

UST 1955

OPY

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Air Academy design brawl

Backstage manipulations, strange alliances put Wright in camp with modern-design foes, commercial lobbyists; except for Legion, Wright might have been designer

Congressional antiaircraft batteries manned by antimodern architecture crews temporarily shot down the new Air Force Academy in Colorado Springs, Col. last n.onth.

Said a House appropriations committee report explaining its design-by-Congressional-committee action in withholding all new funds for the project: "The committee and individual Members of Congress have received a great deal of adverse comment on preliminary designs and feel strongly that it would be most unwise to provide funds for construction until the design is more firmly established. The designs should reflect the best traditions in American architecture; the designs should inspire the confidence and respect of the American people. It is suggested that the Secretary consult with the Commission of Fine Arts before accepting a proposed design for this national institution."

A week later, however, a Senate appropriations subcommittee was shown the most recently revised Skidmore, Owings & Merrill plans for the project by Air Force Secretary Harold E. Talbott. He said a whole year would be lost in opening the buildings for the nation's third great new service academy if the \$79 million cut from the House measure were not restored. A fortnight ago the Senate committee voted to put all the funds back in the bill, and the House foes, who also had then been shown the new plans, were expected to agree to rescind their knifing action.

Under the revised designs, the extensive glass areas originally proposed for academy buildings (AF, June '55) would be trimmed as much as 80% to 90%, Talbott told the Senate subcommittee. Instead there would be masonry walls—although it was not definite yet of what particular material: granite, limestone, or something else.

Superficially, the attack looked like a concentration of esthetic hostility among Congressmen devoted to vaguely traditional, early-American architecture. A number opposed the academy's brisk modern expression in preliminary presentations as "alien, European, un-American." To most onlookers, and to much of the press, denial of funds seemed like the breathholding of petulant lawmakers refusing to invest in the unfamiliar.

But as details of backstage manipulations became known, there took form a remarkable episode in which esthetics were most generally viewed through eye-glasses shaped like a dollar sign.

Leading character in the unfortunate ruckus, by happenstance or exploitation, if not entirely by his own design, was Frank Lloyd Wright, "Mr. Architect" to Congress, the nation and much of the world. As jigsaw parts of the picture were assembled, it seemed clear that Wright's role was the most influential, although a review of the history of the academy's design shows Wright, just turned 86, to have been one of the controversy's principal victims.

The unprecedented harshness of Wright's comments, before the committee, on fellow architects* came out of a three-fold background: 1-Wright as the fervent high prophet of "organic" modern architecture had lost the contract to the representatives of the "international" architecture, which is the exactly opposite school; 2-he had thereby lost his greatest and probably last chance to build a major monument for his own country by which his towering genius might be remembered for all time: 3-the way in which this chance had been lost must have seemed bitterly unfair to a great and valiant man of culture-in the light of facts hitherto unrevealed.

More than a year ago, when architects nationwide were scrambling for the job of designing the academy, Wright was induced by Richard Hawley Cutting, Cleveland architect, to head a group of architects and engineers who called themselves Kitty Hawk Associates. Other members: Burns & Roe, New York; Bush-Brown, Gailey & Heffernan, Atlanta; George B. Cunningham, Ft. Lauderdale; Graham, Anderson, Probst & White, Chicago; Mitchell & Ritchie, Pittsburgh; Kump Associates, San Francisco and Robert & Co., Atlanta.

After a few months, competition was narrowed to Kitty Hawk Associates and S-O-M; Pereira & Luckman, who had outlasted Belluschi and Eero Saarinen, were ruled out because they were designing the Spanish air bases.

In July 1954 Wright withdrew abruptly

* Wright's comments about also-rans in last year's scramble for the design job, later named—with noncontender Welton Becket—as advisors to the Air Force: Becket—"I wish that something would happen to him soon. I would hate to see his things going as they are now." Eero Saarinen—"His father wanted me to train him architecturally." Pietro Belluschi— "He is a teacher. He has done some very nice little houses, but he has had no experience as a builder."



NEWS

REP. MAHON (D, TEX)

from the competition. Behind this:

The American Legion had readied a public blast at Wright, dredging up past antimilitaristic activities and associations of the architect which, frontpaged for America in its 1954 mood, would have made it awkward for the Air Force to consider Wright and his group. The Legion's price for silence: elimination of Wright. Knowing this, his associates did not intervene when Wright refused to make the required personal appearance, and the award went to S-O-M.

Wright's reason for non-appearance was professional: "I woke up and found they (the associates and the Air Force) wanted me to go down and sell myself to Talbott."

His explanation, in a wire to Cutting a year ago: "I assume that an architect . . . shouldn't be asked to plead his own case or tell who he is. The world knows what I can do in architecture. If officials of the air force have missed this, I can do no more than feel sorry for what both have lost."

But the legion had not put down its shooting irons. It was standing by last month, ready to shoot if Wright or anyone else thought the Taliesin genius might still be able to get the commission for the project.

Meanwhile, S-O-M, quietly continued its assignment during the melodrama, made no public comment on the hail of stone cast at its glass building. Dutifully, it revised plans and specifications for its client to satisfy the desires of commercial interests seeking Congressional directives in favor of one material or against another.

Strongly supporting S-O-M, Air Force Secretary Harold E. Talbott wrote to AIA Executive Director Edmund R. Purves: "We believe that we have probably as able a group of architects and engineers as has continued on p. 13

REVISED PLANS for Air Force Academy buildings were displayed before Senate appropriations subcommittee by Air Force Secretary Talbott (r). Behind Talbott is Architect William Hartmann of Chicago office of Skidmore, Owings & Merrill.





United Press

REP. FOGARTY

(D, RI)

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ever been assembled in a building enterprise. I have confidence that these men will present for approval the most appropriate buildings possible for our academy."

Talbott also thanked Purves for a "most unbiased statement" on behalf of the AIA board of directors outlining the board's views on the "matters of principle and policy." In no way judging the specific designs, this statement declared:

"In arriving at a selection of architects and architect consultants . . . the Secretary followed ethical and objective procedures that were in the public interest. [Those] selected are among the most distinguished of American practitioners. Their experience is extensive, their reputations are worldwide and the buildings and projects to their credit among the most significant productions of the American professionals. . . Any structure or work of art will find itself the target of criticism, sometimes voiced without knowledge of the problems involved. . . . The AIA is firmly convinced that the commissioned architects should continue [developing] their plans and the Air Force should proceed with confidence knowing that the final result will be in the best interest of the American people."

After the May 14 unveiling of S-O-M's initial plans at Colorado Springs, Congressmen who criticized them as too modern or futuristic far outnumbered those singing their praises. There also turned out to be a concentration of opponents on the key Air Force subcommittee of the House appropriations committee.

Explaining this committee's elimination of the academy's construction funds from the appropriations act, Chairman George H. Mahon (D.Tex.) cited public controversy over the first S-O-M drawings and "grave doubts of committee members over the suitability of these designs." Mahon denied, however, that he had any preconceived ideas on what type of design should be adopted, and insisted the subcommittee action was intended only to avoid "buying a pig in a poke" before a final design was adopted.

But the leading Congressional actor in the drama was Rep. John E. Fogarty (D-R.I.), a member of the full appropriations committee. Fogarty, who before his election to Congress had been president of Rhode Island bricklayers union Local 1 (covering the entire state), said it was he who suggested that Wright be called to testify bethe House subcommittee. Fogarty said his interest in the academy began after receiving a "form letter" Wright sent Congressmen. After he sent Wright a reply, said Fogarty, Wright called him from Wisconsin and Fogarty went to work arranging a hearing on the design. To FORUM Wright denied sending a letter to any Congressman. "Why should I be sending letters to Congressmen?" he asked.

Jaunty Fogarty, 42, leading contender to be the next governor of Rhode Island, makes no bones about his reasons for opposing the first S-O-M designs: 1) In his opinion they are a monstrosity; 2) they lack brickwork. In an extension of his remarks on June 20 in the Congressional Record he gave a long account of the advantages of brick walls over other types,



SERVICE ORGANIZATION FOES who attacked academy designs as "an insult to our American heritage and traditions," were Veterans of Foreign Wars Legislative Director Omar B. Ketchum (I), former linotype operator and 1931-34 mayor of Topeka, Kan. and VFW President Merton B. Tice, Mitchell, S.D., lawyer. Tice said that "in every instance where the matter was brought to the attention of delegates at state VFW conventions, they unanimously opposed the proposed plans." But he refused to name a single state where this had occurred or give any figure on number of conventions that considered it.

and at one point declared: "Glass and metal, of course, are alien to American monumental design—even European. This is so obvious it needs no further comment."

Far more obvious were the parallel interests of Fogarty and the Allied Masonry Council, a component of which is his parent union, the 125,000-member Bricklayers, Masons & Plasterers International Union. The council, a trade group made up of nearly every one with a stake in masonry construction, was undersantdably unhappy over the academy's glass-and-steel design. The academy was a prize not only in its bigness, but also as a construction pacesetter.

House subcommittee witness for the promotion of masonry: Harry C. Plummer, head of the masonry council's engineering committee, who challenged reports of Air Force statements that use of stone in the academy was too expensive; Chicago Mason Contractor John Taheny, president of the Mason Contractors Assn. of America, and John J. Murphy, bricklayers union secretary, who denied validity of reports that masonry was ignored by S-O-M because not enough craftsmen were available for the job.

The council had a powerful friend in the Senate. Homer Capehart (R-Ind.), threw his weight behind a Hoosier product: "I come from Indiana, and we have a lot of limestone out there. Indiana Limestone Co. produces it."

Rare was the subcommittee witness without some motivation beyond architectural design. Even apparently guileless Henry H. Reed Jr., who appeared to plead for traditional design—and materials—for the academy, told FORUM he was equally interested in plugging a new book *American Skyline* of which he was co-author.

How did Reed happen to appear before the committee? Reed is an old enemy of glass-and-metal construction. Recently he

NEWS

was the lone dissenting member when the awards committee of the Municipal Arts Society of New York honored S-O-M for its now-famous glass bank in New York City. Voted down, he mailed a letter setting forth his objections to "a friend in Washington who knew a Congressman."

Reed's friend: Robert Denny, a public relations man working for Henry J. Kaufman & Associates, a Washington advertising agency that handles, among other clients, the Allied Masonry Council. The Congressman: Rep. Fogarty.

Denny, 34-year-old ex-newspaperman who said he was a World War II bomber pilot with 35 raids to his credit, starred unapplauded backstage in last month's melodrama. Some of his manipulations compel an appreciation of the technical skill with which the masonry council's case was put across. In addition to getting Reed before the committee, Denny called Wright, eliciting the architect's assurance that he would testify if properly invited, and later met Wright at the Washington airport. He wrote some letters too. Two of them can be scored as errors, for reasons that Denny could hardly have foreseen. One, to the American Legion, failed to get that group into the style fray. In that letter Denny mentioned the telephone dealings he had been having with Wright. The Legion said it informed Denny it had favored an air academy for years, was more interested in getting it built, than in judging its design. Another group, the National Sculpture Society, sidestepped Denny's invitation. Reason given: sculptors depend heavily on architects for their business.

A third letter, to Wright, made clear the link between Denny and Fogarty.

And, interestingly, there was a marked similarity in typographical style and production characteristics among releases from these participants: the Allied Masonry Council, the Veterans of Foreign Wars, and nearly all of the witnesses who criticized the S-O-M design (big exception: Wright).

Newspaper editorial views on Air Force Academy ruckus

"This is not to argue that the Academy should look like a restoration of the Acropolis or like a multiplication of the new auditorium and chapel at Massachusetts Institute of Technology. . . . The design of the Parthenon was once an innovation. Yet when it was accepted in its day the work of Sir Christopher Wren might have been greeted as grotesque and radical."

The Christian Science Monitor

"We regret that the Air Force and its architects have seen fit to listen to the loud criticism evoked by preliminary plans and building models for the new Academy criticism that had little validity outside the curious doctrine which holds that election to Congress automatically transforms the electee into an infallible authority on every art, technology and method of doing business. . . We wish Talbott and his architects had stood by their guns. We lament the circumstances that make them susceptible to Congressmen who are architects by suffrage."

San Francisco Chronicle

NEWS continued on p. 16



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GENERAL SESSION ON AIR-CONDITIONING PROBLEMS (ABOVE) WAS ONE OF MANY THAT FILLED NETHERLAND PLAZA BALLROOM TO CAPACITY

NABOM convention: Air conditioning held top interest for delegates at Cincinnati conclave; 50% savings foreseen when "automation" is perfected

Air conditioning, modernization and various aspects of the ubiquitous "downtown" problem, were the topics that commanded the greatest interest at the 48th annual convention of the National Association of Building Owners and Managers in Cincinnati. With two association surveys indicating relative stability in office building occupancy and income in most cities (below), there were only passing references to any serious threat of overbuilding in this field in the immediate future.

Highlight among the air-conditioning discussions was a comprehensive paper on office building conditioning by Arthur L. Jaros of Jaros, Baum & Bolles, New York mechanical engineers. Jaros called "all-glass" buildings "one of the greatest mistakes of the last decade," estimated extra conditioning equipment costs run as high as \$10 for every needless square foot of window area on western exposures. At another point he was

Photos: Marsh Photographers, Inc.



TOP OFFICERS participating in finance committee huddle with Everett W. Murray of Kansas City (I) were First Vice President Maynard Hokanson of Indianapolis (standing); Secretary-Treasurer John I. Hill of Houston, and President Sterling Bigler of Philadelphia (r). highly critical of some new "speculative" buildings in which, he declared, owners were trying to cut corners on operating expenses by installing systems that would introduce only 0.2 to 0.25 cfm of new "outside" air for each square foot of floor area, instead of 0.3 to 0.5 cfm needed to prevent staleness or the accumulation of fumes or body odors in recirculated air.

No conditioning; no financing. At a secondday breakfast session for follow-up reports and questions on the Jaros paper. Manning B. Kirby of Nashville cited a recent instance in which an insurance company refused to refinance an existing office building if it was not going to be conditioned, but offered to lend "anything you want" if conditioning would be installed. At this session, Chairman Donald T. Sheridan of Chicago predicted an increased office building trend to individual window units that manufacturers will soon produce in slimmer, more attractive styles that will not protrude outside the window. The latter feature, he said, would end window cleaners' boycotts against washing windows fitted with machines that extend over the outside ledge.

US prefers conditioned space. In another report, NABOM General Counsel Harry J. Gerrity said the General Services Administration "is now requiring air conditioning to some extent in practically all bids for newly rented space." Public Buildings Commissioner Peter A. Strobel, he added, informed Congress recently that the "total potential amount for air-conditioning governmentowned office buildings is something like \$625 million"-not counting structures of less than 10,000 sq. ft. and buildings in the coolest sections of New England that PBS would "hesitate" to condition. On individual units vs. central plants, Gerrity quoted Strobel as follows: "It is a country-wide tendency to try to overcome criticisms, and meet requests for conditioning by installing window or small floor units. We are basically opposed to that. Engineering-wise it is an improper and costly method . . . [causes] moving around with a lot of small units that give us a heavy load in regard to repair and maintenance." (For more arguments pro and con package air conditioning, see p. 156—ED.)

Modernize and merchandise. Opening the convention, President Sterling Bigler said he saw no signs of any oversupply of firstclass office space, "but we are sure enough overbuilt in old, unimproved space." He criticized efforts of owners and managers to cut tenant services to keep rents from rising. Expressing his belief "that most of us have not properly merchandised our product," he suggested taking a leaf from the opposite tactics of automobile manufacturers, who switched to higher-powered motors, added chrome and more gadgets, and then boosted the prices on their new cars and sold more than ever, rather than fewer.

Weeden Nichols of Dallas delivered one of the most stimulating of several papers on modernization and new products. Excerpts:

▶ "During 1954 major elevator manufacturers installed over 2,500 passenger cars; 35% were modernizations, 65% in new buildings. Approximately 90% were automatic, or 'without attendant.' To date 1955 sales indicate a 25 to 30% sales increase over 1954, with modernizations increasing to approximately 45%, and operatorless units expected to reach 95%.

▶ "Automation: One of our principal manufacturers is prepared to install central panels capable of performing 40 time-activated operations without limiting the flexibility of manual controls when the time program is not desired. The flexibility of design of these automatic, electronic, coded relays have the immediate potential of reducing operating costs by approximately 50%, by manpower, fuel, water and electricity savings. Recently an architect who

NEWS

has designed some ten general-purpose office buildings was discussing the possibility that all artificial lighting might be turned on electronically throughout the building at 7 A.M. and off at 7 P.M., except for security areas and fire exits. Where tenants required longer service from time to time, they would request it. At additional cost, of course, the owner also might control each individual tenant's area with an automatic time switch set for the latter's particular average operating hours. Inspections to make sure machinery and lights were all turned off would thus be eliminated; tenants' metered power costs also might be substantially reduced."

Inflation hedge. Los Angeles Economist Gray Phelps particularly pleased the delegates with his prediction that desirable office buildings would continue to be good investments despite any adverse effects of decentralization, would provide "one of the better hedges against inflation," and also continue to offer owners special tax-depreciation advantages.

"For investors who think in terms of new office construction," Phelps added, "it can safely be said there will not be an opportunity to build more cheaply than now for many years to come."

Occupancy and income steady. Results of NABOM's semiannual May office occupancy survey released during the convention showed total tenancy in 2,519 buildings in 171 cities this spring averaging 96.76%, a slight decline when compared with 97.12% in 2,532 buildings in 162 cities a year earlier. But federal state and local government tenancy in these private buildings had declined 16% in this period, however, and private enterprise occupancy actually increased in both volume and percentage, registering 93.33% this spring compared with 93.23% in May '54.

[The latest NABOM "Experience Exchange" reports from 600 buildings showed average office rents for 1954 reached \$3.38 per sq. ft., up 11¢ from 1953, while operating expenses rose to \$2.27, 9¢ above 1953. Allowing for 2.3% vacancies reported by these 600 buildings in 1954, compared with 1.6% in 1953, a hypothetical "average" owner would have grossed \$8,458 more on each 100,000 sq. ft. of space last year, but lost \$542 before nonoperating expenses and income taxes.]



POLICY PROBLEMS confronting industry association were reviewed at closing business session by Policy Committee Chairman Robert S. Curtiss (1), Port of New York Authority realty director, and General Counsel Harry J. Gerrity of NABOM Washington office.



Two NABOM sessions look for "downtown" problem solutions

Delegates to the Cincinnati NABOM convention devoted two sessions to the "downtown" problem. At a "clinic" luncheon, Downtown Committee Chairman William H. Doughty of Chicago and other NABOM leaders reviewed the problem as seen from different angles by building owners and managers. At a second luncheon, Atlanta Mayor W. B. Hartsfield, Detroit Mayor Albert E. Cobo and Cincinnati City Manager C. A. Harrell gave advice and described their efforts as city officials to solve various parts of the problem.

Opinions and ideas from the owners' and managers' luncheon:

> Chairman Doughty emphasized the mutual stakes of owners and city officials by citing a study that showed office buildings accounted for 49.2% of Chicago's downtown area assessments. Reporting formation of an increasing number of citizen organizations to tackle this problem in different cities, he said: "The genesis of these new downtown committees has been common recognition of a definite civic need. At present there are many problems in the central areas of our cities which cannot be adequately met by existing bodies."

Philip C. Hodill of Pittsburgh described the work of the Allegheny Conference in that city, and the support the local BOMA organization provided for a recent institutional advertising campaign in local newspapers promoting Golden Triangle area tenancy. Hodill also warmly commended the recent round table report on "How to Rebuild Cities Downtown" (AF, June '55).
Cyrus Hackstaff of Denver said the business district organization there was now considering elimination of "downtown" from its name, so it could enlist greater support under a city-wide improvement association title, as accomplished recently in St. Louis.

Views expressed by the city officials:

▶ Mayor Hartsfield said municipal "revenue," as well as municipal "areas," must be preserved; cities everywhere need fairer representation in state legislatures and fairer shares of state revenues. Autos allow more people to live outside the city than previously, make it harder for the tax collector to follow all who benefit from city "services." Atlanta aims to tax not only those who live in the city, but those who "use" it. Beware of metropolitan "arrangements" and "authorities."—"Too often they gain unfair advantage over the central city." OWNER-MANAGER downtown luncheon speakers (I to r above) were Cyrus Hackstaff of Denver, William H. Doughty of Chicago, James F. Cook Jr. of St. Louis, Ralph E. Thomas of Detroit and Philip C. Hodill of Pittsburgh.



CITY EXECUTIVES at second downtown session (I to r below) were Atlanta Mayor Hartsfield, Cincinnati Manager Harrell, Detroit Mayor Cobo.

▶ Mayor Cobo summarized Detroit's vast civic improvement program, called it "good business" for the city to "anchor downtown Detroit" and help build up downtown property values and taxes again. People "left" the city before its new expressways were started, but now these are enabling more people to "come in" again. New outlying shopping centers are only "graduated" versions of strip-shopping retail "hot spots" of former years. "If you want to buy a lot of things you will go downtown—provided you can get there easily."

Special rules authorized for Washington lease-purchases

Under a special amendment to the US leasepurchase law applying only to the District of Columbia southwest redevelopment area the General Services Administration requested Budget Bureau approval last month on tentative plans for a \$21.3 million sixstory air-conditioned office building for about 4,000 federal workers that might be the first structure to rise in this huge Capital area long slated for urban renewal. Simultaneously GSA disclosed that it soon hopes to schedule regular lease-purchase construction of three other large US buildings in the Washington area outside the DC limits. These would be a \$15.7 million Weather Bureau headquarters, a \$19.9 million Geological Survey building, and an, \$11 million structure for the Coast & Geodetic Survey.

The new lease-purchase amendment had continued on p. 21

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A new improved BILCO roof scuttle . . . the result of two years of development. Featuring new "floating" cover with tubular spring operators, glass fibre insulation and even more convenient one hand operation. New design also makes possible a wider range of special sizes. You give your clients the very best roof scuttle when you specify BILCO. Complete details in the 1956 catalog shown below.

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NEWS

several special provisions proposed by Developer William Zeckendorf, who hoped they would help get his prospective master redevelopment of most of the southwest area off the ground. The most important of these authorized GSA to negotiate leasepurchase deals directly with individuals, instead of following the competitive procedures that apply to all other projects throughout the rest of the country.

While this twist in the amendment might be helpful, it did not make it a certainty Zeckendorf could land the design, construction or ownership of any lease-purchase federal office buildings included in this redevelopment district. Reporting the amendment to the floor, the Senate public works committee stated that GSA "should take all practical steps to insure competition among prospective contractors," although it also noted that "since the buildings would constitute an integral part of a redevelopment project . . . they must be comparable in design and site layout with the project."

Two other special provisions of this

amendment permit lease-purchase payments extending over a 30-year period, instead of a 25-year maximum, and require the demolition of an equivalent amount of the Capital's notorious barracks-type "temporary" federal buildings.

Design guidance. Recently Public Buildings Commissioner Peter A. Strobel reported that the Budget Bureau has set a 4% interest ceiling on the financing for lease-purchase buildings erected under the GSA program. He also said projects would be limited to serve only 70 to 80% of the government's estimated space needs in any city, to avoid criticism for empty space in government structures if local conditions changed. Private architects will be allowed considerable latitude designing such structures, he said, but will not be permitted "to build monuments to themselves." They should avoid "following the fad of the moment," he cautioned. The buildings erected in Washington 20 to 30 years ago "all look like they came from the same press," he explained.

Bid shopping: big business bans it, but Congress, bureaus cling to system

For three years Congress has killed bills to prevent general contractors from switching subcontractors on federal construction projects. This year another bill, sponsored by specialty subcontractors, was sent to the Senate floor with a favorable report by the judiciary committee.

As Congress moved toward adjournment, chances for passage of this antibid-shopping bill in the House, even if it cleared the Senate, were doubtful. Specialty contractors were not optimistic, but this year they had new support in the form of a survey of contract procedures followed by 24 of the nation's largest industrial corporations. Many of these firms, big buyers of construction, seemed to be more concerned over selection and control of subcontractors than the federal government, and in their private contracts often enforced their own antibidshopping provisions.

What the ruckus is about. Antibid-shopping bills have been born of specialty subcontractors' anxiety over a federal policy of awarding lump-sum construction contracts to the lowest bidder among general contractors, and then recognizing the winner as a virtual king on the project.

If the general contractor can do the work for less, he pockets the savings; if he runs over the bid price, he cannot look to the federal government to reimburse him unless something well beyond his control happened. The prime contractor has always been free to use subcontractors other than the ones whose estimates formed the basis of his bid. Once he has the award, this is often profitable, and there has been nothing the federal government could do to stop the practice.

During and immediately after World War II specialty subcontractors had standard complaints about bid shopping:

Big general contractors were able to push them around by taking their bids, winning contracts, and then asking the subcontractors for shaved bids on the threat of awarding specialty work (plumbing, electrical installation, roofing and the like) to other subcontractors willing to do it for less.

Little general contractors could become big by going after huge federal projects from hole-in-the-wall offices, letting specialty subcontractors do their tedious, costly estimating for them. The General Accounting Office had ruled out efforts by federal contracting offices to prequalify would-be bidders on the basis of big-project experience or capacity. Once a little contractor had won a large prime contract, he would often go bid shopping, ignoring the subs who had done his estimating.

Both plaints were weak, however. Every general contractor who went bid shopping could find several specialty contractors peddling bids, and could figure on specialty subs dangling shaved bids before him right up to five minutes before bidding deadline. And, if he were low bidder, he could sit tight and wait for speciality contractors to underbid his winning subcontractor team.

Building pattern changes. A few years after World War II, subcontractor organizations knew that conditions had changed; mechanical contractors-those dealing with plumbing, ventilating, electrical and air-conditioning equipment-saw that buildings were becoming shells into which increasingly complex equipment was installed. Example: electrical work on federal building projects averaged 31/2 % of total project cost at the end of the war, 71/2% a decade later. Mechanical work amounts to about 40% of the cost of today's average big-building job. As the complexity and cost of mechanical subcontracts increased, and as competition for subcontracts sharpened, the cost of preparing bids went up. Mechanical subcontractors tried unsuccessfully to promote cooperation within the construction industry to curb bid shopping and peddling.

Finally, the mechanical specialty contractors, representing a \$20-billion-a-year industry, got behind a bill to amend federal contract procedures to require general contractors bidding on federal building jobs to list all their mechanical subcontractors and their bids, and to prohibit the use of substitute subcontractors without approval of the contracting agency. If there were a saving, the bill required that it be passed on to the government. The bill made little headway in the Senate, none in the House.

This year's watered-down version of the bill would simply require that general contractors list their subcontractors (without having to list amounts of subcontractors' bids), and that the contracting agency be notified of the name of any substitute subcontractor and the reason for the substitution. No passback of savings to the government would be required.

Agency officials unenthusiastic. During hearings held recently by a special Senate judiciary subcommittee both sides gave their standard arguments: General contractors, through the Associated General Contractors of America, still opposed the legislation, insisted it would cost the government money *continued on p. 25*

Air-conditioned civic center under construction in Dallas

Dallas, Tex., hopes to attract plenty of convention business to its new air-conditioned exposition and civic center, scheduled to be finished next summer. Dallas Architect George L. Dahl designed the center in two major sections: a three-story domed arena seating 10,000 persons and—attached by glassed-in concourse—a rectangular structure with 1,750-seat theater, 10 meeting rooms. Contractor: R. P. Farnsworth & Co. A salute to the National Electrical Contractors Association for their forward attitude expressed in the resolution "Honoring the Specifications"...

> A resolution adopted unanimously by the National Electrical Contractors Association in Convention at New Orleans, Louisiana, October 30, 1954.

moring the specifications

Fidelity in carrying out the wishes of the customer and an eagemess to give the customer the benefit of the contractor's experience and knowledge in specialty application engineering is a hallmark of the qualified electrical contractor.

When the customer by his own request or by specification drawn by his architect or engineer designates a specific material or equipment, the electrical contractor has the obligation to quote on that material as specified. In the event he should include in his bid an alternate he should specifically describe the suggested substitute and list the alternate price.

In this manner the interest of the customer is well served and it would seem appropriate for architects and engineers not to reject bids with alternate proposals stated in this manner and that regulations and practices be adjusted to accommodate this more definitive bidding

Practice. The practice of taking advantage of the ambiguity in the frequently abused specification, "or equal," to substitute inferior or less costly material or equipment is an unethical practice that should be condemned and rejected by the contractor as not being to the best interest of the public.

Good business practice, proper standards of ethical conduct and the public interest demand adherence to this simple, honest procedure in the conduct of this important part of the process of construction. It is a necessary foundation for the building of sound and progressive organizations needed to serve the public in the vitally important field of electrical contracting.

This advertisement is sponsored by Day-Brite Lighting, Inc., of St. Louis in the interests of clients of Architects and Engineers.

Hallmark Cards cared enough to put on the very best ...

One of the Midwest's outstanding buildings is the new Hallmark Cards building in Kansas City, Missouri, home of the famous manufacturer of greeting cards for those "who care enough to send the very best".

Inside this enormous structure, 50,000 feet of hot and cold lines are insulated with G-B Snap*On pipe insulation—the new one-piece molded pipe insulation of fine glass fibers. Thermally, it is superior to any comparable product. It is also far lighter in weight, far easier to handle, far more economical to apply. Onepiece sections are available plain or with muslin for heated piping, or with vapor barrier jackets adhered for chilled lines. As the photo indicates, they go on the pipe as quickly as you can say "Snap*On"—and they will do their job indefinitely because they are as permanent as glass itself.

AMAIN

Modern plants of every type throughout the country are selecting Snap*On for chilled lines or heated piping where temperatures do not exceed 350° F. You, too, can put on "the very best" and save money in the bargain! Write this very day for samples and complete technical literature.

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built to stand up . . . built to stand out

Toilet compartments may sometimes *look* alike—at first glance. But just check *details* and you'll see why Nicholsons' stand out. They don't merely meet specifications—they surpass them! The important Nicholson extras are what count.

- Full 20 gauge, 1" thick panels and doors-11/4" 16 gauge pilasters.
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- Tops in finish-zinc chromate primer over galvanized bonderized steel; two coats of synthetic baked enamel.
- · Patented sanitary floor and ceiling pilaster supports.
- Cast brass, chrome over nickel, hardware. Positive, unbreakable, adjustable gravity hinge—cam an integral part of barrel. Modern design in every detail.
- Individually packed panels—carton can be used as protective cover after installation.

Specify the compartments that will still stand out—after years of rugged use. Specify Nicholson.

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• Available in the following types—and wide selection of colors Type A—floor braced • Type AC—ceiling hung • Type AR—overhead braced • Type B—flush type • Type BP—panel type

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to administer and would not accomplish its purpose anyway; specialty contractors complained that bid shopping was keeping most of them from bidding on federal jobs, was pushing up costs to the government by narrowing the bidding field.

