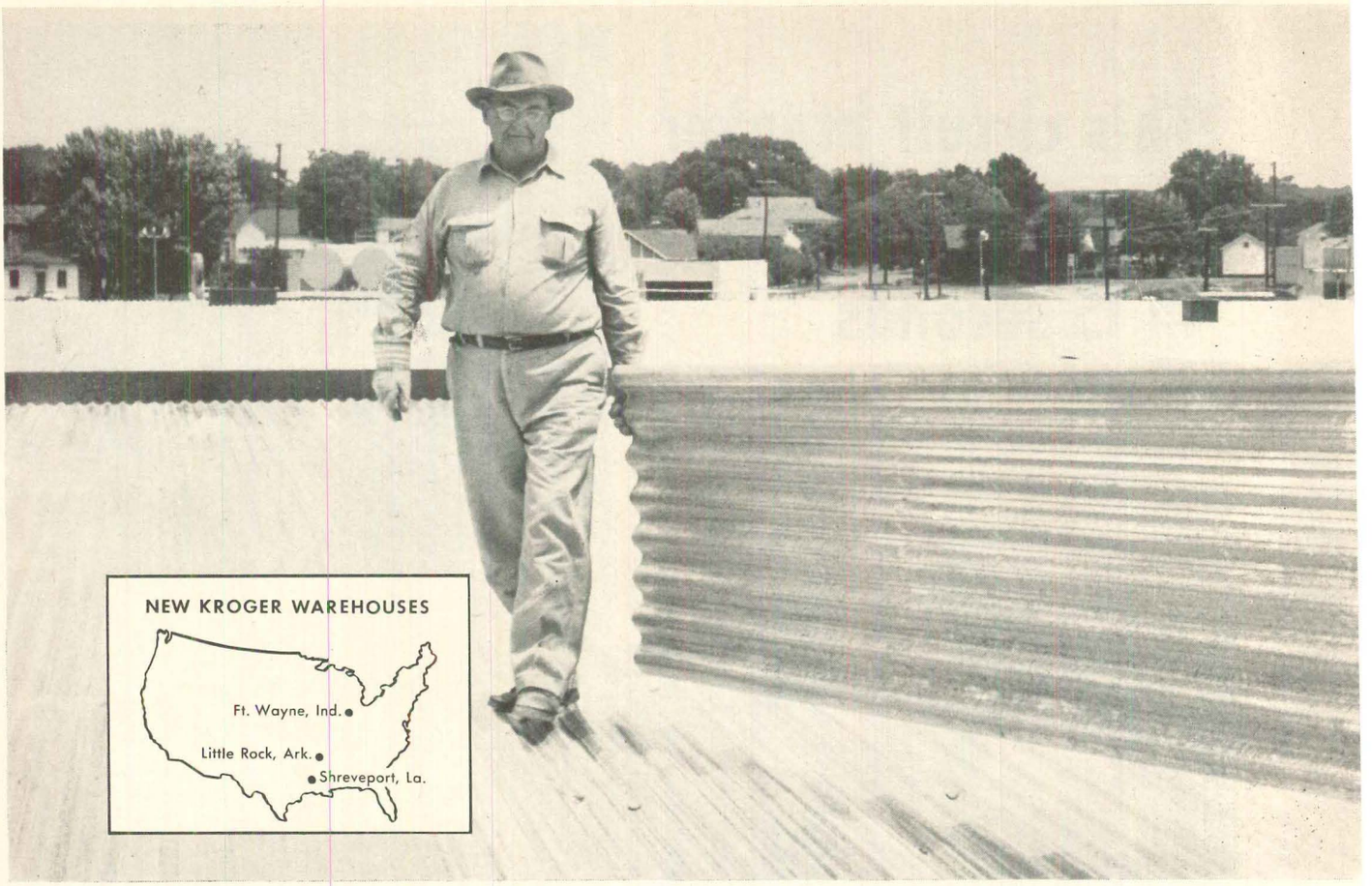
*WHERE **BIG** THINGS ARE HAPPENING FOR **YOU***

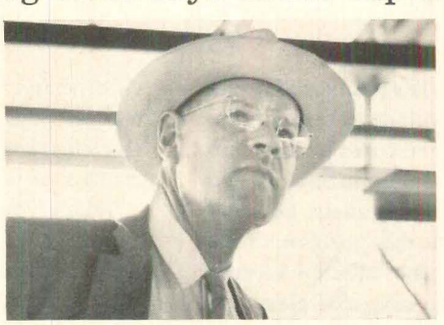


15 Acres of TUFCOR® roof

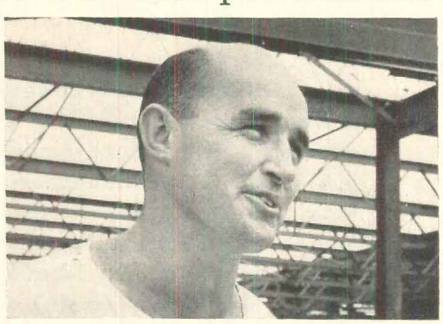
Old buildings, rising volume and congested sales areas can hog-tie a firm's customer service—but it won't happen at Kroger! Spearheading the company's vast expansion program are 3 new warehouses in Little Rock, Ark., Shreveport, La.,* and Ft. Wayne, Ind., 660,000 sq. ft. of new buildings—all covered with tough-temper Tufcor steel deck and lightweight, insulating concrete fill. Why Tufcor? Because Tufcor gives insulating concrete a strong, *permanent* base . . . weighs up to 7 lbs. per sq. ft. less than other decking

