architectural forum

June 1953

Architect and client forum

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Three country buildings

Engineering office, windowless factory and rustic showroom demonstrate different ways to handle a suburban site (p.156)

Building engineering

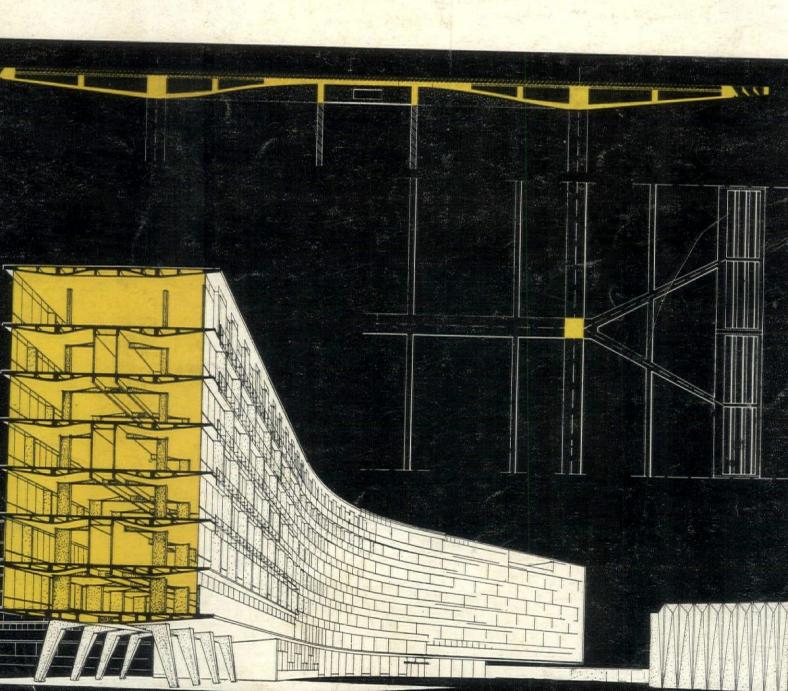
Four modern techniques for spanning large areas: prestressed lift-slabs, cables in tension, cantilevered timber beams and welded camel-back trusses (p.168)

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The most important new additions to the nation's higher education plant (p.116)

A new kind of office building

Y-shaped plan for UNESCO's Paris headquarters combines the advantages of the slab and cross (p. 105 and below)



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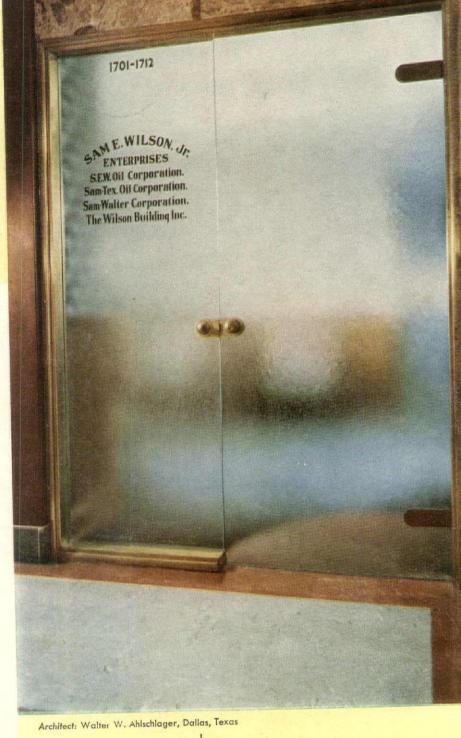
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architectural forum

JUNE 1953

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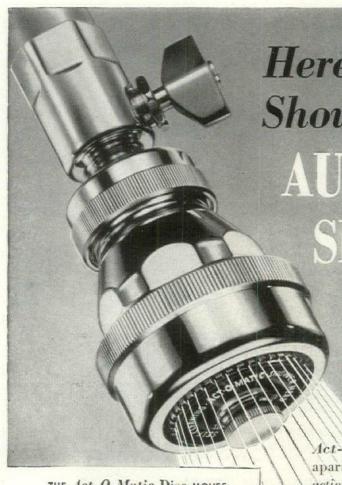
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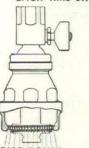
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local agencies operating under state law."

Although a federal handout was precisely what private industry did not want injected into urban rehabilitation, support of the idea by public housers could avert time-consuming wrangles as more and more cities across the nation tackled the longneglected slum cleanup job.

Conservation commission. Among the nation's big cities, Chicago continued to make one of the most promising attacks on its slum problem. Last month, the city council set up a Commission on Neighborhood Conservation, the first of its kind in the nation and a model for part of NAREB's still broader plan. Its assignment: to supervise Chicago's effort to keep once-fine residential areas from slipping into slums. Outlining its program, the commission said: "New slums are developing faster than we can clear and rebuild the old ones. We simply cannot afford to wait until older areas reach the slum state."

For ideas on how to tackle its job, the commission needed to look no farther than its own back yard. The South East Chicago Commission, a private civic organization of Chicago university officials, businessmen and neighborhood leaders, was achieving remarkable initial success against deterioration in the Kenwood, Hyde Park and Woodlawn districts. Adopting a practical approach, the commission hired a private housing detective: Otto Novotny, a retired fire battalion chief who had lived in the South Side 30 years, watched and worried over its skid. His job: to ferret out sneak conversions, building, fire and safety violations, follow through with city authorities for prosecutions.

New York failure. New York still fumbled its slum problem, despite the ominous warning of a Brooklyn grand jury: "If no adequate steps are taken to stop housing deterioration and decay, taxes from real property will become less and less until our city becomes a financial ghost town."

NAHB's Yates Cook put it even more bluntly: New York's slum problem is being "grossly mishandled" by city and state officials. Said he: "Many blighted areas of New York can be salvaged at the expense of slum landlords whose neglect and indifference are largely responsible for today's slum crisis. But planners (like City Construction Coordinator Robert Moses) want to tear down structurally sound apartment buildings, rebuild from the ground up and pass the bill on to the taxpayers. They are trying to bail out the slum landlords at the expense of the already overburdened New York taxpayer."

At mid-month, Architect Frank Lloyd Wright contributed his views to the debate. Said he: "Decentralization is coming in. The city is going to the country. You'll see more greenery in 25 years. Grass will grow where least expected now and flowers will bloom in the concrete. The city is a hangover from feudal times. Once it was necessary, but it reached and passed its peak and now you will see it disappearing.'

Pay increase pattern from 8 to 16c an hour emerges from spring strikes, wage pacts

Spring contract negotiations by labor and the construction industry were producing a moderate crop of strikes and pay increases generally ranging from 8 to 16¢ an hour (see table).

But there was a new note of stability. In Newark, N. J. five Essex County bricklayer, plaster and mason locals withdrew requests for a 35¢ an hour increase and a 4% pension fund. For the first time since World War II, they renewed contracts at existing rates (\$3.55 an hour and 3% welfare payments). Explained a joint announcement: "Realizing the danger of inflation, the . . . unions in conjunction with the contractors have reached the first tangible effort toward the leveling off of the cost of construction." Other unions renewing without increases: Washington, DC carpenters and bricklayers, Des Moines laborers, masons and carpenters.

Wage hike patterns. Among the settlements in other major cities:

Chicago building trades that completed negotiations accepted increases of 15¢ an hour (except common labor, 10¢) without a strike.

Most Cleveland crafts signed for 121/2¢ increases, although composition roofers were holding out for 25¢ and late in May painters struck, demanding 20¢ more an hour.

Dallas structural and sheet metal workers demanded another 25¢ an hour and 71/2¢ for fringe benefits during a three-week strike in March. They finally went back to work for 121/2¢ (same for Fort Worth) and no fringe on top. Common labor accepted 81/2¢. Most other contracts run to July.

Strike front. Large disruptive strikes were not absent this year, but probably were noticed less because they were free of violence. Still causing trouble were:

A Detroit dispute that began May 1 when carpenter locals began picketing individual contractors who refused to grant them 17¢ more an hour. Painters seeking 321/2¢ an hour more joined the movement, and when other crafts refused to pass picket lines a creeping paralysis began to grip Detroit construction. AGC, the Carpenter Contractors and Metropolitan Builders Assns. countered by ordering a layoff for all carpenters on May 11, which was soon followed by union charges to NLRB that employers were using "threats of force and violence" to make 400 contractors stop their jobs. Most other Detroit crafts had agreed to increases from 12 to 171/2¢.

A Philadelphia-Camden area tie-up led

by carpenters and ironworkers had idled about 30,000 workers since May 1. Contractors first refused any wage increases. Later, they settled with some trades for 71/9¢, but carpenters refused it, keeping some \$1 billion of building tied up.

A teamster strike that halted virtually all St. Louis building in mid-May by stopping supply deliveries. Three employer groups agreed to pay 121/24-against the drivers' original 20¢ demands, but while lumber vard and mixed concrete plant operators refused to sign, the tie-up continued.

Chicago painters at long last agreed to use spray guns and roller applicators for oil painting rough concrete, cinder block and other masonry unsuitable for brushes. Their price: 71/2¢ an hour more for welfare programs and a 25¢ an hour pay boost to \$3. Detroit plasterers, hiked from 3 to 3.14 an hour, will pay 2c an hour to match employer funds to advertise against the spread of dry-wall construction. . Little Rock plasterers withdrew a request for an increase from \$2.75 to \$3 when employer and union officials agreed some architects were designing "around" plaster.

HOURLY WAGE INCREASES (in cents)

Crry	Common labor	Carpenters	Bricklayers	Masons	Electricians	Plumbers	Sheet metal or Iron workers
		Con	tracts	being	negot	iated	
Boston	7			cts not			et
New York	_		-	-	_	34	-
Utica, N. Y	_	mark .	R	R		-	-
Newark, N.J.	7.5	N	10	7.5	_	7.5	N
Philadelphia	. 1.0					iated	
Pittsburgh	N	N	R	N	N	N	15
Washington, D. C	6.25	R	R	-			
Cleveland	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	N	12.5	12.5	-	8	12.5	25.5
Youngstown, Ohio	13	N	N	N	15	N	_
Detroit	12	N	N	12	12	17.5	N
	10	15	15	N	15	15 P	15
Chicago	12.5	12.5	_	_	-	waters.	N
St. Louis	6	15	7.5	N	15	17.5	10
Minneapolis	20	17.5	12.5	15	_	_	20
Omaha	R	R		R	5	N	N
Des Moines	и	10					
AEC:	8	8	7	10	-		15
Oak Ridge Savannah River	15	17.5	_	17.5	12.5	11	15
	25		_	15	_	10	_
Paducah Knoxville	8	8	7	10	_	_	15
	5	5	_	_	_	-	15
Chattanooga	N	N	N	N	25	N	N
	15	15	15	15	N	N	12
Mobile	8.5	N	N	N	N	N	12.5
Dallas	N.S	13	N		_	-	N
AVERAGE in all new		10					
or renewed contracts	11.25	11.25	8	10.75	13	16	14.5

R-Renewed at old rate

N-Still in negotiation

P-Chicago plumbers increase entirely for pensions



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NAREB urges conservation commissions with tax power and federal tax aid to fight slums

For more than a year, NAREB had been studying ways and means of putting the fight against city slums on a pay-as-you-go, private enterprise basis. Last month, NAREB's directors approved the resulting plans "in principle." President Charles B. Shattuck hailed the formula as "the most important and constructive action ever taken by our board of directors." Said he: "This plan takes into account everything that has been learned, and every mistake that has been made, in previous attempts to meet the grievous problems of slums, blight and deterioration in our cities."

The realtors' blueprint went beyond mere enforcement of housing ordinances as a tool for rehabilitation—although this, said Shattuck, "is now working on the biggest scale that we have seen." NAREB called for creation of community conservation commissions with broad powers to coordinate local law enforcement in selected areas where blight must be either wiped out or prevented. Specifically, the realtors would empower conservation commissions to:

- Prohibit occupancy of buildings which do not meet minimum standards of occupancy or maintenance.
- Acquire (by condemnation if necessary) and raze buildings too blighted to be rehabilitatable. (But NAREB would have the land remain in the owner's possession. He would be free to redevelop it or sell it for any purpose consistent with neighborhood conservation plans.)
- Acquire (by condemnation if necessary) both buildings and land needed for private facilities like parking lots when necessary to carry out conservation plans. Commissions would be required to sell such property within a year by competitive bids.
- Levy a small tax on all property within a city to provide a revolving fund to administer the conservation program. Part of the fund would be earmarked for advances to property owners who cannot find private financing for repairs ordered by the commission. Advances would become a special assessment lien on the property.
- Levy special assessments on each parcel of property within a neighborhood conservation area (after a majority of voters in the area approve), to finance purchase of land and buildings to carry out conservation plans. Property owners, NAREB suggested, should have up to 10 years to pay the assessment in yearly installments. Assessments would go to a special bond lien, and the commission would market the bonds.

Tax aids asked. The striking aspect of the plan, noted Chairman Fritz Burns of NAREB's council on conservation and rehabilitation, was that "this is a realtors' group proposing legislation which is going to tax real estate." Burns had this explanation: "It's only a minority who refuse to keep property in repair, who want to milk it. To most realtors, the essence of persuading them to invest in property maintenance is assurance of uniform standards of maintenance—either voluntarily or backed by law enforcement." NAREB's plan would provide the big stick to deal with recalcitrants.

NAREB also called on the federal government for antiblight aid in four ways:

- 1. Provide "maximum marketability at the lowest possible interest" for assessment bonds by insuring them.
- 2. Encourage voluntary slum rehabilitation by amending income tax laws to let the residual value of buildings razed by conservation commissions be deductible in one to five years, at the taxpayer's option.
- 3. Encourage new investment in conservation areas by permitting a five-year tax write off of the total cost—the same as for defense facilities.
- 4. Amend FHA and/or VA mortgage insurance laws to meet the special needs of conservation areas.

Public houser opposition? In an industry noted for controversy, NAREB's pro-

posals seemed likely to stir up their share. Although the realtors' ideas for government aid involved no direct dollar subsidy and might well cost the government little or nothing in the long run, it was a good bet that public housers would try to smear them as a "steal." Builders and realtors have both touted renovation of slums as a substitute for public housing. NAREB's blueprint made that approach clearer than ever. Public housers, on the other hand, contend the job of wiping out slums can only be done with both public housing and rehabilitation. It was on this basis that they were beginning to give rehabilitation wary encouragement.

Federal aid urged. The National Housing Conference, at its annual meeting in Washington, called upon the government for a "major new program to encourage and assist communities in the development of programs of neighborhood conservation and rehabilitation" including "federal technical assistance to local housing, planning, conservation and redevelopment agencies, insurance of home repair and modernization loans on special terms and loans to

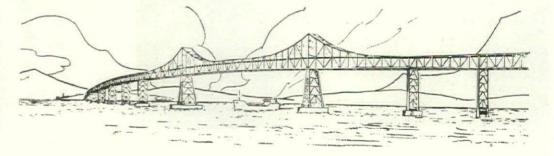


Two more bridges to span SF Bay; FLLW offers design for one

Politicians bickered for seven years over whether a second bridge across San Francisco Bay between San Francisco and Oakland should parallel the present bridge (the world's longest) or lie four miles south where it would funnel less traffic into downtown San Francisco. While Gov. Earl Warren, who favored a parallel span, was at the coronation, the legislature passed a bill authorizing a \$235 million southern crossing and Lt. Gov. Goodwin Knight signed it. The law directs the state department of public works to design the much-needed new span. A preliminary study several years ago by the department leaned toward a causeway, tube and trestle-an arrangement regarded by many an architect as serviceable but of dubious beauty.

Last month, Architect Frank Lloyd Wright descended into the fray on a flying visit from Wisconsin. Before an eager audience at San Francisco's Museum of Art, he showed a 16' model of a steel-reinforced concrete bridge (sketch above) which he said should cost "one third less than your present temporary Bay bridge." The main arch would divide 200' above water level into two graceful curves bearing one-way traffic, with a park between. His butterfly bridge, said Wright, would survive earthquakes, last for centuries, and would not "cost a million dollars a year just to put a coat of paint on it" like the present Bay bridge.

For the \$62 million San Rafael-Richmond bridge (sketch below), designed by the state engineers and now under construction across the north end of the Bay, Wright had only scorn: "The most awful thing I've seen—bits of steel held together with smaller bits of steel, and all of them rusting away at such a rate that a crew of painters must spend full time painting it." With Wright's views on the north bay bridge, most California architects agree. Some of them tried to persuade designing engineers to alter their plans, but got a cold shoulder.



last month from Fred Hof of Brooklyn's Lincoln Savings Bank: temporary (or permanent) school space, especially in spots where schools are jammed. Advantages: fireproof construction with ample exits and washrooms, sometimes air conditioning and usually central location. Skylights or fluorescent lighting could offset the lack of natural light, said Hof.

Small loan agency foreseen replacing soon-to-die RFC

In January 1932, the Hoover administration established the Reconstruction Finance Corp., granddaddy of all the government's direct business-assistance agencies. Through depression and war years it lent more than \$13 billion. Many of its loans supported large construction projects.

But Ikemen decided to let RFC expire, have sharply curtailed its lending, this month were closing about half of its 32 field offices, dismissing 500 of its 2,200 employees. At a Senate banking committee hearing, new RFC Administrator Kenton R. Cravens was unconcerned whether Congress approve a proposal by Sen. Harry F. Byrd (D, Va.) to abolish it Dec. 31 or allow it to expire June 30 next year.

To replace RFC, Cravens favored some sort of small business administration, the subject of five other bills before the committee. Prospect: no Congressional action at this session; creation of a substitute small loan agency between January and RFC's scheduled funeral next June. The new agency probably would have a \$100,000 to \$200,000 ceiling for each loan, require private lenders to participate in each deal.

House subcommittee backs bill aimed at federal bid shopping

Specialty contractors won a round this month in their drive for a law banning bid shopping on federal construction. A House judiciary subcommittee headed by Rep. Edgar A. Jonas (R, Ill.) approved the "Federal Construction Act of 1953." It would force bidders on federal construction to: 1) name the specialty subcontractors on whose estimates their bids are based, 2) agree not to switch to others upon getting an award unless it means substantial savings which will be passed on to the government, 3) refrain from doing their own mechanical work unless they have special qualifications.

General contractors and most government construction officials oppose the measure. But subcontractors outnumber generals, hence pack more political punch. Even subcontractor groups, however, do not expect the bill to get passed at this session. But they think that even a little progress toward passage will keep the heat on generals.

Houston housing authority gets third director in a year

The embattled Houston Housing Authority changed directors again this month. Into the \$10,000-a-year post went Thomas F. Booker, 42, director of the Houston-Harris County board of public welfare since 1949. Harris did not apply for the job, but was sought out by board members. He succeeded Col. E. A. Eversberg, who, after five months on the job, resigned in May under heavy pressure from the authority board.

Eversberg, in turn, had replaced Erwin W. Blum, former president of the National Assn. of Housing Officials who was con-

victed in January of falsifying reports to PHA, illegally raising his own salary and diverting government paving materials to his own use. Four of the five old members of the board thereupon resigned in apparent shame at not detecting Blum's manipulations (AF, Mar '53, News).

Asked new Board Chairman Leo Linbeck at a stormy April meeting: "What has Col. Eversberg done to clear up conditions in the authority? If bad or criminal conditions exist, what has he done to correct them?" Two weeks later, Eversberg, facing dismissal, quit. Cried he: "... unfair, unjust, unpleasant." He said his doctor had ordered him to a hospital.

SIDELIGHTS: a bus terminal creates a traffic problem and a churchman says only modern design can meet budgets

Greyhound's new \$10 million bus terminal in Chicago (AF, April '53, News) was producing more traffic headaches in the already congested Loop, traffic engineers complained. Buses moved swiftly and silently into docks at the second basement level through a private tunnel. But there were no off-curb delivery areas for trucks servicing the terminal's 12 main-floor and 6 basement stores and shops, no pull-in area for taxis and autos picking up and unloading passengers on busy Loop streets. Similar problems arose on Chicago's sauthwest side, where trucks service a new Goldblatt Bros. department store warehouse via great doors opening off trafficburdened Ashland Ave. Said City Traffic Engineer Leslie Sorenson: "What every city badly needs is a technical committee of traffic men and architects working together to make sure that a problem that's already oppressive doesn't get more complicated every time a new structure goes up."

The Washington Housing Assn. was voted out of the Community Chest in April because Chest contributors objected to their funds being used to espouse public housing. Last month, the association laid plans to up its budget from \$13,400 to \$30,000 by staging its own fund drive.

Normally, the last thing public housers want to talk about is their proportion of Negro occupants. Last month, 74 Negro leaders from 12 southern states put the racial statistic squarely on record in petitioning federal officials to continue public housing. They reported: while Negroes constitute one tenth of the US population, they occupy one-third of its public housing, in the southeast they occupy 58% of public housing.

US churchmen, amid a great building boom which this year will probably see \$450 million invested in new churches, have often bewailed the schism between old and new forms of design which too often spawns meaningless architectural hybrids. Last month one churchman predicted the outcome can go only one way. Said Canon W. Clinton

Billig, executive assistant to Episcopal Bishop Francis Eric Bloy of Los Angeles: "The economics of building is forcing us, kicking and screaming, into a new expression. The cost of stone is prohibitive and more and more we are forced to turn to contemporary architecture to bring budget and building into realistic combination."

The new GOP boss of the General Services Administration, Edward F. Mansure, wants to turn the vast job of cleaning government buildings over to private enterprise. He asked one of the nation's top building maintenance firms for an estimate on cleaning the Pentagon. The private firm could not beat the government's cleaning costs.

Controversy broke out in Dallas over whether merchants should be permitted to extend buildings over sidewalks. Sanger Bros., the city's oldest and largest department store, got permission from the outgoing city council to build a four-story garage across the street from its main downtown store, connect the two with a two-level bridge 24' above the sidewalk and a block wide. Competing merchants awoke belatedly, began fussing that the project will make a tunnel of a city street for private gain. Sanger's retorted it was only trying to ease Dallas' critical downtown parking problem.

Dobbs Ferry, a New York bedroom suburb on the east bank of the Hudson River, created a board of architectural review to control exterior design of buildings in and near its residential districts.

AGC protested angrily to GSA Boss Mansure and Defense Secretary Wilson against the provisions of the revised federal construction contract form which was ordered into use June 19. Managing Director H. E. Foreman complained that the new contract form is almost the same as the 1942 version it replaces and still denies contractors the right of appeal to the courts. The redeal "almost completely disregarded" the "solicited criticism and recommendations" of the AGC, AIA, ASME and ASCE, Foreman charged.

Building volume up despite hard money; rising plant outlays seen

Although homebuilders cried that the pinch on mortgage money caused by the GOP's hard money policy could well bring a drop in housing production this summer, overall construction surged ahead this month in even greater volume than last year's record rate, gave no signs of being more than joggled by tight money, defense cutbacks, or peace scares.

Dollar volume of all construction last month was 6.2% ahead of May, 1952, the Commerce department reported, and 5.9% ahead for the first five months (see table). The 6% dollar increase meant an increase of about 2% in physical volume after allowing for higher construction costs based on the 1947-49 based price index.

Chicken v. egg. Financial experts said money would get tighter for some months before getting easier. But construction responds slowly to changing conditions. Many an organization contemplating or committed to large construction projects found the stiffer money rates "distasteful but not decisive," was proceeding with building plans, said James Hanson, head of the industrial department of the Alexander Summer Co. in New Jersey. Besides, there was a hint that GOPlanners might slow down their anti-inflationary moves. When 2½% government bonds plunged below 90 last month, the Federal Reserve began buying short-term government paper to ease the market again. And the Treasury pigeonholed plans to float more long-term bonds this year on the basis that the market was too wobbly.

Plant boom. Freed from defense materials limitations of prior years, commercial construction unsurprisingly was running a fat 48.8% ahead of last year. What was remarkable was the sustained strength in private industrial construction. After the 1951-52 fast-amortization defense plant boom, it had been expected to dip sharply this year. Instead it shrank only a trifle (3.1% for the first five months of the year). Last month the tide turned: industrial building moved 1.1% ahead of May, 1952, dollar volume.

IN THIS MONTH'S NEWS:

- The realtor-mayor of Akron is nominated as public housing commissioner.
- Public housing support loses the mayor of Los Angeles his re-election bid.

(see pp. 114-115)

The pace of industrial construction reflected none of the concern of fretful home-builders studying trade-in programs and seeking more government financing assistance to maintain volume in the years ahead. Instead it held great promise of continuing strength. One indicator was SEC's latest forecast. It predicted private plant and equipment expenditures for the third quarter of this year will be about \$7.2 billion compared with \$7.1 in the current quarter. By the end of September, said SEC, plant outlays will be running 7% ahead of last year.

Defense cutbacks cheered. Industrial Realtor Robert Forman of New York's Cross & Brown Co., which has served scores of the nation's largest corporations in plant location programs, noted that some defense plant cancellations pleased rather than disappointed manufacturers. They were able to adapt the new plants to their own uses almost immediately.

Why was the high cost of financing deterring no important expansions? Forman noted they are usually based on long-range plans and/or basic decisions to decentralize, move into more efficient plants, or save transportation expenses and locate closer to markets.

SIR's optimistic. In Cleveland, which FHA last month tagged the highest construction cost area in the country, firms were "taking a great deal more time to make up their minds" before signing new leases or building contracts, according to a semiannual market survey by the Society of Industrial Realtors. But Cleveland was the exception; from other areas came encouraging reports:

New Orleans—heavy industry construction over the last 12 months totaled \$291 million, and the tidelands decision in favor of the states was expected to spur oil plant construction in Louisiana and other Gulf Coast states.

▶ Chicago and Midwest—the bulk of defense plant demands has been satisfied and the edge is off just a little. But prices remain at peak in an extremely active market and industries are still buying large sites for future construction.

▶ Kansas City—areas inundated by the 1951 flood have lost value and find it difficult to attract new tenants or plants. Demand is strong for space and new plants in higher areas, which have increased in value.

During its 50th anniversary last month Ford Motor Co. alone revealed it plans to spend \$500 million "in the next few years" supplementing \$900 million it has spent since 1946 for new plants and warehouses, modernization and plant expansions.

NEW CONSTRUCTION ACTIVITY (expenditures in millions of dollars)

			May	1st 5 months		
Type	*52	*53	% Change	*52	*53	% Change
		PR	VATE			
Residential						
(nonfarm)	922	987	+7.0	3,965	4,315	+8.8
Industrial	188	190	+1.1	1,002	971	-3.1
Commercial	82	128	+56.1	387	576	+48.8
*TOTAL	1,811	1,979	+9.3	8,098	8,726	+7.8
		PL	BLIC			
Industrial	151	154	+2.0	583	636	+9.1
Military	116	114	-1.7	501	530	+5.8
Residential	54	47	-13.0	284	231	-18.7
*TOTAL	932	933	+0.1	3,755	3,828	+1.9
GRAND			-6.7377		10.	
TOTAL	2,743	2,912	+6.2	11,853	12,554	+5.9
* Minor cor						

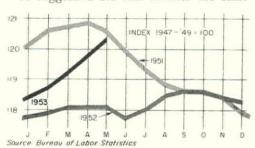
construction expenditures continued well ahead of last year's levels during May. Private commercial construction stood 56.1% above May '52 and 48.8% above the first five months of last year. Private industrial construction in May exceeded (by 1.1%) the '52 level for the first time this year.

Realtors ponder new uses for wave of idle movie theaters

Across the nation, the growing surplus of motion picture theaters—victims of TV and drive-in competition—confronted real estate men with a problem and an opportunity.

NAREB's economic committee found more than 500 darkened theaters in a survey among 236 real estate boards. Most of them were standing idle. Testifying before the Senate small business committee, Committee Chairman H. P. Holmes of Detroit explained why: conversions are both difficult structurally and expensive, which creates financing trouble. Worst of all, said Holmes, idle theater buildings not only drop in value themselves, but depress the value of neighboring property which thereby is tagged as a secondary location. Conversion of theaters to storage or light manufacturing also drives down property values, he warned. The gamut of re-uses was wide: banks (one on New York's Park Ave.), churches, union halls, bowling alleys, supermarkets, garages, apartments, newspaper plants, dining clubs, YMCAs.

A suggestion for still another use came



MATERIALS PRICES edged closer to their post-Korea peak in May, rising to 120.3 of the '47-'49 average and 1.8% above May '52. Slight increases in brick, cement and clay tile, as well as plumbing & heating equipment, more than offset declines in lumber.



FIRST NATIONAL BANK, Tampa, Florida

Architect: W. G. Knoebel General Contractor: Paul Smith Construction Co. Acoustical Contractor: Pearsons, Inc.

In remodeling the interior of this beautiful bank, there were two prime considerations in the choice of a sound conditioning material. They were beauty and fire-safety. Architect Knoebel's selection of Armstrong's Travertone for the ceiling's provided both.

Travertone is a distinctively fissured, mineral wool tile. Unusually attractive, it blends pleasingly with the bank's decor. And Travertone was practical to cut and fit to the architect's very interesting treatment of the ceiling.

Completely incombustible, Travertone meets the strictest building codes. High acoustical efficiency, quick installation, and excellent light reflectivity are other valuable features which make it a versatile material.

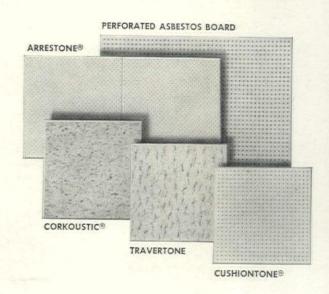
Armstrong offers a complete line of acoustical materials with a wide range of special features to meet the sound conditioning needs of any interior. Your Armstrong Acoustical Contractor will be glad to give you free, expert advice. Write for the free booklet, "How to Select an Acous-

tical Material," address: Armstrong Cork Company, 4206 Rooney Street, Lancaster, Pennsylvania.





With marble floors, glass panels, and other hard surfaces, high acoustical efficiency was essential to this bank. Ceilings of Travertone provide excellent sound absorption.



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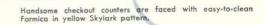
Elimination of personal contact between salesperson and customer puts greater emphasis on color, beauty and rugged wearing quality of the sales setting.

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For more Formica information see Sweets File $\frac{13a}{FO}$ or write:

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In Canada: Arnold Banfield & Co., Ltd., Oakville, Ontario



Illustrated Store: Steinberg's Ltd. at Henry Morgan and Co., Montreal, Canada



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Terra Cotta Skylark Formica is used on this entire wall which includes the service coun-ter and elevators.



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In the recently completed Armstrong Court in Greenwich, Connecticut, NATIONAL Pipe is used not only in the central forced hot weater steam plant which heats the huge project but in decorative hand rails and porch railings to carry out the trim, clean cut, modern appearance of the structure.

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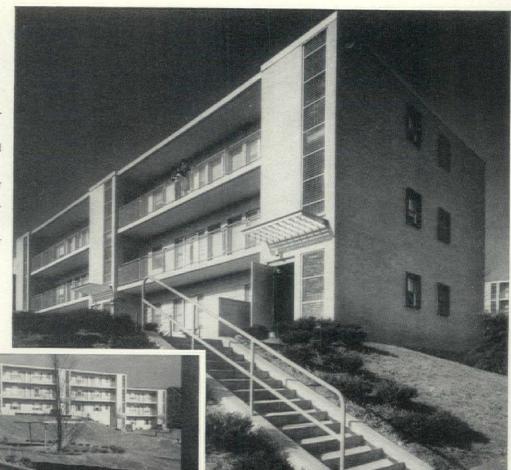
Armstrong Court—Dramatic design in light gray brick.

Architect: Holden, McLaughlin and Associates.

Associate Architect: Joseph G. Weir

General Contractor: Frouge Construction Company

Engineering Firm: Winfield S. Bondy



THE STURDY, HANDSOME NATIONAL PIPE porch railings carry out the modern motif of the three-story structures. These different-level buildings are cleverly disposed on a hilly site to make the most of the relation of the various blocks to green areas.

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Favrot, Reed, Mathes & Bergman Architects

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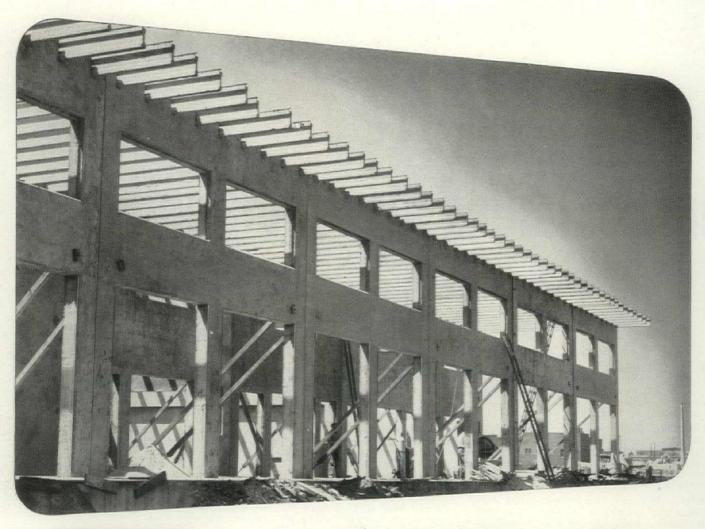
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Photos are construction scenes at St. Louis Produce Market. The concrete floor of the two 114×1235 ft. one-story buildings was a giant casting platform (center). Precast concrete wall panels were tilted into place (bottom). More than 23 miles of precast concrete joists went into the roof (top). L. Roy Bowen & Associates, of St. Louis, were the architects and engineers. Robinson Construction Company, of St. Louis, was the contractor.

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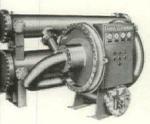
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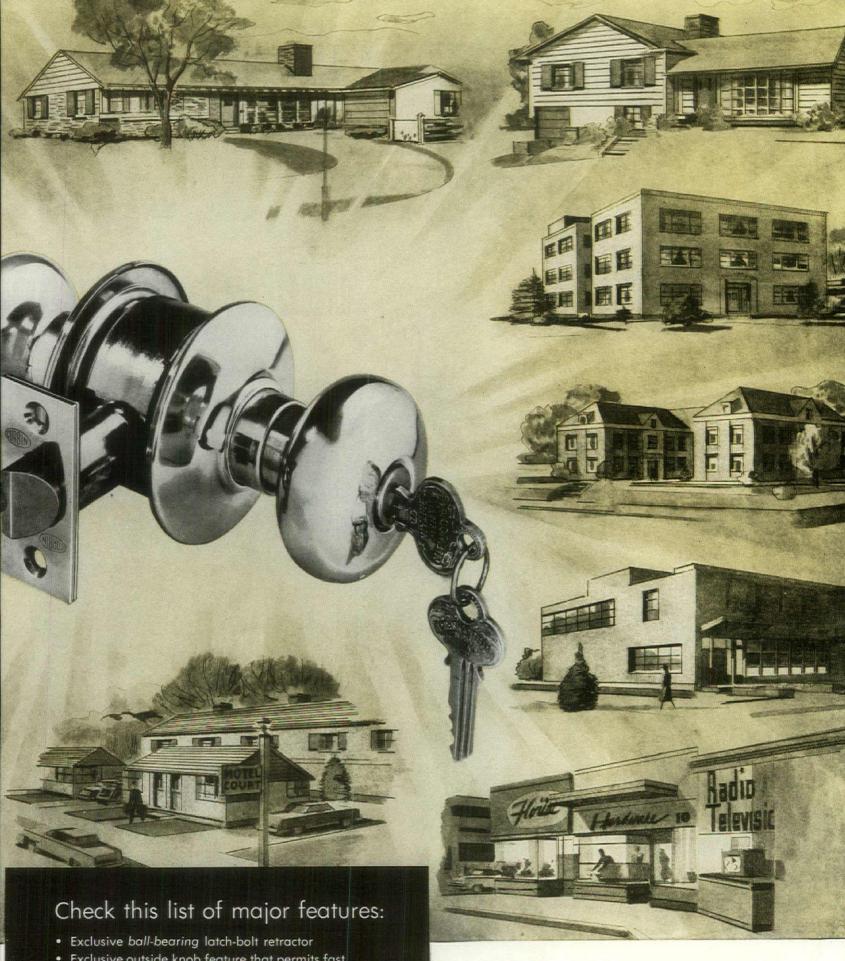
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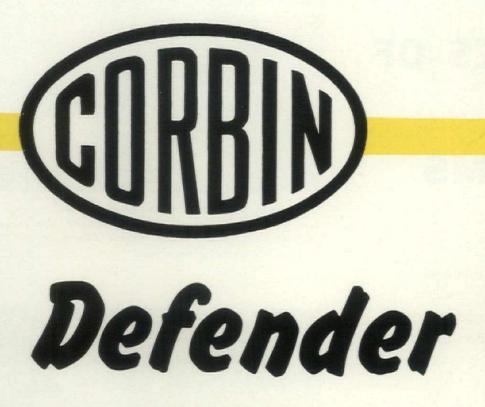
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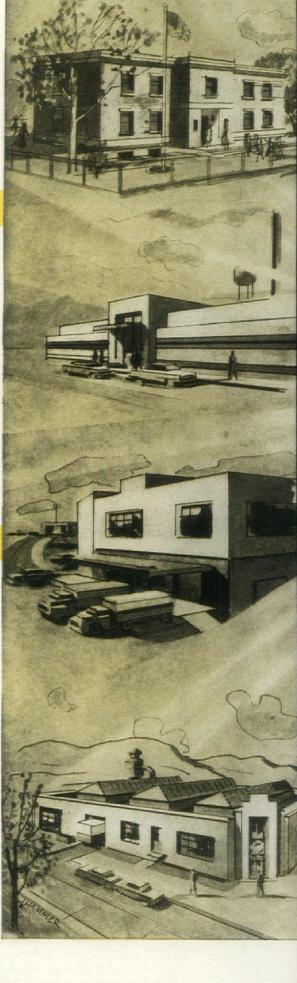
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KEY ADVANTAGES OF FIR PLYWOOD CONCRETE FORMS

L. TIME AND LABOR SAVINGS

On this six-lane highway viaduct along the Seattle, Washington, vaterfront, standardized re-usable plywood form sections helped complete the job months ahead of schedule. Exterior-type fir plywood vas used to fabricate the form panels for beams, girders and roadway.

2. ECONOMY THROUGH RE-USE

About 400,000 square feet of \(\frac{5}{8}'' \) fir plywood was required for the 77 mile structure. Contractors reported an average of four re-uses. About 25% of the plywood forms gave seven to eight re-uses. In some cases forms withstood 10 uses. Other forms gave additional uses after re-facing with \(\frac{1}{4}'' \) fir plywood.

3. SMOOTH, FIN-FREE CONCRETE

The smooth surfaces obtained with the plywood forms cut finishing to a minimum, the contractor reports. The only finishing work required was filling of tie-holes and beads, which were ground and sacked.

Job Superintendent John Rumsey, Jr. says: "Fir plywood solved a complex form problem for us and speeded work all along the line."

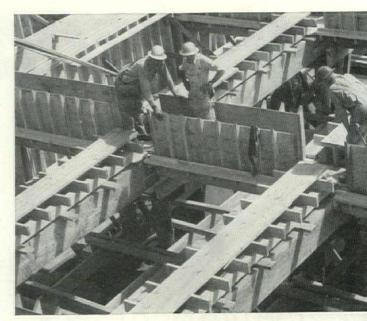
SPECIFY DFPA INSPECTED FIR PLYWOOD

These registered industry trademarks are your guide, guard and assurance of DFPA quality-tested fir plywood manufactured especially for concrete form work. INTERIOR PLYFORM (highly moisture resistant glue) gives multiple re-use; up to 12-15 are not unusual. For maximum re-use, specify EXTERIOR PLYFORM (100% waterproof glue). For special architectural concrete use fir plywood with "A" face veneer or one of the new plastic-surfaced or hardboard faced fir plywoods identified by this star and link industry hall mark of quality.

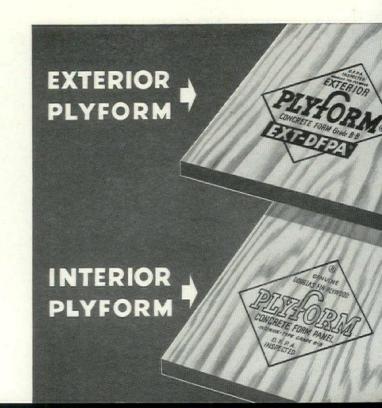
For further information write Douglas Fir Plywood Association, Tacoma 2, Washington.



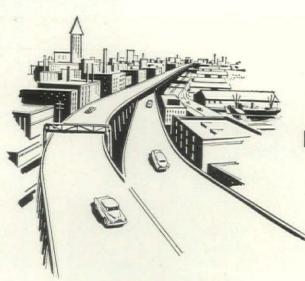
Beam and girder bottom forms were built up inside standard vertical form panels in what contractor called "floating beam bottoms." System simplified handling of variable beam and girder depths.



Pattern of plywood forms for girders and cross beams is shown here. Standard panels for shallow cross beams and shallow center beams were not as high as those for girders. Contractor built forms for 660 feet of viaduct at a time.



ALASKAN WAY VIADUCT
LOCATION: Seattle, Washington
CONTRACTORS: Morrison-Knudsen Co., Inc.
Rumsey and Company



Highway viaduct demonstrates THREE



Fir plywood solved complex form problem on Alaskan Way Viaduct. Double-decked structure .77 miles long required only 400,000 square feet of plywood.

Here's the

Automatic

answer to ANY

temperature regulation

problem

JOHNSON CONTROL for College Buildings

Across the nation, modern college buildings, large and small, are equipped with Johnson Automatic Temperature Control to provide student and faculty comfort coupled with the lowest possible operating

Cornell University's Statler Hall is another example of the adaptability of Johnson equipment. This building is heated by convectors, 105 of which are under the control of Johnson single-temperature or Dual Room Thermostats. Five central fan ventilating systems, under Johnson behind-the-scenes Master-Submaster control, serve those areas requiring ventilation. The balance of the direct radiation is under the control of Johnson-pioneered, weather-compensated "Duo-Stat" Zone Control.

Johnson, pioneering in the field of automatic temperature regulation, brings to each job years of experience and know-how in solving temperature control problems of every type. A Johnson System of automatic temperature control quickly pays for itself in added comfort as well as in lower maintenance costs and fuel economy.

Perhaps your buildings present temperature control problems as varied as those in Statler Hall. But, regardless of the type of problem, consult a Johnson engineer from a nearby branch office. Let him explain the money-saving features of a Johnson-engineered Control System. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.



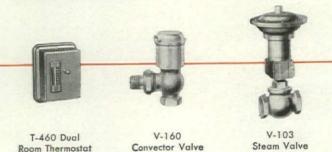
Statler Hall, Cornell University, Ithaca, N.Y. Holabird, Root & Burgee, architects, Chicago; Quackenbush Company, heating contractors, Buffalo.



In the student lounges, bedrooms and other areas not provided with "individual room" control, temperature comfort is provided by a Johnson "Duo-Stat" (shown with cover removed from cabinet) for each of three heating zones. These instruments measure outdoor temperatures and vary the heat supply to compensate for changes in outdoor temperatures.



Johnson T-400 Room Thermostats operate valves on 105 convectors in public spaces such as the dining room.



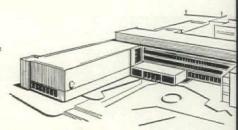
JOHNSON Automatic Temperature and

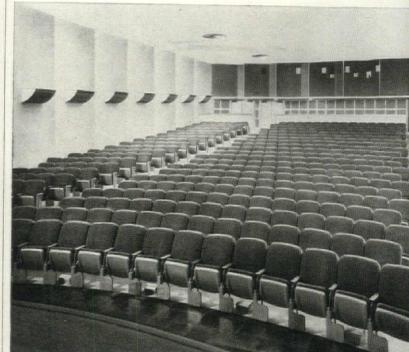
MANUFACTURE - APPLICATION - INSTALLATION - SINCE 1885 Air Conditioning CONTROL



University of Washington Auditorium, Seattle, equipped with 528 Bodiform full-upholstered chairs with spring-cushion backs, and tablet-arms. Raymond B. Allen, President

Raymond B. Allen, President. Whitehouse & Price, Architects.





American Bodiform. Auditorium Chairs

Maximum beauty · comfort · acoustical benefit

Best looking—most comfortable. The superb modern styling of American Bodiform upholstered chairs contributes the utmost in appearance to any auditorium. Matchless comfort is assured by seats with spring-arch construction, backs with scientific body-fitting contours. Occupants needn't squirm and twist seeking restful posture! Available with or without folding tablet arms.

Safety-fold action—better acoustics. Automatic, uniform-folding, silent, ¾ safety-fold seat action allows more room for passing and sweeping. Full fabric upholstery compensates, acoustically, for any lack of occupancy in a partially filled auditorium. No pinching or tearing hazards.

Service to architects. Advice on sight lines, riser attachment, etc., is available to architects on request—together with full information on the wide range of styles, colors and decorative materials that permit harmony with any decorative scheme.



Unexcelled durability and functional superiority are assured by engineering skill and experience without equal in the seating industry.



FREE! Illustrated booklet, "The Coordinated Classroom," a comprehensive work on all phases of modern classroom environment.

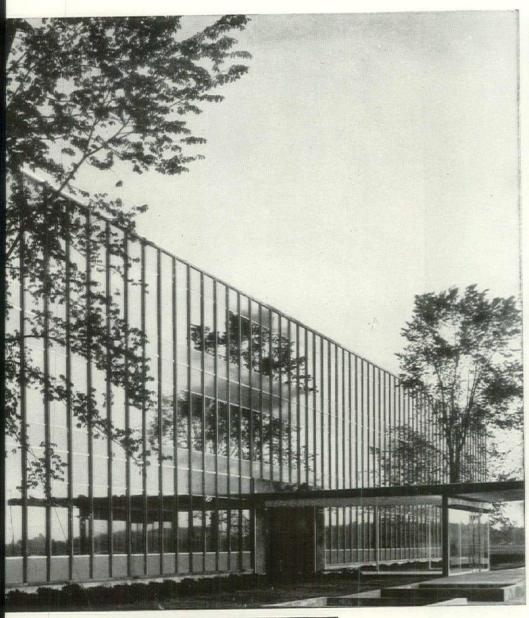


American Seating Company

WORLD'S LEADER IN PUBLIC SEATING

Grand Rapids 2, Mich. Branch Offices and Distributors in Principal Cities

Manufacturers of School, Auditorium, Theatre, Church, Transportation, Stadium Seating, and Folding Chairs





The view is beautiful either way through the handsome Plate Glass lobby wall at Allan B. Wrisley Co., Chicago. Architects: Fugard, Burt & Wilkinson, Chicago.



Spectacular view of Chicago shore line through windows of L·O·F Polished Plate Glass *Thermopane* is dramatic point in salon of Lucien LeLong, Inc. Architects: Loebl, Schlossman and Bennett, Chicago.



Thermopane windows of Polished Plate Glass give added comfort and undistorted view of Chemung Valley to diners at O'Brien's famous restaurant, Waverly, New York.

POLISHED PLATE GLASS

YOU ARE REFLECTED IN EVERY WINDOW YOU SPECIFY

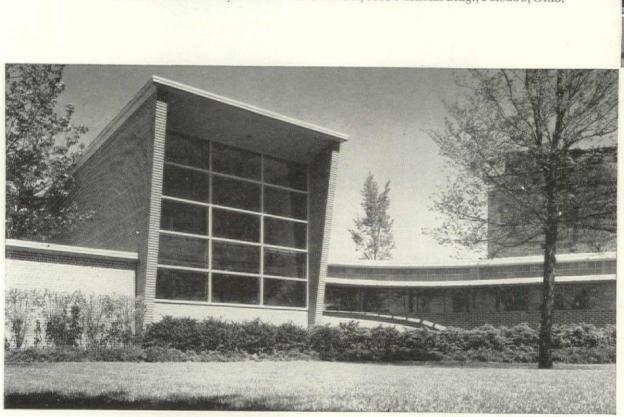
Every window in every building you design acts as a mirror. A two-way mirror, really. Each window reflects the scene it faces, and that reflection, in turn, reflects upon the designer and his selection of materials.

It's not that the scene mirrored must itself be beautiful, because the site dictates that. But the perfection of the image in the windows makes an immense difference as to how pleasing the building looks.

Take the building at the right, for example. There is no objectionable waviness or distortion in the reflections. That's because the glass is polished plate. It would look grotesque if the images were misshapen because a cheaper, inferior grade of glass had been used.

That's why plate glass is worth battling for in your specifications. There's no denying its incomparable qualities—clarity, luster, beauty—and what they do for a building. They're easily demonstrated by taking the client on a tour of the town to point out window reflections good and bad. Few owners would fail to see these fine qualities and willingly pay the extra cost for plate glass.

There are many thicknesses and types of L·O·F Plate Glass, some of them specially produced to help solve specific design or engineering problems. For information on any application of plate glass, consult your local L·O·F Glass Distributor or write Libbey Owens Ford Glass Co., 8863 Nicholas Bldg., Toledo 3, Ohio.





More comfort inside . . . more enjoyment of the view outside came from specification of Heat Absorbing Plate Glass in outer pane of these *Thermopane* windows. Benjamin Electric Co., Des Plaines, Ill. Architects: Perkins & Will, Chicago.



LIBBEY - OWENS - FORD

EASONMASTERS

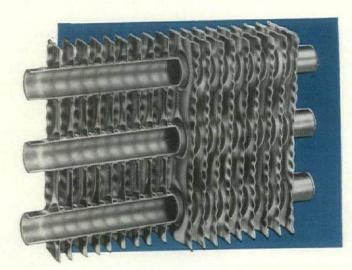
everything you've wanted in Central Station Air Conditioners!

You've never seen a central station air conditioner nat does so much, so well, under such a wide variety conditions as McQuay's new Seasonmaster.

Fourteen models, in both horizontal and vertical vpes, many combinations of cooling and heating oils, a wide variety of accessories give you a unit daptable to all year 'round demands . . . cooling nd dehumidification, heating and humidification, ositive ventilation, and air filtering.

Seasonmasters are furnished with ½" rigid insuation and are available with various air discharge rrangements. All parts are readily accessible for ase of installation and service.

McQuay construction of these versatile units is your assurance of quality and dependability. All soils are made with the exclusive McQuay Ripple-Fin construction for unmatched heat transfer efficiency. Seamless copper tubes are expanded into wide, smooth collars of aluminum fins. Headers are neavy wall, seamless copper tubes. In common with all McQuay products, the Seasonmaster was perfected after long and careful study, to give you maximum performance and trouble-free service.



NOW...THE MOST UNIVERSAL LINE IN THE INDUSTRY!

Seasonmaster's wide range of Cfm and Btu capacities...its many practical combinations of coils and accessories add up to the most universal line of air conditioners in the industry. For air conditioning that will solve the problem to the complete satisfaction of both you and your customers, specify McQuay.



HEATING
AIR CONDITIONING
REFRIGERATION

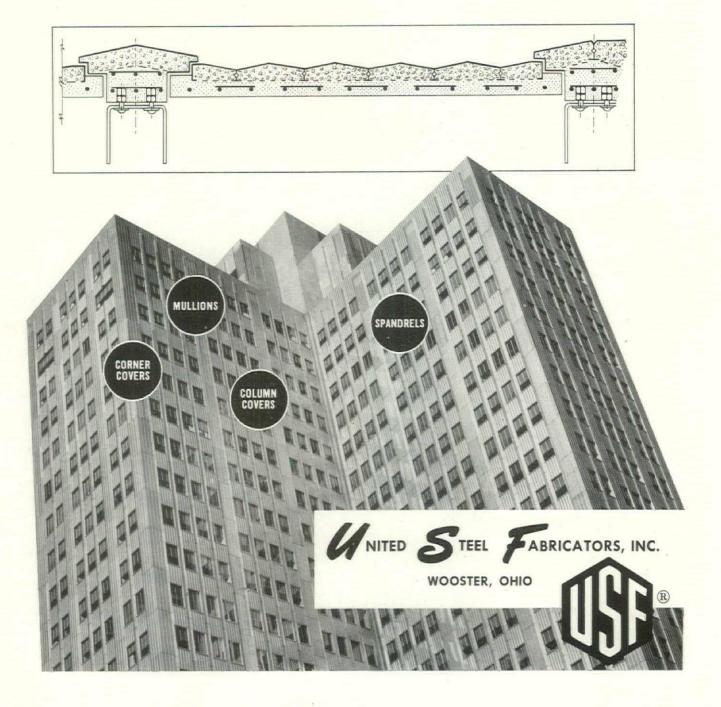


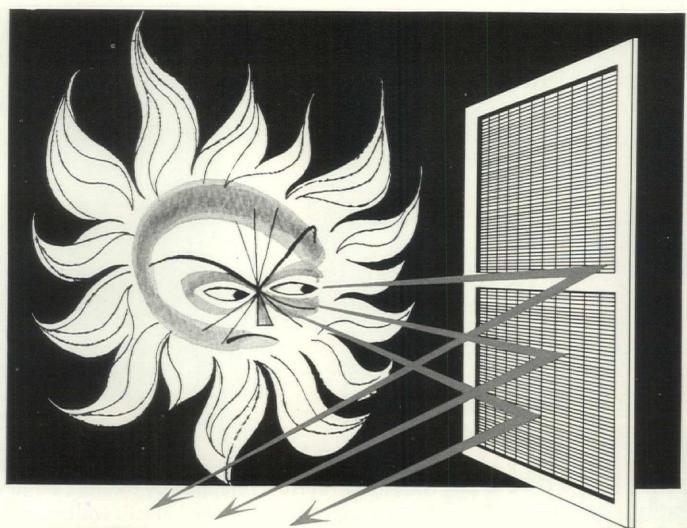
America's First
Stainless Steel
MULTI-STORY
Curtain Walls
Fabricated by
USF



PITTSBURGH'S
NEW GATEWAY
CENTER
BUILDINGS

The stainless steel "skin" of the three Gateway Center spires in Pittsburgh, consisting of mullions, spandrels, column covers and corner covers, were fabricated by USF at the rate of one full floor per day! Below is a cross section of the type of aggregate filled panel used. When you are considering a curtain wall in any metal—look to USF for the experience and facilities to do your job. Let us develop your design with you for best fabricating characteristics.





FAST measuring of sun loads!

Do you have sun heat or glare problem?

Are you considering air conditioning for jobs
"on the board?"

Is classroom lighting and glare control a problem?

If these are problems in your office, Ingersoll has the answers for you. Ingersoll KoolShade[®] Sunscreen distributors are equipped and prepared to supply architects and engineers with the "Ingersoll Sun Position, Heat Gain and Shading Data Calculator." With the latitude and azimuth of a building known, this scientifically engineered slide-calculator will instantly give you the sun altitude any day of the year as well as the relative sun-window azimuth, shadow angle and the amount of radiation transmitted through bare windows and through those protected by KoolShade. All of this in minutes for one elevation . . . where

it took hours of pencil and paper figuring previously. Different inserts in the calculator give these figures for latitudes from 26° to 46° North.

No other manufacturer has ever offered such a time-saving device for calculating sun-heat loads. Your KoolShade distributor can supply one of these Calculators...and an appraisal of KoolShade for a sun load problem. Write for yours today.

Get Your Calculator Today-

A small charge is being made for this convenient tool. The calculator and one latitude-slide costs



\$2.00 and additional latitude-slides cost \$1.00 each. Latitudes include 26°*, 30°, 34°, 38°, 42° and 46°*. Send the coupon today.

*90 day delivery



Copyright 1953, Borg-Warner Corp.

Ingersoll Products Division, Dept. 22K Borg-Warner Corporation 310 So. Michigan Ave., Chicago 4, Illinois

Cost of Calculator and one Latitude \$2.00; each extra Latitude \$1.00



FOILED BY KALISTRON

Gruesome Foursome stopped by colorful, elegant, super-tough Kalistron—vinyl plastic wall covering

They'll be careless, rough and sloppy, but they'll never make a scratch on colorful Kalistron because scuffs, scrapes and bumps can't bruise it and can't reach the designer colors that are completely shielded by the super-strong Vinylite top. Dirt, dust and smears are speedily and easily wiped off with a damp cloth or soap and water.

Complete Unity Achieved:

Furniture and Walls Married by using same Plastic Covering

covering but also a magnificent upholstering material.

For upholstering, it is backed with a 3-way stretch fabric so that Kalistron can be perfectly tailored. It fits to any shape desired, can be pleated, tucked and tufted.

The 3-way stretch fabric backing also assures perfect seating comfort.

Fabric backed Kalistron is available from stock in Kalistron's twenty most

Scratch-proof:

PERFECT FOR

In the finest stores Kalistron is used on selling counters so that the fronts can't be harmed by any scuffing or cleaning, merchandise can be shown on top of flattering colors without any fear of scratching and the counters are in perfect harmony with the rest of the interior's decor. In the same way Kalistron is used on receptionist's

Kalistron is not only a superb wall popular colors. The other colors can also be backed with fabric for orders in reasonable quantities on special order and, just as with Kalistron for walls, special colors can also be commercially matched.

ADVERTISEMENT

NO UPSET DURING ITS INSTALLATION

With Kalistron you can completely alter the appearance of any interioradd lustrous color, magical wear resistance, and wonderful cleanability, yet have no reconstruction ... no sawing, no hammering ... no prolonged dislocation.

ADVERTISEMENT

Make the Scratch test Yourself!

Send for astonishing Nail File Kit!

To show yourself the dramatic quality of Kalistron-and, incidentally, equip yourself to make the same comparative test on all other plastic wall and upholstery coverings — send for the free Nail File Test Kit, and file data of all Kalistron's technical factors.

UNITED STATES PLYWOOD CORP. and

The Mengel Company, sole distributors for Kalistron, Inc.



UNITED STATES PLYWOOD CORPORATION Dept. K-10, 55 W. 44th St., New York 36 (In Canada: Paul Collet & Co., Ltd., Montreal)

Without obligation, please send Nail File Kit and Kalistron data.

State

Big Savi

Long-

Invest

Low C

Kalistron provement

pays itself and years o

lous wear

solid in long last

replace

painting

rating

dirty

labor

easy

WRECKING MOB ARRESTE

Kalistron walls triumph over Grime and Scuffs

Cleaned by a Damp Cloth

Mounted on any firm, dry wall!

In corridors, in restaurants, in stores or dinettes—in thousands of places—there's a new miracle for walls (or built-in furniture and accessory pieces, too): Kalistron, a magical vinyl covering that is grandly beautiful but can't be disfigured by the roughest wear! Its secret is simplicity itself — yet amazingly unique. KALIS-TRON for walls is, first and foremost, a SHEET OF PURE ULTRA-THICK VINYLITE—with nothing in it . . . no filler, no pigmentation, no impurities ... just pure super-wear Vinylite.

It offers, on its surface, all the stounding abrasion-resistance for astounding which Vinylite is famous . . . thousands upon thousands of "no show" rubs.

The Color is Underneath

UNDERNEATH the pure, clear, transparent Vinylite-completely and absolutely guarded against scratching and rubbing - are the designer-inspired colors ... ranging from rich, vibrant tones or deep, earthy shades to smart and delicate pastels.

Fixed for Mounting

On the color side of Kalistron for walls (the side away from wear) there is also impregnated a cellulose flock. so that Kalistron can be easily and speedily mounted to most any firm, smooth, dry surface — over large areas, around corners, on curves and columns.

"Built-ins" or Furniture

Kalistron is also available with a three-way stretch fabric back so that it can be perfectly tailored on upholstered pieces, whether built-in or separate-exactly matching or harmonizing with the walls—offering the same wonderful advantages.

Wherever used, Kalistron means never scratched beauty that is never scratched and can be cleaned by the

The smooth, smooth Vinylite top of Kalistron just doesn't hold dirt. A wipe of a rag and most everything slips off.

If desired, it can be cleaned by soap and water, or, in rare instances of more stubborn dirt, the special, easyto-use Kalistron cleaner.

Altogether, Kalistron is the "easy maintenance" champ.

Designer's Dream:

Call your own Colors

Kalistron is available in 29 colors. ranging from Pure White, Silver and Gold, delicate Pastels or off shades such as Chartreuse, to Wines, Dark Greens and up to Dark Blues that are almost black, and in "antiqued" duotone shadings.

In addition, Kalistron can be made in any color desired, with standard commercial matching and reasonable tolerance, to a fabric, paint or other accessory color.

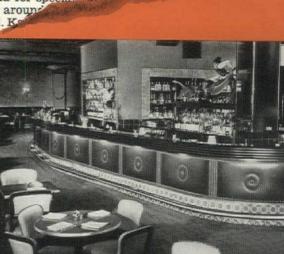
Meets Roughest Fire Code Rules

When applied to an incombustible backing such as plaster, Kalistron meets all requirements of Federal Specification SS-A-118a and the rigid fire code requirements of the New York City Board of Standards and Appeals well known as being among the strictest in the country. You can be certain that properly o



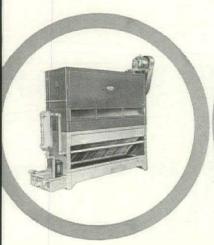
Beautiful over Columns, Curves

This splendid plastic covering can be mounted around a column of any shape — perfectly round, with fe concave sides, or flat sides with fe eight sharp corners. St laid for special offer or around ed. Ks

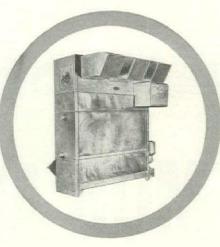


For smart effects that take any punishment—

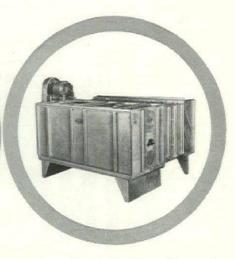
Kalistron in cafe lounges shows all its many advantages. First: highly decorative on walls and furniture. Plus: beauty that never shows scuffs and always wipes clean!







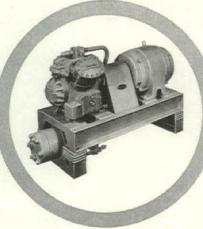
Evaporative Condensers—For heat disposal where water supply and drainage are problems, this fan-coil type refrigerant condenser takes the place of water-cooled condensers and cooling towers. Capacities to go tons.



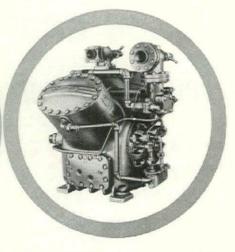
System Weathermakers—Fan-coil type air conditioner for central cooling and heating systems using remote refrigeration and heat. Seven basic fan and coil section sizes used with any one of four cooling coil capacities make 28 different sizes.



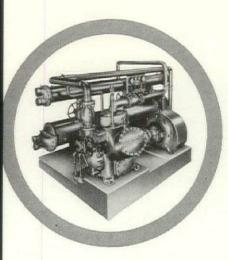
Duct-type Weathermasters—Low-pressure air distribution room units—ideal for hospitals, hotels, office buildings, apartment buildings, laboratories, banks and schools that have a remote source of refrigeration and heat.



2 to 125 hp Freon Refrigerating Compressors and Condensers—Heavy-duty reciprocating type for air conditioning and refrigeration applications. Uses Freon-12, Freon-22 or Carrene 7. Direct or belt drive. Used with water-cooled or evaporative condensers.



75 to 200 hp Reciprocating Compressors—For large commercial and industrial applications like freezing and processing. For industrial and comfort air conditioning. Heavyduty V and W types, single-acting, enclosed. Direct, gear or belt driven.

