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METUCHEN, NEW JERSEY

Cover: Design by Ray Komai suggesting the upward outlook for construction activity next year (story, page 110).

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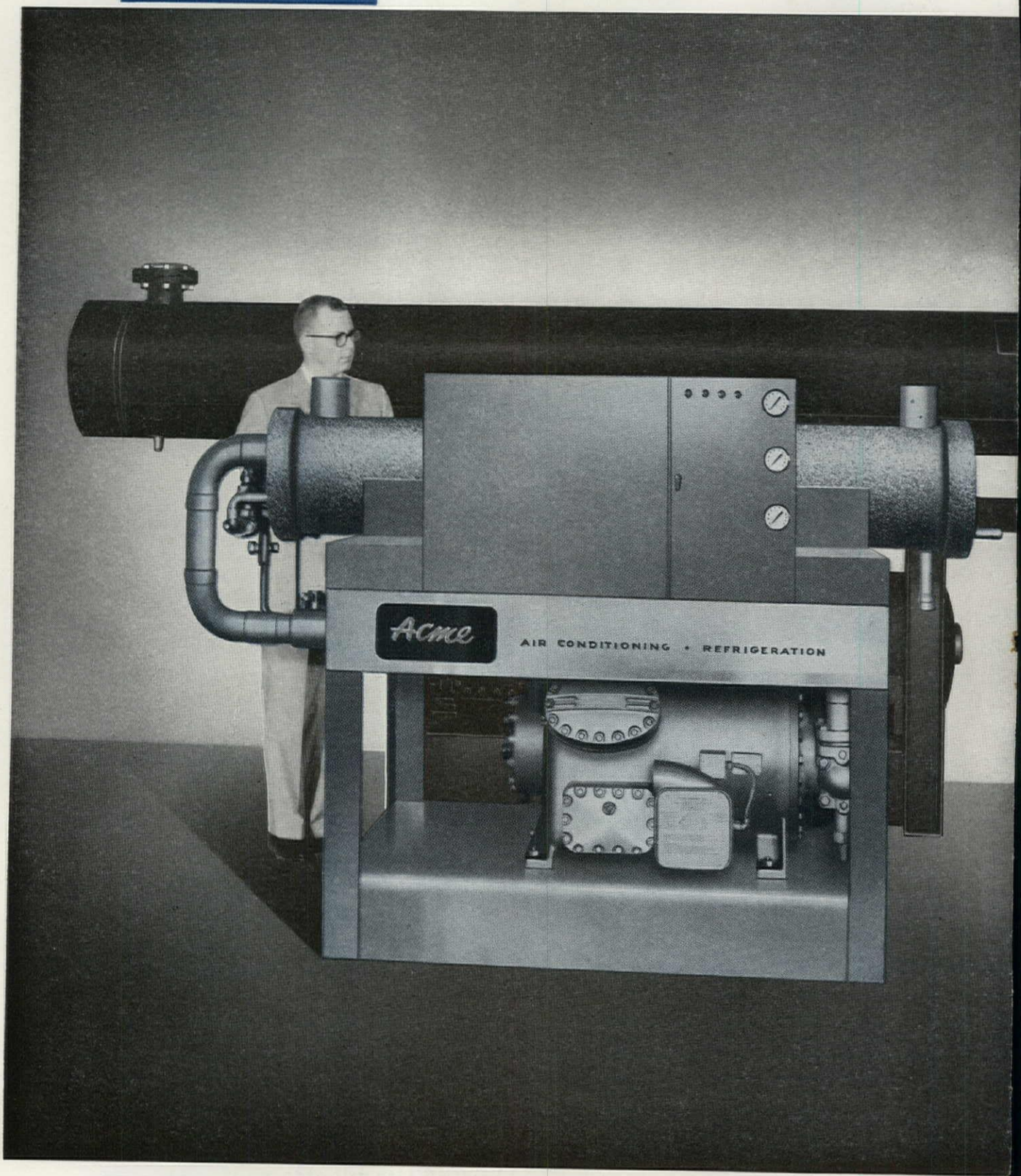
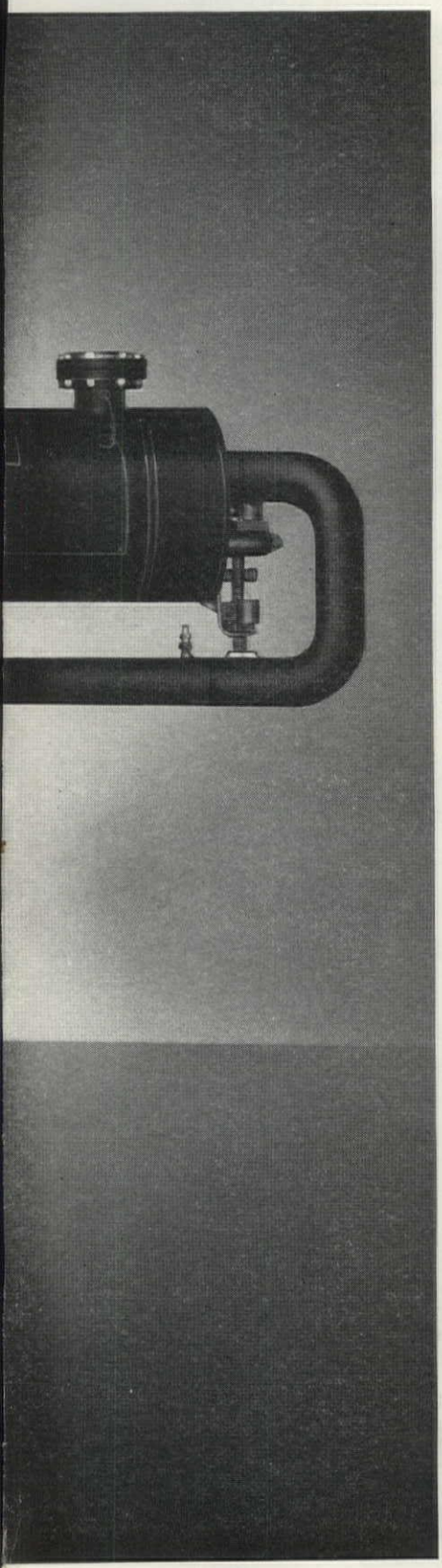
Acme ... the **practical** approach to



Both have the same capacity of 60 tons. See the difference in size between the old and new.



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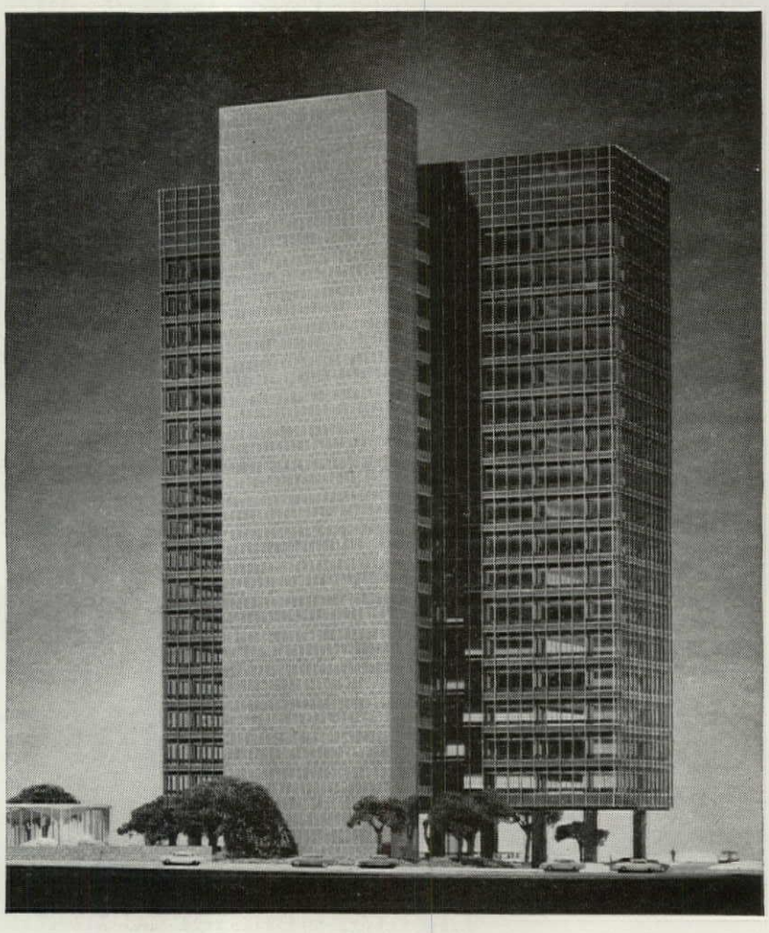

NEW BUSINESS HOME IN PARK-LIKE SETTING

• The new CROWN ZELLERBACH TOWER, San Francisco, is a 20-story glass and aluminum office building centered in a wedge-shaped site and surrounded by landscaping, walkways and reflecting pool. The building is supported on 18 steel columns rising from an 8 ft. thick concrete mat foundation 30 ft. below street level. The interior is column free, thus providing complete flexibility in arranging office space. Each space has floor to ceiling windows. Movable partitions will enclose modular space units five and one-half by five and one-half feet, each unit having its own light, power and telephone outlets. Beneath the building is a two-level garage with a capacity of 150 cars. An adjoining windowless concrete core houses elevators, fire stairs, wash rooms, air conditioning and electrical ducts, and related equipment. As are thousands of other great structures, the new Crown Zellerbach home office building is completely equipped with famous SLOAN *Flush* VALVES.

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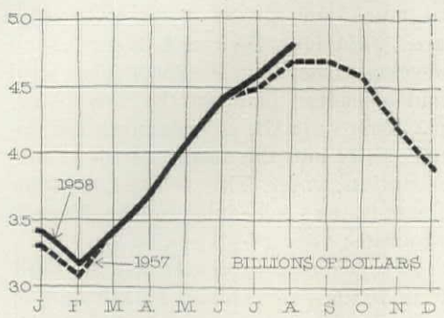
Building activity continues to pick up; residential construction hits high for year

SPENDING FOR NEW CONSTRUCTION



BOX SCORE OF CONSTRUCTION
(Expenditures in millions of dollars)

	Aug.	Jan.-Aug.		
PRIVATE BUILDING	1958	1958	1957	±%
Nonresidential	743	5,747	6,231	—8
Industrial	179	1,740	2,411	—28
Commercial	316	2,295	2,274	+1
Office buildings, warehouses	169	1,324	1,180	+12
Stores; restaurants; garages.	147	971	1,094	—11
Religious	79	543	555	—2
Educational	52	359	336	+7
Hospital; institutions	53	408	319	+28
Residential (nonfarm)	1,718	11,018	10,933	+1
Public utilities	562	3,868	3,657	+6
Total Private*	3,215	21,856	22,040	—1
PUBLIC BUILDING				
Nonresidential	422	2,991	2,952	+1
Industrial	34	252	332	—24
Educational	257	1,902	1,841	+3
Hospital; institutions	34	221	227	—3
Residential	71	505	290	+74
Military	120	725	847	—14
Highways	675	3,530	3,229	+9
Sewer; water	131	906	895	+1
Total Public*	1,588	9,676	9,162	+6
*GRAND TOTAL	4,803	31,532	31,202	+1

** Minor components not shown, so total exceeds sum of parts.*

As 1958 enters its final quarter, building activity is growing increasingly stronger relative to 1957. According to the Department of Commerce and the Bureau of Labor Statistics, the volume of new construction put in place in August totaled $4.8 billion, over 3 per cent more than in August 1957. This comes on top of a 5 per cent July-to-July rise. Earlier in the year, by contrast, the year-to-year gains were less than 1 per cent, and for the first eight months of the year, building was up only 1 per cent over 1957. Due to the current upswing, however, it will probably climb higher before the year end (see page 110).

An upswing was also clearly discernible in the general economy last month. Industrial production, for example, rose another 2 per cent in August to 137 on the Federal Reserve Index, and at that point had regained 50 per cent of the drop from the all-time high of 147 which was reached in December 1956. And the Department of Commerce estimated that in the fourth quarter of this year capital spending by industry will rise to an annual rate of $31 billion, a marked upswing from the third quarter rate of $30.3 billion (page 6). Although capital spending for the year as a whole probably will be $31 billion or 16 per cent below the $37 billion of last year, government economists see the fourth-quarter upturn as signaling an end to the dip in capital spending.

The most encouraging element in the late summer building surge was the strong comeback of residential building. In August, spending for new dwelling units was 8 per cent higher than a year earlier, and this follows a 7 per cent year-to-year rise in July. Private housing starts in August rose to an annual rate of 1,170,000, marking the sixth consecutive month that the home-building rate has risen. The actual number of starts for the first eight months of the year totaled 768,000, about 8 per cent higher than for the same period of last year.

Public building has continued to be the strongest category of construction. Government building was 8 per cent higher in August than in August 1957 and for the first eight months of this year the dollar volume of public building was 6 per cent higher than for the same period of 1957.

However, home building and public building are the most sensitive areas to tight money, and last month, signs increased that interest rates will be trending upward through the rest of the year. Last month, New York banks hiked their lending rate for prime corporate borrowers from 3½ per cent to 4 per cent, following a rise in the New York Federal Reserve Bank's discount rate (the rate which member banks pay to borrow from the Federal Reserve System) from 1¾ to 2 per cent. However, the Federal Reserve is in an uncomfortable position—while it would like to make money tighter to discourage inflation, and has lately been doing so by raising the discount rate and selling Treasury bills to cut down member banks' lending reserves, it also has to consider the growing deficit of the U.S. Treasury. This deficit is now expected to total $12.2 billion for fiscal 1959, and the Treasury must also refinance $46 billion of old debt over the next ten months. And while the Federal Reserve is no longer obliged to support government bonds at "pegged" prices, it must nevertheless take account of the Treasury's money needs in setting its own monetary policies.

So far, the tightness that has reappeared in the money market has not adversely affected the supply of mortgage funds. But there are signs that it may. The Federal Housing Administration noted a rise in discounts on its insured mortgages in September, the first since rates first began to ease last January. FHA Commissioner Norman Mason reported last month that a survey of 72 FHA regional offices showed mortgage money in good supply at all but two locations. However, Mason noted that money "will continue to be available for the next few months, but not as readily available as it was earlier this year."

The Federal National Mortgage Association also took note of the rise in interest rates: it stopped buying mortgages at par, and set a maximum discount at 97½. To recognize higher interest rates, Fannie Mae had to allow

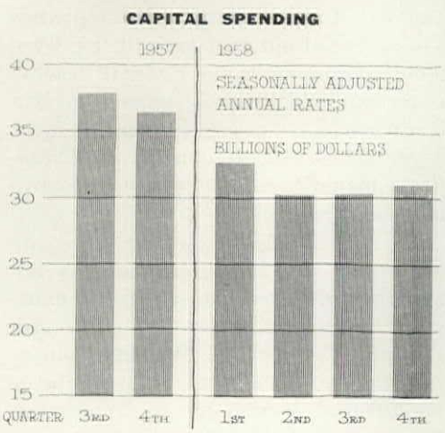
continued on page 6

discount prices, but only a week after Fannie Mae announced its cut in prices, it also said it could not make any new commitments to buy government-backed mortgages, because the $1 billion Congress voted last spring is exhausted. Unless the President releases $400 million in discretionary Fannie Mae funds, the agency cannot make new mortgage purchase commitments until Congress votes it more funds.

Money for building has, in short, once again become the chief concern of the entire construction industry.

Capital spending rises in fourth quarter

One of the surest signs of the quickening pace of the economy's recovery from recession came last month when the Department of Commerce and the Securities and Exchange Commission announced that capital spending probably hit its low point in the third quarter of 1958. Commerce-SEC predicted that there will be an upturn in business spending for plant and equipment in the fourth quarter of this year. The real significance of this upturn is that



it will provide a solid base for further recovery next year.

Commerce-SEC estimate that third quarter capital expenditures were at an annual rate of $30.3 billion. On the basis of Commerce's earlier estimates for the first three quarters of this year, and its forecast that capital spending for the year will total $31 billion ($6 billion less than in 1957), fourth quarter capital spending was expected to run at a $30 billion rate. But last month, the department said that capital spending for the fourth quarter will probably be at an annual rate of $31 billion.

Chicago announces $1.5-billion plan to redevelop its central city over a 22-year period

"On State Street,
that great street,
I just want to say,
they do things
*they don't do on Broadway."**

The lines from the old song, "Chicago," took on new significance last month. For Chicago is indeed doing something that New York has not done yet—it has evolved a feasible program for completely redeveloping the city's core. As summer ended, Mayor Richard Daley and City Planning Commissioner Ira J. Bach announced a $1.5-billion program to redevelop 756 blocks (13 square miles) of Chicago—the biggest urban redevelopment project ever proposed for any U.S. city.

The plan, to be financed 80 per cent with private funds, will take 22 years to complete. But last month construction started on one part of it: a $34-million city exposition hall on the Lake Michigan water front (see page 50). The total scheme also calls for: 1) a $180-million government center, just south of the Chicago River, which will include state, city, and federal buildings; 2) a 130-acre campus for the University of Illinois, to augment its main campus at Urbana; 3) a transportation center that would consolidate Chicago's sprawling system of railroad terminals, and incorporate an airlines terminal and heliport; 4) 50,000 units of new apartments, mostly in high-rise buildings; 5) two man-made islands off the lake shore for recreational facilities; and 6) expansion of pier facilities to handle the increased traffic resulting from the completion of the Saint Lawrence Seaway.

The plan calls for pedestrian walkways and islands, well separated from traffic. Through traffic will be carried by loop roads around the center of the city. Total cost of relocation and construction of new traffic facilities is estimated at $204 million.

The new plan, in effect, supersedes the up-again down-again Fort Dearborn plan, which has advanced hardly at all since it was first announced in 1954. The vital government center, which the Fort Dearborn plan had placed north of the Chicago River, has been moved nearer the Loop, just south of the river, and this switch has thrown cold water on any hopes for developing the Fort Dearborn area as originally planned. Many elements of the smaller Fort Dearborn program, however, are included in the new plan; e.g., the lakefront exposition hall, and the University of Illinois campus. But the new plan will cost over three times as much and covers a much broader area. Skidmore, Owings & Merrill, who developed the Fort Dearborn plan, also had a leading hand in the new plans, particularly in the site planning for the university and the design of the transportation center. This is the City Plan Commission's schedule for the 22-year program:

The government center will be built with funds—an estimated $180 million—from revenue bonds of the Public Buildings Commission, which will then lease the buildings to the city, state, and federal governments. Planner Bach says that officials of the federal General Services Administration have seen the first model of the center, and "liked what they saw." However, GSA has not yet made any commitment to lease any center buildings. But PBC and the Plan Commission sounded out GSA and state agencies as to their specific needs, and the buildings were designed with those needs in mind. By January 1960, PBC hopes to let architectural contracts for a civil courts building, the federal courts building, and the other federal buildings.

The transportation center should

Planner Ira J. Bach, Mayor Richard Daley, President of Cook County Commissioners Daniel Ryan, and Illinois Governor William G. Stratton look over model of Chicago's $1.5 billion downtown redevelopment plan.

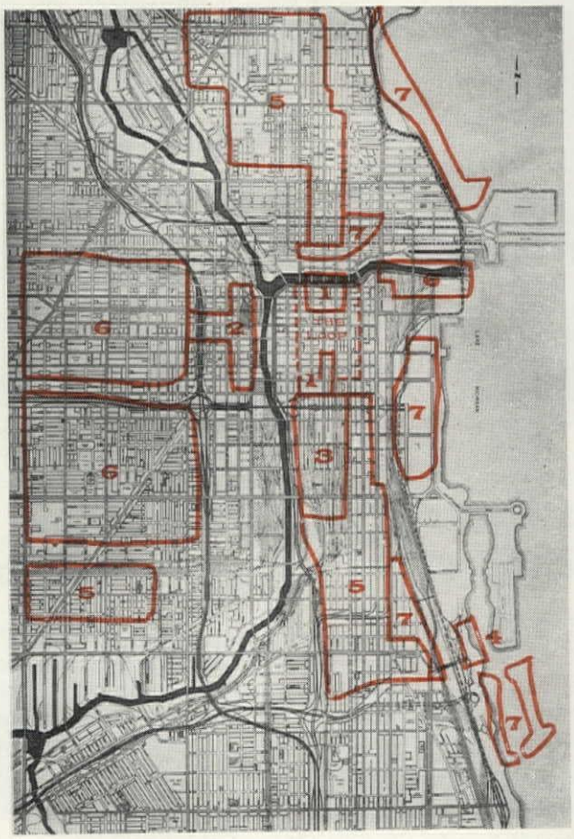
* "Chicago," by Fred Fisher. Copyright 1922, Fred Fisher, Inc.; copyright renewed and assigned to Fred Fisher Co., Inc. Used by permission.

solve one of Chicago's toughest problems—that of a city center clogged with five large terminals, warehouses, and all the facilities that make Chicago the traffic hub of the nation. A few weeks ago, the Railroad Terminal Authority, created by the Illinois Legislature, received a report from consultants and engineers that found that consolidation of the scattered rail facilities was feasible, both economically and physically. By January 1959, the authority will be asked to approve the plan. The South Side would be cleared of the LaSalle, Dearborn, and Grand Central stations and all terminal facilities would be consolidated into the Union and Illinois Central stations, which would have to be improved and expanded (see map, right). The authority would float bonds to build the new facilities, and rent them to the railroads, which would also get another bonus: they could in turn sell 130 acres of their South Side land to the university, and another 80 acres to builders of high-rise apartments. Besides, the railroads will save tax money: since a tax-exempt public authority will own the new terminal facility, the railroads themselves will not have to pay the taxes they pay at present.

The University of Illinois plans to build facilities for 6,000 students, and wants to have its new downtown campus in operation by the fall of 1963.

The high-rise apartments will be on the perimeter of the central commercial district, and are expected to attract an estimated 200,000 middle- and high-income persons to an area that is now either vacant, or filled with slum or commercial buildings.

Chicago's big problem now is to see that this ambitious plan does not wither before it is given a chance to bear fruit. Mayor Daley has already assumed much of the leadership of the plan, and is, in effect, staking his political future (he is up for re-election next year) on the success of the plan.



CHICAGO'S NEW DOWNTOWN

The ambitious redevelopment plan for Chicago covers 13 square miles, almost all of the central city. Key elements in the new 22-year, $1.5-billion plan are shown in the map (left): 1) two government centers, one north of the Loop, comprised of state, federal, and municipal buildings (top picture), and one south of the Loop; 2) a transportation center (picture, lower left) that would consolidate present railroad terminal facilities into two terminals instead of the present five, plus heliport and airline transportation center; 3) a city campus for the University of Illinois (picture, lower right) erected on the site of present tracks leading to the city's South Side rail terminals; 4) the Lakefront Exposition Hall on which construction was started last month; 5) areas marked for residential redevelopment; 6) areas marked for commercial redevelopment, with some residential reuse; 7) areas marked largely for recreational and cultural use, including the cultural plaza that was originally part of the Fort Dearborn plan.

Anaconda sets up package building subsidiary

Last month, the Anaconda Company, the nation's biggest copper producer (1957 sales: $571 million), announced that it was joining the ranks of the commercial package builders. It has set up a new subsidiary called Anaconda-

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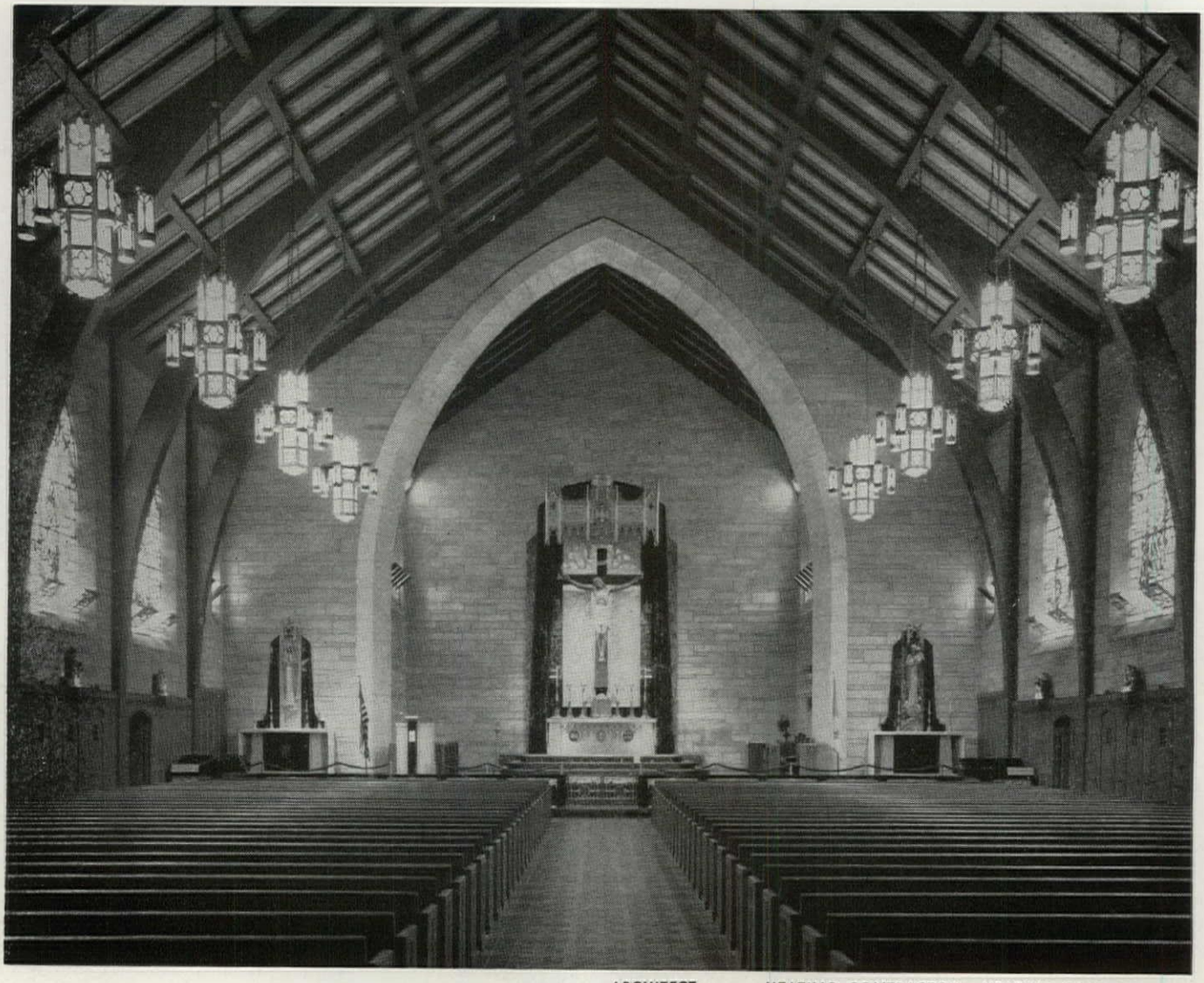

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Beautiful new St. Paul's Catholic Church, Princeton, N. J.

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Jurden Associates, Inc. (after long-time Anaconda chief engineer, Wilbur Jurden, who will be president of the new company) which will be headquartered in New York. Anaconda-Jurden is ready to tackle not only industrial buildings, but anything from apartment

ANACONDA'S JURDEN

"Our talents should be available."

buildings and offices to bridges and dams.

The volume of work on its books already (over $150 million, mostly for the company's own ore processing plants) insures that Anaconda's new construction subsidiary will be among the biggest building companies in the U. S. Initially the new subsidiary will consist essentially of Anaconda's old engineering department (with over 300 employees). Says Anaconda Chairman Clyde E. Weed: "For a number of years various companies have approached us to have plants designed by our engineering department. In general, we had to refuse the requests, but now we believe that the department's talents, developed over 58 years, should be made available to industry, and we know there are other concerns which will be pleased to avail themselves of this design-engineering-construction service."

At first, Anaconda-Jurden will probably do mostly design and construction of ore mining and refining facilities. In the past, Anaconda has done such work not only for itself but also for Phelps Dodge, the third largest copper producer, and it has built a huge taconite refining plant for the Erie Mining Company in Minnesota. However, Anaconda has also had experience in designing dams, power plants, and it is currently designing a whole new town in El Salvador. The town will house some 1,500 Anaconda workers and their families, and will include a hospital, churches, schools, stores, and recreational facilities. "We intend to take on any kind of construction job," says one Anaconda-Jurden executive, "and we will be bidding for contracts just as hard as any other large construction-

Urban renewal funds to be rationed

Last month, the Urban Renewal Administration was kept busy answering the telephone. The callers: hundreds of mayors, city managers, and other public officials inquiring about URA's formula for rationing its limited supply of capital grant funds for the federal urban renewal program.

URA's position has become increasingly uncomfortable ever since Congress failed to pass an omnibus housing bill that could have given it $350 million of additional funds annually (FORUM, September 1958). A few weeks ago, President Eisenhower did release $100 million of urban renewal funds to help URA make new commitments. But this was money that had been appropriated in earlier years. And even with this $100 million, there is still not nearly enough urban renewal money to meet all the demands of U.S. cities.

There are presently about $362 million of municipal applications for capital grants pending at URA. And the agency has only $154 million—including the recently released $100 million—to dole out, at least until Congress reconvenes next January. (It has already been rumored in Washington that President Eisenhower will ask Congress for a supplemental appropriation of $100 million for URA next January.)

Obviously, URA had to set up some sort of rationing system (as it did last year when funds ran short toward the end of fiscal 1958). But any system that it set up was bound to come under fire from city officials eager to keep their urban renewal programs going. To minimize the complaints, URA has established a system that in effect penalizes the largest cities with the biggest renewal programs, and is designed to encourage smaller cities which either have just embarked on a renewal program, or have made no application for renewal funds yet.

The involved formula which URA has worked out for doling out its funds looks like this, with P indicating the city's population as of the 1950 census:

$$100{,}000 + 3P\left[1 + \frac{1{,}000{,}000 - P}{1{,}000{,}000}\right]$$

This formula tells a city what its *maximum* capital grant could be. For instance, a city of 300,000 population would be entitled, under this formula, to maximum capital grants totaling $1,630,000. But the city may not get this maximum amount.

However, small communities (with populations of less than 250,000) may exceed the ceiling if they are applying for the first time for a capital grant.

The new rationing setup has already caused planners and public officials to repeat many of their complaints of last year, the principal one being that urban renewal projects cannot easily be reduced in scale, once an area has been designated for renewal and all the facilities for the area have been laid out. It is easier, say the planners, to simply make application for another area, and postpone a larger project until funds are again available.

Cities have six weeks to wrestle with URA's formula and revise their own capital grant applications accordingly.

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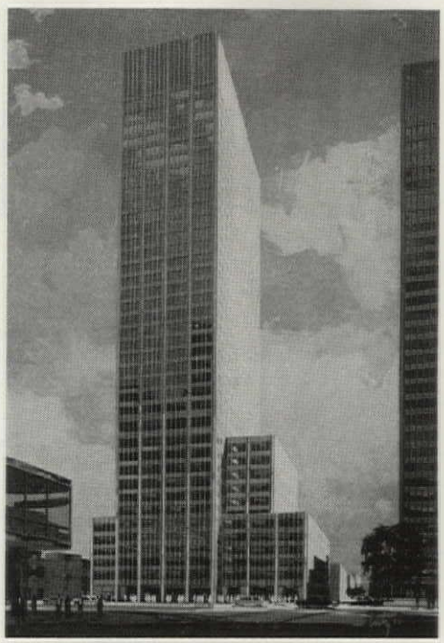

NO PLAZA FOR ASTOR PLAZA

The First National City Bank of New York last month revealed its plans for a 41-story skyscraper on the Park Avenue site next to the new Seagram's building (right) and across the street from Lever House. Before he was forced to scrap his project a few months ago (FORUM, September 1958) Vincent Astor had planned a plaza-skyscraper to complement Seagram's and Lever House. The bank will not have the sort of plaza that Astor had planned, although the new building will be set back 6 feet from the building line in front, and 28 feet from the line at the two ground-level setbacks on either side of the entrance. The $50-million building's exterior will be of glass and aluminum, and the main tower floors will have no supporting columns between the core and the exterior walls. Architects are Carson & Lundin, Kahn & Jacobs, associated archcitects. George A. Fuller Co. is the builder.

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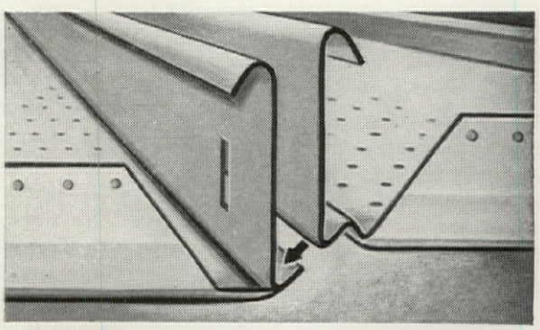

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CITY, ZONE, STATE _____

If they have not revised their applications within that period, URA says they will have to re-enter the URA mill as a new application, instead of having their former place in the order of applications. This should be threat enough to the cities—going to the end of the line could mean no funds at all.

Should civil defense be "do-it-yourself"?

The Eisenhower Administration's limited civil defense program came under fire last month. At a meeting of the U.S. Civil Defense Council, an organization of city and state civil defense directors, Senator Hubert H. Humphrey (D, Minn.) declared: "It is ridiculous that the Office of Civil & Defense Mobilization has a budget only about one-tenth of 1 per cent of the total Department of Defense budget." The House Military Operations Subcommittee, just a few weeks earlier, had called for a $20 billion fall-out shelter program—following the recommendations of the Rockefeller and Gaither Reports (FORUM, February and April 1958). The subcommittee declared that "Civil defense can no longer be considered as a separate problem left largely to the disparate efforts and devices of individuals and communities. . . . To save over 90 per cent of the population and restore the preattack American standard of living in less than ten years after a nuclear assault should be sufficient incentive to give civil defense its rightful place in the defensive system of the U.S."

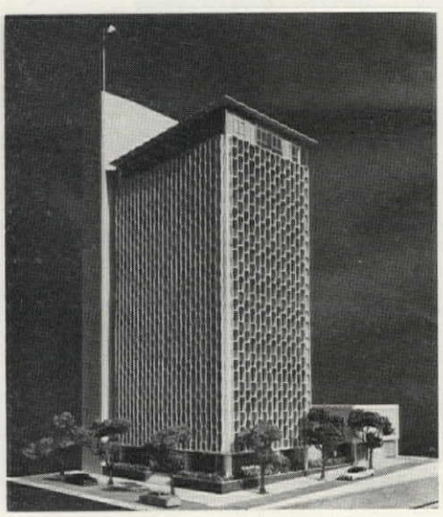
The argument comes, of course, on what is civil defense's "rightful place." While Congressmen were talking about $20-billion shelter programs, OCDM last month announced its program and achievements: so far it has given out 130,000 devices with which to detect radioactivity, mostly to high schools and civil defense agencies. It has established a program to test various types of shelters. But all told, the federal program calls for expenditures of only $235 million over the next ten years—a far cry from $20 billion.

The key to OCDM's approach is "do it yourself." The only actual building of new shelters the agency is sponsoring is in new federal buildings, and so far these are mostly still in the design stage. Its activities are largely educational, including its limited research program. Leo A. Hoegh, former governor of Iowa and head of OCDM, said last month that the government was encouraging people to build their own shelters because it believed in self-help.

A survey by the American Municipal Association last month confirmed the fact that Americans generally are indifferent to shelter needs and other civil defense measures—a Utica, New York municipal official suggested the reason: "The attitude of the general public is apathetic, since the federal government has not come up with a strong attitude on either the executive or Congressional level."

The AMA also found that many cities, towns, and states are floundering over civil defense, too. Washington, D. C., says AMA, is the most ill-prepared large city in the U.S. in case of nuclear attack—and it is, of course, the one that should be best prepared.

In other instances small cities are falling over one another in preparing their defense plans. The AMA study found that while Biloxi, Mississippi had made plans to evacuate its citizens away from the area in case of nuclear attack, New Orleans, southwest of Biloxi, was planning to send its residents toward the Mississippi city.



AMERICAN EMBASSY IN NEW YORK

The only U.S. Embassy in the continental U.S. will be located a stone's throw from the United Nations headquarters in Manhattan. The U.S. Mission to the UN building, designed by Kelly & Gruzen-Kahn & Jacobs, associate architects, will consist of three parts: a 12-story office section with a cast stone honeycomb façade, a taller service core, and a two-story auditorium (right). The honeycomb is both decorative and practical: the 14-inch overhang was designed for natural light and sun control. The $3.8 million complex, to be started next month, is under the direction of GSA's Public Buildings Service.

Commerce Department sets billboard rules

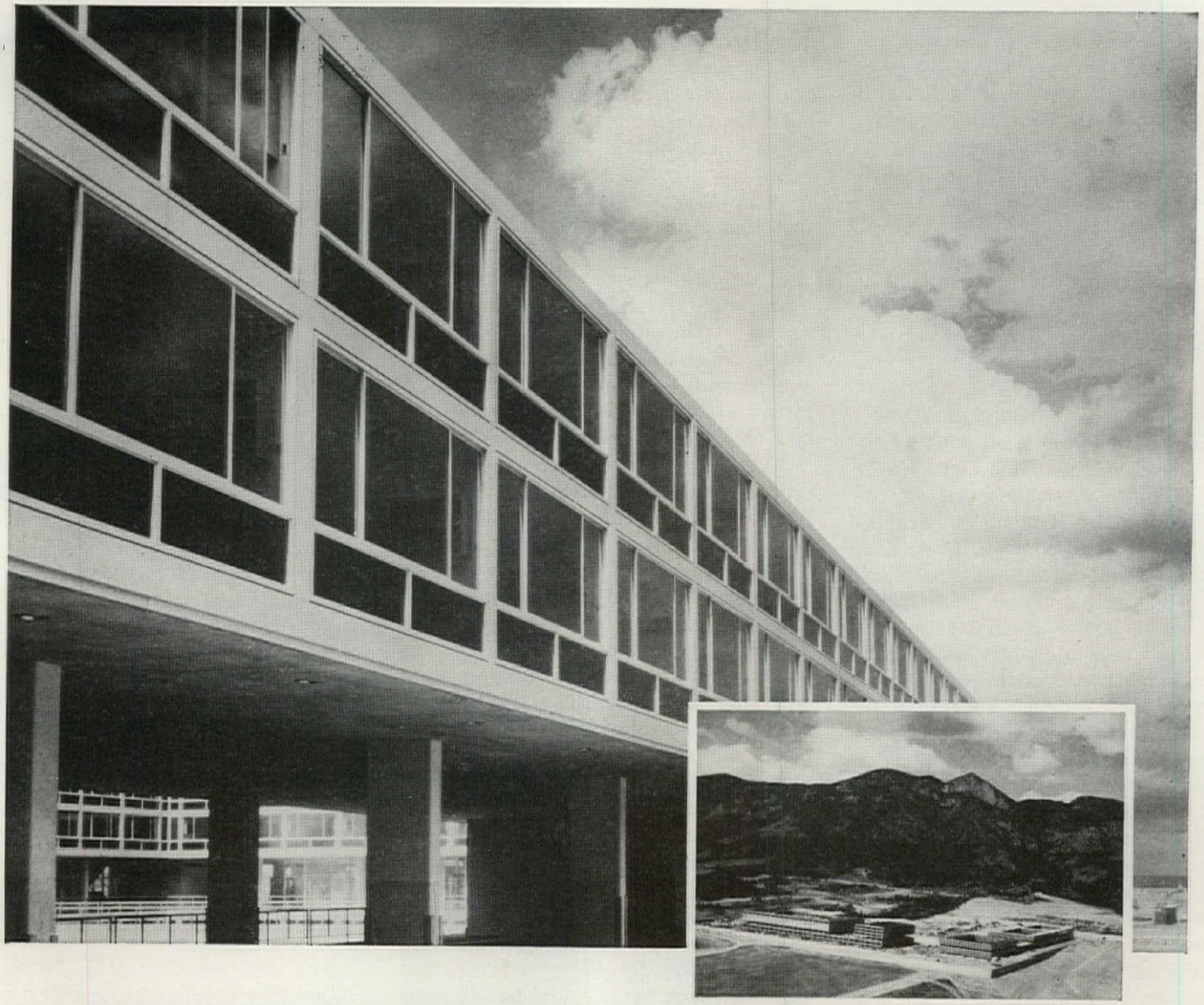
The Department of Commerce last month announced its proposals for regulating billboard advertising on the interstate highway system, and gave the states until July 1, 1961 to either accept or reject the proposals. The rules are not hard and fast yet, and the states have been asked for suggestions on improving them. But, as of now, here is the way Commerce would regulate billboards:

- No commercial signs at all could be erected in the 660-foot-wide bands on each side of the highway right of way, except within 12 miles of an interchange. From 12 miles to 5 miles before an interchange, there can be one sign per mile. From 5 to 2 miles before the interchange, there can be two signs per mile. From 2 miles up to the interchange, there cannot be any commercial signs.
- Official state or local government signs can be placed anywhere along the right of way, but Commerce recommends setting up tourist information centers near rest areas instead of studding highways with state and local tourist signs directing them to state or local attractions.

The new regulations apply to only about 25,000 miles of the 41,000-mile interstate system—to roads where the rights of way have been bought after July 1, 1956. As an incentive to the states to go along with the plan, the federal government will pay an additional one-half of 1 per cent of the total cost of the road to states that comply with billboard regulations. The federal government will also pay 90 per cent of the bill for acquiring billboard rights to the 660-foot band on either side of the right of way for those states complying with the new rules.

The billboard lobby, which fought the billboard act in Congress and succeeded in watering it down considerably, is now pressuring the states to ignore the federal plans, largely on the grounds that the amount of money involved will not be enough for the states to sacrifice dictating their own terms for advertising controls—which of course, the advertising groups hope will be more lenient. The total federal funds bonus for the billboard control plans would be only about $90 million, and this will not go very far if spread over 48 states, say the advertisers. So far there

continued on page 13



GAS-fired* CARRIER

ABSORPTION REFRIGERATION PROVIDES TROUBLE-FREE, ECONOMICAL COOLING AT THE U.S. AIR FORCE ACADEMY

To provide comfort cooling, the new Academy is equipped with the nation's most efficient, up-to-date type of air-conditioning—gas-fired Carrier Absorption Refrigeration.

The absorption refrigeration unit makes use of one of the oldest and most reliable principles of refrigeration. No prime mover is required, only low-pressure steam or hot water. Seasonally idle or excess boiler capacity can be put to use on a year 'round basis.

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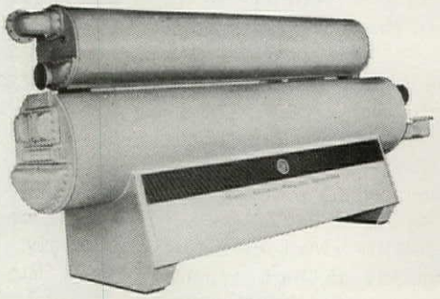
This is only part of the story of the efficiency and economy of specifying gas-fired Carrier Automatic Absorption Refrigeration equipment. Specific performance, engineering data and cost details are yours for the asking. Just call your local gas company, or write to the Carrier Corporation, Syracuse, New York.
American Gas Association.

The new United States Air Force Academy perched at 7,200 feet above sea level near Colorado Springs and Pikes Peak, soon to house 1,145 Cadets.



Gas-fired Carrier Automatic Absorption Refrigeration

- cuts operating expense
- lowers installation cost
- provides quiet, vibrationless operation
- answers space and weight problems
- automatically adjusts to varying loads

have not been any indications as to how many states will go along with the federal regulations, but, from testimony in Congress last year and state highway officials' statements since, it appears likely that many of them will.

Zeckendorf wheels, deals and tells it to the judge

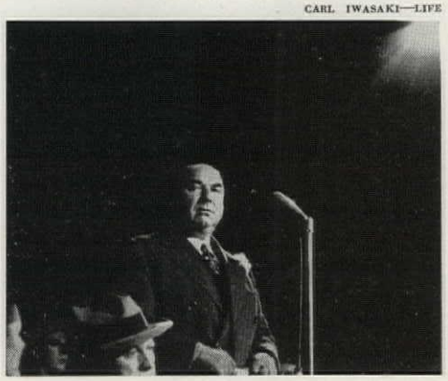
Real estate mogul William Zeckendorf, whose interests are far-flung, had a busy time last month just tending the home store in Manhattan. First, Zeckendorf's Webb & Knapp, Inc. took title to the 2,000-room Commodore Hotel and the 350-room Hotel Chatham. Zeckendorf, who already controls 2,675 Manhattan hotel rooms (the Hotels Astor, Manhattan and Drake) said he hoped eventually to control 8,000 rooms in Manhattan and hinted at plans to build a new 2,000-room hotel.

That hotel could well be built on the Avenue of the Americas between 51st and 52nd Streets, next to Radio City Music Hall and across the street from the Time-Life and Equitable Life Assurance buildings, both of which are under construction. Zeckendorf has not yet announced his plans for the site, but he made a deal with Equitable last month giving that company land on which a 40-story downtown office building sits at 120 Broadway, and "several million dollars." In return, Zeckendorf got the uptown, Avenue of the Americas site, which contains 90,000 square feet. This is the same site on which Builders John Galbreath and Peter Ruffin had planned to build an office tower (FORUM, January 1957), but they were unable to arrange satisfactory financing. Equitable's directors wanted to sell the site (which was owned by the insurance firm), because they felt that with their own office going up on the blockfront directly across the Avenue of the Americas, the company held too much real estate on the one corner.

While Zeckendorf continued to swap Manhattan real estate the way a small boy swaps baseball cards, one of his proposed deals hit a serious snag last month. Zeckendorf was called to court by minority stockholders of the 40 Wall Street Corporation, of which Zeckendorf's Webb & Knapp gained stock control last year. They want to stop him from selling the corporation's interest in the 71-story building to Webb & Knapp (i.e., to himself) for $16 million with a view of resale. The property, say the minority stockholders, is worth at least $20 million.

In the course of testimony, it developed that Zeckendorf had approached the Metropolitan Life Insurance Company about a possible sale of the building before he even controlled it. Zeckendorf testified that he had "general discussions" with Metropolitan, but he denies that he had ever made an "offer" to sell. However—under subpoena—Met vice president Norman Carpenter produced a lengthy letter

CARL IWASAKI—LIFE



ZECKENDORF

When is an offer not?

from Zeckendorf to Metropolitan, written in the summer of 1955, before he had acquired any substantial amount of stock in the building, outlining in detail possible terms for a $20-million sale-leaseback deal for the building between Zeckendorf and Metropolitan, and a subsequent sale of the leasehold for another $10 or $12 million. (These prices, however, also cover two other pieces of land under the building owned by Zeckendorf and the Chase Manhattan Bank.) Called back to the stand, Zeckendorf insisted that this letter did not constitute an "offer," but was merely a "suggestion" to Metropolitan outlining the terms on which Met could buy the building from him, if and when he obtained control of the property.

Additional testimony showed that Zeckendorf had used loans from the Chase Manhattan Bank to acquire much of his 40 Wall Street stock, and had made an agreement to release the bank from a long-term $1 million-a-year tenancy in 40 Wall if Webb & Knapp ultimately became the owner of the building.

The court proceedings were adjourned in mid-September with a decision still pending. But the legal interlude provided an intriguing insight into the complex operations of a master real estate operator.

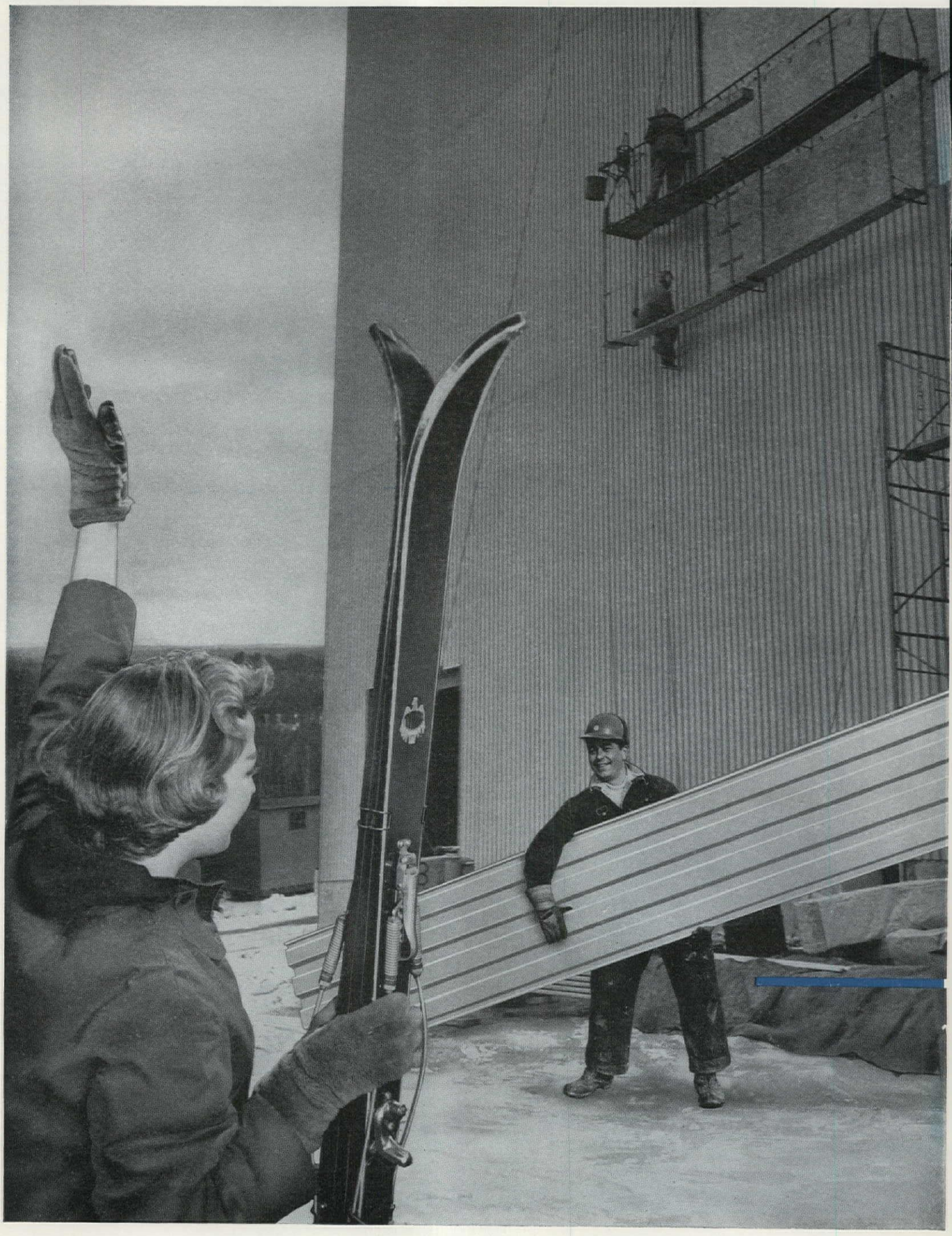
Briefs

Render unto Caesar . . .: A New York City architectural renderer named Elliott Glushak was fighting an epic struggle last month to establish renderers—artists who draw pictures of what a completed building should look like—as professionals, not as mere picture-purveyors. The whole thing started when Glushak was asked by the city comptroller to pay the city's 3 per cent sales tax on his renderings. Glushak went to the New York Supreme Court to get a declaratory judgment that renderers, like lawyers and architects, are exempt from the sales tax. The city insists that renderers merely draw pictures at an architect's direction.

City-within-a-city: Ira S. Robbins, recently appointed to New York's City Housing Authority, inventoried the city's public housing projects and came up with some provocative facts: There are 375,000 people living in public housing units in New York City, i.e., more than the population of Rochester, and more than that of Syracuse and Albany combined. Even more startling: the city's public housing authority has a staff of 6,900 people—to whom it pays $26 million a year to collect gross rents of some $60 million.

St. Louis arch gets more funds: The long-delayed Jefferson National Expansion Memorial, on St. Louis' Mississippi River water front (first planned before World War II) got a federal authorization from Congress of an additional $12,250,000 last month (on top of $5 million already authorized but not appropriated) which should enable the city to proceed with plans for the park development, including Architect Eero Saarinen's towering (600 feet) steel arch.

An ill wind: Curtain walls have long been a controversial item in Philadelphia where brick contractors oppose their use (FORUM, August 1958). A few weeks ago, however, a gust of wind literally blew the whole subject up in the air. Shortly after the city council had approved the use of curtain walls, six metal panels were torn from the sides of the new Sheraton Hotel in the city's Penn Center. Robert Dean, of Boston Architects Perry, Shaw, Hepburn & Dean, who designed the building, explained: "Unusually high winds . . . caused a vacuum to form, which buckled window frames and mullions and released six panels." END



New information for architects about the lowest cost air conditioning of all . . .

How CHRYSLER'S AIRTEMP controls

The 3 "Secret Costs" of Air Conditioning

"Secret Costs" can quickly amount to more than original cost...

But, when you specify AIRTEMP, you control "secret costs"

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But the important fact is this: Chrysler AIRTEMP costs your client *far less* in the long run because it minimizes the 3 "secret costs" of air conditioning. And these may be more important than the first cost!

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The wrong equipment can be troublesome as well as costly to operate. Airtemp makes all kinds of air conditioners—over 297 models—and can advise you on which is best for your client's needs.

And if you wish, our *Airtemp Construction Division* will recommend a qualified contractor near you and work with him. You're sure to get exactly the right equipment from Airtemp!

THE SECRET COST OF OPERATION

Operating costs over a few years may actually exceed the first cost of air conditioning. But rock-bottom operating costs can save substantial sums. That's why you should know that AIRTEMP—thanks to Chrysler engineering—promises the lowest operating costs in the industry!

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Maintenance costs and repair costs can be a shock. A breakdown brings repair bills PLUS the cost of lost time, lost business. But Airtemp air conditioning is carefully engineered by Chrysler for trouble-proof operation. And Airtemp is installed only by qualified contractors, who must certify to Airtemp that equipment, warranted for 5 years, has been installed properly. That's why Airtemp maintenance costs average out to be the lowest in the industry!

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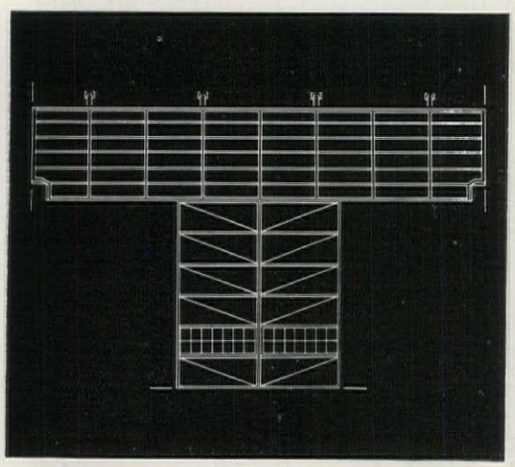

The door illustrated is built with a one-piece, hinged-type upper section and swinging lower sections, all power-operated. Other Byrne Crane Door designs are available to meet any requirements.

seals the opening tight . . . takes less than one foot headroom

This Byrne Crane Door is used to seal tightly an opening 56 feet wide and 35 feet high. All door edges have heavy sponge rubber or bulb-type seals which provide a nearly air-tight closure in spite of the large door size. Less than one foot of headroom above the opening was required. Operation is smooth, and traditional Byrne quality guarantees long life and low operating costs.

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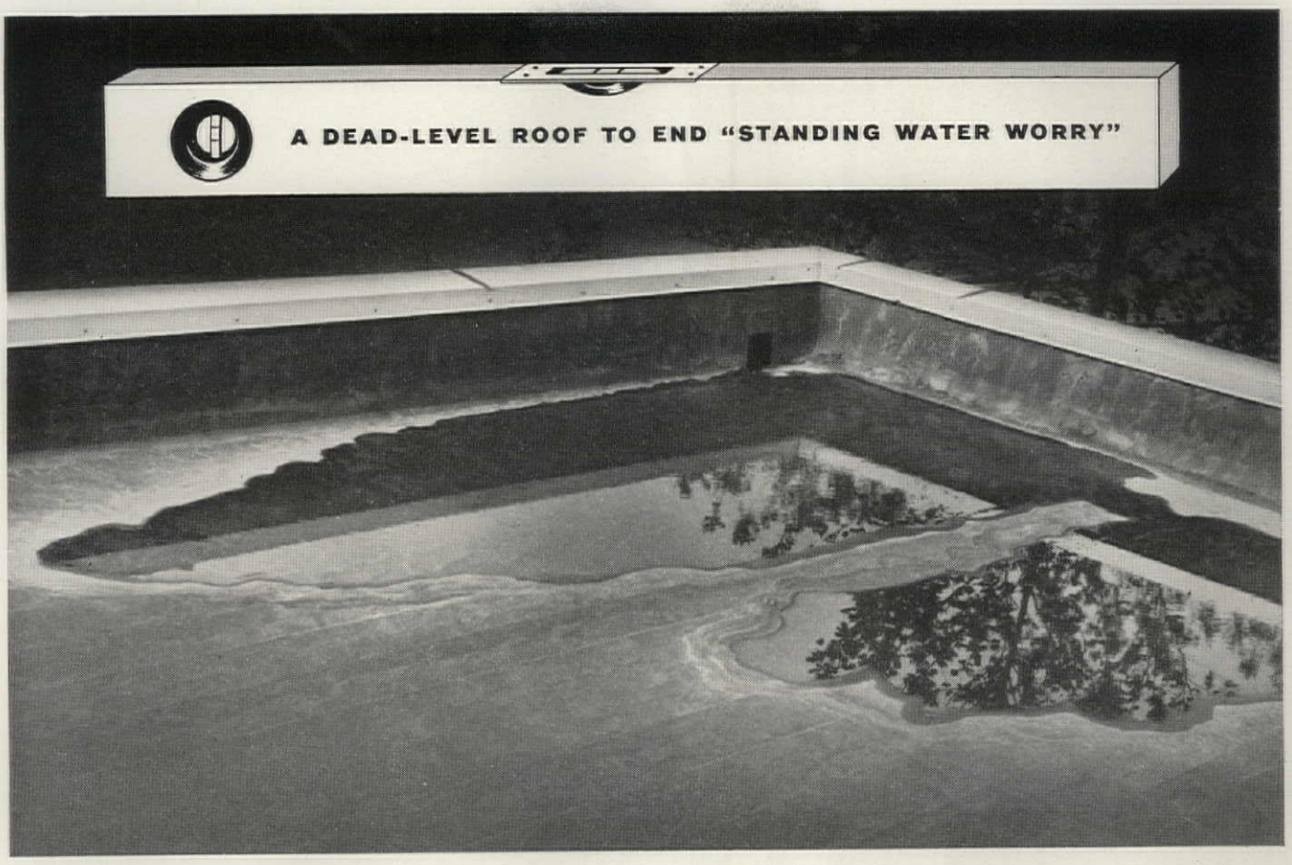


Johns-Manville *Aquadam* Built-Up Roofs

pay off in longer roof life and maximum protection

MANY ROOFS are built up with bitumens or cementing agents which deteriorate under standing water. Now, however, you can put an end to "standing water worry" by specifying Aquadam Roofs. Even if pools of water stand for weeks, these roofs retain their outstanding physical characteristics.

Aquadam Built-Up Roofs take their name from a superior cementing agent developed by Johns-Manville. This unique bitumen, Aquadam, possesses the best features of coal tar pitch and of asphalt without their weaknesses. It is especially produced for modern low incline roofs of dead-level to ½" per ft.

Under water immersion, Johns-Manville Aquadam does not swell, hummock, discolor nor does it turn cheesy. It continues adhesive and cohesive. Its outstanding physical features are not harmed by pools of standing water.

Besides ending "standing water worry," Aquadam offers these other advantages: excellent self-healing properties; exceptional ability to expand and contract with normal deck movement; proven weather resistance under wide-ranging climatic conditions and "superior bond" because Aquadam spreads, wets and saturates the roofing felts uniformly.

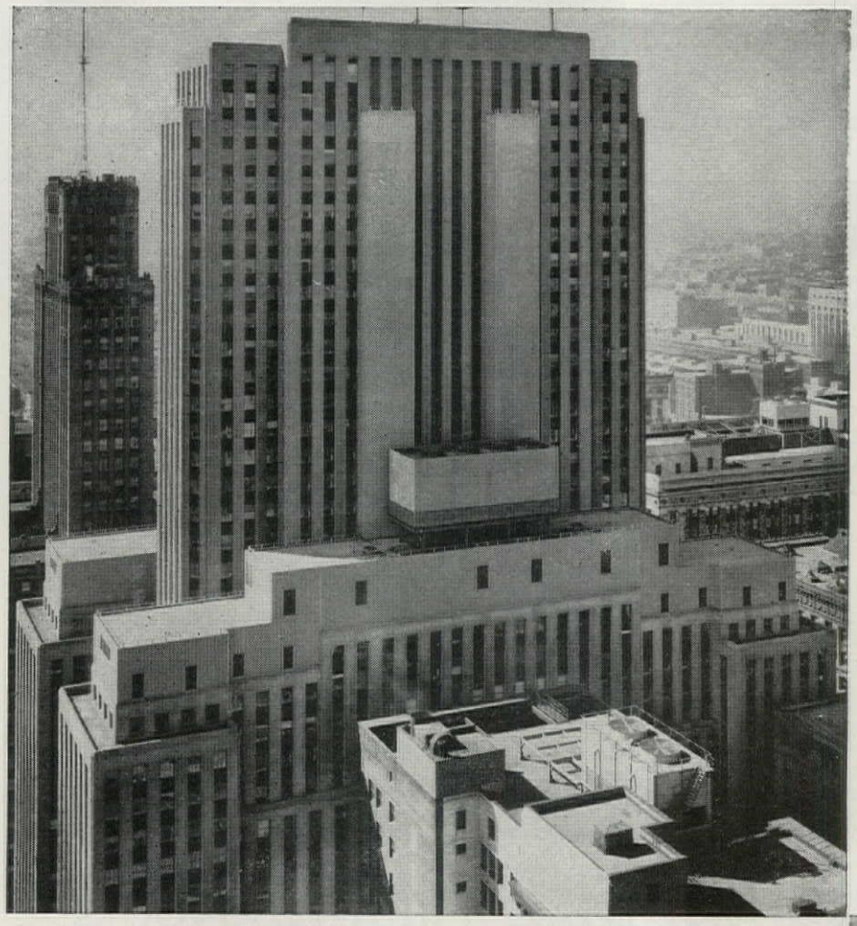
The roof pictured above is a smooth-surface Aquadam Asbestos Built-Up Roof, a dead-level roof that eliminates tons of dead weight, since no gravel is needed. The asbestos fibers in the roofing felts protect against the drying-out action of the sun thus preventing oxidation of the impregnated bitumen within the felts and the layers of Aquadam between the felts.

However, Aquadam Gravel or Slag Built-Up Roofs are available when the building design calls for a light or colored roof effect.

For a copy of booklet "J-M Aquadam Built-Up Roofs" write to: Johns-Manville, Box 158, New York 16, N. Y. In Canada, write Port Credit, Ontario.

JOHNS-MANVILLE

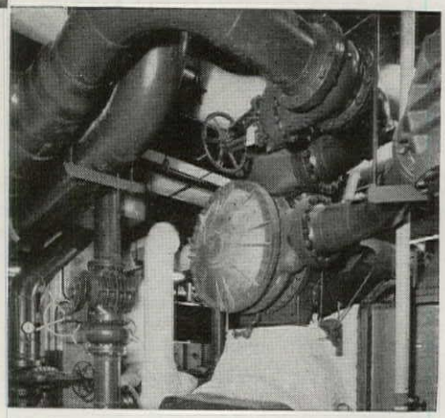
JOHNS-MANVILLE JM PRODUCTS



Air Conditioning with

USS National Pipe—

Chicago's Field Building



One of Chicago's landmarks, the towering Field Building on South LaSalle Street, recently completed the installation of a new air-conditioning system. USS NATIONAL Seamless Steel Pipe was used throughout the system—a total of 127 tons of it—in sizes from 3" O.D. to 18" O.D.

Need first-quality pipe for air-conditioning, heating and power installations? Need seamless steel pipe that will pay you back in outstanding service many times over for every dollar you spend? Then just say "NATIONAL Seamless." And, for further information or immediate assistance with your pipe problems, write to National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

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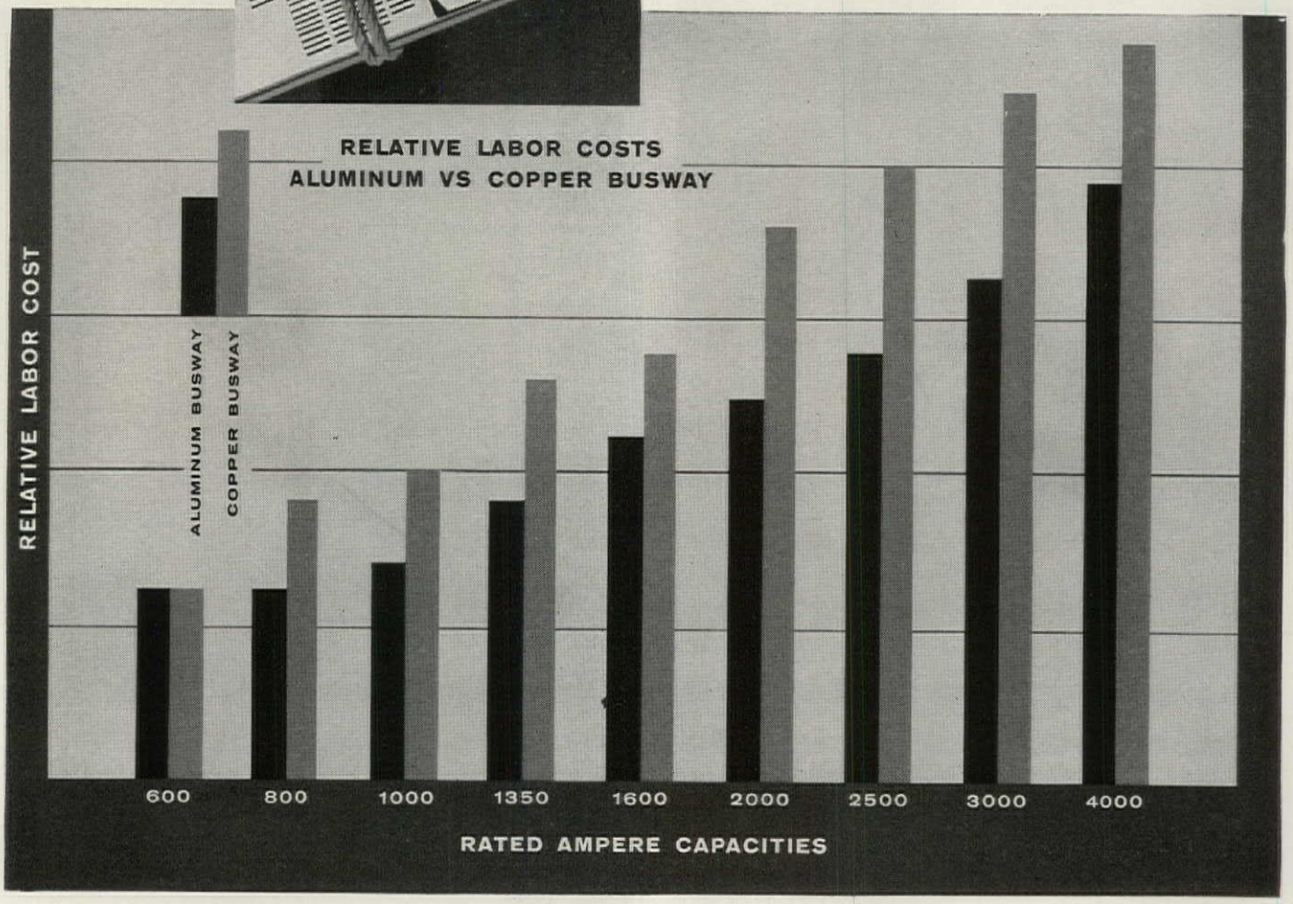

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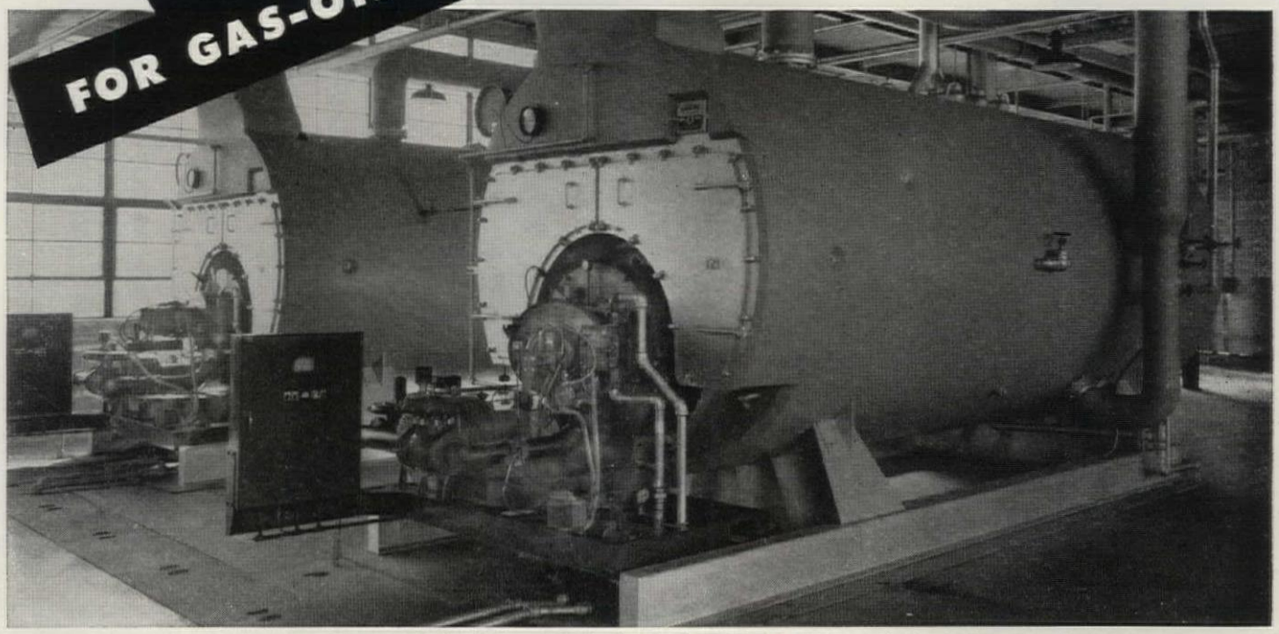

Petro Boiler-Burner unit installation at the Lambert-St. Louis Municipal Airport , St. Louis, Missouri

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No stack needed. Petro forced draft firing units eliminate high stacks. In fact, the only flue connection necessary is to a simple vent for the spent products of combustion. Unlike induced draft systems, the Petro blower operates in clean, relatively cool air. No maintenance problems arise from overheated bearings or corrosive gases. Power consumption is cut, too, for with the contracted volume of cool air, a motor only about one-half as large as that used with induced draft burners is required.

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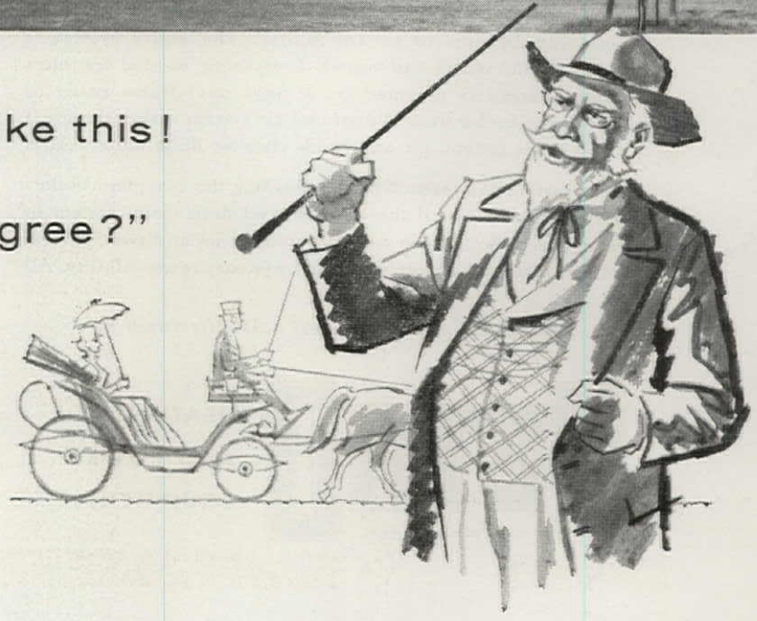
What happened to the filigree?"



Architects: Goldstein, Parham & Labouisse, and Favrot, Reed, Mathes & Bergman, New Orleans, La.

It's still in the French Quarter, Colonel, but up here at City Hall we need a practical form of architecture—practical, but still beautiful. The new City Hall is the first of a proposed five-building civic center—an excellent example of functional modern architecture. It is especially functional in the extensive use of glass for the vision and spandrel areas.

