

Installation: Tennessee Building, Houston, Texas Architect: Skidmore, Owings & Merrill, San Francisco Floor shown: V-417 Tennessee Tan



Creative styling: an inherent quality of Azrock floors. Azrock vinyl asbestos floors* are carefully designed to coordinate with other interior surfaces and textures . . .

to relate effectively to any decor. Houston's newest prestige office structure is the 33-story headquarters for Tennessee Gas Transmission Company. Designed "to serve people," the Tennessee Building has floors of Azrock Premiere Series the high-performance resilient flooring with patterning through the thickness of the tile

the high-performance resilient flooring with patterning through the thickness of the tile — ideal for heavy-traffic areas. For styling and performance, there's nothing quite like Premiere.

an exclusive floor by **AZROCK**

Consult Sweet's Catalog or write for samples. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 502A Frost Building, San Antonio, Texas *Also known as Vina-Lux

PUBLISHER'S NOTE

Although we don't attach much | significance to the event, perhaps it should be recorded that the number of FORUM's subscribers last year broke through the 63,000 level-at least that is what is indicated by our recent count for the Audit Bureau of Circulations. What is significant is that a large part of last year's 1,000 increase in circulation took place in the "client" classification. FORUM now has more than 19,000 subscribers among the commercial, industrial, and institutional organizations which commission, pay for, occupy, and manage America's new nonresidential buildings.

It is this category of subscriber which sets FORUM apart from other magazines dealing with architecture and building. FORUM is edited with the client as well as the architect in mind, and its circulation among clients is encouraged. We believe that quality architecture is more apt to flourish where clients are enlightened. Other architectural publishers discourage client circulation.

The only kind of circulation we discourage is foreign-and only to the extent that we do not solicit it. Indeed, we have let the number of foreign subscribers taper off in recent years to only about 6,000-less than 10 per cent of total circulation. This trend continued last year, despite what seems to be a plot against us in the Iron Curtain countries of Eastern Europe. FORUM's subscribers on the other side of the curtain increased almost 30 per cent during the year-from 239 to 309! Some examples:

Rumania	71 (up 64)
Hungary	87 (up 7)
Czechoslovakia	12 (up 5)
Poland	120 (down 3)
USSR	14 (down 3)

There are other ways FORUM gets behind the Iron Curtain, as

Architectural Forum / March 1964

the picture below attests. You probably recognize the lady in the picture: Mrs. Nikita S. Khrushchev. The gentlemen are Foy D. Kohler (center), U.S. Ambassador to the Soviet Union, and Jack Masey, Director of the State Department's traveling exhibition of American graphic art. In the background you see the cover of the July '62 issue of FORUM for which Artist Ray Komai created a random pattern of colorful paper airplanes symbolizing that issue's major story on air terminal design.



(The cover of FORUM's Chicago issue of May 1962 also shows up vaguely in the background.) Covering all the graphic arts, the American exhibition was severely criticized by Izvestia, the Soviet government newspaper, but it nevertheless drew hundreds of thousands of visitors during its one month stand in Moscow.

Russia's counterpart exhibit was staged in TIME INC.'s reception room on the ground floor of the Time & Life Building here in Rockefeller Center-very handy to our editors. FORUM's Art Director Paul Grotz found the Russian exhibit "interesting," a term which we've learned, is a polite negative often used by one artist in discribing the unappreciated work of another artist. So don't look for any subtle Soviet influence on the design of the pages that follow. -J.C.H. JR.

APARTMENT Urban housing	S: WHAT NEX	XT? amental changes	70
NINE APART A survey of out	MENT BUILD	INGS les, at home and abroad	72
WHAT PRICE A FORUM Roun	CITY LIVING dtable asks if t	?? he industry can meet the mark	84 ket
TECHNOLOG British devise a	Y: JACKBLOC speedy system;	KS AND THUMPERS FHA closes in on noise	92
MUSEUMS: José Luis Sert d	MODERN AR1 lesigns a "village	ON THE RIVIERA e" for Paris' M. Maeght	98
PERSONAL (Harlow Carpent	GALLERY IN N er carries on a f	VERMONT amily tradition with taste	104
GEMLIKE SE Philip Johnson	TTING FOR P shapes a cluster	RE-COLOMBIAN ART of curves in Washington, D. C.	
A MOST UN Museum patron	USUAL BUILD Huntington Har	DING CLIENT etford, and his many projects	112
REBUILDING Or, how to turn	: THREE GAL a paint store in	LERIES to a palace for art	114
THE BIGGES	T SKYSCRAP Vorld Trade Cen	ERS ter has New York up in the air	118
A DIFFEREN A small tower n	T KIND OF S near Houston disp	KYSCRAPER plays the "organic" approach	122
5 NEWS	Cover:	Floor plan of Dumbarton Oaks m by Philip Johnson (see story, pag	useum e 106)
39 PROJECTS	63	Editorial, subscription, and advertising data.	
53 FURNISHIN	IGS 176	Advertising index.	
62 LETTERS		ARCHITECTURAL FORUM, March 19 Vol. 120, No. 3. Published month by TIME INC., 540 N. Michigan Ave., Chicago 11, III. SUBSCRIPTIONS: U.S., U.S. Posse and Canada, one year \$7:	64 ly essions
69 EDITORIAL		elsewhere, one year \$12. Single copies, if available, \$1. Address all subscriptions and correspond concerning them to ARCHITECTUF FORUM, 540 N. Michigan Ave., Chicago 11. Ill. Second-elass nost	ence AL
126 EDITOR'S	NOTE	paid at New York, N.Y., and at additional mailing offices. This issue is published in nation and separate editions. Additional pages of separate editions are	nal
150 BOOKS		noted or allowed for as follows Professional Edition, PE1-PE2; Western Edition, W1-W6. Member, Audit Bureau of Circulations and Associated Busin	: ness
175 PRODUCTS		Publications. © 1964 Time Inc. All rights reserved.	



PRESIDENT CALLS FOR EXPANDED HOUSING AND Community programs

WASHINGTON, D.C. — Rich man, poor man, Indian chief and just about everyone else stands to benefit from the new Housing and Community Development bill outlined several weeks ago by President Johnson.

For middle- and upper-income suburbanites, Johnson proposes that FHA back whole new communities with big, all-purpose mortgages (up to \$50 million for

President Johnson

any one development) to ensure sound planning of all needed community facilities. And to make sure the consumer can handle the higher-cost housing that could result, he proposes that FHA increase its mortgage insurance limits from \$25,000 to \$30,000 on single-family homes.

For the less affluent, the bill includes more public housing: 60,000 more units per year for four years. There is an increased emphasis on using existing housing for low-income families and, for the first time, individuals. And, as part of LBJ's crusade against poverty, there are even vague outlines of a federally sponsored housing program for migrant farm workers, Indians, chiefs and otherwise, come in for considerable attention, with new programs designed for better housing and planning on U.S. reservations.

Community development-The

most striking innovation in the new bill would use FHA as an instrument to ensure better planning of large subdivisions and new towns. President Johnson cited "the sprawling, space-consuming, unplanned and uneconomic way" in which most postwar tracts have been developed. To combat such wasteful practices, Johnson proposes a two-pronged program:

► Grants and loans would be made to local governments (through the Community Facilities Administration) for advanced purchase of land, and planning and installation of utilities such as streets, sewers, lights, and water. Amortization of such loans could be deferred until such time as actual development by private builders takes place.

 Mortgage loans would be made to private developers for largetract, or "new town," development. To get such loans, the development's plan would have to be approved by the Housing & Home Finance Administration and FHA. Higher mortgage amounts would be approved where the developer is putting in the utilities. General criteria for approval include "sound land-use...efficient use of area-wide facilities and adequate provision of services... promotion of economic growth and employment opportunities...and sufficient housing to meet the needs of various kinds of families," including the poor and the old.

The latter provision is most striking, for it abolishes the longheld notion that the most insurable and potentially stable community is the one-class, homogeneous one. Now FHA, which has for many years aided in the development of such areas, must insist on a new set of standards. It will also have to see that all insured developments guarantee open occupancy.

For a nation which gobbles up over 1 million acres of land for urban use each year, the new community development proposals are long overdue. At its inception, in 1935, FHA prodded home builders into paying attention to sound planning, but the post-war home shortage overrode many such considerations. The new bill would make government a strong force for the rational treatment of urban land.

Urban renewal — The renewal program would receive another \$1.4 billion, which is about enough for two more years of new capital grant reservations. Relocation provisions for low-income families and small businesses are to be broadened.

Public housing—For the first time, the federal government proposes to make widespread use of existing homes for low-income families. This has been tried under the demonstration program and proved successful. At least 25,000 of the 60,000 units proposed each year for the next four years would be in existing units, 10,000 of them leased by local housing authorities, the rest purchased outright.

Housing for the elderly—Another \$100 million is authorized for direct federal loans, and such aid is extended to single older persons for the first time.

President Johnson also urged passage of two measures related to housing:

Urban mass transportation— The President strongly recommended passage of the \$375 million bill now in Congress, for a program of matching grants to cities for the rehabilitation and expansion of mass transit.

Department of Housing and Community Development — The old idea of a cabinet-level Department of Urban Affairs was resurrected, with a new name to fit this year's bill. The reasons remain the same: to coordinate more effectively all programs for housing and urban development.

It is still too early to tell for sure how the housing bill will fare in Congress. The most radical departures of the bill (e.g., new town development) are likely to be favored by strong segments of the building industry, such as the home builders and realtors. But hearings on the bill started last month as the tax-cut bill was still under discussion, and prior to Senate passage of the civil rights bill. Until these measures are settled, the housing bill probably will not come before Congress.

OTHER BUILDING NEWS

Law court stops highway	7
FHA boosts 221d3 program	7
Next step for research	9
1963 construction volume	9
More factories forecast	9
AIA's new competition	9
Shopping center glut?	9
Hospital builders sued	10
Boston competition	10
Design for rapid transit	10
Transit subsidy urged	11
Modern cathedral in S.F.	11
People in the News	13
Building in the News	16
And and a second se	

CIVIC CENTER PLAN ATTACKED IN MANHATTAN

NEW YORK—This city's architects have not been renowned as a combative lot, but last month 13 leading members of the profession staunchly attacked the plans for New York's controversial Civic Center. They predicted that unless the city reappraises its projected \$200 million scheme (model, below), it will end up building a "failure."

The plan, said the architects, continued on page 7



Model of New York's Civic Center



What's your next office project?

Whatever it may be—a single office, a complete floor or an entire building—we think it might simplify your problems a little if you could see how beautifully Steelcase Coordinated Offices fit into contemporary office buildings. SCO features standard office furniture, with all units completely coordinated in design, color and function. And, happily, prices are realistic. We have a folder which tells all about SCO. It's yours for the asking. Simply request it on your letterhead. Steelcase Inc. Grand Rapids, Mich.; Canadian Steelcase Co., Ltd., Don Mills, Ont.

For your free copy of full-color SCO brochure, address Department A, Steelcase Inc., Grand Rapids, Michigan.





STEELCASE INC



in effect, reflected 1) few of the future needs of the city, state, and federal governments; 2) narrowly defined traffic planning; 3) inadequate correlation of the 60-acre site with adjacent areas; 4) little provision for future expansion; 5) failure to consider the possible effects of other downtown projects such as the huge World Trade Center (see pages 118–121).

The urgency of the situation was highlighted a few days later when the City Planning Commission held hearings on an urban renewal project right next to the Civic Center site, the Brooklyn Bridge Southwest development. Architect Nathan R. Ginsburg pointed out that about one third of the land in this project was originally earmarked for the Civic Center. The Center, he said, vitally needs the land to set up new traffic patterns, to build a 5,000-car parking garage under Brooklyn Bridge, and to ensure orderly future expansion.

These two attacks succeeded in attracting the public's attention and a few sharp rebuttals. The Citizens Housing and Planning Council and the Citizens Committee for the Civic Center came out strongly for the old plan drawn up in 1862 by Architects Max Abramowitz, Simon Breines, and Robert Cutler. Their points: any restudy of the whole area would delay the Civic Center; there had been ample opportunity to discuss the old plan in public before now.

The critics answered that only a massive restudy could save the Civic Center. Moreover, they said, there was very little opportunity to discuss it: the plan was released at the start of the 100day newspaper blackout, and was approved shortly after it.

Would the city stop and reconsider, as the architects* requested? One indication came when Financier and Philanthropist Jacob M. Kaplan offered \$50,000

*Architects Edward Larrabee Barnes, Marcel Breuer, Walter Gropius, Philip Johnson, I. M. Pei, Paul Rudolph and José Luis Sert: Planner G. Holmes Perkins, Landscape Architect Hideo Sasaki, and Educator Burnham Kelly; Managing Editor Jan C. Rowan of *Progressive Architecture*; Fousy Editor Douglas Haskell and Managing Editor Peter Blake,

to finance an international design competition for the whole project last August, Mayor Wagner turned down this proposal; he did not want to delay the progress of the present plan. Kaplan has not given up, however. Besides helping to bring the 13 architects together, he has suggested three courses of action for the Mayor: 1) meet with the 13 architects to hear their views; 2) ask Planning Commission Chairman William Ballard to explore the problem further with the architects; 3) appoint a temporary commission on the Civic Center to see that a further study is made.

COURT RULES AGAINST POOR HIGHWAY PLANNING

SPOKANE, Wash.-Citizens who feel that the highway engineers are doing their planning for them can take heart. On February 3, Spokane Superior Court Judge Ralph P. Edgerton handed down a decision enjoining the Washington State Highway Commisson from building a \$33.6 million urban freeway through the city's heart. The Commission says it will appeal, as most of the land for the freeway has been condemned, much of it cleared, and a \$2 million bridge, geared to the road, has been constructed. However, an important legal precedent has been set in the fight against poor urban highway planning.

Spokane's Deaconess Hospital brought the suit against the freeway builders, contending that the highway, which passes almost under the hospital windows, would generate harmful noise and gas fumes. Judge Edgerton ruled that not only hospital inmates but a lot of other citizens would be injured as well.

Moreover, Edgerton found that the freeway would not help even those for whom it was to be built. "It discriminates," he said "against the citizen motorists of Spokane" by not considering their "present and future needs." The highway, it seems, would cut off 17 of 35 cross streets and would spew traffic willy-nilly into one already congested downtown area.

Beyond that, Judge Edgerton questioned whether the highway was needed in the city at all. If it was, he felt that it would not, as planned by traffic engineers, serve the entire city well. Quoting at length from the Hershey Report on "Freeways in an Urban Setting" (see FORUM, Oct. '63 and Letters, page 63), he implied that most of the Hershey commendations had been ignored by the Highway Commission. Examples: the proposed freeway encroaches upon-and destroys-municipal park land; it was planned without the help of city planners, architects, or landscape architectswith the result that it violates the land use of the areas through which it passes; it was not integrated with other streets; and it would probably be ugly. Summed up Edgerton: "All [these things] constitute a plan whose basis is fundamentally wrong."

BOOM AT THE BOTTOM: 221d3 GROWS AND GROWS

Somewhat lost in the wake of a revolutionary housing bill (see page 5) and a booming apartment market (pages 70-97) is the fact that something big is happening in low-rent housing: FHA's 221d3 is growing at such a rate that by next year it will be the largest of all FHA rental housing programs.

What is so surprising is that when 221d3 was passed back in 1961, nobody was sure it would work at all (FORUM, April '63). It proposed to get private builders to build limited-profit low-rent housing, with tenant eligibility policed by FHA, via guaranteed, low-interest loans (at first 3¹/₈ percent, now 3³/₈ percent).

Last year, 221d3 generated nearly 15,000 units of housing for median-income families, and the recently announced housing budget for fiscal 1964 predicts twice as many units. By fiscal 1965, it is estimated that there will be at least 39,000 units, which would make it the third largest of all FHA programs.

NEW MOVE TO BROADEN BUILDING RESEARCH?

WASHINGTON, D.C. — Last month, the Department of Commerce's National Bureau of Standards set up four new "Institutes." This reorganization is intended to bring the resources of the Bureau closer to private industries.

Of key significance for building men is the move of Dr. Donald A. Schon (below), formerly head of Commerce's Office of Technical Services, to the post of Director of the Bureau's brand new Institute for Applied Technology.

Under Schon, IAT will, among other things, take over the considerable building research activities that the Bureau of Standards has been conducting in the past—



IAT Director Donald Schon

testing building materials and setting performance criteria.

The Building Research Advisory Board's special committee had recommended an institute of building research within the Bureau some time ago. Last month's reorganization might well create a framework for such a governmentsponsored institute.

Moreover, industry sources say what is most needed is not building research *per se*, but planning, because of the resistance to federal aid within the building industry itself. The first step toward the formation of a new Bureau of Standards program, they feel, must be to find ways acceptable to the industry to promote such research. Outlook: new hope for a broad research program.

continued on page 9

What happens to Pliolite based paints after years of exposure?



Nothing.

Because PLIOLITE® synthetic resin binders assure resistance to weather; ward off destructive effects of moisture and alkalies in masonry.

For example, a major aircraft plant in Seattle was painted with a PLIOLITE based paint in 1957—its first and only coat. And despite the Northwest's salt air and heaviest rains, the finish is fresh-looking today.

Masonry paints based on PLIOLITE have

proven their extreme durability around the country for over 15 years. In swimming pools, apartment houses, schools, churches, motels, grain elevators and "rec" room floors. For flat and enamel finishes, and even splatter paint.

Another advantage: PLIOLITE based paints cling where many others can't. Even to "green" masonry.

So specify PLIOLITE resins in masonry finishes. Nothing will happen — except a beautiful finish — for a long time.

For more information, and names of paint manufacturers using PLIOLITE, mail the coupon.



Send brochure on PLIOLITE.

□ Send Directory of paint manufacturers using PLIOLITE.

Name	A PARTY AND A PARTY AND		
Position			9
Firm			
Address			
City	State	Zip No	



NEW CONSTRUCTION EXPENDITURES, ANNUAL TOTALS FOR 1963 AND 1962

	(millions of dollars)			1962	% Change
	Private	Public	Total	Total i	n Totals
BUILDING CONSTRUCTION	\$19,985	\$7,255	\$27,240	\$25,245	7.9
Industrial	3,118	459	3,577	3,249	10.1
Office and warehouse	2,914		2,914	2,648	10.0
Store, restaurant, and garage	2,196		2,196	2,375	-7.5
Religious	995		995	1,035	-3.9
Educational	683	3,046	3,729	3,638	2.5
Hospital and institutional	1,037	456	1,493	1,272	17.4
Social and recreational	607	203	810	791	2.4
Public administrative and serv	ice	804	804	676	18.9
Apartments	5,300	330	5,630	4,758	18.3
Hotel, motel, and dormitory	1,216	339	1,555	1,403	10.8
All other building	1,919	1,618	3,537	3,400	4.0
HOUSE CONSTRUCTION	19,174	112	19,286	18,951	1.8
OTHER CONSTRUCTION	4,600	11,631	16,231	14,840	9.4
TOTAL CONSTRUCTION	\$43,759	\$18,998	\$62,757	\$59,036	6.3

Source: BUREAU OF THE CENSUS AND MILES L. COLEAN ESTIMATES BASED ON CENSUS DATA.

IN 1964: MORE NEW Factories, stores

WASHINGTON, D.C.—"The accident-prone but death-defying American economy gave us all especially those in the construction industry—a pleasant surprise in 1963," said Economist Nathaniel H. Rogg of the National Association of Home Builders. Just how pleasant a surprise is shown in the table above: the building industry boosted its volume 6.3 per cent last year over 1962.

The experts have spent a lot of time studying these figures and making predictions for 1964. Besides apartments (see *News*, Feb. '64 and pages 70-83), two areas of building are drawing the most attention: factories and stores.

FORUM Economist Miles Colean estimates that new industrial building will increase 6.1 percent over last year's \$3.56 billion. Even this figure might be low, however. Surveys of industry's own capital spending plans reveal that a total increase of \$5 billion (to over \$60 billion) could be attained this year. Almost every industry, it seems, will spend more, and many of them will put the money into building or enlarging plants.

Store, restaurant, and garage construction is one of the two building categories that slumped below 1962 levels (the other is churches). One reason for the 7.5 percent decline was the slowdown in the construction of new shopping centers after five years of boom. Colean expects store construction to go up slightly this year (by 2.4 percent), but builders will have to watch their step (see story, right).

CAUTION ADVISED ON SHOPPING CENTERS

NEW YORK—Reports from 40 U.S. cities last month came to the same conclusion: except in a fcw (Phoenix, Minneapolis–St. Paul, Houston, St. Louis, Cleveland), shopping centers are not overbuilt. Almost every city, however, reported that it was near the saturation point.

Developers of new shopping centers, the reports indicated, would have to pay particular attention to location (near the intersection of two major roads if possible), to tenancy (by including at least one big department store in the larger centers), as well as to sound management and such planning details as amount of parking space, lighting, and how to set up the centers' financial structure.

The owners will also have to be more "design" conscious, especially in large regional centers where women get dressed up to go shopping. Houston's newest centers, Westbury Square and Lantern Lane, both have "architectural themes": the former is decked out in "Gay 90s" style; the latter tries to look rustic. Still others, notably those of Baltimore Developer James W. Rouse, are strikingly modern. One of the liveliest is Rouse's new addition to his North Star Center in San Antonio, in which Architects Katzman Associates have created gay kiosks and open-fronted stores on an air-conditioned mall (see photo below).

Shopping centers will also have to be more carefully financed. To ensure local participation in the success of his new centers, Vermont's Antonio Pomerleau gives existing businesses first crack before bringing in anyone from out of town. In Boston, insurance companies and banks backing new centers often demand "quality research" as to sales potential. Albuquerque, N.M. lenders ask prospective developers to come up with a site no closer than 11/2 miles from another center, with at least 2,000 families in its area, and with lease commitments from three major tenants.

Salt Lake City's Planning and Zoning Commission has gone lenders and developers one better: it has drawn up a master plan for the whole county, clearly designating (under land use) where it feels new shopping centers could thrive.

Other factors may discourage new shopping center developers: not only are older downtowns bidding strongly to regain their previous shopping status, but large shopping centers (e.g., Willow Lawn at Richmond, Va. and Northland near Detroit) have also become business nuclei complete with office buildings, which draw customers from a large area.

Outlook for new shopping center construction: only a slight rise after 1963's decline.

continued on page 10

Design for shopping: new addition to San Antonio's North Star Mall

COMPETITION FOR NEW AIA HEADQUARTERS

WASHINGTON, D. C. — The American Institute of Architects recently announced that it will hold a design competition for a new headquarters building in this city. Eligibility is limited to AIA members. The building will provide 50,000 feet of floor space, and will be located on land adjacent to the Octagon House (including the plot on which the existing small brick headquarters



building now stands). Also required: parking and service areas.

In the two-stage competition, six finalists will receive \$5,000 prizes and the winner will get the architectural contract. The jury includes Architects Edward Larrabee Barnes, J. Roy Carroll, O'Neil Ford, Hugh Stubbins, Jr., and John Carl Warnecke. Entrants must register by March 15; forms are available from Professional Adviser A. Stanley Mc-Gaughan at the Octagon, 1735 New York Avenue, N.W.



VA HOSPITAL SCANDAL: Building and Politics

BOSTON—The photograph below shows the gleaming exterior of the \$12 million, 940-bed Veterans Administration hospital in Boston's Jamaica Plains section. It was taken shortly after the building was completed in 1952 while the VA was still praising it as the "finest and most modern hospital in the East."

Last month, this same building resembled nothing so much as a gigantic cocoon. Sheathed in heavy plastic, it was undergoing a massive, \$4.19 million repair job. The original construction, it seems, had been so faulty that ever since 1954 bricks—and even windows—had been popping off the walls. Reason: behind the brick façade there were gaping holes in the structural concrete work. Many of the bricks had been bonded only to each other —not to the wall behind.

All this came out a few weeks ago when the Department of Justice sued four firms for \$4.9 million in damages plus interest: Architects Coolidge, Shepley, Bulfinch & Abbott; Engineers Charles T. Main, Inc.; Contractor Mc-Closkey & Co.; and the Aetna Casualty & Surety Co. (which had guaranteed the work).

Despite the size of the claim, it might have been a routine ac-

tion-except that this is an election year, and McCloskey & Co. belongs to Matthew H. McCloskey, former treasurer of the Democratic National Committee, vigorous party worker, and, until recently, U.S. Ambassador to Ireland. All of McCloskey's public building contracts immediately became suspect, including several in Washington, D.C.: the new \$19.8 million D.C. Stadium, the older \$24 million expansion of the White House East Front, the \$12.6 million Federal Office Building No. 4 now going up, and the almost completed Rayburn Office Building for the House of Representatives. In calling for a General Accounting Office audit of McCloskey's contracts, Representative Oliver P. Bolton (R., Ohio) termed this last project the "most expensive office structure (\$118 million) in our nation's history."

Adding to McCloskey's troubles is the fact that he has been linked to wheeler-dealer Bobby Baker, former Secretary to the Senate Majority, in obtaining the stadium job. But McCloskey did not seem particularly worried by any of these things as he prepared to return from Ireland last month to help raise funds for LBJ's election campaign. About the VA hospital, he stated: "The work was done according to plans and specifications. I'm convinced that we can successfully defend our position."

Boston's VA hospital: popping bricks touch off a \$4.9 million suit





RELATIVELY UNKNOWN FIRM WINS COMPETITION

BOSTON—Last month the Boston Architectural Center announced the results of a design competition for a new building to replace its present quarters. Winner of the \$5,000 first prize and the architect's contract—was the young Lexington, Mass. firm of Fletcher Ashley and John Myer, whose solution is shown in the model above.

It is a many-windowed, six-story building, to be constructed of precast concrete members on the foundations of the present BAC building. At the top level is an open court surrounded by classroom and studio space, a faculty lounge, and two libraries. Below are more studios, classrooms, rental-expansion areas, offices, and meeting rooms (lower, boxlike elements). The cylinder at the rear is a stair tower.

Setting up the competition was the job of Professional Advisor Walter F. Bogner of Harvard's School of Design. The problem was neat, but tricky: some 30,000 square feet of floor space were needed within a building that would not cost over \$550,000, yet fit in with the architecture of the "new Boston." Entrants had only seven weeks in which to prepare their submissions. Because of the small prizes (only \$9,000 in all), most of the 89 submissions came from young architects. Commented Bogner happily: "The competition shows what young talent is capable of."

Also impressed was a blue-

ribbon jury of Architects Pietro Belluschi, José Luis Sert, Ralph R. Rapson, James Lawrence, Lawrence Anderson, and Benjamin Thompson, plus Sculptor (and BAC Dean) Arcangelo Cascieri, with William J. Le Messurier as consulting engineer. The jury was particularly pleased with Ashley & Myer's use of precast concrete elements to reduce the building's cost, the simplicity with which natural light is brought into the studios, and the utilization of the party wall as a "logical location for all the services."

The \$3,000 second prize was awarded to the Cambridge team of Allen Chapman, Harold Goyette, Fumihiko Maki, and John Bennetts; the \$1,000 third prize went to Robert C. Herman and Peter Woytuk, of Hugh Stubbins Associates.



Second prize, by Cambridge team



Third prize: Herman and Woytuk

BAY AREA DESIGNS FOR TRANSIT "ENVIRONMENT"

SAN FRANCISCO—This city's Bay Area Rapid Transit District has revealed how it plans to attract people into its railway cars: by good design. BARTD is carefully studying all the elements that go into stations and rolling stock, to make them not only more efficient, but pleasanter for people to use.

For this unprecedented study, a design team under Architect Donn Emmons has been collecting information in Chicago, Toronto, and New York—observing things like behavior patterns of passengers waiting for trains, maintenance of cars and stations, and precautions against crime.

A list of some 1,500 separate items which might influence design was boiled down to 500 requirements (e.g., a lone person in off-hours should be able to start an inactive escalator for his own use; ticket gates must not break the stride of walking passengers). These requirements will be fed through a computer and matched up with appropriate designs. The result, Emmons hopes, will be an attractive—and unique—environment for passengers that other cities could well emulate.

EXPERTS DEBATE WAYS TO FINANCE TRANSIT

WASHINGTON, D.C. - The National Chamber of Commerce held a three-day conference here a few weeks ago to discuss urban passenger transportation. Though the Chamber announced its foursquare opposition to federal subsidy (as proposed in the Mass Transportation Bill), most of the experts present did not agree. They held that federal aid was not the only solution, but they felt that 1) urban transportation is a national problem deserving attention at the highest levels, and 2) part of cities' transportation problems is caused by federal highway building, which encourages people to drive into town.

Guest speaker was Senator Claiborne Pell (D., R.I.), who reviewed his proposal to retain freedom of movement from one city to another. He suggested creating an interstate authority to modernize and operate rail passenger services, starting with the "megalopolitan strip" from Boston to Washington, D.C. The authority would not need outright subsidy, said Pell, but it would require a government guarantee of at least a portion of its obligations.

Another point of view was expressed by Thomas M. Goodfellow, President of the Long Island Railroad. His line carries more commuters than any other in the country, yet it has been in poor financial shape for some time. Since entering a 12-year rehabilitation program a decade ago, it has improved its service and facilities only because it was able to get a \$2.25 million tax break from state, county, and local governments. (This same amount, said Goodfellow, would build one mile of a six-lane highway on Long Island.) Also helping the LIRR was indirect aid from the Pennsylvania Railroad, its parent company (which waived receiving any return on its \$100 million investment in the LIRR), and a special formula to make fares match expenses. When the rehabilitation program ends, however, Goodfellow hopes that besides new private measures, there will be some sort of federal aid for his, and other, rail systems.

Why can't cities and states solve their transportation problems without "running to Washington?" Transit Expert Ralph E. Rechel of Washington, D.C. answered the inevitable question by pointing out that city-dwellers actually contribute about 75 percent of all tax revenues. They do not get "free money" from Washington, Rechel said: "They already supply most of it."

Richardson Dilworth, the Department of Commerce's transit trouble-shooter, answered the question another way. He noted that cities have limited taxing powers, and that states have to be careful about increasing their taxes lest industries move away. As for the theory that Washington could share tax resources more equitably with the states, Dilworth commented that a special committee appointed by President Eisenhower had been at work on this for three years. Its only proposal to date: state, not federal, governments should collect the tax on billiard balls.

MONUMENTAL CATHEDRAL FOR THE MODERN AGE

SAN FRANCISCO—When Archbishop Joseph T. McGucken first saw the highly original project shown below, he was "frightened." But by the time he unveiled it a few weeks ago as the preliminary design for San Francisco's new Roman Catholic cathedral, he was enthusiastic. "It will be a great spiritual symbol," said McGucken, "and an expression of faith in the center of our community." Added Architect Pietro Belluschi to re-



McGucken, Herman, and pastor

porters: "I wish I could convey the agony of trying to think in our time what a cathedral should be."