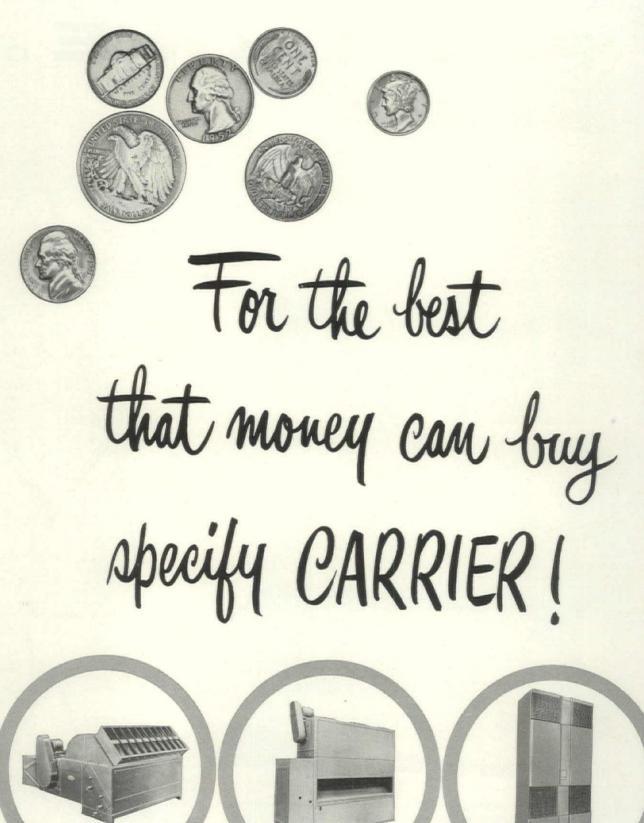


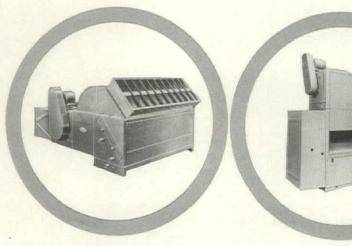
100 and 150 hp Refrigerating Machines—Complete reciprocating systems for cooling water or brines for air conditioning and industrial process applications. Driven by electric motor, gas or Diesel engine, or steam turbine.

This complete line of equipment is available to architects through Carrier Branch Offices, Dealers and Distributors. Your Classified Telephone Directory will put you in touch with the one nearest you. Carrier Corporation, Syracuse, New York.



AIR CONDITIONING - REFRIGERATION
INDUSTRIAL HEATING





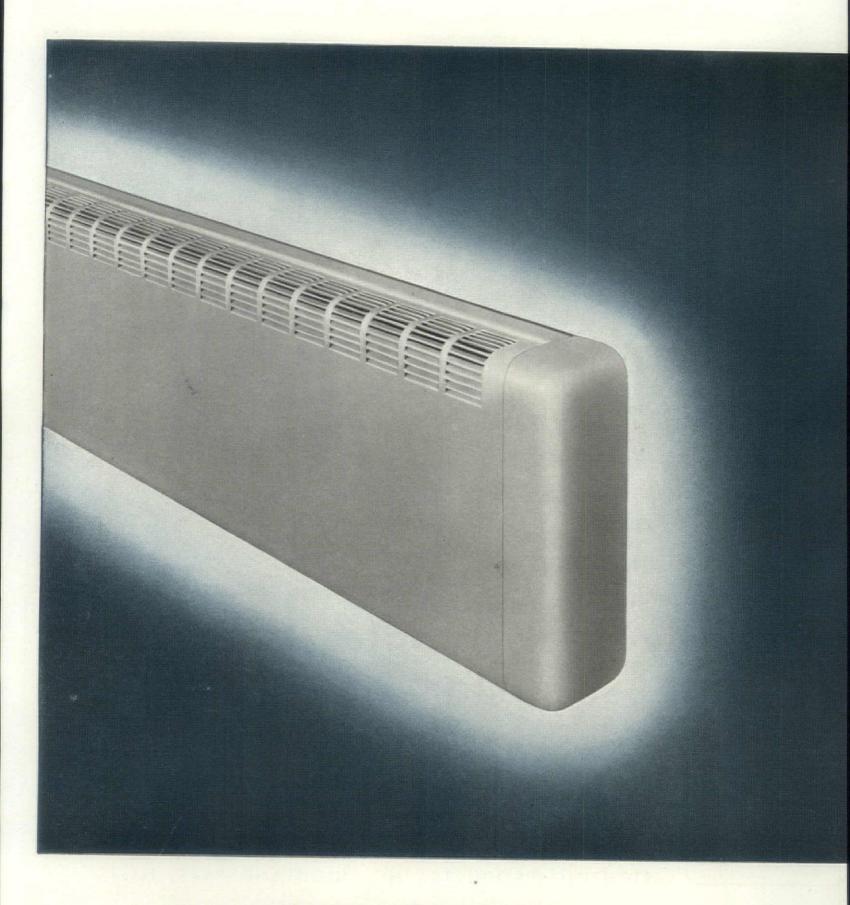
Zoning Weathermakers - Fan-coil unit for zoned air conditioning systems that use remote sources of refrigeration and heat. Provides year-round air conditioning with individual room control. Available in five sizes, up to 90 tons.



Self-contained Weathermakers - Complete packaged unit for air conditioning stores, shops, offices, laboratories. Used in the space or remote location, with or with-out duct distribution. Available in six sizes from 2 to 15 hp.

Only Brunswick offers you the FOUR in ONE chair





DESIGNED FOR MODERN HEATING



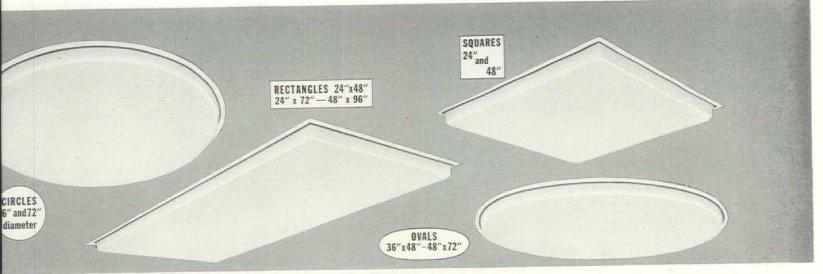
Sill-line will heat the New Pavilion, Jefferson Hospital, Philadelphia, Pa.

Vincent G. Kling, Architect A. E. D'Ambly, Engineer W. M. Anderson Co., Htg. Contractor Nesbitt Sill-line offers you all the benefits of high-capacity wall-fin radiation in the first enclosure expressly styled to harmonize with contemporary building design. Here's quick, uniform, under-the-window perimeter heating that provides economy of operation, ease of installation, and wide flexibility; plus an entirely new concept of enclosure styling so desirable for today's institutional and commercial buildings. If you desire further information on this new product, send for Nesbitt Publication 271.

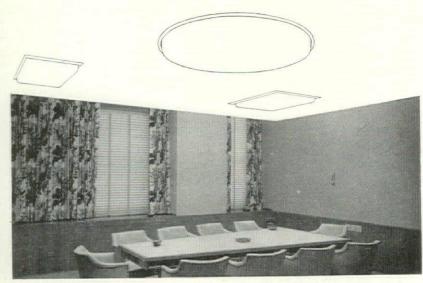
NESBITT

SILL-LINE RADIATION

Made and sold by John J. Nesbitt, Inc., Philadelphia 36, Pa.







circles · ovals · rectangles · squares

in beautiful Plexiglas®
new freedom in creating harmonious designs

LPI VARIFORM LIGHTING PRODUCTS, INC., HIGHLAND PARK, ILL.

Variform shapes combine harmoniously with recessed troffers, incandescent down-lights and other standard equipment. Only standard straight fluorescent lamps are used.

Plexiglas absorbs less than 1% of luminous energy. Shatterproof, it will give many years of trouble-free service. Guaranteed not to sag, warp, lose shape or to discolor. Light in weight, easy to handle. Quickly cleaned with damp cloth, using mild detergent and water. Number of lamps used inside fixture is determined by degree of light output required.

mail coupon now for complete set of Variform drawings and specifications. You will also receive the latest LPI catalog, fully illustrated with photographs and drawings, "New Ideas in Fluorescent Lighting."

IPI
Mow Idons
FLORESCEN LIGHTER

Lighting Products, Inc. Dept. F, Highland Park, Illinois

> Please send me, free and without obligation, complete set of Variform drawings and latest LPI catalog.

NAME TITLE

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ADDRESS

CITY ZONE STATE

The name Plexiglas is the registered trademark of Rohm & Haas Co.

new horizons

for architects in planning fluorescent lighting







three ways to install

- 1. recessed. Only the luminous Plexiglas is visible, depth 2½" from ceiling line.
- 2. surface-mounted. Variform luminaires hug the ceiling and blend in harmoniously. Depth only 6 1/4" from ceiling line.
- 3. suspension-mounted. Hangers can be placed to give perfect support to even the largest fixtures.

ARE you, as an imaginative designer, often frustrated by the conventional louvered "boxes" that house the fluorescent lamp? Sometimes, after planning a beautiful room, original and distinctive, do you despair in your efforts to design a harmonious lighting effect?

Shown here is a completely new and dramatic development in fluorescent lighting—a designer's dream come true! The Variform uses soft, lovely, molded Plexiglas—circles, ovals, rectangles, squares—in a choice of sizes ranging up to eight feet in length.

We call this revolutionary luminaire the LPI Variform, its name derived from the fact that it supplies such a variety of forms for you to work with. Think of the possibilities for striking arrangements in perfect harmony with the dominant motif of the room! There is no limit to the original effects you can achieve. Truly, New Horizons invite you in this handsome and versatile new luminaire—the LPI Variform.

FIRST complete packaged boiler

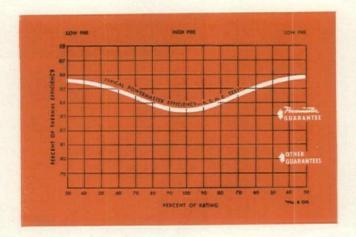
FIRST full modulating cam control

FIRST Voriflow air-atomizing burner

FIRST immediate change-over-oil or gas

NOW- Powermaster is FIRST to guarantee 83% minimum efficiency

The "pay-off" on a boiler is its operating efficiency... and only Powermaster guarantees a minimum of 83% with No. 6 oil!



Take a look at the typical efficiency curve of Powermaster shown here... then compare A.S.M.E. tests with those of any other boiler. At less than full load (which is normal in field operation) notice that Powermaster efficiency actually increases.

There's a reason for such efficiency. The Powermaster is the development of 68 years' experience in boiler manufacture. Continuing research and progressive engineering have resulted in Powermaster users being the first to benefit from major improvements in packaged boiler design.

Point-by-point, Powermaster welcomes comparison. Before deciding on a new boiler for your plant, be sure to get the facts on the newest Powermaster with Voriflow combustion. Just drop us a line and we'll be glad to send you our new catalog.



In sizes to 500 HP; pressures to 250 psi.



ORR & SEMBOWER, INC. • Established 1885 • 845 MORGANTOWN ROAD, READING, PENNA.

NABOM CONVENTION eyes rapid spread of operatorless elevators,

studies problems posed by decentralization of cities, worries over threat of overbuilding



OPENING SESSION, WILLIAM PENN HOTEL BALLROOM, HEARD PITTSBURGH REDEVELOPMENT STORY



CONVENTION CHAIRMAN was former NABOM President Philip C. Hodill of Pittsburgh



PRESIDENT James M. Bradford (I) huddles with First Vice President Sterling Bigler and General Counsel Harry J. Gerrity. Bradford disclosed NABOM is studying management costs of federal buildings for Public Buildings Service.



FORMER NABOM PRESIDENT Clarence M. Turley of St. Louis (r) chats with Don S. Kiskadden (I), vice president and general manager of Buhl Land Co. of Detroit, whose properties include the 26-story Buhl building; and Ernest M. Hill, secretary-manager of the Ellicott Square Building Co. of Buffalo.



EXECUTIVE VICE PRESIDENT Robert B. Beach (I), with Hamilton Weber of Empire State building, reported that with affiliation of Nashville BOMA, national membership reached 2,700 in 62 units.

To economy-minded members of the National Assn. of Building Owners and Managers, the biggest news at their 46th annual convention in Pittsburgh this month was the rapid spread of operatorless elevators to nearly every type of commercial building. The trend has now gone so far, the 950 delegates learned, that operatorless cars will be installed in two of the biggest, top-quality office structures now rising in the world's two greatest office centers: the 26-story Tishman office building on Manhattan's Park Ave. and the 41-story Prudential building in Chicago.

Westinghouse's Walker G. White and Otis' Emmett W. Hines made a joint report on operatorless cars (AF, Jan. '53), which they called "almost human, now that the human element has been completely eliminated."

Some 75% of Otis and Westinghouse elevator sales in the first quarter of this year were automatic installations. For the entire year, they expect this to rise to 80%. By contrast, 1950 sales of operatorless elevators were 12.6%; in 1951, 32.7%; in 1952, 58%.

▶ Building owner acceptance has been speeded by wage savings that range from \$5,500 to \$7,000 per car per year, plus

Photos: George Playetich



AIR CONDITIONING has not developed far enough yet to be a "serious competitive factor" in office space, asserted James W. Bamford (I) of Pittsburgh in convention talk. He and Weeden B. Nichols of Dallas inspect mural of Pittsburgh's golden triangle.

EXECUTIVE COMMITTEE—16 strong—posed for camera during first day's session.



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protection against strikes. Public acceptance is good because the average passenger enjoys a feeling of "participation" in running the car, and the grouch cannot feel that every starter or operator is trying to delay him.

Overbuilding worries. The four-day session reflected increasing concern among NABOM's members about the possibilities of overbuilding downtown space. Said Gray Phelps, former Los Angeles BOMA president, explaining in part why new buildings in many cities have been able to get rents based on current construction costs and far above rent for older buildings: "We have been in an era of earnings permitting satisfaction of the desire for prestige. If history teaches us . . . we are headed into another era of overbuilding, for always in the history of fiscal systems the creation of new hotels, office buildings, both public and private, and bank buildings has been a warning signal that the top of the cycle is being approached." Said Weeden B. Nichols, manager of the 36-story Republic National Bank building under construction in Dallas: "We face facts, Surplus space is under construction" both in expanding cities and where it has "little apparent basis." His recommendations: exchange more market information including break-even rates through local associations; place such data before potential builders and mortgage lenders; agree not to rent space below break-even rates. Such agreements, Nichols asserted, would not violate anti-trust laws.

Former NABOM President Leo J. Sheridan of Chicago drew applause as he warned: "It has taken many years of business expansion and increased occupancy to restore the [building management] industry to reasonably sound economic health. We who are responsible for preserving the gains made, and for protecting the large investments of the interests we represent, have no greater obligation than exerting such influence as we may have to prevent new construction beyond the capacity of American industry and commerce to absorb it." Sheridan noted that Chicago, which had 8.8 million sq. ft. of vacant office space in mid-depression, now had about 800,000 sq. ft, vacant.

Boost for downtown. Last year's convention in Chicago was reassured by Realty Analyst James C. Downs Jr. that downtown areas will survive decentralization, need not fear becoming ghost towns. But amid the multiplying problems of US cities (see p. 46), NABOM this month decided to end passivity, do something to make sure. Delegates recommended that local associations begin programs to achieve

"the solution of downtown problems" like traffic and transit snarls.

To serve as a clearing house, NABOM created a downtown committee led by William H. Doughty of Chicago. Said Doughty: "Doing nothing at all to cope with an ever more critical situation is the error of omission that has been mainly responsible for the difficulties we are in." He besought NABOM backing for slum clear-

ance and other civic improvement programs, urged owners to spend depreciation funds regularly for modernization, and commended private organizations which have already concerned themselves with aspects of the "downtown dilemma." He particularly cited FORUM for its round table on traffic and parking (Feb. '53) and the National Retail Dry Goods Assn's. study, "Parking, How It Is Financed."

Gunnison Homes readies plant to build steel buildings—from schools, hospitals to houses

Gunnison Homes, US Steel's prefab subsidiary, was about ready to make its longanticipated plunge into steel buildings. At Shiremanstown, Pa., four miles outside Harrisburg, workmen this month were completing a \$6 million, 324,000 sq. ft. plant equipped to turn out a 4' x 9' steel and glassfiber sandwich panel adaptable for one-story schools, hospitals, warehouses, industrial structures or homes.

Test runs, said Gunnison officials, would begin in late July. Full operations were due to start about Oct. 1. First production would "probably be units for demonstration hospitals, schools or barracks." The flexibility of the panel made it clear Gunnison would be shooting for a wide range of new business at about the time when steelmen expect surplus steel-making capacity to emerge as the peak of defense needs tapers off.

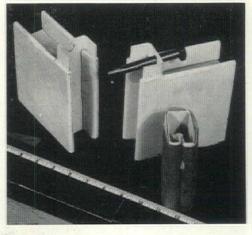
Cost savings. The big sales point of Gunnison's steel structures will be cost, it appeared. Gen. John J. O'Brien, Gunnison president, this month estimated that his steel buildings would save 40% compared to conventional construction for the same cubage on hospitals, schools and similar structures. Moreover, he estimated that a 75 bed hospital (requiring about eight months to erect conventionally) could be built in two weeks (after the slab floor was finished) by a crew of 20 men using Gunnison panels. Another six weeks would be needed for plumbing, wiring, heating and installing special equipment.

The panels (see cut) will be formed of 20 ga. copper-bearing steel bonded to a 2½" glass fiber insulating filler. Each panel—no heavier per square foot than wood panels for today's Gunnison houses, will be "light enough to be readily handled by two average workmen." Along the perimeter of a slab, two small anchor bolts are embedded in concrete where each panel division joint will rest. A cold-formed steel anchor is fastened to the bolt, and each wall panel is fastened to the anchor by steel pins. Between panels goes a metal spline wrapped in glass fiber and covered with vinyl plastic

(not shown in cut). After a work-man with a hammer taps a wedge home, the panels are so tight that Gunnison men say no caulking is needed. Corners call for a closer of insulated steel with a diamond-shaped spline. Standard 14" box beams go across the top of the wall panels, fastened by wedge pins to the top of the spline joints. "Nowhere in the building," say Gunnison officials, "does steel touch steel."

Dealer interest. The pin and wedge technique-the key to the structure-has been tested for several years on structures built by Gunnison and other US Steel companies. Wiring will run through wall panels, each of which will come equipped with fish wires to permit easy installation. Each panel is completely grounded, so TV and radios have operated in test houses with no ill effects. Still being worked out are fenestration (though windows, doors and storage walls will definitely be of steel), and some marketing plans. The panels will be distributed through Gunnison's existing dealer organization, say officials. But they shy away from announcing whether Gunnison's network of dealers will begin bidding on hospitals, schools and industrial structures. As word seeped through the industry of the venture in steel, Gunnison was being deluged with inquiries that indicated would-be dealers foresaw a big future.

Gene A. Baron



CUT OUT sections of wall panels show patented pin-and-wedge connector and (front right) metal spline which forms airtight Joint. Wedge goes through slot in pin, is hammered tight.

US chamber group urges 'major changes' in redevelopment law, raps land subsidies

Since the 1949 Housing Act put the federal government into the slum redevelopment business, HHFA has set aside \$241 million of subsidy funds for 253 cities to write down land values in cleared areas. But only \$8 million has been disbursed. For only in 18 areas, in 12 cities, was land assembly far enough along for slum clearance to be underway. In only five of these had new buildings been started. Only in Philadelphia was one completed.

Last month, such slow progress led the US Chamber of Commerce's construction and civic development department to conclude that if the government is going to stay in urban redevelopment "major changes in policy and method seem called for." In its "Construction Markets" bulletin signed by Lumberman Norman P. Mason, chairman of the department committee, the chamber warned: "For private investment, the incentive is less than it was originally assumed to be, while for government the cost is proving to be so great that the present formula cannot be considered to offer a practical solution."

Bait but no lure. Although devising administrative rules and plans has been turtlepaced, that is not "the main source of the lag," said the chamber. One big trouble has been finding investors "who see a profit in utilizing the cleared sites to bid for them and wait out the . . . tedious and protracted job [of assembling the land]." Yet for the first 25 projects for which federal grants were approved, the average land subsidy from the federal government alone (which pays 2/3 of the write down) average almost \$80,000 an acre. And the average sales price of cleared slum land is expected to be only 30% of the cost of buying and clearing it.

Explained the chamber: "The apparent need for paying enormous subsidies . . . goes back to the unjustified values at which slum property is held.... Many slum areas are close to active commercial and industrial districts. Owners hope for further expansion of high-paying uses; city zoning ordinances are usually based on such expectancy; tax assessments tend to rise accordingly; and in condemnation cases the tax base (often much higher than the realizable market value) is not infrequently an important consideration. At the same time, owners of slum property are able to hold out for high prices because the shortage of housing has made the poorest houses rentable, because cities have been lax in enforcing standards of health, safety and occupancy, and because, as a result, it is possible to get a good yield from deteriorated property."

Tax slums to death? Instead of coddling slums by inaction, said the chamber, cities should "make it tough to hold on to neglected property by rigorous tax collection and strict enforcement of minimum standards." And blighted areas must be given more "real value" by "eliminating smoke, building highway and parking facilities, improving schools and expanding parks and playgrounds."

The chamber cited another danger: "Once acquisition prices are established on a subsidizing basis, the difficulties in negotiating purchases in other areas, supposedly eligible for subsidy, are increased. Write-

off subsidies, instead of reducing price, are apt to be a form of price support."

Recipe: more guts. Even under the best of today's conditions, said the chamber, investing in income-producing real estate is a very speculative enterprise. . . . It is ironic that, while government has been striving, by the unnatural means of writeoff subsidies, to induce new investment in the least promising areas, it has also, through rent control, cost-making building codes, public housing and inhibitive tax and tax depreciation policies, discouraged real estate investment except where a large, quick profit is likely. . . . The way to get widespread redevelopment is to remedy the conditions that discourage it, rather than to seek . . . more and more subsidy."

The chamber's recipe: better law enforcement against slums, city planning, more public works, better building codes, revised tax and depreciation policies.

NAHO says halt in public housing will balk redevelopment; some cities dispute it

Would the threatened death of public housing stymie urban redevelopment projects now in the pipe lines? The National Assn. of Housing Officials, many of whose members make their living from public housing, looked into the question last month and reported: in many cities, it would. NAHO noted that 116 of the 128 redevelopment projects under a loan and grant contract or in final planning involve razing residential slums. Some 78,000 families face relocation. About half of them, according to HHFA estimates, are eligible for public housing. Under the law, redevelopment cannot proceed until slum displacees are rehoused.

Although NAHO made its pronouncement after a "nation-wide survey," it cited no threatened cities by name. FORUM correspondents looking into the question, meanwhile, found an encouraging number of cities where local officials said a shutdown in public housing construction would not balk relocating slum residents for redevelopment projects. For example, Boston, with an annual 10% turnover in its 11,000 public housing units, anticipated no problem. By taking redevelopment slowly (two projects were about to start), relocatees could be absorbed by vacancies. The Sacramento (Calif.) Redevelopment Agency pointed out that its No. 1 project involved relocating only 30 families, foresaw no trouble finding them new homes. (But the city council halted further action on slum clearance until the attitude of the GOP administration "has been defined clearly.") In Perth Amboy, N. J., Redevelopment Director Thomas Patton said only one-third of the 129 families

being displaced by two redevelopment projects were eligible for public housing; they could be placed in existing housing projects. In St. Louis, however, two pending redevelopment plans called for relocating 4,908 people. Authorities said there was no hope of squeezing them into the city's 2,019 existing public housing units or the 1,736 abuilding. Without continued federal public housing, said Chairman Saul A. Dubinsky of the city plan commission, "our entire slum clearance program will be impaired, if not permanently stopped."

At mid-month, Nat Keith, HHFA redevelopment director, summed up the outlook this way: "Projects now underway are pretty well covered from a relocation standpoint by public housing projects now under construction. The retarding effect on redevelopment, if no additional public housing is authorized by Congress, would be concentrated on projects now in the planning stage. . . ."

Expressways hasten urban decentralization, warns expert

Are big US cities only helping dig their own graves by encouraging freeway construction? One man who thinks so is Executive Director Walter H. Blucher of the American Society of Planning Officials. He told a University of California planning conference last month:

"I am convinced that the net result of the expressway is to make it easier for the people to live in the outskirts, which means that the expressway takes more people out of the city permanently than it brings in. If you can live in the suburb under the mistaken notion of lower taxes but where at least you think you have good government and good schools and clean air, and if at the same time you can get into town by driving your automobile for 30 minutes, isn't that better than living in town midst the squalor where you have a 30 minute ride on existing transportation facilities? . . . I am convinced that the expressways leading to the centers of our cities will be one of the most important instruments we have created toward the cities' decentralization. I marvel that downtown merchants are usually in the van in urging their construction and creation. Maybe they think they can pick up all the business they are losing in the new outlying shopping centers. . . ."

To Blucher, another indication that expressways serve no useful purpose was that in all the nation, there were only 331 miles of them, half in New York. The answer to city traffic, he said, lies in making interurban transit service more attractive and planning it for entire metropolitan areas, instead of piecemeal parts. Other Blucher thoughts on problems of metropolitan decentralization:

Most big US cities are broke. So instead of coping with their problems, they run to the federal government for everything from a new fire engine (excuse: civil defense) to a new sewage plant (excuse: "interstate commerce is involved, using the definition of a navigable stream as [one] that will carry a rowboat.") Cities blame the problem on "urban sprawl, but it's actually local abdication."

▶ The influx of nonwhite population into US cities is causing "great overcrowding of housing . . . and a changing pattern of land use." Although this is a "prime factor" in speeding white imigration to the suburbs, "no large city in America has really developed a positive program for the decent housing of these immigrants."

▶ A survey by the national industrial zoning committee of 137 plants which moved to the suburbs in the last five years showed that 61 had sites of ten acres or less. Thus, "if we had a mechanism with which to permit the expansion of existing plants in towns, some of them might remain in spite of all the other handicaps."

Hush-hush listening agency to build \$30 million home

Last year, a House investigating committee complained that although not all the barracks at Ft. George G. Meade, Md. were being used, the Army was planning more. This month, the Pentagon let more than \$3 million worth of contracts at Ft. Meade —\$2.4 million for barracks and \$749,000 for BOQs. They were the first units in a \$30 million headquarters to be built there for the hush-hush National Security Agency, which runs a super-communications network, monitoring and translating broadcasts from all parts of the world

for the State and Defense Depts., CIA, and White House. By comparison, the Pentagon cost \$65 million, contains 4 million sq. ft. Today, \$30 million might buy 1 million sq. ft. of office space, but the Ft. Meade figure includes the cost of expensive electronic equipment, too.

California votes special tax for services in fringe areas

In California, which accounts for some 20% of the nation's building, one of the more vexing problems of sprawling suburbs is that many of them lie in

unincorporated territory, which means that taxpayers in nearby cities virtually subsidize their police and fire protection.

Last month, Gov. Warren signed a law intended to make fringe developments—both residential and commercial—pay their share of municipal services. It provided for creation of special taxing districts in fringe areas by vote of county supervisors or a referendum if 10% of the area's voters petition. It requires county supervisors to levy taxes for extended police and fire protection, park or recreation areas, or miscellaneous services.



Four Florida Gold Coast buildings win awards at AIA conference

Not all the hotels and motels along southeast Florida's Gold Coast (Palm Beach to Miami Beach) are garish, glittery or gauche. A Jury (Architects G. Thomas Harman, Edward D. Stone, Julian E. Berla and Geffery Baker, Editor Thomas Creighton) last month gave top awards to the four tasteful contemporary buildings shown here at the South Atlantic AIA regional conference. Winner in the hotel class (above) was Watson and Deutschman's La Fonda Hotel

at Miami Springs. The panel commended it for superior planning and new ideas, liked flexibility and openness of public space.

In a talk, Architect Stone remarked: "When you are striving for vulgar ostentation, you do not produce good designs nor good architecture." Berla described New York's Fifth Ave. as "nothing but a high-class slum" with narrow courts, poor lighting, and practically no ventilation.



ALLIED BUILDINGS WINNER: ROBERT F. SMITH'S KEY COLONY CABANA CLUB ON BISCAYNE KEY



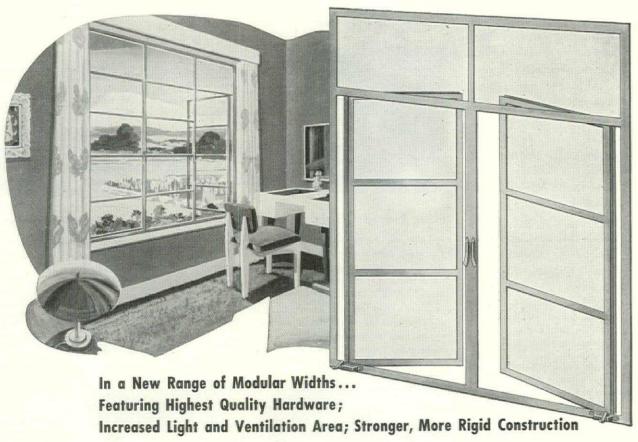
MOTEL WINNER: FATIO HOUSE, DELRAY BEACH, BY RUSSELL T. PANCOAST & ASSOCIATES

APARTMENT WINNER: LANAI APARTMENTS BY WAHL SNYDER, JURY LIKED FLOOR-TO-CEILING GLASS





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Legislatures vote \$600 million for building; 11 states defeat public housing referenda bills

In the 44 states where legislatures met this year, most sessions were either over or about to end this month. All were confronted with measures affecting construction. Forum correspondents surveyed the results, found state lawmakers had:

▶ Rejected proposals in 11 states to require a local referendum on each new public housing project; adopted referenda in two. Additionally, a referendum bill headed for adoption in Illinois would set up rules so stringent that the Chicago *Tribune*, in favor of it, conceded it "would kill public housing in Chicago."

▶ Taken so little action toward substituting state rent control for federal controls expiring July 31 that it appeared 43 states would be rid of controls at the end of next month (except for critical defense areas).

Authorized almost \$600 million for construction and repairs, not counting roads, bridges or loans to municipalities to aid local projects.

Adopted laws in six states covering licensing, fees or other rules affecting architects, engineers, builders or real estate brokers.

Public housing votes. Montana and Oregon legislatures adopted laws compelling referenda on public housing projects. Gov. Paul Patterson vetoed the Oregon bill because it also required a local vote to approve redevelopment projects. Oregon and Minnesota passed laws permitting local authorities to vote to dissolve. Referenda bills were still pending in New Jersey (with a good chance of passage) and Michigan. California, which already had a state constitutional amendment calling for referenda, was considering a bill aimed at the Los Angeles squabble (p. 115) by providing a method of abandoning projects where the people vote to do so.

In Illinois, the referenda bill passed the Senate May 13, was expected to clear the House after a bitter fight. The bill, similar to one vetoed two years ago by former Gov. Adlai Stevenson, would require approval by voters living within a mile of each proposed site. It also would require an annual report of budget plans by local housing authorities, bar spending money until the local governing body approves the report.

The 11 states where referenda bills failed: Arizona, Arkansas, Indiana, Maryland, Massachusetts, Missouri, New York, North Carolina, Ohio, Pennsylvania, Washington. The **Connecticut** House killed a bill that would have allowed municipal governing bodies to stop housing authorities

from proceeding with new projects within 60 days after each was proposed.

Rent control action. Despite the imminent death of federal rent ceilings, most legislatures (where cow county representatives usually dominate) did not even consider the subject. Illinois and Missouri rejected state control, although Illinois, at the behest of Chicago judges fearing mass evictions, amended its eviction law to authorize nine month stays (with a 10% rent increase meanwhile). New York extended state rent control to June 30, 1955 after exempting one and two family units vacant after April 1), but upped the allowable net return to landlords from 4 to 6%. Connecticut continued its standby rent law two years. Massachusetts adopted a local option law, with the state paying 40% of administrative costs. In New Jersey, a local option law was headed for passage, but it had a huge loophole: a "fair return" to landlords was defined as 25% after taxes and depreciation for under five units and 20% for over five. Maryland adopted a law permitting Baltimore, Hagerstown and Allegany County to set up local controls, but its constitutionality was doubtful because the Senate version did not include Baltimore County.

Mansions and offices. By mid-month, at least \$596 million was authorized for construction (see table) but legislatures still in session would boost the final figure well past \$600 million before they adjourn. Florida and Missouri voted \$250,000 each for a new mansion for the governor. North Carolina appropriated \$465,000 for a new state school of design building to unite under one roof its architecture, landscape architecture and projected prod-

CONSTRUCTION FUNDS VOTED BY LEGISLATURES

(in millions of dollars)

	EDUCA-	HOSPITAL, WELFARE & PENAL	OFFICE & MISC.	TOTAL
Mass		-	_	30.0p
Conn	\$2.9	12.0	1.6	16.5
New York	47.0	149.7	9.6	206.3
New Jersey	17.0	25.0	1.0	43.0
Maryland	_	_	_	14.5
Florida	16.8	13.2	7.9	37.9
Ohio	12.0p	22.0p	-	34.0p
Indiana*	18.3*	12.6*		30.9*
Illinois	_	-	12.5	12.5p
Michigan	3.7p	9.0p	2.4p	16.1p
Missouri	10.1	1.5	0.9	12.5
Kansas	10.3	5.6	15.1	31.0
Texas	-	5.7	-	5.7
Colorado	_	1.2	_	1.2
Wsahington	6.5	-	7.5	14.0
Oregon	3.8	3.2	1.1	8.1
Calif	. 15.0p	29.0p	38.0p	82.0p
\$163.4		289.7	97.6	596.2

^{*} Two-year program

ucts design departments. But most impressive was a parade of new state office buildings:

Illinois voted \$12.5 million for a Springfield office being designed by the state architect and scheduled to be started by December. Objective: to save about \$400,000 a year in rent. Kansas approved a \$9 million building just west of the capitol in Topeka, voted an extra \$500,000 for parking space for it. Washington voted \$3 million for a "modern" building in Olympia to be located a short distance off the capitol grounds to avoid conflicting architectural style; it appropriated \$4.5 million for an office building in downtown Seattle.

Florida authorized a \$2.5 million structure and California was expected to vote for one \$2.5 million building this year, appropriate \$300,000 to plan another.

In sight and probably to be built in a year or two: a \$30 million Massachusetts structure on the old Braves Field in Boston, already recommended by the legislature's committee on state administration; a \$4.2 million building for which Connecticut voted \$600,000 this year for site acquisition and planning; a \$10-\$15 million Indiana structure to be developed by a commission the legislature created this session; a \$6 million Texas building scheduled for consideration by voters at a referendum next year.

Professional rules. Arkansas overhauled and stiffened its 28-year-old engineering licensing law, approved restraining injunctions for the first time, fines up to \$200 or jail up to three months for violating registration board regulations. To replace its architect and engineer licensing laws declared unconstitutional (FORUM, Jan. '53 et. seq.), Colorado enacted new ones that were still subject to a court test of their validity. Texas boosted architects' fees on state construction. On individual projects it authorized fees up to 6% for the architect and any consultants he employs, on repetitive projects retained the old scale, 5 to 3.3% depending on size.

In Washington, an earthquake-resistance design bill favored by structural engineers was defeated. On the last day of the session architect-favored licensing revisions that had passed the Senate were killed in the House. The architects broke even by killing a Grange-sponsored bill for uniform school plans—a victory matched by California architects fighting the same battle. Montana rejected one, but Connecticut became the 40th state to adopt a real estate brokers licensing law.

Contractor rules beaten. Oregon wrestled with several construction labor bills, rejected a proposal to license powder men that was opposed by AGC. It also killed a contractors' licensing bill that has come up at the last three sssions. Painters and decorators backed the licensing measure hoping to curb fly-by-nights from other states. AGC members and homebuilders opposed it. Massachusetts was advancing a bill for state sub-contracting on large projects, despite AGC opposition.

p-Preliminary appropriations or estimate, legislature still in session.

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PEOPLE: Ken Wischmeyer, ill, quits race for AIA chief; Architects Paul Williams and Frank Lloyd Wright win medals

Illness this month removed Architect Kenneth E. Wischmeyer of St. Louis as a candidate for AIA president at this month's convention in Seattle. His withdrawal left outgoing Secretary Clair W. Ditchy, FAIA, of Detroit, unopposed to succeed Glenn Stanton. Wischmeyer was hospitalized three weeks in January for a kidney operation. He spent May in bed at home, but was up again this month.

Architect Paul R. (for Revere) Williams of Los Angeles won the 1953 Spingarn Medal for distinguished achievement by a

Negro. The award will be presented this month in St. Louis at the convention of the National Ass'n, for the Advancement of Colored People. Williams' architectural accomplishments, include not only public housing



Murray Garrett

Housing, WILLIAMS

(Langston Washington, DC) and low-cost \$4,975-to-\$7,975 houses (in Tucson, Ariz. for Del E. Webb) but also show residences for Hollywood stars and commercial structures like Saks 5th Avenue's store in Beverly Hills, the glassy Palm Springs Tennis Club, the Arrowhead Hot Springs Hotel near San Bernardino.

In New York, Architect Frank Lloyd Wright accepted a Gold Medal for architecture from the National Institute of Arts and Letters, observing the honors given him "may cause the disease of humility." Wright, long recognized abroad before he was in the US, was introduced by Architect Ralph Walker as the "great pioneer" in modern architecture.

Last month Denver Traffic Expert Henry A. Barnes gave Baltimore a blistering report after making a \$5,000 survey of its traffic mess. Bluntness paid off. A week later he was hired as Baltimore's permanent director of traffic on his own terms: \$18,000 a year and appointment of several aides with job protection. His salary, \$3,000 more than Mayor Thomas D'Alesandro's, led Barnes to quip that he would never run for mayor because he could not afford the salary cut. "Just so you don't run for governor," replied D'Alesandro, who hopes to make that race himself in 1955, although the governorship pays only \$4,500 a year and expenses.

CONGRATULATIONS: To Richard E. Dougherty, consulting engineer and former New York Central chief engineer, elected president of the Moles, New York tunneling and heavy construction fraternity; Howard Barringer, advanced from vice president and treasurer to president of the F. W. Dodge Corp., and president Thomas S. Holden, appointed vice chairman of the board; Paul L. Hershfield, president of Mississippi Glass Co., St. Louis, elected president as well as board chairman of Walsh Refractories Corp.; Harry J. Volk, vice president in charge of Prudential Insurance Co's. western operations, on winning the 1953 Fellowship Award of the National Office Management Ass'n.

Margaret Truman's grand piano did work itself disconcertingly into a crack in a White House second floor beam once, but stories that it almost fell through the floor into the dining room are "all a legend . . . [have] no truth . . . whatsoever." So said Lorenzo S. Winslow, 61, who retired this month after 20 years as White House architect for the Public Buildings Service. Reminiscing about his two executive mansion bosses, Winslow hinted that he regarded FDR as more architecturally inclined, Harry Truman as more artistic.

DIED: Adolph Teichert, Jr. 68, former (1949) AGC president and chairman of

A. Teichert & Son, Sacramento, Calif., May 5; James Baird, 79, former president of the George Fuller Construction Co. and construction supervisor for the Lincoln Memorial, the Tomb of the Unknown Soldier and the Folger Shakespeare Library in Washington, May 16 in Tucson;



Theodore (Ted) Kautzky, 56, architect, author and artist, whose architectural work (for several years with the New York City department of parks) led him into illustrating, lecturing and writing on art, and many of whose sketches were used

commercially in Overhead Door's advertisements, May 18 in Yonkers, N. Y.; Dr. Charles Butler, 82, hospital designer and former president of the New York City AIA chapter and the New York state board of architect examiners, June 4 in New York.

On May 18, Architect Walter Gropius turned 70. And 300 of his friends, associates and former students turned out in Chicago to honor him at a lunch in the Blackstone Hotel, hear his old friend, Ludwig Mies van der Rohe, offer this notable tribute: "I don't have to tell you Gropius is one of the great architects of our time. . . And you know that Gropius is one of the greatest educators in his field. But what I want to tell you is that Gropius has always been a gallant fighter in the neverending battle of new ideas." As a battler for (continued on p. 56)



Corbusier builds city in India with parasol roofs as sun shields

For years, France's Charles-Edouard Jeanneret, better known as Le Corbusier, has advocated vertical cities. Paradoxically, the first complete city he has had a chance to create-Chandigarh, the new capital of India's Punjab-is horizontal. The reason: not only is land cheap, but in purse-poor India, as Corbu explains, "The question of high buildings does not arise. Elevators would cost too much."

Although Chandigarh (pop. 150,000) is laid out on a gridiron pattern, Architect Le Corbusier has plotted a 14 sq. mi, green town, with a central group of government buildings surrounded by 25 self-sufficient residential sectors. Seven different types of roads will separate high speed from local auto traffic, cyclists, pedestrians and ox carts. Around the capitol complex, roads are being sunk 14' below grade. Pedestrian paths cross them by bridges. Corbusier's panoramic sketch above shows the complex from the High

Court building. At the left is the Secretariat (subsequently cut from 15 to 8 stories), the Assembly Chamber, Governor's Palace with a crescent-shaped roof garden and (far-right) an "open hand" monument symbolizing Indian friendship.

Most astonishing design feature of Chandigarh's larger buildings are butterfly-shaped parasol roofs, hanging over the regular roof to serve as a sun shield eight months of the year and as an umbrella against monsoon rains the other four. In two years of building, 1,000 houses of hand-made clay brick and handpoured concrete have risen on the dusty plain. Another 2,000 are to be finished this winter. The main road system in residential sectors is built. The High Court is underway. Although the Punjab government will shift to Chandigarh this winter, the city will not be complete until 1956. The 30,000 men and women building Chandigarh work seven days a week.

optiplex

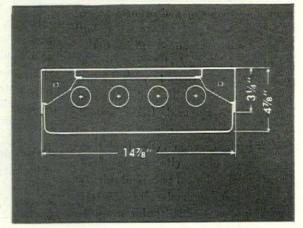
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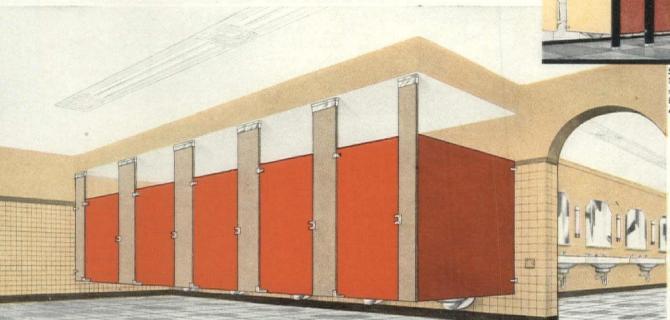
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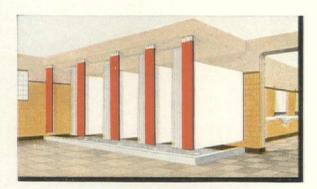
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The bare functional type of rest room is no longer adequate. It is obsolete before it is completed according to today's standards. To insure against untimely obsolescence consider the installation of wall-type plumbing fixtures and ceiling-hung toilet compartments as designed and fabricated by Sanymetal. Such an installation provides a fixture-free floor—a basic necessity for a high standard of sanitation and reducing maintenance costs to an all-time low.

The rest room environment that stays new is the rest room in which the most suitable type of toilet compartment available has been installed. Sanymetal offers several different types of toilet compartments for creating the most suitable rest room environment for each 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 costs. 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, rustproof 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. There is no other material that equals Sanymetal "Porcena" (Vitreous Porcelain on Steel). Sanymetal Toilet Compartments are also available in cold rolled steel.

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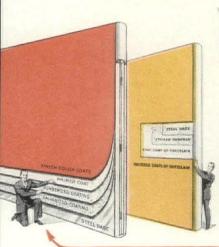
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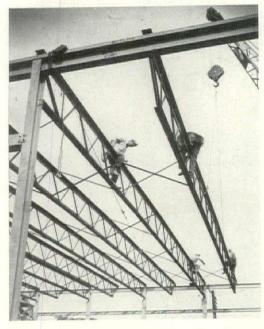




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Chicago Daily New



GLASS SKYSCRAPER designed by Architect Walter Gropius for Chicago Loop would have sheer glass walls broken by white marble shields in front of heating-air-conditioning units. Says Gropius: "These mechanical parts of a building grow more and more each year, and architects keep trying to hide them, instead of making them an organic part of the whole building. But the mechanics are functional and there is no reason why they should not be a visible, even a decorative part. . . ."

ideas, the founder of Bauhaus who retired last year as architecture chairman at Harvard, measured up to Mies' accolade at both a birthday press conference and a 28 minute luncheon talk. Samples:

▶ "In the future, the artist is to be the brother of the engineer and manufacturer—and design is to be part of the whole process of production and selling."

▶ "What we need is a unity which will permit great individual diversity [in US housing]. An old New England town, with its white buildings, has a unity and kinship, but when you look closely every single one of these white buildings differs from all the rest."

▶ "A house with 100,000 exact duplicates is not the answer to our problem, like the Lustron house of doubtful fame. But much of the answer can lie in prefabrication. Machines can make many identical parts, which can then be assembled in many different ways. The machine must be adapted to the individual, not the individual to the machine. But building is the second biggest field of commerce and there is no reason why the machine should stop on the threshold of building. . . Machines can cut costs and improve quality by making millions of prefabricated parts, and yet the houses built from these parts can look enough different so that when you come from a cocktail party you can find your own door."

Gropius' birthday also marked the Chicago opening of an exhibit of his work. The exhibit, originally organized by Boston's Institute of Contemporary Art, had an added attraction-a model and drawings of an airy, 18-story glass office building Gropius had planned for a Loop site owned by the L. J. McCormick estate. A final decision on whether to build it was several weeks off. Before he went back to his home near Boston and The Architects Collaborative which he heads, Gropius told newsmen some of his plans: "I want to keep on doing practical work. There have been invitations to visit, and consult in, many countries-South Africa, Chile, Australia, Brazil and Japan. . . . I am going to Brazil later this year. (continued on p. 58) Call the Office
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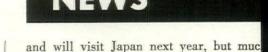
For quick reference see catalog $\frac{5a}{Re}$ in Sweet's File

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As the new administration filled out it ranks of policy-making officials more construction industry men headed for Washington. Sworn in as General Services Administrator, in charge of the government's major nonmilitary public buildings programs, Chicago textile ex-executive Edmunc F. Mansure; as an asst. postmaster general, Norman R. Abrams of Maplewood, N. J. Congoleum-Nairn vice president. Nominated as an SEC member and expected to

become its chairman: Pittsburgh attorney Ralph H. Demmler, who was Equitable Life's principal representative supervising the Gateway Center construction there dur-

ing the last three years.

Architects were taken to task gently for neglecting to design better window advertising areas for bank buildings. Bankers must realize their quarters are "supermarkets of bank service," Maurice Blouin, president of a New York bank displays company, told a financial advertisers meet
(continued on p. 60)



New Englander crowned as '53 apprentice brickmason champ

Thomas J. Gernux (I) 24, of Springfield, Mass., defeated 30 other state and local winners in the finals of 1953 national Apprentice Brickmason Competition at the AFL Union Industries Show in Minneapolis. Seated on his winning work (judged not on output per hour but on neatness, accuracy, joint uniformity and his skill and dexterity) he received a \$500 check from 1st Vice President A. J. Cleland (r) of the Bricklayers, Masons & Plasterers International, and a week's vacation at the Greenbrier Hotel in White Sulphur Springs, W. Va. Said Labor Secretary Martin P. Durkin last month, boosting the Labor Department's apprentice training program: "The very future of the building and construction industry depends upon the creation of sufficient numbers of qualified trades craftsmen. Apprentice training is a capital investment in the [industry's] future."



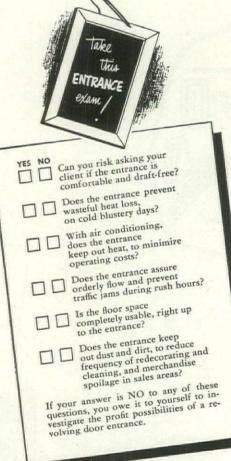
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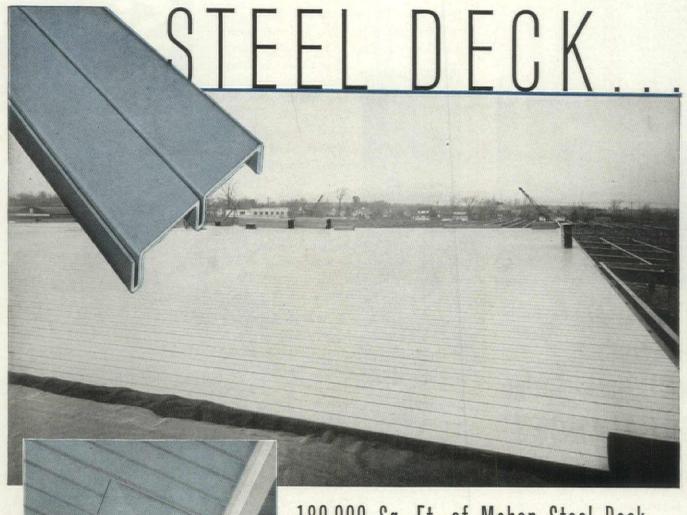
And space-making is just one of the important money-making advantages gained with revolving doors. "Always closed," they minimize decorating and maintenance—cut cooling and heating costs as much as 25% per year. "Always open," they speed the orderly flow of in-and-out traffic—operate smoothly, safely, year in and year out with least upkeep or attention.

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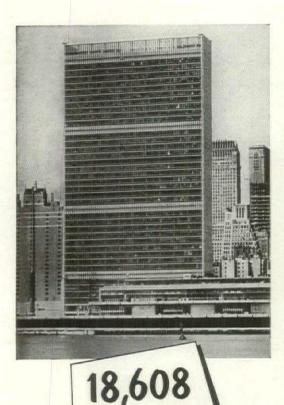
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*CXT balances for 60 lb. sash, used in the United Nations Secretariat Building, are just one size in Caldwell's complete line. For further information see Sweet's Architectural File, Section 17a/Ca, or write.



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NEWS

ing. Not using bank fronts for advertising wastes 20% of the rent, he asserted.

Republicans have held the New Jersey governorship for nine years, and their nominee this year, Paul L. Troast, 59, a heavy

TROAST

construction industry leader, is the candidate most likely to become His Excellency in November. Troast heads the New Jersey Turnpike Commission, but has never before sought elective office. His Mahony-Troast firm (organized in 1928 with

his brother-in-law) specializes in large industrial and business structures, has shunned public construction except World War II military contracts.

Commissioner-Director Walter E. Keyes and Engineering Supervisor William Speed resigned from Florida's State Improvement Commission at Gov. Dan McCarty's request. They denied their resignations resulted from a legislative probe into alleged use of substandard materials and extravagant, unnecessary construction directed by the commission including a Capitol renovation that ballooned from a \$150,-000 job into a \$608,000 project. Their explanation: Gov. McCarty's ideas about the commission "are diametrically opposed to those of the former (Gov. Fuller Warren) administration." During the last seven years the commission borrowed \$60 million and supervised \$49 million of state construction. But Gov. McCarty and his cabinet have ordered a virtual halt to all commission borrowing and construction, and asked for a full report.

(NEWS continued on p. 62)



Realtor elected chairman of Chicago redevelopment board

Realtor-Appraiser Michael J. Long (I) was elected chairman of the Chicago Land Clearance Commission to succeed John McKinlay, the first chairman, who died March 9. Long has been a member of the commission since it was created in 1947, vice chairman since Feb. 1952. Congratulating Long: Banker J. Ross Humphreys, appointed to fill the vacancy caused by McKinlay's death.

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R. L. Elfstrom Co., Salem

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General Interiors Corporation, Pittsburgh
Jones Sound Conditioning, Inc., Ardmore

TENNESSEE
John Beretta Tile Co., Inc., Knoxville
John A. Denie's Sons Co., Memphis
The Workman Co., Inc., Nashville

TEXAS
Blue Diamond Company, Dallas
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Utah Pioneer Corporation, Salt Lake City
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Listed at the left are the acoustical contractors selected by Simpson to install its products . . . perforated fiber tile, fissured mineral tile, metal acoustical units, and other acoustical products.

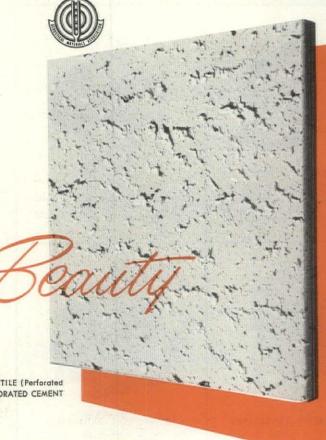
Already thoroughly experienced, these acoustical engineers are kept abreast of new developments and application techniques at periodic meetings with Simpson acoustical experts. Their extra knowledge and training cost you nothing more.

For samples and estimates, call the Simpson acoustical contractor nearest you. Or, for samples and literature, write

SIMPSON LOGGING CO., STUART BLDG., SEATTLE 1

new...rich...natura

son Research, uses a special type of rock that is melted and re-formed into highlyabsorbent rock wool. A natural formation of fissures, different on every tile, provides a beautiful ceiling texture. It has a soft white finish for maximum light reflection, and comes with either square or beveled edges in 11/16" and 13/16" thicknesses. Its sound absorbing efficiency is unexcelled by any like material, and the tile may be repainted without the loss of acoustical effectiveness.



Simpson Acoustical Products include the following: SIMPSON ACOUSTICAL TILE (Perforate Fiber Tile), METAL ACOUSTICAL UNITS, PERFORATED HARDBOARD, PERFORATED CEMENT ASBESTOS BOARD, FISSURED MINERAL TILE



DRAFT FANS

"Buffalo" mechanical Draft Fans are helping turn out low-cost steam in plants and major utility stations everywhere. BULLETIN 3750

MAIL THIS COUPON

for engineering information to help you pick the BEST FAN



LIMIT-LOAD FANS

"Buffalo's" most widely used venti-lating and air conditioning fans. 600 to 500,000 cfm capacities. Quiet, non-overloading, efficient.

BULLETIN 3737

BUFFALO FORGE COMPANY

142 MORTIMER STREET

BUFFALO, N.Y.

for your JOB

Gentlemen:

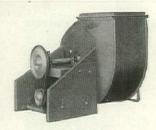
I have looked over the checklist of quality "Buffalo" Fans on this page. Please mail me Bulletins Nos.

NAME

FIRM ____

ADDRESS _

P.S. I would also like information on the line of "Buffalo" Centrifugal Pumps. The job I have in mind would have the following hydraulic conditions:



BELTED VENT SETS

Non - overloading ventilating fans for duct or free air delivery. Extra quiet. BULLETIN 3720



New! NV-BREEZO FANS

Their 4-bladed wheels give high efficiency on free air delivery or $\frac{1}{4}$ " to $\frac{1}{2}$ " s.p. 8" to 24" sizes. BULLETIN 3865. Also ask about the new BELT-AIR line.



PRESSURE BLOWERS

Compact blowers for high pressures in a single stage. "CB" blowers develop up to 21/4 psi, and "Buffalo" type "CC" Blowers handle up to 4 pounds!

BULLETIN 3553



AXIAL FLOW FANS

Compact, light, highly efficient venti-lating fans for light duty. BULLETIN 3533



INDUSTRIAL EXHAUSTERS

All-welded for strength and high efficiency. With air or material wheels. BULLETIN 3576



"RE" BLOWERS - EXHAUSTERS

pressures up to 40" of water; to 1600 cfm. Furnace blowing, boosting. BULLETIN 3014



"E" BLOWERS - EXHAUSTERS

For low to medium pressures and volumes in draft, cleaning, line boosting.

BULLETIN 3014



VOLUME FANS

Rugged blowers exhausters with cast iron housings and dust-proof ball bearings for any job up to 10" s.p. BULLETIN 3615

After 3-year study, New York votes code change on theaters

After three and one-half years of bureaucratic reviewing and committee cogitation, New York's city council adopted a series of bills this month to allow construction of modern legitimate theaters within commercial or apartment buildings. As soon as Mayor Impellitteri signs, the city will at last be rid of obsolete building code regulations that banned construction over a stage, above or below street level. Under the old code, the potential income possibilities of theaters was so seriously limited that nobody had a new theater in Manhattan for 25 years. The new bills also ease bans on smoking and the sale of liquor in legitimate

Theater Angel Howard S. Cullman, chairman of the Port of New York Authority, heads a group considering building a large modern office-theater building (FORUM April '53), but no one else had announced similar plans.

Extortion indictments name 12 St. Louis union leaders

Last September the Department of Justice started investigating labor racketeering in St. Louis. In April prosecutors began presenting findings to a grand jury. Results: indictments last month charging 12 AFL construction officials with extortion or attempted extortion from contractors and subcontractors. Among those indicted: Vincent James Lee, vice president of the plasters and cement finishers international and a member of the St. Louis City Plan Commission for about five months in 1951; William H. Anderson, operative plasters and laborers business agent; Paul H. Hulahan, hod carriers and common laborers business agent; ex-convict Lawrence L. Callanan and John L. Lawler, president and business agent for the steamfitters local; Peter Higgins, former head of the building material and construction chaufers affilliate of the teamsters union.

Town gives up battle against tax-free plant, grants permit

Cuyahoga Heights, Ohio won a point if not its whole battle against invasion by a tax-free \$40 million Air Forcefinanced plant to be built and operated by Alcoa (AF, Feb. '53 et. seq.) From January through March the little (pop. 752) Cleveland suburb refused to issue building permits for the project, protested being burdened to provide free municipal services for the plant and losing \$33,000 of

(continued on p. 64)

Proven by expormance.

it's JOANNA

nulized wall fabric



- Ambassador Hotel Chicago, Illinois
- Dyckman Hotel
 Minneapolis, Minnesota





- New Weston Hotel New York, New York



in SCHOOLS!

- Columbia University New York, New York
- Washington University St. Louis, Missouri
- Concordia College River Forest, Illinois



in HOSPITALS!

- esbyterian Hospital icago, Illinois

acclaimed by outstanding institutions across the nation for prestige building beauty, enduring durability . . . and exceptional economy

of maintenance!

The only test that counts—the test of performance in America's outstanding institutions-proves that Joanna Vinylized Wall Fabric, today's modern plastic-on-cloth decorating material, combines lasting, colorful appearance with exceptional ease and economy of maintenance. Joanna is made for lasting luxury . . . with special colors styled for walls in friendly, untiring tones. Joanna is made for service . . . sturdy cotton cloth thoroughly coated with rich textured vinyl plastic for strength and durability. Joanna is made to wear and wash . . . scuffproof, scratchproof, stain-resistant, and washes easily with soap and water.



It's made for you!

Easy to install . . . will not shrink or open up at the seams. Joanna Vinylized Wall Fabric can be quickly installed by any good paperhanger using standard techniques on any smooth wall surface.

COSTS LESS BECAUSE IT LASTS!

Joanna Vinylized Wall Fabric

Resists Fire, Wear, abuse!

in OFFICE AND APARTMENT BUILDINGS! Aluminum Company of America Pittsburgh, Pennsylvania



Tested and classified for resistance to fire and other abuse by the Underwriters' Laboratories, Approved and recommended by the Wallpaper Research Bureau of the Painting and Decorating Contractors of America.

Send this coupon today for informative brochure and portfolio of samplesabsolutely FREE of cost or obligation. Joanna Western Mills Co., Dept. AF7-53 1351 Merchandise Mart, Chicago 54, III.

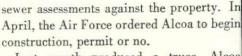
Please send me your illustrated brochure and actual samples of JOANNA Vinylized WALL FABRIC.

Name

Firm Name_

Street & No

JOANNA WESTERN MILLS CO. - 22nd & S. Jefferson - Chicago 16, III. Canadian Representative: DALY & MORIN LTD., Lachine, Montreal, Quebec, Canada JOANNA WESTERN MILLS CO., Export Division: 1 Exchange Place, Jersey City 2, N. J., U.S. A.



Last month produced a truce. Alcoa agreed to pay permit fees of about \$4,300, whereupon the village council voted the permits. More important, Village Solicitor Paul W. Walter (Sen. Taft's northern Ohio campaign manager for years) announced concessions from Washington. The Budget Bureau was preparing in-lieu-of-taxes legislation for the benefit of the community.

Precedent: in New York last month GSA Regional Director Walter F. Downey told a real estate board management division meeting that GSA had leased a large government-owned plant in Delaware to a private operator with a stipulation that he pay local realty taxes from which the government itself would ordinarily be exempt.

Block-square federal office is too wide, says its builder

Commissioner W. E. Reynolds of the Public Building Service offered a candid confession this month: there were bugs in the design of the government's monster new General Accounting Office.



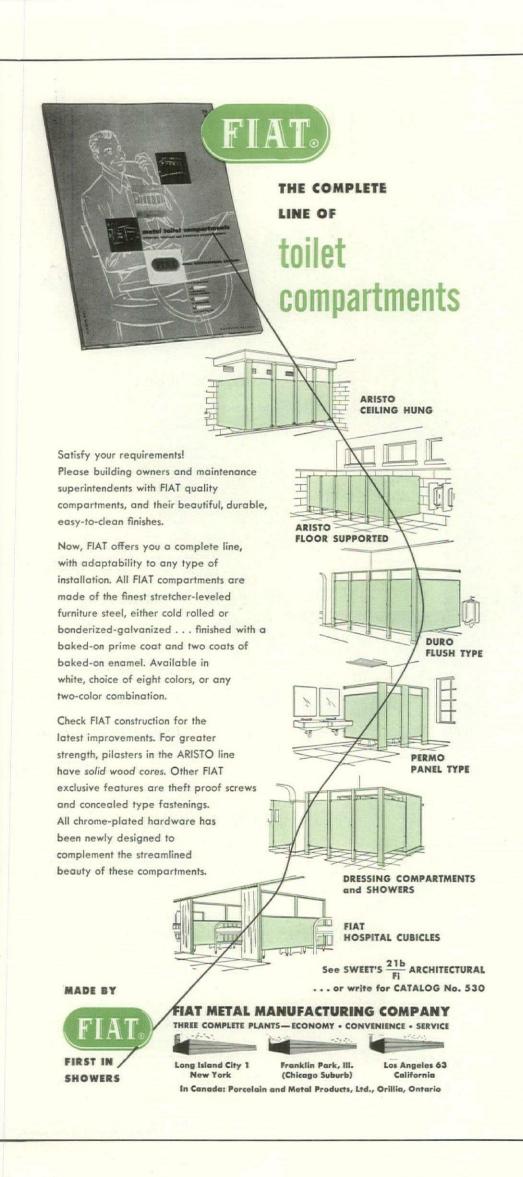
REYNOLDS

The block square Washington structure has the biggest uninterrupted floors of any office building in the world, economically packs 1,330,000 sq. ft. into seven stories. To do so, Reynolds designers had to make it 365' wide. That, said Rey-

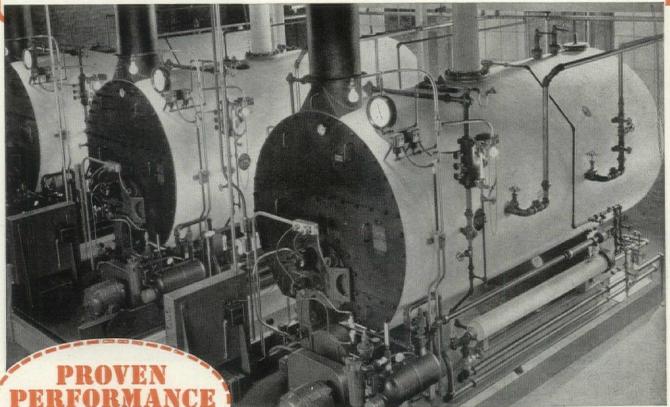
nolds, "is too wide. The clerical force gets a feeling of claustrophobia since it is concentrated in the interior while officials with private offices have the edges." Reynolds is still sold on block-type office buildings, but thinks they should be no wider than 250'. If he builds another one, he was also considering pulling private offices into the interior beside the service core, leaving the windowed areas for large clerical rooms.

A second trouble with the \$21½ million building was probably no fault of its design. Clerks complained the air conditioning system (the only thing that made the big floors possible at all) was inadequate. The explanation: the building was intended for GAO's miles of files and acres of business machines. But as soon as it was finished, DPA and other emergency agencies grabbed most of it, partitioned it off to suit themselves, interfering with air flow. Reynolds was having the air conditioning installation restudied, expected he could boost it enough to stop complaints of headaches and stale odors.

For other Reynolds remarks see p. 216.



Cleaver-Brooks boilers save \$25,000 per year for Hoosac Mills...pay for themselves in 2 years' time!



ANOTHER OUTSTANDING REPORT FROM A CLEAVER-BROOKS OWNER

After installation and starting service was completed, a check was made on boiler output. Tests indicated efficiency exceeded the guaranteed 80%. After eight months' operation without tube cleaning, stack temperature showed no noticeable gain, indicating high efficiency had been maintained. Planned and installed by Frank I. Rounds Co., Newton Highland, Mass.

Installing 3 Cleaver-Brooks self-contained boilers at Hoosac Textile Mills, New Bedford Division, was a major step in ending boiler worries. Hoosac can count on yearly savings of \$25,000, and they're set up for future expansion as well.