Government witness agreed with the general contractors. Brig. Gen. David H. Tulley, assistant chief of engineers for military construction, said the bill would increase government construction costs through "increased administrative expenses." He thought an antibid-shopping law might involve the government in unwanted litigation. Committee Chairman Harley Kilgore (D-W. Va.), sponsor of the bill, and Sen. William Langer (R-N.D.), both lawyers, poohpoohed fears of legal snares.

Systems used by private firms. Kilgore, who made it clear he wants bid shopping controlled, and was mainly responsible for the favorable committee report, surveyed 24 civilian industrial firms. Sample replies:

▶ Ford Motor Co.: ".... All of our lump-sum contracts are bid by general contractors who must specify the subcontractors they intend to use together with the amount included in their proposal for each of the individual trades.... In the event that it should become necessary to submit for approval the name of another subcontractor... any price benefit realized by the contractor by reason of a change in subcontractor shall accrue to Ford Motor Co."

Minnesota Mining & Mfg. Co.: "We insist on selecting our own mechanical contractor and guiding his activities throughout . . . We sometimes give the general contractor an additional fee to coordinate the timing and operations of the subcontractors. . . ."

▶ E. I. du Pont de Nemours Co. wrote that it followed the provisions in this year's bill, with the added provision that "contractor shall not subcontract work without prior written consent of du Pont. . . . If required

Construction begun on two units of Penn Center redevelopment

The transportation center and Sheraton Hotel in Philadelphia's huge Penn Center project were both taking shape last month. The transportation center (I) will combine an 18-story airconditioned office building, a three-level parking garage and a Greyhound bus terminal. Principal office structure tenant will be the Pennsylvania Railroad. Greyhound will have ground floor waiting rooms and ticket offices, bus docks underground. Open-air garage, leased by Sheraton, will be striped with vertical metal guard rails. Philadelphia Architect Vincent Kling designed the transportation center with small windows, to reduce air-conditioning costs, prothe contractor will furnish du Pont a copy of any subcontract."

> Youngstown Sheet and Tube Co.: "... We insist on knowing the names of subcontractors before contracts are awarded, and if ... we prefer others than those named ... we reconcile any differences before signing or awarding the contract. ... The [Kilgore] bill has much merit, for undoubtedly many irresponsible contractors, both prime and subcontractors, have undertaken work for the government, and have failed."

New type of moving sidewalk has exceptional flexibility

At their Passaic, N.J. plant last month Hewitt-Robins, Inc. demonstrated their working model (at right) for a new type moving sidewalk it will install in the new Dallas air terminal on a low bid of \$234,703 for six separate sections totaling 1,406'. Outstanding asset of this conveyor is its flexibility, which allows it to go around corners, or in a complete circle, so a single installation can be used to carry traffic in two directions. This is achieved by using a heavy rubber carpet that stretches or compresses on turns, instead of a laterally rigid reinforced fabric mat. This rubber carpet is mounted on a continuous train of small rubber-tired pallets that run on steel tracks. Carpet and pallets can also be run up or down slopes without difficulty, and can even be snaked into a vertical position (in underfloor or behind-partition sections not used by the public) in achieving sharp changes or complete reversal in direction.

President Thomas Robins Jr. reported a flood of inquiries for installations for shopping centers and other airports since announcement of the Dallas contract in

tect office workers from sun glare and radiation. Modern materials will enclose the \$15 million, 22-story Sheraton (r), the first built from scratch for the chain in addition to its small New Haven hotel. Upper-floor window walls will be glass and porcelain enameled panels in aluminum frames; lower wall section (at right, above a marquee to extend around the entire sidewalk) will be patterned with larger porcelain panels. Narrow windowless end wall will be limestone. Architects for both Philadelphia and New Haven hotels: Perry, Shaw, Hepburn & Dean, of Boston. The Philadelphia Sheraton will face the long side of the transportation center in the sketch above.

NEWS

SIDEWALK THAT GOES "DOWN AND AROUND"

June. The new system, on which patents are now being sought, was developed in less than two months this spring under the supervision of William F. Bankauf, research and development manager of the firm, which does a \$44 million business a year in belts and materials conveying equipment. It is said to be the first passenger conveyor system using a belt on moving pallets, instead of a mat pulled over a series of closely spaced rollers.

Plywood distributors adopt regional promotional program

A potential \$500,000-a-year scheme to promote local plywood sales has been adopted by the National Plywood Distributors Assn. Launched a month ago at NPDA's convention in Portland, Ore., held concurrently with that of the Douglas Fir Plywood Assn., the plan calls for a levy of 15¢ a thousand sq. ft. to be paid by jobbers with warehouses. More than 300 distributing warehouses out of a potential 1,000 across the nation already have agreed to participate.

The distributors' group has set up a corporation to execute the plan, so that non-NPDA distributors may participate. Plywood mills will do the bookkeeping, sending memo invoices to jobbers with plywood shipments, starting next month. The nation has been divided into 75 market areas so that the fund may be reapportioned to jobbers for local retail promotional use according to their contributions.

At the DFPA's convention plywood makers, looking at exhibits at their Plywood Jubilee, discovered that they had a past: 50 years had elapsed since the first piece of plywood was glued in Portland. They were scolded, however, by DFPA Managing Director W. E. Difford, who charged that they had made "no improvements in your processes and equipment in 40 years except those developed by your mechanics."

Leonard E. Hall, vice president of Lumber Products, Inc., of Portland, was elected president of NPDA, succeeding M. C. Davidson, president of Houston (Tex.) Sash & Door Co. Howard B. Garrison, vice president and general manager of Evans Products Co's. western division, was elected DFPA president, succeeding Eberly Thompson, executive vice president of M & M Wood Working Co.

for news about PEOPLE-p. 29

"Here's the greatest advance in building materials that I've seen yet!"

. states Mr. Robert S. Arnold, AIA Architect, Highland Park, Illinois (letter on request)

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Sealtight Premoulded Membrane provides a positive protection against the ravages of destructive moisture in all types of construction . . . residential, commercial and industrial. Ideal for slab-on-grade, basement, and crawlspace installations.

When purchasing any vapor seal material be sure it meets these Sealtight standards of quality: permeance rating of only .0066 grains per square foot ... resistant to rot, mold and termites ... strong enough to resist tearing and puncturing ... expandable ... quickly and easily installed— Premoulded Membrane has them all.

The installation of Premoulded Membrane allows you to safely use the full range of floor finish applications. You not only have a warm, dry, more liveable home but one that's also more saleable in the future. We sincerely advise and invite your comparison of Premoulded Membrane against all other vapor seal products . . . we're sure that once you do you'll also agree that there's only one **true** vapor seal on the market . . . Premoulded Membrane.

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IDEAL FOR ALL CONSTRUCTION APPLICATIONS... Premoulded Membrane, supplied in 4' x 8' sheets, is laid directly over the hard tamped* grade with a 6" overlap. This overlap is then sealed with Sealtight Catalytic (non-setting) Bonding Asphalt giving you a monolithic vapor seal that will expand and contract with the slab above ... without breaking the seal. You actually form a vapor proof "saucer" into which the concrete is poured.

*You can eliminate expensive gravel fill when using Sealtight Premoulded Membrane.

QUICK, EASY INSTALLATION . . . Premoulded Membrane is a strong, permanent vapor seal that will resist the trundling of wheelbarrows and the impact of aggregate during the pouring operation . . . best of all, with Premoulded Membrane you don't need an expensive underlayment of sand to absorb shock. This strength to resist tearing and puncturing is very important . . . as a vapor seal is much like a child's balloon, for only a small hole renders it useless.

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What's more, for all their extra value, Fiberglas Acoustical Ceilings are actually the lowest-cost *fire-safe* acoustical ceilings you can specify. If you'd like to know about the many new patterns, textures and colors available, just write: Owens-Corning Fiberglas Corporation, Dept. 68-L, Toledo 1, Ohio.

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STRUCTURAL CHANGES-CUT FUEL COSTS \$2,000

Hartford National Bank & Trust Company, Hartford, Connecticut. Consulting Engineer: Paul D. Bemis, C. W. Freeman Associate; Heating Contractor: Libby & Blinn, Inc.

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reserve plus

boilers solve replacement problems

Replacing heating equipment often poses the question of how installation can be made without incurring costly structural changes in a building. Such was the problem when the Hartford National Bank & Trust Co., Hartford, Connecticut, decided to modernize its heating system. Comparison revealed that Kewanee Reserve Plus Rated Boilers could solve the problem. Installation was made in existing space — no structural change was necessary — this was possible because a Kewanee Boiler with its reserve capacity delivered sufficient steam to satisfy heating needs.

Kewanee Boilers are certified to deliver 50% extra power to meet fluctuating demands . . . to answer emergency when it calls. Rated against nominal capacity, Kewanee Boilers have sufficient reserve for future expansion. A boiler rated on maximum capacity, constantly operating at full speed, is underpowered the moment additional steam is needed. So when you face replacement problems—look to Kewanee. Chances are we can help you avoid costly structural changes by using a compact Kewanee Boiler with reserve power to meet heating needs present and future.

P. S. The Hartford Bank saved \$2,000.00 per year on fuel using Kewanee Boilers combined with 3 zone Webster Moderator Control System.

YOU can depend on KEWANEE engineering

Harwell Harris resigns as head of Texas University school of architecture; Gustave Magnel, prestressing expert, dies

Four years ago, when Architect Harwell H. Harris was engaged to head the Texas University school of architecture, top university

long dominated by the engineering school, would take its place among the nation's top design schools. Harris, whose housing architecture had earned him a reputation of integrity and individuality, met the university's requirements as a man Texas architects would re-

officials were optimistic

that this department,

spect and admire. A month ago Harris resigned. He had some comments about the past four years: he had expected to combine teaching and architectural practice, he said, a double role which many schools (MIT, Harvard, U. of Calif.) have found makes for better teaching. "I found a situation in which it was impossible to do either," he said. He was merely an office holder, he complained, and his office was weighted down with clerical duties. Other complaints: the budget was too low to provide enough teachers, and the salaries were too low to attract good ones, particularly crippling, he said, when one "inherits a solid core of incompetents protected by tenure."

The university has put together a committee to help find a new dean. Harris said the university will have to do more than bring in a new top man to have a good school. His formula: a department head directly out of the architectural profession and a teaching staff with many practicing architect members who spend one to three afternoons a week at the school.

NAMED: Rear Adm. Joe W. Stryker (retired), navigator and executive officer of the battleship North Carolina in the western Pacific during World

STRYKER

War II, and more recently director of the Defense Dept's. office of armed forces information and education, as executive director of the Structural Clay Products Institute, to coordinate work at SCPI headquarters and maintain liaison between

clay products makers and SCPI's field staff; Louis B. Wetmore, city and regional planning consultant, as professor of city planning and landscape architecture at the University of Illinois; Charles W. Eliot, director, planning consultant and director (1939-43) of the National Resources Planning Board, as a professor of landscape architecture at Harvard University; T. Cortland Williams, executive vice president, and Russell T. Branch, president, as president and board chairman respectively of Stone & Webster Engineering Corp., New York.

Charles E. Potter, as vice president and general manager, will continue to direct the operation of the Aberthaw Co., 61-year-old Boston building firm purchased last month by Cabot, Cabot & Forbes, Boston developers of industrial centers. Stanley MacMillan, president, has retired and will not be replaced immediately; his brother, Angus, former vice president, has become board chairman. Two ex-Aberthaw men brought back under an expansion program of the company, which has been run quietly as a trust by a Boston bank for the past few years: Louis B. Tura, general superintendent, and Chester A. Baker, head of the estimating department.

PRESIDENTS-TO-BE: Enoch R. Needles, principal partner in the New York and Kansas City consulting engineering firm of

NEEDLES

men & Bergendoff, was nominated for the presidency of the American Society of Civil Engineers, starting with ASCE's convention next October in New York-(tantamount to election); Cola G. Parker, chairman of Kimberly-Clark Corp., maker of

Howard, Needles, Tam-

Kimsul insulation-with election also a virtual certainty-is the nominee for the presidency of National Assn. of Manufacturers. Elected as president of the New York State Assn. of Real Estate Boards, Inc.: Carl A. Willsey, Elmira broker.

William L. Slayton, assistant director of National Assn. of Housing and Redevelopment Officials, recently joined Webb & Knapp as "redevelopment coordinator for the Southwest Washington (D.C.) Redevelopment Project," becoming the latest addition to a sizable staff being assembled for the bigdream project. Hugh Mields, assistant executive director of the Milwaukee, Wis., Housing Authority, succeeeded Slayton at NAHRO's Washington headquarters.

Ludwig Mies van der Rohe, whose apartment skyscrapers enhance the Chicago lakefront, has designed a three-bedroom modern steel and glass-walled house which he and Developers Herbert S. Greenwald and Robert H. McCormick hope can be merchandised for about \$15,000 in the Chicago area. The first four prototypes, to be sold for \$35,000, will have 1,500 sq. ft. of floor area. Later, \$15,000 models will be produced, trimmed to 1,000 sq. ft, and put together with massproduced modular panels.

For 45 years Architect-Painter Julian Clarence Levi, 80, has worked quietly in his unusual, almost-medieval office on the ninthfloor of an aging midtown Manhattan office building, his suite adorned by such objects

as stained-glass windows, a stone fountain and a gargoyle reproduced from Notre Dame. Recently, as he moved, so wreckers could demolish the old building to make way for a new 30-story one, Levi gave his architectural library, one of the finest private collections in the world, to the Avery Library at Columbia University.

Don M. Casto and Don M. Casto Jr., Columbus, Ohio, shopping center developers, have bought 105 acres of farmland near Kansas City, Mo., from ex-President and Mrs. Harry S. Truman. The Castos' immediate plans are to use half the site, at Truman Corners, for a \$20 million, 100-store shopping center.

Gustave Magnel, 65, inventor of his own system of prestressed concrete construction and a world authority on prestressing, died July 5 in Ghent, Belgium. His methods first were used in this country in 1949, when Philadelphia engineers found concrete arch and steel designs unsatisfactory for the city's Walnut Lane Brige. His design met all requirements and saved 30% of costs besides. Last year Engineer Magnel, professor of civil engineering at Ghent University, criticized American concrete as "soup" in a speech to New York's Concrete Industry Board and said backward concrete practices were preventing faster adoption of prestressing in the US. Recently Magnel submitted to the Belgian Cabinet a design for a 2.034' prestressed broadcasting, weather and observation tower for the 1958 Brussels World Fair that would be the tallest building in the world.

OTHER DEATHS: Albert E. Wilson, 76, for 24 years a partner of the New York architectural firm of Peabody, Wilson & Brown, and later a partner in the Mamaroneck, N.Y., firm of Wilson & Rahm, June 16, in Mamaroneck; Edwin Bergstrom, 79, AIA president, 1939 and 1940, former president of the Los Angeles Housing Commission and designer of many Los Angeles buildings, June 17, in Orange, Calif.; James Bentley, 84, who retired last year as president of A. Bentley & Sons Co., Toledo, Ohio, building firm, June 19, in Toledo; J. Clydesdale Cushman, 68, president and board chairman of Cushman & Wakefield, New York realty firm which assembled the site on which the United Nations buildings were erected, and former president of NABOM, June 29, in Upper Montclair, N.J.; Frank Duffy, 84, until his retirement in 1950 secretary-general of the United Brotherhood of Carpenters & Joiners, AFL, and close associate of AFL Presidents Samuel Gompers and William Green, July 11, in Indianapolis, Ind.; Leland P. Reeder, 64, president of Leland P. Reeder Co., Beverly Hills, Calif., realty firm, former head of California Real Estate Assn., vice president of NAREB and head of NAREB's realtor education program, July 11, in Beverly Hills.

for news about TRENDS-p. 32

Iook how KEYNESH Galvanized reinforcing lath multiplies fire resistance

Ceiling Fire Endurance Test of Open Web Steel Joist Floors with Concrete Slabs and Gypsum Ceilings.*

| | Fire endurance limit— |
|---|--------------------------|
| No finish on ceiling | 7 min. |
| Gypsum lath and plaster ceiling added ¹ | 1 hr. 43 min. |
| Same, with KEYMESH -type reinforcing lath added ² | 4 hr. 26 min. |

1. % " gypsum lath covered with 1% " of gypsum plaster with expanded perlite aggregate.

2. $\frac{3}{6}$ "gypsum lath, reinforced with 20-gauge, 1" hexagonal mesh; then covered with only 1" of gypsum plaster with expanded perlite aggregate. The use of hexagonal mesh fabric in $\frac{7}{6}$ in. ceiling ($\frac{3}{6}$ " gypsum lath; $\frac{1}{2}$ " plaster) gave *almost four times* the resistance obtained without, the report states.

*Building Materials and Structures Report 141 National Bureau of Standards

Once again Keymesh-type plaster reinforcing lath has demonstrated its ability to multiply firesafety at amazingly low cost. First, as part of a new, low-cost system for fireproofing structural steel and beams. Next, 50% greater fireproofing when added to gypsum lath and plaster ceilings of wood frame construction. Now, over twice the endurance on open web steel joist construction.

How can Keymesh add so much at such low cost?

Here's why! The complete coverage of this multidirectional reinforcing holds the plaster in place so it continues to fight fire until structural failure occurs. At the end of the 4 hour and 26 minute period, "no plaster had fallen". On the test without the 20-gauge hexagonal mesh "nearly all the ceiling was down".

In addition to greater firesafety, Keymesh produces stronger ceilings; gives far more crack resistance.

Why build to burn, when it costs so little to multiply the fire resistance of buildings with lath and plaster, reinforced with Keymesh.

Recommended and used by America's leading lathing and plastering contractors.

KEYSTONE STEEL & WIRE COMPANY

Peoria 7, Illinois

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For highest quality at lowest cost, use the 3 KEYS TO STRONGER PLASTER

11a

KEYMESH lath for over-all reinforcement. Made of galvanized woven wire. Especially recommended for ceiling construction.

KEYCORNER strip lath, preformed to fit snugly in corners. Lies flat when applied to joints. Galvanized to prevent rust streaks.

KEYBEAD corner lath with precision formed bead for outside corners. Open mesh assures strong, solid plaster corners.

TRENDS

Structural steel prices boosted \$7 a ton after industry wage settlement; January-June building outlays 14% above '54 rate

Avoiding a costly strike that would have seriously disrupted the entire economy, the nation's steel producers signed new contracts last month giving mill workers an average 15¢-an-hour wage increase—the biggest direct pay increase negotiated this year in any basic industry.

Steel prices were promptly revised upward an average of about \$7.50 a ton, although increases on individual products ranged all the way from \$4.50 to \$16.75. Construction could find a little consolation in the fact that concrete reinforcing bars and standard structural shapes were raised only \$7 a ton. Before long, however, the costs of practically all other building materials in which steel is incorporated could also be expected to rise, reflecting the producers' extra expenses for their steel.

Structural steel prices are only a 2.2% component in the BLS wholesale building materials average price index; for the present this would show very little change, move up scarcely more than 0.1% as a direct result of the boost in structurals. Later, however, this index would also reflect, indirectly, the extra steel costs the new scales imposed on producers of hardware, metal doors and sash, heating and plumbing and other metal building items.

Inflationary effects disputed. The industry's Steel Magazine suggested that the average 5.8% price increase, compared with the average 7.5% wage increase, would precipitate "another round of inflation," but most government economists felt any inflationary effects would be slight. The extra cost for the steel in a popular-priced automobile should be about \$15, it was estimated, for metal items in a new six-room house about \$20. A leading industry spokesman, Admiral Ben Moreell, chairman of Jones & Laughlin, insisted that steel is "still a bargain" at the higher prices, and added: "The present price structure in the industry is such that it would not support the construction of a new mill from scratch. My personal opinion is that present prices, even after the increase, are not adequate."

The wage settlement avoiding a steel crisis occurred while the backlog of unfilled orders for structural steel continued to mount. On June 1, according to the American Institute of Steel Construction, this backlog had climbed to 1,592,384 tons, the highest since April, 1954 (see chart). The amount scheduled for delivery by Sept. 30 was 937,899 tons, for delivery in October or later, 654,485 tons.

Building up the backlog, May's new orders for structurals totaled 304,498 tons, the highest monthly bookings in two years, the institute noted, and sent new orders for the first five months of this year to 1,335,-416 tons, or 31% over January-May 1954.

New expansion program likely. Last year construction took more of the steel industry's finished steel output than it has in 12 years—15.7%, compared with 12.5% in 1952, 13.3% in 1954 (and the only year it

climbed to highest point since April '54.

took a greater percentage 16.3% in 1942). The automotive industry, which took 18.9% in 1953, 19.4% last year, has been steel's only better customer.

Although Treasury Secretary Humphrey last month urged a sharp cutback in the government's rapid tax depreciation program for new defense industry plants, Washington observers were anticipating an early report from the Office of Defense Mobilization that would probably propose an exception for steel, recommend use of this incentive to boost the industry's ingot production capacity from about 125 to 135 million tons annually by 1959.

BUILDING MATERIALS prices halted in their upward trend in June for the first time since starting a steady climb one year earlier. After revising its May average for wholesale prices from 124.0 to 124.1, BLS calculated its June average as 124.0 The almost imperceptible decline from May was caused by an 0.8% decrease in millwork prices, and an 0.1% dip for plumbing equipment, which temporarily more than offset fractional increases for lumber, concrete ingredients and prepared asphalt roofing.

Record first half construction outlays up 14% over 1954

TOTAL CONSTRUCTION expenditures for June were \$3.8 billion, an all-time monthly record, according to the Commerce and Labor Departments. They also pushed spending for the first half of 1955 to \$19.1 billion, a record for the period and an increase of 14% over January-June '54 outlays. Private construction expenditures were 20% ahead of last year during the first half, public spending up only 1%. June's 129,000 housing starts were only 3,000 below May's (a less-than-seasonal decline) and outlays for new private housing for the first half were 34% ahead of comparable 1954 spending.

| | First six months | | | | | | |
|------------------|---|---|---|--|--|--|--|
| ine '55 | 1955 | 1954 | %± | | | | |
| PRIVATE BUILDING | | | | | | | |
| 1,466 | 7,485 | 5,717 | +31 | | | | |
| 634 | 3,436 | 2,915 | +18 | | | | |
| 189 | 1,115 | 1,019 | +9 | | | | |
| 257 | 1,299 | 989 | +31 | | | | |
| | | | | | | | |
| 89 | 510 | 435 | +17 | | | | |
| | | | | | | | |
| 168 | 789 | 554 | +42 | | | | |
| 63 | 336 | 252 | +33 | | | | |
| 39 | 238 | 239 | - | | | | |
| 31 | 173 | 162 | +7 | | | | |
| 31 | 163 | 153 | +7 | | | | |
| 398 | 2,066 | 1 991 | +4 | | | | |
| 2,655 | 13,750 | 11,423 | +20 | | | | |
| | | | | | | | |
| | | 100 | | | | | |
| 21 | 131 | 196 | -33 | | | | |
| 395 | 2,152 | 2,20/ | -0 | | | | |
| 69 | 404 | 829 | | | | | |
| 221 | 1,184 | 994 | +19 | | | | |
| 34 | 1/3 | 1// | 1.02 | | | | |
| 115 | 567 | 401 | +23 | | | | |
| 425 | 1,525 | 1,416 | +8 | | | | |
| 99 | 515 | 460 | +12 | | | | |
| 1,157 | 5,364 | 5 307. | +1 | | | | |
| 3,812 | 19,114 | 16,730 | +14 | | | | |
| | 1,466 634 189 257 89 168 63 39 31 31 398 2,655 21 395 69 221 34 115 425 99 1,157 3,812 | ane '55 1955 1,466 7,485 634 3,436 189 1,115 257 1,299 89 510 168 789 63 336 39 238 31 163 398 2,066 2,655 13,750 21 131 395 2,152 69 454 221 1,184 34 173 115 567 425 1,525 99 515 1,157 5,364 3,812 19,114 a, so total exceet 152 | ane '55 1955 1954 1,466 7,485 5,717 634 3,436 2,915 189 1,115 1,019 257 1,299 989 89 510 435 168 789 554 63 336 252 39 238 239 31 173 162 31 163 153 398 2,066 1 991 2,655 13,750 11,423 21 131 196 395 2,152 2,267 69 454 829 221 1,184 994 34 173 177 115 567 461 425 1,525 1,416 99 515 460 1,157 5,364 5 307. | | | | |

Seattle's Efficient

MODERN SCHOOL ADMINISTRATION BUILDING* Equipped with POWERS Temperature Control

Taxpayers in Seattle may well be proud of this attractive building for it is an outstanding example of the trend to provide school executives with facilities as efficient and modern as the schools under their supervision.

In the executive offices, conference rooms, library, audiovisual, child guidance, medical service and P. T. A. divisions, cafeteria, 200-seat auditorium and other spaces right-temperatured-air is assured by a Powers Pneumatic Control System.

Architects: J. Lister Holmes & Associates Engineers: Marius Anderson & Associates All of Seattle, Wash.

*Received Honor Award from Washington State Chapter A. I. A.

Pneumatic Systems of Temperature Control

(h1)

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Dearbo

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"Our new Russell Station is a blend of

says Alexander M. Beebee, President, Rochester Gas & Electric Corporation

"In 1948 we used Natco Dri-Speedwall Tile and Natco Structural Ceramic Glaze Vitritile in our Russell Station. We added to the main building in 1951 and in 1953, and plan another addition in 1955 using the same NATCO products. They present a very pleasing appearance and the tile has been unusually satisfactory from every point of view. Our building is a blend of architectural harmony both *outside* and *inside*."

Alexander M. Beebee

Whether you have an entirely new building on the boards or need an addition to ease the growing pains of your business, you should acquaint yourself with a growing trend in new construction ... Natco Structural Ceramic Glaze Vitritile for interiors—Natco Dri-Speedwall Tile for exteriors.

Natco Dri-Speedwall Tile is readily available for delivery to your building site. It is highly resistant to moisture . . . thoroughly fireproof . . . termite and vermin proof and cannot rot or decay. Specify Natco Dri-Speedwall Tile. It's keeping good company in modern buildings throughout the country.

And Natco Structural Ceramic Glaze Vitritile is just as popular for inside walls. Vitritile is furnished in many solid colors, pastel shades and pleasing mottled effects to complement modern interior designs. You can choose the colors for your interior layouts from the accompanying Natco Vitritile color chart. For information on these products write to: Natco Corporation, 327 Fifth Avenue, Pittsburgh 22, Pennsylvania.

The Russell Station, Rochester Gas & Electric's newest power station, is an excellent illustration of fine masonry construction. Natco Dri-Speedwall Tile assures strong, dry exterior walls, and the easy to clean interior walls of Natco Vitritile promote good house-keeping and keep maintenance costs at a minimum. When the third addition to the plant is completed in 1956, the Russell Station will have enough generating capacity to provide 60% of Rochester, N.Y. with electric power.

Architects & Engineers: Gilbert Associates, Inc. General Contractors: A. Friedrich & Sons

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Many hospitals are using concrete masonry for interior walls and partitions. These concrete masonry walls have great durability and can be painted in any of a wide variety of colors with portland cement paint. The photos show a reception room and laboratory which are built with concrete masonry walls.







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NEW MORE AIR CONTROL BUILT-IN

By engineering MORE AIR CONTROL per square inch into each diffuser and grille ... right at the factory ... Titus simplifies all phases of grille specification, selection, installation and adjustment. Eliminates any necessity for special factory schooling or instruction at the contracting, engineering or tradesman level. Any workman can install a Titus grille without unbalancing the whole expensive system.

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All Titus grilles and diffusers are built under the most rigid, precision-controlled standards. They give finest air diffusing performance. Air control cannot be lost at the installation level. Titus grilles are so carefully constructed it is almost impossible to have anything but correct diffusion of air... no matter who installs or adjusts them.

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Extruded "Lucite" acrylic resin assures harmonious lighting with lasting beauty



"LUCITE" is readily and economically fabricated to precise tolerances — even broad sections like this 4' x 4' panel. Fixtures of "Lucite" are lightweight for easy assembly, resist discoloration, are durable. Luminous ceilings produce the highest level of room illumination with the lowest brightness of light source of any existing lighting system. Today more and more architects and lighting engineers use wall-to-wall lighting diffusers made from Du Pont "Lucite" to achieve maximum lighting efficiency. Comfortable environments are the byword with wall-to-wall lighting that harmonizes well with furnishings.

"Lucite" is available in a variety of transparent and translucent colors designed for specific uses. Parts of "Lucite" are economically made to close tolerances. Two principal methods for efficiently lowering the apparent brightness of light sources are through use of clear refracting prisms and white translucent diffusers of "Lucite." They resist discoloration and breakage . . . are lightweight for easy handling.

For further information on "Lucite" acrylic resin, write to E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department, Room 298, Du Pont Building, Wilmington 98, Delaware.





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ideas

from Blickman-Built award-winning food service installations

TRAY PRODUCTION UNIT in main kitchen, adjacent to cooking center. Trays move on long conveyor belt between two counters. Attendants load trays from both sides according to a card control which indicates special diets or patients' preferences. Note convenient placement of steam table, coffee urns, toaster, etc. Built-in "Lowerators" dispense trays and dishes at counter level. Loaded trays are placed in insulated tray trucks for distribution to patients.



MAIN DISH PANTRY, showing dish washer at left, glass washer at right. Long shelf in foreground holds trays during unloading process. Pass window at right opens directly to tray production area. Stainless steel dish tables are fully welded throughout. Round corners and seamless, crevice-free tops facilitate cleaning, assure hospital-standard sanitation.



SALAD AND VEGETABLE PREPARATION UNIT — View shows convenient position of work tables in relation to sinks. Note how ample spacing between units permits freedom of movement for personnel. These layout factors help speed procedures. Wall-mounting of stainless steel sinks in background eliminates leg obstructions, permits thorough cleaning of floor surfaces.

tray production unit provides assembly-line efficiency

AT GREENWICH HOSPITAL, GREENWICH, CONN.



• By applying assembly-line methods to the distribution of food to patients, Greenwich Hospital has achieved substantial savings in time and labor. A mechanical tray-loading unit, located in the main kitchen, is the key to an efficient central service system. Trays, moving along a conveyor belt, are loaded by attendants from both sides. All equipment is conveniently placed to speed the operation. Insulated conveyors are used to distribute the loaded trays to the various floors. Food reaches the patients on time, kitchen-fresh and palatable.

The complete food service installation at Greenwich Hospital handles the preparation and distribution of approximately 1275 meals daily to patients and employees. Efficient work flow is achieved through carefully-planned arrangement and functional design of equipment. Seamless, stainless steel construction of individual units assures a high degree of sanitation and low maintenance costs.

This installation, planned and equipped by S. Blickman, Inc., received an Honor Award in a recent Institutions Food Service Contest. You, too, can have food service equipment that rates high in every respect—efficiency, appearance, durability, sanitation by specifying "Blickman-Built."