The agony, apparently, had been more than local Architects Angus McSweeney, Paul A. Ryan, and John M. Lee could bear alone. Six months ago, they and the Archdiocese of San Francisco called in Boston's Belluschi, who, in turn, asked Italy's Pier Luigi Nervi to help. The result of the collaboration: four sweeping hyperbolic paraboloids which rise from a monumental, 120-foot-square base to converge 180 feet above ground in the shape of a cross. It will be, says Belluschi, "a structure only our age could build."

The new \$7 million cathedral will be sited on the crest of the Western Addition renewal area (see also pages 72-73). Not only will it become the focal point of the development, but—if Director M. Justin Herman of the city's Redevelopment Agency succeeds in opening up the site—of all southern San Francisco as well.

Soaring above the city's landscape, the big church promises to be an impressive religious monument. In each corner is a small chapel, leaving in the center an enormous, cross-shaped nave. On three sides, some 2,600 worshippers are brought no farther than 75 feet from the main altar, a radical departure from the old rectangular plan prescribed for churches of this size, but one thoroughly endorsed by the Vatican Council (FORUM, Dec. '63).

Not only churchmen were delighted with the design. San Francisco Chronicle contributor (and FORUM Consultant) Allan Temko termed the work "revolutionary both in religious and structural concept." However, he added, the superstructure "sits awkwardly on the dull base" and some meaningful relation between the two must be developed. Temko also felt the architects should redesign the immediate surroundings of the cathedral: a parking lot, and "maladroitly organized" clerical quarters and a school.

Belluschi acknowledged that the project was not yet in final form. "It is an idea; and a strong idea," he said "but the fear of God has not left us."

continued on page 13

S.F. cathedral will dominate renewal area, including nearby apartments





And rightfully so. The CHEX/IT Alarm from S&G sounds off loud and clear whenever unwanted people try to use a CHEX/IT-protected exit. ■ It helps prevent pilferage, vandalism, and unauthorized exit and entrance with a loudmouth alarm that can be heard a quarter of a mile away. ■ And it is simple! No wiring, no interlocking connection to other



locks or panic hardware—installs with a screwdriver. CHEX/IT is key activated, limiting control to authorized key holders only. I Use it in stores, schools, hospitals, hotels, warehouses—any place where you would like a "loudmouth" doorwatcher. For more details and a noisy demonstration, contact your Sargent & Greenleaf representative.



SARGENT & GREENLEAF, INC. Rochester, New York 14621

2

QUOTE . . . UNQUOTE

"The ends of 14 streets on the upper West Side of New York City are to be provided with bottlenecks to discourage traffic, and, with appropriate landscaping, will provide 'a more residential character' for that area. [Highway Commissioner John T. Carroll.] 'I didn't know anything about it until I saw it in the newspapers.' [Traffic Commissioner Henry Barnes.]"—An exchange reported by Columnist Fred Ferretti, New York Herald Tribune.

"Responsibility for planning, among local, state, and federal governments, seems to be divided thus: There is a local traffic jam somewhere. A local neighborhood sags until it is a slum. Local subdividers nibble at park land until it vanishes altogether. Then a local group of citizens carefully lists these problems. And a delegation comes to Sacramento and says: 'Here, do something about this.' By then, it is too late to do anything about that particular traffic jam, that slum, and that park. Planning for tomorrow is something you did-or failed to do-vesterday."-California Governor Edmund G. Brown.

"It would be a great mistake to abandon all honkytonks and colorful areas of cities. The result would be a sterile, dull community. The problem is to contain them."—Architect Ralph Rapson, head of Architecture School, U. of Minn.

"There is a particularly sordid brand of corruption that has eaten into this nation's urban renewal and public housing programs. The corrupters are political pigs who have pushed their snouts into the public trough and are gorging themselves on human misery."—U.S. Chamber of Commerce President Edwin P. Neilan.

"Not all conservation means money being laid out. Some forms bring money in . . . controlling the urban sprawl, for instance. Conservation is often a matter only of controlling."—The Duke of Edinburgh.



REP. RAINS TO STEP DOWN

After 20 years in the House of Representatives, many of them as its top-ranking housing expert, Representative ALBERT RAINS (D., Ala.) has decided not to run for re-election this year. The move took most observers by surprise, for Rains was considered a likely winner, even though more liberal than most Southern congressmen.

Rains's decision was prompted, he said, by a desire "to have a few years in private life." But he also indicated that he was not pleased with the idea of having to run in a grueling state-wide election. (Alabama did not redistrict after the 1960 census, but did lose one seat in Congress due to population change. Result: nine candidates are elected by their districts, then have to run against each other for the eight congressional seats.)

During his tenure in the House, Rains displayed a keen grasp of housing problems, which, coupled with his political ability as a floor manager, helped get many important measures enacted into law without encumbering amendments. He championed such causes as slum clearance, as well as housing for the elderly, for students, and for the poor. His probable successor as Chairman of the House Special Subcommittee is ABRAHAM J. MULTER (D., N.Y.).

HISS LEAVES NEW COLLEGE

Last month PHILIP H. Hiss, the energetic Chairman of the Board of New College in Sarasota, Fla., announced that he was resigning "to devote full time to my own work." Hiss wants to finish writing a book on a subject that he knows as well as, or better than, anyone in the U.S. today: the environment for education. The book will include his experiences building top-flight schools as head of the Sarasota School Board, as well as planning New College.

No one is entirely convinced, however, that Hiss is leaving the college after four years of effort just to write a book. It is no secret that he and College President GEORGE BAUGHMAN have not seen eye to eye on goals and how to attain them. Hiss has particularly deplored the trend to fuzz



Educator Hiss

over what colleges and schools should be trying to do: develop a clear statement of education that is translatable into architectural terms. "I am far too impatient and outspoken," he said in his parting statement. "I wish New College the best of luck."

REYNOLDS STUDENT PRIZE

University of Notre Dame Student JOHN F. TORTI has won the \$5,000 first award in the 1964 annual Reynolds Aluminum Prize for Architectural Students. Torti's submission, which he calls a "dynamic clear span," is a shallow dome of identical aluminum rings holding clear glass or plastic. As the name implies, the dome is intended to cover large areas without shutting out natural light. The jury was especially impressed with "the potential simplicity of erection" of Torti's design.

AIA GOLD MEDAL TO NERVI

Famed Italian Master Builder PIER LUIGI NERVI, whose fine hand is evident in the soaring thin shell concrete roof of San Francisco's new cathedral (page 11), has been selected to receive the AIA's highest award, its 1964 Gold Medal. Especially noted for his design of concrete structures, Nervi's work in the U.S. includes only a field house for Dartmouth College, and a bus terminal in New York City.

EICHLER STUDIES SUBURBS

San Francisco Home Builder EDWARD P. EICHLER will direct an 18-month study of the explosive growth of California suburbs for the University of California. Financed with a \$200,000 Ford Foundation grant, the study will analyze the forces at work in the mushrooming fringe communities. Purpose: to recommend legislation and other public and private action toward more orderly urban development.

RECENT APPOINTMENTS

JOSEPH NEWMAN, general manager of The Tishman Research Corp., has been named to the Building Research Advisory Board of the National Academy of Sciences.

Architect and Conservationist NATHANIEL OWINGS was recently appointed by California Governor Edmund G. Brown as a member of the State Advisory Committee on a Master Plan for Scenic Highways, along with Planners EDWIN S. MOORE, ROBERT GRUNWALD, and four highway and public administration experts.

One of the three citizen members of the commission to plan Chicago's 1976 World's Fair appointed last month is Architect PHILIP WILL Jr. Businessmen THOMAS H. COULTER and JOHN E. STIPP round out the commission, which will explore the desirability and feasibility of the exposition.

New York Architect FREDERICK G. FROST has been named to represent the Union Internationale des Architectes (headquartered in Paris) at the United Nations.

continued on page 16

If you want flexible spotlighting you don't have to hide,

for window and in-store displays, specialty shops, showrooms, museums, galleries, exhibition halls, libraries, schools, motels, hotels, nightclubs, reception rooms, lobbies, lounges or living rooms...**you've come to the right spot**.



Lytespan is the first lighting distribution track designed as an integrated, architectural lighting system. It is the first track which can be recessed, or mounted on surface or stems

LYTESPOT FLEXIBILITY FEATURES



Direction. Lytespots rotate horizontally, pivot to any angle vertically. Pivot mountings are permanently tensioned and include a built-in 360° stop.

Position. Lytespots can be quickly clipped on and slid along the electrified track to any point desired. Thumbscrew rigidly secures unit, prevents sag or droop. Most Lytespots have individual switches. Spots can be stored on track when not in use.

Intensity. Lytespots ac-commodate a variety of R and PAR lamps ranging from 30 to 300 watts. Dramalux Lytespot with Intensitrol dimmer provides continuous intensity control from zero to 32,000 candlepower. Heat filters are available where high lighting levels at close range make display temperature critical



Beam Shape. Round or elliptical. An adjustable beam monitor permits changes in orientation of elliptical beams from horizontal tovertical. Aspread lens alters the shape of any light beam, making it tall and narrow, or short and wide. Stippled lens design eliminates filament image and softens the beam-edge.



HETWOOD-WAREFIELD, SHOES--CAPEZIC

Color. Using basic hues of the spectrum, a vast variety of shades is achieved by blending colored beams of light. One-piece color filters are made of borosilicate (heat-resistant) glass. Optical stippling eliminates filament image. In-tensitrol dimmer controls intensity of any hue.

LYTESPAN BY LIGHT

Write to LIGHTOLIER, Jersey City, N.J. for Brochure No. 40. Or see the Yellow Pages for your nearest Lightolier distributor. Showrooms: 11E.36 St., New York; 1267 Merch-andise Mart, Chicago; 2515 S. Broadway, Los Angeles; 1718 Hi-Line Drive, Dallas.





Beam Spread. Ranges from a "pin spot" of 5½° to a flood of light at 110°. (for 100 foot-candles).



ENCORE BY KAHN. The powerful forms above belong to the nearly completed Biology Building at the University of Pennsylvania by Architect Louis I. Kahn, adjacent to the famed Richards Medical Research Building (extreme right in photo). The new construction consists of two classroom-laboratory towers and a service shaft. They differ from Richards in height, in plan, and in detailing. The striking, cantilevered "bay windows" on the top floors are library-type carrells to give semiprivate office space in the laboratories. Contractor: United Engineers and Contractors.



DENUDED LANDMARK. After 60 years, the structural steel skeleton of the Times Tower is again exposed to the multitudes in New York City's Time Square. By early next year it will have a new marble skin (below, right) and a new identity: the Allied Chemical Tower. Architects: Smith, Smith, Haines, Lundberg & Waehler, successors to the original Tower's architects, Eidlitz & McKenzie. Contractor: William L, Crow Construction Co.



AUTO STABLES. The steel stalls of a unique auto repair center stretch a full block in front of the bulky façade of the abandoned New York Central Railroad station in Syracuse, N.Y. Each stall is 24 feet wide, but



their depths vary from 55 to 60 feet and roof heights change at random, an attempt by Architects J. A. Cappuccilli Associates to avoid monotony. Contractor: Bersani Construction Co. Total cost, including land: \$2 million.





BELOW: TOM W. COLLINS

FIRST OF FOUR. Initial unit of the four-building, \$6.1 million Stemmons Towers in Dallas is Tower East (above), a broadbayed 12-story office structure. Tower South (foreground in rendering) is now being occupied, and the other two will be completed in early 1965. They will vary in shape, but will share Tower East's finely articulated exterior walls of gray glass in a

SCIENCE CENTER. The two somewhat nervous buildings below comprise the physics center at Rutgers University's new science campus in Piscataway Township, N.J. In the foreground is the lecture hall, and behind it are the top floors of the taller classroom and laboratory building. Designed by McDowell-Goldstein, Associated Architects, the buildings cost \$1.4 million. Engineers: Paul Weidlinger (structural), Guy B. Panero Engineers, Inc. (mechanical, electrical). Contractor: Charles B. Hembling & Sons.

white concrete frame. Architect:

Harold A. Berry. Structural engi-

neer: Fuad Maayeh. Contractor:

Ten Eyck & Shaw.







INDUSTRIALIZED FUN. The steeland-glass Old Orchard Country Club in Prospect Heights, Ill. has the look of a sleek suburban factory. Architects Alper & Alper formed an arcade around it by

CLIFF DWELLINGS. The toothsome Penthouse Apartments climb down a steep bluff in Santa Monica, Calif. with access at the crest. Architect Kenneth Lind therefore put parking on the top two floors and the apartments below. Six outside elevators serve setting walls 10 feet behind the frame, and added a steel canopy at the entry. Structural engineer: William Silberberg & Associates. Contractor: Frederick Stanley Co, Construction cost: \$425,000.

two units per floor and eliminate corridors. Concrete framing was cast in place for the first three stories, and upper floors were erected by the lift-slab method. Structural engineer: John A. Martin. Contractor: Fellows & Associates, Inc. Cost: \$3.5 million.



Zonolite prototype building #6: A church



Martin Price designs a church

He utilizes Zonolite* Masonry Fill Insulation to cut wall construction costs. The material also cuts heating and air conditioning costs \$360 annually.

Martin Price and Consulting Engineer Marvin M. Serot, both of New York City, were commissioned by Zonolite to do this church.

They developed an unusual brick cavity wall to carry the load; 6" SCR face brick exterior and interior, with a 21/2" cavity.

No finishing on the interior walls was needed, because the Zonolite Masonry Fill Insulation in the cavities was more than sufficient to keep the inside surfaces warm and dry.

The fact that the interiors could be left

unfinished cut total wall construction costs. Insulation. Simply because less materials and fewer trades were needed than for conventional walls.

Price and Serot also found that by filling the cavities with Zonolite Masonry Fill, they could cut the annual heating costs 27.5% and the air conditioning costs 5.3%.

This figures out to be an annual savings of \$360.

Perhaps of even greater interest to a client is the annual return he can get on his investment in Zonolite Masonry Fill

Serot found that in this case, the insulation (financed as part of the 20 year mortgage at 6%) costs about \$86 a year. Compared with the annual heating and air conditioning savings of \$360, this makes a 425% return on the annual investment in the insulation.

One reason for this high return is the low installed cost of the material; about 10¢ per sq. ft. in this 21/2" cavity.

The cost is low because the material is just poured out of the bag into the cavity.





Additional facts worth investigating are contained in our Bulletin MF-83. Write Dept. AF-34, Zonolite, 135 South LaSalle Street, Chicago 3, Illinois.

*Reg. trade mark of Zonolite Division, W. R. Grace & Co.



Design Conditions		Winter Heat Loss in BTU/Hr Assuming 70°F DB Indoor 0°F DB Outdoor		Summer Heat Gain in BTU/Hr Assuming 95°F DB, 75°F WB Outdoors 78°F DB, 50°RH Indoors		
ALL AND	Without Masonry Fill	With Masonry Fill	Without Masonry Fill	With Masonry Fill	Without Masonry Fill	With Masonry Fill
Walls	6" Face Brick Interior & Exterior with 2½" Air Space Cavity	6" Face Brick Interior & Exterior with Masonry Fill in Cavity	290,000	110,000	54,000	20,500
Roof	Roofing, 4" Co 2" Insulation	ncrete,	32,000	32,000	6,000	6,000
Floor	4" Concrete or	n Grade	7,200	7,200	-	
Glass: Solar and Transmission	1/4" Single Plat	e	65,000	65,000	23,860	23,860
Ventilation & Infiltration	3,000 Cubic F	eet Per Min.	260,000	260,000	105,000	105,000
Lights	-				47,500	47,500
People			-		150,000	150,000
Totals	Section Contractor		654,000	474,200	386,300	352,860
% Savings with	Masonry Fill		654,000-47 654,00	4.200 27.5%	<u>386,000-352,</u> 386,000	⁸⁶⁰ = 5.3%

FUEL: No. 4 oil at 11¢ per gallon . DEGREE DAYS: 4989 per year.



Dimensions of tomorrow . . . in today's locksets from Sargent

Here's a new twist on the old continental lever handle – a style resurgence which smartly complements contemporary architecture . . . it sets the fast styling pace for a whole line of sophisticated locksets from Sargent. MagnaLock, the T-zone, torque-resistant bored lock . . . IntegraLock, combining the best features of both unit and mortise locks . . . modern mortise locks with an endless variety of sculptured, screwless trim – all available in brass, bronze, aluminum and stainless steel – or colorful fired copper or DuPont Delrin® in lustrous finishes . . . one or more perfect for your type of structure.

In addition to these heavy duty locksets, Sargent also leads in the design and manufacture of quality, high fashion door closers, exit devices and other safety hardware — your single source of responsibility for all your requirements. See your Sargent hardware supplier, or write Sargent & Company, New Haven 9, Connecticut. In Canada, Sargent Hardware of Canada Ltd., Peterborough, Ontario.



Mortise Lock with screwless trim



MagnaLock with Delrin® knob



IntegraLock with fired copper rose





What makes Castell so <u>extra</u>-ordinary? 20 degrees with slide rule accuracy

A.W.FABER-CASTELL drawing pencils range from 8B to 10H. This in itself is not unusual. But CASTELL'S uniform grading is unique. Each degree is held to rigid standards, as accurate as the markings on your slide rule. Compare any degree in CASTELL'S complete range—8B to 10H—with the same degree you used months or years ago. It will produce the identical, fully opaque, solid black non-feathered line.

Smooth-gliding, grit-free CASTELL imparts new confidence to your drawing and drafting skills. This 99% pure graphite is CASTELLSEALED—bonded-in-wood for immensely greater point strength, with enough reserve to keep the lead from breaking or splitting inside the wood under abnormal pressure.

All good dealers carry CASTELL, but we'd be just as happy if you preferred to try before you buy. Simply fill out the coupon, attach it to your company letterhead, and A.W.FABER-CASTELL will send you samples of the degrees you use in your daily work. Okay?

A.W.FABER-CASTELL

Pencil Co., Inc., 41-47 Dickerson Street, Newark 3, New Jersey

Please send me a sample each of Castell #9000 I	Drawing Pencils in	degrees for testing purposes.
MY NAME IS		TITLE
COMPANY	ADDR	ESS
CITY	ZONE	STATE

New from FUNTKOTE INSULROCK



Fashion Decks

... more attractive ceiling decor than ever

A dramatic styling break-through in the most versatile roof deck made, INSULROCK *Fashion Decks* give you more reason to make this your favorite roof deck "spec" for design *and* performance.

Comes in colors, too - the five INSUL-TONE shades.

Wouldn't this contemporary look combined with all of the enviable INSULROCK product advantages provide the right combination for your next job? Your INSUL-ROCK products distributor/specialist has all the facts and a new *Fashion Decks* folder. Why not call him today? Or write direct to





General Sales Office: Box 516, Richmond, Virginia

Executive Office: New York, New York Plants: North Judson, Indiana; Richmond, Virginia District Sales Offices: Atlanta, Ga. — Camden, N. J. — Chicago Heights, III.—Dallas, Tex. — Detroit, Mich. — Los Angeles, Calif.

SMITH Metal Walls are VERSATILE!



McKee Run Generating Station, City of Dover, Delaware. General Contractor; Somers Construction Co., Bala Cynwyd, Pa.



W. T. Grant Company store, Port Jefferson, Long Island, N. Y. Architect; Frederick Saphier, New York City. General Contractor; Reliable Construction Co., Bronx, N. Y.

North, east, south, west, all over the nation, you'll see Smith Walls on factories, warehouses, offices, schools, hangars, power plants, shopping centers, each with its own individuality. The wide range of color and configurations of Smith metal wall panels are in harmony with any architectural styling and compatible and enhancing in combination with other wall components of masonry and glass.

Smith metal walls are functional, too, as well as



United Motors Service, Division of General Motors Corp., New Brunswick, N. J. General Contractor; Fred J. Brotherton, Inc., Hackensack, N. J.



Sears, Roebuck and Co., Greensburg, Pa. Architects; Kuhn, Newcomer & Valentour, Pittsburgh. General Contractor; Westmoreland Construction Co., Greensburg



Bekins Van & Storage Co., Falls Church, Va. Architect; John M. Walton, Falls Church. General Contractor; Earl J. Rosti, Falls Church

decorative. Their light weight, thin wall construction, adequately insulated, permits economical erection and more efficient use of interior space. The rich baked-on enamel finish, protected by a strippable plastic coating until erected, assures lasting beauty and low maintenance.

Best of all, when you buy Smith Walls you deal with the single Smith responsibility for engineering, manufacture, transportation and erection. This single responsibility saves you money, details and worry.

"Smitty builds walls for keeps"

ELWIN G. SMITH & CO., INC., Pittsburgh, Pa. 15202 / Detroit • Chicago • Cincinnati • Cleveland • New York • Toledo • Philadelphia

Barrett...exciting new building materials from chemistry



Harvard plays tennis all year in any weather...under a rugged roof of Barrett vinyl panels!

Design flexibility. Strength. Weather resistance. Solid reasons why Barrett vinyl panels make a top-flight roof and siding material for the new Palmer Dixon Indoor Courts at Harvard University. The panels were especially extruded in lengths of 51' and 57'—the longest panels ever made—for this contemporary structure with dimensions of 161' by 138'.

Color? Custom formulated blue to simulate a bright, clear day-no matter what weather prevails outside! Installation time? One complete arch of panels every 15 minutes. Weather? No problem! Barrett vinyl panels form an absolutely weather-tight building that lasts-for years and years.

Summed up: Barrett vinyl panels offer architects complete design freedom because of their flexibility, strength and attractive colorability. Call your Barrett representative for full data on Barrett panels and on our complete line of quality building materials developed through chemistry. Barrett Division, Allied Chemical Corp., Dept. AF-1, 40 Rector St., N. Y., N. Y. 10006



Resilient Barrett urethane insulation follows the contours of the "dish" roof on the Carson's O'Hare Airport restaurant in Chicago. Architect: C. F. Murphy Associates.



Winter and summer, Barrett built-up roofing products protect the new Nabisco Bakery in Fair Lawn, N. J. Designed by the Nabisco Engineering Department.



NEW BRILLIANCE! NEW CLARITY! Pilkingtons' float glass <u>outdates</u> plate glass



Float is a Pilkington achievement. This revolutionary advance in glassmaking is a product of Pilkington research and development. For the first time all the best qualities of plate glass and sheet glass have been combined in a single product.



St. Helens, Lancashire, England

Please enter my subscription to Architectural Forum

				1 year -\$ 7.00
NAME	(PLEASE PRINT)			
				3 years-\$14.00
STREET ADDRESS				
				5 years-\$20.00
CITY		STATE	ZIP #	
				check enclosed
NAME OF YOUR FIRM				
				send bill
TYPE OF BUSINESS		TITLE OF	R OCCUPATION	

These rates apply to subscriptions to U.S.A., Possessions and Canada only. Elsewhere: one year for \$12.00

A-3303

Coming in Next Month's Issue of Forum

HOSPITAL EXPANSION—How existing hospitals are expanding to serve more patients and utilize new devices such as pocket paging systems.

100 BIGGEST ARCHITECTS—Firms that led in volume in '63, with data on their output.

PLYWOOD STRUCTURES—Three religious buildings.

CUBAN ARCHITECTURE—An English visitor's review of buildings constructed during the Castro era, with some surprising findings.

Coming in Next Month's House & Home

REMODELING—Why have some builders abandoned the field? What are the secrets of specialists who are operating profitably?

CUSTOM HOUSES—Three architect-designed houses that achieve excitement and drama.

THE CODE MESS—Who is responsible for it?

RETIREMENT HOUSING—How the market is expanding not only in the South and West, but in the North as well.

Please enter my subscription to House & Home

years-\$ 9.00
Voare 612.00
years-\$12.00
heck enclosed
end bill
-

These rates apply to subscriptions to U.S.A., Possessions and Canada only. Elsewhere: one year for \$10.00

FIRST CLASS PERMIT NO. 22 CHICAGO, ILL.

BUSINESS REPLY MAIL NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

Postage Will Be Paid By

ARCHITECTURAL FORUM 540 N. Michigan Avenue

Chicago, Illinois 60611

Architectural Forum

covers the art of architecture, the technology of construction, and the economics of building. It presents outstanding buildings of all types except houses, and focuses attention on city planning, urban renewal, and the rebuilding of individual structures. Forum serves the entire "big building" industry and building's clientele—men who buy buildings for their own occupancy or for investment.

House & Home

covers all aspects of homebuilding-design, construction, economics, management, land, marketing-in concisely informative, well-written articles. It presents prize-winning and best-selling houses every month, and provides the most comprehensive news coverage available to the home-building industry. House & Home serves everyone with a professional interest in housing.

Printed in U. S. A.

FIRST CLASS PERMIT NO. 22 CHICAGO, ILL.

BUSINESS REPLY MAIL NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

Postage Will Be Paid By

HOUSE & HOME 540 N. Michigan Avenue

Chicago, Illinois 60611





1. CANADIAN OFFICES. The biggest office complex in western Canada—the CN Tower—will stretch 25 stories above the new civic center in Edmonton, Alberta. Inside the big marble and glass package there will be, bottom to top: a new passenger station for Canadian National Railways, a shopping arcade, three levels of parking in the overhang, and rental offices on top, to cost a total of \$8 million. Developers: Allied Development Corp., Ltd. Architects & engineers: Abugov & Sunderland of Calgary. 2. MISSOURI AIRPORT. This sculptured model which is, in fact, the work of Sculptors William Conrad Severson and Saunders Schultz and Architects Schwarz & Van Hoefen, shows the bird-like shape of a new terminal for the Spirit of St. Louis Airport in Chesterfield, Mo. Present plans are to build the lower, administrative wings of poured concrete and the canopy above them of translucent glass fiber over metal mesh hung on a steel frame.
3. MICHIGAN CAMPUS. Continu-

3. MICHIGAN CAMPUS. Continuing to decentralize its physical

plant, Michigan State is building more of the self-contained units Ralph R. Calder & Associates designed for its East Lansing campus. Before fall the university expects to open the two serpentine dormitories (2,300 students each), together with classroom and service appendages, and the library-auditorium on the left. In the following two years, the highrise dormitories on the right, connecting classrooms, and the tall dormitory at the top will be added. The exteriors are all of brick and stone over reinforced concrete

or steel frames. Total cost: \$25 million.

4. CHICAGO APARTMENTS. A rehabilitated neighborhood on Chicago's near north side is the site of Pickwick Plaza, a small apartment building by Tigerman & Koglin. Poured-in-place concrete slabs span masonry bearing walls, corbeled at the base. The in-andout façade alternates glass and brick panels, projecting balconies, and recessed outdoor courts. Developers: Arthur Rubloff & Co., Donald A. Lebold, and Charles W. Palmer. continued on page 41



Sensitivity of Definition in the Forecast Series of Movable Walls by Mills creates rhythmic order in a variety of panel configurations of steel, glass, and wood. The emphatic, single-recess post above is one of twelve different ways Mills uses the third dimension to achieve fresh articulation in modern wall design. This flexibility in the Forecast Series gives designers complete freedom to create, with one Mills design group, unique interior wall systems for every client. Write us for details.







5. CHICAGO SKYSCRAPER. The last word in luxury seems to have been spoken by Chicago Developer Harold L. Perlman, who is putting up the 55-story 1000 Lake Shore Plaza. Rents will start at \$500 and run up to \$1,400, for two to four bedrooms. For that outlay, however, there are compensations: Lavanities with Marbelica tops in the more expensive bathrooms, a putting green atop the garage, and a swimming club on the top floor. The Chicago Highrise Corp. is listed as the designer of the tower, said to be the tallest reinforced concrete apartments in the world, and Sidney H. Morris & Associates are consulting architects.

6. CALIFORNIA COMPLEX. This unusual scheme, in Ventura, Calif., seems to have two small buildings balancing at either end of a savings and loan pavilion, but there are actually four buildings. Behind the pavilion, rental offices will occupy a low structure and this in turn will be flanked by twin six-story office blocks. William L. Pereira & Associates of Los Angeles designed the complex for the Ventura Savings & Loan Association.

7. BROOKLYN HOUSING. Morris Lapidus Associates' plan for Cadman Plaza in Brooklyn combines three income groups in cooperative apartments and town houses. Least expensive will be the apartments in the 26-story rectangular building (right), to be built under the Mitchel-Lama Middle Income Housing Program. Progressively more costly are the apartments in the 33-story tower, and the 18 town houses between the two. Both the tower and the

town houses are to be built with FHA financing. Seon P. Bonan, developer of the project, expects to break ground this spring.

8. KANSAS CITY RENEWAL. Plazas and footbridges will link the apartment buildings in East Hill, part of the East Side Urban Renewal Area in Kansas City, Mo., and all cars will be hidden underground. Charles Goodman Associates' four buildings, one shown above, will be of brown brick over reinforced concrete frames. Developer: The Lumbermen's Co. continued on page 46

Glass Conditioning*

(a systematic plan for controlling indoor environment with PPG glass products)

Hypothetical Assignment: A projected office building in Chicago, facing Lake Michigan per client's request. Building dimensions: 300 feet high by 100 feet by 50 feet. Site Conditions: Latitude subject to extremely low temperatures, severe winters with high winds, hot summers. Heating season: approximately 6300 degree days. Air

conditioning season: 120 days of which 90 would have an average of 80F for a 12-hour air conditioning period. Indoor temperature to be maintained at 70F. *Service Mark



Eastern Exposure Site Conditions: Direct morning sunlight, intensified by reflection from lake. Low winter temperatures combined with lack of sun, aggravating afternoon heat loss.

Glass Conditioning Recommendation: SOLARGRAY® TWINDOW® —TWINDOW Insulating Glass to reduce heat loss to a "U" factor of 0.6, significantly reduce downdrafts @ and cold areas near windows. ¹/₄-inch SOLARGRAY Plate Glass transmits 42% of visible light (37% when combined with clear glass in a TWINDOW unit), to give natural daylight tial softening of brightness.



Western Exposure Site Conditions: Strong afternoon sunlight in all seasons, with substantial indoor heat gain.

Glass Conditioning Recommendation: LHR^(TM) 140 SOLARGRAY TWINDOW—LHR (Light and Heat Reflective) coating on air space side of the outdoor glass of TWIN-DOW will reduce heat gain to 90 BTU/sq.ft./hr. maximum, trans-©

mit 22% of the light. Winter heat loss is also reduced substantially by use of TWINDOW Insulating Glass. Net effect is reduced solar heat gain and improved visual comfort

year round, providing more even temperatures and usable space near windows.



Northern Exposure Site Conditions: Little sun exposure.

Glass Conditioning Recommendation: TWINDOW—to reduce heat loss and heat gain through conduction. Result: More even indoor temperatures, increased occupant Glass Conditioning Recommendation: SOLARGRAY Plate Glass to reduce heat gain substantially during summer, and soften brightness in all seasons, while providing better control of indoor temperature and environment.

Human Factors: Personal comfort is, after all, the main goal of environmental control. To this end, Glass Conditioning produces pleasant working conditions by improving visual comfort and lessening seasonal extremes of solar heat and severe cold. Glass Conditioning, then, by providing both operating economies and a more attractive working atmosphere, will stimulate rentals and reduce turnover.