Read what Kroger's building team says about superior TUFCOR performance

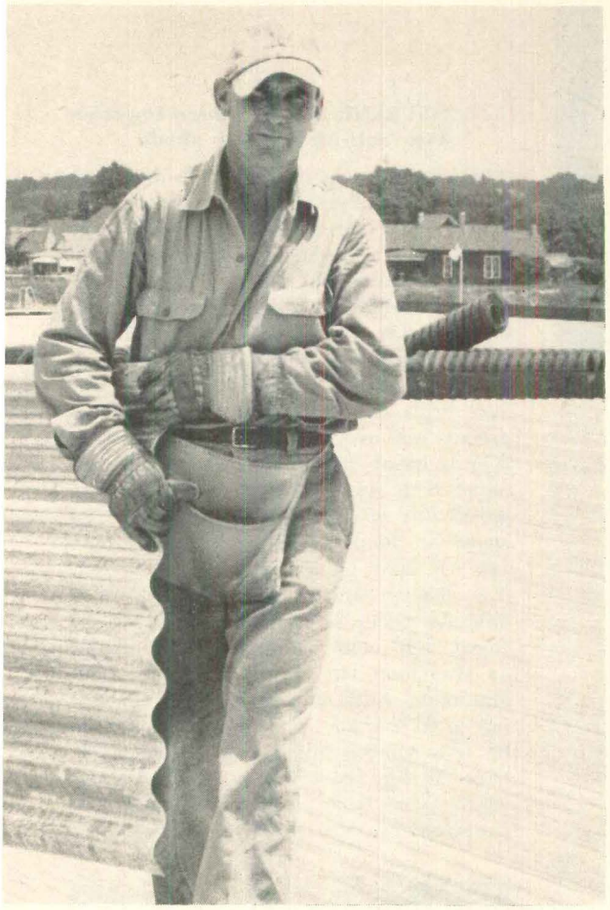
ENGINEER LEWIS W. HIXSON of Hixson, Tarter & Associates, Cincinnati (designers of Kroger warehouses) says, "Low cost per square foot and dead weight savings definitely affected the selection of Tufcor over other poured-in-place decks. Because much of the Kroger buildings will be refrigerated, the high insulation value of a Tufcor-Insulating Concrete roof system also offered a big advantage, helped save $5,000 on the Little Rock job, alone!"



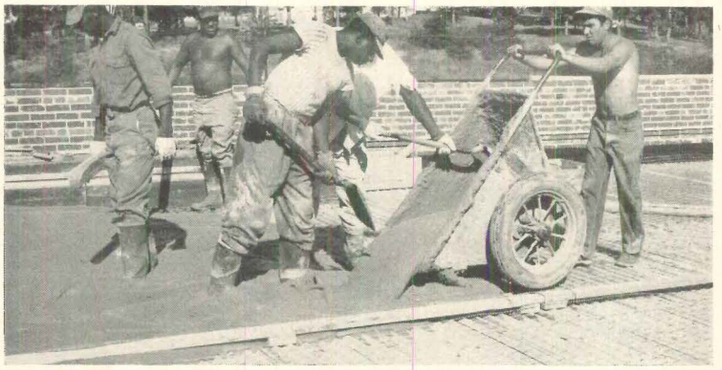
CONTRACTOR WERNER KNOOP of the Baldwin Co. (general contractors for the Kroger warehouse in Little Rock) says, "We're very pleased that the Kroger Company decided to use Tufcor steel decking. It has such surprising strength in comparison with most decking. It arrived on time, was cut the way we wanted it and helped us to stay on schedule. I'm very much impressed with the speed of Tufcor placing!"



ON-THE-JOB SUPERVISOR THOMAS MULROY says, "Tufcor sheets really go down fast. With two crews, we placed about 15,000 square feet of decking a day. The men are more at ease walking around on Tufcor, too. Those sheets give stronger support to workers, concrete buggies and stacked building materials than some other types of decking. There's no danger of falling through to the ground below—and the men know it!"



IN LITTLE ROCK, workmen placed *and welded* 8200 sq. ft. of Tufcor in 3 hours . . . or 45 sq. ft. per minute! Each sheet covers about 32 sq. ft., fits snugly in place to provide an immediate, safe working platform.



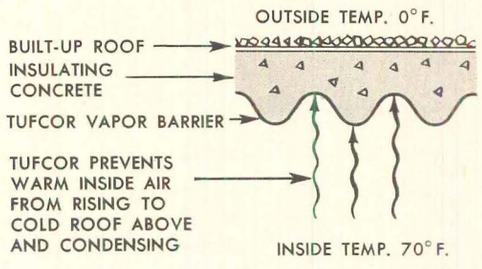
PLACEMENT of lightweight insulating concrete on Tufcor steel decking is a fast operation. The result is a rigid, *permanent* slab with low dead load, high insulating value and unsurpassed strength.

tops new Kroger® warehouses

. . . is easy to place, saves on framework and fill, guards against fire. In fact, many insurors and codes insist on sprinklers every 120 sq. ft. when ordinary decking is used—but only every 130 sq. ft. with fire-resistant Tufcor! By saving on sprinklers and insulation, Tufcor cut $6,275 off the Little Rock bid price . . . $12,500 in Shreveport! Like to save thousands of dollars on your next job? For more information, estimates or costs on your building plan, consult Granco home or district office, Attention: Dept. F-64.

**For Child's Food Stores, Inc., a Kroger associated company*

A POSITIVE VAPOR BARRIER, TOO!