> Send for illustrated folder describing Blickman-Built Food Service Equipment — available in single units or complete installations. S. Blickman, Inc., 5808 Gregory Ave., Weehawken, N.J.

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ALUMINUM WINDOWS REDUCE MAINTENANCE EXPENSE TO A MINIMUM

Today, more than ever before, school officials, hospital superintendents, building owners and mortgage bankers are *all* interested in keeping maintenance expense at a minimum.

Experience in hundreds of schools (like the one shown on opposite page,) in hospitals and other types of buildings erected 15 to 25 years ago shows that not one penny of expense was ever required for painting the aluminum windows.

Aluminum windows (whether they be doublehung, casement, awning or projected type) are the only practical, reasonably-priced windows that never require painting...that cannot rust or rot, warp or swell...that retain their trim, modernlooking appearance for the life of the building. A WORD OF CAUTION – Remember, that only aluminum is rustproof through and through. Mere surface protection against rust is not enough. Wear, unintentional scratches in delivery or installation may nullify any protective surface coating and soon require painting.

"Quality-Approved" aluminum windows are available through many manufacturers in sizes and styles that fit any exterior design treatment. For your protection and full satisfaction, insist on the "Quality-Approved" Seal when you specify or OK specifications.

For a copy of our latest window specifications book and names of approved manufacturers, consult Sweet's Architectural Catalog (Section 16a/ALU) or write direct to Dept. AF-8.

Aluminum Window Manufacturers Association

75 West Street, New York 6, N. Y.

MEMBERS: Alcasce Products, Inc., Detroit, Mich. • The Wm. Bayley Co., Springfield, Ohio • Bourne Products, Inc., El Cajon, Calif. • Ceco Steel Products Corp. (Sterling Aluminum Window Division), Chicago, III. • Cupples Products Corp., St. Louis, Mo. • Duralite Window Corp., Knoxville, Tenn. • Fentron Industries, Inc., Seattle, Wash. • Michael Flynn Mfg. Co., Philadelphia, Pa. • General Bronze Corp., Garden City, N. Y. • Metal Arts Mfg. Co., Inc., Atlanta, Ga. • Reynolds Metals Co. (Parts Division), Louisville, Ky. • The F. C. Russell Co. (Aluminum Division), Bristol, Pa. • J. S. Thorn Co., Philadelphia, Pa. • Universal Window Co., Berkeley, Calif. • Ware Laboratories, Inc., Miami, Fla. • Windalume Corp., Kenvil, N. J.



for LIFETIME DURABILITY for FREEDOM FROM TROUBLE for ADDED HOME VALUE



Specify PERMANENT CAST IRON B

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OODWARD IRON COMPANY

SOIL PIPE AND FITTINGS BATHTUBS, SOIL & VENT STACKS

CAST IRON throughout the drainage system of a home from street sewer or septic tank to roof is the best investment that can be made in *permanent freedom* from expense and trouble. Once installed, cast iron can be forgotten *forever*. This is proved by its time-tested record thru centuries of service.

Permanent cast iron pipe and fittings are so structurally strong they can't be fractured by earth movement or the settlement of a new house or fill. They don't absorb moisture, bulge or disintegrate. And what's vitally important to every home owner who wants a truly lovely outdoor "living room" or garden, they can't be clogged by roots that cause so many torn-up lawns.

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For these sound reasons, cast iron is first choice today of the nation's leading architects and builders.

ROOTS WON'T CLOG

> Producers of quality pig iron from which cast iron soil pipe and fittings and sanitary ware are made by many of the nation's leading manufacturers.

WOODWARD, ALABAMA

40



a pneumatic thermostat like this!

The Honeywell Pneumatic Round

so technically advanced in <u>every</u> way that it outmodes all others! The first completely new pneumatic thermostat since the trend to contemporary design in modern architecture!

ACTUAL SIZE

New force-balance principle, new low-mass sensing element, new design make it the fastest responding, most accurate, best looking pneumatic thermostat on the market !



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Modern Round Styling Complements Contemporary Interiors

> A refreshing departure from previous pneumatic thermostat design gives the Pneumatic Round pleasing style features to enhance the simplicity of the modern commercial building. Designed in the studios of Henry Dreyfuss world-famous industrial designer, this graceful thermostat was made for today's functional interior And its bronze-colored metal cover may be lifted off and painted to blend in with the color of the walls or furnishings.



so easy to use!

Direct-action Dial Simplifies Operation

Setting, reading and checking of performance are simplified by one easy-to-read scale that serves both the thermometer and the thermostat setting indicators.

Adjustable stops inside the thermostat let your client limit the temperature range. Or, he can lock the desired temperature setting in place. This feature is most attractive to hospitals and schools where limited authority in dictating temperature conditions may be advantageous.

so very practical in design!

Rugged Construction Assures More-Than-Adequate Protection

A durable metal cover locks to the Pneumatic Round to guard it against shock or tampering. Other working parts are protected in the base. A grille, completely encircling the thermostat, protects inner parts yet allows free flow of air so that room temperature is accurately measured.

HONEYWELL Pneumatic Round



so ingenious in concept!

Force-balance Principle Gives Precise Modulation

By making new use of the force-balance principle used in the finest, most accurate industrial instruments—the Pneumatic Round provides an automatic self-check on each change in control signal. Through a special signal feedback arrangement, it creates a snubber action which stabilizes the operation of the valves and dampers and makes possible the use of a low-mass, fast-acting sensing element. This results in smooth, accurate system response.



so marvelously sensitive!

Low-mass Sensing Element Makes for Fastest Response

The Honeywell Pneumatic Round is the fastest responding pneumatic thermostat on the market. The unique force-balance principle allows the use of a lowmass bimetal element. This makes the Round so sensitive that it responds almost instantly to changes in room temperature. This sharply reduces the lag in the air conditioning system response by providing for more exact modulation of the system as changes in demand occur.

so mechanically superior in every detail!

Numerous Engineering Improvements

Facilitate Easy Installation and Maintenance

1 Two new flexible plastic tubes plug into main and branch air lines for simple connection. Internal springs prevent them from crimping or collapsing.

2 Calibration is accomplished quickly by turning a screw with an ordinary screwdriver.

3 A readily accessible throttling nut aids adjustment of the throttling range.

4 Branch line air pressure is easily tested by inserting a plug-in type air gauge directly into the gauge adapter. 5 Loosening two screws instantly permits removal of the cover.

6 Tight filter keeps air clean—is easily replaced if necessary.

7 Thermostat is simply constructed with fewer number of parts.

8 Fittings for either flush or surface mounting are provided with each thermostat. For modernization work a special adapter plate neatly covers hole left in wall by old thermostat.



in every room . . . in every type of commercial building . . . wherever your plans call for the latest and finest in temperature control equipment . . .

THE HONEYWELL

Pneumatic Round

has application features that surpass



IN HOSPITALS ...

Innenes!

nurses need not use room lighting or flashlights to check temperature settings — Luminous "Nite-Glowing" Dials are clearly visible in total darkness. Cover available in satin chrome finish if desired.



all previous pneumatic thermostats!

IN SCHOOLS

the simple dial setting and easy reading of the Pneumatic Round aid teachers in matching classroom temperatures with student activity. This makes for more take-home learning.



IN APARTMENTS ...

painted to harmonize with the decor of the room, the Pneumatic Round brings residential luxury to every tenant. Easy adjustment and accurate performance provide healthful, comfortable temperatures.



IN INDUSTRIES ...

the outstanding performance of the Pneumatic Round assures constant temperatures throughout the plant. And people working in the proper temperature can't help but produce more efficiently.



IN OFFICES

the precise temperatures maintained by the Pneumatic Round promote increased office efficiency. With comfortable offices in the morning and an automatically controlled climate all day long, occupants think and work most productively.



IN HOTELS AND MOTELS

guests are sure to enjoy their stay because a thermostat controls the temperature in every room. Yet, there'll be no danger of tampering because the cover locks on. And adjustable setting screws allow your client to limit the temperature range.

AND THERE'S NO INCREASE IN PRICE FROM ORDINARY PNEUMATIC THERMOSTATS!

For further information, call your local Honeywell office. Or write to Minneapolis-Honeywell Regulator Company, Minneapolis 8, Minnesota



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sandwich spandrels Columbus control tower...

crafted by Overly

META

Port Columbus Airport, Columbus, Ohio, has aluminum faced tower designed by J. E. Greiner Company, consulting engineers, Baltimore, Maryland. Architects: James R. Edmunds, Baltimore. Overly fabricated and installed spandrels and mullions. Sandwich type spandrel construction consists of an aluminum face panel 1/8" thick, finished in No. 5 Alumilite gun metal gray; a 3" thick insulating filler; and a painted backing of 20 gauge galvanized steel that serves as interior wall surface. Overly vertical mullions, window sills and heads are ¼' thick aluminum, caustic etched and lacquered; they serve as structural supporting members. The Overly coping is 14 gauge, caustic etched aluminum. The spandrel design will be used in a similar administration building to come. • Write us your wall facing needs; and let us quote.

OVERLY MANUFACTURING COMPANY GREENSBURG, PENNSYLVANIA LOS ANGELES 39, CALIFORNIA



JOHNSON CONTROL at NORTHLAND Insures

Expert opinion rates Detroit's remarkable Northland Center as not only the largest of all shopping centers, but as the most nearly perfect in providing *total* comfort and convenience for its patrons.

The comfort *control* problems involved here are particularly interesting. The year 'round air conditioning system involves 72 air handling units in the six buildings. For economy, a central plant supplies all steam and chilled water.

The number and sizes of the individual stores are important considerations. The 90 tenant stores range upwards in area from a few hundred to tens of thousands of square feet. Comfort requirements also differ by *types* of stores—nearly every kind of retailing operation is represented at Northland!

Occupancy levels change throughout the day. An average of 45,000 people shop here daily. Peak traffic reaches 68,000. Other variables include outdoor temperatures, wind, exposure and large glass areas. system of Johnson Automatic Temperature Control. Johnson engineers designed an up-to-the-minute control system that provides *ideal temperatures in every sales area in every store at Northland*. It insures tenant satisfaction and caters to customer comfort. And, equally important, the superior economy features of Johnson Control make it possible to accomplish all this at the *lowest possible* operating cost.

Next time you have a temperature control problem, give yourself the benefits of this kind of modern temperature control engineering skill. Whether it's a shopping center, store, office building, school, hotel, hospital or factory, a nearby Johnson engineer is ready with the best answer. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

To solve these and similar comfort control problems correctly, Northland Center depends on a comprehensive JOHNSON CONTROL

PLANNING . MANUFACTURING . INSTALLING . SINCE 1885



Appealing displays and assured comfort tempt customers to Hudson's Basement Store. More than 300 Johnson Thermostats at key locations in Hudson's and the 90 other stores respond to the slightest demand for more or less heating or cooling.



Conditioned air for small tenant shops is supplied by multi-zone air handling units. A single unit may handle 2, 4, 6 or 8 shops. Each shop has individual temperature control. Entrance heaters are also controlled.



Larger tenant spaces have separate air handling units and controls. Solving the great variety of control requirements at Northland is an excellent example of the flexibility of Johnson Control.

Northland Regional Shopping Center, Detroit, Michigan. Architect: Victor Gruen Associated Architects & Engineers, Inc. Consulting mechanical engineer: H. E. Beyster & Associates, Inc. Heating contractor: The Donald Miller Co. Air conditioning contractor: Carrier Corporation.

NORTHLAND HIGHLIGHTS. World's largest shopping center. Includes The J. L. Hudson Co. Department Store (over 470,000 sq. ft.) and 90 shops in 5 other tenant buildings (over 525,000 sq. ft.). Hudson store is the largest built in over 25 years. Center is completely air conditioned, with 3,600 ton central refrigeration plant and 900 hp central steam plant. Store frontage totals 1¼ miles. In Hudson's alone, there are nearly 10 miles of heating, ventilating and air conditioning ducts.



deal Temperatures for 45,000 Shoppers a Day!

READ HOW THIS JOHNSON-ENGINEERED CONTROL SYSTEM PROVIDES MADE-TO-ORDER WEATHER FOR EACH OF 90 STORES...HELPS LARGEST SHOPPING CENTER GET THE ECONOMIES OF CENTRAL STEAM AND REFRIGERATION PLANTS





Panel mounted controls for twin air handling units in the Hudson store. On each unit a Johnson Submaster Thermostat controls a Steam Valve on the reheat coil to regulate final discharge temperature of conditioned air. Correct discharge temperature is determined by strategically located Room Thermostats that average sales area temperatures and pilot a Pressure Regulator which resets the Submaster Thermostat.

> On adjoining units, powerful Johnson Damper Operators regulate Dampers on minimum and maximum outdoor air and return air as determined by Dew-point Thermostats. Another Thermostat on the unit at right acts as a Safety Thermostat on the Steam Valve. Hudson store is served by 18 large built-up units, 14 of which are installed in pairs as shown.



PARKER PEN

wrote "low operating costs" into building plans . . specified JENKINS VALVES

Architect: JOHN J. FLAD & SON, MADISON, WISCONSIN Mechanical Engineers: BELING ENGINEERING CONSULTANTS, MOLINE, ILL. General Contractor: T. S. WILLIS, JANESVILLE, WIS. Plumbing, Heating, Air Conditioning, Piping: HYLAND HALL & CO., MADISON, WIS.

Parker Pen Company's award-winning plant at Janesville, Wisconsin, reflects in fine exterior styling the advanced interior design for operating efficiency. Facilities to triple previous production are combined in an ideal working environment. It is a fitting new home for the company that has earned the reputation "Master pen makers for the world."

In modern buildings, advanced design is indicated largely by facilities that increase the complexity of the piping, and place a heavier burden on its components.

At Parker's new Arrow Park plant, for example, a plant-wide, year-round air-conditioning system, served by two 150 hp boilers, requires up to 1500 gallons of water per minute, delivers 400,000,000 cubic feet of dustless, purified air per day.

To assure trouble-free operation of such facilities, all components must be selected on the basis of proved dependability, safety, and long-range maintenance economy. The decision to standardize on Jenkins Valves was made after careful study of performance records in all types of service.

This confidence in the demonstrated *extra measure* of efficiency and economy provided by Jenkins Valves is shared by plant operating managements in every type of industry.

Despite this extra value, you pay no more for Jenkins Valves. For new installations, for all replacements, let the Jenkins Diamond be your guide to lasting valve economy. Jenkins Bros., 100 Park Avenue, New York 17.



PARKER PER CONFERN

At the new Arrow Park plant, Jenkins Valves are installed at control points on pipelines circulating the 20,000 gallons of oil, $3\frac{1}{2}$ million gallons of water, and 20,000 cubic feet of propane gas used monthly, and on all other plumbing, air conditioning, fire protection, and process lines.



Sold Through Leading Industrial Distributors Everywhere

You're bound to have Economy

WHEN THE STRUCTURAL MEMBERS FURNISH THEIR OWN BEAUTIFUL INTERIOR FINISH



THE WALL

"We selected laminated wood arches for the combination gymnasium-auditorium in Buck's Hill School because we felt that a form of exposed ceiling would be the most economical. By using laminated wood arches and purlins we were able to apply a low cost roof with an acoustical interior finish and have a finished room broken only by the clean lines of the arches."

That's the story in architect Francis L. S. Mayers' own words. It needs no embellishment. The photographs are ample proof how well Mr. Mayers adapted Rilco laminated wood arches and the practical beauty resulting.

Rilco laminated wood members, whether arches, beams or trusses, are as flexible as the imagination of the designer and surprisingly economical. These fire-safe structural members are factory-cut and drilled, furnished with connecting hardware, ready for labor-saving assembly and erection. Rilco field representatives will gladly consult with you about the requirements for your next school, church, commercial or industrial building. Write for information..



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Built to specifications—securely wrapped—Rilco members need no embellishment to reveal their unusual beauty.

Rilco wood laminated arches of carefully selected woods are built to be seen and enjoyed.



Modern elevators help you

NO PENTHOUSE NOR HEAVY SUPPORTING WALLS ARE NEEDED

WHEN YOU SPECIFY ROTARY OILDRAULIC ELEVATORS



Rotary Oildraulic Elevators, moved and controlled by oil under pressure, have definite architectural and operating advantages for modern buildings.

The elevator car and its load are supported by the oil-hydraulic jack—not by the building structure. This eliminates the costly, unsightly penthouse that interferes with modern architectural design. It also permits substantial lightening of the hoistway structure.

Flexibility in power unit location

Rotary's compact power unit can be placed in any convenient location where a pipeline can be run from the unit to the hoistway. Thus it can be located in an area with other building machinery for convenience in servicing and to save space. Or it can be placed in a small machine room built to accommodate the power unit being used on the installation.

Smooth starts, gentle stops, accurate landings

The revolutionary Rota-Flow oil-hydraulic power unit gives velvet-smooth starts and cushioned stops. Oildraulic automatic floor leveling positions the car to each landing with exactness—¼" accuracy guaranteed! The new patented Oildraulic Controller handles the functions of eight separate control valves... simplifies adjustments and maintenance.

Coast-to-coast service

More than 100,000 Rotary Oildraulic elevators and lifts have been installed and are serviced by Rotary's nation-wide distributor organization. Our Engineering Department will be glad to assist you on plans and specifications for passenger or freight elevators.

For catalog and complete architectural data on freight or passenger elevators, write Rotary Lift Co., 1010 Kentucky, Memphis, Tenn.

design modern buildings



WISCONSIN ANTI-TUBERCULOSIS ASS'N ADMINISTRATION BUILDING-Milwaukee, Wis. Architects: Brimeyer, Grellinger & Rose Contractors: Bauer & Schoeneck Construction Co. Rotary Oildraulic Elevator (passenger) sold and installed by Northwestern Elevator Co.

ALLIED RADIO COMPANY-Chicago, Ill. Architects and Engineers: A. Epstein & Sons, Inc. Contractors: Carl E. Erickson Co. Rotary Oildraulic Elevators (freight and passenger) sold and installed by Gallaher & Speck, Inc.





PASSENGER AND FREIGHT

Engineered and built by Rotary Lift Co., 1010 Kentucky, Memphis, Tenn. SEE OUR CATALOG IN SWEET'S FILES

A matter of Pride...

... Super EXTRUDED ALUMINUM SKYLIGHTS installed in another distinguished project.



GROSSE POINTE UNIVERSITY SCHOOL

> ARCHITECTS: Leinweber, Yamasaki & Hellmuth, Detroit. CONTRACTOR: O. W. Burke Co., Detroit. SKYLIGHTS: SUPER STEEL

PRODUCTS CO., Milwaukee.

The SUPER EXTRUDED ALUMINUM SKYLIGHT, built to cope with the severe weather conditions of our Northern States, is recognized as the outstanding product, in its field, by many leading architects.

Readily adaptable to almost any style or type of construction, its special features include lifetime installation, without maintenance or painting; easy erection, no on-site fitting (shipped knocked-down, requiring only bolting and glazing).

At the Grosse Pointe University School: Classroom skylight is $12'6'' \times 17'4''$, double pitch, with continuous ridge ventilator. Gymnasium skylight, 2 strips, single pitch, each $16'8'' \times 70'$; equipped with newly developed subceiling of fibreglass, for additional insulation and prevention of condensation.



Since 1932 1244 N. 4th St., Milwaukee, Wis.

DATES

International Congress of Refrigeration, sponsored by the International Institute of Refrigeration, August 13-Sept. 15, Sorbonne, Paris. Details available from the Institute, 177 Boulevard Malesherbes, Paris.

Noise Reduction, two-week special summer program to present engineering advances in this field, sponsored by the Massachusetts Institute of Technology, August 15-26, at Cambridge, Mass. For details address Summer Session Office, room 7-103, MIT, Cambridge.

City and Regional Planning, special summer program to review administrative and technical aspects of planning, sponsored also by MIT, **August 22-Sept. 2.** Same address for details.

American Society of Planning Officials, annual planning conference, Sept. 25-29, Sheraton-Mt. Royal Hotel, Montreal.

Associated General Contractors of America, midyear meeting of the board of directors, Sept. 26-28, Minneapolis.

American Transit Assn., annual Meeting, Sept. 26-29, Hotel Statler, Boston.

First trade fair of the atomic industry, sponsored by the Atomic Industrial Forum, Inc., Sept. 26-30, Sheraton-Park Hotel, Washington, D.C. Exhibits will include displays of construction and fabrication techniques of atomic power plants and equipment.

US Civil Defense Council, annual conference, Sept. 29-Oct. 1, Hotel Statler, Boston, Mass.

American Public Works Assn., Oct. 2-5, Hotel Schroeder, Milwaukee, Wis.

National Assn. of Assessing Officers, Oct. 16-19, Hotel New Yorker, New York City.

National Association of Housing and Redevelopment Officials, annual meeting, Oct. 16-20, Hotel Statler, Cleveland.

National Motel Show, second annual, Oct. 24-26, Morrison Hotel, Chicago.

Institute of Traffic Engineers, annual convention, Oct. 24-27, William Penn Hotel, Pittsburgh.

Porcelain Enamel Institute, annual meeting, Oct. 26-28, The Greenbrier, White Sulphur Springs, W. Va.

American Concrete Institute, regional meeting, Oct. 28-29, Statler Hotel, Los Angeles.

AlA district meetings: Northwest, Sept. 9-11,
Glacier Park, Mont.; Sierra Nevada, Oct.
6-8, Santa Barbara, Calif.; Gulf States, Oct.
6-8, New Orleans; Central States, Oct. 13-15,
St. Louis; New York, Oct. 13-15, Albany;
Texas, Nov. 2-4, Houston.

ONE COAT PLASTERING MADE EASY WITH PLASTER-WELD

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Midway Gardens Apts., Chicago. One of hundreds of successful Plaster-Weld installations. In this case, Plaster-Weld was used to permanently bond lime-putty coat directly to all concrete ceilings and columns. Archts.: Holabaird, Root & Burgee & Associates; Genl. Contr.: S. N. Nielsen Co.: Plstg. Contr.: McNutty Brothers Company. Many other examples of Plaster-Weld applications gladly sent on request.

Plaster-Weld is the scientific resinous water-emulsion bonding agent which gives you a guaranteed method of *permanently bonding* Gypsum, Lime-Putty, Acoustical Plaster and Cements to themselves . . . or *directly* to any structurally sound surface including—

Concrete ceilings, beams, columns . . . Plastered walls and ceilings . . . Stippled or textured walls . . . Painted or unpainted surfaces . . . Brick . . . Stone . . . Wood . . . Glass . . . Block . . . Metal . . . Slabs . . . Ceramic Tile

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Plaster-Weld is applied with brush, roller, spray gun *directly* to most surfaces (old or new) without need for costly, time-consuming surface preparation. You cover with new material, as soon as touch dry (usually an hour) or several days later.

The bond you make is permanent, ageless . . . the bond itself is much stronger than the material being bonded. Equal bonding permanence all climates, all types of surfaces, all sorts of conditions.

For details, see Sweet's File, write us direct, or ask your Building Supply Dealer.

LARSEN PRODUCTS CORP., Box 5756-B, Bethesda, Md.



TYPE F—Shown here, is a deluxe floor convector with curved outlet grill and visible damper.

The latest in convector styling – designed for every application

Now public, commercial and institutional buildings – old or new – can be equipped with beautifully styled, efficient, quality-built Modine Convectors. There's a model to meet every requirement – 30 types, 8000 sizes.

And each model . . . regardless of its price bracket . . . is craftsman-built in every detail . . . the reason why Modine has been a leader in convector design and fabrication for more than a quarter of a century.

Before you specify or buy convectors, be sure you have the Modine story. See the Modine representative listed in your classified phone book or write for Catalog 255— Modine Mfg. Co., 1507 DeKoven Ave., Racine, Wis.

R-1273

CONVECTOR RADIATION

One of the longest buildings with continuous windows in the U. S. A. — the Burlington Freight Terminal. Ceco-Sterling Aluminum Windows were used throughout. Architects and Engineers: Shaw, Metz & Dolio / Contractor: E. H. Marhoefer

How borrowed daylight

illuminates a giant

freight terminal







Ceco standard Windows, Borrowed-Lights and Doors are combined for better vision in Burlington freight building

Bringing daylight into a building through windows and then introducing it into central areas through glazed doors and borrowed-lights is smart basic planning ... especially when it is done with Ceco standardized engineered products. And that's what Shaw, Metz & Dolio did when they designed the Burlington Route's new giant freight terminal in Cicero, Illinois. Maximum light is brought inside through a ribbon of Ceco Aluminum Projected Windows - large glass lights - easy to clean - no maintenance problems. Inside, the daylight is borrowed for corridors and central areas through glazed Hollow-Metal Doors, Transom Frames and Borrowed-Lights, all Ceco-engineered for economical unit installation, all factory fabricated for low first cost. Ceco Engineers went a step further. They proved Ceco Standardized Door Hardware eliminates extra labor costs — ready for installation when delivered — no on-the-job fitting. Ceco also supplied Concrete Reinforcing Bars and Welded Wire Fabric, delivered to meet the contractor's schedule. Through working with Ceco, better coordination of effort was achieved — time was saved. On your next job call Ceco Engineers. Chances are they can save you time and money... help you realize better building.

CECO STEEL PRODUCTS CORPORATION Offices, warehouses and fabricating plants in principal cities.

General Offices: 5601 W. 26th St. Chicago 50, III

This illustrates the way office areas were partitioned with Ceco Steel Borrowed-Lights, thus introducing natural daylight into central areas.



Ceco Hollow-Metal Doors are used throughout the building, in borrowed-light partitions and in separate openings, as shown in these two pictures.



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PARENTHESES

(UNDERSTATEMENT?)

Here is a comment by William Zeckendorf regarding his gigantic plan to replace Penn Station in New York with a 7 million sq. ft. international merchandise mart, the *Palace* of *Progress:* "This building will open up the avenues which will make it possible for other countries to develop their sales ability, because buying is related to salesmanship."

(LE GRAND TOUR)

The early summer's architectural tourists to Europe are already sifting back through New York City to their offices across the land, most of them sighing and insisting: "Go over, go now; don't wait." But a few of the returning architects have already buckled on their jaundiced manners again, that invaluable armor that protects them when jousting with accountants, contractors, etc. Growled one of these about Paris:



"OK, I guess, but what do they have in the way of buildings? I mean, what's the Eiffel Tower? . . . The Empire State building after taxes, maybe."

(CHAUVINISM)

Last month's note in this space about the Fulbright International Exchange Program has prompted a further inquiry into the number of these fellowships which have been granted in the field of architecture. Statistics from the State Department show that the grand total of all grantees (American and Foreign, students, teachers, lecturers, research scholars, and specialists) has been 20,225 in the seven years since the admirable scholastic travel bureau started to operate in 1948. Of this number 256 have been awarded architecture fellowships. This is a little more than 1¼ %, not too high a proportion for the Mother of the Arts and the shelterer of the sciences.

(BEAUTY)

Recently a New York newspaper reprinted this quote from *The Portable D. H. Lawrence*, published by Viking. This vivid, bitter novelist's words, scraping the respectability off the old Victorian gloom, may have a special fascination for architects and industrial designers. Seldom has the created environment been described with such feeling:



"The great crime which the moneyed classes and promoters of industry committed in the palmy Victorian days was the condemning of the workers to ugliness, ugliness, ugliness; meanness and formless and ugly surroundings, ugly ideals, ugly religion, ugly hope, ugly love, ugly clothes, ugly furniture, ugly houses, ugly relationship between workers and employers. . . . The middle classes jeer at the colliers for buying pianos-but what is the piano, often as not, but a blind reaching out for beauty. To the woman it is a possession and a piece of furniture and something to feel superior about. But see the elderly colliers trying to learn to play. see them listening with queer alert faces to their daughter's execution of "The Maiden's Prayer," and you will see a blind, unsatisfied craving for beauty."

(WATER, WATER)

Sad words from the program of Houston's 1955 "Parade of Homes": ... "The original opening date of May 29th was postponed to the present date because rain and delay in getting a sufficient water supply held up construction schedules."



(APPLIANCE)

A mailing piece has come in describing "the new Gavigan GAY BAR . . . World's smallest, most beautiful, compact and efficient selfcontained soda fountain ever built—with compressor and carbonator $5\frac{1}{2}$ " long x 27" wide—a useful and economical addition to every home. . . .

"Famous Radio, TV, and movie stars and leading athletes now have their own soda fountains in their homes," the description continues. "The wife of one of baseball's famous managers says the best part of the year is the winter period in their home in Beverly Hills, which has a soda fountain in the den. 'He loves ice cream. I serve him a banana split for lunch, and a thick chocolate milk shake in the afternoon. In the evening he likes a variety of sundaes.'"

Nope, baseball hasn't been the same since they started using that carbonated ball.



(MUSH)

When a counterman first brought a hamburger out to somebody in a parked car, he really started something. Soon he had a harem of satin shirted carhops, and a horde of customers who drove in for bites on their ways to drive-in movies. Or drive-in churches. But before one drives to the drive-in restaurant and the drive-in movie one must drive to the drive-in bank for some money.

Here are two new examples of this vivid movement in US finance. The first is by the Mosler Co. for the State Bank and Trust Co., of Wellston, a St. Louis suburb. There



are two stations on the roof of the bank; autoists drive their cars up there, peer into a periscope, speak into a two-way speaker, *continued on p. 54*

SURCO Terrazzo



ARCHITECT: WILLIAM L. PULGRAM, ATLANTA GEN. CONTRACTOR: GREEN CONSTRUCTION CO., ATLANTA FLOORING CONTRACTOR: BARBERI TILE CO., ATLANTA

For Beauty For Economy

All floor surfaces throughout this home are SURCO terrazzo on concrete slab. SURCO terrazzo is not only beautiful and easy to maintain, but provides resiliency comparable to that of hardwood flooring.

The concrete slab was laid on grade and SURCO terrazzo was applied $\frac{1}{4}$ - $\frac{3}{8}$ inch thick after the slab was completely cured.

SURCO's latex base gives the material adhesive qualities found in no other terrazzo... saves time and money in application.

 For more information on SURCO floors for home and industry see Sweet's Files or write to the address below.



PARENTHESES

continued from p. 53

and transact their business with a teller standing 17' below them, well out of direct range.

Another unusual drive-in installation has been made by Diebold Inc. at the First National Bank of Anchorage, Alaska. This



saves the bother of finding a parking space for your team of Malamutes while you go in to make your Christmas Club deposit.

(MAGAZINESCAPE)

The world over, there are enough architectural magazines published to provide reading on a daily newspaper frequency. And the diversity of material in them is reassurance that no one stylistic fascination will ever dominate. Here is a picture which interested the editors of *Marg*, the Indian magazine:



And from *Domus*, in Italy a mausoleum for an infant (credited to Belgiojoso, Peressutti and Rogers):



continued on p. 55



ARCHITECTS and KITCHEN PLANNERS

Send now for this valuable, complete engineering data sheet on Blakeslee-Built Kitchen Machines. Our experienced representatives are available to help you on any commercial dishwashing department layouts.