For more complete information on

		Visible Transmittance %	Thermal* Conductivity U	Heat Gain BTU/hr/sq fi
(PLATE GLASS)				
Regular	1/4	88	1	200
Solex	1/4	75	1	150
Solargray	1/4	42	1	150
Solarbronze	1/4	51	1	150
(SHEET GLASS)				
Clear	7/32	89	1	205
Graylite "31"	1/8	31	1	170
Graylite "61"	7/18	61	1	195
Graylite "56"	7/32	56	1	190
Graylite "14"	7/32	14	1	150
Graylite "52"	1/4	52	1	185
(INSULATING GLASS	5-1" Metal Edg	e Twindow-1/2" air	space)	September 14
Clear 1/4" Glass, both	sides	77	0.6	170
with 1/4" Solex, 1 sid	e	65	0.6	115
with 1/4" Solargray, 1	side	37	0.6	115
with 1/4" Solarbronze	, 1 side	45	0.6	115
with 1/4" LHR Solarg	ray, 1 side	22	0.6	90
with 1/4" LHR Solarb	ronze, 1 side	25	0.6	90

satisfaction, and lower comfort maintenance costs.

Southern Exposure Site Conditions: Extensive sunlight, summer and winter, introducing solar

heat gain as a factor which will be welcome in winter, but will significantly increase air conditioning requirements in summer.





PPG makes the glass that makes the difference



Now available: a wide range of products surfaced with Du Pont TEDLAR,

TEDLAR* PVF Film is a tough. long-lasting filmfinish. Howlong will it last? We frankly don't know, because we haven't been able to wear it out yet. However, we predict that when TEDLAR is properly



bonded to a stable material, it might last up to 25 years or more without re-finishing. TEDLAR also provides outstanding resistance to fading and chalking. To keep your next building new-looking longer, consider these five products: 1) ARCHITECTURAL CURTAIN WALL consists of two fiberglass panels laminated to an aluminum frame assembly. TEDLAR on these panels prevents erosion, retains color and light-transmission, stands up to weather. Assembly shown is made with "Filoclad" fire-resistant panels by Filon Corporation.

2) ARCHITECTURAL RE-FACING PANEL gives existing buildings an attractive new exterior with long life, low maintenance, long-term freedom from painting. Shown: "Egyptian" pattern, postformed in aluminum by Architectural Manufacturing Company of America, who can supply accessory framing and installation components as well as re-



the film-finish that may keep buildings looking new for up to 25 years

facing panels in a variety of sizes and designs, all surfaced with TEDLAR.

3) ONE-PLY ROOFING MEMBRANE surfaced with TEDLAR, covers any slope, any shape from folded plate to compound curves. Name: Ruberoid T/NA 200. Applied with conventional roll-roofing techniques. Pliable, very lightweight, highly reflective. Stays white through any weather.

4) MULTI-PURPOSE INSULATION JACKETING surfaced with TEDLAR. Covers tanks, process vessels, pipelines. Name: Ruberoid T/NA 100. Despite severe climate or corrosive atmosphere, stays white, highly flexible, virtually fireproof. Can be field-installed or factory-applied. Tape of

*Du Pont registered trademark. †Elwin G. Smith Co. registered trademark.

TEDLAR seals joints. Shown here: rigid pipe insulation. 5) METAL WALL PANELS offer modern architectural look with excellent insulation. Surface of TEDLAR gives allweather protection and decoration. Shown: "Shadowall"† Type D, roll-formed aluminum panel by Elwin G. Smith Company. Other types available (insulated or uninsulated; factory- or field-assembled) with finish of TEDLAR.

MORE INFORMATION. For more details about any of these products or for more information about TEDLAR, write E. I. du Pont de Nemours & Co. (Inc.),

Film Department, Box 301B, Wilmington, Delaware 19898.



BETTER THINGS FOR BETTER LIVING ... THROUGH CHEMISTRY





9. MONTREAL SILO. Tailored to the needs of the small businessman or professional, this speculative building in Montreal will carry offices in the circular tower and large services, such as computing centers, duplicating and blueprint equipment in the four broad floors at the base. Craig, Zeidler & Strong designed the complex for Three Star Construction Co. The tower, whose diameter will be 134 feet, will be 28 stories high, aside from the broad base, and there will be four parking levels underground.

10. MIAMI COMPUTING CENTER. The University of Miami is building this five-story computing center, the upper half to be rented to the General Services Administration for weather research by four federal agencies. Star-shaped columns and coffered overhangs give a classic look to the exterior. Architects: Watson, Deutschman & Kruse of Miami.

11. PENNSYLVANIA LABS. New laboratory space for the physical sciences at the University of Pennsylvania, Philadelphia, will be tacked on to an existing classroom building. The new part, designed in the Philadelphia style by Carroll, Grisdale & Van Alen, provides window slits for teaching and research labs, air-intake turrets at the tops of projecting stairways, and boxy concrete window frames for the conference and seminar rooms.

12. CAROLINA POST OFFICE. The public part of the new post office in Columbia, S.C. will be a Miesian bronze pavilion at street level. The rest of the post office's operations—bulk mail handling, truck loading and unloading, and mechanical stamping —will go on in a reinforced concrete building underneath, in the 50-foot deep site. Architects: Lyles, Bissett, Carlisle & Wolff. **13. LOUISIANA OFFICES.** Architects Desmond, Miremont & Associates planned the headquarters for the new Diocese of Baton Rouge, the Catholic Life Center. Shown above is the handsome administration building, two stories of reinforced concrete formed in wide bays and deep overhangs. The entrance hall will run the height of the building. END








1. SLIM DESK. Executives subscribing to the clean-desk approach should like this one: it is scarcely bulkier than a table, yet has three drawers across the top. Robert Benham Becker designed it for Helikon Furniture Co. Inc.* in oiled walnut. List price: \$495. 2. KNOLL CASEMENTS. Two new window fabrics from West Germany, imported by Knoll, are: Horizons, a hand-woven mixture of linen, wool, and silk, designed by Paul Maute; and Oval, a Knoll design of polyester. List prices: \$18 a yard (47 inches wide) for *Unless otherwise noted, all firms are in New York City.

Horizons and \$13.50 (118 inches wide) for Oval.

3. WOOD FILES. Walnut-sheathed files designed by Carter Winter for Janet Rosenblum Inc. come in two- and four-drawer units on a black base, removable for stacking. Drawer faces are walnut or plastic laminate. Net prices are \$140 and \$265 for the two sizes (less in quantity).

4. VINYL WASTEBASKET. This Knoll Planning Unit wastebasket appeared first as a custom design, then joined Knoll's regular line. It is a cylinder of fiberboard 15 New York City inches high, wrapped in Naugahyde; a metal liner lifts out. List price: \$23.35 for the basket, \$10 for the liner.

5. FINNISH "Z". Esko Pajamies' stacking Z chair gets its name from its profile when the seat is down. The curved back and seat are birch; the frame, square steel tubing finished in a choice of enamel, chrome or copper plate. Net price: \$22 up, at International Contract Furnishings Inc.

6. TUFTED CHAIR. One of Chicago Hardware Foundry's new contract group is this tufted Naugahyde chair on double pedestal legs. List price: \$250. 7. PADDED SWIVEL. The molded

7. PADDED SWIVEL. The molded plastic frame of this Finnish chair by Oiva Parviainen, from ICF, is softened with a layer of foam rubber. The swivel base is steel and comes with or without casters. Net price in muslin: \$115. 8. BREVER SLING. The sling chair on a chromium frame, designed by Marcel Breuer at the Bauhaus in 1925, is again available from Stendig Inc. It is imported from Italy in brown leather at a net price of \$210. END



A screen wall that birds can't nest in ...





Now glass and grill are one... INTAGLIO glass wall units

Now you can build the grilled wall with no fear of these customer complaints—and the resulting call backs. Here's Intaglio—the *only* product that offers a screen wall without voids. Four designs: in three units $8" \ge 8" \ge 4"$, and one $4" \ge 8" \ge 4"$. Both faces of all units have a firedon ceramic finish in the color and texture of concrete, patterned to let light pass through artfully shaped clear areas of antiqued glass. All this in one all-glass building product . . . erected in a single operation for a finished wall inside and out. Now glass and grill *are* one. Our new Intaglio brochure contains attractive design ideas and complete specification and installation data. For a copy, circle the reader service number below, or write: Pittsburgh Corning Corporation, Department AF-34, One Gateway Center, Pittsburgh 22, Pennsylvania.





CORPORATION

VEK

*

INCLUDES

FOR THE

BEST

S * * * (*)*



Fashionette seats in six designs coordinate with Rheem decorated plumbing ware as well as tile, towels, curtains, wallpaper, etc.

*

AELLE®



*Registered trade name of Rheem Mfg. Co.

THE FIRST NAME IN TOILET SEATS-THE LAST WORD IN SPECIFICATION QUALITY SEATS



"OUR 640-TON ELECTRIC HEAT PUMP will keep our entire 220,000-square-foot plant and offices at 70° year-round, regardless of outside temperatures," says Frank Flick.

"TOTAL ELECTRIC SPACE CONDITIONING FOR OUR PLANT WAS THE BEST RECOMMENDATION OUR ARCHITECT MADE"

Frank Flick, President of Flick-Reedy Corp., Bensenville, Illinois, reports on the advantages of using flameless electricity as a single source of energy for all plant heating, cooling and lighting

"Without any doubt, one of the most important new design elements in our new Flick-Reedy plant is total electric space conditioning," reports President Frank Flick. "By following our architect's recommendation and using electricity as our only source of power, we have obtained a markedly more efficient operation.

"Greater plant cleanliness, for example, has enabled us to improve the quality of the hydraulic cylinders and sealing fittings manufactured by our two divisions. And automatic year-round air conditioning—with heating and cooling both provided by our electric heat pump—has resulted in a sharp drop in absenteeism and a consequent increase in production.

"On the basis of our own experience here at Flick-Reedy, I would strongly recommend that anyone involved in industrial design look into the advantages of total electric space conditioning as soon as possible."

For architects and consulting engineers, total electric space conditioning offers the modern method for combining heating, cooling and lighting into one efficient operation using a single source of energy. In many cases, recommended lighting levels can provide a substantial part of the heat as well, thereby reducing the size, space requirements, and cost of heating equipment.

If you are interested in finding out ways in which total electric space conditioning can help you in the design of industrial and commercial buildings, contact your local electric utility company. They will welcome the opportunity to work with you.

BUILD BETTER ELECTRICALLY

Edison Electric Institute, 750 Third Avenue, New York 17



CITED FOR "IMAGINATIVE BOLDNESS," the award-winning Flick-Reedy plant features total electric design. Architect-engineering firm was Zay Smith & Associates, La Grange, Illinois.

JOINTS

leakproof by design sealed with polysulfide base compound



Associated Architects: Minoru Yamasaki and Associates, Birmingham, Michigan Naramore, Bain, Brady & Johanson, Seattle, Washington

Pacific Science Center Foundation, Seattle, Washington

Buildings of abiding character maintain weather resistant characteristics when sealant using Thiokol's LP[®] polysulfide polymer is included in joint design. Note above joint detail in beautiful Pacific Science Center Foundation.

Sealant systems based on LP® polymer (synthetic rubber in liquid form) custom fit any structural joint regardless of size, form, or accidental variation from original design. Properly installed, they cling with a weld-like bond to any and all building materials in any combination...even add structural strength of their own.

Rubbery in flexibility, polysulfide type sealants move with joint movement...will expand more than twice original width-and recover-again and again without tearing, cracking, or diminishing in leakproof serviceability. Sun, rain, wind, ozone, freezethaw, vibration-the ordinary ravages of time and wear will not shorten life or weaken weather-proofing performance of polysulfide base sealant. Write for Thiokol's free Application Handbook.

American Standard Specification A116.1 and Federal Specification TT-S-00227a (GSA-FSS) set quality and performance standards for polysulfide base building sealant. Thiokol makes raw material only. Names of makers of finished compounds furnished on request.



CHEMICAL CORPORATION 780 North Clinton Avenue, Trenton, New Jersey 08607 In Canada: Naugatuck Chemicals Division, Dominion Rubber Co., Elmira, Ontario



See Barcol insert,

Sweet's Architectural File

ARRF

Put the man from BARCOL in your starting lineup!

HE WILL PREVENT COSTLY DOOR PROBLEMS FOR YOU ... SAVE MONEY FOR YOUR CLIENT!

Your Barcol dealer will work directly with you, or as your representative to your client - to help analyze and establish the performance requirements of overhead-type door equipment at the preliminary planning stage.

Consider him a member of your staging team.

Using the exclusive Door System Analysis Planning Guide, the man from Barcol will analyze client requirements; identify the penalties of inadequate, inferior-quality doors; justify initial cost of door equipment and determine a firm, accurate budget figure (with alternate choices, if required.)

Get to know the man from Barcol, he'll help you solve client door problems BEFORE THEY HAPPEN!



SHEFFIELD, ILLINOIS



Return coupon for **FREE** Literature

The Gamewell Company A Subsidiary of E. W. Bliss Company 1432 Chestnut Street, Newton, Mass. 02164 FIRST ... WHEN SECONDS COUNT Rush me illustrated booklets containing applications and technical data on the new Pyro/smoke fire detector. Name.....Title..... Company......Dept..... Street..... City......Code......



LOREN COOK CO.

4-foot aluminum propeller31,000 CFM at $\frac{1}{2}''$ static pressure ... only 41" overall height

Model QD in the large size is particularly well-suited for mills, foundries, machine shops. The 48" ventilator is made of .081 gauge spun aluminum, with a cast aluminum propeller with replaceable blades. Shipping weight is only 581 lbs. Pipe conduit is an integral part of the housing, for easy wiring. Direct drive motor is totally enclosed, requires no lubrication. Sizes: 16", 18", 20", 24", 30", 36", 42" and 48". Ask for Model QD. (This housing also available as a pressure relief or intake ventilator.) Loren Cook Co., Berea, Ohio. (Sweets Architectural File, Section 20C.) AD NO. QD

58



FROM BILLET TO BUILDING

From the bottom to the top ... From the inside to the outside ... As part of the Bauer Aluminum Center in Dallas, Facade has a unique advantage. It produces a completely integrated system of aluminum architectural products. Custom curtainwall. Store fronts and entrances. Terrace railings. Interior partitions. Suspended ceilings. Louvers and sun screens. Monumental windows. Aluminum extrusions. The moral? For custom or standard architectural aluminum products, look to the company with the total capability ... FACADE.

ADAMS 1-1461 / P. O. BOX 30218 / DALLAS, TEXAS

FACADE INC. 804 LINGO DRIVE / RICHARDSON, TEXAS



UNITED FOUNDERS LIFE TOWER, OKLAHOMA CITY ARCHITECTS AND ENGINEERS: HUDGINS, THOMPSON, BALL AND ASSOCIATES CONTRACTORS: B. & G. CONSTRUCTORS, INC.



Building for the

CONTINUOUS, ROLLER DIE, COLD FORMED

METAL SHAPES

Any way you look at it, the new Michigan Consolidated Gas Building in Detroit has set new and radical trends in office building design. And, any way you look...from inside or outside...you'll see 4800 examples of unique, elongated, hexagon-shaped, stainless steel windows fabricated by Adams-Westlake from roll-formed sections produced by Van Huffel. These sections, welded at only two points, assure fully leakproof protection.

These sections represent two of the thousands of intricate shapes Van Huffel produces to any lengths; in a wide variety of metals from coiled strip $\frac{1}{2}$ " to 33" wide; in gauges from .003 to .312; from forming dies designed and built in our own plant.

We are happy to have had a hand in shaping architects' mental images into metal miracles for todays' modern innovations in the heating, ventilating, lighting, air conditioning, acoustical, structural and ornamental fields of building construction.



Write today for this free 48 page Metal Shape Handbook on material selection, fabrication methods, tolerances and dozens of ideas that have taken shape in metal.

VAN HUFFEL TUBE CORPORATION · WARREN, OHIO

future with Van Huffel...

MONOWELD STRUCTURAL SQUARES AND RECTANGLES

Monoweld Square and Rectangular tubing combines structural efficiency with trimness of line that integrates well with other architectural elements in a wall section (windows, mullions, partitions) and needs no additional trim or finish except paint, if desired. It lends itself to prefabrication and hence to rapid site assembly. It greatly simplifies detailing, particularly of connections and can be formed to virtually any desired shape. It competes economically with other materials commonly used in structural applications. As compression members, Monoweld square and rectangular tub-

As compression members, Monoweld square and rectangular tubing will resist bending moments about their axis with equal efficiency, and in buildings the section possesses an advantageous strength to weight ratio which produces substantial savings in cost.

The mechanical properties of MONOWELD COLD FORMED Structural Tubing offer a 36% increase in yield strength over ASTM A-7 and will meet the chemical and physical requirements of ASTM A-36 with 25% greater minimum yield.

Monoweld is available through Steel Service Centers in all principal cities.



Van Huffel Monoweld Structural Tubing is COLD FORMED and SIN-GLE WELDED in squares up to 6", rectangles up to 4"x 8" and walls of 3/16" and 1/4".



Write today for free brochure on Monoweld's advantages, applications and specifications.



Executive Offices Wakefield Lighting Division Wakefield Corporation Vermillion, Ohio ARCHITECTS:

Outcalt, Guenther, Rode and Bonebrake, Cleveland

Where ideas take shape in metal.







REFLECTOVUE KINNEY VACUUM COATING DEPARTMENT KINNEY VACUUM DIVISION THE NEW YORK AIR BRAKE CO. 1325 ADMIRAL WILSON BLVD. CAMDEN 11, NEW JERSEY

EDUCATION AND ARCHITECTURE

Forum: I see the problem of "Education and Architecture" (*Editoral*, Jan. '64) somewhat differently. First of all, I have never had "a passion for education." In fact, I was most reluctant to accept my appointment to Harvard. When, in spite of that, my work at Harvard came out well, it was because of my love for architecture, and the attractive idea of doing something in this field with young people and of finding a clearer articulation of all the problems involved.

l strongly believe we should not let any architect go into teaching without giving him, at least to a degree, the opportunity to do practical work. If he loses this connection with practice, he dries out very quickly and will be of doubtful value to the student. Only the connection between the theory of design and the elaborate process of actual building can, in the end, make sense to the student.

The architectural schools today have insufficient connection with the building industry and with the process of building in the field. Part of the training should be at the building site, where the student can see in reality what he cannot learn at the drafting board. The teacher himself must have sufficient experience in building before he can teach, for only then will he be able to bring technique and form into balance in the student's mind.

Any teaching of architecture must be built up on objective facts. If a talented teacher imposes his own approach, he educates assistants, but not independent designers. If he does so, he is a bad teacher, however prominent he may be as a designer himself. The problem is one of using the right teaching *method*, which must be objective, not subjective-egocentric. Such a method can be followed by a "star" as well as by a less well-known architect.

It is, of course, extremely difficult to find out about the teaching ability of an architect before he has been tried out. What should be established first, before the appointment of a teacher or a dean, is his willingness and capability to teach principles instead of patterns and prototypes of design. WALTER GROPIUS

Cambridge, Mass.

Architect

Forum: You are doing a great service to architectural education by making the profession aware of the problem faced by many colleges and universities. I only hope that the whole method of teaching architecture will come under close re-evaluation.

KENNETH ALEXANDER, Vice President Association of Student Chapters, AIA Brooklyn, N.Y. Pratt Institute

Forum: Thank you on behalf of myself and Columbia University for the exceedingly clear and helpful discussion of this important problem. It cannot fail to be of great benefit to the many individuals and interests concerned.

LAWRENCE H. CHAMBERLAIN Vice President New York City Columbia University

Forum: I like what I read. Unquestionably, the approach to architectural education must be broad—even panoramic. The trick is to achieve breadth without sacrificing depth.

WILLIAM W. CAUDILL Chairman, Department of Architecture Houston Rice University

Forum: I am somewhat puzzled by "Education and Architecture."

Architecture cannot be taught the way science is taught, as it will always be humanistic and social in outlook. Certainly one should try to solve technical problems with the help of computers, etc., but that is not enough. An education based exclusively on what can be taught will produce only specialists, and those who intend to become specialists will hardly study architecture.

The studio principle is still the best system for education in architecture; schools like Frank Lloyd Wright's Taliesin or Eliel Saarinen's Cranbrook. Such studios, combined with technical and scientific training provided by a university or technical institute, would be the best solution: good architects heading studios where their private commissions are executed, with good specialists for additional technical knowledge. Architecture depends on the experience and argumentation that only practice can give. It is upon these practical tasks that architecture constantly redevelops its theories and methods.

The danger that a "star" might neglect his educational obligation is due to the existing systems which do not integrate students with the "star's" practice; only the studio principle makes this possible: studio and school.

No school of architecture has applied this system, though it has been known for half a century since the foundation of the Bauhaus under Walter Gropius.

Zurich, Switzerland

MAX BILL Architect

TOMORROW'S OFFICE ENVIRONMENT

Forum: Your office environment Roundtable (Jan. '64) was a remarkable job. The principal value of this report is to show how lacking in detail our knowledge is.

New York City Manager of Research American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

Forum: As much as I enjoy your Roundtables, I must take exception at least to the title of "Tomorrow's Offices." The same comments your distinguished panel made could have been elicited from any competent space planner five to ten years ago. Until the architectural profession gains more authority and architects are trained administratively as well as technically, we will remain the pawns of business, and fail to raise the standards of architectural and interior design.

New York City

LEONARD L. GOODMAN Architectural Interiors

Forum: In the Roundtable on office planning, I could find no reference to the smoke danger in sealed or windowless office buildings. Experience in recent fires proves that sealed buildings increase the danger to occupants.

More thought should be given to precautionary measures, especially to the carrying off of smoke before it reaches the fire stairs, which should be completely isolated. It is well known that smoke is a greater danger to life than fire, but it seems that this has often been neglected.

Arlington, Va.

JOHN HANS GRAHAM Architect

URBAN FREEWAYS

FORUM: RECENT ARTICLE ON FREEWAYS ("Transportation and the City," Oct. '63) WAS AN IMPORTANT FACTOR IN COURT DECI-SION TO REDESIGN CONCEPT OF SPOKANE FREEWAY. MY HIGHEST COMMENDATION TO FORUM.

Spokane, Wash. KENNETH W. BROOKS Architect

See News section this month-ED.

NEW YORK WORLD'S FAIR

Forum: We were very pleased to see that your January issue supported our earlier predictions about the scope and importance of the Fair, as well as the ingenuity of the architects and designers involved in its pavilions and exhibits.

The cover, illustrations, and text reflect study and knowledge which should prove of great value to all FORUM readers.

				ROBERT	MOSES	
New	York	City		President		
Ne	w Yor	k World's	Fair	1964-1965	Corb.	

URBAN RENEWAL-FOR PEOPLE

Forum: I am convinced that the Ford Foundation is right in its approach to urban renewal (Jan. '64). Those of us in the physical side of renewal are involved with symptoms and results and not with the real causes of our problems.

Might not our urban centers be better off if the several billion dollars committed or spent in the urban renewal program were invested in the reconstruction, rehabilitation, and full development of young human beings?

JACK HORNUNG, Executive Director Philadelphia Colonial Germantown Inc.

PENN STATION

Forum: Re the demolition of Penn Station ("Building's Biggest Wreckers," Jan. '64), continued on page 67

They're all so different





yet they're all the same





... they're all Taylor-made

You're looking at just a few of the many coolers in the complete Halsey Taylor line for '64. The two-level model, ideal for serving adult and child alike. The Wall-Tite, a space-saver that also eliminates unsightly plumbing connections. A cafeteria type, designed for use in school and factory dining facilities. "The Architect", a recessed Wall-Mount, with a stainless steel contoured top of unusual styling. Yes, you get more in '64 with Halsey Taylor.

The Halsey W. Taylor Co., Warren, Ohio

Halsey Taylor

Write for latest catalog, or see Sweet's or the Yellow Pages

See the Fountains and Coolers of Today in "The School of Tomorrow" in the Hall of Education at the New York World's Fair



No twisting for Grandma

YALE & TOWNE

Not on your high-button shoes. Yale's new Saxon lever handle is for Grandma and anyone else who wants a less strenuous way to open doors. • The flattened top surface of the Saxon serves as a push bar. Downward pressure anywhere on the handle operates the latching mechanism. The handle (curved in-THE FINEST NAME IN LOCKS AND HARDWARE

ward toward the door, to prevent sleeve-catch-ing) returns automatically when released. Use it with Yale mortise locks or Mono-locks. • For the elderly, in convalescent homes, hospitals, or apartments, the Saxon handle is a E

blessing. • For you, the Saxon is another example of integrity of design by Yale.

1



FIRST! FIRST! AMARLITE HAS IT FIRST... the beauty and radiance of optional Panelux translucent sandwich door panels! They compliment any material or texture...strong, stable, resistant to weather, water and impact! EXTERIOR and INTERIOR Panels combine light, design and dimension with high thermal insulating qualities... and are available in standard door sizes in a choice of 3" x 3" or 3" x 6" grid patterns. Custom sizes and color designs may be ordered. Get details from your Amarlite representative. Next job, give 'em more in a door, specify AMARLITE!



GET MORE IN A DOOR! 1 EXCLUSIVE AMARLOCK has new recessed cylinder eliminating gripping surface for unscrewing; Extended bolt protection. 2 NEW PIVOTS and butts have ball bearings and stainless steel pins. 3 SECURITY CLIPS... easily installed... prevent removal of exterior stops without proof of entry. 4 TIE-ROD constructed doors are welded at unexposed junctions of rail and stiles. 5 New OPTIONAL STAMINAWOOD PULLS now available. Insert of resin impregnated wood compressed to high density. A touch of warm wood to contrast with flawless anodized aluminum.





Chicago, Illinois Cleveland, Ohio ales offices and warehouses: Dallas, Texas Paramus, New Jersey

Atlanta, Georgia Los Angeles, California



HILLYARD the most widely recommended and APPROVED LINE of floor treatments and finishes

HILLYARD

We are proud of this fact and feel that it will strengthen your confidence when specifying Hillyard protection for every floor surface.

Flooring manufacturers, their associations and flooring contractors everywhere use, recommend, or approve Hillyard products. You know it's right when you specify Hillyard floor treatments that come in the trademarked blue and white checkerboard drum.

For quality, performance and *true* economy, specify Hillyard products. They not only safeguard against stains, damage and wear during final finishing and enhance acceptance-day appearance but enable the building owner to make substantial savings on maintenance labor—the biggest single item in overall cleaning costs.

Write, wire or call collect for complete A.I.A. numbered specification files for every type of floor. A Hillyard "Maintaineer" will serve "On Your Staff—Not Your Payroll." His service and knowledge of proper floor treatments are yours without obligation. He'll gladly act as a "job captain."





0

11 100



St. Joseph, Missouri, U.S.A. Passaic, New Jersey · San Jose, California

and Approved for Every Surface

the main point made in all the protests is that an architectural monument of New York City is being destroyed. Yet this building is an imitation of classical architecture with no trace whatsoever of expressing its function or structure. It is typical of the period when the U.S. was growing too fast for its own culture to keep up, the period of intellectual and artistic insecurity when culture was strictly an import. I am sure that the same architects who are crying about the disappearance of Penn Station would not have looked twice at this building if it had been standing in pre-1914 Berlin as part of the pompous architecture of the Kaiser Wilhelm period.

GUY G. ROTHENSTEIN Forest Hills, N.Y. Designer

THE CHALLENGE TO CHURCHES

Forum: Congratulations on your excellent church article (Dec. '63). Our AIA Com-mittee on Religious Architecture has been speaking in precisely the same terms.

J. ROY CARROLL, JR. President Washington, D.C. American Institute of Architects

Forum: Congratulations on "Strength or Banality?". Mr. Canty shows remarkable insight in a subject which is often treated with superficial clichés. Relating church architecture to the Gospel and the work of the church is the key to a contemporary religious architecture which is relevant and lasting.

JOHN E. MORSE United Church Board New York City for Homeland Ministries

NORTH CAROLINA STATEHOUSE

Forum: With so much worthwile architecture being done in America, I am shocked at FORUM devoting eight precious pages to such an undeserving building as Edward Stone's North Carolina Statehouse (Dec. '63). Perhaps Mr. Stone should have paid less attention to a "dazzling performanca"

Suscentrion of a dazzning periormane.
Suscentrion Offices: Architectural Forum, 540
Suscentrion Offices: Architectural Forum, 540
Median Are, Chicago II, III
Thanks of Address: Four weeks are required a label from a recent wrapper. If no label is address to which magazine has been sent. Changes and the distribution of the davertising offices: Time & Life Midness accompanied by postage.
Methods a second-class mail by nostage.
Methods a second-class mail by nostage.
Methods a second-class mail by nostage.
Methods as been been to the dovertise of the second-class mail by nostage.
Methods as been been the mational editions of Time for the Board. Andrew Heiskeli and Life. Chairman of the Board. Andrew Heiskeli and Life. Chairman of the Board. Andrew Heiskeli and Life. Chairman of the Board. Andrew Heiskeli and hairman. Finance Committee. Charles L. Stillman; Freident James A. Linen: Executive Vice President and Secretary. Bernard Barnes; Vice President and Secretary. Bernard Barnes; Vice President, Amer M. Auer, Edgar R. Bake, Carbon Seconder, R. M. Buckley, Arnold W. Carlson, Jerome P. P. I. Prentice, Weston C. Puller, Harvey Assistant Comptroller and Assistant Secretary. John F. Harvey, Assistant Comptroller and Assistant Secretary. Charles L. Gleason, Jr.; Assistant Treasures, W. C. Davis, Evan S. Ingels, Richard B. McKeouzh.

and more to worthwhile architecture. If this is a new government style, it is

gaudy and superficial.

Oxford, England

DOUGLAS D. MICHELS Oxford School of Architecture

TWO CAPTAINS AT YALE

Forum: In your article on Yale's Art and Architecture School (Feb. '63) I was listed as job captain, but I held this responsibility for only six months of the construction phase. Hans U. Scharnberg was job captain for the major part of the job.

BILL BEDFORD New Haven, Conn.

CORRECTIONS: In the February issue, Architect Tohgo Murano should have been credited with the design of the Nissei Theater and office building (page 121). The drawing of the Boston Government Center at the bottom of page 88 should have been credited to Renderer John Kinsella. END





Tests prove this easier way to tie composite walls IS BETTER TOO — MUCH BETTER!

Impartial tests, we mean, conducted at a university-affiliated research laboratory. Test techniques were adaptions of standard masonry construction. Conclusions: In comparison with header-tied walls, the Dur-o-wal brand tie not only makes for easier construction and lower cost—but also means better walls with increased compressive strength, marked improvement in resistance to moisture penetration, comparable transverse strength, comparable mortar bond. Write to nearest address below for new comprehensive Dur-o-wal data file and research reports.



DUR-O-WAL MANUFACTURING PLANTS

Cedar Rapids, Iowa, P.O. Box 150
 Baltimore, Md., 4500 E. Lombard St.
 Birmingham, Ala., P.O. Box 5446
 Syracuse, N.Y., P.O. Box 628
 Phoenix, Ariz., P.O. Box 49
 Aurora, III., 260 S. Highland Ave.
 Seattle, Wash., 3310 Wallingford Ave.