While water vapor penetrates porous roof decks, it does *not* penetrate Tufcor steel decking. Authoritative lab tests show Tufcor *stays* at room temperature, stays *dry*, acts as an effective vapor barrier to prevent moisture from condensing on the cold underside of the built-up roof. This vapor barrier maintains insulating properties, actually saves *thousands* of dollars a year in fuel!

See our listing in Sweet's Architectural File and Industrial Construction File

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PRODUCTS *cont'd.*

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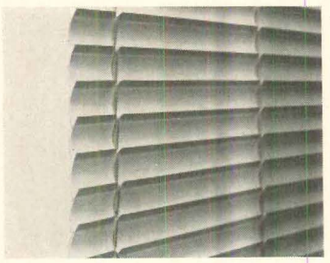
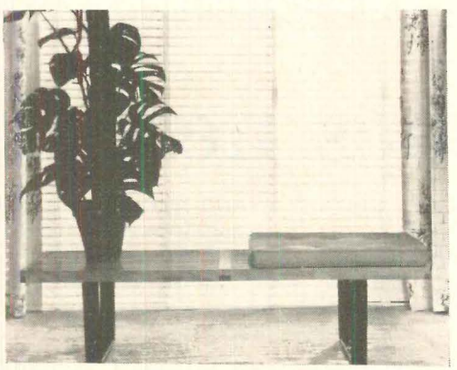


(13) STYRENE SLATS woven together into roll-up window shade

Slim curved strips of *Polyflex*, a light- and color-stable styrene, are mounted on heavy duty spring rollers to make up *Glolite* window shades. Appropriate for daylight control in commercial and institutional buildings, the translucent plastic shades offer the designer and building owner a welcome combination of low cost, negligible maintenance and high style. The ¾″ strips of .010″ sheet are corded together and overlap ⅛″. Light transmission is about 45%. They also can be ordered with slats spaced to let through a pencil line of light. The plastic holds its shape at temperatures from sub zero to 175° F. and is unaffected by humidity. The shades can be wiped clean with a mild detergent solution. To dress off the edges, side channels of extruded plastic or aluminum can be obtained on order. Maximum width on a spring roller mounting is 84″; shades that roll from bottom up like bamboo blinds can be made 96″ wide. Price: about 38¢ a sq. ft. Colors: white, pink, ivory, beige and green. The manufacturer also produces *Veni-Plex*, a



venetian blind with slats of the translucent plastic in nine colors and in stock and custom sizes. A 43″ x 72″ blind with plastic tapes is $4.35.

Manufacturer: Artcraft Venetian Blind Co.

PRODUCT NOTES

(14) Anodized electrical wire.

Aluminum Limited has announced a Canadian process for coating aluminum wire with an anodic film which in effect becomes electrical insulation. Applied by means of alternating current as the wire is pulled through a series of chemical tanks, the hard thin oxide is ductile enough to take the stresses and flexing of winding. Metallurgists point out that electrical equipment using the heat resistant aluminum wire instead of heavier copper could be made smaller, lighter and could run hotter with safety.

continued on p. 224

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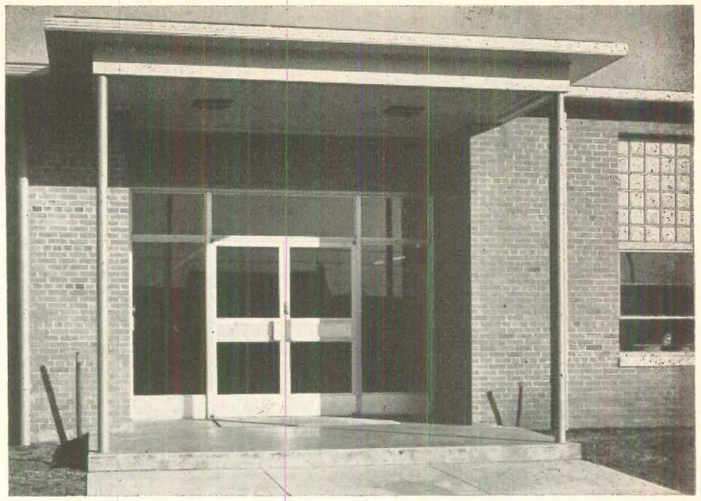

Northedge Elementary School, Plainedge, L. I., Architects: Jagow & Heidelberger, Hempstead, L. I. Entrance installed by Store-Craft, Inc., Corona, L. I. Main entrance consists of Alumiline Entrance Unit with Alumiline Center Panel Doors. Note center panel which gives added strength to the door at the point of considerable use, and also serves to hide the inside crash bar of the concealed panic device from outside view.

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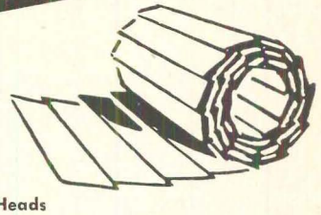