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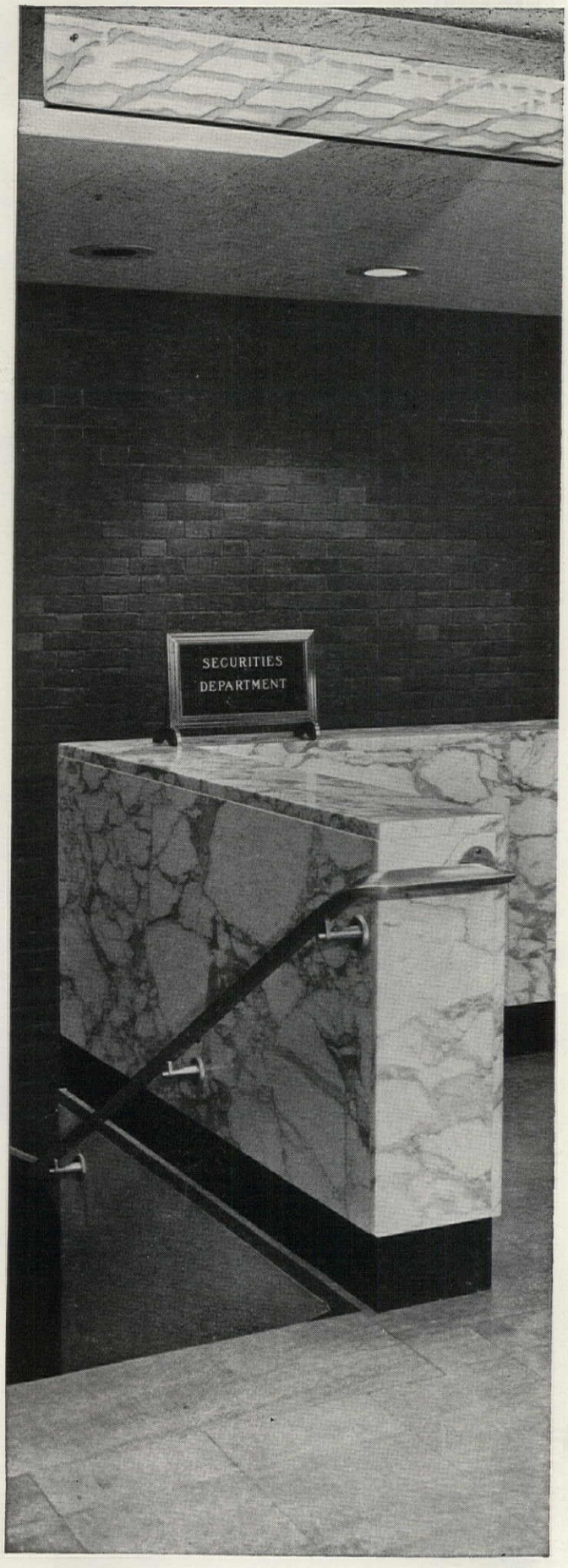


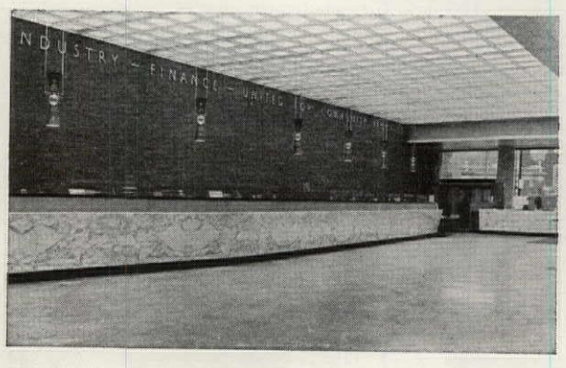
MARBLE
a vital need in contemporary design

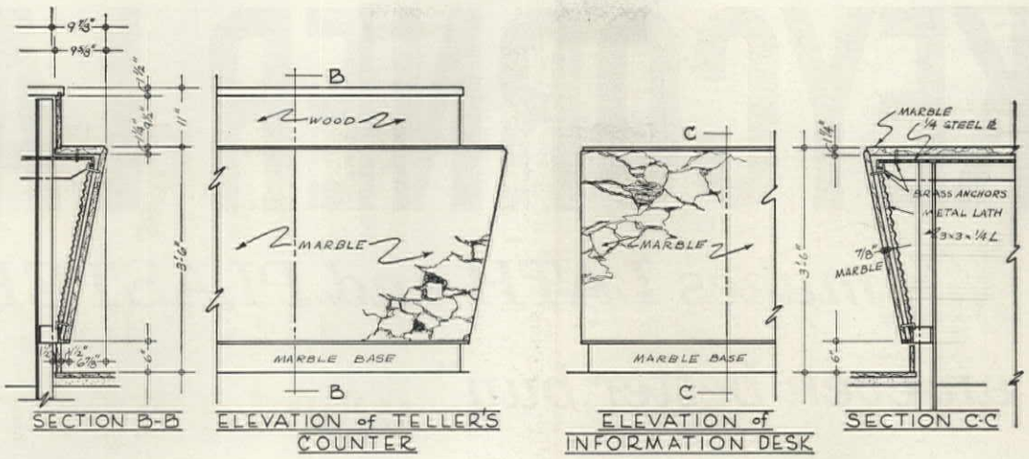
The significance of contemporary design lies in its simplicity, directness and exploitation of essentially beautiful materials. Modern architects have learned to express order and function in the plan and attain occasional moments of magnificence without depending upon extraneous elements.

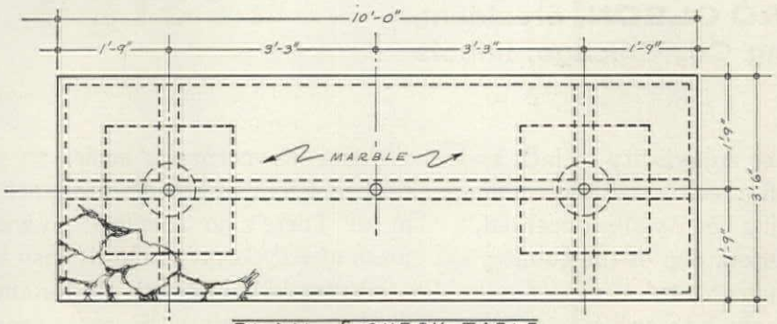
In this beautiful bank interior, marble lends a note of freshness and clarity which no other material would have provided so admirably. The detailing is simple and delicate; and the juxtaposition of textures and patterns provides the necessary decoration. The total effect is extremely clear and denotes efficiency without detracting from the element of refinement so necessary in a bank. Marble, traditional in bank interiors, enhances a new mode of expression completely adaptable to contemporary needs.

There is a beautiful brochure "Marble for the Modern Bank," describing and illustrating further uses of marble in bank design, available free by writing the Marble Institute of America.

HARVARD TRUST COMPANY, CAMBRIDGE, MASS.
Architects: Perry, Shaw, Hepburn & Dean



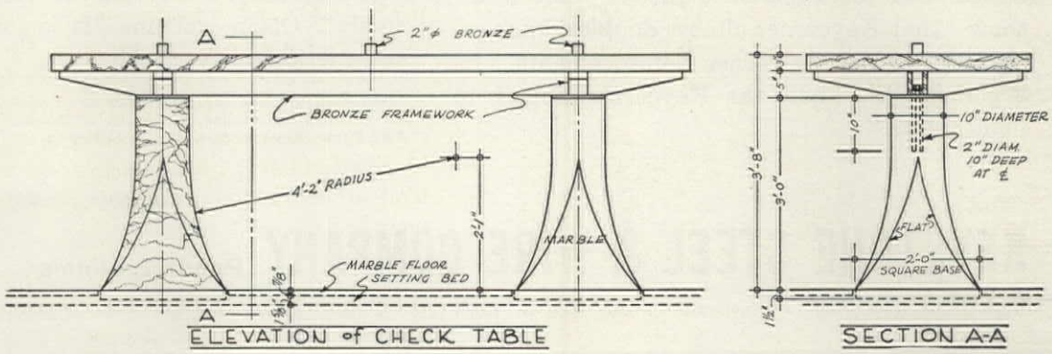




SCHEDULE of MATERIALS

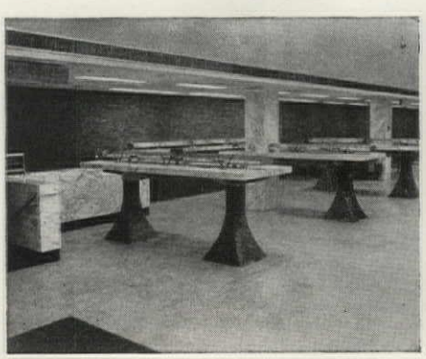
- MARBLE
- METAL
- WOOD
- CEMENT

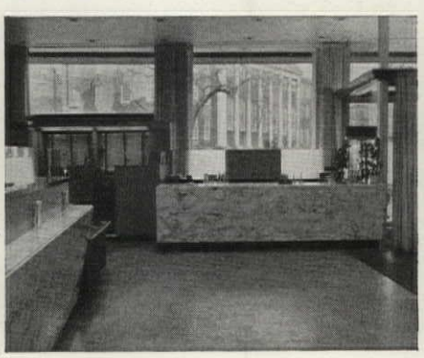
SELECTED MARBLE DETAILS FROM
HARVARD TRUST COMPANY
CAMBRIDGE, MASSACHUSETTS
~ARCHITECTS~
PERRY, SHAW, HEPBURN & DEAN



MARBLE INSTITUTE MIA OF AMERICA, INC.

32 SOUTH FIFTH AVE. • MOUNT VERNON, NEW YORK





"KEYCORNER LATH

makes LATH and PLASTER an even better buy"

says **A. BERNARD OLSON,** president,
The Olson Lathing Co., Chicago, Illinois

"Nobody questions the superiority of lath and plaster where greater fire resistance, lower maintenance costs and lasting beauty are concerned," declares A. Bernard Olson, one of the country's leading lathing contractors.

"Keycorner helps make lath and plaster even better. Our job experience proves what tests* show—that Keycorner almost doubles crack resistance over other corner reinforcements," he explains. "We know the Keycorner ability to fight cracks."

"And Keycorner is easier to use. The preformed 4-foot lengths fit into place with no effort at all. There's no time lost, no waste. The open mesh of Keycorner makes it easy to plaster over —assures full bond with plaster and a better job.

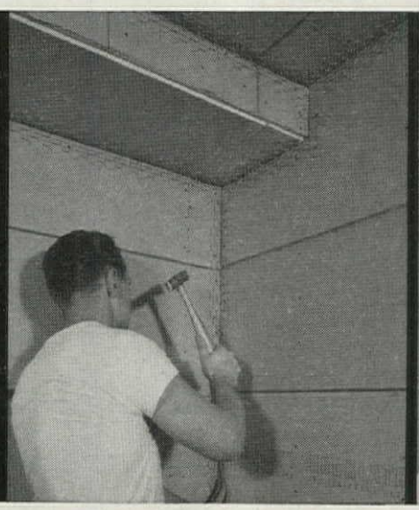
"Keycorner gives this extra protection, yet at a saving. That's why we use Keycorner exclusively!" Olson exclaims. "It lets us give greater satisfaction on every job."

**Tests with Keycorner, as well as other corner reinforcements, conducted by the Research Foundation, University of Toledo. Complete test reports FREE from Keystone Steel & Wire Company.*

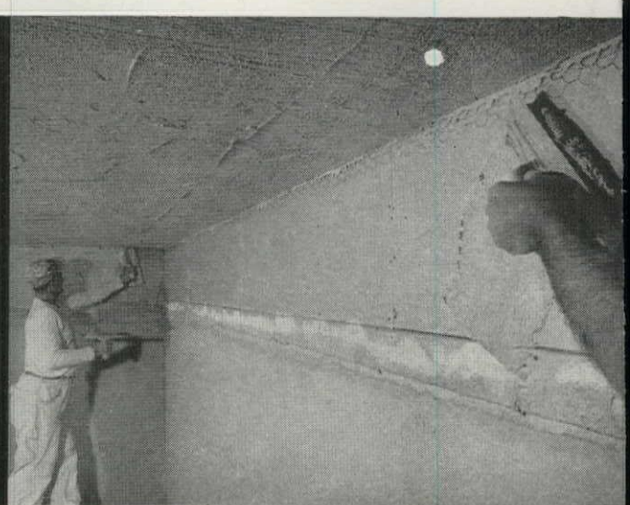
KEYSTONE STEEL & WIRE COMPANY Peoria 7, Illinois

Keywall • Keycorner • Keybead® • Keydeck • Keymesh® • Welded Wire Fabric • Non-Climbable Fence

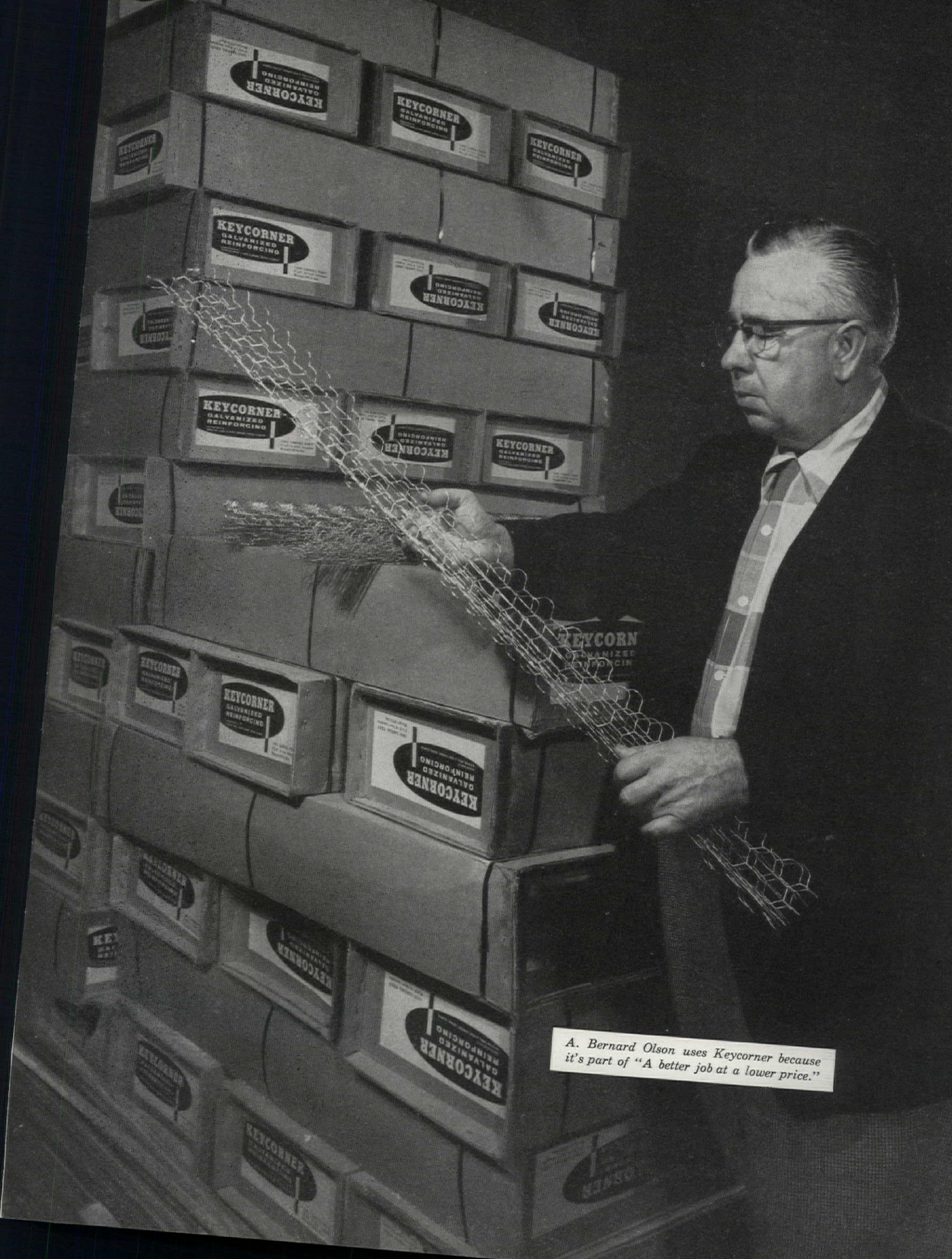
A typical quality Olson Lathing job goes into this 17-flat apartment building in Chicago. Many builders are switching back to lath and plaster because of the increased fire resistance, lower maintenance and permanent beauty that plaster walls provide.



Keycorner is simple to handle and use. This fact assures better workmanship, which adds still further to the superior job you get with Keycorner.



Keycorner gives a better plaster job. The open mesh assures full bond with plaster and gives the strong reinforcement that provides maximum crack resistance. Keycorner is also galvanized to prevent rust.



A. Bernard Olson uses Keycorner because it's part of "A better job at a lower price."

Call the Man from Fenestra for

a NEW complete line of MAINTENANCE-FREE ALUMINUM or STEEL WINDOWS

He can give *impartial* answers to your questions about window costs, styles, maintenance and performance—whether you're interested in steel or aluminum. He has no axe to grind for either. Or for one style versus another. Because he has a *complete* line of *both* steel and aluminum windows—the finest for every purpose.

He can show you slim-framed aluminum projected windows for school and office buildings. Sturdy steel pivoted windows for industrial buildings. Double-hung. Casements. Intermediate and commercial. In short, just about every style window you could possibly need . . . in steel *or* aluminum.

These windows require virtually *no maintenance!* The steel windows can have a lifetime, corrosion-resistant *Fenlite* finish that requires no painting. The aluminum windows have a satiny finish that is permanent.

If you need advice or information on any window or maintenance problem, call the Man from *Fenestra*—an *experienced* window specialist. He is listed in the Yellow Pages. Or write to Fenestra Incorporated, Dept. AF-10, 2296 East Grand Blvd., Detroit 11, Michigan.

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In Conventional Dress or "Sack"...

Milady Appears to Best Advantage Under **LITECONTROL** *Lighting*

What's the "price tag" on quality lighting like that above? Very reasonable because the installation features *standard* Litecontrol fixtures.

The luminous ceiling uses Holophane No. 6024 acrylic lenses which provide approximately 100 foot-candles of extremely comfortable and flattering illumination — with shadows reduced to a minimum. (The round downlites were supplied by others.) The moderate cost of the lens ceiling is further reduced and offset by the fact that the fixture occupies a considerable area which would otherwise require new ceiling material. The owners and store personnel are enthusiastic about the lighting and rightfully proud of their smart-looking premises.

Right now there are architects and contractors making other property owners enthusiastic with Litecontrol illumination on a sensible budget. *Be one of them — it pays!*

INSTALLATION: George H. Kimball, Inc., Portsmouth, N. H.

TYPE OF AREA: Ladies' Apparel Store

STORE DESIGNER: Hermsdorf Fixture Mfg. Co., Manchester, N. H.

DISTRIBUTOR: Dyer-Clark Co., Lawrence, Mass.

ELECTRICAL CONTRACTOR: Walter B. Redden, Portsmouth, N. H.

FIXTURES:
Litecontrol luminous lens ceiling, 8' x 48', using Holophane #6024 lenses — lamps on 24" centers

INTENSITY: Average 100 foot-candles in service

LITECONTROL

Fixtures

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LITECONTROL CORPORATION,
36 Pleasant Street, Watertown 72, Massachusetts

DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS

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This is our application for a place on your building team.

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We would be pleased to work with you to develop distinctively different Steelcase furniture for you and your clients.

Steelcase Inc., Grand Rapids, Michigan. In Canada: Canadian Steelcase Co., Ltd., Don Mills, Ontario.

YOURS FOR THE ASKING: a copy of our new "Sketch Book of Ideas for Architects", which features recent installations for Ford Motor Company, Gulf Oil Company, the University of Michigan and other "Who's Who" companies. Ask your secretary to address Dept. A.

The new Steelcase desk plant and administration building.

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Color Shown: VK-381, Light Cork

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Vina-Lux solves many floor problems. It's greaseproof, durable, slip-safe, easy to maintain. Solve *your* floor problems with this outstanding resilient tile. Available in 31 colors and 4 styles. Samples are yours without obligation.

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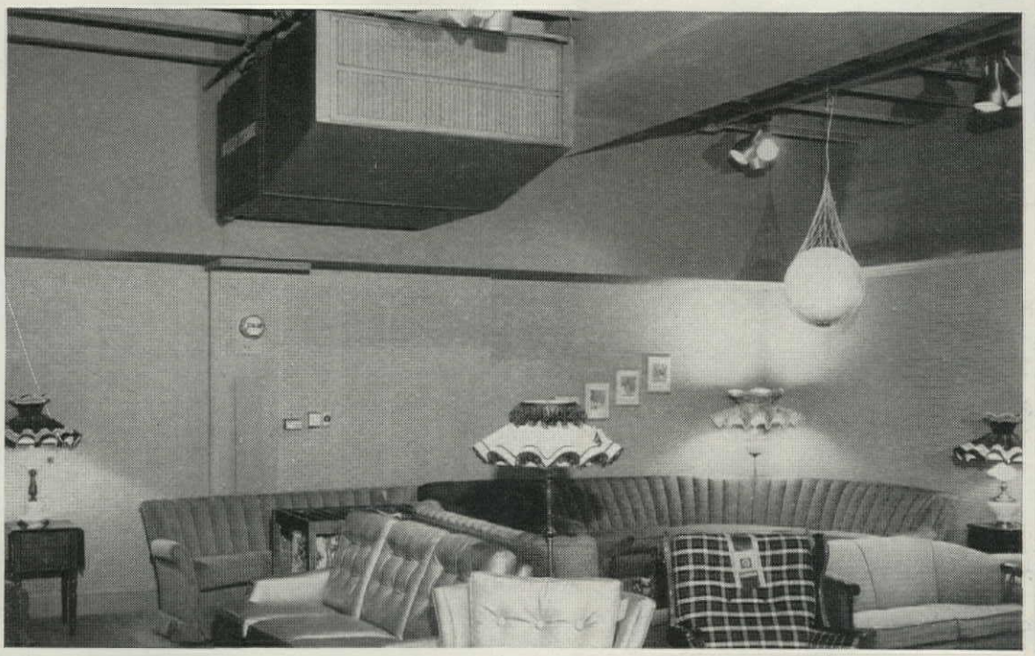
CASE #100—Another case where General Electric Factory-Assembled Air Conditioning Units proved more economical than field-assembled systems.



Architect: Harold A. Berry, A.I.A., Donald H. Speck, Associate—General Contractor: James C. Stewart Co.

General Electric Ceiling-Mounted Units at the Dallas Home Furnishings Mart take no floor space—provide individual temperature control (heat and cool)—are metered for zone control of operating cost.

General Electric Zone-by-Zone Air Conditioning in Dallas Home Furnishings Mart permits

INDIVIDUAL CONTROL OF TEMPERATURE—ZONE CONTROL OF OPERATING COST

Air conditioning the vast new Dallas Home Furnishings Mart presented a 3-way challenge. (1) Over 400,000 sq. ft. to be air conditioned. (2) Provision had to be made for each exhibitor to control his own temperature and operating cost. (3) Floor space was at a premium. The ideal solution was found—in the Zone-by-Zone installation of General Electric Ceiling-Mounted Units.

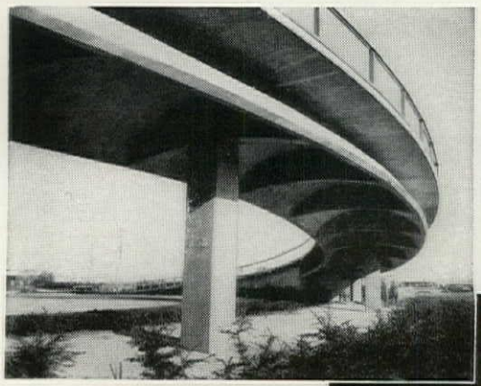
The entire area gets heating and cooling from the same units. Each exhibit area has its own units *individually controlled and metered. No floor space is used.* No ductwork is required. Noise is held to whisper level. And when the Mart proved so successful that Mr. Trammell Crow, owner, decided to double its size, all that was necessary was to add individual units as individual showrooms were added. No fuss—no alterations—no interference with performance of existing units. This is a typical example of how General Electric *factory-assembled* units meet the most exacting air conditioning requirements.

General Electric's complete line is flexible enough to meet every air conditioning requirement for all buildings—large or small—old or new. Ceiling-mounted units water-cooled up to 7½ tons—air-cooled up to 10 tons. Floor-mounted units—water-cooled up to 30 tons—air-cooled up to 20 tons. Steam and hot water coils available for all models. It will pay you to discover how General Electric Factory-Assembled Units can simplify your planning. For full details write: General Electric Company, Air Conditioning Department, Troup Highway, Tyler, Texas.

Progress Is Our Most Important Product

GENERAL ELECTRIC

In Canada, Canadian General Electric Co., Ltd., Montreal



Gateway TO THE STARS

Dramatic Concrete Ramp at New York International Airport Provides Graceful Access to Arrival Building

• "Gateway to the Stars"—at Idlewild Airport—is a curving reinforced concrete promenade which connects with a prestressed concrete bridge leading to the Arrival Building.

Imaginative and daring in design, this strikingly modern ramp, set on widely spaced concrete columns, skirts the edge of the broad circular reflection pool in a graceful sweep.

The bridge which leads through the 11-story control tower, is fabricated of prestressed concrete channel beams made with 'Incor'*, America's FIRST high early strength portland cement, and also utilizes widely spaced columns.

Well-integrated designs, coupled with concreting know-how, make this a quality job of highest order. Artistry in concrete has been achieved, plus an all-important economy that lasts for the life of the structure, making the most of today's construction dollars.

*REG U.S PAT. OFF.

NEW YORK INTERNATIONAL AIRPORT
Arrival Building Reflection Pool and Elevated Promenade
Owner: **PORT OF NEW YORK AUTHORITY**

Design
SKIDMORE, OWINGS & MERRILL (Building and Bridge)
Associate: **WALLACE K. HARRISON**
HERBERT FLEISCHER (Pool and Ramp)
All of New York City, N. Y.

Contractor: **TULLY & DI NAPOLI, INC.** (Bridge, Ramp, Pool)
Flushing, New York

Prestressed Bridge Beams
PRECRETE, INC. Flushing, New York
Soil Cement: **FRANK MAMORALE, INC.**
Glen Cove, New York

Masonry:
TEACO CONSTRUCTION CORPORATION (Pool, Ramp)
Bronx, New York

Lone Star Materials supplied by
COLONIAL SAND & STONE CORPORATION
GENERAL BUILDERS SUPPLY CORPORATION
Both of New York City, N. Y.

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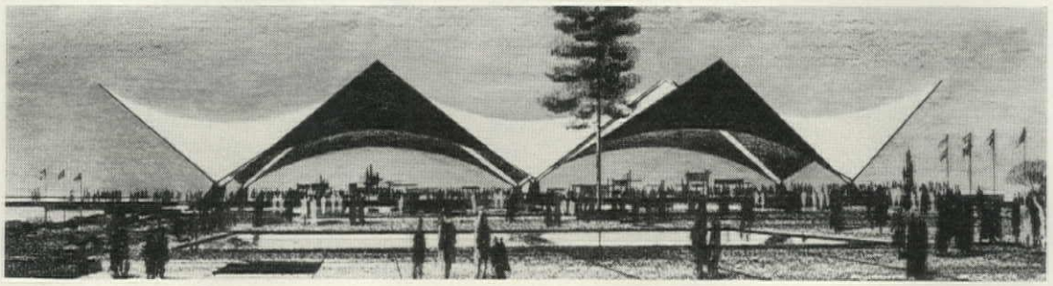
Projects

A roundup of recent and significant proposals



SEASIDE APARTMENT HOUSE

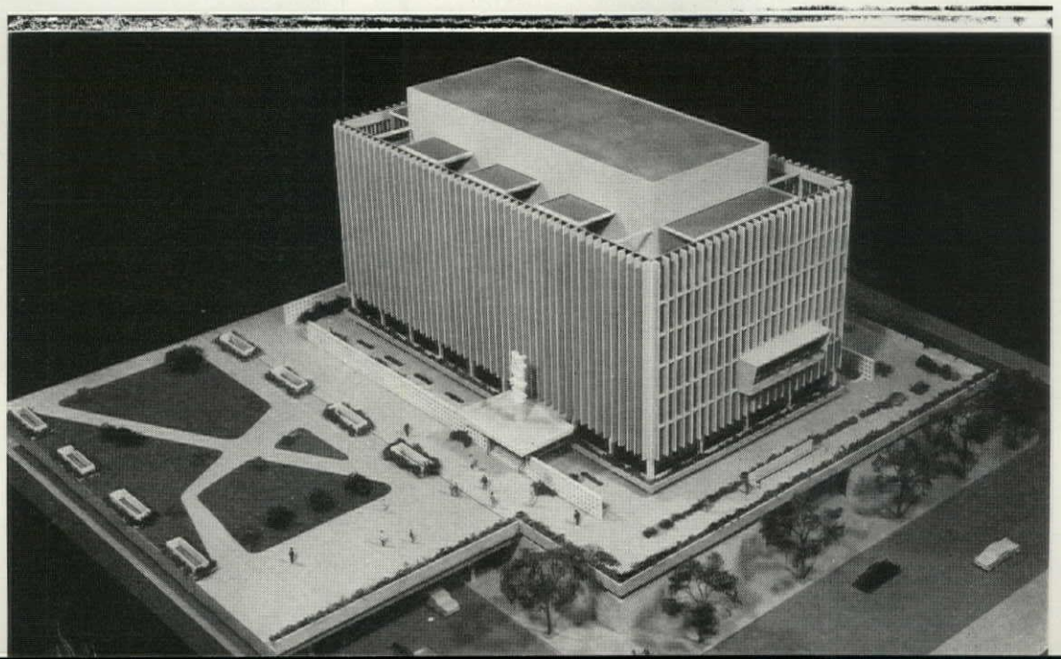
Pictured at right is a scale model of Marina Tower, a co-operative apartment building soon to be erected on Long Beach, California's Ocean Boulevard, overlooking San Pedro Bay. Fourteen stories high, the building will have 44 luxury units priced at $57,000 to $76,000 each. Average floor space per unit: 2,150 square feet, plus terrace. Architects are Killingsworth, Brady & Smith of Long Beach, who, with the Milner Realty Co. and the Millie & Severson Construction Co., will sponsor the project. Cost: $3 million.

WOOD FAIR PAVILION

To house wood products on display at Portland, Oregon's Centennial Exposition and Trade Fair next summer, West Coast Forest Industries will build a unique pavilion (right) which may well steal the show. Designed by Portland Architect John Storrs, the 24,000-square-foot structure will have a roof composed of seven sweeping hyperbolic paraboloids separated by skylights and supported at only six points. Each paraboloid will be 50 feet square and consist wholly of laminated, 50-foot 2 by 4's. At the close of the exhibition the building will be given to Oregon's 4-H clubs. Cost: $250,000.

COLUMBIA LAW SCHOOL

Students going to and from Columbia University's $7-million School of Law Building (model right) will cross a landscaped campus-terrace superimposed above Manhattan traffic. Classrooms and a fully equipped moot court will be in the 224 by 200 foot street-level section—library and reading rooms in the eight-story section above. Verticle limestone fins will aid natural lighting. Now under construction, the project is the design of Harrison & Abramovitz of New York.

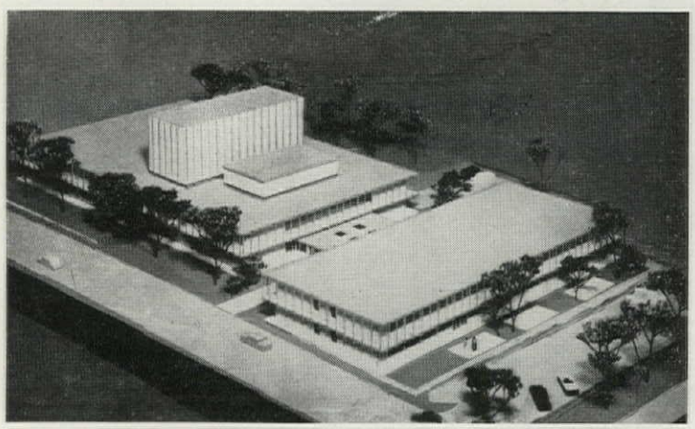


PAPER RESEARCH CENTER

On a 41-acre site adjoining Philadelphia's International Airport, ground has been broken for a $10-million office building and research laboratory for the Scott Paper Co. The six-story office building (left), with an over-all floor space of 225,000 square feet, will accommodate about 800 administrative and engineering personnel. The chemical and mechanical laboratory, connected to the office building by an enclosed corridor, will contain some 130,000 square feet. Architects for the project, which is scheduled for completion by 1960, are Welton Becket & Associates.

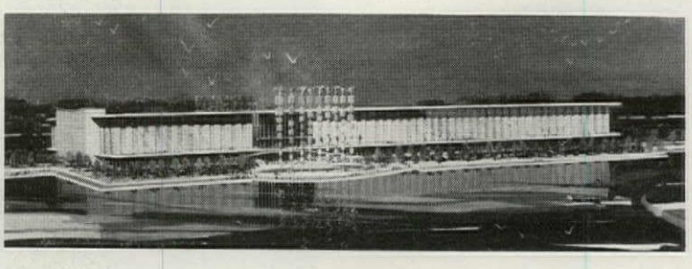
TALL TOWER FOR LOS ANGELES AIRPORT

A 162-foot-high control tower (above) will be the first step in the vast, $46-million development planned for the Los Angeles International Airport. Dominating the main entrance to the new terminal area, the 12-story structure will be sheathed in glass, stucco, and mosaic tile. It will be used for administrative office space as well as for air-traffic control equipment and personnel. Plans for the complete airport project are being prepared by Pereira & Luckman, coordinating architects, and Welton Becket and Paul R. Williams, associates. The tower cost will be about $1.3 million.



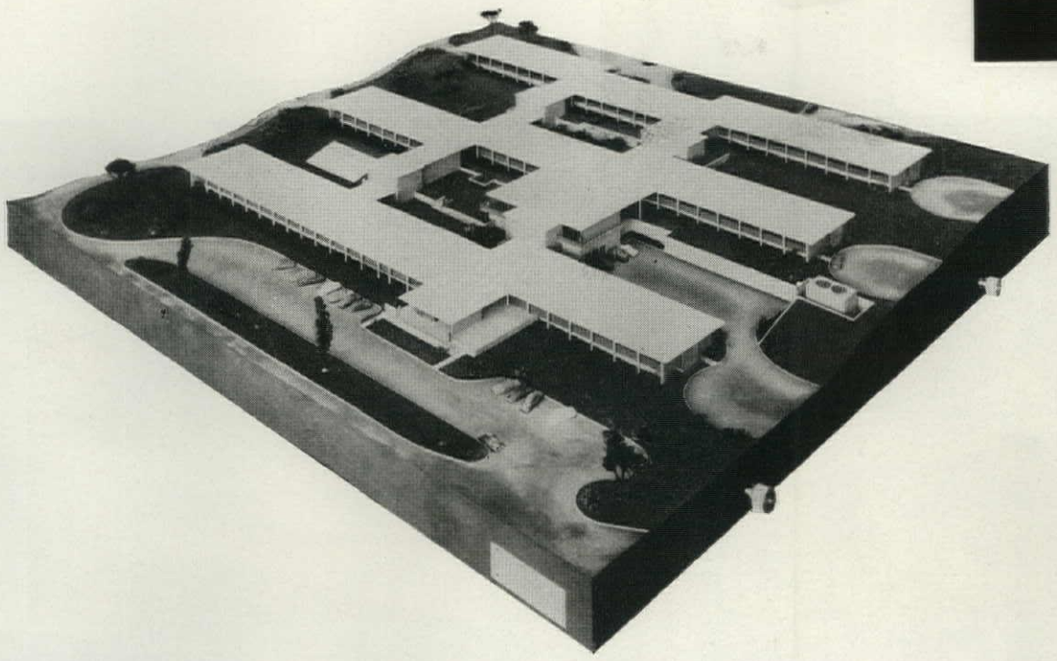
CONVENTION HALLS FOR BOSTON AND CHICAGO

Two huge municipal convention and exhibition halls were announced last month, one for Boston (above) and one for Chicago (below). The two-story Boston hall, by Boston Architects Hoyle, Doran & Berry, will be part of the city's $100-million Back Bay Center. To cost $10.5 million, it will provide seating for 6,000 and more than 160,000 square feet of exhibition area. Coordinating architects: Pereira & Luckman. Chicago's $34-million project will enclose a 300,000-square-foot exhibition hall and a 5,000-seat theater. Chief architect: Alfred Shaw of Shaw, Metz & Dolio. Associate architects: Edward Stone and John Root.



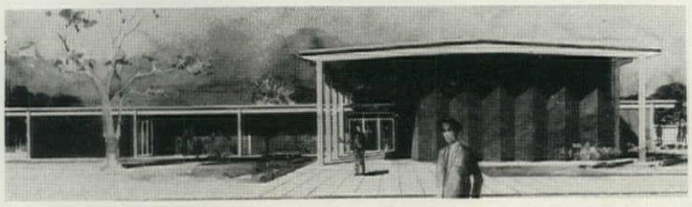
MUSIC AND ART BUILDING FOR THE UNIVERSITY OF MISSOURI

Plans for the University of Missouri's Fine Arts building (left) group visual arts activities in the section at right, music and drama activities in the larger section at left, and join the two with an exhibition gallery. Construction of the two two-story sections will be of reinforced concrete with brick, porcelain enamel, and glass curtain walls. A 250-seat recital hall and a 300-seat auditorium will be located in the drama-music section. (The tower is the stage loft.) Architects: Hellmuth, Obata & Kassabaum. Cost: $1.8 million.



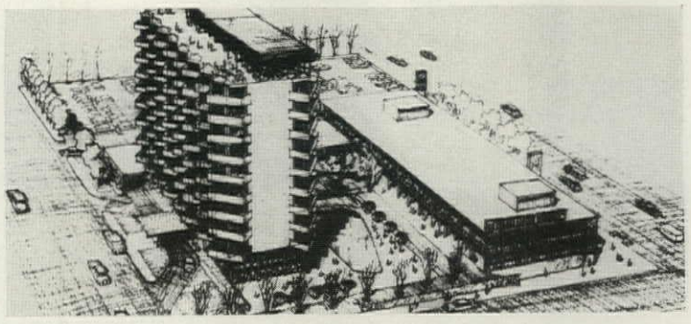
TEXAS RESEARCH LABORATORY

For Texas Instruments Inc. of Dallas, Architects O'Neil Ford and Richard Colley have designed the sprawling, 78,500-square-foot Central Research Laboratory shown at left. To be erected on a 300-acre site near the company's recently completed Semiconductor-Components Building (see page 132), it will consist of three connected, one-story-and-basement wings, each on a different level. The masonry, steel, and glass structure will cost about $3 million.



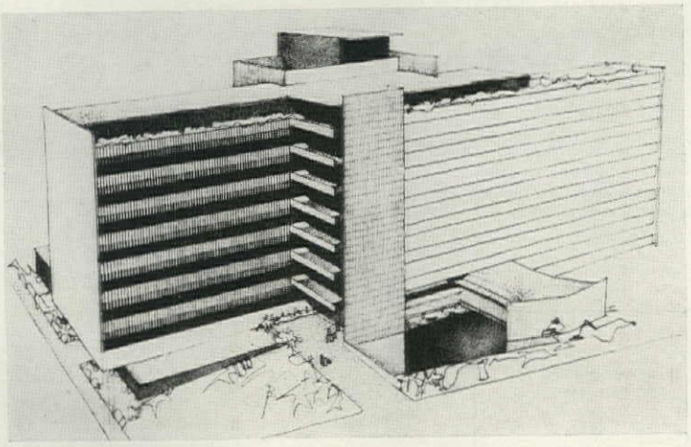
UNION HEADQUARTERS FOR ALBUQUERQUE

In Albuquerque, the Carpenters Local Union No. 1319, AFL-CIO, will soon abandon its eight-year-old brick headquarters building to move into a new one made almost entirely, and more appropriately, of wood. Now under construction, the T-shaped, 13,000-square-foot structure (above) is the design of Ferguson, Stevens & Associates. Cost: $124,650.



BALCONY-FACED HOTEL FOR THE ROCKY MOUNTAINS

A slab-concrete hotel, ten stories tall and faced on front and back with 140 private balconies (one for each room), will be built in Boulder, Colorado from plans drawn by Denver Architect Eugene D. Sternberg. Interior decoration of each floor will be based on the folklore of a different country. An open-air, rooftop terrace, restaurant, and dance floor will provide guests with a spectacular view of the Rockies. The two-story building at right will be a shopping center. The complete project will cost $2 million.



COUNTY RECORDS BUILDING FOR LOS ANGELES

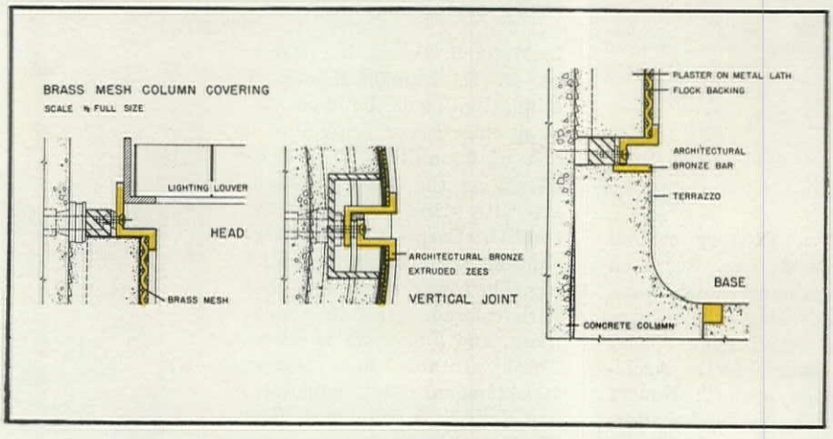
Verticle aluminum fins clocked to turn automatically with the sun will shield the windows of the $11.2-million County Hall of Records (above) to be built at the corner of Temple Street and Broadway in Los Angeles. In effect, the building will consist of two separate sections, one a seven-story office section, the other a 13-story section for records storage. But both will be the same height, due to low headroom in the storage section. Over-all floor space: 415,000 square feet. Architects for the project: Neutra & Alexander, Honnold & Rex, C. Herman Light, and James R. Friend.

TEXAS OFFICE BUILDING

In Midland, Texas, Industrialist R. E. Dumas Milner of Mississippi will build a 15-story office tower (right) at a cost of $2 million. It will be known as the Gulf Building, after its principal tenant, the Gulf Oil Corp., which will occupy 60 per cent of the building. The tower will be sheathed with colored porcelain panels, glass, and aluminum mullions. Total rentable floor space: 100,422 square feet. Architects are Hedrick & Stanley of Fort Worth. Scheduled completion date: January 1960.

Above: Graceful spiral stairway helps to integrate the several floor levels. Handrails are made of formed Red Brass strip, reinforced with rectangular Red Brass rod, and the balusters are tubular Red Brass sleeves over a round steel rod. The column is enwrapped with woven bronze wires that have been partially colored to give a pleasing black and gold effect.

Below: Detail drawing showing how Architectural Bronze extrusions are used at vertical and horizontal joints and at base and head of column.



All of the metal in the check tables on the two banking floors is Red Brass. The built-in adding machine in the center of the top is a novel feature much appreciated by patrons.

NO OTHER METALS HAVE THE VERSATILITY AND ENDURING BEAUTY OF COPPER ALLOYS

The architect and designers skillfully used the warmth of copper alloys to establish an air of friendliness in the new United States National Bank in Denver. These beautiful metals also contribute dignity and the feeling of stability so important in banking institutions.

This excellent example of copper alloys in architectural design utilizes Architectural Bronze extrusions, Red Brass sheet and seamless tube, Red Brass formed strip, drawn rectangular Red Brass rod, bronze screening and bronze castings.

The American Brass Company's years of experience in manufacturing copper-alloy materials for architectural uses have enabled us to give valuable assistance to architects, designers and fabricators in creating designs in Copper, Brass, Bronze and Nickel Silver. If we can serve you in a similar manner, please write: Architectural Service, The American Brass Company, Waterbury 20, Conn. 5833

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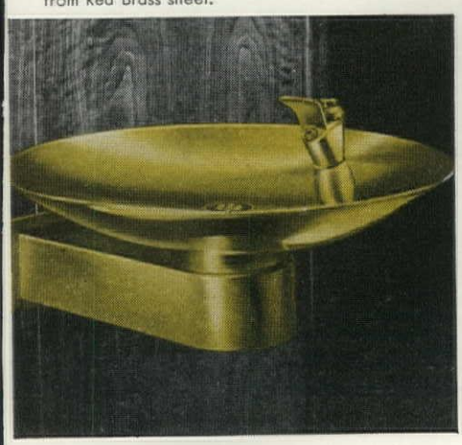
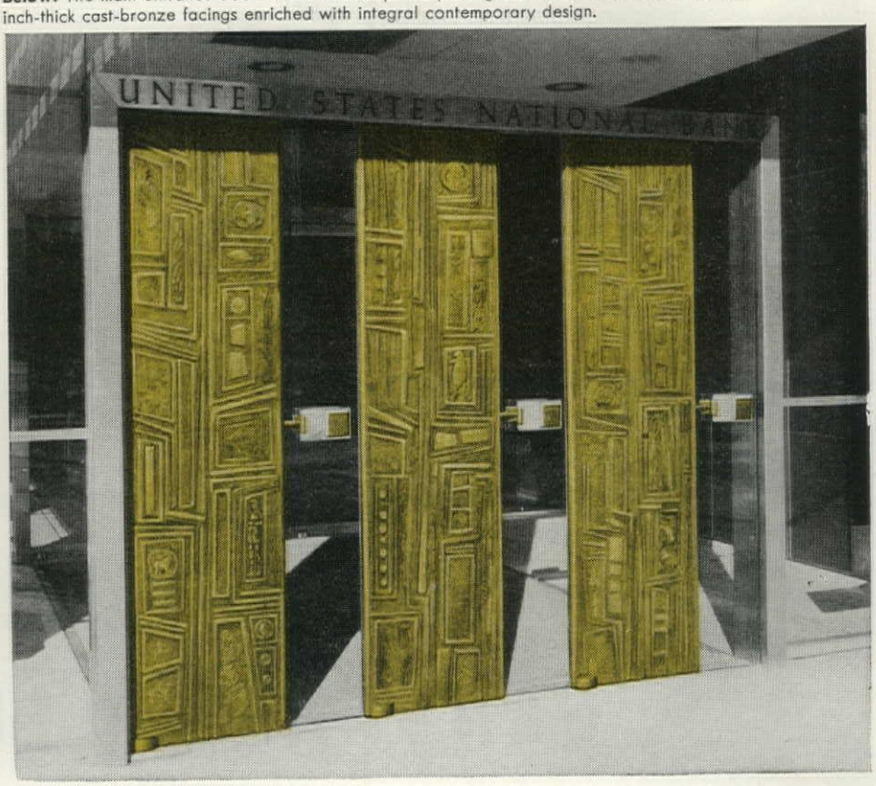
Architect: James S. Sudler. **Associated Interior Designers:** Maria Bergson Associates. **Sculptor, bronze doors and outline map:** Edgar Britton. **Bronze Mesh:** W. S. Tyler Company. **General Contractor:** N. G. Petry Construction Co. **Ornamental Bronze Fabricator:** Zimmerman Ornamental Bronze and Iron Works, Denver.

An example of attention given to details is this drinking fountain of special design. The bowl is of highly polished cast bronze, the bracket is formed from Red Brass sheet.



Main entrance of The United States National Bank on Broadway, Mile High Center, Denver, Colorado. The sculptured map, the doors and the lettering are of cast bronze.

Below: The main entrance doors consist of tempered plate glass in combination with quarter-inch-thick cast-bronze facings enriched with integral contemporary design.



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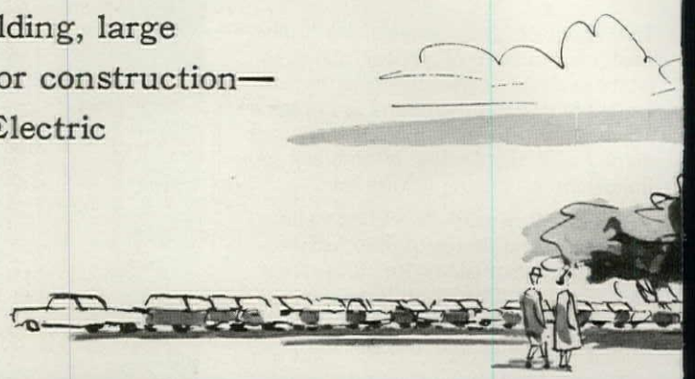
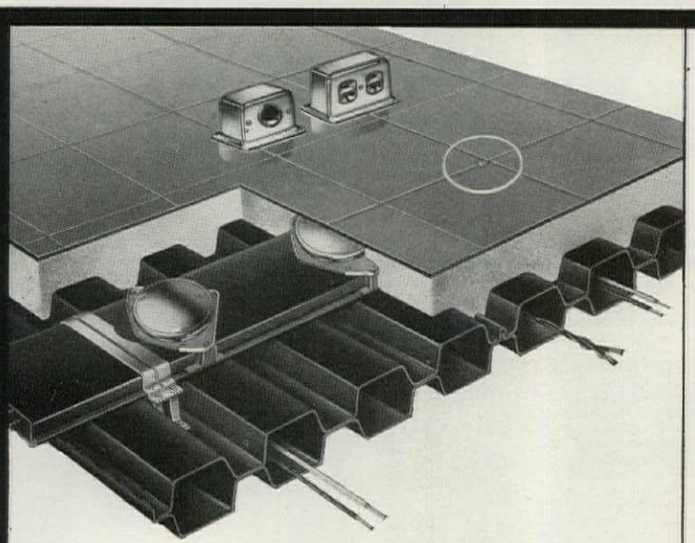
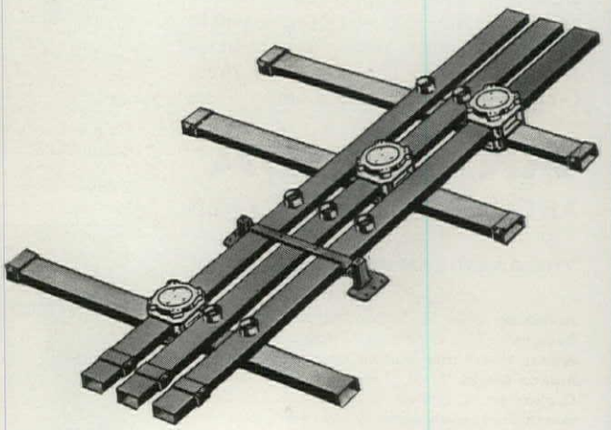
You can select exactly the underfloor electrical distribution you need for any building, large or small—and for any type of floor construction—from these three great General Electric underfloor wiring systems.





1. G-E cellular-steel floor wiring system makes it possible to locate outlets in every 6 inches of floor area. G-E header duct for wiring cellular-steel floors now offers 41% additional capacity to provide for ever-increasing electrical needs. A special Type-Q header makes it possible to provide for future expansion at low initial cost.-



2. G-E two-level steel underfloor wiring system offers flexibility of design not found in conventional systems. The two-level feature provides complete separation of services and solves difficult or unusual feeding problems.

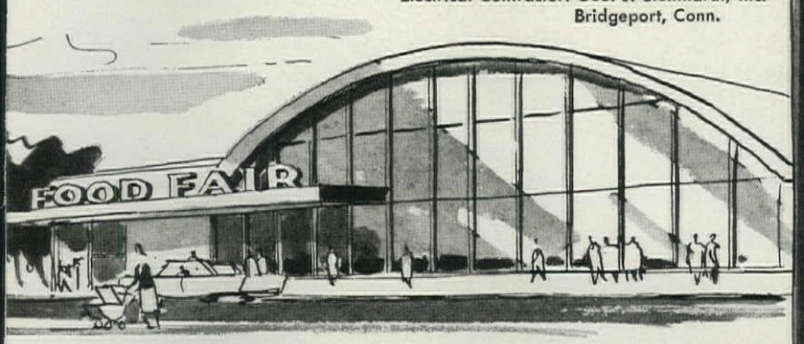
OPERATION upturn Buy now for extra values GENERAL ELECTRIC

Progress Is Our Most Important Product

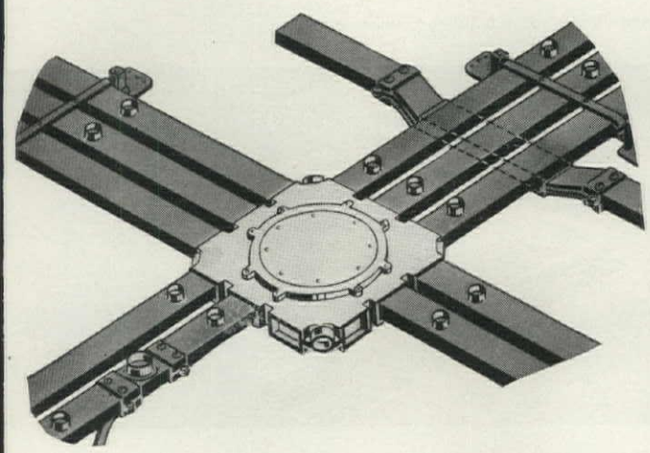
GENERAL ELECTRIC

type of underfloor distribution Electric's three systems

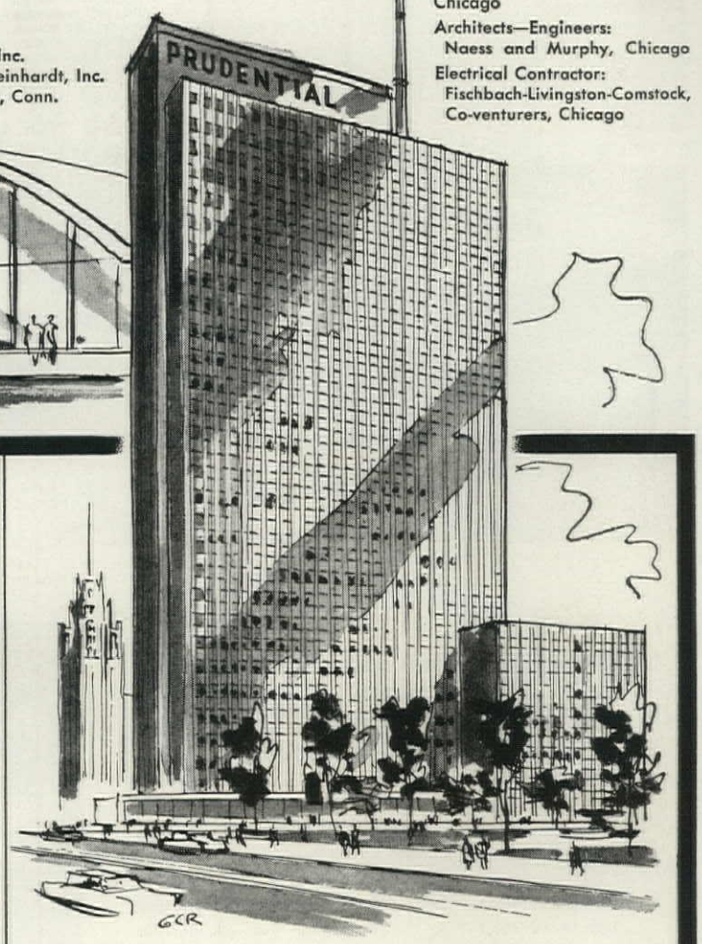
Food Fair, Fairfield, Conn.
Designed by: Food Fair Stores, Inc.
Electrical Contractor: Geo. J. Steinhardt, Inc.
Bridgeport, Conn.



The Prudential Insurance Company of America Building, Chicago
Architects—Engineers:
Naess and Murphy, Chicago
Electrical Contractor:
Fischbach-Livingston-Comstock, Co-venturers, Chicago



3. G-E single-level steel duct system is ideal for standard layout with up to 3 services; it can be used in slab and fill or monolithic floors. Designed for easy installation, this system can be installed in fills as shallow as 2½ inches.



All 3 G-E underfloor wiring systems are easy to install—crews need no specialized experience. That's because the design is simple and straightforward and each system is made to close tolerances. Components are available from General Electric to meet virtually every installation requirement. Underwriters' Laboratories, Inc. lists all 3 G-E systems which also meet Federal Specifications.

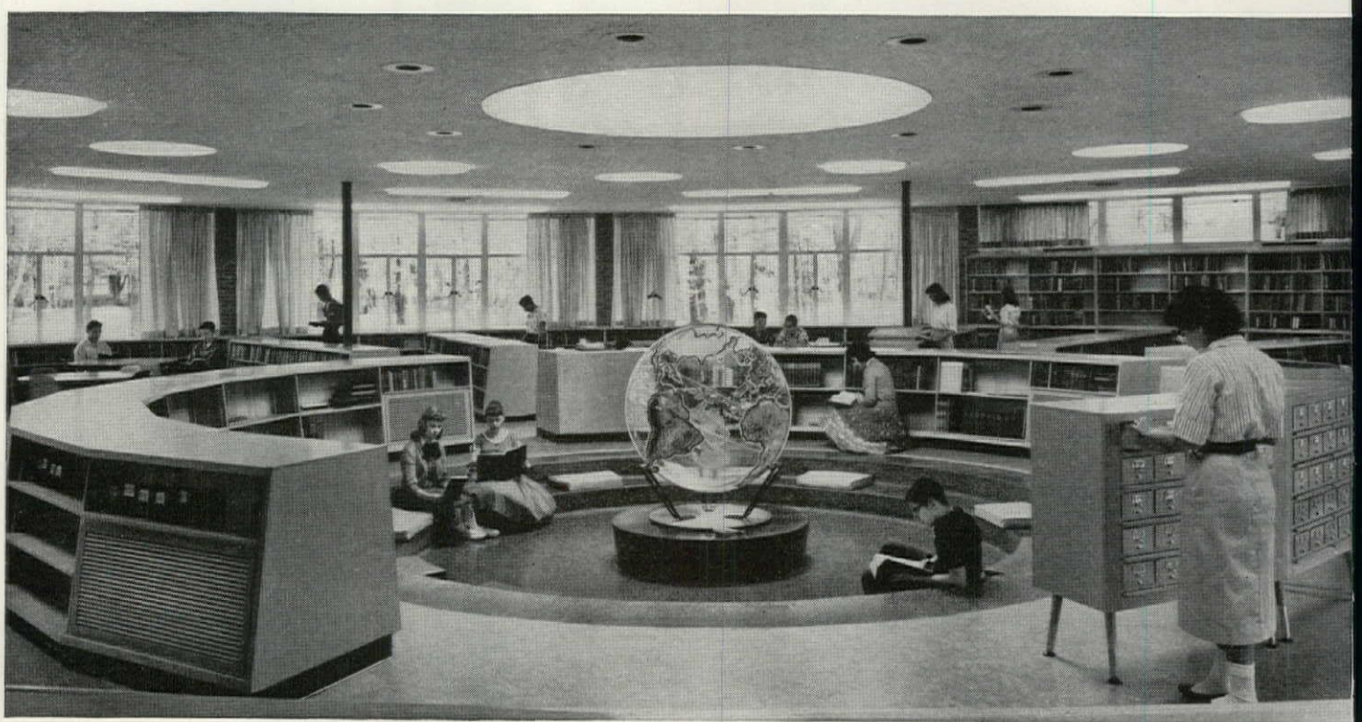
Send your questions about underfloor wiring to General Electric, or mail the coupon for complete information.

To: General Electric Company
Conduit Products Department, Section C84-104
Bridgeport 2, Connecticut

Please send me complete information on:
____ G-E two-level and single-level steel underfloor wiring systems.
____ G-E cellular-steel floor wiring system.
____ Enclosed is a description of my underfloor wiring problem. What do you suggest?

Name_____ Title_____
Company_____
Address_____

Heating and year-round air conditioning in

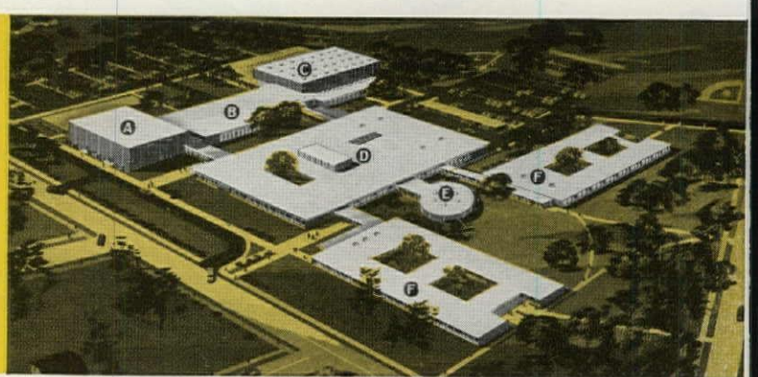


Air conditioned Library, round Building E, shown below.

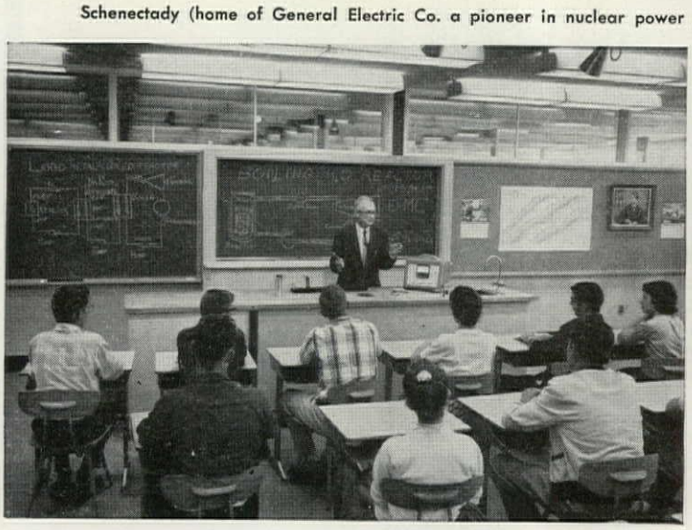
Linton Comprehensive High School
SCHENECTADY, N. Y.

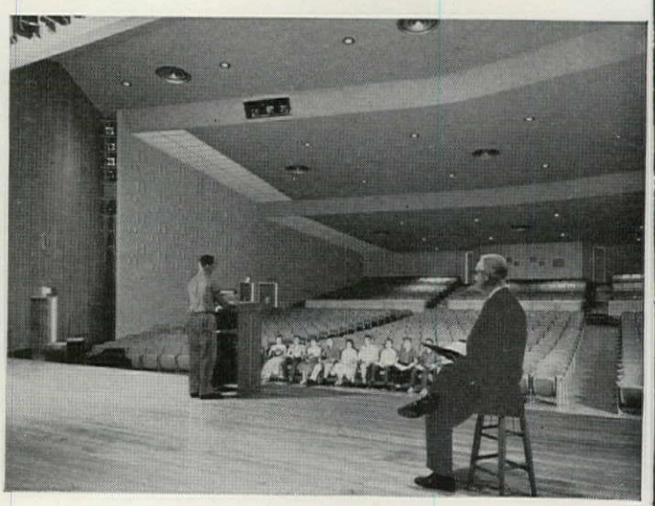
Building A, is air conditioned Auditorium with choral, band and orchestra rooms; B) Cafeteria and multipurpose area; C) Gymnasiums, 3 large, 2 small; D) Core-Tech building with shops, also air conditioned administrative offices, Science, Arts, Family Living and Commerce departments; E) Air Conditioned Library; F) Academic classrooms.

Planned enrollment: 1800. Grades housed: 10th, 11th and 12th. Area 258,157 sq. ft. Construction Cost: $4,328,130.



Schenectady (home of General Electric Co. a pioneer in nuclear power plants) is justly proud of LINTON'S excellent science department. (d-3)





new LINTON HIGH SCHOOL regulated by

POWERS

Pneumatic system of Temperature Control

"Plan a School that will still be functional in the year 2000"

. . . that was the challenge faced by the educational, architectural and engineering planners of Schenectady's much discussed Linton High School. One of the important innovations here is the year-round air conditioning in the Core-Tech building D, shown on opposite page, also the Auditiorium A, and the round Library building E.

Proper thermal environment is a valuable aid to effective teaching and learning. The flexibility of the Powers temperature control system installed at LINTON meets the demands of varied types of activity and occupancy in all seven buildings.

Air Conditioning, heating and ventilating systems are regulated from Powers Control Center located in the boiler room. See photo below at right.

Day control for the air conditioning systems during the cooling season consists of dew point control for the chilled water coils with individual reheat mixing damper control for each zone controlled from a zone thermostat.

Night control of the air conditioning systems provides reduced room temperatures during the summer "night" cycle when the buildings are unoccupied, with a minimum of refrigeration. This feature is designed to provide precooling and reduced start-up load.

A Powers MASTROL System controls the hot water heating system plus individual room control of convectors in critical areas.

In the Year 2000, the Powers temperature control system at Linton will likely still be functional. Twenty-five to 50 years of dependable operation with a minimum of maintenance is often reported by users of Powers control.

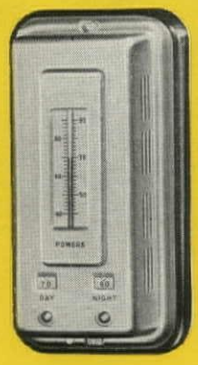
In Your New School make sure taxpayers get the biggest return on their investment in accurate temperature control. Ask your architect or engineer to include a time-proven Powers Quality System of Control.

Architects: **PERKINS & WILL**
Chicago and White Plains, N. Y.

Associate Architects: **RYDER & LINK**
Schenectady, N. Y.

Mechanical Engineer:
E. R. GRITSCHKE & ASSOC., INC.
Chicago, Ill.

Heating and Air Cond. Contractor:
TOUGHER HEATING & PLBG. CO.
Albany, N. Y.



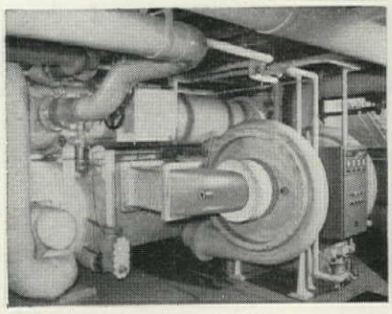
190 Powers DAY-NIGHT Thermostats here help prevent OVERheating in occupied rooms and are adjustable for lower economical temperatures during unoccupied periods.

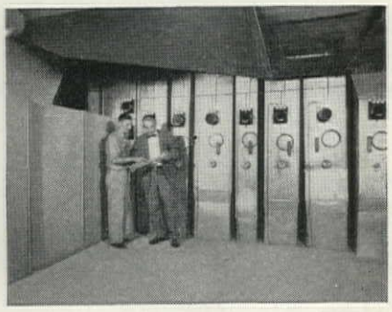
216 Powers PACKLESS Control Valves are used on convectors and unit ventilators. They're labor savers, banish packing maintenance and will prevent damage from water leakage.

THE POWERS REGULATOR COMPANY

SKOKIE, ILL. | *Offices in chief cities in U.S.A. and Canada*

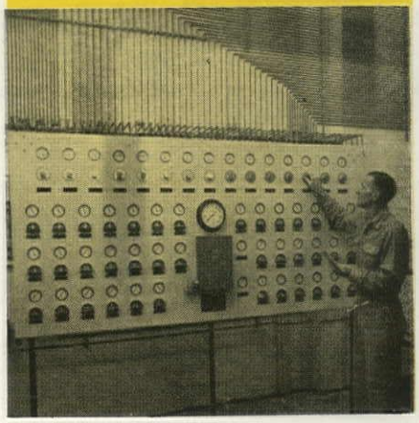
65 YEARS OF AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL





Left: 235 Ton Centrifugal refrigeration compressor has ample capacity for building D and library, or auditorium alone when other two buildings are not in use.

Right: Powers Control Center in boiler room. Center photo: one of 5 air conditioning systems and 9 of 68 Powers Sub-Master Thermostats controlling conditioned air to various spaces.



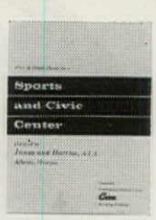
James and Harriss, a.i.a. design a

sports and civic center

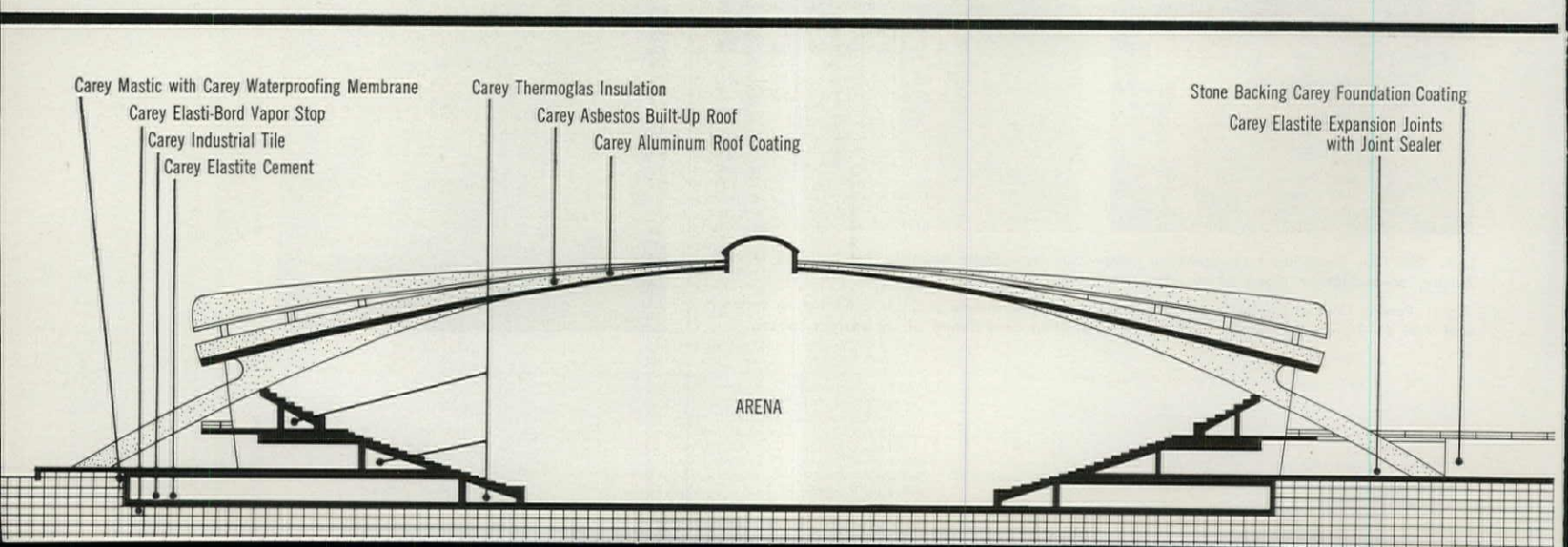
The growth of public interest in urban re-development, and of public willingness to accept the financial burdens involved, will be advanced by projects which have as their objective the greatest potential for public participation.

This SPORTS AND CIVIC CENTER is the kind of project which fulfills that objective by providing recreational and cultural opportunities for the entire community. Architects James & Harriss conceived this center as the focal project in a major urban re-development program.

The master renewal plan for the city of Atlanta, Georgia, provided the architects with a choice of sites. The center was planned on one of these as a design project, commissioned by The Philip Carey Mfg. Company.

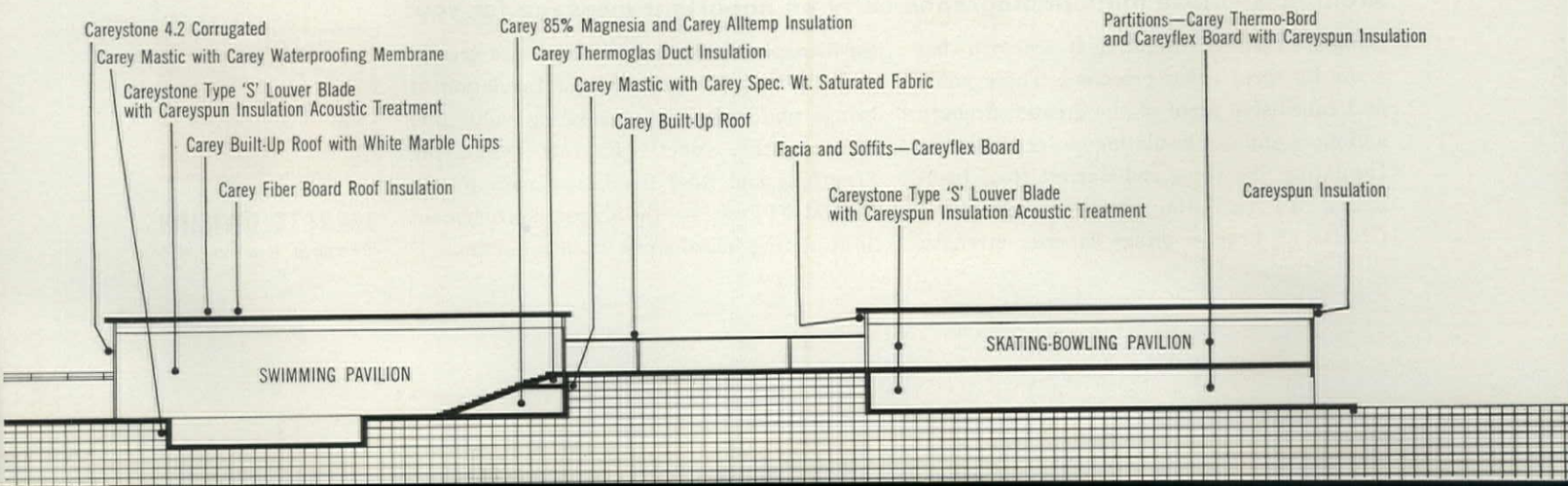


In the execution of their commission Messrs. James & Harriss utilized a number of Carey Building Products. Plan and detail sheets are available to architects and builders who may be interested in their design and application technique. Ask your Carey representative or write The Philip Carey Mfg. Company, Lockland, Cincinnati 15, Ohio. Dept. AF-1058.



Carey®

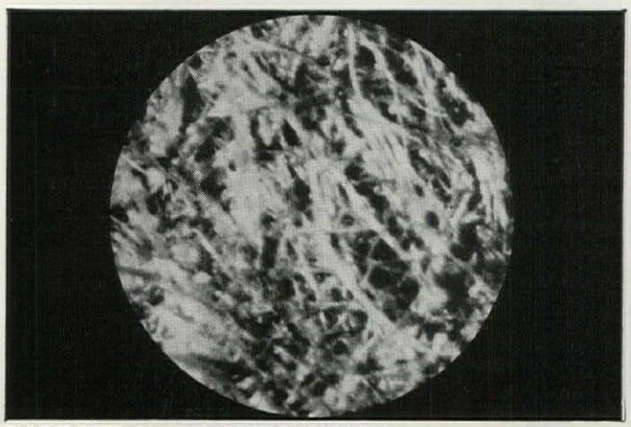
BETTER PRODUCTS FOR BUILDING SINCE 1873



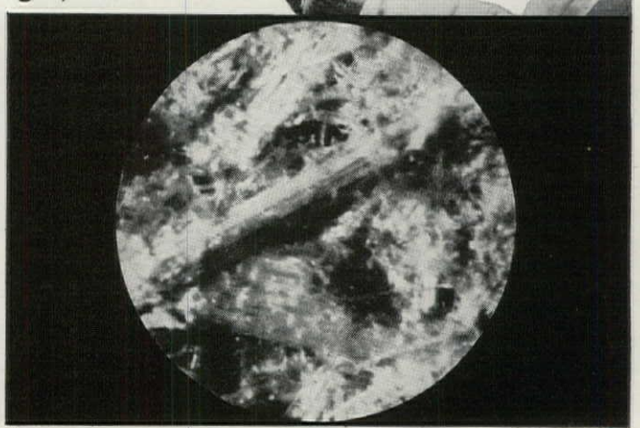
Barrett®

THE MICROSCOPE PROVES THE DIFFERENCE

New CHEM-FI manufacturing process preserves the fiber strength of natural wood . . . makes Barrett board stronger, more uniform.