Minneapolis, Minn., 2653 37th Ave. So.
 Hamilton, Ont., Canada, 789 Woodward Ave.



Strength with flexibility-the two basic factors for a repair-free composite wall are assured by Dur-o-wal. Around corners, that is, as well as in the straight stretches. Positive, continuous reinforcement of corners is easy when formed on the job -even easier with prefabricated Dur-o-wal corners such as shown in this picture.

EDITOR-IN-CHIEF: Henry R. Luce CHAIRMAN, EXEC. COMM.: Roy E. Larsen

CHAIRMAN OF THE BOARD: Andrew Heiskell PRESIDENT: James A. Linen EDITORIAL DIRECTOR: Hedley Donovan

EDITOR Douglas Haskell, FATA

MANAGING EDITOR Peter Blake, AIA

ART DIRECTOR Paul Grotz

ASSISTANT MANAGING EDITOR Ogden Tanner, AIA

SENIOR EDITORS: Donald Canty, David B. Carlson, Walter McQuade, AIA

ASSOCIATE EDITORS: Mary Elizabeth Allison, Marshall Burchard, Philip M. Herrera, Jan Rahm, Richard Saunders (Washington)

TECHNOLOGY EDITOR Bernard P. Spring, AIA

ASSISTANTS TO THE MANAGING EDITOR Mary Jane Lightbown, Ann Wilson

RESEARCH STAFF: Delma Dennehy, Anne Le Crenier

ART ASSOCIATES: Martha Blake, Charlotte Winter

EDITORIAL ASSISTANTS: Henry Martin Ottmann, Donald Peterson

CONSULTANTS: Miles L. Colean, FAIA, Jane Jacobs, Lawrence Lessing, Richard A. Miller, AIA, Allan Temko

PUBLISHER Joseph C. Hazen Jr., AIA

GENERAL MANAGER John J. Frey

BUSINESS MANAGER Lawrence W. Mester

ADVERTISING DIRECTOR S. C. Lawson

PRODUCTION MANAGER



The printed sticker reproduced at left is available in two sizes: a so-called palm size (2 by $4\frac{1}{2}$ inches); and a lamppost size (4 by 9 inches). Last month, one of the lamppost-size stickers was affixed to the side of Manhattan's Pan Am Building by a squad of junior terrorists operating, it is believed, out of a Greenwich Village basement.

These stickers, and similar prefabricated messages to the Affluent Society, have been printed up over the past few months by a person or persons more or less unknown. The original strategist—the Clausewitz, as it were—in this particular war of nerves is an individual hiding behind the *nom de guerre* of UNDER-GROUND PRESS; others of his ilk include the WRETCHED MESS ENTER-PRISES, and a young post-suffragette who apparently wishes to remain anonymous. Among the stickers of special interest to our readers are imprecations by UNDERGROUND to "Blight a Neighborhood!", to "Overload your Wiring!", and, more cryptically, to "LITTER!".

Spurred on by the last of these imperatives, we have been trying to think of

other promising slogans that might be printed up by would-be vandals from coast to coast. One promising slogan was suggested by the remarkable photograph shown at right, taken by John Oldenkamp and published recently in the California Review. This suggests, perhaps, that a sticker reading "Historical Landmark," and suitably embellished with patriotic symbols of our nation's past, might look well when affixed to such symbols of our present as a MacDonald hamburger stand, the newly opened Smithsonian Museum on the Mall in Washington, and the Summit Hotel in New York. How such a sticker might conceivably look is shown below.



We're not suggesting that this country is in urgent need of more advertising messages, big or small. What we *are* suggesting is that this country needs a more balanced diet of printed slogans. It is very gratifying to read that "Jesus Saves,"



but should there not, perhaps, be a message telling us what Moses (Robert) is up to, also? A philosopher once said that "the artist must be a messenger of discontent." Let us have more messages of discontent!



The U. S. apartment building industry is in for a revolution, whether it knows it, or likes it, or not. In the years just ahead, the industry is going to have to supply more dwelling units than ever before for a market that is rapidly changing in composition, in income—and in color. It will have to do this, moreover, in the face of rising concern about the sterile appearance of most apartment buildings, and in spite of its built-in rigidities.

On the following 26 pages, FORUM examines some of the issues facing those who design, finance, and build urban apartments. Included are:

APARTMENTS—WHAT NEXT?

■ Nine buildings in the U. S. and abroad which make a positive contribution to their surroundings (pages 72-83). Most were built on the kind of tight budgets which in many cases strangle quality of design, and which seem to apply regardless of the building's eventual rental or sales price. Some show new construction methods which may break the bonds of conventionality in which the apartment industry has been locked.

• A FORUM-sponsored Roundtable discussion of how well the industry is geared to serve the median-income families who are emerging as its big-volume customers (pages 84-91). Participants include some of the most highly respected figures in U. S. housing—men like Architect I. M. Pei, Urban Renewal Director William Slayton, and Developer Albert Cole. Their discussion covers such problems as spiraling building costs, a declining luxury apartment market, unmet low- and middle-income housing needs, and the changing racial mixture in cities.

• A review of recent developments in apartment building technology (pages 92-97), including the meaning of FHA's newly assumed role in curing the industry's number one head-ache: acoustical privacy.

In all this, the only safe prediction that can be made is that the apartment boom that started in 1957 is off to a brand new beginning. This year apartments are going up at the incredible rate of 500,000 units, the most in U. S. history and over a third of all private nonfarm housing starts. One factor has a significance beyond its size: this year alone, most of the 18,000 apartment units in construction under the federal urban renewal program will be completed, a third again as many as have been finished in the previous 14 years of the program.

During the 1960's families in the 20 to 29 year age bracket will increase by 8.7 percent (around 8 million customers) and those in the 50 to 64 year bracket by nearly 5 percent. These figures alone (plus prospects for a continuing flow of mortgage money) are enough to insure expansion of the boom. The questions still to be answered by the apartment building industry are: how well will these people be housed, and what effect will the boom have on the physical and social character of the American city?

The Laguna/Eichler and Laguna Heights apartments in San Francisco (left, and pages 72.73) represent one response of cities to growing—and changing—populations: the creation of whole new neighborhoods.





E BUDL TITI TYPICAL FLOOP PLAN

Long Eichler slab-the plan shows only half a floor-looms above St. Francis Square (A), Laguna Heights (B)

E



SAN FRANCISCO RENEWAL

The 15-story Laguna / Eichler apartment building in San Francisco is a handsome but lonely focal point for a neighborhood which, at the moment, scarcely exists. The glass-faced concrete slab, the work of Architects Jones & Emmons, is the first high-rise construction in the Western Addition Redevelopment Area in the heart of the city.

Its only neighbors to date are two quite different low rise cooperatives. Just south of its broad façade is Laguna Heights (photo on preceding pages), also built by Eichler Homes but designed by Architect Claude Oakland; it is a cluster of six hollow, squarish buildings containing ten middleincome apartments apiece. To the west is St. Francis Square (photos left), a crisp complex of unionsponsored, low-income town houses by Marquis & Stoller.

Laguna/Eichler contains 150 units, 149 of which have three bedrooms (the exception is the manager's apartment, which has two). Eichler Homes originally had intended to build three highrise structures, but sold the site for the other two to the Catholic Archdiocese for its new cathedral (see News). They were to contain smaller apartments to balance the mix.

The building is basically an egg-crate of load-bearing concrete walls, which Jones & Emmons find a flexible and economical way to build apartments. A rigid frame, they feel, is wastefulpartitions might as well be put to work, since they will never be moved - and column-and-beam construction enforces undesirable limitations on apartment plans.

FACTS AND FIGURES

Laguna/Eichler Apartments, San Francisco, Calif.

Owner: Eichler Homes Inc. Architects: A. Quincy Jones, F.A .-I.A., and Frederick E. Emmons, A.I.A. (Emiel Becsky, in charge of working drawings). Engineers: Richard R. Bradshaw (structural); Ayers and Hayakawa (mechanical); Frumhoff and Cohen (electrical). General contractor: Eichler Homes Inc.

Building area: 237,016 square feet. Total cost: \$5 million.





Bracknell tower, its plan an angular mix of small units, rises from a circular garage-top terrace (drawing left).



ANGULAR BRITISH TOWER

This is not precisely an urban building, being part of the British new town of Bracknell, but it serves a city-like function: it compensates, in the words of its architects, for the "lack of the traditional boarding house accommodation and flatlets." It contains 68 one-bedroom units, and 17 each of two-bedroom units and efficiencies, their rentals geared to middle-range incomes.

The shape, too, could inject a pleasing note of variety into the proper urban setting. The 17story shaft started out to be a point block, but the architects found that they could save space by making the plan a "split hexagon" rather than a square. The split was made necessary by a code requirement that the staircase be within 20 fect of all apartments; the hexagon was opened into two halves, and the stair and elevator tower inserted at the point of division. This meant regular angles could be maintained elsewhere, reducing the number of precast elements.

On typical floors, three prefabricated service cores, each consisting of two bathrooms and two kitchens, are grouped at the center of the building. The bathrooms, kitchens, and bedrooms are rectangles. The irregular shapes of the living areas adapt to varied furniture arrangements.

The whole is executed with a kind of muscular refinement generally missing in economy buildings on this side of the water. Walls are handsome compositions of full-depth windows behind strong, shallow balconies, cut vertically by exposed precast columns. The building is held above ground on a circular terrace, separating it from the garage below.

FACTS AND FIGURES

Point Royal High Flats, Bracknell, England.

Owner: Bracknell Development Corp.

Architects & Engineers: Arup Associates (Philip Dowson, architect; Derek Sugden, engineer; Denis Stone, quantity surveyor; Max Fordham, services engineer; Keith Barnes, job architect).

Building area: 72,400 square feet.





GROUND FLOOR FLAN

TYPICAL FLOOR PLAN

Charlesbank building has mechanical space at entry level (drawing left). Unit plan gives corners to bedrooms.



POINT BLOCK IN BOSTON

In designing this 24-story point block, which thrusts up unexpectedly in the middle of its lowrise Boston surroundings, Architect Hugh Stubbins wanted to make the exterior wall strong enough to overcome the effects of tenant freedom in the selection of curtains and drapes. His method: highly articulated precast concrete panels which give a "chainmail" texture to the wall (left).

This textural strength is enhanced by projecting balconies serving the corner apartments. The balconies occupy the same position on each of the four identical walls, giving the square building a slight pinwheel motion.

The reinforced concrete structure has no basement, so mechanical equipment rooms are located on the ground floor along with the entrance lobby and a small apartment for the manager (plan, far left). The recessed lobby gains privacy from a pierced block screen (below left).

The building contains 276 units, all either one-bedroom or studio apartments, roughly twelve to a floor. The apartments are grouped around a tight central service core which eliminates long corridors (plan, left). Interior partitions are of concrete block, plastered and painted. Parking for 195 cars is provided in an adjacent two-story structure.

Rentals range from \$95 to \$140 for studios and \$130 to \$165 for one-bedroom units. Mortgage financing was under FHA's 220 program, with the equity provided by a charitable trust.

FACTS AND FIGURES

Charlesbank Apartments, 650 Huntington Avenue, Boston, Mass. Owner: Charlesbank Apartments, Inc.

Architect: Hugh Stubbins & Associates, Inc. Engineers: Goldberg, LeMessurier & Associates (structural), Greenleaf & Wong (mechanical, electrical). General contractor: George F. Driscoll Co.

Building area: 230,500 square feet (excluding garage). Construction cost: \$3.7 million. Cost per square foot: \$16.08. Cost per apartment: \$13,350.











REFINEMENT IN CHICAGO

The Eugenie Lane Apartments were the first new construction in many years in Chicago's Old Town Triangle, one of those flavorful urban neighborhoods that have been rediscovered and spontaneously restored. Most of the four-story building's neighbors date from the days after Chicago's 1873 fire, and a few go all the way back to the Civil War.

Architect Harry Weese was chosen for the project, according to a press release issued by its developers, for his "warm, witty, and original" work. The Eugenie Lane building has all three of these qualities, but it is above all well mannered.

It pays its respects, first of all, to the fragile residential scale of its venerable surroundings. It is not a small building: there are 24 units in all. But Weese sunk his ground level two feet below grade and made the topmost a psuedo-penthouse shallower than the other three and set back behind them. On this ground floor are six efficiencies, and on the first four one-bedroom units. The second and top are taken up by seven duplex apartments with living areas below and two bedrooms above.

Each of the top-floor bedrooms open onto a small gallery, whose slanting fins give the roof a mansard quality. There are also galleries on the third and fourth floors, opening in opposite directions to add depth to the façades. The final exterior element is a surprising one: Weese has borrowed space for the single bedrooms of the second-story units by allowing their closets to poke through as sheet-metal boxes.

FACTS AND FIGURES

Owner: Old Town Apartment Eugenie Lane Apartments, Chicago. Trust.

Architects: Harry Weese & Associates (Ben Weese, associate in charge). Engineers: Paul Gordon (structural); Neil, Rich & Bladen (mechanical and electrical). Landscape consultant: Mary Moulton. General contractor: S. N. Robbins Corp.

Building area: 21,310 square feet. Construction cost: \$283,597. Unit cost: \$13.50 per square foot.





Access towers join pairs of Sampson Plaza buildings. Notched walls give units maximum exposure to outdoors.



ECONOMY IN WISCONSIN

Wisconsin's first redevelopment construction, the Sampson Plaza Apartments in Madison, scarcely compare in wit or warmth with the Old Town building on the preceding pages. Yet they represent perhaps an equal achievement for Architect Weese. They show that perforated brick boxes of the conventional economy kind need not be forbidding. And they were built for a remarkable \$9.80 per square foot.

Weese is ready with documentation for the incredulous. The ten three-story buildings and appendages add up to 181,335 square feet, and cost \$1,778,157— \$9.805 per square foot, to be precise. Take away \$105,870 in sitework, utilities, and contractors' fees, and the figure becomes \$9.222 in building costs alone. Eliminating the \$144,218 spent for such unbuilt-in items as ranges and refrigerators brings it down to an even more dramatic \$9.01.

Weese used a number of devices to take the curse off the plainness of the buildings. Some were matters of form and detail, but the most significant had mainly to do with plan. Elevators and stairs are in separate towers joining pairs of buildings, with access over bridging galleries. The towers give the complex a highly pleasant variation of mass, and the galleries, each serving five apartments, eliminate the need for long interior corridors.

There are, in all, 60 one-bedroom apartments, 60 two-bedrooms, and 30 efficiencies, their rents ranging from \$120 to \$180 per month. Each has either two or three exposures to the outside, most overlooking park land.

FACTS AND FIGURES

Sampson Plaza Apartments, Madison, Wis.

Owner: Sampson Enterprises Inc. Architect: Harry Weese & Associates (Ben Weese, Job captain). Engineers: Paul Gordon (structural); S. R. Lewis & Associates (mechanical and electrical). General contractors: First Construction Corp., Joseph P. Janson Construction Co.

Building area: 181,335 square feet. Construction cost: \$1,778,157.







Balconies open from all Hampshire House studios (plan left), serve both living room, bedroom of larger units.



SUN CONTROL IN DENVER

Denver likes to call itself the Mile-High City, but its altitude and clean, thin air make sun control a crucial building problem. In Hampshire House, therefore, Architect Donald R. Roark shaded all large glass areas with deeply indented balconies. The only exposed windows are narrow slits.

The 17-story building's exterior is a straightforward composition of the exposed concrete frame, brick infill panels, and the recessed balconies. At the bottom, each pair of columns is gathered into a single Y-shaped concrete member, freeing views out from the two-story lobby area and permitting the corners of the building to "float."

There are eight apartments per floor, arranged around a compact center core with exit stairs at both ends (plan, left). Though it cost a moderate \$11.68 per square foot to build, Hampshire House was intended to be a fairly expensive apartment-hotel. All apartments are either studio or one-bedroom units, available with carpeting, drapes, appliances, and furnishings. In addition, there is a restaurant on the ground floor, a pool and combination recreation-meeting rooms on the second level, and parking for 98 cars (low element in photo, above left).

Mechanical services are supplied to the apartments vertically. Heating and air conditioning is by a three-pipe fan coil system with all units placed atop closets.

FACTS AND FIGURES

Hampshire House Apartment Hotel, Denver, Colo,

Owner: Hampshire Investment Corp. Architect: Donald R. Roark, Englneers: Johnson & Voiland (structural), Lindquist & Griffith (mechanical), Sol Flax (electrical). Interior designer: Western Contract Furnishings. General contractor: Lembke Construction Company of Colorado Inc.

Building area: 95,850 square feet. Construction cost: \$1,119,424.14. Furnishings and equipment: \$350,000, including restaurant. Fees: \$60,000. Cost per square foot: \$11.68. Financing: mortgage loan of \$975,000 at 6 per cent for 20 years from Equitable Life Assurance Society of the U.S.

PRECASTING IN DETROIT

Progress in American apartment building methods may seem snailpaced, but at least progress is taking place. At present the most promising developments, both in terms of building costs and eventual building quality, are to be found in the field of concrete structures, as witness the two examples on these pages. Both show the successful architectural use of concrete construction techniques which, before long, may take their place among the industry's conventional ways of doing things.

The exterior walls of Dearborn Towers, an 11-story, 100-unit apartment building near Detroit, are composed of load-bearing precast concrete panels. Each one is 18 feet 4 inches wide and 8 feet 9 inches deep, containing five window openings.

The panels provide both the form and support for the pouredin-place concrete edgebeams of the flat slab floor system. The floor slabs span from the exterior panels to interior columns and shear walls which were built conventionally to a height of six stories, then slip-formed the rest of the way up.

Dearborn Towers thus mixes nearly the full range of concrete building methods readily available in the U.S. One result is a construction cost of an inextravagant \$13.96 per square foot. Another is a building that, while unadventurous in form, is both orderly and substantial in appearance.

Site of the building overlooks the Rouge River and three private golf courses in Dearborn, a northwest suburb of Detroit. Rental range is in the uppermiddle category, with studios averaging \$135 per month and two-bedroom apartments \$235.

FACTS AND FIGURES

Dearborn Towers, Dearborn, Mich. Owner: The Lundblad Co. Architects: King & Lewis Inc. (Harry King, architect in charge). Structural engineers: Raymond C. Reese Associates. General contractor: Barton-Malow Construction Co. Building area: 120,000 square feet. Construction cost: \$1,675,000, including landscaping, site development, and appliances.





Generous apartments of Dearborn Towers overlook river, golf course through precast strips of deep-set windows



CALIFORNIA SLIP FORMS

Shorecliff Tower in Santa Monica is a companion piece to the Laguna/Eichler building (see pages 72-73). It was designed by the same architects, Jones & Emmons, and follow the same egg-crate system of concrete bearing wall construction. The principal differences between the two are the rental levels (Shorecliff, with four apartments per floor, is a place of unabashed luxury), and the fact that at Shorecliff all of the walls were built by the slip-form method.

The slip-forms' primary contribution was speed. Shorecliff's walls went up at the rate of one floor every four days (see FORUM, June, '63). The initial rate at Laguna/Eichler, conventionally cast-in-place, was a floor every two weeks, although practice eventually brought it down to one every eight days.

There seems no reason why the same construction system could not yield similar savings in construction time on quite dissimilar kinds of apartment buildings. The spacing of the bearing walls, for example, can be adjusted within generous limits to fit a variety of plans. If the apartments were smaller, so that these walls fell between rather than within units, their mass would be even more important in terms of acoustical privacy. Finally, the application of the slip-form method to taller buildings than Shorecliff would yield even greater economies in comparison with conventional techniques of high-rise concrete construction.



Shorecliff Tower, Santa Monica, Calif.

Owners: Ralph Kiewit Sr., Ralph Kiewit Jr., William Holden, Deane F. Johnson.

Architects: A. Quincy Jones, F.A.I.A., and Frederick E. Emmons, A.I.A (Emlel Becsky, in charge of working drawings). Engineers: Richard R. Bradshaw (structural); Marvin Thacker (mechanical); Clark C. Stewart (electrical). General contractor: Peter Klewit Sons Co.

Building area: 135,229 square feet. Construction cost: \$1,890,000.





Shorecliff Tower's luxury units have spatial qualities of a well-designed house. Walls are full-d.pth glass.







Swiss complex was built entirely of factory-made concrete panels (drawings above), intricately joined together.



SWISS PREFABRICATION

The Swiss, as everyone knows, have a facility for putting fine pieces together and making them work. In the case of this apartment complex near Zurich, the pieces were prefabricated panels of which the nine buildings were constructed, inside and out.

Exterior walls are sandwich panels $8\frac{1}{2}$ inches thick. Their outer layer is unreinforced concrete, their center is insulation, and their inner layer is load-bearing, reinforced concrete. The floors and interior walls also are of precast concrete, reaching the same $8\frac{1}{2}$ -inch thickness at the maximum floor span of 26 feet 3 inches.

Walls and ceilings are connected by special steel keys grouted into dovetail openings in the panels (see detail at left). Joint openings were kept to a maximum of three-eighths of an inch —such are the fine tolerances to which the precise Swiss are able to work. Seven-man assembly crews were able to put together 50 panels in an eight-hour day, the equivalent of two four-room apartments a week. The panels were made and erected by the same firm.

The buildings are three, four and five stories in height. They contain studio apartments; 21/2-, 31/2-, 41/2-, and 51/2-room flats; maisonettes, and five-room duplexes (the plan at left is a typical 51/2-room flat). The complex has, as these facts indicate, a great deal of variety about it, and the variety goes beyond the units' size and space. Prefabrication here has been used to achieve individuality rather than sameness: there are scarcely two identical walls among the nine buildings. A series of diverse and refined forms has been drawn from the building process itself, something that seldom happens in the U. S. apartment industry.

FACTS AND FIGURES

Rietholz Housing Complex, Zurich, Switzerland,

Architects: Hans and Annemarie Hubacher, Peter Issler; Oern Gunkel, collaborator. Engineers: Weder and Prim. Manufacturer and contractor: A. G. Veltheim.











APARTMENT ROUNDTABLE ASKS: WHAT PRICE URBAN LIVING?

A short time before President Johnson told the nation that "Now is the time to direct the productive capacity of our homebuilding industry to the great needs of the neglected segments of our population," FORUM sponsored a Roundtable discussion of building leaders to explore exactly how this might be accomplished. The panel consisted of some of the best known, best respected men in housing (see below)—a top architect; several leading builders, one of whom once administered the federal housing program; the current administrator of urban renewal, and several widely respected economists.

In broad terms, the panel considered the questions of the housing needs of median-income families. Median-income was selected because it is the accepted yardstick for eligiblity in the federal 221d3 program, a specially subsidized and so far quite successful attempt to house those families whose incomes fall between public housing and private market levels. Median-income also has the advantage of being a single figure (for a four-person family, it is \$7,600 in New York City, \$6,200 in Philadelphia, \$7,350 in Cleveland and \$7,900 in Washington, D.C.) and thereby easier to define than the vaguer term "middle-income" housing.

The panel also weighed the proper objectives of a housing subsidy, the difficulties of achieving lower building costs to get lower-priced housing, the reluctance of many investors to back median-income programs, and the role of design, both for buildings and total environment, in the construction and planning of such housing. The talk was frank and timely, and answers to these problems indicate that at least this group of building industry leaders is on President Johnson's track.

LIST OF PARTICIPANTS:

ALBERT M. COLE Executive vice-president Reynolds Metals Development Corp. Washington, D.C. Former Administrator, HHFA

MARVIN S. GILLMAN Renewal Developers, Inc. Huntington, L. I., N.Y.

OTTO L. NELSON, JR. Vice-president in charge of housing New York Life Insurance Co.

I. M. PEI I.M. Pei & Associates, Architects New York, N.Y.

ROGER SCHAFER Housing consultant Schafer Brothers, Inc. New York, N.Y. WILLIAM L. SLAYTON Commissioner Urban Renewal Administration Washington, D.C. Former vice-president, Webb & Knapp, Inc. New York, N.Y. H. RALPH TAYLOR Renewal & Development Corp. New York, N.Y. LOUIS WINNICK Ford Foundation New York, N.Y. Former chief of planning, Housing & Redevelopment Board, New York, N.Y. FROM TIME INC.:

PETER BLAKE PETER BLAKE Managing Editor, FORUM GURNEY BRECKENFELD Managing Editor, HOUSE & HOME DAVID B. CARLSON Senior Editor, FORUM (Moderator)

THE KIPS BAY APARTMENTS, designed by I.M. Pei originally for Webb & Knapp (and now owned by Alcoa Residences), exemplify quality design for middle-income housing. They are on Manhattan's East Side. QUESTION NO. 1: Is there a clearly defined need for housing to accommodate median-income families in cities?

SLAYTON: I would say that if a community has a supply of decent housing available for medianincome families, there is no need to build new housing for them. In Philadelphia, for instance, there is a good market for the median-income family. In Cleveland, we have one 221d3* project being emptied because of standard housing available at prices even lower than the median-income range. In Cincinnati, the substantial supply of standard housing at decent rents in older neighborhoods is hurting occupancy of a new median-income project.

The same is generally true, with the exception of a few special cases, in Detroit, Buffalo, Chicago, Washington—in fact practically every place except New York and San Francisco.

MODERATOR: Would you say, then, that more attention should be paid to rehabilitating existing units, rather than pushing new programs of building medianincome housing such as 221d3?



SLAYTON (above): I think we are beginning now to get the machinery to make rehabilitation work.

GILMAN: It seems to me that the only way we will put rehabilitation on a mass basis and a profitable basis is for local redevelopment agencies to buy blocks of houses and then resell them to developers wholesale.

SLAYTON: I disagree heartily with that. I do not think that the large-scale sort of rehabilitation operation can achieve the social

*The "221d3" program is a special low-interest rate housing program for median-income families (FORUM, Apr. '63). objectives inherent in the program.

WINNICK: We beg a lot of questions when we ask: How do you meet the middle-income housing need? I distinguish need from want; need from satisfaction.

MODERATOR: Let's define need as ten million substandard units, 35 per cent of them in cities; three-fourths of those occupied by families under \$4,000 a year.

WINNICK: Exactly. If you define need to mean these objective standards, there is no argument about that.

In New York City 93 per cent of those who are living in substandard housing have less than \$4,000 a year income, yet you have a city housing program which is geared for a market subtantially above the \$4,000 income.

If anybody thinks he is meeting the need directly by new construction or building middle-income housing, he is only kidding himself and he has to go a long way to prove he is right. You cannot simply take a table which shows statistically the number of people in substandard housing and then derive a program to meet this need with new construction.

BRECKENFELD: I would agree that there is little unmet economic demand for new housing for median-income families in most cities. The FHA figures show, for instance, that it does a substantial business with all but the lowest 21 per cent of the United States nonfarm families.

When you get above the \$4,000 income level, you find that FHA had house buyers in every group from \$4,000 to \$10,000.

Now, to be sure, this isn't new housing, but it has to be decent, safe and sanitary. Instead of a shortage of middle-income housing for middle-income families and I mean the middle third of income distribution here—there are signs that we are heading into a glut. I don't think that is true yet in New York; it may not be true in Chicago.

WINNICK: There is more mid-

dle-income housing being programed in New York City than there are customers for it. Roger Schafer and other people point to the fact that if you build \$22a-room housing in central Manhattan, where the market runs \$50 or \$60 a room for new housing in fireproof, air-conditioned buildings, you have a waiting list; and he takes the size of the waiting list as an indicator of the unmet needs for middle-income housing. I take it that the American people recognize a bargain when they see one. In New York, large numbers of private builders and subsidized builders have been building in places other than the favored Manhattan locations or the favored all-white neighborhoods, and they have had to do some things almost without precedent to promote them. Some of them are still not out of the woods. It used to be customary to rent the project out before it was announced. Now it is often rented over a period of years.

SCHAFER: As a builder, I can work at top speed the rest of my life on projects to provide housing for the median-income family currently living in slum conditions. What is really needed is greater awareness on the part of political leaders of how much people do favor these programs.

WINNICK: But where is the crisis? You can only get public action when there is a crisis.

After the war, with the return of the veterans, you got a tremendous amount of forced draft housing programs. From my reading of American history, you can get rapid action on the part of public officials only when there is a tremendous head of steam up for some emergency. There is no public emergency now.

MODERATOR: Can you see it coming with President Johnson's statement about poverty in his State of the Union speech?

WINNICK: The people who are really living on the threshold of poverty are nowhere near the middle-income or even median-income housing that we are talking about.

SUMMARY NO. 1: The paradox is that while there seems to be, statistically, a need for such housing, there also appears to be a good supply of older, decent housing at these cost levels. Thus some new median-income projects even show vacancies. GILMAN: But can the city be left to be a concentration of indigent minority groups? It seems socially undesirable that the American city become the refuge of poor Negroes or poor Puerto Ricans, or whatever the minority group is. The white family has found convenient refuge in the suburban communities which have made the homebuilding industry such a large one. The reason a program like this is needed, if it is needed, is because somebody cares about saving the city.

SLAYTON: Yes, you are absolutely right. I believe we still need a middle-income, or median-income housing program, but primarily to meet certain social objectives, such as restructuring the city to get a better racial and economic balance. But I do not believe there is a great unmet need in most American cities today simply for additional middle-income housing. I think that in those cities where there seems to be lack of median-income housing, there should be more, but I would still have grave concern about indiscriminate use of such a program without regard to location, or to basic city objectives. One of my greatest concerns about medianincome housing, particularly in large concentrations, is that it will probably end up heavily Negro, and this would defeat what I think are our social objectives.

QUESTION NO. 2: Can the private investment builder successfully build median-income housing?

terprise can build median-income housing in blighted areas, but perhaps not always in sufficient number to meet the need in every city. Despite that, I believe that private builders can even do it without government subsidy, if we consider that FHA is not government subsidy. I happen to believe there is, broadly speaking, a subsidy in FHA. But, with the use of FHA (e.g., 221d3) a private builder can build in a blighted area for median-income people.

COLE: I think that private en-

SLAYTON: But is there any difference between building in a renewal area and building any-where else?

COLE: In my judgment, there is a difference between building as usual and building in a renewal area. When you're talking of renewal in blighted areas, you're talking about trying to re-create Hog Island into a community where people would want to live. For the private builder to do this, he must have sufficient capital to undertake the risk, and there is quite a bit of risk involved. By sufficient capital, I mean sufficient risk capital which he is willing to invest and not receive the immediate return that some speculative builders require. If the builder has sufficient capital and can wait long enough for his return, then, as I see it, in terms of median-income, he can build in once-blighted areas without any subsidy, government tax abatement, or anything else.

MODERATOR: New York Life has certainly shown that middle-

income housing can indeed be built and operated in redevelopment areas, admittedly with some problems. But why hasn't New York Life developed more middleincome housing like Fresh Meadows and Lake Meadows?

NELSON: Here are some of the problems that trouble me in terms of building middle-income or median-income housing. First, New York Life has never built anything in which it hasn't had substantial maintenance problems, and I don't think anyone else has either.