G. S. BLAKESLEE & CO. 1844 So. Laramie Ave. • Chicago 50, Illinois New York—Los Angeles—Toronto

ACOUSTICAL TILE ADHESIVES

give best results when used by experienced applicators

This is the time of the year when most acoustical contractors are installing the greatest volume of tile in new construction. Often the projects are behind schedule by the time the architect, general contractor or building owner feels the building is ready for cemented tile, and considerable pressure is put upon the acoustical contractor to help get the job back on schedule.

Probably the most critical point in the cementing of acoustical tile in new construction is the tile contractor's examination and acceptance of the surface to which tile is to be cemented. Architects and general contractors have learned to rely on the opinion of experienced acoustical contractors at the time the ceiling is examined. They know that such an applicator provides the kind of workmanship which satisfies the owner.

The experienced acoustical tile contractor is fully aware of the job conditions necessary for him to perform creditable work. He is familiar with the means of checking masonry construction, or mechanically fastened backing board to determine its condition for cementing.

If you see a tile applicator using our ACOUSTI-BOND adhesive you know he is particularly qualified in his work —from inspection of the backing surface to job completion.



Acousti-Bond ®

Made by the only manufacturer specializing exclusively in acoustical tile adhesives.

A. Z. BOGERT COMPANY MOBRIS ROAD . AMBLER, PENNSYLVANIA

PARENTHESES

continued from p. 54

And one from Byggekunst, in Norway:



Another interesting thing about some of the world's architectural magazines is the fact that general advertisers find their readers a good audience, as, for instance, in India. Advertising there, of course, is just getting started; the boys are just unbending from the traditional dignity of their ancient culture, just trying on ideas for size:



(THE USCAPE)

Just as general advertising sometimes creeps into architectural magazines abroad, architectural comment frequently occurs in the foreign general press. Commenting on a new American-type hotel which has been built recently in London by a US hotel chain, the Knott Hotels Corp., Lord Kinross wrote in England's *Punch* recently:

"... The austere white architecture of this concrete race is now raising its walls above the Victorian shacks of the Barbarians. They have a hotel of their very own, 'to cater to people of taste and established standards of living.' Here they now infiltrate, without any uncomfortable feeling that they are straying from American soil.

"Here they may breathe freely in an oilwarmed American climate, cooled sparingly by artificial air. They may refresh themselves with cold water, elaborately made colder by a machine freezing a record number of ice cubes. They may drink away at their Kentucky and their Bourbon, 'on the *continued on p. 62*



Again SURCO comes to the aid of contractors with a new tile setting bed that is superior in waterproofing, resiliency, and durability; and can also be used to level up walls and floors. SURCO Yellow Label applied 1/8 to 1/4 inch thick provides a bed that tile adheres to quickly and strongly — 86 pounds per square inch makes tile stay put.



Tile was laid on SURCO setting bed at night, this busy kitchen was ready for use the next morning. Over 2700 square feet was laid without moving any large equipment.

 See Sweet's File for further information or write:



NO SNOW ever...on the sidewalk

that's Panel Heated with Revere Copper Water Tube

> Huge strides are being made by this method of snow removal. No wonder, shoveling and accidents due to snowy walks are eliminated . . . while the time and labor saved pays for the installation in short order.

> That's why you'll find snow melting panels also being used on driveways, loading platforms, entrance aprons, service stations, pedestrian ramps at railroad stations, airports and similar spots. One application which bears special mention is the use of coils in garages. They quickly melt the snow on cars, keep floors dry as well as keep the repair shop floors warm so mechanics can lie right on the bare concrete in comfort.

> And when you make the panels of Revere Copper Water Tube you have these added advantages: Copper can be bent to conform to the terrain. Bendability permits use of sinuous coils, while the 60-foot lengths of tube mean fewer fittings which, when joined by solder means joints that stay tight. Copper tube cannot rust, rot or deteriorate. That's why, on the inside, full flow and low frictional resistance are maintained throughout its long life. While external moisture will not harm it from the outside.

> Keep ahead of the parade. Recommend Panel Heating for snow removal. Revere's Technical Advisory Service will be glad to help you in the proper application of Revere Copper Tube in working up your plans.

> FREE! Instructive 16mm Full Color Motion Picture, "The ABC of Radiant Panel Heating." Write Advertising Department for details.



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LOWER SECTION OF PHOTOGRAPH shows how nonrusting Revere Copper Tube was imbedded in concrete slab. Top section of photo shows same walk under actual snow conditions. Note bends. Think of all the joints necessary had ferrous pipe been used. And think, too, of what seepage can do to rustable materials. Note insulation used on each supply and return line to the coils from the mains. This provides flexibility in the take-offs from the mains, which have been run below the slab, to allow for movement due to expansion and contraction.

Central High School Louisville, Kentucky Architects: Thomas J. Nolan and Sons.

de

General Plywood Flush Doors...

built to take the abuse of school use

and provide the beauty of finest furniture.

Functional efficiency is the key note to good school design and General doors readily fit into this picture. But even more important is the durability and stability required of doors on jobs like this one. They must be constructed to take the terrific punishment which hundreds of youngsters daily hand out.

General's completely hot press bonded solid core door, manufactured under the most careful controls provides permanent strength and rigidity plus the beauty of the finest book matched birch faces. There is no more stable or beautiful solid core door manufactured.

You can specify General doors with the assurance that in every construction detail they far exceed standard requirements.



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Three-quarter inch matching hardwood edge bands on both vertical edges provide ample trim area.

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Three dimensional stability is obtained through the use of core blocks of varying length, edge-glued to each other in a staggered pattern, and to the frame, under extreme heat and pressure.

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The smooth, hard, cabinet-maker's finish is produced by an extra sanding operation on huge belt sanders. Faster and finer finishing on the job. Absolute flatness of surface is insured through the use of heavy 3-ply panels bonded to rigid edge-grain blocks that have been selected for uniformity, and dried evenly.

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NORTH, SOUTH, EAST, WEST...neither sun, nor rain, nor sleet, nor snow affect Seaporcel's SEAPORCLAD panels. Temperatures may be high or low but Seaporcel porcelain withstands the extremes without the slightest injurious effect.

In the new Miami Riviera Gardens Elementary school close to 6000 sq. ft. of SEAPORCLAD panels were used. Laminated to ¹/₄" of aluminum honeycomb core and backed up with passivated zinc coated steel, the porcelain enamel face was finished in light blue and soft tan semi-matte.

There was no "U" factor involved on this Florida job as contrasted with a recent Seaporcel installation at Ketchikan, Alaska, for the Ketchikan High School. In this latter case extremes of climate required a very low "U" factor so the Seaporcel porcelain was backed up with 3 inches of Fiber-glas insulation resulting in a "U" factor not exceeding .079. Seaporcel porcelain skins and Seaporclad laminated

panels are your definite answer to economy, beauty of color, permanence, simplicity of design and speed of installation. Send us your plans and get our prices.



Panels measure 39" x 87"

Shown are panels 39" x 64"

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Jefferson High School Portland, Oregon Roxbury Elementary School Stamford, Conn. Fontbonne Academy Milton, Mass Franklin School Pueblo, Colorado Brookfield & Lutheran High Schools Milwaukee, Wisc. Ketchikan High School Ketchikan, Alaska King Street Elementary School Port Chester, N. Y. Industrial Canal High School New Orleans, La.

Junior High School Davenport, Iowa Temple Univ. Medical School Philadelphia, Pa. Phoenix Memorial Bldg.-Univ. of Michigan Ann Arbor, Mich. Notre Dame High School Chicago, Ill. Southwest Junior High School Johnson County, Kansas Senior High School West Springfield, Mass Patterson J. H. School Lethbridge, Canada

Robert E. Lee School Norfolk, Va. MIT Auditorium Boston, Mass. Meadowbrook Jr. High School Newton, Mass. North Penn. Jr. & Sr. H. S. Lansdale, Pa. Bishop Duffy H. S. Niagara Falls, N. Y. Oak Park Elementary School Stillwater, Minn. Elementary School North Annville Township Lebanon County, Pa.



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LEVITTOWN STANDARDIZES ON CTA-11, NEW 3M CLAY TILE ADHESIVE

Levitt gives nod to the "new method" for all clay tile applications in giant project

MANUFACTURER CITES BENEFITS OF EASE, SPEED, ECONOMY, STRENGTH

The new adhesive method of installing clay tile has hit the "big time". Levitt and Sons have specified CTA-11, the clay tile adhesive made by Minnesota Mining & Manufacturing Company, for all clay tile installations in Levittown, Pennsylvania. The huge planned community, upon completion, will house a population of over 70,000 —forming a new city of 17,000 homes.

In Levittown, the tile on every bathroom wall will be put up with an easy-to-use adhesive, unlike anything most builders have ever seen before. For new CTA-11 can be spread right out of the can. No premixing is necessary and a trowel is the only tool needed. Almost any plumb surface will do plaster, plywood, metal, cement block, "dry wall". The operator spreads the adhesive, sets up the tiles and finishes the job by grouting in the usual manner. Rooms can be occupied inside of 24 hours.

With CTA-11, the job is easier, faster and more economical. Savings in total installation costs run steadily around 20%. Superiorities in finished job quality are also claimed: 1) Tiles do not crack with settling . . . the adhesive "gives" enough to adjust to settling. 2) The adhesive has a shear strength of over a ton per tile. 3) Installation is moisture-proof.



For further details on CTA-11, interested architects, builders and tile contractors are advised to consult a building supply dealer or write to 3M, Department 188, 417 Piquette, Detroit 2, Michigan.



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PARENTHESES

continued from p. 55

rocks,' in an American bar with a real (or almost real) American barman. They may look around them as they do so at murals, portraying the ancient American sport of polo. They may eat the rich fare of their



ract: Lemon Chiffon Pie on Mondays, Frozen Egg Nogg Pie on Tuesdays, Moka Boston Cream Pie on Fridays, and a Steak Minute Washington on Sundays, washed down by draughts of tea and coffee...

"From this stronghold the Americans are occupying Bond St., ensuring nevertheless that its quaint native customs are preserved."

It is easy to appreciate Lord Kinross' Britannic disgust at the thought of having to send across the street in London to get a tepid beer, but the general British antipathy to our excesses of heating in winter and air conditioning in summer (and icing drinks in *all* seasons) seems rather obstinate philosophically. Can it resist factual argument? Hardly, with air conditioning so successful even in that cradle of philosophy, the churches. The Carrier Co. recently put out a flyer listing 50 churches they have air conditioned, with the following interesting data concerning one in particular, St. Patricks in New Orleans, La.

"Attendance fluctuated during January, February and March. On Palm Sunday and Easter attendance was high. After Easter the seasonal decline began. St. Patrick's used air conditioning for the first time on May 4. The decline was halted and attendance increased to a consistently high level during the hot months of June, July and August."



"The Carrier air-conditioning system at St. Patrick's church was installed at a cost that could permit complete amortization over a ten-year period at a cost of only 4¢ per person per Sunday."

How now, Lord Kinross?-W. McQ.


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U-16 Panel—a double faced concrete filled and fibre glass insulated panel with vapor barrier, featuring exceptional flatness and all mechanical fastening—no adhesives. This gives you a 2" wall thickness, Ufactor of .16, 9 pound psf weight and size range up to 4' x 8'.

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18-foot Stainless Steel Blinds shield book room from afternoon sun

Giant Venetian blinds with 20 vertical stainless steel "slats," 18 feet high, protect the rare book room of the new Cincinnati Library from the glare of the after-

noon sun. These louvers are heat barriers too. By remote control they can be swiveled to interrupt the penetration of the blazing sunlight, regardless of the changing course of the sun.

In back of these louvers are plate glass windows rigidly mounted in stainless steel sash, in turn supported by stainless steel mullions and muntins. These are used throughout the building. Exterior sills are of Armco Stainless Steel, as are all convector covers, some of which are visible at the foot of the windows.

Other interior uses of Armco Stainless are conveyor doors, dumb waiter doors and cabs, elevator doors and

Architects: Woodie Garber & Associates and Samuel Hannaford & Sons Associated Architects, Cincinnati.

cabs, vacuum tube stations, hand rails, mail box doors and book return door. On the exterior, entrances, doors and marquee trim are of stainless steel.

All details of this building were designed for beauty, dignity, utility and ease of maintenance. That is why stainless steel was used so extensively. For information on how to specify Armco Stainless Steel, just write us at the address below for our A.I.A. File pamphlet, "Why, How and Where Architects Specify Armco Stainless Steel."





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THE STERLING, MIAMI BEACH'S NEWEST ocean front hotel, enjoyed a banner first season last winter. Owner David Rosner assigns a good share of the credit to his Worthington-engineered air conditioning system which cools the 142 rooms and 186,000 cubic feet of dining and lobby space. "Maintenance service (routine checkups) couldn't be better," says Manager Sam Rosner, with an eye on the potential business losses (running into thousands of dollars) that might follow mechanical breakdown. System includes both central and packaged air conditioners.

Worthington teams central and packaged air conditioners to cool new Miami Beach hotel



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LETTERS



THE NEW BRUTALISM

Forum:

Russell Lynes' search for a new format in architecture on p. 155 of your May issue was prety well answered by the modern Stonehenge shown on p. 142-145 of the same issue. The designers, Mr. and Mrs. Smithson (if they would accept such a folksy description), have ushered in the Druid Revival.

If Hunstanton is a fair example of the British secondary school, they are out to breed a hardy race. The only furnishings implied in that stern atmosphere are the rack and the boot. As an average flabby American my spirit quails at the thought of the iron-willed towheads who will matriculate in those forbidding walls. Or perhaps this is a monstrous prank commissioned by Mr. Orwell for 1984.

Anyone gifted enough to achieve such a high order of discipline in design and detail as the Smithsons must also be competent to recognize the value of emotion in architecture. So let's blame the photographer (fortunately not named). If the wide-angle lens is capable of creating some of our greatest architecture, it could probably wring the soul out of a building as well.

Or perhaps it is just the leaden skies that make the picture so depresing. Now in southern California, as everyone knows, this is never a problem.

C. M. DEASY, architect Los Angeles, Calif.

(PARENTHESES)

Forum:

Parentheses is an enjoyable new feature which I turn to first (for subtle humor) when your magazine arrives. FREDERIC H. KOCK

Kruckemeyer & Strong, architects Cincinnati, Ohio

• This month it begins on p. 52-ED.

INLAND OFFICE BUILDING

Forum:

Your coverage of Inland Steel's new headquarters building (AF, May '55) is an excellent presention of a unique office-building design. Articles of this sort on modern design and development in the office building field are not only informative but are stimu-

... the finest structures rest on <u>RAYMOND</u> FOUNDATIONS

BOK SINGING TOWER Mountain Lake, Florida

ARCHITECT: Zantzinger, Borie & Medary, Philadelphia CONTRACTOR: Horace Burrell & Son, Philadelphia

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costs no more than popular thicknesses of perforated tile...

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Forestone, in the new 9/16"thickness for the first time brings beautiful fissured tile into the same price range with popular 5/8" and 3/4" perforated fiber tiles.

Forestone, the most important

development in acoustical materials in 20 years, has the natural, travertine-like beauty of fissured mineral tile, but with even greater warmth and richness...and at far less cost. It has been installed in thousands of offices, restaurants, schools, stores...and homes. It is the only paintable, efficient acoustical tile, without mechanical perforations, that is economical enough for widespread use in home sound conditioning.

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LETTERS

Continued from p. 68

lating to those of us interested in commercial structures, whether we be architects, engineers, contractors or as managers or tenants. I hope you will expand coverage in this field and add to it outstanding modernization jobs.

> MAYNARD HOKANSON, vice president Hume Mansur Co. Indianapolis, Ind.

Forum:

The presentation is excellent. All the various ramifications, such as construction, planning, preliminary costs and structural contributions, have been nicely arranged.

What I like about this presentation is the fact that we have an opportunity to study a building in its preparatory stages.

> LEON HYZEN, architect Chicago, Ill.

SHARAWAGGI

Forum:

With reference to the correspondence on Shariwaggi [sic], (AF, May '55), perhaps you will be good enough to give me the hospitality of your columns to enlarge a little on the history of the word.

It is not, in fact, of Indian, but of Chinese derivation. So far as is known Sir William Temple first used *Sharawadgi* in his essay, *Upon the Gardens of Epicurus* (1685, published in 1690), to describe irregularity or surprise in Chinese gardens. Many sinologists have since attempted to find the Chinese terms from which this, obviously not a Chinese word as it stands, derives.

Mr. William Coln has suggested that Temple invented it outright; Mr. Basil Gray, that it may be the title of a book on Feng Shui; Mr. Y. Z. Cheng (in 1930) read it as Sa-lo-kwai-chi, Sa-lo signifying careless grace, Kwai-chi (or Waidgi) impressive and surprising; Mr. Gatenby believed it to derive from Sorowaji—not being regular; Mr. Ch'ien Chung-shu transcribed San-lan or So-lu for Wadgi, the whole meaning spaces tastefully enlivened by disorder.

The word is described in the Oxford Dictionary as being "of unknown origin"; Chinese scholars agree that it cannot belong to that language. Temple speaks as if he had himself heard it from travelers. The following are three of the rare references in literature:

Pope, letter to Digby, Aug. 12, 1724: "For as to the hanging gardens of Babylon, the Paradise of Cyrus, and the Sharawaggis of China, I have little or no ideas of 'em."

Horace Walpole, letter to Mann, Feb. 25, 1750: "I am almost as fond of the Sharawaggi, or Chinese want of symmetry, in buildings, as in grounds or gardens."

Horace Walpole, letter to Earl Strafford, June 13, 1781: "Though he was the founder of the Sharawadgi taste in England, I preached so effectually that his every pagoda took the veil."

The word was brought back into circulation by The Architectural Review in Jan. continued on p. 76

PAINTING ANALYSIS

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New Formula NEV-A-RUST dries to a sparkling high gloss; has greater resistance to rust, acid, gases, fumes. Ideal for structural steel, iron fences, grillwork, smokestacks, metal roofs and all metal surfaces.



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A NEW method of regulating indoor weather is in use in the Houston (Texas) *Post's* modern publishing plant. It features a special control panel that governs the plant's 400-ton cooling system.

This special panel, a Honeywell Color-Graphic, automatically stops and starts the building's two centrifugal compressors. And it automatically operates one or both—depending on cooling needs. Picture captions explain its functions in detail.

Throughout the building, from press room to executive offices, comfort levels are maintained summer and winter by strategically placed electronic thermostats. They're readily adjustable on the spot to meet the rapidly shifting comfort needs of a daily newspaper's large staff.

Automatic changeover from heating to cooling helps achieve both efficiency and economy.

These features and others described here make Honeywell a leader in bringing modern atmosphere control to any building: ideal indoor comfort through ideal control of temperatures and air circulation. The techniques used to solve comfort problems of the Houston *Post* can help you provide better working weather for your clients. For a Honeywell Electronic Customized Temperature Control installation is designed to fit the needs of the building and its occupants.

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Air conditioned press room is an unusual feature of the Houston *Post* building. Despite heat generated by the huge presses, Honeywell controls maintain comfortable working temperatures, can be adjusted on the spot to meet varying comfort needs.

Herbert Voelcker & Associates, architects. Charles V. Chenault, consulting engineer. E. Lee Bond General Contractor. Wood-Leppard Air Conditioning Company, mechanical contractors.



Large open areas, like the Houston Past composing room, are held at maximum comfort throughout. Inexpensive, simply-constructed electronic thermostats are placed at strategic locations inside the building.



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W. Howard Baldwin, Houston *Post* vice-president and general manager, says: "Our new four-milliondollar plant was built with an eye to the future. Electronic temperature control, plus control centralization with a Color-Graphic panel by Honeywell, were selected to ensure a modern control system for the many years to come."





Electronic Controls



112 offices across the nation



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*DFPA—Douglas Fir Plywood Association, Tacoma, Wash. is a non-profit industry organization devoted to product research, promotion and quality maintenance.

LETTERS

Continued from p. 72

'44 in an article entitled "Exterior Furnishing or sharawaggi: the art of making urban landscale," from which the following is an extract:

"Being regular, the belief in rules to be learned and applied, the belief in symmetry, stands for the Neoclassical, the Palladian, the academic outlook, right down to the Royal Academy plan for London: Sharawaggi for the Picturesque landscaping tradition to which England owes its most personal esthetic character."

It has been one of the aims of the *Review* to reinterpret the theories of the Picturesque in terms of contemporary problems of town—and land—scape design and, by illustrating these with actual examples, to direct the attention of those responsible to a body of theory and practice, ready-to-hand, extraordinarily apt, though little understood or used.

> IAN MCCALLUM, executive editor The Architectural Review London, England

ST. JOHN THE DIVINE

Forum:

The report which you have so ably presented of the challenge of St. John the Divine (AF, Dec. '54 et seq.) is hardly the situation of a single church; it is the image of our time. The fact that the richest, most powerful nation of the Christian world can find neither spirit nor means to complete one great cathedral is more evident but hardly more true than the greed with which we dissipate the bounty which surrounds us.

If we can find no solution to this dilemma by turning to a past forever beyond our grasp, it is likewise evident that our thirst for new form and expression has produced exceedingly little of sufficiently enduring value. The question is simply this: how may we expect our work to have value, when we have not values to impart to it? We lack not so much a philosophy of architecture as any philosophy at all. If architecture has significance, it is as a means to resolve the spirit of man to the forces which surround him. Similarly, man's purpose must be to fulfill the reason of his creation. Architecture can give lasting form to our civilization only when the architect chooses to seek with the humble materials at his command, the intent of his Creator. In his struggle to this end he will discover and express those values which in life as in architecture are eternal.

We inhabit a world much more unfinished than St. John the Divine. The incompleteness of the cathedral is merely the symbol of the incompleteness all about us which we presently must fulfill.

> WAYLAND W. BOWSER Carnegie, Pa.

Forum:

Economy is the only reason given for making another change in the visual aspect *continued on p. 80*



BUILT-UP SADDLES ELIMINATED

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Southwestern Michigan Tuberculosis Sanitorium. Architects: Lee Black and Kenneth Black, Lansing, Michigan

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LETTERS

Continued from p. 76

of St. John the Divine, yet this is a moment of unprecedented prosperity, coupled with a tremendous upsurge in church attendance and religious enthusiasm.

Mr. Belluschi correctly expresses the concern of many of today's architects that, having expressed self and the times, they may have done little else. Certainly, those two expressions are poor contributions to bring unescorted to the completion of St. John's towers.

Finally, while it is a challenge to the profession as a whole, the real challenge is and always will be to the individual architect responsible for the important decisions involved.

> WALKER O. CAIN, architect New York, N.Y.

PORCELAIN ENAMEL CURTAIN WALLS

Forum:

FORUM is performing a valuable service to the profession by publishing articles on curtain walls such as the one in the March issue. I assume that this excellent study of the use of porcelain enamel in curtain wall construction will be followed by similar articles on stainless steel, aluminum and glass, perhaps even stone. The casual reader of the March article might get the impression that porcelain enamel is the only material suitable for the purpose.

Studies of curtain wall construction are of particular value now because this new development is moving so fast. I was interested to note, for example, that all of the nine examples shown in the article set their metal panels in a projecting frame. Not one of them uses a flush joint, which has until very recently been the general practice in this field.

The esthetic of this new skin needs some thoughtful study. Cutain wall construction has already produced several strikingly handsome buildings, but it shows a strong tendency to make all buildings look pretty much alike. Compare, for example, office building, school and county court house, as shown in the article. It is entirely understandable that architects are now concentrating their efforts on the practical details of curtain wall construction, but it is not too early to begin thinking seriously of some of the problems of expression that are being raised by the new construction.

JOHN HANCOCK CALLENDER, architect Project in curtain wall design Princeton University Princeton, N.J.

Forum:

Progress in the development of metal curtain walls in recent years is most encouraging and some of those illustrated in your March article are ingenious and pleasing and represent important steps in this development.

I am impressed by the almost universal dependence upon mastic or plastic materials for weather seals; materials which require *continued on p. 84*



On jobs like famed Parklabrea housing project, users report...



SMOOTH, densified fused resin-fiber surfaces assure finest architectural concrete—flawless and even textured, with no trace of grain pattern, knots or repair plugs. PlyGlaze cuts finishing time and costs. Eliminates expensive plastering. Ceilings and walls can be painted direct after a minimum of finishing. For details see Sweet's Architectural File or write:

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architectural FORUM / August 1955



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LETTERS

Continued from p. 80

or may require excessive maintenance. Some of the designs appear to require installation techniques rather more precise than is appropriate to present building frame tolerances.

It is my feeling that some intensive research is needed for improvement of curtain wall joint design.

EDWARD X. TUTTLE, vice president Giffels & Vallet, Inc., L. Rossetti Associated Engineers & Architects Detroit, Mich.

Forum:

... Rich in details and clearly presented. L. L. HUNTER, supervising architect General Services Administration Washington 25, D.C.

Forum:

A very commendable job.... BILL BRINKER Porcelain Enamel Institute, Inc. Washington, D.C.

Forum:

Your excellent article on porcelain enamel curtain walls in the March issue logically emphasizes the results of the industry's efforts rather than its manufacturing problems. There is, however, an interesting schism in the industry, caused by the fact that a permanent and perpetual strain is set up in the steel during the high-temperature fusion of the porcelain enamel.

Basically, there are two kinds of porcelain enameled curtain wall panels: one is assembled by mechanical means (screws, bolts, welding); the other, by adhesives. Of the nine examples shown in the article, four are of the first type, five are of the second. Of the four leading manufacturers of these panels, two use mechanical assembly and two use the adhesive assembly.

Mechanical assembly has been standard practice for 30 years. Adhesive assembly has been in use for four or five years. Performance is the real test, but we cannot wait 50 years for a decision. However, the following are a few tests which, if successfully passed, could lead to the assumption that the panel would endure for 50 or 100 years:

1. A pull test (150 lb. per sq. ft.) for separation or delamination of the outer skin from the inner a) after soaking 1,000 hours in soapy water, b) after ten cycles of freezing and thawing, and c) after heating in a furnace at 300° F. for five minutes.

2. A 5% gain or loss of weight to be permissible during each test.

3. Blow torch test for heat conductivity.

4. Impact test of 10 lb. dropped 10'.

HERBERT R. SPENCER, president Eric Enameling Co. Eric, Pa.

BIG CITY SCHOOLS

Forum:

The most important sentence in your article on New York City Schools (AF, March, '55) is "we come straight back chillcontinued on p. 88 THIS GREAT NEW PRODUCT PROVIDES

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The Sweet's Architectural File in your office has details and sizes of all Truscon Metal Windows. Consult it, or send coupon below for specific information.



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Seattle's new George Standring Memorial Hospital features Truscon Series 50 Interior Steel Doors. These flush steel doors and frames cannot warp, twist, shrink or swell. They are sound deadened to smother normal operating noise. Series 50 Doors are Bonderized for best rust protection and paint adherence, and finished with baked-on prime coat of paint. You finish paint to match decorative scheme. Series 50 Steel Doors and Frames save dollars on cutting, fitting, framing, hanging. Write for more details.



Pittsburgh's new Grant Store is built with Truscon "O-T"[®] Steel Joists. Open Truss Steel Joists are lightweight, fire-resistant, rigid and economical. They provide low-cost-per-square-foot construction with adequate strength and safety. They are self-sustaining. Any number of floors can be erected at one time with joists serving as working platforms. NOW! TRUSCON offers a NEW CLERESPAN[®] STEEL JOIST 96 FEET LONG. Write for details.

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LETTERS

Continued from p. 84

ingly to Topic A: 'How to Bring New York's Schools Down to Human Scale." And chill-ingly should be printed in awesome letters. It is later than we think. The real reason for Topic A must be failure to adequate sites when the land was first being developed. New York has been in the process of development some 300 years, California, about 100. California is filling up at a terrific rate. We, here, must become aware that now is our only chance ever to acquire the necessary sites. Later they can be acguired not only with all the problems of "tax losses, tenant dislocations" street closing, etc., but costing, say, \$100,000 an acre even in a relatively small city. The answer seems to be inherent in land planning.

At this time, only the concerted effort of land planners, educators who realize the educational implications of a site not overcrowded and some vision on the part of the public of how children learn and their potential value can succeed in correcting the awful situation.

> DOYT EARLY, senior architect School planning State Department of Education Sacramento, Calif.

Forum:

We are definitely opposed to high school building capacities in excess of 2,000 pupils where it is possible to plan for less and believe that high schools of from 300 to 1,000 pupils are more desirable from the viewpoint of efficient instruction and general operation. Our city elementary schools, K-6 with populations above 25,000, will range from an average of 300 to 1,000 pupils, and we prefer elementary buildings not in excess of 500-pupil capacity.

Our Ohio building code limits us somewhat in making certain building changes that we would desire both from the viewpoint of more pleasing and efficient building use and also as to possible reduction in cost. But we are moving toward lower ceilings, improved shape of building, heating changes, enlarged elementary rooms with work space, self-contained classrooms, storage facilities and improved play space.

> R. M. EYEMAN Superintendent of public instruction Department of Education Columbus, Ohio

Forum:

Your article should be valuable to those who are wrestling with the problem of school facilities in metropolitan areas. However, we Iowans would prefer treatises on school buildings for enrollments of 100 to 500. For example, we would like to see somebody come out with a "model" auditorium-gymnasium with adequate dressing rooms for a school of 300 to 400 elementary pupils and 200 high school pupils. Too many new schools are still being planned with small dressing rooms under the stage or the bleachers, poorly lighted, with improper ventilation or none at all. Right now there are four gymnasiums, three auditoriums continued on p. 92

HOW TO MARRY **BEAUTY with SAFETY** Architects: Hubbard & Plastering Contractor: Highland, Perkins & Will Grip Bros., Rockford 55,000 yards of plaster made with CERTIFIED PERLITE solved the problem of wedding BEAUTY with FIRE RESISTANCE in providing a lifetime interior finish for Rockford (III.) Memorial Hospital. And perlite cuts deadload on the structure, too. RODUCER GUARANTEES THIS PERLITE ASTM C35-53T nee (P) to the above up mee (P) Princhargh Teet This seal on CERTIFIED' PERLITE is your written guarantee of conformance to ASTM standards for quality, uniformity and dependability. No other plaster aggregate offers all these advantages: **GUARANTEED** to meet ASTM Specification C 35-53 T. QUALITY CONTROLLED - regular testing by Pittsburgh Testing Laboratory. LIGHT WEIGHT simplifies handling, reduces deadload up to 60%. FIRE RETARDANT constructions are lightest approved for columns, wall, ceilings. INSULATING values up to 4 times greater than ordinary plaster. TITE INSTITU 40th Stree 0 York 16, N. Y. New Not a brand name but a guarantee. Write for mplete data on certified perlite and for list manufacturers.