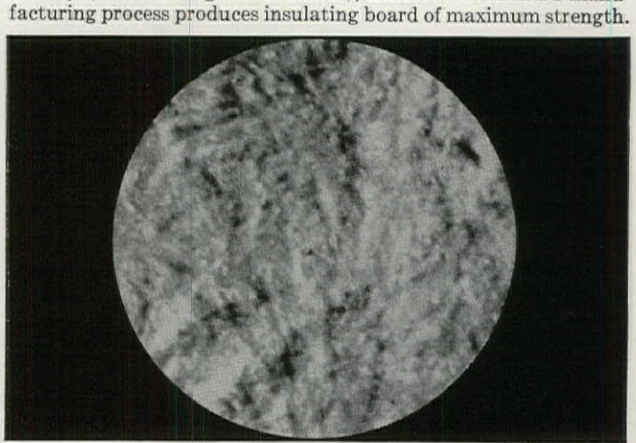


BARRETT INSULATING BOARD (magnified 20 times)
This microphotograph shows the long, interlocking wood fibers that reinforce Barrett Insulating Board . . . give it superior strength, uniformity and uniform thermal resistance. Barrett's CHEM-FI process separates the wood fibers by chemical means, retaining the strength of the natural wood from which it's made.



PROCESS B (magnified 20 times)
Notice that insulating board made by Process "B" has little uniformity in its fiber lengths. Some fibers are long, others are powder-like, providing no reinforcement. For a given board density (and thus a given K factor), Barrett's CHEM-FI manufacturing process produces insulating board of maximum strength.

PROCESS C (magnified 20 times)



PROCESS D (magnified 20 times)

Insulating board made by these processes shows same preponderance of short fibers. Barrett Insulating Board using the CHEM-FI process, is made with longer, more uniform fibers, which have a reinforcing effect and substantially improve strength.

Architects—these microphotographs carry an important message for you!

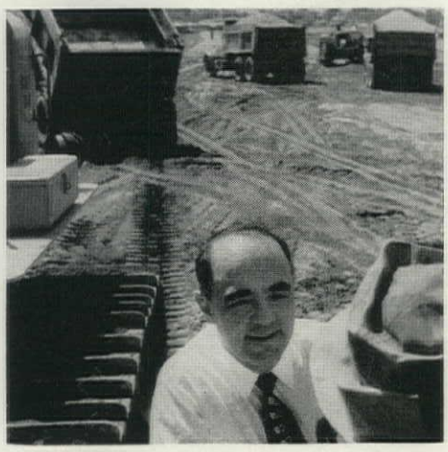
Compare Barrett Insulating Board with that made by three other processes. There you'll find conclusive proof of the greater strength and more uniform insulating power of Barrett Insulating Sheathing and Barrett Roof Insulation. To insulating sheathing, Barrett's CHEM-FI Process brings superior strength for increased resistance to stress, and greater wall rigidity. To Barrett Roof Insulation, it brings uniformly high insulating value and light weight. Specify Barrett Insulating Sheathing and Roof Insulation made by the CHEM-FI Process—the biggest improvement in insulating board since its introduction.

Allied Chemical

BARRETT DIVISION
40 Rector St., New York 6, N.Y.

Armstrong to guide federal highway program; union boss Hutcheson draws fire from many quarters

JOERN W. GERDTS



ARMSTRONG
"Prime concern—unclog our cities."

To keep the federal highway construction program firing on all cylinders, Federal Highway Administrator Bertram Tallamy chose a new commissioner of public roads a few weeks ago. Tallamy's man: **Ellis Leroy Armstrong**, a 44-year-old Utah Mormon who has a solid reputation as a builder of dams as well as roads. Armstrong's most recent job was as head of Utah's Road Commission, where he has already improved the state's road-building program considerably, lifting Utah from 48th to 34th among states in volume of contracts let for highways in the federal system.

Before moving back to Utah last year, Armstrong put in three and a half years as assistant project manager on the St. Lawrence Seaway and for 17 years before that he worked for the U.S. Bureau of Reclamation as a dam expert. At the Bureau of Reclamation, Armstrong was perhaps best noted for getting out and supervising the construction of dams, such as the Republican River dam at Trenton, Nebraska, as well as designing them. In 1953, Armstrong was a member of the U.S. team that did preliminary work on the proposed High Dam at Aswan, Egypt, which later became embroiled in international politics and never got built.

Armstrong, who will get $17,000 a year in his new job, has a strong feeling for the role that the highway program can play in the resuscitation of U.S. cities: "We're choking our urban areas with automotive traffic. A prime concern of the federal program, as far as I am concerned, is to unclog the cities. Nothing we can do will have a greater effect on the nation's future."

AP

HUTCHESON
Under the house—dynamite.

HUTCHESON UNDER FIRE

Although he is a somewhat less stormy petrel than his late father, William (Big Bill) Hutcheson, **Maurice A. Hutcheson**, the 61-year-old president of the 800,000-member United Brotherhood of Carpenters and Joiners, has been making headlines recently. The boss of the fourth largest labor union in the U.S. (and the largest in the construction industry) is currently facing a contempt citation by the U.S. Senate for refusing to answer questions put by the McClellan Committee investigating labor racketeering; an indictment for bribery stemming from charges by a county grand jury in Indiana that Hutcheson and two other Carpenters' officials were involved in real estate manipulations along Indiana's Tri-State Expressway; a call on the carpet by AFL-CIO President George Meany. Hutcheson is to appear before the AFL-CIO Executive Council next month, presumably to explain his reluctance to answer questions put by the McClellan Committee.

Hutcheson almost came under fire in a more literal sense several weeks ago. Police in Indianapolis found three sticks of dynamite and a partly burned fuse under Hutcheson's house. The previous night a blast had ripped part of the house of John R. Stevenson, first vice president of the Carpenters' Union.

If Hutcheson's troubles should result in the expulsion of his union from the AFL-CIO, the Carpenters may join forces with another band of outcasts—the powerful Teamsters Union, headed by Hutcheson's friend, James Hoffa. At the time of the Teamsters' expulsion from the AFL-CIO last year, Hutcheson was one of four union leaders who voted against ousting the Teamsters for failing to clean up corrupt elements in that union.

Back in 1953, it may be recalled, the Carpenters huffily left the AFL over a no-raiding dispute with CIO unions, but returned to the AFL within a month. This time, the separation may be more permanent.

TOP MAN AT RUBEROID

Pursuing a traditional policy of promotion from within, Ruberoid Co., a leading maker of asphalt roofing and siding as well as other building materials, last month promoted Executive Vice President **E. J. O'Leary**, 50, to president, succeeding **Stanley Woodward**, 72, who has been made vice chairman of the board. The move represents a desire for younger lead-

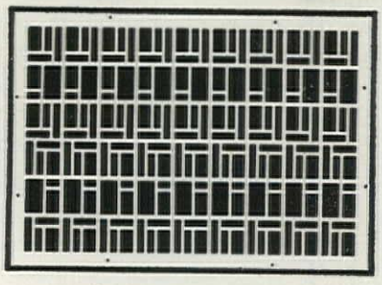
continued on page 65

JOHN LEWIS STAGE—LENS GROUP

O'LEARY
"Sitting tight—with a fistful of cash."

SIMPLE AS a b c !

a RCHITECTS *specify*
b UILDERS *approve*
C ONTRACTORS *buy*



... Hendrick grilles

Architects, Builders and Contractors all agree you can't beat Hendrick Architectural Grilles for overall attractiveness and functionalism! Hendrick Perforated Metal Grilles not only provide plenty of open area for the free passage of air, but they're easy to install—always lie flat, and can't bend or warp! Over a hundred designs are available, many are exclusive only with Hendrick. Each design can be furnished in a wide range of dimensions, number and size of perforations.

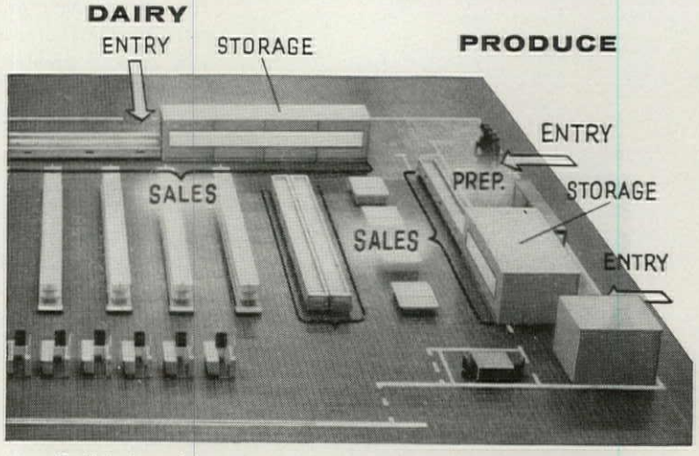
H E N D R I C K
MANUFACTURING COMPANY
50 DUNDAFF STREET • CARBONDALE, PA.

Perforated Metal • Perforated Metal Screens • Wedge-Slot Screens • Hendrick Wedge Wire Screens • Architectural Grilles • Mitco Open Steel Flooring—Shur-Site Treads • Armorgrids • Hydro Dehazers • Petrochemical Column Internals

TYLER AIR-SKREEN*
Combination SALES & STORAGE COOLER Introduces—

NEWEST TREND in SUPERMARKET LAYOUT

Perimeter arrangement of perishables departments—each with its own, uninterrupted stock flow—direct from receiving to combined storage and wide-open, self-service display.



Partial view of typical perimeter arrangement of Dairy and Produce departments employing Tyler *Air-Skreen* Sales & Storage Cooler.

For details of this and other food store applications of Air-Skreen† write Store Planning Dept. AF 10.

TYLER

*Trademark
†Patents applied for

TYLER REFRIGERATION CORP., Niles, Mich.
Canada: Tyler Refrigerators, 732 Spadina Ave., Toronto, Ontario

Striking architectural effect achieved with RS ceramic tile Curtain Wall Panels

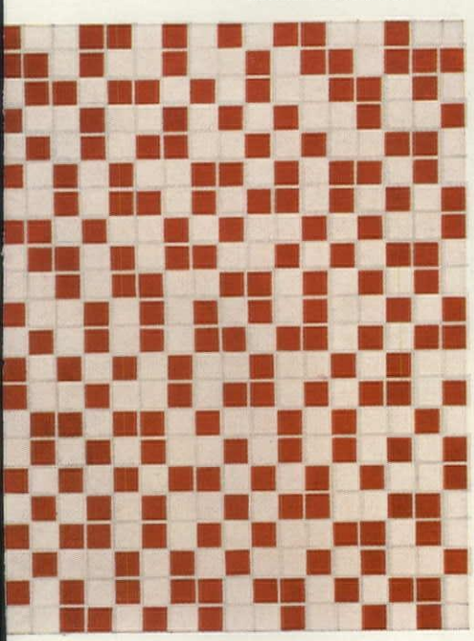
Plate No. 1069

FIRESTONE SALES-SERVICE STORE
Akron, Ohio

Architects:
WILLIAM F. KINKOPH—D. W. GOODWIN
The Firestone Tire & Rubber Co., Akron, Ohio

General Contractor:
J. G. RUHLIN CONSTRUCTION CO.
Akron, Ohio

Close-up shows 1″ x 1″ Romany • Spartan tile in a random 50/50 mixture of Spartex White and Decorator Cherry Red.



Offering unlimited color and design possibilities, RS Panels were the architect's logical choice in designing the exterior of this handsome sales-service center.

These panels are of ceramic tile and reinforced lightweight concrete, cast monolithic and grouted with permanently resilient latex. Each vertical panel is made up of two 5′ x 5′ sections 2¼″ thick, with tongue and groove joint between sections and square edges on outer perimeter. Concrete backs provide finished interior walls.

RS Panels are available in thicknesses from 1⅜″ to 4″, with or without insulation, and in a complete range of sizes and edge conditions to meet your specific requirements. For complete information on RS Panels, including "U" values, weights and short form specifications, write for Bulletin RSP-201. Ceramic Tile Panels, Inc., Dept. A-22, Canton 2, Ohio.

RS Panels®

CERAMIC TILE PANELS INC.
MEMBER, THE PRODUCERS COUNCIL INC

Why only glass would do

This is the Raymond Loewy Associates' office in New York City.

You're looking into a reception area; to the rear you can see part of the design department.

Throughout the office you'll note how *colors* have been skillfully put to work creating the right kind of atmosphere.

And to match this feeling, to bring out the richness and warmth of the colors, the lighting fixtures are ceiling-mounted panels of Corning Alba-lite.

Alba-lite is an *opal* glass, one that provides pleasant *diffusion* without any color distortion of the light it transmits. With Alba-lite you get illumination that shows colors at their best—important *both* to the decor and to the men who constantly use color in their work.

Glass itself becomes a design element. Whatever Corning glass you use for lighting, you get *texture* that blends well with any kind of interior.

More: Glass won't warp, fade, or discolor. It is the *one* lighting material that provides function *and* form. Why settle for less?

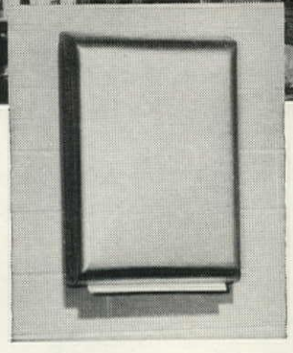
For the facts, write for "Commercial Lighting Application Guide."

Corning means research in Glass

CORNING GLASS WORKS, 99-10 Crystal Street, Corning, N. Y.

SKY HIGH QUALITY

LIFE AND CASUALTY TOWER, NASHVILLE, TENN.
ARCHITECT: E. A. Keeble Associates, Inc., Nashville, Tenn.
CONTRACTOR: J. A. Jones Construction Co., Charlotte, North Carolina



...put NIBROC® Cabinets and Towels in this new Nashville, Tenn., tower!

Nibroc Towel Cabinets match the strength, beauty and durability of modern skyscrapers. They are ruggedly constructed of heavy 20-gauge steel in chromium, stainless steel or heavy white enamel finish. **Also available in beautiful, new Kromotex, in soft pastel green, gray, bronze—and in prime finish.** Can be mounted on practically any wall surface without drilling or bolts. Recessed dispensers and waste receptacles also available in single or separate units.

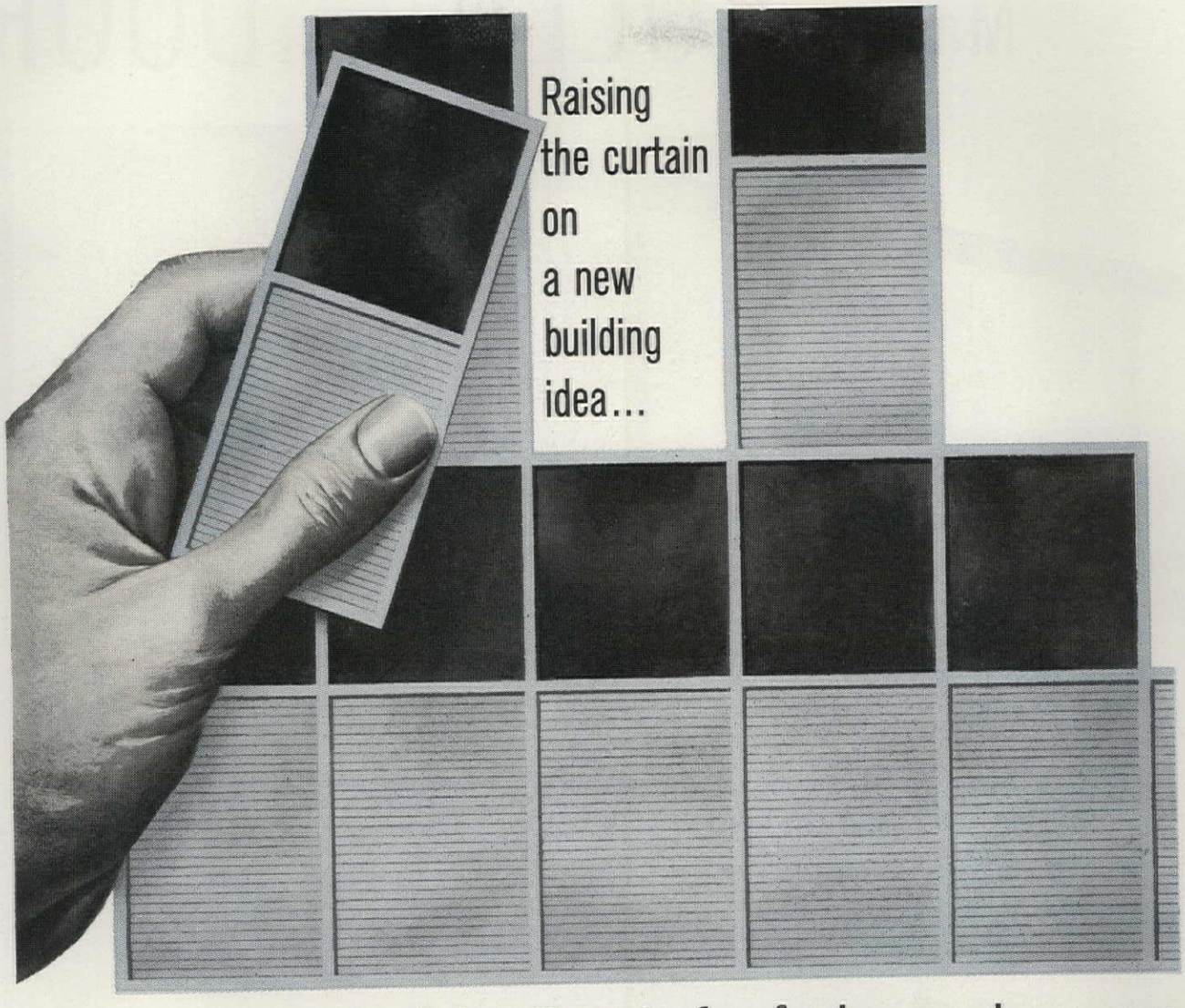
Nibroc Towels are scientifically engineered to give you the best possible balance of strength, softness and absorbency. Their exceptional quality means greater economy, complete user satisfaction.

For more than 35 years Nibroc Cabinets and Nibroc Towels have been the choice of leading architects for many of the nation's finest buildings. Look in the Yellow Pages under Paper Towels for nearest distributor. Or write Dept. UN-10, Boston.

BROWN QUALITY COMPANY

General Sales Offices: 150 Causeway St., Boston 14, Mass.
Mills: Berlin and Gorham, N. H.

SEE SWEETS CATALOG for information about Nibroc Cabinets—wall, floor model and recessed.



Modular Panels for faster, easier, more economical curtain wall construction!

Suffolk County Courthouse, Riverhead, N. Y.—an example of curtain wall construction using Slidewall's new modular panel system made with Bridgeport Aluminum.

Aluminum curtain walls are one of the most important new ideas in architecture. Newer still are modular, stock item wall panels formed in Bridgeport Aluminum Extrusions and pre-fabricated by Slidewall Company of Chicago, Inc. These panels are ideal both for new construction as well as "face-lifting" modernization jobs.

Bridgeport Aluminum Extrusions were chosen for the rigid members of these new panels because of their close tolerances and precision quality. When your designs call for exact fit, Bridgeport's precision quality saves you fabricating time and machining. too,

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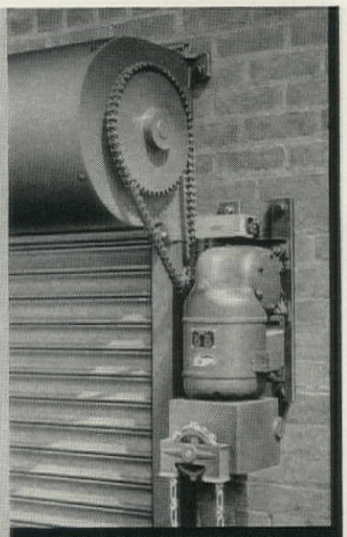

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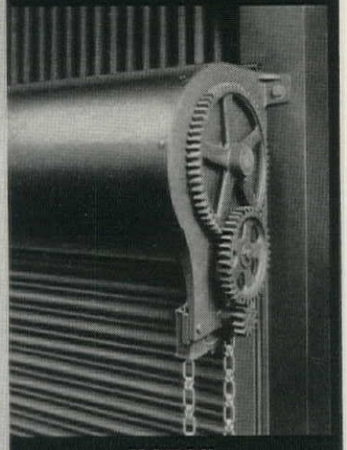

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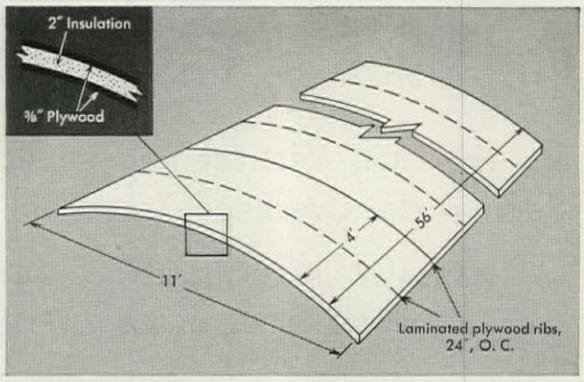
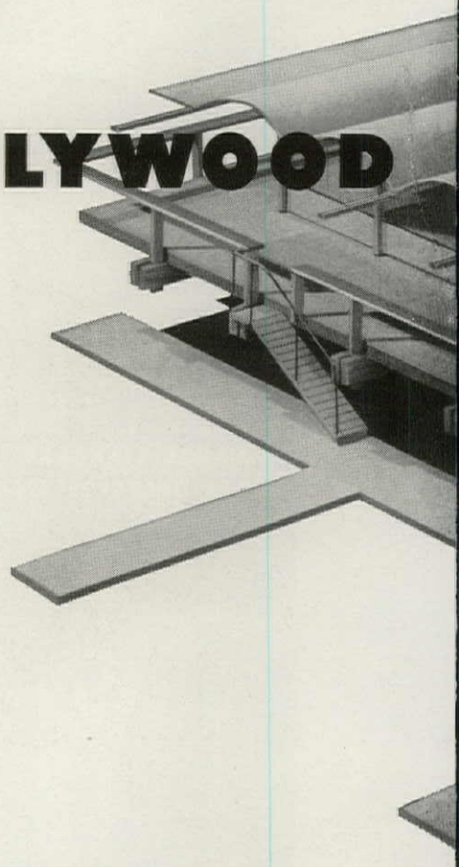


Prefabricated roof vaults are 11 feet wide at the chord, and 56 feet long (40 foot span plus 8 foot cantilever both ends). Key to system is the outstanding shear strength of the stressed fir plywood skins.



FIR PLYWOOD

ARCHITECT: Theodore T. Boutmy, A. I. A.
George Kosmak, Consultant
John E. Brown, Structural Engineer

PLYWOOD VAULTS designed and engineered by Berkeley Plywood Co., Oakland

THESE lightweight fir plywood stressed skin barrel vaults designed for a California yacht club provide large clear floor areas at low cost plus an attractive profile and interior.

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The roof system provides complete freedom in interior arrangements. Additions can be made simply by adding new vaults or extending the existing ones.

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. . . a portfolio collection of outstanding designs by six leading architectural firms. Includes 10-page booklet on fir plywood diaphragm construction. For your free copy, write (USA only) Douglas Fir Plywood Association, Tacoma, Washington.
Also write for information about DFPA design and engineering consultation services.

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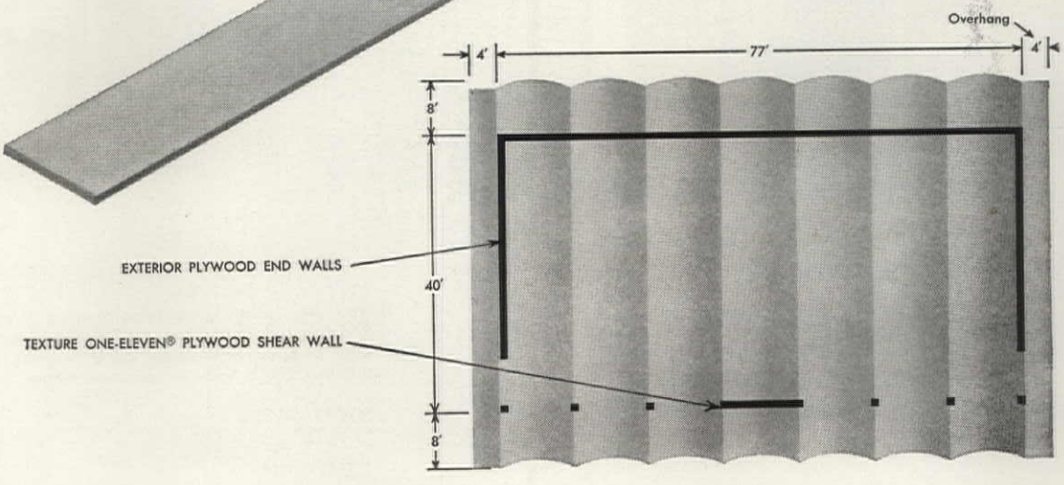

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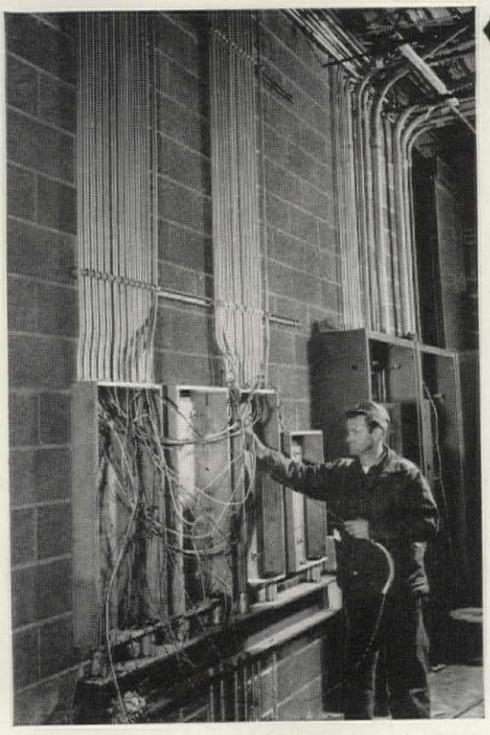

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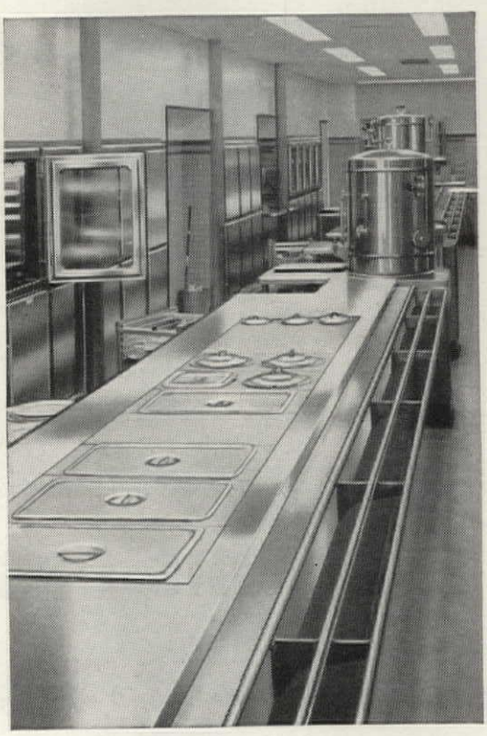

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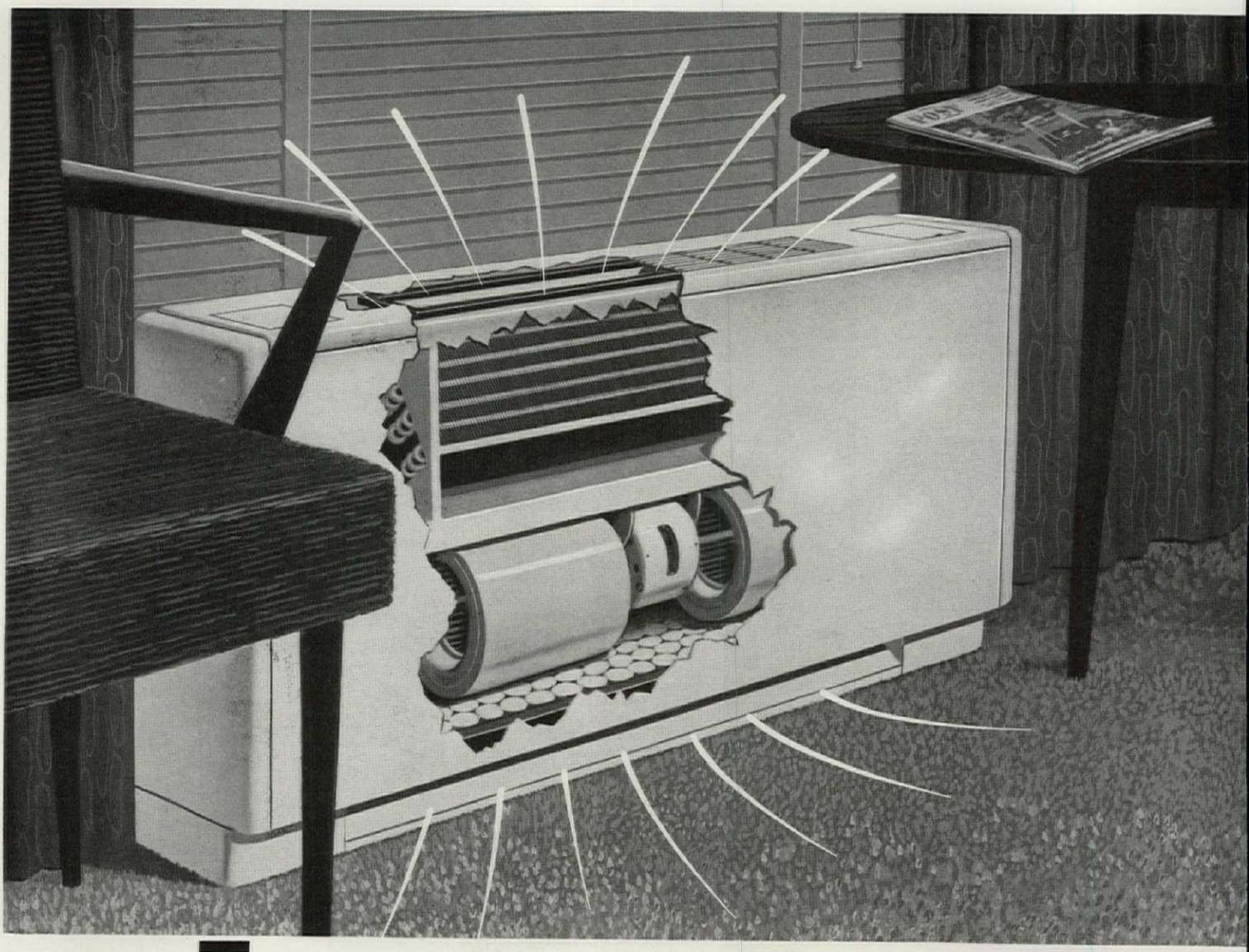

This easily maintained equipment

Year 'round air conditioning has individual room control

American-Standard Type 20 Remotaire allows the occupant of each office to dial his own comfort to meet changing conditions. It is a hydronic* system that cools in summer, heats in winter. A compact boiler-chiller team supplies hot water to room units for heating, chilled water for cooling. Small flexible piping wastes no usable space. Room units are just 9″ thin—can be concealed easily by recessing, even in today's thin walls, or installed free-standing. Get the facts on these attractive ultra-quiet units in three models and four capacities. All are just 25″ low, 9″ thin, with individual room control.

When planning office buildings, check into this versatile peripheral system. It will remain dependable for the life of the structure.

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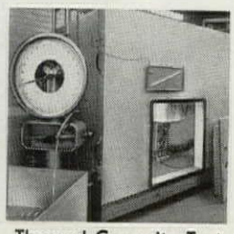
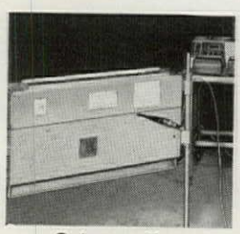
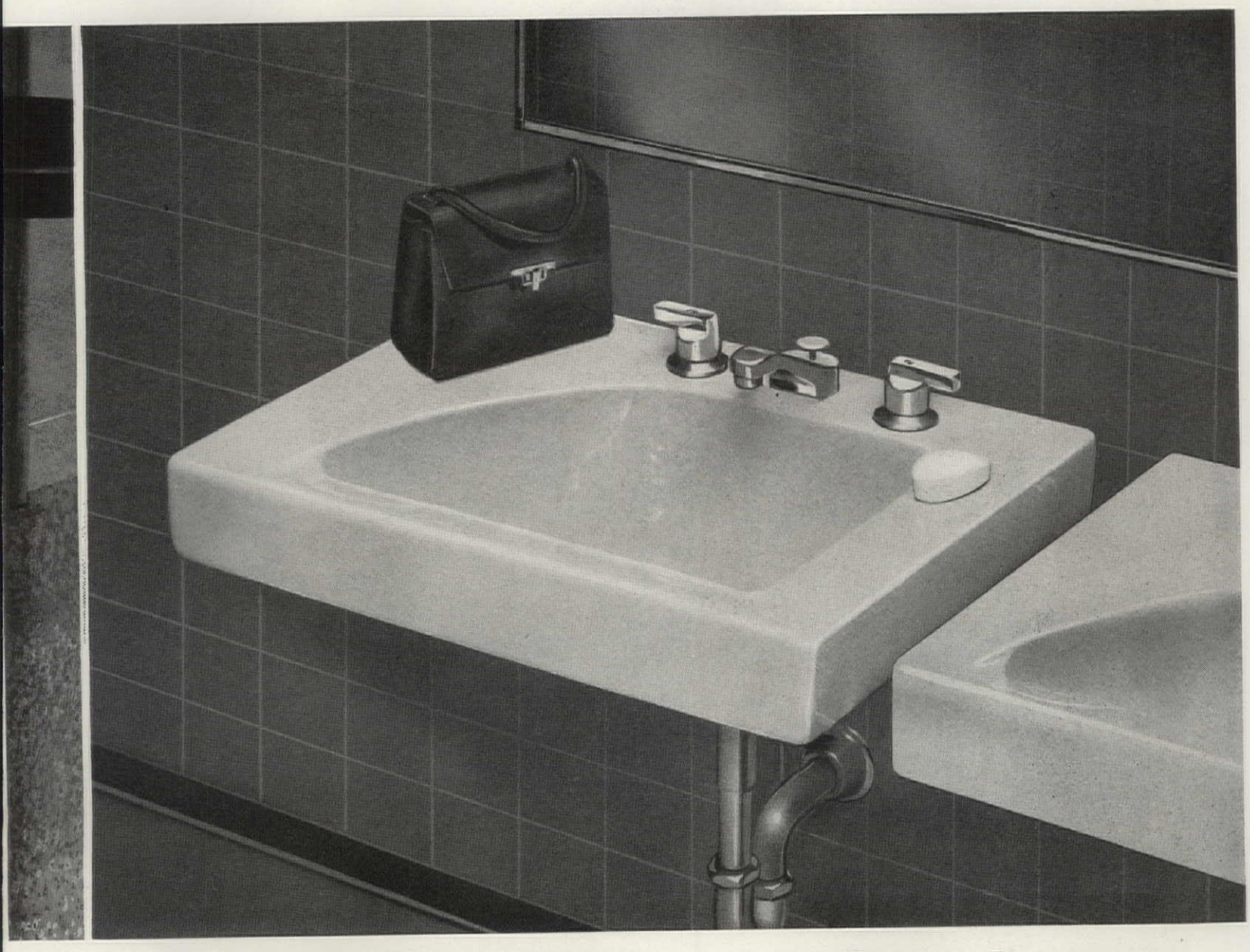


Thermal Capacity Test



Quietness Test

Humidity Control Test



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SOM's 1066 . . . Seaway's battles . . . Wright's key

BIGGEST ARCHITECTS

Forum:

I have three reactions to your excellent summary of the 100 biggest architectural firms (FORUM, Sept. '58):

1. I am impressed by the number of firms on the list whose work is not only of high quality, but often of the pioneering character we had associated with the individual. Bigness and quality are of course not synonymous, but your study shows they are not antipathetic.

2. Few of the firms would have appeared on a list of 30 years ago, indicating, with notable exceptions, little continuity in practices.

3. I had always associated 1066 with the Battle of Hastings. Now it means the number of people in the offices of Skidmore, Owings & Merrill. Are they about to take over 1492 and 1776?

ROBERT W. McLAUGHLIN, *director*
School of Architecture
Princeton University
Princeton, New Jersey

TROUBLE ON THE SEAWAY

Forum:

Your article on the St. Lawrence Seaway (FORUM, Sept. '58) is well written, comprehensive, and shrewd in its prognostications. But, that part of the article on labor difficulties might have been expanded to include a brief discussion or hint of the jockeying that is going on by various groups as to who shall control the lakes. Labor is struggling with labor and with private management, private management is struggling with private management and with public management to see who will reap the benefits of the prospective trade. Some city officials are apprehensive of these battles, and they are concerned about the type of characters and troubles that come with seaports.

While most ports are without coordinated plans, I believe Milwaukee's are as comprehensive and as good as any, including Toronto's.

FRANK P. ZEIDLER, *mayor*
Milwaukee, Wisconsin

KEY-KEEPER WRIGHT

Forum:

I believe it was Emerson who once said that Yosemite Valley in California, one of nature's great feats of architecture, was the only thing in this world that "ever lived up to the brag." My quarrel with your article about Frank Lloyd Wright (FORUM, Sept. '58) and with most everything said in support of him is that it seems impossible for the brags to live up to *him*.

Frank Lloyd Wright is an architect, a thinker, a sculptor, an engineer, a researcher, a speculator, a philosopher, a pioneer, a radical, and above all an individualist. Who else? His contributions to architecture are finally beginning to have the impact that will grow as time goes on. I hope his contributions to individuality will spur and hearten the uncommon man and turn back the wave of imitation, conformity, and desire for security. What is there in a world where everything and everybody is stamped from the same mold and dares not stray from the cradle to the grave?

Frank Lloyd Wright supplies the key for escape to those who have the courage and the vision to use it. Your article unlocks some of the doors.

G. M. LOEB
E. F. Hutton Co.
New York, New York

Forum:

Your article about the work of Frank Lloyd Wright is one of the best I have read. It should help to bring about an understanding of how genius works. In describing the mind-operation of Frank Lloyd Wright, you describe the essence of that overworked word "genius." This is none other than one's capacity to see what others have overlooked, and the ability, through the understanding of his subject, to express what he sees clearly and beautifully—and to transmit to his audience the sincerity of his loves and hates.

JOHN LLOYD WRIGHT
Del Mar, California

Forum:

Your article states Wright's development of the modern concept of space most ably. But this is only one of the master's great contributions to modern architecture. You overlook one of equal importance when you fail to detail Wright's vision of architecture as organic.

Wright saw early that the integrity of a piece of architecture must be forged by exploring and exploiting the nature of the materials, the structural system, the site, and the function established for the building. He has long demonstrated that it is within these parameters the architect must find the visual, spacial, and symbolic character of his building—inside and out—if it is to be worthy of the name of modern architecture.

NOVERRE MUSSON, *architect*
Tibbals, Crumley, Musson
Columbus, Ohio

• *Agreed; it is simply impossible to say everything about Wright at one time.*—ED.

POPULAR TASTE

Forum:

Your article on "Architecture and popular taste" (FORUM, Aug. '58) is at once the most absurd and pathetic trash I have ever read in an architectural publication.

Admitting the desirability of nurturing a Times Square and similar, perhaps ribbon-type, phenomena of our neon nightscape for reasons of historical interest, the spectacle of one of our leading architectural publications assuaging contemporary practitioners with the notion that there is a coming *rapprochement* between "schmaltz, googie, and honky-tonk" and good building design is ridiculous. Why not face up to the fact that our anarchic commercialism is rapidly despoiling a beautiful land.

ROBERT F. WILCOX
Milwaukee, Wisconsin

Forum:

. . . I agree with almost every word in your article.

IAN NAIRN
London, England

BACK-DOOR ARTISTS

Forum:

I am delighted you have drawn attention to the architects' new awareness of the collaboration modern artists can contribute ("Walls of art," FORUM, Aug. '58). I was beginning to think the white walls and multiglass exteriors could never be invaded —and lo! the painter and sculptor have crept into some back doors. Perhaps soon the time may arrive when the architect

continued on page 84

calls in the artist when he is planning the building, rather than when he is stumped for some solution of space.

SAMUEL M. KOOTZ
Samuel M. Kootz Gallery Inc.
New York, New York

HOUSING THE AGED

Forum:

Your article on housing for the independent aged in the August FORUM is the best article I have read on this subject.

JAMES L. STEPHENSON, *executive director*
The Housing Authority of the City of Dallas
Dallas, Texas

Forum:

I have read your article on housing for the elderly with great interest and, with the exception of the references to public housing, I believe it to be just about the best article on this subject I have seen.

CARL T. MITNICK, *first vice president*
National Housing Center
Washington, D.C.

Forum:

Because our Union Settlement, in conjunction with the New York City Housing Authority, is initiating an experimental program for housing for the aged, together with the necessary collateral health and social services, we have been very impressed with your article on this subject.

The article's perception as to the needs of the aged is entirely in line with what the Settlement has discovered in looking into this whole field. It is excellently written.

WILLIAM KIRK, *headworker*
Union Settlement
New York 29, New York

CITY LIFE

Forum:

Your editorial on city life (FORUM, July '58) was terrific and so was the follow-up on city planning by Nathan Glazer. Congratulations.

GENE MACKEY
St. Louis, Missouri

BIGGEST CUSTOMERS

Forum:

I have read with considerable interest the article "Building's biggest customers" in the August FORUM. Periodic publication of this kind of information will provide much needed insight into the nature of demand for important classifications of construction.

One technical comment: Many of the structures covered by our construction statistics, and presumably by yours also, are

continued on page 88

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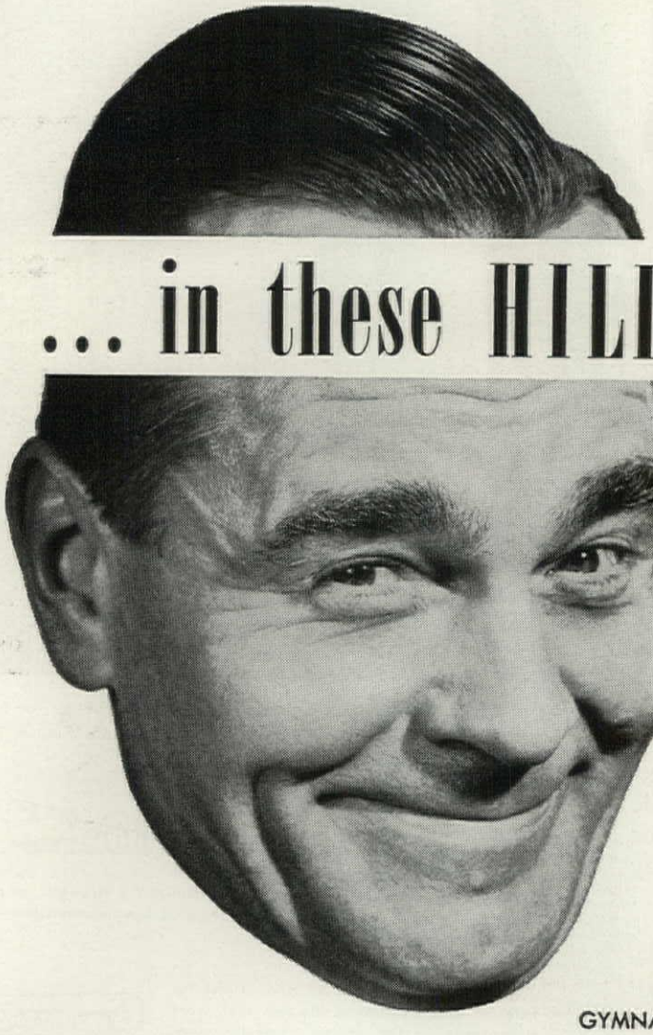

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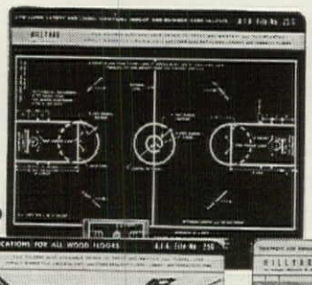

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WALTER W. SCHNEIDER, *director*
Office of Construction Statistics
U.S. Department of Commerce
Washington, D.C.

• FORUM's *list of the biggest customers was based only on buildings per se—not on other kinds of construction, such as roads, dams, and pole and pipe lines. This explains why there are so few big oil companies on the* FORUM *list.*

Other readers have expressed surprise at not finding on FORUM's *list of building's 100 biggest customers such important real estate occupants as J. C. Penney, F. W. Woolworth, and A&P. The reason such companies did not make the list is that they usually do not build their own stores and tie up their own capital, but prefer to encourage outside groups to produce the money, the designs, and the buildings, and then rent the stores from them.*—ED.

ARCHITECTURE WORTH SAVING

Forum:

Three cheers for your article on "Architecture worth saving" (FORUM, June '58), and particularly for including the address of the National Trust for Historic Preservation. I have written them about a pet project of mine: the handsome old buildings in the Mother Lode.

JOHN CARDEN CAMPBELL
Campbell & Wong, architects
San Francisco, California

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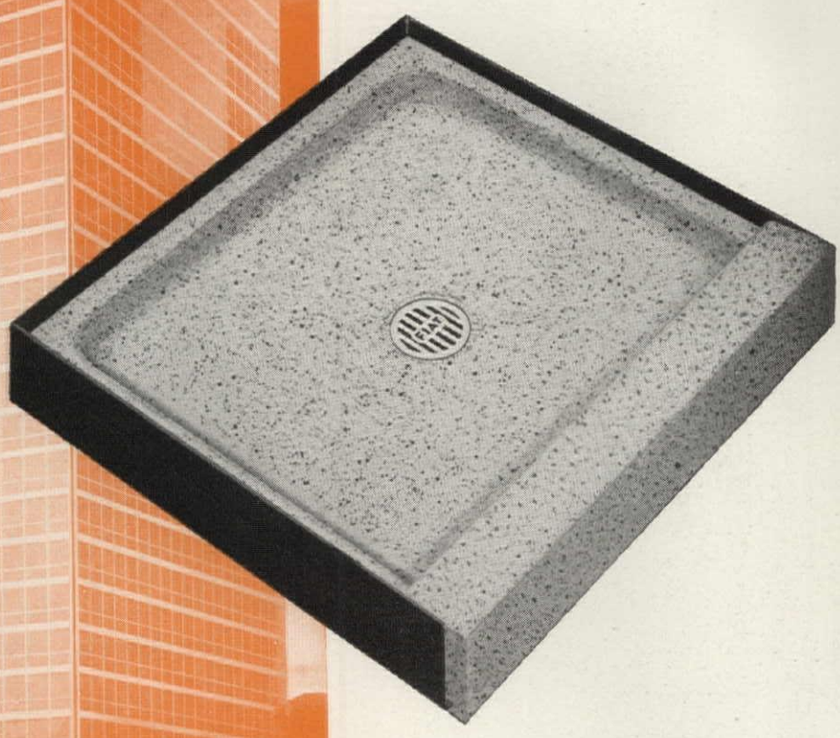

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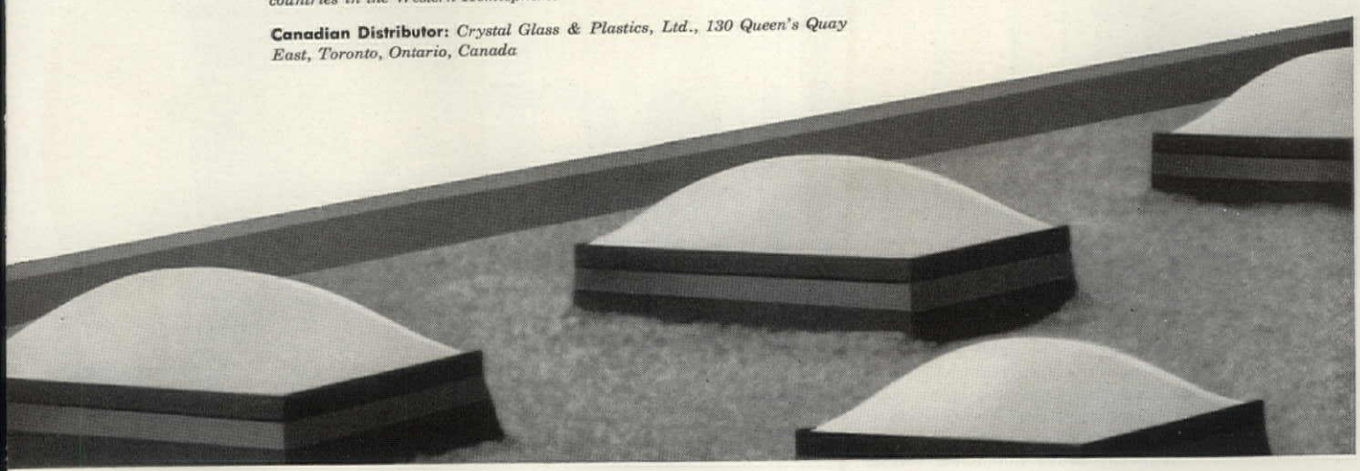

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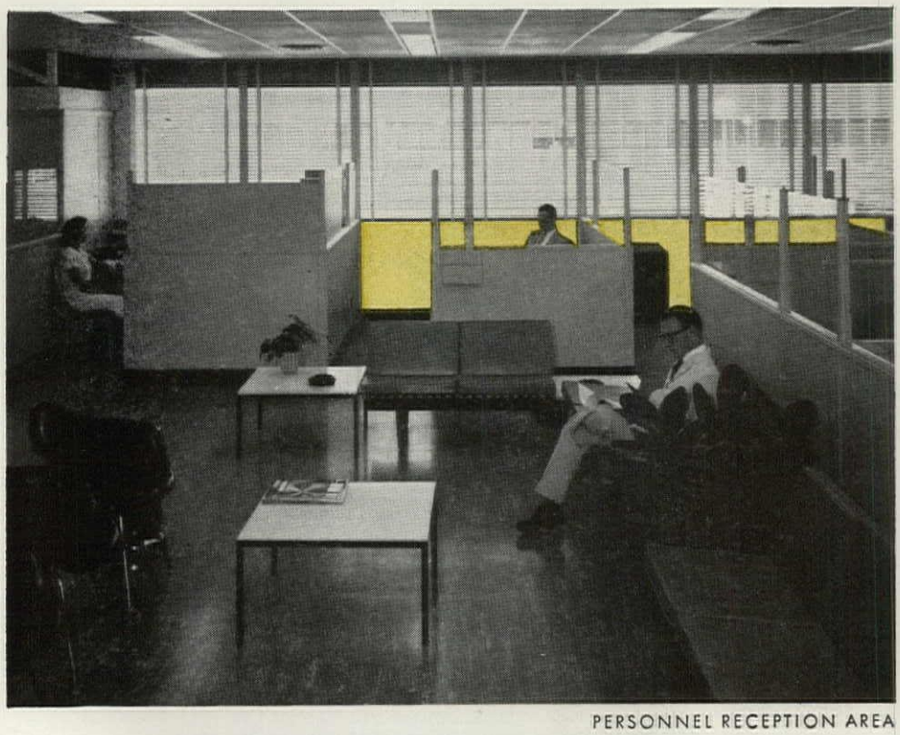

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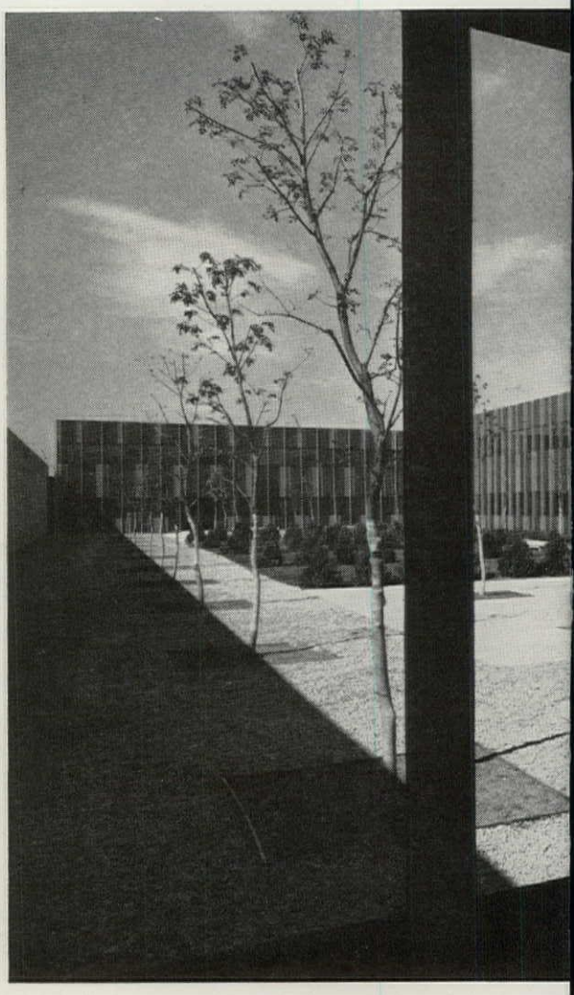

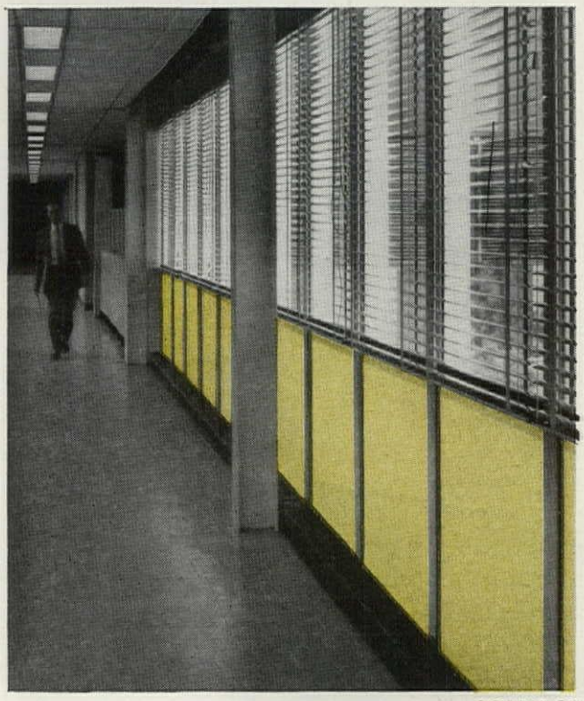

CORRIDOR

Marvibond...

TYPICAL OFFICE WALL

Interior views of new IBM buildings, Rochester, Minn., show curtain walls pre-finished with Marvibond. Panels made by Hamlin-Stevens Inc., Fairfield, Conn. utilizing Colovin vinyl sheet by Columbus Coated Fabrics Corp., Columbus, O. Laminated by Clad Rex, Chicago, specifically for the Marvibond Process.
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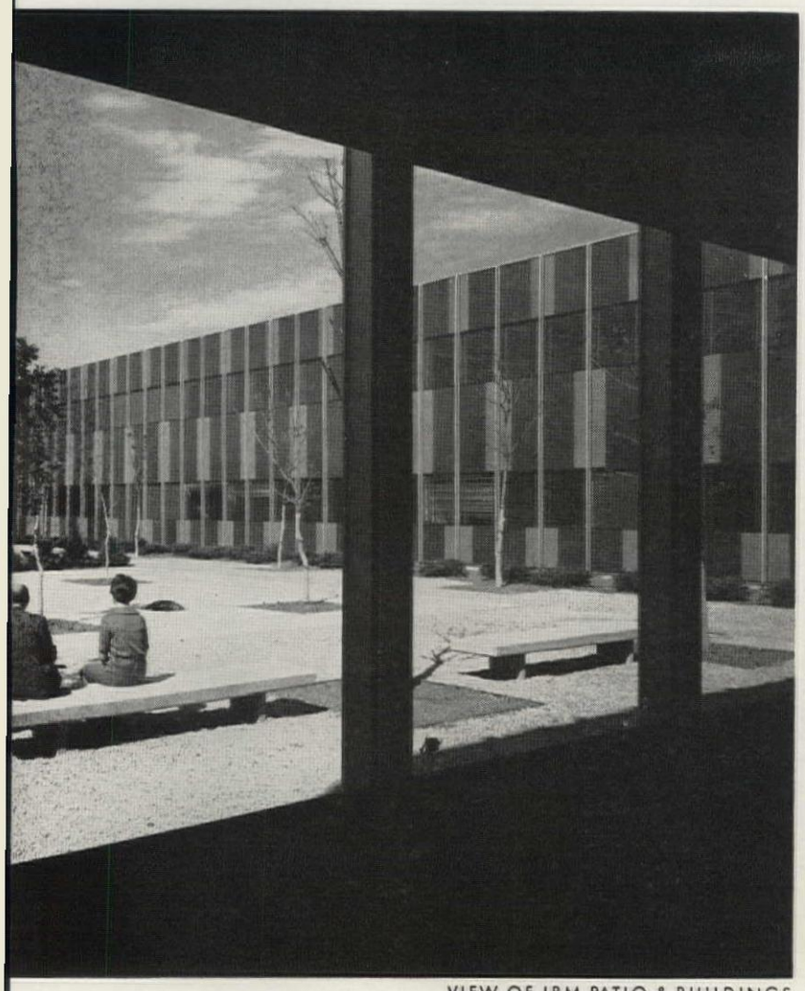
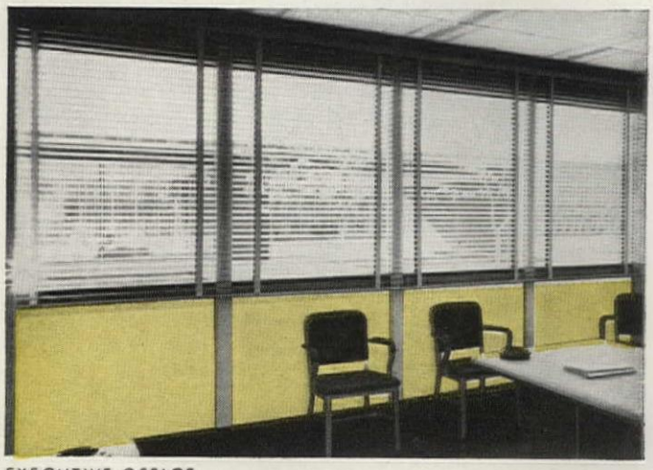


VIEW OF IBM PATIO & BUILDINGS



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*U. S. Patent 2,728,703

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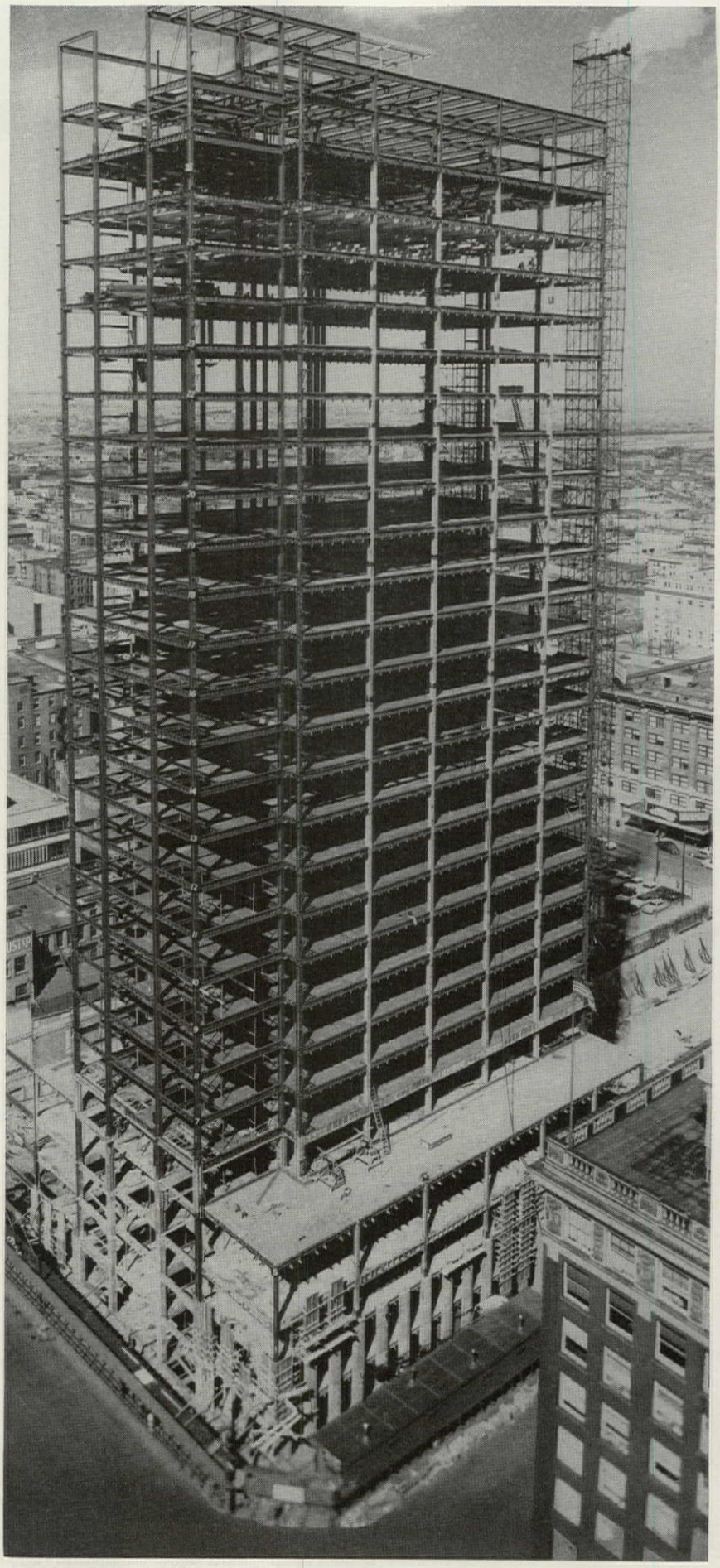

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A Report On

COPPER BRASS BRONZE

In Architecture:

Six Advantages for Function and Appearance

The recurrence of copper and copper alloys in the architectural news of recent months has been evidence of widely varying applications and purposes: prefabricated copper and brass plumbing in a hotel to reduce installation costs; a sheet copper field house roof for minimum maintenance; and architectural bronze curtain walls for dramatic, yet warm, appearance. Yet all of these are perfectly practical applications of copper and its alloys.

The copper metals include over forty standard alloys at the present time — each with different properties for different applications. Although the coppers have been used architecturally since at least 2500 B.C., new uses are constantly being developed. The reason is that these metals have a range of properties that stimulate the imagination—and challenge it at the same time. There will always be new architectural uses for copper and its alloys.

Here is a brief review of six of their most outstanding architectural advantages and current examples of their applications:

1 Durability. Copper, used functionally, reduces building maintenance, primarily because of its resistance to corrosion and the reliability of joints made with it. Copper plumbing and waste lines resist clogging by corrosion products. Copper's own natural patina protects it against corrosion from atmospheres.

Architects for a new athletic field house in a tidal region specified 136,000 pounds of sheet copper to roof the 74,000 sq. ft. area – for reasons of long run economy.

2 Installation Cost. Because bronze extrudes readily it is often economical to custom design shapes and panels for architectural use – and to include flanges and ferrules in these shapes for easy joining and installation. Frequently it is practical to prefabricate subassemblies with bolts, clamps or by soldering before they even reach the site. Minimizing site work naturally cuts installation cost.

Because it can be easily and safely joined by soldering and easily assembled in limited spaces, and because its corrosion resistance permits use of light-weight tubing, copper plumbing is now *lower in installed cost* than other systems – in addition to minimizing space requirements and heat losses. And now experiments with prefabricated plumbing systems in both single and multi-unit dwellings have developed further savings. In a recent hotel installation, only three sub-assemblies were needed for the complete roughing-in of each bathroom. The repetitive layout made it practical to construct these subassemblies on custom jigs before delivery to the site – with resultant savings.

3 Heat Conductance. Copper conducts heat more efficiently than any other commercial metal. Most finned baseboard radiators, as well as ceiling, floor and many sidewalk radiant systems, solar heating and heat pumps, depend on copper for efficient transfer of the heating medium and efficient collection and dispersal of the heat itself.

4 Form. Flat spandrels for a clean facade, arrised mullions for sharp shadows, deep-relief panels for wall sculpturing, intricate castings for trim interest – all are possible with copper alloys. Sharp-edged extruded shapes as large as 6" by 4½" by 26 feet in architectural bronze were thought impossible – but they are now dramatically evident on Park Avenue.

5 Finish. It is not news that copper, bronze and brass can be highly polished, or can be allowed to develop a natural patina, or can be durably plated with chrome or other metals. The news is in the new applications taking advantage of these facts. For example, a new church will have a steeple of copper curtain-wall panels. These panels will be glazed with transparent color. Through the cool blues and greens will glow the warm red of the copper.

6 Color. There are very few colors in nature which cannot also be found in copper and its alloys: the red and gold of autumn, the greens of summer and the browns of the earth. Wherever decorative or structural metal must be used in harmony with brick, with wood or other natural materials, or with nature itself, the answer is therefore the coppers. The architect for a new research tower contrasts the blue-green patina of copper louvres against a southwestern landscape. The patina was developed by a Copper & Brass Research Association spray process much faster than would otherwise have been possible.

Architectural and building news is being made today by copper and its alloys. The Copper & Brass Research Association will be happy to supply you with information in any area of your interest. Write CABRA, 420 Lexington Avenue, New York 17, N. Y.

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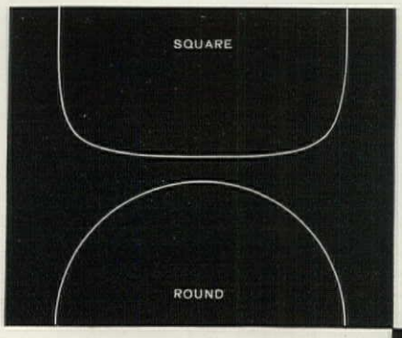
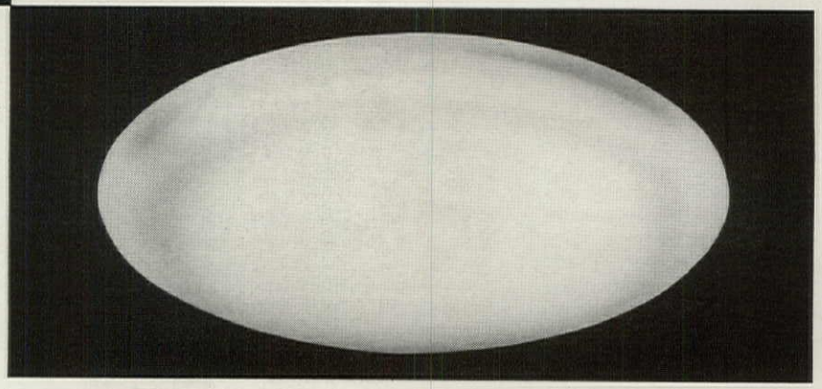


sculpture in light



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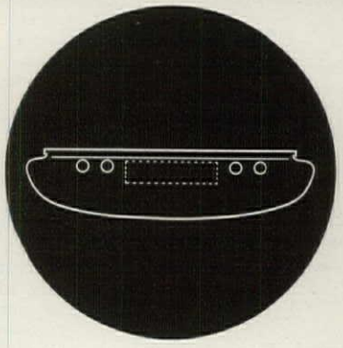

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10″ (9#) Junior Beams are used in this two-story motel as second floor joists and as roof purlins. Second floor system and balcony will support a 40 pound per square foot live load.

"Unique cantilever design utilizes Junior Beams"

. . . says structural designer

Junior Beams play an integral part in unusual design of the new 210 unit South Gate Motor Hotel in Arlington, Virginia, one of the finest on the eastern coast. "We used Junior Beams in a cantilever design that placed the balcony floor at the same elevation as the second floor," reports Mr. George Fortune, of Fortune Engineering Associates, Alexandria, Virginia, the structural designer.

"This design eliminates steps from balcony into the units. The balcony is free of vertical supports," Mr. Fortune said. The three principal buildings utilize 170 tons of 10″ (9#) Junior Beams, lightweight steel structurals made by Jones & Laughlin Steel Corporation. The Junior Beams are used as second floor joists and as roof purlins. Fabrication and erection was done by the Southern Iron Works, Springfield, Virginia.

Two flights of stairs at each end of the balcony provide easy access to second floor units. The stairs are fabricated of 10″ and 12″ Junior Channels, lightweight J&L hot rolled channel sections.

According to Mr. John C. Wright, owner-contractor, the design provides fireproof, attractive buildings at low costs.

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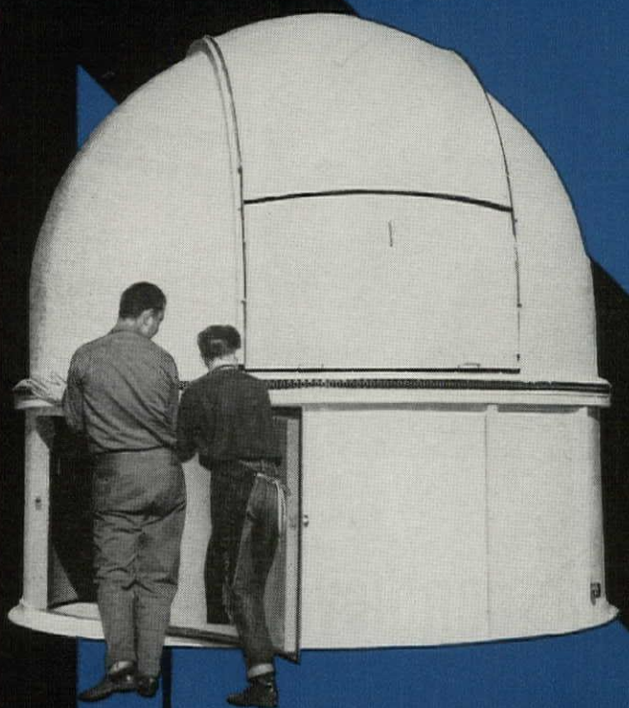


(Above)

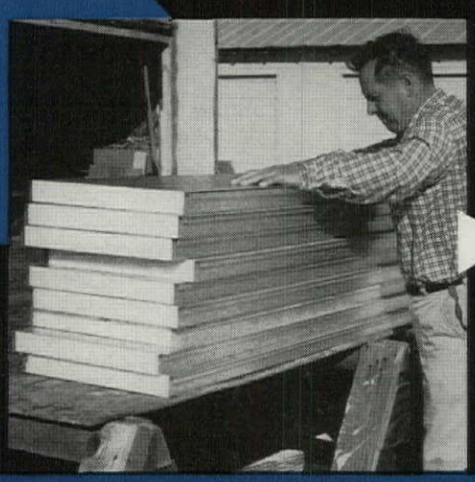
ARALDITE Epoxy Resins play a dual role on this unique fiberglas-styrene foam Astradome for instrument tracking of missiles and satellites. Both as a base for Rubber and Asbestos Corporation's bonding agent and as a vehicle for the pigmented exterior finish, epoxy resins give all-around strength and lasting protection from the elements.

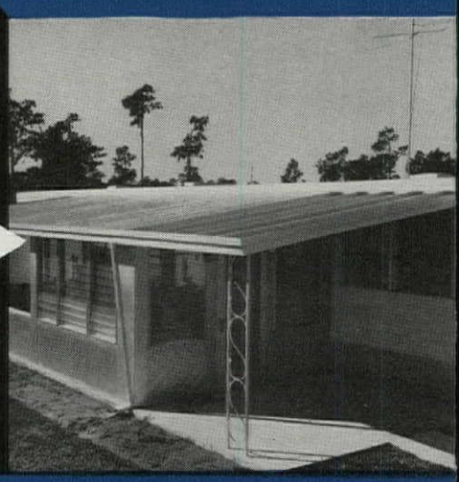
(Right)

Decorative and waterproof finishes over cinder block, concrete and other "plain Jane" materials offer exciting possibilities to the designer of low-budget projects such as this modern station of the Long Island Railroad. An attractive ceramic-glaze pigmented finish by Preco Chemical Corporation based on Araldite Epoxies provides the weather-resistant, moisture-proof coating used on all exterior and interior surfaces.

(Below)

The "cabana" home shown here uses styrene foam and reflectant aluminum panels to provide insulation against all kinds of weather. Rubber and Asbestos Corporation based their Bondmaster® adhesive used here on CIBA Araldite Epoxy Resins. The adhesive makes a strong metal-to-plastic bond.





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Editorial

The politics of federal architecture

Americans love their capital city and want it beautiful. Administrations come and go, presidents ride in for inauguration and out, Congressmen rise and fall, but the great setting of a democratic government stays. Millions come annually to see it. People begin to depend on it. The glory of fine architecture thrills and reassures them. Unhappily today's building programs in Washington are going to pieces so fast architecturally that somebody will have to learn how to play politics in behalf of art if things are to get any better. The old planning schemes that were intended to preserve order live on only in resolutions adopted by elderly gentlemen in conferences, while buildings get dropped into Washington as occasion arises, out of place, out of scale, unstylish, and chaotic. On matters of high art, democracies tend to be helpless, and there exist in Washington today no highly placed men of civilized accomplishment, like Jefferson in his day or Teddy Roosevelt in his, to guide such matters.

There seems to be no other way: the organized architects are going to have to learn to play politics better. And although they have just suffered a thumping defeat at the hands of the architecturally uncultivated top leaders of the Congress, on the recent matter of the Capitol East Front extension, the American Institute of Architects has nothing to be ashamed of. It can learn lessons for the future out of that lost battle. Fact is, had AIA done as well at the beginning of that fight as it did toward the end, it might have won instead of lost.

