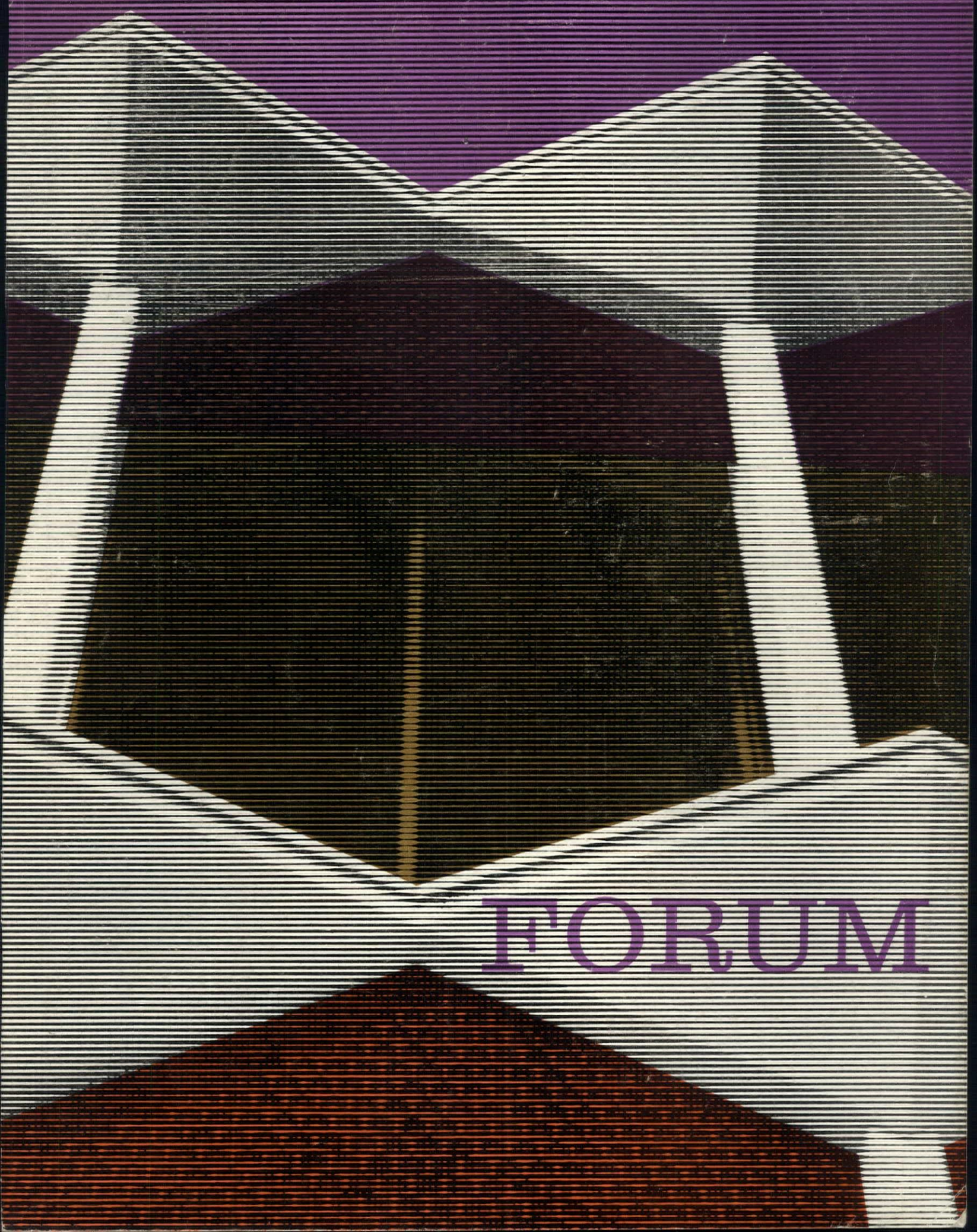
Architectural Forum / the magazine of building / August 1958



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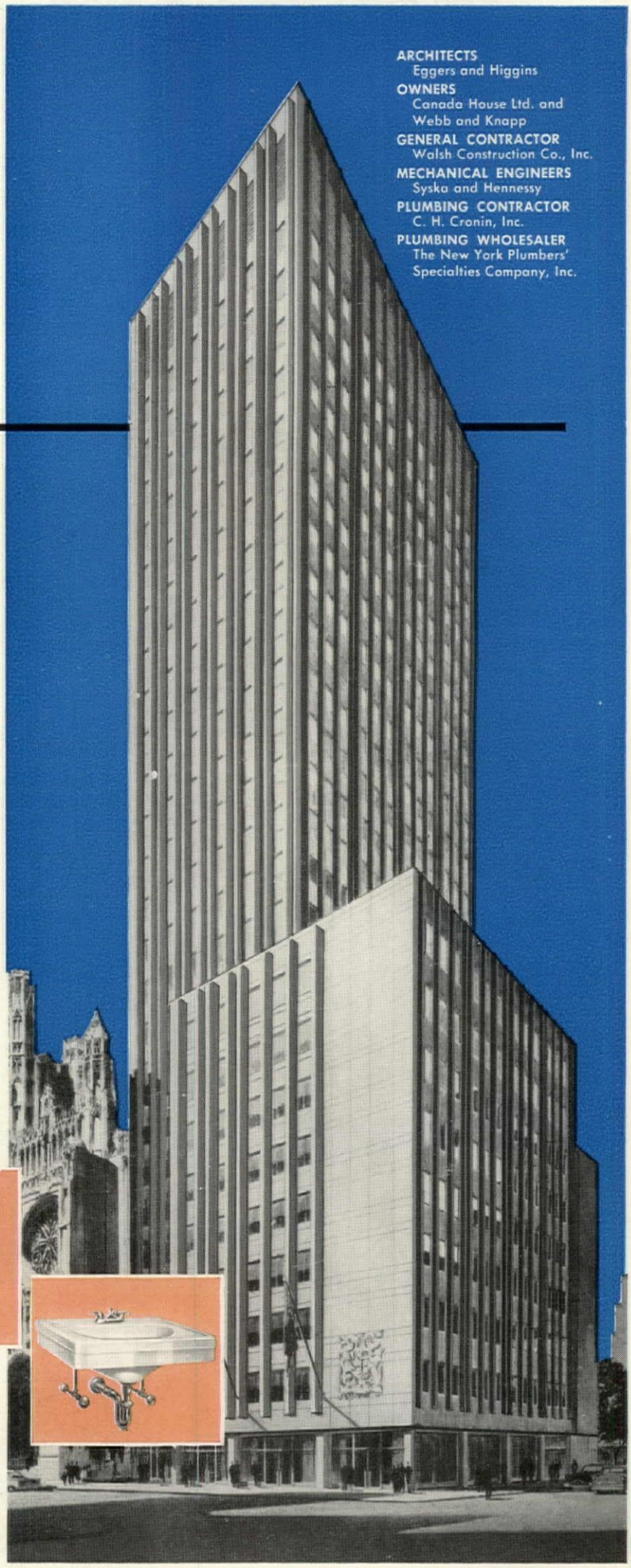

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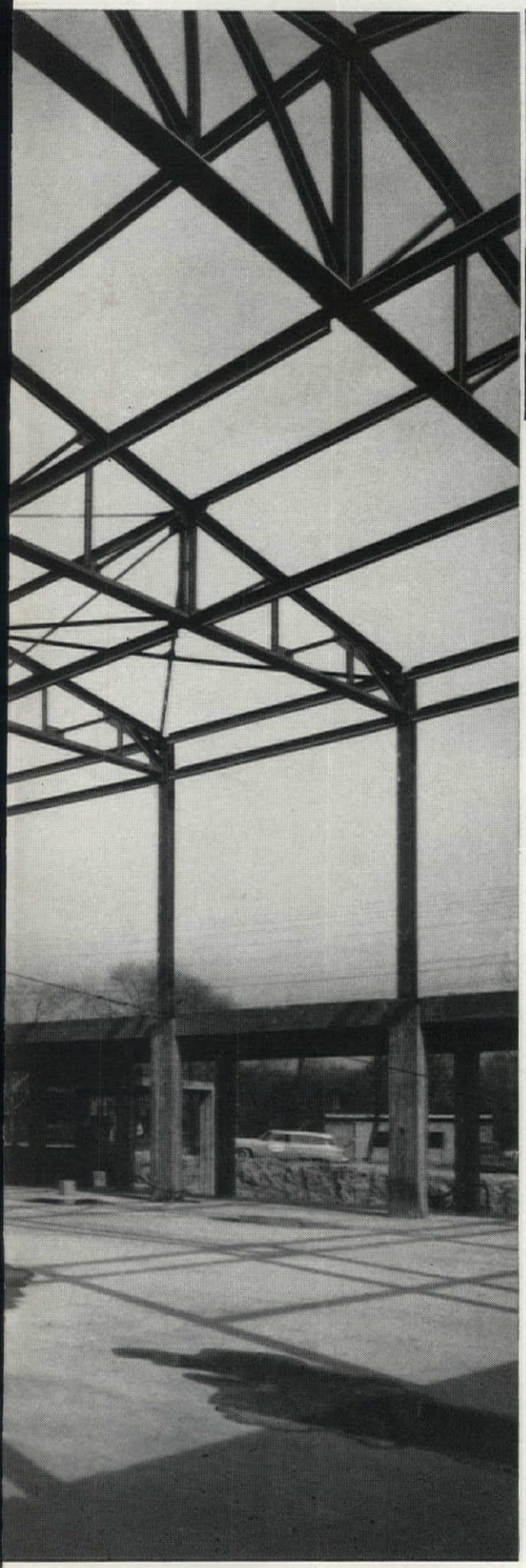
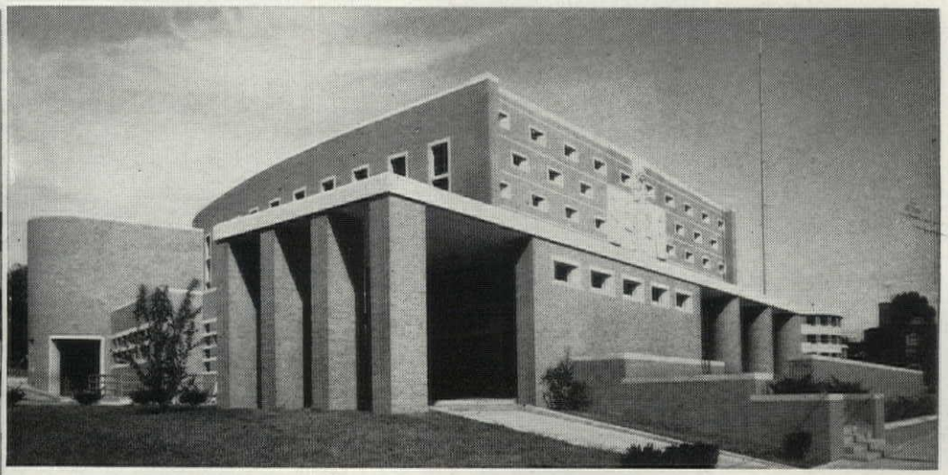
USS Structural Steel for church

erected in 10 days





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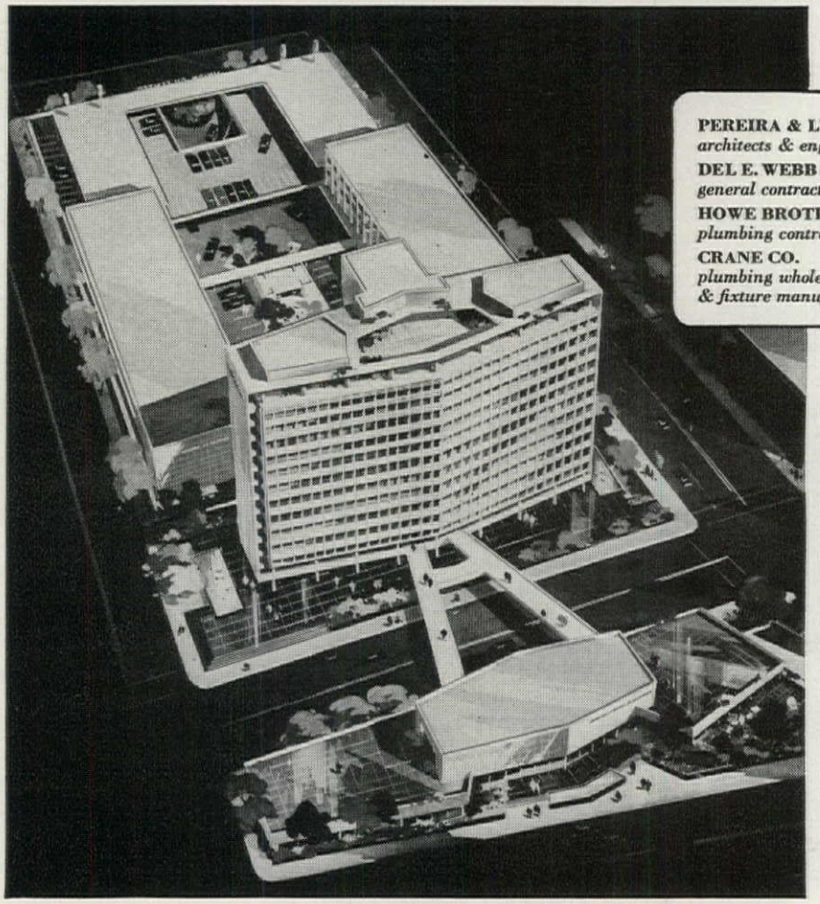

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AN ARCHITECTURAL TRIUMPH

• The new $20-million UNION OIL CENTER, Los Angeles, is a complex of four ultramodern office buildings which occupies more than a square block —nearly 5 acres. The three principal buildings, which form a "**U**," are joined only at lobby and mezzanine levels. The 13-story Home Office, highest structure in the city, forms the base of the "**U**." Facing it from the opposite side of a cross street and joined by pedestrian bridges, is a 2-story building housing a large auditorium, lounges and cafeteria. In the main building electronically controlled, operatorless elevators serve all 13 floors. High speed escalators serve the lobby and the six floors above, and also all floors in the two 4-story buildings. All buildings are comfortized by a high velocity dual-duct air conditioning system. Facades of all buildings are metal and glass. Windows are top-hinged and in-swinging to permit cleaning from inside. For these praiseworthy Union Oil Center buildings SLOAN *Flush* VALVES were specified.

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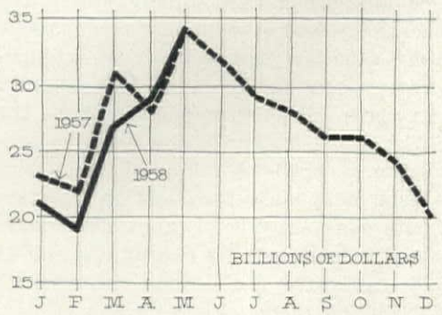
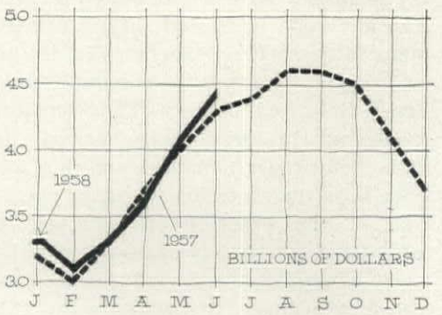
Building volume in first half totaled $22 billion; signs increase that 1958 will be a record building year.

BIG YEAR FOR BUILDING:

CONTRACT AWARDS ARE CLIMBING . . .



. . . AND SO IS NEW CONSTRUCTION



Spending for new construction in the first half of 1958 almost exactly equaled spending during the first six months of 1957—about $22 billion. And construction activity is building up a head of steam that should carry it to a new all-time record for the year—to at least the $49 billion total volume that FORUM forecast last February. Expenditures in the second half should exceed the first by at least 4 per cent.

Perhaps the most encouraging indication of how strong building will be in the second half of 1958 is the contract award figure announced a few weeks ago by F. W. Dodge Corp. Awards in May totaled $3.4 billion, almost 1 per cent higher than the previous highest month on record—May 1957. The key area of residential awards showed a 4 per cent rise, while awards for commercial and factory buildings, long a laggard area, rose 1 per cent over May 1957.

Total nonfarm housing starts in the first six months of this year hit their highest level since August, 1955. Private starts alone were the highest in two years, and were put in place at a seasonally adjusted annual rate of 1,090,000. For the first six months, the seasonally adjusted annual rate of private nonfarm starts was 983,800.

Public housing starts have continued to be an important factor in the overall housing picture. In the first six months of the year, public housing starts totaled 36,000 units, which is the highest percentage (7 per cent) of total starts since 1952.

Future home building promises to be strong, too. Applications for new home mortgages insured by the Federal Housing Administration totaled 33,427 in June, down slightly from May's total but still more than 50 per cent higher than June 1957. For the first six months of this year, applications for new home mortgages totaled 162,000, or 82 per cent higher than for the same period of last year.

Besides contract awards and FHA applications, there are other signs of a rise in future building activity:

▸ The American Institute of Steel Construction reports that bookings of new orders for fabricated structural steel climbed 8 per cent from April to May, and hit the highest figure for any month since June 1957.

▸ U. S. Steel Corp. revealed that its capital expansion schedule this summer is at the highest level in the company's history—$1 billion.

▸ Safeway Stores, Inc. (more than 2,000 stores) has stepped up the expansion of its grocery chain. Chairman and President Robert A. Magowan cited easier money as one reason for building 175 new stores this year instead of the 150 that had been originally projected. But he also said that lower building costs, due to keener competition for contracts, has been a factor. "We're letting contracts now for a cost of $7.50 to $8 per square foot," Magowan said. "A year ago we were getting nothing below $9."

▸ General Electric Co. resumed work on its $5 million Lamp Division research building in Richmond Heights,

continued on page 6

BOX SCORE OF CONSTRUCTION

(Expenditures in millions of dollars)

	June	Jan.-June		
PRIVATE BUILDING	1958	1958	1957	±%
Nonresidential	735	4,250	4,575	−7
Industrial	193	1,376	1,813	−24
Commercial	315	1,653	1,645	**
Office buildings, warehouses	169	986	849	+16
Stores; restaurants; garages	146	667	796	−16
Religious	70	389	400	−3
Educational	46	257	247	+4
Hospital; institutions	51	303	227	+33
Residential (nonfarm)	1,530	7,650	7,736	−1
Public utilities	528	2,768	2,572	+8
Total Private*	2,974	15,508	15,720	−1
PUBLIC BUILDING				
Nonresidential	402	2,148	2,146	**
Industrial	34	184	253	−27
Educational	255	1,380	1,335	+3
Hospital; institutions	30	156	169	−8
Residential	65	365	201	+82
Military	95	500	584	−14
Highways	580	2,220	2,113	+5
Sewer; water	120	644	647	**
Total Public*	1,402	6,558	6,338	+3
*Grand Total	4,376	22,066	22,058	**

* *Minor components not shown, so total exceeds sum of parts.*
** *Less than 1 per cent.*

Ohio, just outside Cleveland. This project was one that had been postponed a year and a half ago when GE cut back its capital spending program. With three other projects that are being reactivated, the Richmond Heights project makes a total of $12.5 million in new building that the division has resumed in recent months.

▶ Union Carbide Corp. has resumed work on one of the buildings in its $15 million research facility in Westchester County, New York. Last February, Carbide had called a halt to the project, citing "uncertain economic conditions."

▶ A survey by the National Association of Real Estate Boards indicates a coming boom in apartment construction, which has been strong all year. Of the 211 real estate boards surveyed, 73 per cent of those in metropolitan areas foresaw either a higher level of apartment building, or one at least as high as at present. Apartment building throughout the country has been strong all year. The Bureau of Labor Statistics estimates that multifamily residential building is currently higher than at any time since 1953. In the first quarter of this year, apartments made up 17 per cent of total housing starts, while in the housing boom of 1955, they comprised only 9 per cent of starts. For the first six months of this year there were 35 per cent more starts under FHA apartment building programs than there were for the same period last year.

Besides the rising activity in private building, there are signs that public building, which has been booming all through the first half of this year, is growing still stronger. In the first half of 1958, all public building—federal, state, and local outlays for sewers, hospitals, schools, military, highways, public housing, etc.—was up 3 per cent over last year, to over $6.5 billion, indicating a record volume for the year of over $15 billion. Highway construction, the biggest single category of public building, was up 5 per cent above last year to an annual rate of $5.6 billion, and school building was 3 per cent higher (to a total of $1.4 billion) than in the first six months of last year.

In the first six months of the year, sales of state and local bond issues totaled $4.4 billion, about 27 per cent higher than last year. In New York City, for example, first half building by the city was running 25 per cent ahead of last year, and contracts for new construction totaled $40 million in the first half, 82 per cent higher than in the same period of 1957.

Architects hear their role challenged at AIA convention in Cleveland

More than 1,000 architects met in Cleveland last month to engage in a week of intensive self-analysis. And although the annual convention of the American Institute of Architects had no special theme this year, most of the speakers seemed to address themselves to the question, "Is the Architect Equipped to Meet the Challenge of the Next Quarter Century?" Judging from the tone of most of the speeches and

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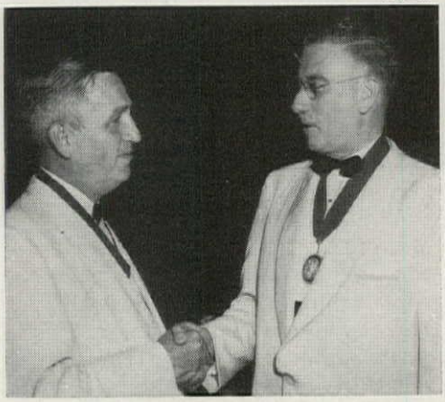

PRESIDENTS RICHARDS and CHATELAIN

discussions, the answer appears to be: he could do much better.

In his keynote address, for instance, young (42) Philadelphia Architect Vincent G. Kling asked his fellow architects, "Can we discuss long-term capital gains, corporation tax structures, real property values, automobile traffic flow and next year's building costs?" (From the restless shifting in the audience, the answer of many of the architects seemed to be No.) His questions reflected the growing uneasiness among architects because corporate and public building clients today have teams of specialists which possess a formidable array of knowledge which the architect is expected to match but seldom can. Kling warned that perhaps too many of the profession, lacking this knowledge, were becoming mere "technicians and skin-merchants producing brochure architecture around the feasibility studies of others," instead of "full-fledged architects."

Kling also discussed the rise of "a new corporate being, growing rapidly at our side, and threatening to overshadow us — the package dealer." Kling's advice on this thorny issue: "The package dealer is meeting a very real need today, and instead of trying to prove he is not, we had better concentrate on how we can meet that need better."

Kling's suggested remedies: "We must match the client's broad requirements and specialized demands with an equally broad and equally specialized service. And we must demonstrate our capacity—not merely an enthusiasm — to handle large and complex projects." He recommended that the AIA broaden its products research program. Basically, Kling concluded, architects must make an effort to "participate more actively in the decision-making process, both as individuals and as an aggresive professional fraternity."

Kling's theme was an effective keynote. In the sessions that followed, panelists and speechmakers continued their mass introspection. Architect Herbert H. Swinburne, of Philadelphia, for example, declared that architecture has not kept pace with other professions "in asserting leadership in design and construction for the coming atomic age." Said Swinburne: "The architect is losing this leadership because he does not properly understand his client; he is trying to maintain the status quo of the practice of architecture when that practice is changing rapidly and drastically." Swinburne's proposed remedies:

▶ Architects should understand more

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ANTHROPOLOGIST MEAD
For the architect, more responsibility.

about psychology to "better understand the art of persuasion and how to change attitudes."

▶ Architects should make better use of economists, sociologists, and anthropologists to deal "more precisely with

an exploding population and great urban concentration."

As it happened, the AIA program committee *had* invited an eminent anthropologist to speak—and she almost stole the whole show. Professor Margaret Mead, of Columbia University, a much-traveled expert on primitive societies, provided the architects with at least one reason for turning to anthropologists for a fresh viewpoint by delivering a delightful and provocative talk.

REBMAN

AIA KEYNOTER KLING

"Can we discuss tax structures . . .?"

"One of the things that is going to have to happen in our changing society," said Mrs. Mead, "is not only that the architect will have to take more responsibility than he has at present for a wider position . . . but he is going to have to be involved in more and more planning of a variety of sorts so that each unit will have some growing relationship to every other unit—it is no good designing a good community in a bad region, no use designing a community for the wrong people to live in, and you can't make a decent human society a one-class, one-religion, bedroom suburb."

Action on the East Front

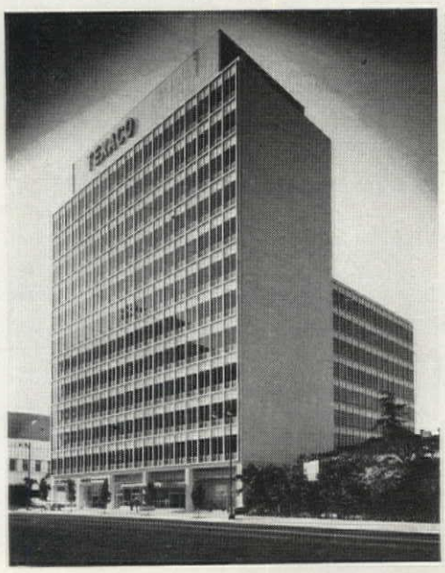
Besides ruminating on their professional destinies, the AIA members took time to reaffirm the stand they had taken in conventions in 1937, 1955, '56, and '57, that the East Front of the U. S. Capitol be restored in its present position, rather than rebuilt 32½ feet away. (Rebuilding of this front 32½ feet forward is required by a law passed in 1955 but not yet executed.) The convention action confirmed the AIA Board's opposition to moving the East Front and its support of the Smith-Clark amendment, now before the Senate as S.2883, and parallel bills in the House. The "East Front" resolution was the Number One issue of the convention. It was debated for over two hours before a vote was taken which showed 225 of the delegates present for the resolution to "take all necessary steps to restore and preserve the historic East Front," and only 49 against it.

There were active contests for all top AIA offices this year, and most of the active politicking was done in the rooms of the Cleveland hotels. Toledo's John N. Richards emerged as president, defeating Alexander C. Robinson III (FORUM, July 1958), and perpetuating the AIA tradition that the first vice president advances to the presidency. Other new officers are: first vice president, Philip Will Jr., of Chicago; second vice president, Henry L. Wright, of Los Angeles; secretary, Edward L. Wilson, of Fort Worth, Texas; treasurer, Raymond S. Kastendieck, of Gary, Indiana.

All in all, this convention of the AIA seemed to consider for the first time the working consequences of the "New Century" which was the theme of last year's centennial celebration, but which seemed last year to become lost in the celebrating. Not only did this year's convention pose serious questions for architects as individuals in a changing society, but it also raised some fundamental questions about the Institute itself and its adequacy as a functioning organization to promote the architect's role of leadership.

TEXACO'S WEST COAST BUILDING

Since the easing of building height limitations in 1956, Los Angeles has been the scene of a flurry of high-rise office building construction. One of the latest offices to be completed there is the 12-story West Coast headquarters for the Texas Co. Designed by Welton Becket & Associates, the building is T-shaped, with porcelain enamel panels hung on an aluminum framework, and reinforced concrete covering the exterior of the ends of the "T." Off-street parking is provided in an adjoining four-story, 330-car garage.



JULIUS SHULMAN

Senate passes $2.5 billion housing bill

The U.S. Senate approved a $2,475 million housing bill last month, after some nimble legislative maneuvering by Senate Majority Leader Lyndon B. Johnson (D, Texas). The Senate trimmed $475 million—and one key feature—from the $2,950 million bill voted out by the Senate Banking Committee, which Republican Senator Homer E. Capehart had vowed to fight on the floor of the Senate. (FORUM, July 1958.)

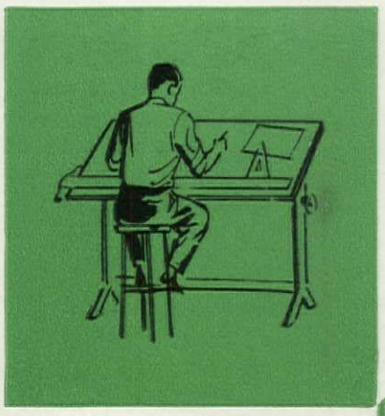
Capehart did win a couple of points although the main part of the Committee bill stayed intact. He was successful in trimming the urban renewal program from $350 million a year for six years to $300 million a year for six years. (This is still nearly 40 per cent above the $1.3 billion program requested by President Eisenhower, and there is no provision for a declining share of federal aid, as the President requested.) Capehart also succeeded in cutting back loan funds for building college classrooms and laboratories from $250 million, as proposed in the original bill, to $125 million.

Perhaps Capehart's most significant victory came in his battle to trim the bill's public housing features. He succeeded in cutting the number of new public housing units authorized for fiscal 1959 from 35,000 to 17,500. (This is not too meaningful, however, for there is still a backlog of over 60,000 authorized units that have not been scheduled for construction yet.) And, even more damaging to the efforts of those who want to give the public housing program a new look, Capehart succeeded in striking out the section that would have permitted "overincome" families either to purchase their units, or to continue rental occupancy if there was no other suitable housing available for them.

Most of the other important public housing provisions of the committee bill remained unscathed, however. The sections that give local housing authorities more control over the operations of their projects were not altered (see page 9). Other features of the Senate bill:

- A $400 million loan program to stimulate the construction of college dormitories.
- A $150 million program of direct housing loans to veterans.

continued on page 9



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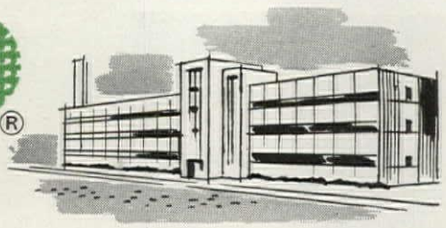

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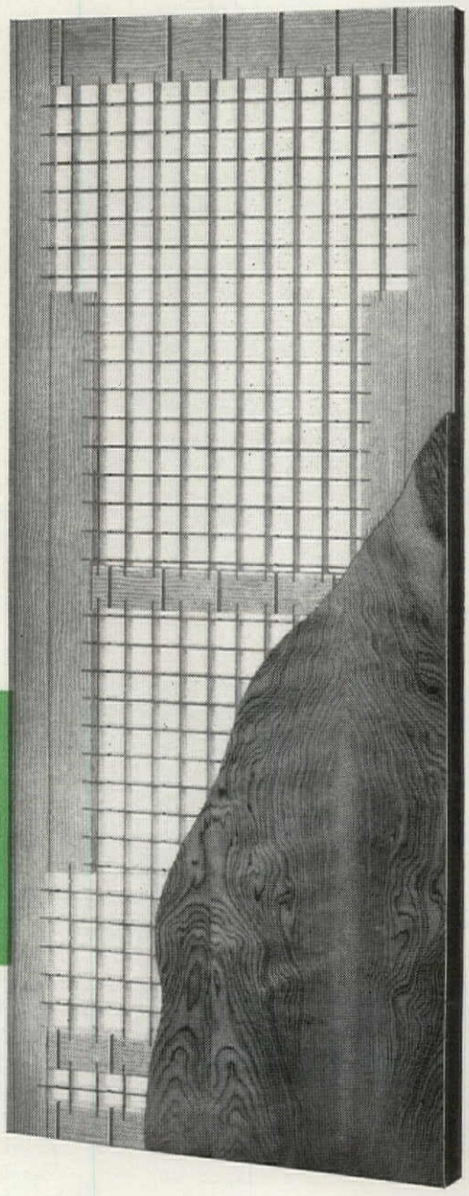


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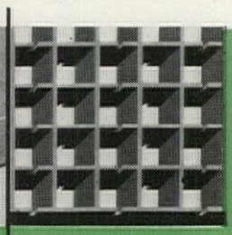
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▶A program to guarantee $250 million of private loans to colleges and universities for the construction of classrooms and laboratories (this is in addition to $125 million in direct loans).

The Administration, which asked for an over-all housing bill calling for only $1.6 billion in spending, is currently fighting the Senate's $2.5 billion measure in the House. Housing & Home Finance Administrator Albert M. Cole argued last month that the urban renewal provisions of the Administration bill, calling for $1.3 billion for six years instead of $2.1 billion, are "adequate and reasonable" considering an already strained budget and taking into account the "volume of projects which cities can be expected to undertake."

Public housing officials favor local autonomy

The housing bill passed last week by the Senate provided the main topic of discussion for the four hundred public housing officials who gathered in Washington for the 27th annual National Housing Conference. NHC had a major role in drafting the controversial public housing sections of that bill, and backed the bill solidly in its policy statement. The bill, however, drew sharp criticism from Housing & Home Finance Administrator Albert M. Cole, who told the assembled public housing officials many things they did not relish hearing.

Cole hit hardest at the provisions that would give local housing authorities the power to set income limits for tenants, to fix rent schedules, to hire independent auditors for their books, and to keep one-third of net rental receipts for improving their projects, etc. Local authorities have long chafed under PHA's intensive scrutiny of their finances and other operations. If the Senate bill is enacted, PHA will henceforth have to accept the books as audited by a reputable private auditing firm paid by the local authority.

The feature that bothers Cole and PHA most, however, is the one that lets local authorities keep one-third of their net rental receipts—after all operating expenses are paid. Presently, all of the money left after operating expenses are paid is returned to PHA as payment toward reducing the annual federal subsidy for the project. But the new bill proposes to let local authorities keep an average of about $26 per unit per year, to use for any housing purposes it sees fit. This might include adding some facility for the project, or even adding to the local housing authority's staff. Cole said that these features of the bill give "to hundreds of local authorities a wide-open authority over expenditures without liability for the cost."

NHC not only disagreed with Cole's evaluation of the proposed changes, but said that these constituted "a charter for the revitalization of local public housing programs." NHC pointed out too that the new bill still allows some federal control over use of the funds—PHA would get an annual report of such expenditures, which would also be subject to a post-audit by both PHA and the General Accounting Office.

The NHC policy statement forecast that relocation and other factors would soon require the construction of 200,000 low-rent public housing units a year, instead of the 35,000 a year that have been authorized in recent years, and the 20,700 units that were started last year.

NHC called for more housing for those families whose incomes are too high for public housing but not high enough for private housing, particularly in urban areas (e.g., in New York City, a family of five cannot continue occupancy if its income goes over $4,750). It recommends making available long-term credit to low-income families—either directly from the federal government in the form of loans or under a guarantee program—"at terms comparable to the average cost of money to the federal and local governments."

A recurring theme for many of the speakers at the conference was that urban renewal can only succeed if a sufficient amount of low-cost housing is available for the relocation of families living in the renewal areas; and such housing is not available in sufficient quantity at present. Senator Joseph S. Clark (D, Pennsylvania), who is a co-author of the Senate Banking Committee housing measure, said that "The need for low-rent public housing is certainly no less—and may be greater than ever. Urban renewal cannot go forward for long without it. Yet the fact is that the program is all but dead. It is not meeting more than a fraction of the total need for additional low-rent housing."

William L. Rafsky, development coordinator for the City of Philadelphia, pointed out that many factors are hobbling the building of adequate urban housing—lack of sites for public housing, segregation problems, the high cost of urban land, the unwillingness of lenders to make loans to displaced, middle-income urban families.

Forecasting that population in the U.S. will increase to almost 230 million persons by 1975, the NHC called for a "sustained housing production rate of at least 2 million dwellings a year, approximately double the rate of recent years." And it added that public expenditures for community facilities to meet the demands of expected population growth will have to triple over the current rate of approximately $14 billion a year.

Glickman drops Carnegie Hall skyscraper plan

Manhattan's colorful skyline—which already includes gold, green, silver, bronze, and blue office towers—will have to wait a while to round out the spectrum. This became apparent last month when Realtor-builder Louis J. Glickman announced that he had abandoned plans

LIFE: JIM BURKE

GLICKMAN
"I did not dare"

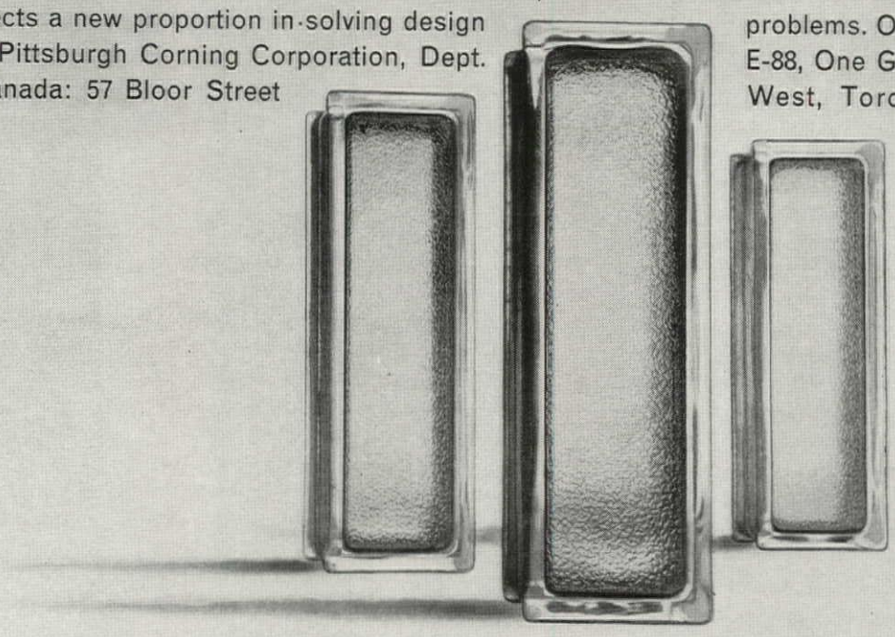
for building a bright red, porcelain-enamel 44-story skyscraper on the site of Carnegie Hall. Glickman, who took an option on the Carnegie site about three years ago, says that the reason he gave up on his red skyscraper was that "I did not dare to put the New York Philharmonic out on the sidewalk."

The Philharmonic, which has for years played in Carnegie Hall, was

continued on page 11

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

scheduled to move into its new auditorium at the Lincoln Center for the Performing Arts in 1960 (see page 74), but that date has been delayed by lawsuits (FORUM, July 1958) and Glickman decided he could no longer afford to wait. He says that he has already lost some $200,000 in the cost of options themselves, plus the cost of promotion and preparation of plans for the $22 million red skyscraper.

Although Glickman's plans for the Carnegie Hall site are stymied, he says he is still interested in the site. "The growth of the city is in that direction," he says, "and we are definitely interested in it." (Last year Glickman announced the purchase of the General Motors Building, only a block away from Carnegie Hall.)

Fading Carnegie Hall itself, built in 1891 by Andrew Carnegie, may not necessarily have been spared as a result of Glickman's withdrawal. Robert E. Simon, president of Carnegie Hall, Inc., said last month that "Perhaps the stockholders themselves will develop the property."

Building owners' incomes hit peak in 1957

When the men who own and manage most of the office buildings in the U. S. and Canada met several weeks ago in Toronto, some of them expressed mild concern that vacancies in office buildings were higher in the first six months of this year than in the previous six months (3.64 per cent compared to 3.16 per cent). But members of the National Association of Building Owners & Managers (NABOM) did not dwell too long on that statistic. There was too much good news to contemplate, and too many serious problems of a different nature to wrestle with at their 51st annual convention.

On the business side, rents are still going up. Average rental rates per square foot rose 5 per cent in 1957, from $3.58 to $3.76. Average rental income—including vacant areas—rose from $3.35 to $3.47 per square foot, a gain of 3.6 per cent in 1957.

The rise in rents was partially offset by a rise in operating expenses from $2.47 to $2.59 per square foot. But this rise was not sufficient to prevent building owners from realizing a record high average operating net income for offices of 97.1 cents per square foot in 1957.

The state of the office building and managing business always provides the main topic of conversation at NABOM conferences, and this year questions were raised about the need for more information with which to measure the prosperity of the industry. Outgoing President Maynard Hokanson announced the formation of a new NABOM Economic Council to handle special programs and market studies to aid the industry. The goal: to provide sufficient office space for business requirements without "overbuilding." (NABOM's new president: John I. Hill of Houston, Texas.)

GITTINGS

NABOM'S HILL

In one of the convention addresses, George R. Bailey, of Chicago, chairman of NABOM's Building Planning Service Council, referred to a friendly running debate on construction problems that he has with Chicago Architect Helmuth Bartsch, a partner of Holabird & Root & Burgee. "I occasionally accuse Bartsch of overlooking costs to obtain effect," said Bailey, "and he accuses me of sacrificing effect to save on costs." But he quoted Bartsch as saying that the situation is improving: "Owners are much more willing today to contribute a part of the ground floor to the community by using it as a foreground for their building or as a plaza. Planting is again used more often and it all helps to bring relief to the monotonous jungle of architecture which has in the past given our large cities a pretty dismal look."

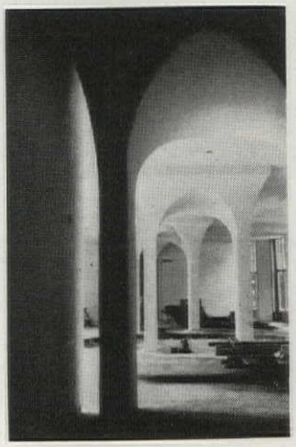
"Today," Bailey noted, "when new buildings must frequently be rented at rates 50 per cent above prevailing rates in the best existing buildings, the selling problem is severe, and in many instances we have permitted the glamour of height and modern treatment to outweigh comparative costs. But there must be features of real value to justify increased rents (premiums of $2 a square foot in many cases) in addition to merely air conditioning and high intensity lighting. In a medium-sized city, where a building must be designed for multiple occupancy, and it therefore would be difficult to capitalize on very large floor areas, it frequently is advisable to build 20 stories of 10,000 square feet each, rather than 10 floors of 20,000 square feet. The unit cost may be greater, but not enough to offset the advertising value and glamour of the higher building."

At other NABOM sessions that dealt with various aspects of the "downtown" problem:

▸ Frederick G. Gardiner, chairman of the Municipality of Metropolitan Toronto, said "neither expressways alone nor rapid transit alone will solve the [metropolitan transportation] problem, but a well-planned combination and integration of the two is essential." He reported that the Toronto Metropolitan Council has decided to proceed with plans for a new $200 million, 10-mile-long east-west subway, to supplement its 5-mile-long north-south line completed in 1954.

continued on page 13

SAM G. WEINER



SAARINEN'S VASSAR DORMITORY

Next month 156 Vassar girls will unpack their trunks in a new curved dormitory on their Poughkeepsie, New York, campus. Designed by Eero Saarinen & Associates, the four-story dormitory sweeps part way around the campus area that Vassar girls call "the Circle." The $1.4 million building's brownish-red brick exterior is studded with wedge-shaped windows set in gray aluminum spandrels (above, right). Toadstool-shaped entrance shelters are reminiscent of Saarinen's pedestal furniture (FORUM, July 1957). On the ground floor will be public rooms: a medieval-looking main lounge (above, left), an apartment for a resident faculty member, and a dining room connected to a serving kitchen. Three upper floors will be devoted to dormitory space.

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▸ Prudential Insurance Company Vice President S. Westcott Toole said his company's several outstanding new regional headquarters buildings erected since World War II in central city prime locations (FORUM, June 1955) were largely responsible for the company's moving from second into first place in several consumer surveys to determine which insurance companies the public knows best.

Missile bases top 1959 military building list

As fiscal 1959 gets under way, it is apparent that a major shift in the pattern of military construction has been built into the new spending budget: for the next 12 months, missile bases and their supporting facilities will account for over 60 per cent of the $1.7 billion of military building authorized. (This total does not include $200 million of military public housing under the Capehart Act.)

This is the highest percentage yet; last year missile facilities took an estimated 45 per cent of total building outlays. And the missile share will continue to grow, say military experts. In a few years, as much as 90 per cent of all military construction spending may be for missile facilities.

This emphasis on missiles will have two significant effects on the building industry:

▸ Future installations will require more heavy building materials—cement, structural steel—than ever before, and less lumber and lighter-weight materials.

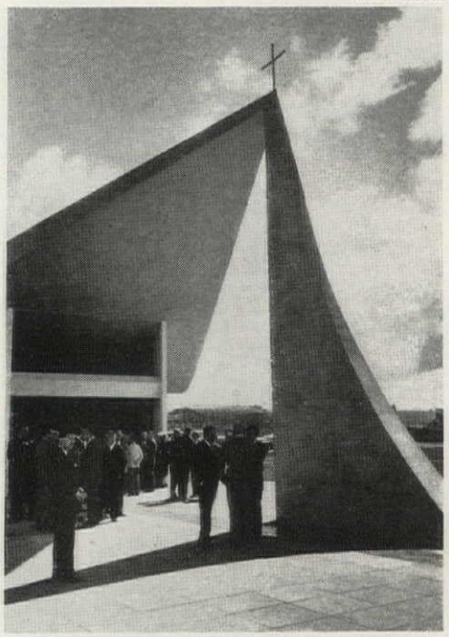
▸ More military projects will be located on remote sites, where supplies of materials and labor will not be readily available. This will pose logistical problems for architects and for builders.

Meanwhile, however, despite the generally higher trend of prices for many building materials and for labor, contractors are continuing to submit lower-than-anticipated bids for military jobs. This is largely because in many areas where military building is strong, there has been a lull in private construction, so contractors have submitted low bids just to keep their working crews together. The Defense Dept. estimates that about 60 per cent of all construction bids in the past few months have been below government estimates of what the jobs would cost. END

PAULO MUNIZ

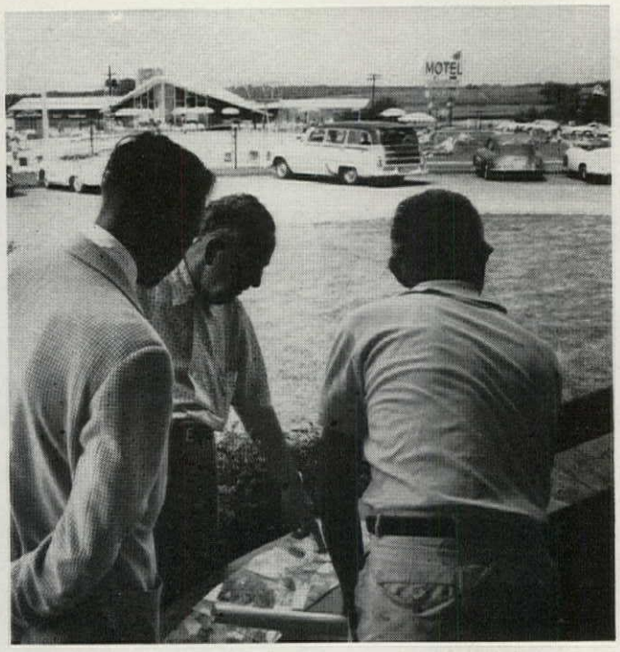
BRAZIL'S JUNGLE CAPITAL

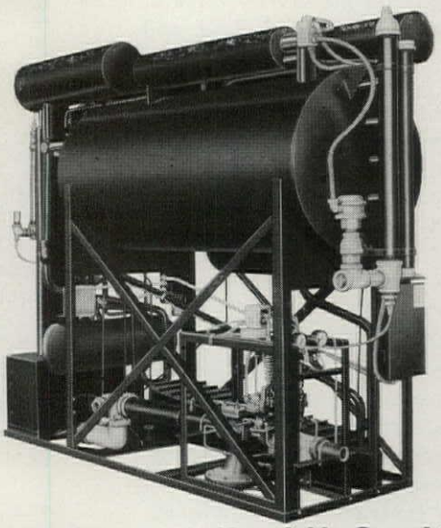
One of the most ambitious, start-from-scratch building projects of all time is Brazil's building of a new capital city in the midst of a desolate jungle area some 600 miles north of Rio de Janeiro. Brasilia, as the city will be called, was the dream of Brazilian President Juscelino Kubitschek, and last month he saw the beginning of his dream coming true. The first two major buildings of the new city were opened: the President's own palace, called the Palace of Dawn (pictures, below), and a glass-walled 135-room hotel (lower right). A small chapel (right) was also completed recently. Under construction are apartments, government ministry buildings and other buildings. Brasilia, which in ten years is expected to be a city of 500,000 persons, will cost at least $70 million, probably eventually nearly $1 billion, including private investment. The over-all plan for the city was by Architect Lucio Costa.



The major government buildings in Brasilia were designed by Architect Oscar Niemeyer, who will move his own office there soon. The white marble, glass and aluminum palace (picture above) is called "Oscar's cardiogram" because of the jagged line of reinforced concrete pylons that guard the entrance.

ARCHITECT: JOHN F. STANN; CONSULTING ENGINEER: J. B. WYBLE; BUILDER: SAM EIG





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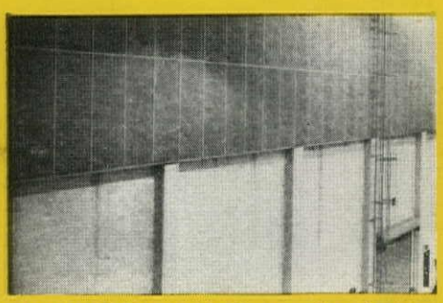

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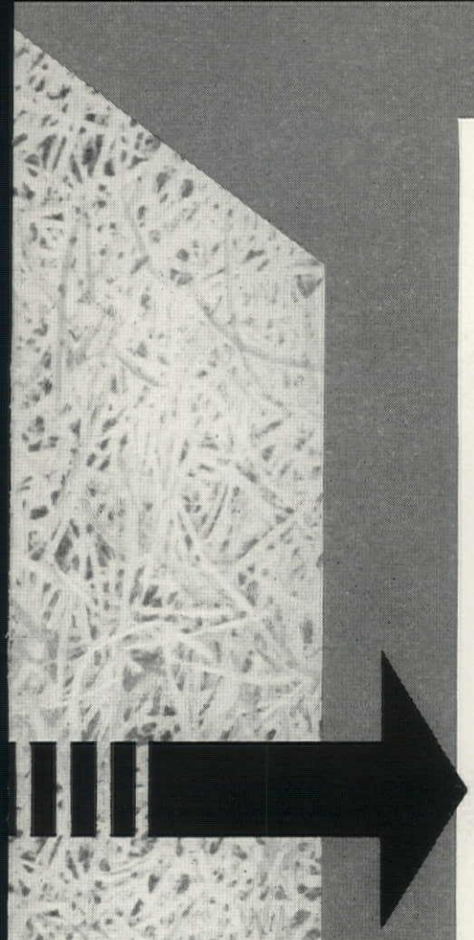

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GENERAL CONTRACTOR: Del E. Webb Construction Co., Phoenix, Ariz.

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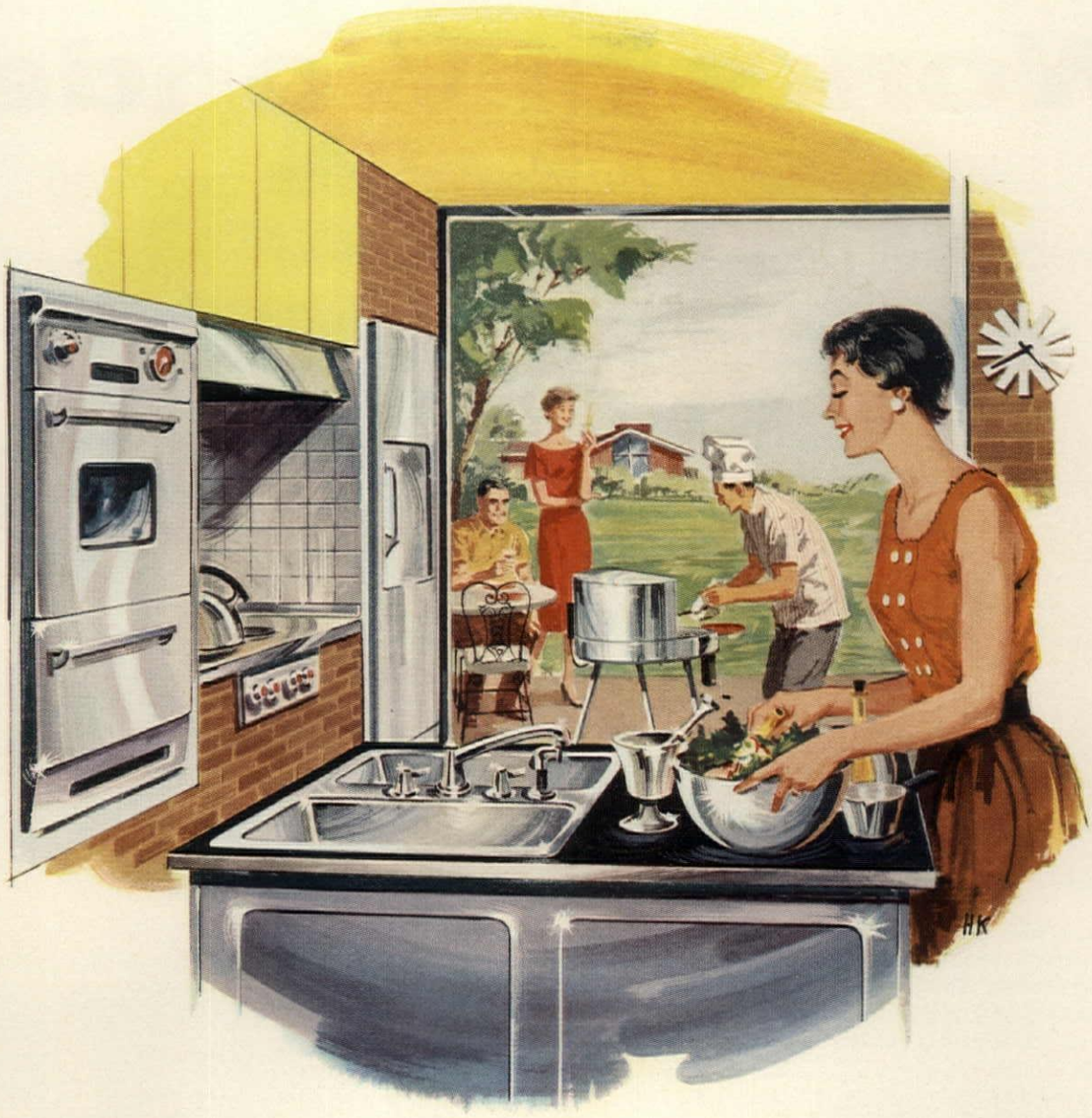

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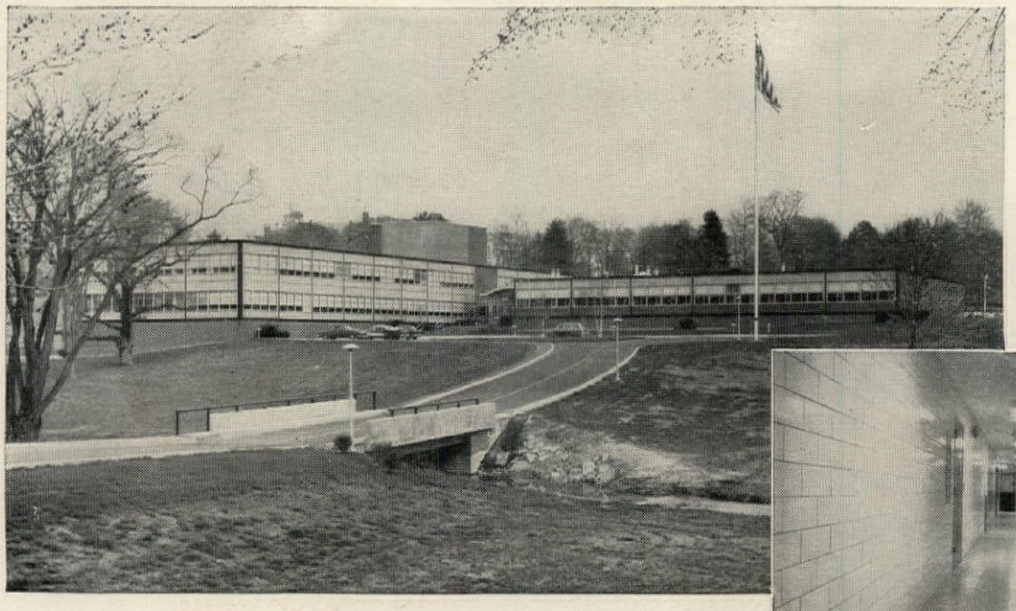

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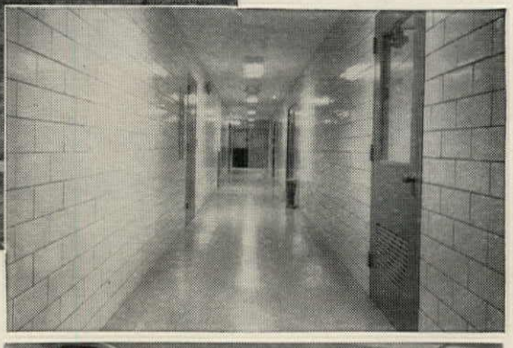

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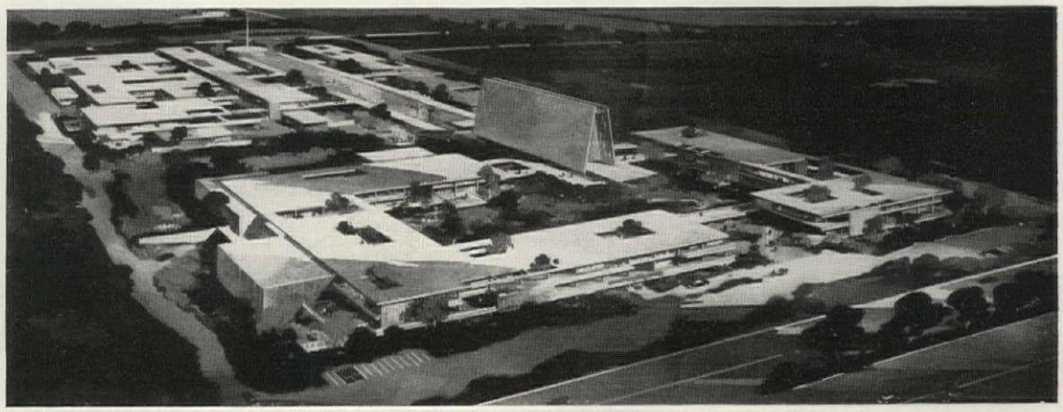
Projects

A roundup of recent and significant proposals



ARCHITECTURAL SCHOOL FOR CANADIAN CAMPUS

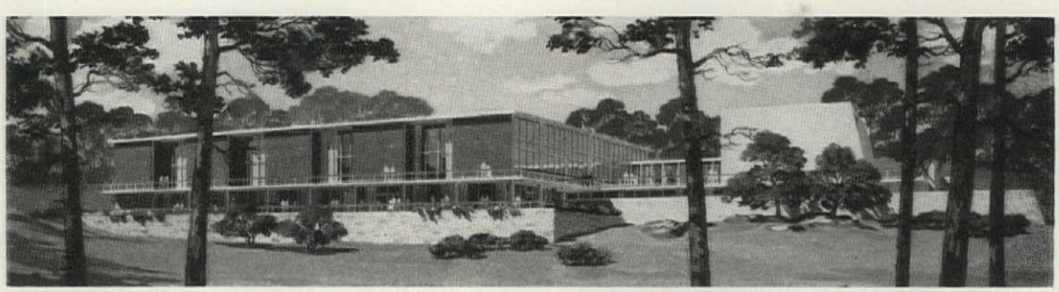
Next September the University of Manitoba will inaugurate the two-story structure above—the first building in Canada built solely for the teaching of architecture. Designed by Smith, Carter, Katelnikoff Associates of Winnipeg, the podium-mounted steel-framed school will be faced with precast concrete panels, transparent and opaque glass. Offices and exhibition space will be on the first floor; drafting rooms on the second. Cost: $833,000.

DIVINITY SCHOOL IN SOUTHERN CALIFORNIA

Shown above is the master plan for the Southern California School of Theology, a $5 million graduate school to be built in Claremont, California. Dominated by a central chapel, the 15-acre campus will provide academic and housing facilities for 300 Methodist students. Building area: 200,000 square feet. Architects: Pereira & Luckman.

LIBRARY AND FACULTY CENTER AT BRANDEIS UNIVERSITY

At Brandeis University in Waltham, Massachusetts a $2 million library and a $500,000 faculty center will be built from plans by New York City Architects Harrison & Abramovitz. Set on a high terrace paved with blue and white stone chips, the glass-and-brick library (top photo, below) will be three stories high with 102,680 square feet of usable floor space. Scheduled completion date: September 1959. Also of glass and brick, the faculty center (bottom photo) will contain dining areas, lounges, meeting rooms, and other clublike facilities, as well as guest rooms for visiting lecturers in an adjacent wing. Total area: 16,100 square feet. Completion is set for late this fall.



THREE 300-ROOM HILTONS

To its string of 29 hotels the Hilton Hotels Corp. will add the three at left (top to bottom) in Baghdad, Athens, and San Francisco. The 12-story, $8 million Baghdad Hilton, to be built by the Iraqui government, from designs by Welton Becket & Associates of Los Angeles, will be Baghdad's largest hotel. The $5½ million Athens Hilton, also 12 stories and the largest in Athens, will be built by Greek Shipowner Apostolos Pezas. Architects: Warner, Burns, Toan & Lunde of New York and Prokopios Vassiladis of Greece. The Hilton Inn which is now under construction a half mile from San Francisco's International Airport, will open its 300 roadside rooms this December. Designed by William Tabler of New York City, it will cost $2½ million.

CANADIAN INSURANCE TOWER

In downtown Toronto the Prudential Insurance Co. and Tusca Investments Ltd. will build this 20-story, $12 million office tower to house Prudential's Canadian operations. The building's first four floors will be sheathed with bronze-trimmed glass; the rest with glass and quartz-and-granite panels separated by vertical fins of stainless steel. Floor space: 350,000 square feet. Architects: Page & Steel and Peter Dickinson Associates.

THREE-PART DEVELOPMENT FOR BROOKLYN HOSPITAL

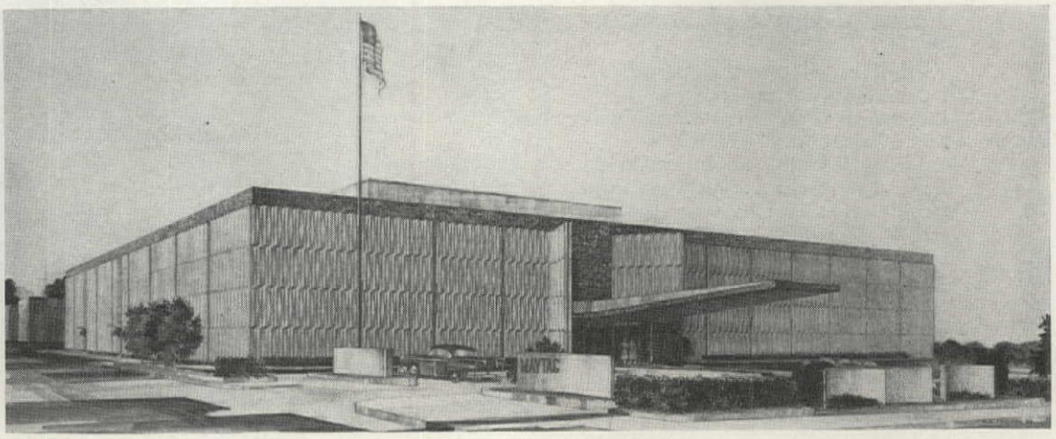
An $11 million development for Brooklyn's Maimonides Hospital is planned in three major phases: 1) a $1 million, four-story outpatient center (lower left); 2) an 11-story, 576-bed medical-surgical pavilion (center); and 3) a nursing school and research center (right). The outpatient building, now under construction, will have aluminum-framed glass spandrels and exposed concrete columns and beams. Architects: Skidmore, Owings & Merrill. Present hospital facilities are shown at left.

