# THE MAGAZINE OF BUILDING

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# architectural forum



# Bright new school them

FUNCTIONAL COLOR Suntile



Architect James A. Britton, A.I.A. Associate Harvey H. Hathewa

### Architect James A. Britton rep

"In Suntile we have found the ansy a recurring school design problem: h provide an interior finish that con desirable color and texture with durand easy mainter

"Suntile's well-related colors m possible for us to use one shade wainscot height and another al both for better light refl and added interest in corrido other heavy-duty

"We feel that it's a sound invest The school children a public are enthusiasti we've already been asked to continue t of Suntile in our other school v

Suntile Corridor, Highland Elementary School, Westfield, Massachusetts

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THE ENTIRE CONSTRUCTION FIELD

# architectural forum

MAY 1953

#### Published by TIME Incorporated

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THE MAGAZINE OF BUILDING

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NEWS	37
EVENTS	52
LETTERS	54
CRITICISM VS. STATESMANSHIP IN ARCHITECTURE FORUM states its position in the wild controversy about the styles of contemporary architecture—an editorial.	97
FRANK LLOYD WRIGHT'S PRAIRIE SKYSCRAPER A modification of his tower project for Manhattan's St. Mark's In-The-Bouwerie site, it will go up in Bartlesville, Okla. as an office headquarters for H. C. Price Co.	98
FRANK LLOYD WRIGHT'S LEXICON Architect-author defines the nine most important words in the language of organic architecture.	104
BUCKMINSTER FULLER GETS A CLIENT For the Ford Motor Co. he uses an aluminum space frame to cut the weight of a 100' dome from 160 tons to 81/2 tons.	106
NEWS A review of developments in government and industry which affect the course of nonresidential building.	110
LIGHT-METER SCHOOL Ingenious use of natural lighting helps Architect Ralph Burk- hard design a highly flexible building to meet the changing educational requirements of Seattle.	112
NEW THINKING ON HOSPITALS Bristol Memorial Hospital in Bristol, Tenn./Va. by Architect A. L. Aydelott.	120
Marshall Shaffer—teacher-at-large of hospital architecture.	120
Columbus Health & Safety Center in Columbus, Ohio by Architect Dan A. Carmichael.	126
Beverly Hills Clinic in Los Angeles by Architects Pereira & Luckman.	120
Kings Highway Diagnostic Center in Brooklyn by William Gehron, architect.	120
The all-out community health plant—a far-reaching proposal by Architect Joseph M. Neufeld with comment by leading medical authorities and illustrative projects by John Sheoris	130
and E. J. Schiffer.	132
<ol> <li>For Contractors H. F. Campbell Construction Co. in Detroit by Albano &amp; Olencki, architects.</li> </ol>	138
<ol> <li>For Engineers Howard &amp; Johnson in Houston by Arne G. Engberg, architect.</li> </ol>	140
<ol> <li>For Architects Eero Saarinen &amp; Associates in Bloomfield Hills, Mich. by Eero Saarinen &amp; Associates, architects.</li> </ol>	142
COVERED STADIUM	146
In Dortmund, Germany a cantilevered roof is stabilized by tension rods to free a 20,000-seat arena from interior supports. Architect: Walter Hoeltje.	
HILLSIDE RESTAURANT	148
Canlis' Charcoal Broiler Restaurant in Seattle is based on a highly successful Hawaiian prototype and designed around a splendid view. Architects: Tucker, Shields & Terry; Wim- berly & Cook.	

BUILDING ENGINEERING 150 Cardboard forms for concrete floors. . . . Aluminum frames for wide-span jet plane hangars. . . . Low-cost prefabricated parts for a high-intensity luminous ceiling. . . . Plus brief notes on other new engineering developments. PRODUCT NEWS 156

BOOK REVIEWS	192
TECHNICAL PUBLICATIONS	220

Cover: Office building by Frank Lloyd Wright, for H. C. Price Co. in Bartlesville, Okla.

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### ACOUSTICAL MATERIALS AT WORK

Throughout this house, sound-absorbing ceilings are r to muffle any noise that might bounce off the many glass partitions.

### MODEL HOME, Los Angeles, California

### Architect:

Thornton M. Abell

General Contractor: K. E. Griffin Construction Co.

Acoustical Contractor: R. W. Downer Company

New concepts in home design often call for the use of new building materials.

In this model home, for example, sound conditioning contributed importantly to the effectiveness of the open plan. Noise which might otherwise roam unchecked through the wide doorways and reflect off the floor-toceiling glass surfaces is absorbed by the ceiling of Armstrong's Skip-Random Cushiontone. The absence of carpeting or other sound-absorbing materials made the use of this ceiling even more important.

A new acoustical tile-Armstrong's Skip-Random Cushiontone-was the architect's choice for the job.

Like the well-known regular Cushiontone, Skip-Random is an economical, perforated wood fiber material. The major difference is in the perforations. Skip-Random Cushiontone has various sized holes, drilled within a random pattern. This design with its narrow bevels gives a ceiling an unusually attractive, "continuous" appearance . . . subdues the tile effect.

And like regular Cushiontone, the Skip-Random tile is quickly installed, easy to maintain. Its white painted surface is both washable and repaintable, has high light reflectivity.

Armstrong's complete line of acoustical materials offers a wide range of special features. Your Armstrong Acoustical Contractor will be glad to give you expert assistance without obligation. For his name and address and for the free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4205 Rooney Street, Lancaster, Pennsylvania.



Acoustical treatment in the kitchen helps to contain noise of kitchen activities and the clatter of utensils.





Acoustical ceilings add immeasurably to the pleasure afforded by open planning.



Halls, along with every room in this house, were treated with Skip-Random Cushiontone. Construction was simplified by the elimination of plastering.



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Many factors account for the center's booming business. It's within easy reach of 500,000 shoppers. Nearly every type of retail outlet is represented. Design is functional—and pleasant.

And most of the stores are equipped with Honeywell Customized Temperature Control-to help provide ideal customer comfort, good employee morale and economical use of fuel.

Individual stores chose the controls that best fit their needs

- and budget. A wide variety of controls was available to choose from because Honeywell manufactures all three types of temperature controls – pneumatic, electric and electronic. And *only* Honeywell makes all three.

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More details of the installations are given in the picture captions on your right.





Most of the smaller shops above have individual Honeywell thermostats. By adjusting these individual thermostats, store managers can provide the temperature employees and customers find most comfortable. Smokestack identifies project's central steam plant — controlled for most economical operation by Honeywell boiler room controls.

**One or more thermostats** on each floor of the larger stores below provides zoned comfort. Thus, in winter the first floor thermostat calls for heat required to compensate for cold air entering doorways, keeps first floor at same *comfort* level as other floors. Thermostats on other floors compensate for different occupancy, exposure and use problems found there.





Evergreen Plaza center was created by Arthur Rubloff, Arthur Rubloff & Co., Chicago; Howard T. Fisher & Associates, Inc., Architects & Engineers; Holabird & Root & Burgee, Architect-Engineer; George A. Fuller Company, Builders.

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For full facts on Honeywell Customized Temperature Control, call your local Honeywell Office. There are 104 across the nation. Or mail the coupon today.

**Willard A. Brown**, Rubloff's project managing director says: "We have a great many different temperature control problems here at Evergreen Plaza. Honeywell handles them all extremely well. Fuel consumption is low, too."



MINNEAPOLIS irst in Controls

MINNEAPOLIS-HONEYWELL REGULATOR CO. Dept. MB-5-122, Minneapolis 8, Minnesota Gentlemen: I'm interested in learning more about Honeywell Customized Temperature Control. Name ... Firm Name\_\_\_\_\_ Address\_\_\_\_\_ City\_\_\_\_\_ Zone\_\_\_\_ State\_\_\_\_\_

# This ceiling was INSULATED, FIREPROOFED and SOUND-CONDITIONED with a SPRAY GUN !

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## NEWS

## House kills but Senate restores public housing; PBS funds cut

Once again, the House and Senate were battling over public housing. Ever since the Housing Act of 1949 set up 135,000 public housing units a year, there has been an annual squabble over the number of starts to be permitted. Three times, in an appropriation bill, the House has slashed the program to a fraction of what the administration wanted only to have the Senate pump the life back into it. Each time, a conference committee has compromised after a wrangle.

This year, the House went further. Encouraged by the new administration's indifference, it eliminated new starts altogether, put the program for fiscal 1954 in what Republican leaders called "a state of suspense" until the Ikemen could decide what to do with it.

**Reversal by Senate.** Undismayed, the Senate appropriations committee this month restored the 35,000 starts recommended by HHFA Administrator Cole and okayed by Eisenhower's budgeteers. The Senate was expected to go along, thus setting the stage for another conference hassel. This time, however, House leaders were cockier than usual in their predictions of the outcome. "We are not going to budge an inch," said one powerful GOP legislator.

To shed more light on another public housing snafu, the House committee on government operations was planning a public hearing on the frustrations encountered by Los Angeles in its attempts to end a contract for the 10,000 unit project it does not want. In committee hands were reports that PHA had flouted the advice of its own fieldmen by continuing to spend federal funds to plan the \$110 million project after Los Angeles voters balloted overwhelmingly to junk it.

The House adopted an amendment to ease the plight of Los Angeles, which now must repay the US \$20 million to wriggle out of public housing. It would exempt cities from repaying federal advances made after a vote to call off the deal. But the Senate revised this to call for a 180-day shutdown on any public housing project which a city wants to cancel. If the city and PHA can agree in that time on the amount of federal advances to be repaid, the project would stay canceled; if not, it would proceed.

**HHFA research axed.** Two building programs seemed sure to be killed by economybent legislators. Ikemen budgeted \$800,000 for HHFA research. The House killed the entire amount. The Senate appropriations committee considered but finally rejected HHFAdministrator Cole's plea for a partial reprieve. On the Senate floor, Sen. Joseph McCarthy (R, Wis.) was defeated 61-19 in an effort to restore a \$600,000 research appropriation. But Sen. Burnet Maybank (D, S. C.) won voice approval of a \$125,000 fund to give housing research a "decent burial." If retained by the conference committee, this might give HHFA enough money to publish data from projects underway.

Public buildings hit. The Congressional scalpel cut deep into the budget of W. E. Reynolds' Public Buildings Service. The upshot appeared to be an impending 30% reduction in what Uncle Sam can spend for office space. This year, PBS had \$40.6 million for rental, operation, maintenance and repair of 140 million sq. ft. of floor space in 5,000 buildings across the nation (4,100 of them post offices). For next fiscal vear, PBS asked \$39.7 million, but the House and Senate committee sliced it to \$32 million. The House voted to telescope funds on a basis to enforce a one-third cutback: \$10 million during the first quarter, \$8 million in the second quarter and \$7 million each in the third and fourth quarters.

Congress struck even harder at designing by federal architects, prompting AIA to report gleefully: "The architect may at last be winning his battle with the bureaucrats." For PBS' buildings design and supervision, the House and Senate committee slashed funds from a requested \$260,000 to \$118,630, and tacked on language disallowing use of funds "for those duties . . . which are normally performed by an architect who assumes such services in his regular commission." For PBS, that meant another cut on top of the 68% staff reduction imposed by the Budget Bureau by recapturing \$13 million already appropriated for advance planning (FORUM, April '53, News). It would leave PBS with 11 building design employees.

Other building programs generally took a shellacking in the House, but won partial restoration from the Senate appropriations committee. The Public Housing Administration, for instance, was alloted \$9.6 million for administration by the Budget Bureau. The House sliced it to \$4.9 million, but the Senate committee hiked it to \$9 million. The House cut FHA's headquarters funds to \$5,045,000. The Senate upped this to \$5.6 million.

For slum clearance and urban redevelopment, the Senate killed a House provision that would have stopped one third of the projects in the processing mill: local communities would have been barred from counting schools and parks as their onethird contribution toward the write-down on land acquired for redevelopment.

New military cutbacks. The high command decision to hold the Air Force to 120 wings instead of 143 began to be translated into major reductions in planned construction. At mid-month, the Air Force canceled plans for \$156 million worth of building at 14 bases because of "new budgetary and personnel limitations." Biggest cancellation: a \$46 million base for B-47 jet bombers at Portsmouth, N. H. The others:

Clinton-Sherman Air Base, Clinton, Okla., \$13,500,000;
Drane Field, Lakeland, Fla., \$19,000,000; Galveston, Tex.,
Municipal Airport, \$6,200,000; Godman, Ky., Air Force Base,
\$1,100,000; Raleigh-Durham, N. C., Municipal Airport, \$19,-000,000; Seymour-Johnson Field, Goldsboro, N. C., \$9,700,000.
Houma, La., Naval Air Station, \$3,900,000; Majors Field,
Greenville, Tex., \$23,000; Palmdale-Los Angeles County
Airport, \$380,000; Charlotte County Airport, \$9,200,000;
Fla., \$3,600,000; Myrle Beach, S. C., Airport, \$9,200,000;
Selman Field, Monroe, La., \$23,700,000, and Grenier Air
Force Base at Manchester, N. H., no figure given.

### Public housers find new administration cool, hear call for 'homes instead of projects'

With public housing hanging on the ropes, the National Housing Conference, public housing's chief lobby group, met this month in an atmosphere of deepening worry. Warned Rep. Richard Bolling (D, Mo.), a public housing supporter: "I suspect this program is facing its total and final death next year unless the attitude of the administration and the people is drastically changed." Said NHC Executive Vice Pres. Lee F. Johnson: "We've been swimming hard against the current."

The 600 delegates to the May 10-11 ses-

sions in Washington's Hotel Statler got little encouragement for public housing's future from the administration. Last year, President Truman made a personal appearance at NHC's annual banquet to thump for construction of 75,000 units a year. This month, President Eisenhower sent the conference a message so cool that its leaders conceded privately it was no help at all in their struggle to save public housing from the Congressional economy drive. Said the President: "You are well-equipped to assist in the important task of improving the



**NEW PRESIDENT** of the National Housing Conference is Ira Robbins (r), executive vice president of New York's Citizens Housing and Planning Council. He succeeded Olin Linn of New Orleans. Other conference speakers included: (front row) Lee Johnson, Architect Henry Churchill, AFL Researcher Boris Shishkin and (rear row) NAHO Executive Director John Lange and Builder Wallace Johnson of Memphis, who told how Memphis builders erect \$35 a month units.

housing standards of American families ... Americans of all parties have now accepted as a moral obligation the important task of progressively improving our housing standards and of providing decent housing for those now compelled to live in slums ....."

**Too slow, too costly?** HHFAdministrator Albert M. Cole donned a pair of tortoise shell spectacles and read the conference a speech in which he argued: "Any fairminded observer would conclude we need and must develop better means of—clearing slums, redeveloping urban areas, providing low rent housing." To a question Cole replied: "If we follow the program we now have it will not be acceptable to Congress in sufficient quantity to do the job" of rebuilding slums for 150 years.

Cole also hinted at changes that may be in store for HHFA's urban redevelopment program\*. He announced that HHFA is going to tighten enforcement of the law requiring rehousing of slum dwellers displaced by urban redevelopment. Said he: "When racial minority group families are being displaced, as seems to be the case in the great majority of Title I proposals before us now, it . . . too often means that the rehousing itself produces new overcrowding and new areas of blight contrary to the intent [of Congress]." Therefore, said Cole, HHFA will demand that local agencies offer "really persuasive evidence" that families displaced by urban redevelopment projects are being rehoused in decent accommodations. "We shall question closely anything beyond most limited dependence on the 'existing' housing supply as a relocation source," he warned.

If Cole meant business, the new policy could slow down or even block many a pending redevelopment project. To avert a slowdown would require more new housing, both public and private, for displaced Negro minorities. There seemed little immediate prospect it would be built.

Homes, not projects. If public housing was losing popular support, what was the reason? One answer came from Architect Henry S. Churchill of New York: "There has been no new thinking, no acceptance of new ideas, no revision of approaches or concepts in the housing movement since 1937." Instead of projects, public housing should be individual homes "that could be accepted as part of the normal city pattern. Projects, in all their hideous conspicuousness, are a prime reason for the contempt in which the housing program is held. It is not that the buildings themselves are any worse architecturally than the stuff around them, but that they stand out from their surroundings like two sore thumbs on a pianist. It is not because they are ugly and dull that arouses animosity. We are quite blind to the squalor and ugliness of our cities, but 'projects' are different. They thus call attention to themselves, and anything that is different is almost certain to be un-American and hateful."

**Rehabilitation favored.** Besides Rep. Bolling, the conference heard from seven other legislators friendly to public housing. including Senate Majority Leader Taft who reaffirmed his support of public housing, but added that housing was still primarily a state and local matter and that the federal government should step in only when it was needed. The conference adopted 21 resolutions which: Urged a "special program of mortgage insurance" to speed urban redevelopment.

▶ Asked Congress to create a "national mortgage corporation" in HHFA for co-ops and nonprofit corporations to boost middle-income housing; urged more administrative push behind FHA's cooperative Sec. 213 including "more realistic mortgage ceilings" and advance Fanny May takeouts.

Endorsed proposed laws to require a warranty from builders of VA and FHA housing.

#### Pentagon reorganization would end installation director's job

Reorganization Plan No. 6, which President Eisenhower sent to Congress April 30, would strengthen civilian control of military construction. It would abolish post of the director of installations (along with the Munitions Board, Defense Supply Agency and Research and Development Board). But it would create a new assistant defense secretary (one of six) for properties and installations. If neither house vetoes the plan, it will become effective June 30.

While the new assistant secretary for construction would not be in the chain of command, he would have far more authority in the Pentagon hierarchy than the present installations director, Frank Creedon, whose role is both advisory and subordinate.

Conceivably, Creedon might be named as construction assistant secretary. When he first took office, Secretary Wilson asked Creedon to stay on. But since then, Deputy Secretary Roger Kyes has said only half a dozen of the Pentagon's top men held over from the Truman administration measure up to their big responsibilities.

Most construction men think Creedon and his staff of 25 have done a capable job. For the first time in Defense Department history, he has assembled a comprehensive picture of armed forces building. He drew up uniform standards for barracks, mess halls, BOQ's and warehouses. At least some of them were approved by former Defense Secretary Lovett before he left office. But they have never been promulgated, apparently because of Air Force objections that Creedon's economy standards for plumbing would prevent construction of airmen's dormitories with individual toilets.

Nobody thought Congress would block the reorganization. But Sen. Russell Long (D, La.) expressed concern over reshuffling the directorate of installations. Said he: "The military brass fought to prevent this office from being established and has since sought to abolish it because it has been effecting savings of vast millions." Under Creedon, said Long, the Pentagon "for once established civilian control over the waste of public funds in the construction of military installations . . . and put an end to the cost-be-damned attitude of the services."

MAGAZINE OF BUILDU

<sup>\*</sup> Reported Redevelopment Chief Nathaniel S. Keith: in three years, redevelopment has spawned 28 projects which are actually underway. They involve 1,000 acres of slums in 17 communities, 25,000 housing units of which 90% are too rundown to invite rehabilitation. Between \$300 and \$400 million will be invested in rebuilding, about \$200 million of it in public housing. In final planning stages are another 100 projects in 70 localities. These involve 4,000 slum acres and 50,000 substandard housing units.

<sup>▶</sup> Called for a "major new program" of federal aid for urban rehabilitation and neighborhood conservation including federal technical aid and "insurance of home repair and modernization loans on special terms."

## NEWS

## Third UNESCO plan calls for Y-shaped office building, butterfly-roofed conference hall

Paris, which is as rigid about its architecture as Queen Mary was about hats, turned thumbs down on the sandwich which UNESCO last year proposed for its new headquarters building. Verdict on the 16story concrete - and - glass slab which UNESCO wanted to erect at the edge of the Bois de Boulogne: "A bottle-rack standing on end;" "Notre-Dame of the radiators."

This month, UNESCO revealed its latest idea for headquarters: a curve-sided Y (see sketch, below), to be built at the Place de Fontenoy behind the classic 300-year-old Ecole Militaire. Estimated cost: \$5,856,904.

**Problems in harmony.** An architect in Paris faces only two main restrictions: one (written) that the height not exceed the width of the street, which confines most buildings to seven stories; the other (unwritten) that anything new must harmonize with old surrounding structures. But in matching deeds to precept, the trouble begins. Not the least of the architect's worries is the fact that Paris itself is a jumble of styles, from the monumental Gothic of Notre-Dame to the gingerbread horror of the Grand Palais and the pseudo-Byzantine of Sacre Coeur.

In the Place de Fontenoy, Architects Marcel Breuer (US) and Bernard Zehrfuss (France) and Engineer Pier Luigi Nervi (Italy) faced a typical hodgepodge. On one side are the low, softly weathered yellowish-gray stone buildings of Jacques-Ange Gabriel's Ecole Militaire; on the other are recently built stone blockhouses in which are located the Ministries of Labor and Merchant Marine. Making things worse was an irregular plot of ground to work on, one corner nipped off by the curving sidewalk of Place de Fontenoy.

**Past vs. future.** Breuer, Zehrfuss and Nervi doodled for weeks, trying various shapes. A consulting panel of five internationally known architects (Le Corbusier, Gropius, Costa, Markelius, and Rogers) similarly doodled. Said Zehrfuss, announcing agreement on the Y-shaped structure: "We profited from form to harmonize (the proposed structure) with the Ecole Militaire and the nearby ministries. . . . We wanted to respect the past, but also announce the future."

Respecting the past was taken care of largely by curving one facade of the threebranched structure to match the semicircle of Place de Fontenoy itself, and keeping the building low enough so that from the foot of the Eiffel Tower, the domed, symetrical outline of Gabriel's architecture stands cleanly against the sky without the UNESCO building rising up behind it. In announcing the future, modernists Breuer, Zehrfuss and Nervi did more. With wide, sweeping horizontal lines despite its sevenstory bulk, it sits up on pillars which give additional lightness to the building, as well as allowing the landscaping to appear to "flow" from one side of the structure to the other. On top will be a tree-studded roof garden, and under the end of one branch of the Y, a mosaic-tiled reflecting pool.

No air conditioning. Ceiling-to-floor glass windows will give plenty of light from Paris skies that are (travel folders to the contrary) often grey and rainy, and on the east and southwest facades will be sun filters—panels of tinted glass hanging from projecting supports to cut the sun's glare on hot days. Respecting Paris' disdain for air-conditioning and the fixed windows that go with it, windows will slide horizontally to let in the breeze.

Beside the Y-shaped building will be a butterfly-roofed conference building, for which Nervi designed copper-coated roof pieces, set in sawtooth fashion with a gently curving horizontal slab that both forms the ceiling and as a cantilever helps support the roof pieces.

The architects said the project could be completed by early 1956. Whether it even starts depends on the French and UNESCO member nations. The French have offered UNESCO a 99-year, rent-free lease on the Place de Fontenoy site, a 2,025,000,000 franc interest-free loan and 35,000,000

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				10000 000	9-33-533	
		April		1st 4 months		onths
			9%			9%
Type	*52	'53	Change	'52	*53	Change
		PR	IVATE			
Residential						
(nonfarm)	849	887	+4.5	3,043	3,305	+-8.6
ndustrial	194	192	-1.0	814	780	-4.2
Commercial	73	113	+54.8	305	448	+46.9
*Total	1,690	1,801	+6.6	6,287	6,723	+6.9
		PL	UBLIC			
ndustrial	138	138		432	475	+10.0
Ailitary	109	114	+4.6	385	421	+9.4
Residential	54	48	-11.1	230	184	-20.0
*TOTAL CRAND	826	837	+1.3	2,823	2,908	+3.0
TOTAL	2,516	2,638	+4.8	9,110	9,631	+5.7
Minor com	ponents	not sl	iown, so	total	exceeds	sum of
oarts, Data	from D	epartme	ents of (	ommer	ce and	Labor.
CONSTRUC	TION	EXP	ENDITU	RES	for p	orivate
and publi	c con	struct	ion th	rough	Apri	I con-
tinued to	exce	ed 195	52 leve	Is. P	rivate	com-
mercial co	nstru	ction	ran 54.8	3% ah	ead o	f April

francs to reimburse UNESCO for the last false start. At a press conference when the model of the latest project was first shown, a Quai d'Orsay spokesman said that while there was not yet official French government approval of the plans, he was "morally certain" it would be forthcoming. UNESCO claims that the Paris city and Seine Department officials, who torpedoed the last project, favor this one. Newspaper reaction so far was generally favorable.

'52 and 46.9% ahead of last year.

On July 1, UNESCO will hold a general conference to decide whether to build.

#### Rent control extended three months; few states plan to act

For the eleventh time since 1942, Congress voted to extend rent controls. As President Eisenhower signed last month's extension into law, the building industry had more hope than before that this was the last.

The new law extended rent controls left over from World War II for three months from their April 30 expiration—to July 31. It retained rent ceilings in critical defense areas through next April 30, but restricted critical areas to those caused by military or atomic activities—thus excluding communities swollen by a defense plant influx.

**Big cities out.** Of the nation's 5.6 million rental units still under some kind of control 4.3 million (77%) were in areas





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THE MAGAZINE OF BUILDING

## NEWS

where controls had remained for the full 11year life of rent ceilings. Involved were 1,133 communities with a total population of 34 million—21% of the nation. Among them were 31 cities of more than 100,000 population including Boston, Chicago, Philadelphia, Baltimore, Cleveland, St. Louis, San Francisco, Pittsburgh, Newark, Jersey City, Louisville, Minneapolis, St. Paul, Cincinnati, Memphis, Providence, Worcester, Mass. and Dayton, Ohio.

House in control. The 1953 rent law was a notable legislative success for chairman Jesse Wolcott of the House banking committee. It was his insistence that rebuffed administration suggestions that World War II controls be continued until Sept. 30. Its enactment virtually killed chances at this session for Sen. Homer Capehart's standby controls bill. The law also:

▶ Abolished the Office of Rent Stabilization on July 31, empowering the president to give some other federal agency control over



and recertified critical areas. (Named by Defense Mobilization Director Arthur S. Fleming as lame duck William G. Barr's successor heading ORS: Boston Realtor Glenwood J. Sherrard, former president of the

rents in resurveyed

SHERRARD

Parker House and the American Hotel Assn. He will serve without pay.)

▶ Lifted rent controls at once on units in critical areas built or converted after Feb. 1, 1947. Such "new construction," freed from controls by Congress in 1947, was blanketed under critical area controls last year—one of their most unpopular features.

Few state laws. New York extended its state rent control law another two years this spring. Elsewhere, only a few states or cities were considering local controls after July 31:

▶ Illinois rejected both state and local option laws, but at the request of Chicago municipal court judges it authorized state courts to grant 90-day eviction stays in hardship cases. The Chicago Real Estate Board begged owners not to increase rents more than 10% over present levels when decontrol becomes effective.

▶ Massachusetts and New Jersey were likely to adopt local option laws. New Jersey's state law might freeze locally controlled rents at present rates. Massachusetts would let local boards establish and revise their own rent ceilings.

Pennsylvania's legislature had two local option bills before it, but would probably kill both.
Missouri rejected one state control bill and two

to let St. Louis draft its own controls.

California had a law on the books authorizing city or county rent controls, but only San Francisco had any prosepct of passing them.

#### An eminent awards jury raps Washington's architecture

"It is difficult to comprehend how a thriving, progressive community, such as Washington, expresses itself so ineffectually in its physical embodiment."

So wrote a jury of celebrated architects, O'Neil Ford, Philip Will and Edward D. Stone, after judging the 152 entries in the Washington Board of Trade's biennial architectural awards competition this month. Only 12 rated certificates of merit, and only three of the winners escaped adverse comment. Said the jurors: "There is a timidness apparent which wavers between expression in the clothes of the past and those of the present. The result is a great mass of completed work that does neither... There is a vigor in the life of Washington which ... is not reflected in the structures it builds."

WYATT BUILDING was called "simplest of the multi-storied buildings reviewed but still lacking in dignity for so powerful a mass." The judges thought "more disciplined use of materials and less variety of architectural elements would have vastly improved the exterior." It was erected in 1952.



AT PRESENTATION: Director Hermann Williams Jr. of Corcoran Art Gallery, President E. D. Merrill of Board of Trade, Architect Clothiel Smith, District Engineer Commissioner L. W. Prentiss, Chairman Charles M. Goodman of the board's awards committee and Juror Ford.





KANN'S department store was termed "better than average with a degree of simplicity that improves on the clutter of shopping centers in general." Jurors said stone used to humanize the structure was "overdone." Of insignia, they said "commendable simplicity... but coarse in scale."





CONGRESS HOUSE got jury accolade as "re-

freshing departure from standard FHA

garden apartment prototypes that blot the

landscape across our land." Judges com-

mended balconies for adding to design and

living amenities, but thought vertical baffle walls should have interrupted balcony

railings.

SELF-REALIZATION Fellowship Church was praised as "fine and stimulating" despite "obviously low budget and an uninspiring site." Jury thought it "unobtrusively modern" with "temple-like serenity," but called wafer-thin brick walls of "unfortunate color and surface."









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A MODERN VERSION of old southern Louisiana plantation living was the aim of associate architects Freret & Wolf, Andry & Feitel, Ricciuti Stoffle & Associates in planning Tulane University dormitories. Wrought iron railings skirt 7' wide concrete balconies that will provide rain protection and shade, allow outdoor studying. The balconies also give access to all rooms, eliminating interior stairwells. HHFA approved a 100% loan of \$1,755,000, estimated sq. ft. costs at \$14.13.

## HHFA approves rash of direct loans to colleges just before interest rate hike

The government's low-interest loan program for college dormitories flared up like an expiring star.

As created by the 1950 Housing Act, the program offered 40-year loans to institutions directly aiding the defense program or located in critical defense areas at only  $\frac{1}{4}$ % higher interest than the going rate on longterm federal bonds. There was one proviso: private financing on comparable terms must be unavailable.

In 1951, HHFA (with the US Office of Education as adviser) approved only 16 loans in 1952 another 26. From January through March this year it approved 10 more—a grand total through March 31 of 52 loans totaling \$48.8 million.

Last month HHFA suddenly okayed 26 more loans amounting to \$17 million. On the last day of the month it complied with the law pegging the interest rate to government bonds by hiking the college loan rate from 3.01% to a still under-the-market 3.50%. Waiting in the wings were 32 more applications with preliminary approval and fund reservations covering loans that would total another \$30 million.

Defense limitations apparently were forgotten in the rash of approvals. This month their formal abolition was anticipated.

**Chills from Congress.** Congress, which had authorized \$40 million worth of loans in 1951 and \$60 million in 1952, was beginning to clamp down on college flats. The House appropriations committee slashed its budget from \$50 to \$21 million for the next fiscal year and to make matters worse said the \$21 million must include all loans disbursed since Dec. 31.

On the House floor the Dec. 31 rollback was rescinded, and in the Senate this month the full Eisenhower budget \$50 million appropriation for the coming fiscal year was restored. But the crisis was still in the offing. It would come in the conference committee sessions to reconcile House and Senate conflicts.

Architecturally, institutions were free to write their own ticket. Illinois Institute of Technology obtained a \$1,045,000 loan for a concrete, steel and glass structure designed by Mies van der Rohe. A few other institutions (see cut) also strove for good design, but most were accepting mediocrity.

#### Leases signed to begin big Philadelphia redevelopment

Construction of a Rockefeller Center on Philadelphia's old Chinese Wall site advanced from discussion stages to concrete deals this month. The Pennsylvania Railroad leased two of the three blocks being created in the heart of the city by demolition of its ancient Broad St. station and yards.

New York's Uris Brothers (Percy and Harold) took one block for a 20-story office building they asserted would contain approximately 400,000 sq. ft. of rentable area and cost about \$15 million (\$38 a sq. ft.). Plans called for a slab about 270' x 90' fronting on Market St. to be designed by Emery Roth & Sons. Later the Urises will erect a Pennsylvania Blvd. building, possibly a hotel, leaving a broad esplanade between (about 50% of the block).

Philadelphia *Inquirer* Publisher Walter H. Annenberg leased the other block for a bus terminal, parking and possibly an airline terminal.

Basically, the recommendations of Robert W. Dowling, realty advisor to the railroad (FORUM, Apr. '52), were followed. Exceptional feature of the redevelopment: it has no federal financial assistance.

## PEOPLE: Chermayeff and Isaacs get key Harvard design

#### posts; cement cracks Zeckendorf-Boettcher partnership

Harvard architecture students posted a pair of signs this month: "Graduate School of Bauhaus," and "Congrés International Admiration Mutuel." It was more than a gag. Architect José Luis Sert, president of the Congrés Internationaux d'Architecture Moderne who is to replace retiring Joseph Hudnut as dean of Harvard's famed architecture school this fall, picked key aides who gave it such a strong flavor of international modern design that most of last year's faculty was resigning.

Named chairman of the department of architecture was Serge Chermayeff, form-



CHERMAYEFF

er head of Chicago's Institute of Design and long-time supporter of the design theories of Bauhaus-founder Walter A. Gropius, who resigned as Harvard's architecture chairman a year ago. **Reginald** Isaacs, planning director for Michael

Reese Hospital in Chicago, was appointed Charles Dyer Norton professor of regional planning. He was expected to become chairman of a new combined department of town and landscape planning.

Chermaveff was born in Russia in 1900, studied at Harow, Cambridge and on the continent, later became a Fellow of the Royal Institute of British Architects. He came to the US in 1942, became a citizen in 1946. He headed the Chicago Institute of Design from 1946-51, is now a visiting lecturer and critic at MIT. When he assumes office, Prof. Walter Bogner is expected to be the only one of six principals remaining in the department of architecture. Asst. Prof. William Welles Lyman Jr. is joining Smith, Hinchman & Grylls as chief designer; Asst. Prof. Charles Burchard (no relation to MIT Humanities Dean John Ely Burchard) is joining a Cincinnati firm; Asst. Prof. George Tyrell Le-Boutillier is going to Ohio University and Associate Prof. Hugh A. Stubbins is resigning. Asst. Prof. Jean Paul Carlhian has indicated he will be back this fall, but some sources predict he will not.

Isaacs, 41, was born in Winnipeg, obtained his bachelor of architecture degree from Minnesota University in 1935, his master's under Gropius in 1939. He has worked for HHFA, the old USHA, and the Chicago and Syracuse planning commissions. He will have no problem sweeping away in-(continued on p. 46)

## Typical applications of Pittsburgh Glass in recent



79 SOLEX-TWINDOW units make up this patio wall of the Neiman-Marcus Preston Center Store at Dallas, Texas. The result is a pleasant shopping environment, the best possible display of the merchandise, protection to fabrics and other materials against excessive fading and bleaching by intense sunlight. The inset shows a detail of one of the entrances in which Herculite Doors are utilized. Other Pittsburgh Glass products used here include Polished Plate Glass, Mirrors, and Heavy Rough Plate for the interior stair railing. Architects: De Witt and Swank, Dallas, Texas; Interior Designer: Eleanor LeMaire, New York City.