Perhaps the first lesson to be learned is that politicians do not know what architects are really qualified to decide questions of such high style and what architects are not: somebody will have to show them. In the battle over the East Front extension the Congressional leaders did not seem to know what weight to attach to different opinions given. They listened with respect to architects who were administrative successes rather than design masters, men who were adept at salesmanship rather than architectural composition, men who talked a fine design game but could not back it with discriminating eyesight, men who had design ability but were affected by hidden and undeclared self-interest which warped their judgment in this particular instance. The fact that professional design advice—and the problem of any great Washington building is first and last a design problem—can be obtained on a qualified basis, and a disinterested one, was alien to the political leaders, because they did not seem to know that there does exist at the top of the profession a kind of architectural priesthood, dedicated to Apollo and excellent in his service. Political statesmen must learn better how to find their archi-

continued on page 103

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tectural opposite numbers. One tip: those men who are selected again and again to judge architectural competitions, and especially the important international ones, are likely to be the discriminating minds whom architects themselves accept as competent and disinterested in comparing the value of one scheme against another. Another tip: those architects who are frequently praised in the architectural journals for their disinterest and success in conducting collaborative efforts are worth attention. Yet another tip: those authors who turn up again and again as critics in knowledgeable publications can guide leaders of Congress toward the practitioners who have genuine creative talent.

The second lesson to be learned is that the AIA and political leaders alike must require those architects who express opinions on the esthetics of government projects to declare what government work they themselves have in hand—or in hope—that might indicate a position of self-interest. On the matter of the Capitol East Front it was distasteful to read august statements of high principle from some few men who were known to be under pressure to say what they did say; and the public could not know that these men were not disinterested.

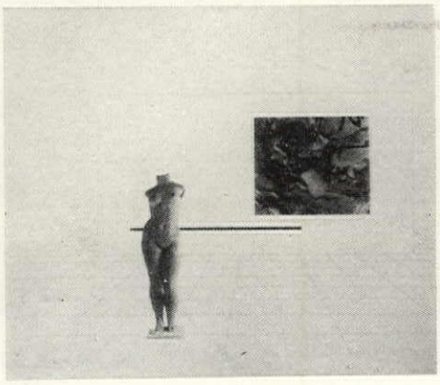
The East Front affair also showed that the Congressional leaders are under a major delusion. They think that any good administrator experienced in the building business is qualified to set up government building programs of the utmost importance and that, after he has set the program, is the time to pick the architects. But the entire effect of the final result can be spoiled in the very first programming, done by men who cannot visualize three-dimensional consequences—or alternatives. By analogy, a woman whose limbs have been set out on too short a program can never hope to retrieve the beauty she has lost by a later use of lipstick or clothing.

Officials such as the Architect of the Capitol, if they are to have the power to set up building programs, can not be building managers only, or even engineers, no matter how efficient as such: the time has come when the Architect of the Capitol, for example, has to be an architect in deed as well as in name—one of the finest, enjoying highest honors.

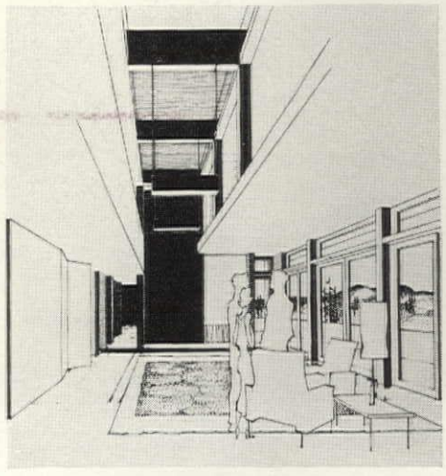
Finally, design cannot be legislated, as it was in this recent episode of the East Front in Public Law 242 of 1955. The fact that the law prescribed a certain architectural "Scheme B" was an affront to architectural intelligence; and that was true in the opinion not only of AIA officers, but emphatically in the opinion of those early great classical architects now dead who were so mendaciously cited as supporters of this legislation.

The organized architects of America, along with the five other professional bodies involved, lost their Capitol battle to the overriding ignorance of Congressional leaders of what made good sense in architectural procedure. The next time, through architectural statesmanship, the professionals must be of better help to the leaders. END

Look who's back in school*

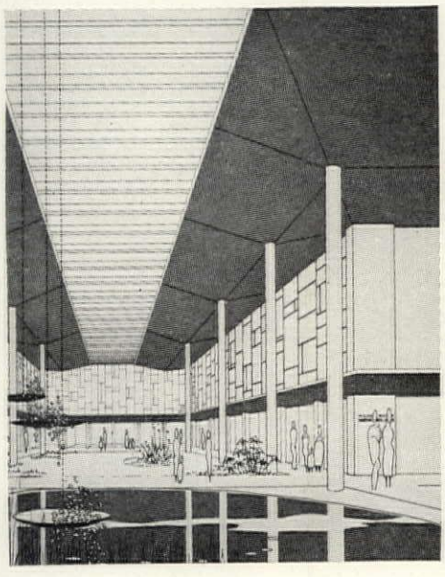


Architect Mies works at Western Reserve

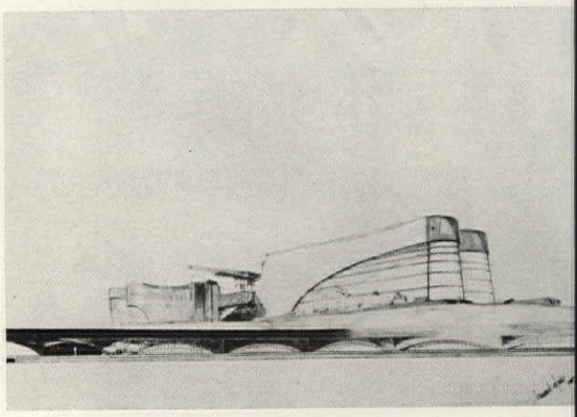


Wright goes to Idaho

Stone returns to Arkansas



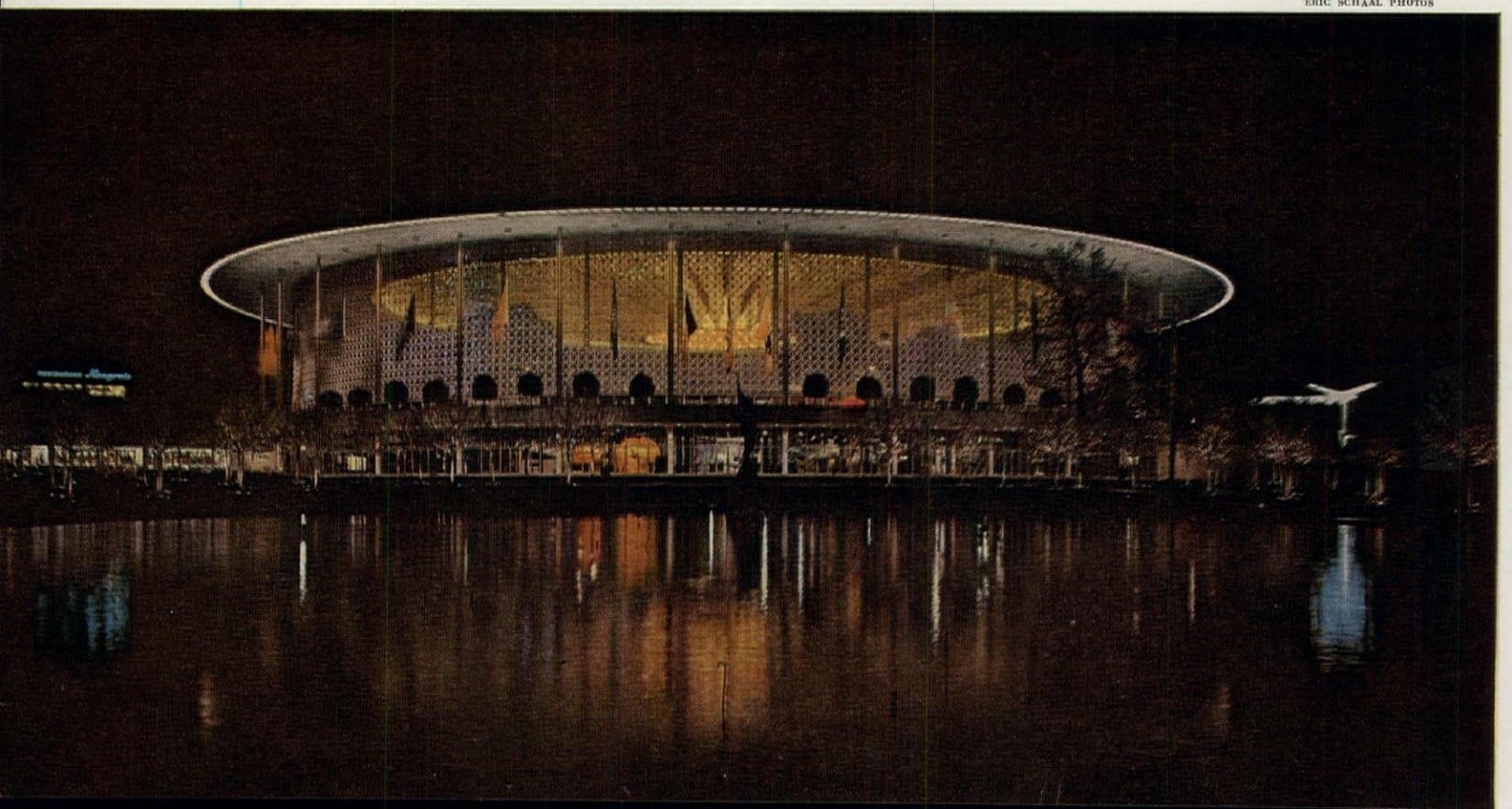
Mendelsohn at Oklahoma



*Actually selections of student work from the 1957-1958 publication of the National Association of Organizations of Students of Architecture which bear a startling resemblance to the style of the masters cited.

The U.S. Pavilion is a colorful blend of Venice, Arabian Nights—and Times Square. It all adds up to showmanship in the grand manner.

ERIC SCHAAL PHOTOS



As the Brussels Fair approaches its closing on October 19, here is a review of what has made the U.S. Pavilion so successful.

A final look at Brussels

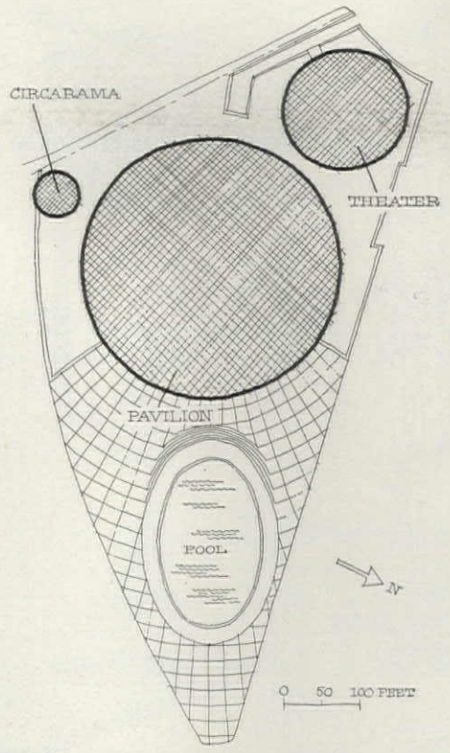
Some 100 years after Sir Joseph Paxton completed his revolutionary Crystal Palace in London, an American architect, Edward D. Stone, designed another exhibition structure that will have a place in the history books: the "plastic palace" which, as everyone knows, is the U.S. Pavilion at this year's World's Fair in Brussels.

Millions of words have been written about this Pavilion and the controversial exhibit (designed by others) which it houses. Yet the picture has been, at best, a pretty blur. This story is written for some of those 173.5 million Americans who will not get a chance to see our Pavilion for themselves. And it is written, also, for the record. For Ed Stone's plastic palace is surely one of the finest buildings of recent date to represent the government and the people of the U.S. abroad.

This is so, in large part, because the U.S. Pavilion is a completely self-assured building: the plan is simple, strong, easily understood— and never compromised. The structure is one of the most radical at the Fair—yet it goes in for none of the embarrassing calisthenics that mark so many of the others. The site plan is the most generous of any at Brussels: rather than cover every square inch of the plot (as the Russians did), Stone "sacrificed" nearly half of his allotted acreage to create a magnificent plaza setting for his Pavilion—and thus provided a fine and rare open space in a fairground which is as packed as Coney Island. And, finally, the scale of the Pavilion's interior is nothing short of stunning; yet the effect seems to have been achieved in an almost effortless way.

Ed Stone's Pavilion is not the first building of its type to make architectural history. Much of the story of modern architecture can be written in terms of great exhibition structures: Paxton's Crystal Palace; Sullivan's Transportation Building at Chicago, in 1893; Gropius' Werkbund Exhibition Hall of 1914; Mies van der Rohe's Barcelona Pavilion in 1929; Aalto's Finnish Pavilion at Paris in 1937; and Markelius' Swedish Pavilion in New York, in 1939. Few people remember today what was shown inside these buildings; they are remembered, quite simply, for their own sakes.

At the Brussels Fair the real U.S. exhibit has been Ed Stone's Pavilion (which has just received top honors from an international jury—including its Russian member). In its pleasant way, it proves something about America which few Europeans have been willing to admit in the past: it says that this is a civilized country.

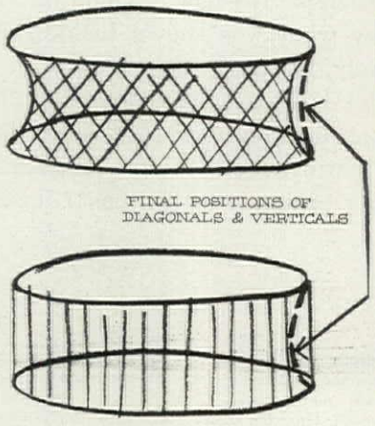


The plaza, a 2¼-acre triangle, paved with concrete and planted with apple trees, provides an ideal setting for the Pavilion. An oval pool occupies the center of the plaza, is used by many visitors to cool their feet. The plaza slopes up slightly toward the Pavilion, a fact which heightens the drama of this handsome setting. The site plan (above) shows location of the 360-degree circarama and of the circular, 1,120-seat theater building to the rear of the U.S. Pavilion (see also page 108). The plaza is the only generous open space along the main road of the fairgrounds. Allowing for it was a magnanimous gesture of planning.

KRYN TACONIS, MAGNUM PHOTOS INC.

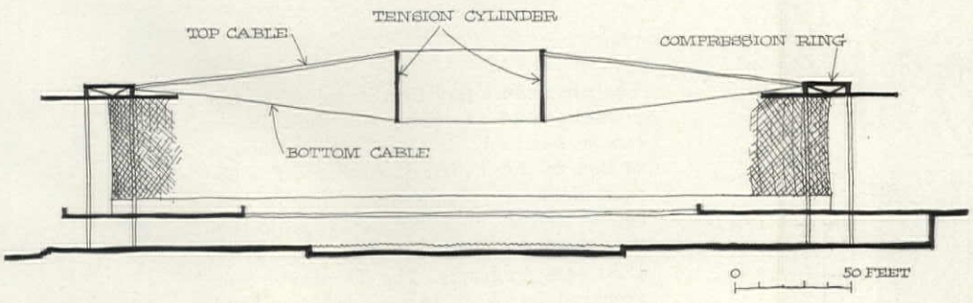
The people behind the U.S. Pavilion include an AIA-appointed committee which selected the architect (members: Earl T. Heitschmidt, Edgar I. Williams, Richard Koch, Roy Larson, Clair W. Ditchy, and Edmund R. Purves, executive director, AIA), and an imaginative State Department official, Landreth M. Harrison, who gave the go-ahead before the architect's clear concept could be spoiled by too many cooks. Exhibits were designed by Peter G. Harnden Associates, with the advice of James S. Plaut, director of Boston's Institute of Contemporary Art.

The space inside the U.S. Pavilion is a vast arena, 340 feet in diameter and 95 feet in height (see above). The main entrance is below mezzanine level, so that visitors get the full, dramatic impact of the interior as they emerge from under the low balcony. Design of the Pavilion runs counter to much traditional exhibition technique: Stone (who worked on the New York World's Fair) felt that artificial lighting might have made the job easier for exhibition designers but was harder on visitors than natural light. He also realized that a single-entrance, single-exit plan made for easier storytelling, but believed that an informal circulation (his Pavilion has 40-odd exits) made for a much more relaxed atmosphere. The festive character of the Pavilion is reinforced by a gold-spangled mesh draped over roof cables.

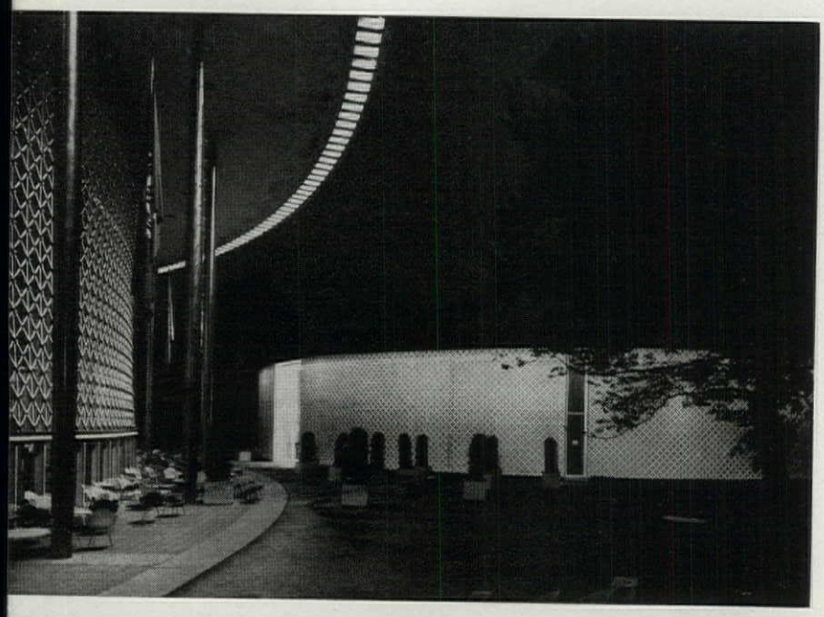


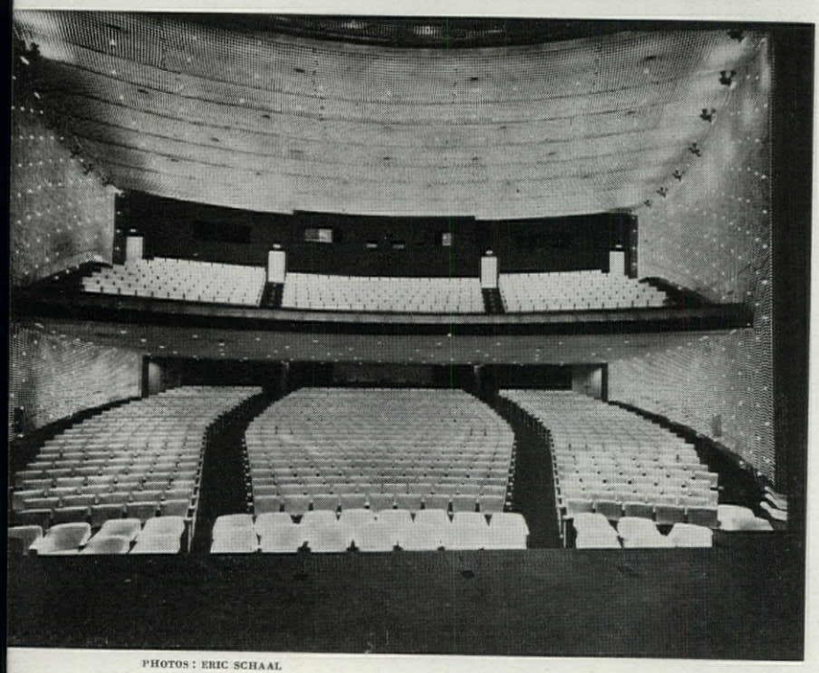
The wall structure is an ingenious cage of steel straps and vinyl plastic, designed to form a kind of huge wastepaper basket, strong enough to resist all wind loads without additional bracing by means of heavy structural mullions. It works like this: the cage consists, first, of a grid of *diagonal* steel straps that describe a *hyperbolic* cylinder (see sketch, left). Next, *vertical* steel straps were added to the inside surface of the hyperbolic cylinder; these verticals, in their normal position, would describe a *true* cylinder. Finally, all the steel straps are tightened up by means of a special fitting not unlike a turnbuckle. Result: the diagonals are pushed *out* from their hyperbolic position, and the verticals are held *in* from their vertical position. The opposing forces thus applied make it an amazingly rigid structure.

PHOTOS: MARIA STONE

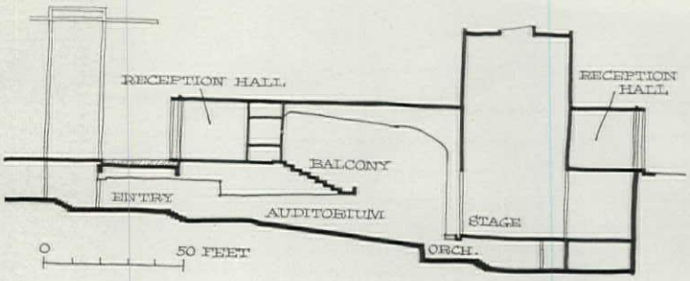


The roof structure is, in effect, a huge bicycle wheel, 340 feet in diameter, with 2½-inch-thick cables forming the "spokes." The steel cylinder at the center of the "wheel" is supported by these cables. The flat truss around the edge of the roof is a compression ring that resolves all horizontal stresses developed within the circular roof, and keeps them from being transmitted to the columns below. Result: the columns receive no bending stresses at all, can be much more slender than usual—just thick enough to take direct vertical loads. The double layer of cables in the suspension roof also resists the flutter experienced in single-layer suspension structures (see FORUM, December 1957). Blaton-Aubert, the Belgian contractor, was responsible for coordinating all engineering on the Pavilion.

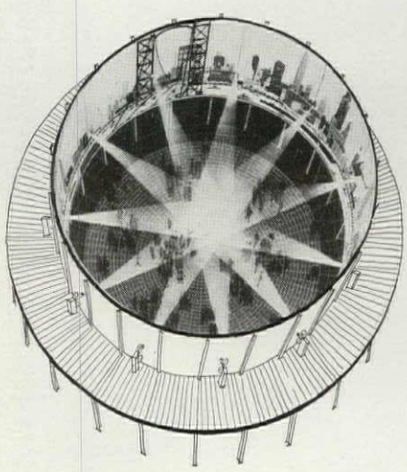


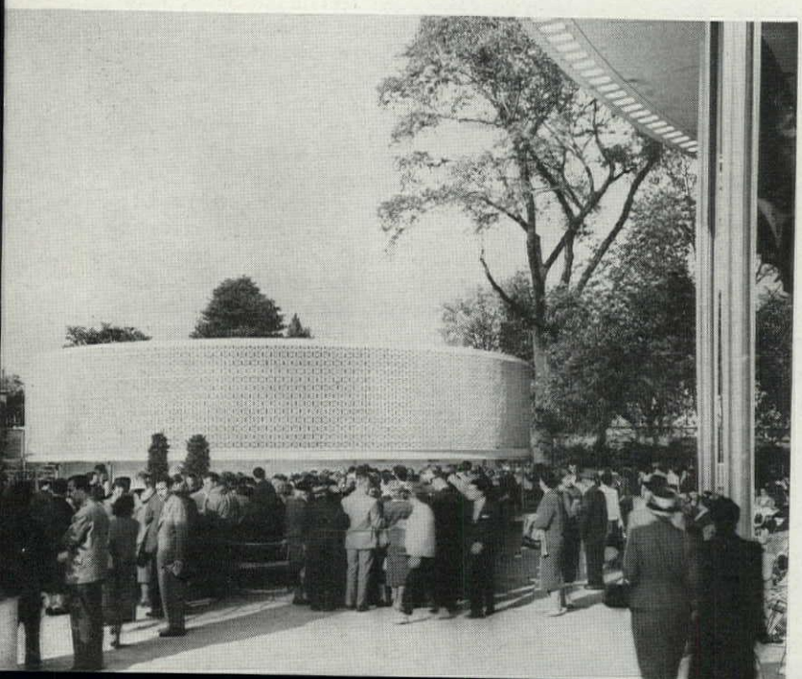


PHOTOS : ERIC SCHAAL

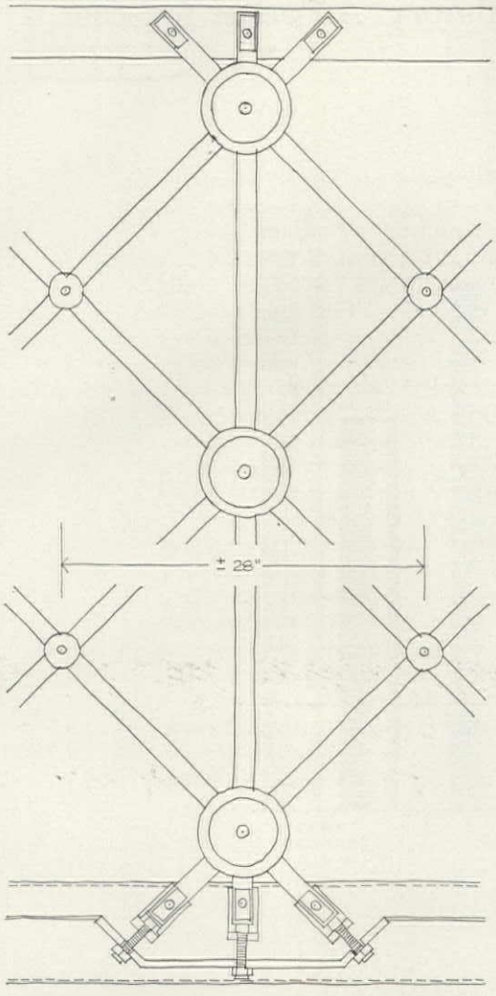


The theater building, located behind the Pavilion proper and circular like the Pavilion itself, measures 170 feet in diameter and contains 1,120 seats. The auditorium is an air-conditioned structure, fully equipped to handle almost any kind of performance. The latest electronic devices control the stage and house lights through a control board which can be preset for ten different scenes during rehearsals. Although the theater appears to be entirely separate from the main building (photo, above left), the two are actually joined underground at the main-floor level of the Pavilion. The section (above) explains how. To create a family resemblance between Pavilion, theater and circarama, Architect Stone used similar decorative motifs in all; e.g., the glazed terra-cotta grille walls of the theater and the circarama recall the basket-weave walls of the Pavilion, and the gold-spangled mesh used inside the theater recalls similar ceiling treatment in the main building.





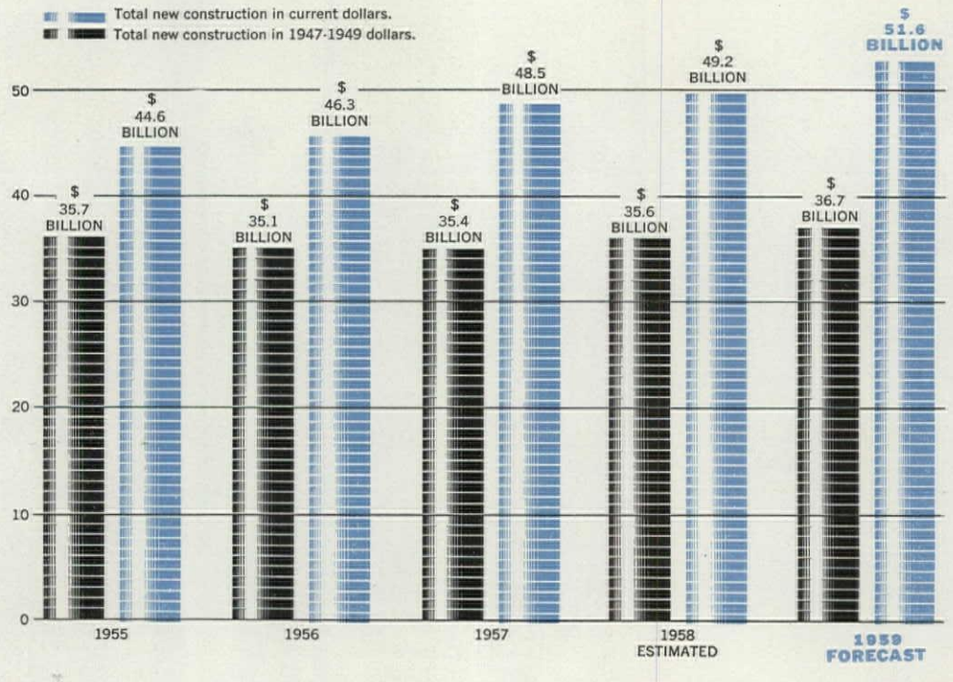
The circarama pavilion is one of the top attractions of the fair; the show inside can be seen only by those patient enough to line up for hours. It consists of a 65-foot diameter cylinder containing a 360-degree screen upon which 11 projectors throw a color film of a trip around the U.S. (see diagram). The 19-minute film, prepared by Walt Disney under a Ford Foundation grant, has been called the most popular exhibit at Brussels. The circarama pavilion—like the theater—is enclosed by a perforated screen.



The curtain wall (described in detail on page 106) is shown in picture (right) and drawing (above). Turnbuckle fitting at bottom of structural cage is used to tighten diagonal and vertical straps.

The terrace that surrounds the Pavilion is an extension of the mezzanine level. Proceeding on the theory that the most direct way to a Fair-goer's heart is through his feet, Architect Stone furnished the terrace with 1,000 handsome, comfortable chairs that have turned out to be a truly inspired public-relations gesture. As the Fair closes this month, the fate of the U.S. Pavilion is still in doubt. Yet, regardless of what happens to the building, it has established a new, high standard for official U.S. Government architecture. END

Sparked by a continuing expansion of government construction, and helped by a pickup in home building, construction in 1959 will rise about 5 per cent—topping $50 billion for the first time in history. A FORUM forecast.



1959: Building's first $50-billion year

BY MILES COLEAN

In 1959 construction will start to expand rapidly again for the first time since 1955. According to FORUM's annual survey of building industry prospects, building next year will probably total $51.6 billion—a full 5 per cent above this year's level of $49.2 billion, and the first year ever in which building will exceed $50 billion. Even allowing for some price increases next year, this $51-billion figure means that the physical volume of construction, after three years of near stability, will rise about 3 per cent—a whopping expansion in an industry that accounts for more than 10 per cent of total U.S. production.

In the year now ending, the construction industry has, as expected, provided a stout anchor for the economy. Despite the general business recession of the first half year, the construction industry has somehow managed to show a rise in volume of more than 1 per cent over 1957 while industrial production has declined 6 per cent. Due to unexpectedly sharp cutbacks in industrial construction and the relatively slow pickup of the federal highway program, there will not be quite so big a rise in construction for the year as a whole as originally expected. But the *rate* of construction is speeding up now; building activity in August rose 3 per cent above August 1957, for example, and year-to-year gains for the remaining months of 1958 are expected to continue to grow larger. And next year, with the economy as a whole resuming its forward movement, it is safe to predict the brightest year ever for architects, builders, contractors, building materials suppliers, and mortgage bankers.

The pivotal element in construction for 1959 will be public building. During 1958, it now seems likely that public construction will rise about 7.6 per cent over 1957, taking most of the sting out of a 1.3 per cent decline in private building (see

table, page 112). Next year public construction will be even stronger, as projected federal and state capital spending programs pick up steam. Public building will probably total $16.8 billion (all figures in current dollars), a gain of 8.7 per cent above this year. And private construction influenced by government programs—as well as direct government building—will be a major factor, too. Such programs as the Hill-Burton grants to private hospitals, college dormitory loans, direct home loans for veterans' houses, better-than-market residential financing by the Federal National Mortgage Assn., not to mention the pervasive influence of the federally insured and guaranteed mortgage programs, all will weigh more heavily than ever in building totals next year. And government spending is a factor even in the lagging industrial building area, where at least some new factory construction is attributable to government contracts.

The few minus signs that may show up in construction next year will come in the private building sector—almost all in nonresidential building. Industrial building, for example, should recover markedly from its 32.5 per cent decline this year and turn up again sometime during 1959. But the industrial volume for 1959 as a whole will probably be off about 12.5 per cent from this year's $2.4 billion. Meanwhile the postwar office building boom will probably begin tapering off, resulting in a probable decline of 10.3 per cent in this category.

On balance, however, even private construction will rise about 3.3 per cent in 1959—to $34.8 billion. For residential building will rise a solid 6.4 per cent in 1959, compared to a gain of only 1.7 per cent this year. The gains in applications for FHA mortgage insurance and VA appraisals already indicate a higher level of housing starts in coming months, and housing next spring will start from a stronger base than it did this year. (Congress' failure to pass an omnibus housing bill should not affect the activities of the Federal Housing Administration's mortgage insurance program or the Veterans Administration direct loan or guaranty programs, as these had been provided for in earlier legislation.)

Two of the major forces affecting the volume of construction may be pulling in opposite directions in 1959. On the one hand, building money should be more plentiful than in 1958, particularly in the first six months, because the Federal Reserve has not been pursuing such a tight-money policy. But, on the other hand, building costs will probably rise somewhat more in 1959 than they did this year. The cost of materials and labor combined will probably advance about 3 per cent or 3.5 per cent, but some of this rise will be offset by a rise in productivity.

Here is a detailed breakdown of the major elements in the 1959 building outlook:

I. Private construction

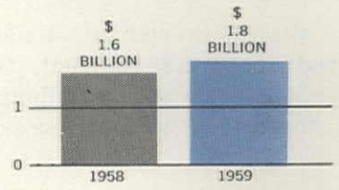
Home building

Outlays for new single-family homes in 1958 will total $13.7 billion, thereby edging above the previous year's level for the first time since 1955. FORUM predicts that nonfarm housing starts will total at least 1,155,000 in 1959, compared to 1,060,000 this year. Expenditures for residential alterations and additions, still on the downgrade in 1958, will show some real life in 1959. Nonhousekeeping residential building, consisting mainly of college dormitories and motels, the one aided by federal financing, and the other a beneficiary of the expanding highway program, will continue the boomlet they have enjoyed right through the past recession.

Apartment building

In 1959 apartment construction will top any postwar year except 1949 and 1950 when FHA's "Section 608" operation was roaring to its end. The number of new apartment units started next year should come to 185,000 and the dollar outlay to about $1.8 billion. The FHA apartment programs will be picking up some momentum, but about 85 per cent of the apartment units will be conventionally financed.

Investment in apartment building has grown steadily despite the recession. While the number of private single-family homes started dropped 14 per cent from 1956 to 1957, units in two-family structures increased 7 per cent and in multifamily (three or more) buildings by 45 per cent.



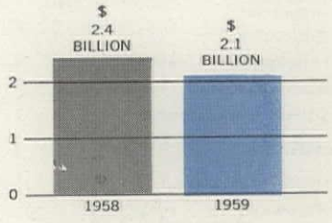
(all chart figures in current dollars)
APARTMENT BUILDING

In 1958, the number of single-family houses will increase 6 per cent, but the number of apartment units (in buildings for three or more families) will gain by 13 per cent.

During a period like the present one, when new family formation is at a comparatively low rate of increase (930,000 per year in 1958, compared to an average of over 1 million a year in 1950-1955), and when the number of childless families (both the very new families and the mature ones), is growing disproportionately to the number of families in the child-rearing ages, a strong demand for apartments is bound to exist.

Industrial building

A declining level of capital outlays by industry will adversely affect industrial building next year. Such building will drop from $2.4 billion this year to $2.1 billion in 1959, i.e., to the lowest level in five years.



INDUSTRIAL BUILDING

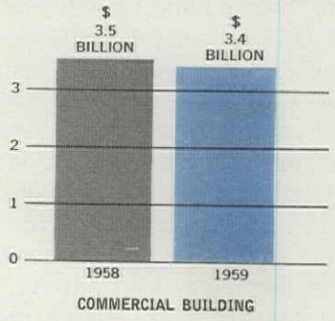
However, the drop in factory building in 1959 will be less than half as great as in 1958. And the end of the decline in factory construction will be reached sometime during 1959. However, at the rate new contract awards are running, it does not now seem likely that the turnaround will come soon enough to prevent

the total 1959 figure from being 12.5 per cent lower than that of 1958. There is a happy prospect, however, that 1960 will see the beginning of another long-term advance in industrial construction.

Commercial building

This year, commercial building dropped about 1.8 per cent, from $3,564 million to $3,500 million. In 1959, the decline will be more like 2.9 per cent (to $3,400 million—chart). This net movement will be the result of internal crosscurrents; while office building will be starting to taper off, store building will be coming out of a decline, and will rise 6.5 per cent to $1,650 million.

After several years of relatively low activity in shopping-center construction, store building is picking up. Financing was difficult to obtain in 1956 and 1957 and a number of well-conceived projects were held up. This year a greater supply of mortgage funds became available; lenders took a less jaundiced view toward shopping-center prospects,



COMMERCIAL BUILDING

and the promoters of centers themselves showed that they had taken advantage of past experience and the lull in activity to improve both their designs and business methods. Consequently, a restoration of activity began—store building picked up enough in July and August to cut a 16 per cent decline from 1957 levels to only 11 per cent. This was not enough to reverse the trend as shown in the 1958 totals, but still enough to foretell a real shift in direction before 1958 is ended and a strong expansion in 1959.

FORUM's forecast for 1959

	1957 Actual	1958 Estimate	1957-58 Change	1959 FORECAST	1958-59 Change
TOTAL NEW CONSTRUCTION [1] *(millions of current dollars)*	$48,492	$49,150	1.4%	**$51,600**	5.0%
PRIVATE TOTAL	34,138	33,700	—1.3	**34,800**	3.3
Nonresidential	9,556	8,600	—10.0	**8,350**	—2.9
Industrial	3,557	2,400	—32.5	**2,100**	—12.5
Commercial	3,564	3,500	—1.8	**3,400**	—2.9
Office buildings and warehouses	1,893	1,950	3.0	**1,750**	—10.3
Stores, restaurants, and garages	1,671	1,550	—7.2	**1,650**	6.5
Other nonresidential	2,435	2,700	10.9	**2,850**	5.6
Religious	868	850	—2.1	**850**	0
Educational	525	550	4.8	**600**	9.1
Hospital and institutional	525	650	23.8	**675**	3.8
Social and recreational	311	425	36.7	**450**	5.9
Miscellaneous	206	225	9.2	**275**	22.2
Residential (nonfarm)	17,019	17,300	1.7	**18,400**	6.4
New dwelling units	12,615	12,900	2.3	**13,750**	6.6
Additions and alterations	3,903	3,800	—2.6	**4,000**	5.3
Nonhousekeeping[2]	501	600	19.8	**650**	8.3
Farm	1,590	1,600	0.6	**1,625**	1.6
Public Utility[3]	5,774	6,000	3.9	**6,200**	3.3
All other private	199	200	0.5	**225**	12.5
PUBLIC TOTAL	14,354	15,450	7.6	**16,800**	8.7
Nonresidential	4,486	4,650	3.7	**4,875**	3.8
Industrial	473	450	—4.9	**450**	0
Educational	2,825	2,900	2.7	**3,000**	3.4
Hospital and institutional	333	350	5.1	**375**	7.1
Administrative and service	439	500	13.9	**550**	10.0
Other nonresidential	416	450	8.2	**450**	0
Residential	506	800	58.1	**825**	3.1
Military facilities[4]	1,322	1,150	—13.0	**1,250**	8.7
Highways	5,215	5,800	11.2	**6,600**	13.8
Sewer and water[5]	1,344	1,400	4.2	**1,500**	7.1
Public service	393	450	14.5	**550**	22.2
Conservation and development	971	1,050	8.1	**1,100**	4.8
All other public	117	150	28.2	**150**	0

1 Includes major alterations and additions.
2 Includes hotels, motels, and dormitories.
3 Includes power plants, telephone exchanges, stations, maintenance shops, warehouses, etc., as well as power, telephone, and telegraph lines and other nonbuilding construction.
4 Includes mainly warehouses, barracks, theaters, hangars, schools, etc., as well as airport and other nonbuilding construction.
5 Includes sewage plants, pump stations, etc., as well as nonbuilding construction.

Sources: 1957, U.S. Departments of Commerce and Labor; 1958 and 1959 estimated by Miles Colean.

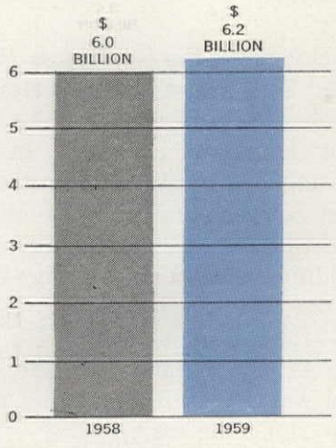
Religious, recreational building

After a spectacular postwar boom, church building has been somewhat tempered by tightened pocketbooks this year. This year's decline in church building, from $868 million to $850 million, will be the first setback in that field since 1952. Next year the decline will stop but spending for churches will not increase again until 1960. On the other hand, there has been no letup in social and recreational building — everything from community cultural centers to drive-in theaters — which is enjoying its greatest expansion of all time in 1958 ($425 million).

Miscellaneous private

The construction of private hospitals and institutions has benefited in recent years from both foundation and federal aid. Such building rose from $525 million last year to $650 million this year and will reach a new peak of $675 million in 1959. Private educational building, especially at the college level, is expected to rise more in 1959 than this year.

Farm building will pick up slightly (0.6 per cent) this year and will rise 1.6 per cent (to $1,625 million) in 1959 as a result of the farm economy's prosperity.



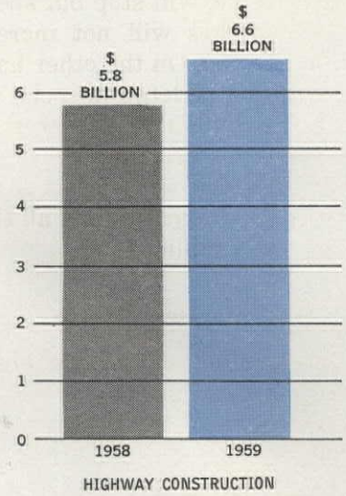
PUBLIC UTILITIES

The building of new telephone, electric, and pipe-line facilities has been a strong sustaining force in the economy this year. In 1959 utility outlays will rise at about the same healthy rate as in 1958, when the building of new utilities rose 3.9 per cent, to $6 billion. Other private construction — including the great swimming-pool boom—will make a good showing in 1959 ($225 million).

II. Public construction

Highway construction

This biggest single component of public construction, though showing gains that would be considered eminently satisfactory in any other activity, is still behind its expected performance rate (in 1958, an 11.2 per cent rise will bring highway building to $5.8 billion). Right-of-way, cost, and local financing problems continued to impede progress on the $50 billion federal highway program this year. While these problems will not all be out of the way in 1959, much better progress is certain. Allocation of federal highway funds have been increased and their distribution has been speeded up. In 1959, FORUM expects public spending for highways will rise another 13.8 per cent to $6.6 billion, and for at least a decade, there should be a mounting level of highway expenditure.



HIGHWAY CONSTRUCTION

Sewer and water systems

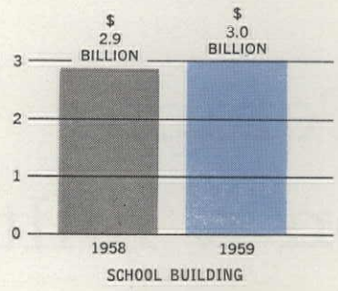
The building of new sewers can be confidently expected to mount with the revival of residential building. Public service construction (mostly governmentally owned electric power facilities) will move ahead at an accelerated rate in 1959, strongly affected by electric power activities related to the St. Lawrence Seaway. Conservation and development expenditures, which this year for the first time will pass the billion-dollar mark, will show an increase in 1959.

Public housing

Spending for public housing in 1958 has made a spectacular advance of nearly 60 per cent, representing a gain in units from 49,100 in 1957 to 65,000 this year. Public housing today, however, is in the main something much different than is generally understood. About 60 per cent of it is housing on military posts, mostly in fairly commodious single-family dwellings, rather than the multistoried barracks built by local housing authorities.

School building

New school construction has moved forward only slowly this year—rising less than 3 per cent over 1957—and it is expected to increase only a little more than 3 per cent in 1959. If most estimates of needs are to be taken at face value, the present pace is seriously laggard, and, in face of the huge volume of school bond issues (in the first nine months of this year, over $1.6 billion of new school issues were floated), it is not readily explained. But in part, the lag is due to the time lag from the time of financing to the beginning of construction; the big bulge in bond financing took place less than a year ago.



SCHOOL BUILDING

Military facilities

Building for the armed services dropped sharply in 1958 following a slight decline in 1957, but it will again turn up in 1959 (to $1.3 billion). The level will not be so high as in 1956, however, for while new defense plans are costly, they do not seem to require so much concrete and steel as previously.

MILITARY FACILITIES

Public institutional building

This year, public hospital construction will rise 5.1 per cent above 1957 to $350 million. Next year's increase will be somewhat larger (7.1 per cent). Construction of administrative and service buildings, especially by local governments, will continue to advance, although not quite so much as in 1958—10 per cent compared to 13.9 per cent. And, unless some unforeseen abatement occurs in the proliferation of governmental functions, providing shelter for government agencies should be a continuously expanding job.

Thus, FORUM's analysis indicates that activity in 1959 will pick up on a broad and balanced front. And this pickup, it should be noted, will not be merely a rise in dollar volume, but an actual, economy-stimulating rise in the physical volume of construction put in place. END

Temple on a hilltop—almost

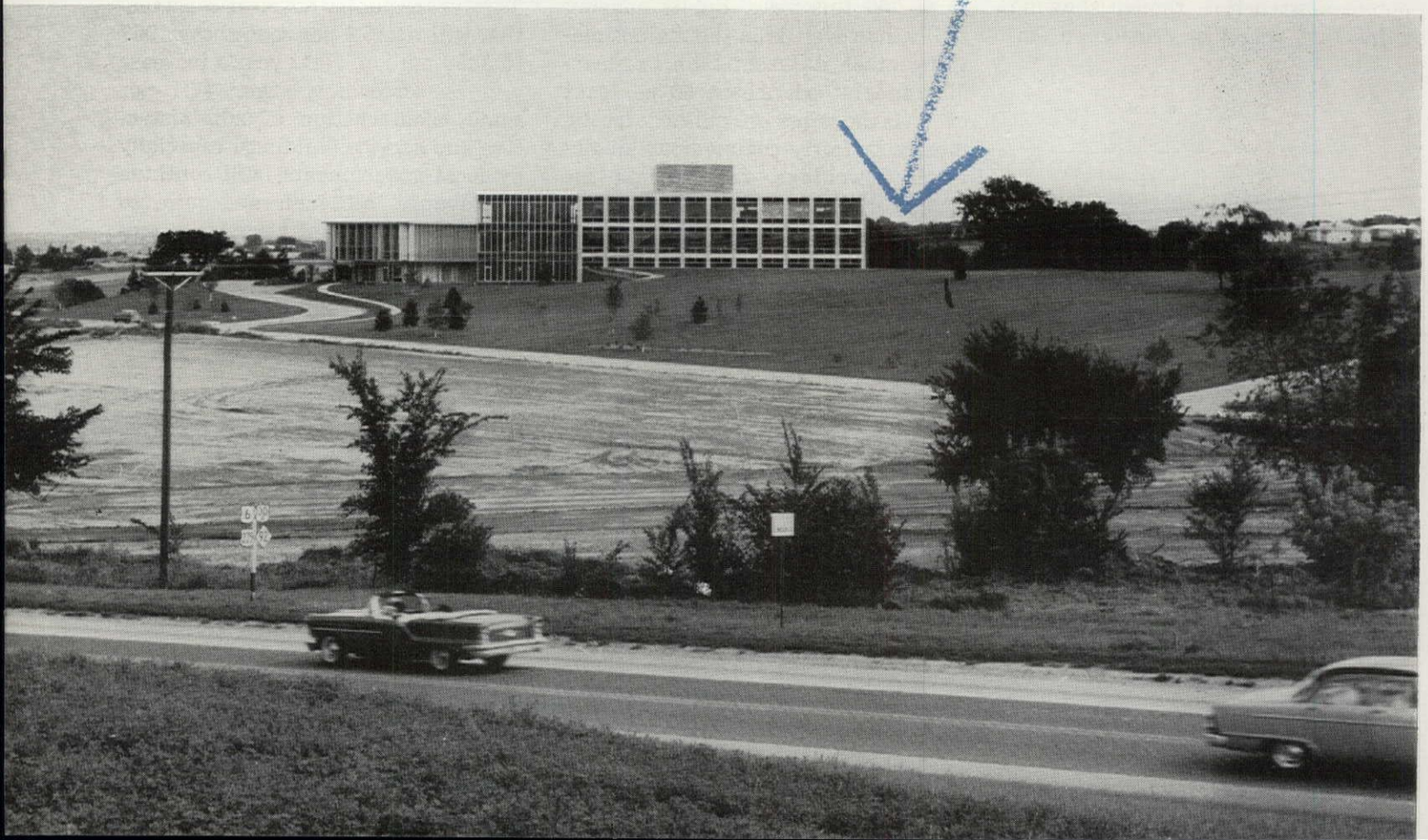
By RICHARD A. MILLER

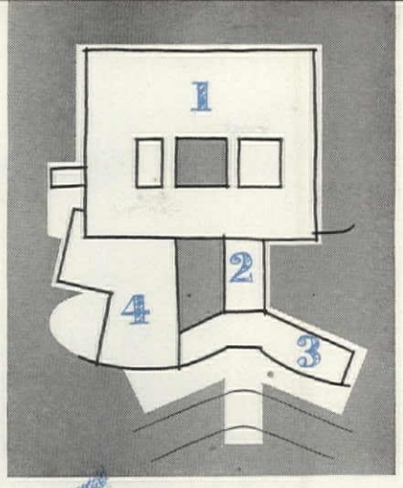
In virtually all the arts, a piece of significant new work —whether the first-night performance of a play, the premier of a musical composition, or the showing of a painting—is subjected to critical evaluation. The one exception is architecture. Perhaps because architecture is also a profession, and a business, the art of architecture is seldom criticized. To help remedy this situation, here is a FORUM *criticism of an individual effort in the advancing art of architecture.*

At first view, the Guarantee Mutual Life Co.'s new headquarters in Omaha, Nebraska looks like a serene temple on a hilltop. In part, this impression stems from the contrast between the building and the frenetic jumble of curtain-walled buildings which crowd Dodge Street on the way to the building from downtown Omaha. The pastoral setting of the building on the city's final westward hill is a relief to the view along the way.

This first impression is, to a degree, valid. Guarantee Mutual and Architects Leo A. Daly Co. aimed high. For its part, the insurance company sought a fine trademark and a good place for its employees to work, and it did not stint in the search. The architects devised a smoothly functioning plan for the operation and planned a structure of efficiency and firmness around it. The result is, probably, the best new building in Omaha.

But architecturally, it is not really a first-rate building — especially considering what it might





have been. This, after a second look, is as evident as the bulldozer operations at the base of the 11-acre hilltop which presage more buildings—and an end to the pastoral setting.

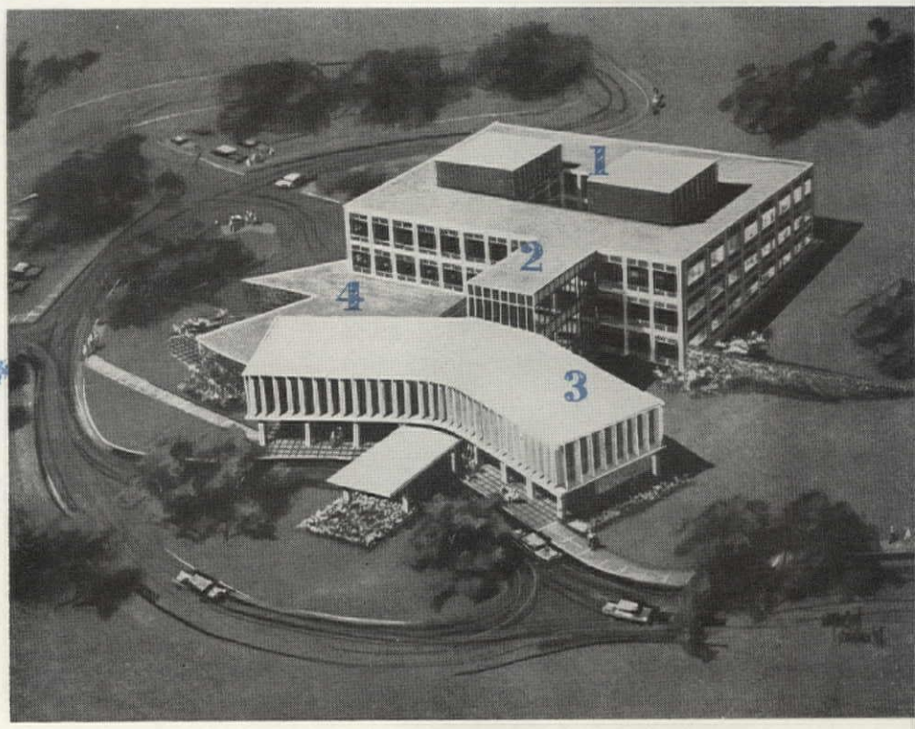
Seen head-on from the highway, the main fault of the building emerges clearly: it is not one building but several, jammed tightly together and almost totally unrelated to each other in form or detail.

The major block of the building, faced with a heavily framed grid of aluminum filled with glass, emerges abruptly from the soft curve of the hilltop. At the corner, a column is let down over a retaining wall—a visual prop from below. Then, ranging with increasing chaos downhill, are two appendages both quite different in design from the main block: the first with a thin vertical paneling of the curtain wall, the second with special sunshading devices covering an upper section coupled to a smaller glassed-wall base.

The contention between these various elements is not a surprise in the finished building. It was clearly apparent in the original rendering and floor plan. And, indeed, when viewed from above, as in the floor plan, a fourth element, marked by an undulating stone wall, is found tucked into the space between the other sections.

From the plan, the separateness of the four sections appears to be based on the sound functionalist doctrine that separate uses require separate treatment. The main block (1) contains the large-floor work areas. The appendages are: a circulation link equipped with escalators (2); a boomerang-shaped executive wing (3); and a cafeteria and service area (4).

But viewed close-on and all at once the four sections of the design join each other in a confusion which is surely the antithesis of articulation. Their separate appearances, in fact, cannot even be defended on the next obvious line of defense—that they provide variety and sur-



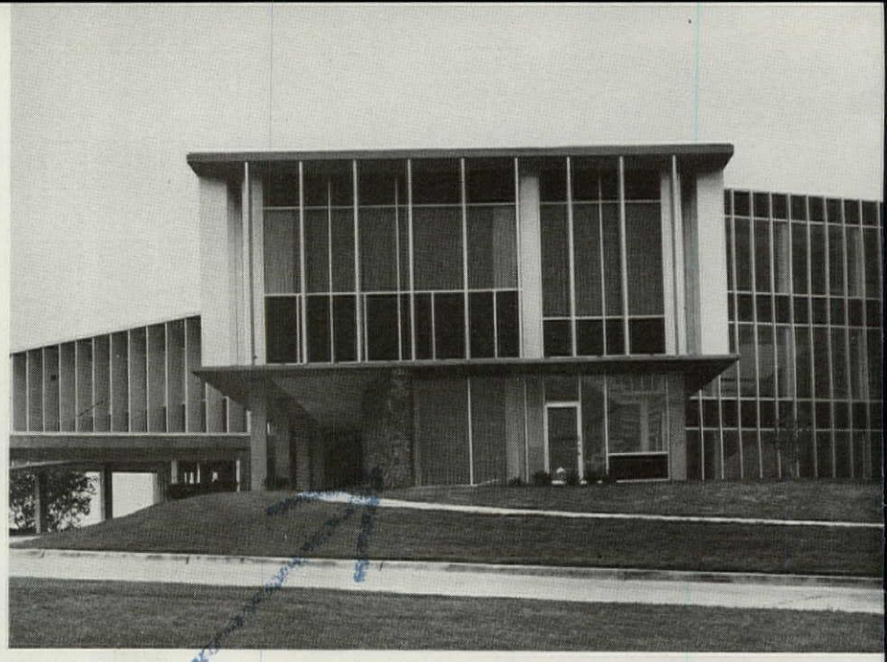
prise. Important as these qualities may be to architecture, they are valid only if subordinate to a total sense of order. Architecture is not a variety show or a grab bag of surprises. It is a serious and important search for pattern.

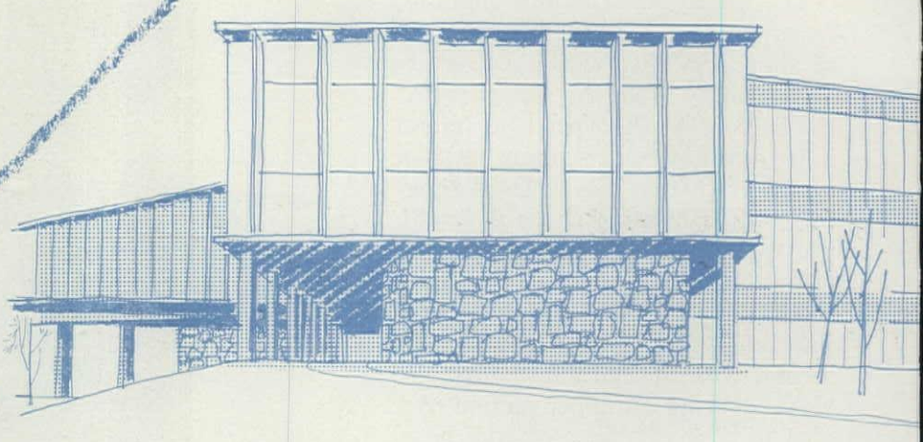
However, an indictment of the segmented concept of the building can be found on more elementary grounds than philosophy. It is only necessary to look at the building, to search into corners, details, and intersections. (One way to recognize an architect is to watch him look surreptitiously into corners or to observe him as he runs his hand slowly over the place where two materials meet.)

At Guarantee Mutual, this close-up search is very revealing—especially if matched by an equally detailed study of what was proposed in the architect's original rendering (the accompanying sketches, prepared by FORUM, focus on details of the rendering). For, importantly, an essential unifying element—the undulating stone wall—was depleted between design and execution. If the original intention had been carried out, the stone wall, for example, would have turned the corner at the end of the building, rather than finishing indeterminately at the end of the colonnade.

It is hard to understand why the planned stone wall was replaced by windows here anyway, because both the stairway and the board room have adequate natural light from the rear. The only logical explanation for the change is that the cantilevered concrete stairway was too good a bit of showmanship to leave behind a stone wall.

The return of the stone wall around the corner would have had two additional effects: first, the columns supporting the upper section of the building would have "read" with more clarity; second (and even more important), a relationship would have developed between the base of the executive office section





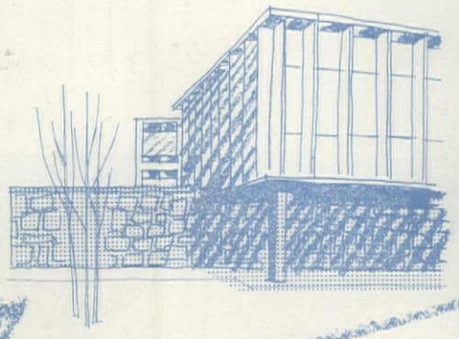
and the retaining wall at the corner of the main building. The two sections would have been tied together and the uneven relationship of the ground form to the main building would have been alleviated.

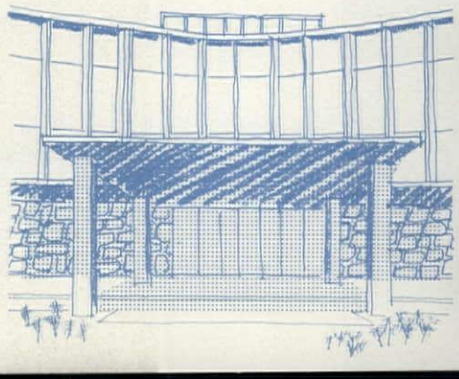
At the other end of the executive wing near the cafeteria a second depletion of the stone wall occurred between initial design and construction. Here, the wall was interrupted for a "display window" of the cafeteria from the main entrance approach. Again, the additional glass was not needed—the cafeteria is well lit from the terrace side and from the inner court.

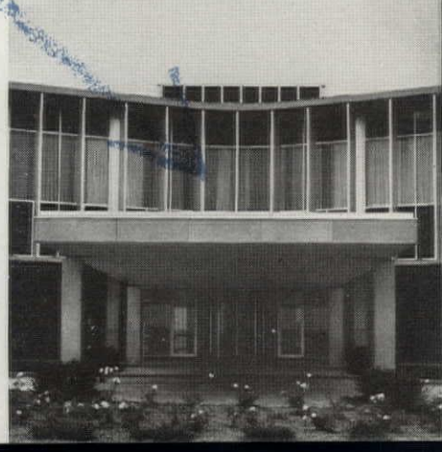
The architectural difficulties created by this change are, quite literally, fantastic. The upper floor of the building now appears to rest very uncomfortably on the glass wall. Furthermore, constructing the disjointed corner where roof meets wall and window meets sunshade must have been a real challenge to the metalworker's art.

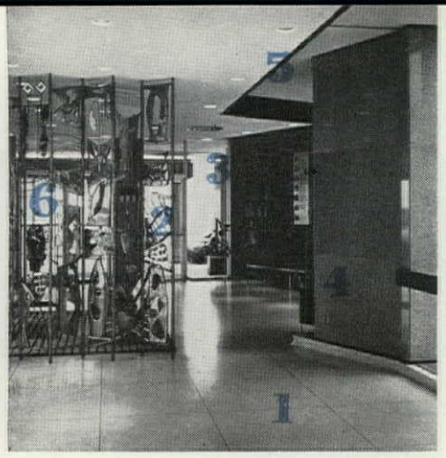
In the center of the building, the change from the proposed thin slab roof over the entrance drive (sketch) to the heavy-edged roof (photo) seems equally in error. Because of this change, the upper portion of the building is overwhelmed by a cumbersome weight below. It is hard to believe that structural needs forced this change, for the span is not excessive for a thin flat-slab roof.

The preliminary design probably also fostered an illusion about the efficacy of the *brisé soleil* surrounding the executive offices above. In the rendering, all indications of what occurs behind the fins are eliminated by an even wash of dark "architectural" shadows. In actuality, however, the fins do not operate as a device for screening a cluttered façade, any more efficiently than they keep sun from windows on the south-facing wall. The curtain wall behind the screen might better have been drawn more quietly. Simple patterns and a con-









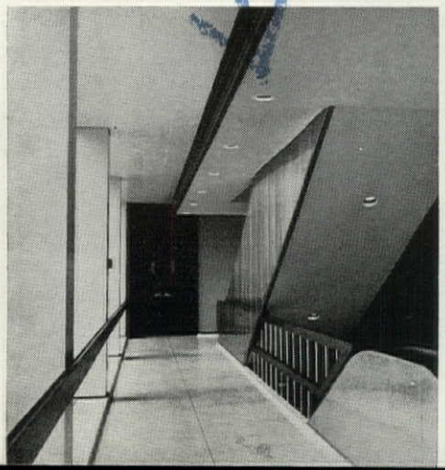
tinuity of lines should have been developed more carefully *because* of the fins than if they did not exist at all—wall and *brisé soleil* should have virtually worked together.

Inside the main lobby, confusion runs even more rampant. Here, in a relatively small space, the designers have used a surfeit of rich materials. Flooring is white terrazzo (1). The columns at the front door are round and faced with black marble (2). In the lobby, the angled walls are faced with lava rock (3). Farther back are two angled columns, faced with gray marble (4). Ceiling trim in rosewood (5) completes the ensemble—without counting the enameled, welded, and gilded metal screen (6). In front of the screen, four Mies chairs try desperately to look at home.

In the board room, the curved lava stone wall, which should have been rich enough for anyone's blood, is flanked by a wall of carefully matched rosewood paneling on one side. On the other side, the window which prevented the stone wall from turning the corner outside, lights an inevitable planting box, stuffed with big-leafed tropical plants.

On the way back to the working areas, the link containing the escalators is more cleanly trimmed. But even here, a band of rosewood faces the edge of the dropped ceiling, and the railing between the escalator

HAROLD A. OLSON



runs is unnecessarily complicated by a recurrence of the wood cap halfway down the spindles.

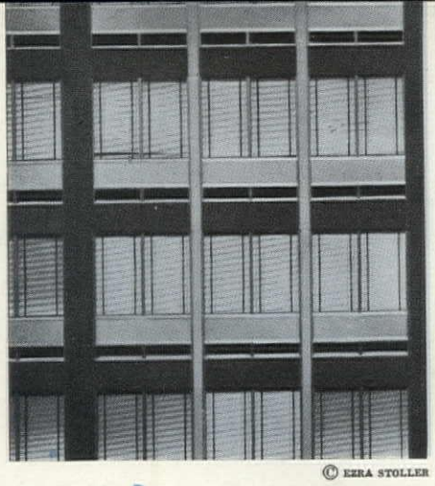
But even after the closest scrutiny of details and materials, after looking at corners and studying shadows, there still remains a memory of that initial image—the temple on the hilltop. And to a large extent, that image is the product of about 575 lineal feet of curtain wall surrounding the main building block. Its virtues are the virtues of the building in general—it is solid, competently crafted, and well constructed. But, again, it is not all it might have been.

Compared to Architect I. M. Pei's Mile High building in Denver, Colorado, which features a carefully delineated separation between the black panels which cover the structure and the white panels which cover the mechanical runs, the Omaha building seems flat and uninteresting.

Compared to the wall at the precedent-setting Connecticut General Insurance Co. headquarters by Architects Skidmore, Owings & Merrill, which is raised above the ground and refined to "read" clearly as a "curtain" set in front of the structure, the Omaha wall looks like an early factory by Albert Kahn—where the structure was really exposed and the curtain wall merely filled in the voids.

Compared to Eero Saarinen's trimly detailed wall at IBM's Rochester plant (see page 140), which develops dramatically out of the flat, green lawn around it, the Guarantee Mutual wall seems to have settled one-half floor into the ground.

Architecturally, all the problems of the building — the disparate forms, the unsolved corner details, the conflict of materials, the heaviness of the curtain wall—seem to stem from an initial failure to grasp the total problem. A workable floor plan wrapped in an enclosure of quick, dramatic effects simply does not fulfill the consummate demands of great architecture, the most difficult art of all. END



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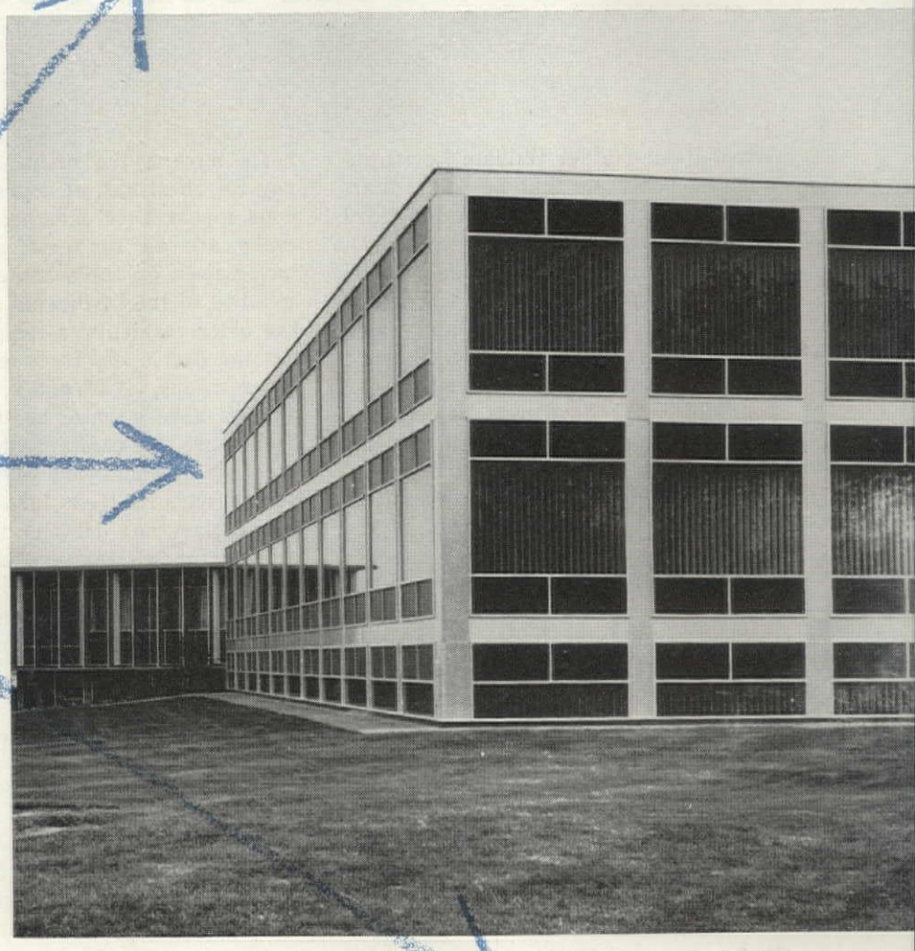
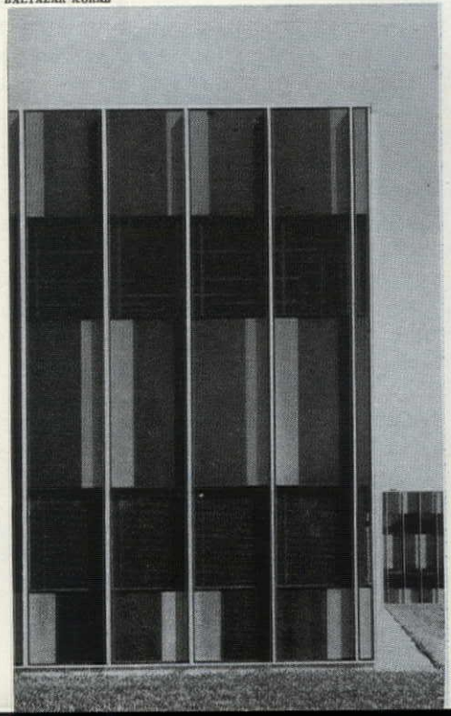


BALTAZAR KORAB



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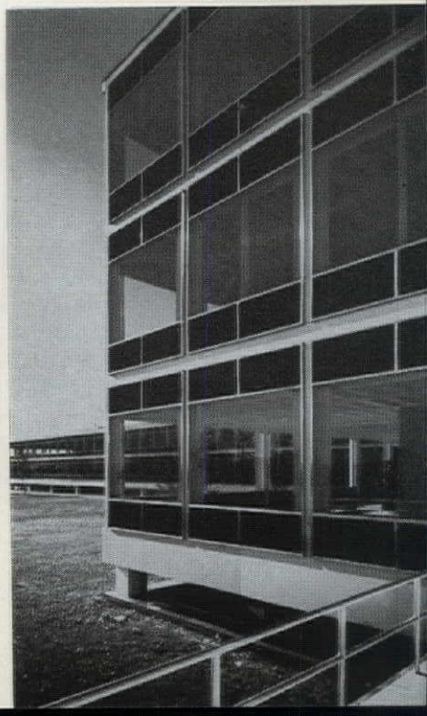


Because the school shortage is giving home builders a lot of trouble, some, including William Levitt, are providing schools with their houses. But not everyone is happy.

New Schools for "free"

BY FRANK FOGARTY

When Home-builder William Levitt announced last June that he would start taking orders for houses in his third Levittown (near Camden, New Jersey), he made an impressive promise. Levitt & Sons, he said, would build schools for the 15,000-home community and would "turn them over to the school board lock, stock, and nail barrel without one penny of cost." Levittown, he declared, would have a complete educational plant "without the staggering load of public debt crippling so many communities today."

Levitt's promise, which he is already carrying out, was the most striking example yet of a new solution to one of the most troublesome community problems of the postwar years: school costs. In the tremendous suburban growth of the last decade, countless towns have been straining both their debt limits and their taxpayers' patience as they have attempted to build enough schools to keep abreast of their swelling enrollments. One of the chief objections to new housing developments has been the price of the new classrooms that have to be built for them. Aware of this, many builders have "volunteered" contributions of land and cash to school boards in order to help provide schools for their customers (and to win approval of their subdivision plans). Lately, however, an increasing number of home builders have been finding it necessary or politic to take on the actual design, financing, and construction of schools, either through lease-purchase agreements with school boards (i.e., the board contracts to lease the school from the builder for, say, 20 years with the annual rent to apply to a purchase price at the end of the period) or, as in Levitt's case, by recouping the cost of the schools from the prices they charge for their houses.

The idea that the developers themselves should build schools and that the home buyers, the main users, should pay for them has, of course, a tremendous appeal. Local merchants, who generally are all for new developments, have seized on the scheme as the best rebuttal to the status-quo arguments—the older residents' attempts to freeze out the developers through zoning and other means. And many school-board officials have warmed to the idea, too. To be sure, the capital costs of a school are only a small part of its total expense (e.g., in New Jersey, construction outlays and debt-service payments account for less than one-third of total education expenditures). Still, the developer-built school has gained a reputation as precisely the ticket that many towns need.

The ready-made classroom

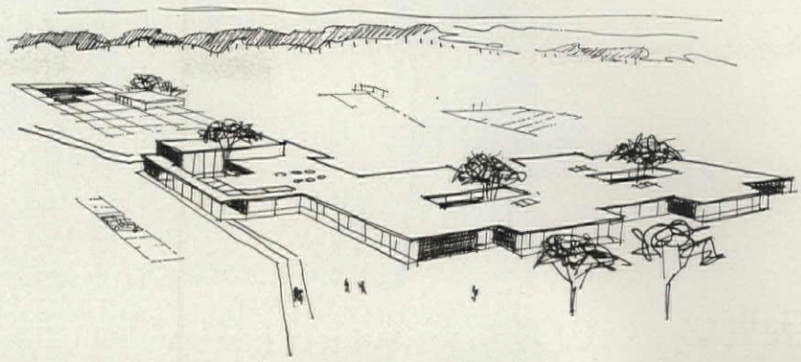
The spot that Levitt picked for his third big community — Willingboro, New Jersey—was practically made to order for a mass housing development. A section of farmland, lying midway between Camden and Trenton, 15 miles northeast of Philadelphia, Willingboro offered an abundance of open land (5,000 acres, of which Levitt bought 4,000 for an estimated $11 million) just minutes away from the fast-growing industries of the Delaware Valley. Its population was small, an estimated 650 people, which meant few property owners to deal with, and its government was uncomplicated and friendly. Indeed, as a development site, Willingboro was almost perfect, except for two things: 1) its five-room school was already close to capacity; 2) the town's tax base—$437,000 in ratables last year—was obviously too slim to enable Willingsboro to finance the construction of the added classrooms that the development would need.