Before deciding what type of boilers to install for replacing old, hand-fired boilers, Hoosac carefully considered these factors:

- Efficiency of steam generation
 — the cost for supplying 12,000 lbs, of steam required each hour at peak capacity for heating and processing.
- 2. Saving labor costs through safe, automatic operation.
- 3. Cleanliness important to textile manufacture.

A study of past performance and prominence of similar units in the industry — showed that Cleaver-Brooks self-contained boilers would fill the bill.

Guaranteed 80% thermal efficiency was one of many influencing

factors in selecting the 3 Cleaver-Brooks 150 hp. boilers. Even with loads as low as 30% of rating, these boilers operate with a flat 80% efficiency. (Hoosac operates their plant over widely fluctuating loads, particularly in summer.)

That they attained their objectives is borne out by these results — results which showed the boilers paid for themselves in 2 years' time.

- 1. \$15,000 savings in fuel fuel cost studies showed 275,000 gals. of oil at 5½¢ per gal. provide steam for a year's operation. Same steam formerly required 2,000 long tons of coal at \$15.00 per ton.
- \$10,000 savings in labor costs
 — fully automatic operation minimized boiler maintenance.

 Personnel were then available for productive plant work.
- Cleanliness modern boiler room proved more efficient than previous cluttered arrangement. Hand firing, removal and disposal of fly-ash was eliminated.

In addition to these substantial savings, the installation provided for economical future plant expansion. At present, boiler operation is rotated so all three periodically receive the same service and maintenance.

Cleaver-Brooks boilers are showing similar savings in many other businesses. Investigate — write for Catalog AD-100 and complete information on standard size oil, gas, combination oil/gas fired Cleaver-Brooks boilers, 15 to 500 hp., 15 to 250 psi.

CLEAVER-BROOKS COMPANY

Dept. G, 337 E. Keefe Ave., Milwaukee 12, Wis., U.S.A.

Cleaver-Brooks

ORIGINATORS OF THE SELF-CONTAINED BOILER

Steam Boilers * Oil and Bitumin Tank Car Heaters * Distillation Equipment Oil and Gas Fired Conversion Burners



Looks inviting when new...stays inviting for life

This entrance says "come-in" today. It will say the same thing years from today... and look just as handsome... because it's made of Republic Enduro Stainless Steel.

Built-in beauty is one of the reasons why ENDURO stays so good looking . . . so long. It's solid stainless steel . . . all the way through . . . with a distinctive permanent lustre that lasts. Its smooth surface is easy to clean . . . and keep clean. And that's something clients like to know . . . in advance.

ENDURO actually makes open designs like this possible. It allows you to use thinner, lighter

sections without sacrificing strength or durability. It's easy to fabricate, too. And it's so versatile that you can combine it with many other materials to obtain striking effects.

Does ENDURO Stainless give you an idea? File it with your future plans now. Sweet's will give you the details on this remarkable metal. For special help in developing your own ideas, write Republic.

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See and Hear "THE STORY OF STAINLESS"



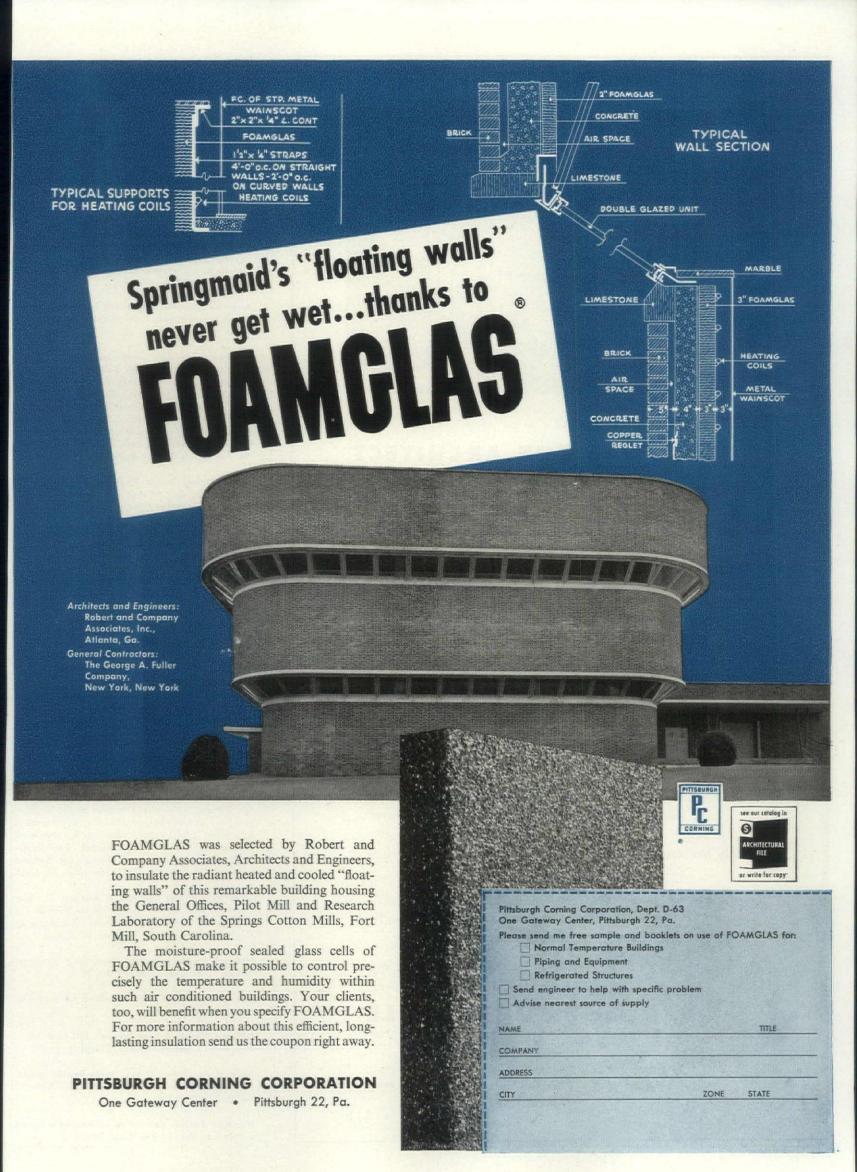
Full-color, 16 mm sound film

—27 minutes running time.
Dramatic . . historic . . . Interesting. Available to qualified groups without charge.
Requires 16 mm sound projector. Send name of organization, type of projector, requested date to Ideal Pictures 6EE So Water St Chiesco I III.

quested date to Ideal Pictures Corp., Dept.T-4,65 E.So. Water St., Chicago I, Ill., or write Republic Steel, Dept. K. Cleveland 1, O.



Other Republic Products include Carbon and Alloy Steels—Pipe, Sheets, Strip, Plates, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing





When they ask . . . "WHO WAS THE ARCHITECT ON THIS JOB?" he can step forward with pride

This flooring is Wright Rubber Tile. It will need no apology ten years from today . . . or one hundred years from today! For Wright Rubber Tile far surpasses conventional tile for long life and lasting beauty.

Through the years, a Wright Rubber Tile floor will bear witness to your sound judgment in having specified it. It will bring your client lasting satisfaction. It will confirm your own good reputation.

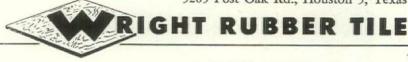
Economical—Because of its exceptional durability, cost per year of Wright Rubber Tile is less even than inferior floor covering.

Versatile—Because of its high resistance to damage, Wright Rubber Tile is ideal for all types of construction, industrial, commercial and residential. Twenty-three decorator colors to choose from.

Easily Maintained—All floors require maintenance, but Wright Rubber Tile requires less than any other.

We invite you to compare Wright Rubber Tile with any floor covering on the market. Send for a free sample. Then specify Wright Rubber Tile with complete confidence.

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FLOORS OF DISTINCTION

- WRIGHTEX—Soft Rubber Tile
- * WRIGHTFLOR—Hard Surface Rubber Tile
- * WRIGHT-ON-TOP Compression Cove Base

EVENTS

American Society for Testing Materials' annual meeting, June 21-24, Chalfonte-Haddon Hall, Atlantic City.

International Design Conference, Aspen, Col., June 21-28, conducted under auspices of Aspen Institute for Humanistic Studies with support of leaders in various phases of design, ranging from architecture to fashions. Theme for 1953: "Design, a Function of Management." Registration fee, \$35 payable with hotel registration. For information, registration card, address: Aspen Institute, Aspen, Col.

American Society for Engineering Education's annual meeting, June 22-26, University of Florida, Gainesville.

Construction Industry Integration summer conference, Lake Forest College, Lake Forest, Ill., June 29-Aug. 21, under direction of Howard T. Fisher. Will be similar to McGill Conference but problems will include schools and other building types as well as housing. Tuition \$125; total expenses about \$350. Five full scholarships and some part scholarships available; enrollment limited to about 40. For information address Lake Forest College,

Fourth Annual Design Workshop for students of architecture, July 11-Aug. 22, Institute Technologico de Monterray, Mexico.

Competition—In connection with the Fourth Centenary of the City of Sao Paulo, next winter, an international exhibition of architecture will be held at the Sao Paulo Museum of Modern Art. Open to architects of all nationalities, and to officially recognized schools. Awards in 11 categories, with a special prize to a young (under 35) architect and to a school. Submissions no later than July 15. For information, entry forms, address: Secretariat, II Bienal do Museu de Arte Moderno de Sao Paulo, Rua 7 de Abril 230, Sao Paulo, Brasil.

School Plant Planning Workshop conducted by Department of Architecture and Architectural Engineering, University of Colorado, July 27-Aug 14, Boulder, Col.

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 to practicing professionals. Tuition for two-week program, \$100; enrollment limited. For details, application blank, write: Office of the Summer Session, Room 3-107; MIT, Cambridge 39, Mass.

Third International Congress of Architects, Lisbon, Portugal, Sept. 20-28. All architects invited. For information and program, address: Secretario do Congresso, Rua de S. Bernardo 14, Lisbon.

National Electric Industries Show, 69th Regiment Armory, New York, Sept. 29-Oct. 2.

International Churchman's Exposition, Chicago Coliseum, Oct. 6-9.

National Savings & Loan League's fall conference, Nov. 8-11, Casablanca Hotel, Miami Beach.

National Association of Real Estate Boards' annual convention, Nov. 8-14, Statler and Biltmore Hotels, Los Angeles.

Mortgage Bankers Association of America's annual convention, Nov. 13-19, Miami Beach.



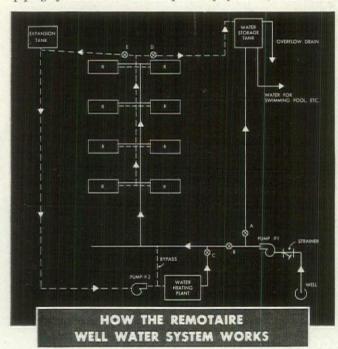
Another interesting REMOTAIRE installation!

Individual-room remote type units in resort hotel provide year 'round air conditioning

Summer cooling...
winter heating

● The Concord Hotel, Kiamesha Lake, New York, found the answer to efficient, economical year 'round air conditioning through the installation of the Remotaire Well Water System—one of a number of different Remotaire systems available for multi-room buildings.

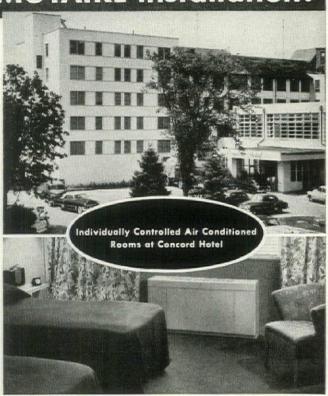
The Remotaire Well Water System may be used in localities where well water is known to be available in adequate supply, proper temperature, and of good quality. The cold well water is used in lieu of a water chilling plant. Consisting of Remotaire Room Units in each room connected by a piping system to the central plant equipment (as shown in



The Remotaire Well Water System consists of Remotaire Room Units in each room connected by a simple piping system to the central plant equipment—a well with pump, water heater, water circulating pump, expansion tank, storage tank and water filter or strainer as shown above.

FOR COOLING—Valves A and C are closed. B is open. Pump No. 1 pumps water from well to Remotaire units on each floor from which it travels thru valve D to storage tank on roof. This water is usable for swimming pool or other purposes. FOR HEATING—Heating circuit includes Water Heater, Valve C, Valve E, Expansion Tank, Pump No. 2 and bypass. For operation, close Valves B and D, start Pump No. 2 and boiler, and the hot water circulates through the system.

When cooling is not required, well water may be used for other purposes, and can be pumped direct through Valve A to Water Storage Tank by Pump No. 1.



the diagram), this system costs less to install and less to operate. Individual control of each Remotaire unit allows the occupant to choose the room temperature that suits him best without affecting adjoining rooms.

This resort hotel installation is another example of the versatility of the Remotaire for hotels, motels, hospitals, apartments, and other multi-room buildings.

Top Quality Construction... Easy To Install

The Remotaire is sturdily built of heavy-gauge steel—plus a reinforced air grille—with a bonderized, baked-on semi-gloss enamel finish. All air passages are acoustically insulated for thermal efficiency and quietness. Coil is designed for right or left hand connections. Spacious



end compartments permit easy access to coil connections and controls. Adaptable to a variety of ventilation systems, the Remotaire is ideal for modernization as well as new construction and is available in three models—200, 400 and 600 cfm.

Write for Remotaire Brochure, Form 298.

American Radiator & Standard Sanitary Corporation P. O. Box 1226, Pittsburgh 30, Pa.



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Rightly recognizing that long-term performance depends on long-lived materials, more and more engineers and designers are specifying wrought iron for ice skating rink coils.

Responsible for this increasing confidence is wrought iron's superior service in this application. In ice skating rinks across the nation, Byers Wrought Iron pipe has given performance-proof of its ability to minimize costly maintenance and repair.

FOR SERVICE RECORD FACTS ...

Our Engineering Service Department files are packed full of actual performance records established by wrought iron pipe in ice rinks. We'll be happy to review your problems, and suggest, on the basis of past experience, how wrought iron can answer your service-life requirements. Write A. M. Byers Company, Clark Building, Pittsburgh 22, Pa.



LETTERS

W IS FOR WHAT?

Sirs:

Re Electrolux Recreation Center (AF, Apr. '53—see plan), W is for what?

Messrs. Raymond & Rado have gone too far. The advantages of back-to-back plumbing in the toilet rooms off the recreation hall are by far offset by the devious route to the women's toilet.

We think the idea is just a little too advanced for even a recreation center.

> Martin J. Sperber, et al Division of school planning Department of Public Instruction State of North Carolina Raleigh, N. C.

MENS LOCKER RI

LOCKER R

M

• W is indeed for what! What embarrassment! We will never know how that errant W wandered all the way along that devious 150' route from the women's toilet to the men's shower room! Nor will we cease to be impressed by how closely some people read our magazine.—Ep.

PENN CENTER

Sirs

Forum's presentation of the problem of space vs. rental dollars arising out of the proposed development of the Pennsylvania Railroad holdings in central Philadelphia (AF, Apr. '53) is worthy of the attention of all urban planners and developers. Light and air are no longer unaffordable luxuries in city buildings—they are now a necessity.

Both Bacon's and Dowling's proposals are deserving of study and consideration. Efficiently planned building space which is properly related to the adjacent street pattern, to the surrounding development and to the current and future urban requirements should command profitable rentals.

I believe that crowded, bulky office buildings have long since demonstrated their undesirability. With continued improvement in the transport of workers from their residences to their office desks, greater open space should be possible in our urban centers. It is a mistake to erect new office buildings on crowded sites. Recent development in Pittsburgh, where I participated in city planning endeavors, presents decided contrasts in urban office building. The Pittsburgh Point area presents a desirable openness, whereas the upper triangle area presents an overcrowded condition which was made much worse by the recent addition of several new office buildings. Triangle streets are much too narrow to adequately support the building bulks which abut upon them.

(continued on p. 76)



HERE'S WHY

Gallaher ratings are the result of actual physical tests of the entire unit—not a fan wheel alone or other component, not interpolations of free air data, but a true picture of the unit as it operates under actual conditions.

Any other method of rating a power roof exhauster will be inaccurate. Gallaher research has shown conclusively that the errors may run as high as 50% when ratings are mere theoretical calculations.

Gallaher units with patented, built-in scroll effect are the only power roof exhausters which can develop high static pressures. With this feature, thousands of industrial applications are well within the range of economical power roof exhausters. They have been rated in an independent laboratory under the direction of a nationally recognized authority under the conditions prescribed by NAFM and ASH&VE.

Before you buy power roof exhausters we think you'll agree that these three questions should be answered to your satisfaction. 1. How were the tests conducted? 2. Did it include the whole unit and not a component? 3. What impartial authority conducted the tests? We think that you'll buy Gallaher Air-Vans.

For full information write Dept A-6

The GALLAHER Company

4108 DODGE STREET

OMAHA, NEBRASKA



All Advance core and coil assemblies are completely enclosed in moisture resisting, dust-proof containers, die-formed or drawn from heavy gauge cold roll steel, thus affording sturdy, uniform construction. All containers are coated with a rust protecting, lasting black japan finish. Rubber covered cotton braided heat-resistant U. L. approved lead cable is firmly anchored to the coil leads. All external lead lengths are sufficient for easy installation without splices.

The capacitors used in Advance Ballasts for power factor correction and phase displacement are of highest quality construction. Rigid inspection and tests are conducted of all capacitors of prescribed ratings.

The core of Advance Ballasts is constructed of high-grade silicon steel laminations, stamped to close tolerances and annealed and treated to insure low wattage core losses. Objectional noise emanating from the laminated core and shell becomes almost non-existent by the unique-Advance method of precision stacking and riveting.

The Advance forced core design makes possible the proper placement of 8 rivets at the points of magnetic stress outside the flux path, thereby providing a most efficient core and shell assembly that insures positive low noise level.

All Advance coils are precision-wound on rectangular cores of high grade varnish-impregnated paper with quality annealed copper wire. Specially designed high-production multiple coil-winding machines insure firmly wound, compact coils of identical size, shape, weight and characteristics.

To insure rapid heat conductivity and the consistency necessary to dampen vibration and noises, a compound containing a high percentage of silica is used in each Advance Fluorescent Ballast. Complete and careful filling of

each unit seals out moisture and increases insulation resistance, thus insuring quiet, troublefree operation.



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- In multiple installations or as a single unit, a Cyclotherm steam generator is your assurance of quick, dependable steam-plus greater all-round economy.
- You get more power . . . Cyclotherm Cyclonic Combustion flame control required just 3 sq. ft. of heating space per Boiler Horsepower. This means your Cyclotherm delivers 66% more steam generating power per sq. ft. than ordinary steam generators of comparable size.
- Cyclotherm steam generators can be conveniently located in any building where steam is required. With only 3 sq. ft. per Boiler Horsepower your Cyclotherm saves up to 1/3 the space of conventional steam generators. Installation is easier because each Cyclotherm arrives complete . . . connect fuel, electricity, water and a simple flue and it's ready to generate steam. Controls are fully automatic.
- A guaranteed minimum efficiency of 80% saves on fuel-gas, oil or combination-and lowers maintenance costs. Cyclotherm gives you full power from a cold start in 15 to 20 minutes. In multiple installations, an automatic battery control panel distributes the load for maximum operating economy.
- Cyclotherm steam generators are designed for 18 to 500 h.p., 15 to 200 psi operating pressures. Approved -ASME, National Board Standard, and Underwriters Laboratories, Inc.

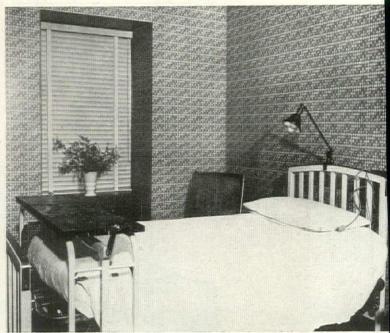


Find out how Cyclotherm Cyclonic Combustion will fill your steam requirements. Write for a free illus-trated folder. Dept. 22

STEAM GENERATORS

CYCLOTHERM DIVISION UNITED STATES RADIATOR CORP.-OSWEGO, NEW YORK

Cheerful Wall-Tex Decoration at St. Albans Naval Hospital



Patient's room in St. Albans Naval Hospital, Long Island. Architects: York & Sawyer. Decorated by J. I. Hass Co.

low-cost maintenancelasts for years . . .

Wall-Tex patterns and colorings in this U. S. Naval Hospital show today's trend. Now, pleasant, cheerful decoration instead of bleak, depressing walls. Wall-Tex fabric wall coverings have many advantages for hospitals, hotels, buildings of all types. Its surfaces are nonabsorbent, resist staining, and are really washable. Its strong cloth base protects walls against scuffing and cracking. These practical features mean real economy in decoration. Wall-Tex keeps its beautiful new look for years - with less work and lower maintenance cost.

Pre-trimmed, easy to hang

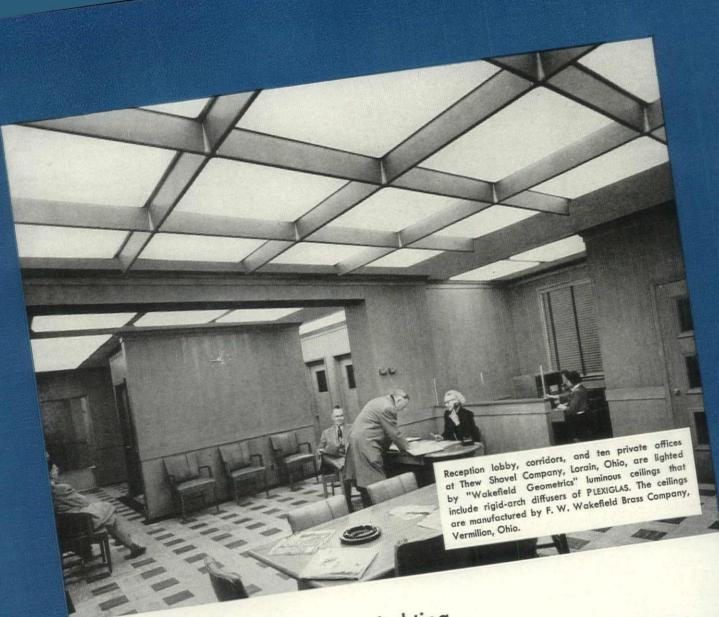
Any staff decorator can apply Wall-Tex with professional results because it's precision trimmed at the factory, in 24-inch widths that are convenient to handle. Edges are trimmed straight and true for easy matching and smooth-fitting seams. Mail coupon for File Folder of information and Wall-Tex swatches.



Dept. AF-63, Columbus, Ohio Send your File Folder on Wall-Tex and Sample Swatches.

Name		

Street



New type of large-area lighting

with Formed Diffusers of PLEXIGLAS

Here is a new development in the use of PLEXIGLAS acrylic plastic for luminous ceilings. Each of the four-foot-square diffusers in the installation shown above is a shallow dome, formed from white translucent PLEXIGLAS. The domed design gives structural rigidity to the panels, making the use of such large diffusers completely practical from the standpoints of safety, ease of handling, and permanence

Notice how the use of PLEXICLAS results in uniof shape. form, efficient diffusion of light from completely concealed fluorescent lamps. Three lamps are mounted above each panel on separate controls for three levels of illumination, ranging from 50 to 90 footcandles. Diffusion is so complete that

PLEXIGLAS is a trademark, Reg. U. S. Pat. Off, and other principal countries of the Western Hemisphere.

CANADIAN DISTRIBUTOR: Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada.

PLEXIGLAS is listed in Sweet's Architectural File, Section 6d Ro.

panels are illuminated evenly at each level of light intensity.

In addition to formability and efficient diffusion, PLEXICLAS offers other advantages in lightingstrength, light weight, dimensional stability, and resistance to breakage and discoloration. For better lighting, investigate the use of PLEXIGLAS for luminous ceilings and large-area fixtures. We will be glad to send you illumination data on the installation shown above.



schooli

THE MILLER LEXINGTON fluorescent luminaire offers these important advantages:

LIGHTING—highly efficient with extremely low brightness for true visual comfort.

ECONOMY—easier, quicker installation, and low maintenance—low overall cost (of fixtures, installation and maintenance the true cost). Achieved by new engineering features. More for your school lighting dollars, Write for details.



DESIGN: Functional—clean, simple lines.



EASY 2-way lamping— 1 ladder position.



STRENGTH: Rigid 1piece steel louver.



THE miller COMPANY Meriden, Connecticut LEADERS IN LIGHTING SINCE 1844

Central business districts will continue to serve as the heart of our urban communities but they must be remodeled to meet the advancing standards of service and comfort.

ARCHITECTURAL FORUM should continue the theme of urban modernization and redevelopment, using all available examples in various cities to arouse discussion and interest.

CARROLL V. HILL Harland Bartholomew and Assoc. Dayton, Ohio

Sirs:

... Your handling of the whole Penn Center problem over the last several months has been a fine example of creative reporting. . . .

EDMUND N. BACON

Executive director

City Planning Commission

Philadelphia, Pa.

Sirs:

... The only interest I have in Mr. Greenfield's financial machinations or those of Mr. Dowling, is that they both controvert accepted density standards. They tend, therefore, to be in apposition to the proper objectives of those interested in providing better urban living and those others who are interested in providing economical urban services. Whether they spread out as in the case of Mr. Greenfield, or follow the Corbusier-Dowling concept of piling people on top of each other, they put the same strain on the inmates. Neither is, therefore, acceptable as far as I'm concerned.

On the other hand, I value highly a free competitive society and expect nothing more of those in the business and industrial field than that they conform to the laws of the country which have been set up to prevent highjacking and wholesale robbery in those fields. That Mr. Dowling and Mr. Greenfield know little and care less about the economic and emotional strains they are creating does not surprise me nor does it keep me from respecting their ingenuity and originality in their chosen field. They are apparently both good men and were it their business to serve the public as it has been mine for a number of years, I can only assume that they would do it very well.

I compliment you on the lively article. . . .
T. Ledyard Blakeman, executive director
Regional Planning Commission
Detroit, Mich.

NEW HOTELS

Sirs

The article on hotels in the January FORUM was very interesting, indeed. Your comments covering the evolution of new hotel construction were both practical and encouraging.

CHARLES A. HORRWORTH Executive vice president American Hotel Assn. New York City



BACK TO BACK, two second-floor bathrooms, for semi-private rooms. AnacondA 85 Red Brass Pipe for hot and cold water lines.

20,000 FEET OF QUALITY



NEW HOSPITAL, located in Forest Hills, Long Island, New York, is scheduled for completion in September, 1953. Pomerance & Breines, Architects.

The new hospital of the Forest Hills Foundation (shown under construction at left) is being built to last. To keep maintenance expenses low and fulfill life expectancy of the building, plumbing contractor William Grossberg, Inc., chose Anaconda 85 Red Brass Pipe to fill the architect's specifications for hot and cold water supply lines.

Twenty thousand feet of it—in standard sizes ranging from $\frac{1}{2}$ in. to 4 in.—will be installed in this 6-floor, 150-bed hospital. With ANACONDA 85 Red

Brass Pipe, the Forest Hills Foundation can count on a trouble-free supply of water for years and years to come. The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

ANACONDA®
85 Red Brass Pipe

New Protection Against Roof Damage

Channel-Seal

ROOF INSULATION

guards against blistering and separation of felt and insulation BUILT-UP
ROOFING

JOINT DETAIL

VAPOR PROOFING
COURSE

As you can see in the diagram, high-pressure air pockets do not build up with Celotex Channel-Seal Roof Insulation. Pressures due to temperature differences are constantly being equalized by movement of air through the channels. This channeling principle of roof protection has been proved effective by many years of actual use on jobs of every type and size.

For an extra margin of safety against costly roof damage due to the building up of high-pressure air pockets where insulation meets felt—specify new Celotex Channel-Seal Roof Insulation!

Each piece has bevels 7/16" high by 11/16" wide on all bottom edges. When units are laid on the deck, these bevels form a network of broad, interconnecting channels extending over the entire roof.

"Safety Release" for Trapped Air

As higher pressures build up in some areas of the roof because of rising surface temperatures, they are relieved by air and vapor movement through the channels. This equalizes and reduces pressure—minimizes the danger of blistering or separation of felt and insulation!

Made of a low-density board of high insulating efficiency, Celotex Channel-Seal Roof Insulation comes in a range of thicknesses to meet the specific insulation requirements of each job. It is asphalt coated on both sides and all edges, for extra moisture protection in storage and on the job.

Low in Cost

Light and easy to handle, yet remarkably rigid and tough, Channel-Seal is low in both initial and applied cost. Resists damage from job handling. Quick, easy to apply. Smooth surface assures positive bond to both roof deck and roofing felt.

Moreover, it is the only roof insulation made of tougher, stronger, long Louisiana cane fibres—and protected by the patented Ferox® Process from dry rot and termite attack. Write now for full data on Channel-Seal and other types of job-proved Celotex Roof Insulation. The Celotex Corporation, Dept. AF-63, 120 S. LaSalle St., Chicago 3, Ill.

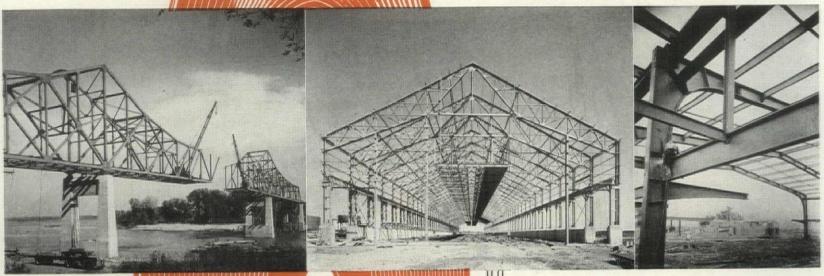
For a Better Roof...Specify Genuine



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Better have ALLIED fabricate and erect the structural steel

Three fabricating structural shops with identical equipment combine as a huge manufacturing unit on large tonnage jobs. On smaller tonnage jobs, each individual shop is fully adequate.

These exclusive Allied production advantages mean that fabrication schedules can be met easily, regardless of tonnage.

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Send your plans and specifications to us to be estimated.

Clinton Bridge Corporation

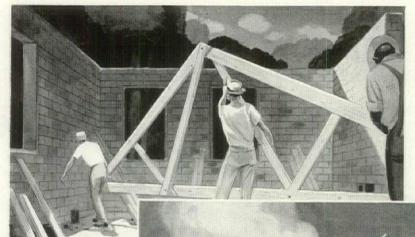
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Midland Structural Steel Corporation

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Erecting 31' Span Trussed Rafters.*

Architects, Engineers and Contractors Find Timbers FIT TODAY'S NEED

In the constant search for more economical building methods, engineered timber construction points the way. Architect after architect is achieving maximum results with minimum cost outlay in the proper use of timber construction members.

Experience has proved that engineered timber construction withstands emergency winds and seismic loads. It resists combustion, free from the hazards of load-bearing collapse under extreme heat. It possesses all the elements essential to permanent construction.

Crossett timbers meet all tests in this new demand for structural wood. Big mill production at Crossett embraces every modern technique in quality control. Crossett timbers are engineered to specified stress values. Available in untreated, WOLMANIZED** treated and Creosoted stock, they qualify under Southern Pine Inspection Bureau standards as well as Federal Specifications MM-L-751b.

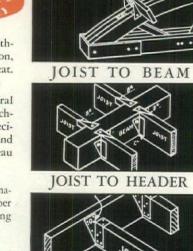
FOR FURTHER DETAILS, write Crossett to obtain specific information regarding your own designing problems. See for yourself how timber construction can answer many of your difficult design and building problems today.

*Employing Teco Connectors.

** Reg. U. S. Pat. Off.

Four 33' Span

Scissors Trusses.*



JOIST TO TRUSS

CROSSETT LUMBER COMPANY

LETTERS continued

URBAN TRAFFIC FORUM

Sirs:

You are to be congratulated in having the initiative to plan and the ability to carry out the Urban Traffic Forum involving so many pertinent interests and resulting in such a comprehensive report (AF, Feb. '53). All of the 13 points are valuable and worthy of much study. . . .

We feel much indebted to you . . . and hope the report of your forum will have the wide circulation is deserves.

> Fred T. Bass, manager Industrial Dept. Chamber of Commerce Cincinnati, Ohio

Sirs:

. . . This type of work will build more friends for you throughout the country. . . .

DAVID LEE HOWARD Real Estate Leesburg, Fla.

Sirs

. . . This is one of the best digests I have seen. . . .

C. COLBURN HARDY Carl Byoir & Assoc., Inc. New York City

Sirs

I compliment you on the excellent coverage of a very technical subject. I was greatly impressed by the manner in which the entire subject was so skillfully handled and I feel sure that those who surround me in this work will agree.

It is obvious from reading the article regarding the forum that many hours of sound and constructive thinking were necessary in order to produce such an intelligent report.

I can assure you that the fullest use will be made of the conclusions reached by the members of the forum.

MATTHEW P. ENGLISH, manager Metro. Traffic & Transit Dept. Chamber of Commerce Los Angeles, Calif.

Sirs:

FORUM has developed some of the most practical thinking on downtown parking and traffic that has been brought out to date. We were particularly impressed with the following:

- 1. Street and parking facilities cannot be considered separately. Each contributes to the efficient and economic use of the other.
- 2. The exact location of parking lots is important. The difference in location of even one block may substantially reduce the effectiveness of the lot.
- 3. We must accept the fact that the desirable amount of two to four times as much parking space as rental space is just not available in the downtown district and that actually only about 1/15th of this desirable amount is available in congested business

(continued on p. 82)

Workers Sing in the Showers

Regulated by POWERS

at The SINGER MANUFACTURING CO.

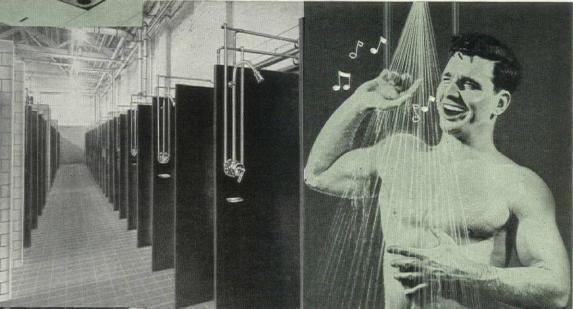
Plant in Elizabethport, New Jersey

Above:

A magnificient new model in the already world-famous line of SINGER Sewing Machines

Right:

One of Singer's Shower rooms has 98 showers, another 58 and there are several smaller ones for individual aroups.



Some of the 190 Clean, Modern Showers at The Singer Mfg. Co. Each shower is individually controlled by a



POWERS TEMPERATURE CONTROL
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serving the various shower rooms is shown above. For this type of service a Powers ACCRITEM Regulator and FLOWRITE

Valve are often used.

When You Have Problems of Water Temperature Control contact Powers nearest office. With over 60 years experience and a most complete line of controls we are well qualified to help you.





Thermostatic WATER MIXER

The Best Showers that money can buy — is only one of the many reasons why employees remain almost twice as long with SINGER

Mixer for Exposed Piping as the national average.

Mr. F. H. Gummick, Plant Engineer for this famous 100 year

old firm, says "The Singer Mfg. Co. has provided employees with the best shower room equipment obtainable. We consider it an investment in good employee relations"

it an investment in good employee relations."

Powers Temperature regulators on each individual shower as well as on the hot water generators serving the showers is the best insurance for a SAFE, COMFORTABLE shower.

No Unexpected "Shots" of icy cold or scalding water here. Powers thermostatic water mixers always keep the water temperature just right — regardless of pressure or temperature changes in water supply lines. See Powers catalog in SWEETS, section 24b

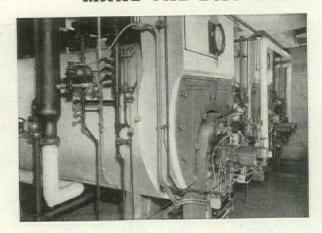
Only ONE Shower Accident Can Cost Many Times More Than POWERS Water Mixers

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Wherever Heat or Power or Industrial Process Steam is required there is a Kewanee Boiler just right for the job. And into every Kewanee goes more of everything that adds to a boiler's life and makes it most economical. Owners expect more from Kewanee Boilers . . . and they get more.

Pictured is a battery of two Kewanee Scotch-type Boilers, for low pressure in the boiler room of the Men's Dormitory, Bradley University . . . a Kewanee series which "stands on its own legs," needing no special setting and requiring comparatively little floor space or head room.



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LETTERS continued

areas. Obviously there is a limit in the number of commercial buildings that should be torn down to build parking lots, which, if exceeded, will result in a reduced value of the entire business area.

- 4. Rapid-transit facilities for each additional commuter during peak traffic periods cost only approximately ½ to ¼ as much per commuter as is required to provide additional streets and parking facilities should this commuter drive his own car. Mass transportation is the only answer for most cities to the traffic problem in the downtown business area.
- 5. Downtown streets and parking spaces to be used fairly must be rationed. It is a problem of supply and demand, and a system of charges made to the user in proportion to the cost and value of these services is the most effective means. These prices should make it profitable to the consumer to use mass transportation, and to the truck driver to deliver in off-peak hours, also to the businessman to provide at least off-street loading and unloading areas. . . .

DAVID D. ROWLANDS, city manager City of Eau Claire, Wis.

Sirs

To provide thoroughfares for everyone wishing to drive to the shopping district and to provide parking space would cost so much that it would be many times more than any city could finance. In fact, it would probably be cheaper to give the city back to the Indians and simply rebuild an entire new city, such as is done in South America.

We now have a group of unhappy people trying to negotiate the congested streets. By spending all the money available, we could make twice as many unhappy. We never could make everyone happy by applying suggested remedial measures.

The congested areas should be zoned and the loading and unloading of large delivery trucks be prohibited in the street areas. All-day parking in the congested zone must be eliminated. Customer parking should be only in private parking lots provided by the store for their customers. All through-traffic routes and extensions of primary roads must be routed around the business districts.

In short, no one should be allowed to drive into a congested district unless they have business there, and parking space must be provided for those who do venture into the district. At least half of the existing office buildings and stores could be operated more profitably on the outskirts of the city. Most of the customers and employees live out in the suburbs anyway and merely clutter up the streets going to and from the business district. The only solution is to tear down at least half of the buildings and use the space for parking lots.

In our city, an enterprising grocery-store owner purchased a fairly new three-story

(continued on p. 84)





office building, a modern fireproof structure, wrecked it and constructed a parking lot for his customers. This is in the central business district across the street from our largest hotel. Another grocery store wrecked a large three-story hotel and built a new grocery store and used half of the area for a parking lot.

It has been said that we have a civilization on wheels. But we must have a place to run and park the wheels. Drastic measures must be taken, all or none.

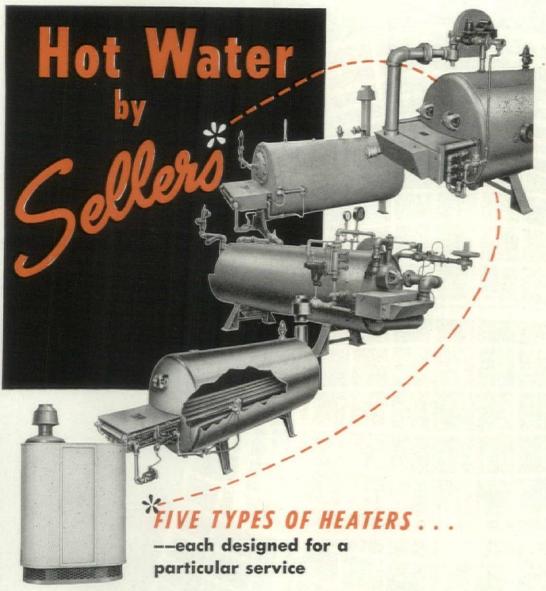
> BENTON R. ANDERSON, city engineer City of Clinton, Iowa

Sirs

The growth of the Los Angeles metropolitan area has largely depended on rubber-tire travel, as residence in single-family dwellings predominates. That part of the urban area of Los Angeles County contiguous to and including the City of Los Angeles approximates 1,000 sq. mi, in area and includes 45 municipalities. The population of this rapidly growing urban area was approximately 4 million persons in 1950, with a motor-vehicle registration of about 2 million including trucks, trailers and motorcycles. A recent estimate of passenger miles traveled in this area found that more than 90% were via private automobile. Due to the low densities of population prevailing in many parts of the area, it is difficult to provide such parts with adequate bus service on a fare-sustaining basis.

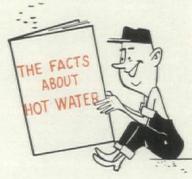
The repeated failure of proposals for rail rapid transit leads many, including myself, to believe that the development of express bus lines via the freeway system offers the most opportunity for early improvement of mass transportation. The substitution of busses for surface rail lines has been made in many cases here since World War II, and more conversion is being sought by the transit companies. Between 1947 and 1951 total mass-transit passengers carried declined 35%. Nevertheless, studies of rapid transit plans are now being carried forward and undoubtedly new proposals will be made from time to time, some of which may contain considerable merit.

In the central business district about 50% of the persons having business in the area arrive by private automobile. A current parking survey finds that approximately 40,000 offstreet parking spaces within the district are available, of which 10,300 are in parking garages and the remainder in open-air parking lots. It has been estimated that 10,000 additional spaces are needed. The success of the Pershing Square Garage, of 2,000 car spaces, completed last year, indicates that additional garages will be financially successful if properly located. An aerial survey made and now being analyzed by the Downtown Business Men's Assn. should be very helpful in ascertaining those areas where a real shortage of parking exists. The establishment of adequate off-street parking in the central business dis-(continued on p. 90)



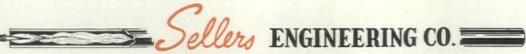
Together they cover the entire field of large volume water heating—hard water, soft water, naturally corrosive, and zeolite softened water. Each heats water for ordinary service and for high temperature sterilizing—always clean and rust free.

No single type of heater can do all of these jobs well—the selection of the correct type from the full Sellers' line and Sellers' experience are required.



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Before you buy any water heater—
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on water and how to heat it. It's free—
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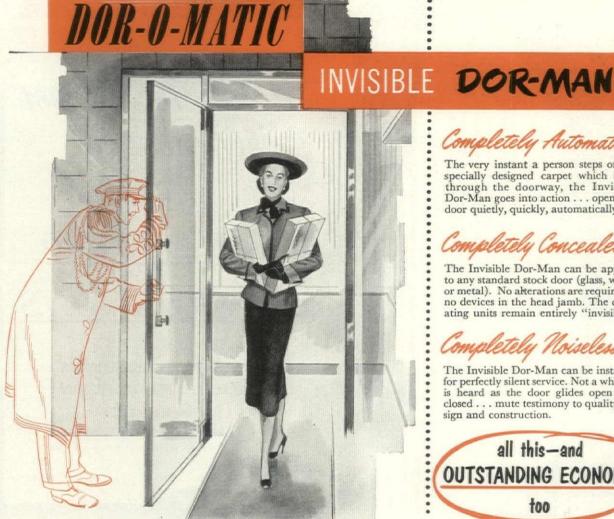
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The very instant a person steps on the specially designed carpet which leads through the doorway, the Invisible Dor-Man goes into action . . . opens the door quietly, quickly, automatically.

The Invisible Dor-Man can be applied to any standard stock door (glass, wood, or metal). No alterations are required no devices in the head jamb. The operating units remain entirely "invisible."

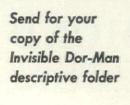
The Invisible Dor-Man can be installed for perfectly silent service. Not a whisper is heard as the door glides open and closed . . . mute testimony to quality design and construction.

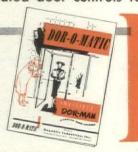
all this-and **OUTSTANDING ECONOMY** too

THE IDEAL DOOR CONTROL FOR EVERY TYPE OF DOOR-EVERY TYPE OF BUILDING



Dor-O-Matic concealed door controls for manual operation are available in sixteen models.

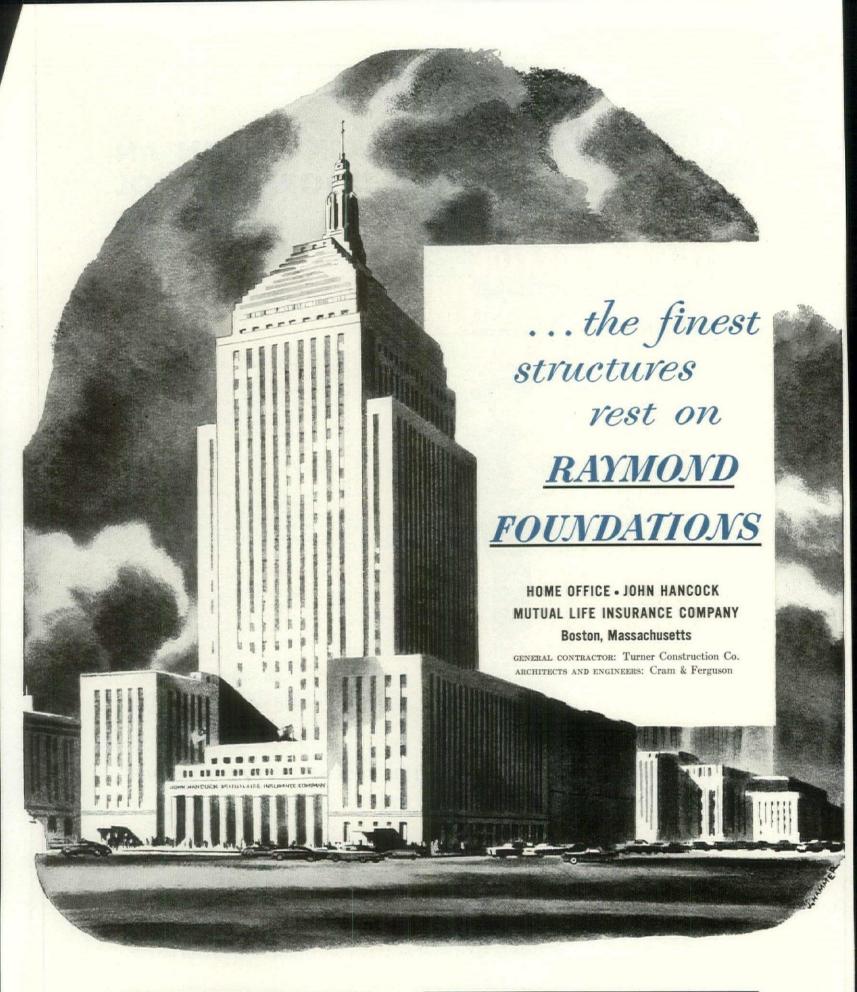




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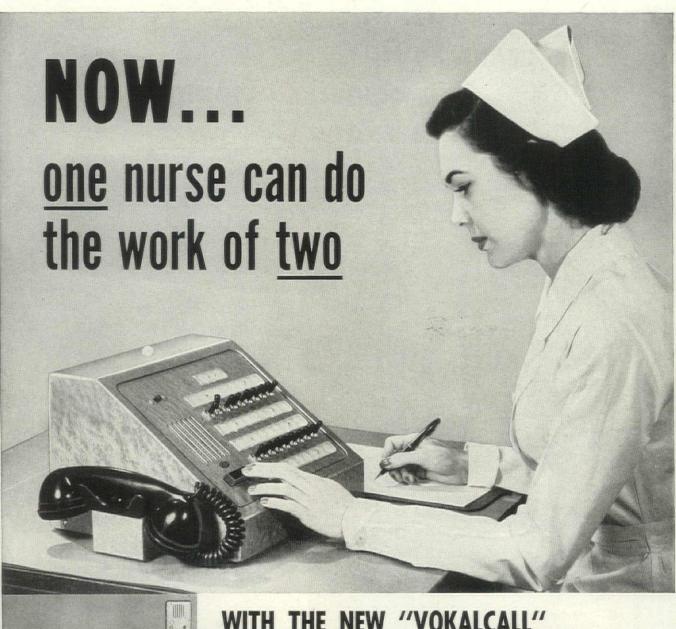


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Spring Green
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Now, 7 exciting colors are available in popular Kawneer Zourite facing. Rich, lustrous, eye-pleasing colors on versatile aluminum Zourite enable you to design even better, more eye-catching store and building fronts. With Zourite's four widths, 9 trim members, and application flexibility in glowing new colors, you have a facing product that will make your work sparkle and stand out. And a colored facing that permits you, for the first time, to specify full availability, low cost, easy application, lasting beauty, low-cost maintenance, in solid colors or combinations. Five new Kawneer Zourite colors-Academy Blue, HARVEST BROWN, SUNSET RED, SPRING GREEN, VELVET BLACK—are high-heat glazed, oven-fired porcelain enamel. The other two lustrous Zourite shades-Alumilite and ALUMILITE GRAY—are applied through a special alumiliting process. All seven Zourite colors are permanent, will not fade, are highly resistant to corrosion and chipping. Zourite has heavy gauge (.050) aluminum as the base metal, is easily cut and handled on the job or can be shop fabricated. Alumilite and Alumilite Gray are stocked in 20-foot lengths. colored porcelain-finished in 16-foot lengths. Widths from 21/8 " to 81/2 ". Special colors can be furnished for national account color schemes. Zourite is easily applied to metal, masonry, or wood construction with patented concealed fastenings that hold securely, but allow for expansion and contraction. Learn how you can specify colored Kawneer Zourite for building fronts. Get information, including construction and architectural details from a nearby Kawneer Installing Dealer. He is listed under "Store Fronts" in your telephone book's classified pages. Call him today, or write Kawneer, Niles, Michigan.



Architects: Thorsov-Cerney

Typical Kawneer hotel application



Architects: Pflueger & Pflueger

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In every community there are buildings where civic pride must be included in your design. Structures such as large Department Stores, Hotels, Banks, Hospitals, Libraries, City Halls, and others of civic and institutional nature are often regarded as community property. Their income, patronage, profit, revenue, or other support, are often influenced by public regard... and the bid they make for that regard through appearance.

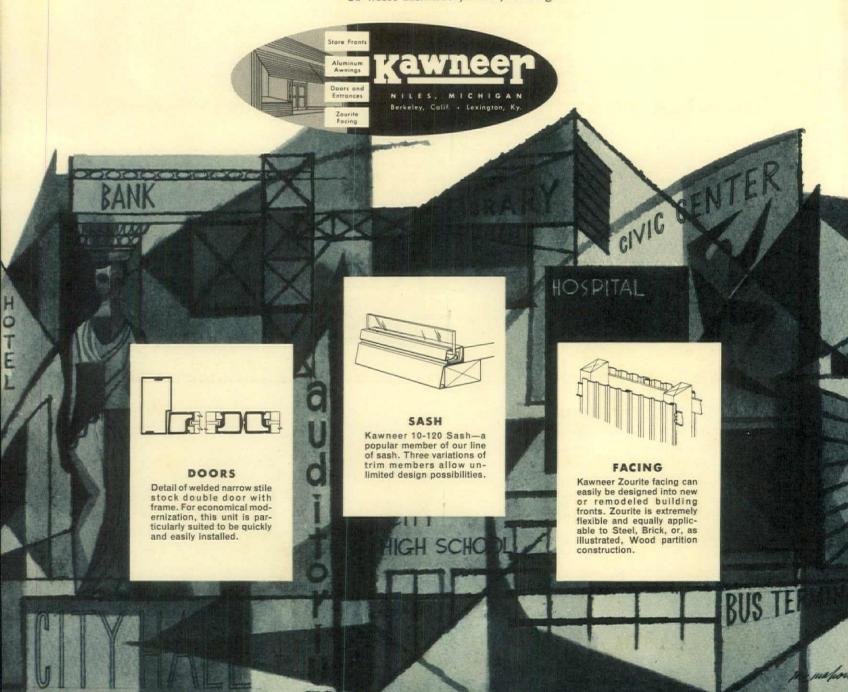
Kawneer products can easily be used to make that bid successful, and compliment your design skill.

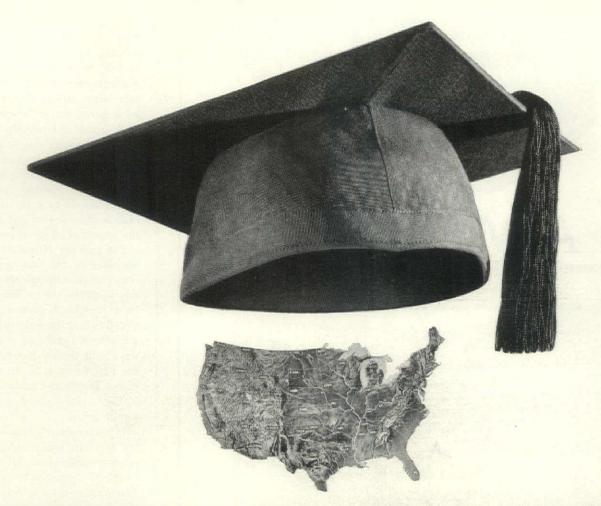
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The glazed, fired, porcelain colors of Zourite facing are pleasing to the eye. All Kawneer products are easy to specify, easy to apply, easy to clean and maintain. An occasional soap and water washing keeps a Kawneer installation sparkling clean.

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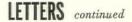
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In Canada: The Barrett Company, Ltd.
5551 St. Hubert St., Montreal, Que.



trict has been stimulated by the complete banning of curb parking either for peak periods or for all day. Other large business districts more recently developed either contain large parking lots ancillary to department stores, etc., or are now building or have lately completed parking garages for the increased demand. Also in many of the smaller business districts programs for adequate offstreet parking are being financed by metered curb and lot parking spaces. Your recommendation as to a better use of price mechanism has proven out here in stimulating the growth of off-street parking.

The parkway (freeway) system initiated in my office in the late thirties is now under construction, although annual progress is slow due to pay-as-you-go financing. This results in a completed parkway having traffic diverted to it never contemplated in the original planning of the system. Each of the two parkways built through the most congested areas are now carrying in excess of 100,000 cars daily. The State Legislature is presently debating measures aimed at expediting the highway program.

Increased rates granted the trucking industry for line haul through congested areas may eventuate in special facilities being constructed for trucking through the urban areas. The greater waste, however, occurs in the duplication of delivery routes. Undoubtedly price mechanism as it affects trucking delivery routes would hasten the establishment of trucking terminals and the combining of delivery and pick-up runs.

LLOYD ALDRICH, city engineer City of Los Angeles, Calif.

Sirs:

For an impressive reception room

I have read it with great interest and much personal gain and feel that you have produced one of the finest compendiums to ever appear regarding a very moot question. This will undoubtedly become a widely read and continuously used source of material and ideas by the thousands of people who are interested in the whole subject or particular phases which were discussed therein.

I have full praise for the pertinent detail, the awareness of the complete problem and the excellent editorial work which appeared in the organization and presentation of the story.

One opposing point of view which I hold strongly concerns one conclusion and recommended action in particular. I feel that the conclusion that cities should be given the power of condemnation to obtain parking sites is wrong in a very absolute sense. In the matter of a basic principle in our economy it has an off-color slant and in terms of an answer to needs it has little to offer. It is a slow, costly process with so many probable errors inherent in it besides being wide open to political manipulation.

(continued on p. 98)



AMIDALL DECORATIVE PLASTIC LAMINATE



In any building or remodeling budget you can afford to include the lasting, maintenance-free beauty and durability of Lamidall . . . for walls, wainscoting, top surfaces—and even doors! Lamidall is a genuine plastic laminate made in ½" thick structurally strong 4' x 8' and 4' x 12' panels—easily applied with simple tools on the job!

Lamidall matching moldings are used to achieve wall surfaces of continuous unbroken beauty. Lamidall wipes clean with a damp cloth, resists stains, heat and stands much abuse. It's the practical answer for long-lasting, maintenance-free walls and top surfaces. From the broad selection of beautiful natural wood grains, decorative colors and patterns you can select one or more to exactly suit your application.

Write for free samples and descriptive color literature.

Address Inquiries to Woodall Industries, Inc., Chicago Plant, 3508 Oakton St., Skokie, Ill., where Lamidall is produced. Other Woodall Plants: Cleveland • Detroit • Laurel, Miss. • Mineola, N. Y. • San Francisco

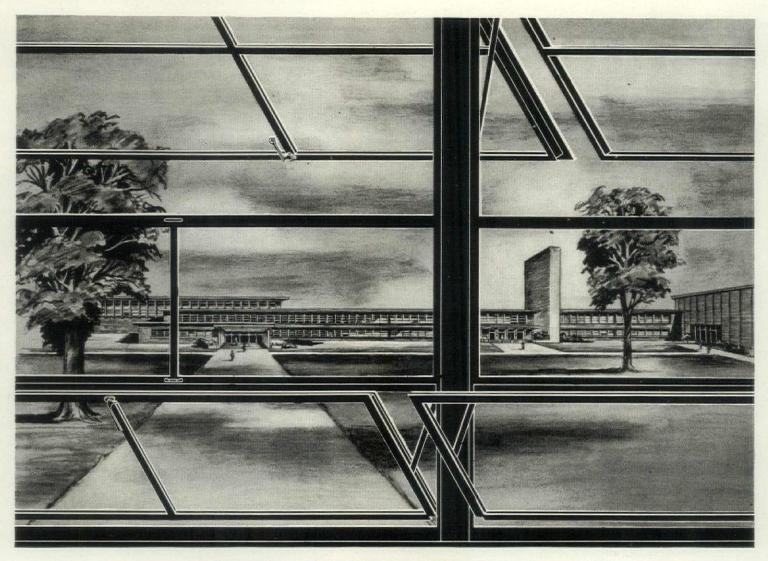
Lamidall is ideal for counter tops and door surfaces





CECO HAS ACHIEVED AN EXACTNESS IN INTERMEDIATE WINDOW DESIGN THAT MEETS THE NEED OF THE PRESENT... SETS THE PATTERN FOR THE FUTURE

It's easy to make a cheap product and it's easy to over-manufacture. But it requires ingenuity and infinite skill to create the ideal of quality and selection without compromising value or indulging extravagance.



Only CECO offers you 1½" and 1½" intermediate windows

For years Ceco engineers have been experimenting so as to give you the "just right" window.

Today we can announce mission accomplished in the two new Ceco creations . . .

1½" Intermediate Windows and 1½" Intermediate Windows.

For here are two windows that can be adapted to any building problem where intermediate design is indicated. The 1½" window gives you weight and strength plus beauty at a sensible price. Hardware is handsome bronze lacquer finish.

The 1½" window assures greater strength and rigidity, adequate for any need, longest trouble-free service, will outlast any structure.

New beauty is reflected in rich solid bronze hardware.

In these new windows Ceco has reached deeply into the future to bring you truly balanced design plus an innovation in simplicity . . . an exactness you can find nowhere else.

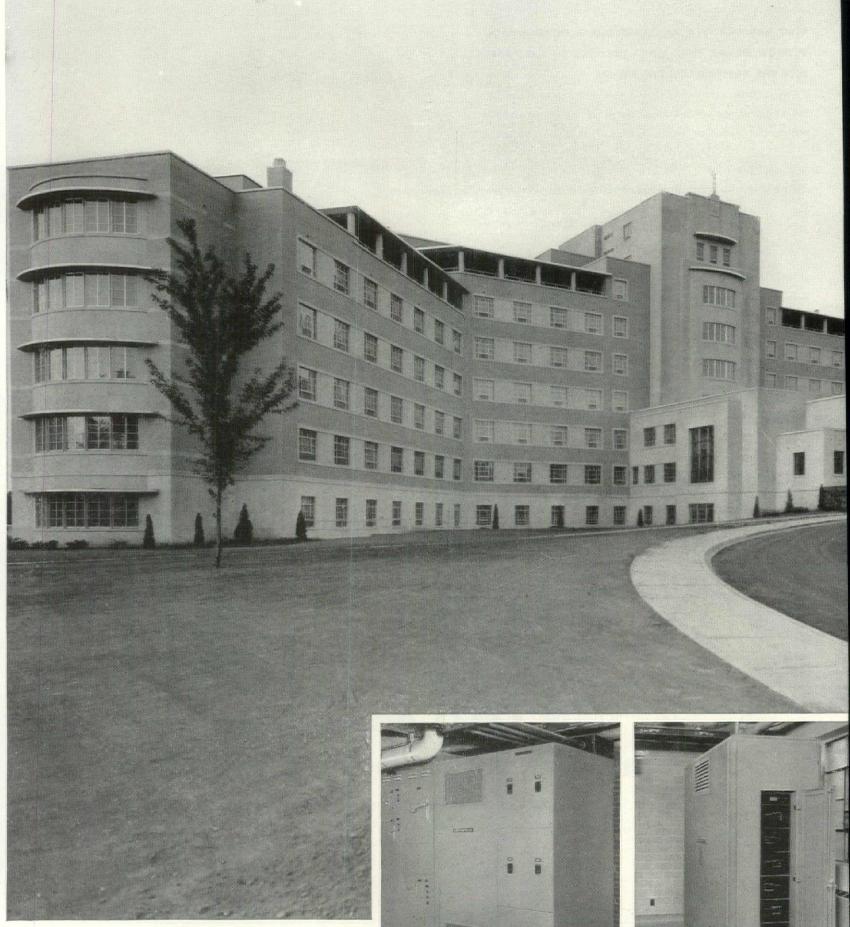


CECO STEEL PRODUCTS CORPORATION

Offices, warehouses and fabricating plants in principal cities General Offices: 5601 W. 26th St., Chicago 50, Illinois

CECO PRE-PLANNING CONSULTATION SERVICE

Ceco Product and Design Specialists will assist you in the application of
Ceco building products at the pre-planning stage . . . Call your nearest
Ceco office for overnight consultation service.

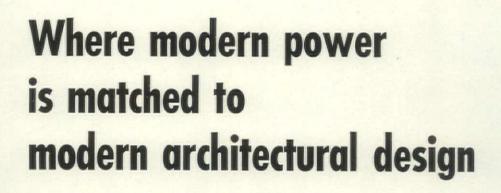


300-bed St. John's Hospital in Springfield, Mo., reflects progressive techniques in architectural design. Maguolo and Quick, St. Louis, architects and engineers; Gustav Hirsch Org., Inc., Columbus, Ohio, electrical contractor.

Westinghouse Control and Power Center was fabricated at the local Westinghouse plant especially for the hospital. Control center operates ventilating motors. Power center steps down 480 volts to 120/208 volts for lighting loads.

Westinghouse Air-Cooled Pow Center, 300 kva, 480/208 volts, conta 1000 ampere convertible distribute panelboard. One of nine, this comp factory-assembled unit saves valual space...minimizes layout proble

Electrically, it's Westinghouse...
in St. John's Hospital



The new St. John's Hospital in Springfield, Missouri, reflects the most progressive techniques in architectural design. Moreover, its system for distributing electrical power is as modern as the building—assuring a high degree of service continuity.

This reliable power system was planned during the blueprint days by the architects and engineers, with Westinghouse assistance. It provides for two primary feeders with dual switching and control equipment. Further, if the incoming power supply is interrupted, an engine generator keeps essential services in operation.

Bus duct feeders distribute power throughout the hospital at 480 volts. Motors are supplied this voltage through control centers, while 120/208-volt lighting and appliance circuits are supplied by "Triplex" power centers.

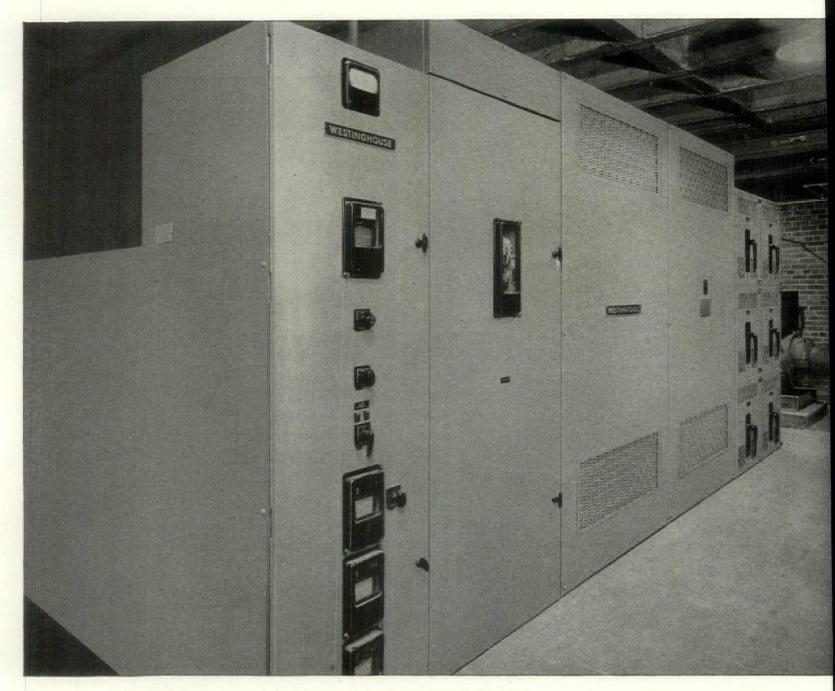
Westinghouse unitized power and control centers are located in every section of the hospital. Placed near the loads they serve, these compact units save valuable space . . . minimize layout problems.