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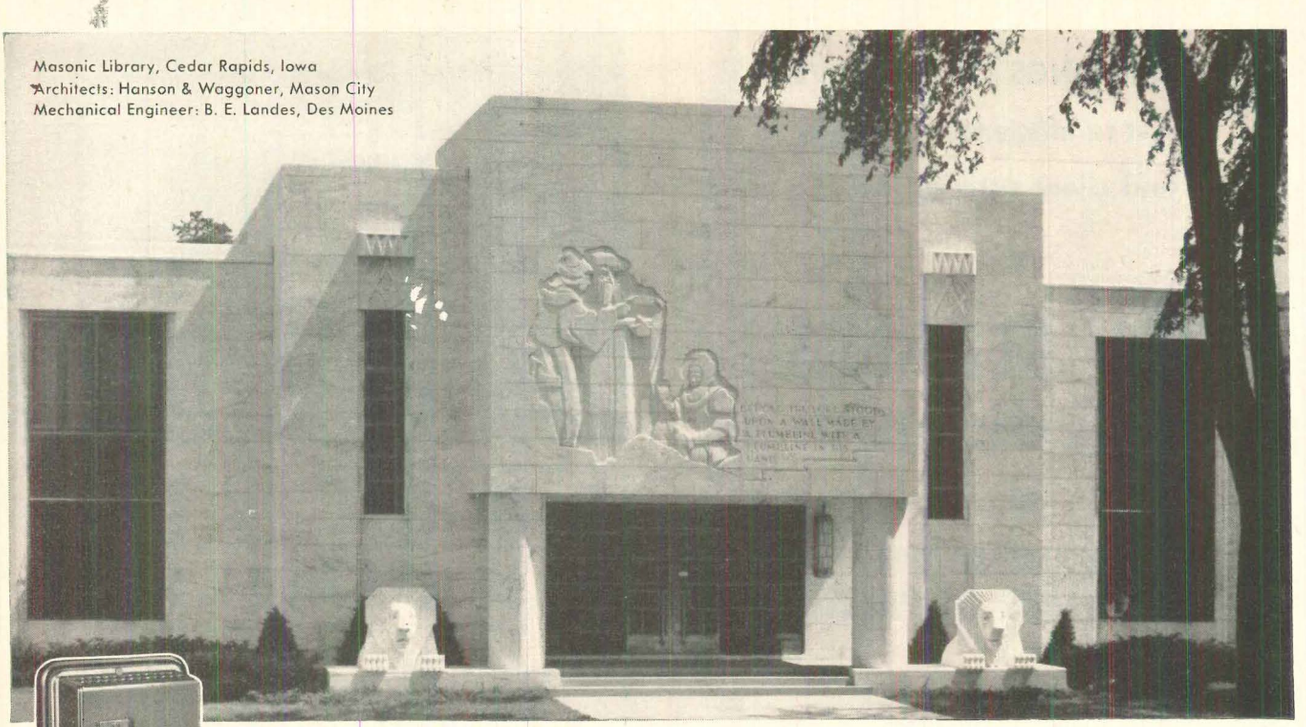

Masonic Library, Cedar Rapids, Iowa
Architects: Hanson & Waggoner, Mason City
Mechanical Engineer: B. E. Landes, Des Moines

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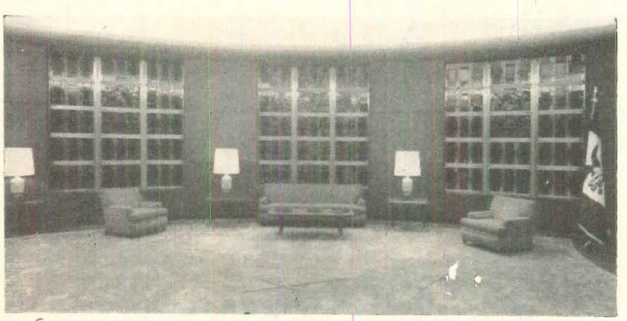

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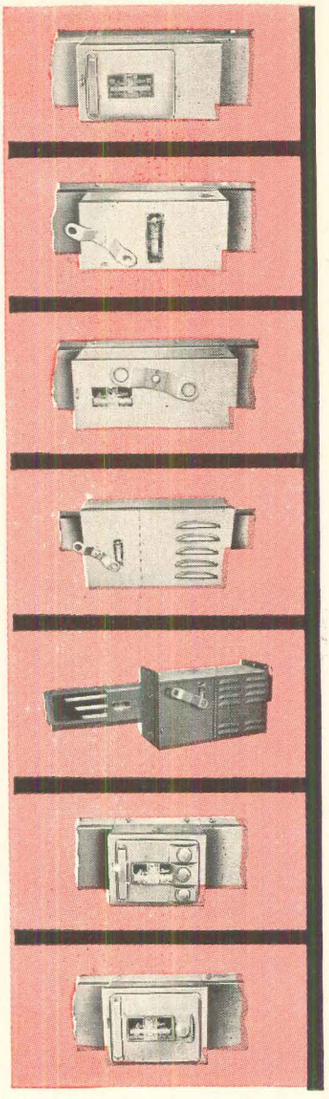