Levitt says that from the time he started buying up land around Willingboro four years ago, he figured he would have to build schools right along with his houses. "A school has to be ready when the house is ready," he says. "Tell customers they'll have to wait two or three years for classrooms, and you can be sure of one thing. Home buyers will buy somewhere else."

Starting in 1954, therefore, Levitt began informal talks with the Fund for the Advancement of Education, which is supported by the Ford Foundation, and with the National Recreation Assn. The talks covered both site requirements and classroom needs. The following year Levitt retained New York School Consultants Engelhardt, Engelhardt, Leggett & Cornell to work out specific recommendations, and in 1957 he commissioned Architect Ronald S. Senseman in association with H. Fred Gehrke to give him a design for an elementary school.* The upshot of all this was a set of plans, approved by both the state and the town this year, for a combination elementary school-community center (sketch, opposite page) which is now under construction in the development's first section of 800 homes. Set on about 15 acres of land, the school is a one-story building (gross area: 56,000 square feet) with two wings, each of which has an open-air court. One wing contains 20 classrooms and special-use rooms; the other has kindergartens, an auditorium-gymnasium-lunchroom, administrative offices, and a kitchen.

Just how much this school will cost Levitt—and ultimately his house buyers—he refuses to say. However, the school is far better than the minimum the state requires, and a reasonable estimate is that it would cost about $15 a square foot to duplicate, exclusive of land and architects' fees. Even if Levitt is able to build it, as he claims

*Based on schematic plans by Leonard Hager, Levitt's own architect.



Builder-supplied school in Levittown, N. J., is a prototype for possibly nine more.

he will be, for one-third less than what the school would cost on conventional bids, the price still comes out to $560,000 or roughly $640,000 counting in land and architects' fees. Assuming that all 800 buyers in the first section share equally in this cost, the school would represent about $800, or roughly 6 per cent, of the $11,490 to $13,990 that they will pay for their houses.

The trend-makers

While no developer yet has planned so grandly for schools as Levitt, several home builders, mainly in the New York and Chicago areas, have tackled the school problem in much the same way. Like Levitt, they have built schools along with their houses, taking the costs out of profit or adding them onto house prices. Actual costs of these schools have varied widely on a per-house basis. But this is not surprising, for the schools themselves have been greatly different—both in quality of construction and in facilities provided.

In Madison Township, New Jersey, Builders Cantor & Goldman plan to spend $775,000 to build 42 classrooms (two, possibly three, schools) for their new 1,668-home Sayre Woods South development. Cost figures out to about $465 a house. Builder Herbert Kendall has already put up an eight-room elementary school in Madison, along with a two-room kindergarten, for his 700-home Madison Park. In South Brunswick, New Jersey, Kendall has contributed an eight-room school for his Kendall Park South and will turn over 20 more classrooms to the school board as this 1,500-home project moves along. Kendall estimates his Madison school, which is a minimum affair of cinder-block construction, cost him about $110,000, or roughly $160 a house, which he considers a "negligible amount to contribute to education."

Possibly the first cooperative plan, in which competing builders are pooling their resources to put up a school, has also shown up in New Jersey. Fourteen builders, who together will construct 2,700 homes in Raritan Township, have agreed to ante up $450,000 for an elementary school, part of which is now complete. The school is being built by Cantor & Goldman, which is one of the cooperating group, and will cost about $150 a house.

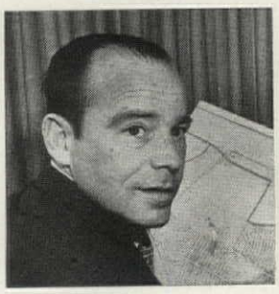
In Illinois, the F & S Construction Co. of Roselle, Illinois, has built three schools in the Chicago suburbs and is now working on a fourth. F & S does not supply all the materials for the school—the school district pays for some—but it does donate the land, the design, most of the building labor, and the heating and brickwork (cost: about $500 per house).

Tom Lively's Centex Construction Corp., which last year was the nation's biggest home developer in number of private houses built (2,627), will finish this autumn an eight-room elementary school (cost: $175,000) for a development in Elk Grove, Illinois, and has already started on a 12-room addition. The school district will buy these schools from Centex at the end of five years.

Next to Levitt, the biggest developer-school program anywhere has been that of American Community Builders in its famed 7,000-unit Park Forest project

continued on page 198

Behind the developer school: enlightened self-interest



TOM LIVELY
Centex Construction

"If you don't have schools you have to face facts; you can't sell three-bedroom houses."

EDWARD L. WATERMAN
Park Forest Homes

"Home builders must be actively concerned with schools if they want to develop a new area."

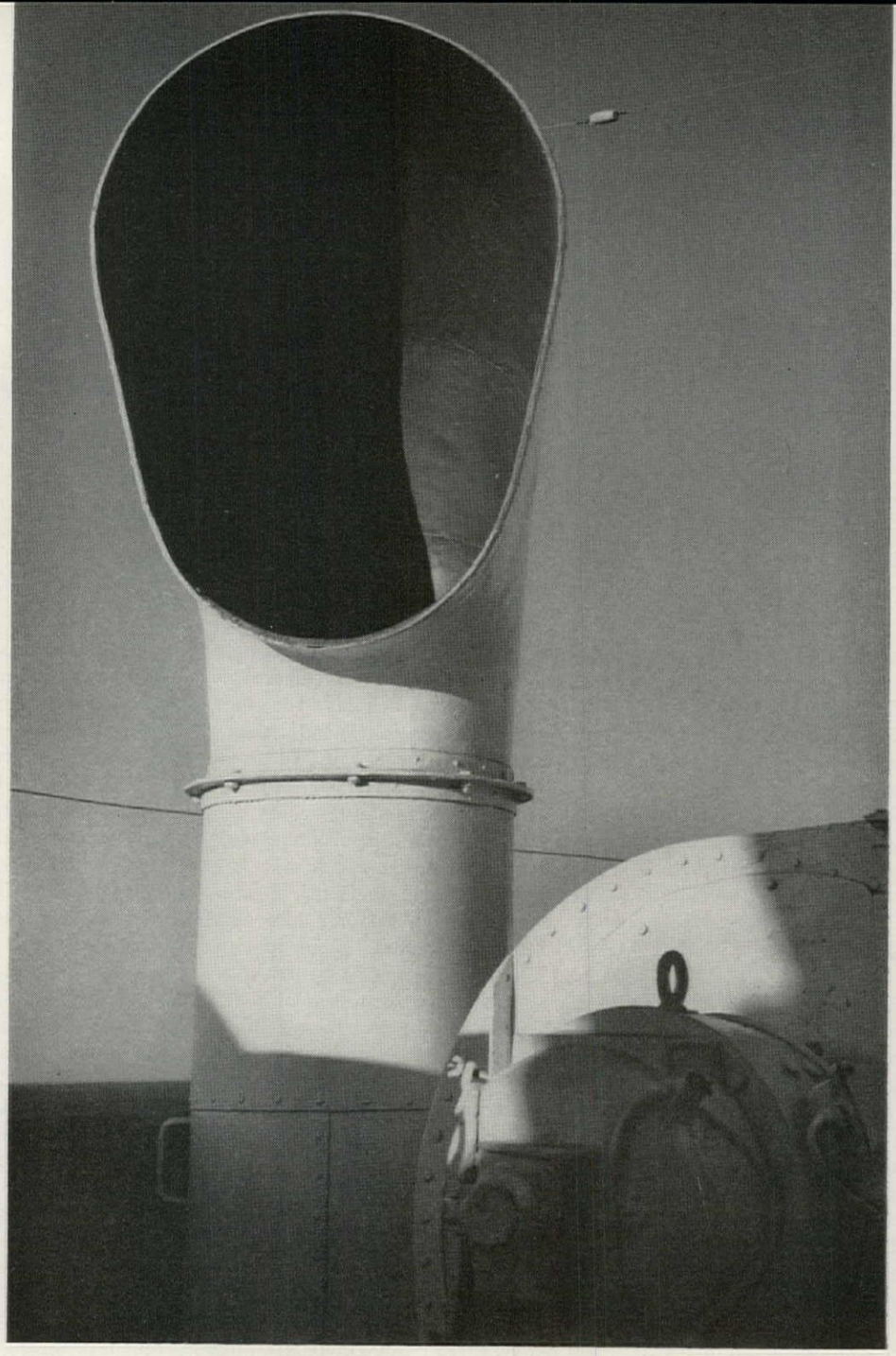
F. ROY KEMP

WILLIAM LEVITT
Levitt & Sons

"A school has to be ready when the house is ready. It's as important as a water main."

JACK HOFFMAN
F & S Construction

"Paying for schools adds to house prices but it adds more to value. Eventually, everyone profits."



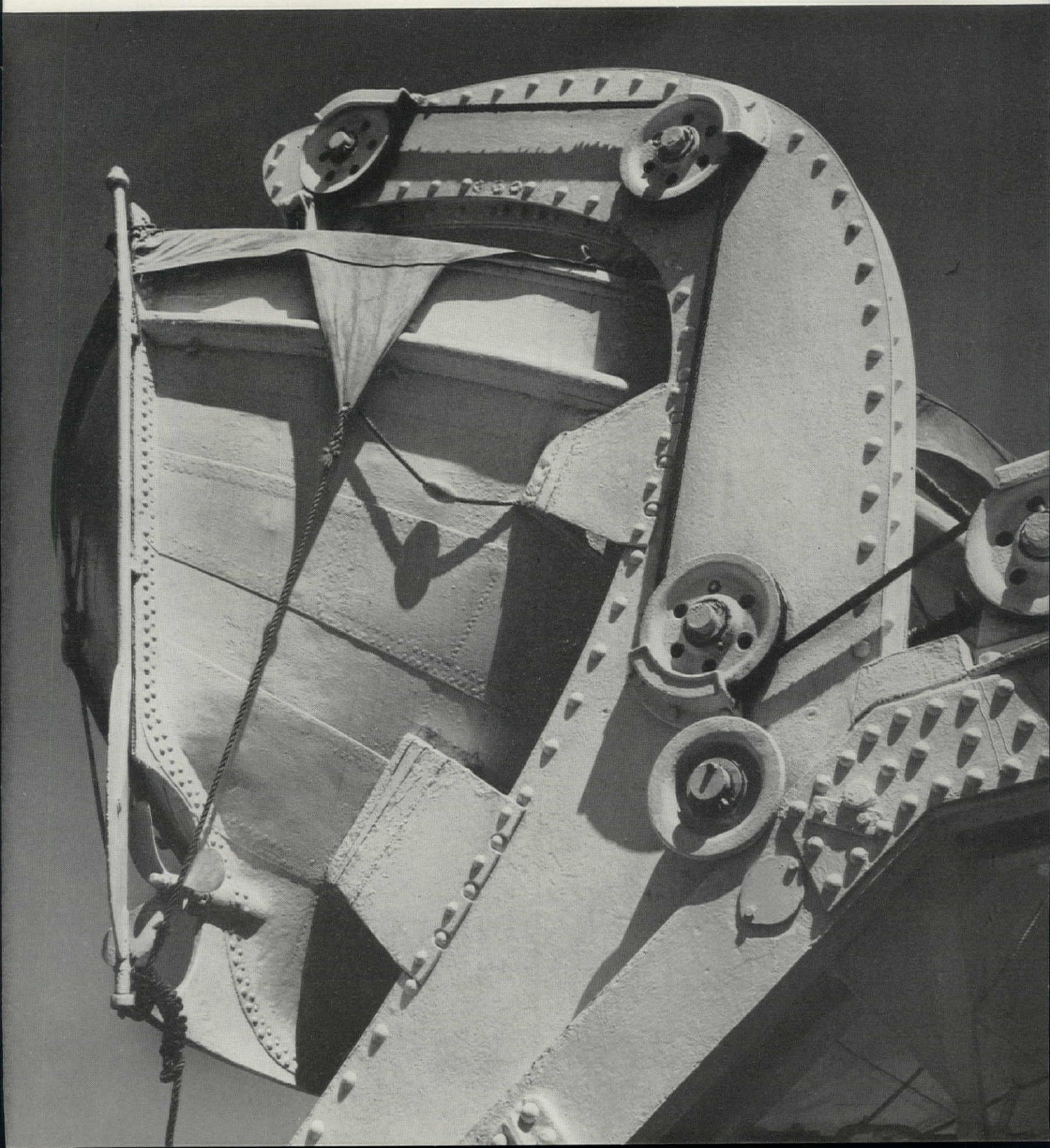
Ship shapes and shadows

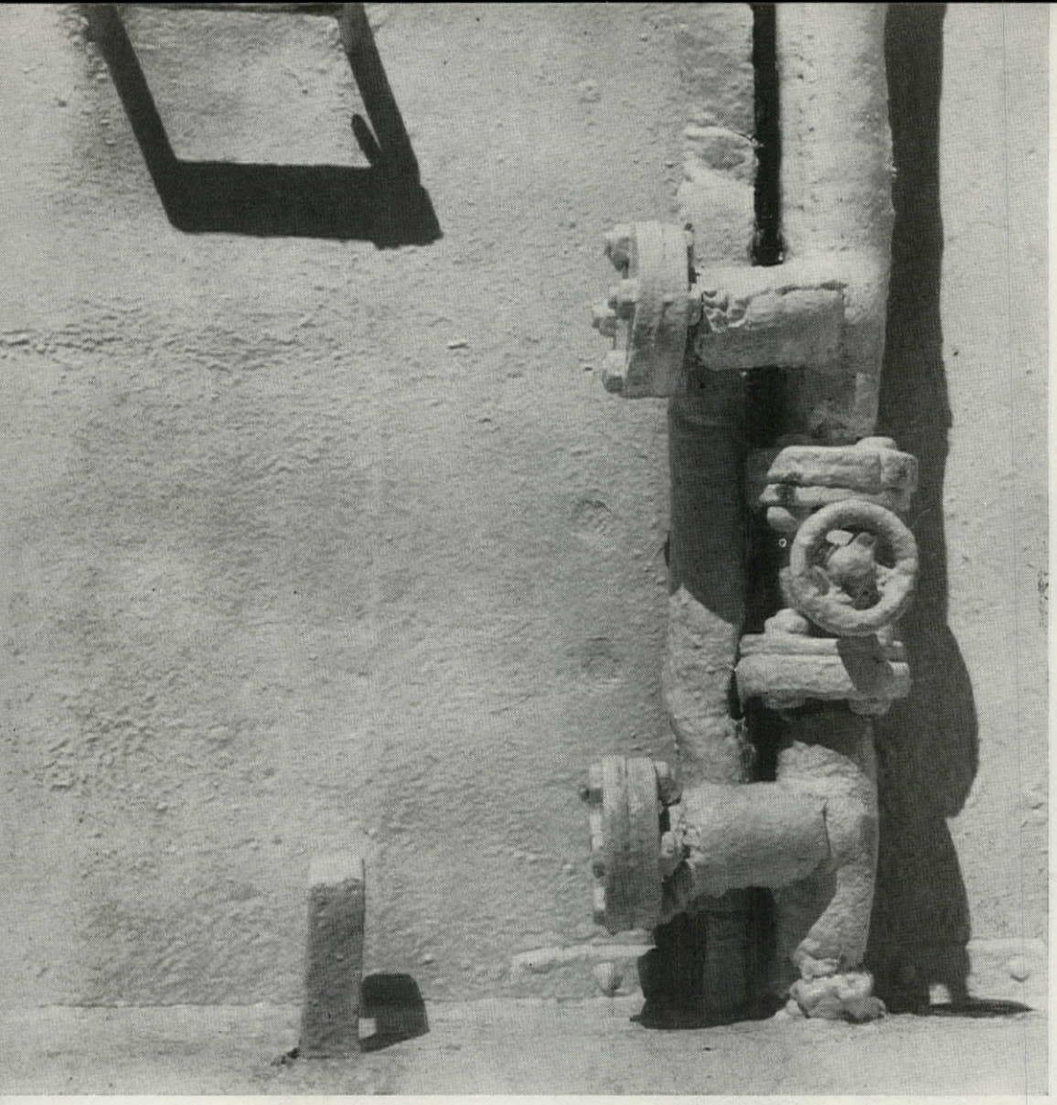
Just as time puts a soft patina on land-based buildings—and often improves their appearance—so it adds a softening touch to the lines and forms of naval architecture. The caky, almost edible quality that shipboard structures take on after years of use and exposure is noted in the pictures on these pages. Several corners of the R.M.S. "Queen Mary" and the S.S. "Liberté" were chosen in illustration of how patina is acquired at sea. It comes down, in effect, to paint on paint over paint. The result might rather be called impasto.

The "Queen Mary" is 24 years old now. But truly venerable, as primary Atlantic liners go, is the "Liberté." She is 30. Yet her lines and forms are still handsome and, indeed, stylish.

PHOTOGRAPHS BY WALKER EVANS

Looking as though it had been built with an Erector set, this boat-and-davit on the "Liberté" port side is no toy but a very efficient, electrically powered mechanism.

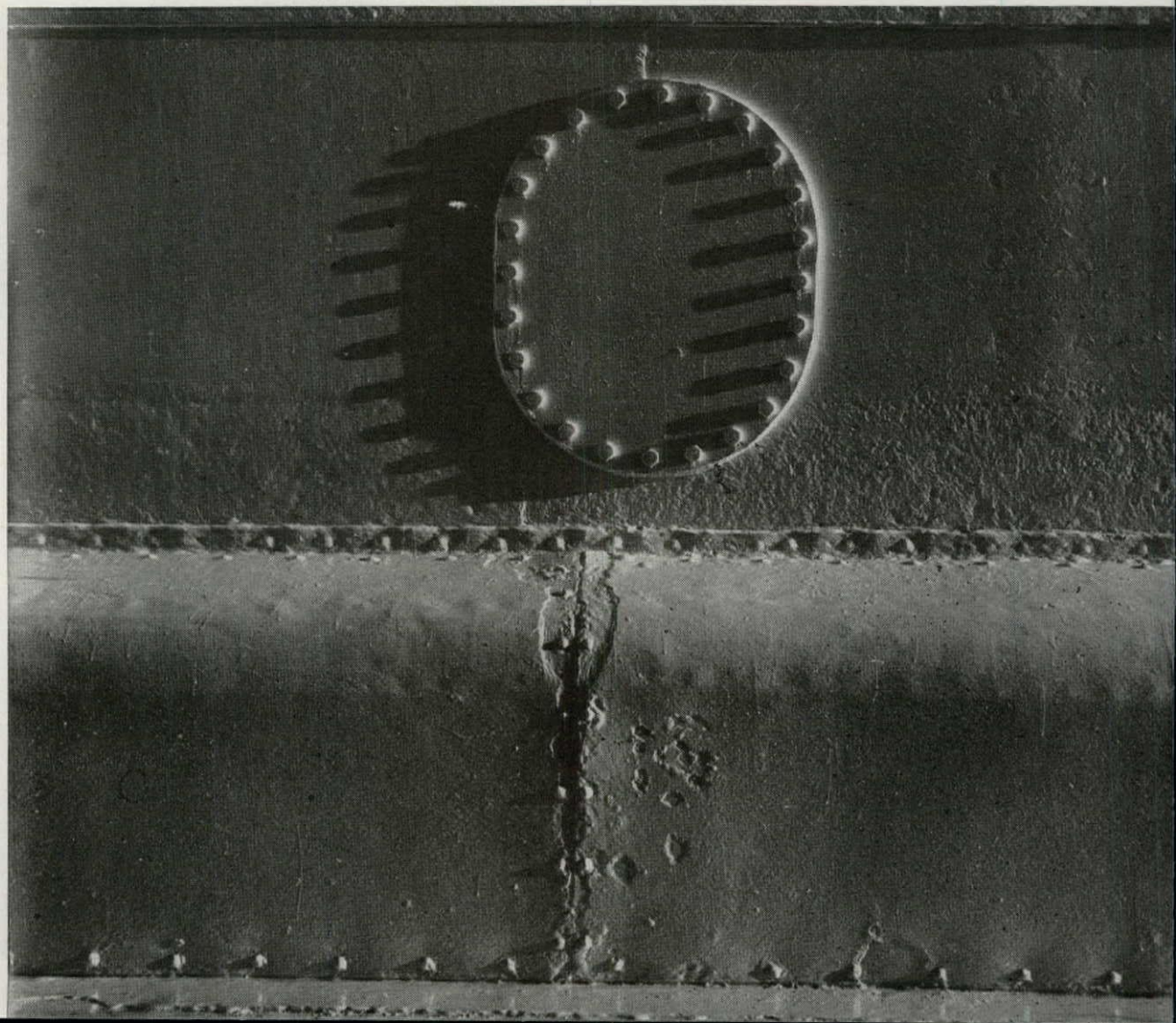


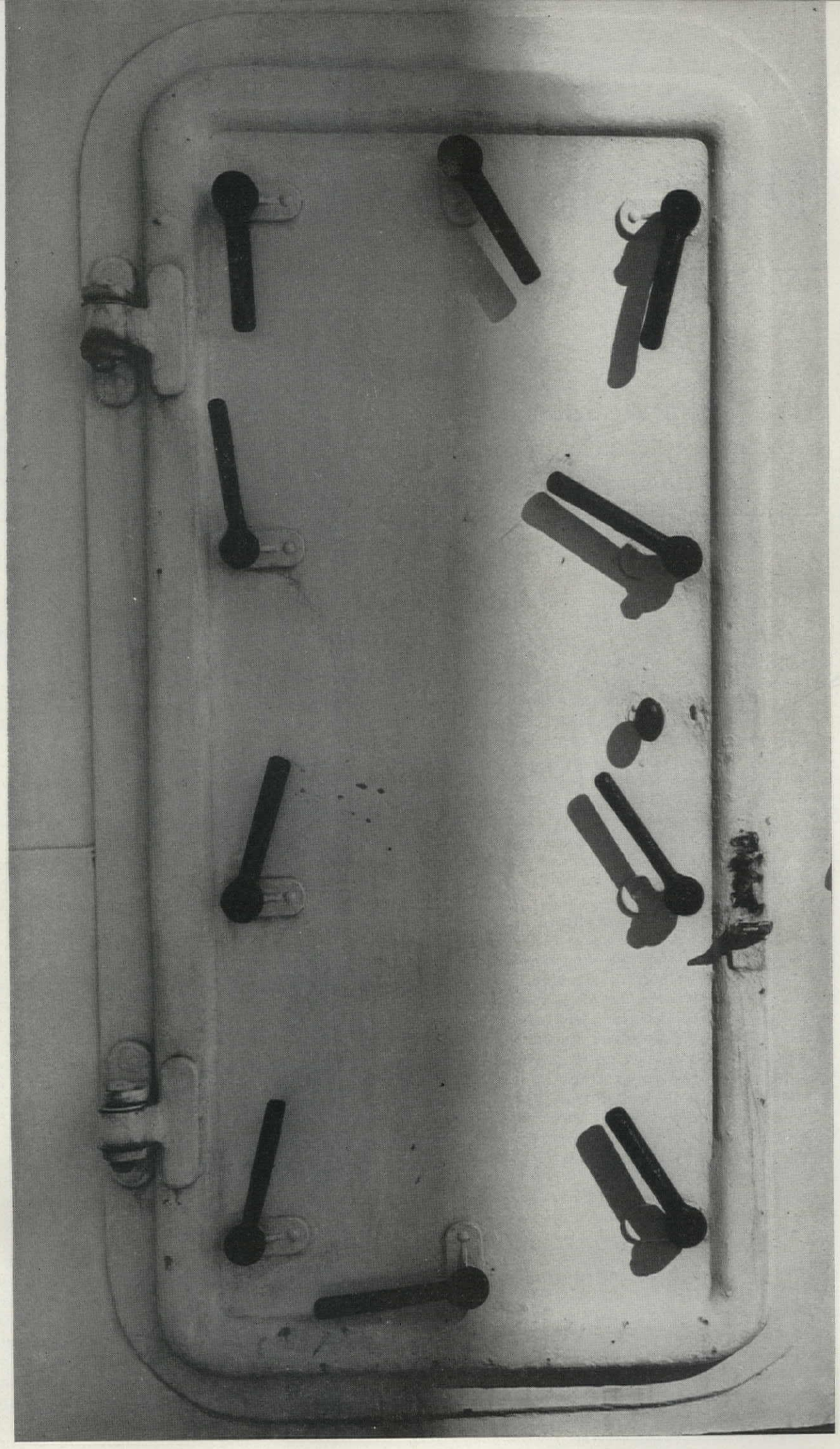


It is hard to imagine this encrusted valve wheel being turned any way at all. This hoary, luscious still life is to be found on the "Liberté" sun deck, starboard side.

Ten heavy latch bars would seem sufficient to hold this door in any emergency.

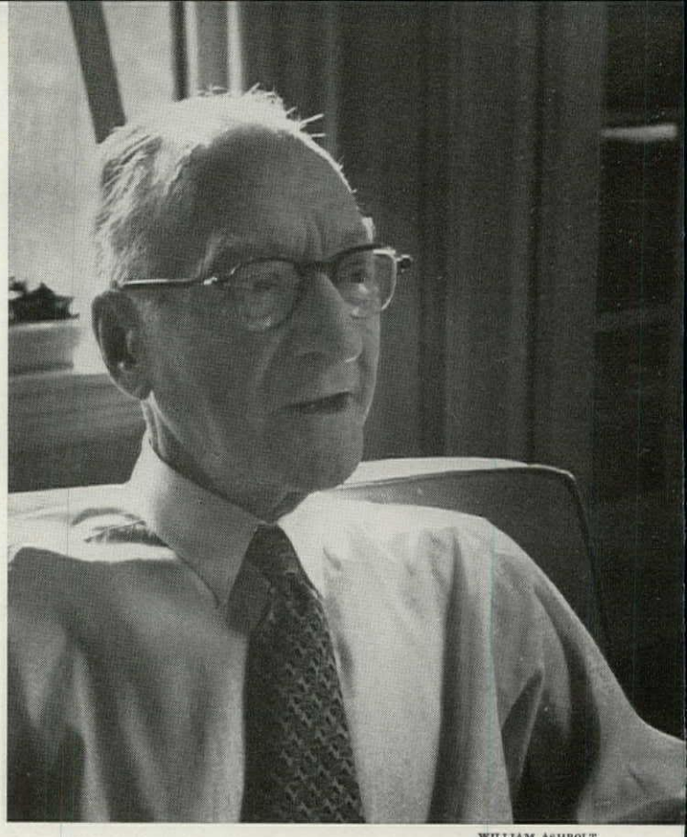
About a quarter-century of painting is evident on the steel plates shown in the photo below.





Mr. Robie knew what he wanted

The man who built a historic American house looks back over half a century and recalls how it went with the architect—Frank Lloyd Wright.



WILLIAM ASHBOLT

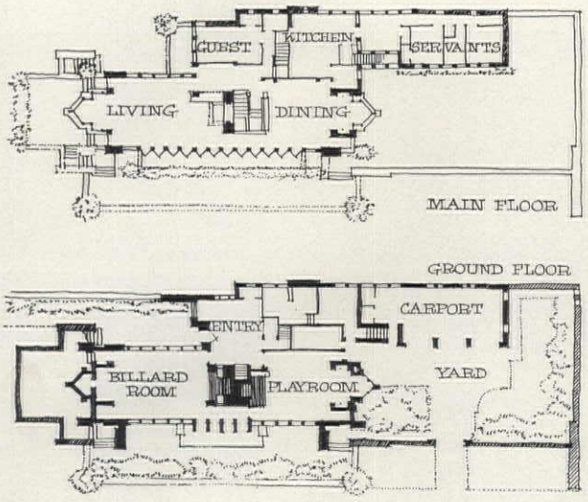
Somewhat more than fifty years ago a forceful, 27-year-old Chicago bicycle manufacturer went to call on an architect to talk about building a house near the University of Chicago on Chicago's South Side. Like many clients, he knew what he did not want in a house: not a Cape Cod reproduction, not a massive monument, not a building that would come in over his budget, no dark closets. And he also had some ideas of what he did want: a good deal of natural lighting, and a children's playroom at about ground-floor level. He had even made some sketches: "I knew what I wanted and I wanted to get what I wanted, and to hell with everything else." The name of this client was Fred C. Robie.

Mr. Robie got a house that pleased him, that met all his specifications, that came in under the budget, but was also an unexpected something else—he got a masterpiece of architecture. Through months of planning and estimating, and exchanging thoughts, the idea of the Robie house grew great in the mind of Mr. Robie's architect, 37-year-old Frank Lloyd Wright; when the horse-drawn wagons began delivering the building materials to the site, the architect was as sure of his aims as his client was of the specifications. Together with a young contractor named Barnard, he put up a historic building; 50 years later, in 1957, when wrecking crews were about to demolish it, the profession of architecture and its friends (notably William Zeckendorf) rose up and successfully defended the Robie house.

Not only is the architect of the famous Robie house still active, but so is the client. A few weeks ago, at the request of FORUM, *Fred C. Robie of Cherokee, North Carolina, interviewed his father, Fred C. Robie Sr., 79, at his home in Cleveland and drew from him some recollections of the building of the house. They provide an intriguing footnote to the history of modern architecture, the art which must always be commissioned. For what the conversation does is demolish a pair of canards concerning architectural genius: that great architects are sloppy about execution, and that working with genius costs extra. Another popular idea that is reinforced, however, is that it may take time to build something great. Here are excerpts from the interview:*

Robie Jr.: Father, one thing many people have been interested in for the past 40 years is what kind of house did you want in the first place?

Robie Sr.: I definitely wanted it fireproof, and unlike the sort of thing prevalent in the homes of that period. The idea of most of those houses was a kind of conglomeration of architecture, on the outside, and they were absolutely cut up inside. They were drafty because they had great big stair wells, occupying a lot of valuable space, interfering with outside window gazing. I wanted no part of that. I wanted rooms without interruptions. I wanted the windows without curvature and doodads inside and out. I wanted all the daylight I could get in the house, but shaded enough by overhanging eaves to protect from the weather. I wanted sunlight in my living room in the morning before I went to work, and I wanted to be able to look out and down the street to my neighbors without having them invade my privacy. I certainly didn't want a lot of junk—a lot of fabrics, draperies, and what not, or old-fashioned roller shades with the brass fittings on the ends—in my line of vision, gathering dust and interfering with window washing. No sir. I didn't want any wide trim on the doorways or windows. I wanted it narrow, to bring in a wider window, to give me more light.



AARON SISKIND

I wanted to have the bedroom quarters and nursery activities separate and exclusively for the use of the children, all this to be offset on the side by a master bedroom, with a fireplace. I wanted a brick wall to keep the children from wandering out of the yard and getting lost. The whole thing was so nebulous that I could not explain it to anybody.

But finally I got it on paper in various sketches, which numbered about half a dozen, and displayed them to friends of mine in the building business. These were pretty hard-headed Chicago citizens who had weathered the storm of politics in the building of structures. They looked at these things and they thought I had gone nuts.

Well, maybe so, but it was my money. They said: "No, we're not in for that kind of a job. We build big stuff of steel, of concrete, and all this kind of stuff—bronze elevator gates and that kind of bric-a-brac." So they were out.

Robie Jr.: How about architects?

Robie Sr.: And architects. I had a multiplicity of men who had been accustomed to spending large sums of money, and they had expensive ideas. I wanted a house of reasonable cost as well. I probably contacted indirectly or directly a half dozen of these men. I did a little traveling around, and ran across a constant fillip: "I know what you want, one of those damn Wright houses." It was a good advertisement for Mr. Wright. I contacted him, and from the first we had a definite community of thought. When I talked in mechanical terms, he talked and thought in architectural terms. I thought, well, he was in my world.

Robie Jr.: Father, what year was that?

Robie Sr.: That was, let's see, that was long about Christmastime, 1906. We agreed on a procedure. He would make sketches and submit them within a reasonable time. I told him flat I didn't expect to build immediately. Take his time—which he did, and *how*. He spent a great deal of energy and thought and time, and he became more enthusiastic about the possibilities as he was able to work out the puzzle of placing rooms.

He had some commitment on hand, but we were not in a hurry. We were very comfortable, happy, and the difference of a few months would mean nothing in our lifetime. Here was a structure that was going to last as long as we lived, we hoped. And it was going to be a comfortable place. It was not going to be built on in corners and what not—like telescopic arrangements of the New England homes in early times.

Robie Jr.: Did you have any trouble in getting building permits owing to the house's unusual construction?

Robie Sr.: In purchasing the plot, I was under a verbal obligation to build a house which would cost a minimum of about $20,000. That was well within the figure I had in mind. In about a year, we decided that we'd go ahead. By then Mr. Wright and I were in hearty accord. Practically the last detail that I, as future occupant and owner, had to attend to was to be sure that all the contracts were signed, and so on, and funds made available to the contractor who was to pay the bill. It only took probably a couple of hours, but it took a lot of thought, and I wanted to conserve my investments until the funds were probably going to be needed.

During this period, Mr. Wright had done a beautiful job of weeding out the contractors. He covered the bids with meticulous care. I was amazed. The man who finally built the house was a man by the name of Barnard & Co. He was a go-getting, two-fisted, high-spitting sort of a guy, and was a thorough mechanic in the art of household construction, having been in it from the day he was about 16. At his first job, I believe, he carried the beer to the contractor's men.

Once we began, progress went very rapidly. With practically no delay he put in the chimney, and the

continued on page 206

Factories planned for people

Vast new Lockheed plant near San Francisco displays modern industrial problems of huge scale, rapid growth, and employee traffic.

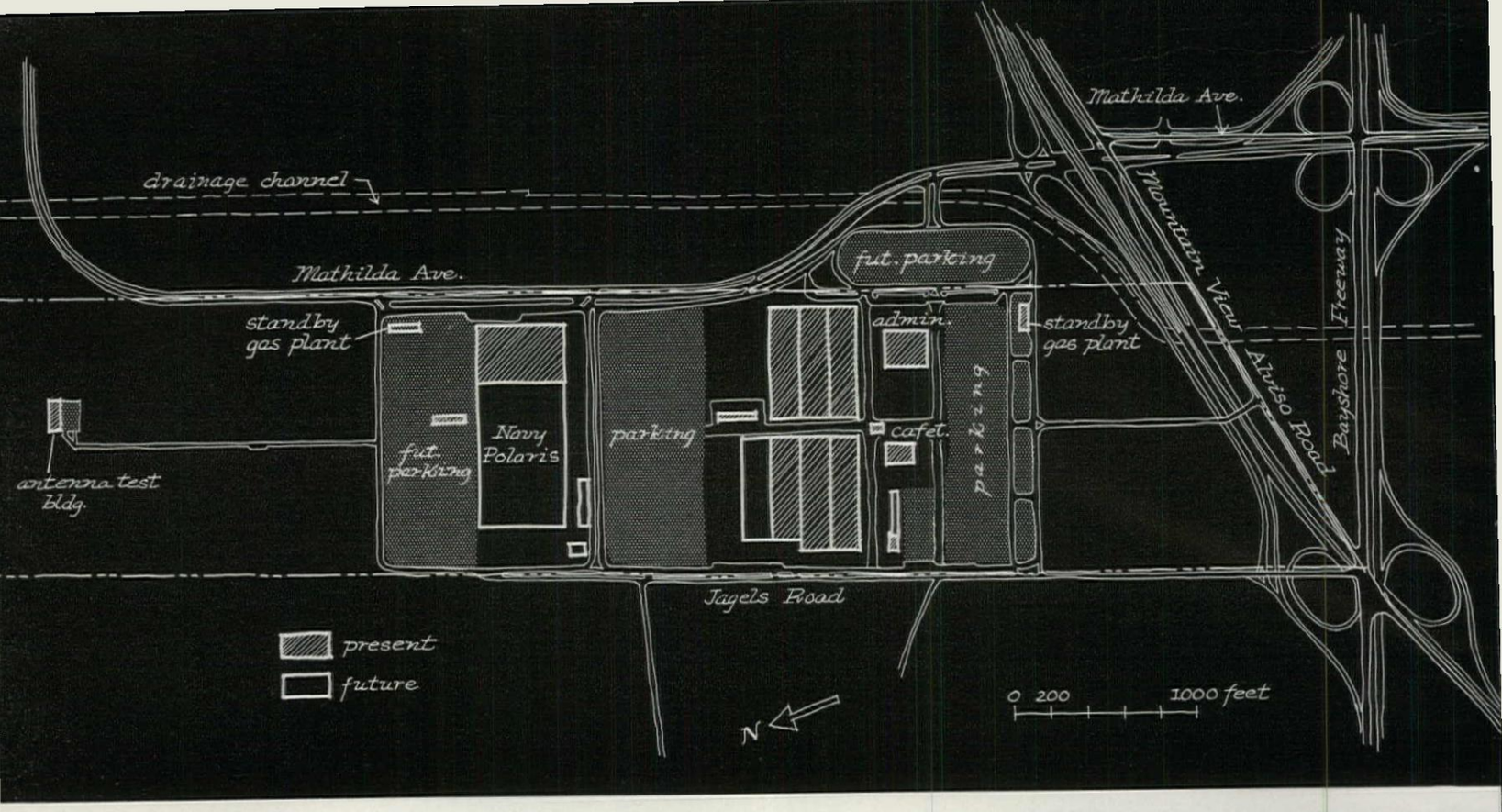
Yesterday's graceless factory was usually hidden away in a clustered industrial slum. Today's plant managers not only put their plants in the open to be seen, respected, and enjoyed, but they even plan ahead for their future surroundings. Here, four noteworthy examples:

1. Lockheed's blueprint for growth (right).
2. Texas Instrument's 300-acre industrial park (page 132).
3. McDonnell Aircraft's environment for engineers (page 136).
4. IBM's protected country surroundings (page 140).

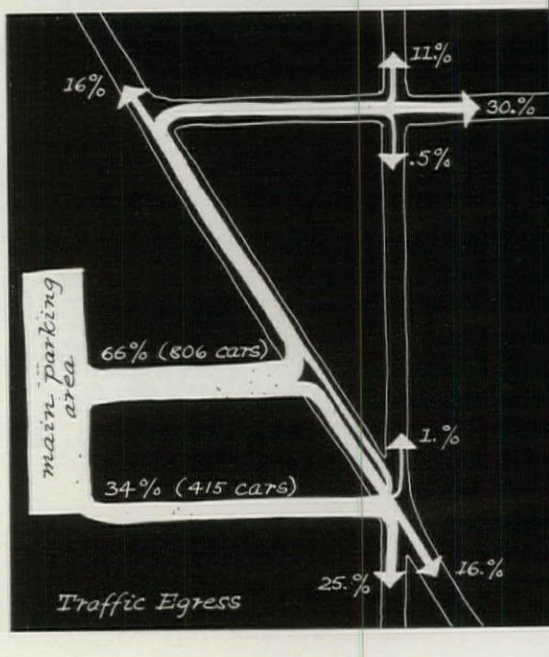
1. In Sunnyvale, California, Lockheed gears its master planning to the future of a growing community.

The factory above, and the three on the pages that follow, produce missiles, transistors, jet aircraft, and computers—all electronic-age products that demand a high order of research and planning. Interestingly, these same advanced-research companies are equally advanced in their approach to the human aspects of plant planning: the problems of getting vast numbers of workers in and out of a factory without causing impossible traffic jams, of working closely with local officials to guarantee adequate future highways and utilities, of making plants attractive enough to get and keep highly skilled workers, and to be a source of pride to the community.

Typical is the case of Lockheed Aircraft's new $35-million Missile Systems Division plant (above) in Sunnyvale, California, 35 miles southeast of San Francisco in the sun-baked prune and tomato belt. Back in 1956, Lockheed's missile men had one overriding mission: to start development on the Navy's new Polaris program as quickly as possible. Unfortunately, the company's initial contracts for missile systems gave no indication of the volume of construction that ultimately would be required, and, in any case, there was no time for a careful analysis of long-term plant needs. Lockheed's engineers picked a site near the Navy's Moffett Field, commissioned hurry-up designs, and swung into action with three standard, 100,000-square-foot factory units, plus smaller structures housing administrative offices and a cafeteria.



Master plan for 1961 shows disposition of future buildings and one-way ring roads which will serve parking lots for 6,000 cars and tie in to proposed freeways. Diagram below shows Russell's study of plant traffic in 1957.



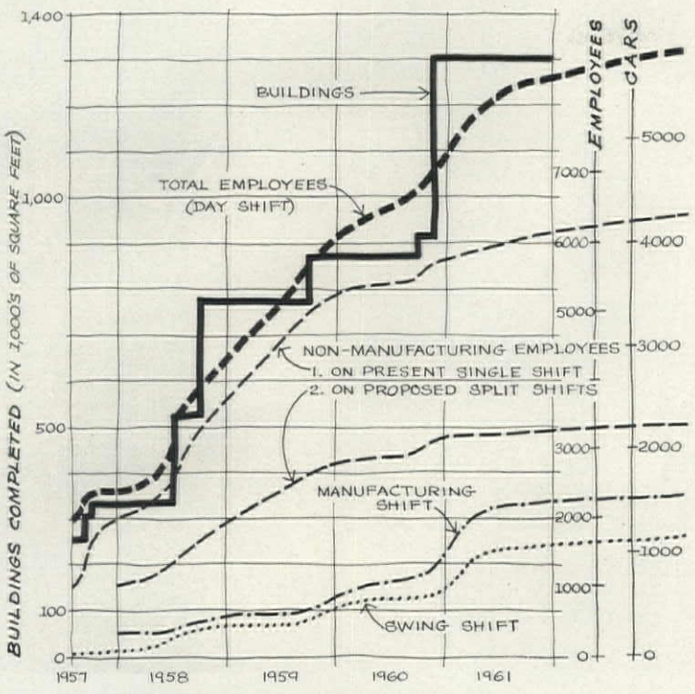
But in April 1957, L. Eugene Root, Lockheed vice president in charge of the missile division, took stock and decided to call in an experienced architect-planner, George Vernon Russell of Los Angeles. Russell's seven-month, $50,000 study verified the existence of problems that Lockheed's own engineers felt could develop into trouble spots without proper planning action. One of these problems was that new air-conditioned buildings already in the planning stage would throw a heavy overload on local utilities. Moreover, car counts showed that 25 per cent of Lockheed's 2,000 Sunnyvale employees came to work down Bayshore Highway, U.S. 101—a high-speed artery noted for accidents—and had to turn left across the highway to enter the plant. Another 17 per cent had to cross this intersection from a diagonal road (see map), and 48 per cent had to negotiate a busy Bayshore intersection farther south. "When a plant has 2,000 employees, there may be no great strain on the road system," says Russell, "but as you double and triple that figure, the community starts to suffer—and so does production in the factory itself."

Russell figured that Lockheed's day force, plus that of the Navy's new Polaris manufacturing units being built behind the plant, would reach an estimated 9,000 day-shift employees by 1962.

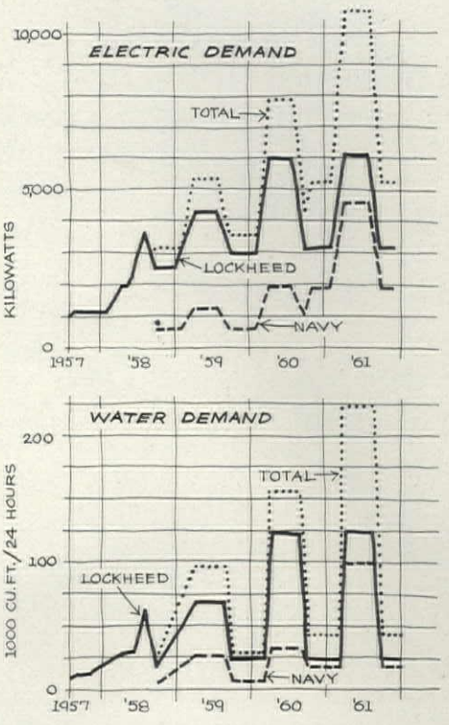
To relieve the immediate traffic situation, he suggested that Lockheed break its growing work force into four staggered day shifts, timed so as to avoid a snarl of simultaneous in-and-out traffic. This also kept parking areas to manageable size, so that no employee would have to walk more than 1,500 feet from his car to his work bench.

For the longer term, Russell's traffic consultant, Jackson Faustman, worked with state highway engineers on new traffic patterns, and helped them to speed up their improvements program for the Sunnyvale area. New tributary roads were set for earlier completion and an overpass was planned on U.S. 101. A better entry system to the plant was worked out, and potential traffic jams where other industries might locate in the area were charted. The study revealed that the eventual development of the site was limited not so much by its own size and internal design, as by the public road system in the area. As a result, the original target of 2 to 3 million square feet of building area was reduced to a maximum of 1.7 million square feet.

Within the site, Russell laid out a five-year, seven-stage master plan for buildings, internal roads, parking, drainage, and utilities, all timed, insofar as possible, to jibe with the plans of the region's official agencies and utility companies. (Some offi-



Projected growth in terms of buildings, employees, and cars was plotted on one chart to show the effect of the split shifts proposed by the planners.



Demands for utilities were estimated, giving utility companies lead time to provide increased services. Similar charts were made for gas, telephone, sewage.

Architect Russell (right) discusses site plan with Lockheed Manufacturing Chief Daniel Gribbon (left), Assistant General Manager Herschel Brown.

cials were so delighted at Lockheed's cooperation that they went out of their way to expedite land acquisition and road improvements.)

Among Russell's recommendations for the site itself: a one-way perimeter road system around the buildings to simplify traffic flow, the closing of short existing roads to make way for a pedestrian entrance plaza outside the plant cafeteria, and a new program of drainage and flood control to solve the problem of low land adjoining lower San Francisco Bay. Russell's report also helped Lockheed keep Pacific Gas & Electric apprised of its power needs a year ahead, since the development's total power demand would jump from 1,400 kilowatts in 1957 to an estimated 10,750 kilowatts by 1961 (graph, above right). Construction of a standby gas plant was recommended for anticipated shutdown periods; sewage demand and future sewer lines were charted; telephone demand was predicted to give the telephone company ample lead time to provide equipment and service.

As for the buildings themselves, the big factory units (160 by 600 feet divided into 40 by 60 foot bays) were adaptable enough as manufacturing space, said Russell, but lacking in natural light and view. Administrative offices, housed in virtually the same type of high-ceilinged structure as production areas, wasted cubage and imposed unnecessary foundation expense. Space was divided by low-cost semipermanent partitions that would have to be torn down and rebuilt to accommodate future changes. Electric and telephone lines dropped down to desks from overhead, creating a clutter that could be eliminated in future buildings by underfloor systems. The one-color scheme predominating in all buildings, Russell felt, should be discarded in favor of a multicolor scheme that would attain better building identification and higher employee morale. Outside, Russell asked for careful integration of landscaping to do specific jobs instead of arbitrary placement of trees and bushes for "effect." He also called for a restudy of the cafeteria terrace to include walls, permanent benches, and shade trees connected with the new employee entrance plaza, and for improvements designed around a new traffic pattern for the administrative entrance.

The Lockheed executives who demonstrated their concern with good planning by commissioning the report have now shown their seriousness of purpose by starting to carry out many of its proposals. They believe that thorough long-range plan of this kind is a guide to the future that few industries can afford to be without. Regrettably, many industries still are.

F. L. "BUB" THOMPSON

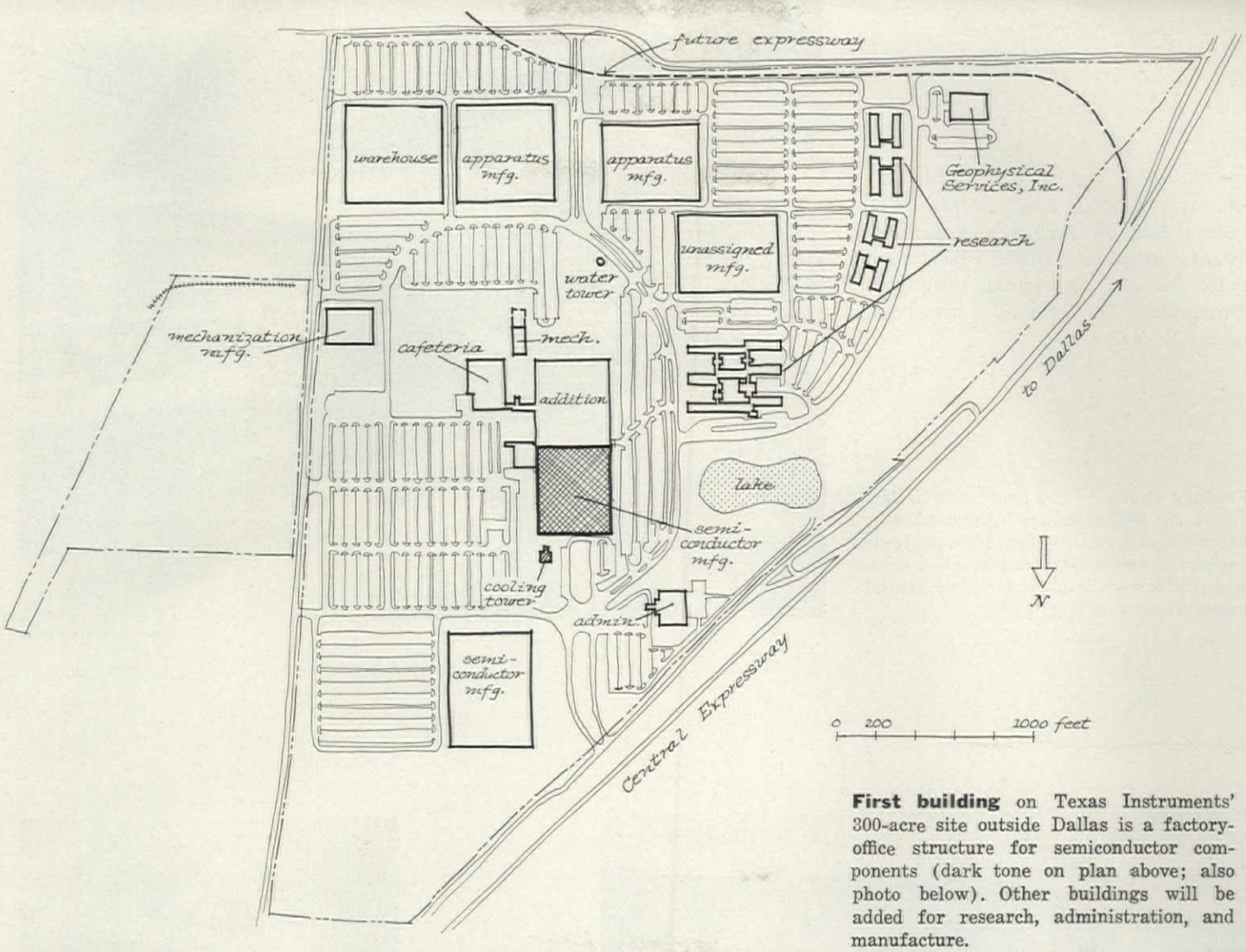
2. In Dallas, Texas Instruments builds a 300-acre industrial park with amenities for both staff and suburban neighbors.

Eleven miles north of downtown Dallas, where the city's Central Expressway bends out into rolling farmland, Texas Instruments, Inc. and its architects have started building a 300-acre industrial development as noteworthy for its overall planning as for its initial architecture. Even while under construction, the first building (above), a $5-million factory for transistors and other tiny semiconductor components, aroused interest among architects and industrialists because of its space-framed "upstairs basement" that would serve factory space above, offices and laboratories below (FORUM, September 1958).

Now completed, this new building is a strikingly pleasant place to work. Employees passing through glass-walled corridors catch frequent glimpses of the lively planting and paving patterns that adorn two central courts (see overleaf). In addition to a full-size cafeteria, snack bars on both floors dispense some 5,000 free cups of coffee a day, and workers take their cups out into the courts to relax.

Outside, landscaping and terraced parking lots hint at the future development of the big industrial park (see site plan, above right). The project, as Site Planner Sam Zisman puts it, "starts with the open spaces, instead of the buildings." A grove of trees high on the site has been designated as a valuable asset, and the main internal road looped through the grove to discourage its use for other purposes. A depression at the front of the site has been reserved for a lake, or lakes, that will serve as an introduction to the high central building when seen from the expressway. Parking spaces are scattered and terraced to be as unforbidding as possible.

Within this open framework of predetermined elements, actual buildings can be designed for specific uses, and placed to grow together with a measure of grace not often found in developments planned a bit at a time. To insure proper adjustments of the scheme to any future needs, Zisman's planning services have been made part of a continuing contract.



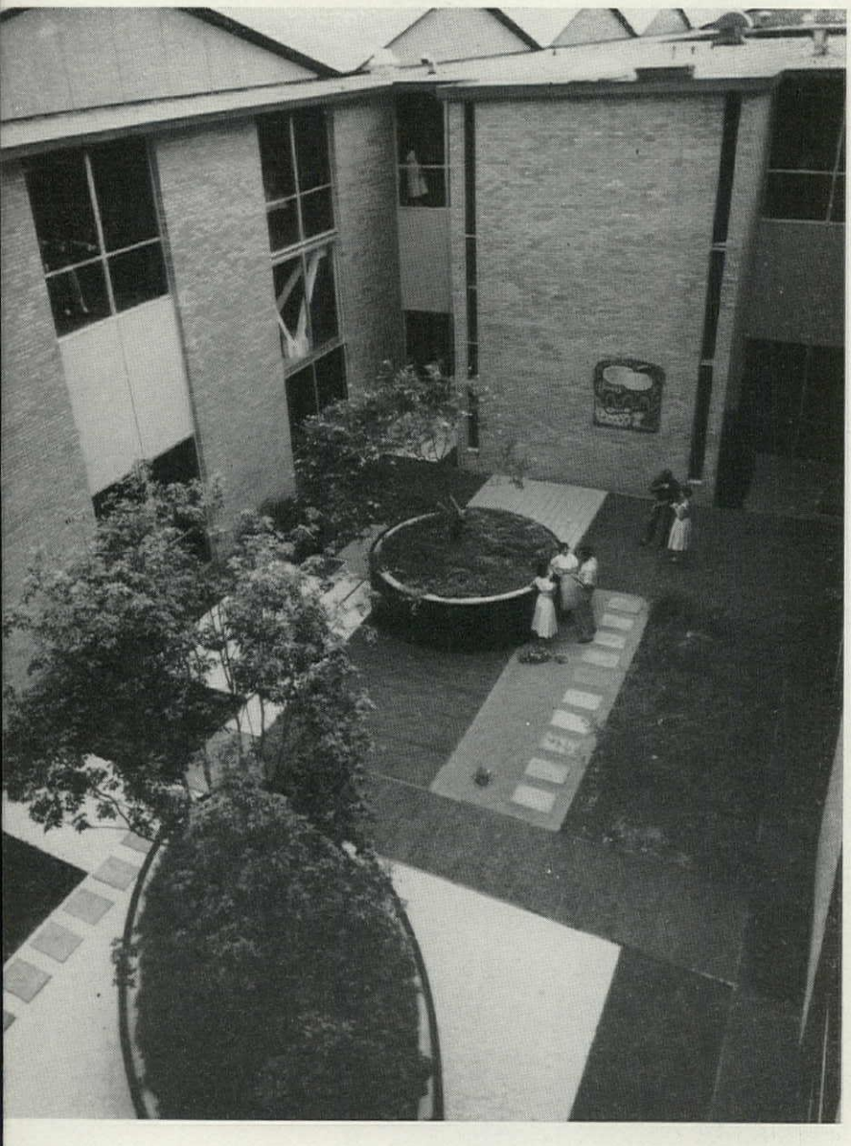
First building on Texas Instruments' 300-acre site outside Dallas is a factory-office structure for semiconductor components (dark tone on plan above; also photo below). Other buildings will be added for research, administration, and manufacture.

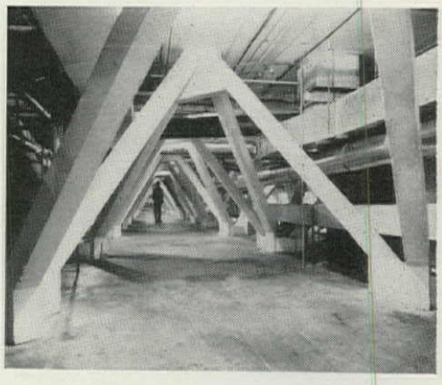
N. BLEECKER GREEN

ARCHITECTS: O'Neil Ford and Richard S. Colley; Sam B. Zisman and Arch B. Swank, associates. SHELL CONSULTANT: Felix Candela. MECHANICAL ENGINEERS: Thermotank, Inc. GENERAL CONTRACTOR: Robert E. McKee.

Factory space on the upper floor is laid out in big 63-foot-square bays which may be arranged for many uses. Here dextrous workers assemble tiny transistors in dust-free plastic workboxes, under experimental mercury-vapor ceiling lights.

PHOTOS: N. BLEECKER GREEN





Space frame of precast concrete tetrapods 9 feet high allows maintenance men to work between floors, repairing or rerouting complex ductwork, wiring, and piping to floors above and below through access holes spaced every 10½ feet.

Central courtyards with gay paving patterns welcome workers during coffee breaks. The wall of the stair well, faced with warm Mexican brick, displays a ceramic panel of electronic symbols by Tom Stell. The between-floors space frame may be seen through the glass at left.

Sheltering roof line of the new factory (right) defines the walls of white Georgia marble and gray anodized aluminum above the recessed office-laboratory floor. Rocks, gravel, and planting make a handsome setting for the building.

3. In St. Louis, McDonnell Aircraft provides employees with a pleasant environment—and basement bomb shelters.

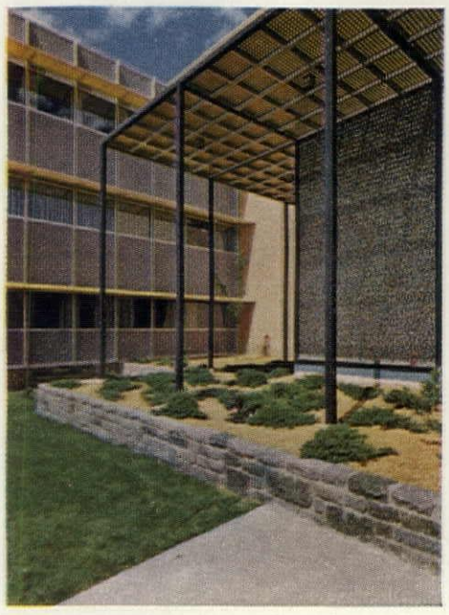
Sitting atop roomy bomb shelters (capacity, 7,000) near the St. Louis airport is this new technical center for the McDonnell Aircraft Corp., a firm that is fully aware of the necessity of attracting engineers with good facilities and interesting surroundings.

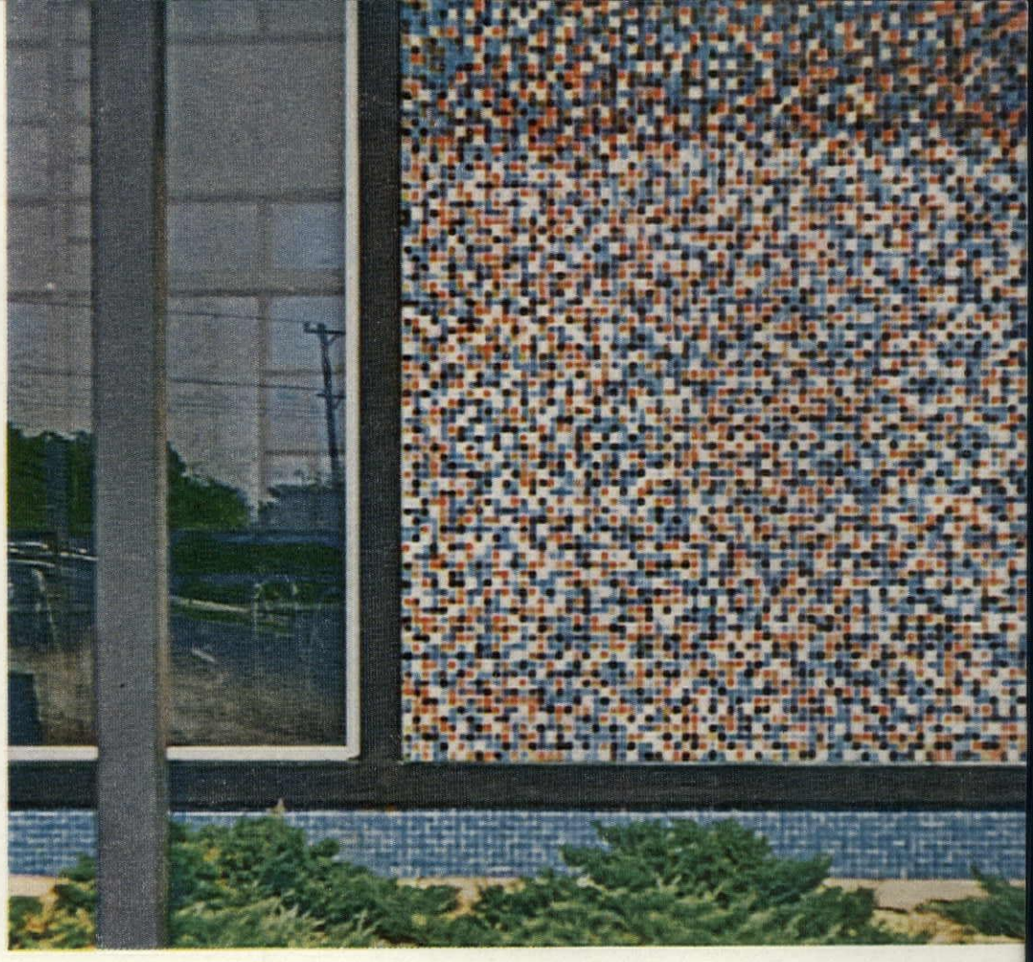
No manufacturing goes on here. This is a ". . . new kind of work environment especially designed for creative thinking and effective achievement in the airplane, missile, and helicopter fields." Here the slide rules and digital computers are accompanied by the soft splash of spray fountains (which also serve the air-conditioning process) and by a glittering array of colorful materials designed to nudge the imagination. The $7,580,000 installation was put together on an odd-sized (5-foot) module that required custom prefabrication of the curtain walls, but nevertheless the de luxe environment cost only $20 per square foot—not counting the shelters, which upped the price $2.50 per foot. The shelter cost, however, is offset by favorable tax treatment.

The four wings of the plant are simple in plan, mostly devoted to drafting space, but they are angled across the plot, east and west, to eliminate sun glare. This orientation also helps the air conditioning.

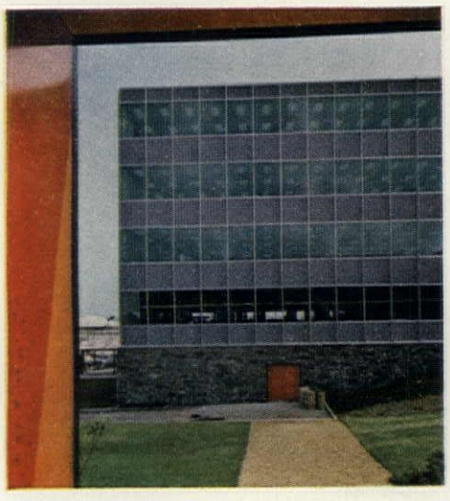
Between a sea of cars and two pleasant spray pools stretch the four wings of the new technical "campus."

Entrance canopy has its posts planted in a small pebble garden. At the right is a detail of the tiled wall under the canopy.

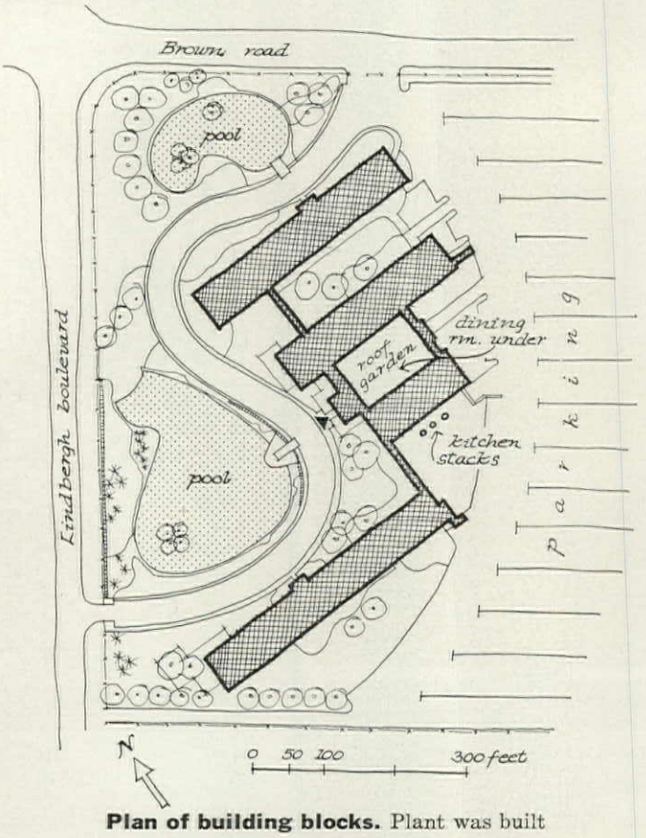




PHOTOS: BALTAZAR KORAB



Curtain wall is porcelain on steel in an aluminum frame. Module of 5 feet, rather than the conventional 4, was adopted in order to create wider offices than usual.



Plan of building blocks. Plant was built in two stages, first the wing shown at top, then the rest.

Roof garden over the dining room houses a full vocabulary of garden charm. Eyebrows over the windows are plastic.

Tapered stacks are ventilation exhausts for the underground kitchen (located to serve the 7,000-person bomb shelters as well as the first-floor dining facilities).

Drafting rooms, a major component of the buildings, are simple and orderly.

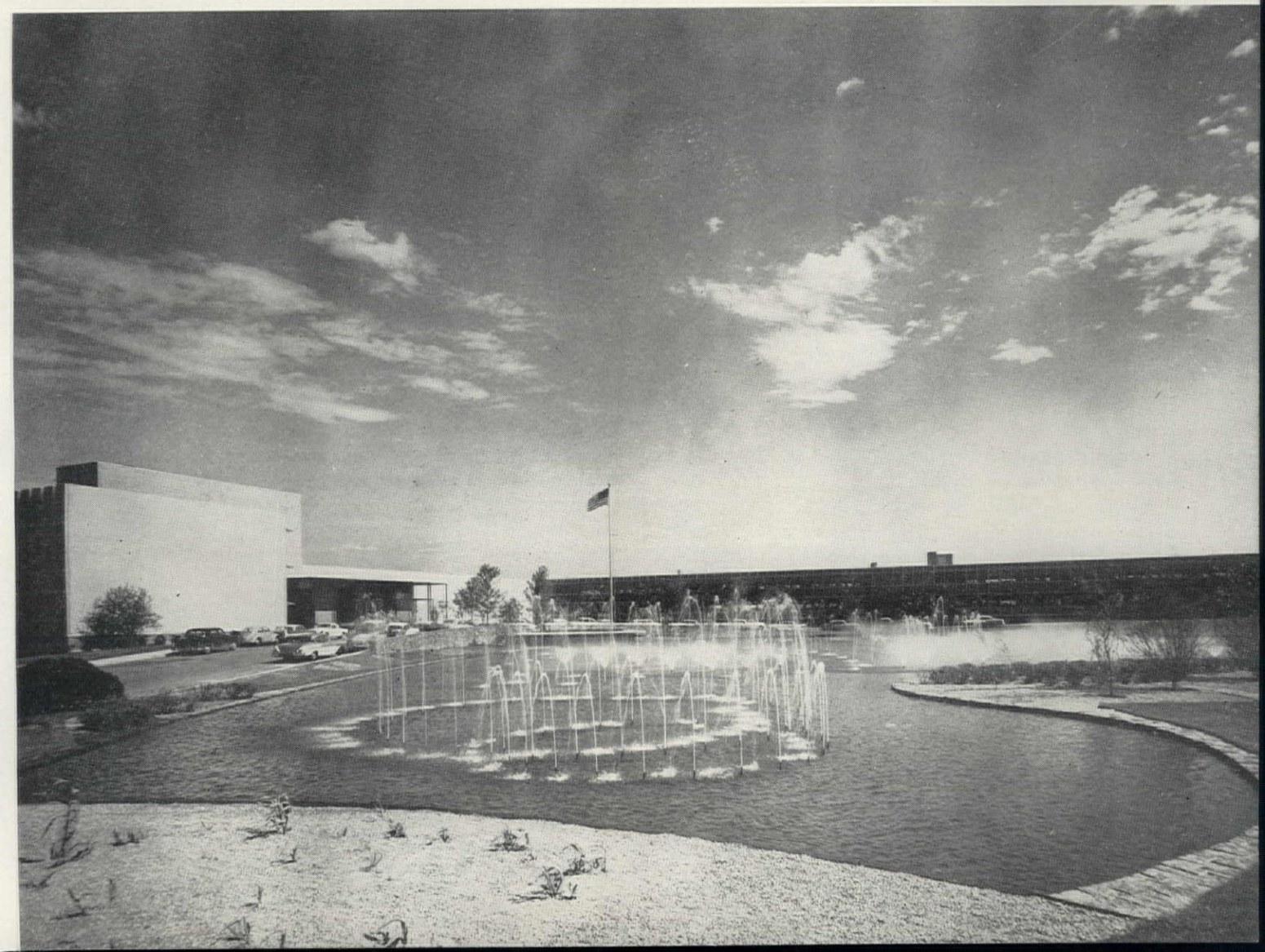
End wall is limestone. Entire plant sits on a granite base, contrasting strongly with curtain wall.

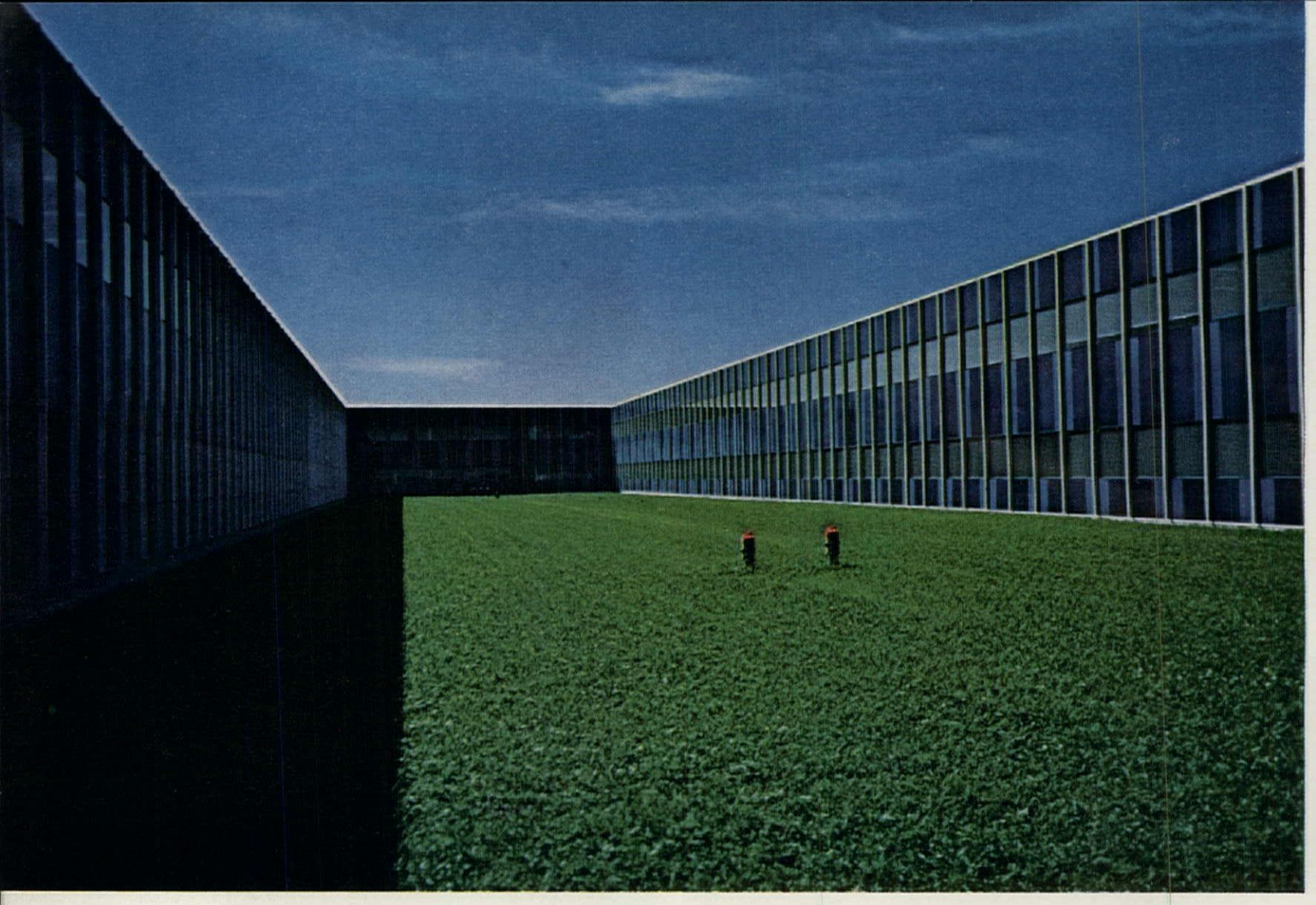
PHOTOS: BALTAZAR KORAB

Glass entrance wall faces west, is shaded in late afternoon by a sliding screen with stained-glass inserts.

ARCHITECT: Harris Armstrong. LANDSCAPE ARCHITECT: Harriet Moore Rodes. LANDSCAPE CONSULTANT: Thomas Church. STRUCTURAL ENGINEER: Leslie J. Bergmeier. MECHANICAL ENGINEER: Belt & Given. ELECTRICAL ENGINEERS: Joseph A. Mayer; Belt & Given. GENERAL CONTRACTORS: Gamble Construction Co.; MacDonald Construction Co.

Spray pools — large and irregularly shaped — help reconcile this diagonally oriented structure to its site.





The industrial mood set by IBM's new plant is a vibrant departure from yesterday's dreary factories.

