

architectural **FORUM**

the magazine of building

FEBRUARY 1956

Modernizing Main Street—a round table report (p. 127) . . . What's new in the classroom (p. 140)

Power of offices and apartments by Frank Lloyd Wright (below and p. 107)



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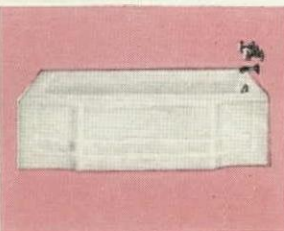
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FORUM

the magazine of building

FEBRUARY 1956

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Photo: Joe D. Price

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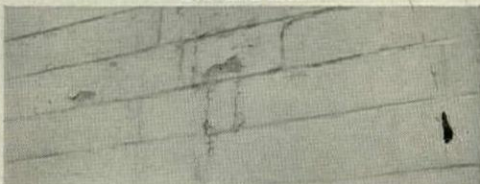
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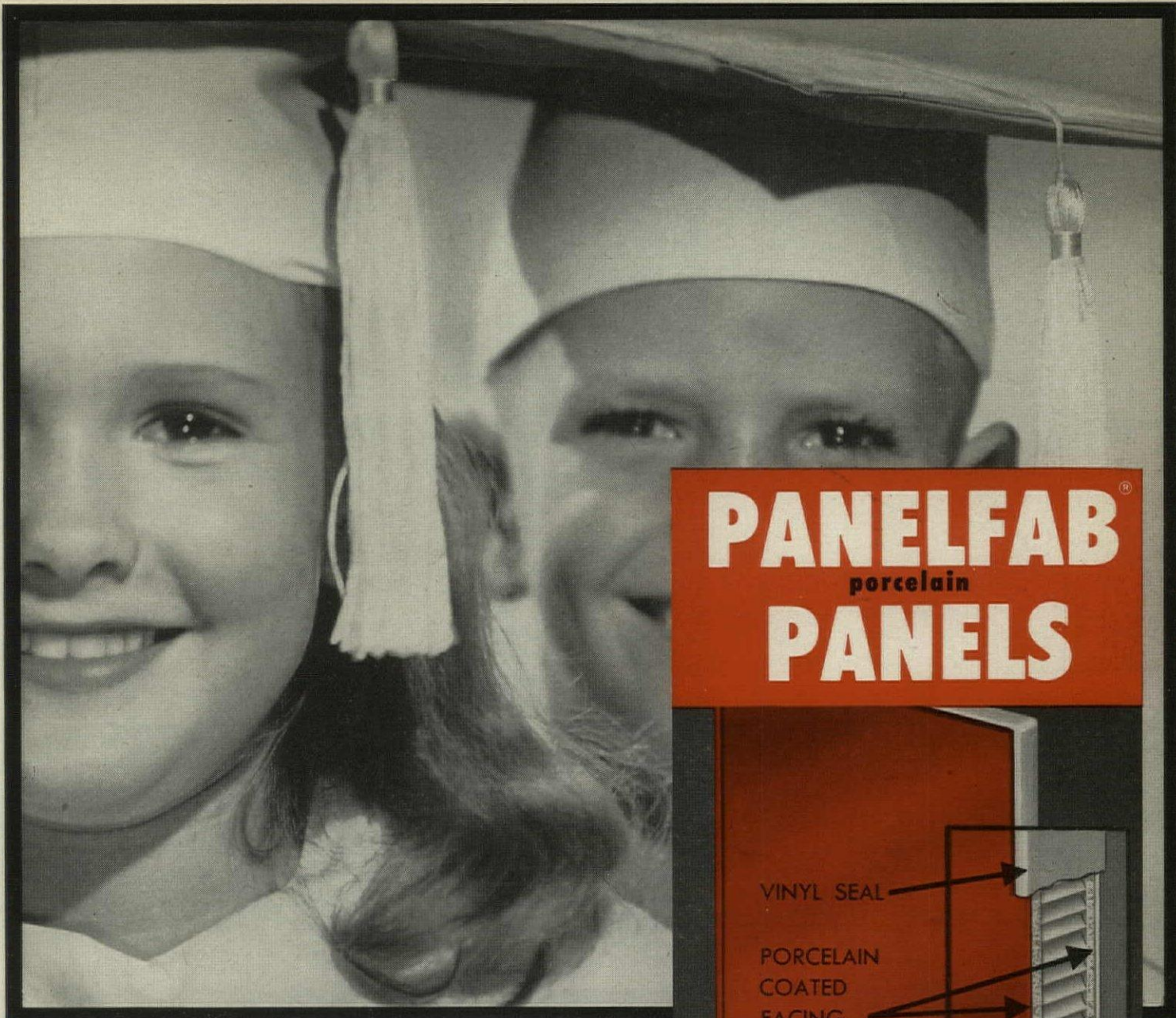


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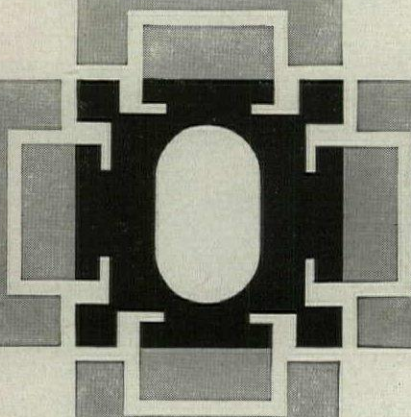
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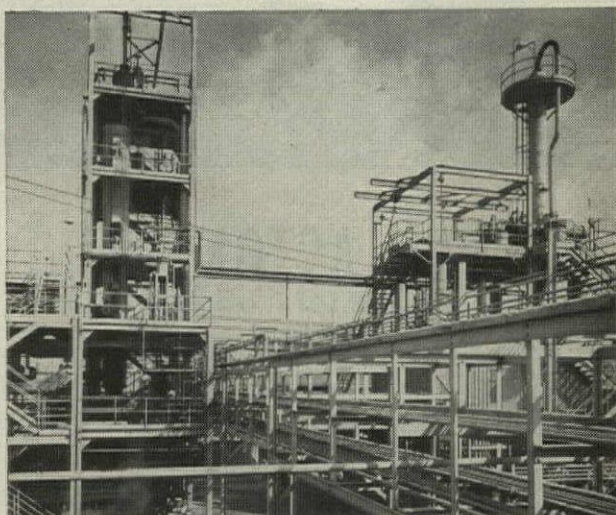
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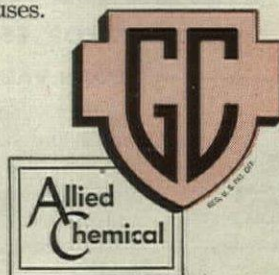
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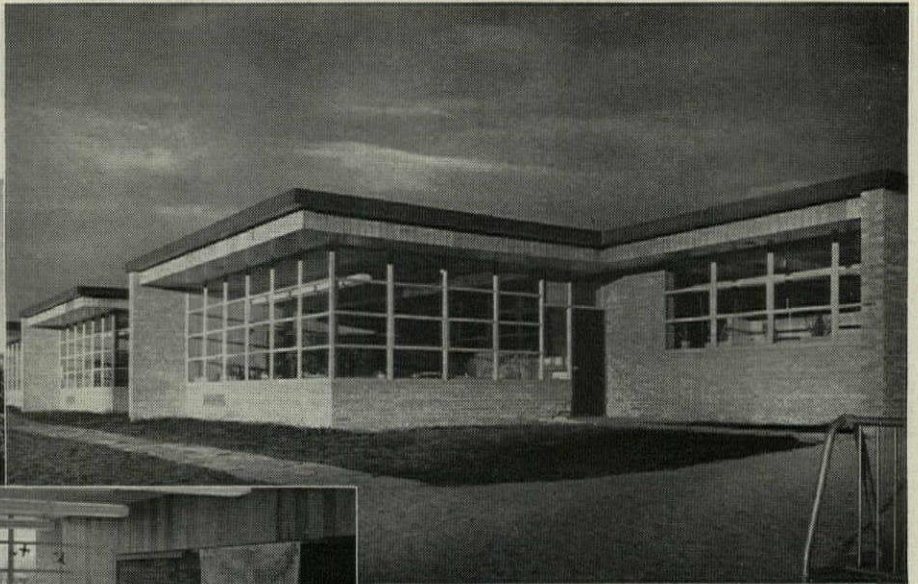
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THE VAST MAJORITY OF THE NATION'S FINE BUILDINGS ARE SLOAN EQUIPPED

CROW ISLAND ELEMENTARY SCHOOL in Winnetka, Illinois, was once described as looking—from above—"like a giant game of checkers spread out on a lush green setting."

Photo • GORDON COSTER



Photos • KRANZTEN STUDIOS, Inc.



for the new Crow Island School Addition:

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"AN ASTONISHING BUILDING"

• Back in 1940, the newly completed CROW ISLAND SCHOOL, Winnetka, Illinois, was acclaimed "an astonishing building. For the first time, modern elementary education was provided with housing to fit it." Famed architects, working with a far-sighted and highly creative school administration, applied originality in planning "a functional atmosphere for living and learning." Today—15 years later—this pioneer successfully maintains its firmly established position as "the most influential school of modern times." It has been the designing inspira-

tion for hundreds of schools which have since been built. Last Spring, after completion of a new wing, this school was visited by a large group of architects whose interests are centered in the need for more and better school buildings. During Crow Island planning and construction in 1954, as in 1940, highest quality standards prevailed. Throughout all units of the new wing, as in the main building, are service products of known superiority. In both, as in many thousands of other fine buildings, are famous SLOAN *Flush VALVES*.

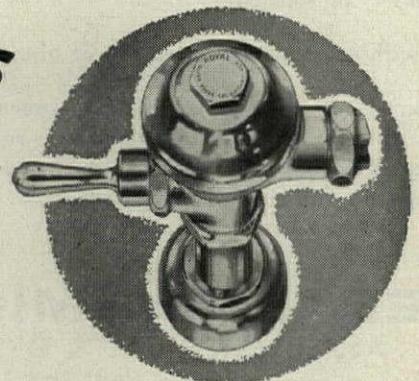
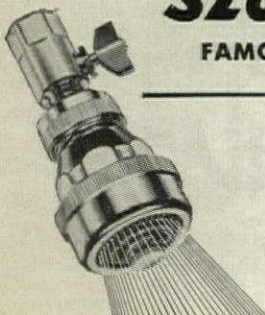
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Washington report: State Dept. to get 2d biggest US office; school aid pushed

Biggest architectural and building news in Washington last month was the awarding of a design contract for a huge State Department headquarters building. It will cover four blocks, be the biggest US office building anywhere except for the Pentagon.

The three joint-venture firms which received the architectural and engineering assignment were Chicago's Graham, Anderson, Probst & White, Inc., Detroit's Harley, Ellington & Day, Inc., and, as Washington associate, the firm of Architect A. R. Clas.

The new structure, with almost 2.7 million sq. ft. of floor area, is intended to reunite under one roof all State Department activities, now scattered in more than a score of buildings. Barring hitches, it is planned to have the structure under way by summer on the four blocks between 21st and 23d Sts. and C and E Sts. in the so-called Foggy Bottom area. Last year \$1 million was appropriated for planning this project; in his budget message last month President Eisenhower requested funds to cover its estimated \$50 million construction costs.

Other big District of Columbia building funds the President requested would finance: 1) a \$49 million headquarters for the Central Intelligence Agency, although it still was not decided whether this would rise in the District or in nearby Fairfax County, Va.; 2) the new Senate Office Building and a third House Office Building to cost a total of \$31.2 million, and 3) a \$33.7 million Museum of History and Technology for the Smithsonian Institution on the Mall between 12th and 14th Streets.

Other US building programs. In his state of the union and budget messages, as well as in his special message on school aid, the President also outlined the administration's objectives in its various other construction or construction-assistance programs.

The newest Eisenhower school-aid recommendations, considerably more liberal than his unadopted 1955 proposals, would provide for:

► Annual federal grants for \$250 million for five years, to be matched by the states on a sliding scale according to their own financial resources.

► A five-year program to buy up to \$750 million of local school bonds for communities that are not able to market them at reasonable interest rates.

With national elections coming up in November, Republicans and Democrats both wanted to enact a school-aid law. The Democrats also want to show that they tried to pass one that would give more aid than the Republicans proposed. The problem that bedevils both parties and might prevent the enactment of any school aid bill whatsoever is the prospect of an anti-segregation amendment to the bill that might cause Southern Congressmen to kill the bill.

Hospital aid funds. For local hospital construction aid under the Hill-Burton Act's "old program," the President requested \$88.8 million, the same as last year. The "new" program covering four types of facilities will be increased from \$21 million this year to \$40 million in the fiscal year beginning in July. Another \$1.2 million was requested for grants, as high as 100%, for research in hospital utilization and administration. To date, 16 have been approved.

The budget message also requested \$53 million for new hospitals and modernization for the Veterans Administration. For military construction the President asked appropriations of \$1,817 million, compared with \$1,899 million for the current fiscal year, and for AEC construction authority to use \$2,700 million from unobligated funds still available from a 1955 appropriation.

Skies clearing for Wright's ramp museum, synagogue

At the completion of Frank Lloyd Wright's Price Tower in Bartlesville, Okla. (p. 107), it appeared that 1956 would witness the start of construction on two more of Wright's most spectacular designs.

► After two important changes, New York's Board of Standards and Appeals approved designs for his spiral ramp museum for the Solomon R. Guggenheim Foundation (AF, April '52, and the

Building Dept. was reported ready to issue a building permit. In the revised plans the diameter of the top level of the five-ring spiral (wider at the top than at the base) was reduced so it would no longer overhang the building line. Instead of using the original Wright-designed support and reinforcing system, the tower will have a conventional structural system, but this will not change its appearance. As a consultant on this structure, the first he has ever engaged, Wright employed Engineer Jacob Feld of New York.

► In Elkins Park, Philadelphia suburb, Beth Shalom Congregation was negotiating for an unidentified western builder recommended by Wright to build the only synagogue he has ever designed—a semi-hexagonal, pyramidal-dome structure representing the shape of the biblical Mt. Sinai (AF, June '54). Last summer not a single contractor accepted the invitation to bid on erecting the \$750,000 nonconventional structure. Nor was any eastern builder found who was prepared to contract directly for the job at a price approximating Wright's estimates. Finally Wright suggested a western builder who has put up three buildings he designed. Last month he was expected to receive the job soon.

In Taliesin West in Arizona, Wright recently commented with characteristic acidity when he was notified that Venice's Artistic and Technical Commission had rejected his design for a glass-and-marble building on the famed Grand Canal as being inharmonious with other buildings along the canal. He assumed that "the tourists" had won, and said: "Commissions seldom agree with enlightened critics."



Black granite and stainless steel offices for financing firm

Harrison & Abramovitz designed this black granite and stainless steel New York office structure that George A. Fuller has begun erecting for C.I.T. Financial Corp. The second floor of this eight-story air-conditioned building will consist of a rest and recreation area for employees; it will be

indented from the building line and planted with a peripheral band of shrubbery. Senior executives will occupy offices on the setback, terraced, eighth floor beneath a windowless air-conditioning and utilities penthouse. The steel frame will be bolted. The structure will cost about \$9 million.

Since

HOPE'S WINDOW WALLS

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STEEL WINDOWS HAVE THE STRENGTH AND RIGIDITY THAT NO OTHER WINDOW CAN MATCH



Beverly Elementary School, Birmingham, Michigan

Eberle M. Smith Associates, Inc., Architects, Engineers

Lerner-Linden Construction Co., General Contractor

In addition to their use for exteriors, Hope's Window Walls are ideally suited to the modern concept of school corridor partitions as shown above.

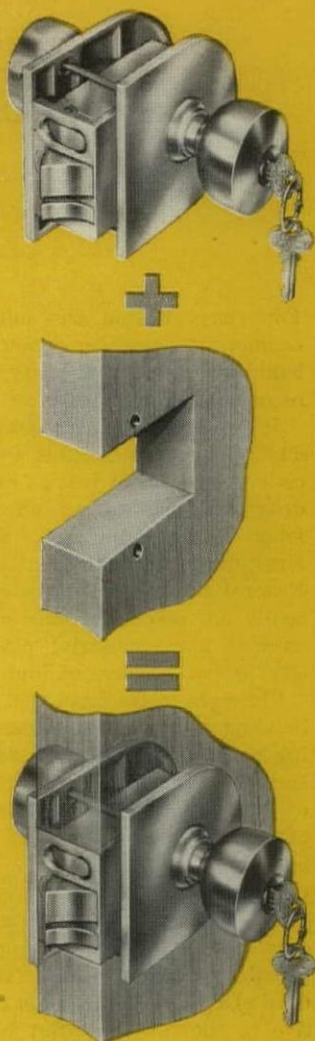
Long uninterrupted rows of floor to ceiling framing are possible because of the greater strength and rigidity of their steel construction. This type of wall construction permits a variety of layout possibilities. Doors, fixed sash, insulated panels and ventilators may be inserted where desired. In this school, Hope's Heavy Intermediate Projected ventilating sash were used at

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Send for Bulletin 134 AF

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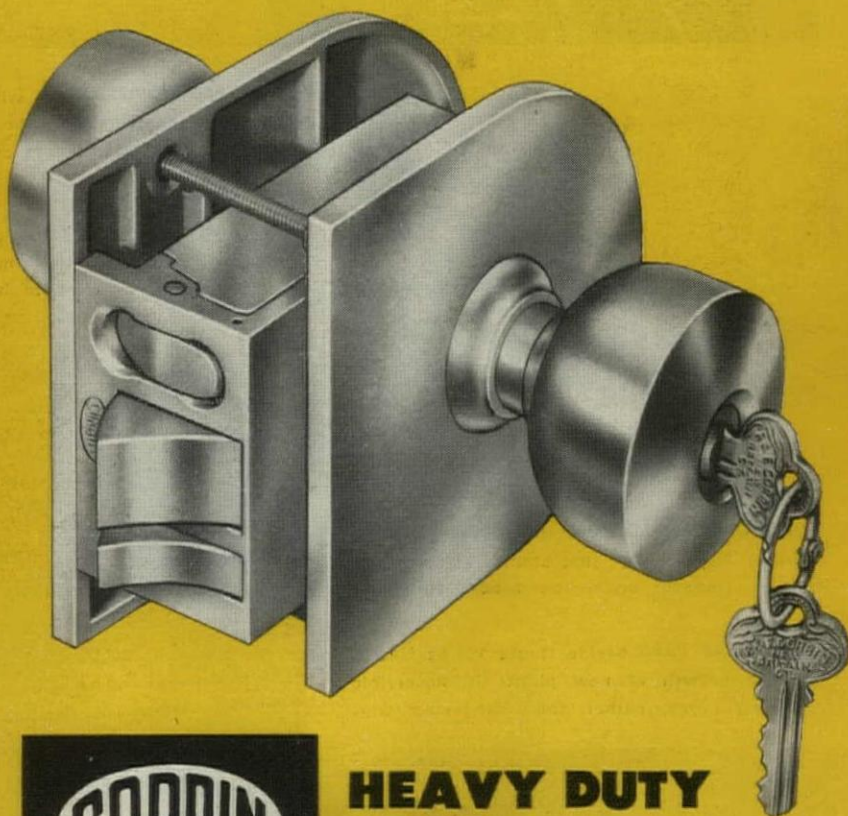
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**HEAVY DUTY
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New Britain, Connecticut

RENEWING OUR CITIES:



For years Boston has had two unusual conflicting claims to fame: 1) her book-banning literary chastity, and 2) her notorious city tax rate.

It would be hard to establish that the city's literary standards ever blocked its civic progress, but just as easy to show the drag and debilitating effects that came from its tax standards. Said Alfred C. Neal, first vice president of the Boston Federal Reserve Bank, in commenting recently on the obsolescence of private commercial and industrial plant within the city proper because of high taxation:

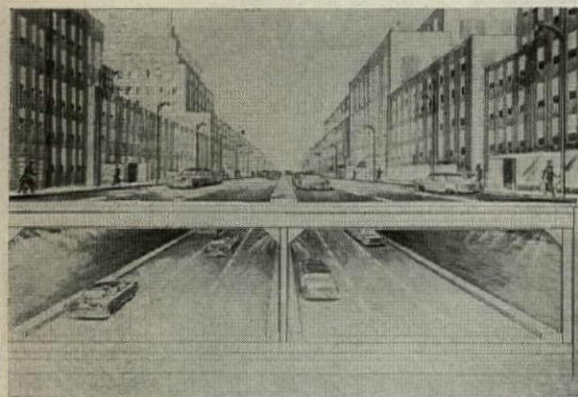
"In eight years from 1947 through 1954, building in Boston, as measured by building permits, amounted to \$422 per capita. Building per capita in the 25 largest cities of the country during the same period amounted to \$752. The 25 largest cities have been putting up 78% more building per capita than Boston."

To be financed in Boston, said Neal, a construction investment opportunity must promise to earn at least 2% to 3% more than elsewhere before it is equally attractive to the investor. But in all fairness, he added, it should be noted that the Boston proper tax rate, almost \$70 per \$1,000 on assessments that sometimes equal or exceed full value, does not apply to the entire metropolitan area, and does not hinder developments in many adjacent municipalities outside the city's actual boundary.

Renaissance rumblings. Boston dozed complacently through the first half of the twentieth century, rousing only occasionally to slap ineffectually at parking difficulties, crowded downtown streets and the encroaching dry rot of slums. An archaic building code and a plumbing code unrevised in 55 years held builders to high construction costs; a traffic artery plan, drawn in 1925 to loosen the motor car's

FITZGERALD EXPRESSWAY will give city a high-speed inner-circle traffic belt (no crossings) when all sections are completed.

SNOW AND ICE REMOVAL on expressway ramps will be automatic, thanks to tremendous hot water systems to heat pavement.

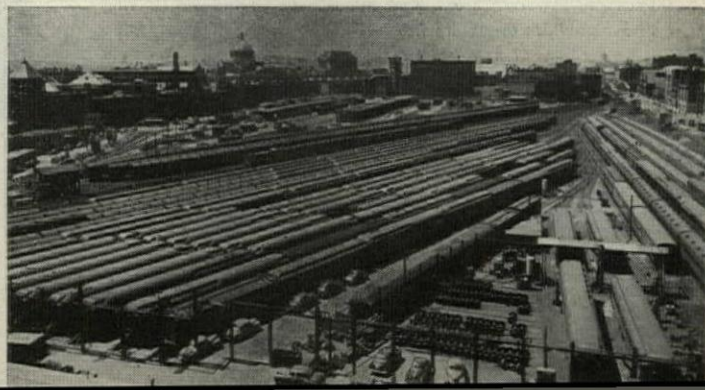


UNDERGROUND SECTION of Elevated (Fitzgerald) Expressway, just started, is billed as nation's longest underground auto tunnel.

INDUSTRIAL PARK beside Route 128 at Natick typifies growth of new plants in accessible outlying areas, rather than congested city.



B&A RAILROAD YARDS in Back Bay area cover 28 acres, are eyed by various interests contemplating redevelopment projects that may include a city auditorium, hotel, office buildings—and maybe a turnpike terminus.



BOSTON begins to stir, but still suffers tax curse

increasing stranglehold, lay in a planner's pigeonhole for 25 years. It was a nice plan but there was no money. Then, after the second World War, coincident with the ousting of the corrupt, graft-ridden Curley administration, Boston began to stir.

The last two years have seen a gathering of forces within Boston's metropolitan area, a not yet completely coordinated but undeniably a vital movement that seems about to shake off the city's lethargy.

Some of the key factors:

► **Rezoning.** A bill will shortly be introduced in the legislature calling for complete rezoning of the city, following the report of Adams, Howard and Greeley, MIT planning consultants.

► **Preservation.** Beacon Hill, traditionally dignified repository of the architectural values dear to Bostonians, has been designated as a historic shrine; new construction in the area in the future will have to preserve the architectural integrity of colonial Boston.

► **Rehabilitation.** Sparked by Builder-realtor Peter Turchon, Bostonians have begun a program of rehabilitation of some of the fine, livable older homes in the city, reversed the growth of slums by selective rebuilding, giving an incentive to other property-owners to bring their buildings up to par.

► **Integrated belt highways.** Built, under construction and in the plan stage is a vast network of belt highways and thruways to carry automotive traffic around, into and through the city. Tied in with this scheme is a growing network of industrial parks fringing Boston, already tenanted by regional plants of some of nation's largest manufacturers, following the new highway system as industry followed rivers and railroads a century ago.

Garage under Common? Long a sore spot in Boston's civic pride, frequently discussed, rarely acted upon, Boston's parking problem is finally getting attention from Mayor John B. Hynes, now seven years in office. Galled by year-to-year inaction on the fabled Boston Common parking garage, Hynes acted to take it out of politics by threatening to create an authority to build it if present promoters do not show action within a few months. The proposed 3,700-car garage under the large, historic downtown park, may be finally built despite continuing local opposition from both residents and anti-urbanians.

Lack of anywhere near adequate parking facilities makes the city's potentially efficient new belt highway system a gallon funnel stuck in the neck of a quart bottle, much like New York's East Side and West Side elevated highways.

Midcity redevelopment site. The 28-acre Boston and Albany yards, a few short blocks from downtown Boston's theatre and business section, are offered for sale by the railroad. The Massachusetts Turnpike Authority has first call on the property for use as the in-city terminus of the new Massachusetts turnpike, but it will not say whether it is going to use it, or how much of the land it really needs.

Promoter Roger Stevens and associates wanted the area for a giant, coordinated business center, to include office buildings, a civic auditorium, apartment house and a hotel (AF Nov. '53). But their plans all went into the freezer when the Massachusetts Supreme Court would not declare constitutional a proposed tax-abatement law for their redevelopment.

Last month the Prudential Insurance Co. was reported interested in the site for a large regional office building. Mayor Hynes pledged that if Prudential took it

he would add a \$5 million civic auditorium for which the city already has funds. (In Newark, Prudential officials pointed out that they had not decided definitely yet in what city they would establish New England headquarters; it could become Boston, or it still might be some other.)

Awkward redevelopment law. Boston's new movement for growth is enthusiastic, the men involved are sincere, but there are many obstacles. One major block is the state's urban redevelopment law, which now requires all the work and red tape of completely planning a project, forming a corporation with financial resources ready to bring it to fruition, and then submitting the project for approval without any assurance that the project will be approved.

The redevelopment law now also allows redevelopment corporations exemptions from local real estate taxes for 40 years in exchange for 5% of the gross revenues plus payment of \$10 per \$1,000 on assessed valuation. Investors are allowed a maximum 6% return. All earnings above this go to the local government.

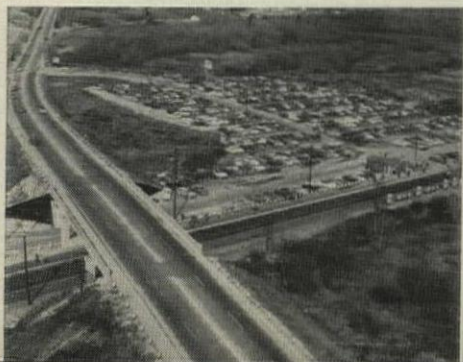
Because the B&A yards were not a residential slum area (although there is a provision about "blighted open areas" in the redevelopment act), and no housing was scheduled for this redevelopment, Stevens hesitated about applying under the redevelopment law. He sought instead a special act of the legislature which would have granted his project a simple reduction in real estate taxes for 40 years. The Supreme Court's adverse advance advisory opinion not only discouraged Stevens, but any other potential redevelopers who felt the opinion would make wary lenders refuse mortgage loans for any but housing projects on this site. This advisory opinion also has inhibited all other redevelopment projects. Explained Boston Attorney Malcolm Per-

continued on p. 16



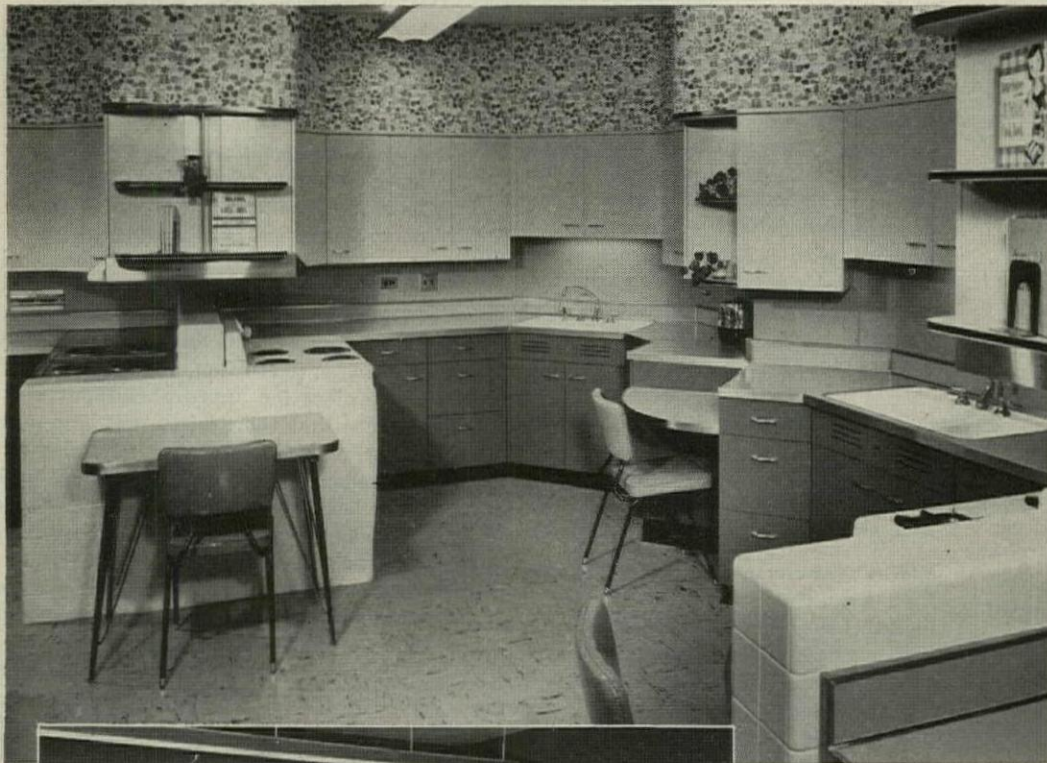
BEACON HILL: design perpetuated, by law

OUTLYING PARKING field for 1,000 cars (below) opened by New Haven RR at Route 128 intersection boosts line's parker-commuter traffic, at the same time helps reduce pressure on city's crowded, narrow streets (1).



LIFE: Bob Kelly

Compact Planning characterizes unique school installation by *St. Charles*



WASHINGTON
JUNIOR HIGH SCHOOL,
NAPERVILLE, ILLINOIS
SELECTS UNITS BY
ST. CHARLES,
CUSTOM-BUILT OF STEEL,
FOR ITS NEW
HOME ECONOMICS
LABORATORIES

Home-unit kitchens, arranged in space-saving cluster, provide maximum convenience in minimum area.



Clothing construction units provide machine and work surfaces, on same level, for group instruction. Storage space in sewing center multiplied by full-height storage wall, incorporating tote tray, wardrobe, ironing board units and general storage.

Skilled planning was the key to St. Charles success in solving the problem presented by this school's needs. The demands made by continually increasing registration upon the modest area available for cooking and sewing classrooms required the careful application of St. Charles wealth of experience.

As a recognized leader in the practical planning and custom construction of home and institutional facilities, St. Charles was well equipped to meet these demands. Their suggested floor plan, permitting accommodation of maximum class groups, in uncluttered, homelike surroundings, is proving highly practical and wholly satisfactory in actual operation. We would appreciate an opportunity to advise with you on your problems in home economics equipment, from initial layout through final installation. Write for complete details.



"EDUCATION FOR LIVING"

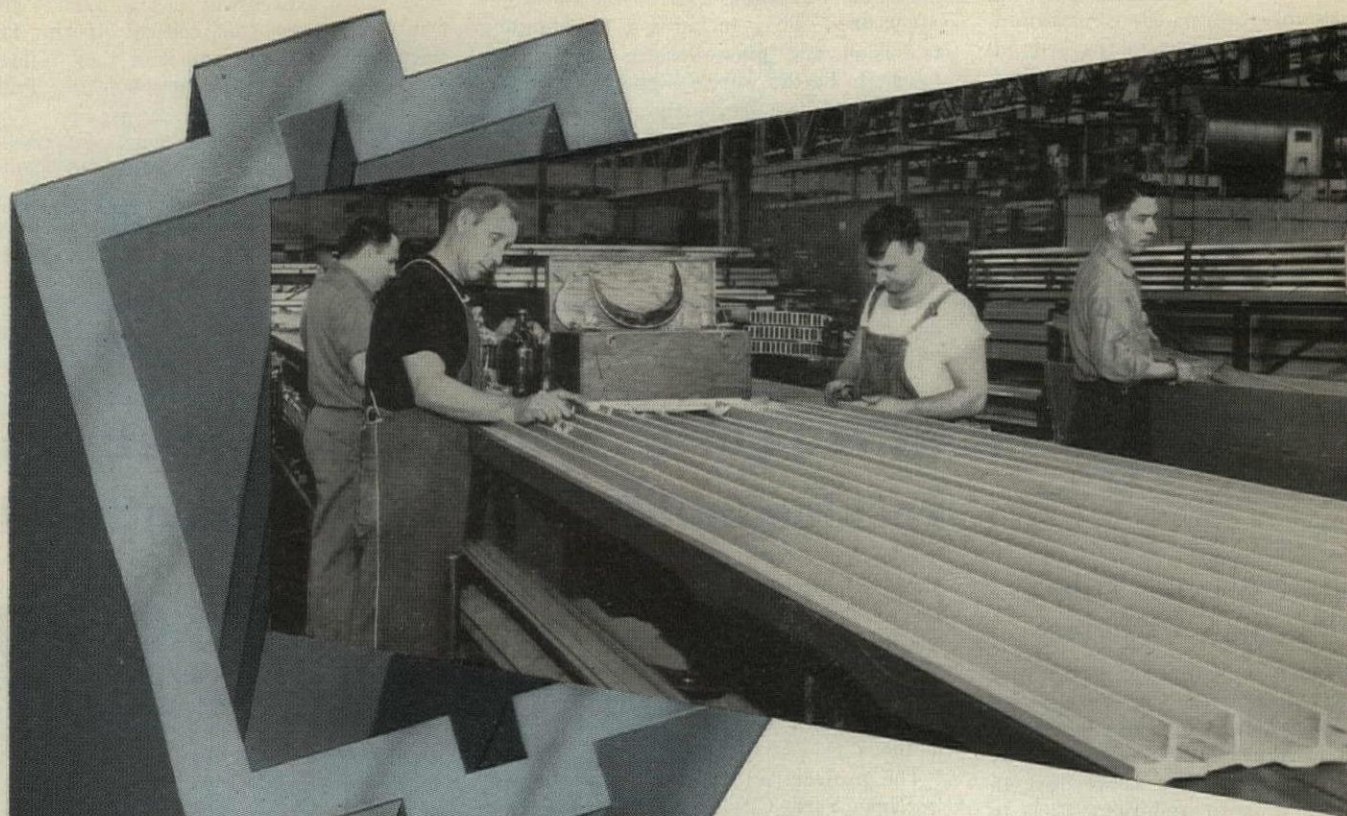
Send for your free copy of "Education for Living," a recently published study of St. Charles products and their application to the homemaking classroom. Write



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Take advantage of Bridgeport's aluminum extrusions within these general limits:

Length—

Max.—Heat-Treatable Alloys — 40 ft.

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Max.—50 lbs.

Min.—.250 lbs.

Max. circumscribing circle — 16 in. in dia.



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EXTRUSIONS AND FORGINGS

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kings: "this decision, although applying to a different situation, has made potential redevelopers uncertain of the constitutionality of the tax provisions in the original redevelopment statute."

To clarify matters and pave the way for large scale redevelopment, a group of Bostonians will introduce into the coming session of the legislature a bill to amend the redevelopment act in two ways.

► Simplify the act to permit redevelopment corporations to be given preliminary approval for projects in their early stages, so they will feel safer before proceeding to spend large amounts for complete planning just short of construction.

► Change the tax provisions to distinguish clearly between the railroad yards kind of redevelopments and straight slum clearance-urban redevelopment plans which are in the offing.

Zeckendorf switches Palace project into bigger scheme

Proposals for a \$150 million skyscraper Palace of Progress over New York's two-block Pennsylvania Station died last month, but were promptly reincarnated by Realty Developer William Zeckendorf in a scheme for a more ambitious \$300 to \$500 million 24-block area redevelopment beginning just a block farther west.

Reasons advanced by Zeckendorf for giving up the Penn Station site project (AF, July '55): 1) initial studies had shown it would require a 40-story, 7 million sq. ft. building to cover the \$30 million asked for the air rights over the station; but, 2) studies completed after he had taken an option at this figure and had widely publicized the project showed it would cost still another \$45 million in excess of ordinary construction costs to build such a structure over the busy terminal without seriously interfering with its operation; and, 3) on the two-block area it would be impossible to make the building big enough to carry this combined \$75 million financial load.

Zeckendorf said his new proposals incorporated all the original merchandise mart and world fair features of the Palace of Progress in "horizontalized" form—in a series of buildings. They also boosted

total floor area to 12 million sq. ft. with an additional hotel, apartments and other structures. They included a freestanding television and glass-elevator sight-seeing tower, to be the world's highest—a feature Zeckendorf has previously proposed for a Park Ave. building, for a new office building over Grand Central Terminal, and for the still-born Palace of Progress. City officials took his new proposals under study, withheld comment on his request for the city to help him acquire parts of the site by condemnation. Significantly, the new plans were described as "correlated" with proposals of City Construction Co-

ordinator Robert Moses for an elevated crosstown expressway in this part of Manhattan. Moses was critical of the Penn Station site plans and said they failed to anticipate the traffic problem the Palace would create.

Asked whether his scheme for a tremendous office building over Grand Central also might be blocked by the same factor as the extra \$45 million construction expense discovered through the Penn Station studies, Zeckendorf said: "No. That is going ahead. That is different. It is a different engineering problem, and a different financing problem."

Alfred Levitt, with new ideas, methods, tackles middle-income apartment field

With characteristic Levitt vigor and Levitt independence, a member of this celebrated homebuilding family has boldly attacked the problem of middle-income apartment construction in New York City with his own design ideas and building methods.

The project: a \$16 million development in New York City's Borough of Queens that will consist of 40 eight-story buildings to house 1,280 families, and—a typical Levitt touch—two community swimming pools. It is already abuilding without any publicity fanfare and with no FHA clearance, no subsidies, no tax exemption and no special municipal assistance.

The builder—and designer: Alfred Levitt, the seldom-heard but no less dynamic brother of William, the mass

housebuilding expert, topnotch administrator and nimblerminded company spokesman. Having withdrawn his interest in Levitt & Sons, Alfred has now established his own organization, Levitt, Inc., to execute this project that he describes as "pioneering a new approach to apartment building."

Cole Portraits, NY



ALFRED LEVITT

Antifiling cabinet. Except for new Manhattan apartments for the very rich, and for the very poor (public housing), Levitt says, about the only other apartments going up in the city are "the six-story, red-brick monsters" that "look like institutions, not dwellings. You live in a filing cabinet."

He explains his alternative: "I have tried to design an apartment whose cost, land, and building won't exceed that of the monster's." He emphasizes four design points: 1) The buildings are small with only a few families per floor; 2) They can fit on any city or suburban lot; 3) There is absolutely no red brick; 4) They will have attractive playgrounds, swimming pools and gardens. The buildings will cover only 18% of his site.

All buildings will be identical (see cut). Including \$1.25 per sq. ft. for his land, total cost for each 4½-room, 1,150-sq. ft. apartment (also every one alike) will average \$12,500. Construction will consist of cantilevered steel frames and curtain walls with large quantities of glass, and cinder-block spandrels. His steel framing system, says Levitt, uses only one-half the amount of steel currently used in other new New York apartments of the same area.

Cinderella-ed cinder block. "We took the lowly cinder block and refined it," says Levitt in describing the star role he has given this utilitarian product. He is using it for his exteriors, but is waterproofing it with silicones first, and painting it in

Railroad's own changes will give Penn Station new look

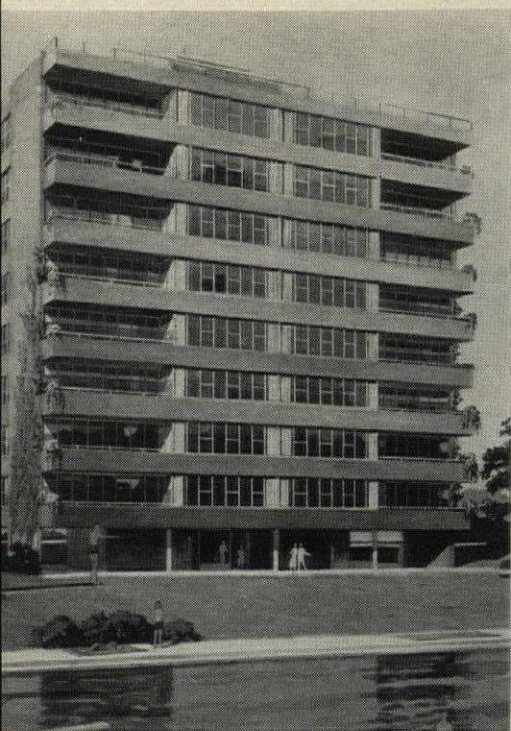
Major alterations the Pennsylvania Railroad plans later this year will give Penn Station in New York a huge elliptical sawtooth ticket sales and information booth under a tubular framing and luminous metal canopy (see cut).

The changes by Architect Lester C. Tichy will virtually consolidate the two large halls that constitute the station. The big new service unit, to accommodate more efficient mechanical ticket sales and reservation equipment including closed-circuit television gadgetry, will cut out the present center passage between the formal or ornate main hall (in cut) and the more utilitarian train-gate concourse (beyond). Present ticket booths and two large waiting rooms will be eliminated to make the main hall larger, with a long row of openings directly into the gate concourse on each side of the wide elliptical service core as depicted (left). In streamlining the 1905 station designed by Stanford White, decorative stone will be stripped from two giant free-standing columns that support the high, vaulted ceiling, reducing them to simple load-bearing steelwork.



OVAL TICKET COUNTER FOR PENN STATION

Simple Moses formula for \$20-a-room apartments: site subsidy, tax reduction



ALFRED LEVITT APARTMENT BUILDING

three different colors. Some blocks have rounded edges. He also is using painted cinder block without plaster for interior party walls. Partitions are gypsum block.

Floors are 10' x 2' precast concrete slabs, with a vermiculite acoustical plaster applied to the ceiling side and asphalt tile for floor finish. Ground floors will be left open as covered terraces and rainy-day playgrounds, except for an enclosed boiler room (there will be no basements) and an enclosure for the elevators (automatic, no attendant).

Similarity aids economy. To critics of the fact every Levitt apartment will be identical—each will be the corner quarter of the building and will thus have two exposures—he answers that there can be only one “best.” He feels he has designed the “ideal” apartment, and through its standardization and mass production everyone can enjoy the “best” at an economical price—\$165 monthly, \$37 a room.

He also emphasizes another principle he calls “exchange of costs”—e.g., eliminate basements and divert the funds into glass; cut plastering by 50% and put the funds into better elevators; take off fire-escapes and build inside fire stairs; use asphalt tile instead of wood flooring and put the savings into better appliances.

Observes philosophical Alfred, who designed the single-family houses that Bill was able to sell by the thousands so easily: “Once the Levittown house was standardized, I had designed myself right out of a job. And, frankly I got bored with the standardized house.” After a sojourn in France, he decided he wanted to develop his ideas about multiple dwellings, and then to build them. Looking ahead, however, he adds: “I figure the life of my present job is probably only 1½ to 2 years. By then, this current design will also be standardized.”

New York City's ingenious Construction Coordinator and Slum Clearance Committee chairman, Robert Moses, proposed last month a \$90 million program of five middle-income cooperative apartment projects for 9,000 families to rent from \$18.75 to \$21.75 a room and to be financed by the pension and welfare funds of the city's building trades unions.

Describing the program's broad outlines at the annual dress-suit Waldorf-Astoria dinner of the Building Trades Employers' Assn. he observed that such apartments could be built in well-located city areas with good transportation and community facilities “with no more government aid than condemnation and frozen taxes.”

“A city grows and prospers by helping its progressive citizens to help themselves,” he added. “In the battle against the slum, in the fight to provide shelter for the middle income population, we need more than completely subsidized, superior public housing priced to meet the smallest purse and often providing better shelter than harder working and more prudent families are able to find at much higher rentals. We must have more than good residences replacing slums at rentals representing the highest potential that traffic will bear. Good housing for the rich and poor are not to be despised, but they neglect the very backbone of our population.”

Simple formula. An official Slum Clearance Committee brochure giving financial details on the Moses method for comfortably housing the middle income backbone of the city's population pointed out that his plan also could “serve as an example to unions in other cities faced with similar tough problems.” The brochure's “financial plan” tables for each project gave the dollar and cents data that showed the real simplicity of the Moses formula for volume production of such urban apartments, a formula that he also clearly defined in another sentence in his BTEA talk: “We must have adequate middle income housing financed by private capital with assembly of land by eminent domain, a write-off by government of worthless housing and a tax rate which will keep rents down to from \$18 to \$25 a room.”

What it costs. Unit figures on the various land and real estate tax subsidies for these union-sponsored private capital apartments were not given, but were easily calculated from the brochure. They showed:

► On one of three of these projects for which federal Title I writeoff assistance was anticipated, the proposed writeoff per new dwelling unit would average \$11,300; in the other two cases \$1,875 and \$2,666. In the first project (dubbed HHFAndout Manor by one irreverent taxpayer), this \$11,300 per unit site subsidy would be only \$150 less than the total average cost of the proposed new units, which would only be

\$11,450 each for land, construction, landscaping and site improvements—after the subsidy.

► When it came to real estate taxes, one of these \$18.75 per room private capital projects (which all averaged four rooms per apartment) would pay only \$30 a year per apartment. Although a New York Times editorial hailing the Moses plan said “the city could help by granting tax exemption on all the improvements without reducing its present revenues”—the brochure data showed that one project would be assessed \$3.3 million less after redevelopment, and cost the city a \$128,000 a year cut in present revenues. Of the three projects listed for Title I help, two would show minor increases in assessments after redevelopment, but collectively the three would still cost the city a net reduction of about \$16,000 a year below present real estate taxes, according to brochure data. One project would get 50% tax exemption, two 70% exemption, one 80%, and one 93% exemption.

Garage rent vs. taxes. In the Manhattan project a few blocks from Washington Square that would pay the highest real estate taxes, “50% of full value,” according to the brochure, city taxes would average \$212 a year per unit. In two others they would average \$133 per unit per year, and in the fifth \$84 a year.

The automobile's complete victory in strangling the city, and City Treasury, was never demonstrated on such a clear dollars-and-cents unit basis. Each project would have 150 to 500 garage spaces, and an equal range of parking spaces. At \$240 a year, or \$20 a month, in all projects, garage rent would exceed real estate taxes in every case, ranging from \$28 to \$210 a year more than tenant payments for complete civic facilities. (Parking, at \$120 a year, would exceed real estate taxes by \$36 and \$90 a year in two projects, would be \$13 and \$92 a year less than taxes in the other three.)

At \$20 a month, garage space would cost more than a room's rent in one project, the same as a room in another.

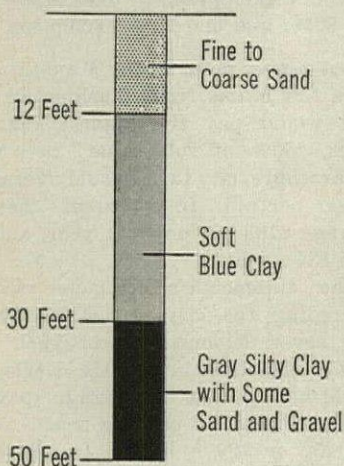
What is middle class? The Moses proposals offering the building trades unions \$18.75 to \$21.75 a month rentals (\$3 more a month if they were credited with 6% on \$600 a room equity deposit) helped show the wide range of population embraced in the middle classes—some more middle, others more classy. In Harlem the Slum Clearance Committee had helped promote a \$3 million Title I subsidy middle income rental project that would rent for \$32 a room. On the city's \$8.8 million subsidy Columbus Circle Title I housing (and incidental Coliseum) project, reportedly stalled because of tight mortgage conditions, \$43 a room middle-income rents quoted by the Slum Clearance

continued on p. 20



Sidney H. Morris, Associates, Architects and Engineers
Shaw, Metz & Dolio, Consulting Architects
Frank J. Konacker & Associates, Structural Engineers

Log of Soil at 1000 Lake Shore Drive



Using a single acting hammer developing 15,000-foot-pounds of energy, the sand required about three blows per foot; soft clay one blow per foot; silty clay with sand and gravel, a maximum of 120 lbs. Average pile length was 67 feet.

Armco Pipe Piling stayed dry in wet foundation at 1000 Lake Shore Drive



Watertight piles driven from below-lake level

Foundation for the new 23-story apartment building at 1000 Lake Shore Drive, Chicago, could have been a problem. Driving piles from below the level of nearby Lake Michigan called for absolute watertightness of each pile. The driven piles had to be dry for concrete placement. Yet there was no problem. The Armco Pipe Piling withstood the impact of up to 120 blows per foot

needed to meet the 60-ton bearing requirement. Average pile length was 67 feet.

Armco Pipe Piling provides many additional advantages that can save money in design and in construction. They are available in a wide range of diameters and wall thicknesses. This means you can meet your requirements exactly. And long lengths—up to 90 feet—mean less splicing at the job.

Costs are lower. Write us about your pipe piling requirements. We can supply the price estimating information you need. Armco Drainage & Metal Products, Inc., Welded Pipe Sales Division, 3476 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO PIPE PILING



New Roddiscraft Golden Dowel Door

Guaranteed for life

We are so positive of the superior qualities of this door that we guarantee it for the life of the installation

This is our masterpiece . . . our finest achievement in 60 years of wood craftsmanship

The new Golden Dowel staved wood core door represents all that is best in wood-working. It's the natural result of Roddiscraft's long experience and pace-setting ingenuity.

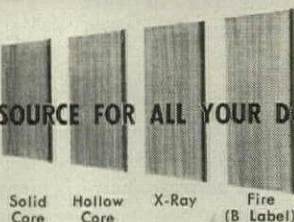
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ONE SOURCE FOR ALL YOUR DOOR NEEDS



Solid
Core

Hollow
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X-Ray

Fire
(B Label)

RODDIS PLYWOOD CORPORATION, Marshfield, Wisconsin
Warehouses in principal cities

Committee in 1952 are now forecast to hit \$50 a room.

In Queens, however, bold independent Alfred Levitt (brother of William) was already starting a fireproof-construction project to rent for \$37 a room, without any subsidy of any sort (p. 16).

Unusual rent rule. But Levitt was building on \$1.25 vacant land, rather than attempting to try any project where he would have to relocate tenants to get possession of a site. Latest obstacle for New York apartment builders, except those blessed with official subsidy and special sanction: a Rent Commission rule prohibiting the institution of eviction proceedings against a tenant who is to be displaced so a new building with a greater number of housing units can be erected until the owner has paid the tenant \$100 per room (equivalent to five months rent for a room in one of Moses' proposed new cooperative apartments) for the first two rooms, and \$75 for each additional room, up to a total of \$500 per tenant. This regulation was promulgated Dec. 14 by former State Rent Administrator Charles Abrams the day before he resigned to become chairman of the State Commission Against Discrimination.

In a petition protesting this regulation on constitutional grounds, the Metropolitan Fair Rent Committee declared that his requirement "to pay compensation not as a condition for securing possession of the premises, but as a condition for the institution of court proceedings, is unprecedented in Anglo-American jurisprudence."

What is higher income?—There was also another type of official thinking or talking that prospective New York middle-income apartment builders might find it difficult to follow or understand.

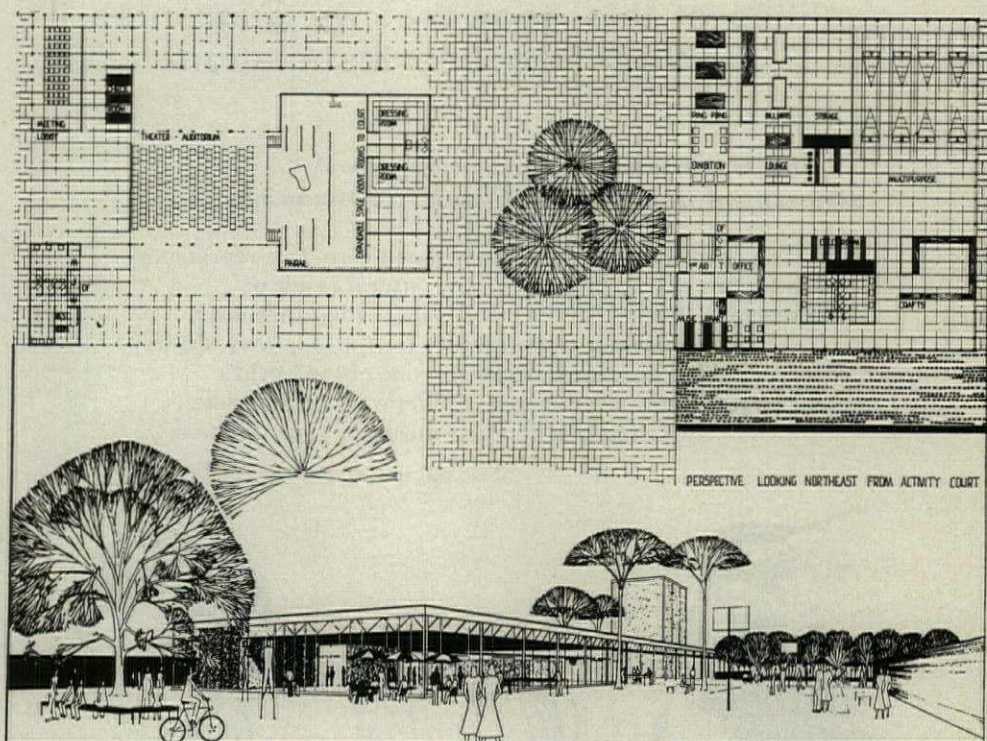
Last October, for instance, N.Y. State Housing Commissioner Joseph P. McMurray told a House Committee that "we can generally classify the low-income urban family as earning under \$4,000 per year, the middle income family making between \$4,000 and \$5,000, and those above \$5,000 as higher income groups." But only two months later, explaining a program to revise regulations to allow more \$100-a-week families into state-assisted low-income public housing, he told the *Times*: "A family that has to support five children on an income of \$100 before payroll deductions, is a low-income family." (Federal income tax rules, however, would allow such a family \$4,200 in exemptions, plus at least \$500 in deductions, so no more than \$300 of its income would be subject to this taxation.)

Moses warnings. Moses, one of the nation's cleverest, shrewdest political scientists, used no names. In his BTEA address, however, he sounded a warning on politicians and housing: "We live in a period of promises. In an election year no pledge however fantastic, no prophecy however visionary, no mirage however alluring, no pageant however insubstantial is overlooked in the frantic race to attract the attention of

a jaded audience already fed up with tall talk and empty gestures... What we need, however, is not the stuff that political platforms and pompous foundation reports are made of, but steady, sober step by step building to last for generations."

He also made it clear he was prepared to execute his union cooperative program promptly and firmly in his way, with no questions asked: "With the full coopera-

tion of the many groups and interests, public and private, involved in so large and complex an undertaking, we can put it through without stultifying delays. It requires firmness. Of course, we cannot afford to waste time in quarreling over locations, precise formulas of write down and tax exemption, coverage of land and the newest theories of moving people (the relocation problem)."



GRAND PRIZE DESIGN, A COMMUNITY YOUTH CENTER, BY HENRY S. BRINKERS

Winners of \$25,000 Porcelain Enamel Competition named by Ferro Corp.

A fortnight ago at its Cleveland headquarters Ferro Corp. made the announcement that 573 architects and architectural students had been waiting a month to hear: the winners in its \$25,000 Porcelain Enamel Design Competition.

Presented in full below, this list of winners is headed by Henry S. Brinkers, a 24-year-old graduate of Yale now studying for his masters at the University of Illinois. His intelligently planned, beautifully presented design for a community youth center (above) was judged to be the best of all the submissions and winner of the \$5,000 grand prize.

Brinkers' youth center is really two buildings under one roof, separated by a central court. To one side, for privacy and ease of independent operation, are the rooms which may be used by the community at large (meeting room and theater-auditorium); on the other side in open arrangement of spaces are housed the other youth activities. Says Brinkers of his concept: "The building is basically a pavilion permitting the installation or removal of doors, windows and partitions as the changing require-

ments of the youth center demand. By the use of a durable metal skin in conjunction with various insulating materials the problems of heat and sound transmission were easily solved. The metal panel is further enriched by recent technological developments in enameling, combining in one operation a permanent protective finish with a wide range of color selections."

One of the jurors described Brinkers' design as "a serene and well-organized plan, a mature conception with a feeling for what porcelain enamel can do best." The other jurors agreed, for they were unanimous in their selection of Brinkers' design as "best in show." This is high praise indeed, for the jury consisted of some of the country's top architects: Pietro Belluschi, Robert Posey (Skidmore, Owings & Merrill), John Lyon Reid, Eero Saarinen and Hugh Stubbins.

Community Youth Centers

GRAND PRIZE (\$5,000): Henry S. Brinkers, Urbana, Ill.

FIRST PRIZE (\$3,000): C. K. Chen and L. C. Chen, Briarwood, N.Y.

SECOND PRIZE (\$1,500): Cecil D. Elliott and George Matsumoto, Raleigh, N.C.

THIRD PRIZE (\$1,000): Donald Goodhue, Cambridge, Mass.

HONORABLE MENTIONS (\$500): Robert C. Metcalf and Tivadar Balogh, Ann Arbor, Mich.; Eduardo F. Catalano and Horacio Caminos, Raleigh, N.C.; Bruce Abrahamson, Minneapolis, Minn.; John W. Gallagher and Norman Hoberman, Cambridge, Mass.; Peter Staughton, Bloomfield Hills, Mich.; A. P. Bartos, N. M. Klein, L. Lionni, R. Okamoto, H. W. Shih and F. L. Sommer, New York City; Thomas Lam, Bloomfield Hills, Mich.; Bassetti & Morse, Seattle, Wash.; Jordan Mertz, Bronx, N.Y.

Elementary Schools

FIRST PRIZE (\$3,000): Horacio Caminos and Eduardo F. Catalano, Raleigh, N.C.
SECOND PRIZE (\$1,500): Stephan M. Goldner, C. Chadburne Shumard and Hanford Yang, Merion, Pa.

THIRD PRIZE (\$1,000): Thomas Lam, Bloomfield Hills, Mich.

HONORABLE MENTIONS (\$500): Falk & Booth, San Francisco, Calif.; Wallace S. Steele, Sioux Falls, S.D.; Charles A. Metcalf, Roland H. Lane and Mark L. Pence, Seattle, Wash.; Robert Lewis Bliss and Anna Campbell Bliss, Excelsior, Minn.; Helmut Jacoby, Newark, N.J.; Y. C. Wong, Chicago, Ill.; John Michael Goduscik, Allen-

town, Pa.; Victor N. Tiotuyco, Bloomfield Hills, Mich.; Katz, Waisman, Blumenkranz, Stein, Weber, New York City.

FORUM conducted the competition for Ferro Corp. Architect Harold Sleeper was professional adviser. Next month FORUM will make a detailed presentation of the prize-winning designs.

Aluminum curtain wall contest offers \$25,000 in prizes

Awards totalling \$25,000 will be given in a contest for new ideas in aluminum curtain wall construction sponsored jointly by Alcoa and the National Association of Architectural Metal Manufacturers.

Architects, designers, architectural draftsmen and students in the continental US or Canada may compete. First, second and third prizes will be \$10,000, \$5,000 and \$2,500, based on "excellence in design" and "ingenious and practical construction methods."

Requests for programs may be addressed to Paul Schell, AIA, c/o National Association of Architectural Metal Manufacturers, 228 N. LaSalle St., Chicago 1, Ill.

Judges will be Architects Max Abramovitz, New York, Kenneth Franzheim, Houston, and Sigward Edor Naess, Chicago. The contest closes at midnight, March 26.

Builder upsets Seattle's \$700,000 suit; Cleveland hospital suit names architects

Seattle suffered a serious setback late in December in its \$707,471 suit for damages that alleged faulty construction in its 15-story War Memorial Building (AF, Oct. '55). Reversing a decision he made on Nov. 30, Superior Court Judge Eugene A. Wright on Dec. 28 sustained a demurrer by the general contractor and its bonding company, who contended that the one-year guarantee on workmanship and materials in the building had expired long before the city filed its suit last summer.

In effect the judge threw out of court the city's claims against Kuney-Johnson Co., the West Coast contracting firm that erected the building, and Union Pacific Insurance Co., its performance bond. The city filed notice that it would appeal, but unless the state Supreme Court reversed Judge Wright the case was ended and there would be no trial on the claims.

The city had charged that use of substitute perlite aggregate caused wall fractures, leakage and other serious damage to the building (AF, Sept. '54). It also claimed that the contractor's "warranty" in making the perlite substitution was still valid, and superseded his one-year construction guarantee.

In Cleveland legal jockeying was starting in a \$750,000 suit filed in Common Pleas Court alleging both faulty construction and poor supervision in building Marymount Hospital in suburban Garfield Heights. Defendants: George A. Rider Co., Cleveland architects and engineers,

and the Walter Butler Building Co., of St. Paul.

The complaint of the Sisters of the Third Order of St. Joseph says they have spent \$150,000 on maintenance and repairs since the \$2.5 million brick and concrete structure was opened six years ago, and will have to spend an extra \$25,000 beyond ordinary outlays for this purpose every five years. Claiming that the "durability and life of the building have been substantially impaired and shortened," the suit includes allegations that:

- Cracks in some interior walls make it possible to look from one room to next.
- The roof slab over the laundry cracked so wide at one point that asphalt leaked through.
- Double concrete joists were called for in drawings but not provided in detailed structural layouts.
- Specifications did not instruct or restrict with regard to laying of masonry in freezing weather, and most of it was done in freezing weather.

The suit says the design firm and building company were paid 6% and 8% fees that totalled \$350,000, and the hospital also has spent \$10,000 for architectural and engineering surveys to determine the defects and their causes.

Hospital counsel was preparing last month its answer to a defense motion demanding that the plaintiff be specific about which defendant is guilty of each allegation.



Sheraton hotel included in Southland Center project

Sheraton Corp., no doubt mindful of the opening this month of competitor Conrad Hilton's new hotel in Dallas, will open a 28-story hotel in Southland Life Insurance Co.'s block-square Southland Center, in downtown Dallas. Construction of the hotel (1) and a 42-story office and headquarters building for Southland Life was started last month.

The office tower and hotel were designed by Los Angeles Architect Welton Becket as part of a single building unit. Common to both of them—and to a third building (r) to be erected sometime in the future, will be a three-story structure containing a restaurant, shops and a ballroom-exhibit hall for the hotel (r foreground). Under the center will be parking space for 2,000 cars.

Southland Life will own the 600-room, \$8.5 million hotel building; Sheraton will equip and furnish it. About 75% of all rentable space in the office tower and hotel has been committed, according to Southland. The hotel and the \$16.5 million tower will have glass-masonry walls.

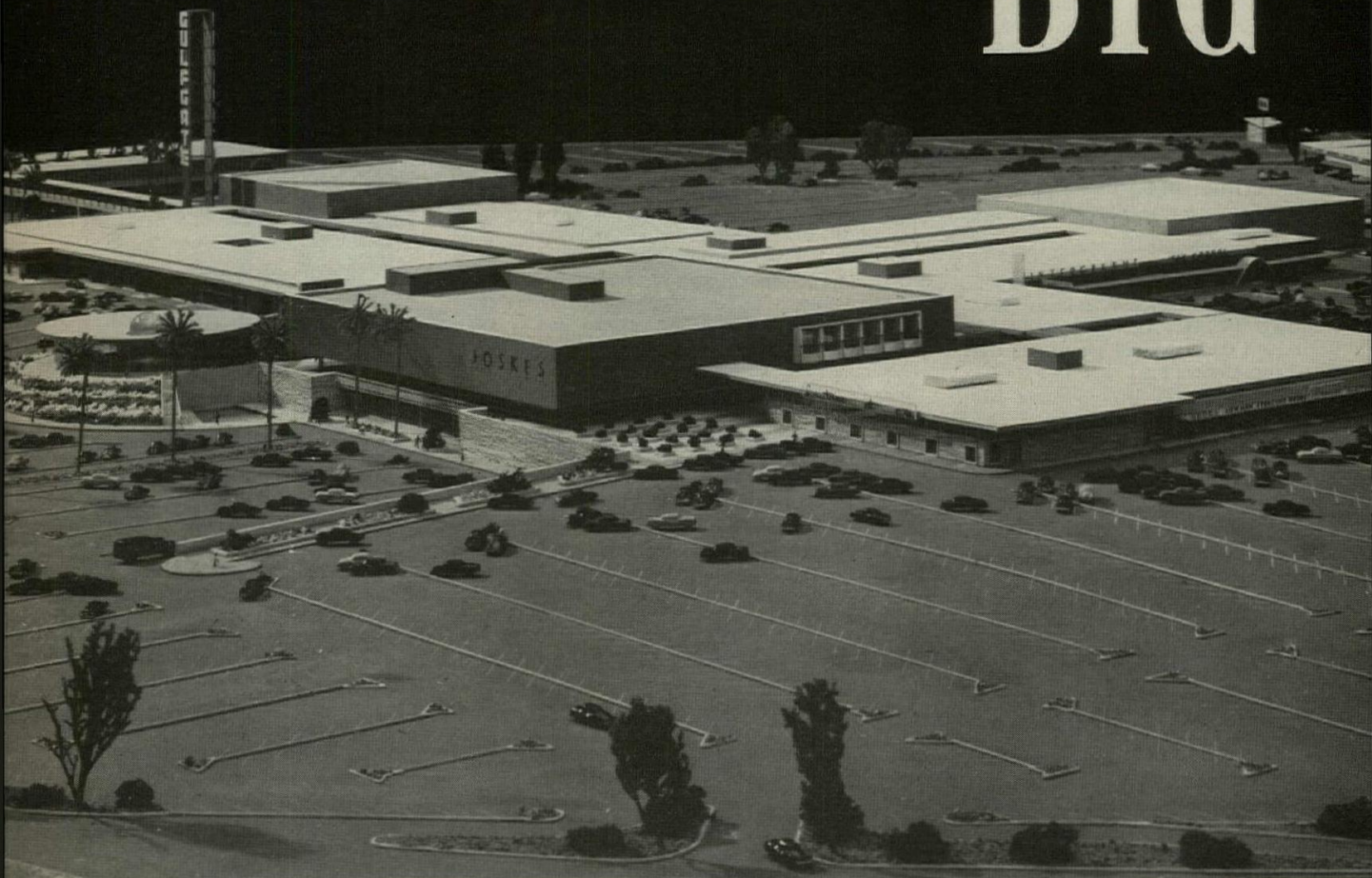
Southland Center is Becket's biggest project so far; last month he had \$150 million worth of work (31 projects) on his drawing boards or under construction. Among those under construction was a four-story office building in Los Angeles for New York Life Insurance Co. The structure will be wrapped around a small knoll at the rear of its site, so that the parking level will be between the first and second floor.



NY LIFE OFFICE, LOS ANGELES, BY BECKET

for news about PEOPLE—p. 25

SHOPPING CENTER TEXAS STYLE... **BIG**



GULFGATE SHOPPING CITY, Houston, Texas. Architect: John Graham and Company, Seattle.
Contractor: Farnsworth and Chambers.

840,000 SQUARE FEET OF SPACE!

Gulfgate Shopping City near Houston, established by Allied Stores Corp., is like most things in Texas . . . big. The \$20,000,000 project will house 90 to 100 stores, including Joske's department store with 207,000 square feet of space. Overall, there are 840,000 square feet, facilities to park 20,000 automobiles a day. Fabricated steel for this gigantic, modern development was furnished by Ingalls.

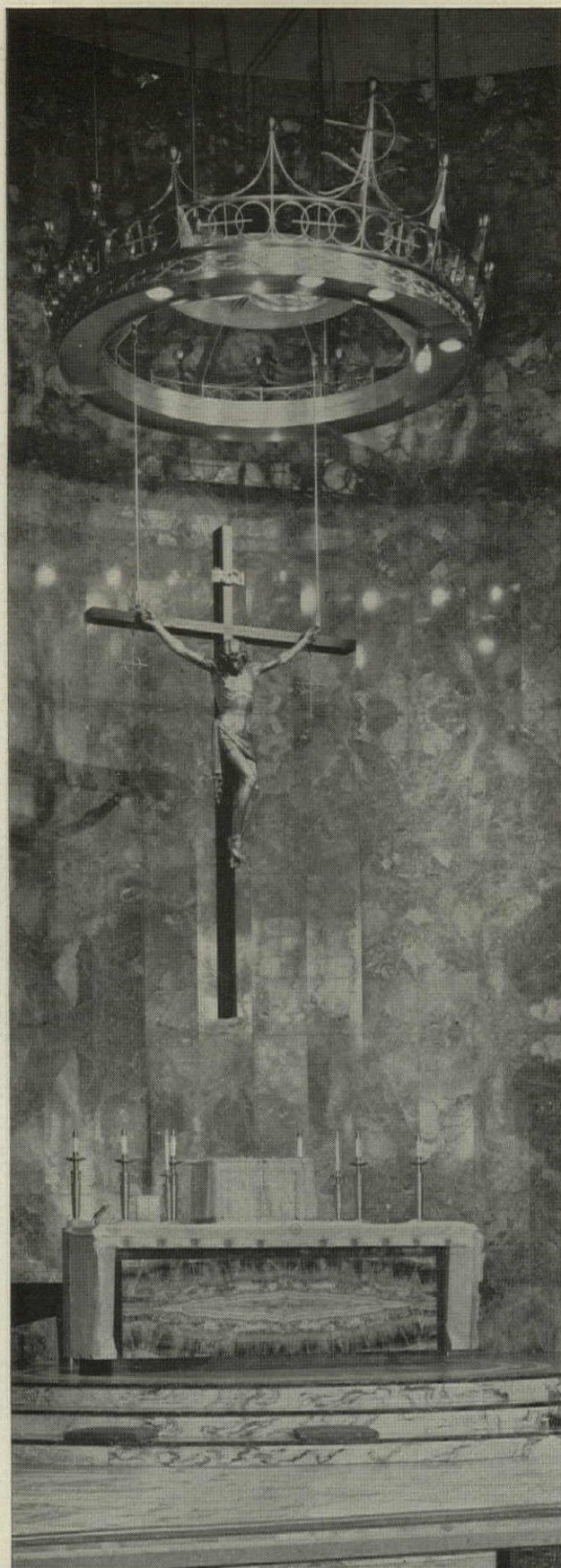
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CHURCH OF CHRIST THE KING

CHICAGO, ILLINOIS

Architects: FOX and FOX
 Mechanical Engineers: KRALOVEC, MAYER & BEST
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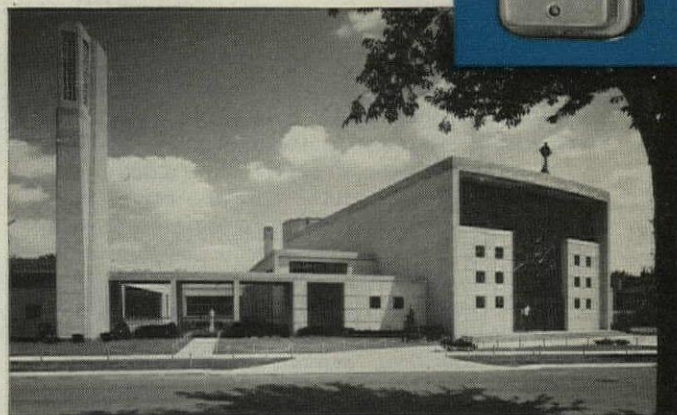
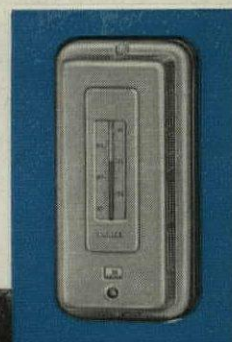
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 AIR CONDITIONING
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used in this distinguished modern church helps provide these important benefits: (a) light and airy appearing church due to use of large glass areas, without penalties of cold drafts or excessive solar heat; (b) people attending weddings, funerals and other services leave church without feeling and looking wilted in hot weather, no drooping altar candles; (c) closed windows reduce cleaning bills and outdoor noises; (d) increased attendance due to greater year 'round comfort.

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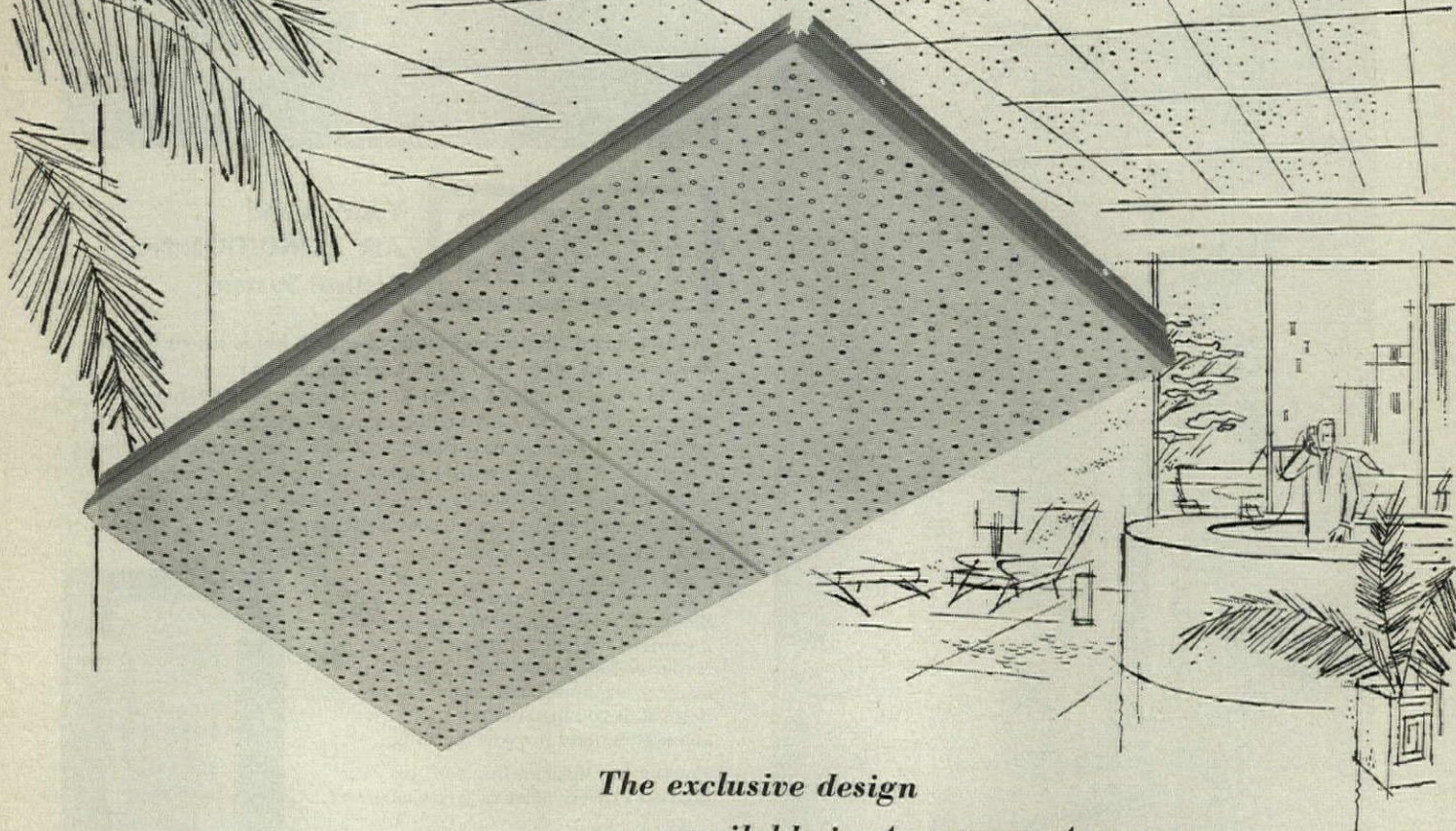
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a smart, up-to-date look
in Metal Pan

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*The exclusive design
now available in Armstrong Arrestone*

There's a fresh, modern look in metal pan sound conditioning. Armstrong Arrestone's new Full Random pattern of vari-sized perforations gives the finished ceiling a distinctive, non-directional effect. This attractive styling offers you new decorative freedom in creating modern interiors never before possible with a metal pan acoustical material.

Full Random Arrestone is the same efficient material as straight row Arrestone. It consists of a metal pan which provides structural strength and a 1½" mineral wool pad which absorbs sound. Arrestone's N.R.C. of .85 recommends it for installations which require the highest possible noise absorption.

Completely incombustible, Full Random Arrestone meets all fire-safety requirements of a Class A material under Federal Specification SS-A-118b. The material is available in a standard 12" x 24" size, center-scored to give the appearance of 12" x 12" tiles.

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PEOPLE

Queen gives Gropius 1956 Gold Medal; Breuer and Olivetti win Italian prizes; Nervi to lecture in N. C. in April

International and national grand prizes for exceptional influence in industrial design in the 1955 La Rinascente Gold Compasses competition held in Milan were won by Architect **Marcel Breuer** and Engineer **Adriano Olivetti**. Top honor was awarded to Breuer as "a consistent exponent of good industrial design," for his "clear and coherent philosophy of design, and a unity of conception which covers all aspects of contemporary life, from the humblest utensils to buildings which rival the palaces and cathedrals of past ages." Olivetti was cited for giving "a modern esthetic character to an entire industrial organization . . . in all its activities," including the fact that all of his organization's plants and stores "always bear the signature of an architect and never the barren mark of anonymity."

In turnabout, and in a manner some US firm or institution might seriously consider emulating, Olivetti's famous company also instituted last year annual Olivetti Prizes in architecture and in town planning of approximately \$8,000 and \$4,000, respectively. The first award for architectural excellence and creativity was won by **Ignazio Gardella**, the town planning award by **Luigi Piccinato**.

Around the world, the New South Wales government announced an international design competition for a National Opera House in Sydney, Australia, that has been approved by the AIA competitions committee. The "assessors" will be Architects **Eero Saarinen**; **John Leslie Martin** of London, and **Henry Ingham Ashworth** and **Cobden Parkes** of Sydney. Prizes: £5,000, £2,000 and £1,000 (Australian). Registration is open until March 15.

HONORED: On recommendation of the Royal Institute of British Architects, of which he is an honorary corresponding member, Queen Elizabeth awarded to **Walter Gropius** the 1956 Royal Gold Medal for Architecture, the RIBA award announcement citing his "important contributions to the theory and teaching of contemporary architecture" and various building he designed, including Impington Village College in Cambridgeshire (1936) in collaboration with **Maxwell Fry**. In San Francisco the Building Industry Conference Board gave its annual achievement award to Architect **Arthur Brown Jr.**, designer of the Coit Tower, San Francisco City Hall, and the ICC and Department of Labor Buildings in Washington.

Miami was the destination of an increasing number of top North and South American architects this winter as a design board headed by Architect **Robert Fitch Smith** worked up plans for the \$200 million Inter-

Graphic House



BREUER



OLIVETTI

ama (Inter-American Cultural and Trade Center) projected for a 1,600-acre ocean-side tract nearby in North Dade County. Consultants who have worked with the board already include **Pietro Belluschi**, **Paul Rudolph**, Landscape Architect **Dan Kiley** and Industrial Designer **Donald Desky**. Others slated to assist include **Eero Saarinen**, **Wallace Harrison**, Dr. **Luis Malaussena** of Venezuela, designer of the Officers Club in Caracas, and Dr. **Fernando Belaunde**, noted Peruvian slum clearance and housing project architect. Other regular members of the design board are Architects **Russell Pancoast**, **Robert Law Weed**, **Alfred Brown**, **ing Parker**, **John C. Peterson**, **Edwin T. Reeder**, and Engineer **Maurice Connell**.

Forced to cancel his first trip to the US last year because of illness, Italy's brilliant Construction Engineer **Pier Luigi Nervi** will come instead this spring. His main activity will be a 15-day stay starting April 4 at the department of architecture of the North Carolina State College School of Design in Raleigh, headed by Dean **Henry L. Kamp-hoefner**, where he will conduct a structural problem with fifth-year students in collaboration with department head **Eduardo Catalano**. On the morning of April 13 in Raleigh he will also deliver a lecture for the southeastern regional conference of the Collegiate Schools of Architecture and for delegates from the regional conference of the South Atlantic District of the AIA, who will be meeting April 12 to 14 in nearby Durham. The same afternoon he will also participate in a follow-up panel discussion, moderated by John Hopkins University philosophy department head **George Boas**, with Dean **Jose Luis Sert** of Harvard's Graduate School of Design, California Landscape Architect **Garrett Eckbo**, and Professor **Mario Salvadori** of Columbia University.

Inspired in part by Canada's "construction boom of fantastic proportions," **Hugh C. MacLean Publications, Ltd.** of Toronto started a new architectural and building magazine, *The Canadian ARCHITECT*, edited by **James A. Murray**, MRAIC. The first issue, Nov. to Dec., 1955, was to be followed by one for Jan. to Feb., 1956, and monthly issues beginning in March.

NAMED: **James A. Dawson**, of Harrison & Abramovitz, construction coordinator for the UN Building, as the NYC Housing Authority's director of development, succeeding **John P. Riley**, who resigned to join the IBEC Corp; **John P. Robin**, formerly executive director of the Pittsburgh Redevelopment Agency, as president of the Regional Industrial Development Corp., organized to promote Pittsburgh area industrial development; Architect **John C. Lindsay**, to design a \$5 million construction industries center in Los Angeles for the Building Contractors Assn. of California, of which **John E. Meskell** is president.

To strengthen their administrative teams, HHFA Administrator **Albert M. Cole** made his Executive Assistant **Annabelle Heath** an assistant administrator, while Urban Renewal Commissioner **James W. Follin** appointed **Harold Freed Alderfer** of Pennsylvania State University an assistant URA commissioner for operations. Miss Heath was on Cole's staff when he was a member of the House of Representatives from Kansas, in her new position will have charge of coordinating policy actions between HHFA headquarters and its six regional offices. Alderfer has been on the Penn State staff for the last 27 years, most recently as head of its department of political science and executive secretary of its institute of local government. From 1942 to 1950 he was director of Pennsylvania's State Bureau of Municipal Affairs, and on leave of absence, 1950 to 1952, served as a local government specialist in Greece for ECA.

DIED: Architect **Joseph Zeno Burgee**, 58, partner since 1945 in Holabird & Root & Burgee and a codesigner on the Canadian National Railways terminal in Montreal, Monsanto's research laboratory in St. Louis, the Teta research institute in Bombay, Jan. 5 in New York, of a heart attack; Engineer **Charles B. Spencer**, 69, a founder and board chairman of Spencer, White & Prentis, builders and foundation specialists, former president of the Moles and consulting engineer on the 1949 White House renovations, Jan. 7 in New York; **Lewis N. Rosenbaum**, 75, realty owner and developer for several large buildings over the Hudson & Manhattan tracks in Jersey City, Jan. 9 in Rye, N.Y.; **Frederick P. Condit**, 77, former president of the New York State and American Title associations and, until his death, active as a vice president of the Title Guarantee & Trust Co., Dec. 19 in New York; Engineer and Builder **Charles A. Cummins**, 73, whose firms built the Library of Congress Annex, the new House Office and the Department of Commerce Buildings in Washington, the Cincinnati post office, Dec. 21 in Baltimore.

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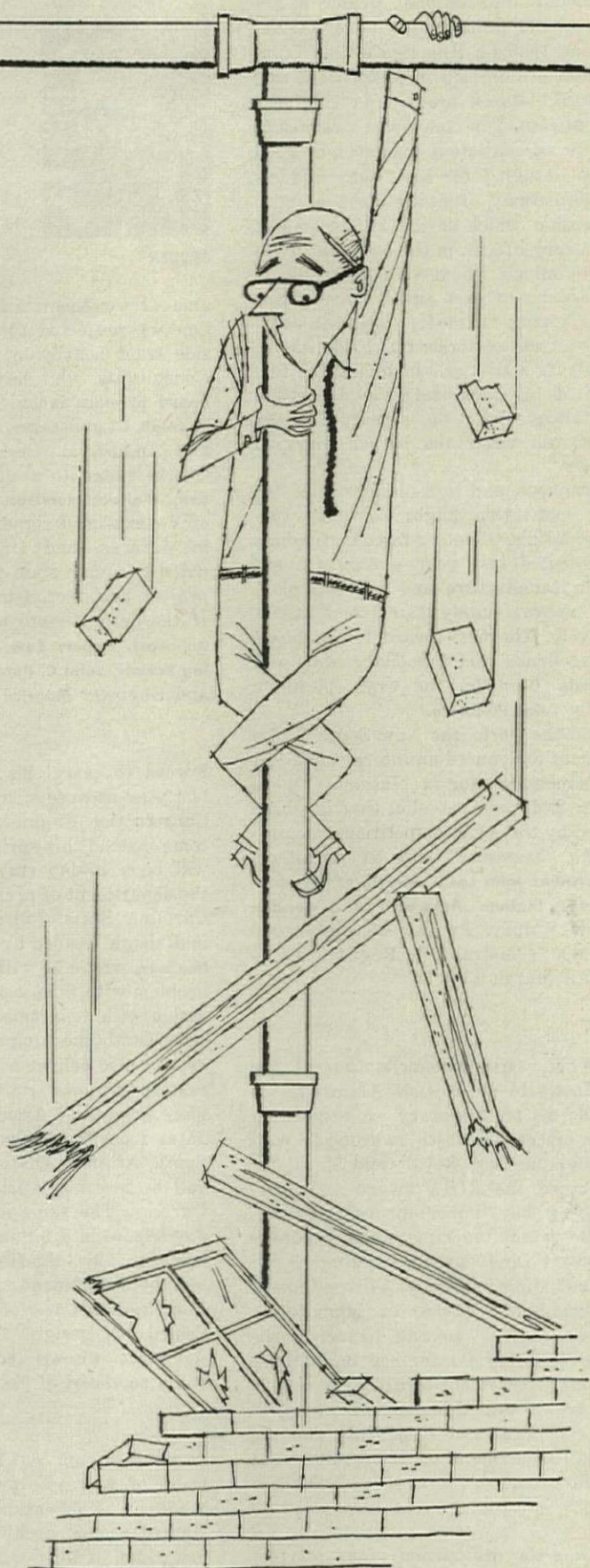
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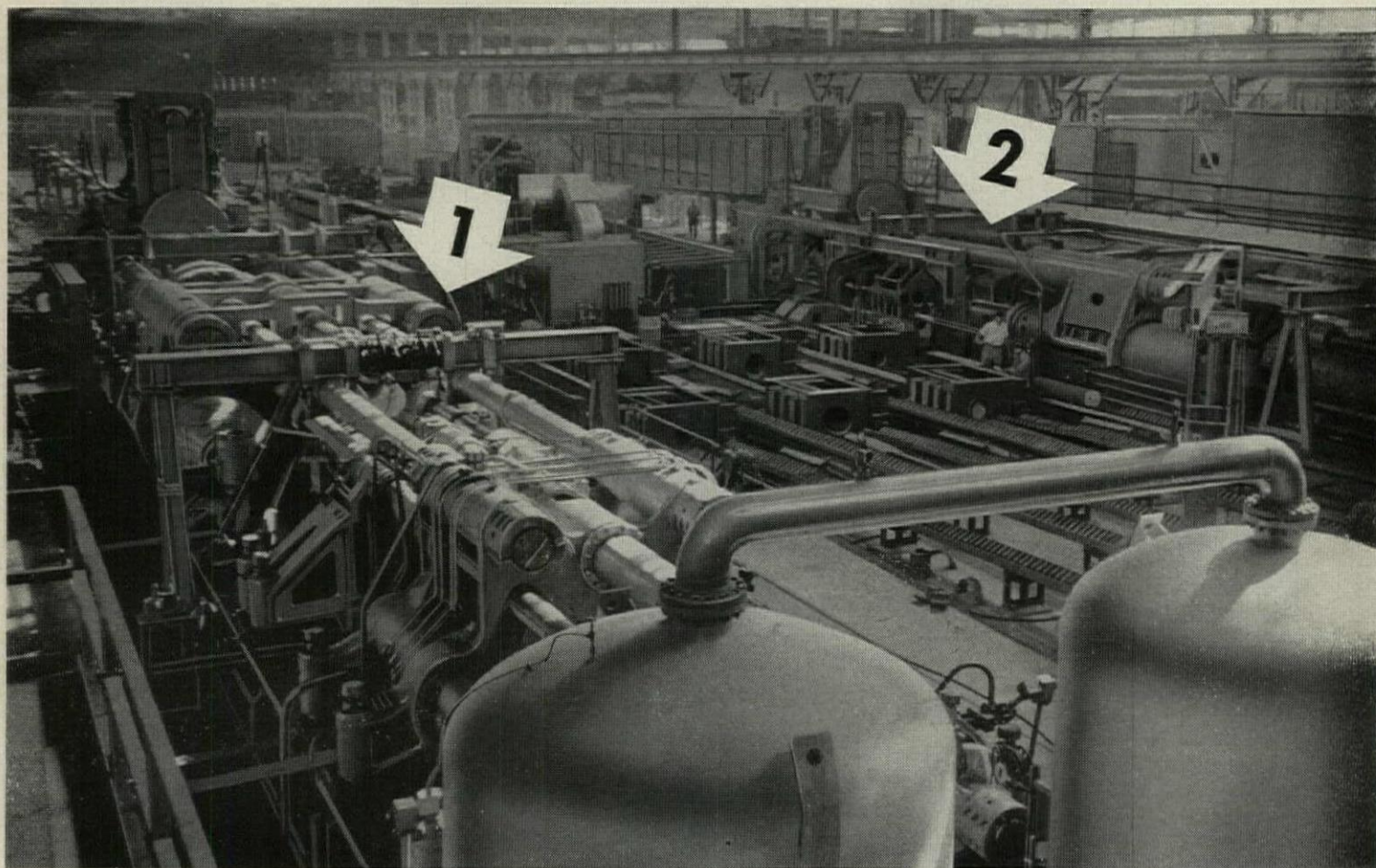
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BUILDING VOLUME: Ninth consecutive record set by '55 construction spending; New York leads in value of permits

Construction expenditures in 1955 totaled \$42.3 billion, 12% greater than the previous record in 1954, and the ninth consecutive year they have reached new peaks, according to preliminary estimates by the Commerce and Labor Departments (see charts and table below).

Although federal spending for new construction declined substantially last year, except for grants-in-aid programs, this drop was more than offset by increased state and local public expenditures, according to Commerce-Labor officials.

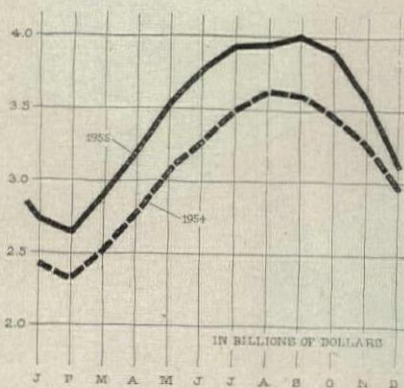
Building permit data compiled by Dun & Bradstreet showed that New York, Los Angeles and Chicago all scored gains in the dollar volume of permits issued in 1955 over 1954, and ended in the same One, Two, Three order as in 1954.

New York finished first by a wide margin despite the odd fact Dun and Bradstreet credited it with only \$667 million of permits at the end of December, compared with \$672 million a month earlier. The explanation: although New York December permits totaled \$45 million, a readjustment had to be made in its cumulative figure to deduct

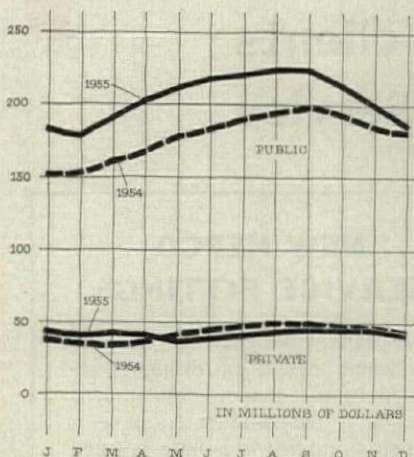
\$50 million recorded in June for William Zeckendorf's Palace of Progress project that was later abandoned (p. 16).

The 25 cities that issued the largest dollar volume of building permits last year, and their respective rank in 1954:

	(in millions of dollars)			1954
	1955	1954	% Change	Rank
New York	\$667.4	546.5	+23.9	1
Los Angeles ..	433.4	408.6	+ 6.1	2
Chicago	262.7	229.8	+14.2	3
Dallas	166.9	142.6	+16.9	5
Philadelphia ...	147.1	137.5	+ 7.3	6
Detroit	142.8	126.5	+12.6	7
Houston	137.1	165.3	-16.9	4
Baltimore	104.7	89.1	+16.8	10
Denver	99.8	100.5	- 1.0	9
New Orleans ..	98.8	54.9	+81.5	20
San Diego	85.4	72.3	+18.1	13
Milwaukee	85.3	102.2	-16.4	8
Cleveland	78.6	62.2	+25.8	14
Atlanta	76.5	87.5	-12.6	11
Seattle	71.9	77.1	- 7.7	12
Washington ...	67.6	55.6	+21.8	19
San Francisco ..	64.6	57.7	+12.3	18
Kansas City ...	63.6	58.6	+ 8.6	16
Long Beach ...	60.6	45.2	+33.2	23
San Antonio ...	59.2	58.3	+ 1.7	17
Cincinnati	57.6	53.7	+ 7.6	21
Ft. Worth	57.2	47.0	+21.3	22
Pittsburgh	55.0	34.2	+61.7	25
St. Louis	51.2	60.6	-15.0	15
Columbus	50.1	44.8	+13.6	24



TOTAL CONSTRUCTION expenditures in December were \$3,177 million, or 3% greater than comparable outlays in Dec. '54.



EDUCATIONAL CONSTRUCTION outlays in December ran \$3 million above Dec. '54. Private outlays were down \$2 million for the month, off \$30 million for the year; but public outlays up \$5 and \$308 million, respectively.

EXPENDITURES BY BUILDING TYPES

	Full Year			
	Dec. '55	1955	1954	%±
(millions of dollars)				
PRIVATE BUILDING				
Residential (nonfarm)	1,283	16,600	13,496	+23
Nonresidential*	683	7,624	6,250	+22
Industrial	226	2,403	2,030	+18
Commercial	269	3,039	2,212	+37
Offices; lofts; warehouses	107	1,131	958	+18
Stores; restaurants				
garages	162	1,908	1,254	+52
Religious	63	736	593	+24
Educational	43	499	529	-6
Hospital; institutions	27	351	337	+4
Public utilities	351	4,465	4,341	+3
*PRIVATE TOTAL	2,410	30,250	25,768	+17

PUBLIC BUILDING				
Residential	20	261	336	-22
Nonresidential	287	4,225	4,641	-9
Industrial	31	720	1,506	-52
Educational	186	2,442	2,134	+14
Hospital; institutions	20	329	365	-10
Military	106	1,300	1,030	+26
Highways	200	4,100	3,750	+9
Sewer; water	80	1,085	982	+10
*PUBLIC TOTAL	767	12,000	11,809	+2

*GRAND TOTAL .. 3,177 42,250 37,577 +12
*Minor components not shown, so total exceeds

BUILDING MONEY: Firm, but subject to easing if necessary

It was the consensus of most financial observers last month that interest rates would hold firm for a while, with no immediate likelihood of any further increases, but no prospect of any decline either.

To no one's surprise, the FHA and VA announced at midmonth the partial cancellation of the mildly restraining home purchase mortgage rules they instituted last July. This was the clearest kind of confirmation that the administration is following a policy of monetary flexibility and could be expected to make more credit available for other types of business and commercial activity as soon as it was certain inflationary dangers of the present boom were past, or there was any threat of an economic recession.

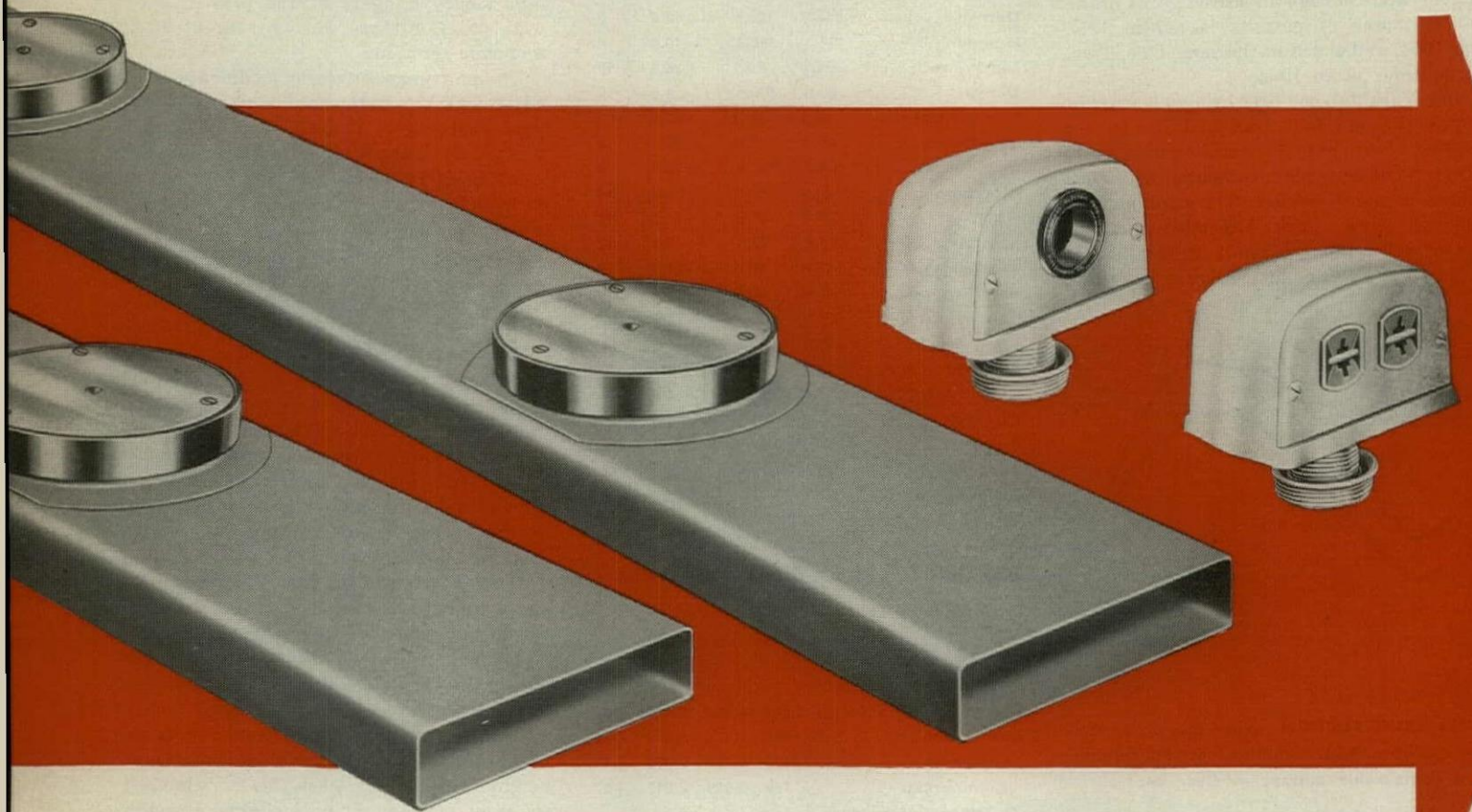
The mortgage restraint modifications by FHA and VA authorized a return to 30-year mortgages, instead of a maximum term of 25 years. This would lower buyers' monthly carrying charges 48¢ a month on each borrowed \$1,000 (\$4.80 on a \$10,000 mortgage, \$9.60 on a \$20,000 mortgage). The relaxation was announced on the heels of a BLS report that December's 72,200 housing starts, after a steady decline since September, were at the rate of 1,187,000 units a year on a seasonally adjusted basis—the first time this adjusted rate had fallen below the administration's announced goal of 1,200,000 to 1,300,000 a year.

Another small trump in official reserve, in case starts continued to drop on a seasonally adjusted basis, would be termination of the special regulation that required a minimum down payment of 2%, rather than a 100% mortgage, on any VA home purchase, and 2% more than normally required for down payments on FHA-insured homes.

At the large New York convention of the American Economic Assn., the American Statistical Assn. and allied groups a month ago, most economists were confident boom conditions would continue at about present heights through at least the first half of the year, perhaps dip only slightly through the third and fourth quarters and then resume their uptrend.

Building got a good indication of the continued interest of the Metropolitan Life Insurance Co. in first class realty investments last month, when it announced its purchase-lease acquisition of the blockfront 42-story Manhattan office and penthouse building at Madison Ave. and 49th St. Seller-lessee of the tower, assessed at \$5.9 million, was the General Realty & Utilities Corp., which has large holdings in many cities and is currently building two large new office structures in New York. One of these is a 27-story building at 20 Broad St. that will include space for expansion of the New York Stock Exchange, the other a 32-story building at 40th St. and Sixth Ave. in the rapidly expanding uptown textile district.

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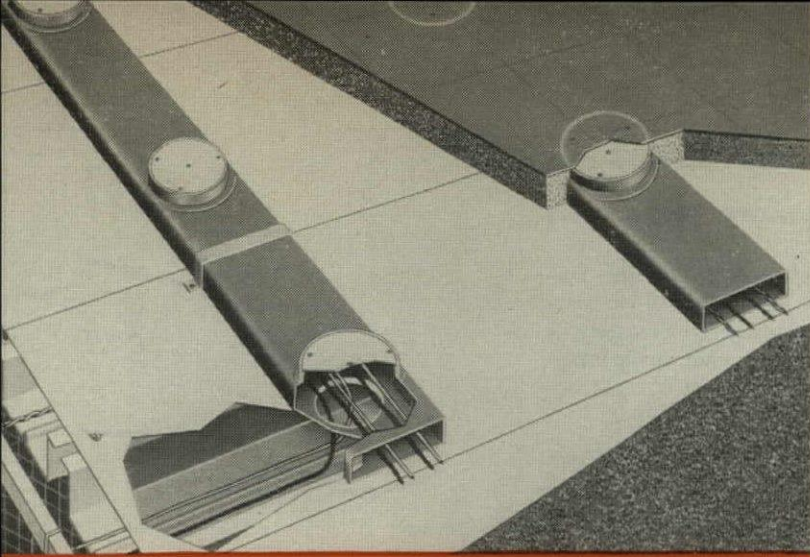


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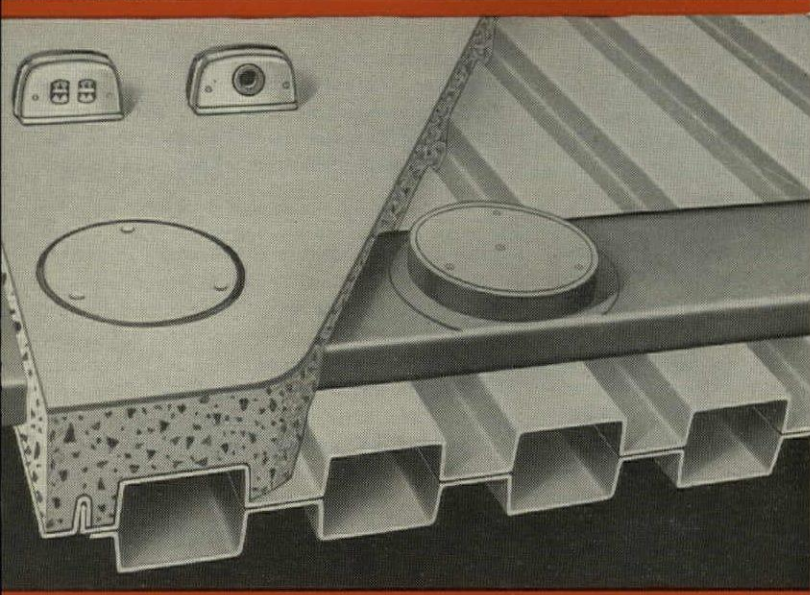
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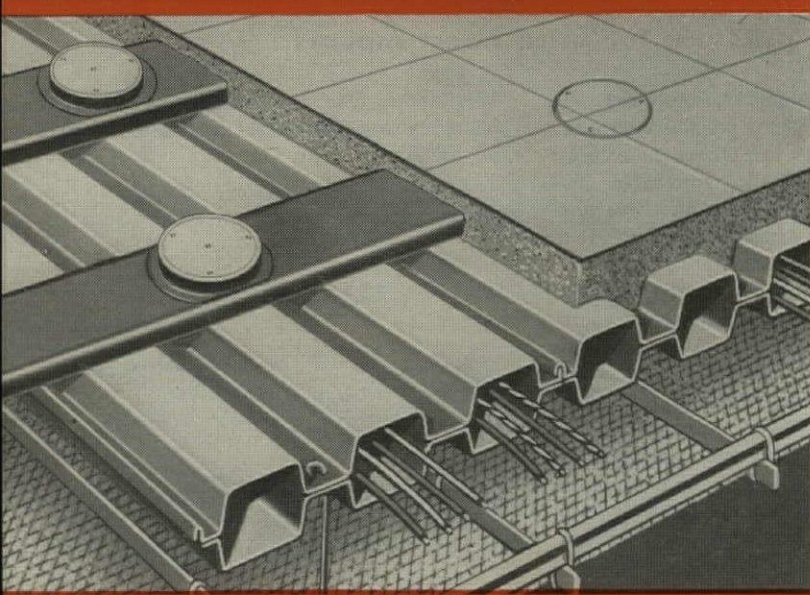
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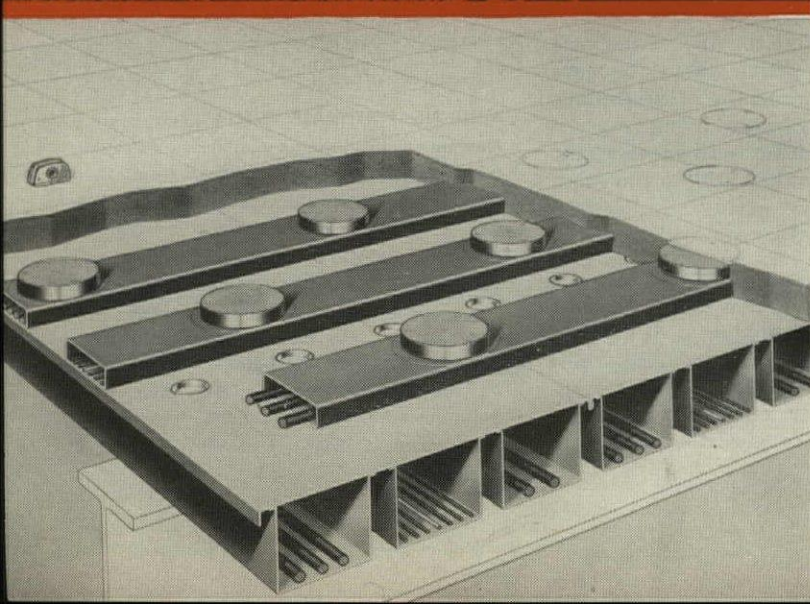
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BUILDING COSTS: T. C. Williams says '56 advances should not exceed 3% to 5%; labor—more stable, but more expensive

While building cost trends this year would continue upward, there was little agreement on the extent to which they would rise. This was natural; there was a range from 3.2% to 5.1% in various indices of the increases that took place last year. The Associated General Contractors' index, for instance, rose 3.2% from Dec. '54 to Dec. '55. The American Appraisal Company index went up 3.5% in the same period. E. H. Boeckh & Associates' composite index for non-residential building costs rose 4.5% (see chart); its component for apartments, hotels and office buildings going up 4.4%, the commercial and factory buildings component 4.7%. During the year *Engineering News Record's* "building" index rose 4.9%, its "construction" index 5.15%.

This year, according to T. C. Williams, president of both Stone & Webster Engineering Corp. and of the National Constructors Assn., building costs should not advance more than 3 to 5%. Last month he told the annual meeting of this association of large industrial construction firms that order backlogs of the nation's leading engineering and building concerns are larger now than at any time since early in the Korean war.

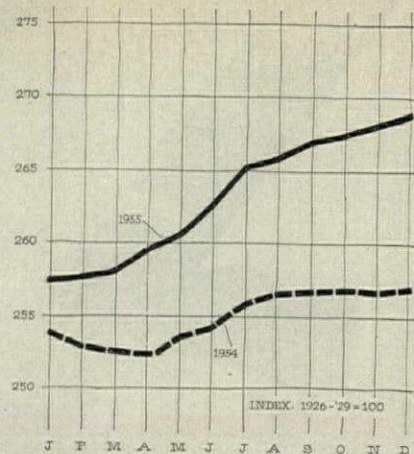
Forecast Board President Melvin H. Baker of National Gypsum: "Some price in-

creases may be expected in building materials to partially absorb increased costs from higher wages, but these increases will be selective and might result in no more than a 2% increase in the cost of construction."

Building labor rates. To higher materials prices, however, would have to be added wage increases for construction workers, plus boosts in other contractor expenses. Fortunately, major building labor disputes were fewer last year than in 1954, and with termination of the teamsters' strike that seriously crippled the Los Angeles area's huge private and public construction programs from October through December (AF, Jan. '56) there were no other big tieups visible on the horizon.

In a growing trend to more longterm industrywide labor pacts, however, contractors were giving more binders for automatic future wage increases and bigger, more comprehensive welfare payments.

New York City and Long Island, for instance, started the year with a new area-wide plumbers contract replacing five that used to expire at different times and resulted in "a whipsaw effect of constant contract negotiations" that plagued the industry. A major innovation in this contract: employer payments of \$2 a day per



CONSTRUCTION COSTS for nonresidential building rose another 0.2% (from 267.9 to 268.6) from November to December, according to the index compiled by E. H. Boeckh & Assoc. Through 1955 this index rose a total of 4.5%.

man (approximately a 7% wage increase) for an "Additional Security Benefits Plan." Although not quite a "guaranteed annual wage," this will give workers extra unemployment, retirement and death benefits. Each worker's account will "follow the man," and will not be lost or diminished if he shifts from one job to another in the area. The new master contract also included a series of three 10¢ an hour wage increases effective in Jan. and July '56, and Jan. '57.

MATERIALS: Steel situation clears a little, but pressure for price boost mounts

Last month the structural steel supply situation showed signs of easing slightly, but prospects of price increases later in the year grew greater. Lumber prices also began to edge up a little, but cement sacrificed some of its recent announced increase. Copper and brass materials were a little easier to obtain and most other building materials were firm in supply, but still under pressure for continued moderate price advances.

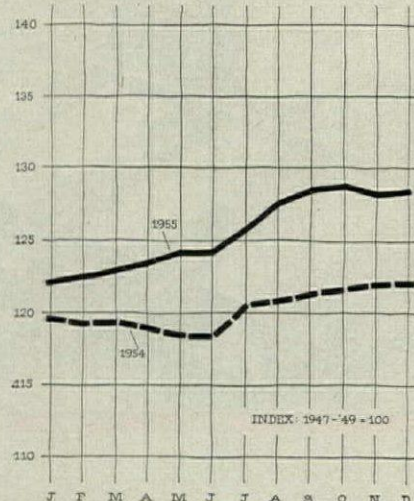
Steel—November structural steel bookings totaled 345,308 tons, second highest month in history, exceeded only by 369,414 tons last July, according to the American Institute of Steel Construction. This boosted the backlog of unfilled orders to 2,075,465

tons on Dec. 1 (see chart), compared with less than 1,300,000 tons at the beginning of 1955. Shipments for eleven months of 1955 lagged 6% behind comparable 1954 shipments, as auto industry demands temporarily slackened. Institute Vice President N. P. Hayes forecast a 12% boost in structural shipments this year, to result largely from expansion of production facilities. Three factors building up pressure for higher structural prices were: the frequently stated need of the companies for higher income to finance extensive expansion that will cost \$1.2 billion this year, another \$1.8 billion in '57 and '58; the likelihood of another hike in steelworkers wages in mid-year negotiations, and extra inventory or premium buying in anticipation of price boosts.

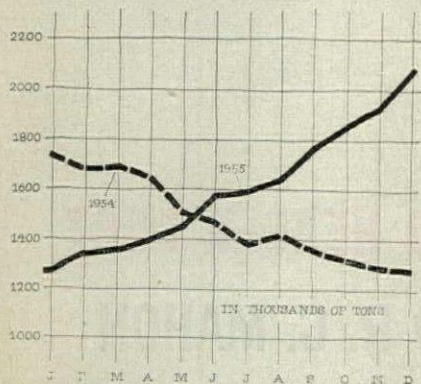
Lumber—Shortly after the first of the year Northwest lumber prices started to move upward after three months of weakening, prompted in part by heavy buying from the Los Angeles area after settlement of the teamsters strike that had held up almost all building there since early fall. Plywood prices were also turning upward.

Cement—The new year brought an increase of about 15¢ per barrel for cement in most localities. Two big producers, Universal Atlas (a US Steel subsidiary) and Alpha Portland announced 25¢ per barrel increases in December, effective Jan. 1, but later revised their rates so they rose only

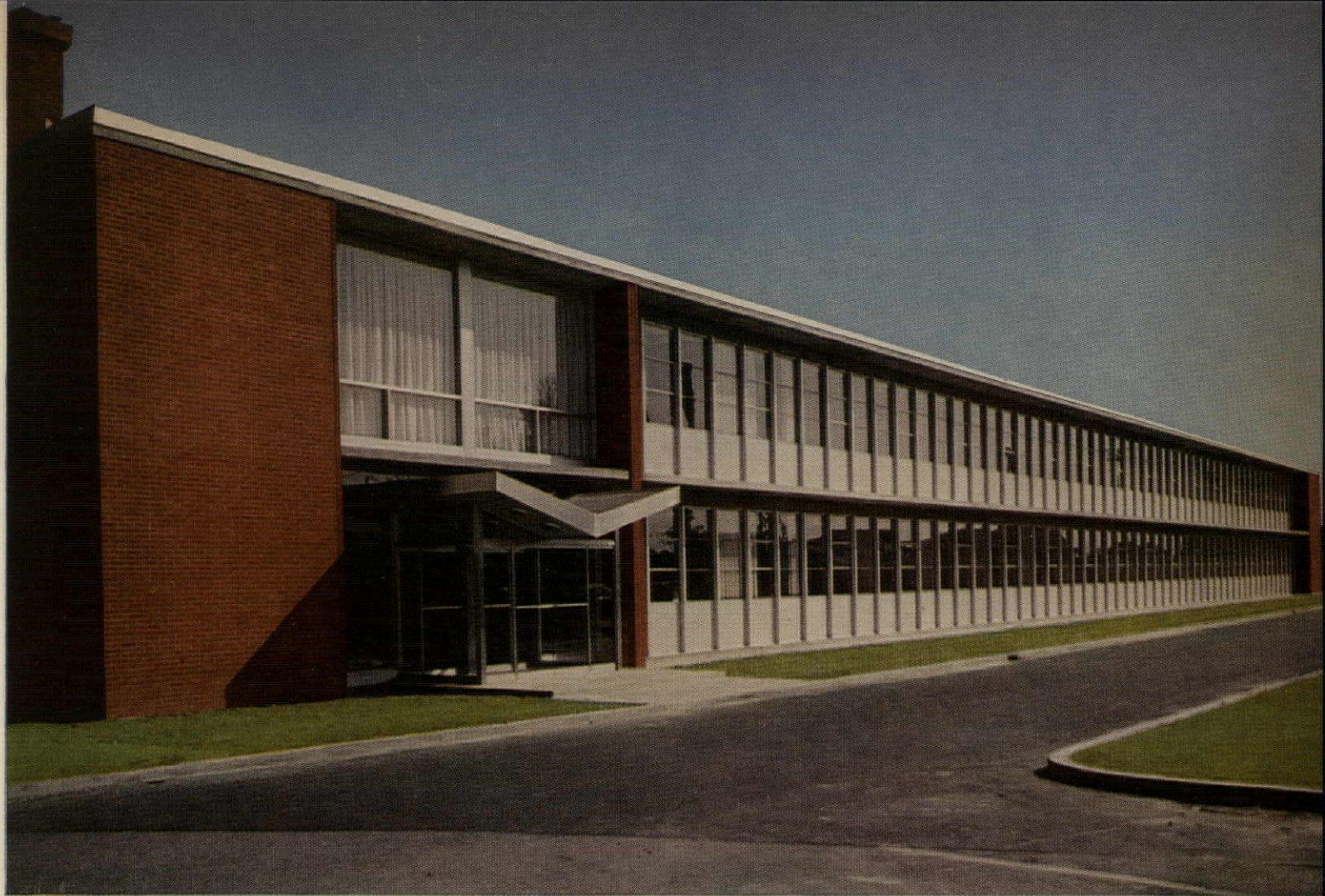
15¢, about 5%. In Seattle one producer posted a 20¢ per barrel increase, his first advance since Apr. '54.



BUILDING MATERIALS PRICES after their 0.5% November decline turned upwards again in December, rising about 0.2%, from 128.1 to 128.3 on the BLS average wholesale price index. Small price increases for millwork, prepared paint, concrete ingredients, structural clay products and miscellaneous non-metallic minerals accounted for the December upturn. Plywood declined slightly, but lumber (20% of the index) was unchanged. At the end of 1955 the BLS index for all building materials was 5.2% higher than a year earlier (122.0 in Dec. '54).



STRUCTURAL STEEL unfilled orders on Dec. 1 rose to 2,075,465 tons, with slightly more than half of the orders, 1,087,854 tons, scheduled for fabrication by Mar. 31.



General Electric Engineering Building, Cleveland, Ohio. Architects: Blaw Knox, Pittsburgh, Pa. Contractor: George A. Rutherford Co., Cleveland, Ohio. Type H Curtain-Wall with spandrel panel. Exterior is embossed aluminum sheet. Insulation 1 inch thick Fiberglas covered on inside with aluminum sheet. Ventilators are project-out type. Two story building. Curtain-Wall on one elevation.

Cut Construction Time with Lupton Curtain-Walls

Construction schedules can be shortened by weeks, or even months, with Lupton Curtain-Walls. Window and wall units are prefabricated from the plans, and installed as the building framework is completed. There's no on-the-site delay and no waiting on the weather. Installation is done from within the building. Here's another big advantage with Lupton Curtain-Walls . . . fabrication and installation are done under one contract. You are relieved of all construction and installation details.

Lupton Curtain-Walls are "your" walls. You choose the window style. You choose the panel material from aluminum, stainless steel, glass, or porcelain enamel. The wall panels can be as severe or as colorful as you want, and the beauty is permanent. Aluminum frames, aluminum windows and lifetime panels keep Lupton Curtain-Walls "new".

Plan with the new Lupton Simplified Curtain-Wall System. Send for brochure detailing and illustrating this modern way to build.

MICHAEL FLYNN MANUFACTURING COMPANY

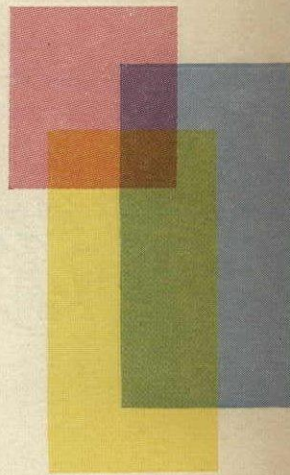
Main Office and Plant: 700 East Godfrey Avenue, Philadelphia 24, Pa.

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West Coast Office: 672 South Lafayette Park Place, Los Angeles 57, Calif.

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METAL WINDOWS AND CURTAIN-WALLS

G.E. BUILDS THEM

trim

Modern, goodlooking styling. Hammered soft gray finish lends itself to any interior of stores, institutions, offices or factories.

tough

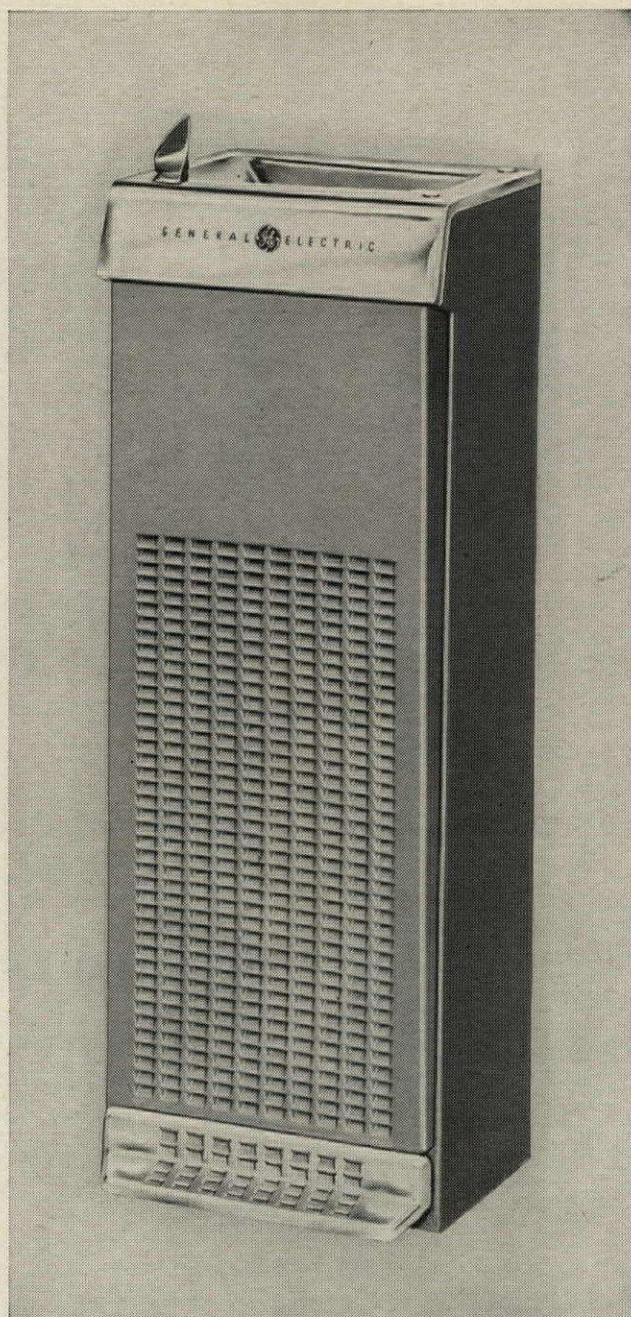
Equipped with time-tested compressors—the same used in millions of G-E home refrigerators. Heavy gauge steel cabinet.

tidy

Anti-splash basin avoids splattering of bubbler stream. G.E.'s full-width, curved foot pedal provides easy water control without scuffing shoes or stubbing toes.

and tiny

Take up to 30% less floor space. Fit easily in shallow corners. Over-all depth is up to 5" less than other foot-operated coolers. For easier maintenance and adjustment the front panel snaps on and off.