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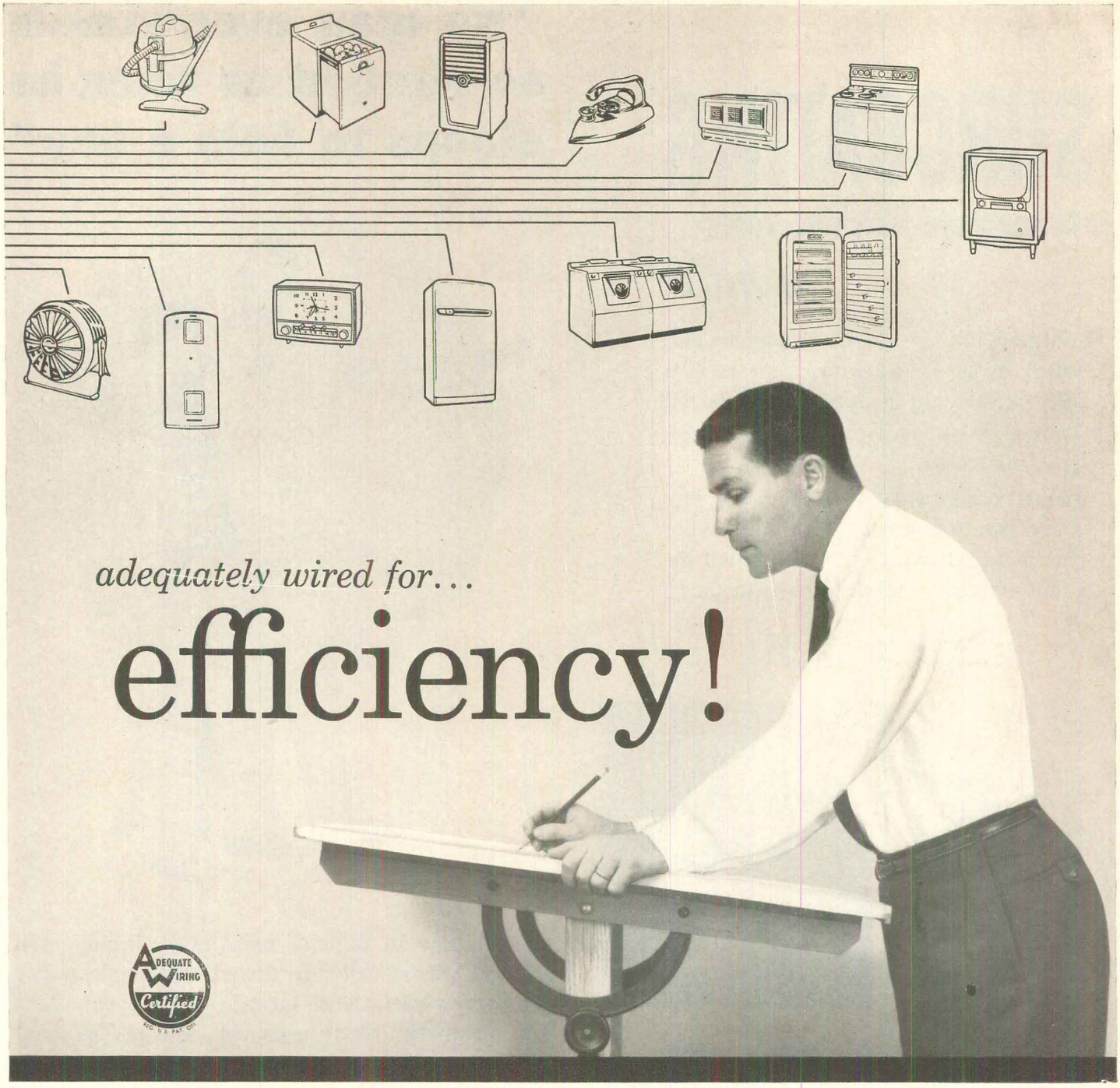

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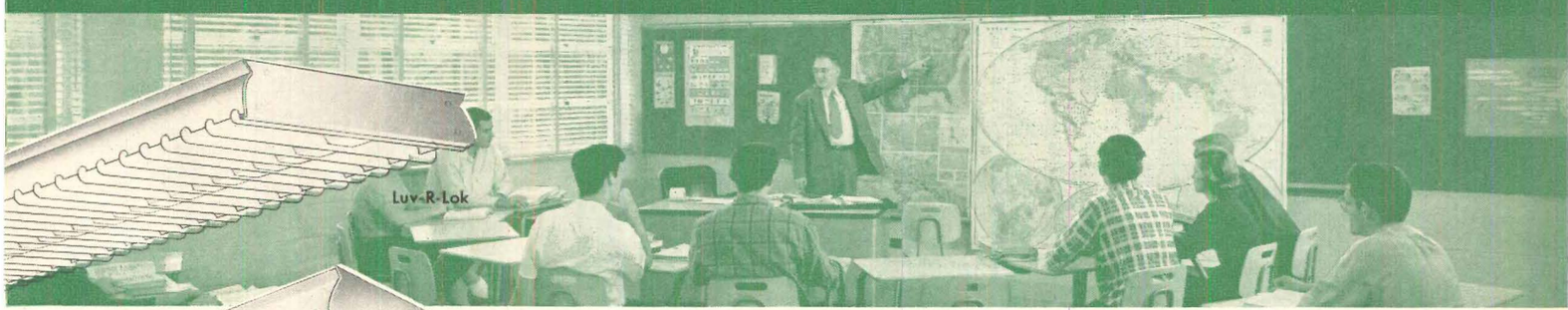