In every building, the design of the distribution system is a vital consideration. It must be planned early...tailored to individual requirements...matched with well-engineered equipment.

Westinghouse builds apparatus that gives you more freedom in design techniques . . . and backs it up with technical assistance to help select the right distribution system for your building. For complete information, call your nearest Westinghouse office and ask for the construction application engineer. Or write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

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





They got the most for their money today and easy expansion for tomorrow

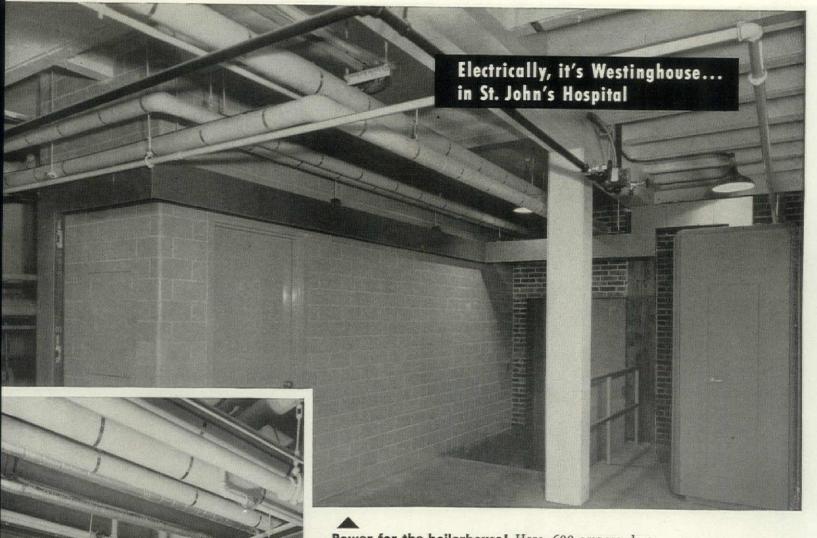
This power center is the heart of the power system at St. John's Hospital . . . and it shows sound planning by Maguolo & Quick and Westinghouse.

St. John's wanted their electrical dollars put into working equipment, not stand-by capacity. But they also had to allow for future expansion. So they chose a Westinghouse Power Center with the ASL Air-Cooled Transformer, which is completely safe and doesn't require a vault. Provision was made for future air-blast equipment, so that as the load grows, transformer capacity can be boosted with slight increase in cost.

The end units house air circuit breakers which provide protection for the incoming line and the 480-volt power feeders which serve the hospital. Controls are so arranged that a stand-by diesel generator automatically cuts in and supplies operating rooms and other vital circuits if utility power should fail.

For complete information about Westinghouse Power Centers, ask for Booklet B-4162. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

YOU CAN BE SURE ... IF IT'S



Power for the boilerhouse! Here, 600-ampere duct feeds the 300-kva sub-power center in the boilerhouse. Note how duct hugs the wall. This run is over 400 ft. long.

Tee for two! Here an 800-ampere main feeder connects with two 600-amp branch feeders. Tee is one of several standard units. Note circuit breaker cubicles for overload protection.

Bus duct minimized power loss, matched perfectly with building plans

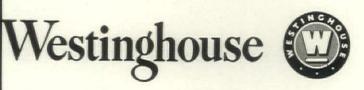
The choice of Westinghouse Bus Duct to carry power in St. John's Hospital was highly suitable to the client, the architect and the contractor.

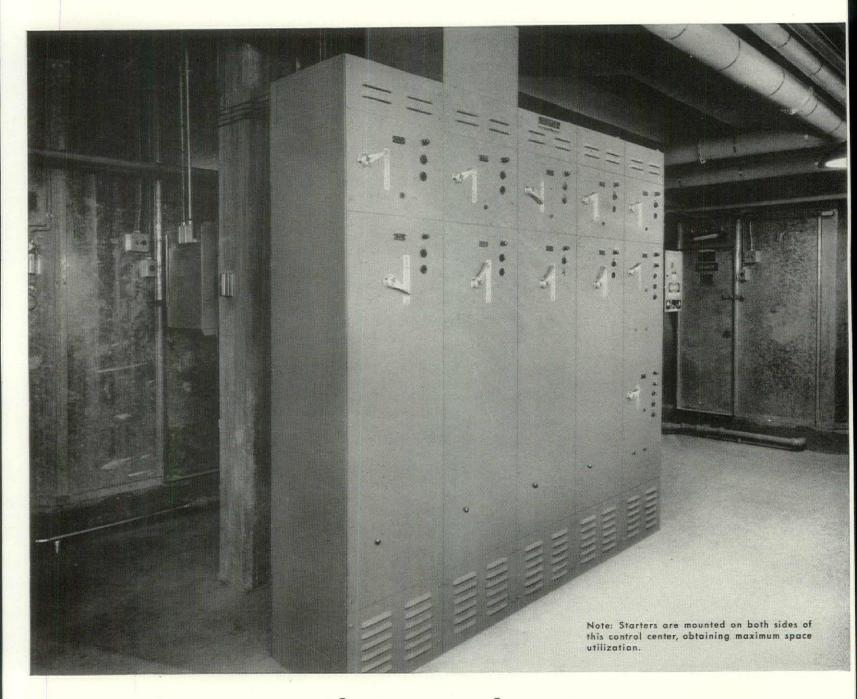
Of prime concern was the possible power loss in carrying 480 volts the considerable distances between the main and sub-power centers. Bus duct minimized this loss, assuring distribution economy.

Bus duct matched perfectly with building plans. Standard lengths, elbows and tees, plus specially fabricated sections, made it easy to fit the runs into the structure, around obstructions. Installation was fast, simple. Pre-assembled in advance of the installing crew, sections bolted together easily; were swiftly mounted with sliding cantilever and "C" type hangers.

These advantages, plus reliability, reduced maintenance and flexibility to handle additional loads without expensive rewiring, make Westinghouse Bus Duct ideal for institutional, commercial and industrial buildings. For full details, see your Westinghouse Representative, or write for B-5835, Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pa.

J-30159





Designers select control centers for substantial savings

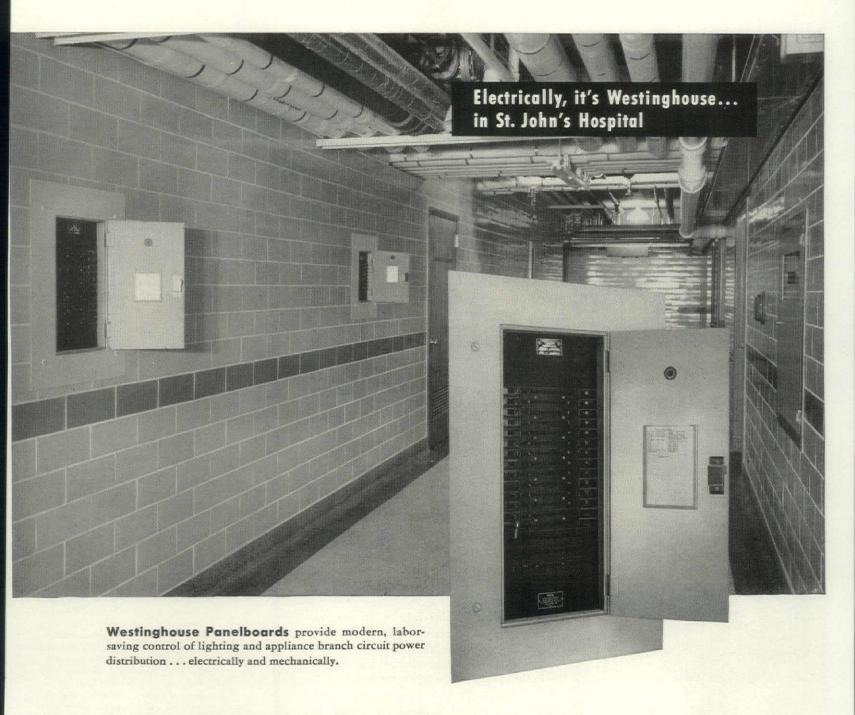
Motor control was needed for the ventilating fans and compressors at different locations throughout St. John's Hospital. "We specified control centers because of their lower over-all cost for this job," said G. E. Quick, consulting engineer.

"We were sure," Mr. Quick reported, "that grouping controls in one location would cut installation costs up to 40% and save on maintenance in the future." Westinghouse Control Centers install easily. Factory built at a nearby Westinghouse plant, each control center was individually wired, tested and

shipped to the job, ready for operation. Because the single enclosure of the Westinghouse Control Center houses all necessary starter units and wiring, it leaves the surrounding wall area free and clean.

Westinghouse Control Centers offer other advantages for greater safety and flexibility to meet any motor control problem. For further information, write for Control Center Booklet, B-5621, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

YOU CAN BE SURE ... IF IT'S



Circuit breaker panelboards cut maintenance, eliminate unnecessary power outages

The electrical nerve centers of St. John's Hospital are 89 Westinghouse Circuit Breaker Panelboards.

These panels provide maximum circuit protection and minimize interruption of the services so vital in a hospital. And, with fuses eliminated, they cut maintenance time and cost.

The hearts of these panels are the famous Westinghouse De-ion® Circuit Breakers. They trip instantly on short circuits and dangerous, high overloads, but ride out temporary, harmless overloads. Unnecessary power outages are ended. Circuit breaker handles provide positive trip identification when breaker has opened automatically. When faults are cleared, a flip of the handle restores power.

On standard lighting panelboards, each circuit and the bus to which it is connected is clearly and permanently identified. Ends costly ringing out of circuits. This and other quality features of Westinghouse Panelboards can cut job installation costs.

There's a Westinghouse Panelboard to answer every circuit protection problem. Thirteen assembly plants assure prompt service and quick delivery throughout the country.

For the full story, call your Westinghouse Representative, or write for B-5260-A, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-93499



SPECIFY: LETTERS continued



CONCEALED or FLUSH type WALL HYDRANTS and SIAMESE

FULL SELECTION OF MODELS and SIZES

This Siamese minimizes projections from face of building. Body, with two independent self-closing clapper valves, can be inside or even built into wall. Extra heavy bronze, lasts for life of building.



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Whatever your wants in interior fire-protection equipment, you'll find ALLENCO provides the most reliable and economical product. See Sweet's Architectural Catalog File.



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work easier. Available without cost to architects and engineers. Write for your copy or for a call by our Consulting Service . . . now.

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Hysteria has hit our cities in the sudden jump in growth of automobile ownership, but boom conditions are no strangers to the alertness and flexibility of American enterprise. Answers can and will be found, and best found by the solid front of hundreds of aggressive people in the proven parking industry, combining their energy and experience, rather than by cumbersome and wasteful political processes. Neither can provide overnight miracles, but the odds are overwhelmingly in favor of private enterprise working through normal channels to do the parking job in the quickest and best way.

Private enterprise in parking does not need government help. Any entrance of the city into the picture in any form or fashion means a definite deterrent to the forward movement of the parking business. Condemnation is one of the major forms of city participation in the business, whatever may be the ultimate handling of areas so obtained. It offers no panacea and does introduce disease in the present sturdy framework.

Three billions of dollars to date devoted to the conduct of the parking business is difficult to overlook in the matter of accomplishment, and it is quite a service structure to place in jeopardy by cities jumping into the business. These items seem to be consistently overlooked in all discussions, leading to the conclusion that it is one of those instances wherein "None is so blind as those who will not see."

We in the parking industry receive great encouragement from the fact that influential and high-rating publications such as yours do seek intensely for realism and factual data in the problem of central congestion. . . .

> JOHN F. HENDON, pres. Hendon & Company, Inc. Birmingham, Ala.

. . . I was much impressed. It presents the problems and possible solutions very clearly and concisely.

GEORGE S. WELLS Director of public relations Chicago Association of Commerce and Industry Chicago, Ill.

Sirs:

I read the proposals on the downtown traffic problem with great interest. Fundamentally, the arguments are good.

I believe this problem should be handled in a separate bureau or department, but I am against "authorities." We have leaned too much toward supergovernment by authorities as a cure-all for evils and are just beginning to realize that authorities do not always work satisfactorily

> I. Russell Riker, borough engineer Department of Engineering Princeton, N. J.

> > (continued on p. 100)



MAX HOFFMAN

President and General Manager of Ludman Corpor--inventor of the world famous Auto-Lok window operating mechanism.

Ever move an entire plant...and try to maintain production?

Ludman has! Not once, but twice in 10 short months. Moving an entire plant with tons of

machinery, finished products and stockpiles of raw materials is a major operation any time. Especially when the plant to be moved covers over a hundred thousand square feet of jam-packed production facilities and is operating at peak. Most manufacturers would shy away from it. But the necessity of having to hurriedly vacate government owned property at Opa Locka Marine base to make way for the military—the necessity of having to take temporary quarters at Miami International Airport while a new plant was being erected—is the problem that faced Max Hoffman and Ludman. Careful advance planning plus perfect teamwork on the part of every employeefrom top management to truckers—made both moves possible in record time. Loss of production was held to a minimum. "A task seemingly impossible has again been accomplished" stated President Hoffman. "We are proud of our entire employee organization and their wholehearted enthusiasm, efficiency and expediency which made both moves possible." 'Now at our new plant" Hoffman said,

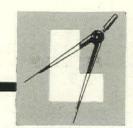
"only the growing pains of expansion can provide any further problems." And with 6 acres on which to expand and grow this should be no problem for Ludman. Ludman's new plant is one of the most modern in the world. It comprises over a hundred and forty thousand square feet of floor space.

Designed to afford maximum light and ventilation, Ludman's new plant is a model for other manufacturers to survey. Ludman Auto-Lok awning windows and Windo-Tite

Jalousies are used throughout in an expanse of eight-foot high glass walls of light. Engineers who have viewed the new plant are tremendously enthusiastic about the effect this window and jalousie installation will have on employee productivity and well-being. Building officials state-"the use of Ludman

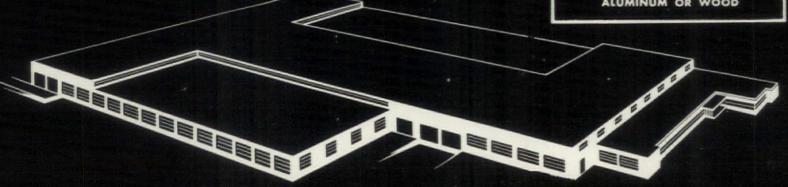
Auto-Lok Windows and Jalousies has increased the value of the plant by many, many times the difference in cost between the Ludman Window and ordinary commercial windows.

Oboler & Clarke were the design engineers with A. Herbert Mathes, AIA, consulting architect. Special electrical installation was made by Henry Nelson. All are Miami Beach firms.



today...more architects can specify world-famous...

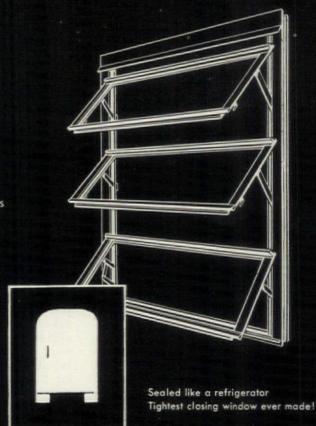




Big things are happening at Ludman!
With architects all over the world specifying more and more Auto-Lok Windows, Ludman has increased production again! Now in this new plant—the largest in the world manufacturing awning windows and jalousies—Ludman is in position to supply all demands!

No other window adds so much to building appearance and utility. Air-tight, draft-free —but with 100% ventilation—Auto-Lok windows with Patented Automatic Locking hardware seal and lock tight . . . ten times tighter than generally accepted standards. They reduce heating and air-conditioning costs—help heating and air-conditioning equipment to operate more efficiently.

For beauty . . . practical utility, ventilation control, easy operation, trouble-free service and long life —specify Ludman Auto-Lok Windows



See Us At Booth 28

85th Annual Convention, AIA June 16-17-18, Seattle, Wash.

LUDMAN

Corporation

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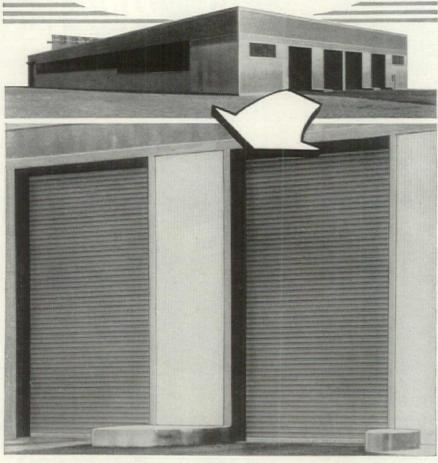
Take advantage of Ludman's Engineering and Planning Services. On any job, large or small, Ludman window engineers welcome the opportunity to help you.



Steel Rolling Doors

increase efficiency in

another modern building



Ward Steel Co. Pleased with Kinnear Doors

"We certainly are very pleased that Kinnear Doors were selected ... we operate five of them, and at all times have experienced the utmost of performance."

> Mr. J. A. Parsons, Vice President Ward Steel Co., Cambridge, Mass.

— And in thousands of other buildings, old and new, Kinnear Rolling Doors have proved that they give better service at lower cost. Their efficient coiling upward action and protective all-metal interlocking slat construction permit maximum use of all space around doorways — inside and outside the building — always.

Kinnear Rolling Doors open and close with smooth, time-saving ease year after year. They assure extra protection against wind, weather, intrusion, and fire. Available for manual or motor operation. Electrically operated doors can be equipped with control switches at any desired number of locations. Kinnear Steel Rolling Doors are built in any size, for easy installation in old or new buildings. Write for full details today.



The KINNEAR Mfg. Co.

1640-60 Fields Avenue, Columbus 16, Ohio 1742 Yosemite Ave., San Francisco 24, Calif. Offices And Agents In All Principal Cities Sirs:

Since publication of the article, "Urban Traffic Forum," in the February issue, some questions have been raised as to the accuracy of the figures presented by Mr. Frank Sawyer relative to the taxicab industry in comparison with the various forms of local transit.

Mr. Sawver indicated that he was citing percentage increases and decreases for 1951 as compared with 1946. Actually, the percentages were obtained by comparing the year 1951 to a "base" period which was arbitrarily established as the "war years" of 1941 to 1945 inclusive. These years were increasingly good ones for the transit industry because of the curtailment in automotive use resulting from rationing of tires, gasoline, etc. In contrast, this period was a relatively low one for taxicabs since they operated under the same handicaps as did private automobiles in many respects. Thus, the selection of the base period had quite an influence on the resulting percentages.

To illustrate this, I give below the 1946-51 percentage changes along with those you listed:

	1946 to 1951	1941-5 to 1951
Taxis	-16.4%	+13%
Buses	-13.7	+ 3
Streetcars	-67.9	-68
Rapid transit	-24.0	+19
Trolley coaches.	+17.2	+35

While Mr. Sawyer used "Revenue Passengers" for his comparisons, we look upon "Total Passengers" as being more representative for transit operations. The comparison between 1946 and 1951 of "Total Passengers" gives you the following percentages: Buses, -9.8%; Streetcars, -65.7%; Rapid transit, -22.8%; Trolley coaches, +24.6%.

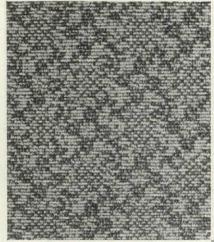
Finally, it also may be pertinent to look at the consolidated figures for local transit rather than at each form separately. If you combine the passengers carried for all transit vehicles, the decrease in "Total Passengers" was 31.01% and the decrease in "Revenue Passengers" was 32.6%. Thus, it would appear that our total traffic dropped off almost twice as much as did that of the taxicab industry between the years of 1946 and 1951....

MERWYN A. KRAFT, director Department of Personnel and Accident Prevention American Transit Assoc. New York, N. Y.

Sirs

Consideration is being given to the possibility of holding a local forum on urban traffic next fall. The thought so far has been to organize panels to discuss the "13 Answers" as reported by the forum organized by you and reported in the February issue. . . .

W. C. Dutton Jr., secretary American Institute of Planners Chicago, Ill.



Hospitalily at their feet

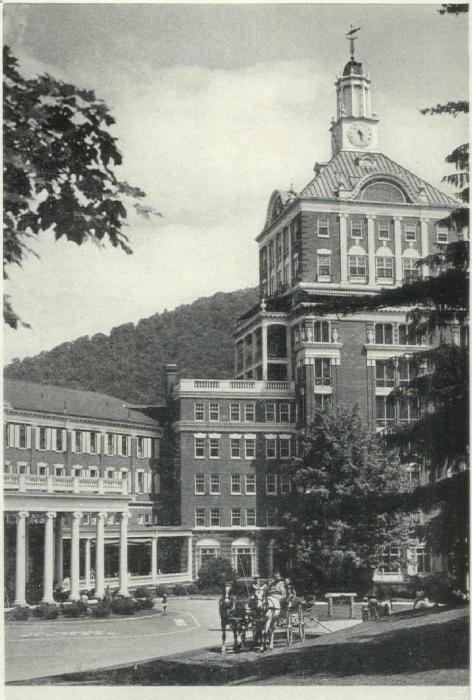
with those heavenly carpets by Lees

at the Homestead in Hot Springs, Virginia

When guests stop at The Homestead they have everything! Old Dominion beauty and romantic atmosphere, plus the world's most modern luxury -Lees Carpets underfoot! Shown is Hot Springs, a 3-frame Wilton looped-pile carpet in a geometric pattern, just one of many fine Contract Carpets by Lees. Lees Contract Carpets are specially constructed to withstand wear and steady traffic. They come in a wide range of colors, patterns and textures, also custom designs for special interiors. Send for specific information from James Lees and Sons Company, Contract Carpet Division, Bridgeport, Penna., or offices in principal cities.

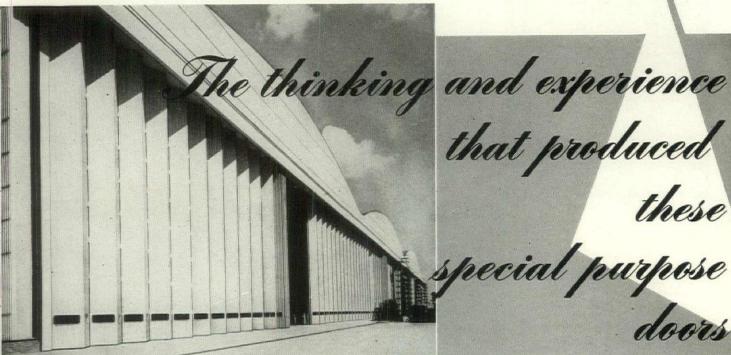
JAMES LEES AND SONS COMPANY
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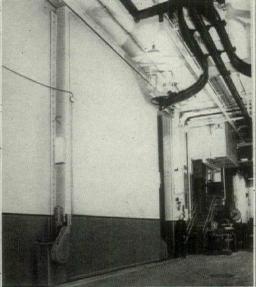


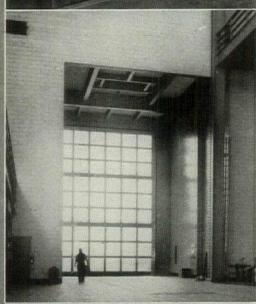
The Homestead, Hot Springs, Virginia, where Lees Contract Carpets were chosen to add that final touch of comfort and luxury.

PEELLE-RICHMON



pecial purpose





Peelle-Esavian Door - BRISTOL AEROPLANE ASSEMBLY PLANT-Filton, England

The front of this huge, three-bay hangar presents a continuous opening of 1045' in width and 65' 9" in height. To close this opening it was necessary to build one of the largest doors in the world, consisting of 3 pairs of slidingfolding aluminum-covered sections. Motive power is housed in the power mullions at each leading edge of the door structure.

The Peelle-Esavian Door is based on an entirely new principle which eliminates the necessity for expensive structural features in the building. The entire weight of the door is carried on the bottom track and the motivating power is on the door. This door offers many unique advantages, particularly for large openings of unusual height.

Write for new Peelle-Esavian Brochure.

Jet Engine Test Ceil Door - PRATT & WHITNEY AIRCRAFT, East Hartford, Conn Albert Kahn Associated Architects & Engineers - Builders: Turner Construction Company

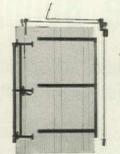
To contain and deaden the roar of jet engines on test, Pratt & Whitney Aircraft had The Peelle Company design and build ten of these huge concrete and steel doors for its new jet engine test cell block. Big enough to admit the most powerful engines of today and the even bigger ones to come, these doors had to be built as thick as the walls of the cells themselves to control the enormous volume of sound produced by the engine while running. Constructed in place, these dense concrete doors weigh 45 tons each, yet their electric motor drive travels them horizontally at the rate of 10 feet per minute quite easily. And, from outside the closed door, only a moderate hum can be heard of the earth-shaking roar of the jet engine running inside.

Motorized Door Measuring 24' x 35' - SEWAREN GENERATING STATION Owners and Engineers: Public Service Electric and Gas Company of New Jersey
Consulting Architects: Walker & Poor - Builders: United Engineers & Constructors, Inc.

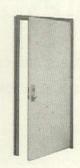
This towering stainless steel and glass door was engineered and built by The Peelle Company to carry out the architectural treatment of the building and to satisfy the engineering requirements. Three vertical sliding panels in the door are counter-weighted and are operated by a triple parallel gear head reducing unit with brake. Door panels move at varying speeds to arrive simultaneously at open position.

This is one of many types of motorized doors and partitions designed and built by The Peelle Company for factories, power stations, warehouses, terminals, hangars, mills, garages, hospitals and schools. Peelle Engineered Doors merit consideration in your plans.

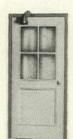
Engineered Doors



4 Richmond Metal Clad Fire Doors -Swing and Slide



Richmond Flush Kalamein Doors



Richmond "MD" **Tubular Steel** Industrial Doors



Richmond Steel Door Frames

FIRE DOORS Frames and Hardware



Peelle Dumbwaiter Doors



Peelle Counter-Balanced Freight Elevator Doors



◀ Peelle Motorized Solid Panel Car Gates

ELEVATOR DOORS



Peelle Horizontal Sliding Doors

> Vertical Sliding Doors



are behind

INDUSTRIAL ENTRANCE DOORS

all Peelle-Richmond products



PEELL

PEELLE - RICHMOND

THE PEELLE COMPANY 47 STEWART AVENUE, BROOKLYN 37, N. Y.

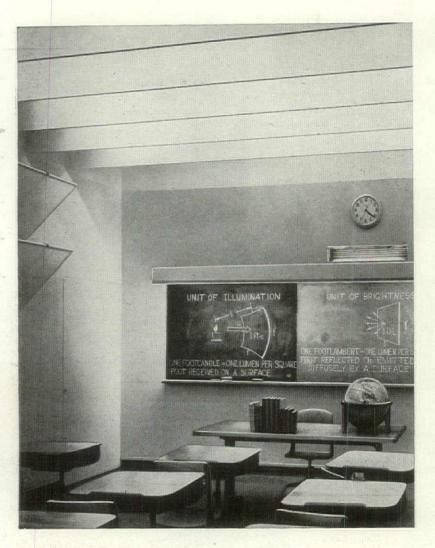
THE RICHMOND FIREPROOF DOOR CO. RICHMOND, INDIANA

OFFICES IN PRINCIPAL CITIES

Manufacturers of the Peelle Motorstair



NOW 480Y/277-Volt Lighting Approved for Schools,



Stores, Office Buildings

Save dollars and copper with higher voltage. Have safety and convenience with G-E remote control switching.

A new amendment to the National Electrical Code extends the use of 480Y/277-volt distribution to include supplying ballasts of fluorescent fixtures in large schools, office buildings, stores. This means that the economies of higher voltage for lighting are no longer limited to industrial uses.

For example

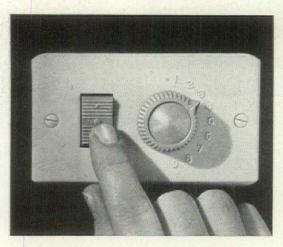
In many larger buildings, power at 480 volts, 3-phase, is already used to operate heating and air conditioning systems and other heavy-duty electrical equipment. In a "Y" connected system, the phase to neutral voltage is 277 volts which can be used efficiently with standard fluorescent lighting fixtures. Original installation costs for a 480Y/277-volt lighting system can be as much as 40% less than a comparable 120-volt system—copper needs can be cut up to 50%.

G-E Remote Control for Switching

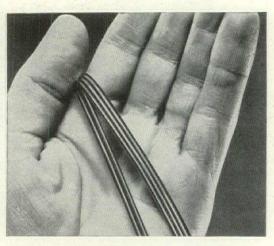
The G-E remote-control, low-voltage wiring system eliminates the higher voltage at the wall switch. The remote-control switch requires only 24 volts. The switch actuates a relay which can be installed in any convenient location. The relay does the actual ON-OFF switching of the higher voltage.

Investigate 480Y/277-volt distribution

Higher-voltage fluorescent lighting can mean big savings for many of your clients. For a copy of General Electric's Remote-Control Manual, write Section D56-64. Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.



An Extra Feature of C-E remote-control wiring is that you can have master selector switches to control *nine* circuits from one switch.



Small, Lightweight Control Wire connects switches to relays. The small wire saves copper—and switches are less costly to move.



Remote-Control Relay operates on 24 volts—does the actual switching of the higher voltage. Rated 10 amps at 277 volts. U. L. approved.

You can put your confidence in_

GENERAL S



ELECTRIC

With this new Y-shaped office building for UNESCO,

horizontal Paris gets its first modern

HORIZONTAL MONUMENT

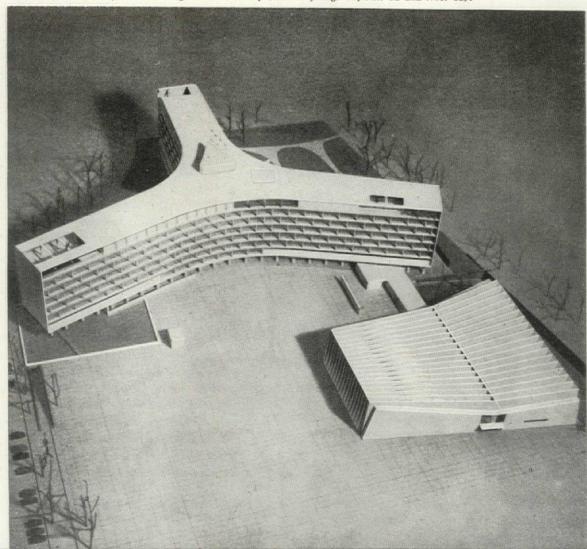
If at first glance this new scheme for UNESCO's Paris headquarters looks familiar, it is because it uses an architectural language that is now as well established as any period of the past.

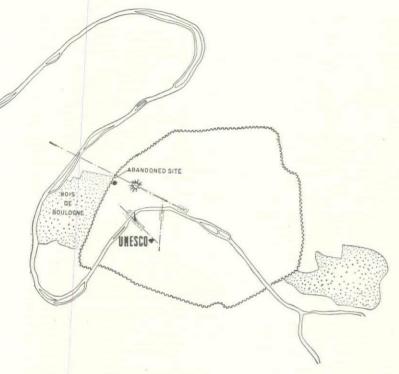
But do not jump to the conclusion that this is only a cliché-building simply because it employs spread-leg stilts, sunshades, glass walls, horizontal lines and a formalistic-looking building shape.

The stilts as used here are the precisely right device for filtering a monumental piazza through and around the building. The sunshades are pure artistry because of the way they express subtly varying character and rhythm of the different facades. The apparently formalistic three-prong building shape makes supreme good sense.

In addition to this graceful mastery of a style, the project has other important things to say: It uses horizontal space instead of height to create a contemporary monumental building and thus is figuratively a landmark for all horizontal, monument-conscious cities—Washington for instance. It is an up-to-the minute building that respects its venerable neighbors and actually joins hands with them (p. 106). It contributes a corridor innovation that all office-building planners will have to study (p. 108). It is probably the first modern government building designed to meet the lobbying realities of political policy-making processes (p. 109). Visually and functionally its facade makes the most of round-the-compass orientation (p. 111). It glories in daring and poetic concrete engineering (p. 112).

UNESCO's third try produced this Y-shaped secretariat and fluted delegates' building on a monumental piazza. For details of the two ill-fated earlier efforts see overleaf (also AF, Aug. '52, Oct. '52 and Nov. '52).

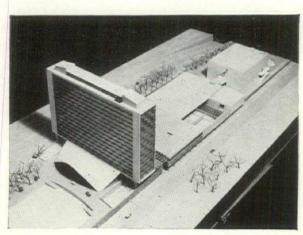




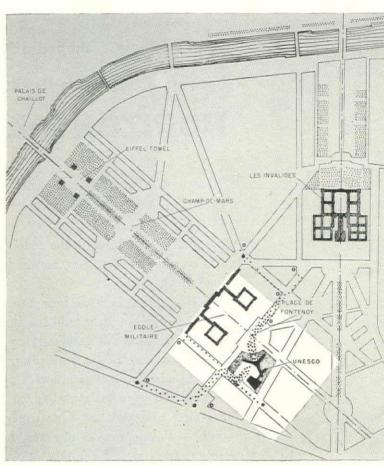
Troubled design history of UNESCO (United Nations Educational Scientific and Cultural Organization): The French government first-donated site on semicircular Place de Fontenoy for which French Architect Eugene Beaudouin designed semicircular building shown below, Scheme 1. It



was rejected on grounds that baroque site made impossible architectural demands. Scheme 2 by Breuer, Zehrfuss and Nervi (bottom) for a second site—long and narrow, fronting on Bois de Boulogne (see map)—was abandoned when French government withdrew its offer of this site to accom-



paniment of protests against a skyscraper for Paris. Final scheme, presented here, is for original site. It is thus possible to compare two schemes (by different designers) for same site and two schemes (by the same designers) for different sites!



Here is a building that fits its site without being warped to it. The first part of this remarkable fact about the new UNESCO scheme is obvious from a glance at the air photo. The designers filled out a preconceived seventeenth-century baroque composition—to the apparent satisfaction of a most pernickity city—without compromise of their contemporary esthetic.

The problem, as Zehrfuss puts it, was "to respect the past but turn toward the future." The designers did just this.

The north curve of the Y makes the graceful bow to the past by completing the semicircle of the Place de Fontenoy and balancing the mass of blocky twentieth-century ministry buildings enclosing the opposite arc. The "front yard"—the monumental southwest piazza—faces an obsolete section of Paris ripe for large-scale replanning, "a district of the future."

Now, it happens that every solution previously suggested for this difficult site was improvised in some way, from Beaudouin's Beaux-Arts-haunted scheme (see model, left) to Saarinen's suggestion that the Place de Fontenoy be given a curved screen with rectangular building forms behind it. It is only natural to suppose that this curved Y, so neatly solving the plan problem, was dictated by the site and carries at least a secret compromise.

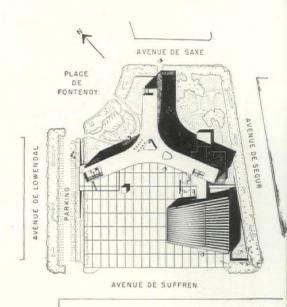
But the most remarkable fact is that this solution represents no compromise, no sleight of hand of any kind. The curved Y would be an extraordinarily functional and appropriate building no matter what the site.

Here, in particularly striking form, is that perennial achievement of masterly architecture: function and esthetic not yielding to each other, nor even merely at peace with each other, but actually each abetting and lifting the other.

There is always some element of mystery in this art—even for the creators of it—but it may be instructive to know that in this case the designers did not begin by fitting functionally abstract, esthetically specific forms to the site. They began by hunting for practical solutions for a specific building. To learn why the designers first developed this Y, turn the page.



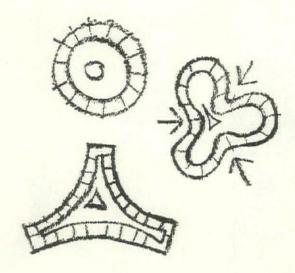
Air view with model superimposed shows how slightly asymmetrical curve of Y-shaped secretariat completes semicircle of Place de Fontenoy. Compare this solution with Beaudouin's first UNESCO scheme for same site (model on opposite page). Diagram to left of air view shows relation of site to Great Axis of Paris. Eight-story height matches adjacent buildings.



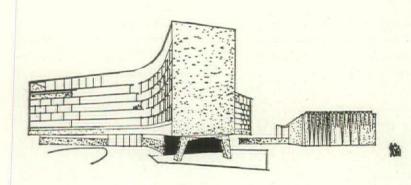
Site plan faces secretariat, conference building and grand piazza away from seventeenthcentury Place de Fontenoy, toward run-down Suffren-Grenelle district.



Main facade: Stilts stand in mosaic-floored pool with garage beneath. At far left is Place de Fontenoy; at right, main piazza



Like a punched-in circle, the curved Y-shaped plan avoids the constricting angles which characterize the intersection of wings in the usual Y and X plans.



Here is a Y with the continuity of an O. For the curved Y-shaped secretariat is one continuously flowing building; it can be diagrammatically shown as a punched-in circle. This is a new and important piece of office-building planning because it means office space is not interrupted at the juncture of wings—as opposed to the usual Y or X plans which are essentially separate wings buttoned together at a core.

Anyone who has ever struggled with space allocation for a highly departmentalized organization and has cursed the constipation at wing intersections will appreciate what this means in flexibility of office space.

This flexibility and continuity was precisely the designers' purpose. When they knew they could go no higher than eight stories they also knew a wing plan of some sort was inevitable. On the common-sense assumption that they must first of all learn what kind of building they would like to put on their site, they concentrated on continuous-wing plans. And when they had solved this, they found they had also solved—"almost fortuitously" says Breuer—the site problem too.

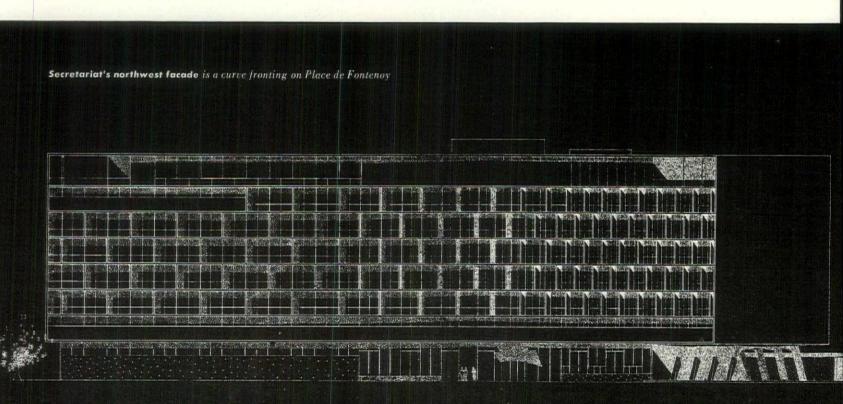
Their second big planning innovation is an essay in realistic political architecture

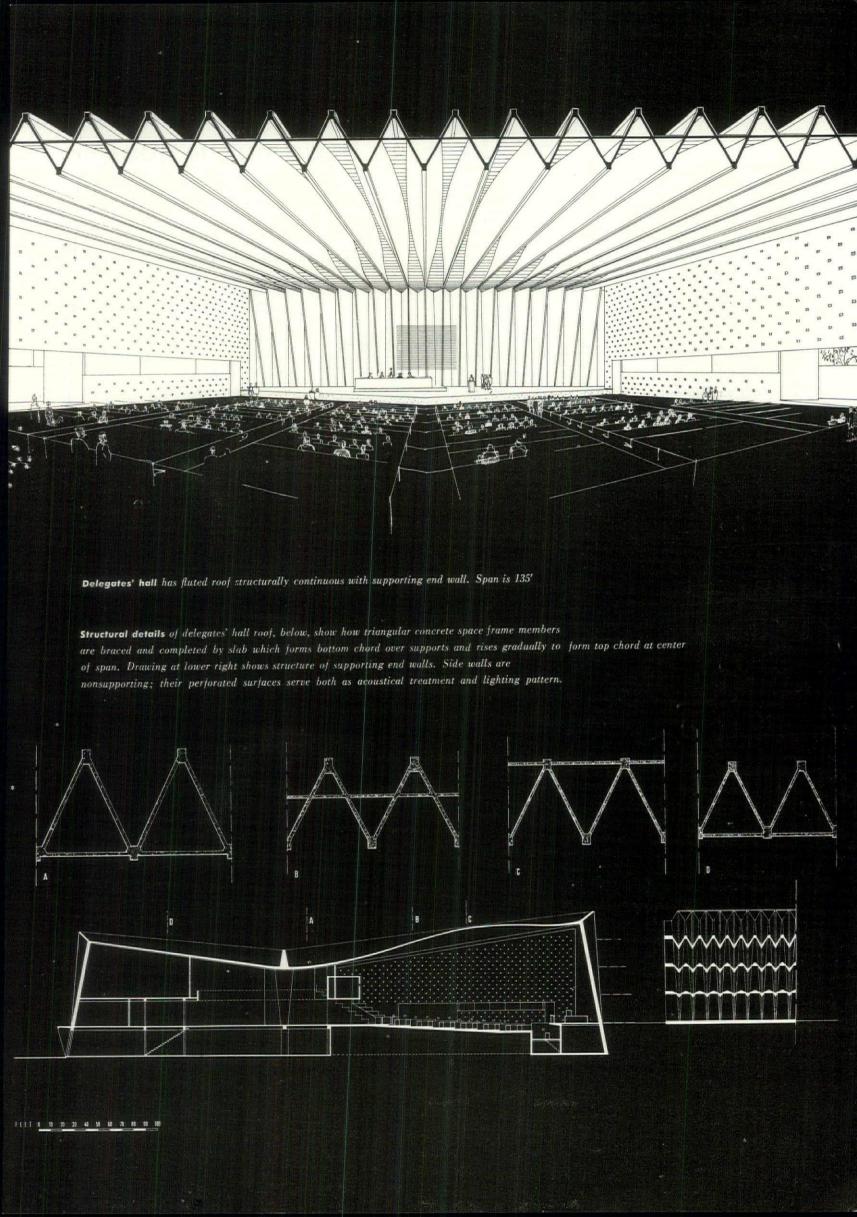
On paper the three divisions of UNESCO (corresponding to the three divisions of UN in New York) are: 1) secretariat, 2) conference facilities, 3) assembly. New York's UN faithfully translates this into a distinct three-part physical plant; so did the first Breuer-Zehrfuss-Nervi scheme for UNESCO.

But the new scheme differs radically in this way: it links the secretariat lobby, the delegates' lounge and the executive offices so they make a new, a *fourth* element that flows from one main building into the other with bar and patio at its hub.

This new element is a common, day-in, day-out meeting ground for secretariat staff with delegates and guests (not called for in the program and unprovided for at the UN).

Here is architectural recognition that ideas, policy and coordination are personal and do not grow in out- and in-boxes. Here is a deliberate attempt to counteract the isolation of persons and functions logically separated on organization charts. Here in physical embodiment is a reality of government we all know under the name of a "cloakroom powwow" and "lobby." Says Breuer: "This common, informal element is the functional heart of the whole organization."





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Charles E. Slusser, realtor-mayor of Akron, to head public housing

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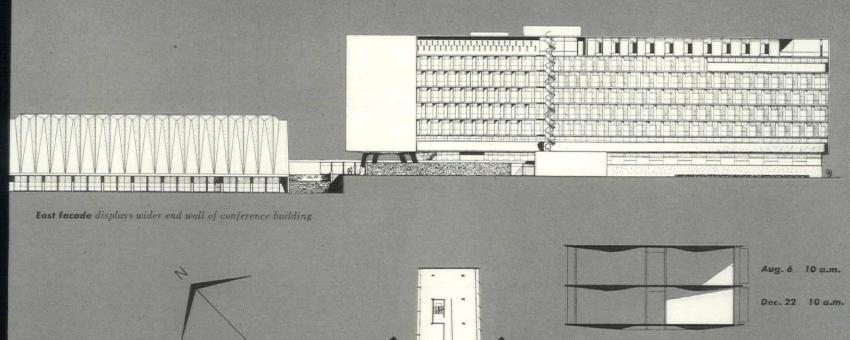
Charley Slusser (his close friends call him Bob), now 55, is a sturdy and serious six-footer who was born at Mishler Station, Ohio into a family of poor farmers. He started work in the celery swamps when he was 7. By the time he was 10, he was making \$1 a day (big money for a youngster then) carrying drinking water to workers at the Camp Bros. tile yard in Suffield. After graduating from high school, Slusser joined the Army, fought as a sergeant in the Meuse-Argonne and St. Mihiel battles. After the war, he joined Firestone Tire & Rubber Co. in Akron, studied engineering on the side and wound up head of the company's construction department. He shifted to insurance in 1930.

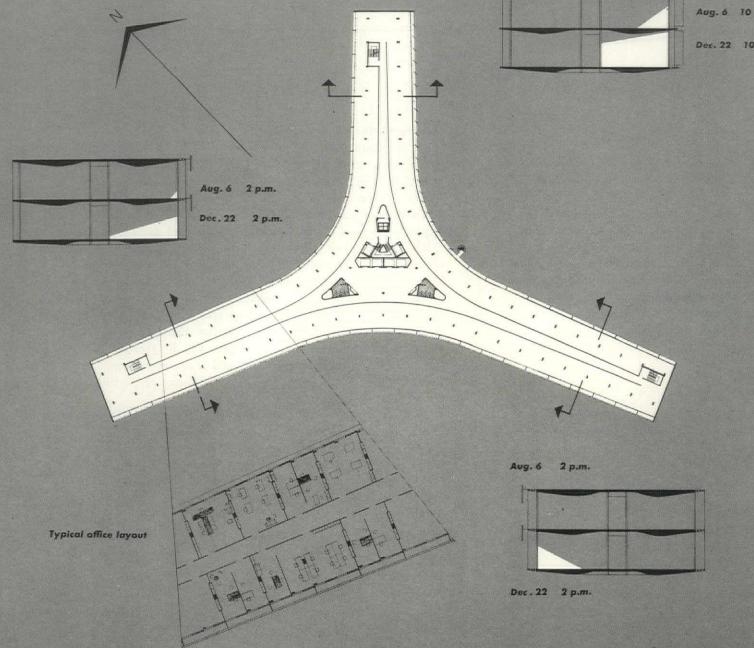
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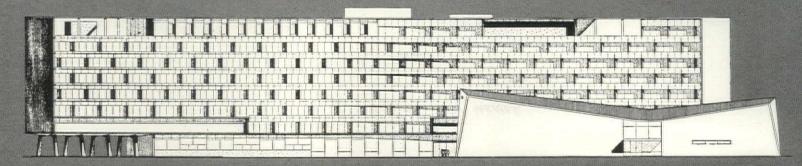
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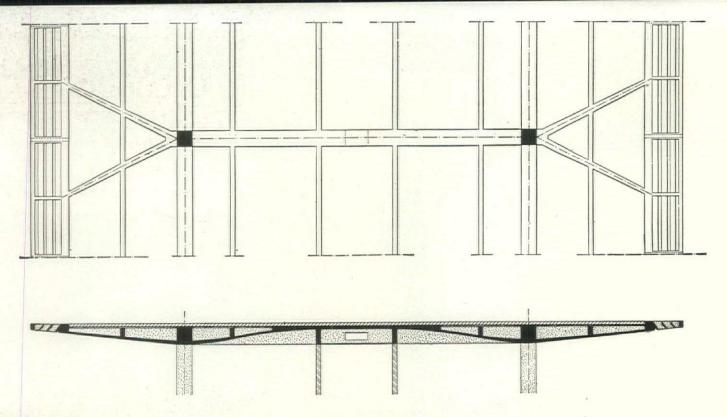
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Southwest facade viewed from main pedestrian approach through piazza





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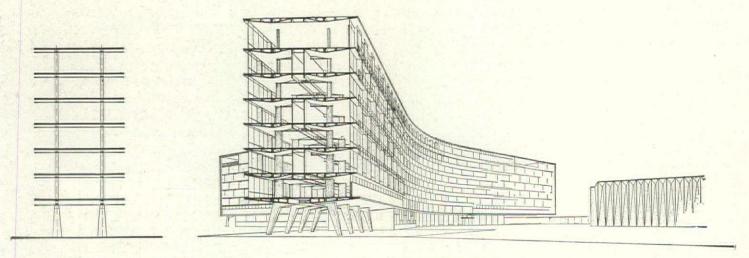
Cantilevered beams in secretariat are balanced by the center spans. Positive bending moments at center are nearly equal to negative moments over supports. Undulating floor slab collaborates with beams, gives minimum floor construction thickness and weight. Supports are 20' apart and always 10' behind facades. Slab undulations form office ecilings.

Structural design of the secretariat is shown in drawings on this page. Structural design of the conference building and delegates' hall (right) attains Nervi's lofty goal: to demonstrate "the potentialities of pure construction, clear planning and the poetry inherent in the lines of a man-made crystalline structure."

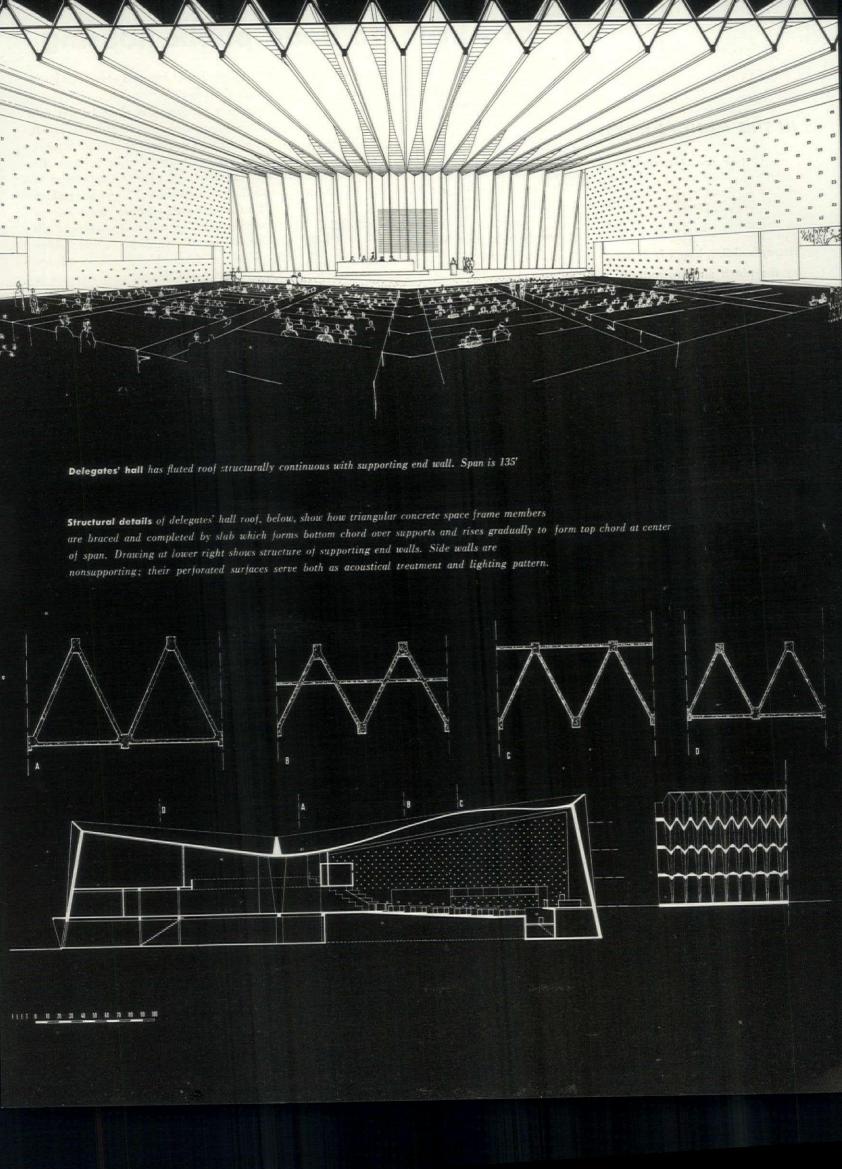
His creation is both absolutely honest and undeniably poetic-an exquisitely refined fusion of the straightforward and the subtle.

His butterfly roof first divides the building into two great spans—90' for the conference facilities, 135' for the delegates' hall—with both halves framed in reinforced concrete corrugations resting only on similarly corrugated end walls and a single row of interior supports. Over the long span the slab traces the undulating bending moment. The exterior corrugations, subtly widening or narrowing as they deepen, will be sheathed with green copper on the roof, with gray and brown stone mosaic on the end walls. The tilt of the walls, the geometry of the ceiling, are acoustically excellent.

There is a sad irony somewhere in this daring and poetic engineering: the workmanship is possible only in a land of low-cost labor; its rationale is rational only in a land of scarce materials. In American terms these conditions are Europe's failure; but has prosperity ever spoken more affirmatively, more proudly, more imaginatively than this?



Cross-section shows undulating slab construction with hung ceiling for conduit runs over corridors. Longitudinal section of a typical bay is at left. Ground-floor columns are rectangular at top, elliptic at bottom.



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supplanted golf as his hobby. The Slussers have four children: Richard, 31; Donald, 29; Mrs. Donald F. Tenney, 33; and Nancy Lynne, 11; and five grandchildren.

. . .

As expected, the Senate last month voted to permit 35,000 federal public housing starts in the next fiscal year. The House having voted to permit no starts at all, the future of public housing again was up to a conference committee. The committee would meet about the same time Rep. Clare Hoffman's committee on government operations was expected to issue a blast at PHA for continuing to spend federal funds for public housing in Los Angeles after voters there balloted to stop it (see col. 2). Washington observers suspected the stage was set to halt public housing in conference.

PHA's sixth major sale of long-term taxexempt bonds last month produced the highest interest rates yet: an average of 2.82%. Rates on the previous issues: July '51, 2.073%; October '51, 2.051%; January '52, 1.95%; September '52, 2.544%; January '53, 2.396%.

Los Angeles ousts mayor who supported public housing

As returns in the primary foreshadowed, (AF April '53, News), Mayor Fletcher Bowron of Los Angeles was finally beaten for re-election after a record 15 years in office. His successor: Oregon-born GOP Rep. Norris Poulson, a 57-year-old accountant who entered California politics in 1938 as a state legislator and is now serving his fourth term in Congress. The chief campaign issue: public housing, which Bowron continued to support after Los Angeles voters repudiated a proposed 10,000 unit project by a sizeable margin (59%) last year.

Bowron had no doubts why he lost. Said he: "It was all over public housing. . . . My previous supporters turned against me because I took a positive stand-having entered into this [public housing] contract with our eyes open we had to fulfill it . . . Back of the whole thing was the campaign that started over a year ago against what was termed 'socialistic housing.' The same group that financed and conducted that campaign led the campaign against me. Los Angeles was selected as a battleground. They thought if they could cause a switch here it would start a trend across the country [against public housing]. They thought their chances here were best."

The vote: Poulson 287,619; Bowron 252,721. Winner Poulson promptly announced he will ask the five members of the city housing commission to resign when

he takes office July 1. Then he flew to Washington, conferred with HHFAdministrator Cole to seek a way to halt Los Angeles' \$110 million project.

Stormy public housing hearing probes Hatch Act violations

A week before the Los Angeles mayoralty election, Rep. Clare Hoffman's House committee on government operations staged a four day hearing in Los Angeles. The subject: public housing. Said crusty Chairman Hoffman smoothly: "This committee is not going to delve in any form or fashion into local politics." Democratic committee members, however, felt differently, boycotted the hearing on the ground that Hoffman was doing just that.

In the surcharged atmosphere of Los Angeles politics, the televised hearing produced more angry charges and refusals to answer (on self-incrimination grounds) than it did light on the subject under investigation. It ended with Mayor Fletcher Bowron, who appeared as a voluntary witness, stamping angrily from the witness stand to tell a luncheon club: "I was never insulted before like I was this morning." Between outbursts, the committee developed some evidence of how the Los Angeles Housing Authority worked:

Although free PHA legal services were available, Authority Director Howard Holt-

zendorff spent \$457,000 in four years for private lawyers, including \$10,000 for one who admitted he served as a lobbyist for three months at the state legislature.

▶ Of 531 housing authority employees, 489 were induced to authorize payroll deductions to raise funds to fight a state constitution amendment in 1950 which provided no new housing projects could start without a vote of the people. (It passed). Although Hoffman and Committee Counsel John McKenna questioned whether such contributions violate the Hatch Act ban on political activity Holtzendorff contended the act specifically exempts campaigns for constitutional amendments, referendums and municipal ordinances.

Although, according to testimony by Los Angeles' police chief, information was placed in Holtzendorff's hands 16 months ago that at least three of his employes were Communist suspects, they were not fired until seven months later when the California Senate committee on unAmerican activities publicized the data.

At an official meeting of housing officials in 1950, according to testimony by HHFA Economist James W. McCreary, Holtzendorff urged his fellow workers to avoid building single houses and concentrate on "extravagant and expensive projects" because "then it will be impossible to liquidate our program."



Prudential starts building Florida's tallest office

On May 16, Prudential Insurance Co. broke ground for its new south-central regional head-quarters, a 22-story skyscraper at Jacksonville that will be the tallest office (300') in Florida. The 400,000 sq. ft., air-conditioned building, designed by Architects Kemp, Bunch & Jackson of Jacksonville, will take up only 1½ acres of Prudential's 19 acre site along the south bank of the St. Johns River. Six acres will be kept for a 750 car parking lot and the balance will be landscaped into walks, a riverfront promenade

and recreation center. The tower and its two wings will have a riveted steel frame, limestone facing and aluminum windows, set off by white marble spandrels. An escalator will rise to the third floor.

While published reports have put the probable cost at \$20 million, Prudential officials say they do not yet know because the prime contract has not been let. When the building is finished, probably about October 1954, it will house some 1,800 employes serving ten southern states.

NEW THINKING ON COLLEGE BUILDING

From 17 colleges and universities, 30 pages of the latest in

THE COLLEGE AS CLIENT

by Harold Taylor, president of Sarah Lawrence College

For the architect, the college is a multiple client. Everyone has views about architecture and about education, and when the two are put together, the massed opinions of trustees, college officials, faculty members, donors, students, newspaper editors, art critics and friends of the college converge on the architect and command attention. To accept a commission from a college is often like joining a discussion group in which someone unfamiliar with the subject matter has already been appointed chairman. In this situation, it is up to the architect to listen, to understand and to educate.

In architecture, as in education, most colleges have looked to the European past for guidance and direction. On the other hand, there are educators who, like Thomas Jefferson, have looked to contemporary ideas for help in planning buildings for the lives of students and teachers together. The architectural style has varied with the region, the character of the education, the needs of the college and community, and the cultural attitudes of the educators. There are still other colleges where no particular philosophy of education or of architecture has been at work, and where a heterogeneous collection of housing arrangements has accumulated from year to year.

The college must choose its architect in the same way it chooses its deans or faculty members—with a view to carrying out an educational ideal. If dormitories are built, should they be separated entirely, both in site and in allocation of space, from the classrooms, seminar rooms, faculty offices, and administrative services? If they are, they do in fact separate the social and personal lives of the students from the teaching and the learning of the campus community. Should an administrative building be separate from classrooms and conference rooms? Should music, theater, dance, the visual arts and recreation be housed in separate places? (The separation becomes real in the experience of the students.) Should a college theater be built for producing plays for the spectators or should it be built for experiments in teaching and creating music, theater, dance and opera? These are questions which can only be answered by a decision made on grounds of educational principle. Under every decision of function and fitness must run a continuing and deep concern for the quality of the life which the buildings will make possible.

There is something more. Very often educators forget that most of their students have had no chance to experience new ideas in the arts, or to recognize esthetic values in their everyday surroundings. They have read, and they have traveled, but seldom have the students lived, or spent very much time in situations which have roused esthetic emotion. As far as the college environment is concerned, this is one part of the education of college students for which the architect and the college are mutually responsible—the former to make a work of art, the latter to encourage the architect to do so.

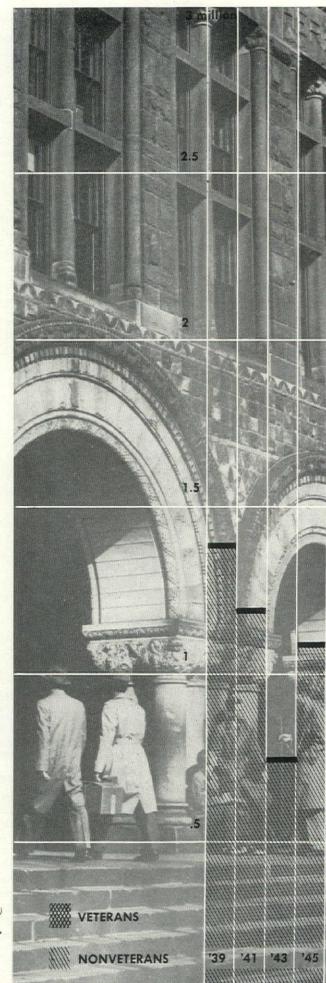
To find satisfactory solutions, the architect, whoever he may be, must absorb the experiences of life on the campus, must catch the flavor of the college, watch the students and teachers at work together, visit classes, analyze the nature of campus activities, talk with the students and faculty about what they want and need, and then investigate on paper the various ways in which these needs may be met. He must do so as one member of a group in the college community, a member who is respected as an artist and an educational planner in his own right. By his questions and by his proposals, he sharpens the focus of his educational colleagues on the problem of education itself. Without losing his own esthetic integrity he must yield to legitimate demands for change in design, and on his part, must become sufficiently aware of educational problems to know when such demands are legitimate.

Harvard (built in 1880)

Yesterday's pomp is giving way to . . .

To meet the demands of a boom

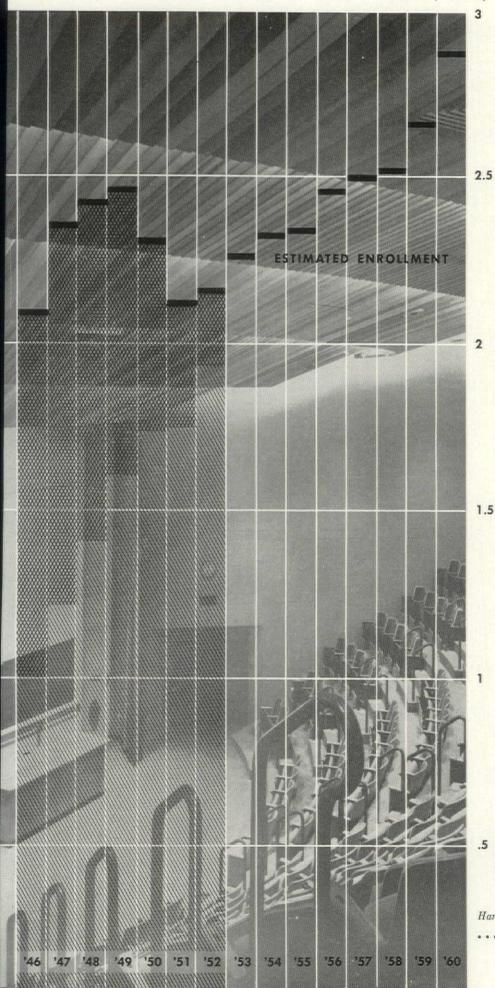
Source: Federal Security Agency, Office of Education



over-all planning, special purpose buildings, remodeling and dormitories

in enrollment-now two million and headed up

Student enrollment (millions)



AN EDUCATION IN FACTS AND FIGURES

Colleges have to work their way too

Fifty years ago, in 1903, a new Ford cost \$850, and the total expenses for a year's attendance at a top US college came to about the same sum. Today a Ford costs about \$1,900 without extras, and so does a year at a top college—without a convertible or coonskin coat.

The half-century has brought mass production to the colleges as well as to the automobile industry—the college population has risen from 108,000 in 1903 to 2,148,000 this commencement month. The advantages of mass production, however, have not helped the colleges hold their own in buildings. Reason: the dollar also has been mass produced—and devalued.