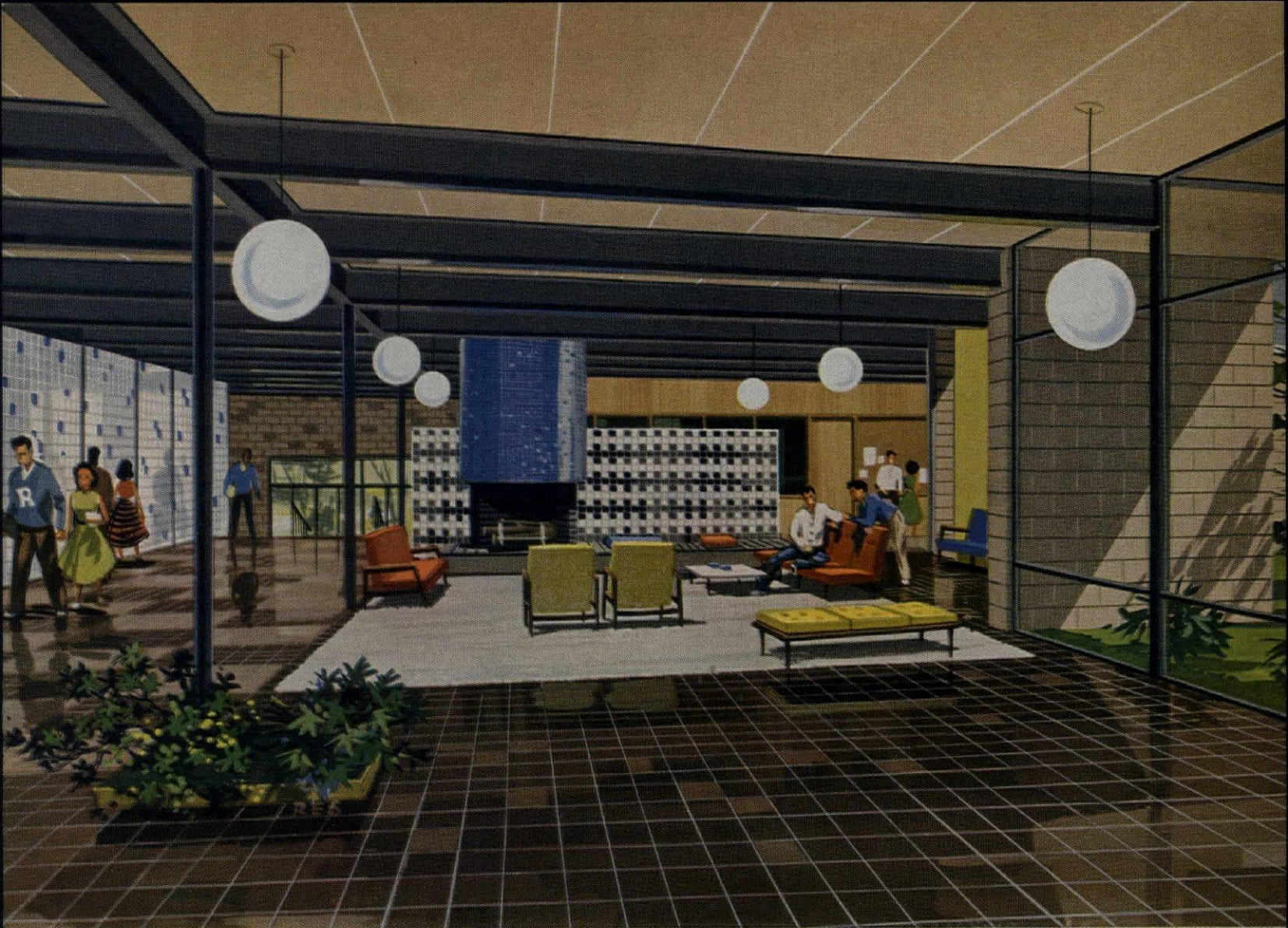
WATER COOLERS

for offices, stores, institutions and factories

These up-to-date engineering features of G-E Water Coolers assure dependability and economy for the owner, ease of operation for the user and compact design for the architect. This quality is backed by the standard G-E product warranty plus 5-year replacement agreement. And it is easy to specify G-E Coolers—they come in capacities from 2.85 to 21.5 gallons per hour. So,

whenever you include water coolers in your floor plans, be sure to call your local G-E Water Cooler dealer or write to General Electric Company, Commercial and Industrial Air Conditioning Department, 5 Lawrence St., Bloomfield, New Jersey.

GENERAL  ELECTRIC



Design for Student Commons by Sherwood, Mills and Smith

"CERAMIC TILE COMBINES COLORFUL SURFACING WITH LOW MAINTENANCE COSTS."

SHERWOOD, MILLS AND SMITH
Per T.S.

Sherwood, Mills and Smith have created a design for a high school Student Commons room. Ceramic tile is the key surfacing material—one which gave the architects both durability and design flexibility.

The handsome, heavy-duty ceramic tile floor units will take generations of student traffic with little wear and no waxing. The glazed tile walls will never see a paintbrush—yet they'll remain sparkling, fireproof, scratchproof and stainproof for the life of the school.

The colorful tiled fireplace wall provides a friendly focal

point for student discussions—a lasting tribute to tile's ability to give architect and builder unique custom effects with standard tiles.

A ceramic tile specification is in tune with today's school and institutional needs. You actually specify "built-in" maintenance savings: easy cleaning, no waxing and no replacement for the life of the installation. See your tile contractor. Ask him for the latest information on ceramic tile colors, textures and sizes. It will pay off on your next project for both you and your client.

The Modern Style is

CERAMIC
tile

TILE COUNCIL OF AMERICA, Room 3401, 10 East 40th St., N. Y. 16, N. Y. or Room 933, 727 W. 7th St., Los Angeles, Calif.

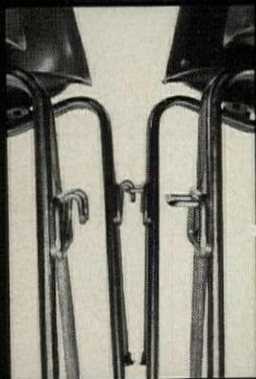
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stacking chair

MAMARONECK JEWISH CENTER MAMARONECK, NEW YORK



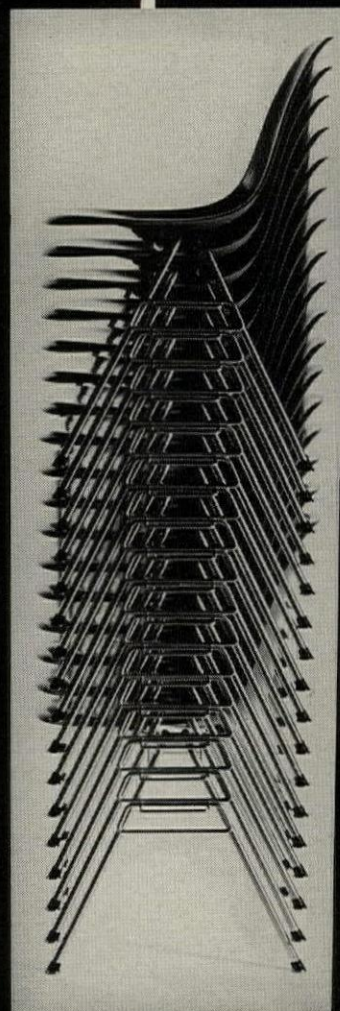
hooking device maintains
chairs in orderly rows
for uniform appearance.

for use in auditoriums,
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is now combined
with great comfort
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flexible
multiple seating
which stacks
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plastic shells,
variety of colors.



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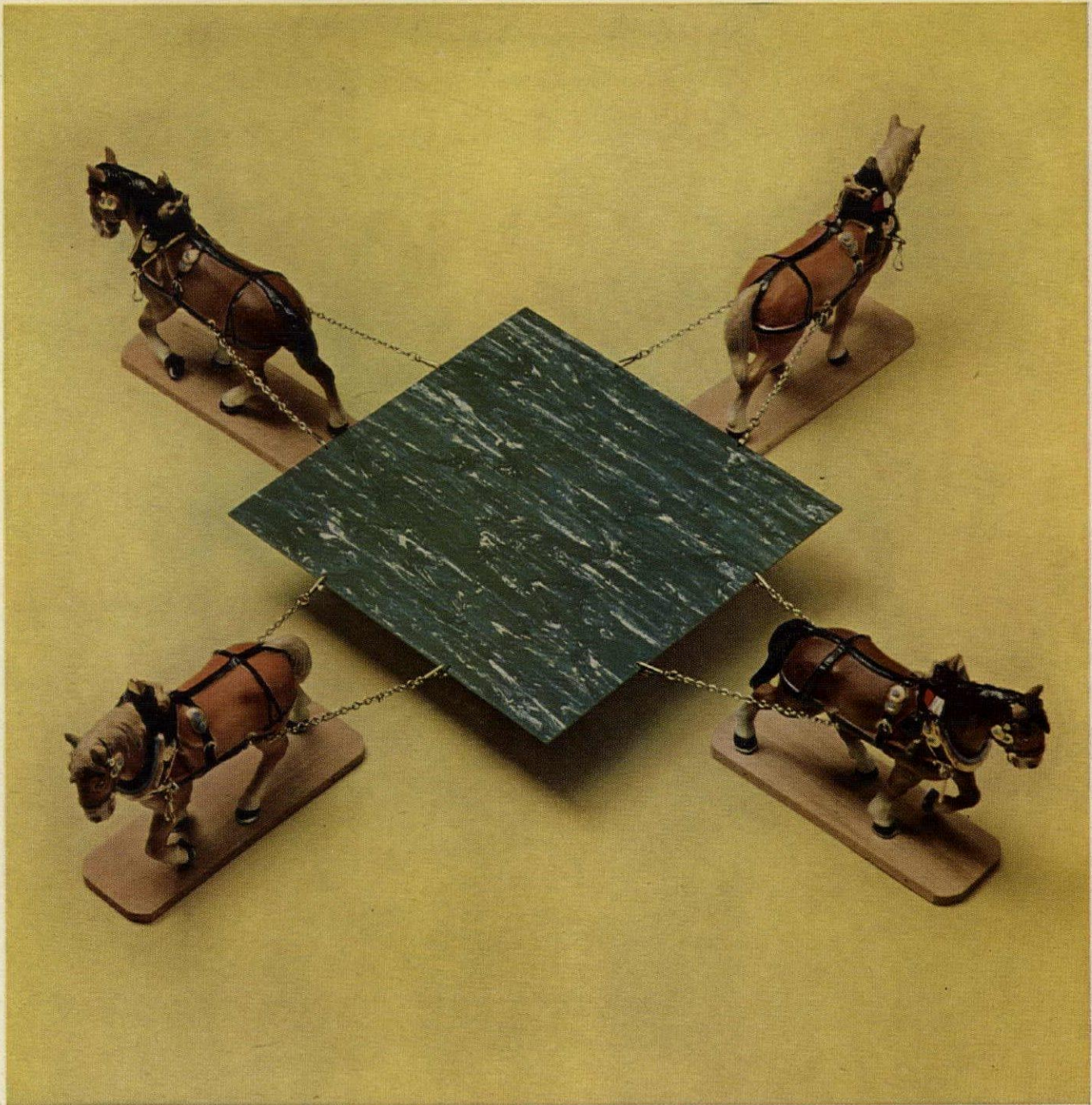
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Uniform thickness, square corners, straight edges...these are the dimensions you demand in the floor tile you specify. Kentile, Inc., through precision manufacturing processes and laboratory controls, brings you these features. Every Kentile, Inc. floor tile is as dimensionally stable as modern science can create. This, plus a true-

ness and clarity of controlled color; built-in durability; surface smoothness; ease of cleaning and maintenance, have helped to make all Kentile, Inc. floors the world's most popular line of resilient tile. The tile illustrated above is Kerry Green, one of the many beautiful colors available in the line of KenRoyal vinyl floor tile.

KENTILE, INC. America's largest manufacturer of resilient floor tiles

KENTILE Asphalt Tile, Carnival Kentile, Corktone Kentile/KENCORK, Cork tile for Floors and Walls/KENRUBBER, Rubber Tile/KENFLEX, Vinyl Asbestos Tile, Carnival Kenflex, Corktone Kenflex/KENFLOR Vinyl Tile, also available by-the-yard/KENROYAL Vinyl Tile/SPECIAL KENTILE, Greaseproof Asphalt Tile/THEMETILE, KENSERTS, Decorative Inserts/KENCOVE, vinyl wall base/KENBASE, wall base.



H. Weber Sons & Co., Zanesville, Ohio.

Women buy dresses by color, style, and important details. Harsh, glaring, old-fashioned lights made the selections difficult in this Zanesville department store.

Simply by installing the Wondabar with smart Virden fixtures, the entire atmosphere is changed. The light is soft and flattering, enhances fabric and color. Note, also, how this type fixture permits "spot lighting" for closer inspection, or for displaying important merchandise.

Pete's Grill, Chicago, Illinois.

This small restaurant depended on fluorescent lights for illumination. It was cold, glaring and gave an unappetizing color to the food.

Far Right—Now, the Wondabar using four standard Virден fixtures adds charm, warmth and effective lighting. Customers like it, comment on its attractive appearance.



like magic! **wondabar** by Virден
brings life and light to drab interiors!

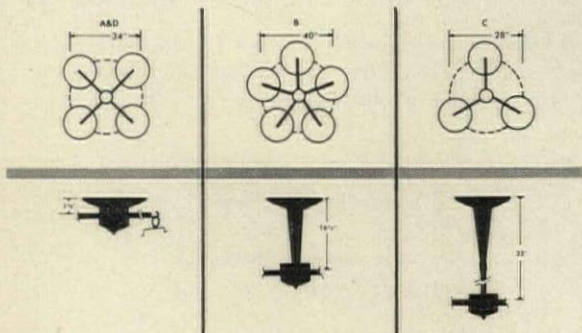
decorative lighting by **Virден**

Now, you can offer your commercial customers the advantages of custom lighting—at ordinary lighting prices.

The new Virден Wondabar makes it possible. This new concept in multi-unit lighting uses *standard type*, loop-equipped fixtures, in groups of 3, 4 or 5, making possible an almost unlimited variety of decorative lighting effects. And the Wondabar installs as easily as any ordinary fixture!

Study these "before" and "after" illustrations. Note the warmth, the friendly buying mood Wondabar lighting creates. Here's merchandising with light that attracts customers, makes them want to do business!

Investigate the magical Wondabar by Virден today. See your Virден distributor or write John C. Virден Co., Dept. AF-2, 6103 Longfellow Avenue, Cleveland 3, Ohio.



Wondabar kits are available in 3, 4 or 5 arm spreads, for use with any standard, loop-equipped fixture. Can be installed easily and quickly to the old fixture outlet.



**Roberts' Barber Shop,
Zane Hotel,
Zanesville, Ohio.**

This Wondabar installation gives soft, even light, directly on the customer's head. "I can see every hair," says Donald Roberts, owner. "What's more, my new lights have attracted lots of comment from my customers. I think they are wonderful."

Barbers need plenty of light, but when it glares, it is hard on the eyes . . . the barber's and the customer's.



AZROCK

...Smooth as a Flagship Flight!



American Airlines International Waiting Room, San Antonio Municipal Airport, San Antonio, Texas.

The smooth, closely-textured surface of Azrock is no accident—it's deliberately built into this rugged asphalt tile—to make it easier to clean and keep clean. Azrock's dense inter-laced structure means years of extra wear, too.

And whether it's a modern airline terminal... a hospital, restaurant, school or home... Azrock sets the color theme with lighter, brighter colors you wouldn't expect to find in this low-cost flooring. Azrock colors are smart and modern... clean and bright... compatible with modern décor.

Azrock is made to order for the quickened tempo of today's living. It's easy to look at... easy to walk on... and easy to keep looking *right*.

With all its extra qualities, Azrock costs no more than ordinary asphalt tile—a longer wearing, better looking flooring with exceptionally low cost.

When there is no added cost, why not specify the best—quality Azrock Asphalt Tile. Samples and detailed product data sent on request without obligation.

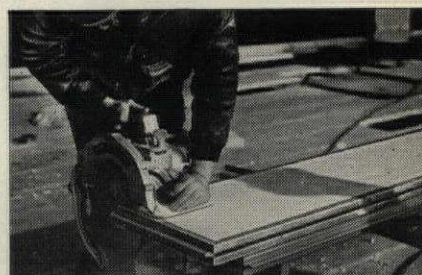
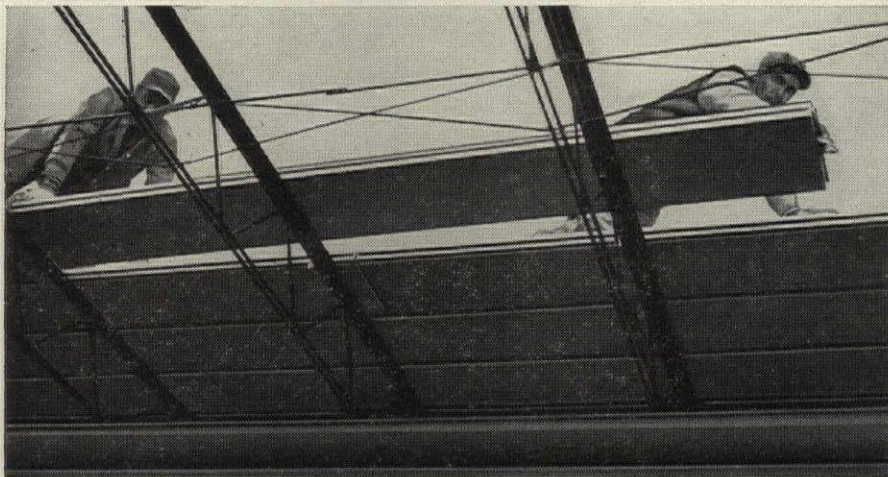
AZROCK

ASPHALT TILE

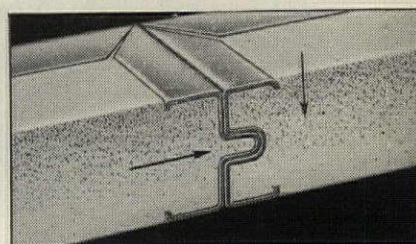
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CERTAIN-TEED GYPSTEEL® PLANK ROOF DECK

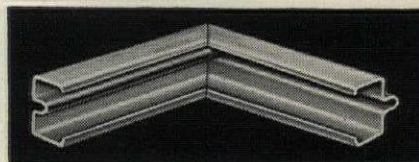
**CUTS CONSTRUCTION COSTS, MAINTENANCE COSTS,
AND OFTEN INSURANCE COSTS AS WELL**



Gypsteel Plank can be sawed, nailed or drilled like lumber. A wide-set hacksaw will cut the metal edge. However, a power saw with a carborundum wheel is best. Actually, minimum cutting is required with Gypsteel Plank. Where a large number of openings in the deck are specified, plank is simply laid around openings, saving expensive labor.



Only Certain-teed Gypsteel Plank has this type of tongue and groove. When engaged, the steel bindings mesh to form an I-beam that permits joints to be safely broken between supports. (Arrows show forces.)



Note the unique way the steel binding is welded at the corners to form a one-piece frame. This gives more rigidity and greater strength.

TECHNICAL DATA

Gypsteel Plank can be used economically on almost any roof design—flat, sloping, saw-tooth, and some curved or warped roofs (long radius). It's recommended for spans up to and including 7 ft. Weight: approx. 12 lb. per sq. ft. Safe load: 75 lb. per sq. ft., with safety factor of 4. Meets Federal Specification SS-S-439. Planks can be used over either steel or wood purlins. End joints need not come over purlin supports. Thermal insulation is very good. "U" Factors (air to air) including roof covering: no insulation, .528; ½" Certain-teed Fiberglas Insulation, .26; 1" Certain-teed Fiberglas Insulation, .17. Insulation value is equal to 9 to 10 in. of concrete or an 8 in. brick wall. Roof coverings may be nailed right onto Gypsteel Plank when necessary.

CERTAIN-TEED GYPSTEEL PLANK

is a pre-cast gypsum slab (2" x 15" x 10'0") reinforced with steel wire mesh and poured in a galvanized steel frame electrically welded at the corners for maximum rigidity. It combines great strength, light weight, and high fire resistance. It offers important advantages—in faster, easier construction and reduced costs—over any other type roof decking you can use today.

CUTS CONSTRUCTION COSTS

Gypsteel Plank comes all ready to apply—no special equipment required. Planks are tongued and grooved—sembled quickly and cleanly—may be sawed, drilled or nailed like lumber. Their light weight reduces the dead load—permits an important saving in substructural steel.

CUTS MAINTENANCE COSTS

Gypsteel Plank needs no painting to prevent deterioration. Undersurface

requires no decoration. It provides good light reflection, and there are no ribs or flanges to collect dust and dirt.

Gypsteel Plank is as permanent as the building it covers. It is not affected by normal changes in temperature or atmospheric conditions, and because gypsum is inert, expansion and contraction are never a problem, and the danger of a cracked roof covering is minimized.

OFTEN CUTS INSURANCE COSTS

Gypsum is rock—it can't burn or support combustion. Gypsteel Plank is rated as incombustible by insurance companies and under building codes—and therefore gives the lowest insurance rate possible. *This is a benefit your clients enjoy for the life of the building!*

See your Sweet's Catalog for detailed information and nearest district office. Your local Certain-teed Sales Engineer will be glad to be of assistance to you at any time.

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may require—light, medium or heavy duty anchoring into hard materials like concrete or steel.

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DATES

Associated Equipment Distributors, annual convention, Jan. 29-Feb. 2, Conrad Hilton Hotel, Chicago.

Associated General Contractors of America, annual convention, Feb. 13-16, Waldorf-Astoria Hotel, New York.

American Society of Civil Engineers, national winter convention, Feb. 13-17, Baker Hotel, New Orleans.

American Concrete Institute, annual convention, Feb. 20-23, Bellevue-Stratford Hotel, Philadelphia.

Mortgage Bankers Assn. of American, Midwestern mortgage conference, Feb. 23-24, Conrad Hilton Hotel, Chicago.

National Electrical Manufacturers Assn., midwinter meeting, March 12-16, Edgewater Beach Hotel, Chicago.

National Gold Medal Exhibition, sponsored by the Architectural League of New York, March 12-30, Architectural League, New York.

American Congress on Surveying and Mapping and American Society of Photogrammetry, joint annual convention, March 18-24, Shoreham Hotel, Washington.

American Power Conference, sponsored by Illinois Institute of Technology, March 21-23, Hotel Sherman, Chicago.

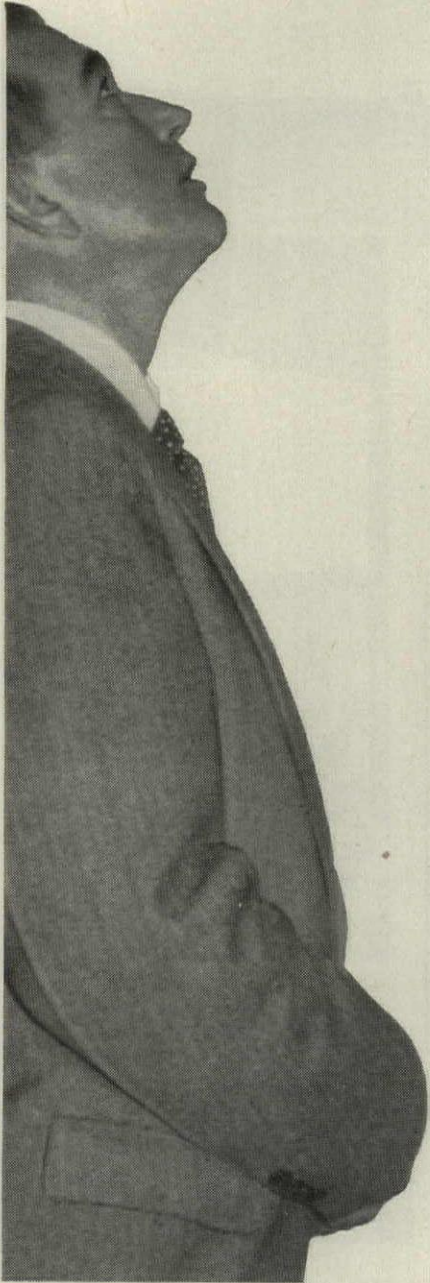
National Housing Conference, annual meeting, April 9-10, Hotel Statler, Washington.

Urban design conference, April 9-10, Graduate School of Design, Harvard University, Cambridge, Mass.

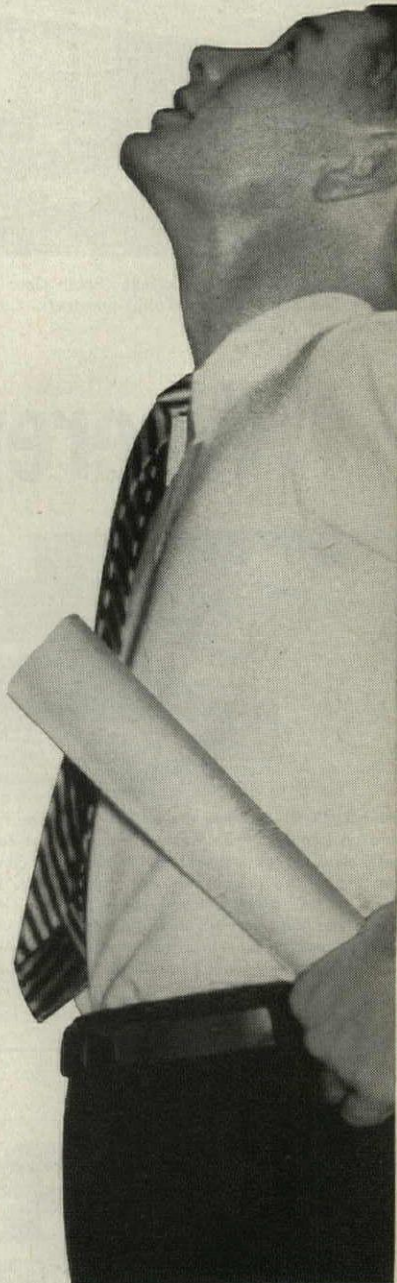
Regional conference, South Atlantic District, American Institute of Architects (guest speaker: Italian Engineer Pier Luigi Nervi), April 12-14, Washington Duke Hotel, Durham, N.C.

Mortgage Bankers Assn. of America, eastern mortgage conference, April 30-May 1, Commodore Hotel, New York.

American Institute of Architects, annual convention, May 14-18, Hotel Biltmore, Los Angeles.



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"That's where you're wrong! The diffusers are already in place... we're using completely concealed MULTI-VENT..."

The integrity of a clean, attractive ceiling can be maintained unbroken when you work with Multi-Vent low velocity air diffusers.

Multi-Vent diffusers can be completely concealed. Nothing protrudes to create problems in symmetry or architectural effect.

This concealability provides still another advantage at a practical level: Partitions can be placed anywhere, and re-located at will with complete freedom. The Multi-Vent panels need not be moved, altered in any way, or even adjusted.

Multi-Vent introduces conditioned air through the perforations in standard acoustical ceiling pans, at low velocity. The air is gently diffused downward into the room. As a result, there is no "throw" or "blow" to bounce off partitions—which can actually bisect a Multi-Vent panel without affecting its function.

Write for detailed literature and name of representative in your area.

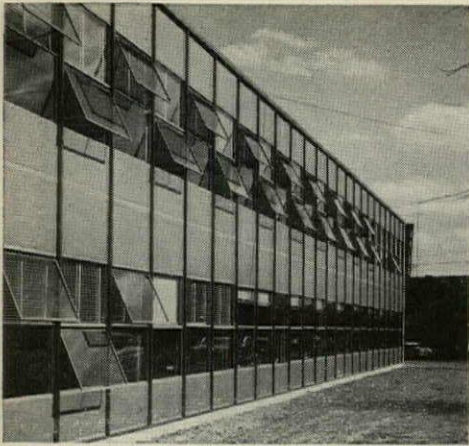
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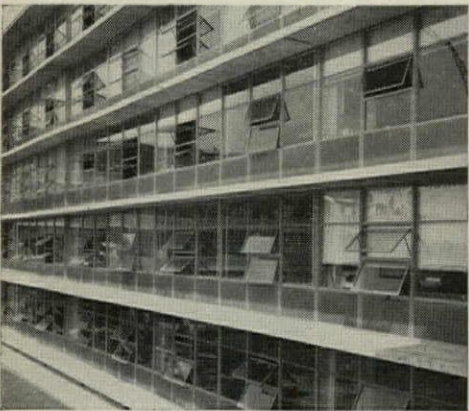
1376 N. Kostner Avenue, Chicago 51, Illinois

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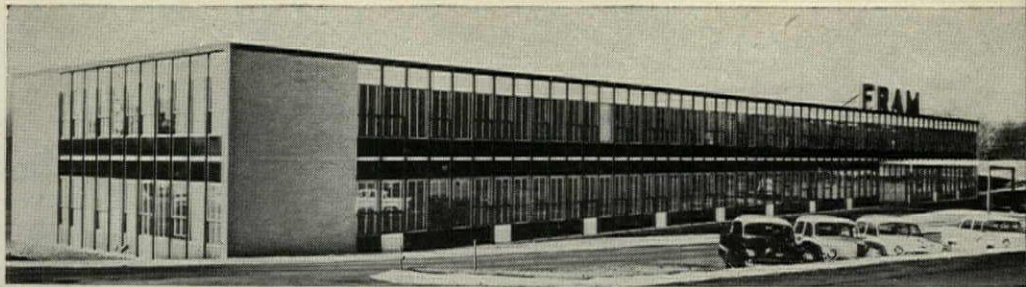
SALES AND ENGINEERING REPRESENTATIVES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA



Michigan Bell Telephone Company, Port Huron, Mich. Smith, Hinchman and Grylls, Inc., architects. E. J. Kahmann Co., contractor.



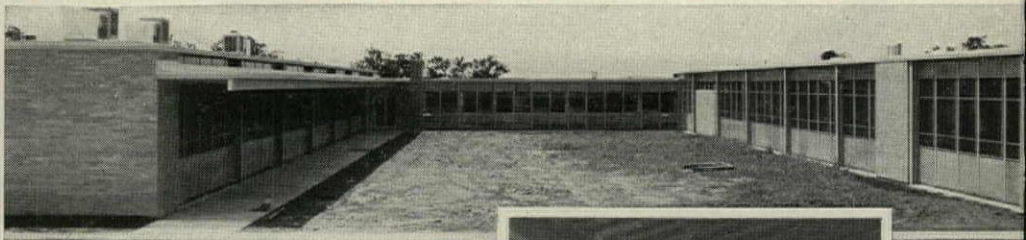
Clemson Barracks, Clemson College, South Carolina. Lyles, Bissett, Carlisle and Wolff, architects. Daniel Construction Co., contractors.



Fram Office Building, East Providence, Rhode Island. The Architects Collaborative, architects. Gilbane Building Co., contractors.



School and Convent, Church of the Holy Cross, Bronx, N.Y. York and Sawyer, architects. James King and Son, Inc., contractor.

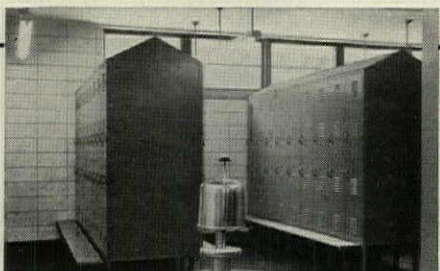


Animal Science Building, University of Arkansas, Fayetteville, Ark. Ginocchio, Cromwell & Associates, architects. Harmon Construction Co., contractor.

Wherever you look



WHEREVER HE LOOKS, there's an exclusive feature on Republic "Inch-Marked"® E.M.T. that helps cut costs, makes installations easier. The "Inch-Marking" feature eliminates measuring. The "Guide-Line" helps prevent costly "wows." And inside knurling simplifies wire pulling. Protect your wiring circuits against fire, moisture and mechanical injury by specifying safe Republic ELECTRUNITE® E.M.T.



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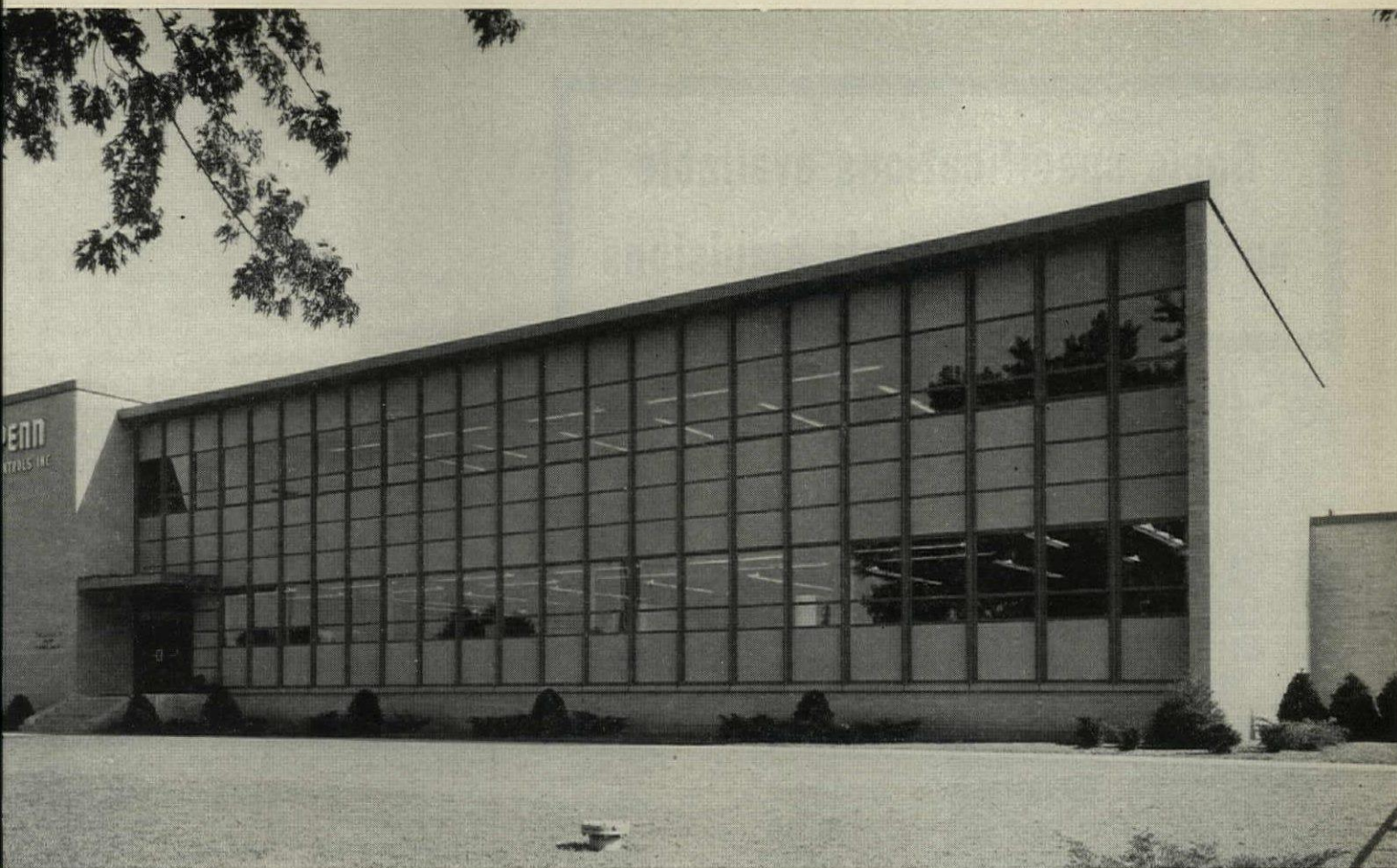


United Airlines, Midway Airport, Chicago, Ill. Skidmore, Owings and Merrill, architects. Algot B. Larson, contractor.

REPUBLIC



World's Widest Range of Standard Steels



Penn Controls Engineering Building, Goshen, Ind. The Austin Co., architects and contractor.

there's **Vision-Vent**[®]

Truscon's Wall With a Window

Hundreds of new buildings have been designed around the Vision-Vent idea since this revolutionary new wall panel was introduced a scant thirty months ago. Hundreds more installations are on the boards now.

Why such enthusiastic acceptance? Here's a building method that gives you all the mass-production and installation economies of standard steel windows. Vision-Vent combines window and wall panel in one integrated unit which is easily installed as a unit. It encloses entire walls, can be erected from inside regardless of weather.

Each Vision-Vent unit is complete with fixed lights, awning-type ventilators, insulated steel panels. A Vision-Vent variation includes Truscon Double-Hung Steel

Windows in place of awning-type ventilators.

Insulated panels are in colored porcelain enamel or in stainless steel. They have an insulating value equal to that of an ordinary masonry spandrel wall. They retain interior heat; they provide for efficient air conditioning. Minimum wall thickness—less than 1½"—provides extra square feet of floor space. Light weight of Vision-Vent walls is reflected in structural savings.

This exciting Truscon development is recommended for use in all types of single and multi-story buildings. Truscon window engineers will be glad to study your requirements and develop design details and costs. More specs in Sweet's, or send coupon for facts.

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and Steel Products

REPUBLIC STEEL CORPORATION

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☐ Republic Steel Lockers

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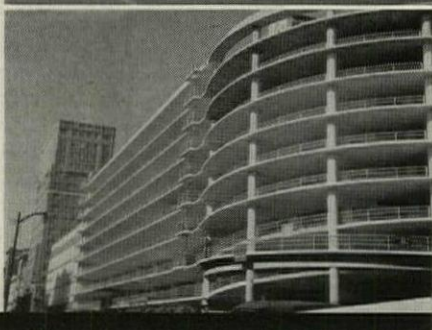
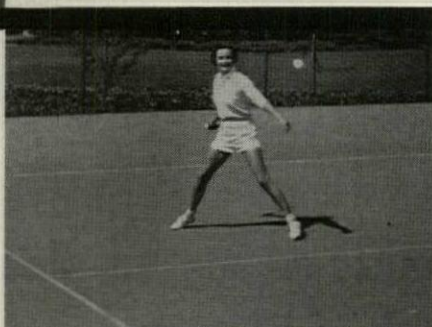
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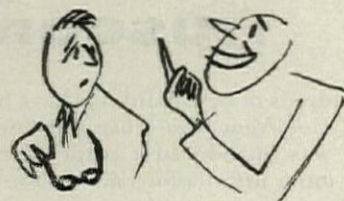
(MODERN HISTORY)

Our Greece correspondent informs us that he was standing in reverie near the Parthenon in Athens not long ago when a little old American lady walked up, glanced at the shrine, sniffed twice for attention, and said in a critical southern drawl: "Why, is *this* all it is? Why, we got a better one than this back home in Nashville!"

(RETROSPECT)

February is a businesslike month, a short month buttoned into a matching vest, an office month. Its air of efficiency makes us think of some addenda to last month's article about lobbies.

For example, Bob Bien, of Sylvan Bien and Robert Bien, architects, showed us a trio of lobbies which his firm accomplished on New York's Madison Ave., and which have come to have their own compact fame in the city's architectural mythology. First the Biens designed a sizable office building on the east side of Madison. The owners were so pleased at the success of this building that a few months later they asked the Biens to build another office building across the street several floors higher. Back to the old drawing board started the Bien office. "But hold on," the clients said, "We want this building just



the same as the other one. It's great. Exactly the same."

"Like Levittown?"

"No, like across the street."

"Actually," said Bob, the other day, standing in the glossy, light-flooded lobby of the second office building, "this only *looks* the same, of course. We re-detailed this one, and made it considerably better than the first one, and less expensive too."

But to the eye, the lobbies are exactly similar, and so are the other parts of the buildings, except that the second one is taller, and even more successful. But that wasn't all. Elated, the client—you guessed it—engaged the Biens to make it triplets, and bought land uptown. Back to the old blueprint machine went the tracings.

The three buildings are complete now, leased, air-conditioned, and occupied. They're all the same, except for one de-

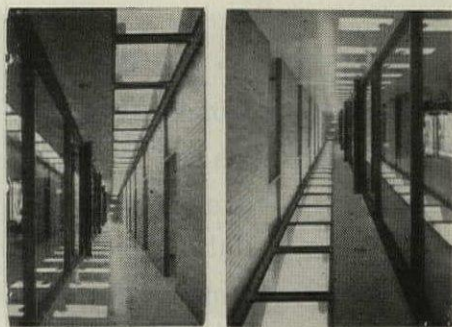
PARENTHESES

tail: in the first one the elevator operators are all blondes; in the second, all brunettes; in the third, all redheads. At last, a real living architecture!

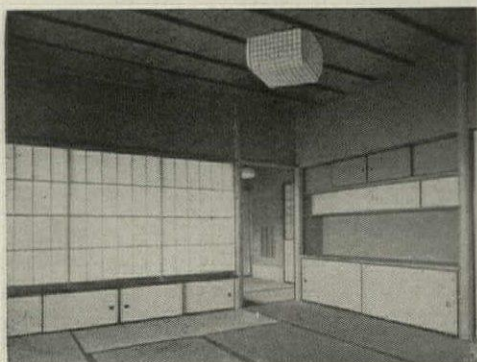


(ORDER)

It is an old fear of magazine editors that the printer will print some of the photographs upside down, and nobody will notice it on the proof pages. This is getting to be more and more of a danger, as you can understand by looking at these photos.



This is just one more of the quietly desperate incidents in architecture today, as we move into a modern classicism. The Japanese are way ahead of us, of course, in their rich, orderly culture.



(REPORT)

That article in FORUM's news section last month describing the new recommendations of the General Services Administration for federal buildings sent us panting after the full report for more details.

After hefting the full report (hundreds of pages) we settled for the extract (24 pages) and can recommend this highly as reading matter. A shrewd, thoughtful piece of work, the GSA report recommended such serious advances as reducing structural design live loads, narrowing corridors, etc. But it wasn't all serious. See section 20 on "Murals and Sculpture": *"Even though a mural and sculpture cost money, a certain amount of this work should be done in some buildings. The over-all cost of the project will not be greatly enlarged by their use, even when they are well done."* Even then.

Another murmuring roar was about exterior facings: *"The use of new materials, after they have been thoroughly tested, may be considered."*

(SEMANITOR)

Word comes in, sped on the wings of a public relations department's mimeograph machine, that the National Insurance Company of Columbus, Ohio, has developed *"a new, scientific office-cleaning system which cut costs by one-third."*

"The most important aspects of the system are:

"1. A program for improvement of employee morale. The word "janitor" is out, "sanitor" is in. Uniforms are provided so that sanitors come and leave dressed as other office workers. Authority is delegated to inspire self-confidence and pride . . .

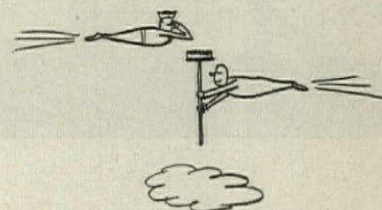
"2. A research program on equipment. Simple improvements have increased efficiency, reduced fatigue. Examples: universal joints instead of one-way swivels on mops, larger wheels on push carts, long-handled dusting brushes instead of rags, bigger buffing machines, multipronged brushes for honey-combed fluorescent lights, portable heating tanks to eliminate trips to the hot-water faucet.

"3. Research program on work methods. Operations as outwardly insignificant as wiping a desk top have been studied to eliminate unnecessary movements . . ."

This nomenclature may also be of interest to that committee of the General Services Administration which is seeking further efficiency in government buildings. Some time ago privates in the Air Force were rechristened "Airmen," pre-



sumably to get their morale up in the clouds. Maybe the government should follow suit and have its buildings maintained by sanitors. Would the Congress or Senators object? Would the Justices of the Supreme Court hold it constitutiono?

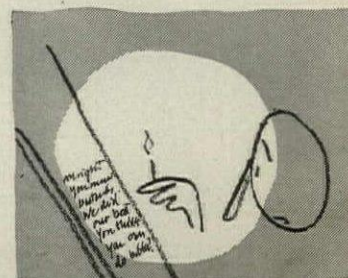


(OTHER VICES, OTHER ROOMS)

James M. Fitch, professor, author, traveler, gardener (he grew his own vermouth one season) and partner in housebuilding with his charming wife, Cleo, was once engaged to remodel a house in Rockland County, a complicated old affair originally built for Waldo Pierce, the painter. Intricately planned, the house's complexities came to a head around the splendid stairway; under the main stairs was a multitude of partitions, a maze of lath, furring, studs, and old plaster.

Fitch decided the only thing to do was find out what was happening structurally under there, and the only way was to rip out the maze. With his crew of workmen he began. Every time they tore down a wall, they uncovered another mysterious partition. It was like unwinding a skinned baseball. Several hours later they still were demolishing.

Finally, however, they penetrated to the very frame of the stairway and put down their crowbars. Then one of the workmen said, "What's this?" and struck a light. Scrawled on the timber stringer of the



continued on p. 50

Owens-Illinois Technical Center, Toledo, Ohio... Architects: Holabird, Root and Burgee, Chicago; Architect-coordinator for Owens-Illinois: Mr. H. P. Maas; General Contractor: George A. Fuller & Sons, Chicago; Electrical Contractor: Romanoff Electric Co., Toledo.

*Looking into
the future...
with
lighting by
Day-Brite*

The many phases of research pursued in the new Owens-Illinois Technical Center involve a lot of looking into the future of glass. This calls for the best in seeing—present and future. Day-Brite lighting, of course, was the logical choice—in the glass technology laboratory, engineering department, machine shop, administrative service offices, even in the cafeteria!

Architects and Engineers looking for present and future lighting satisfaction, specify Day-Brite. It is the classic line of light that lends itself to any architectural design, treatment and type of construction...SEE, EXAMINE and COMPARE Day-Brite—look at the fixtures, not just the pictures. Your Day-Brite representative will gladly show you—look for him in your classified phone directory.

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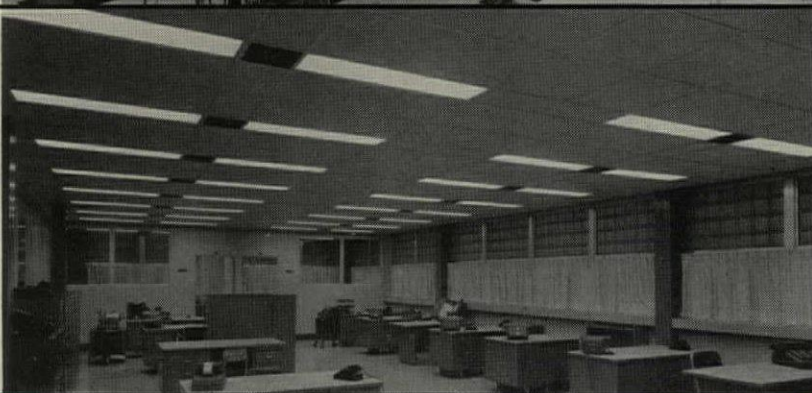
Typical Engineering Area
lighted with Day-Brite 1-ft. x 4-ft.
troffers with Corning #70
glass lenses. Note over-all surface
illumination on desk tops
and drawing boards.



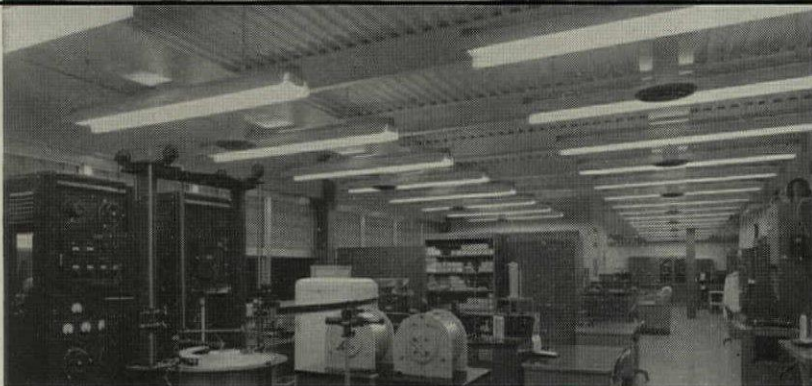
Cafeteria, lighted with Day-
Brite 2-ft. x 4-ft. Mobilex,[®]
grid type, with Corning
#70 glass lenses.



Administrative Service Office,
where Day-Brite 1-ft. x 4-ft.
troffers with Corning #70 glass
lenses maintain comfort seeing
levels on all work areas.



Glass Technology Laboratory,
where Day-Brite CFI-10
(Comfort For Industry)
lighting helps wash out ceiling
contrasts by utilizing 10% upward
lighting. Day-Brite CFI fixtures
provide added light at
no added cost.



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(PARENTHESES)

cont'd.

stairs in carpenter's pencil, preserved as perfectly in the darkness as Cheops' soul boat, was a message from the past:

"Hello, you smart bastards, we had our troubles, now it's your turn."

(MATERIALS)

It may have been because of recent narrowing tendencies in architectural magazines that Steve Thompson, our news editor, ended a recent speech to the New York Society of Architects as he did. The event was the annual installation dinner at the beginning of the 50th anniversary year of this professional organization, a happy evening, and Steve rose to the occasion with a stimulating architectural suggestion in his closing words:

"A \$5 million international competition for new designs for Ivory Towers, a sadly neglected field in which we have not made much progress for a long, long time.

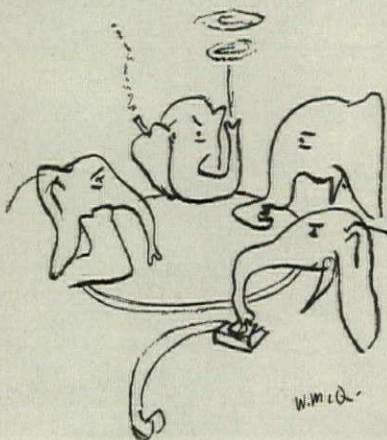
"There will be three divisions in this competition:

"1—a straight square, plumb line, vertical Ivory Tower, to be designed and occupied by what my successor generation might call 'conventional squares.'

"2—a slightly leaning Ivory Tower—to be designed and occupied by those who might be described as 'conformists of just a slight nonconventional bent.'

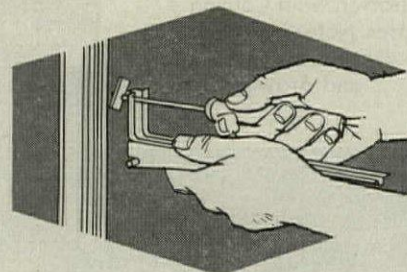
"3—a vertical boomerang-shaped Ivory Tower—on a base not more than 25 feet square. This is to be designed and occupied, of course, by what might be called 'the cantilevered rock-and-roll machine-for-living crowd.'"

To complete this revival of ivory towerism, it is suggested also that we might have a round table symposium on how to increase the use of ivory as a building material, with participants from the basic



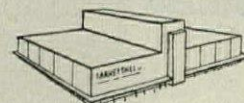
ivory industry, complete with stenotypist, of course.—W.M.CQ.

Vizusell

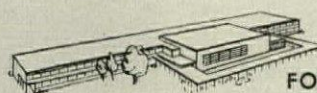


adds a new *twist* ...
to store and office design

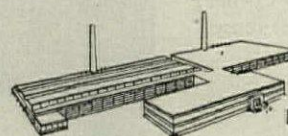
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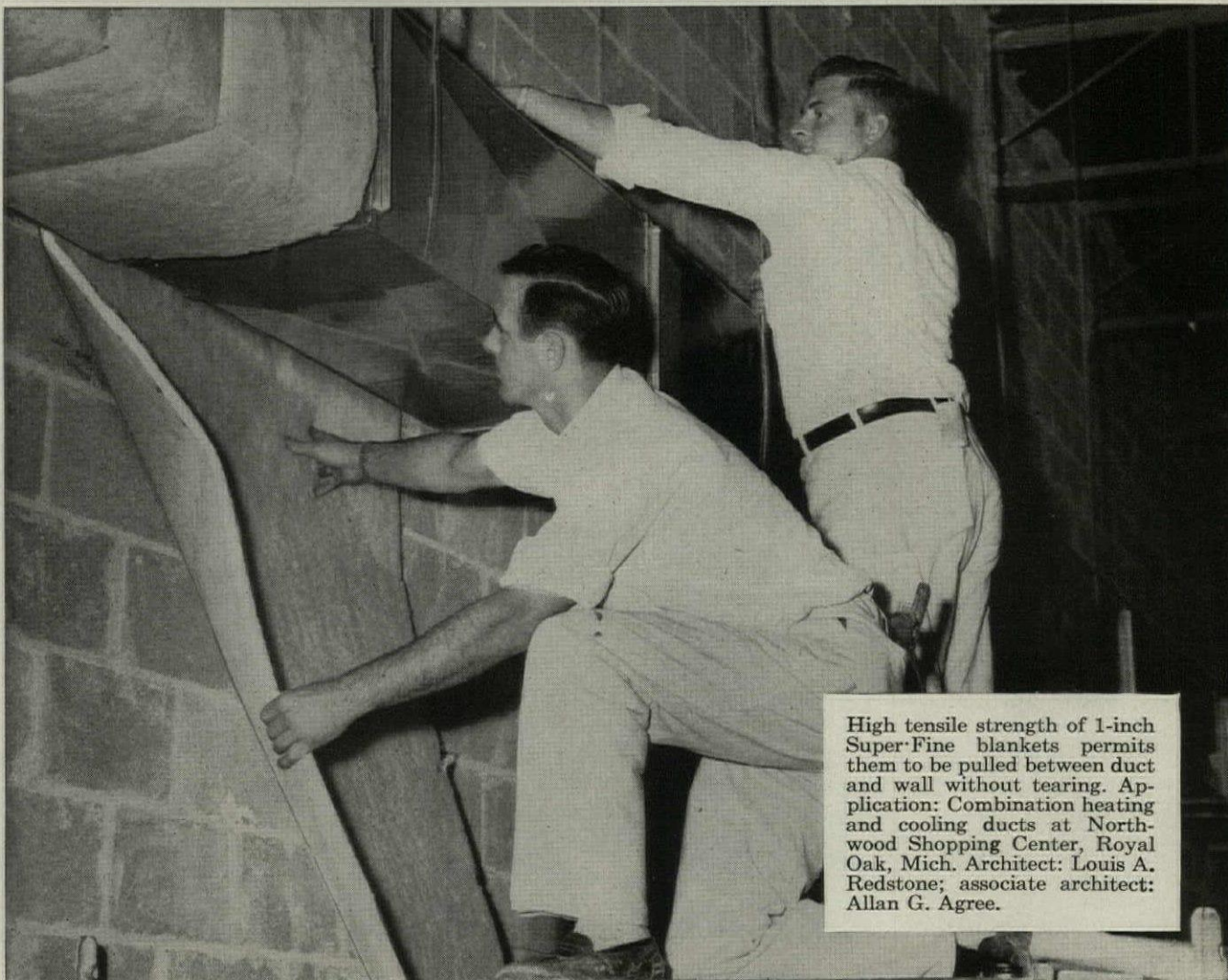
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High tensile strength of 1-inch Super-Fine blankets permits them to be pulled between duct and wall without tearing. Application: Combination heating and cooling ducts at Northwood Shopping Center, Royal Oak, Mich. Architect: Louis A. Redstone; associate architect: Allan G. Agree.

New shopping center benefits in 3 ways with efficient Super-Fine duct insulation

Like architects Louis Redstone and Allan Agree, you will find that L·O·F Glass Fibers' Super-Fine duct insulation offers three important advantages to your clients . . .

1. High insulating efficiency. Super-Fine's long, fine glass fibers form millions of dead air cells, effectively reducing heat loss or gain.

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organic glass fibers will not support combustion, absorb moisture, rot or decay.

3. Swift, money-saving installation. Lightweight Super-Fine blankets are pleasant to handle; cut easily with an ordinary knife. Without precision measuring or fitting, they were simply wrapped around adhesive-coated ducts and secured with light-gauge wire. Strong and resilient, they were pulled between wall and duct—were fitted readily

into irregular and hard-to-reach places.

Super-Fine is also used as duct liner to reduce sound in air-conditioning ducts. It is an excellent sound absorber, especially in the high-frequency range.

FREE FOLDER—Shows how L·O·F Glass Fibers' Super-Fine can benefit *your* clients, write: L·O·F Glass Fibers Company, Dept. 60-26 1810 Madison Avenue, Toledo 1, Ohio.



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*Pittsburgh Glass lets the light in
... and the beauty, too!*

In this dramatic new high school at East Hartford, Conn., just about every room boasts a huge, glass window-wall. The daylighting is superb, and so is the view—two important considerations if you want fresh, alert minds.

The cluster-plan buildings are connected with *glass-enclosed* walkways that are bright and cheerful, while offering complete protection against the elements. But look at the gymnasium to see what a

miracle material glass really is. The gym is glazed with large panels of Herculite® shock-resisting plate glass to dispel the gloom. And, since Herculite is heat treated and tempered, it is incredibly strong—a useful property in athletic areas!

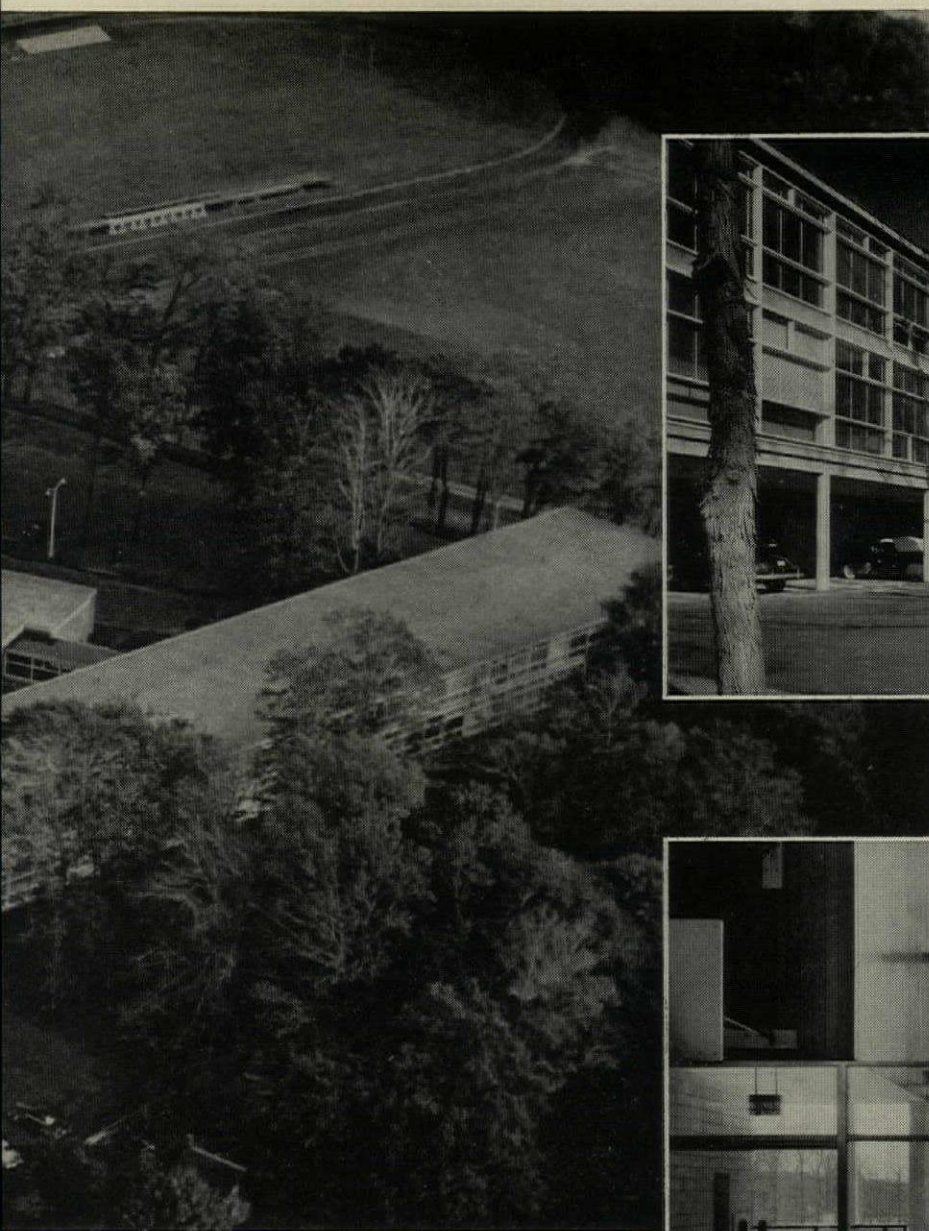
All in all, 50,000 square feet of Pittsburgh Glass were used here. Countless visitors feel that the glass deserves great credit for the daylighting, the view, and the graceful beauty of this new school.



PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

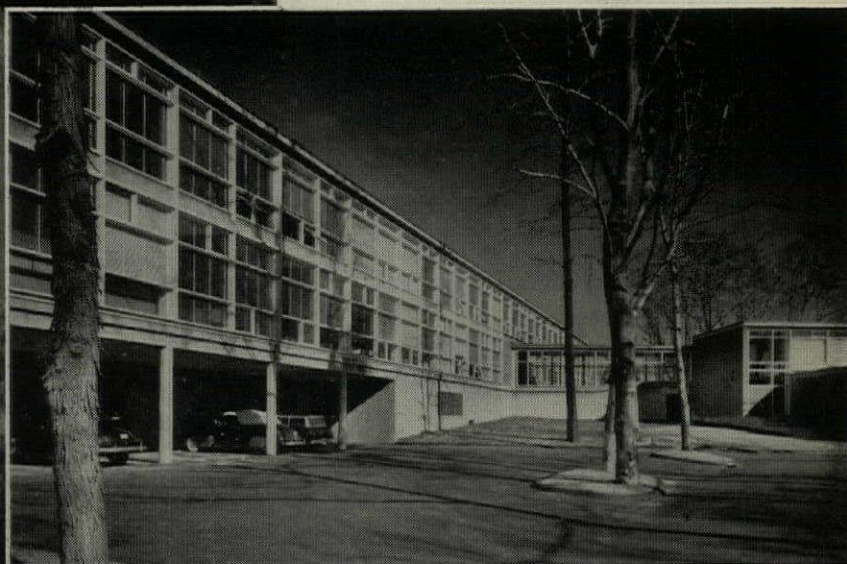
PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

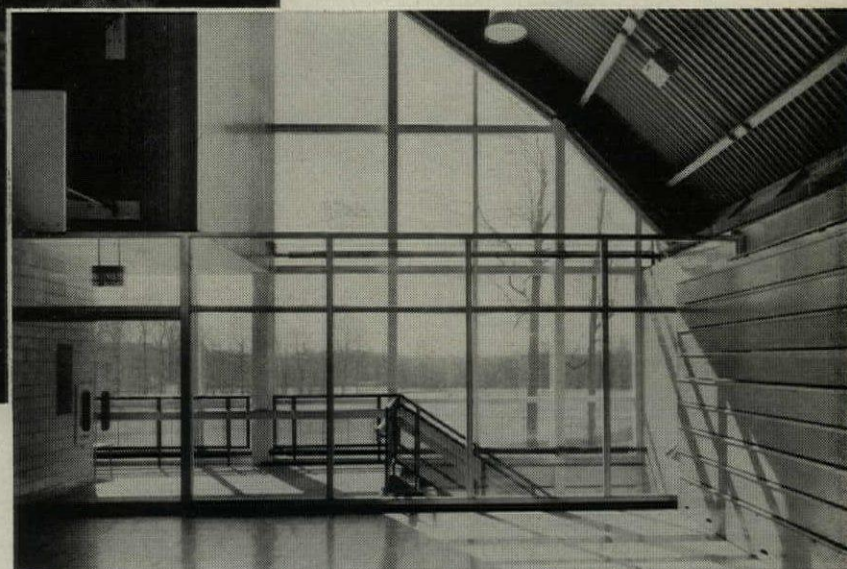


Auditorium is at left, then, (clockwise) the gym, shops, classrooms and office building.

Architect: Nichols & Butterfield, West Hartford, Conn.



Academic wing at left, shops to right. Venerable beech trees were carefully preserved during construction.



Entrance to gym, showing Herculite Glass. Unit at upper left houses ventilating system.

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SWEET'S ARCHITECTURAL FILE

—for information about the use of these famous Pittsburgh Glasses in school construction:

SOLEX®

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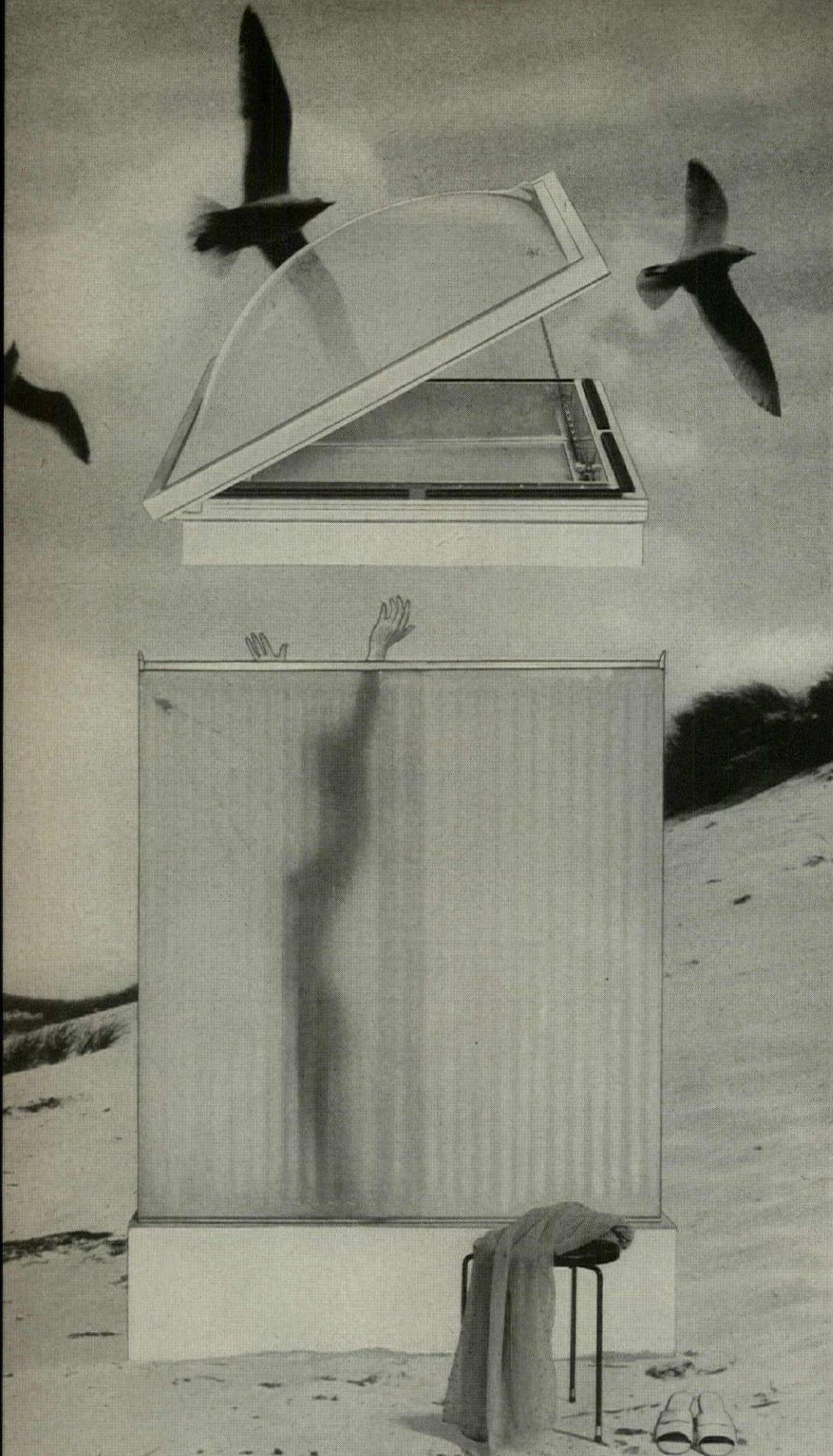
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LETTERS

VIVID COLOR

Forum:

After having read the November issue of FORUM and looking at the series of color reproductions, I remember having once read these famous lines of John Ruskin:

"When we build let us think that we build forever. Let it be such work as our descendants will thank us for, and let us think as we lay stone on stone that a time is to come when those stones will be held sacred, because our hands have touched them and that men will say as they look upon the labor and wrought substance of them, 'See . . . this our Fathers did for us.'"

HOWARD R. DAVIS
Assistant to the vice president
Glen Gery Shale Brick Corp.
Harrisburg, Pa.

MILE HIGH

Forum:

Reports are coming in to me from various parts of the country concerning your excellent article on the Mile High Development in Denver (AF, Nov. '55).

I would like you to know that from personal experience I have knowledge of how much good your magazine is doing in the related fields of architecture and real estate.

WILLIAM ZECKENDORF
New York, N.Y.

CROW ISLAND REVISITED

Forum:

In reading your article about Crow Island School (AF, Oct. '55) I missed reading about the man who initiated the program and was responsible in great part for facilitating the research and guiding the progress of its development. The man was Dr. Carleton W. Washburne, superintendent of schools at the time and now director of Teacher Education and Graduate Studies at Brooklyn College.

It was good to have this article refresh our memory of the school. All the fine work you are selecting for publication is helping the profession and the clients very much.

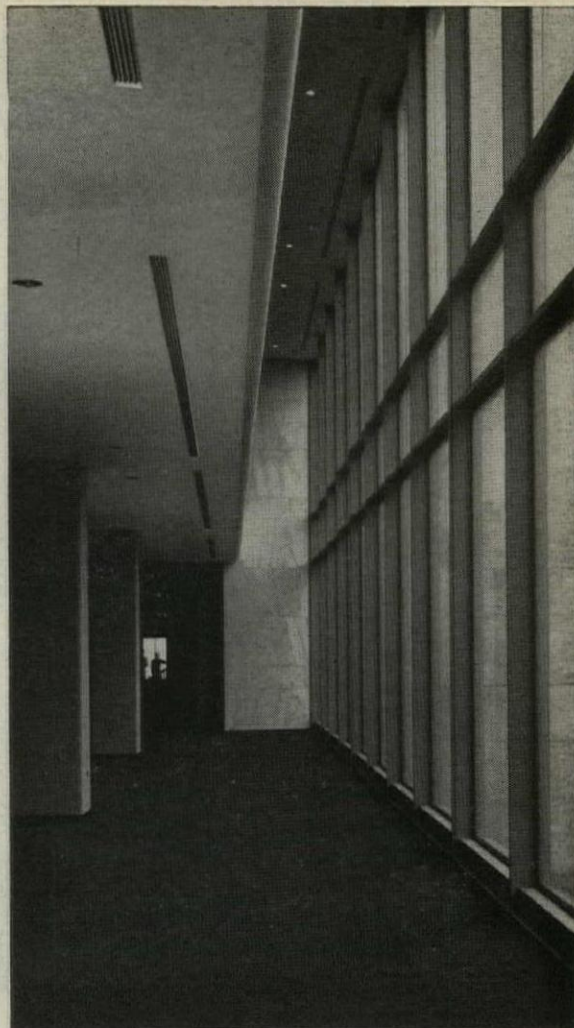
ALFONSO IANNELLI
Iannelli Studios
Park Ridge, Ill.

HYPERBOLIC PARABOLOIDS

Forum:

The formulas given in the article on Catalano's hyperbolic paraboloids (AF, Nov. '55) are the fundamental formulas which allow the determination of the thickness of the shell. The thrust and the shearing stress in the boundary beams are also simple to evaluate. It is not so easy, however, to compute thermal deflections and

continued on p. 62



Design fundamentals of the **ALL-AIR HIGH VELOCITY** distribution system

By F. J. KURTH

Vice President of Engineering

Anemostat Corporation of America

A national survey reveals that today, more than ever, engineers are studying, learning and using high velocity-high temperature differential air distribution. Here is a brief discussion of the advantages of the all-air high velocity system over conventional and mixed cycle (air and water) systems.

1. No Coils — No Clogging — No Odor—There are no coils in the all-air high velocity units. Damp coils collect lint and emit dank odors, and the coils must be cleaned periodically.

2. No Individual Fans — Filters — or Electric Motors — The all-air units operate entirely with air which is processed in the main equipment rooms. The 100% induction units utilize the kinetic energy of the high velocity air to mix primary air with the room air.

3. No Conflict of Trades—The all-air units are installed by the sheet metal trades only.

4. More Effective Use of Outside Air in Spring and Fall—More primary air is delivered to the all-air units than to induction coil units. This allows the engineers to operate in the Spring and Fall on outside air and thereby save refrigeration.

All-air high velocity units offer scientific air diffusion. Each high velocity unit is provided with an aspirating or high induction type air diffuser which is scientifically designed to diffuse air without drafts. Each unit can be pressure balanced by an easy-to-operate balancing device and a calibrated orifice. In fact, the Anemostat all-air high velocity system can be balanced more accurately than other systems and in less than half the time required to balance a low velocity system.

High velocity units require practically no maintenance after installation. They have valves of the non-corrosive, die-cast, "rocket-socket" type, which are patented by the Anemostat Corporation of America. All units can be adapted for the following variations:

1. Single duct for zone control or individual thermostat or manual remote control.
2. Dual duct for thermostatic control or any other type of control.
3. Single or dual duct units with the diffuser fastened to the unit, or remote from the attenuating unit.
4. Under-the-window, sidewall or ceiling type installations.
5. Can be provided with standard aspirating diffusers or 100% induction type diffusers.
6. Induction type units handle temperature differentials up to 33° below ambient.

Selection Manual Contains Data on High Velocity Units

New Selection Manual 50 gives extensive selection and application data on high velocity all-air distribution systems. Write on your business letterhead for Selection Manual 50 to the Anemostat Corporation of America, 10 E. 39 Street, New York 16, New York.



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*provides beauty, color and wear
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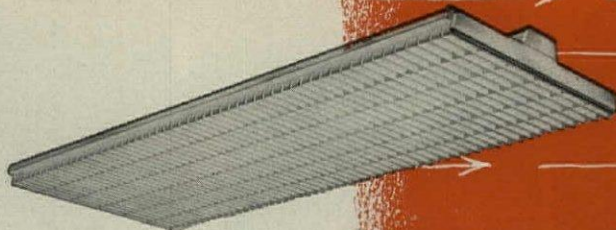
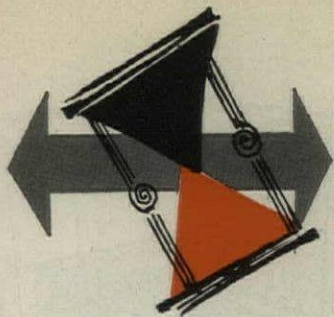
Available in a wide range of marbled colors, J-M Terraflex vinyl-asbestos tile is ideal for restaurants, public areas, schools, hospitals . . . wherever reliable floor service, long-wearing beauty and long-time economy must be combined.

For complete information about Terraflex vinyl-asbestos floor tile, write Johns-Manville, Box 158, New York 16, N.Y.



See "MEET THE PRESS"
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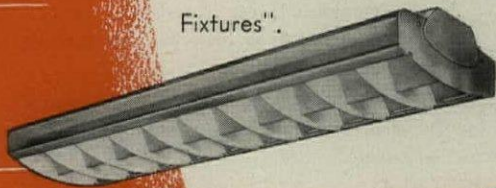


LET'S LOOK BACK INTO THE FUTURE!

Looking backward sometimes gives a clear indication of what the future holds. Take the lighting industry. When one company stands out because of its impressive record of leadership, you can be certain that this company will set trends in the years ahead.

We at Smithcraft are proud of the past, because it **does** reveal the imposing number of developments which we introduced to the industry. Some are listed on this page . . . all are reflected in the reputation we believe we've gained as the leader in the design and manufacture of "America's Finest Fluorescent Fixtures".

We're continually "looking forward"! We've more than doubled our facilities and production area to over six acres of floor space in active use. Our design and production departments constantly anticipate the lighting needs of the future. This policy of continuous progress assures that Smithcraft will always be identified as "America's Finest Fluorescent Fixtures".



DEVELOPMENT of shallowness in fixture design by dropping fixture housing between lamps.

SMITHCRAFT LOUVERLITE

DEVELOPMENT of wide-louvered fixture, creating large "area-of-light" source — over 24 square feet.

SMITHCRAFT DIRECTOR

DEVELOPMENT of one-piece canopy and stem set eliminating necessity of fixture strap.

SS105 STEM SET*

DEVELOPMENT of quick-release louvers, incorporating built-in release from either side.

SMITHCRAFT DUO-CAM* HANGERS

DEVELOPMENT of intersection-welded louvers, an exclusive welding process, resulting in unequalled rigidity and stability.

SMITHCRAFT EGG-CRATE LOUVER

DEVELOPMENT of transverse uplighting*, providing even, glare-free illumination without "hot-spots".

SMITHCRAFT DAYLITER, NORTH STAR

DEVELOPMENT of simplicity of troffer installation devices, including exclusive Aligner Hanger*, introducing unequalled flexibility of adjustment.

SMITHCRAFT ARCHITECTURAL TROFFER

DEVELOPMENT of overall lighting system as a completely integrated lighting fixture.

SMITHCRAFT AREA ILLUMINATION

DEVELOPMENT of new industrial design featuring new fixture width (over 16"), uplighting of over 20% and a high coefficient of utilization.

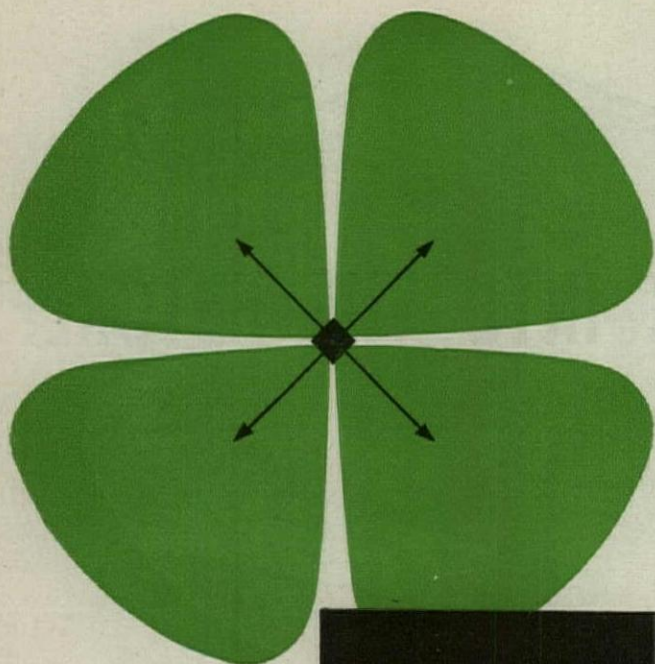
SMITHCRAFT A.L.S.

*REG. U.S. Pat. Nos. 2,459,034 - 2,559,640 —
(Re-issue) 23,485 - 2,597,875

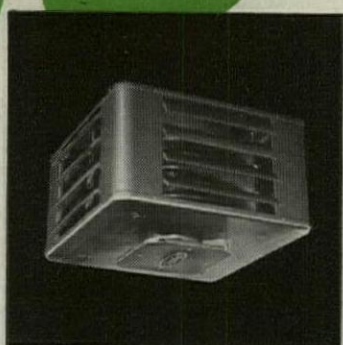


The current Smithcraft catalog is a compilation of the newest and most functional lighting fixtures produced today. Write for your copy.

Smithcraft
LIGHTING DIVISION
CHELSEA 50, MASSACHUSETTS



CHECK THE "CLOVER LEAF" FOR SPREAD!

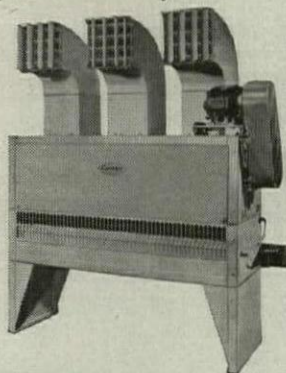


Carrier's new 4-way Unit Heater is the only one with a "clover leaf" pattern of air diffusion. You can hang one of these units in the center of a building up to 100-feet wide and spread heat all the way to the four walls.

Heat goes farther. You save on installation and operating costs. Gives coverage of 3 conventional, fixed-outlet projection unit heaters.

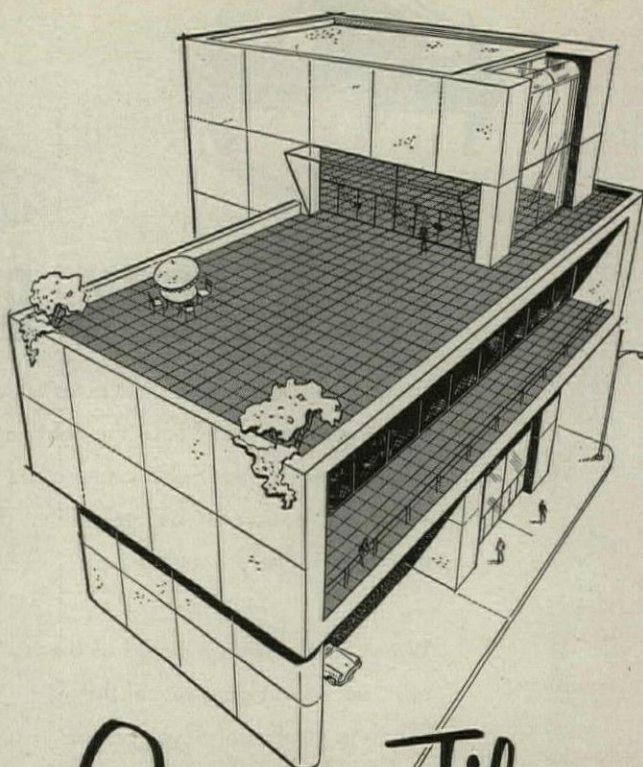
The new 4-way Carrier Unit Heater, for steam or hot water, comes in 8 sizes—from 55,000 to 600,000 Btu/hr. You'll find your local jobber-distributor listed in the Classified Telephone Directory.

Carrier Makes a Complete Line of Unit Heaters, including the versatile heat diffuser shown here. Can be floor mounted, vertically or horizontally suspended. Sizes: 80,000 to 1,620,000 Btu/hr. With over 50 years' leadership in temperature control, *Carrier knows heating!* Carrier Corporation, Syracuse, New York.



Carrier

air conditioning • refrigeration
industrial heating



Quarry Tile outwears ALL other types of flooring

■ When all is said and done; what is the most important feature of a floor? We think that you will agree that it's wearing quality.

When you specify Summitville Quarry Tile, you specify lifetime durability without fading or deterioration in addition to these plus features.

INHERENT BEAUTY—Summitville Quarry Tiles are famous for consistent, deep, rich color.

WEATHER-PROOF—Once properly installed, Summitville Quarry Tiles are frost-proof, water-proof, and will not crack or fade...equally "at home" inside or outside.

SANITARY—Quarry Tile is acid-resistant and will not spot or stain.

MAINTENANCE-FREE—No other flooring material requires less maintenance. Sweep it...damp mop it...and original beauty is restored. Never needs waxing.

For the full Quarry Tile story, as well as estimates, check the Yellow Pages of your telephone directory for "Tile Contractors—Ceramic."



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amazing

- long lasting
- non-flammable

super HIL-SWEEP

makes dirt and dust disappear!

Magnetically attracts dirt and dust, holds it to the mop. No kick-up of dust, to re-settle later. Super HIL-SWEEP is easy to use. Just spray or sprinkle it on mop the night before. Penetrates evenly into cotton wicks. Stays in the mop without build-up; just shake mop to release dust. Makes daily maintenance fast, simple, effective.

- **Saves Frequent Scrubbings**

Super HIL-SWEEP picks up the dirt before it has a chance to grind in. Leaves the surface dust-free, with renewed lustre.

- **Formulated for Asphalt Tile—**

Safe for any surface.

- **Fire-Safe, Too**

Will not freeze—yet has no flash point.

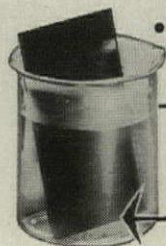
No fire hazard in use. No spontaneous combustion of mop or dressing in storage.

- **Keeps Your Floor Slip-Safe**

Keeps a safe floor safe—does not affect the non-slip properties of your floor.

- **Long-Lasting**

Super HIL-SWEEP evaporates very slowly; stays in the mop. Sweeps entire area without re-treating mop.



Make This Test Yourself—
24-hour dunking in 100%
Super HIL-SWEEP does not
injure Asphalt Tile!



The Hillyard Maintaineer®
is "On Your Staff, Not
Your Payroll". Ask him
for expert advice on your
floor problems. Serves you
from Hillyard Branch Of-
fices in Principal Cities.

**ST. JOSEPH,
MISSOURI**
Passaic, N. J.
San Jose Calif.

Branches in Principal Cities

FIND OUT HOW ECONOMICAL Super HIL-SWEEP CAN BE. WRITE TODAY

HILLYARD, St. Joseph, Mo.

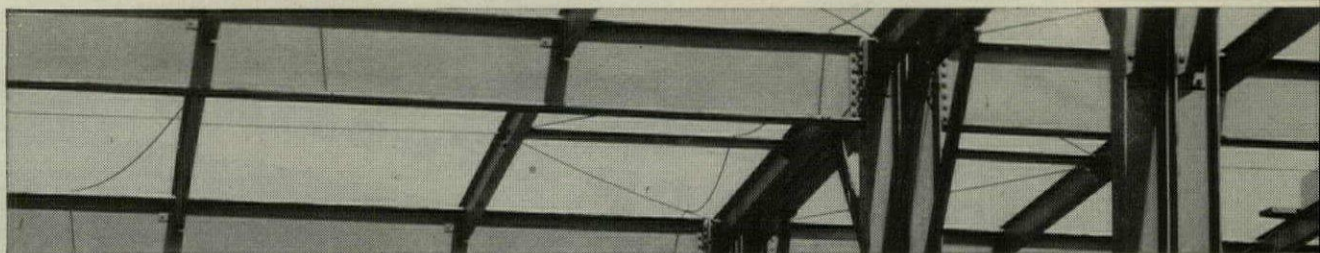
Without obligation, please have the Hillyard Maintaineer nearest me show how New Super HIL-SWEEP will save my floors and save me money.

Name.....

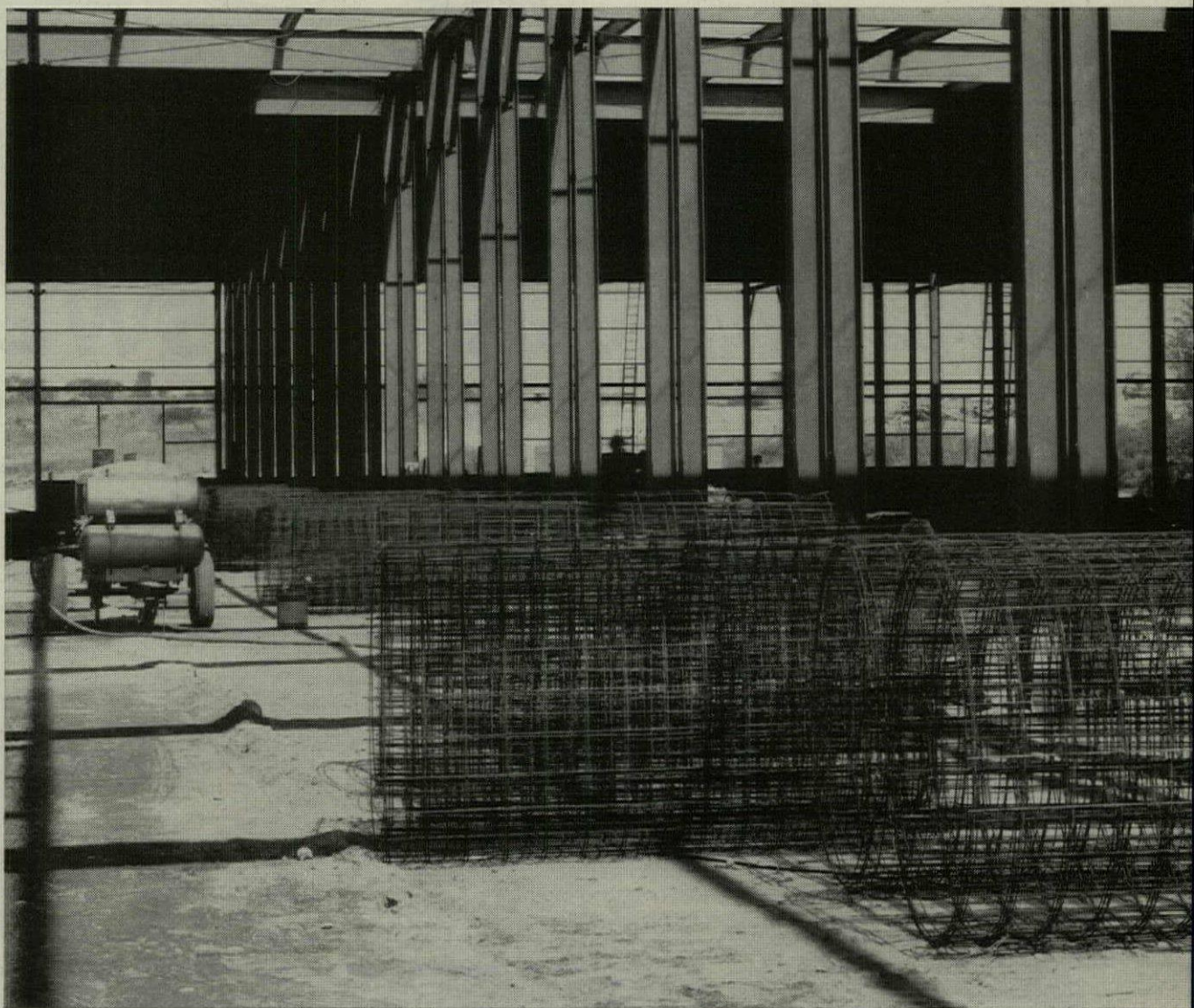
Institution.....

Address.....

City..... State.....

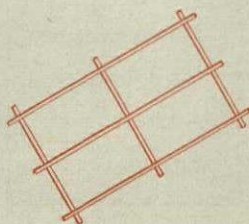


How WELDED WIRE FABRIC



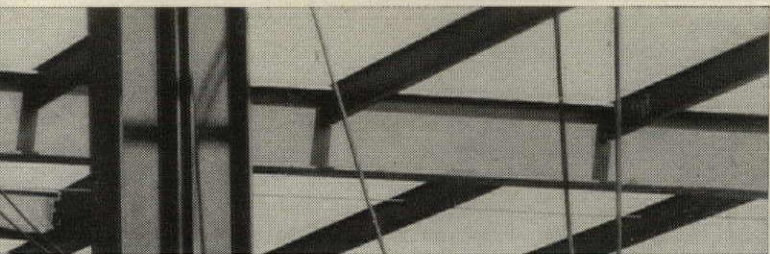
GET A JUMP ON THE WEATHER

*Order your
Wire Fabric NOW!*

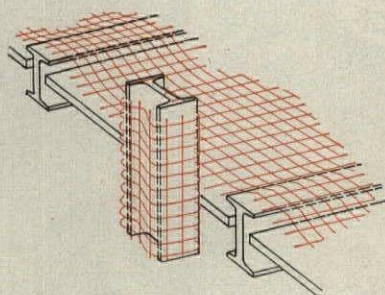


When the weather breaks next spring, you want to dig in *at once* on all important construction jobs. You will need plenty of American Welded Wire Fabric on hand ready for immediate use.

The best way to be sure of having enough is to stock up *now* on the sizes and styles you will use. Get in touch with your local supplier today.



speeds up building construction



IN SHORT-SPAN concrete floors, you just unroll American Welded Wire Fabric reinforcement into place and let it droop continuously from beam to beam (see ACI Building Code, Sec. 505b). The long prefabricated rolls guarantee continuity of reinforcing action and speed up installation.

American Welded Wire Fabric takes less steel too. It is allowed a working stress about 40% higher than ordinary reinforcing materials (ACI Building Code, Sec. 306). As a result you get the needed strength in reinforced short-span floors with about 28% less steel area. With American Welded Wire Fabric, you have less material to transport and unload at the job. This cuts labor costs to the bone.

Write to our nearest sales office for complete information.

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USS AMERICAN WELDED WIRE FABRIC

UNITED STATES STEEL

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(You know they do!)



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IN ANY BUSINESS... LINEN SUPPLY IS GOOD BUSINESS

LETTERS *cont'd.*

stresses, and these may often be the most important stresses in the roof. One of the interesting characteristics of the Catalano shell is that it is free to breathe: the boundary beams move up and down as much as $2\frac{1}{2}$ " due to thermal variations, but no stresses are developed thanks to the elastic connection between walls and roof. In the Nowicki arena such freedom of movement does not exist and the glass walls are rigidly connected to the inclined arches by numerous columns. Catalano found a brilliant solution to this problem, which should be imitated in similar cases.

It is to be hoped that the dramatic lesson on the potentialities of hyperbolic paraboloids given by Catalano will be learned by American architects and engineers. When I tried to propagandize shells 16 years ago I was told that our economy was not adapted to this type of construction. Today our economy is ripe and a flowering of these beautiful and versatile structures only waits for the enthusiastic acceptance of the American architect.

MARIO SALVADORI
Dept. of Civil Engineering and Engineering Mechanics
Columbia University
New York, N.Y.

Forum:

Your article "A New Way to Span Space" (AF, Nov. '55) is very interesting to me, a statistician. We sometimes use the hyperbolic paraboloid in regression analysis. In our class in correlation analysis at the University of North Carolina we called the regression equation a linear joint function. One of my students, Barclay Jones, who is also an architect, constructed models of this and other types of functions. He was immediately impressed with its architectural potentialities.

DUDLEY J. COWDEN
Professor of Economic Statistics
University of North Carolina
Chapel Hill, N.C.

PROGRESS WITH MARBLE

Forum:

As a member of the marble industry and president of the National Marble Dealers Assn., I congratulate you on the publication of your article entitled "Progress with Marble" (AF, Dec. '55). It was brief, it was to the point, it stimulated, it suggested ideas to the industry and it left one with the feeling that there was going to be much more to come from the marble industry itself and much more to come in the way of articles in FORUM.

THEO. R. HIDDING, president-treasurer
Twin City Tile & Marble Co.
Minneapolis, Minn.

FLATTENED-OUT HOSPITAL

Forum:

We would like to explore some of the critical points raised in your discussion of

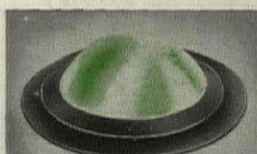
continued on p. 64

Lighter weight . . . Lower cost . . . Leak proof

Consolite

EASIER TO INSTALL ON ANY ROOF

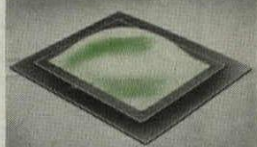
**DOUBLE
DOME
SKYLIGHTS**



CONSOLITE Model "A"—Round. Available in 3 stock sizes—18" x 6"—24" x 7" and 36" x 9".



CONSOLITE Model "C"—Rectangular. 2 stock sizes—18" x 36" x 6"—18" x 72" x 6". Custom sizes also available.



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MODELS**



**CURB-MOUNTED
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New, Reinforced

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Actually Diffuses Light . . . Eliminates Condensation

Consolite's exclusive double-dome construction gives *double* protection from damaging leaks . . . *double* impact and load strength . . . *double* diffusing value! In brief, to *double* the effectiveness of top-lighting in schools, commercial or industrial buildings, or residences, specify Consolite Skylights.

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Gentlemen:
Please Rush us complete Set of Specification Forms
and Literature.

Name.....

Address.....

City.....State.....

☐ Architect

☐ Contractor

☐ Builder

**When you're figuring
pipe specifications
for schools—Remember...**

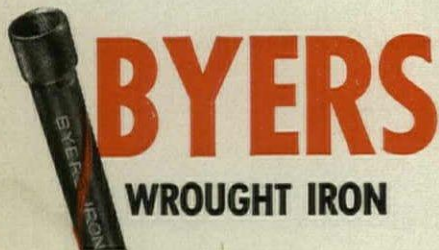


**"IT'S BETTER TO
DO IT RIGHT
THAN TO DO IT OVER"**

This poor boy doesn't know how to add . . . he's like a lot of people who make the mistake of using the wrong piping materials. They forget that the *real* cost of the installation is first cost *plus* repairs . . . and that the only real yardstick of economy is *the cost per year of service*.

The smart people, those who really know their arithmetic use BYERS Wrought Iron pipe for corrosive applications. In the home . . . commercial and institutional buildings . . . in plants and factories. Remember—it's never good economy to do a job over. By using Byers Wrought Iron pipe to begin with, your piping problems are solved from the start.

Want a brief, interesting story of the what—why—and where of this durable material? Ask for booklet, "The ABC's of Wrought Iron." Write: A. M. Byers Company, Clark Building, Pittsburgh 22, Pa.



LETTERS *cont'd.*

the Flattened-out Hospital (AF, Nov. '55).

1. The pharmacy in the basement did not "stray off the reservation"; it serves inpatients only and should be handy to supplies and vertical transportation which in our case is the basement.

2. We always provide dayrooms and gauge their size in accordance with whether the hospital serves long-term or short-term patients. Belleville is a short-term hospital and a 12' x 22' dayroom is quite adequate.

3. The size and equipment of the utility rooms has little to do with the issue of lockers-for-nurses.

4. FORUM's statement that "auxiliary supply points toward the end of the [nursing] unit are omitted" implies that these facilities are unquestionably desirable. Decentralized nursing supplies and services are only planned today at the insistence of the rare administrator as in the Kaiser hospitals in California; we still have no evidence demonstrating the success of the system. Most planners and administrators feel that centralization of supplies and services is more desirable.

5. FORUM states that the "rationale of employee comfort and convenience . . . has not penetrated the hospital." Actually Belleville has a beautiful windowed, air-conditioned employees' cafeteria adjacent to its interior with air-conditioned lockers and lounges.

However, FORUM suggests a refinement worth considering: provision for nurses to relax and smoke without having to leave the nursing unit. It is commonly believed that the public's confidence in a nurse on duty is damaged if she is seen relaxing or smoking. It would seem that a more or less hidden, small sitting room and smoking room for nurses in the nursing unit is desirable.

ISADORE ROSENFELD, *architect*
New York, N.Y.

• 1. FORUM's point: "This [location] would be inadvisable if the hospital offered outpatient services." No criticism of outpatientless Belleville; a hint to planners of horizontal hospitals with outpatients.

2. True, a 12' x 22' dayroom is not as minimum as no dayroom. FORUM's point was that if dayrooms are made small because experience shows they are little used, a restudy of what they ought to provide or whether they are indeed necessary is called for.

3. "Excess" utility cabinet space is where nurses often tuck personal odds and ends in lieu of convenient lockers. Taking away the first without providing the second lowers working conditions.

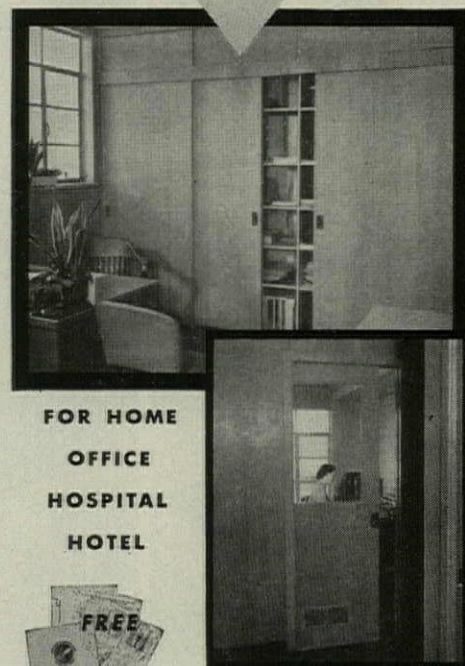
4. Architect Rosenfield's 1952 arguments in favor of nursing floor substations and their relevance to group nursing (AF, Sept. '52) still sound more convincing than Architect Rosenfield's 1955 arguments against the desirability and relevance of substations.

5. Nurses and public are already a jump ahead. Nurses now sometimes have their smoke behind closed doors of sympathetic patients' rooms. Incidentally, the Palo Alto hospital was designed by Isadore & Zachary Rosenfield and Rex W. Allen. Architect Allen's name was inadvertently omitted.—ED.

continued on p. 66

**NEW PORTFOLIO
makes it easy
to specify**

the best!



**FOR HOME
OFFICE
HOSPITAL
HOTEL**



SLIDING DOOR HARDWARE is easy to specify when you use the Kennatrack Architectural Portfolio. This helpful collation of data and scaled detail drawings of the world's finest sliding door hardware saves you time and effort. Detail drawings for residential, business or institutional installations. To complete your reference files, write for free copy of the Kennatrack Architectural Portfolio today.

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Another REINFORCED CONCRETE
BUILDING WITH...

low cost R/C DUCT FLOORS

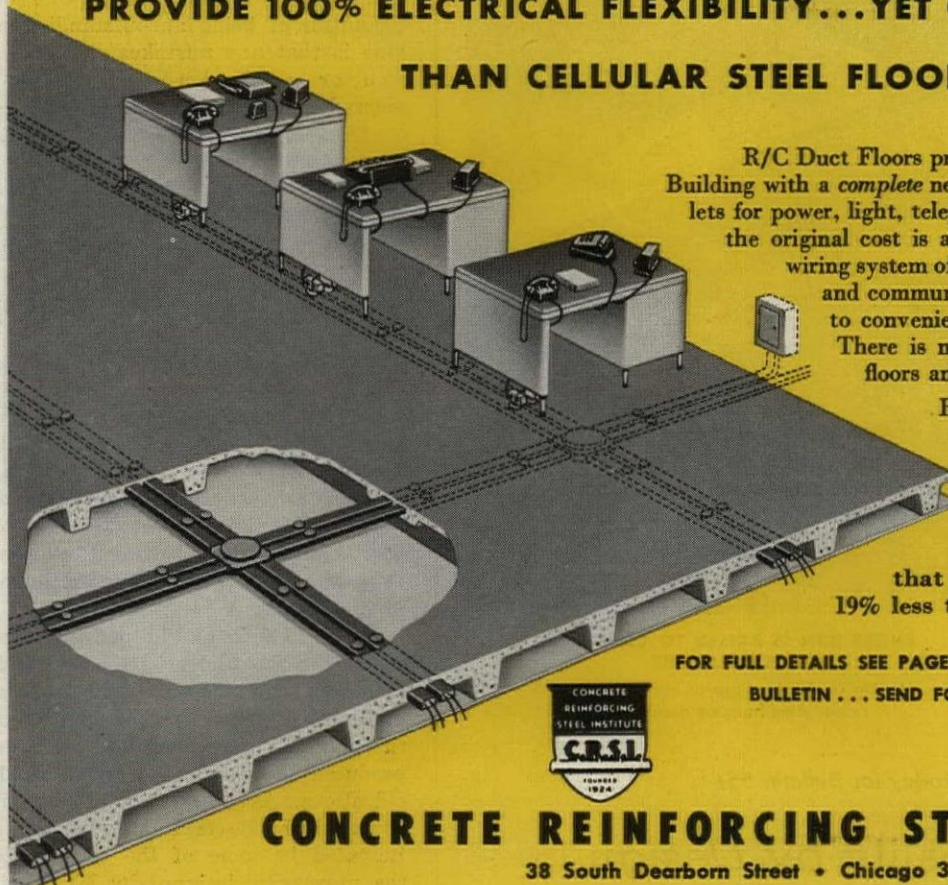


(ELECTRIFIED CONCRETE JOIST FLOORS)

THE EDITORS BUILDING, WASHINGTON, D. C.
Leon Chatelain, Jr., Architect
Beall & LeMay, Structural Engineers
John McShain, Inc., General Contractors



PROVIDE 100% ELECTRICAL FLEXIBILITY...YET COST MUCH LESS
THAN CELLULAR STEEL FLOORS



R/C Duct Floors provide tenants of the new Editors Building with a *complete* network of underfloor electrical outlets for power, light, telephone, and intercom systems. Yet the original cost is about the same as a conventional wiring system of equal capacity. Outlets for power and communications systems can be connected to convenient risers in a matter of minutes. There is no ripping up or drilling through floors and ducts.

R/C Duct Floors consist of *standard* steel electrical distribution ducts set in the *structural* slab of reinforced concrete joist floors... *no expensive fill or topping is needed.*

Cost comparisons showed that R/C Duct Floors cost about 19% less than cellular steel floors!

FOR FULL DETAILS SEE PAGES 10-11 IN NEW 16-PAGE
BULLETIN... SEND FOR YOUR COPY!



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G. S. GRANT, Inc.  *Electrical Contractor*
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May 2, 1955

50% Labor Saving Pays For Premium Lighting

... Florida Contractor Reports on Job Using

GARCY *Speed-Line*® System

PATENT PENDING

Here is the contractor's report on an installation of lighting fixtures in a number of Florida schools: "A study of labor costs shows a saving in excess of 50% compared with previous expense." Money saved on installation more than paid the difference in cost between standard lighting and the finest commercial fixture available, the Garcy VISUALIER.

THIS IS

Speed-Line



FIXTURES ARE PRE-ASSEMBLED AND PRE-WIRED AT FLOOR LEVEL

No separate external mounting channel needed.



ENTIRE RUN IS RAISED TO CEILING AS A SINGLE UNIT

No straining at top of ladders. Fewer stem hangers needed.

GARCY

Send today for Bulletin 551-L.

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In Canada: Garcy Co. of Canada, Ltd., 191 Niagara St., Toronto

LETTERS *cont'd.*

RE ENVIRONMENT

Forum:

Let my voice speak from the wilderness and put in a plea for some consideration being given to the natural conditions. The landscape architect as well as the architect is interested in the fitting of man into his surroundings. While I know that man has created much of his environment, however good or bad, I also believe we could stand some attempt to raise our level of appreciation of nature, as well as education in what is good or bad about our environments.

FORUM is the best in the American field and, in spite of my specialty within a specialized field, I find much of interest and value it highly.

HENRY W. LANG, landscape architect
Division of Beaches & Parks
State of California
San Francisco, Calif.

MISPLACED CREDIT

Forum:

We were pleased to see the fine and factual article in your November issue titled "Atlanta Faces Up to Tasks." We are quite thankful to have had a part in the progress described and were disappointed in not finding the name of our firm carried as architects for the State Highway building pictured in the article.

From the opening of our office in 1936 we have been FORUM subscribers and value it very highly both for its descriptive material and editorial policy. One of the penalties of being an outstanding magazine is that any mistakes either of omission or commission are observed, considered and talked about.

CHERRY L. EMERSON, consulting engineer
A. Thomas Bradbury & Associates
Atlanta, Ga.

Forum:

In the interest of factual reporting, I wish to correct your account of the Ber-toia mural in the Dallas Public Library (AF, Nov. '55).

Mr. Dahl, the architect for the Library, was not the designer of "twenty-odd University of Texas buildings." Since 1948 we have planned and designed 31 buildings amounting to over \$27 million. Indeed, this office has designed every University of Texas building erected in Galveston, Austin and Dallas. During that time Mr. Dahl has not operated for the university in any capacity.

Up to 1948, Paul Philippe Cret was the consulting architect and designed all buildings for the university. Associate architects were employed who followed the plans of the consulting architects and produced the working drawings and specifications. As a member of the firm of Green, LaRoche & Dahl, Mr. Dahl participated in some of the construction at the university designed by Mr. Cret.

MARK LEMMON, consulting architect
University of Texas
Dallas, Tex.

*...the finest structures
rest on*
RAYMOND FOUNDATIONS

HOTEL STATLER • Hartford, Connecticut

GENERAL CONTRACTOR:
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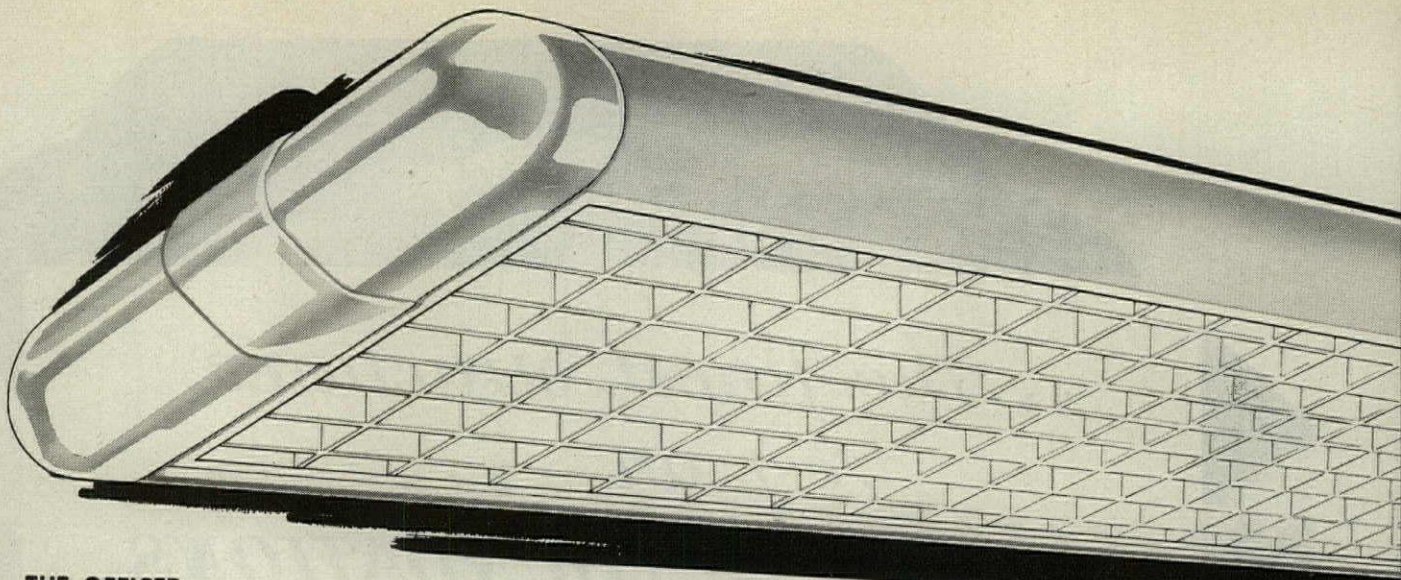
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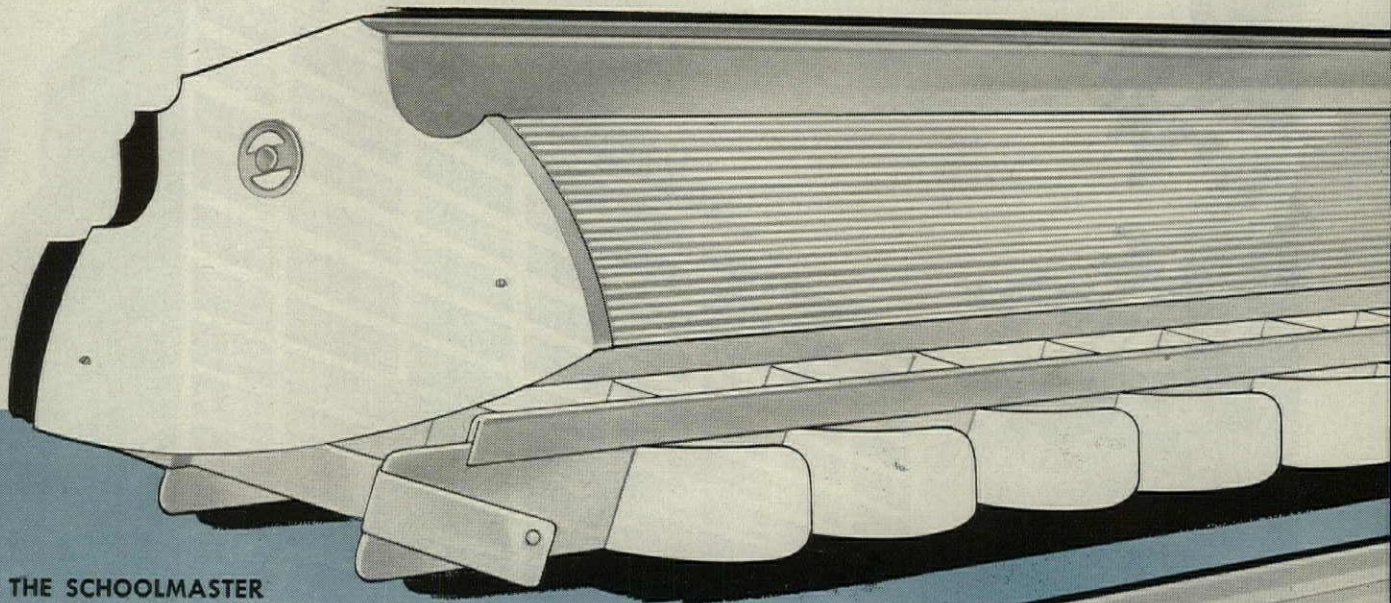
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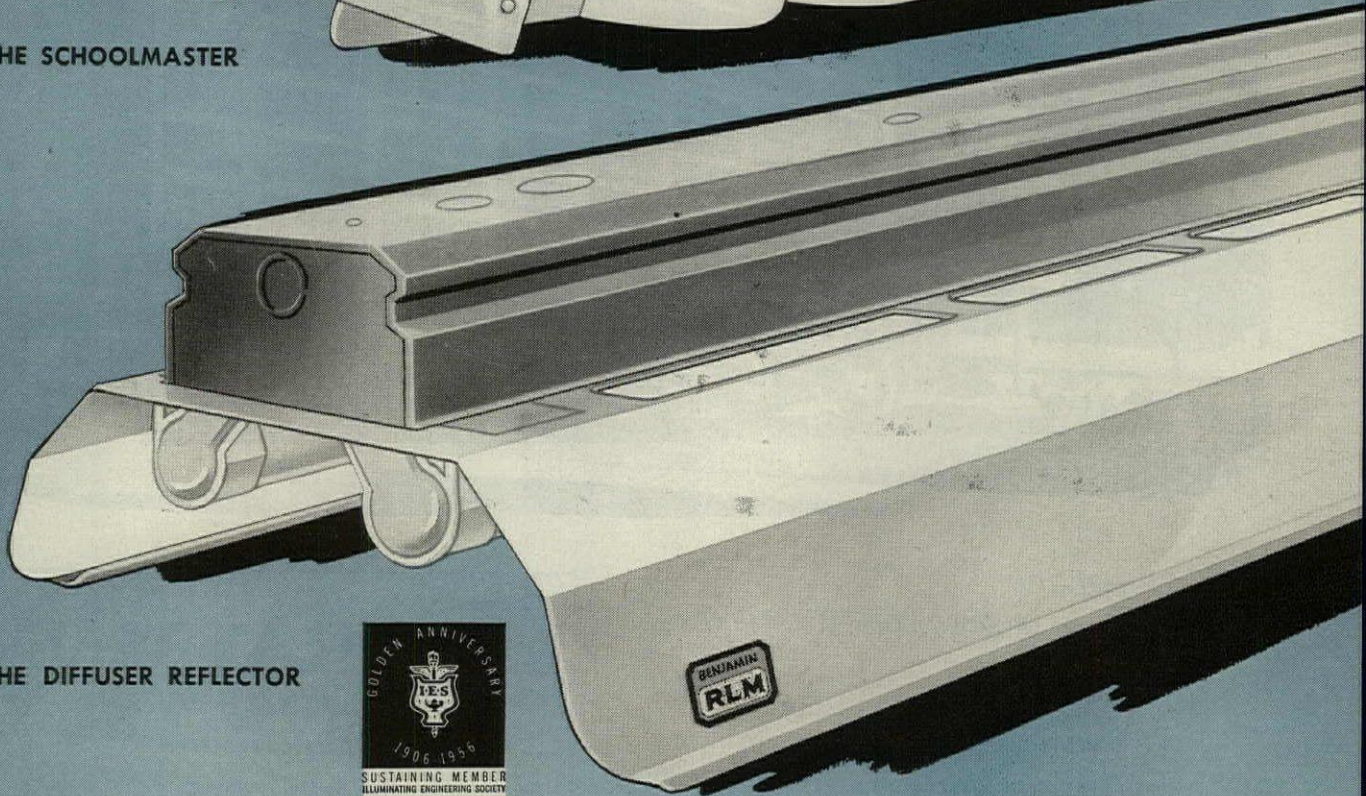
Branch Offices in principal cities of the United States,
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THE OFFICER

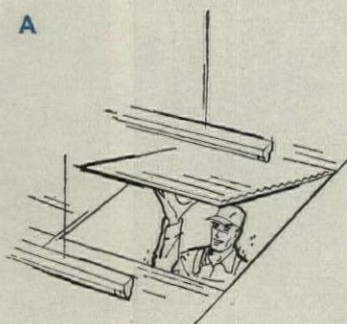
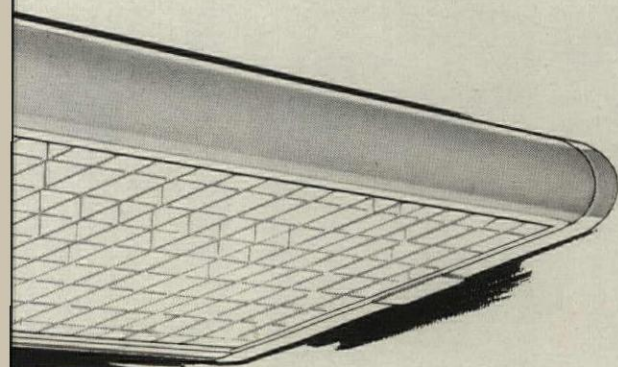


THE SCHOOLMASTER



THE DIFFUSER REFLECTOR

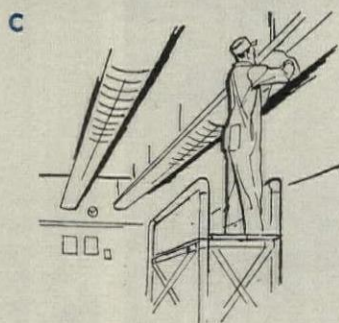




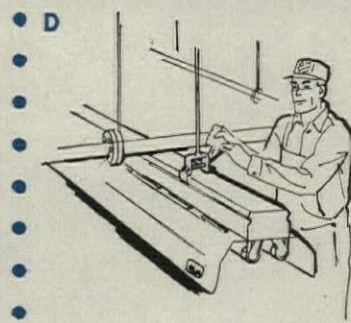
A Low Store Lighting Installation Cost



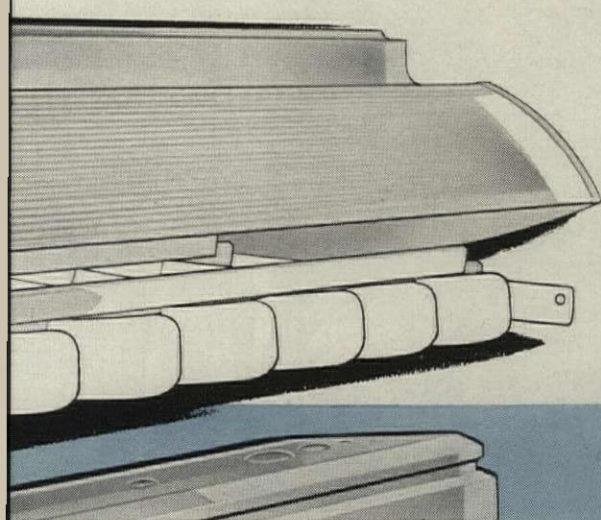
B Low Office Lighting Installation Cost



C Low School Lighting Installation Cost



D Low Factory Lighting Installation Cost



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Simplicity features like these mean
Low Cost from Start to Finish

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B Architectural Treatments are a Breeze with clean-lined units like the *Officer*, featuring a variety of incandescent inserts to help achieve unique effects.

C Trouble-Free Continuous Lines! No special couplings to fool with! Louvered units like the *Schoolmaster* are easily aligned by coupling them end-to-end.

D "Slide" around Ceiling Obstacles! Easy-to-adjust sliding clamp hangers simplify mounting despite ceiling obstructions.

These and many other installation features help to get every Benjamin Lighting System off on the right foot. When you consider them, in addition to the other four major areas of Benjamin superiority, you will see why, "When all things are considered, the Better Lighting choice is Benjamin!"