### onstruction





THIS INTERESTING entrance at the Schmidt Provision Company, Toledo, Ohio, is completely walled with Pittsburgh Plate Glass (approximately 20 ft. wide and 20 ft. high running from the floor to the ceiling). It is set in Pittco De Luxe Sash No. 12 C and divided with horizontal and vertical mullions of No. 24 CTC. The doorway itself is a standard Pittsburgh Doorway, Style No. 16. Architect: Karl B. Hoke, Toledo, Ohio.



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## NEWS

cumbents either. Planner William L. Wheaton is joining Pennsylvania University. Planner Coleman Woodbury is r signing, but will not join the Littauer grauate school of public administration Harvard as reported earlier. Asst. Pro Lester A. Collins resigned in January a landscape architecture department chai man. Remaining: Associate Profs. Walte L. Chambers and Norman T. Newton.

Cement caused Denver financier Claud K. Boettcher to end his partnership la month with William Zeckendorf. Boe tcher's Ideal Cement Co. is the nation third largest. Learning that the first of complex of downtown Denver building planned by the partnership would have steel frame, Boettcher requested withdraw al of his name from the Boettcher Cente sold his 50% interest to Zeckendorf "as matter of principle [because of] my es tensive interests in the cement industry an my own belief in the superiority of the type of construction. . . ." New York George A. Fuller Co. became Zeckendorff new Denver partner both as contractor an co-venturer.

John L. Haynes, Commerce Department construction division chief and former heat of the building materials divisions of the War Production Board and NPA, was appointed managing director of the Producers Council. He will succeed Charle M. Mortensen, who resigned to become associate manager of the US Chamber of Commerce trade association department.

HONORED: Charles B. Spencer, awarded the Egleston Medal of the Columbia University engineering school for his contri



butions to construct tion in developin deep foundation and underpinning methods his service as foundation consultant in th White House rehabilitation, his former lead ership of the Mole and the General Contractors Assn.; Lo

SPENCER

Angeles Architects **Ralph C. Flewelling** and **Walter L. Moody**, by State Depart ment display of their modern California school designs in its America 1953 exhibit tion in Europe beginning last month **Le Courbusier**, by election as an honorary associate of the National Institute of Arts and Letters (US).

NAMED: Lt. Gen. Lewis A. Pick (retired) former chief of Army engineers, as vice chairman of Georgia Pacific Plywood with (continued on p. 48)

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### NEWS

headquarters in Olympia, Wash.; Me Gen. Hugh J. Casey (retired), prima designer of the Pentagon, chief engineer general headquarters in Pacific areas ar the Far East Command in World War I as chairman of the five-man New York Ci



Transit Authority a signed to solve Ne York's subway defice mess; L. W. Clark sales vice president the Philip Carey Ma ufacturing Co., as exe utive committee ar board chairman of the Asphalt Roofing I dustry Bureau, associ

CLARKE

tion of 25 roofing product manufacturers Vice President Ford Kurtz as president of J. G. White Engineering Corp. succeeding the late Gano Dunn; Architect Wallac K. Harrison, as chairman of a committe to administer a five-year international a exchange program including architectur exhibits financed by a \$625,000 grant from the Rockefeller Brothers Fund.

**DIED:** Charles William Gompertz, 84 former president of the San Francisco Builders Exchange and War Industrie Board member in World War I, May 7 i Oakland, Calif.; Henry W. Merrill, 62, director of NAREB and former president of the Society of Industrial Realtors, May in a fire in his home in Boston; former U Sen. Robert F. Wagner, 75, author of th first federal housing legislation and th National Labor Relations Act, May 4 i



New York City; Alber Lundy Baker, 55 board chairman of Vir ro Corp. of America atomic plant desig and engineering spe cialists, and general manager in charge of Oak Ridge, Tenn. con struction for the Keller Corp. during Work

War II, May 4 in Summit, N. J. after heart attack.

Chicago real estate pages often chronicle the doings of Sudler & Co., whose partner brothers Louis C. and Carroll H. Sudle collect more than \$10 million a year in rents managing skyscrapers. Versatile Louis often makes copy for music critic too. Last month he gave a recital in Or chestra Hall acclaimed by Felix Borowsk in the Sun-Times: "Louis Sudler should be heard more often. Not many of his col leagues can show finer vocal equipment and fewer are able to cause a song program to be as artistically cogent and attractive to (continued on p. 50)



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## NEWS

the ear." Baritone Louis, who is presiden of Chicago's Civic Music Assn., will appea with the Cincinnati Symphony next Decem ber. Last fall he sang with the Kansas City Symphony one night, and next noon gave a market speech before the Kansas City Real Estate Board. He sang twice for the Republican National Convention last July

#### Steel, masonry prices rise, but building costs dip a little

Steel mills were producing at more than 100% of capacity early this month, bu neither high output nor price boosts rang ing from about \$4 to \$7 a ton failed to dampen heavy demand. Producers pre dicted supplies would remain tight through the year's third quarter. Various reasons were offered: defense production was finally in full stride and siphoning off huge quantities; the automobile industry was consuming mightily; all steel users were ordering heavily to beat more extensive price increases expected a little later. Cried one Chicago manufacturer: "Steel is harder to get right now than it ever was during CMP."

So far the steel industry had avoided in creases in base prices, except for rails. Instead it made substantial hikes in "extra" charges for special processing, which average about 25% of all prices. Among affected items: structural shapes. Steelworkers were negotiating for another wage increase beginning July 1, and the industry would prefer to postpone setting higher base prices until it had reached a wage settlement.

Mason's supplies were the main source of the increase in the April BLS wholesale materials prices index (see chart).

Sharper competition more than off.et increase in materials and labor costs. For April the building cost index of Smith, Hinchman & Grylls, Inc. declined from 276 to 274, about 0.3%. Engineering News-Record reported its May construction cost and building cost indices eased 0.08 and 0.04% below their April peaks.



MATERIALS PRICES continued upward March to April 15, mostly because of increases for cement and masons' supplies. The mid-April average of 119.8 was 0.6 points above March, and 1.6 points above the average of 118.2 for all of 1952. The last time the average was this high was June, 1951 (120.0) but it was still below the April, 1951, post-Korea peak of 120.9.

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City.



#### EVENTS

"Reunion of Architecture & Engineering," Smit sonian Institution's traveling exhibit, itinerar May 5-26, Kansas State College, Manhatta Kan.; June 9-30, Joslyn Art Museum, Omaha Sept. 1-22, Museum of Cranbrook Academy Art, Bloomfield Hills, Mich.; Oct. 5-26, Phillip Exeter Academy, Exeter, N. H.; Nov. 9-30, Co nell College of Architecture, Ithaca, N. Y.; Ja 1-31, Institute of History & Art, Albany, N. Y.

Honor Awards—To be eligible, all entries for AI National Honor Awards must be shipped befor May 28.

National Association of Building Owners & Mar agers' 46th annual convention June 7-11 Pittsburgh.

Boston Art Festival for 1953 presents painting and sculpture by leading New England artist will continue for eight full days and evening June 7-14 at the Public Garden. Festival office 250 Boylston St., Boston.

National Store Modernization, Building & Maint nance Show, Madison Square Garden, N. Y., Jur 9-12. Includes exhibition of designs for reta stores, retail store warehouses and shopping cet ters completed since 1948, new or remodeled, an for committed projects still on the boards. For details and exhibition entry forms write Stor Modernization Institute, 20 E. 55th St., New York 22.

British Architects' Conference, Canterbury an Folkestone, June 10-13. AIA visitors welcom Write C. D. Spragg, RIBA, Sec'y, 66 Portlan Pl., London W. 1.

Forest Products Research Society's 7th annual meeting June 15-17, Memphis, Tenn.

AIA Board of Directors' annual meeting, Jur 15-19, Olympic Hotel, Seattle.

American Institute of Architects' annual convention June 16-19, Olympic Hotel, Seattle.

American Society for Testing Materials' annumeeting June 21-25, Chalfonte-Haddon Hall, A lantic City.

Competition—In connection with the fourth Certenary of the city of Sao Paulo, next winter, a international exhibition of architecture will held at the Sao Paulo Museum of Modern Ar Open to architects of all nationalities, and t officially recognized schools. Awards in 11 cata gories, with a special prize to a young (under 35 architect, and to a school. Submissions no late than July 15. For information, address: II Bienna do Museu de Arte Moderno de Sao Paulo, Rua de Abril 230, Sao Paulo, Brazil.

City and Regional Planning course, conducted by MIT's School of Architecture and Planning, Aug 24-Sept. 4, offers intensive review of administrative and technical aspects of urban and regional development to men and women in the fields of building, investment and industry, as well as the practicing professionals. Tuition for two-wee program, \$100; enrollment limited, early application advised. For details, application bland write: Office of the Summer Session, Room 3-100 MIT, Cambridge 39, Mass.

National Electric Industries' Show at the 69th Reg ment Armory, New York, Sept. 29-Oct. 2.

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#### LETTERS URBAN TRAFFIC FORUM

In February, FORUM called together for its "Urban Traffic Forum" 43 represent tives of all the groups closely interested the problems of traffic congestion and r ported their joint recommendations. The report took the form of 13 answers to the question: "How can big cities save the downtown districts from strangling their own congestion?" (AF, Feb. '53, 110.)

Following are excerpts from the man letters prompted by the article and by the thousands of reprints which have been ordered and widely distributed.

Other letters appear on p. 88.-Ed.

#### ... MEN OF ABILITY

Sirs:

I congratulate you for assembling a con mittee of such men of ability and varied e perience and for preparing such a comple report....

I have found it so interesting that I hav reread it several times.

We are making a planning and redevelo ment study of Johnstown, and we have foun the many problems discussed applicable our own. We feel that the many answer shown in the report will be of great value us in our final determinations.

I have had several copies of the report mad and have presented them to the members of our local Parking Authority and the Mayor Traffic Advisory Committee. . . .

> H. LEE WILSON, city engine City of Johnstown, Pa.

Sirs:

... Timely and to the point.... ERIC G. HOYER, mayo Minneapolis, Minn.

#### ... FOR SMALL CITIES, TOO

Sirs:

... Most interesting and timely. While the cities most interested by the majority of the points stressed will necessarily be the large ones, we of the smaller cities have similar problems....

D. C. WESCHE, city engine Manhattan, Kan.

#### ... MORE RESEARCH

Sirs:

Rounds of applause for Urban Traffic For um. The panel reflects the "Who's Who" i the field. The conclusions are the best ye espoused.

In 1929 Le Corbusier said "The academi man is one who accepts forms, methods an concepts because they exist and doesn't as why." The past generation or two has bee overburdened with academic men and th On the world's safest, fastest super-liner ...

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ime is ripe to ask "Why?" and "How?" You ave posed the question and given the best nswers available. Unfortunately in the maority of cases to date our general approach as been to paint the board even though it nay be infested with termites in an effort to onceal the real source of the trouble. The problem is real and it is upon us manifold.

To safeguard future generations from the itfalls we now face, more research, much nore, in addition to that by city, state and ederal bodies should be encouraged-by uniersities and private foundations particularly -to evaluate and anticipate the problems as est as can be done at this time and avoid he stupid blunders of the past.

> JOHN REX, architect Los Angeles

#### Sirs:

I commend you on the very excellent preentation of the Urban Traffic Forum. . . . Five hundred copies of the reprint are being listributed to members of our association who re professionally engaged in governmental esearch. This material will be most helpful o them in their work on urban traffic probems throughout the country.

LOUIS D. BROWN, executive secretary Governmental Research Association, Inc. New York

#### ... FOR EDUCATION

Sirs:

Congratulations . . . .

A basic need is the education of key people n the community. For this reason we would ike very much to buy 200 copies for distribuion locally.

SHERMAN P. VOORHEES, executive director Future Springfield, Inc. Springfield, Mass.

#### . . BIGGEST BOTTLENECK

Sirs:

There are three causes of our traffic congestion: 1) failure to provide more facilities for motor vehicles in the form of arterials and parking facilities, 2) failure of the mass transportation systems to attract more passengers, and 3) inherent selfishness in the drivers of motor vehicles. The biggest bottleneck in overcoming these factors is lack of funds....

> W. E. PARKER City engineer Seattle, Wash.

### .. ONLY BY REGIONAL PLANNING

Sirs:

This excellent article should start the profession considering this very serious problem. One point I felt was not satisfactorily presented was fixing responsibility for the cause continued on p. 58



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Climate Engineers to Industry, Business and the Home Cool air is brought right where it's needed most at CBS-TV's new Television City in Hollywood. Special air conditioning ducts, capable of being raised and lowered, and moved sideways around a 10 foot radius, are designed to spot-cool any part of this vast studio quietly and efficiently. The huge quantities of chilled water used for cooling the air are supplied by two Worthington 335-ton centrifugal refrigeration systems.

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#### LETTERS URBAN TRAFFIC FORUM

and cure of downtown congestion. I am corvinced that this problem can be solved onl by *regional* planning. What has happened i suburban areas and nearby cities has had direct effect on the metropolitan areas. Fo example: difficulty driving to suburban rail road stations and parking nearby has en couraged people to take their cars into the center of the cities.

In too many cases state highways are buil with little consideration of what happens to the traffic when it reaches the city center.

More study should be given to multiuse o streets and parking areas. Many streets an overcrowded for two hours morning and eve ning and all but deserted the rest of the time Perhaps this is an unforeseen result of pres ent-day zoning, which encourages buildings for similar purposes to be erected close to gether. Could not expressways be planned for use by industrial workers from 6 to 8 A.M., by office workers from 8 to 9 A.M. and by shop pers afterward? Why are the same highways which are jammed on week ends almost empty during the week, while streets which are heavily used during the week are almost deserted on week ends?

Many of our largest public and private parking areas are used only 40 hours a week or even less. This does not make good sense to me. A publicly subsidized parking area away from the business district has been proposed for the use of Lyric Theater patrons here in Baltimore. This garage will probably be little used except in the evenings. The large parking areas at our Baltimore Stadium are empty except evenings and week ends Perhaps our new municipal stadia, auditoria theaters, etc., should be built near the heart of the cities where their parking areas could be used during the week by office workers.

> JAMES H. STEPHENSON, architec. Baltimore, Md.

#### ... A REAL SERVICE

#### Sirs:

I am delighted with the Urban Traffic Forum report, which arrived at a very opportune time, as our city is considering setting up a parking authority. You have done a real service to all municipalities faced with these staggering and interrelated problems.

> ROBERT E. WILLIS, mayor Decatur, Ill.

Sirs:

... Most comprehensive.... C. N. BELLAMY, city engineer Big Spring, Tex.

#### ... LUXURY PARKING

#### Sirs:

FORUM'S clear and concise analysis could be "the book" in prescribing treatment for traffic ills in municipalities....

continued on p. 60

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#### LETTERS URBAN TRAFFIC FORUM

As is brought out in your publication, a balance between long-term and short-term parking facilities is highly desirable, and at the same time, an objective most difficult to achieve to the satisfaction of all parties at interest. One thing that seems certain, however, is that to establish all-day parking facilities merely for the personal convenience of those who have other means of transportation available is to provide a luxury that is not to the best interests of either the citizen or the city. To do this in fact adds to the congestion that it seeks to eliminate....

The lure of brand-new developments on the fringes of the city must be met by reasonably comparable attractiveness in the older areas.

EDWIN F. KOESTER, chairman Wilmington Parking Authority Chief engineer, Street & Sewer Dept. Wilmington, Del.

#### ... LIMITED CITY SIZE

Sirs:

I was pleasantly surprised at the comprehensive coverage of the subject. It is well balanced....

One thought which has often been stated by city planners, but which was not mentioned in the article is that we will never be able to keep ahead of central congestion, unless we can limit the size of cities. Even decentralized growth increases central congestion. The ultimate limit of congestion in a central city can never be determined until there is an ultimate limit in the population of the city. I recognize that as a fantasy in America, but so were some of the other ideas expressed.

H. W. STEVENS Director of planning City of Raleigh, N. C.

#### ... UNSELFISHNESS AND COURAGE

Sirs:

Obviously two major considerations in the over-all traffic problem are making better use of our existing streets and parking facilities and exploiting to a greater degree mass transportation. In the latter phase of the problem, Los Angeles has a more difficult situation than most other cities because it experienced its greatest growth and suburban expansion when the idea of personal motor transportation was coming to full flower. Several abortive efforts have been made to come to grips with the rapid transit problem and currently one group is working on a proposed monorail project. But the chief difficulty has been to arouse the interest and at the same time to harmonize the conflicting views of the cities that surround Los Angeles.

Your Traffic Forum's suggestions for separating car and truck traffic in time and space appear to have general application and merit particular consideration since the indicated goals should be obtainable in a reasonable *continued on p. 64* 

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#### LETTERS URBAN TRAFFIC FORUM

period of time if the proper civic drive is su plied. The latter calls for selfless and courgeous businessmen, public officials and civileaders.

K. WESLEY SMITH, editorial page edite Los Angeles Times Los Angeles, Calif.

#### ... GUILTY

#### Sirs:

Believe it or not, we have parking problem in a small town too—and I am of the opinio that off-street parking will be the ultimat answer.

Your article pointed to one of the mai weaknesses here—the fact that merchants an others who work downtown park all day an leave no room for those who would come an shop. In fact, I am guilty of exactly the sam practice myself!

As the town grows, this practice must even tually be abolished.

MAY G. HORNER, managing edito De Land Sun News De Land, Fla.

#### ... A HARSH SOLUTION

Sirs:

One of the chief objections to an under ground garage below Boston Common is tha the exits and entrances of this huge under ground parking area would have to be on three extremely busy traffic highways. The mere thought of what would happen between 4:30 and 6 o'clock in the afternoon when 10,000 automobiles all try to get home for supper a the same time is an item few people, even those interested in the project, care to discuss for any length of time. The same problem arises when you try to park 10,000 automo biles in that area between 8:30 A.M. and 9:30 A.M. when everybody is trying to get to his job However, there does appear to be a solution

... In short, this is the idea:

Fix a limit including the entire downtown shopping area and prohibit all parking all day and in some places during the night. Take all marginal properties either by eminent domain or tax titles, demolish the buildings and provide publicly owned parking lots, spaced far enough apart around the perimeter of the business area to make sure that serious bottlenecks will be avoided. Provide each such parking area with a shuttle service by bus or coach which will connect these parking lots with the various downtown areas. This shuttle service would operate at five-minute intervals with a nominal charge both for this service and for the parking— $25\phi$  or  $35\phi$  per day.

The idea behind all this is that no vehicles other than the shuttle cars can enter the downtown shopping area at any time without special permission. It might be necessary to provide such special permission or license, for a fee, to certain types of motor cars. This *continued on p. 68* 

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• The installations illustrated in this advertisement are typical examples of Raynor Wood Sectional Overhead Doors, tailor-made to fit the opening.

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SWEETS



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First step in any maintenance-saving program is to insist on "Quality-Approved" aluminum windows for all new buildings and additions. In this way you automatically eliminate some of your annual maintenance expense right from the start.

Aluminum windows continue to save you important money year after year. They cannot rust or rot – they *never* need painting, costly repairs or replacement. They always operate easily and will remain beautiful for the life of the building.

"Quality-Approved" aluminum windows are available through many manufacturers in sizes and styles (double-hung, casement, projected and awning) to fit any design treatment. Only those that carry the "Quality-Approved" Seal have been tested by the Pittsburgh Testing Laboratory and approved for quality of materials, construction, strength of sections and minimum air infiltration.

For a copy of our latest Window Specifications Book and names of approved manufacturers, see Sweet's Architectural File (17a/ALU) or write to Dept. AF-5.

Pictured above: Shriners Hospital, Salt Lake City, Utah Architects: Scott and Beecher Contractor: Olson Construction Company

Aluminum Window Manufacturers Association

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FOR YOUR PROTECTION INSIST ON QUALITY-APPROVED ALUMINUM WINDOWS



There's nothing like a repair job to point up the false economy of installing low-first-cost piping. Original installations are quickly made by pipe-fitters, but replacements call for hours of work by as many as five crafts, all carrying a high price tag. This first failure may wipe out initial savings, a dozen times over. It all adds up to one thing . . . corrosion costs you more than wrought iron.

Because the only true yardstick of economy is the cost per year of service, an increasing number of industries are calling upon the greater durability of Byers Wrought Iron pipe for corrosive services.

Our booklet, The ABC's of Wrought Iron, gives an interesting account of the what, why, where of this durable material. Send for your copy. A. M. Byers Company, Clark Bldg., Pittsburgh 22, Pa.

Labor costs shown above are national averages according to Bureau of National Affairs, Inc.



#### LETTERS URBAN TRAFFIC FORUM

would probably include emergency services; embracing utilities, medical service and police service; certain service trucks, cars and a limited number of other vehicles. They might be licensed on an annual or monthly basis to permit their entrance into the restricted areas.

This may sound like a harsh solution, but there seems to be no other answer. As more parking meters are provided more cars come into the downtown area. As soon as an offstreet parking garage is completed, it is immediately loaded up so that by 9:30 A.M. the "no vacancy" signs immediately appear. . . . S. S. EISENBERG, architect

Boston, Mass.

#### ... STORES AND BLIGHT

#### Sirs.

The Urban Traffic Forum most certainly handled a difficult problem ably. There is little to be added to its findings and conclusions.

I think, however, that some attention might well be paid to the differences between suburban clothing, shoe, department stores and the like, and those centrally located.

A suburban store does just what its name indicates. It serves a suburb. Therefore, it has a limited number of customers. It cannot carry a full line and its prices must be higher. It cannot put on sales, which its women customers dearly love, because its limited stock and higher prices make sales farcical insofar as savings to the purchaser are concerned.

Therefore, too much decentralization increases the cost of living in the city where it occurs. It also spreads the "blight."

EDWARD M. POOLEY, editor Herald-Post El Paso, Tex.

#### ... MULTIPLIED HEADACHES

Sirs:

... I heard a tough-minded businessman in Spokane squelch the argument against municipal participation by saying: "I am no socialist but the city must own or control a large amount of parking space for the same reason it must possess its streets—to insure permanent public use."

The problem is to establish the proper proportions. In small and relatively new cities such as ours, we do not have some of the problems encountered in older and very large cities but we do not have effective mass transportation and for that reason our headaches are multiplied by the fact that practically every worker drives his own car. When employers offer free bus rides, they are refused. We have succumbed to the fact that the modern American likes his automobile like the cowboy loves his horse, so we multiply parking calculations accordingly.

W. M. TUGMAN, editor Eugene Register-Guard Eugene, Ore.

continued on p. 72



 For Cement, Stucco, Light Colored Masonry

Cabot's Clear Cement Silicone Waterproofing seals all the pores and voids in above grade masonry—keeps water out! It prevents staining of interior walls and protects your walls against the damage of freezing and thawing.

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What's more, the Shamrock is using these coatings on exterior concrete, metal canopy and awning frames, metal furniture—further proof of their decorative and protective qualities. Properly formulated, properly applied, they adhere tightly, won't crack, peel or fade. They are tough—with excellent resistance to water, most chemicals, weather, grease, corrosive atmospheres.

Coatings based on VINYLITE Brand Resins have the same features as the VINYLITE Resins and Plastics used so widely throughout defense and industry. For more data and proved results, write Dept. PB-14 for "BAKELITE and VINYLITE Resin Coatings for Masonry." Data courtesy: Plastic Coating Corporation, Houston, Texas.

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ALUMINUM

2

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## American Welded Wire Fabric cuts costs on Pittsburgh's new Gateway Buildings

S PANKING new, these three Gateway Buildings are part of an extensive redevelopment of Pittsburgh's Golden Triangle. They feature every modern building improvement and have short span concrete floors that are reinforced with American Welded Wire Fabric. This reinforcement is prefabricated and therefore easier to install than other types.

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#### LETTERS UBBAN TRAFFIC FORUM

#### ... FEWER BUT BETTER STREETS

#### Sirs:

... Most encouraging .... sheds considerable light on the dilemma of urban centers.

The difficulties unfortunately go beyond congestion in that they include the growing obsolescence of buildings. The suburban and regional centers with their more modern facilities offer conveniences with which the antiquated structures in the congested hearts of the cities find it hard to compete. The consequent flight of business presents a crisis to American cities. Urban rehabilitation in large scale appears the only way to keep the heart alive.

Two points about the article appear especially significant: First, that architects, city planners, store owners, traffic engineers, garage operators and automobile manufacturers attacked the problem jointly. Second, that the responsibility for facing and dealing with the problem was squarely placed on the mayor and the planning commission. Too many good plans are gathering dust on shelves. The financial difficulties and the problems of authority may be too great to cope with on a local level and state and government aid may be necessary. In the rebuilding of urban centers certainly rests an opportunity for work and employment after defense production will taper off.

For the building of modern downtown centers, sizable tracts of land are needed to achieve an integrated functioning of offices, stores, parking facilities, services and recreation. Only by large-scale developments made accessible by common carriers and motor vehicles can the competition of suburban and regional centers be met. The urban center demands a distinct and different character from those on cheaper land, and good prototypes incorporating recent progress in planning and architecture do not vet exist.

Rockefeller Center is now a quarter of a century old; while it is still the most distinguished accomplishment in American urban development with off-street loading facilities, parking garage, a pedestrian circulation separated from streets, and a diversified building space use, it is cut apart by a congested oldstreet plan. In tomorrow's centers fewer but better streets are needed combined with greater consideration for the comfort and safety of pedestrians. The large tracts of land needed for such downtown centers are hard to come by-land clearance would have to be the answer in most cities, though some might have the good fortune of Boston, where a 28-acre railroad yard in the heart of the Back Bay business district has just become available for development.

Many visionary principles have been accepted for the planning of new towns, the development of residential areas and the continued on p. 76



ALABAMA Badham Insulation Co., Inc., Birmingham Stokes Interiors, Inc., Mobile ARIZONA Asbestos Engineering & Supply Co., Phoenix Hall Insulation & Tile Co., Tucson ARKANSAS ARKANSAS National Builders' Supply, Inc., Little Rock CALIFORNIA Coast Insulating Products, Los Angeles and San Diego Cramer Company, San Francisco and Experie Fresno COLORADO Construction Specialties Co., Denver W. T. Roberts Construction Co., East Hartford DISTRICT OF COLUMBIA Kane Acoustical Co., Washington GEORGIA Dumas and Searl, Inc., Atlanta ILLINOIS General Acoustics Co., Co. General Acoustics Co., Chicago Melvin R. Murdy, Moline INDIANA The Baldus Co., Inc., Fort Wayne E. F. Marburger & Son, Inc., Indianapolis IOWA Kelley Asbestos Products Co., Sioux City KANSAS KANSAS Kelley Asbestos Products Co., Wichita KENTUCKY Atlas Plaster & Supply Co., Louisville MASSACHUSETTS W. T. Roberts Construction Co., Cambridge MINNESOTA Dale Tile Company, Minneapolis Dale Tile Company, Minneapolis MISSISSIPPI Stokes Interiors, Inc., Jackson MISSOURI Kelley Asbestos Products Co., Kansas City Hamilton Company, Inc., St. Louis Kelley Asbestos Products Co., Omaha NEW JERSEY Kane Acoustical Co., Fairview NEW MEXICO Asbestos Engineering & Supply Co., Asbestos Engineering & Suppiy Co., Albuquerque NEW YORK Robert J. Harder, Inc., Lynbrook, L. I. Kane Acoustical Co., Inc., New York Davis-Fetch & Co., Inc., Buffalo, Rochester and Jamestown Davis Acoustical Corp., Albany NORTH CAROLINA Bost Building Equipment Co., Charlotte OKLAHOMA Harold C. Parker & Co., Inc., Oklahoma City Oklahoma City Kelley Asbestos Products Co., Tulsa OHIO The Mid-West Acoustical & Supply Co., Cleveland, Akron, Columbus, Dayton, Springfield and Toledo OREGON Acoustics Northwest, Inc., Portland R. L. Elfstrom Co., Salem PENNSYLVANIA Jones Sound Conditioning, Inc., Ardmore TENNEFSEE OHIO TENNESSEE Innessee John Beretta Tile Co., Inc., Knoxville John A. Denie's Sons Co., Memphis The Workman Co., Inc., Nashville TEXAS Blue Diamond Company, Dallas Otis Massey Co., Ltd., Houston Builder's Service Co., Fort Worth UTAH Utah Pioneer Corporation, Salt Lake City VIRGINIA Manson-Smith Co., Inc., Richmond WASHINGTON Elliott Bay Lumber Co., Seattle WISCONSIN Dublic Seating Inc. Milunation Building Service, Inc., Milwaukee CANADA Albion Lumber & Millwork Co., Ltd., Vancouver, B. C. Hancock Lumber Limited, Edmonton, Alberta




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### LETTERS URBAN TRAFFIC FORUM

building of regional shopping centers for th motor age. Execution of imposing schemes ha been made possible by the availability of oper land in the outskirts of cities. The resulting syphoning off of business from the downtown districts has brought a crisis to the cities. The challange of this age is to find a solution for the urban centers.

> WALTER F. BOGNER Professor of architecture Harvard University Cambridge, Mass.

#### ... HIGHER METER RATES

Sirs:

You have done a great public service by dissecting the problem raised by overcrowded streets in American cities.

Your Traffic Forum contains wise guidance for small cities as well as the larger ones. Outstanding is your warning against building expressways designed to dump into the congested centers of our cities an even larger volume of traffic, unless coordinated means are also taken to cope with the increased flow when it arrives.

I agree, too, that one of the best ways of forcing traffic off the streets into parking lots and garages is to boost meter fees and to close some streets to parking altogether.

This newspaper is opposed to municipal operation of parking lots, and I have succeeded in having a conference called next week of appropriate city officials, leaders in the Chamber of Commerce, prominent lawyers and others, at which we plan to thresh this thing out. I shall quote from the ARCHITECTURAL FORUM to show that private construction and operation is preferable.

EDWARD L. PENLEY, editor Lewiston Daily Sun Lewiston, Me.

#### ... UNANSWERED QUESTION

Sirs:

We feel that the most important question, "How can these solutions to the urban traffic problem be effected?" remains unanswered. For example, here in the State of Washington we are unable to establish any municipal agency to cope directly with the parking problem by acquiring land for off-street parking purposes, due to the lack of state-enabling legislation. Even though the majority of business and civic community leaders have supported attempts to obtain such legislation during the last six years, certain groups have consistently defeated the measures proposed.

There has been a trend toward decentralization of various agencies involved in functions impinging on the problem because each agency has tended to develop its own approach to the problem without proper consideration for the effect on the approach of other agencies to the problem. The recommendation in the report for coordinating the activities of the *continued on p. 81* 



"Raze our old frame building and erect a new building with 60,000 square feet of floor space on the site. Do it *fast* to hold our production 'time out' at a bone-bare minimum! And do it within our budget!" That's the job engineers Christian, Schwarzenberg and Gaede and general contractor Sam W. Emerson were asked to tackle by Superior Foundry Company, Cleveland, Ohio. And – they did it! In record time! In a mere six weeks a new steel, brick and Careystone building was humming with production. A perfect example of the miracles American ingenuity can accomplish. And an eyeopening demonstration of Careystone's many virtues. Careystone – made of asbestos and Portland cement – posed no "availability" problems. Corrugated for great structural strength, it is quick, easy and inexpensive to apply . . . comes in big sheets that cover fast, can be applied over wood or steel framing. It won't burn, rust, rot, corrode, nor can termites or rodents damage it. Exposure to weather actually strengthens it! Thus Careystone loaned these many virtues to the need for speed . . . will provide fire-safety and protection for the life of the building, without one cent for maintenance! If there's a new plant in a client's plans — or additions to present facilities — give serious consideration to the advantages only Careystone can deliver. Ask your Carey Industrial Sales Engineer for our new fact-filled manual. Or, if you wish, fill in and mail the coupon for your copy today!





For interiors requiring a special air of elegance, yet demanding a durable, easily maintained floor, Armstrong's Rubber Tile is the ideal choice. This floor's lustrous plate finish, rich colors, and distinctive graining help create a luxurious atmosphere. It's a practical luxury, too, that stands concentrated wear for years. Volk Bros. Company Live Oak Store, Dallas, Texas Walter W. Ahlschlager, Architect

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UTAH: U. S. Rock Wool Co., Salt Lake City.

VIRGINIA: J. K. Parker, Inc., London Bridge; Arlington Light Steel Structures, Inc., Arlington.

WASHINGTON: Dix Steel Building Co., Spokane; Leckenby Structural Steel Co., Seattle.

WISCONSIN: Arnold Equipment Corporation, Milwaukee.

### LETTERS URBAN TRAFFIC FORUM

various agencies is especially pertinent at this time. . . .

In Seattle the mass transportation system, municipally owned, is considered one of the finest in the country. In spite of new trackless trolley equipment with fast schedules and reasonable rates, the number of mass transportation passengers has been steadily decreasing since the end of the war. Considerable agitation is being generated for the establishment of zone fares, a step which could reverse the current trend away from mass transportation by providing lower fares for short trips. The preliminary designs for freeway construction in this area contemplate the provision for mass-transit operation on freeways. Such operation should attract more patronage by providing express service with trolley-coach or bus equipment which would be equivalent to the express service provided by an expensive rapid-transit installation.

We have eliminated parking during the peak traffic periods where vehicular volumes warranted such restriction. In a few locations we have eliminated parking at all times....

We are increasing parking-meter rates to  $10\phi$  per hr. This rate for curb space is expected to increase the number of vehicles using each space. It is designed to fit the price of curb parking more nearly to the cost of curb space...

A revision of the building code would be required to permit a reduced cost per car space in the construction of new parking garages. Such a revision has been suggested by private interests and is to be studied shortly....

> E. E. LEWARCH Traffic engineer City of Seattle, Wash.

#### ... AN AMERICAN HABIT

Sirs:

Congratulations on a very difficult assignment of reporting on the Urban Traffic Forum in your February issue. You've certainly covered the subject in an excellent manner and there is a tremendous amount of food for thought on the part of anybody interested in this problem.