Forty years ago Harvard could build luxurious dormitory suites with private bedrooms and studies, nearly 300 sq. ft. of space for each student plus gargoyles on the roof, for a little over \$3,000 each. Today 90 sq. ft. of dormitory room costs about \$5,000 per student. So the gargoyles have been lopped off, and the rent has been raised.

It is estimated by American School and University, the annual yearbook published this month, that since 1949 US colleges have added 4,902 buildings to their total physical plant (worth \$2,325,000,000); last year 865 were built (\$840 million worth). But even so the colleges have not yet caught up with the post World War II surge in enrollments, and there is not much time for them to gather themselves before another big wave breaks.

Students

There was a general opinion post World War II that as soon as the income from G. I. assisted students ran out the boom would be over, but like the prognosis on many another US boom, this now seems unreal (see chart). The peak year for veterans in college was 1947, when they made up 1,122,000 out of a total enrollment of 2,338,000, but the total enrollment for 1954 is expected to reach that level naturally without much military assistance. And then, just a few years off, is the generation now in grade school, the biggest this country has ever had. Estimates for the increase in college enrollment in the next decade range from 60% to 100%.

Dollars

The question where the money is coming from to finance even the most economical of college construction is a tough one. Already this money ques-

Harvard (built in 1952)

... today's economic circumstances

tion has changed the complexion of education in the US. Twenty years ago most college students were attending privately endowed colleges; today two-thirds are at state-supported institutions

The state schools like the University of Michigan and the University of California are already several times as rich as even the colossus of private education, Harvard, and the process is continuing. In 1930 the plant expenditures by private colleges were 59.2% of the total; public colleges spent 40.8%. By 1950 this had more than reversed, with 66.8% of the outlay made by public colleges and only 33.8% made by the private colleges. (The total investment in 1930 was \$125 million. Last year it was \$479 million.)

Dormitories or student unions are the only college buildings that can be financed conventionally; their prospective incomes can be applied against loans or bond issues, and amortizing stability can be obtained. But even with dormitories, it has become necessary for some colleges to mortgage both old and new dormitories to get loans to build the new ones. Other college buildings must be built by grant or gift.

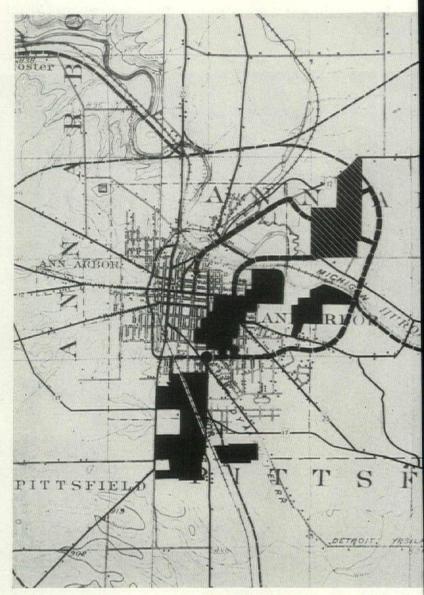
Endowments are up in the private colleges, where fund-raising organizations have made a major industry of soliciting alumni, but they are not up as high as the school building cost index, which has doubled since 1939. A federal inducement for corporations, which allows donations to education up to 5% of income before determination of taxes, will help, but on the other federal hand, Washington's generally tighter money policy is not going to make it any easier for most universities to finance their construction. Another gloomy suspicion by educators: even federal assistance to state universities under the land grant program may be cut.

But the graphs are climbing, and since the graphs in this case indicate potential students, these are the greatest reality of all. The growth of the educational plant of the US has always been at an impossible rate, in practical terms, and it will probably continue. For at least the next decade, somehow, surely, the colleges will be big builders. And the demand for economy and simplicity will go up with the graphs.

COLLEGE AND UN	IVERSITY	BUILDINGS	BUILT	1951-52
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	1951		1952	
Type of building	Number	Per cent	Number	Per cent
Administration	60	5	78	9
Agriculture	72	6	43	5
Dormitory	264	22	182	21
Education and liberal arts	168	14	112	13
Engineering	48	4	. 9	1
Law	11	1	9	- 1
Library	84	7	61	7
Medical	24	2	8	1
Science	144	12	121	14
Service facilities	132	, 11	69	8
Stadium and gymnasium	120	10	69	8
Student center	60	5	43	5
Vocational-commercial		-	26	3
Multipurpose and miscellaneous	11	1	35	. 4
All types	1198	100	865	100

At the University



Old campus is on this side of Huron River on map above; new campus is top block (cross-hatched) beyond river. Pattern of seemingly random growth through city is typical of most universities, which create towns, then compete with them for land.

New campus, in model form. An earlier scheme, this grouping of buildings has since been altered, but still shows the aim: a pliable pattern which will stand bending over the years, and will avoid the haphazard growth shown above.

of Michigan, an answer to expansion:

don't extend the old campus; add another one

A bold new solution for expanding the cramped college campuses of the US is coming out of the Midwest, where the University of Michigan, already one of the biggest of all universities, has decided to stop nibbling slowly at its college-town borders, and instead build a suburb.

Across the Huron River from its present 17,000-student campus in Ann Arbor, the university has bought and is laying out another complete campus in a college planning parallel to the merchandising world's retreat from "downtown" to suburban shopping centers. Students will live on this campus; only the faculty will commute. Here are Michigan's reasons for the move, as spoken by the university's staff supervising architect, Lynn W. Fry:

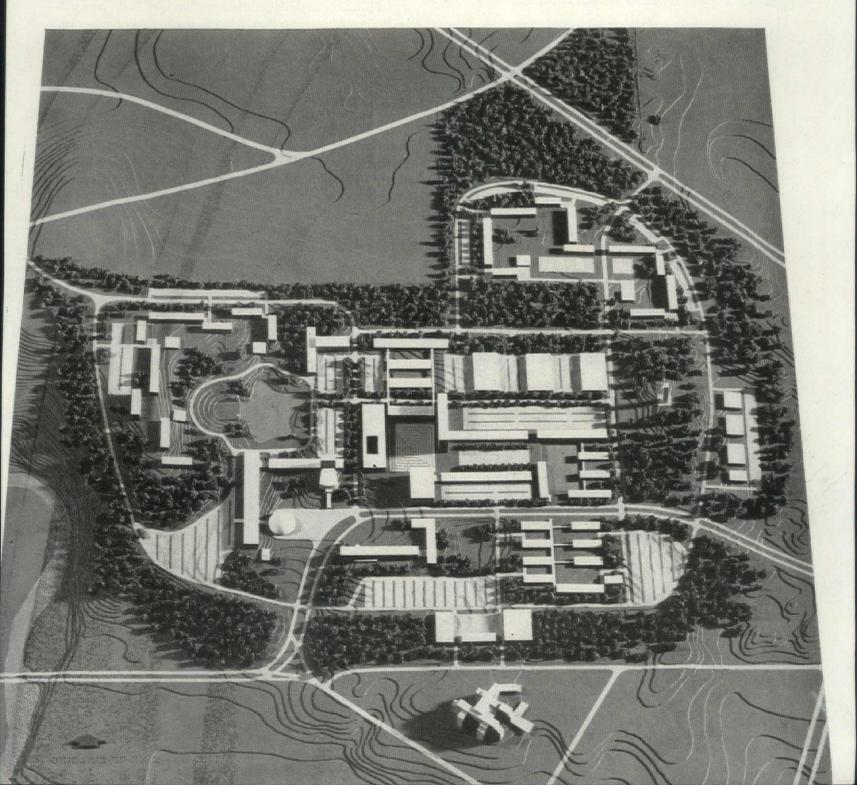
"At the end of World War II the University of Michigan had grown from its original 40 acres to a point where it was practically bisecting the town. And in the immediate postwar building program all of the university-owned property had been used so the

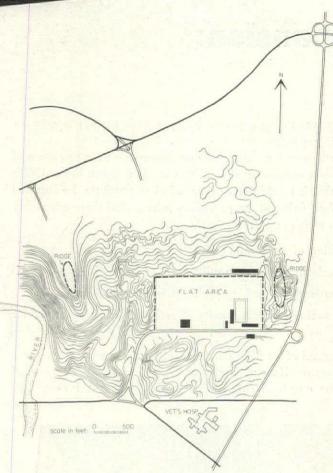
university was tacing a prospect of purchasing new property for any other expansion.

"At that point the regents at our university—in anticipation of a prospective enrollment of 25,000 students or more in the 1960's—knew that it would not be economical to purchase the required land in Ann Arbor at the prevailing prices. And there were other problems which any university faces:

- The taking of residential property from the tax rolls;
- The overloading of public utilities;
- The increasing of parking problems within the city;
- ▶ The incurring of the animosity of residents in taking over their homes.

"So instead of pushing out from inside the campus the regents went across the Huron River to purchase a plot of rolling ground out in the country. The original purchase included about 230





Rough terrain, above, is tamed but not terrified in campus development plan. From flat area in center of valley, a system of interlocking courts will be built, terraced at slightly different levels. Ridges to east and west inclose site.

acres, but this has already been increased to 376 acres.

Then in May 1951, Eero Saarinen & Associates were selected to study the program and prepare development sketches for this new campus. An attempt was made to foresee the requirements over a period of the next 100 years, and yet make the plan so flexible that it could be reviewed and minor changes made without harming the over-all development."

"Campuses should grow like babies . . ."

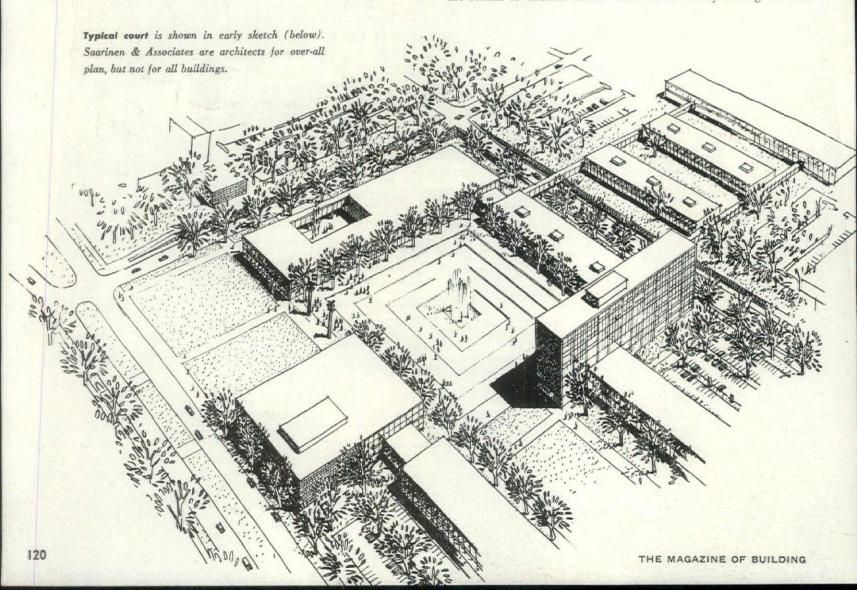
Saarinen obviously is not out to create one majestic quadrangle to be edged gradually with buildings over the years. Instead his idea is to string a necklace of smaller courts to be developed as needed.

The new campus is on good land, well bounded. A fairly steep valley (see topo map, left), it is enclosed to the east and west by ridges, which make the new land an entity and shield it from future development at the sides. Other protective boundaries include the river, a golf course and a cemetery. This will be primarily a graduate school with a large proportion of its area dedicated to research. Eventual enrollment is planned to be about 12,000.

The land's steepness may make building somewhat more difficult than a tennis-court campus would, but it will also have advantages: it will be beautiful; various sections may fit the land well i.e., an amphitheater seating 2,000 is planned for a conveniently sloping glade; noisy testing buildings can be partially land-insulated. Heights may be used to define areas (research, administration, dormitories, housing for the marrieds, etc.).

Michigan forum

In the middle of the valley is a flat area of about 25 acres. It is Saarinen's plan to make this the center of the operating campus, a "business district" of common use to all the students, including the library and student union building. This center he compares with the forum of ancient Rome—built in the valley among the hills.



RESEARCH

MARRIED STUDENT HOUSING

FINE ARTS

DORMITORIES

DRAMA & TELEVISION

AMPHITHEATER

MUSIC

AUDITORIUM

STUDENT UNION

ADMINISTRATION

MEMORIAL COURT

CEMETERY

RESEARCH

LIBRARY

ARCHITECTURE & DESIGN

GOLF COURSE

EXISTING VETERANS' HOSPITAL

Also on this plane will be the engineering group which will grow on to the north. The shop area (see map) will be there, and the research group will start at the end of the central area, also the school of music, the school of drama and television and the school of architecture. Since the auditoriums of the music and drama schools will get a good deal of public use, it is logical to site them near the main campus entrance from Ann Arbor.

A sequence of spaces

The buildings housing architecture, music, and drama form the large informal entrance court, with a road threading through them. The next court is more formal, a square surrounded by the library, the union and some of the engineering buildings—a smaller court with fewer trees. Then comes a long, narrow quad, leading to a memorial court which may be developed as a pool with fountains. Some of these interlocking courts will be sunken, some elevated.

Says Saarinen about the necklace plan: "This type of plan has many merits over other types. Certain master plans for colleges have been made along great axial schemes. They do not work out very well when you add the dimension of time. The building on one side of an axis is built now; 20 years later a symmetrically placed building is built when the building program may have changed completely. Usually at that time the plan falls apart. This master plan is simply an indication of a beginning. The program will change and the plan will have to readjust to the new program. In other words, a master plan should be a continous process, not an ironclad design. It should grow like a baby, in all directions, outward. A master plan also has to build well. The buildings which come next should be fairly closely related physically in order to eliminate the first great costs of sewers, roads and maintenance."

Two other major features of this contemporary campus plan:

Parking. At the present university campus every fourth person (including students and faculty) has a driving permit, and the percentage is in a steady climb. So Saarinen assumed a safe 30% parking ratio as minimum and actually stretched it to 40% on the plan.

Building height. Since it is a country campus and since the break of classes means a mass move at the end of each hour, elevators were out of the question. There will be a general three-story height limitation on all structures except faculty office buildings, etc.

On the hilly campus all road grades will be held to 4%, except where there are duplicate road-routes from point to point. There is a good hard-headed reason for this: in winter Michigan is icy, and it is dangerous to put steeper grades in front of fire trucks.





AT YALE: a design gallery with a roof of intricate strength

LOUIS KAHN and DOUGLAS ORR, architects A new structural principle, concrete tetrahedra, breeds a new design. (See also AF, Nov. '52.)



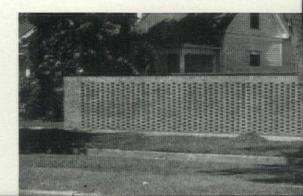
AT HOLY NAME COLLEGE, Birmingham, Mich: simple massing

S. PILAFIAN, architect
Glass block builds a private exterior, but a welllighted interior.



ED STONE, architect

The most famous Arkansas traveler in architecture secludes fraternity life behind a pierced brick wall.



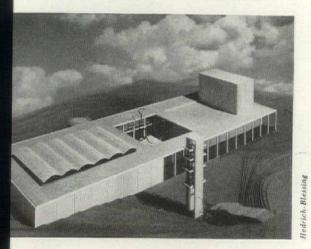
AT GEORGIA INSTITUTE OF TECHNOLOGY: a new architecture school

BUSH-BROWN, GAILEY & HEFFERNAN, architects

Georgia Tech came to a decision unique in the wistful annals of architectural teaching. The people who knew best what they wanted, the faculty, were commissioned to design the new \$1 million architecture building. Latest report: satisfied clients.

AT MARYSVILLE COLLEGE: a chapel and theater

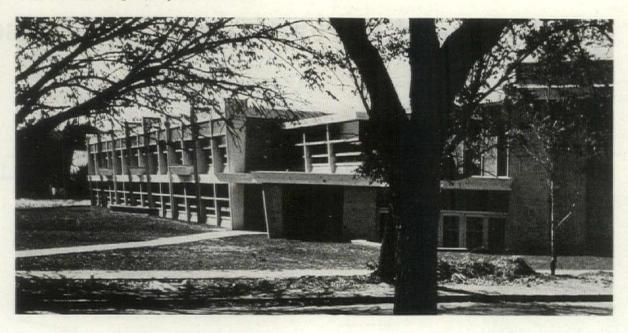
SCHWEIKHER & ELTING, architects
Simple geometric plane, plus a rippling section of
shell roof will mark a new approach not only for
this college, but for the architects as well.



Gabi

AT UNIVERSITY OF OKLAHOMA: new home economics building

WILLIAM BURGETT, architect
To combat Oklahoma glare, deep shaded windows







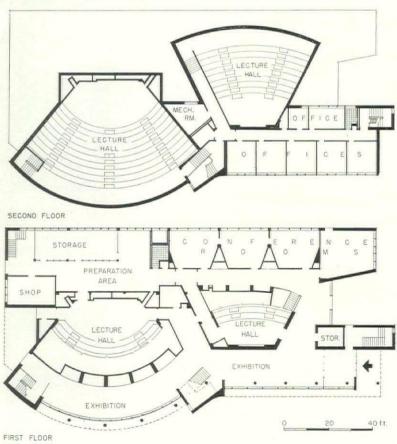
Photos: © Ezra Stoller

At Harvard, special purpose:

SHEPLEY, BULFINCH, RICHARDSON & ABBOTT, architects
GEORGE A. FULLER CO., general contractors
BOLT, BERANEK & NEWMAN, acoustical engineers
THOMPSON ENGINEERING CO., electrical engineers
LEO J. CROWLEY, heating and ventilating engineer
LEROY M. HERSUM, structural engineer



First-floor lobby has bluestone flooring. Concrete and steel stairway is handsome piece of straight structure.





a scientific building to teach science

The typical college science lecturer is a standard comic character. As the class sprawls dozing in the rear rows or sits watching apprehensively up front, he putters around a battered lab table setting up experiments and illustrations, erasing one patch of hieroglyphed blackboard to add another new mystery—in general acting the baffled servant of forces he cannot really explain.

Not at Harvard. In the new Allston Burr lecture rooms no student sits more than 12 rows away from the lecturer, and the pit is as deep and magnetic as that of an operating room. There is a minimum of soporific setup work for students to watch; instead this is done in special preparation rooms where experiments can be set up before class and wheeled in over a concrete runway when the class is ready. A full curtain falls across the preparation room behind the lecturer so assistants can change the scene invisibly while he is lecturing. All the lecturer's controls are at his hand in a convenient instrument panel: lights, a.c. and d.c. current, distilled and tap water, compressed air and other gases, moving blackboards and movies or slide projectors.

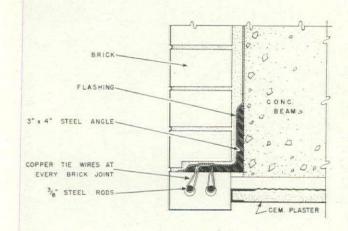
Says Joseph P. Richardson of Boston Architects' Shepley, Bulfinch, Richardson & Abbott about the lecture hall: "The new general-education courses, compulsory for all students, require dramatic presentation of principles of science, illustrated by spectacular experiments on the laboratory table, moving pictures, diagrams and projections on screens and walls. The shifting from one type of presentation to another has to be instantaneous, and this

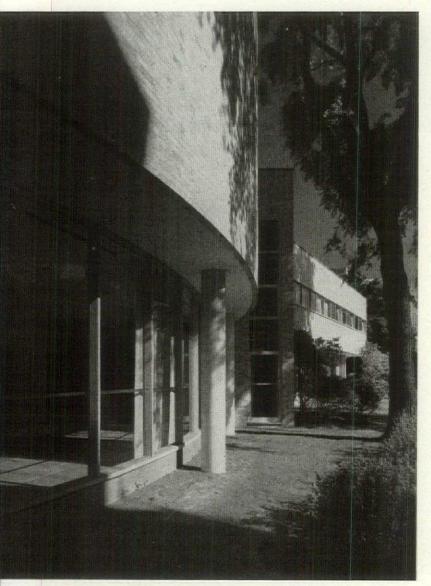
Lecture hall is steeply banked for good sight lines, eminently wakeful atmosphere. Below, from lecturer's level, some of the strong lighting equipment is visible. Ceiling is hung cedar clapboards on wood frame. Note curtain which can be pulled to hide setup work.





Trim detailing is typified in photos and drawing of brick edging.





Lobby wall under large lecture room. Maximum lot coverage permitted by ordinance was 70%; structure actually covers 69%, is within 6' of lot line on all sides.

means that such a lecture hall for science becomes a scientific theater itself. This required intensive study of sight lines, acoustics, lighting, and mechanical staging."

A well-cut suit for a bulky frame

Exterior of the newest lecture hall in Harvard Yard (Allston Burr faces the northeast corner of the Yard) is an unpretentious, dignified work, recognizably in the spare, honest mood of the new Boston architecture. Neat brick walls (of permachrome vitri granite face brick) enclose carefully studied interior shapes and reveal them with strict integrity. But the facades are handsome in themselves.

Honors

This building already has won honors for Harvard and Shepley, Bulfinch, Richardson & Abbott: last month the Boston Society of Architects awarded it the Parker Medal, a prize given each year if there is a new building the society considers "the most beautiful piece of architecture, building, monument or structure within the limits of the city of Boston or of the Metropolitan Parks district." Allston Burr Hall was so considered.

Construction cost: \$800,204, or \$32.38 per sq. ft.

MORE HARVARD: a flexible laboratory building to meet the changing needs of science

This order from Harvard was for a building for scientific research of about 53,000 sq. ft. gross, the exact use of which was not yet determined.

Within the tentative program the architects went ahead and designed this neat, noncommital structure. Three floors were included, with provision for two more. Entrances, stairs, elevators and service rooms are gathered at one end, the north, leaving unbroken laboratory space of 9,100 sq. ft. net on each floor. Column spacing of the steel frame is 24' o.c. lengthwise and 20' o.c. across.

The building is 64' wide and 230' long, with provision for service shafts every 12' (compressed air, electricity, water, gas)—a scheme which will allow eminent flexibility is subdividing lab space. Floor loading is 150 psf except on the west bay of the first floor, where it is 1,000 psf for possible heavy machinery. (Two bays of this area can also be heightened by removal of second-floor joists.) So this building is ready for almost anything in its line.

Redwood grids frame long east and west sides, with clear plate glass in all squares. Spandrels are backed by ½" cement composition panels, 3" behind glass, painted blue. Above on each floor are steel projected sash, then more fixed glass. Architects estimate this wall treatment saved \$50,000 over the least costly treatment of continuous steel sash with red brick spandrels.

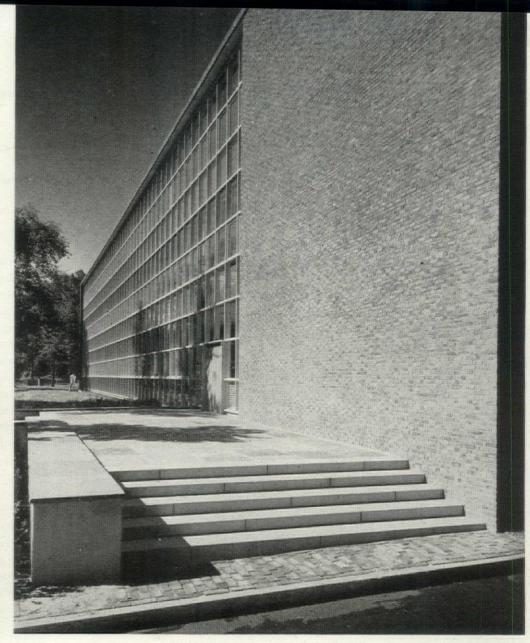
West side has some double glazing, ventilated at top, with Venetian blinds in the cavity. Eventually this will be installed throughout building.

Construction cost: \$858,050, or \$16.13 per sq. ft.

SHEPLEY, BULFINCH, RICHARDSON & ABBOTT,
architects
GEORGE A. FULLER CO.,
general contractors
THOMPSON ENGINEERING CO.,
electrical engineers
R. B. VANDERWEIL,
heating and ventilating engineer
BURTIS BROWN,
structural engineer

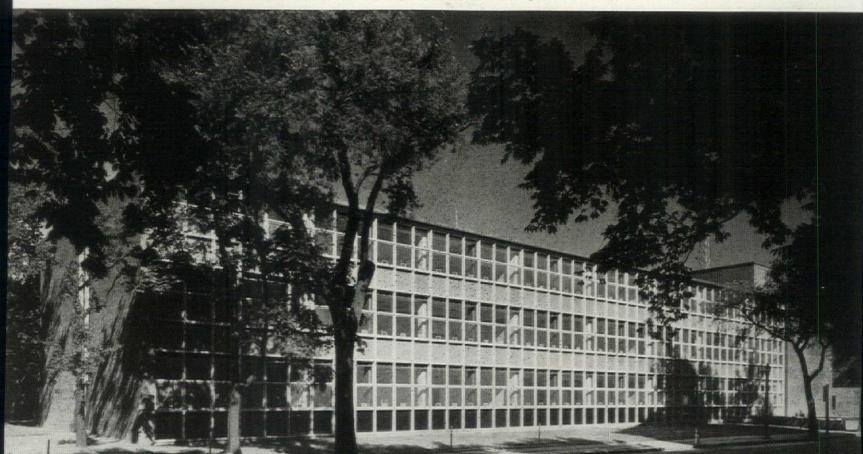
Two-story room has high door and removable intermediate floor to permit varying uses.





Face brick is water-struck, backed by tile, a pipe space, then cinder block

Redwood grids, 4' x 4', frame east, west walls. On each floor, top square is fixed glass, middle square steel sash bottom blanked



ROBERT M. LITTLE, architect BAXTER & GORMAN. structural engineers GUS K. NEWBERG CONSTRUCTION CO., general contractors

At Miami University, remodeling:

clean new clothes for a stiff old frame—contemporary architecture is hung on an archaic structural skeleton, saving \$200,000



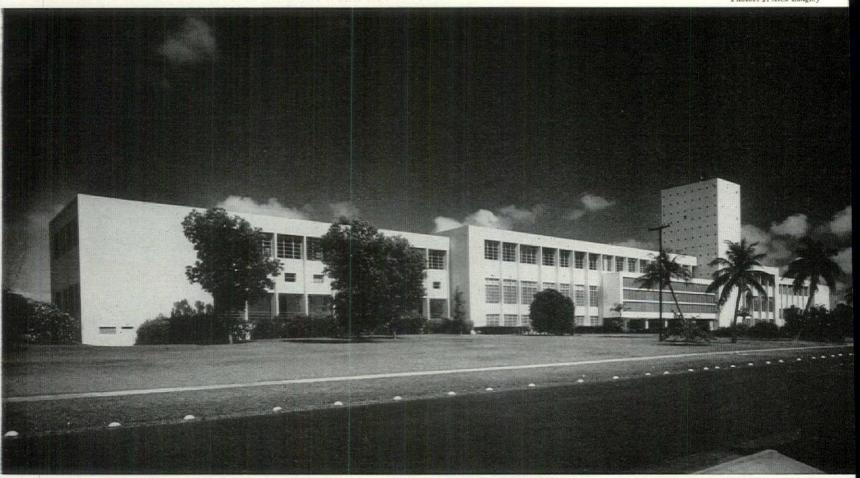
Start of Merrick Hall was this grandiose, old-world conception, an enthusiasm of the 1920's. Interim state of the idea was this group of naked structural bones (below) which stood unfinished for 30 years.



Remodeling is a common problem in antiquated college plants, and the lavish eccentricity of original designers makes trouble for many a contemporary architect when he approaches the task. An enormous example: the University of Miami's original building was begun with Spanish grandeur (sketch, left) during the boom of the twenties when the Florida coast was selling for \$100 a wet foot. It was designed deliberately to be complex-full of bumps, changes of level, and varied bay widths.

But then the real estate tide ran out. So did the Floridians who had signed pledges to subscribe millions to their university. It is only in the fifties that the building has been finished, and it is an almost unbelievable job of simplifying: gone are the whimsical irregularities of the original building. They have been replaced by a striking contemporary design with interesting masses in an evenly marching rhythm. Here is what Architect Robert Little has to say about the remodeling: "The Merrick building was a big strong frame, ready to resist most architectural attacks, so in working on it, I fortified a





thought I have long held on remodeling: don't subtract, add. Don't dig down into the past of an old building and try to rethink it entirely. Don't chop down existing columns and replace them if they're in the way a little. Keep what you have that is sturdy, even if it isn't in the form or with the flavor you would like, and spend your effort in redefining what the other man tried to do. Don't try to fit a whole new idea, or spans, or new floor levels onto the old basis. If you do that, remodeling will cost your client more than a new building.

"If you will sing duet with the old original designer most of the way, then you will be in a position to go beyond him on your own in the final 20%, or whatever proportion can really be new. In this final, finishing part of the design you can bring something of your own to the building. But if you start arguing with the basic premises of the old designer too early you probably will spend all your effort and money in the argument—and the old building may win anyway.

"We had another very real influence on us in the Merrick building to go along with the spaces and levels defined by the old structural frame. This frame was represented to the public as sound, ready to be completed into a much-needed space for the university, and funds were solicited on this basis. Now it was obvious to us, after some study, that many changes should be made to this frame to produce a real contemporary building, and we were tempted to make them. But we finally decided that the complicated solution was the only honest one, and so we did spend all the new money on the new skin and enlarging — but not changing — the old skeleton. Nothing came out; we just fussed and worried—and added."

Money-saving disadvantage

The naked frame of the Merrick building was more than a sentimental dictator, the way Little used it. It saved \$200,000 in structural cost, and once Little had recognized its soft but firm limitations, he went ahead with a hard mind and designed a good building on those old Spanish notions.

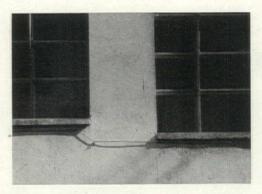
He superimposed some major new thinking; for instance, opening up a wasted basement for small classrooms by amputating a pretentious carriage approach and adding an extra floor atop the roof at one end, after he had run tests on the roof and found it was overdesigned enough to support all floor loads. (It was, in fact, merely a repetition of the floor framing.)

Here are some of the adjustments he had to make, in order not to toy with the basic building (see also pictures, right):

- 1. The spans were set, and set in concrete. Large columns had a spacing which he did not wish to use; but rather than adding supplementary columns, he merely plugged in concrete-filled lally columns wherever he needed them.
- 2. The great Spanish dream was planned for many levels with rich, intricate steppings up and down all through the building. Little had either to blank the old levels and superimpose one new level, which would lose him a good deal of vertical space,



Open-air corridors shade classroom walls from south sun. Railings are used as bench-backs



Changes of level were kept, but ramped gently

Window framing ignored some old columns for standardized economy.





New lally column reinforces old frame, is almost unnoticed even from inside.



Gallery facade of Tennessee crab orchard stone veneer is framed in white concrete

Photos: J. Alex Langley



Cantilevered canopy dominates entrance to informal gallery

or go ahead and contend with a very nervous set of floor levels in his new building—which he wanted to be calm. His solution was compromise: he ground down the edges of many of the old changes of level and created very quiet, almost imperceptible ramps.

3. The old Spanish-flavor formula called for lots of massive wall pierced by windows. Little's idea was lots of windows—or jalousies—where the weather would permit, interrupted only by the structural frame. He superimposed this essential idea boldly and economically on his heirloom by merely framing his windows right past those columns which did not fit his module. Total cost of the remodeling, \$1 million, or \$9 per sq. ft.

MORE MIAMI: a handsome art gallery at lowest cost

Little's success in superimposing his own esthetic on the old wrecked Spanish galleon, the Merrick building, can be seen by comparing it with his highly economical though charming Lowe Art Gallery for the same client, the University of Miami.



Big, simple interior features lighting flexibility to accommodate a wide variety of partitioning

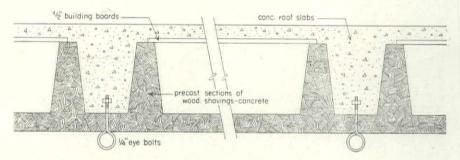
Rade

The building is designed with shrewd informality. In space it is simple and unforced, a set of several moderately shaped rectangles. In span it is clear, without columns. In cost it is low, only \$10 per sq. ft.

The exposed ceiling tells much of the story.

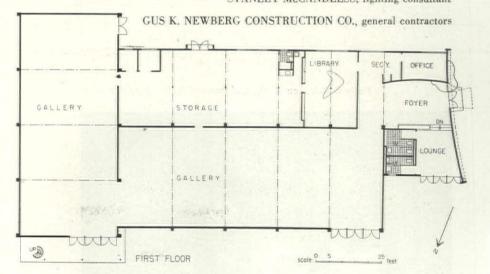
A single material makes up the finished ceiling, the acoustical absorption and insulation—ridged fibrous concrete panels. These panels also served as the formwork for reinforced concrete joists poured overhead; using only scaffolding, no formwork, the architect made his roof by laying reinforcing rods in some of the ridge valleys and then filling them with concrete; in the vacant valleys he then ran ducts and conduits. He also sunk hooks into this ceiling every 4' (see detail) which support a trolley beam from which a great diversity of lighting fixtures can be fed. The hooks are also invaluable for the startling innovation of hanging display devices and screens instead of standing them on the floor.

Another architectural economy: the museum storeroom demanded a lot of protection. Grillwork was too expensive, so Little made his windows a largescale grillwork themselves by running a pattern of concrete block through them. The building cost only \$140,000.



Roof section shows how wide spans between rigid frames were built economically. Acoustical finish and forms for reinforced joists came all in one block. Hooks are to hang lighting, partitions and exhibitions.

ROBERT M. LITTLE, architect NORMAN DIGNUM, structural engineer STANLEY McCANDLESS, lighting consultant

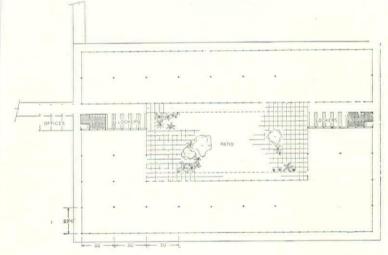




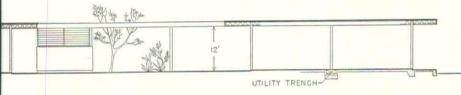
Science building will use flexible plan and economical construction of a small factory with a court cut out of it.

NEXT FOR MIAMI: an industrialized science hall

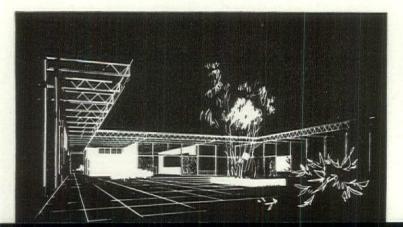
Architect Little's science building for the university will be a simple grid of classrooms built over a service run which is inexpensively dug into a trench, not suspended above, as is more usual. Outdoor corridors will follow the inner and outer periphery, penetrating at only two points, and spacing of columns will allow maximum flexibility without distorting room shapes. Planned also for ultimate economy, flexibility and use of Florida's climatic advantages, the building is in a pattern being developed simultaneously by school architects in several parts of the country.

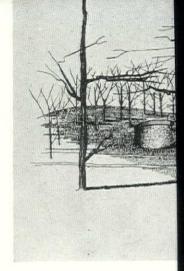


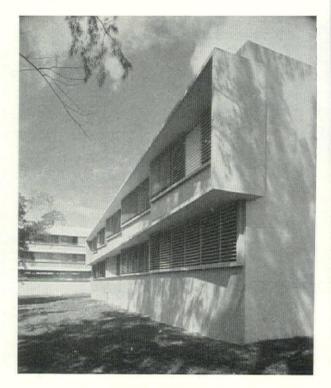
Patio continues bay spacing, is outdoor interior hallway



Patio sketch shows light steel frame of factory-type structure



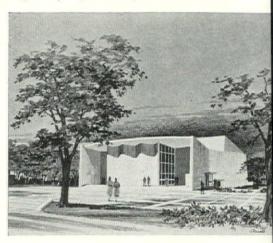




AT UNIVERSITY OF PUERTO RICO: a crisp new science building

HENRY KLUMB, architect

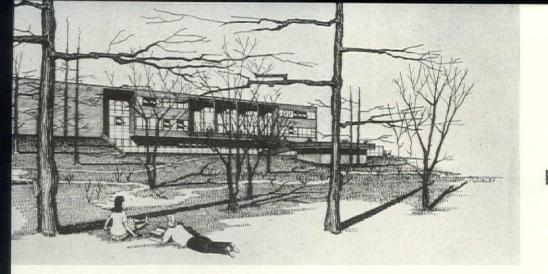
Considerations of this clear-cut design: sunlight (for sharp shadows and definitions); air movement (through louvers for coolness in the hot climate); simple shapes (for economy).



AT OBERLIN COLLEGE: a memorial auditorium HARRISON & ABRAMOVITZ, architects

ELDREDGE SNYDER, associate

A strong shape of limestone and concrete block will house a careful acoustical enclosure for a college famed for its music.

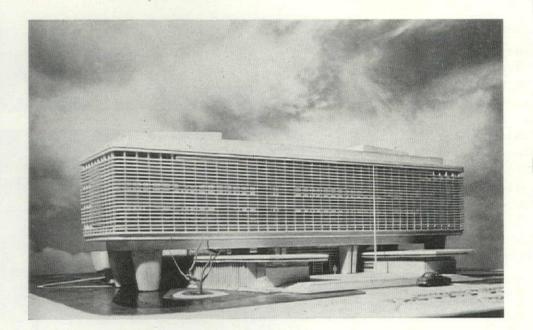


AT THE UNIVERSITY OF NEW HAMPSHIRE:

a competition-winning student union

DAN KILEY & RONALD GOURLEY, architects Boldness was a quality cited by the jury which awarded this design first place. On a rocky site, it matches the simple strength of the landscape.





AT THE FORESTRY EXPERIMENTAL STATION, VANCOUVER, CANADA:

spare wood dormitories

SHARP & THOMPSON, BERWICK, PRATT, architects

A regular pattern of rooms stretches over service and communal areas in these student living quarters.

AT ACADEMIE DE RENNES, FRANCE:

a strong new college of law

CORNON & LE NORMAND, architects

The influence of Le Corbusier is stoutly upheld by sturdy concrete stilts and well-shaded glass.

AT THE UNIVERSITY OF BRITISH COLUMBIA, VAN-COUVER, CANADA: a war memorial gymnasium SHARP & THOMPSON, BERWICK, PRATT, architects

A handsome new concrete and glass structure (steel-trussed roof) on Canada's West Coast is reminiscent of the great Dutch institutional buildings.



Photos: Tony Archer, C. Duprat, Visual Education Service, UBC

At Washington State, dormitories:

neighborhoods within neighborhoods—
a large girls' dormitory is cut down
into four self-contained communities

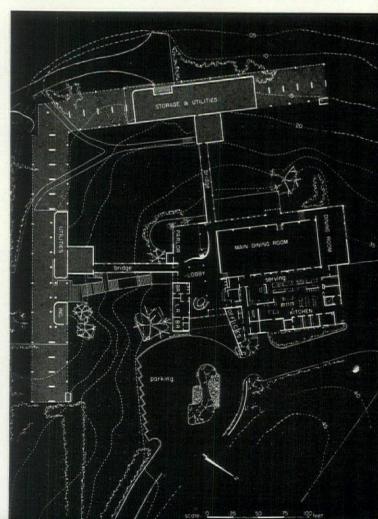
Whatever direction colleges take, whether their major emphasis (and building budget) goes into science, arts or utilitarian studies, there is an inevitable supplement to every dollar spent on classroom buildings; it is an investment in dormitory construction to sleep the scholars. Girls' dormitories are more intricate than men's because of the greater problems of control and more thorough facilities required. On these pages are presented two excellent solutions of typical problems:

- ▶ On the West Coast by Architect Paul Thiry for the State College of Washington (below),
- ▶ On the East Coast by Architects Shepley, Bulfinch, Richardson & Abbott for Wellesley (pp. 140-145).

Before programming the new Regents Hill dormitory for the State College of Washington, Architect Philip Keene went on an inquisitive tour of other colleges. Some of his observations, which Thiry and he shaped into structure:

- 1. Overcome the weakness of a large dormitory (in which shy girls tend to retreat into themselves, failing to share the benefits of companionship) and a small group (in which there is limited opportunity for contact with other diverse points of view and background) by breaking down the building into medium-sized, self-contained units of about 100 girls.
- 2. Build four floors, the maximum height for walking, avoiding the high initial cost and maintenance of passenger elevators. For a hilly site, try ramps.
- 3. Never forget maintenance goes on year after year after year. Choose surface materials on the basis of their future as well as appearance and cost.
- 4. Built-in desks, dressers, etc., are more than merely convenient. They decrease damage due to moving furniture about the room.
- 5. Desks should have good artificial light (most study is done in the evening) and should not face each other.
- **6.** Provide space for wet washcloths, towels, wet nylon stockings, toothbrush, etc. in the rooms (many existing dormitories fail utterly in this regard).
- 7. Central lavatories, showers, and toilets for each 25 students are satisfactory.
- 8. Each dining room should hold a maximum of 100 students, the size of the "neighborhood," but must be on the same floor as the central kitchen for efficiency.
- **9.** Good size for single rooms: 100 sq. ft.; for doubles, 190. Twice as many doubles as singles.
- 10. Make the dormitory a place which will provide opportunities for self-government, for profitable use of leisure time, for organized social and cultural programs which contribute to the education of the students in the largest sense.







Sleeping wings are down slope from social center. Bridges connect at mid-level, so girls who live on top floors do not have to walk all the way downstairs before walking up to social center.

Uphill architecture

Before you enter this large, complex dormitory, something else besides the intricate answers to the program comes clear: the new structure fits unobtrusively into the character of the countryside.

As Frank Lloyd Wright has demanded many times, this building is on the hillside rather than on the hillsop. This land, the heart of the State of Washington's Poulouse country, is a country of rolling hills whose topsoil is layered shallowly over rock, and the sharp falls of land went unbroken. The most prominent blocks of the dormitory sit on stilts and ride the slope. There is a good practical reason for this: for economy this 500' long stretch of building had to follow the flat contours perpendicular to the steep slopes (see contour map) and a 500' foundation wall would completely dam hillside drainage. So Thiry raised the dam gate.

Over the slope

Another reason for the rise from grade: the lifted blocks are mostly sleeping rooms; raising them on piers frees the uphill half of the first floor from the slope by:

- 1. adding privacy and light,
- 2. using both sides of a central corridor,
- 3. giving reasonable supervision over the comings and goings of the girls.

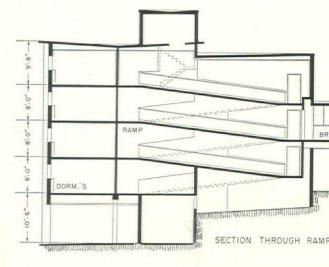
This also allowed a minimum of excavation into the rock, leaving the garden areas and surface drainage reasonably undisturbed. But most important in the architect's mind was the esthetic effect of preserving the naturalism of the country. The building's aloofness is really a very friendly attitude; the gardens and rock outcroppings can flow beneath and around it in an indigenous form.

There actually are three separate units to this dormitory, two hives of rooms divided into four 100-girl "neighborhoods" about one social center.

This social center was put on the only real shelf on the slope because direct access by road was important. The "neighborhoods" are in a wide V-plan pair of wings which ride the contours lower



Wing intersection saves stairways and creates an opportunity for wide double-exposed porches on each floor. Open first floor minimizes drainage problems. Note exterior framing, another money-saving design element.



down the slope, connected and interrelated to the social center by bridges and ramps. Thiry's reason for coupling the neighborhood units: separate wings would have required two stairways each; combined, the stairway requirements were reduced and this money could instead be spent for sun decks and other dormitory luxuries.

Other reasons for separation of the social center from the dormitory portion: the latter is made up of small rooms, easily adapted to repetition in plan, even to service areas and kindred facilities. Also, this portion is convector-heated, requires quiet intimate surroundings, and is short-span construction. The social center, on the other hand, is communal and noisy, relaxed, recreational and entirely for group use. Its rooms are large, and for the most part each has a different use, and this part of the building requires long-span construction.

But easy access back and forth between the wings was imperative, and it was necessary to minimize stairways to make such an over-all scheme a success. This was accomplished by the central location of the social center; it is only necessary for a girl to cross a bridge and to descend two flights or ascend two flights by ramp at most to reach either extreme of the dormitory.

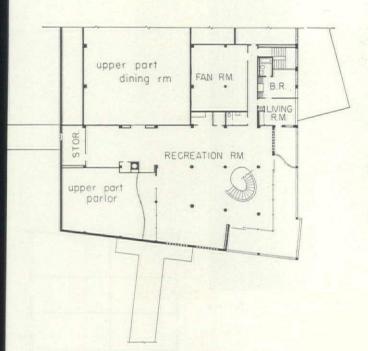
Structure

The frame of the building is monolithic concrete exposed on the exterior (except for roof and grade enclosures which are surfaced with ceramic tile) and insulated on the interior surface by furred insulating lath and plaster. Interior partitions are steel studs with gypsum lath and plaster, very neatly arranged to minimize jogs in the necessarily small rooms for pipe risers, etc. Columns were set outside the building to permit horizontal convector runs to flow the complete length of each floor without interruption, and the architect reports that this frank framing saved 8% of the cost over conventional frame. Because the climate in Pullman is severe in winter, weatherstripping was specified throughout. Also double glazing was used for all windows in the most exposed building, and double-doored vesti-



Bridge, from below o

PAUL THIRY, architect
PHILIP E. KEENE, college architect (consultant)
SOUND CONSTRUCTION & ENGINEERING CO., general contractors
SIGMUND IVARSSON, structural engineer
LINCOLN BOUILLON & ASSOC., mechanical engineers
BEVERLY A. TRAVIS, electrical engineer
SELMA STREIT, consultant on college food and housing

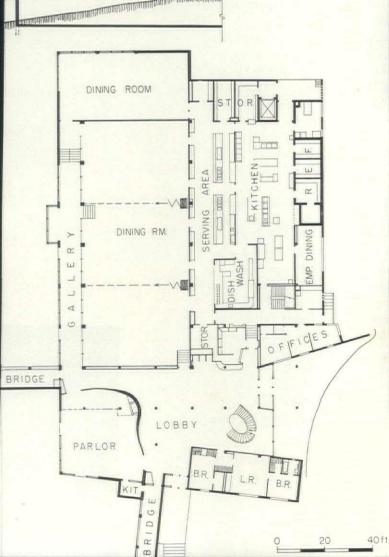




Bridge view toward social center from inside one of the suspended halls. The other bridge is visible through the long window. Boomerang shape of dorm wings allows access from the center of each wing to bridges.

Uphill traffic is given a lift by Architect Thiry's idea to link sleeping sections to social section by bridges. Covered connection was also necessary for rainy-day access to dining rooms in social building.

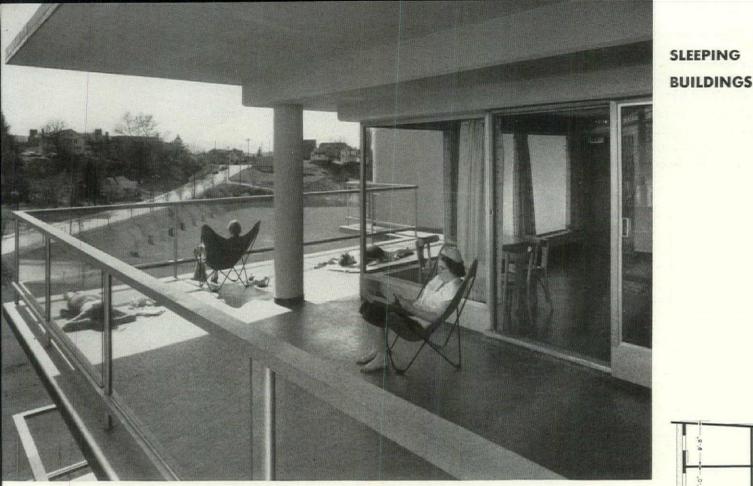
SOCIAL BUILDING



BLDG.



Main lounge in social building, viewed from balcony off music and recreation room. Here recitals, musicales, teas, receptions, etc., can be staged. For dances, dining rooms are thrown together.



Built-in bureau drawers which separate the flush closets and are flanked by individual towel-drying

compartments.

Corner porches mark the juncture of the two dorm wings. Beyond them are the floor lounges

Built-in communication equipment connecting each room with the main desk at the lobby. A selection of three radio programs may be made from the same speaker.

Daylight is controlled and privacy is created in these rooms by an adaptation of the ancient Japanese shoji. Running on a track atop each convector are sliding screens with aluminum frames and composition glass cloth fillers. These eliminate the need for window shades and draw drapes, and over a period of time are expected to more than pay for themselves in replacement and maintenance cost. They can be cleaned just by placing them in a tank of soapy water, then rinsing.

The girls from all the dorm groups come together in the social building, but even there dining rooms are scaled to the neighborhoods. Each dining room is designed for 100 settings; for dances and other social occasions, however, electrically operated walls fold back and combine the three dining rooms into one. Other necessary contents of a good collegiate social center: a pleasant lobby-lounge where men may wait for their dates, and other less-important callers may be received; a control desk near the lounge with intercom system and mail desk; an adjoining head counselor's suite and guest room; upstairs, a recreation room for general use; downstairs, another important accessory, a coat room and lounge for men.

Cost: \$1,608,629, excluding fees and landscaping, or \$16.76 per sq. ft.

bules were included at entries. For summer comfort western windows were glazed with heat-resistant glass.

The rugged winter temperatures and winds favored flat roofs without parapets, since this would allow the snow to blow off. All drainage, however, is to the center of the roof planes so outlets and downspouts can be kept within the warmth of the building and no dangerous icicles will form.

Indoor life

Within the 100-girl "neighborhoods" is further subdivision: each 25 girls have separate bath facilities isolated by corridor doors from the rest of the building. Also, each 50 girls has its own laundry facilities and each full "neighborhood" of 100 is provided a sun deck at the center of the building plus a lounge with a built-in kitchenette at each intermediate level of the ramp. In the large dormitory slabs are typing and sewing rooms. Counselors are located at the ramp for advice and supervision of activities.

Thiry enthusiastically followed the mandate to build in as much furniture as possible, including:

Built-in desks with reading lamps which may be turned on without disturbing the other occupants of the room who might be sleeping.

Built-in beds on tracks. The track saves wear and tear on the floor when the beds are pulled out to be made.

Built-in storage for small items like shoes (up to tennis rackets) under the beds.

Built-in bookcases above each desk forming, over the center desk, a screen room divider.



TYPICAL SECTION - DORMITORY

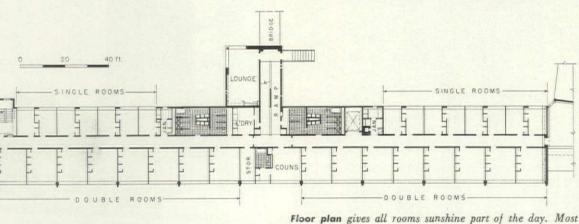




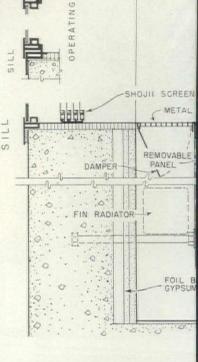




Rooms have many built-ins, from bulletin boards to medicine chests. Under window is continuous convector with adjustable shutter to permit a degree of temperature selection. Towel-drying racks are recessed into face of convector.



Floor plan gives all rooms sunshine part of the day. Most rooms (doubles) have southeast or southwest vista out over campus. Subdivision of each floor into groups of 25 girls was encouraged by concentrating services near ramp.



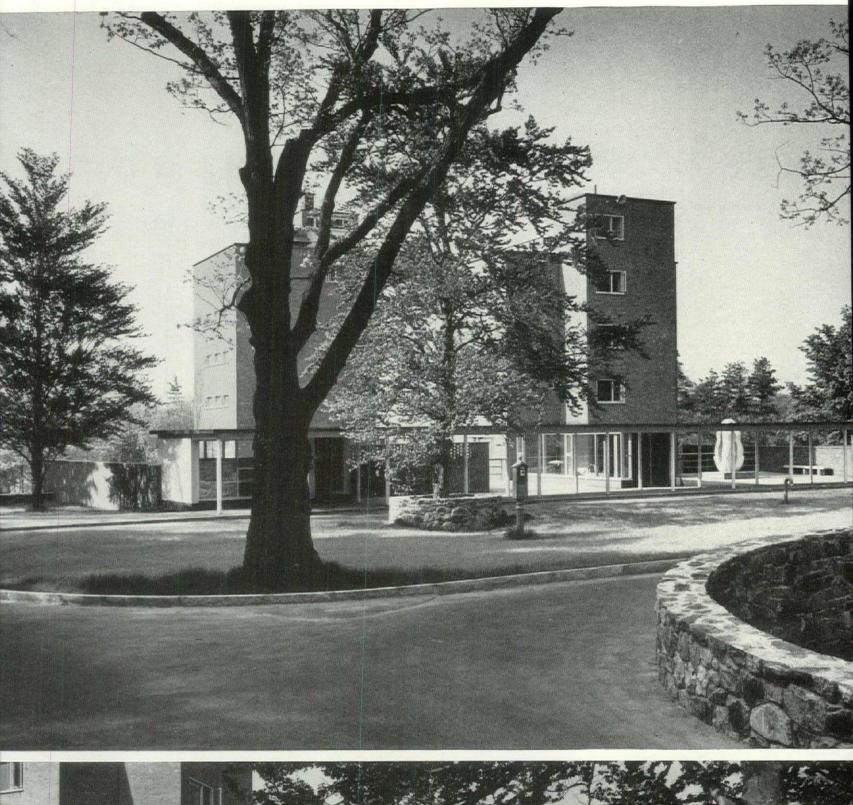
SHOJII SCREEN

Photos: L. E. Rogers; (others) Charles R. Pearson



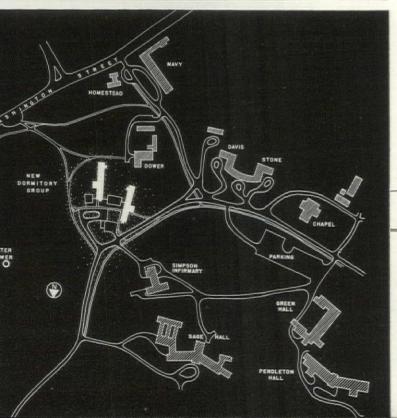


Service entrance is approached by special drive, leading into elevator base. Because the building receives its primary use in the long, cold Washington months of October to May, design deliberately welcomes sun gain.









At old Wellesley, new architecture:

one of the world's most famous women's colleges makes her biggest capital investment in contemporary design

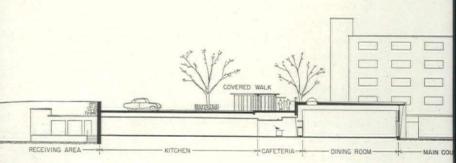
Most of the Wellesley campus looks older than it is. The reason for this curried antiquity: the tone of campus architecture was set in the period when the US was looking backward to establish cultural roots and connections with the past. But the roots are complete and growing now. Wellesley's newest building was designed with today's certainty about what was wanted, not yesterday's reach for reassurance. Says Architect Henry Shepley: "We worked toward a scale which would be small and intimate, with a sense of simple spaciousness and freedom to the layout."

As in Paul Thiry's Washington dormitory (p. 134) changing levels also play an important part in these structures on the rolling hills of Massachusetts. Here the architects used the slope to clear up a tricky traffic situation, and segregate services from other areas.

Entrances are on the uphill side, on what is actually the second story. At this level, and above, are the sleeping rooms. Downstairs, open to Wellesley's rolling lawns, are the dining and social rooms for each "neighborhood" of 137 girls. The kitchens are also on the ground floor, buried under the turn-around approach to the dorms. They have their own service road on the side slope.

This dormitory, housing a total of 274, completes the Wellesley campus by bringing all student living accommodations onto the great grassy sward. Before its completion a number of the girls lived in wooden houses in the village and had to take substantial walks back and forth to class. The new dorms also are the largest capital investment in Wellesley's history, more than \$2 million.*

^{*} Another record: girls moved into the buildings 14 months after the sketches were approved by the president and trustees. Owner-contractor agreement was based on a maximum guaranteed cost with provision that if the actual cost was less, ¾ of the difference was to revert to the owner, ¼ to the contractor. Under this arrangement the saving to the owner was \$41,000.



Organization by levels puts approach on second story, general social rooms below, beds in two tall wings (third will eventually be added). Hillside site is exploited to place entrance drive over kitchen, which has entirely separate drive at lower level. Photos at left show how natural materials and land-scaping were used to wed the simple structures to the sentimental old campus.



Broadside view showing utility plan jog

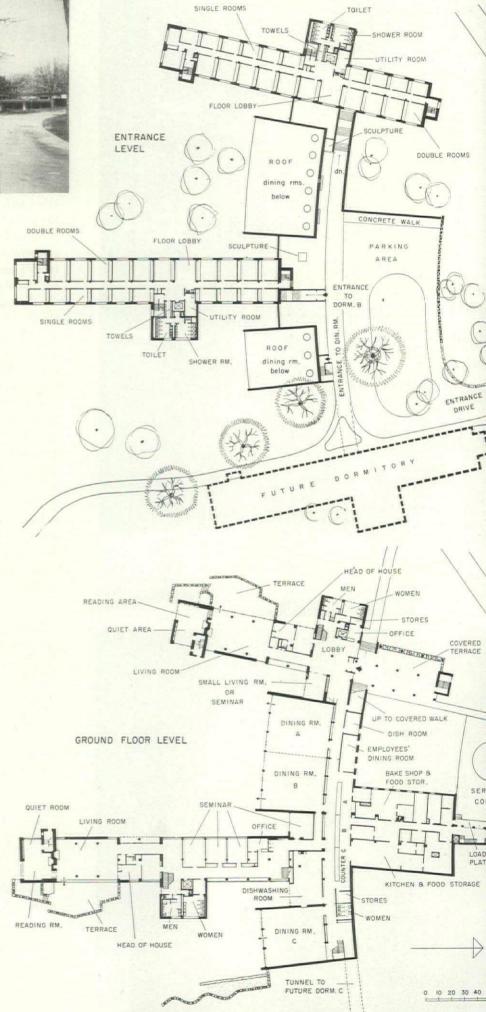
Wellesley's dormitories are unusually narrow, but with purpose. Five stories high with a penthouse on top, and 32' wide, their proportioning works very well for the reinforced concrete design since half the rooms in the dorms are singles and half are doubles. Columns are right down the middle of the 32' slab; just three rows of columns carry the full width of the two-room-plus-hall span. Downstairs kitchen planning in this dormitory is also particularly neat; although each "neighborhood" has its own individual dining room, all three dining rooms are served by a common kitchen and cafeteria, without cross-circulation or loss of identity.

Self-service

The wise women who administer Wellesley have decided that maid service is becoming a luxury and that students will do almost all their own housekeeping. With this in mind, many labor-saving devices are provided for light housekeeping as opposed to professional maid service. Example: light vacuum cleaners will be used in the rooms instead of dry mops, which—the architects reasoned—simply stir up the dust and, when shaken out the window, deposit it on the lower floors. To further discourage the dust mop, screens will be left in place all year round. A large utility room or housekeeping center at the center of each floor includes a cleaning sink, a shelf for the storage of housekeeping devices, and an incinerator chute for the disposal of rubbish. The passages to the central washrooms on each floor are lined with racks for towels and toilet articles, confining all dampness to these areas. In the washrooms are special basins with shampoo sprays; in the lounges are electrical outlets for hair driers.

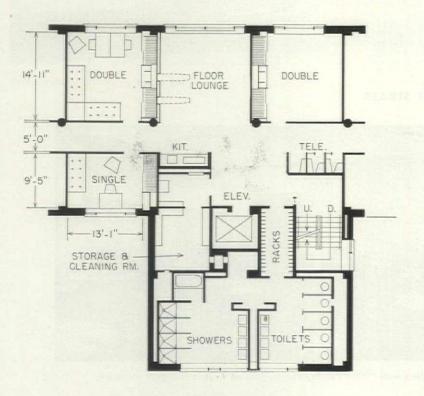
These lounges, with adjacent telephone booths, are expected to have heavy use. (Their architectural appointments will allow the college girl to give the classic excuse to a telephoning male, "but I'm washing my hair," and mean it.) Here also are ironing boards.

Another shrewd simplification of the dormitory routine: there is a central linen room in the baseSHEPLEY, BULFINCH, RICHARDSON & ABBOTT, architects
GEORGE A. FULLER, general contractor
THOMPSON ENGINEERING CO., electrical engineers
LEO J. CROWLEY, heating and ventilating engineer
BURTIS BROWN, consulting structural engineer





Small lounges are on each hall of rooms for coffee drinking, telephoning, ironing, etc.



Shelves span rooms; dressers are built in



SLEEPING STRATA

Facilities core is central on each floor where it serves 11 double plus 11 single rooms. Furniture arangement in rooms is optional to occupants. Bathing facilities are proportioned one tub to four showers. Trunk rooms are in basement and include special racks which permit easy access to any trunk at any time.

Towel racks line walls of washroom hall





Dining rooms are central in photo above

SOCIAL STRATA

ment in each of the 137-girl units where girls subscribing to a laundry renting service will turn in soiled linen for clean. This will eliminate extra handling and storage on individual floors and automatically prevent loss of inventory. There is also a laundry in the basement of each dormitory with coin-operated washers and driers where the girls may wash their own clothes.

The ground floor, the social stronghold, is compartmented for use. Each building has a warm, pleasant sitting room with fireplace, and outside, a terrace with a long view. Beyond the living room is the "quiet room," with bookshelves and another fireplace, which will be used as a library and study area. Also, on the ground floor are five smaller rooms for small classes and meetings, eliminating the necessity to open classroom buildings in the evenings. And although they are labeled seminar rooms on the architect's plans, it is expected they will also have heavy use as date rooms.

The dining rooms on this lower level have big glazed walls to the north and plastic bubble skylights over the interior ends. Breakfast and lunch are served cafeteria style, but even this does not break the unity of this kitchen service as opposed to the split in actual dining rooms. The architects divided the long cafeteria into three sections, and made the traffic work.

Construction cost: \$1,950,000.



Folding wall between dining rooms opens up to form big space for parties

Cafeteria table is split into three sections to serve different dorm groups





Quiet room for reading and study is at end of social wing

Glazed hall leads from entrance lobby to living room







All photos: LIVE, Richard Meek

ARCHITECT-CLIENT FORUM:

The need for better planning

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Ernest J. Kump

San Francisco

Charles Luckman

Los Angeles

Edmund R. Purves

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Editor and Publisher, Architectural Forum

Editorial Chairman, Architectural Forum

Here is a joint statement

from architects, engineers, contractors and clients on

- 1. The need of better planning
- 2. The budget for better planning
- 3. The organization of better planning

Never before has such a united program been adopted by outstanding representatives of all the groups with a stake in better building.

We believe this agreement is of great importance to every architect, every building engineer, every contractor and every client. And if these recommendations are followed, we believe America will get much better buildings at lower cost.

The signers of this joint statement include six of the most important and experienced clients for architectural and engineering service, presidents of two of the most famous real estate investment companies, the chief executives for building of General Motors, General Electric and Allied Stores and the official in charge of building for the US government. They include two of the country's outstanding builders and three of the country's most famous engineers. And they include 13 outstanding representatives of the American Institute of Architects.

The two-day forum at which the problem was thrashed out and the recommendations drafted was sponsored by Architectural Forum in collaboration with AIA's Public Relations Committee of which John Wellborn Root is chairman.

...and how to get it

Good planning before construction starts is more important today than ever before. In fact, better planning now gives our industry its one best hope of offering a new built-in economy and a new built-in efficiency of function that could keep construction booming long after the present shortages are met.

We realize that no nation in all history has made such widespread use of architectural service as America today. Never before has professional training for architecture been so exacting. Never before have so many architects made such rapid and significant contributions to better building. Within a generation the ranks of qualified architects and the use of architectural service have more than trebled.