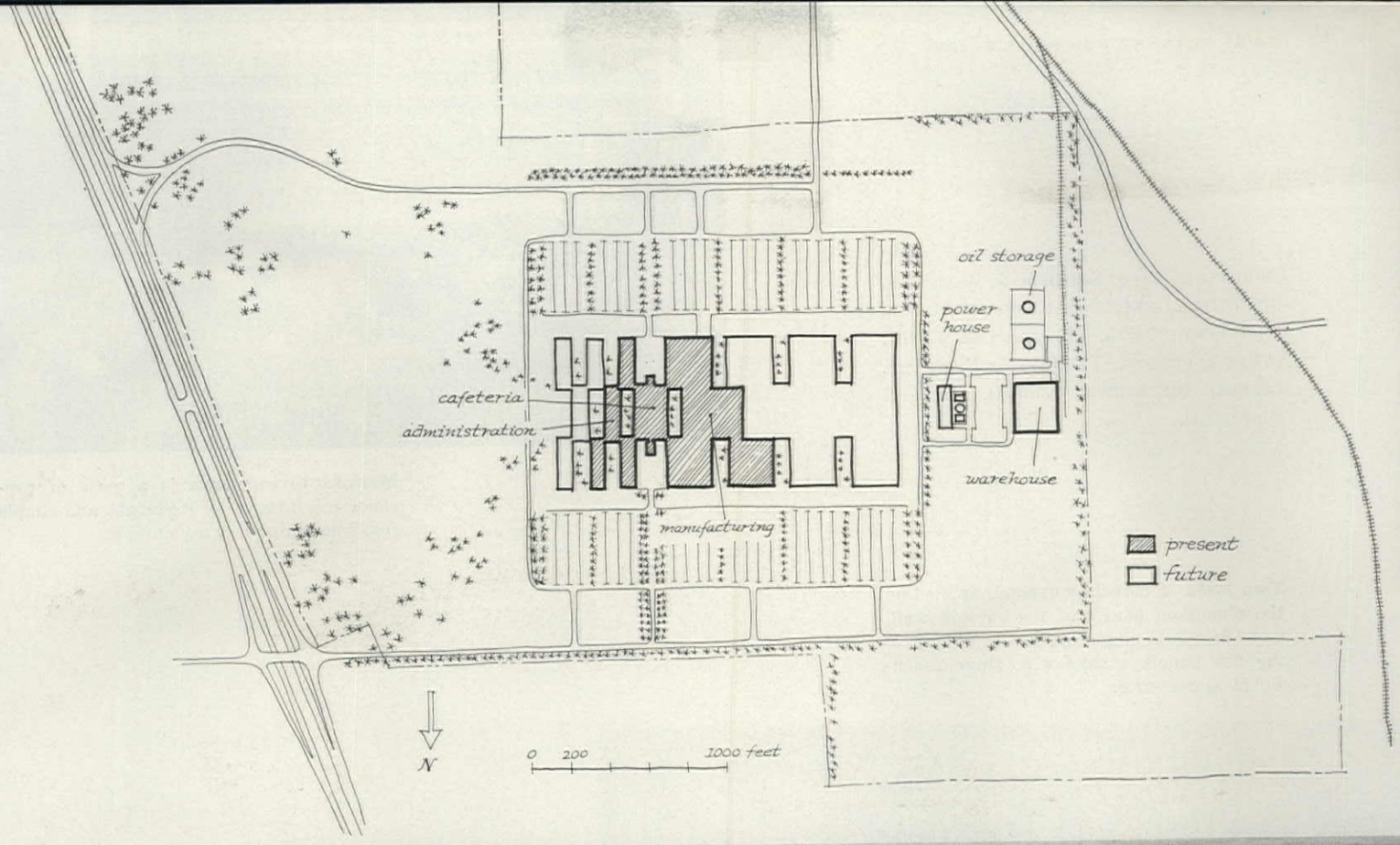
FACTORIES PLANNED FOR PEOPLE

4. In Rochester, Minnesota, IBM joins the community in preserving the rural surroundings of a new prestige plant.

The vivid blue hues of the porcelain-clad walls shown above vibrate stylishly against the lush green farmland which surrounds IBM's new plant in Rochester, Minnesota (and they will vibrate even more stylishly against Minnesota's standard winter snowscape). Geographically the plant fits into IBM's new program of decentralizing its manufacturing facilities; architecturally it fits the company's recent practice of building plants to serve also as corporate advertisements.

Technically the structure is as progressive as one of IBM's own giant computers. An unusual geometric layout of small and large blocks is penetrated by green courts. The plant itself is sheathed in a new factory-produced panel wall whose dimensions cannot adequately be described by that recent standby of architectural terminology, *sandwich panel*. This panel is more of a *wafer*. Just 5/16 of an inch thick, it has two surfaces of porcelain-enameled aluminum with a special asbestos-cement core. The structural strength of the curtain wall comes from its aluminum mullions, extruded in sections like railroad tracks. The coloring is an arbitrary two-tone design by the Saarinen office that makes the long factory walls look divertingly three-dimensional. This same wall pattern encloses the entire plant—factory, executive offices, labs, and classrooms.

This plant's rural surroundings will probably remain rural. Some firms move out to the country but then enjoy the view of trees only for a little while; soon there are neon signs between the trees, as the city sneaks along after its manufacturing citizens. Between IBM and Rochester, however, there is an understanding. IBM wanted Rochester for its people and general location. Rochester wanted IBM for its opportunities in payroll and prestige. A citizens' committee which had been formed to attract industry to the city and its outlying towns arranged the marriage between the willing parties, and dowered it by zoning only this parcel for industrial construction, not the land around it.



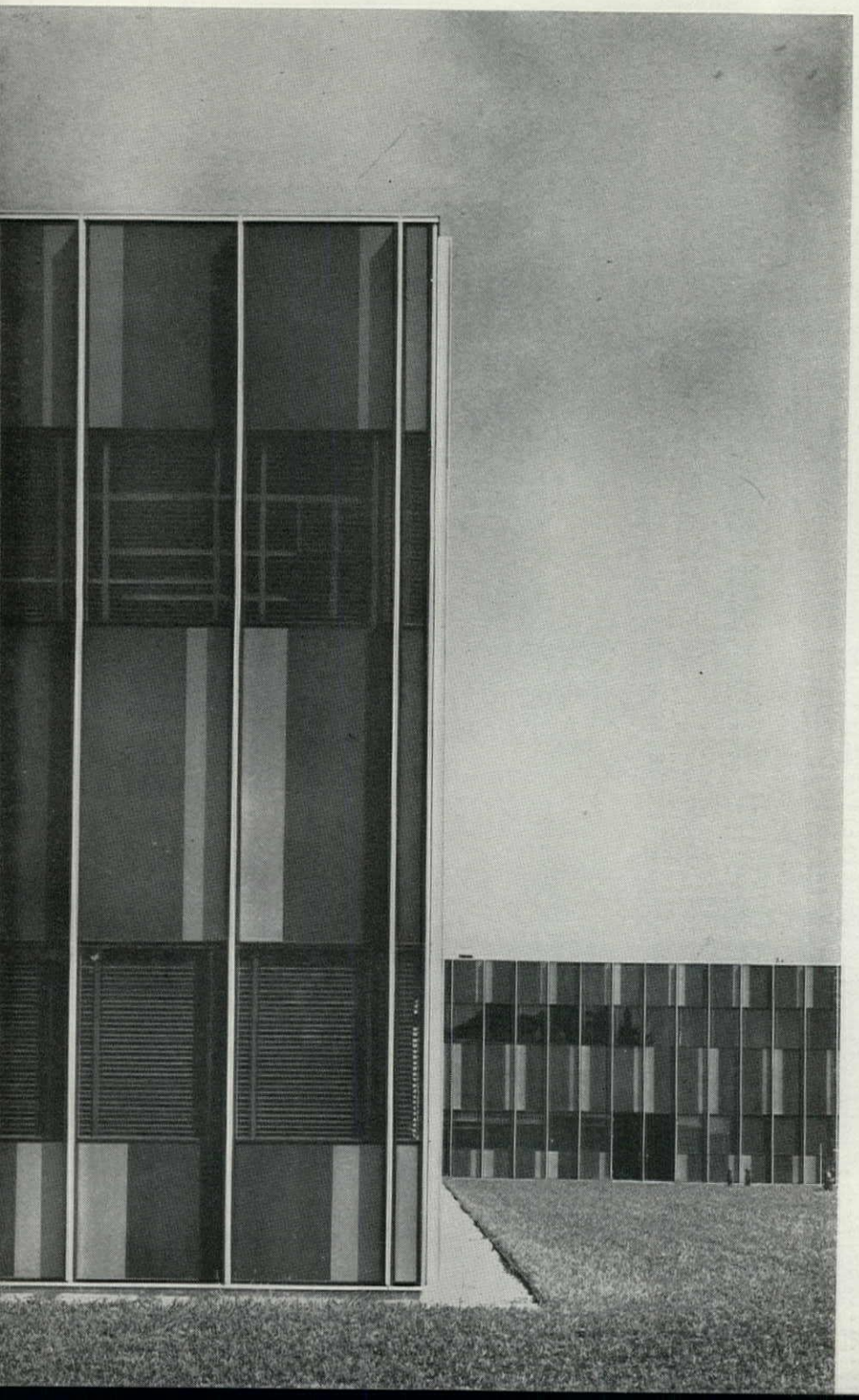
Building blocks for the factory's checkerboard design came in three sizes: large ones for manufacturing areas, a middle-sized one for the cafeteria, and smaller rectangles for offices, labs, and classrooms. The factory represents a major departure from the conventional, single-block type of "modern" plant.

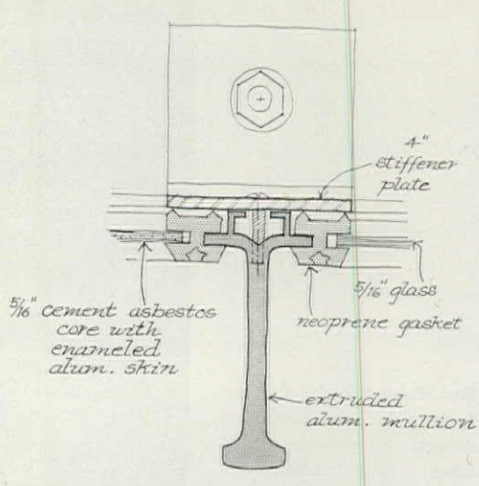
PHOTOS: BALTAZAR KORAB

ARCHITECT: Eero Saarinen & Associates.
STRUCTURAL, MECHANICAL, AND ELECTRICAL ENGINEERS: Smith, Hinchman & Grylls.
OTHER ENGINEERS: The Chester Engineers.
GENERAL CONTRACTOR: Johnson, Drake & Piper, Inc.

Manufacturing area is a maze of precision machinery, but its height and simple construction give it a calm air.

Two hues of porcelain enamel, applied on the aluminum panels of the curtain wall, were fired in a single operation. They give the flat panels a shadowed, three-dimensional appearance.





Wall section shows how neoprene gaskets grip and seal the glass and the aluminum-surfaced panels. Largest of these are 4 by 8 feet. In the office section the interior finish is a vinyl-metal laminate. The thin panel has good insulating qualities (U factor: 0.241).

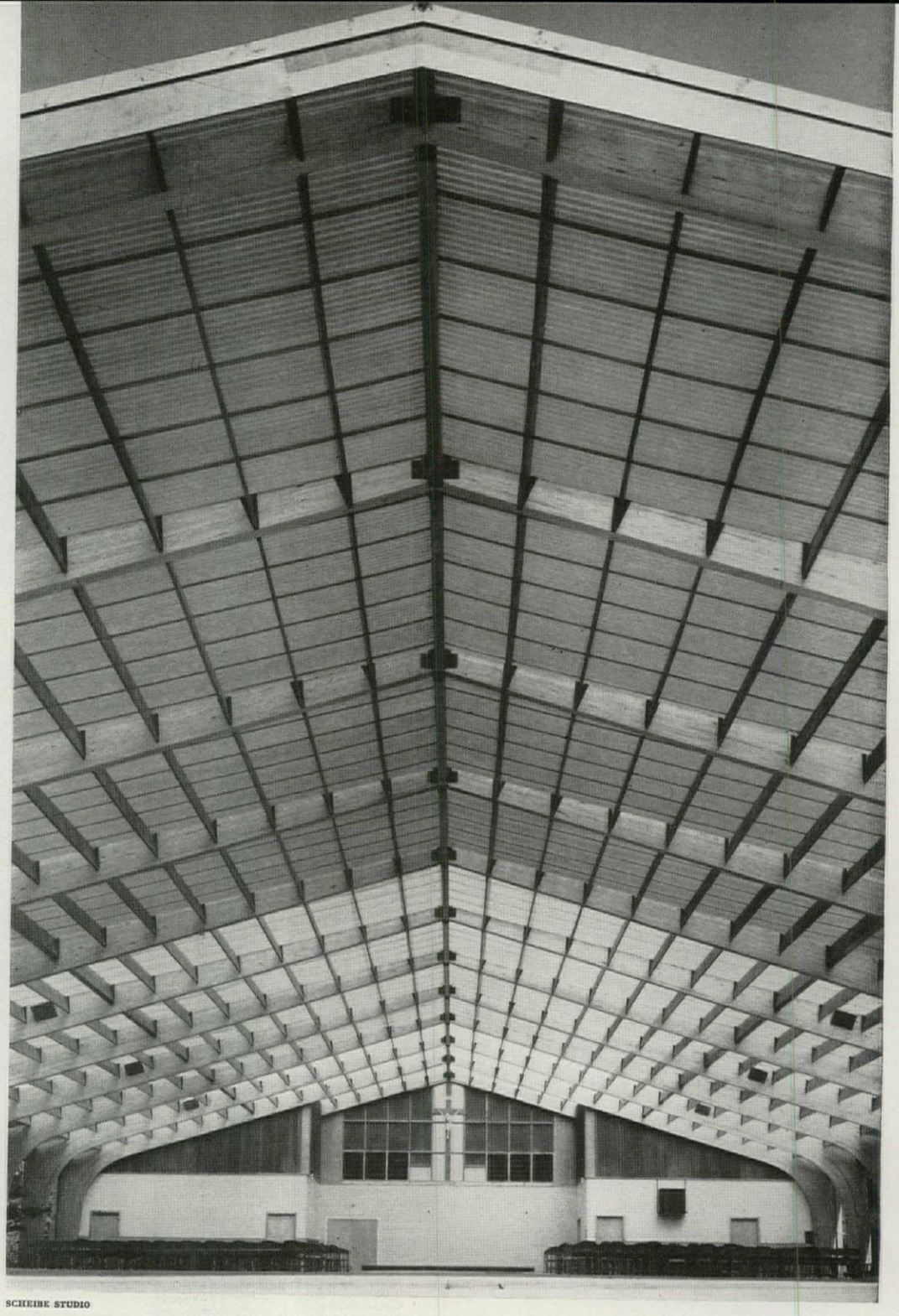
Glass-walled corridor is also a runway for overhead piping from block to block.

Reception area, simply finished and furnished, is a good stage for company displays. This plant employs 1,500 people, has 280,000 square feet of manufacturing space, 288,000 square feet for other uses.

Spare, slim structure of the buildings is not even laden with a signboard. Instead IBM's symbol is displayed on the earthen embankment out front. END

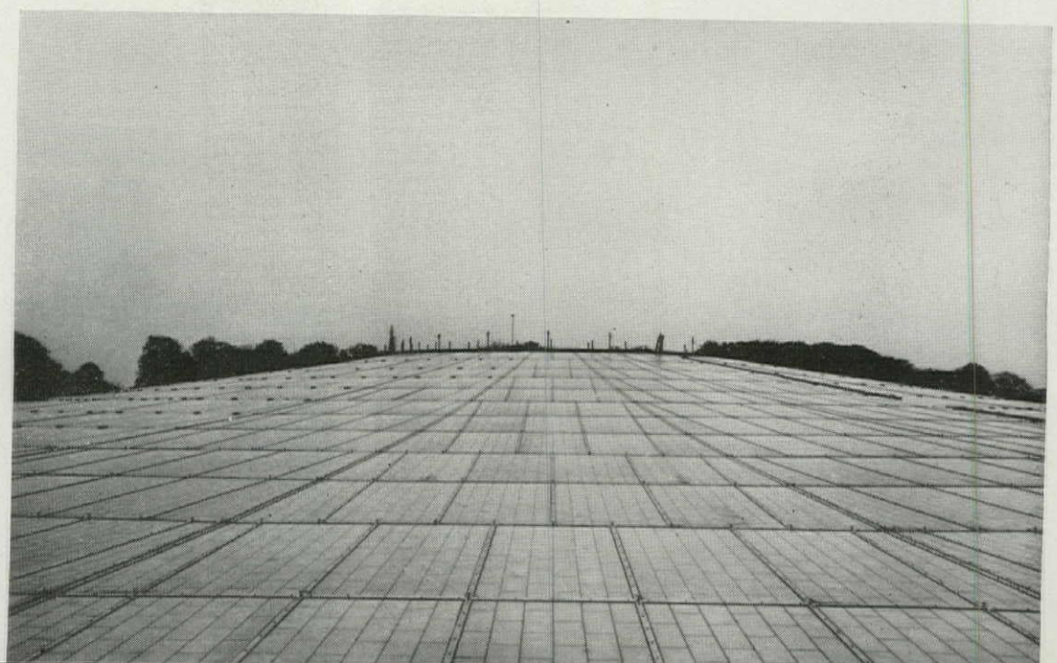
PHOTOS: BALTAZAR KORAB

Technology



SCHEIBE STUDIO

TRANSLUCENT PANELS of reinforced polyester or acrylic represent plastics' widest use in building, e.g., skylighting, wall siding, partitions. Roof of Our Lady of Lourdes Pavilion (right) in Burlington, Wisconsin, is covered with reinforced polyester.

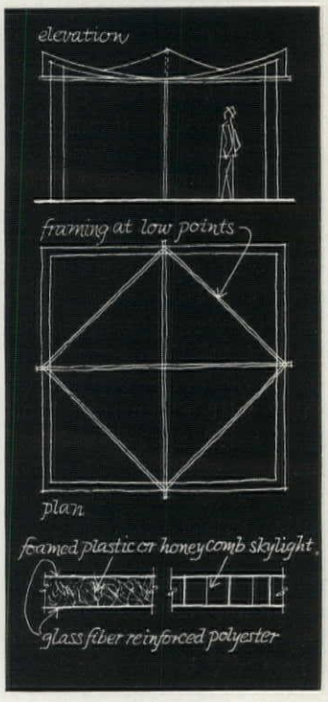


AT BRUSSELS FAIR, roof atop the U.S. Pavilion (right) consists of 2,100 sandwich panels, composed of aluminum frames and reinforced translucent plastic sheets. Panels are jointed by a flexible system of clips, tee extrusions, and bolts.

New chemicals and new ideas are changing some of yesterday's concepts of roof construction.

Age of the plastic roof

BY DAVID ALLISON



SITE-CAST PLASTIC ROOF. In Oregon, Architect H. H. Waechter is experimenting with cast-in-place plastics in a small parabolic roof (sketched above). Skins of reinforced polyester enclose an insulating layer of plastic foam; panels are 1½ inches thick.

The chemical industry is assaulting the building field with some startling new concepts of roof construction. The innovations range from such spectacular structures as the huge plastic doughnut which hangs over the U. S. Pavilion at the Brussels World's Fair (opposite page, bottom, and page 104), to the less daring but more functional developments in plastic roof components shown on the following pages.

The roof of the Brussels Pavilion is probably the boldest plastic roof yet built. It is not a design which is likely to be copied, because its 2,100 sandwich panels — formed of aluminum frame and glass-fiber-reinforced plastic —were built to meet the very distinct demands of easy dismantlement. But the structure's popularity and technical success has dramatized the capabilities of plastic roofing materials.

U. S. designers, for example, are currently considering the possibilities of similar plastics for use in thin-shell roof structures. Out in Oregon, Architect H. H. Waechter is experimenting with a revolutionary reinforced polyester roof which is cast at the building site (sketches, left). A thin layer of glass-fiber-reinforced polyester is cast on a wood form; over this skin a thicker layer of plastic foam is sprayed or shaped from preformed planks; then a second layer of reinforced polyester is cast over the foam core, forming a second skin of the sandwich.

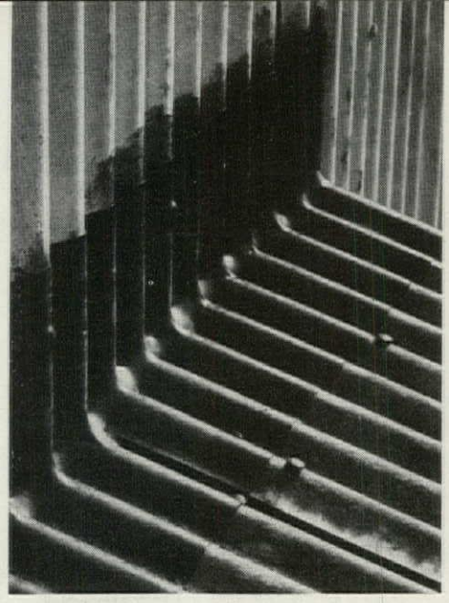
Both the Brussels building and this cast-in-place system are radical extensions of a plastics application which has been common in building for more than a decade: the plastic skylight. Within the next couple of years, an abundance of new roofing materials, with properties vastly superior to those of the traditional materials of today, may be expected to come on the market. Many of these, stemming from research within the chemical industry, will stimulate new design concepts in architecture. Indeed, the significance of these developments in chemistry is vastly heightened by the fact that there is a fast-growing trend in architecture toward free-form shapes—like hyperbolic paraboloids and the shells. Only by embracing these new chemicals can many of these shapes be made practicable as well as esthetic.

None of the new materials discussed on the following pages was known to building ten years ago, yet several of these synthetic materials are in wide use now, e.g., the thin, tough, vinyl films, which provide excellent vapor barriers within a roof's body, and the colored synthetic rubbers, which serve as surface coatings on roof shapes that would be too steep for conventional materials, such as asphalt, which would slide off. Thus, one advantage of these two materials, as well as other materials still in development, such as foam-in-place insulating plastics, is their ability to conform to architecture's new shapes. And architects are urging their early cultivation in order to free themselves from design restrictions.

A $35 million fire

But it is fire, more than esthetic demand, which is fomenting the revolution in roofing. Indeed, the most significant event in roofing within the past decade was probably the fire which destroyed General Motors' $35 million automobile transmission plant in Livonia, Michigan in 1953. That great plant's 1½-million square-foot asphalt roof fed the fire by dripping combustible asphalt into the flames; yet, by accepted standards of the time, the roof was one of superior quality. Since Livonia, traditional methods of roof design, and traditional roofing materials, have undergone drastic scrutiny.

The building industry has discovered that certain plastics (e. g., polyvinyl chloride), can reduce the hazard of fire appreciably. And the builders have also come to realize that these new plastic

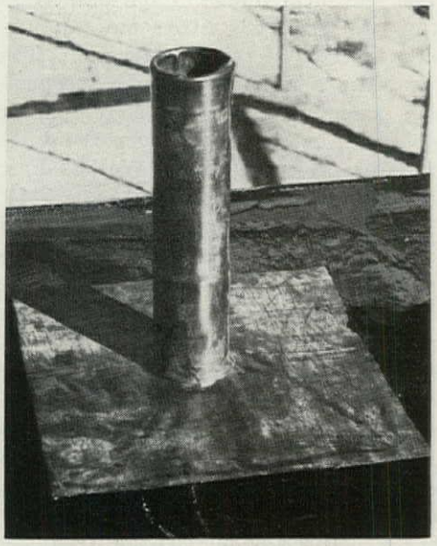


PLASTIC FLASHING, applied here to corrugated building surface and vent stack, is a thermoplastic sheet of vinylidene chloride copolymer. Only elements required to install it: scissors and solvent, which acts as a bond. Material is fire-retardant, resists acids and alkalies, gas and oil. One of the first buildings to use it will be the Pan American terminal at Idlewild.

materials have certain distinct advantages, entirely apart from fire retardation, over the conventional materials that have been used for generations. Indeed, plastics generally have contributed relatively little as yet to the reduction of fire hazard, and some of the new materials are combustible. But most of them do not feed fires and many are beginning to find acceptability in building because of certain other qualities, e.g., pliability, translucence.

The plastics' biggest disadvantage has been their high cost. Often the new materials run two or three times the cost of conventional roof materials. They have also had to overcome the building industry's unfamiliarity with them as materials of construction. But both these obstacles are diminishing as the chemicals gain wider use.

And when chemists and contractors learn to spray entire roofs in place, in any shape, any color, any size, without the expensive formwork required for concrete, the role of plastics in roofing will be assured. Architects describe this prospect hopefully as "plastic sprayed on chicken wire." Says Architect William Caudill: "We need a material which will serve both as a roof and a ceiling, that will help us solve the joint problem—something that will perform like concrete but perform better, cheaper, look better, and weigh less." And C. Theodore Larson, professor of architecture at the University of Michigan, is looking for a flexible material which "can be tucked around the structure like a bed sheet." Far from being outlandish, these wished-for materials may be only a year or so away: Owens-Corning Fiberglas, for example, is now developing a single member waterproofing membrane—either colorable or self-colored—for thin-shell roof structures. And certain chemical producers, though less inclined to reveal the nature or extent of their work, indicate active interest in the development of such a material.



Flashing, insulation, and vapor barriers: the unseen plastics

The plastic materials shown on these two pages are the more conventional plastic roof components that have come into wide use over the past decade—as insulation, vapor barriers, and flashing. Before the development of polyvinyl chloride sheet (opposite page) and polyethylene, it was virtually impossible to construct a roof which performed properly as a vapor barrier; today, many roofs are constructed using these materials, including conventional, built-up roofs; the plastic sheet prevents water vapor from passing into the insulation either from the inside or outside. This is an important consideration in air-conditioned structures, because excessive moisture migration into the insulation can cause deterioration of the roof.

The foam plastics, though only slightly used as insulation in roofing today, are expected to pour into new construction in sharply increasing volume in the next two years. By 1960 building use is expected to reach 60 million tons a year. Of the ten or so families of foams (FORUM, March 1957), only one, polystyrene (photos, right), has been available to builders very long, and its principal applications so far have been outside the building field, as insulation in refrigeration cars and icehouses. Lately, however, polystyrene foam has been gaining rapidly in building as a sandwich panel core and is finding growing acceptance as a perimeter and cavity wall insulation, as well as an insulation-plaster base. Dow Chemical Co., its leading developer, has offered it as roof insulation material. In most respects, polystyrene foam compares favorably with other roof insulators, such as wood fiber board and foamed glass. One of its principal advantages is its closed-cell structure, which makes it nonabsorbent. Its chief deterrent in roofing thus far is the fact that it shrinks if hot-mopped with asphalt, thus reducing the effective insulation thickness. But Dow is ready to introduce a new roof board, also based on polystyrene, which will overcome this disadvantage.

Other foams, such as the vinyls and the phenolics, also look promising for roofing use (see chart, page 149). One or more of these, including polystyrene, may soon be developed for foam-in-place application as insulation, a technique which would eliminate the need for joints between sections of insulation, as well as reduce the cost of large, bulk shipments. Urethane foam—a newcomer in the field—can be foamed in place now, using a portable spray unit and two resinous compounds; the resins react upon contact with each other, foaming up in a matter of seconds. U. S. Steel has used urethane panels in two commercial buildings and is experi-

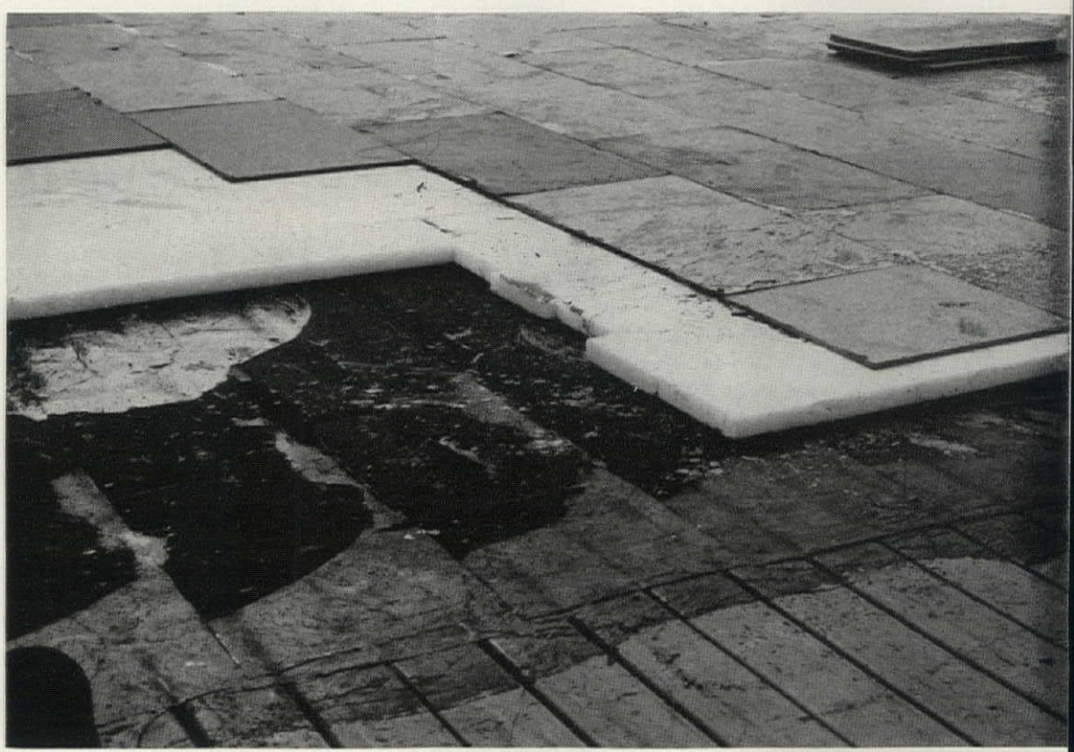
TEXLER PHOTOGRAPHY

VAPOR BARRIER of polyvinyl chloride sheet (photos left) is applied to roof surface before insulation is put down, preventing moisture migration from within the building into the insulation. This vinyl material is fire-retardant, making possible a much more fire-safe structure than would be possible with conventional roofing materials.

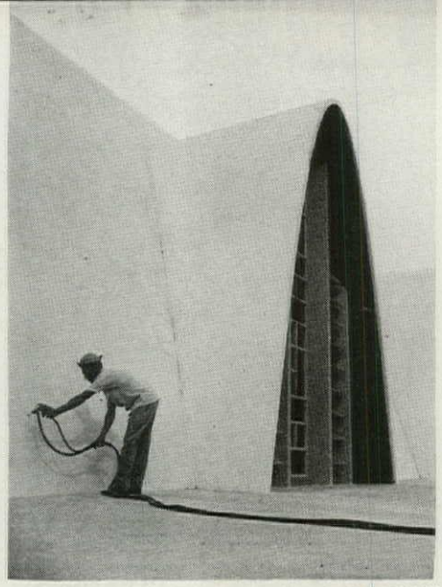
menting with them in prefab house paneling. But the problem remains that the technique of applying the material is difficult to master and, furthermore, it is costly: about twice as expensive as installing foamed styrene board.

Another roof component that may soon be made of plastic is flashing. Heretofore, flashings were made almost exclusively of felt and a small group of metals: copper, lead, aluminum. But for the past nine years, Dow Chemical has watched the behavior of a plastic flashing—developed by Dow—on the roofs of a number of its own buildings, in Michigan, Texas, Louisiana, and elsewhere. According to Dow, this vinylidene chloride copolymer sheet displays characteristics which seem clearly superior to felt and metals. For example, the plastic sheet is waterproof, weather-resistant, conforms to nearly any contour, and forms a waterproof seal around nails driven through it. Its cost to the roofing contractor is about 50 cents per square foot, which is more than the cost of felt or aluminum, but less than that of copper or lead. Dow has been marketing the material for about a year; one of the first structures on which it will be used is the Pan American terminal building (Architects: Tippetts-Abbett-McCarthy-Stratton) at the new Idlewild Airport. Dow is reported to have guaranteed it for 15 years.

These materials—insulation, vapor barriers, and flashing—are the unseen components in the roof; they lack the instant esthetic appeal of certain other roof elements, such as the translucence of reinforced panels and the wide color range of the synthetic rubbers, for their function is simply one of providing a good, weather-tight, fire-retardant roof, while the function of the other components is esthetic. But the advent of the unseen plastics is as significant as any development in the field, for it enables construction of high-quality roofs, worthy of the buildings they cover.



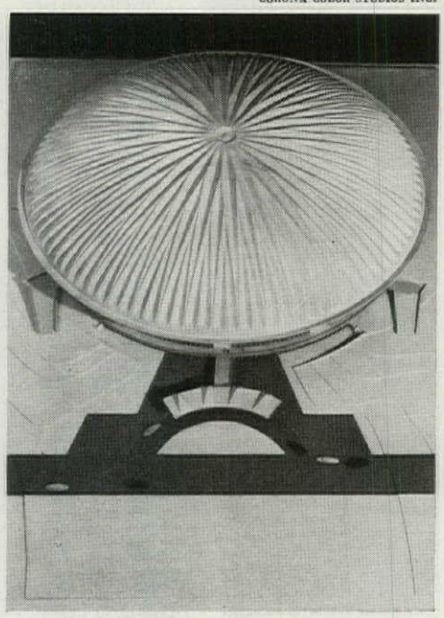
FOAM INSULATION. Foamed styrene has been used as roof insulation only recently; one limitation has been foam's tendency to shrink under hot-mopped asphalt. But new foam board, developed by Dow Chemical, will stand up under hot-mopping. More insulating foams (see chart, page 149) are being developed by other firms.



FLIP SCHULKE
CORONA COLOR STUDIOS INC.

PLASTIC COATINGS atop roofs of Puerto Rican church (left) and Illinois University hall (below) make these roof shapes both practicable and esthetic. Conventional coatings would slide off roofs' steep slopes. Church is coated with a spray-on synthetic-rubber-based compound; hall, yet to be built, will have same coating or a spray-on vinyl.

Chemical rooftops: plastics and elastomers cover the free forms



The two buildings shown in these photographs illustrate still another group of chemical compounds which are gaining prominence in roof construction, i. e., the roof coatings. Because of its unusual shape, the concrete roof of the Santa Maria Reina church (top photo) had to be covered with a chemical compound. A conventional roofing material would not have adhered. The church, in Ponce, Puerto Rico, designed by O'Kelly & Mendez, is sprayed with two layers of a synthetic rubber-based paint, 6 mils thick, developed by du Pont. The University of Illinois Assembly Hall (right), designed by Harrison & Abramovitz and soon to be built in Urbana, Illinois, will have a plastic coating on its concrete shell—either a synthetic rubber compound or a vinyl. Few buildings have used these new materials (another example is Minoru Yamasaki's American Concrete Institute headquarters building, in Detroit, shown on page 162) and, indeed, those which have are unusual structures, demanding surfacing materials with extraordinary properties, such as thinness, nonfading colors.

One reason for the spray-on plastics' limited use is their high cost, which is usually two to three times that of conventional roof coatings, such as felt and asphalt. For this reason alone, the chemical coatings are likely to be used sparingly in flat roof construction for quite a few years to come. But in thin-shell construction, which is now gaining broad architectural recognition, these materials carry overwhelming advantages; their still limited use in this field is probably due to the building industry's ignorance of their characteristics, which are outlined below and in the chart on the opposite page.

The synthetic rubbers. Still the best known of these is neoprene, which has been used for more than a quarter-century in shoe soles, white tire sidewalls, telephone wires. Only recently has neoprene been "discovered" as a roofing material, though it has good roof-surface properties. It will not become brittle at low temperatures, well below —40 degrees Fahrenheit, and will not melt or flow at temperatures as high as 250 degrees Fahrenheit. Its greatest deterrents as a roof material are its tendency, in lighter colors, to darken slowly under exposure to sunlight, and its relatively high cost—about twice the cost of conventional built-up roofing in place.

A new synthetic rubber, called Hypalon, does not discolor in sunlight and has a much broader range of colors than neoprene. This elastomer, developed by du Pont, has been used for the past three years as a synthetic rubber base for roof coatings in the Caribbean area (e.g., on the roof of the church above). The first major application in the U. S. will be on the wing-shaped roof of Eero Saarinen's Trans-World Airlines terminal at Idlewild airport. Its principal disadvantage is its high in-place cost: about twice that of neoprene. In an effort to make both these materials competitive with other surfacing materials in conventional roof structures, du Pont has been working with a number of engineering companies to develop new application techniques; for example, they are working with the Gates Engineering Co., of Wilmington, Delaware, on prefabricated roof panels for houses which are coated with 12 mils of synthetic rubber compound.

The vinyl sprays. These are the well-known "mothballing" plastics, an outgrowth of the postwar naval operation, when some 2,200 warships were sprayed with a protective coating of vinyl. In building, the vinyl sprays have been used principally as patching compounds, around gutters, valleys, flashings. They have good physical properties for roofing: excellent elasticity, good adhesion to most any dry surface, good abrasion resistance and, most important, good weather resistance. Their chief disadvantages appear to be their inability to retain flexibility under excessive exposure to utraviolet solar rays, and a tendency to lose adhesion if subjected to too much expansion and contraction.

The acrylics and epoxies. Both are promising spray-on roof-coating materials, although neither has yet had the field testing given to the synthetic rubbers and vinyls. The acrylics, for example, commonly used in sheet form as room skylighting, are known to have excellent weather resistance, though they often lack the flexibility of the vinyls and synthetic rubbers. The epoxies, which are excellent adhesive materials, gaining wide use in aircraft construction, have very good strength characteristics as roof coatings, but the chemists must develop additives to make them less brittle if they are to become important roofing materials.

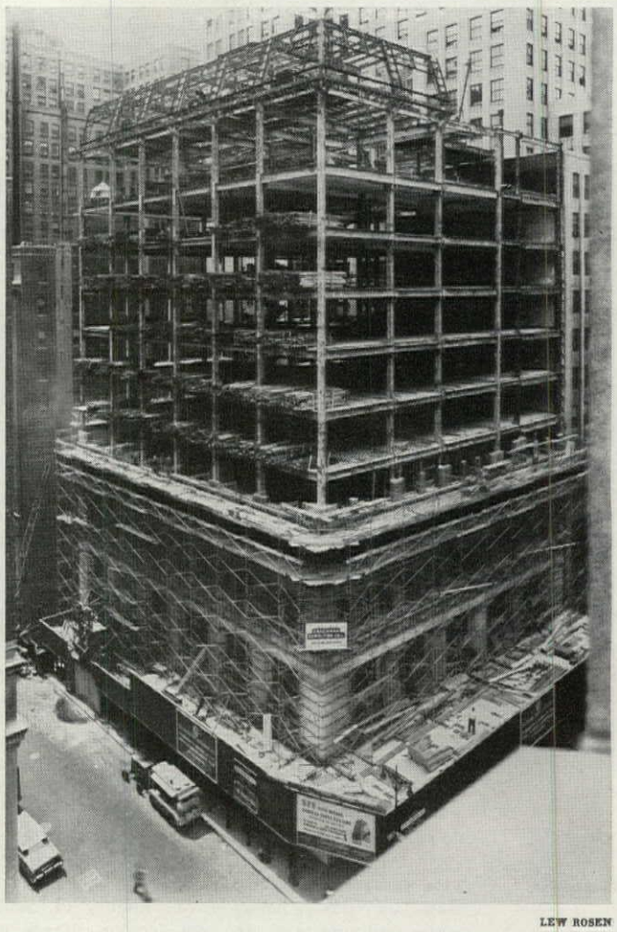
The significance of these developments, beyond the inroads made thus far by all of the chemical compounds in building, is the fact that research is being turned to roof construction, an area of building which badly needs new ideas and new materials. END

The new chemicals used in roof construction

ROOF INSULATION	Uses and potential	Advantages and disadvantages
Phenolic foam	Most uses to date have been outside the building field, e.g., in refrigeration. Ingredients are mixed in liquid form, foamed in place. If strength can be increased, especially in lower densities, the phenolics will be good insulators in core sandwiches.	Cost in place is about that of low-density styrene. Once material hardens, it will not soften; 250 degrees F. temperature tolerance is higher than styrene's. But phenolics tend to be brittle and easily crumbled, especially in lower densities.
Urethane foam	Still experimental. Work is under way on rigid foams for sandwich cores and as sprayed or poured-in-place foaming insulation, especially in hard-to-reach spaces, e.g., around steam lines. Experimentation going on for shell structures.	Urethane foams rapidly, can be formulated to harden rapidly; it bonds well, needs no separate adhesive. Temperature tolerance is high: 250 degrees F. For equal densities, cost is roughly twice that of styrene; must be applied quickly.
Prefoamed styrene	Styrene boards are used for insulation in roofing, side walls. Cost of low-density foams is competitive with many insulating materials. Standard varieties support combustion, but foam can be made self-extinguishing at higher cost.	Styrene board is easy to handle, has low moisture absorption, and is the least expensive of today's foams. But flat boards do not easily conform to complex shapes, must be tailored. Styrene foam begins to soften at about 175 degrees F.
Beaded styrene	Major use now is nonbuilding, but building experimentation goes on: for sandwich cores and complex curved shapes. Beads are expanded in place by heat, usually steam.	Beaded styrene's great asset is ability to foam in place conforming to complex shapes. But external heat source is needed; foam will soften at about 175 degrees F.
Styrene beads plus epoxy	Epoxy liquid is mixed with beads of styrene; as the epoxy cures, it gives off heat, causing beads of styrene to foam. Still developmental, technique looks promising for structural sandwiches and complex curved shapes.	The foam conforms to complex shapes. The high-strength epoxy forms a strong bond with adjacent materials, e.g., sandwich faces; epoxy allows higher temperatures than prefoamed or beaded styrene. Cost will be high and good control needed.
ROOF COATINGS: FOR WEATHER PROTECTION AND COLOR		
Vinyl spray	First used ten years ago for "cocooning" of naval vessels. Vinyl is formulated with solvents, fillers, pigments, then sprayed on surface; may need occasional renewal coating. Coat is slow-burning or self-extinguishing, depending upon ingredients.	Application is easy and surface is continuous, with no jointing problems; several colors are available. But good bond is dependent on careful formulation of mix and preparation of surfaces. Vinyl is opaque; color stability depends on pigments.
Acrylic emulsion	This plastic is sprayed, brushed, or troweled over roof, e.g., concrete or gravel. It is mixed with fillers, such as chopped glass or crushed silica, which reduce acrylic's combustibility. First installations were made about five years ago.	Colors range from light to dark; plastic conforms well to odd shapes, bonds well if surface is properly prepared. Acrylic in this form is opaque and hard, becomes brittle at low temperatures.
Neoprene	This sprayed-on synthetic rubber is one of the few polymeric materials with a long proven history of outdoor durability. Major building uses to date include rubber gasketing, wire insulation, but roofing applications have been limited.	Good history—20 to 25 years—of long-time weathering; applicable to irregular surfaces, provided curing is possible. Neoprene must be cured by moderate heat, which is done best in a shop. Dark colors are best for most durable formulations.
Hypalon	This spray-on or brush-on synthetic rubber has been used on roofs in the Caribbean, as well as on the NAHB research house (as a finish surface over neoprene). It appears to have promise as a renewing surface. Weathering quality appears to be good.	Hypalon offers a wide color range and good weathering qualities. Light colors appear to retain stability. This elastomer is easily applied to irregular surfaces. In-place cost is about 25 cents per square foot of surface, at thickness of 18 mils.
Urethane	Used fairly extensively in Europe as colored coating on concrete and wood. Urethane is sprayed after ingredients are mixed, is self-hardening and must be used soon after mixing. Good history on installations made two to five years ago.	Spray coating is easily applied to irregular surfaces; coating can be colored fairly light to dark. Urethane tends to darken on exposure to sunlight; color and light stability not yet completely ascertained.
Epoxy	Still mostly experimental. Epoxy is sprayed on after being mixed with other chemicals, can be mixed with fillers, such as sand. Self-hardening, must be used soon after mixing. Seldom used, to date, in roofing.	An epoxy coating is easily sprayed onto irregular surface. Adhesion is outstanding; weathering resistance is good. But application is difficult, in that epoxy can cause skin rash; also, plastic is quick-setting. Epoxies darken, lose gloss.
ROOF SHEETING: FOR VAPOR BARRIERS, SKYLIGHTS, AND FLASHING		
Vinyl sheet	Vinyl sheet is used as a vapor barrier on many roofs today. Because material is self-extinguishing, it will not support combustion; thus, in built-up roof formulation, it prevents hot flammable roofing materials from dripping into flames, should fire break out in building. Longer history in Europe than U.S.	Vinyl is flexible, can be applied by technique similar to application of bonded asphaltics. Weathering tests show good results on properly formulated sheet for periods of 10 to 15 years. Sheet is not so flexible as sprayed-on vinyl, not so easily applied on irregular surfaces.
Acrylic sheet	This is clear or translucent sheet, commonly used flat, corrugated, or in stiffened bubbles. Acrylic has long history of outdoor applications; some building installations are now 12 years old. Exposure tests indicate life expectancy of 20 to 25 years.	Plastic can be clear or colored, transparent or translucent. Sizes are limited by casting apparatus. Acrylic scratches more easily than glass, supports combustion. Exposure can cause some loss of strength and embrittlement.
Reinforced plastics	Reinforced polyesters and epoxies can be corrugated, molded, formed into flat sheets; also used as sandwich panel facings. Some early polyesters weathered poorly; newer formulations look better, based on three- to five-year exposure tests. Straight polyesters may support combustion; newer chlorinated types are self-extinguishing, but less weatherable.	These are strong, tough, translucent sheets; can be colored. Fillers determine degree of light transmission; strength is proportional to type and quality of fibrous reinforcement. Materials provide combination of enclosure, structure, and light transmission. Color stability depends on type of resin, quality of pigments, and dyes.
Polyethylene	Polyethylene sheet is bonded to roof, used as vapor barrier. Properly formulated, polyethylene has good history of outdoor exposure; some applications are now ten years old. Polyethylene has also been considered for roof flashing applications.	Material is flexible, strong. But it is difficult to bond by ordinary methods, and has a relatively low softening temperature. (Newer type polyethylene has better temperature stability.) Polyethylene supports combustion.
Vinylidene chloride	Sheet bonds to roof, is used mainly as flashing; may find use as roof sheeting. In eight-year weathering tests, the material has performed well, though tending to lose color.	Material is tough, with good self-extinguishing characteristics, due to plastics's high chlorine content. This sheet is somewhat less flexible than sprayed-on materials.

Source: data prepared with the cooperation of Dr. Albert G. H. Dietz, Massachusetts Institute of Technology.
For additional information: Charles Condit, Society of the Plastics Industry, 250 Park Avenue, New York 17, New York.

OLD BANKERS TRUST BUILDING (left) was stripped down to its 12-story steel frame (right). Big, 30-ton marble pillars (above), supporting part of the old steel frame in the Victorian anomaly, were removed by jacking up the frame above them, replacing them with new steel columns.



LEW ROSEN

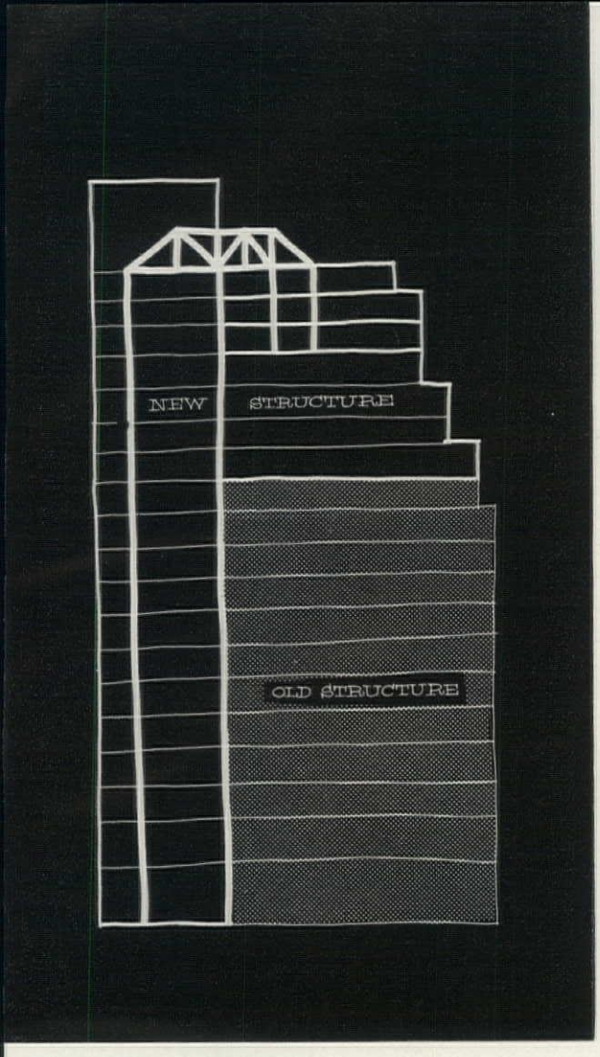
Remodeling: banking as usual

A mammoth remodeling job is stripping the walls and floors from around New York's Bankers Trust building for a major reconstruction.

For weeks the old Bankers Trust on the southeast corner of one of New York's busiest intersections, Fifth Avenue and 44th Street, has presented a strange sight to New Yorkers: a building that is neither coming down nor going up, but is being completely remodeled in an extraordinary way.

The 12-story, granite-faced building, vintage 1905, has been stripped down to its early steel skeleton. Huge, Romanesque marble pillars supporting its portals and façade, once considered indispensable to any bank's stability, have been removed. And the whole structure is being sheathed in today's traditional glass-and-aluminum skin, with seven additional stories built on top and an entirely new section added at the rear. Perhaps the most unusual feature is that Bankers Trust Co., occupying the basement and two lower floors, has not skipped a day in its banking operations through the whole clatter of alterations.

The motivation behind Bankers Trust's unusual remodeling is one of those neighborhood clustering forces more potent than any rational planning. The Fifth Avenue intersection, with a leading bank on each corner, is known locally as Bankers' Corner, and it has recently been progressively rebuilt. First, Chase Manhattan moved into renovated quarters on the northeast corner. Then Bank of New York did a handsome, conventional stone-faced rebuilding job on the northwest, moving temporarily, while the new building was going up, into a conveniently vacant bank building on 43rd Street and Fifth. On the southwest corner, Guaranty Trust is thinking of doing the same, and has an optional lease on the 43rd Street building as temporary quarters. Bankers Trust, when it came to consider modernization, decided that, rather than move away from Bankers' Corner even temporarily, it would stay put while a



NEW BANKERS TRUST (right), sheathed in glass and aluminum, will be 19 stories high, with new section at rear. Added floors above old building, whose original frame could support only 17 stories, are made possible by unusual structural scheme (left). A big bridge truss (heavy lines) will be cantilevered out over the old building from new wing, and part of the weight of the top floors will be hung from this truss.

major reconstruction job was done on its old building.

How it was done

To have the intricate job handled professionally, Bankers Trust leased the building, which it had owned since the late thirties, to Clarson Co., formed by Real Estate Operators Ivor B. Clark and Erwin S. Wolfson, from whom Bankers Trust leased back four floors for expansion. The remodeling design went to Architects Emery Roth & Sons, with Wolfson's Diesel Construction Co. as general contractor.

The first task was to insulate the banking quarters from the hubbub that would be going on around them. This was done by turning the third floor into a sturdy, four-ply temporary roof with 1½ inches of concrete topping, using the third-floor plumbing for roof drainage, and building a temporary heat distribution system into the second-floor ceiling. Then heavily insulated walls were built around the first two stories, and measures taken to carry on air conditioning. All new steel was to be welded to reduce noise, and the lower walls were stripped in two weeks to get the most immediate noise over with quickly. Thus the bank's business went on in a working cocoon, reached by covered passages.

The most ticklish problem was to remove the 40-foot marble columns, two of which, weighing 30 tons apiece, largely supported the front of the building. This was done by building steel frames or stilts on two sides of the columns and placing eight big hydraulic jacks on crossbars above, each capable of raising 150 tons. The building's 250-ton frame was then jacked up a fraction of an inch and locked to allow the columns to be removed and replaced by steel. The new steel columns weigh only about 5 tons, yet will bear at least 15,000 pounds per square inch as against 600 for marble, which is some measure of progress.

To add seven new floors to the structure, for a total of about 200,000 square feet of rentable space, required careful analysis of foundation piers (which are on rock) and columns above the second floor. It was found that by beefing up columns, removing the previous heavy roof, using lightweight concrete, and taking advantage of an increase in allowable stresses since 1905, the structure could be built up to 17 floors but no farther. To get the two additional floors that rental economy demanded, a fantastic scheme was worked out. At the back of the old structure a 19-floor addition is being built from the ground up. Using this new structure as an anchor, a big steel truss, 63 feet long and 14 feet deep, will be cantilevered over the old building (see sketch above), and from this truss part of the weight of the top stories will be hung.

The total cost of this renovation (about $5 million) will be about 90 per cent of what it would have cost to erect an entirely new building on this site from scratch. This almost supports the firm New Yorker belief that it is as cheap to tear down and rebuild as to remodel. But Bankers Trust wanted it this way. And, not taking into account its additional floor, it will come out with close to 50 per cent more space on its old floors (mainly by moving elevators and service core into the new addition) and some intangible savings in client relations for not having budged from Bankers' Corner. END

Brief accounts of noteworthy developments

SYNTHETIC WOOD

A material has been developed at Battelle Memorial Institute, Columbus, Ohio, which has many of the desirable characteristics of wood—it can be sawed, nailed, or glued—but not all of wood's shortcomings. Unlike wood, it will not change its dimensions with changing heat or humidity.

In some respects, the material is similar to common cement-asbestos board; it is made from the same materials: Portland cement and asbestos, plus several others. But the new material is softer and less dense; it weighs about 35 pounds per cubic foot.

Chemist M. Jack Snyder, of Battelle, was looking for a material to replace the cherry wood blocks used by printers as mountings for photoengravings; cherry wood does not always have the dimensional stability required. Battelle has been studying the new material for nearly two years, in slab sizes up to 1 foot by 3 feet by 1 inch thick. (Larger slabs could be made, in standard wallboard size: 4 feet by 8 feet.) It appears that it could be used in place of plaster or plywood as a backing material for ceramic tile, and as roof decking to support asphalt and gravel. In large-scale production, Battelle believes the material will cost less than hardwood, but more than the wood used to make ordinary 2 by 4's. And its cost could be reduced somewhat, if dimensional stability were not essential, by using an inexpensive fibrous material instead of asbestos.

DEEP-FREEZE THERAPY

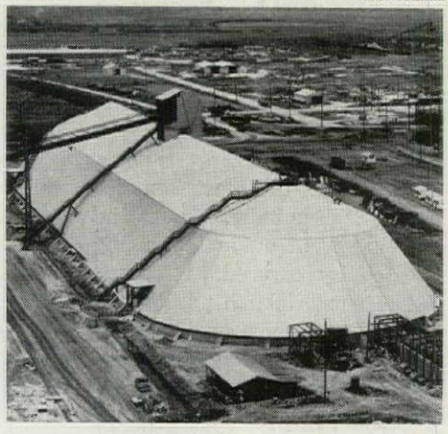
When a toppling crane accidentally put a deep dent in an important, horizontal, 40-foot I-beam in Chase Manhattan Bank's rising skyscraper in Lower Manhattan, the problem of replacement got unique surgical treatment. The problem was to get a new beam in properly stressed, otherwise the whole structure might be distorted.

Foundation Engineers Moran, Proctor, Mueser & Rutledge worked out with Weiskopf & Pickworth, structural engineers, an unusual freeze technique to apply the stresses, based on the known coefficient of expansion in steel. After temporary bracing, the damaged beam was cut away and a new beam, cut just an eyelash short, was wiggled into place. Then a wooden trough was built around the new beam and packed with dry ice. When, six hours later, the beam's temperature was 50 degrees colder than the surrounding atmosphere, the beam had shrunk in length a precalculated one-eighth of an inch. Wedges were then hammered in at both ends. When the beam returned to air temperature, expanding one-eighth of an inch, it was not only firmly in place, ready for riveting, but adequately stressed.

WIGWAM AND TEPEE

Two recent and interesting structures suggest that the dome may soon be joined by the tepee or wigwam as a new structural art form:

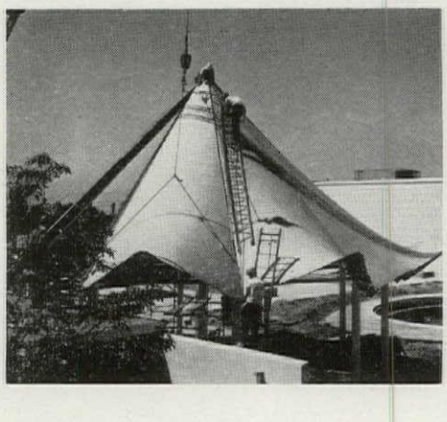
ERIC SCHAAL



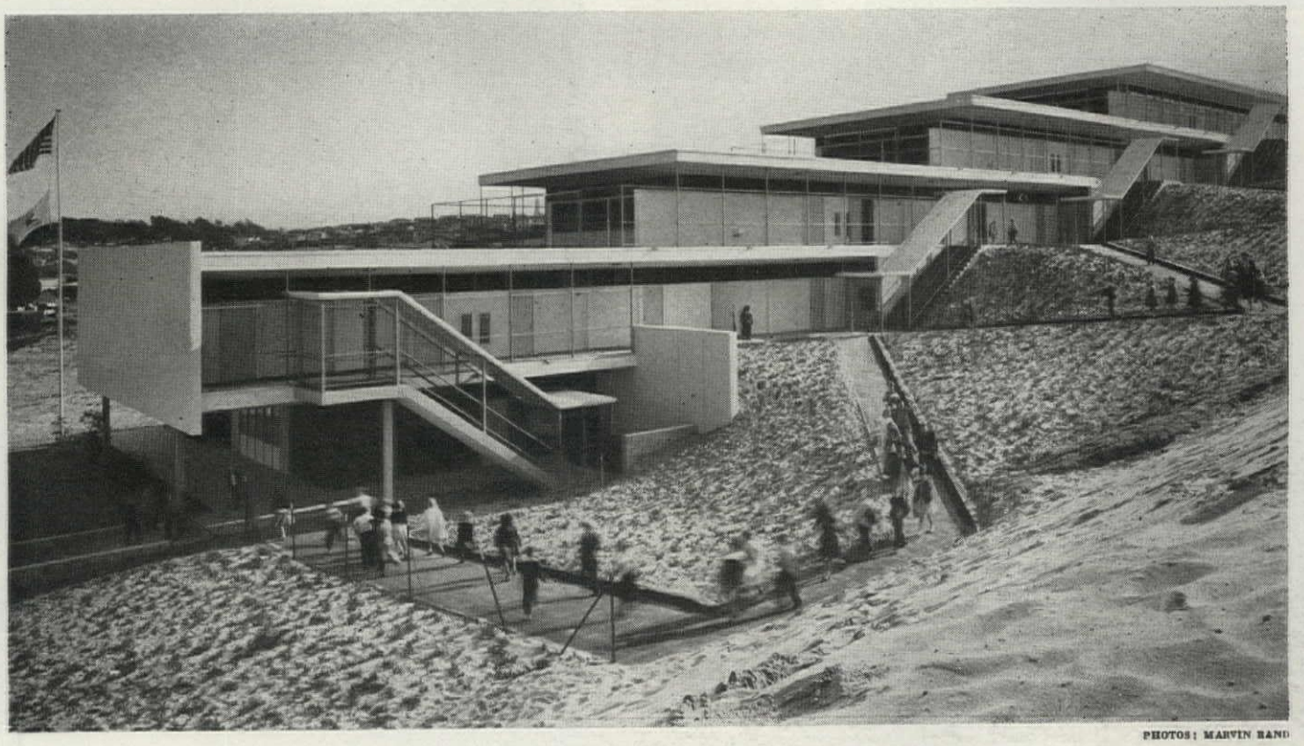
Wigwam warehouse: A great, tent-like storage structure of aluminum (picture above) was raised a few months ago by Kaiser Aluminum & Chemical Corp. to cover a huge stockpile of bauxite ore at its plant in Gramercy, Louisiana. Formed by a light sheathing of corrugated aluminum siding and roofing sheet over three big hinged arches, made of built-up plate girders, the building has a clear span 783 feet long, 204 feet wide, and 83 feet high, covering 235,000 square feet of area. Sheet was attached with stainless steel screws and neoprene washers to purlins and struts spaced 7 feet, 3 inches on center. The weight of the structure worked out to only 13½ pounds per square foot, and costs to $6.40 per square foot. What moved Kaiser to this design was that aluminum required no painting and had good corrosion resistance to the 132,000-long tons of wet bauxite ore to be stored.

Tepee pavilion: A bathing pavilion of plywood hyperbolic paraboloids (picture below), designed by Architect Ed Stone with the aid of Structural Engineers Pregnoff & Matheu of San Francisco, graces the employee's swimming pool at Stuart Co.'s smart, new, filigreed pharmaceutical plant (FORUM, April 1958) in Pasadena, California. The molded, pagodalike roof is formed of ten hyperbolic paraboloid peaked sections bolted to a steel frame on posts, somewhat like a parasol's ribbed structure. It has a surface of 1,970 square feet, forming a circle 36 feet in diameter.

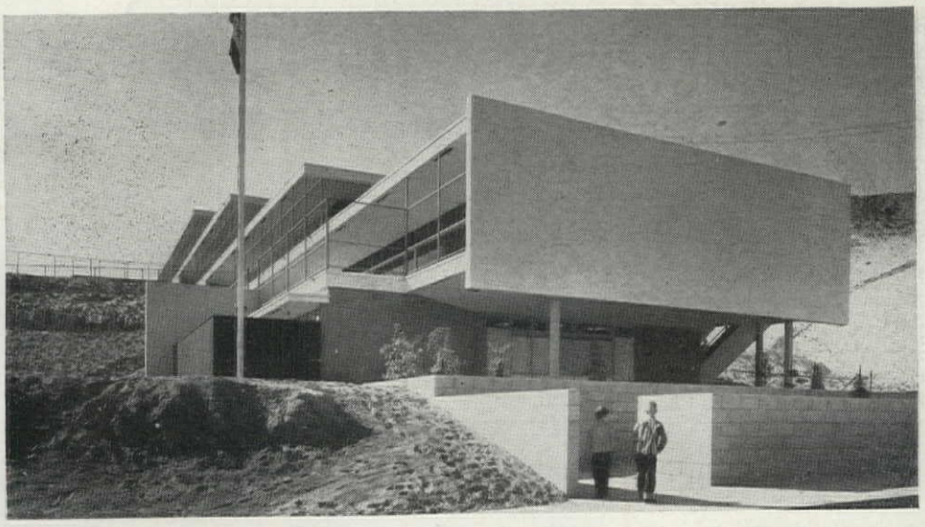
Berkeley Plywood Co. of Oakland, California molded the big roof units on a hyperbolic paraboloid jig, laying down four layers of exterior-grade fir plywood, held with spot nails and resorcinal glue. Outside layers were resin overlaid to provide a smooth, plastic-like surface. After curing for 24 hours, each unit was removed and tested under a 25-pound-per-square-inch load, showing negligible deflection. At $3 per square foot, including labor, transportation, and erection, the plywood roof structure cost less than aluminum, steel, or concrete. Aluminum would have cost more than twice as much. Berkeley's engineers think there is a future for plywood in larger structures of the same type. If pieces are not bent to such tight radii as in the Stuart pavilion, they say, the in-place cost of plywood paraboloids could be as low as $1 per square foot. END



A focus on current architecture

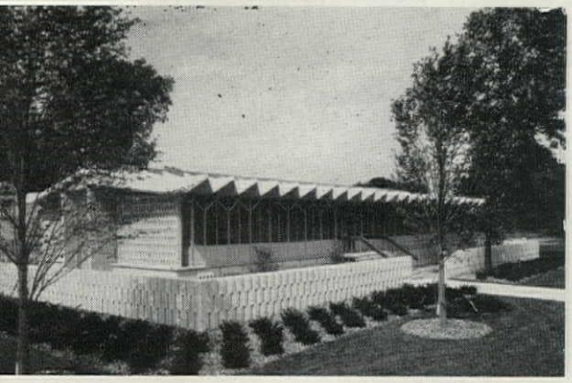


PHOTOS: MARVIN RAND



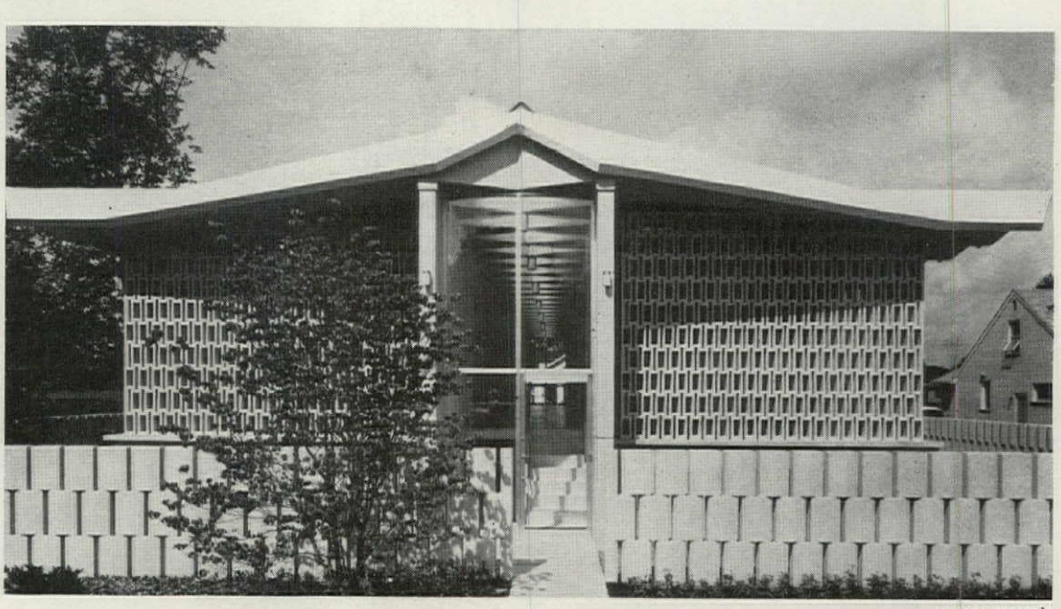
STAIRCASE SCHOOL

In one area of fast-growing Manhattan Beach, California, officials discovered that the only school site available — without actually removing houses—lay across a shifting sand dune 150 feet high. Faced with this challenge (and a come-on land price of less than $3,000), Architects Daniel, Mann, Johnson & Mendenhall worked out their new $411,000 Ladera ("Hillside") school in four compact steps. Each step has three classrooms poised lightly on retaining walls and joined to the next by ramps and stairs. Safely fenced circulation and play space is provided right outside the classrooms, which are open to the east, high-walled toward the west sun and ocean wind.



CONCRETE SHOWPIECE

In an exuberance of detail perhaps too rich for so small a building, the new $275,000 headquarters for the American Concrete Institute in Detroit shows off some of the versatility of ACI's favorite material. Cantilevered out from the concrete walls of a skylighted central corridor, a sharply crinkled concrete roof shelters the offices. Below the windows are precast panels and, below them, precast grilles which light the basement conference and service areas. Other precast units are used on the end walls and fence. Architects: Yamasaki, Leinweber & Assoc.

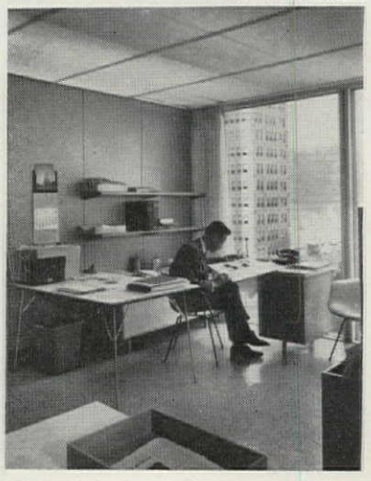


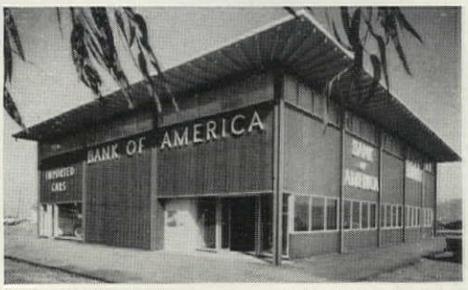
PHOTOS: HERSEY'S

PARKING PENTHOUSE

For most city dwellers a penthouse view and a place to park must remain the stuff of dreams. In this Pittsburgh building, however, employees of Bond & Starr (advertising and public relations) may drive to work, park under their desks, and ascend by elevator to offices overlooking Gateway Center Park. The office floor, conceived by Architect John Schurko, was added above a six-deck private parking garage at a cost of $185,000, and leased by its owner to B&S and another tenant. Betting the view against vertigo, Schurko extended windows to the floor.

PHOTOS: NEWMAN SCHMIDT





FLAG-WAVING BANK

Out in California, Sunday sailors can identify this little branch bank a nautical mile away by its colorful, two-story mural, which spells out in international code pennants "Bank of America Sausalito Cal." Facing one of San Francisco Bay's busiest yacht harbors, the glazed-tile mural is set off by walls of brown-stained California redwood and by steel columns and beams painted the same orange-red as the Golden Gate bridge. Windows are tinted to reduce water-reflected glare. Architects: Wurster, Bernardi & Emmons.

PHOTOS: ERNEST BRAUN

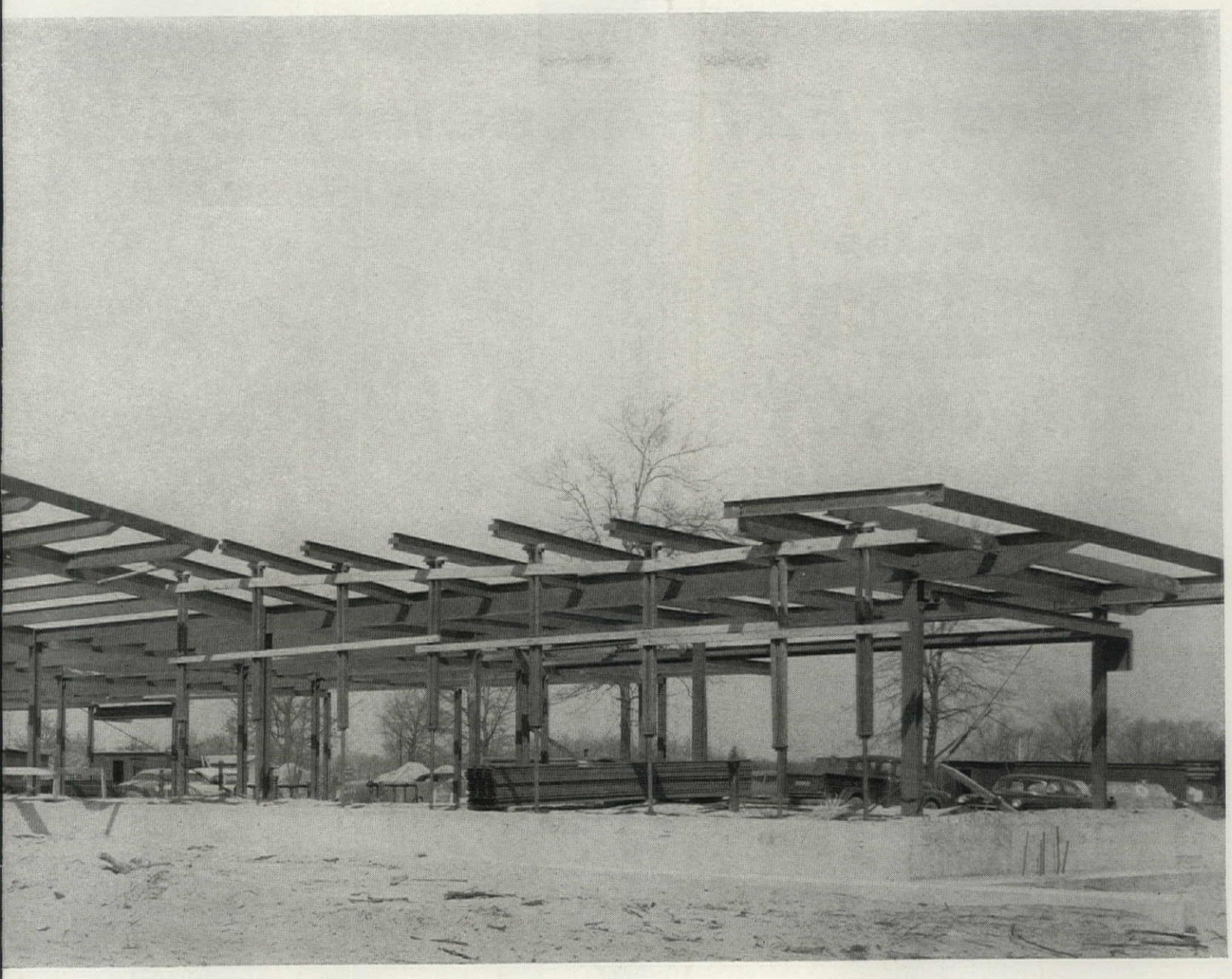
PHOTOS: ART HUPY

GARDEN-CENTERED OFFICES

Behind a 50-foot steel pipe tower which displays its initials in revolving neon, this new headquarters for Benton County's Public Utility District No. 1 in Kennewick, Washington casts a kindly eye on customers. Bill-paying housewives enter a broad, deep-set portico facing a landscaped inner court and fountain pool visible from offices on three sides. On the fourth side is an auditorium for demonstrating electrical appliances. The structure is of round wood columns, laminated beams, and wood roof deck; cement asbestos wall panels are brightly painted. Architects: Bassetti & Morse; landscape architects: Eckbo, Royston & Williams.

USS Structural Steel from stock speeds

Toledo Express Airport Terminal fabricated with 225 tons of USS Structural Steel. Owner: City of Toledo; Architects and Engineers: Charles L. Barber & Associates, Toledo, Ohio; Consulting Engineers: H. A. Stepleton & Associates, Toledo, Ohio; Consulting Engineer: Porter W. McDonnell, Toledo, Ohio; Fabricator: Art Iron & Wire Works, Inc., Toledo, Ohio.



construction of Toledo Express Airport Terminal

This building had to go up in a hurry—that's one of the main reasons it was framed with USS Structural Steel. The design was straightforward and clean, so the 225 tons of steel could be delivered directly from stock.

Shop connections were welded and field connections bolted. The rigid frame steel construction offers strength, safety, economy of erection and minimum maintenance. It also gave a lot of design freedom, for it simplified the application of glass panel exterior walls.

Why it pays to use structural steel

- It is the *strongest*, yet *most economical* of load-bearing materials.
- Structural steel will withstand more abuse than other structural materials, effectively resisting tension, torsion, compression and shear.
- Once enclosed in buildings it lasts indefinitely—without maintenance.
- It can be riveted, bolted or welded . . . and erected in any weather.