Relative to the size of branch stores and the comparison of the presentation of merchandise between the suburban center and downtown, it is interesting to note that branches are getting larger. Some centers are being projected well over 1,000,000 sq. ft. with department store branches up to 400,000 sq. ft. When you consider the fact that your price appeal can be limited to the upper three fifths, primarily the upper two fifths of the income groups, this gives a presentation that will be visited by average suburbanites a dozen times to the one time they go downtown. However, it is conceded that when *continued on p. 84* 





alsynite is perfect for luminous ceilings, window walls, etc. Ideal indoors and out.



**alsynite** replaces glass for many applications - can be used in many new ways.



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Distribut	tors in Principal Cities.



Architect Walter T. Anicka's "ranch" house is ideal for small-lot, builtup urban areas. It is one of seven plans chosen by the 1953 American Builder Catalog Directory to provide builders with typical construction problems.

> Solid Piping—Type "L" Copper Tube: Water Lines Outline Piping—Type "M" Copper Tube: Soil, Waste and Vent Lines

### Easily installed copper adds long life to this "typical" ranch house

Today, the "one-floor" home is America's most popular design. But no matter what design your clients or customers prefer, copper piping has definite advantages. Its longer lengths, lighter weight and fewer fittings mean lower installation costs. Its rustproof quality means longer service life.

The schematic drawing above shows the plumbing layout for a ranch-type house designed by Walter T. Anicka. Hot and cold water lines are Type "L" ANACONDA Copper Tubes. Easily joined fittings are solder type. For the soil, waste and vent lines, Type "M" ANACONDA Copper Tubes and solder type drainage fittings are used. Where code permits a 3-in. stack, it will fit into a 4-in. stud partition, saving space and construction costs. All other drainage lines and back venting are 1¼ in., 1½ in. and 2 in.

Submit *your* piping bids in copper. It's easier to work with...often costs less to install. For highest quality, always use ANACONDA Copper Tubes. Descriptive booklets on copper tubes for plumbing and heating lines are yours for the asking. Write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

ask your plumbing jobber for ANACONDA® copper tubes



# The *right* lightingware puts *appeal* in apparel

Architects and builders of the Fair-Evergreen, Evergreen Park, Ill., faced two problems common to department stores the world over:

- 1. How to make the store inviting to customers?
- 2. How to show merchandise at its sales-appealing best?

The photo shows how various types of CORNING engineered lighting glassware helped solve these problems in a large area with average room conditions, including taupe carpeting with a 40 to 50% reflection factor. The lighting plan is unobtrusive, but it has design and unity. It consists of 14-foot squares made up of troffers 12" wide in continuous rows plus corner units 12" square.

#### Alba-Lite panels afford comfortable, over-all lighting

Inviting, over-all lighting effects are provided by Alba-Lite Pattern No. 66 bottom panels in the fluorescent troffers. Illumination levels vary between 45 F.C. and 50 F.C. with no dark areas.

Merchandise looks its best because Alba-Lite transmits true color from the light source. Fixture efficiency is high, yet panel brightness is low. Smooth surface of the glass assures easy cleaning. And at no time can it warp, fade or discolor. Corner units are PYREX brand Lenslites. Available round and square in wide-angle and concentrating patterns for controlling incandescent lights. Exceptionally resistant to heat. Intermediate units are Alba-Lite Pattern No. 66. Available flat or curved in three patterns, smooth, fluted and pebbled. Lengths 48", 24", 12".

- Photo: Courtesy Grand Rapids Furniture Company
- Installation: The Fair—Evergreen, Evergreen Park, Illinois
- Architect: Holabird, Root & Burgee

Lighting Design: Mr. I. Robert Palm, Professional Engineer for The Fair Department Stores

Fixture Manufacturer: Solar Light Manufacturing Co.

Electrical Contractor: Emerson-Comstock Company, Inc.

Lenslites direct light on columns Corner units are 12" square, wideangle PYREX brand Lenslites. These offset 100-watt incandescent light beams and direct them toward the columns.

Wide-angle Lenslites may be used without offsetting the beam to give a soft over-all effect. Or you can use concentrating Lenslites to spotlight merchandise.

This merely gives you an idea of the modern, efficient light transmission and architectural design flexibility that CORNING engineered lighting glassware can give you. To get the complete story, send for Bulletin LS-32 and the photometric data sheets. Write or mail the coupon for this information.

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When your plans call for doors that will withstand hard usage and severe abuse - you'll surely want to specify HARDWOOD solid core Doors. With them you get so many features not found in ordinary doors of lighter core construction and, they're yours for so very little additional cost. HARDWOOD solid core construction gives you sturdier, longer-life doors that will withstand hard bumps and kicks without veneer "hole-thru' that results in costly replacements: it provides better room acoustics with more doorway sound resistance - and, assures additional safety by as much as half an hour in event of flash fires. Time Proven HARDWOOD Doors are made in three distinct types of core construction and faced with thin, medium or thick veneers to meet every job requirement. Consult ARCHITECTURAL FILE <sup>16c</sup><sub>HA</sub> or write for complete details.



HARDWOOD PRODUCTS CORPORATION . NEENAH

they do go downtown, they will spend great deal more per trip.

LETTERS URBAN TRAFFIC FORUM

You state that not more than 20 cars ca park along a 200' block. I have never seen block that you could park a car every 20 If you do not have any bus loading or un loading spaces, you always have fire hydrant or some other device that prohibits parkin cars bumper to bumper from right-of-way t right-of-way.

In reference to Mr. Sawyer's remark that it is an American habit to go to the cente of the city to do shopping, and that it is sti more desirable to shop downtown, I woul like to say that it "was an American hab to go downtown." Survey after survey ha shown that as many as 20% of the suburbar ites never go downtown for shopping. Fur ther, while we have not possibly found th complete and perfect answer to suburban in tegrated shopping centers we have gone long way to provide a new and exciting en vironment for retailing, which not only make good merchandise available in some selec tion, but also once again makes it convenien for the consumer to reach this merchandise

> KENNETH C. WELCH, architec Grand Rapids, Mich.

### ... DISPERSAL AND THE CITY CENTER

Sirs:

Your conclusions all strike me as techni cally sound. The mass of information pre sented is very impressive. However, did you overlook the possibility of getting cars off the street at night by an all-night parking fee?

And from a broad standpoint, how do you square all this effort to preserve big center with the War Department's plea for dispersal? True, you mention the need to disperse certain lines of business; but shouldn't there be more emphasis on this? If there is to be a big war it will be an atomic war and dispersal may mean survival.

> J. W. RAMSEY The Rock Island Argus Rock Island, Ill.

Sirs:

. . . Congratulations on the very comprehensive treatment of the urban traffic problem. . . .

> WILLIAM R. B. FROELICH Executive director Public Parking Authority Pittsburgh, Pa.

Sirs:

WISCONSIN

. . . One of the most helpful articles to cities all over the country that I have seen, and I have seen many.

> DAVID B. HEYLER The David B. Heyler Co. Beverly Hills, Calif. continued on p. 88

# you get 34.4% more light

with all-

exalum.venetian blinds



### bare window wastes light...leaves far side dark



### Flexalum blind spreads light to far side of room

An exhaustive study by the Faber Birren Company\* shows: A bare window gives extreme glare on one side of the room, insufficient light on the other. The FLEXALUM Blind, by reflection, spreads the high-intensity sunlight at the window throughout the room-giving more illumination with less glare. The brightness ratio, which was 14 to 1

with the bare window, is now reduced to a comfortable 4 to 1. \*Copies of this study available on request. Write for local sources and free file of venetian blinds information-AIA File #35-P-3.

Only all-FLEXALUM Blinds give these m



Wipe-Clean Plastic **Tapes and Cords** 

Cut cleaning time from Spring-tempered to hours to minutes. A damp back ruler-straight cloth wipes away the stub-barnest stains. Won't fade, Baked-on finish won' shrink, or mildew.

num Slats



Insist on this Mark! The FLEXALUM "visible" invisible" trade-mark guarantees a top quality blind. For satisfied clients specify all-FLEXALUM blinds.

Hunter Douglas Corp., 150 Broadway, New York 38.

Completed rehabilitation project resulted in 100 per cent rental on long-term leases to most desirable tenants. It caused similar restoration of neighboring structures with a resultant increase in property values due to redevelopment of area. Success of design and fabrication and erection method won subcontractors new contract awards.

Marcel Boulicault, architect. St. Louis, Missouri Travelers Insurance Company, owner. Al-Bro Manufacturing Company, subcontractor for fab-rication and erection of aluminum facing. St. Louis, Mo.

FORE

1 AFF

SSS .

FIC

ALUMINUM

# FACE LIFTING RESULTS IN 100% RENTAL OF 50 YEAR OLD BUILDING



An eight-story building over fifty years old, the Commercial Building was in bad repair and not even earning taxes when the Travelers Insurance Company became owner. Basic soundness of structure and desirable location were main points in favor of the rehabilitation.





First step in sheathing the building in aluminum was erection of pier covers (sheet) by means of a series of small extrusions riveted to a grid frame. Outstanding feature of new façade is use of aluminum extrusions for the spandrel areas. For the dual purpose of effect and erection space, spandrels were projected twelve inches beyond old building line by means of horizontal channels. Fluted design was used to increase stiffness and obtain interesting textural effect.

Fluted aluminum extrusions used for spandrels weigh less than three pounds per square foot, required minimum of new structural work. They were fabricated and erected by Al-Bro Manufacturing Company in sections 4" wide by 6' 3" high. Panels were chemically darkened before application of Alumilite finish for contrast with natural finish, doublehung windows.

The Commercial Building, Sixth and Olive Streets, St. Louis, Missouri, was only one quarter rented when the Travelers Insurance Company became owners. Over fifty years old, it was in bad repair and income was insufficient to pay taxes. Complete rehabilitation was indicated because the eight-story structure was basically sound and occupied a commercially desirable site.

The architect selected Alcoa Aluminum to sheathe the building from the second floor window sill line upward because it would require less new structural work than any other material, present a pleasing, modern appearance, require minimum maintenance. Al-Bro Manufacturing Company assisted in the design and development of the aluminum pier covers and spandrels which became the major components of the new facade.

The restoration proved successful in three ways. All space was rented on long-term leases to most desirable tenants. It caused similar projects to be initiated on neighboring structures. Property values increased dramatically as a result of the area redevelopment. This project is one of many in which Alcoa has assisted architects and contractors. Alcoa engineers have had a hand in nearly every pioneering use of aluminum in the architectural field. They will be glad to work with you on your next design proposal, whether it be for new construction or modernization. For information on any aluminum architectural application call your local Alcoa sales office. Aluminum Company of America, 1887-E Alcoa Building, Pittsburgh 19, Pennsylvania.



### WORLD'S LARGEST AIRPORT TERMINAL BUILDING FEATURES GARCY FIXTURES

TO DIA DULL THE REAL

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James Paul Warner, consulting electrical engineer, is responsible for the airport's entire electrical system. The lighting facilities for this project were installed by Daniels Electric Equipment Co. and The Howard P. Foley Co. The distributor was Graybar Electric Co., Inc.

GREATER PITTSBURGH

AIRPORT

The unusual fixture which occupies the center of the rotunda ceiling is Garcy's No. 8440 Louverall. Note the customized treatment of the louverall area . . . conforming to the converging lines of the building which forms the segment of a circle. A wide variety of other Garcy stock and custom-design fixtures were utilized to meet the unusual architectural and lighting requirements involved. No matter how complex or unique your lighting problems may be, your nearby Garcy Representative can help you solve them efficiently, satisfactorily, economically.

UPPER PICTURE View of Rotunda showing specially designed louverall area conforming to radial design of building. Continuously mounted troffers also follow this design.

LOWER PICTURE View of South Dock showing variety of Garcy lighting equipment used in project. Modular and continuous louverall sections are shown at left, while individually mounted louvered aluminum troffers are used in center. Cove lighting is provided by Garcy Adda-Strip.



GARDEN CITY PLATING & MFG. CO. 1736 N. ASHLAND CHICAGO 22, ILLINOIS

### I FTTFRS

#### TO THE RESCUE!

Sirs.

When I received the March '42 [sic] issu of FORUM, I found a drawing of a moder American Spaghetti Bar and took out thi page for future reference. To my great di appointment today, I couldn't find this in m files.

Please forward me this particular pag only, by return airmail. This is urgent fo the reason I have just taken over a new stor where I intend to install the bar and an paying rent.

Don't know exactly how much this page worth, but I am enclosing herewith a one dollar bill. If this amount is not enough, will gladly send you a check for the balance Thanking you in advance for this great favor RALPH CUOMO VERD Santiago, Chile

• Put the spaghetti on; a photostat of the miss ing page is on the way .- ED.

#### KUDOS

Sirs:

I compliment your staff on the new FORUM The past several issues have restored my ad miration of your organization and this pub lication.

The format is most pleasant and readable The contents are exceedingly valuable and interestingly presented. The size and weigh of each issue are still within bounds.

Particularly appreciated are the greater considerations given building engineering sub jects and the new approach to special build ing or project studies.

> PAUL GERHARDT JR City architect Chicago, Ill.

#### ARCHITECTURAL FUNDAMENTALS

Sirs:

Your magazine must receive a liberal share of the credit for fostering a wholesome return to fundamentals in architectural design.

Now and then some building turns up in your pages where the architect was perhaps merely trying to be different rather than making an effort to find a solution in harmony with contemporary social and economic conditions; or he may have been attempting "sculpture" or "abstract architecture" and thereby straying from the real problem. Nevertheless, we need journalistic coverage of all new developments.

Eventually, I hope to see more similarity in contemporary buildings, not through copying, but through sharing a common approach to problems. Then, perhaps, America will gradually acquire cities in which the buildings are harmonious, regional and expressive of our civilization.

> LLOYD E. MANLEY, architect Columbus, Ohio

continued on p. 92



Staff Quarters and Dormitory Building of the Crownsville State Hospital, Crownsville, Maryland. Architects: Rogers & Taliaferro. Contractors: Mullen Contracting Co., Baltimore, Maryland. Windows used: Lupton Steel Architectural Projected.

Take steel rolled specifically for projected windows. Finish with engineered designing and tested construction methods — continuous full welds at all corners of ventilators — heavy frame and ventilator members. Add experience gained by over 40 years in manufacturing metal windows — and you have Lupton Architectural Projected Windows — a favorite with architects.

Here is beauty in sturdy steel that blends with all architectural styles. Trim, narrow members allow generous glass areas, yet section members are deep for rugged strength. Ventilators open and close easily — will never warp, shrink, swell or rattle — provide natural ventilation regardless of weather.

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# A New Elevator Era For Heav AUTOMATIC TRAFFI



# raffic Buildings ATTERN CONTROL

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### Westinghouse Selectomatic Control with Automatic Traffic Pattern

is opening a new era in heavy-duty elevator service. The heart of the system is an electronic computer . . . ever alert, super-accurate, attentive to any changing traffic demand.

Automatic Traffic Pattern weighs the passengers, counts the stops in each direction, counts the corridor calls and locates their position, counts the by-passes and measures time. From the computation of this data, Automatic Traffic Pattern instantly selects the most efficient pattern for the existing traffic conditions and automatically shifts the system to this pattern. All without dial settings by starters, who now become building good-will ambassadors.

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This equipment is ideal for new buildings. Added to existing installations, it makes *any* elevator system ultra-modern. Call our nearest office listed in the Yellow Pages of your Telephone Directory.

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YOU CAN BE SURE ... IF IT'S Westinghouse

How to pick the correct walls for the buildings you design

1

2

3

5

If you are designing a building, you can pick the correct wall by matching the function of the structure against the Robertson Q-Wall products shown here. These modern walls save construction time and money and give many extra years of maintenance-free service. They can be demounted and reused to keep pace with plant expansion. Q-Walls weigh less than 1/16th of the equivalent masonry wall.

1. Galbestos. Ideal for standard industrial plants. Galbestos has the highest resistance to corrosion and weather of any protected steel siding or roofing you can specify. For mill buildings, warehouses, or any other industrial structures that do not require full insulation.

**2.** Insulated Galbestos. Perfect for a dry-occupancy industrial building that must be heated. Non-combustible insulation is installed on the job by the Robertson *Top-Speed* fastening method, and Galbestos applied over. Its heat transmission factor (U-Value) is 0.16 BTU per sq. ft. per hr. per degree of temperature difference, F.

**3. G-Type Q-Panels.** This is a *field-assembled* wall made up of an interior steel vapor barrier, a layer of incombustible insulation, and an exterior of tough, long-lasting Galbestos. The proper combination for an industrial situation which requires both temperature and humidity control. U-Value—0.16 BTU.

**4. Q-Panels.** A quickly erected, *factory-assembled* panel combining strong, dry, lightweight construction with architectural beauty. Well adapted to air-conditioned buildings of all sizes, and obtainable with various exterior surfaces, either metal coated steel, stainless or aluminum. U-Value—0.16 BTU.

**5.** H-Type Q-Panels. Differ from standard Q-Panels essentially in that they contain twice as much insulation. Ideal for cold storage warehouses, refrigeration plants and structures subjected to Arctic conditions. U-Value is 0.08 BTU. Write for complete details.



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### SPACE FRAME

Sirs:

LETTERS

Your article about the "Space Frame" is a thoughtful piece of work and I hope you will do more like it. Our own research work here, both in stress analysis and in the expression such structures take in form, has led us to see great possibilities in the space frame. In fact, the possibilities become almost too great for us to absorb. But that is true in all our work as architects—techniques are coming at us faster than we can resolve and express them. This is no reason for letting up on techniques, and I hope you will do more articles like this.

> ROBERT W. MCLAUGHLIN, director School of architecture Princeton University Princeton, N. J.

#### Sirs:

I read with interest and pleasure your symposium on space frame design. The display of imagineering in the different use of materials and the "new" concepts of design were as refreshing as one of the standard breaths of fresh air.

There is one point, however, which should have prominent consideration in any discussion of this sort. This concerns the buildability of any of these designs. I do not mean structural feasibility but rather the facility of construction. Are the elements easily handled by large equipment? Is there a maximum reuse of formwork or steel patterns? Are the manual operations minimized? Is there a minimum of interference between the operations of the various trades?

Not only is the engineer or architect responsible to his client for structural soundness and esthetics of a structure but it is inherent in the client A-E relationship that architect or engineer give his client the most for his money. With construction costs  $2\frac{1}{2}$ times what they were 10 or 12 years ago serious consideration must be given to economy of construction as well as economy of materials.

I do not mean to criticize or belittle the renascence of structural design. But I do believe that the designer must consider the ultimate service to which a structure is to be put, be it industrial, office or dwelling and consider the cost of the service to the client. A large part of this cost is in construction and it is the designer who directly influences its magnitude.

> ROBERT K. LOCKWOOD, associate editor Civil engineering American Society of Civil Engineers New York, N. Y.

#### Sirs:

Thank you very much for your fine presentation of space frame design (AF, Feb. '53). While the three-dimensional hangar structure you feature was built according to my design in 1946, I beg you to note that my theory of three-dimensional networks is outlined in the July 1940 bulletin of *Annales des Ponts et Chaussèes*.

> R. LE RICOLAIS Structural Engineer Paris, France

#### GARAGES GROW UP

Sirs:

I am very much interested in your article on parking garages in your February issue. I had charge of Westinghouse garage development from 1927-34. The machine you illustrate was built in 1931 and operated for years on Munro St. in Chicago. It uses less ground space and gives quicker service than any design so far developed....

H. D. JAMES, consulting engineer Pittsburgh, Pa.

Sirs:

"Garages Grow Up" was a most interesting article and the information was exceedingly accurate. You presented the latest ideas in garage construction in a manner readily understandable to a layman builder.

JULIAN ALLENBERG, president Allenberg Parking Stations Memphis, Tenn.

Sirs:

...Very interesting. It contains all the information about garages that I have spent 25 years gathering. I am a parking-lot man, but my hobby is to look for the different types of garages. I have visited Bowser in Des Moines and like his garage very much, but it is not the answer. I have seen Dezendorf's Park-O-Mat in Washington, but it is not the answer. I have talked to them both about putting their ideas together, but they both argue that they have it—and maybe they have....

I belong to the Metropolitan Planning Commission in the Chamber of Commerce. We have discussed your article and the Urban Traffic Forum in the same issue. Now, Irving Hand of the County Plan Board has my copy of your magazine... the magazine and the article are getting wide circulation in Tulsa.

GEORGE M. BEEBE B. B. Auto Parks Tulsa, Olka.

#### ERRATUM

Although The H. K. Ferguson Co. designed most of the Monsanto Chemical Co. installation at Soda Springs, Idaho, it was not responsible for the structures shown in the introductory photograph to the article about The H. K. Ferguson Co. in the December issue of the FORUM. The work shown in this photograph was designed by Engineers Patchen & Zimmerman.

### How molten metal helps give <u>Galbestos</u> its



Robertson Galbestos has the greatest resistance to weather and corrosion of any protected steel roofing or siding obtainable anywhere. This position of broad superiority is made possible by a unique manufacturing process exclusive with H. H. Robertson Company.

First, the steel sheet is pickled . . . then given a coating of molten zinc. Asbestos felt is then pressed on so that as the molten metal hardens in cooling it grips the felt fibers in absolute bond. The asbestos is then impregnated with a special asphaltic compound and, finally, given a tough weatherproof coating. Galbestos can be furnished flat or in the 3 well-known corrugations: Standard, Mansard, and V-Beam. The resultant material is so durable, it may be sheared, bent, rolled, crimped and riveted in the field as easily as ordinary unprotected steel. It will withstand the greatest possible extremes in weather temperatures without deterioration, and will actually retard fire better than naked steel. For an industrial roofing or siding that requires no maintenance under the most severe corrosive conditions, specify Galbestos.

Long Service Life. Galbestos will give longer maintenance-free service under the most severe weather and man-made corrosive conditions. Even salt air cannot penetrate its tough coatings to destroy the steel core.

Not Fragile. Galbestos' strong steel core sheet guarantees against breakage—during shipment or during erection.

**Resists Climatic Extremes.** Galbestos is not subject to damage either by tropic or frigid temperatures. Its coatings will not run under broiling sun or crack or spall in sub-zero weather.

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The York High-Velocity System permits each room occupant to control climate and was installed with the minimum amount of dislocation to the normal running operations of the hotel.

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> **Fifteen years of York performance** in the public rooms of this world-famous hotel led to the recent selection of York equipment to air condition 14 complete floors of guest rooms.

> York had the precise system for this important job because York has taken the compromise out of air conditioning. You need not put up with forcing a system to fit your building, or changing the building to fit a system.

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# **BIG NEWS IN ALUMINUM!**

48" Wide Embossed Industrial Corrugated

### ....For Lower Installed Cost,

### **Improved Appearance!**

All the advantages that have made Reynolds Aluminum Industrial Corrugated a sweeping success throughout industry...rustproof permanence, lowest maintenance, high insulation ...now at even lower installed cost and with improved appearance! With these new 48" sheets, side laps take

STANDARD

NEW 48"

30% less metal, 30% fewer fasteners ... and there are 30% fewer sheets to handle. With the new stippleembossed finish, the wider-spaced laps tend to disappear...making a handsome, uniform, textured effect. Call on Reynolds for literature, technical and application details.

Offices in principal cities. Check your classified phone book for our listing under "Building Materials." Or write Reynolds Metals Company, Building Products Division, 2020 South Ninth St., Louisville 1, Kentucky. DESCRIPTION:

METAL THICKNESS: 0.032 inch (22 U. S. Std. Ga.) FINISH: Embossed.

**LENGTHS:** 5', 5' 6'', 6', 6' 6'', 7', 7' 6'', 8', 8' 6'', 9', 9' 6'', 10', 10' 6'', 11', 11' 6'', 12'. (Special lengths cut to order subject to inquiry.)

WIDTH: Over all width  $48\frac{1}{3}$ ", nominal coverage  $45\frac{1}{3}$ ",  $1\frac{1}{2}$  corrugations side lap.

CORRUGATION: Pitch 2.667" center to center, depth %", 18 crowns, 18 valleys, one edge up, opposite edge down.

WEIGHT: 56 pounds per 100 square feet of formed sheet.

Standard .032" mill finish Industrial Corrugated also available—35" width, same lengths as above.

# REYNOLDS Lifetime ALUMINUM INDUSTRIAL CORRUGATED

SEE "Mister Peepers," starring Wally Cox, Sundays, NBC Television Network. HEAR "Fibber McGee and Molly," Tuesdays, NBC Radio Network.

## How to provide for **131,000 ELECTRICAL OUTLETS** ... now or in the future



SPECTACULAR LEVER HOUSE, on Park Avenue, New York City, will always remain electrically modern because of its General Electric Q-Floor wiring system. However offices may be rearranged, it will always be easy to provide neat, unobtrusive electrical outlets for office machines, telephones, and interoffice communications systems.

SKIDMORE, OWINGS & MERRILL, Architects. GEORGE A. FULLER CO., General Contractors. SMITH and SILVERMAN, Electrical Engineers. FISCHBACH and MOORE, Electrical Contractors.

GENERAL

### Lever House uses General Electric's Q-Floor wiring system

Lever House, like many other modern buildings, is constructed with Q-Floor, a cellular steel flooring that saves materials, weight, and construction time. General Electric provides connections that make the Q-Floor cells available for wiring - so that each Q-Floor cell becomes an underfloor raceway. An electrical outlet, therefore, can readily be located in any one of the 131,000 square feet of floor space in Lever House.

With General Electric Q-Floor wiring, wire moldings, wire tacked along baseboards, or wire around doorways can be eliminated. Outlets for power, inter-office communication sets, or telephones can be added or relocated within six inches of any spot on the floor-at any time-in quick time.

For more information about Q-Floor wiring, call your G-E Construction Materials district office. Or, write to Section C23-54, Construction Materials Division, General Electric Company, Bridgeport 2, Conn.



### **Criticism vs. Statesmanship in Architecture**

Modern architecture used to be all one thing and modern architects were comrades in arms. The public understood that the difference between contemporary architecture and traditional was that contemporary was more "functional."

### Functionalism was once the standard.

This was while the great architectural house cleaning was going on. Certain inherited methods of planning and building were being discarded because they seemed to lay a burden on building instead of helping it. They stood in the way of developing effective new ways of planning and building for our own age.

During all this time the "traditionalists" had one very valid point to make: a mere house cleaning could not fulfill all the needs of the human spirit. And the greatest artist of the modern movement, Frank Lloyd Wright, agreed with them to this extent: he called the house cleaning a "mere negation."

#### Now we cry for human architecture.

Modern architecture can no longer live on its promise of simple functionalism. It is clear to all thoughtful men that architecture to be great must go beyond the limited—though basic virtues of efficiency and common-sense economy. On all sides we hear the demand that our architecture be more human. If people are ready to travel thousands of miles to see such a milestone of building as the Piazza of St. Mark's at Venice, it is *not* because they are interested in the efficiency or function. People study it because its architecture contributes to the joy of living, just as music does.

#### But who is to say what is human?

There are now, within the contemporary movement, at least five different trends, each headed by an architect of great ability or even genius, and the followers of each such trend think they have the best answer. What one group thinks cold, the other finds noble; what one group thinks warm, the other finds sentimental.

### Critics and editors no less than architects have taken sides.

But who is to say that what I like is human and what you like is not? Who can really declare that his or her preferences represent "free taste" but yours are part of a conspiracy to subvert the nation? Even supposing that a taste contrary to mine is in a minority at the moment —what guarantee that this will remain true? On any preference poll taken in the late twenties or early thirties, Frank Lloyd Wright would have been buried under an avalanche for keeps, instead of surviving to reap the big piles of medals that have since accrued to him from all over the world, after people had a chance to learn more about the intensely human qualities of his work which they had scorned. Is 1953 any more infallible about such leaders as Mies or Gropius?

The one sure outcome of some of today's hatchet campaigns is that ordinary people will be thoroughly confused and disgusted. Not being up to all the esoteric issues being debated, they will simply conclude there is nobody in architecture they can trust. This may suit those editors and critics who might like to take guidance into their own hands, but it will surely take guidance out of the hands of professional men. Major ideas do not gestate favorably in a mob.

#### Where does Forum stand?

FORUM will continue to be a forum indeed, where buildings reflecting different attitudes toward design are sympathetically presented, where architects of conflicting convictions can express their thoughts. Our editors will continue to do their best to avoid being captured by *any* of the new "styles" and to be guided by Style: to belong to no group but to publish the best work regardless of origin and on the basis of its individual merit and its ideas.

This does not mean that the editors lack personal belief. Surely no reader has missed the top position assigned in FORUM to the ripe achievement and thought of that dean of the world's architects, Frank Lloyd Wright (see pp. 98 and 104).

To help sort out the main Design trends so the public as well as architects may understand them, FORUM will shortly publish a discussion of each major trend by sympathetic observers. The series will open with a review of today's trends by that most thoughtful and respected of the younger men in architecture, Eero Saarinen.

Criticism of architecture is important, even partisan criticism; but more important than parties is statesmanship.

### FRANK LLOYD WRIGHT'S CONCRETE AND COPPE



The skyscraper Frank Lloyd Wright had been planning and replanning for nearly a generation goes into actual construction this summer – not in New York, not in Chicago, not in San Francisco, but in Bartlesville, Okla. (1950 population 19,228). It is 18 stories, 186' tall – and its tower floors will gross only 1,900 sq. ft.

This will be a jewel-like building, somewhat small in size but vast in reach; modest in area but rich in ordinance. It rates careful study for its engineering, for the 83-year-old master has ventured boldly into the integration of tomorrow's structure and tomorrow's mechanization (see page 101). It is worth study for its economics, for this will probably be the costliest office building ever erected and yet it may prove one of the most profitable (see p. 102). It is charming in its human scale and intriguing for the way it combines business offices and residential apartments on the same floor. It is exciting for the way it seems from some angles almost all copper, from other angles almost all glass – glass not white, not green, but gold.

But none of these aspects is as important as the attitude toward style and the attitude toward location.

### This is Frank Lloyd Wright's challenge to the dogma of "simplicity"

Here in concrete and steel and copper and glass is organic architecture's answer to the stripped vernacular of almost all today's commercial construction. Here is an office building that is all flowering ornament – ornament, in Wright's own words, "of the building, not on it." Here is a tower whose surfaces have depth, whose form is manifestly intended to "transcend function and be touched with poetic imagination."

At first glance such a tower might seem anachronistic in an age that delights to honor such flat surface masterpieces as Lever House, an age when even the bosses stamped into the Alcoa Tower and the spiderweb on the UN Secretariat are called three-dimensional. And it is true that no thoroughbred business building has been so richly adorned since Wright's own "Lieber Meister" Louis Sullivan laced the entire envelope of his 1908 Guaranty Building in Buffalo with terra cotta cast in delicate patterns.

But this "anachronism" of ornament is studied, deliberate, and defiant. Is this then the last skyscraper of another age? Or does it mark a new swing of the pendulum which through all ages has alternated between the wealth of ornamentation and the elegance of simplicity?

1929 DESIGN FOR NEW YORK APARTMENTS IS PROTOTYPE FOR PRICE TO

### SKYSCRAPER ON THE PRAIRIE FOR H. C. PRICE CO.





### Here is a skyscraper standing in its own shadow and only in its own shadow

Not since Goodhue gave his wheat sower a pedestal 338' above the plains atop the Nebraska capitol has a US elevator building been so deliberately stood up free—"in its own right, in its own park, casting its long shadow on its own ground." And never before, to FORUM's knowledge, has it happened with a tall business structure. Never has so tall an office tower been built in so small a city.

In the business district of New York or Chicago an 18-story building would be cramped and dwarfed and might not be visible for more than 500'. In Bartlesville, this tower will be visible from 16 miles away. Its upper floors will command an unbroken view in all directions over 800 square miles of prairie and foothills.

This act is Wright's manifesto for the elevator building: for, "as trees crowded in the forest have no chance to become themselves (as they could if they stood alone) so the skyscraper needs to be freestanding in the countryside to become a human asset."

### Certainly there is nothing anachronistic about the construction or engineering of this tower

The structure will be as new as tomorrow, but the integration of engineering with design is peculiarly Wrightian and the basic concept has existed in his mind and in his drawings for at least 25 years. (See below.)

The structural system reverses completely the current—and modern—method of enclosing buildings from the outside in, of conjoining the structure with the box enclosure. This tower is carried literally from the inside out. The bearing elements are four separate hollow concrete fins, each 18' long, set like a cross or a pinwheel near the center, producing a quartered building or, as Wright calls it, a "segmented quadruped." (See plans.) Each floor is carried like a tray on four diagonal arm-walls set at an angle of 30°-60°.

This structure, revolutionary 20 years ago, is bold even today, for it means that the entire floor system can be considered as cantilevered – some of it perhaps even 20'. Only in the past five years has conventional construction moved the enclosure 2' to 3' beyond the skeleton to get continuous windows.

The structure is light. It takes advantage of cantilevers, light-weight aggregates and the happily lenient building code in Bartlesville which imposes no foolish fire safety requirements on the masonry under the windows of such a free standing tower.

And that is still not all, for there is another advanced idea: the structure not only carries the mechanical equipment; it is also an integral part of the mechanical equipment. The hollow fins and hollow floors are so





#### CONCRETE AND COPPER TOWER IN DAYLIGHT



HALF-SECTION through office floor shows hollow structure cantilevered beyond beam which spans vertical fin walls.

formed as to serve three separate functions in addition to structure-to serve the plumbing system for chases, the elevator system for shafts, and the air conditioning system for ducts and plenums. This last integration means the whole structure will provide supplementary radiant heating in winter, radiant cooling in summer. Supply air will be zoned with each fin serving a separate quadrant.

The cooling tower will be made to do double duty as three fountains atop the highest office floor (the fifteenth) and one fountain on the roof of the adjoining two-story wing.

As for its elevators, this Price Tower is perhaps the first office building erected since the war where service will be truly adequate—four elevators for perhaps 200 tower tenants on 17 floors. The cost of extra equipment will be largely offset by dispensing with operators. Moreover the elevator machinery is in the basement, not on the roof. Were this made general practice, what an improvement in maintenance and in the skyline of a thousand buildings whose penthouses would be rid of machinery and available for human use!

Such integration was not thought out overnight The evolving idea of the Price Tower traces back to Wright's famous Chicago skyscraper project, the illfated National Life Insurance Co. building plan of 1924, close to 30 years ago; and when Wright drew that he had been in practice for himself for more than a generation.