But the need and importance of better planning have increased still faster, and we doubt if even 10% of all the buildings erected in this greatest building boom of all have had anything like the study and planning needed to achieve full economy of construction, full economy of operation, full efficiency of function, and even a modicum of delight. For this underplanning we can suggest two explanations:

- 1. Most recent building might be termed necessitous construction, rushed up to meet some crying shortage or to seize some quick opportunity. Under such time and profit pressure it would be unreasonable to expect a high level of beauty, economy or efficiency. In the tougher times ahead many of these half-planned buildings may not prove good enough to hold their own against more carefully thought-out structures.
- 2. Too few building clients start with any real understanding of what good architecture and good planning mean, or what the right architect and the right engineers could add to the success and profit of the project—provided they had the time and money needed to do the planning right. The average client builds but one building, or perhaps two, in his lifetime. He does not realize the tremendous change our generation has seen in every aspect of building. He does not understand the new importance of the engineer and the broader new function of the architect. Too often he thinks of his architect in yesterday's terms—a quasi-artist retained primarily to make the building look better—and hopes only that the architect will not add too much to costs.

Here are six reasons why better planning is more important today

—six reasons why better planning should pay for itself many times over—six reasons every client should understand and weigh carefully before he undertakes any building venture for tomorrow's more competitive market.

The first three of these are perhaps negative reasons, in that they reflect today's much greater cost of not having the best planning.

- 1. Building costs have more than doubled, so every error or oversight in planning costs twice as much. The time to correct your mistakes is on the drafting board, where they can be corrected with an eraser. To correct them later may cost more than the entire fee for planning the building!
- 2. Today's buildings are so much more complex that much more planning is needed, first to design all the new mechanical services, then to fit them together economically into a coherent whole. And often the second of these new planning assignments is almost as exacting as the first.
- 3. Only buildings planned for maximum efficiency and economy and full utilization of space can compete with old buildings built at prewar costs and long since fully depreciated, or with war-built structures subsidized by quick tax write offs.

The other three reasons are still more important, for they are positive. They focus on the opportunities that can be realized only by careful, imaginative, creative planning.

4. Everything about today's building is new and different. The lighting is new, the fenestration is new, the acoustics are new, the hung ceilings are new, the escalators are new, the air conditioning is new, the whole concrete technology is new, the lightweight walls are new, the aluminum is new, the plastics are new, and the styling is new too to keep pace with these and countless other changes. In times of such rapid change more careful planning is needed to take advantage of all these innovations and make sure the building will not be half obsolete before it is finished. (More careful planning is also needed to hold down the cost of innovations, for the high price of unfamiliar work is notorious.)

5. Tomorrow's building must be studied not alone as shelter, but as an integral part of the operation it will house. The production costs of a factory, the sales of a store, the economy of a hospital, the teaching success of a school, the rent level of an office building, the profits of a hotel will all depend in large measure on how well the building was planned for full economy and efficiency of function.

This new concept of the building as a cost-cutting, profit-raising tool offers the one best hope of keeping construction booming when the present era of necessitous building ends, for in competition against new buildings so conceived yesterday's buildings, no matter how fully depreciated, will often prove as obsolete and high cost as any other item of yesterday's machinery.

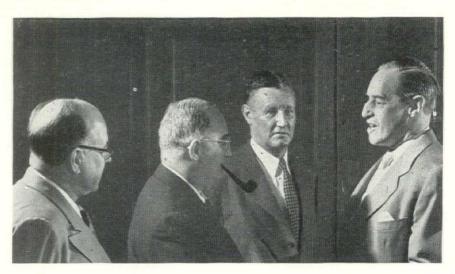
This new concept is perhaps the most important of all the reasons why tomorrow's building must be more carefully planned. The sixth reason carries this same thinking one step further.

6. Tomorrow's building should be studied not alone for functional efficiency but for more intangible values. We are just beginning to understand how subtly good and appropriate architecture can influence the child's willingness to learn, the patient's response to treatment, the worker's pride and regard for his job and company, and so the whole morale and efficiency of the working force. We are just beginning to understand how civic pride can be stirred by good commercial and industrial architecture as by good civic architecture. We are learning again the old lesson that good architecture is also good advertising. Some of these concepts are so fresh that even experienced clients are still too apt to overlook their importance.

For all these reasons we all believe clients would be wise to budget an increased share of their building dollar to pay for better planning. The most foolish mistake a client can make is to think he can save money by skimping on architecture and engineering design, in the broadest sense of the word. There will be many times when a little more money spent for planning will save ten times as much on construction.

But architects and engineers have a major job to do before they can expect their clients to upgrade their thinking about paying for planning. They must work out a better way to let clients see more clearly what they will get for more money—and what they cannot get for less money.

Recess conference: Client Dowling (right) argues a point with Engineer Leopold (with pipe) while AIA's Purves and GM's Tykle (back to camera) listen. The two-day forum was held at the University Club in New York City.





Architect's row listens while Schlossman makes a point. Right to left: Cromelin, Gruen, Harrison, Krump, Chairman Prentice, Luckman, Purves, Shaw (partially hidden), Schlossman and Haskell.

Here are six ways to get better planning

—some of which involve current misunderstandings which architects and engineers must clear up, some of which include truths they must get across:

1. Architectural design and engineering design are not fixed commodities that can be bought at varying prices. They are highly personalized professional services whose worth will vary greatly with the widely differing skills of the individuals employed and the time they can give to the work. The margin of profit is usually so small that any reduction in price must almost always be reflected in a reduction in service.

2. Consequently there is not and there cannot be any fixed scale of compensation for architectural or engineering service. When various AIA chapters suggest certain minimum fees they are not proposing "ethical" standards. They are simply recording an experience figure and suggesting that the planning job probably cannot be done right for less.

To help their clients understand what they are getting for their money, some architects are putting their services on a cost-plus basis, charging so much an hour for research and drafting-room time plus an obviously reasonable fixed fee for their own time. Other architects have adopted a special contract form listing in detail all the services they expect to perform, from help on site selection to final supervision, and these architects modify their fee if certain services are crossed out. Some firms who offer both architectural and engineering design find it better to charge separately for each and so let the client see a little more clearly where his money goes.

We do not recommend any one basis of compensation as necessarily better than any other. All such plans should work out to about the same total pay for the same work.

But we do most urgently recommend that all architects and all engineers should make a real effort to give clients a better understanding of their charges. Lacking such an understanding it is almost inevitable that many clients will think it good business to shop for an architect and an engineer who will work for a small fee.

3. There is no one fixed way to employ architects and engineers. The client is free to buy complete architectural and engineering service from a single firm. He is free to retain one firm for architectural service only and rely on consulting engineers. He is even free to call on several architects to collaborate on a single project—for example, to retain one architect for the excellence of his design and another for his special knowledge of some particular building type, or, for a second example, to call in a large

metropolitan firm to work with his local architect on certain aspects of a project.

We do not recommend any one of these plans as necessarily better than any other. In any case, it is imperative that there should be a coordinator for all these talents, and we are unanimous in urging that this coordinator should be an architect. We are also unanimous in urging architects to be quite frank in recommending the use of consulting architects and other experts whenever necessary and in urging clients to stand ready to pay the necessary consultation fees. This will surely save them money in the end.

4. Architects are cost conscious but they are not necessarily cost experts. Owners should not press them for cost estimates or expect cost guarantees, and architects should steer clear of releasing any cost figures until they have had time for careful study and for consultation with contractors and subcontractors.

Perhaps the most serious single public relations problem faced by the architectural profession today results from the unhappy experience too many clients have had with buildings costing more than the architect had let them expect. Some of this underestimating can be explained by inflation and rising prices. Some of it reflects careless optimism. Some of it reflects the owner's own too frequent unwillingness to listen to unpleasant truths or some owner's unwillingness to assume a sufficiently responsible place on the planning team. And a little of it, unfortunately, reflects some architects' unwillingness to let commissions get away from them by giving the owners discouraging figures.

Whatever the explanation, the hard fact remains that it has given architects a bad name for not understanding costs and how to keep costs down. Worse than that, it has raised a needless and quite unjustified suspicion that there is cause and effect relation here and that architect design makes construction more expensive. Exactly the opposite should be the case.

5. Engineers should not be compensated at the expense of the architect any more than the architect should be compensated at the expense of the engineers. Most owners should see the wisdom of setting aside an adequate engineering budget at the very outset when they are making their financial arrangement with the architect, and that engineering budget should be satisfactory to all three parties. Without such an arrangement, there will always be some danger of a most undesirable conflict of interest between the two professions (in most cases actual payment for the engineering will be made by

the architect, either to some member of his own firm of architects and engineers, or to some consulting engineer called in by the architect).

When mechanical costs represented only 10% or 15% of the total it may have made economic sense for the architect to throw in engineering design without special compensation, but on many buildings today mechanical costs are running as high as 40% and 45%. The client needs the best engineering to get full value from his mechanical investment, but how can the architect afford to provide that best engineering for so large a mechanical program out of a fee not always adequate for architectural service alone? Because total fees have not been increased to keep pace with the greater demand today's building economy puts on both architect and engineer, the architect and the engineer too often find themselves forced to compete to see which will get an adequate fee out of too small a budget. Where the engineer is retained first, he may be tempted to economize on architectural design. Conversely, when the architect is retained first, he may be tempted to economize on engineering design. Either way, the real loser is the client.

The client is doubly the loser because the inadequate fees engineers get when they must take a small cut from the architect's fee discourage good engineers from entering the building field when more profitable employment is offered them in other industries.

6. Planning a big building must be a team operation. The job has become too complex to handle well in any other way.

This planning team should be set up at the very outset and should include the owner himself or his special representative, the architect, the engineers, the builder, the real estate expert, and whatever special consultants (school, store, hospital, rental, financial, etc.) the building type may require. (If the architect is himself a specialist in that type he can often do double duty for one or more special consultants.) The role of the various team members will vary from project to project (for example, on rental projects the rental expert may rank second in importance only to the owner), but in every case:

The owner should be the No. 1 man on the team and should recognize that he cannot escape that executive responsibility. No

one else can make the necessary final decisions on where to pay more and where to economize, what product is good enough and what product is not up to his requirements, what tangible or intangible values are worth their cost and what features can be dropped to meet the budget.

- ▶ Under the owner the architect should be captain of the planning team, charged with coordinating the work of all the other members and so translating the owner's requirements economically into actual construction. This coordinating function is becoming perhaps the most important function a client should expect his architect to perform—just as important as the concern for appearance and styling which was the architect's principal responsibility not so long ago when buildings were simpler. Today's architect must be a rare combination of artist and executive, and on him devolves primary responsibility for the economy and efficiency of the building designed under his leadership.
- ▶ Every member of the team should recognize that he has a double responsibility—a limited responsibility for excellence in his own specialty, a broader responsibility as a member of the over-all planning group.
- Nhenever possible the builder (sometimes called the general contractor) should be brought into the team at the very beginning even if, in the end, competitive bidding is required. The experienced builder can make a very important contribution by supplying the good cost estimates which are so essential to economical planning and by giving good advice on construction method changes which might result in substantial savings. We view with some concern the recent tendency to hold the builder at arm's length until a low bid wins him a place on the team after the plans are fixed. More often than not owners can get a better building cheaper if they let their architect help them select a builder they can trust and work with from the very start.

But in the final analysis, there is no substitute for the value in good planning and good design that a client can get from the services of a good architect as the captain of the team—a professional person working in a professional capacity with complete independence.



Client's case is presented by Realtor Zeckendorf, who sits between Architects Welch (left) and Tuttle and Sleeper.



Attentive architects weigh viewpoints expressed by other side of table. Left to right (between Architects Sleeper and Tuttle) in foreground: Schlossman, Shaw, Purves, Luckman, Chairman Prentice and Kump.

Zeckendorf: To abandon esthetics is to abandon the profitable.





Yowell: In factories we don't care much about esthetic qualities.

Welch: You can get 10-25% more work out of a new building.



Kump: Isn't there an economic value in the architectural appearance of the building?

Harrison: Doesn't the word "design" also mean "imagination?"



Gruen: In the "janitorial style" of architecture, merit is measured by how easy it is for the janitor to keep up the building.

Some of the questions they discussed:

What can good architecture add to the value of an efficient building? Profitable esthetics

Chairman Prentice: Let us explore how architects can get more owners to set a higher valuation on the importance of first-class architectural and engineering services. By architectural service, I mean complete architectural service, rather than "applique" architectural services. In many buildings now going up it is obvious to anybody, even a quarter of a mile away, that not a very high appraisal was placed upon the value of architectural services by the people who put up the money for the buildings.

Harrison: We have cases right here in New York. There is no architecture going into many buildings, and very little engineering.

Zeckendorf: We tell the customer to consider one question only: occupancy costs—not how much am I paying per sq. ft.? If you can prove that you can create a better quality of space and more functional space by spending more money for the same cube, and if you produce something more salable, you will find that the intelligent owners will go for it. Therein lies the real spirit of progress in architecture and the real thing that the men in real estate are interested in.

Gruen: That can be transferred word for word into the language of the shopping center. Instead of needing 100 sq. ft., the store man needs only 80 sq. ft., because of certain features in your new store which weren't in the old store.

Welch: There isn't any question but what you can get 10 to 25% more man-hours of work out of a new building than you can get out of an antiquated building.

Kump: Isn't there an economic value in the architectural appearance of the building? We hear a lot about operating and maintenance costs, but what about the environment of the building and the character of the building? That hasn't been mentioned at all.

Zeckendorf: Yes, of course. There is a definite value on the esthetic side, if that is what you mean. You can appeal to the egocentricity or the feeling of being progressive of any forward-looking concern by offering it a better building. And you can collect some additional rent for that bonus.

Kump: How about architecture's contribution toward public relations?

Zeckendorf: An industrialist friend of mine who is not in the soap business told me that Lever House is worth \$500,000 a year in advertising and public relations value to Lever Brothers. If that is true, that is like saying that there is a capitalized value there of about \$8 million that they could well afford to have spent on making the building something more than an ordinary office building.

Kump: If you were building that building, would you pay that \$8 million?

Zeckendorf: We would do it somewhat differently than Lever did, but I certainly feel that what Lever did is in good taste.

Kump: Have you arrived at a building type, say, for offices, in which you have achieved, within your own judgment, utmost economy, including maintenance and operating efficiency and, if you were to put up a series of those buildings in the competitive market, would you feel it would be advisable to spend a little more money on them for esthetic reasons?

Zeckendorf: I think it is a terrible economy to save on that sort of thing. We just got through altering an office building. We air conditioned the building, we put in new lavatories, new elevators—everything inside was brand new. But when people went past the building, nobody knew that we had spent a cent on it, because we had not done any-

thing to the outside of the building or in the lobby. I said, "We must find a way to spend 10% extra to tell the story about what we did inside." We spent the extra 10% in the lobby and we got credit for the 100%.

Gruen: We talk so much about the economic return of buildings and about maintenance and upkeep, that it appears that the only aim of architectural design, planning and engineering is to design a building which will pay a good return, and which will be easy to keep up and easy to maintain.

If we believe that that is the only aim, we will arrive at something which I call the "janitorial style" of architecture. It's merit is measured by how easy it is for the janitor to keep it up. But that is only part of the proper approach; we have to add to it that certain something which gives the spark to the design.

Zeckendorf: To abandon esthetics is to abandon the profitable. We spend too little money on good taste. An extra amount of money should be spent on it for it pays the biggest return. Real estate has to be merchandised, like any other business.

Kump: Have you found in your experience that the creative mind or imagination can take the same materials and construction methods that will give you the best maintenance and economy and achieve unusual architectural aspects that set the building apart without increasing its cost?

Zeckendorf: That is the greatest contribution an architect can make.

Chairman Prentice: An owner can get that plus value only with the wholehearted interest of a first-class architect.

Zeckendorf: An architect who is sufficiently articulate to explain to his client why he should spend an extra 10%.

Yowell: In industrial plants we don't care too much about the esthetic qualities. I believe their public relations value is limited.

Show: You wouldn't mind if we made a good-looking factory for the same amount of money? The answer to that is, "Get a good architect."

Schlossman: Isn't it conceivable, Mr. Yowell, that in this "esthetics" we are talking about, we also get into the field of human nature and what the building does to the people who are exposed to it and have to live with it.

Yowell: From many standpoints I think you are 100% correct.

In the case of our Research Laboratory in Schenectady—one of the main considerations involved in the original concept of the project was that it must be outstanding in facilities and provide pleasant and attractive surroundings for top-grade scientists and personnel. I subscribe 100% to your statement regarding that type of project.

When we come to a straight manufacturing plant, we want good lighting, good employee areas, all features affecting employee comfort, good service areas, and so forth, but I do not feel that the pleasing appearance of the exterior of the building has the same value as it does with an office building or a laboratory. It is important to us to keep the costs down, because the cost of that building goes into our product and we have to compete with others in order to stay in business.

Schlossman: This added factor goes further than just a pleasing appearance for the exterior of the building. There is something more fundamental than just that. And if it is of value in attracting top-notch scientists, it may also be of value in pleasing and attracting the greater mass of employees. That factor does not necessarily add to the cost at all—sometimes it may even be had at a lesser cost if the building is properly conceived by the architect. It is an added value that an architect can furnish, and therefore it is essential for him to be brought into the picture very early in order to do that.

Yowell: That is correct. But the things that seem to me important from that standpoint in factory operation are those which affect the comfort of the employee: air conditioning, good light, clean toilets, and so forth. It is very true that the location of a manufacturing plant in an uncongested area with good landscaping and good surroundings will make that place so much more attractive to the people who work there.

Luckman: It is less expensive to be creative than pedantic.



I do not know how to put a dollar sign on it but there is no question about its value.

Haskell: You have probably done time and motion studies to establish what makes efficient production processes. Have there been any studies as to whether workers' efficiency depends upon how long the assembly line is, or how hig the building is?

Yowell: I don't know of any such studies.

Gruen: I believe if they were made, you would find some very surprising results, because if it is true that Mr. Reynolds finds a psychological influence in working conditions of large office buildings with mass office space (which is very little different indeed from working conditions within the General Electric workshops), and if it is true that cows give more milk when they listen to music, it must be true that there is a

psychological influence of design on workers.

Haskell: I don't think that the size of the job yet to be done is really appreciated by industrialists.

The fact that the American factory is the biggest building on the landscape that is seen by the American on any part of his traffic routes makes it an important architectural problem. It should get a great deal better treatment than it has, simply as a matter of civic pride.

The interior environment of industry has not begun to be studied to the degree that it has in commerce. I think that industry, which makes the biggest boast of efficiency, has the least of it in interior environment. We are still at the beginning of an epoch. If the architects haven't been more convincing about that point, it is because they aren't even accustomed yet to talk about it.

When does the economist come before the architect? When the architect is no economist

Chairman Prentice: What is the most important function you want the architect to perform well for you?

Dowling: Design.

Luckman: What do you mean by "design"?

Dowling: Not plot designing, because plot designing has to do with economics. It is basically an economic question. Once the economics are right, then all the genius that can be brought to bear upon the design is simply magnificent. But the financial structure has to come first.

Harrison: Would you be willing to modify the word "design" to the word "imagination"?

Dowling: Yes.

Haskell: One reason that Mr. Dowling got the plot plan that he has for his Gateway project in Pittsburgh is because of ideas thought out by that great man, Le Corbusier, in France, many years before. He maintained that you should put your cities into parks instead of putting parks into cities. If it hadn't been for that architect's idea, Mr. Dowling's plot plan would bear no resemblance to what it now is.

Dowling: Despite Le Corbusier, with all his greatness, we were not conscious of his influence.

Gruen: Either consciously or subconsciously, that is where it came from.

Chairman Prentice: It is a basic question, whether architecture is added to a building at the end, or whether architecture is something which has to be integral with the building from the very beginning.

Dowling: There would not have been a chance of the Pittsburgh buildings being built or land being bought if leases were not already available. Leases had to be had first; otherwise there would have been no land purchased, no reclamation of the slum area, no willingness to do the job at all. Some renting men were consulted, including real estate men who made a plan as to what would rent. The tenants were offered that plan and they accepted it to such an extent that it became possible for the financial agency to feel assured that they could go ahead and build something and could buy and reclaim a big slum area.

So it was born out of the necessity of having leases, which renting men could provide better, perhaps, than architects, or any other group of businessmen.

After we offered that rentable space to the tenants and they said, "We like it; we will take it," the owner decided "we will go ahead, and we will buy the land, and we will reclaim the slums, and we will employ architects, engineers and a board of design," and it was carried out.

Luckman: What you say, in effect, is that at the very end, if the architectural-engineering firm wants the job, they must take it or leave it. If they have any better ideas, it is too bad, because the basic plan has already been worked out."

Dowling: It happened to be so in that case.

Gruen: This is the "case of the unknown architect." There was an architect. Either it was Dowling or somebody in his office! There was an architect somewhere. We just don't know who he is.



Schlossman: We all have to bear the same reputation as architects, which is sometimes given to architects by a few.



Dowling: Overoptimism on costs brings more disrepute to architects than anything else.



Brouillette: Salesmanship is the No. I ingredient which architects lack.



Turner: The architect has to be more of a businessman.

How does the client suggest the architect

increase his stature, influence and fees? Salesmanship

Luckman: I would like to hear an answer to this question: "What does the client expect of the architect?"

Dowling: Here is my answer. The standards of architecture have got to be raised and the public's appreciation of the standards has got to be raised. We are dealing with the biggest asset of our nation. We are dealing with \$440 billion, if you take metropolitan structures alone. That is out of \$800 billion of replaceable wealth in this nation.

The greatest assets of the nation are its structures and the architects are the people who are designing them. Two-thirds of our people live or work in these structures.

If you make medicine or breakfast food, you have to put on the outside of the box what is inside of it, and it has to be a factual statement. I don't think we have had enough of that by architects.

Chairman Prentice: As a builder you are in the middle, between the client and the architect; have you any good advice to give the architects?

Turner: The architect has got to be more of a businessman. I don't say that in a critical sense. The people he is selling to are businessmen who are interested in time and costs, as well as in having something that will house their personnel.

Zeckendorf: Architects have got to become more sales-minded. They have got to be able to sell the reasons for good architecture. A businessman is, generally speaking, a pretty intelligent animal; if you can show him why something is a good investment, he will buy it. Businessmen today are willing to buy intangibles if you can show them a return.

Brouillette: Salesmanship is the No. 1 ingredient which architects lack. They have

things to sell and they don't sell them. Once in a great while you find an exceptional man who sells his wares. They have nobody to blame but themselves that they don't get a better fee. They don't know how to sell. That is the main ingredient in any business

Secondly, I don't think they define their services. They let people who buy them remain in ignorance. I don't think the average architect or engineer pays enough attention to what we are trying to accomplish with a building

I can tell you from working with probably 75 concerns around the country what the average businessmen really think of an architect. They think he is either an artist or a mechanic. That goes for the engineers, too. They don't get into the economics of what is needed; they don't study the problem thoroughly before starting design.

To me, that is one of the biggest contributions that an architect can make. I am not decrying their work on the appearance of the building, and I don't think it has to cost money. I have seen some of the most horrible-looking buildings which have been very expensive.

To me the most successful architects and engineers are the men who basically are good salesmen and good economists.

We have found that so lacking that we felt it was necessary to build up our own staff of men—architects, engineers and designers—to lay out and study the basic needs and do the economic study. Then we turn the job over to the local architect and say, "Here is what we want. You design and detail the building."

Part of the problem, I realize, basically, is in the lap of management because they really don't know what they want themselves. They expect the architect to come in and be a sort of panacea to solve their problems.

Chairman Prentice: I am reminded of the biggest mistake in selling that everybody on the face of the earth makes: he wants to talk about what he has to sell, instead of talking about what the client or prospect wants to buy. If the architectural profession would concentrate its thinking on what the client wants to buy, they would have a lot less trouble getting clients and getting well paid for their work.

Brouillette: The architect and engineer have to find out what the problem is that has to be solved, and what the needs of the owner are. In too many cases they don't.

Gruen: Mr. Reynolds said much the same thing. He said it was probably the fault of the fee not being big enough to permit the architect to do the proper research.

Yowell: We believe in retaining the architect early in the game. However, in designing our industrial projects, we must remember that these projects must pay out financially. The architect should be able to perform a real service for us by showing us in his design how we can obtain economy in construction.

The principal reason many companies do not place a high value on first-class architectural service is their belief, though incorrect, that top-grade architectural service will result in higher costs as a result of expensive finish treatment and too much emphasis upon the esthetic features.

The architects should attempt to counteract that by showing that they can and do produce economies in design which save the owner money.

How to put together a building team: Here is an organization chart

Zeckendorf: There is no difference between building a building and running any other business. The building venture is a complete business venture. The owner has to have an organization chart and has got to know where he is going. If you don't, you may as well get ready for all the mistakes in the book. We have made mistakes by not doing it. Everytime we have had a proper chart and men qualified to exercise the work that was given them, we minimized our mistakes.

The work has to be done as nearly as possible by professionals at every level. I don't believe in a building committee as such, running a job for hospitals—one fellow a banker, one a shoemaker, and so on.

Cromella: In many cases, the owner is not a professional.

Zeckendorf: Whether it is building an apartment house or office building, or running a factory, the same basic principles apply. The trouble is that, because construction is so full of professional men each of whom has idiosyncracies and professional pride and so forth, they don't want to cross lines. If an organization can be set up as in any other business, you will minimize mistakes.

Chairman Prentice: What organizational chart do you have in mind?

Zeckendorf: State the problem. Is it going to be a home, office building or factory? You will have different types of persons on the job. Let us say it is a speculative office building, a multiple-story building in an urban area. The first thing he has to do is decide on the location and analyze the economics of the land in that area. Having decided that, he calls in the renting agent and says, "Can I rent space in this area for \$6 a ft., \$5 a ft. or \$4 a ft.? What is the demand?

Let us assume he says this neighborhood demands showroom space. The prevailing rate is \$3 a ft. in that area. I am assuming you have chosen wisely in this renting agent and that he knows what the market is, that he knows what the column spacing should be for that trade, what kind of ventilation is needed for merchandise display space. He is the man to work with your architect and come up with a plan. The owner and the renting expert in concert must tell the architect to build a building of a certain character and type. The owner adds, "I can't afford to spend over \$12 a sq. ft. for the building." While the architect does not necessarily know all the market and construction costs. he has a sense of direction as to what kind of specifications he has to have. It is a tough job to produce something of that kind for

\$3 a ft. He has to have air conditioning, so he calls in a first-class air-conditioning engineer, and says, "This is the budget."

After working together, the renting man, the architect and the engineer go back to the owner and say, perhaps, "Sorry, we don't think we can afford to build it. You can't do it for \$3 a sq. ft. in rent. Can you get \$4 a ft. or \$3.50 rent? If so, let us get a builder."

You have not spent a lot of money in planning yet; you have lost nothing in architecture or construction. You have a rental expert, an engineer and architect, and a builder who says, "I am not the engineer or architect, but I have had a lot of experience recently and I can show you how to save a little money, because such and such materials happen to be cheap now."

There is a soft spot, let us say, in a certain type of structural material. There is not much buying in reinforced concrete, for instance, and he says, "Let us try it."

In summary I would say that the lines of authority would go as follows: Directly from the owner of the property to the renting agent, architect and engineer, and the builder. After the owner and renting agent have given their instructions, the architect is boss down to and including the point where the builder comes up with opinion of costs.

Why are not buildings better engineered? Cut-rate consultation



Panero: The client demands more mechanical services today than before.



Leopold: If an engineer must depend for his livelihood on the leavings of the architect, he has no chance to do imaginative work.

Severud: Experience means a lot, but it is no good unless judgment is exercised.



Chairman Prentice: We are in an age which some people like to call the "Age of Engineering." We are told that the greatness of America is due to engineering. There certainly is great engineering on many, many fronts. Yet one British engineer deplores the fact that buildings are not as well engineered as the Eskimo igloo.

Whereas building inevitably attracts the best architects, because there is no other place for them to go, I wonder if building attracts the best of the engineers.

Leopold: Let us assume for the moment that the best engineers are not attracted to this profession. I don't know. There is a good cause: First, our engineering schools teach people to be good engineering employees for large corporations.

Second, if an engineer must depend for his livelihood on the leavings of the architect, he has no chance to do the kind of imaginative work that any good engineer wants to do. The engineer works on a third of the total budget. If he is to be paid a portion of the architect's fee, I do not see how—whether he be structural or mechanical—he can afford to be original.

Most of my work is direct customer work. I work very happily with a number of architects and profit by it, but I could not have built the kind of organization I now have by depending upon the customary fees paid by architects.

We have discussed budgets. I am working on a project for which we have prepared budgets on seven different methods before submitting a preliminary report. This would not be reasonable with the customary fee paid by an architect to an engineer.

Luckman: I agree with most of what you said, except for one thing. In my personal opinion, it is less expensive to be creative than it is to be pedantic.



Harrison



... and some of things they doodled



Kump



Gruen

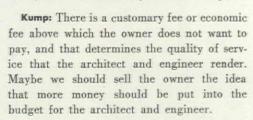
Zeckendorf

Auckman: I cannot agree. There are too many engineering concepts, just as there are too many architectural concepts which are fettered in the past and thus have become complicated. Many of them are, therefore, expensive to execute—not for the owner, but for engineers and architects in terms of what it costs us in the shop to execute complicated and difficult drawings. On the other hand, originality frequently results in simplicity of

Leopold: It takes time, because a large

Leopold: That is correct, but the more you learn, the more avenues you want to explore.

concept which is less expensive to all con-

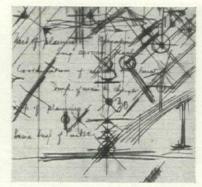


Leopold: I have known very few owners who, when asked for additional fees for engineering by their architects, refused them. I have known many architects who refused to ask for an additional fee for the engineers, figuring that you buy engineers as you buy potatoes. This is a problem of human nature.

Luckman: I don't think so. We are now talking about the fundamental problem that our entire fee arrangement is wrong. We normally operate on a percentage of costs, and the better job we do in terms of reducing the cost to the client, the less fee we earn. If we as patients of a doctor went to him and said, "If you will operate on me and get me up on my feet in half the time of a normal convalescence, I will pay you half of your continued on p. 180



Luckman

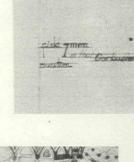


Paner

Leopold



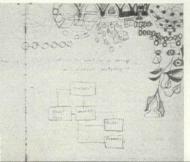
Tuttle



Crandall



Cromelin



THREE SMALL BUILDINGS

for suburban businesses

The three small business buildings shown on this and the following five pages express two growing trends among US businesses: 1) movement to uncluttered suburban locations, and 2) use of architecture to trademark the character of business going on in the building.

These three business buildings are about as diverse in function as they can be. The first is an office and research building. The second is a complete manufacturing plant. The third is a handicraft sales building in a parklike suburban housing development.



1 page 157

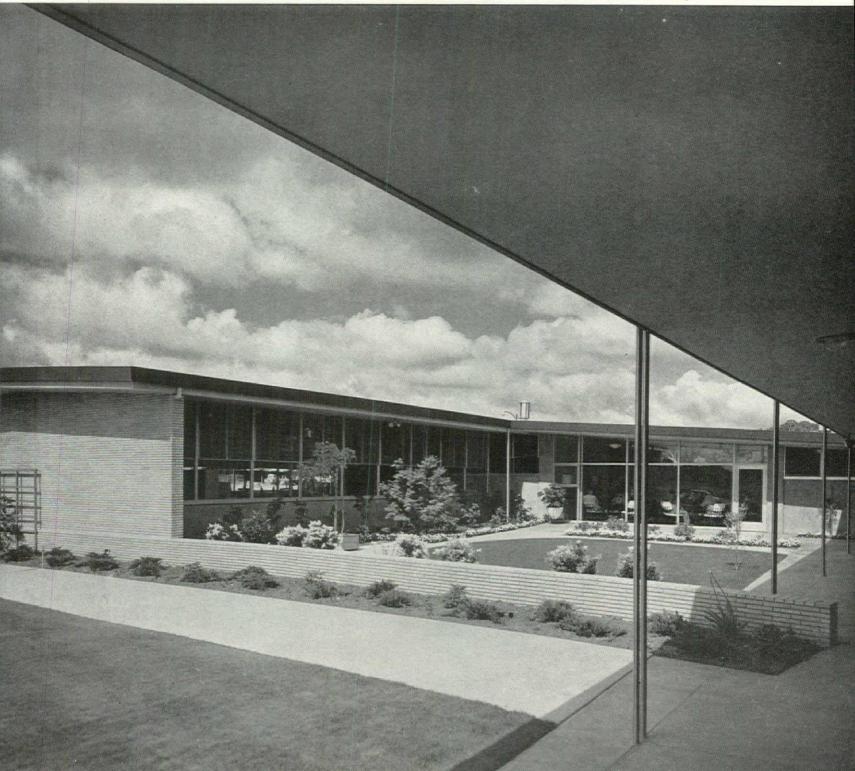


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3 page 160

Photos: Fred Lyon; Rondal Partridge & Photo & Sound Production



One-story office building suggests relaxed work conditions that prevail for corporation's 75 personnel

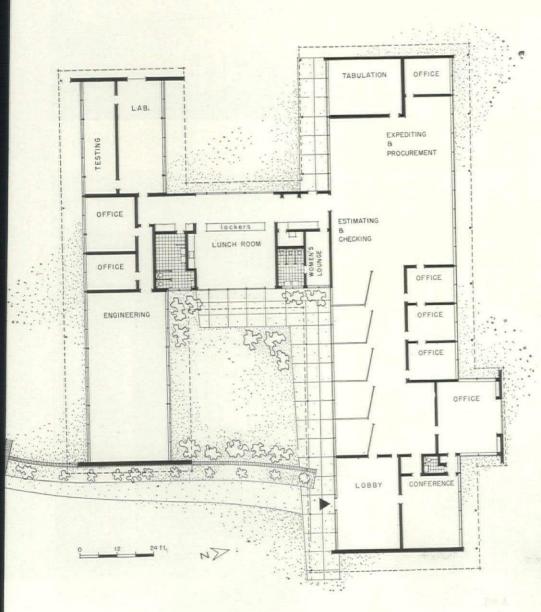


Rambling H-shaped building is oblique to front lot line, has space behind it for future expansion

MAGNA ENGINEERING CORP., Menlo Park, Calif.

BIRGE M. CLARK—WALTER STROMQUIST, architect
WALTER L. HUBER—EDWARD M. KNAPIK, structural engineer
CODDINGTON CO., mechanical engineer

1 Sprawling plan exposes all offices to country atmosphere



A fair number of US business firms have recently moved to offices in the country, but few make good use of the country. Magna Engineering, when it decided to unite two separate San Francisco offices, put up a new single building on a two-acre site in the open fields still to be found at Menlo Park, a rapidly growing industrial suburb. (Across a field are the Sunset offices, a pioneering example of the country-life office building movement—AF, Feb. '52.) And the grass roots crowd against the slab.

The one-story height and the spread-out plan sprawl the building out on the ground.

The connecting link between the engineering and the administrative wings puts nothing between balmy Nature and hard-working Magna workers when they enjoy their lunch or "coffee break," except protective sheets of glass, reaching from the ceiling to the floor on the ground.

The long north- and south-facing walls have virtually continuous windows that sweep the inviting country view, or parts of the planted patio.

Informality goes along with the countrified atmosphere—private offices and formal corridors are kept to a minimum.

The structure is of an economical open-loft type suited to the informal use. The floor is a radiant heated slab on 1' of rock fill. The roof is carried on steel pipe columns and wooden beams. Walls are nonbearing, framed with 2 x 6 studs with diagonal sheathing and a 1" exterior stucco lin-

ing which yields to brick veneer where the front of the building is tied in with the brick of the curved patio wall. The entrance canopy continues as a shading arcade along the south side of the patio. The outer one of a pair of stainless-steel pipe supports (see photo, p. 156) acts neatly as a roof drain from the hidden gutter.

Cost of the 11,500 sq. ft. building came to \$14.30 per sq. ft. (\$165,000) including fees.

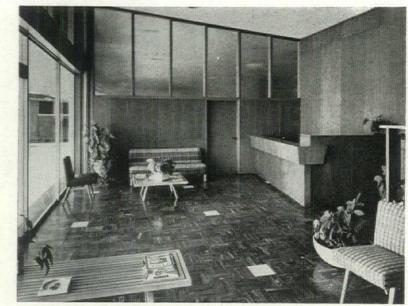
This building won an award of merit in the Bay Area AIA exhibition covering work of the past 20 years.





Open loft space in office contributes to sense of communal activity.

Louvered clerestory in south wall supplies working light.



Informal lobby in administrative wing opens off covered front walk. Walls are birch plywood, floor is rubber tile.



Lunchroom between two wings, brings engineering and administrative people together at lunch and during two coffee breaks each day.



Executive office is one of few private spaces in the nearly corridorless building. Even here layout and furnishings stress informality.



Crisp details of manufacturing plant speak of precision and efficiency inside

2. Handsome factory complements landscape, but regulates the view

C. A. NORGREN CO., Englewood, Calif.

STANLEY E. MORSE, architect

JARED MORSE, designer

F. J. KIRCHOF CONSTRUCTION CO., contractor

PLANT UNIT

PARKING AREA

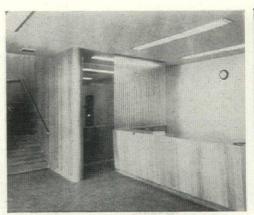
PARKING AREA

This manufacturing plant is in a position to enjoy one of the most dramatic suburban locations conceivable: a site with a 100 mile view of the Rocky Mountains outside of Denver. In addition, the plant is adjacent to a suburban park where workers enjoy—at noon or after hours—such recreational activities as baseball, swimming, golf and picnicking. Oddly enough, except for the lobby, the first floor is windowless. The view may be enjoyed only from the second floor lobby and "view terrace."

Architecturally, the building speaks of crisp, no-nonsense operation. The plant mass-produces pneumatic products (air-operated machinery) and the nature of the precision work requires concentration and accuracy on the part of the workers. Owners anticipate the new suburban location and the more efficient building will increase productivity as much as 20%.

The building is steel framed (except for a masonry bearing wall on the west side), has masonry walls and lightweight concrete roof and floor construction. The administration section is enclosed with cavity walls: plastered cinder block inside, flagstone outside with insulation between.

Photos: (top) Maxwell; (below) Albert O. Corwin



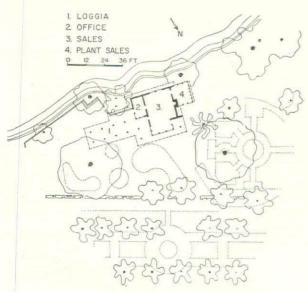


Lobby is at front of administrative section; stairs lead to upper lobby and terrace roof, door to sales office. Production of pneumatic products takes up rear two-thirds of building.



Garden setting of building provides outside display space for products

ALLIED ARTS GUILD STORE, Menlo Park, Calif.
GERMANO MILONO, architect
THOMAS D. CHURCH & ASSOCIATES,
landscape architect
LOUIS A. ANDERSON, contractor



Crafts showroom makes the most of its wooded site

Being spontaneous looks easy but is most difficult for many of today's architects. Witness how few buildings in parks are truly informal, how few are genuinely rustic without being heavily self-conscious.

In this unostentatious little garden and crafts salesroom set under big trees in parklike surroundings, Architect Milono has been quite subtle. Notice how he lets his roof sweep low on two adjoining sides and how he lets it stop higher up on the other two, so each gable has a long leg and a short one, in an interesting repeated rhythm—yet there are no complications about the juncture of ridges or valleys or fascias.

The details are equally unfussy—the impression is that most of them have simply been left to skilled carpenters to do as came natural. The result is a charming little stained wood structure that goes well with surrounding farmhouses as well as the handsome early Gardner Dailey traditional houses of the neighborhood: so well that the AIA jury chose it as one of the best in the Bay Area for the past 20 years.



Rustic design blends building comfortably with the wooded entourage.



EAST BRONX HOSPITAL CENTER
POMERANCE & BREINES, architects
GUY B. PANERO, mechanical engineer
I. HELLERMAN, structural engineer
MILTON HEBALD, sculpture
CLARKE & RAPUANO, landscape architects
GERACE & CASTAGNA, general contractor

LONG-RANGE

MARCUS D. KOGEL, Commissioner of Hospitals, New York

FREDERICK H. ZURMUHLEN, Commissioner of Public Works, New York

Model shows tuberculosis building in foreground, general hospital in rear. Most patient rooms in both buildings face south (toward camera)



HOSPITAL CENTER

New York builds a general hospital group with elbow room, convertibility and an up-to-date psychiatry program





Staff quarters viewed from hospital grounds

This giant teaching center—an 898-bed general hospital and 500-bed TB hospital set in a 60-acre tract—combines some advanced medical thinking with some sharp architectural thinking about site plans.

The doctors made the discovery that the old tuberculosis hospital is not eternal and has to be changed. The architects have discovered that the old demand of flat and "usable" sites is not eternal. Just as the hospital, after its tuberculosis use, can be converted to something else, so land which hitherto has been of no use can be converted into top-notch hospital property.

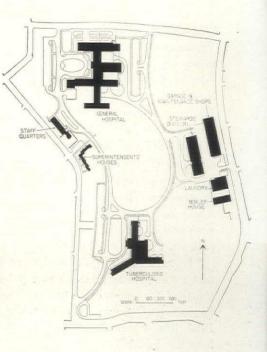
The site—which works out as almost a miracle of ample, long-range hospital planning in a big, jam-packed city—has been passed up again and again by institutions, commercial builders and housers because it was so rugged.

But Architects Pomerance & Breines studied this cheap (\$700,-000) ugly duckling and came up with a scheme that turned the contours to advantage.

They put the hospitals proper on high ground with a view. They placed main entrances on the high western side, service and basement and sub-basement levels on the east, nicely segregating these functions. They put service buildings unobtrusively in a hollow. Future housing for superintendents' families will not be embedded in the institution as is customary in municipal hospitals; it faces into a nice residential street.

Study of the site began because of what looked like bad luck—loss of another, choice 20-acre site to a municipal housing project. After it was clear this second, 60-acre site could be made to work, the Department of Hospitals and the architects did a lot of careful staff work on a city-planning level. They patiently followed up every ramification of their plan: bus company and transportation officials agreed to reroute a bus line around the site; the Parks Department swapped land for a bus terminal in return for a swatch to widen a parkway; everybody involved, from the Bronx Borough president's office to the sewage department, learned how the project affected them.

Result: When the site acquisition came up for approval by the city, there were no unknown quantities, no flaws, no reasons for not breaking hospital site-size precedent.





Tuberculosis hospital, viewed from bus shelter at southwest corner of site.

"Long-stay hospital is a more accurate name for this unit than TB hospital," says Dr. Marcus Kogel, New York's hospital commissioner. Looking forward to a hopeful day when TB hospitals—or anyway this TB hospital—may not be necessary, the needs of chronic patients in general were considered equally with those of TB patients. For instance, all showers are equipped for wheelchairs; walls have rails to aid walking.

Most facilities that characterize this as a "long-stay" unit are grouped on the second floor (see plan). Auditorium and class-rooms are patients' facilities, not—as might be assumed—for staff or students. The basement has a complete clothing care department; each floor has its own dining room and such unusual conveniences as self-help stocking-and-underwear-laundry for women patients.

"To make the hospital still more flexible, we were careful to take nothing away from nursing units that would make them impractical for general hospital use," says Kogel. This acumen will pay off very shortly, in fact. When the unit opens in January, 1954, it will immediately take pressure off badly crowded Bronx hospitals by serving as a general hospital (with outpatient department) for everything but obstetric and pediatric cases. It will switch to TB cases after the new general hospital opens in 1955.

To keep grounds to the south open and quiet and to leave ample space adjoining the hospital for patients' terraces and walks, the outpatient and visitors' entrance are behind the patients' wing, on the west

This gave the architects the problem of making the main entrance look like what it is, rather than a "back door" at the rear portion of the building. To this end, they indicated sculptural accent for the big (78' x 53') gray-brick facade raised 10' above the entrance.

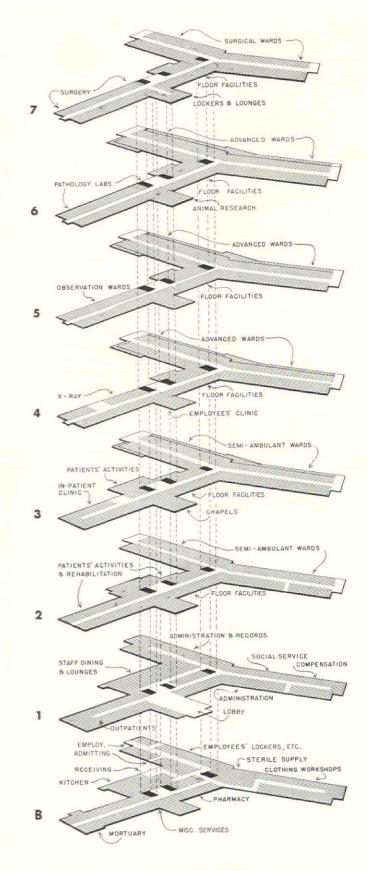
The winner of the invitation competition to fill this space, Milton Hebald, arrived at a very happy solution, on a scale which is satisfactory both in terms of the architecture and of the human beings who will enter the building. His four figures (the two larger about 12' high), are sculptured in the round, rather than in the bas-relief which most other entrants chose, because Hebald believed the stark facade needed both an emphatic accent and the enlivening qualities of light and shadow.

Cost data:

General hospital	\$16,400,000.00
TB hospital, service buildings, bus shelters	12,150,000.00
Total*	28,550,000.00
Per cu. ft.	1.75
Per bed	20,400.00

^{*} Excludes architects' fee and \$800,000 for sitework and landscaping.

LIVE . Hehold

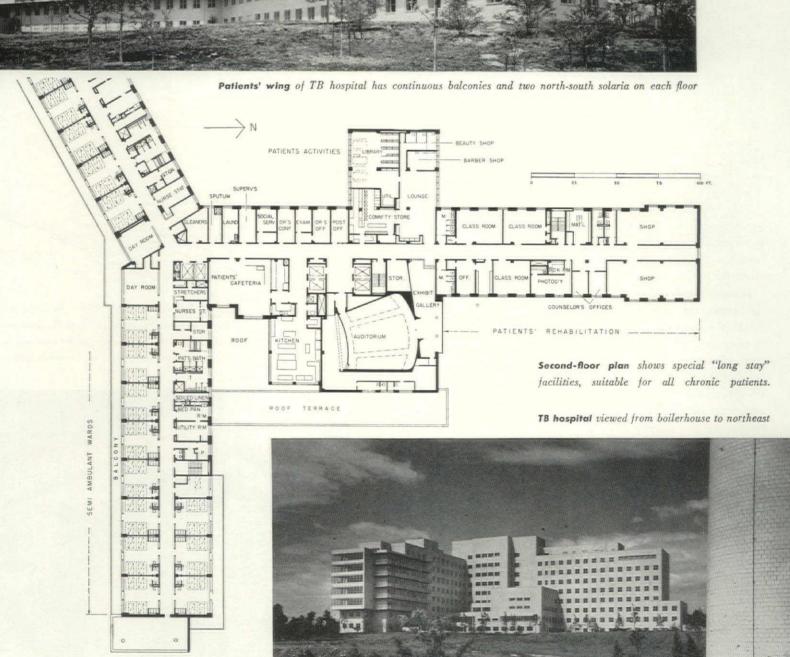






Sculpture-in-the-round of family welcoming back the father will give heroic-size accent to 78' x 53' entrance facade of TB hospital





The general hospital has a feature that merits study by all hospital architects: its unusually complete psychiatric service—outpatient, day-patient, inpatient, and psychosomatic service for patients of surgical, medical and obstetrical services.

This is very much a coming thing for general hospitals of all sizes except the smallest. More and more frequently, architects are going to discover psychiatric facilities listed in general hospital programs and they will need to understand why it is important to integrate these facilities into the hospital, as Pomerance & Breines did here, rather than set them apart in any way.

The reason why this new problem comes up at all, as Dr. Kogel points out, is that "medicine has now advanced to a point where we can successfully treat certain psychiatric conditions in the general hospital."

The chief reasons why these new facilities have to be woven right into the rest of the hospital are: This helps overcome the stigma of inpatient mental treatment. Patients and their families will often welcome psychiatric treatment in a "plain hospital," while they resist clearly labeled psychiatric care until the patient is badly deteriorated. It helps overcome a similar reluctance toward psychiatric outpatient and day-patient care, which means that more patients can be treated while they are in relation to their environment-instead of waiting until they must be removed from it—and with the aid of other community services. (Note how the architects have tactfully treated the separate mental hygiene clinic as simply another outpatient entrance.) Inside the hospital, integration helps educate all staff members on psychiatric treatment and problems (some psychiatric education is becoming indispensable for all doctors). And it makes all services alert to psychiatric complications. The psychosomatic service also has an extra reason for integration: its flow of patients comes from, and returns to, other departments.

Like other general hospitals that have started psychiatric services, this one will keep no custodial patients. Only patients with good prospects for reasonably quick recovery will be accepted for treatment; most will be ready for discharge within 30 days.

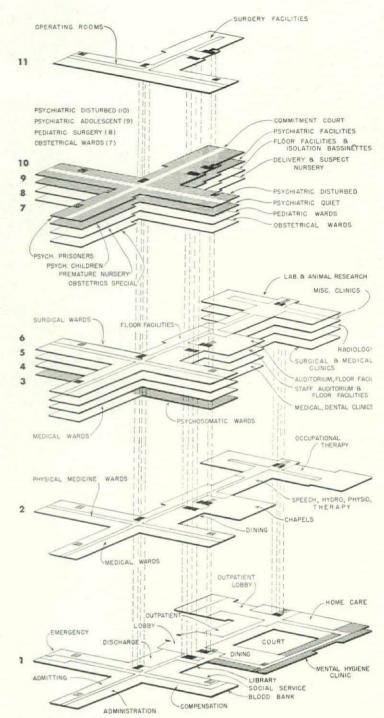
This municipal hospital will also have considerable transient psychiatric traffic, however. Like New York's famous Bellevue, it is responsible for accepting all psychotic cases brought in, seeing cases through commitment court, if necessary, and routing them to other institutions.

Because the facilities are for short-term treatment and because the wards are "diluted" by even shorter-term transients, Kogel thinks the space allotted for living-dining and inpatient therapy is adequate. This is a controversial subject. Majority weight of opinion seems to be that a general-hospital children's psychiatric ward of this size (see ninth-floor plan, opposite page) ought to have two playrooms plus a dining room; that a group of 26 quiet or adolescent patients should have at least three general living-dining rooms, and that general hospital psychiatric wards should contain a fairly high proportion of single rooms.

Agreement is general, however, that the larger breakdown shown on the floor plan—into adolescent, child and quiet groups (plus the breakdown of facilities on other floors)—is excellent.

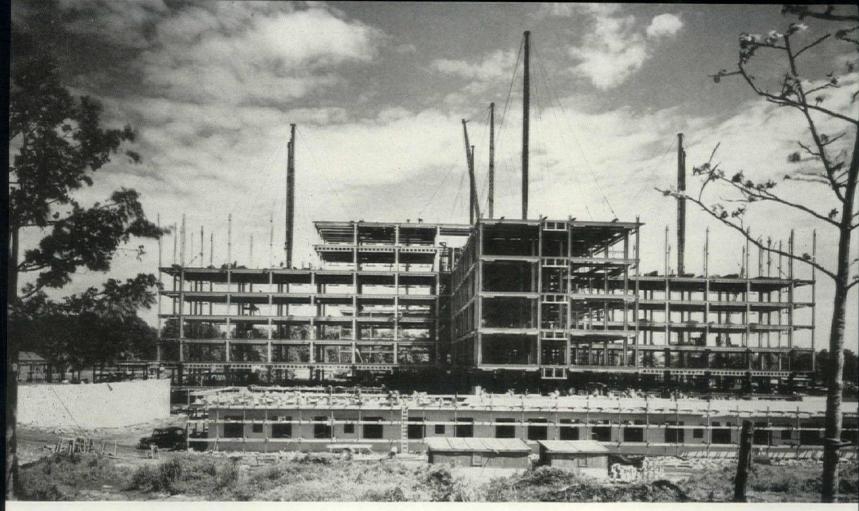
The over-all organization of the hospital includes a unique experiment: Instead of a general kitchen for all patients, complete kitchens are put on alternate floors (with serving pantries on nonkitchen floors). The idea behind this is that cooks who have their own domains (instead of being submerged in a "factory") will both produce better food and be more stable employees. When "frozen meal" feeding systems become practical, the hospital will be ready; kitchens will be converted for electronic thawing of prepared foods.

This new teaching hospital center will serve Albert Einstein Medical College of Yeshiva University, to be built close by.

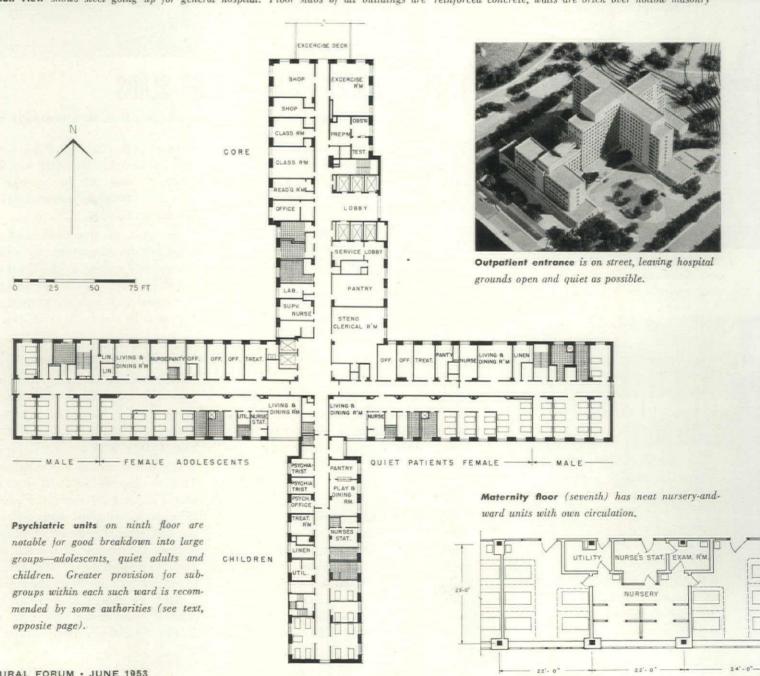


Schematic diagram of general hospital shows psychiatric facilities indicated in gray tone. Excellent integration of these departments is an outstanding feature of hospital. Facilities used in common by out- and inputients are grouped in north wing above outpatient entrance and lobbies.



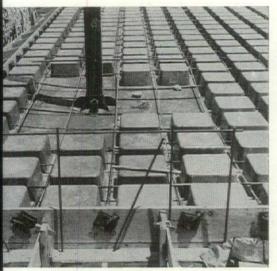


Construction view shows steel going up for general hospital. Floor slabs of all buildings are reinforced concrete, walls are brick over hollow masonry

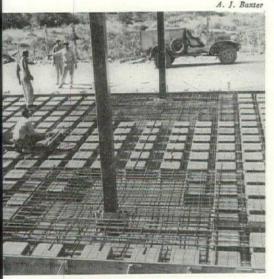


BUILDING ENGINEERING

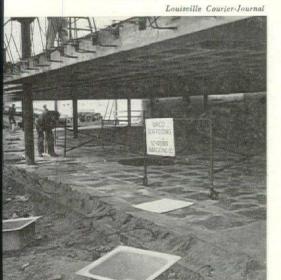
- Parking decks of crackless concrete
- 2. Lightweight tension roof for parabolic pavilion
- 3. Laminated timber in cantilevered rigid frame construction
- 4. Welded camel-back trusses for 250' span



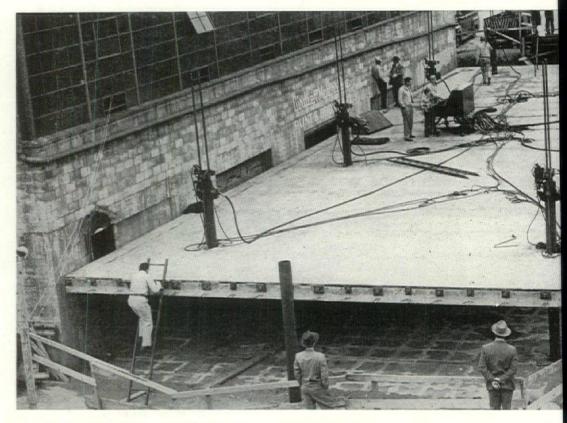
Plastic pans, set 2' o.c., have two way system of prestressing wires between them. Collar is welded to column once slab is lifted.



Top reinforcing in solid concrete around columns helps resist negative moments and shear. Note absence of pans in this area.



Slab is lifted after 5,000 psi concrete is cured and wires tensioned. In foreground are two of the pans on which slab was cast.



1. PRESTRESSED "WAFFLE" LIFT-SLABS

Three modern developments in concrete technology combine

Since World War II there have been three outstanding developments in US concrete construction, especially applicable to factories, warehouses and parking decks:

- Youtz-Slick lift-slabs to cast floors and roofs on the ground instead of on temporary scaffolding way up in the air (AF, Sept. '51, p. 180);
- 2. European techniques of prestressed concrete have been adapted to our high labor-cost economy to give stronger, more durable construction (AF, Sept. '51, et seq.);
- 3. Concrete slabs have been made lighter by using prefabricated coffer pans in the underside of the slab. These pans have been made of precast concrete, metal, corrugated cardboard (AF, May '53, p. 150) and now polyester plastic reinforced with glass fiber.

After perfecting the Youtz-Slick lift-slab method, Southwest Research Institute engineers in San Antonio aimed at greater flexibility of column spacing. Existing jacks could only lift 50 tons each so that, with adequate safety factors, columns could not be more than 20' to 25' apart. Stronger prestressed waffle slabs allow

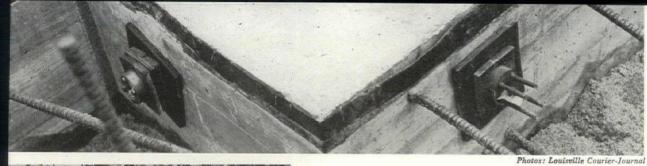
column spacing to be increased to 36'-8" one way and 28' the other and the slabs lightened from 140 lbs. (compared with equivalent flat-plate construction) to 90 lbs. per sq. ft.

Last year, the first prestressed slab was lifted to form an experimental roof over a laboratory building at the Southwest Research Institute. It, however, was a simple prestressed slab with no attempt made to lighten it by the waffle technique.

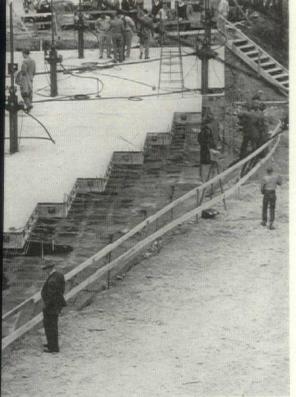
Louisville parking garage

Dahlem Garage in Louisville is a singlestory structure with an open-air parking garage on the roof. This is cast in two sections on the ground-floor slab and hoisted $11\frac{1}{2}$ into position.

The largest slab is 100' long and 35 to 51' wide supported on ten 8" steel columns placed 32' and 28' apart, the other 38' x 75' upon six columns. Both are cast upon polyester glass-fiber pans 24" square at the bottom, 18" square at the top and 10" deep, each weighing 7 lbs. Placed side by side in both directions these pans form a wafflelike slab with two-way concrete joists 4" wide at the bottom, 6" wide at the top and 24" o.c. Designed for 100 psf



Prestressing anchorages at edge of slab with wires tensioned are ready for grouting.



Parking deck of Louisville garage is hoisted 11½'
by hydraulic jacks atop ten columns.

99'.9" 28'.0" 28'.0" 28'.0" 28'.0" 28'.0" 28'.0" 28'.0" 28'.0" 28'.0" 7'.9" 41-4 WIRE PRESTRESSING UNITS AT 2'-0" * 82'-0" VARYING LENGTHS 24 ALTERNATE 4 AND 6 WIRE PRESTRESSING UNITS 24" 0.C. (00'-0" LONG 11.-"4+14'.0" 41'-9" weld of 1/4" 6 high tensile steel wire wire mesh reinforcing weld shear plate 8" 88" box column 28'-0"

to produce long, light, crackless spans

live load, each slab weighs 90 psf plus additional solid concrete around columns raising the average weight to 105 psf.

In addition to mild steel reinforcing each joist contains prestressing wires anchored at the edges of the slab. These are 1/4" diameter high-tensile steel wires, arranged in four wire units across the short axis of the slab and alternate four-wire and six wire units along the long 100' axis.

High-strength concrete

Once the wires are in position, top mild steel reinforcing is placed around the columns and the entire slab covered with wire mesh to reinforce the 2" thick concrete above the pans. High-grade concrete is carefully vibrated to achieve a strength of 5,000 psi average in seven days, and 6,200 psi average in 28 days. Prestressing began after five days curing, using 30-ton hydraulic jacks, one on each end of each group of wires to minimize friction losses. To prevent bond with the concrete each group of wires is wrapped in plastic and greased. Wires are tensioned to 145,000 psi and final stress is about 120,000 psi after 15% shrinkage loss (their ultimate tensile strength is 220,000 psi). This required a 14 ton pull on the four-wire groups and 21 tons on the six-wire groups. After tensioning, wires were anchored against the edges of the slab with a double-headed wire technique and the anchorages grouted. Tensioning averaged about 15 minutes per unit.

A small incident on the Louisville job demonstrated the importance of high-quality workmanship in prestressed concrete. When one of the six wire units was under full tension it burst through the concrete for a distance of 7" back from the edge of the slab. Examination showed that the concrete at this point was weak due to insufficient vibration. After release of the wires the crack was grouted and the edge reinforced by a 3/4" angle iron: after curing of concrete the wires were tensioned and anchored without further difficulty.

The slab was lifted in $7\frac{1}{2}$ hours. As it rose many of the plastic pans simply fell onto the ground; the few that were stuck to the slab were removed by a jet of compressed air blown into a gap chiseled at the edge of each pan. Pans are rented at 40ϕ per pan and have proved very durable; some have been reused 15 times.

Although prestressed lift-slabs should save 10% in material costs over standard

reinforced slabs, they currently cost 10¢ per sq. ft. more. However, the developers believe a major use for the prestressed lift-slab technique to be in parking garages where they believe it is well worth a small premium to eliminate cracks in exposed concrete decks and avoid deterioration under alternate freezing and thawing conditions in winter.

Contract price for the 7,300 sq. ft. Dahlem garage was \$55,000 or \$7.55 per sq. ft. It was designed by the Ohio Lift Slab Co. (who report that they have obtained bids on two prestressed parking garages in Akron and Cleveland for under \$3.00 per sq. ft.); the slabs were prestressed by Prestressing Inc.; contractor, Dahlem Construction Co.

San Antonio physics building

A three-story physics building for the Southwest Research Institute is now under construction at San Antonio, Tex., to the designs of Keppel O. Small and Eldon Teschner, architects. Three slabs each 96' x 34' are carried on 8' x 8' steel box columns spaced 36'-8" one way and 26' the other. Live loads on the floor are 65 psf and on the roof 30 psf, carried by slabs of similar design to the Louisville garage.

2. PARABOLIC CABLE ROOF

Insulated steel deck with supporting tension cables weighs 7 lbs. per sq. ft.

America's first big permanent suspension roof is now covered. Roof flutter in the catenary surface (the problem that has prevented construction of more of these economical roofs) is controlled by a two-way system of tension cables. Seventy thousand square feet of corrugated steel deck, insulated and topped with light-colored builtup roofing, now encloses North Carolina's famous 5,500 seat livestock judging pavilion. The deck was erected in four weeks by ten men and cost 15¢ per sq. ft.