Secondly, when we started building apartments in 1946, there was a great reservoir of institutional funds that were looking for investments, and there was a dearth of investment opportunities. I think if there has been any trend that has been present in the market it is that each year institutions have had a greater number of good investment opportunities from which to choose; and the preference for housing investments has gone down.

The problem of meeting rising costs and also getting higher yields to match the higher yields that are available in the investment market has made housing investments—direct housing investments—by large institutions relatively less attractive now than they were before.

Another point I would make is that supervising the design and construction and then operating what I call a high visibility investment—it is about as high visibility an investment as you can possibly get—makes large institutions shudder, and probably with good reasons. I think this is an important aspect of all investment in housing because of the political atmosphere in which housing operates. I think it's only natural that many investors are frightened by the high visibility.



SCHAFER (above): What is really needed to get down to the median-income level, is both low interest rates with long periods of amortization and modest taxes for rental or cooperative housing. More flexible building codes would also help, as would higher productivity in building itself.

MODERATOR: Are you saying then that median-income housing can be profitable?

SCHAFER: Yes. In this medianincome field, we are slowly developing a new concept: An equity investment in a median-income apartment with rents well below the current market will be attractive to the kind of people who today buy revenue bonds. It is developing a market for people who are satisfied with a 5 or 6 percent return.

SUMMARY NO. 2: Yes, but probably only under certain conditions which don't penalize him too heavily. In the case of New York Life Insurance, its early experiences in urban renewal and middle-income housing have convinced investment builders that the job is not worth the effort when more attractive investment opportunities are available. QUESTION NO. 3: What other objectives should government housing subsidies have, besides simply getting more median-income housing built? WINNICK: Many cities are becoming increasingly concerned about their unfortunate homogeneity in income class. They would like very much to abate that trend. And they would like very much to introduce a greater racial diversity.

I think if rents were cut, then the city could not only get more housing production at a relatively low price, but also get the housing distributed in such a way as to foster the social objectives of a healthier mixture in a city. But it must be placed at such points as will avoid draining further whites out of neighborhoods, and induce whites to move into some neighborhoods.

MODERATOR: Isn't this the strategy of urban renewal as well, in which a rent-cutting or pricecutting tool is used to increase the amount of housing and also to alter the map of where investments are taking place?

WINNICK: Yes, but these objectives are very often in conflict. For instance, I would have a lot of trouble increasing housing construction in New York if I were to attempt to put it in transitional neighborhoods.

SLAYTON: And the federal contribution to urban renewal hasn't really gone into rent reductions at all, unless there is a specific statement written into the renewal plan for the area that the housing to be erected cannot rent for more than a given amount. Aside from this, the basic question to be answered is: do we really need a program that makes it possible to build median-income housing in Metropolitan areas?

COLE: Well certainly, the 221d3 program does reach a market and supply a need; it does reach people in cities who are unable to rent or buy houses in that community.

MODERATOR: Who are unable to buy either new or used housing?

COLE: Yes.

WINNICK: Where are they living now?

COLE: In substandard housing, SLAYTON: But one of your problems in Cincinnati is that there are many older houses where Negro families with median incomes (around \$6,800 for four persons) can now move; a market has been opened to them recently and this is the kind of competition you have in building 221d3.



COLE (above): I still stay with my assertion that 221d3 is necessary. I happen to feel that 221d3 politically provides a better tool than public housing, and it provides an alternative to public housing which affords greater latitude for private enterprise to meet this objective. It is also much cheaper than public housing.

TAYLOR: I don't agree that there is any surplus of middleincome housing so that the subsidy is undesirable, and I fully agree that there ought to be more 221d3. The more housing we can get into the market at that level, I think the easier it is going to be to approach the race problem.

The idea that you are going to create islands within a city that will be representative of the "new city" just isn't going to work. What will work will be the total approach to the urban problem, and increasingly, there is recognition of that. Some cities are already moving toward it. I think that the Ford Foundation programs in New Haven and other cities (FORUM, Jan. '64) are examples of the broad-scale attack that is going to have to be made.

WINNICK: But the problems that face urban society in coming years revolve almost entirely around the racial question.



GILMAN (above): I agree that one of the uses for a subsidy is to attain certain social objectives; either to fulfill a need for shelter or to improve school conditions, or to strengthen the city's economic base or for some political necessity.

I don't believe that buyers and renters can be bribed to accept inferior schools, nor can they be bribed by lower housing costs alone to accept an inferior environment, whether that environment is broad, open spaces-one type of planning-or the "good" environment of the Jane Jacobs variety. I think that we have to begin with our urban schools. It appears that huge subsidies are going to have to be poured in to bring the quality of the city school up to the level that is afforded to the middle-income person in the suburbs. If we can begin this way, we have a prayer of bringing the middle-income person back into the city. For instance, in Washington's Southwest urban renewal area, the Amidon School has for many reasons acquired so much prestige in certain types of middle- and upper middle-classes' thinking that it has become a very useful tool, it seems to me, in the renewal of the area.

If the American city is worth saving, some subsidy is going to have to be given to make it attractive for middle-class people, to reverse to some extent the flow to the suburbs. Bringing middleclass white families back into the center of town—families with children—to share in revitalized schools, in a normal 1960's community of some mixture of race, seems to me a very good reason for a housing subsidy.

SUMMARY NO. 3: A better racial and economic balance is essential, and this means using housing as an instrument to revise the city pattern. Housing should also be tied in more closely to better schools and other programs of over-all community improvement.


WINNICK (above): In doing

this, however, you can't discard the notion that our subsidy programs ought to contain a substantial component of new construction. I say this because in the nature of the argument of trying to really do some social engineering of urban neighborhoods, you are going to find that no amount of manipulation of existing housing, whether through rehabilitation or whatever device, will be sufficient to recast or reconstitute the population mixture unless you get new housing into that area.

I am more pessimistic than Mr. Gilman and others about the ability to attract white families with children into urban areas. I can cite many failures despite the fact that the plans touched all the ideological bases, for integration goals will be met very slowly. I think the white family without children is often a precursor to the white family with children, with due passage of time.

QUESTION NO. 4: Do building costs impede the production of more median- and low-income housing? COLE: I think the building industry has failed in the construction of lower-cost housing for median-income families largely because of the increase in costs or, shall I say, largely because we have not done an adequate job in eliminating obsolete methods of construction, in persuading code authorities to adopt sound performance codes, and in the failure of labor and contractors to organize their operations in a more efficient way.



PEI (above): There is a great deal that we should accomplish in the way of cutting the cost of housing, there is no question about that. We have made a little progress in the last five or ten years but a great deal remains to be done.

MODERATOR: Supposing we talk a moment about a rather ordinary apartment building and an exceptional one. What does better design really cost?

PEI: Using the Kips Bay apartments as an example, I would say that the answer would be about 7 percent above the cost of an ordinary apartment project.

COLE: Even that is good.

PEI: At that time, a comparable project was Park West Village, which was being designed and constructed about the same time as Kips Bay was, and I believe— I am not certain about this cost— I believe Park West came in about \$10.50 per square foot. There is, of course, a somewhat higher standard at Kips Bay. For instance, virtually all of the ground floor is used for lobbies.

But the major difference is mechanical work.

Kips Bay has much more glass than a conventional apartment house and because of that, the airconditioning and heating load is considerably higher.



TAYLOR (above): Even if better design costs 7 or 10 percent more in construction costs, when you carry that down to rents, that isn't so great.

In Southwest Washington or in Sacramento, or anywhere else where a builder works to create an especially fine environment open space, trees, grass and pools —then he must be prepared to pay the higher upkeep of this sort of approach. It is the price for creating long-run value.

MODERATOR: Land costs have been rising perhaps faster than any other single factor—they now comprise about 20 per cent of total development costs— but what about operating costs?

SCHAFER: Assuming an apartment rents for \$110 a month, you would be paying roughly \$41 for oil, your superintendent and your janitor, etc., and \$2 for taxes each month. The balance consists of \$4 per month for interest and amoritization on land and \$8 as return to the owner on his investment. You figure \$57 for interest and amortization.

SLAYTON: Let's take a nonsubsidized project. What do you figure for taxes and operating expenses?

SCHAFER: If we do, I would have to figure: Instead of \$110 rent, we have to go to \$190. We still pay the same for services, but we pay \$40 to \$45 for taxes.

COLE: Not only architects but mortgage bankers, building product manufacturers, contractors, code authorities and labor unions also have a responsibility to do what can be done to provide better housing at a lower cost.

GILMAN: And there is a particular urgency for a review of housing credit and housing credit procedures. I am not sure that we couldn't qualify a lot more people for a lot of existing housing if we were to re-examine some of these housing credit procedures.

COLE: I underscore that one.

SUMMARY NO. 4: Definitely, and

all the major figures in building

QUESTION NO. 5: How important is better design in the marketing of median-income apartments in cities? MODERATOR: Would you like to answer again a rather naive question: Is better design in renewal areas worth the extra cost; and if so, why?

SLAYTON: Well, clearly, I am going to say yes. I don't think there is any question that it is worth it. It is worth it even though it might reduce the price the redevelopment agency might get for land, because it doesn't make really too much difference what the redevelopment agency gets for the land. In urban renewal, we are beginning to get a new concept of what urban life can be. I think we have progressed considerably from the environmental design of a Lake Meadows to the environmental design of-I won't single out any particular project-but many recent projects. I would say that in terms of recent renewal projects based on design competitions, the interest of developers has been intense and their effort has been to create extremely good design with very good architects; and these developers are very conscious of cost. These men look at the dollar very, very closely.

NELSON: One of the things which is unfortunately true in the whole real estate field is: if you want to make money, be an imitator; don't be an innovator.

PEI: I agree with that.



NELSON (above): In the case of Lake Meadows, we were very fortunate because there was a great shortage of housing, and it was relatively easy to rent out the first five of the 12story buildings. We gave the consumers a greater variety of choice. When you build in an area that has been blighted and which in the public's mind still has not quite changed, your rental job becomes infinitely harder. I don't say it can't be done, but I think we probably need to be smarter than some of us have been in the past. One thing we have learned is that you have to have an area that is sufficiently large so that you can control your own neighborhood.

MODERATOR: How large is that? Is Lake Meadows big enough?

NELSON: Yes, there we had 100 acres, and this has proved to be very adequate.

COLE: I want to say very clearly that, so far as my experience is concerned, innovation does not assist you, generally speaking, in marketing housing. My guess is that it is to the contrary.

Now this is in spite of what I personally want to do, personally have been trying to do, and that is to expand better design and better usage, but this does not work in the market.

For instance, if you have a project which is recognized, familiar, and traditional, and another which contains exterior and interior innovations—and I don't care what your environmental conditions are—and the price is the same, that traditional, recognized, accepted house will go faster than the house with innovations.

This has been my experience.

PEI: That is the reason why I hesitated at one point to spell out the two kinds of design: building design and environmental design. I would agree with you that if you have the proper environmental design and if you put a traditional building in it, it will move faster.

In urban renewal, particularly where you are talking about multiblock, really large-scale development, that is where environment is so important.

Now what is wrong with Stuyvesant Town or Peter Cooper Village is not so much the buildings per se, rather it is the environment, the project character. The place looks like a project. You have 15 buildings or 25 buildings looking all alike. You really get lost when you go home.

NELSON: Let me be the devil's advocate for a minute. I believe in what you have said, but I have had my skeptical moments. Again, let me use the Lake Meadows illustration.

We have advertised: "Live in a park by the lake." We think we have a remarkably fine location on the shores of Lake Michigan. We have a development with less than 10 percent of the area occupied by buildings, and almost all apartments from the third floor up have a lake view. And yet, the question I have asked myself from time to time is: Are people willing to pay a dollar's more rent for this living in a park by the lake? Sometimes I get cynical and think they aren't because I find that our rents are no more than competitive apartments. By and large, our rents can't be any higher than those in the typical building on a very narrow lot with no grounds to speak of.

Therefore, one of the things I have questioned over the years is that in projects where we've got a great deal of open space, will people really pay the additional rent?

Now I like to think that over the long run, this concern for environmental things will pay off. But I have been a bit bitter about this.

MODERATOR: It seems to me that if we are to consider all these elements of cost that go into the total cost of urban housing, the one area where costs can be cut very quickly in private, nonsubsidized development is just exactly where they do cut it; namely, in the area of design better design.

SLAYTON: That's true. All the private developers here have gone through some cost-cutting operations. At Webb & Knapp we didn't cut in terms of space or basic design features; we cut in things that probably hurt us most

SUMMARY NO. 5: Environmental design, encompassing a broad area, is critical, as evidenced by the early urban renewal efforts in Chicago and Washington. But venturesome design of individual buildings sometimes can be a hindrance rather than a help in the market place. in the market. We cut in terms of the quality of the equipment and some of the quality of the finishes, but didn't reduce the space. The theory was that if it rented well, and if over a period of time you could replace those items that you saved on, that would be adequate, but you could never replace 6 inches that you cut off the living room. I think that is sound.

TAYLOR: We cut space in our Sacramento apartments.

SLAYTON: And it's hurting.

TAYLOR: There is no question about that; it is really hurting.

COLE: It is done frequently, but it always hurts.

WINNICK: One has to distinguish very sharply between the effect of architecture upon an individual builder and the effect upon the whole housing economy. A good design, such as Mr. Pei's Kips Bay, can attract a market for itself. But the real question is how much of that incremental market is being drawn from what would have been the sales rate or the renting rate for conventional, stereotyped buildings?

It would seem that with a building rate of a million and a half or thereabouts, good design can significantly raise the aggregate rate. But the major result of better design is usually to shift the successes and failures of individual builders.

MODERATOR: I would be curious as to how both Mr. Gilman and Ralph Taylor feel about what Lou Winnick just has said in terms of shifting the market around.

TAYLOR: I don't fully agree with Lou on that. I think particularly today, when so much of the potential market is already adequately housed, particularly in city areas, the problem is to come up with a product that will shift people from the older houses or older apartments which they have now outgrown into a new type of product, a new way of life. Good design is important in these terms and has the potential of broadening the market.

If you think of the market solely in terms of the stream of people coming in actively looking for housing, then good design does merely shuffle it around. But if you think of the market in terms of the total potential that is there, and that you are trying to get people to upgrade from something old into something new, then I think the design factor is all important.

NELSON: Location, too.

GILMAN: I agree up until the point where Mr. Taylor said design is all important. I think the significant thing is that design in the market situation is one of a complex of factors, and it is next to impossible to isolate design to determine whether it would really only create a shift or broaden the market.

SLAYTON: This might be true, but when we talk about design innovators versus imitators, we are not really saying that innovation increases the market, because obviously it doesn't. What we can say, however, is that a higher standard of design can help achieve the social objective of a greater variety of housing choice, as well as bettering the over-all environment.

ROUNDTABLE PARTICIPANTS (from right to left): Gilman, Cole, Pei, Nelson, Breckenfeld, FORUM Senior Editor David B. Carlson, (Moderator), Taylor, Winnick, Slayton, Schafer (back to camera).





In the Jackblock "factory," operations proceed simultaneously on various levels. At the bottom is the jacking chamber (1); on the next level (2), floor slabs are cast and prestressed, and electric wiring is installed. Overhead (3) floors are being filled in, and exterior wall masonry, plumbing and partitions installed. Above that, interior plastering and exterior walls are completed (4), and paint and floor finishes are applied (5 and 6).

BRITISH SYSTEM BUILDS FROM THE TOP DOWN

Last summer, an imaginative English contractor completed a 17story apartment without sending any workmen higher than the fifth floor. Startled sidewalk superintendents in Coventry watched the building slowly rise fullblown from a plastic cocoon (photos overleaf). It was the first demonstration of an extraordinary new construction system called Jackblock, devised by the firm of Richard Costain, Ltd.

The first step of the Jackblock process is to cast the concrete roof at ground level and install rooftop machinery and equipment. The roof assembly is then jacked up one story and the top floor cast underneath it—and so on up through the building. All work is done inside a 4-story high plastic enclosure, from which the structure emerges with its exterior walls already in place (drawing, left).

The Coventry building is supported entirely by a square central core, (shown in black in center diagram, right) from which floors are cantilevered 16 feet on all four sides. Each side of the core has two wall segments, and each segment is made up of five vertical rows of concrete blocks. No mortar is used in the horizontal joints, but concrete is placed in the vertical joints to bond the rows together.

Each row of blocks sits on a 220-ton hydraulic jack. Half the jacks (every other one in the line) lift the core while additional blocks are slipped in on the alternate jacks; then the jacks' roles are reversed. The jacking process is controlled at a central console to assure uniform lifting of the whole core.

It takes about a week to jack the building up one floor. Next, there is a week's pause while the floor beams are cast around the core (center diagram) and prestressed; then jacking is resumed. Open spaces between the floor beams are filled in with light precast concrete slabs. With the floor complete, other finishing proceeds as the building rises; by the time a floor reaches the fifth level it is theoretically ready for occupancy (legend, left). Meantime,



DLAGRAM OF BASIC STRUCTURE



the building rises at a rate of about an inch in three minutes, as the alternating rows of core blocks are pushed up by the big jacks underneath (photo below).

Felix Adler, Costain's chief engineer, devised Jackblock as a synthesis of several recently developed building techniques. Its primary antecedents are lift-slab (casting and jacking horizontal elements) and slipform (continuously casting vertical elements). Jackblock's start-and-stop extrusion process combines advantages of both methods.

Its other roots lie in the prefabrication concept, utilizing factory conditions and a continuous assembly line for the production of building components. Unlike

most prefabrication systems, however, Jackblock avoids the problems of transporting units to the site and hoisting them up.

The Jackblock building has been characterized as "an experiment 17 stories high"—so experimental that Costain, approaching the Coventry City Council with an untried idea, negotiated the cost as if it were a conventional building. The firm has not come up with actual figures, but claims that on this first go-around it learned how to make the system competitive with conventional methods in the 15- to 22-story range, and less expensive for taller buildings.

The greatest potential advantage of Jackblock is speed. For one thing, the system avoids the tedious business of hoisting men and materials to great heights; the taller the building, the more significant this advantage of Jackblock becomes. Further, since all work is done indoors, there need be no delays due to weather. The Coventry Jackblocking went on without interruption despite the record-breaking severity of last winter in England.

The Coventry building, as might be expected of a prototype, did not realize the full timesaving potential of the Jackblock system. Its construction period (about 18 months) was about the same as that of a conventional building. However, City Architect Arthur Ling believes that a few modifications and more experience could cut construction time in half or better.

The Jackblock experiment has been successful enough to encourage Costain to proceed with further development of the system. Since larger floor areas are required for office space, and the potential size of the cantilever system is limited, the firm has worked out several alternative designs.

A Jackblock building soon to be started in Brussels will use a suspension system. The basic support will be a row of shear walls in the core (plan, top far right). On top of each wall a prestressed outrigger beam will cantilever to the edge of the building (drawing, top). Cables hanging from these beams will support the floors at the outer edge, thus eliminating the floor cantilever. As at Coventry, the roof-and the outriggers-will be cast first, then jacked up as floors are constructed underneath. The cables will unwind from reels in the basement as the building rises.

Another alternative design puts supporting wall sections at the perimeter of the building, as in the star-shaped plan at far right.

Finally, Costain believes it has solved the delicate problems of jacking thin columns as well as walls. The newest prototype plan (above star) combines core walls and perimeter columns as structural support.

Jackblock already has proved itself more than a mere stunt. If its further use meets Costain's expectations of speed and efficiency, a significant new building system may have come out of the Coventry cocoon.









FHA JOINS THE TENANTS' WAR AGAINST NOISE

America's apartment dwellers, suffering in nonsilence since the advent of lightweight construction, recently found reason for rejoicing. The Federal Housing Administration announced it would include noise control in its new Minimum Property Standards for multifamily housing. At about the same time, the New York City Building Department confirmed that it too was working on performance standards for sound transmission in apartments.

These steps represented a longdelayed response to the mounting clamor of tenant complaints about the lack of acoustical privacy in modern apartment buildings. Acoustics, in fact, have become the number one problem in apartment design and construction, causing some new buildings to stand partly empty while their older, stouter neighbors happily contemplate long waiting lists.

The prospect of government intervention, oddly enough, seems to cheer some apartment builders almost as much as it does tenants —not *despite* the fact that good acoustics cost money, but *because* of it. So competitive is the apartment market that the builder who put extra money into noise control would be giving away a crucial financial edge.

Government standards, on the other hand, fall on the just and unjust alike. According to one of New York's leading apartment builders, "When every builder has to do the same, we can put in the complete sound isolation we have always wanted—and not price ourselves out of the market by doing it."

The noises of progress

Another significance of FHA's involvement in apartment acoustics is the approach that it is taking. Using the latest and most sophisticated techniques available for measuring sound transmission, FHA is placing its emphasis on the overall acoustical performance of apartment buildings rather than on specific noise control devices.

The importance of this distinction involves the dismal recent history of apartment acoustics, and the complicated behavior of sound.

In a sense, acoustical privacy in apartments has been a casualty of several kinds of progress. One is the increasing mechanization of American family life. The television set, the extension telephone, the home laundry, the automatic dishwasher, the stereophonic phonograph, the electric razor (and now toothbrush) all are fairly recent additions to most households —and all make noise.

Another troublesome sort of progress has been the trend to more efficiency in structures: floors and walls which attain a maximum degree of stiffness with a minimum amount of material. It is just these properties—high stiffness and low mass—that are apt to make a building acoustically transparent, and in the very frequencies of sound that neighbors find most annoying.

Finally, progress in mechanical systems has caused its share of acoustical woes. Motors continually broadcast bothersome vibrations through the structure, and pipes and ducts become superhighways of sounds. "Without you guys," said an acoustical engineer to a mechanical engineer at a recent FORUM roundtable, "we'd be out of business." He was not speaking entirely in jest.

Acoustical engineers, of course, have not had much apartment business anyway, primarily because of the previously mentioned paradigm of competition and cost. The average builder's inclination has been to try to buy whatever acoustics he could afford at the building supply store, stuffing some absorptive material into his structure here and there, sometimes tacking on products designed to somehow soak up sound.

The product approach has its place, as shall be seen below, but only when used with full recognition of the complex ways in which structures react to noise. No one item will do the whole job, because sound has four separate ways of making its way through a building.

There is, for a starter, the effect of airborne sound striking floors and walls. The sound actually sets the surface in motion, so that it re-radiates new sound waves on the other side. So sensitive is the human ear that even if a wall reduces the sound energy to one ten-thousandth of its original intensity, the new waves can still be annoying to the neighbors.

Second, there is airborne sound passing directly through cracks, through holes, or through ductwork between apartments. In this case the sound comes through with its original intensity virtually undiminished. The tiniest opening can undo the quieting effect of even the best built floor or wall.

Those maddening footsteps

Third, there is the effect of a sharp impact upon the structure itself—a door slamming against a wall, a foot stamping on the floor. Once again new sound waves are created, but this time their irregularity is maddening.

Finally, there is the effect of continuous vibration of the structure caused by mechanical equipment, setting up an equally continuous hum or rumble. This kind of sound makes up in persistence what it lacks in intensity.

Writing a performance specification to keep each of these four kinds of sound transmission within acceptable limits is clearly no simple task. One reason is that the definition of "acceptable limits" is likely to vary widely from tenant to tenant.

In Europe, where almost a dozen countries have noise control codes, the criteria are based on extensive surveys of apartment dwellers' reactions to the noise made by their neighbors. Since no such research has been done in the U.S., the FHA is building its requirements on the European findings and hoping for the best.

Another problem in legislating acoustics is that somehow sound transmission must be measured and standards stated in terms of numbers. In this, FHA has the benefit of two sophisticated rating systems that are still somewhat experimental: the Sound Transmission Class (STC) of floors and partitions, and the Impact Noise Rating (INR) of floors. In the past, sound transmission was commonly measured on the basis of averages taken across a selected number of frequencies. The weakness in this method was that it often overlooked the sharp variations of extremes represented by the averages, variations which often occurred in the frequencies most annoying to the ear.

Both STC and INR deliver their ratings in numbers representing curves rather than averages. The curves describe the response of a structural element through the entire broad range of frequencies in which sound can be annoying (roughly between 100 and 4000 cycles per second). Only a curve can give a true picture of what happens to the sound as it passes from its source to the listener's brain. Both the ear itself and any building elements standing in the way will respond differently to sound energy at different frequencies.

To see how well a wall will block airborne sound, for example, it is tested through the entire critical range of frequencies to gauge the reduction of intensity from one side to the other. The curve shows the wall's effect at each frequency; it is, in effect, the "sound signature" of that particular element. This signature is then compared to the STC curves (right), and a rating number is assigned to the wall on the basis of the comparison.

The thumping problem

The establishment of Impact Noise Ratings involves the use of a "thumping machine" developed in Europe. The machine thumps the floor repeatedly, and the sound it creates in the room below is measured across the range of frequencies to plot the INR curve. In this case, the curve is compared to a single line of FHA criteria (right). If they match, the INR is zero. A lower curve brings a plus rating, meaning the floor is above standard in softening impact noise, and a higher curve a minus.

The thumper has caused grumbling among tile manufacturers. FHA's sample impact ratings show that conventional floor construction falls far into the minus class—but can achieve a satisfactory rating if carpeted. The tile people claim that the thumper doesn't sound at all like human footfalls, and that, in actual use, any floor covering will do the job as well as carpet if a layer of resilient material is placed between it and the structure.

To these sound transmission standards FHA has appended a 12-point section of "design and construction details" to cover acoustical problems not involving structural elements. Some are actually matters of planning: keep bedrooms away from mechanical equipment, pop storage rooms in between noise sources and living areas, keep entrance doors from facing each other, avoid back-toback bathrooms.

Others, intended to block the paths of sound between apartments, do get to the level of construction details. Pipes and conduits which penetrate sound-impeding partitions and floors are to be carefully caulked and wrapped. Ducts, says FHA flatly, "shall be so designed that they do not convey sound" from one unit to another. Mechanical equipment "shall be balanced and mounted" to reduce sound transmission, and none of it is to produce an operating noise level above 45 decibels on the A rating network of a sound level meter three feet above the floor.

In all this, FHA has tried to take into account another key factor: the masking effects of background noises in a given neighborhood. A sound that is barely perceptible in the center of a bustling city can seem like an explosion in a quiet suburb. FHA has thus given its field offices authority to enforce lower standards in high-density areas.

Research stepped up

FHA, in fact, intends to give its field offices a high degree of leeway in application of all of the new acoustical standards, probably a prudent procedure in such an uncharted area of regulation. The impact noise limitations for floors are "strongly recommended" but that is as far as FHA goes; the "tentative status of American standards in this field indicate the need for additional study before specific values can be required," it says.

The prospect, then, is not that FHA is going to improve the acoustics of American apartment buildings with a wave of its regulatory wand. But the new standards should shatter the inertia that has kept even knowledgeable builders from doing a better acoustical job.

They should do something else as well. The building products

an ALLOWABLE DEVIATIONS 80 Idb, Odb Idb 70 STC 60 60 STC 50 50 STC 40 1 STC 20 10 125 250 500 1000 4000 175 350 700 2000 FREQUENCY BAND - C.P.S.

"Sound signatures" of two partitions (below) are shown in dotted curves representing reduction of airborne sound at various frequencies (above). Each is assigned



industry has also heard the chorus of tenant complaints, and today there is more research and development work in acoustical products than ever before.

If FHA's new standards expand the market for sound-isolating construction to the degree that it becomes the rule rather than the exception, a pattern typical of American industry is likely to evolve. More research will be undertaken, new firms will be attracted to the acoustical products field, and the premium that today must be paid for good noise control may all but disappear.



a Sound Transmission Class rating on the basis of standard (solid) curves. Two floors (below) are given plus (good) and minus Impact Noise.

5/8" CO	MPOSITION FLOC CONCRETE	RING ¹ 2*PLASTER
Å	0000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
SLAB	I IND:-17	
3/8° CZ	RPET (NO PAD) CO 36" SCREED COAT Manufacture of Coatr	17002575 36°71,45755

SLAB II INR: +12

THREE MUSEUMS

A solid boom is on around the world in the building of museums -and the commissions seem firmly in the hands of an advanced crew of architects. To name several, Ludwig Mies van der Rohe has one in working drawings for Berlin; Le Corbusier is doing one in Switzerland, another in Paris, still another in Bavaria; Philip Johnson is building a museum in Bielefeld, Germany and one in New York City, I. M. Pei in Syracuse, Marcel Breuer in New York, Frederick Kiesler and Harold Bartos in Israel, William Pereira in Los Angeles, and the office of Eero Saarinen in Oakland, Calif. As a prelude to the flood of museums to come, we here present a trio, all of high quality but of distinctly different purpose and technique: José Luis Sert's rambling white Mediterranean village for a French art expert's collection (right); Designer Harlow Carpenter's compact gallery in rural Vermont—page 104, and Philip Johnson's already famous curvilinear housing for a pre-Columbian art collection (page 106) in Georgetown, Washington, D.C.

Shell concrete scoops on the roof catch rainwater. This photograph shows the main courtyard of the museum. Higher wing to left is called La Mairie (the Town Hall). Behind its sun breakers are a meeting room-gallery, with research and storage rooms above, and, atop the roof, terraces (see facing page.)









MODERN ART On the French riviera

Overlooking the Cap d'Antibes from an amiable pine-strewn slope of the Alpes-Maritimes, this complex of little buildings and courts is a hill village for the display of the work of such modern master artists as Miró, Chagall, Kandinsky and Braque. The owner is a Paris dealer and publisher of important art and architecture, Aimé Maeght, who in 1956 selected America's José Luis Sert as his designer after sceing the

small studio Sert had built for Miró in Mallorca. The Fondation Maeght is much more complex than Miró's studio, but just as strong.

It is also a deliberately refreshing building. Its display spaces, for example, are separated from one another by anterooms that offer visual rest between bouts of art-watching. These anterooms are windowed, but the galleries themselves have no win-



dows whatsoever; instead they are lighted ebulliently from large, hooded skylights overhead (see opposite page).

Where Sert's building is not thus absorbing the daylight for its paintings, it is reflecting light from its own jaunty white forms, characterizing itself in this sunny climate as a true Mediterranean native. At the very top of its form it presents a pair of inverted shell barrel vaults which catch rainwater for the several pools.

There is sculpture as well as painting, (prints and books too). The courtyards are particularly suitable places for Giacometti's wiry "personages" to wander. The central court, about which most of the galleries are arranged, also has a mosiac designed in various tones of blue by Braque. An elaborate garden known as the Labyrinthe (photo page 102) tracks the contours of the slope with its retaining walls, and displays additional sculptures by Miró and Artigas. The latter artist (or, more exactly, artists: father and son) participated in an experiment of coordination with the architect. Sert explains: "The walls conform to the sculpture, and the sculpture to the walls and to the spaces they define (photo page 102). They grew together as a result of the joint work. Corrections were made on the site, not







MOTOS: CASPARI-WERES, PARIS



JACQUELINE GUILLOT-CONNAISSANCE DES ARTS; OPP.: GASPARI-WEBER, PARI

The Labyrinthe, an artful garden, has retaining walls built of stone found in remains of old fortifications on the hillside where the new museum sits. On facing page, figures by Giacometti in one of the Fondation Maeght's courtyards.

only in the full-size cutouts or mockups, but also in the masonry walls and finishes. . . ." The Artigas sculpture was executed, finally, in ceramic.