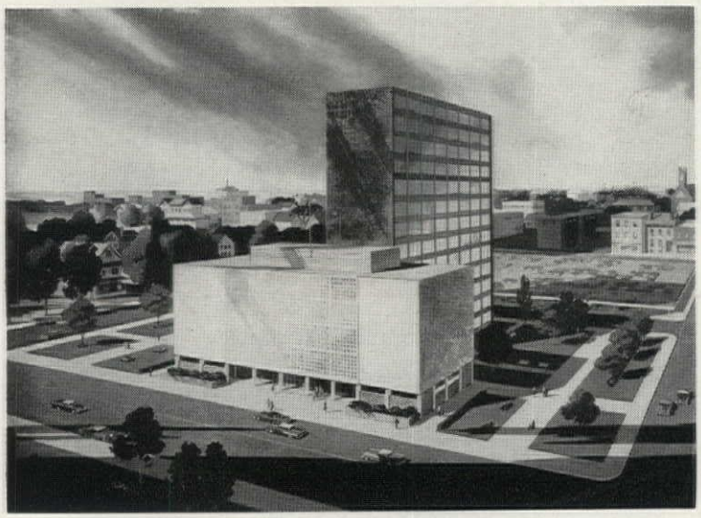
MANHATTAN OFFICE BUILDING

Thirty West Broadway, a 14-story Manhattan office building, will be erected by Builder Erwin Wolfson on property leased from Columbia University. The block-square structure, containing 300,000 square feet of rentable floor space, will be faced with white brick spandrels, blue tinted windows. Architect: William Lescaze. Cost: $5 million.

IOWA OFFICE BUILDING

For the Maytag Company's main offices, the Des Moines architectural firm of Brooks-Borg has designed this 132,000-square-foot building now under construction at Newton, Iowa. The three-story structure will be faced with sculptured, buff-colored panels of precast concrete. Vertical tile strips with slot windows will separate the panels. The project will be ready for occupancy by late 1959.





SCREENED COURTHOUSE IN NEW JERSEY

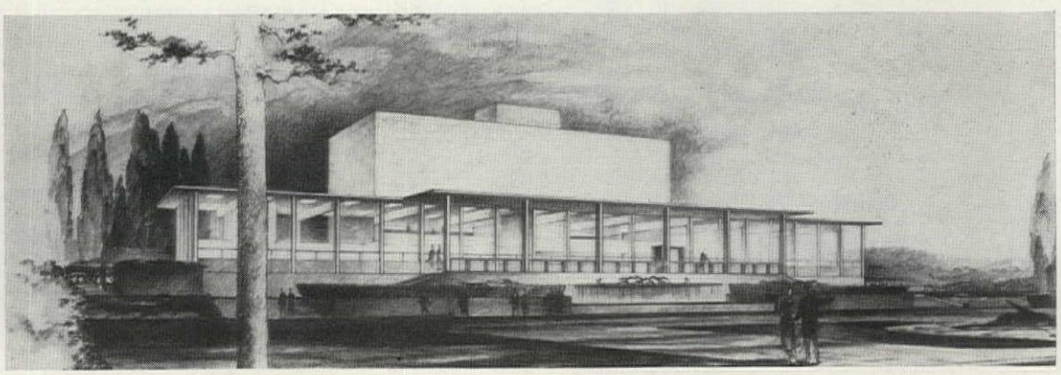
This five-story, penthouse-topped courthouse (foreground) will be built by the Middlesex County Freeholders in New Brunswick, New Jersey. The steel frame project, which is the design of Alexander Merchant Associates, will have a pearl-colored, pierced terra-cotta façade and a total floor space of 72,000 square feet, excluding penthouse. Scheduled for completion by 1960, it will cost $2.3 million. The 13-story building at rear is a proposed jail.

MORGUE FOR MANHATTAN

An ultramodern, $3½ million morgue (above) is now under construction at the corner of 30th Street and First Avenue in Manhattan. Designed by De Young, Moscowitz & Rosenberg, the six-story structure will have an exterior of gray glazed brick, aluminum, and glass. Mortuary facilities (120 trays), autopsy and examination rooms will be in the basement. Upper floors will be used for laboratories, library, lecture rooms, offices, and a museum. Completion: 1960.

WASHINGTON STATE LIBRARY

Seattle Architect Paul Thiry designed this seven-story library as part of his development plan for the State Capitol at Olympia. The $1½ million structure, scheduled for completion by next January, will have 60,000 square feet of floor space. Construction: monolithic concrete waffle slab; exterior facing of cut stone.



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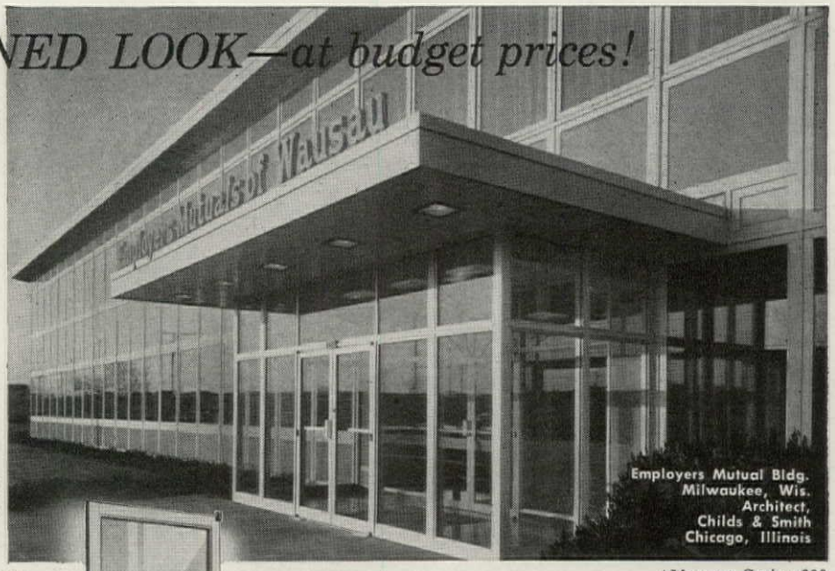

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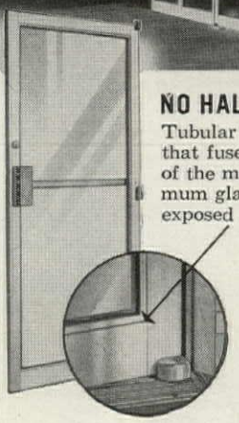

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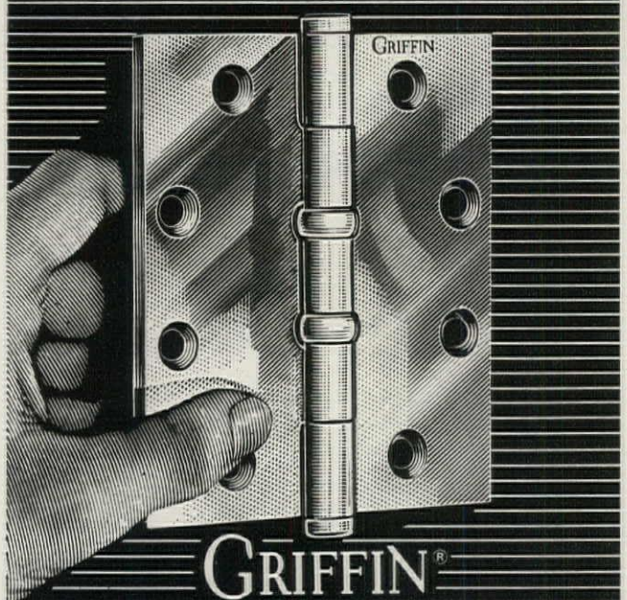

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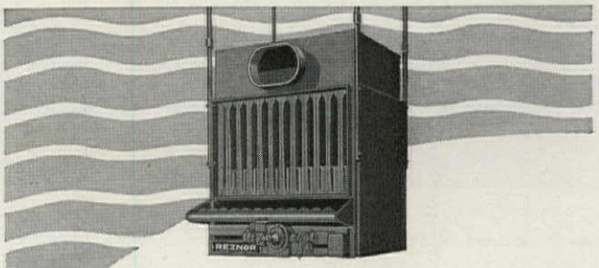

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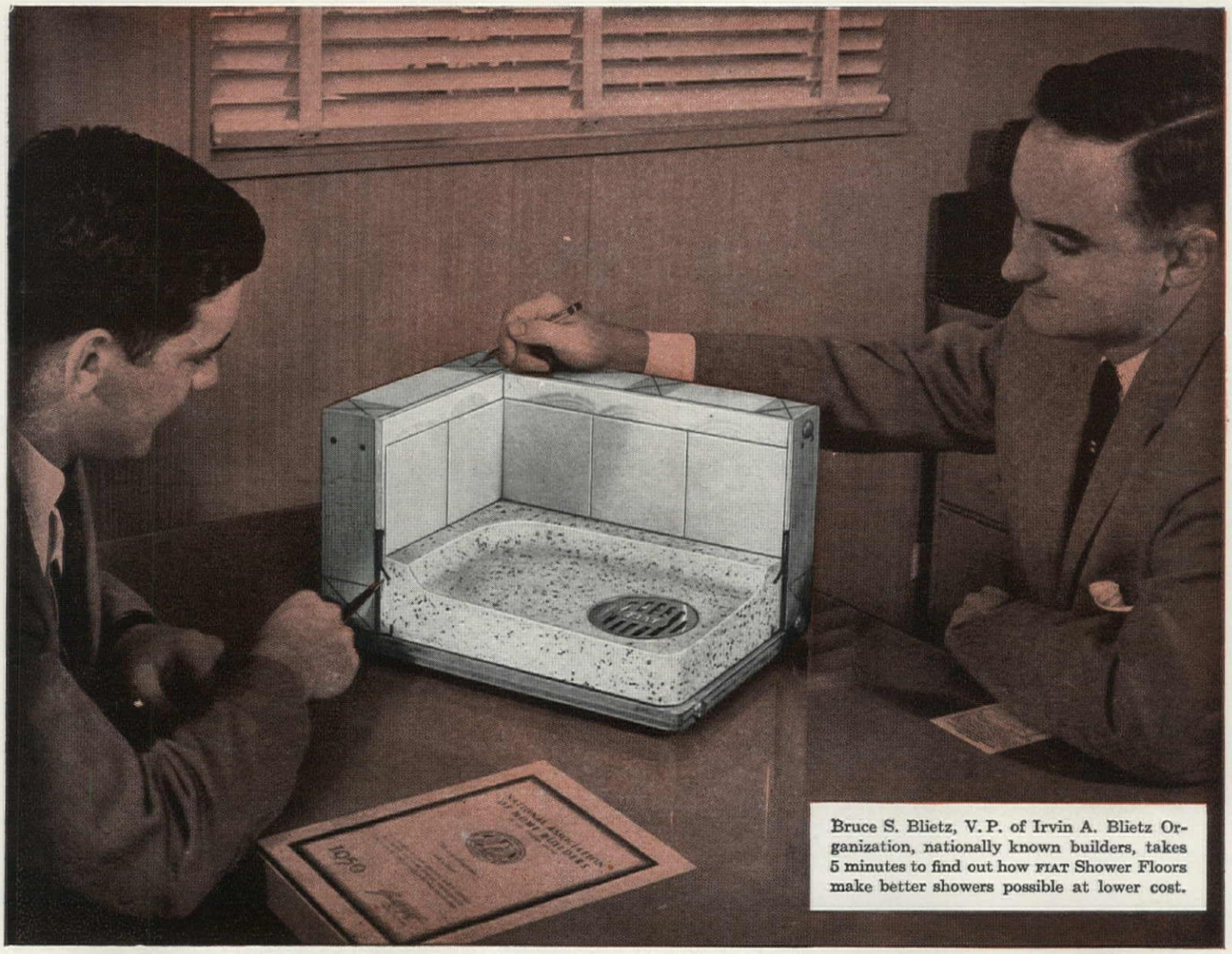

Bruce S. Blietz, V. P. of Irvin A. Blietz Organization, nationally known builders, takes 5 minutes to find out how FIAT Shower Floors make better showers possible at lower cost.

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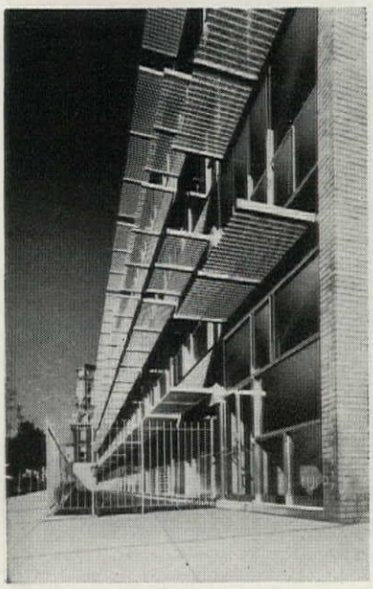

Curtis Hall, Temple University, Philadelphia
Nolen & Swinburne, Architects

An unusually light and transparent appearance is achieved in this new 4-story classroom building by the extensive use of IRVICO type CC pressure-locked aluminum grating as sunshades. These help reduce air-conditioning costs and help control sky glare. They also serve as window cleaning walkways.

Angell Hall, University of Michigan
Kahn Associated Architects and Engineers, Inc.

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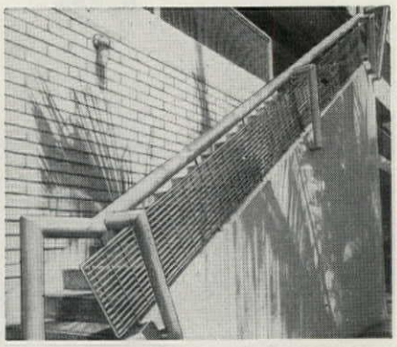

Capital Building, Waikiki, Oahu, Hawaii
Wimberley and Cook, Architects

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Mies retires from teaching at Illinois Tech; women architects convene in Los Angeles

MORLEY BAER

MIES

Although **Mies van der Rohe**, 72, is probably best known for his crisp, ramrod architecture, he is also revered as a teacher. At the end of the recent school year, however, the Illinois Institute of Technology, where Mies has taught architecture for 20 years as director of the school's Department of Architecture, announced Mies's retirement.

Mies leaves IIT with more than fond memories. He has designed all the new buildings on the Institute's 110-acre campus on Chicago's South Side (FORUM, November 1952). And he has been a magnet for architectural students from all over the world.

Mies will continue to work and live in Chicago, even though his academic career has run its course. He plans now to devote more time to his own office, where he is working, among other things, on urban renewal apartments for Newark, New Jersey, Brooklyn, and Manhattan, a rummakers' headquarters in Cuba, and a U.S. consulate in Sao Paulo, Brazil.

WOMEN ARCHITECTS MEET

About a week before the American Institute of Architects held its annual convention, another distinguished architectural group met in conclave. The Association of Women in Architecture, meeting in Los Angeles, heard a keynote address from **Rita Lawrence**, artist and pottery designer, who said: "Women's prime attributes of greater sensitivity, understanding, and emphasis upon the human element is of inestimable value in a man's world of competitiveness and aggression."

New officers of the association, elected for two-year terms, are: **Mary Jane Fournier** of St. Louis, president; **Doris Danna**, vice president; **Jane Godfrey**, secretary, and **Barbara Uthe**, treasurer.

HERB WEITMAN

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STEINMAN'S BRIDGES

David B. Steinman, 72, builder of some 400 bridges around the world, took time from designing a bridge to span Turkey's Bosporus to watch the dedication of his most ambitious effort so far—the 5-mile-long, $100-million Mackinac Straits Bridge, the longest and most expensive suspension bridge in the world. Although the bridge was first opened to traffic last fall, its dedication was held off until the start of the tourist season, with its influx of vacationers into Michigan's Upper Peninsula. For Steinman, it was a significant event, a triumph for his theories of building "rigid" suspension spans instead of "flexible" spans, such as had been advocated by other engineers for years. (The flexible idea suffered a major setback in 1940, when the bridge spanning the Tacoma, Washington, Narrows twisted and vibrated to destruction in a windstorm.)

INS

STEINMAN AND MESSINA STRAIT BRIDGE

Recently Steinman, who directs the building of some $2 million of bridges a year from his Manhattan headquarters, has spent most of his time designing the Bosporus span which would have a 2,214 foot center span, sixth largest suspension span in the world. (First is Golden Gate Bridge, with a center span of 4,200 feet. Mackinac Bridge has a center suspension span of only 3,800 feet, but gains its title as the world's longest over-all span by reason of the long reach of roadways on either side of the suspension section.)

Steinman still has bridge-builder's dreams, and would eclipse all his previous efforts with a plan to bridge the Strait of Messina, between Italy and Sicily, with a bridge having a 5,000 foot center span. So far, this is just in the talking stage, but Steinman, who already has seen many dreams materialize, hopes to see it built.

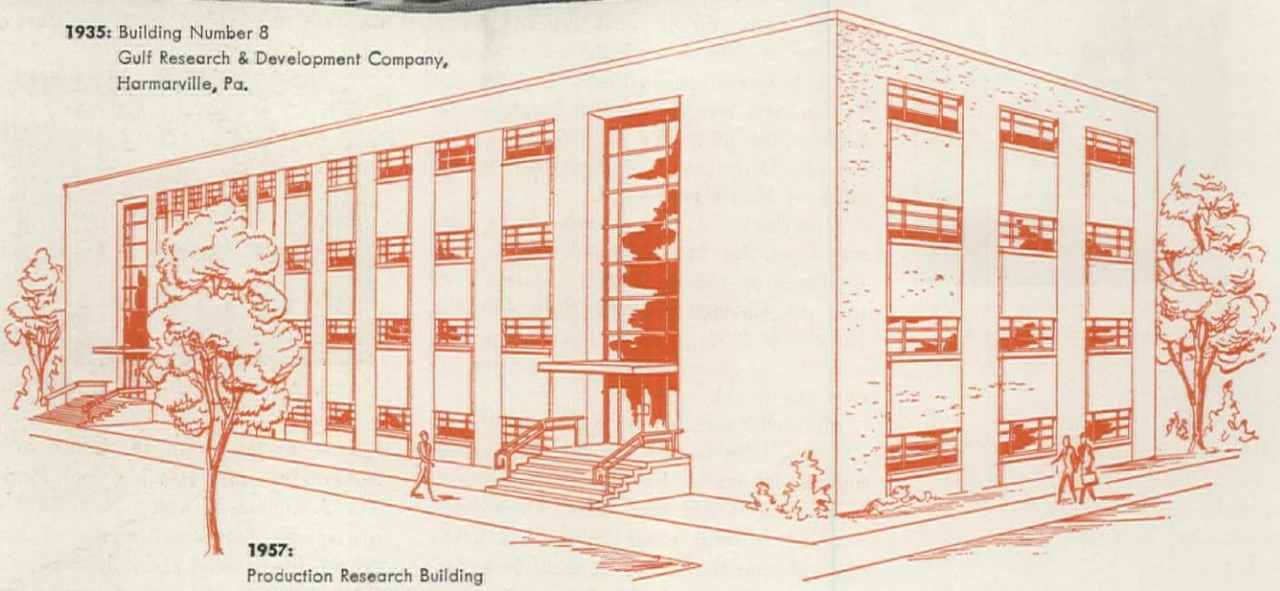
CURTAIN WALL WINS IN PHILLY

Last month, FORUM reported that Philadelphia architects were renewing their pressures to get a bill passed by the City Council that would allow them to join

continued on page 29

building design changes...

1935: Building Number 8
Gulf Research & Development Company,
Harmarville, Pa.



1957:
Production Research Building
Gulf Research & Development Company,
Harmarville, Pa.
Engineers & Constructors: Wigton-Abbott Corporation,
Plainfield, N. J.

but

KOPPERS COAL-TAR PITCH

is still the preferred roofing material

The buildings at Gulf's Research laboratories trace in their design the architectural trends since the establishment of this activity in 1935. Building 8 is one of three original structures; the latest addition to Gulf's extensive research facilities is the Production Research building, designed by Wigton-Abbott and now nearing completion. Both have one thing in common: they are protected with 20-year Bonded Koppers Coal-Tar Pitch Built-Up Roofing.

All the flat-roofed buildings at Gulf's modern research center are covered with Koppers Bonded Roofing, including the new, staff-designed Nuclear Science building and the Automotive Products laboratory, widely acclaimed as a model of its type.

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most of the U.S. in the use of curtain walls. The bill would permit use of metal panels without excessive masonry backup for exterior nonbearing walls. Such a bill had been bottled up in a special council committee for two years, largely, it seemed, through the delaying efforts of Brick Contractor **John B. Kelly.** The situation was sharpened by the announcement that **Sylvester J. Lowery** would build a $20 million, 30-story apartment building in Penn Center of curtain-wall construction. But Lowery was stymied until the City Council saw fit to act.

Late in June, the council did act. By a 15 to 2 vote, it passed the bill allowing curtain-wall construction (without a four-hour fire-resistant masonry wall backing up the panels).

Lowery himself says: "I was tremendously pleased. Now we won't have to stick to Model-T architecture in the city. We'll be free to choose the best designs. I hope to be the first to use panel wall in Philadelphia." Lowery estimates that construction will start sometime in October, and three to four months will be cut from construction time by use of panel walls instead of masonry.

WAGNER PICKS REALTY CHIEF

New York City's Bureau of Real Estate is slowly digging its way out of the scandals that have smothered it since early this year (FORUM, March 1958). Last month, Mayor **Robert F. Wagner** announced that he had finally come up with a man to replace **Percy Gale Jr.** as head of the bureau. The Mayor's choice: Bronx Real Estate Executive **J. Clarence Davies Jr.,**

DAVIES

46, chairman of the nonprofit, private Citizens Housing & Planning Council, and president of the Bronx Real Estate Board.

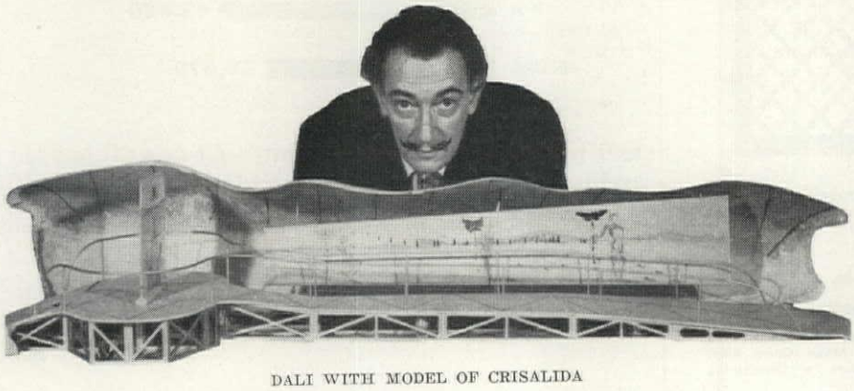
Davies will work temporarily with City Planning Commission Chairman **James** Felt, who has been acting director.

PASS THE MILTOWN, SALVADOR

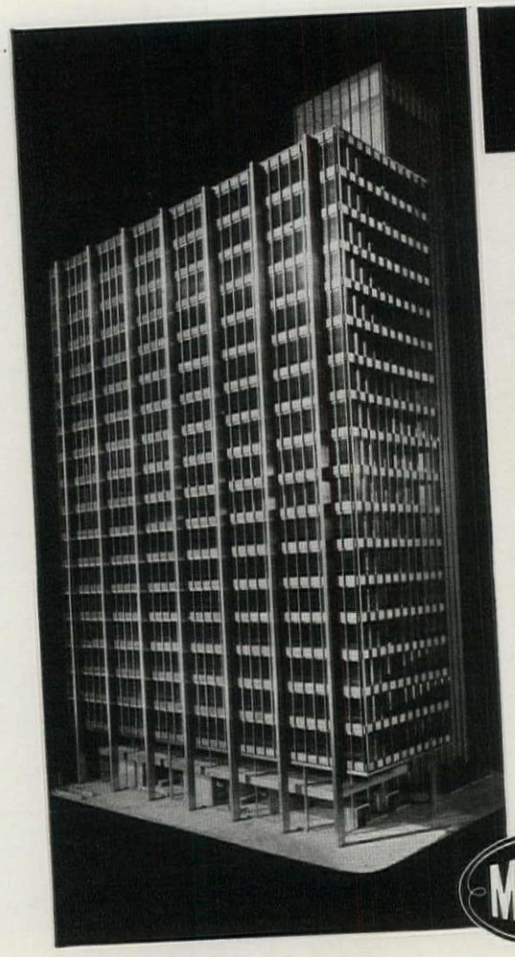
Visitors to the annual convention of the American Medical Association in San Francisco a few weeks ago were startled by one of the exhibits—a 60-foot-long, parachute-silk-covered caterpillar-shaped structure that undulated like the pickup bag on mother's old-fashioned vacuum cleaner. At each end of the caterpillar, two 6-foot-high butterflies seemed to be struggling to escape. Spectators could walk through the caterpillar, and be dazzled by huge paintings showing butterflies flapping across wastelands studded with flying trees and human forms minus large chunks of their midsections.

The exhibit was the work of Surrealist Artist **Salvador Dali,** who was commissioned by Wallace Laboratories, manufacturers of a tranquilizer drug called Miltown, to formulate a "visualization of the transition from mental turmoil to tranquility." Dali's answer was the caterpillar, called "Crisalida," which Dali has called "a new form of my cosmogony." Dali points out that "The outer structure of Miltown is that of a chrysalis, maximum symbol of the 'vital nirvana' which paves the way for the dazzling dawn of the butterfly, in its turn the symbol of the human soul."

Wallace Labs paid the Spanish-born surrealist $35,000 for designing the undulating chrysalis, and the complete cost of the structure was $100,000. END



DALI WITH MODEL OF CRISALIDA



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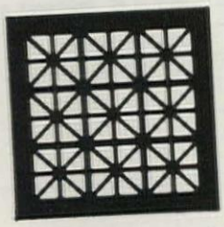
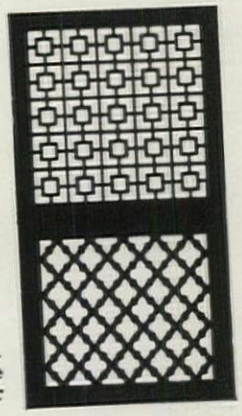


ATTRACTIVE

Hendrick Architectural Grilles combine the functional with the decorative. Many designs are obtainable only from Hendrick.



ECONOMICAL

Hendrick Grilles cost less to install than most architectural materials.

VERSATILE

Each design can be furnished in a wide range of dimensions, with varying numbers and sizes of perforations.

EASY TO INSTALL

Hendrick Grilles always lie flat . . . do not bend or warp. They provide more than enough open area for free passage of air.

Write today for more information about Hendrick Grilles.

Hendrick

MANUFACTURING COMPANY

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

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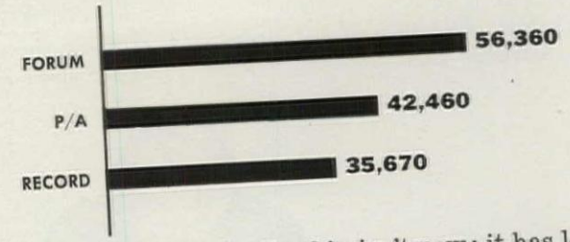

FORUM's circulation leadership isn't new; it has led the architectural magazines in circulation ever since 1935.

Twenty-two years of continuous leadership is no accident

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Apartment doors at the lowest installed cost!

Concealed within the sleek seamless beauty of this new Fenestra® Hollow Metal Flush Door is a rigid, rugged, welded structure that gives the door the strength to withstand years of tenant abuse. It's Fenestra's exclusive multi-rib reinforcement!

And, in addition to beauty and durability, you get the lowest installed cost because:

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Ask your Fenestra representative (listed in the Yellow Pages) to help you in your selection and specification of doors, frames and hardware. Or, write to Fenestra Incorporated, Dept. AF-8, 2296 East Grand Boulevard, Detroit 11, Michigan.

Let the man  *from Fenestra be your "door man"*

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YOUR SINGLE SOURCE OF SUPPLY FOR DOORS • WINDOWS • BUILDING PANELS • CURTAIN WALLS

New Color. . . .

New Economy...

with porcelain enamel aluminum wall panels by Fenestra

An exciting new development by Fenestra . . . insulated aluminum wall panels that combine the long, maintenance-free life of porcelain enamel color with the economy of fast, easy field assembly in curtain wall construction.

These Fenestra* Wall Panels give distinctive, durable beauty to any building with their rolled-in texture and deeply revealed fluted design. You can choose from scores of long-life colors for the exterior surface. You save the cost of painting and repainting year after year, and enjoy the guarantee of uniform color match.

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"LONG-LIFE" COLORS . . . Opaque, stable and uniform to the standards of the Porcelain Enamel Institute.

BOLD FLUTED DESIGN . . . combined with textured finish gives new design freedom.

FAST, EASY FIELD ASSEMBLY. . . saves construction time and money.

FREE COLOR CHART showing actual samples of 42 colors now available. Write for copy on your letterhead!

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BUILDING PANELS • CURTAIN WALLS
DOORS • WINDOWS

Vision-Vent installations such as this now can be specified with exclusive new Truscon Supercoat Finish to eliminate field painting. Pictured is Activities Building, Georgia Training School for Girls, Adamsville, Ga. John J. Harte, architect. Abco Builders, contractor.

New...Truscon Vision-Vent Window Walls with Sensational Supercoat Finish

Install without painting!

Stave off maintenance painting!

7 Colors!

Now, you can get the solid strength of steel for curtain walls and windows and save field painting costs, too. New Truscon Supercoat Process is factory-applied to eliminate all field painting . . . both at installation and during the years.

This outstanding Truscon development has been thoroughly laboratory tested—for weather, atmosphere, time, and abuse. It has successfully met each challenge.

Vision-Vent brings you all the mass-production and installation economies of standard steel windows. It's an insulated wall section, complete with window. It goes up fast.

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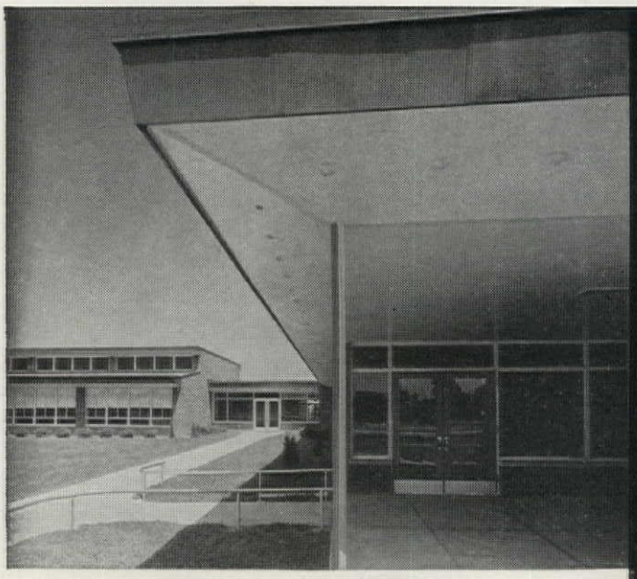
See Sweet's (17b/Tr) or send coupon for Supercoat booklet. Supercoat sample on request.



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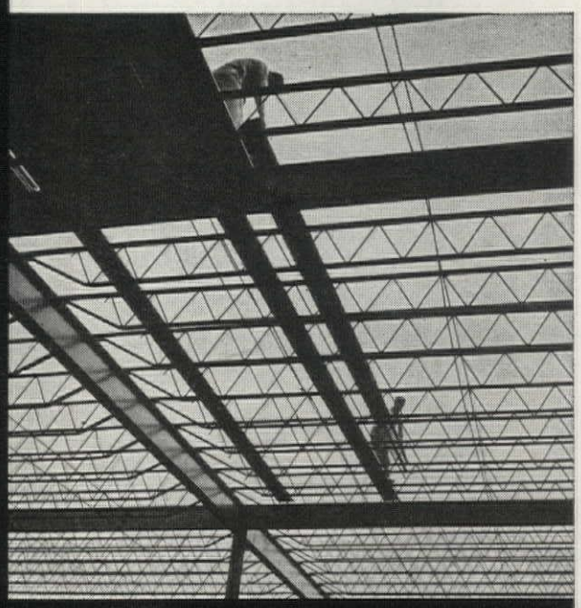
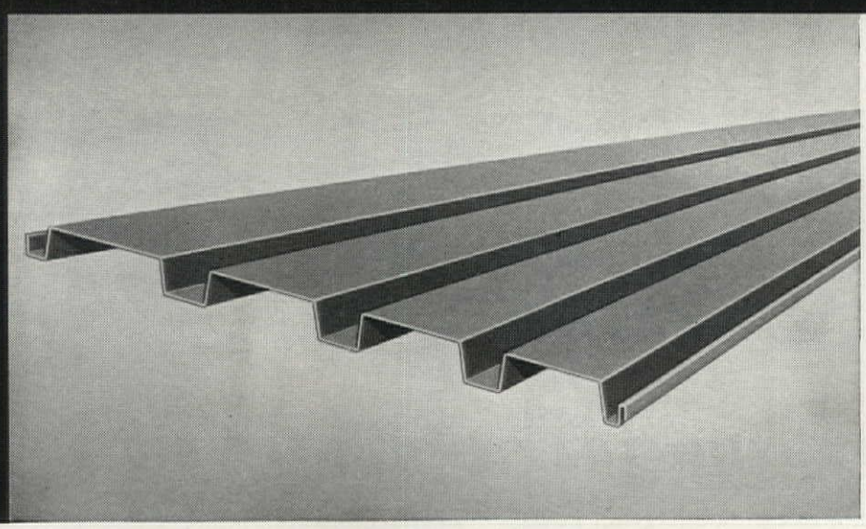
NOW . . . TRUSCON CERTIFIES EVERY "O-T" STEEL JOIST. For your protection, Truscon now offers you, upon request, written certification that the "O-T" Steel Joists you specify are manufactured in accordance with the standards of the Steel Joist Institute and are fully qualified to bear the SJI Seal of Approval.

This certification covers each building for which the joists are engineered. It is further assurance of predictable, dependable load-bearing. No extra cost for this protection. Send coupon for facts.





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You spotted it instantly, of course . . . and thereby demonstrated to yourself how pneumatic controls save important operational time and dollars in operating modern air conditioning and heating systems. If your visual perception is average, one glance revealed the "trouble" is in the middle row, third dial from right.

Similarly, from a Johnson Pneumatic Control Center, the operator can scan his panel and check key temperatures, pressures and other data from up to a hundred or more strategic control points in the building—*all in less time than it takes to tell it!*

The continuous visual display of vital operating data, exclusive with pneumatic controls, permits instant, remote observation of an entire system, allows constant supervision when required. It saves time and manpower and adds greatly to the economy and efficiency of operating any air conditioning or heating system. With pneumatic indication, there are no buttons to push, no waiting for periodic logging, no codes to check. *And no complex equipment to study and maintain!*

For complete facts about this and other exclusive advantages of pneumatic temperature control systems and control centers, call Johnson, the leader in pneumatic control. A talk with a nearby Johnson engineer involves no obligation. Johnson Service Company, Milwaukee 1, Wisconsin. Direct Branch Offices in Principal Cities.

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manage themselves!

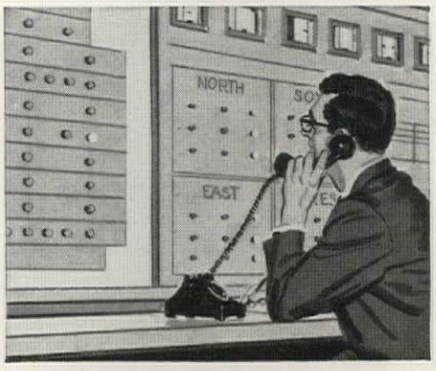
Honeywell now centralizes supervision of building functions —replaces legwork with cheaper, faster electrical signals.

Air conditioning supervision

One set of controls regulates entire system. Operator pushes button; diagram he wishes to check is projected on screen; controls switched automatically to system shown.

Air cleaner supervision

Cleanliness of building is controlled by electronic air cleaners which remove 90% of all air-borne dirt. Panel supervision assures their continuous, efficient operation.

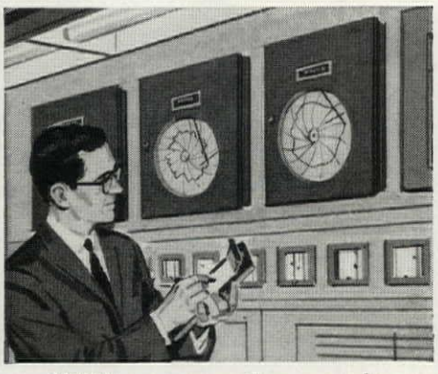


Fire detection and alarm

Sounds alarm and flashes light showing fire's exact location. Supervisor can take measures to put out fire quickly. Fire-sprinkler system, if used, can be tied in to same panel.

Master clock and programming

Allows supervisor to pre-set all plant functions occurring regularly—signals, heat, lights, air conditioning. They and all clocks controlled by master clock in panel.



Utilities consumption records

Gives a daily departmental metered record of power, steam and chilled water used. Can be connected to high speed typewriter to fill in regular accounting department forms.

Light Saver*

Programmed from control center, this system adjusts artificial lights automatically to perfectly supplement natural daylight. Has reduced lighting costs up to 80%.

THIS NEW control concept from Honeywell enables a building to almost take care of itself—automatically.

Called a Supervisory DataCenter,* it lets one man do the work of crews. For it places all the functions shown above —and any others that benefit from centralized control—under the supervision of a single control center. It's easy to operate, requires no special training: And its maintenance can be handled through a low-cost service agreement.

Each control center is custom designed. Even before blueprints are started, a Honeywell specialist will work with you and your engineer to allow free expression of your ideas, as they apply both to design and function. It's at this original planning stage that his specialized control knowledge can be useful in developing a system that will save the most money for your client. For more information about this new concept, call your local Honeywell office, or write Minneapolis-Honeywell, Department MB-8-105, Minneapolis 8, Minnesota.

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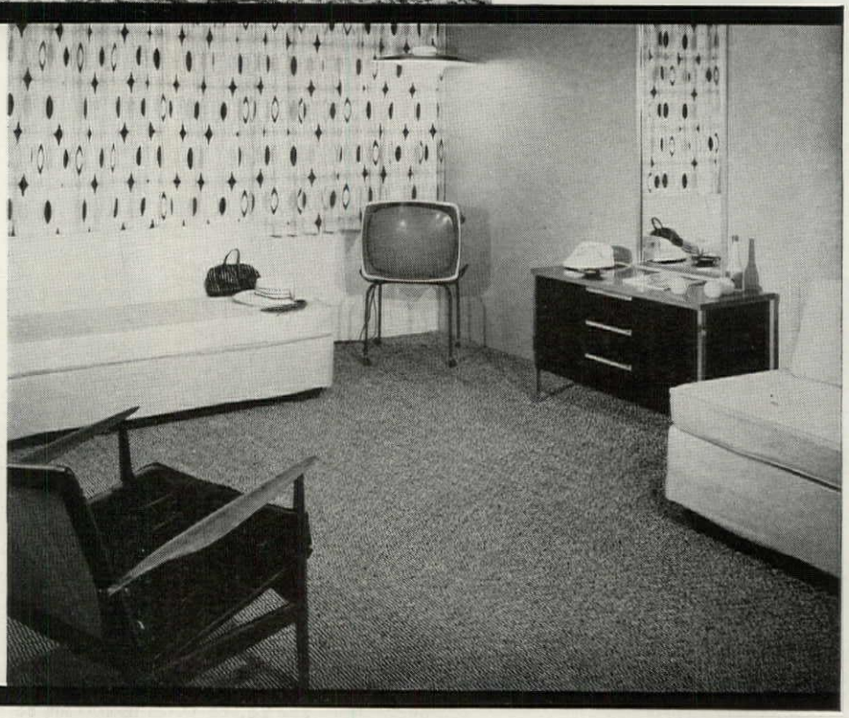

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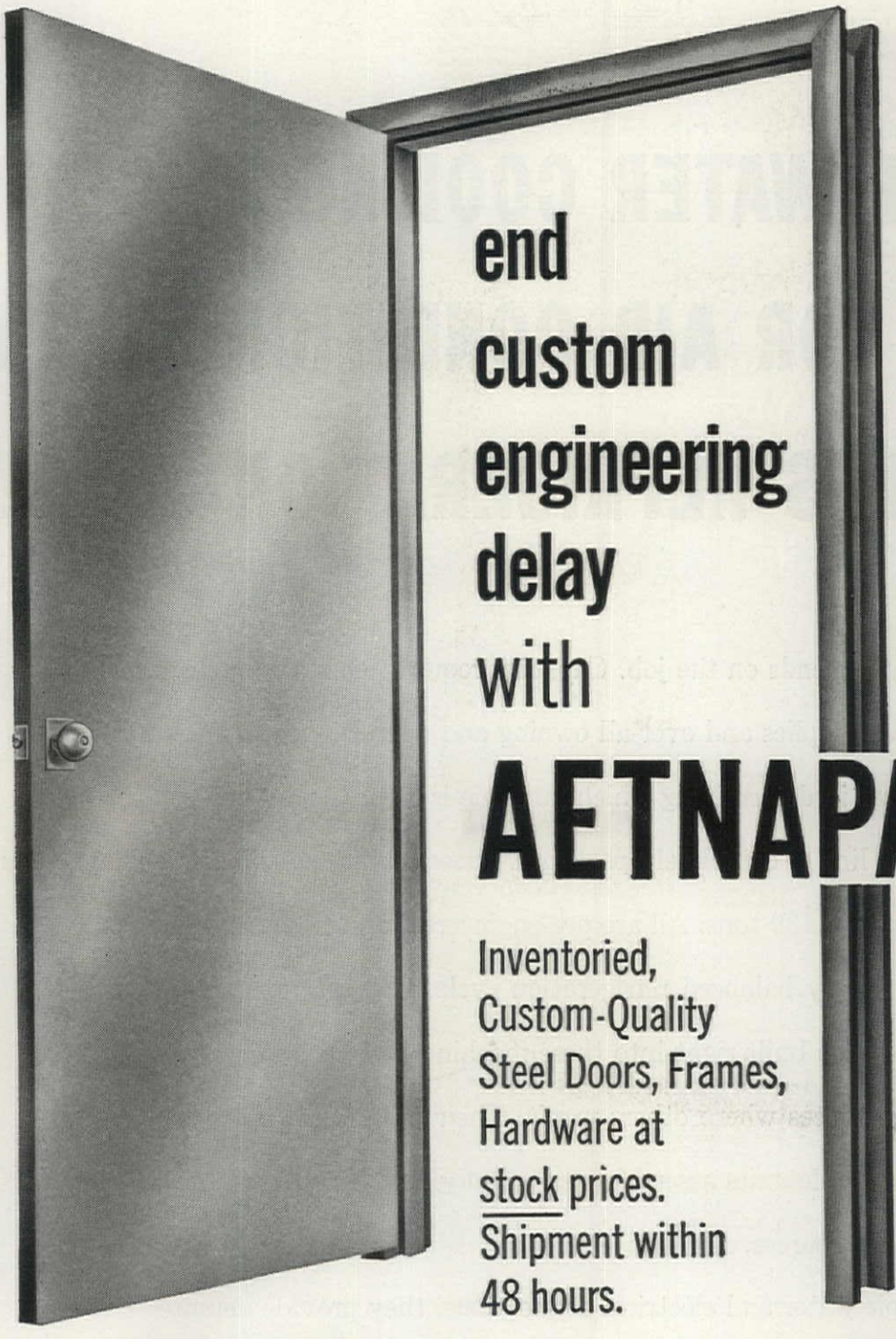
Gulistan Carpet is made in the U.S.A. by American craftsmen

The Most Talked-About Theatres and Hotels in the country choose Gulistan Carpet. And it's no coincidence that they do. For their handsome decorative scheme *started* with Gulistan Carpet. Not only because of its beauty, its deep-piled luxury, its easy care, its long, long wear. But also because of the wonderful decorative ideas that only Gulistan Carpet can provide—with limitless colors and original designs.

Ask your Certified Gulistan Carpet dealer for the facts and figures. And don't be surprised when you learn that these expensive-looking carpets cost far, far less than you'd expect—can actually *cut costs of floor maintenance up to 50% over non-carpeted floors.* Send for proof. Write Commercial Department, AF-8, A. & M. Karagheusian, Inc. 295 Fifth Avenue, New York 16, N. Y.



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Over 500 type-and-size combinations from 16 always-in-stock basic types. Completely flush-design swing and sliding doors. Your choice of AETNAPAK hardware.

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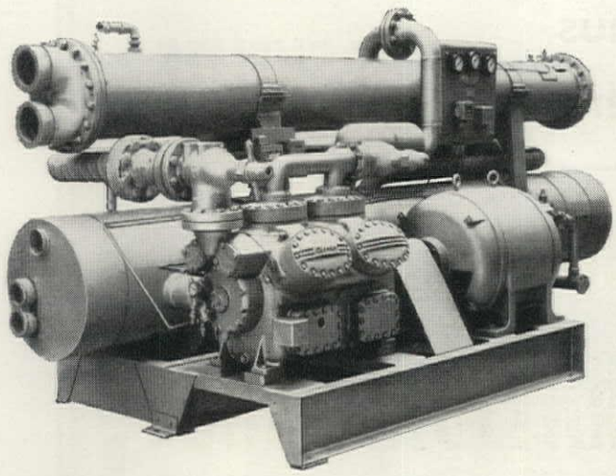
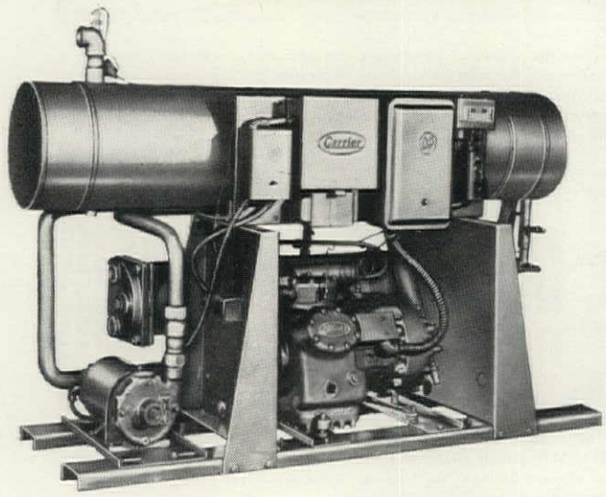
WHICH WATER COOLING MACHINE IS BEST FOR AIR CONDITIONING AND PROCESS REFRIGERATION JOBS?

That depends on the job. Capacity requirements, available space, water supplies and over-all owning and operating costs are important factors in determining which machine is best. Carrier offers a full line of completely packaged water cooling machines with capacities from 5 to 139 tons. All are pre-engineered, assembled and tested for a perfectly balanced refrigeration cycle. Compactness and light weight have been built right into these machines, too, enabling them to go places where others won't. Their initial cost is lower than comparable units assembled from individual components from various sources. And, since they are delivered to the job requiring only simple water and electrical connections, they provide definite savings in installation time and costs. Their advantages are described briefly on the opposite page. For complete information, see your Carrier dealer. Or write Carrier Corporation, Syracuse, New York.

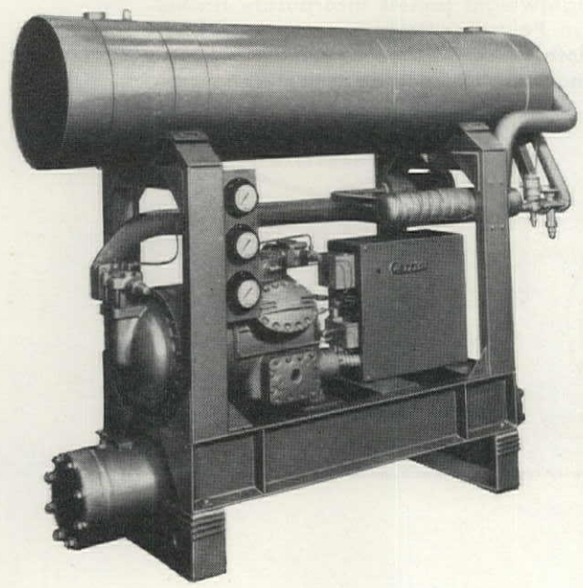
Carrier Air Conditioning · Refrigeration · Industrial Heating



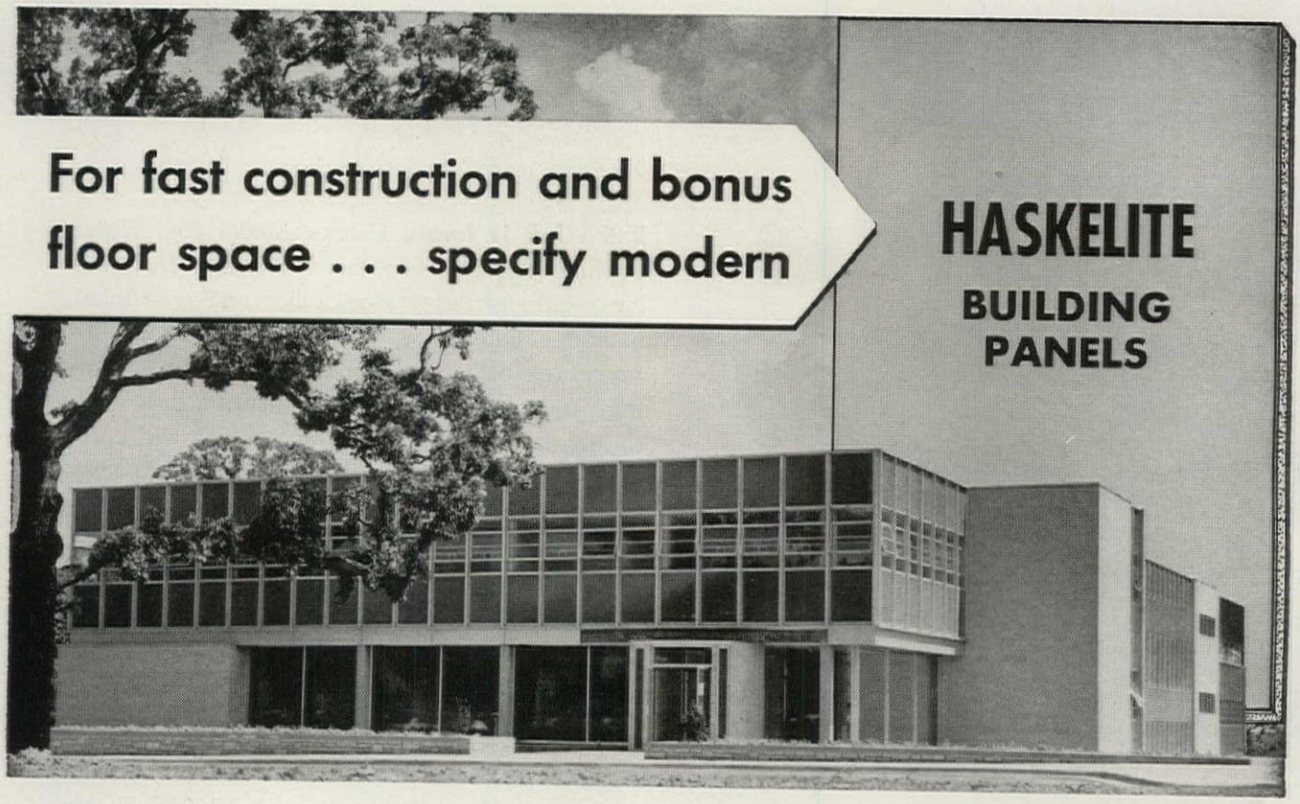
If the job is large, Carrier Model 30C Water Cooling Machines like this will satisfy the cooling requirements of most office and apartment buildings, hotels, hospitals or schools. The entire assembly, including controls, interconnecting refrigerant piping, valves and fittings, has been closely integrated so that the machine will operate with greatest economy. An automatic capacity control saves power by varying compressor capacity in response to cooling load requirements. Capacity range: 85 to 139 tons of refrigeration.



If the job is small, Carrier Model 30E Water Cooling Machines are recommended both as a source of chilled water for air conditioning systems or a source of refrigeration for small process cooling jobs. The units are so compact, light and vibration-free that they can be installed almost anywhere without expensive bases and foundations. For example, the 20-ton model is only 29 inches wide and has an operating weight of only 2300 pounds. Model 30E units are available also for use with evaporative condensers. In 6 sizes with capacities ranging from 5 to 20 tons.



If the job is medium sized, Carrier Model 30K Hermetic Water Cooling Machines offer a dependable, economical solution. No field alignment of the compressor and its driving electrical motor is necessary—both are hermetically sealed in a sturdy, cast-iron casing. A complete control center is included on all units with wiring provided between the motor and its starting equipment and between all installed controls. Capacities range from 25 to 60 tons of refrigeration. If water supplies are critical, other models are available for use with evaporative refrigerant condensers.



For fast construction and bonus floor space . . . specify modern

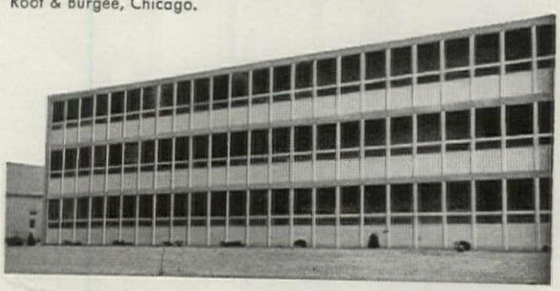
HASKELITE BUILDING PANELS

■ Buildings go up faster . . . construction costs go down . . . floor space increases with versatile Haskelite building panels on the job.

Along with being prefinished, Haskelite plastic laminated panels are structurally strong, moisture-proof, noncorrosive, rot-proof, vermin-proof, lightweight and provide a constant insulating value. They add a modern appearance to curtain and window wall buildings . . . are easily installed with a minimum of labor.

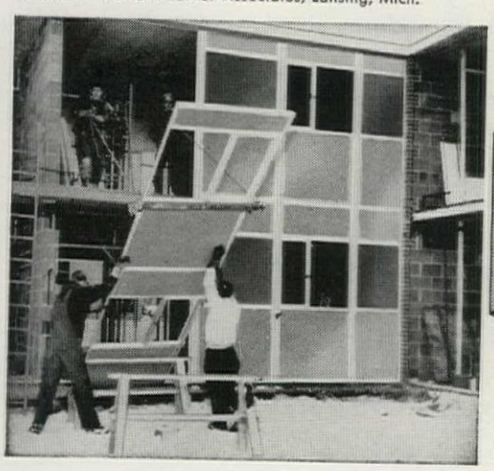
Haskelite panels are available in a wide range of stock sizes and thicknesses, or in special sizes when specified. For the complete story on the advantages of Haskelite panels, write: Haskelite Manufacturing Corporation, Department BN-7, Grand Rapids 2, Michigan.

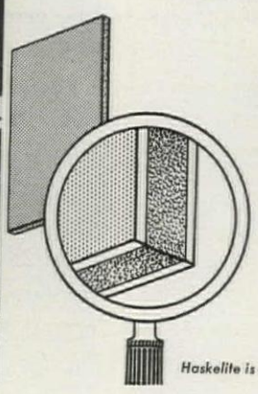
Monsanto Chemical Company's new laboratory in St. Louis represents the most thorough use of plastics in a commercial building in the world. Haskelite panels played a basic structural role in this new building. Architect—Holabird & Root & Burgee, Chicago.



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.





These lightweight panels incorporate Haskelite's own Polyester Resin impregnated fiberglass cloth faces, bonded to cement asbestos interbands, and a foamed polystyrene core.

HASKELITE

HASKELITE

MANUFACTURING CORPORATION

Grand Rapids 2, Michigan

Subsidiary of Evans Products Company

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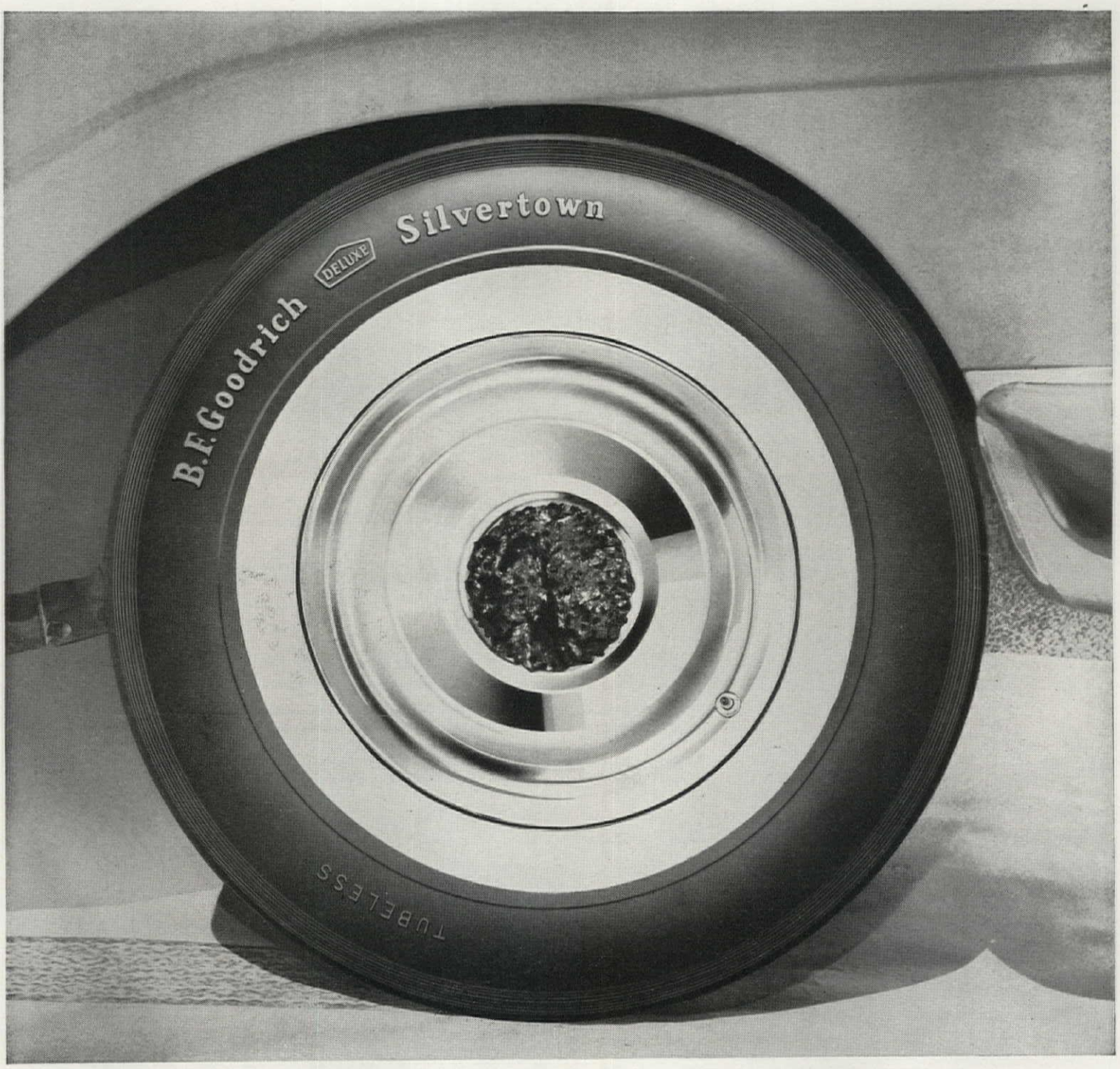

B. F. Goodrich rides with coal

Tire manufacturer enlarges steam facilities; continues coal for economy, reliability

At its Oaks, Pa. plant, The B. F. Goodrich Co. uses steam principally for curing tires. When the plant was expanded in 1954, B. F. Goodrich found its original boiler plant inadequate. Completely new equipment was installed to increase capacity. But B. F. Goodrich continued to burn the economical fuel it had used in the past —coal. Coal handling, ash disposal and the entire furnace operation are automatic. Fuel costs and manpower needs have been held to a minimum. And, this installation has required only routine maintenance and repairs.

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If you are remodeling or building new power facilities, consult a qualified engineering firm. Such concerns—familiar with the latest in fuel costs and equipment—will effect great savings for you in efficiency and fuel economy over the years.

Facts you should know about coal

Not only is bituminous coal the lowest-cost fuel in most industrial areas, but up-to-date coal burning equipment can give you 15% to 50% more steam per dollar. Today's automatic equipment pares labor costs and eliminates smoke problems. And vast coal reserves plus mechanized production methods mean a constantly plentiful supply of coal at stable prices.

For free booklet "Guide Specifications for Typical Low-Pressure Commercial Heating Plant" or for technical advisory service, write to the address below.