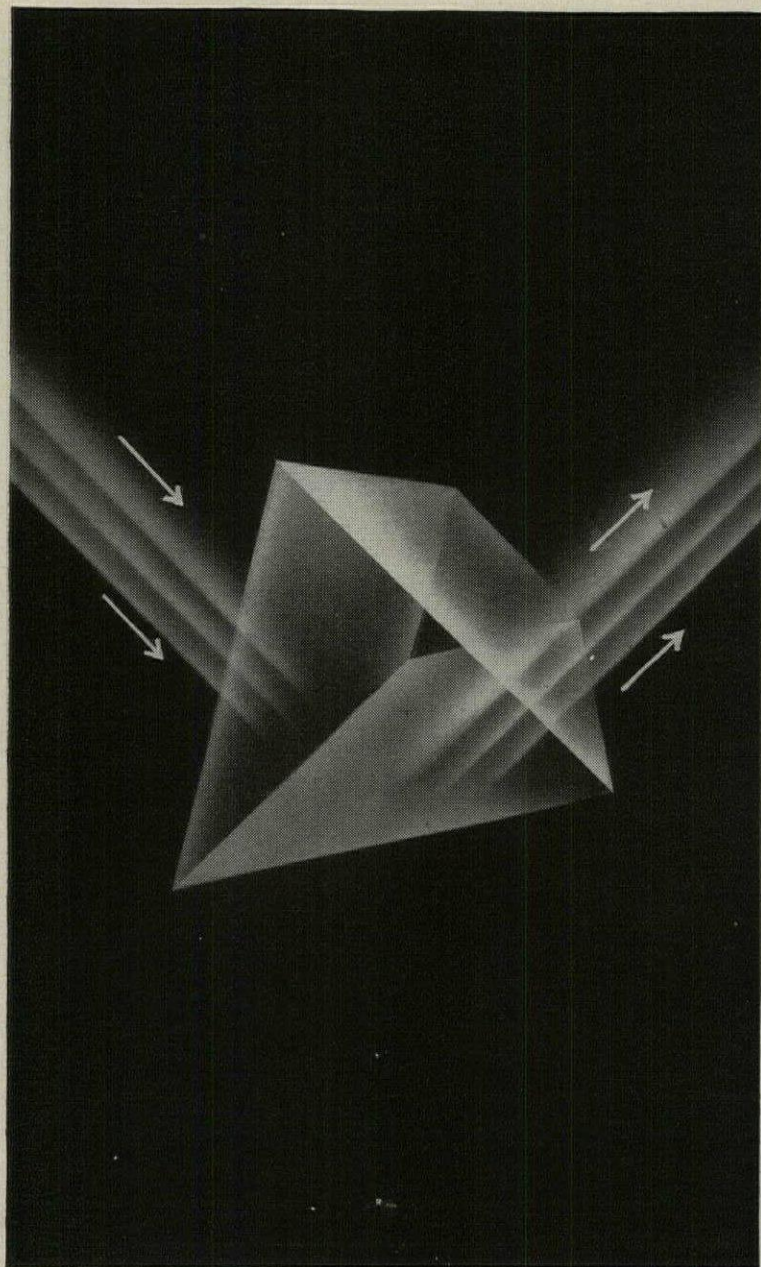
Send for Free Lighting Booklets shown at right! Benjamin Electric Mfg. Co., Dept. YY, Des Plaines, Ill.



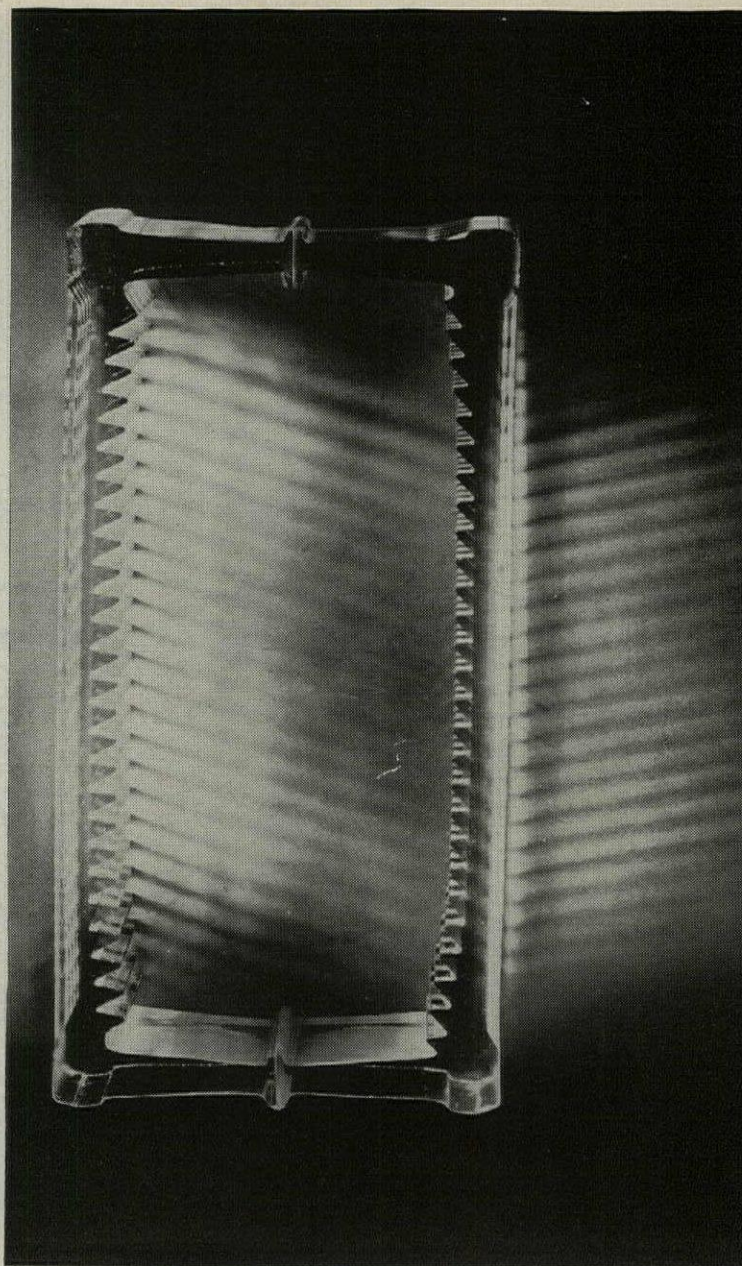
- 1 Specific Units for Every Need
- 2 Precision Construction
- 3 Low Installation Cost
- 4 Minimum Maintenance Cost
- 5 Lowest Over-All Cost

B-10391

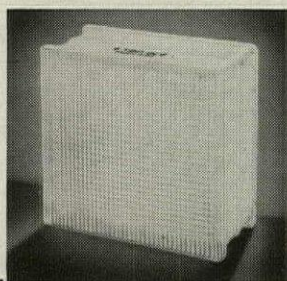
Sold Exclusively Through Electrical Distributors



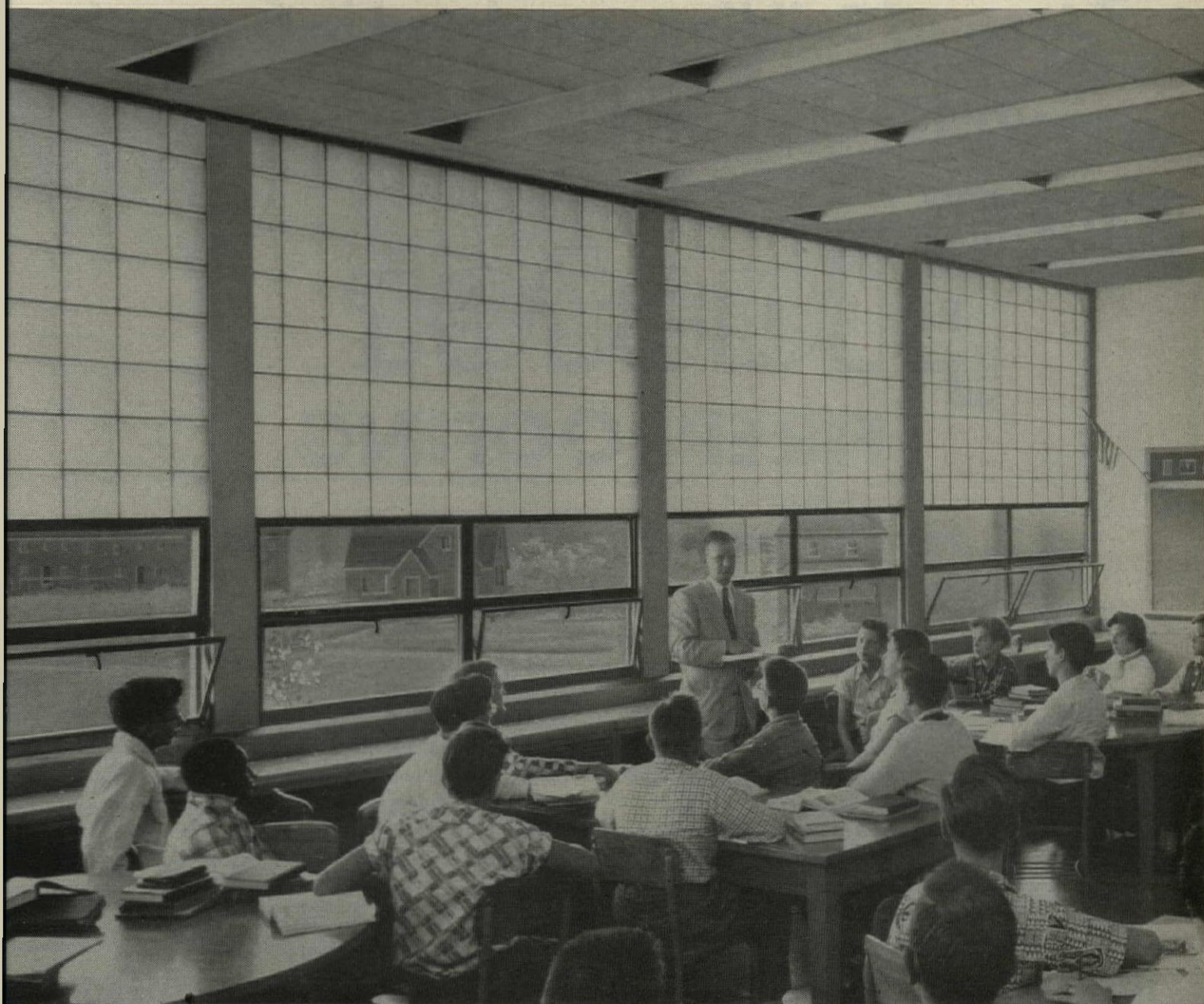
The principle of
the optical prism ...



applied to the design
of Glass Blocks ...



How PC Glass Blocks “discipline” daylight for classrooms is shown in the two illustrations directly above. The familiar light-bending characteristic of the optical prism is utilized in PC *light-directing* Glass Blocks. This is demonstrated in the cut-away section above. Light, entering from the left, is refracted by the internal prisms and directed upward to the ceiling. From here, the light is diffused evenly throughout the room. *Only prismatic Glass*



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**7 Acres of Building completed in 6 months
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...for fire protection up to 4 hours

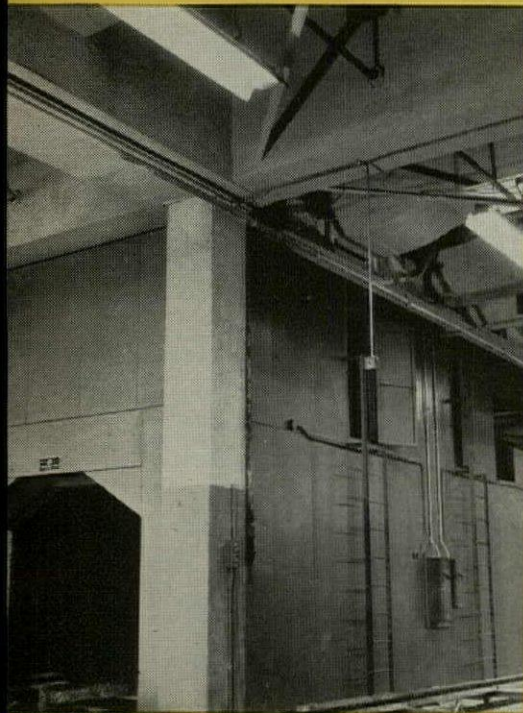
Construction of the Chrysler Division's new Building 41, a two story body paint and finishing plant, involved certain special problems. Contractors were faced with the problem of bringing in materials while the building site was being used for the production of the "Chrysler" Car on a 16 hour production schedule. All construction work had to be done without interruption of this schedule.

Since the second floor contained spray booths and gas drying ovens, the supporting structural steel was fireproofed with a lath and plaster ceiling in order to meet fire protection requirements. In addition, certain

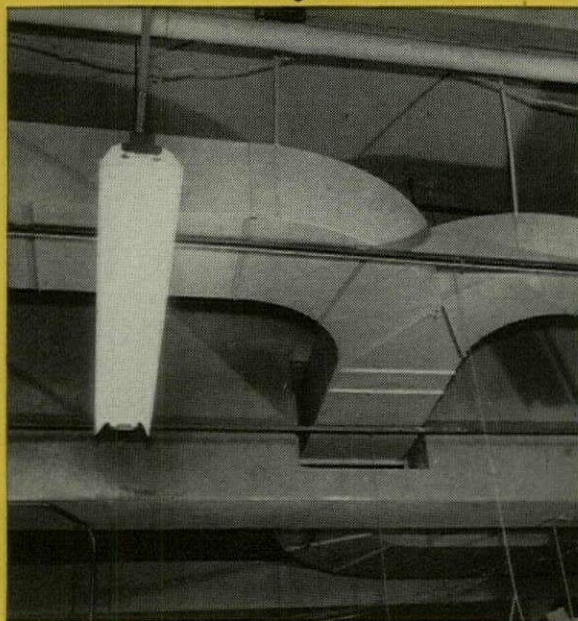
areas of the second floor were cut off the main area by means of fire and smoke baffles.

In less than 16 weeks, working around moving conveyors, mechanical installation, and concrete placing, over 47,000 sq. yards of 1" thick plaster was machine applied on lath. It provided fireproofing for structural steel members up to a 4 hour rating, made appreciable steel savings through a drastic reduction in dead load weight, and assisted greatly in completing this 285 x 1040 foot, two-story building approximately 6 months after steel erection was started.

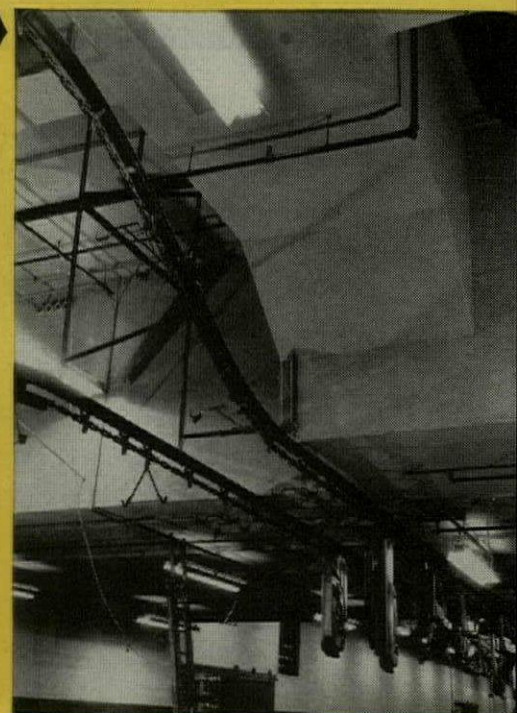
JULY 1



• Shell (or membrane) lath and plaster fireproofing around trusses, columns or beams.

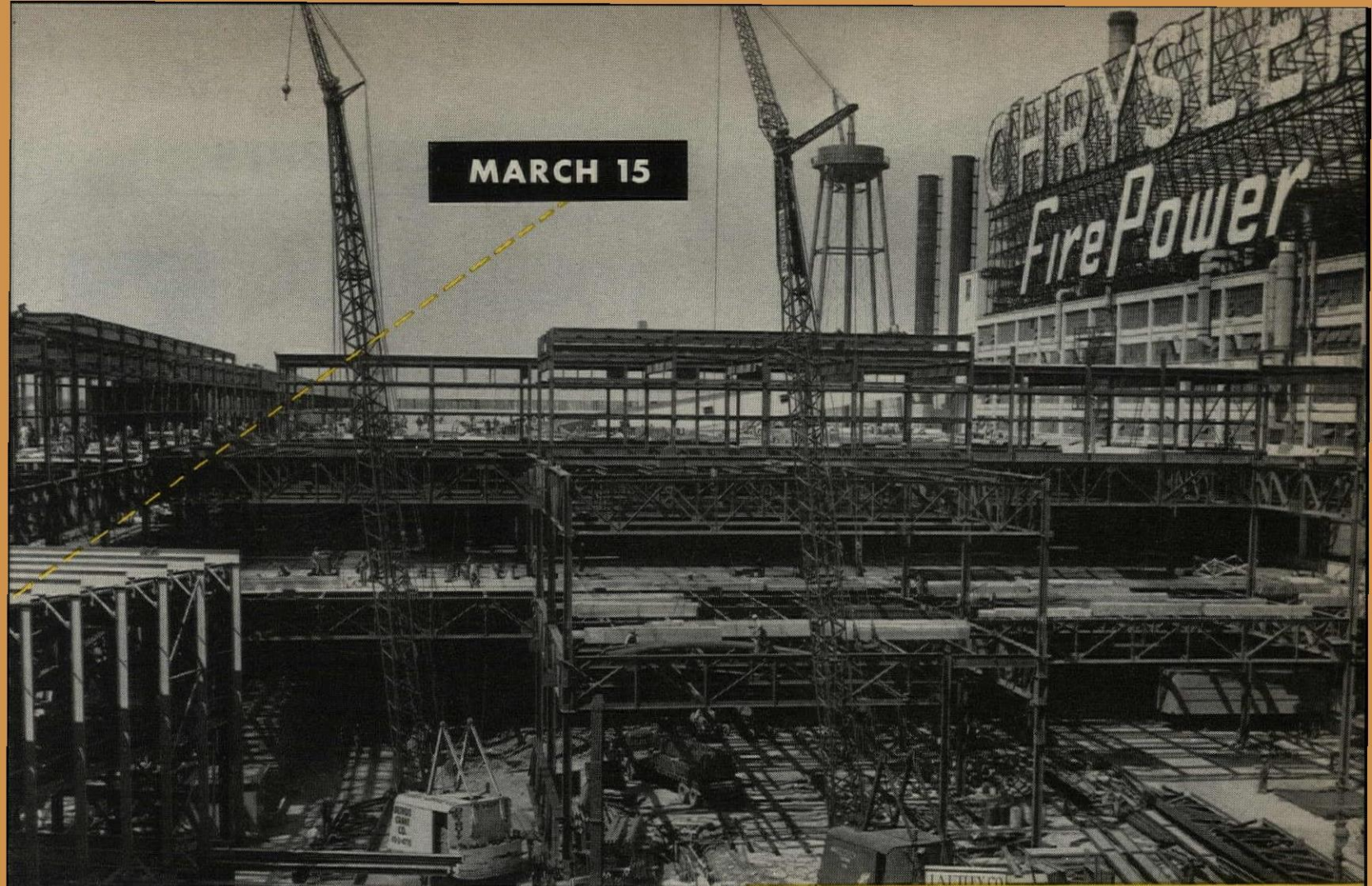


• Open spaces between truss struts used for duct passages have plaster returns to insure complete fire protection for truss members.



• Lath and plaster ceiling protects steel flooring above.

MARCH 15



ARCHITECTS:

Albert Kahn Associated Architects and Engineers Inc., Detroit, Mich.

GENERAL CONTRACTORS:

J. A. Utley Company, Royal Oak, Michigan

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We suggest a thorough reading of the Code of Standard Practices which appears on the back of every certificate. Ask your lathing and plastering contractor for a copy, or write National Bureau for Lathing and Plastering, 1401 K Street, N. W., Washington 5, D. C.

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• *This is the emblem of the National Bureau for Lathing and Plastering. It symbolizes high standards of job performance and responsibility.*

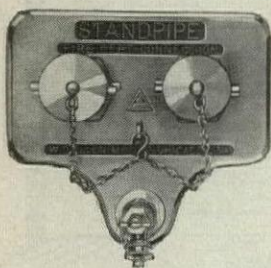
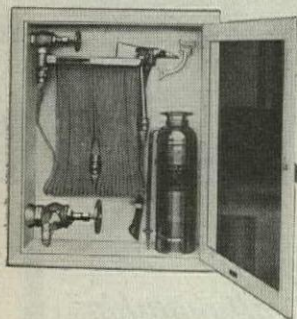


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CHICAGO 6

EXCERPTS



MAYA

Excerpts from the introduction to the book Idea 55 by Industrial Designer Raymond Loewy*

Our desire is naturally to give the buying public the most advanced product that research can develop and technology can produce. Unfortunately, it has been proved time and time again that such a product does not always sell well.

There seems to be for each individual product a critical area at which the consumer's desire for novelty reaches what might be called the shock zone. At that point the urge to buy reaches a plateau, and sometimes evolves into a resistance to buying. It is a sort of tug of war between attraction to the new and fear of the unfamiliar. The adult public's taste is not necessarily ready to accept the logical solutions of their requirements if this solution implies too vast a departure from what they have been conditioned into accepting as the norm. In other words, they will go only so far. Therefore the good industrial designer is the one who has a lucid understanding of where the shock zone lies in each particular problem. At this point, a design has reached what I call the MAYA (Most Advanced Yet Acceptable) stage.

We designers are realists; we like to deal in facts. Here, however, there are no yardsticks, no ways to chart a curve of public reaction to advanced design. Nevertheless, there are a few reasonably well-established facts among all these variables, and they can help us in our thinking. Being an engineer at heart, I have tried to introduce some order into this confused morass of human esthetic behavior—in simplest terms, design acceptance.

As first groping efforts in this direction, here are some of our ideas on the subject (one ought to bear in mind that the conclusions are not necessarily empiric and, while we speak of manufactured products in general, they might apply to the automotive field more particularly):

► Mass production of a successful given

*Wittenborn & Co., New York, N.Y. \$8.50

product by a major company over a period of time tends to establish the appearance of this particular item as the norm in its own field. The public more or less accepts it as the standard look or styling for the particular object.

►Any new design that departs abruptly from this norm involves a variable risk to its manufacturer. The character of this risk has both positive and negative aspects.

►The risk increases as the square of the design gap between the norm and advanced model in the case of a large manufacturer. In plain language, for a big corporation a little style goes a long way.

►The risk increases as the cube of the design gap in the case of a smaller manufacturer. It is more difficult for them to establish a norm for they cannot blanket the nation with products in their own style.

►The consumer is influenced in his choice of styling by two opposing factors: 1) attraction to the new and 2) resistance to the unfamiliar. As Kettering said: "People are very open-minded about new things—as long as they are exactly like the old ones."

►If the design seems too radical to the consumer, he resists it whether the design is a masterpiece or not. In other words the intrinsic value of the design cannot overcome resistance to its radicality at the MAYA stage. There are some constants in the problem: 1) The teen-age group is the most receptive to new ideas. 2) Two unmarried individuals each having high MAYA coefficients have a lower common coefficient as soon as they marry. 3) The older age groups are influenced increasingly by the style opinion of the teen-age group. 4) The wife is often the deciding factor at the time of purchase. 5) The MAYA stage varies according to topography, geography, climate, season, level of income, etc.

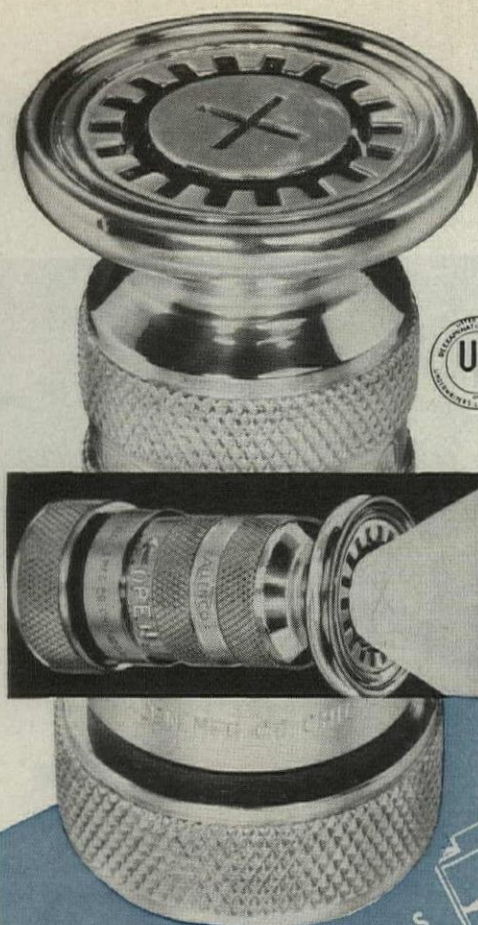
California's architecture

Excerpts from an article by William C. Stewart in the Los Angeles Times

Building is today in one of those important transition periods that come rarely more often than once in a century, and its greatest advances have been made in California.

California architectural design has been far ahead of the rest of the country in

continued on p. 82



FOG NOZZLE

TYPICAL OF

ALLENCO

PRODUCTS,
BETTER
BY DESIGN

Water fog protects user by promptly dispersing smoke and gases, reducing heat, minimizes water-damage and smothers fires. Allenco Fig. 7171 was developed for interior hose units, working on pressures as low as 25 pounds and also over 125 pounds.

SPECIFICATIONS:

Precision machined cast brass throughout; stem and deflector head manganese bronze; oil resistant neoprene packing adjusts for wear; 1½ inch, specified thread; polished brass or chromium finish. (table)

See how it meets the 3 main requirements —

1. Utility —

Listed and approved for class A (ordinary) and Class B (oil, flammable liquids, etc.) fires. Fast "wrist-twist" adjustment from Off through Full Steam, to 60° conical fog. Teeth can't clog.

2. Eye-tility —

Compact "functional" shape; uniform high-polish finish.

3. Economy —

Surprisingly low priced, considering essential precision work; requires no maintenance; serves indefinitely; kills fires that ordinary nozzles can't.



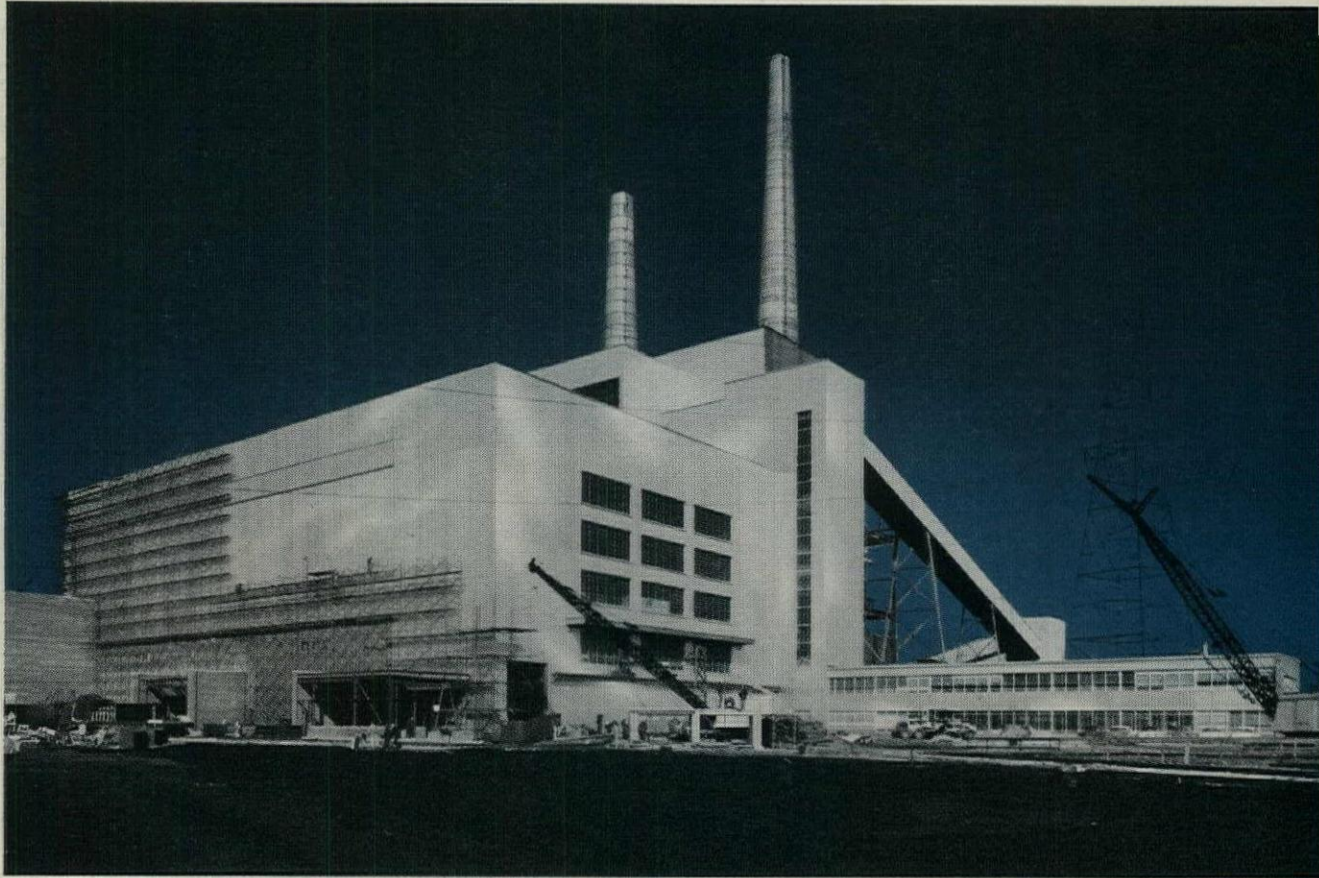
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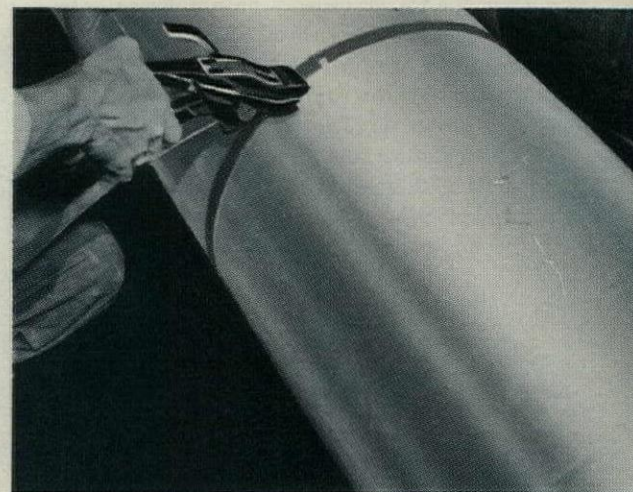
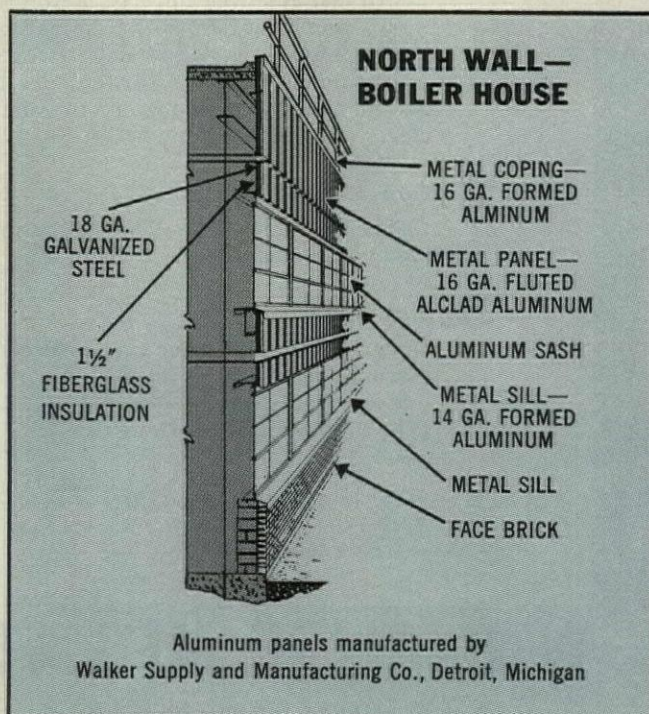
CHICAGO 6

Detroit Edison estimates big



Detroit Edison Company's new generating station at River Rouge, Michigan—constructed with outside walls made of Kaiser Aluminum selected and fabricated by Walker Supply

and Manufacturing Co., Detroit, Michigan. This unique design reduces structural steel tonnage, foundation requirements and maintenance costs.



Insulation Coverings made of Kaiser Aluminum protect insulating materials from moisture and mechanical damage. Resist corrosion. Won't rust. Give long service without painting and with virtually no maintenance. Aluminum covering also provide high reflectivity, low emissivity for greater protection against heat loss. Light weight reduces handling and transportation cost.

savings by the use of lightweight aluminum walls!

THE Detroit Edison Company selected light, strong aluminum sheet and extrusions for the outside walls of their new generating station at River Rouge, Michigan.

This unique, lightweight wall design allows an 8,000-ton reduction in total weight and reduces structural steel and foundation requirements—as compared to the 12" masonry curtain-type walls used in previous plants.

Another important reason aluminum was selected for this job is its high resistance to corrosion—especially necessary in the industrial atmosphere of the River Rouge site. Re-

sult: maintenance on the exterior walls is kept to a minimum.

As a basic producer of aluminum, our efforts are dedicated to the job of helping to improve building products and to reduce their costs.

We will gladly share with you to the fullest our fabricating and engineering skills. Or for names of building products manufacturers who will be glad to work with you, contact the Kaiser Aluminum sales office listed in your telephone directory. Kaiser Aluminum and Chemical Sales, Inc., *General Sales Office*, Palmolive Bldg., Chicago 11, Ill.; *Executive Office*, Kaiser Bldg., Oakland 12, Calif.

Kaiser Aluminum

setting the pace—in growth, quality and service

More ways to cut costs with aluminum building products!

Kaiser Aluminum Shade Screening keeps buildings as much as 15° cooler under the hottest summer sun. This reduces the load on air conditioning equipment—thus reducing operating costs. The 17° angle of the louvers blocks direct rays of the sun, yet provides glare-free light.

Ventilation Louvers made with Kaiser Aluminum won't rust or rot—never stain adjacent surfaces. Require less maintenance, fewer replacements. Cost less than building material they replace. So easy to handle that construction is faster, lower in cost. Light weight also reduces transportation costs.

Air Conditioning and Heating Duct Systems made with lightweight Kaiser Aluminum go up faster—cut erection costs almost 12%. Pound for pound, cover three times the areas of galvanized ducts. Deliver 17 to 46% more heat due to aluminum's low emissivity. Easy to fabricate and erect.



UNION CARBIDE has long been closely identified with silicones through the work of its Division, Linde Air Products Company. To an important degree, industry has come to "Look to LINDE for Silicones."

Silicones are incredibly versatile man-made chemicals offering startling advantages in more and more products and processes. You may find that their stability under wide temperature change is the quality that interests you. Or it may be their water repellency, their high electrical resistance, or some other special property.

Interesting new developments, as well as the many proven needs, have now led to the formation by Union Carbide of a Silicones Division. With the world's most modern silicones plant almost ready to go on stream at

Long Reach, W. Va., this new Division will be responsible for Union Carbide's program for the development, manufacture, and sale of silicone products.

This is more than just a change of name. While addresses and telephone numbers will remain the same, customers will be served by still further expanded sales and technical staffs.

But of prime importance, it means that through the expanded organization and vastly increased output, Union Carbide will provide more silicone products, in a greater variety, to match the needs of the fast-growing number of its silicone users. If you haven't already checked on the potentialities of silicones in your business, you should. Now, more than ever, it will pay you to...



Look to UNION CARBIDE for silicones

For example, water repellents based on LINDE C-25 Silicones have already established themselves as the long-lived weather protection for masonry structures. It will pay you to protect

the original beauty and quality of your masonry. Just one "invisible raincoat" of water repellent made from UNION CARBIDE C-25 Silicone will give years of trouble-free protection.

FROM OUT OF THE BLUE

Developed through the search for lighter, stronger structural materials to go into faster-than-sound aircraft, HEXCEL aluminum honeycomb is accomplishing feats of strength never before equalled by light-weight metal. From the honeycomb wings of the Matador to the outside curtain wall construction of a towering skyscraper—there are a score of amazing new uses for this versatile performer! One of the most recent—and most miraculous—applications for HEXCEL honeycomb is for interior lighting in schools, stores, and offices. If you have a problem that you think honeycomb can solve, telephone or write to HEXCEL Products, Inc., Dept. H-156 951-61st Street, Oakland 8, California.

HONEYLITE... *the last word in visual comfort!*

Picture an all-aluminum ceiling composed of thousands of hexagonal honeycomb cells, casting shadow-free, luxuriant light into every corner of the room...a ceiling whose neutral shading harmonizes with any color scheme or any decor. Picture a ceiling that will always look new, whose aluminum honeycomb panels, suspended under lighting units, will not crack from heat or discolor with age. Such a ceiling can be yours with **HONEYLITE**, the new light-diffusing material that has the following remarkable characteristics:

- * Transmits light with 95%—plus efficiency
- * Non-flammable and UL approved
- * Weighs only two ounces per sq. ft.
- * Permits free circulation of air around light units
- * Provides lowest surface brightness obtainable
- * Has a noise reduction coefficient of .46



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VICTOR GRUEN, A. I. A.

HONEYLITE
(shown at right actual size) installation is simple, inexpensive. For full ceilings, aluminum T-bars are used to suspend **HONEYLITE** panels below lighting units. **HONEYLITE** is also ideal for use in troffers and lighting fixtures.

HONEYLITE®
Light-diffusing acoustical aluminum honeycomb
A development of **HEXCEL PRODUCTS INC.**
Producers of HEXCEL aluminum honeycomb — the wonder material

Just what the Architect ordered!

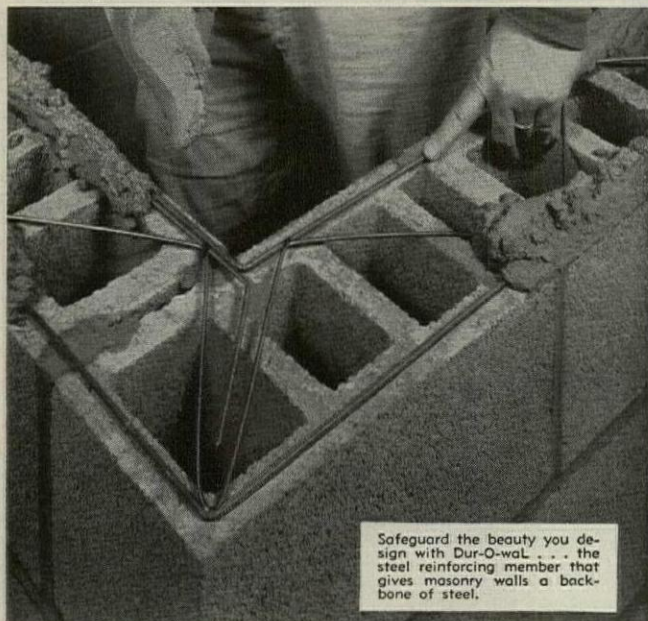
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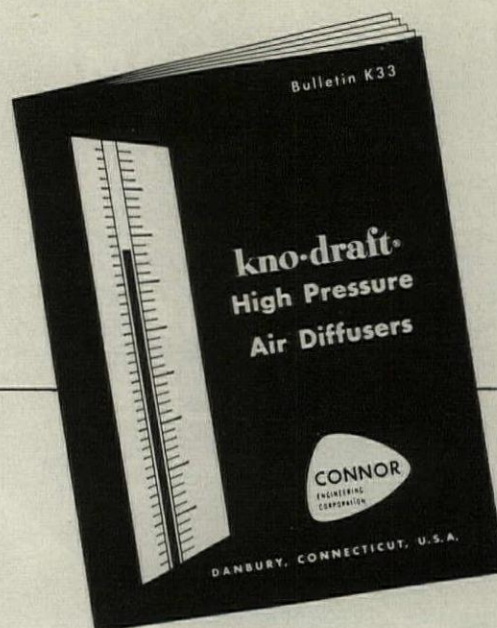
Dur-O-wal is electrically-welded in a single plane of high tensile steel (100,000 p.s.i.); knurled side rods increase mortar bond. Your inquiry will receive prompt attention.



Safeguard the beauty you design with Dur-O-wal . . . the steel reinforcing member that gives masonry walls a backbone of steel.

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valuable manual?**

High pressure air transmission is being used more and more for air conditioning systems because: (1) it is easily adjustable to building interior changes; (2) it permits individual room temperature controls to be incorporated into central station systems; and (3) its small air ducts save space.

The manual illustrated, written out of years of experience by Connor engineers, details the facts about high pressure systems in general and the various Kno-Draft High Pressure Air Diffusers in particular. Engineers will find much information helpful in designing high pressure systems. Data on sound levels, temperature differentials, air distribution and air duct design by static regain are included. Much of this material is here published for the first time.

To secure your copy of this 48-page, profusely illustrated manual, fill out the coupon (or merely clip it to your letterhead) and mail to Connor Engineering Corporation, Danbury, Connecticut.



kno-draft®

----- high pressure air diffusers -----

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Dept. D-26, Danbury, Connecticut

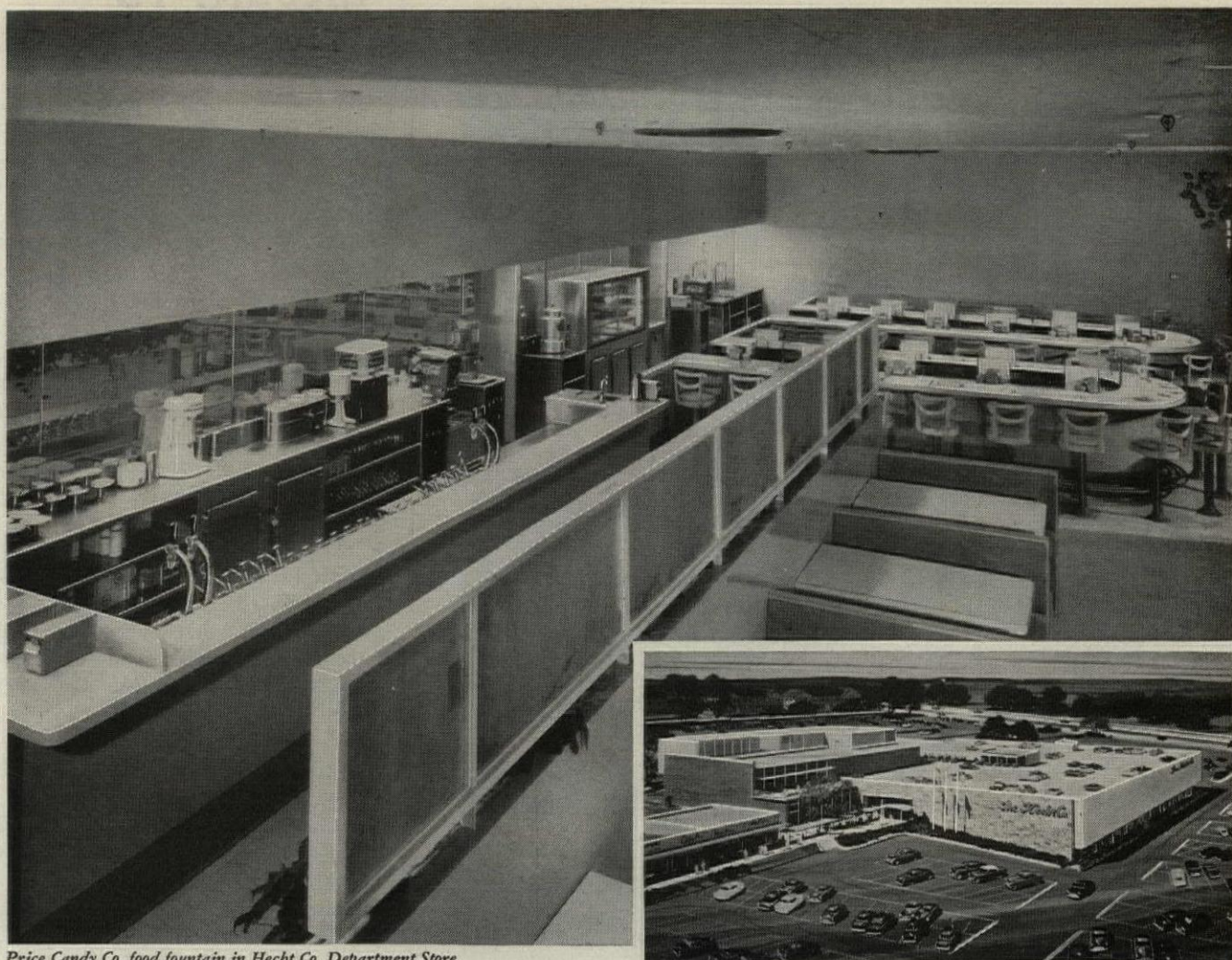
Please send me, without obligation, a copy of Bulletin K33 describing Kno-Draft High Pressure Air Diffusers.

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Price Candy Co. food fountain in Hecht Co. Department Store, Northwood, Baltimore, Md.

Bastian-Blessing Plans and Equips Food Fountain in New Store of Hecht Co.

There's more to this attractive installation than meets the eye! Behind the mirrored wall there's a kitchen. It, too, is Bastian-Blessing planned and equipped to assure sparkling cleanliness and low-cost service for years to come.

This food fountain in the new Hecht Co. Northwood store, Baltimore, Md., is operated by Price Candy Company of Kansas City, Mo. Customers are seated in booths and on 40 stools of a two-bay counter. There is a 30-ft. service counter at the gleaming 50-gallon Twin-Serv fountain unit. Along the wall are shelving units and refrigerated cabinets and display case. The kitchen is equipped with griddle stands, food warmers, dish- and glass-washing machines, and much other Bastian-Blessing equipment.

Only Bastian-Blessing offers a complete line of fountain and fast food equipment, plus service that ranges from exploratory discussion of requirements, through the detail drawings to final check-out of the installation. That's why it will pay you to get "help from headquarters" early. Write for information or illustrated catalogs. The Bastian-Blessing Company, 4205 W. Peterson Ave., Chicago 30, Illinois.

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EXCLUSIVE FEATURES

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WORLD'S LARGEST MANUFACTURER OF SODA FOUNTAINS AND COUNTER FOOD SERVICE EQUIPMENT

Fast-Acting Byrne Hangar Doors for



N.A.C.A. High-Speed Flight Station



Architect: Giffels & Vallet, Inc., Detroit, Michigan
Contractor: P. J. Walker Company, Los Angeles, Calif.

Byrne Type K Canopy Type Hangar Doors were a natural choice for the High-Speed Flight Station maintained by the National Advisory Committee for Aeronautics at Edwards Air Force Base, California.

The installation shown, one of three Type K Doors each measuring 150' by 32', provides all of the recognized features of Byrne Hangar Doors, including fast operation . . . extremely tight closure . . . minimum maintenance . . . maximum utilization of floor space . . . along with complete safety under all operating and weather conditions.

The Byrne Type K Door can be furnished for heights up to 55' with single sections up to 150' wide, as illustrated, or in sections which can be operated individually or simultaneously. They are motor-operated, individual acting, with balanced suspension through cables which transmit dead loads to counterweights.

More than 25 years' experience is at your service in the development of any kind of door for industrial needs, particularly the design and construction of hangar doors. For complete information, check Sweet's Catalog, or write direct to Byrne Doors, Incorporated.

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the last generation, and its impact on other sections is growing rapidly. The swimming pool, the sliding glass living room walls and other standbys of western building are not its only contributions. The Hollywood Bowl is, of course, world famous for its ingenious use of terrain and concrete to provide an outdoor theater for fine music.

The drive-in restaurant, often now an elaborate and costly facility, evolved from lowly California hamburger stands in the twenties. The Los Angeles drive-in hamburger stand was the forerunner of drive-in theaters and banks and even drive-in post offices.

The motel, another contribution, has revolutionized vacation habits and the entire business of public lodging. The first national census of "tourist cabins" showed about half of them in the West in 1935. In 20 years the number has doubled to more than 20,000 doing an estimated \$750 million annual business.

Still another Los Angeles contribution to building is the open-air Oriental bazaar in the center of huge parking lots, an idea now taking hold all over the country. The first was conceived by a grocer and a publicity man as a farmers' market on West Third St. in the thirties.

Toward a new structure

Excerpts from an article by Felix Candela, Mexican architect, in the Student Publication, School of Design, of North Carolina State College

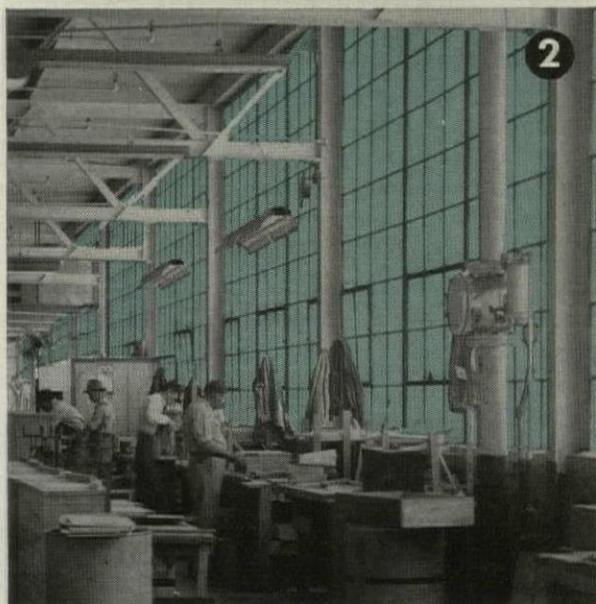
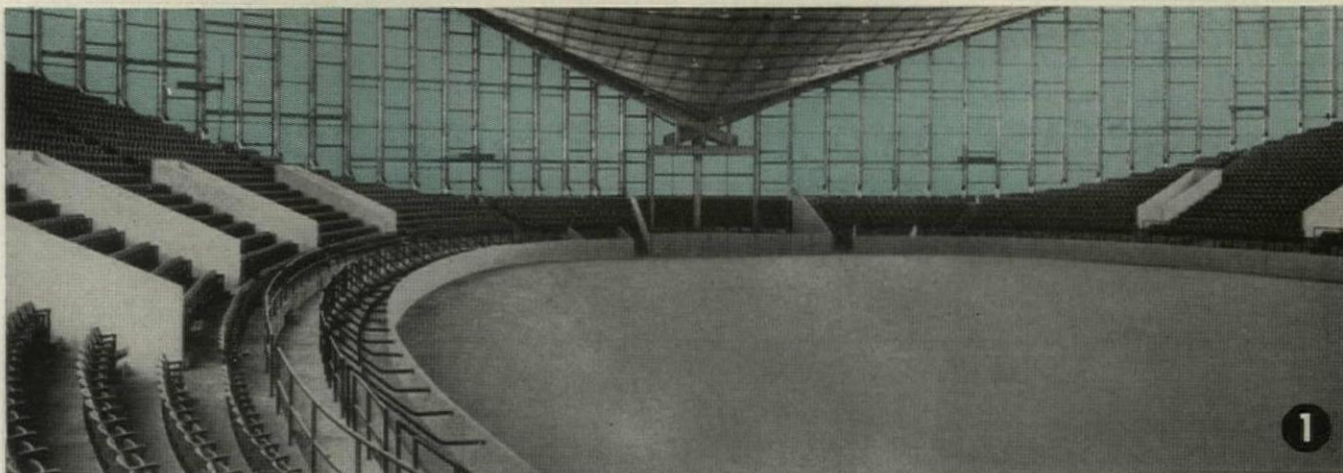
The professions of architect and engineer, once united under the title "Master Builder," have widened to such a dangerous extent that today few dare to tread the no man's land between them. Yet, on those numbered occasions when someone has had

the courage and talent to take his stand there—such as Maillart and Nervi from one field and Nowicki and at times Wright from another—the results have been so extraordinary as to force us to consider whether it is not there, finally, that



lies the hidden solution to the fundamental architectural problem of our age. This problem is, in my opinion, the search for a style or common language able to offer us some-

continued on p. 86



3 PROBLEMS OF SUN HEAT AND GLARE...

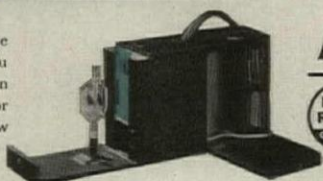
SOLVED WITH AKLO® GLASS

1. Spectators facing a wall of daylight
2. Working areas close to windows
3. Critical work with reflective materials

Aklo Heat Absorbing Glass lets you have an abundance of daylight without the penalties of sun heat and glare. That's why it is ideal for eye comfort, for bodily comfort . . . in all kinds of buildings. Rooms not only look cooler with daylight filtered through this blue-green glass . . . they *are* cooler. *Aklo* Glass in $\frac{1}{4}$ " thickness shuts out as much as 44% of the sun's radiant heat energy.

Heat is reduced through absorption and reradiation. Glare is diffused by the frosted translucent glass. That's why—where outlook is secondary, Frosted *Aklo* Glass is primary.

PHONE FOR THIS TEST. The Blue Ridge radiometer demonstration kit will show you how Frosted *Aklo* Glass reduces glare and sun heat. Call your L-O-F Glass Distributor or Dealer listed under "Glass" in the yellow pages of your phone book. Or write to Libbey-Owens-Ford Glass Co., 608 Madison Avenue, Toledo 3, Ohio.



AKLO GLASS



made by Blue Ridge Glass Corp.



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**FILTERS
DAYLIGHT**

Useful facts for architects about . . .

GREASE AND ALKALI RESISTANCE OF RESILIENT FLOORS

In commercial or residential installations, resilient floors may be subjected to three main sources of contamination from grease and alkalis. Contamination may be momentary, such as spilled grease, solvents, or alkalis which are promptly wiped up. Such short-time contamination presents no problem, if the cleaning is thorough and the grease or alkali has not seeped down between joints or seams in the floor. Of greater problem is contamination that is more prolonged—generally by contact with milder concentrations of grease or alkali caused by cooking residue, spillage, kitchen vapors, strong cleaners, or improper maintenance. The third usual source of contamination is the alkaline moisture from the earth passing through grade-level and below-grade concrete.

The Armstrong Research and Development Center devotes continuing attention to developing materials with improved grease and alkali resistance for a wide variety of conditions to which floors may be subjected. The objective is to produce flooring materials which will not soften, swell, discolor, or change their physical properties under normal, accidental, or even prolonged contact with grease and alkalis. This has resulted in improvements in existing flooring materials as well as new types.

Testing

Laboratory tests are performed on resilient flooring materials with three considerations in mind. First, the tests must establish the degree of resistance to grease and alkalis of the various floorings made. Second, comparisons must be made of the various grades of each type of flooring. And third, the information arrived at must be applied to the experimental production of new types of resilient flooring, and these, in turn, must be tested.

Although this has been a subject very important to the flooring industry and one on which much work has been done, practically no standard test has been generally accepted in the trade.

There are now a number of accurately controlled testing procedures in the development of which Armstrong has played a major part. These have given rise to the following uniform terms which may assist the architect in his choice of a resilient floor.

Grease resistant—flooring for residential use, and tested in vegetable oils.

Greaseproof—flooring for residential and commercial use, and tested in mineral and vegetable oils.

GREASE—ALKALI RESISTANCE CHART

		<i>grease resistance</i>			
		Poor	Fair	Good	Excellent
<i>surface alkali resistance</i>	Excellent	Standard Asphalt Tile (A & B colors)	Standard Asphalt Tile (C & D colors)		Corlon Custom Corlon Tile Excelon Tile
	Good			Rubber Tile	Greaseproof Asphalt Tile
	Fair		Cork Tile		
	Poor				Linoleum Linotile

Armstrong FLOORS

LINOLEUM	PLAIN JASPÉ SPATTER® TEXTELLE*	DECORAY* RAYBELLE® ROYELLE® MARBELLE®	NEWRAY* INLAID CRAFTLINE® INLAID EMBOSSED INLAID STRAIGHT LINE INLAID
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Armstrong Testing Procedures

In the Armstrong Research and Development Center, the grease-and-alkali problem has been under study for many years, and several tests have been developed that produce valuable results.

How well laboratory tests conducted in the Armstrong Research and Development Center have correlated with actual behavior in the field is evidenced by the fact that Armstrong has developed a number of flooring materials with good to excellent grease and alkali resistance. However, claims made during the past few years for "plastic" flooring materials have accentuated the need for sharper distinctions in testing methods. In fact, some of these tests which Armstrong has used in the past are no longer precise enough to evaluate the grease and alkali resistance of the various grades of plastic-type flooring now offered.

Armstrong Abrasion Tester. The Armstrong Research and Development Center has developed an improved method of determining grease resistance by using the Armstrong Abrasion Machine pictured at upper right. This technique permits a quantitative determination of the grease resistance of the flooring material by measuring the abrasion resistance before and after contamination with grease or oil. For floorings with burlap or felt backing, contamination is measured for the surface only. Homogeneous flooring materials, such as asphalt tile and rubber tile, however, can be totally immersed and then tested by means of the Abrasion Machine.

The Abrasion Machine provides a means of accurately and quantitatively assessing the effects of greases and oils. Because the machine is capable of testing six or more samples of different materials at the same time, it supplies useful comparative data.

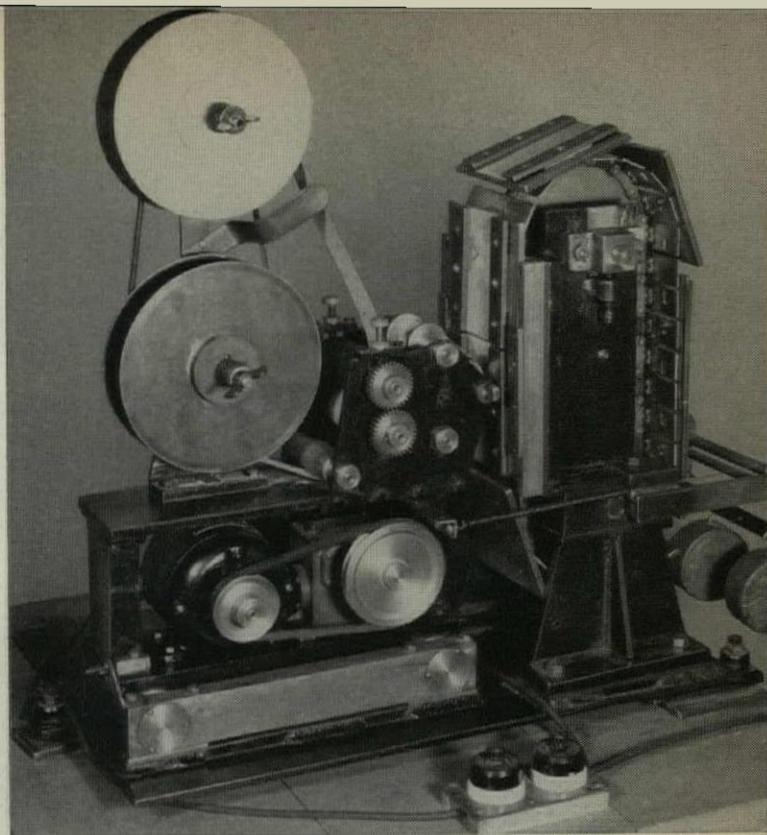
Immersion testing of Armstrong floorings. Immersion testing procedures for various types of floors measure the effects of prolonged exposure to grease or oils. (See illustration at lower right.) Materials are immersed for varying periods of time up to two years while being continually observed for signs of deterioration.

Value of these tests to the architect. Armstrong testing procedures have led to steady improvement of the grease- and oil-resistant properties of various types of Armstrong resilient flooring materials.

Armstrong Rubber Tile is now freely offered for use in kitchens. Both Rubber Tile and Armstrong Custom Corlon Tile may be specified below grade if Armstrong No. S-104 Chemical-Set Waterproof Cement is used, and on grade with No. S-225 On-Grade Cement. Excelon Tile, a vinyl-plastic asbestos tile, has been developed to provide an exceptionally high degree of resistance to both grease and alkali. Regular Asphalt Tile has low grease resistance but is highly resistant to alkali. Greaseproof Asphalt Tile also retains good alkali resistance. Sheet Corlon and Custom Corlon Tile are exceptionally resistant to both grease and alkalis.

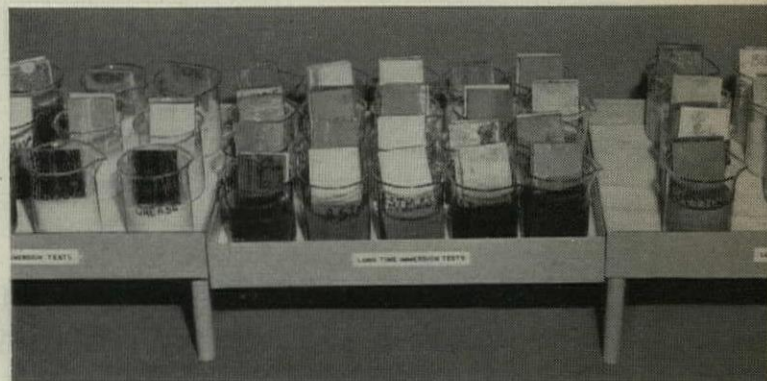
At present, Armstrong Linotile and the greaseproof tiles are virtually unaffected by the total immersion tests for grease-oil resistance, and Armstrong Rubber Tile is only slightly softened. Although extremely severe, this test has great value because materials are equally exposed to grease and oil for long periods of time.

The qualitative resistance of Armstrong floorings is shown in the table at left. These flooring materials should be selected for specific installations according to the degree of alkali or grease resistance required.



Flooring materials to be tested in this Abrasion Tester are first immersed in grease or oil for a standard period of time. The exposed specimens are then abraded at the same time with other samples that have not been exposed. Thus, a direct comparison is obtained in terms of change in abrasion loss.

In this long-time immersion test, a variety of flooring materials has been exposed to grease and oils (or a combination of both) for periods as long as two years. Visual examination of surface characteristics and reaction is the testing procedure used here.



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 architects impartial recommendations on any flooring problem. Our main interest is to aid you in making a sound flooring selection.

Armstrong sales representatives throughout the country are glad to consult with architects and make specific recommendations for individual jobs. Your Armstrong representative has a wide variety of experience and training in resilient flooring and can also call upon Armstrong Research and Development Center for assistance with special problems.

For helpful information on any flooring question, just call your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, Lancaster, Pa.

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thing more than the aridness of mere routine.

A style is established when abstract forms begin to acquire a symbolic significance derived from time and custom. It is evident that to the layman all architectural forms appear abstract in content; but the architect himself must distinguish between those abstract by effective definition, such as the molding or decoration in general, and those expressive of the structure which must be his essential preoccupation when he comes to consider the material means of enclosing a given space. When he achieves their just equilibrium, when the structural, or necessary, is in balance with the decorative or superficial, he creates a true architecture.

Revolutions, after attaining their primary objective of overturning a previous "status quo," must establish a basic code backed by one political and philosophic program. In the case of architecture, such a code is called style. The architectural revolution of the twentieth century has executed a near total destruction of the former practices whose ineptness demanded the outbreak; but we have yet to witness the constructive phase. Perhaps to evolve a new style, and perhaps by the continuation, albeit in a different manner, of the long established habits we condemn. Freedom itself can seldom produce positive results, since the middleman may adjust himself only within fixed limits which, while curtailing his liberty of movements, give him the confidence and security essential for his competent function. The genius alone is capable of living happily in such a rarified atmosphere, and to him alone is given the power to create, under such conditions, works that automatically constitute law; works, that is to say, that will form the grammar and vocabulary of a new style. The inherent danger is that he may dedicate himself to expressions which, although bearing the indisputable stamp of his talent and vitality, may not be based on authentic architectural values. Thus a senseless for-

continued on p. 92



Candela's Church of the Virgin Milagrosa in Mexico.

NOW!

a white seat that **STAYS** white
and can take it

Here's dramatic evidence that Olsonite's new Shock-Proof Seats can really take it! In the torture test shown here, a gigantic 48-inch Stilson wrench was used to pull half of the Olsonite Seat more than 12 inches out of line. The result? No cracks or fractures of any kind!



NOW YOU CAN SPECIFY WHITE SEATS for all industrial and public toilet installations—white seats that won't fade or "yellow" for a lifetime of normal use!

With the new Olsonite White Shock-Proof Seats, it's easier to keep that clean, sanitary appearance than with black seats. Shock-Proof Olsonite Seats have also proven their ability to withstand shocks 5 times greater than ordinary solid one-piece seats. Even deliberate abuse in public toilets and industrial installations won't crack, chip or break Olsonite Shock-Proof Seats—and they won't absorb water.

Like all Olsonite Seats, Shock-Proof models are solid one-piece construction—there is no applied finish to crack or peel. They are sanitary white *all the way through*. Be sure to specify the seat that *stays white*—the seat that can "take it" without damage for a lifetime of normal use—Solid Olsonite Shock-Proof Seats.

Olsonite's complete catalog is available on request. Please write on your letterhead to:

In addition to the regular bowl model (#5) and elongated bowl (#10), the amazing new Olsonite Shock-Proof industrial and commercial seats are available with a concealed check hinge (#5CC and #10CC) made entirely of non-corrosive metal. A lug on the hinge posts locks against cutaway on insert in extended seat back, preventing the seat from being raised to more than 11° beyond perpendicular.

A-4

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Are Available In White or Black

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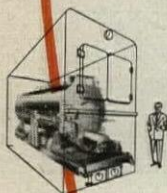
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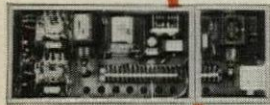
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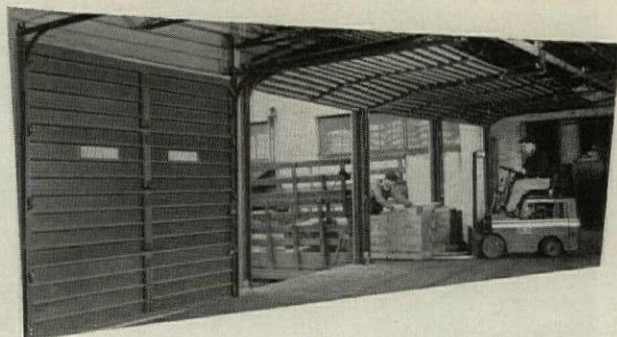
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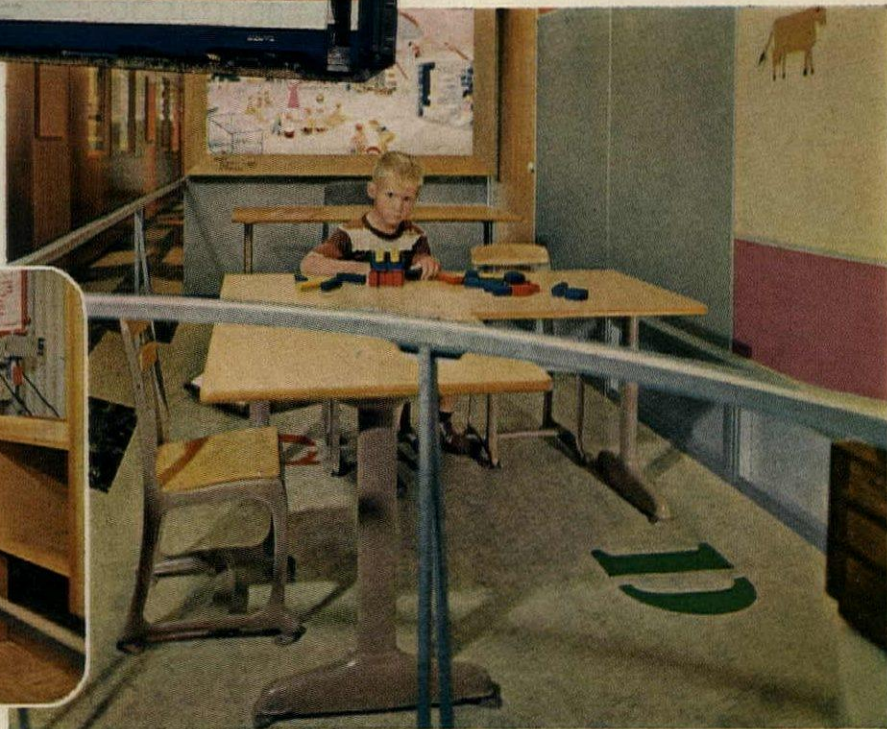
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Now on a 3 to 5-year tour, "Schoolroom Progress U.S.A." is vividly demonstrating to the

American public what can be done with the latest products and equipment . . . *stressing the need for more school facilities, and better design.*

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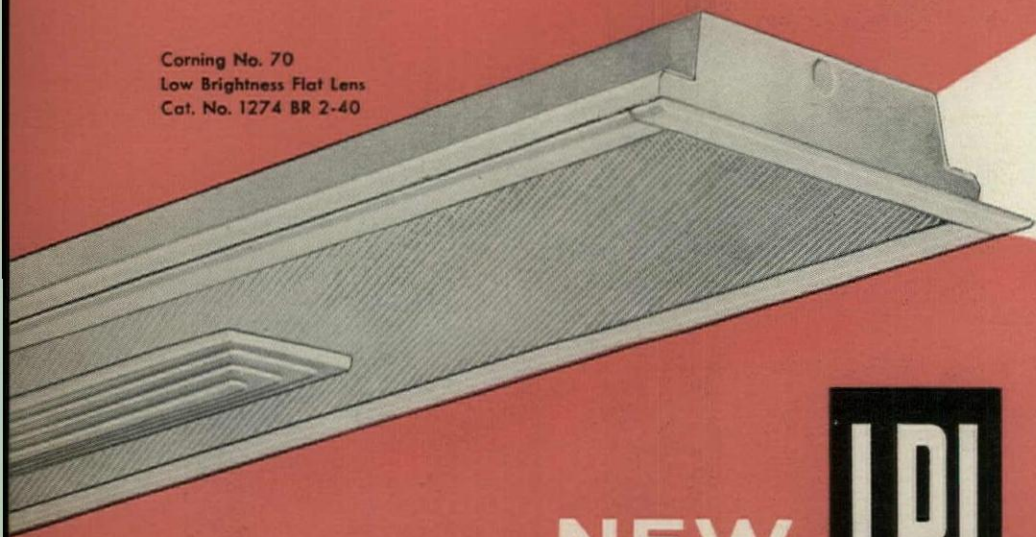


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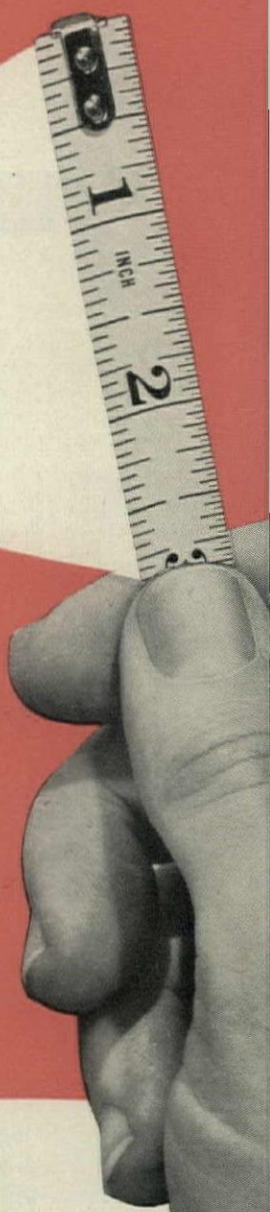
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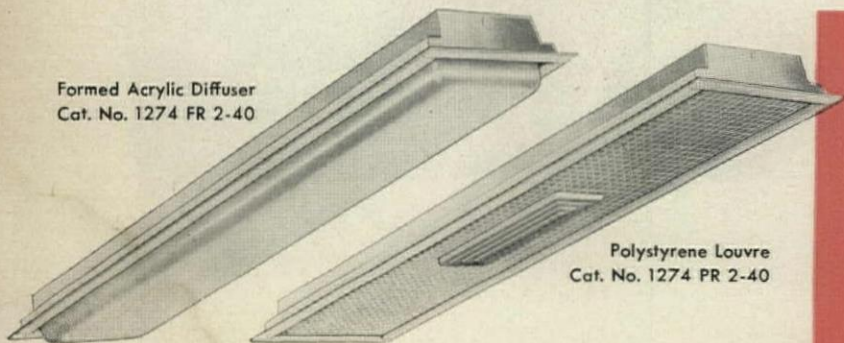
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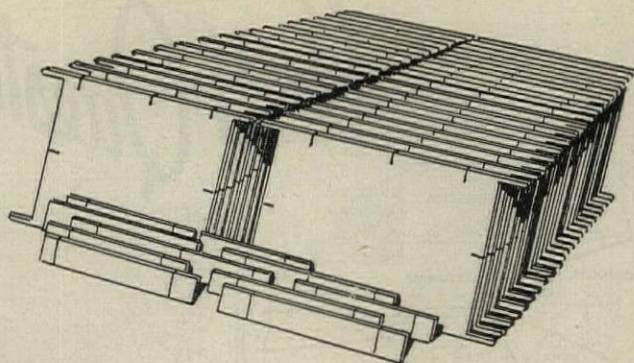
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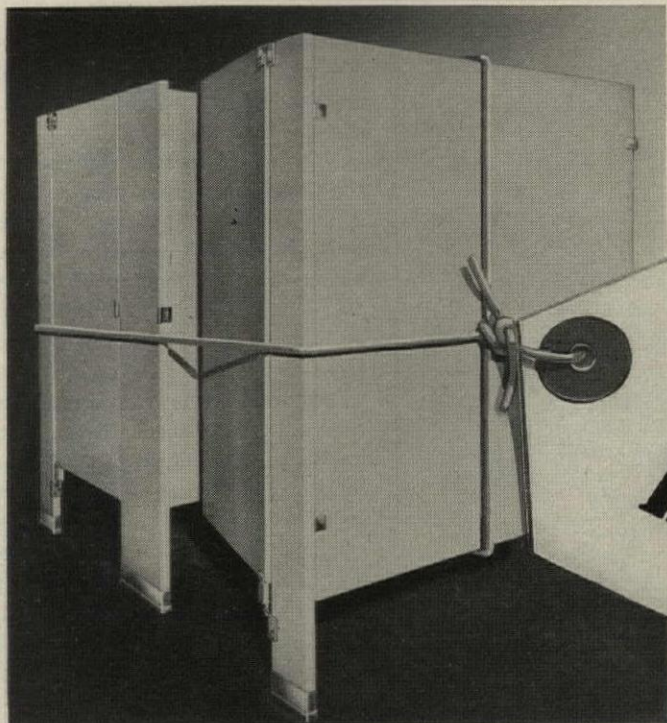
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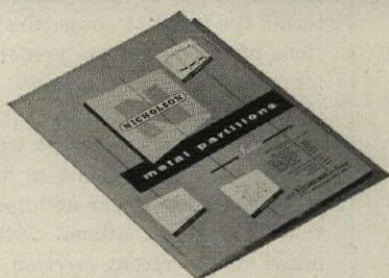


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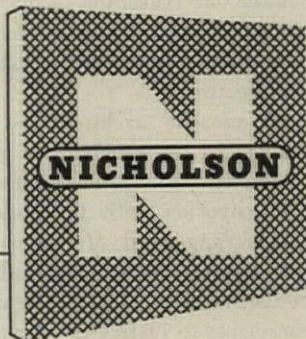
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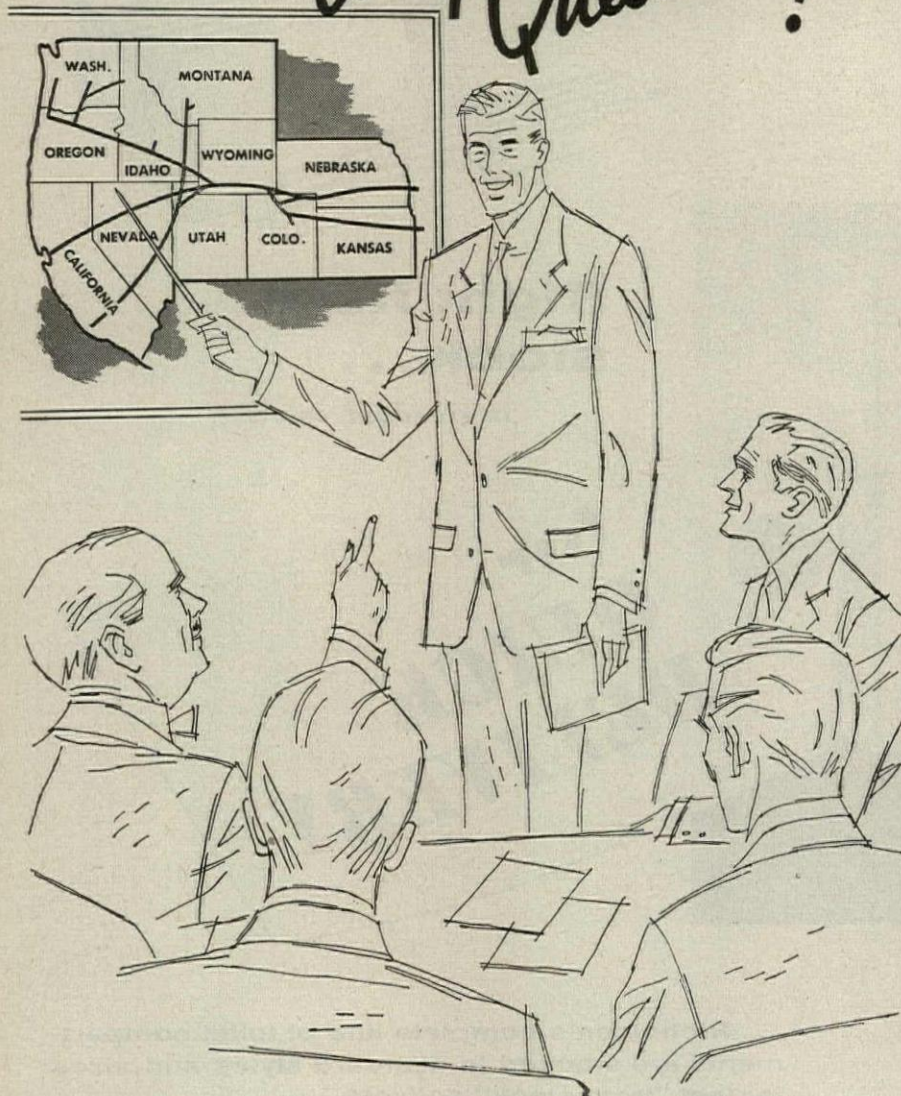
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EXCERPTS *cont'd.*

malism may be created that will later require a disproportionate effort to abolish. This process has been continued casually for several decades, seemingly unnoticed.

Reinforced concrete's extensive use began only in the late nineteenth century, coinciding with the climax of steel construction whose possibilities were by then fully developed. The initial progress of its adaption has seen its employment in forms directly copied from the structures of steel and wood, even to the imitation of their systems of analysis.

Now a circumstance did exist to justify the Greek in his treatment of stone, in the symbolic importance that the reticulated wood frame had acquired in the eyes of his people. A similar justification cannot be extended to excuse the foolishness of the current approach to reinforced concrete design. The skeleton frame in reinforced concrete is a structural manifestation almost as inconsistent as the stone lintel, being in addition a dull and routine copy of the structural forms of wood and steel. Concrete is not made to work in beams of massive rectangular section. Its highly unfavorable ratio of resistance to weight quickly limits the span this kind of structure may achieve, as most of the beam is acting only as a dead weight with no structural or resistant function. By mistaking the mere possibilities of the material for its real properties, the foundations of the formalism predominating contemporary composition have been laid on the basis of the purely literary pretensions of functionalism of earlier times.

It is now time at last to begin the constructive phase of our architectural revolution. The "International Style," as epitomized in the recent erection of cubist abstractions, has nothing further developable to offer us. The classical and destructive phase should be considered complete.

For lack of a strong spiritual motivation—whose default is also responsible for the confusion prevalent in so many other aspects of modern society—on which to base the new style, it would seem logical to confine our reasoning to more materialistic considerations. These correspond, by very definition, to the structural element in architecture.

At present, architects do not seem attracted to the problems of structure. Excusing themselves on the grounds of their preoccupation with the superficial design and arrangement of modern mannerisms, they expect conveniently that some one will oblige to solve the problem. Their chief concern is to justify the boring and insignificant forms presented to them by means of a mechanical process that has nothing to

continued on p. 96

NEW **HI-VALVE** *Aircoustat*

Quiets ALL Noise in High Velocity Systems

**COMBINES QUIET PRESSURE REDUCING VALVE WITH
REVOLUTIONARY AIRCOUSTAT SILENCER IN
ONE ENGINEERED PACKAGE**

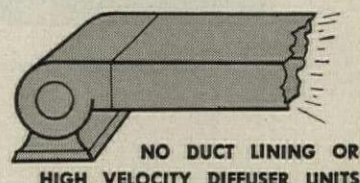
Here at last is the practical, economical solution to the three noise problems which have plagued consulting engineers and contractors on all high velocity air conditioning systems: fan noise, valve noise and duct noise.

Specially designed and acoustically engineered to provide complete noise attenuation, Hi-Valve Aircoustat combines a silent flow pressure reducing valve with the jet engine type Aircoustat silencer which has revolutionized the air conditioning field.

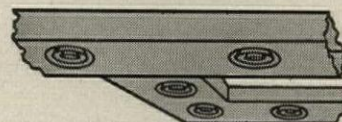
Easily installed in branch ductwork ahead of the diffusers, Hi-Valve Aircoustat eliminates the need for expensive duct line mufflers and high velocity diffuser units . . . effecting substantial savings in space and on equipment and installation costs.

Write for complete information on Hi-Valve Aircoustat . . . the space-saving "all-in-one" unit which is engineered to take the guesswork out of High Velocity System silencing.

Quiets All 3 Noises with a Single Unit
Hi-Valve Aircoustat provides acoustically engineered, single-unit silencing of all high velocity system noises: fan noise, valve noise and duct noise.



NO DUCT LINING OR
HIGH VELOCITY DIFFUSER UNITS

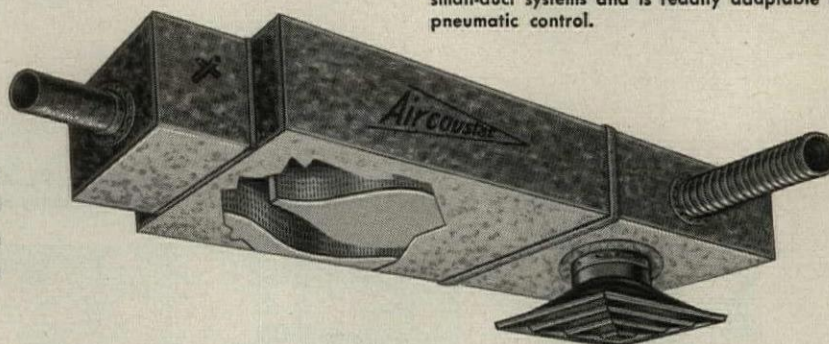


HANDLES UP TO 3,000 CFM

Hi-Valve Aircoustats are installed directly in the ductwork, eliminating the need for duct lining and high velocity diffuser units. Because of the high capacity, a single unit can handle silencing and pressure reduction for up to 3,000 C.F.M. and is adaptable to split systems as well as single diffuser operation.

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Versatile Hi-Valve Aircoustat is available for small-duct systems and is readily adaptable to pneumatic control.



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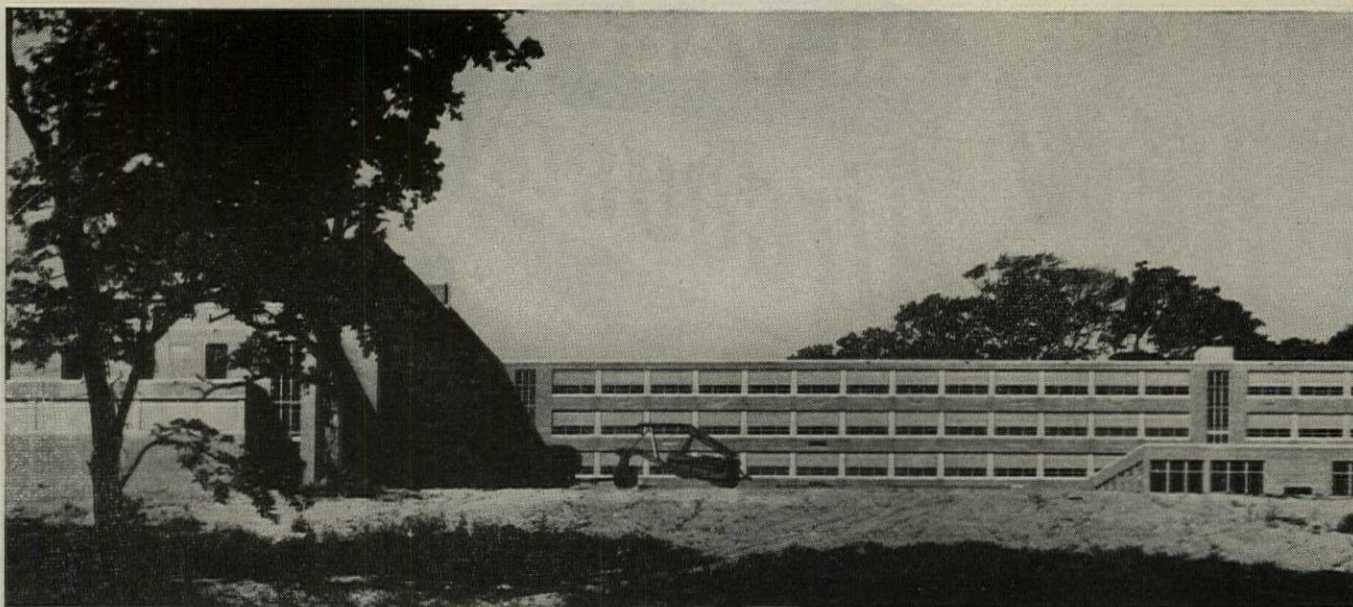
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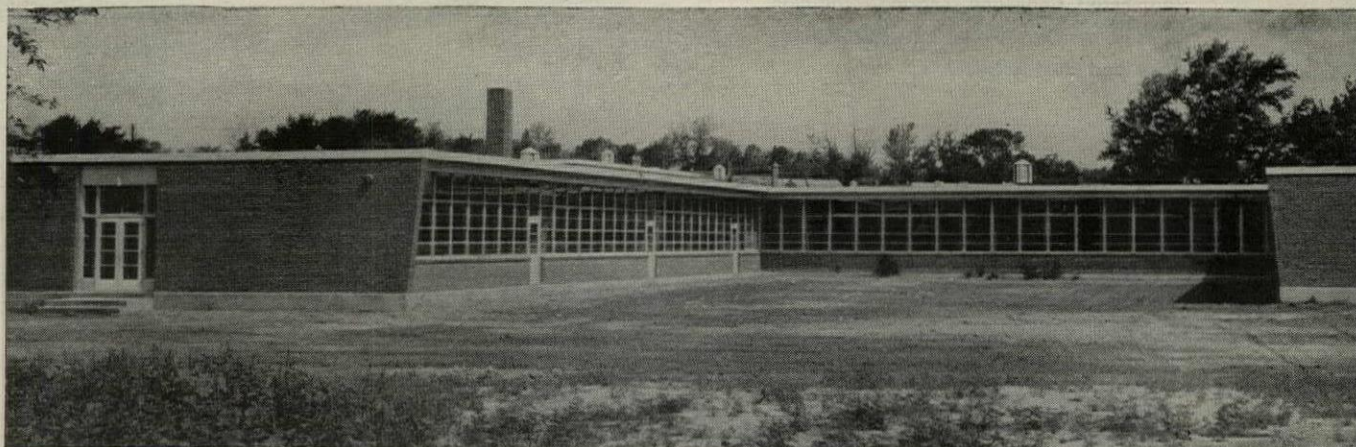
Maryland

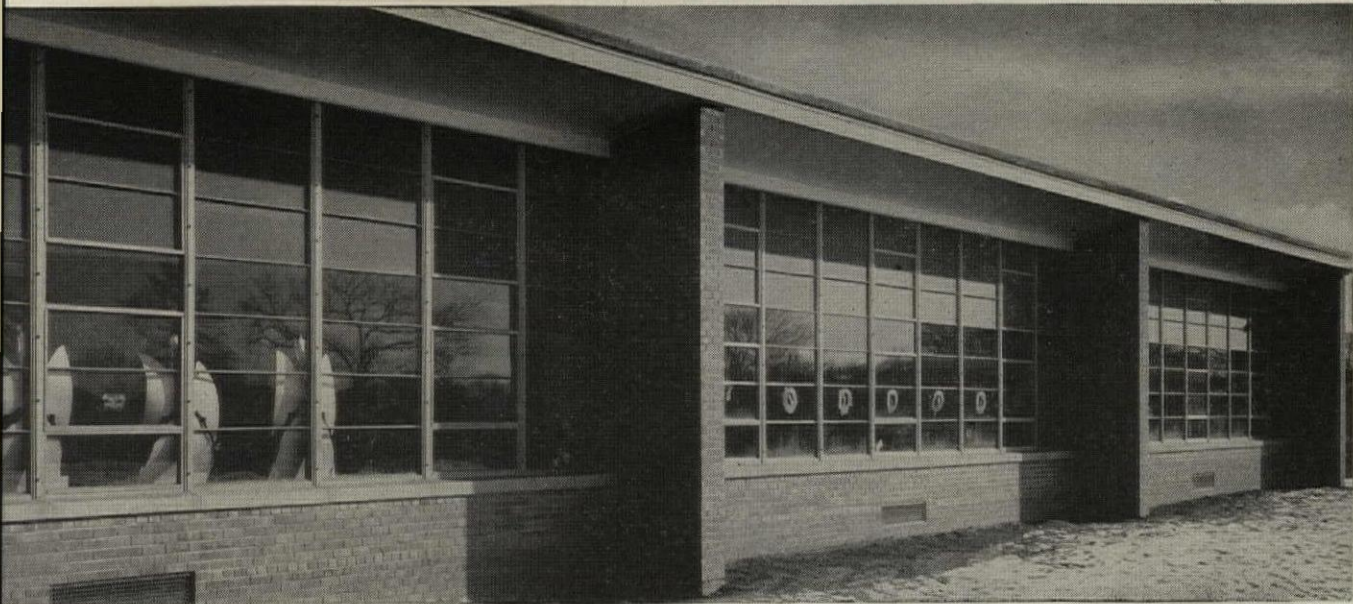
Catonsville High School, Catonsville, Md. Architect: James R. Edmunds, Jr., Baltimore, Md. Contractor: Costanza Construction Co., Baltimore.

These deluxe windows give
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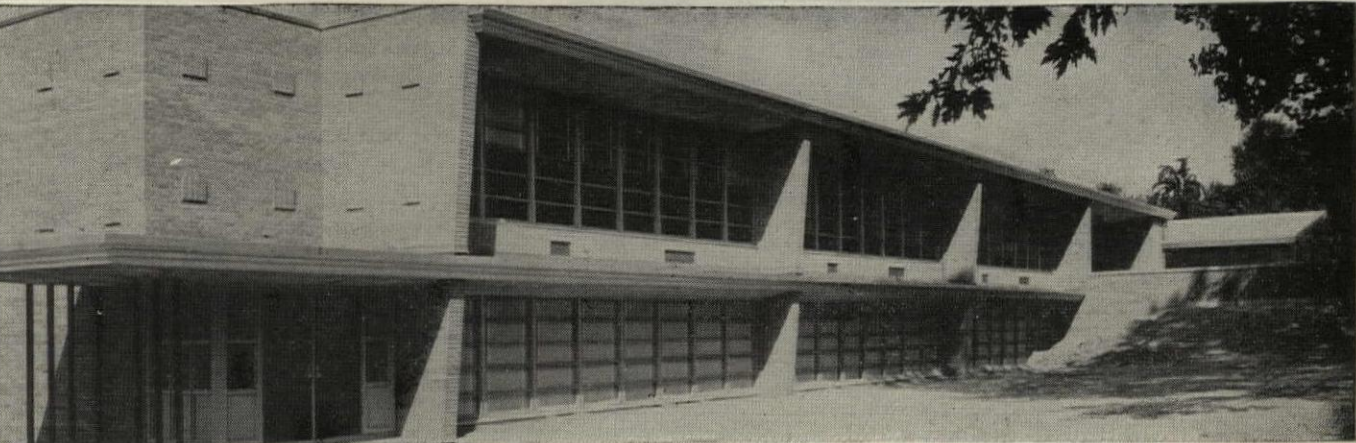


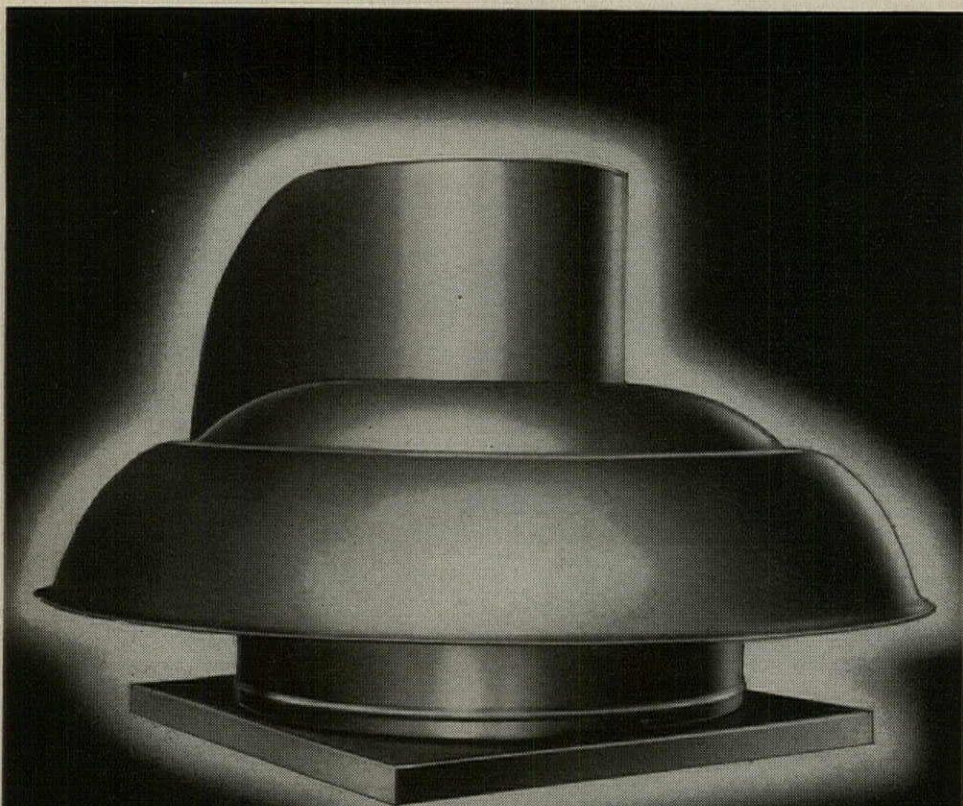
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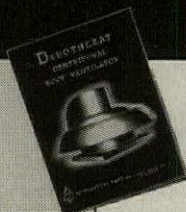


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EXCERPTS *cont'd.*

do with design; that is, to calculate these forms.

The architect of today seems willing to experiment with any of the elements that combine to make a building—except that which should be his first and most vital concern. Towards the structure he maintains the same classical outlook that characterized the Greeks. When he forges this missing link in the chain of philosophy governing his present designs, and not until then, he may justify the hard struggle for an authentic architecture fought in the earlier part of this century, and he will acquire the tools to fulfill the promise that the opportunities of our age demand from him.

Meanwhile we continue to endure the innocuous constructions in whose indulgence, as an architect, he may be endangering the future of his very existence. For such is the aspect of contemporary buildings that to the common eye they might as well have been produced through a machine, in which some fault of mechanism results in the production of near identical solutions for highly diversified problems.

It is easy to discern in current architecture a preference to treat the structure as the predominant feature of the composition. The supporting framework is bared, and breaks through the surface of the façade. It is forgotten that the mere disclosure of the structure is not a guarantee of its intrinsic beauty. Nevertheless, this tendency may prove to be the mark of the new period of integration in architecture, that is when the structure once comes to receive the just and sensitive treatment it deserves.

In every historical period, architectural composition has taken its stand with stronger insistence on one or another of the three fundamental values—function, structure and form—whose happy integration produces a true work of architecture. It appears time to end a period in which function has held the reins of importance; its limited capacity for creating forms will soon be exhausted, and it has led unfailingly to aridness of expression. We remain with structure as the only logical element able to impart a general sense to architecture; able to grammatize a language easily understood by all; able to produce, finally, expressive forms characteristic of a style whose emotional content would depend on the only stimulus able to generate sensitive reaction in these times of crisis: human reason.

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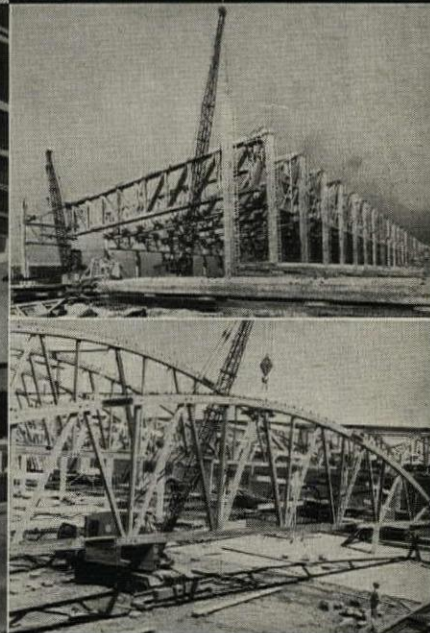
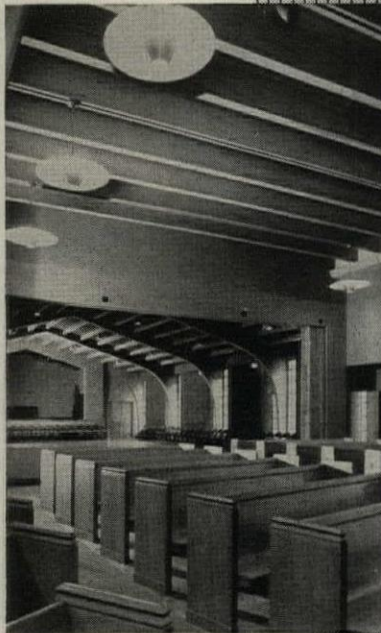
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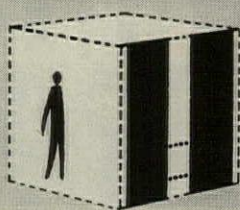


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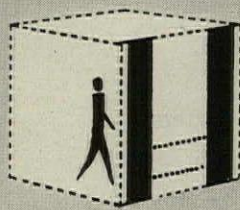
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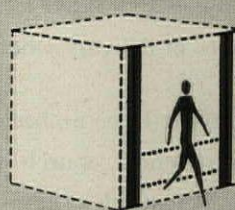
HOW TRAFFIC SENTINEL WORKS WITH SINGLE PASSENGER (ALSO HANDLES 10-15 WITH EQUAL EASE)



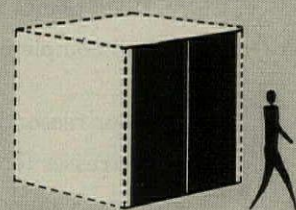
1. Car arrives



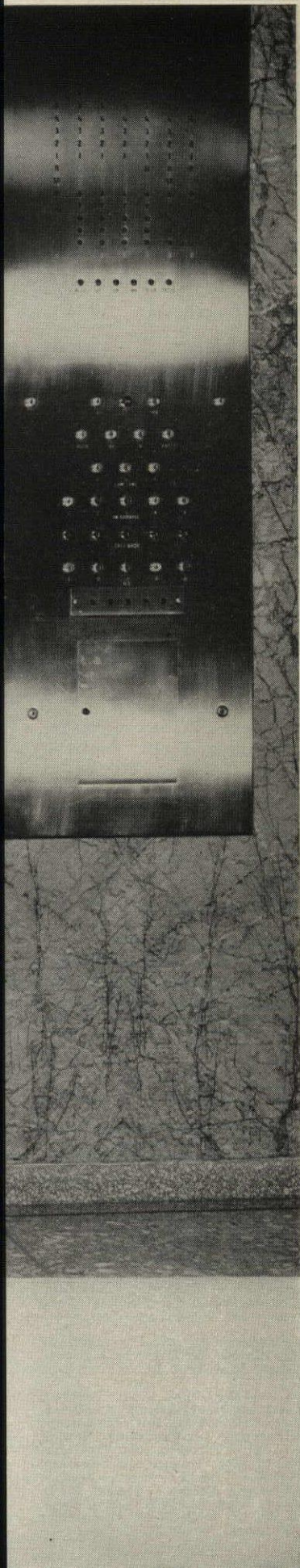
2. Doors open—
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beams go "on"



3. Passenger leaves car



4. Doors close almost
immediately



Tests prove Westinghouse Operatorless Elevator Doors with Traffic Sentinel once and for all end premature door closings

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are held motionless until entrance is clear.)

THIS PROVES—

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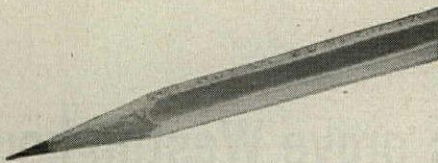
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architectural the magazine of building

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INSTALLATION: Hamilton Elementary School, Harrisburg, Penna.

ARCHITECT: Clayton J. Lappley, Harrisburg, Penna.

ENGINEER: Snyder & Van Horn, Harrisburg, Penna.

ELEC. CONTRACTOR: The Howard P. Foley Company, Harrisburg, Penna.

FIXTURE: Litecontrol No. 6628 and 6624, pendant mounted.

INTENSITY: New rooms (with fixtures hung on 8" stems), average 52 footcandles initially on desks.

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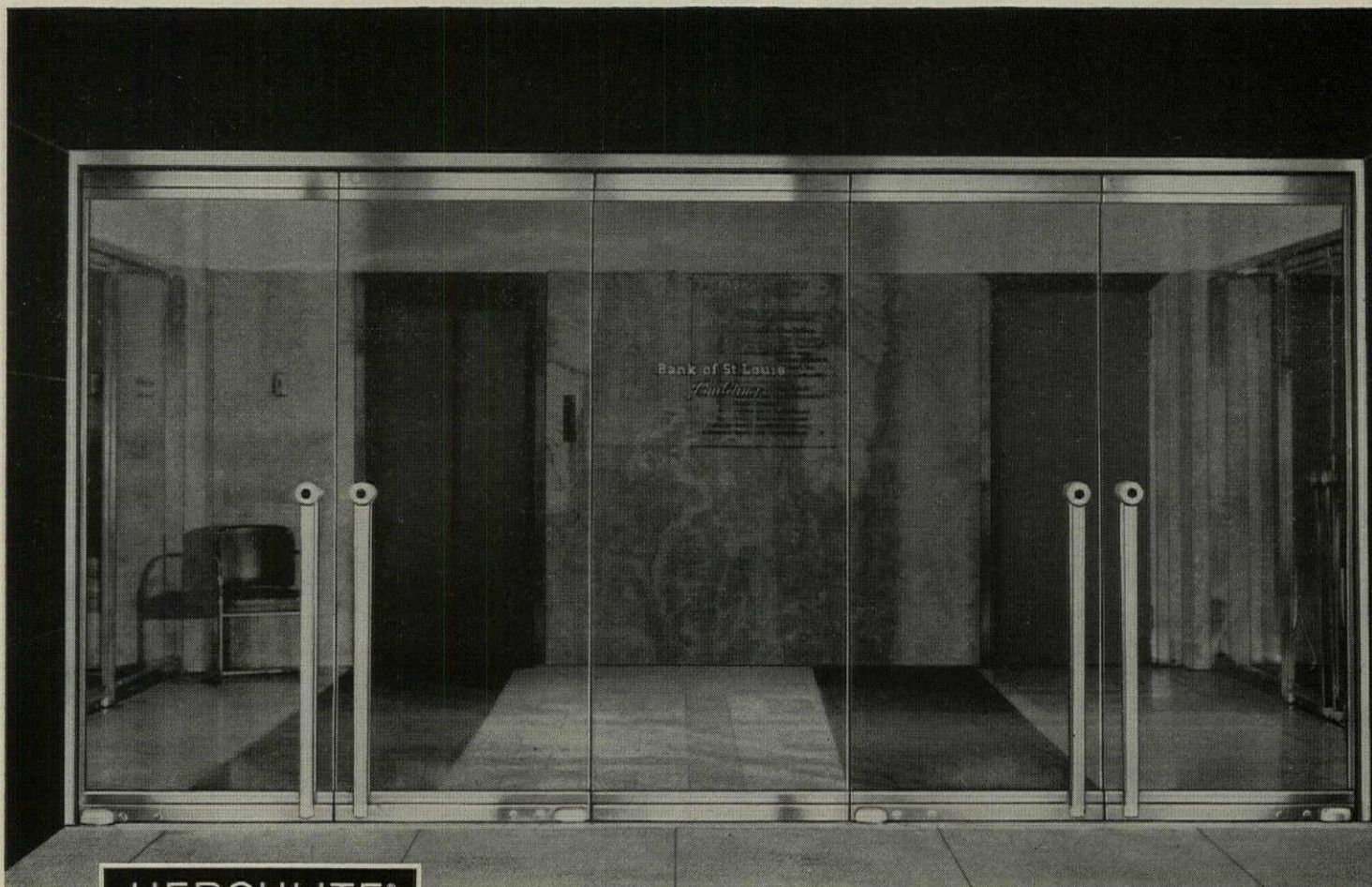
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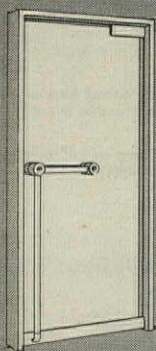
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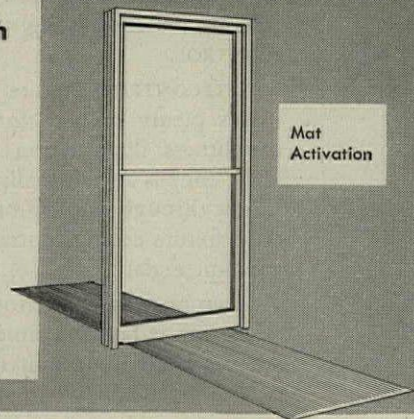


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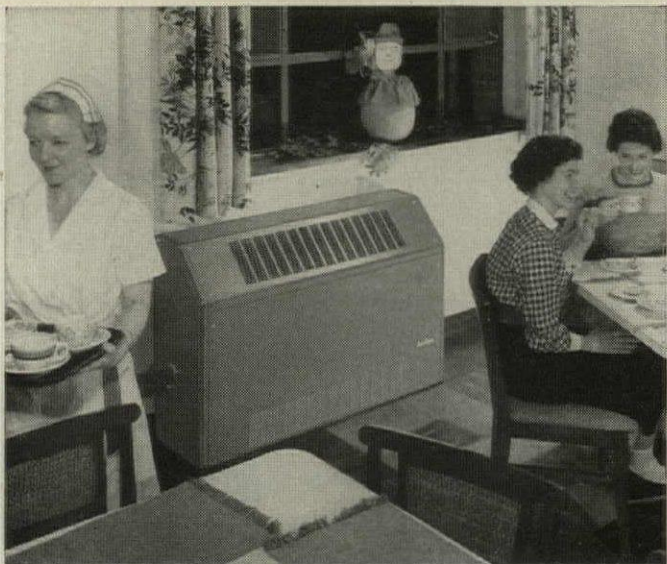
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Heating Contractor: George H. Soffel Co., Inc., Pittsburgh, Pa.

Architect: William York Cocken, Pittsburgh, Pa.

General Contractor: Duquesne University Department of Engineering, Pittsburgh, Pa.

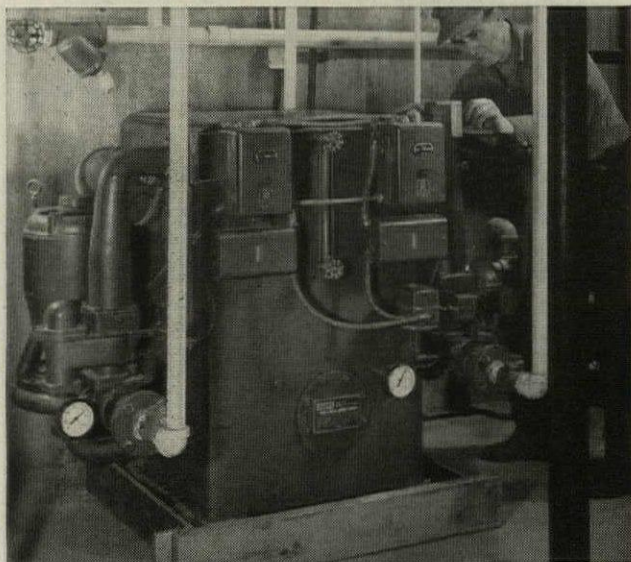
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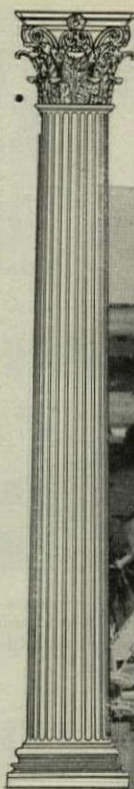
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architectural

FORUM

the magazine of building

About this month's FORUM

Frank Lloyd Wright's first completed, habitable tall building is an event of first-class importance, and following, FORUM is happy to show first pictures of the Price Tower.

One reason Wright himself towers above his profession with the public is his life-long undeviating battle for architecture as a fine art, and for art (with religion) as a way of life. Internationally he has become a popular symbol, the Architect incarnate.

The picture has considerably changed since 1938 when FORUM published its first all-Frank Lloyd Wright issue, followed by a second in 1948 and by big Wright sections later. For many people during two crucial decades these were the only comprehensive sources at adequate scale of Wright's work. By now Wright's acceptance and importance have outgrown any single publishing allegiance. And by now no editor can accept all Wright's claims—for, like Louis XIV, he thinks of himself as a king by divine right and rejects the role of prince among peers. This latter role can be generously, loyally, and even affectionately accorded to this towering, bristling genius.

Coming down a few steps, this issue of FORUM gives lots and lots of pages to rooms. Six go to dining rooms, 12 to classrooms. But between the two articles (p. 134 and p. 140) there is a basic difference. The dining rooms (part of our series on public rooms) are

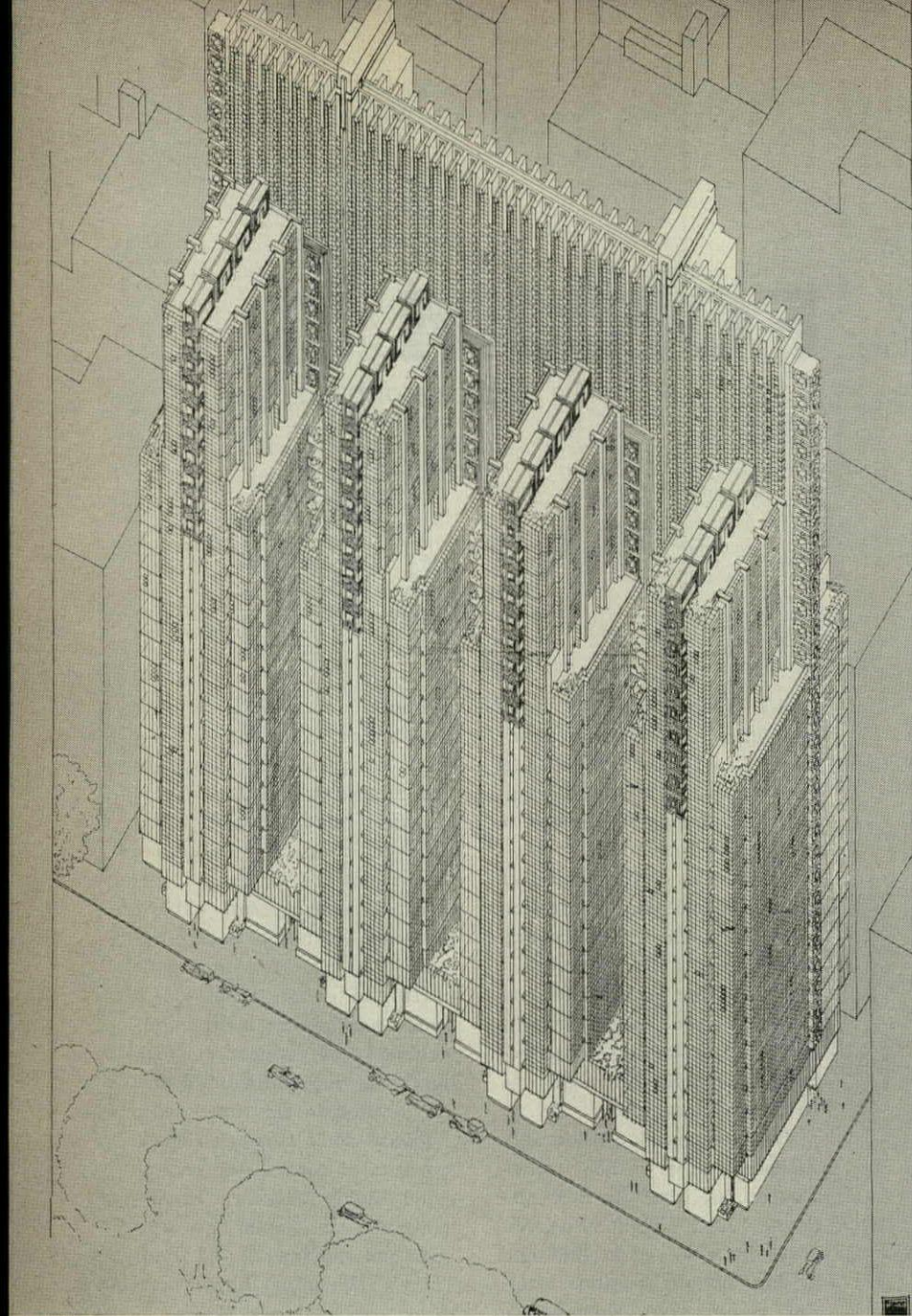
discussed in relation to the *general* art of dining; and we shall be pleased if anybody finds appetizing ideas in restaurants that he can carry over to clubs, for example. Classrooms are discussed in relation to the *special* art of teaching; and this study reflects the fact that in recent years the entire room—as a room—has become a direct instrument of education. Its lights, its very walls and floors, are devoted to this purpose.

Please don't stop with these two sets of rooms. We recommend highly Florence Knoll's bankroom, as open as any open-end mortgage, and Paul Thiry's charming library interior.

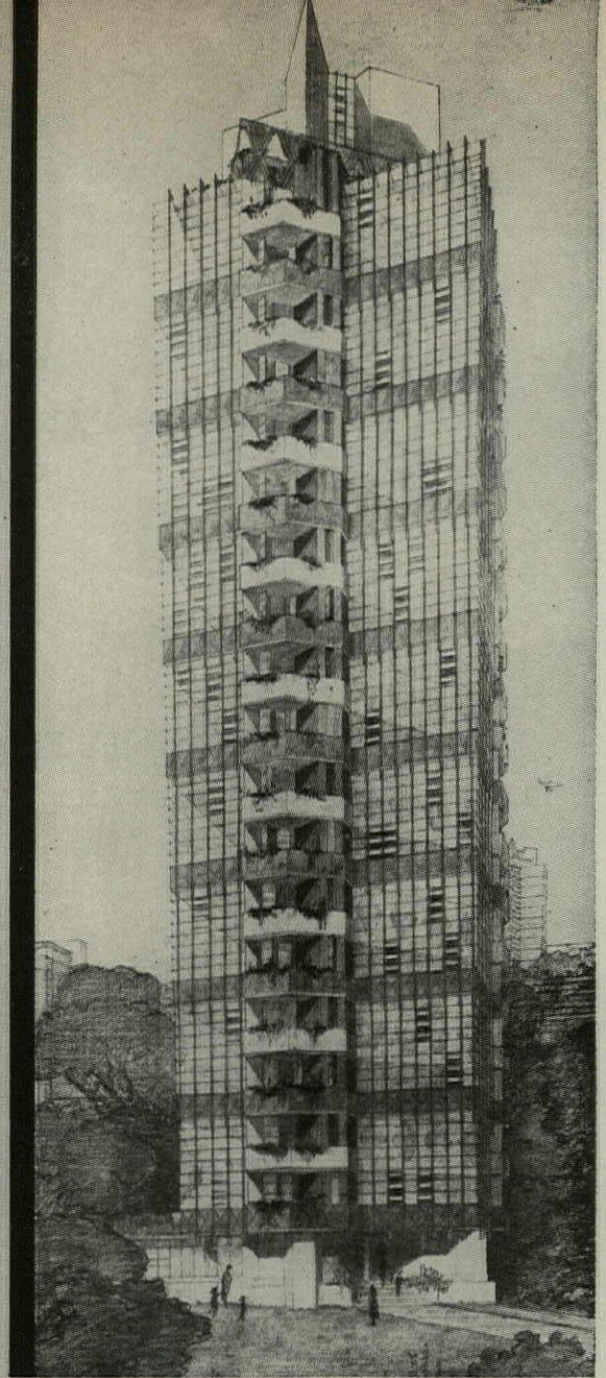
Whether you are a storekeeper or a manufacturer, an architect or a banker, we suggest a close look at the article beginning on p. 127, where the best consensus of expert opinion that could be found tells pretty exactly how many, many things you can do if your problem is remodeling the "ordinary" but all-important Main Street store. If you are an architect, maybe what the architects did in Tulsa (p. 120) will answer the oft-asked question for you: "How do architects get into the act of rebuilding our cities?"

And finally, please don't stop when you find the heading "Technology" (p. 158). It's written for all concerned with building — because engineers need above all else to know how owners are thinking—and vice versa.

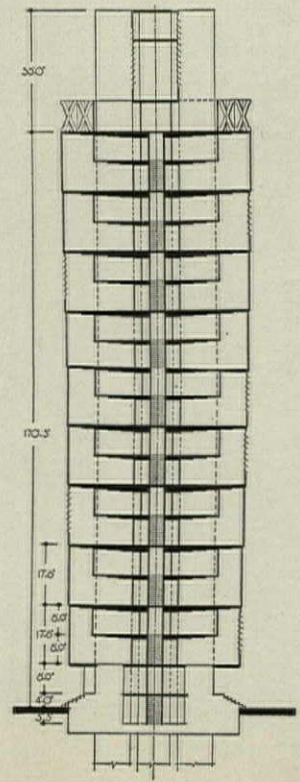
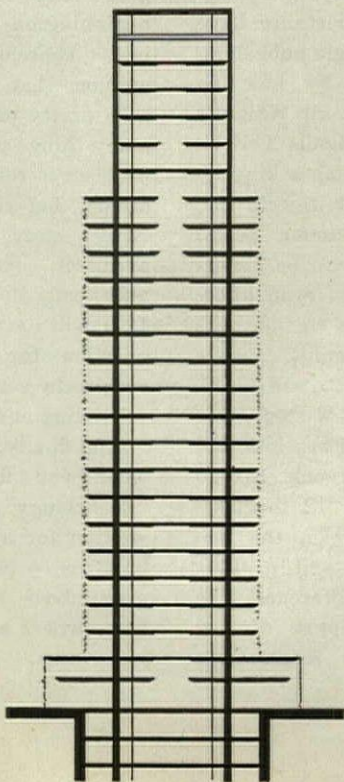
THE EDITORS



1920 National Insurance Co. building planned for Chicago



1929 St. Marks-in-the-Bouwerie planned for New York



FRANK LLOYD WRIGHT

After 36 years, his tower is completed

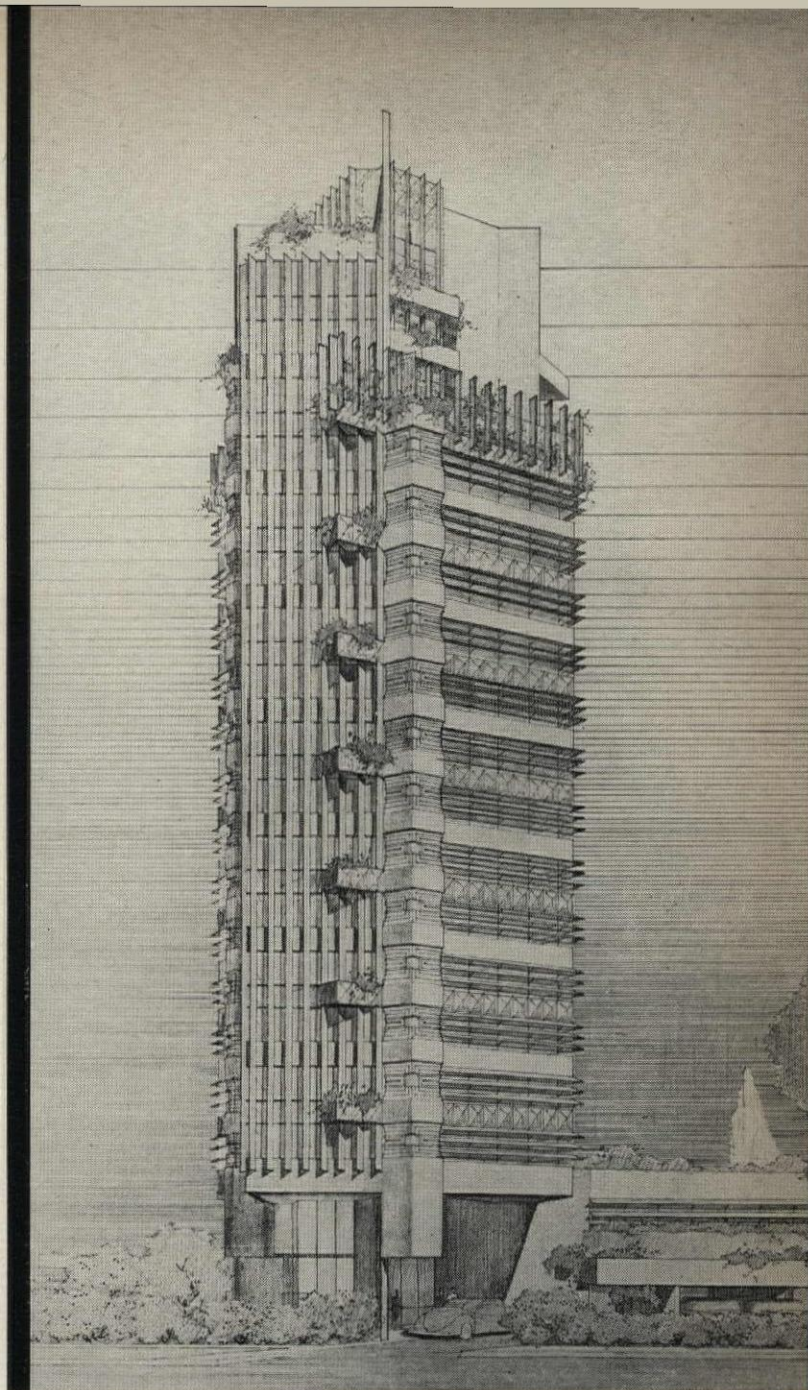
On these pages are the pictures of a great artist's imagination at work over the span of a generation. Wright's new tower, standing in the prairie town of Bartlesville, Okla., is the realization of a serious prophecy of beauty and strength which began to grow a long time ago in the architect's mind.