Contained in the groups of galleries and subsidiary spaces are a chapel (with stained glass windows by Braque and Ubac), a house for the museum's director, a watchman's lodge and ticket office, a movie theater seating 100, and ample rooms for storage, restoration studios, administrative offices, etc. Among materials used in the building are local stone (*pierre de Provence*) for garden walls, and terra cotta tiles in varied designs for floors. The walls are stuccoed inside and wear brick veneer to the weather. All reinforced concrete is exposed and painted white. Roof shells are finished in plastic *cocoon*, and the sunbreakers are of white-glazed volcanic stone.

FACTS AND FIGURES

Fondation Maeght at St. Paul de Vence, Alpes-Maritimes, France. Owner: Aimé Maeght.

Architects: Sert, Jackson & Gourley. Associate architects: Bellini and Lizero. Consulting engineers: Goldberg & LeMessurier (structural); Greenleaf & Wong (mechanical). General contractor: H. Triverio & Cie.

Building area: 22,050 square feet. Structure: reinforced concrete.





PERSONAL COLLECTION IN VERMONT

In the middle of 80 acres of fluent Vermont landscape, including lawns, glades, and forest, this small, privately owned museum, the Bundy Art Gallery, has been carefully planned and built to bring to the people of a rather rural area the benefit of a rather personal outlook on art.

The building was designed by Harlow Carpenter, a 1956 graduate of the Harvard School of Design, whose parents, Alfred S. V. Carpenter and the late Helen Bundy Carpenter, donated the funds for the construction of the Visual Arts Center at Harvard by Le Corbusier (FORUM, Mar. '63). The collection—begun in 1953 is also young Carpenter's choice, and includes works by Afro, Grillo, Marca-Relli, Mathieu, Nevelson, Resnick, and Soulages. Finally, Carpenter serves as director of the museum. A classroom was included in an attempt





PHOTOS: CENE HEIL

to compensate for the lack of an art program in the local schools; the gallery offers free instruction to local children.

The building is simple and spare. It has five floor levels arranged in a helix plan, not interrupted by complete partitions at any point. Instead, the space, like the visitor, moves freely from one level to another, the climactic room being the main gallery—22 feet high to accommodate the largest of the items in the collection.

A top-lighted art library offers the visitor a quiet, carpeted room in which to peruse a collection of books ranging from primitive sculpture to contemporary architecture. The east and west ends of the building are glass to include the Vermont landscape as an integral part and background of the muscum. (To control direct sunlight from the west, there are 17foot-high rotating vertical louvers.) The main gallery floor is made of one of Vermont's richest exports, rough gray slate. The walls, both inside and out, are sand-colored Norman brick, and the beamed ceilings are exposed.

Around two sides of the museum is wrapped an L-shaped lagoon, reflecting the building as well as the sculpture set along its edge. Beyond the lagoon, constructed earth monuments serve as backgrounds for other sculptures, and also as pleasant places to climb up on and look around.

FACTS AND FIGURES

Bundy Art Gallery, Waitsfield, Vt. Owner: Carpenter Foundation. Designer: Harlow Carpenter. Engineers: Jackson & Moreland, Inc. (structural and mechanical); Thompson Engineering Co. (electrical); Lighting consultant: Willard Thompson. General contractor: Warren Ketcham.



PRE-COLUMBIAN ART IN A POST-MODERN MUSEUM



PHOTOS: GEORGE CSERNA

That beloved old brick mansion rambling across the core of Washington D.C.'s Georgetown district, Dumbarton Oaks, has in its shaggy garden an exquisite new wing made of glass, marble, teak, and bronze. It takes a real lady to get away with this sort of combination—the wearing of a priceless diamond pendant on a shetland sweater, instead of pearls but the Queen of Georgetown carries it off. The pendant is a glass-walled corridor from the main house into the garden; the jewels are eight precisely round, interconnected rooms, each 25 feet in diameter, set about an open central court in which a column of water splashes up to shoulder height. The walls inside and out are curved glass. The roofs are domed —each with a flat bronze ring under its edge as a soffit ceiling to contain lighting and services—

and are held up by sturdy columns sheathed in light-colored Illinois marble.

The floors are teak, laid from the center out in radii, and ended by wide rims of mottled green Vermont marble. Where the circles do not intersect around the court are several small spaces (see photo page 109) just big enough to contain potted trees, which sit on beds of lustrous gray pebbles imported from Japan. It is possible that this small building (cost unannounced) is the most beautifully and richly finished piece of architecture to be completed on this continent since McKim, Mead and White's Morgan Library in New York, which was built in a much easier craft era. It comes as no surprise when women in spike heels approach those teak floors, that the the museum guards, with alacrity, provide small rubber covers to



Glass walls enclose the corridor between the old Dumbarton Oaks museum and the new wing, left. Except for the marble-sheathed columns which support the building's domes, all the rest of the walls are of glass, looking both outward over the garden and inward, through small spaces housing potted trees (see facing page) toward the central courtyard.

blunt the spikes . . .

The main Dumbarton house, given by the late Robert Woods Bliss to Harvard in 1940, contains a research center dedicated to the study of Byzantine and medieval humanities. Its catalogue states: "The fall of Constantinople in 1453 provides a date beyond which investigations are not normally continued." It is fair to say that if Architect Philip Johnson continues to produce buildings as happily hedonistic as this new addition to Dumbarton, the fall of Constantinople may prove to have been indefinitely postponed.

Johnson's new wing, opened late last year, accommodates the glinting Bliss collection of pre-Columbian art—most of it consisting of very small objects of precious metals and semiprecious stones. However, it is not displays, but the alluring building and its gracious garden view which quickly is becoming one of those special Georgetown places dear to in-the-know Washington residents.

Johnson's description of his small building is, simply, a series of roofs under which to display the small scale collection against "green walls"—the garden. Each of the rooms has a different culture on display—in order: Teotihuacán, Olmec, Maya, Classic Veracruz, Mixtec, and Aztec, then groups of other art from Costa Rica, Panamá, Columbia, and Peru. The building as he saw it had no real exterior architecture. While virtually unseen from the street, however, it does remain an intriguing object from the garden, especially at the time when daylight dies, and the electric lights are on briefly before it closes. It glows like a beautiful lantern.

The building was meant to be



—and is, very successfully—a set of spools of space; even the marble columns are primarily design devices to keep the visitor revolving around the display rooms as he progresses. They are intended, says Johnson, "to roll you into the next pavilion." On the other hand, the intent of the central fountain "is centripetal"—to turn you back, inward, toward a central balance. And it works.

Unhappily, the building is so

delightful that it competes with the pre-Columbian art; and the designer of the display racks here gave up, capitulated, tried to make the cases disappear. So the building wins.

The display racks are themselves somewhat embarrassing, beyond the way they work—or don't work. They are made of thick, transparent sheets of heavy plastic put together with considerable craft but very little style. They pitilessly suspend the pre-Columbian (and other) objects in space behind their oily plastic reflectivity, without backgrounds. The objects simply are silhouetted against daylight (the museum is open afternoons), and their detail is killed. Or, if the background is not simply daylight, it may be something very diverting — the sparkling upward rush of the fountain, for instance, or foliage stirring faintly in the garden. Anyone who tries to look at the more exquisite of the objects is simply dizzied. Johnson himself did not want specific lighting on the artifacts, objecting to "a lot of little lighted objects glaring at you." So he confined himself mainly to general lighting—and thus has to bear some of the blame for the weaknesses of the displays. But the truth is that this architecture was victimized by the museum techniques adopted.



Bronze lines the curves of the building and defines its joints: where gray marble columns meet white ceiling (above) or green marble floor, and where the domes ascend over each pavilion. On the facing page is the fountain at the heart of the building; there are present plans to increase its flow of water.

Nonetheless, it is impossible not to be entranced by this building. It is bewitching architecture, not just a bauble. When the visitor walks back across the connecting link to the old museum, for example, he realizes what an adroit use of levels has been made, how good the architectural staging is. (He steps up a few risers when approaching the new wing from the old building. Then when he leaves he descends delicately back into the brick maw of Dumbarton Oaks.) Some little details are perhaps too perfect. In that grand old Georgetown dedication to marbleizing, the bronze doors covering the light switches have been carefully painted (not by Johnson's directions) to match the marble drums in which they are set. The same camouflage was applied even to a row of standard electrical outlets in the hallway link, near the floor.

It might be wise for the staid, stern trustees of Harvard University to take a trip down from Cambridge to Georgetown soon. There they should throw out the vapid display cases at their new museum (and perhaps ask the architect to design some, seldom a bad idea) and do one or two other little things necessary to prevent this design triumph from tarnishing. And they had better do it soon—before someone adds potted geraniums to the pre-Columbian treasures. That too could happen, in Georgetown.

FACTS AND FIGURES

Museum Wing, Dumbarton Oaks, Washington, D.C.

Owner: Trustees for Harvard University. Architect: Philip C. Johnson Assoc. Engineers: Lev Zetlin & Assoc. (structural), Jaros, Baum & Bolles (mechanical and electrical). Lighting consultant: Richard Kelly. General contractor: George A. Fuller Co.



T HIS month, George Hunting-ton Hartford II will once again find himself in the limelight. His new museum, the Gallery of Modern Art (before whose polkadot portholes he proudly stands in the photo at right), will open March 16 on Manhattan's Columbus Circle. Not long after, his first book, Art and Armageddon, will appear on the bookstands. Inspired by these events, television will bring him into millions of homes, where his casual good looks, his earnest manner, and his plea for more simplicity and wholesomeness in the arts should be well received.

Publicity, of course, is nothing new to Huntington Hartford; he has been described variously and often in print. To feature writers, he is a "melancholic man," spending his time by spending his money. To society reporters, he is the thrice-married, 52-year-old A & P heir. To art critics, he is a "dilettante" best known for his dislike of Picasso, de Kooning, and abstract art in general. Whatever merit these epithets may contain, they ignore one determinant of Huntington Hartford's life: the enthusiastic, almost boyish devotion to the arts that has made him one of the last big individual patrons in the U.S. today.

Amply backed by a fortune estimated at anywhere from \$70 million to \$500 million, Hartford has indulged in an impressive list of building projects. Though he plans and builds mainly to house his own ideas, he has gotten more than one monument in the process. "The more Hunt builds," says ex-wife Marjorie Steele, "the more he wants to build."

Projects all over

To date, Hartford has built an artists' colony, a theater, a museum, a computerized garage, a small office building, and a plush Bahamian resort. He has also planned a vast hotel-country club for Hollywood, a Manhattan restaurant, a hotel, and other structures either still in project form or abandoned for various reasons. He has worked with architects from Frank Lloyd Wright to Edward Durell Stone, and with engineers, students, and decorators from coast to coast.

Hartford's building career began in 1945 when he met Frank Lloyd Wright's son, Lloyd Wright. Hartford had just terminated what some future biographer might call his "playboy period," and was turning his attention and his fortune to more lasting things.

His first major project was an ambitious scheme for a country club and resort in a canyon close to Hollywood. For the architect, he chose Lloyd Wright. It was such a big job that Wright brought in his father, and one of FLLW's most spectacular projects came out of this collaboration. The whole canyon was to be decked out with sport facilities, a cottage center, a domed house for Hartford himself, as well as a clubhouse resembling several saucers cantilevered from a central concrete shaft. FLLW's vision exceeded even Hartford's; the project was never built. "It was terribly expensive," recalls Hartford, "and very cold up on the hill."

Meanwhile, Hartford had Lloyd Wright design some actual buildings for him: a private chalet, and a group of spacious studiohomes for The Huntington Hartford Foundation at Pacific Palisades, 20 minutes from downtown Los Angeles.

The Foundation marked Hartford's first important venture as a patron of the arts. Set up in 1948, its purpose was to "stimulate creativity in the arts through providing painters, writers, and composers with an opportunity to concentrate upon their work under ideal conditions." Hartford spent some \$600,000 setting up these "ideal conditions," in the form of 17 studio-cottages, some remodeled buildings, and a huge swimming pool—all spread over 154 acres in Rustic Canyon.

While still in Hollywood, which he increasingly regarded as a cultural wasteland, Hartford decided to give the community a repertory theater. He was determined, he says, "to shove culture down [Hollywood's] throats."

The \$1 million Huntington Hartford Theater, however, was more successful as a building than



GEORGE CSERVA

HUNTINGTON HARTFORD: A MOST UNUSUAL CLIENT as a cultural stimulus. (He and designer Helen Conway remodeled the old Lux Radio Theater and the result has been praised as "one of the best theaters in the U.S.") His plan was to use local talent in the production of classic plays and new dramas. But as time went on, the management discovered that if the theater were to survive, it would have to put on road shows of Broadway hits.

A museum in New York

Eventually, Hartford left the West Coast to come to New York. By this time, he had developed a keen interest in—and even firmer ideas about—painting. And out of these came the scheme for the Gallery of Modern Art.

He purchased the tiny (4,600 square feet) plot on Columbus Circle in 1956 for \$1.5 million. Then he began shopping for an architect. For a while the frontrunning candidate was Hanford Yang, a Chinese-born architectural student at M.I.T. Yang devised an 11-story scheme of interlocking concrete cylinders sheathed in opaque plastic. Because Yang was not registered as an architect in New York, Hartford asked Edward Durell Stone to take the job, with Yang kept on for a short while as "Project Manager."

Stone became fascinated with what had to be, because of the plot size, a "vertical museum." Architect and client worked closely to achieve the design they wanted, spending ten days on refining the model alone. They agreed on a final scheme that would look like an oversized Venetian palazzo (photo, right).

This, however, was just the beginning, Hartford had trouble evicting the tenant of the old building on the site. Construction lagged behind schedule, partly because of the museum's difficult shape (a trapezoidal plan and a curving façade), partly because of the smallness of the site (few workers could be on the job at the same time and large deliveries of materials were impossible). All the while, the cost of the building rose; it is now estimated at close to double the \$3.5 million budgeted in 1958.

For his pains and money, however, Hartford got his most elegant monument to date. Though he left the construction problems to the contractors, he took great interest in design details. "He objected to 'those bronze things on the walls,'" recalls Construction Chief Gilbert Parker. "things like thermostats and fire alarms." Hartford also suggested to Stone such embellishments as keeping the "porthole" discs cut from the white marble façade and incorporating them in the floor of the lobby, and having the elevators open, for variety's sake, directly into the galleries on alternate floors.

Stone's design for the Gallery is an ingenious one that makes the most of the limited space. Above the lobby are two floors for changing exhibits and an intermediate level to house a 23foot-high Aeolian Skinner organ. The fourth and fifth floors will be devoted to Hartford's own collection, which ranges all the way from Guardi, Courbet, and Burne-Jones to Orozco and Dali.

Each of the exhibit floors has a large gallery on the Columbus Circle side, and two small, windowless side galleries toward Broadway and Eighth Avenue. The sixth through ninth floors contain, in order, a storage area, offices, a lounge for coffee and snacks, and the "Gauguin Room," a Polynesian-style restaurant.

In 1959, when the Gallery was just a set of working drawings, Hartford decided that he would like to give New York something else it "needed badly"—an indooroutdoor café on the southeastern corner of Central Park.

Having put up \$862,500 for the project, Hartford asked Stone to design a building where New Yorkers, like Parisians and Romans, could savor an aperitif while watching the passing scene. Stone responded with an elegant, two-story pavilion and the Municipal Art Commission promptly approved it. For its part, the City reserved a 240 foot by 80 foot plot in the park across the street from the Plaza Hotel.

A group of nearby property owners, however, were incensed. They had no quarrel with Stone's design, but they insisted that the building would constitute an illegal encroachment on municipal park land. The whole scheme is now in the New York courts.

Meanwhile, in 1962, one of Hartford's least known New York building projects opened. It is a rather sleek structure on West 43rd street which houses "the world's first fully automated garage," Speed-Park. Hartford-who probably has been approached with more fantastic inventions than the U.S. Patent Office (e.g., a cigarette that lights itself, a bottled Mint Julep), picked up the idea four years ago when a Rumanian-born engineer named Mihai Alimanestianu proposed a solution to the parking crisis in cities: a computerized elevatorand-pigeonhole system run by a single employee (FORUM, Feb. '63). Hartford backed it to the tune of \$2 million, and although the garage is operating, neither it nor the system has made much money so far.

At play and at home

Hartford's most glamorous project to date is Paradise Island, a resort in the Bahamas. For this he selected Architect John L. Volk, best known for his stuccoed Regency mansions and clubs around Palm Beach. Volk designed a 52-room hotel, and remodeled existing buildings on what used to be the estate of Swedish Financier Axel Wennergren near Nassau. Hartford bought the 700-acre tract (twothirds of the island) for \$14 million, has invested more than \$6 million in it. He now plans to expand it with a large and moderately priced hotel. No matter what he builds on Paradise Island, Hartford intends to stick by his original concept: "Everything should be done right, in good taste without being snobbish."

Hartford himself tries to live up to this dictum. His insistence on doing things right, however, has often meant that he has spent much more money than he intended. "Let's get this straight," he told a reporter who asked about his fortune not long ago, "I'm not a bottomless well."

In the unlikely event that the bottom should be reached, Hartford has protected three of his pet projects with a \$9 million trust fund: the Foundation, the Gallery, and something called The Handwriting Institute in New York (which, among other things, holds that cancer can be spotted in its earliest stages by studying handwriting specimens). Other projects depend more on Hartford's backing than on their own commercial success. One of these is Show magazine, a glossy, handsome publication devoted to the performing arts. Hartford houses it in a five-story Manhattan building, remodeled by Designer Melanie Kahane.

Meanwhile, Huntington Hartford has plenty of other ideas to occupy his time, and that of a staff which tends to his projects, and his seven residences scattered across the U.S., the Caribbean, and Europe. Ideas and objects, in fact, clutter his 13-room duplex apartment on New York's Beekman Place; there are paintings, papers, and sculpture piled in every corner. But for him the focal point is none of these, nor even the view over the East River. It is the telephone, where his ideas and his buildings continue to take shape. What's next? Hartford's eyes gleam and his voice drops: "I suppose it's no secret," he says. "I'd like to put up a gambling casino on Paradise Islandif we can get the necessary legislation. After that, we'll think of an architect." —Р. н.





GALLERY FOR POP ART IN A REMODELED STORE

The Dwan Gallery in Los Angeles shows mainly "pop" art, a form of creativity not understood by all. Hence the owners asked for a setting that would discourage the merely curious, but would appeal to those genuinely interested in avant-garde design. They also wanted an interior that would be dramatic without upstaging the pieces on display. With the help of Architect Morris D. Verger, all this was done for under \$8 a square foot in remodeling costs.

The façade of an existing store near Wilshire Boulevard was stripped of its plate glass and a solid front of textured plaster was substituted. An arch was cut to provide a deep, striking entrance (not unlike that of Frank Lloyd Wright's V. C. Morris store in



San Francisco). Glass on both sides of the door gives a glimpse of what is inside (photos, left and above).

Terrazzo flooring is used at the entrance and to form a border around the main room; the rest of the floor is oak. Textured acoustical plaster covers walls and ceiling. Ceiling lights are diffused, and spotlights mounted on ceiling-hung baffles provide individual lighting for each work (photo, top right). A second, smaller arch leads off the main display room to a reception area and office (photo, bottom right).

Engineers: Reiss & Brown (structural), John Donton (mechanical). Sells, Berke & Associates (electrical). Contractor: Willard B. Nelson. Cost: \$40,000.





SLEEK GALLERY OUT OF AN ANCIENT PAINT SHOP

By keeping the building's basic structure, an antiquated paint and hardware store (below) was transformed into a sophisticated showroom for the Dorothy Cameron Gallery in Toronto at the low cost of \$6.30 a square foot. Large reinforced concrete panels on the ground floor give a secluded air. while a single piece of sculpture is placed behind the glass panel of the entrance recess to entice passersby into the gallery. The upper stories are painted black, with the projecting cornice painted white to unite visually the old and the new parts of the façade (photo, bottom left).

The rough texture of the concrete panels is repeated inside by



ETHO'S RART PUR. CO.

the rough-surfaced walls of blown plaster and a rough-grained industrial mastic floor. Each work of art is individually lighted by exposed lamps clamped onto either of two exposed trolley ducts (photo, bottom right). In the sculpture court two existing skylights were retained to give daylighting for outdoor sculpture placed in troughs below (photo, top right). The only permanent partitions are those which screen the office-reception area in the front and close off the shipping room at the rear. Movable white panels, 2 feet by 8 feet, subdivide space as needed.

Architects: John B. Parkin Associates. Contractor: Mel-Ron. Total remodeling cost: \$14,500.







A HANDSOME SHOWROOM FROM AN OLD GARAGE

A boldly framed entrance invites shoppers to stop, look, and enter The Pantechnicon, a furniture showroom and art gallery on San Francisco's Union Street. Roughsawn redwood piers frame a glass door and flanking windows, and a brick apron under the redwood canopy provides a transition from the street (photo, right).

The store's name is Greek, meaning "belonging to the arts." (In Britain the word was originally the name of a bazaar for the sale of art objects; now it describes a furniture-moving van.)



Here the name comes closest to its bazaar meaning: The Pantechnicon sells antique furniture, bronze and silver objects, porcelains, etc., as well as serving as a gallery for contemporary paintings and prints.

The existing building, a garage (above), had a large front opening, so few structural changes were needed. Inside the building, redwood walls were discovered under layers of paint. These were sand blasted and stained lighter than the natural wood to provide a neutral background. Softwood floors were built up over a concrete slab and stained dark.

To define space for an art gallery in the middle of the long room (photo, bottom right), two short partitions subdivide but do not close off the interior, which is only 20 feet wide.

Architects: Chan/Rader & Associates. Mechanical engineer: Robert Wistort. General contractor: Frank H. Yick & Co. Total remodeling cost: about \$6,500, or less than \$5 per square foot. END









WORLD'S BIGGEST SKYSCRAPERS HAVE NEW YORK UP IN THE AIR



The recent announcement of a \$350 million, 12 million square foot World Trade Center for Manhattan's Lower West Side (*News*, Feb. '64) raises at least as many questions as it answers. Although the huge towers imply a new era in skyscraper technology (at 1,353 feet, they rise 100 feet higher than the Empire State Building sans TV mast), the whole project has already become the subject of one of building's liveliest debates.

Is it just too big?

Not where it counts, says Architect Minoru Yamasaki, who spent considerable time studying New York's skyscrapers. "I realized that what really matters is the scale at or near the ground—it doesn't really matter, in Manhattan, how high up you go. So I concentrated on providing human scale—a broad (350 foot square) plaza, arcades, restaurants and fountains—as the proper setting for the towers" (photo opposite).

Does it create too high a concentration of people and traffic?

The Port of New York Authority, which will build and operate the center, estimates that it will have a working population of 50,000, with perhaps as many as 100,000 more a day passing through the area, using the three subway stations and a new Manhattan terminus for the old Hudson tubes. Pedestrian and vehicular traffic is carefully sorted underground (and in the fivestory buildings around the plaza). The Port Authority is convinced that the plan will accommodate the peak loads.

Is it proper for the semipublic Port Authority to build 4 million square feet of office space to be rented to the private market, while it makes only token tax payments to the city?

As a corporate body owned jointly by the states of New York and New Jersey, the PA will pay only \$3 million to the city in lieu of the estimated \$15 million that a private developer would have to pay. But the site only returns about \$1.5 million to the city now, and no one else has been eager to develop it. The PA plans to rent space over three years-and over the past three years, the Manhattan market has absorbed nearly 16 million square feet. The bulk of the space in the WTC will be rented to the fast-growing bureaucracies of New York State, the

federal government, and the PA itself. By the time the project is finished (hopefully by 1970) it is possible that these prime tenants will have expanded enough to use even more space.

Is this the best site for such a project?

The choice of the site was largely dictated by the PA's takeover of the decrepit Hudson Tubes several years ago. The Center originally was to have been built on the East Side, but New Jersey prevailed on the Port to keep the tubes going and to rehabilitate Jersey-oriented commuter facilities. The WTC project fills this bill, as well as serving its primary purpose of providing a new integrated headquarters for all New York port activities.

When the Port Authority talked to Yamasaki (as it did to a dozen other architects around the U.S.), it presented a massive, but clearcut, program: 1) 12 million gross square feet of floor area; 2) a 16-acre site into which the project had to be fitted (including new facilities for the Hudson Tubes, and subway connections); 3) a budget of "something under \$500 million."

Some striking innovations

The Yamasaki scheme, designed with Engineer John Skilling (and Architects Emery Roth & Sons), is a striking solution to the obstacles that have discouraged buildings of great height. The structure embodies a radical departure from the conventional curtain-wall skyscraper that has dominated recent high-rise technology. The wall is, in effect, a giant steel lattice which will be erected in 10 by 24 foot, readymade sections (see drawing, top). Each wall section comprises two spandrel widths and three column widths. Overturning forces due to wind are all resisted by the outside walls; the heavily reinforced core takes gravity loads only (the forces are not transferred through the floor to the core as in most curtain wall structures). A unique trussed steel floor system, also to be prefabricated and laid in huge sections 60 by 13 feet by 33 inches deep, acts as a diaphragm which stiffens the outside columns against buckling due to bending, shear, and torsion. The structural system not only resists loads with

a minimum of weight, but it also permits an exterior free of bulky columns—a strikingly elegant effect over the 208-foot-wide façade of the square towers. In the upper floors, there are as much as 40,000 square feet of net rentable space per floor.

The elevatoring system (section, right) is equally unique. The key is a combination of express and local elevator banks, the former made up of very large (55 passenger) cars traveling very fast (1,700 feet per minute). The towers are divided into three zones. The 43rd and 77th floors are so-called "sky lobbies" served by expresses from the ground. These lobbies are the transfer points to the 72 local elevators which serve each zone. Transportation time to any point in the tower is estimated to be less than two minutes, including transfers from express to local.

Despite the mammoth proportions of the World Trade Center, Yamasaki has preserved more than five acres of open space, mostly in the huge plaza, which is protected from river winds by the lower, five-story buildings wrapped around the base of the towers. All vehicular traffic is shunted underground, and PA officials hope eventually to have access from the West Side Highway directly into the basement loading docks and parking garages. The lower buildings will include special spaces for the U.S. Customs, retail shops, exhibit pavilions, and a 250-room hotel. The overall cost of the whole project is estimated at \$25 per square foot-the towers alone will cost more.

The plaza was central in Yamasaki's thinking from the first, and was the focus in the hundred-odd schemes he developed with models before settling on the tall twin towers. Among the alternate solutions he discarded were a series of lower towers ("it looked too much like a housing project") and a single, huge 150-story shaft, which was simply too big.

As the WTC project proceeds, a great deal more will be said and written about it, on every subject from acrophobia to urban design. But it already appears that the technical and economic obstacles to super skyscrapers have been overcome.



DIAGRAM OF STRUCTURAL WALL & FLOOR SYSTEM



SECTION SHOWING EXPRESS ELEVATORS

**≺ **

Novel structure of the WTC skyscrapers involves a welded steel wall (with hollow box columns) assembled of prefabricated sections 10 feet wide by 24 feet high, and a prefabricated steel floor (a grid of steel trusses topped by a corrugated steel sheet) laid in 60 foot by 13 foot sections. The trussed floor system will provide maximum flexibility for passage of all utilities from the core to the perimeter, and also act as a stiffener, resisting lateral forces. The wall itself, reinforced by the floor, takes all the wind loads (up to 45 pounds per square foot) while over half the structure's total weight is borne by the heavily reinforced core.

≺ ////:

Elevator system is a key to the feasibility of super skyscrapers. Despite WTC's 110-story height, it actually has more rentable space (about 80 per cent) than the conventional system used in many lower buildings. Special express elevators serve transfer points at the 43rd and 77th floors (section, left), which in turn feed four banks of local elevators for each of the building's three zones. The system will depend on the development of huge (55 passenger), fast (1,700 feet per minute) express elevators.

In the steel and glass walls of the WTC (right), Yamasaki has attempted to overcome effects of acrophobia with narrow (22 inch) windows between relatively slim (1 foot 6 inch) steel columns. These columns will flow together at the lobby level, forming seven large "pitchfork" columns on each face of the lower floors. Darker bands around the model represent mechanical floors. From observation decks atop the towers, it will be possible to see for 45 miles in every direction. END







DIFFERENT KIND OF SKYSCRAPER

façades, most of today's office towers come from pretty much the same mold: a simple rectangular floor plan, with the services grouped at the center in a simple rectangular core. This small skyscraper near Houston, however, gains considerable distinction by breaking out its stairs, elevators, washrooms, and duct runs and arranging them at the rear (plan, right), where each is separately and strikingly expressed in a play of light and shadow on brick-clad shafts (photo opposite). Tenants gain a single space uninterrupted by services, to organize almost any way they like. Finally, the sides of the structure are stepped in around two large piers that rise above the main entrance; this terminates each office floor in a special area which can be used in a variety of ways (executive offices, lounge, open area to light a center hall). This narrowing step also helps give the building a definite "direction," with a broad, windowless back, and a front that actually faces front.

Behind their various types of sleek

The "organic" approach

In designing the building, for the First Pasadena State Bank in Pasadena, Texas, Architects MacKie & Kamrath of course drew heavily on the "organic" teachings of Frank Lloyd Wright. This resulted not only in the building's main massing, but in details ranging from rectilinear rooftop ornament (photo above) to high ribbon windows for privacy on the lowest floors.



Set on a flat, $5\frac{1}{2}$ -acre site which has been developed to provide parking for 350 cars, the building has two distinct parts: a semicircular, two-story bank linked to ten drive-in stations at the rear; and, growing out of the bank, a 15-story office tower visible for miles around.

The bank's building committee, which told the architects it was not impressed with most modern office structures, sought, and got, a building of marked individuality. But the committee also hedged its bet on distinctive architecture as identification by asking for a prominent roof sign, among whose heroic letters the numeral "1" sticks up like a giant Indian feather in back. (Apparently one has to talk several languages on the Texas prairie to be heard.)

The low banking element is wrapped part way around the tower to provide it with a broad base, and to permit the bank to expand into the lower floors when needed. To satisfy rather literal Texas laws against branch banking, all the drive-in windows are connected by a pneumatic tube system to the main building; instead of burying the tubes in the ground, the architects carried them overhead in a long, continuous canopy which is linked directly to the bank by a porte-cochere.

Efficient and expandable

The tower floors themselves are small—4,000 rentable square feet each—and most have multiple tenancy. Local codes governing multistory construction stipulate that, so long as sufficient exit stairs are provided, they need not be installed at both ends of a building. Thus the architects were able to group all stairs, washrooms, elevators, and service spaces in the single core. The efficiency of the floors is high: 80 percent of the total area is usable.