YOU CAN MAKE ENDS MEET IF THE **Right Pipe** IS IN BETWEEN

It's the unexpected expenses that make it hard to balance the budget ... and what's more unexpected than a pipe line that fails way before its time. If it happens, the bills for repair and replacement, often charged at overtime rates, and the slow-down to production, can present quite a serious threat to operation.

Fortunately, there's an answer to the problem. Wrought iron pipe. It has the unique ability of lasting a long, long time. And all the while it's in service, you're saving money. Write Department Z for our booklet, *Proof* by Performance.



A. M. BYERS CO.

Clark Building · Pittsburgh 22, Pa.



New Life library planning focuses its attention simultaneously on these 4 major points. Using scale models as shown here, our planning engineers put emphasis on economy, compactness and control, and solve interrelating problems before submitting photos. The question of appearance is solved beforehand: New Life furniture is famed for its cheerful elegance.

1 SHELVING



1 Shelving must be planned with consideration for book capacity, wall space, traffic pattern, natural lighting, etc. Slanted bottom shelves and pleasant, light finish are among New Life shelving's many advantages. 2 Catalog files, the key to the books on the shelves, should be placed strategically for readers' convenience. New Life's index drawers have exclusive features such as one-handoperated snap lock rods and edge-grain wear surfaces. 3 Control is maintained at the charging desk, from where no line of vision should be blocked. Placed close to administrative core, it controls entrance and exit. New Life charging desks are noted for their elegance and operational efficiency. 4 Reading area should provide ample, comfortable seating facilities, should utilize best means of lighting, and have an inspiring, flexible table pattern. The Freeline table is gracefully designed to give the reader unhampered freedom of movement.

JOHN E. SJÖSTRÖM COMPANY, INC. designers and manufacturers of

1737 NORTH TENTH STREET, PHILADELPHIA 22, PA.



4 READING

3 CONTROL







ERECTED IN JUST 5 WEEKS!

Allies Parking Garage Public Parking Authority of Pittsburgh, Pe. Planning Consultant: Ramp Buildings Corporation General Contractor: Ragnar Benson, Inc. Designed by: Moffman and Crumpton, AI.A. Leland W. Cook, Structural Engineer Structural Steelwork by: AMERICAN BRIDGE Building is 6 levels, 120' wide x 220' long. Erection of steelwork began Feb. 4, 1955, completed March 11, 1955.





Using high tensile bolts for field connections, AMERICAN BRIDGE makes quiet, speedy work of large mid-town structure

The Parking Authority of the City of Pittsburgh is answering the demand for new and better parking facilities by building one of the most unusual structures of its type to be found anywhere. And by using steel-frame construction

And by using steel-frame construction field connected with high strength bolts, the job is being handled so speedily and so quietly that folks on the street and in neighboring buildings are scarcely aware that a big new building is being constructed in their midst.

Erection started February 4, 1955 and was completed March 11, 1955 - an elapsed time of just 5 weeks!

Located on the corner of the broad Boulevard of the Allies and busy Smithfield Street in the heart of the Golden Triangle, the new garage is 120' wide x 220' long with six levels for drive-in parking. The slightly tilted floors do away entirely with ordinary ramps. It is designed with a center section 120' x 125' on slope and two level end sections 120' x 47'6". All connections were made with high tensile bolts. The 700 tons of structural steel framework was fabricated and erected by American Bridge. The fast, uninterrupted and unusually quiet erection of this modern parking garage provides another strong argument in favor of steel-frame construction and *bolted field connections* for buildings of any type and size. For American Bridge crewmen can make tight connections with high-strength bolts as efficiently and speedily as less skilled personnel can handle the more common methods. For detailed information regarding

your requirements, please contact the office nearest you. Our engineers welcome an opportunity to confer with you.

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Washington's first A-bomb resistant building air conditioned with MARLO equipment

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This unique building is air conditioned with Marlo equipment, including eight Spray Type Dehumidifiers with Cooling Coils, four ceiling-type Air Handling Units, 45 floor-type Remote Air Handling Units, and 78 Heating Coils.

Whatever your air conditioning problem, you'll find the answer in the quality line of Marlo equipment. Write to Marlo today for complete information.









SEE OUR BULLETIN IN SWEET'S CATALOG



LETTERS

Continued from p. 88

and 61 auditorium-gymnasiums being planned in Iowa to be ready for use in the fall of 1959.

> A. B. GRIMES, Supervisor of plant facilities Department of Public Instruction Des Moines, Iowa

HIGH VELOCITY AIR

Forum:

I have read with considerable interest your article on high velocity dual duct air conditioning (AF, April '55).

There are, of course, some serious problems still to be ironed out: for instance, labor relations and production problems, particularly relative to the control or diffuser boxes. However, aside from these immediate problems, the system has many applications, particularly in the modern type of construction where space conditions are becoming extremely serious.

This type of system can be used very successfully in air conditioning in modernization work in existing buildings and particularly when the installations have to be installed without material disturbance of occupancy. I believe there would be considerable savings in patching and redecorating.

We have just completed a high velocity dual duct installation in the Seamen's Bank in New York City where space conditions were very serious. In fact it was practically impossible to install a conventional system due to the limitations of the original building design which governed the floor-to-floor dimensions of the new building.

We have under construction a high velocity installation in a prominent club where again space conditions and disturbance of occupancy are very important. Also under construction is a large office building which will be used exclusively for the executive organization of a large oil company, where individual control of temperatures is of extreme importance. For this reason we decided to design a dual duct system so that there could be no question of having different temperatures in the various offices.

While there seems to be some debate about its costs compared with the conventional type of system, we have found that, considering the reduction in the amount of chilled water piping and drains and incidentals required and the saving in duct space, there is little or no difference in original installation cost. This does not take into account the added value of the high velocity system's flexibility not only of distribution, but of temperature control.

EDWARD E. ASHLEY, consulting engineer New York, N.Y.

Forum:

The statement "smaller ducts are easier and cheaper to install and insulate" is rather misleading as a generality. Our experience has been that high velocity airconditioning installations should be used with discretion and do not always necessarily represent a good economic first cost. *continued on p. 96*

In stores, restaurants, hotels, institutions... New, Versatile Consoweld 10 assures interior walls that please clients!

Color and beauty, style, easy maintenance, low first cost—you get these advantages with Consoweld 10 on interior walls. Consoweld 10—the new 1/10-inch-thick plastic laminate—can be applied directly over sheathing-grade plywood, gypsum lath, even over cement or cinder block. Carpenters can easily handle a Consoweld 10 installation using mastic-type adhesives and ...

Consoweld Twin-Trim⊛ Matching Mouldings, which make possible unbroken expanses of pattern and color in large areas. For horizontal surfaces, use either Consoweld 10 or Consoweld 6, the widely used conventional 1/16-inch laminate.

Consoweld is a high-pressure thermosetting laminated plastic manufactured in a wide selection of patterns, colors, wood grains, and marbles. Consoweld is produced in two thicknesses and a wide variety of panel sizes.

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towels and cabinets will insure washroom efficiency for world's most modern building

41-story Mid-America Home Office of The Prudential Insurance Company in Chicago.



THE Prudential Insurance Company of America, meticulous in its choice of quality products for its new Mid-America Home Office building in Chicago, on a competitive basis is installing Nibroc Towels and Nibroc Recessed Cabinets.

PRUDENTIAL

First wet strength towel—and still the finest—Nibroc Towels are super-absorbent, strong, sanitary, soft-textured. They speed up washroom traffic . . . stop waste because one towel dries both hands ... cut maintenance costs. More and more architects specify Nibroc Cabinets because . . .

Nibroc multifold cabinets hold 50% more-require less servicing. Available in 3 models-wall, floor and recessed. Wall cabinets in durable white enamel (with or without mirror) and easy-to-clean chromium plate or stainless steel. New, improved recessed dispenser with waste receptacle – loads faster, holds far more towels for washrooms with heavy traffic. Handsome 22-gauge stainless steel for long, trouble-free service. Dispenser and waste receptacle available separately for washrooms where desirable to stagger towel cabinets and receptacles.

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Use the finest-Nibroc Towels and Cabinets. For name of distributor see "NIBROC" in your classified directory or write Dept. NU-8, our Boston office.



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Preview by Monsanto

Reinforced plastic panels are used to give a terrace privacy and protection



Never before has a building material matched both the versatility and durability of panels that are molded of reinforced plastic.

These colorful panels, molded of fibrous glass bonded with polyester resins, are being used more and more in new construction and modernizing. Present applications include roof and sidewall insets, partitions, awnings, carports, windbreaks and planting boxes.

Ready-to-install panels are available in pastel and deep colors. Panels are translucent. They admit light but maintain privacy. No surface finishing is required.

The material is light in weight, dentproof, rotproof. It can be sawed, nailed and drilled. It weathers rain and snow, sun and temperature change.

Many building supply houses now carry stocks of

reinforced panels. They are available flat or corrugated, in a wide variety of sizes and colors.

Basic ingredients for the polyester resins which are used in molding reinforced plastic panels are made by Monsanto Chemical Company. These include Monsanto styrene monomer and phthalic and maleic anhydride.

The Department of Architecture of the

Massachusetts Institute of Technology has recently published a report titled "Plastics in Housing." This study was made possible by a grant-in-aid from the Market Development Department of Monsanto Chemical Company, Plastics Division. Copies of the report are available at \$2.00 each. Address Monsanto Chemical Company, Plastics Division, Dept. A-8, Springfield 2, Mass.



Hospital Speeds Patients' Records from Entry to Discharge





Woman's Hospital, Detroit



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Lamson eliminates all inconvenience to patients caused by delay in records handling. Relieves busy personnel from message carrying. Around the clock, it automatically delivers laboratory test reports, time cards, nurses' reports, correspondence and other intra-hospital communications.

For automatic discharge at a pre-determined station, the station number is dialed by turning two bands near the carrier's top. An electrical circuit is opened between two of the metal rings on the carrier. When brushes at a station contact these rings, the circuit is closed. This actuates a switch which throws a deflector across the carrier's path . . . discharging it. A Lamson Airtube Automatic Switching System can be installed quickly . . .

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LETTERS

Continued from p. 92

It is hardly correct to state that they produce good movement of room air without causing drafts. High velocity outlets should be used with considerable discretion if they are not to cause drafting.

While I have no detailed knowledge of the layout of the GM job, the use of 60 compressors of 20 hp each seems rather peculiar. This point bears further explanation.

The arrangement of the mixing boxes seems rather complex. It would be interesting to know whether they were of any particular manufacturer's standard design, or whether they were designed especially for this installation.

JOHN K. M. PRYKE

Slocum & Fuller, consulting engineers New York, N.Y.

· Reason for the 60 little compressors in this GM lab: GM does not make bigger ones. Answer to Reader Pryke's other question: the mixing boxes are of special design.-ED.

RECOVERY ROOMS

Forum:

After a year's experience with a recovery room in this 40-bed hospital, I would urge any architect to consider such a facility, even though it is generally considered unnecessary in a small hospital.

We had 340 major and 500 minor operations last year and found the recovery room invaluable in providing better patient care, saving nursing time, controlling relatives, and aiding public relations.

We took a patient room out of use and centralized oxygen, suction, resuscitation, drugs and supplies as appropriate. Even during a period of 125% ocupancy, we did not consider returning it to general patient use. In fact, it showed itself most valuable then by expediting postoperative care.

FREDERICK C. SAGE, administrator Jackson County Public Hospital Maquoketa, Iowa

KUDOS

Forum:

FORUM is a wonderful magazine in which to learn the latest progress in construction work. I read every issue. It stores up facts in my memory that I may use in future construction work that I may have to do. REV. JOSEPH W. HIRSCH, pastor

St. John's Church Front Royal, Va.

Forum: Recent issues of FORUM are dramatic and

> ALINE SAARINEN Bloomfield Hills, Mich.

WARNING

Forum:

creative.

Your beautifully done presentation of our showroom (AF, May, '55) will probably bring crowds to New Hope. To avoid disappointment, they should be warned that our showroom is open on Saturday afternoons only, from 1 P.M. until 4:30 P.M.

GEORGE NAKASHIMA, woodworker New Hope, Pa.



Over FIVE MILLION 8-inch (or equivalent) Vibrapac Block units were used in New York's modern Riverton Apartments (Starrett Bros. & Eken, Inc., builders). No multiple dwelling structure is too big . . . no single home too small . . . to enjoy the incomparable benefits of Vibrapac Block.

Many more modern housing-units to cost less by using permanently beautiful concrete masonry!

Economy alone would not account for the marked trend toward Vibrapac Block. Added to many other advantages, however, the economy factor carries a lot of weight with everyone aiming at good building practice. True structural economy involves not only *initial cost* but also years of *minimum maintenance costs*. The "bonuses" of concrete masonry are many!*

"What profiteth a man to build his house upon the sands" of economy, only to face excessive maintenancecosts later? Security against deterioration is all-important.

Since most men have to work the better part of their lifetime to acquire modern shelter, it's very vital to build for *permanent* beauty and decades of comfortable convenience. Modern concrete masonry provides many of the answers to problems of long-service shelter.



Whether plans call for a single family home, or a multiple dwelling structure, concrete masonry is practical,



* "Dense aggregate" Vibrapac block for exteriors . . . light weight aggregate Vibrapac block for interiors . . . pleasing color tones and textures . . . "built-in" insulation advantages . . . sound-absorbing qualities . . . permanent protection from termites and radents and from damp-rate of deterioration by weather . . . these are some of the many practical Vibrapac block "bonuses."

Initial cost of Vibrapac Block construction is low. Upkeep stays at a low minimum. Architectural beauty is longer-lived. Dollar-wise, security-wise, comfort-wise, it's best to build with Vibrapac Block . . . for both exteriors and interiors.

Permanent beauty at low cost!

Less time required for erection . . . reasonable initial cost . . . modular sizes that "make everything fit," thus simplifying installation of door and window jambs and equipment . . . varieties of color impregnations and textures in Vibrapac Block itself . . . and other unique advantages . . . all add up to "more for the money" in modern housing and other structures. Helpful booklet gladly sent on request. BESSER COMPANY, Box 179, Alpena, Michigan, U. S. A.



Miss Foster hates to lose her connections

Moving can be a hardship on employees if electrical outlets are not conveniently located.

Electrical availability for dictating machines, telephones, intercoms, and other electrically operated equipment can be quite a problem when office space is relocated. Whether you plan or build offices for your own use or for rental, it's good business to plan to have enough electrical outlets to provide for efficient space utilization — without costly replacement work and unsightly makeshifts. The answer to electrical flexibility is General Electric Q-Floor wiring, the system that makes every square foot of floor space available for outlets.

The General Electric Q-Floor wiring system is designed for installation with cellular steel subflooring. Every cell is a raceway for present and future circuit requirements. No costly alterations, no litter, no tie-up of space, no matter how often or how much your electrical requirements change. You simply drill a hole in the floor and pull wires to connect an outlet. Installations in the Celanese Office Building in Charlotte, N. C., in institutions like Central Power and Light Company's Service Center in Corpus Christi, Texas, and commercial buildings like the ultramodern Prudential Insurance Company Building in Chicago are proving that Q-Floor wiring gives the modern office complete electrical flexibility.

For more information on General Electric Q-Floor wiring systems, call your G-E Construction Materials district office or write to Section C51-84, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

Progress Is Our Most Important Product


Design fundamentals of the ALL-AIR HIGH VELOCITY distribution system

By F. J. KURTH

Vice President of Engineering

Anemostat Corporation of America

A national survey reveals that today, more than ever, engineers are studying, learning and using high velocity-high temperature differential air distribution. Here is a brief discussion of the advantages of the all-air high velocity system over conventional and mixed cycle (air and water) systems.

1. No Coils — No Clogging — No Odor — There are no coils in the all-air high velocity units. Damp coils collect lint and emit dank odors, and the coils must be cleaned periodically.

2. No Individual Fans — Filters — or Electric Motors — The all-air units operate entirely with air which is processed in the main equipment rooms. The 100% induction units utilize the kinetic energy of the high velocity air to mix primary air with the room air.

3. No Conflict of Trades — The all-air units are installed by the sheet metal trades only.

4. More Effective Use of Outside Air in Spring and Fall— More primary air is delivered to the all-air units than to induction coil units. This allows the engineers to operate in the Spring and Fall on outside air and thereby save refrigeration.

All-air high velocity units offer scientific air diffusion. Each high velocity unit is provided with an aspirating or high induction type air diffuser which is scientifically designed to diffuse air without drafts. Each unit can be pressure balanced by an easy-to-operate balancing device and a calibrated orifice. In fact, the Anemostat all-air high velocity system can be balanced more accurately than other systems and in less than half the time required to balance a low velocity system. High velocity units require practically no maintenance after installation. They have valves of the non-corrosive, die-cast, "rocket-socket" type, which are patented by the Anemostat Corporation of America. All units can be adapted for the following variations:

1. Single duct for zone control or individual thermostatic or manual remote control.

2. Dual duct for thermostatic control or any other type of control.

3. Single or dual duct units with the diffuser fastened to the unit, or remote from the attenuating unit.

4. Under-the-window, sidewall or ceiling type installations.

5. Can be provided with standard aspirating diffusers or 100% induction type diffusers.

6. Induction type units handle temperature differentials up to 33° below ambient.

Selection Manual Contains Data on High Velocity Units

New Selection Manual 50 gives extensive selection and application data on high velocity all-air distribution systems. Write on your business letterhead for







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Provides COOLING, HEATING VENTILATION, ODOR CONTROL DRAFT ELIMINATION All at minimum cost

UNIT VENTILATOR PRODUCTS

AMERICAN AIR FILTER COMPANY, INC. SYSTEM OF CLASSROOM COOLING, HEATING AND VENTILATIN

ool savings!



MICHIGAN. Installation of Herman Nelson Unit Ventilators at the Ralph J. Bunche School, Ecorse, Mich., features unique DRAFT|STOP Wall which, in addition to eliminating window downdrafts, serves as an economical wall finish. Note how filler section fits around pilaster—another example of Herman Nelson flexibility. Superintendent of Schools: Ralph E. Brant; Architect: Bennett & Straight; Engineer: Benjamin Schulz & Associates; Mechanical Contractor: Standard Plumbing & Heating.

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American Air Filter Co., Inc. Dept. AF-8 Louisville 8, Kentucky

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- □ Light|Stop Curtain Accessory
- Dust Control for Woodworking Shops

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Men behind the blueprints

in this month's FORUM



Howard Staple





PLANNER: Ernest J. Bohn is one of the best reasons for having confidence in the quality of Cleveland's budding plans for redevelopment (p. 130) and for believing that something will come of them. Bohn is a planner of distinction and a man of action. Trained as a lawyer, he wrote and obtained passage of the Ohio Public Housing Law, the first enacted in the US. Today he is director of Cleveland's housing authority, chairman of its planning commission and an honorary member of the local AIA. He might have been Cleveland's mayor, had a leading newspaper and political party had their way. But Bohn honestly thought housing and planning needed him more.

the magazine of building

ARCHITECT: Minoru Yamasaki of Leinweber, Yamasaki & Hellmuth is one of the profession's most gifted designers. An admirer of the work of Ludwig Mies van der Rohe—particularly of his Chicago apartments at 860 Lake Shore Dr.—Yamasaki finishes his designs with comparable precision. This is made clear in the details of his handsome new school addition at Grosse Pointe Woods, Mich. (p. 124) and the deft manner in which it is married to the existing building. Because both architect and client credit each other for the success of this project, it was undoubtedly the ideal relationship between the two that brought success.

CLIENT: Frank Sleeter, RCA's vice president for Facilities Administration, turned the client's role into an unusually active one during the planning and building of the company's new headquarters outside Camden, N.J. (p. 142). Says Engineer Sleeter: "Owners are too often inclined to place the full responsibility of planning new facilities in the hands of an outside company, without much 'preplanning' by their own people." Under his leadership, RCA hired a methods man to help the company think through its layout and work-flow. RCA resists the tendency to expand its own small engineering staff, uses it instead to seek out and coordinate top specialists in each field. These, the company has found, pay for themselves twice over: they have the authority that cuts through "armchair quarterbacking" from a corporation's many executives, and they do a more creative job than a lowerpaid staff of "captive" architects and engineers.



COULD THIS BE TIMES SQUARE TOMORROW?

The home of the spectacular is in spectacular need of rejuvenation. A proper area for exuberant change, a storied mixture of Coney Island and the great advertising business at play, Times Square recently has been running out of imagination. Never yet has it traveled in the direction of modern architecture, modern display or modern city planning, which might do these three things to redevelop this central symbol of the nation's entertainment industry:

- Open up plaza areas (scheme A, left)
- 2. Improve circulation of both people and cars (scheme B, right)
- **3.** Stir the area to new life by extending the present palette of advertising signs

The faculty of Harvard's Graduate School of Design gave Times Square to their students last spring and told them to improve their investment. Here, on 8 pages, is a report on the stimulating result.



Photos: Hans Namuth





47 TH AV A H 46TH BR T 45TH I M E 5 44 тн 100C 43RD 42 ND STREET

TIMES SQUARE TODAY: Gleaming by night

Nobody really expects Times Square to be golden, as well as glittering. Yet increasingly this area in New York where by tradition the lights are brighter and the blondes are blonder has been leveling off into dullness, the one fatal mistake for show business on either side of the footlights. A year ago the Broadway Assn. got New York City to pass zoning legislation to outlaw the shooting galleries, auction rooms, and other low-lighted, shoddy sucker traps which have increasingly been using the area, without contributing to its gaiety. But the prospect of improving a place like Times Square by legislation is like papering the house at a lagging musical. The vitality should generate itself, physically.

In the Times Square program with which the faculty of Harvard's Graduate School of Architecture challenged



Photos: Andreas Feininger-LIFE

... glutted both night and day

their upperclass students a few months ago, there was little attempt to make an esthetic space of this folkway, but there were some intimations of what is needed:

"Times Square is not a square but a crossroads. It is congested.... It is insufficient.... Yet it is an essential part of the city and can possibly be improved and enlarged if we do not pretend to make it an ideal space but a better suited place for crowds to celebrate great events, for people to see one another, for modern advertising techniques to be applied and for the best modern artists to find greater opportunities of showing their creative capacity....

"We want continuity between the new Times Square and the existing one. It is a landmark . . . its crowded character should remain, as it is a part of the life of the place. . . . To find trees and space, one does not go to Times Square . . . "

None of the teams of students used trees, but all of them brought four general ideas into play in their solutions: 1) They blocked side streets to unify the space. 2) They created extra space for pedestrians by moving foot traffic to a level above the street, accessible by escalator and capable of containing great gatherings. 3) They separated the pedestrian and the car, leaving cars on street level (and sometimes also ramping them over the plaza level). 4) They brought a new possibility for playfulness into outdoor advertising by using space trusses and demountable elements—three dimensional frameworks instead of the usual flat-faced graphic art approach to Times Square display.





Revolving cubes of various colors, surfaces and messages make up display suggestion. Model (left) was made by dabbing plaster on wire frames.



Scheme A-broad plazas, circulation on two levels

The first student solution widens circulation areas. Automotive flow remains at street level, but pedestrians move to plazas one story up. The basic architectural feature is a three-dimensional skeletal structural system to be used as a framework for ads, shops and pedestrian ways. Five obsolete buildings, all low, were removed, and the present spectaculars were scraped off the others, to be replaced by new techniques.

Auto traffic is routed as at present except that 44th St. between 7th and 8th is blocked off, as is 47th between 6th and 7th Aves. The rerouted traffic feeds new parking towers, and relieves the point of greatest congestion in Times Square now. The Criterion Theater is remodeled. Another change: the news ribbon on the present *Times* building gives way to a 100' x 175' screen erected on one parking tower to provide news in colored pictures. New tower might include elevator for top viewing.

PARTICIPATING STUDENTS: Donald Bittorf

John Coffin Alexander Cviyanovich James Economou Martin Growald Douglas Haner John Haro Takeo Hatae Peter Kamnitzer Victor Mantilla-Bazo George Mathey Harry Merritt Henry Millon Jehangir Mugaseth Walter Newman Patrick O'Leary Lauren Otis Leon Pernice **Richard** Reed Roberto Regala Gerald Robinson Gabriele Scimeni Roger Small Walter Sontheimer Colin Stewart Rigomar Thuermer Robert Williams Peter Witmer Bernard Zemb

Scheme B-an overpass, circulation on three levels

Broadway traffic is handled dramatically, lifted up from 42nd St. to 48th St., bridging not only the present street level but an elevated plaza pedestrian level as well. The present street level remains for service traffic (taxis to theaters and delivery trucks), simplified somewhat by the addition of loops to the side streets (from 43rd to 45th, for instance). This scheme would not only speed the through traffic, but would enable people to see Times Square in a hurry, without leaving a taxi. The Astor Hotel could have a car lobby on its lower level, and its main entrance for pedestrians one escalator flight up.

This group of students attempted to restore the original character of many of the old buildings on Times Square by stripping them of the applied advertising. To compensate, new structures solely for advertising and other blank walls such as those on the added parking garages were introduced.



RAMP

-> W. 43

GARAGE

Four experts in favor of loosening the square:



Dean and students

Dean Jose L. Sert of Harvard, who supervised the problem with Professors Ronald Gourley and Jean Paul Carlhian, says about Times Square: "It is like a very big stage. The buildings are like clothes hangers for spectacular displays and advertising. Times Square is a noisy area and the students were directed to try to keep it that way. . . The colors should be as vulgar as possible. There should be no trees. Some of the students had in mind a pleasant place with lots of little shady corners and nooks, but I told them that was not right for a central entertainment area. . .

"For too long the advertising people have been engaging not the great artists but fourth-rate imitators of the great artists. Why not get the real thing in advertising art and display?... Our symbols are stale today. Instead of flat billboards, elements should be used in depth....

"The schemes are based on the ideas of mobility and change. The same thing was true of the squares in Italy when they were alive, before they became antiques. People constantly were hanging things up on their walls, then changing them. . . .

"Folklore is considered sacred only by old countries in Europe. This country has not gotten that far. Here we have a healthy attitude of destruction. We paint something, then we paint over it. The same thing was true at the height of the Renaissance when the painters were creating the folklore of today . . . many of the best of the paintings of the Renaissance were actually painted over earlier paintings on the same wall or canvas."

12

T. J. McInerny, managing director of the Broadway Assn. (an organization devoted to protecting and improving the street), says: "They've got it in a nutshell. We want continuity between the old and new. We know you can't make Broadway at 42nd over into Fifth Ave. at 57th. You don't want to. You'll lose what it is. It's a showroom, a great merchandising display area.

"As long as existing useful properties were not knocked out, this scheme would be good. There are plenty of useless properties that could be removed, but I'm glad these people didn't treat it the way some planners would treat a slum area—raze it, wipe it out completely. . . .

"Our organization is trying all the time to improve the street by bringing in stable tenants, but it's hard; some landlords won't make any improvements, any. Property doesn't change hands much around Times Square, like in other New York areas; you'd be surprised. It's static—absentee ownership, estates, people in California.

"I don't know about the change in advertising signs. So far as I'm concerned the people who make the spectaculars do some very fine things; they've been breathtaking, eye-openers, and I wouldn't want to be quoted otherwise.

"Don't get the idea that nobody cooperates. When we want something objectionable taken down, like that four-story Marilyn Monroe sign (not lewd, not indecent, just bad taste) sometimes it happens. But it never used to, as long as those two nude figures were standing up on top of the Bond store. If we objected to anything they'd point at those two figures and shrug. I understand those two nudes were approved by some municipal art society before they were put up. That's art? But they're gone; there are two Pepsi-cola bottles now. We'd rather have the bottles."

Out, body; in, Pepsi



Robert Dowling, whose City Investing Co. is deeply involved in Times Square real estate, liked the redevelopment proposal in general, wondered about particulars. "Times Square should never be *dignified*; it's a carnival place. Trying to dignify it would be like putting a high silk hat on Davy Crockett and taking away his coonskin. But I'm a great believer in planting. Times Square could use a lot of trees and shrubs; if well planned they wouldn't interfere with the view of the signs. It could be like the 1939 World's Fair—do you remember all the planting there and the way it looked at night?

"There might well be lighted fountains too. I'll probably get shot for this, but I think Father Duffy's statue is completely uninspired in its present location. It belongs somewhere else in the city. I don't know about that overpass suggestion; I think we're trying to get away from that sort of thing in our cities. This month we're going to start ripping down the old Third Ave. El, and there'll be a big celebration.

World's biggest billboard



Overpasses cut the view and isolate spacethey're unattractive.

"The elevated pedestrian plazas are a good idea. I don't know about the advertising tower. One was put up south of Times Square, you know, years ago, a building just for advertising display, and it never succeeded. The people who are doing the signs now should continue; they'll learn to do better. I'm against control of signs, but in favor of more continuity. On our block front (between 45th and 46th) we're taking down five signs and making one big one, 65' high, 230' long, that goes 50' around each cornerthe biggest in the world. I didn't like those Bond figures, but I don't like those Pepsi bottles either . . . it takes a lot of ingenuity to achieve that much ugliness-you really have to concentrate.

"We should improve what we've got. I'm for a practical cleanup which will pay."

Photos: Hans Namuth; Todd Webb-Fortune; R. K. Martin; F. Roy Kemp



Constantino Nivola, sculptor and instructor of design fundamentals at Harvard, who developed the model-making technique, says:

"I thought that this was a case in which it was not necessary to represent literally the

city blocks in the area surrounding Times Square, but that a symbolic or abstracted suggestion of the city appearance as a saturation background would emphasize the new solution of the students.

"I spent many hours, late at night, working on the model with the students. Maybe the many cans of beer, or the similarity of the problem confronting us brought back memories of Milano, where every year architects, painters, sculptors, even poets would work together on some projects for the national Fiera Campianaria, an industrial exposition, a manifestation, in my opinion. more interesting than the Triennale. In the Fiera Campianaria, industrialists take great pride in presenting their products to the public with the grace of manners and the dignity of art. Why could not Times Square become a tournament of gallantry for the business firms competing there with the best forms of institutional advertising?

"I know that many artists would rather see their work in the open air, functioning with the elements of wind, water, sunlight, smoke or fire, than in the dark uninhabited parlors of collectors, or forgotten museum storage rooms. These artists would gladly accept the challenge to their imagination in using new materials in large scale.

"I think this is the direction artists should take if they hope to find the 'lost client.' If artists and architects fail to meet the challenge of making cities more beautiful, others, less equipped with imagination, and groups lacking civic responsibility will continue to perpetuate the architectural evils of our cities."



View uptown from behind *Times* building in Scheme A. These models and drawings of various solutions will go on exhibit at New York's Museum of Modern Art next spring.