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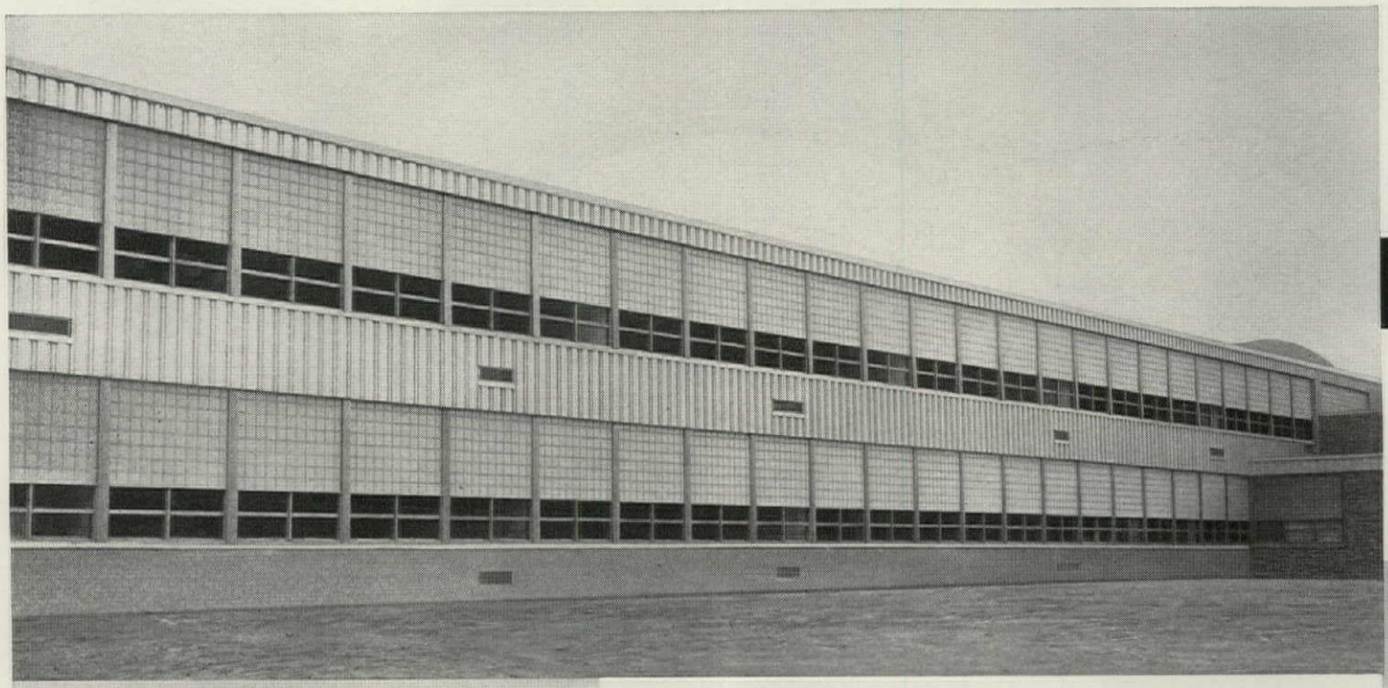
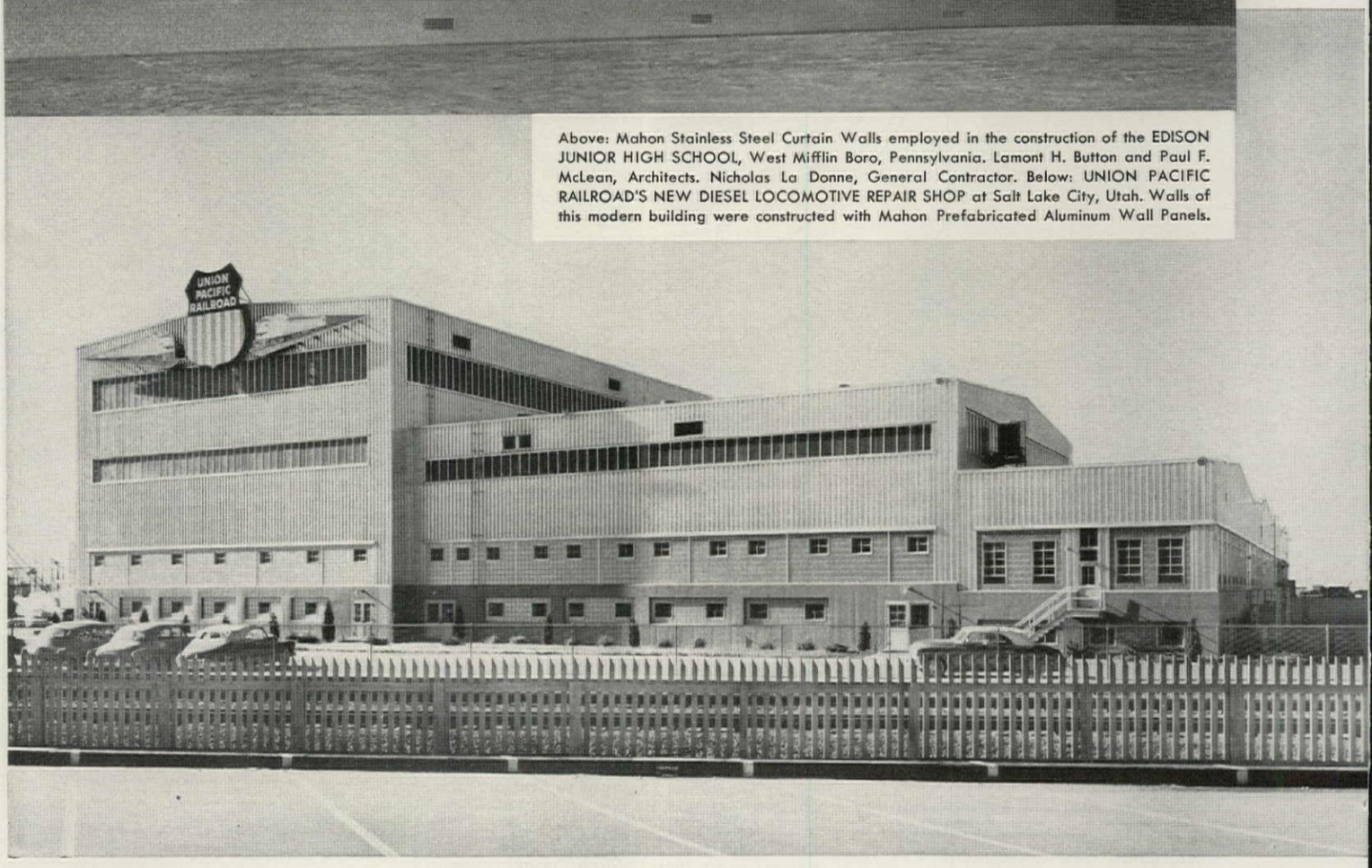
Mahon METAL CURTAIN WALLS



Above: Mahon Stainless Steel Curtain Walls employed in the construction of the EDISON JUNIOR HIGH SCHOOL, West Mifflin Boro, Pennsylvania. Lamont H. Button and Paul F. McLean, Architects. Nicholas La Donne, General Contractor. Below: UNION PACIFIC RAILROAD'S NEW DIESEL LOCOMOTIVE REPAIR SHOP at Salt Lake City, Utah. Walls of this modern building were constructed with Mahon Prefabricated Aluminum Wall Panels.



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Vertical Joints are Invisible . . . Symmetry of Pattern is Continuous Across the Wall Surface

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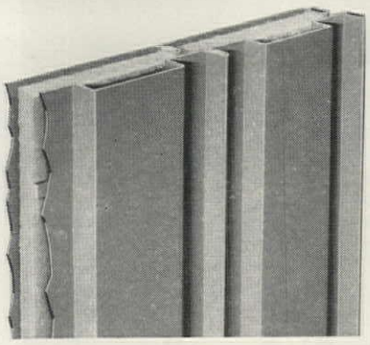
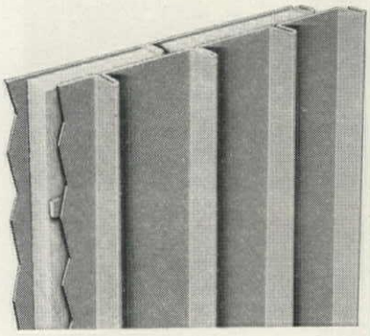
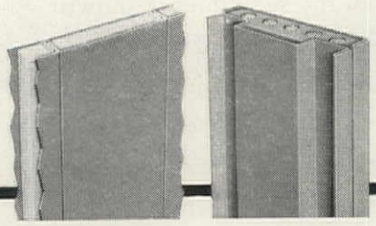
GALVANIZED or PAINTED STEEL



MAHON FLUTED WALL
FIELD CONSTRUCTED



MAHON RIBBED WALL
FIELD CONSTRUCTED



FLUSH FLUTED
MAHON PREFAB WALL PANELS

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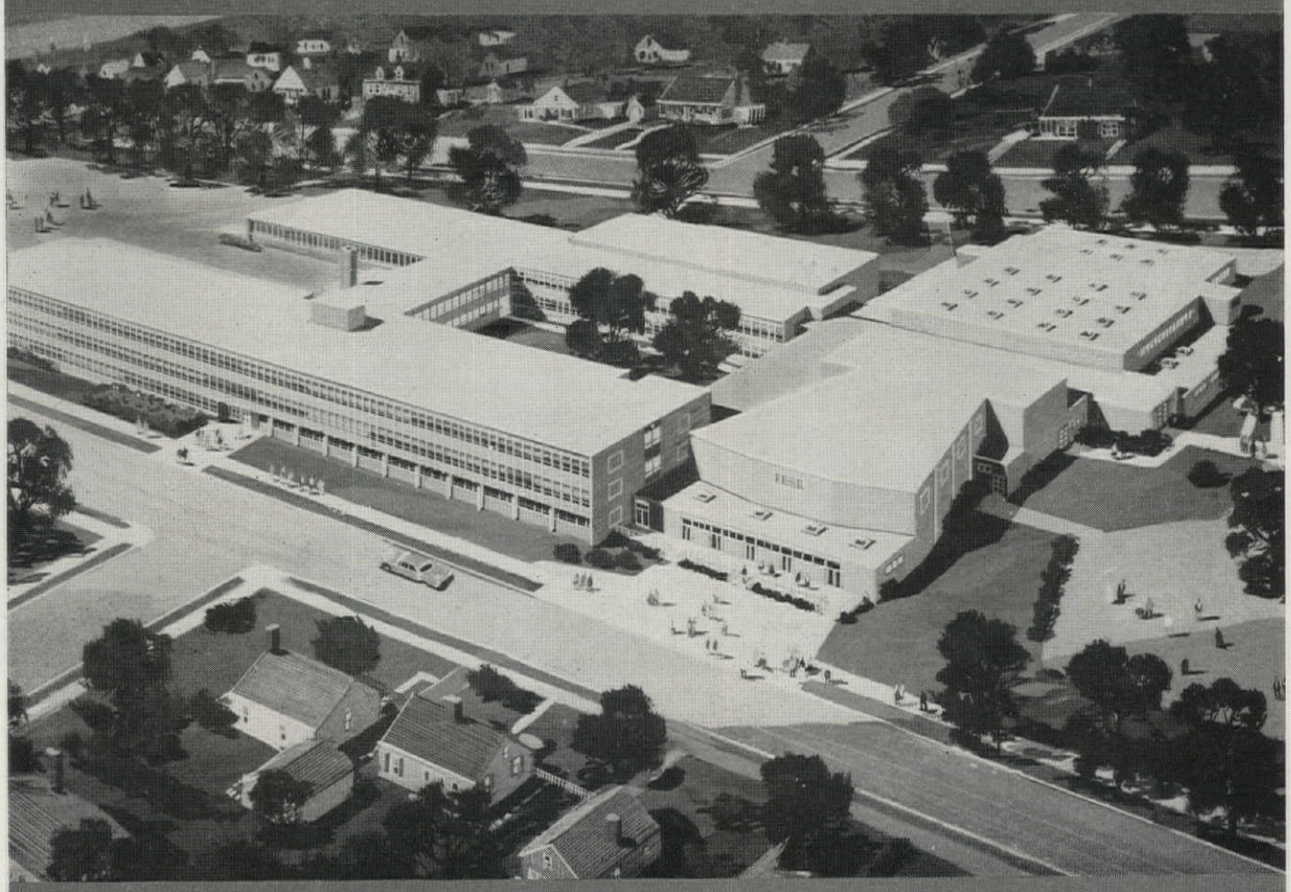
MAHON

New Haven has two new high schools like this



...with extra insulation value in the roofs !

Architect. Schilling and Goldbecker, New Haven;
General Contractor: Fusco-Amatruda Co., New Haven;
Roofing Contractor: Hartford Roofing & Sheetmetal Co., Hartford.

James Hillhouse High School and Wilbur L. Cross High School are the latest additions to the New Haven, Conn., school system. The buildings are identical. Each cost $3,000,000 and each used 100,000 sq. ft. of Gold Bond Insulation Roof Board. Here's why Gold Bond® was specified:

1. Roof insulation value gets maximum protection because Gold Bond's unique "Fiberlok" process increases the roof board's resistance to compression of work-crew traffic during construction. "Soak-in" of hot pitch or asphalt is minimized, too.

2. Gold Bond Roof Board goes on fast—it's rigid, easy to handle, easy to mop...and frugal with mopping material.

3. Gold Bond holds its size under extremes of roof temperature. It's moisture-repellent, and can be ordered with treatment for resistance to termites and rot; available with full asphalt coating, too. You can specify square or shiplap edges... and thicknesses to meet any "C" value. For other case histories and technical data, write Dept. AF-88, National Gypsum Company, Buffalo 2, New York.

Gold Bond
BUILDING PRODUCTS

NATIONAL GYPSUM COMPANY

For free-standing installations under low windows. This new TRANE low silhouette induction unit has a cross section of only 12″ x 12″ when fully exposed.

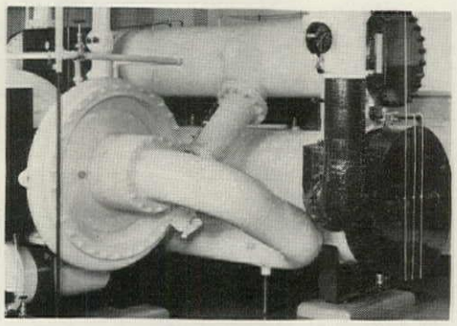
Space-saving design...custom appearance with Trane induction units

Here are big building air conditioning units that meet modern design requirements . . . give you two exclusive performance features.

Modern office buildings—with their larger window areas—require modern air conditioning units, designed to meet today's architectural trends. The TRANE low silhouette induction unit shown above fits under low window sills . . . blends perfectly with modern building interiors. This free-standing, compact cabinet unit has clean lines and compact construction to complement today's office furnishings and decor. Other TRANE induction units may be installed in custom-built enclosures constructed on the job . . . may even be recessed below the floor level. For areas where air discharge may be horizontal, there are ceiling units (cabinet or concealed models) that save floor space. TRANE induction units fit most architectural plans, meet most design needs.

And, of course, these high-pressure UniTrane units are engineered to the same rigid specifications, provide the exclusive performance features that have made TRANE a leader in big building air conditioning systems. The TRANE Quadrifuser discharge grille provides a wider comfort area. Simple adjustment diffuses air in any pattern. And the new TRANE Air Flow Regulator assures permanent, uniform air delivery for each unit regardless of changing tenant requirements. So when you plan air conditioning for any multi-room, multi-story building, make it UniTrane—either induction or fan-coil systems. For complete information, call your nearby TRANE Sales Office. Or write TRANE, La Crosse, Wisconsin.

More economical refrigeration for big building air conditioning systems is supplied by this TRANE CenTraVac hermetic centrifugal water chiller. May be installed anywhere from basement to rooftop. And it automatically throttles down to 10% of capacity—or even lower—*with power savings in almost direct proportion!* Units up to 1500 tons.



For any air condition, turn to

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MANUFACTURING ENGINEERS OF AIR CONDITIONING, HEATING, VENTILATING AND HEAT TRANSFER EQUIPMENT

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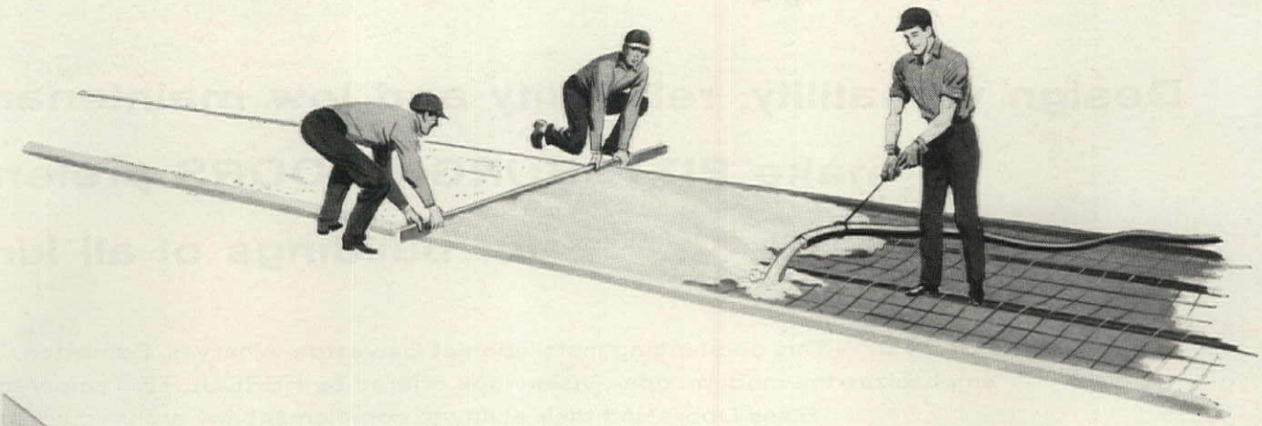

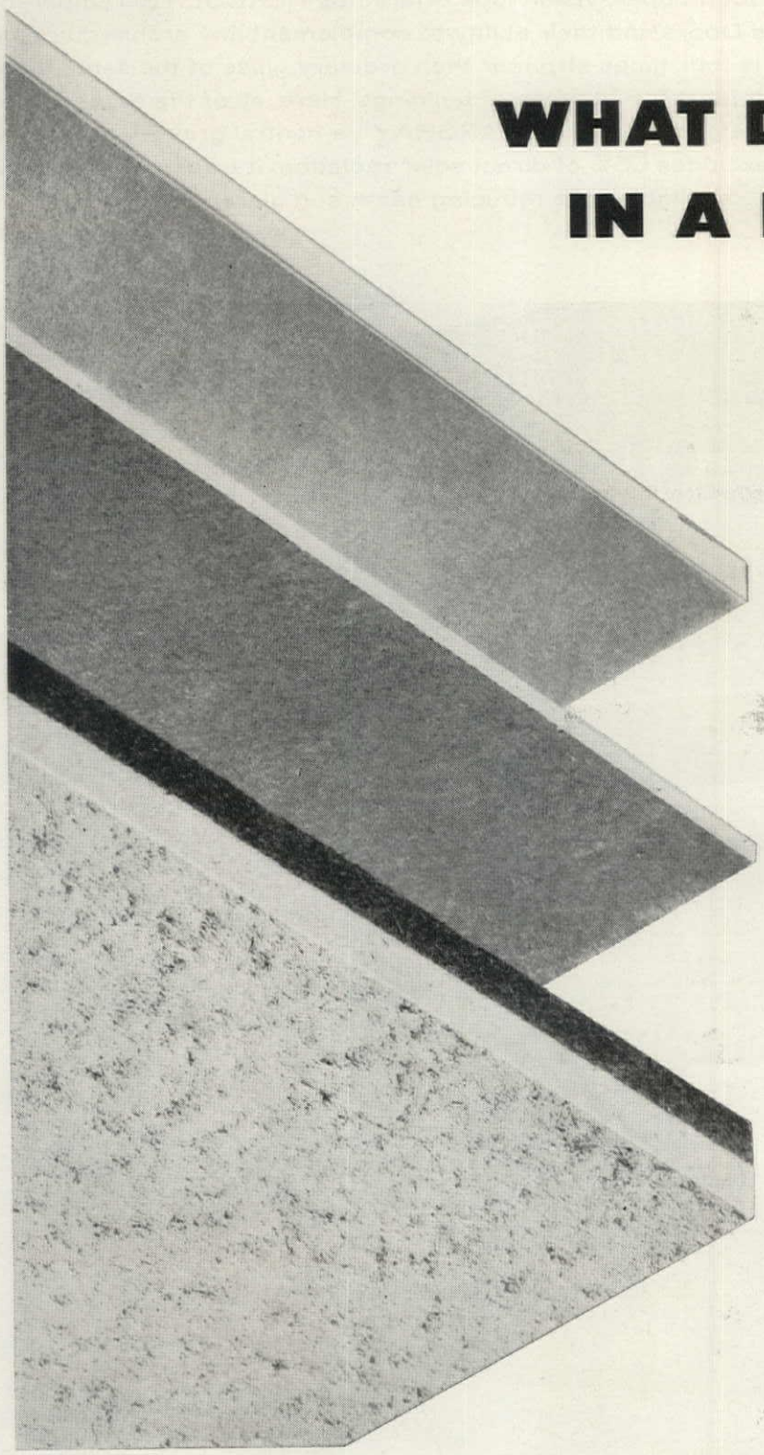

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The right board for roof overhangs, canopies, and high-humidity areas is Gold Bond *Asbestos-Cement* Formboard. These panels are made in ¼" and ⅜" thicknesses... custom-cut to the size you specify. Use them in high temperature areas, too. They're easily painted, if desired.

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Make Gold Bond *Econacoustic* your choice. It offers an attractive ceiling finish with an N.R.C. of .60 whether mill-painted or plain. Cross-laminated, for minimum deflection, this wood fiber structural board has a thermal conductivity of .36 for the 1" thickness, and .24 for the 1½" thickness. Regular *Insulation* Formboards are also available.

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NATIONAL GYPSUM COMPANY

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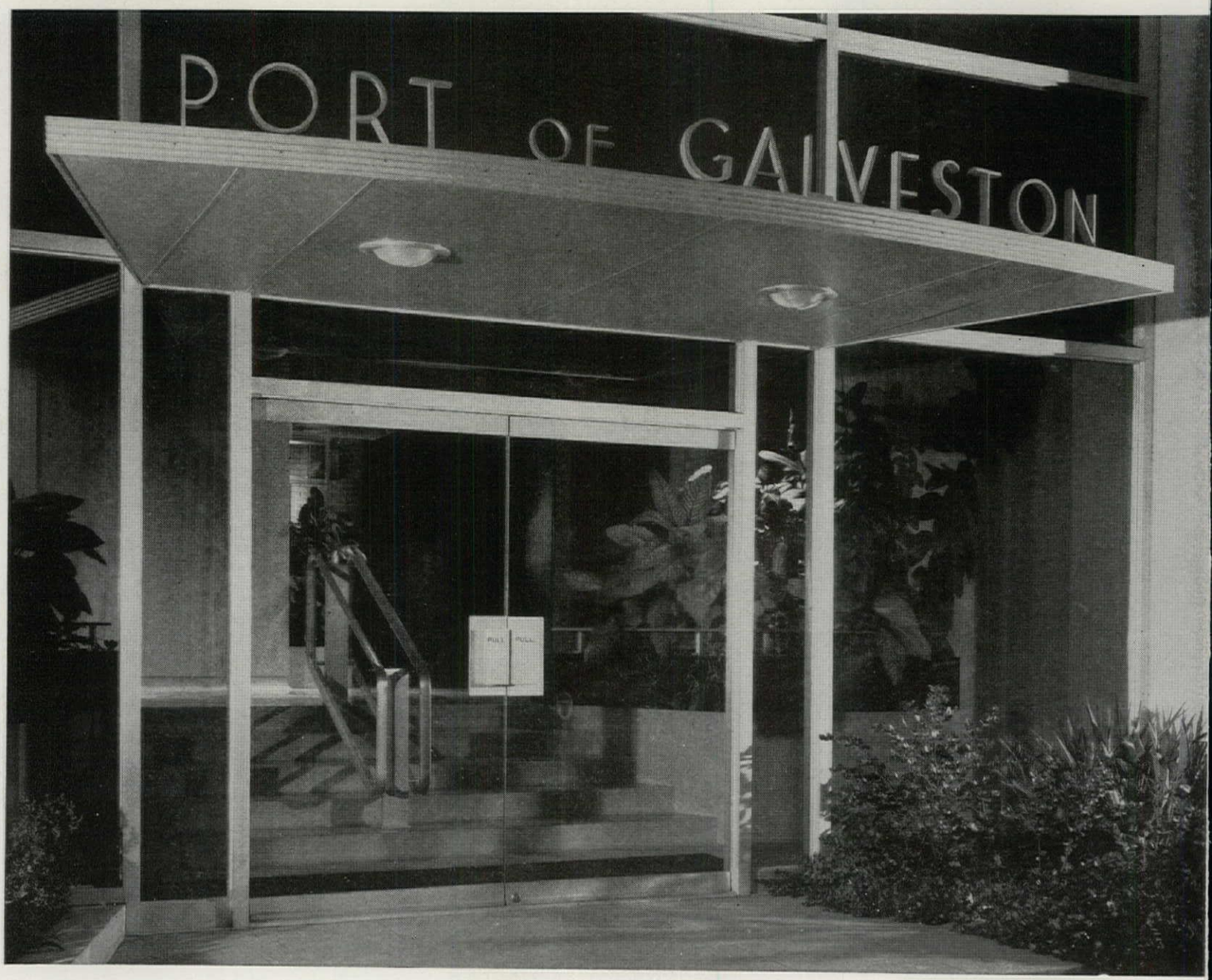
HERCULITE®—This outstanding installation at Galveston Wharves, Galveston, Texas, emphasizes the modern, open-vision look offered by HERCULITE Tempered Plate Glass Doors and their ability to complement any architectural design. HERCULITE is four times stronger than ordinary glass of the same thickness, making it ideal for all types of buildings. Here, all of the areas around the entranceway are glazed with SOLARGRAY®, a neutral gray Plate Glass which excludes 55% of direct solar radiation; it transmits 40% of visible sunlight while reducing harsh sun glare. Architect: R. R. Rapp, A. I. A., Galveston, Texas.



TUBELITE®—The State Savings Company, Columbus, Ohio, utilized TUBELITE Doors and Frames as basic to the architectural design of its new building. The simple, clean-cut lines of TUBELITE offer extreme versatility in architectural designs. Through their exclusive interlocking feature, these frames offer exceptional rigidity. Doors and sidelights were glazed with Pittsburgh's SOLEX®—the green-tinted Plate Glass that excludes 55% of direct solar radiation; it transmits 70 to 75% of visible sunlight while reducing harsh sun glare. Clear Plate Glass was used in the transoms. Architects: Lehman-Gerstner & Associates, Columbus, Ohio.

When equipped with the PITTCOMATIC® automatic door opener, HERCULITE and TUBELITE Doors open at the lightest touch. Recognized as the "nation's finest automatic door opener" — this device is easy to install and maintain and it is the safest to operate. It is available for handle, mat, or remote control.

Sections 16a and 16d of Sweet's Architectural File contain complete information on Pittsburgh Doors. Should you require additional or more detailed facts on these doors, simply address a letter to Pittsburgh Plate Glass Company, Room 8264, 632 Fort Duquesne Boulevard, Pittsburgh 22, Pennsylvania.

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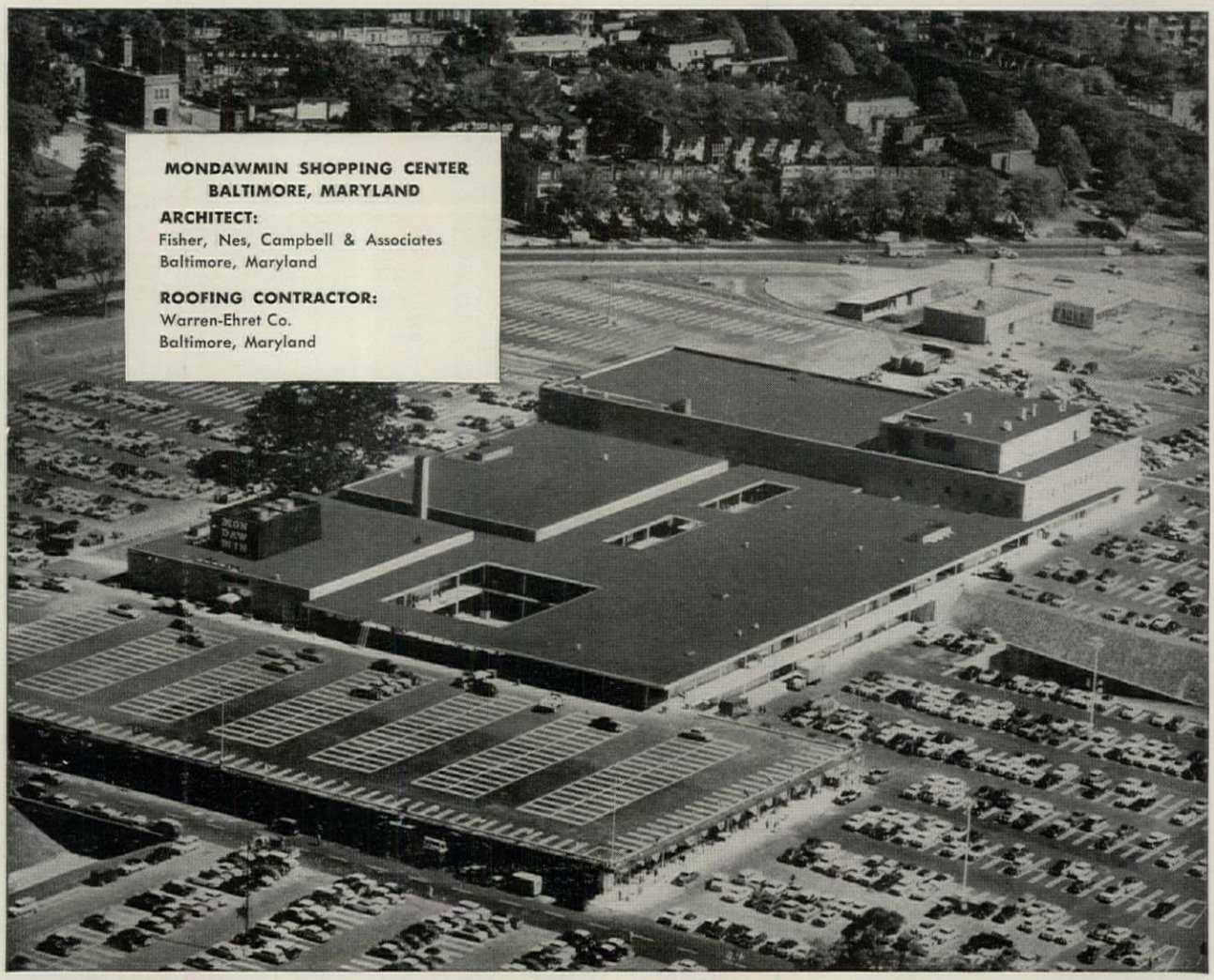

On the new Mondawmin Shopping Center . . .

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Will assure years of trouble-free service

Whatever your roofing need, there's a Ruberoid specification to fit the job. On the new Mondawmin Shopping Center in Baltimore, for example, two different roofing specifications were used. Tested and proven on many buildings over the years, Ruberoid specifications are engineered to fit the job requirements precisely.

1. The main roof area of 1,316 squares was built up of Ruberoid Special Bitumen and Air-Vent Asphalt Felt, Specification 203A. Special Bitumen's formula means superior roof performance under any weather conditions.
2. For the 902 squares of parking deck area, a Ruberoid specification of coal tar pitch and tarred felt was used under the concrete surfacing.

With all Ruberoid Built-Up Roofs, rigid manufacturing standards assure uniform quality on every square and more years of trouble-free service for your roofing dollar.

Consider the advantages of Ruberoid products for your next built-up roofing job. No matter what problem may be involved, there's a Ruberoid specification engineered to fit the job—ask your Ruberoid Approved Roofer.

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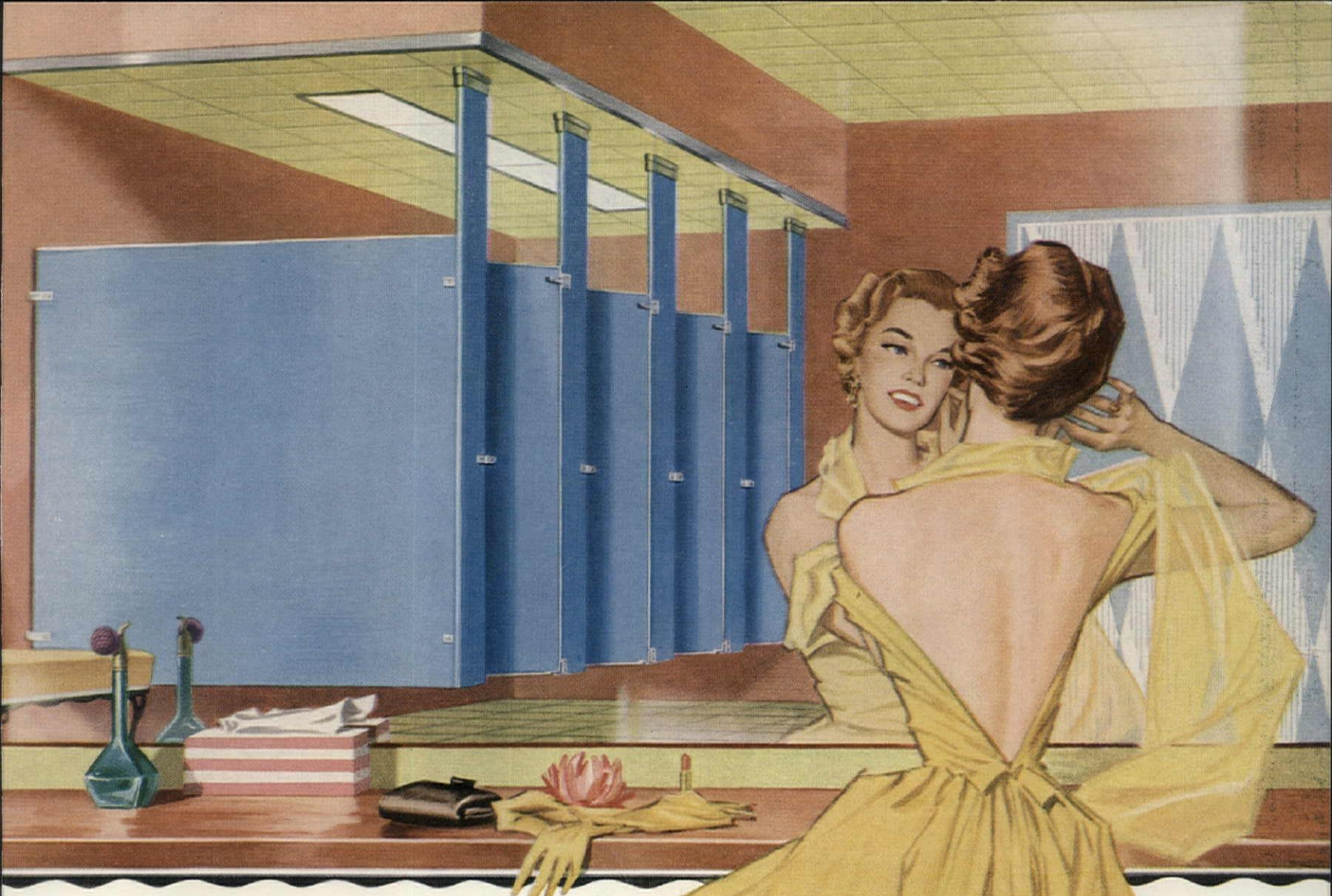

Mirror... Mirror... on the wall

The choice of toilet compartments reflects the good judgment of architect and builder, as well as the owner's concern for the opinion of building occupants. When Sanymetal compartments are specified, there is no question that the installation will be attractive, that it will last the life of the building, and that maintenance costs will be at a minimum. Whether you are looking for design and beauty, or engineering and quality construction for savings, Sanymetal is fairest to all.

See Sweet's, or write for Sanymetal Catalog 95
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Fees . . . squares . . . marbles

ARCHITECTS' PAY

Forum:

Your article on architects' fees (FORUM, June 1958) is excellent. I found the historical background of the development of the percentage fee system very interesting.

I believe that the fixed percentage fee for architectural services is obsolete. One of the major shortcomings of the lump-sum percentage fee is the layman's belief that the full percentage fee is retained by the architect personally, whereas it includes all his costs as well. I have changed my method of charging to a fee-plus-cost.

ERNEST J. KUMP
The Office of Ernest J. Kump, architects
Palo Alto, Calif.

Forum:

I have read your article "How much should architects be paid" with great interest and have considered the suggestions some architects have proposed for a new fee structure. I feel that a fee expressed as a cost per square foot more clearly rewards the architect for the services he has rendered. The most important part of this method would be the better public relations it would engender. Because the architect's fee would not be directly associated with the cost of the building he would not be suspected of having "padded" the building to increase his fees.

LOUIS J. DRAKOS, *architect*
West Hartford, Conn.

Forum:

We agree that there are many advantages in the method of doing preliminaries on a cost-plus basis and then doing working drawings for either a percentage fee or a lump-sum fee. We have used this method in commercial work where the final scope of the project may only be established after considerable architectural and economic analysis has been made. In such situations, we find that businessmen are prompt to recognize the reasonableness of this procedure for setting fees.

ROBERT ANSHEN
Anshen & Allen, architects
San Francisco, Calif.

Forum:

We make every effort to put all our preliminary work on a cost-plus basis, the working drawings and supervision to be negotiated for a fixed fee. Under this arrangement we charge for principals' time at a rate which is less than would be charged for consultation work. This justifies the overhead and "profit" on principals' salary at this preliminary stage.

We are constantly concerned with the special services asked of principals, strictly outside contractual demands, such as help in fund raising or furnishing. We feel strongly that these services should be separately charged for and that clients should be forewarned of this possibility.

ALEXANDER S. COCHRAN
Cochran, Stephenson & Wing, architects
Baltimore, Md.

Forum:

I found your article on fees so interesting that I thought that a comment might be helpful.

We have thought up a variation of the fee arrangement you credited to Robert Cutler of Skidmore, Owings & Merrill. We, too, find that the preliminary work on a development frequently gives us trouble out of proportion to the total fee and have suggested to some clients that this part of the work be done on a payroll basis and that the remainder of the work be based on three forths of the normal fee.

If the client makes his mind up promptly and does not require changes, it is conceivable that, even on a complex assignment, the preliminary work to be done by the architect can be covered by something slightly less than 25 per cent of the normal fee. However, if, as so often happens when dealing with a large board of directors, the preliminaries get pushed around a great deal, the cost to the architect can be several times the sum normally allocated to it.

Our method of charging gives the client the advantage of coming out better than even, but also protects the architect against the other probability.

GEORGE F. HELLMUTH
Hellmuth, Obata & Kassabaum, Inc., architects
St. Louis, Mo.

SQUARE WORTH SAVING

Forum:

We are pleased to see Washington Square included among the architectural examples which the FORUM would like to see preserved ("Architecture worth saving," FORUM, June 1958.)

Of course, the fact that we can point

continued on page 58

with pride to the FORUM article is of tremendous help to us at this juncture in our campaign to preserve Manhattan's Washington Square. That FORUM has provided us with support pretty well demolishes Commissioner Moses' reference to the Citizens Group to Save the Square as "an unreasonable opposition."

MARIE CONKLIN, *executive director*
Joint Emergency Committee to Close Washington Square Park to Traffic
New York, N. Y.

NONPOROUS MARBLE

Forum:

We would like to call your attention to misuse of the word "porous" to describe marble in the product review of *Tri-Seal* marble spray (FORUM, June 1948). As you probably know, marble is not a "porous" material. Actually it is one of the least absorptive of building materials, having an absorption characteristic of less than ½ of 1 per cent.

JOSEPH P. MOORE, *president*
Moore & Co., Inc.
Stamford, Conn.

BUILDING SCIENCE

Forum:

One of the most stimulating articles that I have recently read is your article entitled "Needed: a building science" in the May issue of FORUM.

Unfortunately while it is true that manufacturers have been very prolific in putting new products on the market, it is equally true, for the most part, that these new products have been developed without real knowledge of end-use performance requirements—the type of requirements that can be established only through sound basic research. As a result the building industry is failing to provide the type of environment for living of which it should be capable.

On the one hand architects spend a disproportionate amount of time attempting to appeal to the sense of sight to the neglect of the other senses which stimulate and motivate human beings. Heat, light, and sound considerations, for example, are often given only very superficial thought. Since architects have the responsibility for designing our living enclosures it would seem that they should in some way also have the responsibility for determining more about what it is they are trying to design. There would today seem to be a preoccupation with novelty, shapes, and materials without understanding what they accomplish.

On the other hand, we have a number of basic material producers who in a number of instances are doing a creditable job

continued on page 60

of basic research but who are doing the basic research primarily to learn more about the properties of the basic materials so that more and more products can be made from their materials. Undoubtedly this has resulted in some high quality products but it has many times resulted in serious misapplication of materials. The material producers are actually confronted with the same problem that confronts the architect—an insufficient knowledge of the end result that should be achieved.

J. M. ROEHM, *director of research and development*
Kawneer Co.
Niles, Mich.

ADDENDUM: GUAM

Forum:

To supplement your article on our fee problem with Guam (FORUM, May 1958), let me add that: 1) We have never sought to sue Guam—we have tried repeatedly to negotiate our differences, and we are advised that removing the impediment to suit may pave the way for amicable negotiation. 2) Committees on Interior and Insular affairs of both the Senate and House wish to correct faulty legislation which uniquely keeps Guam immune from suit—not for our private benefit, but in the public interest. 3) We have had the finest relationship possible with Guam sustained over years, and have the highest regard for the Guam legislature, which has surely done its best to conduct business fairly; it passed a bill at the last session submitting themselves to suit, but the governor "pocket-vetoed" it.

ROBERT E. ALEXANDER, *architect*
Richard J. Neutra and Robert E. Alexander
Los Angeles, Calif.

END

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In this outstanding building, B&G Series 1531 Pumps are used in three different applications to (1) circulate water in the first floor heating system, (2) supply hot anti-freeze solution to snow melting panels, (3) circulate chilled water and cooling tower make-up water.

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The B&G Booster used to re-circulate domestic hot water is a bronze unit—immune to the corrosive effects of continuously circulated raw water. To heat the anti-freeze solution for the snow melting panels under the sidewalks and garage ramp and for supplying hot water to the first floor heating system, two B&G "SU" steam convertors are installed.

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Architects and Engineers:
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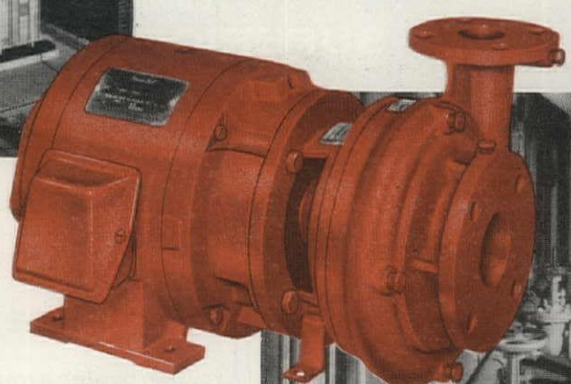

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B&G Type "SU" Water Heater

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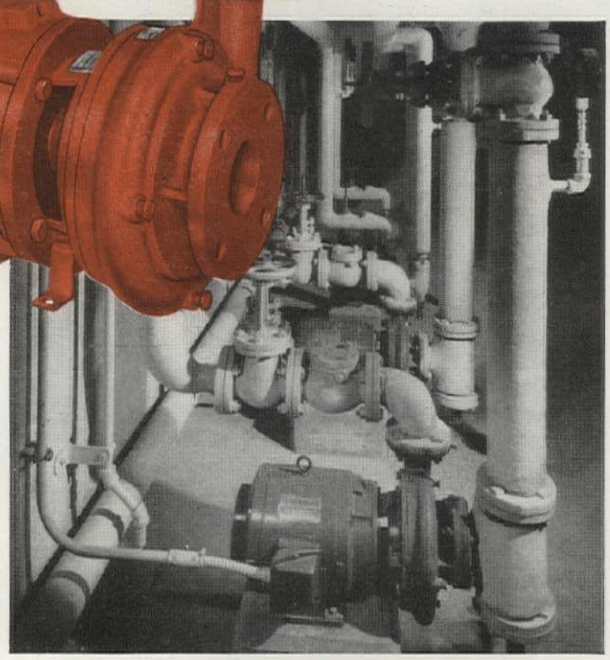

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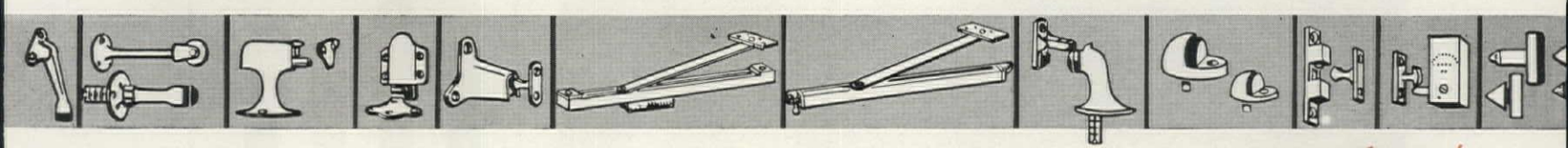

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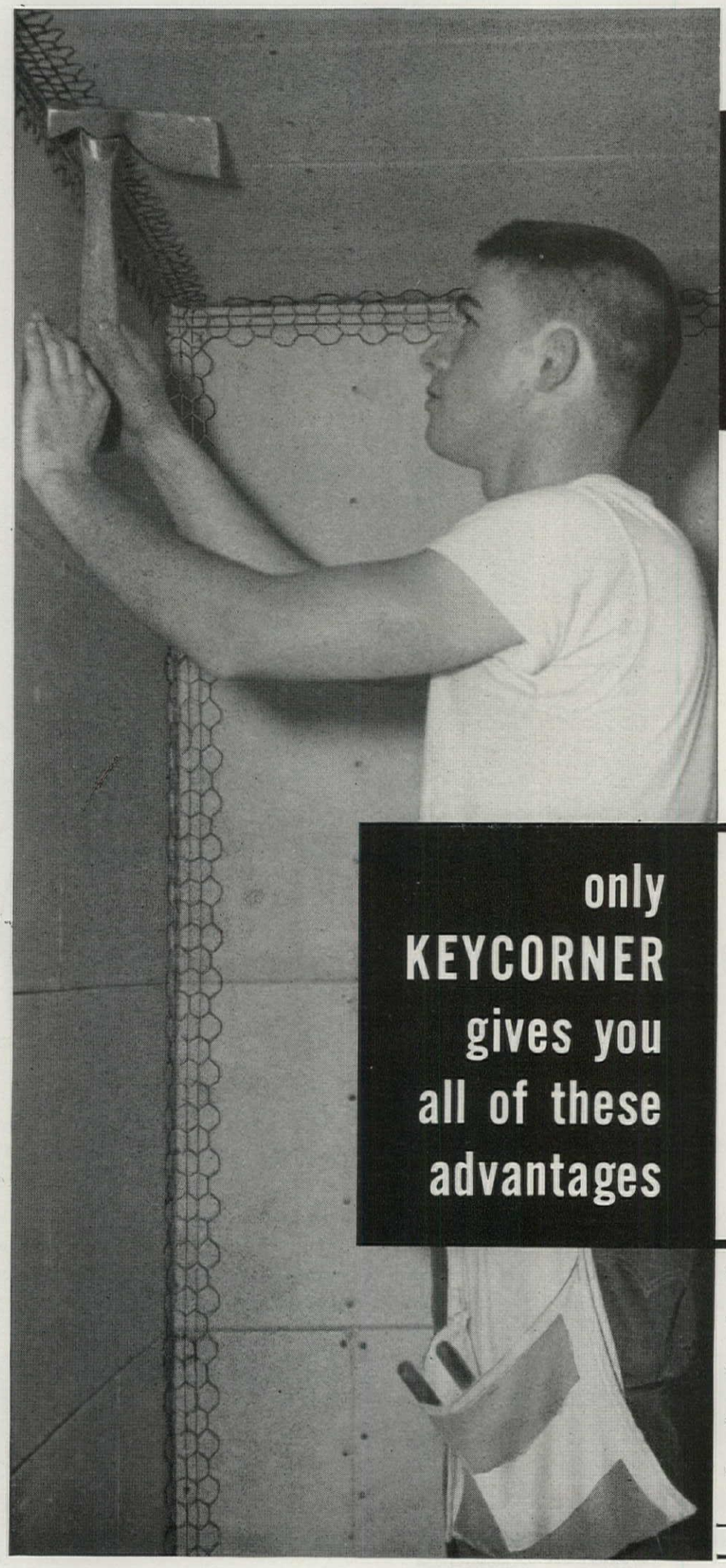

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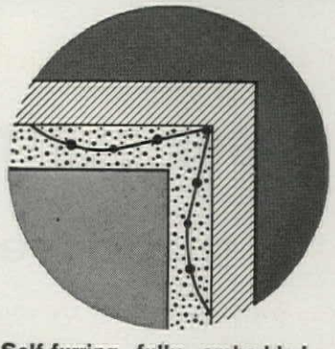

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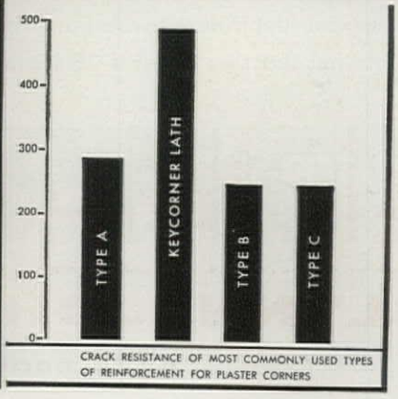

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GALVANIZED CORNER LATH

Exclusive new features of Keycorner give far greater crack resistance in plaster corners than any other type of reinforcement.

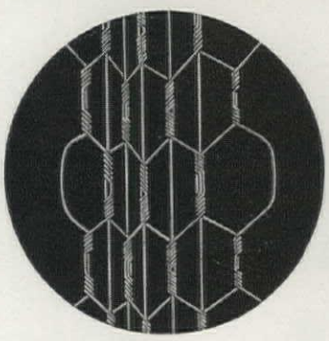
What's more, lathers and plasterers both like it. Lathers like the 4 ft. lengths. The precision fit. The smooth, pliable wire that doesn't cut or tear the hands. The ease with which they can do a craftsman-like job. They like the way it's bundled and packaged for convenient handling and storing.

Plasterers like Keycorner because it's so easy to plaster over; also because they can take pride in the workman-like corners that are strong, and crack resistant.

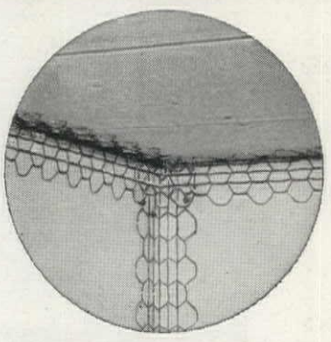
Builders like it because they get the highest quality job at a saving.

There are many attractive features about the NEW KEYCORNER. It costs you *nothing* to get the facts. Send for complete information about this new product. Write Keystone Steel & Wire Company, Peoria 7, Illinois.

It will pay to specify the new Keycorner for all your plastering jobs.



Designed to give maximum resistance to cracking—Spacing of longitudinal wires plus self-furring design adds exceptional crack resistance where needed most; keys plaster if open spaces occur behind Keycorner.



Precision formed—Every piece springs snugly into place. Fits accurately and exactly in corners, giving a truly craftsman-like appearance to the finished job.

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- Galvanized to prevent rust streaks
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- Little cutting required
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- Delivered in cartons (65½ lb.) of 1,000 ft.
- Easy-to-handle; easy-to-store

Comparison Test Reveals New KEYCORNER Almost Doubles Crack Resistance

A series of tests on crack resistance of plaster corners was recently completed by Edwin L. Saxer, Professor and Chairman, Civil Engineering Department, Research Foundation, University of Toledo. The chart at left records the results of KEYCORNER, plus those of the other commonly used types of reinforcement tested by Saxer. The results speak for themselves.

You can receive the complete test report by just filling in the coupon.

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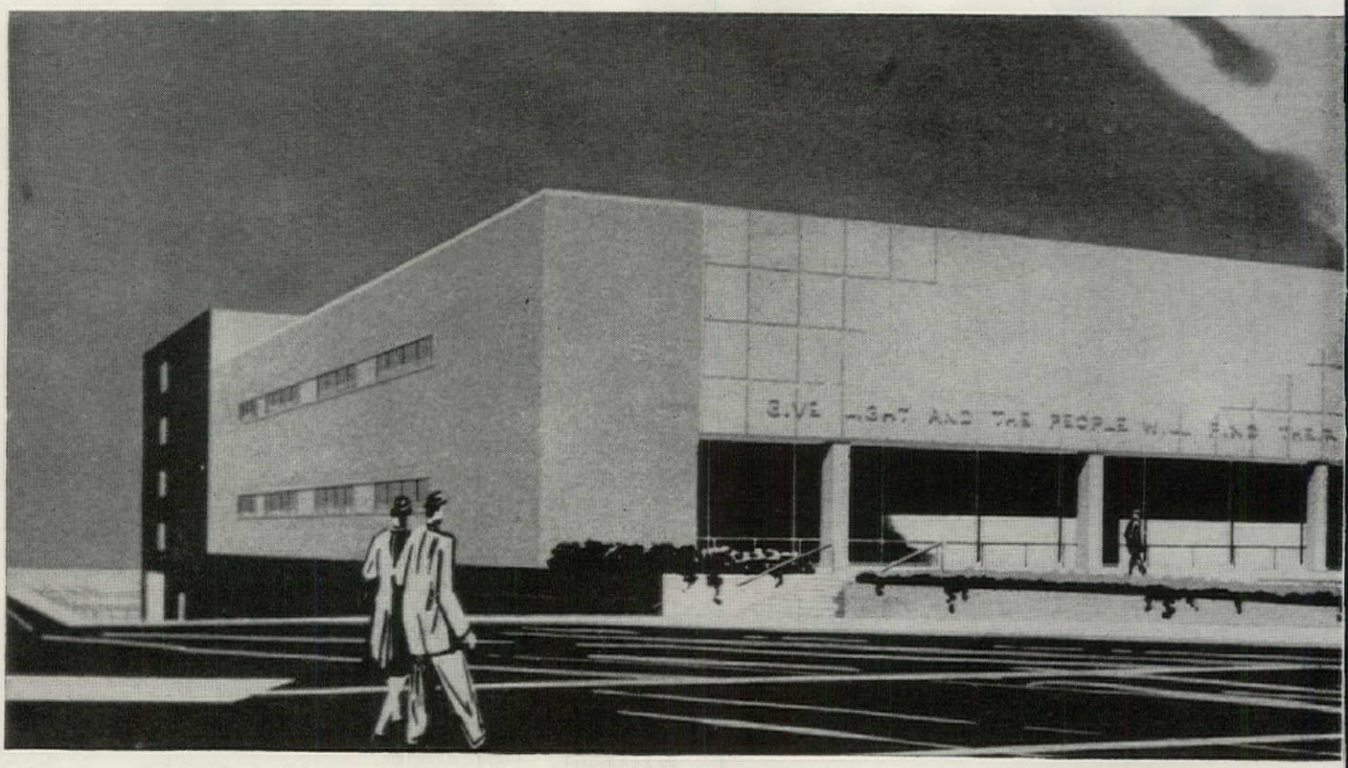

The Press Building is located on East Ninth Street and Lakeside Avenue in Cleveland. Total cost of construction is $10,000,000.

Design and Construction:
The Austin Company, Cleveland

Precast and Prestressed Members:
George Rackle & Sons Company, Cleveland

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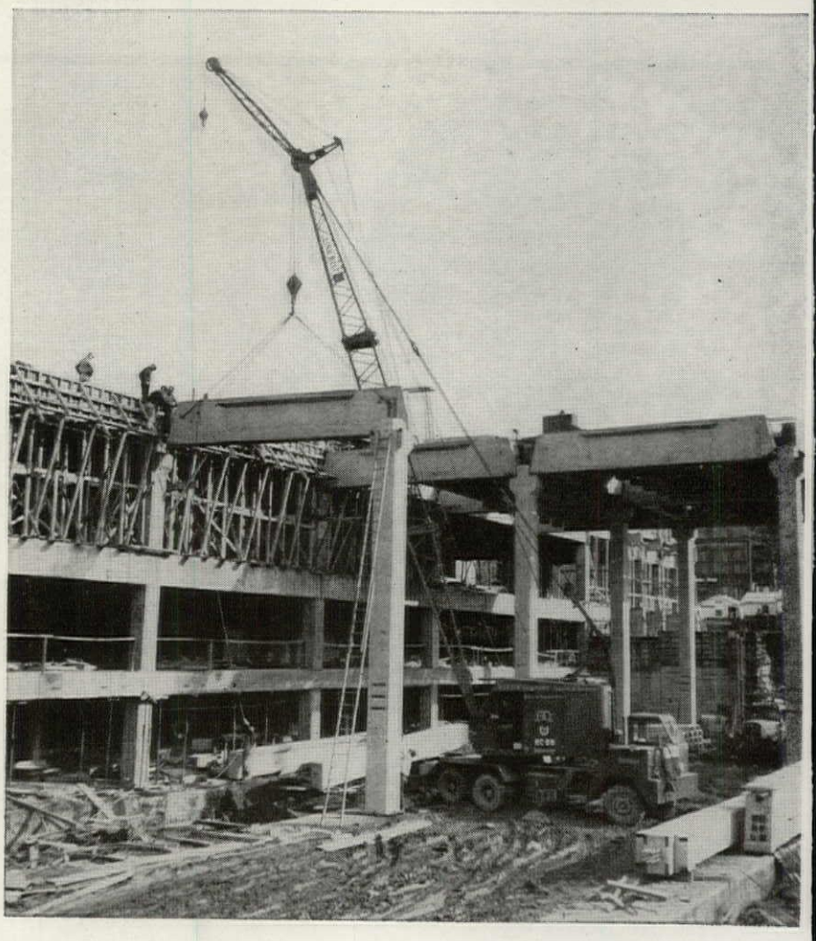

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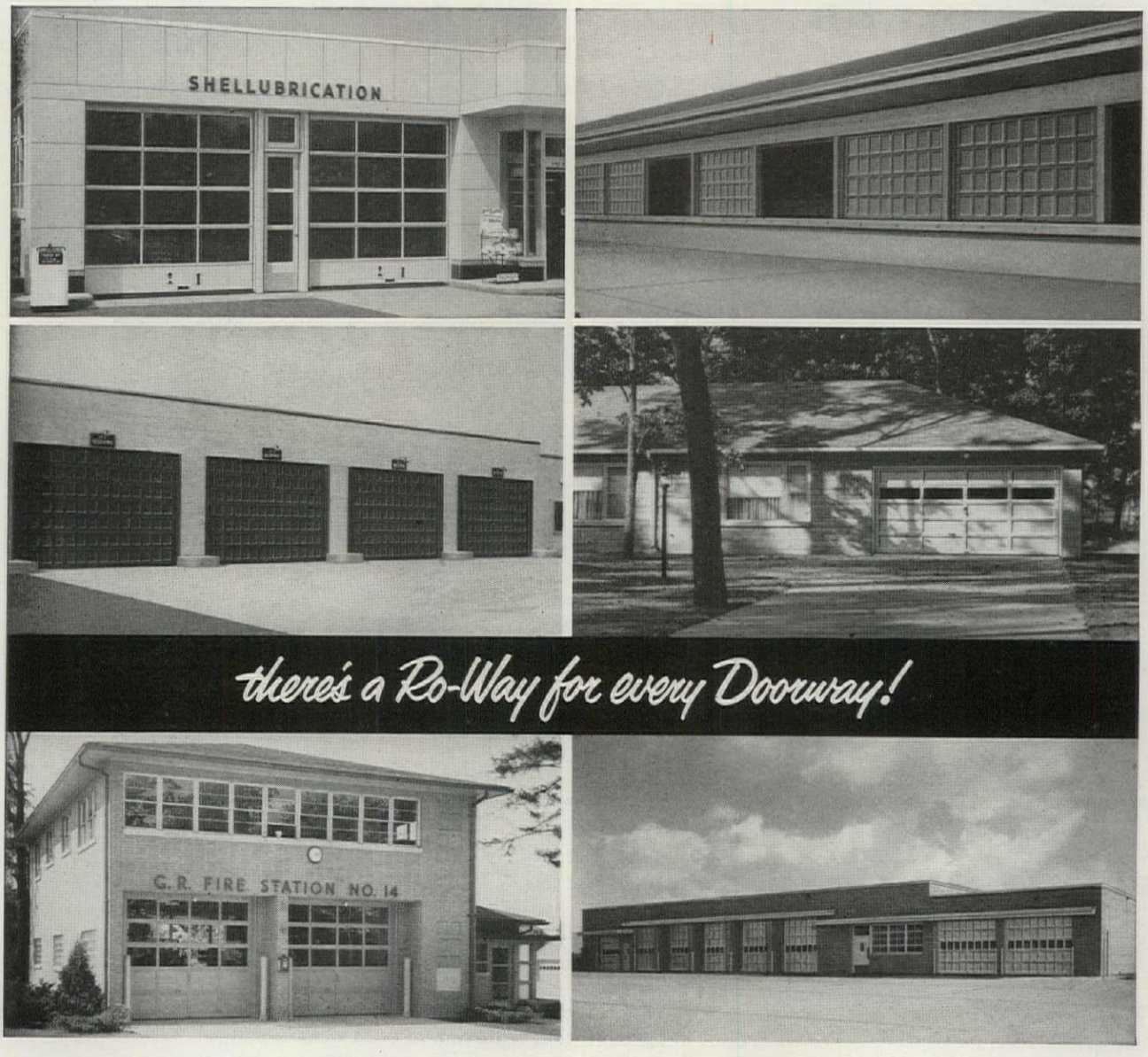

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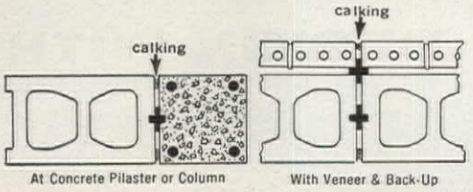

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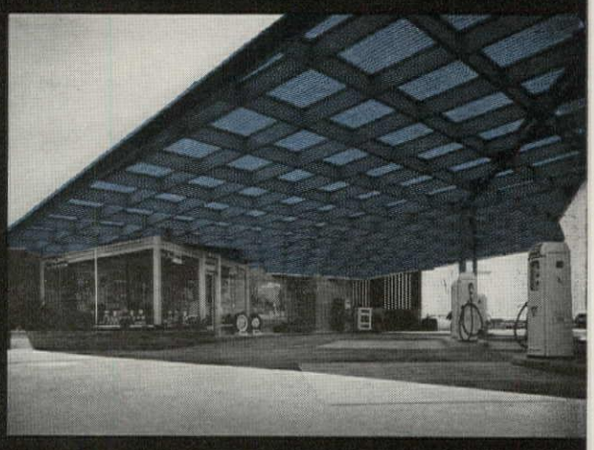

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Editorial

Curtains for screens

America is the land where fashions swing en masse, and if this is true of the sack dress and the elongated automobile, why should it not be true of architecture? This year the fashion seems to run to the arabesque screen wall, the pierced grille, the peek-a-boo, which is made of concrete block precast, or of scroll-sawed wood, or wrought iron or brick or sewer tile or cut-off metal tubing. Architect Edward D. Stone has made beautiful buildings with some of these, but must this style be quite so universal?

A couple of months ago, FORUM remarked on the fact that "ornament rides again," but we took note of other wall ideas besides the screen. On page 94, the Gallery shows some of these rich possibilities. Sculptor Henry Moore turns out to be a fine carver of brick for modeled walls, and Sculptor Tino Nivola does a fine job of modeling figures in sand which are then tilted to stand vertically. Mosaics are a more familiar idea, but none the worse for that, in the hands of the right man—or the right woman.

And the new decorative possibilities go beyond walls. In Yamasaki's conference building for Wayne University (page 78) and Rudolph's projected office building (page 110) for the Blue Cross in Boston, the decorative character gets into the very bones of the buildings, their columns and floor beams. This is a quite romantic approach to modern architecture, and on page 104 there is a discussion of the way it fits with the attitudes of the public.

To return to those screens: one reason why ornamental architecture went out of style for about thirty years, except in the hands of Frank Lloyd Wright, was that ornamental themes, when repeated mechanically over and over again, became so quickly obsolescent. The recurrence of lace panties even on the tennis court depends for effect on being intermittent. Buildings always wrapped in lace can become monotonous even faster than the dull nudities of speculative office buildings. To use the vernacular, how about curtains for screens for a while, except in selected places where surprised delight will greet them?

Better statistics

A top-level group of U.S. business, farm, labor, and research organizations recently suggested a beautifully simple way for the federal government to improve the calibre and usefulness of its statistic gathering program. In a letter to President Eisenhower the Federal

continued on page 73

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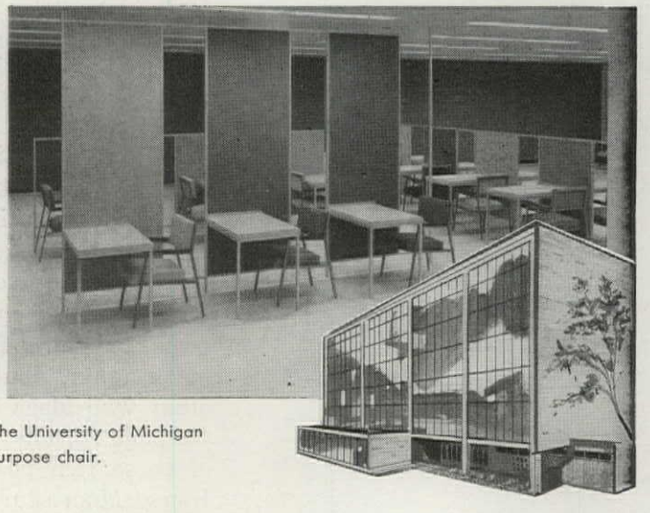

Interior views of the new Undergraduate Library at the University of Michigan featuring the new Steelcase 1165 all purpose chair.

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Statistics Users' Conference pointed out that while government fact-seekers now amass a vast amount of statistical data on past economic activity, and some information about present production, spending, etc., they collect virtually no data on the future spending *intentions* of government agencies, and private groups, or individuals. In the absence of such expressions of intent, says FSUC, economic forecasters must rely almost entirely on statistics about the past and present in making their predictions—with predictably uncertain results.

Obviously, no statistics on future intentions can match the accuracy of statistics that measure past activity—in the building field or anywhere else. Yet private surveys of spending intentions (e.g., such as those conducted by FORTUNE magazine) have proved to be valuable adjuncts to the increasingly pertinent art of economic forecasting. If such private surveys were to be supplemented with government data on spending expectations, says FSUC, short-range economic forecasts—including building forecasts—would be immeasurably improved.