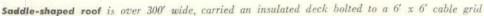
The structure, originally conceived by the late Matthew Nowicki, employs a

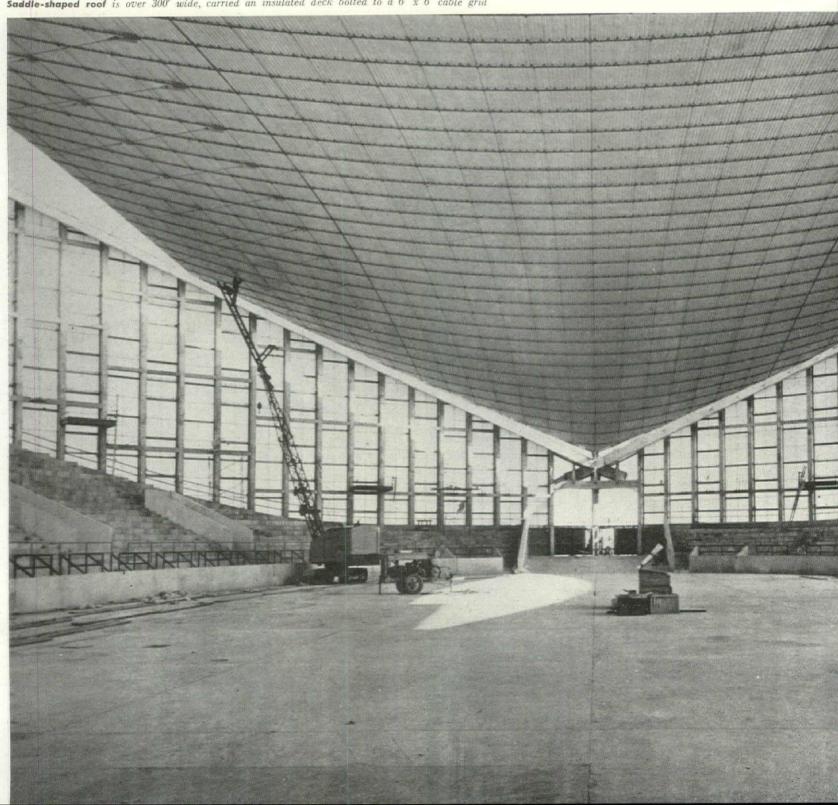
unique stemming principle (AF, Oct. '52. p. 134). Steel box columns support two crossed oblique compression arches of reinforced concrete; the roof is carried by tension cables slung between them. Side walls are composed of glare-reducing glass fixed between columns, which are close enough (6'-11") to act as mullions.

Main problem in the suspension roof is to prevent flutter. Primary cables are slung across from arch to arch at 6' intervals; these are held down by longitudinal secondary cables also 6' apart, attached beneath them to provide a 6' x 6' cable grid. Main cables, 3/4" to 1-5/16" dia., and secondary cables, 1/2" to 3/4" dia., are delivered in the required lengths and with ends socketed for easy erection.

Hot weather might slacken the cables, therefore secondary cables are prestressed to hold down the main cables at any normal temperature. The system is further stabilized at each side by guy wires tensioned with adjustable springs.

At each 6' x 6' grid intersection the cables are anchored by double clips fastened by workmen in crow's-nest baskets atop long booms of crawler cranes.



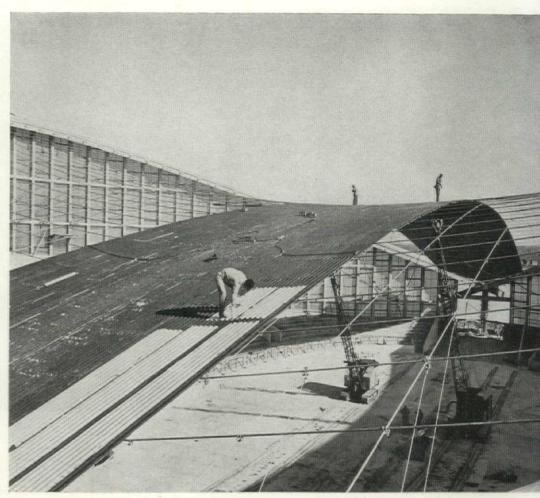


The 27 ga. corrugated steel roof deck is composed of 2'-9" x 7' sheet coated with zinc and asphalt impregnated asbestos felt. Undersides are aluminum painted.

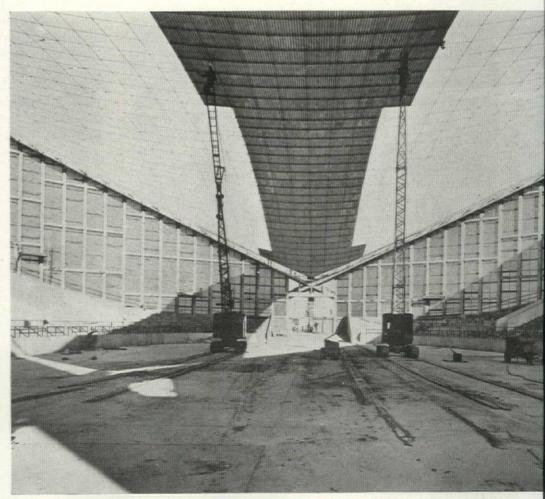
The first few rows of roof deck were placed down the middle of the arena by men working from the boom crow's-nests. After a workable area of roof had been fixed, work could proceed from the roof itself. The deck is covered with $1\frac{1}{2}$ " rigid insulation board and built-up roofing.

The pavilion was designed by William Henley Dietrick architect, and the late Matthew Nowicki, consulting architect; Severud-Elstad-Krueger were the consulting engineers. The ingenious erection procedure was developed by the contractors, William Muirhead Construction Co.





Corrugated steel panels are fixed to cable grid with strap clamps. Light-toned panels showing aluminum-painted undersides are arranged ready for erection. Guy wires in foreground are under tension to help resist roof flutter.



Cable grid of $6' \times 6'$ squares is 85' high at center. Panels are erected by men atop crane booms assisted by others on the erected part of the roof. Roof is topped with fiber-board insulation and built-up roofing.



3. LAMINATED TIMBER CANTILEVERS

Rigid-frame mill construction cuts warehouse structure cost to \$1.45 per sq. ft.

Laminated timber construction is becoming more and more competitive. One of several such warehouses in the Kansas City area, this 117' x 482' timber structure, with cantilevered beams, purlins and 2" sheathing, was erected in 4½ weeks by 14 men with a small crane for only \$1.45 per sq. ft. in place.

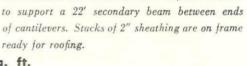
Only two rows of columns run down the inside of the warehouse, producing a 38' center bay and 38'-9" outer bays spanned by laminated beams 7" wide, 243'8" deep and 46'-9" long. Each beam is cantilevered 8' into the center bay and the remaining 22' spanned by 51'4" wide and 191'2" deep members simply supported. Main beams are 25' o.c. joined by 51'4" x 13" laminated purlins.

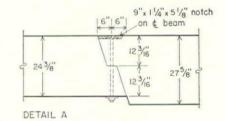
Advantages of this construction: 1) design moments across these wide spans are cut 28%; 2) weight of beams and purlins is cut 20%; 3) complicated multiple beam-to-column connections are eliminated, 4) framing cost is cut 19%.

All beams and purlins are fabricated of 15/8" laminations of Douglas fir bonded with phenolic resin glues. Based on a safety factor of 3 to 1, design stresses are 2,400 psi in bending and 2,000 psi (parallel to the grain) in compression, sufficient to earn a Class II "mill construction" fire insurance rate of 32.5¢.

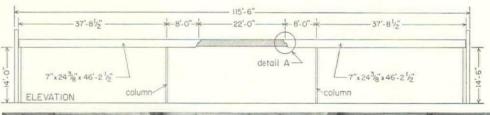
Main beams are carried on concrete block side walls and 6" wr 20# interior columns set in a 5" concrete floor slab. The simply supported beams hang from the cantilevered beams by a 1" steel tension bolt at each joint. Ends of the beams are sloped for ease of erection. Purlins are nailed into metal "stirrups," spaced 8' o.c. along the main beams; tops of purlins and beams align to receive 2" sheathing.

Architect for the warehouse is Wm. B. Fullerton Jr.; framing was designed by Timber Structures, Inc. and it was built for the A. W. Zimmer Real Estate Co. by Estrin Construction Co., contractors.





Cantilevered ends carry smaller beam by means of a simple machine bolt. Purlins (below) are 8' o.c., nailed into sheet metal stirrups.





4. WELDED CAMEL-BACK TRUSSES

Huge 250' span prefabricated trusses are welded to save 13% steel and 5% erection costs

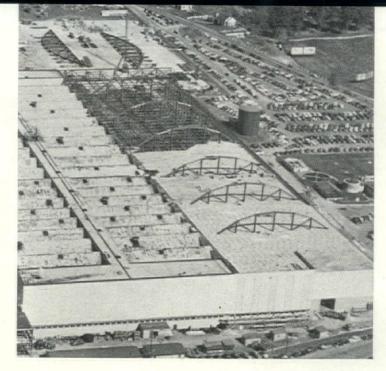
Thanks to a maximum use of large, prefabricated sections, shop and field welding saved 13% steel and came out \$45,000 cheaper than riveting in this wide-span, 200,000 sq. ft. factory extension for the Fairchild Aircraft Co. at Hagerstown, Md. Erection bids came to \$840,000 for welded construction (2,353 tons at \$358 per ton) versus \$885,000 for riveted (2,700 tons at \$328 per ton). The camel-back truss construction weighed 23 lbs. per sq. ft, of area covered, a saving of 4 lbs. as compared with standard parallel chord truss design. Further, by exposing the 200' and 250' steel trusses 25' above a flat roof line, the engineers achieved an economical roof resulting in 6% less surface area and 14% less space to heat than if the trusses had been enclosed within a curved roof.

Fairchild's existing factory has been extended on two sides. The north extension covers 150' x 250' with 250' clear-span camel-back trusses spaced 100' apart by cantilevered parallel chord trusses 25' on center, which carry the roof purlins. The 825' x 200' east extension is of similar construction. Here the camel-back trusses span 200' and the parallel chord trusses 100' between them, also 25' on center. Both structures provide 47' high clear working space to the bottom chords of the trusses, also are designed to carry four 10 ton cranes.

Camel-back trusses are prefabricated in three sections using both shop and field welding—470 lbs. of weld metal per truss in double-V, butt-type main welds. Both the large trusses (250' span, weight 105 tons) and the smaller trusses (200' span, weight 84 tons) are fitted on the site and erected with two crawler cranes.

Large welds, some of them over 3" thick, are made in small passes at a time and the trusses turned over between welds to minimize shinkage distortion. Welds were also X-rayed and all joints proved satisfactory.

This Fairchild factory extension was designed by Architects Fordyce & Hamby; structural engineers were Strobel & Salzman; mechanical engineer, Guy B. Panero; contractors, Lehigh Structural Steel Co.

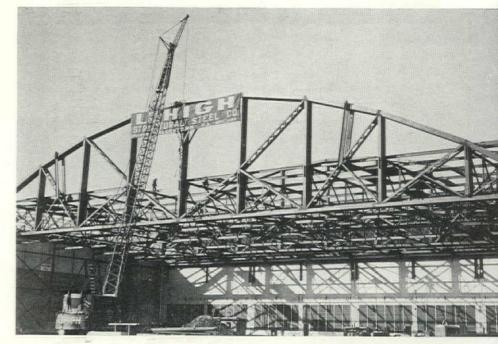


Photos: Gene Virts

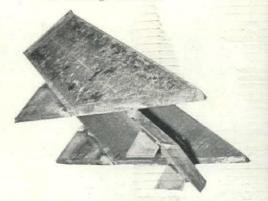


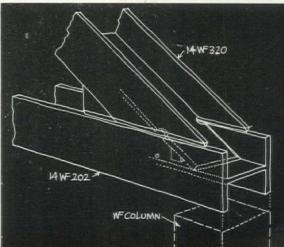
Projecting trusses rise 25' above roof of Fairchild factory extension to span 200'. At top of photo prefabricated sections are being assembled.

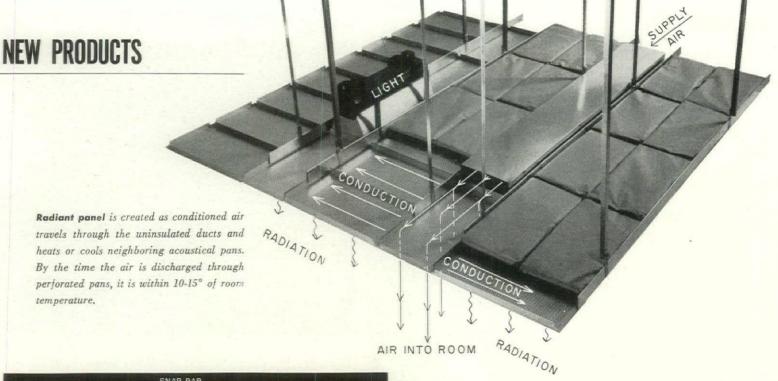
Trusses are erected in three parts. A side section is hoisted atop a side column and a temporary center column (left), then braced with 100' or 125' parallel chord trusses. Other side section follows and is similarly braced. Finally (below) the remaining tee section is welded into position and the temporary column removed.

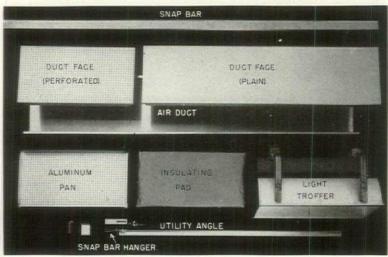


Typical joint is welded in three passes to cut shrinkage distortion.



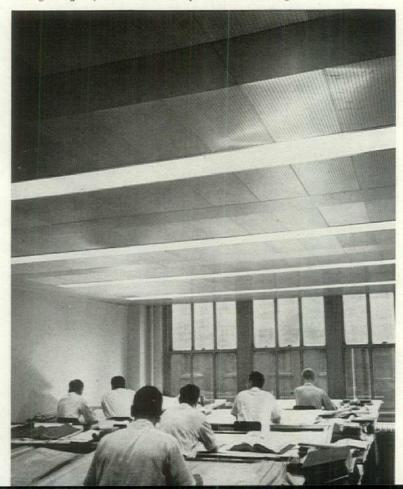






Components include perforated pans, ducts and duct faces. These are mounted on 8' long snap bars, suspended on utility angles. No cross furring is needed.

Set flush with the faces of the brushed aluminum acoustic pans, the smooth ducts and light troffers form an inobtrusive pattern on the ceiling.



MULTI-FUNCTION CEILING installed easily by one-trade crew

Integrating prefab ducts with its perforated aluminum pans, the Simplex-hung ceiling combines air conditioning and sound control. While most such double-duty ceiling systems are put up by an assortment of lathers, plasterers and plumbers, Simplex can be installed solely by a sheet metal crew armed with angle cutters and padded mallets. The ceiling provides radiant heating and cooling via its exposed ducts as well as draftless air distribution through perforated pan outlets. As conditioned air travels through the ducts, it heats or cools neighboring aluminum pans by conduction, and thus creates a partial radiant panel effect. During the cooling phase, this radiation is evident along each 1' wide duct bottom and 1' to either side. During heating, Btu contributions from lighting troffers help extend radiant effectiveness to almost the entire ceiling.

According to Engineer John D. Dillon, the system's designer, its major economy is that 40 to 60% less air can be used because of large temperature differentials. For cooling, the air can be sent into ducts as low as 47°; by the time it actually enters the room through the perforated pan at the end of the duct, it is about 65°-approximately the same as that delivered by conventional diffuser systems. For heating, air can be delivered to ducts at 170° and will be discharged through the outlets at about 90°. Return air may be brought up from the periphery of the room over the suspended ceiling and carried back either through ducts or the entire area may serve as a plenum.

In application the 1' x 2' acoustical pans are pressed into metal snap bars which are hung on utility angles. Standard lighting troffers fit into the ceiling, and sound absorbent pads are laid across the pan flanges to complete the job. Cost for Simplex with ductwork is estimated at about \$2 per sq. ft. installed.

Manufacturer: Simplex Ceiling Corp., 552 W. 52nd St., New York 19, N. Y.

(continued on p. 224)

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Architect: Merrill C. Lee, Richmond, Va.
Builders' Hardware: Tom Jones Hardware Co., Richmond, Va.

Builders' Hardware: Tom Jones Hardware Co., Richmond, Va. 3 Blythe Park School, Riverside, III. Architects: Perkins & Will, Chicago, III. Builders' Hardware: Clark-Barlow Hardware Co., Chicago, III.

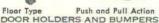
Incarnate Word High School, San Antonio, Texas Architects: Julian & White, San Antonio, Texas Builders' Hardware: Dumas Hardware Co., San Antonio, Texas

For over a quarter century Glynn-Johnson has manufactured door devices and specialties of original distinctive design. The quality built into each G-J product renders long, hard service for the protection and control of all types of doors in educational buildings.

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It is a small section of one of the most rugged, rigid, money-saving windows you can buy—a Fenestra* Super Hot-Dip Galvanized Steel Window.

If yours is a typical plant, these windows can save you about \$3,600 every few years in paint and painters.

Fenestra Steel Windows are galvanized in Fenestra's own new plant—the only plant in America especially designed for the exacting job of hot-dip galvanizing steel windows. Only Fenestra has the method, the special deep tanks, the automatic controls necessary to give you windows with this superior protection.

Send for your free booklet on Fenestra Super Hot-Dip Galvanized Steel Windows—write Detroit Steel Products Company, Dept. AF-6, 2296 E. Grand Blvd., Detroit 11, Mich.

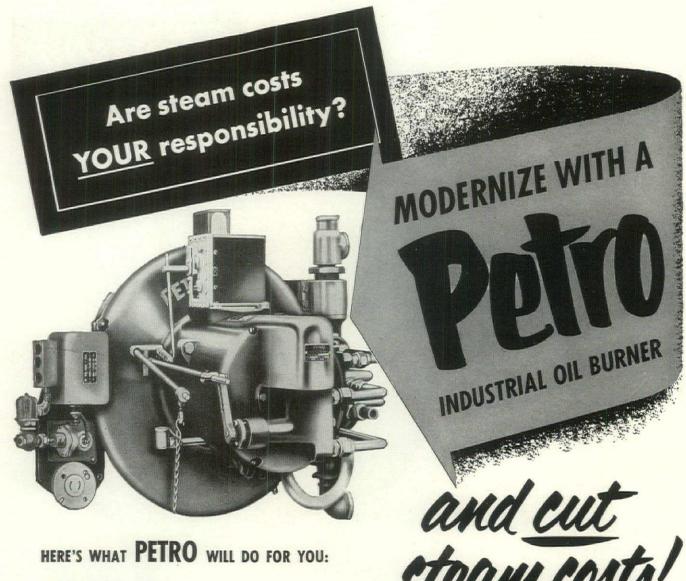


BEND TEST shows why Fenestra Steel Windows are called Super Hot-Dip Galvanized. When two pieces of galvanized steel are bent, then straightened, some types of galvanizing crack open, leaving the steel vulnerable. The Fenestra piece stays protected.



SUPER HOT-DIP GALVANIZED STEEL WINDOWS

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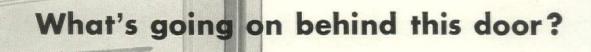
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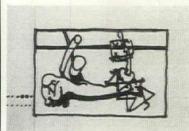
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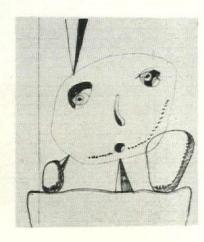
ARCHITECT-CLIENT FORUM continued







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normal fee," that would be ridiculous. No doctor in his right mind would say, "Yes." Yet we are supposed to be in our right mind when we do just that.

Leopold: Any one job judged by itself is unsound on a percentage fee. But five years' work on a percentage fee comes out all right.

Schlossman: There is an implication I don't think Mr. Luckman intended in his statement that an architect working on a percentage fee is inclined to increase the cost of the job. I have not found that to be true. I believe that architects and engineers, whether working on a percentage basis or any other kind of basis, have the interests of the owner at heart.

Chairman Prentice: The importance, the difficulty and the intricacies and involvement of good planning have increased to such a very great extent in the last generation that it is shortsighted for owners not to recognize that they should pay substantially more for planning. The owner has such a tremendous financial stake in the economy which can be provided by the best engineering, that the wise owner will see to it that adequate money is provided to pay for engineering that is at least as good as the project calls for.

Severud: In an ideal setup, the architect will have sense enough to know that one of the major contributions of the team will be the handling of the engineering part. If he doesn't recognize that, he doesn't know much, because buildings are more and more becoming functional. An architect who wants to keep peace with himself believes what he tells the owner: that he is the best qualified for this particular work, not he alone but in a team with highly qualified engineers. If results are produced, you don't have to worry about fees. If you can produce results, and if you can give what people want you to give, you don't have to worry about compensation. Instead of kicking the subject of fees around I think, first of all, we should determine how we are best able to give the owner what we represent that we are able to give, and to produce the final product in a superior fashion. Whatever money is involved should be secondary.

So I think we will do much better if we continued on p. 184



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Intermediate Steel Windows you get extra clear glass area because Fenestra's frames are designed to be strong and rigid without being bulky.

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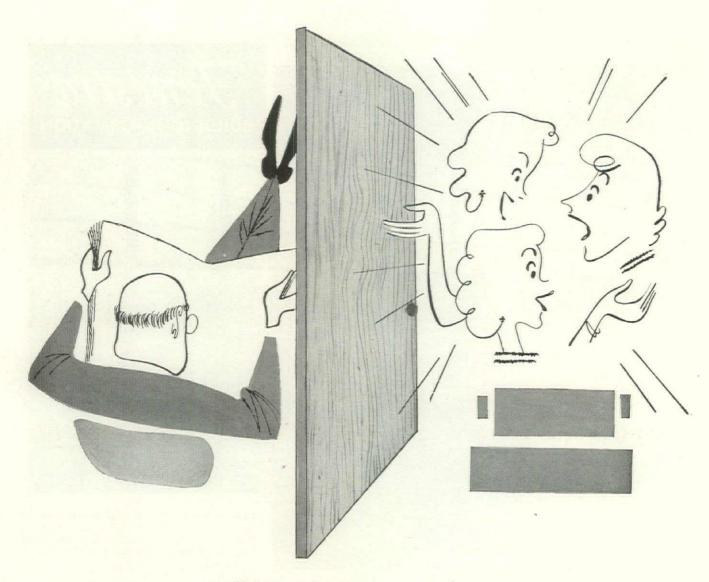
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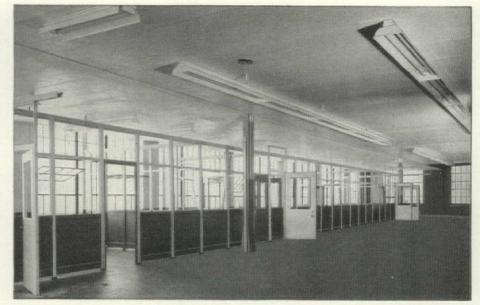
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to get this . . .

Fenestra acoustical-structural panel ceiling changes old factory into modern office...OVERNIGHT!

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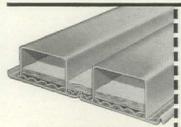
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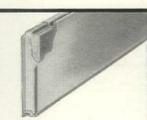
If you would like to know more, write to the Detroit Steel Products Company, Department AF - 6, 2296 East Grand Boulevard, Detroit 11, Michigan. Also ask about the other money-savers you see illustrated below.

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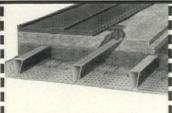
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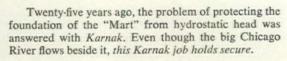


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ARCHITECT-CLIENT FORUM cont'd.

explore what is going to be the spirit of our activities. Are we going to drag it down to a commercial basis and say, "well, we want to make money?" Maybe so. Or, is it a question of honestly living up to the representation that we made that we are clever, that we like our work, that we can do something you will like which will be to the credit of all of us?

Leopold: I think that is a very fair question. I value my architectural associations but I have enough direct owner work, so that I don't have to depend solely on the architect. I am going to speak for some of the other men in the field who don't happen to enjoy the reputation of Mr. Severud. I say they are inhibited in their growth, because they are grossly underpaid.

I will specifically state that a man making from 1 to 4% on a mechanical project running half a million dollars cannot afford to study it properly.

Chairman Prentice: A wise owner will be willing to pay more for his total planning—and there is no good reason why there should be any conflict between the engineer and the architect over both of them getting an adequate fee to put the amount of research and study and imagination and figuring into the project that the project calls for.

Leopold: But once the architect has made his deal with the owner, he goes on a shopping expedition for engineering service. We have clients of both kinds. The majority of the clients are the ones who do not go shopping at all.

Severud: If any architect is shortsighted enough to want to make a little more money on the job and teams himself up with someone who may endanger his business, that isn't intelligence, is it? So, in any intelligent teamwork, the proportion of the fee is something that we have never had any trouble with.

Panero: I am heartily in accord with Mr. Leopold when he says a mechanical engineer—and I am a mechanical engineer—can't live on the terms of the architect. The actual fact is that many large architectural firms right here in New York, the moment they have a job on their hands and have a fixed fee, will actually send out bids. That is a real fact.

Show: If an architect does that, he is just as wrong as he can be.

Panero: But, it is being done.

Schlossman: This discussion has pertained largely to individual situations and to certain special kinds of building operations. Much of what has been said is not representative of the big bulk of the construction that is going on elsewhere in the country.

continued on p. 188



MONEL—THE WONDER METAL

Safely holds water at 180°. Won't rust, ever! Ruud-Monel Sanimaster, with its exclusive long-life Monel tank, provides hot water sparkling clean.

AUTOMATIC GAS WATER HEATER

DOES DOUBLE-DUTY IN THRIFT DRUG STORE!

Its 180° sanitizing hot water does a perfect job in the automatic dishwasher. Its 140° general use hot water is ideal for lavatory and other faucets. THE RUUD-MONEL two °° temp SANIMASTER DELIVERS BOTH THESE HOT WATER TEMPERATURES FROM THE

SAME TANK, AT THE SAME TIME!

The Ruud-Monel Sanimaster will do double-duty for you, too. It is *the* answer in commercial or industrial operations where both extra-hot water and regular hot water are needed at the same time.



180° SANITIZING HOT WATER

140° GENERAL USE HOT WATER



180° water is piped right into the Hobart SM-4 dishwasher at this Thrift Drug Store. Water at 180° for positive bacteria destruction . . . perfect sanitation.



From the same tank, at the same time . . . Sanimaster delivers 140° water continuously for lavatories and other general use faucets.



Ruud-Monel duo otemp Laundrymasters Ruud Superspeeds, <u>Hi</u>speeds and Pacemakers Ruud Standard Sanimasters Ruud Multi-fins, Multi-coils, and Continuous Flow

Ruud Sani-Temp System for Commercial Dishrinsing ... and Ruudiator Heating Boilers.



FOUNTAIN MANAGER CALLS Sanimaster OUTSTANDING INVESTMENT

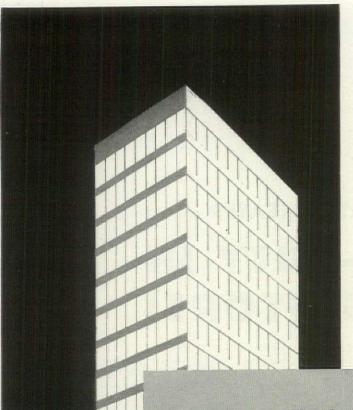
Michael Patsalos, fountain manager at the Thrift Drug Store, 912 Liberty Avenue, Pittsburgh, Pa., says: "This Ruud Sanimaster Water Heater is one of the best investments that we have ever made. You can't imagine how much more efficient it makes our fountain operation to have water hot enough to sanitize dishes in the dishwasher, yet to have tempered water at the pot sink or lavatories. And to have both kinds of water from one tank!"

*Monel is an alloy of nickel and copper—both metals urgently needed in the country's defense program. Production of Ruud-Monel water heaters is on a severely curtailed basis, limited by the amount of these strategic metals available for civilian use after the needs of the defense

program have been met. Distribution of Ruud-Monel water heaters is restricted by government order to those areas in which public water supplies are of maximum corrosiveness, and this advertisement is not intended to indicate general availability of water heaters with Monel tanks.

RUUD MANUFACTURING COMPANY

Pittsburgh 1, Pa. • General Offices • Toronto 14, Ontario



RUSCO Sets The Modern Pattern In Fenestration

Complete, Pre-Assembled Units - Fitted, Glazed and Finish-Painted -Make Big Savings in Installation Time and Cost . . .

Here is the window the whole building industry is talking about - the first truly complete window treatment. Proved through thousands of installations in the United States, Canada and Alaska, the Rusco Prime Window offers many unusual advantages. Made of tubular galvanized steel, bonderized and finished with baked-on outdoor enamel it is strong and rigid, yet streamlined and light in weight. Because it is fully pre-assembled, glazed and finishpainted-all ready to install in the window opening-it makes substantial savings in installation time and labor and in maintenance. Removable sash offers many conveniences and saves breakage during construction.

Rusco Offers You Important Features Not Found in Any Other Window!

GLASS ...

SCREEN...

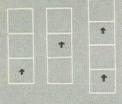
WATERPROOFED FELT WEATHERSTRIPPING... INSULATING SASH... (OPTIONAL) FULLY ASSEMBLED IN METAL OR WOOD SURROUND ...



Sliding glass and screen panels removable from the inside. A great convenience during construction-also simplifies window cleaning



Use of insulating sash aids in efficient air conditioning-permits nodraft ventilation where desired



All Rusco Windows have movable panels to allow ventilation



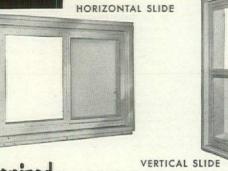
Joined in series by mullions, Rusco Prime Windows make full "glass wall" construction simple, inexpensive

Rusco Windows have no troublesome sash cords, weights or balances - raise and lower smoothly in felt-lined slides

ALL COMPLETE, READY-TO-INSTALL UNITS

ALWAYS ONE STEP RUSCO

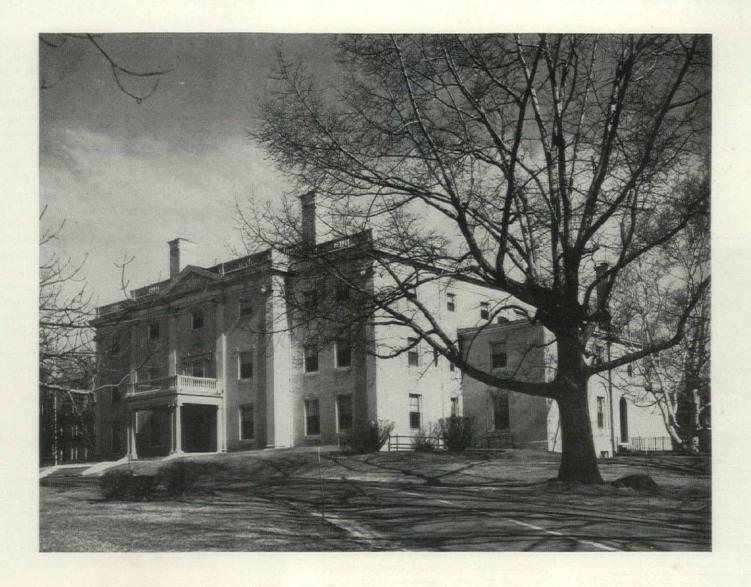
Galvanized Steel



DEPARTMENT 7-AF-63 CLEVELAND 1. OHIO IN CANADA: TORONTO 13, ONTARIO

FOR ILLUSTRATED LITERATURE AND THE F. C. RUSSELL COMPANY SPECIFICATIONS, WRITE ...

FULVUE (Vertical Slide)



Belmont Hospital at height of fire

What fire? You mean you didn't read about it? How it started by spontaneous combustion—just as do many tragic hospital fires.

Only—and this is why you may not have seen the news item—the fire at McLean Hospital in Belmont, Mass., set off a Grinnell Automatic Sprinkler System. One sprinkler head extinguished the flames before the Fire Department arrived. Patients were unaware of the blaze and the damage was slight.

Grinnell Sprinklers stop fire at its source, whenever and wherever it may strike, night or day, automatically. 75 years experience proves this. Consider the *cost* of fire . . . in terms of lives lost; property damaged; records ruined. Then ask yourself whether you can possibly afford NOT to fully protect your hospital, warehouse, plant, theater, hotel, or school, against this scourge.

The time to act on Grinnell Protection is now—before fire strikes—burning you out, or crippling your business. The irony of it is, if you have fire insurance, you're probably paying for Grinnell Protection anyway in higher premiums. So why not have it! Grinnell Company, Inc., Providence, Rhode Island.

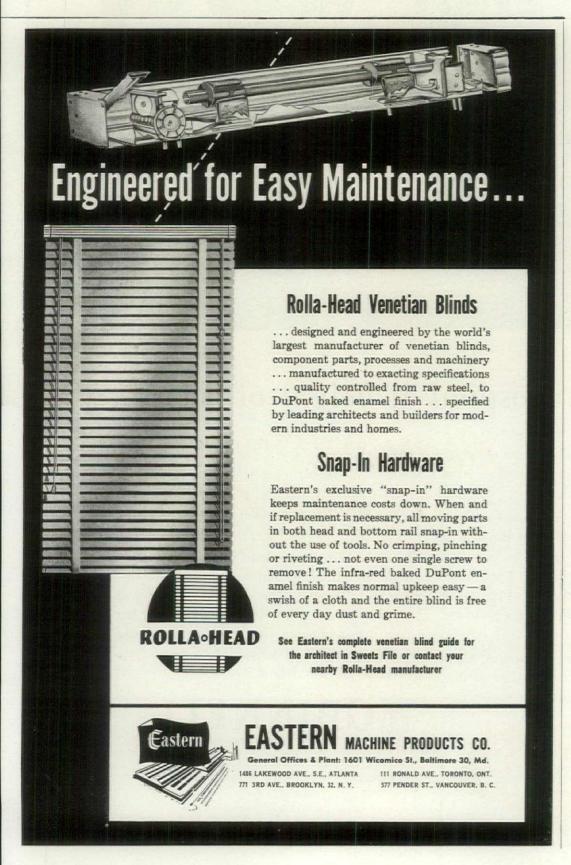




-Manufacturing, Engineering and Installation of Automatic Sprinklers Since 1878-

Crandall (to left of Tykle): The builder is in a position to know much more than the architect about estimating.





What we have said pertains particularly to large jobs with qualified owners who build many, many times and not to the man who builds once, and that is all. Likewise, I think the kind of thing now being brought up is not typical. At least, I hope not. I suppose some architectural firms do solicit their engineering services on a bid basis. But I don't think it is general. I think that generally, the facts are converse of that and I think the implication is wrong that the dollar which the architect makes is the ruling factor in his decision on who is going to be on the team. There is an ever surprising amount of idealism and altruism in architects, just as there is in most other professions. The ruling desire is to get the owner the best building possible for the least money. The last thing thought of is his own dollar.

Leopold: The approach that is frequently made is this: "Charley, we would like to have you do this job. We will pay you as much as we pay X, but we can't pay any

Schlossman: I suppose that is sometimes true, but I don't think it is general.

Panero: I have a letter from a prominent architect down South asking whether I could do a 200-bed hospital for 21/2%. Well, you just can't do it.

Leopold: I am working in ten states at the moment; I am not reporting on New York

Chairman Prentice: Do you find somewhat the same situation in all those ten states?

Leopold: No, it varies by cities. Cities have different standards.

Chairman Prentice: The conditions referred to by Mr. Leopold and Mr. Panero are deplorable, and the biggest loser is the owner. The smart owner should be willing to insist that his building budget provides adequate money to get really good and imaginative engineering.

Severud: It should be recognized that the loser is not only the owner. It is also the architect.

Crandall: To get back to Mr. Prentice's question. . . . I asked this question of the colleges, "How many engineering students are going into the construction field?"

We found out that in my day about 70% were going into civil engineering. In the early forties or late thirties practically none of them were going into the civil fields-a very low percentage. Today it is building up very fast. The boys are again going into the civil fieldinto the construction business.

Panero: However, the greater proportion of them go into industry.

continued on p. 192





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Confetti is available in 10 gay, festive colors, in 9" x 9" tiles of 1/8" thickness. Mail coupon today for complete details.

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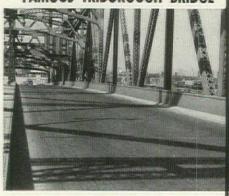
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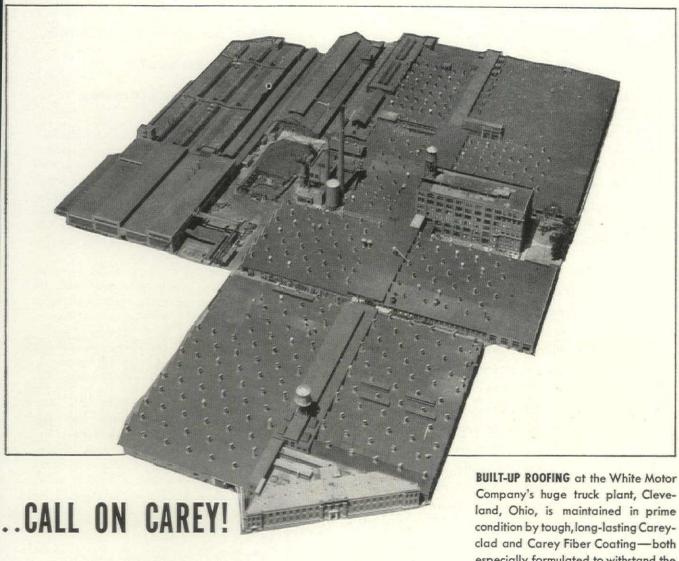


CAREY ASPHALT PLANK.

Over 100,000,000 crossings without one cent for repairs or maintenance. That's the durability and economy record of Carey Asphalt Plank on the Harlem River span of the Famous Triborough Bridge in New York City!

careystone, the modern corrugated asbestos-cement roofing and siding material—can reduce building costs up to 40%; cut maintenance cost to the bone. It's easy to apply, won't corrode, rust, rot or decay and needs no preservatives of any kind. Shown here on roof and sidewalls of Westinghouse TV-Radio Plant, Metuchen, N. J.

CAREY THERMO-BORD was specified for exterior walls and roof deck of this temporary building erected at the Cleveland, Ohio, Hopkins Airport; where a new Air Terminal is now under construction. Thermo-bord was selected for its heat insulation qualities and structural strength at low cost for temporary buildings.



Carey products and Carey services provide scores of opportunities to cut costs and build longer life into buildings of every type and size. They have a reputation for quality and dependability backed by over 80 years of Carey experience and up-to-the-minute technical research.

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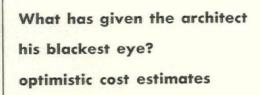
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Dowling: Architects are most criticized not for their taste, but for the fact that the building costs more than the architect says it will. If we can get some reliable way of assuring people—not by guarantees—but if we can raise the accuracy of estimates so that architects could be trusted, so that people would believe in them, that would remove some of this distrust.

Of course, the architect's ability to design is the No. I factor. He must design well. He must give you something which is satisfying to the eye and to the mind and to the economics and to the heart. But part of the distrust of architects also comes from the fact that the costs are so universally underestimated. Isn't it possible to have better prognostications of costs?

Zeckendorf: I would like to say something on that. Elliott Cross, my late partner, was a successful architect in New York. He had one inflexible rule. Neither he nor any of the partners would ever give an estimate of the cost on anything. He told his client, "I am here to design the building, and if you want an estimate, go to a builder."

Dowling: That is fine, except that an owner must have some idea of the costs to know whether he can afford to pay for it.

Zeckendorf: That is not the job of the architect.

Dowling: People expect them to give some impression of costs.

Zeckendorf: A professional builder should do that. Why seek something from a man who is not qualified to give it?

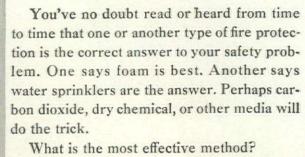
Leopold: The architect and engineer should be in a position to give a reasonable estimate of costs.

Crandall: I don't agree. We have people who estimate, but we don't even rely entirely on our own estimates for certain special parts of the work. We will often go for our estimates to mechanical people who do know that business. The ordinary builder is in the same boat with the architect when it comes to giving a general estimate for the whole job. But the builder is in a position to know much more than the architect about estimating because the estimator soon gets out of the field if he goes into the architect's office.

Gruen: How early would you, as a builder, be willing to undertake such an estimate and on what kind of terms?

continued on p. 196





Without a thorough understanding of all conditions involved, we wouldn't hazard a guess. For fire protection, like any other scientific problem, requires (1) technical know-how, and (2) application of that knowledge. Most methods of fire safety are good . . . but only through "FIRE PROTECTION ENGINEERING"—designing, manufacturing and installing the specific type of system best by test—can you be sure of maximum safety.

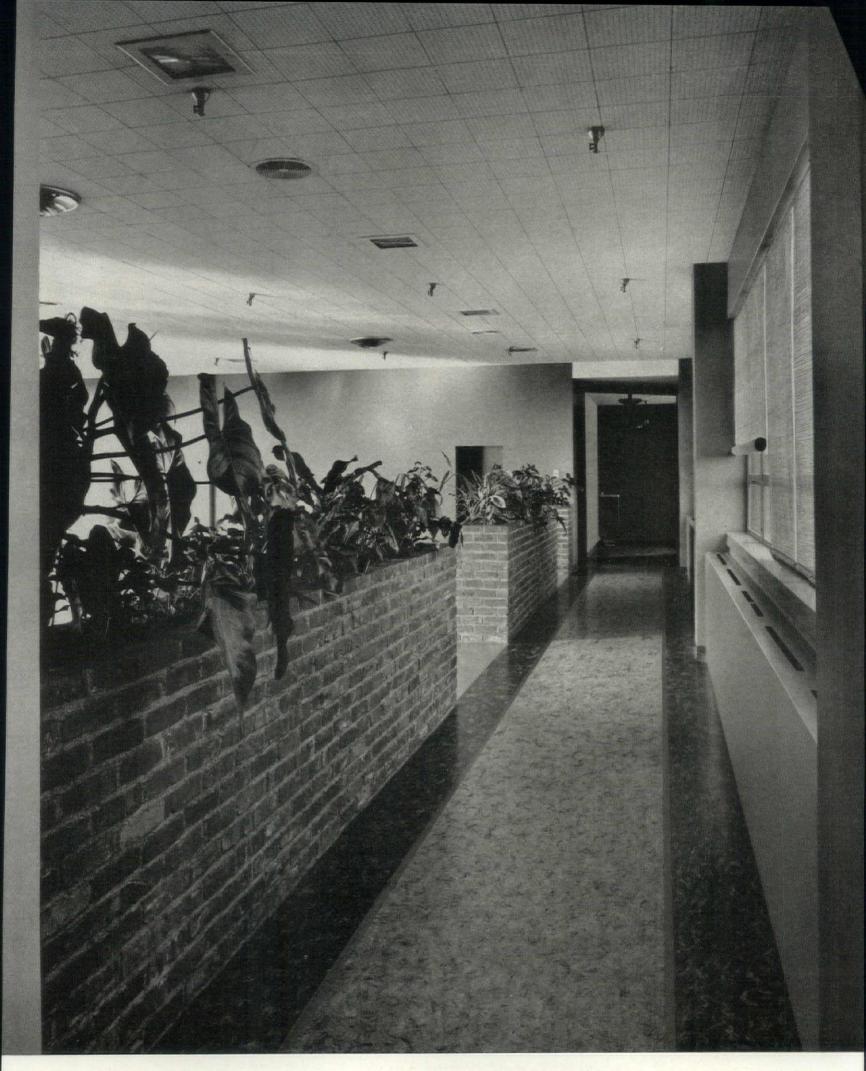
So, we take all methods of fire alarm and control, combine them with extinguishing mediums—FIRE-FOG, Air Foam, Sprinklers, etc.—and compound the results by adding "Automatic" technical know-how as well as test and field experience. The result... the finest "Automatic" FIRE PROTECTION available at any price.

The subject is more vividly covered in our colorfully illustrated literature, "The ABC of Fire Protection." Write for free copy today.

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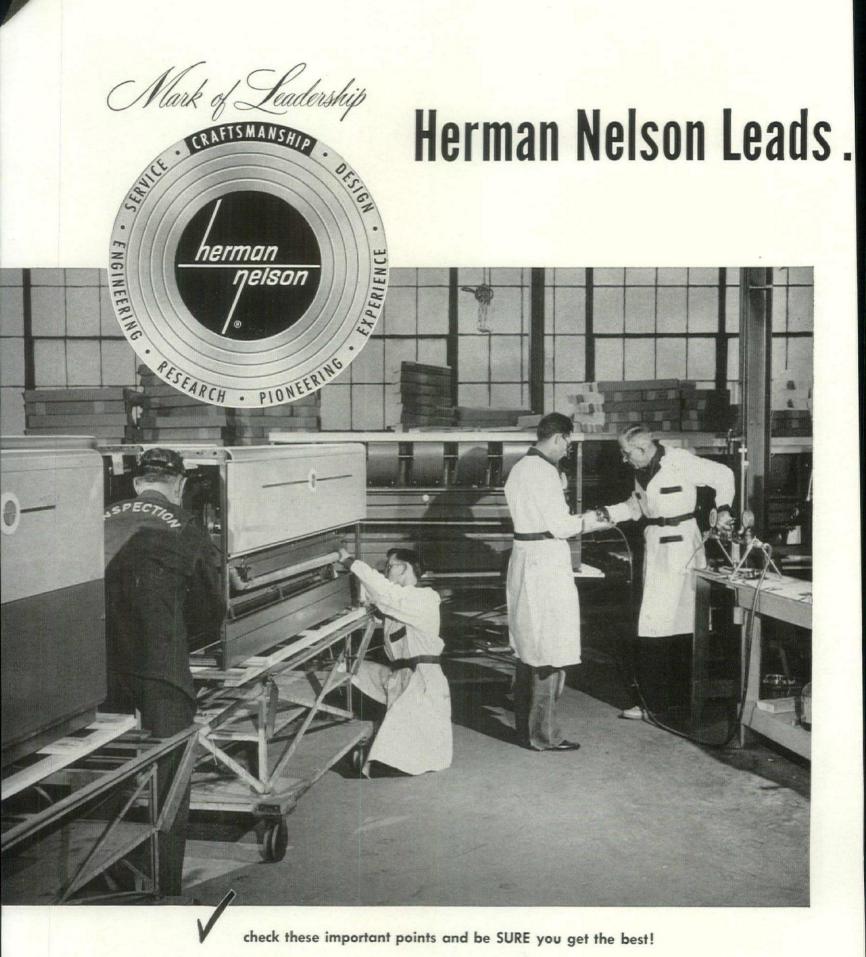


The moderate cost of Armstrong's Linoleum, along with its ability to withstand concentrated traffic, makes it a favorite floor for corridors. Floor care is minimized with Armstrong's Linoleum, too. Since this material comes in rolls, 6' wide and up to 90' long, it provides a smooth surface with few dirt-catching joints.

McClatchy Newspapers Building, Sacramento, Calif.
Lockwood Greene Engineers, Inc., Architects - Engineers
Dunbar Beck, Designer

ARMSTRONG'S LINOLEUM

ARMSTRONG CORK COMPANY · LANCASTER, PENNSYLVANIA



It pays to dig for facts when you contemplate the purchase of unit ventilators. Ask questions—get Experience Reports—look beneath the surface for the qualities that mark the difference between a doubtful buy and a sound investment. For example, check such little things as the thickness of the linoleum table-top surfaces (ours are ½ inch thick burlap-backed battleship quality) not just thin felt-backed material. Ask about the cabinet doors—are they interchangeable? (Ours are.) Are they awk-

wardly hinged? (Ours run on smooth tracks and can be easily removed without tools.) Is the shelving adjustable? Are the cabinet corners rounded for appearance and safety? (Ours are.) How are the cabinets constructed? (Ours are monolithic welded for lifetime performance.) Herman Nelson unit ventilators also incorporate permanently oiled, lifetime bronze bearings in the dampers. It pays to look for these and the many other important features. Be critical and you'll buy Herman Nelson.

. in Craftsmanship

Long famous as the finest looking unit ventilator products in America—the Herman Nelson line has also become famous for dependable, trouble-free operation under all climatic conditions.

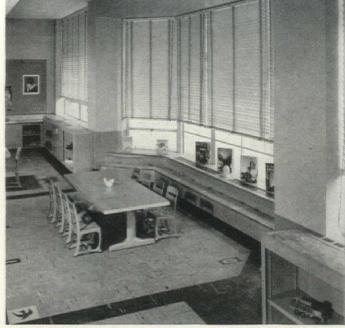
This dependability starts deep down inside the product—the result of the superb CRAFTSMANSHIP that has made Herman Nelson the outstanding name in the unit ventilator field.

When we talk about CRAFTSMANSHIP we mean much more than just being skilled workmen. We mean the determination to take infinite care in the planning and putting together of every single part of our finished product. Herman Nelson CRAFTSMANSHIP is the result of an honest desire to create a better product from the inside out—without compromise on the unseen as well as the visible components.

Revolutionary in design—compact in appearance—proved in thousands of applications—the magnificent performance of Herman Nelson unit ventilators will end your heating, ventilating and cooling problems for good.

Fine CRAFTSMANSHIP and sound engineering principles make it an exciting experience to live and work in a "perfect classroom climate" where Herman Nelson unit ventilators are on the job!

If you are planning a new school—or a school modernization program, it will pay you to really investigate the unit ventilators you plan to buy. "What's inside" is a good question. Look beneath the surface—check the craftsmanship and the performance record of the equipment. We believe you'll specify Herman Nelson—the greatest name in unit ventilators. For complete information and Experience Reports—write to Dept. AF-6, Herman Nelson Unit Ventilator Products, American Air Filter Co., Inc., Louisville 8, Kentucky.



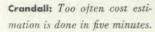
This beautifully designed kindergarten at W. C. K. WALLS ELE-MENTARY SCHOOL, PITMAN, NEW JERSEY, takes advantage of the adjustable shelving of Herman Nelson utility cabinets. This room as well as all other classrooms is completely equipped with DRAFT|STOP. Supt. of Schools, L. ARTHUR WALTON; Architect, H. M. KLAISZ; Mechanical Contractor, Keller & Rogone.



Note the interesting treatment of locating the sink and drinking fountain in the end of the classroom DRAFT|STOP ensemble—good use of otherwise unused space in WEST INDEPENDENT GRADE SCHOOL, DES MOINES, IOWA. School Principal, B. Andrews; Architects, Smith, Voorhees, Jensen & Associates; Consulting Engineer, B. E. Landes.









Tuttle: Clients have a tendency to be overoptimisticthey want to believe that they can park a car in 200 sq. ft.

Crandall: If the plans are very preliminary, it is going to take considerable work, and it can't be done in five minutes. Too often it is done in five minutes. We should sit down with the architect and go over the great many details so both the architect and ourselves know what is contemplated. And the contractor should be paid for it if it is just a service and he is not going to build that building.

Gruen: Instead of giving estimates ourselves, we have gone to the builder and agreed on an amount which the builder will be paid in case he will not be awarded the contract.

Severud: Some architects are not strictly honest, for their optimism carries them away.

Dowling: Their overoptimism on costs brings more disrepute to the architects than any other single thing. It is a constant joke. Everybody takes it with a smile. There ought to be some way of getting past that point so that architects have a higher standing in the general public opinion.

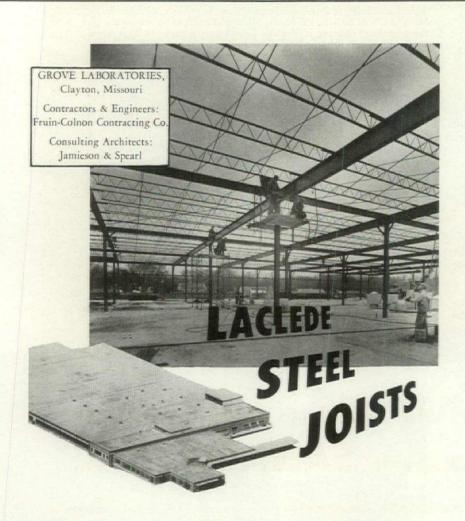
Shaw: We should do our best to give clients right figures otherwise, we shouldn't give them at all.

Zeckendorf: That is right.

Yowell: One thing which probably does the standing of the architect or the builder the most harm is the inability to provide estimates that are somewhere within a reasonable range of the final cost of the project. Either the architect should be able to provide good estimates, or he should make none at all. The average owner generally has in mind approximately the amount which he proposes to expend for a particular project, and he relies on his architect either to tell him that he can get what he wants for that amount or to tell him that it can't be done.

One of the worst things that can happen is for the owner to proceed on the basis of the architect's opinion that the work can be done within the available funds, complete his plans, obtain bids, and then find out that he can't afford to build the job.

Harrison: You are putting all the blame on the architect. I want to blame the owner, because I have seen owners add more stuff after the preliminary estimates are made. They didn't think about it in the beginning, when you started it, but as you go through, continued on p. 200



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J-M Sanacoustic is a highly efficient noncombustible acoustical unit ideally suited for institutional and commercial installations.

Johns-Manville, the pioneer in sound control, developed Sanacoustic to provide acoustical comfort, fire safety and easy maintenance for offices, cafeterias, schools, restaurants, auditoriums, hospitals, etc.

The complete Sanacoustic unit is manufactured by Johns-Manville. It consists of a perforated metal panel backed up with a noncombustible, sound absorbing element of high acoustical efficiency. J-M Sanacoustic Ceilings will not burn, rot or disintegrate. A baked-enamel finish makes them easy to keep clean. They may be applied over new or existing construction; and can be painted and repainted without loss of acoustical efficiency.

An exclusive J-M patented construction system permits interchangeability of flush-type fluorescent lighting and acoustical ceiling units.

Other J-M Acoustical Ceilings include Fibretone*, a drilled fibreboard panel, Permacoustic*, a textured noncombustible tile, and perforated Transite* Acoustical panels. For a free brochure "Sound Control," write Johns-Manville, Box 158, New York 16, N. Y. In Canada, write 199 Bay Street, Toronto 1, Ontario.

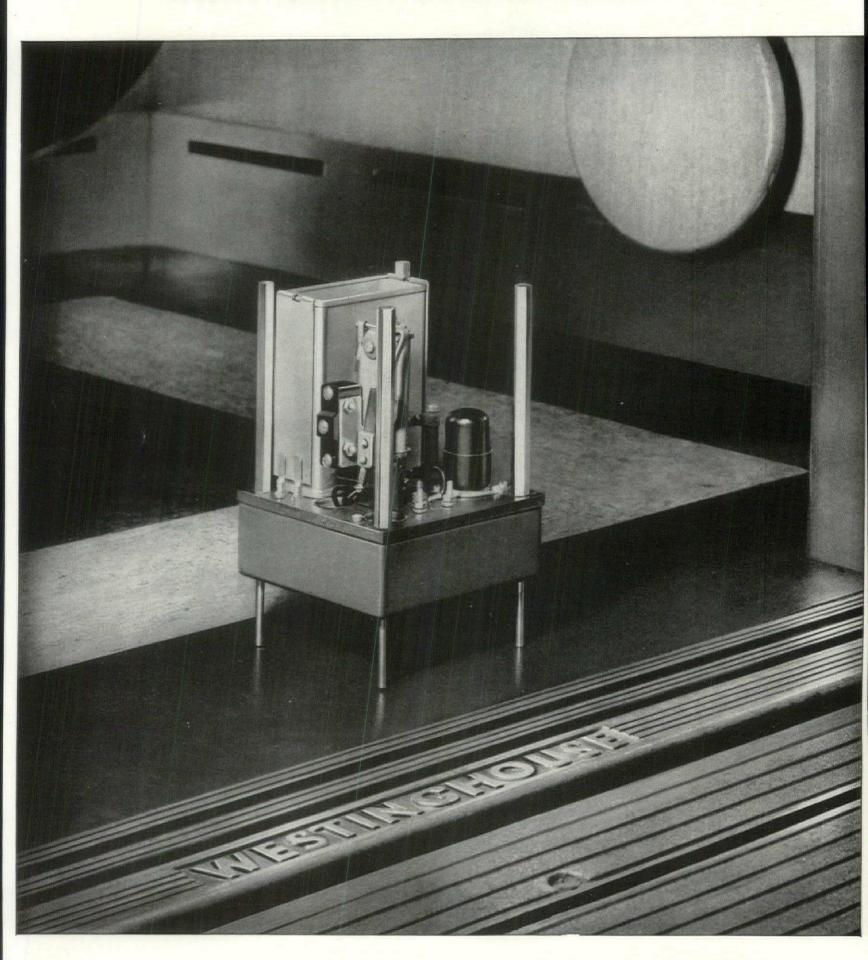
*Reg. U. S. Pat. Off.



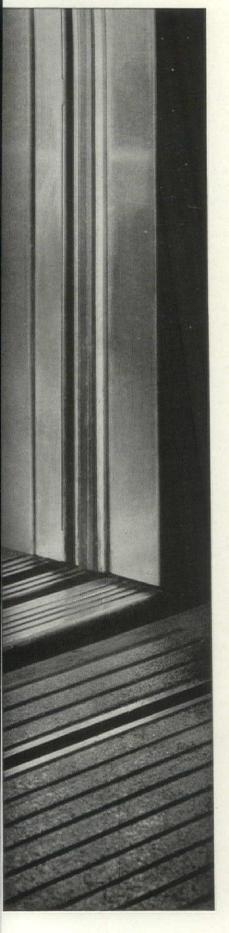
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Westinghouse Selectomatic Control with Automatic Traffic Pattern is opening a new era in heavy-duty elevator service. The heart of the system is an electronic computer . . . ever alert, super-accurate, attentive to any changing traffic demand.

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.

Westinghouse Selectomatic with Automatic Traffic Pattern Control cuts operating costs up to \$7000 per car a year—keeps traffic moving and is popular with tenants and building visitors.

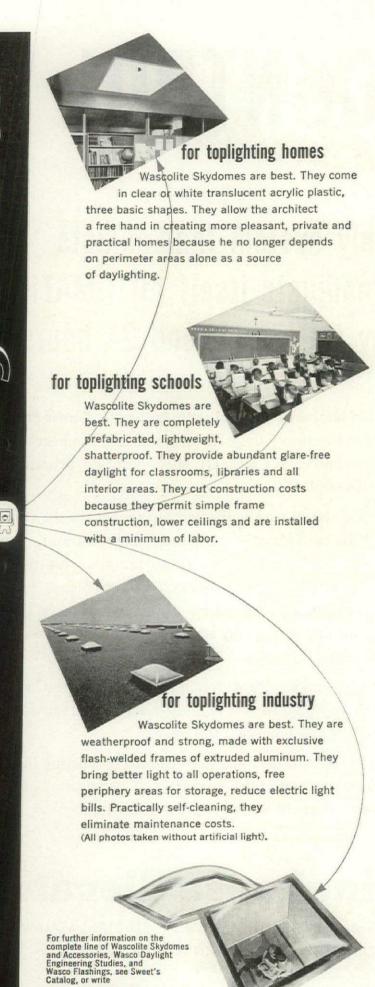
This equipment is ideal for new buildings. Added to existing installations, it makes any elevator system ultra-modern. Call our nearest office listed in the Yellow Pages of your Telephone Directory.

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PROTECTIVE MAINTENANCE AND SERVICE

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Wasco Flashing Company

89 Fawcett St., Cambridge 38, Mass.

ARCHITECT-CLIENT FORUM cont'd.

it is added piece by piece, and they blame the architect or the contractor because their estimates aren't right.

I think this is really the cancer in the building industry, because none of us can tell what a building is going to cost.

Yowell: I agree that there is often a lack of a meeting of minds between the architect and the builder and the owner as to just what the owner expects to obtain in the way of a completed project.

Luckman: Having been on both sides of the fence, I think there is a solution to that problem. I have bought many buildings and never bought one for what I was told it would cost. Having been an architect myself, I never expected otherwise.

The solution of the problem for the owner—and I agree the owner is one of the worst offenders—is one where it should be the responsibility of the architect to tell the owner that the things he is adding are going to cost more money—and tell him at the time! This is an area in which we, as a profession, are woefully remiss. Yet it is a very positive obligation on our part. "Well, as long as we are going this far, we may as well add a directors' dining room." The architect should tell the owner at once how much this item adds to the budget. We have learned by experience that when we start pricing the additions, the owner stops making them.

I do not agree with the philosophy of Mr. Zeckendorf's former partner. Neither does Mr. Zeckendorf! Our firm has done work for him and he asked for—and got—a complete cost analysis from us. And he was right.

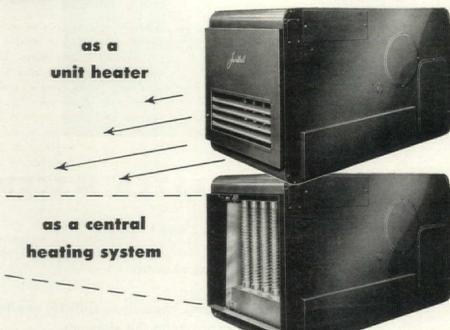
For a while we actually tried refusing to give any cost estimates. It didn't work. Instead of being able to eliminate our estimating function, we found that we had to build up a Cost Control department, staffed with experienced and truthful men. These men are not permitted to give a "quickie" estimate—and are never permitted to be "optimistic."

Of course, some of our clients are willing to select a contractor, and in this event we are able to make use of his organization to price out our designs. Some of our other continued on p. 204

Luckman: The great curse of our profession is our reputation for wrong estimates.



Most Versatile Warm Air Most Versatile Warm Air Gas Heating Unit Ever Built! Gas Heating Unit Ever Built!



Perfect accessibility and adaptability

A GAS-FIRED UNIT HEATER

Janitrols' inconspicuous good looks and ultra-quiet operation make it an ideal unit heater for installations in schools, churches, offices, stores, sales rooms, restaurants and similar buildings.

Optional use of filters provide a new degree of cleanliness for unit heater operation. Directional louvers give precise air deflection to deliver warm air where most needed.

Four sizes of Janitrol FHS Units range from 65,000 to 150,000 Btu/hr. AGA rated input. Widths range from 17" to 22". Heights range from 23 ½" to 24 5%". Lengths range from 39 ½" to 47".

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Here is the most adaptable and different gas heating unit . . . clean, simple, compact design it establishes a new standard in flexibility and economy . . . saves useful floor space, so important in today's trend to compact house designs. This greater freedom in unit placement results in more economical installations whether for perimeter heating, conventional type layouts or Janitrol Save-Way System with Constant Air Circulation and 4" duct.

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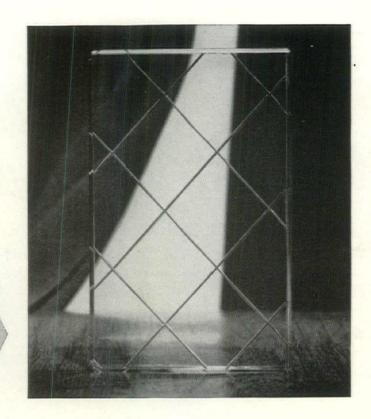
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the SILICONE base water-repellent

DEHYDRATINE No. 22, a development of the Horn Research Laboratories, is a clear water-repellent for untreated exterior masonry surfaces above grade. It contains polysiloxane resins, generally known as silicones. These synthetic compounds, applied to a clean, dry, continuous masonry surface, will penetrate more deeply than conventional surface treatments and will provide a higher degree of water repellence for a longer period of time.

DEHYDRATINE No. 22

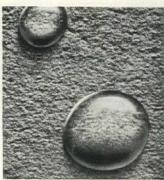
- 1 repels water from masonry surfaces
- 2 minimizes efflorescence
- 3 will not discolor or change appearance of masonry surfaces
- 4 allows masonry surfaces to "breathe"
- 5 reduces soiling and discoloration
- 6 preserves the surface





Masonry in this condition must be consolidated by solid repointing before treatment with Dehydratine No. 22.

After defective joints have been repaired the surface is in proper condition to be treated with Dehydratine No. 22.



Actual photograph of common brick. The untreated surface absorbs water globules quickly and completely.

Portion treated with Dehydratine No. 22 effectively repels the water globules which remain unchanged on the treated sufface.

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Please send me Complete data on DEHYDRATINE NO. 22



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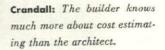


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clients permit us to designate a contractor and pay him for his costing services in the event he is not selected to do the job.

However, the majority of our clients insist on going to competitive bids. They must, therefore, depend upon our advice and ability. I think the owner has a right to expect this from the man he engages as his "professional adviser.

I have to admit that it sometimes takes a good deal of courage and conviction to operate the right way. Our firm lost a job seven months ago on account of our realistic approach to a cost estimate. A man walked into our offices and said, "I want to spend \$1 million, I want to get 100,000 sq. ft. of space." Then he went on to describe the "quality" of space he wanted, marble walls, oak-paneled offices, with built-in TV, air conditioning and specially designed electrical

We said we would advise him in ten days. We did. We said, "Sorry, you can't have a \$1 million dollar budget and 100,000 sq. ft. of the quality space you described. You will have to alter your budget or your requirements." We lost the job. He went to another firm and they got the job. Then a few days ago, the low-bidding contractor told us his contract price was \$1,660,000!