Photos: Hans Namuth



Registration line was 1,624 long

AIA CONVENTION

Community architecture, a lopsided election, members' portraits and a 65-year-old building mark architects' Minneapolis meeting

In round numbers, 1955 can be given as the date American architects transferred their affection from the individual building to the architecture of the community as a whole.

To be sure, there has been scattered talk about community architecture before, but not until the American Institute of Architects assembled six weeks ago in Minneapolis for its 87th annual convention had these men seriously discussed how to build for the community and not simply for the individual client. Community architecture was the theme of the keynote address by Architect-Planner Albert Mayer who blamed our urban chaos upon the uncoordinated and inadequate use of single remedies. (Excerpts from his talk appear on p. 122.) It was also the theme of the closing address by Dutch Architect Willem Dudok, winner of AIA's coveted gold medal, who praised US architects for their beautiful buildings but chided them for their ugly cities. (Excerpts from his talk appear on p. 123.) In between, 15 other speakers and panel members attacked the subject from as many different directions.

Few delegates argued with what they heard, for they had lots to learn about this new subject and, anyway, it was not a controversial subject like some that popped up in business sessions and corridors. Most controversial was the question of who should be AIA's new second vice president-a position of unusual significance this year because the new first vice president, Earl T. Heitschmidt of Los Angeles, is said to be uninterested in promotion to presidency. The old guard put up John N. Richards, an able administrator but a relatively unknown designer from Toledo; the younger, more progressive delegates nominated Hugh A. Stubbins, also an able administrator and a very talented and widely known designer from Lexington, Mass. Despite considerable electioneering by his friends. Stubbins was decisively defeated (223 to 482).* Thus once again the younger men, who have been trying ever since 1948, failed to break into the AIA hierarchy with a genuine design architect. Not since the regime of Ralph Walker has AIA had an officer who would be recog-(Continued on p. 116)

^{*} Although AIA voted Stubbins down as an officer, one of its committees honored him highly as a designer by recommending him as the architect for the exposition hall the State Department plans to build in West Berlin.



New President, George Bain Cummings of Binghamton, N.Y., receives congratulations of retiring president, Clair W. Ditchy of Detroit. Cummings is best known for his interest in city planning and civic improvement-a reputation befitting the convention's theme: "designing for the community." He is a member of the local city and county planning boards and is vice chairman of the state's Building Code Commission and a consultant to its Department of Housing. In 1949 the central New York Chapter cited Cummings for "public service in civic improvement." A 65-year-old New Hampshire native and Cornell graduate, Cummings has been an up-state New Yorker since 1920 and a partner of Charles H. Conrad since 1926. For the past two years he has served AIA well as its hard-working national secretary and has earned the reputation of being a notch or two more progressive than his predecessor.

Photos: Reynolds; Robert R. Blanche







Panel planning: four members of the panel plan their discussion of the subject "keeping the client a friend." (L to r): John R. Magney of Minneapolis, M. Edwin Green of Harrisburg, C. E. Silling and William S. Marcum of Charleston, W. Va.

Three speakers: Thomas Coogan, past president of the National Association of Home Builders, called development housing a neglected architectural opportunity; Architect-Planner Albert Mayer of New York delivered the keynote address, "Designing for the Community"; and Commissioner James W. Follin told of the progress of his Urban Renewal Administration.

New officers and directors. Front row (1 to r): Secretary Edward L. Wilson of Fort Worth, Second Vice President John N. Richards of Toledo, President George B. Cummings of Binghamton, N.Y., First Vice President Earl T. Heitschmidt of Los Angeles and Treasurer Leon Chatelain Jr. of Washington, D.C. Second row (1 to r): Directors Marcellus Wright Jr., of Richmond, Va., Frank N. McNett of Grand Island, Neb., Bryant E. Hadley of Springfield, Ill., Herbert C. Millkey of Atlanta, Matthew W. Del Gaudio of New York, and Bradley P. Kidder of Sante Fe, N.M. Back row (1 to r): Directors Raymond S. Kastendieck of Gary, Ind., Austen W. Mather of Bridgeport, Conn., Albert S. Golemon of Houston, Donald B. Kirby of San Francisco, and Waldo B. Christenson of Seattle. Not shown: Director Clyde C. Pearson of Montgomery, Ala., and Executive Director Edmund R. Purves of Washington. Mather, Kidder, Del Gaudio and Hadley are new directors.

nized beyond a narrow circle either as taking a strong design position or as a strong man of affairs—a fact many architects find difficult to reconcile with AIA's need of authority in the world.

Why was Stubbins defeated? One factor: AIA elections are not by vote of the membership but by vote of convention delegates. And, most AIA conventioneers are habitually those architects who have time to spare (at least a week), money to burn (at least \$1,000 including wife's expenses) and an urge to travel.

Young architects lack at least one of these qualifications; hence AIA continues to be ruled by the older set.

Other convention highlights:

▶ At a preconvention meeting the Association of Collegiate Schools of Architecture considered a resolution for industry-wide education (see p. 166). Although there was lively discussion of the proposal, the members preferred to concentrate on the aptitude testing program which is about to be launched. Later the AIA's new board of directors approved the resolution which had been offered to the educators.

> The treasurer's report showed that membership, having trebled since the depres-



sion, now stood at 10,369 and that income in 1954 totaled \$616,847.

▶ As they do each year, AIA and the Producers Council commended a long list of manufacturers for the design of their product literature. Top awards went to the Acoustical Materials Assn., E. F. Hauserman Co., Architectural Woodwork Institute, Knoll Associates and LCN Closers Inc.

Architectural design was relegated to such rump sessions as that held one night in a Minneapolis University fraternity house. Here 58 student-delegates discussed architure with a dozen designers of note, including Eero Saarinen, Harry Weese, Hugh Stubbins, John Lyon Reid, Ralph Rapson, James Hunter, Neil Connor and Francis Lethbridge.

▶ After a heated debate, the convention voted to let architects' portraits appear in manufacturers' advertisements, provided each such use is submitted to AIA's Washington office to determine whether or not it is in the best interests of the profession. The delegates apparently took to heart the words



Side show, "Architecture—USA," drew big crowds such as this SRO audience. Attraction: sound-movie presentation of 140 color slides of contemporary architecture prepared by Architect Ralph E. Myers (at projector) of Kansas City, Mo., with aid of grant from Arnold W. Brunner Scholarship of AIA's New York Chapter. Prints are available at AIA's Washington Headquarters at \$140 each or rental of \$5 per day.



Among exhibits of manufacturers' products, Sisters Norbert Ann Caspers (1) and Johanna Becker discuss tile with T. W. O'Laughlin. Both Sisters are high school teachers in St. Cloud, Minn.

Architectural display of work of new AIA fellows provides backdrop for informal conference. (L to r): Roy Jones of Minneapolis, Carl Feiss and Thomas Locraft of Washington and Sherley W. Morgan of Princeton, N.J.



Planning conference: Mr. and Mrs. Thomas E. Cooke of Chicago study day's program during between-sessions recess.





AT PRESIDENT'S RECEPTION

General James Van Fleet, who addressed convention on "Homes for Korea" program, elaborates on subject for benefit of Retiring President and Mrs. Clair W. Ditchy.





Mrs. Wendell Spackman of San Francisco (1), Bernard B. Rothschild of Atlanta, William S. Allen Jr. of San Francisco and Wendell Spackman.



G. Holmes Perkins of Philadelphia (1), Walter F. Bogner of Cambridge, Robert S. Hutchins of New York, Ralph Myers of Kansas City and Hugh A. Stubbins of Lexington, Mass.

Francis D. Lethbridge of Washington, Neil A. Connor of Washington, Marion Manley of Miami and Mrs. and Mr. Harris Armstrong of St. Louis.

Photos: Reynolds; R. R. Blanche; FORUM staff

AT FORUM RECEPTION



Albert Mayer (1), who delivered convention's keynote address, discusses community building with David Aldrich of Providence and James A. Brunet of Excelsior, Minn.



D. Stewart Kerr of Pasadena (1), Herbert B. Crommett of St. Paul and George V. Russell of Los Angeles.



Charles B. Genther of Pace Associates in Chicago (1), Robbins H. Miller of New Haven and Neil A. Connor of Washington.



S. Kenneth Johnson of Los Angeles (1), Burnett C. Turner of Los Angeles and Thomas F. Ellerbe of St. Paul.



J. T. Beem of Los Angeles (1), George Fraser of Providence and Temple H. Buell of Denver.

of Delegate Morgan Yost who from the floor decried the fact that builders were receiving full credit for buildings shown in ads. Yost wound up with this ringing admonition: "The time has come for architects to put themselves forward as people and not to wear a veil in the market place."

In its final business session the convention delegates 1) gave the public relations committee \$75,000 for an expanded threeyear program and upped the dues of those making less than \$6,000 from \$25 to \$35 to help pay the bill. 2) Disapproved limiting the president's term to one year. 3) Took the power of disciplinary action in cases involving professional conduct away from chapters and gave it to regional committees whose findings will be subject to review by a national committee. 4) Defeated a resolution encouraging the use of competitions to select architects for important public buildings. Although most of the floor discussion favored the resolution, the vote indicated that the old guard is well satisfied with the way public building jobs are presently awarded. 5) Voted to restudy AIA dues. 6) Rejected a proposed poll of membership opinion on AIA's election methods. 7) Urged Congress to shelve its plans to enlarge the center section of the Capitol. 8) Referred to committee a plan for better integrating younger architects into the profession. 9) Tabled for further study a resolution to reduce the number of convention delegates per chapter and thus streamline the convention's business meetings.

▶ For fun, the delegates made an all-day junket to a granite quarry, viewed Steichen's "Family of Man" photo exhibit at the local art institute, watched the twin cities' talented youngsters in a "Festival on Ice," tasted a scrapple breakfast at the Radisson Hotel, a smorgasbord dinner at the St. Paul Auditorium and cocktails at the reception for retiring President Clair Ditchy at the new Prudential building.

▶ Of Minneapolis' many notable buildings, three received particular acclaim: the Christ Lutheran Church by Saarinen & Saarinen, St. Olaf's Church by Thorshov & Cerny and the 65-year-old Metropolitan building by E. Townsend Mix, an exciting fantasia of glass, light, wrought iron, brass rails and open elevators (see p. 120).

Convention attendance, at 1,624*, was down for the third time in a row, due perhaps to the presumption that Minneapolis holds fewer attractions than Boston and Seattle, and to the growing importance architects attach to regional meetings. Next year's convention in Los Angeles will determine whether or not the downward trend in attendance has been established. Meanwhile, the Washington staff is already at work on AIA's big centennial in 1957 in Washington, D.C.



Willem Dudok is wreathed in smile and Gold Medal ribbon as AIA's retiring President Clair Ditchy prepares to hand him rolled citation. Ditchy wears fellow's medal.



Ernest Born, San Francisco



Investiture ceremony includes hanging of medal and maroon ribbon around neck of each new fellow. Here Alexander C. Robinson III, of Cleveland, chancellor of College of Fellows, makes presentation to William H. Deitrick of Raleigh. Right: pleased expressions on five others as they are greeted by chancellor.





Lady fellow, Elisabeth Coit of New York City, who was recognized for literature and public service, was awarded a buss as well as a medal, which accounts for group's laughter. College of Fellows has honored only three other women.



Karl F. Kamrath, Houston



Henry L. Wright, Los Angeles



Igor B. Polevitzky, Miami



John Lyon Reid, San Francisco

^{* 636} members, 63 associates, 438 guests, 58 students, 384 exhibitors, 43 members of the press and 52 members of the AIA staff and board.





New fellows are lined up behind speakers' table ready to receive certificate and handshake from Ditchy—like Robert E. Alexander of Los Angeles in foreground. Only about 3% of AIA's membership has been so honored "for distinguished performance in design, education, construction, public service or service to AIA." This year's number of new fellows (42) was bigger than usual (see list).

Robert E. Alexander* George B. Allison* Harris Armstrong* Donald Barthelme* Walter F. Bogner Ernest Born* Frank A. Childs* Anthony S. Ciresi* Hervey P. Clark* Elisabeth Coit Harry F. Cunningham William H. Deitrick* John C. Dennis Howard S. Eichenbaum Louis McL. Fisher* Noel L. Flint* Raphael N. Friedman Philip H. Frohman* Frederick G. Frost Jr. J. Lister Holmes* Thomas W. Jamison Jr. Karl F. Kamrath*

Oscar T. Lang* Ernest Langford Arthur Mann Lloyd Morgan* Charles M. Nes Jr.* Ernest Pickering Igor B. Polevitzky* Andrew N. Rebori* John Lyon Reid* John N. Richards Isidor Richmond* Louis Rossetti* Donald K. Sargent* Dewey A. Somdal Leonard A. Waasdorp E. Todd Wheeler Julian H. Whittlesey* Fred T. Wilson* Samuel Wilson Jr. Henry L. Wright

*Recognized for distinguished design

At annual banquet architects and wives dressed up to watch investiture of new fellows and to hear address by Willem Marinus Dudok of the Netherlands, AIA's Gold Medal winner.

42.9





FANTASIA IN GLASS AND CAST IRON

Of all the many modern buildings in the Twin Cities, this 65-year-old most excited AIA convention-goers (p. 114). In 1890 people were not yet blasé about piling story upon story upon story and then whizzing up and down. This building shows their delighted excitement about these marvels; wherever you are, you know you are in a multistoried hive. Essentially the building is 12 stories of galleries around a great skylighted court. The galleries are floored with translucent glass, 1" thick, through which the patterns of moving footprints show. ("People are walking on top of me!") To make the most of the skylight, partitions between galleries and offices are all clear glass, gallery balustrades are open panels of ornamental iron, and open elevators ride in open shafts, letting everybody-passengers, gallery standers and office workers-enjoy the excitement of the light, glassy, lacy interior.

Kenneth Ober

When the building was opened, it was said "the style is strictly modern and as original as may be in the nineteenth century." Today, people describe the interior with surprised respect for qualities lost by the twentieth century.



Outside, building is stone fort topped by bandstand.



Looking across, visitors to Metropolitan building enjoy symphony of ironwork and glass. Building was designed for Northwestern Guaranty Loan Co. by E. Townsend Mix.

Looking up, visitors see almost nothing but glass, including gallery floors. Looking down (opposite), visitors see concentric squares of brass railings and iron balustrades focusing on marble floor—an invitation to suicide.



EXCERPTS

Opinion and comment

on the building industry from the rostrum

at the AIA Convention



Opinions expressed in these excerpts are not necessarily those of the Forum's editors

Creating community

Excerpts from the keynote address by Architect Albert Mayer before the recent AIA Convention in Minneapolis

Community has been breaking down in the Western World ever since the Industrial Revolution accelerated the creation of slums. And, in spite of and also because of the new powers given us by modern technology which could release us, the quantity and rate and multiplicity of deterioration is now bigger, more headlong than ever.

Traffic has grown from a headache into a desperate disease. The symptoms are the prohibitive economic costs of lost time; the noise, confusion and nervous tension; the rising accident rate; the frustrating search for parking; the canceling out of the benefits of the shorter work day by the longer and more enervating journey to work; the week-end ritual-and-ordeal of trying to find the countryside; the spread of these ills to much greater distances beyond the city, into and beyond former suburbs and new suburbs. And the tragedy of this traffic tumult is ironically this: modern technology with its automotive miracles and its roadengineering brilliances, which could give us release, are actually deepening and widening the difficulties by superimposing themselves on obsolete patterns, making ultimate solutions more costly and maybe impossible. Glittering opportunities have become splitting headaches, in this as in so much of the technological promise of modern life. Great tools have become great nuisances. Instead of using great new tools for a great new life, we are using them to prolong and to deepen obsolescence, to prolong what should be replaced.

The new means of transportation which have displaced the horse and buggy and the brewer's big horses have made a shambles of the city's equispaced gridiron streets which were then suitable. What were once communities have been mercilessly dissected. Beyond the city the automobile could and should have made the countryside more accessible. Instead, helter-skelter development has been enabled to go farther and farther out, so the country has receded and we are farther away than ever, in miles and travel time.

The basic defect is that all our new shiny tools—telecommunications, the automobile, the airplane, electric power, highway engineering, all developments making for a new freedom—make us in a sense too free, and permit an unprecedented indiscipline in development. They are being used without planned control or foresight, the dynamics of city, suburban, county, regional expansion being in the hands of the speculative builder with no permanent interest in his product because he "borrows out" and moves on. In the long run, he really has a vested interest in instability and obsolescence, because he can then build newly in fresh areas. Nor do public agencies require him to build-in recreation or community facilities. Indeed, in the long run they have to chase after him to complete his job.

The present prevalent use of single remedies, ingenious and spectacular though they may be, is naïve and inadequate. They sometimes bring no relief and they sometimes bring deceptive relief because after a little while things are worse than ever. It just is not that easy. Let us examine a few of these magic single solutions, and see what happens with them.

Traffic. Brilliant and gifted engineers have injected street widenings, parkways, freeways, parking meters, parking garages, off-street loading, three-level intersections and marvelous cloverleaves. All wonderful, all spectacular, all costly and all, ultimately, self-defeating or nearly so. In the case of parkways, for example, the knowing motorist, to save time, finds himself forced at peak times back to the old two-and-threeway by-ways that these parkways were supposed to relieve. In fact, in this singleremedy racket, it is often difficult to tell which is the remedy and which is the disease in our urban mix-up. There are always more cars waiting to use the nice new facilities, at both ends. There is a floodcontrol analogy from which we have got to learn. They no longer hope to control floods only by higher and higher levees and dikes near the mouth, as they used to do. They have finally grasped that they have got to diminish the amount of water to be handled by means of forestation and catchment of the headwaters. Then only, when the amount is rationally diminished, can you handle the problem. And similarly, we have got to work out a comprehensive program of land and people in relation to living, work and play, thereby diminishing by rational disposal of people and functions the now ever growing need for movement.

Toll and through ways, with limited access, are wonderfully straight, wide and speedy. The engineers who predict traffic volumes are always pleased because their estimates of volume are greatly exceeded. This is wonderful for the bond-holders, but mournful news for us users, and proves how we are chasing our tails.

The through ways have two great defects: the traffic they dump at the big cities plays havoc with the cities and, second, the state regards through ways as a single, uncontinued on p. 170

The city beautiful

Excerpts from an address by Willem Marinus Dudok of Hilversum, The Netherlands, upon his receipt of the Gold Medal at the AIA Convention in Minneapolis

In your big cities I have been fascinated by the architecture which is mostly a spatial ordering within extremely simple enclosures -ambitious work, sharp, without hesitation, through unlimited material means impeccable of execution, a delight to the eye, especially to the eye of an architect who has always been obliged to work with limited means and yet has had a keen desire to realize his dreams. I refer to your architecture with very much glass. This more or less cerebral work I call "spatial engineering." Of course, this spatial aspect is an extremely important side of architecture. But I wonder if it is really everything-if human life finds sufficient expression in these essentially hard, razor-sharp buildings. I wonder if in this architecture sufficient expressive value comes to the fore and I somewhat doubt if talented younger architects will be contented with this art in the long run. I wonder if they will not be more open to the romantic element, which after all is eternally human.

However this may be, when I stand before these buildings there comes a feeling of discord with what has been reached—a craving for a continuation, for results on a quite different level and on a quite different scale. I ask myself: how can such a sound and sharp architecture, so typical of our time, an art which manifests itself so clearly in the separate building, develop further?

For what do we reach with this architecture—an architecture to which I also adhere, although I am perhaps somewhat more individualistic and just a bit more romantic? What do we reach for, architecturally speaking, in the building of our cities? The strong side of this art, the functional organization of space, is suddenly relinquished, has nothing to say anymore, is no longer an element in the construction of our cities. And your cities are in general even more arbitrary, even more chaotic than the European.

In an excellent Dutch treatise on city planning, the author, Dr. Fockema Andreae, says: "A city planner should make his town as beautiful as possible, not only because he owes this to the town. Its beauty will enhance its importance, it will be the pride of its citizens and will increase their attachment and their spirit of sacrifice in all that concerns their city. But who cares for a town that is devoid of beauty? However many advantages a town may possess in other respects: perfect sewerage, excellent drink water, efficient housing, good roads of communication, even low taxes; if the city is ugly, it lacks the essential."

We architects should have most at heart the ultimate form of our cities. It is not only surprising but also distressing that in our time this huge problem is hardly considered as such. We practically never get to the spatial organization of the city, at least not as regards the third dimension. From the building point of view we leave the city to mere chance And this is the more to be regretted because of all that our society creates, nothing is so lasting and difficult to change as a city plan that has once been realized. There is no other human effort which influences posterity more permanently than a city.

Although our society has organized planning services and has set up planning committees, the results, the cities of our time, show that the art of building cities is in a state of deplorable decay—a decay against which far too few architects rebel.

I refuse to believe that the cities we are now building are a reflection of this great time. I won't accept that the chaotic aspect of our cities is the expression of our culture. I know that some accept this chaotic form arisen in liberty as a characteristic of our democracy. How can an architect speak like this whose entire endeavor is bent on beneficient order? It is no characteristic variety that our cities show, but a characterless chaos, and I am too good a democrat to accept this as an expression of our beneficial form of government-a form of government which in so many fields has proved to understand that there is no liberty without reasonable restriction and no culture without order.

In the meantime I am fully aware that the planning problem is nowadays more difficult than in former times. Life has become more complicated and more differentiated and consequently requires a much greater variety of structure. On the other hand, the technical possibilities to give form to it are practically unlimited.

It is up to you to make your liberty-loving people more planning minded. Just as this people understands that in traffic it has to submit to liberty-restriction, so it must learn to understand that life in city relation must restrict spatially the liberty of the use of the ground and the liberty of building: a restriction for the benefit of all.

The city planner must not confine himself to the ground plan only. In his functional planning he must arouse the suggestion of a good spatial proportion—city planning needs three dimensions. In our modern cities where houses, shops, offices and apartments lead to the splendid expedient of repetition, there is a great need of interesting variation. Fortunately life demands so many diverse types of buildings that in a well-built city all kinds of natural architectural varieties will develop as a matter of course. It is the task of the city planner to work this out in harmonious effects by locating the special building on the special site which will guarantee it fitting emphasis in its surroundings. And so it is possible in our new cities to combine in a natural way the classical character of repetition peculiar to housing on a large scale with the romantic element of variety attained by the characteristic situation of special buildings: government buildings, churches, schools, theaters, hotels, department stores, etc.

However, the claims of the spatial composition of a city plan must not be so stringent as to leave no breathing space to the cooperating architects to solve their problems in a sound way. There must be confidence and good will on both sides; the city planner must have faith in his cooperators that they will undertake their task, resolved to adapt themselves to the desired form, clearly expressed in his city plan which overarches the details. The architects on the other hand may expect that this overarching does not prevent them from solving their building problems in such a manner that they can take the creative responsibility upon them, and this all the more readily because they know that they are cooperating in a well-considered whole. In this way it is possible to serve architecture in its most essential character, viz., as the art of space.

Nobody would have ever heard of Venice if this city was not so beautiful. When Columbus discovered your country, the doge city had had its day as a commercial center: the trade route of the world had been led in other channels. But still tens of thousands of travelers come to enjoy its beauty. Oil and steel are valuable products, but the beauty of a city also possesses a real value. Your country has the privilege of possessing Maecenases who give fabulous sums for many good things. Turn their attention to this preeminently cultural interest—that the eyes of the world may be turned toward your country.





C Ezra Stoller

Entrance canopy decking is supported by 4" x 4" square steel tubes, welded to steel beams. Length is not excessive because most pupils arrive by family car.

BIG SCHOOL PLANT WITH A SMALL CHILD LOOK

When a visitor leaves this addition to a private elementary school and then passes the public school down the street, he experiences a shock much like the jolt at the end of the puppet show when the puppeteer inserts his enormous head into the stage. The public school, a perfectly orthodox building, abruptly looks as if it had been built for giants.

Without cuteness or saccharinity, Architects Leinweber, Yamasaki & Hellmuth have made their school, inside and out, seem precisely the *right* size for children. Inside and out, they gave the school a single dominant height line, a daringly low 7'-2". Brick, windows, doors, chalkboard, corridors, all rise to this line. Besides fixing a subtly miniature scale, this consistent line unifies a rambling group.

In most hands, a ceiling line of 7'-2", either real or

apparent (in this school it is sometimes apparent, sometimes real) would be a serious risk. At present there is a good deal of feeling, with some justification, that classrooms are becoming too low. The artistry that makes this school so successful is the combination of low height with lateral openness and with toplighting. The classrooms, for instance, exploit the best features of both high and low ceilings; the very low springing lines preserve intimacy, but the splayed luminous ceilings reach enough height ($10'-6\frac{1}{2}''$) to diffuse the light beautifully and to convey a sense of liberation. The toplighting makes the low view window practicable too.

The architects aimed at providing, along with intimacy and order, a school full of quiet surprises, and these are part and parcel of the total architecture: the opening out of court vistas, changes from low ceiling to next-to-no-



Exterior emphasizes low 7'-2" windowheight line; brick above was sprayed with concrete. Brick and white stripes, with panel accents of color, produce effect charmingly and surprisingly "miniature."

ceiling, joyful exploitation of color, changes in mood. When you walk from the lounge into the auditorium, for instance, you are moving from an informal chatter spot to an exciting ceremonial hall, and no mistake about it.

Like most good schools, this was the product of full architect-client collaboration. John Chandler Jr., the headmaster, reports: "The architects spent several weeks in the old buildings, became thoroughly familiar with our program and absorbed the family atmosphere of the school. Then came careful planning, with heads of departments and myself, of the general layout. Detailed study of individual rooms, which came next, took a long time and resulted in everyone's eventual satisfaction with the plans. But it was not until the building took shape that we realized how well the architects had translated their findings. The spaciousness, ample daylight, freedom of movement from one area to another, all make the school a delightful place. The children look forward to coming and their enthusiasm makes the teacher's job a good deal easier. There seems to be a greater spirit of cooperation and purposefulness. These changes are difficult to measure, but everyone agrees the new physical plant is responsible. Our success is due largely to careful, extended planning with a patient, capable, imaginative architect, and I would recommend to any group charged with planning a new school that they take time to do this."

DETROIT UNIVERSITY SCHOOL AND GROSSE POINTE COUNTRY DAY SCHOOL Grosse Pointe Woods, Mich.

▲ 19 classrooms in new addition. ▲ 650 students.

FEATURES: A Adroit esthetic and functional juxtaposition of old plant with large new addition. A Toplighted classrooms. A Imaginative handling of public and general spaces.

CONSTRUCTION: ▲ Poured concrete foundations. ▲ Exterior walls, 10" cavity brick and masonry block. ▲ Steel framing. ▲ Roofs, poured gypsum decking and metal decking. ▲ Partitions, blocks, glazed tile, wood, glass. ▲ Heating, forced reverse return hot water to unit ventilators; floor panels in kindergarten, nursery.

COSTS: **A** \$1,420,000 for new construction and complete remodeling of 26-classroom old school. **A** Cost on new construction, \$17 per sq. ft.



Photos: © Ezra Stoller

ARCHITECTS: Leinweber, Yamasaki & Hellmuth STRUCTURAL ENGINEER: Richard H. McClurg CONSULTING ENGINEER: William Brown ELECTRICAL ENGINEER: Richard Klees Jr. ACOUSTICAL CONSULTANTS: Bolt, Beranek & Newman, Inc. LANDSCAPE ARCHITECT: Edward A. Eichstedt GENERAL CONTRACTOR: O. W. Burke **Lounge** at main entrance is splendid example of current school trend toward domestic treatment of informal meeting areas. Space has been carpeted since photography. Architect is not entirely pleased with experiment of bathroom-tile end wall because pattern is so minute.

Glazed corridor at court exemplifies architects' aims to give outdoor feeling to interior circulation. Photo is taken outside library at juncture between old school and new addition. Large court maintains architectural identity of old building.



Corridor ceilings are diagonally divided at intersections, repeating cornice colors from adjoining corridor sections. Each classroom has its own door and corridor cornice color. Cornice line raises actual ceiling $5\frac{1}{2}$ " above dominant 7'-2" height-line.







Skylights: above, at Grosse Pointe and, below, for two of Architect Yamasaki's most recent school jobs. In this simplification, skylight bar holds both glass and ceiling.

TOPLIGHTING IN A TRUSS

The classroom ceiling is sloped to follow the truss framing; the plastic ceiling, with skylight gable above, follows the line of the truss's top chord.

Heat, not cold—even in Michigan—has proved the principal problem for school toplighting to combat. The ridge ventilators, designed by the skylight maker in accordance with suggestions by the architects, have worked splendidly at pulling out heated air between glass and plastic; the plastic has worked well as an insulator.

However, the architects have had trouble with the blue heat-absorbent glass cracking; apparently it was not able to stand the stresses set up by intermingled sun and shadow. They have switched to frosted white wireglass, which will get a blue spray.

Two other worries about these skylights have worked out all right. Tests had indicated as much as 600 foot-candles of light would reach the desks on a sunny day, a rather alarming thought even though California school experience is that 600 footcandles is not bad if the heat is out of it. In actual use, 140 foot-candles has been about the maximum. How could the tests be so misleading? They were conducted with artificial light on models, evidently quite a different thing from sunlight on the real building. The architects also worried about dirt drifting in on the translucent plastic. Use has shown that once-a-year cleaning of the plastic is ample, but ventilating valves must be screened to keep out leaves which silhouette themselves disconcertingly

In several of their more recent schools the architects plan to use a simplified version of this skylight, with the plastic ceiling attached to the lower edge of the skylight bars (sections at left).

METAL FLASHING

ASPHALT SHINGLES ON FELT ON PLYWOOD

2.8" RAFTER







Gymnasium is framed with bowstring trusses on steel columns. Divided, each side gets skylight. Rolling bleacher storage can be seen along wall. Girls' lockers are at floor level, boys' at lower level.



Auditorium seating area is square for intimacy. Design, based on acoustical requirements, depends on color for dramatic effect: brilliant orange seats, white ceiling, black walls, beige curtains, acoustic-lighting baffles edged with vivid colors.

Nursery school has own building and grounds, with peek-through entry wall.



Play equipment by Sculptor Harry Bertoia (shown below in models) is being considered for kindergarten play court when budget permits. Bertoia's climb-on constructions are not only imaginative pieces in their own right, but fine examples of art in key with its architectural environment. Stylized bull was designed in place of usual geometric jungle gym. Ladder, borrowing from mathematical science of topology, has continuous surface with no demarkation between inside and outside. Small animal is sort of swinging stile.

Photos: (below) Lens-Art Photos; (others) © Ezra Stoller







Downtown Cleveland, with Lake Erie in background, Cuyahoga River in foreground.

Who knows any big city best? Its seasoned newspapermen. When that fine newspaper, The Cleveland Press, consented to help FORUM dig out the urban problems of Cleveland, our own staff felt they were getting the best of guidance, understanding. Although the Press team of Marino, Murway, Krawchek and Bordner would rather be caught dead than sentimental, their concern for Cleveland was deep and real. For opinions and conclusions expressed in this story, however, FORUM takes sole responsibility.