The National Building had four wings and the cantilevers were carried on parallel rows of interior columns (exactly the scheme to be repeated in the proposed UNESCO building, by Italy's famed engineer Nervi, to be shown in next month's FORUM).

It was for the 1929 St. Mark's apartment tower scheme for New York that Wright changed the parallel row of supports into the "quadripartite" scheme of right-angled fin supports; and in 1940 that he arranged these towers in a long arched row for the Crystal Heights project for Washington.

### This tower is all windows-but all are in shade

And this brings the story full-cycle to the theme of structure as ornament. For although other architects around the world have worked indeed with fins and trellisses as sunshades, not yet has one of them so cunningly used metal vanes to suggest "not only the trellis but the vine." Laid horizontally against the three business quadrants of the tower, vertically against the domestic quadrant, these 20" fins are of that exceptionally noble metal, copper.

The copper may be counted on to change color with the years—first red, then black, then verdigris; through the spring, winter and summer of the tower the harmony will persist, since the metal will lie against not only the concrete spandrels or parapets, but against glass that will be tinted gold.

Nor will that enrichment be all: for the matching copper facings of the alternate mezzanine spandrels are to be of a delicate stamped pattern as fine as the ones Wright has made familiar on his great houses.

#### And what about the cost?

Wright himself believes the tower can be erected for no more than a conventional structure. Some builders, on the contrary, think it will cost more than \$3 million; i.e., more than \$60 a sq. ft. Some subcontractors have been scared by the unusual design, have bid as high as \$450,000 for the exterior copper alone, more than \$300,000 for the concrete.

The owner is satisfied that the building can be bought for much less than \$3 million, is prepared to negotiate compromises on the specifications like substituting aluminum for copper on the fins and tile for stainless steel on the bathtubs, (on which bids have run as high as \$1,400 each). At this stage, the two safest cost forecasts seem to be these:

1. This tower will cost more per square foot than any office building in America;

2. Nevertheless it should be worth more than its cost to its smart and well-heeled owner, the H. C. Price Co., which did a \$10 million business last year in tie-in pipe lines for oil distribution.





This profit is not a matter of high rents for airconditioned offices all with a two-way view. This is a matter which is central to all great architecture. From the time of Cheops, great architecture has almost always implied some element of conspicuous waste – sometimes conspicuous waste of decoration, sometimes conspicuous waste of space, sometimes both. But what has construction cost to da with the values of the Acropolis, or the Piazza in Venice, or Versailles – or, for that matter, with the little glass box which of late has conferred unwilling immortality on Dr. Edith Farnsworth for \$76,000? Architecture is admittedly the costliest of the arts. Fortunately, it is also an art which has proved again and again that in time its intangible values can pay off.

In the end architecture, great architecture, is the most enduring—and often the most economical—form of "promotion," when advertising transcends itself and becomes the building and the presentation of character. How often must we relearn the lesson taught by the Singer Building and the Woolworth Tower, by Rockefeller Center, Corning Glass, Johnson Wax, Alcoa and Lever House?

At a time when television shows cost \$100,000 for a single hour on the air waves, when talent for an evening is paid more than the world's greatest architect earns in a year, the wonder is that some smart public relations man didn't have his client snap up this little masterpiece long ago for its advertising value.

Today the Price Company is completely unknown outside its own industry. Tomorrow this little 40,000 sq. ft. gem of a building will make Price famous.

### Wright himself prefers to speak in buildings, but here are his words:

"The skyscraper, unintentionally, has hastened decentralization. So, to the rolling plains of Oklahoma comes a fresh realization of the advantages of architecture as yet unknown to the great city. As trees crowded in the forest have no chance to become themselves (as they could if they stood alone) so the skyscraper needs to be freestanding to become a human asset. The 'upended street' in nature gains more natural advantages from natural use of the technical triumphs of steel and glass.

"Individuality is no less appropriate to American business, even more appropriate than to other facets of American life. The successful Hal Price Company intends to enjoy all there is to be had through complete use of preferred, convenient, compact space in open sky—fresh air, far views, the workers for Price to be surrounded by roof gardens, fountains. And here in splendid isolation they will defy climatic discomfort, winning dominance at no man's expense but their own. "This type of sheltered-glass tower building I first designed in 1924 for Chicago and in 1929 for St. Mark'sin-the-Bouwerie in New York. The idea has already been imitated, more or less, all over the world.

"Has our country in the interval grown up to skyscraper status, or has the skyscraper taken a field trip of its own? No matter; I believe this type of structure, weighing but a fraction of Rockefeller Center structures, will become a natural everywhere for successful men and companies like the one this building tells us about.

"Steel, the spider spinning, here serves the democratic individual's healthy aspiration with even more privacy and no less convenience than the ranch house down in the dust.

"Freedom of interior and exterior occupation, protection of available light and air, are here. Copper blades and tinted glass together make air conditioning less a necessity, make the occupant more comfortable and his 'pump' more likely to hold out where extremes of warm and cool alternate to tear his human structure down.

"The self-service elevator is part of that gadgetry to which American people are sufficiently awake. Someday they will awaken to the 'payoff' of good design in building, learning little by little to know it when they see it.

"Witness this release of the skyscraper from slavery (of commercial bondage) to a human freedom."



### THE LANGUAGE OF ORGANIC ARCHITECTURE

P. E. Guerrero



FRANK LLOYD WRIGHT 1953

Organic (or intrinsic) architecture is the free architecture of ideal democracy. To defend and explain whatever I have myself written on the subject I here append a nine-word lexicon that seems needed, world wide, at this moment of our time.

If what I have written upon the subject of architecture and what I have built is studied with this nine-word lexicon in mind, I am sure we will have far less confusion and nonsensical criticism upon which inference, imitation, doubt and prejudice can flourish.

These are the words:

- NATURE means not just the "out of doors," clouds, trees, storms, the terrain and animal life, but refers to their nature as to the nature of materials or the nature of a plan, a sentiment, or a tool. A man, or anything concerning him, <u>from within</u>. Interior Nature with a capital N. Inherent PRINCIPLE.
- ORGANIC denotes in architecture not merely what may hang in a butcher shop, get about on two feet or be cultivated in a field. The word organic refers to entity; perhaps integral or intrinsic would therefore be a better word to use. As originally used in architecture, organic means <u>part-is-to-whole-as-whole-is-to-part</u>. So entity as integral is what is really meant by the word organic. INTRINSIC.
- FORM FOLLOWS FUNCTION. This is a much abused slogan. Naturally form does so. But on a lower level—and the term is useful only as indicating the platform upon which architectural form rests. As the skeleton is no finality of human form any more than grammar is the form of poetry, just so function is to architectural form. Rattling the bones is not architecture. Less is only more where more is no good.

Form is predicated by function but, so far as poetic imagination can go with it without destruction, transcends it. "Form follows function" has become spiritually insignificant: a stock phrase. Only when we say or write "form and function are one" is the slogan significant. It is now the password for too much sterility. Internationally.

SPACE. The continual becoming: invisible fountain from which all rhythms flow and to which they must pass. Beyond time or infinity. The new reality which organic architecture serves to employ in building – the breath of a work of Art.

### by FRANK LLOYD WRIGHT

- THIRD DIMENSION. Contrary to popular belief, the third dimension is not thickness but is depth. The term "third dimension" is used in organic architecture to indicate the sense of depth which issues as of the thing not on it. The third dimension, depth, exists as intrinsic to the building.
- **TRADITION** may have many traditions, just as TRUTH may have many truths. When we of organic architecture speak of truth we speak of generic principle. The genus "bird" may fly away as flocks of infinitely differing birds of almost unimaginable variety: all of them merely derivative. So in speaking of TRADITION we use the word also as a generic term. Flocks of traditions may proceed to fly from generic tradition into unimaginable many. Perhaps none has creative capacity because all are only derivative. Imitations of imitation destroy an original TRADITION. TRUTH is a divinity in architecture.
- **ORNAMENT.** Integral element of Architecture, ornament is to architecture what efflorescence of a tree or plant is to its structure. Of the thing, not <u>on</u> it. Emotional in its nature, ornament is – if well conceived – not only the <u>poetry</u> but the character of structure revealed and enhanced. If not well conceived, architecture is destroyed by it.
- SPIRIT. What is spirit? In the language of organic architecture the "spiritual" is never something descending upon the thing from above as a kind of illumination but exists within the thing itself as its very life. Spirit grows from within upward and outward. Spirit does not come down from above to be suspended there by skyhooks or set up on posts.

There are two uses of nearly every word or term, but in organic sense a term is used in reference to the inner not the outer substance. Any word, such as "nature" for instance, may be used to denote a material or physical means to an end, or the same word may be used with spiritual significance, but in this explanation of the use of terms in organic architecture the spiritual sense of the word is uppermost in use.

**ROMANCE**, like the word BEAUTY, refers to a <u>quality</u>. Reactionary use of this honorable but sentimentalized term by critics and current writers is confusing. Organic architecture sees actuality as the intrinsic romance of human creation or sees essential Romance as actual in creation. So romance is the new reality. Creativity <u>divines</u> this. No teamwork can conceive it. A committee can only receive it as a gift from the inspired Individual. In the realm of organic architecture human imagination must render the harsh language of structure into becomingly humane expressions of form instead of devising inanimate façades or rattling the bones of construction. Poetry of form is as necessary to great architecture as foliage is to the tree, blossoms to the plant or flesh to the body. Because sentimentality ran away with this human need and negation is now abusing it is no good reason for taking the abuse of the thing for the thing.

Until the mechanization of building is in service of creative architecture and not creative architecture in the service of mechanization we will have no great architecture.

\* \* \* \* \* \*

Probably a definition of the word **DEMOCRACY** should be added. So to this lexicon of nine words I add a tenth. Democracy is our national ideal . . . not yet well understood by ourselves so not yet realized. But we are a new republic with this ideal of freedom for growth of the individual <u>as individual</u>. Freedom is not conceived as numbered freedoms. If true, organic freedom is not to be conceived in parts. Freedom is <u>of</u> the man, not accorded to him or ascribed to him except as he may require protection. For that purpose government – as protection – exists and exists for none other.

Our Declaration of Independence saw democracy as the gospel of individuality and above polemics or politics. A new definition of what constitutes a gentleman is needed in this highest form of aristocracy yet devised by man: an Aristocracy not autocratic, not conferred, but innate or earned by the man himself. Not to be transferred except as maintained in the heart of the individual and seen by his deeds. Only by growth and exercise of individual conscience does he earn or deserve his "rights." Democracy is the opposite of Totalitarianism, Communism, Fascism or Monarchy. But Democracy is constantly in danger from mobocracy – the rising tide of as yet unqualified herd instincts: mechanized Mediocrity.

The United States of America was first to found a nation upon this inherent right of the individual to be free, to grow; free under those terms of individual conscience which our government was designed to cherish, protect and use to keep Freedom (on equal terms) for all.

Frank Lloyd Wright Taliesin West February 1953




## **BUCKY FULLER FINDS A CLIENT**

### Young Henry Ford translates the geodesic dome into aluminum and plastic, spans 93' rotunda

#### with 21/2 lbs. per sq. ft. of floor area compared with 50 lbs. for steel

The best architectural ideas and the best engineering ideas are stymied until they find a client willing to build them. Worse than that, they are too often discredited as screwball or dream stuff until someone is willing to back them with his dollars and prove they are as practical in fact as they are exciting in concept.

Take the case of Buckminster Fuller and his geodesic dome. For 20 years everyone has recognized Fuller as one of the most prolific idea men in architectural engineering. For 20 years everyone has said that some day somebody would revolutionize building by realizing Bucky's dreams.

When FORUM published its long feature story on the geodesic dome in August 1951, it was still dream stuff. But now young Henry Ford has put his money into the venture. And here are the pictures by which anyone can see that Bucky's geodesic dome is not only a very logical but also a very simple, easy and practical way to span a big area. Perhaps, after this demonstration, it will not be long before the next big outdoor theater (similar to Pittsburgh's projected "umbrella" scheme), the next domed airport terminal (like Pereira & Luckman's at Los Angeles, with its 350' dome)

Aluminum spiderweb shaped like a dome spans 93' well of Ford Motor Co.'s Rotunda Building and rises about 40' above the work platform, itself 60' above the floor. Despite its size, the dome weighs only  $8\frac{1}{2}$  tons,  $1\frac{1}{2}$  lbs. per sq. ft. and some of the next Air Force hangars and industrial buildings will depend on Fuller's methods. Perhaps even the ordinary citizen will some day be intrigued by the dome's economics when he builds his new home.

Ford was intrigued by Fuller's dome for three good reasons:

▶ The old Rotunda Building could not carry a 160 ton conventional dome of steel, but it could easily carry the 8½ ton geodesic dome of aluminum.

▶ Ford recognizes good promotion as well as good engineering when he sees it. The company is celebrating its 50th anniversary this year and Fuller's photogenic structure is a public relations man's dream—as these pictures attest.

▶ Fuller's dome is made of small pieces which go together easily and quickly—the structure was assembled in 30 working days from 19,680 five-ounce aluminum struts 3' long. To get his dome erected—and erected so fast that materials suppliers were the chief causes of delay because they would not believe the delivery schedules asked for—Fuller had to resort to what he called aircraft building technology. The dome's many identical and interchangeable parts were factory cut and drilled to tolerances of 0.005". Elimination of on-site dimensioning and fabrication let Fuller carry aircraft tolerances over into the building field.

For a strut-by-strut account of the assembly, turn the page.







1. Basic unit of Fuller's dome for Ford is an aluminum strut 29"-35" long shown ready for use in shelves of triangular assembly table. Struts are cold-riveted into triangles and nested together on floor. Each strut is marked with three pieces of colored tape; the piece in the middle codes the unit, those at the ends aid assembly.

2. Octahedron is assembled from four triangles. It thus contains 12 struts and weighs only about 4 lbs. Tapes are colored red, blue, yellow, green, orange and black and remain on the structure after assembly. Since the dome will have no inside skin, structure and tapes will be visible from floor. Rotunda will be a huge top-lighted display room. 3. Truss, triangular in shape and about 2½' deep, consists of ten octahedrons riveted together. It contains 123 struts, but weighs only about 65 lbs. and is therefore easily portable by one man (photo bottom, right). Although this space frame appears complicated, colored tapes permit relatively unskilled labor to assemble 12 trusses a day.



4. Spines or beams are aluminum channels hung from lower edge of dome in a triangular pattern to receive and frame the trusses. The dome is assembled from the top down. It is jacked up on a central mast as each successive "ring" of spines and trusses is attached to the circumference.



5. Final adjustment in shape of completed structure is made by block and tackle before rim of dome is lowered on its 20 supports around Rotunda wall

R. BUCKMINSTER FULLER, designer H. SANBORN BROWN, architect LAUCOMER & MANSER, engineers



Central mast and hydraulic jacks raise the structure above the work platform as the dome takes shape outward and downward.





At halfway point (above) dome is like an umbrella, supported only by central mast. Structure is rotated to permit workmen on platform to add spines and insert trusses into triangles formed by the spines. Dome is topped by ventilator. Large 'riangles of plastic skin are added once structure is complete.







Factory-type construction and industrial building materials mark the trim, functional character of school design.

Model of completed school on 18-acre site shows campus-type building development with connecting corridors. When constructed, top two classroom wings will raise capacity of school from 600 to 1,200 pupils.





FOSTER JUNIOR-SENIOR HIGH SCHOOL LOCATION: South Central School Dist., Seattle, Wash. RALPH H. BURKHARD, architect PETER HOSTMARK, structural engineer L. N. ROBERSON, mech. & elec. engineer BRAZIER CONSTRUCTION CO., contractor

# **TWIN-WING SCHOOL**

### gets maximum flexibility with a factory-type structure for only \$12.91 per sq. ft.,

solves lighting problems with plastic skylights and motor-driven louvers

The most conspicuous thing about this high school is also probably the most important: the arrangement of classrooms in four twin wings, each about 140' long, each with twin gables. What Architect Burkhard achieved by this new plan is remarkable: 1) ability to alter and recombine classroom space not only lengthwise but also crosswise to the building; 2) economies of center-corridor compactness but without the center corridor; 3) release from orientation restrictions, since the independent gable roof over each room converts into a highly efficient "light plenum" for top lighting; 4) spans that could be produced permanently with cheap factory materials-but including also an unprecedented use of corrugated plastic.

Space flexibility was gained by using a steel loft-type framing system of regular 10' x 30' bays in classroom wings. Since no walls are structural, the transverse partitions (modular on 10' centers) can be moved to enlarge or reduce room sizes to fit program changes. Within each room there is great flexibility due chiefly to the overhead lighting system. Outside windows, for example, can be completely covered with tack boards or displays with little reduction in lighting. Cabinets are built on 4' modules and can be interchanged at will. A utility core running between the double bank of rooms makes water and electrical-outlet location possible anywhere along the common wall. Central columns (see plan, p. 115) make crosswise expansion a little less slick but this fine possibility is herewith opened.

Classroom lighting is solved by one of the most efficient overhead systems built into any US school. The roofs of all classroom

wings are actually light-diffusing machines. Plastic skylights admit the sun's rays; curved steel louvers below the skylights automatically adjust themselves to control the amount of light admitted and begin to diffuse it. Finally, a hung ceiling of translucent plastic spreads the light evenly over the entire classroom. Photoelectric cells connected to electric motors govern the position of the louvers. Maximum brightness at desk height is set at 350 footcandles-if clouds reduce the light below 50 foot-candles, incandescent lights automatically go on to supplement the sun. The overhead light system cut down reliance on windows, permitting lower walls and ceiling, also shaded outside corridors. It produced a steadier heat-load factor than window walls, thereby cutting the lag-and-override difficulties of radiant-heated floors.

Durability and economy of structure are combined by imaginative use of factory materials throughout the school. Steel H-columns and simple steel trusses frame the entire building with the exception of the wood-frame administration building and the laminated wood arches of the gymn.

Outside, walls are cement asbestos on plywood treated with a sealer; sloped roofs are of corrugated cement asbestos panels with skylight areas of light yellow corrugated plastic. Upper part of gym roof and all flat roofs are built up.

Inside, walls are of smooth cement asbestos panels cemented to plasterboard, waxed and polished. Light gray of the board gives a pleasing color and replaces paint to reduce maintenance costs.

Cost of the school came to \$12.70 per sq. ft. including fees. This is \$56,779 per classroom or \$1,514 per pupil for the 600-student school. However, when the school is enlarged to its projected capacity of 1,200 students, the per-classroom and per-pupil cost will be considerably lower.



**Top-lighting "machine"** (above) of skylights, louvers, diffusion ceiling has added advantage of cutting heating costs by admitting solar heat.

**Ceiling of light** (below) covers entire library; controls are set for peak of 350 foot-candles and minimum of 50 at which point the lights come on.





ing Southgate Elementary School (right) are: over-all rather than partial diffusion ceiling, wider separation of skylights, curved rather than straight louvers. Note resulting flatter illumination curve. Brightness ratios are also good.



**Classroom wing** lighting is the latest development in Architect Burkhard's continuing experiment with light. Chief advances over his earlier design in Southgate Elementary School (AF, July '51) are: 1) curved rather than straight louvers for better light diffusion immediately below the skylights; 2) a plastic ceiling that covers the entire room; 3) more separation between the skylights on opposite sides of the pitched roof. These changes resulted in much better light distribution throughout the classrooms (see diagrams above).

Fears that the skylights would cause excessive heat loss proved groundless. In fact, the solar heat gain is so great that exhaust fans are required above the hung ceiling. Economically, the system has proved successful. Fuel and electrical costs for heating and artificially lighting the school have been cut. Construction costs were lower, too. The plastic skylights, for example, cost only \$1.75 per sq. ft. in place compared with \$2.50 per sq. ft. for conventional kinds. Automatic equipment-photoelectric cells, motors, pulleys, chains and control equipment-cost \$450 per classroom. Other real but unanalyzable economic advantages lie in 1) more efficient use of interior space; 2) freedom to use roof overhangs to shelter exterior corridors, which eliminates expensive interior corridors; 3) more usable wall space with less floor space, since window walls as well as partitions can support tack or chalk boards.



Exterior corridors are sheltered by roof projection. Cheap to build, this corridor system reportedly works well in Seattle climate.



**Gymnasium** is framed with laminated wood arches 43' high spanning 131'. Except in the skylighted areas, the panel roof is insulated with spun glass. A unique open-grid ceiling, hung 19' beneath the top of the arched roof, is made of acoustical strips which act as both a sound and light baffle. Ends of the gymn are simply enclosed with 2" composition panels fastened to open-web steel joists placed vertically.

The 101' square gymn floor can be divided by a 24' high electrically operated partition which has a 40 decibel sound drop to permit double use of the area. Folding bleachers along the walls seat 1,400 people.



Gymn corridor is formed by wood arches and roof extension.





Hangar-type gymn structure is framed with laminated wood arches spanning 131' and reaching a height of 43'. Structure encloses 101' square area. Cement asbestos panels are used for walls and lower edge of the roof. Skylights are unbreakable plastic that has resisted all stone-throwing by the boys.

**Collapsible partition** dividing gymn floor is 24' high, has a 40 decibel attenuation, is electrically operated.



116



Ends of hangar-type gymn are ingeniously enclosed by hanging  $2^n$  insulative composition panels on a series of open-web steel joists placed vertically.

**Hung ceiling** of two series of acoustical strips placed at right angles forms a light as well as sound baffle for the gymn area. Its height—24' above the gymn floor—assures enough freedom for basketball playing.





**Detail of ceiling** from above shows steel suspension members attached to arches, relationship of diffusing strips to skylight.

**Cafeteria** lighting system is different from the workrooms: classes, library and shops. Here, no skylights are used in the main part of the room. Instead, the entire east side wall is made of light green plastic. The sheets are mounted on a metal frame attached to the steel H-columns which support the nearly flat truss roof. A high window in the south end wall and a clerestory in the west wall complete the daylighting scheme of the main room.

The building presently serves as cafeteria and auditorium so a skylighted stage was included opposite the kitchen end. When the school is expanded to full 1,200 student capacity, a more elaborate auditorium will be built on part of the site reserved for it.



**Plastic east wall** of cafeteria-auditorium sets architectural character of this building as well as providing primary light source for the interior. Areas between buildings are developed as courts to relieve the building masses.



School cafeteria put to its primary use of serving food is lighted by plastic end and side walls.



As an auditorium, students face other end of building where stage has been built. Only skylight in this building is over stage (section, left).



# **NEW THINKING ON HOSPITALS**

## Hospital planning is splitting its old cocoon

and something radically different from the familiar concept of the hospital is emerging

Hospital architects like to think they are more venturesome fellows than their medical consultants and hospital clients.

But is that always true? Or are there some new ideas of hospital economics and medical practice where the doctors are at least one long leap ahead of most hospital planners?

Doctors and administrative consultants are not trained to translate changes in practice into physical plant. In fact, they may be slow sometimes to see that changed practice means changed plant. This part of the thinking is of course the architect's function.

Take the diagnostic and therapeutic departments of the hospital as an instance of change. They are still called "adjunct facilities" in memory of a day when they were an adjunct to the nursing units. Today they are the core of the community's entire medical setup. The docters know it.

But do all the architects know it? With few exceptions they are still planning hospitals as if the core were related to nothing except a nursing wing and a hospital clinic.

Overleaf is an outstanding example of what can happen when an architect who understands this change in medical practice gets together with an alert building committee.

Or take the matter of humanization. A generation ago almost nobody questioned that medicine was at last a science. Enter psychosomatics and the "whole man." Today it is a rare doctor who does not recognize that medicine is at least half art, a germ the simplest of his antagonists.

But hospital architecture has humanized itself no more than the general run of institutional architecture; at best it is about as personal as our new banks and factory lunchrooms. It has not yet been shaken up by the "whele man" approach as medicine itself has been—or in the sense that the best school architects have revolutionized the architecture and scale of the elementary school.

Or take the question of bringing nonhospital facilities into the hospital. Under pressure of economics this is no longer theoretical. Here physical plant is of the essence; the architect must take the lead in understanding both the economics and the social pros and cons.

When a building category begins to get so many jolts it is time to study what is in the making. Hospital Architect Joseph Neufeld's analysis of the over-all community health plant (p. 131) shows how pioneer bits and pieces of new hospital planning could fit together, what they can look like in the round, how new planning answers can strengthen a society of voluntary hospitals and private medical practice.

The pioneer bits and pieces are already cropping up all over the country to challenge the repeaters of vesterday's hospitals. A few instances: Architect Vincent Kling's soon-to-open hospital in Hunterdon, N. J. has public health and community agency offices built in (coming soon in FORUM). Finger & Rustay's new 350-bed VA hospital for Bonham, Tex., has an "outsize" core, separate, distinctly different nursing units for acute and convalescent treatment with the latter related to a separate social center (an idea that could be adapted to a community hospital). Pereira & Luckman's program for the Hospital Foundation of the Methodist Church in southern California and Arizona copes with economics and with greater integration of hospital and community by including doctor's offices and public restaurants (not just snack bars), drugstores and commercial laundry. The Hill-Burton program has pushed hard for the intelligent step of combining hospital and public health.

On the following pages FORUM presents other outstanding bits and pieces of new thinking—a hospital with an adjoining physicians' building and drugstore, public health offices with clinics, hospital cores in doctors' offices.

The prospects of hospital design look unusually exciting. Its progress is especially promising today. Besides the stimulus of brand-new problems, it has a lot of fresh new blood (p. 125).

But there is a lot of spadework to be done yet. For this issue FORUM attempted to get a list of all the health facilities in any specific town (hospital, commercial laboratories, roentologists, public health offices, voluntary health agencies, etc.) with some idea of their floor space, rents.

We were unable to get it for the incredible reason that apparently nobody has ever made such an analysis!

It looks as though hospital planning might take a leaf from the sort of economic approach architects like Kenneth Welch or Victor Gruen, analysts like Larry Smith or Homer Hoyt have brought to shopping centers (AF, Apr. '53).

This is not to suggest that hospitals become commercialized! It is possible to be economically sensible without embracing the golden calf. Indeed it is imperative if hospitals and doctors are to remain free of government control.



**Model** shows physicians' building in center, linked to nursing wing (rear). Nurses' school and home (foreground) are abuilding.

BRISTOL MEMORIAL HOSPITAL LOCATION: Bristol, Tenn. A. L. AYDELOTT & ASSOCIATES, architects B. B. MERRILL, structural engineer FLINN & THORPE, mechanical engineers GWEN LUX, aluminum sculpture ALLEY CONSTRUCTION CO., general contractor



Glazed lobby stretches like a porch between physicians' building and nursing wing; behind it is the core





Physicians' building at left houses drugstore and offices which pay off deficit of nursing wing

## THIS HOSPITAL PAYS ITS OWN WAY

and its integrated hospital-physician facilities are attracting top-grade medical talent

This 120-bed hospital doing 10 to 12% charity work has no operating deficit because the rent from its physicians' offices and commercial drugstore fully pays off losses in the hospital proper.

Furthermore, the combination of physicians' offices and hospital is so well liked by the medical men that it has already attracted five outstanding young specialists who would not have come to Bristol otherwise.

And because the hospital core gets continuous joint use, it is able to have a full-time pathologist and full-time radiologist, which the old hospital was never able to employ.

The physicians' building—joined to the nursing wing by the facilities both use—brings in a net profit of about \$60,000 a year. This, as Robert Kell, mayor of Bristol and chairman of the building committee prefers to put it, "is equivalent to a \$1 million endowment bringing in 6%."

The lion's share of the net income is from the drugstore, which pays a flat rental plus a percentage of its gross. Of course the income from the drugstore would not be so high—it might not even be worth-while—without the physicians' building.

All this has a familiar ring. It is precisely the principle on which shopping centers operate: combine diverse but related enterprises for mutual benefit. Indeed the parallel is literal because the crack economists who develop shopping centers are already putting physicians' offices into their plants simply because doctors draw people to the center.

Bristol's scheme makes at least as much economic sense for a hospital and it makes far more social and medical sense.

The interesting thing about Bristol's scheme is that this city was no more "ready" for such an innovation than any other town. When the project was broached to doctors, most thought it would be disadvantageous to move their offices  $1\frac{1}{2}$  miles from downtown. But the hospital trustees were so sure the plan made sense in every way, they courageously went ahead with construction and the very tangibleness worked wonders. As the walls went up, one doctor after another changed his mind. Every one of Bristol's 26 physicians moved his office there.

Says Mr. Kell: "They are delighted. It gives them a chance to pool resources and to take an increasingly clinical approach. We think Bristol is developing into a real medical center.

"As for the hospital itself—well, we feel this kind of thing is bound to grow and to solve one of the really tough problems of hospital operation."

To learn how Bristol came to adopt this solution, turn the page.



Office windows of physicians' building contrast with windowless block containing staff lounge equipped for motion pictures, lectures

#### Bristol is a case where the architect led the way

Back in 1948, after the civic associations had agreed on a new wing for the old hospital as a memorial to Bristol's war dead, the building committee wrote to seven hospital architects in Tennessee and surrounding states for brochures on their work. They chose Aydelott—whom nobody in town had ever met—and, having a serene confidence in their own judgment, telephoned him to come to Bristol so they could put the matter in his hands.

Three weeks after their first meeting with him, Aydelott submitted an exhaustive analysis of the demand for hospitalization; a thorough study of the existing hospital's shortcomings; preliminary plans, rendering and cost breakdown of the proposed addition. He recommended instead a new hospital, noting "it could office the doctors, provide pharmacy."

With the proposed addition now a known quantity and obviously a poor expedient, the committee quickly decided for the new hospital, saw at once the advantages of the physicians' offices and commercial drugstore.

Aydelott was able to take this initiative because he himself has a clear understanding of the new facts of medical practice (see p. 119). And his understanding is beautifully reflected in his plan. The buildings themselves are as clear and direct a statement as one could find that nursing wings and physicians both depend on identical equipment and services. The diagnostic and therapeutic core belongs equally to both buildings.

The nursing wing is steel frame, the physicians' building flat slab concrete, the reason for the difference being that steel was cheaper where dropped ceilings were necessary (in the physicians' building all mechanical runs can be kept to corridors). Walls of the physicians' building are poured concrete; nursing walls are brick veneer over concrete block with aluminum spandrels. Total cost of the entire plant was \$1,396,472 including 8% architectural fee; or \$11,637 a bed, \$15.32 a sq. ft.

The community got Hill-Burton aid for 70 of the 120 \* beds (Aydelott suggested Hill-Burton, then managed negotiations); surgical and obstetrical facilities are temporarily sized for only a 70-bed hospital. They will be expanded westward inside the wing; an L extension southward from the west end will house the displaced beds and add 60 more. Basement level of the L (above grade) will have preventive health clinics. The old hospital is now used for chronics and some convalescents.

After the hospital opening last January, the building committee wrote Aydelott: "We feel that when we selected an architect we rendered a magnificent service to our community." For some unexpected influences on the community, turn the page.

\* Top capacity 131 beds; average patient load at present, 108 beds.



DEEP

UTIL TEXAN

#### FIRST FLOOR

THIRD FLOOR - DOCTORS' WING

WING

50

20 30

THIRD FLOOR - NURSING

roof below

Double-corridor plan of lobby and core links the two buildings. Physicians use staff passage between own offices and nursing wing. Interior core offices are clerestorylighted. Drugstore has two pharmacy departments, one for hospital. First two nursing wing floors are identical; third has surgery, fourth delivery. Had hospital been designed after '50, a toilet would likely have been allocated to each pair of patients' rooms in nursing wing.

Nursing wing faces south. Basement floor is above grade has kitchen, dining, lounges.





Typical room: Popular feature of the hospital is similarity of all rooms, lack of "ward" and "de luxe" floors. Enlightened committee thought whole community should feel ownership in whole hospital.

#### Architecturally the hospital has made a terrific impact

Bristol was badly bitten by colonial Williamsburg; this is its first contemporary building. The plans caused no controversy because everyone in town seemed agreed that a hospital is "special." Harshest comment: "Too bad it can't be colonial but I know that is imposible."

Aydelott thinks the townspeople intuitively realized the 18thcentury revivals had run their course. In any case, even before the opening the town was sold. The school board commissioned Aydelott to do a 11/2 million high school. Kell says the effect can already be seen on homebuilding, hitherto impervious to contemporary influence. (Meantime Aydelott has done a modern house for Harry Daniel, a leader on the hospital project.)

Everyone grows lyrical over the cooperation the project aroused. Most towns have a tough enough time getting people together. Well pity Bristol, split by the Virginia-Tennessee line which "many civic projects have found as unbridgeable as the Grand Canyon." This line also shortchanged the hospital on Hill-Burton funds; it could get aid from only one state though it serves both.

There was not a whimper from the Virginia side of town (which had the old hospital) when it turned out Tennessee could give a better break on H-B aid. Later Aydelott devised a way to even things somewhat by picking a state-line site (see plot plan), getting Virginia H-B aid for the nurses' school, now under construction.

Aydelott is one of the new generation of hospital architects who have cut their teeth on H-B jobs (see opposite page).

"The pride we have in this building," he says, "relates most of all to its social and economic importance. This job represents democracy in action in the finest sense of the word. I must say, all the philosophy embodied in it stems from association with Marshall Shaffer and his staff. If I have been inspired to bring together the divergent groups in a community and come out with something that represented the whole rather than a part, I give as much credit to Marshall as to any qualifications I might have."



Good design of this hospital offered first look at contemporary architecture for most of 10,000 first-day visitors



# Teacher-at-large of hospital architecture

Marshall Shaffer has nursed along a new generation of hospital architects and in the process has helped create something new and startling in political science

Less than a decade ago, hospital architecture resembled a tight little medieval guild. Fewer than a dozen US firms did hospitals. That was it. No school of architecture then taught this arcane subject. Practically every city- or state-financed hospital went to one of the firms or—more likely—to a city or state architectural staff.

Today about 1,000 architectural firms are initiated into the mysteries and have at least one good hospital each under their belts.

And a government office has demonstrated the miraculous fact that federal construction funds are not necessarily accompanied by the heavy hand of bureaucracy—a miracle it might pay hardpressed schoolmen to investigate.

Track down these revolutionary events and you come inevitably to Marshall Shaffer, chief of the Technical Services Branch. division of Hospital Facilities, US Public Health Service, Department of Health, Education and Welfare, Washington—a long government address which means simply that Shaffer is architectural and engineering major-domo of Hill-Burton hospital construction. His office approves design and construction of locally owned hospitals and health centers built with federal aid (more than 2,000 since 1947).