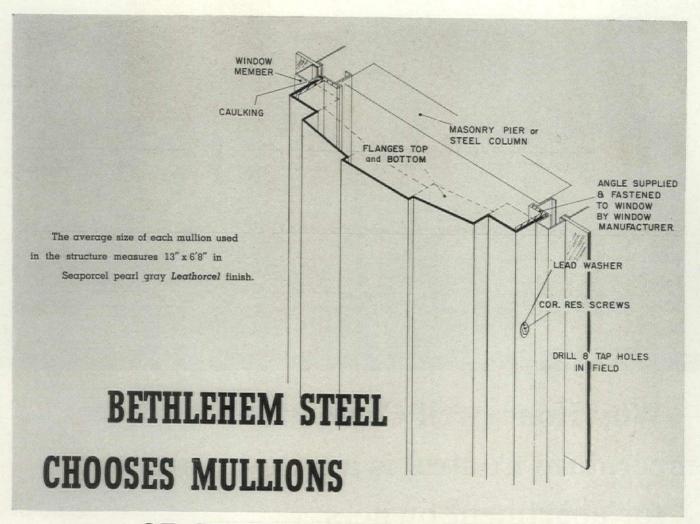
Despite this experience, we know our policies are right. All of us must work together in an effort to eradicate the great curse of our profession-our reputation for wrong estimates.

Dowling: Is there any possible disciplinary action or anything-I don't know what it should be; that is for you to decide—that can be taken where there seems to be falsification, or overoptimism? And is there some way in which we could make people practicing architecture have a little of the fear of God about going about carelessly telling people that they can build a building for \$1 million when they really knew that it would cost \$1,600,000? Isn't there some method whereby you can raise your standards?

Shaw: One method-educational, not disciplinary-is to have Mr. Prentice publish your comments for all architects to read.

Zeckendorf: A man has to be a crystal ball gazer in a rising market to tell you today what a building might cost that will start four months later and will be finished another year later on.

continued on p. 208



OF SEAPORCEL PORCELAIN!

In selecting Seaporcel Porcelain for the exterior mullions of the Bethlehem Steel Company building, the architects chose this superior building material for durability and color of lasting beauty. Seaporcel porcelain, unaffected by weather and corrosion-resistant, reduces maintenance cost to a negligible factor.

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Why Honeywell Customized Temperature Control is a wise investment for apartment owners

Increased "rentability" will be an important factor in the years ahead

Lots of sun, fresh air, room for children to play—these all appeal to tenants at Meadowbrook Apartments, a garden apartment development in Indianapolis, Indiana.

And so does Honeywell Customized Temperature Control that gives each tenant individual temperature control,

an advantage unfortunately not enjoyed by many apartment dwellers.

For at Meadowbrook there's a thermostat in each and every apartment.

When you talk to tenants about the

heating system and the individual temperature control they enjoy, they agree both are the best they've ever known, that they're equal to what you find in the finest private homes.

And the resident manager of Meadowbrook, Henry C. Dickson, feels that Honeywell Customized Temperature Control definitely helped increase "rentability" at the time the buildings were finished.

What's more, he feels Honeywell Customized Temperature Control will give him a definite competitive advantage, tenant-wise, for years to come.



The Honeywell thermostat in the typical apartment at right is located on the wall between the living and dining areas. Individual thermostats give each tenant his own temperature control as he wants it and when he wants it. Result: comfortable tenants. And comfortable tenants are satisfied tenants.





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"It's no trouble at all when it comes to maintenance," says William D. Gill, Meadowbrook's superintendent of buildings and property.

"Tenants are happy with Honeywell Customized Temperature Control because it gives them individual comfort. But for my money it's ideal because it requires very little maintenance."



Architect J. Lloyd Allen, above, of Allen and Kelley, Indianapolis, looks on as designer R. K. Zimmerly describes how Honeywell Customized Temperature Control helped solve a knotty exposure problem. The model shows clearly the varied exposures of Meadowbrook's 37 buildings, its 647 one- and two-bedroom apartments that are located on the 50-acre tract.

Meadowbrook was designed to give families all the convenience and comfort of apartment life, yet retain many advantages normally only available in private homes.

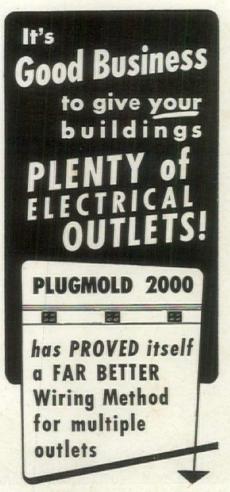


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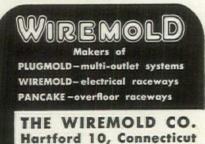
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ARCHITECT-CLIENT FORUM cont'd.

Dowling: Nobody will have any objection to that. That is beyond his control. I am talking about "carelessness" in order to get a job.

Zeckendorf: That is just straight dishonesty.

Gruen: The architect needs the courage to say the truth, and the owner needs the courage to take it.

A few days ago, I had a discussion with a client, not about costs, but he wished to talk about how many sq. ft. you need to park a car. He asked me, "How many do you think?" I said, "I think you need 400 sq. ft." And he said, "I know another architect who does it for 250" [laughter].

Dowling: That happens all the time.

Harrison: I know a well-known contractor who went into the ownership business—owning a housing development. He went busted. He said, "I kept making the stoves bigger and I got better paint, and so forth, and by the time I came out, I had lost \$600,000." He is a very able estimator. He got into the position of being the owner instead of being the contractor and not checking and double-checking.

I know everybody here has to check themselves. Maybe you are asking too much of the architect. Maybe what we ought to have is a clarification of how much the architect can do. He can give an estimate, but he can't actually tell you what it is going to cost.

Schlossman: Architects should accept some responsibility for costs. I think we should see what can be done to improve the situation. We all have to bear the same reputation as architects which is sometimes given to architects by a few. We should seek to find some means of making more cost information available to architects and owners everywhere. One of the things that is lacking in the industry is a better vardstick for measuring, early in the game, and more accurately than anything we have now, what costs may be. Possibly the way to get that is through an information-assembling group. where cost data can be reported periodically and given out to those who have need for it. Conceivably, the AIA itself could serve in that capacity.

Tuttle: Clients also need courage. They have a tendency to be overoptimistic. They want to believe that they can park a car on 200 sq. ft. They ask us to believe it. They insist upon believing it, and they will shop for the man whose optimism agrees with theirs. I think the information is available. I think any architect who is operating a proper office continued on p. 212

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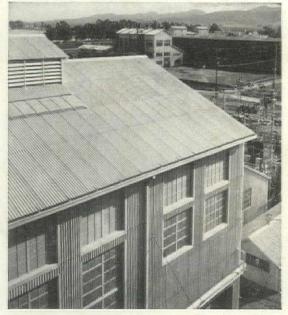
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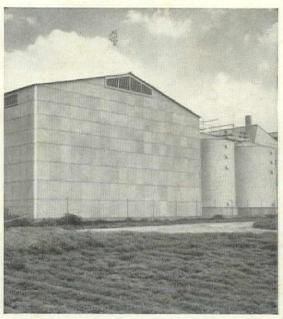
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Berglund Motor Co., Camden, New Jersey. Architects: Radey & MacNelly. Electrical Contractor: John T. Plaskett



This is a report on one of the most successful lighting installations of its kind ever made. You may well find valuable ideas and suggestions here for you.

How to light an auto showroom

Out east, they're still talking about the Berglund lighting job.

Opened for business last December, this well-designed, well-located automobile agency is directly on the Wilson Boulevard in Camden, the main artery leading into Philadelphia. Not only does the Day-Brite lighting turn the sales floor into a brilliant display area, it also reaches outside to attract and interest prospects who use this heavily traveled thoroughfare.

What makes this Day-Brite installation such an unusually good example of auto showroom lighting?

First, the lighting is a delicate balance of fluorescent and incandescent illumination. The long, graceful rows of Slimline fluorescent troffers deliver a uniform high level of cool, glare-free illumination. Recessed incandescent units add warmth and brilliance in just the right proportion to display color, paint finish and fabrics to best advantage.

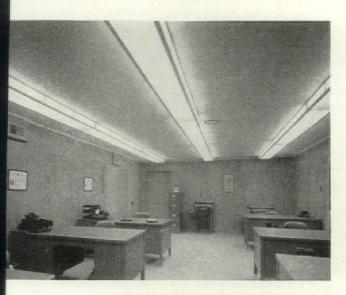
Recessed into the showroom's 14-foot ceiling are three continuous rows of Day-Brite three lamp glass-enclosed Slimline

troffers on 8-foot centers. Alternating between these rows are 300-watt Day-Brite Duo-Frame lens units on 8' x 8' centers. In the cove, over the balcony, Day-Brite Slimline strip furnishes soft, pleasant perimeter lighting. At the level of the car hoods, the intensity of the illumination ranges from 125 to 175 footcandles.

Showroom lighting is supposed to create a "sales promoting" atmosphere. This Berglund installation does just that—with power, drama and architectural distinctiveness.

And lest we forget the practical dollars and cents factor, this lighting job went Day-Brite to assure the long range economy of top quality equipment. Every week, every month, every year these quality Day-Brite fixtures are at work, the savings in better performance and lower maintenance costs will mount up.

Perhaps you have an auto showroom or a similar project on your board that calls for "sales lighting." Give it power! Give it quality! Give it the advantages of Day-Brite!



In the office area, three rows of Day-Brite PLEXOLINE-2 ® Slimline fixtures furnish excellent lighting for employees. The PLEXO-LINEs are equipped with low-brightness lens bottoms and provide 60 footcandles of very comfortable illumination.



In the salesmen's meeting room, the same high lighting standards have been followed. Three rows of PLEXOLINE-2's with ribbed Skytex glass bottoms provide comfortable seeing conditions with intensity of illumination averaging 70 footcandles.



Day-Brite Lighting, Inc., 5471 Bulwer Ave., St. Louis 7, Missouri. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.





Tuttle meditates. Beyond him is Sleeper (left) and Forum's Executive Editor, Hazen.

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Peshtigo, Wisconsin

Shaw: Any architect who undertakes a normal commercial or industrial job without the assistance and cooperation of the engineer in every field isn't a good architec.

Purves: The planning team should be formed early; as service is not something you can buy as a commodity later.

and a fairly sizable one—and who is doing important work—knows the costs, generally speaking, of buildings.

Zeckendorf: We are building several buildings which to the uneducated eye would look like identical factory buildings. Yet there is a range in price on those buildings of 100%.

For example, one client wanted a building of 300,000 sq. ft. and it cost \$10 a sq. ft. We built an identical building, from the standpoint of a nonprofessional eye, for somebody else and it cost \$5 a ft. Yet we threw no money away at \$10 a ft. It is simply that that client wanted different things.

How can an architect answer you when you come in and say that you want 100,000 sq. ft. of a one-story factory building, and ask, "What will it cost?" It is like saying, "How high is up?" You need a building contractor for that information.

Harrison: In architecture, there are good men and there are bad men, as there are in every other game. I have worked on a great many big projects. On some of them we have failed, as I am sure every business has, but in most cases we have come through on the nose on our estimates. Those estimates have run as high as \$60 or \$70 million and in some cases over \$120 million dollars. The record is a lot better than a lot of people think it is. We are so close to it, we see everything that is wrong with it. I want to put the other side before you. I think there is a great deal of good in the industry.

You have been talking about how bad the architect is, and how bad industry is. I don't agree with it.

I think the building industry is the most efficient industry in the country. That is a broad statement, but I will put it down. I talked to a manufacturer the other day who said that he got 25% of the selling price of his product—for producing it. On the other hand the 10% overhead taken out by the building industry is one of the smallest bits that is taken out by any great industry comparable with ours. I think our industry is very efficient.

Haskell: True, we have been talking critically and emphasizing the critical side more than the other. We have done that because problems already solved do not concern us so much as the ones yet to be solved.

I don't think we have pitched as many bouquets for outstanding jobs by architects as we might have, but it has been constructive to have the owners give us their complaints.

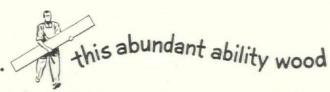
(continued on p. 216)



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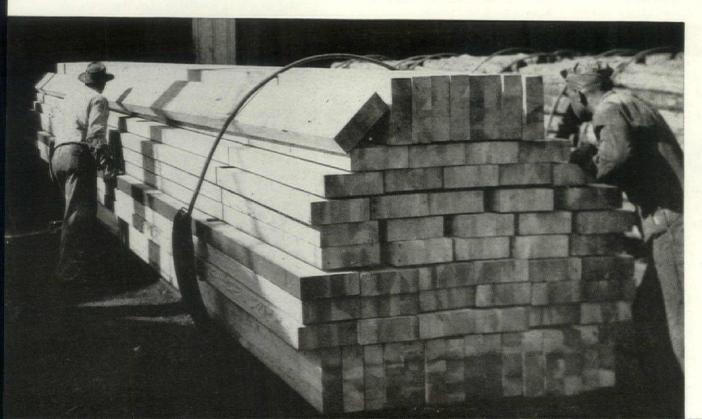
Santobrite: Reg. U. S. Pat. Off.



Photos courtesy Starlight Theatre

Built and financed as a civic enterprise, Kansas City's Starlight Theatre seats 7,200—one of the largest outdoor show places in the nation. Wood used for stage construction was penta-treated.

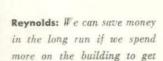
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Reynolds: We seek from an architect the ability to produce a structure that will be economic in operation and costs of which are low over the life of the building.

For instance, we often find we can save money in the long run if we spend more on a building to get the job done properly. A good many architects don't give sufficient study to those phases of costs of operation which we think are very essential for proper design of a building. For instance, they don't go far enough into floor coverings, wall coverings and so forth. The window design very often is apparently based upon what somebody would like to see, looking down Fifth Avenue, and not on how it operates for that particular building. It may need all glass, or it may need none. It depends upon what you are going to use it for, how deep the working areas are from the walls to the center of the structure, and many other factors.

The answer might be to pay the architect more money and see that the engineers get more money, too, because a lot of this is engineering. It is essential that in an office building it be so designed as to get the maximum use of every square foot of space, since a reduction to 90 sq. ft. per person from 100 sq. ft., as an example, is a capital saving of 10% and an operating saving of like amount.

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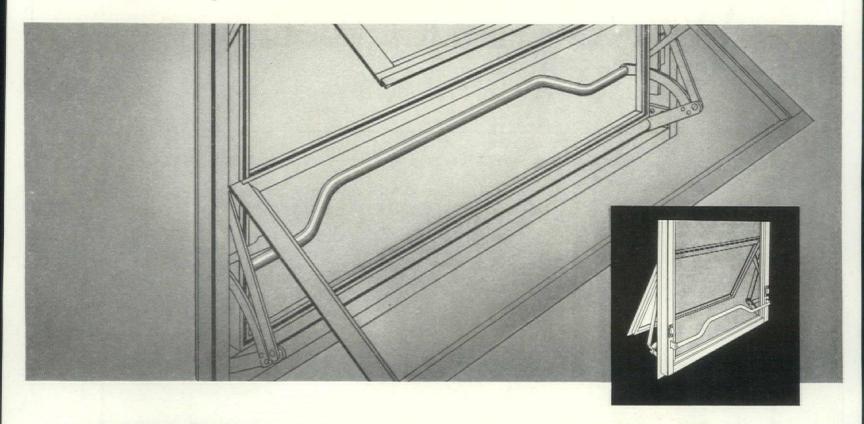
These are essential things, and they are not getting the consideration in architecture in America that they deserve. I have been greatly interested in the office buildings that have been erected the last few years. A great many of them violate principles that we think are necessary for the proper design of a building.

We have a problem in the General Accounting Office Building. This building is block type, 365' wide, and there are a lot of offices around the perimeter with partitions running full height. It is partitioned a great deal more than we anticipated it would be. It was laid out for General Accounting Office purposes, but we had to put in the Defense Agencies whose staffs wanted private offices, private secretaries, private secretaries' rooms and everything else. That seriously affected the air conditioning since the original design was based upon more open space.

No block-type building used for offices should be wider than 250'. Then you put the main corridor right down the center of the building and locate all facilities adjacent

(continued on p. 220)

NEW Optional BALANCE BAR OPERATOR*



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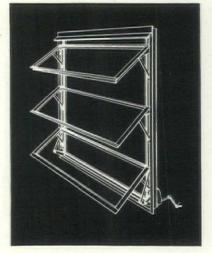
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for these technical data books Write for these technical date from H. H. Robertson's . Q-Floor library

How to fireproof Robertson Q-Floor and Structural Steel



This booklet is an exposition of fireproofing methods employed when Q-Floor is used in conjunction with structural steel framing in a multi-story building and must meet local building code requirements. It covers most problems likely to be encountered by the designer and contains charts of typical code requirements, fire resistance ratings, and framing and ceiling details, both basic and with all combinations of extras.

DESIGN & COST FACTORS

Design and cost factors

With the use of this book you will find you can readily compute the cost of all types of structural floors with integral electrical wiring systems and compare them with Q-Floor. The study is based upon a typical multi-story building and is replete with charts and cost studies of all components to enable you to accurately estimate for your own vicinity. A critical analysis of this nature should be included in every architectural and engineering library.



Concrete fill on Robertson Q-Floor

This is the first of a series of booklets giving recommended practices for sub-contractors working on Robertson Q-Floor jobs. It contains detailed specifications for formulation, placement and curing of the fill, together with well-documented treatises on the nature and reactions of concrete. You will find a section on shrinkage cracking and how to control it, well illustrated with authoritative graphs and charts.

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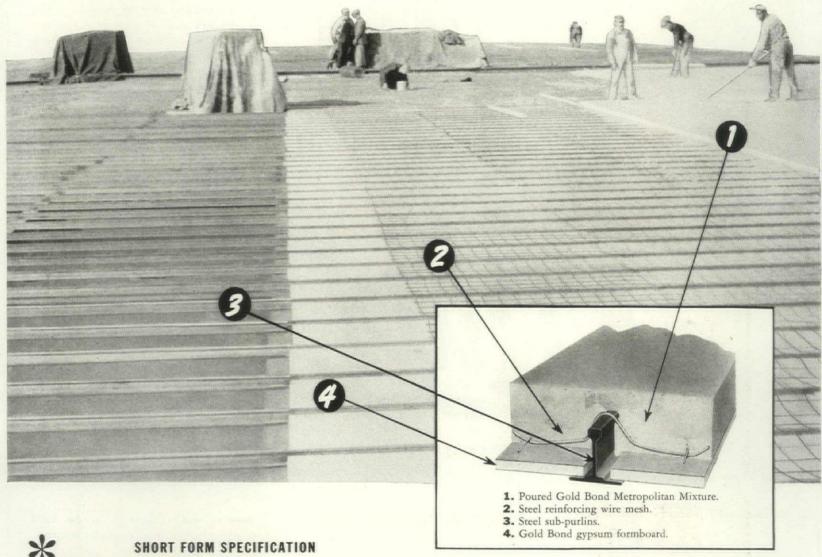
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thereto, such as elevators, escalators, toilet rooms, etc. I would go still further and put private offices adjacent to the central corridor and leave the perimeter open for mass operations. If you want some fine offices put them at the end, but locate those people who work in mass operations near the windows so that they can look out. If you put the private offices on the inside corridor, the top brass will not have to walk so far to consult with each other.

The architect should have enough money in his budget so he can make basic studies. We would be willing, I think, due to the complexity of today's structures to increase our fees so that more basic studies could be made and the extra fee identified as such.

It is strange but the best work we get, or at least as good work as we get, is from some small architect who has only a local reputation, because he just puts everything that he has into it. The big fellows are too busy.

Brouillette: To do the work they hire the cheap guys that you wouldn't hire [laughter].

Luckman: The little guy does such a good job that he becomes a big firm, however [laughter].

Chairman Prentice: At what distance back from the window do you begin running into problems of claustrophobia in the Pentagon?

Reynolds: You can go back 200' as long as they can see a window-just so they can look out and see if it is raining or snowing.

Zeckendorf: Do you believe that the windowless office building is unsound in its concep-

Leopold: I don't wish to go that far, but I have no proof that it is a sound conception.

Reynolds: We designed an office building during the war that had no windows, but it was never built.

Schlossman: Do you think a view through the skylight serves the same purpose?

Leopold: If you have very high ceilings and large areas as some factories have, I don't think the feeling of claustrophobia is the same.

Reynolds: Only the fellow sitting at a desk is a problem. You don't have that trouble with a fellow who is moving around.

Zeckendorf: What if the ceiling is high?

Leopold: I think at times you can get away without windows if the ceiling is high.

Reynolds: In a windowless building you can get along better with executive offices than you can with open areas for the other people. We have no trouble with the executives' offices. It is in the "pool" operations that we get into trouble. The problems of ventilation-stale air, lighting, etc.-can be largely met by using very low partitions.

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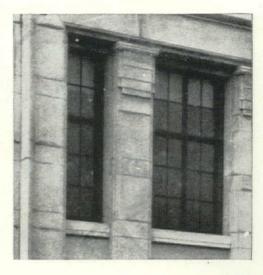
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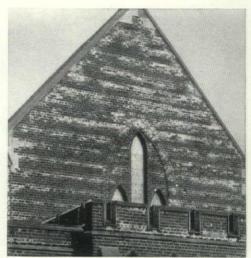
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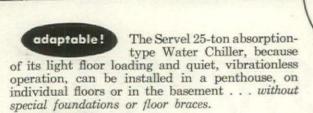


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Additional facts on Carrara are contained in SWEET'S CATALOG.

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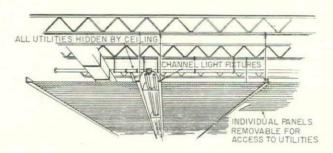
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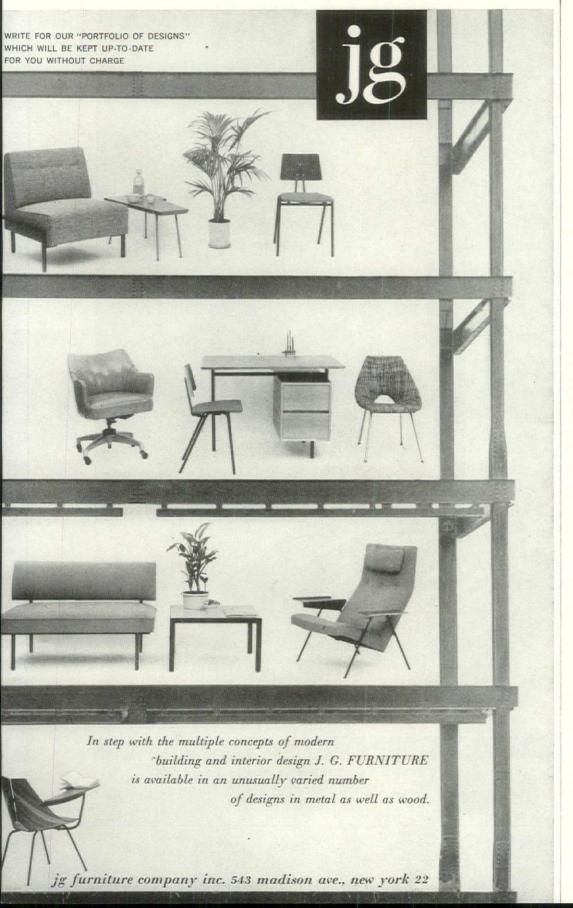
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are available in baked enamel finish for high light reflectance, as well as natural aluminum.

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Distributor: Elof Hansson, 220 E. 42nd St., New York, N. Y.

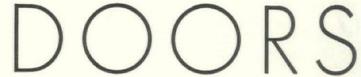
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Excelsior! The classic Latin cry "still upward, more lofty" has been time-twisted to mean the curled shreds used for packing china and stuffing cheap upholstery. Tectum board may give renewed prestige to the lowly wood waste fibers. Excelsior and cement baked into a cake fit for a contractor, Tectum is an industrial processing answer to a multitude of construction needs. Incombustible, lightweight, stronger in many ways than concrete, an excellent sound absorber and thermal in-(continued on p. 228)

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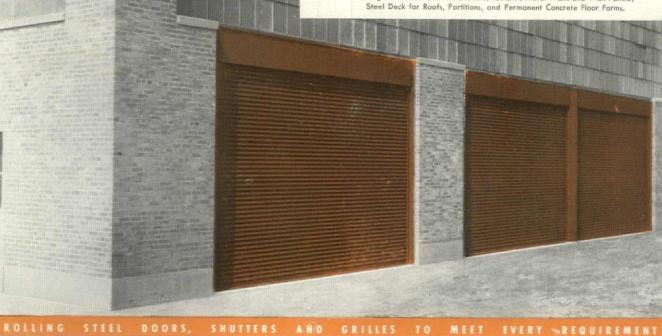
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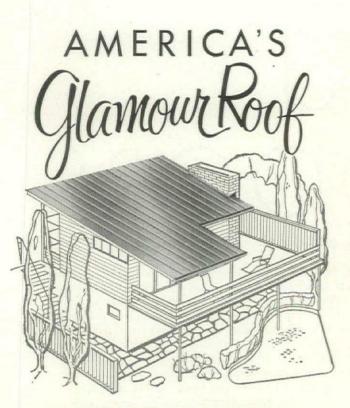
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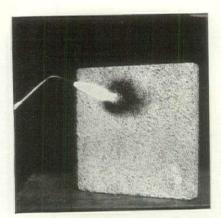
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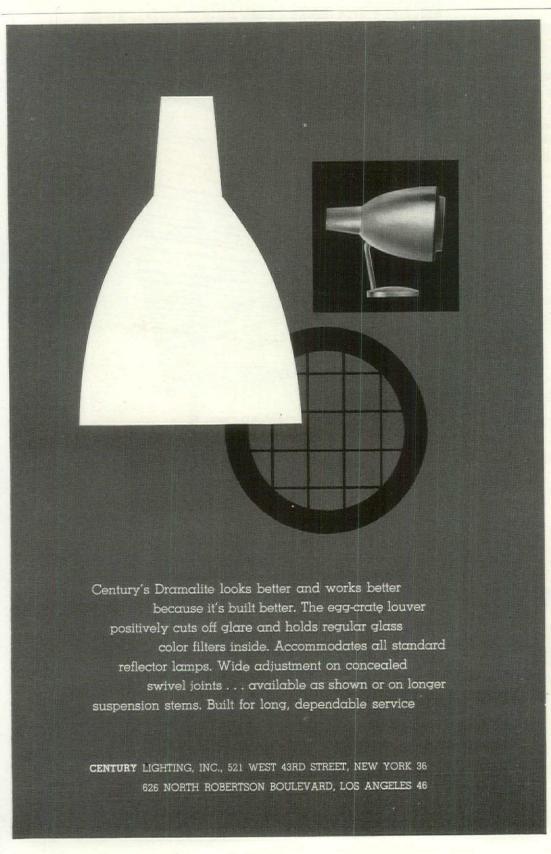
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NEW PRODUCTS continued

sulator, the new wonder material has one particular attribute that sets it apart from most current wonders: it actually is being produced in large quantities. In the manufacturer's Newark, Ohio plant, tons of wood fibers are being fed into an enormous roller oven, a fireproofing thermal-setting cement and chemicals are added during the cooking and, a few hundred feet down the line, a continuous building board emerges. The material is cut 30" wide and in lengths of 4' to 10'. It can be laid directly over bar joists, and costs in place 35¢ per sq. ft. for 2" thick board. For very long spans requiring steel subpurlins, in-place price runs about 45¢ per sq. ft. Attractively tactile on its underside, Tectum needs no special finish. In fact, having a noise reduction coefficient of 85%, the decking doubles as a highly efficient acoustical ceiling. The planks have a factory-applied top coating of felt which provides a smooth surface for built-up roofing. They are tongued and grooved to facilitate installation and to help distribute loads laterally. Tectum deck carries normal roof loads on spans up to 5'. It may be anchored with nails, power-driven studs, or clips; and can be worked with ordinary carpentry tools-hammer, saw and drill. It is rotproof and resists fungi. Termites scorn it like poison which, to them, it is.

Tectum also is available in 1" thickness in 1' squares and 1' x 2' and 2' x 4' sizes for acoustical uses. Both the tile and board can be used on suspension systems or nailed directly to furring strips.

Manufacturer: The Tectum Corp., 105 S. 6th St., Newark, Ohio.

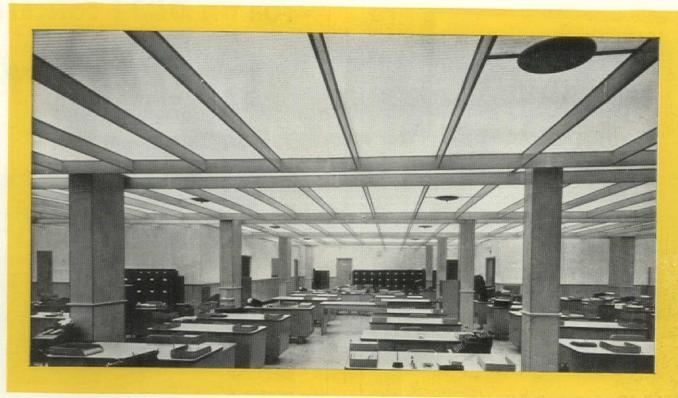
WRAP-AROUND PIPE INSULATION: glass fibers contoured for easy application

Promising to cut much fuss and time, *Ultra*fine pipe insulation should find a vast and friendly audience among men who know hot and cold lines best. The new material, composed of glass fibers impregnated with phe-



nolic resins, is factory-formed into resilient cylinders. It has a very low K factor—.23 at 100° mean temperature—and is extremely light and easy to handle. Each 6′ long section is spread apart at the slash, slipped over one end of the pipe and snapped into place. The seam is then closed with tape, staples, string

(continued on p. 232)



Ceiling for Dormeyer Corp., Chicago, by Luminous Ceilings, Inc., 2500 W. North Ave., Chicago, Ill.

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The ceiling provided the finishing touch in converting this loft area into a bright, cheerful, modern office.

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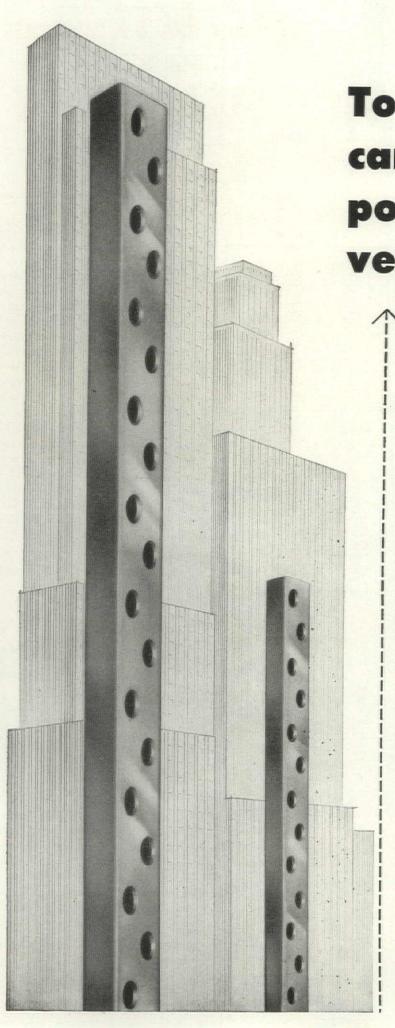
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NFW PRODUCTS continued

or any other fastening device. Molded *Ultra*fine may be painted or left as is. It will not powder or deteriorate, can be trodden under foot without breaking, and will not turn mushy in contact with water. It comes in ½" sizes to fit pipes 2" through 10", and is available in four wall thicknesses: ½", ¾". 1" and 1½". Insulation 1" thick for 2" pipe costs about 36¢ per lin. ft.

Manufacturer: Gustin-Bacon Mfg. Co., Kansas City, Mo.





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An ingenious slip-fit and notch joint on Brainard's new scaffolding system speeds erection of framework in almost any size or shape. The Kwik Scaf system, introduced this spring. comprises two basic lightweight parts-a frame and tie bar made of welded steel tubing. Recently the manufacturer announced a further simplification of Kwik Scaf utilizing repeats of the 24 lb. framing member and a minimum of accessories. Four of the frames nested into one another form a section 5' square by 4' high, and multiples of these can be added vertically for tower structures or horizontally for long runs. The new scaffolding is adaptable to most heavy and light construction jobs as well as to repair work and painting. Dismantling is quick, and storing made easy by the compact stackable design of the frames. One man can build a Kwik Scaf platform 4' high and 182' long in about 11/2 hours; he can put up a 14' high by 5' square

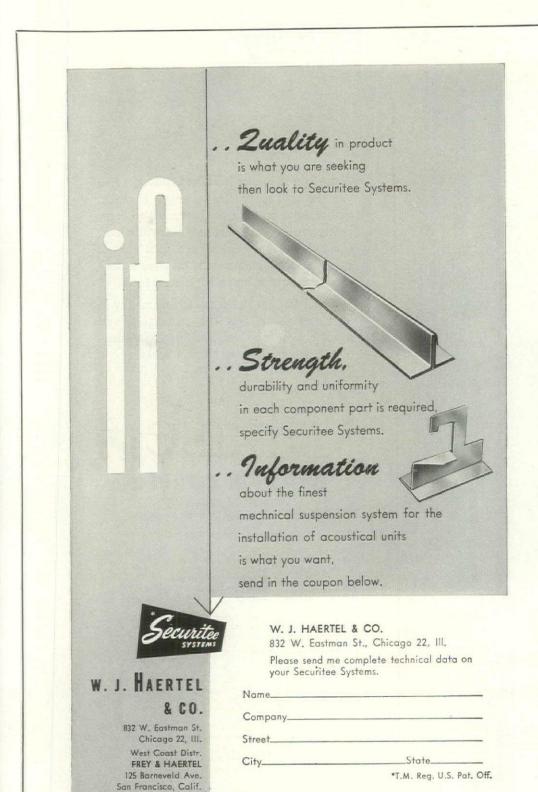


tower in just 8 minutes. Each framing unit is load tested at 400 lbs. psf. The standar-dization of parts also helps keep the price within reason. Framing for a structure 35' long, 20' high and 5' wide would cost around \$600, or about 87¢ per sq. ft.

Manufacturer: Brainard Steel Div., Sharon Steel Corp., Warren, Ohio.

FACTORY TRUCK has gas engine, electric transmission

The Dynamotive, a stylish and functional accouterment for industrial plants, was uncorked at the Materials Handling Exposition in Philadelphia last month. The new little power truck with style undertones of Euro(continued on p. 236)



Waterproofed BRIXMENT HELPS PREVENT LEAKY WALLS

When a masonry wall leaks, water almost never passes through the masonry units or through the mortar. It works its way through cracks or openings between the masonry units and the mortar.

Even when full joints are secured, cracks are not entirely eliminated. The best precaution is therefore to parge or backplaster the face brick with waterproofed mortar, before the back-up brick are laid.

Brixment is permanently waterproofed, during manufacture, with the most effective air-entraining waterproofing agent known. Even under pressure, water cannot readily pass through Brixment mortar. Therefore, if the face brick are backplastered with Brixment mortar, an effective barrier is set up against the further penetration of any water which may have worked its way through cracks or voids in the outside face of the wall.

In addition, the waterproofing in Brixment gives you two other practical benefits:

GREATLY INCREASES DURABILITY

2 HELPS PREVENT EFFLORESCENCE

These additional benefits of waterproofed Brixment are fully described in subsequent advertisements. Watch for them!

Louisville Cement Co., Louisville 2, Ky.

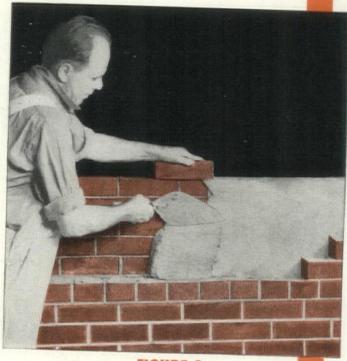


FIGURE 1

This kind of brick work offers the best protection against leaky brick walls. All joints are full, and the face brick are backplastered with waterproofed mortar before the back-up brick are laid.

FIGURE 2



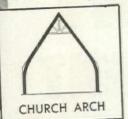
Prepare two slabs of mortar, one with Brixment and one with ordinary cement-and-lime mortar. After mortars have hardened, seal a lamp chimney to each of the mortar slabs, using wax or candle grease, and fill with water.



After 24 hours, note how much water has gone into and through the non-waterproofed mortar, and how little water has gone into or through the Brixment mortar.

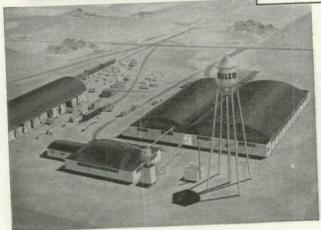






BEAM

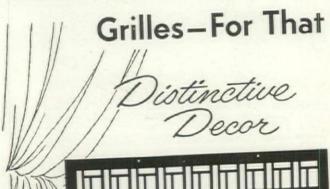
Your designs now can be scheduled for faster completion because we can make prompt deliveries from our big new plant

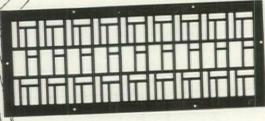


This new Rilco plant in Albert Lea, Minnesota, is now producing laminated wood arches, beams, trusses, and specially-designed structural members. See our 20 page catalog in Sweet's Architectural file—2 b/ri, or write for a copy of this helpful catalog containing engineering data and design ideas.

Laminated PRODUCTS, INC.

2524 First National Bank Bldg., St. Paul 1, Minnesota



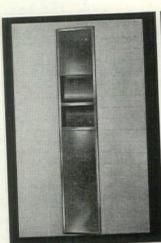


Just as eye-appealing as they are functional, Hendrick Perforated Metal Grilles will greatly enhance the beauty of any decorative motif.

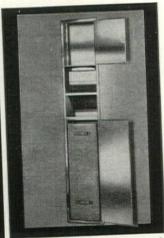
They provide more-than-ample open area for the free passage of air, and are available in a wide variety of designs to best set off your decor. And they're easy to install—always lie flat because of a special flattening operation in their manufacture. For more complete details write Hendrick today!



50 DUNDAFF ST., CARBONDALE, PA. • Sales Offices in Principal Cities Perforated Metal • Perforated Metal Screens • Wedge-Slot Screens • Archi-tectural Grilles • Mitco Open Steel Flooring • Shur-Site Treads • Armorgrids



No. 945 Recessed Towel Cabinet & Removable waste receptacle. Towel Waste Receptacle...fabricated of stainless steel . . . designed for efficiency. 400 "C" type folded towels.



modern washrooms-

the Scott No. 945 Recessed Towel Cabinet and Waste Receptacle

Here's the fixture designed specifically to meet today's growing trend to recess fixtures.

For a detailed dimension and installation drawing of the No. 945 fixture or for the help of a trained Scott consultant, write Washroom Advisory Service, Dept.
MD-0, Scott Paper Company, Chester, Penn.

SCOTT

Symbol of Modern Washrooms





pean sports cars could prove that its newness was more than chassis-deep; indeed, the sleek shell encases a sense-making principle of operation. Gas-engined for rugged service, the Dynamotive has an electrical transmission for a wide acceleration range with minimum power loss. There is no mechanical connection between engine and drive unit, and so no shock load can be transferred from wheels to engine. Transmission gears, hydraulic torque converters, and overdrive mechanisms (all

maintenance bait) are eliminated. The truck's hindguarters are haunched for good stability and maneuverability in narrow aisles. Its design also embodies several features for the driver's comfort and convenience: good visibility, generous leg room, a bench-type seat, and easy access to instruments which are clustered on the steering post. Optional equipment includes a two-way radio and a load indicator. The truck's 124" lift telescopes to 83" on both mono- and duo-lift models. The Dynamotive has a 3 ton materials-handling capacity and costs about \$5,500 F.O.B. plant. A possible problem: will plant superintendents be able to prevent operators from taking the truck home week ends? If its looks tempt abductors, perhaps its 9 mph speed limit will discourage them.

Manufacturer: Automatic Transportation Co., 149 W. 87th St., Chicago 20, Ill.

PLASTIC COUNTER-TOPPING applied with glue and roller

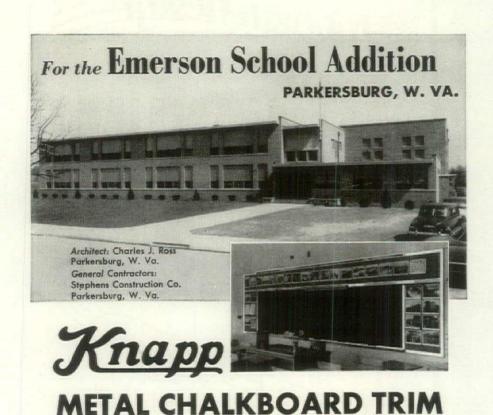
Contractors called upon to furnish Formica on cafeteria counters and other food preparation areas no longer have to call in special fabricators. Recent development of a powerful adhesive, Contact Bond Cement, takes the high-pressure laminate out of the custom class. To install a sheet of Formica (whose top layers are saturated with practically indestructible melamine plastic resins) a workman merely spreads the new cement on the back of the sheet and also on the counter or wall to be covered. After it sets for 40 minutes, he puts the two prepared surfaces together. No sand bags or heavy clamps are needed; gentle pressure from a roller seals the bond. Sink rim can be finished with stock



moldings and counter edges treated either with strips of the same pattern plastic or metal rim. Formica is available in sizes up to 4' x 10' in more than 120 pattern and color combinations as well as 13 solid tones at 62¢ to 75¢ per sq. ft., depending on quantity purchased. Actual wood veneers are laminated into the luxurious Real-wood series, which costs about \$1.20 per sq. ft.

Manufacturer: The Formica Co., 4616 Spring Grove Ave., Cincinnati 32, Ohio.

Technical Publications p. 240



Charles J. Ross (Architect) selected Knapp Extruded Aluminum Chalkboard Trim because of its attractive appearance, moderate installation cost, ease of installation, and maintenance-free service. All types of Knapp Chalkboard Trim install quickly and easily on

either metal or wood grounds, with any chalkboard or corkboard. No special wall construction is required. Back edges of trim sections are formed parallel to the wall for maximum rigidity and protection of board and wall finish.

For complete information on Chalkboard Trim and other Knapp Trim Products, write to Dept. AF 653.

KNAPP BROTHERS MFG. CO. REG, U. 16 East 72nd Street, Cincinnati 16, Ohio

ARCHITECTURAL METAL TRIM SINCE 1905



MENGEL Mahogany FLUSH DOORS

MAKE "MILLION-DOLLAR" EFFECTS

yet cost less than many domestic woods!

Genuine African Mahogany has long been acknowledged the Aristocrat of Woods . . . has long been synonymous with "Quality" to architect, contractor and home-owner alike.

Now Mengel offers you the unsurpassed beauty and sophistication of genuine African Mahogany, in all your doors, for less money than you'd pay for comparable doors, faced with many domestic woods!

Why? Because The Mengel Company operates its own logging concession in Africa's best Mahogany section, imports top-quality logs in tremendous volume, and passes the savings on to you.

Mengel Mahogany Flush Doors and Standardor Mahogany Flush Doors are designed, engineered and built to be better doors in their respective classes. Compare specifications and be convinced.



Door Department, THE MENGEL COMPANY, Louisville 1, Kentucky

For glareless, shadowless lighting . .

CORNING LENS PANELS

CORNING "Lightweight" Curved Lens Panel is a single piece unit. Open and closed end panels are stocked in a range of sizes.



CORNING TWIN-LENS Panel, for two to four tubes. Fluted rear surface intercepts light, prevents transmission of lamp image.



CORNING UNILENS Panel, for use with one or two fluorescent tubes. Single lens directs light where desired; brightness at edges is controlled. New Corning Lens Panels give you evenly distributed light with carefully controlled brightness. Fresnel design lenses eliminate shadow and glare—direct light where it is needed.

Light in weight and easy to handle, Corning Lens Panels are made in long lengths, making possible attractive, continuous runs. Not color selective, they transmit true color from the light source, showing off merchandise or putting employees in natural surroundings where they look better and feel better.

Corning Lens Panels are available in two different types: Lightweight Flat, in the Unilens and Twinlens patterns, and Lightweight Curved. Get the facts on this highly efficient engineered lighting glassware from your fixture manufacturer or send for Catalog LS-32.



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Corning means research in Glass

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shows how to avoid
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in changing floor levels



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FULLY AUTOMATIC, METERING PUMP

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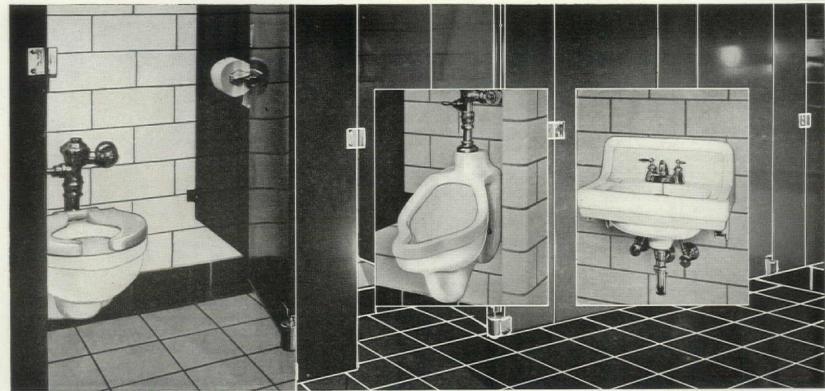
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This combination reduces the cost of rest room

maintenance by 25 to 30%

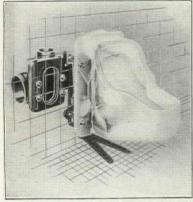
AMERICAN-Standard off-the-floor plumbing fixtures

INSTALLED WITH

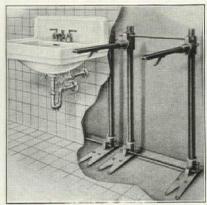


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These booklets present up-to-date factual informa-tion for planning Modern Rest Rooms. The ideas presented are the result of experiences of engineers, architects, general contractors and plumbing con-tractors who have specified and installed American-Standard Off-The-Floor Plumbing Fixtures installed with Zurn Systems.

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Please attach coupon to your business letterhead.





ALUMINUM. Welding Aluminum. Reynolds Metals Co., Desk PR, 2500 S. Third St., Louisville 1, Ky. 186 pp. 6" x 9"

Enlarged and updated, this current edition of the 1946 manual discusses 34 processes suitable for welding, brazing and soldering aluminum and its alloys. Much useful reference data is condensed into 125 charts. Flow, stud and induction welding are some of the comparatively new techniques described in this comprehensive manual. INDUSTRIAL LIGHTING. American Standard Practice for Industrial Lighting. Prepared by Committee on Industrial Lighting, Illuminating Engineering Society, 1860 Broadway, New York 23, N. Y. 40 pp. 81/2" x 11". 50¢

Analyzing the factors which affect "seeing tasks" and the elements that make up good illumination, the new Standard Practice explains how to determine and control the proper quantity and quality of daylight and artificial light for various working environments. Foot-candles required for different jobs accompany an alphabetical list ranging from "airplanes" through "woodworking." Studies and reports not covered in the last edition of Industrial Lighting Standard Practice (issued 11 years ago) include ones on woolen mills, canneries and commercial bakeries. Supplementary lighting and lighting for machining small metal parts are also covered.

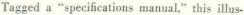
WALL LOUVERS. Burt Wall Louvers. The Burt Mfg. Co., Dept. MB, Akron 11, Ohio. 8 pp. 81/2" x 11"

Adjustable and fixed wall louvers for industrial, commercial and institutional buildings are detailed and illustrated in this catalogue. Details on louver operators and screens are also included.

SURVEYS. DFI Technical Surveys. Designers for Industry, Inc., 2915 Detroit Ave., Cleveland 13, Ohio. 4 pp. 81/2" x 11"

Why, when and how technical surveys should be conducted relative to product development and marketing.

BUILT-UP ROOFS. Built-Up Roofing Specifications Manual. The Philip Carey Mfg. Co., Dept. FBUM, Cincinnati 15, Ohio. 80 pp. 81/2" x 11"

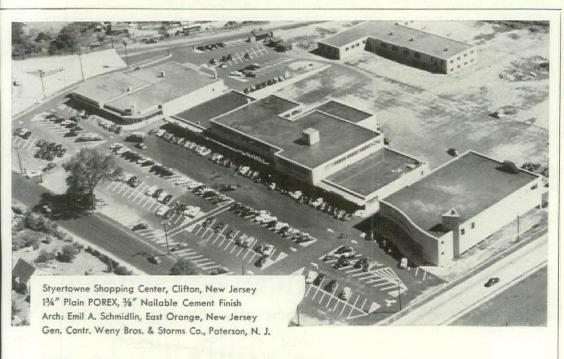




trated handbook is actually a thorough treatise on bonded built-up roofs which utilize the manufacturer's products.

GRANITE. Color In Granite, Bulletin No. 15. H. E. Fletcher Co., Inc., 104 E. 40th St., New York 16, N. Y. 6 pp. 81/2" x 11"

To familiarize architects and designers with colored granite available from US, Canadian and European quarries, this new bulletin re(continued on p. 244)



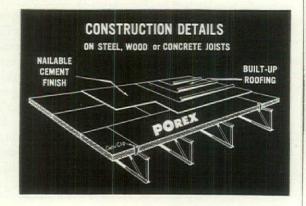
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Plain	3"	1/4"	10	-	100	50	-	_
Composite	3"	1/4"	14	-	-	-	100	60

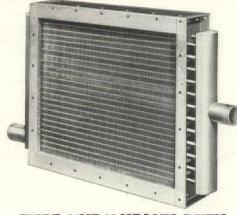
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- Corrosion-resistant red brass tubes, staggered in multiple rows for maximum efficiency. Copper fins, heavy-wall Admiralty tubes available on special order.
- Tubes mechanically expanded to fin collar to form double-wall, continuous metal transfer surface. Assures fidelity to rated standards throughout the life of the coil.
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- Galvanized steel casings, with double channel top and bottom, provide support and protection for core. Flanges on four sides facilitate duct mounting and multiple bank installations.
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- Young Coils offer maximum versatility in specifications due to their greater capacity range. Available in either 5 or 11 header widths, 19 tube lengths.



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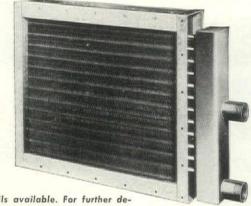
For steam or hot water service. Galvanized steel casings complete with drilled flanges on all sides for connecting to duct work, and permitting stacking in banks. Available in 11 nominal widths, 19 lengths from 12" to 120". Suitable for steam pressures from 2 to 150 psi and temperatures to 400 F. Type "S" coils incorporate Young features described at left.

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Recommended for severe industrial applications. Have same design features as Type "S" (above) except that the tubes are larger and of heavier-walled construction. Designed for steam pressures to 300 psi, and temperatures to 500 F. Available in 5 nominal widths, 19 lengths from 12" to 120".

TYPE "SD" STEAM DISTRIBUTING

For steam systems where performance is regulated by modulating supply of steam to coils. Double-tube feature provides protection when entering air temperatures are below freezing, and even temperature distribution along face of coil. Casing detail similar to Type "S." Available in 5 nominal widths, 19 lengths from 12" to 120". Suitable for steam pressures from 2 to 150 psi, with 25 psi recommended maximum.



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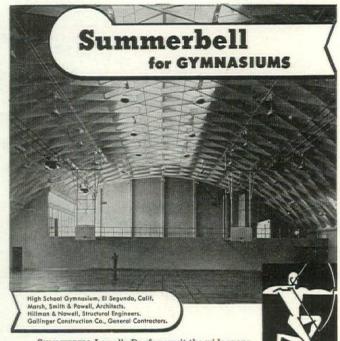
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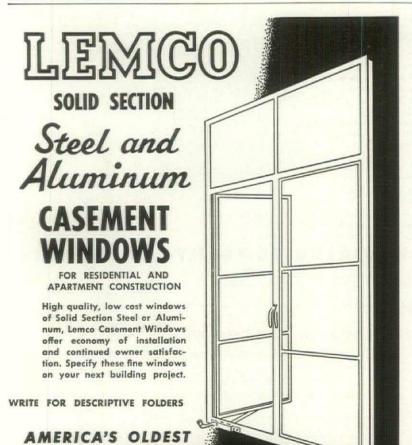
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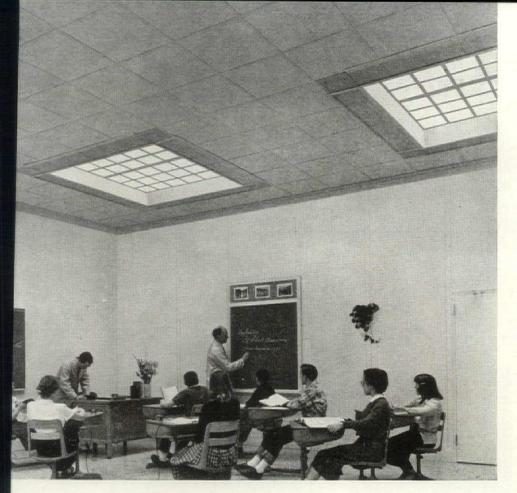
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MARKET STREET



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for daylighting
deep rooms

New Kimble Toplite Panels solve the problem of how to provide daylight for deep interior areas too far removed from conventional, side-wall panels of prismatic Insulux Glass Block®.

This revolutionary new daylighting system lets you bring free daylight in from above through a simple framed, flat roof without monitor, saw tooth, or clerestory arrangements.

Only the Kimble Toplite offers these features:



PREFABRICATION

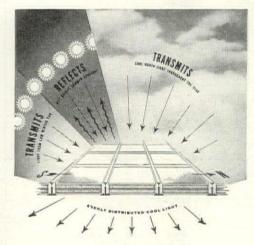
Kimble Toplite panels are factoryfabricated for uniform quality, and low installation cost. They are made up of an insulated aluminum grid into which special hollow glass units are

conditions.

set. The glass units themselves are 105%" square by 3" thick, and are installed in the aluminum grid 12" on centers. Panels are weatherproof with no porous materials exposed to the weather.

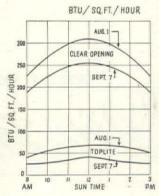
TESTED, TIME-PROVED CONSTRUCTION

Kimble Glass Company, in conjunction with a leading roof light manufacturer, and the Daylighting Laboratory at the University of Michigan have exhaustively tested Toplite in widely scattered locations under widely varied



SELECTIVE CONTROL OF DAYLIGHT

Kimble Toplite Panels are selective in their light transmission. They transmit a high percentage of the light from the low winter sun and from the north sky but reflect much of the direct light from the high summer sun. Light-controlling characteristics eliminate glare and



Calculated total heat gain through a Toplite Panel as compared to a clear opening in a horizontal roof for a building located at 37°N. Latitude.

distribute daylight throughout the room so that concentrations of light are eliminated.

SOLAR HEAT REDUCTION

Panels are designed to reflect hot summer sun and have unusual ability to reduce solar heat transmission. Toplite panels have high insulating value thus reducing troublesome condensation during winter. Loads on heating, air conditioning and artificial illumination systems are reduced.

More information

Want more information about this great advance in daylighting? Send for the new, free bulletin: "Kimble Toplite—a new system in daylighting." Address: Insulux Glass Block Division, Kimble Glass Company, Dept. MB-6, Box 1035, Toledo 1, Ohio.

MANUFACTURERS OF INSULUX GLASS BLOCK



KIMBLE GLASS COMPANY

Toledo 1, Ohio - Subsidiary of Owens-Illinois Glass Company



produces in full color nine different granites and gives data on sizes, thicknesses and finishes

CURTAIN WALL. Seaporclad by Seaporcel. Seaporcel Metals, Inc., 28-20 Borden Ave., Long Island City 1, N. Y. 8 pp. 81/2" x 11"

This bulletin describes sandwich panels manufactured with skins of various metals laminated to fire resistant, thermal and sound-

insulating cores. Designed for use as interiorexterior wall, as veneer, or as removable partition, the panels are available with two faces of colored porcelain enameled steel or with porcelain on one side and sheet metal on the other, in stock sizes up to 5' x 10' in various thicknesses.

DOORS. Fulton Architectural Aluminum Doors, Frames, Entrances. Variety Mfg. and Engineering Co., 810-12 W. Fulton St., Chicago 7, III. 12 pp. 81/2" x 11"

Neatly illustrated with renderings and diagrams, this spiral-bound catalogue presents a cleanly designed line of aluminum doors and

FURNITURE. The William Armbruster Collection. Edgewood Furniture Co., Inc., 334 E. 75th St., New York 21, N. Y. 20 pp. 9" x 111/2"

This file folder contains catalogue sheets on a comprehensive line of crisp seating units and tables designed by Architect William Armbruster for service in public and commercial buildings.

STAINLESS STEEL. Stainless Steel Wire. Allegheny Ludlum Steel Corp., Advertising Dept., 202 Oliver Bldg., Pittsburgh 22, Pa. 20 pp. 81/2" x 11"

Tables on physical properties and corrosion resistance of various kinds of stainless-steel



wire are contained in this booklet as well as a discussion of the wire's principal uses in manufactured products and in welding.

STORAGE. Steel Shelving. Precision Equipment Co., 3710 N. Milwaukee Ave., Chicago 41, III. 32 pp. 51/2" x 81/2"

CONCRETE CURING. Hunt Process Concrete Curing Compounds. Hunt Process Co., Inc., 7012 Stanford Ave., Los Angeles 1, Calif. 8 pp. 81/2"

CONCRETE FORMS. Deslauriers Round Column Moulds for Reinforced Concrete, Deslauriers Column Mould Co., Inc., 2903 Central St., Evanston, III. 4 pp. 81/2" x 11"

SPACE HEATER. Case Study Report on Dravo Counterflo Heater, Bulletin No. 560-57. Dravo Corp., 1203 Dravo Bldg., Pittsburgh 22, Pa. 4 pp.

(continued on p. 248)



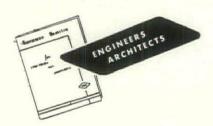
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When you need to be sure of satisfaction, it pays to specify a rugged Will-Burt stoker. You can rely on Will-Burt for dependable service, long life, minimum maintenance and economical heat. Wherever bituminous coal is burned, Will-Burt reliability will help build the complete customer satisfaction that brings good words and more jobs for you.

More than twenty years of experience in stoker design and the finest of precision workmanship go into every Will-Burt stoker. Exclusive Will-Burt features such as the automatic air control, patented shear pin, and dis-connect switch save fuel and improve operation in general. Will-Burt stokers are available in a wide range of sizes-there are bin-feed and hopper models for most domestic and commercial needs.

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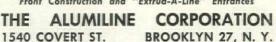
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BUILDING COSTS: 30 year's experience analyzed by leading contractor

Curiosity over costs, particularly anyone else's, is probably the greatest common denominator among builders. Invariably each will also try to measure every project against "average costs" and compare relative percentages spent for various parts.

One important point they usually overlook: peculiarities of any building job will keep it from matching so-called "average costs" just as surely as an individual personality will keep any person from ever becoming an exactly "average man"—or "average builder."

Nevertheless, this fascination with other builders' expenses will never die. It was recently given some guarded but intriguing figures to flourish on by Turner Construction Co. in its attractive 110-page anniversary book, Fifty Years of Buildings by Turner.

Please check one Architect Decorator Engineer

Builder-Contractor Home Owner

Draw no hasty conclusions. The book itself warns against making misguided comparisons between any two buildings on a square, cubic-foot, or average-cost basis: "Any chart of building costs must be used with judgment, giving careful consideration to all factors involved." However, it gives a "typical" breakdown for the \$1.75 per cu. ft. "adjusted" average cost of 31 representative office buildings Turner erected over the last three decades, but while doing so stresses how innumerable construction variations, even the shape of the structure, can cause considerable cost changes.

This \$1.75 applies to a 50' x 200' tenstory, air-conditioned building of 1,440,000 cu. ft. But for the same type building, 100' square (same cubic space but 100' less exterior walls), costs would drop about 5%, or 9 c less per cu. ft. Below is a breakdown, with supplementary figures to show several other ways "the cubic-foot cost that was \$1.75 very readily can move downward to \$1.39 or upward to \$1.94":

Typical office building cost breakdown

Foundations, including piles	\$0.09
Structural frame	.32
Exterior walls (limestone facing)	.30
Interior partitions	.17
Stairs	.01
Floor coverings	.02
Acoustical treatment	.07
Roofing, sheet metal, & insulation	.01
Storefront construction, 1st story	.02
Heating, ventilating and air conditioning	.32
Electrical work	.23
Plumbing	.08
Elevators	.10
Miscellaneous	.01
TOTAL per cu. ft	\$1.75

Variations	Deduct per ci	C. T. Server
If foundations are placed on hard rock instead of piles		
If a face brick facade is used in place of limestone		
If a granite facade is used in place of limestone		\$0.17
If air conditioning is omitted	.15	
If an underfloor electrical duct system is omitted		
If plastic ceilings are substituted for acoustical tile	.02	
If outside parking facilities are provided		.02

(continued on p. 250)



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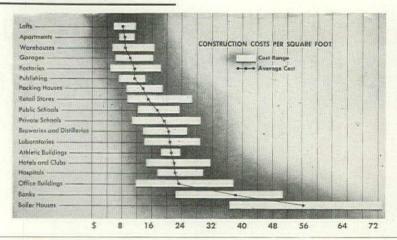
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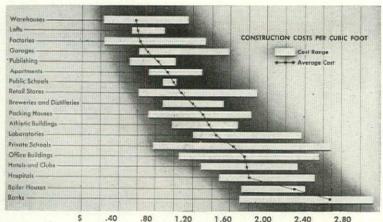
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Average costs for 319 representative buildings it erected over the last 30 years are charted (above) by Turner Construction Co. to illustrate cost ranges for the same types of structures as well as cost differences between different building types. Because of adjustment to July, 1952 on the basis of a Turner index of building costs, the ranges on these charts completely eliminate any reflection of changes in dollar costs at different periods, but only indicate variations in expenses of individual structures because of their quality or special features.

But valuable nonetheless. Two factors give special weight and significance to the Turner data and two summary charts of its average costs (above) for those who may wish to use them as a qualified yard-stick for evaluating their own performance:

Turner uses a meticulous cost review and analysis system. Every job is budgeted for time and cost; all labor and material items are classified in great detail. Every two weeks cost engineers make a thorough check on building progress and all expenses incurred on every job. Each month they prepare an "indicated outcome" analysis that projects prospective final costs against each original estimate.

Turner has an exceptionally broad base of experience. In 1951 Turner made contracts for 52 buildings costing a total of more than \$100 million; from 1902 through 1951 it was responsible for more than 2,500 buildings costing a total of more than \$1 billion, or over \$2 billion if adjusted to current costs. The size range of its 804 contracts for the last 25 years:



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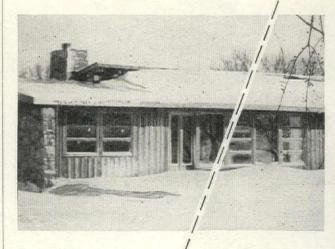
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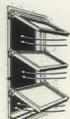
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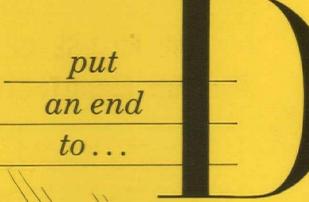
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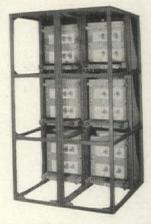
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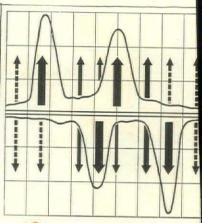
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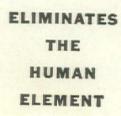


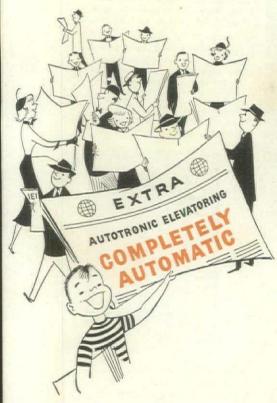


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