CLEVELAND:

Downtown Cleveland has had no new building for a quarter of a century. The photograph at left was taken in 1946. It could have been taken yesterday. Or, except for the freeway, it could have been taken in 1931.

This is not so bad as it sounds because in a way Cleveland began its big downtown redevelopment early. In 1929, the Van Sweringen brothers (just before the collapse of their railroad empire) wiped away 1,500 blighted buildings and erected the vast station-office-hotel complex called the terminal group (foreground). Only in the last few years has Cleveland outgrown that.

Nevertheless this long-arrested downtown scene puzzles and worries Clevelanders. They know there is nothing stagnant about the Cleveland metropolitan area, which has had \$1.7 billion industrial expansion since the war (60% in the suburbs). They know downtown office vacancies are at only 5%, including a lot of ancient space ripe for condemnation. Hotel space is needed; its lack, along with the need for a second convention hall, is costing Cleveland convention business. Logic and informed hunch both say downtown is ripe to push through blighted E. 9th St. (far upper right, beyond the mall) toward the lake; this land is being bought up through dummies four-deep.

Yet nothing happens. The "artist's conceptions," regularly published, as regularly evaporate.

Looking at the long-still scene and then at the facts behind the scene—and at the biggest fact of all, the St. Lawrence waterway which can make Cleveland a great "ocean" port in 1959—it would seem that Cleveland's downtown is about to explode into building activity. Whether it will, or whether Cleveland settles down instead as a second-class city, probably depends on how Cleveland meets that 1959 waterway deadline for making herself a great port and a great magnet for new portbased industry. (Buffalo, Toledo, Detroit and Chicago

city with a deadline

Lessons from Cleveland: 1) the fate of downtown is locked into the fate of the entire metropolitan area; 2) no big city can afford to allow its heart to become a ghetto for the underprivileged, surrounded by prosperous suburbs; 3) the business community can take urban rebuilding initiative

will be only too happy to take up the slack if Cleveland should bow out.)

And meeting that deadline depends, in turn, on how well Cleveland can manage a tough assignment in regional not just city—planning.

City planning, per se, is not a problem in Cleveland because it is being done so well. Outside the downtown area, Cleveland is not stagnant. The city has some of the finest slum clearance and low-income housing in the country (pp. 138-9). It is well along toward middleincome redevelopment, with its big business wheels backing the key project (p. 136). It has started serious rehabilitation and protection-from-blight programs. Its transportation program is ahead of most cities in concept and accomplishment (p. 134). It has a modern, performance-standard building code and a sound long-term general plan. Its city planning commission has power (two thirds council vote required to override its recommendations) as well as intelligence and energy. Most important, planning has a real democratic foundation under it; every step of the way Cleveland's planners work with a remarkable local institution, the neighborhood "area councils" which cover most of the city, poor and well-to-do both. These are not restrictive, like the usual "neighborhood associations"; their aims are thoroughly constructive and they have had long practice in handling neighborhood problems. In effect, they are active, grass-roots planning bodies. They are a bright omen for success of the city's program of rehabilitation under the urban renewal law.

But virtually all planning stops at the city line which is remarkably constricted (map, p. 133). The money and credit to pay for the municipal share of waterfront development—and the physical lake frontage for developing in any coherent way (p. 132)—stop at the city line too, unless some deal can be worked out between the city and suburbs. This is the problem that puts the rather incredible *if* into Cleveland's future.

Every metropolitan area is plagued by the paradox of suburbs siphoning off tax income—and at the same time fattening on the fundamental capital improvements the city taxpayers must provide.

In Cleveland this parasitic situation reaches an extreme, partly because in the past Cleveland did not proceed as diligently as it might to annex suburbs and assume their development expenses. Now the suburbs hang back.

Suburban chauvinism in Cleveland is more than a political and financial problem. It is a serious social problem (p. 135). It also exerts a more subtle drag, a habit of deprecation. You can hear this in the voice of even the enlightened and farsighted businessman who solemnly argues the case for county-wide integration (twice-defeated), but then really warms up when he talks about his suburb. Cleveland, it is clear, is duty. Shaker Heights is pure love.

It is hard for an outsider to understand why Cleveland as an organism, as an idea, fails to captivate the suburban imagination in the immemorial way of big cities. For Cleveland has individuality, and visually it is a stirring sight. It deserves neither to be thought of as a mere facility, nor to be snubbed. Inherently, it is anything but monotonous; industry-lined river and creek valleys slash deeply through its hills. Bridges, ore-loaders, stacks put their peculiar zing into the humdrum commercial and residential scene. Maybe industry cutting crisscross through the city is not "nice" but from the freeway alongside or banks above, it makes a vista as exciting as the tumbled excesses of nature. Curiously, and perhaps symbolically, it has been left to public housing to demonstrate what marvelous sites for residences these eyries above industry are.



Cleveland's lakefront dilemma: too much to do with too little

The physical problem of Cleveland's lakefront development is summed up in the two waterfront maps above.

Scheme A shows the lake development proposed in the city's official general plan, published in 1949. It aims at a balanced development of economic and recreational use.

Scheme B shows the plan suggested in June of this year by Port Consultant James C. Buckley, hired by Cleveland to survey the city's port and water-based industry potentialities in light of the St. Lawrence Seaway which is to open in 1959. Buckley's proposal would wipe away virtually all recreational use, conceding to pleasure only a small downtown marina which would hardly thrive in such unsympathetic surroundings. It aims at reserving the lakefront for industry and industrial transportation.

Neither of these schemes is likely to be carried out as shown; the end result will be something in between. But if Cleveland is developed as an important "ocean" port, the city lakefront will undoubtedly have considerably less space for recreation than Clevelanders expected before the seaway.

The story of Clevelanders and their lakefront is a sad one. For as the city grew, the lake was cut off by a tangible barrier of tracks, factories, slag-heaps and cinders and an intangible barrier of lethargy and unimaginativeness. As the city planning commission puts it: "For all the esthetic and recreational good that the men, women and children of Cleveland got out of living on one of the great lakes of the world, they might have been in Kansas."

Before this could be changed, there were legal points to settle. For instance, one 50year-old stalemate was only recently resolved, with the city getting quitclaim to 400 acres of shoreside, a railroad getting 25 acres. There has also been a lot of dredging and filling to do, which the city has been accomplishing rather spectacularly. Clevelanders were at last looking forward to a lakefront that would restore enjoyment of the city's greatest natural asset.

Now comes the new problem of where to put plenty of recreation if there is to be plenty of port. The key would be for the suburbs to develop some of their frontage for recreational use by the people of Cleveland-in return for the Clevelanders' loss of frontage to the port and port storage (a big requirement because the seaway is frozen three months of the year). Planning Commissioner Ernest Bohn is putting this question up to suburban Bay Village, Rocky River and Lakewood on the west and Bratenahl and Euclid on the east. The city holds some good cards, including its control of suburban water supply and sewage system (for which it claims inadequate returns), and, says Bohn, if the suburbs refuse cooperation on so vital a question as lakefront development, the city can be less cooperative about its water and sewers.

Looming over the dilemma of what exactly to do with the waterfront is the question of how to finance what has to be done. The city is feeling its way into this with a relatively small bond issue of \$8 million to go before the voters in November. Meantime, City Planning Director James Lister heads a committee meeting almost daily through the summer to prepare a new waterfront program before the bond issue is voted on.

Cleveland property owners are tiring of backing capital improvements, like the fine new airport terminal for instance (AF, Nov. '52), for the benefit of the whole metropolitan area. But Lister thinks they will back the lakefront bond issue when they understand that the dredging and filling it represents would be necessary in any case, independently of the waterway, for the next stage of improvement. Also in its favor is the fact that Cleveland does have a sense of deadline, partly because it is to play host to the Pan American games in 1959, coinciding wth the waterway's first season. The two events are linked as a "world year."

But the question of how to finance most of the port and new industrial preparation is still open. One seductive solution would

The suburbs pinch down the city's lake frontage

Suburbs include much area of urban population density (*tone*) and some are becoming heavily industrialized. Outside Cleveland 55 municipalities are getting benefit of no real planning, are making many land-use mistakes which city made earlier and is belatedly and expensively rectifying. Most suburbs belong to regional plan commission but it has no power, hence little effect.

Lakefront, as projected in Cleveland's general plan (Scheme A) and as proposed by consultant on port development (Scheme B).



For the long-term haul, a better solution seems to be joint city-suburban responsibility for financing metropolitan capital improvements. The first big step in this direction was approval by the voters of a \$35 million county bond issue last year for a subway loop in downtown Cleveland, into which both Cleveland-owned and Shaker Heights-owned rail rapid transit will feed. This is the first county-financed metropolitan improvement in Cleveland's history. With similar cooperation for long-term port development, there would probably be no question about Cleveland getting its share of waterway prosperity. But the time is running short, and this November the citizens of the city alone will have to pick up the ball-or fumble it.



The suburbs pinch off the city's financial resources

"Of our \$1.7 billion postwar industrial expansion, \$1 billion has located in the suburbs. This industrial expansion has produced 170,000 new job opportunities. The suburbs got 100,000 of those jobs, the central city only 70,000. Suburban home construction has outpaced the central city postwar by four to one—\$1.3 billion as against \$330 million.

"The pattern is vividly portrayed in the composition of the tax duplicate. In 1945, 66% of the duplicate represented property in the central city. Today that figure is but 57%.

"The central city had 75% of Cuyahoga County residents in 1945; today it has less than 60%. Of the county's 135 suburban census tracts, 125—more than nine out of ten— represent neighborhoods with incomes higher than the median for the central city. This is a mighty significant fact. It clearly shows who it is that is moving to the suburbs and who it is that is being left behind. Quantitative decentralization is accompanied by economic centralization—the concentration of purchasing power, job security and high taxability in the suburbs, and of low income, marginal employment, and high welfare and relief needs in the central city.

"When we add the fact that decentralization as we know it here imposes on the central city—on those least able to pay the responsibility for providing a wide variety of government services for the suburban population—for those most able to pay —we begin to get an idea how close the fuse is burning to the powder keg."

> ELMER L. LINDSETH, president Cleveland Electric Illuminating Co.



Transportation: it is well planned and well along





Rapid transit rail and bus program is one of city's soundest hedges against future chaos. Principal rail line to east was opened this spring on railbed of old Van Sweringen projected line. System is handicapped by insufficient parking at suburban stations. Stops on downtown subway loop (bond issue passed) will bring passengers within few hundred feet of any spot in business and

shopping district.



Loop bus system brings in passengers from parking lots at margins of downtown. Like all cities, Cleveland has insufficient parking in congested center. Marginal lots and loop busses are well patronized.

Freeways will loop central city, relieve through-traffic congestion. Note park area at left of map. This is small portion of outstandingly fine metropolitan park system proudly nicknamed "the emerald necklace," which curves around Cleveland and major suburbs like horseshoe. Major parks in town are lacking.
Redevelopment aim: diversify central city population

George Grant

Cleveland's central city slum, almost 2 sq. mi. of housing like that in the photograph at right, was once a district of 10-acre estates, the showplace of the city. About a century ago real estate promoters began buying up the land, cut it into 35' lots, put up little frame houses and sold them to immigrants and the rising middle class. The new owners were proud of their homes, and ardent gardeners.

Remind you of anything happening now?

But as the inhabitants' economic status improved, they moved farther out, sometimes renting the old house to the next comer, sometimes selling. The next wave of inhabitants moved on, and the next and the next, with the housing progressively deteriorating. Finally beginning in the twenties, Negroes moved in, and they have not moved on to the surburbs like their predecessors, because the suburbs will not let them in. Today 98% of the Cleveland metropolitan area's 207,000 Negroes live in the city proper, many in this central city area. (Some, incidentally, who can afford to own homes, have upgraded the rundown districts they inherited.)

This situation is not unique to Cleveland of course.

Let alone, in another generation all of eastern Cleveland might well become a giant Negro ghetto backed up against white suburbs—a financial and social catastrophe.

The solution is not simply to replace the ghetto housing with better housing, but to break up the ghetto pattern itself by bringing some of the suburb back into the central city. Several such middle-income redevelopment projects are now in preliminary planning; one of these, the St. Vincent's Charity Hospital-sponsored project, is on p. 137. A survey of potential renters for this project shows that an encouragingly large market for nice central city housing exists, particularly among young employed persons and older people. Interest in the city's new apartment house for older people (p. 139), among those ineligible for it, appears to confirm the survey. And of course in most cities there are already "natural" good neighborhoods in the central city.

But before Charity Hospital and similar projects can get beyond the pictorial stage and before additional public housing can be built—something has to give. The people who will be displaced must go somewhere, including those ineligible for public housing. Because of restrictive practices beyond the city line, that somewhere has to be in the city proper, and it has to be on vacant land.

Hence Garden Valley (shown overleaf) is the key project for unloosing the entire central city redevelopment work.

Garden Valley is surely one of the boldest and most imaginative redevelopment



Redevelopment projects are concentrated in principal problem area, the central slum. One reason this became bad part of town was fly ash and soot filth, carried by prevailing west wind. City has made effort to solve problem, but without success of St. Louis and Pittsburgh. Note how houses, originally small, have been added to.





Cleveland's redevelopment (cont'd.)

jobs conceived in any city. It is backed by 100 of the city's leading industrial firms, who have given or pledged a \$2 million revolving fund to a nonprofit Cleveland Development Foundation, formed last September. The foundation has got the five largest Cleveland banks on record as willing to form a \$200 million mortga pool to pick up the mortgages on Garden Valley's private housing, and to underwrite the entire central residential area rebuilding if need be. It has promised that if no private builder puts in a bid for the Garden Valley land, the foundation will put up the housing itself. It saved months by going ahead with site assembly and advancing engineering fees while the city was awaiting federal funds. The whole thing started with an informal committee several years ago when industrial leaders got to reflecting on the anomaly of their workers spending eight hours a day in pastel-tinted, muzak-supplied factories, then going home to hovels.

Garden Valley will transform a desolate

Garden Valley redevelopment will create complete neighborhood for existing 50-yearold residential area and 1,200 units of new housing. Map at left shows existing site. Mixed middle- and low-income housing will permit families hitting hard times, or those

industrial wasteland and an enormous, steep, barren ravine into a neighborhood of 480 middle-income and 780 public-housing units, integrate it with an existing neighborhood which will be rehabilitated under the urban renewal law and with redeveloped retail facilities, and set it off from adjacent heavy industry (which has promised air pollution control) with a buffer park and rapid transit line. The entire project covers 266 acres.

To obliterate the ravine, Republic Steel is dumping 2 million cu. yd. of slag fill; to contain the creek at the bottom of the ravine, the city is building a culvert and storm relief tunnel at a cost of \$2 million. Ground is to be broken this summer, on land already filled, for the first stage of 240 middle-income units.

Although this is largely vacant land, preparation costs will run about as high as high-density slum clearance. The cost is necessary because only in the city proper can middle-income relocation housing be built without restriction on the color of graduating out of low-income housing, to move without breaking ties. As in all Cleveland residential redevelopment, high-density buildings are at periphery to keep heavy traffic to borders. Scheme is by City Planning Commission.

residents, and in the city the only sizable vacant land entails high costs. Preparing the land for industry, as originally planned, would have cost as much but could have been considered a direct investment in tax income. Indirectly, it can still be so justified.

Garden Valley could turn out to be cityrebuilding in a profound sense because, as one observer of the development foundation has said, "Here are a group of topflight business and industrial leaders learning their way around in city planning, in urban renewal, in race relations and in housing financing. For a generation, partly because of the depression, there has been no one among Cleveland's business leaders to succeed imaginative men like the Van Sweringens or John L. Severance, a Rockefeller partner who laid the foundations of Cleveland's fine cultural facilities. If Garden Valley can stimulate the city's powerful men to look at Cleveland again with the vision of what can be built, it will indeed be a key to rejuvenation."





WOODLAND

by Charity Hospital, is to include expansion of hospital; added related facilities like doctors' offices and motel for patients' families; high-rise apartment, two- and three-story row-house flats. Architects: Robert A. Little & Associates. Model is superimposed on aerial photograph. Middle-income development is feasible because public housing has already improved neighborhood so greatly.

Cleveland pioneered in public housing

Back in 1934, Cleveland built the first public housing development in the country, and a few years later it was the first city to form a housing authority under state public housing law. These photographs of some of Cleveland's public housing as it appears now, after 15 to 20 years of use, show how humanely and well the city began the job of replacing slums with something better. Cleveland's newest public housing, although the trees are only saplings and the ground still raw, is in the same tradition. Cleveland has never called its low-income housing units "projects." They are "estates." The people who live in them are not "tenants"; they are "residents." And they behave like residents and treat their homes like estates. Cleveland has 5,585 units of low-income housing (406 just completed), 784 more in the works, and funds allocated for two more big estates.

Early public housing as it looks today: *m* top and center, row houses at Valleyview Homes, occupied in 1940; architects: Hays. Simpson & Hunsicker. Bottom, three-story apartment at Lakeview Terrace, occupied in 1936; architects: Joseph L. Weinberg and Conrad & Teare. Below, sample of what Lakeview Terrace replaced.









... and it is still pioneering

This 14-story apartment building in Cleveland's newest public housing development has been designed especially for the aged. Because the 1955 housing act provides specifically for 10,000 units for old people-and because the definition of a "family" has been changed to mean one person* if that person is over 65-this building is an important prototype. The best thing about it is that it is not just for old people and therefore a depressing institution. Of the 156 dwelling units, 52 (4 out of 12 on each floor) are two-bedroom apartments for families with babies or an aged parent. As babies get older, families will be moved into the adjoining three- and four-bedroom row houses so children can play on the ground. The first floor (see plan) is a community center for old people throughout the city. About 5,000 persons inspected the building when it opened in June, including many thousands not eligible to live there.



High-rise apartment, just opened, is especially planned for older people.



TRAT FLOOR

Newest public housing estate sets old people's building among family row flats.



^{*} Previously, if one aged spouse died, the other presumably had to move out of public housing. In practice, two widows or widowers in this fight are often teamed up, or one brings in an eligible relative.



Zurmuhlen's caption: This picture (above) was taken April 27, 1955, in the same exact location as picture taken in 1934 (right). A comparison of the two photographs reveals that it is almost impossible to detect the effect of the reconstruction of the trusses.



Editor's comment: This pair of views is calculated to minimize changes. But even here we see the effect of the brutalization.

WHAT HAPPENED TO BROOKLYN BRIDGE cont'd.

The letter that follows relates to an article in FORUM for April, on the \$7 million remodeling of the Brooklyn Bridge. The article, staff-written, said that the rearrangement of trusses had resulted in inadvertent spoiling of the footwalk above, blocking an inspiring view with a clutter of steel and "untidy festoons of wire." This was considered to be more of a detriment than at first appears, because it was this key view which as a historic fact helped greatly to inspire later developments in architecture. A warning was raised against ever again rearranging so much as the trusses of a historic bridge without first consulting the very best architects.

Public Works Commissioner Frederick H. Zurmuhlen sent the following rejoinder:

FORUM:

Seventy-four years of progress since Reginald Bunthorne of Gilbert & Sullivan have brought forth another Bunthorne—the anonymous FORUM contributor on the topic, "What happened to Brooklyn Bridge?"

Reading the disjointed mishmash of balderdash and twaddle of which this article is compounded, one recalls Bunthorne's song:

- "You must lie upon the daisies and discourse in idle phrases of your complicated mind.
- "The meaning doesn't matter, if it's only idle chatter of a transcendental kind."

Tearing aside of the veil of mystic mumbo jumbo, one finds the source of the new Bunthorne's esthetic pique to be the doubling in height of the outer trusses of the bridge in flagrant disregard of his canon that "a mere sight line which the new builders neglected might have been the invisible kingbeam of the old bridge."

Such mundane matters as the problem of safety of the bridge, its conversion from four cluttered and inhibited lanes to six spacious, parkwaylike lanes, the necessity of concreting the new steel-grate roadway which replaces the old wooden block and cobblestones, the added weight of the new decking—the solution of these and a host of other problems so as to preserve the character of this historic bridge—all these things are unworthy of the consideration of our precious Bunthorne.

How grandly he calls upon the shades of critics, of a painter and a poet who, he would have us believe, would not have been enraptured and inspired by the bridge without his sight line. But his own statements show that all of his testamentary spirits, with the possible exception of the painter, John Marin, were moved by the view not *from* the bridge but of the bridge.

Besides misrepresenting the views of those he cites, our hyperesthete does not hesitate to distort and misinform. He admits that the modernization of the bridge was done "in a spirit of devoted reverence" and that:

"So great indeed was the success of the

job with those citizen groups which act as the city's watchdogs, that 21 of them joined in acclamation."

But lo, how ignorant of the true and the beautiful all these benighted souls. None, not even the newspaper editors, realized that "a mere sight line . . . might have been the invisible kingbeam of the old bridge."

Having conjured the spirits esthetic, he descends momentarily to the level of ordinary mortals by including two photographs with his article, one captioned "open view," and the other, "cluttered view." He descends, one might say, close to the gutter, for the first and second picture are in no way comparable, having been taken at different angles, different locations, and different elevations. These pictures were taken at spots 450' from each other, the second one at an elevation 18' lower than the first.

The first photo is of the Manhattan skyline as seen through the hangers and stays and the picture is carefully cropped on the bottom to eliminate all but sky, skyline and water. The second photo is a close view of the pedestrian walk, the trusses and cross beams, light fixtures and wiring of the adjacent roadway.

The first picture was taken from the pedestrian walk at the west side of the Brooklyn tower. The view from this location is exactly the same today and the accompanying photograph proves it.

The second picture was taken east of the Brooklyn tower and would not have been much different if taken prior to reconstruc-





Zurmuhlen's caption: This picture was taken from same location as the photo in the April FORUM (right). Although the new trusses are visible, they do not block any part of the view of the Manhattan skyline.

Editor's comment: Zurmuhlen's own photograph adequately refutes his own contention that the effect of spaciousness is unchanged.

tion since there was the "clutter" of trolley posts, wires and lampposts even then.

Yes, what happened to Brooklyn Bridge? Our Bunthornean master builder is comfortably unaware or unconcerned about the fact that the 135' clearance over the East River had to be maintained and, as I have indicated, to prevent objects from falling below, the roadway had to have a solid surface. The first consideration precluded deepening any of the trusses below the roadway level. The second necessitated a careful study of wind reaction and its influence on the height and location of trusses.

To preserve the character of the old bridge it was decided to reuse the top chord of the intermediate trusses (which were removed) to strengthen the outer trusses.

The footwalk was reconstructed with the same type of wood floor as originally used. The original footwalk railings, lampposts, lyre lamps and fixtures were retained. The new lamp brackets for the roadways were selected after considerable study as blending best with the structure and least obtrusive to the view.

Before the design was adopted a photograph of the bridge as it existed and of an artist's rendering of how it would look upon modernization was shown by me to a group of civic and professional organizations headed by William Delano, then chairman of the New York City Art Commission. Not one could tell which was the "before" and which the "after" picture!

Despite the elegantly meaningless phrases

of the dilettante, his fancy shirt of froth, his silken veil of verbal flimflam, Brooklyn Bridge—to paraphrase Crane—still vaults the sea, the choiring strings of the giant harp still the terrific threshold of the prophet's pledge, condensing eternity and lifting skyline, the night and stars in its arms, its curveship lending a myth to God.

FREDERICK H. ZURMUHLEN Public Works Commissioner New York City

• It is regrettable that a public official should make so bumptious a reply to serious criticism. The notion that great men have been "moved by the view not *from* the bridge but of the bridge" is of course too juvenile for discussion. Obviously intelligent people have been moved by both. It was *from* the footwalk that Evans and the others took most of their countless photographs; that Marin made his etching; that Crane watched the gulls (and FORUM's writer with him); it was here indeed that Crane conceived his whole book which treated the bridge not as a finality but as the beginning of a highway reaching across all America.

Nor has FORUM any wish to debate with the commissioner through photographs. The bridge is the sole subject of concern, the bridge itself which all who care may easily get to see. From the start FORUM admitted that its pictures were taken under handicaps but they were objectively used to illustrate a disinterested criticism. Discrepancies were there in detail but the report is correct and verifiable on the major and all-important fact that a visual jangle was made in the remodeling. The commissioner's pictures are technically careful but were taken by one of the performers in the act, for the purpose of proving his own case, and they thus fall far short of communicating the full, true situation.

Despite the effectiveness with which such views were used to push the job through various soporific municipal and civic bodies, vigorous objection was made by a few keen eyed people such as Cameron Clark of the Art Commission.

The one real issue the Commissioner raises is the practical one that the Navy wants 135' clearance over the East River, so trusses could purportedly not be strengthened by extensions downward. Such obstacles attend every major work. Commissioner Zurmuhlen's complacent remarks carry no suggestion that the Navy was seriously asked to make an accommodation in favor of a world masterpiece. If the Navy was ever approached, if it really understood the issues and still insisted on every inch, then the issue goes further. Is this a Spartan civilization that now yields in everything to the military, or is there any spark of Athenian culture here, of the sort that across the centuries has made human life worth the living?-ED.

FIVE HEADQUARTERS FOR INDUSTRY

Here are five new kinds of buildings clean and pleasant enough to fit any residential community. The "factories" begin to look like office buildings and the "office buildings" like a new kind of factory—they use so much electrical business machinery that a new type of "white collar factory" is in process of creation. Even the foundry (p. 154) has become a gentleman fit for the community center.

Hedrich-Blessing





1. For a telephone company in Texas,

SCREEN WALLS AND INNER GARDENS

Among the growing number of US corporations that show consistent progress and taste in building is the General Telephone System, largest of the 5,000-odd "independent" telephone companies. Latest completion in General's program is this office headquarters for the Southwest by PACE Associates, who also designed the system's handsome directory plant at Des Plaines, Ill., equipment factory at Genoa, Ill., and exchange building in Ashland, Ky.

As a business move, the new building brings together accounting and administrative offices scattered in crowded quarters in four Texas cities. By centralizing in San Angelo, General can make efficient use of business machines, draw on a less-competitive labor market, and be at the geographical hub of its 242 exchanges and 175,000 telephones in Texas, Arkansas, Oklahoma, New Mexico and Louisiana.

As architecture, the building's long, cleanly overlapping planes and freestanding columns distantly recall Mies's Barcelona pavilion, but are based on southwestern buff brick instead of marble, and black steel instead of glittering stainless. These solid wall planes are highly useful on the east and west street façades: as windowless cavity walls extending along and beyond the building, they shut out hot sun and barren flatland views and the distractions of passing traffic. Interiors open instead toward a central garden court (shown on the following page) and, north and south, to fence-screened lawns.

Being a public utility that must keep its books open to regulatory bodies, General Telephone has had to convince a few local watchdogs of the public interest that their sleek design is not a luxury, that the \$858,438 (\$14.67 per sq. ft.) was well spent in streamlining operations and reducing employee turnover. No explanations were needed by the AIA, who picked the building as one of five across the country meriting a first honor award for 1955.

TELEPHONE COMPA TELEPHONE ST THE SOUTHWEST





GENERAL TELEPHONE COMPANY OF THE SOUTHWEST, San Angelo, Tex. ARCHITECTS & ENGINEERS: PACE Associates STRUCTURAL ENGINEER: Frank J. Kornacker INTERIOR DESIGNER: Margaret Hindman CONTRACTOR: Evans & Taylor



Main facade faces west toward street is virtually windowless to exclude afternoon sun, passing traffic. Visitors entrance, right, employee and service left.



Low walnut partitions open semiprivate offices toward center court. Elimination of completely enclosed offices with doors cut total building costs about 7%.





Entrance hall leads from lobby (right) to row of executive offices encased in floor-to-ceiling glass. Note clean detail where black steel column meets ceiling.

Glazed court relieves windowless general office, has open skylight with louvers which diffuse sky glare. Ceiling is acoustical plaster; floor, rubber tile.



Low brightness tubes in open troffers give interiors glareless light. Below, reception office is across corridor from glazed partition of interior business-machine room.





Business-machine core (above, photo below) is especially air conditioned from penthouse above, has acoustical tile on ceilings and on 3" gypsum block partitions.



2. For an airline headquarters in Illinois,

PAPERWORK AROUND A MECHANIZED CORE

Modern accounting has become so much a machine operation that here we have a white collar office building that is designed exactly like a factory. Indeed it will be sold as a factory whenever its owner, United Air Lines, moves away. Its economical square shape is laid out around a central battery of 79 key punches, tabulating and bookkeeping machines, accessible to all departments but specially soundproofed and air conditioned to isolate heat and noise. As in the telephone building on the preceding pages, office areas on either side of this core open out through glass walls to the north and south, giving most of the 500 employees the benefit of natural light and view.

In this case, a one-story building with flexible partitioning and wiring was triply desirable: 1) since the site is on the edge of a runway glide path at Midway Airport, the building had to be low; 2) different accounting units, dependent on the core of business machines, might have to be rearranged as their relative sizes changed; 3) the structure had to be economical, and convertible to other clerical or light manufacturing operations. Except for the three exterior doors, the building is completely sealed, enjoys a regulated, dustfree climate the year round. The problem of sun load on nearly 58,000 sq. ft. of roof is lessened by flooding it with 2" of water in summer.

Large open clerical areas, laid out on 20' x 46'-8" bays, are broken here and there with "island" offices for supervisors, allowing closer supervision and leaving the windows free for the majority to enjoy. Close work with small figures, including hard-to-read carbons of airline tickets, is made easier by low-brightness lighting: large fluorescent tubes in recessed troffers 4' o.c. cast shadowless light of 55 to 60 foot-candles at desk level, and their lower surface intensity reduces distracting glare. UNITED AIR LINES ACCOUNTING BUILDING, Midway Airport, Chicago

ARCHITECTS: Skidmore, Owings & Merrill CONTRACTOR: Algot B. Larson, Inc.



Window and wall sections are used in 20' bays. Former are stock units of steel sash, insulated porcelain enamel panels colored blue to go with red of brick cavity

walls and white of structural trim in United's official color scheme. Employee entrances for both major divisions are at right. Photo below shows main entrance.





Highway view of office trio corresponds with work-flow diagram (below). Working with layout and building shapes predetermined by office efficiency studies meant added sitework to keep floors at equal levels, resulted in identical building heights and problems of distribution and storage.



CONTRACTORS: Turner Construction Co. (general);

Daniel J. Keating Co. (heating-ventilation), Fishbach & Moore (electrical)



Photos: Lawrence S. Williams

3. For an electronics company in New Jersey,

AN ORGANIC CLUSTER FOR EFFICIENT WORK

By classifying its space requirements, and editing them, by arranging departments to reduce wasted travel time and then fitting economical buildings around them, RCA is reported to have saved \$1 million in building this new headquarters, and will probably save a lot more in work efficiency and maintenance over the years.