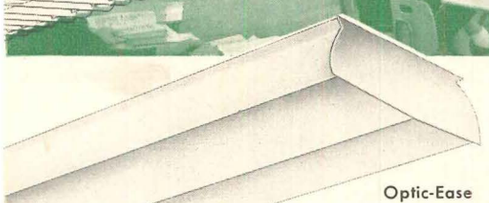
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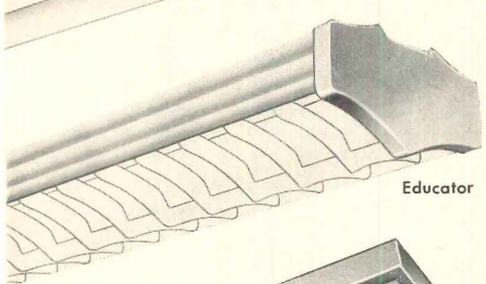
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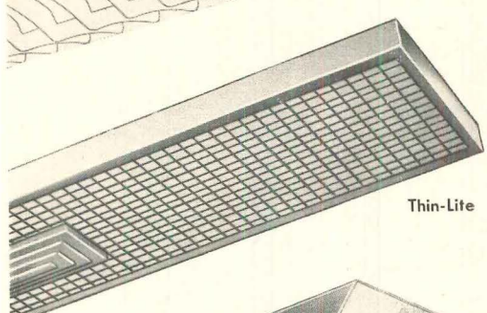
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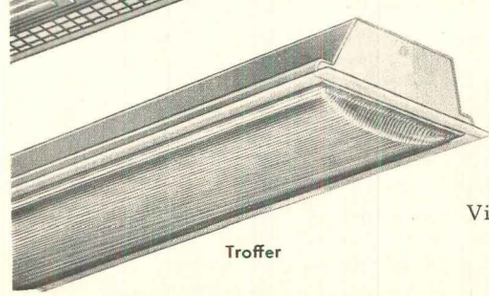
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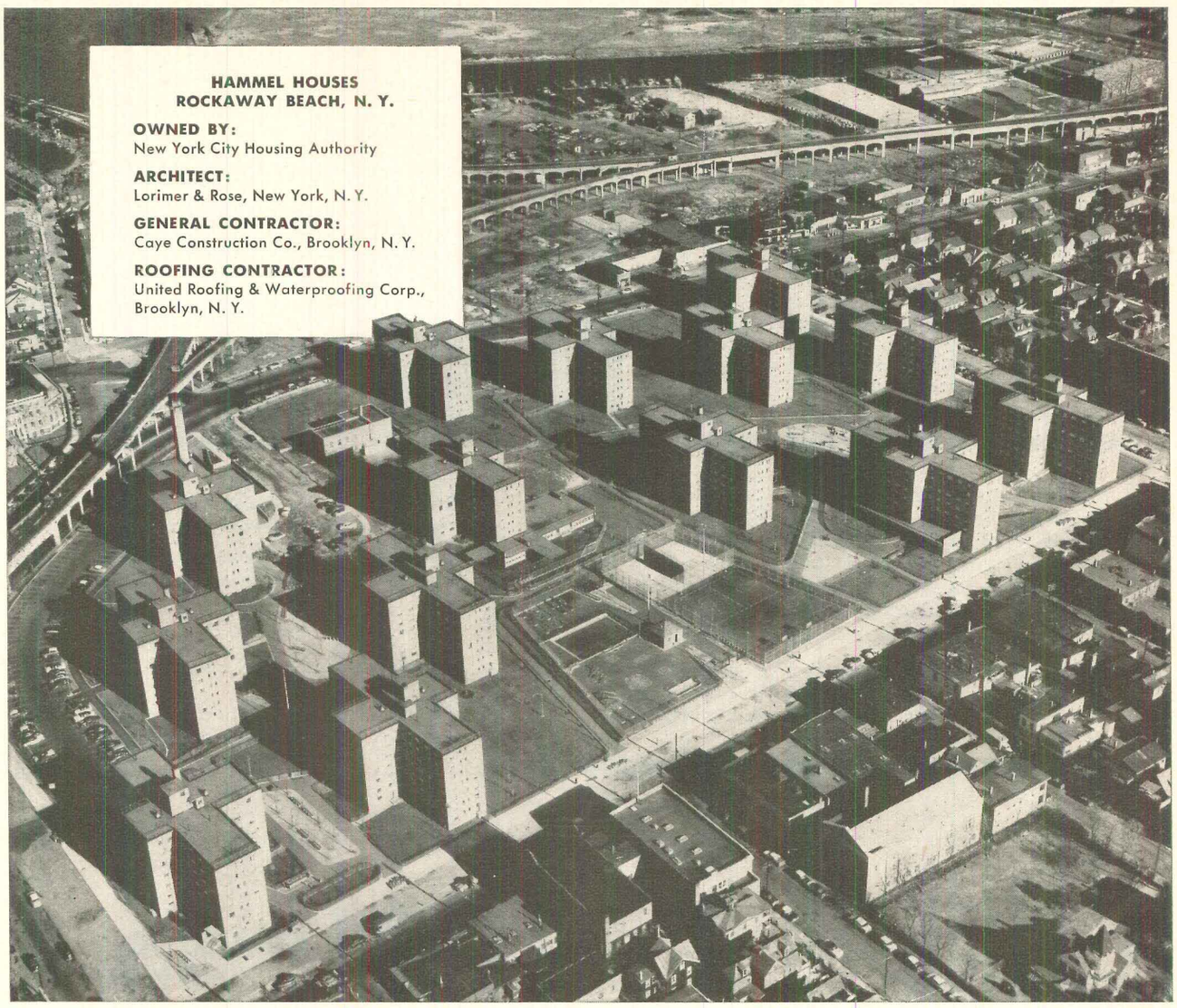

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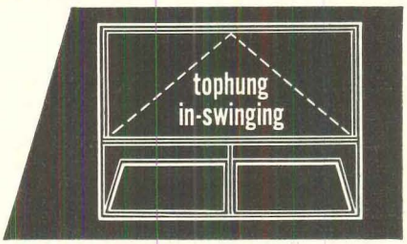

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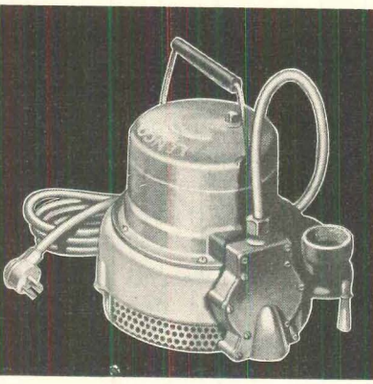

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Wiring Equipment Catalogue No. 156. Keystone Mfg. Co., 23328 Sherwood Rd., Center Line, Mich. 36 pp.