The tower floors were designed on a module 4 foot 8 inches square; private offices on the perimeter average 13 feet 10 inches deep and vary in width from a 9-foot minimum. The building's steel frame is sized so that up to five more stories can be added.

The long sides of the structure face east and west, lining up with major streets. To protect the airconditioned building from the Texas sun, the architects designed a curtain wall incorporating dark gray plate glass, then installed specially woven, fireproof drapes behind it (interiors, overleaf).





Sheltered office adjoining secondfloor community room (far left) overlooks the main approach to the building. Planes of walls, ceiling and cove move past each other, with glass "disappearing" into wall, in detailing reminiscent of Frank Lloyd Wright. At left is a typical office in the tower.





Semicircular, two-story banking hall 21 feet high and 110 feet across places customers in the middle, bankers around the edge beneath a shallow mezzanine which may be used for future expansion (opposite). Just inside the main building entrance (below, left), marble columns surround a "hospitality area" which is graced by benches around a splashing fountain.

FACTS AND FIGURES

First Pasadena State Bank and Office Building, 1001 East Southmore, Pasadena, Texas.

Architects: MacKie & Kamrath, Associate architects: Doughtie & Porterfield, Landscape architects: Robert White & Associates. Engineers: Walter P. Moore (structural), Bernard Johnson Engineers, Inc. (mechanical, electrical). Interior designers: Business Interiors. General contractor: W. R. Grimshaw Construction Co., Inc.

Building area: 92,000 square feet (bank, including drive-in stations, 35,000 square feet; office building, 57,000 square feet).

Construction cost: \$2,192,000. Furnishings and equipment: \$300,000. Cost per square foot: \$23.75 END


LOVE OF LIFE -AND ITS OPPOSITE

The battle for architecture, it would seem clear, is an effort toward more abundant life—life brought to blossom. It thrives in the hands of those ready to meet new, changed situations. Unlike tragic drama, architecture is an art which must succeed by demonstrating that mankind was not born to be defeated.

There are opponents who condemn or disregard inconvenient new forces.

The first I would call the lifehaters, such as Hitlers, Mussolinis, and Stalins. They drove leadership in modern architecture out of their lands, toward countries of Europe's north and ultimately to the New Continent, where frustration had been less and confidence was greater.

Then there were old-line architects, teachers and critics, preferring to play old games no matter how increasingly irrelevant. More subtle were those who first came along, then drew back, their faith breaking under the strain of new belief. They have risen high in academies, and specialize in history. Finally there were the various nonarchitectural shortcutters and operators whose creativity was less developed than their appetite, or, once in a while, their avarice.

The Great Depression brought at least five main strains of creativity.

Journalistically, it was the age of Howard Myers. That sunny, ready, resourceful publisher of FORUM talked the industry into competitions, researches, and what not—all adapted to putting bread into the mouths of starving modern architects.

Howard's intuitions about creativity were reinforced by his love of it, which led him to discover, or at least give the first push of recognition, to most of the American architects who are present leaders. Being love, his search transcended narrow partisanship, recognized talents in widest variety, and nourished a richer life.

Then there was recognition of industrialism and an organized ef-

fort at its mastery-through our German influx. These "new Huguenots" knew what the opportunity was. Of course Frank Lloyd Wright had already written poetic paeans to the steam locomotive at the turn of the century -they appeared in the old FORUM which was called The Brickbuilder. He was "protoindustrial." But Gropius had known since the century's first decade about the degree to which building had to become an "industrial art," and he built up Harvard's School of Design to create the first high modern standard. Mies came and astounded us with the serenity he could achieve with modern tools and a medieval passion for perfection:

It was new territory they were conquering in behalf of a richer life, and as Mumford had been propagandist for the Garden City group, so the Museum of Modern Art came in to abet the new "international" viewpoint.



"Controls": photo of odor of rose

Meanwhile on the planning front, the fine new concepts embodied in Radburn and the Greenbelt towns fell largely to the depression and to barbarian invaders. These outflanked an architectural profession in which few were politically organized or alert to the new financial-political inventions such as FHA and the national mortgage market. FHA came to belong to untutored builders and they to it, and along the way they captured prefabrication in the house field. What architecture lost then, through architects not being hip, as only begun to be slowly regained, now that builders are bigger, more re-



Architecture as control and drama of total habitat (Tennessee Valley)

spectable, and receptive to the ideas of a belated counteroffensive in behalf of architectural quality and in behalf of life's flowering. This very year FHA sponsored a significant architectural competition.

There was yet another powerful outward-expanding push toward richer life which went under the name of "controlled conditions." Basically what it meant was that technology now lets you control not only the structure but the air, heat, illumination, sound, and smell within it. My predecessor Henry Wright (son of housing and city-building father Henry) was the finest expositor for this. Moreover, Henry drove home that the thing which counted was the result, regardless of whether it was achieved by new machinery or by age-old manipulations of such things as "micro-climate."

Unfortunately this effort has not been carried by architects and industry much beyond a financially profitable advance dealing with mere animal comfort.

Long, long ago, I myself was among the few who saw that far beyond mere "comfort conditioning" the promise to architecture



Instruments beyond building only

was something wider than visual delight. The promise was that visual delight would be orchestrated into an appeal to all the senses, and the outcome would be a more-than-physical "euphoria." I talked, for example, about replacing mere "thermal comfort" standards with the delights of a "thermal banquet." But today our architects and critics have not only gone back, many have shrunk back, to less ambitious, more primitive concepts. The only descriptions which convey the correlated impact of architecture on all the senses are found in works of novelists, like Stendhal.

Finally, the great event of the 1930s in the U.S. was, I believe, the TVA project; and I am proud of being (as I believe) the first who noted that it pointed to a new plateau in the very concept of architecture. For, "the dams were only the climaxes," and building was only one medium, in a composition of concentrated intent, intended to preserve, improve and dramatize a whole region full of human surroundings.

Within this expansive period, although the economy merely dragged along, there developed the possibility of doing more things, with more tools, in more sensuous realms, with better financial devices, in larger areas, for people in larger numbers. Were all of these only "fringe benefits" around some deeper immemorial idea that constituted in Giedion's memorable phrase— "the eternal present"?

Dengras Haskell

Reflect your good taste with the custom look



NORTON DOOR CLOSERS

Norton Series 7000 closers offer you a unique opportunity to *reflect your good taste*, in the selection of door closers. You can select a closer in the finish you choose to give the artistic effect you desire.

Series 7000W lets you carry the warmth of the wood doors and room paneling to the closer itself. You can choose from 67 native and exotic woods. The wood of the closer cover is in its natural form. It can be finished along with the paneling and door.

Series 7000A is available with anodized aluminum covers to match other door hardware. Choose from

bright brass, dull bronze and clear aluminum. Your closer can match door hardware and provide just the right degree of contrast.

Series 7000 is also available with primed covers. You can paint them to match or contrast the room decor.

Specify Norton Series 7000 closers when you want the custom look.



NORTON[®] DOOR CLOSERS 372 Meyer Road, Bensenville, Illinois



Why Atlanta Towers went total-electric...by General Electric



The new 120-unit Atlanta Towers is the latest total-electric Gold Medallion project of developer A. B. Simms, and is equipped by General Electric from its zone-electric heating and cooling units to its modern electric kitchens.

Mr. Simms gives the following reasons for building Atlanta Towers to Gold Medallion standards and selecting General Electric's equipment and program: 1. Reasonable initial investment. 2. Economical operating costs. 3. Flexibility in performing maintenance. 4. Individual room control for heating and cooling. 5. Wide range of equipment and appliances which can be included as standard equipment in each apartment. 6. Valuable electrical system design counsel. 7. Promotional support to speed rentals.

"We feel that on the basis of economics, tenant appeal

and dependability of performance, the decision to go allelectric was a sound business decision, and we are enthusiastic with the results."

Find out how General Electric's engineering and design assistance and customized promotional programs can be of service in your total-electric projects by writing: Construction Market Development Operation, General Electric

Company, Appliance Park, 6-230, Louisville, Kentucky.

A.B. Simms, the developer of Atlanta Towers, is now building Bay Shore Towers in Tampa, Florida, another totalelectric Gold Medallion high-rise apartment equipped by General Electric.







DESIGNED FOR EFFICIENCY

Form and function are neatly wedded in back bars and desk returns of Art Metal's 500 Group. Back bar shelves and compartments can be customplanned from standard components to suit many functions. Return units in two heights improve efficiency by giving ready access to records or office machines. Designed by The Knoll Planning Unit, these pieces are well suited to the needs of the contemporary office. Available in finishes to match or harmonize with any decor. Write for our new 500 Group catalog.

ART METAL, INC. SEVENTY-FIFTH TE ANNIVERSARY YEAR Department F4, Jamestown, New York













In addition to a pattern of perforations in the face itself, Natcoustile units are furnished with one-inch thick Fiberglas pads inside the core, producing the maximum sound absorption possible in a ceramic glazed clay product.

NOW...cut noise up to 65%—with Natco Ceramic Glazed Acoustical Tile

NATCOUSTILE is a perforated ceramic tile unit designed for use where acoustical sound absorption and durability are of primary importance.

Natcoustile gives the inherent advantages of genuine ceramic glazed Vitritile. It's a loadbearing, fireproof unit that's easily maintained. Colors never fade. Natcoustile lasts the life of the building.

Natcoustile is available in a variety of colors including clear, mottled and speckled finishes. If you're planning a new building, or an addition to your present structure, we will be glad to send you further information on Natco tile products. Write for catalog S-63.

Natco corporation

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



NATCOUSTILE IS MOISTURE RESISTANT — The indoor swimming pool shown above is an example of Natcoustile's versatility. It eliminates all excess noise without sound distortion, yet the finish is unaffected and attractive regardless of the amount of moisture present.

ONLY ALLSPANS

combine the strength of cold rolled steel with unparalleled design freedom

ALLSPAN[®] joists are without equal where long, strong open-web steel framing members are a must. You can span areas to 152 feet in width—column-free. ALLSPANS utilize nailable V-Section chords (patented) and tube webs cold rollformed from custom steels. ALLSPAN open-web design provides a freeway for conduits, ductwork and wiring. Metal roof deck may be attached by welding or nailing. Quality control of production is supervised by Pittsburgh Testing Laboratory inspectors. Write for our complete design manual.





MACOMBER INCORPORATED CANTON, OHIO SUBSIDIARY OF SHARON STEEL CORPORATION



Why urethane foam panels for these buildings?

Varied though these buildings are, all of them utilize urethane foam core curtain wall panels made with DuPont HYLENE® organic isocyanates and blown with FREON® fluorocarbon. And for good reason... urethane foam's low K factor of .12 to .14 is half that of ordinary insulation materials. This gives these panels the same coefficient of heat transfer as thicker, conventional panels. Being lighter and easier to handle, urethane core panels help speed construction and reduce total building weight. Urethane foam has superior impact resistance, will not absorb moisture, pack down or crumble. It adheres firmly to the skin of the curtain wall panel, creating a long-lasting integral unit that has high strength per unit weight.

Experience has shown that there are unlimited possibilities for urethane panel construction. In practical applications throughout the world, the result has been more usable floor space without increase in cost. Want more particulars? Just fill in and mail the coupon below.

E. I. du Pont de Nemours & Co. (Inc.) Elastomer Chemicals Department AF-3-UH	Name
Wilmington, Delaware 19898	Title
	Firm
GII PIND FREON® and HYLENE®	Address
REG. U. S. PAT. OFF. IN CONSTRUCTION	CityZoneState
Better Things for Better Living through Chemistry	In Canada, write Du Pont of Canada Ltd., 85 Eglinton Ave., E., Toronto 12, Ont.

THE BEST IDEAS ARE MORE EXCITING IN CONCRETE

EASTMAN KODAK COMPANY. Covering 69,000 square feet and enclosing two theaters and 26 exhibits, this attraction is a camera fan's delight. Concrete was used to shape the roof into an undulating "moonscape" where visitors can stroll and use the unusual sculptures as backgrounds for their own picture taking. A striking eight-story "Tower of Photography" is ringed with giant color photos. Architect: Kahn & Jacobs, New York, New York. Engineer: Lev Zetlin & Associates, New York, New York.

MORMON CHURCH. For the pavilion of the Church of Jesus Christ of the Latter Day Saints, double exhibition halls and theaters were built with panels and structural members of white precast concrete. A 120-foot replica of the famed Mormon Tabernacle Towers provides dramatic focus. After the Fair, the permanent precast concrete sections of the halls and theaters will be reassembled into new Mormon chapels. Architect: Harold Burton, Fordyce & Hamby Associates, New York, New York. Engineer: Strobel & Rongved, New York, New York.

They carry the great names of American business: Ford, General Motors, I.B.M., Equitable Life Assurance Society, A.T.&T., Travelers Insurance and so many more. They include the official buildings of thirty states, the Vatican Pavilion, the House of Good Taste, the Protestant Center, the United States of America building.

In the magnificent showcase of the New York World's Fair, the exciting new personality of modern concrete has stimulated a world of unusual beauty.

PORTLAND CEMENT ASSOCIATION

An organization to improve and extend the uses of concrete

More and more top architects are going Gold Bond



The Gold Bond difference: Behind-the-scenes savings at Western Illinois University



Typical installation detail shows use of Backer Board in 2-ply construction over steel screw studs.



In dormitory shower rooms, Vinyl-Surfaced Backer Board was laminated vertically and screwed in place.



At the two new 14-story dormitory buildings of Western Illinois University, Gold Bond Vinyl-Surfaced Backer Board was used as a water-resistant economi-

cal base for ceramic tile in shower rooms. This 5/6"-thick board has a gypsum core surfaced with a factory-sealed, continuous, waterproof vinyl film that permits foolproof inspection before the tile is set. All joints and openings (where gypsum core is exposed) are sealed with

Washington and Lincoln Towers, Men's Residence, Western Illinois University, Macomb, Ill. Architect & Engineer: West & Weber, Galesburg, Ill. General Contractor: Galesburg Construction Co., Galesburg, Ill. Drywall Contractor: Bertel Peterson Co., Rockford, Ill.



pressure-sensitive vinyl tape. Four-foot-wide panels are supplied in most ceiling heights—go up fast, offer a waterproof base at big savings over conventional methods. Additional information about new Gold Bond Vinyl-Surfaced Backer Board is available through your

Gold Bond[®] Representative. Or write to National Gypsum Company, Department AF-34, Buffalo, New York 14225.



Gold Bond materials and methods make the difference in modern building



The Gold Bond difference: The outside beauty of Fairview Apartments won't yield to fire, weather, rot, corrosion, termites





Owner: Fairview, Inc., Kalamazoo, Mich. Architect: Norman F. Carver, Jr. Engineers: Byce & Ranney, Inc. Contractor: Miller-Davis Co.

These modern building panels combine lasting beauty with rugged durability. They're Gold Bond Ripple-Tone Panels laminated to exterior plywood. Resist fire, weather, rot, termites and corrosion. And predecorated Ripple-Tone Panels never need protective painting. Surfaces are beautifully textured in a choice of two finishes—tough Gold Bond Plasti-Clad Finish in 6 handsome regular colors (shown below) that will not blister, peel or craze; or weather-resisting Plasticrylic[®] Finish in 6 regular and 6 special colors. Ripple-Tone Panels come in large sizes to speed erection and lower construction costs. If you would like to know more, ask your Gold Bond[®] Representative about

these handsome, prefinished asbestos-cement panels. Or write to Department AF-34, National Gypsum Company, Buffalo, New York 14225.



Gold Bond materials and methods make the difference in modern building





Ripple-Tone with rugged Plasti-Clad Finish comes in 6 smart colors.



In any of 146 buildings...



...ring for a Mark IV elevator.



This electronic brain ...



...makes the elevator arrive up to 30.6% sooner.



Step right in. The electronic eye will hold the doors open for you.



Now press a button in the car...



... and this hoists you smoothly ...



...to a cushion stop and a level landing.



Try to catch the Mark IV doing less. Just try. Mark IV Elevators can be kept as efficient as the day they were installed with skilled Westinghouse maintenance. You can be sure...if it's Westinghouse.



For the mood you wish to impart to interior space designs, consider our regressed CONTROLENS—No. 6010 (arched shape 1' x 4') and No. 6024 (vaulted shape 2' x 2'). These lenses provide crisp-lined ceilings that conform ideality with contemporary concepts. Their architectural adaptability—plus the quality prismatic lighting always expected of Holophane—place them among the most demanded lenses. Their high lighting output, low viewing comfort and maintenance economies have been proved by hundreds of installations. Our full-color engineering brochure presents a variety of exciting interiors using regressed CONTROLENS. It will help you to plan your next lighting project.

HOLOPHANE Company, Inc. Lighting Authorities Since 1898/1120 Avenue of the Americas, New York 36, N.Y.



Deria! A magnificent new

line of cabinets-styled and crafted in the tradition

of fine furniture-to bring exciting individuality to the modern kitchen.



For full-color literature and complete details and specifications, call today-or write Department 22



Goshen, Indiana



Granco's new Cel-Way floor system uses <u>one</u> fitting for power <u>and</u> telephone

Now for the first time, you can fully electrify thin, structural slabs over steel joists! Granco's new Cel-Way system gives you cellular-floor electrical capacity in a compact slab. Large-capacity single, wide or double cells, blended with a Granco permanent steel form (shown above with *double cells* and Corruform[®]), provide the form for wet concrete and raceways for telephone and power...all within a single thin slab!

For high-capacity systems—using double cells—optional new dual-service floor fitting and matching dual pre-set insert offer additional benefits and economy. The new, satin-finish fitting encloses *both* telephone and power outlets in *one* fixture...to cut in half the number of fittings



needed. To meet modern telephone requirements, each fitting can conceal two amphenol jacks. Floor cleaning and maintenance is easy. Servicing communication needs of present and future tenants is simplified.

With Cel-Way you can design complete in-floor electrification for any building in a new, economical way. For floors requiring long spans and greater load-carrying capacity, combine Cel-Way with Granco Tufcor[®], Cofar[®], or Cofar Composite. For more information about Cel-Way, see our catalogs in Sweet's, or send for Cel-Way catalog 99-363. Write Granco Steel Products Company, 6506 N. Broadway, St. Louis, Missouri 63147. A subsidiary of Granite City Steel Company.





District Offices : Atlanta • Chicago • Cincinnati • Dallas • Detroit • Houston • Kansas City • Los Angeles • Minneapolis • New York St. Louis • San Francisco • Tampa • District Representatives: • Greenville, S. C. • Little Rock, Ark. • Washington, D. C. Creative use of lighting control in new Wichita church shows... How G-E do dramatic



Down the center of the huge fish-shaped ceiling slab of the First Methodist Church of Wichita, a row of nine spotlights points directly toward the floor. At the touch of a button a G-E Motor Master turns on the lights in sequence from the

rear to the chancel. A second Motor Master turns them off. Additional 12-circuit Master-Selector Switches permit laying down a path of light just ahead of processionals and then picking it up right behind them,

Remote-Control Wiring can help you new things with mood lighting



THE FIRST METHODIST CHURCH of Wichita is one of the nation's truly magnificent contemporary sanctuaries. One reason for this: the power and majesty of its lighting. Another reason: modern lighting control made simple, flexible, and convenient with General Electric Remote-Control Wiring.

Simple remote-control stations in the narthex and in the chancel permit the selection of any one of five lighting moods at the touch of a push button. The change takes place over a period of slightly more than one minute due to the action of the General Electric Motor Masters, thus reducing any objections to sudden changes in lighting levels. Even while seated in the clergy seating area or while standing in the lectern or pulpit, the ministers have a last chance to use effective dimming or brightening of either chancel or nave lighting to assist them in delivering their messages. At each station, colored indicator lights show which mood is in effect.

As Mr. Carl Green of Carl Green & Associates, consulting engineers for the installation, puts it, "The General Electric Remote-Control Wiring helps give the church the ultimate in mood lighting effects at only a fraction of the cost you would expect."

Instead of big, expensive switchboards there are neat, compact General Electric Motor Masters, relays and a 24-volt crossconnect or "patch" panel that permits a wide flexibility of the various lighting moods, as well as of control. At the touch of a mood switch a preselected Motor Master starts turning the desired circuits



The sanctuary building uses 100 relays for lighting and a total of 14 General Electric Motor Masters.

either ON or OFF, one at a time in rapid succession; and in order to handle the 47 mood lighting circuits, the last contact on the Motor Master starts a second Motor Master to control the remaining circuits. The last contact of this second Motor Master lights a certain color indicator at all control points to show which mood is in effect. All circuits are also controlled individually from 12-circuit manual Selector Switches, when desired.

Churches . . . country clubs . . . nightclubs — wherever you need the many moods of modern lighting under simple fingertip control — General Electric Remote-Control Wiring can make it safer, easier, less expensive.

For the complete story on modern lighting control, write for the Remote-Control Wiring Manual for architects and consulting engineers. General Electric Company, Wiring Device Department, Providence, Rhode Island 02907.

Architects: Glenn E. Benedick, AIA, Wichita Consultant: Harold E. Wagoner, AIA, Philadelphia Electrical Contractor: Wichita Electric Co., Inc., Wichita Consulting Electrical Engineers: Carl Green & Associates, Wichita



While the entire system may be controlled from this control room overlooking the sanctuary, other switches are placed throughout the church for the convenience of the minister, ushers, the organist, and the sound technician.

Progress Is Our Most Important Product GENERAL ELECTRIC

BOOKS







TRAFFIC IN TOWNS—A study of the long term problems of traffic in urban areas. Reports of the Steering Group and Working Group appointed by the Minister of Transport. Published by Her Majesty's Stationery Offices; available from British Information Service, 845 Third Ave., New York, N.Y. 223 pp. $81/2^{"}$ x 12". Illus. \$10.

The "Buchanan Report," as this book is far better known, was described recently in London as the last of the British Government's "great, exciting blueprints for reform" issued during 1963. It is without question the most searching inquiry ever attempted at a national level into the problems and opportunities created by the automobile. And it actually manages to come up with some useful ideas among an impressive welter of statistics, analyses, and handsomely drawn plans. Its chief author, Transportation Professor Colin Buchanan of London's Imperial College, is an architect, engineer, town planner, and civil servant—and a thorough and sometimes highly readable writer as well.

In his report to the Ministry of Transport, Buchanan had his work cut out for him, even with the help of a seven-man steering committee and the varied talents of 14 professionals in his working group. England's population, they predict, will grow by 20 million, and the number of cars will quadruple in the next 50 years. Where in this small island, asks Buchanan, will they all go? As one British planner replied (without answering the question): "The whole quality of urban life is at stake in this total war between traffic and civilized standards of environment."

To fight the war, Architect Buchanan proposes a system of "environmental management," which in simplest terms separates living, working, and commercial districts into large "rooms," and channels the main flow of traffic into urban corridors or "halls" between them. This, of course, is not entirely new, nor is the complex (and expensive) multideck system of vehicular and pedestrian circulation proposed for the dense areas of larger cities.

The working group tests out its ideas in detailed theoretical solutions for four prototype towns: the small market town of Newbury (population 30,000—"desire lines" diagram below), the large industrial city of Leeds (511,000), the historical cathedral town of Norwich (160,000), and a central section of London where 9,000 people live and 50,000 work. These four case studies, make up about half the book.

The balance is devoted to a review of pertinent lessons from England's famed "New Towns" and rebuilt war cities, and from Europe and the United States. Buchanan feels that few of Britain's present plans face up to the problem. Transportation plans, he says, must be made a mandatory and integral part of all development plans; uncoordinated grants to powerful local highway departments must be brought under control; much greater collaboration among various kinds of professionals is urgently needed. And this study opens up the need for still deeper studies in the form and organization of cities. (Anything here sound familiar?) To bring this all about, Buchanan's steering committee under Sir Geoffrey Crowther rec-



ommends a number of new, high-powered regional development agencies. (The Government has accepted virtually all the principles of the report as a basis for future planning—except this one.)

The mounting pressures, concludes Buchanan, are such that "it will be easily within our ability to ruin this island by the end of the century." The responsible thought and capital investment required to avoid this will require "an almost heroic act of self discipline."

But for its place names and pleasant British accents, this serious book about England might be about the United States as well.—O.T. continued on page 152

Send for this complete door catalog **NOW!**



door efficiency at lowest cost for in-and-out building traffic.

In any doorway, Kinnear provides an unbeatable combination of lower door costs, extra protection and higher efficiency. Kinnear's upward-acting curtain of interlocking slats (originated by Kinnear!) coils compactly above the opening. All space around doorways is fully usable at all times. The curtain opens completely out of the way, closes to give you a rugged all-metal curtain of protection against wind, weather, fire,



and vandals. 50 years and more of continuous, daily, low-maintenance service have been recorded for many Kinnear Rolling Doors. They're also REGIS-TERED — all parts of every Kinnear door can always be accurately duplicated from master details kept permanently in fireproof vaults. Get all these Kinnear Rolling Door benefits and more; write for this new 1964 catalog.

The KINNEAR Manufacturing Co. FACTORIES: and Subsidiaries

1640-60 Fields Avenue, Columbus, 16, Ohio 1742 Yosemite Avenue, San Francisco 24, Calif. 3683 Dundas Street West, Toronto, Ont., Canada Offices and Representatives in All Principal Cities



McKinney Forged Iron ELEGANCE IN HARDWARE

Graceful lines, beautiful finish with unsurpassed quality are evident in every piece of McKinney Forged Iron Hardware. Creative design in traditional architecture demands this unequalled elegance. Next time consider . . . then specify for the whole job fine McKinney Forged Iron Hardware . . . choice of quality-conscious consultants.



HOUSING MARKETS AND PUBLIC POLICY. By William G. Grigsby. Published by University of Pennsylvania Press, Philadelphia, Pa. 346 pp. 51/2" x 9". \$6.50.

This volume belongs with the small but growing collection of essential works on housing and urban problems. There is no new research in the book, but the organization of existing data plus the insights of the author make it invaluable. Grigsby is an economist on the staff of the Department of City Planning and in the finance department of the Wharton School at the University of Pennsylvania.

The primary purpose of the book is to examine the workings of the market for housing, in all its aspects. In his foreword, William L. C. Wheaton, formerly head of Pennsylvania's Institute for Urban Studies and now performing a similar chore at the University of California, says that "the home-building industry has been limping along with inadequate knowledge of the market processes which determine its role in our economy." Wheaton's appeal, and it is firmly backed by Grigsby, is for more research. (Is anybody in government listening?)

Grigsby's most provocative passages concern the difficulty of bettering the housing stock through urban renewal. Grigsby guesses that at least one-quarter of our population is still not in a decent home or suitable living environment, and finds housing conditions in the close-in suburbs no better than they are in central cities. At the heart of the problem is today's favorite political target: poverty, or at least inadequate income. At least three quarters of all the 10 million families living in substandard housing earn under \$4,000 per year.

Urban renewal has actually worsened the lot of these families, Grigsby contends, by cutting down the number of low-priced units available to them. Their plight is made more acute because most of those displaced by renewal are nonwhite, and their housing choice is far more circumscribed than that of low-income whites. Grigsby recommends a policy of encouraging more migration to the suburbs as one key answer to the city housing problem. He believes that cities have often acted out of shortsighted self-interest in attempting to stem the suburban tide. If more lower-income families moved out, more land would be available for new housing construction at lower densities.

Grigsby claims that the movement to the suburbs has done more already to raise housing standards than has been accomplished under urban renewal.

And renewal is being stifled by its own internal contradictions: whereas the professed *federal* goal is "a decent home and suitable living environment for every family," cities themselves are more interested in using renewal to beef up the city's economy. Thus there is great pressure to use renewal funds for commercial and industrial projects, skimping on the problem of housing.

Grigsby's book suffers from a few internal contradictions of its own, but they are not noticeable enough to detract from its basic importance. For instance, he stresses that renewal should "channel funds so that the private market will propel rather than retard public efforts," yet at another point he suggests renewal be tried more often in neighborhoods which have been "rejected by the market."

Grigsby's perspective on housing and urban problems is one of the most provocative in the field. His use of economic flow analysis points the way to a more scientific approach to housing market research, and his comments on renewal are both timely and discomfiting.—D.B.C.

SHELL ARCHITECTURE. By Jürgen Joedicke. Published by Reinhold Publishing Corp., 430 Park Ave., New York 21, N.Y. 304 pp. 9" x 11" Illus. \$22.50.

Jürgen Joedicke's encyclopedic coverage of shell-building lore has now been translated (after a fashion) into English. It is certainly the most complete treasury of facts and figures on thin shell construction ever compiled, far more than the usual pictorial survey of soaring forms.

Nothing that an architect or builder is likely to want to know about shells is omitted. There is the most complete history of their development yet published. The basic concepts of shell geometry and stress distribution are beautifully illustrated. Hundreds of pictures clarify construction procedures, detailed structural drawings abound, and future trends in design are suggested in an article contributed by Herbert Kupfer. The bibliography is extraordinarily complete.

In short, this is the book to have when you are thinking about using a thin shell roof. Unfortunately, the translation is a tangle of words, and the drawings retain only their German labels and metric dimensions. Perhaps the publishers realize that monumental volumes like Joedicke's are purchased mainly on the strength of their dramatic photographs. But it is not pleasant for anyone who actually wants to work with the book to find that the admirable quality of the original is vitiated by careless preparation of the English version.—B.P.S.

THE ITALIAN TOWNSCAPE. By Ivor De Wolfe. Sketches and plans by Kenneth Browne. Photographs by Ivy De Wolfe. English edition published by The Architectural Press, London. 280 pp. 71/2" by 91/2". Illus. Available at Wittenborn & Co., 1018 Madison Ave., New York. \$9.50. American edition in preparation.

The British game of "Townscape" has been played for quite some time in the pages of *The Architectural Review* by teammates Ian Nairn continued on page 155 NEW DIMENSIONS FOR CONCRETE! SPEEDY, SPRAYED-ON TEXTURED FINISH



Arch.-Richard J. Neutra & Robert E. Alexander, Los Angeles, Cal.

Poured concrete of the new Cyclorama memorial at Gettysburg was formed entirely in vertical flutings. To protect the unusual architectural detail-and to add distinctive textural appeal-a revolutionary coating technique was used.

THOROSEAL cementitious waterproofing compound was mixed to thin batter consistency. With plaster spraygun equipment, an even coating was sprayed quickly over the entire wall surface.

The closeup shows the new finish. Its pleasing texture complements the Cyclorama's otherwise unrelieved vertical lines. **THOROSEAL** will keep those lines true and erosion-free – impervious to water or weather damage for the life of the structure. **THOROSEAL** protection lasts as long as the walls you put it on!

Write for facts on other new finishes for concrete with products of The Thoro System.

STANDARD DRY WALL PRODUCTS, INC. DEPT. AF-1 NEW EAGLE, PENNA.

Walnut Panelled

RECEPTION ROOM WINS OFFICE DESIGN AWARD

Earl C. Jordan Agency of Massachusetts Mutual Life Insurance Company, Chicago, selected as "Outstanding in Design and Layout" by Administrative Management Magazine

Genuine Walnut—in plywood panels or in solids—in walls, floors, doors or millwork—offers an infinite range of grains and figures providing a uniquely creative medium for striking architectural installations. The 1964 edition of "Walnut Veneer Types" (at 50¢ each), standard guide for specifying walnut, and "The Many Faces and Moods of Walnut" (free), A.I.A. File No. 19F-161, are available on request. The Association welcomes inquiries whenever it may be of assistance.