Pursue the trail a little farther, into the top drawer of Shaffer's scratched, old-fashioned desk (in a "private" office whose doors have never been closed within memory) and you come to a half-sheet of paper with the legend: A FOOL CAN PUT ON HIS CLOTHES BETTER THAN A WISE MAN CAN DO IT FOR HIM.

This maxim, which Shaffer not only believes, but works by, argues from and frequently quotes, explains a phenomenal government office and its administrator much better than any amount of Public Law fine print.

If ever an outfit should have been tempted to put everybody's clothes on for him, it was Shaffer's. When the government prepared to parcel out money for locally owned hospitals\* he could have argued convincingly that the hinterland was not ready to cope with the design problems. The "logical" thing would have been a government architectural staff or a list of qualified firms.

But Shaffer firmly proposed a different policy (and his superiors backed him up): "These jobs must be done by any



architect the local community or hospital board chooses. If he doesn't know how to design hospitals we will help him learn."

And he added, "You can't legislate good design. Let's have no cut-and-dried answer. Let's keep booby traps out and red tape down. Good design has to come up from the architects, not down from the government."

Ever since, directly or indirectly, Shaffer has been turning "wayfaring architects" into hospital designers. He loves nothing better than a H-B project with an architect who never designed a hospital, a building committee that never before hired an architect, a hospital board that never before picked a site. (A situation, naturally, not at all uncommon.) What a chance for wholesale education!

Said the AIA journal nervously in 1947: "If the results are not outstanding we may find . . . the government bureaus convinced that to get a job done well they must design it themselves. . . . Every architect has got to outdo himself. He must prove incontestably that the local architect is best fitted to serve the local community needs in building."

Says Shaffer today: "One of the best things about this job has been watching the architects rise to the occasion, and I mean especially the men nobody had ever heard of outside their own town. These boys learn fast. They've done a magnificent job, better than Washington could possibly have done for them."

### Architects' fees: \$100 million

To see what all this means in dollars and cents, look at two scts of figures:

1. So far,  $\$1\frac{1}{2}$  billion of federal and community funds has gone into hospital construction and equipment under H-B. With architectural fees for hospital work averaging 6 to 8%, something between \$90 million and \$120 million of this has gone to private architectural firms. (Shaffer thinks hospital architectural fees are too low, considering the complexity of hospital commissions compared with other building types.)

2. Shaffer's Washington office runs on 0.07% of the government funds it supervises; the hospital technical staffs of Public Health's ten regional offices run on 0.14% compared with the 3% generally considered an exemplary record for government construction-fund watchdogs. (The government contribution is about  $\frac{1}{3}$  of total H-B construction funds, community contributions,  $\frac{2}{3}$ .)

Add to these facts another: Shaffer's Washington office gives a very minor share of its time to review of plans; most of its work goes into research and education aimed at improving plans in the first place and some of it goes into help for foreign governments and American architects designing non-H-B hospitals.

continued on p. 164

<sup>\*</sup> First under the Lanham Act (1941) to booming defense areas, then under H-B (1946) to areas certified high priority by their state governments. H-B was framed by the Commission on Hospital Care, a body sponsored by the American Hospital Assn. Current bill to continue H-B beyond '54 is sponsored by Sen. Taft (R, Ohio) and Lister Hill (D, Ala.).

## SMOKE CONTROL TO MENTAL HYGIENE

## Columbus puts all its municipal health offices and clinics under one roof

This center, due to open this month, is probably the most complete municipal health building in the country.

It combines public health clinics and inspection departments where they can use the same laboratories, ties in the closely related visiting nurse service and vital statistics; it abandons old and narrow notions of what belongs with the municipal health department by boldly adding offices for the Cancer Society and for such related units of the city safety department as smoke control and industrial surveillance. All this variety justifies an auditorium for meetings and health education programs.

The idea was to cut out duplicating facilities that had proliferated during the years these programs were spread at random through city hall, to make it easier for staffs of the different services to coordinate and to give the townspeople a single unconfusing center for all their health dealings with the city.

The city had some symbolic things to express too: that it is vitally interested in community health; that its views on these matters are progressive; and that citizens are entitled to kindliness, interested care and service.

To these ends, city officials placed the center importantly in the heart of the civic center, across the street from the central high school, close by city hall, post office and state capitol. Uncompromisingly contemporary design was chosen to express the fact that this is a *progressive* addition to the older monumental group, and it was surrounded with a park overlooking the river.

The same sort of thoughtfulness is evident all through the architects' planning.

All clinics are on the main floor with two exceptions: dentistry, the noisiest (troops of school children), and mental hygiene, the quietest, are set apart on the floor below. (They are not scheduled for use at the same time.)

No receptionist is needed because vital statistics has a service alcove on the lobby and all clinic traffic points in one direction.

The TB clinic is sized for 28,000 visits a year, the VD clinic for 25,000. Their waiting rooms can be used as one unit for big mass screenings. The small maternal and child health unit is for referrals from neighborhood clinics.

The second-floor nurses' suite has an ingenious paperwork area composed of ten half-partition cubicles for supervisors overlooking ten worktables for the 72 visiting nurses.

The building is planned on a 4' module for future flexibility. Structure is concrete slab and beam with brick and stone veneer over concrete block. Interior walls are hollow tile and plaster, cheerfully painted. Cost was \$1,030,161 including 6% architectural fee, or \$17.46 a sq. ft. Hill-Burton aid was obtained for strictly health department portions of the building.

Main entrance divides building with clinics to the right, administrative offices to left. Grounds will be landscaped





## **HOSPITAL CORES IN DOCTORS' OFFICES**

## Two new buildings meet the demands of group-practice medicine

The group-practice office—sometimes called a diagnostic center is a new building type and a rather baffling one.

Its requirements resemble (just enough to be misleading) those of a hospital outpatient department because the doctors practice as a group and pool skills, equipment and records. But their relationship to patients is that of personal, private physicians. Neither of the two older building types—outpatient department or professional building—is a suitable prototype.

These two examples-one in California, one in New York-are

good because in both cases the architects realized they had a new problem and made a new departure. Their designs have hospitaltype cores and suites planned in relation to one another for over-all efficiency, but they also stress the separateness and individuality of each doctor's quarters.

Both designs merit study as good prototypes and also because they throw light on a different problem: how to plan doctors' offices that do not have their own diagnostic and therapeutic cores like these but instead are linked with the core of an actual hospital.



Group practice office has hospital-like first floor, suites used by 39 physicians, above

## 1. OFFICES WITH CONCENTRATED CORE

Architects Pereira & Luckman divided their building into two distinct parts: ground-floor core, upper-floor offices. The core is planned precisely as if for a hospital.

Now look back at Bristol Hospital's professional office building for doctors (p. 120) with its ground-floor commercial drugstore and core facilities, as here. Along with that similarity, note the big difference in office floors. Here is the reason for the difference:

In the group-practice office, patients have a relationship to the group as a whole, as well as the usual personal relationship to the individual doctor. Pereira & Luckman have expressed that dual relationship within their office waiting rooms and at the same time achieved an efficient and unusually pleasant design. Note how the central waiting lounge—serving all offices on a floor—is broken into small areas directly related to the various suites. Note also how pediatrics has its own entrance and play yard.

Here is how office floors are allocated: second-orthopedics.

BEVERLY HILLS CLINIC LOCATION: Los Angeles PEREIRA & LUCKMAN, architects and engineers POZZO CONSTRUCTION CO., general contractor

surgery, proctology, urology; third—internal medicine including subspecialties (heart, chest, diabetes); fourth—obstetrics and gynecology, ophthalmology, dermatology, ear-nose-throat. An electric dumbwaiter behind the floor receptionist carries records and supplies.

Average daily patient load last year was 492 persons. Some of the 39 member physicians are doubling up on use of the 20 suites. Size of the building can be doubled by vertical expansion over the one-story section plus an addition over the adjacent parking.

Construction is rigid frame steel with open-web joists. Exterior walls are  $8'' \ge 8''$  reinforced concrete block laid in tile fashion with the outer face carborundum ground to bring out the red of the volcanic cinder aggregate. Interior partitions are wood stud, gypsum lath and plaster; ceilings are suspended metal lath and glass. Total construction cost (1951) was about \$795,000, or \$13.70 per sq. ft.





**Central waiting room** on each floor is divided by screens, planting boxes, furniture arrangement, into small lounges related to separate suites.



Commercial pharmacy rents space in good lobby location. Doctors own building cooperatively





**Pediatrics play yard** is one of the building's most appreciated features, architects report. Pediatrics is the only physicians' suite on ground floor.

Photos: S. C. Burden and Julius Shulman



Medical building has nonimposing facade to aid patient's feeling of identification with whole center

## 2. OFFICES WITH INTEGRATED CORE

Architects Gehron and Seltzer approached this group-practice center from the angle of greatest convenience to patients: Which doctors should be on the ground floor, which could be on upper floors? (Many patients will use stairs.)

Then they integrated the core with physicians' suites. Thus, while X-ray and physiotherapy are on the ground floor, the laboratory, B.M.R. and E.K.G. are on the second to knit with health checkup, internal medicine and obstetrics. Note that suites for pediatrics and general health examination (which will do considerable screening) have a separate side entrance.

The owner-doctors wanted to be able to postpone finishing and equipping the third floor, so Seltzer carefully explored the problem of designing a complete group center without a complete set of suites. His analysis might well be useful to other planners: staggered office hours will permit urology (see thirdfloor plan) to double temporarily with orthopedics —and use cystoscopy and bone room—on the first floor; ear-nose-throat can double with surgery on the second; neurology and dermatology can double in almost any suite. The dentist is not a member of the group, will rent his suite. (Final cost estimates happily showed the postponement will not be necessary.)

The building is designed for 30 doctors and for up to 30,000 patients enrolled in a prepaid medical care plan. No expansion is planned because this is considered maximum optimum size for the group. The doctors are affiliated with HIP (New York's Health Insurance Plan), will use offices for treating both HIP members and other patients. This is one of 27 group-practice centers built, under construction or planned by HIP-affiliated doctors.

Framing is steel with exterior walls of brick. Strip windows are standard residential sash set in metal frame. Partitions of gypsum block plastered both sides are set at mullions for future flexibility. Estimated cost is \$365,000 including completion of the third floor and all fixed equipment: \$18 a sq. ft. KINGSWAY MEDICAL BUILDING LOCATION: Brooklyn, N. Y. WILLIAM GEHRON, architect Gilbert L. Seltzer, partner in charge WEISKOPF & PICKWORTH, structural engineers TENNEY & OHMES, mechanical engineers



Alfred Bernheim

# A new way to make hospitals self-supporting

#### The all-out community health plant

by JOSEPH M. NEUFELD, AIA, AHA

Health today is split into fragments stamped "preventive medicine," "hospital care," "physical health," "mental health" and the like.

All this fragmentation is not sound as economics. In fact it is disastrous. Fortunately we are beginning to see this.

We are also beginning to see that it is bad in human terms: The general practitioner, once truly a family physician, is isolated as a social force by ever increasing specialization. The patient in need of nursing care is often removed from his environment and his own physician to a large, distant general hospital. Disabled veterans are separated from family, friends and community life. The aged too, relegated to outlying homes, lose contact with the stream of life. Medical and public health men who should be dovetailing their work are separated.

As a way out of this economic and social morass, I propose the self-supporting community health plant—a plant that would pull the fragments together. Here is what it would have: 1) medical core; 2) physicians' and dentists' offices; 3) nursing wing; 4) rehabilitation and social center; 5) auditorium; 6) old-age home; 7) mobile home care and ambulance unit; 8) outdoor recreational area; 9) parking.

Aside from its human, economic and construction angles, this proposal has two points of special interest to architects and planners: It promises a way of humanizing, *really* humanizing, the architecture of the hospital. And it offers a way of getting community planning off of paper and onto the earth.

#### 1. Architecture and function

For 30 years we architects have been basing ourselves on function. But we have chiefly concentrated on technical function, such as appropriate uses of materials. We have not really redefined and analyzed the changing social needs of the community, which are part and parcel of function.

If a new building is defined by its materials and engineering but maintains fundamentally its old organization and relationship to the community, its physical appearance is only partially influenced. But if the whole function of the building and its whole context is analyzed completely anew, its physical features will be different—even should it be built by conservative methods. Only by amalgamating social function and technical function can our architecture progress.

It is useless to talk of humanizing the architecture of the hospital until we think of the hospital itself in a different way. If the hospital is so organized *in function* that it does not close itself up but instead projects itself to the community, if it is concerned



Hospital Architect Neufeld, visiting critic in hospital design at the Yale School of Architecture, has been pondering the integration of community health facilities and their relationship to district hospitals since 1943. Many of his conclusions coincide very closely with the Magnusson Report recommendations on hospital care ("President's Commission on the Health Needs of the Nation," Dec. '52).

This year Neufeld's hospital design classes at Yale were given jointly to students of the School of Architecture and the Graduate Schools of Hospital Administration and Public Health. Students from the three schools worked as teams on design projects. This seems to be the first time hospital design has been put into public health and hospital administration curricula or that architectural students have worked on the kind of planning team that occurs in genuine practice.

as part of its function with everyday health and recreation, the physical appearance of the hospital will change radically, too. It will look more relaxed, less somber, more integrated with the community. Its gardens, its inviting entrances, its children playing freely if so permitted by the doctor, will in themselves help the change.

The architect, instead of trying to humanize a building that resists humanizing, will have something to go on.

### 2. Planning and people

We have usually been too intellectual in our approach to community planning. We work on logical ideas for planning the whole community or we work on logical small fragments. We try to play it so big we get nowhere or so small it does not do much good.

If we are ever to find the energy, the power and the direction for community planning, we must begin with a piece of planning that is not so big and diffuse it seems utopian and not so small that it concerns only feeble, separate groups and makes no real difference thereafter in the community. We must also begin with a concrete, immediate need.

Now supposing we take a vital need that everyone can understand—clinical health activities—and tie to it precisely the other facilities it needs to become self-supporting and to make sense socially. We have a very specific objective, but we also have an entire cross-section of the community involved in planning it and later in running and using it. We create not only an important piece of a community plan; we create a tool for planning.

Planners learn to plan by planning. The same goes for other people. Here is a project that has to have community self-planning to carry it through. Wherever it is done, the community will never be quite its old, disjointed self again.



## For his community health plant

#### Neufeld takes a fresh look at old elements and regroups them

Look at the elements named in the model above. None of them is new. Nearly every community builds—and rebuilds—them.

What is new here is that these familiar elements are combined instead of being scattered helter-skelter.

The trouble with health economics—hospital, medical, rehabilitational, preventive—is the duplication of costly equipment and services. A community hospital that integrates itself with the other health services could operate much better and much cheaper—so much cheaper it could be self-supporting. In fact, I see no reason why it would not make a surplus to plow back into improvements.

A plant of the kind shown in the model would serve a community of 50,000 persons. It could well be larger but should not grow to the point where it loses its community character. A city of 150,000 persons would be better off with two or three plants rather than one big one.

Small hospitals are usually considered prohibitively expensive, and so they are at present. But every community of any size has, or needs, a commercial laboratory, a private roentologist, etc. A health plant that does not try to duplicate commercial facilities but instead provides space for them, and also rents space to doctors, to public health (thus getting tax money without government control) and to community organizations, puts itself on a new and healthy economic footing. [Note: The experience of Bristol, p. 120, seems to bear out the author's contention.—Ep.]

There are other duplications not quite so obvious:

Much of the activity well people call hobbies and sport is the same thing medical people call occupational therapy and physiosocial rehabilitation. By making double use — community and clinical — of space and equipment, a good community-scale rehabilitation unit becomes feasible. There is no reason why workshops, indoor sport and hobby, arts and crafts equipment and playgrounds cannot be used both by the hospital and by many other people.

The advantages of sharing facilities, from X-ray to meeting rooms, are not merely financial. The social advantages are tremendous.

Interaction among doctors, public health workers, social workers, clinical technicians, students, memberships of voluntary organizations, commercial interests, aids the work of each and acts as a catalyst in the development of ideas.

Research is stimulated by access to unified records and statistics and to the specialized knowledge of colleagues.

Above all, functions that should remain close to the sphere of neighborhood and family and under control of people in the community itself are not separated by distance or bureaucracy.

A community determined to have a planned health plant could begin with any of the elements shown in the model, adding the others as it replaces old buildings or raises funds for new activities. The nursing wing would not necessarily come simultaneously with the medical core; in some places the first reason for the core would be the doctors' offices.

To house a coordinated health plant, or even two or three elements, the planner must know not only what happens in each unit but how the units relate to each other. For a basic guide to the relationships, see the next page.

#### NURSING UNIT

general surgery maternity chronics general medicine pediatrics

#### MOBILE UNIT

ambulance disaster aid home care civilian defense

#### SOCIAL CENTER

public library branch child and adult rehabilitation pediatrics instruction arts and crafts workshops counseling child guidance Selective Service Board Veterans' Administration welfare agency

voluntary social organizations Red Cross Scouts Community Chest Salvation Army baby sitter's exchange civil defense civic and social organizations business and service fraternal women's veterans' farm professionals'

## OUTDOOR

RECREATION

team sports tennis playground games for aged swimming: *recreational therapeutic Red Cross instruction* 

#### AUDITORIUM

dances dramatics forums and lectures teaching

#### PUBLIC HEALTH

p. h. nurses medical officer sanitarian sanitary engineer vital statistics county registrar county coroner voluntary health organizations: polio heart crippled children T. B., etc.

#### MEDICAL CORE

physical therapy radiology EKG, BMR laboratories pharmacy surgery delivery emergency admit. administration unified records doctors' and nurses' lounges hospitality shop

#### DOCTORS' UNIT

general practitioners specialists dentists

Schematic view (corresponding with model, opposite page) diagrams the integration of the health plant with the community. "Action lines" for rehabilitation, preventive health, medical care and social life of the community lead as indicated through units of the health plant.







Medical core provides these facilities: 1) diagnostic, therapeutic —perhaps surgical, obstetrical for nursing wing; 2) first aid, emergency for mobile units; 3) lab, diagnostic, physical medicine for doctors' unit; 4) lab, mass screening for public health; 5) pharmaceuticals, therapeutic, diagnostic for old-age unit. Physical therapy is followed up by: 6) physiosocial rehabilitation in social center, recreational rehabilitation in outdoor area,

## Neufeld's key to the planning of community health plants

**The medical core** is the nucleus. It must be scaled (or expandable) to complete community needs for diagnostic, therapeutic and operative facilities. If these are shared (see top diagram, this page) there will be a maximum of diversity and quality in both equipment and staff. Specialized workers can be employed full time. Expensive, seldom-used equipment becomes economically feasible.

**The doctors' unit** should be an easily expandable modular structure with consultation and examining rooms for general practitioners, specialists and dentists, all served by central reception. The doctors will, of course, use core equipment instead of having to buy their own. The doctors' unit eliminates need for a hospital outpatient department; bills for treating precleared indigent patients would be sent from the doctors' unit via central bookkeeping to the welfare office.

Ideally the unit would house group practice (or a combination of group and separate practice) because this reintegrates currently subdivided, specialized medical practice, restoring the relationship of family physician. Very important: if such a group is created and controlled by the local doctors, it fortifies their free-enterprise position.

**The public health unit** provides space for the medical officer, public health nurses, sanitarian and sanitary engineer, welfare department, vital statistics. At a county seat it will have expanded administrative functions.

Space here for voluntary health organizations is important; their cooperation with the health department makes both groups much more effective.

The economic advantages of having public health help pay for the core, etc., are obvious. Social advantage: public health workers housed in the community's general health center will automatically be closer to doctors, social workers, hospital trustees, school and religious authorities—all of whom are concerned in raising health standards.

**The nursing wing** includes sections for general medicine, pediatrics, chronics, surgery and maternity. It would care for the majority—by far—of hospital admittances from the community. Cases requiring specialized surgery or treatment and certain acute cases would of course be sent to a high-powered district hospital (see diagram, "Reduction in







outdoor area, **Doctors:** 1) service mobile units for home care, use them for emergency; 2) supervise care in nursing wing; 3) contribute to and use unified record system; 4) use all core facilities plus follow-up rehabilitation and counseling service; 5) cooperate with public health workers in preventive medicine and health education; 6) at-

tend and consult on old-age cases.

Public health unit: 1) uses mobile units for home care, visiting nurses; 2) refers cases to doctors, cooperates in preventive medicine; 3) contributes to and uses records and statistics; 4) uses core for mass screenings, labs for senitarians' tests; 5) consults with voluntary agencies, cooperates with social workers in cases requiring counseling, preventive mental-health action; 6) uses auditorium for education, demonstrations.

Nursing wing depends: 1) on mobile unit for follow-up home care; 2) on doctors for supervision; 3) on core facilities for diagnosis, therapy, pharmacy (perhaps surgery, delivery); 4) on social center and outdoor recreation area for rehabilitation of convalescents, educational program for pediatrics cases. 5) Aged requiring occasional nursing care are transferred to nursing wing. number of expensive beds," p. 135). But the community nursing wing would permit most patients to be cared for in the community, close to their families and *under care of their own physicians*. This fortifies the position of the doctor.

The fear most patients carry with them into the hospital is minimized by the nursing wing's location and familiar setting. The patient here will have a psychological advantage over one placed in a strange, possibly distant hospital.

The mobile unit—one or two ambulances and a couple of automobiles—has the many uses indicated in the top diagram, this page. Even in a geographically small community, activities like home care require transportation. In addition note that not only individuals, but families, neghborhoods and sometimes entire communities need rehabilitation. Doctors, public health and social workers could form teams, using mobile units to reach trouble spots. Problems involving juvenile delinquency or substandard industrial conditions, for instance, can be efficiently handled by such teams.

The social center has on its ground floor the facilities for correctional, vocational and occupational rehabilitation. In effect, this is a special extension of the core. Branch library, minor indoor sports rooms, hobby and workshop equipment would be available for general community use through membership dues, users' fees or group contributions.

Part of the counseling and guidance workers' job would be detection of early stages of mental and emotional difficulties, in cooperation with the psychiatrist in the doctors' unit. Social workers would also work closely with welfare, veterans' administration and community organizations.

There should be ample room for these voluntary organizations, on whose spirit and effectiveness so much of community welfare depends. Groups like the Community Chest, Red Cross, Kiwanis, veterans' organizations should be quartered here along with groups special to the community as, say, a baby sitters' exchange or planning association.

The old-age unit in the health center simplifies practical problems of care of the aged. It also goes far toward solving the social problems. At present, the whole subject of the aged who no longer have their own homes looks so bleak because we are used to thinking we must shuffle these people off. Even when the isolated old-age home has plenty of money, it is a hopeless place of uprooted people. The aged should be kept within the community and at the same time close to a clinical institution. The outdoor and indoor recreational areas of the health center, the entertainment and educational programs, would bring the old people into constant contact with diverse age groups to the benefit of the social life of the whole community.

**Outdoor recreational** areas are as important as the buildings, for two reasons: 1) They are part and parcel of the functions housed within the buildings; and 2) they draw participants from so many groups they are one of the main stimuli to community interest and action.

Space for convalescents and pediatrics cases surround the nursing wing. The gardens around the old people's home are for sitting, checker games, horseshoe pitching and the like. The swimming pool (outdoor or indoor depending on the climate) can be used for therapy, recreation and instruction. Ideally high-school sports would be on adjoining property.

The outdoor area should not be merely a series of playgrounds and gardens; it should attempt to create the atmosphere of a town commons and should be readily reached from the shopping, amusement and commercial parts of town.



Mobile units: 1) provide followup home care; 2) use first aid, emergency, lab, pharmacy in core; 3) draw upon services of doctors; 4) are used by public health, visiting nurses and voluntary services for home care and counseling; and 5) by social workers cooperating in home care and counseling cases.



Social center's rehabilitation, recreation, counseling and education facilities are used: 1) by convalescents; 2) to follow up physical medicine; 3) by aged. 4) Doctors prescribe rehabilitation treatment, refer cases to counseling service. Social workers cooperate with 5) public health on preventive mental health work and with 6) home-care workers. Center activities use 7) outdoor area and 8) multipurpose hall.



Multipurpose hall serves: 1) public health unit for lectures, films, demonstrations; 2) social center for meetings of community organizations, dances, films, plays. Eventually 3) if core and nursing wing become supplementary training centers for doctors, nurses, public health and social workers, hall will serve for lectures, demonstrations.



**Old-age unit** depends on: 1) consulting and attending physicians; 2) core diagnostic, therapeutic and pharmacy facilities; 3) nursing wing for occasional care of ill; 4) recreation, rehabilitation, branch library in social center; 5) outdoor areas for recreation and mingling with other age groups.





**Rehabilitation** is expensive but failure to rehabilitate is more so (see Rusk statement, p. 188). Coordination of recreation plus therapy for hospital, old-age home, outpatients, would permit programs now unthinkable for hospital alone.



**Disabled veterans** could get rehabilitation treatment without removal from community life. Hospitalization in own town plus home care by mobile units would speed readjustment, possibly hasten disabled veteran's employment.

## Neufeld outlines the by-products

## of a community health plant network

The by-products of master planning-----

Up to this point we have treated the health plant as purely a local affair. For in any case planning, administration and financial arrangements should be locally handled and controlled.

However, the master planning of a system of community units is a regional problem for handling on a state level. Some of the potential by-products of large-scale planning:

▶ The whole unwieldly, duplicating, expensive, hard-to-staff veterans' hospital system would be unnecessary (see bottom diagram, this page). Tax funds now drained from communities to operate these hospitals would be returned instead to help support voluntary hospitals.

▶ District (large general) hospitals—which will always have to be geared for the most difficult cases and therefore always will be expensive—would be relieved of routine cases (see center diagram, opposite page). These would automatically be sorted out for care in lower-powered, locally staffed, selfsupporting institutions.

▶ The health plant would be an ideal nerve center for disaster relief and civil defense (see top diagram, opposite page). We have already made a big investment in veterans' hospitals; it is too late to retrieve that capital waste, if not the operating waste. But it is not too late to forestall wasteful, special civil defense facilities, or to find ourselves with none at all.

▶ A regional group of health plants could be integrated into medical teaching (see bottom diagram, opposite page). How to get the community into teaching and teaching into the community is a principal concern of some of our leading medical minds today.

Students in medicine, public health and social work, receiving part of their training in a health plant, would develop a cooperative spirit early instead of becoming isolated in their professional specializations. Every experienced worker in the plant would be a teacher (and perforce a learner).

Most important, the community itself would be a teacher of a kind now completely lacking.

Chester I. Barnard, president of the Rockefeller Foundation, puts it this way: "Medical schools today require of their matriculants no knowledge of the social and political conditions related to disease and health. . . . The old idea that biophysics and biochemistry would eventually unravel all the problems of health and disease is less tenable today than 40 or 50 years ago. Biosocial relations are foremost among the frontiers that must be explored and mapped before we can expect to have adequate medical care for the entire population of a community. When research has accumulated . . . we may expect medical schools to introduce students to the practice of community medicine with an emphasis on 'social diagnosis' comparable to that on physical diagnosis."



**Mobilization** for war or natural disaster could be efficiently managed. In addition to adaptations shown in legend, unified records would be aid in administrative and relief work.



district hospital = expensive beds

**Beds in high-powered hospitals** would not be filled with routine cases. Acute and special cases sent to district hospital could be returned during convalescence. Home care would cut total (community center plus district) beds needed.



University teaching hospital could be integrated with regional network of centers to enlarge medical schools, broaden student experience, raise community standards. Similar setup could be used for public health, social work, nursing. Key: 1) premed; 2) first years' medical schooling, affiliated with community cores; 3) final years' schooling, graduate studies, administrative center.

## PROFESSIONAL COMMENT

Four top figures in the medical field present the case for coordinated health services

#### DR. BASIL C. MAC LEAN:

"Clinics of health departments belong in the general hospital and not in the basement of city hall."

#### GRAHAM L. DAVIS:

"The alternative appears to be government ownership and control."

#### DR. ANTHONY J. BOROWSKI:

"Above all, the architect needs to appreciate the part played by preventive agencies as well as the part played by diagnosis and treatment in the hospital."

#### DR. HOWARD A. RUSK:

"The hospital must assume greater responsibility for all three phases of health: prevention, definitive treatment and rehabilitation."

For years public health men, doctors and hospital people have been arguing over joint housing of health facilities. In their statements below, these four authorities touch on the reasons for that battle (something every well-briefed architect should know) and why it is being resolved.

MacLean, director of University of Rochester's Strong Memorial Hospital-The general hospital whose main purpose is to provide a hotel for sick people has little interest in preventive medicine. And there are still many health officers who feel they should be concerned mainly with water purity and sewage disposal. But during the past decadeparticularly under the intelligent prodding of those in charge of the Hill-Burton program of hospital construction - more thought has been given to putting preventive and curative medicine under one roof.

Meantime, the widened responsibility of the general hospital has made it a more effective instrument of public health. At the same time, modern health departments now recognize they have a responsibility in such problems as cancer, heart disease and other long-term illnesses, *continued on p. 178* 



Winning health center, viewed from entrance plaza; old-age home is at other side of plaza, as indicated in model on opposite page

#### NEW THINKING ON HOSPITALS

## TWO AWARD-WINNING COMMUNITY



#### MAGNUS T. HOPPER FELLOWSHIP AWARD

JOHN VASILIOS SHEORIS, designer

Last year Yale's third-year architectural class studied a rural area near New Haven, worked out competition projects for it based on Neufeld's concepts of the community health plant (see preceding pages). Winner Sheoris gets a postgraduate year of further hospital architecture study.

Points of Sheoris' design the jury\* especially liked: 1) its informal entrance garden court; 2) its domestic scale; 3) its airiness achieved without long covered ways; 4) its functional compactness; relation of clinical and nursing elements; and 5) its traffic separation, main and secondary entrances; 6) its relation of outdoor areas, without inconvenient sprawl; 7) its well-distributed parking areas, sufficiently far from quiet centers, sufficiently close for convenience; 8) its excellent over-all handling of the social elements of community hospital planning.

Neufeld supervised the students' work in collaboration with Robert T. Coolidge of the faculty.

<sup>\*</sup> Charles F. Neergaard (who in 1951 instituted the fellowship, only one of its kind in the US), Neufeld, Arthur H. Peckham Jr., Francis Day Rogers, Jose Luis Sert, Albert W. Snoke, all guest jurors: Dean George Howe, Robert T. Coolidge, Louis I. Kahn, Eugene Nalle, Henry A. Pfisterer of the Yale architecture faculty.



Model of winning project shows health plant, center; high school, upper right; shopping center, lower right

## HEALTH PLANT PROJECTS

### SECOND ALTERNATE WINNER





## **THREE SMALL OFFICES BUILT TO ORDER**

On the next eight pages are a trio of small structures designed around drafting rooms: one for a contractor; one for an engineering firm; the third for (and by) one of the top US architects. The three structures are completely different in all but three respects:

Quality. Each is a first-rate solution to its occupant's program.

**Expressiveness.** Each is a notable signboard for its owner.

Unpretentiousness. Both these qualities are achieved by notably modest techniques.



Interior partitions are nonbearing, as demonstrated by glazing above door height, leaving ceiling a continuous plane



ALBANO & OLENCKI, architects H. F. CAMPBELL CONSTRUCTION CO.,

owner and general contractors

Photos: David Reider

## **1. From structure to design**

In industrial Detroit, a forthright administration

## building for a firm of factory-builders

Architects Albano & Olencki are obviously and proudly adherents to the architecture of Ludwig Mies van der Rohe, and logically so, since they both studied with Mies in Chicago. And this job came to the two young architects in a way to gladden any Miesman. Some time ago when they were looking for a good contractor to put up one of their houses, they asked several firms who ordinarily do only industrial work to bid. They wanted not a conventional housebuilder but someone who would be familiar with the taut materials and techniques of the new Chicago school. One of the industrial firms they invited to bid was the Campbell Construction Co., who were properly amazed to be asked to bid on a house job. Then Fred Campbell, the president, looked at the drawings, and with rare directness switched roles to become a client.

His industrial firm, like so many others, usually furnishes its own clients complete services—architectural, engineering, and contracting—so they were especially knowing clients. What they wanted was a good-sized (140,000 cu. ft.) administration building on their large lot (140' x 495') which is on one of Detroit's main thoroughfares. They definitely wanted a flat roof, and they wanted something with regular bays, because that is how Campbell builds.

And the firm knew also that it wanted something less tangible: a hint of which Campbell saw in the house drawings, a building they could be proud of, that would epitomize but transcend sheer engineering and stand as a testimonial to their organization. Because they went to these architects—or at least met them halfway —they got it.



Framing is steel with filler panels of brick and glass. Roof is supported by barjoists, in a standard system used by the construction company which owns the structure. Simple plan surrounds utility core with clear statement of building's purpose.





## 2. Warm materials and a cool environment

### In Houston, a handsome building with a domesticated air

Side entrance is for secondfloor tenants who help make this office building a projitable investment as well as a distinguishing headquarters for the firm that owns it.

When you are an air-conditioning engineer in summer-steaming Houston, you have a big potential, and also a notable problem in architectural expression. For Howard & Johnson, mechanical and electrical engineers who consult mostly on coolness, Architect Arne Engberg solved this problem by composing warm, vigorous materials in simple, efficient forms-but forms which are anything but stark or even severe. Most small office buildings in low, semiurban surroundings like this one are really designs in transitionsomewhere in between the impersonally businesslike metropolitan tower and the homey individual house-and Engberg recognized this in using "small scale" materials like brick and vertical siding, but using them in simple institutional style. He also made visible note of another subject dear to the hearts of the men who worry about heat gain: there are some big sheets of glass in this building. but only where they will count most, by the entrances. Elsewhere there is ample windowing, especially by standards of the glary southwest; but not enough to waste those tons of air conditioning. Another performance to warm the most cold-blooded client: the building, with a built-in atmosphere of considerable businesslike luxury, was put up for \$13.60 per sq. ft.

Plan of this building is simple, but shrewd. Because the practice of engineering is, like architecture, sometimes unstable, a great deal of flexibility was demanded. It is there; the plan permits expansion of the engineering firm into the second-floor space either up the front stairway (which would normally be an expansion of administration) or up the rear stairway as an expansion of drafting. Or if business should shrink, the office can retract progressively away from the tenants' entrance in the rear, and this space can be rented.