Wright, 36 years ago, designed a large office building for the National Life Insurance Co., which, structurally, was a row of pylons supporting cantilevered floor slabs. The idea itself had preceded this design, of course: "I began work on this study the winter of 1920, the main features of it having been in mind ever since the building of the Imperial Hotel in Japan in 1917." Wright brought the drawings to Louis Sullivan, and the elder architect went through them carefully. Then he said: "I had faith that it would come. It is a work of great art. I knew what I was talking about all these years—you see?" But it was never built.

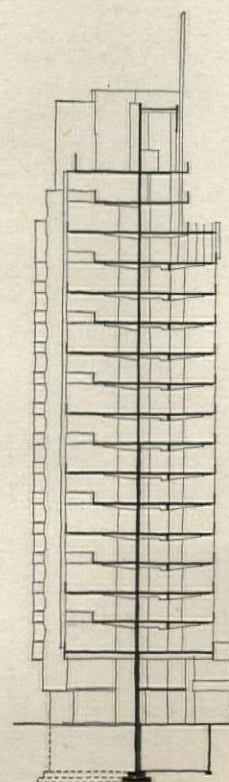
In 1929 the idea boiled to the surface again, and this time took the shape of the St. Marks-in-the-Bouwerie project, a treelike structure with floors cantilevered in all four directions from a central stem of elevators and services. This building was for apartments, not offices, and also was not built.

But eventually, if you live as long and dream as true as Frank Lloyd Wright, perhaps things come together. This happened when he began designing the combined office and apartment tower for the H. C. Price Co. on the prairie.

Now it is finished, and again Wright has brought his vision to reality. He too knows what he has been talking about. He has built another building with the depths and intricate personality of a statement of genius, working not in calculated architectural verse but in poetry, producing an upward proclamation of the mineral colors and deep richness of the earth. (Turn the page.)



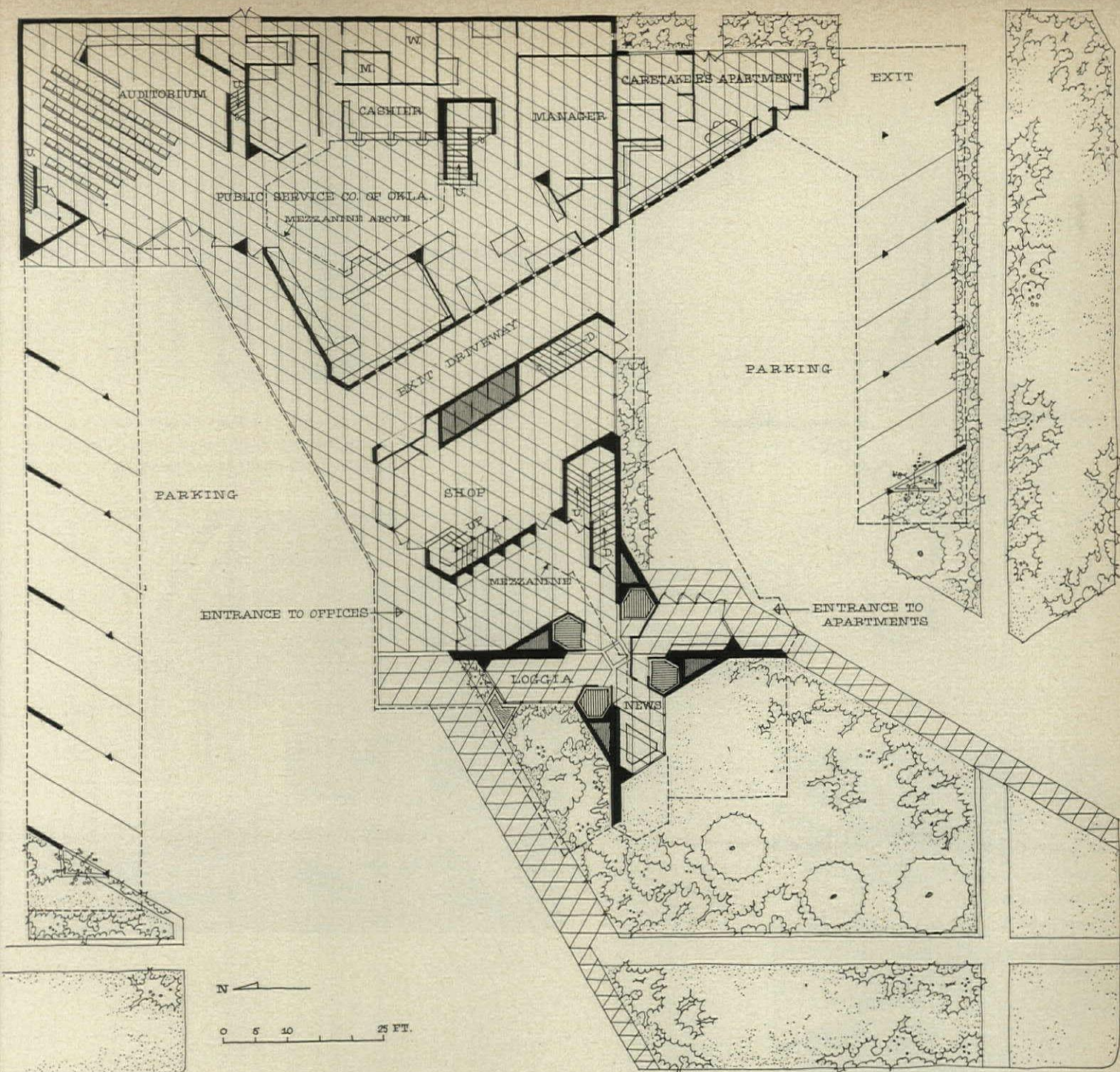
1956 Price Tower, built in Bartlesville, Okla.





Price Tower rises among
frame houses, the tallest
building in Bartlesville,
viewing over 800 sq. mi. of
rolling Oklahoma prairie
and foothills. (Photo-
graphs by Joe D. Price.)



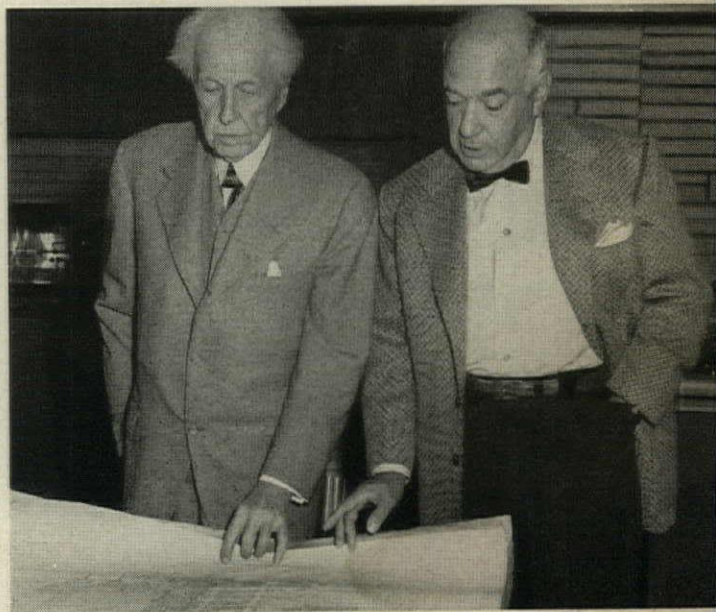


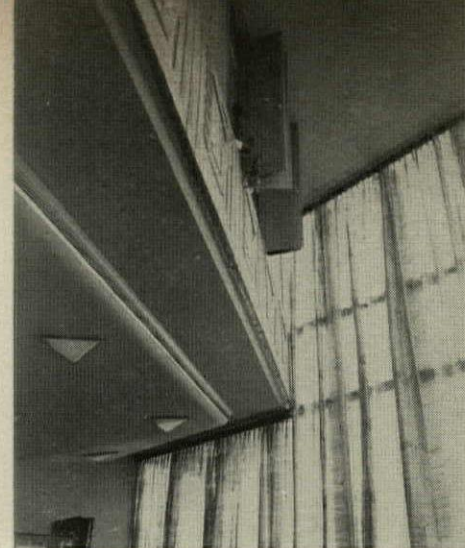
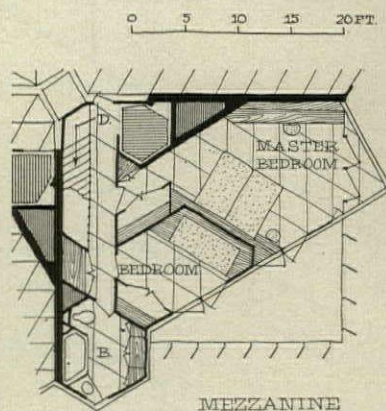
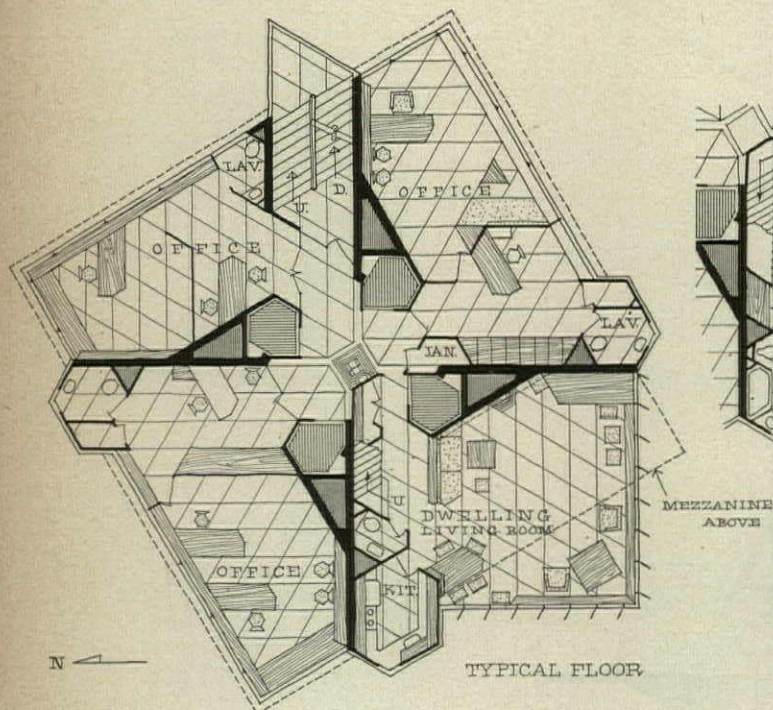
Architect Wright; Client Price

Structure of the 186'-high Price Tower is reinforced concrete—in plan an X with an open center. Inside each of four reinforced concrete vertical fins forming the tower's strong spine is space for ducts and other mechanics, plus a small self-service elevator. The outside corner of each upper floor slab cantilevers as much as 19' from a cross beam.

As original in concept as it is in construction, the tower houses both offices and apartments (to be rented independently). Three quadrants of each floor are office space, easily divided or included in one suite; the southwest quadrant on each floor is a vertical half of a duplex apartment (plan on p. 112). This living stack rises up from a green plot of planting and has a separate entrance.

The client, H. C. Price Co., is an international builder of pipe lines with headquarters in Bartlesville.





High ceilings enhance outer corners of living rooms; conditioned air is discharged from slots under mezzanine slab.



Typical office with shielded view over flat landscape; below, central elevator hall looking into one office quadrant.



The tower wears a rich pattern of copper louvers—vertical on the glass face of the living quadrant, horizontal across the windows of the office quadrants—to assist the air-conditioning system in ameliorating the hot sun over Oklahoma in summer and to relieve sky-glare. These fins and the other stamped copper facings have been preoxidized chemically to their eventual weathered color (see cover), the rich permanent verdigris of old copper. The close-up photograph on the facing page shows the upper part of the living section, the stack of two-bedroom duplex apartments, each with its bedroom mezzanine projecting through the copper fins in a balcony. Small windows to right are in office quadrant.

Basic planning module of the building is a 2'-6" wide diamond with 120° and 60° corners. Gross area of each tower floor is about 1,900 sq. ft. The top three floors are a penthouse office and apartment suite for President Price of the client company.



ARCHITECTURE IN AMERICA—PART V

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

THE CONTRACTOR

Once the master builder, hardly distinguishable from the architect, he is growing through the brokerage of materials and manpower to become a professional whose guidance can be creative



(1)

The arching streak of white-hot rivets tossed high into the sky and caught deftly in the riveter's bucket, the rat-tat-tat of the riveting guns, the picture of men riding up on beams hoisted by giant derricks, or of other men walking over air on the naked skeleton 80 stories above the sidewalk—all this used to spell the great Building Romance to the American public. But what was heroism and adventure then has become commonplace now. Not in 28 years has there been another book on the builder as adventurer to match Colonel W. A. Starrett's autobiographical history of *The Skyscrapers and the Men Who Built Them*. The major acts of the drama have moved out of town—to great dams and power plants that might be rising in Washington State but might again be in Caracas, Venezuela, or Bokara, India, or somewhere in Jordan or Liberia or Thailand. If the project happens to be a vast atomic plant in Tennessee it is closely guarded against the general public. If it is an infinitely complex chemical plant somewhere in the Carolinas or at Corpus Christi, Tex., only a select work force of initiates can appreciate its refinements. What is left as visible building drama, for most people, is only the bulldozing of vast land tracts by some of the big homebuilders.

To the public the builder is the great man who gets our buildings up, just the same; he is the man whose crews can actually be seen making the building grow; he is it. Only rarely is there a smart boy, like the youngster named Louis Sullivan, who roamed the streets of Philadelphia one day in the late seventies, saw a fascinating building going up, and figured out for himself that the big say of what the whole thing was going to be belonged to somebody behind the scenes who made the blueprints, so Louis set out to become an architect. Actually the builder and the architect, in one or another mantle, are as indispensable to one another as Siamese twins, the one conceiving buildings



Photos: Henry Grant Compton

(2)

Typical of medium-size contractors in organization, operation and attitudes is Terminal Construction Corp. of Woodridge, N.J. Current volume: \$76 million. Vice Pres. Vicinio Carnecchia (1—center) inspects job site, Newark public housing project. Carnecchia talks with Pres. Richard Dinallo (2). Pair meets with lawyers, auditors (3) to discuss 1955 taxes.



(3)

and the other translating the conception into execution.

For thousands of years these two were no twins but one and the same man; and modern specialization brought them to separate only grudgingly.

It is still something of a mystery just how the "architect" as "chief artificer" or master builder of ancient history managed the time to make surveys and plans on top of directing his fellow masons. We know that in Europe a real distinction between builder and architect began to appear in the 15th century, when the builder kept right on building but the architect could sometimes be a building "amateur"—often a painter or sculptor like Raphael or Da Vinci. There was no wide cleavage until the 19th century. Architects as a separate, organized, professional body go back in the US only 99 years to 1857 when the AIA was founded. In Latin America the building contractor is still an architect, or vice versa the architect is his own building contractor.

Builder to broker

The word "contractor" in itself suggests a gradual change, for "contracts" were pre-eminently the device of the new mercantile world, which in turn begat the industrial-scientific world, both replacing the medieval world of the craftsman. And, like it or not, the major adventures of the typical "general contractor" (or building director as we might call him) have shifted back from the job site to the office, from handling hoists and derricks himself to manipulating calculators and directing the work of others. The mud of foundations is still on his boots but more and more often they stand in a corner while he looks wistfully out on the growing city through a window, one hand on the phone and the other on a pencil.

Costs are the point at which the general contractor

now crosses the path of both owner and architect most decisively; big victories over costs, involving purely mental ingenuity, are the necessary antecedent to his brick-and-steel physical victories.

A success story may read like this: When bids came in from a dozen contractors to build the initial plans for the Statler Hotel in Hartford, Conn., the owner and architect were dismayed because every bid exceeded the \$5.2 million budget by at least \$1.2 million (or 23%). But the story had a happy ending. George A. Fuller Co., one of the country's biggest and smartest contractors, did three things. First, they went over all the bids they themselves had received from "subcontractors" (those who perform specialized work such as foundations, masonry, roofing, plumbing, steam fitting, or electrical installation) to help these "subs" figure savings on materials and methods. Then—and this was perhaps the most important service—Fuller helped the young architect, William Tabler, make cost-saving changes in design and materials, like omitting plaster above and beneath windows. Finally, Fuller built the hotel, which was now down to the budget figure but no whit the worse for it. To cap it off, the young architect learned so much through this experience in collaboration with the contractor that on the Dallas Statler (recently opened) he won a hat on a bet with the owner's construction vice president by getting bids on the first try of less than \$9½ million against the experienced owner's \$11½ million estimate (AF, June, '54).

The vast importance of the general contractor's pricing function to the progress of architecture derives from the wild chaos of building as compared to routinized mass industries. There are other price mechanisms than the "firm lump sum bid" (they will be outlined later) but until recently no architect could tell "for absolute sure" whether his plans were *buildable within*

Plans on which Terminal Construction Corp. will bid get scrutiny from Charles Cusick, purchasing head (4-right), and estimators, from Edward Woolley, chief engi-

neer (5) and later from take-off man for subcontractor (6). Dinallo, a housebuilder's son, and Carnecchia, a tile setter's son, started Terminal 10 years ago. Like many



(4)



(5)



(6)

a price until bids by competing general contractors had been opened. Price quotations are the contractor's eloquent way of saying yes, no or maybe to a whole series of propositions. The factors are these:

1. A complicated materials market, not now but tomorrow and all the way to two years from now.

2. A complicated variety of materials outlets. The big contractor buys his main materials direct from manufacturers such as steel fabricators; small contractors are in the anomalous position that they buy for a producing operation from secondary outlets. (His own opinions and sources lead the contractor to negotiate changes in the precise brands specified by the architect, all along the line, and architects knowing this will generally leave an "or equal" clause where specific brands are named in the specifications.)

3. A rough and tumble labor market. Some 19 different trades may be engaged on a single building, each ready at the drop of a hat to fight jurisdictional disputes with others, deciding whether metal windows, for example, belong to metal workers or masons or carpenters. On an average, labor contributes about 40% of building cost, which is another way of saying that compared to other mechanized industries building is done "with bare hands." In a paper mill the machinery investment per worker has been reported as \$500,000; in small building contracting operations it is in the range of \$500, in big ones about \$1,000.

4. An evaluation of the architect involved. Clarity of drawings and specifications, for example, can vary so widely even among large architectural firms that one of them may get bids regularly 10% to 15% lower on the same work. The contractor protects himself with a higher bid against the chance of having to tear work out where unclear drawings were misread or to use more expensive materials where specifications were dubious. And where architects have left interpretations loose the

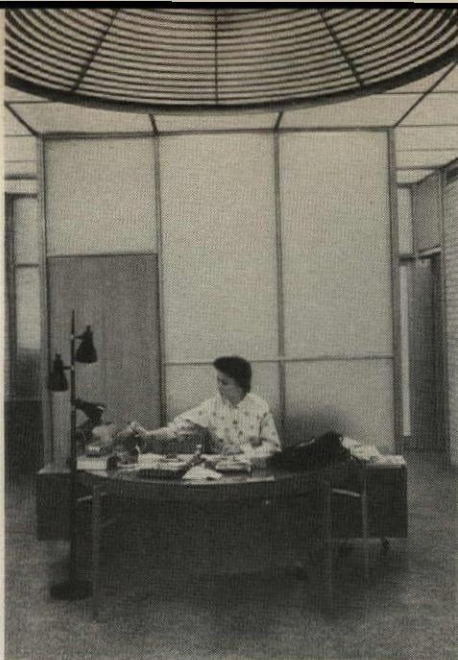
contractor will cheerfully interpret to his own advantage.

5. An attitude toward progress and change. Any change upsets routine; and where the architect as creator will think about long-run advantages, the builder must count the immediate cost of retraining whole series of high-paid bosses and men under him, not to mention building inspectors.

From broker to professional

Indeed a three-phase historical evolution seems to be under way among contractors. When the contractor was a builder himself, joyfully exercising ingenuity in the field, he was quicker than anybody to adopt new methods. Thus Turner Construction Co. got its early reputation and its start toward bigness by its pioneering in the design, no less than the erection, of that new material reinforced concrete. But with the complication of buildings by new mechanical equipment, electrical work, elevators, plumbing, air conditioning, acoustical treatment—all multiplying the number of building operations and the number of installation experts needed, plans could no longer leave any room for improvisation. Everything had to be tightly fitted in architects' drawings that were precise to the last detail. Under such conditions the interest of the average builder lies no longer in innovation or building initiative. He accepts the drawings and "specs" as given, and tries to keep execution as simple and faithful as possible through organized routines. Not even a good suggestion from a workman can be followed if there is danger that the architect's supervisor, coming three days later, might say "tear it out." This is a penalty of specialization.

Today, in order that architectural development may proceed at all, it is necessary not only that innovations



(7)

contractors, they have learned money is made in the office, losses are prevented on the job. Firm does own excavating, concreting, brickwork and carpentry on most



(8)

jobs, subcontracts the rest. Terminal offices puts partner's secretary under skylight (7), payroll clerk behind modern machine (8). Dinallo checks with Robert Gilson (9).



(9)

be provided for, but that they be known, understood, planned before work is begun at the job site. Ingenuities that were once improvised in the field must be thought out in the office. Sometimes they must be tried out in a mockup or test. It must happen before work starts.

So the first two phases in contractor development might be called 1) the past *craftsman* phase, when the builder actually built everything himself; 2) the present *broker* phase, in which he mediates between owner and architect on the one side and on the other side a group of subcontractors, whom he organizes and directs. And we now have probably developing 3) the *professional* phase, in which the contractor makes his best contribution through consultation and advice, though he still schedules and polices the work of his various "subs." This was what happened in the case of the Statler at the beginning of our story.

The newer attitude, which makes the contractor a professional on the team from the very beginning of the work, favors a different kind of contract from the familiar "lump sum bid" that has been described. The "cost-plus" contract which grew during the war charges the cost of labor and materials all to the owner direct as work proceeds; then there is a contractor's fee, usually in the range of 5 to 10%. It can either be a fixed sum negotiated before work starts, or a fixed percentage of the project's total cost. Such arrangements make it possible for the contractor to furnish advice* and preliminary estimates (of the reliable kind that cost money to prepare) early in the game, without the risk of wasting his time as he might if, after doing all this work, he were to be underbid by someone else.

* It must be confessed that not all architects welcome contractors' early advice. Harrison & Abramovitz say it can curb development of design. But they did collaborate with Contractor Fuller on elaborate tests on causes of window leaks in tall buildings.

A "guaranteed upset cost-plus-fixed-fee contract" is a further refinement giving incentives for saving the owner's money. The contractor guarantees that he will build to the plans and specifications for a total maximum price, customarily negotiated before the contract is signed. This price includes a fixed fee for him. If his fee is exhausted before all bills are paid, he may have to dip into his own pocket. But if the final cost is less than the guaranteed top sum, fixed fee included, then the price is "upset" and contractor and client share the saving.

The contractor's share of savings achieved is 10 to 50%. Example: when William L. Crow Construction Co., New York quality builder, built a faculty house at Sienna College, the agreed-on "upset price" was \$956,429. Through efficiency and buying economies Crow saved \$48,812. Crow's share (10%) was \$4,881; the owner's (90%) was \$43,930.

Chain of command

The traditional builder-contractor subcontracts from a quarter to a half of his work, depending on the nature of a project. He may, for example, do his own excavating, foundation work, concrete work and brick work. Usually he will subcontract his roofing, plastering, painting. Invariably he will subcontract his structural steel erection, plumbing, heating and ventilating, sheet-metal work and electrical work. This last category has come to be the province of specialty subcontractors working in close harmony with highly trained workmen. As the complexity of specialty work increases, general contractors are glad to leave it in the hands of those who do it best.

Within recent months the Public Building Service revised its rules to allow contractors bidding on federal building jobs to subcontract 88% instead of 75% of their



(10)



(11)

Terminal Construction Corp. is in allied businesses: it is the speculative builder of luxury apartments in Hackensack, N.J., and of a parking garage in Camden, N.J. Dinallo and Carnecchia split administrative and building functions. On site of big Jersey City Sewage disposal plant (10)



(12)

work. This was done in recognition of the quickened trend toward subcontracting. The biggest staff of the broker-type contractor is his office staff. One small builder, who does just under \$2 million in work yearly, has a field force consisting of a general superintendent and three job superintendents. All of his work is subcontracted on the theory that "it is better to go to a large sub who keeps the best men busy all year than trying to hire good men; all you get are union-hall hangers-on."

When Turner Construction Corp. began work on the Socony-Mobil building in New York two years ago, all work was subcontracted. Turner's workforce, exclusive of supervisors and field engineers, was six carpenters to build guard rails and the like, something no subcontractor assumes responsibility for.

For the client, the fragmentation and distribution of construction responsibility have meant a compromise with quality. Communication, the great problem of modern industry, is weak between head and foot. The generally reduced craftsmanship of today's building industry is attributed by workmen to lack of interest at the top, and by the contractor to lack of pride at working level. Both are in error, but they may never know it, for contractor and workman seldom meet.

One result of this difficulty of communication at the site is to encourage mechanization, which precludes all possible human error. Indeed, another result is to help drive all possible work back into a shop, belonging more and more often to a manufacturer, who can control quality more easily under his roof. This means that the time-honored "building" operation becomes more and more of a materials handling operation, an assembly operation, the turning of the final screw, the final alignment of the ready parts.

Architecturally this compels more and more "depersonalization" of style. It means that the lack of origi-

nality often ascribed to today's architects, the "bareness" of their results, springs from the building process. Thus stock curtain wall panels covering whole sides of buildings look alike whether they stand in Chicago or El Paso; they are put together in the same way by workmen with the same simple training. Those architects who insist on a greater proportion of craftsmanship and variation must persuade their clients to pay for it.

Ramifications of contractor types

Standing as he does in a key position to the owner and the market the builder can become more than just a "contractor" executing the owner's architect-supplied plans; he can lop over in one direction and become an "owner" himself or he can lop over in the opposite direction and take full charge of architecture, engineering and contracting as an "AEC" or "package" firm. Then again he can stand somewhere in between, extending his "honest broker" functions to owner's representative.

The case of the builder as "owner" is the case really of the speculative builder, and its full ramifications extend so far into financing and operation that it will be treated later in this series as an element in today's real estate practice. Suffice it to say now that the speculative builder does for big buildings almost exactly what the home-builder does for houses. He fastens upon that part of the building field where there is a large predictable market for a *commodity*—mainly "stock" office space or industrial space—that will equally suit large numbers of future takers, instead of building an individual *utility* for a special case.

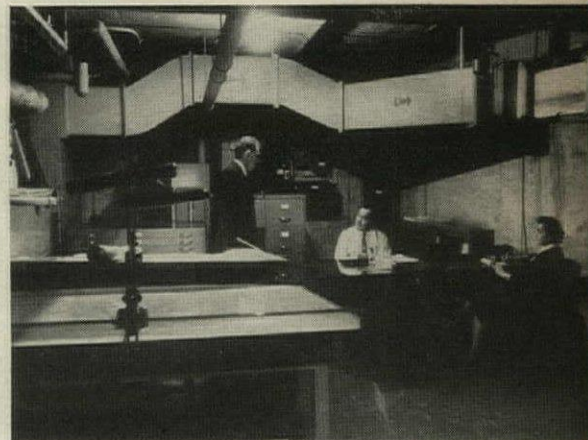
Architects with high ideals for their city are usually scornful of the speculative builder for his degrading influence on the art. The architects employed by the speculative builder are usually a hard-headed crowd that



(13)

Carneccchia watches foundation work with Paul Kenny, project superintendent. Carneccchia criticizes housing project architect's plastering specifications (11). Terminal is most comfortable with architects who do not experiment. Carneccchia talks little with workers on job, passes comments through

project superintendent (12). While Builder Carneccchia inspects concrete work at sewage plant (13), Terminal's industrial division (14) operates in cellar of already-crowded home office. Dinallo and Carneccchia have bought nearly 2,000 acres, hope to build \$200 million industrial park.



(14)

know how to put together bulk space cheaply, in a standardized fashion, for low architects' fees, and fast. The beauty of the speculative builder operation lies in its neat manipulation of business factors, not in the dull repetitive picture it makes on the street. The art consists in building with other people's money: "building out" and not keeping the builder's own money, as "equity," tied up. Through a quiet revolution of recent decades the speculative builder has de facto extricated the building function from the investment function with which it was formerly entangled. He is now free to build and build and build, letting others whose business is investment invest. Since the details of the procedure belong in the chapter on real estate, we need speak now of only two effects on architecture.

Some speculative builders of high business repute (not to be named) seem to have a positive love of ugliness. Workable utility is however to be expected; thus New York's Uris Brothers claim that among recent office buildings theirs have elevator capacity far in excess of the average headquarters buildings of big companies done in high style; and as a prime "air conditioning merchant" the builder-promoter has enlarged the market and therefore the art.

Moreover, as we shall see later on, a new breed of imaginative adventurers has grown up among the speculators' ranks, with names like Zeckendorf and Stevens and Greenwald. Through the accident, if you please, that these exceptional men know good architecture, and appreciate the immense value its drama can convey, and because, moreover, their projects for cities have a scope and scale and forward-looking character unmatched since Rockefeller Center, it is possible that in the history of architecture for this age, when it is written, they and their architects will lead the rest.

The contractor's reputation with the public of being the key man, and a practical fellow compared to the

highbrow architect, has led on occasion to misplaced confidence. At small scale there is the contractor who approaches the man, or preferably the lady, who is building a first house, and confides artfully, "I don't see why we need those heavy 2 x 8's under this floor—I've built dozens that size with 2 x 6's. You know how architects are. You could save \$20 on the deal and use it toward a closet over in that corner." What the freshman client and his wife do not know is that, paraphrasing Get-Rich-Quick Wallingford, "the profit is in the extras and the changes." Wherever execution deviates from the architect's plans and specifications the builder is freed of his contract obligation, and able to figure his own costs—noncompetitively—and to figure in a handsome profit too. It is, in fact, because of the "extras" gimmick that some less conscientious contractors positively prefer to work from brown paper drawings and back-of-an-envelope specifications, which give their sharp minds leeway.

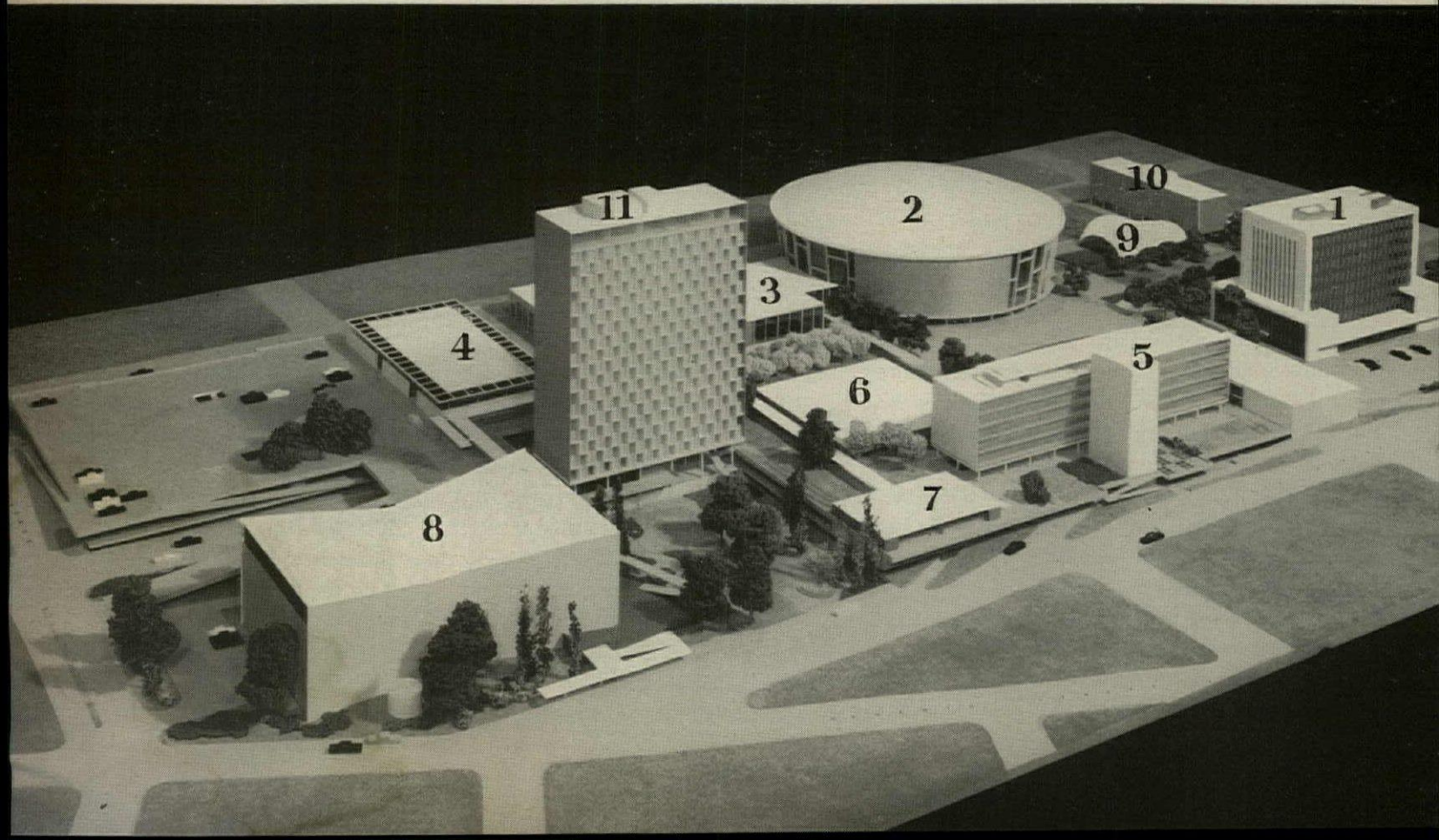
The other misapplication has occurred at large scale. It was a sad day for US architecture when top architect Tom Shreve (now dead) listened to salty builder Andy Eken (now retired) proposing that Metropolitan Life's big Parkchester development be drawn up in an office set up by the builder with only a "design board" of architects supervising what was to be a nice easy procedure. By not doing the complete job the architects lost real control; the outcome was architecturally less than brilliant, and the precedent deplorable. All this was despite the fact that there never was a better building outfit than Starrett Bros. & Eken—as a builder.

Performing his own role, there is no man on earth better loved by high-minded architects, the minority of truly creative men, than the great builder who has made their concepts come alive, full and true, and often helped by wise suggestions. His vivid performance of the architect's score is the contractor's gift to romance.



Civic center proposed for Tulsa would occupy eight blocks just west of downtown

Model shows buildings and plazas raised above traffic and parking (numbers are keyed to text opposite)



Tulsa's private professionals assume leadership in redevelopment, give the city a bold plan for 11 public buildings linked by plazas and underground parking. An important by-product: new understanding of the architect-planner in the community

ARCHITECTS PROMOTE A CIVIC CENTER

The new civic center proposed for Tulsa, Okla. (pop.: 225,000) is a dramatic example of what can happen when men trained in planning and design actually take the lead in urban redevelopment. It is one of those rare instances when a city's private architects step forward as a group, assume the roles of coordinators and promoters on a team of civic and business leaders, and help their city visualize broad solutions to future problems.

About a year ago a handful of Tulsa's 49 registered architects got to talking about a six-block area the city had acquired on the western fringe of the business district. A new county courthouse had been built on one of the blocks nearest downtown, and the city was considering a bond election for a new municipal auditorium.

If old patterns continued, reasoned the architects, the six blocks could easily become just another series of piecemeal projects: one building after another built as the need arose, with little relation to each other or to the traffic and parking problems they would create. Would this really add up to a civic center?

Through their newly formed Architectural League, the handful broached the problem to the rest of the architects in town. The League proposed to the City Commission that it investigate and develop, at production cost alone, a comprehensive scheme for the area. (How they went about it is described on p. 125.) The result of their year's work is shown at left—a master plan for a \$25 million civic center, suggesting the general size, shape and relationship of 11 buildings, a variety of plazas and gardens, and parking for 2,300 cars. (Numbers also refer to one proposed order of construction.)

1. COUNTY COURTHOUSE (existing), by Architects Black & West.

2. CIVIC AUDITORIUM, capacity ranging from 8,150 permanent seats for large pageants and sports events to more than 14,000 for boxing, conventions.

3. EXHIBITION HALL with 51,000 sq. ft. of unobstructed, two-story space for exhibits, trade shows, banquets.

4. SMALL ASSEMBLY BUILDING containing a 500-seat auditorium for recitals or conventions, a small-exhibits lobby, ten rooms upstairs for small meetings, administrative offices for all three exhibition-meeting buildings. Two levels of parking under buildings 3 and 4 would be built at the same time.

5. CITY HALL, adjacent police building and two levels of parking underneath them along the south side.

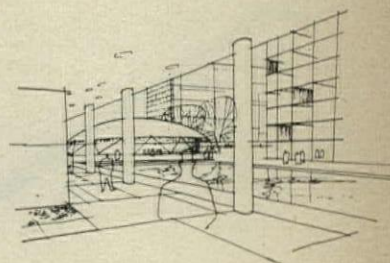
6. GILCREASE ART MUSEUM. Aside from the Smithsonian Institution, Tulsa has the world's most complete collection of American Indian and Frontier art and literature. The new museum would bring it from quarters on the edge of town to a central location where more people could enjoy it.

7. ART LIBRARY for books and records; terrace for reading, lectures, lunches.

8. MUNICIPAL THEATER with 3,000 seats, to provide adequate facilities for opera, plays, concerts, large meetings, and to attract major road companies. To serve increased traffic, the city would complete the remainder of surface and underground parking across Fifth St. to the north.

9. A NATIONAL OIL MUSEUM for Tulsa, the "oil capital of the world"; exhibits of the industry's history and latest developments.

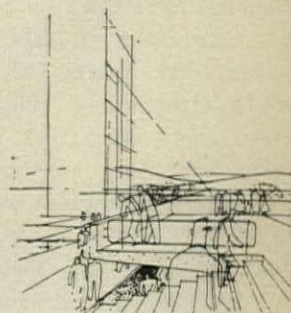
10. STATE OFFICE BUILDING for a half dozen agencies; employee lunchroom.



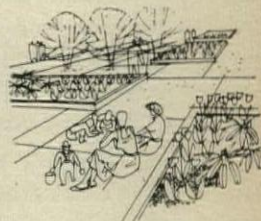
Plazas, pools, arcades



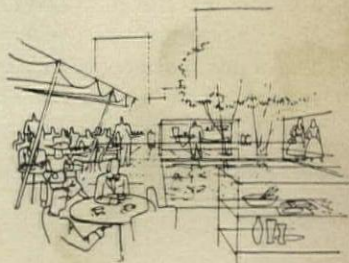
Shaded parks for sitting



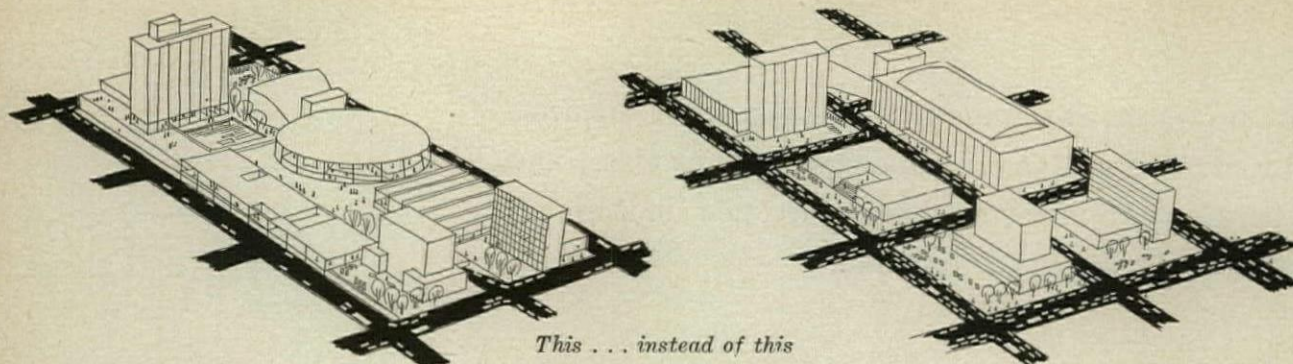
Spaces and views



Gardens and play areas



Outdoor cafes, exhibits



This . . . instead of this

Model by Technical Training Aids, Inc.; photos by Hawks-Terrell, Inc.

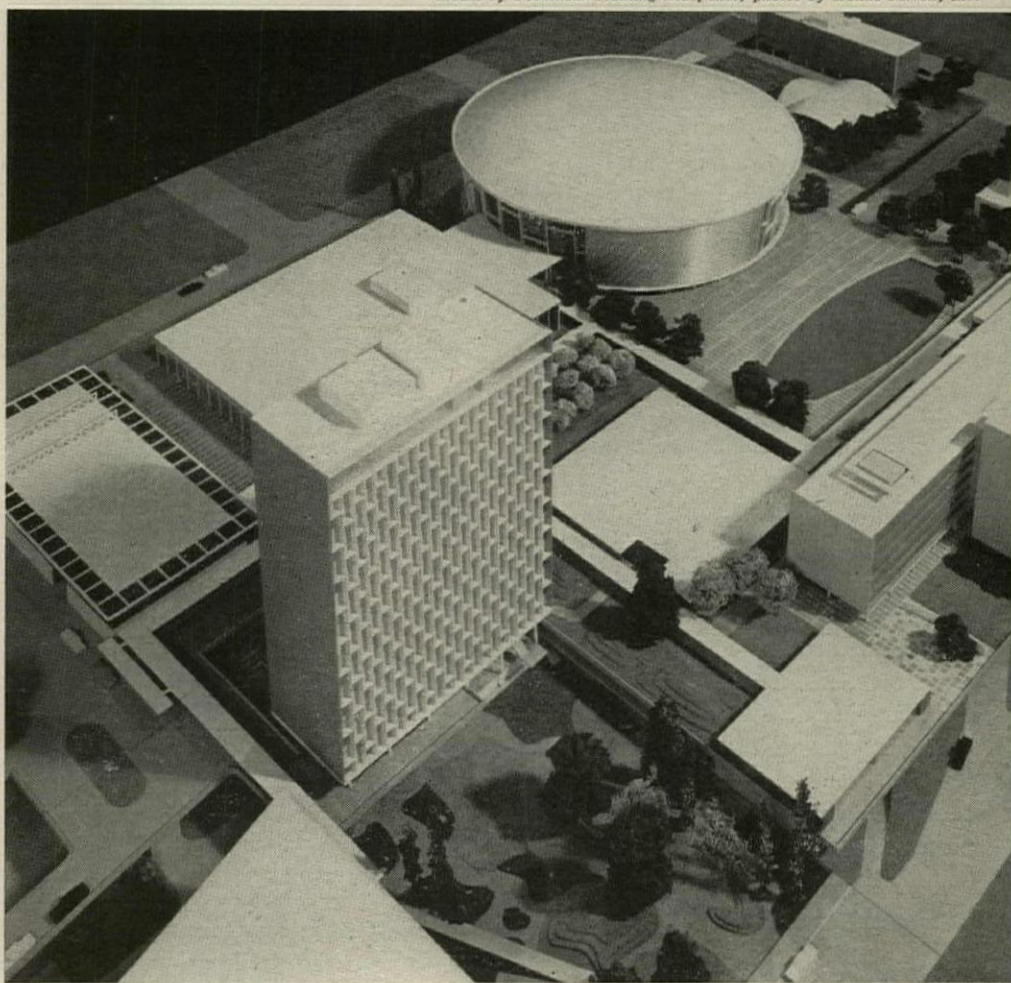
Why a unified center?

In the early stages the architects realized that a really successful civic center could only be achieved if the buildings were grouped so they could work with each other, with convenient parking and with outdoor spaces and views that would make the ensemble enjoyable. At the outset they dramatized these objectives in sketches and diagrams (some of the earliest sketches are shown on preceding page, later drawings on this and following pages). By closing off minor north-south streets and bridging over the main east-west street with a pedestrian level, they explained, they could give the center these practical advantages:

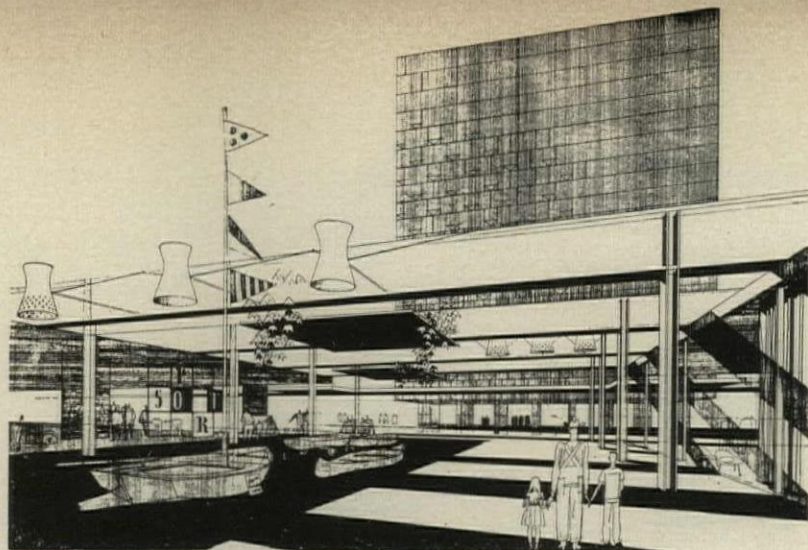
No traffic conflicts. Pedestrians would not have to cross streets crowded with automobiles headed for the new buildings. Fewer intersections would mean greater safety, more efficient traffic movement: around the center in a clockwise pattern with frequent access to parking, and through the center by a tunnel which also leads to central parking.

Parking nearer buildings. Drivers would have a short walk, under shelter, from underground garages to buildings above. Sheltered self-parking could bring in revenue to help pay off construction costs and would be far better for the Center's appearance than bleak stretches of surface parking lots or big multistory garages.

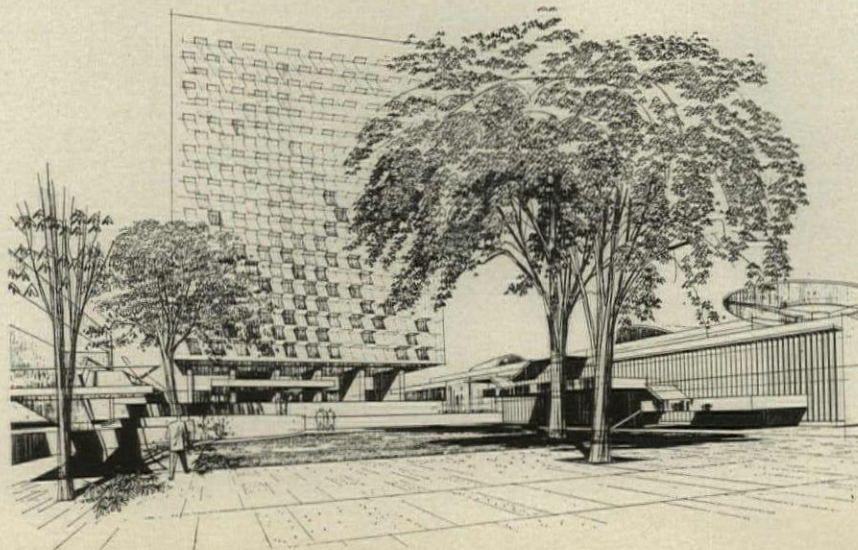
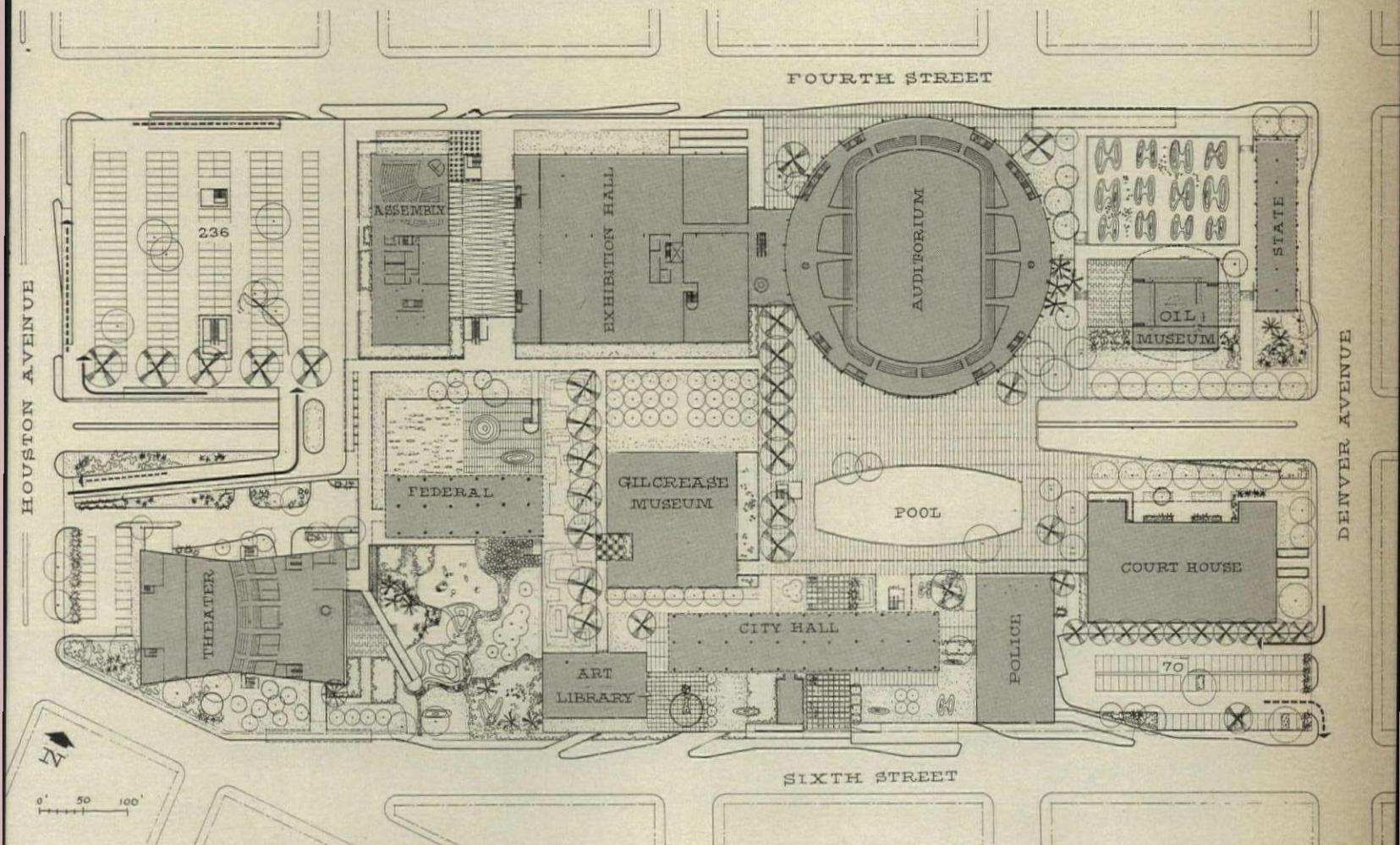
More buildings can share less parking. The same garage space used by office workers and visitors during the day would serve the auditorium and theater at night.



Open spaces are varied in size, shape and level, forms and materials. All are scaled to pedestrian uses, placed to give many views from both inside and outside the center. The main inner plaza between auditorium (top) and city hall (right) is loosely enclosed by buildings, trees and covered walks that shield it from surrounding streets and frame it for dramatic entrances all around. Unlike some monumental plazas it could be alive by night as well as day: it is intended to be big enough for festivals, square dancing and for crowds spilling out of the auditorium. Like the quite different theater garden (bottom) it makes a pleasant place for a stroll on the way home after a show or exhibit.

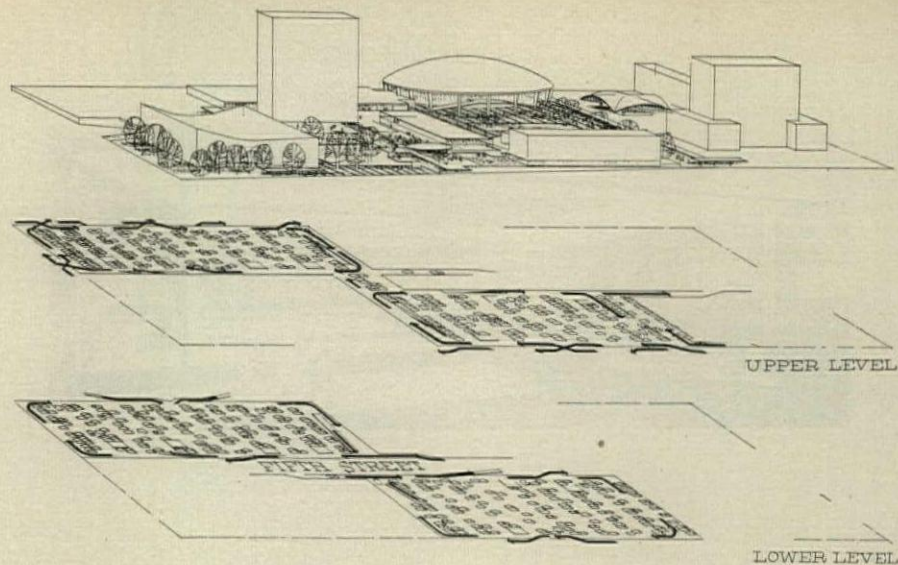


Exhibition court linking exhibition hall and small-assembly building provides paved, partially enclosed space and overhead structure for outdoor exhibits. It also gives the center a dramatic approach from the north, opening in toward the federal building. This space could be screened off from the walkways of the central plaza for special events or to throw its space together with that of the exhibition hall. To the north and east (plan below), low buildings and a pool with landscaped islands opens the center toward the business district.



Theater garden is a terraced, richly landscaped space opening into the center from the south. It can also be enjoyed from pedestrian ramps leading down from the upper plaza to the orchestra and balcony entrances of the theater (left), from the windows of the federal building (background) and from the library, museum and city hall (above to the right). Standing near the exhibition court above (see plan), one could look down into a sunken terrace and pool, through the open base of the federal building and down into this garden.

Three-level plan places buildings and plazas above, small surface parking lots at two corners. Bulk of parking is on two major levels below.

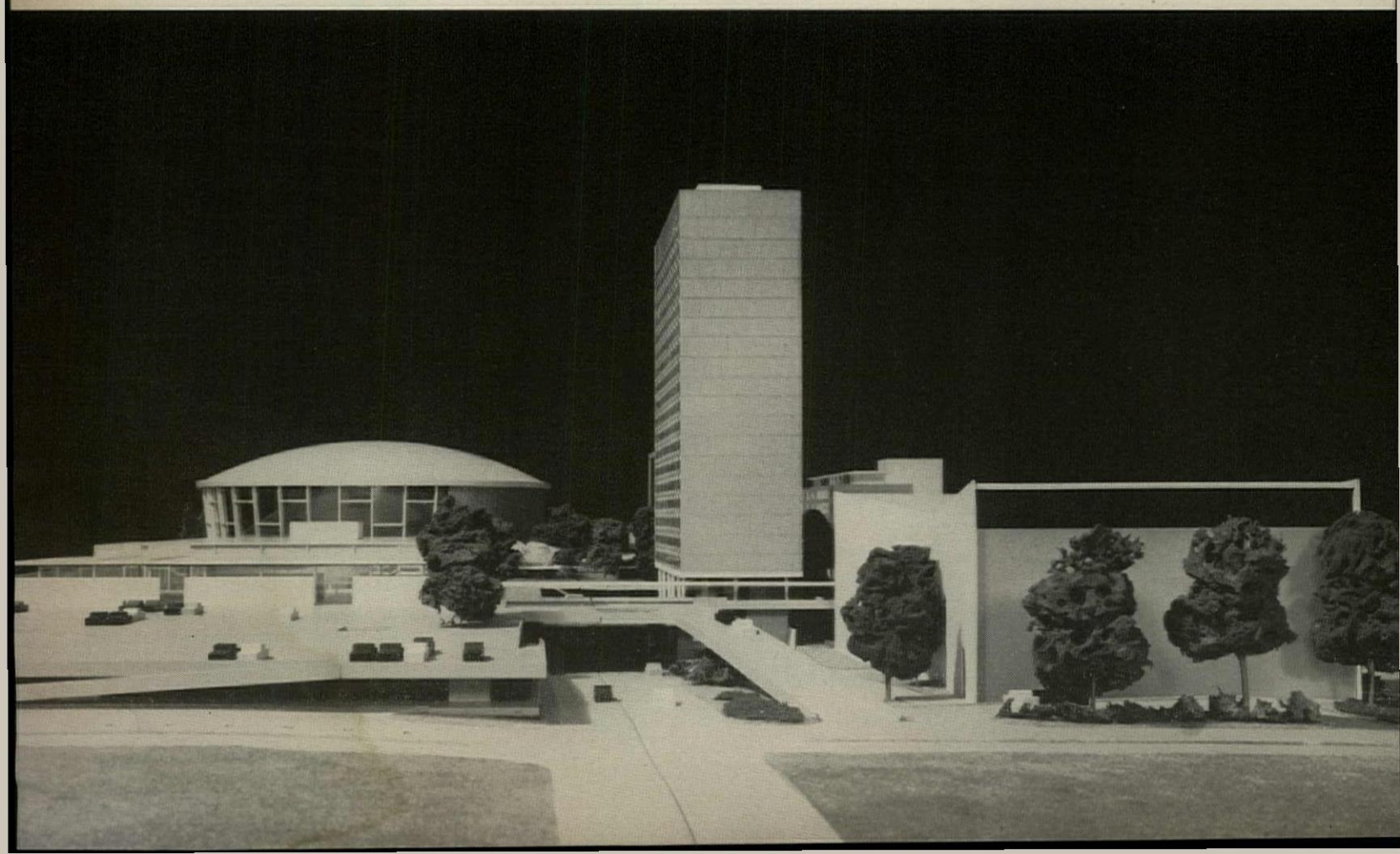


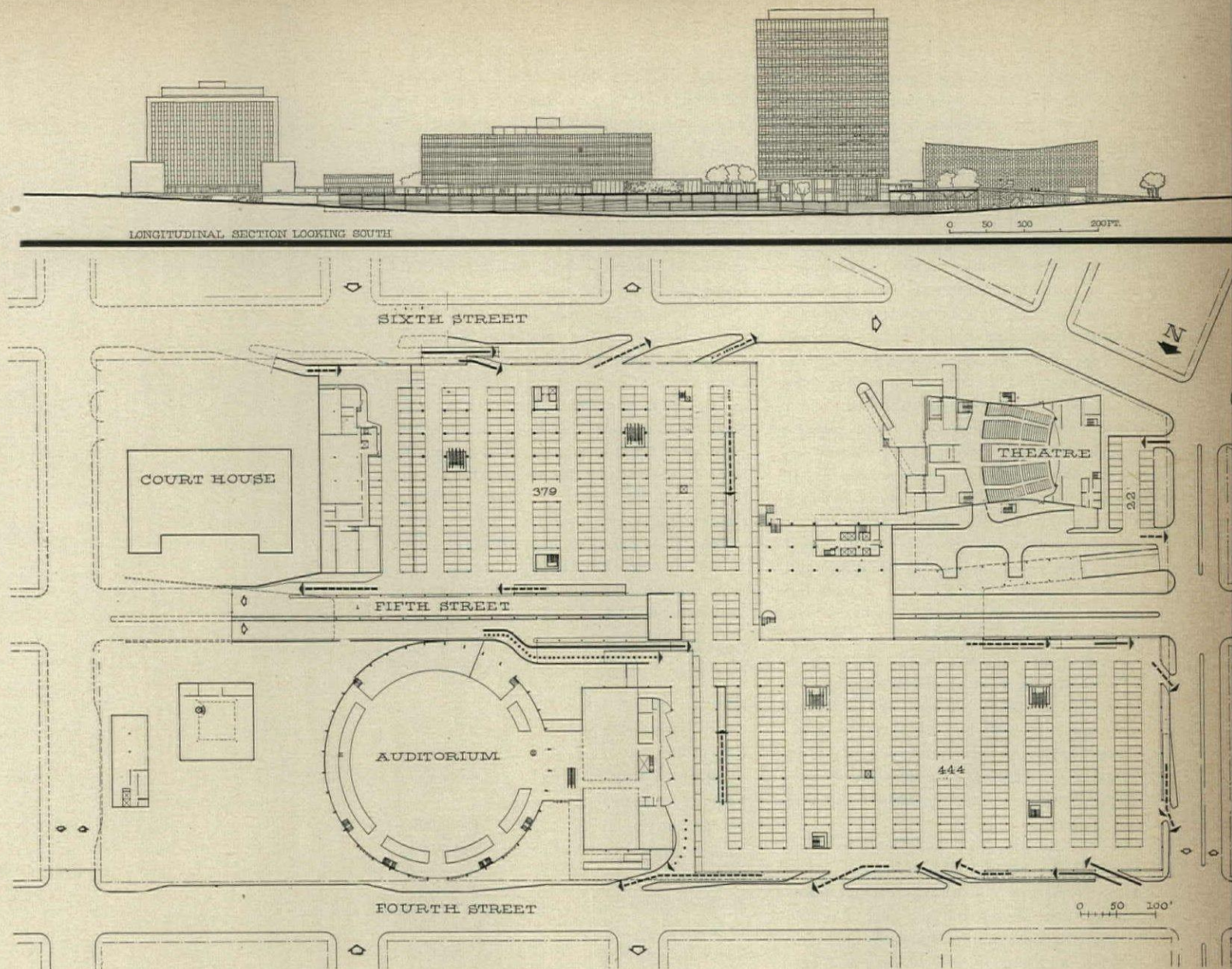
Underneath, two parking levels and a tunnel

Of 15,000-odd people expected to use the civic center during a typical 24-hour period, an estimated 80% would arrive by car, 20% by public transportation or on foot. With the big traffic generators—auditorium, theater and exhibition hall—all in use and 80% occupied, the peak need for parking at a reasonable charge was estimated at 2,300 spaces. The scheme developed to solve this takes advantage of a 20' drop along Fifth St. to throw a plaza over it, starting from existing grade at the courthouse end of the site (near end of section, right). This leaves room underneath for two garage levels without need for deep excavating, extensive ramping or attendant

parking. The upper parking level is shown in plan at right: cars move in and out of garages in a clockwise pattern, parking space is conveniently distributed beneath the various buildings which can be supported by ordinary structure, and garage entrances are numerous to prevent rush-hour tie-ups. By sealing off lightly traveled side streets the capacity of Fifth St. is increased about 50% and a street area equivalent to 1½ blocks (valued at \$400,000) is reclaimed for buildings and pedestrian use. Pedestrians are lifted by a moving stair to the plaza level where they can move freely among buildings without having to cross streets.

West end of site shows plaza bridging Fifth St. Ramp at right leads to turnaround above, where cars unload at covered walks leading to all buildings.





Getting a civic center designed—and built

Does this civic center plan really represent Tulsa's needs, and what are the chances it will actually get built? Probably the best indications lie in how it was developed.

Unlike some visions, this one was not first perfected in a drafting room and then sprung on the public. Rather, the architects developed their ideas step by step with the participation and suggestions of as many outside groups as possible. Their principal partners were the 19 members of the Mayor's Civic Center Site Committee, a group of leading citizens appointed by Mayor L. C. Clark under the chairmanship of Tulsa's street commissioner, Sid W. Patterson. As representatives of the public, these men studied the architects' original offer, recommended to the city commission that it be accepted and that the planning be carried out under their supervision. To work with the citizens' committee, the 49 members of the Architectural League elected a seven-man board of design (see photo) composed largely of the handful of

architects who originally broached the idea. The board's duties were broken down into a chairman, two members for research and finance, three for production and one for public relations.

Under a contract awarded it by the city, the League hired a staff of four (later increased to six) headed by Architect-Planner Robert L. Jones, and installed them in donated office space in the city hall annex where they could work closely with the city's own planning commission, engineers and other departments. To start the work, the city authorized some \$20,000 working capital (the job, including final model and reports, was eventually completed for something less than half the estimated budget of \$100,000.)

One of the first things the architects did was hold an "open house" exhibit at the city hall in which they showed examples of civic centers elsewhere, among them the Piazza San Marco in Venice, the town square in Freiburg, Germany, and the Back



Design Board (l. to r.): Joseph Koberling, David G. Murray, Leon B. Senter Sr., Frederick Vance Kershner, Donald McCormick (chairman), R. E. West, all of the Architectural League, with Project Staff Manager Robert L. Jones. Not present: Board Member Murray M. McCune.

Bay Center proposed for Boston (AF, Nov. '53). Then the citizens' committee sent letters to 150 organizations inviting them to attend a public hearing and offer their ideas of what to include in a Tulsa civic center.

These suggestions were submitted to the League, screened and combined with research started by the project staff, and preliminary space studies made of a site plan and of individual buildings. Wilbur Smith & Associates of New Haven were brought in to analyze traffic and parking, and their findings were presented to the citizens' committee. To insure coordination, the League's design board met at least once a week with its project staff, made regular progress reports to the citizens' committee, and to the full League membership at its monthly meetings. On the basis of building and parking studies, the League recommended purchase of two more blocks, which would give room for needed buildings and plazas and save some \$500,000 in parking-garage excavation. At the request of the citizens' committee, the architects developed a rough model and perspective drawings to help clarify the plan. A dinner meeting for downtown property owners was given by the committee, at which the architects explained work to date and distributed a progress report, a 22-page booklet describing their objectives and methods in sketches and diagrams.

As the scheme took more definite form, Sasaki & Novak of Cambridge were called in as landscape consultants. When plans reached final stages and had been accepted by the citizens' committee and the city commission, a group of civic leaders and businessmen were invited to a preview exhibit at city hall. Five hundred key individuals received the League's final report: a 153-page book illustrated with maps, plans, diagrams, photos of a second and more detailed model, alternatives of scheduling.

At almost every stage stories had appeared in the newspapers, and sketch exhibits had been displayed in the ground-floor windows of the Chamber of Commerce downtown. (In retrospect the planners feel they might have started their publicity even earlier, perhaps with the help of a

public relations professional.) The first public test of the plan came last November, when Tulsa voters narrowly defeated a \$3 million bond issue for the construction of the auditorium. Its authors are not discouraged, however, since the proposal was part of a \$25 million bond package in which only water and sewer proposals passed and unrelated issues such as expressways brought a heavy "no" vote.

The scheme has been made part of the city's master plan by the Tulsa Metropolitan Area Planning Commission, and the Chamber of Commerce has placed it high on its list of promotional projects for 1956. Says one seasoned local newspaperman: "The way things catch on in Tulsa is a little hard to understand for those who haven't lived here. The ground is here; the buildings will be."

Whatever happens, the architects have found out something about starting grass-roots movements, and Tulsa has learned a lot more about architects.

Cost estimate*

City hall	\$3,471,000
County building	
(already spent)	3,616,887
State building	
(state appropriation)	790,000
Federal building	
(federal funds)	4,342,000
Auditorium	2,906,000
Exhibition	1,023,000
Meeting rooms	535,000
Theater	2,383,000
Gilcrease museum	754,000
Art library	232,000
Oil museum	
(private contributions) ...	390,000
Parking (revenue bonds)	4,629,000†
Site improvement	573,000**
5th Street and utilities	488,000
Land	2,202,055††
Total	\$28,334,942

* Financing by general issue bonds where not otherwise specified.

† Parking may be financed by general bond issue.

** Site improvement may be partially financed by federal, state and private funds.

†† \$1,797,655 already spent.

The civic center from the northwest; auditorium-exhibition group in foreground



To put the small independent merchant and his Main Street neighbors back in business calls for some new solutions to some old problems. A panel of experts probes the reasons behind today's meager modernization activity and suggests ways to raise the pace

MODERNIZING MAIN STREET

A ROUND TABLE REPORT

There are almost 2 million small stores in the US. Most of them are strung out in ragged rows along the narrow, crowded Main Streets of our cities, towns and suburbs. Most of them are as out of date in appearance and equipment as the old buildings they occupy. Yet these stores are trying to compete with the new chain stores which have taken the best sites in the middle of the town, and with the attractive new shopping centers which have sprung up on the fringes. Unless these stores are updated inside and out, they can never meet this new competition and, in turn, Main Streets everywhere and whole downtown areas are doomed to deterioration.

In the current drive to rejuvenate the commercial districts of our communities, small independent stores—

because there are so many of them—are just as important as any of the biggest downtown interests: banks, office buildings, department stores, utility companies and transit companies, and the others. Any plan for rebuilding our communities downtown which does not reckon with the small retailer is not likely to succeed.

It was with these thoughts in mind that 20 experts in all phases of store modernization assembled six weeks ago in New York at the FORUM's invitation to define the problem, to discuss existing solutions and to explore for new ones. This report, based on the transcript of their eight-hour meeting, reflects the joint opinion of retailers, wholesalers, manufacturers, financiers, realtors, architects and economists who participated in the Round Table.



Architecture

ARTHUR MALSIN
DANIEL SCHWARTZMAN
store architects

Building materials production

WILLIAM GILLET, vice president
Detroit Steel Products Co.
president, Producers Council
WALTER HOADLEY, treasurer
Armstrong Cork Co.
DAVID S. MILLER
vice president for sales
The Kawneer Co.

Commerce

JAMES F. STEINER,
assistant manager
Construction and Civic
Development Dept.
Chamber of Commerce of the US

Economics

MILES L. COLEMAN
construction economist

Finance

GEORGE BENDER, vice president
Brooklyn Savings Bank
WILLIAM T. CONROY,
vice president*
The Franklin National Bank
JOHN JEWETT, vice president
Prudential Insurance Co. of America
C. HARRY MINNERS, president
Bankers Federal Savings & Loan Assn.

Government

WENDELL B. BARNES,
administrator
Small Business administration

Merchandise retailing

SYDNEY ATKINSON
past president, New York State
Retail Hardware Assn.
GEORGE W. FENNEL, president
George Fennell & Co.
director, National Retail
Furniture Assn..
PAUL REITZ
The S. V. Corp.
owner and operator of
Riverside Markets

Merchandise wholesaling

RUDOLPH L. TREUENFELS
food marketing economist
National-American Wholesale
Grocers Assn.

Merchandise production

BRADBURY FRANKLIN,
assistant manager
Retail Trade Promotion Dept.
McKesson & Robbins, Inc.

Real Estate

NELSON E. FINCH, president
Harry Thoens Co.

Redevelopment

ROBERT WRIGHT
American Council To Improve
Our Neighborhoods (A.C.T.I.O.N.)

Chairman

JOSEPH C. HAZEN JR.
managing editor
ARCHITECTURAL FORUM

* Although absent from the Round Table meeting, he indorses its findings.



ATKINSON (*hardware retailer*): The National Retail Hardware Assn. has about 25,000 members in the US and Canada. The average sales per store for 1946 was \$92,270, and in 1954 it was \$86,225. Costs increased 53% from 18% of sales in 1946 to 27½% in 1954. There was an 80% drop in profit, from 9.9% of sales in 1946 to 1.9% in 1954. And there was only a 5½% increase in margin, from 27.9% of sales in 1946 to 29.45% in 1954. Ours is largely a credit problem, it is difficult for us to raise capital for store improvements.



FENNELL (*furniture retailer*): The National Retail Furniture Assn. is composed of about 7,000 small furniture stores. The furniture retailer's No. 1 problem is profit. The average profit in our industry runs 2% to 3% of sales. A good furniture store will make perhaps 6%. The current tax laws hit retailers very hard—particularly the stores that have a profit between \$25,000 and \$100,000 because our tax rate goes into the 52% bracket at \$25,000, and that is the point at which many stores would think of modernizing. Taxes are the prime reason why it is so difficult for furniture stores to accumulate money for remodeling.



FRANKLIN (*drug wholesaler*): These gentlemen sound very much like a group of druggists talking. The druggist of today is averaging better than \$80,000 in volume. But that is a deceiving figure. His net profit is only about 4%. He too is waiting until he can modernize on cash, and that, I think, constitutes a serious problem. While he is waiting to accumulate the cash, the chain drug store or supermarket is modernizing and is doing an aggressive job of merchandising.

THE PROBLEM:

It is not a lack of financing—not for the present. It will come as a surprise to some that there is apparently no serious shortage of funds available for lending to qualified retailers to help finance their modernization programs. To wit: these highlights from a recent survey by the Dept. of Commerce's Office of Business Economics:

- ▶ Of the retail businesses queried, 60% felt no need for external financing. This figure compares with 50% in other industries.
- ▶ Of the firms that had wanted to borrow, almost three-fourths obtained what they wanted. (Of these loans, 61% were for one year's duration or less, indicating that most of them are used for inventory financing rather than modernization.)
- ▶ Of these loans, 77% were made by banks.
- ▶ 39% carried an interest rate of 3% to 5.9% and 46% carried a flat 6% rate. Roughly 5% cost less than 3% interest; 10% cost more than 6%.
- ▶ No collateral was required by 65%.

At first glance, these statistics might indicate that the store modernization problem is not a money problem. But in actuality, they merely show that there is enough money available to finance today's very inadequate modernization program. There is already an indication that new sources of financing may be required to float the greatly increased modernization program which everyone agrees is essential. This is hinted in a footnote to the Dept. of Commerce survey: loans wanted by retailers but not obtained were more than twice as big as those obtained (\$10,000 median vs. \$4,000) and 50% of them were to be of more than three years' duration (compared with 8% of those obtained). As Kawneer's Vice President Miller put it at the Round Table: "Today's need for money is being met, but nothing is being done to stimulate the need."

The problem is the ignorance, indifference or ineligibility of the retailer

Stimulating modernization along Main Street will be no small task, for it will require some radical changes in the personal habits and beliefs of the independent merchant and in his way of doing business. The Round Table agreed that half of the problems of store modernization are to be found inside the store itself; the others were found scattered in the offices of the federal tax collector, the local banker and the landlord:

- ▶ The retailer does not have the desire to modernize. The oft-told story, "It pays to modernize," is well known but not yet accepted.
- ▶ Most retailers are conservative members of the old school which believes that it is not good business to extend or accept credit. Consequently they will not undertake a big

modernization program until it can be financed from slowly accumulated cash reserves. They lose sight of the fact that most successful businesses have grown successful on credit, and that the paying off of a loan is frequently an incentive to harder work and, in turn, better business.

- ▶ The retailer's bookkeeping, if any, is usually inadequate—not the kind of evidence that is apt to convince a banker that the store is a good risk for a modernization loan.
- ▶ The retailer is inclined to play his cards close to his chest instead of inviting his banker to look over his shoulder and offer advice. The average merchant, is not a good finance man and, if he is not a good friend of his banker, he can get into a lot of trouble very quickly.
- ▶ The retailer does not see beyond his

own store. Although he knows that the success of new outlying shopping centers is based in large part on group planning, group promotion and group spirit, he still ignores the need for group thinking and group action in the modernization of Main Street.

▶ When a store begins to net \$25,000 or more a year, it would be in a good financial position to modernize—if it weren't for income taxes. At that point the store goes into the 52% tax bracket, and as Furniture Retailer Fennell said at the Round Table, "that raises Cain with your earnings." Modernization is also discouraged by the growing possibility that the building occupied by a retailer tenant will be sold to someone who is mainly interested in capital gains with the result that the rent will be hiked to the maximum—as much as 100%.

▶ Most stores are rented—often from landlords who are even less modernization-minded than their tenants.

▶ The primary source of modernization money is the commercial bank which normally does little or nothing to cultivate this market. As one Round Table member said: "There are no dynamics in the financing of modernization."

Such are the problems that have held the modernization of small stores down to inadequate proportions. They are compounded by other problems when the effort is extended from the individual store to a block of stores or to a whole commercial neighborhood. Local merchants can expect little help from the chain stores in their midst (unless they be Sears-Roebuck, J. C. Penney or F. W. Woolworth) and, as usual, they can expect active enthusiasm from only about 10% of their fellow independents. Moreover, they will find that the town fathers are far behind the times in providing and enforcing ordinances aimed at the redevelopment of their communities.

SOME SOLUTIONS:

Far from discouraged by these unhappy facts, the Round Table made sound proposals for stimulating store modernization and then suggested several new ways to provide the needed funds

A central bookkeeping agency for the retailer. Because he has neither the time, personnel nor the training necessary for proper bookkeeping, the small merchant would be well advised to entrust this chore to someone else. The service could be provided by wholesalers, distributors, trade associations or, in certain fields, by manufacturers. Some two dozen wholesale grocers in the Midwest are already doing central bookkeeping for their retailers. Equipped with modern business machines, these wholesalers perform the bookkeeping service promptly, accurately and economically. The small fee ($\frac{1}{2}$ of 1%) is less than the retailer would spend if he tried to do the job with his own staff. Needless to say, when a retailer is looking for modernization money, a set of these professionally kept books looks much more impressive to a banker than some scribbles on the back of an envelope.

A higher surtax notch for all small businessmen. The most frequently voiced complaint of small businessmen against present tax laws is the low level of net profit (\$25,000) at which the heavy surtax starts to take effect. Administrator Wendell Barnes of the Small Business Administration told the Round Table the raising of this so-called "tax notch" would probably be considered the next time tax laws are liberalized. SBA will make strong recommendations that this be done. This would increase retailers' profit margins and cash reserves and give them more to spend on modernization.

A graded lease to favor the merchant while he is paying for a modernization job. To help a retailer set himself up in a new location or to



TREUENFELS (*wholesale food economist*): Independent retailers in improving their premises today—apart from financial support—get a great deal of store engineering help from individual wholesale grocers. A recent report from one company operating in Kansas, Missouri and Oklahoma bears this out. Their exact count for last year was 31 new stores, 35 complete remodelings, 44 partial remodelings, 25 store enlargements—a total of 134 jobs by a single company with a total of about 700 affiliated retail merchants. While all major jobs were in outlying areas, this would change under concerted rehabilitation efforts to rehabilitate Main Street.



REITZ (*food retailer*): Unfortunately, most food merchants don't keep adequate records to get the financing they need for expansion. Moreover, the average small businessman doesn't properly confide in his local banking institutions, and this, in my opinion, is the first step toward successful financing. Invariably he hates to tell the truth about his business. He says, "I am doing pretty good; I don't want to let the news out and have somebody else move in on me." We will have to stimulate some new thinking on the part of these individuals. After they have been in business 10 to 20 years, these merchants become self-satisfied, and it is hard to get them to want to borrow money to expand.



GILLETT (*building materials manufacturer*): We are dealing with a very inexact science. Instead of finding one answer to solve all problems, we must look for a group of many answers that can be put together to exert pressure on the problem. The material producers are anxious to help.



HOADLEY (*building materials manufacturer*): There are a lot of people in the construction industry today who feel that this modernization business should be held in reserve for use when, as and if new building begins to sag. However, it would certainly be a sad mistake if modernization were allowed to be very second-rate in the minds of everybody much longer. We in the building field can make a real contribution by preparing a package of store modernization materials and methods. Meanwhile, we have got to get the contractors and others excited about the possibilities.

STEINER (*US Chamber of Commerce*): Nowhere have the construction interests gotten together to try to sell a one-package approach to store modernization. By "one package" I mean combined design, construction and financing for renewal of a substantial commercial area. Trade associations could make the problem of store modernization the subject of committee study and action. The US Chamber of Commerce, with access to 2,700 local Chambers of Commerce, might put together a kit of tools that would give a local Chamber ideas to study—ideas of what might be done in store modernization through retail committees of local Chambers of Commerce. Some before-and-after pictures are needed because those are graphic and stimulating and because they are easy to understand. There should also be some before-and-after statistics of business volume. I have great enthusiasm for the opportunities that lie in our cooperation with trade associations.



WRIGHT (*ACTION*): Right now we are aiming our efforts at the residential rather than to the commercial areas of cities although we realize that the commercial areas are just as important. We are trying to alert the people right now to be conscious of their homes, their neighborhoods and their communities, and then we are going to start working on the shopping districts or to the downtown commercial areas.

lighten his fixed charges while he is paying for an extensive alteration, a knowing landlord can often be persuaded to take a graded lease. For example, suppose a 20'-wide store is worth \$300 a front ft. per year, or \$6,000. Under a ten-year lease the landlord might charge only \$3,600 or \$4,000 for the first three years, \$5,800 or \$6,000 for the next three and for the next four (after his business is well established) whatever is necessary to bring up the ten-year average to \$6,000. This increasingly popular lease form has one disadvantage: a banker is apt to use the lower annual rentals of the first few years as the basis for appraising the value of the real estate and to trim the size of his modernization loan accordingly.

A modernization package for the industry. Although the store remodeling market is potentially a big one for the construction industry, it has thus far received only scant attention from architects, builders, financiers and building materials producers. To exploit it, they jointly must develop a one-package approach to store modernization and then promote it. While banks and Chambers of Commerce may be best qualified to stimulate local action, materials manufacturers, retail trade associa-

tions and building industry organizations are the logical agencies to develop a national program.

Modernization equipment for rent to retailers. Another relatively new development in the store field is the appearance of leasing brokers who rent entire modernization packages to retailers. Developed originally by soda fountain manufacturers as a tax dodge, the lease of store equipment has since been made respectable by recognition in Treasury Dept. regulations. Because leasing involves no cash down payment and may be considered a business expense for tax purposes, it is an attractive method of acquiring store equipment. Such leases usually run for three years (the term of most installment purchase plans) and carry a ten-year renewal option. The rate is such that at the end of the third year the retailer has paid about 120% of the sales price of the package (about the same as under the usual installment purchase plan); during the subsequent ten years the rental rate is a mere token 1% of sales price. At the end of the combined 13-year period, the property (which by then is obsolete and in need of replacement) is recaptured and replaced by the broker or sold to the retailer for a nominal

figure. Such leases cover all tangible, removable equipment—mainly fixtures and equipment including lighting and ventilating equipment—but the phrase is often broadly interpreted to cover other phases of store modernization.

To date the leasing brokers have limited their activities to food and drug stores and, to simplify their operation, have dealt only with the chains. (The Thrifty Drug chain alone has 30 stores which own very little beyond their inventory.) Although the brokers would probably be uninterested in dealing with a host of individual retailers, they might be interested if a wholesaler or a trade association offered to provide coordination and promotion such as the chain headquarters provide for their far-flung stores.

But only by joint action on a block-by-block basis can retailers put Main Street back in business

To determine what is most needed downtown, merchants have only to consider the main attractions of the new outlying shopping centers which are capturing their market: mod-



SCHWARTZMAN (*store architect*): The planning of retail stores has been an incidental thing. Somebody in the merchandising information service might contribute some design. Somebody in the fixture manufacturing business might contribute some design. Somebody in the sheet-metal or store-front business might contribute some design. Architects have made and can continue to make real contributions in this field, especially the small architect in the small town—if he can get the small retailer to state his problem intelligently. Too often, the small retailer can't state his needs, and an architect without store experience is put in a position of having to accept specific amateurish direction on planning from the store owner or, what is worse, trying to plan for an independent solution while guessing at the requirements.



MALSIN (*store architect*): It would be helpful if independent merchants could group together and form a combined credit service. Lack of it is one of the big reasons why they can't compete today. Such a credit agency would also, I think, be a profit-making venture. Thus the independents could in two ways compete with the department stores, the chain merchants and the other big operators.



COLEAN (*economist*): The shopping district of Georgetown has been greatly upgraded as a result of group action. One of the main features was the introduction of a very large parking lot in the midst of the area where streets are narrow and where street parking is almost impossible. Following that, there has been a very substantial upgrading of store fronts, the quality of merchandise and the character of the stores. As a result, it is now one of the main shopping centers of the district, and it is, of course, in competition with all kinds of outlying shopping centers.

ern appearance, coordinated design, openness and landscaping, sheltered walks, ease of access, ample parking, rounded service and a wide selection of merchandise. Most of these assets can also be had downtown—at the price of a little imaginative thinking and a lot of cooperative effort. Here are the Round Tables' specific suggestions:

► To give Main Street the sheltered walks of the modern shopping center, the front 15' of each store on a block could be converted into an arcade which would protect shoppers from sun and rain, cut down show window reflections and encourage more leisurely, more effective, shopping. Since most old stores are deeper than necessary, the store area lost in this operation would never be missed. Replaced by the new arcade, the old sidewalk could be added to the street to make room for angle parking or to widen the traffic lanes—or both. Downtown Chicago is already making such use of this device (AF, Jan. '55, p. 97). Unfortunately, this kind of arcading is practicable only in cities where store buildings are steel framed. The arcading of bearing wall buildings would be very costly.

► To match the rounded service offered by the modern shopping cen-

ter, the big chain store and the department store, Main Street merchants should consider the joint provision of such customer attractions as lounges and repair services and should explore the possibility of a joint credit service and a joint delivery service. And, as store Architect Schwartzman pointed out to the Round Table, most such services are usually self-supporting adjuncts of today's successful department store which uses them to generate traffic for its main departments. The provision of a joint charge-account plan is another logical problem for the local banker to solve—just as the Franklin National Bank of Round Table member William Conroy has solved it for the independent merchants in his neighborhood. Their credit service puts them in closer competition with the department stores and the shopping centers.

► To compete with the shopping center's ease of access, a block of Main Street stores might convert their useless "back yards" and perhaps the entire back half of the block into parking space. The project might well go beyond the provision of just another parking lot. A multilevel garage might be worth considering. The five-story garage which the Hecht Store, in Arlington, Va., put

up in its back yard does an amazing business. Even on rainy and hot days, when every other retail establishment in the area is suffering from the weather, Hecht's business booms because its customers can walk from their cars into the store without inconvenience.

► To transplant to the downtown area some of the modern shopping center's openness and landscaping, retailers with the professional guidance of architects and planners must sell the town fathers on some major civic improvements. Perhaps block-long sections of several cross streets should be permanently closed to traffic and landscaped with grass, trees, walks, benches, pools and sculpture. Such a pedestrian walk would unify the stores on either side of it functionally and visually; it would convert them into an attractive "center."

► To gain the shopping center's advantage of clean, integrated design, Main Street stores might jointly hire an architect to detail a block-size face-lifting job. Without sacrificing the identity of individual shops, he can tie them all together with a new skin treatment. The pulling power of block-front modernization such as this is infinitely greater than the sum of its parts, and a single new



BARNES (*small business administration*): We regard anyone who has less than \$1 million gross as small retail business. We offer them three types of loan: the deferred participation loan, immediate participation loan and the direct loan. The first two are made in cooperation with local private banks, and about two-thirds of our loans are of this kind. We actually participate with the banks which put up the money. We don't make a direct loan if the bank will participate in the loan with us. We are authorized to make loans up to ten years, but the average loans have been about six years. The interest rates are fixed at not in excess of 6% on direct loans and between 5 and 6% on the bank participation loans, the bank setting the exact rate.



MILLER (*building materials manufacturer*): Our company has explored rather thoroughly the possibility of a joint venture with some member of the financial fraternity or the possibility of our own financing program. But, by the time you add in all the products and labor that go into an average store remodeling job (electrical work, masonry, carpentry, as well as glass and metal), our portion of that job isn't large enough to support our financing of the complete job. The small retailer is already being serviced by the bankers. But the bankers are not dynamically approaching this market. In most cases they are not selling the merchants something that will make them better businessmen. There are exceptions, but, on the whole, the bankers wait for the merchants to come to them, when actually bankers are in a far better position to tell the merchants what they ought to do to improve their business. Bankers generally are broader individuals with a greater knowledge of what it takes to make a business successful.



BENDER (*savings banker*): We can lend money to a store landlord by way of a mortgage on the property. It is not a very big business because the resulting dollars that come out of an increased loan are usually not sufficient to pay for the modernization.

front for a row of ten stores would cost much less than ten separate new fronts designed, bought and installed independently.

► To make Main Street as accessible as the outlying shopping center is not within the retailer's province, but he can contribute by urging and supporting actions by the local government aimed at keeping downtown traffic moving (off-street parking, one-way streets, street widening, preferential handling of public transportation, etc.). In a smaller way, he can help directly by keeping his own car and those of his employees off Main Street.

These proposals will be accepted only if promoted aggressively by everyone with a stake in the survival of our downtown areas

Because the typical retailer is by tradition a conservative and very independent businessman, he will be slow to accept the Round Table's recommendations. Realizing this, the Round Table considered ways and means of getting the message to the individual retailer and of encouraging him to take action. It was agreed that all of the agencies which have a selfish interest in the store field

must take a more active role in downtown redevelopment: architects and other members of the building industry, building material and equipment manufacturers, store fixture manufacturers, trade associations serving the various kinds of retailers, wholesalers and distributors, chain store organizations and other large commercial and industrial organizations. They can best influence the retailers and town fathers through such local organizations as service clubs (Rotary, Kiwanis, etc.), newspapers and Chambers of Commerce. However, as one Round Table member put it, the job won't be done until some one agency goes personally to each merchant on Main Street and appeals to his pocketbook by showing him specifically how much business he is losing, where he is going and what he can do to recapture it. Such an educational job takes time and cannot be done by remote control. Only a local organization with a trained staff could undertake it. It has been tried with success substantially as presented here in Illinois and Oklahoma by the State Universities*; it might also be done by an enlightened department store that realizes that it derives its health from the health of the whole downtown area, or by a

bank, an industrial company or public utility with a sizeable downtown investment.

When Main Street needs more modernization money, new sources can be tapped

Today money is not a problem, but tomorrow it may be. In that event, retailers may welcome these suggested sources of additional funds:

► **Wholesalers**: Some food wholesalers are already financing the modernization of retailers' stores—at 6%—as well as the construction of new stores. Dr. Treuenfels cited one who uses a \$400,000 revolving fund to help his retailers in the initial stages of new construction and remodeling projects and then makes arrangements with a bank for the

* Under the direction of Robert D. Loken, the University of Illinois' College of Commerce and Business Administration sent its staff members into various towns to survey retailing problems and help retailers boost their business. The service consisted of weekly two-hour meetings over a three-month period in each community. In his report on the results of his Community Retailing Improvement Program, Loken attributes as much as a 20% increase in the retail business of some towns to the efforts of his staff. And he points with emphasis to a very basic fact learned early in the program: "While independent, the retailer's very existence today demands cooperative, interdependent action. Only by standing together can the retailers stand alone."

retailer's long-term financing.

► *Stock issues:* Contrary to popular belief, small businesses often can easily raise capital through sale of stock ownership. Food Retailer Reitz helped expand his enterprise from a small credit delivery store into six supermarkets through the sale of nonvoting stock to customers and friends. "We sold it like peaches or pears or any other commodity." Hardwareman Atkinson agreed that equity financing is worth consideration: "The small retailer can sell stock if he wants to, and I think that it is one source of capital too few have investigated."

► *Pension funds.* The ever growing pension funds of US industry and those run by the states are earning woefully small returns. If short-term store modernization loans could earn the official status of legal investments for state funds, they might prove very attractive to these funds.

► *Trade associations.* McKesson & Robbins, the drug makers and wholesalers, have pioneered a type of store modernization finance which might be adopted by other organizations which have selfish interests in making stores more attractive and more efficient. They have joined with the Commercial Investment Trust (CIT) Credit Corp. to advance modernization funds to McKesson's drug retailers. All the money and all the risk are McKesson's; CIT handles the administration. Although the program started only a year and a half ago, some \$2 million has been advanced at 6% on a three-year basis. McKesson & Robbins are in a better position to engage in this national banking business than most manufacturers because they are wholesalers as well as manufacturers and are therefore in close touch with their retailers. Perhaps few other manufacturers of merchandise or store modernization materials could undertake such a program, but other wholesalers and store trade associations surely could. This is a potential source of modernization money well worth development.

► *FHA and VA.* The Federal Housing Administration is permitted to insure bank loans on business properties. The loans are limited to \$2,500 in principal and three years in term. The Veterans Administration can guarantee as much as

\$4,000 or 50% of a business loan—whichever is less. Both FHA and VA loans could be used for store modernization; but, at present, very few are. Either the demand for these loans is small or they are not being merchandised.

► *New SBA loan.* The Small Business Administration has announced a new "limited loan participation plan" which would make loans available to retailers and other small businesses provided local banks put up at least 25% of the money. SBA would participate up to \$15,000 in such loans, which can exceed this figure if the bank takes the excess. The loans would carry an interest rate of 5 to 6% and would run up to five years. (These terms are set by the local banks, which also take the applications and appraise the collateral.) SBA Administrator Barnes told the Round Table that his agency had experimented with this loan plan for four or five months and that "the experience to date indicates that it can be used successfully on a wider scale for store modernization among other things."

Such are the means by which Main Street can put itself back in business, by which the small independent retailers can compete with the downtown chain stores and the new uptown shopping centers. But the most effective of these means is perhaps the least material of them all: it is the will to compete, combined with the ability to see the large scale of the problem and the fact that it can only be solved with a big idea. This big idea must capture peoples' attention the way old-time bazaars did, the way fairs still do and the way modern shopping centers do. The independent merchant cannot long survive if he sticks to his overconservative business ways and hesitates to attract more business for fear others will move in on his prosperity. When others wish to move into his block, it will be a good sign that his modernization program is paying off.

In modernizing their stores and their street, the retailers and their landlords will find that they have also contributed to a far more important purpose: they will have helped save their community from the bankruptcy that will surely follow a defunct downtown.



FINCH (*realtor*): Everyone seems to blame the shopping center for the troubles of the small independent downtown merchant. I can't agree. The shopping center certainly didn't hurt Hempstead, or Jamaica or Flushing, Long Island.

Take the case of Middletown, N. Y. Its Main Street is about as wide as this table; it is a two-way street and they permit parking on one side. Woolworth's and Sears-Roebuck are there; there are four independent department stores and there are at least 20 independent merchants: There are a few new stores, but nobody is spending a nickel in that town to refurbish or rehabilitate the existing stores. And yet it is a town of 24,000 population that does a business of \$54 million a year. I believe that a lot of the lethargy on the part of local merchants on Main Street is due strictly to their own desire to hold what they may have and not spend it. Maybe it isn't that the little merchant can't get help; maybe he doesn't want it.



MINNERS (*savings and loan official*): The lending institution, because it is not in competition with the merchants in the area, can perform many services in the program to modernize Main Street: building the morale and the confidence of the retailers in the area, and from there on it can do the other job of furnishing money.



JEWETT (*insurance company executive*): You can't do much without strong support from somewhere. Some strong local institution with a great deal of pride in its community ought to be called upon to put forth an effort far beyond the return in money that institution will gain for its effort.

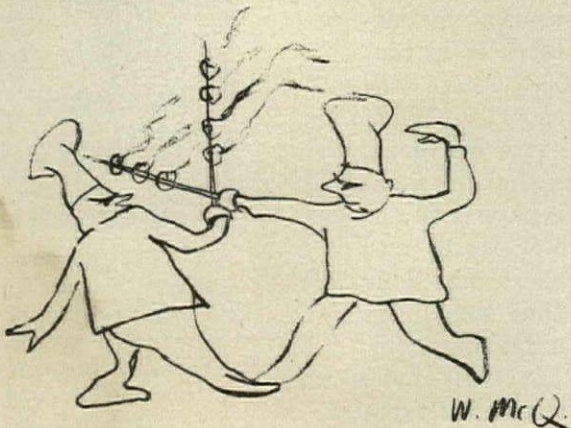


Dining room, Auditorium Building, Chicago; Adler & Sullivan, architects

Second in a series on public rooms

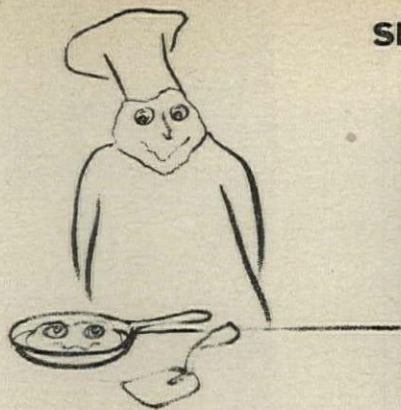
A LOOK AT DINING ROOMS

In the fiercely competitive Food Service Industry, food still sells the meal, but showmanship and atmosphere sell the eating place to the public, say the experts



The two biggest servers of food in the US are the F. W. Woolworth Co. and the Union News Co., which might be taken as evidence that shopping in the 5 & 10 and running for trains make people aggressively hungry.

US restaurateurs know it means something else—that in one way or another atmosphere sells the meal. They, the professional feeders, are involved in the fourth biggest consumer expenditure business in the US (far ahead of furniture and automobiles, exceeded only by home food marketing, clothing, and home rental). They believe it is the bustling excitement of a 5 & 10 or railroad station that does the trick, that one thing leads to another in the dime store as in the railroad station, that the hint of food wafting across the counters or waiting room



SIMPLE AND OPEN

starts the salivary ducts running—toward the lunch counter.

In their restaurants, they want the same thing, but in an elevated form. They have mastered the food and service problem, although this is a constant war of efficiency; with a rising gross (\$16,159,000,000 last year) they seem to be mastering the terrible TV challenge of the earlier fifties, when people would not leave their soft-cornered screens to go out and eat. But competition still is intense; the net profit on investment in restaurants is only 2½%; 35% of the new restaurants started last year don't last until New Year's Eve. Result: the hard sell.

It is the sizzle that sells the steak, other factors being even; it is suave waiters, pretty waitresses, handy parking space, cherries jubilee torching in the dining room, famous company at the next table, and the special character of the dining room itself which makes for profit today in the feeding business—making room-design of essential importance.

This should be good news to the architects and designers who would like to do restaurant jobs and other dining rooms. But is it? At the National Restaurant Association convention last year, two-thirds of the 30,000 members attending said they were planning to redo their places, and among these 20,000 potential clients for architects and decorators the first choice of style was modern. But as one prominent restaurant consultant comments wryly, "To most restaurant men modern means not Old English." They still must be sold.

Most of the recent modern dining rooms, it must be admitted, are employee dining rooms, clubs, and other noncompetitive operations. But there is a small, growing number of good modern restaurants which have done very well competitively, evidence that good design really can enhance this second most intimate human act—eating together.

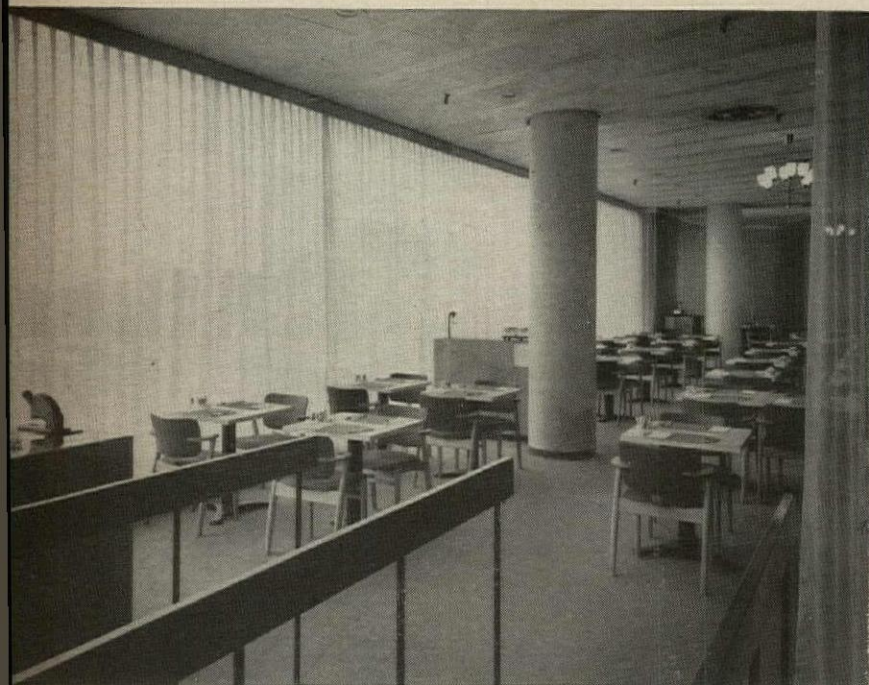


Most of the best modern dining rooms (in restaurants, institutions, etc.) have the merit principally of simplicity, grace, and serenity. This *Clean Well-lighted Room* quality no longer applies only to the fine American institution of the all-night lunch counter. Like the big simple space in the elegant house it has been softened and projected into some of the really handsome eating rooms in America today.

The simple space, elegantly finished, is expanded with the modern total wall of glass. The dining room in the Mission Valley Club in San Diego, Calif., by Architect William Cody (above), is an excellent example of the calm rushless atmosphere produced by this kind of design. Another large dining room (below) executed with a lack of pomp and lots of glass is the main dining room in the Caribe Hilton Hotel in San Juan, Puerto Rico, by Architects Toro, Ferrer & Torregrossa and Warner-Leeds.



© Ezra Stoller



The dining room in the branch department store built in Towson Maryland (above) for Hutzler's by Architects James R. Edmunds Jr. and Ketchum, Gina & Sharp also makes use of the draped glass wall. Shoppers' psychology calls for all tables to be small, for two settings, but not too far away, for easy pairing. Chute for waiting lunchers is not an intrusion in this kind of dining, because most of the people at tables are interested in eating with despatch, not lingering. But tables are not jammed in to maximum capacity, instead trading the air of luxury for quick turnover.

A totally different kind of dining room is Canlis' Charcoal Broiler Restaurant in Seattle by Architects Tucker, Shields & Terry; Wimberly & Cook. Famous for the showmanship of both its service and its site, this restaurant is basically a four-passenger table type, for leisurely, luxurious dining. Two floor levels help bring the view to everyone.

Dearborn-Massar



One of the interesting applications of Richard Buckminster Fuller's geodesic domes is a restaurant designed by Architect Gunnar Petersen, overlooking Woods Hole harbor in Massachusetts. It is framed in Douglas fir and walled transparently with a polyester film. A tarpaulin is draped across the top when sun might bother diners.

Architects Fordyce and Hamby's beautiful countryside executive headquarters for the Fairchild Aviation Co. near Hagerstown, Md. (below, and to be presented fully in a forthcoming issue) has glass walls looking inward and outward. The outward-looking one surveys a long view of Maryland farmland. The inward one (bottom picture) enjoys a charming interior court. Raymond Loewy Corp. furnished the interiors. The atmosphere effectively combats the usual objection to an employees' dining room: that the personnel do not get the relaxation of leaving the building during the day.

Gottsch-Schleisner

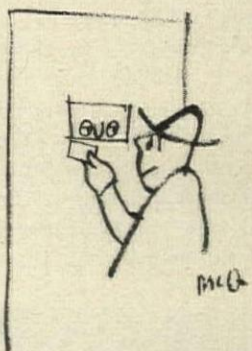




Photos: (above & bot.) © Ezra Stoller; (others) Lisa Larsen—Live

The United Nations dining room (above) by Harrison & Abramovitz was designed as a large simple room, then subdivided sparsely with handsome foils of woven fabric by Dorothy Liebes and wood panel backs for the serving stations. Viewing past a terrace out over the East River, it is one of New York's handsomest and most popular dining rooms. When it was enlarged recently the fabric dividers were removed, however, which has not helped. It leaves the room a little too big, the view a little too wide.

Another method of making more of a simple space is art. In the Gourmet Room (pictures, right) atop the Terrace Plaza Hotel in Cincinnati, by Architects Skidmore, Owings & Merrill, diners look out through a curved glass wall, have a famous Miro mural behind them. Each wall abets the other nicely. In the same hotel, a less expensive, large dining room on a lower floor, also glass-walled, is treated in a similar way (although its inner walls are far enough from the exterior glass to require electric lighting at all hours). Saul Steinberg was the artist tapped by the wise men at S.O.M. to do this mural. His interpretation of the Cincinnati skyline (visible in reality from the Gourmet Room upstairs) is well worth a trip to Cincinnati to see. Both these uses of art demonstrate again how much modern interiors can be lifted if the right artist is assigned to the project and then left to his own devices, not presented with a complete book of specifications by the designer.



DIM AND INTIMATE

For all the diners who like it simple and open, there are as many who want to dine darkly, moodily, in subdued atmosphere. Night clubs are the prime example of this, but many fine restaurants also dim the atmosphere. This generally does not mean decreasing the amount of light on the food itself, however, but on service areas between tables. Fortunately a light colored table cloth seems to localize what illumination there is in the room, and re-



flect it in the area over the tabletop, giving the food a silhouette at least.

Dark restaurants also afford an opportunity to use the light sources for decoration, as in the renowned Well-of-the-Sea room in the Hotel Sherman in Chicago, by Architect Robert Lederer with murals by R. Koppe. In this photograph a waiter is holding a flashlight on the menu.



Ralph Crane—Luxe

General advice from an architect

The success of the first restaurant Mario L. Gaidano designed several years ago has brought him a steady succession of commissions in the food service field in the San Francisco area, including a number of independent restaurants (AF, March '54 pp. 138-143).

He advises:

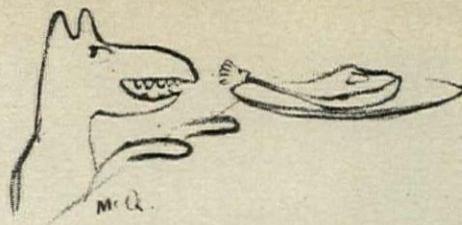
"For many years the designing of dining rooms has been dominated by kitchen equipment companies in collaboration with the owner's wife. Recently, the architects and designers who have begun to invade the field, and the restaurant owner have become aware of the importance of total design in his dining room. The owner realizes now that his restaurant to be truly successful must have three basic ingredients, i.e., good food, good service and good design.

"There have been too many new places with too much accent on stainless steel kitchens and modern decorations and not enough on food and service. On the other hand, there have been those who felt that all you needed was good food and forget the atmosphere.

"Admittedly, running a restaurant is primarily a business. But that doesn't mean that the jangle of the cash register has to be louder than the tinkle of glasses. To be modern doesn't mean to ignore tradition entirely and to honor tradition doesn't mean to forget to sweep out the corners.

"When people eat now in their home away from home, they must feel at ease and yet be struck with a certain magical quality that immediately tends to enhance both food and service. Hamburger Heaven should not smack of the Waldorf, but an honest attempt should be made by the architect to evaluate his client's services and create an integrated background intended to upgrade them.

"Dining room design has nothing to do with any particular style, decor or color. It has to do with capturing a feeling or mood, if the architect is to convey a message in his work—*here is space to enclose and protect the individual, where his palate and mind may be satisfied and delighted.*"



SELF SERVICE

The lowly cafeteria is getting the uplift treatment too. As glamorous an example of this serious glorification as exists may be the Metropolitan Museum of Art's remodeling of its Pompeian Court several years ago into this hoity-toity space for snacks (below). Dorothy Draper did the much-admired design. (Some waggish regulars at the museum refer to the room now as the Dorotheum.)

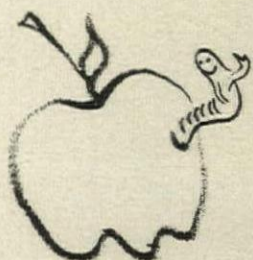


At the other end of the scale, but no less estimable, is this self-service employee eating facility for a southern lumber mill (bottom). Laurence I. Graham was the restaurant consultant on this facility, which was designed to sell a meal for 25 cents and break even on it. The planning was painstakingly economical. All furniture was nailed together on the site. Counters are ash. The fare is bowl meals like chili and stew (which demand spoons only) plus beverage and fruit or cake.





Automatic vending is already beginning to change the food service industry, especially in small installations like this employee dining room in the offices of M. Lowenstein & Sons, Inc., by Maurice and Joseph Mogulescu and G. Luss of Designs for Business, Inc. In actual fact this is the *machine for eating* that the Automat has long pretended to be. Exterior suppliers take the burden of catering off the office manager's shoulders, and no kitchen space is necessary.



OUTDOORS

There is nothing wrong with eating outdoors but rain, wind, dirt, mosquitoes, smog, fear of night, and possibly ants. It follows that some of the country's most memorable and successful dining rooms have surmounted these obstacles, and have done it in widely different climates. Top right is Architect Paul I. Williams' lanai dining room at the El Mirador Hotel in Palm Springs, Calif., a good expression of the gather-round-the-tiled-swimming-hole relaxation of that clime. There is protection from the wind, but little other is necessary.

In the cafeteria which Philip Johnson designed for the Museum of Modern Art in New York City, outdoor eating was part of the program, but New York weather being what it is, there had to be room to retreat back indoors. A large glass wall with large sliding glass doors was the logical answer, with the dining floor continued out on a terrace, part of the sculpture court.

The Nepenthe Restaurant in Big Sur, Calif., designed by Rowen Maiden, is a combination of the other two. California's balmy but sometimes damp climate called for an expansive sheltering roof but little thermal insulation (right).

Part II of *A Look at Dining Rooms*, to be published later in the year, will peer at these categories: *Large and Lavish*, *Small and Ingenious*, *National Types*, *Mechanics*, and *Roadside*, and will also relay expert advice from a hotel restaurant operator, William W. Shields, and an industrial designer, William T. Snaith, president of the Raymond Loewy Corp. Next month: *Kitchens the Public Sees*.

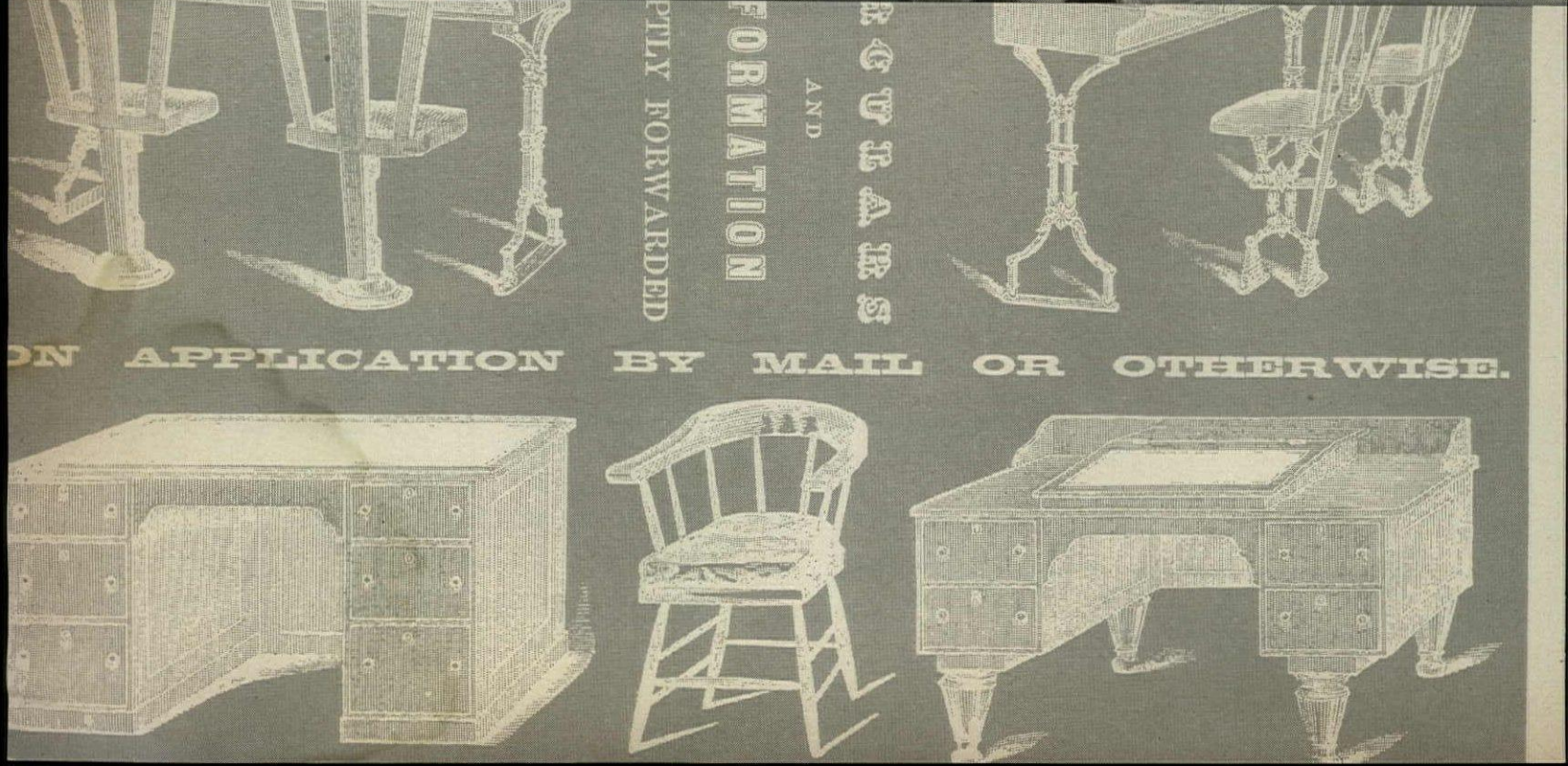
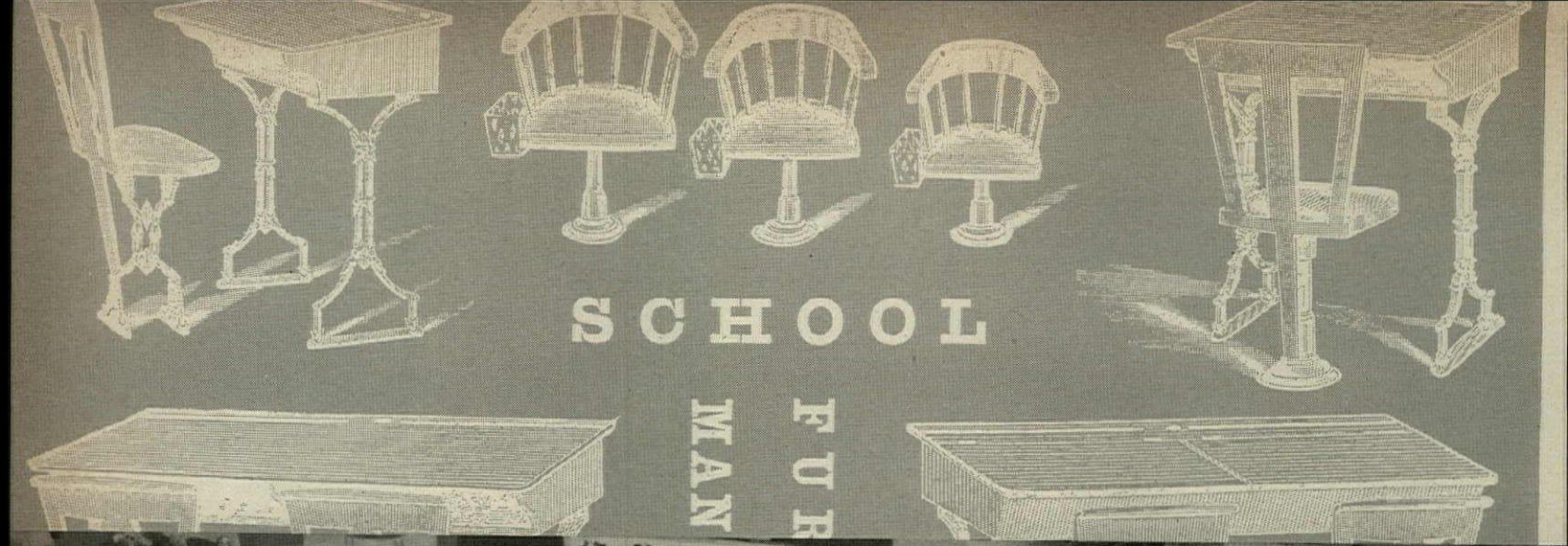


Architect Williams' dining court can be covered but seldom has to be. In Architect Johnson's dining room



you eat either indoors or out. In Rowen Maiden's design (below), the environment is a blend of both.





The new functional schools helped create the demand for new classroom equipment. Now the new equipment, in turn, is influencing the architecture of the classroom and is raising its own problems of school design

CLASSROOM EQUIPMENT

Photo: Hedrich-Blessing; background: Bettmann Archive



Classroom of Bartlesville, Okla., school addition; Caudill, Rowlett, Scott & Associates, architects

The classroom is a learning room and in theory every bit of it should serve the purpose of outfitting young senses with desirable information, experience and attitudes. Theory is getting very close to practice in this case. The very walls of the classroom have become "vertical teaching surfaces." The floor is thought of not only as a repository for feet and furniture but as a reflector of light for reading and writing. The ceiling manipulates light and sound. The furniture and movable equipment grow more ingenious year by year.

There are many obvious advantages, improvements and efficiencies in all this, as the selection of equipment on the following pages shows. But there is also a danger that should be mentioned. The danger is the classroom so subservient to "devices" that it does not make sense

as a happy space, or for that indispensable meeting of minds between teacher and pupil. We would not want to hark back to Mark Hopkins on one end of a log and a student on the other, but we must not forget them.

One of the prime services of the school architect is to keep the devices in perspective, to balance their demands against each other and against the totality of the classroom. To design an ideal room for mechanical audiovisual devices is not particularly difficult. To design a room for mechanical audiovisual devices *and also* for growing plants and for growing children (who happen to be part of a school community as well as fourth graders or high school juniors) is very difficult. It takes more than knowledge of "scientific results." It takes feeling. Children and teachers are subjective creatures too.



Courtesy N. Y. Public Library

WALLS FOR TEACHING

Nearly all instruction, old as well as new, is "audiovisual." We worry about lighting for the new mechanical visual devices but spend too little thought on lighting the walls which are bulwarks of visual education. For instance, Adrian TerLouw, educational consultant for Eastman Kodak, reports that chalkboard writing is often illegible, by standards of "perfect" 20-20 vision, from the rear seats. Common reasons for this impasse: absolutely too little light on the chalkboard (tilting helps this); relatively too little light compared with bright peripheral areas such as unshaded windows; glossy boards, which "read" only from certain angles just as glossy magazine paper does. Classroom wall-lighting devices are not nearly so good looking, so well-thought-out or so versatile as the walls themselves have become.

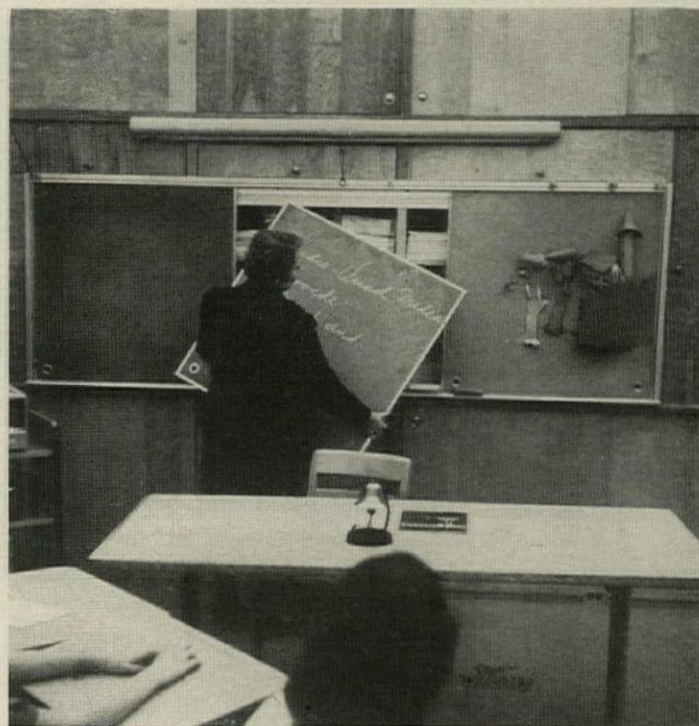
Tackboards, of which no classroom can apparently have too many, are becoming marvelous materials both for tacking and for handsome wall finish. Among the new ones are a suedelike, patternless cork, reminiscent of a velvety palomino pony, from which smudges sand off; a new colored cork composition from which smudges are erasable; and a less-handsome but low-cost, colored, rubber-coated fiberboard which can be cleaned with a damp cloth.

A new vitreous, sprayed-on chalkboard surface bonds to really lightweight steel (22 ga.), has a good matte finish.

Architects seem to be dividing into two schools of thought on teaching-wall treatment. One school applies tack, peg and chalkboards as permanent wall finish; the other incorporates channels or pylons into the wall system as supports for moveable boards. Both methods result in good teaching walls.