The Statistics Users Conference suggests three specific series of data, which would go far toward improving forecasts of building activity. It proposes that the federal government simply add a few questions to its present survey programs in order to obtain: 1) quarterly estimates of the planned outlays for public works and defense by federal agencies; 2) a similar quarterly survey of anticipated spending by states and municipalities; and 3) monthly reports from contractors of their anticipated expenditures and expected housing starts.

FORUM has long argued that the available statistical data on construction activity and building prospects are woefully weak, particularly as a basis for measuring short-range building prospects. To be sure, forecasting, in a free society, will always be a precarious business at best, but the FSUC proposal, if adopted, would at least have the virtue of using first-hand information to help uncloud the forecaster's crystal balls.

A fallow field

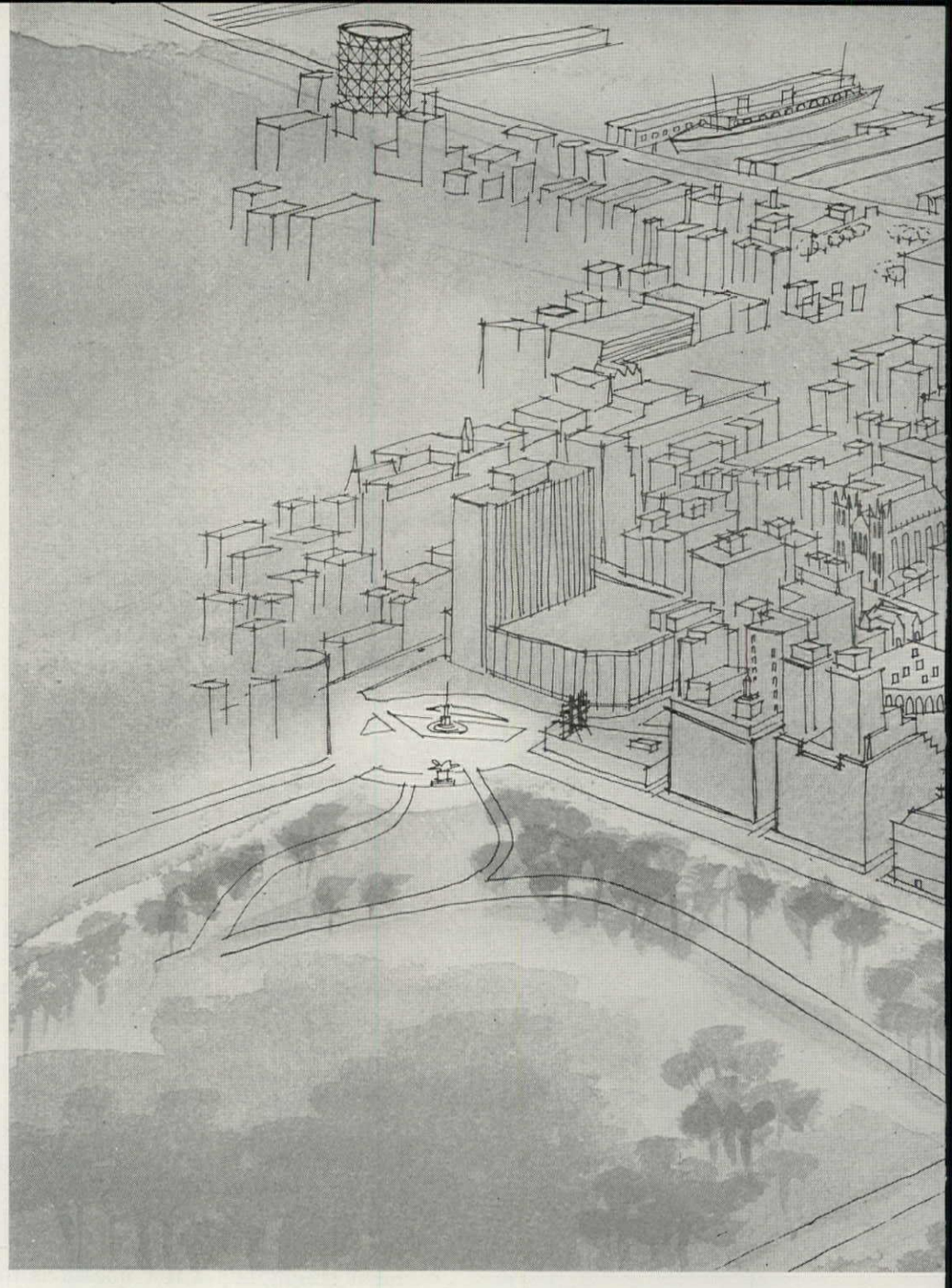
Economic historians will surely record the fact that the robust health of U.S. building during the 1957-1958 business recession was one of the economy's major underlying strengths. Even at the recession's low point, which occurred along about April 1958, $3.7 billion worth of building was put in place in the U.S. And in May 1958, according to the F. W. Dodge report, the country's greatest monthly volume of construction contract awards ($3.4 billion) was recorded. In the building industry, certainly, it was hard to realize that there was a serious recession. And now building is on the upswing again.

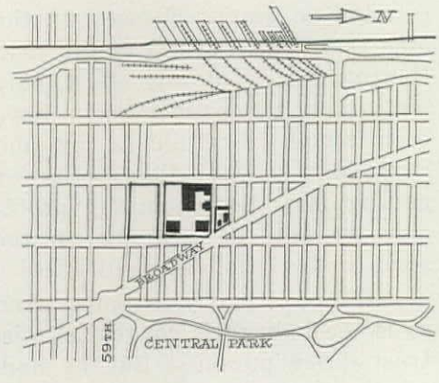
But there is one important building field that is still lying fallow—or very nearly so. Urban renewal, despite a great deal of talk, and the standing offer of federal subsidies, remains an empty phrase. In the nine years since Title I of the 1949 Housing Act went into effect, only ten urban renewal projects have been completed. Builders, by and large, have shown little appetite for getting into the potentially profitable business of cleaning up the slum-ridden, traffic-clogged cities.

Red tape is partly to blame. And so is the industry's congenital mistrust of new pursuits. But the main trouble is the lack of political and citizen leadership at the local level. Someone has to take the initiative to get a renewal program started and, so far, too few city dwellers have been willing to do so.

Fortunately, there are scattered indications that more citizens are coming to realize the urgency of city renewal. Last May, for example, the influential Committee for Economic Development announced that its major subject of study this year would be area development. And in New York last month, two civic groups got together to form the Downtown-Lower Manhattan Association, which will spur the revival of that congested area. Leadership of this sort is encouraging. But a great deal more of it will be needed before our cities can become decent places in which to work and live. END

Lincoln Center: "a new kind of institution"



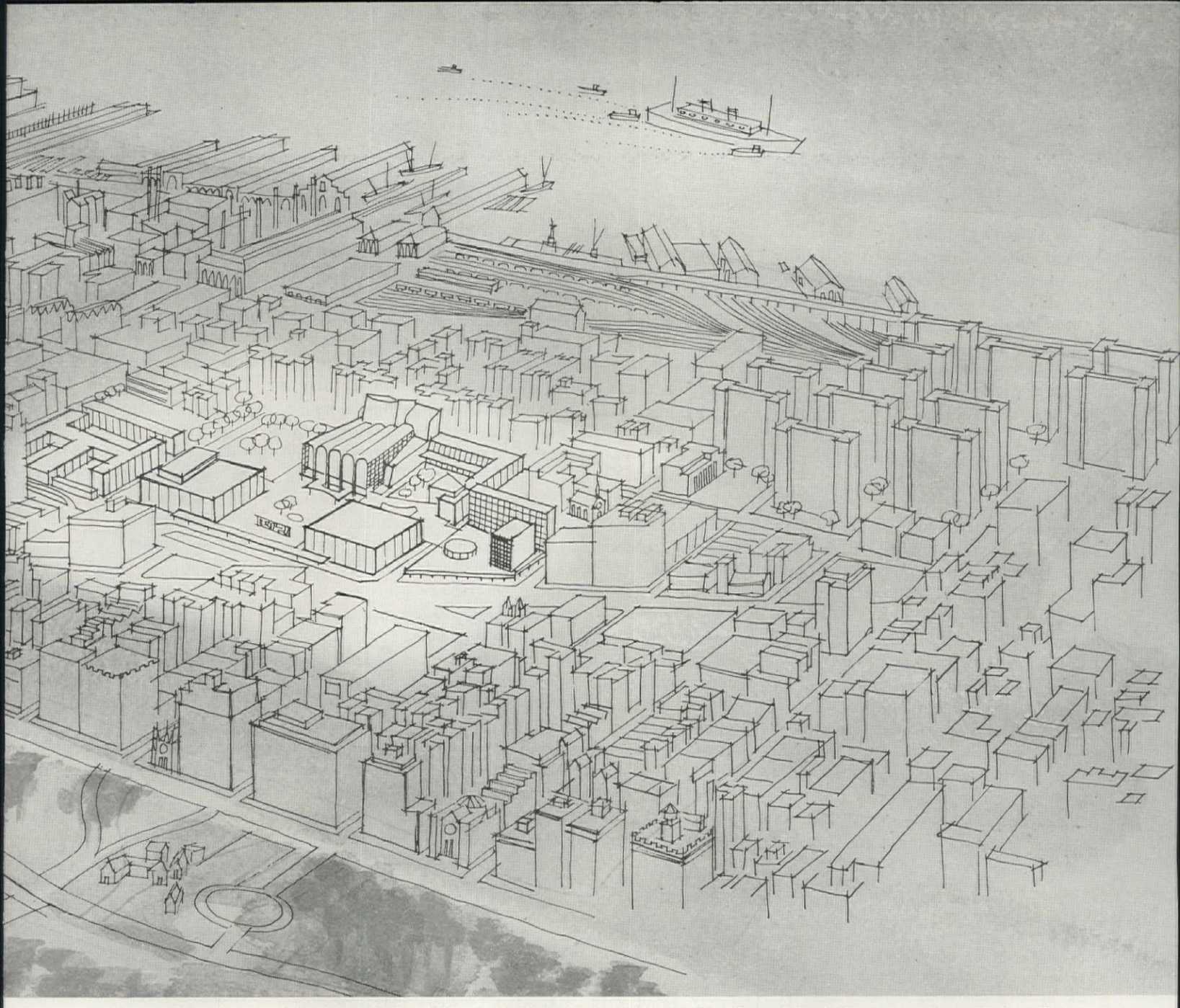


Here is an interim report on the most ambitious cultural center ever planned: Lincoln Center for the Performing Arts. Curtain time: 1961.

BY RICHARD A. MILLER

In spite of his many talents, John D. Rockefeller 3rd will probably never equal P. T. Barnum or the late Mike Todd as a theatrical impresario. Certainly if either of those gentlemen had been promoting the $75 million Lincoln Center for the Performing Arts, Inc. in Manhattan (of which Rockefeller is president) they would surely have come up with a more exciting description of the project than his recent phrase that it is "a new kind of institution." On the other hand, neither Barnum nor Todd could have outperformed Rockefeller and his associates in the maze of fund raising, urban renewal negotiations, and planning operations they have undertaken over the past three years. Their goal: construction of the most concentrated, and expensive complex of cultural facilities in the world.

The $75 million Lincoln Center, which will be the heart of the $205 million Lincoln Square redevelopment project, envisions $51 million of new buildings, $14.5 million to be spent on scholarships, new productions, and special projects, $9.5 million for land, relocation, demolition, and contingencies. The Center will bring together three world-renowned institutions: the Metropolitan Opera, the Philharmonic-Symphony Society of New York,



Lincoln Center will replace three blocks of West-Side slums that now lie between Central Park (bottom) and the Hudson River.

and the Juilliard School of Music.

Perhaps the most revealing indication of the broad-scale thinking behind Lincoln Center, however, are the other facilities planned. The Lincoln Center board also plans to erect a theater for the dance and operetta, a repertory drama theater, a library-museum of the performing arts, and a hall for chamber music and recitals. It hopes, moreover, to encourage the formation of completely new performing groups in these latter fields to match the Met as an opera company and the Philharmonic as a symphony orchestra. Already at work at this task are two advisory councils—one for a school and performing company of the dance under the temporary chairmanship of Dean George D. Stoddard of New York University; the other a council on drama which has as a special consultant, Broadway Producer Robert Whitehead.

No "Aïda"

Today, the section around Lincoln Square, just off Broadway between West 62nd and West 66th Streets, in Manhattan, looks somewhat like the shabbier sections of Paris. But the image the planners cherish for the future (see drawing above) is that of a paved plaza fitted with fountains and sculpture—and, hopefully, outdoor cafés. At the head of the plaza will be the 3,800-seat opera house; on either side, the 2,400-seat concert hall, and the 2,200-seat theater for dance and operetta. To the left of the opera house behind the theater for dance and operetta will be a city park. To the right, an esplanade will connect the larger plaza to a smaller court across 65th Street. Here, raised above a row of shops facing Broadway, will be the library-museum, the dormitories for Juilliard and a restaurant. Next to the opera house on this side will be the Juilliard school buildings and a 1,200-seat repertory drama theater.

With this vision before them, the organizations participating in the project are planning banner seasons for the year when they move into their new homes—hopefully beginning in 1961. The Met, for example, will use the $4-$5 million of funds it will derive from the sale of its present building at 39th Street and Broadway to mount new productions and for the start of a much-needed endowment fund.

Juilliard, meanwhile, plans to transform itself from a 1,200-student school of music into a 500-600-student advanced professional school of all the performing arts—dance, drama, *and* music. With its own 1,000-seat auditorium, Julliard will be able to push the frontiers of these arts as only a school can. "You can be sure," says Juilliard President William Schuman (a noted contemporary composer), "that we will not inaugurate our auditorium with a performance of Aïda."

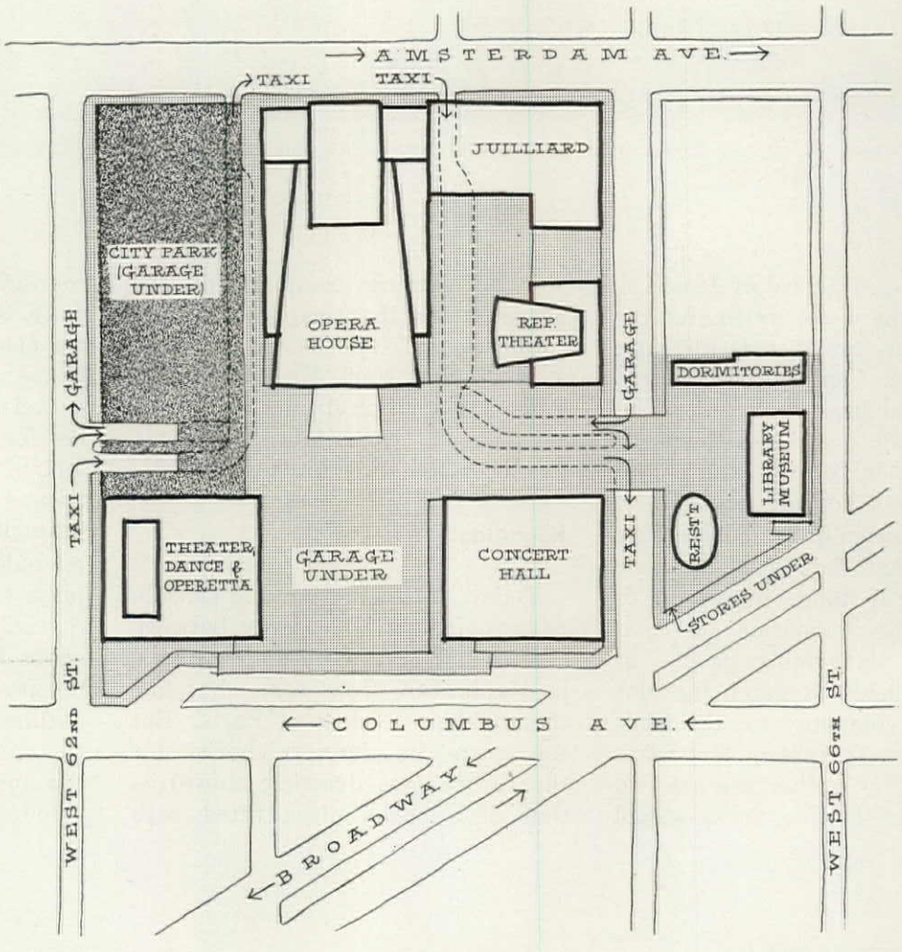
Last month, with nearly half of its $75 million campaign fund in hand (a $5 million contribution from Rockefeller's father, John D. Jr., brought it to this point), with the patient prodding of Construction Director Otto L. Nelson Jr. of New York Life (FORUM, June 1958) paying off in rapidly maturing construction plans, and with relocation of the nearly 1,500 families living on the site well underway, Lincoln Center seemed safely past the dream stage.

But as Wallace K. Harrison, the coordinating architect of the Center and the architect of the opera house, points out, this does not mean that much is settled yet about the buildings themselves beyond their disposition on the site. The basic decisions to date have been taken in such mundane areas as the planning of the backstage of the Met and the layout of the underground system of garages, concourses, and taxi ramps which will link the buildings.

Harrison, a past master at coordinating great schemes (in addition to coordinating the planning of Rockefeller Center, his experience includes the United Nations complex and Idlewild airport) decided with the board that the best results would be obtained if each building in the Center was in the separate charge of an independent architect. Therefore, while he is planning the opera house, his partner, Max Abramovitz, will be architect of the concert hall. The theater for dance and operetta has been given to Philip Johnson, the Juilliard commission to Pietro Belluschi. Architects for the other buildings have not yet been selected.

Old opera hand

Harrison is probably the most experienced opera-house architect in the U.S.—even though he has never built one. As he puts it: "I've been working on an opera house for nearly 30 years." The reference is to his work on Rockefeller Center, which was originally planned as an opera house. When the depression buried



Plot plan shows the tentative arrangement of the buildings around the central plaza. From the building line along Columbus Avenue (bottom) to the opera house is approximately 600 feet—or the length of Venice's famed Piazza San Marco. Most of the concert- and theater-goers will arrive at the Center underground—at the subway concourse at Broadway and West 66th Street, or from the taxi ramps which pass along the side of the opera house (top). Under the plaza and the park will be parking for 822 cars. The smaller plaza bounded by the library-museum and the dormitories will be one floor level above Broadway, but at the same level as the larger plaza.

those plans, Harrison helped turn the project into the present office building group. Harrison now feels that it is a good thing that the Rockefeller Center plans didn't mature. "What we would have been able to build then would have been entirely too commercial—more like the Chicago Civic Opera House. Now we've got a chance to do something much more sympathetic to the performing arts."

After the 1929 crash, the Met Board was happy just to keep the opera going from year to year. But, by 1949, says Board Member C. D. Jackson, a vice president of TIME INC., "we were getting pretty tired of simply saving the Met for the next season. What was needed was a new home where we could operate without the costly and frustrating limitations of the old house, no matter how much sentiment we attached to it."

The board, however, turned up discouraging evidence that a privately supported organization like the Met (the U.S. is virtually the only country whose government does not subsidize the performing arts) could not afford to buy enough land for a new house, even if an adequate site in a good location could be assembled. The only hope seemed to lie in a provision of the National Housing Act of 1949, which provided for so-called Title I urban renewal projects.

In 1951, New York's many-hatted Robert Moses, chairman of the city's Slum Clearance Committee, offered the Met a part of the New York Coliseum site at Columbus Circle. But just when the Met board had the necessary $1.2 million pledged to purchase the site, Moses withdrew his offer. Main reason: failure of the contemplated plan to meet the urban renewal law at that time.

When another opportunity arose to participate in an urban renewal project in 1954, the Met was ready. And this time, the New York Philharmonic Society, with its lease on venerable Carnegie Hall nearing expiration and Juilliard, which was planning an expanded curriculum, immediately joined with the opera group to propose a complete cultural center for the performing arts.

WALTER DARAN

The building committee of Lincoln Center for the Performing Arts Inc. usually meets biweekly with consultants in Manhattan's exclusive Century Club. Left to right above: Architect James Snow of Harrison & Abramovitz; Construction Chief Otto Nelson Jr. of New York Life; Lawyer Charles Spofford, a director of both the Juilliard School and the Metropolitan Opera; Secretary Mendes Hershman of New York Life; Lawyer John Drye Jr., another Juilliard and Met director; President John D. Rockefeller 3rd; Chief Architect Wallace Harrison; Operation Chief Reginald Allen and Rockefeller Associate Edgar Young, both of Lincoln Center; Philharmonic Director Arthur Houghton Jr., vice president of Steuben Glass. Absent: Met Director C. D. Jackson, a vice president of Time Inc.

Markups and cutbacks

The New York Slum Clearance Committee's plan for the Lincoln Square redevelopment project embraced 18 blocks of squalid westside slum territory stretching from Columbus Circle to West 70th Street.

The area was tentatively allocated to three primary developers. Fordham University got the two southernmost blocks for an 8,000-student campus of law, commerce, education, and social service. (Architects: Voorhees, Walker, Smith & Smith.) The Lincoln Center for the Performing Arts was allocated three blocks fronting on Broadway. The northern 13 blocks were allocated to residential housing and commercial use. Originally, a parcel of Broadway commercial frontage north of Lincoln Center was set aside for Developer Roger Stevens, who planned a group of five legitimate theaters for the site.

In May 1955, the U.S. Housing and Home Finance Agency set aside $10 million for the Lincoln Square project, but as the plan developed, it was obvious that the federal subsidy (under the urban renewal law the federal government pays two-thirds of the write-down on the land, the city one-third) would be considerably more. Consequently, in October 1956, HHFA approved the request of the Slum Clearance Committee for an increase in the federal grant to $24.6 million.

In January 1957, the city finally requested $34 million of federal help, but this time HHFA balked. The commercial segment, including that Stevens' theater project, was then eliminated, and the HHFA set aside $26.2 million for the revised Lincoln Square project. The city's one-third share thus stands at $13.1 million, more than $7 million of which will be paid out in the form of city-provided improvements to the area such as street widenings, parks, and the construction of a municipal garage under the Lincoln Center plaza. The balance will come in the form of cash.

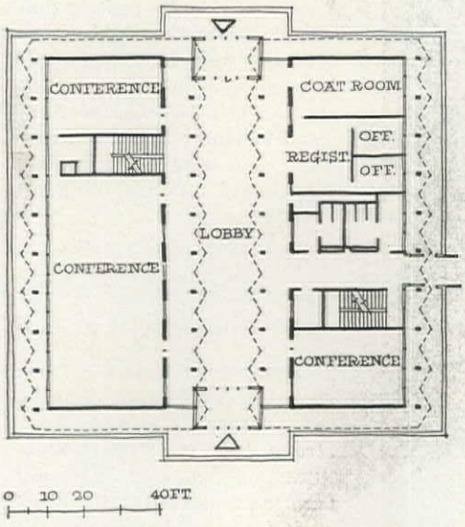
Meanwhile, the Lincoln Center planners had discovered that the three-block area allocated to them (actually 2¼ blocks, or 8 acres, after the public park area is subtracted) would be too small for the facilities planned. Since it was impossible to use any part of the park site for the Center development (Moses plans to build a band shell there), Lincoln Center could only expand to the north of the allocated site, where a half-block was available. Although details of the acquisition must still be worked out, HHFA has set aside money for advance

continued on page 158

BALTAZAR KORAB

By combining the richness of historic art with the technology of modern architecture, Minoru Yamasaki has given Detroit's Wayne University a conference center of extraordinary beauty.

Yamasaki's serene campus center



Mirrored in its reflecting pool, the conference center is a palace of subtle colors and rich materials. The central hall (see plan, above), clearly visible from outside, is topped by gleaming crystal diamonds. The wings of travertine marble extend along the pool's mankato stone wall.

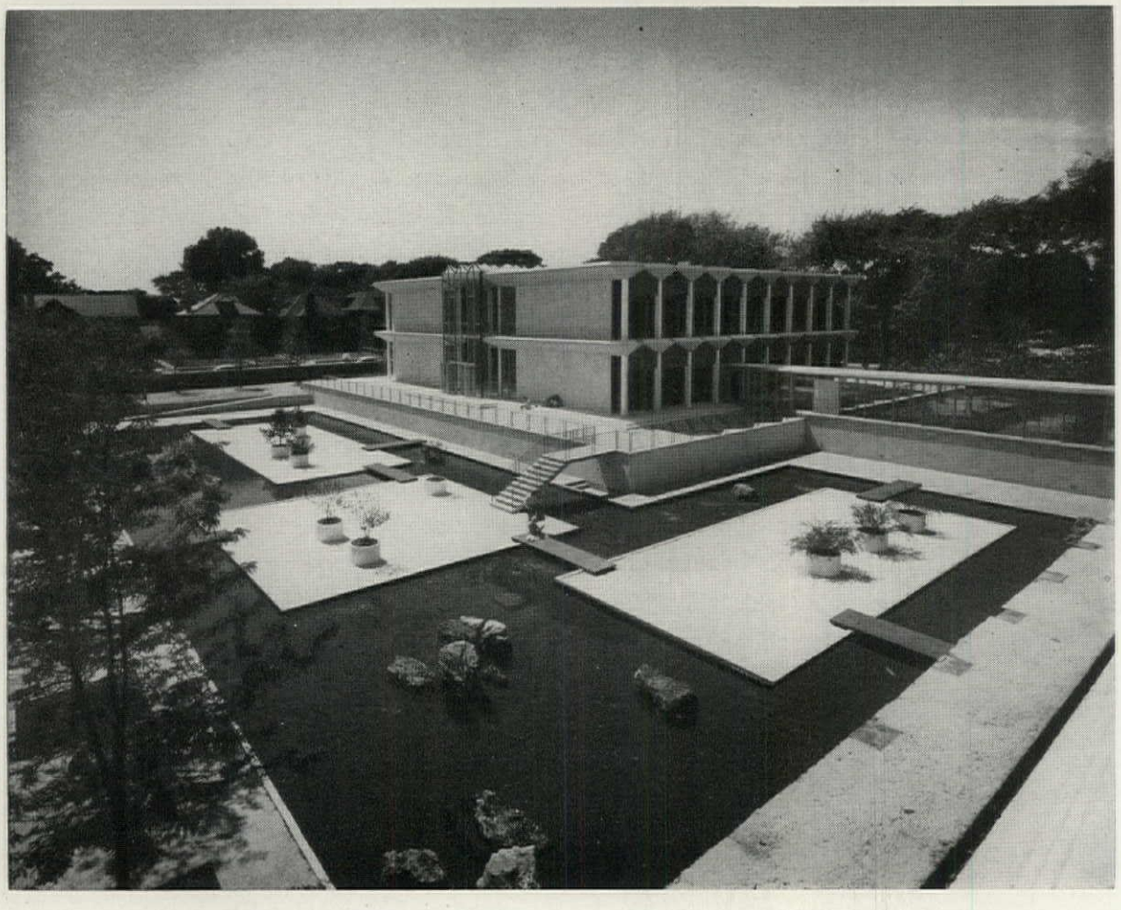
The newly completed McGregor Memorial Conference Center on Wayne University's mid-Detroit campus manages, despite its serious academic function, to look as graceful and sun-filled as a dream palace. The center is to serve as an on-campus meeting place both for university students and for local civic groups. It might easily have been a sober, stodgy building, but by a happy meeting of several liberal minds and an outstanding talent, style carried the day.

Architect Minoru Yamasaki (see page 84) was able to design into the center some of the visual delight remembered from his recent travels abroad: the distinctive, sharply etched skylight recalls roof profiles of Renaissance *palazzos;* the pool serves the same reflective purpose as water in Japanese temples; the balance of the building's mass is coolly classic. Yet the diverse influences assembled here fit together with machinelike precision. And, perhaps more important, the design elements are honest expressions of the building's functional plan and structural system.

Lawyer Cleveland Thurber, chairman of the building committee of the civic-conscious McGregor Fund, which contributed the $1,172,000 for the building's construction, is sufficiently impressed by the result to be undismayed by the substantial increase over the $800,000 original cost estimate. "By giving us beauty," he said recently, "Yamasaki gave us the best possible memorial." Wayne University's President Clarence B. Hilberry shares Thurber's appreciation: "It's the only college building I've ever seen that makes people stop and look up. It makes you want to stretch taller."

The university has already done some stretching. Its enrollment has risen from 10,000 to 20,000 since World War II, and it has signed on Yamasaki to design a master plan for 63 cramped, Detroit acres. The McGregor Conference Center now stands as gleaming, convincing evidence that an urban campus can be the right place for splendor.

A pierced concrete wall separates the conference center from its undistinguished, midtown neighbors, providing what Yamasaki calls "a politely controlled environment." Above the wall the west façade presents an exciting composition of slender verticals (marble-faced exterior columns, 10 feet on centers) and zigzag horizontals (the folded concrete ceilings).

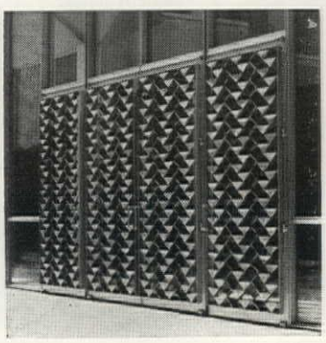


ARCHITECTS: *Yamasaki, Leinweber & Associates;* GENERAL CONTRACTORS: *Darin & Armstrong, Inc.;* STRUCTURAL ENGINEERS: *Ammann & Whitney;* LANDSCAPE ARCHITECTS: *Eichstedt-Johnson Associates;* INTERIOR DESIGN: *Knoll Associates, Inc.*

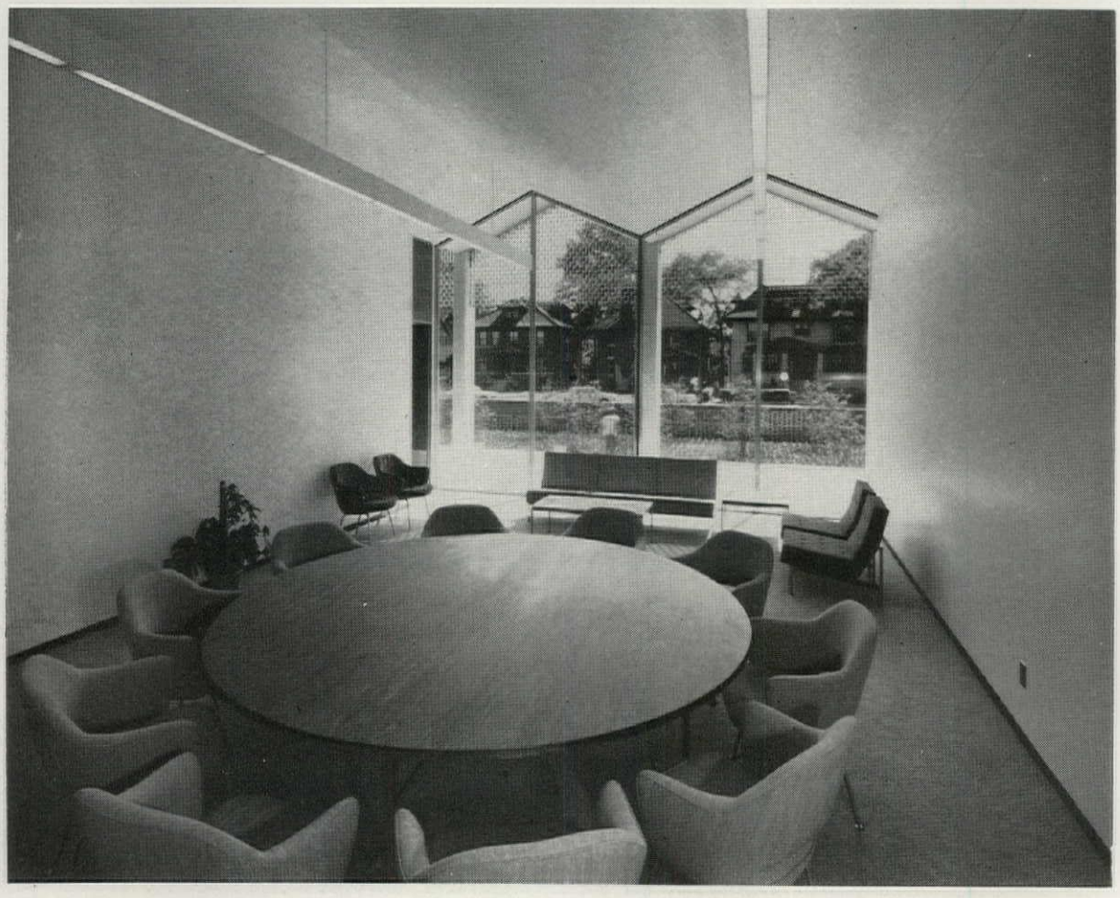
Three concrete islands, now landscaped only with potted yews set amid sparkling white marble chips, will eventually contain sculpture, other planting, and *objets d'art.* The "sculpture garden" makes the tight space between the conference center and neighboring university buildings seem almost spacious (see plan, page 83). The Japanese-style rocks arranged in the pool actually came from an Ohio river bed.

PHOTOS: BALTAZAR KORAB

The central hall of columns serves both as a passage through the building and as a lounge for conference-goers. It appears to slice the building into two identical halves, leaving exposed the triangular ends of the V-shaped, concrete ceiling beams. The triangular pattern is repeated in the skylight, whose crisscross ribs reunite the building at the top of the hall. Other unifying visual elements are the green marble-slab bridge that spans the hall at the second floor level and the brilliant, turkey-red carpet. The hall is terminated at either end by a lofty glass cage (detail above) and by handsome doors of heavy, sculpted aluminum (detail below) by Sculptor Lee Du Sell.

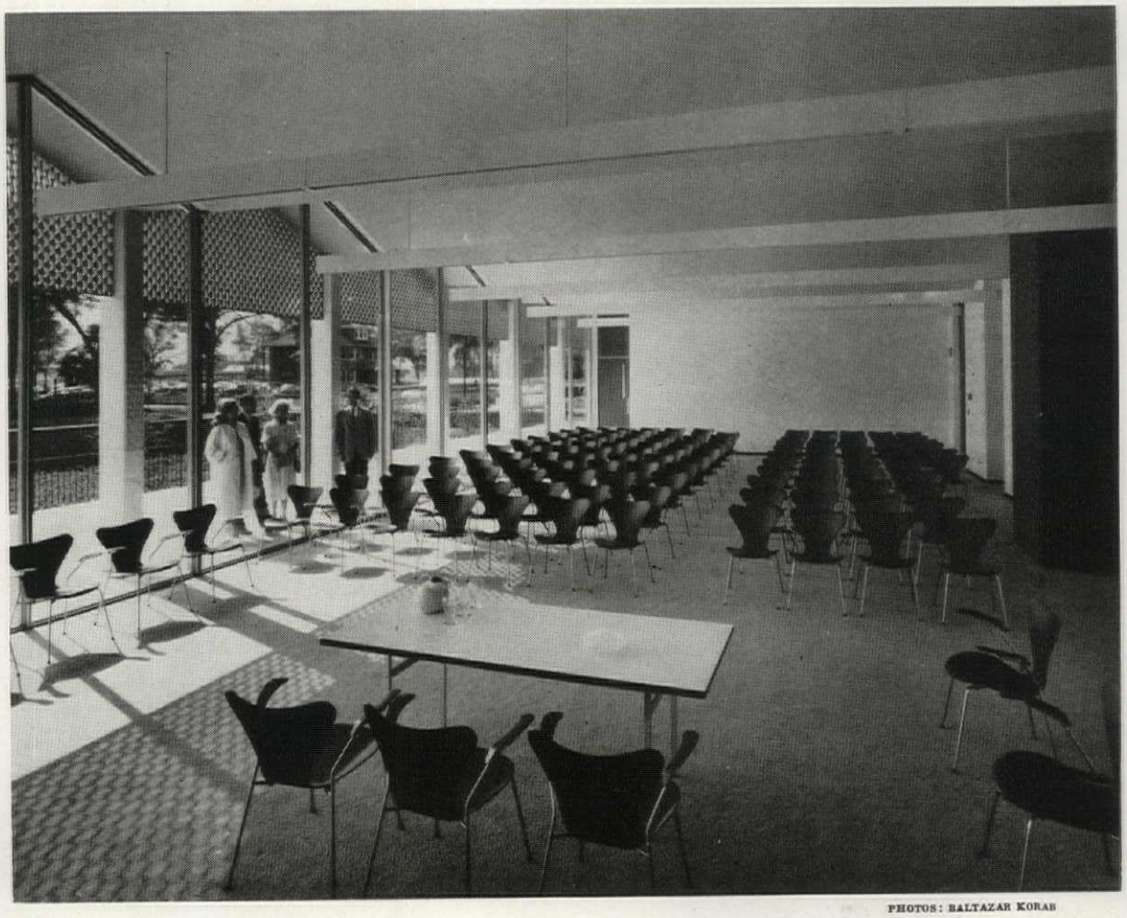


Opening onto the hall from the conference rooms on both floors (left) are teak, copper-colored doors. The interior columns are metal-cored, wrapped in fireproofing concrete, and sheathed in beautifully fitted, 2-inch marble panels.

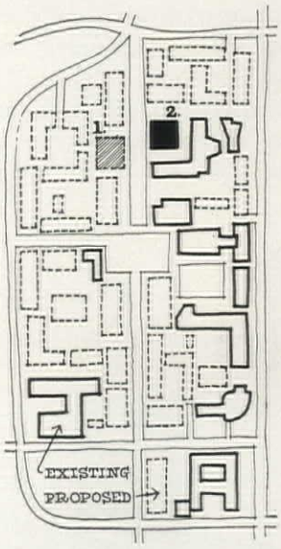


A small conference room looks out through gray glass, floor-to-ceiling windows, and a honeycomb veil of gray aluminum at the suburban Detroit houses across the way. At night (below) the conference center lends a palatial touch to the neighborhood.

The large conference room (right) easily seats 250, takes full advantage of the 15 foot height and 40 foot clear span of the ceiling. Its roominess (note the folding partition) was the basic specification from which Yamasaki began working. In the rear wall is a door to the small pantry.

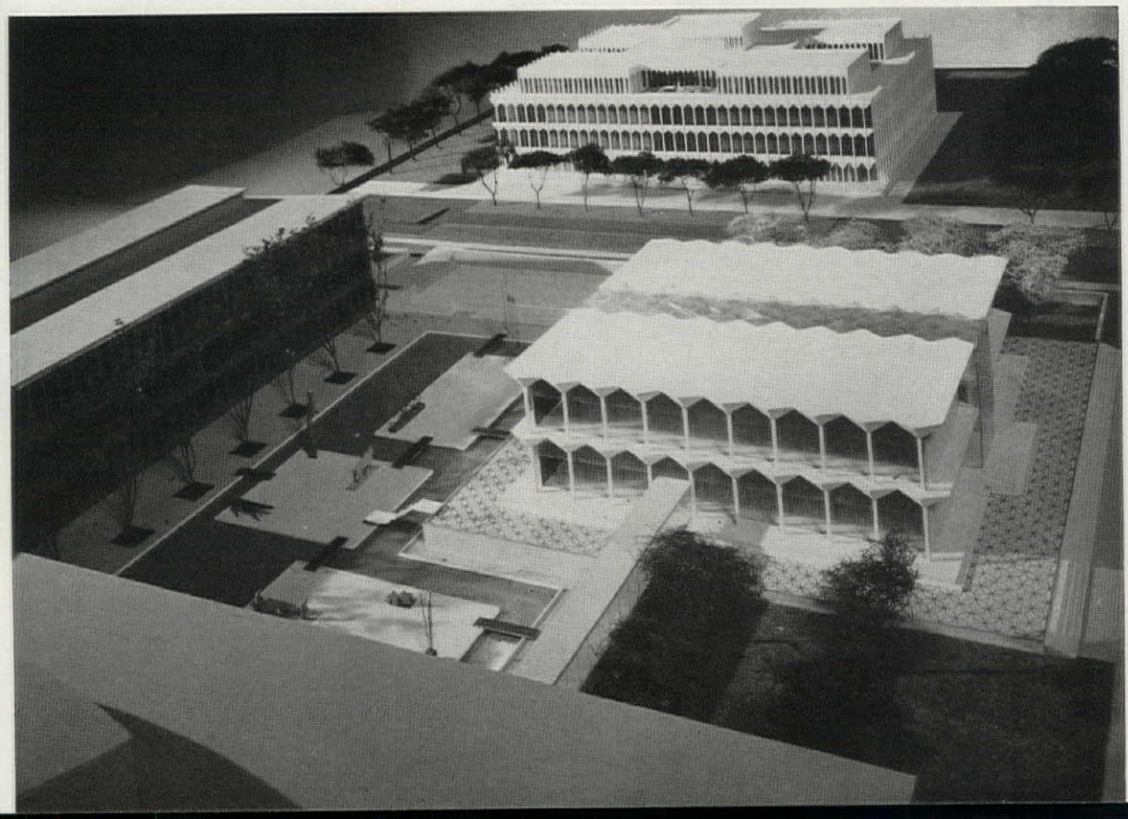


PHOTOS: BALTAZAR KORAB



A new master plan will spread beauty across the campus.

The master plan sketch (above) and a model of one segment (right) show Yamasaki's proposed education building (1) placed across Second Boulevard from the conference center (2). The education building, built of three-story-high concrete "trees," succeeds in carrying Yamasaki's decorativeness into structural prefabrication. Together, the education building and the conference center comprise a new architectural group that will set the general pattern for further campus development. Outstanding U.S. architects will be invited to design the new buildings, adhering to the established principles of controlled environment, careful land use, and architectural imagination.



BY RUSSELL BOURNE

American architect Yamasaki

As typically American as the big Chrysler he drives, Detroit's Minoru Yamasaki nevertheless draws artistic inspiration from another heritage.

Just as the dedication of Wayne University's McGregor Memorial Conference Center droned to an end, the presiding speaker announced: "There is of course no need to introduce you to the man whose genius you have felt all around you today: Mr. Yamasaki!" Architect Yamasaki rose warily, tucking his black tie into his blue cord suit, was startled to see the entire audience rising with him. He then received one of the longest and most deserved rounds of applause ever given to modern architecture on a university campus.

Both for wiry (5 feet, 5½ inches, 130 pounds) Minoru Yamasaki and for the profession of U.S. architecture the big hand was important. To him personally it proved that his recent and profound reappraisal of 46 years of life and 20 years of practice had received critical support. To the profession generally the applause and other signs across the country indicated that a structurally obvious, technologically advanced, but decoratively rich architectural style had succeeded in winning the hearts and treasuries of American building clients.

"It makes me real sick when I walk into a building that isn't true to its original concept," says Yamasaki. And he says it with the confidence of the man who has, at length, found out what is true in his own life. Sitting with his family on the terrace of their handsomely remodeled, 130-year-old farmhouse 15 suburban miles from Detroit, Yamasaki looks as deceptively serene as a sunning panther.

BALTAZAR KORAB

He has even built a small office beside his home where he hopes to spend a contemplative morning every day of the working week from now on.

His mother and father have come East from Seattle to round out the comfortable home; his family and the poolside good things of American life seem much nearer to his heart than business. But to see in Yamasaki only the comfortable architect who has arrived would be a mistake. For despite his outward serenity, he is still very much interested in controlling the big (30 architects) architectural firm of Yamasaki, Leinweber & Associates as tautly as ever.

A childhood memory of Seattle during the twenties is Yamasaki's mother coming home in tears from an incident on the local bus. A matron had moved from her seat beside Mrs. Yamasaki to sit next to a dirty, snoring—but undeniably white—migrant worker. The fact that the same thing had happened the week before and would surely happen soon again made it only more frightening.

From salmon to serenity

Yamasaki's school-age summers were spent in Alaska. With other Seattle - born, Japanese - descended boys of his neighborhood Yamasaki was shipped off for two months to the canneries of the North. His reward: $50 each month, a steady diet of salmon and rice, and a defensive hardening of his body and sensibilities.

But life had a number of compensations. Chief among them was the knowledge that he was going to be an architect. This decision had been quickly made when his architect uncle stopped off at Seattle on a trip to Washington, D. C. from his practice in Japan to bid on the projected U.S. Embassy in Tokyo. He took time to show his drawings to a wide-eyed, teen-aged nephew. A youthful resolve was formed then that, unlike most, lasted to maturity.

As soon as Yamasaki was able to get his architectural degree from the University of Washington, he headed East, away from prejudice, toward a career. But he found that New York in 1935 was "a city of unemployed geniuses," that he could only get a job in a Japanese importing firm wrapping dishes. "I was real good at wrapping," he recalls with a smile that suddenly lights all his reflective face; "a lot better at wrapping than at bookkeeping, where I was a total failure." During a week's vacation he volunteered at the office of Francis Keally to help with competition designs for the Oregon State Capital. When the firm won the competition, Yamasaki found himself with a job as a working architect.

From there he played the shifting, jumping, part-time teaching and sometime studying game that the depression and the marginal profession of architecture called for, getting to know most of the young architects and designers who are now in charge of the firms through which they passed with such rapidity. And somehow he also found time to woo and win a wonderfully talented nisei girl who had come East to study piano. They were married two days before World War II broke out.

George Nelson, one of Yamasaki's closest friends and a leading New York architect and industrial designer, remembers a pivotal incident. Yamasaki was with Raymond Loewy at the time, but the two friends were looking for jobs together on the side. Nelson found a client who wanted to remodel a brownstone. As Nelson recalls: "When we were supposed to go up and see him, Yama thought I should go alone. It was wartime and Yama thought the guy might be 'sensitive' about the Japanese angle. I said, 'Yama, if he is, we don't take the job.' I don't think Yama's ever forgotten it."

He has not. But neither did Yamasaki in those difficult years forget what he wanted even more than jobs or reassurance. He frankly wanted to be an outstanding American architect. And when an invitation came in 1945 for him to become design chief at Smith, Hinchman & Grylls in Detroit, he worried briefly about his lack of experience in a large architectural office (S. H. & G. was a booming office of 600 men), considered more important the fact that Detroit was in the industrial heartland of the country, and left New York as soon as it could be arranged.

"Yama has never lacked professional confidence," Nelson and other friends explain, "but there was a remembered inferiority that had to be purged." It stayed with him at S. H. & G. through his many standard jobs and occasional opportunities to show his virtuosity (the most notable opportunity being Detroit's Miesian Federal Reserve Bank Annex, FORUM, March 1950). The inferiority stayed with him during the formation of his first partnership, Hellmuth, Yamasaki & Leinweber. It was still there after the critics had praised his St. Louis Airport (FORUM, May 1956). And it was doubtless the major reason, along with the rapid pace he had been setting himself, for his nearly fatal ulcer attack in 1954.

But that did the trick. As Yamasaki puts it: "I hadn't been able to order my life. I felt that something was missing and that I had to keep running after it. But look: everyone has a complex. It took the ulcer to show me what mine was—that I was Japanese."

From Kobe to Athens

By one of fate's happy tricks, the U.S. State Department intervened at this point, asking Yamasaki if he would be interested in trying a design for the American Consulate General's office and staff quarters at Kobe, Japan. He would indeed. And in the execution of that commission he not only designed the best official U.S. building in Japan since his uncle's Embassy (FORUM, Feb. 1958),

continued on page 166

← *Minoru Yamasaki at home with son Taro (12), daughter Carol (14), wife Terry (39), and younger son, Kim (10).*

Housing for the independent aged

The elderly need housing in the normal community far more than peace, quiet, and a beautiful view.

BY JANE JACOBS

One of every 12 Americans living today is at least 65 years old—the age at which a person statistically becomes elderly. As the number of elderly grows from 15 million to an estimated 21 million by 1975—perhaps to far more when cancer and heart disease are controlled—the problem will be to help the aged stay active, healthy, capable, and interested in life, and to spare them from strictly custodial institutions. Aside from the obvious human reasons for such a goal, the local tax burden for avoidable custodial care could become appalling as the number of aged increases.

And how well the independent aged get along will be influenced greatly by four factors, all having to do with their housing: 1) how their housing is designed, 2) how well it fills the most obvious gaps in the current supply, 3) where it is located, and 4) what services are knit in with it.

Good planning for the elderly is far removed from the old aim of providing protective havens with a beautiful view. Today, the elderly have quite different plans of their own. For the medical revolution that has made life beyond 65 a commonplace has been accompanied by a social revolution—the unprecedented independence of the elderly in American life. More than 70 per cent of the elderly maintain their own households, mostly as single or two-person families; two-thirds of these own their homes, one-third rent. Even among those receiving public old-age assistance, two-thirds today maintain their own households. As for the 20 per cent of the elderly who live with relatives and the 5 per cent who are lodgers in others' households, every sampling indicates that a large proportion would eagerly choose to live by themselves if they could afford it.

Less than 5 per cent of the elderly are in institutions—chronic hospitals, nursing homes, and various types of public and private communal living establishments—and the reason the proportion is not larger is that the elderly themselves, as a rule, cling fiercely to independence as long as they can. This instinct is sound, for if one thing is sure among many unknowns of how best to provide for the elderly, it is this: loss of independence and sense of purpose, and withdrawal from the mainstream of life, are the surest prescriptions for inducing senility and deterioration.

Yet the independence of the elderly is, in a sense, illusory and always precarious. For most elderly people there comes a time—it comes in the 60's for some—when they can maintain independence and usefulness only with outside encouragement and help in any of a huge range of practical matters. Among the statistics of tragedy are those indicating that a probable 25 per cent of elderly hospital patients could be discharged and could manage for themselves if only they had apartments where they could get certain relatively inexpensive but crucial services—where, for example, the bathroom is built so it can be used by an old lady with a bad knee.

Design for bathing

In an apartment or house designed for the elderly, the most crucial single feature is the bathroom, mundane as this sounds. Bathrooms are responsible for more difficulties, accidents, and embarrassments to the elderly than any other feature in their homes. Nothing extraordinary has to be done with this room, but it should embody a few essentials: for example it should have clear, wide, straight-line, well-lighted access from the bedroom. Falls at home are the leading cause of accidents among the elderly, and a majority of these falls occur between 10 P.M. and 6 A.M. (For more details, see page 89.)

Aside from improving the bathroom, major design points include: single-level construction if possible, and railings where steps are unavoidable; nonskid floors; no thresholds; low shelving; electric kitchens, large enough for eating space; over-all lighting of higher than usual

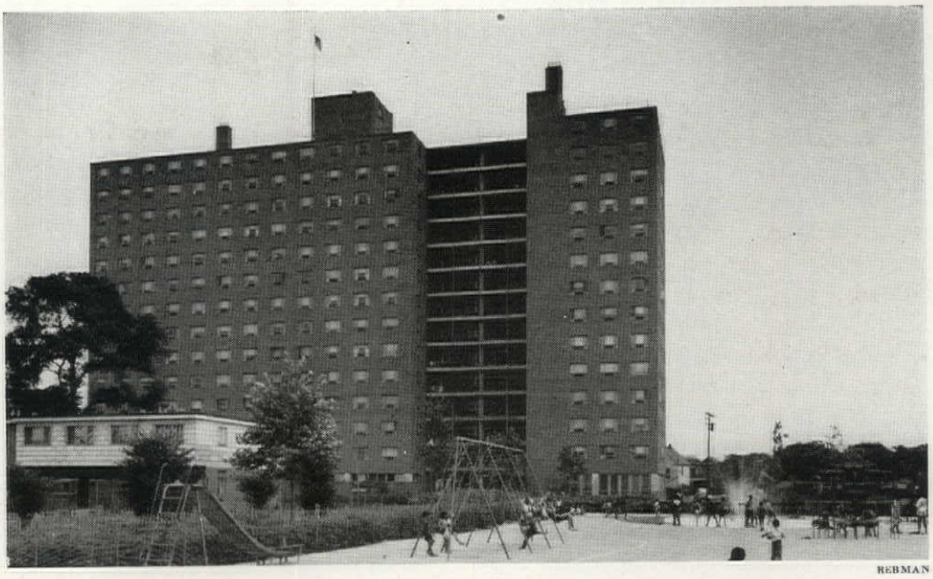
intensity; heating designed for 76 degree temperature instead of 68 degree; and plenty of closets. The last point sounds minor, but is not. Parting with possessions and mementos is a tremendous and destructive wrench to elderly people. The one-bedroom apartments in a public housing building for the elderly recently completed in Somerville, Massachusetts, for example, have three closets plus a walk-in storage space, and the housing director reports it is none too much.

Play it down

But special design can be carried too far. A chief fault with much housing specifically designed for the elderly, reports Dr. Wilma Donahue of the University of Michigan, a leading authority on gerontology, is that it overemphasizes the protective devices. Nobody is cheered by being constantly reminded of age and disability, and architects who go ramp-and-rail happy are doing the elderly no service. The less noticeable any special features are, the better. And of course there are many elderly who get along very well, for many years, in ordinary housing.

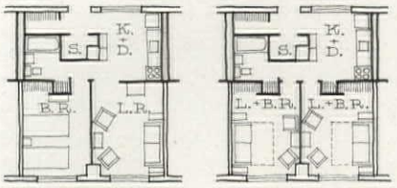
In spite of the gratifying number of elderly who are making out reasonably well, three major gaps in the supply of housing for the aged remain unfilled.

▸There are not enough well-located, small houses available for purchase by those whose present homes are burdensome. Among elderly home owners, 29 per cent have houses of six or seven rooms and another 11 per cent have eight rooms or more. FHA in 1956 liberalized its regulations on mortgages and on trade-in down payments for purchasers over 65; it estimates that about 2,500 to 3,000 homes a year are now bought under these provisions. But there is no estimate of how much increase this represents over home purchases by the elderly in previous years. Presumably the gain is not great. One difficulty is that in most metropolitan areas small homes are apt to be located in the kind of mushroom suburb where people are immobilized without cars and nothing whatever is close at hand, neither conveniences,



REBMAN

Two pioneer projects



A high-rise building (above) with 88 units for low-income people, built in Cleveland in 1955, was among the first public housing projects planned for the aged, and it is still one of the best. It is surrounded by low buildings for younger families, adjoins a playground, and has ground-floor club and craft rooms used by elderly people throughout its section of the city. Apartments for couples (which rent for 23 per cent of tenants' income) contain 525 square feet and are convertible to two units for single persons (see plans, right). The project has two drawbacks: doors are too narrow, and passages too circuitous to permit use of a stretcher.

A housing project in Vienna, Austria (below), includes 27 apartments for the elderly (black units on site plan), grouped around their own gardens and surrounded by housing for younger families. The idea is to permit younger residents, as they age, to move to new apartments within the same neighborhood. Planner Albert Mayer stresses the same point for U.S. planning: "In any sizable development, a portion of the housing should almost automatically be designed for the elderly."

services, health care, work, nor interests.

▸ There is not enough suitable rental housing close to town, with at least some helpful services, such as housekeeping aid, included. In 1956 FHA liberalized its mortgage regulations on rental housing for the aged sponsored by nonprofit organizations; two such projects have been completed, 24 others are in progress or actively projected, and 30 more are being prepared for FHA application. But FHA liberalization is not enough. Few old people have the cash incomes to pay rents of $90 a month or thereabouts, which is what a new two-and-a-half-room city apartment would cost even under the liberalized FHA terms. Half of all urban elderly couples have incomes under $2,800, and the greatest need is for apartments or houses with monthly rents of $50 or less. To meet the need, new rental housing must usually be subsidized, in addition, by the sponsoring organizations.

The extent of the need for such housing is indicated by the fact that Carmel Hall, the first project completed under this program—an old downtown Detroit hotel remodeled and run by the Catholic Church (see opp. page)—promptly acquired a waiting list of 4,000 for its 550 units. Privately subsidized rental housing represents a fairly new kind of "institution" for the aged. It has been pioneered in such establishments as Salhaven Village in Florida, sponsored by the Upholsterers' Union Welfare Fund (page 91), and Presbyterian Village near Detroit (FORUM, September 1955). Such places combine the independence of separate quarters and the possibility of an uninstitutionalized life with certain institutional services, the stimulus of some organized social life, and sometimes special opportunity or encouragement to work.

▸ There is not enough public housing designed especially for the elderly. This is just getting off to a start, in spite of some early and uninspired attempts, because until 1956 the law made no provision for one-person aged households. When a wife or husband died, the remaining partner usually had to be evicted to make room for another family. Occasionally two women or two men in such a fix were teamed up, in spite of the rules, and this can now be done regularly. Following the lead of the Cleveland Metropolitan Housing Authority—which had a building for the aged ready before the new law was passed—a dozen other cities have now built or are planning special buildings for the elderly within public housing projects or as single-building "pocket projects." Public housing is needed at least as badly as sponsored-nonprofit rental housing; 20 per cent of elderly couples and more than half of single elderly women have incomes of only $1,000 or less, and increasing numbers of these people are being ousted from old, low-rental homes by slum clearance and highway building.

No place like home

Where should housing for the elderly be located? Everywhere. The remarks of a Manhattan woman in her 60's, who was being evicted from her ground-floor apartment because of slum clearance, tell why more vividly than any number of statistical analyses:

"I don't want a project in Brooklyn. It means giving up my job at the hospital. At my age I will never be able to find another one. Even though the pay isn't so good, everybody knows me and I know everybody. When my arthritis bothers me and I can't report for work, the hospital understands. A new boss wouldn't be so kind. I can't stand up long and I can't travel by subway. I don't want relief. I want to keep working. I tell you, I'd rather live in a cellar near my work than be useless and lonely. Why can't they give me an apartment right here?"

"They," in this case, could not, so this woman took a room nearby in a five-story walk-up without central heating.

Even among the elderly who have sufficient money to afford a choice, the desire for familiar surroundings and attachments is strong. A survey of 125 retired executives, for example, disclosed that half remained in their old homes, a quarter moved within the metropolitan area where they already lived, an eighth moved to better climates, and an eighth moved away for other reasons—to be closer to families, return to the home town, or the like. Similarly, before the Upholsterers' Union planned its Florida retirement center, a canvas of its widely scattered membership over the age of 55 showed that only 20 per cent would be interested in moving to Florida; the others said it was a fine idea for someone else but they would stay in Chicago or Milwaukee.

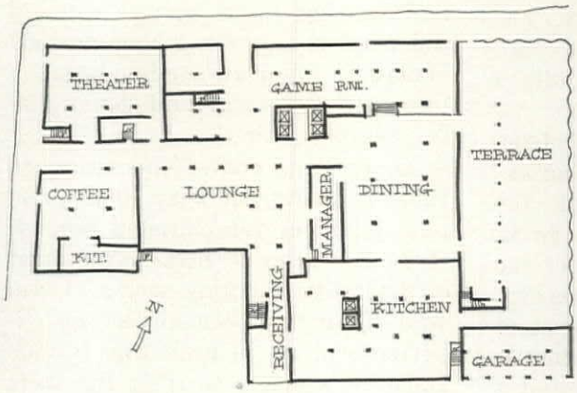
It is much simpler to say where housing for the elderly should not be located; i.e., on a site isolated from a normal community. Unfortunately, just such sites have been standard in the past for "old people's homes" and the stereotype is hard to shake. Even today a discouraging amount of the tribute to progressive thinking on gerontology is only lip service. Consider, for example, a report accompanying a proposed Baptist Church development for the healthy elderly in Georgia. It dwells admirably on the importance of an in-community location: "Generally, old people do not choose to be set apart from the complexities of town life. The opportunity to be with people of all ages, make new friends, partake in civic, political, religious, and cultural activities separate from and in combination with the home programs is an integral part of social living to be participated in as much as possible." But the resulting project? An isolated, rural, "old folks' village."

The isolated institution or "village" tends also, Dr. Wilma Donahue points out, to become far too protective and dictatorial in small ways, to the point where its residents have no real privacy. "Old people want privacy without isolation; they get isolation without privacy instead." On the other hand, in larger matters, the isolated institution tends not to be protective enough. "The second-rate medical care which is almost inevitable in isolated places is very disturbing," Dr. Donahue reports. "It can only be second-rate health care, no matter how carefully it is planned, because not even city hospitals can get enough qualified staff these days."

How intimately to mix old people in the general community is a nice problem. At Cleveland's Cedar

A hotel for the aged

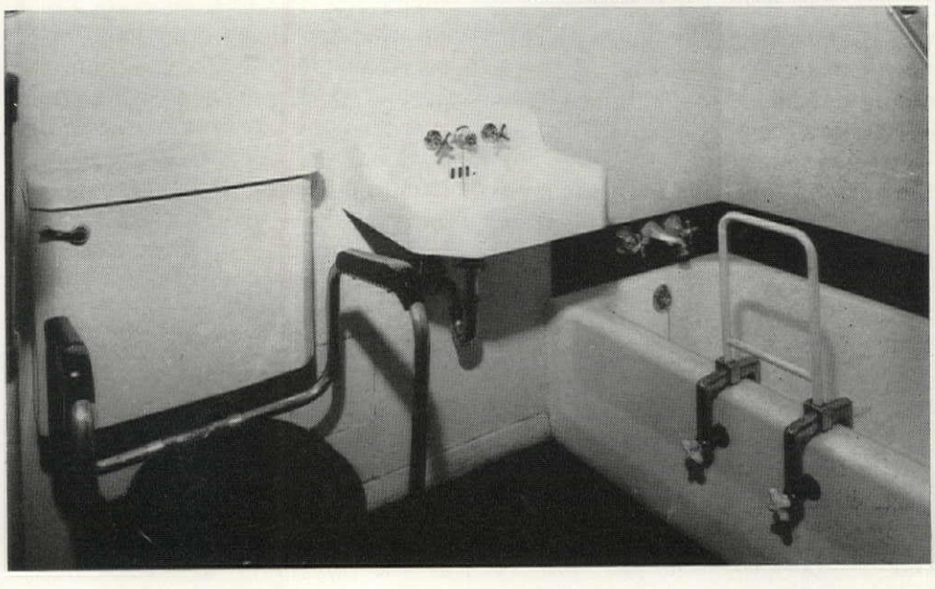
The old Detroiter Hotel in downtown Detroit was renamed Carmel Hall (right) and below) and remodeled into housing for the aged, under sponsorship of the Catholic Church. It is enormously popular, owing largely to its downtown location close to social activities and public transportation. The old people especially like night life; some stay out until 1 A.M. Rent and board rates begin at $125 per month. The ground-floor remodeling includes a walled terrace partly covered by the overhang of the chapel above it. The coffee shop (see plan) is a snack facility of a type much used and appreciated by elderly people whenever it is included in housing. Architects, Leo M. Bauer & Associates.



PHOTOS: (BELOW) REBMAN; (OTHERS) WILLIAM E. BRADLEY

Simple bathroom aids

Bathroom for the elderly in Cleveland project has grab-bars at toilet and an improved type of grab-bar at the tub which gives the user assistance when needed most while climbing in or out. A portion of the more usual wall-fastened grab-bar, with which the tubs are also equipped, shows in the upper right hand corner of the photo. Bathrooms for the elderly should also have doors 3 feet wide for manipulating wheel chairs or crutches, extra-large medicine cabinets, and a call bell near the toilet. In a San Antonio project recently planned, the bell will sound in neighboring apartments instead of in the caretaker's, as an encouragement to the mutual aid found in normal neighborhoods, and a discouragement to unnecessary institutionalization.



Apartments, public housing for the aged is in a high-rise building (see page 87), surrounded by two- and three-story housing for families with school-age children. On the premise that the aged should not be separated even to this extent, four apartments among the twelve on each floor were allocated to families with children under five years of age. Theoretically this makes good sense. But Architects Mayer, Whittlesey & Glass, consultants to the Cleveland Housing Authority on three forthcoming projects which will include buildings for the elderly, report that in practice the high-rise mixture does not work out so well as hoped. The noise and furor of the children within the building irritate some of the old people, and conversely the dominating presence of the aged, in so unnaturally high a proportion, represses the young families. They are *too* close, particularly in the common balconies and the laundry. The presence of younger families with children in the adjacent buildings works out fine.

Another version of this problem came up in Orange Gardens, an excellent retirement village of 140 homes developed by Dr. George E. Beauchamp, a retired official of the Veterans Administration, as his own retirement project. The development is within the town of Kissimmee, Florida (population 10,000), and a surprising number of young families there wanted to buy Dr. Beauchamp's houses for the elderly. Deciding that the mixture would be an asset to the social atmosphere, Dr. Beauchamp nevertheless managed some separation. Families with children (about 25 per cent of the total) occupy certain streets, families without children are on others. This has worked very successfully. The better the housing for the elderly, the more frequently this question will arise, because houses or apartments well-designed and well-located for the aged are also eminently suitable for young families with a child or two.