Photos: Shoemake-Stiles

ARNE G. ENGBERG, architect HOWARD & JOHNSON, mechanical engineers WALTER P. MOORE, structural engineer HAROLD VAN BUSKIRK & CO., general contractors



Front entrance speaks clearly, succinctly and memorably of an unusual engineering firm, one that recognizes the civilizing ability and sales appeal of good contemporary architecture.



Planting draws building into suburban character of neighborhood



Drafting room has moderate strip glazing and big cool fluorescents. Note air-conditioning duct down center of room





Conference room

### Cost breakdown:

General conditions	\$3,800
Excav., masonry, etc	7,400
Structural steel	700
Carpentry	20,992
Millwork	7,000
Finish hardware	450
Roofing and sheet metal	1,700
Aluminum windows	2,900
Miscellaneous	6,014
Flooring	1,600
Painting	2,250
Air conditioning & heating	10,511
Electrical	7,678
Plumbing	4,677
Total construction cost	\$77,672

Reception room







Simple wood construction in drafting room is typical of building's relaxed air. Beams are notched and lag-screwed to posts

NORTH

Main facade is at higher level. Steel stoop sits lightly before double doorway.

Photos: © Ezra Stoller


## **3. Saarinen architecture for Saarinen**

#### In Bloomfield Hills, a shelter for some thoroughbred designers

The most interesting thing about this office is that, although this is the architect (and self-client) with the biggest name in this series, the building is far and away the lightest and most casual. It is frequently true that architects build *themselves* buildings only when business is so good they cannot spend much time on their own headquarters (wheels within wheels within wheels, all turning the same direction), and the simplicity of this building hints that this might have been true with Saarinen. But even at that, he and his firm did not move so fast as to omit the integral grace which distinguishes their other work.

The long brick-ended wood and glass box has some of the simplest detailing anyone is likely ever to find in an architect-designed structure (see p. 144), but at the same time the very simplicities of its construction speak in a quietly professional tone for it. An example: the effect of thin decks. Drafting-room windows (see photo opp.) by-pass beams, reach to the ceiling, which is also the EERO SAARINEN & ASSOCIATES, architects ALEX GOW, general contractor

bottom of the roof planking and hence within 4" of the roof top. This creates the wonderfully thin roof line (see below). Conduit for fluorescent lights is exposed along the ceiling but the combination is efficiently sophisticated: the wood beams mask the fluorescents from glaring the horizontal length of the floor by putting downward blinders on them. The building is oriented with its long axis east and west, putting most of the glass north.

These simple wood connections would be enough to scare the nails out of most journeymen carpenters who are not cabinet makers as well. The beams, for instance, are joined to the columns merely by notching plus lag-screws through into the end grain, and although this is the kind of technique visible in some of our oldest, strongest barns, you don't see it much in today's office buildings. But it surely had a lot to do with another exceptionally fine aspect of this job for any client: the square-foot cost as reported by architect Saarinen to client Saarinen is only \$12.

Section shows how slope is utilized to create light and airy base floor. Highwindowed space along higher side of site is appropriate for service areas (see plans, opposite pages).





**Rear facade** is two stories high and sheathed with glass and plywood. Thin roof line is aluminum clad.

**Model shop** on lower level is important part of Saarinen design process.



Stud partitions skinned with plywood sheets add to the buoyantly "panel" feeling of the whole structure—surface without depth.

**Drafting room** is complete with natural landscaping. At bottom of photo note another frank and handsome aspect of the design—exposed peripheral heating fins.









Ellipse of reinforced concrete seat tiers measures 320' x 386'. Varying level of inner tier permits access to arena floor at several perimeter points

## COVERED STADIUM uses 98' cantilevers

#### and an overhead light-and-sound stage to get 100% audience visibility

This enclosed stadium in Dortmund, Germany is interesting for what it avoids as well as for what it accomplishes. First, it successfully avoids being consciously monumental; size of the structure alone (20,000 seats) might well have led a less-skilled architect to search for a colossal solution. Second, it avoids the other extreme of self-consciousness—the disguise of its mass with ornamentation.

Instead, the solution was found in a clear expression of the building function. Ellipses of reinforced concrete tiers and corridors are enclosed in a vertical wall of glass. Steel cantilevers rise from the topmost tier to form the roof structure, which is covered with precast concrete planks. Tension rods that stabilize the cantilevers run down outside the skin of glass to concrete anchor piers and give rhythm to the otherwise uninterrupted rotund wall. With all its size (320' x 386') the stadium retains a human scale chiefly by means of the delicate grid pattern of the enclosing window frames. There are 4,000 lights set in frames one meter square.

Maximum capacity of the stadium is 20,000 and all seats have an unobstructed view of the arena since there are no interfering columns. A unique sound and lighting stage is hung from the center roof section and all arena lighting and broadcasting comes from this central point. The roof around the stage is glazed to admit daylight. Removable panéls in the stage floor permit lights and ropes to be lowered for special performances. Thus the arena can handle circuses, all indoor sporting events and such special events as horse shows and ice-skating exhibitions.

Beneath the seats are stalls facing the outside perimeter corridors which are used for displays during trade fairs and expositions. All heating and ventilating equipment, electrical substations and service facilities are housed in deep interior space under the main seat tier and in a basement level.



Glass skin of 4,000 lights forms exterior vertical walls; it runs uninterrupted behind "columns" of cantilever stabilizing tension rods

WALTER HOELTJE, architect



Five tension rods of 500-ton capacity hold down outer end of each cantilever.



**Hinged fulcrum** of cantilever girders is over innermost tall concrete column (see section).



Cantilevers are 98' long, rise 33' above top tier



Stands rise 56' above grade while roof is nearly 90' from arena floor

Two halves of sound and light stage are moved into place and hung beneath center roof section



## HILLSIDE RESTAURANT gives Seattle diners a view of their city

#### from a building that mixes Northwest rusticity with lush Hawaiian decor



**Slanted window wall** banishes light reflections that could obscure dramatic view of city below.

A Honolulu architect and a Seattle architect teamed up to give this restaurant a South Sea atmosphere without sacrificing such good points of Pacific Northwest design as plenty of glass, plenty of view and plenty of natural materials. The resulting stage set has helped make this a highly successful and profitable restaurant.

The South Sea touches are obvious enough—Hopu bark on the bar, monkeypod wood tables, grass-cloth wall coverings. So are such Pacific Northwest touches as the hunting lodge fireplace of Shuksan stone from Mt. Baker (also used for foyer walls) and the rough sawn cedar beams and siding. Perhaps less obvious is the care taken to keep any light reflection on the large glass areas from confusing the dramatic view of Seattle and its hills. To that end the big windows are slanted inward from the top and the adjoining ceiling has no lights and is finished in a dark tone to avoid reflection on the glass.

Many of the plan ideas came from successful prototype Canlis' restaurant in Honolulu. Entrance, kitchen, rest rooms and service areas are grouped economically on the street side of the site which leaves dining and cocktail areas of the relatively small, compact restaurant open to the view. The peripheral cocktail lounge and dining *lanai* are three steps lower than the central dining room. Thus customers in the main dining room get as good a view as people seated by the windows—over their heads. Second only to the view as a focal point is the broiler—a raised stone fireplace highlighted with a copper hood and flanking candelabra. The chef appears through a special door in a lighted recessed area behind the fireplace and performs his cooking in full view of the customers.

All public and service functions take place on the split-level main floor. The owner's office and living quarters are on the upper level.

Back to the road, facing the view, the three-level building uses vertical rough sawn cedar siding and stone to give it Northwest character





Main dining room focuses on dramatically highlighted cooking fireplace. Chef appears through door behind it, broils steaks beneath nail-studded copper hood.



Fireplace is of native Shuksan stone from Mt. Baker. Tropical plants help mix Hawaiian atmosphere with Northwest architecture.



CANLIS' CHARCOAL BROILER RESTAURANT LOCATION, Seattle, Wash. TUCKER, SHIELDS & TERRY; WIMBERLY & COOK, architects TUCKER, SHIELDS & TERRY, decorator HODGES CONSTRUCTION CO., contractor



**City view** is focus of lanai or outer dining room. Ceiling lights are omitted here to prevent reflections in slanted glass from blocking view.

Bar and cocktail lounge integrate diverse elements: fieldstone, driftwood, tropical plants, Hopu bark (on bar), mohair-jute drapes, rough cedar beams.



Foyer shows compatibility of Hawaiian-Northwest architectural combination. Note cedar beams and posts, plus native stone with the table of Hawaiian monkeypod wood and exotic print on seat back.



# **BUILDING ENGINEERING**

- 1. Lighter concrete with cardboard boxes
- 2. Quicker construction with aluminum trusses
- 3. Cheaper lighting with prefabricated eggcrate ceiling
- 4. Notes on six other engineering developments



Corrugated cardboard cartons are used as fillers in these concrete floor slabs

## 1. CARDBOARD CONCRETE FLOORS

#### Carton fillers prove efficient and economical in four-story dormitory structure

Corrugated cardboard boxes replace more expensive steel pans or concrete filler blocks as formwork in this four-story dormitory at Southwestern Junior College in Keene, Tex. This technique saved \$15,000 in building the 40,000 sq. ft. structure. Its advantages:

**Cheaper formwork:** \$4,800 for the cartons vs. \$9,600 for comparable concrete filler blocks. Metal pans were also considered but proved too heavy and expensive.

**Lighter construction:** concrete joists could be reduced from  $5\frac{1}{2}$ " to 5" wide and their spacing increased from 21" to 25" o.c. to save \$3,300 in concrete (220 cu. yds. at \$15 per yd.) and \$4,300 in reinforcing steel; total weight reduction by using the cartons is 430 tons.

**Less labor:** cartons are placed easily and quickly, saving over \$7,500. Each floor was laid and poured in 12 days instead of an estimated 28 days for concrete filler block construction. The corrugated cardboard boxes are  $12'' \ge 20'' \ge 48''$ , strengthened with vertical diaphragms to take a 600 lb. live load, more than enough to support concrete buggies during pouring. They can easily be made to any specification to fit any job. They simplify electrical and plumbing work since holes for conduits and pipes are simply cut with a knife.

Construction sequence: 1) lay timber deck, 2) position electrical boxes, 3) spread out metal lath, 4) place electrical conduits and piping, 5) lay down cartons, stapling them to the deck and cutting the sides around conduits and piping, 6) position reinforcing and cover cartons with wire mesh, 7) pour concrete to a  $2\frac{1}{2}$ " topping.

Cartons can either remain permanent fixtures as in this building (where they have some acoustic value) or be reused. To prevent them losing strength in wet weather they are waterproofed by dipping in hot paraffin wax.

This adaptation of cardboard to construction was developed by Contractor E. J. Miller. Architect: W. A. Pinkham Jr.



**Ceiling view** shows cartons laid open sides down upon planks covered with metal lath. Cardboard is cut to fit over conduits. Concrete beams are cast between rows of cartons.



plaster ceiling on metal lath \ cardboard box filler



Clear space 200' wide and 45' high makes room for jet air liners in this British hangar

#### Photos: British Information Service

## 2. ALUMINUM HANGAR SPANS 200

#### Each prefabricated frame weighs only 7 tons, is erected with light hoisting rig

For economy, simplicity and lightness this aluminum flight hangar is hard to beat. Built at De Havilland's Hatfield Airfield in England to house jet airliners, it contains several good pointers for US engineers:

Its 330' x 217' aluminum structure weighs only 3 lbs. per sq. ft. of area covered. The 12 portal frames with clear, 45' high spans 200' wide and 30' o.c. weigh 7.1 tons each, while the 30' x 9' wide northlight trusses between frames weigh 175 lbs. each —a total of  $1071/_{2}$  tons of aluminum. The engineers claim this is only 1/7th the weight of an equivalent steel structure, which might make such construction economical in the US where structural aluminum costs six times as much as structural steel— $40\phi$ vs.  $6\phi$  per lb. (see "Aluminum in Building," AF, Sept. '52).\*

Lightness of the metal permitted prefabrication of large units that could be transported easily and erected quickly with minimum labor. The building was put up by 18 men in three months using two 5-ton hand cranes and very little scaffolding.

Aluminum framing members are prefabricated in sections about 50' long using cold squeezed aluminum rivets 5/8'' in diameter. At the site the 8' wide portal legs are pinned to their welded steel bases, winched up into position and laterally braced one against another. Next the 10' deep main beams are assembled on the ground, hoisted into position, and connected with galvanized steel bolts.

Portal frames are stabilized on the east by horizontal stays, covered with an insulated aluminum curtain wall. On the west, where large openings are needed to give access to an adjoining office building, each portal leg is strengthened with independent box trusses. North slopes of the roof are glazed, south slopes covered with built-up roofing on insulated aluminum decking.

Contract cost of the 66,000 sq. ft. hangar was \$400,000 (\$1,120,000) and it was bid in direct competition with alternate steel and concrete designs. Architects are James M. Monro & Son; structural engineers the Structural & Mechanical Development Engineers Ltd.



**Trusses** are prefabricated in 50' sections using 5%" aluminum rivets driven cold. Riveting yoke with 25-ton punch is hung from factory roof. Right, welded steel base supports each hinge of portal frames.



Erection of large prefabricated sections took only two days per frame, using light hand cranes



<sup>\*</sup> The most nearly comparable steel structure in the US is probably the new hangar at Fort Worth, Tex. by Pelich & Geren, architects and engineers, where two-hinged trussed arches span 257' with only 8.5 lbs. of steel per sq. ft. of area covered. Weighing 13½ tons and placed 20½' o.c., these welded arches rise from 12' high concrete A-frames and only reach 48' maximum height at mid-span. In contrast, welded portal steel frames spanning 328' in Mexico City's new auditorium are very heavy, 260 tons each (AF, Sept. '52, p. 158).



Hanger for modular lighting system can be adjusted after it is assembled horizontally  $\pm$  12" paralled and  $\pm 2"$  perpendicular to the 8' fluorescent lamps. Vertical adjustment is also possible.



juser grid below.

Snap-on connections provide for rapid erection; 4' x 2' eggcrate sections simply hook into position.

Two unique lighting systems are used in

the Ford Motor Co.'s new styling building, part of a projected \$80 million engineering and research center at Dearborn,

1. In the design and drafting areas Mich. \*: the fully prefabricated eggcrate ceilings (above) are engineered for utmost flexibility of size, pattern, intensity, method

of diffusion, and peripheral enclosure. But they cost no more than any good suspended

ceiling with troffer lighting. 2. In the vaulted ceilings of luxurious

styling studios an efficient combination of close-set parallel, fluorescent tubes, adjustable incandescent spotlights and alternate mercury and incandescent cove lighting (right) produce 225 foot-candles to aid evaluation of new automobile designs.

\* For more about Ford's new buildings, see p. 156.

3. LOW-COST HIGH-INTENSITY LIGHTING Modular design and prefabrication lower cost of luminous ceiling to \$3 a sq. ft. Thanks to its modular design, Ford's lun inous ceiling is economical and easy install. Though cost figures on this j are not yet available, the manufactur claim such a ceiling will run \$2.50 to per sq. ft., depending on the intensity light desired and the percentage of ceiling surface covered by acoustica other ceiling material. For exa another installation at General Ele Pittsfield, Mass. offices cost \$3 per for 88 foot-candles over 2,560 sq. cluding painting and acoustic back In Ford's new building the two-s

sign wing contains over 32,000 s 11'-4" high ceiling, two thirds of luminous. It gives 108 foot-candle height with fluorescent lamps Although the design wing is plan, the prefabricated lighting still be used, thanks to the wide d

Result-Ford's new drafting wing has an over-all luminous ceiling, giving 108 foot-candles on desks.





Vault lighting in Ford's 32' x 96' styling studios is from three sources. Main lighting is by alternate 12" o.c. incandescent and mercury cove lights, each row 80' long with 8' sections independently ventilated. Secondary lighting is direct fluorescent, also in rows 80' long, plus incandescent spots directed on working area. Total intensity at model, 225 foot-candles.



**Installation** of ceiling sections. Ceiling sections consist of  $8' \times 10'$  panels independently assembled and wired. Acoustic metal pans fit between luminous sections.

variations (plus or minus 12" maximum) that are possible with it.

In the 33,500 sq. ft. studio drafting area three quarters of the 18'-4'' high ceiling is luminous, giving 115 foot-candles at desk height. Lamps are spaced  $16\frac{1}{2}''$  o.c. This ceiling is based on two superimposed 4' x 8' grids carried by hangers spaced 4' one way and 8' the other. Location of hangers was worked out first and the layout of air-conditioning ducts designed to fit between them.

The upper grid carries 8' fluorescent lamps, set any multiple of 3" apart according to light intensity required. Lamps fit between parallel strips which house all the electrical components and wiring for the lighting panel, and are linked with screw connections (the only connection which requires a tool once the hanger supports are in place). An average 150 sq. ft. of panel is wired as a single lighting unit. The lower grid is the diffuser comprising snap-on spacer bars and  $2' \ge 4'$  white metal eggcrate units, simply hooked into place. The latter can be replaced with plastic diffusers or with acoustic metal pans.

The module is flexible. Hanger supports are designed for a variation of 12" in the longitudinal direction (parallel to the fluorescent lamps), a variation of 2" in the lateral direction and a vertical adjustment depending on the length of the hanger rod. These adjustments can be made after the ceiling is in position.

In the Ford building white metal eggcrate louvers are 20" below the fluorescent tubes, providing a shielding of  $45^{\circ}$  each way. The lamps are fitted with reflectors to compensate for the great depth of the plenum (32") required to accommodate air-conditioning ducts. Noise control is by acoustic tiles on the underside of the floor slab and between lighting panels.

#### **Studio lighting**

Along its north side, the styling building contains 384' x 96' of studio space divided into twelve 32' wide studios by motorcontrolled folding doors. Each studio has an 18' high double-glazed window for entry of full-sized model automobiles.

Studio lighting is provided by three means: 1) eight 80' long fluorescent tube systems, placed four on either side of each studio, 2) two rows of alternate 500 w incandescent and 250 w mercury cove lights concealed above the fluorescent lamps, and 3) two rows of adjustable spotlights set in the vaulted ceiling. All this provides 225 foot-candles at the automobile platform in the middle of each studio.

Ford's new styling building was designed by Voorhees, Walker, Foley & Smith, architects and engineers; the prefabricated luminous ceiling was designed by Smithcraft Lighting Division.

## 4. ENGINEERING NOTES



Multistory welding: rigid frame with full continuity saves 120 tons of steel and three months in erection

Welding has again proved cheaper than riveting for multistory steel framing. The 14-story, 620,000 sq. ft. Broadview Apartments in Baltimore was topped out in 14 weeks, three months quicker and about \$10 per ton cheaper than is normal for riveted construction in this area. Steel costs \$180 per ton erected. Total cost of the building was only \$7.25 per sq. ft. including land.

Rapid low-cost construction resulted from 1) the simplicity of the building's 2" slab on welded steel bar joists (fireproofed underneath with perlite plaster on metal lath, giving smooth finished ceilings); and 2) the use of special erection clips (see "Welded Hospital," AF, Feb. '52, p. 137) to position framing members before they were aligned and butt-welded. Rigid-frame, windbraced design saved 85 tons of steel through fixed end connections and 35 tons through the use of smaller sections. Total saving under riveting was 120 tons or  $6\frac{1}{2}\%$ .

Architects are Palmer, Fisher, Williams & Nes; structural engineer, Van Rensselaer P. Saxe; building owner and contractor, John K. Ruff Co.



#### Half-mile concrete arch: unique bridge design uses arch of precast concrete pipe sections

In Turkey they have brave ideas. Here is Engineer Bedros Kayayan's design for the Turkish Government to span the Bosporus with a towerless concrete arch 3,300' long longer than the George Washington bridge in New York, nearly four times as long as the world's longest concrete span today (the 866' Sandoe Bridge in Sweden).

#### Prefabricated arctic building: cold-air ducts in foundations overcome perma-frost problems

Twelve buildings, each averaging more than 10,000 sq. ft., have been fabricated in Bethlehem, Pa. and shipped to Thule Air Base, Greenland, for erection. They are steel framed (9.7 lbs. of steel per sq. ft. of area covered) with rigid-frame welded bents spanning 60' to 80'. Members are bolted together and enclosed in insulated metal panel walls and roofs; panels are also prefabricated and consist of a glassfiber sandwich with painted steel sheet on the inside and aluminum on the outside.

The base, only 910 mi. from the North Pole, is built upon permanently frozen glacial drift. To keep the subsoil from thawing under the heat from the buildings, these have insulated double floors with air ducts in which cold air can circulate.

Thule Air Base is designed by Alfred Hopkins & Associates, architects, and Metcalf & Eddy, engineers. Steel buildings are prefabricated by Luria Engineering Co.



Kayayan's road and railway tracks would be supported on towers resting on an unreinforced concrete arch formed by two hollow concrete pipes, tied together for lateral stability, each 55' in diameter made from precast sections 18" to 24" thick. Total weight of the span would be around 100,000 tons, creating compressive stresses of about 2,500 psi and requiring high-quality 6,000 psi concrete such as has been used in most prestressed concrete.



## Plastic windows for TV towers: large acrylic panels only 1/8'' thick

Television relay stations have a problem in protecting their equipment from weather without distorting wave forms. Standard glass windows are so thick they distort wave forms.

This installation atop the Bell Telephone building in Philadelphia solves the problem by glazing three sides of the structure with clear panels of acrylic plastic. These are  $\frac{1}{8}$ " thick and 6' high corrugated into deep V-ribs 3" thick and 8" apart, so rigid the 500 sq. ft. window successfully withstood a 60 mph gale. Angle-iron anchors top and bottom are cushioned with cork and artificial rubber.

This continuous window was designed by architects of the Bell Telephone Co. in cooperation with Rohm & Haas.



#### Outdoor heating: airport pedestrian ramp has built-in pipes to melt snow

Philadelphia's new Airport Terminal Building includes an outdoor pedestrian ramp by which visitors go directly to the observation deck and so relieve congestion in the build ng. Wrought-iron heating pipes in the floor of this ramp will keep off snow and ice. Operating temperature of the water and antifreeze mixture used in the pipes is 130° F. Cost of the 4,600 sq. ft. ramp came to \$6,290 (\$1.36 per sq. ft.) including the electrical conduits carrying wiring for the foot-high sidelights but excluding the steam heating equipment. A half acre of the entrance hall is similarly heated.

Architects for the terminal building are Carroll, Grisdale & Van Allen; consulting mechanical engineer, A. Ernest D'Ambly; Airways Engineering Corp. are the consulting engineers for the airport fieldwork.

#### Fire resistance of prestressed concrete: tests reveal no sudden failure

For fire safety prestressing wires need a greater thickness of concrete around them than structural steel members. This is indicated by preliminary fire tests on posttensioned precast beams by the British Building Research Station. In heavy concrete members the prestressing steel will probably be covered deeply enough anyhow, but in small members additional fireproofing may be necessary. In each test an Ibeam was prestressed and a narrow floor slab cast above it, reinforced for composite action. Conclusions:

1. Time of collapse is determined mainly by the temperature rise in the cables. A  $2\frac{1}{2}''$  concrete cover gives a fire resistance of about two hours. (A 2" concrete cover on structural steel earns a four-hour fire rating.) For a four-hour fire resistance the beams should probably be fireproofed in insulating plaster keyed into the concrete, or, if a thicker concrete cover is used, it should contain steel mesh to check spalling.

2. Sudden failure is not likely, but there is a noticeable progressive sagging. Cracks and a marked increase in deflection indicate that collapse is imminent.

3. Explosive spalling is unlikely in sections over 2" thick.

 Beams partially exposed to fires retain same strength upon cooling but with a marked deflection and loss of prestress.



#### Atomic powerhouse; submarine motor to get first tests in 225' air-tight steel sphere

To contain possible fission products, AEC's submarine power plant will be tested in a 3,850-ton welded steel tank near Schenectady, NY. The shell is of 1" plate, erected in 36' x 32' doubly curved panels and supported around the middle by 26 pipe columns, each 24" diameter. Access will be through two locks built into 14' wide openings seen below. The atomic plant and submarine is designed and built by General Electric Co.



### **PRODUCT NEWS**

#### CLOSED CIRCUIT TV broadens use of master antennae systems



Simplified, low-cost transmitting equipment now on the market brings closed-circuit telecasts into focus for educational and industrial applications. Any structure that is wired for multiple TV-set reception from the same rooftop antennae-and many hospitals and hotels already are-can be adapted quite simply to inside-the-building viewing. The same coaxial cable that carries signals from the antennae can pick up and transmit pictures from a camera plugged into the 110 v circuit. While this has been technically possible for some time, it has been impractical for most institutions because of the tremendous expense. Standard transmitting and camera equipment run from \$12,000 to \$20,000. But baby TV cameras, especially engineered for closed systems, have recently been developed. One is the Du Mont Tel-Eye. In contrast to its costly and cumbersome (350 lbs.) forbearers, this compact, self-contained unit weighs only 18 lbs. and measures just 14" long. It can be mounted on a standard camera tripod or carried. Operating under normal room lighting, it will feed good pictures to receivers up to 4,000' away without line amplifiers. Another Du Mont product, the Dumitter, also contributes to inside telecasting. This miniature operatorless broadcasting station can feed the composite audio and video signals over the coaxial line to as many as 125 standard receivers, or will transmit five different "programs" to 25 sets each. The Dumitter costs \$585; the Tel-Eye, \$2,850. Manufacturers: Multiple antennae systems-Jerrold Electronics Corp., Philadelphia 46, Pa., Radio Corp. of America, Camden, N. J. Camera: Allen B. Du Mont Laboratories, Inc., 1500 Main Ave., Clifton, N. J.

continued on p. 204





Surgeon's eye view of an operation is brought by TV to interns in hospital classrooms. Intricate color cameras are required for this kind of telecasting.





Little larger than a movie camera, the Tel-Eye TV unit is easy to use but makes little sacrifice on sensitivity. In the photo (right), it is being used to transmit the view of a microscope slide to science classes. The small transmitter (left) needs no operator; feeds 125 sets.

**Diagram** shows combination multiple antennae and closed circuit system in which the control unit mixes and amplifies signals from the roof antennae and inside cameras for broadcasting entertainment to patients and instruction to medical students.



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In the design, engineering and building of every Ro-Way overhead type garage door, the guiding principle is simply this: to make it as good as it can be made.



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Take Ro-Way construction. Mortise and tenon joints are not only glued, but steel doweled as well. Muntins, rails, and stiles are precision-squared. Sections are rabbeted to assure weather-tight joints. Millwork is both drum and hand sanded for extra smoothness. Heavy gauge steel hardware is fabricated on special machines right in the Ro-Way plant-then Parkerized and painted for lasting protection.

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Finally, Ro-Way designers and engineers are constantly striving to make Ro-Way doors even better. In this way we make certain the name Ro-Way identifies the finest in overhead type garage doors.

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#### FROM THE DESIGN AS WELL AS FROM THE UTILITARIAN STANDPOINT

Revere Copper plays a dual role in this building which won an award from the Southern California Chapter of A. I. A. in their annual competition. It has been used in the facias in combination with the brick walls to create an unusual and striking effect. In fact the flexibility in design of Revere Copper is practically limitless. At the same time its non-rusting and enduring qualities place maintenance costs at the vanishing point.

Those are the reasons architects and builders prefer to use this "ageless" metal whenever they can. And sheet metal contractors are glad when it is specified because it is so readily worked and soldered.

In addition to the 2,000 sq. ft. of 16 oz. Revere Sheet Copper being used for the facias, the roof flashing also was made of 16 oz. Revere Sheet Copper, the entire building taking some 2,500 lbs. The Main Cornice Works, Inc., Los Angeles, Calif., were the subcontractors who did the installing, while Brunzell Construction Company, Culver City, Calif. were the general contractors.

sible without allotments greatly increased, there isn't any reason why your next job can't have the many benefits of Revere Copper. See the Revere Distributor nearest you about Revere Sheet, Strip or Roll Copper for flashing. Particularly ask him about the money-saving advantages of Revere Keystone Thru-Wall Flashing.\* And, if you have technical problems, he will put you in touch with Revere's Technical Advisory Service. \*Patented

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METAL PRODUCTS SINCE 1888 A major portion of the Building Improvement Program of the Zion's Evangelical Lutheran Church, Greensburg, Pennsylvania, was the dismantling of the old deteriorated slate spire and its replacement with a new inexpensive aluminum covering. Architect: Paul A. Bartholomew, Greensburg, Pennsylvania. Aluminum spire, prefabricated and erected by Overly, has a graygreen Alrok finish. The finial and cross are caustic etched aluminum for bright contrast. The applied herringbone pattern adds interest to the design.

 For further information, write for Catalog 7-B.

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336

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Now you can specify a packaged system to supply chilled water for air conditioning in hotels, office buildings, motels, theaters, stores . . . everywhere. And all without the necessity of matching separate components.

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#### MARSHALL SHAFFER cont'd. from p. 125

Now the last thing anybody would take Shaffer for is an efficiency expert. His habitual expression is amiable but vague. He is variously described as a missionary and a *bon vivant*. He likes to talk and always seems to have time for it, preferably over a convivial drink.

But there are the astounding administrativecost figures—to say nothing of the gigantic educational job well done. How come?

Part of the answer is that casual appearances are deceptive and Shaffer *is* a remarkably efficient administrator, as any examination into the workings of his office shows. (For instance: every piece of work is fitted into a priority schedule and has a plan of progress with rigid and fast-paced deadlines. The running workbook on any project—say, a prototype study of isotope labs—is a dream of orderliness and completeness, beginning with the queries and situation that led to the study and continuing right down to publication and reader comment.)

Another part of the answer is the paucity of red tape—one of the most expensive materials known to man. (The entire process of getting an H-B building approved involvesfour relatively simple forms, none so complex as an application for government employment. The reason for the four-stage—instead of a one-stage—form is to catch potentially expensive mistakes early.)

But most of the answer goes back to Shaffer's motto about letting people put on their own clothes. He runs a government office that does not duplicate anything that outside individuals or organizations can be taught to do for themselves.

This takes imagination, gregariousness, ingenuity and a passionate belief in decentralization, traits with which Shaffer is well supplied. It also takes like-minded superiors with which he is happily blessed. His division chief, Dr. Jack Cronin, a fiery and popular Irishman, is the kind of administrator who values resultsinstead of a growing empire and has a full appreciation of how much the successful hospital design job means in his program of getting well-running hospitals in the right places.

Foreign visitors under tutelage of Shaffer and his staff (any three-month period includes representatives of seven or eight countries) usually end up as astonished and infatuated with the H-B version of political science as with American hospital technique. Ironically, Shaffer's office as an essay in government is more renowned abroad than it is at home.

A simple example of the Shaffer method: A few years ago he observed that hospital building equipment was mixed in hopeless confusion among other items in manufacturers' catalogues; it took an experienced man indeed to thread his way through the commercial literature. Shaffer persuaded 15 leading makers of hospital equipment to redesign their catalogues or get out special ones slanted *continued on p. 168* 



Floors are cleaned faster, easier in this modern ladies' washroom with these off-the-floor fixtures:

1. Wall-hung toilets.

2. Floor foot-flush valves.

4. Ceiling-hung partitions.

5. Towel and tissue dispensers, fastened to the wall.

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"Keep the fixtures off the floor!"-A sound recommendation from the plant washroom designer who wants his client to have the best in employee health, morale and efficiency... a minimum of absenteeism and wasted manhours. For example-wall-hung lavatories and toilets with ceiling-hung partitions aid a faster, easier cleaning operation. They reduce illness and absenteeism, too, by doing away with filth-catching corners and crevices, permitting better ventilation.

Labor and administration costs generally eat up 85-95% of a typical operation's sanitation budget. Stretch this figure out over the life of a building-50 years or more-and you'll



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realize the full importance of passing every possible washroom labor saving on to your client in his new building.

Advice on off-the-floor fixtures is only one of many services offered by your Washroom Advisory Service man. Call him in. Get all the details-based on actual experience. He has the know-how gathered by a

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But much *more* will be new at Northland. The Carrier Centrifugals will supply chilled water through underground mains to air condition 70 tenant stores, and the Hudson store itself will be air conditioned by a



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WE'VE BEEN EXPELLED! THIS SCHOOLHOUSE LUMBER'S

Architect: Wyatt C. Hedrick, Dallas, Texas





### How Longview, Texas, PROTECTS Its School Children and Its Tax Dollar Investment

When the citizens of Longview, Texas decided their community needed four new school buildings, they demanded absolute structural safety plus practical economy of design and construction. They also wanted long serviceability with minimum maintenance.

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Hedrick specified that lumber be pressure impregnated with Minalith.\* Listed by Underwriters' Laboratories, Minalith also meets Federal Specifications for Fire Retardants. Wood treated with Minalith will not support combustion—it will char slowly where flame touches it, but will not ignite. During a fire, Minalith-treated lumber maintains its load bearing strength without sudden collapse. As a plusvalue, Minalith protects wood from decay organisms and insect attack. And Minalith has no undesirable effects on lumber, keeps it clean for handling and completely paintable.

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Minalith-treated lumber is a product of American Lumber and Treating Company, who also produce Wolmanized\* preservative-treated lumber. There are Wolman preservative treatment plants in all parts of the country. For further information write:

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#### MARSHALL SHAFFER continued

straight for inexperienced hospital planner He was at least as pleased as the manufa turers when several of the jobs won the Producers' Council's highest awards for producliterature.

But the most important example of Shaffer discrimination between We'll-Do-It and You Learn-How is the relationship between h office and H-B project architects.

The first vital step in this relationshi (after the decision that all architects an created equal) was making a set of desig regulations—necessary to protect the tax parers' money. These could have been an enless source of bickering and stultification. Bac in 1946 there was plenty of ominous predictio they would be. But Shaffer and his chief a the time, Dr. Vane Hoge (now Assistant Surgeon General) set an important policy: Thes regulations would be an absolute minimum, floor; there never would be a design ceilin or even any "suggested standards" or "ideals.

The office has power to reject a hospital be cause of excessive costs, which might be construed as a ceiling, but has never yet had to d it. A few such cases have been caught by stat health offices before they ever reached federa review. A more common problem is the design that skimps too much at the expense of reasonable quality.

Next, after Shaffer had done the donkey work on the minimum regulations, he sug gested the Surgeon General appoint a committee of qualified technical consultants (the late Jim Edmunds, then president of AIA, wa its chairman) to refine the list and comb it for design booby traps.\*

Note: The prototype studies by Shaffer office—pored over by nearly every hospita designer both here and abroad—are straigh educational material; adherence to them ha no bearing on approval of a project. The involve the kind of basic research a privat firm can hardly afford and a caliber and rang of outside advice and criticism a private firr can hardly call on freely. All the same, Shaf fer is always a little disappointed if an arch tect uses them without sensibly adapting of improving them somehow.