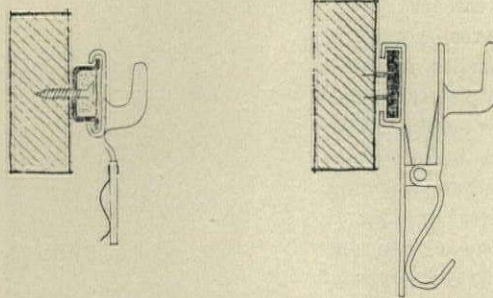
Plastic "chalkboard" is space-saving success in model classroom at New York U. Clear acrylic sheet has light in mount; light is refracted by orange grease-pencil writing which glows like neon, "carries" much farther than chalk. Black paper backup serves only to make the lighted writing photograph; no backing is needed. Mount was custom made.



Removable and reversible chalkboard-tackboard panels (storage behind) yield portable panels for separate group work. New York U model room; Eggers & Higgins, architects.

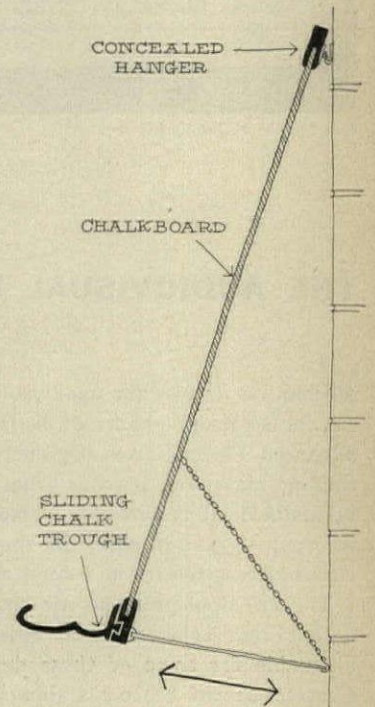


Flexible wall has permanent standards, metal holders for interchangeable boards, shelves, racks. Stock system is adapted from Ketchum, Gina & Sharp custom design (AF, Dec. '54).



Map rails: good ones take roilers, cases, eyelets, simple sheets, are vital wall tools.

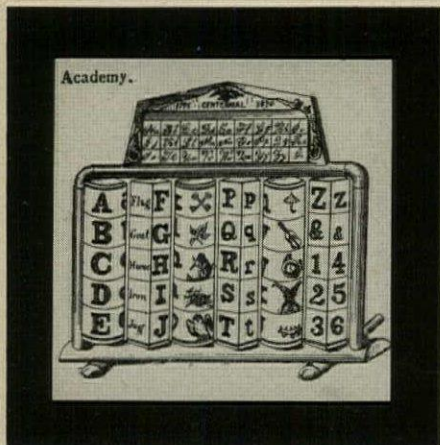
Wall lighting is more common in business conference rooms, as shown below, than in classrooms. This unit has rotating reflector, apertures for soft uplighting to reduce contrast.



Tilted chalkboards are automatically better lighted, easier to write on. This hanger-suspended stock unit, hinged at top, swings outward 11" at bottom, locks there.



Tilted reversible chalk-tack unit has 10" height adjustability storage behind.



Courtesy N. Y. Public Library

THE AUDIOVISUAL PROBLEM

Mechanical devices for audiovisual education are proving so useful for so many phases of learning—from remedial reading to advanced French, from beginners' geography to trigonometry—that no classroom leaving them out of account can henceforth be justified. It is now only elementary prudence, for example, to incorporate plug-in strips on the classroom wall, and wiring for closed-circuit television behind the wall.

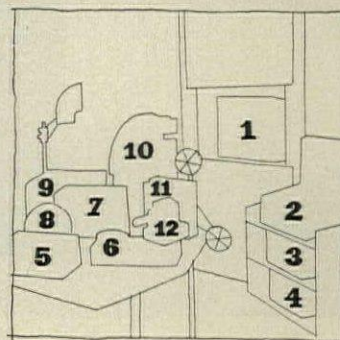
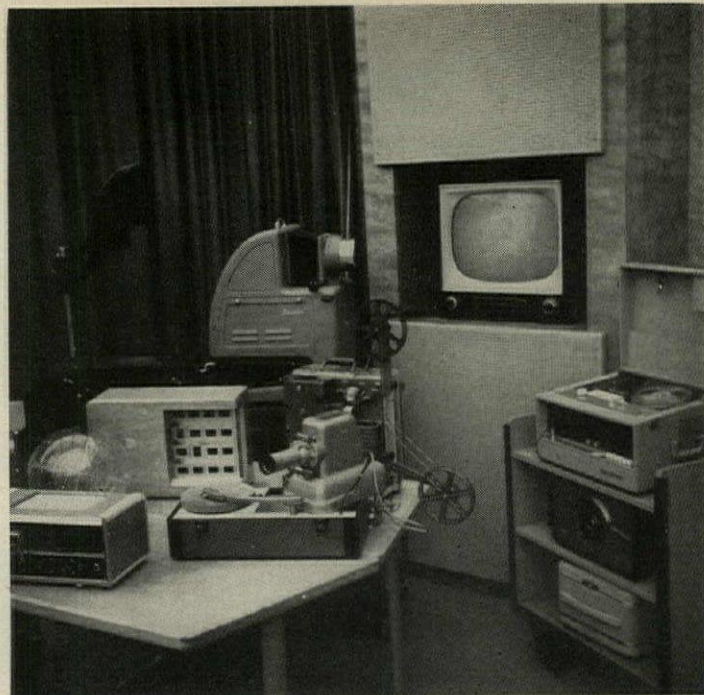
The principal problems are those of light and sound. Whether natural light comes from the side or above, it must be drastically dimmable for some of these devices. This does not mean the classroom must become a theater, although some of the audiovisual people would apparently like to impose such a requirement. Unless a projected image is emotionally gripping—and few educational projections are, or even should be—deep darkness lulls students to drowse. In most audiovisual classroom presentations, visible rapport between teacher and pupils is desirable; with many devices, such as the overhead projector for extemporaneous exposition, rapport is of the essence.

Nevertheless, the natural light in today's classrooms must be easily dimmed down. This usually means roller shades, or better yet, louvers, below skylights. Windows can be completely blacked out with opaque plastic curtains. The best window solution, however, appears to be light-excluding Venetian blinds because these also serve for ordinary light control and intermediate dimming. All-or-nothing blackout devices need flexible artificial lighting.

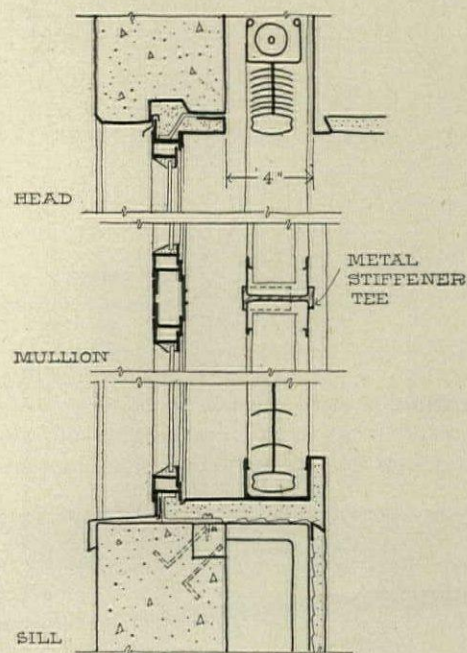
Just about the worst mistake an architect can make with windows today is to omit ceiling grounds for hanging some type of curtains or blinds. Already this mistake is causing a vast amount of expensive classroom remodeling in schools only a few years old.

In schools dependent on natural ventilation, light and sound control add extra problems. Architects Caudill, Rowlett, Scott & Associates, who have this problem heartily, in the warm Southwest, are experimenting with natural ventilation up through the exterior soffit and then down through the plane of the ceiling.

Mechanical sound is far more insistent and distracting than the human voice; it throws into question the recent trend toward omitting partitions between classroom and corridor, or toward partial partitions between classrooms. On this point the architect and his clients must truly be Solomons, weighing the advantages of breaking out of the tight, constricted isolated cube-room against the disadvantages of cross-distraction. One thing appears sure: if the classroom walls are going to be more strait-jacketed by the need to control sound, windows must become more—not less—important.



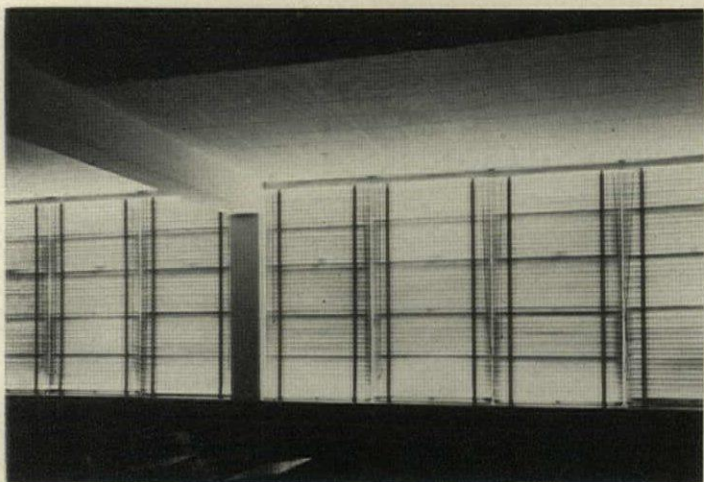
Audiovisual devices in frequent use at New York University model classroom: 1, television; 2 and 4, tape recorders; 3, FM radio; 5, taped-card language teacher; 6, record player; 7, catalogued-slide viewer; 8, transparent globe; 9, overhead projector; 10, opaque projector; 11, 16-mm. projector; 12, filmstrip unit.



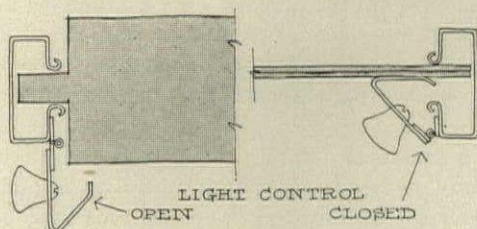
Light-excluding aluminum Venetian blind has curved, tightly overlapping slats, plus edge light traps. Channels are plastic cushioned against clatter, admit air.



Closed-circuit television equipment has become relatively simple and economical, consists only of camera (no special lighting), control box, receivers and basic wiring.



Darkening effectiveness of audiovisual blinds is shown by contrasting photos of ordinary blinds closed, above, and high school classroom with audiovisual blinds closed, right.

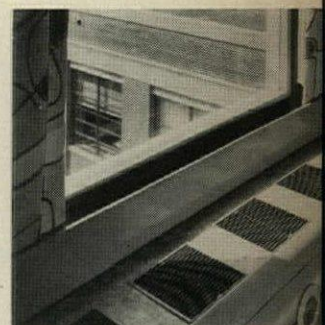


Wood audiovisual blind has tightly overlapping slats, metal side channels with hinged gates and light-trapping skirt at bottom. Skirt also closes gap at top.

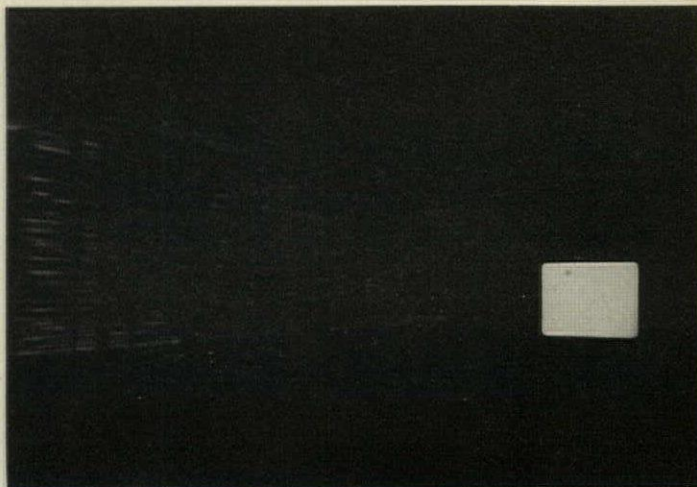
Hedrich-Blessing



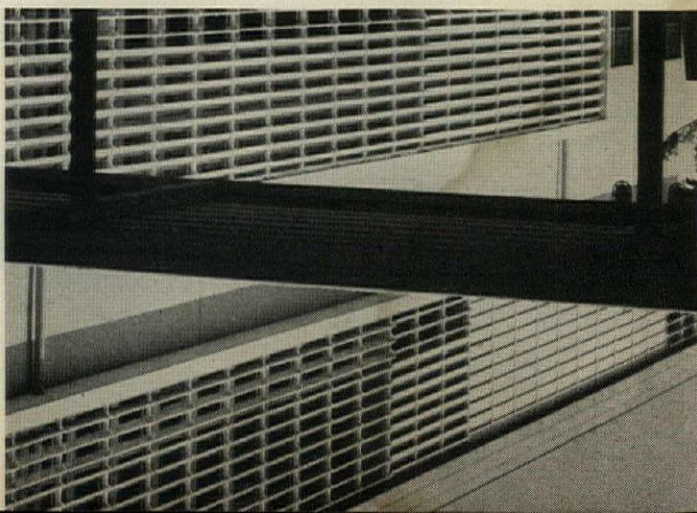
Classroom at Daylighting Laboratory of University of Michigan is equipped with opaque draperies which now come in enormous range of solid colors, several patterns.



Ventilator accessory for audiovisual dimming is sill rail unit which traps bottom light and prevents curtain flutter. Exhaust air is drawn off behind drapery and rail.



Jalousies equipped with projecting frame provide audiovisual dimming along with normal light and sun-heat control, are practical in climates lacking snow and ice. High school in Burbank, Calif.; Austin, Field & Fry, architects.





Dearborn-Massar

Classroom in Woodway Elementary School near Seattle; Waldron & Dietz, architects



Courtesy N. Y. Public Library

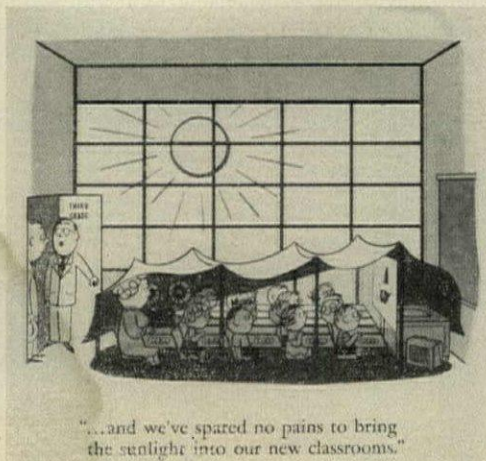
WINDOWS AND CEILINGS

The illuminated classroom ceiling and the skylight have taken over much of the job of the window.

Classroom windows are on the defensive these days because it can be convincingly demonstrated that they are not the most logical sources of light or air. Dimming out daylight (p. 144) can be troublesome and costs money, and, most of all, too many big school windows have been put in without adequate thought for sun orientation, view, shading and glare reduction.

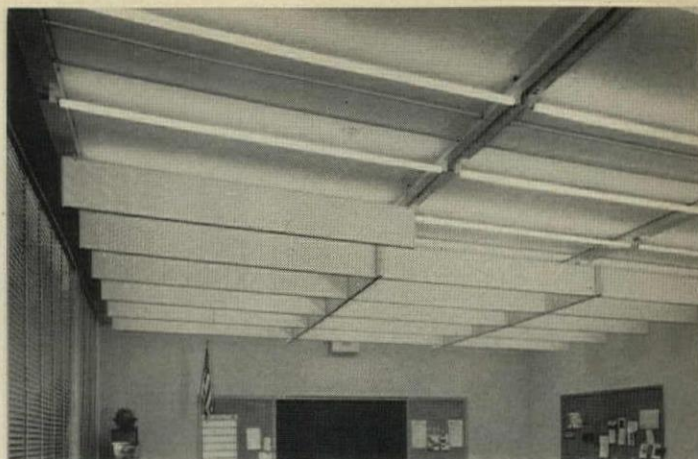
Yet the fact remains that the classrooms which stick in memory as the pleasantest, the classrooms which elicit the most delighted comment from their users, are almost invariably those with big windows, well treated. As sheer welcoming space, for instance, the classrooms of Barthelme's West Columbia school (AF, Oct. '52), Perkins & Will's Crow Island (AF, Oct. '55) or Heathcote (AF, July '54), Warnecke's White Oaks (AF, March '54) are head and shoulders above view-strip rooms. There are many others; Waldron & Dietz's Woodway school at Seattle (above) is one of the newest. Proper treatment of big windows does take thought and money; but it does give a stunning and lasting return. New glare-reducing glass, soon to come on the market in a wide range of colors, at little more than the price of ordinary clear polished plate should help the big window problem greatly.

The aim in classroom lighting, daylight and electric, is usually for uniformity as great as possible. With natural lighting as an important component, only "relative uniformity" can be attained. Without it, the goal of uniformity is reachable and it turns out to be most unpleasant—monotonous, tiring, unkind. Classroom electric lighting obviously needs more drama—spotlights for instance, for both psychological and functional reasons.

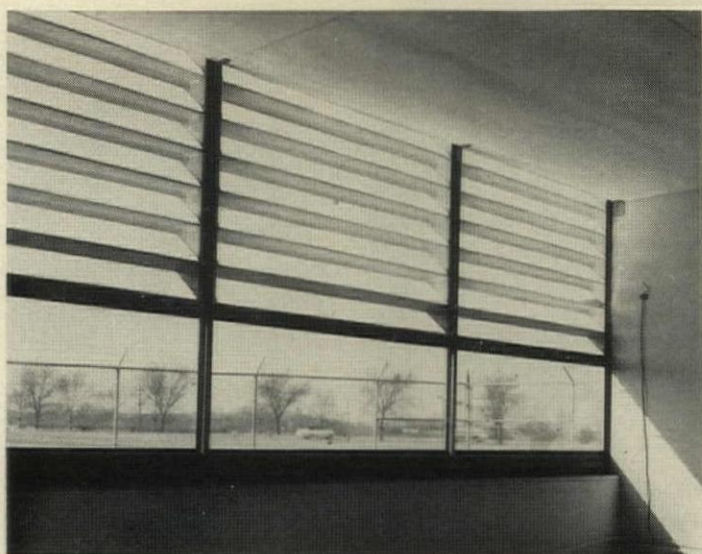




Glass block, shown here above vision strip at Michigan day-lighting laboratory, now include blue-green directional or diffusing blocks and block-and-concrete skylight system.

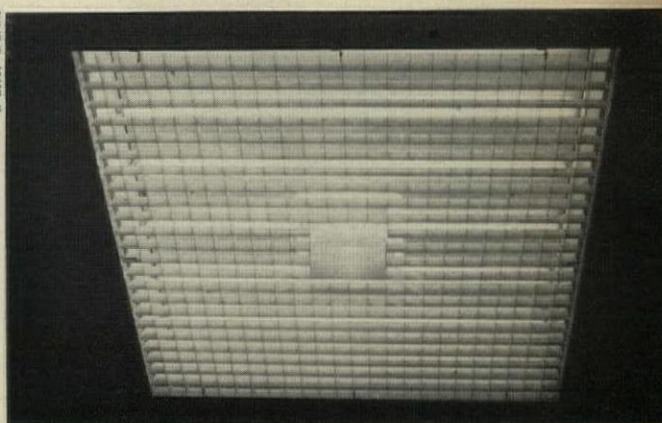


Vertical baffles double as light shields and acoustic treatment in package ceiling system which includes simplification of lights mounted at right angles to wiring channels.

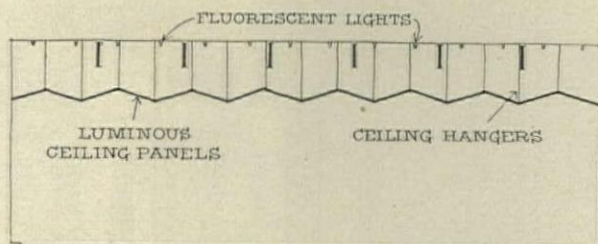


Plastic louvers are formed from clear or translucent panels of acrylic with underside of each fin plastic-lacquered to throw back heat and glare. Panel takes place of pane.

Walter Daron

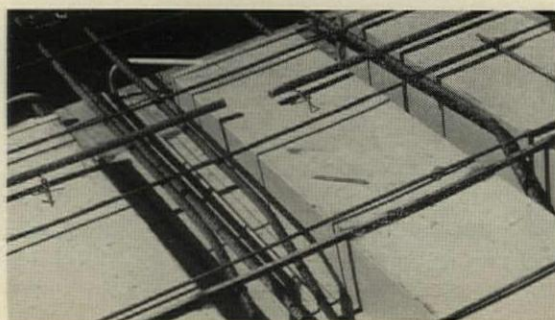


Combination incandescent-fluorescent fixture, 4' sq., was developed for more interesting, color-corrected light in department stores, looks like splendid idea for schools.



Wave-hung luminous ceiling by Architects Bassetti & Morse in high school in King County, Wash., combats monotony of flat, over-all lighting, also improves acoustics.

Integrated ceiling has steel panels which serve as pan forms, acoustic housing, light troffers. Below, finished ceiling; left, top surface before concrete pouring.





Bettmann Archive

CLASSROOM STORAGE

This is a department in which both manufacturers and architects shine. Stock cabinets of standardized, interchangeable parts are especially good development for flexibility, appearance, economy. Wardrobes are included among these, but not many new wardrobe ideas have developed. Incidentally, schools which have experimented with pupil responsibility for classroom cleanliness report a preference for corridor wardrobes because "tracking in" discourages clean-up efforts.



Counter-topped cabinets designed by Architects Sherwood, Mills & Smith for Portchester, N.Y. schools, roll easily from beneath fixed counters, yielding doubled amount of work surface.

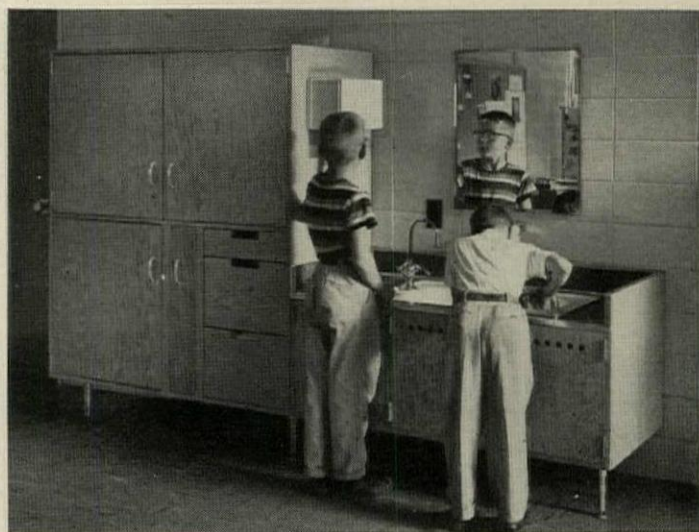


Teacher storage, with adult work level, is important. Work nook and closet (above), and teacher's classroom unit (below) are by Architects Waldron & Dietz. Plan is at bottom.

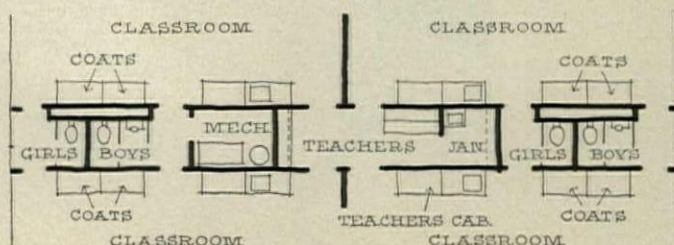


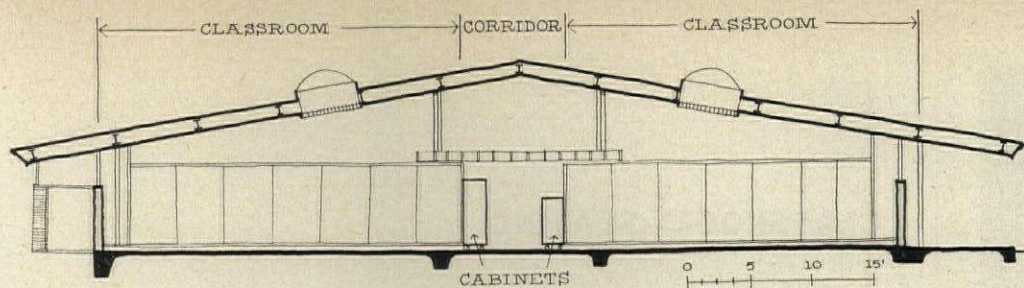
Photos (above & left): J. W. Molitor

Sinks in new Sherwood, Mills & Smith—designed schools are at right angles to wall (above) for easier group use; same architects put 9"-deep shelving beneath chalkboards (below).



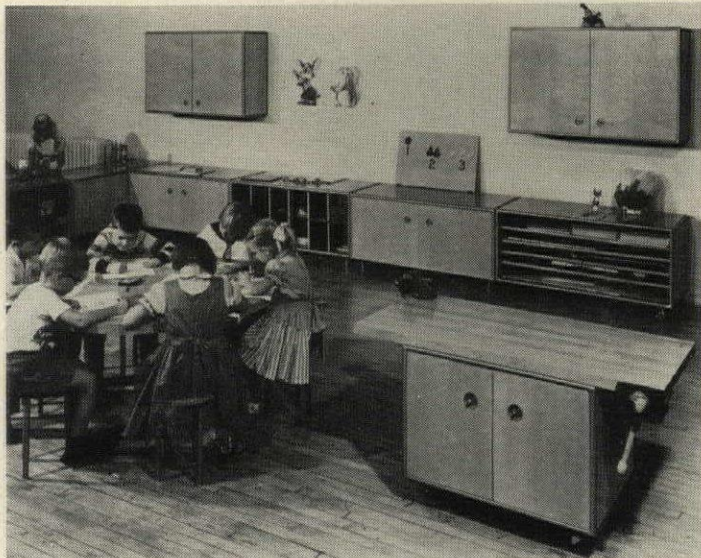
Photos (above): Dearborn-Massar





Corridor-classroom separation consists of stock cabinet and wardrobe units, chalk- or tackboard backed, in Andrews, Tex. school by Caudill, Rowlett, Scott & Assoc.

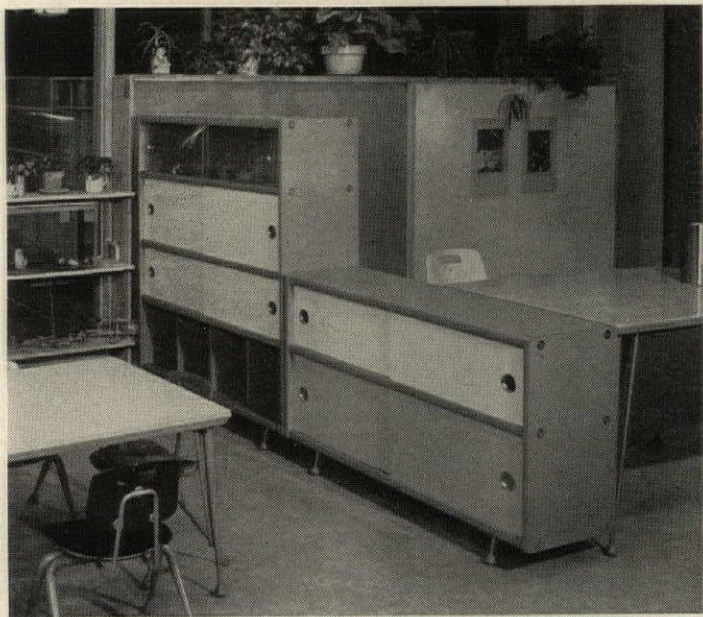
Ralph Yeckel



Modular group of units includes cart, cabinet, cubicle, sink, wardrobe, and is constructed well but economically with tubular metal frames, wood panels and doors.

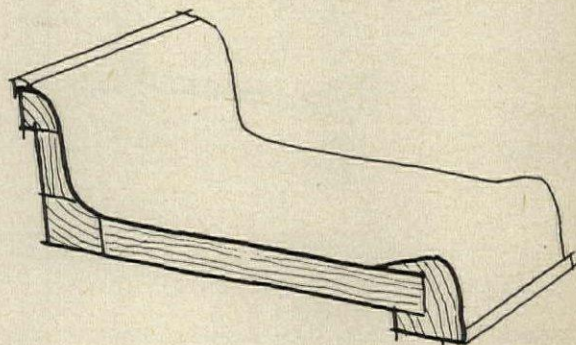
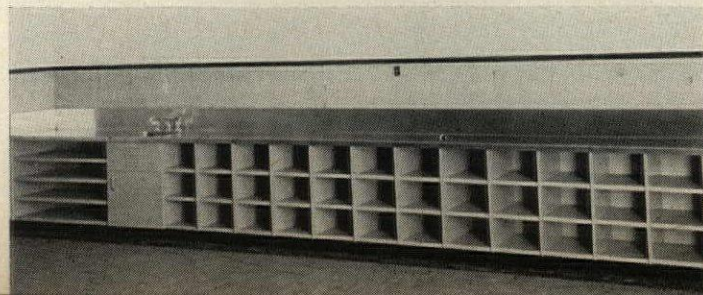


Storage wall, floor to ceiling, is liked at New York University model classroom because it also makes fine acoustic barrier, between rooms. Designed by Eggers & Higgins.



Storage variations are virtually endless, based on combinations and permutations in stock line of ten basic cabinet-cart units. Door panels are bright yellow, blue or coral.

Coordinated stock group including cubicles, cabinet, sink, paper storage, is combined with stainless or plastic work surface fitted to the total assembly chosen.

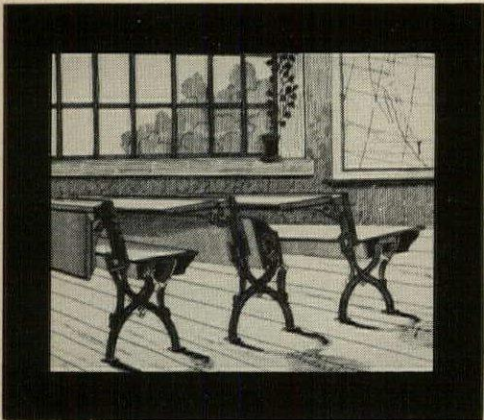


Plastic panel finish is being applied in house building by new "postforming" method to eliminate edges and joints. Technique should be useful on school counters, desks.

Zintgraff



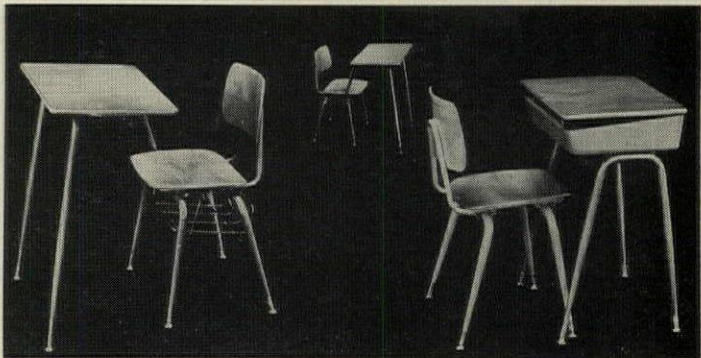
Modular corridor partitioning combines with storage wall in Texas school by Harvey P. Smith & Assoc. Smith reports that 1' height differential between corridor and lower classroom cuts down sound transmission over partition open for ventilation.



Bettmann Archive

CLASSROOM SEATING

Desk and chair combinations have improved greatly in function but in appearance they are the least satisfactory classroom component. Functional improvement still needed, some educators report, is fully swiveling desk chairs because modern classrooms have no "rear."



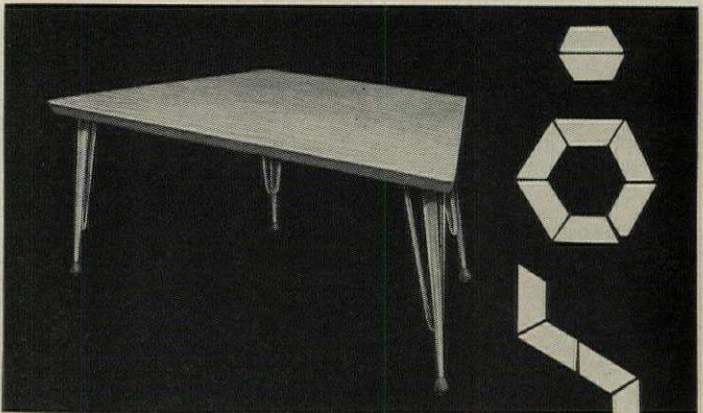
Chair serves as "fourth leg" of writing table in combination unit. Separate chairs stack. Units are tubular metal and wood with plastic-surfaced tops.



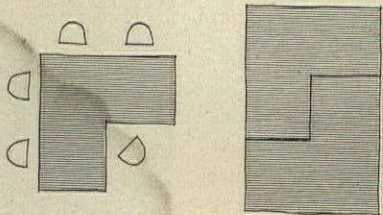
Four-legged desk-chair combination permits easy floor cleaning, freedom for human leg movement. Units group into table-size work area; tubular metal with plywood or plastic top.



Tilting desk top adjusts to three positions: level, 10° slope and 20° slope. Desk is metal with plastic-surfaced top panel. Chair swivels 45° to each side.



Trapezoidal tables group into hexagons, circles, ribbons, also serve as two-student desks with chairs placed along wide side.



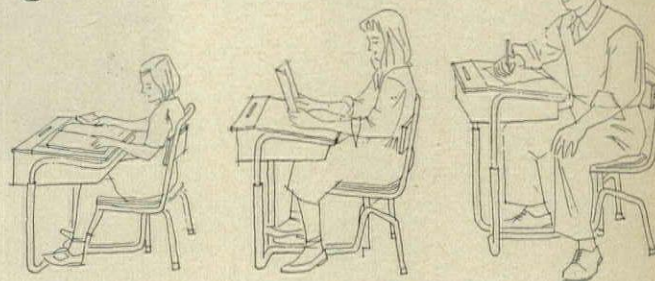
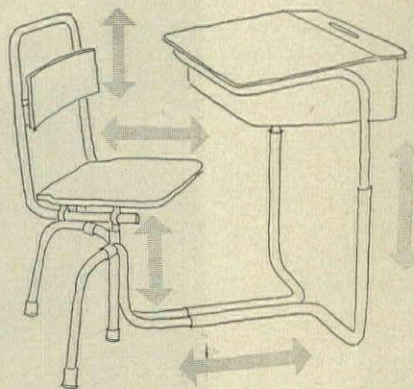
L-shaped table standing alone, or joined with another into horseshoe, suits group activities. Units also form rectangles.



Poul Davis

"Solid plastic" desks and chairs are made of ground wood impregnated with colored plastics, then molded; tubular steel frame. Units come in 22 combinations of color.

Mealtime seating in school designed by Architects Waldron & Dietz is in classrooms to avoid mass feeding, teach manners. Food cart (rear) is wheeled in from central kitchen.

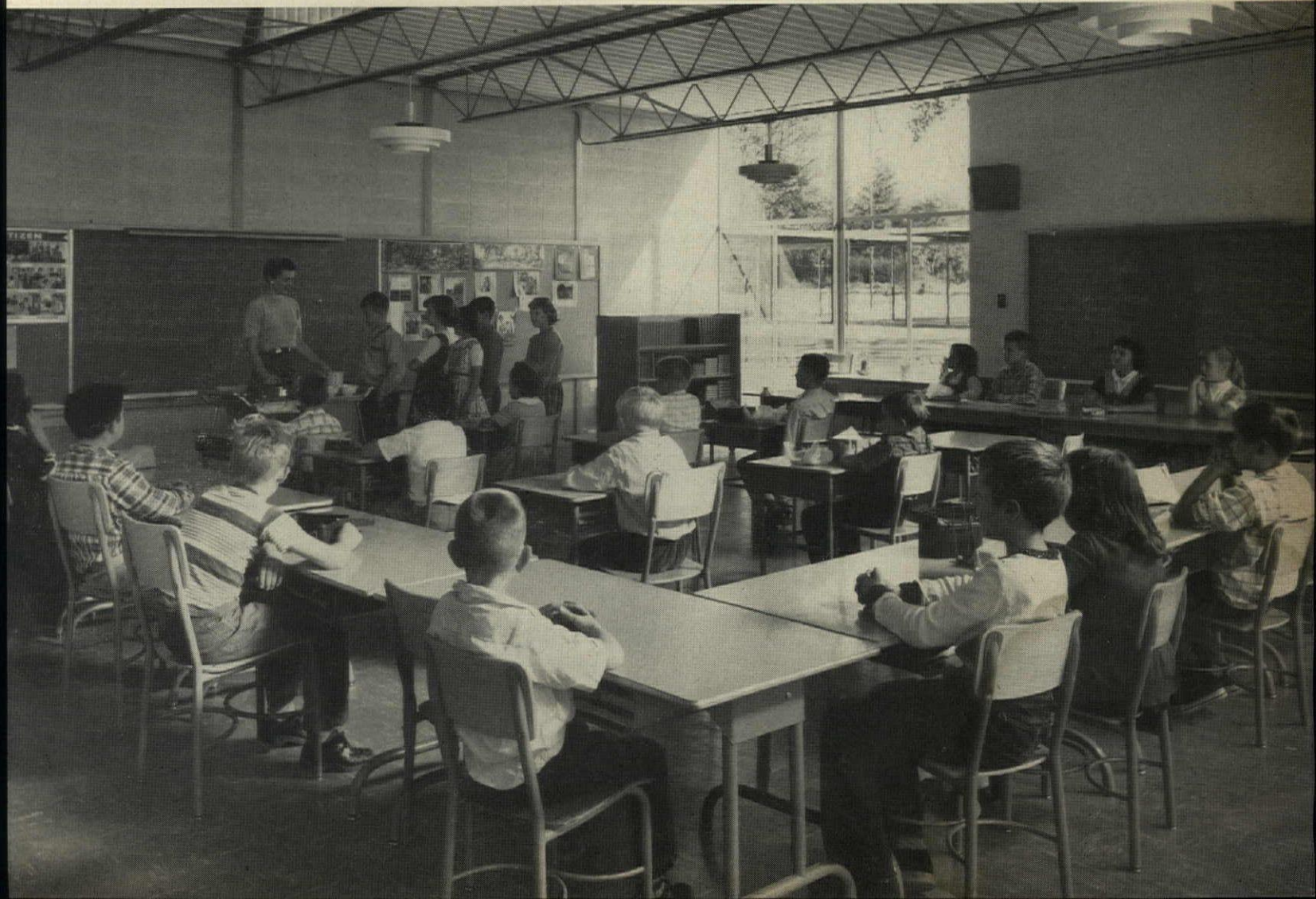


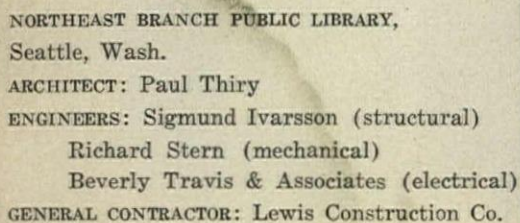
Fit-everybody desk-chair unit adjusts in all directions, for instance varies 6" in seat height, 3" in seat depth, 5" in horizontal leg room, 9" in desk height. Top tilts 7°.

Bettmann Archive



Dearborn-Massar





Northeast Branch was designed under a common-sense policy agreed upon by Head Librarian John Richards and his associates in the Seattle Public Library system: give architects a free hand to create a pleasant environment for reading and let each branch library develop a character of its own instead of forcing it into a mold. Result: a library that has become a real community center.

←

Inviting entrance is set back 17' from roof line, giving a deep sheltered entry that shields low glass from south sun. Sills are 7' high, reduced to 4' high for children's area at right. Note exterior, interior display cases at left.

One big room encompasses adult and teen-age areas at left, children beyond, reference and meeting room at right. Exposed girders stop short of center bay; these and posts help define lower reading areas, high "corridor."



Children's area is conveniently near entrance and right opposite charge counter, where attendant can supervise when the children's librarian is not at her desk. Round plastic-topped table can be used for reading to small groups. Floor is vinyl, ceiling acoustical tile.

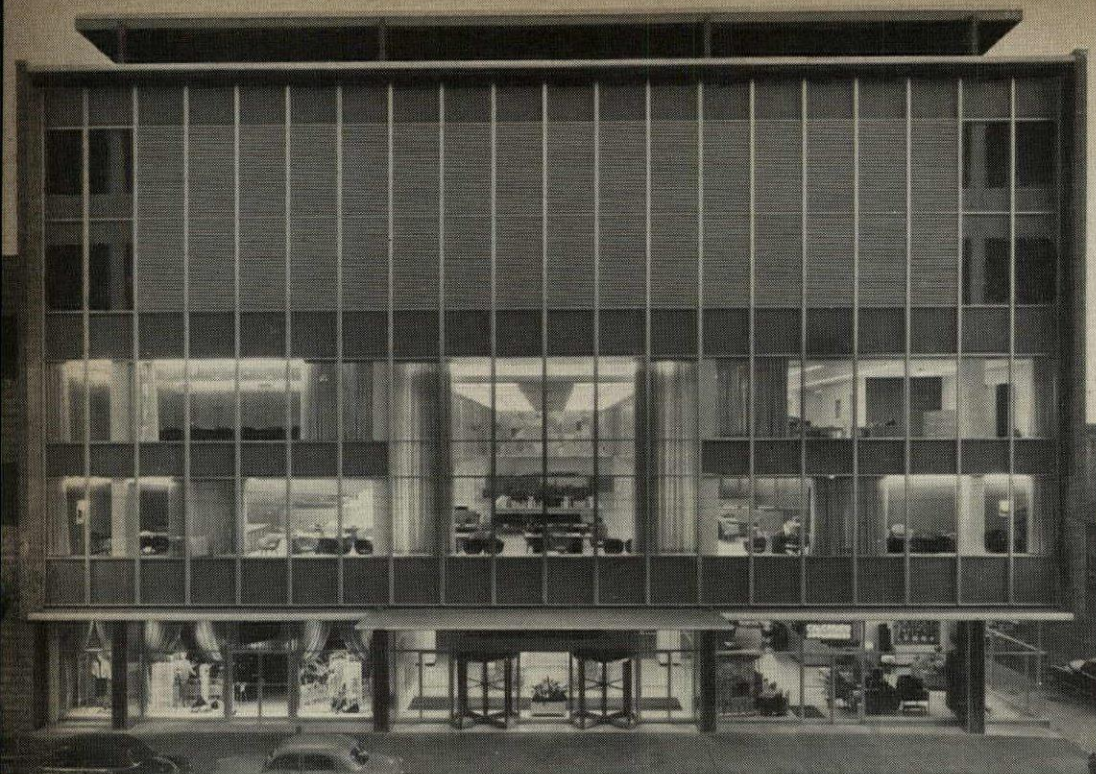


←

Exterior has a friendly residential look, a colorful rock garden at street corner. Steps and walk from street at right are covered by long porch roof. Walls are light yellow panels of precast terrazzo.

Charge counter near entry gives a single attendant view of whole library. Structure permits easy rearrangement of interior. Construction cost came to \$114,757 or \$13 per sq. ft. (for 8,823 sq. ft., counting porches and basement at ½). Furnishings, landscaping, architect's fee and state sales tax brought total to \$142,068.





ROOF PARKING

PARKING

PARKING

BANK MEZZANINE

BANK MAIN FLOOR

STORES

DRIVE-IN BANK

DRIVE-IN BANK FOR DOWNTOWN

Like many downtown businesses, this bank was beginning to pay the price of out-moded quarters, lack of customer parking and a location off the main street away from the town's main direction of growth. The officers first thought of luring business back by building a parking garage on nearby property, and remodeling the lower floors of the 40-year-old building in which they rented banking space. But as excavation started on the garage, the bank re-

modeling proved impossible. This brought forth a far bolder solution: a handsome "combination sandwich" of parking and stores—with a brand new bank in the middle. The owners felt that a ground floor bank, with doors closed in the afternoon, few displays and windows dark at night, would not stimulate much interest in the area. By moving the bank upstairs, vaults and all, they have gained new tenants and bright shop windows.

THE AMERICAN NATIONAL BANK, Austin, Tex.

ARCHITECTS & ENGINEERS:

Kuehne, Brooks & Barr

INTERIOR DESIGN: Knoll Planning Unit

Florence Knoll, director

GENERAL CONTRACTOR: J. M. Odom

West sun is stopped by handsome brick wall, ramp screen of aluminum louvers



COST BREAKDOWN

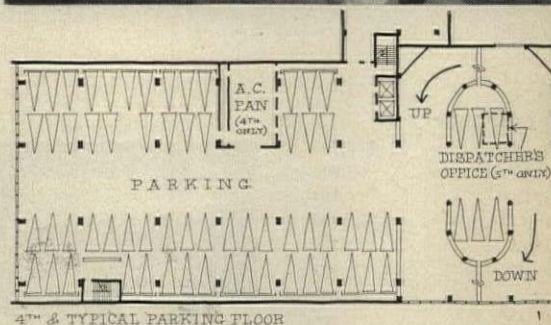
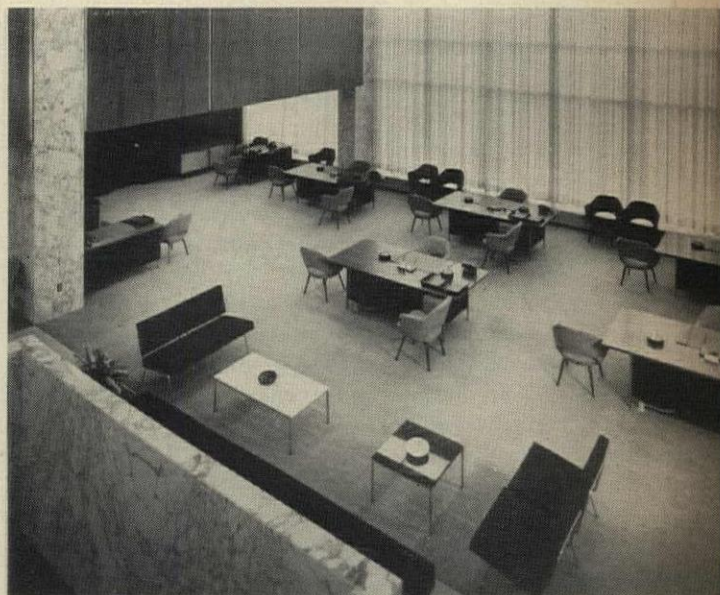
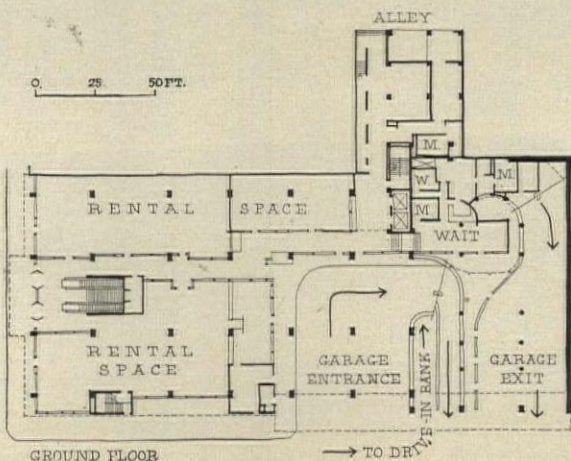
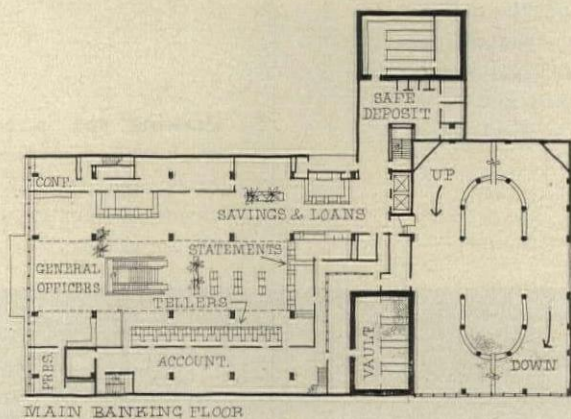
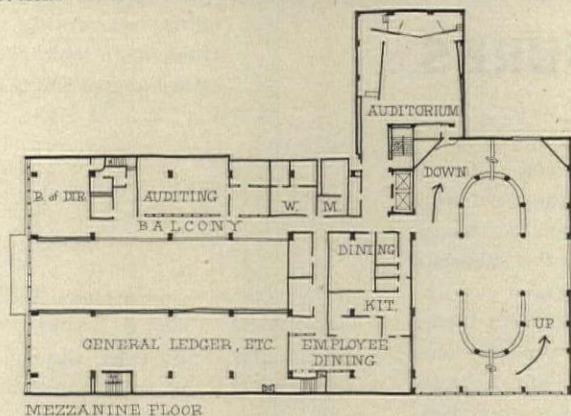
Concrete frame	\$450,000
Structural steel	60,000
Masonry	115,000
Roofing	18,000
Arch'l. aluminum	50,000
Store fronts	38,000
St. steel facing	10,000
Millwork	70,000
Hardware	14,000
Plastering	50,000
Terrazzo	28,000
Rubber tile	11,000
Ceramic tile	13,000
Metal doors	8,000
Marble	15,000
Painting	20,000
Electrical	140,000
Plumbing	78,000
Heating, air cond.	156,000
Elevators	62,000
Miscellaneous	12,000

Total\$1,418,000
 Cost per sq. ft. (excluding fees):
 basement, \$4.90; stores, \$13.15;
 banking floors, \$17.20; parking
 areas, \$3.37; public areas, \$8.62;
 average, \$7.63.



Photos: Dewey G. Mears

Bank lobby, reached by moving stairs, is richly paneled in Burmese teak veneer. Mural by Seymour Fogel is full of sky colors which open up the inner end of the room, balancing the draped glass of the outer end at the north (below). Right in the open lobby, where they can give a hearty Texas greeting to all comers, are the bank's officers (only the president has a private office to duck into).



Double ramps (seen below at ground floor) separate up and down garage traffic. Basement motor bank has its own access ramps, four drive-in tellers.





DRIVE-IN BANK FOR THE SUBURBS

As the bank shown on preceding pages started out to be a parking garage, this one also evolved from modest beginnings. The owners had first decided on a countrified Colonial style, to convey the friendly philosophy of a savings and loan association. The building they finally approved, however, is considerably more appropriate to an up-to-date business in the suburbs of a growing city. (The Texas Society of Architects thought it distinguished enough to merit a first honor award for the year.)

Like the city bank, the suburban one achieves traditional banking dignity with a main room two stories high, into which

tellers' counters and offices open from low space on either side. Where the main room of the narrow-lot city bank gets north daylight from its entrance end, the suburban bank turns the long space parallel with the street and lights it with a north-facing clerestory. Hung ceilings over the one-story space (see section) are actually zoned plenums which eliminate much ductwork and give an even, draftless distribution of conditioned air through the perforations of the metal-pan acoustical ceiling. As in the city bank, the hot Texas sun is excluded by windowless east and west walls, and a mural acts as a focal point.

Main facade faces north, day-lights accounting offices in front, main lobby through clerestory above. Entry from parking lot is at right.

OAK CLIFF SAVINGS & LOAN, Dallas, Tex.
ARCHITECTS: Prinz & Brooks
MECH., ELEC. ENGINEERS: Gaynor & Albright
GEN. CONTRACTOR: Burgher Constr. Co.

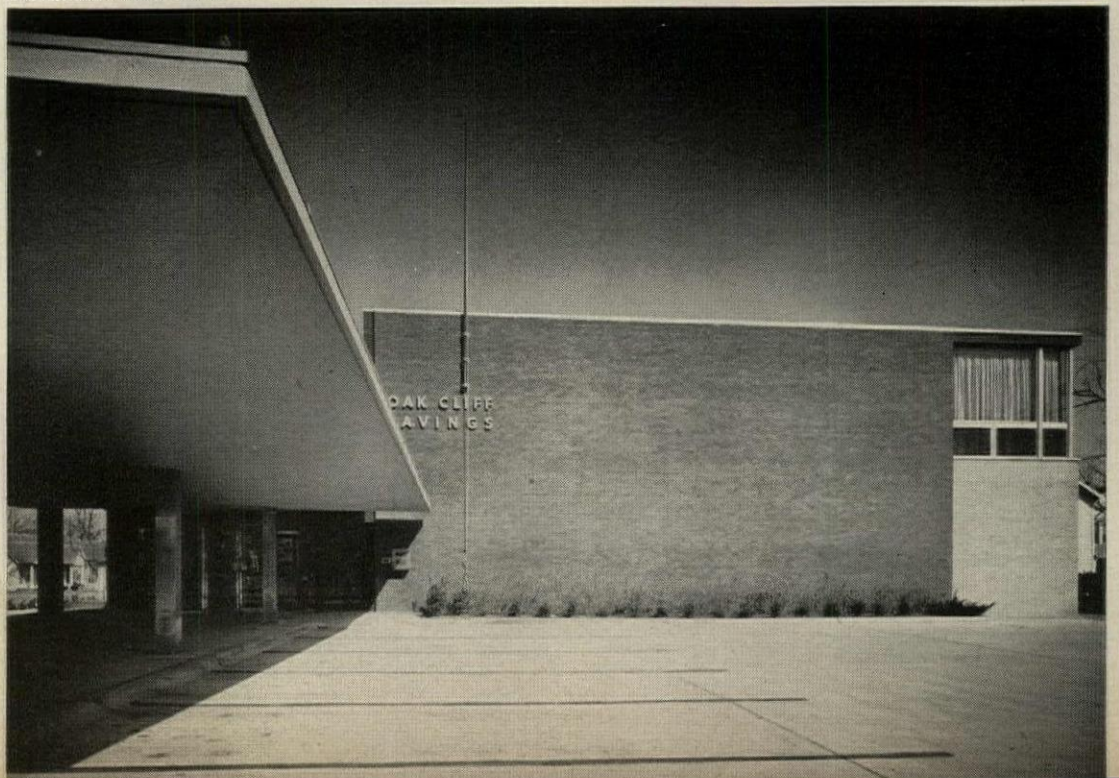
Parking lot is bounded by west wall of brown and buff brick and canopy on brass-sheathed columns which gives sheltered entry for ten cars.

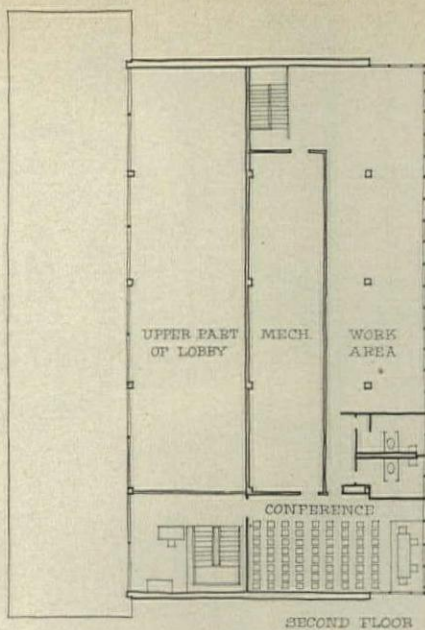
COST BREAKDOWN

Excavation, etc.	\$10,743
Concrete work	53,290
Structural steel	21,184
Masonry and granite	25,200
Waterproofing	1,500
Roofing insulation	5,902
Door frames	1,300
Exterior doors	9,100
Aluminum windows	1,800
Millwork	4,501
Glass and glazing	11,000
Lath and plastering	10,000
Tile	4,550
Acoustics	4,900
Painting and canvas	7,815
Wall covering	1,800
Finish hardware	1,300
Vault door and vent	3,900
Pneumatic tubes	4,100
Electrical work	38,064
Plumbing, air cond.	52,711
Architect's fee	17,389

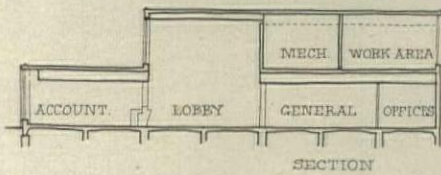
Total \$292,049
Cost per sq. ft. (incl. architect's fee): \$21.75.

Photos: Ulric Meisel—Dallas

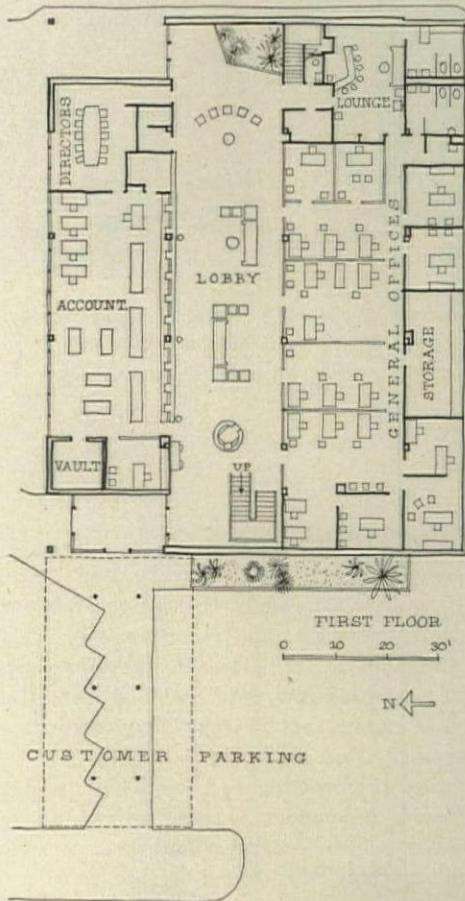




SECOND FLOOR



SECTION



Lobby facing east: offices are separated by low, glass-paneled rails. General lighting is fluorescent in plastic fixtures.



Lobby, facing west: stair leads to conference, work areas



TECHNOLOGY

Mechanized material handling on the building site . . . tilt-up steel frames and precast floors for an 11-story building . . . weatherproofing for the metal curtain wall . . . slip-form construction . . . 40-ton air conditioning with 5-hp equipment . . . and a new department on building research



HAND-OPERATED WINCH added to fork truck doubles usefulness of machine.

AUTOMATION IN CONSTRUCTION

Material handling on the job site is rapidly being mechanized, but real automation is far off

The handmaiden of automation is mechanized material handling. The material handling equipment manufacturers have benefited from the trend to automation in all industry to the extent of doubling their business during last year. In racking up a phenomenal \$2 billion of sales in 1955, equipment makers have not neglected the construction industry. Here's how one large manufacturer, George Spatta, president of Clark Equipment Co., looks at the construction industry: "It is the one best market for material handling in massive proportions—and the opportunities for cost-cutting exist on a scale not possible in any other field."

Spatta's faith seems justified by the sales record of his new (slightly over one year old) Construction Machinery Division,

which sold \$30 million worth of equipment in 1955.

And it has been the willingness of the construction industry to invest in material handling machinery (as well as other labor-saving tools) which has kept the industry cost competitive with other, low-paid labor countries. Although US costs are undeniably higher, they are not out of sight. One reason was given by the British governmental committee which investigated the American construction industry in 1950 to find out why US construction costs were only about 20% higher than British costs even though American labor got four to five times the wage of British labor. The reason, according to the commission: more mechanization and greater economy in the use of higher-paid skilled craftsmen.

A survey of the on-site mechanization of material handling in building shows many machines at work.

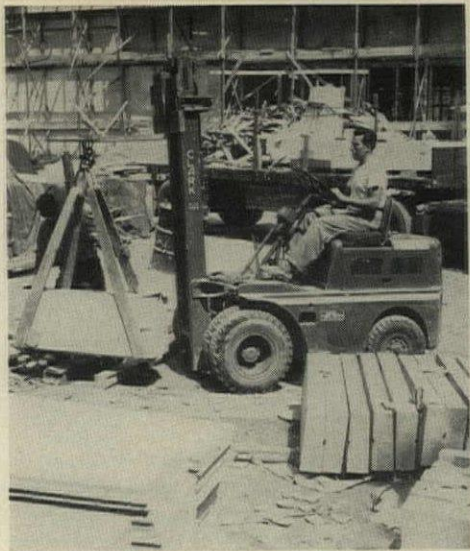
THE FLEXIBLE FORK LIFT

Not many years ago, fork lift trucks were virtually unknown in the construction industry. Construction materials were still manhandled into place in the structure. The wheelbarrow, skid and hod were the chief means of moving bulky materials around a job.

But skyrocketing costs and high wages forced the builder to look around for a better way of handling materials. A useful machine was found in the fork lift truck. Today, the fork truck is almost ubiquitous on big construction jobs. Its flexibility and adaptability make it one of the most useful pieces of equipment the contractor has in his shed.

Even without adapting tools and attachments, the fork lift can do these jobs:

- ▶ Unloading materials from delivery trucks and moving them to storage.
- ▶ Delivering materials directly to the



Clark Equipment Co.

CANVAS SLINGS for handling fragile limestone blocks is another contractor's rig.



MORTAR TUBS are picked up, moved and positioned by fork lift truck.



TILE BLOCKS are lifted from extra-wide bottom scaffold to lighter working platform.

craftsman, placing material on scaffolding, and even delivering other pieces of equipment directly to the craftsman.

► Eliminating much unnecessary handling of easily damageable materials.

Mason contractor. The Robert W. Weber Co., a Philadelphia mason contractor, about four years ago got an unusually large job requiring handling of large quantities of brick and stone. The firm invested in a fork lift truck and ever since has been sold on the use of the machine. Cost analysis, says Weber, has shown them things like this: Up to 605 man-hours eliminated in one operation; 1,100 pieces of partition tile unloaded and stacked in 25 minutes; 12 tons of fragile limestone unloaded in 90 minutes.

Handling the heavy, fragile limestone blocks is a teamwork operation between a fork truck and a crane. The crane is used to transfer the stone from freight cars to trailers. At the construction site, a fork truck equipped with canvas slings is used to unload the stone from the trailer. A crane positions the stone. Total time saved on this operation: about 605 man-hours.

Almost the same results were obtained in the handling of tile. By arrangement with its suppliers Weber receives its tile on pallets. (Added cost of palletization is more than offset by the man-hours saved in handling.) At one job, 850 pieces of 8", or 1,100 pieces of 6" hollow partition tile were unloaded from a trailer in 25 minutes or less, cutting handling time—and handling wages—more than 50%, according to Weber officials.

A careful analysis was made to determine the fork truck capacity needed. It was concluded that 4,000 lb. would be

enough for most material encountered on an average job. Both of the company's trucks are of that capacity. One has balloon tires to cope with rough terrain; the other has solid tires for easier maneuvering on hard-surfaced floors and slabs.

Ingenuity. In almost every case, the contractor makes some ingenious alteration on the basic machine to fit his particular needs. For example: a simple, time-saving solution to the tricky problem of handling and positioning granite slabs at the construction site has been devised by J. P. Cullen & Son, general contractors of Janesville, Wis.

Cullen mounts a hand-operated winch on a fork truck. Working on an upper floor, the rig lowers the slab into position for setting by masons. The only manual labor involved is turning the handle of the winch and an occasional nudge of the slab to guide it. The winch can be taken off or installed on the fork truck in 1 minute.

When not setting slabs, Cullen's two fork lifts handled palletized face brick, partition tile and concrete blocks, and steel mortar boxes. The machines were moved from floor to floor on the building hoist.

Coordination. It is not always possible to introduce mechanization into an operation without making changes to coordinate the machine to the work. When Precour Construction Co., Oshkosh, Wis., began (about a year ago) to use fork lift trucks, it had to make changes in methods.

For one thing, it had to erect special scaffolding for the machines. Eight feet wide, and double planked, the scaffold usually follows the inside perimeter of the building. The trucks travel on this scaffold. As work progresses a second, lighter scaffold is set up on top of the first one to

Hyster Co.

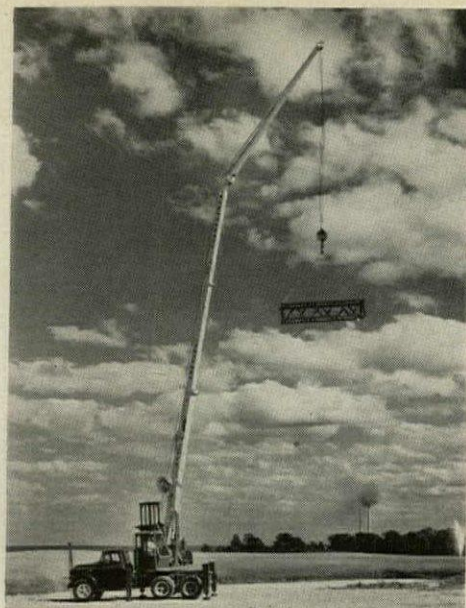
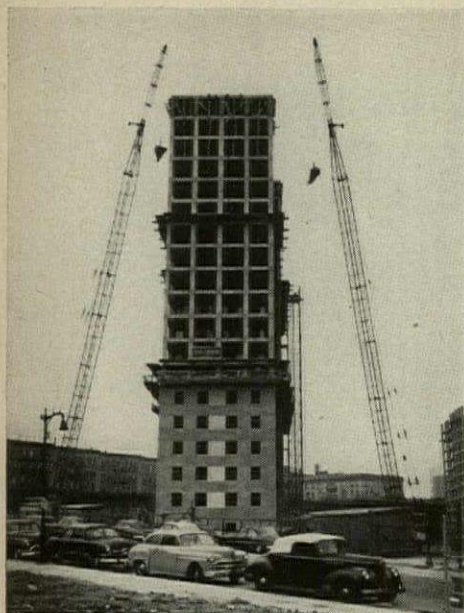


PALLETIZED BRICK is moved by small powered pusher for horizontal transportation.

hold pallets lifted up by the fork trucks.

Precour uses two 1,000-lb. capacity machines for on-the-site handling. Size, rather than lifting capacity, was the determining factor in making the selection for two reasons: 1) scaffolding floor capacity of 60 lb. per sq. ft. required a relatively lightweight machine, and 2) maneuverability and compact design were necessary to go around corners on the scaffolding.

Whenever possible Precour gets its materials palletized by the supplier; the brick and tile are palletized in bundles of 240 brick, 30" long, 24" wide and 24" high. This permits moving the material through standard 36" institutional doors. But Precour believes that it has made substantial savings by reducing breakage, eliminating delays in supplying masons and reducing the number of mason tenders. On one job with a 20-mason crew, Precour cut the tenders from 11 to 3, saving about \$3 per hour per man.



230' CRANE BOOMS (left)—highest yet used on buildings—raise concrete buckets for 19th story of eventual 21-story building in New York City. TRUCK CRANE (right) is used for high lift, close quarter work. All-hydraulic machine can extend three-piece boom to 50'.

THE POWERFUL CRANE

One of the oldest pieces of construction equipment—and still one of the most useful—is the lifting crane. The modern crane adapts itself to material handling because it has been made more powerful and more mobile. The boom has been growing longer, extensions and jibs adding footage to the basic arm, the hoisting cables stronger, and the mountings, truck wheels and crawlers more mobile.

More versatility is added to the crane by the variety of devices which can be hooked to the end of the hoist line to handle materials. To name just a few: buckets for loose bulk materials and concrete; magnets and vacuum pads for steel plate and concrete slabs; hooks, grapples and tongs for lumber, pipe, crates and drums; and, of course, the skull cracker which doesn't handle materials but reduces a building or slab to rubble for easy removal.

Modern crane work is marked by two projects:

One of the highest reaches to date was made by a pair of cranes working on the General Grant Houses development in New York City. The general contractor, Paul Tishman, used them to lift concrete buckets to the top of a 21-story building. The booms of the cranes were 230' each.

The other project was the 40-story Republic National Bank building in Dallas, Tex. Here the contractor, Farwell Construction, Dallas, Tex., mounted a four-ton truck crane atop the steel structure. (It was hoisted up partially dismantled.) The unit made about 30 lifts per day, averaging 2,500 lb. per lift of a variety of materials, at the same time avoiding the hazard of lifting over busy streets. The contractor believes that this method saved

over 75% of the man-hours which would have gone into material handling.

THE ADAPTABLE CONVEYOR

Still in its earliest stages as a means of handling material on the construction project is the endless belt conveyor. The conveyor, depending upon the type of belt, will move crates, rolls of roofing, tools, buckets and bulk materials such as sand and concrete. The portable conveyor can be used to move materials on the level or up or down a fairly steep angle. Modern conveyor usage calls for teams of conveyors to provide flexibility of direction and higher rise than that afforded by a single belt.

Here's how William L. Crow Construction Co., New York City, used a pair of conveyors in pouring a concrete pressure floor for a Buffalo Federal Reserve bank: Crow used two 40' conveyors to place 195 transit mix truck loads (1,100 cu. yd.) in 13 hours. The handling costs were \$1 per cu. yd. compared with an estimated \$3 per cu. yd. if standard methods had been used.

CARRIERS AND HOISTS

First used in the lumber industry, the straddle truck has been adapted and used by a few contractors to move everything from lumber to steel reinforcing rods. A typical use of the straddle carrier was on the Garden City shopping center (Webb & Knapp, owners) where Pre-Crete, Inc., supplied the floor slabs. Pre-Crete used a straddle carrier of 30,000-lb. capacity to move loads of five 4,000-lb. slabs from the casting yard to the various locations on the job site. Delivery of 90 slabs a day was said to be twice as fast as crane-and-trailer and considerably less expensive.

Powered wheelbarrows. Motorized concrete buggies (they'll also carry sand, cement or other bulk materials) are gradually taking over jobs formerly in the province of muscle. Despite the occasional necessity for reinforcing the floor forms to carry the extra weight, the powered barrows prove their worth on most projects. Contractor Stanton-Reed of Los Angeles used four machines on the eight-floor psychiatric unit of the L.A. County hospital as substitutes for about 14 hand-pushed buggies. The four buggies poured as much as 230 cu. yd. of concrete per day.

Material hoists. A prime mover of material on any high-rise building is the material hoist and tower. The trend in this machine is to easily erected towers—100' towers can now be built in a day—and to higher speeds and greater load capacity—machines of 3,000 lb. capacity with speeds up to 160' per minute.

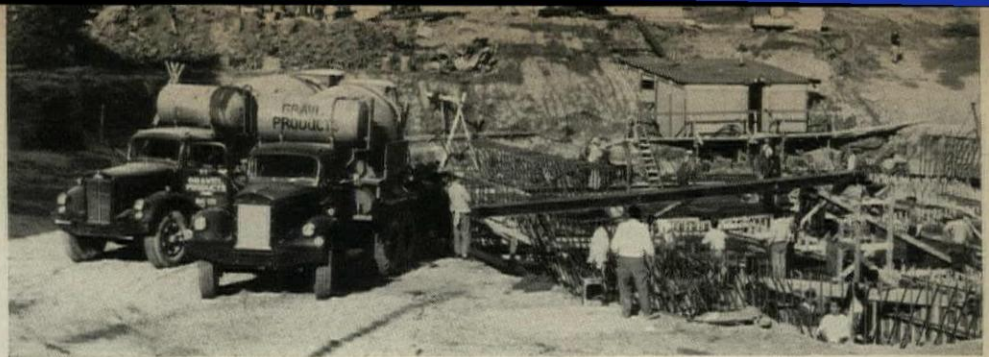
A variant of the material hoist and one which shows promise for construction material handling is the portable telescoping tower or work platform. This machine combines the advantages of a scaffold and a ladder. Towers have lifts from 10' to 70'.

Pumping materials. Two other materials, plaster and concrete, can be handled in another way. These two semiliquids can be mixed and pumped through tubes.

The future promises that more mechanization will take place in the construction industry—costs will see to that. As Hamilton Beatty, assistant sales manager of The Austin Co., said in December: "In spite of the tremendous savings already realized by industry through improved material handling, no other single approach open to management holds as much potential for continuing cost reduction."



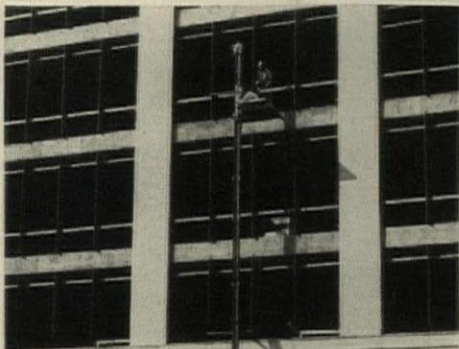
TRUCK-MOUNTED HOIST with 42' lift can be erected in less than half an hour.



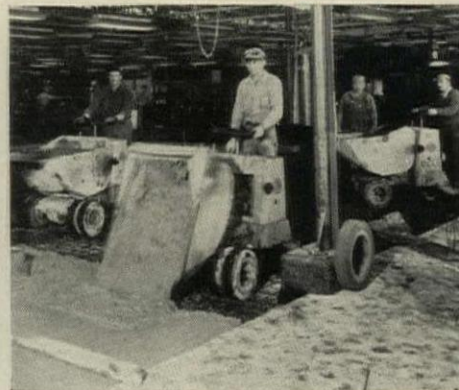
CONVEYOR placed 1,100 cu. yd. of concrete in 13 hours on Buffalo bank job.



PORTABLE CONVEYOR can carry variety of materials up a fairly steep slope to a roof.



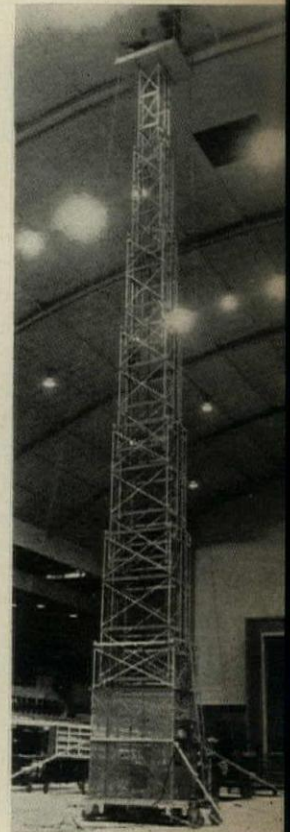
Dan Owen



POWERED WHEELBARROWS haul and pour ready-mix concrete in floor job.



PLASTERING machine mixes, pumps and sprays on plaster at a saving of 50% in time.



TELESCOPING TOWER provides both working platform and materials hoist in one.

MONORAIL HOIST can lift one ton to any height desired by adding 6' sections.

STRADDLE CARRIER (below) lifts and hauls precast slabs to a few yards of point of use.





WELDED STEEL SKELETON frames group of apartment buildings in Paris. Some floor slabs are already in place.

TILT-UP FRAME AND HOIST SLAB

Method used to erect group of apartments in France saves labor by cutting scaffolds and formwork

By tilting up 11-story-high steel panels and hoisting prefabricated floor slabs into position, a French apartment project saved two-thirds of the labor of a conventional structure. US observers are accustomed to ingenious use of concrete in European structures, but here Architect J. Fayeton has demonstrated that even in steel-short Europe, steel skeleton construction can compete with reinforced concrete in the economical building of tall apartment houses.

To do this, steel and reinforced concrete were combined and a novel method for erecting the structures was used. Moreover, the design eliminated plastering and under-floor preparation by producing finished surfaces ready for direct application

of ceiling paint and floor coverings. But the chief means used to cut costs were elimination of all scaffolding, formwork, practically all concrete work at high levels.

Framing system. The foundation and first floor are of reinforced concrete.

The steel framework was designed to carry all the vertical loads and all horizontal stresses due to wind pressure, leaving the floor slabs as free-floating load-bearing surfaces.

The welded frame was made up of 11-story panels, which were braced and reinforced where necessary for rigidity. Each panel was completely assembled on the ground and then tilted up in one piece. Traverse pieces were then welded to the panels to form the entire building frame.

Slab forming and hoisting. The floor slabs were formed directly underneath what was to be their permanent location in the structure. They were of hollow reinforced concrete of slightly smaller

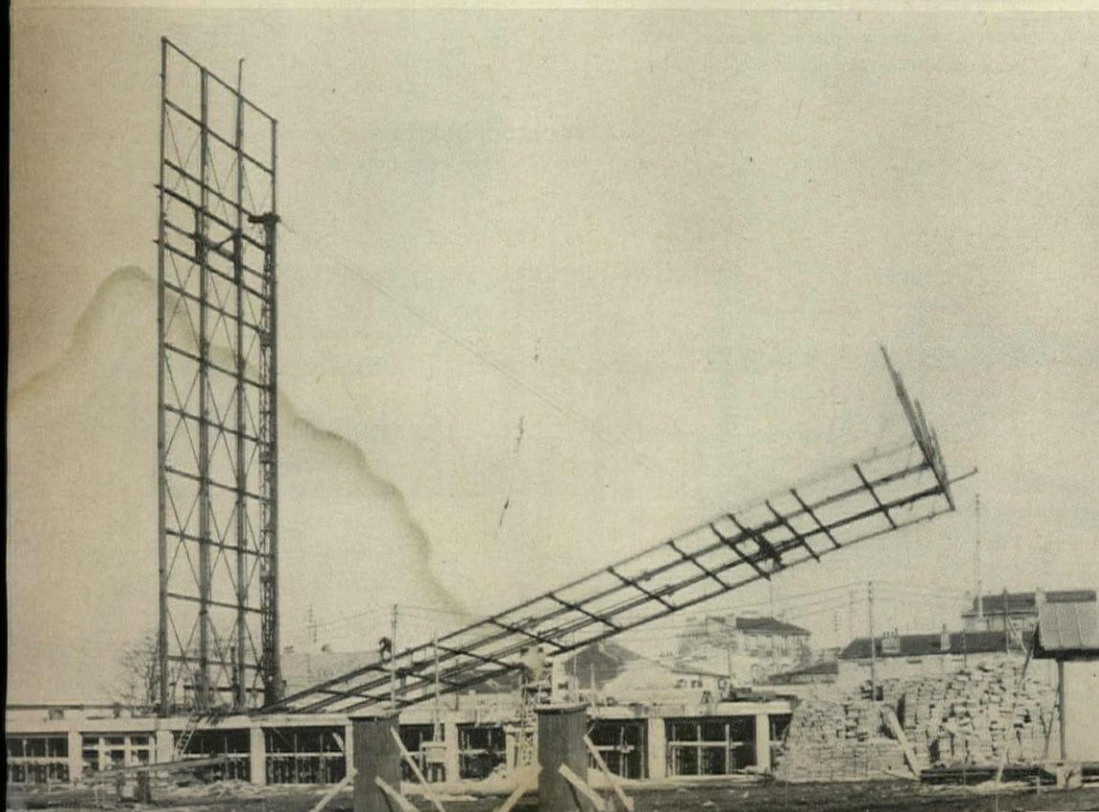
dimensions than the frames into which they were to fit. The slabs were hoisted into place by an electric winch mounted on the top traverses of the frame. A special liquid compound facilitated parting the successive layers of stacked-up floor slabs. The underside of each slab was given a smooth finish by spraying it with mortar under compressed air. The completed floor is a flat slab 8.6" thick with no beam haunches projecting underneath.

The architect and contractor report that the chief advantage of the combination method used for construction was that it reduced the amount of labor—especially skilled labor—when compared with conventional methods. They estimated that the new method took only about one-third of the manpower ordinarily needed.

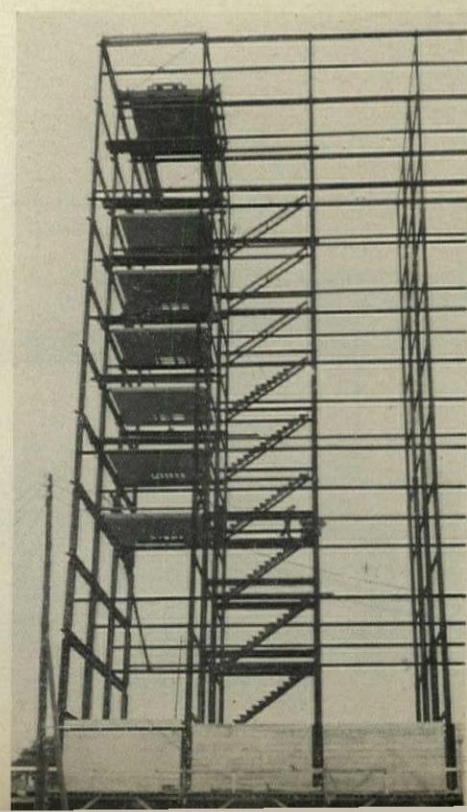
The facing of the building was also made of precast concrete units. Other components—plumbing, heating and electrical—of the buildings were assembled and installed by conventional methods.

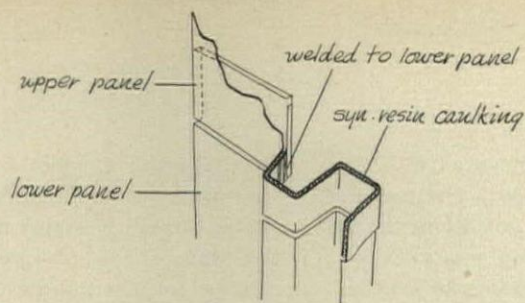
TILTING UP OPERATION raises 11-story-high standard welded steel panel after it has been completely assembled on ground.

PRECAST FLOOR SLABS and stairways are raised by traveling crane mounted on top traverses of the frame.

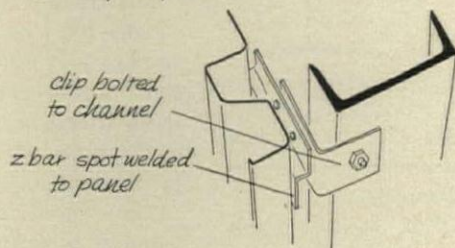


Photos: T. Vaulé, courtesy of "Techniques et Architecture."

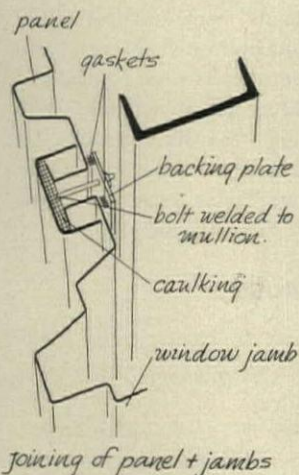
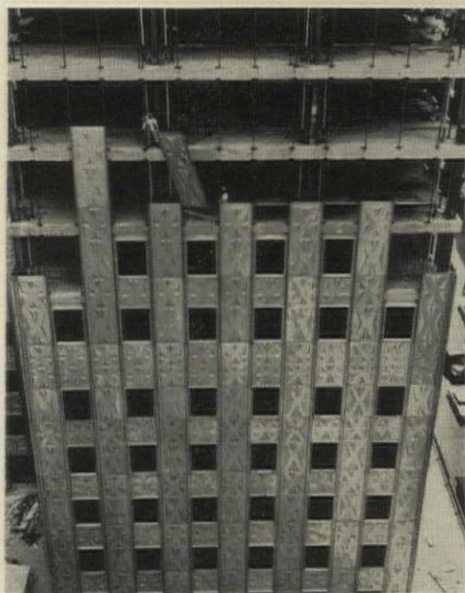




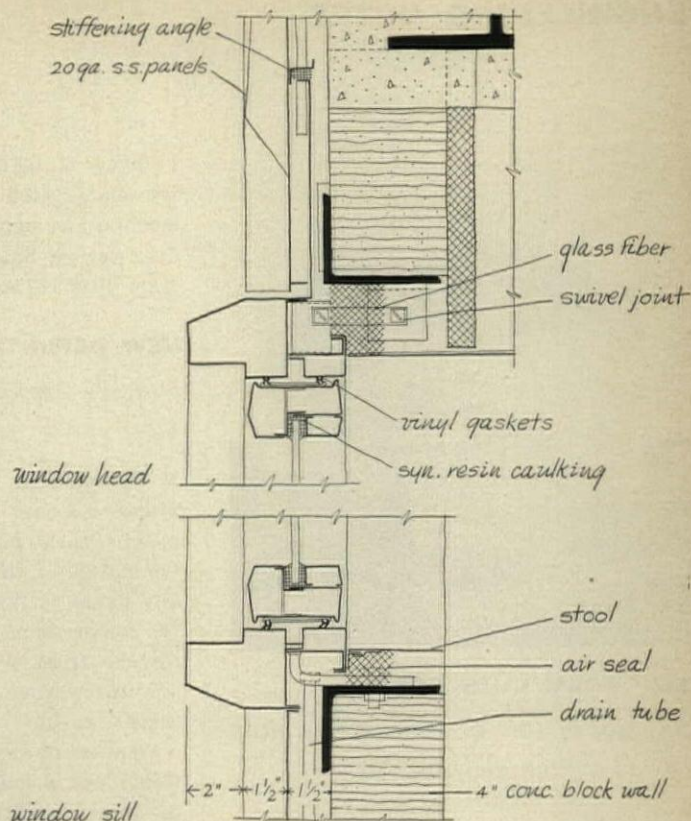
joining of panels



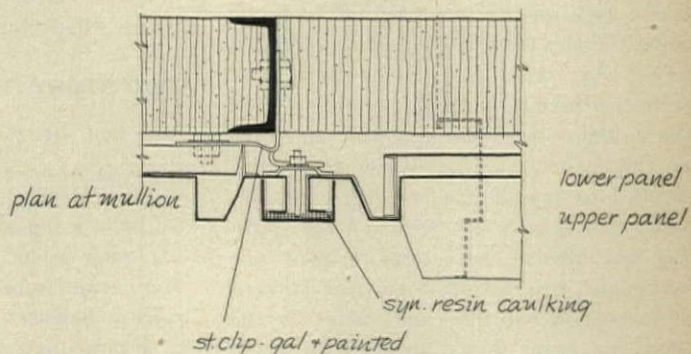
fastening of panels



joining of panel + jambs



window sill



plan at mullion

SEALING THE METAL CURTAIN WALL

Extruded plastic weather stripping and synthetic calking seal stainless steel wall of Socony-Mobil building

Because of their high moisture and heat absorptive capacity, their multiplicity of joints and their dead weight, brick and stone walls did not present severe waterproofing problems to architects and builders. Yet when similar calking techniques are used on today's glass and metal-clad buildings, the walls often develop embarrassing leaks within the first year of operation. On Lever House and the UN Secretariat buildings, to name only two instances, this has necessitated expensive recalking with more durable material (AF, Jan. '52 and Aug. '55).

To avoid such difficulties on the 45-story

Socony-Mobil building, Architects Harrison & Abramovitz and the curtain wall manufacturers spent several months on full-scale mockup wall tests using various sealing materials and techniques. They decided on a unique wall construction combining long-life weather-stripping gaskets of extruded polyvinyl chloride plastic around the window frames with a new synthetic resin calking compound at the horizontal and vertical joints between the panels. Although the plastic and the resin cost more than conventional calking materials, tests indicate that they will probably last for the life of the building.

Glass and metal wall construction is hard on calking materials in several ways:

► Rapid temperature changes in summer dry out oils in the best calking. The dried out compound hardens and, in cold weath-

er, shrinks, cracks and spalls away.

► Glass or metal curtain walls react to vibrations of the building's internal machinery and wind pressures. The panel's vibration accelerates the spalling away of the calking.

► While masonry walls absorb a high proportion of driving rain water, glass and metal walls absorb none at all. The runoff subjects the joints of the façade to a ruinous scouring action.

The Socony-Mobil building is faced with 5' wide stainless steel mullion panels set between 5' wide combined window and spandrel panels. All the panels are a full story high, 11'-9", and are made of 20-ga. 18-8 chromium-nickel stainless sheets with a 2D moderately bright finish. The metal wall weighs 2 psf compared with 48 psf

continued on p. 186

ENGINEERING NOTES

**SLIP FORM CUTS COSTS**

Savings of 10% attributed to sliding forms and an elevator form

A ten-story apartment building in Memphis, designed by John H. Doggett, saved about 10% of its construction costs by using the slip form method of construction (AF, Nov. '52). Slip forms were used from the third floor up. Cross walls within the structure were placed at the same time as the exterior walls. When the forms reached to top of the structure, the exterior forms were removed and the working deck became the bottom form for the roof slab. This bottom form was lowered by means of winches and cables to the successive lower floors, until all the floors were completed. The architect claims that use of the slip forms and working platform for floor slabs not only lowered construction costs, but also speeded completion by some three to five months.

MAINTENANCE ECONOMICS

Turn-off point for fluorescents, and carpets versus no carpets

Turning fluorescent lamps on and off reduces their life. Letting them burn costs money. For the confused maintenance man General Electric lamp engineers have now established the breakeven point. In general, with power at 1.5¢ per kw-h, the critical point is about 20 minutes. Thus for the standard 15-minute coffee break fluorescent lamps should be left burning.

Confident of the outcome the Carpet Institute asked the Industrial Sanitation Counselors of Louisville to compare the costs of cleaning and maintaining carpeted and noncarpeted floors and "to let the chips fall where they may." I.S.C. reported back that under heavy congestion and soiling conditions it costs \$189 per year per

1,000 sq. ft. of carpet compared with \$383 for noncarpeted areas—50% cheaper. For medium and light traffic conditions the figures varied, but carpeting was always at least 40% cheaper, according to I.S.C.

NEW DEFINITION

Outside panels are "structural"; most inside panels, "nonstructural"

N. A. Lombard, Douglas Aircraft Co., has proposed a new definition of structural and nonstructural building panels to the C-19 Committee of the A.S.T.M. He would call any panel "structural" which is subjected to: compression, tension, bending, shear or torsion from within or because of the structure; wind loads; temperature variations causing unusual deflections; abnormal environmental conditions. Lombard would call a building panel not subjected to those conditions "nonstructural." In effect, this would put all exterior panels into the "structural" class and most interior panels into "nonstructural."

TWO-STORY TRUSS

100 ton 86' truss to carry nine new stories over existing store

To build a ten-story 60' x 100' office building atop a 40' x 100' jewelry store in Manhattan without interfering with the store's business called for considerable structural ingenuity. The west wall of the store was a party wall so columns could not be placed there. On the east was a 20' vacant lot where columns could be placed, and which could also contain the lobby, elevator shafts and stair wells for the new building.

The solution was to build a 22' high truss to span from front to rear over the west wall of the store, and support this truss on two plate girders one at the front of the building and one at the rear. These girders are each carried on three columns, two in the vacant lot and the third near the west wall. The third column for the front girder punctures the

store through a toilet room 3' from the west wall, while that for the rear girder passes through a supply room, also 3' from the wall. Thus the two-story truss is mounted on the cantilevered ends of the two plate girders.

The truss is 22' high, 86'-3 3/8" long and weighs 100 tons. It is riveted, of W-steel sections and large gusset plates. This design proved cheaper than a Vierendeel truss alternate. It was assembled in place on a cradle of two 36" w.f. beams, then jacked into its final position.

The new Fifth Ave. Jewelers Exchange building is designed by Sylvan & Robert L. Bien, architects; Weinberger & Weis-hoff were the structural engineers. The steel contractor was American Bridge Co.

ULTRASONIC TEST

To take guesswork out of lumber testing, NLMA will use sound waves

According to the National Lumber Manufacturer's Assn., ultrasonic testing could lead to automatic stress grading of lumber, with the result that it may be possible to reduce by as much as 50% the size of some structural wood members. Present stress grading of these members is based on lumber's external appearance, the law of averages and personal opinion, plus a safety factor to compensate for the unknown.

ICE STORAGE REFRIGERATION

A 5-hp condensing unit stores ice to provide church's 40-ton peak load

Air conditioning a church generally requires an excessively large capital investment for its comparatively few hours of capacity service. To reduce this expense the air-conditioning advisers of the Westminster Presbyterian Church in St. Louis installed an ingenious "ice storage" refrigeration system that uses a small 5-hp condensing unit to freeze and store enough ice during the week to cool the building on Sundays.

For its peak heat load at the weekly services the church requires 40 tons of refrigeration for 2 1/2 hours, but considerably less refrigeration during the rest of the week. By building up ice on 14 ice storage plates stacked vertically 6 1/2" o.c. in a 10' x 8', 4' high water tank, the 5-hp condensing unit supplies the 105 ton-hours of refrigeration used on Sundays. Ice thickness is controlled electronically. A 3-hp pump circulates chilled water from the ice tank to an air handling unit. Air passing over the chilled water coil is dis-



House of Patria

RESEARCH

A spotlight on new tests, new standards, new studies

tributed to the church sanctuary from plenums below the sanctuary floor. Return air passes through 600 8" mushroom head floor openings down to a crawl space, then back to the fan room or the exhaust. The floor openings originally formed part of a forced air ventilation system.

The unique ice storage refrigeration system was designed by Noland & Co., air-conditioning engineers, in cooperation with Worthington Corp.



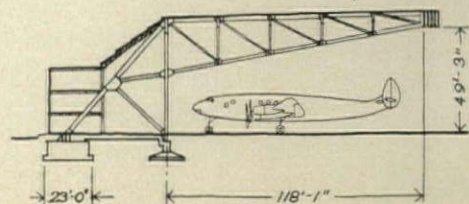
Chevrolet

SIMPLE CANTILEVER SPAN 118'

Square-sectioned cantilevered trusses provide 178' x 708' hangar space

American visitors to Orly Airport at Paris will see a cantilevered hangar that rivals some of the best US engineering practice. The cantilevered trusses are 118' long and 51' high. The framing members for the trusses are built up from steel plate riveted into hollow box sections. The trusses are mounted atop two rows of foundations with sloping rear columns bolted to heavy concrete piers to withstand the weight of the cantilevers.

Spaced alternately 101' and 75' o.c. the cantilevered trusses are bridged by five longitudinal trusses which in turn carry steel purlins and a metal roof deck. Heavier 6'-7" deep trusses at the ends of the cantilevers carry the hangar doors. Daylight is provided by a continuous sloping glass skylight laid between the roof deck and a three-story office structure at the rear of the hangar. Fire protection consists of four rows of sprinklers that can produce curtains of water to divide the hangar into five areas. The hangar was designed by Bougette, Bailly & Prinz, structural engineers.



The National Building Code, 1955 edition, the National Board of Fire Underwriters 85 John St., New York 38, N.Y. Free in limited quantity to municipalities adopting the code

The great fires in Chicago and Boston in the 1870's dramatized the necessity for comprehensive building regulations. The National Board of Fire Underwriters, which had witnessed the bankruptcy of many insurance companies unable to meet claims for losses in these conflagrations, in time turned its attention to the preparation of a model building code. The National Building Code was the result. First published in 1905, the present document is a revision of the edition published in 1949.

The Baltimore fire of 1904 and the San Francisco conflagration of 1906 stirred the nation anew to the enactment of better building laws, but municipal legislative bodies, distracted by pressures from conflicting interests, were reluctant to accept the underwriters' code as the complete answer. Disparities in requirements in the nation's 2,300 building codes can be traced to departures from the requirements contained in this code. Nevertheless, its positive influence on code writing has been substantial, especially so in municipalities of Georgia, New Jersey and Oklahoma.

The lack of scientific criteria in the establishment of bases for building regulation such as the determination of maximum fire areas and heights of buildings of various types and classes of occupancy and use, and the minimum fire-resistance requirements of structural elements, has added further to disparities in regulations. Fireless experience properly interpreted, which the NBFU is in the best position of all organizations to supply, could contribute much to the determination of the primary bases for regulation.

College research developments

► *Michigan College of Mining and Technology* (Carl W. Danielson Jr., assistant field technologist, forest products research division) reports progress on research, design and promotion of a prefabricated wall panel embodying short-length, random-width pieces of lower grades of northern hardwood lumber. Technical, economic and esthetic factors combine to favor a 16' x 36' panel.

The University of Arizona (Professor H. A. Marcoux, mechanical engineering dept.) is currently making thermal conductivity tests on masonry materials native to Arizona.

► *New Mexico College of Agriculture and*

Mechanical Arts (D. A. Linger, dept. of civil engineering) is making a fundamental study of the stress-strain properties of concrete, with special emphasis on the properties of prestressed members. Data of benefit in lightweight, prestressed member design is an expected result of the study.

► *The University of Wyoming* (Donald R. Lamb, assistant professor of civil engineering) is engaged in research in the field of concrete: effects of temperatures and sulfate attacks, and the measurement of the alkali-aggregate reaction. A sound velocity measuring device to check the strength of concrete in place has been developed.

► *The University of Mississippi* (Zachary Sherman, associate professor of structural engineering) is currently testing full-scale concrete beams and slabs, up to 60' in length, using an electronic plotter in addition to standard SR-4 strain gages. A prime purpose of the research is to evaluate the use of grouting post-tensioned members.

► *The University of Oklahoma* (William J. Lnenicka, assistant professor of mechanics) is investigating whether or not a fly ash concrete will gain strength when cured dry, such as in the case of an interior wall which has forms stripped 24 hours after pouring, without application of water or curing compounds.

Research reports

► *Permafrost and Buildings*, Division of Building Research, National Research Council, Sussex Dr., Ottawa, Canada. 10¢. Foundations problems associated with permafrost, the name given to ground that is always frozen; findings established at research station at Norman Wells in the Northwest Territories. A survey of activities of American and Canadian organizations engaged in research which relates to fire safety in building construction has been made by the National Fire Protection Assn., 60 Battery March St., Boston 10, Mass. (Horatio Bond, chief engineer.)

New standards

► The American Standards Assn. has approved the following standards: *Specifications for Exterior Marble Used in Curtain Walls* (A94.3-1955) and *Specifications for Support, Anchorage and Protection of Exterior Marble Veneer* (A94.2-1955). Sponsor: Marble Institute of America.

for all concerned

LEAVE THE CAPITOL ALONE

Fifteen million dollars may seem like a small sum to our majestic Congress but it will buy a good-sized office building about half the size of the Chrysler building in New York. Fifteen million dollars is what Congress may soon find itself spending on a monumental building folly if it does not promptly repeal an open appropriation it passed last session—to move the whole east front of the Capitol 36' forward and rebuild it differently.

To be sure, the appropriation itself was a measly \$5 million but that is only the proverbial suckerbait intended to get a job started but not finished. The appropriation of further sums is already authorized. What Congress is supposed to gain is a few hearing rooms, lunchrooms, and corridors for circulation.

If models of Capitol Architect George Stewart are followed, we predict the total cost will be nearer to \$15 million than to \$5 million. This means \$200 per square foot, which is close to four times the cost-

liest office space ever yet erected, or better than six times normal first-class space cost.

Few would object to even such an expenditure if it were really needed to keep the Capitol of a great nation workable. But the real, the hidden aim seems to be to "improve" an outstanding piece of architecture.

Time and again Capitol Architects have made the proposal under one or another pretext; time and again the American Institute of Architects has stopped it. This time the hearings were not public and the proposal went through. Even so, the Board of the AIA is now on record offering to help solve the internal space problem *without* this gold brick of ambitious speculative building.

What is there about the Capitol that tempts Capitol Architects to seek fame through "correcting" it?

The US Capitol is one of those fine buildings which succeed against the rules in the textbooks. According to the

rules you never build a big dome without a building block under it that extends well out beyond it. Such a base is not needed for construction but only for conventional esthetics. When the cast-iron dome was first raised up over our Capitol it was indeed intended that the central bay would later be pushed forward. But as time wore on, people became aware that the Capitol, despite its faults, was a building with a unique and remarkably pleasing personality. Instead of being like every other domed building in the world it was unlike them—and to its own advantage. The cascading tumult of one after another range of columns right down to the ground was a fresh architectural sensation. By instinct photographers seemed always to be choosing this side, and not the other "correct" side, of the Capitol for their pictures.

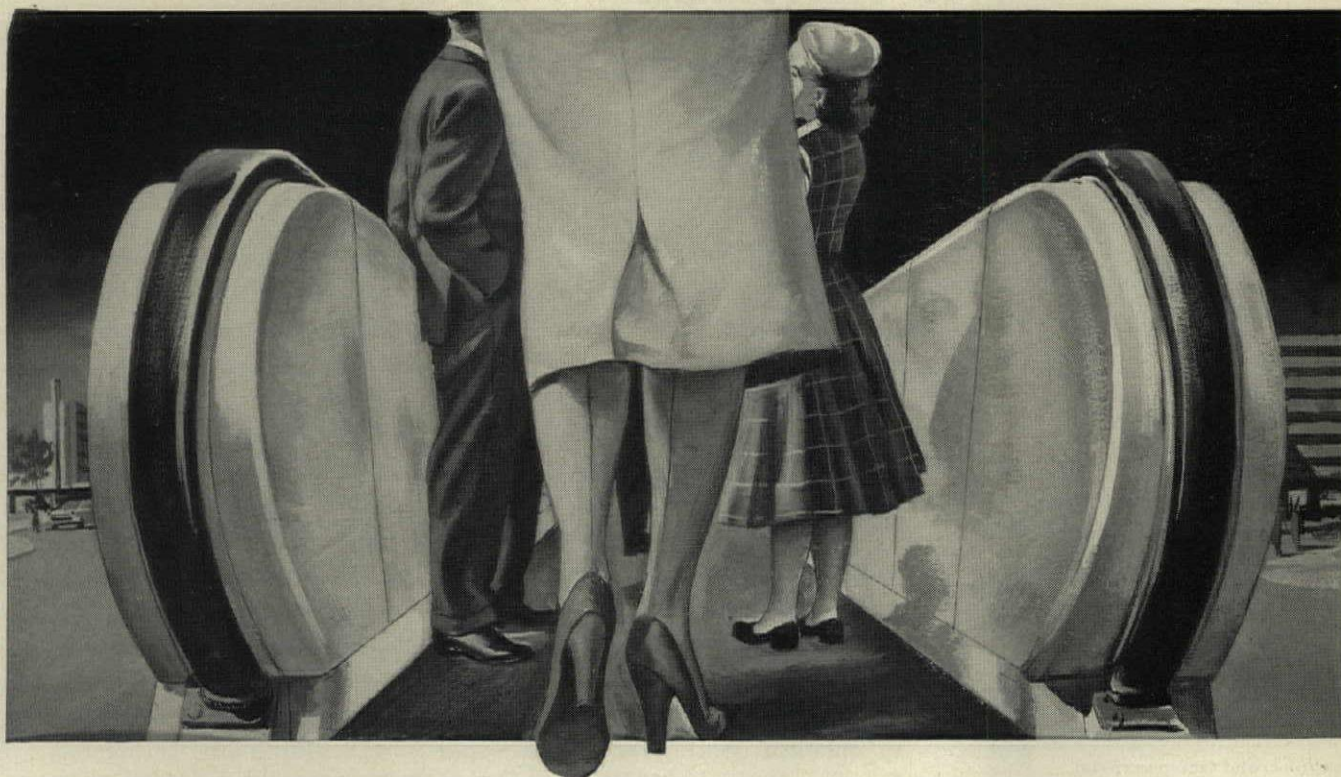
Moreover it is this east entrance under the dome which alone reflects the unpretentious, sensitive architecture of the founders of the Republic—which will be the first thing sacrificed in any façade rebuilding. No longer can such features be designed just that way or put up just that way.

We understand that Henry Shepley of Boston has been given the job of studying the plan. Congress should get a report from this responsible and respected architect on how to solve its space and circulation problems *inside* the present building before it decides to embark on what now looks like a prize piece of architectural boondoggling and folly, tearing down and extending the Capitol for the hell of it.

Douglas Haskell

Theodore Horydzak





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



HUDSON AND MANHATTAN RAILROAD SPEEDWALK CONVEYOR

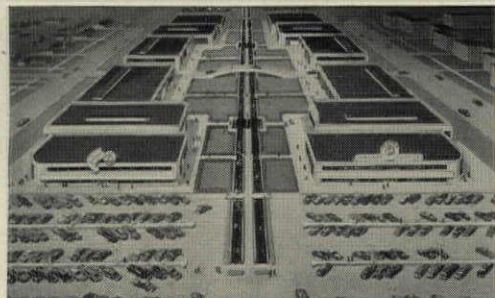
227 ft. long, it carries N. Y. commuters from Hudson and Manhattan tube trains to Erie R. R. Terminal. Handles up to 11,000 passengers per hour.

... no dream—not just in the development stage, the truly practical "moving sidewalk" is a working reality. It has been engineered out of the dream into a smoothly functioning, safe, swift method of transporting large numbers of people over inclined or horizontal planes.

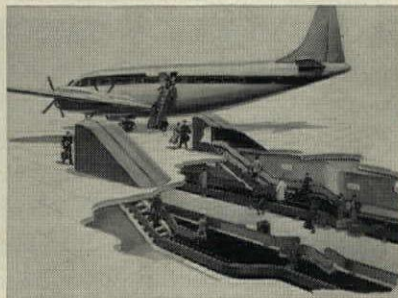
This is the SPEEDWALK, and it's here today, ready to convey human traffic on endless belts with an operational and installation economy heretofore thought impossible. This new concept in mass transportation will soon be operating in department stores, railroad terminals, airports, shopping centers, and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

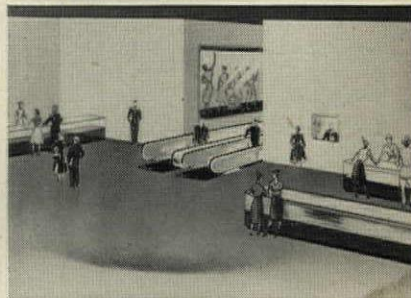
Often in the architect's planning, traffic flow is a vital consideration. You can help America get a move on with SPEEDWALK by examining its boundless possibilities. We invite your inquiries.



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THE KAWNEER TOUCH...

THE RESULT OF 50 YEARS OF ARCHITECTURAL COOPERATION

Throughout its 50 year history Kawneer has worked closely with architects in the development of architectural metals. The invention of resilient sash by the *architect-founder* of Kawneer revolutionized store design and retail merchandising. It was the foundation upon which many other architectural products were developed and manufactured over the years. Since the very first installation of Kawneer sash in the Johnson Department Store in Holdredge, Nebraska, in 1906, to the many thousands of modern store fronts and other buildings today with Kawneer doors, sash, trim, windows, metal wall and sun control products, compelling design has been the main consideration.

the company's leadership in the field of store front design, to a great extent, is due to the cooperation between the architectural management of Kawneer and the practicing architect. When it became apparent that World War II was ending, Mr. Lawrence J. Plym, President of the Kawneer Company, engaged a leading architect to help develop Kawneer-advanced store front design theories.

By this time, Kawneer had had experience in working all of the commercial metals—copper, bronze, steel and aluminum. It became apparent that aluminum was the ideal architectural metal because of its attractive appearance, corrosion-resistance, light weight and workability.

Pioneer in Aluminum Fabrication

The ability to give architectural metal products a certain "touch" has given Kawneer the opportunity to build products for all types of buildings. For example, Kawneer pioneered the use of aluminum for curtain wall construction and windows. Such notable buildings as the St. Paul Post Office, the Mellon Institute of Industrial Research and Boulder Dam Power House featured the famous Sealair windows and cast aluminum spandrels. Today, outstanding monumental edifices like the new, modern Tishman Building in Los Angeles and the Equitable Life Assurance Building in San Francisco feature metal wall construction by Kawneer. In the 30's, Kawneer was the largest aluminum window manufacturer in the U. S. The famous Sealair name was known as the ideal metal sash for home, office and factory. World War II stopped production of this window, but today it has returned again with outstanding features designed for the architect.

The great diversification of Kawneer architectural products and

New Store Front Concept Created

The ideas that the consultant architect and the Kawneer staff developed have since become criteria for the entire industry. Useless ornamentation, or "rococo" were eliminated. The intrinsic beauty of aluminum was accentuated in simple, functional metal design. The concept of the "open front" was advanced. It was believed that the desired effect of the full vision front would be attained when framed. As a result, many king-size trim-mouldings were introduced into the Kawneer line. The tremendously appealing flush glazing was developed. The result of this cooperation was the "K-47" line of architectural metals that have a professional design character, yet can be purchased out of stock.

Out of the post-war development came a new idea in aluminum facing. This is the product we all know today as ZOURITE. The consultant architect designed the profile of this facing while Kawneer engineers were experimenting with certain types of finishes. Although a regular alumilite finish



was in demand, a group of colors would make this product much more versatile. Many experiments were conducted with lacquers, baked enamels, paints and porcelain. None were quite satisfactory. Then, despite the low melting point of aluminum, Kawneer and DuPont pooled resources and for the first time, applied porcelain enamel to aluminum successfully to a production process. Today, Zourite is available in 10 different colors and a new additional profile has been designed that comes in pastel shades and alumilite. The color and profile combinations give the architect great versatility of design. Since the first Zourite, the use of color in architectural metals has become one of the major design focal points.

The K-47 line of architectural metals brought forth new concepts in store design. As a result of this research, many books were published to assist the architect. Illustrations developed at great expense are still available to act as guideposts.

In Constant Touch with Architects

The interest in new products grew to an enthusiastic pitch as a result of the immediate post-war development. Kawneer's Research and Development Department grew by leaps and bounds. The size necessitated formal working agreements with architectural firms. These firms act as consultants by establishing design criteria for proposed projects. They help in specifying the desired features, functions, size and modular requirements. Throughout the development period, the solutions to these requirements are reviewed by practicing architects.

To round out the development work in relation to the architect's needs, an architect with a heavy background in architectural research is retained on the Kawneer staff. He is concerned with desirable sizes and modular standards. He works with a group of the more prominent architectural firms so that their thought is brought into the design considerations.

Finally, Kawneer makes sure by surveying a large cross section of architectural firms during the forma-

tive stage to gather opinions and demands. If you have seen the phrase "Demand-Designed" in regard to a Kawneer product, this survey technique is the reason why.

After 50 years of close cooperation with architects, Kawneer can truthfully claim to have always been in "touch" with the profession and construction industry. Today the line has greatly diversified to include metal wall, flush doors, sun control products and other assemblies for big buildings, little buildings, stores, offices, factories, schools, et al. The organization has grown to include 12 factories and warehouses, over 110 salesmen covering the U. S., Canada and Latin America, and more than 1200 factory-trained dealers. From research to the installed metal, Kawneer devotes itself to the needs of the architect.

HOW YOU BENEFIT TODAY FROM THE KAWNEER TOUCH

- Good workmanship by skilled artisans for better-looking buildings.
- Extensive and modern production and warehouse facilities to insure prompt delivery.
- Research and development section cooperating with architects, to design new products for the construction industry.
- Thoroughly experienced engineers to provide precision products for quick and accurate erection.
- Nationwide company sales force for immediate counsel and service.
- Large factory-trained dealer organization for quality installation to conform to specification and design.

NEW PRODUCTS to commemorate 50th Anniversary

Kawneer maintains an extensive Research and Development program to contribute new products to the construction industry. Very soon, a number of new products will be announced in commemoration of its 50th Anniversary. Look for the announcement in the coming issues of this magazine.



*foremost fabricator of
aluminum and plastics for
the construction, aircraft and appliance industries*



The first truly modern store front with large display windows in Kawneer resilient sash.



The St. Paul Post Office and Customs House features Kawneer windows and spandrels.



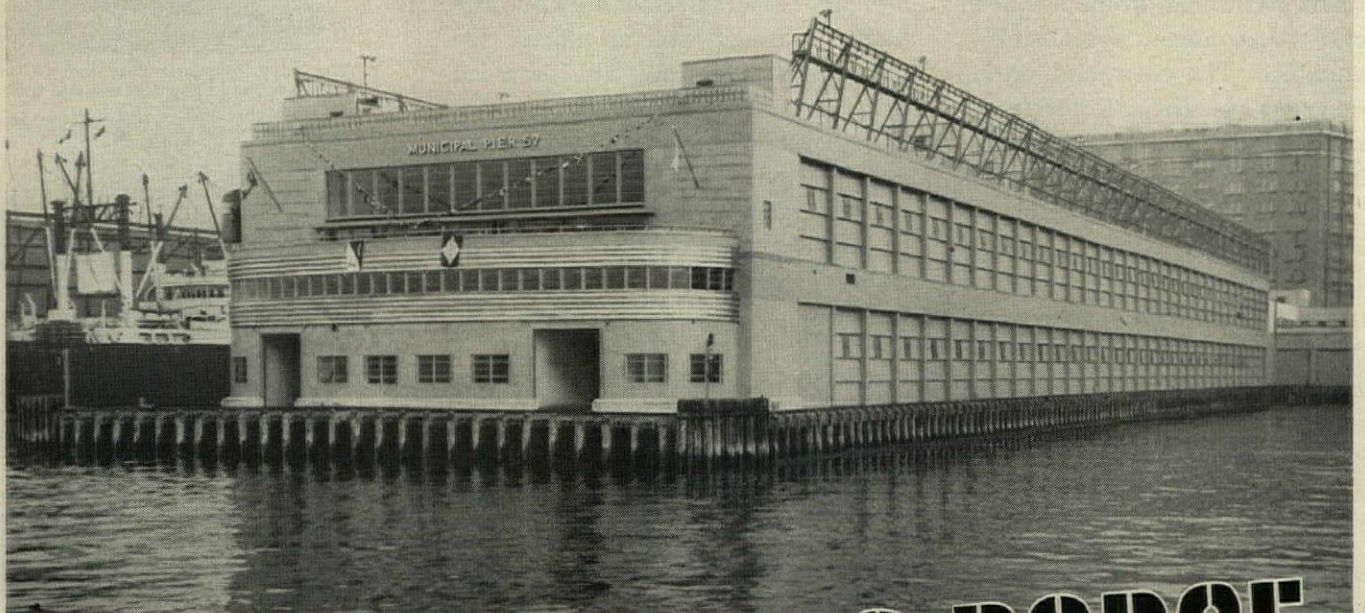
The modern Tishman Building in Los Angeles features Kawneer Metal Wall including specially constructed louvers.



The modern store front of today represents the new "open front" concept for greater merchandising effectiveness.



*New pier
for a busy
seaport...*



WIRE BY PHELPS DODGE

*... Unusual construction calls for
aerially-installed cable with submarine-type insulation!*

New York City's new 12-million-dollar Department of Marine and Aviation Pier 57 is one of the most modern in the world—and so is its wiring system.

A unique feature of the system is a cable with submarine-type insulation, installed aerially without physical protection of any kind. This installation offers most of the advantages of a conduit system at a far lower cost. The cable can withstand varying temperatures estimated from minus 10 degrees Fahrenheit to 130 degrees Fahrenheit and humidity up to 100%.

This cable was designed and tested to meet the special requirements of the Dept. of Marine and Aviation, City of New York, including U. S. Coast Guard specifications for submarine-type cable.

All of the wire and cable for the pier was supplied by Phelps Dodge.

On every wiring job, large or small, where top quality materials, expert workmanship and experienced "know-how" are called for, *it pays to rely on Phelps Dodge and your Phelps Dodge distributor!*



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The result of Airtemp's fine engineering and efficient design is extremely low operating cost. So, when you consider that there's an Airtemp system to meet *every* qualification—there's hardly any reason for *not* specifying Airtemp!

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TO FIT ANY REQUIREMENT!"**

Write for information. For complete details
on what Airtemp offers you, write to:
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AIRTEMP SERVES THE NATION!



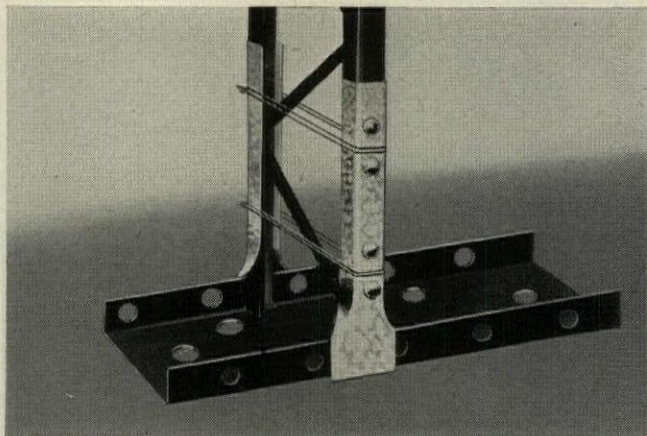
CHRYSLER BUILDING EAST,
New York, N. Y. Architects: Reinhard Hofmeister & Walquist; Consulting Engineers (Structural) Edwards & Hjorth; Consulting Engineers (Mechanical & Electrical): Guy B. Panero.

HAROLD GRUBMAN CO.,
North Hollywood
Calif. Engineer:
Sam L. Kaye, Los
Angeles; Builders:
Craig and Randall,
Los Angeles.

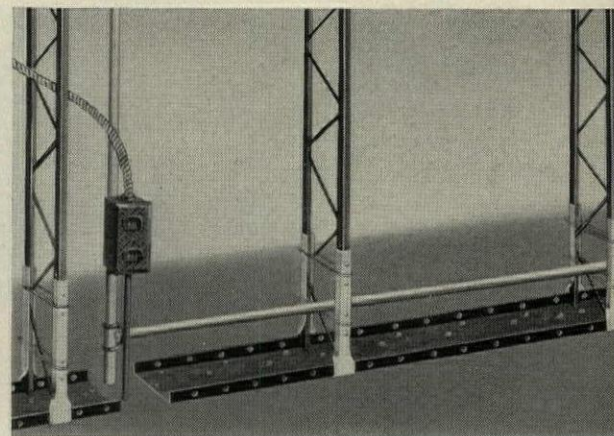


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GOLD BOND Holostud



SIMPLE TO ERECT. Prefabricated Holostuds are quickly attached to the steel aligning track with galvanized steel shoes. One man, using ordinary lather's tools, can erect entire Holostud Wall System framework.



EXTRA ACCESSIBILITY. Open strut-type design makes installation of utilities within partition easy... provides two-way accessibility for vertical or horizontal routing of electrical conduits, plumbing and ducts.

for low-cost, strong

Specify this fast, easy way to erect a highly adaptable partition

For strong, lightweight non-load bearing partitions, specify Gold Bond Holostud Gypsum Lath and Plaster System and get these additional building benefits:

Excellent fire barrier... up to 1½ hours of fire protection. *Reduced sound transmission* between walls... ratings to 49 decibels can be obtained. *Elimination of complicated channeling...* permits substantial construction cost savings.

The system is made up of prefabricated Holostuds, steel tracks, and shoes. Open strut-type construction of Holostuds provides unusual strength and rigidity to partitions, yet is lightweight and econom-

ical. Studs are fabricated with ½" x ½" angles securely braced by struts welded at 8" intervals. Holostuds are available in 2½", 3¼", 4" and 6" widths allowing the system to be used in four different partition thicknesses.

Metal lath, as well as gypsum lath, is easily applied over sturdy, lightweight Gold Bond Holostuds. Floor and ceiling tracks are perforated for easy lath attachment.

Full technical data, showing you exactly how Gold Bond Holostud Wall Systems can simplify your design plans, will be sent upon request. Write:

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Build better with
Gold Bond



METAL AND
GYPSUM LATH



GYPSOLITE
PLASTER



GAUGING
PLASTER



FINISH
LIME



EXTRA-FIBERED
PLASTER



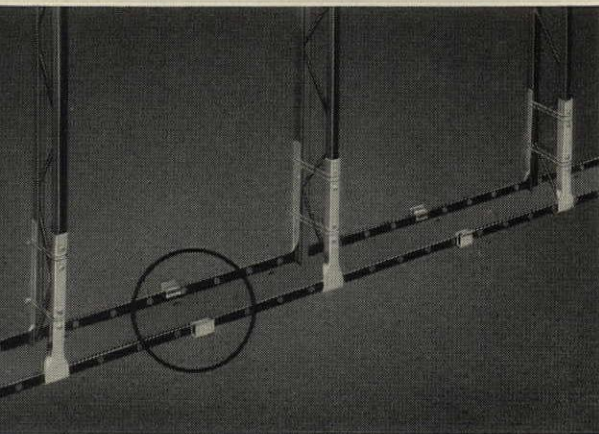
ACOUSTICAL
PLASTER



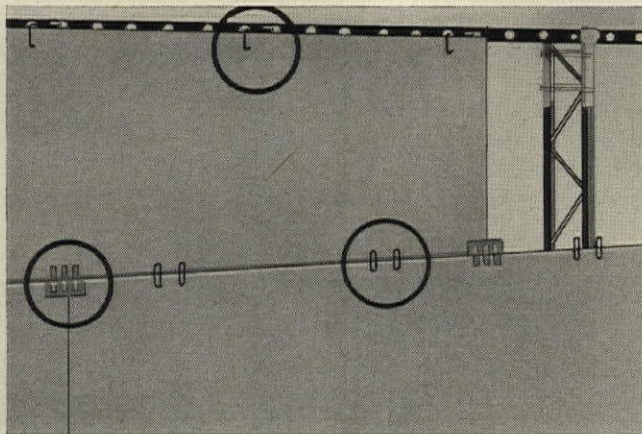
KEENE'S
CEMENT

... LATH AND PLASTER

WALL SYSTEM...