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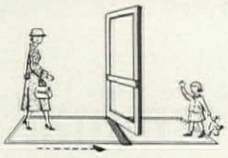
when the RIXSON *automatic* opens and closes the door

The **RIXSON *automatic*** has been carefully engineered to offer many new advantages of safety and function. It opens the door by hydraulic power and closes the door by hydraulic power—no springs required. A dry-sump system avoids damage from fluid leakage on floor.

The **RIXSON *automatic*** is completely concealed in the floor—no arms or other hardware are visible. In addition to mat actuated styles, the ***automatic*** can be actuated by floor, desk or wall switch.



If a person steps on safety mat after door is in opening swing, door will not strike him, but will STOP.

If person is on safety mat, another person stepping on actuating mat will not cause door to swing open.

If a person walks off safety mat and then, while door is closing, steps back on mat, door will stop and not swing suddenly open.

A break-a-way that allows doors operating IN to be forced OUT in emergency (if there are no door stops) is standard equipment.

A safety trip prevents motor from running continuously and avoids danger of overheating.

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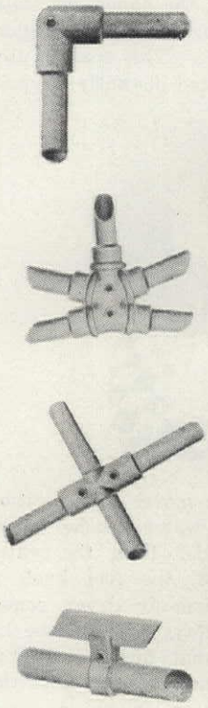
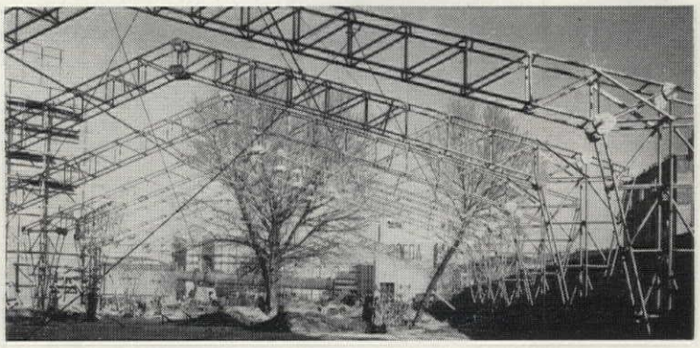
Two versatile framing systems . . . unique Swiss toilet . . . aluminum soundproofing . . . portable gutter-maker

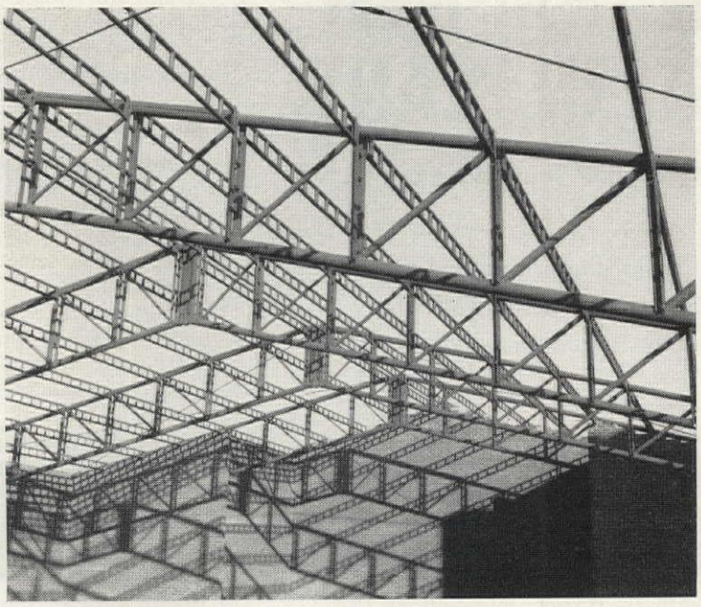


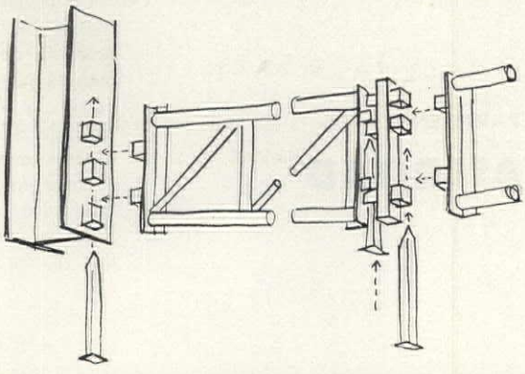


LOW-COST ALUMINUM JOINTS
expedite metal frame assembly

A wide variety of permanent or portable metal frame structures—from pavilions, hangars, and warehouses to carports, scaffolds, and storage or display racks—can be assembled quickly, and at low cost with Italian-made *Jiffy-Joints*, a series of simple, cast-aluminum sockets recently introduced in this country. Designed for any type of metal tubing or pipe, each *Jiffy-Joint* consists of two or more sections and a key. To lock the joint the key is merely tightened with an Allen wrench. Because the system requires no welding or threaded connections, assembly and disassembly is fast and easy; and because there are more than 25 different shapes available (ranging from simple L's and T's to complex angles) myriad designs can be built from stock joints. *Jiffy-Joints* fit ⅜, 1, 1⅝, and 1⅞ inch pipe. Cost per joint: 75 cents to $1.

Manufacturer: Feal, Milan, Italy. U. S. Distributor: Reynolds Feal Corp., 68 Wall St., New York 5, N.Y.





HINGE-TYPE FASTENING
speeds building framework assembly

A few men working with only hammers and a crane can quickly erect the new tubular steel building framework made by Swiss-Fabricating Inc. of Pittsburgh. The time-and-labor-saving element in the system is the *Swiss-Lok*, a simple square pin-and-bracket device (see drawings below) which is used, much like a door hinge, to connect all members. Bolting is needed only at the foundations, and no field cutting, riveting, or welding is necessary, for all members are factory fabricated to specifications and arrive on the site ready for assembly. During assembly, the trusses are lifted to position by a crane and secured to the columns: a *Swiss-Lok* pin is merely hammered in at each end of the truss. For longer spans, butting truss halves are first pinned at the "keystone" and then raised as a unit. Though engineered to serve primarily as heavy-duty framework for permanent structures, the *Swiss-Lok* system can be easily unlocked and dismantled. Approximate material cost: for a 60 by 300 foot building: 90 cents to $1 per square foot of floor area.

Manufacturer: Swiss Fabricating Inc., Camp Horne Rd., Pittsburgh 2, Pa.

continued on page 168

FULLY AUTOMATIC TOILET
designed as aid for sick and aged

This unique Swiss-made toilet, called the *Clos-o-mat*, is being marketed throughout Europe and may soon be distributed in the U. S. Particularly suitable for hospitals and homes for the aged, the toilet eliminates the use of the hands and toilet paper in the cleansing of the anal region. Operation is simple. The seated user presses a foot knob, and instantly a nozzle

built into the closet moves into position and sprays a warm-water douche or jet for about 15 seconds. Then the water gradually turns cold, the foot knob is released, and a warm-air dryer comes into operation and stays on until the lid is closed. Conventional flushing of the closet takes place simultaneously with the cleansing process which, in all, requires about 2½ minutes. The toilet's warm-air unit, warm-water heater, and pressure pump are located below the flush tank. *Clos-o-mat* cost in Europe: about $450.

Manufacturer: Hans Maurer, Zollikerberg-Zurich, Switzerland.

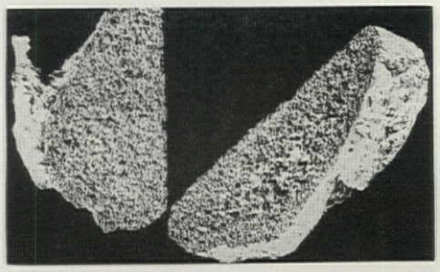
MULTIPURPOSE ADHESIVE
is odorless and nonflammable

A new contact bond adhesive developed for applying plastic laminates to walls, counter tops, and furniture is said to be nonflammable and essentially odorless—advantages that make it suitable for remodeling work in public areas. Known as *Safe-Bond*, it is said to have a spread rate twice that of conventional adhesives. It can be brushed, sprayed, or rolled on; application tools can be cleaned with soap and water. Cost per gallon: $7.50 to $10.

Manufacturer: Formica Corp., 4614 Spring Grove Ave., Cincinnati, Ohio.

FOAMED ALUMINUM
manufactured for acoustical cores

Slabs, blocks, and sheets of aluminum foam in densities ranging from 12 to 60 pounds per cubic foot are now being produced by the Foamalum Corporation of LaSalle, Illinois. When cut open, a chunk of the new metal, with its bubble-filled texture and smooth outside crust, looks like a loaf of pumpernickel. It is about as light in weight as balsa wood. According to the manufacturer, it will be soon

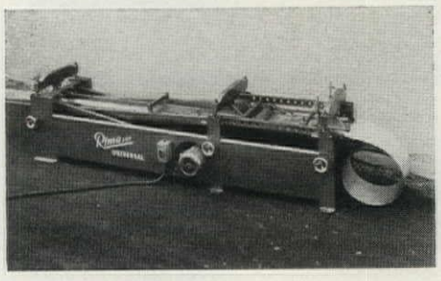


used as a rigid acoustical core material for doors, partitions, and curtain-wall panels—and for ceiling tiles. Rust-, rot-, warp-, and insectproof, aluminum foam can be nailed, sawed, drilled, or cemented. Key foaming agent used in the manufacturing is Zirconium Hydride, a costly (about $9 per pound) chemical which accounts, in part, for the product's relatively high price: from $1 to $2.25 per pound as compared with 24 cents for ordinary aluminum.

Manufacturer: Foamalum Corp., Box 443, LaSalle, Ill.

ROOF-LONG, SEAMLESS GUTTERS
fabricated by portable machine

When rolls of sheet aluminum, copper, galvanized steel, or zinc are fed into one end of the electrically powered *Rima Universal* (below), a continuous, seamless gutter emerges from the other end at a



rate of 6 to 7 feet per minute. Thus, according to the manufacturer, a sheet metal or building contractor using the new machine (either in the shop or on the job) can fabricate-to-size and install a roof-long gutter in one-fifth the time required just to install a conventional gutter composed of 10-foot sections. Such a saving of time and labor is possible because there is no assembly of separate pieces, and there are no joints to weld, solder, or slip together. In addition, there is no scrap loss, as gutters are made to the exact length needed. And because there are no joints to work loose from expansion and contraction, the installed gutter should last longer than conventional types.

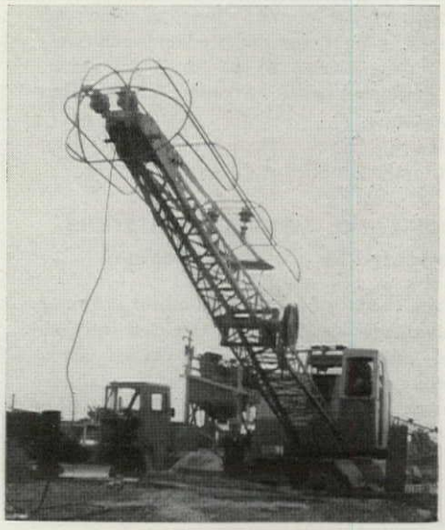
continued on page 170

Developed by sheet metal engineers in Germany, the *Rima Universal* is now being marketed in this country in one compact (9 feet long by 2½ feet wide by 2½ feet high), 650-pound unit that can be transported from job to job. Cost: about $2,300.

Manufacturer: Malden Research and Development Co., 1130 Main St., Malden 48, Mass.

CRANE BOOM GUARD
prevents power line accidents

When a crane operator accidentally swings the crane boom into high voltage power lines, the result is almost always instant death for him and for anyone holding the load line. A patented safety device, developed by Little Rock Inventor Arthur Thomas, has been put on sale to eliminate such accidents—and to save the many man-hours spent disconnecting and reconnecting power lines around construction sites. Essentially the *Saf-T-Boom* (below) is a rugged guard screen that can be

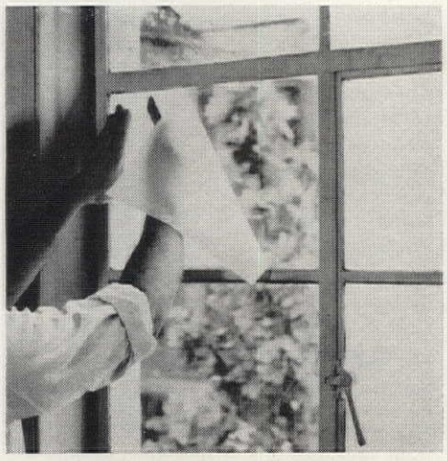


bolted on, or taken off, any standard crane in about ten minutes. Made up of plastic-coated, ¾-inch steel pipe and heavy-duty electrical insulators, it protects the top, sides, and front of the boom. Though the boom's underside must be left unguarded (any protection there would interfere with the crane's operation), the *Saf-T-Boom* is reportedly 95 per cent effective, as almost all short circuits occur when the boom is swinging up or sideways. Two models are available: one a 250-pound unit designed for 20-ton and larger cranes, the other a 200-pound unit for smaller cranes. They sell for $625 and $575, respectively.

Manufacturer: Saf-T-Boom Inc., 422 Pyramid Bldg., Little Rock, Ark.

VINYL WINDOW SHEETING
reduces heat and glare

An economical way to reduce window heat and glare in factories, schools, offices, or hospitals has been developed by Toch Brothers of Staten Island, New York. It



is a durable vinyl sheeting which can be quickly and easily applied without adhesives to the inside or outside of window panes. The translucent material, known as *Tox-Shade*, is merely squeegeed onto wet glass. The resulting bond is said to be strong enough to withstand repeated washing, weathering, and extremes of heat and cold. For removal *Tox-Shade* can be pried up at a corner and stripped off; pieces can be stored for future use. An added safety advantage: possibility of window shattering is reduced substantially. *Tox-Shade* is available in five opaque or translucent colors, and is custom-cut at the factory to assure proper fit. Cost: about 25 cents a square foot.

Manufacturer: Toch Brothers, 2600 Richmond Terrace, Staten Island 3, N. Y.

DOOR-FITTING APPARATUS
saves builders time and money

A new apparatus for fitting stock wood doors to steel bucks or frames includes gauging and measuring devices, cut-off tables with a power saw, and a door jig

with electric planers and drills. According to the manufacturer, builders or millwork supply houses using the equipment can precision-fit 25 to 35 doors to steel frames in an 8 hour day, compared to six to eight doors using ordinary hand cut-and-fit methods. All door openings in a building are sized at one time. Doors are then

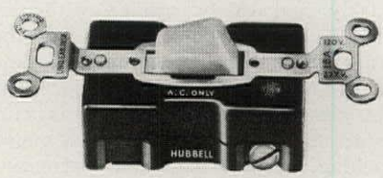
continued on page 172

trimmed to these measurements (either on the job or in the mill) and hinges and locks are attached at the same time. Total time for fitting and preparing one door: 15 minutes or less. Cost for the complete setup is $2,900—a sum the manufacturer claims can be recovered in labor cost savings on one big job, such as a school or hospital.

Manufacturer: Master-Hung Door Equipment Co., King & Franklin Sts., Pottstown, Pa.

SINGLE BUTTON SWITCH
has built-in night light

The *PresSwitch*, the alternating-current light switch shown below, turns on or off with a slight press of the finger or

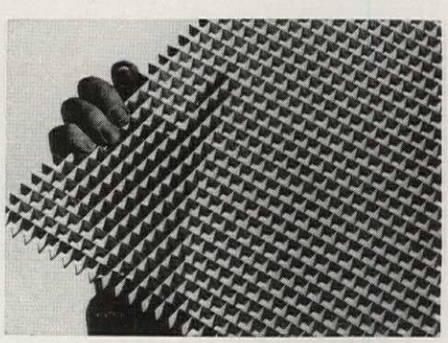


elbow and has a tiny, built-in bulb which lights the translucent nylon button whenever the switch is in the "off" position. The *PresSwitch* requires no special wiring, fits standard-size wall boxes, and uses standard-size wall plates. Cost per 100 single-pole units: $215; three-way units are priced slightly higher.

Manufacturer: Harvey Hubbell Inc., State & Boswick Ave., Bridgeport, Conn.

COLORED ALUMINUM GRILLES
have rugged, nonwelded joints

Colored aluminum grille-panels or louvers with half-inch cubical cells have been introduced by the Columbia Electric and Manufacturing Company of Spokane, Washington. Said to be the first all-alum-



inum grille available in a wide variety of colors (six pastel shades, four metallic shades), *Koldbond* grilles are bonded by an automated process whereby notched cross-members are forced together (like an egg crate) under pressure. The result is a tough, nonwelded panel which can take rugged punishment without cracking or breaking. *Koldbond* louvers are available in 24 and 48 inch widths, and any length. Cost: about $2.50 per square foot.

Manufacturer: Columbia Electric & Manufacturing Co., N. 2310 Fancher Way, Spokane 10, Wash. END

Office area in Connecticut General Life Insurance Building. Movable partitions, dividers, walls, doors and planter boxes are all surfaced with Consoweld laminated plastic. (Upper right) Luncheon tables in employees' lounge, also Consoweld surfaced.

7 Uses for Consoweld in new Connecticut General Offices

Movable Partitions
•
Dividers
•
Walls
•
Doors
•
Planters
•
Luncheon Tables
•
Work Surfaces

By design, a new concept in modern office efficiency . . . by specification, a showplace of proved modern building materials and techniques—Connecticut General's new home office in suburban Hartford stands out as a product of creative vision and planning.

Consoweld was one of the advanced products specified for this outstanding new building. Hundreds of thousands of square feet were used on movable partitions, dividers, walls, doors, planters and luncheon tables.

Colorful . . . durable . . . functional, Consoweld laminated plastic surfacing is a product *designed* for new ideas—to bring out the best in *your* ideas. A full line of research-tested patterns and solid decorator colors provides an unlimited variety of eye-pleasing combinations. Consoweld is available in stock panels up to 12 feet long and up to 60 inches wide, for use in a wide range of interior applications, horizontal and vertical. Postforming material is also available for use on contoured surfaces, such as countertops, window stools, and other specialized installations.

Send coupon for facts about Consoweld. Free Data File folder serves as an idea starter.

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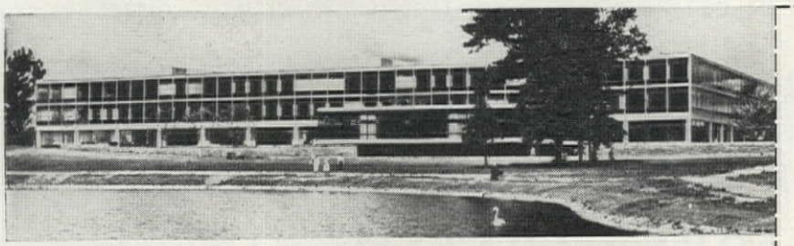
CONSOWELD®
LAMINATED PLASTIC

Connecticut General Life Insurance Company Building, Hartford, Connecticut



ARCHITECTS: *Skidmore, Owings & Merrill*
INTERIORS: *Florence Knoll, Knoll Associates*
CONTRACTOR: *Turner Construction Company*

CONSOWELD CORPORATION
Wisconsin Rapids, Wis.—Dept. A F-108

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Little Co., Inc., Pittsburgh 12, Pa.; The Hampshire Corp., Baltimore 11, Md., Roanoke 2, Va. **WIS.**—Edward T. Ver Halen, Inc., Milwaukee 2, Green Bay, Madison; Insulation Sales Co., Inc., Minneapolis 15, Minn. **WYO.**—Lauren Burt, Inc., of Colorado, Denver 1, Colo.; Lauren Burt, Inc., Salt Lake City 4, Utah. **IN CANADA**—Dominion Sound Equipments, Ltd., St. John's, Nfld., Halifax; Montreal (Home office), Ottawa, Toronto, North Bay, Hamilton, London, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Vancouver.

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CAVITY TILE* . . . another development of Celotex Research Laboratory . . . first commercial application of cavity resonance principle . . . first successful use of gypsum type board as chief element . . . lowest cost incombustible acoustical product (carries UL label) offering these unique quality advantages:

REPAINTABLE time after time with no loss of sound absorption. Historically, properly designed perforated materials such as Cavity Tile have given the best acoustical performance through repeated maintenance paintings. Now, for the first time, you can specify a low cost, incombustible product that is permanently efficient!

LEAST ABSORPTION VARIATION. First perforated tile offering high efficiency across full frequency range.

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CAVITY TILE ..... .77	.81	.71	.64	.64	.70	.70
TYPICAL OTHER PERFORATED TILE... .34	.59	.64	.73	.92	.80	.70

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*U. S. Pat. No. 2,838,808

HOW IT WORKS: Cavity Tile utilizes the air space (plenum) above a suspended ceiling. Spring-like action of air in cavity dissipates sound waves as they are forced back and forth through a special membrane. For specifications and detailed drawings, call your distributor (listed left) or write direct.

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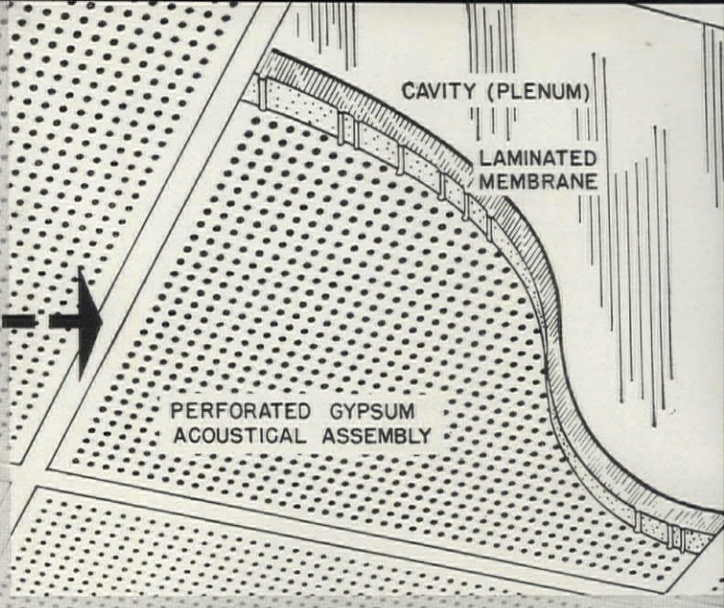
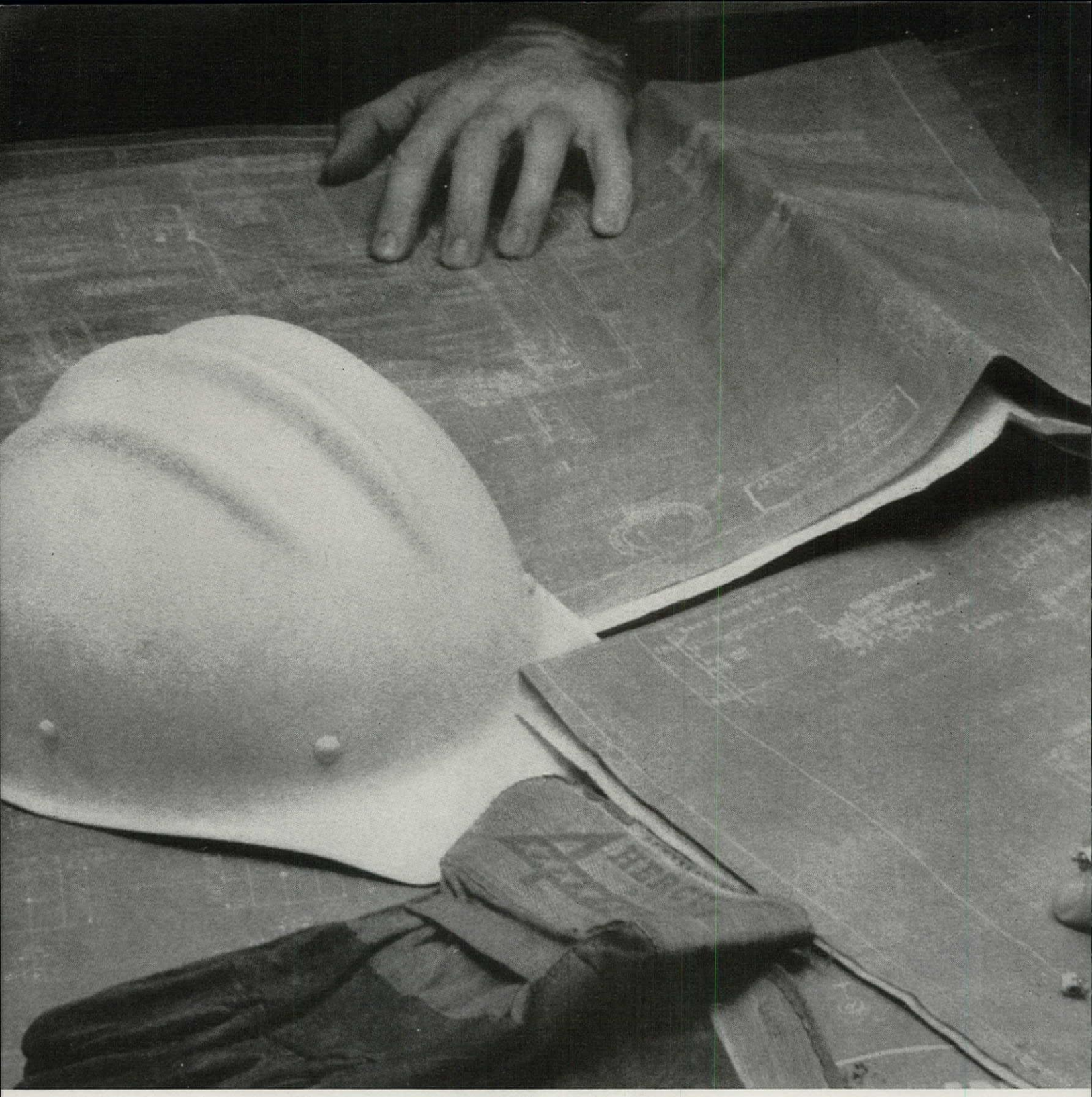
Cavity Resonance





The most brilliant architectural concept – no matter how much enthusiasm and care goes into its planning–can never be fully assessed as a working reality until the building is built.

The contractor's skill, knowledge and practical experience are always the final measure of a building's success.

But, although the contractor's intimacy with construction, codes and costs makes an important contribution to building, it is his respect for the architect's and engineer's requirements–as well as the client's pocketbook–which makes him a truly valued member of the building team.

And it is on Architectural FORUM, The Magazine of Building, which successful contractors rely to keep them in step with the most important developments in architectural thinking.

FORUM

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the new force in building

Vision-Vent® Window Walls of the type shown here are the key to Truscon's low-cost school design. Vision-Vent goes up like other curtain-wall systems—fast and easily. And, it offers this important plus—it's a complete wall with window already in place, completely contained within the depth of the window-framing members. Insulated panel can be in color. Choice of double-hung or projected steel windows. The Truscon design system is based upon a 9-foot module consisting of twin Vision-Vent units with mullion.

In the Truscon design concept, roof of the single-story building is supported by Truscon Clerespan® Steel Joists integrated into the 9-foot module. Clerespan steel joists reduce construction time because they are light, long, easy to handle. They are designed to meet all types of loading conditions. Open web allows passage for ducts, pipes, electrical conduit, as needed. Joists can be left exposed and painted, or an acoustical ceiling can be suspended.

REPUBLIC

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World's Widest Range of Standard Steels

TRUSCON offers a new way to build low-cost schools

Want to get next year's classes into classrooms next year? Go-together Truscon Standard Steel Building Products can give you a system for building low-cost schools that go up fast.

Get needed classrooms now. Using this Truscon system as a guide, your architect can help you more readily solve the pressing problem of classroom shortages. You can plan classrooms around local needs, both current and future. You can provide for expansion.

Speed and economy. This application of multiple Truscon products takes advantage of the speed and economy of off-site construction. Standard steel building products are most economical, and are readily available when you need them.

Class A, fire-safe construction. Simplified construction methods and modular design provide a permanent, high quality school building that will be an asset to your community. This is Class A construction. Materials are fire-safe. And, because all these Truscon products are *steel,* they are strong, long-lasting, safe. Original building dollars go farther, serving your community for years.

Expand as needed. This type of construction has been planned with insulated end walls which can be removed. This means that additional space can be added, and the end wall re-used. Additions can be made rapidly, easily, and in perfect architectural harmony. Your best protection against early obsolescence is provision for easy expansion.

Get the facts now. Truscon will work with architects, contractors and builders to develop the most efficient use of Truscon Standard Steel Building Products for public and private schools. Start planning today by sending coupon below.

Truscon Ferrobord® Steeldeck is welded to the top of Clerespan joists to produce a fire-resistant roof. Ferrobord is light, easy to handle, easy to place. Long lengths span three or more purlins. It roofs large areas quickly. Top surface is ideal for the application of insulation, and built-up waterproofing.

Truscon Steel Doors and Frames are easy to hang, easy to finish. They can't warp or stick, are fire-resistant. They offer low initial cost, low maintenance cost, safety and durability.

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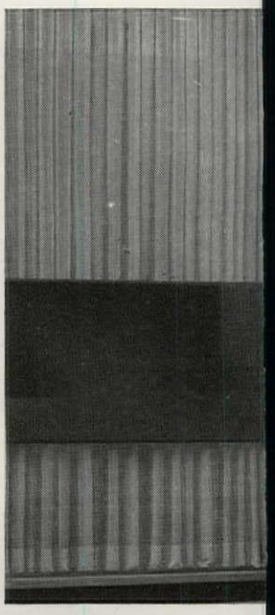
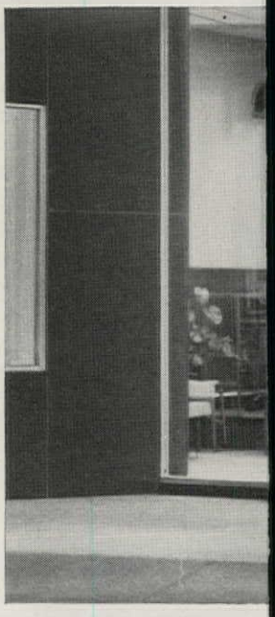
When it comes to doors

—come to PITTSBURGH





Architects and building owners turn to *Pittsburgh* for all their doorway requirements. For only *Pittsburgh* offers three distinct types of doors which offer extreme architectural adaptability and real value. What's more, Pittsburgh's HERCULITE, WEST and TUBELITE Doors are without equal in handsome appearance and long, dependable, trouble-free operation.

For complete information on Pittsburgh Doors, see Sweet's Architectural File, sections 16a and 16d. For specific details, write direct to Pittsburgh Plate Glass Company, Room 8276, 632 Fort Duquesne Blvd., Pittsburgh 22, Pennsylvania.

PITTCOMATIC® . . . the nation's finest automatic door opener. HERCULITE, WEST and TUBELITE Doors may be equipped with this outstanding automatic door opener. Operated by a simple, hydraulic, motor-driven unit, it is easily installed and maintained. It is available for *handle* or *mat* control.

PITTSBURGH DOORS

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PITTSBURGH PLATE GLASS COMPANY

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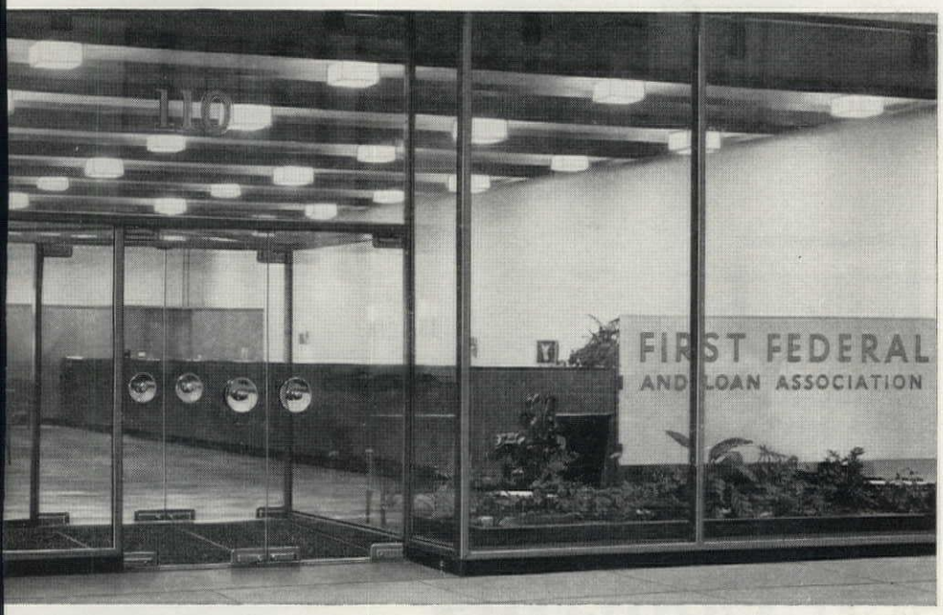


HERCULITE® DOORS

This installation of HERCULITE Doors at the First Federal Savings & Loan Association of Providence, Providence, Rhode Island, is a splendid example of the architectural flexibility of these doors. Here they complement a complete, new two-story facade of an old building in which Pittsburgh Polished Plate Glass and CARRARA® Tranquil Green spandrels also are utilized. Design possibilities with both ½" and ¼" HERCULITE Doors are practically unlimited. These doors are noted for their sturdiness, strength and endurance. Their uninterrupted transparence assures effective daylighting and illumination. Architects: Cull, Robinson & Green, Providence, Rhode Island.

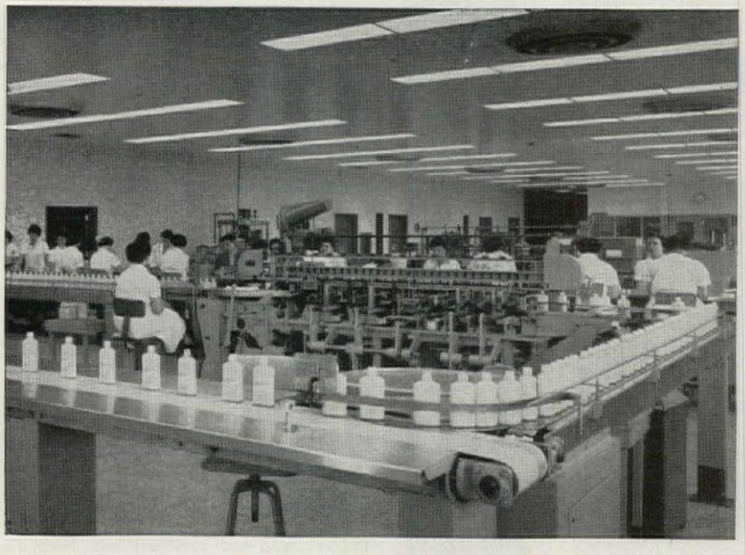
WEST TENSION DOORS

Narrow stiles and rugged strength make West Tension Doors the *quality* metal-framed doors. ½" thick glass, held under compression by a thin metal frame, provides strength. This new patented door is a solid unit with increased glass area which can never sag, rack or get out of alignment. Its simplicity affords unlimited variations in design. Standard or specially designed handles can be applied direct to the glass for complete open vision. These doors are suitable for operation with any type of automatic opening device. They are moderately priced and completely dependable in operation. Cumberland Savings and Loan Association, Portland, Maine; Architects: Wadsworth & Boston, Portland, Maine.

TUBELITE® DOORS

In this new building of the J. C. Penny Company, Longview, Texas, *Pittsburgh* TUBELITE Doors were effectively utilized by architects Wilson, Morris & Crain of that city. These doors and frames are a major advance in hollow metal entrance design. Their lines are clean and simple. They are fabricated of heavy extruded, hollow aluminum tubes, with no exposed seams. Their excellent quality, superb aluminum finish and simplicity of design make them ideal for new buildings and the modernization of old ones. They have a unique interlocking feature which assures that their true shape will be held through long and continued use. Here are doors which offer the greatest value at the lowest possible cost.

Johnson Controls Provide Ideal Working Climate in This Award-Winning Plant



Listerine, Richard Hudnut, Du Barry and other famous name products are made here. Johnson Controls keep this air conditioned packaging area as comfortable as an executive office.

One of the outstanding assets of the efficient new Lambert-Hudnut plant in Lititz, Pennsylvania, is its physical environment. Its striking design, scenic setting, spacious, bright plant and office areas and excellent employee facilities rate with the best anywhere! *Factory* magazine named it one of the top 10 plants in 1957.

A key feature of this modern environment is a specially planned Johnson Pneumatic Temperature Control System that operates the plant's high velocity, dual duct air conditioning systems, the high temperature (350 F) hot water heating system and the ventilating systems. Flexibly engineered so that each room or work area is individually controlled, the Johnson System assures an ideal working climate for Lambert-Hudnut employees.

Lambert-Hudnut Manufacturing Laboratories, Lititz, Pa., subsidiary of Warner-Lambert Pharmaceutical Co. A. M. Kinney, Inc., architect and engineer, Cincinnati; R. E. Lamb, general contractor, Philadelphia; Howard P. Foley Co., mechanical contractor, Pittsburgh.

Such an environment makes important contributions to working efficiency, helps attract and hold good employees and cut absenteeism and costly turnover. (In many plants, too, products must be handled and processed under closely controlled temperature and humidity conditions.)

A nearby Johnson engineer will welcome the opportunity to demonstrate how Johnson Pneumatic Controls can help provide your clients' buildings with similar benefits. The specialist Johnson organization has installed the pneumatic temperature control systems in a majority of the nation's leading buildings, of all types and sizes.

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GET THE "PLUS" VALUES OF PNEUMATIC CONTROLS BY JOHNSON

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- **Choice of Features.** Johnson makes the most complete line of pneumatic temperature, humidity and pressure control equipment to match your needs.
- **Reliable Performance.** Johnson Pneumatic Controls are unaffected by short circuits, electrical overloads, voltage variations and humidity. You get continuous, accurate control.
- **Complete Safety** . . . even in the presence of explosive gases, solvents, dusts and other hazardous materials.
- **Dependable Service** . . . Johnson maintains the oldest and largest service organization in the industry. Full time, factory trained service men are on duty in 105 direct branch offices and over 200 other cities.

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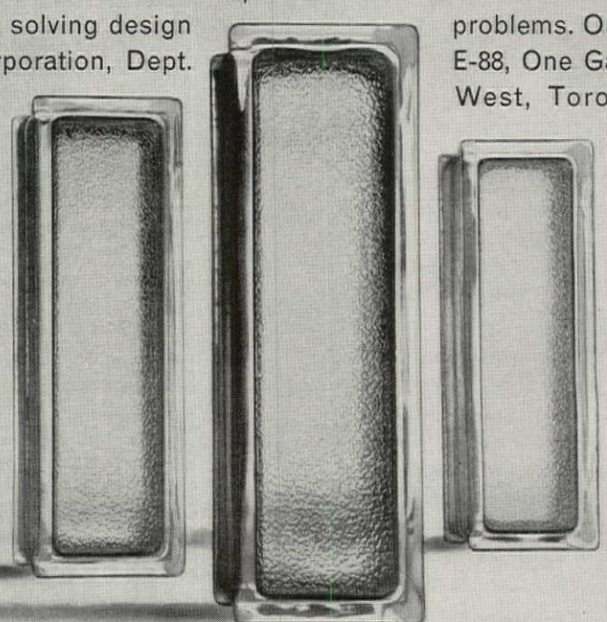
NEW SIZE 4x12

We thought of a lot of fancy names for this new PC glass product. But they seemed considerably less articulate than the quiet simplicity of the product itself. We settled on what seemed natural—the **4x12.** The outside faces are smooth for practical reasons. But an acid-etched appearance gives character and texture to the interior faces. The product is available with a white insert screen, a green-tinted screen, or plain. And, of course, there's color. At present, four ceramic face hues, with more to come. But most important—the new size—**4x12.** A break with tradition that gives architects a new proportion in solving design problems. Only PC has this product, so call or write. Pittsburgh Corning Corporation, Dept. E-88, One Gateway Center, Pittsburgh 22, Pa. In Canada: 57 Bloor Street West, Toronto, Ontario.



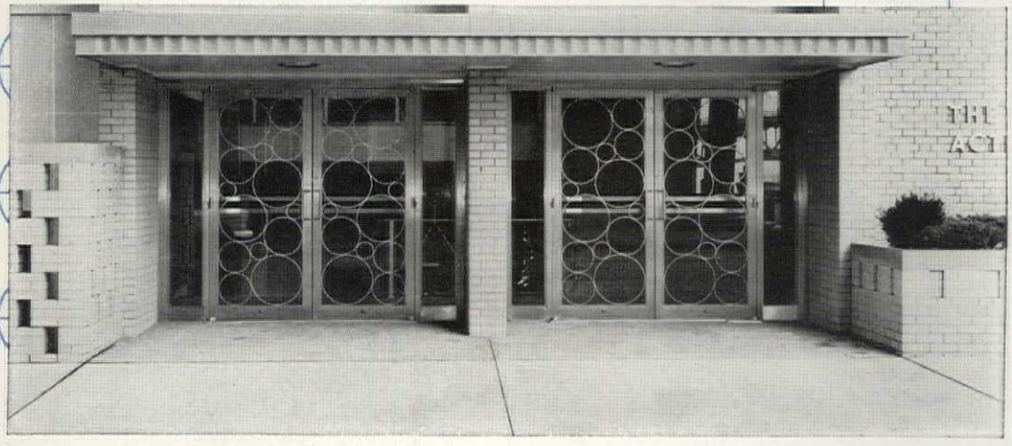
PITTSBURGH PC CORNING

grilles
grilles
grilles

What can you do to add character to the main entrance areas of your next building? Why, grilles, of course. Design possibilities are endless, limited only by your imagination. Grilles can be used for screening or simply to add decorative emphasis to an otherwise standard entrance treatment. They can transform a door into a strong design feature.

Consult Overly for details and suggested treatments. We have the experience and craftsmen to carry out your geometric grille designs in any permanent, weather-resistant metal. Grilles—hinged for easy cleaning—can be supplied in combination with our all-stainless Overline entrances or as separate units. Write us today for further information—Dept. GPA.

Above—main entrance, Crucible Steel Warehouse Office Building, Solon, Ohio. Below—main entrance, Activities Building, First Presbyterian Church, Charleston, West Virginia. Both jobs display Overline stainless steel entrance and grille work crafted by Overly.



Architects: Warehouse Office—Fulmer & Bowers, Princeton, N.J.; Activities Bldg.—Greife & Daley, Charleston, W. Va.

METAL PRODUCTS SINCE 1888

Overly

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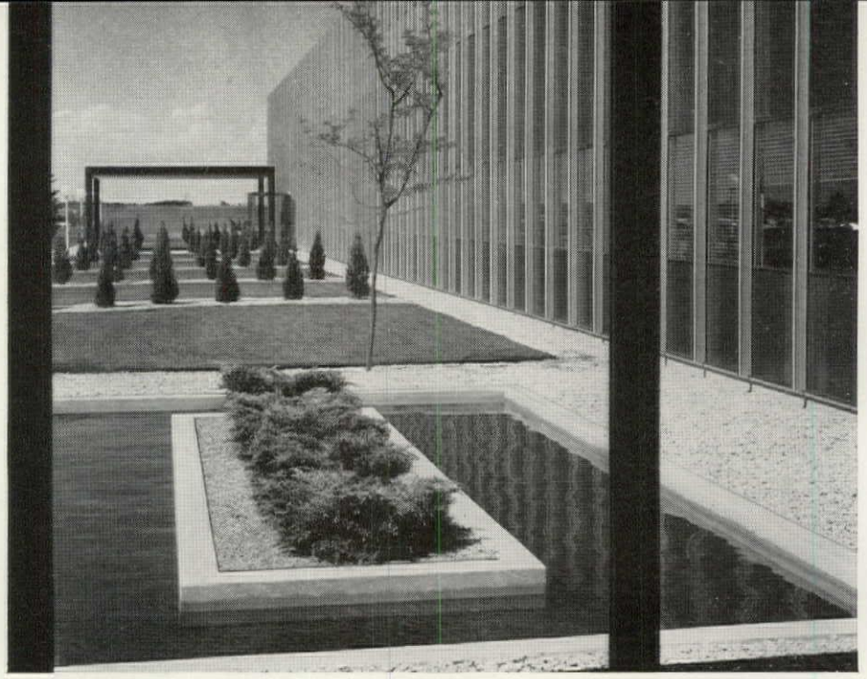


International Business Machines Corporation, Rochester, Minnesota

What the architect conceives . . .

The aluminum curtain wall system custom-designed for IBM's new manufacturing-educational facility, totaling 588,000 square feet, has already won recognition as an outstanding achievement in architecture for its simplicity, beauty and efficiency. A minimum number of components permitted fast, easy assembly.

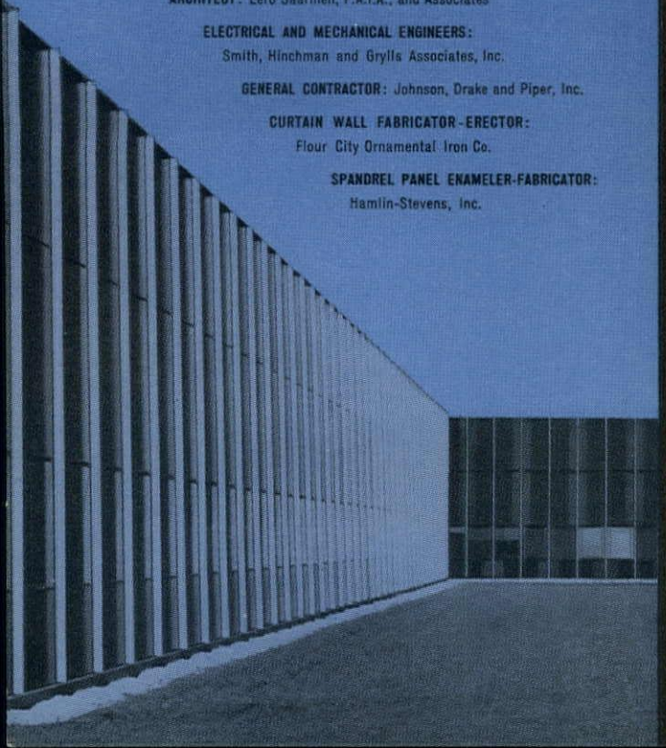
ARCHITECT: Eero Saarinen, F.A.I.A., and Associates

ELECTRICAL AND MECHANICAL ENGINEERS:
Smith, Hinchman and Grylls Associates, Inc.

GENERAL CONTRACTOR: Johnson, Drake and Piper, Inc.

CURTAIN WALL FABRICATOR-ERECTOR:
Flour City Ornamental Iron Co.

SPANDREL PANEL ENAMELER-FABRICATOR:
Hamlin-Stevens, Inc.



Porcelain-enameled Kaiser Aluminum 6061 alloy sheet outside and inside provides permanent color, matte finish. The outside face is patterned vertically in two hues of blue, with the inside a solid tint of pale blue. A dense cement-asbestos board forms the core of the laminated panels, giving a U-factor of 0.241 with a finished panel thickness of only 5/16 inch.

Spandrel panels and fixed windows are integrally joined to aluminum mullions and horizontal members by means of continuous-mold neoprene gaskets. A "zipper" spline on gasket functions as a locking device. This wall assembly system eliminates all through-metal fasteners and need for weatherproofing sealants on the completely air-conditioned structure.

aluminum achieves!

Because the extruded aluminum mullions serve a dual function, structural and ornamental, extremely close tolerances and freedom from bow and camber were required. These one-piece aluminum extrusions—more than 1700 in all—ranged in length from 23 feet 10 inches to 26 feet. They are Kaiser Aluminum alloy 6063, finished with a five-minute etch.

For both architect and fabricator... aluminum is an invitation to achievement. With more useful properties than any other construction material, it offers the architect almost unlimited opportunity for expression. It is light and strong, resists corrosion, reflects light and heat, offers permanent natural beauty with minimum maintenance.

And because it can be formed by any known method and accepts such a variety of finishes, it gives the fabricator unsurpassed opportunity for creative contribution to building construction.

Kaiser Aluminum Architectural Representatives are working closely with architects and fabricators throughout the country to help apply these advantages of aluminum to architecture. Their service is available without obligation to any architect or fabricator who is interested in the opportunities that aluminum offers.

For immediate service or further information, please contact the Kaiser Aluminum Sales Office listed in your telephone directory. Kaiser Aluminum & Chemical Sales, Inc., *Executive Office,* Kaiser Bldg., Oakland 12, California; *General Sales Office,* Palmolive Bldg., Chicago 11, Illinois.

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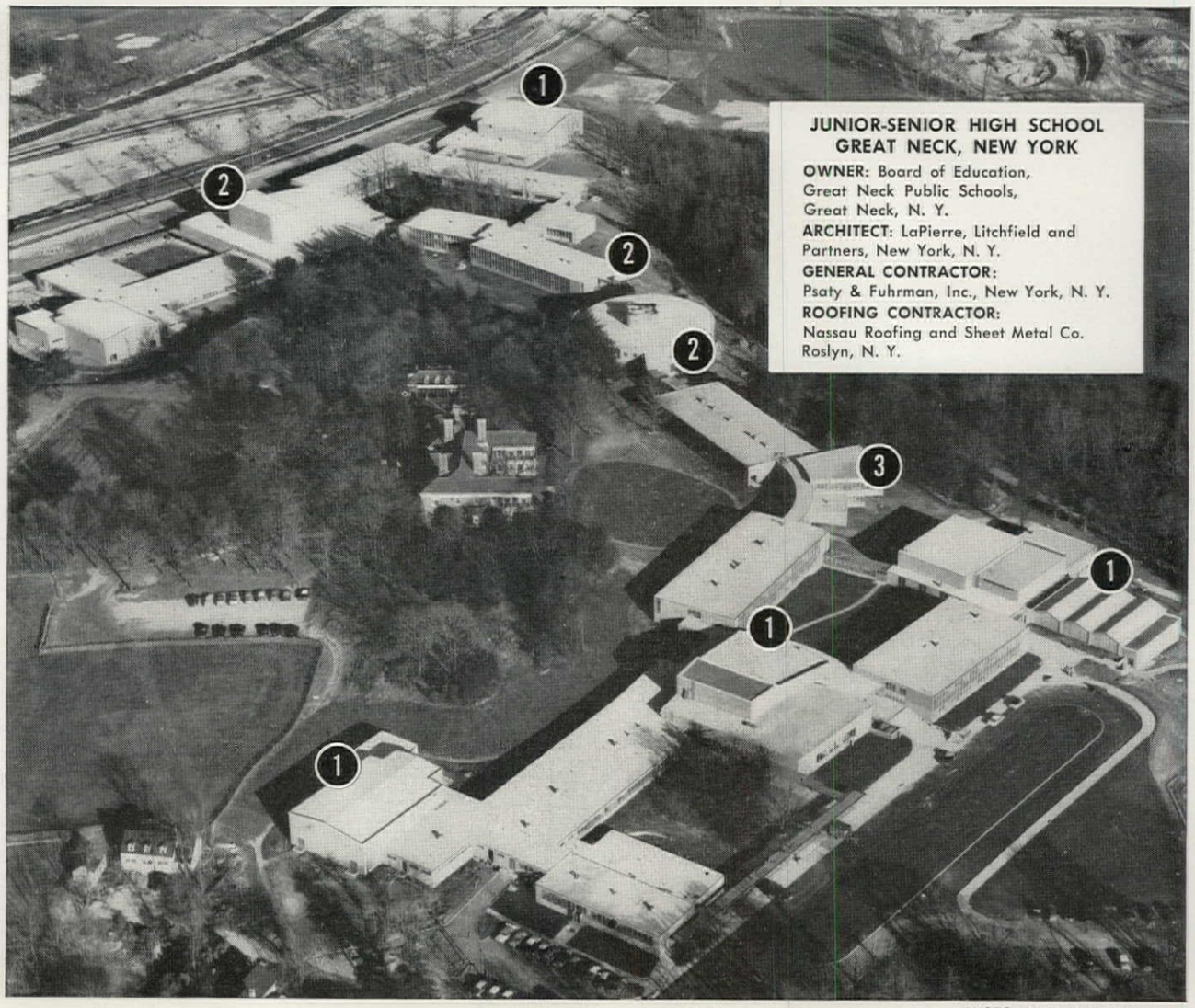

JUNIOR-SENIOR HIGH SCHOOL
GREAT NECK, NEW YORK

OWNER: Board of Education,
Great Neck Public Schools,
Great Neck, N. Y.
ARCHITECT: LaPierre, Litchfield and
Partners, New York, N. Y.
GENERAL CONTRACTOR:
Psaty & Fuhrman, Inc., New York, N. Y.
ROOFING CONTRACTOR:
Nassau Roofing and Sheet Metal Co.
Roslyn, N. Y.

PHOTO: N. Y. Daily News

RUBEROID BUILT-UP ROOFS

Engineered to the job!

Great Neck's new 17-building complex combines junior and senior high schools into one handsome group of buildings. Students get the study benefits of modern architecture, while taxpayers receive maximum educational facilities with minimum expenditure.

Ruberoid Built-Up Roofing provides this outstanding project with significant advantages through a wide range of economical, high quality specifications:

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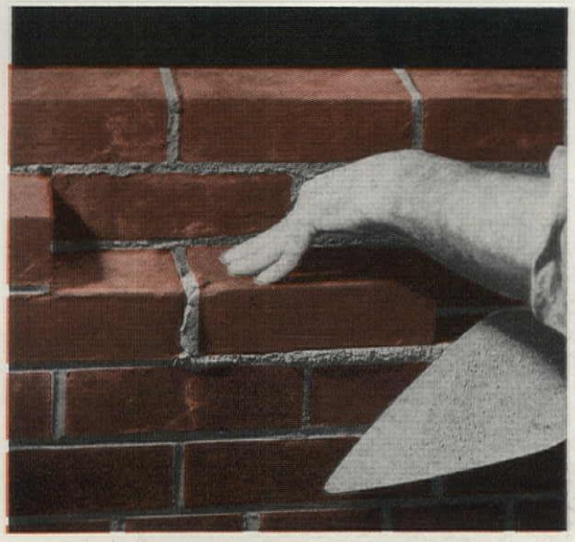

To compare the plasticity of any two mortars, try shoving a brick into place, with a full head joint. The more plastic the mortar, the easier the work. Try this with Brixment mortar!

AND GOOD PLASTICITY
IS THE FIRST REQUIREMENT OF GOOD MORTAR

One of the most important characteristics any mortar can possess is *plasticity*. Within certain limits, plasticity is the greatest single factor not only in the *economy* of the brickwork, but also in its strength, its neatness, and its resistance to the passage of water.

One of the outstanding characteristics of Brixment mortar is its unusual plasticity. Because of this plasticity, a bag of Brixment will carry three full cubic feet of damp sand and still be as plastic as 1-2-9 cement and lime mortar.

Brixment mortar's exceptional plasticity makes it easy for the bricklayer to secure neat, economical brickwork, with the brick properly bedded, and the joints well filled.

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Cement Manufacturers Since 1830

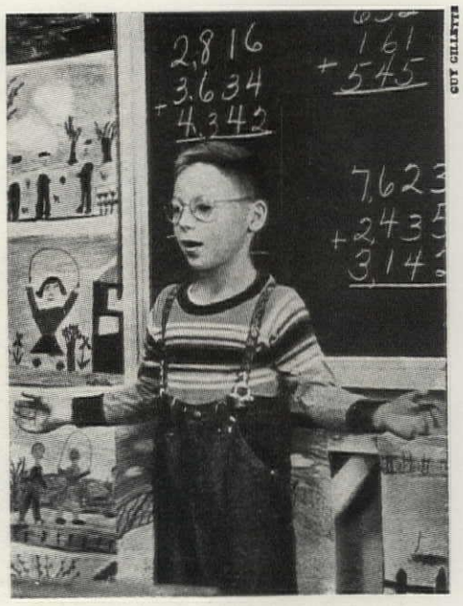
Schools are for people

GEORGE ZEINBEL

How to choose an architect

SUZANNE SZASZ

Acoustics



GUY GILLETTE

Money

SCHOOLHOUSE. Produced by Aluminum Co. of America, Eggers & Higgins, and Walter McQuade. Published by Simon & Schuster, 630 Fifth Ave., New York, N.Y. 271 pp. 8⅜" x 10⅞". Illus. $10.00.

A review by Walter D. Cocking, editor, and Georgette N. Manla, associate editor, American School and University.

A book primarily beamed at citizens and school-board members, *Schoolhouse* promises to be history-making in its value to all those concerned with educational plants. Often, a book written in nontechnical language for those not professionally concerned with its subject matter is also best read and understood by the professionals, in this case architects, educators, engineers. We predict that this will be true of *Schoolhouse*.

The book is beautifully written and delightfully illustrated by more than 500 photographs and sketches. Its design, printing, and binding are of uncommonly high quality. It has a pleasing appearance, and its content is sound, realistic, and unusually complete.

We predict that *Schoolhouse* may easily be acclaimed as the most important volume on school buildings to be produced since the little red schoolhouse surrendered its charges to campus plans and core curricula.

Written for the layman, *Schoolhouse*, edited by Walter McQuade, architectural journalist*, places emphasis again and again on the premise that school buildings are built for people. Almost no further eloquence is needed to tell us why school buildings are so special and why so much attention should be directed at their planning and design. The eloquence of the scores of splendid photographs of children and youths, in every mood and activity, which illustrate the pages of *Schoolhouse*, make the point unmistakably clear. Not until page 196 are illustrations presented of school buildings, pictures from everywhere in America, which have been assembled as "a tour of the physical and visual satisfactions good schools can offer," and which portray what all school buildings might be like.

The complications involved in undertaking a school planning program, surveying the school district, selecting the architect, choosing the site, educational planning, the actual design, selecting the structural materials, acoustics, devising the heating, lighting and ventilation systems, purchasing new furniture and equipment and the intricacies of finance, are couched in terms freed of the educator's pedagogic terminology and the technicalities of the architect and the engineer.

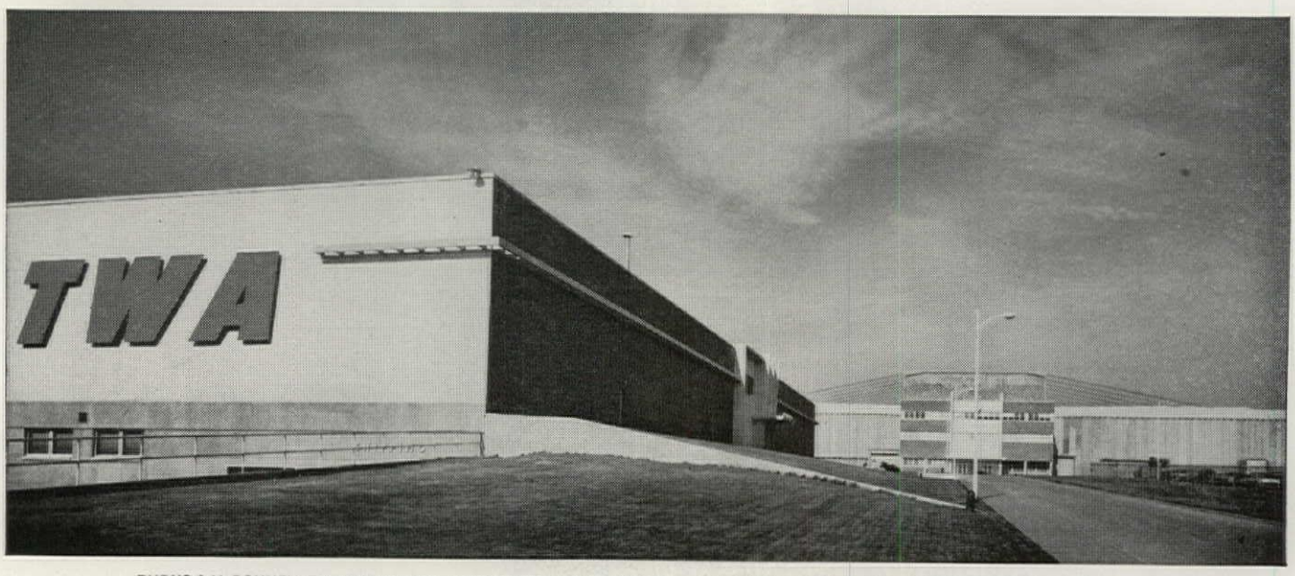
Throughout the volume we are made to see for ourselves how important a school building is to the students and teachers who occupy it daily, to the adults who use it for special purposes, to the administration which operates it, and to the com-

continued on page 193

*McQuade, while writing the book, was on a leave of absence from FORUM's editorial staff.—ED.

A continuing series of outstanding schools, churches, office buildings, hospitals and industrial structures using NORTON DOOR CLOSERS

TWA TRANS WORLD AIRLINES EQUIPS NEW BUILDINGS IN KANSAS CITY WITH NORTON DOOR CLOSERS



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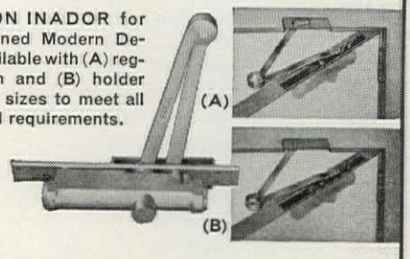
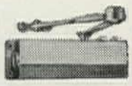
Complete Norton Line Meets Every Door Closer Need

NORTON INADOR for Streamlined Modern Design available with (A) regular arm and (B) holder arm...4 sizes to meet all standard requirements.



NORTON 750: New corner design with concealed arms for all type doors, particularly narrow rail doors.

Norton Surface-type Closers are available for all installations where concealment is not essential.



NORTON 703E: Compact surface mounted type...first closer with extruded aluminum alloy shell.

An engine for an airliner or a door closer for the plant which overhauls that engine, both must have one quality in common—dependability—to be acceptable to Trans World Airlines. With that thought in mind, the engineers specified *Norton Surface-Mounted Door Closers* for buildings at Trans World Airlines' new $18,750,000 overhaul base on Kansas City's Mid-Continent International Airport.

The door closers used here by TWA are the modern counterparts of Norton Door Closers still in daily use after serving continuously 20 to 30 years and longer. Other Norton models are available as shown at the left, to serve virtually every door closer need with equal dependability. See the new Norton catalog #57 for full descriptions of the complete line, including important new models. Write for it today.

NORTON® DOOR CLOSERS

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PHOTOS: HELEN LEVITT

Milktime

munity which the building serves. And we are reminded that a school building achieves success through excellence of visual appeal as well as function.

A thorough understanding and knowledge of the many phases of school plant development and the effect of human behavior are prerequisites in helping us to help ourselves to good schools. And *Schoolhouse* is a significant and, in fact, a most inspiring source of data to help all school planners to understand and appreciate this point of view.

In the public wrangle over "high-style" school buildings and mounting costs, we are apt to lose focus of our objective—to provide good schools for people. It is refreshing to have the atmosphere cleared and our main goal defined in terms of practical and obtainable realities.

Laymen, educators, and architects owe a debt of gratitude to the Joint School Research Project, consisting of the Aluminum Company of America, Eggers & Higgins, architects, and Walter McQuade, for conspiring together to produce *Schoolhouse*, the volume that makes us understand why school buildings are for people.

THE LIVING MUSEUM. By Samuel Cauman. Published by New York University Press, Washington Square, New York 3, N.Y. 209 pp. 10" x 7". Illus. $10.00.

An absorbing but disappointingly incomplete biography of Alexander Dorner, who did more than anyone to teach the museum-going public of Germany, both during the Weimar Republic and over the last two decades, how to look at modern art.

GUIDE TO WESTERN ARCHITECTURE. By John Gloag. Published by The MacMillan Co., 60 Fifth Ave., New York 11, N.Y. 394 pp. 7¼" x 9½". Illus. $12.50.

This is a guide by an English author to the history and character of the architecture of Western Civilization, from the sixth century B.C. to the present day—with emphasis, of course, on England. END

WHEN AMERICA BUILDS FOR ECONOMY . . . IT BUILDS WITH CONCRETE

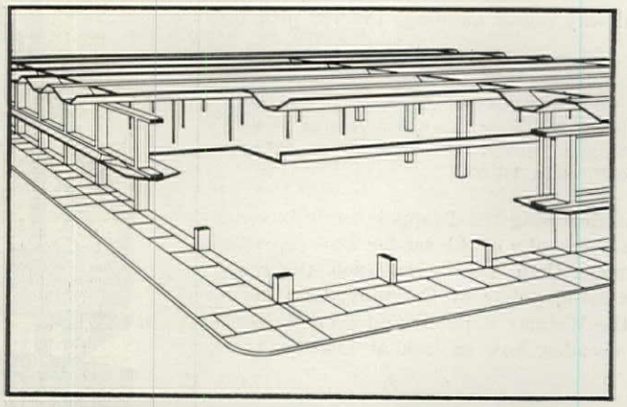
Sears, Roebuck & Company's Tampa store . . .

concrete folded plate roof achieves large, unobstructed floor area

One of the basic requirements here was to achieve unobstructed floor space with economy. Architects Weed, Russell, Johnson & Associates found the answer by using a concrete shell in the form of a folded plate. This construction made it possible to span the entire floor area with only one interior row of columns . . . and suspend the second floor from the roof. The result: 163,715 square feet of *fully flexible* floor space, so important to any retail selling operation.

Folded plate design is, in itself, unique and interesting. And only concrete can give the added boldness of the wide, cantilevered overhang.

It's one more example of the way new uses of concrete are bringing big economies and added vitality to both conventional and modern architecture.



Isometric view showing 125-foot c on c spacing of main columns. Floor slab is supported by 3-inch plates welded together to form a hanger. Hangers are spaced 25 feet c on c.

FOR STRUCTURES... MODERN **concrete**

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

What other people are saying

MODERN VS. REALLY MODERN

There are many degrees of contemporariness and each has its price. This is the theme of a recent editorial in The Architects' Journal *of Britain.*

"Modern" architecture is not always cheap to build, and "really modern" architecture, the *dernier cri*, is almost invariably rather expensive. The reason for the increased cost is the price of originality. "Really modern" architecture is absolutely original in form and concept (or so old that everyone is surprised at seeing it again). But not quite such original design is not quite so modern, and so on. "Modern" architecture of second and lower degrees of originality is now so universally accepted that even planning officers approve it. Indeed, in Buckinghamshire, it is rumored, an architect's design for a small house with a correctly contemporary low-pitched roof (third-degree originality) was refused planning permission with the plea "we're modern in this county, we like houses to have a flat roof" (fifth-degree originality).

After such a rapid achievement of popularity, are there any more worth-while battles remaining to be won by the modern movement?

UGLY SUBTOPIA

U.S. cities are doomed to everlasting mediocrity, unless the citizenry awakes to the fact that there is neither virtue nor vitality in disorder. This is the warning sounded by Sir Hugh Casson, noted British architect, in a talk over the BBC and in an article in the New York Times *"Magazine" after he had toured the U.S.*

Unfortunately, it takes more than beautiful buildings to make a beautiful city. No building is an island, and in a city the spaces between buildings and the relationship of one building to another are just as important as the quality of each individual building. It is just this problem that the Americans have so far failed to solve, and failed so badly that you could almost say that while they now possess the most beautiful buildings in the world they also possess, with some notable exceptions, the ugliest towns.

If you want to see that sort of man-made ugliness that has been called and now answers to the name of "Subtopia" in its most widespread and virulent form, you will find it today in Main Street, U.S.A., and its approaches—endless, hopeless miles of suburban housing draped in wires and cables, shacks and billboards, rotting car cemeteries, and decayed building lots. And what makes it all so disheartening is that practically nobody seems to be doing anything about it, or even to be aware that something should be done about it.

When I asked my friends and colleagues in America how it was that they could see their splendid, shining buildings put up in surroundings that would make a Balkan sanitary inspector blench, they would reply that it was surprising what you could get used to, and anyway they were so busy doing architecture they had not yet had the time to worry about the spaces between their architecture.

Americans do not defend Subtopia, nor sit down under it. They just have not yet got around to noticing it. If and when they do, such is the ruthless enthusiasm of America when launched upon any project in which it believes, that it is possible that even Los Angeles may one day be decently and tidily rebuilt. But how long can they afford to wait? Already the ugliness of American cities is getting to the point where it will be beyond correction, and generations are growing up who have known and will expect nothing better.

What really does matter—in England as well as in America—is that everybody should realize there is no virtue, not even vitality, in the nastier forms of Subtopia. It should be realized that this ugliness, disorder, call it what you will, cannot be let to spread until you are ready to deal with it, and that the best ways of destroying it are the constructive and not the repressive ways.

There is no need to throw up one's hands in despair or surrender. Somehow or other, we have got to get hold of this self-created environment and shake it into shape. This is not a matter of taste—it is a matter of believing that there is a value in lucidity and order and the passionate pursuit of standards of beauty, and that to ignore them or to stifle them is to condemn ourselves, in the Old World and in the New, to lasting mediocrity.

ARCHITECTURAL ANALYSIS

Architect William Caudill, speaking before the Wisconsin chapter of the AIA, declared that the architect's biggest job today is to diagnose his client's needs.

What is lacking most in our profession is architectural diagnosis.

We had better make more effort to find out what our clients *need*, not necessarily what they *want*. There's a difference—a big difference. The salesman capitalizes on

continued on page 196

wants; the truly professional architect concerns himself with his client's *needs*. The analysis of these needs is today the most important phase of architectural practice.

The fact is that most of our clients can't hand us their problems in nice printed folders. They don't know what they are. Sometimes they think they do. So does the patient who goes to a doctor. But the doctor doesn't remove an appendix just because his patient says he has appendicitis. He submits a complete diagnosis. The medical profession has gone so far in this field as to create the diagnostic specialist. Perhaps we have need for the architectural analyst.

Some progress in this respect has been made by a few practitioners.

We are hearing more about "programming." I'm not sure that's the right word—it reeks too much of mere listing of space needs. What I'm talking about is more than listing. It's really writing specifications for an architecture in terms of qualitative space as well as quantitative space.

A great number of architects are spelling this out in the owner-architect contract and provisions are made for the architect to receive 10 per cent of his fee for programming prior to the starting of basic plans. That makes sense. It would make more sense if it was twice that amount. It's good for the client because it forces the architect to put down on paper the analysis of the client's needs; in doing so, he becomes more articulate, more competent.

There's another good reason for enlarging and developing the phase of architectectural analysis. What is going to happen when the 30-hour work week hits the architectural offices? We shall have to find short cuts to produce working drawings and specifications. In England they've already found short cuts, through the use of standard component parts. Two weeks ago I received a set of plans from an architect friend of mine in England—only three sheets of working drawings for a school of a size which would require 50 sheets in our own office. My English friend argues that the architect should spend most of his time on analysis and research—not mere drafting. That's good English.

Mark my word, architectural practice is destined for activites which will require less drawing and more thinking. The bread-and-butter draftsman will be a thing of the past. The skillful and creative designer as always will remain the key man in the architectural process because a great architecture results from the fusion of creativity with the skill of architectural composition and the technical knowledge of the day.

But a new team member will emerge to work with the designer and make his architecture have greater significance. As the surgeon needs the diagnostician, so the designer needs the architectural analyst. END

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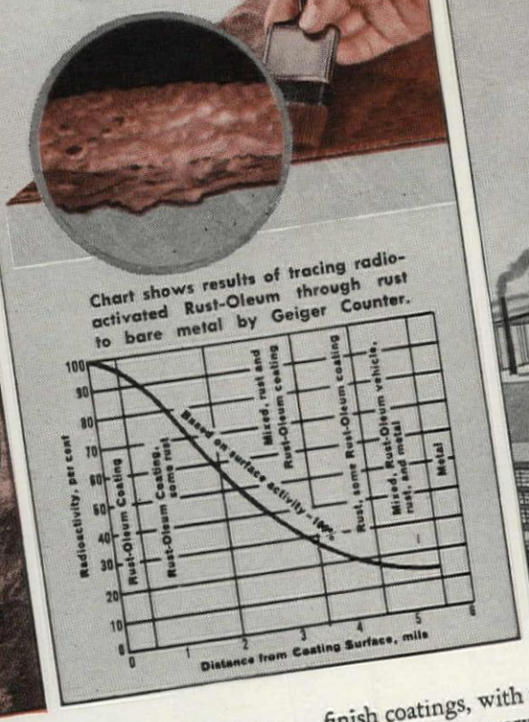

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outside Chicago. Starting in 1950, ACB set up a nonprofit corporation into which it poured more than $3 million to build seven elementary schools. Four of these were built under lease-purchase contracts with the school districts and have now been sold for roughly $150,000 less than they cost the corporation. The three other schools were financed by the corporation with gifts of $225 per house to the school districts and the balance in interest-free loans of from 12 to 18 months. ACB has now disbanded (FORUM, June 1958), but its successor, Park Forest Homes, Inc., plans to finance at least two more schools (estimated cost: $300,000 apiece, exclusive of design costs) for 1,200 new homes it has on the boards.

How they rate

How good are developer schools? On the basis of plans, the Levitt school appears to be quite good, indeed. It is well-conceived and generously laid out. While its design may not be pace-setting, its over-all effect is certainly pleasant. Dr. Cleve Westby, director of School Building Services for the New Jersey Department of Education, believes the school is at least the equal of most good modern schools being built in the state today. John Mongon, who is superintendent of schools in Burlington County, which includes Willingboro, says that even before the Levitt School he was decidedly for developer schools, and the more the better.

With certain exceptions, officials in other areas are also pleased with what they have seen of developer schools. None will contend that the schools are superior, but most feel they are definitely more than adequate. Robert Flum, superintendent of schools of Roselle, Illinois, where F & S Construction has been building, says: "We feel our schools compare favorably with any and have no complaints at all." Earle E. Mathews, president of the Roselle school board, professes to be completely happy. "The buildings are doing a good job. Our buildings would have been much smaller if we had put them up ourselves. We do lack a multi-purpose room and a gym, though."

Actually where there is dissatisfaction with developer schools, it seems mainly to center around maintenance. "We're not too happy with the way our school has held up," says Seymour Bixhorn, principal of the Lakewood School which was built in 1951 by American Community Builders. "Maintenance is a big problem. We've had trouble with our ceilings and with our roof, which leaks. The lighting has been inadequate, too." A similar report comes from Madison, N. J., where Herbert Kendall built one of his schools. The school board has complained that heating has been expensive, and that upkeep has run higher than it figures it should.