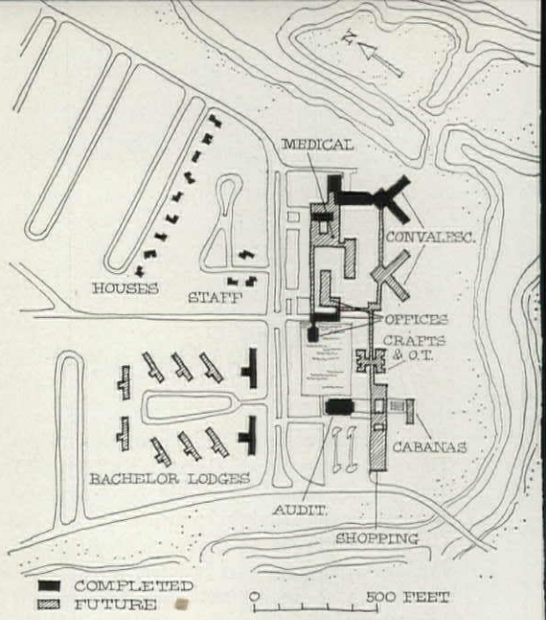
Help over the rough spots

The biggest unsolved problem is what kinds of services to provide along with housing, either as general community services for the aged, or adjuncts to public and privately sponsored developments for the aged. Virtually everyone dealing with the elderly is agreed on the results to be aimed at: health and personal security, independent action, social experience and inclusion in a group, useful activity. But how to help the independent elderly over the rough spots, the ones that defeat them prematurely, has had the least investigation and experiment. How important is help with nutrition and how can it be handled best? What combinations of medical help work best? How much difference does a personal physician make, in addition to clinic and hospital care? At what point should old people who are ill be separated from the healthy? How much encouragement should be given to social life, hobbies, volunteer work or sheltered workshop jobs? What combinations of shopping help, housekeeping help, and visiting nurse service can aid independence over a longer period? Where do you draw the line between imperative services and demoralizing overprotection?

There is no end of theorizing on these matters, but very little practical guidance for planners because there has been so little experiment or flexibility in trying such services. And there has been almost no experience at all in providing a wide range of services to meet the wide range of problems affecting any group of independent aged.

The problem of services is, in turn, inseparable from another practical problem for planners: How many elderly households should be grouped together in any one project or development? Many authorities favor 100 old people as a maximum if there is no intermixture of younger families, on the grounds that handling of the individual's problems will be institutionalized in larger, unmixed groups. But until there is more experiment in administering for the independent aged, nobody can really know.

These, then, are the most pressing problems for the future. How to design physically good dwellings is only part of the housing problem of the aged; where the dwellings are and what goes with them is of the essence. END



Union housing for the aged

Salhaven Village, 15 miles north of Palm Beach, Florida, is the retirement and health resort of the Upholsterers' International Union. Salhaven now has about 30 residents; as more join, new houses and lodges will be added (see site plan, above). Rentals, based on one-quarter of income, average $50 a month for a house (furnished), $35 for a bachelor unit. The medical and convalescent facilities are mainly for younger, employed union members needing health care; a general vacation resort to adjoin the village and a small upholstery plant are also being considered for the future. Owing to racial segregation in most Florida municipalities, this village was built outside corporate town limits. The isolation thus imposed is at least partly countered by the presence of younger union members and the well-staffed and financed general medical facilities.

To the left of the dramatically situated auditorium (photo 1, opposite page) is a screened social center (4) which eventually will be enlarged. All special facilities, such as the medical dining terrace (2) and rehabilitation rooms (3), are used both by permanent residents and visiting union members. Retirement cottages (6) are unusually neat in design, inside (5) and out. Plans shown are for two basic units, to which screened porches, carports or extra rooms can be added. The site plan, in an overdesire to avoid crowding, spreads the cottages out too thinly, making unnecessarily long walking distances. Many residents, still spry, have adopted motorized three-wheelers, originally intended for the staff members. Architect, Rufus Nims. Project manager, Milton Harry. Interior design, Mark Lintner. Structural engineer, Walter Harry of H. J. Ross & Associates. Mechanical engineer, Jerome Curley. Site consultant, Russell Vannest Black.

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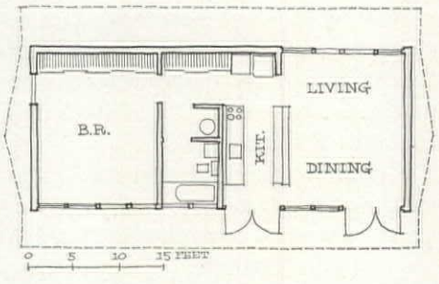

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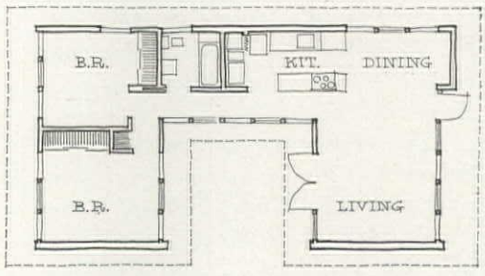

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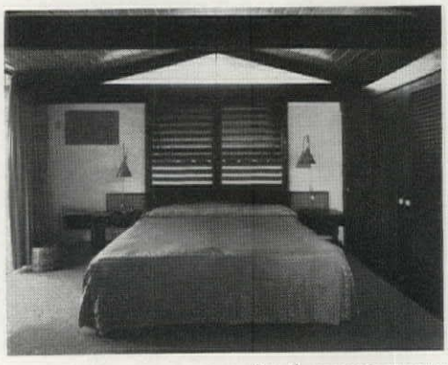


PHOTOS: (2 & 5) ALEXANDRE GEORGES; (OTHERS) RUDI RADA

A committee of experts has come up with an ingenious proposal for encouraging community beauty without impeding design flexibility.

Can civic beauty be legislated?

Hundreds of U.S. communities, over the years, have adopted legislation intended to combat civic ugliness. Yet many U.S. cities and towns continue to grow progressively uglier. Perhaps the truth is that beauty cannot be legislated. But perhaps, too, the ordinances themselves are partly to blame. Often, these laws simply force the community into a strait jacket of stylized design.

Here is a flexible and imaginative plan for encouraging civic beauty. It is excerpted from a recent 160-page report, prepared by a joint committee of the New York Chapters of the American Institute of Architects and the American Institute of Planners, in cooperation with the Regional Plan Association, and entitled, "Planning and Community Appearance."

(The report was prepared by the following distinguished architects and planners: Charles Agle, Henry Fagin, Arthur Holden, Samuel Joroff, Geoffrey Platt, Hugh Pomeroy, Esmond Shaw, Christopher Tunnard, Robert Weinberg, Julian Whittlesey, Frederick J. Woodbridge, and Lawyer Albert S. Bard.)

There are no formulae, no rigid principles through which beauty can be assured and ugliness banished. This is true of a single building or of a whole neighborhood. An attitude which emphasizes conformity with restrictions can only lead to a dull uniformity based on the "safe" repetition of what is known to be officially acceptable. Yet the appearance of things exposed to the public view remains a matter of important concern to the whole community.

The first faltering steps toward improving community appearance have been made by lay officials with little or no expert advice. It may be revealing of what people seek, however, to consider some of the half-truths which have stimulated communities to enact "architectural" control. For example:

- That copying the styles of buildings designed in the past can substitute for new approaches to a better designed future.
- That the good design of individual buildings, without regard to their placement and surroundings, assures the harmonious appearance of the community as a whole.
- That uniform height, style, setback, or alignment of buildings will automatically result in a beautiful neighborhood.
- That visual order necessarily requires segregating buildings by types or uses.
- That beauty is incompatible with the repetition of forms from building to building.
- That requiring arbitrary variation of exterior details is a cure for the basic monotony of poorly designed housing developments.
- That prohibiting features like billboards, roadside stands, and junk yards is a satisfactory substitute for their careful design and appropriate placement.

Theories such as these arise from real dissatisfactions from the ugliness people see all around them. Mistaken though the theories may be, the laws based on them do protest against the results of present methods and procedures of community development.

Wanted: positive character

Our central idea about the creation of community beauty is that the approach must be primarily constructive. The community must act affirmatively, through the exercise of its planning powers to enable the designers of structures and spaces to create things that are beautiful. We must release the creative impulse in all our urban designers—in physical planners, artists, architects, landscape architects, engineers; we must not seek primarily to regulate, prohibit, restrict.

The adoption of a community design plan, as a component of the municipality's legally adopted master plan [just as utilities, transportation, land use, parks, and schools are components of the official master plan], is the means by which an over-all community esthetic form may be determined and expressed; and it is the essential community action by which the creativity of individual architects may be released toward achieving individual and group effects of greatest beauty. The design plan should indicate for the various parts of the community the esthetic character which is to be encouraged.

EWING GALLOWAY

"Wherever street intersections are T-shaped . . . the sites thereby given special prominence should be made available for buildings of special purposes and shapes." (Above: Manhattan's Grand Central terminal.)

We therefore suggest that in each municipality the local planning agency be assigned the responsibility for preparing a plan and a program as an important part of the municipal master plan and its implementation (see box). The plan and program should be improved and amended from time to time, as community development progresses and new esthetic opportunities are perceived. We hold that reasonable measures pursuant to such a plan and program are a proper exercise of the police power in the interest of the general welfare.

Where the eye is caught

The most visually pleasing communities appear to be those in which an underlying and evident geometric order is softened and enlivened through variety among its component parts. While one might base a design plan upon an uncompromising gridiron or a perfect spider-web, a more human ideal might be to introduce meaningful irregularities so as to get as far as possible from rigid geometry without, however, losing the clarifying trace and imprint of an underlying form.

To do this we must treasure natural irregularities of the site: rocky outcroppings, ravines, escarpments. We must preserve and frame the vistas made possible by changes in levels. We must develop lookout places and make them accessible. We must boldly create the lines, textures, spaces, and the landmarks by which pattern is made evident.

Our modern city-building techniques have, on the contrary, been erasing urban landmarks for several generations. We level our hills, dwarf our public buildings with nondescript commercial structures, hide civic halls and even some churches within hotels and office buildings. Zoning further suppresses landmarks. It tends to enforce a uniformity in which each thing is matched in every possible way by its neighbor. As huge a monument as the Empire State tower, though seen easily from 20 miles away, is so forced to the back of its lot by zoning that it fades as a local landmark within a city block or two.

On the other hand, because of its prominent placement, the modest Washington Arch dominates the whole lower end of Fifth Avenue in New York. Similarly, the Washington Monument in Washington, the Arc de Triomphe and Eiffel Tower in Paris, and the domes of the Capitol in Washington and Saint Peter's in Rome all dominate many areas and views throughout their cities because of their careful placement.

Wherever street intersections are T-shaped or wherever streets and pedestrian ways bend perceptibly, the sites thereby given special prominence should be made available for buildings of special purposes and shapes. Such buildings should not be limited in height or design to the requirements of the adjoining zoning districts. These are the points in the over-all municipal design pattern where contrast rather than conformity is appropriate.

It appears well within the general welfare concept under the police power for special sites of this kind to be earmarked for special buildings even though they involve only a single lot in a given area. Moreover, it would be an appropriate use of the police power to protect such sites and buildings from being

continued on page 162

Let there be beauty

Here is a sample Community "Appearance" Ordinance proposed by the joint AIA-AIP committee which considered the problem of how to encourage good community design.

PREAMBLE: It is hereby affirmed as essential municipal policy that the appearance of this municipality is a proper matter for public concern and that all open spaces, buildings, signs, plantings, surfaces, and structures which may be seen from the public ways are subject to the provisions of this ordinance.

SECTION 1. The planning agency is hereby authorized and directed to prepare and after public hearing to recommend, as an integral part of the master plan, an official design plan and program for conserving the beauty that exists in the community and for guiding future physical development to bring about greater beauty.

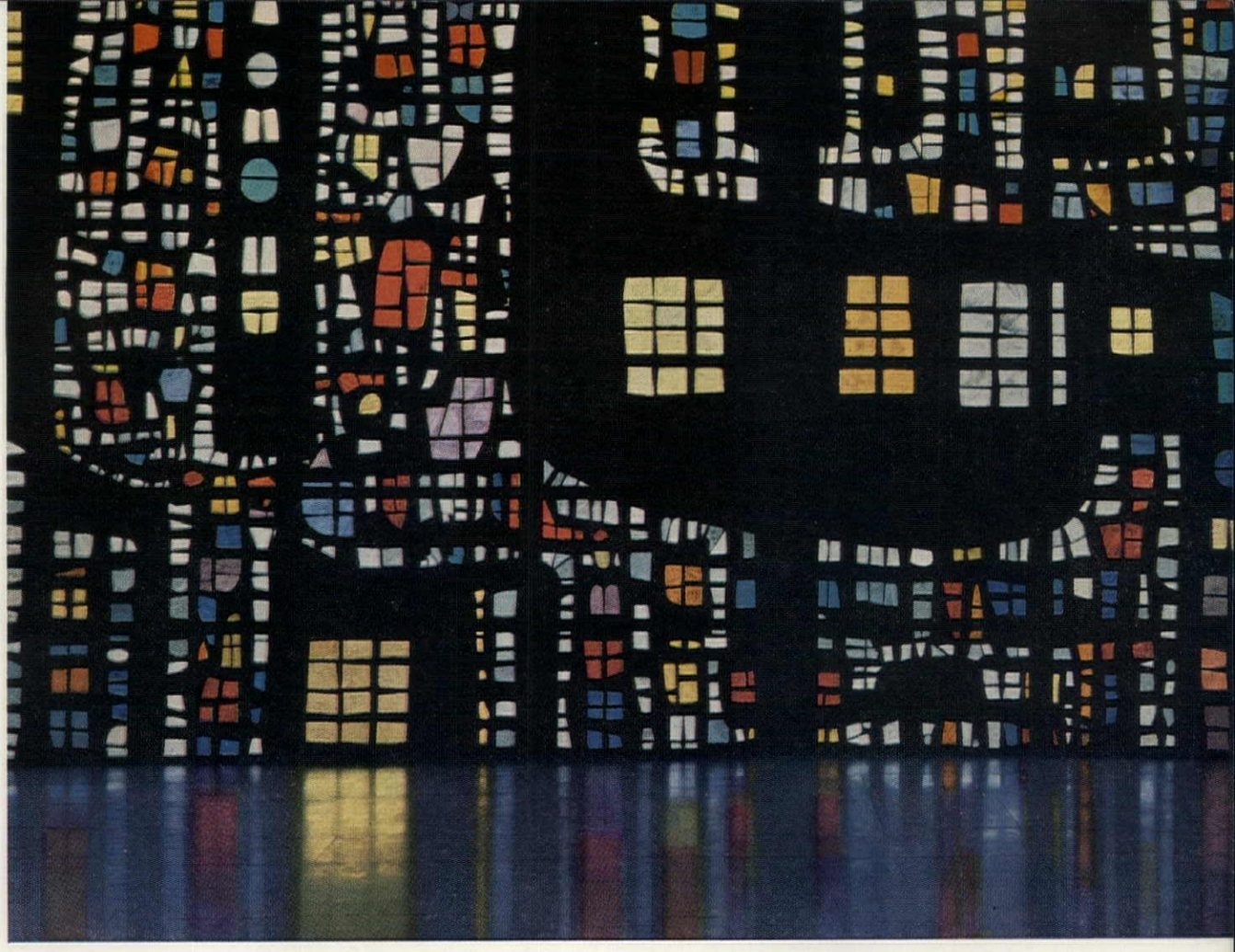
SECTION 2. Such design plan shall indicate for the various parts of the municipality the esthetic character to be encouraged, and the program shall set forth the means by which such esthetic character is to be attained and protected.

SECTION 3. The design plan shall distinguish among various kinds of areas in the community, such as: a) areas to be protected because of historic, architectural, or scenic character; b) unbuilt areas to be developed or areas to be substantially redeveloped and thereby given new esthetic character; and c) areas already largely developed in which the established structures, streets, and open spaces are predominantly to be retained.

SECTION 4. The design plan and program shall recommend regulations appropriate to each such district.

SECTION 5. From time to time, on recommendation of the planning agency and after public hearing, the governing body may adopt and may amend legislation putting the design plan into effect.

SECTION 6. A community design review board is hereby established to administer such regulations as may be adopted by the governing body pursuant to the design plans and programs recommended by the planning agency. The persons appointed to the review board shall be persons recognized as expert in matters of esthetic judgment by virtue of natural interest and endowment, training, and experience, and shall also possess the qualities of impartiality and broad judgment.



The glowing window wall of a church in Hem, France (above) by Artists Jean Barillet and Alfred Manessier uses thick chunks of colored glass set in reinforced structural concrete, rather than traditional symbolism, to achieve its religious pertinence.

Walls of art

The abstract shapes (left) that climb the brick façade of the Netherlands' Building Trades headquarters in Rotterdam (below) grew from the imagination of the great British Sculptor Henry Moore. Moore sought a bas-relief pattern that would combine the "physical realities" of the present with the artistic traditions of the past.

PHOTOS: (BELOW) BOUWCENTRUM; (OPP. PAGE) J. A. VRIJHOF

On many a brightly colored, strongly patterned wall, these days, a welcome message is being written: modern architecture has made up with modern art. The long period of separation appears to be over. A new period of exuberant association has begun which holds great promise for collaborative works of wit and beauty.

Like the vivid murals of the cavemen and the symbolic wall patterns of the classicists, the walls shown on the following pages introduce to the spaces in which they stand suggestions of human experience and scale. That, perhaps, is the timeless function of art.

But more than any previous walls of history, these strive to be independent, vigorous works of art in themselves. The total wall, not merely the details of it, have received the artist's attention, with the result that function, structure, and scale are highlighted and defined.

By daring to contrast his work against a building's rhythms and textures, the artist has shown that he remains the architect's oldest yet liveliest friend.

BERNARD LIEBMAN

Architectural art is now to be found even in such unlikely places as the concourse of a New York City junior high school where Muralist Max Spivak was invited to create a bold, indestructible wall. His arrangement of standard, unglazed tile expresses tile's colorful, two-dimensional properties while admitting its peculiarities (it is difficult to cut on lines other than vertical, horizontal, or diagonal).

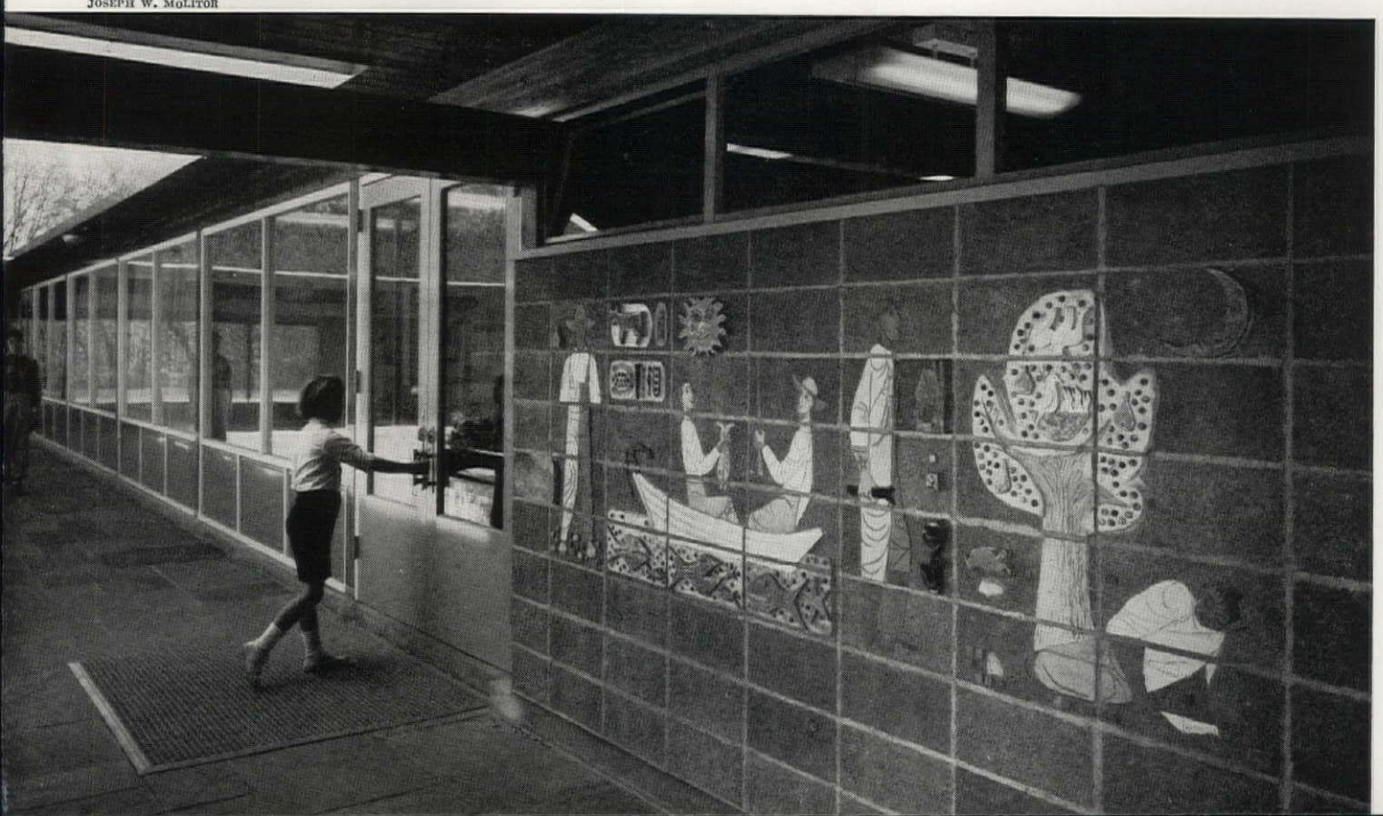
Cinder block was the surface Muralist Anton Refregier had to cope with in his design for the Tokeneke elementary school in Darien, Connecticut. He laid out the blocks on the floor of his New York studio, worked colored cement into them to serve as a setting for children's mosaic materials: marbles, pebbles, sea shells. The numbered blocks were then trucked to the site, and built into a mural-wall.

RUDOLPH BURCKHARDT, COURTESY KOOTZ GALLERY

After Sculptor David Hare had hung his hollow brass forms in the cramped lobby of an office building on Manhattan's Third Avenue, he realized the spatial effect was not what he wanted. To get a greater sense of nature's three dimensions and to make the work an integral part of the wall, he cut gouges 4 inches deep into the plaster.

FELIX GILBERT

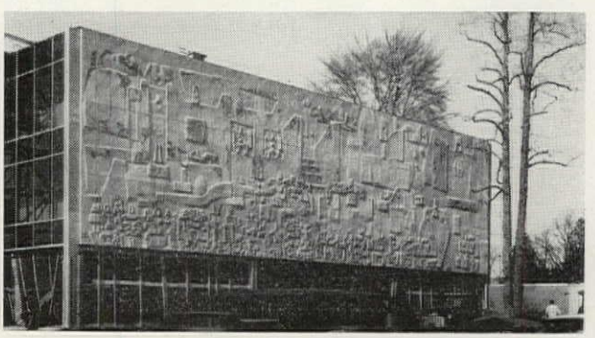
JOSEPH W. MOLITOR



PHOTOS: (LEFT) MEL RICHMAN STUDIOS, INC.; (BELOW & OPP. PAGE) ROBERT STAHMAN

In suburban Philadelphia, home-owner Mel Richman commissioned Painter Hugh Wiley to design a series of panels on a wall behind the glass front of his modern house in order to show that the wall was there. Wiley emphasized the reality of the wall by making it a tactile experience even for passers-by: latex-based, concrete layers were raked, stippled, and spotted with other materials to give them the desired come-touch-it effect.

Combining his peculiar sculptural medium of sand-molded concrete with the latest curtain-wall construction methods, Sardinia-born Sculptor Constantino Nivola created a façade for Hartford's Mutual Insurance Company (below) that is one of the most ambitious art walls yet built. Both in size (110 feet long, 30 feet high) and formful inventiveness (right), Nivola's mural is distinctive and monumental.



One hundred U.S. corporations account for a massive 15 per cent of total U.S. spending for industrial-commercial construction. Here, for the first time, a ranking of the biggest spenders.

Building's biggest customers

The 100 corporations listed on the facing page and overleaf accounted for nearly one-seventh of all the money spent by private business last year for industrial, commercial, and public utility construction. These firms representing a mere two one-thousandths of 1 per cent of all the business firms in the U.S., accounted for $1.8 billion of the $12.8 billion spent by U.S. business for construction in 1957. What is more, 42 per cent of all the outlays for private *industrial* construction last year came from the treasuries of the 71 industrial corporations on the list.

These findings, which measure for the first time the tremendous impact of America's largest firms on construction activity, are drawn from a two-month survey of the 1957 building outlays of 700 of the biggest U.S. industrial corporations, utilities, transportation companies, merchandising firms, insurance companies, and commercial banks. From this group, the 100 companies which spent the most for building last year have been ranked according to the dollar volume of their outlays for construction.*

The directory reveals that these top 100 companies spent $9.5 billion for construction, land, and equipment last year, a whopping 26 per cent of the total capital spending of U.S. business. ($1.8 billion, or 19 per cent of this amount went into buildings.) The directory also shows that:

- Among the 100 corporations, nine spent more than $200 million apiece for buildings, land, and equipment; 13 spent from $100 to $200 million; and 25 spent from $50 to $100 million. Lowest capital outlay on the list: $7.1 million (by Square D Co.).
- Fifteen corporations spent more than $30 million for buildings alone, and 38 others had expenditures of from $10 million to $30 million.
- Of the 71 companies which reported their estimated building outlays for 1958, as well as for 1957, only 12 expect to spend more this year than last. Those planning the biggest increases are Prudential Insurance (up 154 per cent, primarily because of its new 12-building office center in Boston) and Pan American World Airways (up 71 per cent because of new terminal and maintenance-base construction at New York International Airport). Against this, Square D Co. and Whirlpool Corp., which have completed expansion programs, will slash their outlays by 100 per cent. On balance, the survey indicates the building outlays of the 71 companies as a whole will drop 32 per cent to $910 million.

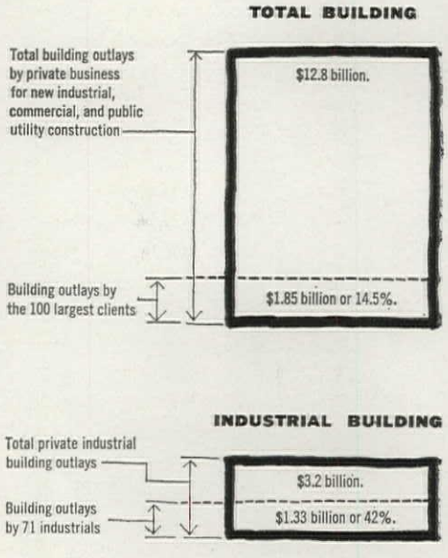
The biggest spender

By far the best single customer that the building industry had last year was American Telephone & Telegraph Co. AT&T's outlay of $215 million for construction (8 per cent of its $2.6 billion capital spending) was almost 70 per cent greater than the $127.3 million spent by second-ranking Ford Motor Co., and more than three times Western Electric's $65.9 million outlay. The fourth largest spender was Kaiser Aluminum & Chemical which spent $65.8 million, followed by General Motors ($55 million).

Nine of the top ten building clients in 1957 were industrial corporations (the only exception: AT&T, a utility). Of the top 25 companies, 21 were industrials (Safeway Stores and Sears, Roebuck, both merchandisers, placed eleventh and sixteenth respectively, and Commonwealth Edison, a utility, was twentieth).

Indeed, industrial companies dominated the entire 100 list. Seventy-

The 100's share



*Not included: ten petroleum companies (which do not segregate their construction outlays), and seven other corporations (U.S. Steel, Bethlehem Steel, International Paper, Inland Steel, Youngstown Sheet & Tube, National Steel, and Metropolitan Life) which did not supply data.

The 100 largest building clients*

	Company	Home office	Building outlays 1957 ($000)	Building outlays 1958 (est.) ($000)	Total capital outlays 1957 ($000)
1	American Tel. & Tel.	New York	**215,000**	185,000	2,566,000
2	Ford Motor[1]	Dearborn, Mich.	**127,300**	N.A.	376,500
3	Western Electric	New York	**65,900**	75,300	152,500
4	Kaiser Aluminum & Chemical	Oakland, Calif.	**65,800**	1,300	229,300
5	General Motors[1]	Detroit	**55,000**	46,000	377,000
6	International Business Machines	New York	**54,622**	32,000	326,337
7	Aluminum Co. of America	Pittsburgh	**47,700**	23,000	207,500
8	Kaiser Steel	Oakland, Calif.	**45,800**	28,300	137,400
9	American Can	New York	**36,300**	14,300	91,500
10	Anaconda[1]	New York	**35,232**	20,570	56,992
11	Safeway Stores[2]	Oakland, Calif.	**35,000**	N.A.	67,000
12	Consolidation Coal	Pittsburgh	**34,608**	17,640	39,627
13	Caterpillar Tractor[3]	Peoria, Ill.	**34,000**	N.A.	73,500
14	Boeing Airplane	Seattle	**31,000**	10,000	44,000
15	Union Carbide	New York	**30,179**	20,000	190,513
16	Sears, Roebuck	Chicago	**26,500**	N.A.	52,949
17	United Aircraft	East Hartford, Conn.	**26,000**	22,000	49,800
18	Du Pont (E. I.) de Nemours	Wilmington, Del.	**24,543**	N.A.	220,000
19	Seagram (Joseph E.) & Sons	New York	**24,300**	15,000	24,700
20	Commonwealth Edison	Chicago	**23,518**	26,500	207,753
21	Olin Mathieson Chemical	New York	**22,065**	8,000	77,130
22	Reynolds Metals	Richmond, Va.	**21,252**	23,526	101,981
23	Procter & Gamble	Cincinnati	**20,400**	N.A.	59,300
24	Westinghouse Electric	Pittsburgh	**20,006**	N.A.	65,512
25	Douglas Aircraft	Santa Monica, Calif.	**19,983**	6,346	32,183
26	General Electric[2]	New York	**19,504**	N.A.	153,600
27	Armco Steel	Middletown, Ohio	**18,367**	N.A.	82,920
28	Minnesota Mining & Manufacturing	St. Paul, Minn.	**15,900**	7,400	34,000
29	Pittsburgh Plate Glass	Pittsburgh	**15,751**	13,000	64,003
30	Dow Chemical	Midland, Mich.	**15,300**	13,000	170,000
31	Martin	Baltimore	**15,235**	8,000	24,734
32	Continental Can[2]	New York	**15,000**	N.A.	62,300
33	McDonnell Aircraft	St. Louis	**14,744**	N.A.	17,273
34	Monsanto Chemical	St. Louis	**14,400**	10,000	54,404
35	National Dairy Products	New York	**14,282**	N.A.	51,284
36	Philadelphia Electric	Philadelphia	**14,000**	12,200	94,200
37	El Paso Natural Gas[2]	El Paso, Tex.	**13,000**	8,000	287,000
38	Eastman Kodak[3]	Rochester, N. Y.	**12,951**	N.A.	60,173
39	Consumers Power	Jackson, Mich.	**12,509**	16,563	105,502
40	Chase Manhattan Bank	New York	**12,000**	N.A.	12,000
41	Food Fair Stores[3]	Philadelphia	**12,000**	N.A.	20,000
42	Weyerhaeuser Timber	Tacoma, Wash.	**11,918**	2,500	41,876
43	Jones & Laughlin Steel	Pittsburgh	**11,800**	2,200	100,700
44	Public Service Electric & Gas	Newark, N. J.	**11,526**	12,000	136,199
45	American Cyanamid	New York	**11,200**	N.A.	84,000
46	New York Life	New York	**10,475**	N.A.	12,611
47	Johns-Manville	New York	**10,357**	N.A.	45,704
48	Carrier	Syracuse, N. Y.	**10,270**	1,755	19,755
49	General Telephone	New York	**10,200**	17,000	186,400
50	Ohio Edison	Akron, Ohio	**10,122**	10,931	63,993

** Includes industrial, commercial, utility, and transportation companies, and commercial banks.*

N.A.: Data not available.

1. Excludes foreign subsidiaries.

2. 1957 building figure is estimated.

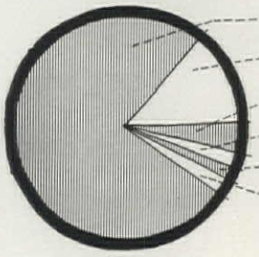
3. All figures estimated.

The 100 largest building clients

	Company	Home office	Building outlays 1957 ($000)	Building outlays 1958 (est.) ($000)	Total capital outlays 1957 ($000)
51	Allied Chemical[2]	New York	10,000	N.A.	69,800
52	Container Corp.	Chicago	10,000	N.A.	47,000
53	Grace (W. R.)	New York	10,000	5,000	64,000
54	Lilly (Eli)	Indianapolis	9,834	9,011	15,118
55	Am. Radiator & Std. Sanitary	New York	9,599	436	25,387
56	Niagara Mohawk Power	Syracuse, N. Y.	9,398	8,032	104,744
57	Goodyear Tire & Rubber[2]	Akron, Ohio	9,285	N.A.	82,947
58	Swift	Chicago	9,272	9,030	22,000
59	Reynolds (R. J.) Tobacco	Winston-Salem, N. C.	9,255	6,800	23,982
60	Continental Oil	Houston	9,000	7,000	111,000
61	Lehigh Portland Cement	Allentown, Pa.	9,000	3,000	35,328
62	R. H. Macy[2]	New York	9,000	6,000	19,418
63	Minneapolis-Honeywell Regulator	Minneapolis	9,000	1,000	14,000
64	Mutual Benefit	Newark, N. J.	8,500	N.A.	8,775
65	Detroit Edison	Detroit	8,300	8,000	81,700
66	North American Aviation	Los Angeles	8,279	4,000	19,759
67	Bank of America	San Francisco	8,100	11,000	20,700
68	Boston Edison	Boston	8,000	5,000	38,000
69	General Mills	Minneapolis	8,000	7,000	17,400
70	National Cash Register	Dayton, Ohio	7,947	4,841	13,473
71	Outboard Marine	Waukegan, Ill.	7,923	1,820	17,183
72	Prudential Insurance	Newark, N. J.	7,800	19,800	22,800
73	Harbison-Walker Refractories	Pittsburgh	7,715	1,400	13,350
74	Ideal Cement[3]	Denver	7,656	4,510	28,631
75	New England Mutual	Boston	7,326	7,965	7,813
76	Pennsylvania RR	Philadelphia	7,250	4,800	59,258
77	Cleveland Electric Illuminating	Cleveland	7,000	7,000	38,000
78	Pan American World Airways	New York	7,000	12,000	33,300
79	Owens-Illinois Glass	Toledo, Ohio	6,900	5,500	39,300
80	Standard Oil (Ohio)	Cleveland	6,900	4,700	70,000
81	General Foods	White Plains, N. Y.	6,886	2,427	22,234
82	Lone Star Cement	New York	6,771	1,071	29,441
83	Virginia Electric & Power	Richmond, Va.	6,730	N.A.	59,430
84	Diamond Gardner	New York	6,695	3,488	19,975
85	United Air Lines	Chicago	6,540	10,230	63,445
86	Radio Corp. of America	New York	6,500	3,000	35,600
87	Merritt-Chapman & Scott	New York	6,371	200	21,266
88	Burroughs	Detroit	6,300	N.A.	28,800
89	Lockheed Aircraft	Burbank, Calif.	6,214	1,709	18,781
90	American Stores[3]	Philadelphia	6,000	6,000	14,600
91	Bucyrus-Erie	South Milwaukee, Wis.	6,000	N.A.	12,819
92	Grand Union	East Paterson, N. J.	5,900	2,250	17,100
93	U. S. Rubber	New York	5,899	N.A.	32,514
94	Heinz (H. J.)[1]	Pittsburgh	5,800	3,830	8,300
95	Whirlpool	St. Joseph, Mich.	5,523	None	13,174
96	Johnson & Johnson	New Brunswick, N. J.	5,516	N.A.	9,757
97	Atlantic Refining	Philadelphia	5,500	N.A.	122,000
98	Square D	Detroit	5,500	None	7,148
99	Standard Oil of Kentucky[2]	Louisville, Ky.	5,500	N.A.	11,664
100	Wheeling Steel	Wheeling, W. Va.	5,446	2,215	32,285

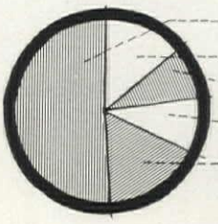
Manufacturers dominate the 100 list . . . . . and so do plant outlays.

TOTAL OUTLAYS: $1.85 BILLION



71 Manufacturing firms	$1,325,455,000	71.6%
13 Utilities	349,303,000	18.9%
7 Merchandisers	99,900,000	5.4%
4 Insurance companies	34,101,000	1.8%
3 Transportation companies	20,790,000	1.2%
2 Banks	20,100,000	1.1%
Total	$1,849,649,000	100.0%

TYPE OF BUILDING



Factories and plants	$ 596,034,000	51.8%
Office buildings	147,025,000	12.7%
Distribution facilities	109,122,000	9.5%
Research facilities	98,906,000	8.6%
Other	200,000,000	17.4%
Total outlays, 55 companies	$1,151,087,000	100.0%

one industrial firms rated spots on the list, and together they accounted for a massive $1.3 billion of building, a total which made them first in aggregate outlays among the various types of corporations. Runners-up were the 13 utility companies with construction outlays of $349 million (the average per-company outlay for utilities was $27 million, compared with $18.7 million for the industrials). Only two banks and three transportation companies made the list.

Size is no guide

One point that emerges clearly from the survey is that a company's size, measured in terms of its sales volume, is not necessarily a reliable guide to its importance as a building client. Only 46 of the industrial firms on FORUM's building list also rank among the top 100 U.S. industrial firms (in sales) in FORTUNE's 1958 *Directory of the 500 Largest U.S. Industrial Corporations*. Kaiser Steel, for example, which ranked eighth in building outlays last year, was No. 202 on FORTUNE's list; Chrysler, which was sixth in FORTUNE's *Directory* in sales volume, does not even appear on FORUM's list at all. Obviously, both industry and individual company expansion goals and estimates of future sales volume are far more important in determining building programs than the level of present sales.

The FORUM list shows that, of the total $1.3 billion spent by industrial firms for buildings, more than half, or $733 million, was accounted for by companies in just three industries — transportation equipment, electrical machinery, and primary metals. Thirteen other industries are represented on the list, but several large industries, e.g., textiles and printing, do not appear at all.

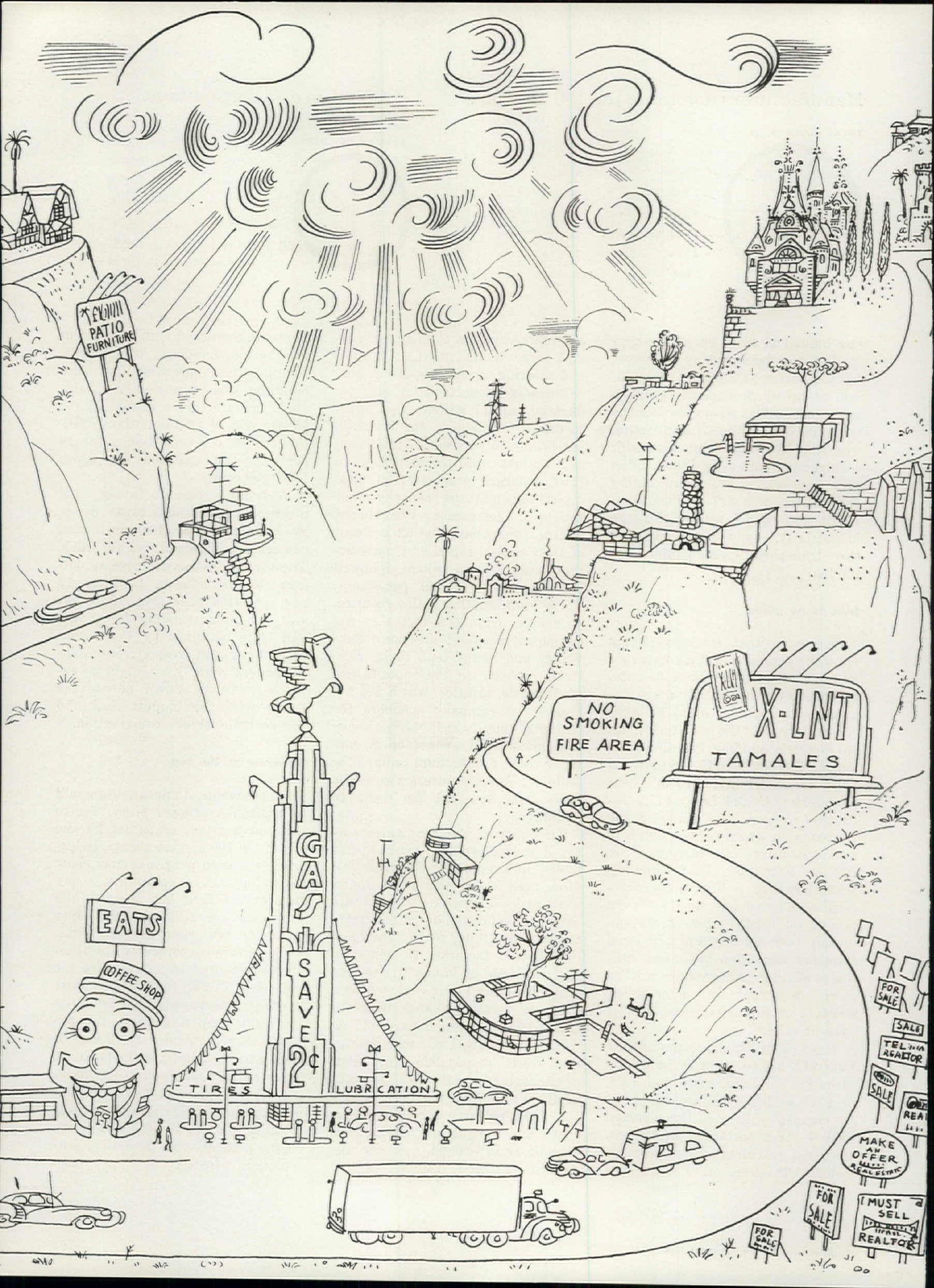
Business characteristics also influenced capital spending patterns. Insurance companies, for instance, put nearly 66 per cent of their capital outlays into construction in 1957, a larger proportion of total capital expenditures than any other group of companies. Commercial banks, which channeled 62 per cent of their capital funds into construction, were a close second, followed by merchandisers (49 per cent). These high building ratios resulted, of course, from the fact that the equipment needs of insurance companies and banks tend to be relatively modest. At the opposite end of the scale, utilities, which are the biggest per-company spenders for building, but which have heavy equipment requirements, spent only 9 per cent of their total outlays for building. Manufacturers allocated a little less than 26 per cent to buildings.

Fifty-five of the companies surveyed broke down their expenditures by building types (see chart, above). More than 50 per cent of the building outlays of these firms went into factories. Office buildings accounted for roughly 13 per cent of the total, distribution facilities 10 per cent, and research buildings 9 per cent (the remaining 17 per cent went into hangars, terminals, and shops for transportation companies, etc.). As might be expected, manufacturers were responsible for most of the factory spending (85 per cent of the total plant outlays), nearly all of the research outlays (99 per cent), and were second only to merchandisers in expenditures for distribution facilities (40 per cent of the total, compared with 44 per cent for the merchandising companies). Against this, spending for office buildings was more evenly distributed: manufacturers accounted for 48 per cent of all the outlays, utilities for 30 per cent, banks for 14 per cent, and insurance companies for 7 per cent.

Forty-nine manufacturing and utility companies also broke down, by building type, their estimated construction expenditures for 1958. The utilities expect to increase outlays for distribution facilities 12 per cent this year over 1957, but will cut their spending for plants and office buildings by 1 per cent and 13 per cent, respectively. Manufacturers' outlays, as might be expected, will be down across the board with the biggest slash, 50 per cent, in factory construction.

Turnover at the top

On the whole, it appears there will be a sizable turnover from year to year among the companies on the list of the 100 biggest clients. Industrial expansion programs may show more long-range continuity today than ever before, but many of the programs are still scheduled over three- or four-year periods. Thus, while certain corporations can probably be counted on as regulars for the list—AT&T, for instance, expands so continuously that it will undoubtedly keep a place in the top 100—other companies are likely to come and go. Whatever the make-up of the list, though, the top 100 building clients are sure to dominate business building. And as such they will continue to exert a tremendous force on the prosperity of the entire construction industry. END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REAL ESTATE
MUST SELL
REALTOR

Architecture and popular taste

There is a vitality in America's popular building, even in its roadside honky-tonk, that is exerting a strong pull on modern architecture—and vice versa.

BY DOUGLAS HASKELL

Is modern architecture molded by popular taste? The answer is that it has not been, but that quite assuredly it soon will be—in a grand new reciprocal interchange. This is not the answer that is given in modern critical writing about architecture. Indeed, popular taste has become the modern critic's favorite whipping boy. The ordinary people of America have been taxed by Britain's prestigious *Architectural Review,* for example, with creating a man-made environment that is "dreary," "corrupt," "scrofulous," "infantile," and "hopeless." A free people never before had such a wealth and range of choice, these critics lament, but what the American people have chosen is ugliness. The critics bitterly envision a twenty-first century in which the whole countryside will be covered with a combination of "Usonian Idiot's Delight and automobile graveyard."

And yet it is well to remember that art is emotional. A favorite way of greeting any strange subject, or group, or problem, is to say, "I hate you." Whenever such expressions get particularly vehement, as the artistic reproaches against the common people have since 1950, it is usually a sign of a prolonged engagement—that will surely end with a *rapprochement.* This was so 30 years ago, when the problem of architecture and the arts was "the new machine world." Plays were written like Capek's *R.U.R.,* which introduced the figure of the robot; and the German horror film of the twenties, *Metropolis,* showed armies of dread dehumanized creatures marching up and down the ramps of a vast jail-like metallic city. The industrial revolution was catching up at last with the laggard building industry, and this was the first reception of the new problem. Those architects who ultimately gave an acceptable answer to the "machine-age" challenge, by developing modern design, were not the older leaders, but new ones. And something of the same sort appears to be happening today. Now the problem is shifting away from the adaptation of design to machine production toward the highly psychological task of adapting design to an era of popular mass consumption. Once again, the new situation is bringing forth new attitudes, new leaders.

What do people really want?

Being artists, the younger architects are not content to believe that the general public really wants a blatant kind of honky-tonk. Nor would these architects produce such structures (as many manufacturers do) even if preference questionnaires seemed to demand them. What makes art art, the young architects reason, is that it penetrates beneath the surface, and helps clumsy people to a more adequate self-expression. What makes

Saul Steinberg's report (left) on America's popular taste.

From "The Passport," published by Harper & Bros., New York, copyright by Saul Steinberg.

the artist a leader is that he discovers the aim that is struggling to express itself and then identifies himself with it. He helps it to emerge in a manner more satisfactory to its originators than would have been possible through their own unguided efforts.

Under this rationale, the newer modern trend, as it has already begun to take shape, seems to fall in with three popular desires:

The first seems to be a popular demand for more decorativeness and romance than a highly intellectual architecture has been delivering: the desire is for what architectural draftsmen gruffly call "schmaltz" and what a more sophisticated critic might christen "the new Alhambra."

The second popular need seems to be for more drama: a "good show," symbolism, even fairy tales: what draftsmen might term "googie" and a critic might describe as the "new baroque."

And, finally, there are indications of a growing popular desire for an architectural counterpart to jazz—that new art form, popular in origin, which has grown into a highly demanding discipline and has greatly affected "serious" music. Its architectural analogue reflects a comparable need for free improvisation in building design, newer rhythms, freshness and readiness in adaptation. Draftsmen might call it honky-tonk; English critics have hinted at it with their own word: shariwaggi, an Indian idea.

Call it a trio of schmaltz, googie, and honky-tonk; call it the new romanticism, the new baroque, and the new improvisation; call it sweetness, symbolism, and the happy note; call it the new Alhambra, the greater googie, and the new Times Square—in any of these triads describing new trends it is possible to find evidence of the coming *rapprochement* between modern architecture and popular taste.

The new Alhambra

It has not been necessary for the younger architects to desert the fine modern style of the last 30 years in order to design something prettier. The recent career of one of the more elastic older masters, Architect Edward D. Stone, shows that it can be done through modification. The American pavilion at the Brussels Fair is his, and whatever controversies may have arisen around the show inside, the popular acceptance of the architecture itself has been nearly unanimous. This is an architecture that is literally "star-spangled." Alone among the buildings of the fair, this pavilion stands behind a water pool studded with lighted fountains; its envelope is a pretty latticed plastic screen; gold mesh is draped from its bicycle-spoke roof framing, which leads to a great ring, open to the sky, and spangled with lights like jewels; undisturbed in this great pleasure-dome there still grow the king's royal willows.

What Stone achieved in this fine popular expression of American statecraft has been carried by other architects, in the same spirit, into that stronghold of functionalism, the American factory. True, the examples are not many yet, and the factories which exhibit the new ornamental treatment are select ones. And yet the impulse is unmistakable: the efficient arrangement of the machinery of production is supplemented by the provision of pleasant outdoor courts, by pools and planting and hanging pots of flowers, for a pleasant coffee break. In the citadel of "production" there are made available some of the pleasures of "consumption." Nor is America alone in this; witness the new factories in Italy of Olivetti and his architects.

Then again some of the same sweetening, the same direct effort at a nonpatronizing popular appeal, has invaded what was once the favorite province of severe early "modernism"—minimal housing. The change is best seen in Architect Vernon DeMars' "Easter Hill" public housing development on the east side of San Francisco Bay, at Richmond. DeMars, who once regimented the Oakies of the great depression into handsome, sanitary but no-nonsense work camps, has done everything possible at Easter Hill to make the houses seem homelike, pretty, unpretentious, colorful, less like a fiat of design from above and more like a growth that might spring directly from the people.

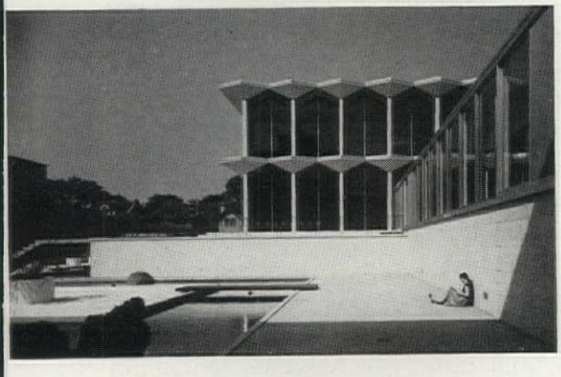
And, finally, younger architects such as Yamasaki and Rudolph have taken the new sweetness, the prettier, more popular style, onto the college campus. Appropriately, here the trend has gone deeper and possibly has become more learned. In the new academic buildings the decorative quality, which Stone and his colleagues limited to surface elements, such as pierced screens, pools, and hanging flower pots, has been carried directly into the very bones of the construction. Yamasaki's completed and projected buildings for Wayne University in Detroit (see page 78) carry this trend the furthest. The concrete columns and beams that will support Wayne's forthcoming education building are to be prefabricated in the accepted "modern" manner but with a big difference: they will be cast in the form of "trees," three stories high, that will be as decorative in their own way as the columns and spandrels of Venetian Gothic buildings. This may all be schmaltz, and its prettiness may conceal hidden architectural dangers; but if the trend prevails,

BALTAZAR KORAB

Harris Armstrong's romantic factory: "in the stronghold of functionalism, rambling walks in outdoor courts . . ."

Edward D. Stone's romantic factory: ". . . and in the citadel of production, the pleasures of the coffee break."

MARVIN RAND



BALTAZAR KORAB

Minoru Yamasaki's romantic college hall: "as decorative as Venetian Gothic; more rewarding than gingerbread."

UNITED PRESS

Disneyland: "between such flights of popular fantasy and some kinds of modern architecture, the cleft is not so deep."

the public will gain a popular architecture far more thoroughbred than most of its own gingerbread efforts, and, in the long run, far more rewarding.

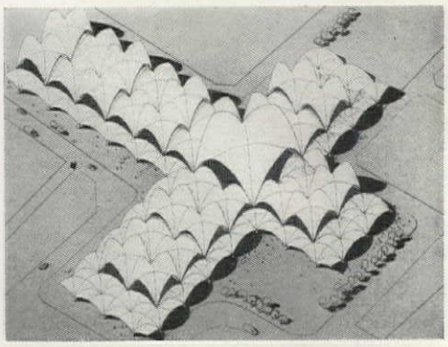
"Modern baroque"

The problem of symbolism in architecture is old, deep, and incredibly ramifying. It stretches all the way from the Gothic cathedral builder representing the vision of Heaven to the efforts of the hot-dog stand proprietor in Hollywood who builds his stand in the literal form of a hot dog. In modern architecture, symbolism has generally been a weak force, for although the great masters of the new style struggled mightily with symbolism, modern architects as a group suspected all such poetry of being literary and pretentious. More often they sought to "stick with the facts" and to "express the construction" in the hope that the most "direct solution" of the "given program" would be so clear, the "necessary form" so self-declarative, the proportions so harmonious, and the rhythm so compelling, that the prosy facts would be transmuted with no further effort into an esthetic vision. But again and again modern functional architects were embarrassed by the question: what is it—a school, a factory, or a supermarket? It was often hard to tell. And since even this relatively simple problem of "reading" a modern building was so difficult, most modern architects rejected popular "fantasy" building as being still more confusing. Only Wright dared it — Wright and then a few others like Bruce Goff, who produced unabashed fantasies leading into a land of never-never.

Now it would require a Solomon to decide just how much of the new trend in modern architecture derives directly from the popular view of things, and how much of it has been independent. But the fact is undeniable that the lines converge.

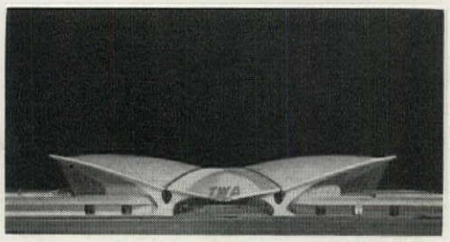
Popular building, for example, is often fairy-tale building. Obviously those who buy "Cinderella Houses" have some fantasy to indulge, as do those who build or buy "ranch houses" in the East or "Cape Cods" in the West, not to mention those of greater means who buy their own versions of English country houses or Italian palaces. The make-believe gets most intense where somebody is deliberately putting on an "act," e.g., building a "Frontier Village" (false fronts, log cabins, and hitching bars), "Storytowns" (high gables painted with daisies), or "Santa Claus Villages" (complete with *Silent Night* on the loudspeaker).

Between such flights of popular fancy and certain of the newer "modern" buildings the cleft is not so great



Félix Candela's baroque supermarket: "like flocks of surrealistic creatures."

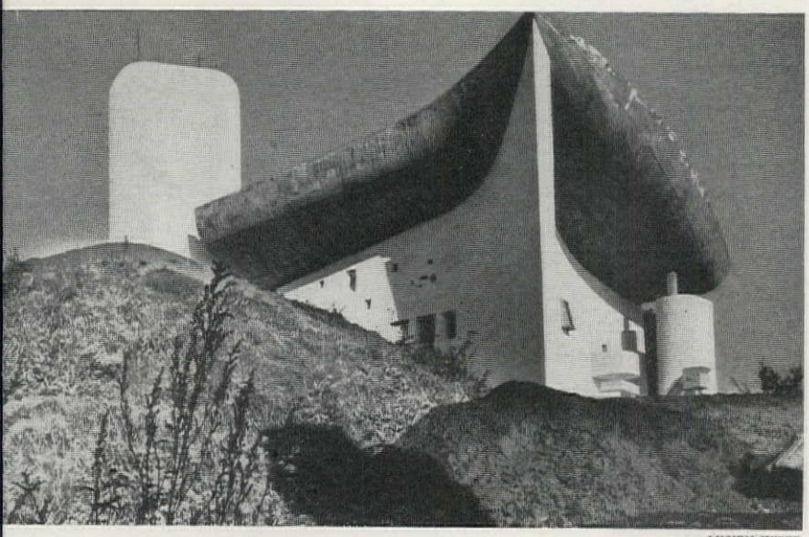
Hugh Stubbins' Berlin Congress Hall: "like an Etruscan helmet."



BALTAZAR KORAB

Eero Saarinen's baroque TWA terminal: "like a big bird, but with an esthetic standard."

Le Corbusier's baroque Ronchamp church: "like a ship's prow, but with a religious mystery."



LUCIEN HERVE

even though the official excuse of the architects has often been that they sought nothing more than "greater freedom" with the "newer more fluid methods of construction." Somehow a scheme like Candela's new supermarket for Mexico City, which is made up of a whole flock of "shell shapes," ends up in fairyland, for when seen at a distance or from above it will resemble flocks of "little creatures" not unlike those which have been painted by the surrealist Masson. Sometimes symbolism is deliberately sought in the new modern architecture; for example, in Hugh Stubbins' Congress Hall in Berlin, where the idea of "free speech" sought to escape from its abstractness into architectural expression. What was actually achieved was a kind of popularity that was quite unintentional, for the Berlin public hugged the new creation to its heart, dubbed it "the Etruscan helmet," and "the pregnant oyster."

Sometimes the symbolism is unmistakable, as in Saarinen's design for the main terminal for TWA at New York's Idlewild airport. This structure looks so much like a "big bird" that it is hard to believe it was not so tagged in the architect's drafting room. The fact that this effort rounds the circle, and that, intentionally or not, the symbolic reference to an alighting bird is just as simple and direct as it would be in popular building, does not mean that the TWA terminal will not reach a high esthetic standard. The models promise an interior not only alliterative but beautiful.

Poetic allusion can also be abstract and mysterious. Le Corbusier's church at Ronchamp, for instance, is a building that conjures up many images: is it a great hat, or a ship's prow, or the bastion of some prehistoric Mediterranean fortress? Some of its evocations are subtle. What is the significance of the great sculptured downspout? Was the jeweled cave of the interior intended in any way to recall early Christian catacombs? Where lies the magic that separates this place from "the world outside" and suits it to religious contemplation?

One new surge in modern architecture, then, is a kind of baroque— a varied architecture of drama, fairy tale, allusion, and symbol—extraordinarily different from the characteristic architecture of the previous "modern" decades. And, like all baroque architecture, the new "modernism" leaves some purist engineers bitterly complaining at the "misuse" of their technology. But the popular audience does not care. Why, it asks, should buildings concentrate upon displaying their construction? Apart from great civil works where engineering is a central element of the drama itself, "function" is nothing to get excited about. On with the show.

Jazz and honky-tonk

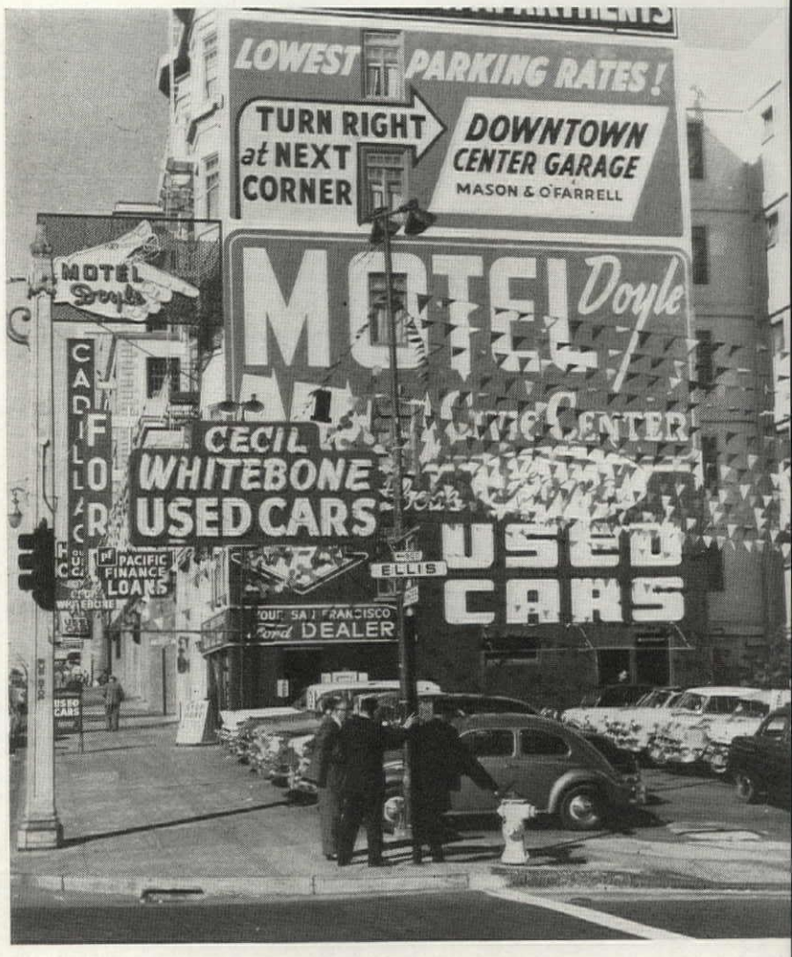
There remains, finally, the jazz simile. To compare any architectural effect with jazz is full of peril, for nobody is more finicky about his art than the jazz musician—and his audience. The fact is, however, that a completely popular creation, such as Times Square at night, irresistibly suggests improvised and syncopated music. As has been remarked by Paul Rudolph, that perspicacious architectural teacher of the younger generation, the trick in Times Square at night is that "the buildings are gone." To him this is a fascinating indication of the possibilities in new and different kinds of architectural "places." The buildings of Times Square at night are reduced to the barest suggestion of a scaffolding to support the real "show" that goes on—a show of many-colored lights, in lines, patches, and floods, flashing each in its own tempo. If the beholder will relax and surrender himself to it, the effect is quite hypnotic—as in jazz. By day the effect is very different, but once more it resembles nothing known in conventional and sophisticated architecture either traditional or "modern." The feeling is more like standing surrounded by the pieces of a gigantic abstract painting. And, as the photos on this page show, precisely this combination of material has been used by painters such as Stuart Davis for their compositions.

What does this musical and painted world mean for the architectural future? Who can say, except that it attests the vast possibilities that still lie ahead in free and popular improvisation? And, where other lines of popular development are full of symbol and fairy tale, the effect of this architectural improvisation, like the effects of jazz, is "popular" yet wonderfully abstract.

Such, then, are a few of the possibilities, a few of the tentative maneuvers, in the *rapprochement* between popular taste and modern architecture. It cannot be expected that the appearance in modern architecture of decorativeness, of symbolism, and of improvisation, will change the look of America overnight. Sensitive men, for years to come, will still find their stomachs turning at many a stretch of "Idiot's Delight and automobile graveyard," studded by poles, decked in hideous colors, and swathed in wire. Most people will remain visually untrained and they will often prefer the inferior to the superior. And yet, just as the great threat of "the machine" was reduced in thirty years to more nearly manageable proportions by modern design, so with time and sympathetic feeling modern design may make some impact on the threat of the democratic wilderness. It will not happen any other way. END

WILLIAM J. CARTER

Times Square honky-tonk: "as in jazz, the tempo hypnotizes."