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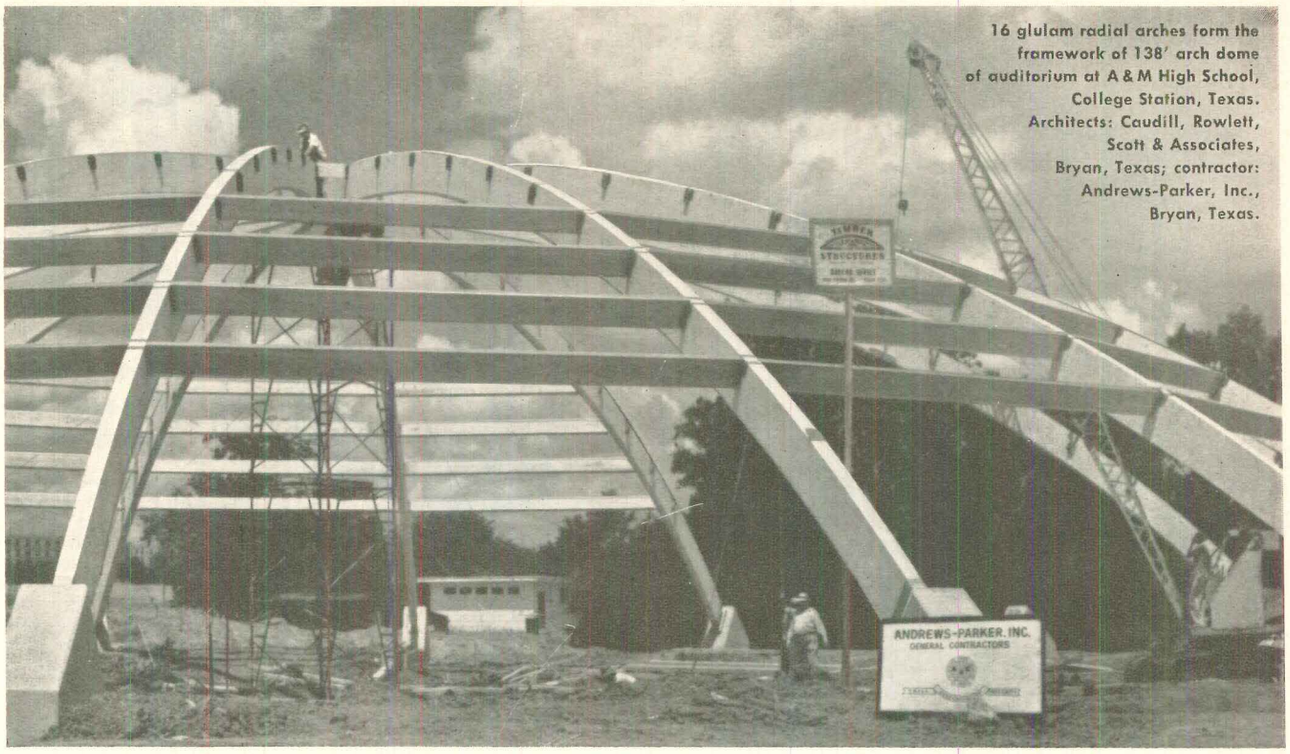

16 glulam radial arches form the framework of 138' arch dome of auditorium at A & M High School, College Station, Texas. Architects: Caudill, Rowlett, Scott & Associates, Bryan, Texas; contractor: Andrews-Parker, Inc., Bryan, Texas.

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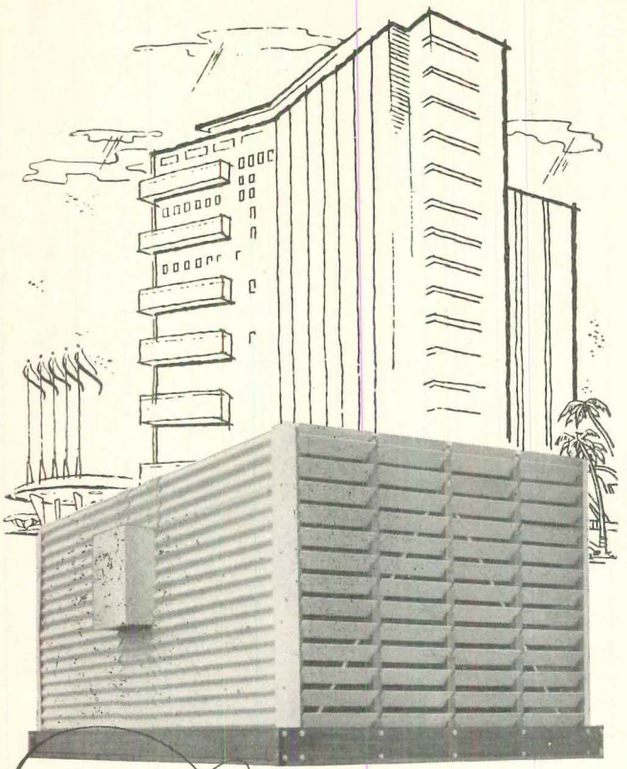

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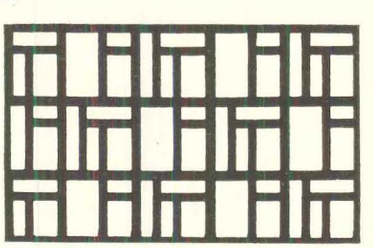