While this local experience is significant, it is not a full report card on the developer school. For one thing, it takes no account of the opinions of builders themselves who, in the main, are opposed to the idea of building schools or standing the cost for classrooms. Levitt is in the minority in believing that builders have a responsibility to contribute part of the cost of

continued on page 202

NEW DURCON®
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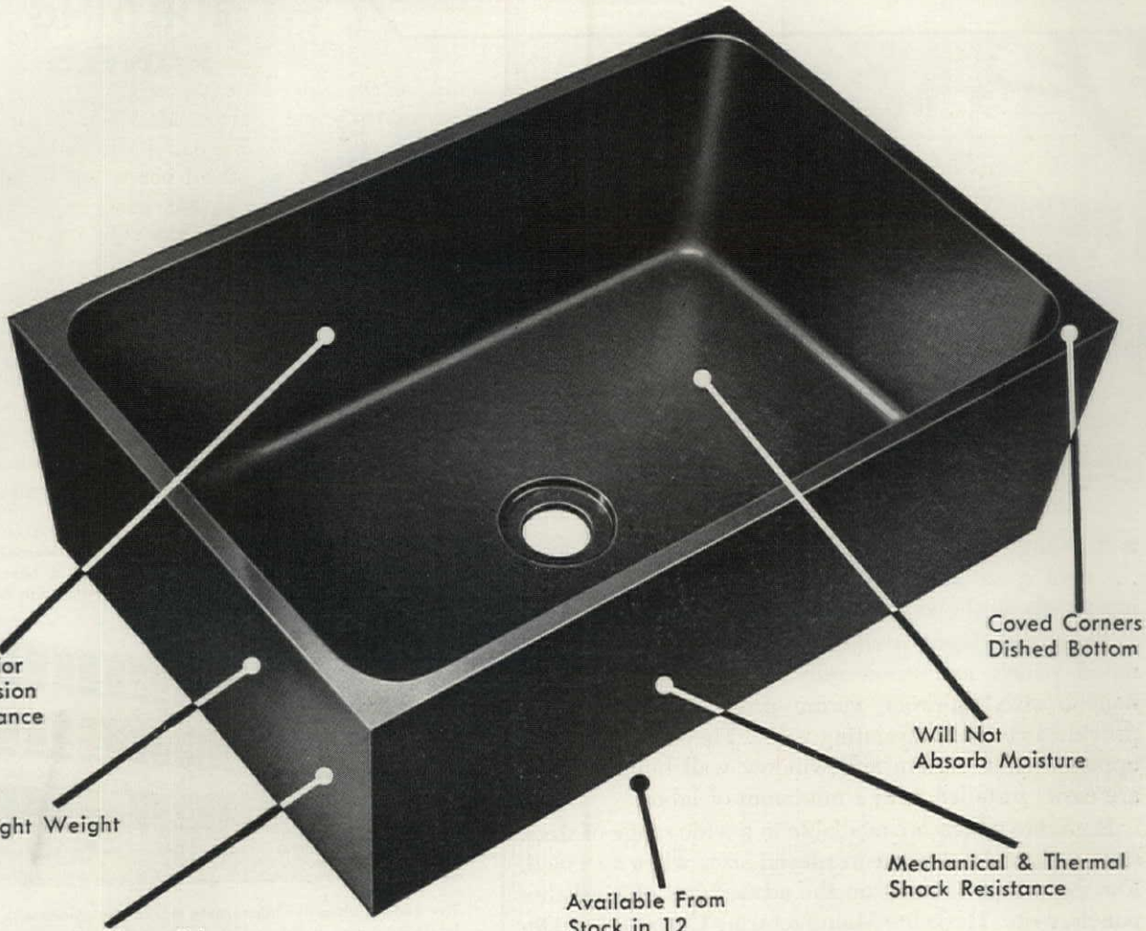

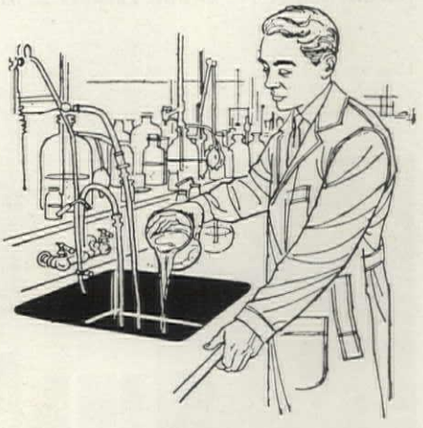

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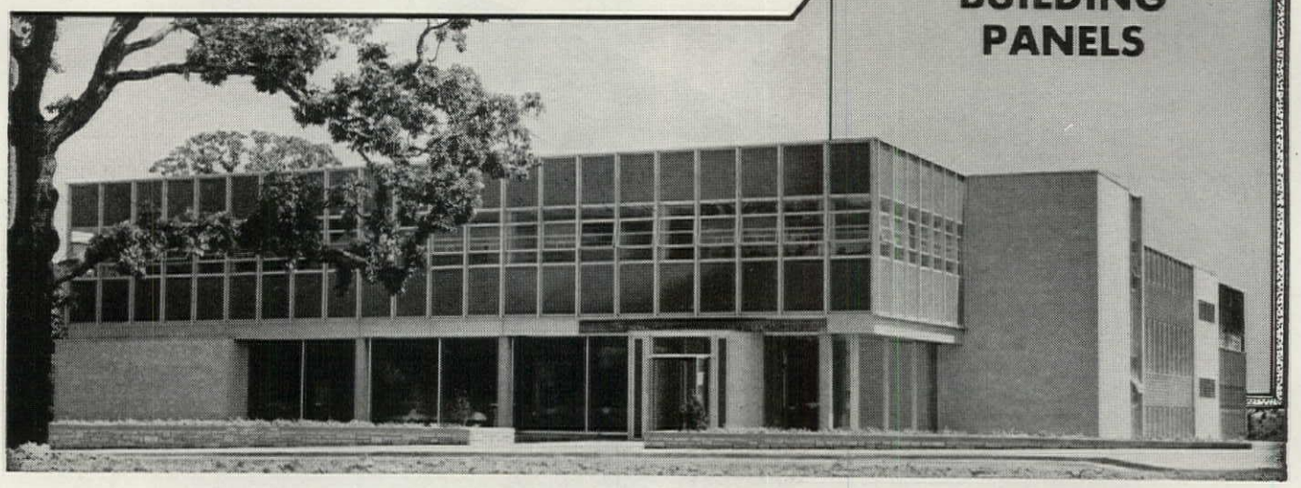

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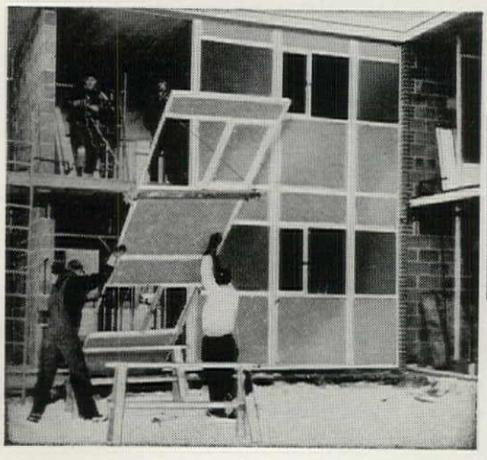
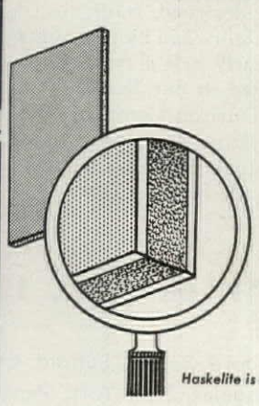
Monsanto Chemical Company's new laboratory in St. Louis represents the most thorough use of plastics in a commercial building in the world. Haskelite panels played a basic structural role in this new building. Architect—Holabird & Root & Burgee, Chicago.

The modern, attractive appearance that can be gained with Haskelite panels is shown here in the students' dormitory at Marion College, Marion, Ind. Architect—Orus O. Eash, Fort Wayne, Ind.

New student housing project at Michigan State University goes up rapidly with Haskelite panels. Entire wall can be installed without using expensive erection equipment. Architect—Manson Carver Associates, Lansing, Mich.





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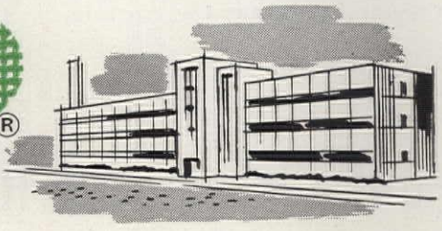

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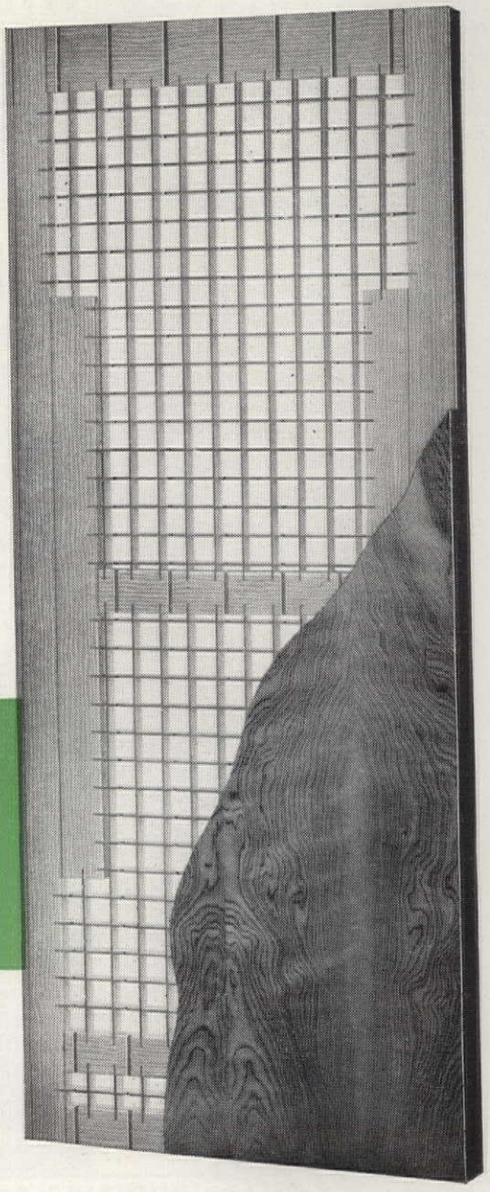

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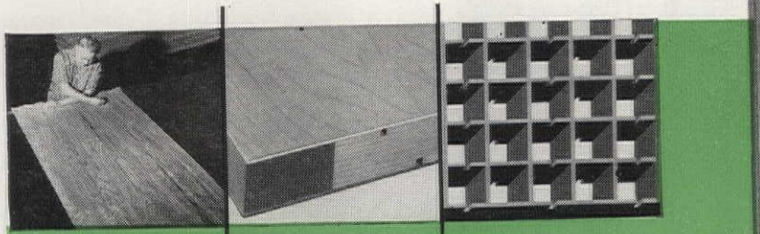

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Heavy duty 2″ x 2″ grid core construction.

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schools, and that "all builders should help with them." (Actually, the courts in several states—e.g., Illinois, Colorado — have specifically ruled that towns cannot force builders to put up money for schools.)

The position of the National Association of Home Builders is that classroom construction is no business of the home builder, and that it is not even good business for the community. This latter point is perhaps the most important, for it is the one raised most often by educators and planners, and it is the one with broadest application.

Specifically, what some educators dislike about the developer school is the lack of control the town and its taxpayers may have over what they get. One school finance specialist says that it is his view that "school boards will not exercise sufficient control over the construction of a developer school, even though the developer has worked closely with the school board on approval of plans and even though the plans meet state school construction requirements. Further, it is impossible with a developer school to meet the needs or desires of the people for whom the school is built, since most of these people are not even in the community yet."

Other critics feel that there is an inequity in the developer school if it is paid for only by the home buyers; some children from outside the development will presumably use the classrooms and their parents should share in the cost. They question, too, the wisdom of financing schools out of home mortgages (which in effect is what happens) when mortgage interest rates are higher than those for school bonds. Finally, they raise the point of quality: will a builder be likely to use the best, longest-lasting materials when his main interest is simply getting the school up as quickly and cheaply as possible?

These criticisms, which are typical of those of many schoolmen, suggest that there is probably a real need for communities to weigh carefully the possible alternatives to developer schools. The most likely of these alternatives, of course, is to add new taxes, and broaden the incidence of existing ones, so that towns can be better equipped to meet their school needs. As it is now, the real-estate tax is relied on almost exclusively for school finance, and it is often inadequate for the job. Probably it should be supplemented, either with an effective personal property tax or with a real-estate transfer tax, which is, in effect, a sales tax on the sale of a house. (The transfer tax, which is now being used in several states, including Pennsylvania, has an appeal not unlike that of the developer school; that is, it generally extracts more from new home owners, who need the new schools, than it does from the older residents.) Finally, the time that it takes a new house to get on the tax rolls—often a year or more—should be shortened, for ideally houses ought to be taxed when occupied.

These steps, unpopular as they might be at first, would immeasurably improve a community's chances of coping with the school demands of a sudden surge in population. And were they to be coupled with emergency state aid (significantly, there have been no developer schools in states such as California which have generous aid programs), the community might well be able to handle most of its school problems by itself in the way it wants. END

This open-web steel joist carries two loads... structural and electrical

The E/C Joist is a Standard Open-Web Steel Joist with an electrical raceway substituted for the conventional top chord. Each E/C Joist has the same load-carrying capacity as a comparable standard joist, and the same load table applies. Patents applied for.

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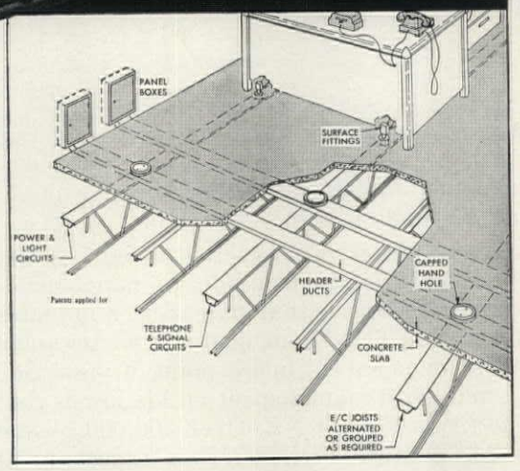

Electrical, telephone and signal wires can be run from the panel boxes down through the header ducts, into the top chord of the E/C Joist and up through the surface fittings to desks located anywhere on the floor. Whenever desks are moved, surface fittings can be placed along the joists to service the new positions.

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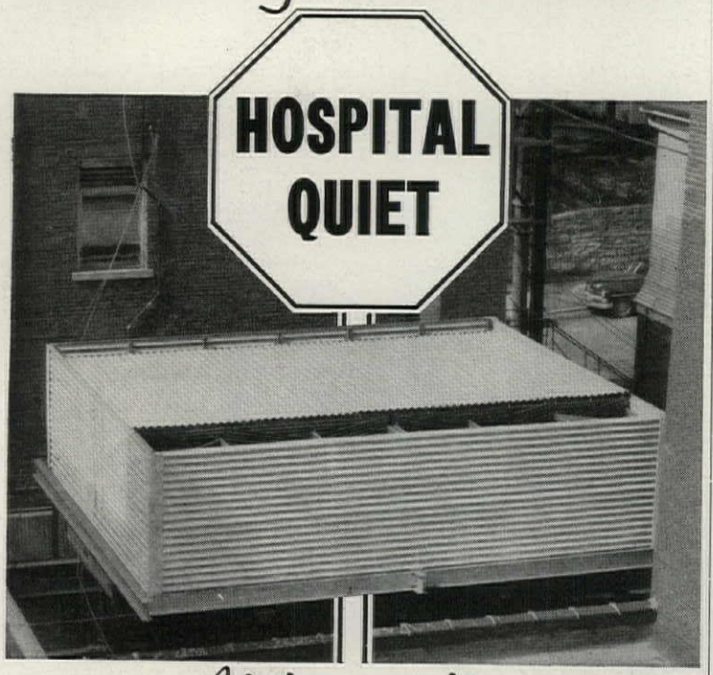

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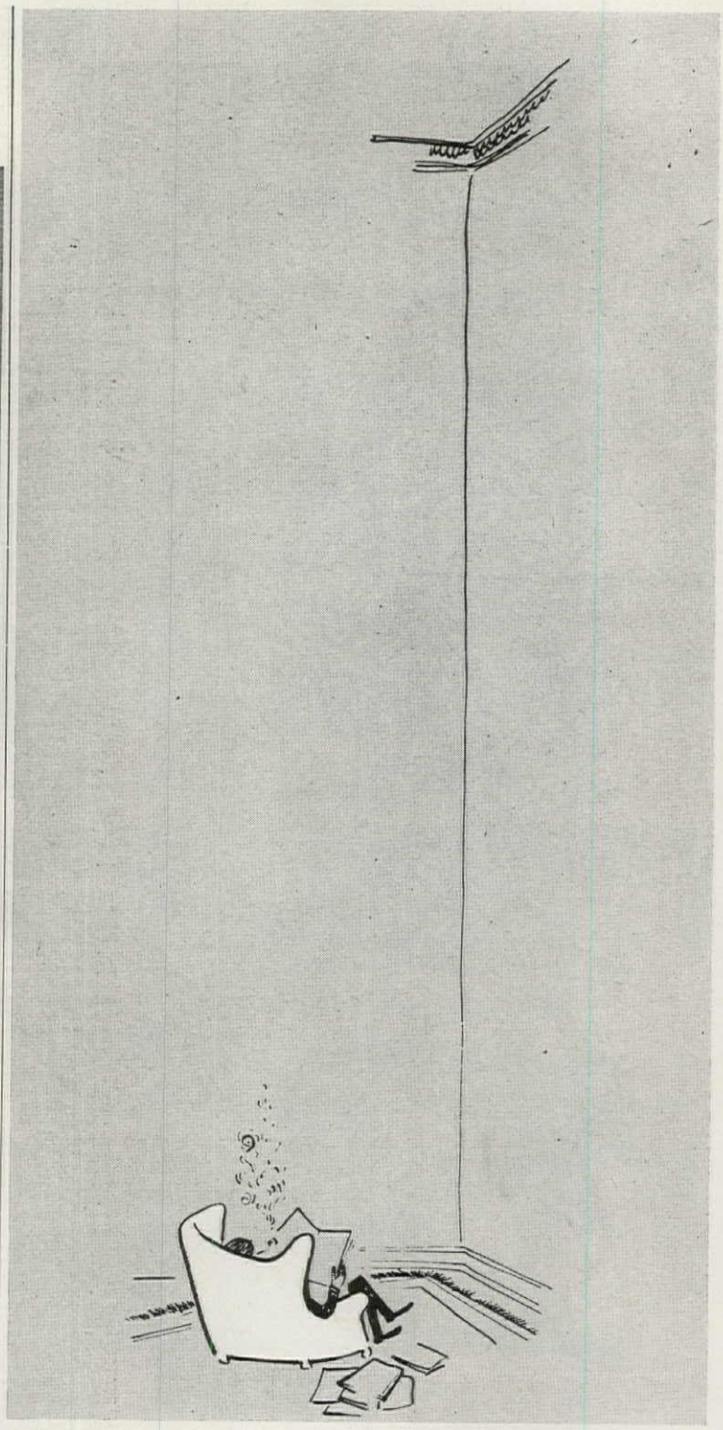

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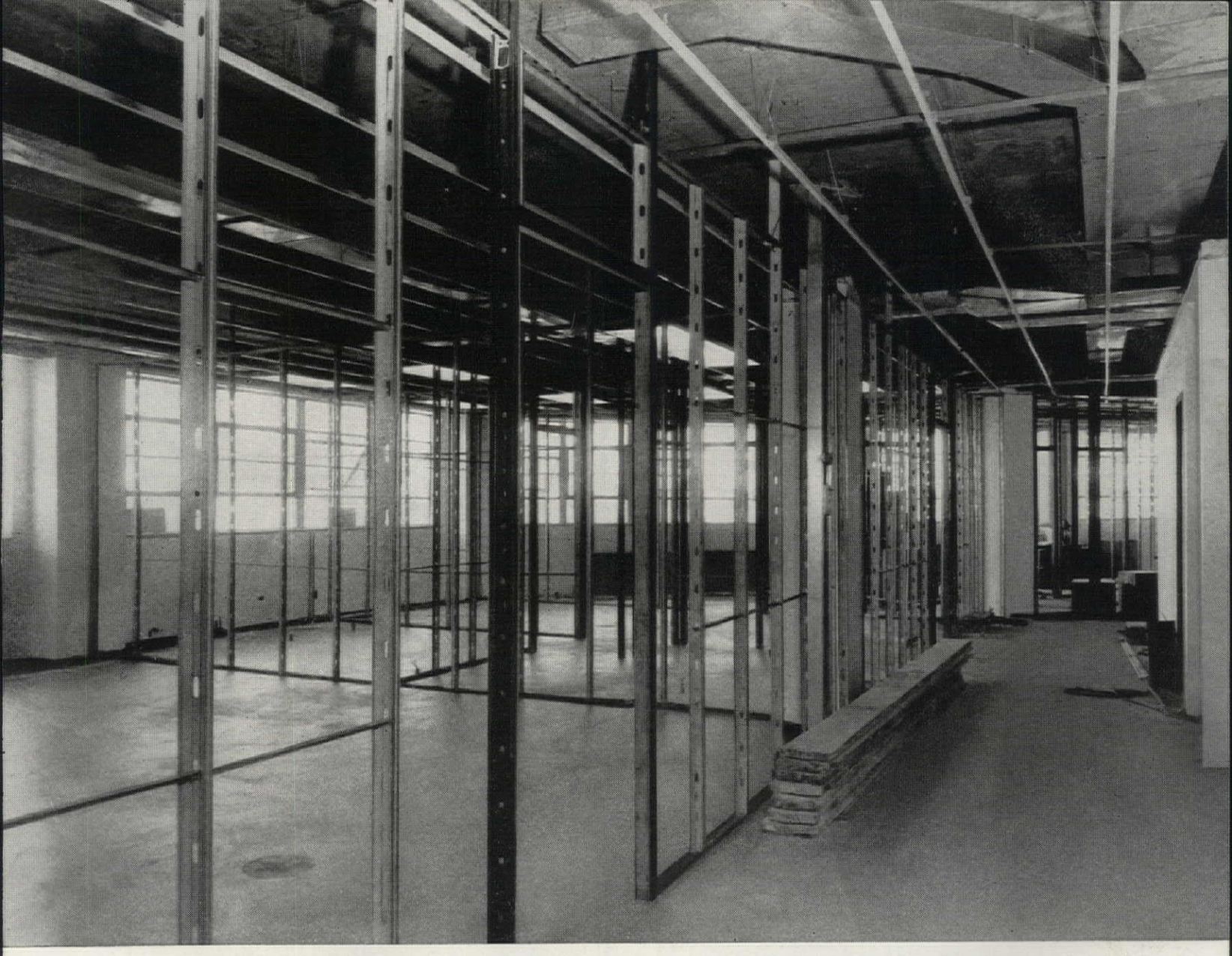

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MR. ROBIE *continued from page 127*

side walls then went up carefully. Every two or three layers of brick, in order to preserve the continuity and the long-line appearance, Mr. Barnard checked it with an instrument. There wasn't any by-guess-or-by-God business. He did a beautiful job; it developed into what I wanted, and what was satisfactory to Mr. Wright. The architect was responsible for that, and he took his responsibility very seriously. I know he was often on the job bright and early in the morning and stayed as long as he and Mr. Barnard wanted to settle things. The plans were so perfect that Barnard afterward told me he might as well have been making a piece of machinery.

It wasn't long before we were under cover. I went away on a business trip and came back and found the roof on, the walls up, and they were getting ready to cover the concrete floors with wood. And a beautiful job they did of that. Of course you could get wood in those days that is pretty difficult to get today.

There was some experimentation in the house: the building of indirect lighting around the side walls of the living room, for example, and the introduction of indirect heating by having the radiators strung along in the floor in front of doorways and windows with the pipes actually below the floor, which helped warm up the slabs, so that there was no shock of stepping on the cold floor, particularly in the bedrooms.

I had very little participation in these details. That was Mr. Wright's job. Then, all of a sudden, one day he said: "I have brought Mr. Mitchell along with me to have a little conference with you. Now I have got a commitment to go to Tokyo, Japan, and do a job over there, building a small hotel that won't fall down with the next shiver of the land. Mr. Mitchell will carry on the job and report direct to you as may be necessary. And if he can get along with you as well as I can, and he has with me, I think probably you and he can team up pretty well."

My last visit with Mr. Wright was that day he and Mitchell and I were together. It happened to occur to me, although Mr. Wright had not mentioned it, that a final payment might as well be settled. Even at that point, every single detail had worked out commercially and practically as we had anticipated and hoped.

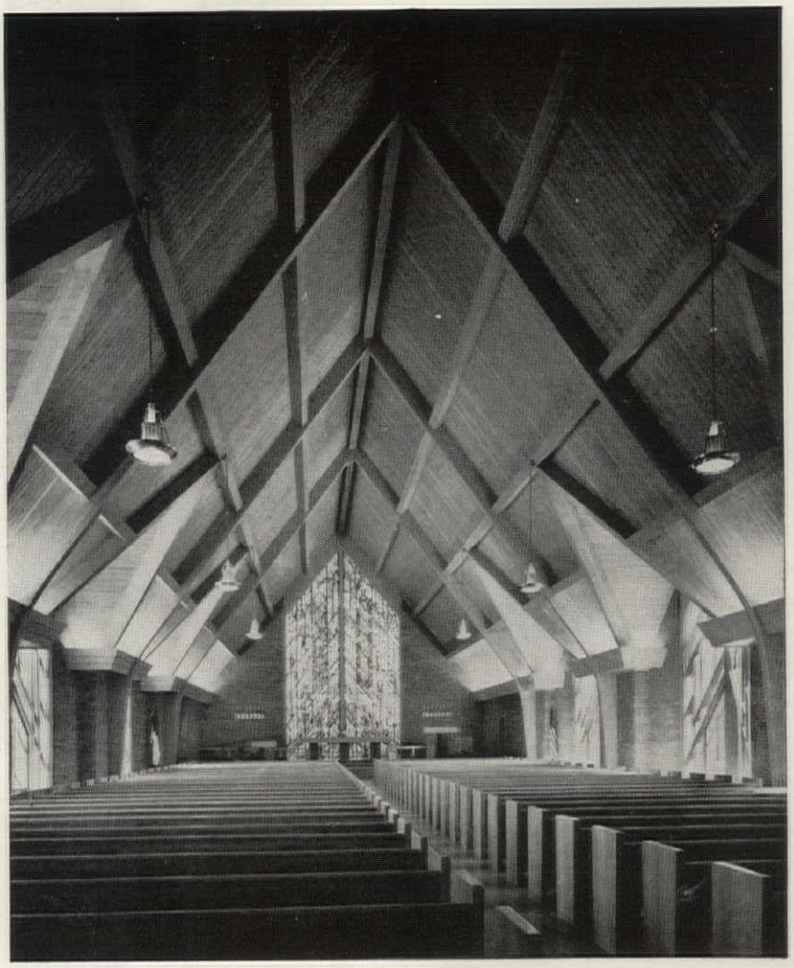
Relationships with Mr. Wright were ideal. It seems inconceivable that the foresight, the knowledge, and the intense desire to do just the right thing could have been imbedded in a man like him—possibly it was in his hair—remember, it was kind of long.

Robie Jr.: Were there any extras on the job?

Robie Sr.: None. The actual total cost of the house proper, including all items—even interest and taxes, was $35,000. The cost of the lot was $14,000. Special furnishings, such as a hand-woven rug from Austria, which were provided under Mr. Wright's direction, came to about $10,000.

continued on page 210

"the fine line of RILCO"



Rilco arches span 43′ 6″, spaced 23′ 6″, center height 38′ 8″.
Rilco purlins, 9″ x 13″.
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"The fine line of the Rilco laminated arches adds much to the dignity of worship. The construction and entire design of the church here depends on the arches. The parishioners are very well pleased with the building . . . a great number of visitors have commented very favorably on the entire lines. The church has become quite a landmark in the community and many of the people of the city bring their guests from out of town to visit our church," writes the pastor.

"We were completely happy with the cost, the erection, the appearance, and the grade of the arches," adds the architect.

Architects and clients like Rilco arches, beams and purlins because of the qualities inherent in these laminated wood members. They have the warmth and richness of wood. They are fire resistant . . . (slow-burning Rilco members do not suddenly collapse — allow time to save structure and contents).

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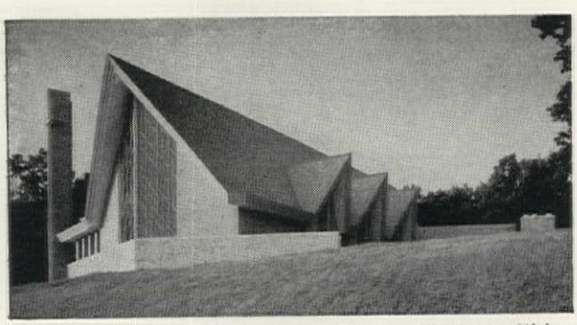

Zion Evangelical Lutheran Church, Kalamazoo, Mich.
Architect: Charles Edward Stade, Park Ridge, Illinois
Contractor: Miller-Davis Company, Kalamazoo, Mich.
Photos: Hedrich-Blessing

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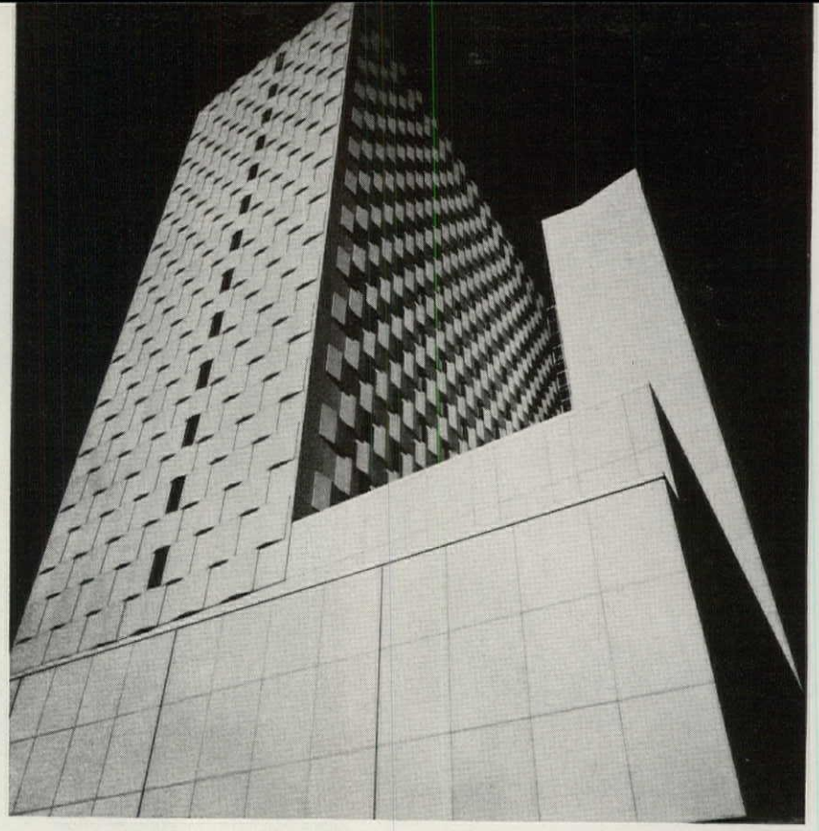
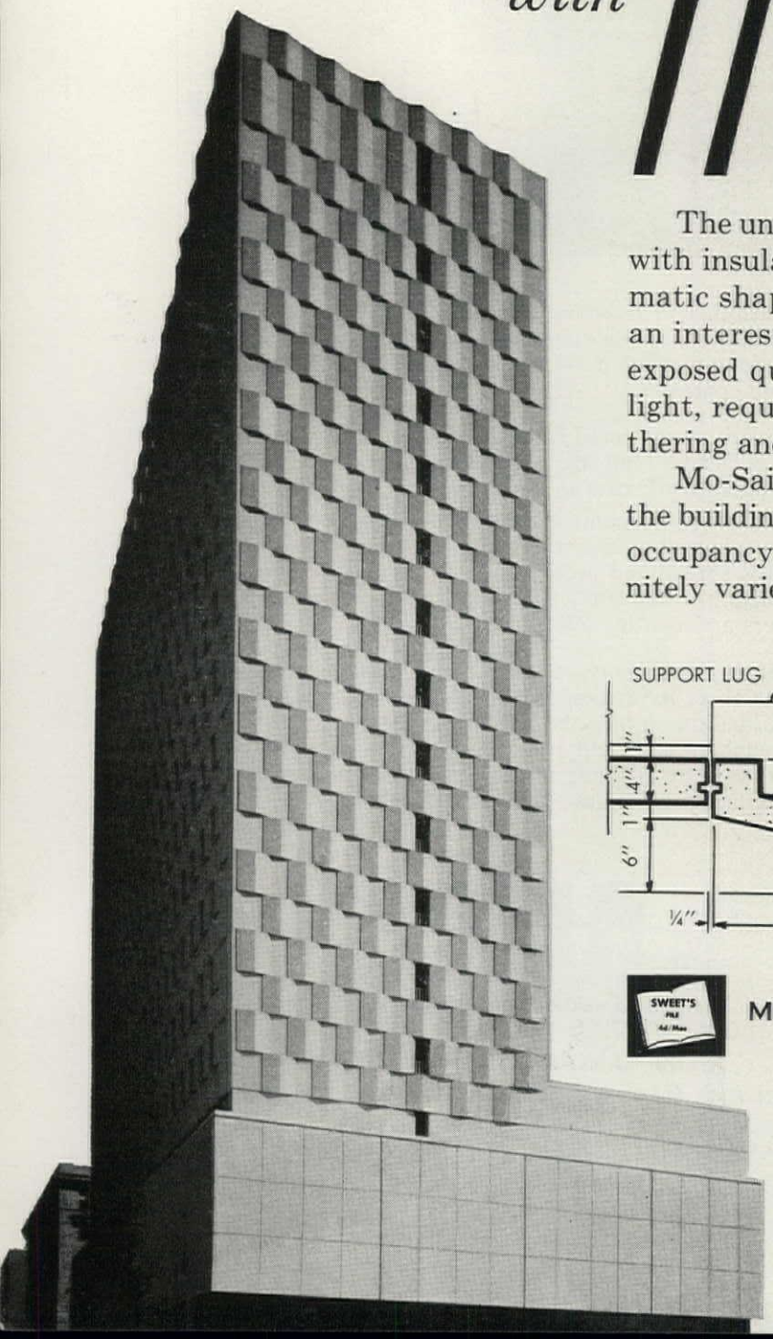


Wachovia Bank and Trust Building, Charlotte, N.C. Architects: Harrison and Abramovitz, New York. Associate Architects: A. G. Odell, Jr. & Associates Charlotte, N.C. General Contractor: J. A. Jones Construction Co., Charlotte, N.C.

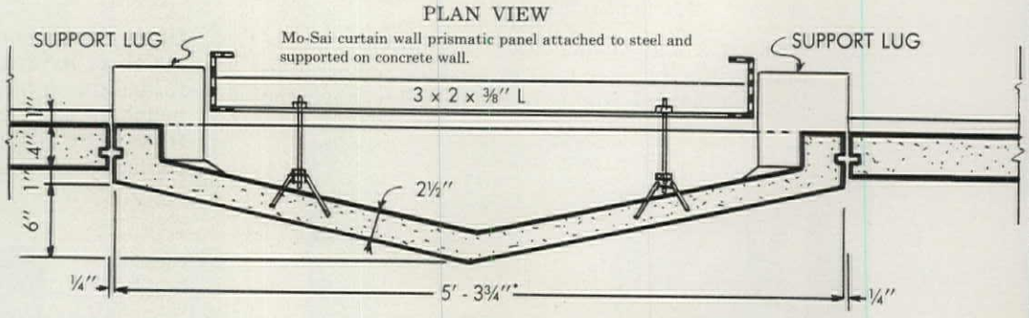
Curtain walls can be decorative as well as functional with Mo-Sai



The unique Wachovia Bank Building is clad completely with insulated curtain wall panels of Mo-Sai. Their prismatic shape gives shade to the glassed areas, and makes an interesting textured pattern of light and shade. The exposed quartz aggregate surface sparkles with reflected light, requires virtually no maintenance, and resists weathering and wear.

Mo-Sai curtain wall panels can be quickly anchored to the building, reducing labor costs and making possible early occupancy. Colors, textures, sizes and shapes can be infinitely varied for unexcelled design freedom.

PLAN VIEW



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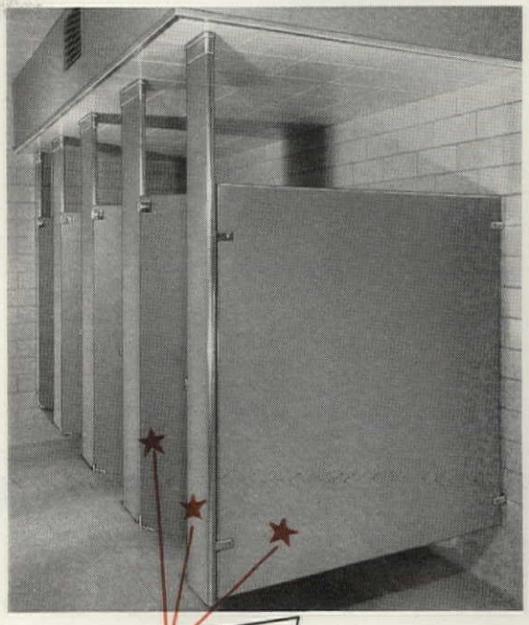
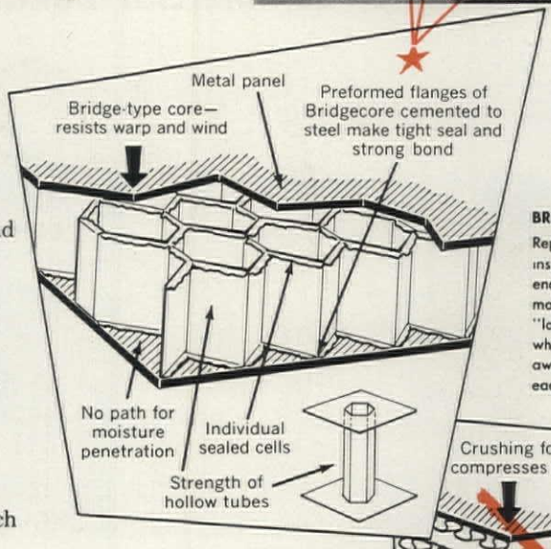
BRIDGECORE

for maximum compression resistance, greater panel strength, longer life

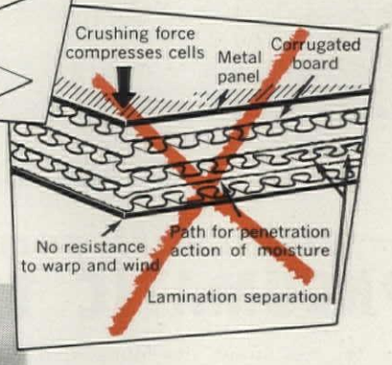




New BRIDGECORE fiber insulation is composed of hexagonal tubular cells at right angles to, and cemented to, face plates of panels, doors, pilasters.

BRIDGECORE WAY

Replacing corrugated board insulation, BRIDGECORE ends structural weakness, moisture penetration, and "lamination separation" in which corrugations pull away from metal or from each other.



OLD WAY *(Right:)*

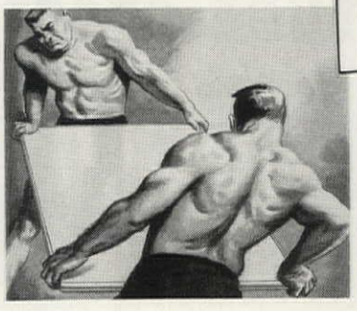
Advantages from BRIDGECORE include greater panel strength, less weight (always true of tubular design), and finished surfaces free from buckle and wave.

Using the structural principle employed in modern aircraft wing design, Sanymetal now builds toilet compartment doors, panels, and pilasters *stronger*, and *lighter*, with new Sanymetal BRIDGECORE.

BRIDGECORE provides thousands of hexagonal, tubular fiber cells bridging the space between the metal face plates. Preformed flanges on the edges of each BRIDGECORE cell cemented under pressure directly to the steel, producing an exclusive *compression bond.* Thus the cells rigidly brace the panel sheets like trusses. The cementing permanently seals each individual cell. There is no chance of moisture penetration. This design completely eliminates "lamination separation" which occurs with conventional corrugated board. With BRIDGECORE the panels are stiffer, stronger, and resistant to warp and wind.

This new engineering improvement is one of the many features in Sanymetal construction which make compartments that have flat surfaces free of buckle and wave. To get these advantages specify *Sanymetal.*

Write for new bulletin on Sanymetal "Bridgecore", and for Sanymetal Catalog 95, which gives other important details of quality toilet compartment construction.



(Left:) **BRIDGECORE** adds even more strength to Sanymetal construction, already noted for rigidity unaffected by abuse which would cause ordinary panels to warp or wind.

LOOK FOR THIS

NAMEPLATE WHICH IDENTIFIES EVERY SANYMETAL INSTALLATION

Sanymetal®
PRODUCTS COMPANY, INC.
1687 Urbana Road, Cleveland 12, Ohio

MR. ROBIE *continued from page 206*

Robie Jr.: So your total cost was about?

Robie Sr.: $59,000.

Robie Jr.: And the budget you had set up in your own mind was what?

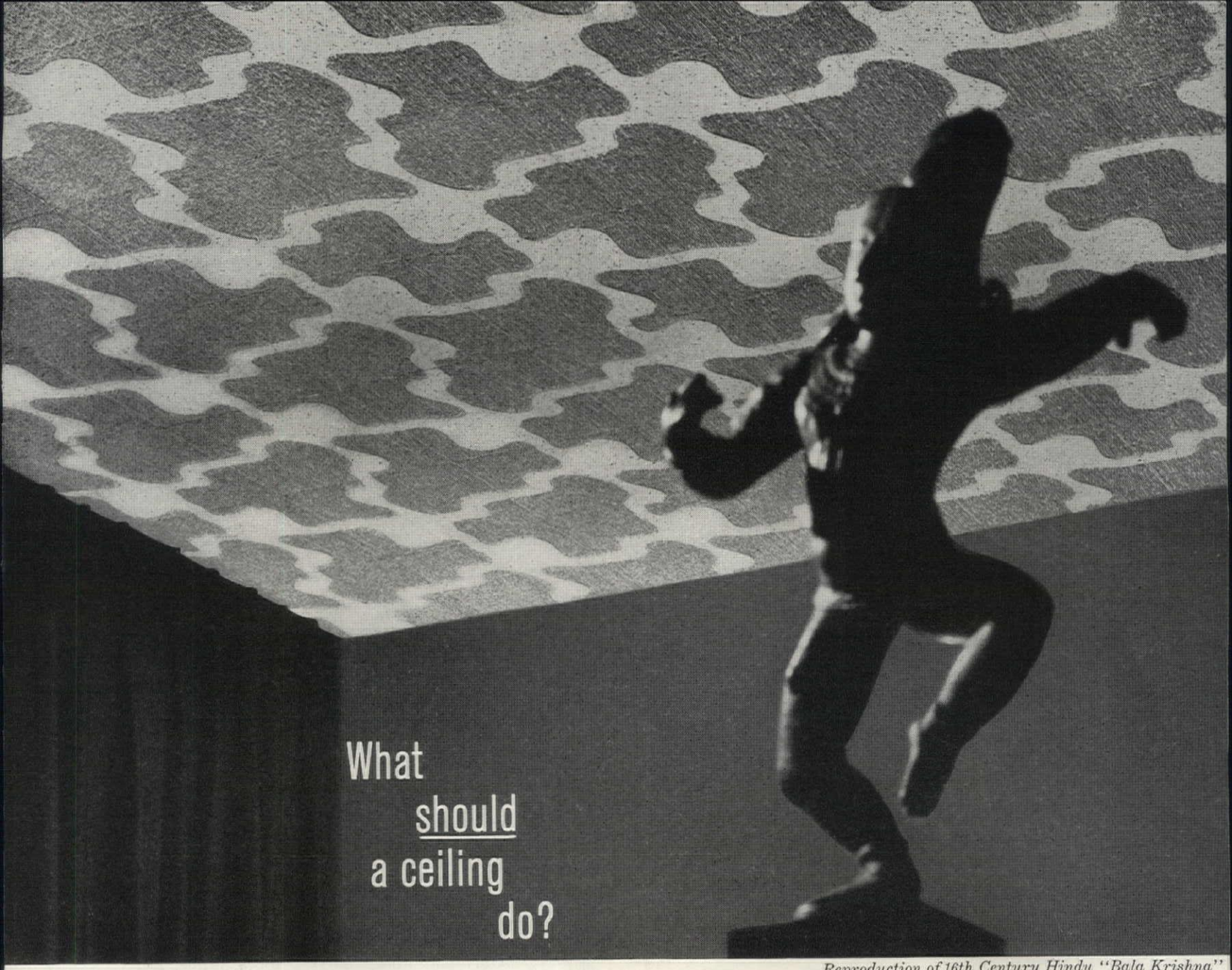
Robie Sr.: $60,000. It was one of the cleanest business deals I ever had.

Robie Jr.: So there you have a few of my father's memories. My own childhood memories are rather vivid. For example, I remember visits to the job under construction, playing in the huge sand pile used to make mortar, and walking on the catwalks that were used to wheelbarrow materials to the house. Then later, from our raised living room and dining room, we could look out over a two-block vacant area to the Midway Plaisance. At that time the central portion of the Midway was flooded in wintertime, and we could watch people skating there.

Still later, after father sold the house, and we moved away, I came back to attend the University of Chicago, and my fraternity house was only a block away. Very quickly I heard weird stories about my old home. One that I remember was that it had been built by a retired sea captain and his wife, to resemble an ocean liner, with its long deck-like balconies on the south and west. Supposedly the captain and his wife were buried in the vault below the front porch—really a storage area we had used as a wine cellar. There were other wild stories which, naturally, I couldn't contradict, disillusioning my new-found friends and storytellers.

I definitely feel that the house had a big influence on my own life. Although not specifically trained for it, I have been in some phase or other of construction work since the mid-thirties. Technical details about our house which have always interested me are the special brick, 1⅝ inches thick by 11⅝ inches long, which Mr. Wright took a special trip to St. Louis to have made. My father and I also believe that this was the first use of welded structural steel in an American house. During the period when father was making preliminary sketches, he knew that a friend of his had been using welded steel girders to build coal loaders for lake and ocean boats. He asked this friend if such girders could be welded suitable for use in a house. The answer was yes, so father passed this on to Mr. Wright. The result: four 15-inch channel beams about 100 to 110 feet long form the backbone of the structure. They were shop fabricated by the Ryerson Steel Co. in Chicago. The rest of the steel was connected by conventional bolting.

Robie Jr. (concluding): Father was very pleased when Mr. Wright telephoned him a month or so ago from Chicago, talked over old times, gave him the latest news on our house, and extended an invitation for father to visit Taliesin West whenever he could. The last time I saw Mr. Wright was in Chicago in October of 1956 at the Sherman Hotel. He asked about father, and commented: "A good house for a good man." END



Reproduction of 16th Century Hindu "Bala Krishna"

Beauty *is one of the* 7 functions *of a modern ceiling*

7 functions
structure
sound absorption
sound isolation
fire protection
beauty
comfort
economy

A beautiful ceiling plays a dominant role in helping you bring drama and visual interest to any room. FANTASIA MOTIF'D* ACOUSTONE Acoustical Tile shown above is only one of many striking new patterns developed by U. S. G. to complement the decor of any room, and thus offer you maximum flexibility of design; *it's the beautiful way to quiet a room.*

For full information, or a free showing of the 16 mm. color and sound film, "More than Meets the Eye," contact your nearby ACOUSTONE Tile Contractor, or write Dept. AF-85, 300 W. Adams St., Chicago 6, Illinois. Additional information is in Sweet's Catalog, Section 11a/Uni.

SOUND CONTROL IS A JOB FOR EXPERTS

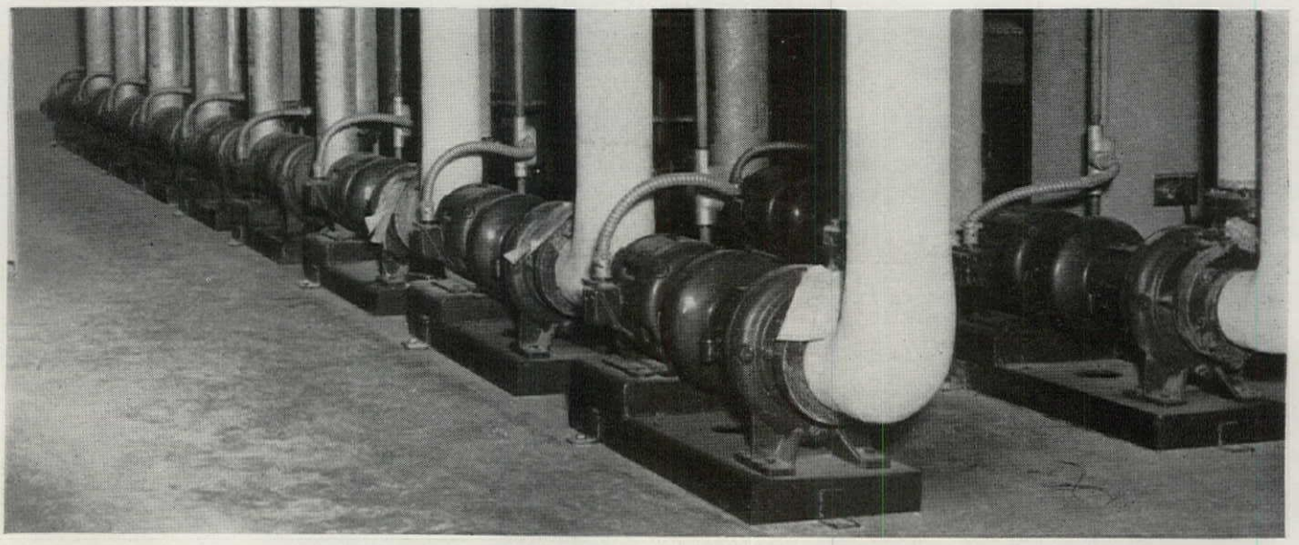
ACOUSTONE*

MINERAL ACOUSTICAL TILE

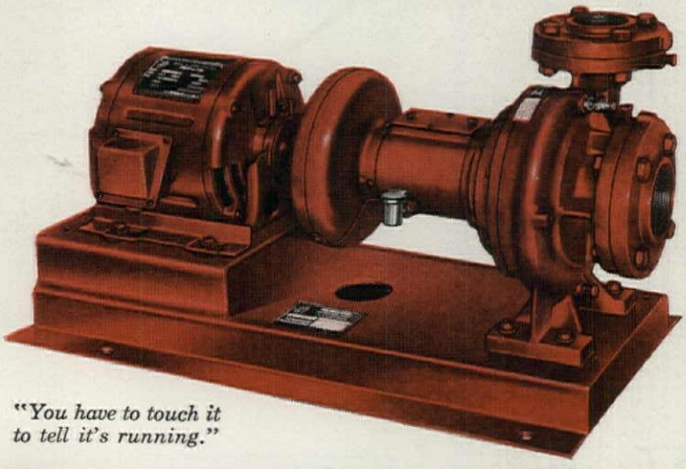
*T. M. Reg. U. S. Pat. Off.

UNITED STATES GYPSUM

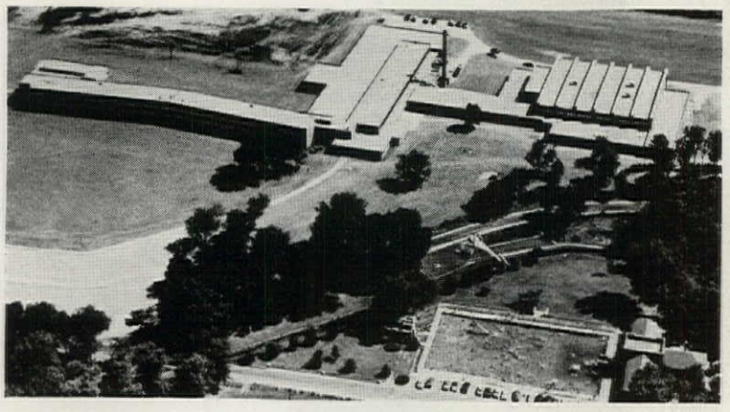
The greatest name in building



EIGHTEEN B&G UNIVERSAL PUMPS DELIVER Quiet HEAT



"You have to touch it to tell it's running."



Parkview High School, Springfield, Mo.

Architect: Richard P. Stahl, Springfield, Mo.
Engineer: R. W. Bare, Springfield, Mo.
Contractor: McCarty Co., Springfield, Mo.

Selecting a pump for a circulated water heating or cooling system is not merely a matter of proper head and capacity. *Quiet, vibrationless operation is of major importance!*

In the modern school shown here, eighteen B&G Universal Pumps deliver heat without distracting noise. These pumps are designed specifically for heating system use...built to perform dependably and *silently*. No vibration eliminators or flexible connections to the piping are needed.

Universal Pump motors, for example, are specially constructed and selected for *extra-quiet* operation. Long *sleeve* bearings are used in both motor and pump—another assurance of smooth, vibrationless operation and long life of both pump and motor. The oversized shaft is made of special alloy steel with an integral, heat-treated thrust collar to absorb end-thrust. Water leakage is prevented by the diamond-hard "Remite" mechanical seal...a B&G development.

Note, too, that *vertical* split case construction with removable bearing frame permits easy servicing without breaking pipe connections or motor leads.

B&G BOOSTER

An in-line pump of smaller capacities than the B&G Universal, but with the same features which assure quiet operation.

Reg. U.S. Pat. Off.

BELL & GOSSETT COMPANY

Dept. FL-62 Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

A continuing review of international building

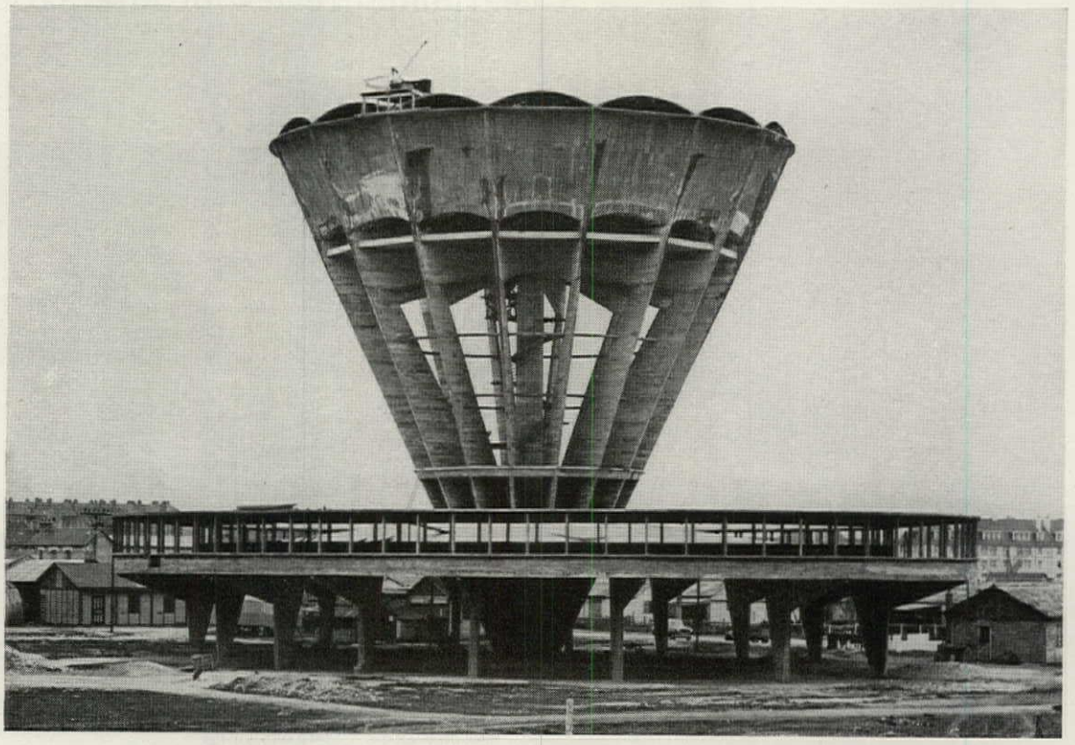
PHOTOS: (ABOVE) FOX PHOTOS LTD.; (BELOW) COLIN WESTWOOD

LONDON'S TRIPLE TERMINAL

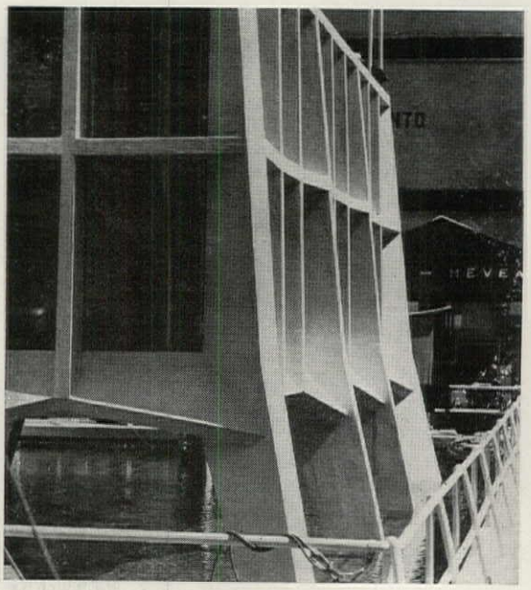
Here is a terminal for the mid-twentieth century. Primarily an air terminal, it is built on a highway and a railroad which lead to the city (London) 20 miles away. It is called Gatwick and will be used to relieve pressure on the busy London Airport. The railroad station has long served a nearby race track, and the airport has been in use on a minor scale since 1936. But the road is new (a diversion of the nearby London-Brighton route) and the terminal building is new too. Architects Yorke, Rosenberg & Mardall put the building athwart the highway and projected a finger westward to the planes and another eastward to the trains. Ramps bring autos up to the terminal level from the road and parking lots.

FRENCH ICE CREAM CONE

Rising from its circular base like a half-eaten ice cream cone, this water tower was designed by French Architect-planner René Sarger to serve several municipal functions in the new suburb of Guérinière, near Caen. The tower contains some 700,000 gallons in a reservoir that is designed as much for civic interest as for internal capacity; the raised, circular element around the base of the 100-foot tower houses the town's administrative offices and also covers the central market on the ground level. The entire structure is built of reinforced concrete and rests on a massive central base, relying on the perimeter columns only for secondary support.

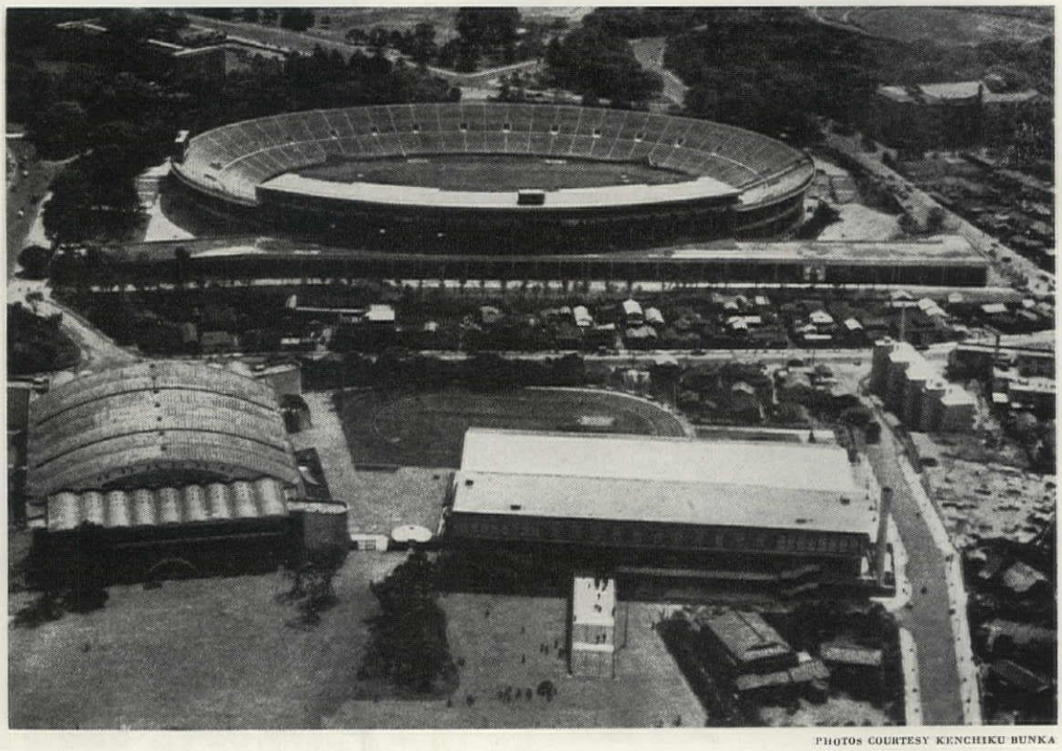


CENTRAL PHOTO



ITALIAN TANK—A GIANT SHOWCASE OF WATER

Milan Architect Roberto Menghi was given the unusual assignment of constructing a good-looking facility for the testing and display of underwater equipment at the recent Milan trade fair. Determined to show that modern architecture could meet this artistic and engineering challenge, he separated the problem into two parts, a display pool and a testing tank. For the latter, he built a strongly reinforced concrete and glass structure that both holds water and looks fine. But, interestingly, the tank shares with many larger modern structures the problem of uncertain scale. Its front (above) might be mistaken for the façade of either a palace or a piggy bank.

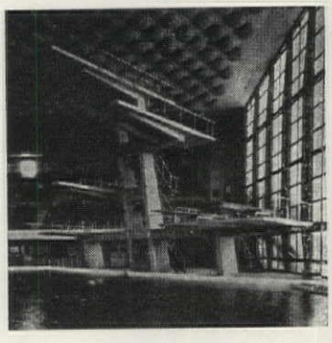


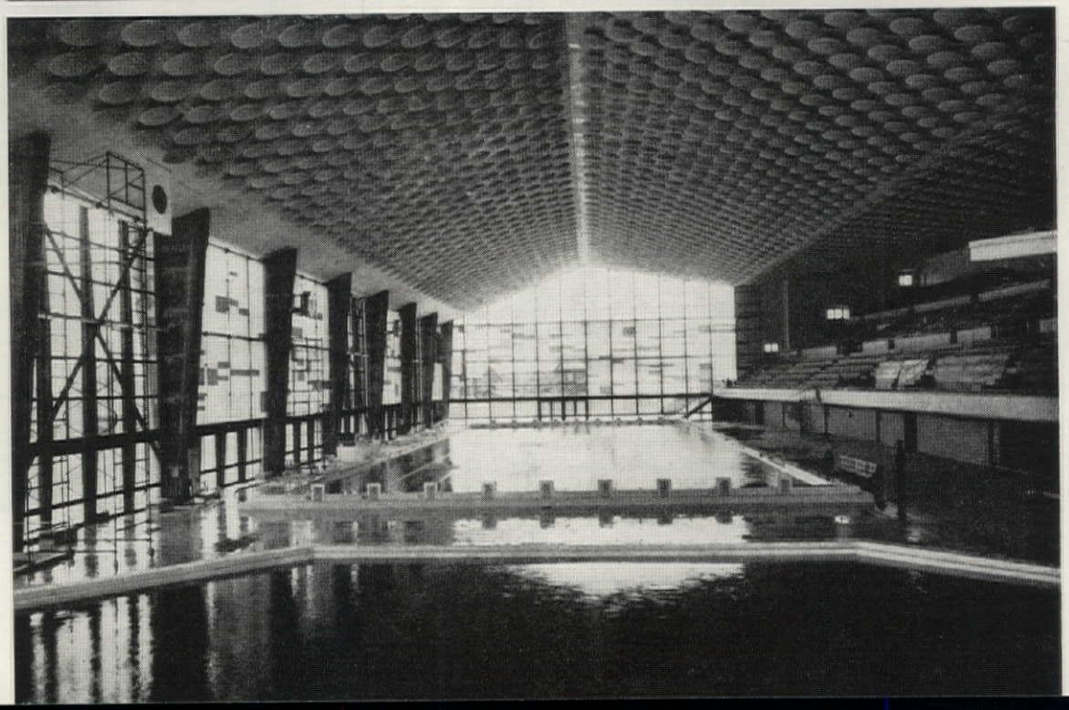
PHOTOS COURTESY KENCHIKU BUNKA

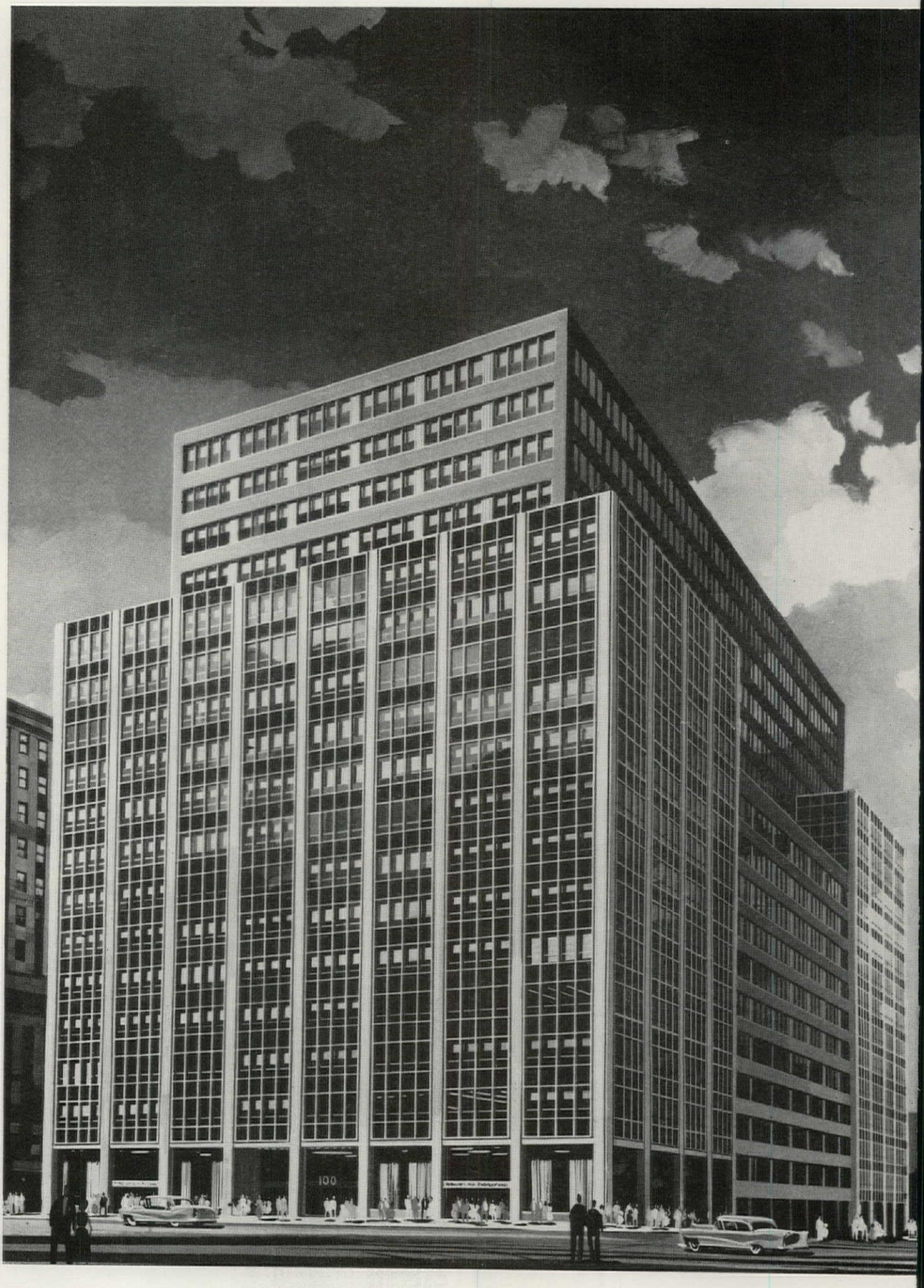
JAPANESE OLYMPIC PARK

Japan, the nation most likely to be host of the 1964 Olympics, plans to be physically and architecturally ready for the event. It has already laid out its Olympic Park outside of Tokyo and started building. Architect Masachika Murata has completed the first group of buildings (top photo): the 70,000-seat stadium, the gymnasium and dressing rooms, and the muscularly graceful indoor swimming pool. The pool structure (middle photo) is a series of 11 concrete frames which increase in bulk as they rise from the ground, turn a corner at the roof line, and thrust outward for some 150 feet. At their extremities, the frames are received by structural columns. Inside (bottom photo), the columnfree, glass-walled area is vast enough for an Olympic-sized swimming pool and diving pool, 4,000 spectators, and an impressive battery of diving boards (below).

END






100

Meet New York's next big office building

Cost: $28 million

Floor Area: one million sq. ft.

Concrete Reinforcement: USS **American Welded Wire Fabric**

100 Church Street is a brand-new twenty-story building now going up in Manhattan. It's an example of modern architecture—simple beauty, efficient design, and permanent construction. Progressive building ideas went into this job, too: a fireproof structural steel frame, short-span floors and USS American Welded Wire Fabric Reinforcement.

Short-Span Floors—At 100 Church Street, closely spaced beams support concrete floor slabs of minimum thickness. That's short-span construction-strong, lightweight, economical. Short-span floors save money because less concrete, less time, and less labor are needed for installation. But you couldn't have these advantages without wire fabric.

USS American Welded Wire Fabric makes short-span floors possible because it can be drooped continuously over supporting beams. (ACI Code: Sec 505G) It has an allowable working stress of 28,000 lbs. per sq. inch. The New York skyline reveals many short-span-floor skyscrapers such as the Empire State Building, the RCA Building, and the new Socony-Mobil Building. And they're all reinforced with USS American Welded Wire Fabric.

Specify USS American Welded Wire Fabric. It's available in a wide variety of styles, sizes, lengths, widths, and finishes . . . in wire gauges from #7/0 to 16 and in longitudinal or transverse wire intervals of 2″ to 16″. To get complete technical data on USS American Welded Wire Fabric, send for our free catalog. Write today: American Steel & Wire, Rockefeller Building, Cleveland 13, O.

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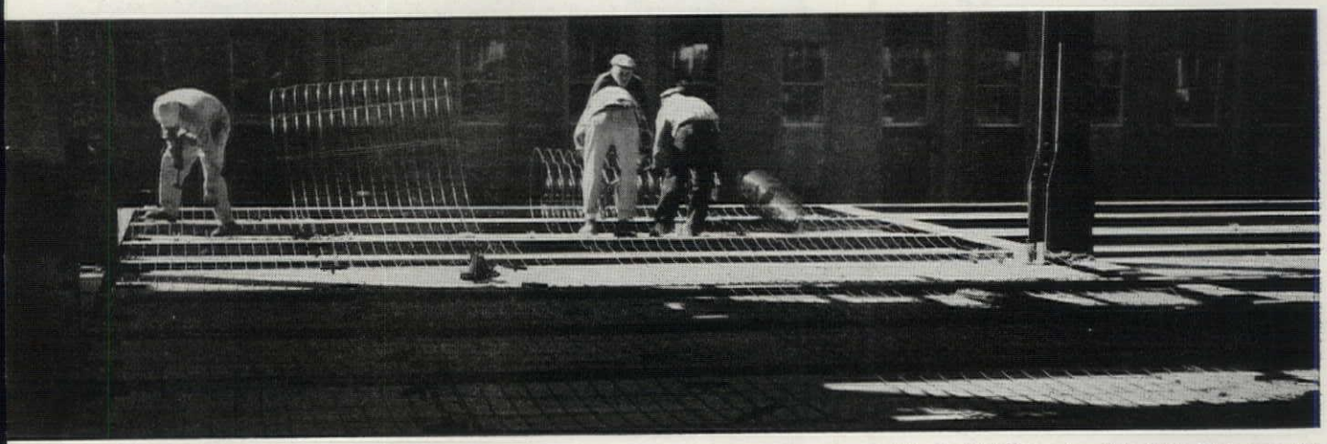

◀ **An Architect's Conception** of 100 Church Street. These people are building it:
Architect: Emery Roth & Son, New York
Structural Engineer: James Ruderman, New York
General Contractor: Diesel Construction Co., Inc., New York
Subcontractor on Concrete: Rizzi Construction Co., Inc., New York
Welded Wire Fabric Distributor: Fireproof Products Co., Inc., New York

Short-Span Floors, reinforced with USS American Welded Wire Fabric, are a key feature of 100 Church Street. USS American Welded Wire Fabric is prefabricated for quick, easy, economical installation in any permanent concrete work.

Remember, buyers will ask, *"is it Reinforced"*

BETTER AIR CONDITIONING FOR EVERYBODY EVERYWHERE

Carrier

Now from Carrier—a complete line of high-velocity room terminals for all-air systems

5 new models for Double Duct, Dual Conduit and Single Duct service

In its new all-air units, Carrier offers an across-the-board selection of room terminals for every type of all-air system popular today. These 37 Series Weathermaster* units provide extreme versatility of arrangement for under-window or ceiling installation both in exterior and interior zones.

Sizes from 50 cfm to 1700 cfm. These new units are available in five models, four of which are offered in six sizes from 50 cfm to 1700 cfm. The reheat model is available in three sizes only from 75 cfm to 600 cfm. The new units serve the five different types of all-air systems described on the opposite page. Outstanding features include uniform temperature and velocity over the entire discharge opening, compactness, easy servicing, quiet operation and simple controls—no linkage, no wires, no pulleys. Each model was designed specifically for one type of service.

Carrier room terminals for other major systems. The new Weathermasters round out a line of room terminals second to none for efficiency, economy and flexible application. Today only Carrier offers terminal equipment for the four major kinds of air conditioning systems in use in multi-story, multi-room buildings. Whichever system or combination of systems—all-air, all-water, air-water or refrigerant—is best for a building, Carrier has the right terminals to meet your requirements. For complete information, call the Carrier office nearest you. Or write Carrier Corporation, Syracuse 1, New York.