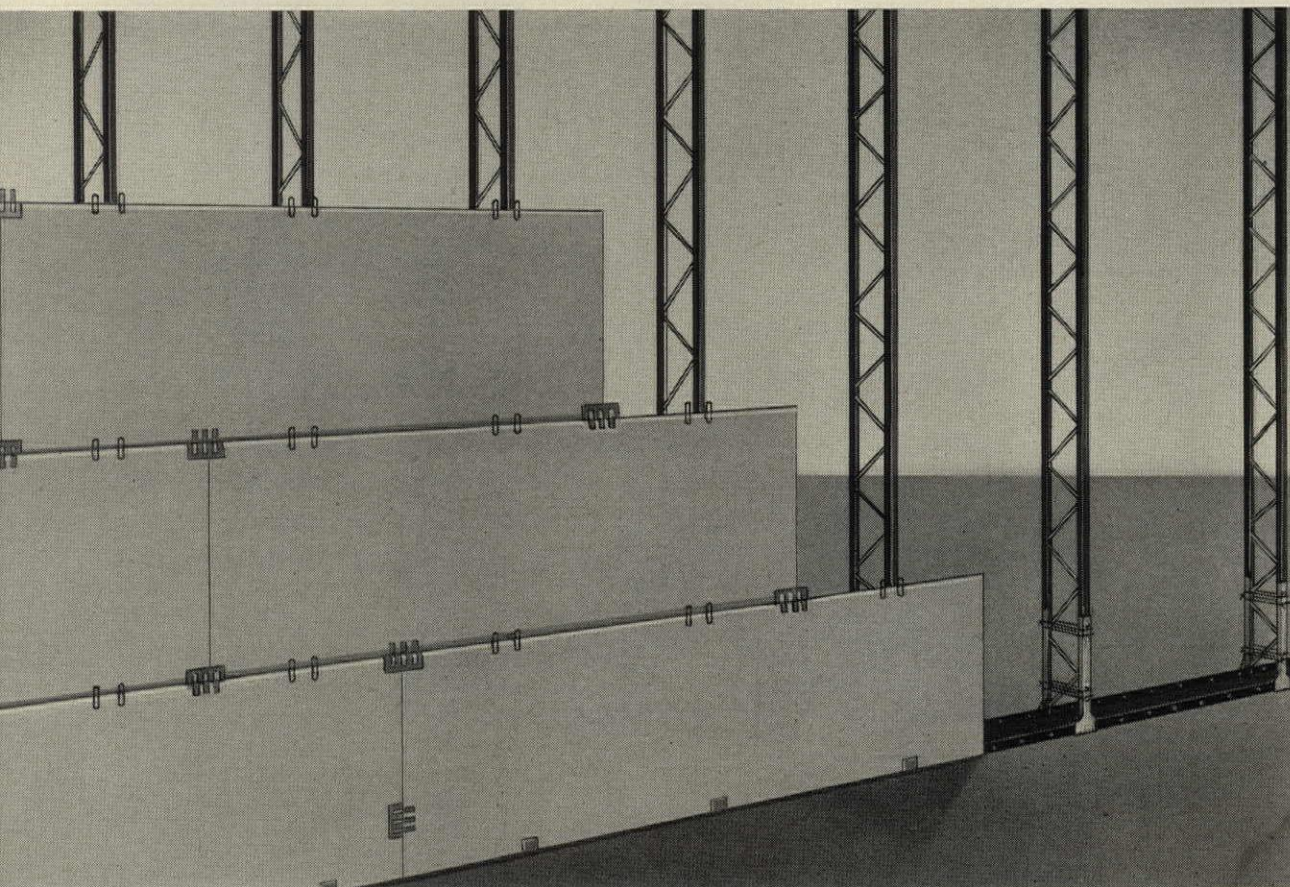


PUSIVE STARTER CLIP. An extremely simple Gold Bond Starter manufactured exclusively by National Gypsum Company, helps first course of gypsum lath quickly and firmly to steel track.



STRONG PLASTER BASE. This combination of Gold Bond Clips firmly supports gypsum lath. The Finishing Clip, also an exclusive Gold Bond design, is used to secure top course of lath to ceiling track.

ollow partitions



the introduction of Gold Bond's new Holostud Wall System, architects have found it amazingly versatile...its simple construction

makes it adaptable for buildings of widely differing designs. System also is adaptable to metal lath construction.

BAYLEY

Curtain Wall Systems

The Bayley Curtain-Wall System represents the latest advance in fundamental designing, based on Bayley's 30 years of performance-proved experience in engineering curtain-wall installations. It offers versatility of application that affords you wide latitude of building design with the economy of standard details. A thorough study of the illustration below

reveals the soundness of its engineering. It is also quickly apparent that through the use of a Bayley System you gain the advantages of proved structural sections; the economy of Bayley standard materials and a savings in time in approving designs and manufacturing to your requirements.

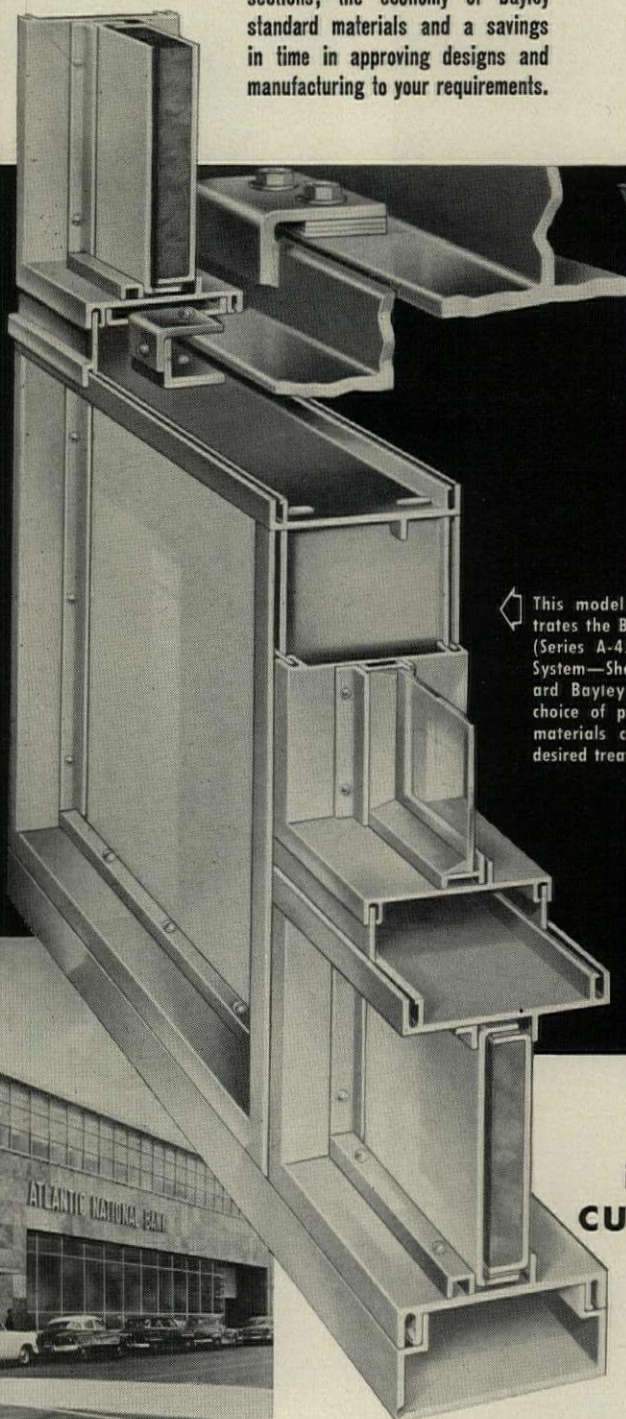
With Bayley's sub-frame designs you can achieve distinctive, individualized curtain wall treatments, of almost unlimited variety, without the costliness of special window designing. Standard Bayley Aluminum Projected Windows, with heavy channel frames and a choice of ventilator arrangements, serve as the basic unit . . . and at the same time afford the maximum in air, light and vision. Combining versatility of application with standard details and sections, Bayley can help you accomplish some surprising and exciting things.

If consulted in the early stages of your project, giving Bayley an opportunity to properly pre-engineer your job you will be assured of maximum ultimate satisfaction in both design appearance and integral building construction.



Atlantic National Bank, Architect—S. L. Shepherd
West Palm Beach, Fla. Builder—Arnold Construction Co.

See Bayley's catalogs in Sweet's . . . aluminum windows 17a/Bay; and steel windows 16b/Ba; or ask us for individual reference-file copies. Write for special file on Bayley Curtain Wall Ideas, Designs and Details.



This model assembly illustrates the Bayley Sub-frame (Series A-450) Curtain-Wall System—Showing how standard Bayley Windows or a choice of panel-decorating materials can achieve any desired treatment.

30 years of
experience
in design of
CURTAIN WALLS

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Years of
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AMERICAN NATIONAL BANK OF AUSTIN, TEXAS—A NOTABLE

EXAMPLE OF A MODERN BANK. ARCHTS: KUEHNE, BROOKS & BARR. GEN'L CONTRACTORS: J. M. ODOM

PEELLE MOTORSTAIRS

a basic element in this new approach
to bank planning

When you enter the ground floor of the American National Bank of Austin, Texas, you do not see the usual phalanx of vice presidents behind glass-topped desks. Instead there are attractive shops—shops paying *high rents* to the owners. Peelle Motorstairs make it possible to release this high-income, ground floor space for profitable rentals. And, besides making it convenient for the bank's patrons to go to and from the banking offices on the second floor, Peelle Motorstairs add much to

the modern design of the entire building.

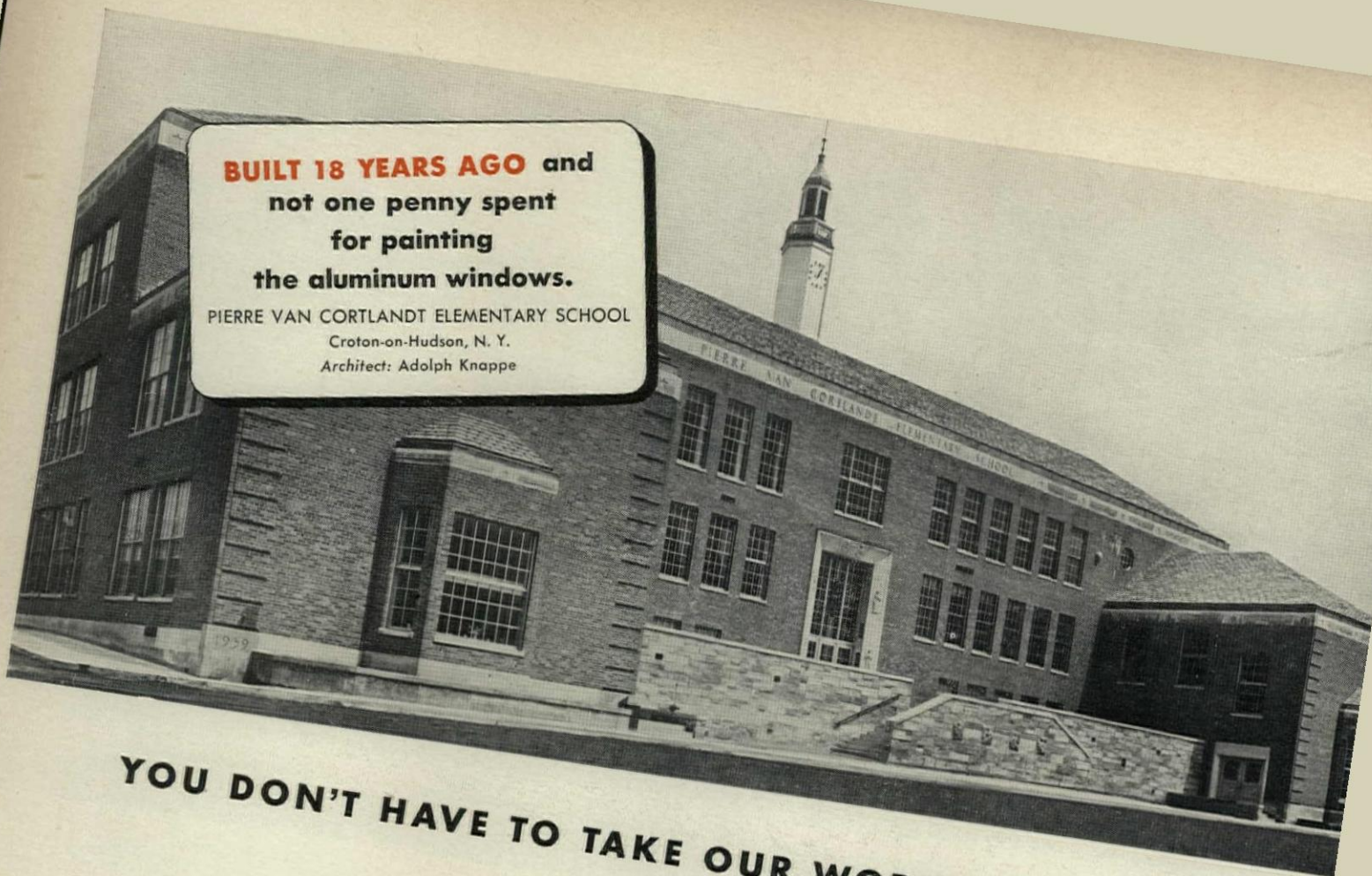
This is just one of the many fine buildings in which Peelle Motorstairs have been advantageously used in plans for better use of space and *higher income*. Peelle Motorstairs are designed and engineered for economical, long-lasting performance under modern conditions. Their handsome appearance is the outward manifestation of the advanced engineering that has assured their widespread preference.

Write for full information and technical details.

THE PEELLE COMPANY

47 STEWART AVENUE, BROOKLYN 37, NEW YORK

OFFICES IN PRINCIPAL CITIES



BUILT 18 YEARS AGO and
not one penny spent
for painting
the aluminum windows.

PIERRE VAN CORTLANDT ELEMENTARY SCHOOL
Croton-on-Hudson, N. Y.
Architect: Adolph Knappe

YOU DON'T HAVE TO TAKE OUR WORD FOR IT!

EXPERIENCE PROVES...

YOU CAN... *save money*

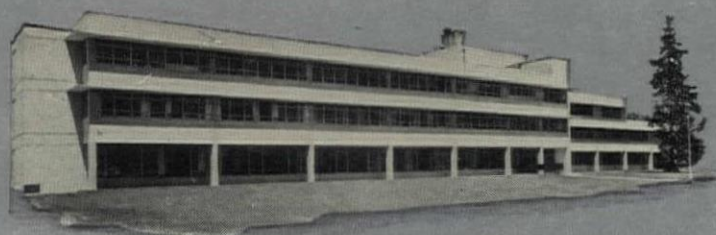
WITH WINDOWS THAT

never need painting!



Quality Approved

ALUMINUM



HOSPITAL
Olympic Memorial Hospital,
Port Angeles, Wash.
Architect: Gerald C. Field



SPECIAL PURPOSE BUILDING
Holy Cross Administration Bldg., Colma, Calif.
Architects: Wilton Smith & John G. Minton
Contractor: Ira H. Larsen Co.



COMMERCIAL BUILDING
Jefferson Standard Life Building, Charlotte, N. C.
Architect: J. N. Pease & Son
Contractor: Southeastern Construction Co.



SCHOOL
New Woodward High School, Cincinnati, Ohio
Architect: Charles Frederick Cellarius
Contractor: Frank Messer & Sons

ALUMINUM WINDOWS KEEP MAINTENANCE EXPENSE AT A MINIMUM

If you're interested in keeping maintenance expense at a minimum you can profit from the experience of many schools (like the one pictured on the opposite page), hospitals and other buildings erected 15 to 25 years ago with aluminum windows.

School officials, hospital superintendents and others responsible for the maintenance of these buildings are unanimous in their praise of the aluminum windows. They all report that not one penny of expense has ever been required for painting them.

Now, just think what this means to the annual school budget. Think of the money that will be saved—extra money that can be well used for salaries, for books and for other necessary items. Certainly, the selection of aluminum windows for any type building is a wise choice that will pay handsome dividends.

As you plan new schools, hospitals, apartments or commercial buildings be sure you, too, include "Quality-Approved" aluminum windows. They are the only practical, reasonably-priced windows that *never* require painting...that cannot rust or rot, warp or

swell... that retain their trim, modern looking appearance for the life of the building.

"Quality-Approved" aluminum windows are available in all types—double-hung, casement, awning, projected, sliding and jalousies—to fit any exterior design.

They are made by many manufacturers (see list below) to rigid quality standards established by the Aluminum Window Manufacturers Association. For your protection and complete satisfaction be sure to insist on the "Quality-Approved" Seal when you specify or OK specifications for aluminum windows.

A WORD OF CAUTION—Remember that only aluminum is rustproof through and through. Mere surface protection against rust is not enough. Wear, unintentional scratches in delivery or installation may nullify any protective coating and soon require painting.

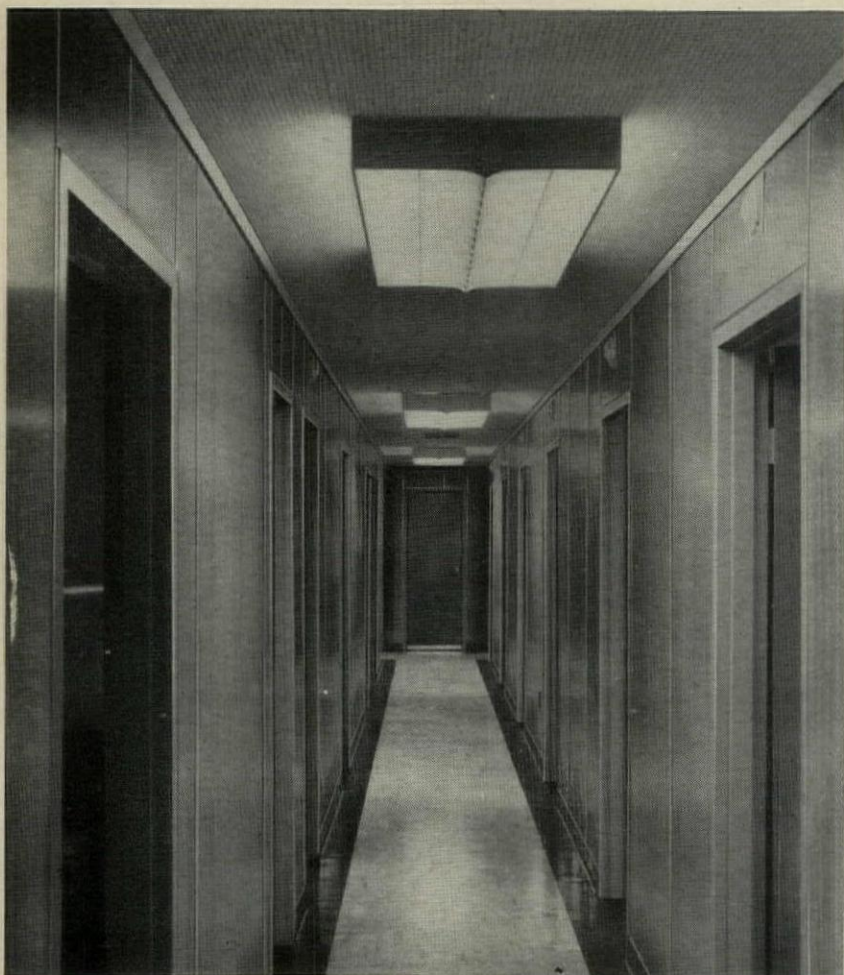
For additional information consult Sweet's (Architectural File, Section 16a/ALU) or any of the approved manufacturers listed below, or write for our latest "Window Specification Book". Address, Dept. AF-562.

Aluminum Window Manufacturers Association

75 WEST STREET, NEW YORK 6, N. Y.

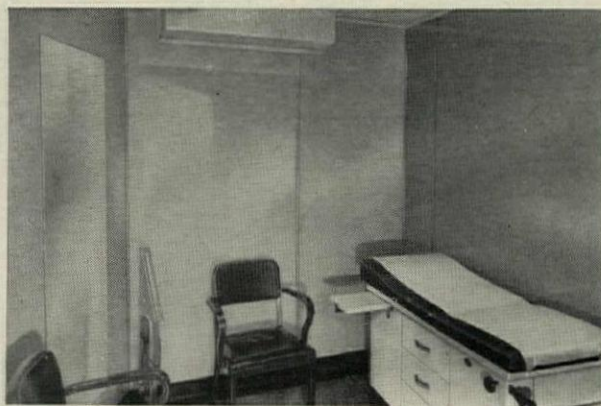
MEMBERS: Alcasco Products, Inc., Detroit, Mich. • The Wm. Bayley Co., Springfield, Ohio • Bourne Products, Inc., El Cajon, Calif. • Ceco Steel Products Corp., (Sterling Aluminum Window Division), Chicago, Ill. • Cupples Products Corp., St. Louis, Mo. • Duralite Window Corp., Knoxville, Tenn. • Fentron Industries, Inc., Seattle, Wash. • Michael Flynn Mfg. Co., Philadelphia, Pa. • General Bronze Corp., Garden City, N. Y. • Luria Building Products, Inc., Bristol, Pa. • Metal Arts Mfg. Co., Inc., Atlanta, Ga. • Reynolds Metals Co. (Parts Division), Louisville, Ky. • J. S. Thorn Co., Philadelphia, Pa. • Universal Window Co., Berkeley, Calif. • Ware Laboratories, Inc., Miami, Fla. • Windalume Corp., Kenil, N. J.

WINDOWS



Consoweld, Platinum Walnut pattern, lines the main hallway in the Elfgen Medical Center, Alton, Illinois.

OWNER: Elfgen Buildings Corp.
 ARCHITECT: Samuel E. Sanner, AIA.
 CONTRACTOR: J. J. Wuellner & Son.
 CONSOWELD was supplied by
 Ginter-Wardein Lumber Co.
 Decorative Plastic Veneers of
 St. Louis is the Consoweld distributor.



One of the examining rooms, where Consoweld assures sanitary, easy-to-clean walls.

BUILDER SAVES 25% ON WALL INSTALLATION BY USING CONSOWELD IN MEDICAL CENTER

In remodelling the Elfgen Medical Center building in Alton, Illinois, the owners and contractor selected Consoweld over other possible wall materials because of its appearance, low maintenance, and low cost of installation. Another consideration was that the walls are subject to heavy steam conditions in instrument sterilization rooms.

Consoweld 10 is used in all halls and offices. Consoweld 10 is the thicker (1/10-inch) plastic laminate that can be applied directly over a wide variety of materials. In this case the Consoweld was applied directly over gypsum board with Consoweld-Roltite mastic. Use of Consoweld eliminated hand-rubbing and varnishing involved with wood veneers previously used, and resulted in a saving of about 25 per cent in installation.

Consoweld is a dense, durable plastic laminate panel, made in two thicknesses. Consoweld 10—1/10-inch—can be applied on the job, directly over sheathing-grade plywood, gypsum board, even over masonry. Consoweld 6—standard 1/16-inch—is used for shop fabrication and where self-edging is desired or butt jointing is required. Consoweld is also available as Curvatop*, the preformed all-Consoweld counter top and backsplash ready for on-the-job installation.

Consoweld is supplied in 46 patterns, color-tuned by Color Research Institute. Consoweld Twin-Trim* matched mouldings provide wall areas of unbroken color. Let us mail you free data file folder with complete information. Mail the coupon at right.

*"Twin-Trim" and "Curvatop" are Consoweld trademarks

CONSOWELD®

The nation's finest plastic surfacing ... good for a colorful lifetime



Consoweld 10 provides cheerful wall areas in the nurses' rest room.

CONSOWELD CORPORATION

Wisconsin Rapids, Wisconsin

AF-26

Please send me free Consoweld data file folder and name of nearest distributor.

NAME _____

COMPANY _____

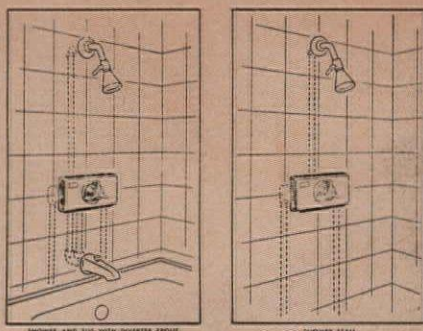
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CITY _____ STATE _____

POWERS

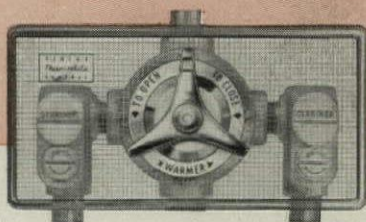
NEW Hydroguard®

Best Insurance for SAFE, Comfortable Showers!

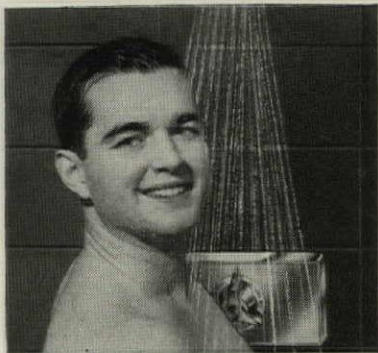


More Convenient for Bathters

HYDROGUARD installations are uncluttered with various valves. Because it has a built-in *shut-off valve* none is required between it and the shower head. HYDROGUARD is often used with shower heads having built-in *volume control*. For shower and tub control it is used with diverter spout as shown above.

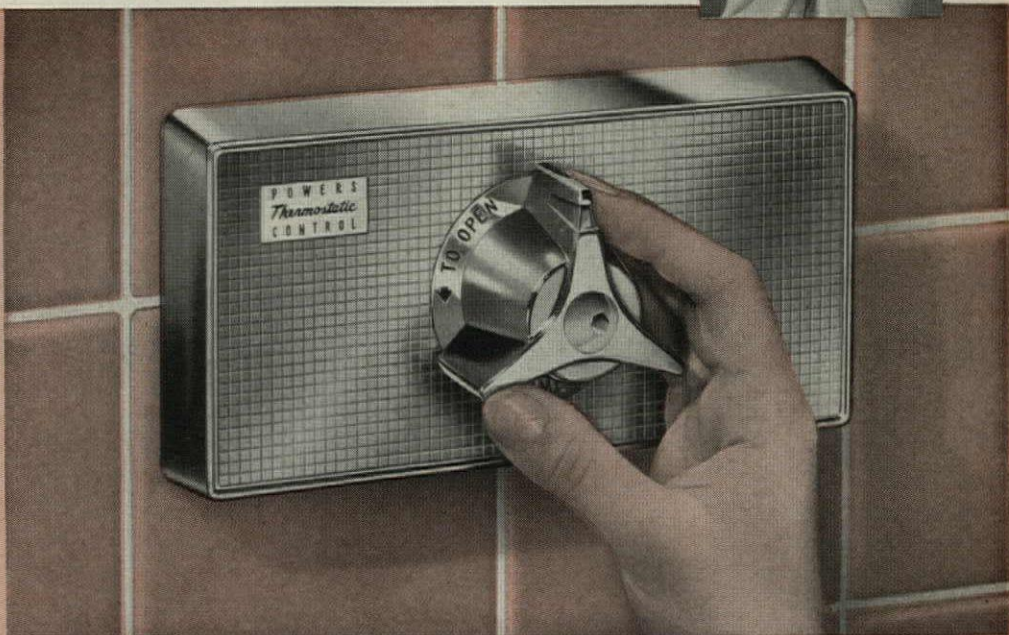


New Triple Duty STRAINER-CHECK-STOPS concealed behind the HYDROGUARD cover, simplify piping and tile work. Walls are unmarred by protruding knobs or valve handles. With only one dial to turn instead of the usual 2 to 4 valves, there is no confusion on the part of the bather.



Don't skimp on Safety in Showers
Get POWERS SAFE SHOWER SYSTEMS data.
Call your nearest Powers office.

(c53a) © Reg. U. S. Pat. Off.



HYDROGUARD introduces an advanced style trend in shower control. It provides greater convenience for bathers and neater appearance. It is available for concealed piping (above) and for exposed piping.

Dynamic New Design Simplifies Shower Installation

Powers HYDROGUARD Is Thermostatic. It is the finest shower control money can buy. It always maintains the shower temperature wherever the bather sets it... regardless of *temperature* or *pressure changes* in water supply.

Thermostatic SAFETY LIMIT Protects Bather from Scalding. It prevents flow of water to shower above 110°F. Should cold water supply fail HYDROGUARD instantly and completely shuts off hot water.

Conserves Water formerly wasted while adjusting various valves before bathing and jumping in and out of shower because of temperature changes.

Consult Powers on Shower Planning. Call our nearest office for data on POWERS SAFE SHOWER SYSTEMS. An experienced Powers engineer will gladly help you select the best shower controls for your requirements.



For further information See SWEET'S Catalog

THE POWERS REGULATOR COMPANY

SKOKIE, ILLINOIS | Offices in chief cities in U.S.A., Canada and Mexico

65 Years of Leadership in Water Temperature Control

Library of the
Minneapolis School of Art

WESTERN ELECTRIC COMPANY, Allentown, Pa.

Design and construction by The Austin Company,
Cleveland, Ohio, in conjunction with
Western Electric engineers.

Rotary Oilraulic Passenger and Freight
Elevators sold and installed by
Burwak Elevator Co., New York.

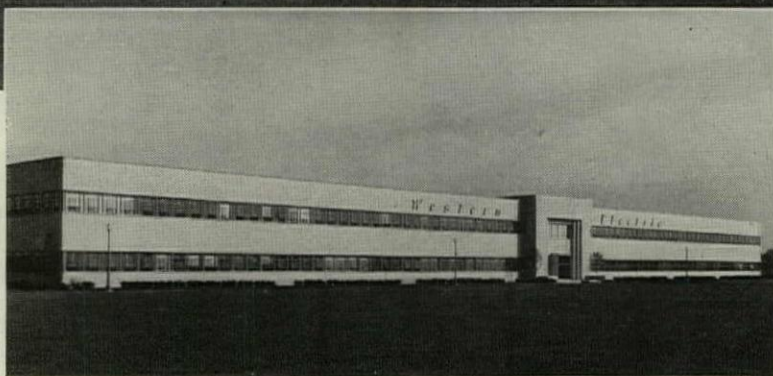
23 Rotary



WESTERN ELECTRIC COMPANY,
Indianapolis, Ind.

Architects, Allen & Kelley, Indianapolis, in
conjunction with Western Electric engineers.

Rotary Oilraulic Passenger and Freight Elevators
installed by Service Elevator Company, Indianapolis.



Oildraulic® Elevators

SERVE WESTERN ELECTRIC COMPANY

Plants and offices in 12 cities
equipped with "the modern elevator
for modern buildings"

The buildings of Western Electric Company, manufacturing and supply unit of the Bell Telephone System, dot the map from coast to coast.

Many are modern low-silhouette structures, distinguished by their clean design and simple dignity.

Twenty-three Rotary Oildraulic Freight and Passenger Elevators are installed in 12 of those buildings. Requiring no unsightly penthouse, the use of this type of elevator contributes much to improved architectural design.

Saves on construction costs

This modern elevator for rises to 55 feet saves on construction costs, too. Because it's pushed up from below, not pulled from above, no heavy load-bearing sidewalls are needed. Such advantages make possible savings of as much as 25% compared to the cost of traction elevators.

In building more than 100,000 hydraulic elevating units during the past 30 years, Rotary Lift Co. has perfected design and construction features that insure consistently smooth operation and economical performance.

Any type of control is available, from simple push button to the most advanced selective-collective or similar automatic system. Operation may be with or without attendant.

Nationwide service

By specifying Rotary Oildraulic Elevators, you assure your clients fast, efficient maintenance service. Factory-trained personnel in a national distributor organization provide reliable service in principal cities and towns. Look under "Elevators" in the yellow pages of your phone book.

SEE OUR CATALOG IN SWEET'S



OILDRAULIC® ELEVATORS

PASSENGER AND FREIGHT

Engineered and built by Rotary Lift Co., 1107 Kentucky, Memphis 2, Tenn.

Specialists in oil-hydraulic elevators and lifts.



press-formed spandrels...

crafted
by
Overly

Press-formed aluminum spandrel work on the new Cathedral School, Greensburg, Pennsylvania, is another striking example of Overly imaginative design engineering. It points the way to better, more economical exterior school design through the use of permanent, architecturally effective metal insulating wall construction. • Overly's press-formed spandrel design has a distinctive wide rounded edge and a narrow pointed divider section. Within the limitations, an unlimited variety of designs, shapes or combinations may be developed to provide almost any desired effect. • The Overly spandrel design above, uses 9" wide flat sections at a height of 4'6". Further variations can be achieved with textured sheets and colored finishes. *Write us today for new Overly Sheet Metal Catalog 8b-Ov.*

OVERLY MANUFACTURING COMPANY
Greensburg, Pennsylvania
Los Angeles 39, California



Architect: Francis O'Connor Church,
Greensburg, Pennsylvania

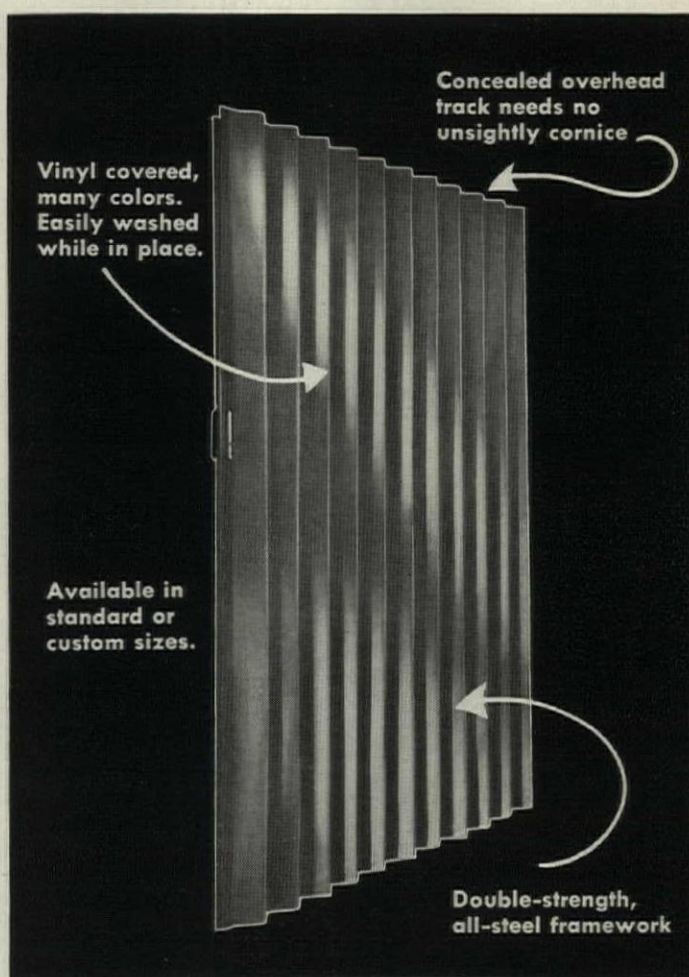
Can this free you of this ?

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

MODERNFOLD distributors are listed under "Doors" in city classified telephone directories.



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NAME _____
BUSINESS ADDRESS _____
CITY _____ ZONE _____ STATE _____

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hip School. Evansville, Indiana	Homecraft Elementary School. St. Paul, Minnesota	Emerson School. Elmhurst, Illinois	Community School. Mount Morris, Illinois
Wrenshall, Minnesota	Junior High School. Hughesville, Pa.	Howe Elementary School. Wisconsin Rapids, Wisconsin	Preble School. Preble, Wis
Ship School. Hamilton, Ohio	Jolley Elementary School. Vermillion, South Dakota	Hamilton Township School. Franklin, Pa.	Hoover Elementary School. Tulsa, Ok
Point Washington, Wisconsin	Public School. Mora, Minnesota	Homes School. Spokane, Washington	Pioneer School. Bismarck, North
Yankton, South Dakota	Garfield School. Moline, Illinois	Hastings School. Framingham, Massachusetts	Wellington School. Roseville, Mi
Woooster, Ohio	Orangevale School. Orangevale, California	Holmes School. Rochester, Minnesota	Lowell School Addition. Duluth, Min
School. Fairmont, Illinois	Highland Park High School. Topeka, Kansas	Senior High School. Geneseo, Ohio	Lockport High School. Lockport,
Addition. Billian, Wisconsin	Basic Elementary School Unit No. 2. Reno, Nevada	Diamond Lake Public School. Mundelein, Illinois	Grade School. Waterville, Wis
or High School. Carrollton, Michigan	Slinger Commercial School. Slinger, Wisconsin	Elementary School. Alsace, Pa.	Park Eementary School. Cambridge
r High School. Fairfield, Iowa	Longfellow School Addition. Minot, North Dakota	Lincoln School. Sheyboagan, Wisconsin	Hamilton Township School. Frank
School. Tiskilwa, Illinois	New Junior High School. Lincoln, Rhode Island	Addition to School Building. Brewster, Minnesota	Curtis Elementary School. Salt Lake City
School. Alsace, Pa.	School No. 37. Indianapolis, Indiana	Mason Local School Addition. Mason, Ohio	St. Francis Xavier School. Petoskey, Mi
ntary School. Quincy, Washington	Coitville School. Youngstown, Ohio	Vogel School Addition. Evansville, Indiana	New Junior High School. Davenport
Ship School. Grayling, Michigan	Slinger C. Slinger, Wisconsin	Taft Heights Elementary School. Taft, California	Fairview School. Fairview, Mi
Elmhurst, Illinois	North. Chicago, Pa.	West Elementary School. Whitewater, Wisconsin	Picadome School. Lexington, Ke
Waterford, Wisconsin	Mo. Pa.	New High School. Old Archar, Maine	Kewanee High School. Kewanee, Wash
Nashua, New Hampshire		Rockdale Primary School. Cincinnati, Ohio	Garfield School. Spokane, Wash
Cuyahoga Falls, Ohio		New Elementary School. Lock Haven, Pa.	Marcy Grade School. Marcy, Wis
Elementary School, Redford, Michigan		Cherry School. Cherry, Minnesota	Ensign School. Salt Lake City
Ogden, Utah		Coldwater High School. Coldwater, Michigan	Sumner Elementary School. Syracuse, Ne
Clinton, Wisconsin		Pine Lake Grade School. Rheinfelder, Wisconsin	Pleasant Grove School. Lansing, Mi
Silver Lake, Ohio		Colerian Township School. Cincinnati, Ohio	Junior High School. Rock Falls, I
Mt. Pleasant, Michiga		Highland Park School. Saginaw, Michigan	Brandywine School. Niles, Mi
School. Billerica, Massachusetts		Arkman School. Chicago, Illinois	Franklin School. Ken
Granite City, Illin		ew Market Elementary School. New Market, Pa.	Evergreen School. Ross Townsh
High School. Milton,		Ringmeyer School. Cincinnati, Ohio	Pius Xi High School. Milwaukee, Wis
School. Fennimore, Wiscor		enville High School. Plainville, Connecticut	New South High School. Valley Stream, Ne
ry School. Grandville, Michi		en Street School. Somerville, Massachusetts	Bedford Junior High School. Bedford, Massach
School. Schererville, Ind		ry Grade School. Marcy, Wisconsin	Gymnasium & Class Room. Cando, North I
School. Gardena, Califor		mpfield High School. Landsville, Pa.	Gibson City High School. Gibson City, I
or High School. Bellwood, Illi		Skman Elementary School. Salt Lake City, Utah	Public School Addition. Adrian, Minn
School. Quincy, Massachus		ss Corners Grade School. Tess Corners, Wisconsin	High School Addition. Billian, Wis
entary School. Fairview Park, O		rd Avenue School. Middletown, New York	C. A. Arthur School. Oklahoma City, Okl
High School. Milton, K		Bastrop High School. Bastrop, Louisiana	Maywood Elementary School. Perryville, Ma
ementary School. Oshkosh, Wiscor		ongstreet School. Saginaw, Michigan	Penn Bernville School. Bernvil
Clinton, Illinois		Lowell School Addition. Duluth, Minnesota	Grade & High School. Juneau, Wis
ntary School. Willow Run, Michigan		Hillcrest Grade School. Brookings, South Dakota	Senior High School. Hopkin, Min
entary School. Fairview Place, Ohio		Nobel Prentiss School. Kansas City, Missouri	Haulicek School. Berwyn, I
School. Clinton, Illinois		Franklin School. Kent, Ohio	Edgewood School. Rock Hill, South C
Addition. Dryden, New York		Garfield School. Spokane, Washington	Altamont Elementary School. Altamont
School. Evansville, Indiana		South West School. Harvey, Illinois	West Elementary School. Whitewater, Wis
School. Moscow, Idaho		Monroe Washington School. Pierston, Indiana	Public School. Garretson, South I
ry School. Huntington, Pa.		Cambrian School No. 2. Campbell, California	Clay Local High School. Portsmouth
School. Juneau, Wisconsin		Thurmont Elementary School. Thurmont, Maryland	Ida Rural Agricultural School. Ida, Mi
Ship School. Wooster, Ohio		Elementary School. Kenyon, Minnesota	Franklin Junior High School. Brainerd, Mini
h School. Burlington, Illinois		Canyon Rim School No. 2. Salt Lake City, Utah	St. Francis Xavier School. LaGrange, I
entary School. Jeffersville, Indiana		Colerian Township School. Cincinnati, Ohio	Bristol School. Webster Grove, Mi
h School. Oxford Junction, Iowa		Grade School. Mineralpt, Wisconsin	High School. Albion, I
School. Sacramento, California		Junior-Senior High School. Hughesville, Pa.	Station Avenue School. Ashabula
High School. Aurora, Missouri		Grade School. Mineralpt, Wisconsin	St. Ursula Elementary School. Allisc
ry School. Lock Haven, Pa.		Springfield Senior High School. Akron, Ohio	High School Addition. Billian, Wis
ational School. Belleville, Ohio		Harbrock High School. Harristown, Pa.	Lincoln School. Savanna, I
ementary School. Mauston, Wisconsin		Ogden Grade School. Ogden, Illinois	Senior High School. Geneseo
mediate School. Saginaw, Michigan		Purdy School. Pennfield, Michigan	Livonia Elementary School. Livonia, Mi
h School. Burlington, Illinois		Power Elementary School. Amherst, Ohio	Linn Grove School. Linn Grove,
School. East Gary, Indiana		Kewaunee Grade School. Kewaunee, Wisconsin	High School. Henderson, Ke
Butte, Montana		Galena Township School. La Porte, Indiana	Jolley Elementary School. Vermillion, South I
ntary School. Mendon, Michigan		Grade & High School. Randolph, Minnesota	Jackson Memorial High School. Massillon
ol. Spokane, Washington		Burnside School. East Hartford, Connecticut	Nantucket High School. Nantucket, Massach
Land O Lakes, Wisconsin		New Junior High School. Davenport, Iowa	Wyoming Park High School. Wyoming Park, Mi
ntary School. Sullivan, Illinois		Linwood Elementary School. Linwood, New Jersey	Verona Grade School. Verona, I
High School. Newark, Delaware		Wheelerburg School. Wheelerburg, Ohio	Grade School. Arlington, Wis
School. Orleans, Massachusetts		Vocational School. Green Bay, Wisconsin	Grade & Junior High School. Fairfield,
School. North Riverside, Illinois		New Elementary School. Huntington, Pa.	Elementary School Building. Gettysbur
Grade School. Amvet Village, Ohio		Hines School Addition. Peoria, Illinois	Old Fort School. Old Fort
le School. Blackfoot, Idaho		Pomeroy Grade School. Pomeroy, Washington	Forest Heights School. Forest Heights, Ma

More Classroom Comfort per Dollar

Here are schools that got it, tailored to their exact climate and structural needs, during 1955 . . . when they installed Herman Nelson Unit Ventilators.

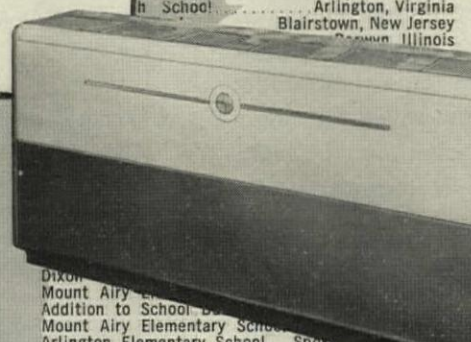
ool. Flint, Michigan	Barrington High School. Barrington, Illinois	New Elementary School. Huntington, Pa.	Layton Elementary School. Layton
School. Tiskilwa, Illinois	Junior High School. Washington, D. C.	Jones School. Cicero, Illinois	Fontana State Graded School. Fontana, Wis
ol School. Michigan City, Indiana	Junior High School No. 167. New York, New York	Oak Street School. Flint, Michigan	Forestview School. Bay Village, Ohio
School. Holland, New York	Thirty-third Street School. Ogden, Utah	New Elementary School. Boy Village, Ohio	Remus Elementary School. Remus, Mi
School. Kansas City, Kansas	Plus Xi High School. Milwaukee, Wisconsin	Howard Township School. Duck Creek, Wisconsin	Garfield School. Moline, I
Montivideo, Minnesota	East Junior High School. Warren, Ohio	Valley High School. Orderville, Utah	Scott Township School. Evansville, I
School. Fon du Lac, Wisconsin	Willow Run High School. Willow Run, Michigan	Boyd Elementary School. Ohora Township, Pa.	New Valley School. Maplewood, Ma
ol School. Fairmont, Illinois	Mountain Iron School. Mountain Iron, Minnesota	Highcrest School. Silmette, Illinois	Maxwell School. Maxwell
ol. Pittsburgh, Pa.	Brookfield Elementary School. Brookfield, Wisconsin	Minneapolis Elementary School. Excelsior, Minnesota	James Lansey School. Fall River, Massach
h School. Lincoln, Rhode Island	Montgomery Elementary School. Ashland, Ohio	Griffith High School. Griffith, Indiana	La Maille School. La Maille, I
h School. Marysville, Washington	Public School Addition. Wasena, Minnesota	New Senior High School. Kelllogg, Idaho	Blanche Stoddard School. Iowa Falls,
entary School. Brook Park, Ohio	Wood Township School. Borden, Indiana	Frontier Central School. Hamburg, New York	Wheatland Center School. New Munster, Wis
ol. Richfield, Minnesota	New School Addition. Mt. Carroll, Illinois	North West School. Harvey, Illinois	West Deer Township High School. Cheswic
Addition. Fort Knox, Kentucky	Armstrong Site Elementary School. St. Clair, Michigan	High School Addition. Billian, Wisconsin	Metamora School Addition. Metamora
School. Walled Lake, Michigan	Lightner Elementary School. York County, Pa.	Charman School. Wyandotte, Michigan	East Hill Elementary School. Kent, Wash
School. Morgantown, Pa.	Tess Corners Grade School. Tess Corners, Wisconsin	Elementary School. Edgewood, Pa.	Glenside Junior High School. Landover, Ma
School Addition. Syracuse, New York	Valley Junior High School. Grand Fork, North Dakota	Garnett Elementary School. Fairview Place, Ohio	Mount Carmel High School. Auburn, Nev
School. Oberlin, Ohio	Bay Village High School Addition. Bay Village, Ohio	Lakeview High School. St. Clair, Michigan	Orem Senior High School. Orem
School. Dwight, Illinois	West Biddle Street School. West Chester, Pa.	South Grade School. Mt. Carmel, Illinois	Community Grade School. Wheeling, I
h School. Fowlerville, Michigan	Warren Elementary School. Warren Twp, Michigan	Deanza School. El Sabrant, California	Nahant Elementary School. Nahant, Massach
School. Miller, South Dakota	Gifford School. Gifford, Illinois	Meacham Street School. Somerville, Massachusetts	New Classen High School. Oklahoma City, Okl
entary School. Edina, Minnesota	Livingston High School. Livingston, New Jersey	Scott Township School. Evansville, Indiana	West Deer Township High School. Cheswic
ementary School. Seven Hills, Ohio	Tess Corners Grade School. Tess Corners, Wisconsin	Draper School. Schenectady, New York	Green Meadow School. Rensselaer, Nev
ool. Urbana, Illinois	North Site School. Howell, Michigan	Elementary School. Alsace, Pa.	High School Addition. New Harmony, I
ool. Centerville, Utah	Springmeyer School. Cincinnati, Ohio	High School. Coleman, Wisconsin	Steel Lake Elementary School. Redona, Wash
entary School. Wautoma, Wisconsin	New Albany Junior High School. New Albany, Indiana	Greenhills Elementary School. Greenhill, Ohio	Grade School. Waterville, Wis
l Addition. Quantico, Maryland	Thomson Grade School. Thomson, Illinois	Johnson School. Benton Harbor, Michigan	Elementary School. Oakmor
School. Garden City, Michigan	29 Palms Elementary School. 29 Palms, California	Dundee High School. Carpenters, Illinois	Prohardt School. Granite City, I
ool. Milwaukee, Wisconsin	Affton High School. Affton, Missouri	West Liberty School. West Liberty, Iowa	Forrest Avenue School. Ypsilanti, Mi
ool. Toledo, Ohio	Haverford School. Haverford, Pa.	Horton Watkins School. Ladue, Missouri	Mimisila Elementary School. Manchester
ar School. Clinton, Illinois	McLean High School. Arlington, Virginia	Magna Elementary School. Magna, Utah	Fir Grove School. Beaverton, C
School. No. 9. Indianapolis, Indiana	Milltown High School. Milltown, Indiana	Richland Township School. Richland, Pa.	Kratz Elementary School. St. Louis, Mi
h School. Dartmouth, Massachusetts	Budd Avenue Elementary School. Ashland, Ohio	Pomeroy Grade School. Pomeroy, Washington	Altamont Elementary School. Altamont
School. Hanover, New Hampshire	Elementary School. Belgium, Wisconsin	Mimisila Elementary School. Manchester, Ohio	Lincoln School. Elmhurst, I
ool. Edgewood, Pa.	Field Grade School. North Olmstead, Ohio	Komarck School. Riverside, Illinois	Holy Name Parish School. Minneapolis, Minn
ool. Dutton, Montana	Maxfield Elementary School. St. Paul, Minnesota	Elementary School Ward No. 4. Big Rapids, Michigan	East Elementary School. Whitewater, Wis
ool. Delafair, Wisconsin	Keokuk Senior High School. Keokuk, Iowa	Addition Elementary School. Rushmore, Minnesota	Elementary School Building. Gettysbur
ool. Akron, Ohio	Community Grade School. York County, Pa.	Bear River High School. Box Elder, Utah	High School. Marblehead, Massach
l. Bay City, Michigan	Venice School Addition. Venice, Illinois	Norview School. Norview, Virginia	West Elementary School. Grandville, Mi
Public School. Mundelein, Illinois	Vienna White Elementary School. Vienna, Virginia	Steel Lake Elementary School. Redona, Washington	Smith Township School. Chevubusco, I
School. Madison County, Indiana	Crivitz High School. Crivitz, Wisconsin	Affton High School. Affton, Missouri	Shorland School Addition. Toledo
k School. Clara City, Minnesota	Holy Name Parrish School. Minneapolis, Minnesota	Windsor Grade School. Windsor, Wisconsin	Aynor High School. Aynor, South C
ool. Tulsa, Oklahoma	S. E. Harvey School. Harvey, Illinois	Verona Grade School. Verona, Illinois	Kratz Elementary School. St. Louis, Mi
ool. Troy, Pa.	Dartmouth High School. Dartmouth, Massachusetts	Verona Grade School. Verona, Illinois	Edison School. Eugene, O
ool. Grand Island, Nebraska	Public School. Mandan, North Dakota	Maryville Elementary School. Rockville, Maryland	Hawthorne Elementary School. Tulsa, Okl
Addition. Westchester, Illinois	Target Range School. Missoula, Montana	High School Addition. New Holstein, Wisconsin	Basic Elementary School Unit No. 1. Reno, N
or High School. San Diego, California	Bristol School. Webster Grove, Missouri	Ethel Boston School. St. Louis Park, Minnesota	McLean Elementary School. Wichita, K
h School. Montezuma, Iowa	Garden Oaks School. Oklahoma City, Oklahoma	Merriville High School. Merriville, Indiana	Geneseo Junior High School. Geneseo, I
ool. Madison County, Indiana	St. Clair Elementary School. Pittsburgh, Pa.	Erlanger High School. Erlanger, Kentucky	Cork Elementary School. Geneva
ade School. Millinocket, Maine	South Grade School. Mt. Carmel, Illinois	Oakview School. New Lenox, Illinois	Willow Run High School. Willow Run, Min
ool. Akron, Ohio	Thora Thorson School. Robbinsdale, Minnesota	Public School. Milroy, Minnesota	Audubon School. Minneapolis, Minn

Street School	La Porte, Indiana	Maple Heights High School	Washington, Wisconsin	Centerville School	Centerville, Ohio	New Market Elementary School	Fla
and Park High School	Topeka, Kansas	Maple Heights High School	Maple Heights, Ohio	Jefferson Elementary School	Spokane, Washington	John Barnes Elementary School	Fla
High School	Howard County, Maryland	Arlee School	Arlee, Montana	Lincoln School	Sheyabog, Wisconsin	Elk School	
ard Unit School	Cambridge, Massachusetts	Jefferson School	Elmhurst, Illinois	Longfellow School	Wheaton, Illinois	Karl Havlicek School	
Wood School	Sidney, Ohio	Hopewell School	Toledo, Ohio	Ben Franklin High School	Los Angeles, California	Windsor Grade School	Wi
n School	Mount Pleasant, Michigan	Coon Rapids Elementary School	Anoka, Minnesota	New Addition to High School	Charlestown, Indiana	Buckingham Elementary School	
Central School	Holland, New York	Orem Senior High School	Orem, Utah	Stevens T. Mason School	Redford, Michigan	Francis Willard School	Riv
ton School	Alberton, Montana	Haverford School	Haverford, Pa.	Hillcrest School Addition	East Moline, Illinois	Eugene Field School	East C
n Addition	Dodge Center, Minnesota	Jerome School	Maplewood, Illinois	Ridge School	Bellevue, Ohio	Saline High School	
dale School	Riverdale, New Jersey	St. Cloud School	St. Cloud, Wisconsin	Clearview Elementary School	York County, Pa.	Midview High School	
ford School	Haverford, Pa.	Elementary School	Gilboa, New York	Castleton School Addition	Castleton, New York	High School	
horne Elementary School	Tulsa, Oklahoma	Maple Road School	Walled Lake, Michigan	Wheatland School	Wheatland, California	Sparks Elementary School	
n School	Vermillion, South Dakota	Polk Township School	Tyner, Indiana	Paducah High School	Paducah, Kentucky	Mary Snow School	
n Jones Elementary School	Dallas, Texas	Lexington School	Los Gatos, California	High School	Iowa Falls, Iowa	Washington Junior High School	Roc
Campbell Elementary School	Selah, Washington	Leal School	Urbana, Illinois	Elementary School	St. Louis, Missouri	Junior High School	
Edward School Addition	Salt Lake City, Utah	Alexandria High School	Alexandria, Virginia	Junior-Senior High School	Hughesville, Pa.	Eastmont Elementary School	
Elementary School	Rochester, Wisconsin	Eastwood Elementary School	Cincinnati, Ohio	Wogaman School	Dayton, Ohio	Bonnerterre School	Bonn
Wynne School	Niles, Michigan	Existing School	Minneapolis, Minnesota	Grade School	Wautoma, Wisconsin	Schoolcraft High School	Schoo
s Elementary School	Salt Lake City, Utah	Glendrie Junior High School	Landover, Maryland	Cossitt School	La Grange, Illinois	Knox High School	Lemon C
ons Elementary School	Aberdeen, South Dakota	Lane School	Lane, Illinois	Bainbridge Elementary School	Bainbridge, Maryland	San Miguel School	
er Heights High School	Shaker Heights, Ohio	Carole Highland School	Nearatoma, Maryland	West End Grammar School	Washington, Indiana	Douglas School	
n Montgomery School	Syracuse, New York	Lincoln School	Richmond, Missouri	Lightner Elementary School	York County, Pa.	Maple Heights High School	Ma
ville High School	Centerville, Michigan	Father Judge High School	Philadelphia, Pa.	High School Addition	New Holstein, Wisconsin	Hart Elementary School	
man School Addition	Salina, Kansas	Fairview Grade School	Snokie, Illinois	Laurens Central School	Laurens, New York	Elementary School	
ley School	Boston, Massachusetts	La Prairie School	Janesville, Wisconsin	Union Local School	Lombardville, Ohio	Layton Elementary School	
lton Senior High School	Hamilton, Illinois	Public School	Cando, North Dakota	Public School	Madella, Minnesota	Vienna White Elementary School	
her Drive School	Los Angeles, California	Eastmont Elementary School	Dayton, Ohio	Hillcrest School Addition	East Moline, Illinois	Lincoln Elementary School	Va
Elementary School	Waynedale, Indiana	Rhodes School	River Grove, Illinois	Jones Elementary School	Greencastle, Indiana	Lincoln Elementary School	
entary School	Oakmont, Pa.	Elementary School	Cohasset, Massachusetts	Lincoln School	Taft, California	Jones School	
School Addition	Port Washington, Wisconsin	Pinckney High School	Pinckney, Michigan	Garfield School	Madison, South Dakota	Liberty Township School	
Bountiful Elementary School	Bountiful, Utah	Odesa Elementary School	Odesa, New York	Opportunity School	Denver, Colorado	Russell School	Ka
n Jones Elementary School	Dallas, Texas	Jennings Elementary School	Jennings, Missouri	Bellemare School	Richmond, Virginia	Rowley Elementary School	Rowle
ale Elementary School	Tallmadge, Ohio	Howard Township School	Duck Creek, Wisconsin	Preble School	Preble, Wisconsin	E. Lampert Elementary School	
enlust Township School	Franklin, Michigan	Clearview Elementary School	York County, Pa.	Sahs School	Stickney, Illinois	Fontana State Graded School	For
enior Junior High School	Elmhurst, Illinois	Crown Point High School	Crown Point, Indiana	Cherrylen Elementary School	Englewood, Colorado	East Side Elementary School	Gouve
High School	Sacramento, California	Wheatland Center School	New Munster, Wisconsin	Elementary School	Cohasset, Massachusetts	Chadwick High School	C
ell School	Maxwell, Iowa	S. School Addition	Kingham Massachusetts	Magna Elementary School	Magna, Utah	Riverside School	Fort
entary School Building	Elmly, Minnesota	New High School	Fairmont, Minnesota	Wagoman School	Dayton, Ohio	Elementary School Ward No. 1	Big R
field High School	Landisville, Pa.	Garfield School	Lorain, Ohio	Public School	Akeley, Minnesota	Bellevue Vocational School	
School	Arlington, Wisconsin	New Technical High School	St. Louis, Missouri	High School	Gettysburg, Pa.	Harbrock High School	Chatta
Site Elementary School	Howell, Michigan	Soldier Iowa School Addition	Soldier, Iowa	Larimore School Addition	St. Louis, Missouri	Chattahoochee School	St. C
as School	Clinton, Illinois	School Addition	Cambridge, Minnesota	Highcrest School	Silmette, Illinois	Public School Addition	Water
er Junior High School	Chula Vista, California	Morris High School	Morris, Illinois	Waverly High School	Waverly, Ohio	Elementary School	
Albany High School	New Albany, Indiana	St. Lawrence School	Indianapolis, Indiana	East Hill Elementary School	Kent, Washington	Grade School	
Albany Berkeley School	Berkeley, Michigan	Bemiss Elementary School	Indianapolis, Indiana	Brissette School	Kawka, Michigan	Kewanee Grade School	K
Place School	Plainview, New York	Holland Central School	Holland, New York	Center Grade-High School	Stone Cross, Indiana	Kern Valley High School	Isa
er Central School	Hamburg, New York	Kewaunee Grade School	Kewaunee, Wisconsin	Park Hills Elementary School	Hanover, Pa.	Masters Avenue Elementary School	
t Zion Elementary School	York County, Pa.	Elementary School	Alsace, Pa.	High School	Cass Lake, Minnesota	Powers Elementary School	
cket High School	Nantucket, Massachusetts	East Greenwich High School	East Greenwich, R. I.	High School	Coleman, Wisconsin	Roosevelt School	Spok
usia School Addition	Andalusia, Illinois	Miller Grade School	Miller, South Dakota	Community Grade School	York County, Pa.	La Prairie School	Janes
Campbell Elementary School	Selah, Washington	Lubbock High School	Lubbock, Texas	Uniondale High School	Uniondale, New York	Mayville Elementary School	Ma
ty High School	Felicity, Ohio	Valley High School	Orderville, Utah	Wright School Addition	Clayton, Missouri	West Ward School Addition	
wood School	Clarenceville, Michigan	Hawthorne School Addition	Wheaton, Illinois	Nixon School Addition	Westchester, Illinois	Macomb Park Elementary School	Fan
ern Junior High School	Downey, California	North Junior High School	Downey, California	Fine Arts Addition to High School	Jefferson, Indiana	Fairmont School	
ingham Roosevelt School	Davenport, Iowa	Fenn School	Concord, Massachusetts	Willow Glen Senior High School	San Jose, California	Butterworth School	
School	Kingman, Kansas	Paducah High School	Paducah, Kentucky	Lena Whitmore Grade School	Moscow, Idaho	Uniondale High School	Unio
el Woodfill School	Fort Thomas, Kentucky	Grade School	Swea City, Iowa	Elementary School Ward No. 3	Big Rapids, Michigan	Penn Bernville School	
chester High School	Los Angeles, California	Public School Addition	Napoleon, North Dakota	Public School	Garretson, South Dakota	Dundee High School	Car
ellow School	Wheaton, Illinois	Emerson School Addition	Sidney, Ohio	Elementary School	Fennimore, Wisconsin	Elementary School	Crown
port Elementary School	Bridgeport, Michigan	Grade School	St. Louis, Missouri	Lincoln Grade School	Mount Morris, Illinois	White Pigeon High School	White P
C School	Adams, North Dakota	East Goshen Elementary School	Goshen, Pa.	Community High School	Boyd Elementary School	Ida Rural Agricultural School	
er Central School	Hamburg, New York	Sabin School	Portland, Oregon	Hall Park School	Belding, Michigan	Hawthorne Junior High School	Wauwa
h School Addition	Verona, Ohio	Othello High School	Athello, Washington	Manchester School	Manchester, Ohio	Manchester High School	
Hall Elementary School	Jefferson, Pa.	C. A. Arthur School	Oklahoma City, Oklahoma	Roosevelt Junior High School	Bellwood, Illinois	High School	St
entary School	Rochester, Wisconsin	McKinley School	East Moline, Illinois	Franklin School	Spokane, Washington	Cherry School	Sh
er School	Yankton, South Dakota			Franklin School	Ypsilanti, Michigan	San Juan High School	Sacram
				Franklin School	Dryden, New York	Junior High School	W
				Franklin School	Columbus, Ohio	Westview Elementary School	Spok
				Franklin School	Snokie, Illinois	Minford School	
				Franklin School	Landsville, Pa.	Elementary School	
				Franklin School	Maplewood, Illinois	New High School	
				Franklin School	Greencastle, Indiana	Richland Township School	
				Franklin School	Cincinnati, Ohio	North Point Elementary School	Osh
				Franklin School	Redford, Michigan	Evergreen School	Ros
				Franklin School	Bountiful, Utah	Archard Elementary School	M
				Franklin School	Spokane, Washington	Wayne Township School	
				Franklin School	Berwyn, Illinois	Pleasant Grove School	La
				Franklin School	Waterford, Wisconsin	Hines School Addition	
				Franklin School	Reno, Nevada	West Ward School Addition	
				Franklin School	Quincy, Massachusetts	Longfellow School	Wa
				Franklin School	Chenoa, Illinois	Fremont School Addition	Bay
				Franklin School	Sacramento, California	Crivitz High School	Cr
				Franklin School	Arlington, Virginia	Quincy Elementary School	
				Franklin School	Blairtown, New Jersey	Gifford School	
				Franklin School	Blairtown, New Jersey	Northwest Elementary School	Re
				Franklin School	Blairtown, New Jersey	Stetline School	Land O L
				Franklin School	Blairtown, New Jersey	rs Avenue Elementary School	
				Franklin School	Blairtown, New Jersey	High School	Roc
				Franklin School	Blairtown, New Jersey	side Elementary School	Battle
				Franklin School	Blairtown, New Jersey	Hills Elementary School	
				Franklin School	Blairtown, New Jersey	School	Holes
				Franklin School	Blairtown, New Jersey	Elementary School	
				Franklin School	Blairtown, New Jersey	n School	
				Franklin School	Blairtown, New Jersey	Valley School	Maple
				Franklin School	Blairtown, New Jersey	orth Grade School	Elis
				Franklin School	Blairtown, New Jersey	n Grove School	Garden Gr
				Franklin School	Blairtown, New Jersey	ate Elementary School	Beth
				Franklin School	Blairtown, New Jersey	ille Center High School	Rock
				Franklin School	Blairtown, New Jersey	Hill Elementary School	Sea
				Franklin School	Blairtown, New Jersey	Goshen Elementary School	
				Franklin School	Blairtown, New Jersey	n Oaks School	Oklahoma
				Franklin School	Blairtown, New Jersey	Stone High School	Lir
				Franklin School	Blairtown, New Jersey	nes School	Warr
				Franklin School	Blairtown, New Jersey	chool	Park F
				Franklin School	Blairtown, New Jersey	y School Addition	E
				Franklin School	Blairtown, New Jersey	High School	Way
				Franklin School	Blairtown, New Jersey	ool	St. C
				Franklin School	Blairtown, New Jersey	s High Gymnasium	
				Franklin School	Blairtown, New Jersey	Elementary School	
				Franklin School	Blairtown, New Jersey	on	Rock Hill
				Franklin School	Blairtown, New Jersey	l High School	Bay
				Franklin School	Blairtown, New Jersey	etual Help	Yo
				Franklin School	Blairtown, New Jersey	Green	
				Franklin School	Blairtown, New Jersey	lo	
				Franklin School	Blairtown, New Jersey	St. C	
				Franklin School	Blairtown, New Jersey	Elementary School	
				Franklin School	Blairtown, New Jersey	Ridgeview Elementary School	Spoka
				Franklin School	Blairtown, New Jersey	Junior-Senior High School	Kettinge
				Franklin School	Blairtown, New Jersey	Elementary School	Edgerton
				Franklin School	Blairtown, New Jersey	Reed City School	Reed
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				Franklin School	Blairtown, New Jersey	Public School	Berthold
				Franklin School	Blairtown, New Jersey	Harper School	Wi
				Franklin School	Blairtown, New Jersey	Manchester High School	Manche
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				Franklin School	Blairtown, New Jersey	Van Buren Elementary School	
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				Franklin School	Blairtown, New Jersey	East Avondale	
				Franklin School	Blairtown, New Jersey	Wright School Addition	Cl
				Franklin School	Blairtown, New Jersey	Cedar Mill School	P
				Franklin School	Blairtown, New Jersey	Centerville School	C
				Franklin School	Blairtown, New Jersey	Elmhurst Junior High School	El

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In School	Bisbee, Arizona	Riley Elementary School Addition	Great Bend, Kansas
s A. Garfield School	East Chicago, Indiana	Rockingham Roosevelt School	Davenport, Iowa
son School	Pueblo, Colorado	Hebertsville School	Hebertsville, New Jersey
x Elementary School	Buena, Washington	Wheeler City High School 87	Bartlett, Nebraska
town Elementary School	Danbury, Connecticut	West Middle Street School	West Chester, Pa.
son Elementary School	Washington, D. C.	Garfield School	Madison, South Dakota
entary School	Wanesboro, Missouri	Ensign School	Salt Lake City, Utah
B. Endicott School	Endicott, New York	Godfrey Elementary School	Alton, Illinois
trude School	Maderia, Ohio	Elementary School	Cohasset, Massachusetts
ville School	Pottersville, Michigan	Brentmoor School	Mentor, Ohio
School	Independence, Wisconsin	Manchester High School	Manchester, Pa.
to High School	Athello, Washington	North East School	Fon du Lac, Wisconsin
ce Rooms Central Union High	Fresno, California	Austin School	Vermillion, South Dakota
High School	Waterloo, Iowa	Bemiss Elementary School	Spokane, Washington
ton High School	Lewiston, Maine	Griffith High School	Griffith, Indiana
er Street School	Kalamazoo, Michigan	East Wing School	Snokie, Illinois
School Addition	Hardwick, Minnesota	Roosevelt School	Taft, California
rest School	Silmette, Illinois	Patterson Elementary School	Washington, D. C.
r Judge High School	Philadelphia, Pa.	Haseltine School	Portland, Maine
In School	Park Falls, Wisconsin	Riley Elementary School Addition	Great Bend, Kansas
e High School	Los Angeles, California	Mount Vernon School	Newark, New Jersey
School Addition	Mt. Carroll, Illinois	Headlands School	Mentor, Ohio
High School	Caro, Michigan	Woodlawn School	Hamburg, New York
ounds School	Nashua, New Hampshire	East Lake Road School	Harbor Creek, Pa.
School	Alberta, Minnesota	Sabin School	Portland, Oregon
School Addition	New Holstein, Wisconsin	Bellevue Vocational School	Bellevue, Ohio
nda High School	Anaconda, Montana	St. Francis Xavier School	LaGrange, Illinois
hurst High School	Detroit, Michigan	Griffith High School	Griffith, Indiana
Grade School	Franklin, Illinois	Brentwood Junior High School	Pacific Pa, California
in Elementary School	Sacramento, California	Nampa High School	Nampa, Idaho
y Township School	Sharpville, Indiana	Snug Harbor School	Quincy, Massachusetts
idge Elementary School	Bainbridge, Maryland	Torrey Woods School	Grosse Pointe, Michigan
i School	Pueblo, Colorado	Simmons Elementary School	Aberdeen, South Dakota
er School	Chester, Montana	Bear River High School	Box Elder, Utah
High School	North Valley, New York	Franklin Heights School	Columbus, Ohio
E. Smith School	Akron, Ohio	Gilboa Elementary School	Gilboa, New York
School	Burlington, Wisconsin	Haulic School	Berwyn, Illinois
field High School	Landisville, Pa.	Ben Franklin School	Los Angeles, California
Wilder School	Sioux Falls, South Dakota	West End Grammar School	Washington, Indiana
nann Elementary School	Salt Lake City, Utah	Manchester High School	Manchester, Michigan
icks High School	Chadwick, Illinois	Longfellow School Addition	Sidney, Ohio
ns High School	Jennings, Missouri	Gill Hall Elementary School	Jefferson, Pa.
t R. E. Elliott School	Munster, Indiana	Snug Hill High School	Rensslaer, New York
Edward School Addition	Salt Lake City, Utah	Snug Harbor School	Quincy, Massachusetts
ing Park High School	Wyoming Park, Michigan	Laidlaw School	Western Springs, Illinois
ton Township Grade School	Farmington, Pa.	Cuyama Classroom	Cuyama, California
ille Center High School	Rockville, New York	New Elementary School	Eatonstown, New Jersey
eter School	Saginaw, Michigan	Whitman Elementary School	Spokane, Washington
n Community Unit High School	Paxton, Illinois	Wooster Township School	Wooster, Ohio
		Grade School	Holes Cross, Wisconsin
		North High School	North Valley, New York



rs Avenue Elementary School	Land O L
High School	Roc
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Hills Elementary School	
School	Holes
Elementary School	
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Valley School	Maple
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n Grove School	Garden Gr
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Hill Elementary School	Sea
Goshen Elementary School	
n Oaks School	Oklahoma
Stone High School	Lir
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Elementary School	
Ridgeview Elementary School	Spoka
Junior-Senior High School	Kettinge
Elementary School	Edgerton
Reed City School	Reed
Fir Grove School	Bea
Public School	Berthold
Harper School	Wi
Manchester High School	Manche
Clay High School	
Ridgeview Elementary School	Spoka
New High School	B
Virgil Central School	
Van Buren Elementary School	
Ashwood Elementary School	Bellev
Grand Island High School	Grand Is
Lincoln Elementary School	
East Avondale	
Wright School Addition	Cl
Cedar Mill School	P
Centerville School	C
Elmhurst Junior High School	El

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TECHNOLOGY *cont'd.*

for 4" of masonry—exclusive of the 4" concrete block backup required by law.

The 11'-9" x 4'-1" solid panels are continuous for the full height of the building, being jointed at the level of the adjacent window sash. The window panels are 11'-9" x 5'-3", containing a 5'-2" high spandrel panel and a 6'-7" high window frame, vertically pivoted. The window frames are sealed with continuous double vinyl weather-stripping gaskets, factory fastened around the frames. Extruded gaskets seal the windows because these have rigid corners that provide a leak-proof stop once the window is closed. The ¼" thick glass itself is set in a synthetic resin calking compound. This compound consists of a resin with inert pigments and asbestos fiber filler. It is said to be nonoxidizing, nonhardening and permanently flexible within a temperature range of minus 40° to plus 150° F.

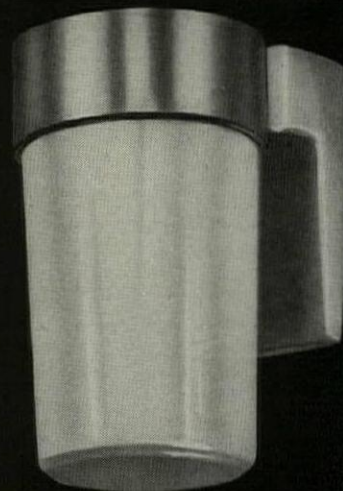
The horizontal joints are not sealed but are overlapped. Each panel is lapped 7½" over the top of the panel beneath it. This lap allows the wall to breathe and to expand or contract vertically, yet it can contain any driving rain water that differential air pressure might force into the wall. (A 100 mph wind velocity, for instance, produces a velocity pressure of 24.9 lb. per sq. ft. and an equivalent head of 4.8" of water.) Weep holes drain into this channel and thence out to the exterior face. Each channel is provided with fibrous glass pads topped by synthetic resin as a water barrier; this barrier neither retains moisture nor impedes air flow.

Vertical joints are more difficult to handle. The Z-shaped stainless steel edge strips of adjacent panels are covered by a 2½" wide, 1½" deep story-height channel strip, also of stainless, which is tightened by 2½" long stud bolts to an 11-ga. bent clip behind the two panels. Inside each channel is a 3/8" deep layer of synthetic resin calking into which the angled edges of each panel are forced by tightening the bolt. A ¾" vertical gap is left between adjacent panels which, after allowing for the 5/16" diameter stud bolt, leaves 7/16" for expansion or contraction.

At the Z-shaped edge strips of each panel, where the upper and lower panels overlap 7½" and are in contact, the horizontal joint thus formed is sealed by the asbestos resin calking compound.

The Soconoy-Mobil building is designed by Harrison & Abramovitz and John B. Peterkin, associated architects. Edwards & Hjorth are the structural engineers, Galbreath Corp. the owners and Turner Construction Co. the general contractors.

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by
mc Philben



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all old wall brackets!

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WATTAGE: Maximum 100 watt — Globe: Threaded opal with gasket. Write for Data Sheet on complete VAPORTIGHT SERIES.

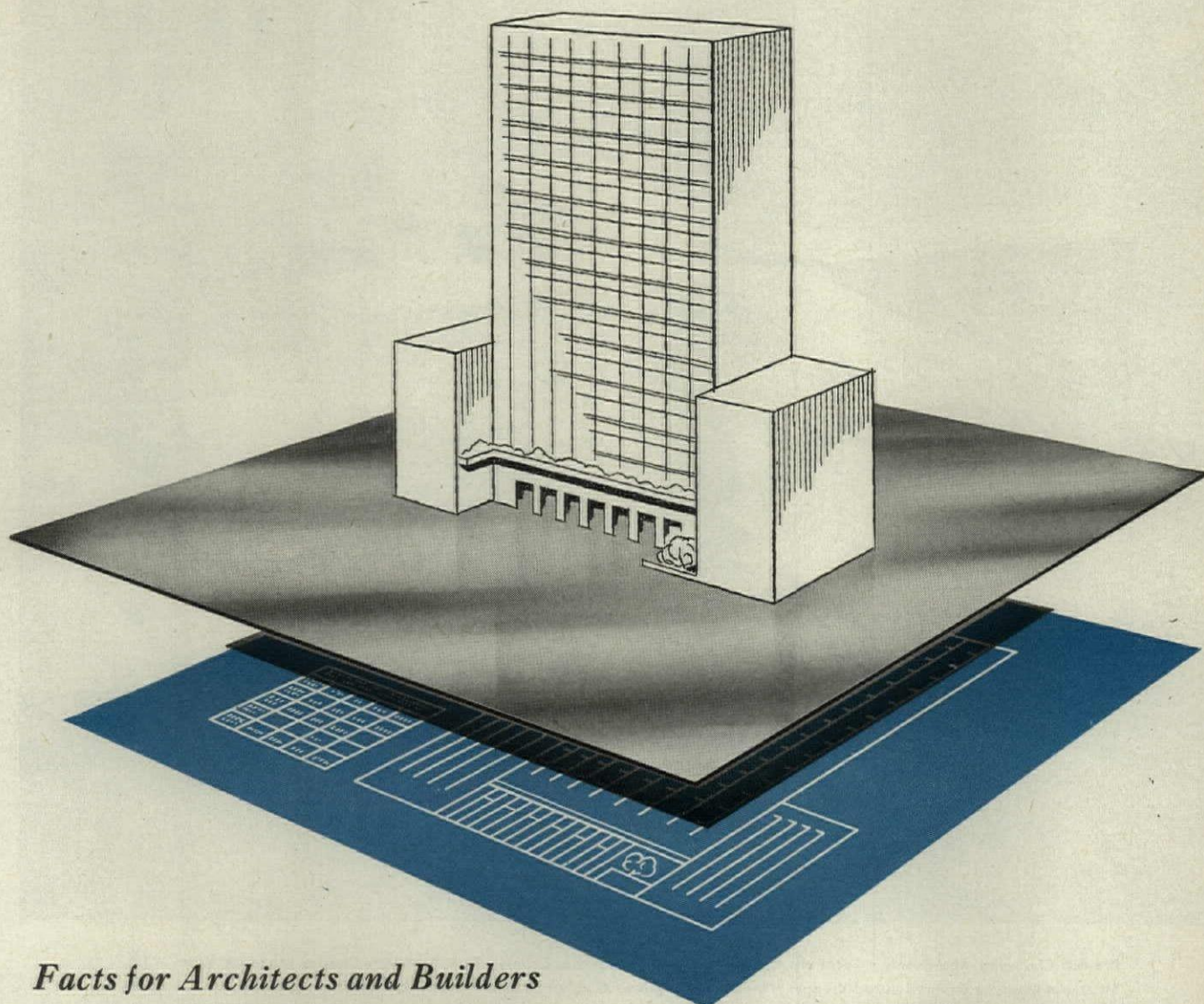
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Facts for Architects and Builders

about the profitable use of STAINLESS STEEL

Considered from the practical point of view, stainless steel is often the best, most economical material you can choose. For example:

Exteriors of stainless steel cut building weight by many tons. A .037" stainless wall weighs only 1½-pounds per square foot, compared to 48-pounds for a 4" brick exterior wall. That means you can design for less expensive foundations. And stainless means more rentable floor space . . . good insulation . . . fewer condensation problems.

Hardware, trim, railings and other parts that must take hard use, stay bright and new-looking indefinitely when they're made of stainless. Replacement and maintenance costs are greatly reduced.

Corrosion-Resistance of stainless presents an invisible armor against the attack of city atmospheres, smoke, rust or discoloration. Buildings keep the good looks you design into them . . . and, to your

clients, stainless is economically superior to other less durable metals.

Maintenance costs take a dive when stainless is used. It never needs waterproofing, painting or refacing as most other materials do.

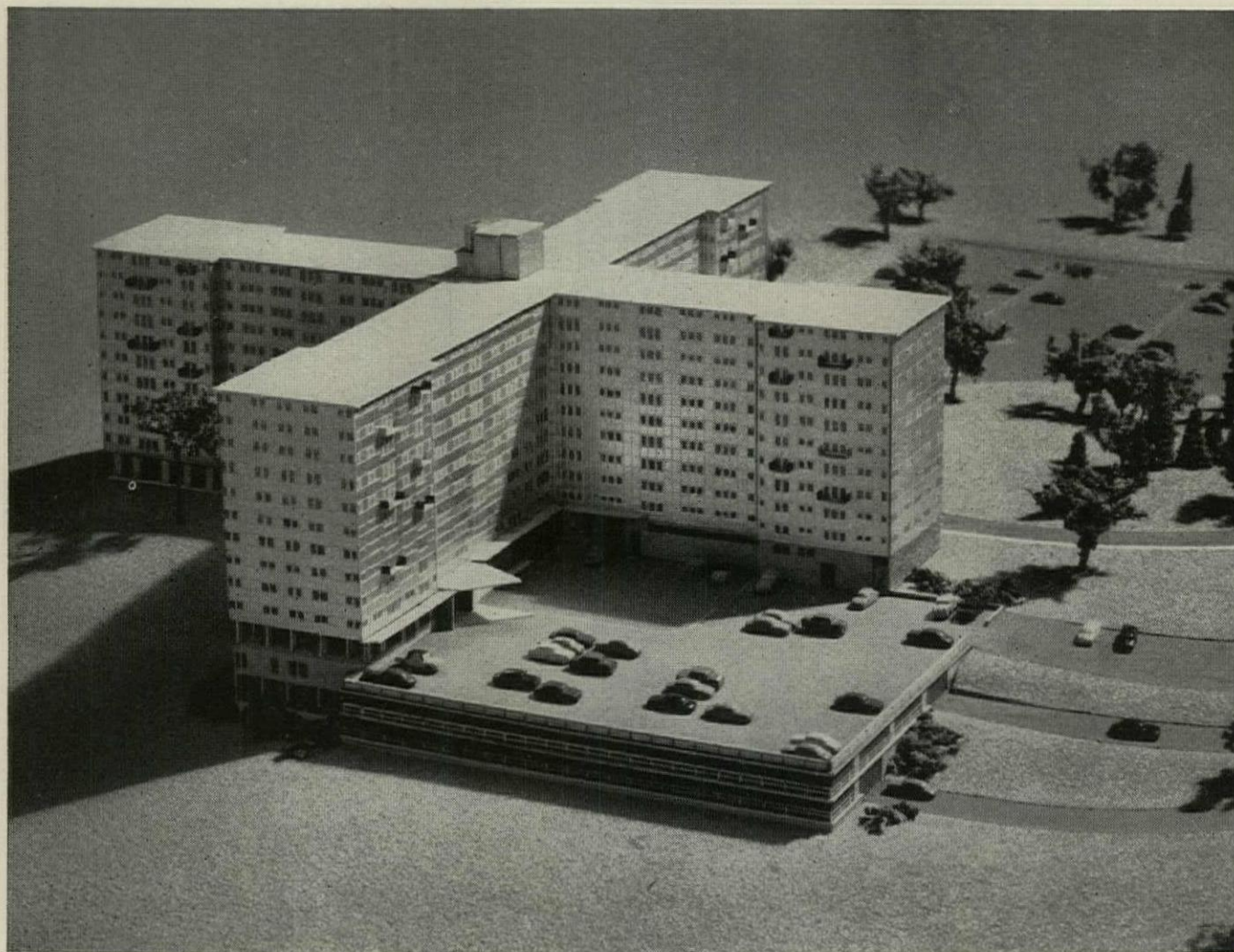
Installation of stainless presents no problem. Most bending, forming, trimming, drilling or surface finishing can be done in the shop . . . leaving only erection, final cleaning and inspection to be done on the site.

As a leading producer of stainless steels, Crucible is working closely with leading architects in developing new ways of employing stainless. Some of the results are available in a booklet called, "A Guide to Future Uses of Stainless Steel in Architecture and Building." Write now for your free copy. *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 22, Pa.*

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Project: Chetwynd Apartments • **Location:** Radnor Township, Delaware County, Pa. • **Architect:** Charles Frederick Wise, A.I.A. • **Structural Engineer:** Severud-Elstad-Krueger • **Mechanical Engineer:** Ginzburg & Smith • **Contractor:** Rosemont Construction Company
Height of Building: 10 apartment floors and lobby • **Number of apartments:** 320, 32 per floor • **Other facilities:** Garage for 160 cars, restaurant, and cocktail lounge • **Floor area:** 31,730 sq. ft. per floor

Aluminum Alodized with Architectural Alodine® reduces glare, has excellent color retention

The specifications for this apartment building of all-aluminum skin were subject to F.H.A. approval

This apartment building is the first F.H.A. project with an all-aluminum skin. In fact, it is the first apartment building of such magnitude in the history of construction to be so designed. Why did the architect specify Alodizing? Because Alodizing with Architectural Alodine—a revolutionary chemical conversion process developed by ACP—prevents corrosion by forming an amorphous phosphate surface on aluminum, and because it is economical to apply. Alodized aluminum has a two-fold basic advantage: it reduces glare by 30% or more, and has excellent color retention.

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Effective date of the
**NEW WEST COAST
 GRADING RULES**
 RULES NO. 15
 will be
**MARCH 15
 1956**

Boards, Dimension and Timbers of Douglas fir, West Coast hemlock, Western red cedar and Sitka spruce will have new grade names instead of numbers beginning March 15, 1956.

NO. 1 . becomes **CONSTRUCTION**



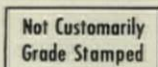
NO. 2 becomes **STANDARD**



NO. 3 becomes **UTILITY**



NO. 4 becomes **ECONOMY**



There is no change in the identification of Select Merchantable Boards, Select Structural Dimension and Timbers, or vertical grain Clears.

The top grade of flat grain Clears becomes **C&Btr.**



Your free copy of the new grading rules will be mailed to you soon after February 1. Watch for it.

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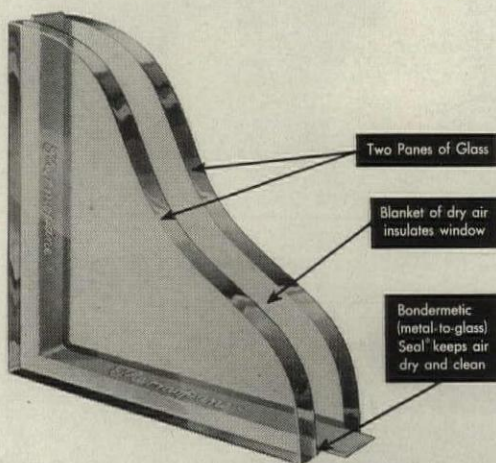
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When an architect designs an office for his own use, you can bet he'll be wanting Daylight Walls . . . that he'll be thinking about future comfort and quietness . . . and that he'll have a sharp eye on operating costs for heating and cooling.

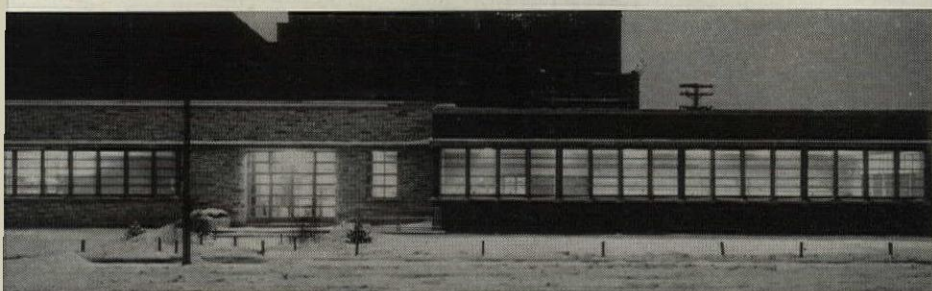
No wonder, then, that so many of the finest installations of *Thermopane** insulating glass are in architects' own offices.

Think what *Thermopane* does to make a building a joy to live, study or work in. Figure out its savings in operating costs. It adds up to a good thing for yourself and for your clients, as well.

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Much technical data is available to help the architect and engineer design for most effective and most economical use of *Thermopane*. This data is thoroughly presented in our *Thermopane Manual*, which will be sent on request. (See coupon below.)

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1. Savings in fuel
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INSULATING EFFICIENCY

Thermopane with $\frac{1}{4}$ " air space— $U = .65$

Thermopane with $\frac{1}{2}$ " air space— $U = .58$

—as compared with 1.15 for single glass.

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Thermopane may be made with sheet glass for economy, in units $\frac{1}{2}$ " thick, or in plate glass for the ultimate in clarity. Units with $\frac{1}{8}$ " plate are $\frac{1}{2}$ " thick; units with $\frac{1}{4}$ " plate are 1" thick. *Thermopane* can also be made with Heat Absorbing Glass, *Tuf-flex** tempered plate glass, or several types of Blue Ridge Patterned Glass.

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More than 90 standard sizes are made to permit economy in use with most popular types of sash. The *Thermopane Manual* provides a list of sash types and standard sizes for them.

OTHER DATA IN THERMOPANE MANUAL

Heat Loss Data
Warm Side Surface Temperatures
Condensation Points
Sound Insulation
Light and Solar Radiation Transmittance
Reduction of Cooling Load
Strength of *Thermopane*
Wind Load
Weight per sq. ft.
Glazing Instructions
Framing details
Suggested specifications

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These doors are built to handle the increased traffic they pull in. Made of tempered plate glass, they are 3 to 5 times stronger than regular plate glass of the same thickness. They are available $\frac{1}{2}$ " or $\frac{3}{4}$ " thick.

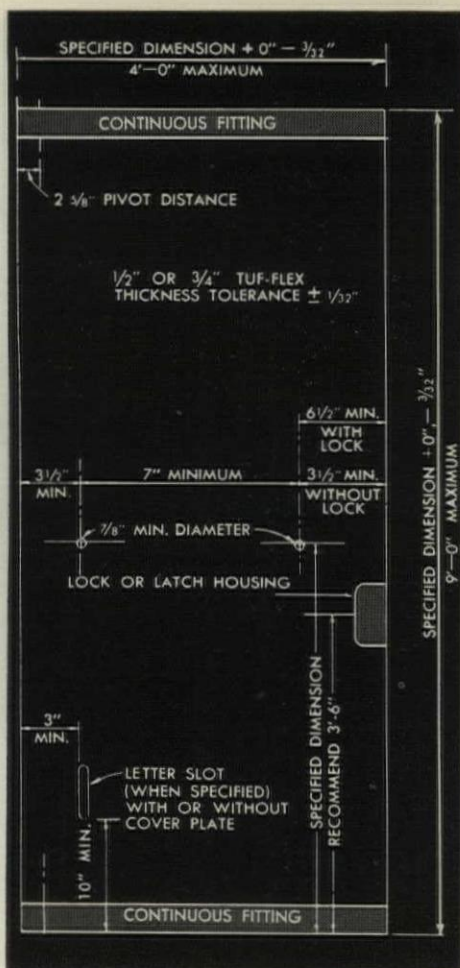
For further information, read the column at the right.

To order, call your Libbey-Owens-Ford Glass Distributor or Dealer.



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TUF-FLEX DOOR FACTS

Here is a typical *Tuf-flex* Door showing design limitations and hardware.

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30" x 84"	29 ¹³ / ₁₆ " x 83 ¹¹ / ₁₆ "	29 ¹³ / ₁₆ " x 83 ³ / ₁₆ "
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BOOKS

STUDIES IN THE FUNCTIONS AND DESIGN OF HOSPITALS. Report of a team sponsored by the Nuffield Provincial Hospitals Trust and the University of Bristol. Oxford University Press, 16-00 Pollitt Dr., Fairlawn, N.J. 12¹/₄" x 9³/₄" 185 pp. Illus. \$15

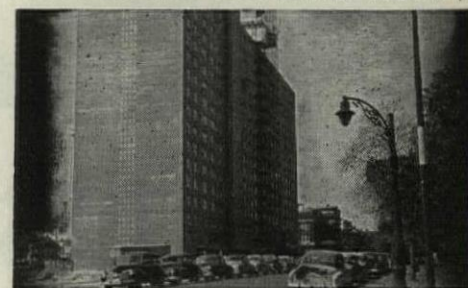
Probably the only people who will take the trouble to digest this British report will be those who are interested in hospitals. If so, more's the pity, for along with being a fascinating collection of findings and experiments on hospitals and their design, this book happens to be a remarkable treatise on architectural research, a field which desperately needs such clarification. The Nuffield project team, headed by Architect Richard Llewelyn Davies, began by thinking out precisely what research could contribute and why. Their general approach has already been reported in *FORUM* (Dec. '54). The reader who now conscientiously follows the team's research accounts in detail and who notes appreciatively how findings and experiments are presented, will gain an understanding of the possibilities and limitations of architectural research that can be applied to other building types. (Even though the reader does not have the funds of a foundation at his disposal, a sense of research direction—including a skeptical attitude about things he is told in the name of research—will do no harm.) Nor is this dead research. It has already been applied to buildings, and the results are presented.

One of the chapters which will jolt hospital people is "The Outpatient Service." This chapter is also a beautiful demonstration of the totally different results sometimes obtained by objective research (noting down factual measurements, events, etc.) and subjective research (asking people how things work out). Doctors and clinic administrators almost universally believe that unless the physician has at least a couple of examining rooms at his disposal (sometimes plus dressing cubicles) he will be stuck with idle time while patients are preparing for examination. The charts of just how doctors and patients spend their time in the usual clinic arrangement of two examining rooms per consulting room are alarming. The patients spend most of the time sitting around undressed, commonly are immobilized in the clinic for an hour to get ten minutes' medical attention; the doctor is busy all right, hopping around like crazy. Now what happens if the doctor has at his disposal only a consulting room or a consulting room with single examining room (and no dressing cubicles in either case)? Surprise. He keeps just as busy, sees just as many patients, manages it in more orderly fashion, and the patient's clinic-sitting is spectacularly reduced. The tables, charts and descriptive accounts of how the doctors spent every minute are so detailed

continued on p. 196

ONE COAT PLASTERING MADE EASY WITH PLASTER-WELD®

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JOB-PROVED BONDING AGENT



Midway Gardens Apts., Chicago. One of hundreds of successful Plaster-Weld installations. In this case, Plaster-Weld was used to permanently bond lime-putty coat directly to all concrete ceilings and columns. Archts.: Holabird, Root & Burgee & Associates; Genl. Contr.: S. N. Nielsen Co.; Plstg. Contr.: McNulty Brothers Company. Many other examples of Plaster-Weld applications gladly sent on request.

Plaster-Weld is the scientific resinous water-emulsion bonding agent which gives you a guaranteed method of permanently bonding Gypsum, Lime-Putty, Acoustical Plaster and Cements to themselves . . . or directly to any structurally sound surface including—

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Plastered walls and ceilings . . . Stippled
or textured walls . . . Painted or un-
painted surfaces . . . Brick . . . Stone . . .
Wood . . . Glass . . . Block . . . Metal
. . . Slabs . . . Ceramic Tile

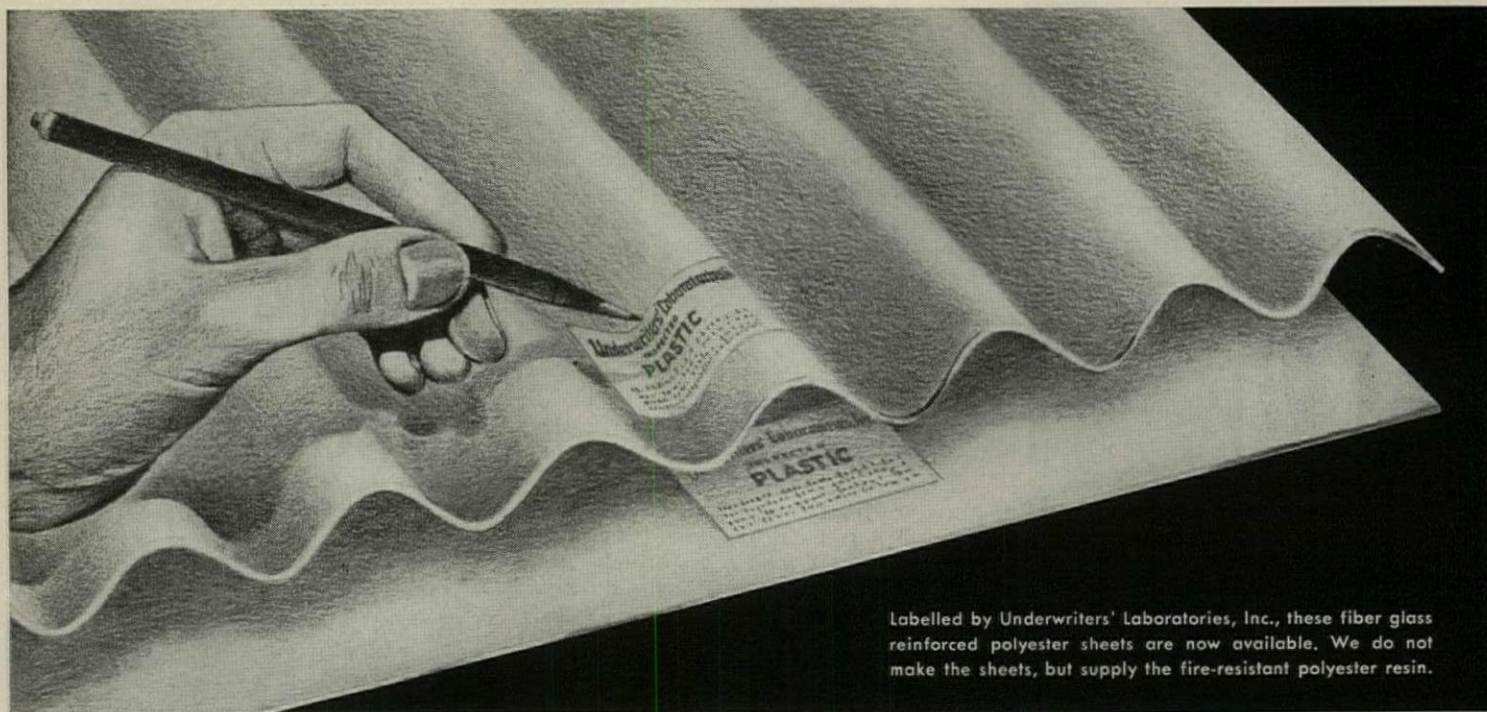
A PLASTER-WELD BOND NEVER LETS GO!

Plaster-Weld is applied with brush, roller, spray gun directly to most surfaces (old or new) without need for costly, time-consuming surface preparation. You cover with new material, as soon as touch dry (usually an hour) or several days later.

The bond you make is permanent, ageless . . . the bond itself is much stronger than the material being bonded. Equal bonding permanence all climates, all types of surfaces, all sorts of conditions.

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It gives you *fire-resistant* polyester windows, skylights, roofs, and partitions. It costs less to install than conventional windows, because it goes on in big sheets, without special framing or calking. It lets diffused daylight in, reducing the need for artificial lighting. It cuts window maintenance, because it *won't shatter*—and it will last for years.

Light stabilized HETRON resins now make it possible for you to obtain these panels with a high degree of weathering resistance.

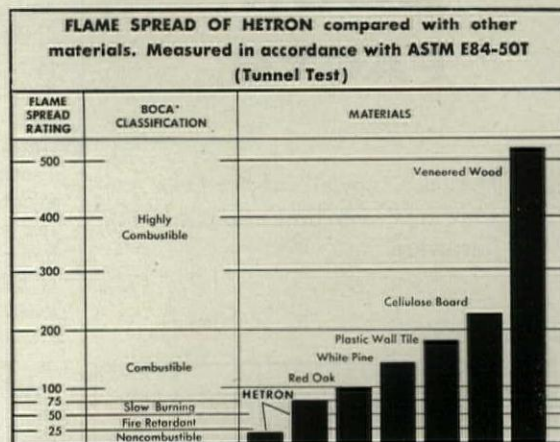
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called "Fire-Snuf," manufactured by Resolite Corp., Zelienople, Pa. It comes to you with a *specific flame spread rating*. It is listed and labelled by Underwriters' Laboratories.

Sheet like this, made of HETRON resin, will burn only when a hot flame is directly applied to it. It "snuffs out" as soon as the flame source is removed.

It tests well within the range of "fire-retardant" and "slow burning" material classifications, as established by Building Officials Conference of America. These classifications form the basis for many building codes.

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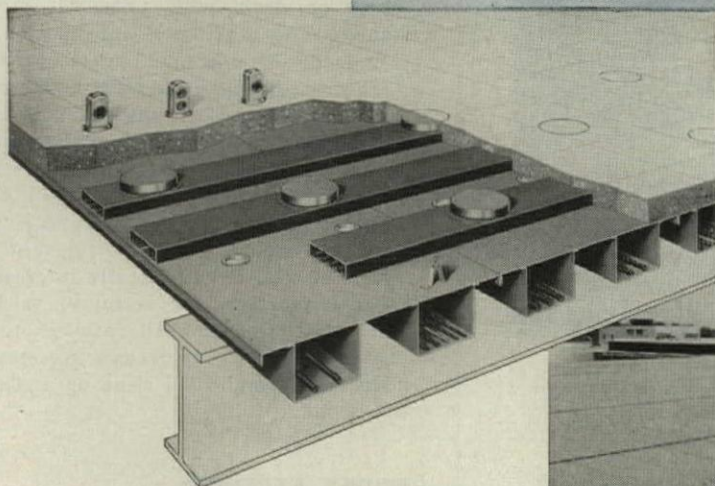


5-1755

M-FLOORS

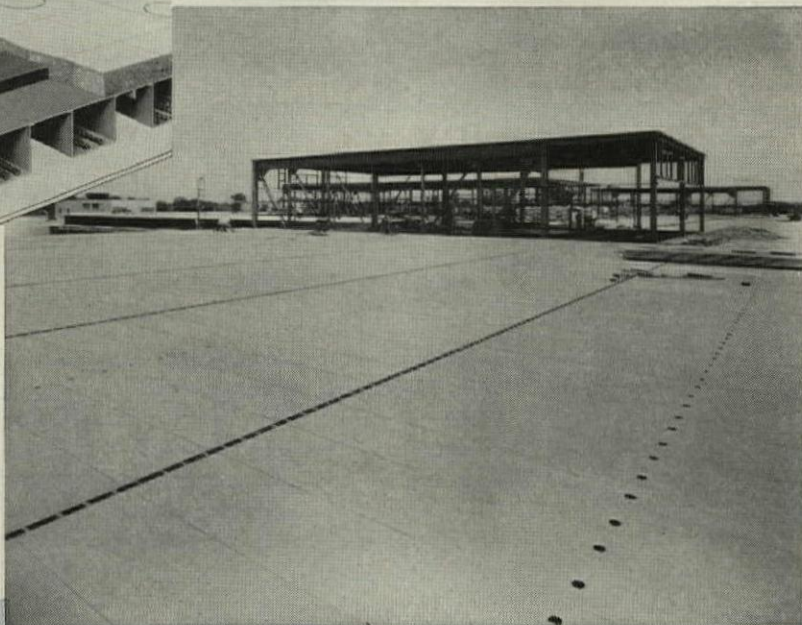
and LONG SPAN

M-DECKS



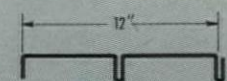
MAHON M-FLOOR

Cellular Steel Structural Sub-Floor constructed with Mahon M-Floor Cel-Beam Section M2. When energized with an electrical distribution system, Cel-Beams are utilized as continuous electrical raceways. In addition, M-Floors have an unusually high strength to weight ratio which, coupled with rapid erection, produces many cumulative and far-reaching economies in both construction time and cost.

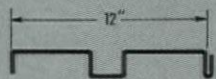


M-Deck Roof Construction. Mahon Long Span M-Deck Sections can be furnished with one, two or three Cel-Beams in various Beam Depths from 1 1/2" to 7 1/2" for Spans up to 32 feet.

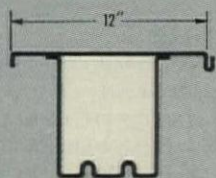
MAHON STEEL DECK and LONG SPAN M-DECK SECTIONS



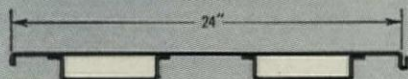
STANDARD DOUBLE RIB



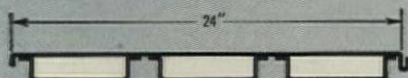
WIDE-FLANGE DOUBLE RIB



LONG SPAN M-DECK
SECTION M1-G



LONG SPAN M-DECK
SECTION M2-A



LONG SPAN M-DECK
SECTION M3-A

New Structural Sections Make Cellular Sub-Floor, Roof, or Combination Roof and Acoustical Ceiling!

Mahon M-Floor Sections and Long Span M-Deck Sections provide designers with a wide range of structural units which have literally dozens of uses in modern construction. In addition to their use in cellular steel structural sub-floors, known as M-Floors, in which the Cel-Beams provide continuous electrical raceways under every square foot of floor surface, these versatile Cel-Beam Sections are used extensively as decking in roof construction. Mahon Long Span M-Deck Sections can be produced with deep Cel-Beam Members to span from truss to truss . . . they can be produced with bottom metal perforated and sound absorbing material inside the Cel-Beams to provide a highly effective acoustical ceiling—in which case, the M-Deck Section serves as the structural unit, the interior finish material and the acoustical treatment all wrapped up in one package. This is the ultimate in economical construction of combination roofs and acoustical ceilings . . . it is permanent, incombustible, indestructible construction which will require no maintenance other than normal decorative painting. For complete information, including engineering data and specifications, see Sweet's 1956 Files, or write for Catalog M-56.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

Sales-Engineering Offices in Detroit, New York and Chicago • Representatives in Principal Cities

Manufacturers of M-Floors and Long Span M-Decks; Steel Deck for Roofs, Partitions and Walls; Permanent Concrete Floor Forms; Insulated Metal Walls and Wall Panels; Rolling Steel Doors, Grilles and Underwriters' Labeled Automatic Rolling Steel Fire Doors and Fire Shutters.

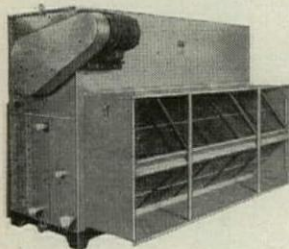
MAHON

**There's no "or Equal"
when you select...**

BUSH Air Conditioning Units

EXCLUSIVE INNER-FIN DESIGN ...

THE INDUSTRY'S MOST COMPLETE LINE

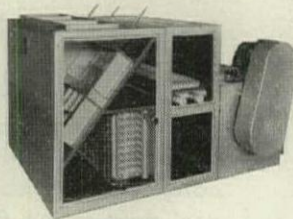


'AH' AIR HANDLING UNITS

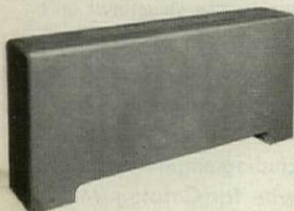
Available in 12 models from 800 CFM to 28,800 CFM. Floor-standing vertical and ceiling-hung horizontal models with direct expansion, water or steam coils. Face and by-pass damper sections, mixing boxes, spray type humidifiers and filter sections available for all units. Models AH-10 through AH-32 available with *Inner-Fin* coils.

'MZ' MULTIZONE UNITS

Available in 9 sizes covering a range from 2,560 CFM to 28,800 CFM, Multizone Units parallel the standard Bush HAH Air Handling units, using the same proven blower sections and accessories such as filter sections and mixing boxes. Zone dividers may be arranged as desired — vertical, horizontal or a combination of both. Entire interior is well insulated and undercoated. Units can be shipped sectionally when this is desired to facilitate installation.



'CR' REMOTE AIR CONDITIONING UNITS



Provide quiet, economical year 'round air conditioning for all types of multi-room buildings. Units are available in vertical floor and horizontal ceiling models . . . feature individual room control . . . are easily incorporated in new or existing buildings.

Request Catalogs containing complete specifications on units shown.



BUSH MANUFACTURING CO.

WEST HARTFORD 10, CONNECTICUT • RIVERSIDE, CALIFORNIA

BOOKS *cont'd.*

and deal specifically with so many different clinic services that it is impossible to believe the investigators misled themselves or dealt with untypical circumstances. The bearing of information like this on design and planning is obvious.

The report also deals with nursing and surgical facilities, natural and artificial lighting, color, sound, heating and ventilating, fire protection, and planning to meet demand. In a few (but very few) cases, differences between American and English practice make findings irrelevant for American use. Even these are interesting; it is instructive, for instance, to learn what the lower English ratio of operating rooms per beds means in terms of added and complicated clean-up and anesthesia facilities.

BOOKS RECEIVED

SUBURBANIZATION OF SERVICE INDUSTRIES WITHIN STANDARD METROPOLITAN AREAS. By Raymond P. Cuzzort. Published jointly by Scripps Foundation for Research in Population Problems, Miami University, Oxford, Ohio, and Population Research and Training Center, University of Chicago. 71 pp. 8½" x 11". Illus. \$1.05

SUBURBANIZATION OF MANUFACTURING ACTIVITY WITHIN STANDARD METROPOLITAN AREAS. By Evelyn M. Kitagawa and Donald J. Bogue. Published jointly by Scripps Foundation for Research in Population Problems, Miami University, Oxford, Ohio, and Population Research and Training Center, University of Chicago. 162 pp. 8½" x 11". Illus. \$1.80

ARCHITECTS' WORKING DETAILS, Vol. II. Edited by D. A. C. A. Boyne. Published by Architectural Press, London, England. Distributed by Frederick A. Praeger, 105 W. 40th St., New York 18, N.Y. 160 pp. 8¾" x 12". Illus. \$5

EUROPEAN ARCHITECTURE IN THE TWENTIETH CENTURY, 1924-1933, Vol. II. By Arnold Whittick. Published in England for Philosophical Library Inc., 15 E. 40th St., New York 16, N.Y. 271 pp. 7½" x 10". Illus. \$10

LAND USES IN AMERICAN CITIES. By Harland Bartholomew. Published by Harvard University Press, Cambridge, Mass. 196 pp. 7" x 10¼". Illus. \$6.50

ROME BEYOND THE IMPERIAL FRONTIERS. By Sir Mortimer Wheeler. Published in England for Philosophical Library, Inc., 15 E. 40th St., New York 16, N.Y. 192 pp. 5¾" x 8¾". Illus. \$7.50

AMERICAN PLANNING AND CIVIC ANNUAL. Edited by Harlean James. Published by American Planning & Civic Assn., 901 Union Trust building, Washington, D.C. 208 pp. 6" x 9¼". Illus. \$2 (members). \$3 (nonmembers)



Miss Foster finds an outlet!

But as handy as she is, Miss Foster's ingenuity isn't the answer to her boss's old-fashioned wiring headaches.

Perhaps our Miss Foster's problem is exaggerated, but it is a known fact that many wiring installations in commercial buildings are being made obsolete by modern electrical demands. If you're planning or building offices, you'll want to avoid the kind of wiring that leads to lack of electrical convenience and limited use of floor space. You can't crowd desks around wall outlets and it just isn't practical to have dangerous and unsightly exposed wires and raceways running across floors.

The best answer to sound electrical planning and to Miss Foster's problem is General Electric Q-Floor wiring, the system that makes every square foot of floor space available for outlets. It's the underfloor wiring system that provides outlets for typewriters, dictating machines, calculators, telephones, intercoms, lighting, and other electrically operated equipment wherever you want them—now, or at any time in the future.

General Electric's Q-Floor wiring system is designed for in-

stallation with cellular steel subflooring. Every cell is a raceway. This means that every six-inch area of the floor is a potential location for an outlet. Electrical changes can be made easily. No costly alterations, no litter, no tie-up of space, no matter how often or how much your electrical requirements change.

Thousands of cellular steel underfloor wiring installations, all of which are still electrically up-to-date, have given General Electric specialists years of experience in handling electrical planning. These specialists have the "know-how" to help you select and apply the best system for your particular needs.

For more information on G-E Q-Floor wiring or about other General Electric underfloor systems—Fiberduct wiring or the new two-level steel underfloor wiring system—call your G-E Construction Materials District Office, or write to Section C58-24, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

STEELCASE CONVERTIBLES . . . for school—college—university offices



Typical administrative arrangement. Convertible filing—storage cabinets (left) instantly accessible. Convertible top provides extra working top surface. "Free movement" design eliminates bulky leg obstructions.

Beauty plus efficiency. Ideal Convertible setting for receptionist or secretary. Additional cabinets can be quickly and easily positioned beneath Convertible top (left). Wide variety of top and desk sizes available.

Just as flexibility is the keynote in modern school-building design, so has it been in the creation of Steelcase office Convertibles . . . fine office furniture designed and produced to allow school offices to grow *with* expansion programs—not *ahead* of them.

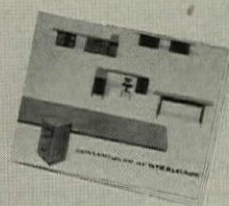
Steelcase Convertibles are particularly effective for student counseling rooms, professors' and librarians' offices . . . in fact wherever it is necessary to make maximum and multiple usage of every available inch of office floor space.

Whether your clients' future office expansion plans are extensive or moderate, it will be to your advantage to find out how Steelcase Convertibles . . . coupled with a broad line of Steelcase desks, chairs and filing cabinets . . . can efficiently and economically fulfill every need.



May we help?

Our complete Office Planning Layout Service can relieve you of many details surrounding proper office furniture layout. Merely write Department K. Also available . . . a factual, beautifully illustrated catalog . . . just ask for "Convertibles by Steelcase."



For over 40 years Steelcase furniture has successfully served the very finest names in industry, education, business and commerce.

STEELCASE INC

GRAND RAPIDS, MICHIGAN

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They do it with WELDWOOD® FLEXWOOD®



Altman Galleries,
Metropolitan Museum of Art, N. Y.



Munsingwear, Inc.,
Architect: von der
Lancken, Lundquist
& Sorenson



Emigrant Industrial
Savings Bank, Archi-
tect: Halsey, Mc-
Cormick & Helmer

Wood . . . richly grained wood . . . is the ultimate for a beautiful wall. With new, improved Weldwood Flexwood you can easily achieve this beauty, not only on flat walls, but on curved walls or even on columns . . . often in a matter of hours.

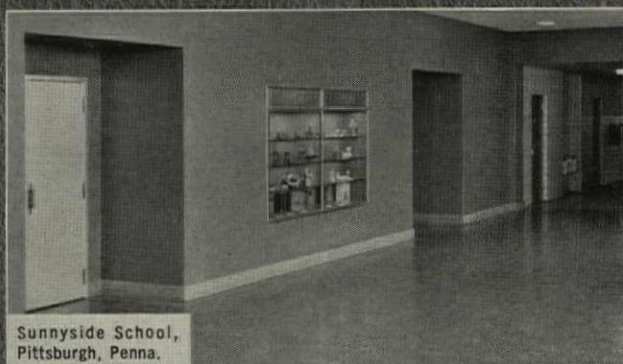
Because Weldwood Flexwood is *flexible*. It goes up easily . . . gives years of service with very little care . . . provides the natural beauty to be found only in the magnificent matched grain effects possible with real wood.

There is nothing like it to give impressive distinction to living rooms, private offices, showrooms, institutional interiors, public buildings, banks, etc. It is ideal for both new construction or alteration projects.

You can choose from 40 exotic and more familiar woods, and from architectural and random grades, of Weldwood Flexwood. Flexwood meets all fire code requirements, and every installation is guaranteed. For further information, send coupon below.

-and they do it with KALISTRON®

(ANOTHER WELDWOOD PRODUCT)



Sunnyside School,
Pittsburgh, Penna.

It's beautiful, yet it's tough — really tough. That's why Kalistron is so widely specified for walls in schools, hospitals, hotels, restaurants. Kalistron is surfaced with transparent Krene.® Seen through this "window," the color, fused to the underside, takes on 3rd dimensional beauty. Kalistron is virtually impervious to scratches, scuffs, stains, cleans with a damp cloth in seconds. Available in 33 decorator colors — and in matching upholstery grades.

Mail this coupon to "Wall Center, U. S. A." →

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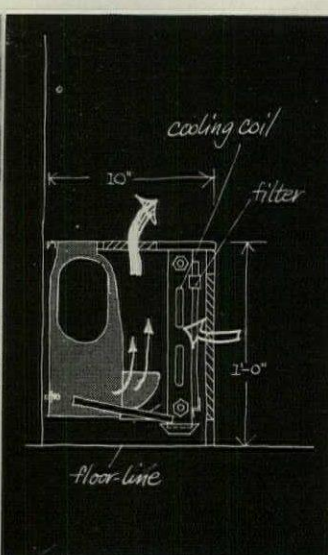
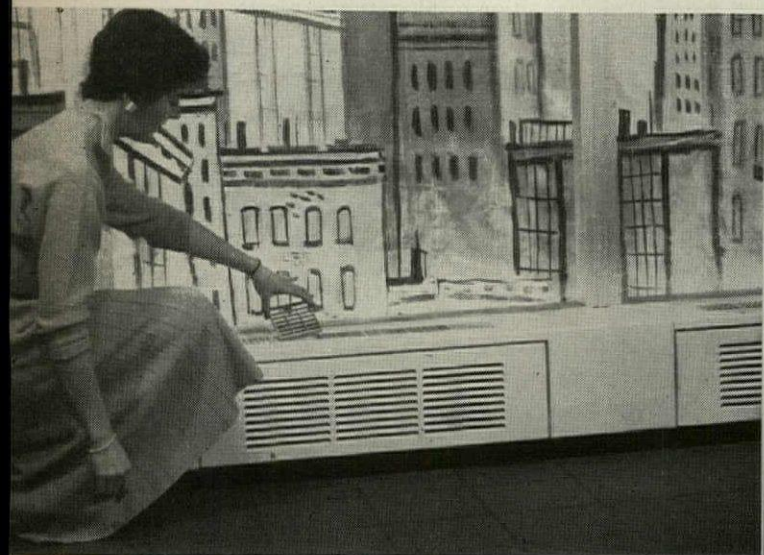
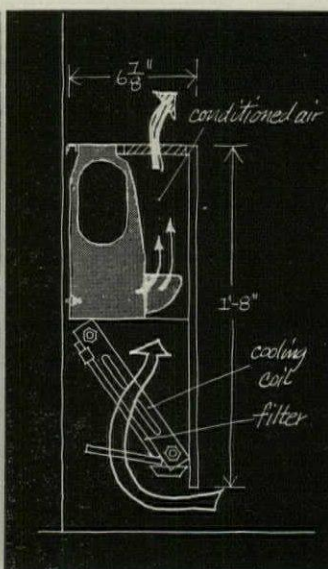
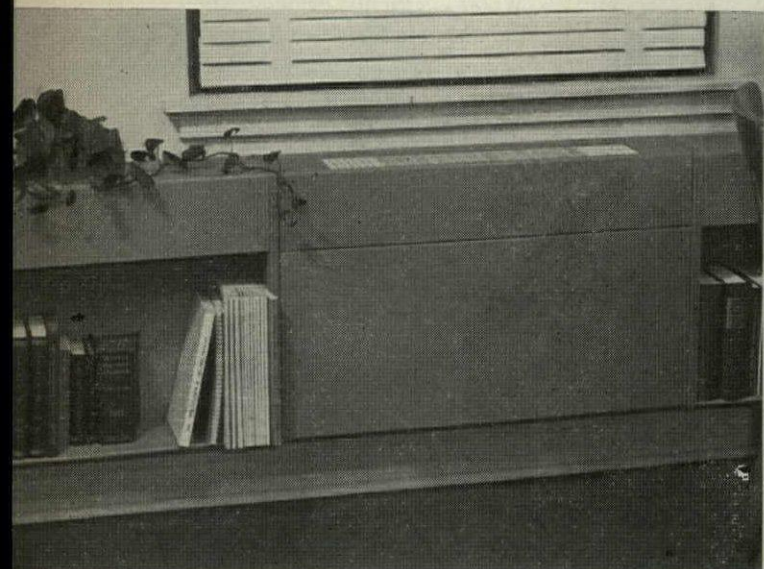
Please send me additional information on
☐ Weldwood Flexwood ☐ Kalistron

NAME _____

ADDRESS _____

CITY _____ STATE _____

PRODUCTS

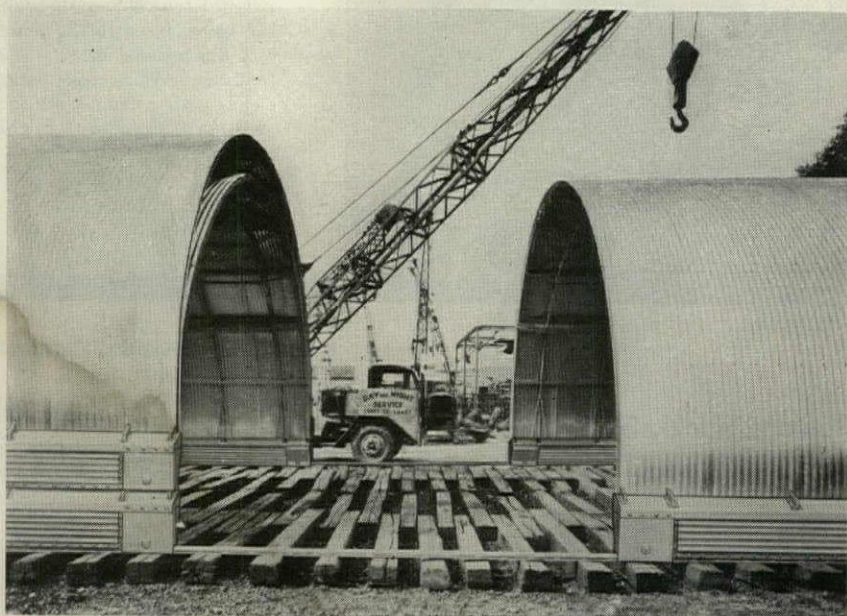


CONDUIT CONDITIONING SYSTEM hugs walls with modular cabinets

Stacking together around the periphery of a building, these compact 3'-long room conditioners make Carrier's *Modular Weathermaster* adaptable to almost any kind of building—from older masonry structures up to the newest glass-wall genus. Neither the wall-suspended cabinet (installable in older buildings without moving baseboards and electrical outlets) or the neat 1'-high floor model (photos left) needs to be furred in. Nor do they require cut-throughs in the outside wall; both are fed centrally conditioned primary air at high velocity through conduits. The system calls for no bulky ductwork, an especially welcome feature in renovation work. Modifications to different room dimensions can be made on floor-type units by cutting cover plates between the cabinets with a tin-snips, and in the wall units by paring down the metal shelves and bookcases that fit alongside. In operation, each cabinet type receives conditioned air in its own plenum where noises are attenuated. This primary air passes quietly through plastic ejector nozzles and the air streams induce a large quantity of room air to enter the cabinet (either at bottom or front) and pass over the water coil (which receives heated or chilled water from a central source). The conditioned mixture is then discharged into the room through four-way adjustable grilles at the top. While it combines primary and recirculated air, the *Weathermaster* system is said to compensate for varying Btu loads caused by the sun, electric lights and people without changing such comfort factors as ventilation, humidity and sound levels. Three methods for controlling individual room units are available: pneumatic, self-contained or manual.

For hotel installations, each unit may be equipped to allow a room occupant to shut off the air supply without affecting other units on the same circuit.

Manufacturer: Carrier Corp., Syracuse 2, N.Y.