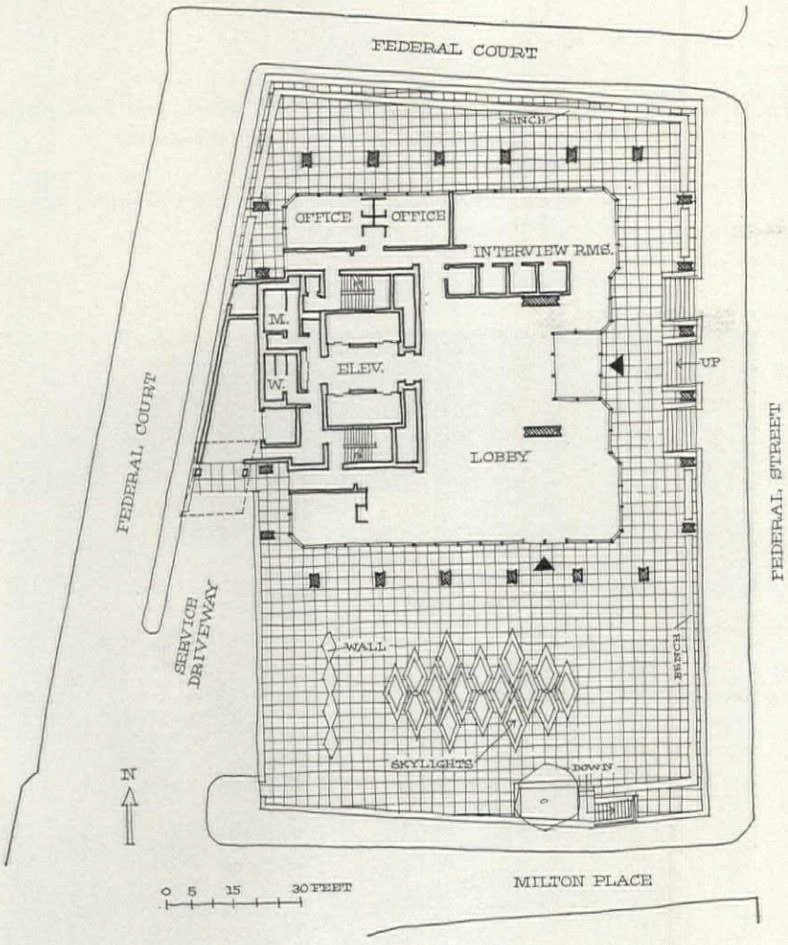


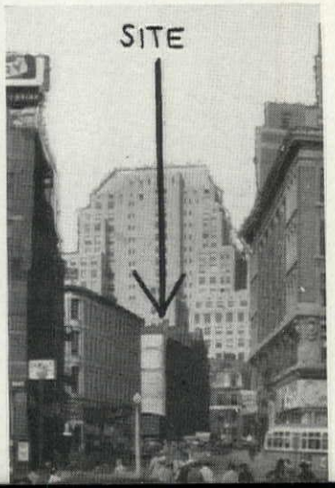
San Francisco honky-tonk: "surroundings like the pieces of a gigantic abstract painting. . . . This jazzy composite of signs and glitter has been used by painters (Stuart Davis, below). What does its razzle-dazzle mean for architecture?"


Reed's
Foot-joy
CHARLES PERKINS CO
OPTIMC

Richly expressive of its structure, this deeply ribbed Boston headquarters of Blue Cross–Blue Shield is a handsome new merger of function and form.

Pattern with a purpose





Freestanding tower of the new Blue Cross–Blue Shield building will be set back among older neighbors on Boston's Federal Street (sketch left, photo right). The tower will cover only half of the 20,000 square foot site, leaving a small, sunlit plaza to the south (see plan above). This open space will be ringed by benches, animated by diamond-shaped skylights over an employee cafeteria in the basement.

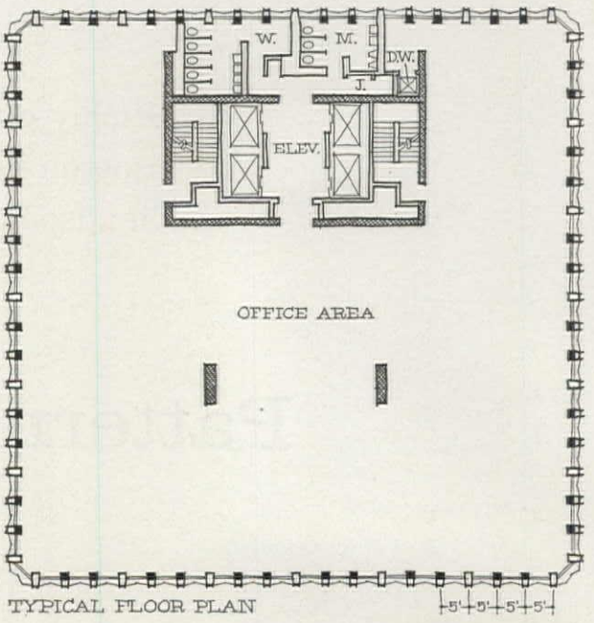
Modern architecture's reawakening interest in shapes and shadows is beginning to catch up with the office building, an old customer that lately has been getting an overdose of sleek and shiny fronts. Some of the signs are apparent in this new $4 million headquarters for Massachusetts Hospital Service, Inc. and Massachusetts Medical Service, Inc. (Blue Cross and Blue Shield plans), now under construction in Boston's financial district.

Seen up Federal Street from near South Station (sketch and photo, left), the new Blue Cross–Blue Shield building will be unusually sculptural, both in its treatment of mass and in its expression of structural and mechanical systems on the exterior. Architects Anderson, Beckwith & Haible and Paul Rudolph have set a 12-story tower atop two basements containing an employee cafeteria, storage and mechanical rooms. The upper basement emerges slightly from the sloping site as a functional and decorative pedestal for the building, and also provides a welcome little plaza downtown.

The four façades of the tower atop this pedestal are heavily shadowed by vertical ribs, and chamfered at the corners to heighten the building's freestanding, rounded effect. At the ground floor a colonnade of Y-shaped concrete supports gives the building a powerful base. Reminiscent of the tree-form Gothic framing of Viollet-le-Duc and the Art Nouveau forms of Antonio

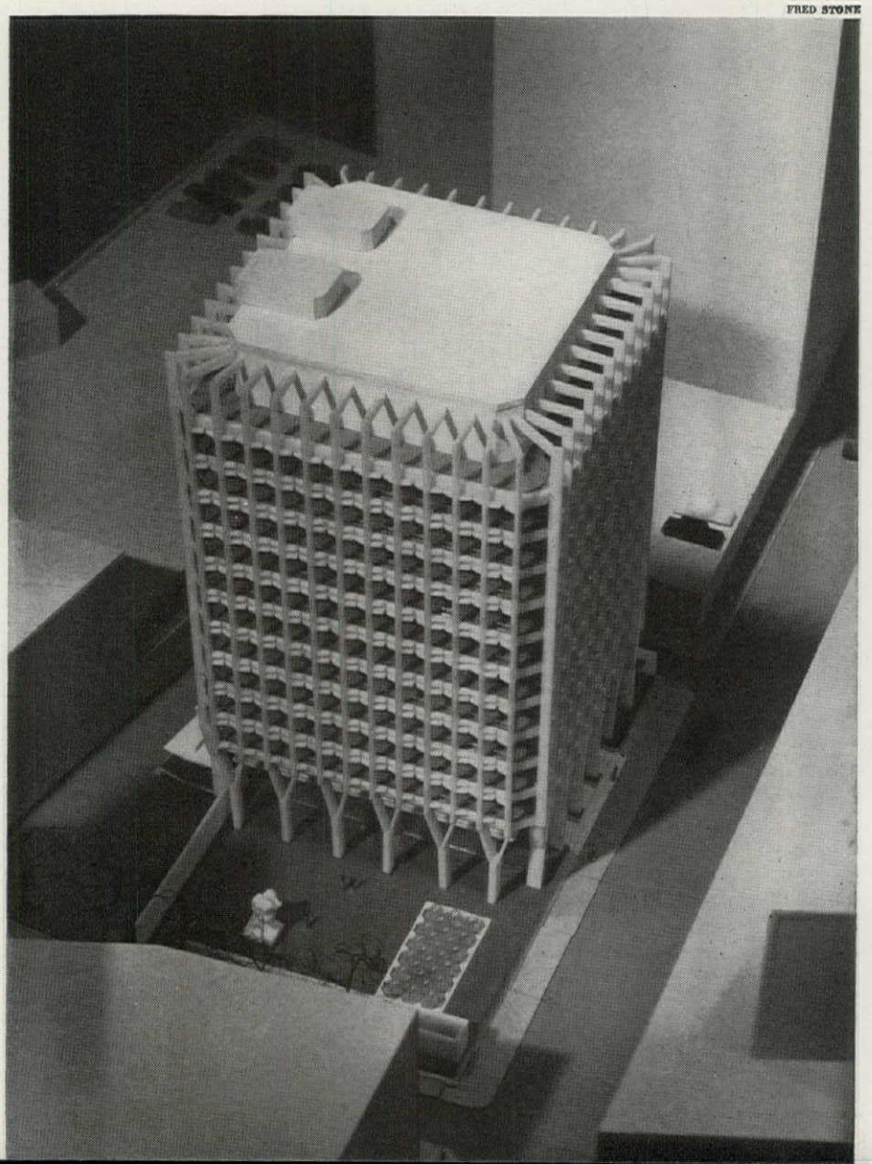
Gaudi, these pillars hold up pairs of exterior concrete columns, which also carry exterior air-conditioning ducts. The ducts join at each floor in air-mixing chambers, expressed on the exterior by thickened V-shaped spandrels set between small concrete sunshades (see details, opposite page). Between the pairs of structural columns, hollow shafts carry air back from the office spaces to fan rooms on the roof. Although these shafts start slightly higher than the line of Y-supports, they are otherwise identical in appearance with their structural neighbors. Even in this building, therefore, the differentiation between structure and nonstructure is not fully expressed. To give even more life to the deeply ribbed façades, columns and spandrels are covered with textured slabs of light precast concrete, overlapped at the joints and faceted to catch the light.

Within this highly sculptural frame, the building will provide highly usable office space. A 95 foot square plan with a compact service core placed at the back gives each floor a large net area of some 8,000 usable square feet out of a gross area of 9,000 square feet, and allows a single manager on each floor to supervise a clerical pool of 100 people (see floor plan, right). The core has load-bearing walls of reinforced concrete, supporting themselves and part of each coffered concrete floor slab; the remainder of the load is taken by two large concrete columns opposite the core, and by the smaller columns around the perimeter. Set flush with the inside of the exterior wall and spaced 5 feet apart, these perimeter columns yield an unbroken interior wall surface easily adaptable to partitioning for offices 10, 15, or 20 feet wide.

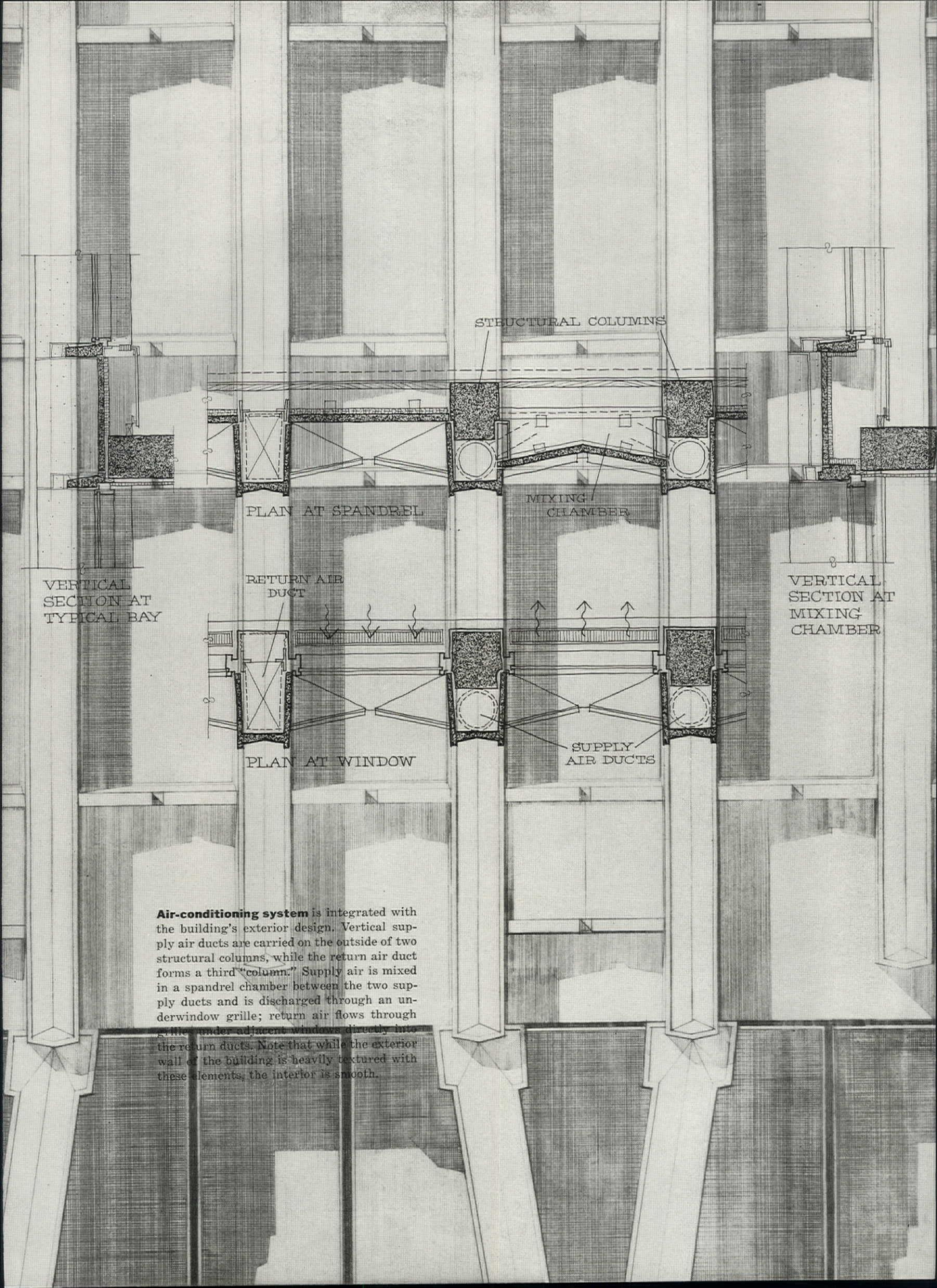


ASSOCIATED ARCHITECTS: *Anderson, Beckwith & Haible and Paul Rudolph*
ENGINEERS: *Goldberg, LeMessurier & Associates (structural)*
Paul Weidlinger (structural consultant)
Stressenger, Adams, Maguire & Reidy (mechanical, electrical)
GENERAL CONTRACTOR: *George A. Fuller Co.*

FRED STONE



Model shows air-conditioning ducts combined with pairs of structural columns reaching octopuslike up to fan rooms in the penthouse. This strong expression of the building's actual mechanics was intended by Architect Rudolph as an "ending" to match the building's treelike "beginning." But along with the addition of separate return-air shafts on the façades, this openwork on the roof was filled in to accommodate larger mechanical spaces and to reduce building costs.



Air-conditioning system is integrated with the building's exterior design. Vertical supply air ducts are carried on the outside of two structural columns, while the return air duct forms a third "column." Supply air is mixed in a spandrel chamber between the two supply ducts and is discharged through an underwindow grille; return air flows through grilles under adjacent windows directly into the return ducts. Note that while the exterior wall of the building is heavily textured with these elements, the interior is smooth.

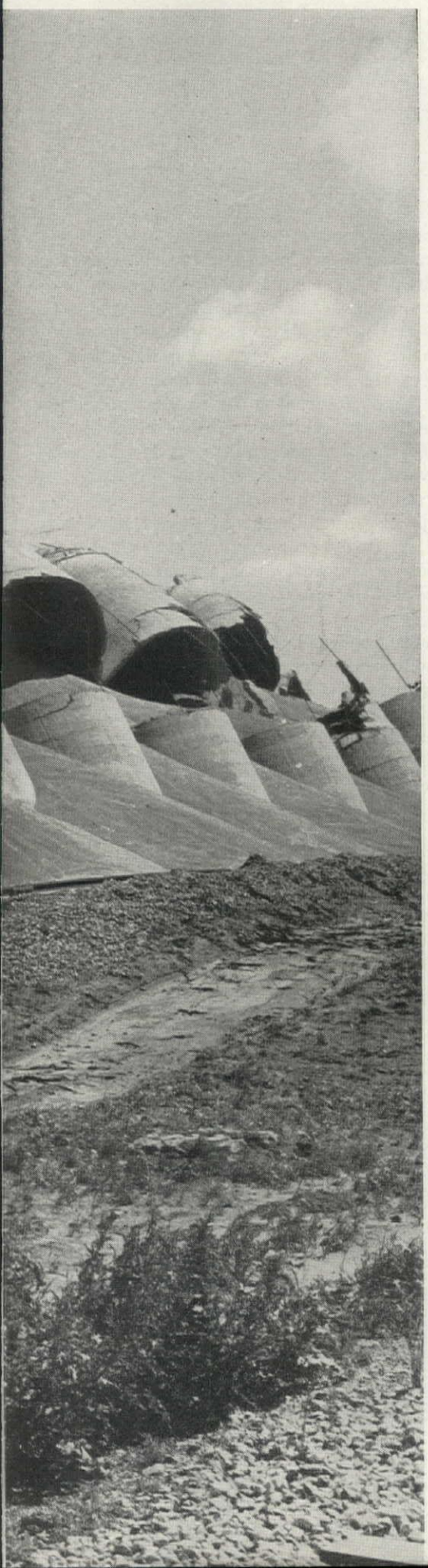
Technology

How firm a

PHOTOS: CAL OLSON

building foundation?

BY DAVID ALLISON



The solid science of soil behavior is a vital element in modern building design, but its principles are sometimes disregarded, leading to excessive costs and occasionally to disaster.

Today, through the science of soil mechanics, it is possible to predict how much a building will settle during its lifetime. The building may then be designed to allow for a certain amount of settlement without damage, or it may be designed to allow virtually no settlement at all, on land which only a few years ago would have been considered too unstable for any substantial building. Indeed, through further study of soils and of how to modify them with chemical additives—a development only at its beginning—it may be possible someday to prepare whole building foundations by simple injection of chemical agents, upgrading for use large tracts of now hopeless, submarginal land. And with good sites rapidly disappearing under the population explosion, the foundations of the future rest on these soil sciences.

Many architects and some structural engineers fail to take into account the present abilities of soil mechanics, even though it is one of the most advanced of the building sciences through research, and nothing would seem more fundamental to building. Soil science is only about 30 years old, and the holdover of empirical methods by which foundations were previously designed—too often taking the solid earth for granted—is still sufficient to cause one building to collapse somewhere in the world each year, and to cause other untold damage and expense. A recent horrible example is the $1 million that will be required to shore up England's historic, dowdy, three-story No. 10 Downing Street, built shallowly in 1735 on shifty soil and in need of constant repair. Problem sites are multiplying and foundation costs constantly growing, usually taking anywhere from 5 per cent to 20 per cent of the total building cost for sizable structures. Hence, the architect must now, more than ever, be familiar with the science of soil mechanics. By sensing potential foundation problems before committing himself to a building design, the architect can check costly damage.

FAULTY FOUNDATION DESIGN probably caused this huge grain silo near Fargo, North Dakota, to topple over shortly after it was loaded with grain, in 1955.

This variable earth

The major fact that the soil scientist has brought to architectural and engineering consciousness is that soils cannot be treated like any other building material. The earth is a most complex combination of dissimilar materials, some solid, some gaseous, some liquid. Even within the solids there are wide differences between seemingly similar materials. Thus, the clays—the most prevalent soil types, and the most troublesome—come in many varieties: some more cohesive than others, some more plastic, some with greater capacity to absorb water and to swell. Moreover, the earth is never homogeneous. A typical building site may contain a great number of different soils, and their interaction is as important in determining soil characteristics and behavior as the physical properties of the soils themselves. This interaction of different soils is a key element in soil mechanics, and its close study on the molecular level—where the earth becomes a hotbed of exchange reactions—is the basis of the new chemical soil stabilizers. During the next ten years, the technological developments in this area, by soils scientists, are likely to be as significant as the design refinements

of the practicing foundations engineers.

It is important that the architect and structural engineer understand something of the complexity of soils and the breadth of soils mechanics, which are closely connected with the problems of building design. The link between foundation and structural design is usually recognized in schools of civil engineering, where both are in the curriculum. But the connection is less often seen in schools of architecture, where even a brief encounter with foundations would benefit the student, if only to pique his awareness of the many different soil conditions likely to prevail beneath his buildings and the direct effect of architectural design on the problems (and expense) of designing a foundation. One prominent foundations engineer says that lack of understanding often leads to excessive foundation costs. "In every building," he explains, "including those which apply the soundest principles of foundation design, some allowance should be made for building settlement. Otherwise, foundation costs become quite high. Yet, in many instances, if the architect is asked how much settlement he has allowed for in his design, he looks shocked and says, 'Why, none.'" And all too often, the architectural design is established before the foundation engineer is consulted, leading frequently to costly redesign.

A two-hour lecture on basic principles of foundation design would give the architectural student at least something of the principles used in designing foundations on soft ground, which, of necessity, is the ground of the future. He would learn, for example:

▸ That the oldest principle for limiting settlement is still the most important one. This is the principle of transferring loads by means of piles, piers, or caissons. Modern methods of constructing such foundations, e.g., the use of long steel piles, have extended substantially the usefulness of this principle.

▸ That buildings can "float" on weak soil, as long as the total weight of soil removed from the site is equal to the weight of the building which takes its place. This is the same principle by which a ship floats.

▸ That tall structures must be stiff, lest they be damaged by settlement, but that low, sprawling steel-frame structures usually need stiffness and protection against excessive differential settlement only at their outside walls.

▸ That periodic jacking can be an economical, simple, and effective method of keeping local settlement within tolerable limits. This is a particularly sound method for industrial buildings, but to date, it has not been extensively used.

WILKINS

KARL TERZAGHI, father of the modern science of soil mechanics, is the only man ever to win the Norman Medal of the American Society of Civil Engineers four times: in 1930, 1942, 1946 and 1955 for papers which made fundamental contributions to the science of soil mechanics. No one else has ever won it more than twice. Terzaghi, now a resident of Winchester, Mass., is still one of the busiest foundation consultants in the world. In two months, he will celebrate his 75th birthday.

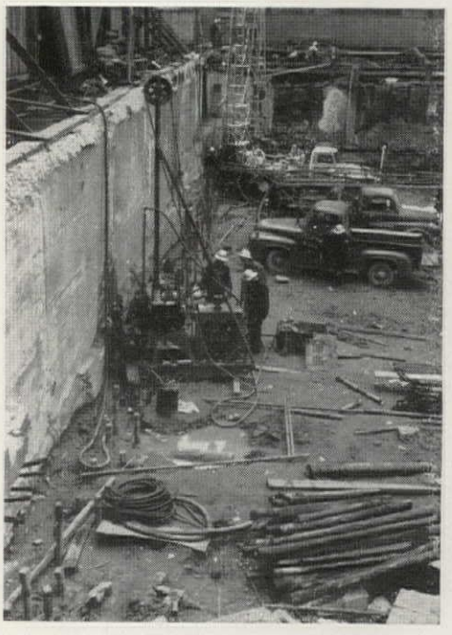
The foundation's founder

The man who put the foundation under all this was Karl Terzaghi, a brilliant young engineer from Austria. Bewildered over the delayed settlements of buildings he had constructed, he wrestled with the inconsistencies in the field for many years, and in 1925 wrote a book which established the link between engineering geology and foundation engineering. Terzaghi worked out methods for testing theories of soil behavior and developed ideas in soil testing. Probably his most important contribution, of the scores which have since stemmed from his early work, was formulation of the theory of soil settlement and methods for determining how much settlement to anticipate and at what rate.

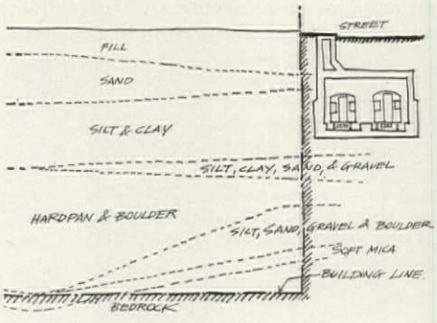
The elder generation of foundation engineers were aware of many of the "laws" of soil behavior, but they understood the science only by intuition, and only after many years of experience. Once Terzaghi transformed this disorganized body of information into a formalized body of fact and theory, soil mechanics became a much more usable instrument for the engineer, because he was better able to understand soil behavior and, therefore, to predict it.

Terzaghi's science of soil mechanics has been internationally recognized since the early thirties. He has taught in the U.S. for many years, at M.I.T., Harvard, and the University of Illinois, and still carries on a thriving consulting practice, both here and abroad. By 1946, virtually every civil engineering school in the world was teaching the principles of soil mechanics which he had developed.

As it developed, the new science of foundation engineering showed a striking parallel with architecture. In both architecture and foundations, problems never quite repeat themselves and, thus, proper solutions can never be quite the same. This is not so true in such fields as structural engineering,



HUGE BASEMENT of Chase Manhattan Bank building (below) had to be nestled among two subway lines and nine neighboring buildings, a foundation problem which demanded painstaking precautions by Foundation Engineers Moran, Proctor, Mueser & Rutledge. Before earth could be removed from one section, chemicals had to be injected into the earth, photo right. Thus, sandy soil was held firm and made impermeable to water, enabling constuction of perimeter cofferdams without troublesome compressed air techniques.



where design can be empirical and repetitive, based on the performance of structures already built. And in other engineering fields, such as mechanical and electrical engineering, there is often an even more direct transfer of applied knowledge from one building problem to the next. But at the site of a foundation, the problems are always new and, indeed, often will differ from one spot on the site to another, because, as Terzaghi says: "Unfortunately, soils are made by nature and not by man, and the products of nature are always complex."

This complexity of nature, always bedeviling the foundation engineer, was really the challenge which attracted the creative scientist to the field, just as they are attracted to atomic science and solid state physics, where there are vast areas of unknown. Today, the soils scientists are working in four research areas, transforming this once callow tool of building to a valued design instrument:

▸*The fundamental characteristics of soils:* Still in an exploratory state, this is probably the most basic of research areas. The scientists who work in this field are interested in finding the fundamental sources of soil strength and the effects of chemical additives on soil behavior (see box, page 118).

▸*The engineering characteristics of soils:* Still basic research, but further ahead than the work in fundamental characteristics, the study of engineering characteristics is yielding some of the first reliable information on load-bearing capacity of soils. Basic work was done in this area by Terzaghi.

▸*Theories of soil behavior:* Much theoretical work has been done in this area, dating back to the eighteenth century, when the French were prolific expounders of new theories of soil behavior, e.g., strength and permeability, but less successful in proving them. Even today, there are some 100 theorists in the field, including physicists, geologists, chemists, mainly in England, Western Europe, and the U.S., with new theories of water flow, earth pressure, bearing capacity, stress distribution, etc. The field is now in a testing state, for most of these ideas are still to be proved.

▸*Field observation:* Without accurate means of measuring the actual behavior of foundations—e.g., techniques for determining degree of settlement and load-bearing capacity—soil scientists could not prove the soundness of their theories and foundation engineers would not know much about the efficiency of their designs. This problem plagued the field during the early years, and it was not until the 1930's that adequate measuring devices began to be developed. Today, this is an extremely active field and a keystone for future scientific development.

Terzaghi's underground

The introduction of soil mechanics into the academic program attracted not only engineers, but also scientists into this field, e.g., chemists, geologists, physicists. The effect of this change was not really felt in building until about 1945.

One of the first engineers to carry Terzaghi's principles into U.S. construction was Arthur Casagrande, now a professor of soil mechanics and foundation engineering at Harvard, and still one of the world's leading consultants on foundation problems. Casagrande came from Europe in 1926 and worked for Terzaghi for several years. Casagrande has vitally influenced the

continued on page 118

The varied foundation problems of American cities

Many cities, flouting the Biblical injunction against building on sand, could hardly have chosen worse sites for their construction. Foundation problems, however, differ widely from city to city, as the selected list below indicates. The information here was provided by two eminent foundations engineers: Dr. Ralph B. Peck, of the University of Illinois, and Dr. Philip C. Rutledge, of the New York consulting firm, Moran, Proctor, Mueser & Rutledge.

DENVER: Bedrock is encountered at fairly shallow depths downtown—from 20 to 60 feet. However, in the residential southeast, subsurface soil is a fine-grained material which sometimes decreases in volume and collapses when submerged in water; lawn irrigation has sometimes led to considerable house damage, e.g., cracked basement walls. In other sections, surface materials consist of clays which behave in quite the opposite way, swelling and heaving in water, but with the same effect: cracked walls.

DETROIT: Bedrock, a fairly sound limestone, is found at depths of 60 to 90 feet. Most of the soil above bedrock consists of soft, compressible clays. Thus piles or piers are necessary for all important structures. Many buildings can rest safely on shallow foundations, because of the presence of a stiff clay crust which is capable of supporting lighter loads. However, borings and soil tests are necessary to determine whether a particular location can support an industrial structure of moderate size, or whether it must have a deeper foundation.

NEW ORLEANS: For all practical purposes, there is no firm base or bedrock beneath New Orleans. Soft delta deposits extend to depths of several thousand feet. Long pile foundations are used extensively here, and careful subsurface exploration is required to avoid damaging settlements. A famous case of excessive settlement, before widespread knowledge of soil mechanics, was the construction of the Charity Hospital in 1939. During construction, the building required extensive strengthening, due to settlement and cracking. Since then, it has settled about 1½ feet. This structure accelerated the acceptance of soil mechanics in the area.

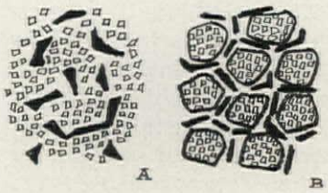
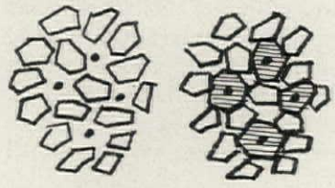
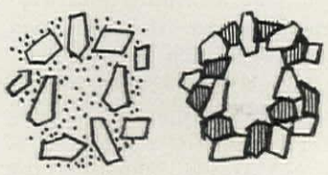
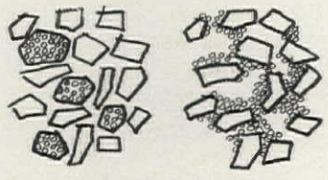
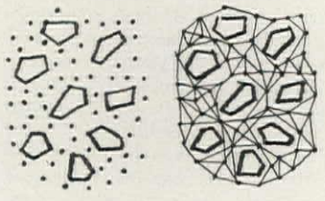
SAN FRANCISCO: Depth to bedrock in San Francisco is extremely variable, due to the earth-shaping effects of the great glaciers, which cut extensive valleys in the bedrock. Today, these deep gorges are filled with sand, silts, stiff marine clays, and soft bay muds. Famous Market Street has settled about 50 inches during the past century, and continues to sink about ½ inch every year.

MEXICO CITY: Subsoil conditions here are among the worst in the world. The city is located on the edge of a former lake, into which silts, sands, and clays have washed from time to time. Certain of these clays are very compressible and as a consequence much of the city is subsiding rapidly. Until the development of modern soil mechanics, successful design and construction of large structures in the city was nearly impossible.

NEW YORK: This area includes virtually every kind of foundation problem. A glacial lake once covered the area, creating alternating deposits of clay and silt whose depth to bedrock varies from 25 to 175 feet, sometimes within a city block. In areas of thick clay and sand, builders for 20 years have been putting up 20-story structures on shallow foundations instead of piles; such buildings will settle, sometimes as much as 2 or 3 inches, but this is anticipated in the structural designs. In other areas, notably the Upper West Side, the Bronx, and parts of Brooklyn, there are deep salt-marsh deposits, requiring costly pile driving. Mid-Manhattan's famous hard-rock base, close to the surface, on which some of the city's tallest buildings are built, is the nearly ideal condition.

CHICAGO: Most of Chicago is built on deep strata of compressible clay, but in only three areas are there serious foundation problems. One is in the northern part of the city, near Evanston, another is in the central business district, and the third is a small zone in the southern section. Much industrial development is taking place on the west side and in the southwest; the presence of stiff soils at shallow depths in these areas has influenced the city's recent industrial pattern. Only those industries which require water transportation are forced to positions where foundation conditions are difficult.

Five ways soil can be stabilized

	THE REACTIONS	SOIL TREATMENT METHOD	WHERE USED; COST
ASPHALT STABILIZATION 	There are two asphalt techniques: A. A solution of asphalt-gasoline is mixed with wet soil and droplets of asphalt are distributed among the soil particles. B. The wet soil is mixed with asphalt-gasoline and amines, which cause asphalt to encapsulate clusters of soil particles.	Additives are mixed mechanically with soil, using standard field equipment. Soil remains somewhat flexible, with reduced water absorption and frost susceptibility. Dry strength is unchanged, but wet strength is improved, particularly when amines are added.	For coarse or moderately fine-grained soils, where excavation and mixing are practicable: e.g., for highway subgrades, dam facings. Cost: between $4 and $15 per cubic yard for materials.
CEMENT STABILIZATION 	Wet soil is mixed with cement; a gel of calcium silicate forms when the cement reacts with water, binding soil particles together. Soil minerals appear to react with additives, such as caustic soda and sodium silicate, improving cement stabilization.	Cement is mixed mechanically, with standard equipment. Soil's dry strength is improved; product is hard, brittle, less permeable. Additives improve its properties further, sometimes reduce cost of stabilization.	For coarse and moderately fine-grained soils, where excavation and mixing are practicable: e.g., highway subgrades; ditch linings, surfacing of secondary roads. Cost: between $3 and $11 per cubic yard for materials.
PHOSPHORIC ACID STABILIZATION 	Addition of phosphoric acid to fine-grained alumina silicate soil yields phosphates of aluminum and silicon. These phosphates form cementlike gels between soil particles.	Acid is mixed mechanically. Soil has better dry strength and good strength retention in water. It is rigid, with reduced permeability and frost susceptibility. Mechanical mixing may be eliminated in the future, i.e., acid will be applied to surface, seeping down into soil.	For moderately to extremely fine-grained soils, but not applicable in arid regions (where soils are alkaline). Potentially useful for highway subgrades, dam facings, rammed earth construction, subsurface stabilization by injection. Cost: $2.50 to $35 per cu. yd. for materials, depending on soil type.
CHECKING WATER FLOW WITH DISPERSANTS 	A chemical dispersant, e.g., tetrasodium pyrophosphate, is adsorbed on small clay particles, causing the particles to repel one another; particles then redistribute through the sand, plugging pores between sand grains.	In clay, mixing must be done mechanically, but in coarse-grained soils, dispersants may be applied at surface. Dispersants yield marked reduction in permeability and frost susceptibility. Soil becomes stronger.	For relatively coarse-grained soils containing some clay, and where water seepage is serious but soil solidification is not essential. Uses: to prevent water entry into foundations, water seepage from reservoirs. Very inexpensive: 20¢ to $1 per cubic yard for materials.
ACRYLAMIDE STABILIZATION 	Two organic monomers are dissolved in water. A catalyst is added, causing the monomers to link in long, flexible cross-linked chains. This forms a stiff matrix, with water molecules and soil particles bound tightly inside it.	Chemicals are injected into soil, can also be mixed or sprayed on. The gel seals voids, prevents water passage. Strength of soil mass is improved some. Chemicals do not react with soil particles, only with each other.	Used to seal off underground water flow in basements, tunnels, mine shafts, and to solidify granular soils. Now very expensive: $40 to $70 per cubic yard for materials. Difficult to work with, because materials are toxic.

SOURCE: Dr. Alan Michaels, Soil Stabilization Laboratory, Massachusetts Institute of Technology.

design of numerous important buildings in Boston and other cities. The best-known among these is the New England Mutual Life Insurance building, completed in Boston in 1942. It rests on a floating foundation, i.e., sufficient soil was excavated from the site to compensate for the entire weight of the building, so that the stresses in the thick stratum of underlying soft clay were essentially the same after completion of the building as they were before. The maximum differential settlement which developed in this building is only about 1 inch in contrast to the large differential settlements which have developed in other buildings in that area for which the principle of flotation was not used.

It is common in the foundations field to find such men as Casagrande, a leading teacher of theory, doing an extraordinary amount of practical outside consulting work. One reason for this, of course, is that there are still few men who are well-grounded in both soil mechanics theory and its applications in design. And, moreover, it is quite impossible to separate the two—theory and practice—without crippling both. Thus, today, it is not unusual that among the top foundation engineers in the field one finds also some of the leading theorists and research men, including:

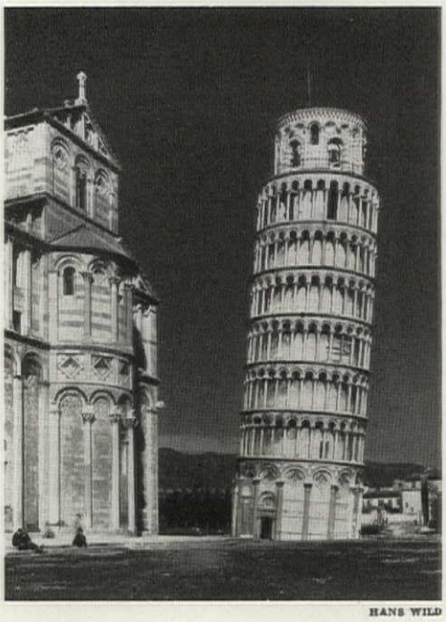
▶ Leo Casagrande, brother of Arthur, a well-known foundation engineering consultant, both in Europe and the U.S., is noted for his invention of the electro-osmotic technique of soil stabilization (opp. page). Since 1950, he has taught soil mechanics at Harvard.

▶ Philip C. Rutledge, now a senior partner in the New York consulting firm, Moran, Proctor, Mueser & Rut-

ledge, was for many years a professor of soil mechanics at Northwestern and Purdue. In his academic research work, he made important discoveries in the field of clay consolidation, as well as developing improved methods for making field observations of settlement.

▶ Ralph B. Peck, professor of foundation engineering at the University of Illinois, was in charge of soil testing and field observations for the City of Chicago from 1939 to 1942, during the construction of the city's subway system. At Illinois, Peck and his associates devote roughly half of their time to field investigation and observations. Peck, like most teachers in the field, believes fervently that soil science must be blended with field experience. He says: "One of the most dangerous men a student can be exposed to is the instructor who has learned soil mechanics and nothing beyond it. Soil mechanics alone can only define the limits of applicability of experience."

THE LEANING TOWER OF PISA, classic example of building settlement, is a thriving tourist mecca today because twelfth-century engineers misjudged the effect of the building's weight on the water-laden clay beneath it. The Tower leans because the subsurface clay was more compressible on the side which now leans outward. Settlement continues even today and it is likely that the Tower will topple over eventually unless its foundation is strengthened. Through modern soil mechanics, several methods have been developed by which further tilting could be prevented. One technique would be to apply electroosmosis, a soil-stabilizing method developed by Leo Casagrande. With electroosmosis, heavy currents of electricity are sent through watery soil; the water, attracted to negatively charged well points, is drawn out of the clay. Applied at the site of the Tower (on the side of lesser settlement, at left in photo), electroosmosis would cause the building to settle back somewhat, i.e., straightening slightly. When the electricity is switched off, the building will thenceforth rest more firmly on its strengthened foundation.



HANS WILD

Research bores in

The problems of soils' unpredictable behavior affects areas other than building foundations. Yet, research going on in these areas often benefits building. An example is the development of chemical soil stabilization. The field had its beginning more than 30 years ago, with such compounds as sodium silicate and calcium salts, used to reduce the water permeability of subsurface soils. But this infant science was not accelerated until after World War II, when the U.S. Corps of Engineers sponsored research in hopes of finding a chemical which could be spread over a strip of land to strengthen it sufficiently so that it could be used as an airfield. Considerable research was carried on at Cornell University, at the U.S. Corps of Engineers' research station in Virginia, and at Massachusetts Institute of Technology, where the government's research activity led to the establishment of the school's Soil Stabilization Laboratory. The result was a costly chemical process which could rapidly convert certain clays to a hard-rubber consistency, though its effects were only temporary.

Since 1953, American Cyanamid Company has extended this research activity, in cooperation with M.I.T., and has developed a related process to control underground water by chemical injection (see box, opp. page). The essential chemicals, a pair of organic monomers which dissolve in water, form a flexible gel when a catalyst is added. Cyanamid is producing the chemicals in limited quantities; to date, the process has been used on more than 20 construction projects. It has limitations, to be sure: it is costly, though costs will come down with volume production; it is toxic, meaning that only experienced workmen can work with it; it will work only in those soils which are permeable to water. Still, a beginning has been made, prompting more research such as that at M.I.T., under T. William Lambe and Alan S. Michaels, which is directed toward unraveling the mysteries of soil behavior and structure as well as developing inexpensive chemical techniques for improving soil stabilization with materials such as cement, lime, asphalt, and phosphoric acid.

Likewise, in other nonarchitectural areas, such as at the U. S. Bureau of Reclamation and the U.S. Corps of Engineers' Waterways Experiment Station, at Vicksburg, Mississippi, research is going on in soil solidification and permeability, i.e., why some soil types are more penetrable than others, and in the measurement of pressures exerted within various soil particles when loads are applied to them. This work, in dams, airfields, and roads, is already broadening the knowledge of water's behavior in many types of soils, some of which are common to building sites. And at Iowa State College, in research originally set up to increase the stability of state roads and highways, much fundamental work is underway in determining the effects of chemical additives in soils and asphalt.

All this work, plus world-scattered projects at dozens of other universities, including the Imperial College in London and the Norwegian Geotechnical Institute in Oslo, is leading toward new economies in foundation design. With the developments made by Terzaghi and others who followed him, foundation engineering has unveiled many of the mysteries of building settlement, such as the long-misunderstood phenomenon of delayed settlement, where a building would stand firm for several years, then slowly begin to sink.

The research yet to be done will reveal more about the fundamentals of soil chemistry and physics, such as the nature and origin of the electrical forces which are created between soil particles when loads are applied to them, and the chemical interactions of water and various soil types. Without this fundamental knowledge, the science cannot move ahead. For example, through direct experiment the scientists have learned that certain soils react with chemical additives, becoming stable and strong when the chemicals are introduced, while other soil types are unaffected by the presence of these chemicals. In order to develop chemicals which will stabilize any kind of soil, the scientists must learn, through basic research, *why* some soils react while others do not. Knowing this, they may some day be able to introduce new chemicals which will cause virtually all soil types to stabilize, leading ultimately to techniques for strengthening great sections of marginal earth by means of chemical injection. This is the great future of soil mechanics. END

Apartment building from the

inside out

In this new Swedish system, a concrete core is first erected, then prefab concrete sandwich panels are hoisted up around it.

In Sweden, where building-labor costs are proportionately almost as high as in the U.S. and the housing shortage is even more pronounced, there is going on an intensive and systematic development of prefabrication. The newest development is a core system of building, devised by Allan Skarne, head of Byggnadsfirman Ohlsson & Skarne AB, large Stockholm contractors, which may soon be transported to the U.S. The Skarne system combines prefabrication with a highly organized mechanization of operations at the site. It was put to the test recently in building a $6 million apartment-house complex at Ragsved, a suburb of Stockholm, where it cut the labor force and construction time about in half against traditional methods of similar construction.

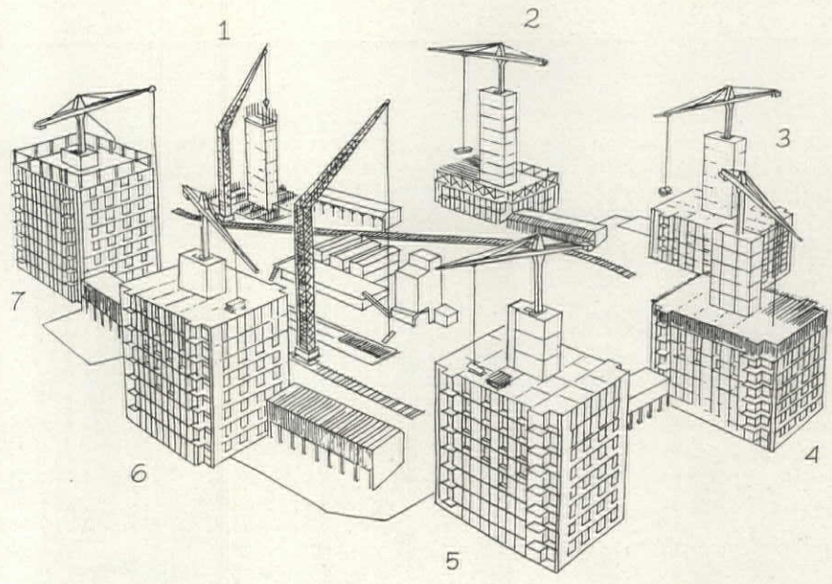
The Ragsved project, designed by Architect Ernst Gröenwall, consists of seven freestanding buildings in a park-like area, ranging from nine to 13 stories high, and containing 281 apartments of three to five rooms each. The major part of the construction is prefabricated concrete slab. Altogether, excluding sitework and foundations, the bare structures went up in about five months. The total labor force was 76, divided into two teams under six foremen. (It included only one skilled worker, a mason, to help build a chimney on the central heating plant.) The force hit a construction rate of nearly one full floor per work week. On time saved alone, there was a saving of about $170,000 in interest charges on the project through faster payoff. To achieve this speed required a coordinated construction plan, sharp preplanning, factorylike prefabrication of units on the site, and a total investment in machinery and equipment of some $200,000.

Skarne system at work

The central idea of the Skarne system is to construct first the building's central core, containing elevator, stairways, and utilities. This then serves as a transport shaft and as a base for a turret crane mounted on top to raise the building floor by floor around it. To supply materials and prefabricated units rapidly to the core hoists, a production line is organized at the center of the site (see sketch, below), which includes a cement plant (150 cubic yards per day), a wall slab factory (102 wall units per day), plumbing and formwork shops, and two railway cranes mounted on tracks encircling the area. Cement moves by conveyor belt to the slab factory or to lorries. The railway cranes lift the turret cranes to the top of the cores, tote finished wall slabs, and do other jobs.

The major steps and details of construction are:

1. Core shafts are poured in sections in a square slip form, a method previ-



CORE SYSTEM: The progressive steps of the Skarne system of core building are shown in the sketch, right, of an apartment project at Ragsved, Sweden (photos left). Reading clockwise: first building, upper left, shows only concrete service core erected and turret crane being installed; second building shows third floor form in place around a core; remaining buildings show progressive raising of floors and walls around cores. In the center are the concrete plant, prefabricated concrete wall panel factory, and other shops.

ously developed in Sweden, in which the form is raised hydraulically after each section has hardened, thus allowing one hollow section to be built on top of another. Cores are raised at the rate of one foot an hour, one core in five to six days.

2. Turret crane is mounted on the core's roof, elevator and stairs are installed in the shaft.

3. Wooden forms for the first floor are mounted on the foundation or basement floor, ready for concrete pouring.

4. Through slots left in the floor form, interior wall slabs are slipped by crane hoist. These slabs are the bearing walls of the structure. They are of uniform width, 5.5 inches thick, and grooved on vertical edge to allow concrete grouting between slabs.

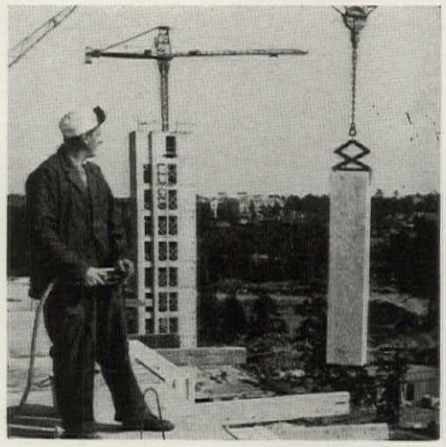
5. Outer wall slabs, one story high, are placed by crane, and then grouted. These slabs are of a lightweight, sandwich type of contruction which consists of two 3-inch-thick slabs of powdered-aluminum-foamed cement, with a 3-inch insulating filler core of polystyrene foam. They form a nonbearing curtain wall, resting on the floor slabs. At the same time, prefabricated window and door units are installed.

6. All reinforcing rods, plumbing, electrical conduits, and other service elements are assembled in the floor form, and the 8-inch-thick concrete floor is cast in place, locking in the interior and exterior wall slabs.

7. After two days, the concrete floor has hardened sufficiently to permit dismounting of the formwork, which is moved to the next story and the operation started over again. Since all walls are dry construction, they are immediately spray-coated with water-repellent paint, and other finishing operations are performed floor by floor. Floors are immediately steel ground, ready for tile or linoleum laying. Tenants can begin moving into lower floors about two weeks after construction starts.

The ultimate economics

Ohlsson & Skarne cannot yet say exactly how much the new system saves over conventional construction, due to the difficulties of figuring in the costs of the special equipment required. The system was first tried on some four-story houses, on which it did not work out too well economically. It showed to much better advantage in the larger scale, higher storied Ragsved project. Currently the firm is putting the Skarne method is eight to nine per cent story apartment house near Stockholm, from which it expects to gain a clearer picture of the economics. Preliminary estimates show, however, that the Skarne method is eight to nine per cent cheaper than conventional construction. With time, experience, and amortization, the savings may prove greater than this. END



FAST BUILDING: Skarne system achieves high speed through prefabrication and mechanization, requires only about half the labor force of conventional methods. Core of building is poured in sections, one atop another, in hollow slip form (upper left of photo, left). Exterior curtain walls are formed of uniform, lightweight concrete sandwich panels (top photo), with insulating filler of foam plastic. Interior load-bearing walls are prefab concrete slabs (above), inserted in slots in floor forms and anchored by cast-in-place floor and ceiling.

Fits easily into architectural planning

Easy to specify. The Iron Fireman MicroMist burner with Scotch boiler can be ordered from one catalog as a single unit, ready for service connections. After figuring requirements (pounds of steam per hour, square feet of radiation, or Btu) refer to simple chart for correct size of unit. Order by model number. Conservative ratings assure ample reserve capacity. From 18 to 96 boiler hp.; up to 650 boiler hp. with rotary burner.

Easy to figure costs. Integral control panel, fuel and air systems, boiler fittings eliminate multiple contracts. Backed by factory responsibility.

No high stack. With forced draft firing only a vent is needed. No stack to mar architectural design.

Saves space. Low boiler (5′3″ to 7′2″), rests directly on floor, requires no pit or brick setting.

For your client — low operating costs. Fires any grade of oil through heavy No. 5, with no more supervision than a domestic oil burner. Heavy oils cost less than light oils and are considerably higher in heat value.

MicroMist burner fires any type boiler. Burner alone can be ordered, complete with built-in control panel, fuel and air system, ready to bolt to any boiler front. For natural, induced or forced draft.

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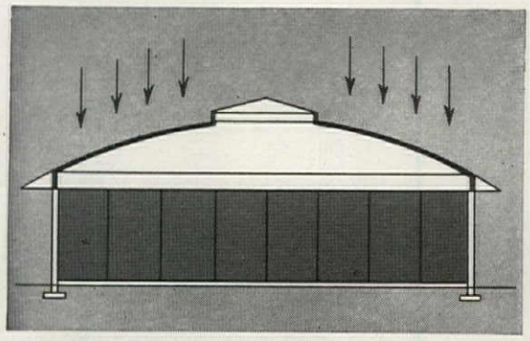
new approaches to structural design with fir plywood



Engineering tests by Douglas Fir Plywood Association showed vault resists three-times-normal roof load. Deflection at midspan was negligible. Note how door-high roof line saves wall area.

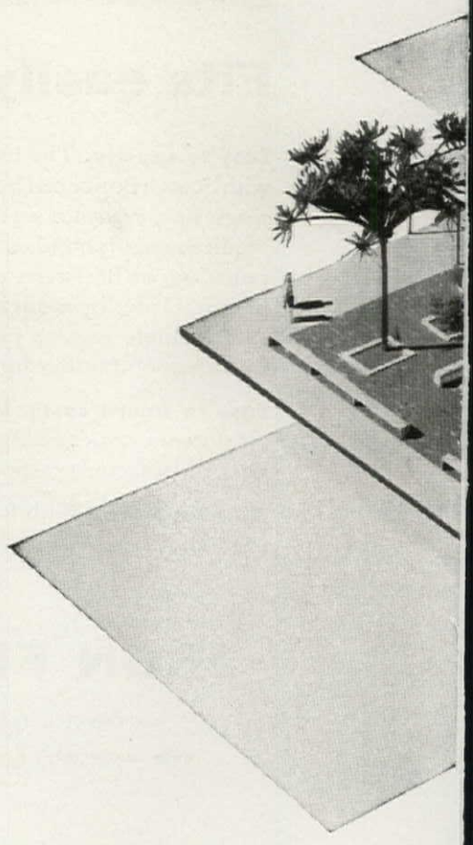
FIR PLYWOOD

ARCHITECT: Robert B. Price, A.I.A., Tacoma, Wash.
Robert C. Wing, Consulting Engineer

IN THIS graceful stressed-skin fir plywood domical roof, Architect Price has developed a simple and precisely engineered unit that combines beams, purlins and roof sheathing.

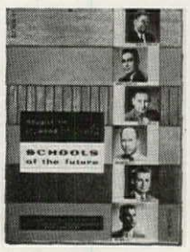
The first application of this new semi-spherical roof system is in the four-room satellite school shown at right. In its design, Price sought to create "an exciting and stimulating space with a high degree of flexibility and substantial construction economies."

Adaptable to other types of buildings, the Price roof system is a logical design evolution in which lightweight fir plywood replaces heavier and costlier materials. It provides a long, post-free span, pleasing mass and profile, has excellent lighting, insulation and acoustical properties.

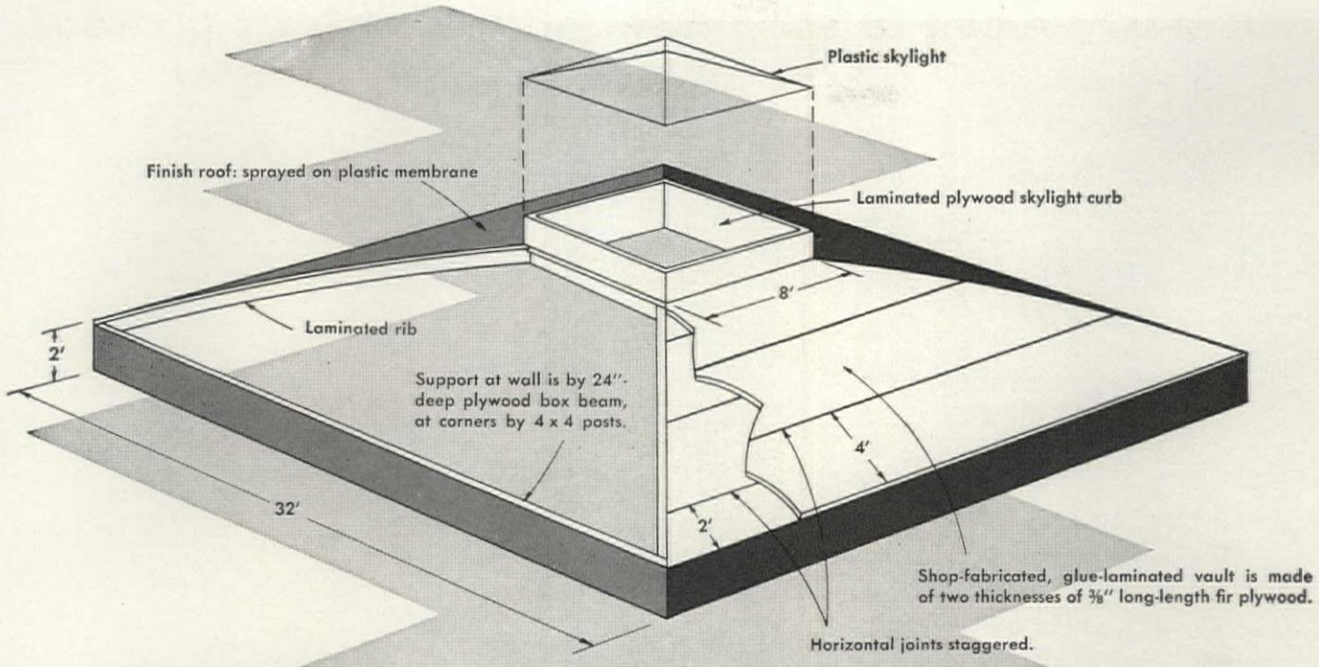


ONE OF A SERIES FROM "SCHOOLS OF THE FUTURE"

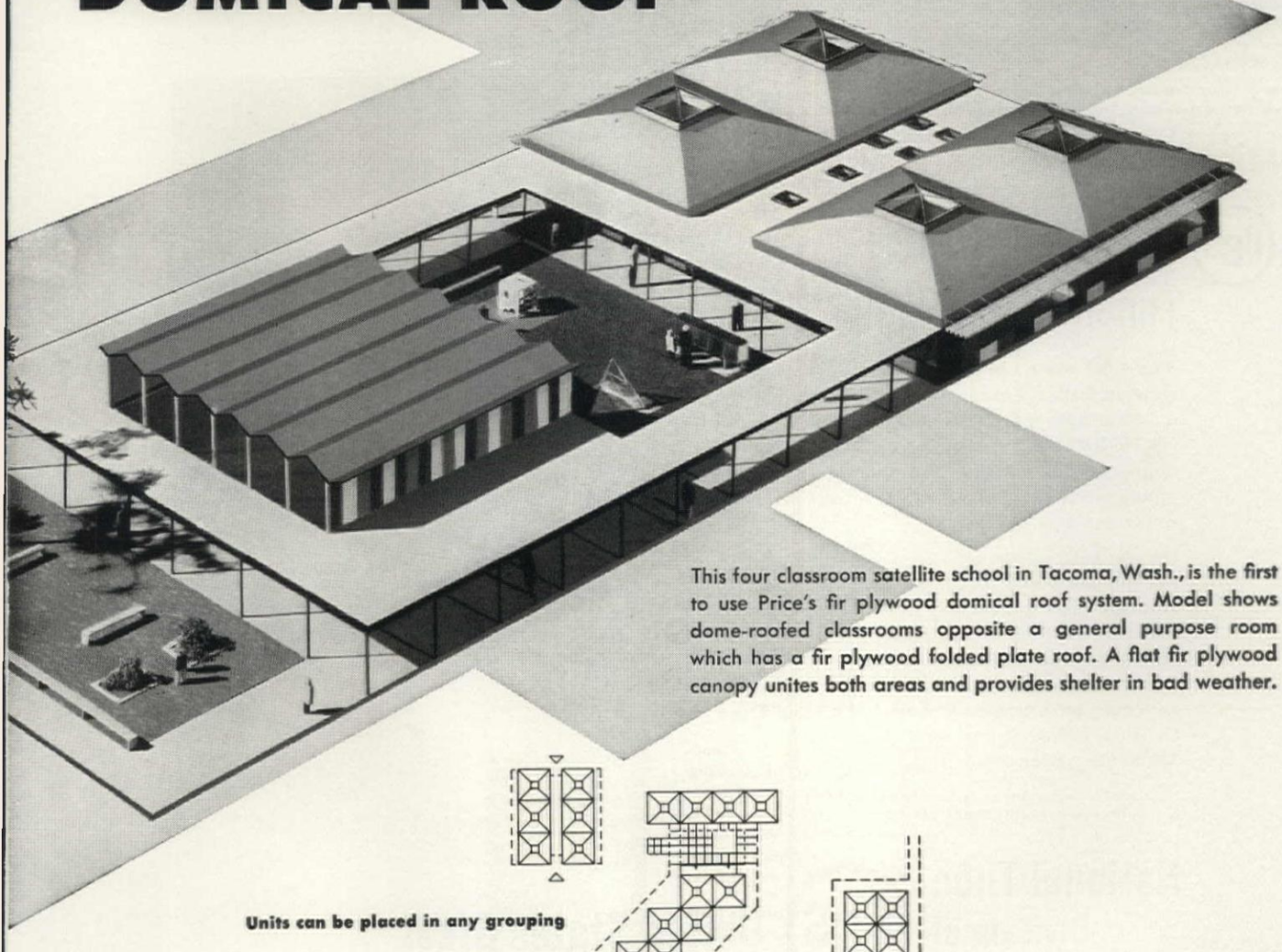
. . . a portfolio collection of outstanding designs by six leading architectural firms. Includes details on domical roof shown above. For your free copy, write (USA only) Douglas Fir Plywood Association, Tacoma, Wn.



Also write for information about fir plywood design and engineering consulation services.



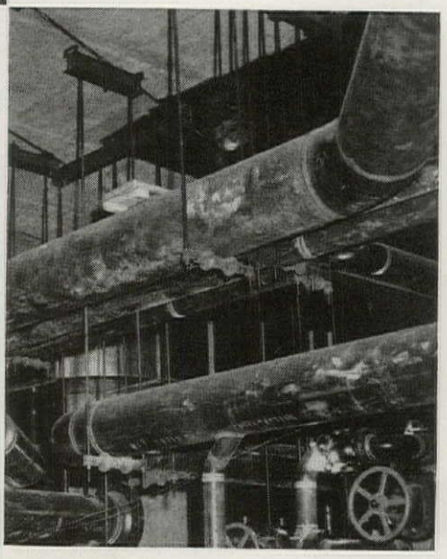
DOMICAL ROOF



This four classroom satellite school in Tacoma, Wash., is the first to use Price's fir plywood domical roof system. Model shows dome-roofed classrooms opposite a general purpose room which has a fir plywood folded plate roof. A flat fir plywood canopy unites both areas and provides shelter in bad weather.

Units can be placed in any grouping

Architect: W. B. Tabler, New York. **Mechanical Engineers:** Jaros, Baum & Bolles, New York.
Plumbing and Heating Contractors: Brown & Olds, Dallas. **General Contractors:** R. E. McKee, Inc., Dallas.