Every H-B hospital design is approved b the health agency in its state<sup>+</sup> and by one o *continued on p. 17*.

\* An oblique comment on their achievement: O the last 25 hospitals FORUM has published as in tructive examples of creative planning, 14 ar H-B. Two more H-B jobs are in this issue. H-I accounts for about  $\frac{1}{3}$  of all hospital construction  $\frac{1}{2}$  of locally owned construction.

<sup>†</sup> Each state or territory—having mapped itsel into "hospital districts"—makes an annual censu of its hospital beds of various types, relates thes to population, and comes up with an automati yearly priority list for allocating H-B funds Incidentally, until the first H-B census, nobod knew how many hospital beds there were or how they were distributed. Shaffer's office gives a three week intensive seminar to state technical people

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\*—The "Q" Factor—The built-in Quality which provides trouble-free satisfaction and long life.



#### MARSHALL SHAFFER continued

the ten Public Health regional offices. Shaffe staff in each regional office is a three-m team: architect, mechanical engineer and co struction engineer. Shaffer's Washington fice reviews all approved plans, not to add a other O.K. but to keep tabs on the alertness the regional offices and on the good new ide coming up and to get a country-wide view the construction program.

If an architect and hospital board want they can keep their plans a secret from bo the state and regional offices until they ha working drawings and a bid. But nobody do this because the second hugely successf point in H-B's happy relationship with arch tects is the suggested reviewing system Sha fer worked out.

Under this system, an architect works wi the regional and state offices at each of s stages in his project. He successively brin in 1) his program; 2) a single-line schemat plan; 3) a larger-scale plan with equipme indicated, finishes, elevations and outline specifications; 4) revised cost estimate; contract drawings; 6) bid and completed a plication. At each of these stages, the region men may catch mistakes or suggest improv ments-in short the architect, especially the inexperienced man, gets what amounts to well-organized course in hospital plannin By the time the costly contract drawings a made, everything is already in the clear an final approval is a formality.

As Shaffer points out, this is simply "the easiest, most direct way" to go at the prolem and it may seem an obvious device. Bu anyone who has seen a hospital "experted to death" by advice pulled in at the wrong time knows it is not obvious at all, and many a chitects contend this reviewing system is the most valuable device in the whole program

In fact it is hard to find an unkind wor from anyone for the procedure. Last month in response to a mildly critical letter it ha printed about H-B, the magazine *Hospita Topics* was inundated with a "mass of com ments and compliments." Typical samples:

▶ (From an administrator): "Our architect has never built a hospital. We were desperate for both expert advice and funds.... We found the highly skilled experts of the Public Health Service who were brought in by the Stat Department of Welfare willing to come to ou community at any time, night or day, to help us. Once the federal program director sat with the architect and myself until 2 o'clock in the morning going over plans. Today we hav as fine a hospital as there is in the country.

(From the president of a board of trustees) "Someone suggested we inquire about federa funds. We were hesitant—our community doe not like outside interference.... We had no other alternative.... During the construction program we received no hindrance. We got continued on p. 176

# Where the other services also count-it's always BAYLEY WINDOWS

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The "better-serve" policy that, for so many years, has keynoted Bayley's client relationship is readily apparent in numerous ways. Constant improvement in product detail and quality is one. Another is exemplified in the Bayley Aluminum Projected Window (offered also in steel) that was designed to provide the window features requested by building designers. Such features as:

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NCE 188

SBI



Architect: Weiss & Silverstein, New Orlean

# A MIRROR becomes A GARDEN at the flip of a switch

This may suggest a way in which you can work a dramatic change in the wall decoration of a room.

During dinner in the Cotillion Room of the Jung Hotel, New Orleans, the brightly lighted scene is reflected in great paneled mirrors on the wall beside the orchestra. When dancing starts, lights are dimmed in the dining room and an illuminated garden appears where the mirrors were seen.

The mirrors are transparent—*Mirropane*\*. You can see through *Mirropane* when there is bright light behind it and dim light in front. When it's the other way—bright in front and dim in back—*Mirropane* reflects like a mirror.

Mirropane has many possibilities for decorating restaurants, clubs, lobbies, lounges and stores. Mirropane is also used to provide sight unseen wherever you may want to observe what is going on without being seen yourself. For more information, call your L·O·F Glass Distributor or Dealer, listed in classified telephone directories in many principal cities. \*®



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#### MARSHALL SHAFFER continued

were suggested by bits picked up during wha he calls his "checkered career." For instance his deadline and workbook method is adapte from an Arizona copper company "where worked a hitch as an engineer." The hospita census—now embodied in the law—comes a least in part from Shaffer's worship "during a time when I thought I might become a mining geologist" of Clarence King, creator of the US geological survey.

#### Shaffer at home

Shaffer grew up near Cincinnati in Hamil ton, where his father was a banker, graduated from Penn State in 1922, spent the next three years as an engineer in Central America and eight in California studying and practicing architecture; he worked with Neutra, Metro-Goldwyn-Mayer, and "drew in every w.c. in the largest hospital in the world." In 1933 he returned East to study, teach and practice in Chicago, Washington and New York.

He lives in suburban Wheaton, Md. with his wife, Helen, ten-year-old Tom and sevenyear-old Mike in a modern house by Architect Charles Goodman (H&H, Dec. '51). This home is a beehive of shell collecting, juvenile painting, erector-set constructions and toy motors. Shaffer is an omniverous reader everything from anthropology to ballistics interests him—and lately, making a virtue of necessity, he has become a connoisseur of children's literature too. But his and Helen's idea of a really bang-up good time is an evening spent with a hospital man from Beirut, Guayquil or Pocatello.

#### PROFESSIONAL COMMENT

continued from p. 135

along with communicable disease, and they have an increasingly closer relationship with hospital and practitioners.

The control of tuberculosis and other communicable diseases now gives many opportunities for joint action by hospitals and health departments. Clinics of health departments belong in the general hospital and not in the basement of the city hall. Hospital bed care of patients with infectious disease has dropped markedly and the "pesthouse" for the care of these patients is fast disappearing. They can with safety be treated in a separate nursing unit within a general hospital.

In smaller cities or towns where there is one general hospital, it is a great advantage to have the facilities of the health department in the hospital or adjacent to it. This joint housing can accommodate the health officer, sanitary inspector, public health nurse and laboratory facilities. In laboratory work *continued on p. 180* 



THE REAL SECTION

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simplifies rest room planning ... insures against untimely obsolescence! AMERICAN-Standard off-the-floor plumbing fixtures INSTALLED WITH THE system\*

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A good example of the pleasing effect of spaciousness achieved with American-Standard plumbing fixtures installed and supported by the Zurn System is shown in the large picture above. This is one of the modern rest rooms in the new Lever Brothers plant in Los Angeles, designed and constructed by the Bechtel Corporation.

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ABOVE: American-Standard Glenco toilets installed with Zurn Systems relieve the wall of all the load.

**BELOW:** Wall-type model of the famous Sanistand fixture—the American-Standard urinal for women. It is installed with a Zurn System fitting especially designed for this fixture.





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alone, the advantages of sharing the cost of personnel and equipment are obvious. There are numerous examples of this cooperative planning in new construction in the US and Canada.

In larger cities also the public health laboratories can be located in a general hospital with mutual advantage. The joint housing of public health department, medical school and teaching hospital provides an ideal integrated medical center. Full-time local health departments will expand greatly during the next decade and it seems certain that the nation's hospital system will be extended to many areas now lacking adequate facilities.

Wherever there is new construction, it is important that architects join health department and hospital administrators to plan, wherever possible, joint housing and cooperative use of personnel for more effective work in safeguarding community health.



Davis, director of hospitals, Kellogg Foundation; past president, American Hospitals Assn.; former member, Commission on Hospital Care.—The American people get a fair return from their investment in health services, but elimination of the more obvious inadequacies would give them considerably more for their health dollar. One inadequacy —failure to coordinate preventive and curative medicine—is costing the consumer money.

Preventive and curative medicine are inseparable. It is unfortunate the attempt was ever made to separate and closely define the spheres of each. The friction that developed during pioneering days of public health is not so great now as in the past, but too much still persists.

The Commission on Hospital Care recommended that closer working relationships be established between hospitals, the medical profession and public health. It is the clear intent of the Hospital Survey and Construction Act to promote such coordination, but opposition at state and local levels has hampered progress.

Strangely enough, a strong element in the public health services at state and local levels opposes closer working relationships. These officials fear loss of some of the financial support of public health activities. Public health conserves and protects in the mass. Its accomplishments are not so dramatic to the public as emergency surgery on an individual. Not realizing that, as a rule, the public gets more for its public health dollar, the community will raise, at considerable sacrifice, large sums of money to build a fine new hospital and will neglect its public health services. This greater dramatic appeal of the hospital causes some public health people to fear preventive health services might get lost in the scramble if closer working relationships were established. The frequent result is that separate hospital and public health centers duplicate facilities and services, such as the clinical laboratory and X-ray, reducing standards of service at increased cost to the consumer.

Some of the antipathy to public health among some elements in the medical profession is undoubtedly based on the fact that public health has more to offer the public for its money.

In the highly competitive commercial world the producer of the superior commodity or service, as related to price, eventually gets the business until competitors either manufacture a product of comparable quality for the same price or go out of business by merger or bankruptcy. Economic factors do not operate in the same way to force merger of preventive and curative health services, but even so an increasingly large segment of intelligent leadership is becoming acutely

continued on p. 184


G-E 480Y/277-VOLT ELECTRICAL DISTRIBUTION SYSTEM serves both fluorescent lighting and machine load through five load-center substations. Motors operate at 480 volts line-to-line, lamps at 277 volts line-to-neutral. System saves distribution copper, cuts branch-circuit installation time.

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The same stainless steel used in these buildings is available today-free from Government restrictions. It is Armco 17, Type 430, one of the oldest stainless grades. Architects specify Type 430 for window sash, mullions, pilasters, signs and many other exterior applications not subjected to severely corrosive atmospheres.

Because of its beauty, strength and workability, this stainless steel is used on interiors, too, for kitchen, cafeteria and bar equipment, for doors and entrances, exposed ventilating ducts, wainscoting, elevator cabs and decorative purposes.

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**ARCHITECT & ENGINEERS:** A. Epstein & Sons, Inc., Chicago, Ill.

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aware of the cost to the public of artificial division of these services. The public has a right to expect construc-

tive leadership from organized medicine, public health officials and hospital trustees and administrators in bringing about closer coordination. If that leadership does not become more effective soon, the alternative appears to be governmental ownership and control of health services, which would be

Borowski, chief of Division of Hospital Facilities, Ohio State Department of Health .--Coordinating the physical facilities of hospitals and health centers has been much discussed in the past six years. Because the concept is a radical departure from past patterns, and, because of personalities and individual skepticism, there is as yet no unanimity of thought.

In Ohio much has been done to promote joint housing of the hospital and health

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housing projects. Several points a 1. The training and objectives of hospital and public health groups mentally the same. 2. The average citizen naturally

center. On the basis of observa

perience, the State Department

satisfied there is merit in devel

the hospital building as the focal medical and health care program community. He expects to find all p pertaining to his physical well-being central location.

3. Joint housing assures the taxpay greater return from his investment, t elimination of duplicated services.

4. In areas where joint housing is a effect, there is proof of greater understa on the part of both preventive and cu medical professional groups because closer working relationship and an am appreciation of the responsibilities assi each group.

5. The recipient benefits from contin of service; joint housing thus helps elimin fear and confusion in the public mind.

6. Joint housing reduces the effort involuin preventing, controlling and caring for fectious communicable diseases and minimiz misunderstanding by establishing sound r porting and isolation procedures.

In short, the community is provided with an economical arrangement, a cooperating team; the prestige and personal pride of both forces is enhanced immeasurably; the citizens are better informed and take pride in looking to their community medical center.

To date in Ohio there are 14 joint housing projects completed or under construction. Half of these combined hospital-health center projects are owned and operated by nonprofit organizations. One, for instance, is owned by an order of Catholic Sisters.

Our experience indicates that joint facilities should not be attempted in either the very large or very small community. To take advantage of the economies, there must be a full-time, well-functioning health department under the direction of a qualified health officer, and such departments are not generally feasible in a very small community. On the other hand, a community large enough to support two or more general hospitals is likely to need public health quarters too large to be incorporated within a hospital. In terms of size, the smallest Ohio hospital providing facilities for a health department contains 22 adult beds and the largest has 165. A joint facility providing health department space supported by a half dozen beds for emergency purposes is suitable for sparsely populated

continued on p. 188

#### STANLEY BB118 Hinges

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Coordination of modular design and modular brick eliminates cutting around openings, improves appearance, saves from 5%-15% in drafting time, from 8%-21% in on-site costs.

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>> "Architects who regularly use the Modular Method report a 5% to 15% increase in the rate of production of drawings. Two impartial studies showed in-the-wall savings of 8% to 21% due to the use of Modular-Coordinated masonry units."

# modular brick and tile cut costs on the boards, on the job

The sketches at the right show how modular coordination of materials and design eliminates tedious cutting and fitting of brick and tile around window and door openings.

Carrying out its tradition of service to architects, the Structural Clay Products industry was the <u>first</u> to support modular coordination on an industry-wide basis. For full information on modular brick and tile, call your regional SCPI representative or write to our Washington office.

Get these two free booklets for your file on modular design: "The ABC of Modular Masonry," "Modular Sizes of Brick and Tile." Address AF-5.



sizes and architects' dimensioning requires cutting and fitting to accommodate openings.

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Hospitals and medical buildings, like the one pictured here, require windows that are easy to operate, give controlled ventilation and are easy on the annual maintenance budget. Aluminum windows by General Bronze satisfy all these requirements and satisfy them well.

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Because of our unequalled facilities and our vast experience, we are well qualified to serve you, especially when your requirements are complex or unusual. We will be glad to discuss your problems with you at any time. Our Catalogs are filed in Sweet's.

> PASTEUR MEDICAL BUILDING Oklahoma City, Okla. Architects: Leonard H. Bailey & John Bozalis Contractors: Harmon Construction Co.



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#### PROFESSIONAL COMMENT continued

sections but not for such densely populated hospital areas as Ohio has.

Differences in personalities and misunderstanding by the many people involved handicap planning of joint housing. However, as joint housing units are established and their success witnessed, the new pattern will come to be increasingly desirable.

Hospital boards of trustees, public health boards, medical and nursing staffs, hospital administrators, and health officers all must have the opportunity of working out their differences in the early stages of planning. Above all, the architect needs to appreciate the part played by preventive agencies as well as the part played by diagnosis and treatment in the hospital.

The length of time required to accept this thinking will depend almost entirely upon the willingness of all the people concerned to understand the principle of complete medical care.



MOUNT AIRY, NORTH CAROLINA Designed by CHARLES M. GRAVES, Atlanta, Georgia FRED M. SIMMONS, Assistant Architect, Shelby, North Carolina Front and left side approach faced with Mount Airy Granite

#### Dress up your Building Approach with Beautiful MOUNT AIRY GRANITE

Many architects in designing hospital, school, and community buildings which cannot afford the use of granite in the entire structure are taking advantage of beautiful Mount Airy Granite to dress up building approaches with approach facings, sills and copings to set off their buildings attractively for a lasting first impression.

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> Let us send you specific information on Mount Airy Granite along with references from builders who have found it the exact answer for construction that must be dignified, durable and economical.

NORTH CAROLINA GRANITE CORPORATION MOUNT AIRY, NORTH CAROLINA **Rusk**, professor and chairman of the Department of Physical Medicine and Rehabilitation, New York University College of Medicine.—Hospitals in the past have concentrated almost solely on the definitive aspects of medicine and surgery. But if the hospital is to meet changing health needs, it must assume greater responsibility for all three phases of health: prevention, definitive treatment and rehabilitation. I want to discuss rehabilitation in particular.

Medicine's No. 1 problem in the developed parts of the world is now the slow, insidious processes of the chronic diseases and the physical disabilities they leave in their wake.

Until medicine finds the specific answers to diseases of the heart and circulation, rheumatic fever and arthritis, cerebral palsy, multiple sclerosis, poliomyelitis and the other crippling diseases, we must use the techniques of physical rehabilitation, psychology, social services, vocational counseling and the paramedical specialties to teach the disabled to live and work as effectively as possible.

In most of our hospitals today, the patient receives few services of this type. Hospitals complain the chronically ill are responsible for overcrowding, but they do little to provide services that would permit patients to leave.

It is difficult to estimate the financial savings of comprehensive rehabilitation programs, but there is some indication in the 1951 experience of Goldwater Memorial Hospital. Last year its 100-bed rehabilitation unit discharged 168 patients, 91 of whom returned to their homes. From past experiences, it is fair to assume that in absence of a rehabilitation program each of these patients would have stayed much longer. At present hospital costs, the upkeep of these patients for one additional year would have totaled \$237,000.

This is, of course, not a net saving; the additional cost for physicians, therapists and other personnel for the rehabilitation unit was about \$100,000 for the year. Balanced against this, however, is the fact that these physicians and specialists also provided definitive services for the entire hospital (which has an average daily census of 1,750 patients).

The savings within the hospital that result from a dynamic rehabilitation program—savings in special services as drugs, dressings, operating rooms, X-rays, laboratory and anesthesia—are largely offset by the cost of additional specialized rehabilitation personnel. The great saving comes in reducing the length of the hospital stay and returning substantial numbers of severely disabled persons to lives of either economic productivity or ability to care for themselves.

The hospital is recognized more and more as the focal point in public health activities. With the changing demands upon it because of the greater proportional load of chronic disease and disability, it must now also play a more important role in rehabilitation.



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Inside is the solid core — fused under heat and pressure into a single, one-piece unit. It can really absorb abuse.

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Use this PROOF chart	Yes	No	Yes	No	Yes	No
Lightweight the "dead load" is low yet strength is not sacrificed	~					
Fast and Easy to erect no special equipment or false-work necessary	V					
Self Centering form work rests directly on joists no additional support needed	V					
Conceals Conduits saves space. Cellings attach to joist, eliminating suspended ceiling	V					
Fire Resistive ideal with incombustible top slab and metal lath plaster celling	~					
Sound Resistant with concrete slab above and plaster ceiling below	¥					
Non-shrinking no warping, cracking, sagging or shrinking	V					
Termite Proof cannot be damaged by rodents, termites or insects	~					
Versatile designed for office buildings, schools, stores, hospitals, apartments, plants						
Low Cost light-weight con- struction reduces weight of support- ing beams, columns and footings	v					



#### Charles D. Hannan specifies Thermopane for MORE DAYLIGHT, MORE COMFORT AT LOW COST

Distinguished by an abundance of daylight in every room and amazingly low construction costs, the pace-setting Michigan schools, designed by Charles D. Hannan, make extensive use of *Thermopane*<sup>\*</sup> insulating glass. In fact, Mr. Hannan considers *Thermopane* essential to achieving these results.

To quote Mr. Hannan, "Thermopane enables me to give schools in this climate all the benefits of Daylight Walls, such as natural daylight illumination and the added feeling of spaciousness, and to keep costs down. Our studies show that using Thermopane materially reduces the cost of lighting and heating equipment required, as well as cutting operating costs. It makes the areas next



to windows usable in any temperature and provides a wall surface that is easily cleaned and maintained, inside and out."

Thermopane has been used in thirteen Hannan-designed schools and in every addition built onto these schools—convincing evidence that school officials have been pleased with the results.

If you have anything to do with school design or operation, you will enjoy reading the newest, authoritative publication on school daylighting, *How to Get Nature-Quality Light for School Children.* For a free copy write Libbey Owens Ford Glass Co., 4253 Nicholas Bldg., Toledo 3, Ohio.



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Flexible chalk board in Dearborn school pulls out to form easel



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#### BOOK REVIEWS

FLEXIBLE CLASSROOMS. By Russell E. Wilson. Carter Co., 51 West Hancock, Detroit, Mich. 64 pp. 9" x 12". Paper-bound. Illus. \$3.75

Author Wilson-director of school building planning for the Dearborn Public Schoolsbases this picture book on an excellent point: schoolhouse flexibility need not be a complicated or highly technical matter of structural provisions. Classrooms made flexible through choice of equipment and furniture can yield a remarkably flexible schoolhouse and reduce the need for specialized rooms.

To stimulate thinking about classroom flexibility, Wilson presents "on a cafeteria basis" pictures of a fascinating variety of ingenious equipment-everything from portable stages and rolling workbenches to benchwardrobes and easels that turn into chalkboard. He suggests that the reader "like a fastidious diner, select or reject those items suited to the needs of his palate and purse."

Obliquely, the book raises more questions than it answers. Can design of a flexible classroom actually begin with picking and choosing appealing items, or must it begin with an over-all sense of organization with the items following? Does a classroom of flexible equipment and movable furniture relieve the designer of room arrangement or does it give him the added job of designing, say, five wellorganized arrangements? When and why does a portable wardrobe make sense and when is it a waste of money?

For school people with fairly specific ideas of what they are after in classrooms, this book is an interesting catalogue of ideas and equipment (although it does not indicate which pieces may actually be bought and which are custom-made). For those to whom flexibility is a novelty, we draw attention to the author's remark that "to incorporate all the ideas into one single classroom would be to spawn a monster," and add the warning that to incorporate even some of them without real plan will probably produce an unsatisfactory room no matter how you slice it.

NEIGHBOR FLAP FOOT-THE CITY PLAN-NING FROG. By Bill Ewald & Merle Hendrick-

son. Henry Schuman, Inc., 20 E. 70th St., New York 21, N. Y. 56 pp. 7" x 10". Illus. \$2.50

This is both a grown-up book for children and a children's book for grownups. It deals with the city planning problem on a neighborhood level, a family neighborhood bounded by school, shops and factory, cemetery and park. Mickey, a typically bright city schoolboy, is introduced to community citizenship by his good friend, Flap Foot, a bright green frog who knows all about this planning business from his contacts in City Hall. This amazing frog encourages Mickey to draw a rough map of his neighborhood as it is and together they discuss what can be done to improve it-to continued on p. 196

#### Additional Hospital Space At No Additional Cost...

when you specify "Modernfold" doors, according to Architect Gerald G. Scott, Portland, Oregon. Writes Mr. Scott: "Modernfold' doors were specified as an alternate to the Specifications for the Central Oregon District Hospital, but when the bids were opened, it became apparent that these doors could be had for no additional cost over wood doors. Their use was more than justified by an overwhelming list of advantages, including economy, but particularly by their space-saving feature. The Contractor was especially pleased because they relieved him of the responsibility of hardware, painting, and installation; resulting in less time on his part spent during the finishing stage of the job."

Pictured is one of the rooms from Central Oregon District Hospital, Redmond, Oregon. Scott & Payne, Portland, Architects.



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<sup>1</sup> Specifying "Modernfold" doors keeps clients happy. For these steelframed, vinyl-covered doors can't be equaled *anywhere* for quality of design . . . for quality and strength of materials.

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# GEORGIA TECH'S NEW ARCHITECTURE BUILDING



Architect: Bush-Brown, Gailey & Heffernan, Atlanta, Georgia General Contractor: J. A. Jones Construction Co., Atlanta, Georgia Mechanical Engineer: E. R. Gritschke, Chicago, Illinois

Plumbing Contractor: Mechanical Contractors & Engineers, Atlanta, Georgia

Specially planned for architectural students at Georgia Institute of Technology, Atlanta, Georgia, this new building features the finest study and drafting room facilities, as well as spacious Crane-equipped washrooms and easily accessible, recessed Crane drinking fountains for student comfort and convenience.

Crane equipment was chosen for the same reasons that make it the "preferred plumbing" at universities, colleges and schools everywhere—durability and dependability, ease of servicing, ease of maintenance, and quality that is recognized by architects as well as the boards and committees who approve budgets.

If you are planning new additions to your campus, let your architect and contractor know your preference for Crane.



Drinking fountain is the Crane Corridor with automatic stream regulator and self-closing valve. Recessed into wall, this model is a space-saver in busy corridors.



Lavatories chosen for Georgia Tech's new architecture building are easy to clean Crane vitreous china Norwich, model 1-200-C, with integral liquid soap chamber and Crane's exclusive finger-touch Dial-ese controls.

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Architect: C. H. Blohm, Miami

### Miami's largest, most important new office building in 16 years uses **Steeltex Floor Lath**

The new steel and concrete Pan American Bank Building —the first major office building constructed in Miami since 1937—was designed for long life, low maintenance, and economy in construction. Each concrete deck including the roof was poured over thousands of square feet of durable, economical Steeltex Floor Lath—the modern, time and money-saving, galvanized steel wire concrete reinforcing which carries its form on its back (see note at right) and permits continuous work on the floor below.

Steeltex offers speed and economy because it can be installed rapidly. It insures strength, durability and safety because the galvanized welded wire mesh is properly embedded, and the slab is properly cured because the tough waterproofed backing retains the water, thus insuring the correct water-cement ratio. For detailed information about Steeltex Floor Lath, the combined form and reinforcing, see our catalog in Sweet's or write for catalog D.C. 133, Dept. AF, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pennsylvania.

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Note, in the cross section and closeup that the weight of the wet concrete forces the backing away, which permits the galvanized wire mesh to assume its proper position in the slab. Steeltex Floor Lath also performs two other functions. It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.



make it cleaner, less congested, air condition it with trees, make the main streets real traffic arteries instead of "mistake" streets and see if the kids can get to school without having to cross them.

The authors, with experience in both planning and teaching, have succeeded in producing a very readable and entertaining little book that does explain the fundamentals of good urban design to school children and their parents. Attractive, witty sketches bring their ideas to life and demonstrate the crude inefficiency of our present obsolete horse-andbuggy street layout.

By stimulating young minds it may be this public-spirited frog will promote more urban redevelopment than an entire encyclopedia of urban studies and statistics. The techniques of physical redevelopment are established, the legal authority and financial assistance is available through the 1949 Housing Act, Title I, the difficulty now is to get people to



take an active interest in the towns they live in. The experience of a community sets current thinking on urban problems; this book widens that experience and indicates what families can do for themselves in their own back yards.

#### STREAMLINED SPECIFICATIONS STAND-

ARDS, Vol. I—Architectural (in three pads). By Ben John Small. Reinhold Publishing Corp., 330 W. 42nd St., New York 36, N. Y. 81/2" x 11". \$20

This book presents a simplified method of specification writing and then provides the specification writer with the necessary tools to carry out the proposal. These tools, in the case of Vol. I, are three pads of sample specifications, which by editing the specification writer can adapt to specific buildings. The pages are printed one side only in doublespaced typewriter type to facilitate editing and typewritten additions.

Vol. I's three pads cover these subjects: 1) contractual, site work, structural; 2) masonry, weather protection, metalwork; 3) finishing. Vol. II will cover mechanical and electrical specifications; Vol. III, equipment.

**SPEAKING OF LITURGICAL ARCHITEC-TURE.** An illustrated pamphlet by H. A. Reinhold, D.D. Liturgical Programs, publisher, University of Notre Dame, Notre Dame, Ind. \$1

This brief, lucid pamphlet argues well for reorientation of Catholic parish church design around the type and form of services such churches primarily house: Eucharist and Baptismal. It also argues for architectural emphasis on the church elements employed in these services: altar and font. Simple ideograms illustrate the author's points and several possible solutions are presented. To support his thesis of architecture to fit parish worship, he contrasts the functions of the "family" church with those of a monastery or convent chapel, a pilgrimage shrine and a cathedral and deplores the confusion of these different functions in the design of parish churches.

ARCHITECTURAL GRAPHICS. By C. Leslie Martin. Macmillan Co., 60 Fifth Ave., New York 11, N. Y. 213 pp. 81/2" x 11". Illus. Paper-bound. \$4

Many textbooks have been written on architectural drawing. This one is better than most for two reasons: 1) It presents in one book the related subjects of orthographic and oblique drawing, perspective drawing and shades and shadows; 2) most of the illustrative examples deal with up-to-date forms. There are no Corinthian capitals, no Doric porticoes, few dormers—instead, the author teaches his subject for the most part with contemporary architectural forms.

continued on p. 200

## TOILET ROOM ENVIRONMENTS THAT STAY NEW ALWAYS!

• The toilet room environment that stays new is the toilet room in which the most suitable type of toilet

toilet room in which the most suitable type of toilet compartment available has been installed. Toilet compartments usually dominate a toilet room, influence the toilet room environment and emphasize the utility of fixtures and appointments. The bare functional type of toilet room is inadequate according to today's standards.

Sanymetal offers several different types of toilet compartments for creating the most suitable toilet room environment for every type of building. Sanymetal also offers and recommends Two Full Purpose Metal Base Materials which combine colorful attractiveness with long years of service life and effect important, day after day, savings in cleaning and maintenance cost. These Two Full Purpose Metal Base Materials—Sanymetal "Tenac" (galvanized, Bonderized\* steel), a highly corrosion-resistant material; and Sanymetal "Porcena" (Vitreous porcelain on steel), the ageless and fadeless, rust proof material—represent years of engineering research and skillful adaptation by Sanymetal engineers of corrosion-resistant steels to the fabrication of new and different types of toilet compartments.

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See the modern, new colors! — as well as a representative selection of intermixed tints and tones. Write for color card. Or, if you prefer, ask your nearest P&L forchitectural Service Department to assist you in color Architectural Service Department to assist you in color planning with New Lyt-all Flowing Flat — and other products in the complete Pratt & Lambert line.



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Bogotá Country Club is handsome example of Colombian architecture, inside and out



#### **BOOK REVIEWS** continued

While the book's purpose is to aid in teaching a comprehensive classroom course in architectural drafting, it is written so that it can be used by those who do not have the personal help of a competent teacher, like the author. He is associate professor of architectural design at the University of Cincinnati.

Arango and Carlos Martinez. Distributed by Wittenborn & Co., 38 E. 57th St., New York 22, N. Y. 127 pp. 81/2" x 11". Illus. \$7.50

A picture book of Colombia's native architecture (30 pp.) and its contemporary buildings, including the Country Club of Bogotá (photos left, above) by Architects Jorge Arango and Obregon & Valenzuela.

#### **OTHER BOOKS RECEIVED**

URBAN REDEVELOPMENT STUDY. Vol. I, Urban Redevelopment: Problems and Practices; Vol. II, The Future of Cities and Urban Redevelopment. Edited by Coleman Woodbury. The University of Chicago Press, 5750 Ellis Ave., Chicago 37, III. 1,289 pp. 7" x 10". \$7.50 and \$9, respectively.

FOUNDATION ENGINEERING. By Ralph B. Peck, Research Professor of Soil Mechanics at University of Illinois, Thomas H. Thornburn, Research Associate Professor of Civil Engineering at University of Illinois and Walter E. Hanson, Engineer of Bridge and Traffic Structures, Illinois Division of Highways. John Wiley & Sons, Inc., 400 Fourth Ave., New York 16, N. Y. 410 pp. 6" x 91/4". Illus. \$6.75

PILE FOUNDATIONS. Theory, Design, Practice. By Robert D. Chellis, B.S., C.E., M.ASCE. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. 681 pp. 61/2" x 91/4". Illus. \$12.50

**ELEMENTI DI URBANISTICA.** By Luigi Dodi. Libreria Editrice Politecnica Tamburini, Milan, Italy. 262 pp. 7" x 934". Illus.

**COMMUNITY USES OF PUBLIC SCHOOL FA-CILITIES.** By Harold H. Punke. King's Crown Press, Columbia University, New York, N. Y. 247 pp. 51/2" x 834". \$3.75

WELDED HIGHWAY BRIDGE DESIGN. Edited by Prof. James G. Clark, University of Illinois. The James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio. 240 pp. 6" x 9". Illus. \$2



# plenty of reason to set you dreaming

This is a time for planning, by business men of vision. The day must come when allocations and priorities will be words of the past . . . when materials will be much easier to get and orders perhaps much harder. Against that day, let some of your dreaming center on stainless steel, the most uniquely useful metal in the bookhard, strong, beautiful, everlasting.

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V-152 Water Valve for Air-Conditioning Units



T-900 Master Thermostat



T-901 Submaster Thermostat Le Bonheur Children's Hospital, Memphis, Tenn. J. Frazer Smith, Inc., Architects and Engineers, Memphis. S. L. Burns, Jr., Associated Engineer, Memphis. Poe Piping & Heating Co., Mechanical Contractors, Greenville, S.C.

Le Bonheur Children's Hospital in Memphis is truly one of the nation's most outstanding hospitals. This thoroughly modern, 128-bed facility, designed exclusively for the care of children, is completely air conditioned.

Here, 212 Johnson T-271 Heating-Cooling Thermostats operate Johnson V-152 Valves on the hot and cold water supply to individual room air conditioning units, to secure just the right heating or cooling effect.

A Johnson T-403 Room Thermostat and an H-103 Room Humidostat, in each of five operating rooms, operate valves, dampers and humidifiers in unit air conditioners to maintain constant temperature and humidity conditions.

Three central-fan air conditioning systems serve the cafeteria, amphitheatre, and administration sections. Johnson T-432 Heating-Cooling Room Thermostats operate face and by-pass dampers to maintain year-'round comfort conditions.

Johnson Control throughout the entire hospital means greater comfort and faster recovery for patients, permits personnel to concentrate on technical duties and insures the greatest return on every dollar spent for heating and cooling. Moreover, it simplifies the entire operation. A single switch at a central point accomplishes the seasonal change from "heating" to "cooling."

Above all, Johnson Control meets the most exacting hospital safety requirements. *Pneumatically* operated, it is *always safe*, even where there are explosive anesthetic gases. When Johnson Humidity Control is employed, it guards against the dangers of static electricity.

Whether your problem involves the regulation of temperatures and humidities in a single operating room or an entire hospital, call a Johnson engineer from a nearby Branch Office. His advice is yours for the asking. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branches in Principal Cities.

JOHNSON Automatic Temperature and Air Conditioning CONTROL

MANUFACTURE . APPLICATION . INSTALLA' ION . SINCE 1885

T-271 Heating-Cooling

Thermostat for Air Conditioning Units



Let's suppose you are designing a spandrel area and are looking for a material to meet these requirements:

- · Light weight
- Colorful
- Full weather resistance
- Economical

Architectural Porcelain is your answer . . . it measures up to all of these requirements and more, too! A truly versatile building material offering complete weather resistance and guaranteed non-fading color.