OUTDOOR SHELTERS can be moved around by cranes and trucks

While construction contractors are getting the hang of new industrial materials handling equipment, the Yard Stor Shelter Co. has already taken the next step and engineered storage buildings that can be lifted, tilted and shifted by the same cranes and trucks as the materials they store. The sectional storage shelters of curved corrugated steel are made in several arrangements: The *Crane Stor* can be stacked and unstacked by crane; the *Slide-Away-Stor* slides apart and tilts for

continued on p. 204

NIBROC®

**cabinets and towels
bring efficiency,
convenience, fine
appearance to
new bank building**



Modern skyscraper office building of Republic National Bank of Dallas, Texas



Why did the Republic National Bank of Dallas choose Nibroc Recessed Combination Dispensers and Waste Receptacles—and Nibroc Towels—for the washrooms of its magnificent new building? To provide employees and customers alike the best in washroom service, to make towels convenient for users, to provide easily accessible receptacles, to save floor space, and to enhance washroom appearance.

First wet strength towel—and still the finest—Nibroc Towels are super-absorbent, strong, sanitary, soft textured. They speed washroom traffic . . . stop waste because *one* towel dries both hands.

Architects specify Nibroc Multifold Cabinets widely—they hold 50% more, require less servicing, cut maintenance costs. Available in 3 models—wall, floor, and recessed. Wall cabinets in durable white enamel (with or without mirror) and easy-to-clean chromium plate or stainless steel.

For utmost, trouble-free service, the new, improved recessed dispenser with waste receptacle loads faster, holds far more towels for heavy traffic. 22-gauge stainless steel in stunning design. Dispenser and waste receptacle come separately if desired for staggered installation.

Choose the best—Nibroc Towels and Cabinets! See "Nibroc" in your classified directory for name of your distributor, or write Dept. NU-2, our Boston office.

BROWN



COMPANY—Berlin, N. H.

General Sales Office: 150 Causeway St., Boston 14, Mass.

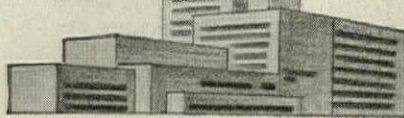
New Prudential Buildings Feature **QUIET**

with Acousti-Celotex Tile on Acousti-Line* Suspension System



*REG U.S. PAT. OFF.

Office in Jacksonville Prudential Building, showing typical Acousti-Celotex Sound Conditioning installation.



Prudential's South Central Home Office,
Jacksonville, Florida
Architects: Kemp, Bunch & Jackson.



Prudential's North Central Home Office,
Minneapolis, Minnesota
Architects: Magney, Tusler & Setter.

Acousti-Celotex Sound Conditioning installations in the Prudential Buildings are models of engineered effectiveness. More than 1,000,000 square feet of incombustible

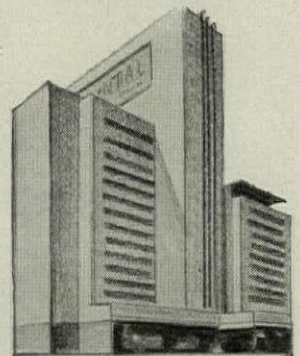
Acousti-Celotex Perforated Mineral Tile, Celotone Tile, and Acousteel metal pan were applied.

The Acousti-Line Suspension System, on which Acousti-Celotex Tile was installed, offers two additional functional benefits: Complete flexibility of ceiling units . . . tile, lights, air diffusers, etc. . . permits interchanging for unlimited variety of office layouts and arrangements.

And easy access is provided to above-ceiling areas for servicing of lights, wires, ducts, plumbing, other utilities.

This combination of beauty, functionalism, and acoustical efficiency represents modern sound

conditioning and ceiling design at their best . . . well in keeping with the most advanced architectural achievements.



Prudential's Southwestern Home Office, Houston, Texas
Architect: Kenneth Franzheim.

ACOUSTI-CELOTEX

REGISTERED

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Sound Conditioning



TRADE MARK

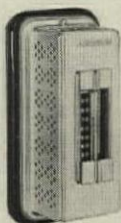
Products for Every Sound Conditioning Problem—The Celotex Corporation, 120 S. LaSalle St., Chicago 3, Illinois • In Canada: Dominion Sound Equipments, Ltd., Montreal, Quebec.

FOR FULL DETAILS on the complete line of Acousti-Celotex products, please write to the Celotex Corporation, Dept. A-26, 120 S. LaSalle Street, Chicago 3, Illinois, or consult Sweet's Catalog Service.

Ideal Temperatures, Low Fuel Costs for Georgia's "Dream School"



Southwest LaGrange School, LaGrange, Georgia.
Poundstone, Ayers & Godwin, architects, Atlanta;
Bracewell & Alderman, mechanical engineers, Atlanta;
Newman Construction Co., general contractor, LaGrange.



Community teamwork built this modern school. Citizens of LaGrange, Georgia, proudly call it "a dream come true." And justifiably so!

Meticulous planning is reflected in its superb facilities for teaching and learning. A highlight is the provision of ideal indoor temperatures. A specially planned system of Johnson Automatic Temperature Control regulates the heating and ventilating systems and provides refreshing, comfortable temperatures in each individual room.

Johnson Control eliminates heat waste and insures the maximum return for every fuel dollar—yet there is comfort unlimited!

A Johnson-engineered Control System can provide any building, small or large, with equally outstanding advantages in comfort and operating economy. An engineer from a nearby Johnson branch will gladly show you how. Johnson Service Company, Milwaukee 1, Wis. Direct Branch Offices in Principal Cities.

JOHNSON CONTROL

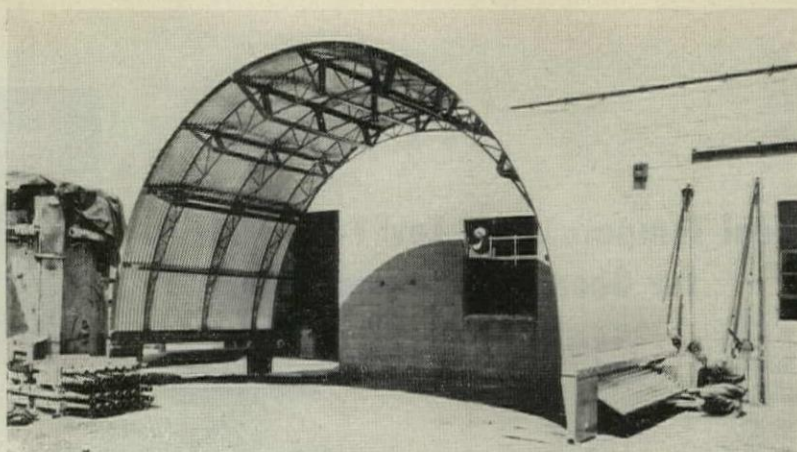
TEMPERATURE ↓ AIR CONDITIONING

PLANNING • MANUFACTURING • INSTALLING • SINCE 1885



PRODUCTS *cont'd.*

access by fork, straddle or dump truck. The *Roll-Away Stor* has swivel casters so that it can be pushed over heavy objects. The *Sta-Stor* comes on the job assembled and just stands still to serve as a field office, first aid station or field housing. Another, the *Open-Top-Roof* is designed as a liftable roof for new or existing industrial buildings to facilitate moving of heavy shop equipment with a mobile crane.



Two men can assemble the 8'-wide prefab welded panels and bolt them together. Easily replaceable double V rubber extrusions seal the panel joints. All *Yard Stor* units are sold and rented either fully assembled or with trusses, frames and corrugated covering knockdown.

Manufacturer: Yard Stor Shelter Co., 19,256 John R., Detroit 3, Mich.

BRICK OVEN combats mortar ooze in winter masonry work

Before the days of central heating, a brick warmer was a solid source of comfort stashed under blankets on cold nights. Today's *Brick Warmer* is designed to keep bricks themselves warm—and with good reason. On cold days mortar cannot set properly and often runs down the wall. The *Meyers Brick Warmer* offsets this in-



auspicious condition by keeping bricks comfortably toasted so that they will stay in place in their mortar bed in the coldest weather. Constructed of 14-ga. steel with welded joints and seams, the 8' long, 28" wide, 33"-high unit holds 160 bricks at a time and can handle 600 to 800 an hour. Heat is supplied by an oil-fired pressure burner (fuel consumption: 1 gal. per hour) and after the building is partly enclosed the Meyers unit serves as a space heater. It costs \$350 and is available with an accessory 15 gal. water heater for \$40 more.

Manufacturer: D. W. Meyers Mfg. Co., Seville, Ohio

continued on p. 210



Sacred Heart School, Royersford, Pa.
Architect: Louis C. Gambone
Contractor: John J. McDonnell, Inc.

Good design deserves . . .

MOUNT AIRY GRANITE ASHLAR

For beauty's sake include Mount Airy Granite Ashlar in your building plans. Here's a stone that weathers the test of time—rugged yet unmatched in beauty.

Exterior facing with Mount Airy Granite Ashlar actually enhances a building's value as much as 20%—at no more than 8% above average cost to build.

What's more—Mount Airy Granite Ashlar is cut to brick thickness in multiples of brick rises which means additional construction savings as less skilled labor can easily knap the sticks into required lengths and set in the wall.

If you want a building that stands out—never goes out of date—check the solid virtues of this distinctively different, light-in-color granite with its limitless design possibilities, plus its durable, maintenance-free characteristics.

Write us for complete details.

NORTH CAROLINA GRANITE CORPORATION
Mount Airy, North Carolina

modern
design
calls for
COOLITE



New Thomy Lafon Elementary School, New Orleans, La., Curtis & Davis, Architects; A & O Builders, General Contractors

**Mississippi Heat Absorbing, Glare Reducing Glass Brightens Classrooms
Without Excessive Solar Heat or Eye-Fatiguing "Raw" Sunlight**



The Thomy Lafon School, New Orleans, La., acknowledged to be an outstanding modern design, makes extensive use of Coolite, Heat Absorbing, Glare Reducing Glass. It's unique qualities fit the aim of the architects and engineers, Curtis & Davis, to obtain "the ultimate in scientific achievement for natural lighting... a truly functional architecture adapted to human values and physical needs." For Coolite floods classrooms with softened, glare-free light for easier seeing... absorbs up to 50% of the solar heat to help keep interiors comfortable.

Coolite removes the harmful qualities of "raw" sunlight... helps students see better, feel better, work better. Coolite permits use of large glass areas without undue heat... makes rooms appear larger, friendlier.

Consider Coolite for your classrooms when you build or remodel. Translucent glass by Mississippi for better daylight illumination is available in a wide variety of patterns and surface finishes to fit any daylighting need within any school budget.

Mississippi maintains an experimental school building on factory grounds for the study of daylighting. Take advantage of the company's wide experience. It's technicians are ready to help you with every daylighting problem.

MISSISSIPPI

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NEW YORK • CHICAGO



Glass COMPANY

SAINT LOUIS 7, MO.
FULLERTON, CALIFORNIA



Send today for catalog, "Better Daylighting For Schools." Write Dept. 6.

WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

why build to **BURN?**



KEYMESH

GALVANIZED REINFORCING LATH

*with gypsum lath and plaster
multiplies fire resistance of buildings*

Fire safety costs so little.

Actually, walls and ceilings of gypsum lath and plaster, reinforced with Keymesh, cost less than most substitutes. Just see how they *multiply* fire safety.

Take open-web steel joist floors and concrete slabs with gypsum ceilings, for example. With $\frac{1}{2}$ inch of lightweight aggregate plaster, reinforced with Keymesh-like lath, a fire endurance limit of 3 hours and 28 minutes was obtained.*

Without reinforcement, the limit was 55 minutes. *Keymesh* adds 2 hours and 33 minutes to the fire endurance limit because it holds the plaster in place. When lath and plaster were omitted,

the fire endurance limit was only 7 minutes.

You'll find equally important protection when simple columns and beams of buildings are protected in this same way. It's so good that insurance companies cut their rates because of the greater fire safety. Actually, these lower rates quickly pay the cost of the lath and plaster.

Think of it. Greater fire safety. Acoustical properties, if you wish. Durability. Low maintenance. Beauty. Takes any decoration. Yet... this fire safe construction costs less than most substitutes. And it can slash insurance rates enough to quickly pay for the plastering.

*Actual Fire Test Shows Amazing Value of Keymesh-Type Plaster Reinforcement**

Ceiling of gypsum lath — **KEYMESH**-type reinforcement and $\frac{1}{2}$ " gypsum plaster with lightweight aggregate

Fire endurance limit

3 hrs. 28 min.

Ceiling of gypsum lath and $\frac{1}{2}$ " lightweight aggregate gypsum plaster

55 min.

Ceiling unprotected

7 min.

*See Building Materials and Structures Report 141, National Bureau of Standards: "Fire Endurance of Open-Web Steel-Joist Floors with Concrete Slabs and Gypsum Ceilings"

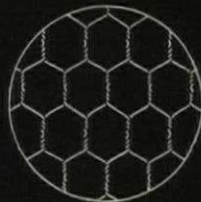
KEYSTONE STEEL & WIRE COMPANY

PEORIA 7, ILLINOIS

makers of Keymesh • Keybead • Keycorner • Keystone Welded Wire Fabric
Keystone Nails • Tie Wire • Keystone Non-Climbable and Ornamental Fence

Use these three keys to stronger plaster

3 KEYS TO STRONGER PLASTER



KEYMESH lath for over-all reinforcement. Made of galvanized woven wire. Especially recommended for ceiling construction.



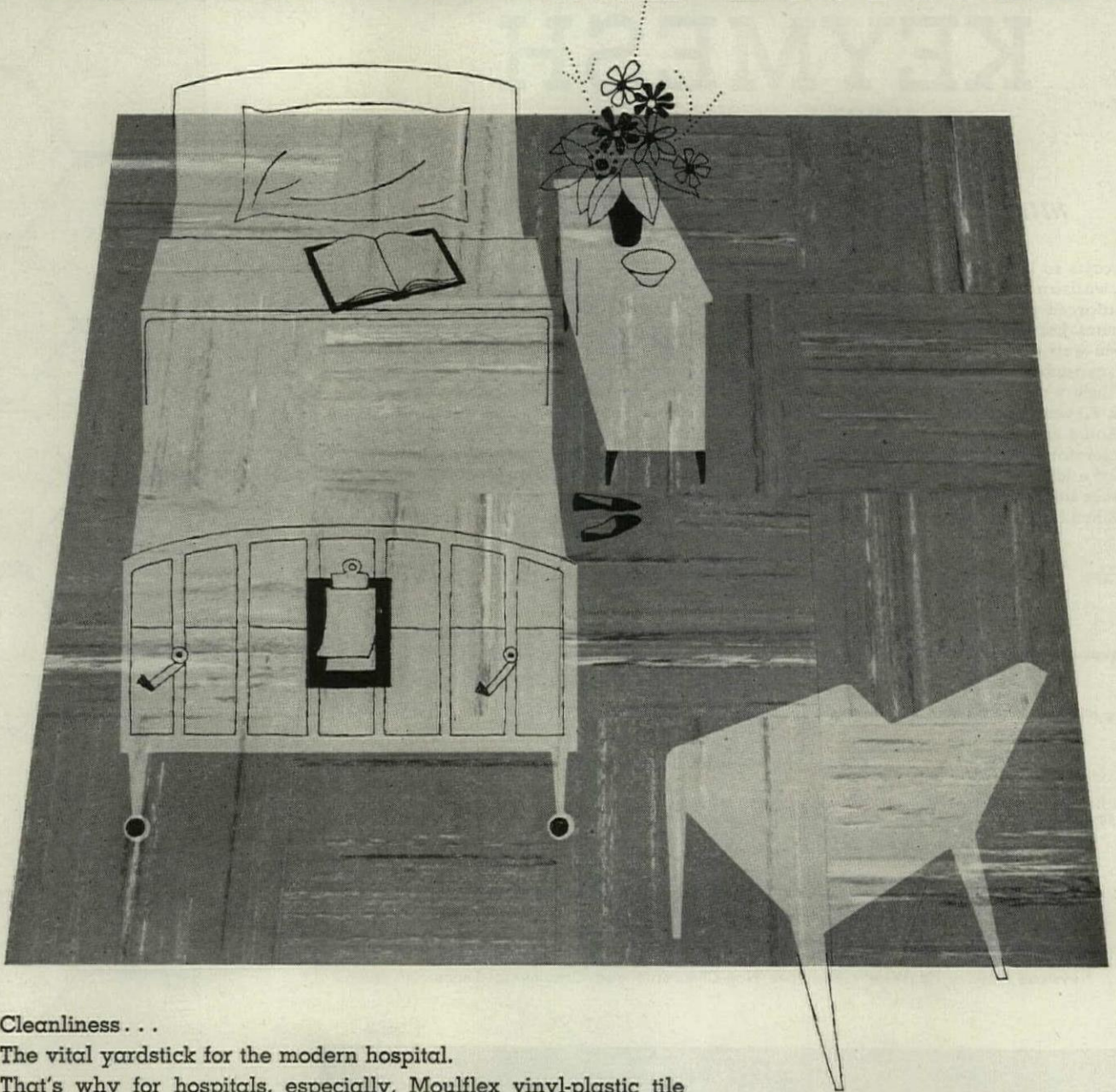
KEYCORNER strip lath, pre-formed to fit snugly in corners. Lies flat when applied to joints. Galvanized to prevent rust streaks.



KEYBEAD corner lath for outside corners. Open mesh fills solid with plaster. Galvanized nose, or solid zinc nose (Key Z Bead).

Moulflex TILE FLOORING

AND THE MODERN HOSPITAL



Cleanliness . . .

The vital yardstick for the modern hospital.

That's why for hospitals, especially, Moulflex vinyl-plastic tile flooring has so many unique advantages.

For Moulflex has an unusually dense, non-porous surface that sheds dirt, grease, acid and alkali miraculously . . . cleans easily with only damp mopping.

Cost? In standard gauge, Moulflex costs little more than grease-proof asphalt tile. Installation, of course, is fast, because precision-cut Moulflex is so easy to handle.

All these specific qualities . . . plus the fact that Moulflex can be used on, above or below grade . . . make it ideal for virtually all types of installations.

We would be happy to send you specification data.



MOULTILE INCORPORATED • Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.



Hospitals Demand Superior Facilities

ROCKFORD MEMORIAL HOSPITAL, ROCKFORD, ILLINOIS
ARCHITECTS: HUBBARD & HYLAND, ROCKFORD AND
PERKINS & WILL, CHICAGO.
CONSULTING ENGINEERS: E. R. GRITSCHKE, CHICAGO.
PLUMBING CONTRACTORS: ROCKFORD INDUSTRIES, ROCKFORD.

and **CLOW** I.P.S.* **CAST IRON PIPE** meets every need for lasting service

The modern 237-bed Rockford Memorial Hospital, at Rockford, Illinois, is typical of institutions dedicated to the safeguarding of community health. Nowhere is the demand for fast, sure elimination of waste more important than in hospitals and institutions set apart for the service of mankind.

In this new hospital, Clow I.P.S. threaded Cast Iron Pipe is used throughout for downspouts, drains, and waste lines. Corrosion-proof Clow I.P.S. Pipe assures long lasting, trouble-free service.

Clow I.P.S. threaded Cast Iron Pipe is constantly being specified by architects and engineers for downspouts, vent and waste lines. They know it will last the life of the building and will give lasting, dependable service. Plumbing contractors know installation is fast, economical and, once installed, eliminates maintenance costs. Clow I.P.S. Cast Iron Pipe is available in 18 foot random lengths; threaded, flanged, hub or plain end. Write today for complete information.

Clow Cast Iron Pipe can be . . .



on the job, with ordinary tools of the piping trade.

JAMES B. CLOW & SONS

201-299 North Talman Avenue • Chicago 80, Illinois



Manufacturers of Cast Iron Pipe
Wholesalers of Plumbing
and Heating Supplies

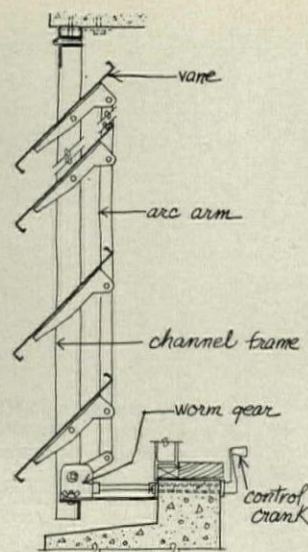
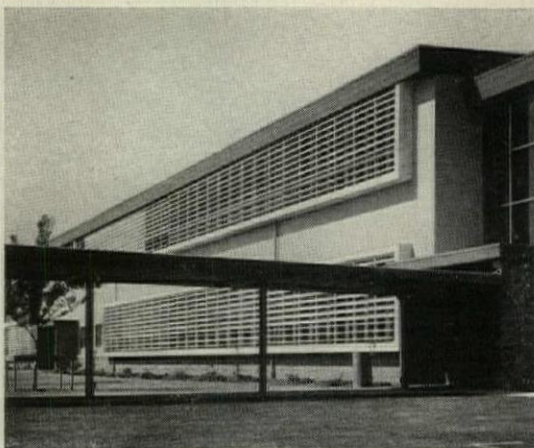
Clow I.P.S. threaded Cast Iron Pipe has same O.D. as steel pipe, is available with plain or threaded ends, in 3, 4, 5, 6, 8 and 10" sizes in 18' random lengths. Also available with integral calking hub on one end (other end plain) in 18' random lengths in 4, 6, and 8" sizes.

*Iron Pipe Size O.D.

PRODUCTS *cont'd.*

CONTROLLABLE JALOUSIES keep tabs on solar heat and daylight

Cognizant that more designers are calling for built-in sun control, Lemlar has expanded its exterior aluminum jalousie line to include adjustable and fixed louvers to solve every conceivable solar problem. Offering many units that can be integrated in the original building detailing as well as attach-on varieties, the Lemlar jalousies



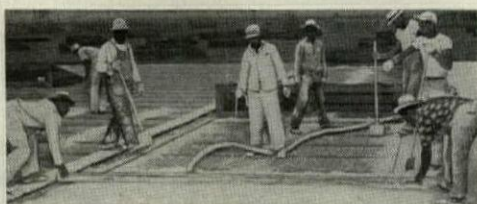
UP TO 32 X 96" IN SIZE, Only HANSOTONE Perforated Acoustical FORMBOARD is exclusive — ideal for poured gypsum roof decks



No other perforated acoustical formboard offers the size and strength, speedy installation and rigid permanence that add up to such low cost per square foot. Hansotone's Distributors are ready to show you how its outstanding acoustical qualities and high thermal insulation assure a truly efficient, attractive base for poured-in-place gypsum roof decks. White factory shop coated with .76 light reflection. Benefits of ELOF HANSSON's acoustical know-how are yours for the asking . . . use coupon below today to get the full story.

HANSOTONE PERFORATED ACOUSTICAL FORMBOARD is distributed throughout the U. S. and Can. by selected engineering-contracting organizations with wide and varied experience in erecting structural roof decks. Their thorough knowledge of Hansotone's properties and characteristics are at your service for dependable engineering, sales and contract work, efficient economical installations and to supply long range maintenance.

See A.I.A. No. 4L and Sweet's Catalog Index 2e/Ha.
HANSOTONE is Reg. U.S. Pat. Off.



HANSOTONE Roof Deck Installation—Efficient, Economical.

ELOF HANSSON, INC.

220 EAST 42nd ST. • NEW YORK 17, N. Y.

ELOF HANSSON, INC., Acoustical Dept. 2-6-2
220 EAST 42nd STREET, NEW YORK 17, N. Y.
Gentlemen: We would like to hear the full story on Hansotone Perforated Acoustical Formboard from a local distributor on . . . and/or send us literature with 9 x 12" sample piece for testing.

NAME

ADDRESS

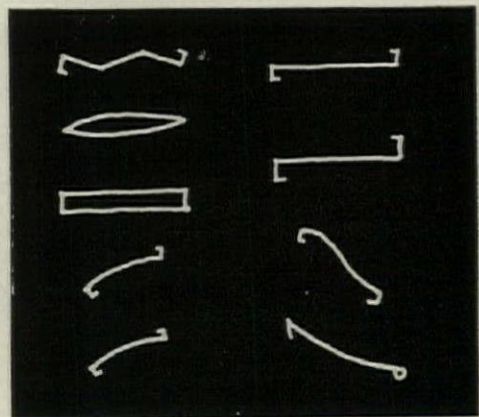
adapt both to new construction and rejuvenation work. Adjustable louvers are designed for operation by either a hand crank or by an electric motor. The latter may be controlled by a manual switch or a solar-time device, factory-regulated according to the specific location and elevation. Standard vertical adjustable vanes are made in 6" to 2' widths and in heights



from 4' to 24' but can be obtained up to 3' wide and 30' high. Horizontal blades come in 5", 9", 10" and 12" widths, and 8' and 9' lengths. These can be mounted in continuous runs with tandem controls for operation in unison.

A special horizontal adjustable jalousie for schools is engineered so that the lower vanes work at a faster rate than the upper. Sky glare can be cut off at the top while a vision strip is left partially open below. The same unit can be closed completely to darken the room during audio-

continued on p. 216



ideas from
Blickman-Built
food service
installations

Architects: Holabird & Root & Burgee



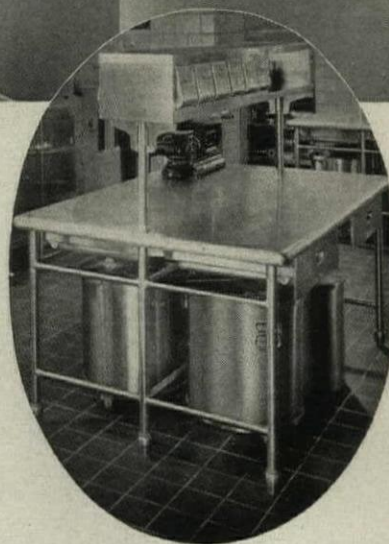
MOBILE BANQUET TABLES PERMIT FLEXIBLE SERVICE

In the main kitchen, hot food is loaded into these tables which are then wheeled directly to banquet serving areas. Waste steps in serving are eliminated. All stainless steel construction assures long service life and a high degree of sanitation with minimum labor.

eliminating waste motion at Statler Hall, Cornell University

• Cornell University's Department of Hotel Administration is prominent for its educational leadership in the field of scientific hotel management. In its food service installation, functional stainless steel equipment plays a vital role in eliminating waste motion. The equipment is employed both for training purposes as well as for serving students, faculty and guests. The problem of integrating students' work areas with the main kitchen was solved by careful layout to permit smooth work flow. Significantly, the equipment is Blickman-Built . . . selected for its work-reducing, time-saving efficiency, low maintenance cost and high sanitary standards.

When you specify Blickman-Built stainless steel equipment for your mass-feeding projects, your installation will look right and work efficiently for many years to come.



**MOBILE BINS
ELIMINATE WASTE MOTION**

In the bake shop, mobile stainless steel bins below baker's tables are wheeled directly to the supply section for filling. Rehandling is avoided — waste motion eliminated. Since there is no fixed enclosure, there are no hiding places for vermin. With bins removed, area below table is easily cleaned.

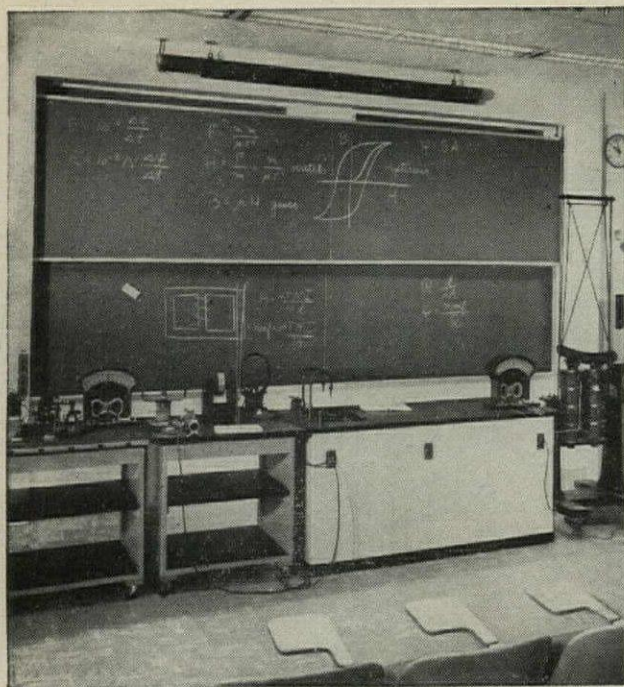
This attractive illustrated folder gives more information about Blickman-Built food service installations. Send for your copy.



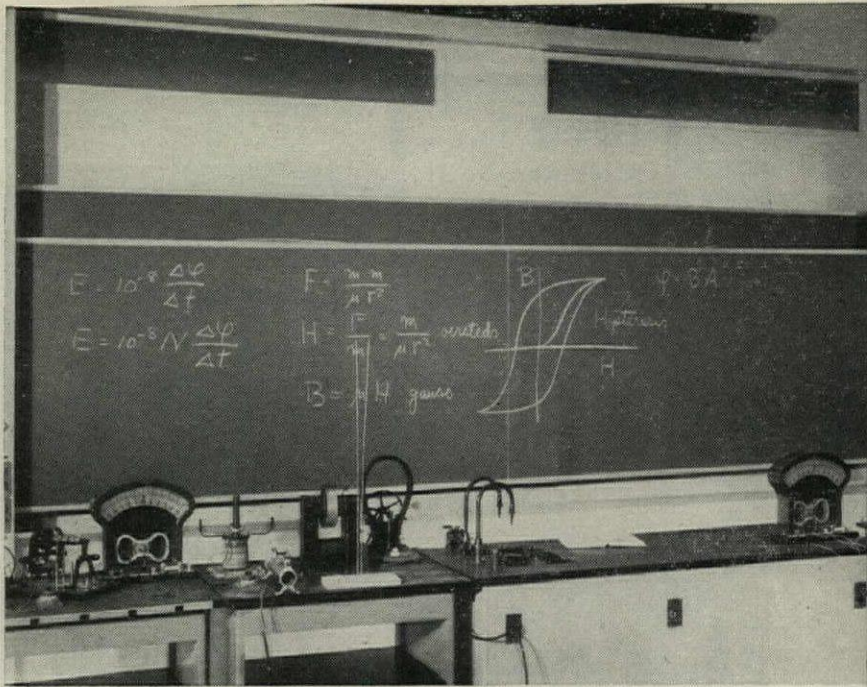
Blickman-Built
MASS FEEDING EQUIPMENT

For Service Life Measured In Decades

S. BLICKMAN, INC. 5802 GREGORY AVE., WEEHAWKEN, N. J.



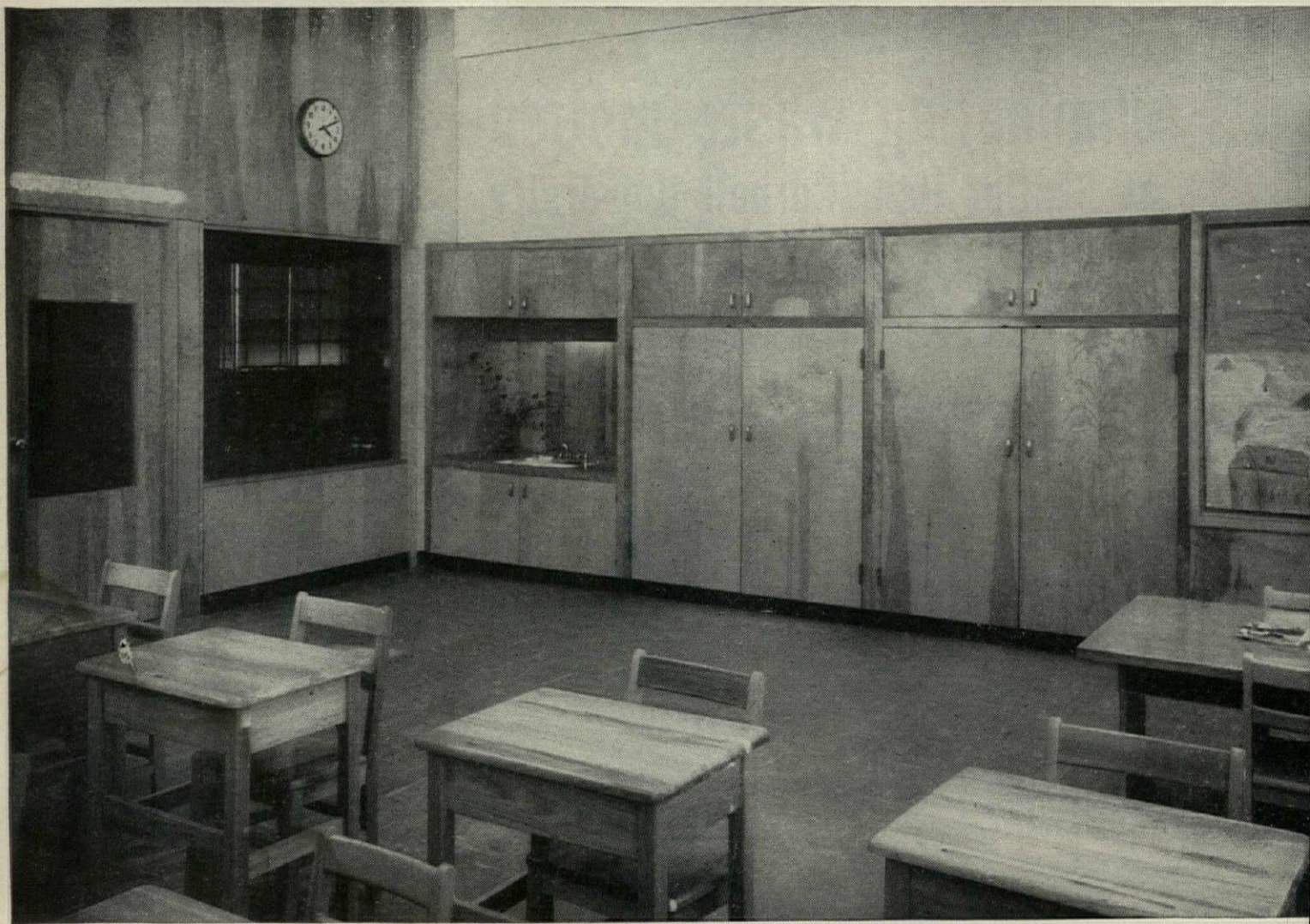
SLIDING DOUBLE WELDWOOD CHALKBOARD installed in the physics laboratory, University of Pennsylvania, moves on tracks, is electrically operated.

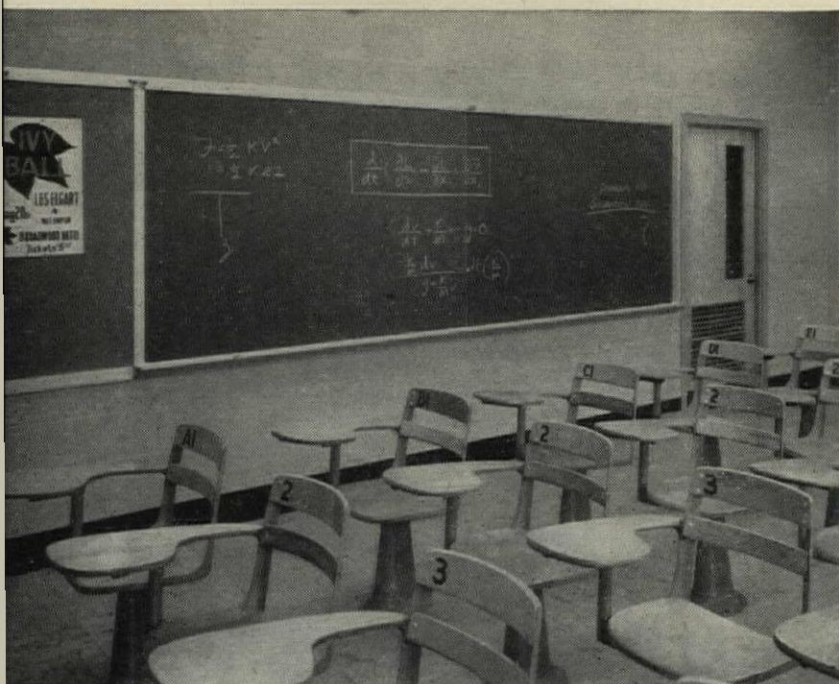


AT EXAM TIME quizzes are prepared on lower chalkboard and covered until needed. Another example of the versatility of Weldwood Chalkboard! Arch: James R. Edmunds, Jr. Installed by: A. M. Masters & Son.

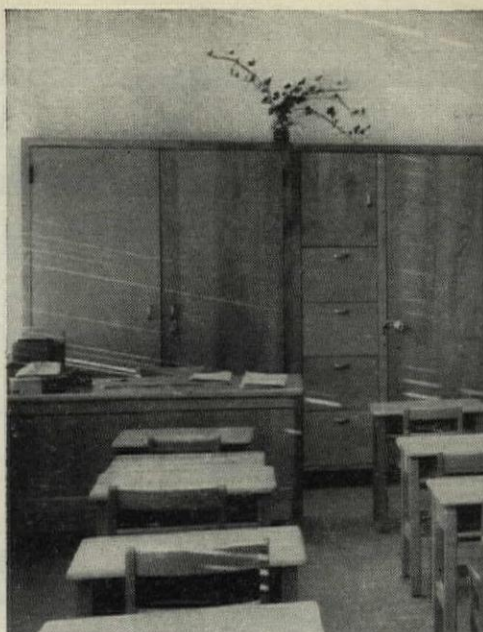
How Weldwood helps you answer the challenge

BEAUTIFUL Weldwood birch paneling and built-in storage wall keys decorating scheme at Hillandale Elementary School, Montgomery County, Md. Arch: McLeod and Ferrara.





INSTALLED COST of Weldwood Chalkboard is usually less than for ordinary chalkboard; it needs no costly fixed grounds or other surface preparation: it mounts directly to wall.



BUILT-IN storage cabinets of Weldwood birch keep classrooms neat, help get away from the old-fashioned "institutional" look. And maintenance costs almost nothing.

of school design

School boards and building committees are looking for new ways to combine beauty and function, new ideas on saving space and lowering maintenance costs. And Weldwood school products can help...

Take Weldwood Chalkboard for example. It's a combination chalkboard, bulletin board and visual aid board. Its porcelain-on-steel* face attracts magnets for posting papers and visual aids, its glare-free green color is easy on young eyes, and chalk never "squeaks" on its velvety surface.

Weldwood Chalkboard never needs refinishing. It's composed of a porcelain-faced steel sheet bonded to strong, rigid plywood backed by a sheet of aluminum for balanced construction. It won't shatter, buckle, warp or break under impact, stress or temperature changes.

Beautiful Weldwood hardwoods for paneling and built-ins are another example. Real wood adds a warm and cheery note to classrooms, gyms, lounges and corridors. And it practically eliminates periodic redecoration since Weldwood needs only an occasional waxing to keep it looking new indefinitely.

You choose from world's fine woods like walnut; oak; birch; African, Philippine, and Honduras mahogany; cherry; Korina®; maple; and American elm. Exotic species such as Brazilian rosewood, teak, satinwood and zebrawood are also available on special order.

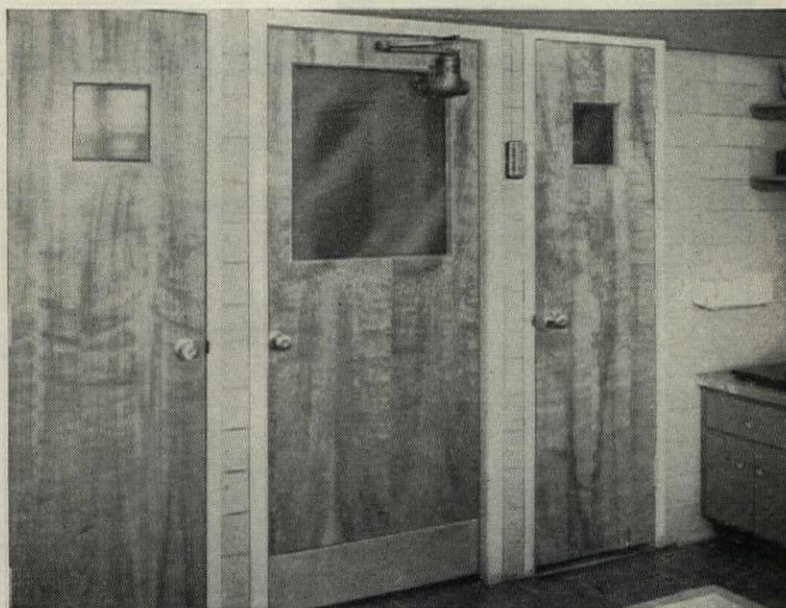
Guaranteed for life. All of these superior Weldwood products for schools are guaranteed for the life of the building in which they are installed.

Weldwood Fire Doors with incombustible Weldrok® mineral core†, provide the utmost in fire protection. They come in Weldwood veneers to match paneling. Weldwood Fire Door guarantee covers replacement costs, including hanging and finishing.

For more details on Weldwood Chalkboard, paneling and doors send the coupon or visit any of the 87 United States Plywood Corporation showrooms in principal cities.

*Porcelain faces by The Bettlinger Corp.

†U.S. Patent No. 2,593,050



WELDWOOD FIRE DOORS are available in flush style or with light cutouts. Lake Hiawatha School, Troy Hills, N. Y. Arch: Emil A. Schmidlin.

Weldwood®

PRODUCTS FOR SCHOOLS

Made by
United States Plywood Corporation
Weldwood—The Best Known Name in Plywood
In Canada: Weldwood Plywood, Ltd.

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Please send me data sheets and installation details on
Weldwood Chalkboard () Weldwood Hardwood Plywoods
() and Weldwood Doors ().

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MACOMBER

Originator of the

OPEN WEB STEEL JOIST

*Announces a great new advance in
Structural Framing*



The MACOMBER

V-BEAM

**STRONGER • LIGHTER • MORE RUGGED
FOR SPANS TO 48 FEET**

**AVAILABLE TOP
AND
BOTTOM CHORDS**



STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER INCORPORATED

CANTON 1, OHIO

• ENGINEERING • FABRICATING AND ERECTING •

The new Macomber V-BEAM is an advance in floor and roof framing equaled only in importance by the announcement of the original Macomber bar joist.

The Macomber V-BEAM carries more load per pound than any other structural member, with greater reserve strength. Deflections are no more than those of other secondary framing members. Lateral rigidity is appreciably increased.

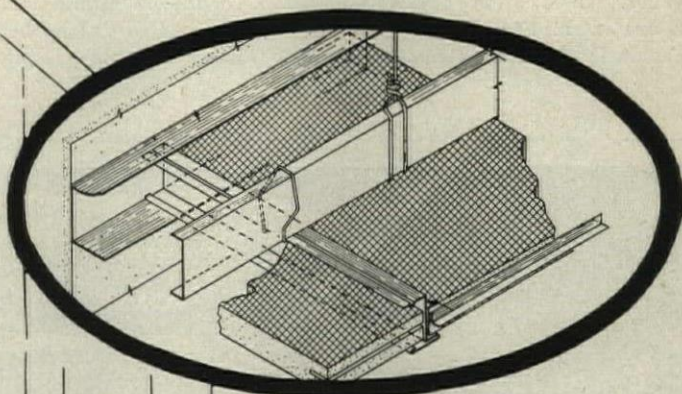
Architects and Engineers will like the advanced design of the V-BEAM. Contractors will recognize the extra value their money buys.

This is a product worthy of your immediate investigation. Send for your V-BEAM Catalog.

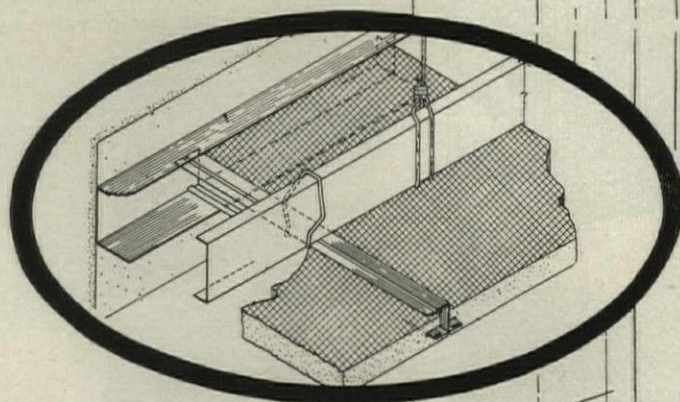
AVAILABLE
STEEL JOISTS
LONG SPANS
BOWSTRING
ROOF TRUSSES
METAL DECK
V-LOK STEEL
FRAMING
STRUCTURALS

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EXPOSED →
or
↓ **CONCEALED**



*the
Finest
in
Mechanical
Suspension
Systems*



Top quality materials, easy installation, long trouble-free service—that's the story of Securitee Line—exposed or concealed mechanical suspension systems.

Securitee Line Exposed System allows free access to piping or wiring above ceiling in case of need.

Securitee Line Concealed System affords a wide scope in application—ceiling can be installed close to joist or with large drop. Both add considerable effectiveness to sound absorption of the tile units.

Specify and insist on Securitee, mail coupon for complete information.

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SYSTEMS

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Company _____
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PRODUCTS *cont'd.*

visual sessions. Another special Lemlar glare protection unit is designed for installation on skylights and canopies. Costs, F.O.B., of manually operated units range from \$2.50 per sq. ft. for horizontal louvers of light gauge aluminum to \$3 to \$450 for heavy gauge horizontal and vertical vanes. Installation and automatic controls are extra. Standard finish is synthetic enamel; custom жалousies can be

ordered in porcelainized steel or unfinished aluminum. The manufacturer reports that the price of the жалousies can be balanced against an average cost of \$5 per sq. ft. for air conditioning or unfavorably oriented window glass.

On older building projects where air cooling is impractical, the жалousies may be used to reduce heat loads at the windows and improve interior or daylighting.

In budget remodeling schemes, fixed vanes can be hung to shield areas overdosed with sunlight or merely as a face-saving mask for some old, unlovely windows. Where the жалousies are specified for new buildings, Lemlar suggests that the reveals be planned deep enough to take the fins within the opening.

Manufacturer: Lemlar Manufacturing Co., Box 352, Gardena, Calif.

Experience
YOU can
use

AMERICAN'S 87 YEARS IN LAUNDRY DEPT. PLANNING

Specify American Laundry Machinery Company equipment and you insure lasting client satisfaction. Only American offers you:

1. 87 years of experience, working with architects on all types of laundry installations.
2. The most complete line of laundry equipment in the world—from ONE manufacturer. This means full, con-

tinuing, undivided responsibility for performance after installation.

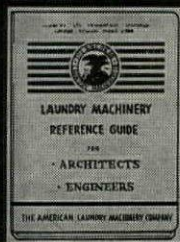
3. Direct service everywhere, from thoroughly trained technical representatives working out of 29 offices throughout U.S. and Canada.

American's **ARCHITECT'S REFERENCE GUIDE** is a catalog of our complete laundry equipment line. Write for your copy.

American

World's Largest, Most Complete Line of Laundry and Dry Cleaning Equipment

The American Laundry Machinery Co.,
Cincinnati 12, Ohio

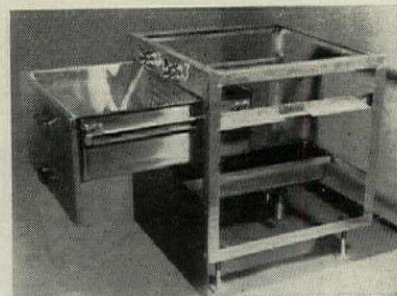


SINK-IN-A-DRAWER slides shut in bedside cabinet

Relieving nurses and hospital aides of the time-taking chore of toting washbasins, the Murphy concealed hot and cold water sink is also a boon to the convalescing patient. Practical for semiprivate and ward



installations, the 18-8 stainless steel basin slides in and out of a welded metal bedside table like a drawer and can be lifted out for cleaning. Available in various colors, the cabinet sides are baked enamel and the top is plastic laminated plywood. Different kinds of hardware and accessories and styles of cabinet can be fabricated to architect's specifications. But in all hospital units, the manufacturer recommends that the height of the washbasin drawer be the same as the top of the mattress beside it. Other uncased sink units for built-in installations in lunchrooms, stores and motels are also available. The chassis and sink pictured below cost \$196.95 in quantities of one to six.



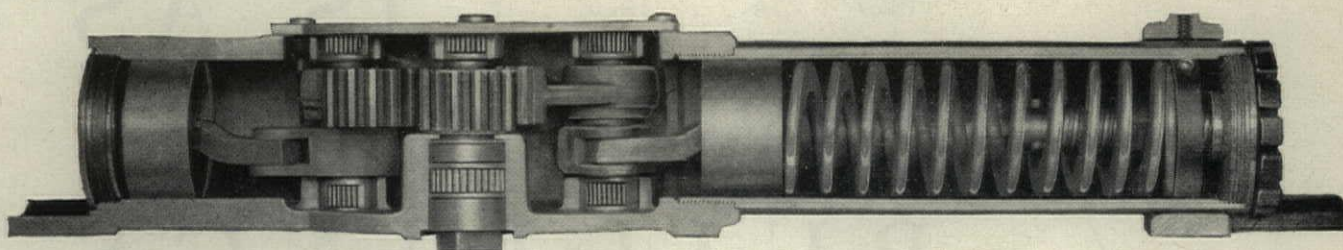
Manufacturer: William P. Boyle, 219 Carmella Ave., White Oak, McKeesport, Pa.

continued on p. 222

now

ALL

the door controls are built-in



the improved

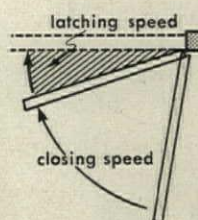
RIXSON

**OVERHEAD CONCEALED
DOOR CLOSERS
no. 220 series**

1.

two independent closing adjustments

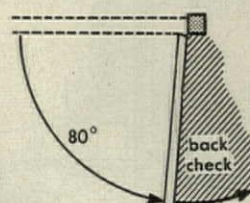
The closing speed from open to approximately 20° is controlled by one adjustment and the latch speed from 20° to closed position by another.



2.

hydraulic shock absorber (back check)

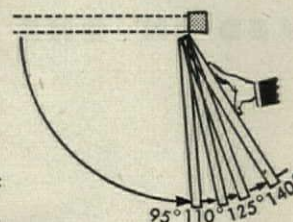
At approximately 80° a hydraulic resistance starts to slow down or check the opening action of the door. Hydraulic back check optional.



3.

built-in spring cushion door stop

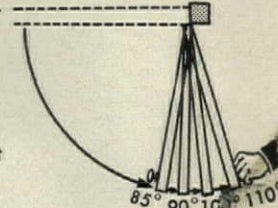
Door is "cushion stopped" at choice of any one of 4 factory-set positions—95°, 110°, 125° or 140°. Stop removed for wider openings to 160°.



4.

built-in door holder

When specified—built-in to hold door at choice of 85°, 90°, 100° or 110°.



... and still the most compact — requires only 2 7/8" x 2 7/8" x 17" space in head jamb.

*available for hinged or
center hung installations*

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THE OSCAR C. RIXSON COMPANY

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INDIANA LIMESTONE IS AS NEW AS THE BUILDINGS IN WHICH IT IS SET—



yet the record of its use in every part of our country reads like a history of architecture. This is important because it provides usable data from a living laboratory of building — proof that Indiana Limestone wears as well as it looks.

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The beauty, versatility, and durability of Indiana Limestone are established facts. Its economy and complete adaptability to every idiom of contemporary building are also facts and have been effectually told in a new brochure, "New Concepts in the use of Indiana Limestone". Write now for your free copy, or for any other information you might need to the Indiana Limestone Institute, Bedford, Indiana.

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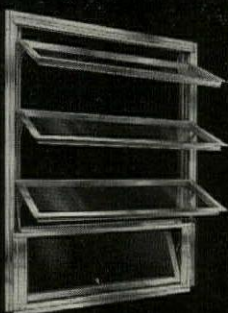
WARE

a world leader in windows

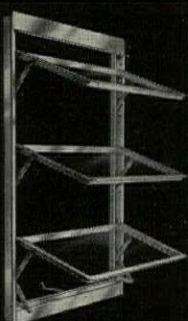
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ALUMINUM AWNING WINDOWS FOR EVERY NEED

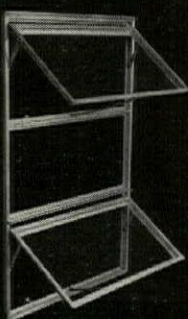
now 100% weatherstripped



WARE MONUMENTAL AWNING



WARE AWNING - Intermediate



ECON-O-WARE AWNING

WHETHER IT'S A MONUMENTAL STRUCTURE, a fine residence, or a low-cost project, chances are there's a Ware awning window to suit your needs to a "T".

WARE MONUMENTAL AWNING WINDOW

- * Designed to meet the most rigid requirements
- * Perfected weathering — Koroseal weatherstripping imbedded in channel, perfect seating of ventilators
- * Heavy Extruded Sections — 1½" ventilator depth. Minimum thickness of all structural members ½"
- * All moving parts bushed in self-lubricating nylon
- * Strip proof heavy compound operator concealed in center of sill, synchronized distribution of load, unparalleled load safety factor for aluminum awning windows

WARE AWNING WINDOW—Intermediate

- * Smooth sturdy CENTER SILL operator—a compound operator sealed and installed in sill at factory
- * Weatherstripped by premium vinyl locked in extruded channel unexposed to weather
- * Wide overlap of weathering members. Min. outside at jams 5/16". Heavy reinforced sill
- * Ventilators have equal height and drop, clean easily
- * Engineered for simple, speedy installation, designed for great diversity of application

ECON-O-WARE & ECON-O-WALL AWNING WINDOWS

- * Best value on the market: low-cost with quality features
- * Simple, attractive trouble-free design
- * Variable sizes and mullion combinations
- * Corners flash-welded — stainless steel bushings
- * NOW 100% weatherstripped

Whatever your window needs, be sure to get all the facts on the full Ware line . . . proven in thousands of installations from coast to coast

Dependable delivery assured thru regional warehouses in HOUSTON, ATLANTA, CHICAGO, and NEWARK. All windows manufactured in our giant 3½ acre plant in Miami. Write Dept. AF-2.

ALL WINDOWS CHEMICALLY CLEANED, ETCHED, AND LACQUERED PER FHA REQUIREMENTS

Aluminum **WARE** Windows



Ware Laboratories, Inc., 3700 N.W. 25th St., Miami, Florida

How the modern school teaches a lesson in quiet

Johns-Manville Fibretone Ceiling Units were specified to provide efficient noise control at moderate cost throughout the new Marblehead, Mass. Junior High School. The new variety-drilled units add a modern touch to this practical ceiling... provide a quiet atmosphere for teaching and learning. Architect: Kilham, Hopkins, Greeley, and Brodie, Boston.



Johns-Manville FIBRETONE ACOUSTICAL UNITS

reduce disturbing noise at low cost

BECAUSE distracting noise is so harmful to efficiency in any activity, practically all new building specifications include acoustical ceilings for sound absorption. However, just because your present building was constructed before sound control became an established science, there is no reason for you to be handicapped by noise. You can have a Johns-Manville Fibretone* Acoustical Ceiling quickly installed over your present ceiling.

Johns-Manville Fibretone offers an acoustical ceiling which is highly efficient yet modest in

cost. It consists of 12" square panels of sound-absorbing materials in which hundreds of small holes have been drilled. These holes act as "noise traps" where sound energy is dissipated. Fibretone is predecorated, can be painted and repainted, and is available with a flame-resistant finish.

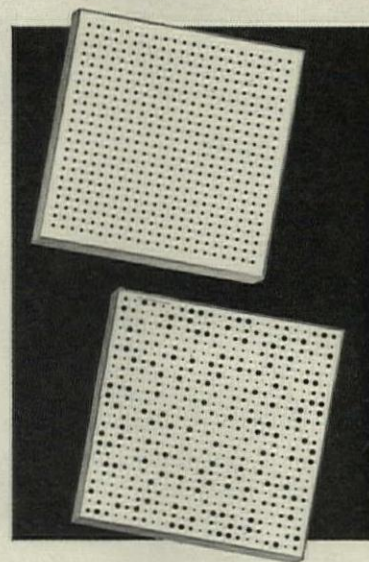
For a complete survey by a J-M acoustical expert, or for a free book entitled "Sound Control," write Johns-Manville, Box 158, Dept. AF, New York 16, New York. In Canada write 565 Lakeshore Road East, Port Credit, Ont.

*Reg. U. S. Pat. Off.

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

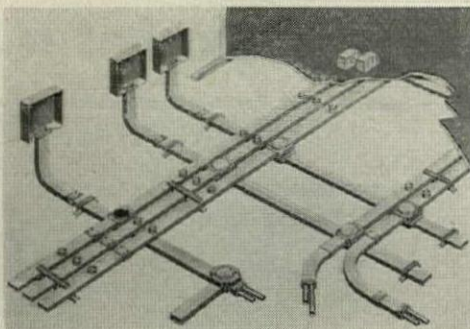
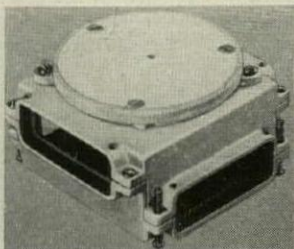


Johns-Manville



Uniform-Drilled and **Variety-Drilled** Fibretone units are easily installed over new or existing construction. Hundreds of small holes drilled into the sound-absorbent panels increase acoustical efficiency.

PRODUCTS *cont'd.*



UNDERFLOOR RACEWAY keeps high and low tension lines on own levels

Eliminating hard-to-trace crossovers and crossunders of high and low tension lines, General Electric's two-level steel underfloor wiring system is readily adaptable to changing electrical needs. Engineered for use in slab and fill or monolithic floor construction in commercial and industrial buildings, the two-level duct feeds and distributes all power, telephone, signal and auxiliary systems. Its simple 3¼" wide, 1¼"-high junction box has entrances on two levels. The lower duct level feeds conductors from panel boxes to the upper level which, in turn, distributes conductors to surface outlets. Only one type and size of the galvanized single-duct box is used throughout the G-E system. Its entire interior is accessible for work and inspection; and wires can be pulled and circuits traced easily in the completely separated services. Taking up no more depth than other underfloor systems—about 3½"—the two-level raceway requires no special provisions or modifications in building plans. G-E reports that the two-level duct is competitively priced but points out the system's limitless wiring capacity and labor-saving features as potential cost savers.

Manufacturer: General Electric Co., Conduit Products Dept., Bridgeport 2, Conn.

SPRAY PAINT frosts clear glass

To mask an unsightly window view, diffuse daylight or give a room partitioned with clear glass more privacy, Sapolin Paint Co. offers this frosting coat in an easy-to-handle spray can. Drying quickly without smearing, the translucent paint is tough and washable, and can withstand glass' expansions and contractions as temperatures change (unlike many inelastic

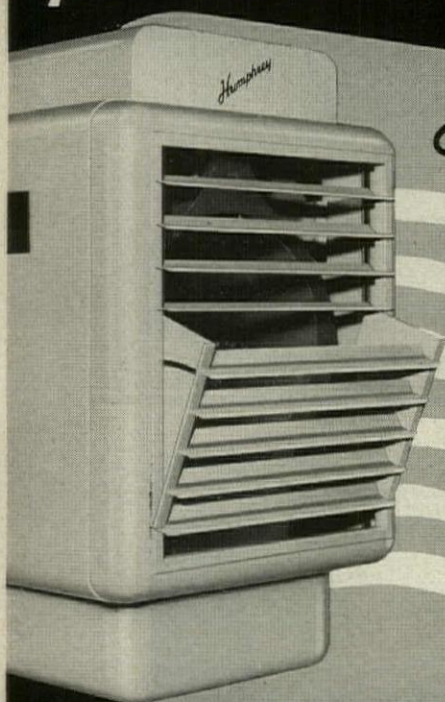


opaque coatings which can cause painted industrial windows to break). *Sapolin Frosting* also can be used to dull the surface of glossy metals and artwork. The paint sells for \$1.89 in the spray can and is also available in containers for brush application. In the latter form, *Frosting* may be tinted with oil pigments.

Manufacturer: Sapolin Paints, Inc., 229 E. 42 St., New York 17, N. Y.

continued on p. 228

Direct warmth **DOWN** where you need it...with the



Humphrey TILTING FRONT

This exclusive Humphrey Tilting Front is today's most efficient means of vertical air control.

It directs the warmth downward, *without restricting the air flow*, thereby assuring maximum comfort at, and immediately above the floor level. A standard feature on Series A heaters with propeller fan, and optional on heaters with blower.

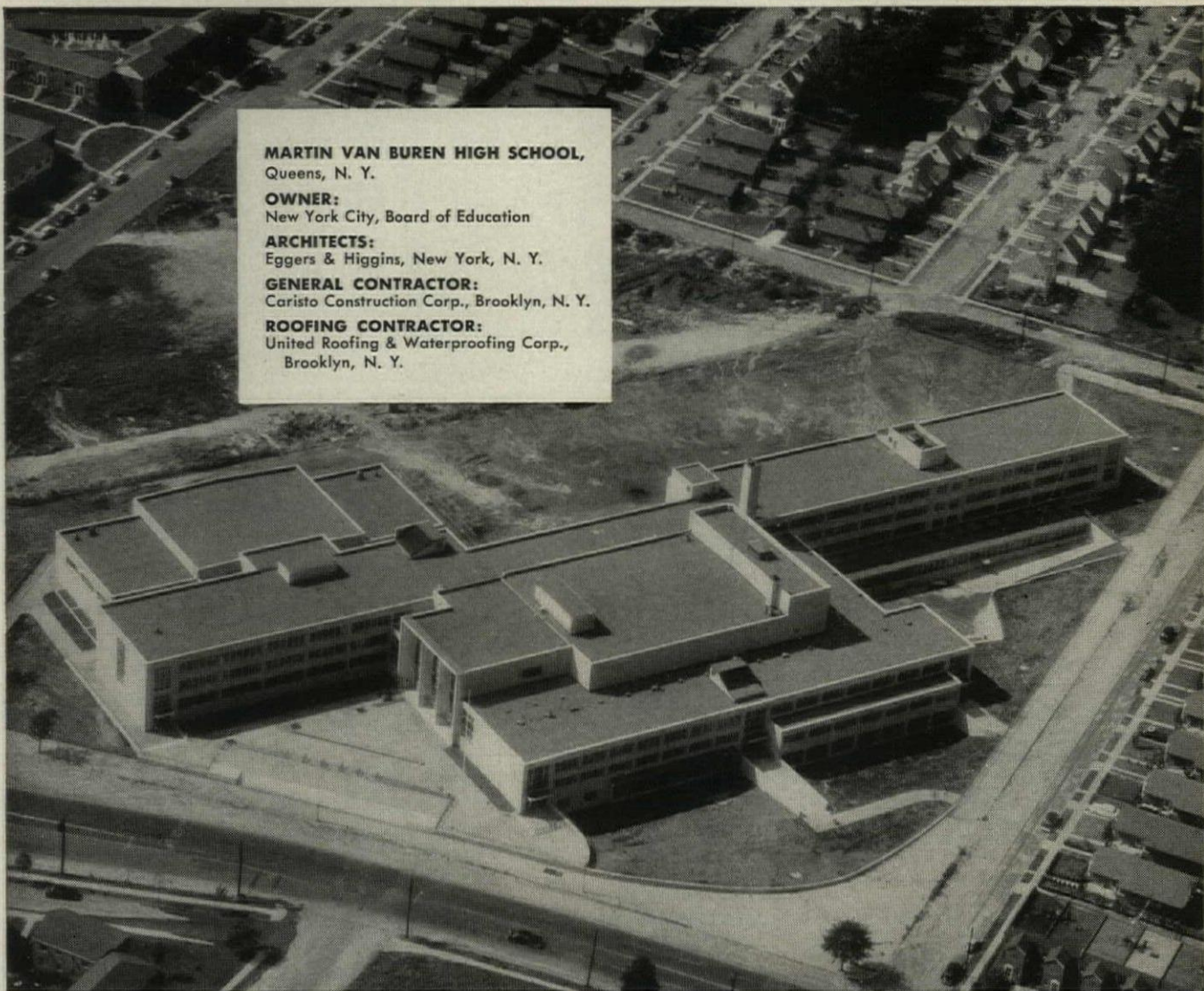
Find out more about this and other quality features of Humphrey Unit Heaters. Write today for literature.

GENERAL GAS LIGHT COMPANY
Kalamazoo, Michigan



WRITE FOR LITERATURE
Gives data on 12 models, 65,000 to 250,000 B. T. U., plus complete line of accessories.

Humphrey AUTOMATIC GAS UNIT HEATERS



MARTIN VAN BUREN HIGH SCHOOL,
Queens, N. Y.

OWNER:
New York City, Board of Education

ARCHITECTS:
Eggers & Higgins, New York, N. Y.

GENERAL CONTRACTOR:
Caristo Construction Corp., Brooklyn, N. Y.

ROOFING CONTRACTOR:
United Roofing & Waterproofing Corp.,
Brooklyn, N. Y.

RUBEROID SPECIAL ROOFING BITUMEN

On Top of the Class at New York City's Newest High School

The new Martin Van Buren High School, in the heart of New York's fastest growing borough, will open for classes this fall. Its over 3000 students will find it the most modern, best equipped and one of the largest high schools in the biggest school system in the country. It is constructed of the newest and best materials to insure many trouble-free years of low maintenance use.

An integral part of its construction is 103,000 square feet of Ruberoid Built-Up Roofing using Special Roofing Bitumen (Ruberoid Specification 203-A). In the case of Martin Van Buren High

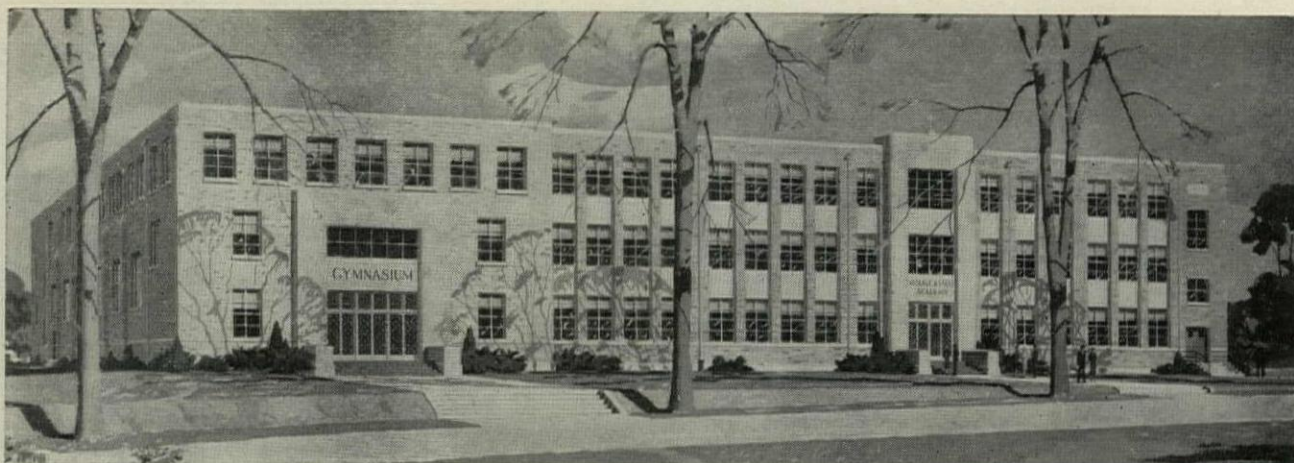
School, continuing shortages of coal tar pitch made it advisable to include Ruberoid Special Bitumen as an *alternate*. Special Bitumen is a time-tested material proven on thousands of jobs for over half a century and now available at no extra cost.

At Ruberoid we will continue to supply as much Roofing Pitch as we can produce or obtain. However, to insure maintenance of building schedules without costly delays, architects and roofers go to the head of the class by specifying and recommending Ruberoid Special Roofing Bitumen as an alternate material.



The **RUBEROID Co.**

Asphalt and Asbestos Building Materials



Mount Assisi Academy, Lemont, Illinois, Leo Strelka, Architect

Now every classroom and office can be comfortable



Iron Fireman SelecTemp heating has

A THERMOSTAT IN EVERY ROOM

The *ultimate* in heating comfort—a *thermostat* in every room—is both simple and practical with the Iron Fireman SelecTemp heating system. Occupants of each classroom or office can select any temperature desired, at any time. Rooms stay at the selected temperatures. SelecTemp units automatically compensate for heat gains and losses caused by changes in outdoor temperature, cold winds and warmth from the sun—increasing or decreasing heat output.

SELECTEMP HIGHLIGHTS

THERMOSTAT IN EVERY ROOM. Temperatures can be varied in every room to fit the "activity plan" and personal preference of the occupants.

MODULATED HEAT. Air circulation is continuous. Both temperature and volume of air are automatically modulated, as required to offset heat loss from room.

FILTERED, CIRCULATED AIR. Individual room air circulation prevents transmission of odors or bacteria from other rooms. Air is cleaned by a spun glass filter in each room unit. Filtered outside air can be introduced if desired.

BOILER LOCATION. Boiler can be placed in any desired location, with proper distribution of heat to every room. Year-around domestic hot water coils available.

LOW POWER COST. No electricity required to operate circulating fans. Nonelectric thermostats.

LOW INITIAL COST. Easily installed in either new or old construction. Small soft copper tubing ($\frac{1}{4}$ inch I.D.) carries steam to individual room heater units. Return lines are $\frac{1}{8}$ inch. Substantial savings in installation costs.

LOW FUEL COST. Temperature easily reduced in unused rooms. Overheating is eliminated. Fuels: Oil, gas or coal. Ideal for use with Central District steam.

AUTOMATICALLY BALANCED. No special adjustments of dampers, valves or orifices required to balance heating system. Each unit continuously regulates heat needed for each room. Automatically compensates for external heat sources such as fireplace or solar heat, without affecting temperatures of other rooms.

ECONOMICAL INSTALLATION AND OPERATION

Regardless of the type or size of structure; school, office building, hotel or apartment house, hospital, or house . . . SelecTemp heating can be economically and efficiently installed. Flexible copper tubing, smaller than your little finger, carries low pressure steam to each room unit.

In addition to individualized heating comfort SelecTemp brings substantial operating savings. The fuel waste resulting from overheating (symptom: occupants open the windows), and the unnecessary

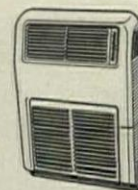
heating of unused space, is eliminated. A fan in each room unit, operated by a steam turbine, continuously circulates filtered warm air. No electricity is used for fans or thermostats.

ASK FOR FULL INFORMATION

Before choosing a heating system for any building or residence, whether new construction or being modernized, it will pay you to get the facts about the Iron Fireman SelecTemp—a completely new concept in heating practice. Just mail the coupon or write.

Iron Fireman® SelecTemp®

MODULATING ZONE HEATING



For every size and type of building—Hotels, Motels, Apartment Houses, Schools, Churches, Office Buildings, Institutions, Hospitals.

Send for free booklet



IRON FIREMAN MANUFACTURING CO.

3031 West 106th Street, Cleveland 11, Ohio.

In Canada, write to 80 Ward Street, Toronto, Ontario.

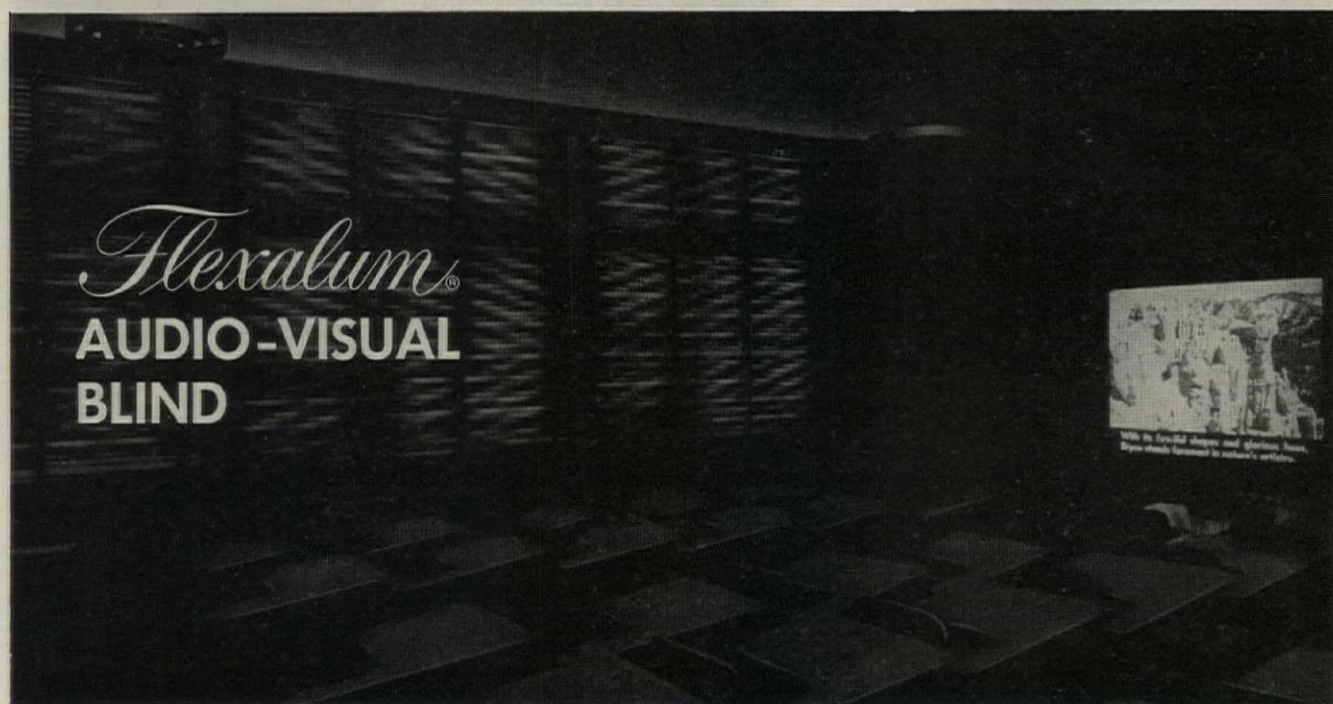
Send literature on Iron Fireman SelecTemp heating.

Name _____

Address _____

City _____ State _____

New *Flexalum*® Audio-Visual blind keeps out 30 times more daylight!



Field tests just completed by a leading independent testing laboratory* show that the new Flexalum Audio-Visual Blind keeps out 30 times more daylight than a fully-closed conventional blind. With the flick of a cord, it turned a sunny classroom into a dark auditorium—easily meeting the requirements of

the Illumination Engineers Society for *motion picture theaters!* (Even with an opaque-type projector, the image was reported "clear, sharp, with good color"). Here, at last, is the blind that meets your daily classroom needs for audio-visual instruction at a moment's notice.

*Complete 20-page report of tests conducted by U. S. Testing Company sent on request. Write to: Hunter Douglas Corp., Dept. V-2, 150 Broadway, New York 38, N. Y. (In Canada: Hunter Douglas Ltd., Dept. VC-2, 9500 St. Lawrence Blvd., Montreal, Que.)

Flexalum

FLEXALUM DRAW DRAPERIES

FLEXALUM ALUMINUM AWNINGS

FLEXALUM VENETIAN BLINDS

FLEXALUM AUDIO-VISUAL BLINDS



**NORTON DOOR
CLOSERS STILL IN
DAILY USE AFTER
32 YEARS OF
CONTINUOUS SERVICE
IN CHICAGO'S FAMOUS
*London Guarantee Building***

AND NOW—the same
rugged dependability
plus streamlined modern
design is
available in

**NORTON
"INADOR"**

The truly modern
concealed door
closer built for
heavy duty
reliability



Surface type Norton Door Closers installed as
original equipment in 1923 are still serving faithfully

Only The **"INADOR"** has all these
top-quality NORTON features.

Rack and Pinion Construction
gives uniform, positive check-
ing at every point!

New Aluminum Shell for
lighter weight, robust wear.
Proved by use on our surface
closers for over 7 years.

Special Spring—of highest
quality steel!

Non-Gumming, Non-Freezing
Hydraulic Fluid permanently
lubricates every inside moving
part!

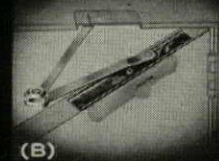
Double Adjusting Levers,
easily moved by fingers, con-
trol speed of closing action and
latching action!

Regular Arm Series and Holder
Arm Series—the latter espe-
cially suited for hospital use!
Famous Guarantee! For 2 full
years, providing recommended
sizes are used!

Write today for FREE CAT-
ALOG on full Norton line of
concealed and surface door
closers.



(A)



(B)

Available with (A) regular arm
and (B) holder arm . . . 4 sizes
to meet all requirements

NORTON®
DOOR CLOSERS

75 years of leadership
in door closers

Dept. AF-26
Berrien Springs, Michigan



LAMIDALL®

Decorative Plastic Laminate

Beautiful Natural Walnut Lamidall Walls, Counter Top and Door in the Studio Town Houses, Evanston, Illinois, designed by Schurect, Inc., Morton Grove, Ill.

For Walls That Stay Beautiful Without Care

For interior walls and fixtures in new construction or remodeling no other material can match Lamidall for beauty, durability and over-all low cost. Lamidall's colors, patterns and wood grains have been selected to blend with modern and traditional design. Lamidall has a lasting beauty that won't rub off, stain, crack or mar . . . that cleans easily with the wipe of a damp cloth . . . that never needs refinishing.

Lamidall is made in $\frac{1}{8}$ " thick panels up to 4' x 12'. They are easy to handle, structurally strong and economical to install . . . no special tools or skills are required. Send today for samples and installation information.

LAMIDALL - A good investment in a lifetime
of beauty . . . proved in years of service

Lamidall Is A Product Of

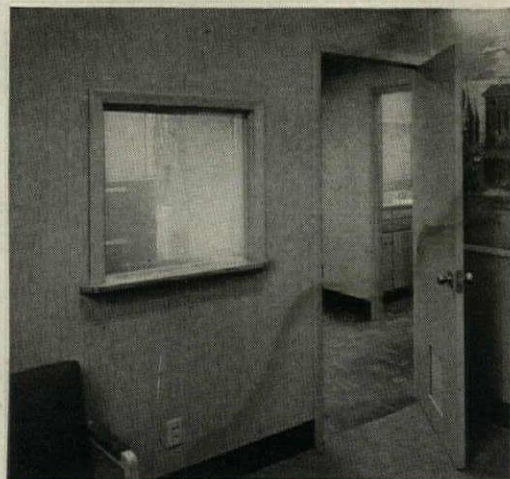
WOODALL INDUSTRIES INC.

3508 Oakton Street, Skokie, Illinois



Prima Vera Lamidall was a wise choice for a busy counter in this Two Rivers, Wisconsin, factory office.

Prima Vera Walls of Lamidall make a permanently attractive interior for this office in the Irving Zuelke Building, Appleton, Wis.



PRODUCTS *cont'd.*

STAINLESS FRAME SHOWCASES take on sundry filler panels

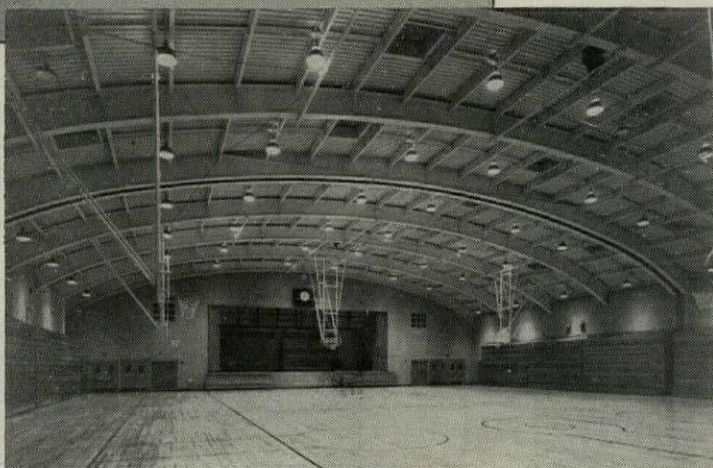
Rigidly framed of welded 302 stainless steel, Weber's new line of store cases can be individualized with various stock filler faces of wood veneer, ceramic mosaic, opaque glass, textured vinyl, lacquered hardboard and other decorative materials. Sleek and simple, the showcases come in lengths of 3'-10", 5'-8" and 7'-7" with sev-



eral different rear entry arrangements of sliding doors, drawer inserts and open space. Glass fronts of $\frac{1}{4}$ " selected plate range in height from 8" to 33". An inconspicuous reflector for slimline lamps is built into the front of the frame. Weber also makes a companion line of counters and tables, and are available with either recessed bases or self-leveling metal legs. If an all-over baked enamel finish is speci-

HOW TO light a gymnasium

Senior High School
Chambersburg, Pa.



Architect: Lawrie & Green
Elec. Engr.: Gatter & Diehl
Elec. Contr.: Keystone Engr. Co.

teamwork

Important to efficient gymnasium lighting is the teamwork between the architects, engineers, school officials and contractors.

Evaluation of the various functions of the gymnasium area, together with analysis of the levels and quality of illumination required, should precede definite specifications. It's at this point a Pittsburgh representative can suggest the Pittsburgh Permaflexor Fluorescent and Incandescent Equipment that will fill efficiently, and within your budget, all gym lighting needs.

Planning a Gymnasium?

Write for the idea packed bulletin "How to Light a Gymnasium." It highlights the problems you'll encounter and points the way to their solutions.

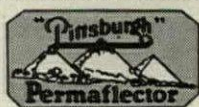


PITTSBURGH

REFLECTOR COMPANY

401 OLIVER BUILDING, PITTSBURGH 22, PA.

FLUORESCENT



INCANDESCENT

Lighting

REPRESENTATIVES IN PRINCIPAL CITIES • WHOLESALERS EVERYWHERE
In Canada: Holden Lighting Manufacturers, Ltd. • 15 Yorkville Ave., Toronto



fied, the cases are made with rolled steel frames.

Manufacturer: Weber Showcase and Fixture Co., Inc., Los Angeles, Calif. and Grand Rapids, Mich.

ITALIAN CEILING FIXTURES are hand blown in colored glass

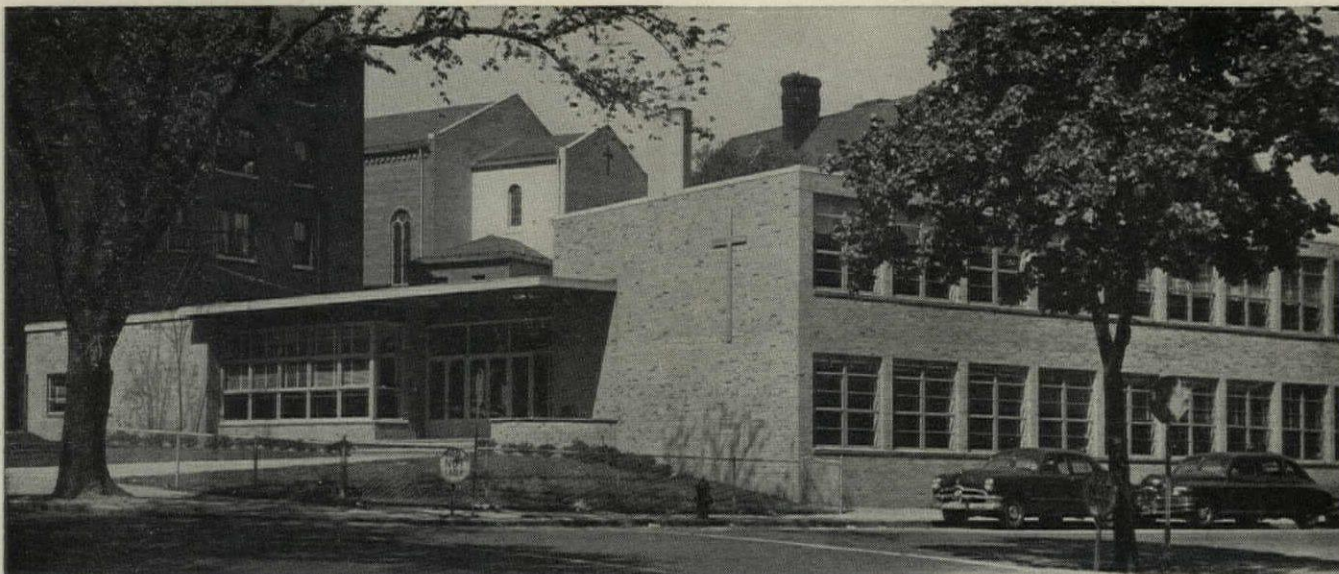
Demonstrating that their ancient art can be completely at ease in contemporary settings, Venetian glass blowers huff out lovely forms such as these for ceiling lights. The graceful shades are available in this country at modest prices through



an alert young import firm, Altamira. The fixture in the wire cage and the multi-stripe ellipse are each \$45. The three others sell for \$30 in solid colors of red, blue, green, yellow and beige; and for \$40 with pencil stripe lines. Heights of the shades pictured are, from the left, 9 $\frac{1}{4}$ ", 13 $\frac{1}{2}$ ", 12" and 10 $\frac{1}{2}$ ".

Importer: Altamira, 10 E. 50 St., New York 22, N.Y.

continued on p. 234



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.

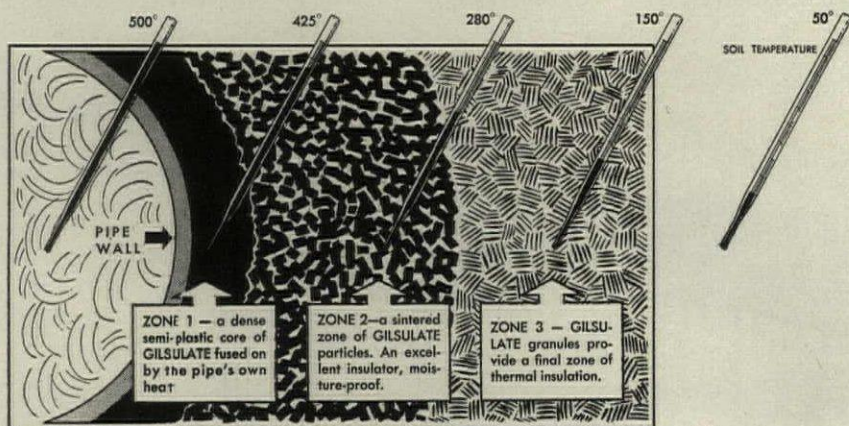
The Holy Redeemer School, Washington, D. C., recently installed 115 feet of 5-inch and 1¼-inch pipe for steam lines and return into their new 16-classroom building. Only 3 men were employed on the job. The instal-

lation 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.*

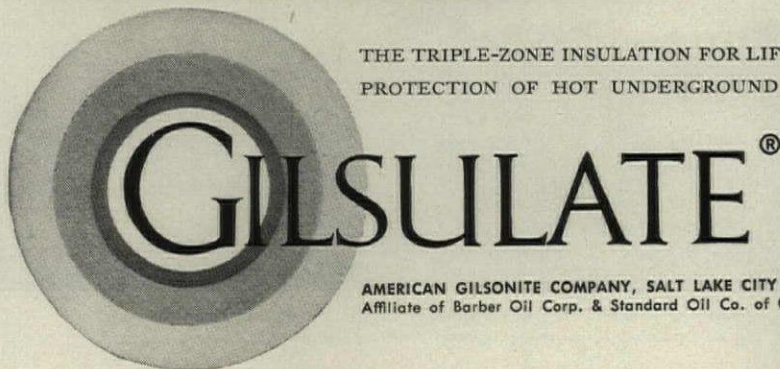
Investigate the value of this easily installed, low-cost GILSULATE. Use the coupon below for complete information, or see your local GILSULATE distributor.



Facts about Gilsulate

1. *Easy to use*—just pour, tamp and backfill...pipe heat does the rest.
2. *Forms 3 zones* of protection against heat loss and all hazards commonly encountered by hot buried pipes.
3. *Needs no housing or mechanical sheaths*: no mixing, special handling or equipment.
4. *Only needs normal pipe spacing*: for multiple pipe or cramped conditions.
5. *Three types available*:
Type A for 220°-310° F. temp. range
Type B for 300°-385° F. temp. range
Type C for 385°-520° F. temp. range

THE TRIPLE-ZONE INSULATION FOR LIFETIME PROTECTION OF HOT UNDERGROUND PIPES



AMERICAN GILSONITE COMPANY, SALT LAKE CITY 1, UTAH
Affiliate of Barber Oil Corp. & Standard Oil Co. of California

American Gilsonite Co.
134J, West Broadway or 1145 East Jersey St.
Salt Lake City 1, Utah Elizabeth, N. J.

Send me more information on GILSULATE Insulation

NAME.....

TITLE.....

COMPANY.....

ADDRESS.....

AF



Temperature control story of a modern printing company

How Honeywell Electronics cuts cost



General Telephone Directory Company, Des Plaines, Ill. (a subsidiary of General Telephone Corporation). Architects-engineers: Pace Associates. General contractor: Turner Construction Company. Heating and air conditioning contractor: Economy Plumbing and Heating Company.

Printing and paper storage area of General Telephone Directory Co. dramatizes the scope of the control job necessary in the building. In addition to maintaining ideal comfort levels, humidity must be controlled to permit most efficient conduct of printing operations.

Other major advantages of the installation are:

... *big savings on cooling*—outside air is used to help cut costs of refrigeration.

... *big savings on maintenance*—with electronics only one man is needed to maintain all mechanical equipment.

... *an outdoor thermostat* anticipates weather changes in winter, preventing cold weather chill.

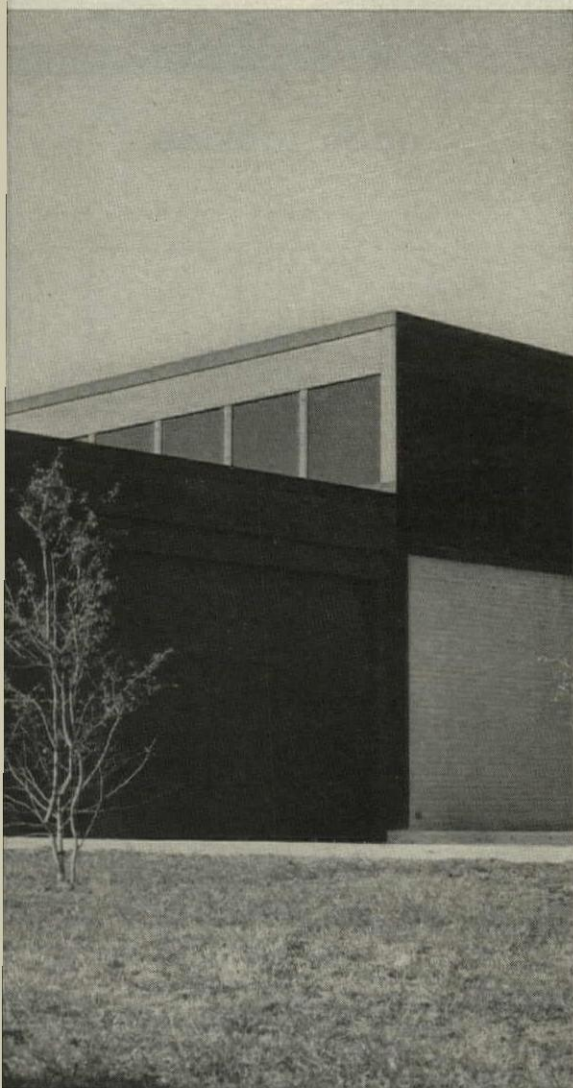
... *central control panel* gives one man a single check and adjustment point.

... *automatic sequencing*—from heating to ventilating to cooling. Comfort is controlled automatically by a single thermostat. No need for special separate thermostats.

... *unusual stability* is achieved by use of three-thermostat team—outdoors, in the space, in discharge air.



Improves air conditioning system efficiency



Big-system conveniences, important operating economies, comfort—you can provide them at reasonable cost with Honeywell Electronic Temperature Control.

GOOD performance of commercial air conditioning depends on good control. Not until the recent development of Honeywell Electronics was the *best* air conditioning control economically feasible for installations of moderate size.

Now it's possible for facilities such as those of General Telephone Directory Company, Des Plaines, Illinois, to have an air conditioning system with features completely modern—features that once were restricted logically to much larger installations.

These features, explained briefly above make possible benefits that only Honeywell Electronic Customized Temperature Control can provide at sensible cost. For General Telephone they make possible an ideal indoor environment—both for the comfort of employees and for printing processes so dependent on precise control of temperature and humidity.

These benefits suggest some of the ways Honeywell Electronics can help you give your clients unprecedented comfort, convenience, economy—in heating, ventilating, air conditioning and industrial control, in any building, new or existing.

Call your Honeywell office for a new booklet that tells more fully how to apply electronics to your clients' control problems—and for information on the economical Honeywell Periodic Maintenance Plan. Or if you prefer write Honeywell, Dept. MB-2-25, Minneapolis 8, Minnesota.

MINNEAPOLIS
Honeywell
Electronic Controls



112 offices across the nation

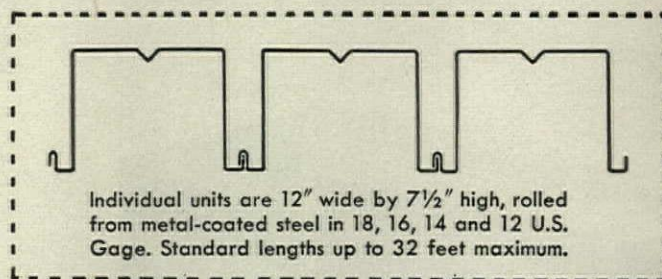


Now Span 32 Feet

with Robertson
Long-Span Q-Deck

LIGHT WEIGHT • GREAT STRENGTH • EASY TO INSTALL • GOOD LOOKING

After considerable testing and research, H. H. Robertson Company is pleased to announce the availability of a new product much needed in modern construction—a steel deck that will span great distances with the required load-carrying capacity. This new *Long-Span Q-Deck*, now in production, carries with it all the basic qualities and advantages of Robertson's well known Standard Q-Deck. Tight side laps become standing seams and are caulked and mechanically fastened at regular intervals to act as a vapor barrier and for structural stability. Units are easy to handle and erect with a minimum crew. They install quickly and tightly because of precision manufacture. *Long-Span Q-Deck* fills a long felt need in schools, supermarkets and other buildings where longer single spans bring construction economies and design flexibility. Any standard insulation and built-up water-proofing can be used. Use the coupon to write for technical literature about this new Robertson product.



For supermarkets and schools much greater latitude of design is allowed by increasing deck span. Considerable saving in structural steel is made possible, and time and labor are cut down in the erection of the deck itself.



H. H. Robertson Company

2403 Farmers Bank Building • Pittsburgh 22, Pa.

In Canada: Robertson-Irwin Ltd., Hamilton, Ontario

In England: Robertson Thain Ltd., Ellesmere Port, Cheshire

Offices in All Principal Cities

World-Wide Building Service

Please send free information on Long-Span Q-Deck.

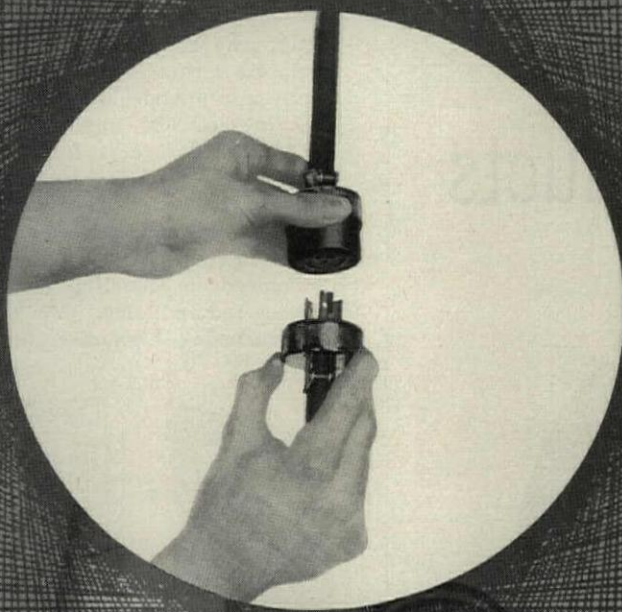
NAME

TITLE

FIRM

ADDRESS

CITY



BEHIND THE WHEELS OF INDUSTRY...

This is Industry, U.S.A.—big or small, light or heavy—it's powered by electricity; fed by a network of wire, cable, and a multitude of wiring devices.

BEHIND THE WHEELS OF INDUSTRY lie superior quality Leviton products—switches, sockets, plugs, receptacles, wire and cable—designed for reliability under all conditions. The four modern Leviton plants house the finest equipment to assure precision manufacture from raw materials to finished product... at a modest price. Complete testing laboratories assure top quality and peak performance of each Leviton device. No matter what your wiring needs, check over the extensive line of Leviton electrical wiring devices—the most complete line available anywhere.

Before ordering devices for your next wiring job, send for this new Leviton catalog. See for yourself why so many architects, electrical contractors and builders specify Leviton.



Your best jobs are done with . . .

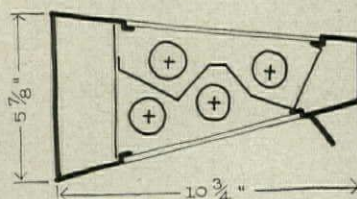
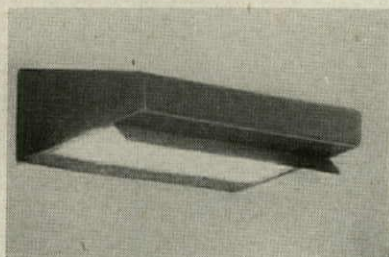
LEVITON

LEVITON MANUFACTURING COMPANY

236 Greenpoint Avenue, Brooklyn 22, N. Y.

Branches in Chicago • Los Angeles • Montreal

For Best Results Use Wire By American Insulated Wire Corporation



HOSPITAL BEDLIGHT: soft illumination from trim source

Lightolier's No. 28600 Bedlight is designed specifically for hospital rooms. Its acrylic panels in both top and bottom direct light to walls and ceiling for general illumination and down across the patient's bed for reading and dining. The patient can control the downlight by a pull switch, and a wall switch may be installed for the uplight. Equipped with trigger start ballasts, the fixture also provides a receptacle for plugging in electrical appliances. Priced at \$79.95, the fixture is fabricated of die-formed welded 20-ga. steel and comes in standard finishes of baked white enamel or aluminum. Its entire upper diffuser assembly swings up for relamping. Lightolier recommends a mounting distance of 40" between bed and lamp.

Manufacturer: Lightolier, Jersey City 5, N.J.

Michaels Quality Products

FOR YOUR BUILDING PROJECTS



Michaels produces aluminum, stainless steel and bronze products for the building industry. The bronze railing used in the Huber Mausoleum, New Orleans, is a typical example. And there are literally scores of other products for interior and exterior use.

Whatever you need, if it's made of stainless steel, aluminum or bronze, and irrespective of the size of the project, it will pay you to contact Michaels... a name well known among architects and builders for products of the highest quality. Michaels has the men and equipment to faithfully reproduce in metal the most intricate details of your designs.

Send us the specs. for your next job. We are confident you will find our prices right. And we'll be glad to refer you to any number of architects and contractors who have found Michaels a thoroughly reliable source of supply.

The Michaels Art Bronze Co., Inc.

P. O. Box 668-F, Covington, Ky.

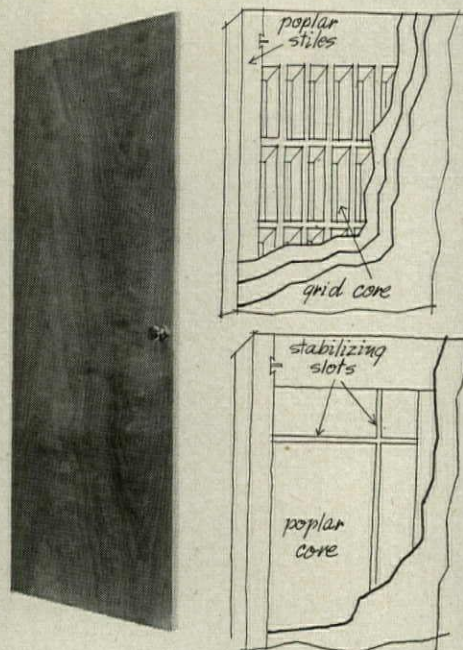
Stainless Steel, Aluminum and Bronze Specialists



MICHAELS PRODUCTS

- Bank Screens and Partitions
- Welded Doors
- Store Fronts (special)
- Building Skins
- Spandrels
- Louvers
- Windows (special)
- Revolving Doors
- Stair Railings
- Church Work (special)
- Candelabras
- Name Plates
- Letters
- Check Desks
- Lamp Standards
- Marquees
- Tablets and Signs
- MI-CO Parking Meters
- Museum Trophy Cases
- Bronze Inurnment Urns
- Bronze Vases
- Misc. Metal Work

Literature on any or all Michaels products will be sent on request.



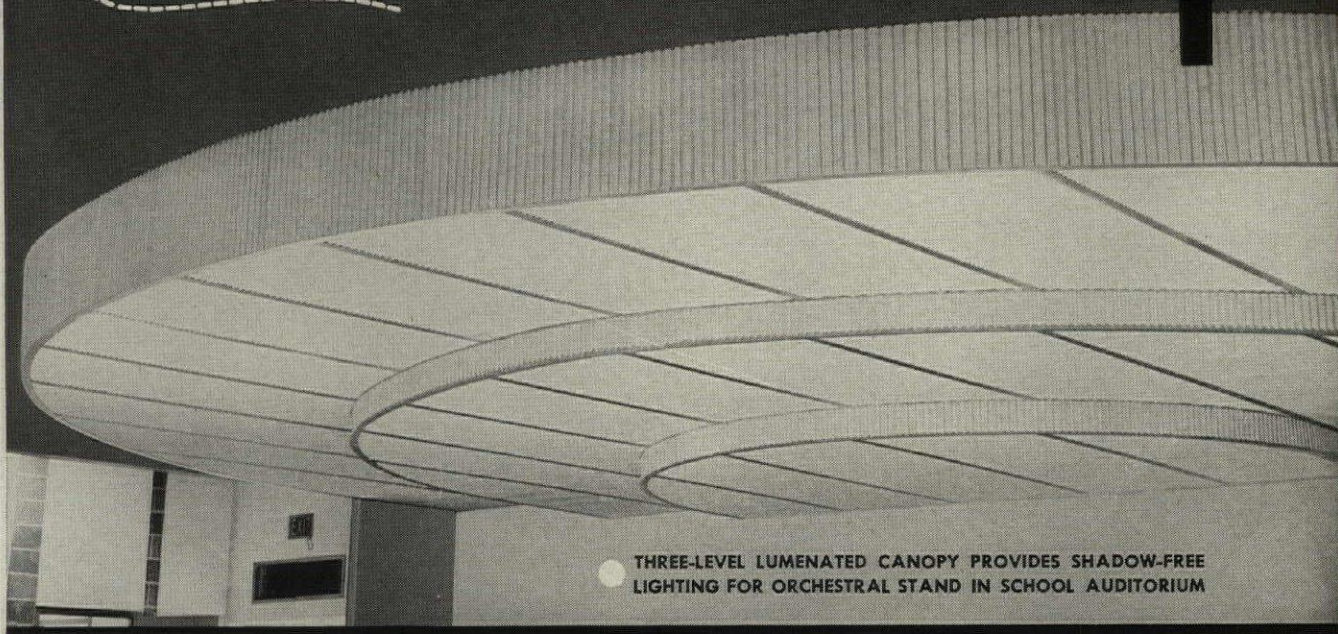
AFRICAN CHERRY FLUSH DOORS easy to finish, modestly priced

Not only are the mellow color and lovely rotary-cut grain of Mengel's *Gold Coast* Cherry flush doors compatible with contemporary architecture, but the tight texture of the African wood saves finishing time on the job. Factory sanded, the doors need no stain or filler—just one or two brush coats of lacquer. Mengel is making the attractive face veneers available on a full line of flush doors at considerably lower costs than doors faced with birch and other domestic dress woods. Approximate retail prices range from \$5.75 for a 1'-6" x 6' hollow-core door up to \$33 for a 4' x 8' solid-core.

Manufacturer: The Mengel Co., Louisville 1, Ky.

continued on p. 240

TODAY'S most versatile illuminated ceiling ●



THREE-LEVEL LUMENATED CANOPY PROVIDES SHADOW-FREE LIGHTING FOR ORCHESTRAL STAND IN SCHOOL AUDITORIUM



The Lumenated Ceiling is readily adapted to highlighting sections of an interior, such as this bar, or a merchandise display in a store, or inspection room in a factory.



In private and general offices, the Lumenated Ceiling diffuses light uniformly without glare, shadows or high spots and, at the same time, conceals piping, conduits, sprinkler heads and air conditioning ducts. Underwriters' Laboratories' Label Fire Retardant No. 3866.

for custom-made effects,
for uniform wall-to-wall lighting...

the **LUMENATED** Ceiling by thermotank

In the Lumenated Ceiling by Thermotank you get something more than the recognized advantages of this modern development in ceiling design and in soft, diffused, wall-to-wall illumination.

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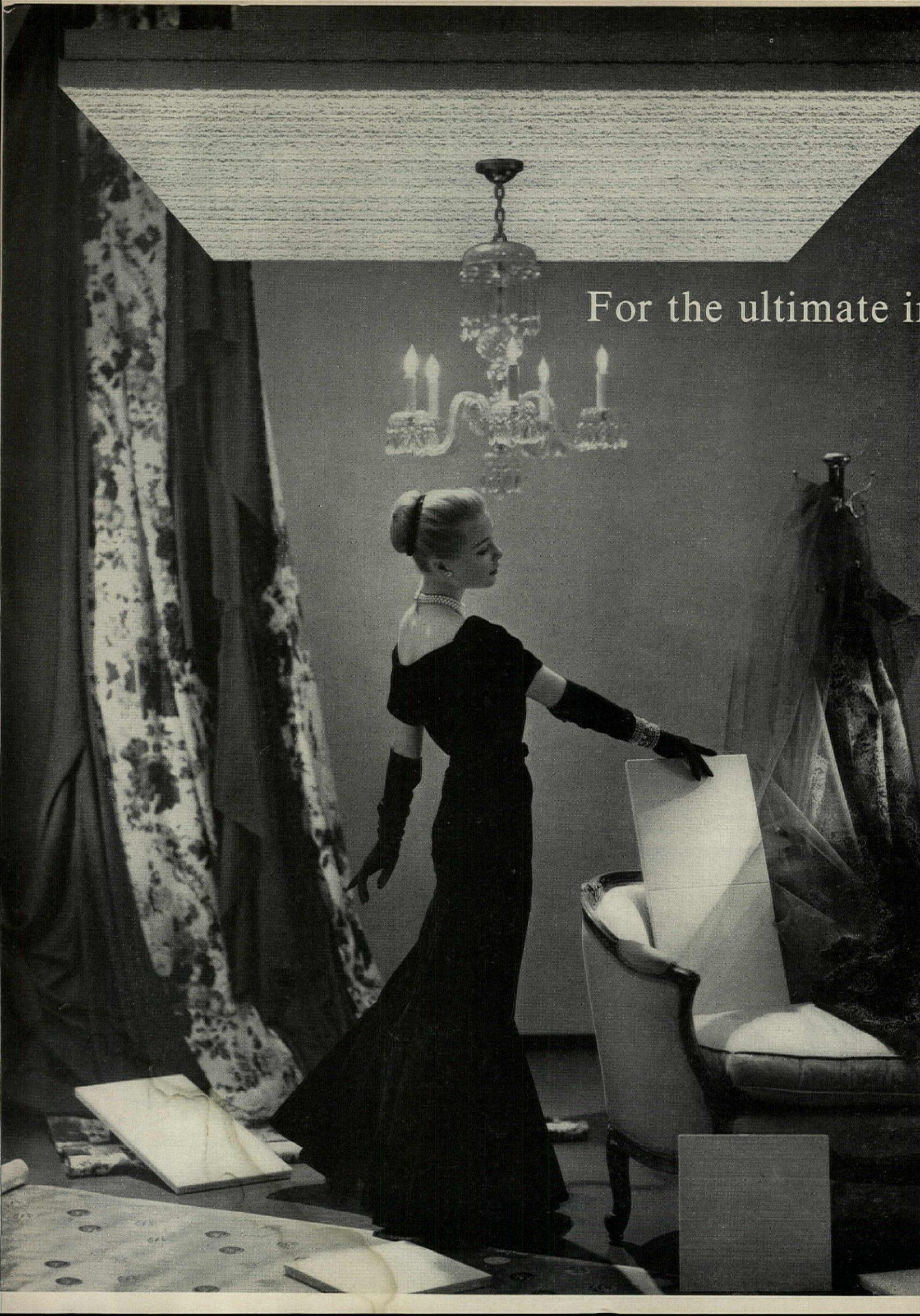
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APPROVED by the Board of Standards and Appeals for use in New York City under Cal. No. 463-53-SM.

RATED INCOMBUSTIBLE by Underwriters' Laboratories fire hazard classification.

ABSORPTION COEFFICIENTS OF EBBTONE ACOUSTICAL TILE

Test Number	Unit Size Tested	Wgt. Lbs. Per Sq. Ft.	Surface	Thick-ness	Moun- ing	Coefficients						Noise Reduction Coef**
						125	250	500	1000	2000	4000	
A54-280	12" x 24"	1 16	Natural White	13/16"	7	.63	.71	.64	.77	.84	.94	.75
A54-281	12" x 12"	1 16	Natural White	13/16"	1	.13	.31	.75	.95	.76	.77	.70
A55-296	12" x 12"	1 22	Natural White	3/4"	7	.57	.58	.80	.70	.86	.86	.70

**The noise reduction coefficient is the average of the coefficients at frequencies from 250 to 2000 cycles inclusive, given to the nearest 5%. This average coefficient is recommended for use in comparing materials to be applied in offices, hospitals, banks, corridors, etc.

INSPECTED ACOUSTICAL MATERIAL

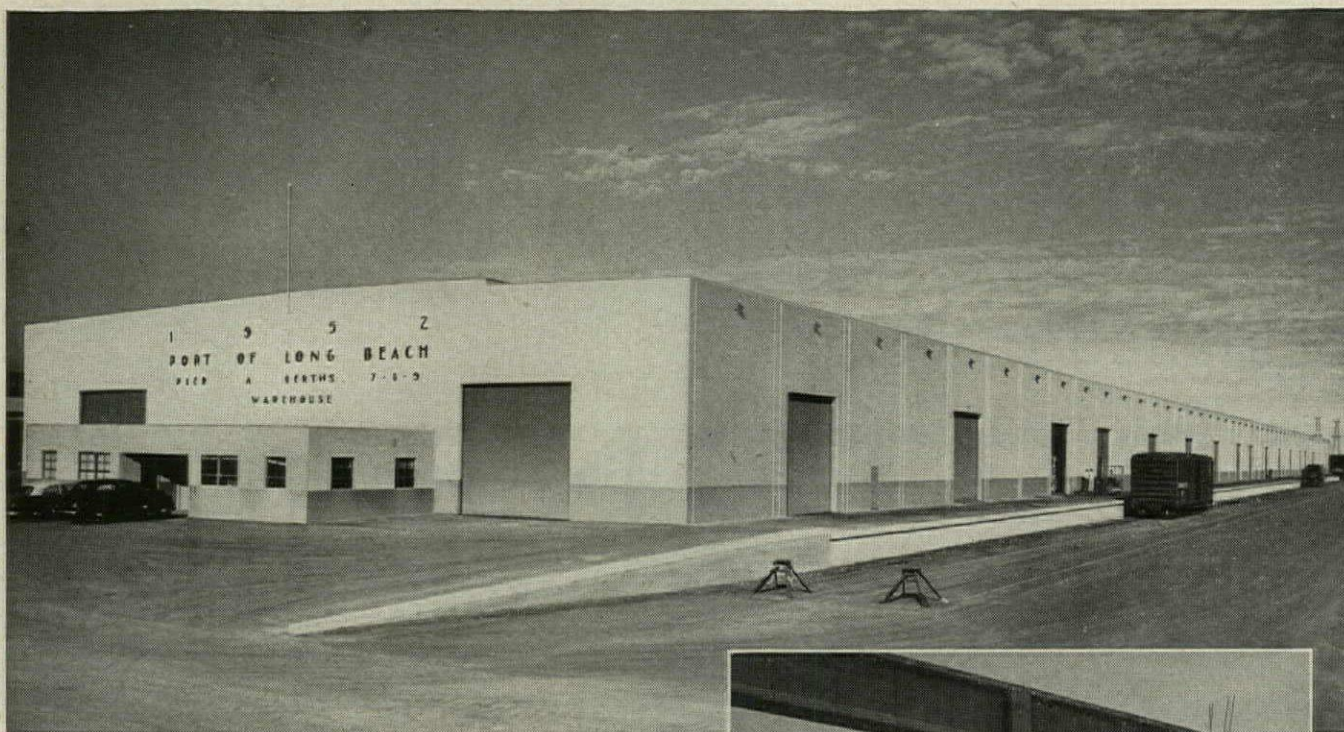
Not over 50 Sq. Ft. Issue No. C-422

FIRE HAZARD CLASSIFICATION

(Based on 100 for untreated red oak)

Attached to or Suspended From
Noncombustible Surfaces With
Noncombustible Attachments

FLAME SPREAD.....5-10
FUEL CONTRIBUTED.....10
SMOKE DEVELOPED.....0



Precast and Prestressed Concrete Reduce Construction Costs

The above photo shows the "Cotton Warehouse" owned by the Port of Long Beach, Calif. It is 150 ft. wide and 1200 ft. long and has precast concrete walls, frame and roof and precast, prestressed concrete roof girders that span 75 ft. from the outside walls to a single row of interior columns down the center of the building.

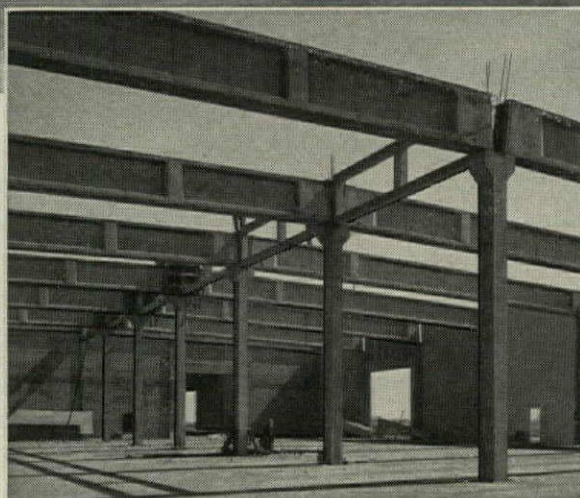
This structure is an example of the savings that result from the use of precast and prestressed concrete construction. A substantial reduction in construction time resulted from (1) starting the precasting operations at the same time that the foundation work was begun, (2) re-using the formwork frequently and (3) casting the structural units horizontally at a convenient height for the workmen. This plan allowed the workers to repeat the same operations many times. Better craftsmanship and higher quality concrete were the result.

Structures using precast and prestressed concrete units have all the advantages of conventional concrete construction. They can be designed and built to conform with all applicable building codes—anywhere. And they meet all structural requirements of great strength and durability, resistance to severe weathering, long life and **low-annual-cost** service. In addition, they can be built to withstand violent lateral forces caused by earthquakes, hurricanes or atomic blasts.

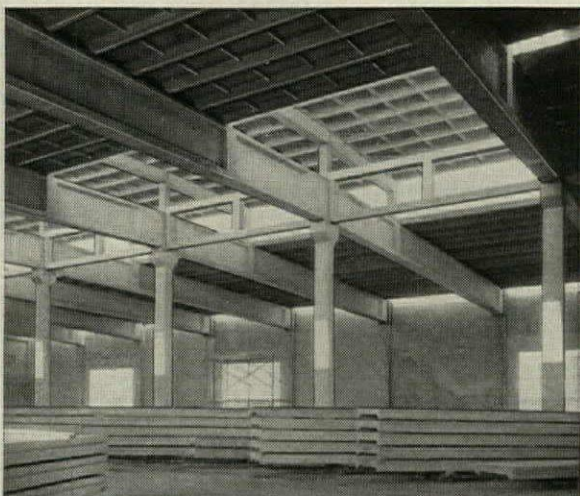
For additional information about precast or prestressed concrete construction write for free illustrated literature. It is distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION Dept. 2-7, 33 W. Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete... through scientific research and engineering field work



Top photo: general view of warehouse at Long Beach, Calif. Exterior longitudinal walls are precast concrete panels 30-ft. high, 23-ft. wide and 6 in. to 8 in. thick. Photo above shows 56 in. deep, I-shaped girders supported on cast-in-place wall columns and precast interior columns. Span of the precast girders is 75 ft.



Roof constructed of precast concrete channel slabs resting on prestressed girders and precast monitor frames. Warehouse designed by the office of the late J. H. Davies, consulting structural engineer. Structural engineer was James R. Bole of Long Beach, Calif. Contractor was Johnson-Western Constructors of San Pedro, Calif.

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Joints of Chase® Copper Water Tube and Chase® Solder-Joint Fittings mean a radiant heating job that lasts longer!

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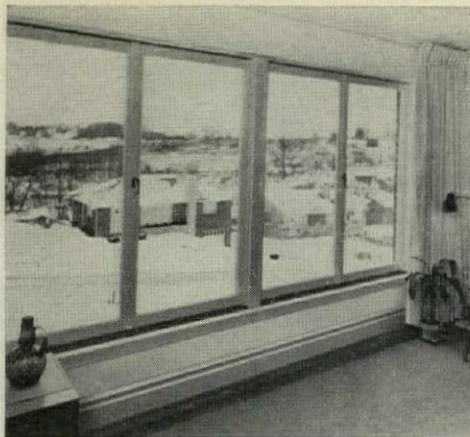
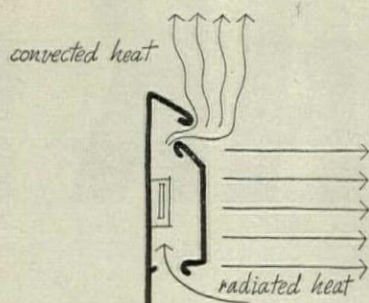
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PRODUCTS *cont'd.*



ELECTRIC BASEBOARDS combine convected and radiant heat

Matching the heat intensity output of hot water baseboard heaters, *Chromalox BBH* electric baseboards can serve as a complete decentralized heating system as well as boosters in chilly rooms. The heavy-gauge steel units are produced in 1', 2' and 5' lengths to provide electric heating for any wall to an even-foot measurement. Blank sections finish out exact wall-to-wall dimensions and inside and outside corner fittings are available for around-the-room installation. Standing 8 7/8" high and 2-9/16" deep, the *BBH* baseboards are adaptable for surface mounting on masonry walls or semirecessed installations against wall studs. Four-way terminal boxes facilitate connections from all sides. Engineered to give a balance of convected and radiant heat, the baseboards direct warm air currents up over outside walls to counteract cold drafts and radiate heat across the floor for additional warmth. For comfort and economical operation, separate thermostatic controls are recommended for each room. Installed cost, with all accessories, ranges from \$7 to \$9 a lin. ft.

Manufacturer: Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa.

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NON-SLIP AGGREGATE

In all kinds of weather, people coming in from the street meet no slipping hazard on this terrazzo floor containing ALUNDUM Aggregate. It is non-slip wet or dry . . . attractive, and will show no sign of wear for years and years.

Norton ALUNDUM Aggregate installed in terrazzo in the proper proportion makes the ideal walking surface — especially for entrances, hallways, stairs, ramps and countless other places where there is heavy foot traffic and a potential slipping hazard. Norton ALUNDUM (C. F.) Aggregate gives the same advantages to cement floors, stairways and ramps.

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POWER TOOL switches barrels for different studs

Useful in more than 90% of the fastening jobs in stone, wood, and metal construction, the Ramset *Duo-Jobmaster* is as safe and simple to handle as it is practical. To adapt the powder-actuated tool from 3/8" studs to 1/4" studs, the workman merely switches barrels, instead of changing the entire lower assembly as in earlier convertible guns. Like former models, the tool has an angle-fire control which prevents it from shooting unless the base plate is flush with the surface. Priced at \$149.50, *Duo-Jobmaster* has countless applications in the mechanical trades. Its base, handle and shield are chromed for clean handling.

Manufacturer: Olin Mathieson Chemical Corp., 460 Park Ave., New York 22, N.Y.

continued on p. 246

WOODCO
E-ZEE Loc
 WOOD AWNING WINDOWS

Consider the various elements that determine whether a window *measures up* to your specifications. **QUALITY**, **PERFORMANCE** and **STYLE** are primary considerations, of course, since they translate to home-buyer satisfaction. There's **ECONOMY** of labor that results from **EASE-OF-INSTALLATION**...made possible only by the manufacturer's rigid adherence to precise dimensions. Finally, you are concerned with the availability of a complete **RANGE** of **SIZES** and **STYLES** to meet every window requirement.

Whether you use one or all of these yardsticks you'll find **WOODCO E-ZEE Loc Wood Awning Windows** not only *measure up* but surpass all others in every respect.

there are many ways to measure a window

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- SEQUENCE AIR CONTROL
- TOXIC-TREATED TO PREVENT DECAY
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- DOUBLE VINYL WEATHERSTRIPPING (Pat. Pend.)
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for the Beautiful point-of-view...