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USS National Pipe—

Hilton Statler Hotel

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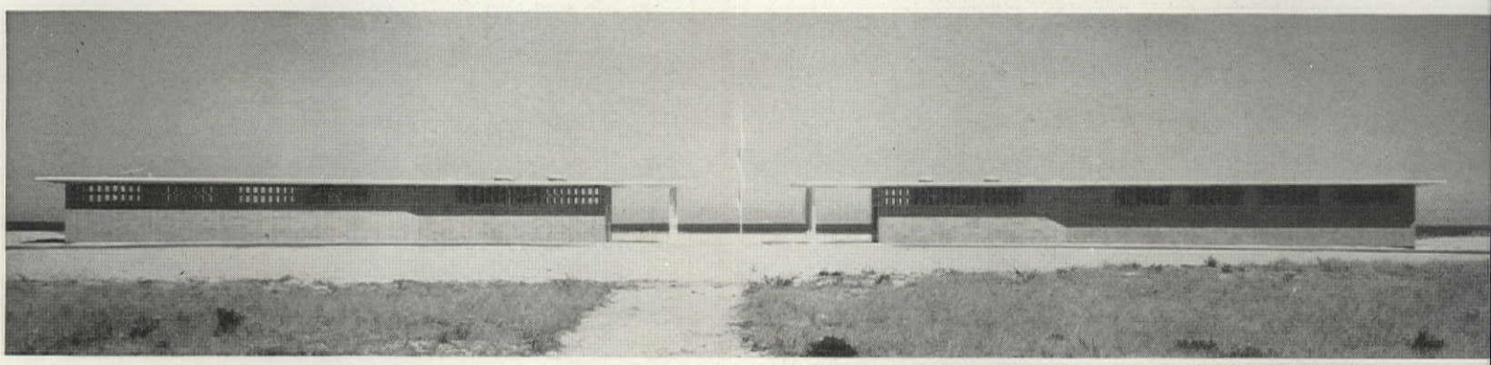
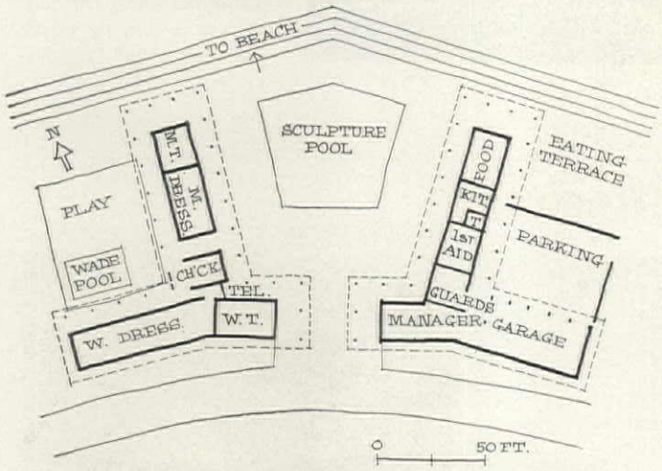
Buildings designed for summer leisure

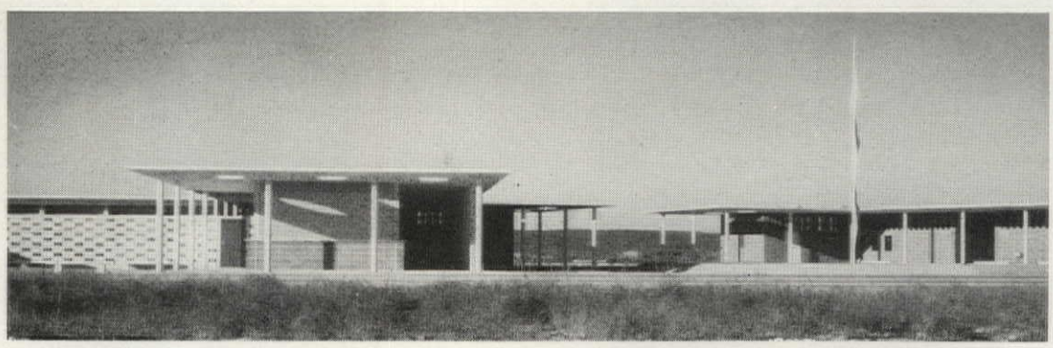


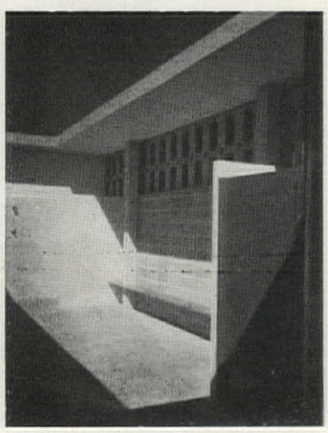
PHOTOS: JOSEPH W. MOLITOR



PAVILION BY THE SEA

This month Close-ups takes a look at four notable new facilities for summer play, each with a distinctive approach to the hot-weather problems of staying cool and having fun. On this page is a state-built bathing pavilion at Scusset Beach, Massachusetts, which won this year's Boston Arts Festival award in architecture. The two L-shaped buildings, which accommodate dressing rooms and a playground on one side and a snack bar, terrace, and maintenance yard on the other, open out toward the beach on each side of a patio and sculpture pool. For coolness and easy maintenance, Architects Child, Lawrence & Shannon made their classic white colonnades of hard-finished concrete and their vent-pierced walls of rich green concrete block.





VANGUARD PHOTOGRAPHY

WAVY ROOF FOR BATHERS

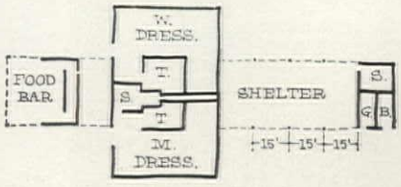
In California, Architects Welton Becket & Associates have sought to echo the undulations of the Pacific in this new public bathhouse for Santa Monica Beach State Park. First of four such public facilities which will be dotted at intervals along the city's shore, it has a canopy of thin shell concrete that ripples beach-

PHOTOS: FRANK LOTZ MILLER

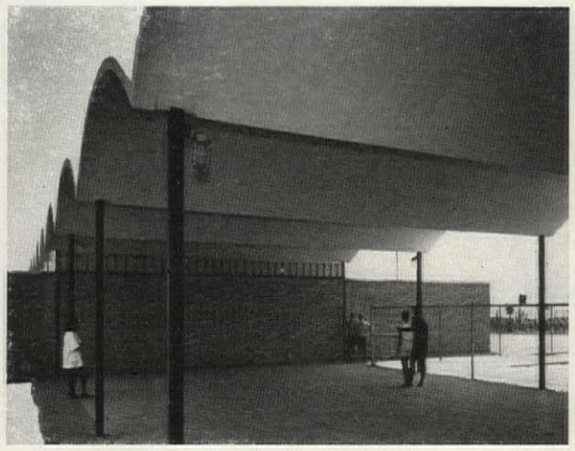
PHOTOS: JOSEPH W. MOLITOR

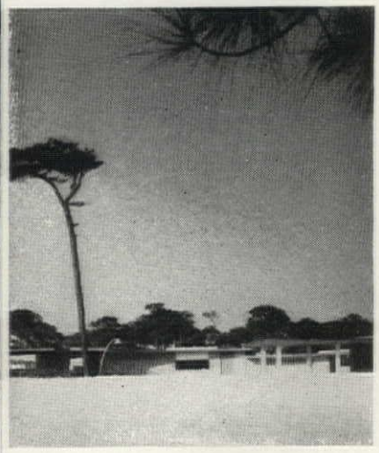
A FLEXIBLE GOLF CLUB

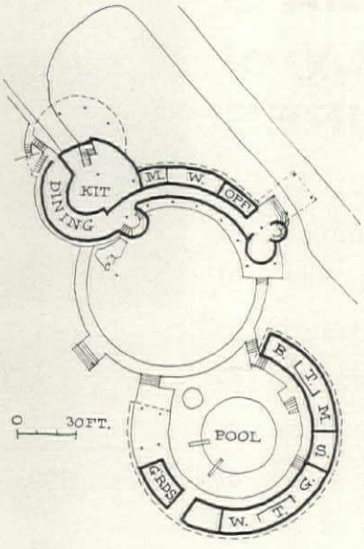
At the Crestview Country Club in Agawam, Massachusetts, golfers and indoor sportsmen alike are discovering the convenient flexibility of new 19th hole facilities designed by Architect Percival Goodman. Above locker rooms and a golf shop built into the slope, a flaring four-way roof shelters a main room 78 feet square overlooking the 18th green, putting green and swimming pool. Normally this big space is divided into a dining room, a grill and a bar-lounge (seen in photo at far right). But for large affairs, accordion-type walls are folded back, throwing the three rooms together for cool and spacious summer celebration.



ward over dressing rooms and a snack bar walled coolly and inexpensively in ordinary concrete block. The project also includes a fenced playground with wall seats for watching mothers, a well-equipped "Junior Muscle Beach" for aspiring older children, barbecue picnic areas for families, and parking for an eventual 2,000 cars.







CIRCLES IN THE SAND

Getting around in club circles is no mere figure of speech at the new Isle Dauphine Club 4 miles off the Alabama coast in the Gulf of Mexico. For lot owners on the new resort island, Architects Howard Ellis and Arch Winter have tucked into the dunes a clubhouse without a single straight line in sight. Members dine in semicircular appreciation of the broad Gulf view, climb a circular stair tower to a circular ballroom, or descend to a circular bar and beach-level terrace. Across circular patio walks, the club's circular pool is surrounded by a circle of dressing rooms and flanked by a circular wading pool for younger children. END

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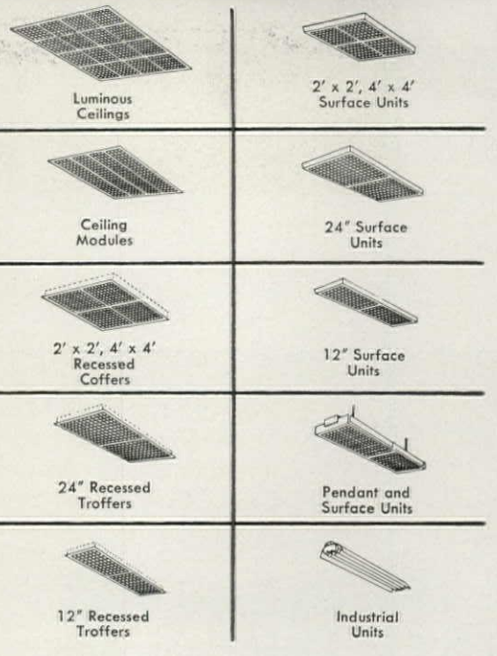

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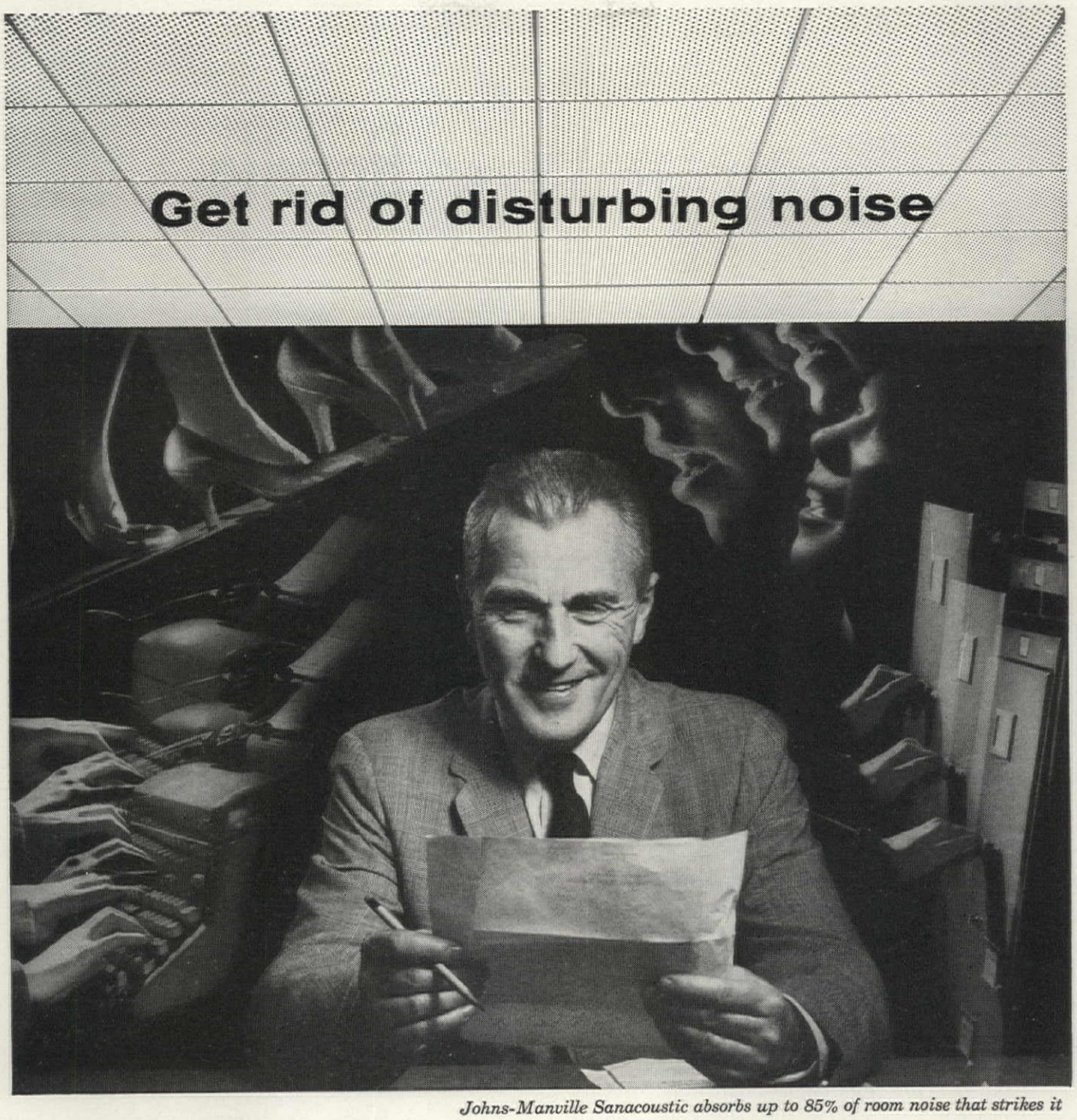

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installs direct on studs...no underlayment!

Another Roddis "first"! New, veneered paneling of exceptional strength and rigidity . . . with a new "solid feel". Gives many of the advantages of ¾" material yet costs far less!

Now! Many of the characteristics of the finest ¾" plywood paneling . . . at real cost savings . . . with Roddis' new 7/16" Architectural Craftwall!

Sturdy and solid-feeling, Architectural Craftwall is made from choice, hardwood veneers bonded to a ⅜" center of Timblend, Roddis' amazing man-made board.

This exclusive Timblend center makes the big difference! A unique, wood blend shavings board, Timblend gives extra strength and rigidity . . . assures maximum freedom from movement after installation. Architectural Craftwall stays put!

Installation is simplicity itself. Architectural Craftwall goes up fast . . . directly on studs or furring strips. No costly, time-consuming underlayment needed. Install with Roddis Contact Cement. Or use nails if preferred.

Sound reduction properties are impressive, too. Tests prove acoustical values of Architectural Craftwall are comparable to plaster or drywall construction.

A wide choice of woods and styles enhance your design possibilities. Select from Birch, Silver Birch, Maple, Oak, Walnut, Elm, Cherry or Mahogany. *Each is completely factory-finished, ready to install.* Available V-grooved at 16" intervals or V-grooved, cross scored and pegged. All panels V-grooved at veneer joints also. In regular plywood sizes . . . *plus lengths to sixteen feet.*

Architectural Craftwall is also available in standard or special size panels, *without grooves*, with matched flitches in the wood of your choice.

For free sample and information on how Roddis' 7/16" Architectural Craftwall can give any paneling installation new beauty, greater strength—at lower cost, just send the coupon.

Now . . . no underlayment required . . . apply direct to studs and save on material and labor. Rigid new 7/16" panels are easy to work with. Once up, they stay put . . . no movement on the wall! Perfect for both commercial and residential use.

Exclusive New-type Construction. Hardwood veneer bonded to 3/8" center core of extra-stable Timblend. Backed with protective veneer that is sealed to lock moisture out.

So easy to install. Apply *direct on studs* with Roddis Contact Cement or nails, if preferred.

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Roddis 7/16" Architectural Craftwall is a NEW kind of wood paneling! There is nothing else like it in the market. You get deep-grooved beauty and true "solid feel" at a price that will please the most cost-conscious client. And remember, this new Roddis product actually works and handles like costly 3/4" materials. Send coupon for details and sample.

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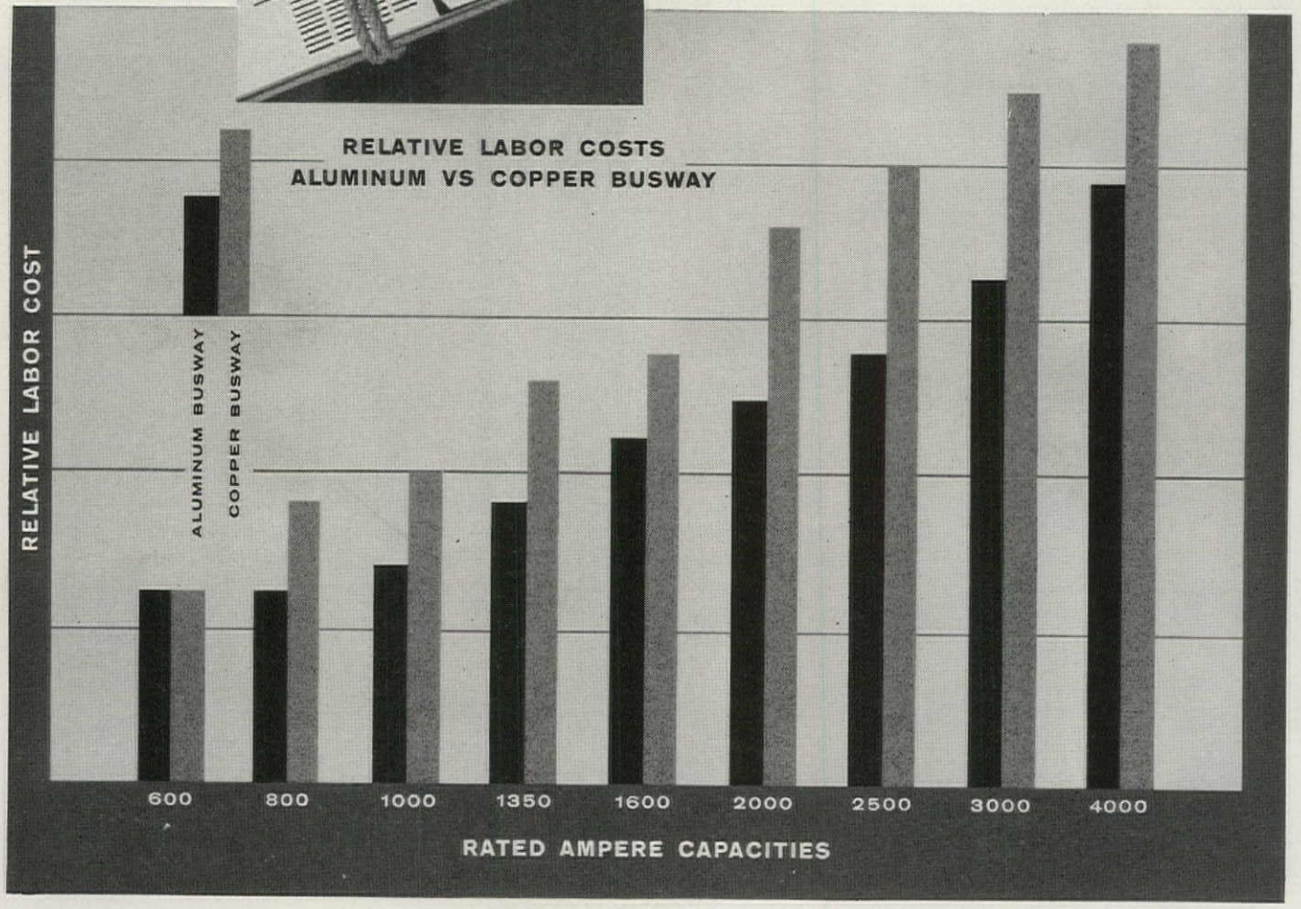

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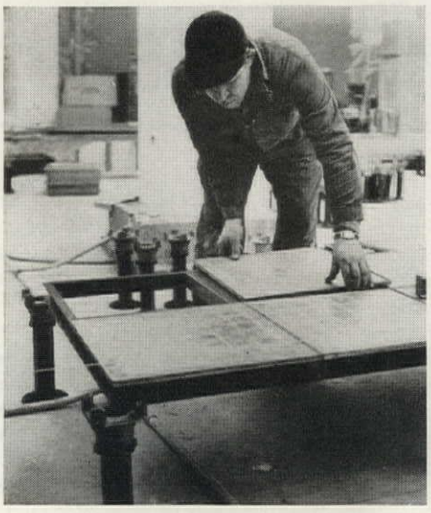
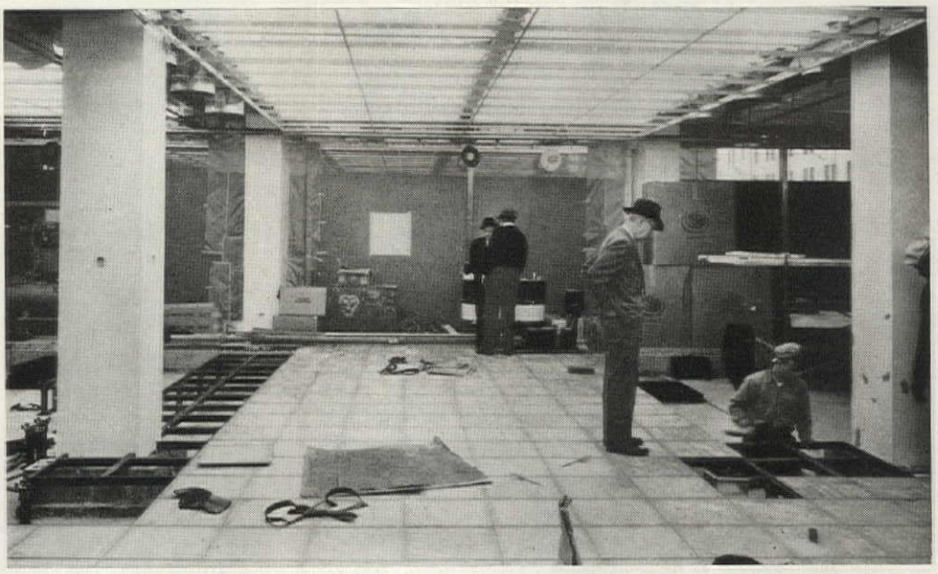




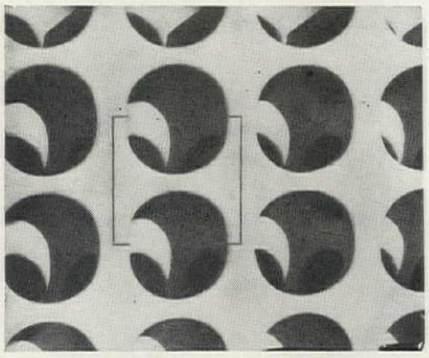
PREFABRICATED FLOOR
provides subfloor utility space

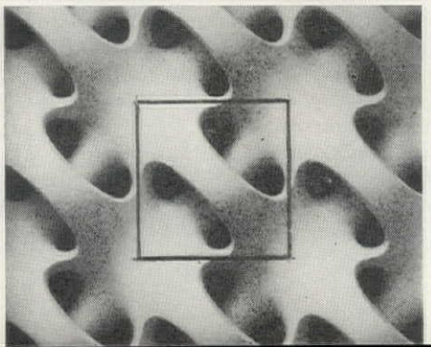
The new floor system being assembled in the photos above can be installed over an existing floor to provide subfloor space for air-conditioning ductwork, machinery power cables, telephone wiring, or other utility equipment. The system, developed by Floating Foors Inc., of New York City, requires no permanent supporting structure, no bolts or fastening devices, and no alterations in the existing floor; instead, prefabricated floor panels rest on steel pedestals which are simply set down freely on the old floor.

The assembly process is quick and easy: the pedestals are first placed so that each will support one corner of four different modular steel frames; these frames, which are 36½ inches square, are then set into the aluminum pedestal head, where, after all four corners are positioned, they self-lock; and finally, four aluminum plates 18 inches square are dropped into the frame as shown in the top left photo. As all frames and plates are interchangeable and can be raised with a suction-cup lifter, a *Floating Floor* can be easily rearranged or removed at any time; subfloor equipment is always accessible for maintenance or repairs; and registers, outlets, or cutouts can be picked up and reinstalled whenever machinery or other equipment is moved to a new location. In addition, the supporting pedestals are adjustable; thus the entire floor can be raised or lowered to provide more or less housing space for underfloor equipment—or to compensate for unevenness in the existing floor. Space between floors can be varied from 2⅜ inches to 13⅜ inches. Floor plate thickness: 2⅝ inches.

Floating Floors are designed to take loads of 1,000 pounds per square inch or 275 pounds per square foot. Finished floor weight: about 8 pounds per square foot. Installed cost per square foot: about $5.50 to $6, including a vinyl tile floor covering.

Manufacturer: Floating Floors Inc., 22 East 42nd St., New York 17, N.Y.





CONCRETE SCREEN
consists of precast blocks

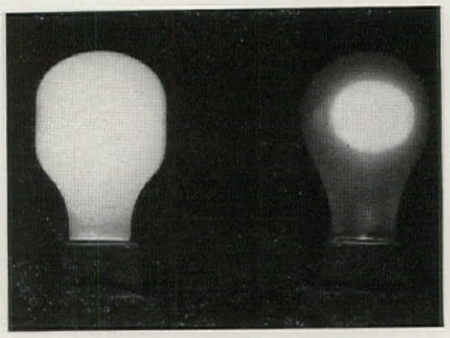
The photos at left are of two pierced concrete screens designed by Austrian Sculptor Erwin Hauer. Composed of precast blocks which are assembled at the job site, the screens are intended for use as interior room dividers or as exterior sun shades. In one design (top photo) two 8 by 8 by 3 inch blocks form one 8 by 8 inch screen unit 6 inches deep. Cost: $2.50 per block—or $5 per unit. The second design shown, which is also 6 inches deep, is composed of foot-square blocks which sell for $3.50 each—or $7.50 per two-block unit.

Manufacturer: Murals Inc., 16 East 53rd St., New York 22, N. Y.

continued on page 136

SILICA COATED BULB
eliminates glare and "hot spot"

The common light bulb has undergone its first major design change in 25 years. The result: the new *Eye Saving* bulb (below) which virtually eliminates the glare

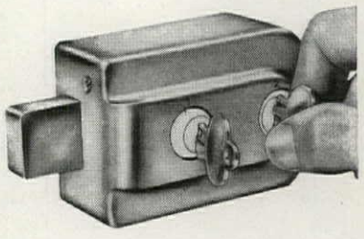


and "hot spot" of the standard type (shown at right, above). Developed by Westinghouse especially for reading or close-seeing tasks, the new bulb, which is almost cylindrical in shape, is electrostatistically coated inside with glare-deflecting silica. Since the bulb has greater interior surface area than standard types (though their outer dimensions are the same), more silica coating (thus less glare) is possible. Cost: about 3 cents more than standard bulbs.

Manufacturer: Westinghouse Electric Corp., MacArthur Ave., Bloomfield 7, N.J.

MULTIDOOR LOCKING SYSTEM
has series of interconnected keys

A new door-locking system for offices, stores, or small factories makes it impossible to forget to lock all doors when closing up for the night—each door must be locked in a predetermined sequence, with the final lock being operable only after every other door has been fastened. The system works this way: each lock is fitted with two key cylinders as shown below; in locking up at night (or in unlocking in the morning), it is necessary to throw the bolt of the first lock with one key before the second key can be removed; this sec-



ond key is then taken to the next lock in the series and used to throw the next bolt and so release the third key—and so on until the complete series is locked (or unlocked) in order. When the last door is locked, only one key is left in the operator's posssesion.

Though each lock has its own key, there is never a problem of lost or misplaced keys, for each key stays in its lock

at all times—except, of course, during the unlocking or locking cycle. Designed for mounting on overhead, sliding, or standard hinged doors (as well as windows, cabinets, safes, and other storage areas), the *Sequal Lock* has a bolt with 1 inch throw and key cylinders of the five-pin tumbler type. Cost per lock: $24.

Manufacturer: Safety Lock Corp., 236 North Franklin St., Hempstead, N.Y.

OPEN PHONE BOOTH
has glass-fiber soundproofing

Sixty per cent sound attenuation is claimed for the small *Hush-A-Booth* shown below. Designed as an open, wall-mounted housing for telephone or intercom equipment in offices, factories, institutions, and public places, the 65 pound unit uses 2-inch thick glass-fiber lining

as its acoustical medium. The outside casing is of heavy plywood; the inside surface is perforated sheet metal. Dimensions: 27¾ inches wide, 35 inches high, 24 inches deep. Available unfinished or in green enamel, the *Hush-A-Booth* is priced at $114.50, including the sliding directory tray.

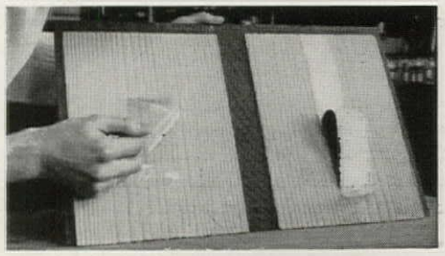
Manufacturer: Korfund Co., Inc., 48-15 32nd Place, Long Island City 1, N.Y.

LATEX PAINTS
developed for exterior use

Water-thinned latex paints composed of polyvinyl acetate resins have been made practicable for general use outdoors as well as indoors, thanks to new resin formulations developed by the Celanese Corporation of America and the Bakelite Company, a division of Union Carbide and Carbon Corporation. The new paints, according to these companies, will penetrate old paint, even if it is chalky or dirty, and adhere to the wood, asbestos shingle, brick, or other surface beneath.

In the Celanese test pictured on page 138, pressure-sensitive tape is used to show how the new paint adheres (left) to a heavily chalked panel, and how an old type (right) does not. Absence of yellow-

continued on page 138



ing in white paint, superior brightness in tints, and a high rate of water transmission or "breathing" (a property that tends to eliminate blistering) are also claimed for the new paint. Both Celanese and Bakelite sell resins to paint manufacturers who will market outdoor latex paint in the near future.

Manufacturers: Celanese Corp. of America, 180 Madison Ave., New York 16, N.Y. Bakelite Co., 30 East 42nd St., N.Y.C.

FIREPROOFING PAINT
foams into insulating coat

Pyromors-Dammschutz is a new fireproofing paint from Germany designed for interior roof structures, walls, ceilings, or doors of wood. When exposed to fire or high temperatures, it foams into a dense, microporous coating which acts as insulating protection for the wood surface beneath, and at the same time releases carbon dioxide and other fire-retarding gases. Nontoxic and quick drying, the new paint can be tinted with special pigments. One gallon effectively protects about 165 square feet. Cost: about $5 per gallon.

Manufacturer: Desowag Chemie GMBH, Dusseldorf, Bismarkstr, 83, West Germany. U.S. Distributor: Fred T. Schorle, 1133 Broadway, New York 10, N.Y.

WOOD PRESERVATIVE
protects against termites and fungi

Xylamon, a German product new to this country, is a chloronaphthalene solution which protects wood pilings, telephone poles, fence posts, and other subsoil structural members against all types of rot, fungi, and termites. Developed more than 30 years ago and used extensively throughout Europe, Africa, and parts of Asia, it is said to be 30 times more effective than a 5 per cent solution of pentachlorphenal. In addition, it requires no pressure impregnation; instead application is by a simple dipping process or by brushing. Tarfree, it can be painted over or varnished; neither acid nor alkaline, it will not damage metals, plaster, brick, or textiles. Treated wood after three days is completely odorless. Though 100 per cent toxic to termites and other insects, *Xylamon* is reportedly harmless to touch. Cost: about $4 per gallon.

Manufacturer: Desowag Chemie GMBH, Dusseldorf, Bismarkstr, 83, West Germany. U.S. Distributor: Fred T. Schorle, 1133 Broadway, New York 10, N.Y.

NICKEL-COBALT WELDING WIRE
joins dissimilar metals

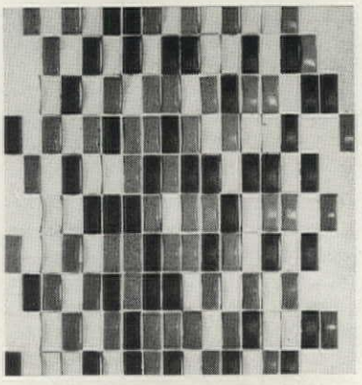
Development of an unsheathed welding wire designed specifically for joining dissimilar metals has been announced by the International Nickel Company. Available on spools or in straight 36 inch lengths, *Inco-Weld A*, which is composed mostly of nickel and cobalt, reportedly enables arc welding of 95 per cent of all dissimilar metal combinations. The resulting joint is said to have good corrosion resistance, machinability, and impact resistance—and a strength usually greater than that of either metal being joined.

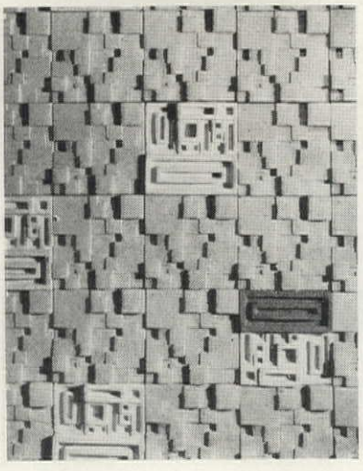
Manufacturer: International Nickel Co., Inc., 67 Wall St., New York 5, N.Y.

THREE-D WALL COVERINGS
provide textures for interiors

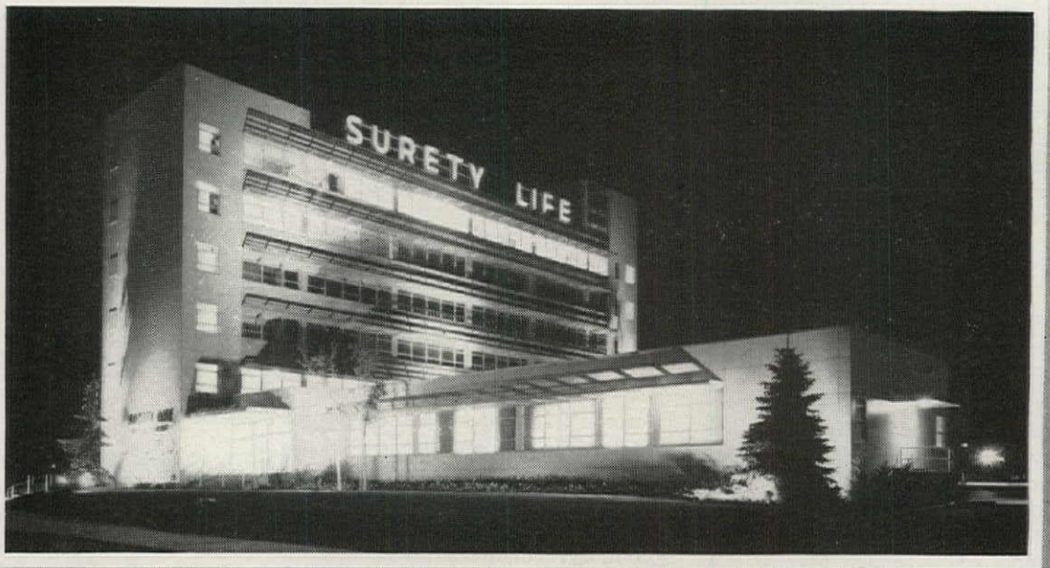
Three new wall-covering materials have been introduced by Murals Inc. of New York City: 1) brilliantly colored, three-dimensional tiles by Gio Ponti (top photo below); 2) abstract murals by Artist Anton Refregier executed in foot-square tiles; and 3) cement-sand-marble sculpture cast in 10 pound blocks 1 foot square, 1½ inches thick (shown assembled in the bottom photo). The Ponti Tiles, available in 14 different shapes (raised diamonds, sculptured rectangles, rhomboids, abstract fish, etc.), sell for $2.75 to $5.35 per square foot. The Refregier murals are priced from $8 to $10 per tile, and the sculptured blocks cost about $2.50 each.

Manufacturer: Murals Inc., 16 East 53rd St., New York 22, N.Y. END





CASE #102—Another case where General Electric Factory-Assembled Air Conditioning Units proved more practical than a field-assembled system.



Air conditioned by Refrigeration Distributors Corp., Salt Lake City

Architects: Slack W. and David Winburn, Salt Lake City

The striking modern lines of the new Surety Life Building, Salt Lake City, Utah, pay tribute to the taste and skill of the architects. And the economical, Zone-by-Zone installation of General Electric Air Conditioning pays tribute to their judgement.

GENERAL ELECTRIC ZONE-BY-ZONE AIR CONDITIONING

meets all economy and performance expectations of architects in new Salt Lake City building

Beauty and function go hand in hand—with an incomparable degree of *comfort*—in Salt Lake City's new Surety Life Building. The architects chose a system of air conditioning as modern and effective as the architecture itself:—General Electric Zone-by-Zone Air Conditioning. Here's what Mr. Slack W. Winburn, architect-engineer, has to say about it...

"The General Electric Air Conditioners specified by us have proved highly satisfactory in the Surety Life Building. The points entering into our decision to specify General Electric Zone-by-Zone Air Conditioning offered the following benefits:

"**1.** Lower first cost, together with lower operating costs.

"**2.** Three zones of control per floor provide flexibility of control in the northern, central, and southern areas, thereby affording proper temperature control regardless of solar exposure, occupancy, or outside temperature.

"**3.** With the Zone-by-Zone conditioning approach, the large and long supply ducts normally used in a central-plant system were eliminated.

"**4.** The system allowed a layout of duct distribution between floors and the placing of diffusers and lights to a module between window mullions. This enables partitions to be moved without tearing into ceilings to make changes.

"**5.** One important consideration was the easily removable, sealed refrigeration units which can be replaced quickly if repairs are necessary."

We can add little to Mr. Winburn's words except, perhaps, to note that this case is typical of the results you can expect when you install General Electric Zone-by-Zone Air Conditioning.

General Electric's complete line is flexible enough to meet every air conditioning need for all types of 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. Discover how General Electric Factory-Assembled Units can simplify your job. For full details write: General Electric Company, Air Conditioning Department, 5 Lawrence Street, Bloomfield, New Jersey.

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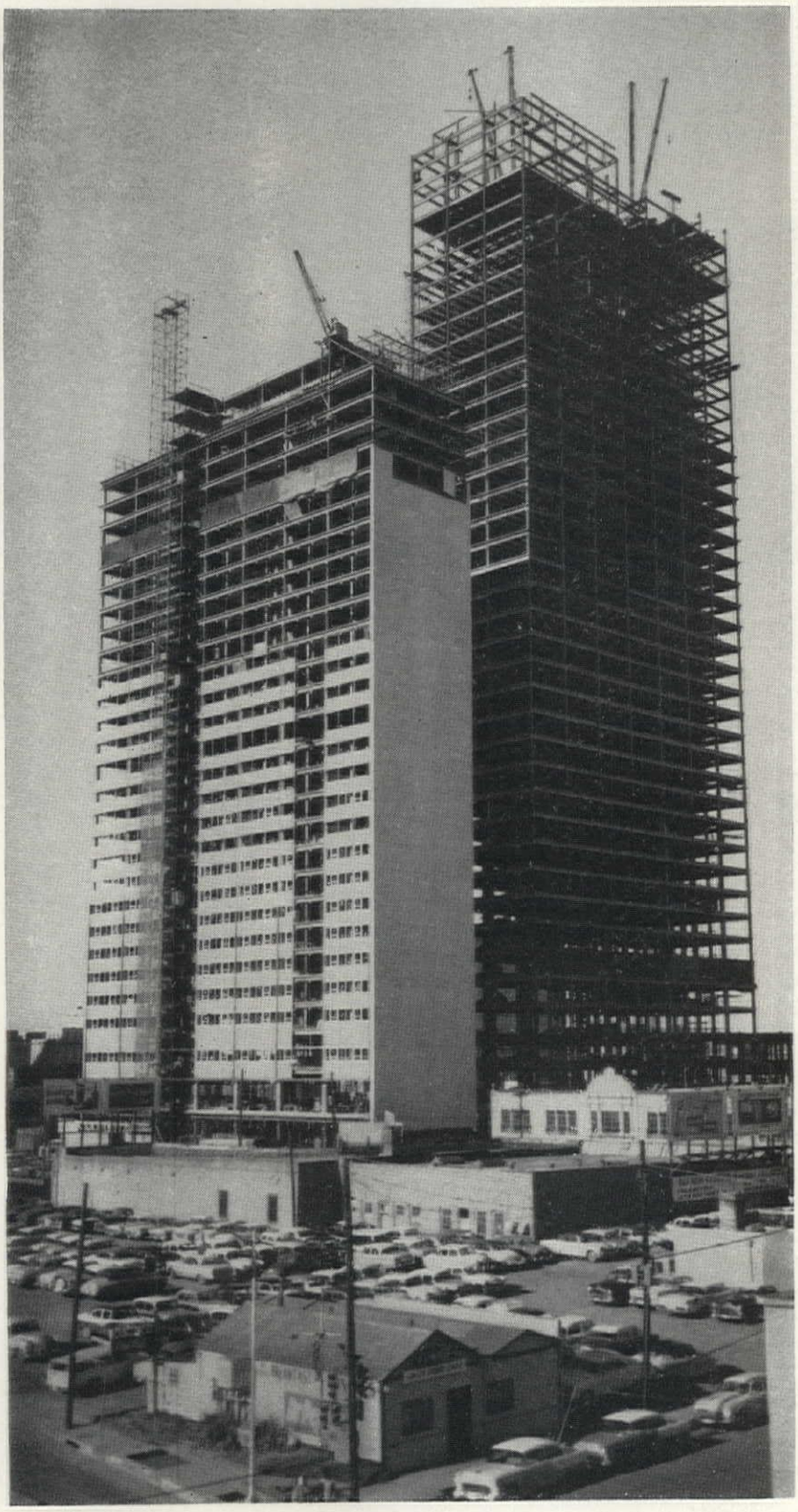
Tallest building in Texas . . . and the West Built by American Bridge



The Texas reputation for size is proved again in the Southland Life Insurance Company Home Office, in Dallas, Texas—"Southland Center." This project covers an entire city block and, as integral parts of a single structure, has: a three-story base structure (above ground); the Southland Life office tower, 42 stories high; and a 28-story luxury hotel. When finished, Southland Center will include a third tower of which the first three floors are already under construction.

American Bridge fabricated and erected all structural work, 16,100 tons. Main field connections were made with high strength steel bolts.

American Bridge is equipped—with experience, facilities and men—to handle all types of structural steel work, in all parts of the country. For more information, or specialized advice on your next project calling for structural steel work, get in touch with the nearest office of American Bridge.

The Southland Life Office Tower (rear) contains about 13,300 tons of structural steel and measures 82′ 6″ x 192′ 6″ x 550′ 3″ high. In this finished building the home office of Southland Life Insurance Company will occupy 14 floors. There will be parking facilities for 2500 cars in three of five underground levels, a public observation lounge on the 41st floor, and a heliport on the roof. The "Sheraton-Dallas" hotel tower (front), with 600 rooms, required 2,800 tons of structural steel. It is 55′ x 192′ 6″ x 340′ 10″ high.

Owner: Southland Life Insurance Company, Dallas, Texas • **Designer:** Welton Becket, F.A.I.A., and Associates, Architects-Engineers, Los Angeles, California • **Consulting Architect:** Mark Lemmon, Dallas, Texas • **Structural Engineer:** Murray Erick Associates, Consulting Engineers, Los Angeles, Calif. • **General Contractor:** J. W. Bateson Company, Inc., Dallas, Texas • **Superstructure Contractor:** American Bridge Division, U. S. Steel Corporation • **Substructure Contractor:** R. P. Farnsworth & Company, Inc., Dallas, Texas.

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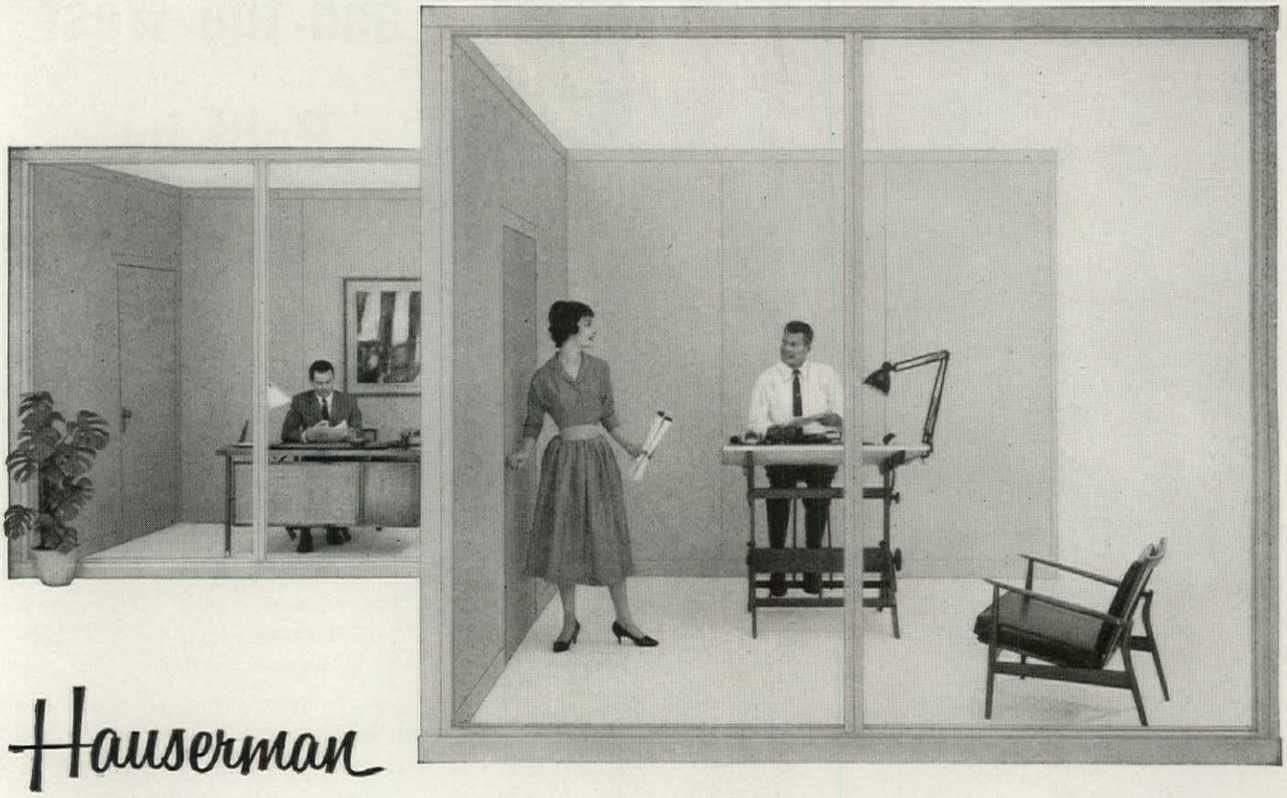

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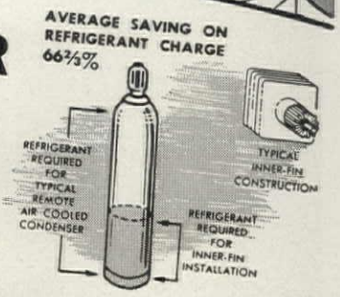

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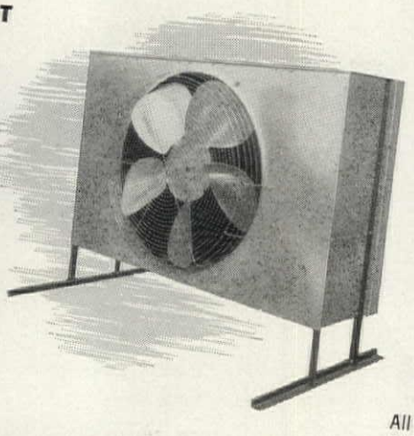
The Dunham-Bush line of 'BC' Remote Air Cooled Condensers includes models in 13 sizes with capacities ranging from 2.2 tons to 53.5 tons, making possible use of a single unit for practically any job !



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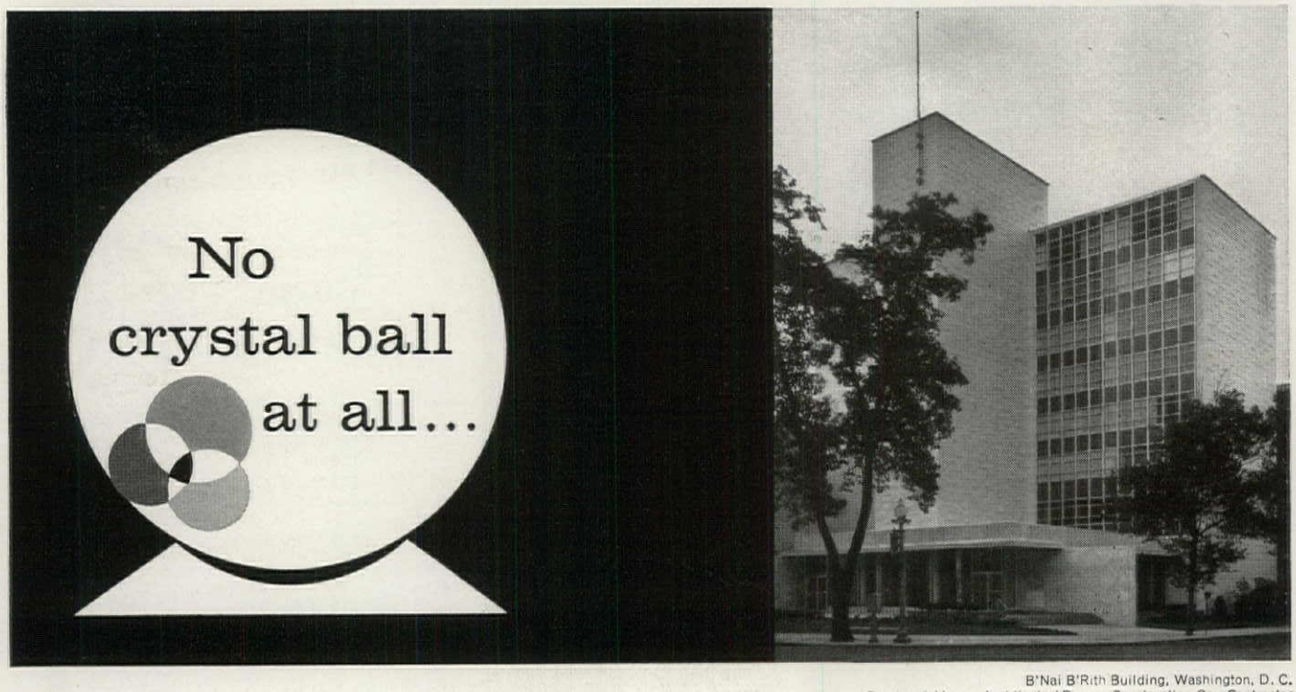

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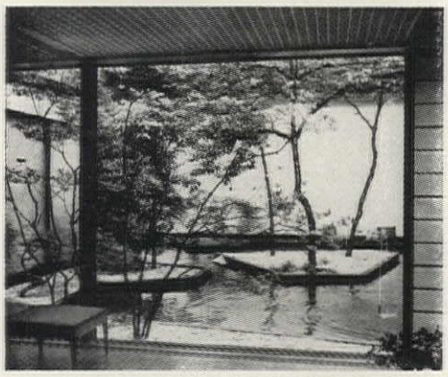
Books

Rose's gardens . . . Gabo's sculpture



EZRA STOLLER

CREATIVE GARDENS. By James C. Rose. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. 208 pp. 10" x 13". Illus. $10

This big and beautifully illustrated book is primarily concerned with gardens for suburban residences, but many of the fresh ideas discussed are equally applicable to the landscaping of nonresidential properties.

The author is a pioneer in modern landscape design, one of the few who has kept his art abreast of the development of contemporary architecture and who closely relates his work to it. As might be expected, his designs make wide use of building materials (lumber, cut stone, brick, and glass) as well as plant materials. They also make use of water and a great variety of attractive, functional screens and furniture designed by the author.

GABO. Introductory essays by Herbert Read and Leslie Martin. Published by Harvard University Press, Cambridge, Mass. 193 pp. 9½" x 12". $15

An elaborate volume of essays and photographs (complete with 3-D glasses) reviewing Sculptor Naum Gabo's work. Gabo is the "constructionist" of the stormy twenties and thirties, the man who did in sculpture what Kadinsky was doing on canvas and Mendelsohn in architecture: redefining space in contemporary terms.

It was very exciting then—as the pictures in this book demonstrate. But we have grown rather used to the new shapes allowed by plastic substances, we have long ago agreed that there is more to space that the formal illusion of perspective. We are no longer intrigued by experiments such as Gabo's "bas-relief" sculpture for the lobby of Rockefeller Center's U.S. Rubber Building. What we are looking for is some new synthesis.

And happily, there is some indication in the book that Gabo feels the same way himself today. Perhaps the best clue is his big, boldly sculptured "tree" built on the sidewalk outside Breuer's already famous Bijenkorf department store in Amsterdam (FORUM, 1957). It looks as if Gabo is emerging from the forest.

SPACE—MATERIALS—COLOR (Raum—Werkstoff—Farbe). By H. M. Witzemann. Deva-Fachverlag, Stuttgart & Wittenborn & Co., New York, N. Y. 136 pp. 8½" x 9". Illus. $10.50

This handsome little book (in German) deals with a subject not often adequately covered in architectural literature: the manner in which color and texture affect the nature of architectural space. One reason this subject has been neglected in architectural literature is that it costs too much to print color photographs and to reproduce accurately the textures and patterns of wood, fabrics, masonry, etc. Professor Witzemann, who teaches architecture at the University of Stuttgart, has now produced a series of exquisite drawings (mostly one-point perspectives) overprinted with brilliant colors and exact replicas of natural textures, and the result is a first-rate introduction to the nature of modern space. The drawings are supplemented with full-page, black-and-white photographs of various materials and surfaces available in architecture, and with striking color photographs of various interiors designed according to the principles outlined by Professor Witzemann.

There is nothing radically new about those principles, but no one has ever made them clearer. The only missing element is a discussion of the color-systems developed by modern painters over the past 40 years or so. Such a discussion was published in the Swiss magazine, *Werk*, several years ago and showed that there are definite "family-affinities" between certain colors, textures, and forms which were first brought out by abstract painters, and are now part modern architecture.

continued on page 146

HIGH RENT HOUSING AND RENT CONTROL IN NEW YORK CITY. Published by the New York Temporary State Housing Rent Commission, 280 Broadway, New York 7, N. Y. 174 pp. 5¾" x 9". Free

This monograph provides a fascinating case history of the impact of rent controls on rental housing. Based on a 1956 Rent Commission survey of New York apartments, it covers apartments that rented for $200 or more a month at the start of rent control in 1943, and the 56,240 uncontrolled new units erected since 1947. Of the latter, 22,170 were public housing units, 11,660 were units in projects granted tax exemption benefits or some other form of direct subsidy, and only 22,410 were free-enterprise unsubsidized units.

The most revealing fact the survey discloses is the complete removal from the rental market between 1943 and 1956 of 73 per cent (9,300) of the 12,800 Manhattan apartments originally priced at $200 or over a month. Some 6,200, or 48 per cent of the original supply, were converted into cooperatives; another 3,100, or 24 per cent were subdivided into smaller units, changed to commercial use, demolished, or otherwise decontrolled after owners were able to obtain "possession" of them. By 1956, 13 years after controls started, Manhattan's regulated $200 or over apartments totaled only 10,000—as compared with 12,800 in 1943—and 6,500 were units that had moved up into this price range as a result of rent increases.

The report includes an analysis of the various rent increases obtained from time to time by the 10,000 units that were in the $200 or over range in 1956. The most striking fact revealed is that 42.3 per cent of these apartments had qualified for at least one officially approved "hardship" relief increase, because the owner's income had dropped below a statutory 6 per cent minimum return, plus 2 per cent for depreciation. And, 22.4 per cent, or more than one out of every five, had qualified for two or more "hardship" increases. When granted, however, such increases only allow income to be brought up to 6 per cent, and 2 per cent for depreciation, as a maximum. With such a large volume —approaching a majority—of apartments restricted indefinitely to public utility or "hardship" level yields, city officials should scarcely wonder that rent control has been accompanied by a steady shrinkage in the city's stock of rental housing.

ALUMINUM IN MODERN ARCHITECTURE. Volume III, 1958 Edition. Edited by John Peter. Published by Reynolds Metals Company, Louisville, Ky. 118 pp. 9" x 9".

A fine companion to *Aluminum in Modern Architecture*, Volumes I and II. The new examples of good aluminum buildings are attractive, particularly from abroad.

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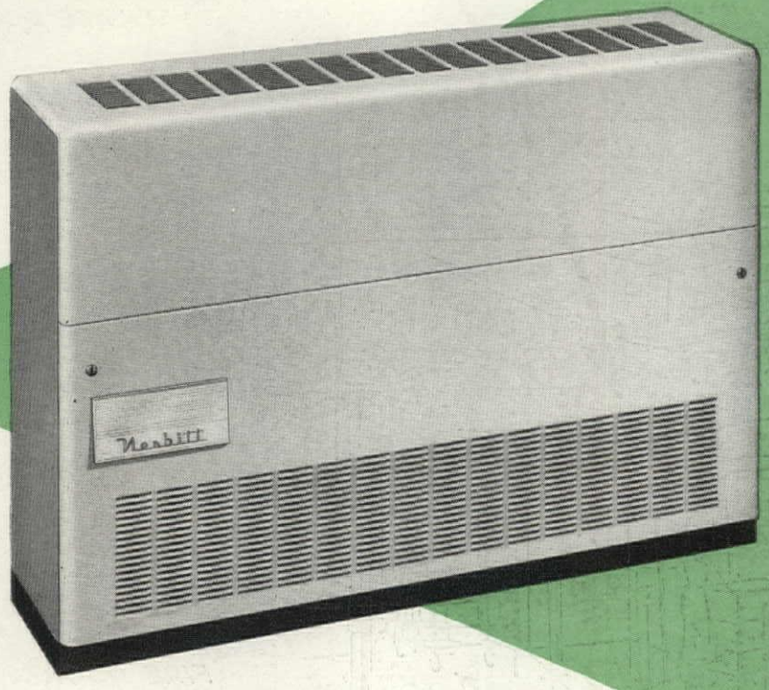

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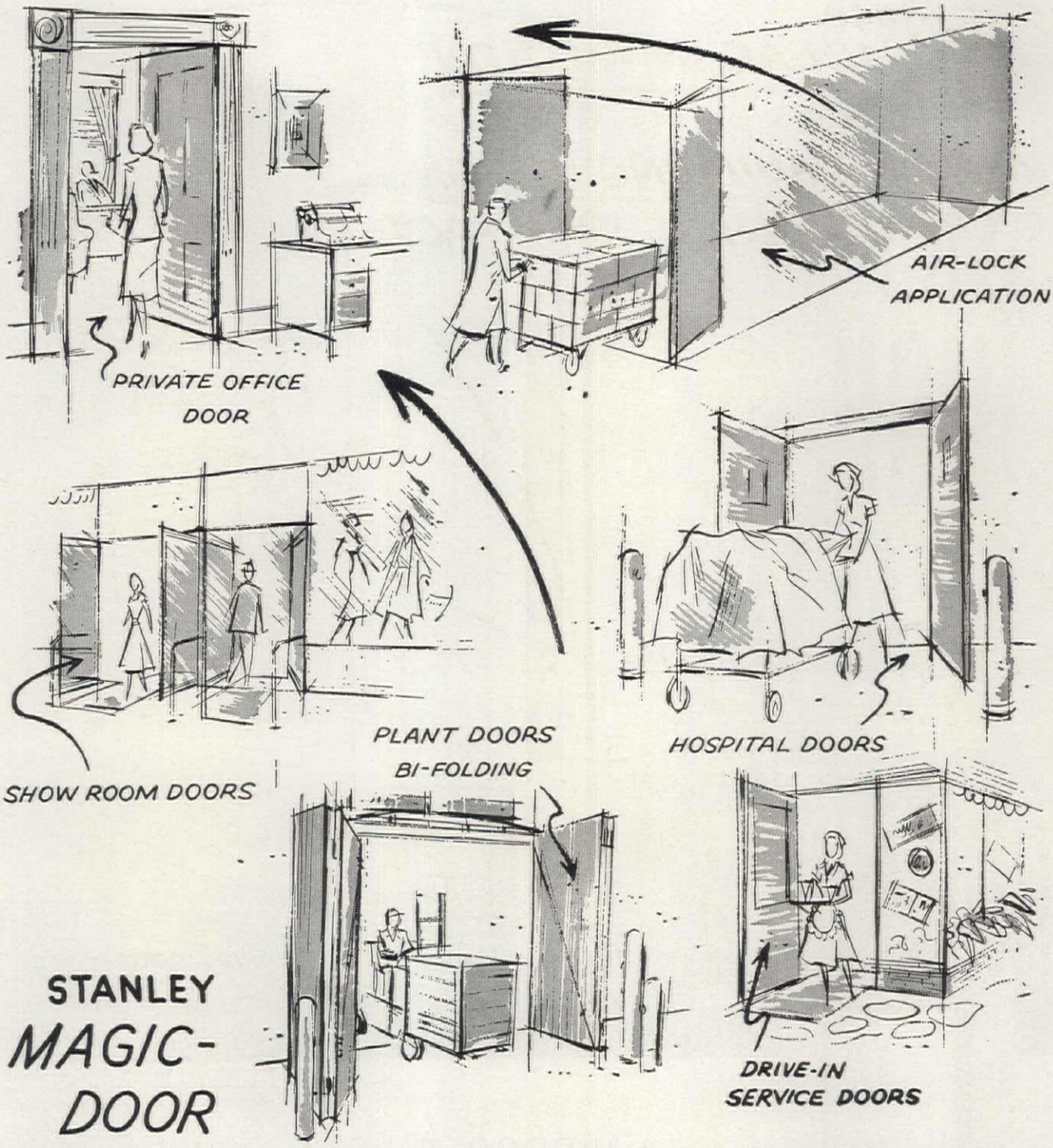

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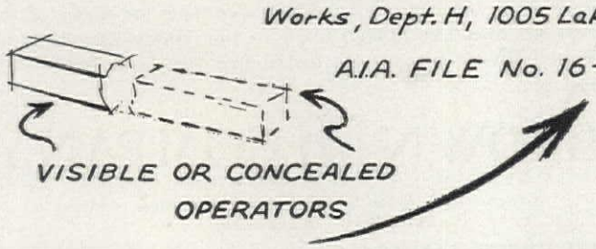

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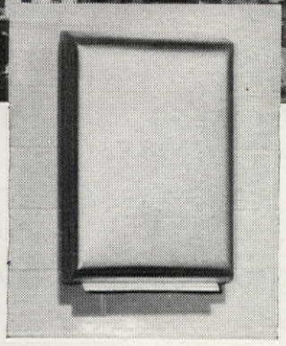

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What other people are saying

THE MEANING OF BRUSSELS

The architecture of the Brussels Fair, according to the Architects' Journal *of Britain, indicates that the modern movement has at last triumphed at the social level—and can now go on from there.*

Critics seem agreed that the Brussels' Exhibition marks the beginning of a period of consolidation for modern architecture and it is difficult, though tempting, to contest this. On the whole those nations which have come off best are those which already had a stake in the movement before the war, countries like Germany, Holland, and Finland; but it is pleasant to see other countries joining their company who had no such tradition, countries like Spain, Yugoslavia, and Austria. On the debit side are France, who still finds herself uneasy in the idiom, and Italy, who appears, momentarily we trust, to have contracted out. But these are the exceptions: the great movement is all the other way.

If modern architecture is becoming a more universal language, is it at the same time (and it is this which interests us most) becoming a richer language? On the whole, yes. The Exhibition has emphatically given the lie to the old jibe that Modern Architecture is a language in which you can only say one thing. This is, in a sense, the natural consequence of universalization, for any language (whether architectural or otherwise) tends to be enriched when more people use it and for more diverse purposes. As examples of this kind of enrichment one could quote the two phrase books, one agricultural and the other marine, compiled by the Dutch Architects, or Karl Schwanzer's urbane drawing-room idiom in the Austrian pavilion, or Vasquez-Molezun's use of Mohammedan three-dimensional patterns in the roof of the Spanish pavilion. All of these are authentic transpositions of experience in terms of modern architecture, yet how varied are the results. On this point of enrichment it is a pity that neither of the two churches quite came off. It is a pity because a successful church architecture would provide the most irrefutable proof of the scope of the idiom. Yet, as those who have anything to do with this kind of patronage will realize, these two churches are in themselves evidence of a change in the views of those who commission churches, and show that from now on, the new architecture can be seriously applied to this building type—which is more than we could say even five years ago.

At the technical level the Exhibition is slightly disappointing. There are, of course, some interesting gimmicks to be found; but we cannot really say that the Exhibition demonstrates the rapid assimilation by the building industry of new scientific knowledge. Even in the structural field—which is, after all, the field in which exhibitions are expected to contribute—there is little that is at once new and of real promise. The development which comes nearest to getting a mention here is the hanging roof, of which there are five major examples. This is not quite new, but, being potentially cheap and effective, is useful. Another field which shows some advance is that of daylighting, though this is modest enough and only amounts to a general realization that if you are going to have transparent walls you must do something about glare. If a fitting symbol of the architecture at Paris '35 would be a glass box, a corresponding symbol for Brussels '58 would be a glass box with a *brise soleil.* Rather a meager advance for a quarter of a century of feverish technical renewal, but to be expected when you recall the meager diet of research on which architecture has had to live. The lesson of Brussels seems to be that Modern Architecture has at last triumphed at the social level. The party which stands for fundamental reform has at last "got in." Now must follow a period of intensive research and development. For if it does not the movement will be unable to fulfill its electoral promises.