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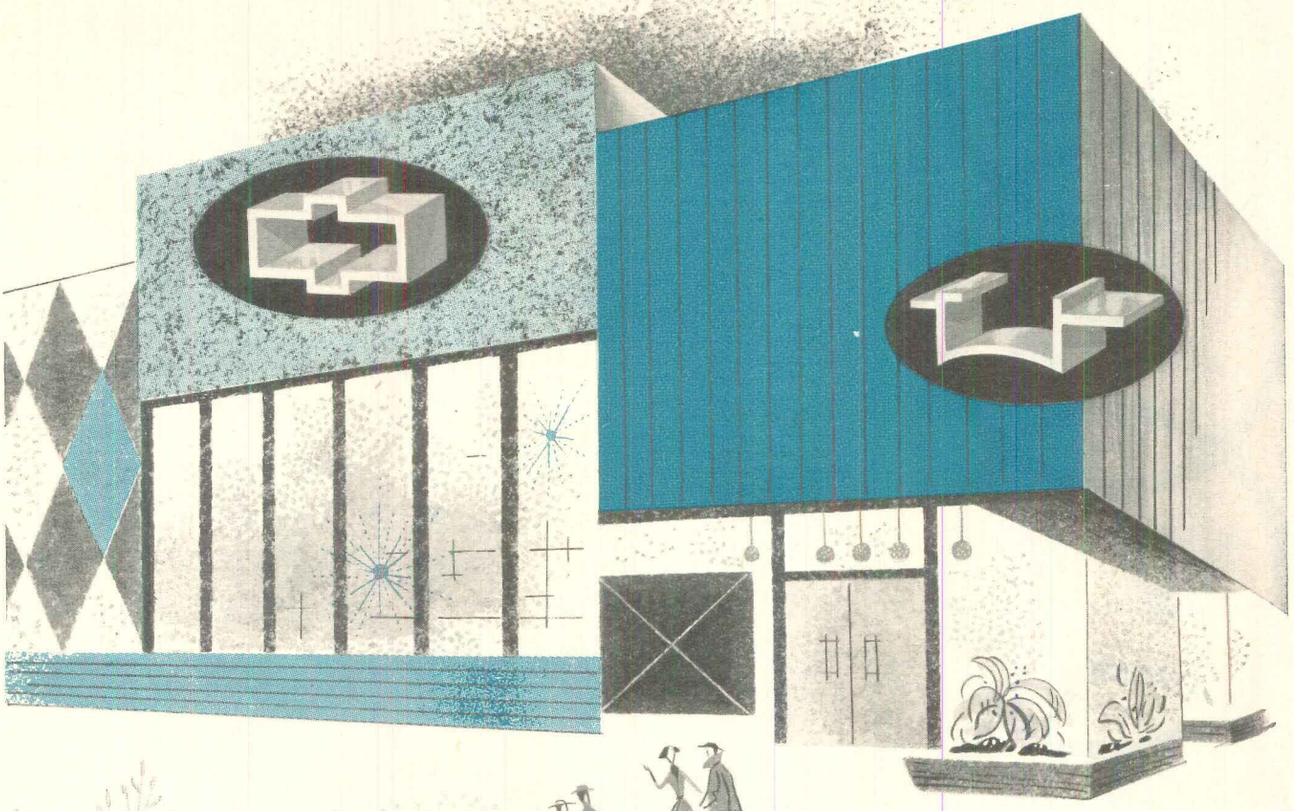

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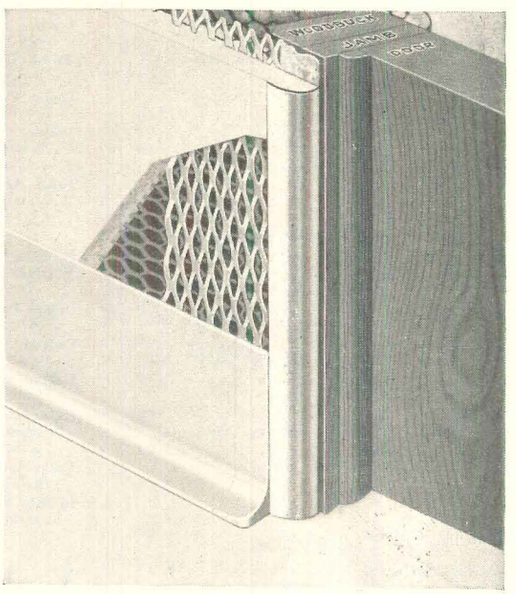

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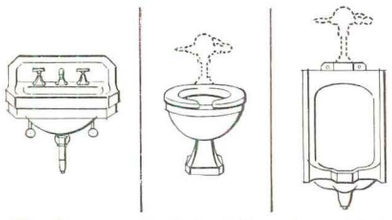

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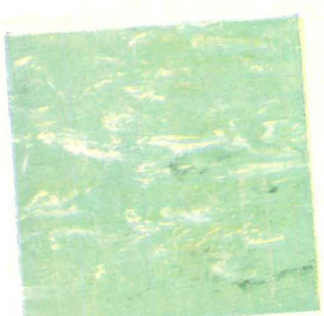

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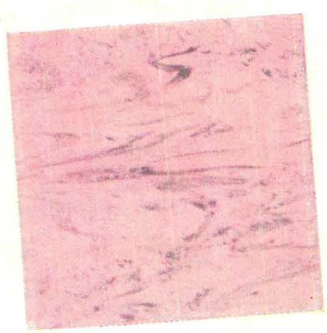

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