For full information we refer you to Sweets Catalog or write to

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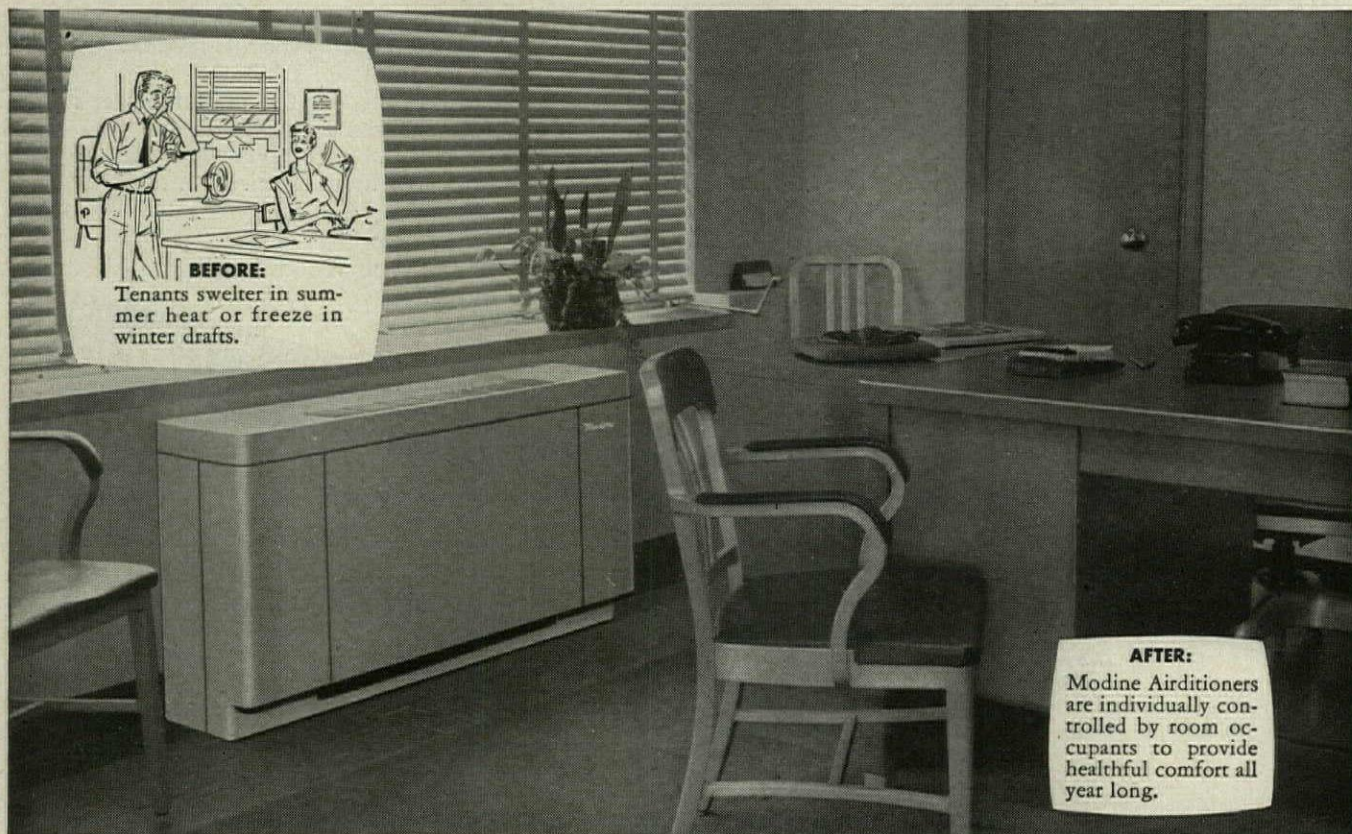
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1. Individual units replace radiators in each room to be air conditioned. Hot water from your present boiler is piped to each unit for heating. Cold water from a central chiller is supplied through the same piping for summer cooling. A small motor (1/30 to 1/12 hp) operates two quiet fans in each AIRditioner to provide refreshingly cooled or heated air circulation. There are no expensive ducts to install. Here is low-cost, year-round comfort for new or existing office and apartment buildings, hotels or motels, hospitals or homes.

2. Operating flexibility cuts costs. With Modine AIRditioners, room occupants control their own temperatures. Units are operated only when and where they are needed. No need to air condition an entire building to provide comfort only in occupied rooms.

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motors (1050 rpm top speed) having built-in thermal overload protection as a standard safety feature.

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Consult the classified section of the phone book for your Modine representative. Contact him or mail the handy coupon for illustrated booklet.

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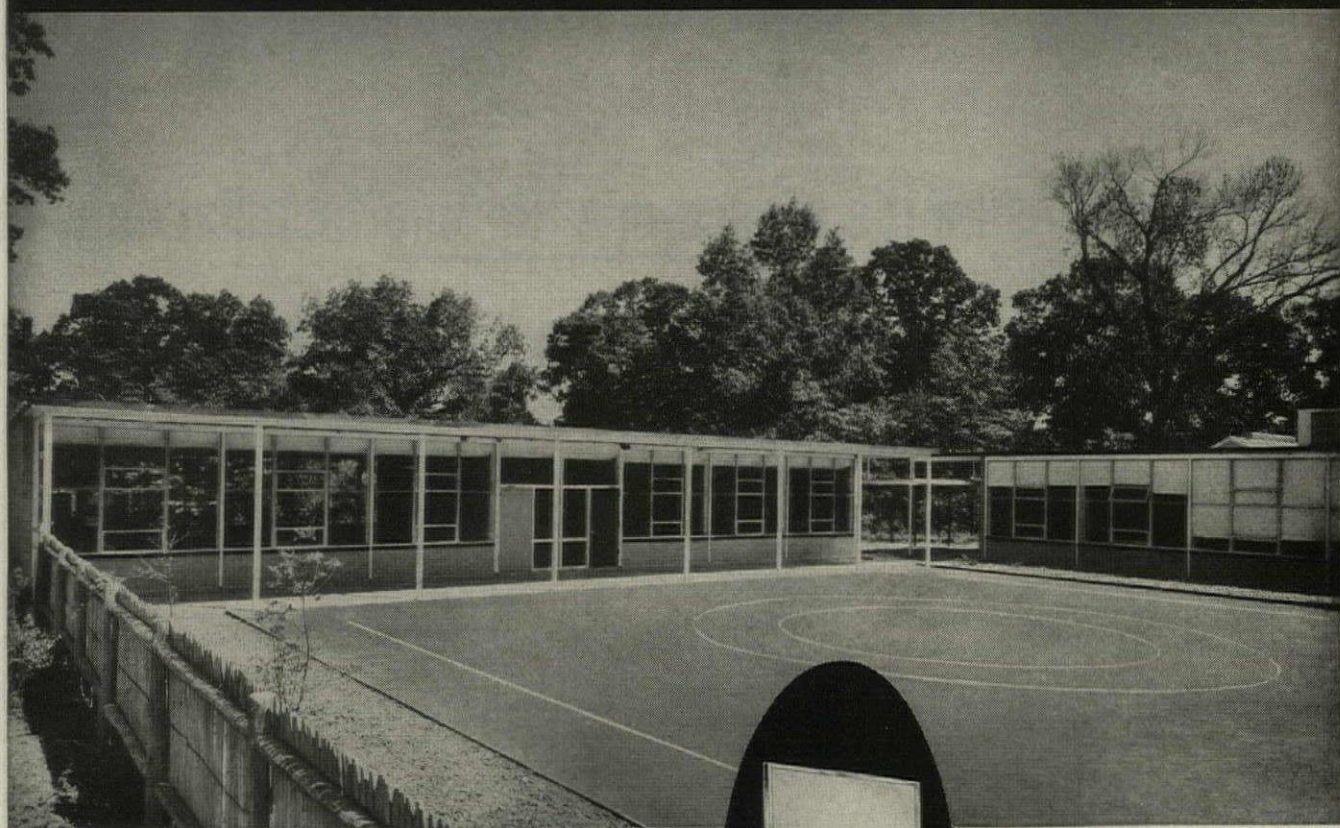
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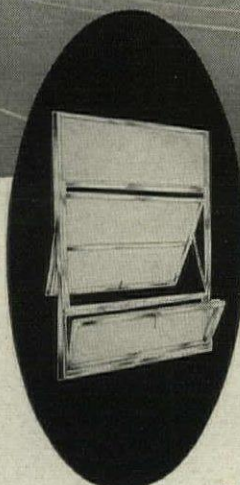
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A-1283

Bristol School, Webster Groves, Missouri, where Ceco-Sterling Aluminum Projected Windows were used. Architects: Hellmuth, Obata & Kassabaum. Contractor: Albers Construction Co.



**Windows of
quiet beauty
complement an
award-winning school...**



Ceco-Sterling Aluminum Projected Windows with Tubular Vertical Mullions Achieve Narrow Sight-Lines... Afford Maximum Daylighting... Reduce Maintenance Costs

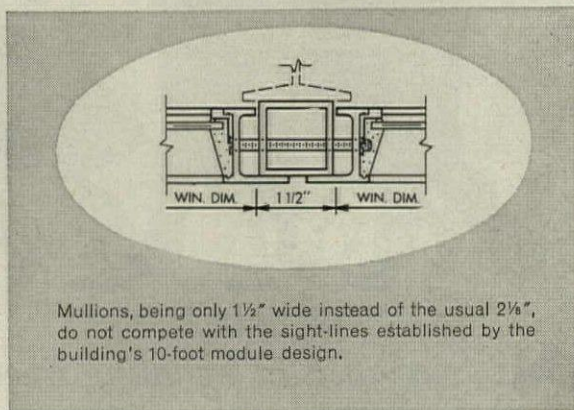
It's a combination of many things—some aesthetic—some functional—that determines the winner of a top award in a national school competition. So it was with the Bristol School, Webster Groves, Missouri, which received an award of merit from the American Association of School Administrators. The aim of architects Hellmuth, Obata & Kassabaum was to create an attractive environment centered around the physical and psychological needs of young children. Much thought was given the site and building position. Good illumination came in for careful study, and here Ceco-Sterling Aluminum Projected Windows were used for maximum daylighting. Ceco engineers worked closely with the architects in developing a tubular vertical mullion to achieve an extra narrow sight-line. All in all, the windows complemented the architectural concept. Since aluminum never needs painting, maintenance savings were assured. So—on your next project, consider Ceco's broad line of windows. They offer the variety and craftsmanship to meet your window requirements.



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General Offices: 5601 West 26th Street, Chicago 50, Illinois.

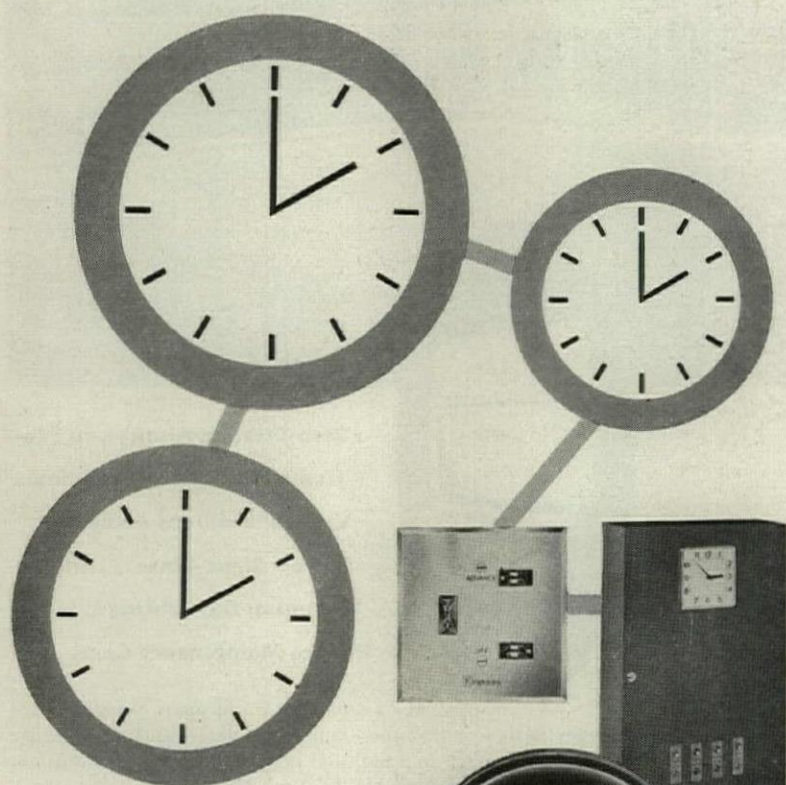
IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE



Mullions, being only 1½" wide instead of the usual 2½", do not compete with the sight-lines established by the building's 10-foot module design.

Library of the
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Make sure it's a "once-in-a-lifetime" installation with an **EDWARDS CLOCK and PROGRAM SYSTEM**



Edwards gives you the most flexible Synchronomatic Clock and Program System available! Engineering perfection of the Telechron® motor in an Edwards Clock System obsoletes hourly correction...eliminates the need for a master clock...provides simultaneous reset of all clocks instantly after a power failure—either automatically, or by the mere flick of a switch.

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EDWARDS *Specialists in signaling since 1872*

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Pacific Coast
buildings have
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New look that stays new looking.

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thickness of concrete, 16 times the rigidity of an equal weight of steel, is strongest for its weight of any construction material.

Designed to aircraft standards yet commercially priced, Douglas AIRCOMB can be sandwiched between wood, plywood, aluminum, magnesium, steel, glass laminates, masonite, porcelain enameled sheets, marble, concrete and other materials.

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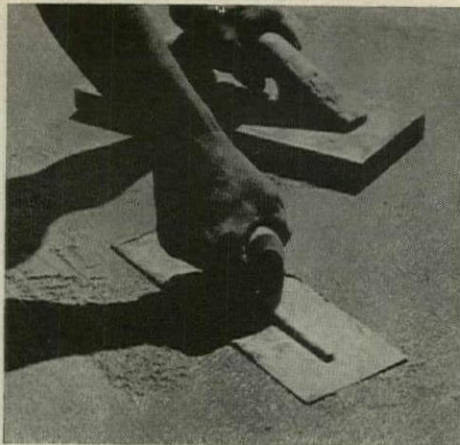


Architects today have unlimited choice of texture and color for panels, spandrels and curtain walls — with an AIRCOMB core to reduce weight, increase strength, and give insulation. Above, the new Hardware Mutual Building in Los Angeles.

PRODUCTS *cont'd.*

CHIPLESS CONCRETE TOPPER saves sorry slabs

Contractors faced with frozen or poorly finished concrete slabs can avoid the expensive procedure of hacking away 2" or 3" of the concrete and pouring a new finish slab by using Camp Co.'s *Latex Concrete Topping*. Troweled on in coats as thin as 1/16", the cement-latex material can be



bonded to any clean, stable surface—concrete, asphalt or even glass. The manufacturer reports it to be waterproof, grease-proof and oilproof and suggests it for driveways, sidewalks, trucking aisles, swimming pools, and basement floors. The compound also can serve as a crack sealer and finish for masonry walls. *Latex Concrete Topping* needs no curing even under sunlight, and will not dry out or powder. Sold in units of 40 lb. of powder and one gallon of liquid, the finish is priced at \$5.50 F.O.B. Chicago.

Manufacturer: The Camp Co., Inc., 6958 S. State St., Chicago 21, Ill.

FILTER cleanses dust, pollen and smells from room air

Removing all known gases and odors from the air, the *Smog-Free* filter needs no special accommodations other than a wall socket. Compact and quiet, the unit uses a two-speed fan to pull room air through a 2" aluminum filter which traps contaminants such as dust and pollen, and then through an activated carbon filter to remove smells and gases. The 10" x 14" x 14"



Smog-Free filter weighs 21 lb. and can be toted from room to room. It has a capacity of 300 cu. ft. per minute at high speed and sells for \$79.50. A large 14" x 17" x 17" unit, suitable for factory offices, restaurants, and clubrooms, has a capacity of 900 cu. ft. per minute at high speed. This model sells for \$119.50.

Manufacturer: Radex Corp., 2076 Elston Ave., Chicago 14, Ill.

continued on p. 252

World's Largest Structural Steel Dome
Chooses **POREX**
for Insulation, Sound Control, Fire Protection
at Lowest Cost



City of Charlotte, N. C., Coliseum and Auditorium

Structural Steel Dome: 322 ft. diameter
Architect: A. G. Odell Associates
Engineer: Severud, Elstad, Krueger
Contractor: Thompson-Street Co.
Over 150,000 sq. ft. of POREX used for roofing and wall furring.

The inside of the POREX slab is the actual ceiling, acoustically color-coated to match painted steel—no further finishing needed.

For roof decks of monumental buildings, architects quite naturally specify POREX. What other precast concrete slab offers such marked savings in labor cost, plus all these quality features:

- STRUCTURAL STRENGTH
- LIGHT WEIGHT
- NAILABILITY
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- HEAT INSULATION
- SOUND CONTROL

Plain POREX for short spans and Composite POREX or Plain POREX on subpurlins for long spans are ideal for Auditoriums, Gymnasiums, Schools, Armories, and many other uses. For floors, precast lightweight concrete channel slabs and concrete plank are available. Send us your specifications.



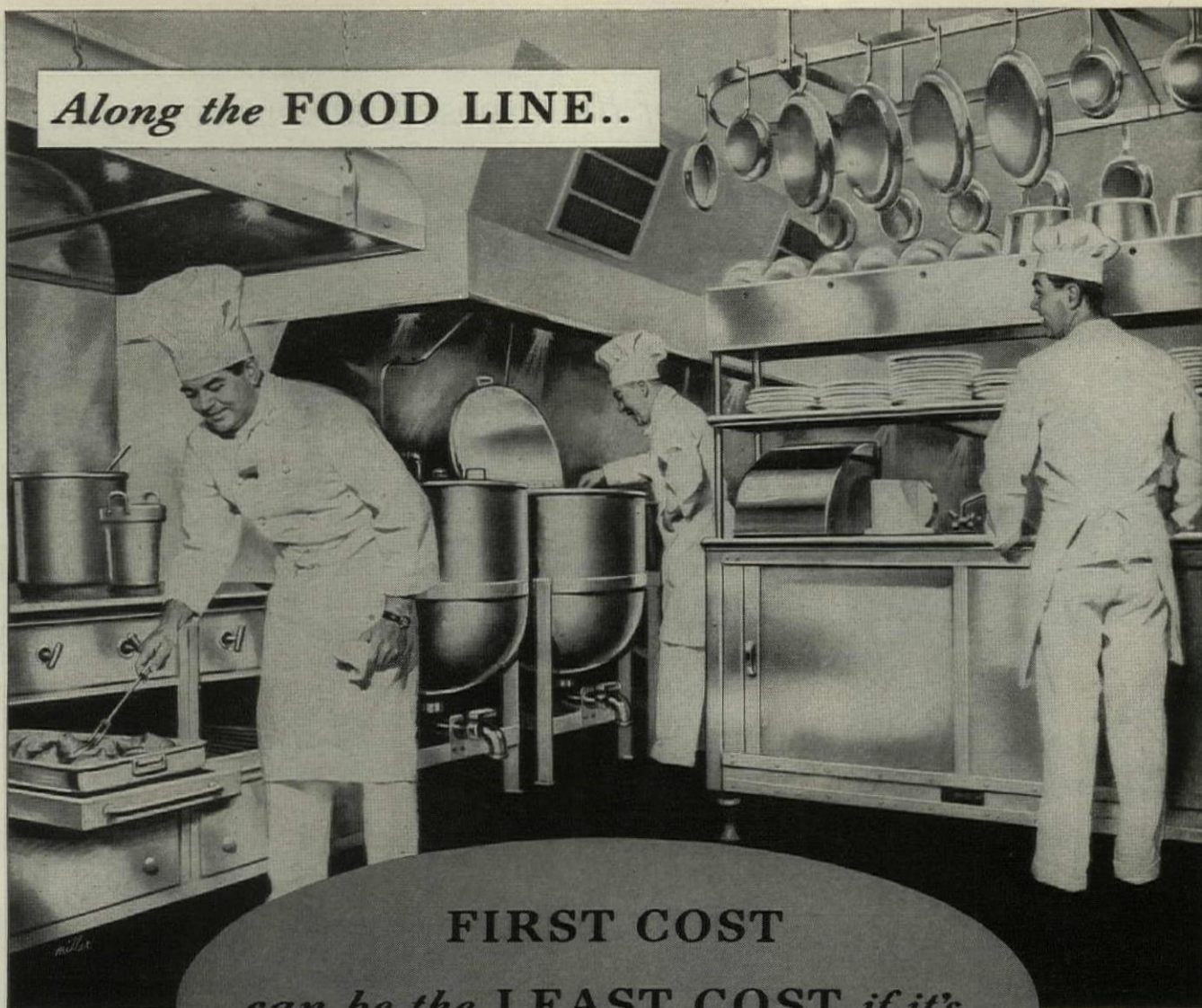
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can be the LEAST COST if it's
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No material is more at home around food (or beverages, drugs, chemicals, etc.) than AL Stainless Steel. And that's not just because stainless is perennially good-looking, and so easy to keep clean.

Basically, it's because stainless steel equipment is the most economical you can buy. It stands up so much better—lasts so much longer—costs so much less to clean and maintain—that it actually saves you money in the long run. First cost isn't the whole story, you know. It's the long-term, over-

all cost that counts, and no other material is as hard, strong and resistant to heat, wear and corrosion as stainless steel.

So, when you want equipment that has to look well, maintain high sanitary standards and take a beating every day, remember that only stainless steel can give you the utmost in service and economy. Use time-tested AL Stainless, and let us help you work out any design or engineering details. *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

Make it **BETTER**-and **LONGER LASTING**-with
AL Stainless Steel

Warehouse stocks carried by all Ryerson Steel plants



Pioneer and master of the exposed ceiling concept...

Frank Lloyd Wright



FOR FIFTY YEARS the name Frank Lloyd Wright has signified freedom of architecture. "There should be as many types of houses as there are types of people, and as many differentiations of the types as there are different people," he says.*

Through his long and distinguished career, Mr. Wright has ever been a champion of new forms and new materials. Of Tectum, he says, "I have personally examined Tectum and find that it is a material of exceptional merit. Selection of Tectum could very well be applied to my theory of Organic Architecture—natural to the time and place for which it is designed and natural to the man for whom it is built."

Versatile wood-fiber Tectum provides a perfect material for a functional roof, advocated by Mr. Wright for so many years. A single thickness of Tectum serves as a roof deck . . . insulation . . . acoustical treatment—and is decorative as well.

Write now for complete information—or phone your nearby Tectum distributor. Tectum Division, Peoples Research and Manufacturing Company, 302 South Sixth Street, Newark, Ohio.

*From Frank Lloyd Wright, *An American Architecture*. Edited by Edgar Kaufmann; Published by Horizon.



With the functional roof, Mr. Wright says, "You have a wide-spreading overhead that is really a release of interior space to the outside: a freedom where before imprisonment existed."*



Advanced thinking of Mr. Wright is very well illustrated by the living room ceiling of the Coonley House, Riverside, Illinois, built in 1908. It is a forerunner of today's exposed ceiling concept.

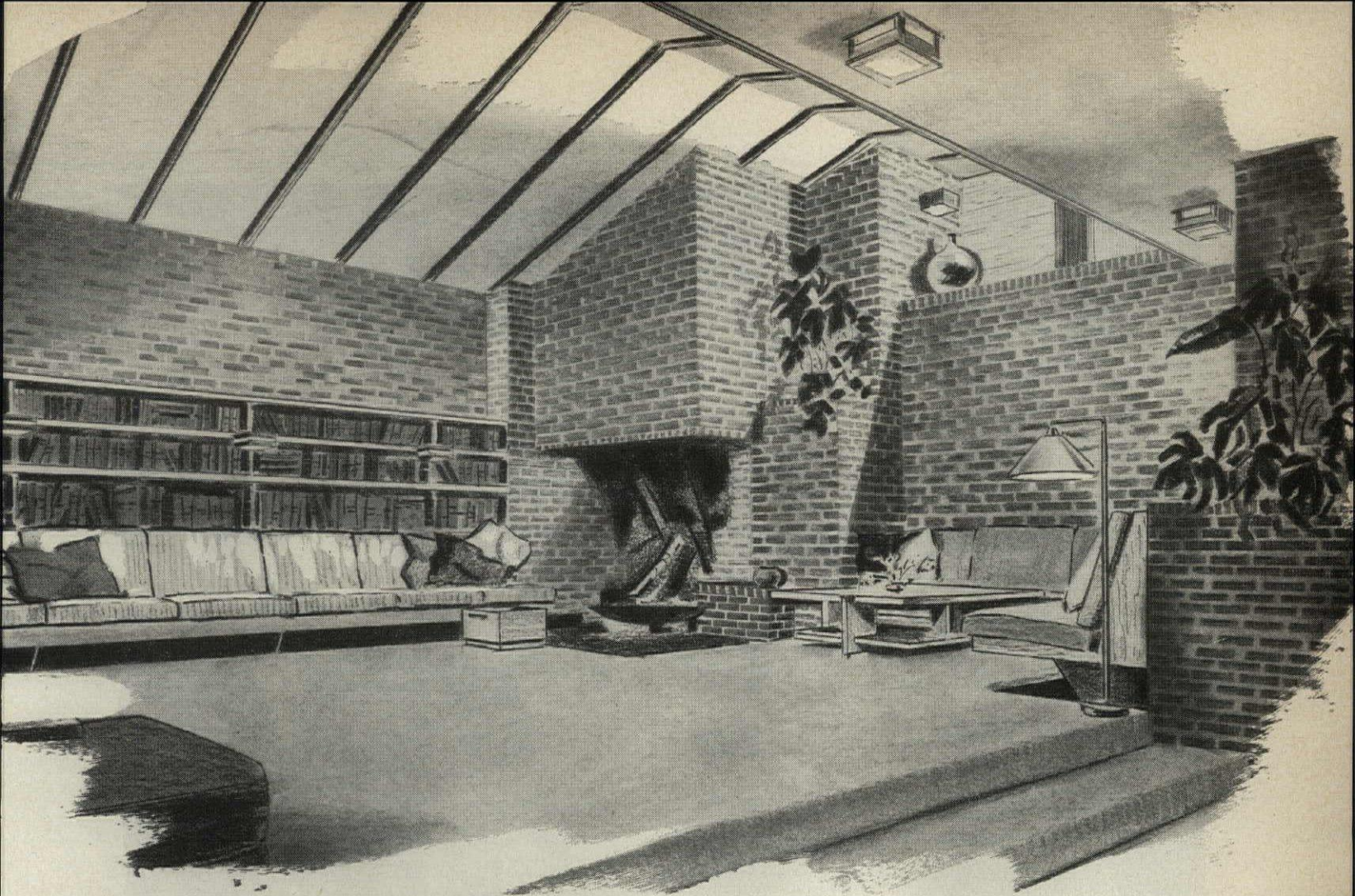


why lay a
roof deck...



cover it with
insulation...

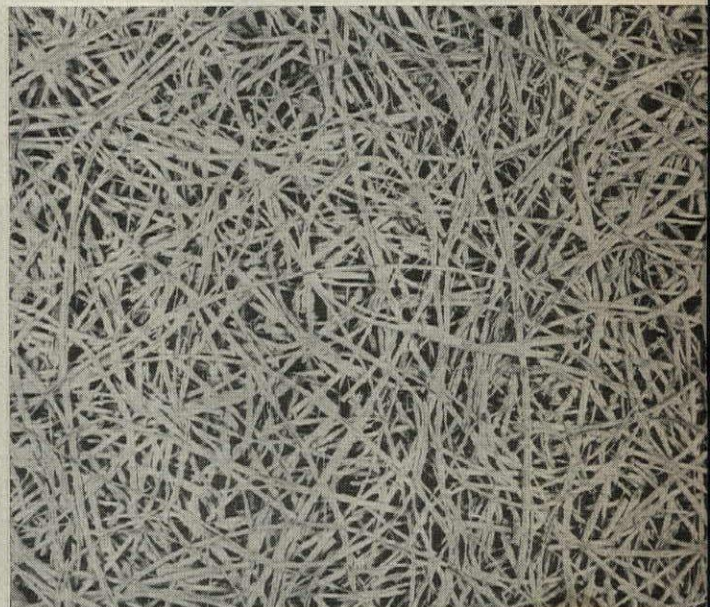




The studio-type ceiling, with exposed structural members as is shown above, is extremely popular in contemporary architecture today. Had Tectum been on the market at the time Mr. Wright designed this room, it would have provided the perfect deck and ceiling material.

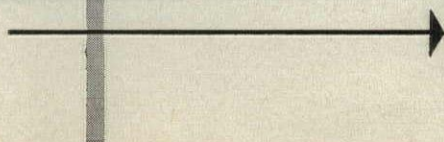


Tectum goes down so quickly and easily. Here, in a single product, all "overhead" requirements are met. Think of this in terms of tremendous savings of time, labor, money!

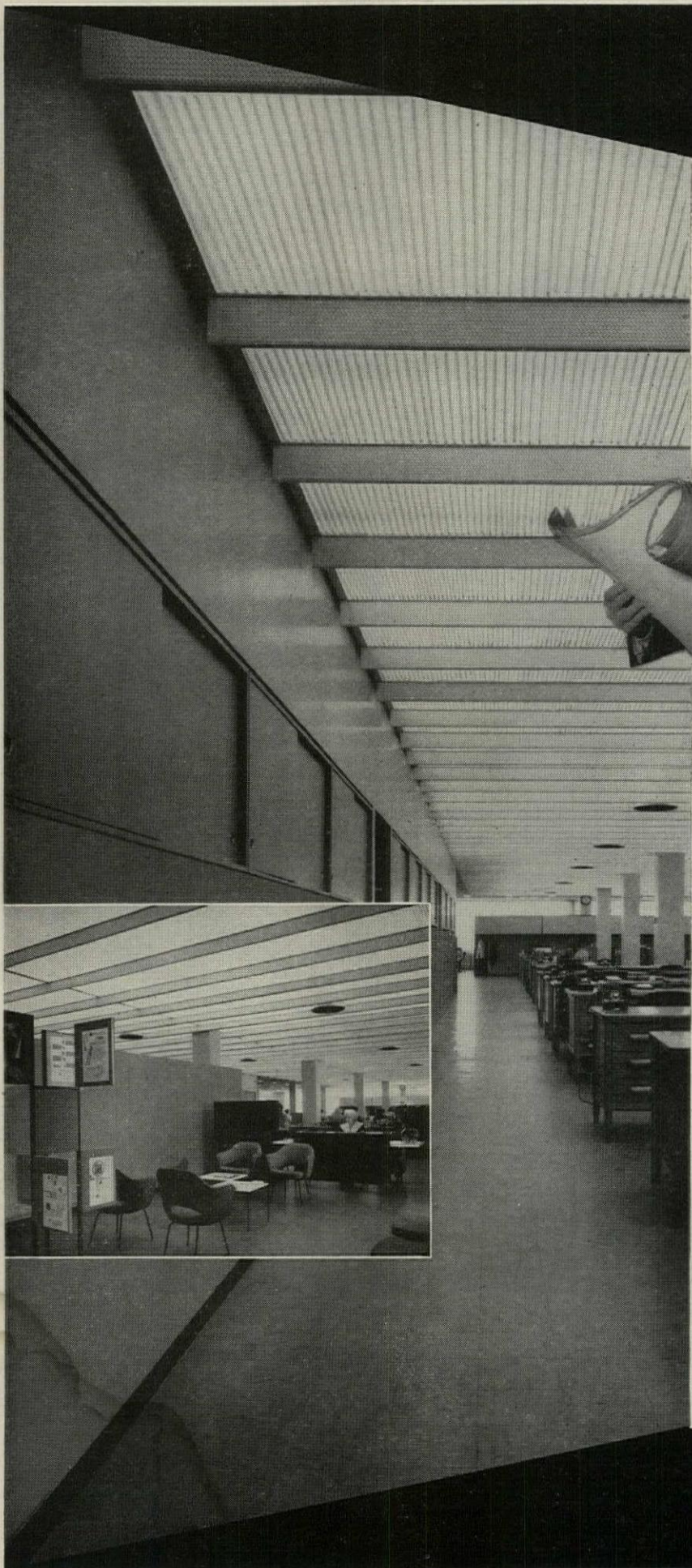


and add acoustical
material...

when you get
all 3 with the



For Plants • Commercial Buildings • Institutions • Homes



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*Powers & Kessler
New York City, New York*

Client:

*Thomas & Betts
Elizabeth, New Jersey*



Requirements:

A shadowless light of high intensity
... uniform distribution without
direct or reflected glare ... *plus*
quality acoustical control.

Specifications:

9,132 square feet of Acusti-Luminus
Ceiling manufactured by Luminous
Ceilings, Inc. to provide 60 foot
candles of light maintained at
desk level.

Glare-free, evenly diffused light
through a suspended, translucent
ceiling that hides pipes, ductwork
and sprinkler systems. Made from
unbreakable, corrugated Lumi-
Plastic with Acusti-Louvers to
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To architects, school board members, teachers and maintenance personnel, Movable HAUSERMAN Steel Interiors provide economical, efficient and easily-maintained school interiors for the life of the building. These outstanding features of HAUSERMAN Interiors assure completely functional, yet clean, fresh, modern school rooms year after year.



COMPLETE FLEXIBILITY—Provides the means of keeping pace with changing space requirements as the crest of student population moves from primary levels through secondary and into advanced levels. Available in various widths, HAUSERMAN panels can be fitted to most modular plans permitting interiors to be rearranged without changing heating, lighting and ventilating systems. HAUSERMAN design also makes wiring easily accessible for adding or relocating outlets.

EARLIER OCCUPANCY—HAUSERMAN skilled erection crews, available throughout the country on short notice, assure fast, clean and expert installation. Completion time is speeded because with HAUSERMAN Interiors there's no waiting for plaster and paint to dry, little cleanup needed, and lay-in wiring facilities and accessories are built in.

SOUND-CONDITIONED SPACE DIVISION—A standard Movable HAUSERMAN Wall (2¾" thick) will stop more sound than a 5½" thick tile-and-plaster wall. And special HAUSERMAN acoustical ceilings may be specified for particularly noisy areas.

VERTICAL TEACHING SURFACES—Movable HAUSERMAN Interiors, fitted with special hooks, hangers and magnetic thumbtacks present boundless possibilities for display areas. HAUSERMAN accessories also include chalk boards, peg boards, bookcases, shelves and closets to provide "working walls."

FIRE SAFETY—Only steel- and mineral-wool insulation—both totally incombustible materials—are used in the fabrication of HAUSERMAN Interiors.

LOW MAINTENANCE COST—An exclusive, lifetime, baked-enamel finish requires only routine soap-and-water washing to maintain its "fresh from the factory" look. HAUSERMAN Interiors never require repainting.

INTEGRATED ENGINEERING SERVICE—HAUSERMAN engineers work closely with the architectural team to provide detailed working drawings. Further, with Movable HAUSERMAN Interiors, field supervision is cut to a minimum because there is just one source of supply eliminating the need to coordinate the activities of several trades.

FLEXIBILITY IN THE COORDINATED CLASSROOM

An objective, comprehensive report prepared by Darell Boyd Harmon and Associates for The E. F. Hauserman Company is available for you. The subject of school interior flexibility and its impact on psychological and physical environment of children is discussed and the solution to achieve permanent flexibility through application of Movable HAUSERMAN Interiors is covered. Send for your free copy today.

See flexibility in the classroom first hand. Visit HAUSERMAN'S display booths 1452 and 1454 at the convention of

THE AMERICAN ASSOCIATION OF SCHOOL ADMINISTRATORS

Atlantic City Auditorium
February 18-23

HAUSERMAN

MOVABLE INTERIORS

THE E. F. HAUSERMAN COMPANY
7108 Grant Avenue • Cleveland 5, Ohio

Please send your "Flexibility in the Coordinated Classroom" to:

Name _____

Company _____ Title _____

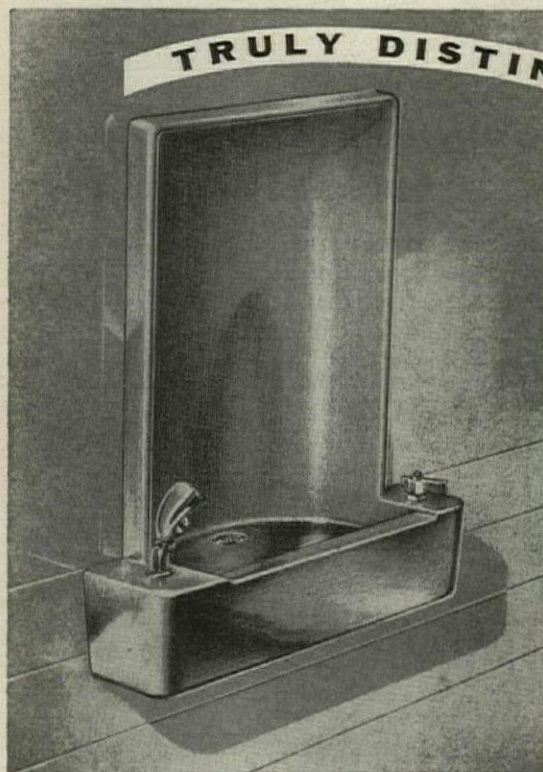
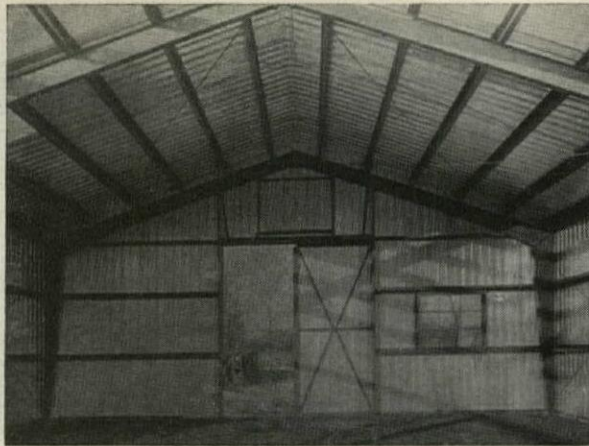
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PRODUCTS *cont'd.*

FRAME PREFAB assembled on ground, sheathed from outside

Tapered rigid frames are the principal members of Steelcraft's latest prefab industrial buildings. Supplementing the firm's prefab line, the tapered frame series has several significant engineering details that speed construction and so keep overall costs modest. The buildings' base shoe



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STEEL...

HAWS

**SEMI-RECESSED
WALL FOUNTAIN**

MODEL No. 73

Smartly designed, extraordinarily convenient is this entirely new HAWS Semi-recessed Fountain that takes up little space in corridor or room and has drinking fountain head and operating lever handle accessibly located opposite one another on the top platform. An access panel in wall is NOT required for this fountain and all fittings are accessible from under bowl.

Write today for full details of this handsome fixture that will lend grace to your most exactly designed public building, office building, school, hospital or restaurant.

HAWS

DRINKING FAUCET CO.

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connection is designed so that the frame can be assembled on the ground and raised into place with a minimum of equipment. All roof and wall sheets are fastened from the outside, eliminating inside scaffolding. To locate punch holes for sheet metal screws, the applicator taps over embossed holes in the flanges of the girts and Z purlins with a mallet, creating raised impressions in the metal sheet. Stronger than corrugated or shallow fluted panels, Steelcraft wall and roof sheets have 1" deep ribs 8" o.c. (Top and bottom of side wall panels are crimped to keep the buildings



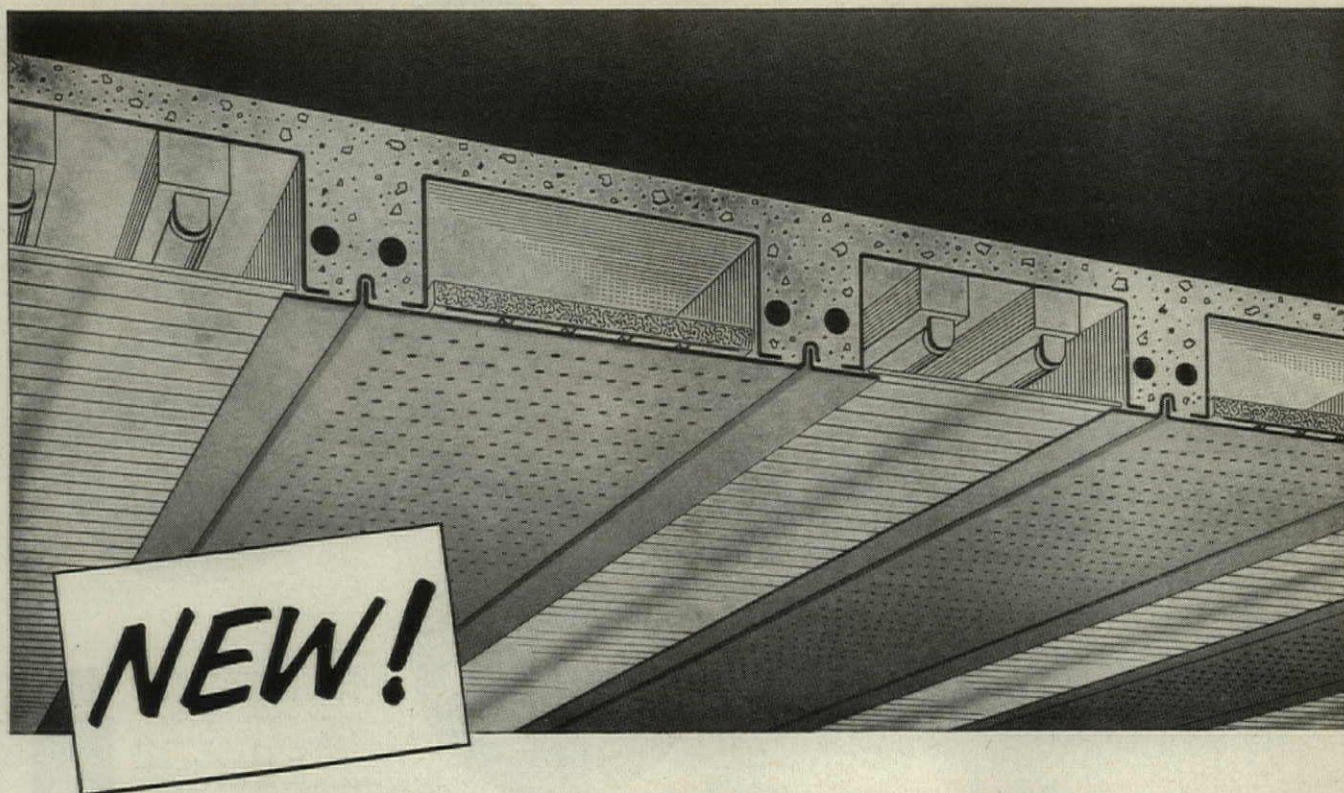
weather and bug proof.) A one-piece ridge sheet eliminates a separate ridge cap and precludes the possibility of leaks at that vital spot. Standard industrial windows may be installed anywhere between the continuous girts with just two jamb angles. Costs of the tapered frame structures vary according to size and accessories but an average building—40' wide, 100' long and 14' high at the eaves with a nominal number of windows and doors—would run about \$1.25 per sq. ft. of floor area, or \$5,000 plus local charges for labor, concrete slab and utilities.

Manufacturer: Steelcraft Mfg. Co., Blue Ash Rd., Rossymoyne, Ohio

IRON CLIPS hold up plywood forms for concrete floors

Developed by New York Engineer Edward S. Klausner for use with steel junior beams, these little 3" cast iron clips reduce formwork for concrete floors to its simplest, least expensive state—plain plywood. Claimed to save thousands of dollars

continued on p. 256



FENESTRA TROFFER-ACOUSTICAL PANEL SYSTEM CUTS COST OF REINFORCED CONCRETE SCHOOL CONSTRUCTION

**Multi-purpose Steel Panels provide long-span forms for concrete joists
plus acoustical ceilings and recessed lighting troffers built right in!**

Multi-purpose is the key to economy in school construction. The NEW Fenestra* Troffer-Acoustical Panels (TAC Panels, for short) are designed for multi-purpose use of materials and construction labor. They permit you to have acoustical treatment and lighting—features that usually require extra time and labor—*built right in the structure itself!*

Money is saved because 3 expensive building materials are wrapped up in these economical building panels: (1) the forms for concrete joist construction, (2) metal pan acoustical ceilings, and (3) recessed lighting troffers.

Time is saved because the structural floor for the rooms above and the acoustical ceiling and lighting system for the rooms below are completed at the same time . . . with only paint, finished flooring and installation of fluorescent fixtures to be done after the concrete has cured.

And, this new building system gives you better-looking, better-lighted classrooms that are easier to maintain, year after year. The ceilings can be washed or repainted as often as needed, without affecting the acoustical treatment. There is no hanging ceiling or "stuck on" acoustical material to be damaged or replaced.

Investigate the NEW Fenestra TAC Panel System now. Even if you have plans on the drawing board, they may easily be adapted to use it.

Call your local Fenestra representative or write today for your copy of the new brochure, *Fenestra TAC Panel System*. Detroit Steel Products Co., Dept. AF-2, 2296 E. Grand Blvd., Detroit 11, Michigan.

*Trademark

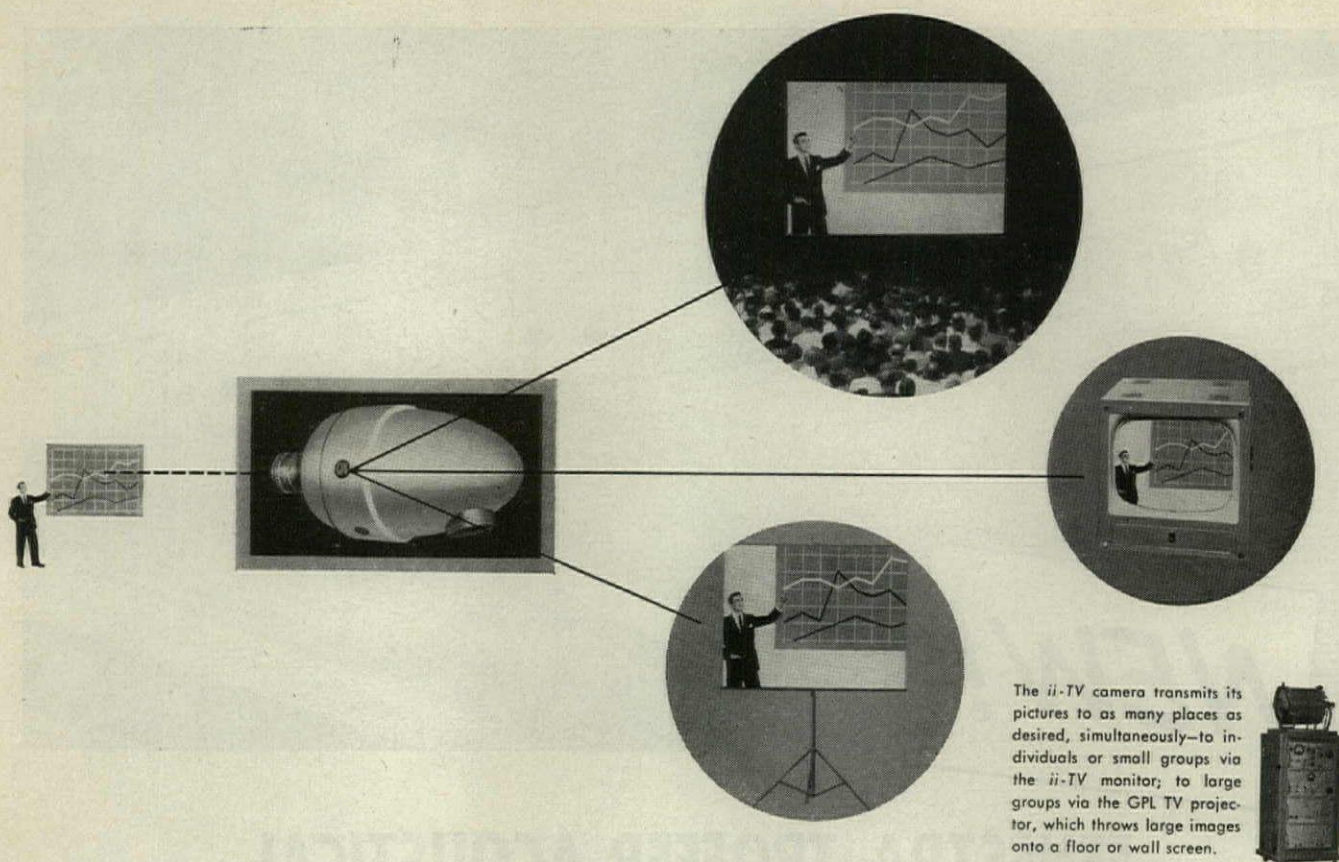
Architectural, Residential and Industrial Windows,
Metal Building Panels • Electrifloort[†], Roof Deck •
Hollow Metal Swing and Slide Doors [†]*



Fenestra

TROFFER-ACOUSTICAL BUILDING PANELS

Patents applied for



How GPL *ii-TV*®

can contribute to the buildings on your boards

You can augment the usefulness of every *industrial* and *institutional* building on your boards, by including GPL *ii-TV* in your basic designs. For *ii-TV* is *working* television—television that increases the efficiency of men, machines, and buildings. It transmits visual information from room to room, from story to story, from building to building.

A GPL *ii-TV* System enables individuals or groups to communicate visually over a closed TV circuit with the same ease that a telephone permits verbal communication over telephone wires.

The GPL *ii-TV* System can be used for scores of different jobs—and more uses are being found all the time. Here are just a handful of different kinds of uses of GPL *ii-TV*.

In schools—for simultaneous instruction of scattered classes by one teacher, supervision of play

and study areas. **In hospitals**—to keep watch over patients, for professional teaching of large groups. **In churches and hotels**—to handle overflow audiences. **In offices**—to present information to management or staff, check remote records. **In factories and laboratories**—to monitor processes and machines, supervise remote, cramped or dangerous operations. **In department stores**—for surveillance; to present upper-floor merchandise to ground floor shoppers, check records, provide sales and warehouse control.

Put GPL *ii-TV* to work for greater efficiency and lower operational costs for your clients. It will multiply the usefulness of existing buildings. In new buildings, it will give you new freedom of design.

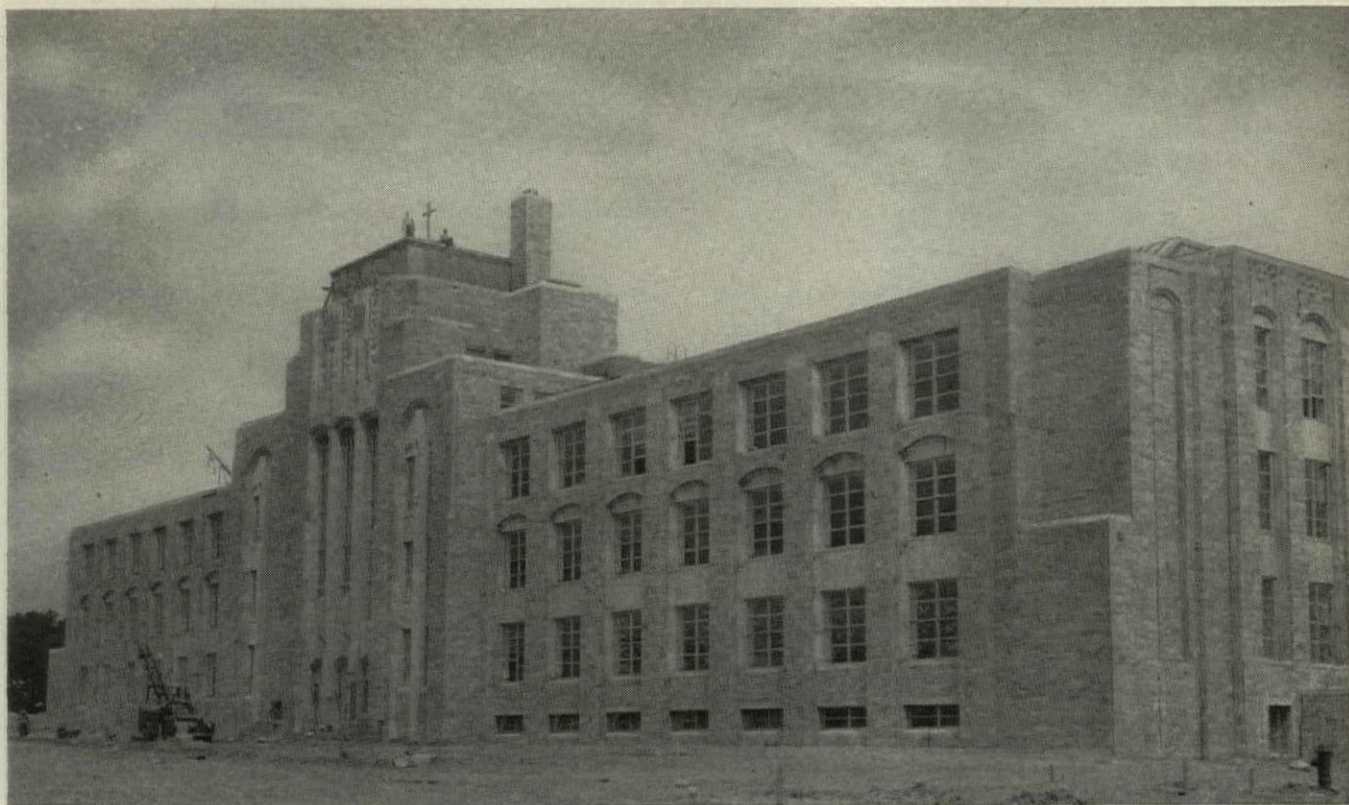
For further information, write to:



General Precision Laboratory Incorporated
Pleasantville, New York

A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION





Some day a "hallowed hall"! This is the basis for the design of the new Liberal Arts Building at St. John's University, Queens County, N. Y. Seen here in the final construction phase, the tower is planned for beauty, for permanence, for

minimum maintenance. It's roofed with "life-of-the-building" Monel. Architect: Henry V. Murphy, Brooklyn. General contractor: Veit & Company, Inc., Flushing, N.Y. Monel sheet metal work: John Schneider Roofing Contractors, Inc., Brooklyn.

University tops off fine building with a Monel Roof

These workmen are capping St. John's University's new Liberal Arts tower with Monel* nickel-copper alloy . . . Monel batten seam roofing, Monel sheathing, Monel through-wall flashing.

As an architect, you know university administrators want permanence as well as beauty in their buildings.



Going on to stay. It will probably be years before this new Monel batten seam roof needs attention. It may *never* need it. All sheathing and through-wall flashings are Monel, too.

They want endowment funds spent for education rather than building maintenance.

To meet these requirements, as far as roofing is concerned, the architect for St. John's specified Monel Roofing Sheet.

A good move for any architect . . . Monel Roofing Sheet is "life-of-the-building" roofing. Easy to cut, form and install with standard tools. Beautiful. Practically no maintenance needed.

Monel alloy can't rust. Doesn't corrode from airborne chemicals. Never needs paint. It's strong. Tough. Wear resistant. It doesn't buckle or crack because of quick temperature changes.

Monel nickel-copper alloy resists strain, too. Better than other non-

ferrous materials. Won't creep on vertical surfaces. Won't crack when bent double.

Suits many buildings

People say that a Monel alloy roof, like an education, is good for life. On government buildings, schools, hospitals, libraries, churches, museums. On factories, laboratories, office buildings, railroad stations, hotels. Even homes.

Look into Monel roofing for *your* next job. Send today for "One Metal Roof." Booklet pictures typical Monel-roofed buildings, gives service records, discusses installation methods. For help on specific jobs, simply get in touch with us.

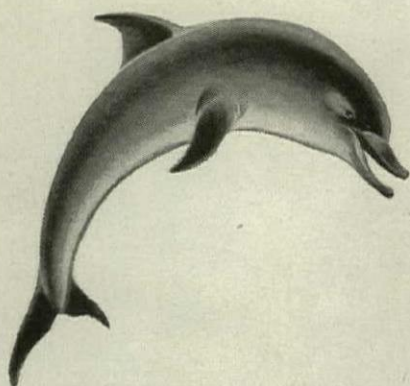
*Registered Trademark

The International Nickel Company, Inc.
67 Wall Street New York 5, N. Y.



Nickel Alloys

Monel Roofing . . . for the life of the building



How Kewanee creates "safe weather" for fish...

KEWANEE

reserve

plus

boilers

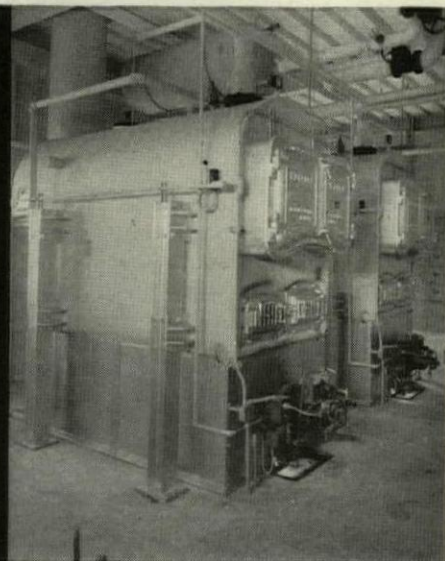
rated

maintain constant temperature

Water temperature is like weather to fish and sudden variations of only a few degrees can be fatal. The problem at Marineland, world's largest oceanarium, Los Angeles County, California, is to meticulously maintain temperatures so its priceless deep sea specimens are not endangered. That's where Kewanee Boilers came in. Cold water from the sea is brought in at the rate of 2,000 gallons per minute. It is vital that boilers offer unfailing service so the inside water temperatures remain constant despite the ceaseless flow of water from the outside. Architects Pereira & Luckman specified Kewanee Reserve Plus Rated Boilers with 50% extra power built-in to take care of fluctuating demands. Only with reserve power could Marineland be sure its rare collection would be protected. And only boilers rated on nominal capacity with built-in reserve could meet the changing demands. So, if your problem is one of maintaining heat against as sharply a defined need as a few degrees change in temperature, or the broad problem of assuring sufficient power when expansion comes, choose Kewanee. You can be sure of unfaltering service.



Marineland Oceanarium, Los Angeles County, California, where rare fish are protected by Kewanee Boilers which assure uniform water temperature. Architects & Engineers: Pereira & Luckman/ Heating Contractor: Mehring & Hanson Company



Two oil-fired Kewanee Boilers, housed with a 260 gallon hot water storage tank.

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KEWANEE  BOILERS

You can depend on Kewanee Engineering



today you can cover a plain wall
surface with colored polished granite
for 22% less than it cost 30 years ago.*

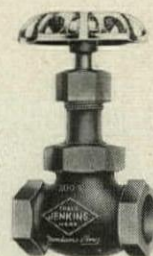
*For comparative facts and figures, contact
your nearest Cold Spring representative listed in
Sweet's 3a/Co.

COLD SPRING GRANITE COMPANY
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Cost file: File 8-B-3 on cost of 12 granite entrances
Brochures: Granite in Places of Worship; Granite in the Hospital; Granite in the School

From East to West . . . builders agree . . . Jenkins Valves help

contemporary schools meet strict economy tests

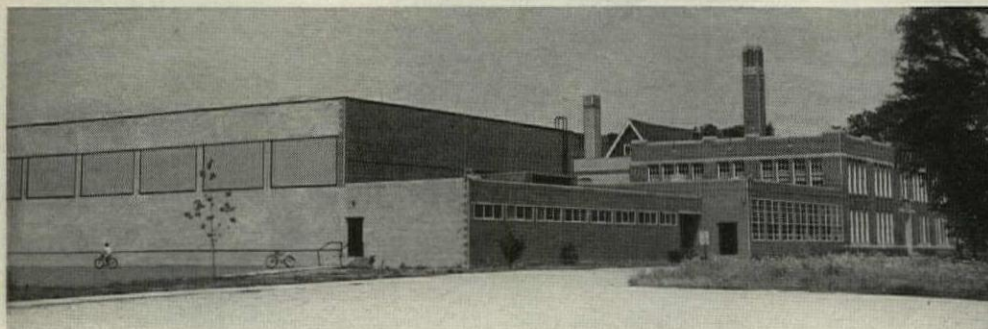


WORCESTER, MASS.

Chandler Street Junior High School



Architect: G. ADOLPH JOHNSON, WORCESTER. Consulting Architect: ARCHITECTS COLLABORATIVE, CAMBRIDGE. Consulting Engineer: TUCKER & RICE, INC., WORCESTER. General Contractor: JOHN CAPOBIANCO, BOSTON. Heating Contractor: THE MERRILL CO., INC., BOSTON AND WORCESTER.



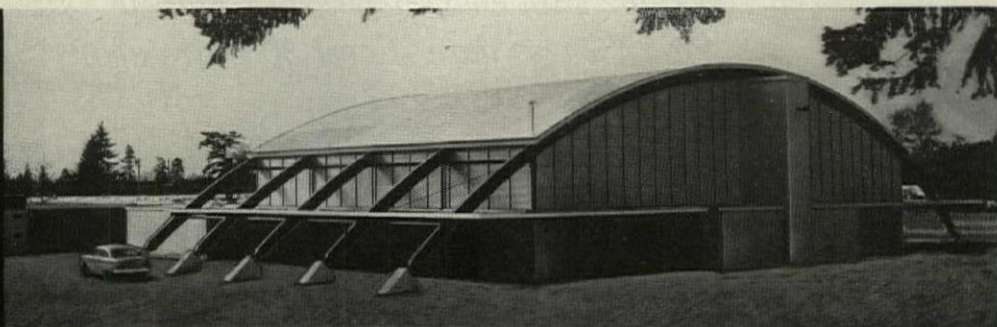
GROSSE ILE, MICHIGAN

Grosse Ile High School Addition and Gymnasium

Architects and Consulting Engineers: EBERLE M. SMITH ASSOCIATES, INC., DETROIT. General Contractor: R. STEWART CO., INC., DETROIT. Mechanical Contractors: PAGE PLUMBING & HEATING CO., RIVER ROUGE.

TACOMA, WASHINGTON

John S. Baker Junior High School



Architects: MARSHALL PERROW AND ROBERT B. PRICE, TACOMA. General Contractor: OSTRUSKE-MURPHY, TACOMA. Mechanical Engineers: WORTHEN & WING, TACOMA. Mechanical Contractor: GROSSER AND CO., TACOMA.

School committees and consultants planning new buildings today face a difficult problem . . . keeping costs in line with available funds. Taxpayers want low cost-per-pupil, yet communities insist on facilities to meet today's high educational standards.

The many new schools that provide both are a credit to the nation's architects and builders. Careful planning for long-term maintenance economy, as well as low building costs, has led to the frequent choice of Jenkins Valves for these schools, throughout the nation.

Leaders in every field of construction share this confidence in the time-proved efficiency, durability, and safety of Jenkins Valves. Let the Jenkins Diamond be

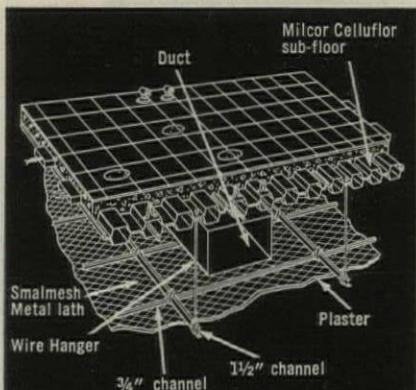
your guide to valve economy, for all new installations, for all replacements. Jenkins Bros., 100 Park Avenue, New York 17.

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JENKINS VALVES

LOOK FOR THE JENKINS DIAMOND





Versatile concealment for ducts and service equipment

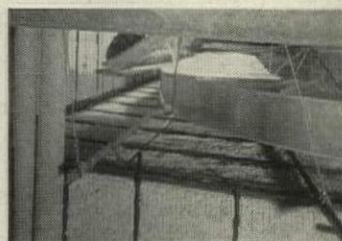
Crack-resistant, fire-safe ceilings of Milcor Metal Lath and plaster give you complete freedom of design

A suspended ceiling of Milcor Metal Lath readily takes any attractive form — arched, groined, coffered, or domed. It is light in weight, easily erected, and economical. And it qualifies for fire-ratings up to four hours, depending upon type and thickness of plaster used.

Pound for pound, no other construction offers fire-ratings equal to metal lath and plaster. This factor is especially important in remodeling, where weight must be restricted to the structural limits of the existing frame.

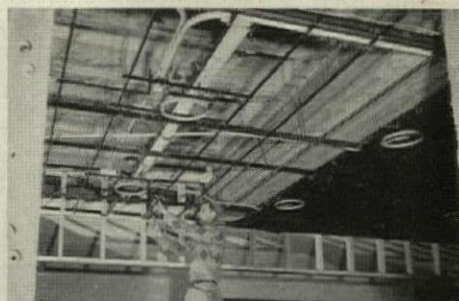
Milcor Catalog No. 202 illustrates and describes the complete line of Milcor Metal Lath and accessories. Copies are available upon request, or consult Sweet's.

MILCOR® Metal Lath



This view of a suspended metal-lath-and-plaster ceiling shows how the back surface of the plaster becomes permanently bonded to the metal lath.

This plasterer is using a machine to apply gypsum-lightweight-aggregate plaster on a suspended ceiling.



Here, a lather is tying a cold-rolled channel framework from wire hangers during initial steps in building a suspended metal-lath-and-plaster ceiling, to conceal a large ventilating duct.



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M-174

JOE THE ARCHITECT SCORES AGAIN

or How to Soothe
a Troubled Client

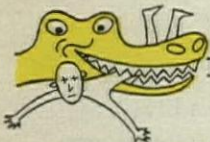
Once upon a time Joe the Architect was busy



at his drawing board

when in stormed Herman his client. Now Herman was a home builder --- a

worried home builder --- at work on some new homes. Costs, cried Herman,

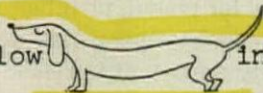


I'll be eaten alive by costs. Cease worrying, soothed Joe, I

have a capital idea that won't take much capital. So Joe the Architect

told Herman the Home Builder all about versatile Concrete Masonry and

especially about its low



in-the-wall cost. Concrete Masonry is

a natural for a home builder. Not only is the initial cost low, but

block comes in



many shapes and sizes and will give individuality

to houses built from a basic plan. Joe went on and on and Herman sat

enthralled. Concrete Masonry is also a tip-top material for interiors,

Joe said



weaving his magic spell. Many of the most expensive

dwellings have handsome, sound-absorbing, exposed block interior walls.

That ought to save finishing costs shouted Herman, anxious to get in on

the act. Of course, you know, said Joe



that Concrete Masonry is

firesafe, vermin-proof and is a breeze to maintain. Righto, said Herman.

So arm in arm, Joe the Architect and Herman the Unworried Home Builder

went to see Sam the Concrete Masonry Man -- a local NCMA member -- for all

the details.



And they built happily ever after.



MORAL:

If you're a worried home builder or even an unworried architect, find out how your local NCMA Member can help you out with all the answers about versatile Concrete Masonry.

NATIONAL CONCRETE MASONRY ASSOCIATION, 38 S. DEARBORN, CHICAGO

PRODUCTS *cont'd.*

in construction costs, the *K* clips hook over the top flanges of the lightweight beams at intervals of about 2½' to serve as supports for the 2'-wide, ⅝" plywood panel forms. After the concrete sets, workmen knock off the exposed parts of the clips from below. (The clips, fabricated of brittle cast iron, can sustain a heavy load but not a sharp blow.) The center portion of clip remains in the floor and the plywood forms



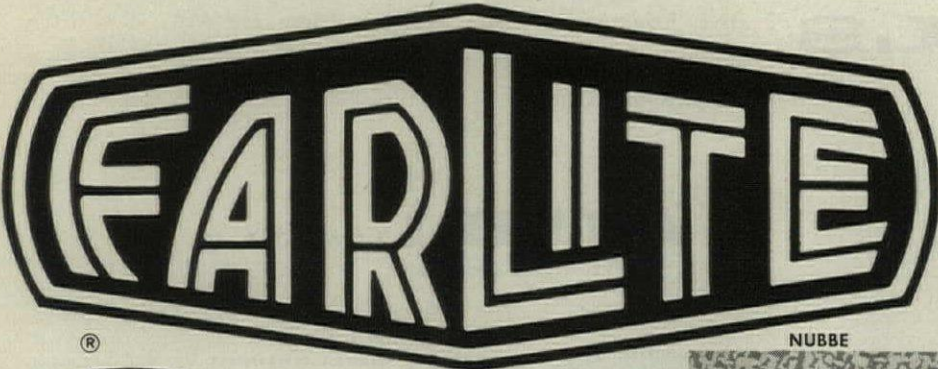
drop down for re-use as many as 20 times. Estimated to pare \$1 off each square foot of concrete floor construction, 45,000 of the 8¢ clips are credited with a \$90,000 saving in a 12-story New York apartment building. The floors themselves cost about 50¢ per sq. ft. and four were poured in one week. Klausner reports that the *K* clips not only reduce labor time, but also provide for additional slab thickness by allowing the concrete to come below the beams' top flanges. Applicable to any size junior beam in schools, hospitals and commercial structures as well as apartment houses, the *K* system takes best advantage of standard width plywood sheets when used with beams spaced 2' or 4' on centers.

Distributor: K System, Inc., 11 W. 46th St., New York, N.Y.



DOES SO MANY JOBS
...So Well!!

THAT'S WHY YOU CAN BE SURE WHEN YOU SPECIFY



the very best
in high pressure

PLASTIC LAMINATES

It's good planning . . . a sound investment . . . to take advantage of Farlite's many superior functional features for fabricating table tops . . . counter, desk, sink, bar and soda fountain tops . . . partitions and paneling . . . decorative interior treatments . . . a host of other applications. Its glass-smooth, non-porous surface is sanitary, easy to clean, permanently beautiful . . . resists heat and burning cigarettes . . . is not affected by alcohol, grease, fruit acids, mild cleaning solutions . . . will not chip or fade. Available in a wide range of more than 50 Farlite colors and patterns, including beautiful wood grains, in 1/16" thick sheets as well as complete warp-resistant tops and panels 13/16" and 1-1/4" thick . . . can also be made to your specifications. Write for descriptive folder and name of nearest distributor . . .

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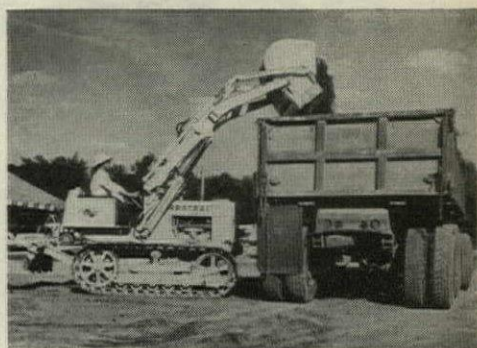
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CRAWLER TRACTOR handles as easily as automobile

Featuring instant-shift transmissions, the 12 new *TerraTracs* put crawler-tractor operation on a par with pleasure driving—without traffic problems. The new transmission, having a constant-mesh gear train and hydraulic clutches, permits the tractors to be shifted in any speed or direction without losing momentum, and to be maneuvered and pivoted effortlessly. Fast and smooth as they are agile, the *TerraTracs* have four forward speeds up to 5.63 mph and four reverse up to 6.2 mph. A torque converter on several of the models keeps the tractor engine (diesel or gasoline) working at its most efficient speed for long engine life and little off-the-job repair time.

Huskiest of the new *TerraTracs*, the 1 cu. yd. 600 pictured above has a clear dump height of 9' for easy loading of tall trucks and hoppers. It develops a drawbar pull of almost 8 tons. Accessory equipment includes bulldozer blades, backhoes and a four-speed hydraulic winch. Model 500, selling for \$4,200, develops a 5½-ton pull. Equipped with a ¾-yard power bucket and digging teeth it costs \$6,200 F.O.B. factory. Manufacturer: American Tractor Corp., Churubusco (Ft. Wayne), Ind.

continued on p. 262

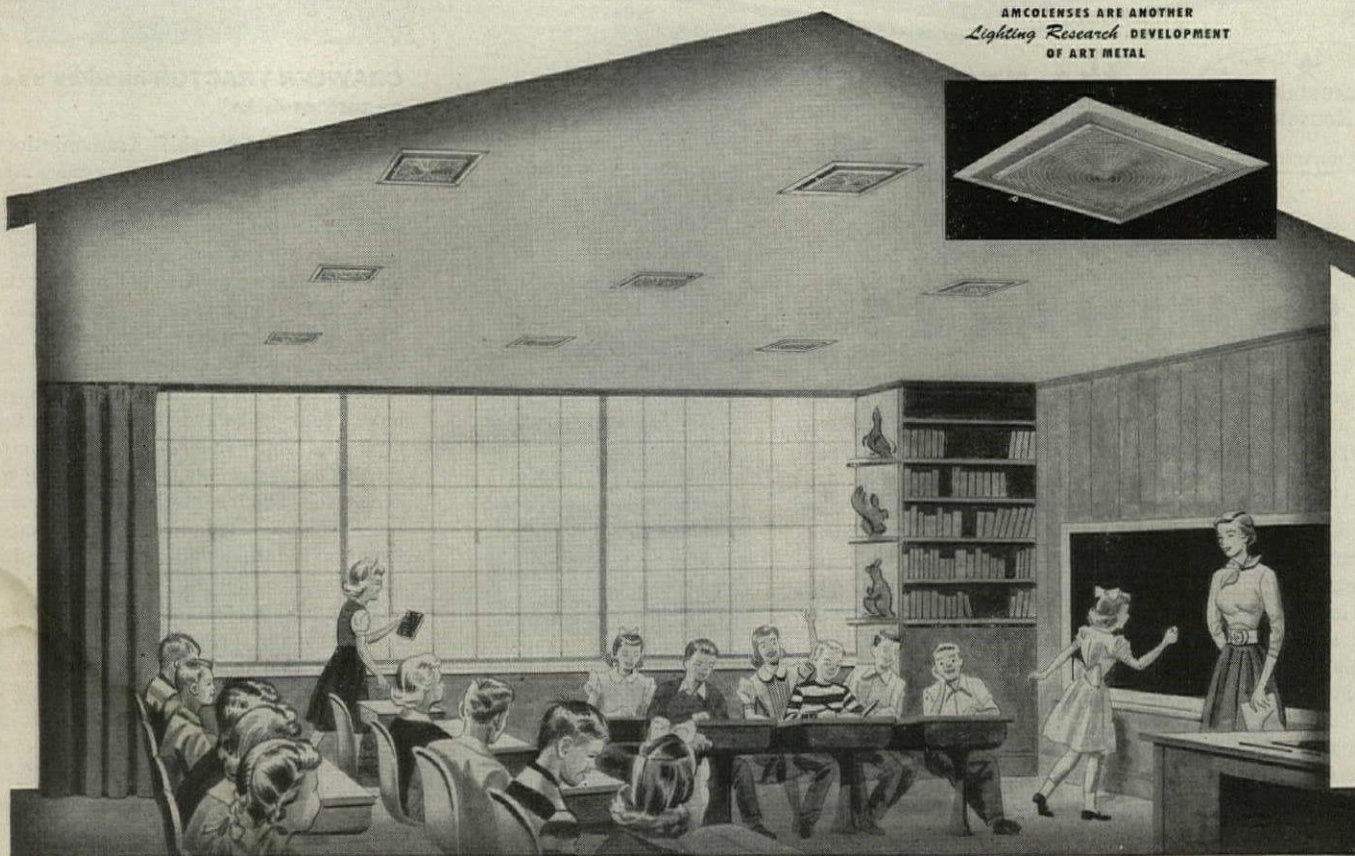
children and teachers are enjoying school this year

BETTER SEEING FOR SCHOOLS

The schoolroom is brighter these days thanks to the Art Metal AMCOLENS, the most exciting lens development in the history of artificial lighting. Never have the wall maps looked so fascinating—the work books so colorful, the desks, walls, wood-work so visually comfortable. Here's the reason! Amcolens is *clear prismatic glass*! Because it is crystal clear, it achieves *undiminished light transference efficiency* and *unaltered white lamp light transference*. Because it is composed of glass prisms — the most exact method known to control light — it introduces *precise light direction control*. Housed in either Art Metal recessed eliptisquares, eliptispheres or a variety of recessed and surface attached equipments, Amcolenses make the whole school come alive, brighter and more cheerful. There are Art Metal incandescent lighting designs for all types of school applications.

THE **ART METAL** COMPANY
CLEVELAND 3, OHIO

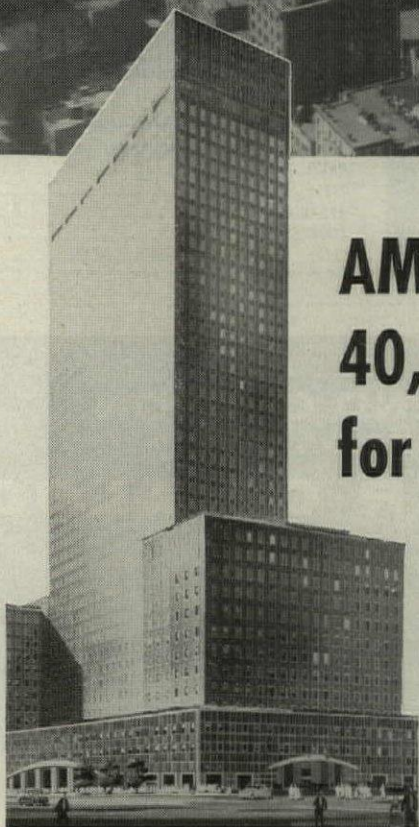
AMCOLENS ARE ANOTHER
Lighting Research DEVELOPMENT
OF ART METAL



A BIG One in Mid-town Manhattan



AMERICAN BRIDGE erects 40,800,000-lb. steel frame for 42-story Socony Mobil building!



**Socony Mobil Building
New York City**

Owner: John W. Galbreath & Company.
Designs by: Harrison & Abramovitz, Architects;
John B. Peterkin, Associate.
Structural Engineers: Edwards and Hjorth.
General Contractor: Turner Construction Company.

Covering a city block in one of the most congested areas of Metropolitan New York, the new 42-story Socony Mobil building, located one block from Grand Central Station on 42nd Street between Lexington and Third Avenues, is the nation's sixth largest office structure.

How American Bridge handled the erection of the 20,000 tons of steelwork which went into the frame of the towering 554' stainless clad skyscraper is a story of careful planning, precision engineering and coordinated timing.

From its fabricating plants, structural steel framework was unloaded and sorted in Greenville, N. J., from where it was barged across the Hudson River to Manhattan where trailer

trucks transported it to the building site. The steel was unloaded from trucks parked on busy 42nd Street without interference to traffic, and erected from the ground floor to the fifth-floor level with eight guy derricks. Operating from the fifth floor setback, the building was raised to the fifteenth floor setback, and from there to the roof.

Buildings of this size don't go up often, but American Bridge has the experience and the know-how to give you this same kind of service whenever you need it. For detailed information concerning your construction problems, please contact the nearest office. Or write direct to our Pittsburgh headquarters.

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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AMERICAN BRIDGE

INTERESTING MOTION PICTURES AVAILABLE—"Building for the Nations" and "The Suspension Bridge," two entertaining and educational films, are now available without charge to business, fraternal and civic organizations, churches, schools and colleges. Write to Pittsburgh office for bookings.



6-87

UNITED STATES STEEL



It's time
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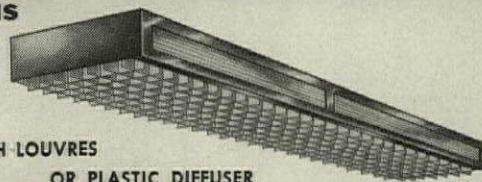
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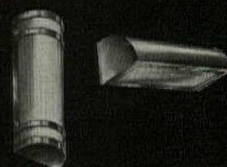
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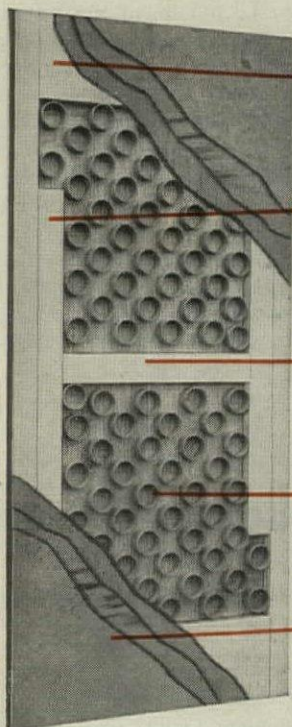
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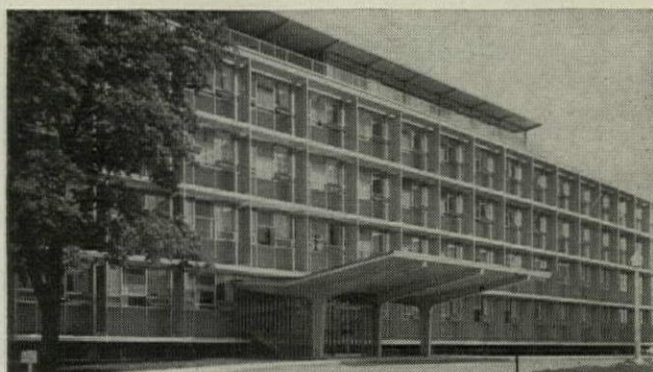
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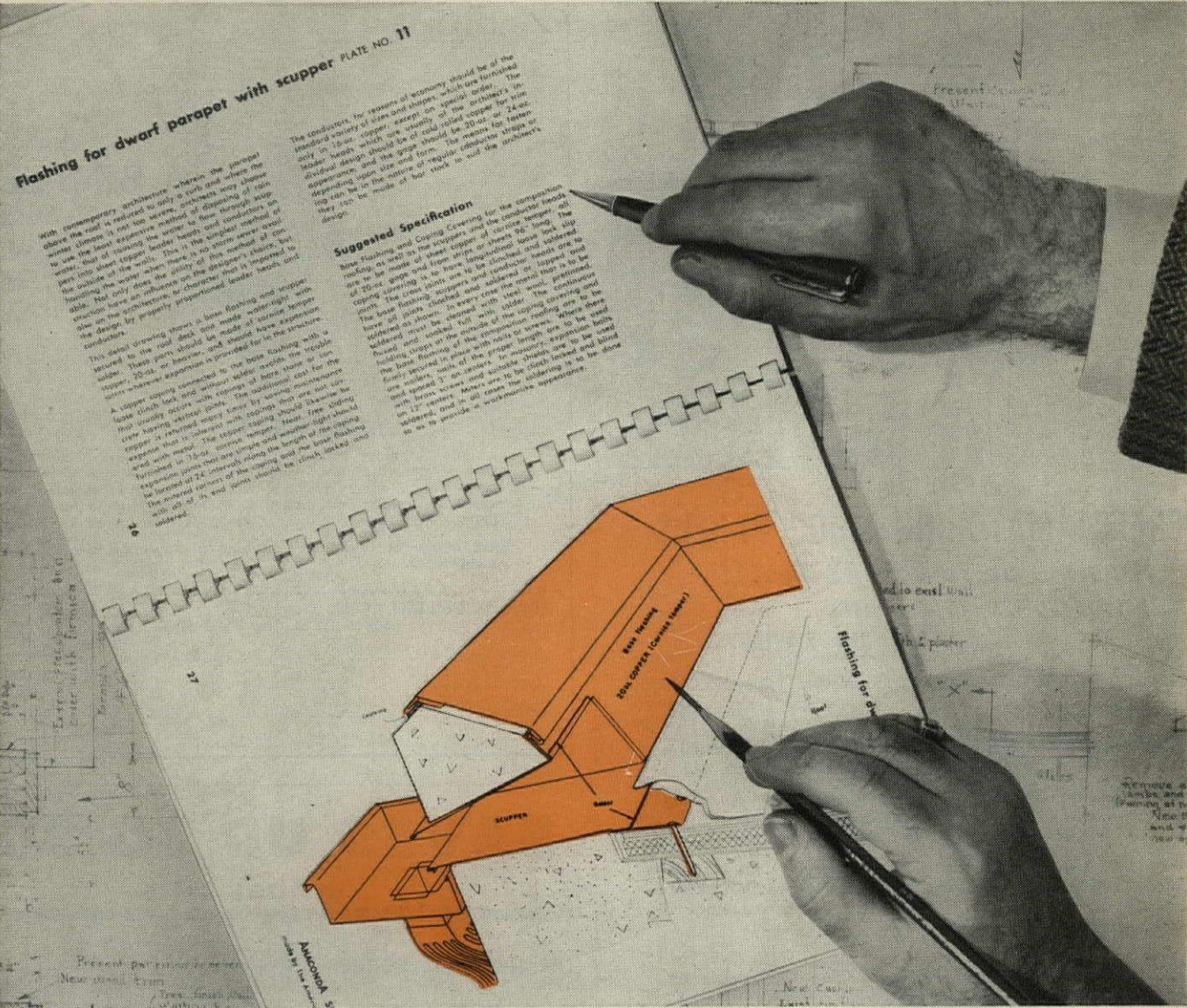


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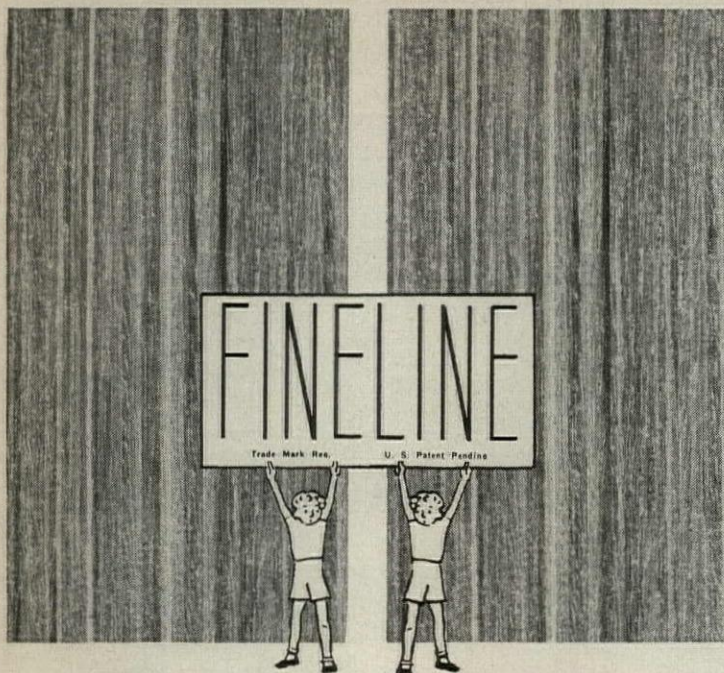
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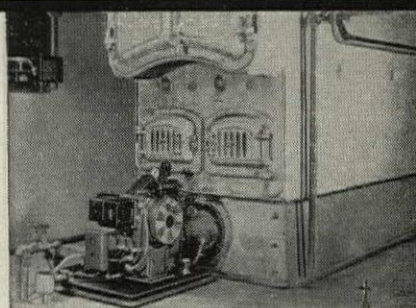
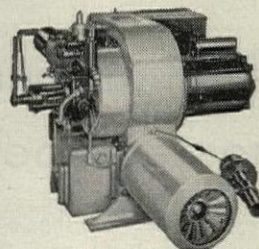
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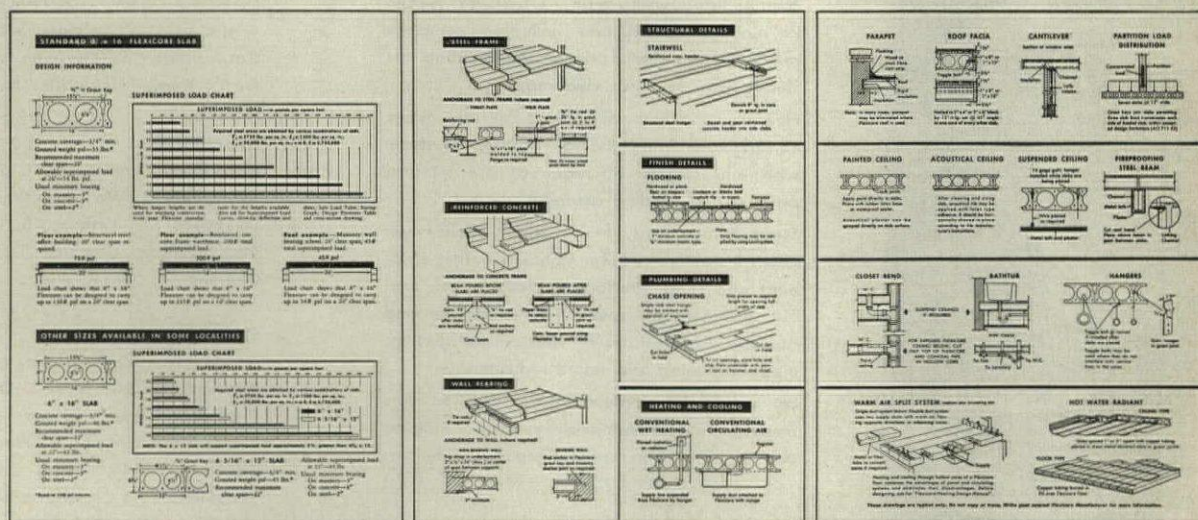


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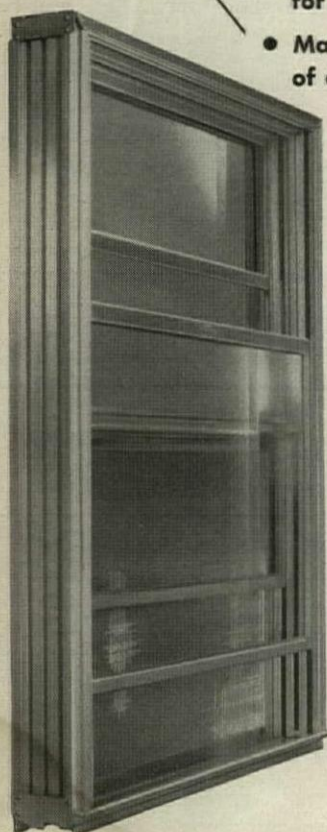
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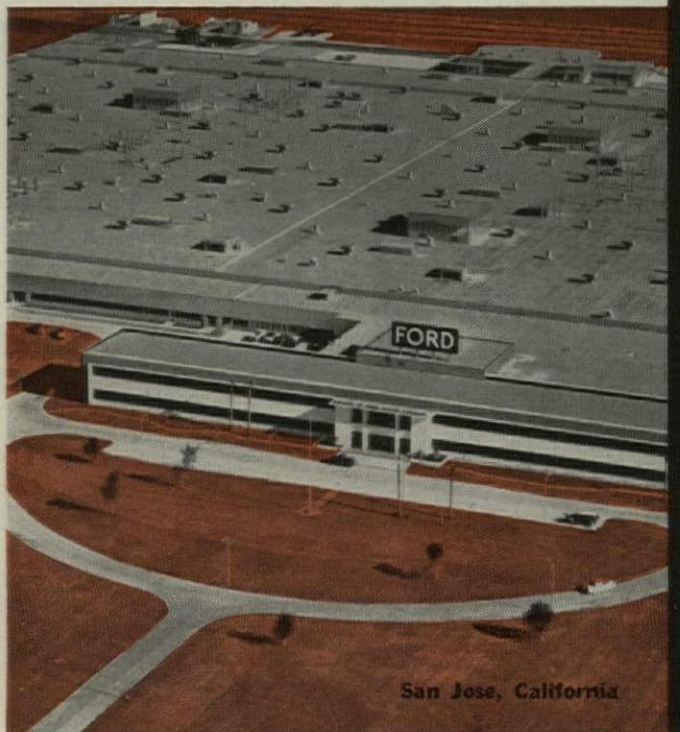
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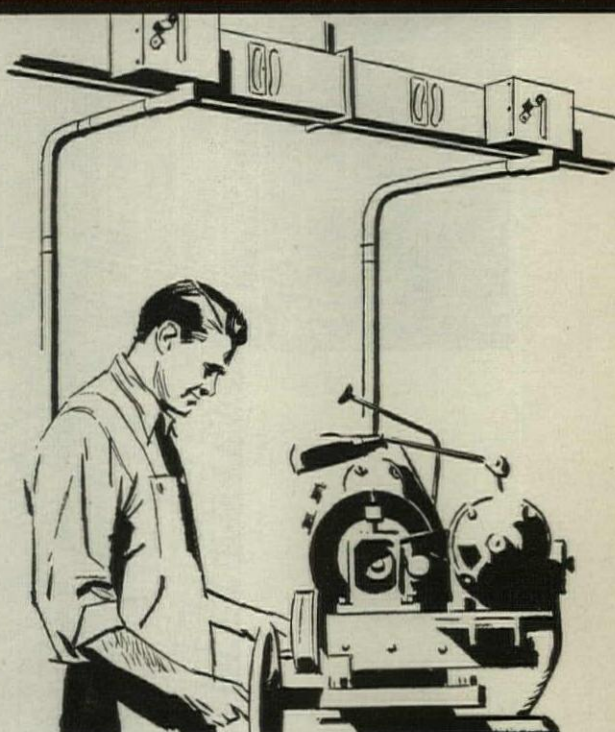
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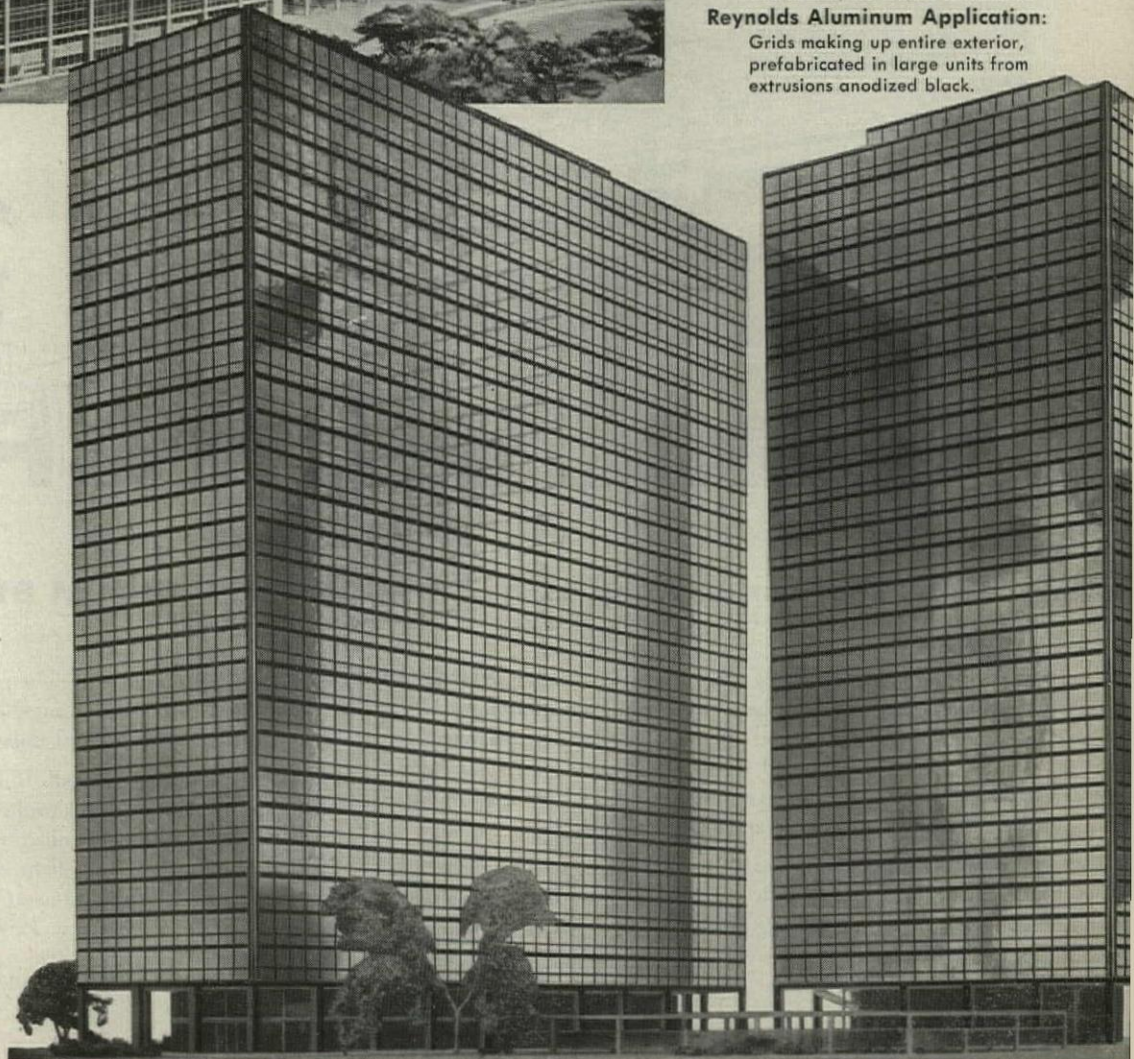
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You don't get an expansion joint like the one shown on the opposite page every day in the week, so we thought it would prove interesting both to architects and contractors to show how this particular joint was constructed.

To make it easy to follow we have shown both photographs and details of the various steps. This particular joint bridged the gap caused by adding a new section to an existing plant.

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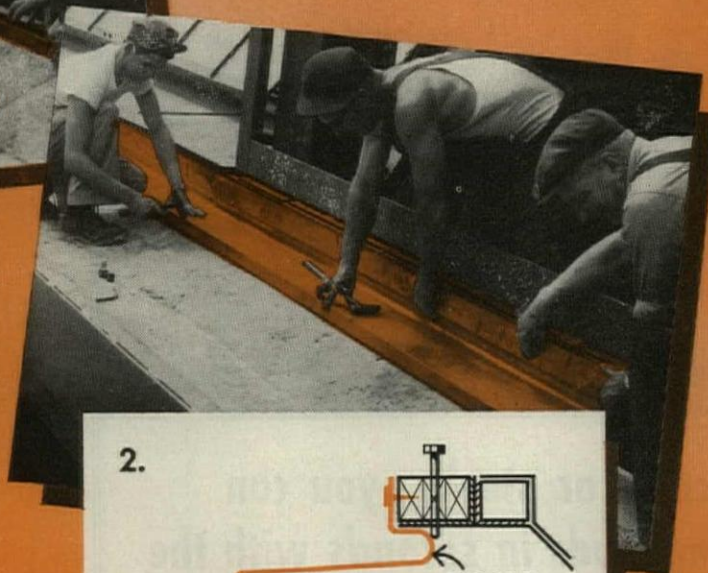
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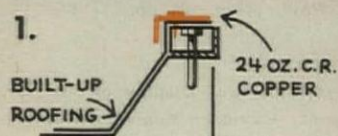
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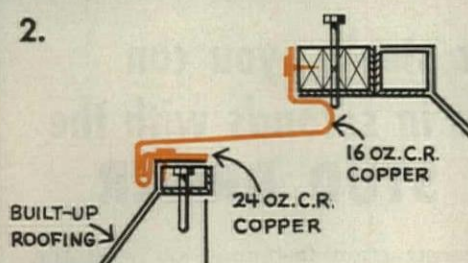


1.



PUTTING FASTENING STRIP into place, 24 oz. Revere Cold Rolled Copper was used.

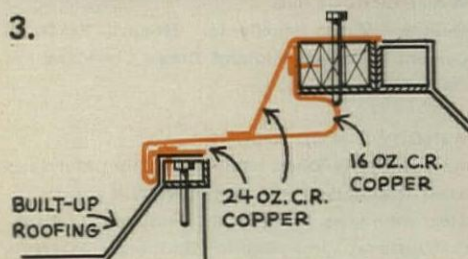
2.



PREFABRICATED 8' STRIPS were then put into place. Here 16 oz. Revere Cold Rolled Copper was used.

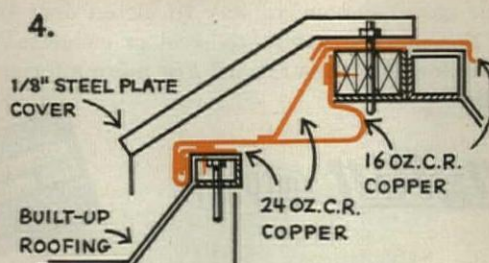


3.



24-OZ. REVERE COPPER COVER STRIP was then put into place. This strip acts as a run-off and prevents seepage into the joint.

4.



JOINT WAS THEN FINISHED OFF with 8 ft. strips of 16 oz. Revere Sheet Copper as shown above. Note that in every case the copper strips were prefabricated in the shop and delivered on the job ready for instant assembly. Prefabrication saves time and trouble on the job, avoids delays caused by bad weather.



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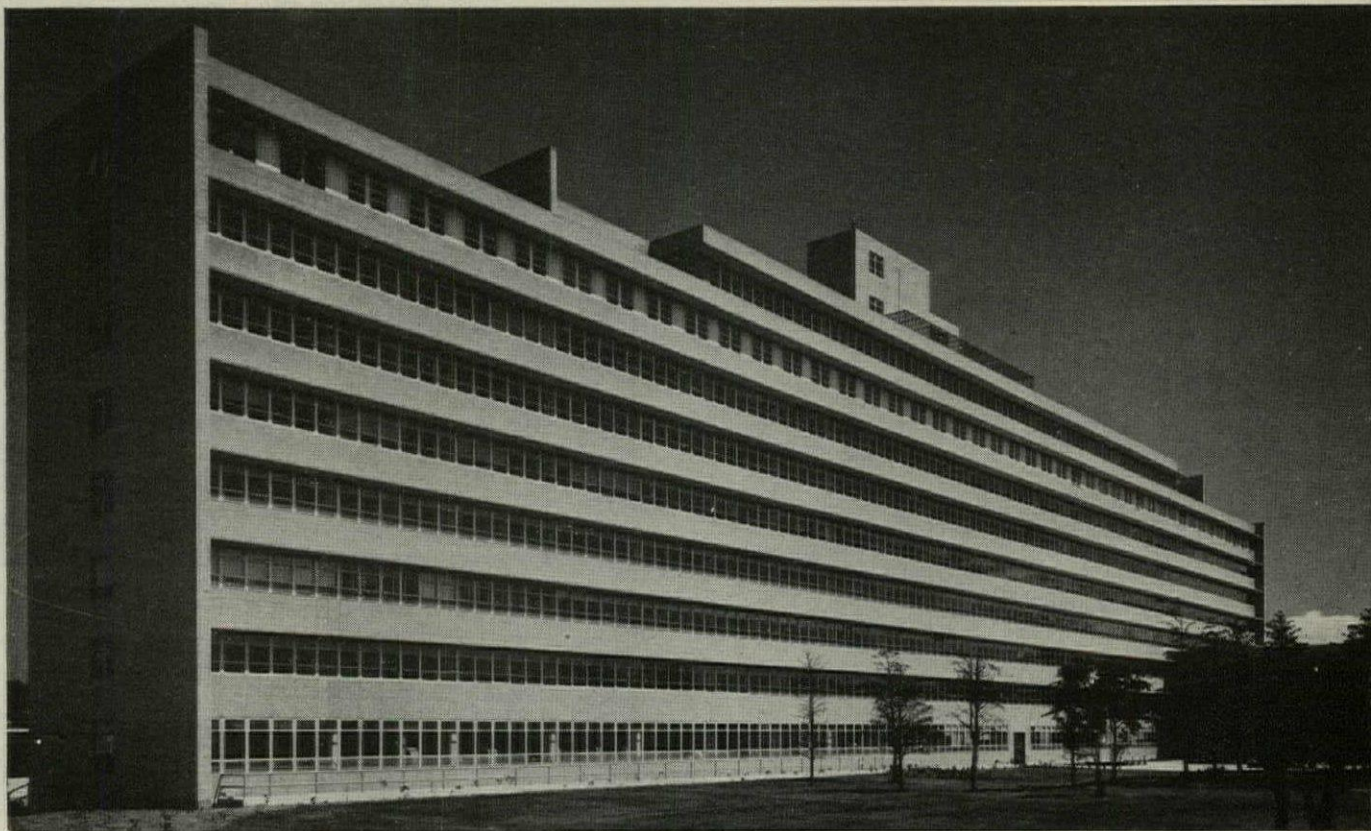
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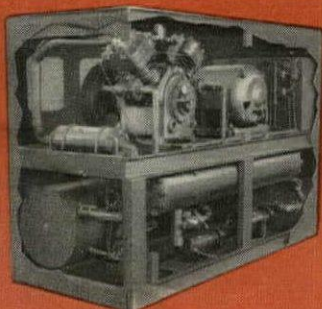


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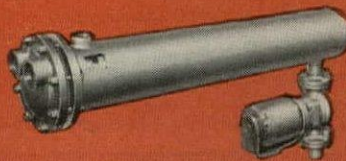
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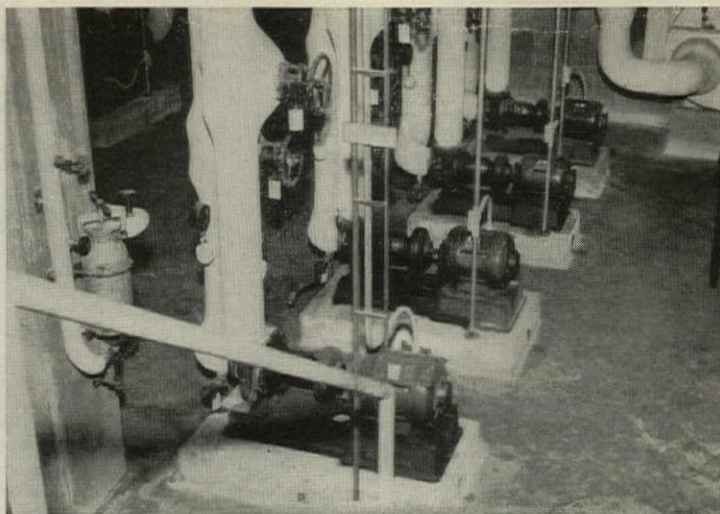
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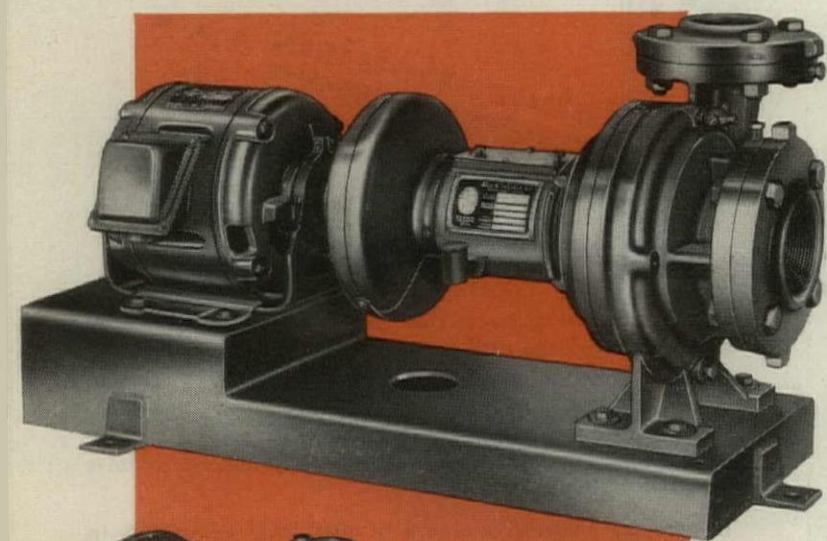
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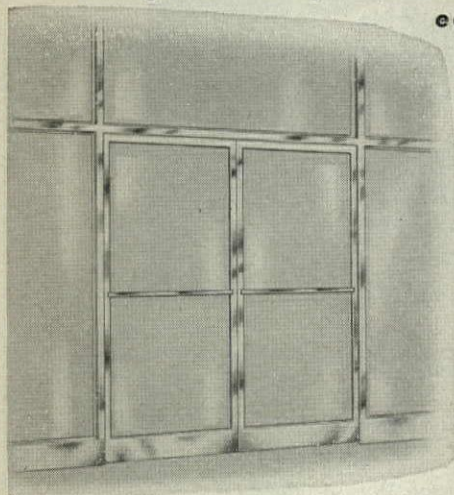


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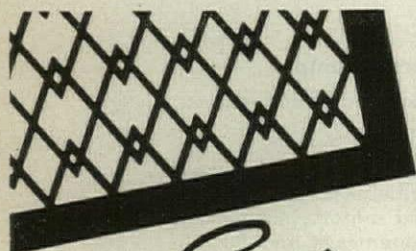
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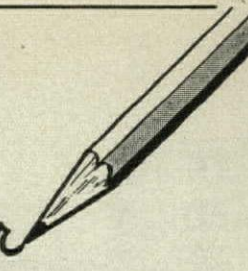
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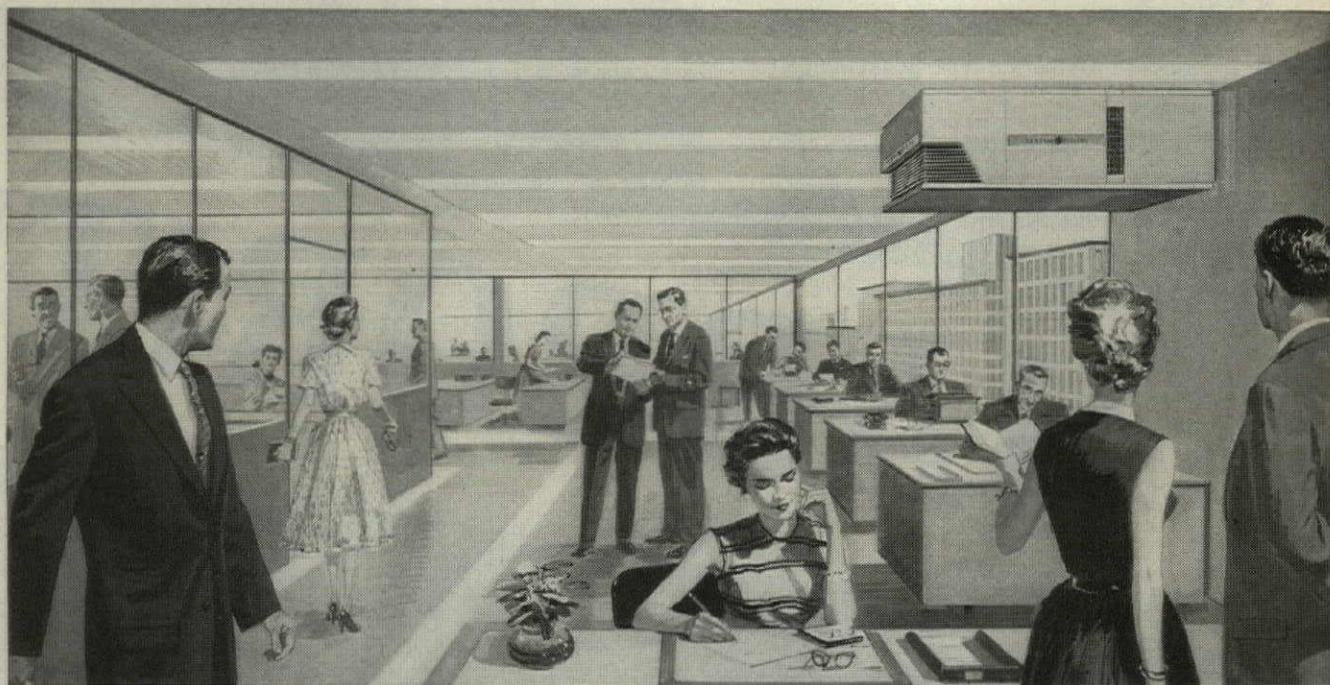
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Sanitary Sewer	Alabama	Birmingham	Sanitary Sewer
Sanitary Sewer	Alabama	Montgomery	Sanitary Sewer
Sanitary Sewer	Alabama	Mobile	Sanitary Sewer
Sanitary Sewer	Alabama	Tuscaloosa	Sanitary Sewer
Sanitary Sewer	Alabama	Prichard	Sanitary Sewer
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SOLVE **2** PROBLEMS



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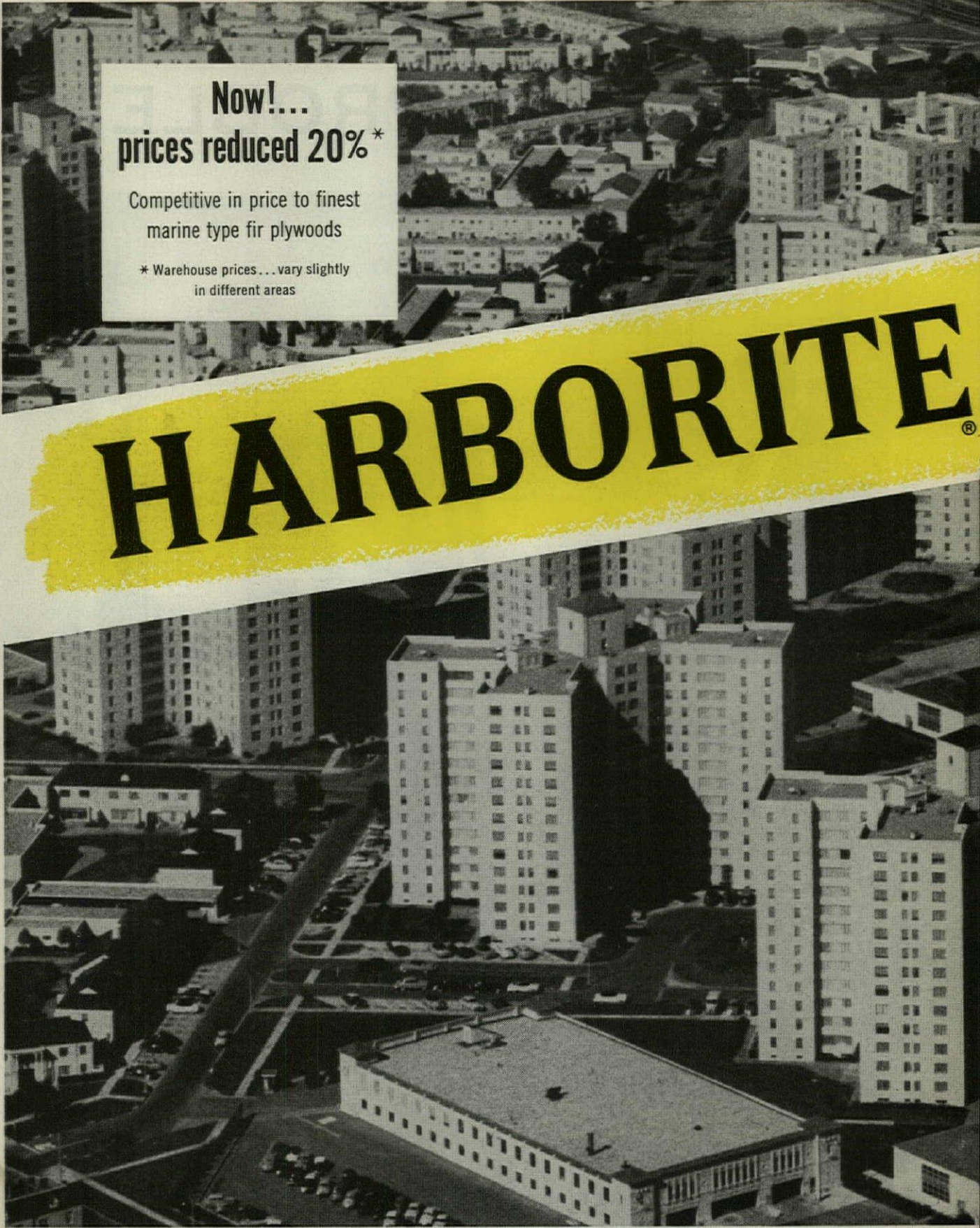
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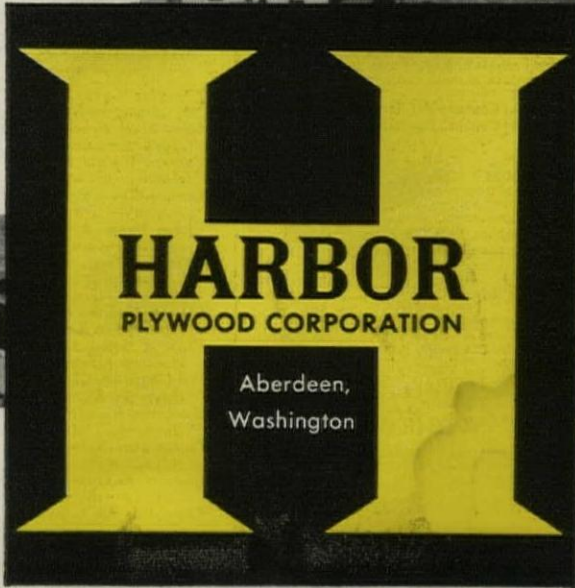
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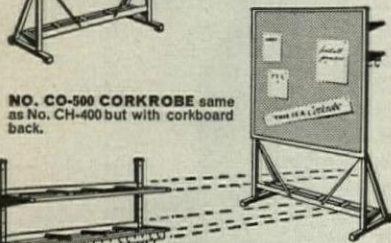
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A system of multi-purpose movable steel wardrobe racks with either a chalkboard (blackboard) or a corkboard (bulletin board for pictures, maps, etc.) back. These sturdy, welded furniture steel units provide: (1) Means for holding coats, hats, overshoes and lunch boxes in an efficient and orderly manner; (2) Chalkboards or corkboards to aid class instruction; (3) Efficient, large capacity, space-saving wardrobe units, that go wherever needed, fit any space, and permit complete flexibility in room arrangement.



NO. CH-400 CHALKROBE
42" long, 25" deep, 6 1/2" high on glides (or 6 1/4" high on casters). Hat shelves and hanger bars are adjustable for height—accommodate every age group—(Hold 16 with coat hangers or 24 with coat hooks). Off-floor shelf for overshoes and 50" x 48" chalkboard.



NO. CO-500 CORKROBE same as No. CH-400 but with corkboard back.



WALLMOUNT WARDROBE RACKS—Mount permanently on any wall. Shelves adjustable for height in 2" steps (accommodate any age group). Hold 4 spaced coat hangers or 6 coat hooks per running foot. Units interlock to make continuous rack of any length.

No. AW-3 Wallmount Coat and Hat Rack 3'2" long
No. AW-4 Wallmount Coat and Hat Rack 4'2" long



WALLMOUNT OVERSHOE RACKS—Mount on wall at floor level... extend 11 1/2" out from wall. Interlock to make rack of any length.

No. B-3 Wallmount Overshoe Rack 3'2" long
No. B-4 Wallmount Overshoe Rack 4'2" long



Checker This 5 ft. double faced rack holds 50 coats and hats. Goes wherever needed—on large casters.

Checkerette Ideal rack for choir robes or sacristy. Knocks down and stores like a folding chair.

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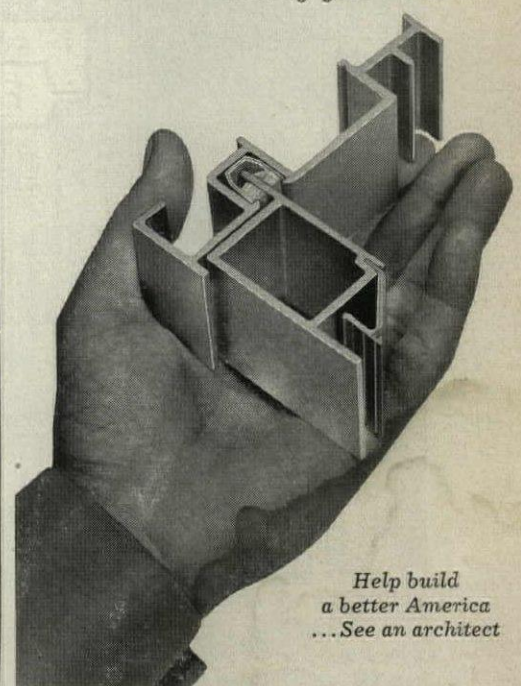
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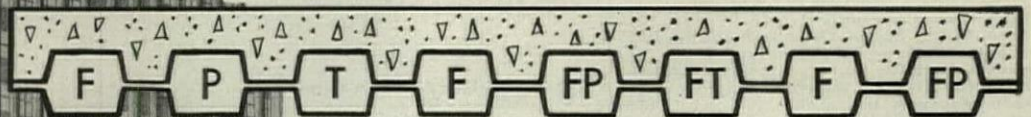
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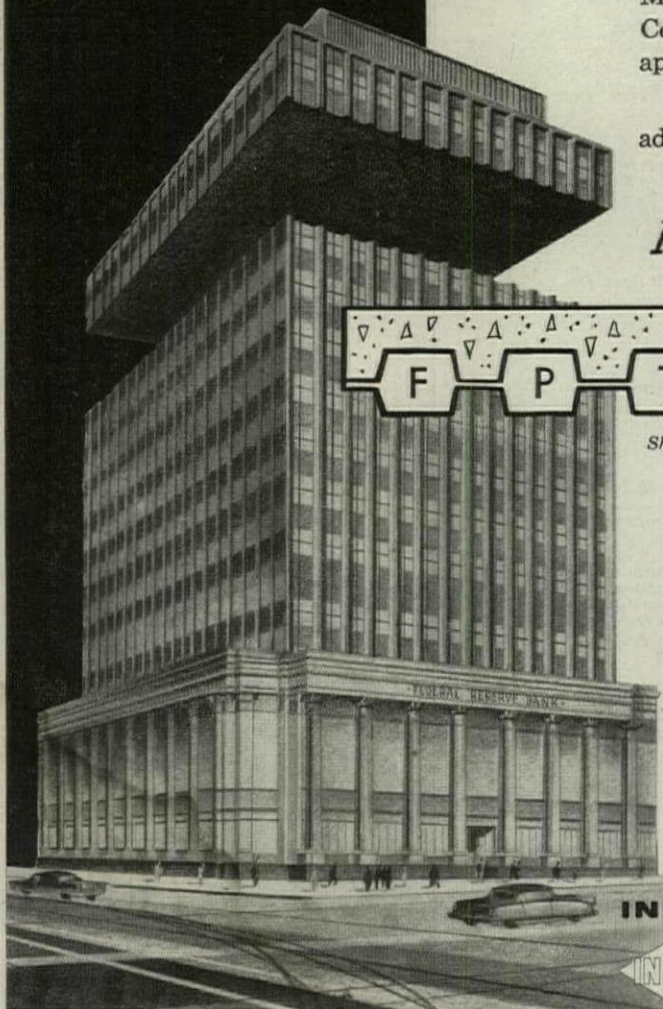


Sketch of Cellufloor installation in Federal Reserve Bank Building

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