LIFE INSURANCE COMPANY



AMERICAN WALNUT MANUFACTURERS' ASSOCIATION, 666 LAKE SHORE DRIVE, CHICAGO Dedicated to the conservation and proper use of Walnut, an American heritage for finest cabinetry

111 WEST JACKSON BUILDING Architect—A. Epstein & Sons, Inc., Chicago Contractor—George A. Fuller Company, Chicago EARL C. JORDAN AGENCY SUITE Space Planning & Office Design—Saphier, Lerner, Schindler, Inc., Chicago Architectural Panelling—Peterson Company, Arlington Heights, Ill. Photos: Hedrich-Blessing, Chicago

> earl c. Jordan Agency MASSACHUSETTS MUTUAL



(words) and Kenneth Browne (sketches). Now the game has taken the form of this book—adapted from the June 1962 special issue of *The Review*—which examines outdoor spatial effects in a host of Italian towns. The players this time are Ivor and Ivy De Wolfe, as well as Mr. Browne.

Their purpose is to produce a primer on good town design through detailed observation of countless streets and piazzas. Why Italian towns? Because in Italy, "by a strange miscalculation of destiny and businessmen, and despite all that the Lambrettas can do to destroy them, many splendid towns have survived almost intact."

Mr. De Wolfe's writing is highly opinionated and his style is flippant, at times distastefully so. There is no doubt as to where he stands. His recurrent metaphor is the stage set, and the degree of his admiration for a particular square is directly proportional to its qualities as "theater." His delight is in "open space used as it should be to heighten the urban congestion and so to multiply social contacts." Scornful of Garden City planners ("Fuddy-duddies"), Beaux Arts geometricians, Le Corbusier disciples ("Airies"), and lots of other people like (dirty word) tourists, De Wolfe ardently shares Alberti's love for winding streets and intricate ways. In a word, he likes congestion.

The book was intended as a primer, and in this it fails. For it is one thing to admire and analyze the fine townscape achievements of old Italian towns, which the book does well. But it is quite another to relate these lessons and their central theme of congestion to the urban problems of today.—M. B.

THE GENIUS OF JOHN RUSKIN. Selections from his writings, edited with an introduction by John D. Rosenberg. Published by George Braziller Inc., 215 Park Ave. South, New York 3, N.Y. 560 pp. 5!/4" x 8!/4". \$7.50.

Ruskin, the perverse, endearing, many-sided, self-punishing spirit, was the subject of a scholarly and heart-rending biography by Dr. John D. Rosenberg, under the title, The Darkening Glass (FORUM review, April 1962). Now Dr. Rosenberg, a professor of English at Columbia University, presents a carefully rounded selection of Ruskin's writings on art, architecture, social economics, and self-examination. Cockeyed in much of his thinking about architecture, in the eyes of modern readers, Ruskin fascinates with flashing insights into subjects in great variety, architectural and other. He has influenced leaders as diverse as Proust, T.S. Eliot, and Gandhi. His supple and precise prose has a high-minded, high-handed, often apocalyptic tone which one finds echoed in later writers he influenced, e.g., in today's prophet-critic, Lewis Mumford. But he switched attitudes when led by new insight, following manfully what truth he saw, though it might break him. Few do that. D.H.

WASHINGTON, CAPITAL CITY 1879-1950. By Constance McLaughlin Green. Published by Princeton University Press, Princeton, N.Y. 558 pp. Illus. 61/4" x 91/2". \$9.50.

This is the second volume of Mrs. Green's rounded and informative account of America's most honored, aggrieved, beautiful, victimized city. It flinches at nothing, remaining calm and objective ever. Mrs. Green enjoys a rare degree of respect by people of intelligence in her own community.—D.H. THE WORLDWIDE ART CATALOGUE BUL-LETIN. Published quarterly by The Worldwide Art Catalogue Centre, 1780 Broadway, New York 19, N.Y. 48 pp. $51/2'' \times 81/2''$. \$7.50 the year, \$2.50 the copy.

Selected titles from museum and gallery catalogues from all over the world are described and may be ordered from the Centre. Catalogs from exhibits of Alexander Calder, Antoni Gaudi, and Le Corbusier are among those available. END

Write for ZERO's ZERO new catalog today. Contains full size details, 168 draw-ings of weather-stripping and re-lated products, for meets all <u>your</u> needs for doors sliding doors saddles windows . expansion joints WEATHER STRIPPING Architects agree, SOUND-PROOFING weatherstripping can be the most significant LIGHT-PROOFING detail of a structure's success. For 4 decades nur 40th year ZERO has been creating and manufacturing to meet changing needs. =67 Rubber Cork = 84 **Expansion** Joint Covers series 82 expansion joint 000000000 saddle assemblies series 83 Wall and Ceiling Jo NOTE: Nuts and Bolts by Zero. SEE OUR 189-ZER ZERO WEATHER STRIPPING CO., INC. 451 East 136th St., New York 54, N.Y. • (212) LUdlow 5-3230

Drenched, deluged and wind-whipped



... at hurricane force and still weather-tight!

Independent Laboratory Tests Prove Kawneer Sealair Windows^{*} Solve Weathering Problems!

The new Sealair window is weather-tight even when subjected to winds and rains of 70 to 80 miles per hour according to recent tests by an independent laboratory.

In these tests, the Sealair was installed in a weather test chamber. The window was water drenched as inside pressure was lowered to represent severe weather conditions. Sealair did not leak even when the static load reached 25 p.s.f. Many conventional windows leaked at 3 to 7 p.s.f. The superior weathering performance is the result of a Triple Weather Guard including an exclusive Pressure Equalization Slot. This Kawneer innovation is the most important metal window design change in recent years.

In air infiltration tests, the new Sealair was again far superior, at less than .2 c.f.m., well above industry standards. Here is a window so vastly superior that building interiors remain dust and draft free . . . reducing loads on heating and air conditioning systems. *Get all the facts about this remarkable window*. Write for your copy of the Sealair Window File.

Commercial and Monumental—Projected, casement and top hinged Sealair windows are available in commercial or monumental (2") series. Finish: Alumilite is standard—or, non-fading, abrasive-resistant, Anodic hard colors (light bronze, medium bronze and black) are optional.



Pressure Equalization Slot—Keeps water out. Pressure within the window sections is equal to pressure outside the building. No pressure difference... no partial vacuum... no leakage.



Triple Weather Guard-1) Pressure equalization slot, 2) integral drip, and 3) neoprene weatherstrip. The Sealair window offers triple weather protection. Weathering where needed, scientifically designed.



Kawneer Company, A Division of American Metal Climax, Inc.

Niles, Michigan • Richmond, California • Atlanta, Georgia • Kawneer Company Canada, Ltd., Toronto, Ontario, Canada

*Patent Applied For

Women know Frigidaire

<image>

Frigidaire Frost-Proof Refrigerator or Flair Wall Oven) in your apartments, townhouses, or model homes. What a wonderful way to say "quality" to your prospects!

Building Owners know Frigidaire



... for low, low maintenance. Frigidaire's reputation for sturdy performance and minimum upkeep has often made the competitive difference on an investment property specification. But when service is needed ... it's there! Factory-trained Frigidaire servicemen are everywhere.

Where real quality shows...



Refrigerators

Freezers







Free-Standing Ranges

Wall Ovens

Contractors know Frigidaire



that matters is cost installed—another reason why Frigidaire gives you the competitive edge! Easy installation is a quality feature of all Frigidaire Built-Ins. It's what lets you offer the performance and beauty people want at such low cost.

Architects know Frigidaire



... for design flexibility. Frigidaire offers you wide variety in product design, models, sizes and colors. Your Frigidaire Representative can suggest a beautiful Frigidaire appliance package to suit any design or budget requirement... one with all the Frigidaire quality features your clients know and want.

... use the appliance brand people know!











Dishwashers



Room Air Conditioners

Find them all in your Sweet's Catalog Files

Build-in satisfaction...build-in



L·O·F's new test data proves you can use bigger sizes of <u>Heavy-Duty</u> plate glass with confidence and safety L·O·F's new low prices let you go ahead with those BIG ideas

Think big. Design freely for bigger expanses of glass. Go ahead with ideas you've never dared try before. $L \cdot O \cdot F$ has conducted exhaustive strength tests on Heavy-Duty Plate so you can do it safely and with full confidence that you will meet code requirements. And we've lowered prices approximately one-third so your clients can afford your most creative ideas.

Review the new test data shown here—for $\frac{1}{4''}$ plate (for comparison) and for Heavy-Duty Plate in thicknesses from $\frac{5}{16''}$ to $\frac{1}{2''}$, inclusive. *Parallel-O-Plate*[®] is available in $\frac{1}{4''}, \frac{5}{16''}, \frac{3}{8''}, \frac{1}{2''}, \frac{5}{8''}, \frac{3}{4''}, \frac{7}{8''}$ and 1"; Heavy-Duty *Parallel-O-Grey*[®] and Parallel-O-Bronze[®] in ¾" and ½"; and blue-green Heat Absorbing in ¼" and ¾".There's also an impressive reduction of sound transmittance when you use Heavy-Duty Plate (see chart). Ask your L·O·F Glass Distributor about the lower prices on Heavy-Duty Plate. Then go ahead with those big ideas.

Libbey · Owens · Ford Glass Company BII MADISON AVENUE TOLEDO, OHIO 43624







1,000 Lights of Glass Tested to Destruction

Pressure limits for each size and thickness were actually measured in a pressure chamber — not estimated mathematically. Photo at left shows the degree of deflection in a $\frac{1}{2}$ "-thick light, 240" x 120". For each size in each thickness, 25 lights of glass—1,000 lights in all—were tested to destruction to provide you with trustworthy p.s.f. data. The design loads shown below include a practical design factor of 2.5 and are based on L·O·F's advertised minimum for each nominal thickness given. For data on thicknesses greater than shown below, write to L·O·F Technical Sales Service.

FORD

SOUND-REDUCTION DATA												
Thickness	Sound Reduction	AL SE	72x72	48x120	72x96	72x120	96x120	72x168	120x120	96x168	120x168	120x240
1/4" Plate	te 26.6 decibels te 28.8 decibels te 29.7 decibels te 31.5 decibels	1/4"	30	27	23	18	13	13	11	10	8	5
3/8" Plate 1/2" Plate		5/16"	43	39	32	26	19	18	15	14	11	8
		3/8″	62	56	46	37	28	27	22	20	16	11
Supplied by Geiger & Hamme, Con- sultants in Acoustics, Ann Arbor		1/2"	91	81	68	54	41	39	33	29	23	16

OWENS

DUTY |PLATE |GLASS



Invincible METAL FURNITURE CO. Dept. A-34, Manitowoc, Wis. (In Canada: 1162 Calendonia Rd., Toronto 19) Please send a copy of your new full color catalog. NAME FIRM ADDRESS

MARBLE: economy material for cost-conscious clients!

MARBLE? they'll say, an economy material? Yes, indeed! If they'll take a square look at all the facts.

Too many people make the mistake of assuming that anything as beautiful as marble-with its incomparable look of luxury-must simply be too costly. That simply is not true.

Actually, marble offers the best of both beauty and economy.

Marble, of course, is permanent and durable, more than good for the life of any building. Its economy begins the minute it's installed. It never needs painting or waxing or buffing. Year after year, its minimum cost of maintenance is like money in the bank.

Even marble's long-lasting look of luxury has a tangible value, increasing pride of ownership and pleasure in use, and helping to sustain property values by creating individual distinction for any structure.

Members of the Marble Institute of America offer skilled and experienced counsel in the proper use of marble; they offer the world's finest marble workmanship in their plants throughout the U.S.; and they offer as well more than 250 foreign and domestic marbles for you and your cost-conscious clients to choose from.

For further information, write:

MARBLE INSTITUTE OF AMERICA, INC. 32 Fifth Avenue, Mt. Vernon, N.Y. 10550



Year in, year out . . . Wilkinson Chutes set the standard for efficient centralized disposal.

for Centralized **Disposal of** Soiled Linen. Rubbish, Dust,

Installation of Wilkinson Centralized Disposal Chutes reduces labor costs, improves operating efficiency, helps maintain high sanitary standards.





The Wonderful, Waterproof "DOT"

... means trouble-free, weatherproof exteriors and swimming pools for you. This patented resin "DOT" is permanently bonded to the corner of each tile, can't absorb moisture, forms a monolithic bond with the setting bed. Gives beam-like strength, too, from tile to tile, makes a stable, flexible sheet that's easy to handle in wind and weather, high temperatures or low. Compensates for variations in tile size and thickness ... maintains joint spacing, uniform overall sheet size. Gives your contractor the easiest way to do a perfect job in less time ... gives you the assurance of a permanent, goodlooking job. So, be sure; specify wonderful "DOT"... Pat. No. 3,041,785.





"DOT" and Mosaic are trademarks of The Mosaic Tile Company



Light



New Mark II Airliner diffuses air to heat or cool. Air diffuser combined with light fixture brings a new concept for ceiling design. The Westinghouse Mark II Airliner lets you coordinate air handling and illumination in a single unit. There are no separate air diffusers to interrupt over-all lighting design. The air diffuser by Anemostat[®] is mounted on a luminaire with all the famous Westinghouse Mainliner features. Two layers of metal separated by air prevent changes in



by Westinghouse

temperature, lamp flicker and discoloration. The light output is stable at all times. Dust and dirt will not accumulate inside. Airliner air intake connects to a flexible duct. Capacities are suitable for every application. Air is discharged at acceptable sound levels and you get a constant, draftless airflow throughout. To avoid any conflicts of trades, the air diffuser and lighting fixture are installed separately. Ask your Westinghouse sales engineer for full details, or write: Westinghouse Electric Corp., Lighting Division, Edgewater Park, Cleveland, Ohio.



J-04001



traditional

The Windsor Executive Office Group — formal design for the executive office, beautifully balanced in line and detail. The gracious period styling has the air of subdued richness and quiet authority . . . timeless beauty, in glowing Walnut finish, highlighted with antiqued Brass hardware. Available in a selection of desks and accessory units that can be combined to meet every individual working need.

Informative literature on the distinctive Windsor group sent free of charge, on request.



JASPER OFFICE FURNITURE COMPANY JASPER, INDIANA

THE CARE AND FEEDING OF 62,500 CHARACTERS



You and 62,500 other Architectural FORUM subscribers are now being computerized at a rate, coincidentally, of 62,500 characters per second.

Formerly all FORUM subscribers' names and addresses were manually processed and printed by means of metal stencils. Today these same records are being converted to magnetic tape and the information is being fed into two IBM 7070 computers at Time Inc.'s subscription fulfillment headquarters in Chicago.

In addition to reading the tape at the rate of 62,500 characters (numerals and letters) per second, the computers can also print a mailing strip with approximately 112 individual names and addresses per second—a series of perforated labels like the one you find pasted on the wrapper of your copy of FORUM each month.

Architectural FORUM's use of the most advanced electronic machinery for its circulation operation means one thing: greater efficiency and speed in the servicing of your own subscription.

As always, whenever you write FORUM about your subscription, (Subscription Service, 540 N. Michigan Ave., Chicago 11, III.) please enclose the address label from the wrapper on your magazine. This will insure that FORUM's computers will find your subscription record promptly and accurately

FORUM
two-of-a-kind distinction The distinctive beauty of an ALL-STEEL 2500 DESIGN desk and matching credenza says "Here is office furniture for an executive." Clean, crisp styling—straightforward lines—exacting color coordination—all spell out the distinction built into this quality line of office furniture. You can furnish an entire office with it—from reception area to conference room. Office planning is easier when you have the completeness of line offered by ALL-STEEL. Write for information. All-Steel Equipment Inc.





TYPHOON AIR CONDITIONING

Typhoon introduces 5 closet-sized heat pumps and air conditioners for individual apartment climate control. 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$ and 3 ton units, engineered to meet maximum standards. Cooperative apartment developers prefer them because each owner has his own central station system, complete with independent control and separate meter. Owners of tenant-occupied apartments like them because tenants pay operating costs, simplifying initial construction financing. Resulting lower rental rates make tenants happy, and Typhoon's carefree performance keeps them happy! Each unit is made with oversize parts that thrive on heavy usage. Installs easily be-



cause it's completely pre-assembled and shipped ready-to-work. Can be furnished as cooling units with electric heat, or with conventional heating systems. Equally effective in many commercial applications. Typical Typhoon versatility! Whatever you need, you'll find in the big Typhoon line of 218 air conditioners/liquid chillers/furnaces/heat pumps. Write today for full product information.

TYPHOON AIR CONDITIONING DIVISION, 505 CARROLL STREET, BROOKLYN 15, NEW YORK

since HOPE'S WINDOWS

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



LULU VERE CHILDERS, FINE ARTS WING, FINE ARTS BUILDING, HOWARD UNIVERSITY, WASHINGTON, D. C. Hilyard R. Robinson, Designing Architect



Hope's engineers and erection crews are prepared to work closely with every builder using Hope's Windows and Window Walls. For information and counsel, write It has long been a policy of Hope's Windows, Inc., to offer the architect maximum freedom of design...first, by providing a wide variety of windows and components; second, by offering the cooperative services of an experienced engineering staff from planning stages through completion.

This building in the nation's capital is a typical example of such cooperation. The architect wished to avoid the monotony of a flat wall expanse by creating a shadow-box effect at each window. To produce the desired effect, the architect designed the work so that each window unit extended one inch beyond the face of the wall. Hope's engineers co-operated and completed an aesthetic and weathertight installation.

HOPE'S WINDOWS, INC., Jamestown, N.Y.

THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS

1818





A comfortably sophisticated environment for business leadership. Transition I is one of many Stow & Davis groupings in fine Contemporary and Traditional office furniture which offers complete selections of units for personalized arrangements.



DISTINGUISHED FURNITURE FOR DISTINCTIVE OFFICES

Regional sales offices and showrooms: NEW YORK, 30 E. 42nd Street • ATLANTA, 351 Peachtree Hills Avenue N.E. • DALLAS, 1626 Hi-Line Drive LOS ANGELES, 8899 Beverly Blvd. • Executive offices and factory: 15 Summer, N.W., Grand Rapids, Mich. 49502

LIGHT-SENSITIVE GLASS

A pair of scientists from Corning have developed a new glass that could-if it lives up to its laboratory promise-revolutionize the window industry and even change the shape of buildings in the years to come, eliminating sunshading as a consideration in building design. In a paper presented to the American Physical Society, Dr. S. Donald Stookey and Dr. William Armistead described the behavior of photochromic glass: that is, glass which darkens on exposure to light and then reverts to its original color when the light source is removed. So far as the men from Corning know, theirs is the first that can repeat the cycle without tiring. An earlier version developed by researchers at the Mellon Institute for Pittsburgh Plate Glass (Products, Dec. '62) worked for a time but eventually wore out and had to be reactivated by exposure to large amounts of ultraviolet light.

The new glass is not in production, nor does Corning contemplate entering the flat glass business, but the process will be licensed to others. At this point, no one knows what it will cost in production quantities. Nevertheless, the fact that photochromic windows could reduce the solar heat load on air-conditioning systems and eliminate the need for blinds and curtains, except for privacy and decorative effects, indicate that they might account for substantial savings in initial building costs and operating costs as well.

Corning's glass contains submicroscopic crystals of silver halide which behave quite differently in glass than they do in photographic emulsions, where they decompose to form a silver image. Just why silver halide reverses in glass is not known, but Dr. Stookey thinks the reason is that the crystals are too small and too rigidly held to slide away, or to grow into stable particles, or to react chemically and decompose, as they do in other substances. Whatever the reason, the Corning samples have gone through more than 10,000 cycles without any permanent change in color.

The strip of photographs demonstrates another trick: the action can be controlled. The samples are made "fast" and "slow" and compared with clear and permanently tinted glass. Even before the flash of ultraviolet light which darkened the photochromic samples, the fast glass began to react to photographers' lights. Darkening began almost instantaneously; clearing took about two minutes. Typical glasses darken on exposure to sun-





light or concentrated ultraviolet, but ordinary indoor lighting has no effect. Some samples darken to neutral gray, brown, or purple —to the point where they transmit only 1 per cent of the light striking them.

Despite their different compo-





sition, these glasses may be worked by any of the standard methods. It is even possible to treat the same piece of glass so that part of it will react photochromically and the rest will not. *Developer:* Corning Glass Works, Corning, N.Y.



SEAMLESS PARTITION

Thin tape masks the lateral joint in Penn Metal's *Penwall Kwik-Zip* partitions, giving the effect of a fixed wall. This development is a joint effort by Penn Metal and its Washington distributor, the Clevenger Corp. of Bladensburg, Md., to obviate the visible seams which some find objectionable in movable walls.

On a national average, says C. J. Hodapp, general manager of partitions, Kwik-Zip exceeds the cost of fixed drywall on steel studs by no more than 5 per cent and in some areas costs are actually the same. The average installed price of Kwik-Zip is 90¢ to \$1 per square foot, according to Hodapp.

The installation procedure, shown step by step, begins with setting the tapered-edge gypsum panels into steel stud framing and then snapping in the batten strip, continued on page 178

ADVERTISING INDEX

Allied Chemical Corporation (Barrett Division)
McCann-Erickson, Inc.
Frank C. Nahser, Inc.
J. Walter Thompson Company
Fuller & Smith & Ross, Inc.
Building Products Division (Skydomes), 170 The Bresnick Co., Inc.
American Olean Tile Co
American Saint Gobain CorpCover III Turner & Feeney, Inc.
American Telephone & Telegraph Co 25 N. W. Ayer & Son, Inc.
American Walnut Mfrs. Assn 154 Isker & Adajian, Inc.
Anaconda Aluminum Company Amarlite Division
Argos Products Company
Armstrong Cork Company
Art Metal, Inc. 129 The Aitkin-Kynett Co., Inc.
Barcol Overdoor Company
Barrett Division (Allied Chemical Corporation) 22, 23
McCann-Erickson, Inc. Beneke Corporation 55
Christopher/Advertising Counsel Bristol Silica Company 20 W.4
Tycer Advertising
Celotex Corp., The
George E. Duff Adv. 58
Delta Faucet Corp
Desks, Inc
du Pont de Nemours & Co., E. I 132 N. W. Ayer & Son, Inc.
du Pont de Nemours & Co., E. L
Dur-O-Wal
Edison Electric Institute 56 Compton Adv. Inc.
Faber-Castell, Pencil Co., Inc., A. W 20 PE 1
J. M. Kesslinger & Associates Pacade, Inc.
The Hal Mayer Company Penestra Incorporated
Architectural Products Div
Fiat Metal Mfg. Co
Fibreboard Paper Products Corp. Pabeo Gypsum Div
L. C. Cole Company, Inc. Flintkote Company, The
(Insuirock Division)

a delifie addentioning while
Hillyard Chemical Company
Holophane Company, Inc
Hope's Windows, Inc
Hupp Corp. Typhoon Air Conditioning Div172, 179 The Zlowe Company, Inc.
Inland Steel Products Co 145 Hoffman-York, Inc.
Invincible Metal Furniture Co 162 Klau-Van Pietersom-Dunlap, Inc.
I-XL Furniture Co., Inc. 47 Aves Advertising, Inc.
Tauner Office Parniture Co. 166
Keller-Crescent Co.
Jensen Industries20 W-4 Magna Ltd. Advertising
Kawneer Co., The
Kentile, Inc
Kinnear Mig Co 151 Wheeler-Kight & Gainey, Inc.
Kinney Vacuum Division of New York Air Brake Co 62 Jerome O'Leary Advertising Agency
Tibbey-Owens-Ford Glass Co
Fuller & Smith & Ross, Inc.
Sudler & Hennessey, Inc.

Gamewell Company 58 Chirurg & Cairns, Inc. General Electric Company 128 Young & Rubicam, Inc.

Goodyear Tire & Rubber Company 8 Kudner Agency, Inc.

Granco Steel Products Co. 147 Gardner Advertising Co.

Haws Drinking Faucet Co. 150 Pacific Advertising Staff

Macomber, Inc. 131 Watts, Lee & Kenyon, Inc. Marble Institute of America, Inc. 162 Chambers, Wiswell & Moore McKinney Mfg. Co. 152 W. S. Hill Company The Mills Company 40 Carr Liggett Advertising, Inc. Mosaic Tile Company 163 Carr Liggett Adv., Inc. Musson Bubber Company, B. C. 34 The Fred Bock Advertising Co.

Norton Door Closer Co. 127 Erwin Wasey, Ruthrauff & Ryan, Inc.

 Pilkington Brothers, Ltd.
 24

 Pritchard, Wood & Partners, Ltd.

 Pittsburgh Corning Corp.
 54

 Ketchum, MacLeod & Grove, Inc.

 Pittsburgh Plate Glass Co.
 42, 43

 Ketchum, MacLeod & Grove, Inc.

 Portland Cement Association
 138, 139

 J. Walter Thompson Company

Inc.

 Sargent & Company
 20

 Hepler & Gibney, Inc.
 20

 Sargent & Greenleaf, Inc.
 12

 Wolff Associates, Inc.
 12

 Woly Associates, Inc.

 Sloan Valve Company
 4

 Reincke, Meyer & Finn, Inc.

 Smith & Co., Inc., Elwin G.
 21

 Dan W. Frye

 Standard Dry Wall Products, Inc.
 153

 Owens & Clark
 5

 Owens & Clark

 Steelcase, Inc.
 6

 Aves Advertising, Inc.
 6

 Steelcraft Mfg. Co.
 167

 John L. Magro Advertising, Inc.
 174

 Aves Advertising, Inc.
 174

 Stow & Davis Furniture Co.
 174

 Aves Advertising, Inc.
 174

 Structural Laminates
 20 W-1

 David W. Evans & Associates
 20 W-1

 Taylor Co., The Halsey W.
 63

 The Advertising Agency of William Cohen

 Thiokol Chemical Corp.
 57

 Hicks & Greist, Incorporated

Westinghouse Electric Corporation 144, 164, 165 Ketchum, MacLeod & Grove, Inc.

Yale & Towne Mfg. Co. 64 Fuller & Smith & Ross, Inc.

Zero Weather Stripping Co., Inc. 155 Harold Marshall Advertising Co., Inc.

Italic line indicates advertising agency



... UNTIL ALL SYSTEMS ARE "GO"

As in a Mercury capsule launching, the countdown in building construction does not end until all systems are "go." And "go" for the building material or equipment manufacturer means his product has been agreed upon by a building's three major participants—the architect/engineer, contractor/subcontractor and the client/owner.

That's why Architectural FORUM is an important vehicle for your advertising—it's the only magazine in the field edited to the interests of all three participants, providing authoritative, every-issue coverage of the art of architecture, the technology of construction, the economics of building. Indeed, FORUM interests 63,000 of these participants* each month-the largest assemblage anywhere of men with building on their minds.

What better location is there to launch your product simultaneously in the minds of all three?

*Forum's subscribers include the busiest firms in the building industry. For example, all of the 100 biggest architects, who account for 19% of the dollar volume of all U.S. building construction are Forum readers, so are 91 of the 100 biggest contractors, who do 21% of all building construction volume, and 90 of the 100 biggest corporate clients, who pay for 11% of all commercial and industrial buildings. For a research report on *The Building Construction Market-How it's concentrated and covered*..., write Architectural FORUM, Room 19-39, Time and Life Building, New York 20, N. Y.

FORUM: essentially different-for readers...and for advertisers

PRODUCTS

FIAT TOILET ENCLOSURES FIRST IN FEATURES/PERFORMANCE/DELIVERY

• Quality of product and design backed by 40 years of manufacturing experience and experimentation.

• Years ahead engineering results in greater durability, lower maintenance costs and easier installation.

• Only FIAT offers you the advantage of 5 factories strategically located to save on shipping and expedite delivery.



NOT FOR SALE

The easy way to publish a magazine is to print articles contributed by manufacturers and trade associations—and many magazines do. Mostly technical in nature, these articles are often quite informative, for who should know more about brick, for example, than the brick industry? There are other advantages to publishing these contributed articles: for one, they provide a handy escape hatch for editors who want to duck responsibility for what is printed in the magazine.

FORUM prefers to do it the hard way. All of its editorial material is staff written, except for an occasional article assigned to an independent technical expert or professional free-lance writer—and paid for. The editors select their subjects on the basis of timeliness, significance to the industry, and their judgement of reader interest—not on the basis of what comes in through the transom. They believe that information independently and objectively reported gains the trust of their readers, and although the editors are pleased to share this trust with advertisers, they will not sell it to anyone. —From Publisher's Note: FORUM, June, 1962

FORUM: essentially different-for readers...and for advertisers

which is slightly recessed from the panel faces. The tape goes on next, over the seam, and the topping compound follows, lightly sanded to a flush surface. Finally, the whole wall is painted. When the time comes to move the wall, all parts can be salvaged except for the tape, which zips off with a quick pull of the tab at the bottom of the joint.

CLASSROOM CHAIR

Brunswick is introducing a new version of its stacking school chair made of a plastic alloy called Lifetime Dytron. The frame under the seat is welded steel, and the legs are fitted with neoprene bumpers and chrome glides. Dave Chapman, Goldsmith & Yamasaki designed the chair and picked the colors: bone white, willow green, charcoal blue, sunset red, seaspray green, buttermilk yellow, and brick red.

Dytron chairs come in eight seat heights, from 11 to 18 inches (to fit students from kindergarten to college). They cost \$9.95 each. *Manufacturer:* Brunswick Corp., 2005 E. Killer B. J. K. 1

2605 E. Kilgore Rd., Kalamazoo, Mich.



Kwik-Zip is offered in thicknesses of $\frac{1}{2}$ - and $\frac{5}{6}$ -inch gypsum. A wall of the thicker boards has a one-hour fire rating and a sound-transmission loss of 39 decibels in the 125 to 4,000 cycle range.

Manufacturer: Movable Partitions Division, Penn Metal Co., Inc., P.O. Box 1468, Parkersburg, W. Va.



OUTDOOR WASTEBASKET

The Architectural Pottery people in Los Angeles, who have been making handsome plant containers for many years, have turned their attention to the outdoor trash basket. The one at left is the smaller of two models designed by William Paul Taylor and made of glass fiber. They are available in warm gray, sand brown, gray-green, blue-gray, two whites, and a series of "high fashion" colors. Prospective litterbugs should be mesmerized by trash baskets in magnetic shades of yellow, orange, pink, teal blue, and purple.

The model shown is 3 feet 2 inches tall and empties from the top. The other one, which is 4 inches taller and a bit bigger around the base, has a hinged bottom flange for bolting to the ground. The whole thing tips backward to remove the waste bag inside. Net cost for each is \$85, f.o.b. California.

Manufacturer: Architectural Fiberglass Division, Architectural Pottery, 2020 S. Robertson Blvd., Los Angeles 34.