Specify Davidson Architectural Porcelain for your next building . . . a material to make your design sparkle! Our standard panels have been used with beautiful results on schools, hospitals, stores and public buildings . . . and if you require a *filled* panel—specify Davidson VITROCK—this panel has no equal!

Our brochure shows many applications, construction details, textures and colors, we hope you will write for it.



Davidson ENAMEL PRODUCTS, INC.

#### PRODUCT NEWS continued from p. 156

#### T & G'D CEDAR TIMBERS stack together for roof, wall or floor

Unit Deck is a grown-up "Lincoln log" of rugged Western red cedar. Precision cut from 4" x 5" nominal stock, the tongued and grooved sections are shipped in lengths of 8' to 16' for application as roofs, floors, partitions and outside walls. Versatile, attractive and practical, the new product is already making its mark in projects in the Northwest. Some of Unit Deck's inherent, but nonethe-

Some of *Unit Deck*'s inherent, but nonetheless impressive attributes:

Weight and strength. Weighing about 1,750 lbs. per M bd. ft., it presents a dead load of just 7 lbs. for each sq. ft. of roof area, yet

SPAN	UNIFORM LOAD
18'	30 lbs. PSF
16	40
14	50
12	70
10	100
8	160

will take a safe total load of 30 lbs. psf over an 18' span, 160 lbs. over an 8' stretch.

Insulation. Unit Deck used with built-up roofing material and no supplementary insulation has a U factor of .17. For intensely cold US climates, this low coefficient of heat transmission can be brought down to .11 by adding 1" rigid insulation board.

Fire resistance. Unlike steel, timber does not lose strength under intense heat. In blowtorch tests, solid cedar Unit Deck charred but did not support combustion, and resisted transmission of heat through a 4" section for 45 minutes.

Cost. F.O.B. prices on Unit Deck run \$172 per M bd. ft. standard grade (suitable for schools, gymns, churches) and \$155 in commercial grade (for garages, factories, etc.). Rafter, sheathing, and finished ceiling all-inone, it eliminates the need for purlins, joists, furring, and plastering. Processed with a smooth panel finish, Unit Deck can be stained, shellacked, waxed or painted.

Application. The precision-cut sections assure fast, faultless alignment. To join pieces horizontally, workmen drive 7" spikes through predrilled holes (see photo below); no nails *continued on p. 208* 



#### the textured ceiling with the quiet touch

Fiberglas\* Textured Acoustical Tile has a beauty all its own, a beauty befitting any interior you can visualize. This timetested Fiberglas product is also entirely practical—low in cost, fire safe and with the touch of quiet that rates it among the highest. For latest design data, contact your Fiberglas Acoustical Contractor, the nearest Fiberglas Branch Office, or write Owens-Corning Fiberglas Corporation, Dept. 67-E, Toledo 1, O.

### FIBERGLAS

SOUND CONTROL PRODUCTS

FIBERGLAS TEXTURED, PERFORATED & SONOFACED\* ACOUSTICAL TILE FIBERGLAS TEXTURED & SONOFACED CEILING BOARD - FIBERGLAS SONOCOR\* ACOUSTICAL PADS FOR METAL PAN - FIBERGLAS NOISE-STOP\* BAFFLES

\*Fiberglas (Reg. U. S. Pat. Off.) Sonofaced, Sonocor and Noise-Stop are trade-marks of Owens-Corning Fiberglas Corporation.

lowest cost non-combustible acoustical materials available



#### ROUND COLUMNS of CONCRETE at lower cost!

for

ABOVE — New Public Library, Cincinnati, Ohio. F. W. Garber— Samuel Hannaford & Sons, Associate Architects. Frank Messer & Sons, General Contractors. Photo by Geo. Stille.

REQUIRES

MINIMUM BRACING

21 SIZES

1" UP TO

Up to 24' long

special order.

or longer on

1 11

Original specifications in the highly finished areas of the new Cincinnati Library building called for perfectly round columns of expensive seamless steel pipe filled with concrete. The contractor suggested using SONOTUBE fibre forms to achieve the same result at much lower cost, and their use is credited with saving \$8,000 on those columns where seamless tubing was originally specified.

A letter from the general contractor, Frank Messer & Sons, states, "We, from our experience, have found that the Sonotube form is the most economical unit to use." Easyto-handle Sonotube has been widely jobtested in all types of construction involving columns, piers, piles, underpinning, etc.

BE SURE AND VISIT US AT BOOTH 16 PRODUCTS EXHIBITION A.I.A. Convention, Seattle, Wash., June 16-17-18

WRITE TODAY for complete information and prices!

SONOCO PRODUCTS COMPANY Construction Products Division GARWOOD, N. J. HARTSVILLE, MYSTIC, CONN LOS ANGELES.CAL. S. C. BRANTFORD, ONT

DISTRIBUTORS WANTED-Write for full details !

### In School and Community House Design — Specify the Folding Unit that Best Meets the Requirements

Combining activities and lunchroom areas saves space and reduces building costs. Now Schieber has made possible the use of folding tables and benches to meet all requirements. Restricted budgets and special seating arrangements can now be accommodated.



#### SCHIEBER 9m-wall

All-Steel with tables and benches attached to pockets.

In 15 years leading school architects have specified thousands of these quality units from coast to coast. Users testify to savings and complete satisfaction.





#### for INDUSTRIAL and COMMERCIAL BUILDINGS

INSULAT

mm

#### ALUMINUM, STAINLESS or GALVANIZED STEEL

More and more architects are turning to insulated metal walls for industrial plants, powerhouses and other types of industrial and commercial buildings where this modern wall construction offers certain definite advantages. These advantages include: Lower cost in both material and labor, reduction in construction time—plus the fact that insulated metal walls can be erected under weather conditions which preclude masonry construction. Insulated Metal Walls also lend themselves to individual architectural expressions in design—the powerhouse illustrated here is a good example. In this building, vertical panels of continuous sash in combination with a Mahon Fluted Metal Wall produces a striking appearance. Mahon Insulated Metal Walls are available in the three patterns shown below. The Mahon "Field Constructed" Fluted or Ribbed wall can be erected up to sixty feet in height without horizontal joints—a feature which is particularly desirable in

powerhouses or other buildings where high expanses of unbroken wall surface are common. See Sweet's Files for complete information and Specifications, or write for Catalog No. B-53-B.

THE R. C. MAHON COMPANY

Detroit 34, Mich. • Chicago 4, III. • Representatives in All Principal Cities

Manufacturers of Insulated Metal Walls; Steel Deck for Roofs, Partitions and Permanent Concrete Floor Forms; Rolling Steel Doors, Grilles and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.



ALIS



The Over-all "U" Factor of the various Types of Mahon Insulated Metal Walls is Equivalent to or Better than a Conventional sixteen inch Masonry Wall,

In the Powerhouse above, the Insulated Metal Walls up to the first eave line are constructed without a horizontal joint. Continuous Exterior Wall Plates 56'-10" long were employed in these wall areas.

#### **PRODUCT NEWS** continued

are visible. Butt end joints—which do not have to be made over supporting trusses but should be kept from the center of span wherever practical—are connected by steel splines.

Besides the flat surfaced sections, the manufacturer fabricates Unit Deck with a bevel on one side for use on exterior walls, and also makes laminated structural members of glued wood (pictured top of p. 204 in a Milwaukee classroom).

Manufacturer: Unit Structures, Peshtigo, Wis.



HIGH-VELOCITY DIFFUSER engineered for under-the-window installation

Simple to install and control, Anemostat's UTW high-velocity air diffuser belies the



#### Add permanence to all buildings with CLOW (threaded) Cast Iron Pipe

Modern hospitals are today's most urgent building need. Because our hospitals will be as vital tomorrow as they are today, they are being built for strength and permanence.

In plumbing, for example, more and more architects and contractors choose Clow (threaded) Cast Iron Pipe for all downspouts, vents, and waste lines. They know that Clow Cast Iron piping will last the life of the building because of its remarkable resistance to corrosion.

They know, too, that installation cost and yearly upkeep will be gratifyingly low.

We will be pleased to give detailed answers to inquiries at any time.

JAMES B. CLOW & SONS

201-299 North Talman Avenue • Chicago 80, Illinois

A REAL PROPERTY AND A REAL PROPERTY A REAL PROPERTY AND A REAL PRO

#### A COMPLETE LINE FOR ALL PIPING NEEDS

Clow (threaded) Cast Iron Pipe has same O.D. as steel pipe, is available with plain or threaded ends, in 3, 4, 5, 6, 8, and 10" sizes in 18' random lengths. Also available with integral calking hub on one end (other end plain) in 18' random lengths in 4, 6, and 8" sizes.

Clow Cast Iron Pipe



on the job, with ordinary tools of the piping trade.

WHOLESALERS OF PLUMBING AND HEATING SUPPLIES Publishers of the Clow Builetin complex engineering that goes into small duct systems. A sheet metal worker can handle the UTW's complete installation since the unit requires no coils, drains, drip pans, or special thermostats. Unlike most high-velocity outlets which are designed for ceiling placement, the new Anemostat model is used under a window, and so broadens the field of applications for space-saving high-velocity distribution systems. During operation the UTW diffuser regulates induction of cooled or heated air by vane-type baffles, billowing the treated air upward from the unit's face in a rapid rolling motion so that it engulfs cold or warm air hugging windows or outside walls. The mixed air continues moving up to the ceiling and then disperses throughout the room. This controlled induction and efficient air entrainment reportedly permit high temperature differentials-up to 35°-without discomfort. A static-pressure reducing valve and special noise-attenuating chamber keep sound levels as quiet as in a well-designed low-velocity system. UTW models are 22" high and are made in three lengths: 251/2", 371/2" and 491/2".

A pneumatic operator (incorporated in the diffuser but controlled by the room thermostat) regulates the mixture of cold or hot and ambient air to meet room-temperature requirements. For installation in a hotel or hospital room, *UTW*'s can be supplied with manual control knobs. They are also adaptable to zone control for general office building applications.

Manufacturer: Anemostat Corp. of America, 10 E. 39 St., New York 16, N. Y.

#### HIGH-PRESSURE DIFFUSER accommodates ups and downs in air delivery

Capable of being dampered from 1" to 4", the Connor Kno Draft-type HPR-K air diffuser permits a very flexible distribution system. Even where air-volume requirements may



vary from 50% to 100% of the original design —as in different areas in a department store the HPR-K's are said to assure stable, balanced delivery. Thus, conduits of uniform dimensions can be supplied for long runs of diffusers without the usual reduction for each take-off, making possible substantial savings in space for ductwork as well as custom fabrication. The HPR-K unit comprises basicontinued on p. 212

# Another New Product For You...



#### In a new range of modular widths . . . featuring modern horizontal lines, increased light and ventilation area, stronger, more rigid construction.

Here's a fitting addition to the big Truscon Steel Window line. Famous Truscon quality through and through gives this newest aluminum casement a big plus value for you.

It is manufactured in a new range of modular sizes which match standard concrete block dimensions. This means no off-size openings. Your clients can cut costs on both labor and materials . . . in masonry as well as wood framing.

Casement heights are identical with those of standard steel casements. You can very easily design the three-inch wider Truscon Aluminum Casements into homes originally planned with windows of other widths.

In the modern manner, these new wider casements emphasize horizontal lines. Ventilators are wider



Truscon Aluminum Residential Casements are available from key warehouse and dealer stocks. Get more information from your nearest Truscon District Office, your local Truscon dealer, or write us.

for freer entry of fresh air. And, larger glass sizes

allow approximately 8% more light and venti-

For extra strength, heavy aluminum extruded

sections are used throughout. Ventilator section

is 11/8" deep with web member increased 50%

beyond normal thickness for adequate stiffness

and air-tight closing. Truss-type aluminum hinges

add strength while retaining slender architectural lines. Hardware and accessories are in aluminum

and stainless steel. Screens and storm sash in

lation per window opening.

TRUSCON STEEL DIVISION **REPUBLIC STEEL CORPORATION** 1102 ALBERT STREET . YOUNGSTOWN 1, OHIO

aluminum also available.

TRUSCON®

a name you can build on



# BULLDOG UNIVERSAL TRol & Duct

Lighting consultant and lighting fixtures - Edison Price, New York, N.Y.

# **OUTLETS UNLIMITED!**

To get an unlimited variety of window lighting effects with the absolute minimum of time and effort, lighting consultant Edison Price installed BullDog Universal Trol-E-Duct in the new Abraham & Straus store in Hempstead, Long Island.

**Each of four banks** of lights is mounted in its own electrified track; individual lights — mounted horizontally on trolleys and vertically with "twist-out" plugs — move easily to any position along the continuous outlet. The prefabricated duct sections are simple and inexpensive to install . . . and completely reusable.

Universal Trol-E-Duct is another thoroughbred BullDog product. It fulfills a wide range of commercial, industrial or home requirements for lighting and mobile power tools. Write today for free Bulletin UT-650 giving complete information. BullDog Electric Products Company, Dept. AF-53, Detroit 32, Michigan.



BULLDOG ELECTRIC PRODUCTS COMPANY



Photographs by ROGER STURTEVANT, San Francisco



SURFRIDER HOTEL, HONOLULU, HAWAII Malson Navigation Co., Owner

GARDNER A. DAILEY architect

WALTER T. STEILBERG consulting architect structural engineer WIMBERLY & COOK

superintending architects

HAWAIIAN DREDGING CO. general contractors

W. & F. PLUMBING CO. plumbing contractors

HONOLULU IRON WORKS plumbing wholesalers

# NEW TROPICAL LUXURY AT WAIKIKI



On Honolulu's fabulous Waikiki Beach is a new and additional reason why increasing numbers of travel-minded mainlanders choose Hawaii for vacationing.

Like something out of a dream, surrounded by lazily swaying palm trees and facing the sparkling beach, is a hotel unlike any other—the new and exciting SurfRider, where masterly designing, decorating and furnishing have created a magnet effect in attracting discriminating guests. Skilful planning provided room-wide balconies which combine privacy with 180° view ... also an unusual means of sending the breezes into every room ... and a Polynesian bar and lobby lounge of rare beauty. SLOAN is justifiably proud that its *Flush* VALVES are now installed in all three Matson-owned hotels at Waikiki—the SurfRider, the Moana and the Royal Hawaiian—as well as on the Matson luxury liner, The Lurline. This repeated preference, reflecting fully satisfactory service, factually demonstrates why ...

more SLOAN Hush VALVES

are sold than all other makes combined

#### SLOAN VALVE COMPANY . CHICAGO . ILLINOIS

Another achievement in efficiency, endurance and economy is the SLOAN Act-O-Matic SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. When turned on it delivers conewithin-cone spray of maximum efficiency. When turned off it drains instantly. It gives greatest bathing satisfaction, and saves water, fuel and maintenance service costs. Write for completely descriptive folder

#### PRODUCT NEWS continued

cally a perforated cylindrical damper, a soundabsorption chamber and a concentric diffuser. Its calibrated damper valve can be regulated from below by turning an adjustment screw in the outlet face. The diffuser is manufactured in neck sizes of 4" to 10" with capacities of 80 to 525 cfm. List prices range from \$110 to \$165; large orders are subject to 25 to 50% discount.



Manufacturer: Connor Engineering Corp., Danbury, Conn.



GENERAL CONTRACTORS J. A. Jones Construction Co., Atlanta, Ga. Butler & Cobbs, Montgomery, Ala. ARCHITECTS & ENGINEERS Sherlock, Smith & Adams, Inc. Montgomery, Ala.

#### THE LIVESTOCK COLOSSEUM

#### BEING ERECTED BY THE STATE OF ALABAMA BUILDING COMMISSION FOR AGRICULTURAL, INDUSTRIAL, EDUCATIONAL & EXPOSITIONAL USE

This 260 ft. x 130 ft. oval colosseum is crowned by 16,000 sq. ft. of SEAPORCEL (*Leathorcel Finish*) architectural porcelain enameled wall panels. In beautiful soft green, the *Leathorcel* texture harmonizes with the rest of this striking structure. Installed by Seaporcel's own erection crews the porcelain panels are backed by a one inch insulating material for sound insulation.

Here is a truly permanent facing material of lasting beauty !



#### PREFINISHED PANELING applied to ceilings and walls without backing or glue

A unique interlocking wood joint on Marlite's new *Korelock* interior panels makes it possible to apply these rigid hollow-core units directly to studs, joists, or furring strips without backing material, adhesives, or clips. Suitable for ceilings and walls in commercial and institutional buildings, the  $\frac{5}{8}$ " thick sections are made in 2' x 4' and 2' x 8' sizes. They are constructed of two sheets of tempered hardboard over a wood frame which extends to provide a predrilled tongue-



and-groove joint for masked nailing. Slightly rounded edges on the face board create clean V joints that need no additional trim, and also allow the panels to breathe, i.e. expand and contract, without buckling. They are factory-finished with a durable baked enamel topcoat in white, cream, and several



simulated wood-grain tones. Hardboard base, casing, facing and shoe moldings are available, as well as various types of metal trim. Fully installed, the new *Korelock* paneling runs about \$1 per sq. ft.

Manufacturer: Marsh Wall Products, Inc., Subsidiary Masonite Corp., Dover, Ohio.

continued on p. 216



#### with WALSEAL®

WALWORTH

valves and fittings

PRINCIPAL CENTERS THROUGHOUT THE

... and you can see that it's made right. When you make a WALSEAL joint the fillet of silver brazing alloy that appears at the face of the fitting is your assurance of full penetration and a permanently leak-proof joint that's vibration proof and corrosionresistant ... won't creep or pull apart under any conditions that the pipe itself can withstand.

Walseal is a registered trade-mark which identifies valves, flanges and

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fittings manufactured by the Walworth Company. Walseal products have *factory-inserted* rings of silver brazing alloy in threadless ports. Joints made with Walseal products are silver brazed and actually make the system a "one-piece pipeline."

Your copy of Circular 115 giving details on Walseal valves and fittings will be sent on request...send for it or see your nearby Walworth distributor.

NEW YORK 17, N.Y.



Make it a "one-piece pipeline" with Walseal



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#### <u>NOW</u> More Profitable Than Ever... MATOT Labor-Saving DUMB WAITERS

Relieve main elevator traffic . . . Stop costly truck and shipping platform tie-ups . . . Speed food, merchandise, parts, product and records handling with Matot Dumb Waiters.



Electric mb Waiters costs—all are at record highs. Every possible avenue to increased speeds, decreased manual labor, slowdowns and stoppages must be explored at the planning stage.

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Matot not-so-dumb Dumb Waiters can play a major role in this planning.

Only Matot offers extra automatic features for faster service and trouble-free dumb waiter operation.

Leading institutions, hotels, restaurants, schools, banks, libraries, manufacturers, wholesalers and retailers use and recommend Matot equipment. Your clients will profit with Matot too.

Automatic electric and hand-powered dumb waiters now available. See our SWEET'S CATALOG FILE, or write for valuable 8-page catalog and specification guide.

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Hand-operated Dumb Waiters Today, there are hundreds of thousands of satisfied set owners who enjoy Better Television because of the use of B-T Units in Master TV Installations. Through exhaustive study, Blonder-Tongue Laboratories has developed a simple unit plan for virtually every known TV problem...and the system is so flexible that it will serve the needs of 1 or 2 or even

2000 sets.

THE B-

Add-A-Unit

for Better Television

A Successful Plan for

Low Cost...Easy-to-Install

MASTER TV SYSTEMS

for VHF and UHF

Without Outside Engineering

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BLONDER-TONGUE LABORATORIES WESTFIELD, NEW JERSEY





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Children's Lavatory St. Jean De Dieu Hospital Montreal, Quebec, Canada Architect: Brais and Savard Contractor: Concrete Construction Co.



) STARK GLAZED FACING TILE

Ea

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WHEN you specify Stark Glazed Facing Tile for hospital interiors you can be sure that your clients' maintenance requirements will be lighter—for the entire life of the building.

Years of use in hospitals all over the country have proved that this economical "wall-and-finish-in-one" cleans as easily as a test-tube, resists rough usage and never needs refinishing.

Now, Stark Glazed Facing Tile offers an added asset for hospitals—a scientifically developed range of colors which permits you to improve vision in laboratories and operating rooms, brighten corridors and lobbies, or reduce glare in solariums. You can specify the *right* color—and be sure that it will *stay* right for years to come.

Our new brochure on Modular Masonry contains full data. To obtain one, write us on your letterhead. Address: Desk AF-5. Our reference in Sweet's Catalog is 4f-St.



14305 Livernois Avenue, Detroit 4, Michigan 15 East 26th Street, New York 10, N. Y.



#### PRODUCT NEWS continued

#### LIGHTWEIGHT ACOUSTIC BOARD has washable vinyl face

Big brother to *Sonoface* tile (Product News, AF, Mar. '52), this plastic-skinned glass-fiber board combines good thermal and acoustic insulation with easy upkeep. Its taut vinyl face acts like a drumhead, transmitting sound waves to the *Fiberglas* mass.

Printed with a threadlike pattern in six different color combinations, the smooth fac-



ing can be mopped or vacuumed clean. The boards are  $\frac{3}{4}$ " thick and are made in 2' x 2' x 4' sizes to fit standard T-channel suspension systems. Fire-safe, lightweight and sanitary, they are suitable for gymnasiums, cafeterias, and hospitals. *Sonoface* units are available in back-to-back double thicknesses



for vertical applications as efficient noise baffles in machine shops, garages, etc. Installed prices run from about 55 to  $75\phi$  per sq. ft., depending on method of application and local labor.

Manufacturer: Owens - Corning Fiberglas Corp., Toledo 1, Ohio.

#### BRUSH-ON COATINGS provide inseparable bonds for concrete, cement, or plaster

Weld-Crete and Plaster-Weld are two bonding agents that have proved their effectiveness in actual construction jobs as well as lab tests. The first material, applied to any masonry, metal, wood, or asbestos compound surface, will provide permanent adherence for concrete, portland cement, or plaster. It can be used outdoors or in, and can be brushed or sprayed on wet or dry surfaces under almost any climatic conditions. Drying in two hours on nonporous materials and in less than 40 minutes on porous, Weld-Crete is a practical maintenance material since it allows guick repair of concrete floors, walls, ceilings, and sidings. Coverage ranges from 200 to 300 sq. ft. per gal.

Carrying FHA approved for apartment developments, *Plaster-Weld* is a resinous emulsion that makes it possible to utilize just one top coat of plaster over almost any smooth or rough undersurface. It costs \$10.50 per gal. —enough to cover 500 to 800 sq. ft. The manufacturer reports an impressive comparison: smooth concrete ceilings run about 90¢ per sq. yd. including grinding down the joints and painting; *Plaster-Weld* and finish sand plaster come to approximately 72¢ for the same area.

Manufacturer: Larsen Products Corp., 4934 Elm St., Bethesda, Md.



Technical Publications p. 220


New unheard-of dimensions in mechanical doors! That, literally, was the challenge presented by the entrance doors for the new B-47 Flight Hangar built by Boeing Airplane Company at Wichita, Kansas.

Two openings each called for eight sections— 66 feet wide ... 60 feet high—a total width of 528 feet. Two other openings were 264 feet wide by 60 feet high. A total opening area of 95,000 square feet! And, each section of each door had to open independently—or, all had to operate simultaneously!

International's door engineers, working with the architects and Boeing planning staff, actually helped to develop new concepts in door design to accomplish all that these doors are called upon to do. These ideas are exemplified in the completed entrance—the world's largest.

If you have a door problem—unusual or commonplace call in International's experienced door engineers.

#### in co-operation with:

MURRAY WILSON, Architect, Salina, Kansas MANHATTAN CONST. CO., Gen'l Contr., Muskogee, Okia. JOHN F. BEASLEY COMPANY, Erectors, Dallas, Texas



Above is a close-up view of one of the giant sections of the Boeing Door

INTERNATIONAL STEEL COMPANY 1959 EDGAR ST. • EVANSVILLE, IND.



Catalog in Sweet's Architectural

PRECAST CONCRETE FLOOR & ROOF SYSTEMS

(ICO



SPECIFY

Pur Air

TO REMOVE ODORS

TO SAVE ON HEATING

AND COOLING COSTS

COMPLETELY

Pur Air equipment pays off in satisfied clients by providing comfort and economy. In duct systems, the Pur Air

"Filter Fold" unit permits recirulation

of air already at the proper tempera-

ture . . . allows big cuts in heating and

cooling costs. Not an odor-masking agent, activated carbon is the only means of absolutely *removing* odors and gases, purifying the air. Unit

shown is adaptable to any duct system.

Package units also available. Write for

BARNEBEY-CHENEY Company

Successor to American Solvent Recovery Corp. Cassady at Eighth Ave. Columbus 19, Ohio

fact bulletin for your A1A files.





The real efficiency of an office layout depends upon how adaptable it is to changes in need. A layout subdivided by immovable, masonry-type walls becomes *frozen space*, loses its efficiency as soon as space requirements change.

Mills Movable Walls give you Space Control, enable you to adapt your layout to changing requirements, quickly, easily and at very low cost, whenever the need occurs. Complete changes can be accomplished in a matter of hours, over night or during a week end without interrupting normal routine.

Efficiently mobile, Mills Walls are also distinctively modern and dignified, permanent in function and structural stability, require no maintenance except occasional washing to keep them looking new and attractive.

The new Mills Catalog No. 53 is a practical, 48-page work book on Space Control. Fully illustrated with typical installations, it contains complete descriptions, detail drawings and specifications. Write for your copy today.







## TECHNICAL PUBLICATIONS

LIGHTING. Swivelier Universally Adjustable Lighting Products, Bulletin 132. Swivelier Company, Inc., Dept. F, 43 34th St., Brooklyn 32, N. Y. 100 pp. 81/2" x 11"

Ten new lighting fixtures and several units recently redesigned are featured in this comprehensive catalogue covering more than 300 fixtures, wiring devices, and accessories. Lithographed in two colors, the publication divides the products in eight categories:



DUAL-FLAME BURNER. Humphrey engineers excel in design improvements like this stainless steel tip Dual-Flame Burner, which, like so many other superior and exclusive Humphrey features make more



and better satisfied Gas Unit Heater customers. Buyers in fuel costs, economy in maintenance and long term trouble free operation.

You can sell with confidence when you sell Humphrey Automatic Gas Unit Heaters.

GENERAL GAS LIGHT COMPANY KALAMAZOO, MICHIGAN

Humphrey GAS UNIT HEATERS

Chemicals Division, St. Louis 1, Mo. 8 pp. 81/2" x 11"

type.

Describing Bondite, a soil conditioner which helps control rain and wind erosion on construction sites, the booklet explains how this synthetic compound stabilizes aggregates on the soil surface to hold the seed and soil in place until cover crops are established. The conditioner is applied at the rate of one pound per 100 sq. ft. in powder form or sprayed in a water solution.

canopy shade units, portable units, Vogue-

Lites, recessed fixtures, wiring devices, out-

HARDWARE. Fasteners by Simmons, Cata-

logue 1252. Simmons Fastener Corp., North

Broadway, Albany 1, N. Y. 36 pp. 81/2" x 11"

Describing a complete line of industrial and

construction fastening devices, the catalogue

introduces Simmons' Dual-Lock, a structural

fastener suitable for demountable shelters, shipping containers, and other applications requiring butt-joint fastening. Another device featured, the Roto-Lock, is used with honeycomb panels and other sandwich-type materials. Dimensional drawings and installation details are included for each fastener

AIR DIFFUSION. A-J Registers, Grilles, Diffusers. A-J Manufacturing Co., 2119 Washing-

ton St., Kansas City 8, Mo. 24 pp. 81/2" x 11" This publication catalogues a comprehensive

line of crisply designed registers, grilles, and diffusers for heating and air conditioning.

SOIL TREATMENT. Bondite Soil Conditioners for Erosion Control, Monsanto Technical Bull. No. O-95. Monsanto Chemical Co., Organic

door units, and lighting accessories.

CAR WASHING EQUIPMENT. Designing the Conveyorized Auto Wash Rack. Wash Racks, Inc., 5140 Stanton Ave., Detroit 8, Mich. 10 pp. 9" x 111/2"

For architects planning auto laundries this file folder offers dimensions and plumbing requirements.

PAINT. The Redi-Blend Guide to Scientific Color Harmony. Adelphi Paint and Color Works, Inc., 80-00 Dumont Ave., Ozone Park 17, N. Y. 2 pp. 14" x 18"

Working with the Munsell system of color notation, in which colors are arranged in the spectrum as tones in a musical scale, color consultant William Clark developed this interior decoration guide for harmonizing Redi-Blend's 25 flat enamel wall finish colors and intermixes. The chart shows how to work out schemes for interiors, balancing tones according to "warm" and "cool" values.

continued on p. 228



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## TECHNICAL PUBLICATIONS



**OFFICE EQUIPMENT.** Figure Fact Efficiency for Contractors and Builders, Booklet No. AD535. Remington Rand Inc., 315 Fourth Ave., New York 10, N. Y. 16 pp.  $8\frac{1}{2}$ " x 11"

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**ROOFING AND SIDING.** Careystone Corrugated Asbestos-Cement Roofing and Siding, Data Manual No. 52. Philip Carey Manufacturing Co., Cincinnati 15, Ohio. Dept. CM. 82 pp. 834" x 11". 50¢

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**EXCAVATING EQUIPMENT.** Power Cranes, Shovels, Draglines—Attachments, Traction, Operations, Technical Bulletin No. 4. Power Crane & Shovel Assn., 74 Trinity Pl., New York 6, N. Y. 60 pp. 81/2" x 11". \$1

HARDWOOD PANELING. Philippine Mahogany for Commercial-Industrial Building. Philippine Mahogany Association, Inc., 111 West Seventh St., Los Angeles 14, Calif. 14 pp. 81/2" x 11". Color illus.

FLOOR MAINTENANCE. The American Story ... 50 Years of Progress. The American Floor Surfacing Machine Co., Toledo 3, Ohio. 9 pp. 10" x 12"

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FLOOR MAINTENANCE. 101 Hints on Better Floor Care. Huntington Laboratories, Inc., Huntington, Ind. 28 pp. 4" x 51/2"

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# **Advertisers index:**

Page:		Page:
227	Adams & Westlake Company, The	32, 33
8	Aetna Steel Products Corporation	76
201	Allegheny Ludium Steel Corporation	50B
229	Alignite Corporation The	48
86.87	Aluminum Company of America (Alcog)	- 21
67	Aluminum Window Manufacturers Association	178, 191
74	American Air Filter Company, Inc.	190
180	American Biltrite Rubber Co. (Amtico Rubber Flooring)	190
82	American Brass Company, The	4.5
223	American Hardware Corp., The (P. and F. Corbin Division)	25
34, 55	American Hardware Corp., The (Russell & Erwin Division)	30 907
170	American Lumber & Freating Co.	233
71	American Steel & Wire Division United States Steel Corn	214
79	Anemostat Corporation of America	222
60	ARCHITECTURAL FORUM	28, 29
183	Armco Steel Corporation	9
18, 19, 78	Armstrong Cork Company	42
4, 5	Auto-Lok Aluminum Awning Windows (Ludman Corp.)	219
58	Automatic Sprinkler Corp. of America	22, 23
69	Bakelite Company, Division of Union Carbide and Carbon	4)
010	Corporation	24
218	Barneby-Cheny Company	195
214	Blander Tongue Laboratorias	75
172	Buffalo Forge Company	Cover IV
210	Bulldog Electric Products Company	160
68	Byers, A. M., Co.	205
10	C-O-Two Fire Equipment Company	50
68	Cabot, Samuel, Inc.	225
Cover II	Cambridge Tile Manufacturing Company, The	44,45
166	Carrier Corporation	216
77	Carey, Philip, Mfg. Company, The	195
190	Ceco Steel Products Corporation	192
169	Celotex Corporation, The	230, 231
202	Clerk Lamas P. & Sand	199
15	Concrete Reinforging Steel Institute	51
26	Congoleum-Nairn Inc	150
63	Connor, W. B. Engineering Corporation	60 61 05
223	Corbin Division, P. & F. (The American Hardware Corn.)	229
83	Corning Glass Works	225
21	Corrulux Division (Libbey-Owens-Ford Glass Company)	92, 93
36	Coyne & Delany Co.	189
194	Crane Co.	157
222	Croft Steel Products, Inc.	54, 55
14	Curtis Lighting, Inc.	25
204	Davidson Enamel Products, Inc.	6
161	Day-Brite Lighting, Inc.	197
30, 31	Detroit Steel Products Company	206
229	Draw-Matic Engineering Co.	105
184	Durinon Company Inc. The	79 72
104	Darnon Company, Inc., The	211
224	Eastern Machine Products Co., The	206
Cover III	Eljer Co.	164
34	Facing Tile Institute	66
229	Federal Seaboard Terra Cotta Corporation	185
176	Fiat Metal Manufacturing Company	215
111	Fitzgibbons Boiler Co., Inc.	51
210	Flexicore Co., Inc., The	80, 81
999	Formica Company The	186
222	Franklin Products Corn	214
79	Gallahar Company The	218
88	Garden City Plating and Mfg Company	221
50	General Aniline & Film Corporation Oralid Division	50A
187	General Bronze Corp.	162 162
12, 13	General Cables Corporation	102, 103
96, 181	General Electric Company	218
220	General Gas Light Company	209
159	General Portland Cement Co. (Trinity Division)	16, 17
46	Genty-Michigan Corporation	69
90 01	Grant Lakes Steel Come (Come L Distance)	
59	Cuth Company Edwin E. The	40
000	the set of W I & C	228
200	Harren C. & Song Himme Mfr. C.	71
84	Hardwood Products Corporation	1/2
1	Hauserman E. F. Company The	167
64	Holcomb & Hoke Mfg. Co. Inc.	221
27	Hope's Windows, Inc.	213
226	HOUSE & HOME	11
85	Hunter Douglas Corporation	90 91 174 175
20	Ingalls Iron Works Company The	170 171
234	Inland Steel Products Company	210, 171
217	International Steel Company	225
202	Johns-Manville	56
203	Johnson Service Company	70
53	Jones & Laughlin Steel Corporation	94

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F-370



Architect, Jens Fredrick Larson; General Contractor and Builder, Hegeman-Harris Co.; Plumbing Contractor, Charles Argast, Inc., all of New York City, N. Y.; Mechanical Engineer, Thomas Tash, Hanover, N. H.



Madison Lavatory E-3290-A Pedestal Urinal E-8200-V Laundry Tray E-2640-K

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