THE CHURCH'S DESIGN DILEMMA

How can the modern architect design an expressive church when no one is quite sure what the church wants to say? This was the question posed recently by Eugene Raskin in The Nation. *The author is an architect and critic, and an associate professor of architecture at Columbia.*

We will have no significantly expressive church architecture until we—architects, clergy, laymen—learn what religion actually means in mid-twentieth-century America. It is impossible to express a thought you do not have.

What puts the architect into his expressive dilemma is the new emphasis by the church on social, civic, and welfare activities, out of which to a large measure the increased demand for churches grows. That means clubrooms, classrooms, social halls and the like, in addition to the normal provision for worship. These new functions of the church call for new ar-

continued on page 154

chitectural solutions, not merely in terms of physical elements, but more important, in terms of the expressive statement, on the whole, through architecture, of how we feel about God and the religious act.

In the Middle Ages there was no such problem. One knew very well how one felt about God, and in what spirit He was to be approached. God was an impenetrable mystery, to be worshipped (in an equally incomprehensible language) but never to be understood. The Gothic cathedral, with its high, dim vaults, its darkly glowing stained glass, its cold masonry, and its miserable acoustics which gave such enchanting overreverberation to every sound, was a perfect setting for the flowering of this attitude and the ritual that dramatized it. The power and clarity of this architecture remain unsurpassed. The point, of course, is that both the power and the clarity were possible because *that which was to be expressed*, a particular attitude toward God, was strong and clear in the minds of the people and their architects.

In the Renaissance, God emerged from the new wave of rationalism and materialism with most of His mystery washed off. He became, instead, the most successful Merchant Prince and General of them all. Small wonder, then, the image having become what it did, that churches took on the forms of Roman palaces and temples—ornate, gilded, and tapestried to the saturation point. Mysticism was dead: long live Monumentality!

New England saw God become a democrat; again, the church told the story. No ostentation, no glamour, no mystery. You came right in, and if there was something you wanted to talk to God about, you stood right up and told Him what was on your mind. To repeat, the simple clarity of this architecture stems from a direct awareness of what religion was all about and what it meant in that period. The architect had no trouble with expression, because he knew exactly what he had to say.

Today the poor architect just does not know what his church is to say. For God is no longer the Merchant Prince, the Democrat, or the Mystery. In this country, at least, He is more often than not the Director of the Community Center—a concept not easily susceptible to dramatic architectural statement.

Not that the architect of the mid-twentieth century is any less gifted than his predecessors. In fact, with the vast technology now at his command, his range of artistic expression is greater than during any period of the past; in commercial, residential, and public architecture breathtakingly exciting work is being done. The gags of traditionalism are utterly cast off and a new architecture is springing up, speaking vividly of the values of our culture. But when it comes to church architecture, the values themselves being unclear, the best we hear is a kind of noisy double talk. END

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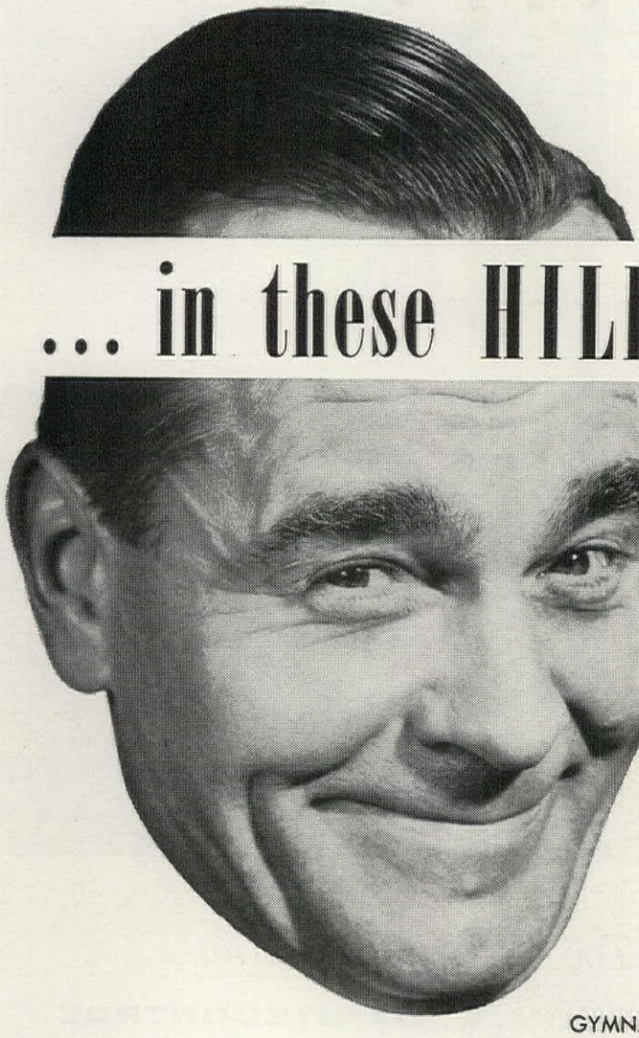

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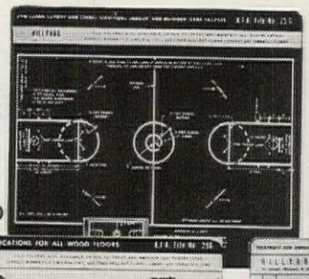

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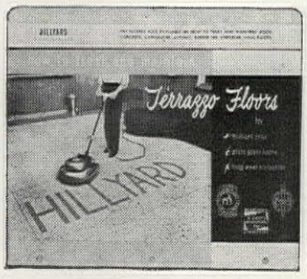

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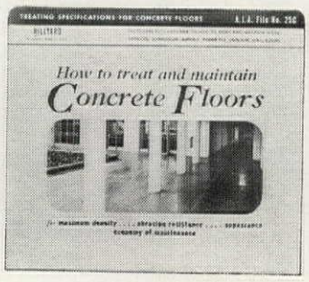

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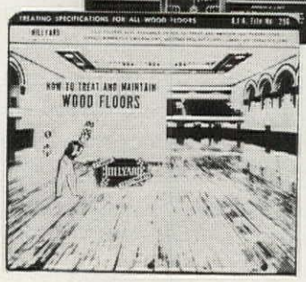

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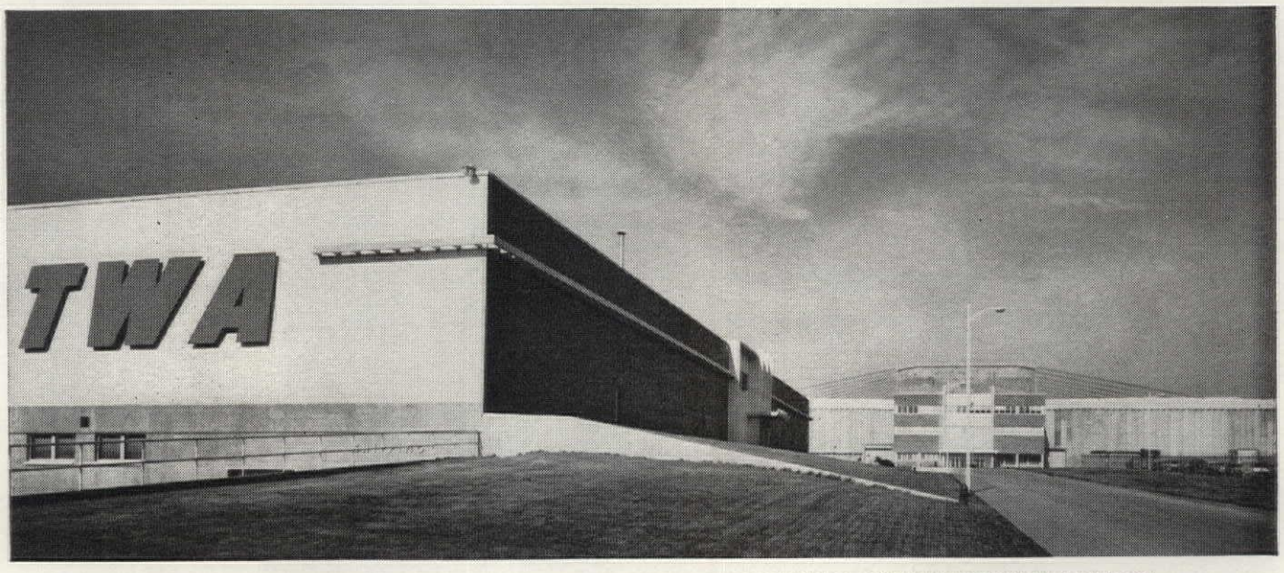

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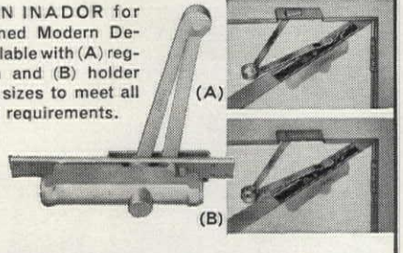

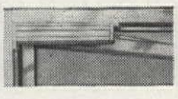

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planning and has reserved $1.3 million as the federal contribution to the write-down.

The Center and the city

One of the major difficulties faced by Lincoln Center's backers from the beginning has been the opposition of business organizations and residents in the area. Led by a lawyer named Harris Present, this group focused its opposition to the project on the allocation of land to Fordham (a Catholic university), maintaining that the federal urban renewal program was being used, in effect, to subsidize a religious organization in violation of the constitutional separation of church and state. Last month, the U.S. Supreme Court rejected this argument. From a legal standpoint, therefore, the project should have fairly clear sailing from now on.

Most of the criticism of the project now is less legalistic and more humanistic. There are those who point out that there is no sure guarantee that the Lincoln Center complex will provide the essential subsidiary facilities people need—the restaurants, the shops, the studios for private teaching, the offices for concert management. These adjuncts are now largely concentrated around Carnegie Hall on 57th Street, and unfortunately neither the Center itself nor the cramped area around it seems to provide room for these atmosphere-creating service facilities. On the other hand, the champions of Lincoln Center maintain that if a community can put together a Lincoln Center, there is hope that it can also develop a proper city environment around it.

The facts and the vision

Perhaps the biggest remaining problem is Construction Director Nelson's: how can he obtain all the facilities that the Lincoln Center board wants for the $51 million that has been allocated to building? "Right now," reports Nelson, "we are going through a painful period of re-examination to reconcile the figures with the plans so costs don't go through the roof." There are other problems, some due simply to the plethora of ideas which would give the Center the finest facilities in the world. Others are caused by the continuing rise in the cost of construction.

The plans call for the completion of the plaza, the opera house, and the concert hall in time for fall openings in 1961. Juilliard and the repertory theater should be open by the fall of 1962, and the dance and operetta theater should be completed by mid-1963.

That may seem a long way off. But New York and the U.S. will almost surely find "a new kind of institution" facing Lincoln Square by the end of 1963. And the wait will be worthwhile; for the performing arts will then cease to be the ill-housed second cousins of a burgeoning American culture. END

Another new development using

B.F.Goodrich Chemical *raw materials*

New Chicago Airways Hotel located at Chicago's Midway Airport uses Gridwall curtain wall manufactured by Gridwall Company, North Hollywood, Calif. Model shows rigid weather-stripping and guide channels (arrows) extruded by Ryko Products, Inc., Los Angeles. A soft Geon extrusion replaces cushioning material on the sash (not shown). Geon polyvinyl material is supplied by B.F.Goodrich Chemical Company.

Rigid Geon lets you open the window in modern curtain wall

This new Chicago motor hotel presents a clean, modern face to the traveling public. It achieves the beauty of a fixed glass curtain, yet all sash slide horizontally for fast, easy window cleaning from the inside. This wasn't practical until weatherstripping made from Geon rigid vinyl material solved a tricky problem.

Other materials that let the aluminum-framed windows slide open didn't provide sufficient weather protection. A spring-loaded rigid Geon strip not only permits easy sliding—but provides the thermal insulation and resilience needed to seal out the Windy City's most turbulent storms.

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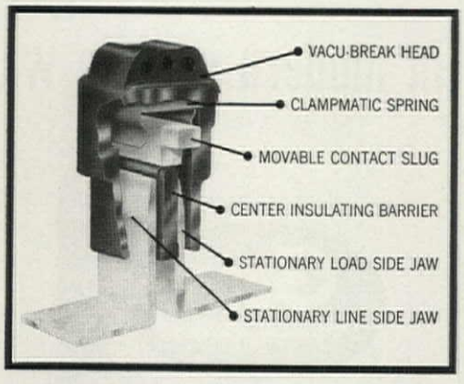

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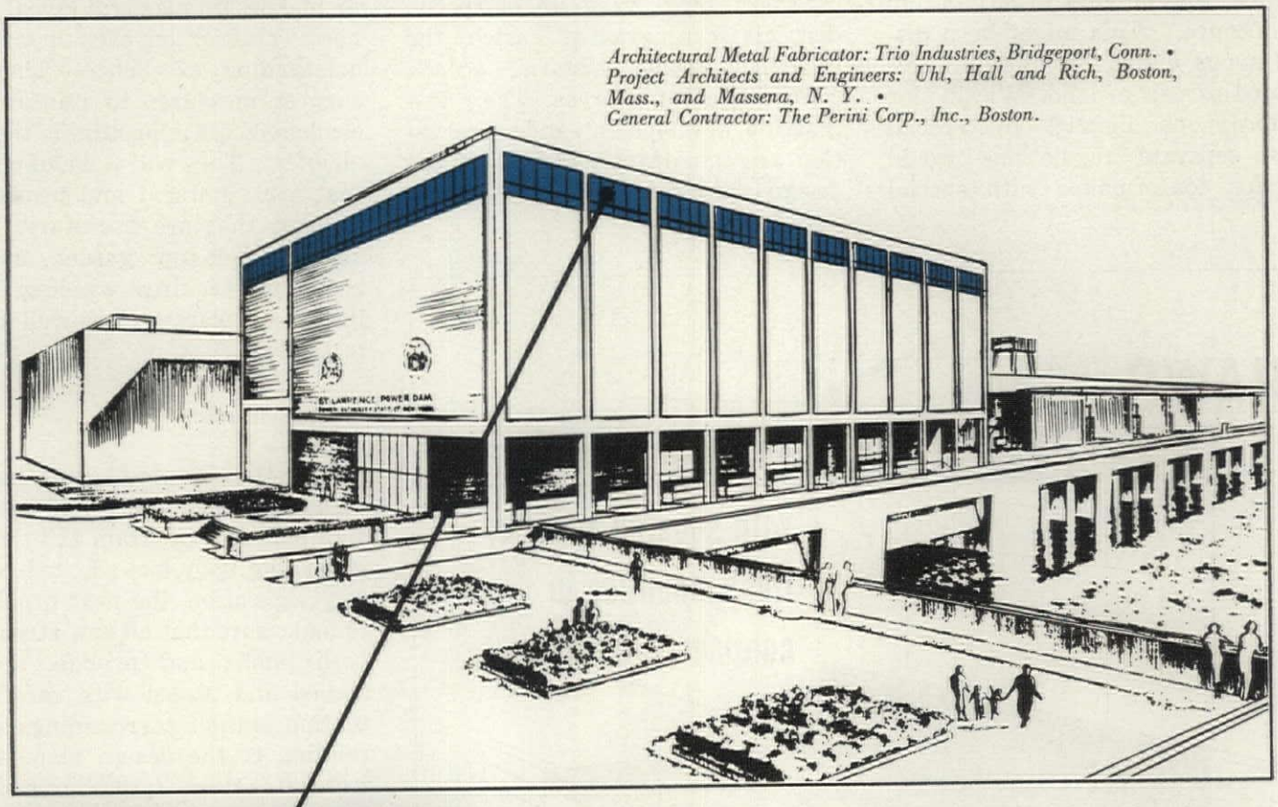

Checking last details of a typical window section prior to shipment.

Giant 8′ x 20′ Windows in St. Lawrence Power Project Use Bridgeport Aluminum

One of the unique features of the new Barnhart Island Power Plant being constructed by the Power Authority of the State of New York on the St. Lawrence is a series of 8′ x 20′ aluminum prime windows which form the upper perimeter of the structure. Manufactured and installed by Trio Industries, Bridgeport, Conn., the windows are fabricated from Bridgeport Aluminum extrusions.

Although the building is erected right on the dam and is subjected to unusual moisture conditions, it will maintain its newly built look because aluminum never rusts, never requires painting. What's more, it adds a clean, gleaming note to the building's attractive modern design.

The large dimensions of these windows require heavy, long length extrusions that are straight and true. Close, reliable tolerances are a must—to assure perfect fit, and to keep assembly and machining costs down.

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harmed by other neighboring buildings badly placed.

To this end, each zoning ordinance might provide a distinct "district" entitled "special sites of city design significance." This might be a discontinuous district comprising designated parcels of land. Within this discontinuous district of special sites, separate regulations would call for conformance with special use, height, bulk, and building-line limitations, appropriate in each case, and subject to special administrative review.

Several other varieties of special districts can greatly enrich the municipal plan: historic, scenic, civic, and cultural areas. Their designation, development, and preservation are important elements of the design program. Legally sound means for dealing with such districts have been developed and tested in the courts.

The esthetic survey and the municipal design plan will reveal things needing attention even in areas of outstanding excellence. They will suggest measures to reinforce the elements most influential in the overall effect. They will warn of changes that are imminent and provide for changes that are necessary. After all, any well-kept garden, however beautiful, requires weeding, pruning, and replacement as well as protection.

Making it stick

Once the planning agency has created a satisfactory community design plan and program and the local governing body has adopted regulatory legislation, the next problem is to make sure that all new structures, both public and private, are designed and placed with careful attention to their surroundings and in relation to the design plan. Architectural review procedures afford the best means for doing this.

When boards of architectural review pass judgment on façades in the absence of comprehensive design plans, the results are inherently limited. The design plan emphasizes the importance of active, design-creating measures for producing meaningful relations among structures and between structures and their settings. The review board will not establish objectives, but rather look to see if the esthetic intentions already adopted in the form of the municipal design plan are actually embodied in proposed designs. For this purpose, persons trained in judging three-dimensional forms and their interrelationships are most appropriate. Perhaps a balanced review agency might include one or more planners, architects, land developers, landscape architects, civil engineers, artists and art critics. One essential qualification is a universality of appreciation. Preferences on architectural style on the part of individual board members should not be permitted to affect decisions. The review procedure

continued on page 164

BEAUTY *continued from page 162*

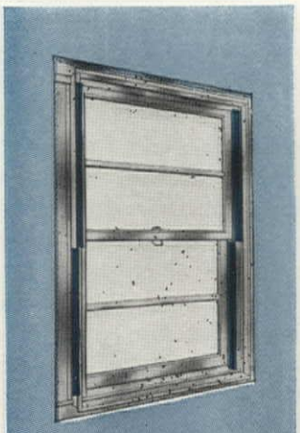
should include the right to request a public hearing; the owner and members of the public should also have the right of appealing any decision of the review agency before the local governing body, as well as ultimately to the courts.

Help from taxation

A new provision in state tax law could recognize the benefit of public values created through good group planning.

Many types of desirable improvements have actually been taxed out of existence by the policy of attempting to collect local real estate taxes on the basis of the presumed full market value of individual lots, without consideration of the value to the community of particular types of improvements. It is, for example, of great value to the city to keep the structures around public parks low in height and in many cases to maintain openings as wide as possible around parks or desirable landmarks in order to spread their beneficial effect. The city might be given statutory authority, when confirmed by an impartial board of technical experts, to apportion taxes by increments and to offset total taxes by increment allowances for the preservation of historic or esthetic monuments or for low buildings where they constitute a public advantage. If this were done, there might be more hope not only for the preservation of existing amenities but for the design of groups of buildings that provide for the balanced arrangement of bulk reasonably distributed between high and low buildings and open spaces.

Planners and architects have been city designers throughout history. When today they properly address their energies to matters of municipal economics, to the social impacts of the environment, and to the programming of public activities, they must be no less concerned with the esthetic development of their communities. It is our conviction that a positive program of design along the general lines outlined here is the best approach in our day to the creation of harmonious and inspiring communities. END



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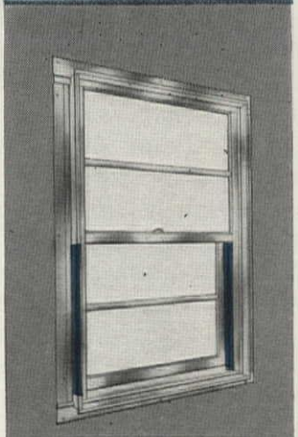

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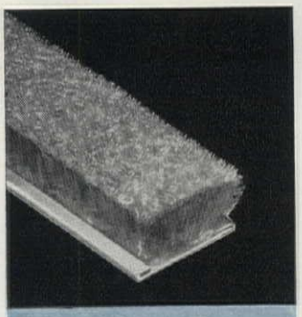

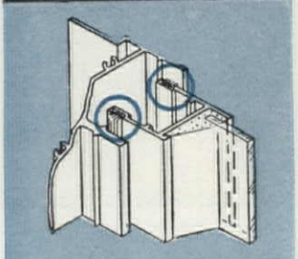

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YAMASAKI *continued from page 85*

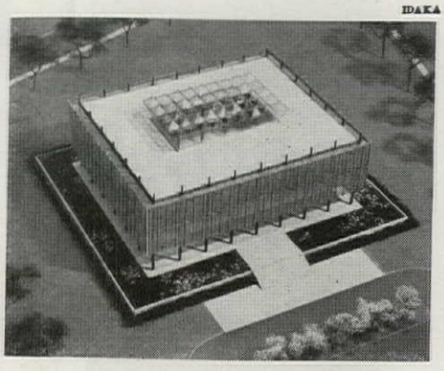
but he also developed a distinctive style that has been good news indeed for world-wide architecture.

"The two visits to Japan and the return trip around the world changed my life—maybe saved it," Yamasaki says today. "I got blinded by sunlight in Japanese courtyards after coming out of dark passages, stunned by their complete control of environment. This was the kind of experience you don't recover from—particularly when you feel a part of it. I found I liked everything there, particularly two things: skylights and water. I learned that good architecture makes you want to touch it. The Taj Mahal made me want to touch it; Corbu's Chandigarh didn't. And I learned that behind beauty there has to be a cultural concept. Now the Taj Mahal is so wonderful that it makes your hair curl, even when you know the walls have to be 12 feet thick to hold it up; there's a cultural concept supporting it. What I decided I had to do, the only thing that I would get fun out of doing, was the beautiful thing; beauty through structure and technology, because that's *our* culture."

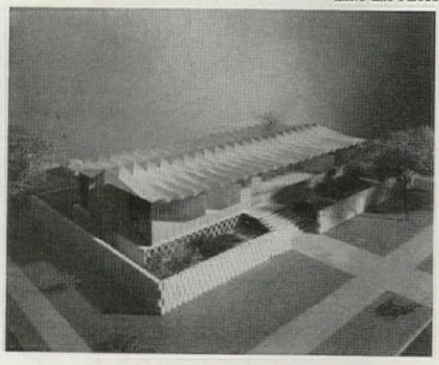
The Yamasaki philosophy has already been translated into four astonishingly beautiful, immensely popular Detroit buildings. They are the $1,172,000 McGregor Conference Center shown on the preceding pages, the $250,000 headquarters of the American Concrete Institute, the new $600,000 classroom and administration building for the Detroit Arts and Crafts Society, and the Reynolds Metals sales office, whose estimated cost is $1,685,000. The first three buildings share a special set of Yamasaki features: a skylighted central hall, a stagelike podium, and a surrounding wall to control the building's environment

continued on page 168

IDAKA

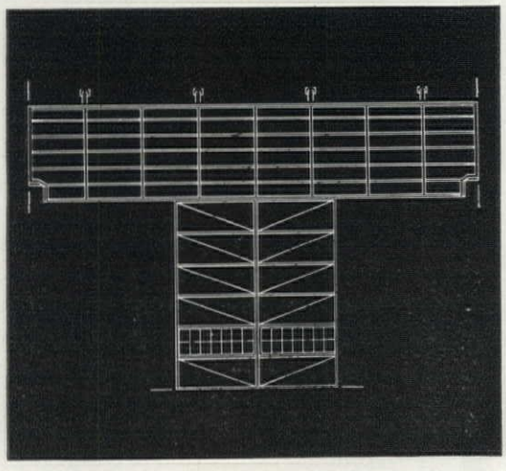


LENS-ART PHOTO



Strong in technology, rich in decoration: Yamasaki's Reynolds Metals Detroit regional sales office building (top) and American Concrete Institute office building (bottom).

THIS BYRNE CRANE DOOR



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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as completely as possible. The Reynolds office only lacks the wall to make it also conform (it has a gold-anodized aluminum screen instead).

The delightful, almost Grecian balance of these buildings is achieved as much by clever technology as it is by striking design. The technology is perhaps most obvious in the ACI headquarters, with its strong emphasis on concrete structure, than in the others, but it is nowhere lacking. In the Reynolds office, for instance, Yamasaki's determination to construct the handsome wrap-around screen by the latest technological methods meant that the plan of welding the screen's aluminum rings together at the site had to be scrapped, a new mechanical locking system invented. (Reynolds Metals realized, thereby, the additional beauty of saving $5,000 in construction costs.)

No more brownstones

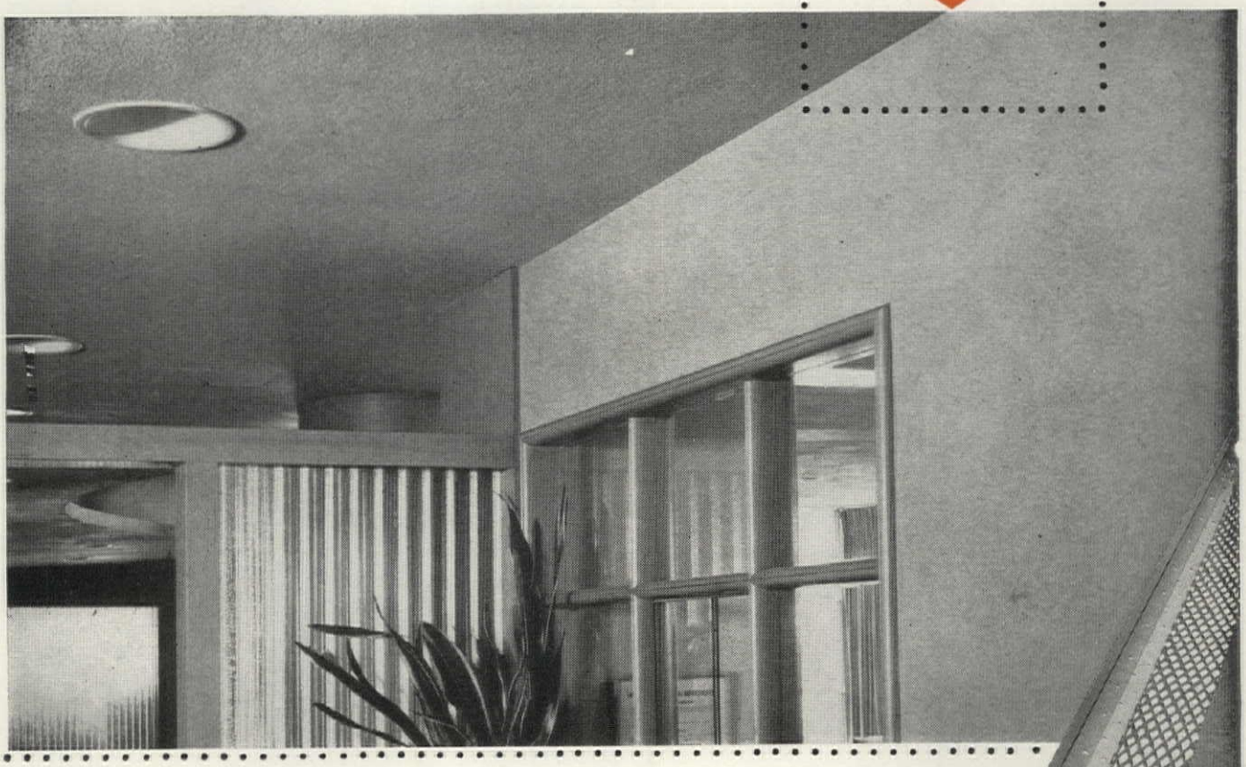
For Yamasaki all this activity has meant considerable material success, occasional shatterings of his serenity, and a reputation that insures respectful consideration of his firm whenever a project of significance needs an architect. "I don't have to do garages or remodeled brownstones anymore," Yamasaki says pleasantly.

His disinclination to get involved in projects where his ideals of beauty cannot be expressed means, of course, that he is not as excited by the general challenge of city building, traffic problems, or slums, as another architect might be. He was by no means saddened, in fact, to lose control over the development of Detroit's Gratiot housing project. "I was delighted that Greenwald and Mies wanted to do it," he confesses. "After the airport and after my ulcer I realized there's a danger of an architect getting involved in too many things for the sake of society. He's tempted to forget his real job is beauty."

Yamasaki is interested in individual gems, perhaps even in a harmonious grouping of gems, as on the campus of Wayne, where he has evolved as a master plan a series of courtyards and integrated, controlled spaces. But to some of the men in the office of Yamasaki, Leinweber & Associates (as well as the architects, there are seven engineers and nine assistants—one of whom is Yamasaki's father) this conscious restraint is frustrating. However, as one of them remarked recently: "I'd rather be frustrated in a good outfit than in a sloppy one."

Seattle and Yamasaki's days of troubled contention are indeed a long way off. "I'm happy to be living now," he says, "in this age. It's not Baroque, it's not Victorian, it's the end of nothing. It's just the beginning and I'm comfortable for the first time." And as he muses, he relaxes into a pantherlike stretch, confident now that he can overtake whatever new opportunity for beauty may happen by. END

Here, No. 66 expansion casing bead provides permanent separation between acoustical-plaster ceiling and sanded-plaster wall.



Milcor Casing Bead separates acoustical and sanded plasters

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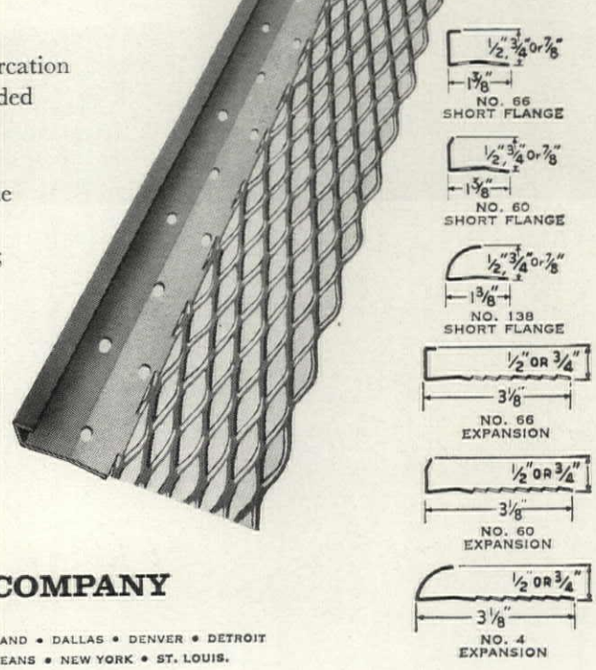

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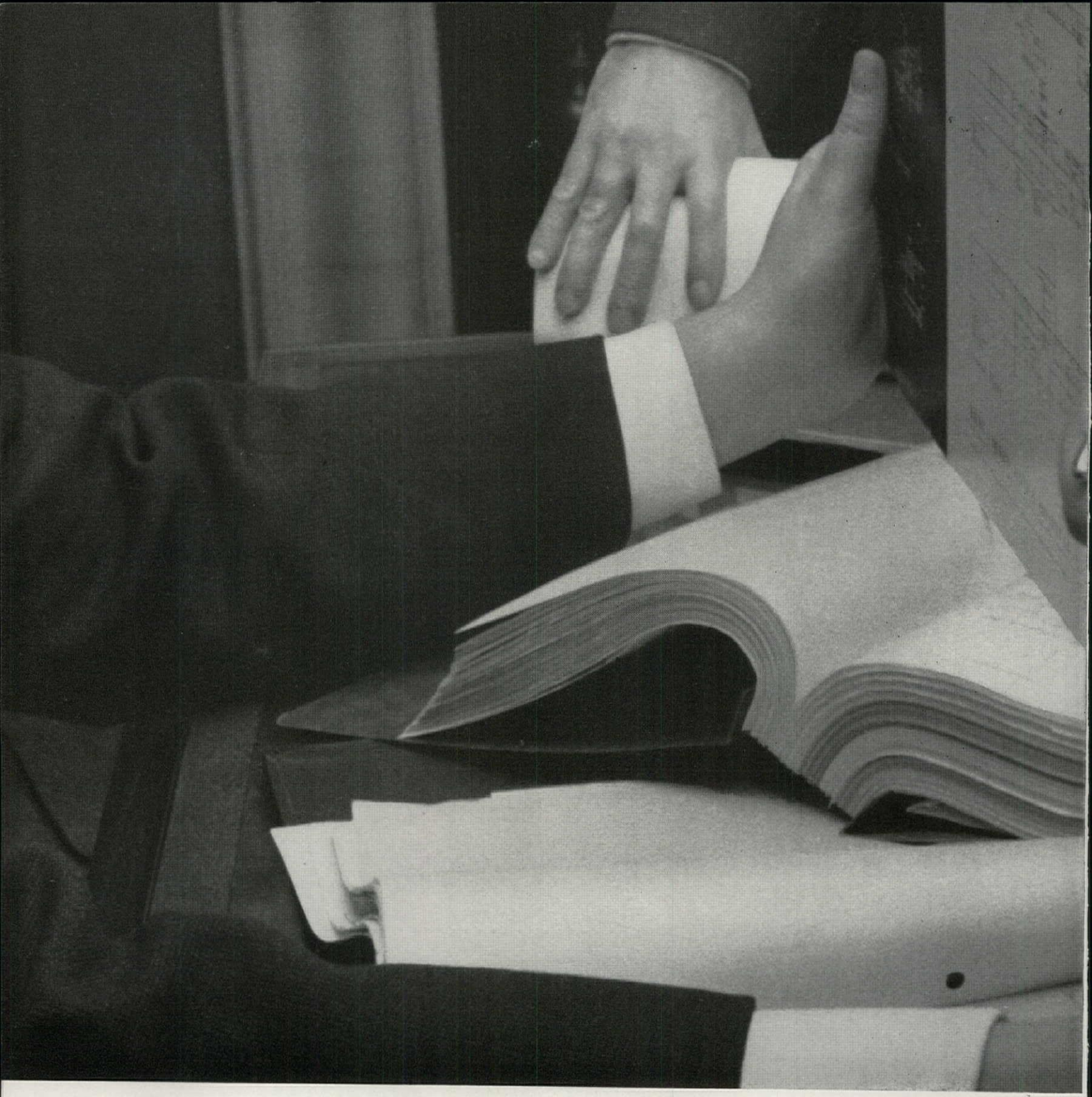

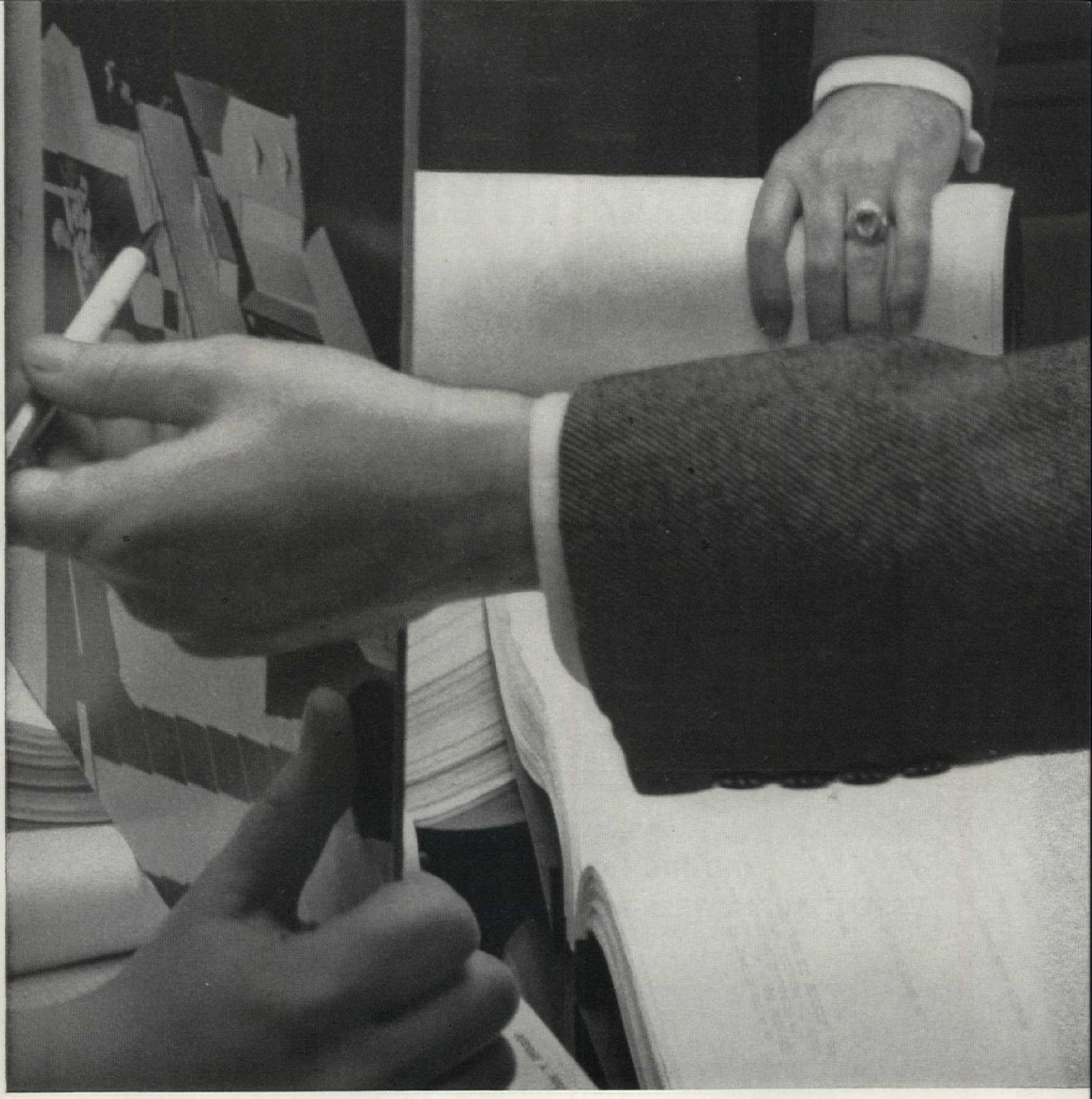

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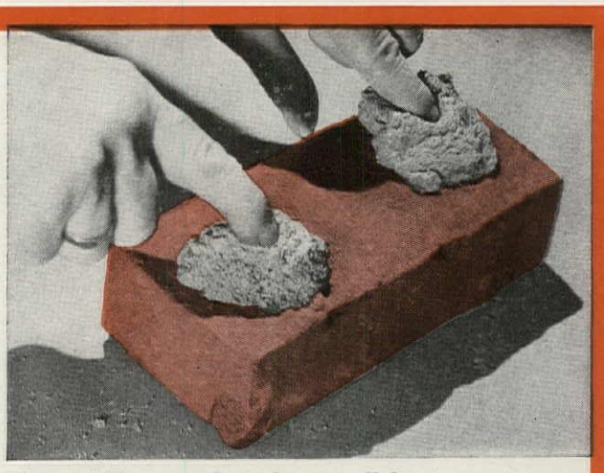

The one that stays plastic longer will be the one having the highest water-retention. Feel the difference with Brixment mortar!

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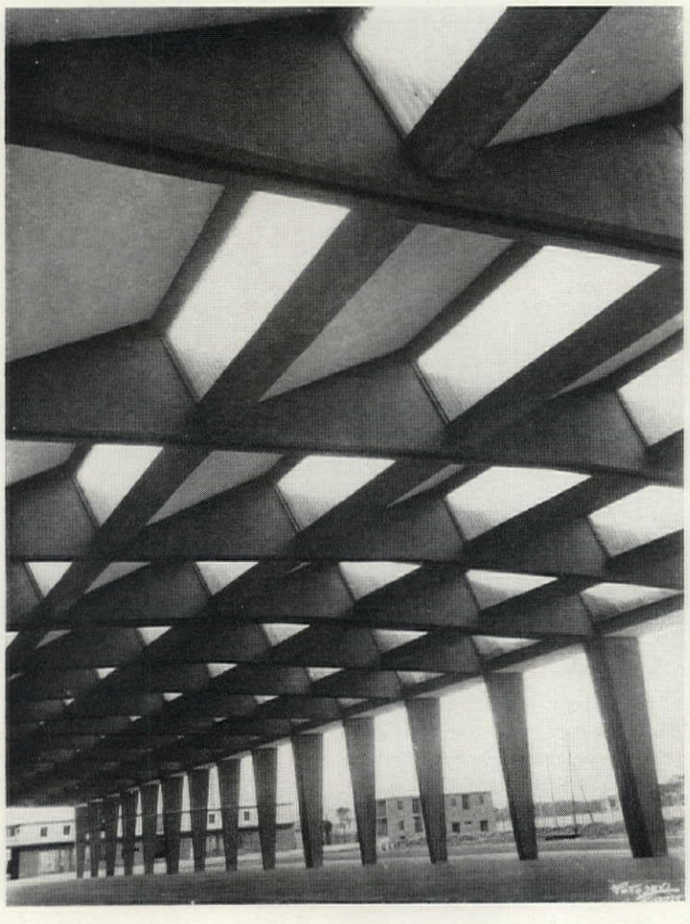
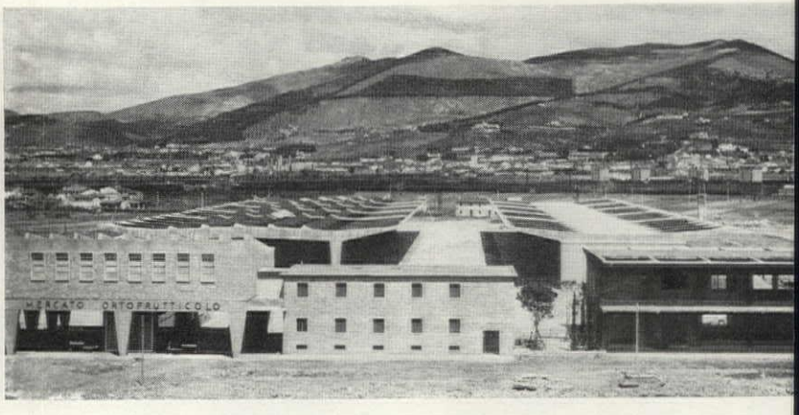
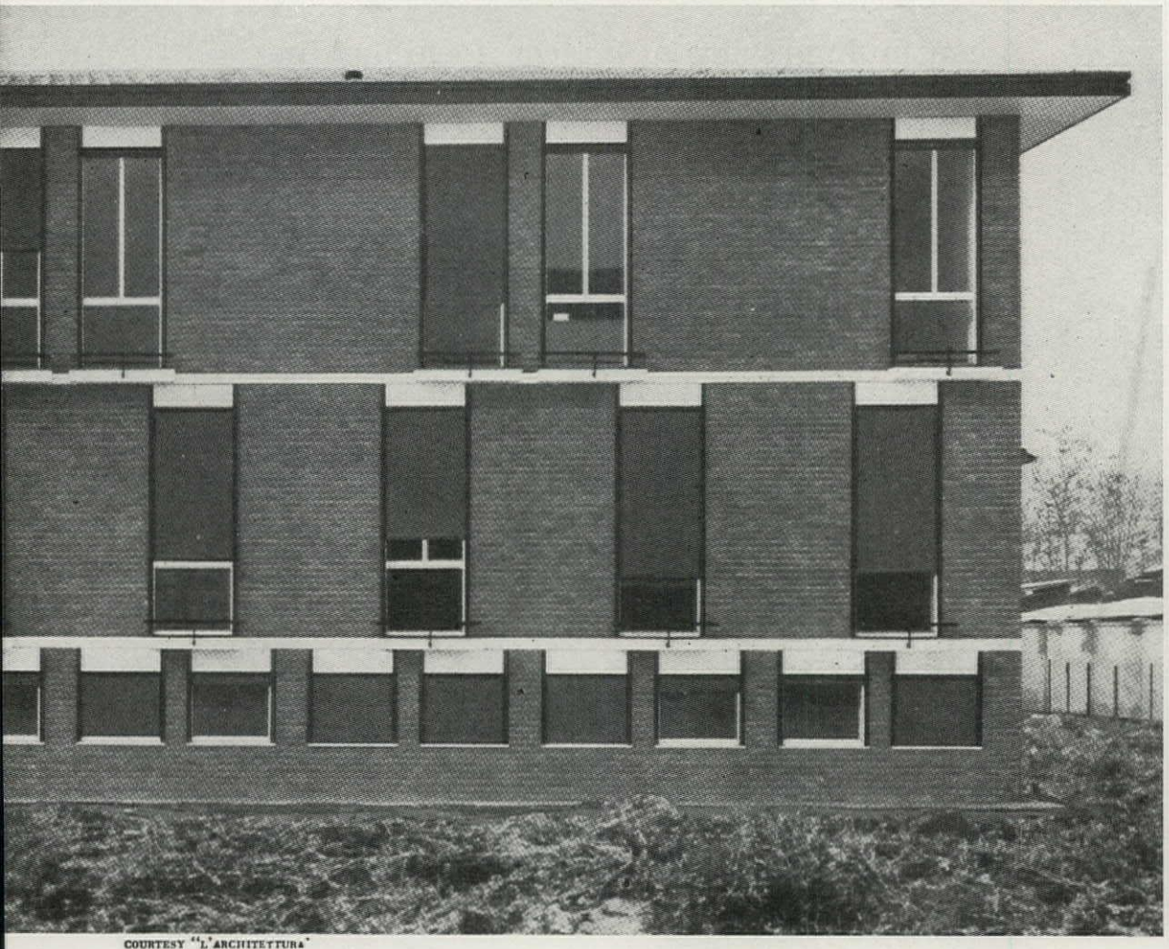




FLORENTINE CENTIPEDE

Looking like a winged centipede, a gaunt but handsome hall (top photo) now stands in the middle of Florence's produce market to which truck gardeners from the surrounding area will ship their goods on Italy's soon-to-be-completed national highway system. The bumps in the leggy hall's backbone are actually skylights (details, left), set in five undulating rows 50 feet above the brick-paved floor. Like the hall itself, the other, less attractive buildings in the project—a bank, a bar-restaurant, two warehouses (photo above)—protect unloading trucks with overhanging roofs. They also indicate that Architect Giulio Cesare Cardini Orlandi found it easier to design a skeleton than a full-bodied building.



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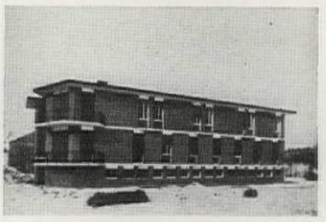
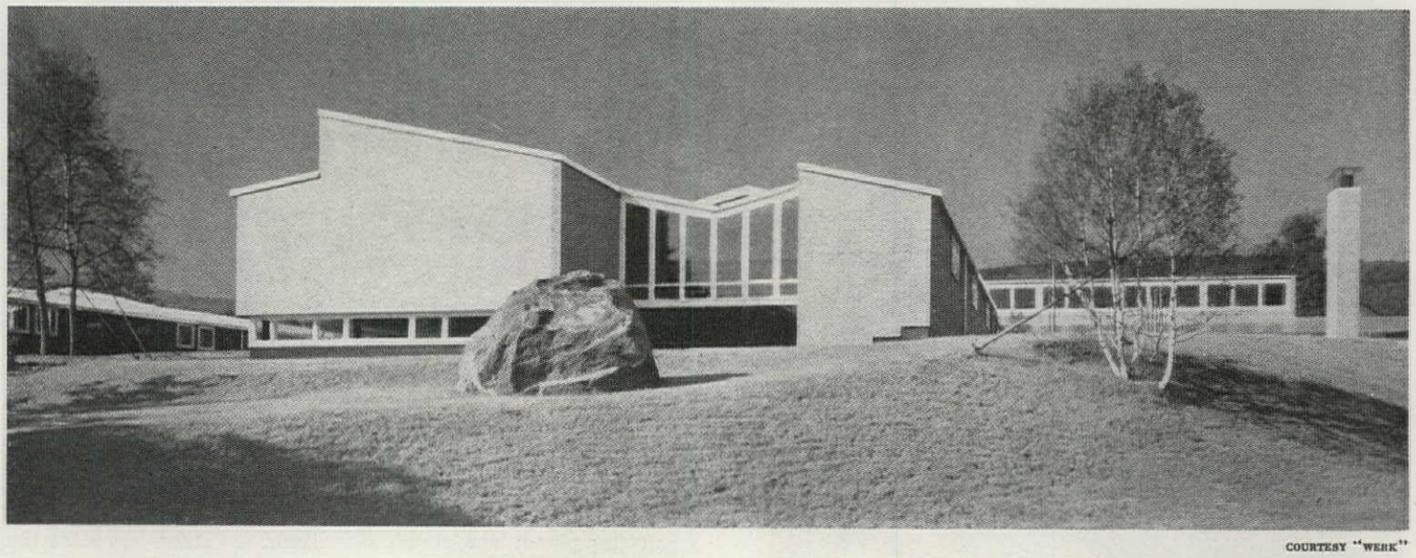


ITALIAN MATERNITY

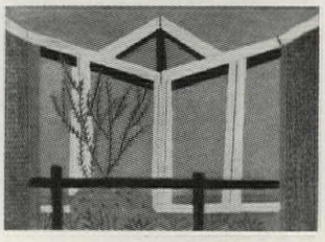
Although the over-all form of Architect Ignazio Gardella's maternity pavilion for a hospital at Alessandria, Italy has an undeniably institutional look (above), the studied irregularity of its tall windows (left) gives the façade an interesting character. The windows on the second and third stories start at floor level to allow bed-patients easy views of the hospital gardens, yet are narrow and carefully positioned to give needed wall space to the small hospital rooms. Beneath each window the floor-dividing strip of concrete projects out to form a sill for the patients' flowers.

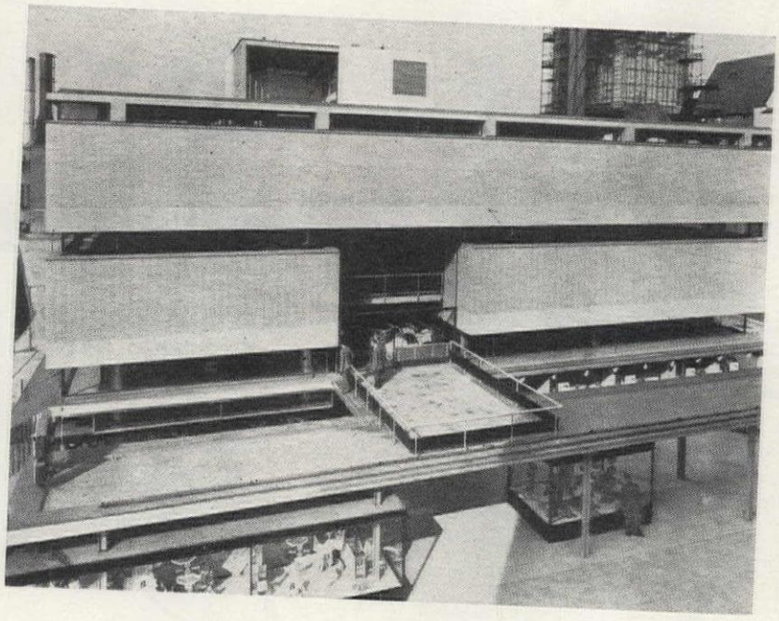


COURTESY "WERK"

SWISS CRITICISM

At Altstetten, Switzerland, educators and architects got together last year for a most unusual experiment: the educators agreed to leave the architects alone in the planning of a new primary school. Architects Cramer, Jaray & Paillard used more of the land area than the educators had originally thought wise, but the rambling, campus-style school has succeeded in winning full academic approval. Perhaps the most delightful comment on the school was made by a fifth-grade art-class pupil who had been asked to paint his new classroom as he saw it, produced the faithful architectural rendering at right.





COURTESY "BAUWELT"

AFLOAT IN HOLLAND

In contrast to many modern department stores which are totally windowless, Rotterdam's new "Galeries Modernes" by Architects Van den Broek & Bakema openly invites customers to enjoy such downtown views as the fifteenth-century St. Laurentius church and the Delftse Vaart canal. The store appears to be even more open and airy than it is because of the horizontal glass strips that "float" the upper floors. Also, from the mezzanine, visitors can walk out onto a front porch (left) for a breath of air before plunging back into the bargain-counter jam.

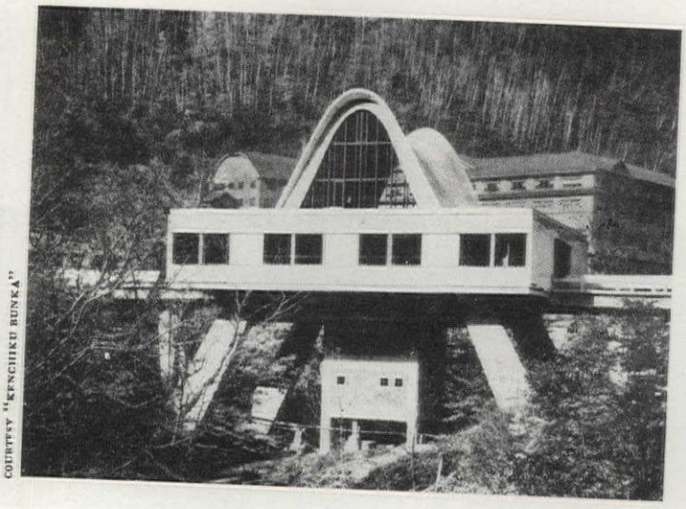
PLAYFUL NEAR ZURICH

The Heiligfeld apartments in the suburbs of Zurich were built on the premise that a development attractive to children would be highly rentable. Architect-planner A. H. Steiner, while seeing to it that the design of the apartment buildings themselves did not clash with the happy variety of the play areas, put his best efforts into the spirited architecture of the children's park. The children came; the apartments were quickly let.

MICHAEL WOLGENSINGER

RARE BIRD IN JAPAN

Architects of the Noboribetsu Hot Springs Museum on the island of Hokkaido made the best of an awkward site. The central structure of the building is a huge arch spanning a ravine. The upper part of the arch houses an art gallery. Cantilevered out from the center of the arch is a square exhibition hall of natural science. On the floor of the ravine rests a spring house, looking like a three-eyed baby bird being sheltered by its four-eyed parent.



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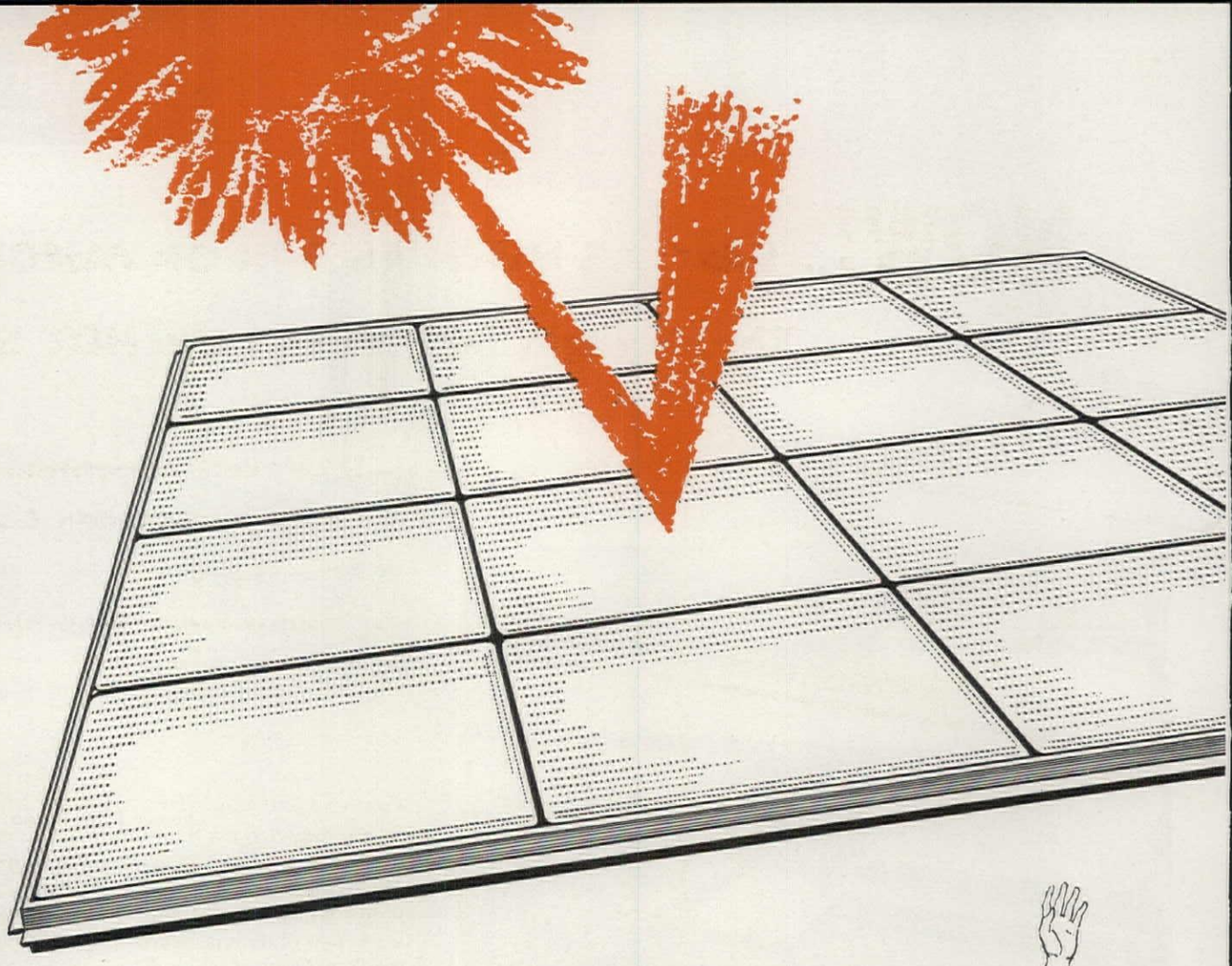

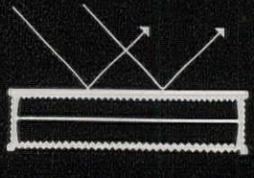

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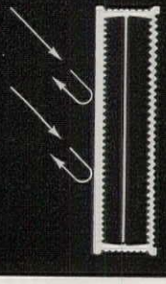

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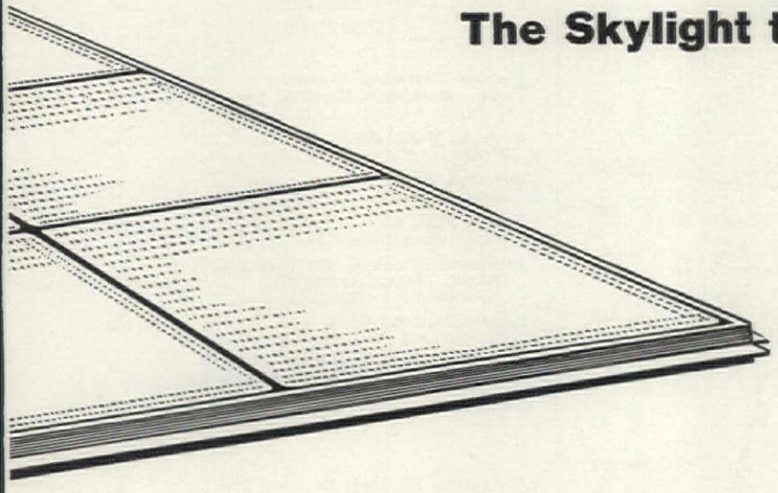

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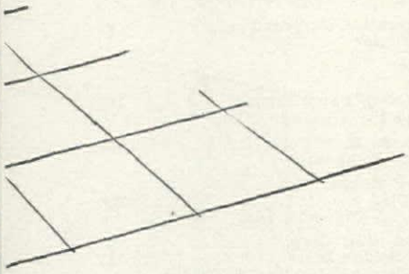

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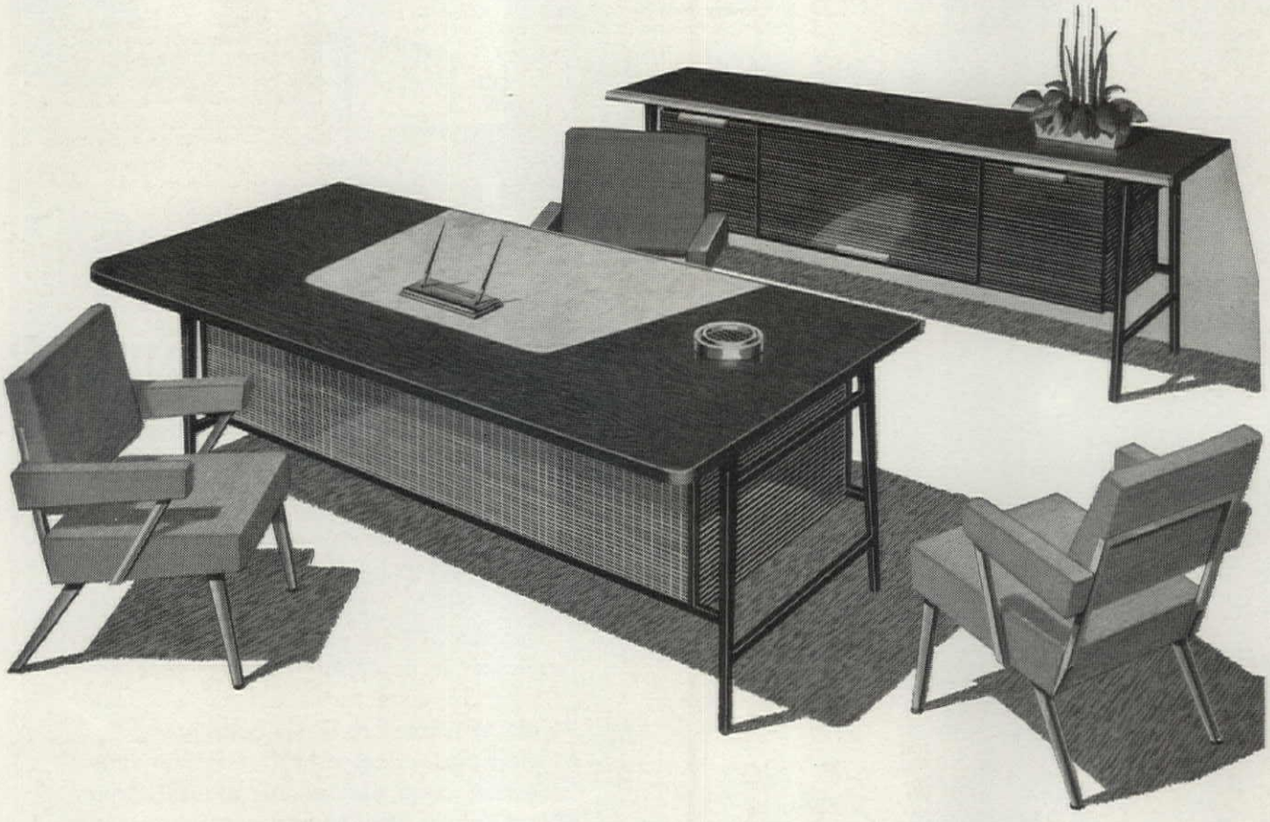

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