The problem was not a simple one: bring together three virtually independent operations (RCA Service Co. and RCA Victor TV and radio divisions), reconcile demands ranging from plush front offices to noisy metalworking shops, and keep costs to a bare minimum. The first of many advisors called in by RCA's building engineers was Robert Gad, layout specialist for the Shaw-Walker office equipment company. Gad made a desk-by-desk survey of actual space needs and ideal work flow which showed him what RCA should have: not a single baby skyscraper, not a huge one-story loft building, but at least four buildings separated by function and closely linked together. His rough cardboard model (which looked much like the diagram opposite) was carried out in its essential features, all of them aimed at cutting space and waste motion: 1) related departments grouped on the same floor. bridged at the same level to others on which they depend (note arrows); 2) no corridors, no elevators, no distracting through traffic in any department; 3) nobody separated by more than one flight of stairs from his building entrance or from departments in which he might have business; 4) no employee more than 125' from washrooms, stairs and bridges; 5) open clerical areas, with no desk more than 35' from a window, supervised from interior "island" offices that do not block the majority's light and view; 6) private offices reduced to a hard-headed minimum, many being replaced by conference rooms; spaceconsuming executive offices concentrated in the "front" building. This leaves the two general office buildings open and flexible.

All three units were persuaded to use a single administration building for economy (and better loan or resale value should that question ever arise); all share reception and display space on the entrance level, personnel and medical offices below, separate executive suites above. Top brass can descend quickly to meet visitors (using the stairs or the headquarters' only passenger elevator, **RCA Victor building,** bridged to engineering at left and administration at right, was originally symmetrical with Service Co. (diagram opp.). Swinging it closer in, architect gained smaller and less-formal interior courts, friendlier composition.

a small self-service unit) or walk across bridges to key departments in their respective office buildings. Being in a different building from the bulk of their staffs also lets management work with a minimum of uninvited interruptions.

Costs were pared by the thorough research of RCA and its host of outside specialists. Prime economies:

Lift slab, used for all buildings and bridges except the shops. Slabs went up fast without expensive formwork and delays; acoustical tile, ducts and lighting were applied directly to the slab instead of incorporated in more costly hung ceilings.

Minimum partitioning: low (5'-6") sectional partitions of plastic laminate and ribbed glass, used throughout office areas, cut the price of normal flexible partitioning almost in half.

Simplified utilities: mechanical penthouses instead of basements take chilled water from central compressors, distribute conditioned air through simple duct systems. Central package boilers deliver hot water to baseboard radiators. Total air-conditioning installation came to \$1.83 per sq. ft. of



Photos: Lawrence S. Williams

building area. An above-ground electrical system, also distributing from the penthouses, was installed at \$1.18 per sq. ft. Including outside facilities at another \$1.18 per sq. ft., total construction cost for 328,000 sq. ft. of building area came in under \$5 million, or less than \$15 per sq. ft.

Careful study sliced maintenance in half compared to older buildings in the area: 80ϕ per sq. ft. per year compared with about \$1.50. Cleaning, which covers some 60% of maintenance costs, can be done at a rate of 2,000 sq. ft. per cleaning woman per hour, compared with previous averages of 1,000 sq. ft. Major reasons: open areas with tile floors, exterior walls of enameled steel and glass inside and out, filtered air supply, furniture of steel, office partitions of plastic and glass; wall-hung washroom fixtures and partitions.

To RCA employees, who will number 1,600 when 10% expansion space is filled, the new headquarters is more than just a place where work flows faster. The informal group of gayly colored buildings that Architect Kling fitted around the working organism helps give each function and individual some of the scale and identity impossible in a single, massive structure. There is light and air and a variety of inner views; there are casual outdoor spaces that are pleasant to arrive in for work and to relax in at lunchtime. As RCA and its planners agree: why move to the country if you're going to put up a city building?



Lift-slab construction (left) is credited with saving 30¢ per sq. ft. vs. poured-inplace construction. Porcelain enamel panels (above) were set easily from inside with help of movable scaffold. Total cost of panel wall in place: \$10 per sq. ft.





Open offices in Service Co. and RCA Victor buildings are divided with minimum of low partitions. Acoustical tile, ducts, lights are attached directly to underside of slab. Above and below vision strip are low-maintenance panels of porcelain enamel.

Curved bridges presented no special problems for lift slab. Upper levels are enclosed in aluminum sash with projecting vents.

4

Administration building (seen from rear, below) shows stainless steel subframes, blue glass and emergency vents, grayed-yellow porcelain panels finely corrugated against buckling.









Photos: Phil Palmer

4. For a kraft paper plant in California,



SMART APPEARANCE AT LOW COST

Entry stairwell projects from row of offices, is glazed in frosted blue and clear amber panels, set off by brick-red base. Siding is corrugated asbestos board. It is not often that a young architect with a small private practice wins an industrial job in competition with well-established designand-construction companies. But that, in essence, is what happened here.

As it had in the past, Sisalkraft Corp. asked one of the experienced "package" firms for proposals on its first West Coast plant. But after considering them, the client wondered: can we build, within a strict budget, a really distinguished building that both the company and community can take pride in?

Architect Corlett, hearing that Sisalkaft's representative had come out from Massachusetts to study the problem, asked and was given 24 hours to submit a design. Engineer John Sardis incorporated a simplified structural system, and the client took their proposal home. Two weeks later Corlett received a call awarding him the commission and asking him to fly east to discuss details. After working drawings had been prepared, no less than 14 contractors submitted bids ranging from \$527,000 to \$637,000-all well under the cost of the original package scheme. Final cost came in at \$558,000, including mechanical work, process piping, site development and landscaping.



AMERICAN SISALKRAFT CORP., Tracy, Calif. ARCHITECTS: Corlett & Spackman STRUCTURAL ENGINEER: John M. Sardis MECHANICAL, ELECTRICAL ENGINEER: G. M. Simonson LANDSCAPE ARCHITECTS: Osmundson & Staley CONTRACTOR: B & R Construction Co.









Catwalk leads back to mezzanine section where large rolls of paper are impregnated with asphalt, oil, chemicals, sisal or glassfiber reinforcing, packaged in smaller rolls for distribution (foreground).

Beam-girder connection: shop-welded erection clips, designed to take full loads, simplify erection, allow greater field tolerances and eliminate web welding. Shear clips, welded to top flanges of beams and girders supporting 7" mezzanine slab, stiffen entire floor and decrease vibration.

Tapered sections support mezzanine and smaller columns for roof. Continuity and simplicity of all-welded steel frame is credited with cutting steel costs 20%.



TECHNICAL CENTER, NATIONAL MALLEABLE & STEEL CASTINGS CO., Cleveland ARCHITECTS: Dalton-Dalton Associates MECHANICAL, ELECTRICAL ENGINEERS: Adache-Case SITE AND LANDSCAPE ARCHITECT: Grier Riemer CONTRACTOR: Leonard H. Krill Co.

Couplings are tested on 620' track by pulling cars up incline with a winch, releasing them to collide with a group of weighted test cars. Inspection shed is at far left.

5. For a castings laboratory in Ohio,

A DROP-HAMMER IN A SHELL OF STEEL





In this neat research center, sitting pretty across the street from a housing development, engineers develop new designs for railroad wheel-trucks, couplings and draft gears and then try to pound them to pieces. Heart of the plan is the main testing area, a 38'-high room encased in insulated stainless steel panels and corrugated actinic wire glass. Here castings are squeezed in a million-pound static testing machine or smashed in 227,000-lb. drop-test unit. Because of the tremendous impact of the latter, it required one of the biggest shock absorbers ever designed: a 250-ton, heavily reinforced concrete "inertia block" 16' square and 13' high, resting on 32 isolators in a reinforced concrete pit. (A seismograph was borrowed from a nearby university to test the efficiency of this \$18,000 block-and-spring system before the company's engineers were satisfied their machine would not shake the neighborhood apart.) On proving tracks nearby, railroad and mine cars are rolled down a 12% grade for impact testing at speeds up to 22 mph, then brought into an inspection pit at one end of the building. Total cost of the project, including fees, tracks and foundations: \$909,-532, or \$29.72 per sq. ft.

Shock of drop test machine at left is absorbed by big concrete inertia block shown in section above. At right in photo is million-pound static testing unit.

Main test room rises at center of building group in front of workshops. Engineering and office wing (foreground) shows stainless steel siding, brick with raked joints.

1. AIR CONDITIONING WITH PACKAGE UNITS

Ease of installation and low first cost make small self-contained air-conditioning systems economical under many circumstances

To keep abreast of the flood of new air-conditioned construction, more and more building owners are installing package air-conditioning systems. Both simple window units and the big self-contained cabinets are used to avoid the initial expense and the long drawn-out construction upheavals encountered with the installation of year-round central air conditioning.

In most cases the decision against better controlled, longer-lasting central air conditioning is made after careful study of all factors (see chart, left); in others the package units are used as stop-gap measures to be replaced by central air conditioning at later dates.

Package units are economical under a wide variety of circumstances. Quickly installed, low-cost window units up to $1\frac{1}{2}$ hp are useful in single rooms or in small groups of outside rooms in office, apartment or hotel buildings where the floor space is close enough to windows (generally within 20') to permit effective air conditioning. They are also useful where structural alterations required to pierce a building's walls with ductwork prove too costly and in rented quarters where the lease does not warrant more than a ten-year investment. Cost of $\frac{1}{2}$ to $1\frac{1}{2}$ hp units: \$250 to \$750 installed.

Self-contained cabinet air - conditioning units of up to 25-ton capacity are used for large open areas with high ceilings, such as large office areas, department stores, light manufacturing plants, shops, restaurants and theaters. When fitted with ducts to provide greater comfort through better air distribution and less noise they can be used in areas with low ceilings, for groups of small rooms and for air conditioning one or several floors of a building. Cost: \$500 to \$800 per ton installed with ducts and cooling tower. (Central systems, generally used for air conditioning entire new buildings with cooling loads exceeding 100 tons, cost \$800 to \$1,500 per ton, including heating.)

Despite their many successful applications (see examples, next page), window units have often lost out to central systems:) Window units installed five years ago in a lower Madison Ave. office building in Manhattan proved too noisy and too costly to maintain. They have been replaced by central air conditioning, using high-velocity air distribution to reduce duct sizes to fit beneath the low ceilings. ▶ Window units in the guest rooms of Chicago's Drake Hotel have been replaced by central air conditioning because the units became noisy, made window cleaning difficult, blocked a fine view of the lake and required expensive removal and storage during the winter. In the new central system chilled water is pumped from rooftop refrigerating equipment to cooling coils in each bedroom closet (photos, below).

After a comparative cost study of window units vs. a central system using Rockefeller Center's own chilled water supply (available for 35ϕ per sq. ft. of rented area), central air conditioning was installed in a sevenstory section of the RCA building despite higher initial costs (\$3,040,000 vs. \$2,274,-000) and higher annual costs (\$143,000 vs. \$121,000). Reasons: window units could handle offices only 20' deep, could provide only summer cooling and had a relatively short life (eight years vs. 25 for the central system).

There can be no general rules for air-conditioning that are applicable to every type of building in every situation. Each case must be analyzed separately by a qualified airconditioning engineer. The system used should form part of a long-term master plan for air conditioning, and part of the modernization plan for the entire building.

Air-conditioning standards

In heating, some heat is better than none. In air conditioning, however, an inadequate system is often worse than none. This is because the windows in air-conditioned spaces, adequately conditioned or not, are kept closed and may prove stifling, even less comfortable than if the space were vented.

A top-quality air-conditioning system provides year-round control of heating and cooling, humidity and ventilation, throughout each zone of the building. Optimum standards: temperature 74° to 78° F.; humidity 40% to 50%; air circulation 10 to 25 cfm of filtered fresh and reconditioned air per person with four air changes per hour and without objectionable drafts (preferred air velocity, under 50 fpm).

Heat loads to be carried away are considerable. In office buildings, heat comes from the lighting (3 to 5 w. per sq. ft.), from the occupants (about 400 Btu's per person per hour) and from office machinery, pumps and motors. For offices, with each person occupying an average 100 sq. ft., total refrigeration required is 0.25 to 0.4 tons per 100 sq. ft. (or per person).

Solar heat gain from the outside walls may add considerably to the air-conditioning load, requiring as much as one ton of extra air conditioning for every 100 sq. ft. of unfavorably oriented glass in most parts of the US. This solar heat load can be considerably reduced by using smaller windows, by erecting outside louvers (horizontal louvers on the south side, vertical on the east and west sides of a building) and by using double-glazing and special types of heatabsorbent glass (AF, July '55).

Window and console units

Small window units and console-type room coolers have reached a degree of efficiency and reliability considered unattainable ten years ago. They are self-contained, $\frac{1}{2}$ to $\frac{1}{2}$ hp units with hermetically sealed mechanical parts to reduce noise and maintenance. They consist of compressor, condenser, cooler, fan, filter and controls. Some of the latest models also have heating coils but are generally insufficient for winter heating.

Room units are designed to control dry bulb temperature but not humidity. For ex-







1 HP ROOM UNIT for heating and cooling fits within building line but protrudes inward.

ample, a properly sized machine will cool air 20° F. from, say, 95° F. and 45% relative humidity down to 75° and 50%. Since they must be in the outside wall of a building and have no connecting ducts they are not easily adjusted to changing load conditions, thus proper sizing is important.

Because units over ½ hp run on 208 v. or 230 v., special wiring is usually required. Power costs per square foot of air-conditioned space run around 40% greater than for a central system, and the use of many little motors to do the job one big motor could do is wasteful of electricity. However, there are many successful large scale commercial installations. Examples:

▶ To provide perimeter cooling at low cost 840 ½, ¾, and 1 hp window units are used on 39 floors of Pittsburgh's Gulf Oil building, a 108' square tower having no interior offices. Cost of the air conditioning was only 95ϕ per sq. ft. including new wiring, compared with \$5 to \$7 a sq. ft. for full central air conditioning.

> To avoid the expense of piercing heavy stone walls with ductwork, 39 window units (37 hp) are used in the four-story, 60-yearold Wichita City Hall, which is supported inside and out by thick stone walls. Installed cost: \$14,000.

▶ Over 400 ¾ and 1 hp air-conditioning consoles are installed in the 25-story Henry W. Oliver building in Pittsburgh to provide individually controlled summer cooling and winter heating (sufficient to replace two cast-iron radiators in corner offices). The cost: some 50% less than the lowest preliminary bid for central air conditioning.

▶ Similar heating and cooling consoles are being installed in the National Bank building in Philadelphia where 30 units are replacing existing radiators. Estimated cost is \$500 to \$700 per ton for installation and \$25 to \$30 per ton for annual operation—a combined annual cost of 36ϕ to 48ϕ per sq. ft. based on a ten-year write-off.

Cabinet units

Large self-contained air-conditioning cabinets with capacities of 2 to 25 tons are used to handle large open spaces with high ceilings. More sturdy than room units, they have a longer life, around 15 years, and are easier to maintain. Water-cooled units can serve interior zones and provide humidity control through steam or hot water coils. The larger machines need drain connections or a condensate pump and, depending on local water ordinances, must be connected to a cooling tower or evaporative condenser to conserve water. Moreover, to control corrosion, scale, slime or algae growths which can dam-

WINDOW AND CONSOLE UNIT OPERATING DATA

| AIR COOLED | CAPACITY | INPUT | AREA SERVED: OFFICES | AREA SERVED: APARTMENTS |
|---|-----------|--------|-------------------------|----------------------------|
| 1/2-hp window unit, 115 v. | 0,45 tons | 950 w. | 113 sq. ft. | 180 sq. ft. |
| 1-hp window unit, 230 v. | 0.867 | 1,590 | 217 | 347 |
| $1\frac{1}{2}$ -hp console unit, 230 v. | 1.25 | 2,350 | 313 | 500 |
| WATER COOLED | | | | |
| 1-hp console unit, 230 v. | 0.92 | 1,262 | 230 | 368 |
| 2-hp console unit, 230 v. | 2.00 | 2 300 | 500 | 800 |
| | | | | |

CABINET UNIT OPERATING DATA

| AIR COOLED | COMPRESSOR | FAN | INPUT | COOLING CAPACITY* |
|---------------|------------|------------|---------|--------------------------|
| 2.75 ton unit | 3 hp | 1,000 cfm. | 4.8 kw. | 20,000 to 25,000 btu/hr. |
| 7.0 | 71/2 | 2,600 | 10.14 | 42,500 to 54,000 |
| WATER COOLED | | | | |
| 3 ton unit | 3 hp | 1,200 cfm. | 3.3 kw. | 30,000 to 40,000 btu/hr. |
| 8 | 8 | 3,000 | 8.4 | 80 000 to 100,000 |
| 15 | 15 | 6,000 | 15.5 | 160,000 to 200,000 |
| | | | | |

° Cooling capacity dependent on operating temperatures.



15-TON CABINET UNIT cooling 5,000 sq. ft. Cleveland store is 117" high on 62" x 33" base.

age new equipment in a few weeks, attention must be given to water treatment.

Typical installations of one of these big cabinets is the single 15-ton unit handling the entire 5,000 sq. ft. floor area of a Cleveland supermarket (photo above). It distributes 6,000 cfm of air.

Cabinet air-conditioning units are also used in a 50,000 sq. ft. Nashville printing plant (above, right) which not only provide good working conditions but also keep the paper stock and rollers in good condition for printing. The necessary close humidity control is effected in winter by spray nozzles and compressed air. Solar heat load on the flat roof of the single-story plant is controlled by aluminum foil insulation, which reduces the building's air-conditioning load 50 tons and saves 40% on heating costs.

Several rooms can be served by one cabinet unit plus ducts. This improves air flow and reduces noise by permitting the equipment to be located in a closet. The ducts are usually installed in furred ceilings; corridors are used as return ducts. Although it reduces individual room control slightly, zone control of a floor is possible.





WITH DUCTS, cabinet units air condition 19 floors of Amicable Life building in Waco, Tex.; 36 $7V_2$ -ton units serve 110,000 sq. ft.



WITHOUT DUCTS, cabinet units air condition 50,000 sq. ft. printing plant in Nashville.

One of the largest such applications is a 282-ton, 27-unit system in the ten-story Walker-Johnson building in Washington. It was installed in 75 days without interrupting the office routine. The equipment consists of three cabinet units per floor, each serving a separate thermostatically controlled zone through its own supply and return ducts. Cooling water is supplied from a rooftop tower.

New units

Interesting new developments in self-contained air-conditioning equipment include heavy-duty air-to-air units requiring no water, silent absorption units with no moving parts and highly compact and efficient heat pumps. For use where water is scarce or a cooling tower is impractical, aircooled refrigerating equipment is available in sizes from 2 to $7\frac{1}{2}$ hp at a cost of \$400 to \$500 per hp installed without ductwork. Cooling is obtained from an outside aircooled condenser connected to the main unit by small diameter copper pipes carrying Freon refrigerant.

Gas air-conditioning units with no moving parts preserve quiet in the 144-room Lord De La Warr in Wilmington. One of 37 twoton units is installed in the closet of every fourth room and the conditioned air is distributed through small ducts. The absorption refrigeration machines are operated by liquid petroleum gas.

Where local climatic conditions are reasonably mild and electricity rates are low (under 2¢ per kw/hr.) year-round heat pumps prove most efficient and economical. In Decatur, Ala., the new six-story Mutual Savings Life Insurance Co. building is heated and cooled by 13 air-to-air electrically operated heat pumps of five-ton capacity, two on each floor and one in the basement. Air distribution is through supply ducts, return through corridors. In winter the units extract heat from the outside air and pump it into the building; in summer they reverse, extracting heat from inside air and pumping it outside. Though installation costs were greater than for most self-contained air-conditioning systems, operating costs are lower, averaging only \$75 per month (photo, right).





AIR-TO-AIR UNIT uses outside air-cooled condenser to eliminate water requirements.

FIVE-TON HEAT PUMP like this provides year-round heating and cooling for Decatur, Ala., office building.





Les Wallace photography

2. MULTISHELL PRECAST CONCRETE

Shell roof cast in sections atop one another reduce forming costs of 100' x 38' shelter for pool

Much of the cost of concrete construction lies in the temporary formwork required to support a structure until it is strong enough to stand by itself. By using formwork over and over, precasting permits big economies. But such economies have not been applicable to shell concrete construction because of the difficulty of hoisting the heavy but delicately thin shells into position. Now, however, cast shell roofs are competitive, thanks to the combined use of two techniques: 1) The shell is precast in identical sections having the same inner and outer radii so that one section can act as formwork for the next. 2) The sections are lifted into place by the vacuum method and adjacent sections are connected by poured-in-place joints which, thanks to the vacuum-forming method, can be stripped in 30 minutes.

These techniques have been used to build a 100' x 38' barrel shell roof over a 75' x 25' swimming pool at the St. Joseph's House for Boys in Philadelphia. Cost of the structure came to about \$2 per sq. ft. including precast columns and trusses and cast-in-place foundations. A building permit was obtained after officials were shown test loadings of a similar structure, 31' x 20' and averaging $1\frac{1}{2}$ " thick. In this test displacements due to 40 lb. per sq. ft. loading were $\frac{1}{2}$ " inward and $2\frac{1}{2}$ " downward at the edges and $\frac{1}{4}$ " upward at the crown of the shell. The swimming pool roof consists of four identical concrete shell sections. These are carried by three precast Vierendeel-type concrete trusses dowel bolted to six precast supporting columns.

Each shell section has the same 19'-6''chord and the same $30'-3\frac{1}{2}''$ radius of curvature on both inner and outer surfaces so that any number of shells can be cast one atop another. Thickness varies from $2\frac{1}{4}''$ at the crown of the vault to $2\frac{3}{4}''$ at the edges giving an average ratio between thickness and radius of curvature of 1:140. (In shell construction if this ratio falls below 1:250, the shell would have to be strengthened against buckling by ribs or corrugations.)

The curved slabs are reinforced with No. 2 galvanized wire mesh plus eighteen 1/2"





CURVED SLABS, 50' x 19', are precast atop one another, then vacuum-lifted by boom rigged with pulley system so that angle of slab can be adjusted in transit (above). Slab reinforcing (left) is of wire mesh with bars laid along lines of principle stress.





VACUUM LIFTING is done with two $50' \times 11/2'$ lifting pads. These are plywood mats with sponge seals around perimeters.

and ¾" diameter rods laid in catenary curves to provide maximum reinforcing near the edges of the roof sections midway between supports. To prevent bonding during the casting operation, building paper is laid between sections; this also gives a smooth, finished undersurface to the shell.

This technique is also being used to roof a 14,000 sq. ft. warehouse in Philadelphia $(37' \times 60'$ shell sections) and an 8,000 sq. ft. Family Center at nearby Norristown (40' x 66' shell sections). Both jobs are expected to cost 25% less than conventional cast-in-place construction.

The swimming pool shelter was designed by Alvaro Ortega, architect, and Vacuum Concrete, Inc., structural engineers. General contractor: Joseph R. Farrell, Inc.



JOINT between curved slabs is poured around interlocking reinforcing steel. Until Joint is cured the roof is temporarily supported by lateral wood trusses at midspan.







MERCURY LAMPS, in groups of three 1,000-w. units, provide 50 foot-candles in hangar; small incandescent lamps provide standby lighting.



DUAL LIGHTING: 400 w. mercury and 85 w. fluorescent lamps provide 100 foot-candles in Rohr Aircraft plant in Riverside, Calif.

3. HIGH BAY MERCURY LIGHTING

Color-corrected mercury lamps provide quality lighting at low cost but require special glare control

Mercury vapor lamps ordinarily give a ghastly blue-green light. Now fluorescent mercury lamps have overcome this difficulty by adding a red component to the mercury spectrum. Thus it becomes practical to consider the color-corrected mercury lamps for any high bay area (over 25') where the glare from the high capacity point-source lamps can be adequately controlled. The lamps give a light equivalent to 70% standard mercury and 30% incandescent.

In a recent cost analysis of mercury, fluorescent and incandescent lighting for factories, mercury lamps proved over 40% cheaper in over-all costs. The study covered a typical 30,000 sq. ft. area having 50 footcandles of light from lamps mounted 40' high and burning 4,000 hours a year. The specification required 60 1,000-w. mercury lamps operating at 265 v. These cost \$5,593 against \$9,703 for 413 90-w. fluorescent units operating at 265 v. and \$9,862 for 140 1,000-w. incandescent units operating at 120 v.

The detailed study considered the installa-

tion, operating, maintenance and depreciation costs for five mercury lamp, one fluorescent lamp and one incandescent lamp systems. And for the mercury and fluorescent systems, wiring layouts for 120 v., 265 v. and 460 v. were included in the study.

Installation and maintenance costs favor mercury lighting, due to the few lamps required—only 60 lamps vs. 413 fluorescent and 140 incandescent lamps. This is due, in turn, to the greater lumen output of the mercury lamp, 55,000 lumens for the 1,000-w. lamp, against 10,800 lumens for the 90-w. fluorescent and 21,500 lumens for the 1,000-w. incandescent.

There are three design considerations in using mercury lighting: 1) the big pointsource light must be well shielded by a large deep reflector and partially directed upward to minimize direct glare; 2) the reflector should be vented at the top so that dust is carried through the lamp; 3) because there is a time delay of 4 to 7 minutes in starting hot mercury lamps after any emergency shutdown, 5% to 10% standby incandescent lighting is sometimes desirable.

The cost analysis was prepared by Engineers W. H. Johnson, W. H. Kohler and D. W. Rowten, Westinghouse Electric Corp.



COST COMPARISON for year's operation of 50 foot-candle lighting in 30,000 sq. ft. plant puts mercury units at $18!_{2}$ ¢ per sq. ft. over all, about 40% less than fluorescent or incandescent.



Photos: Walter Daran

 DRIED-OUT PUTTY on Lever House glass and metal window walls cracked and worked loose within year due to severe heat and water run-off.

2. LOOSE WINDOWS cracked, rattled noisily and developed leaks.

 SOLUTION: rabbet is cleaned of old putty and dirt, dust is removed by portable blowing machine.

 TAPE covers edges of glass and metal to keep them clean of strongly adhesive sealing compound.

5. EXTRUDEDMASTIC is pumped into joints, then squeezed into place with spatula.

6. FINISHED JOINT appears after stripping tape. When cured after few days, mastic does not dry out, remains elastic and adhesive at temperatures from -65° to 250° F.

4. SEALING THE GLASS CURTAIN WALL

Severe weathering on curtain wall windows requires new-type mastics to solve calking problem

Modern glass and metal-clad buildings have not proved to be as watertight as their masonry forerunners although architects have specified similar or better glazing techniques. Glass walled buildings such as Lever House and the UN Secretariat have developed loose, leaking windows within a year of their installation because the putty has dried out, cracked and fallen away.

Conventional glazing techniques long used in porous masonry walls are unable to cope with the severe weathering cycles encountered with the nonporous curtain wall. There are several reasons for this:

▶ High temperature—a nonporous thin metal or glass façade (especially one fitted with heat-absorbent glass) cannot store up midday solar heat, thus is liable to rapid temperature changes and abnormally high surface temperature in summer, high enough to dry out the oils in even the best quality conventional calking compounds. In cold weather the dried out compound becomes hard, shrinks and cracks. ▶ Vibration—because it is light and supported by nonrigid secondary framing, a glass or metal curtain wall is subject to all the vibrations set up by the building's internal machinery and by outside wind pressures. Consequently the dried out calking compound easily works loose and falls away.
▶ Intense water run-off—while masonry walls absorb a great proportion of driving rain water, glass and metal walls cannot. The run-off pours down the façade, continually gathering more water and corrosive dirt on the way and subjecting the joints of the building to a scouring action.

Seeking to overcome the problem of rattling and leaking windows at Lever House, Maintenance Engineer John H. Galvin first considered taking out and resetting each window from the outside, using the best possible grade of marine glazing compound. This proved a difficult and expensive operation and did not appear lasting.

Galvin needed a new type of calking compound, a good plastic adhesive that was nondrying, nonshrinking, nonoxidising and was not affected by sun or corrosive atmospheres over a wide range of temperature. In his research he learned of a new, rubber-type mastic that had an extreme temperature range, from -65° to 250° F., and showed promise of an exceptionally long life. The material is a heavy base syrup to which a curing agent is added just before use. After a few hours of curing, it forms a rubbery substance that bonds well to both porous and nonporous surfaces. It can be made to cure into a soft or hard material as desired. The material is expensive, \$25 a gallon against only \$4 a gallon for the best grade conventional calking compound, but can be pumped into the window joints from both sides without the cost of removing the glass. The first windows were treated last October and today there is no sign of deterioration.

To offset the high cost of the material, the contractors have made two suggestions for new construction: 1) ship the window to the job complete with neoprene or vinyl gaskets around the edges of the glass, then seal the edges of the gasket to the glass and the facing metal with the new adhesive material. 2) Set and calk the window with a standard glazing compound, and afterward seal the low-cost material with the new high-cost compound. Both techniques would use minimum amounts of the expensive material, yet provide a tight seal. Grenadier Corp. are the waterproofing contractors.





Vermiculite Institute

SPANDREL PANELS of 12-story bank building are backed with $2V_2''$ vermiculite concrete machine-sprayed in 1" layers (below).



ENAMELED STEEL SKIN is embossed in 8" squares, 34" deep to add rigidity to 6' high spandrel panels and reduce oil-canning.



Seaporcel Metals Inc

5. LIGHTWEIGHT CURTAIN WALL

Embossed porcelain enamel spandrel panels with 2½" sprayed vermiculite backup weight only 12 lb. per sq. ft.

To reduce dead load and so cut foundation costs, the 12-story First Security Bank building in Salt Lake City uses a very light wall construction. The wall consists of 18-ga. porcelain enamel steel, embossed in 8" squares to reduce oil-canning effects, and backed with 21/2" sprayed vermiculite concrete. The resulting wall has an insulating value equivalent to that of 17" of masonry, yet weighs only 12 lb. per sq. ft. Since the equivalent masonry wall would weigh at least 125 lb. per sq. ft., the lightweight wall cut the dead load of the building by about 2,950 tons. Further, compared with masonry, the 3"-thick wall adds 4,000 sq. ft. of rentable floor space which earns an extra \$18,000 in annual rent.

The wall panels are fastened to welded steel secondary framing with 1" angle clips and the adjacent sections calked. They are of two types: 1) 7,000 sq. ft. of spandrel panels, 4'-2" wide and 6'-4" high, are gray, embossed in 8" squares $\frac{3}{4}$ " deep, with the corners cut off slightly to relieve skin stresses at these points; 2) 45,000 sq. ft. of wall panels around the stairwells, off-white and rust-colored, fluted vertically, each 4'wide panel being made in three sections, bolted to a secondary framing grid and lifted into position as a unit. Vermiculite backup is sprayed on paper-backed wire mesh held ¼" away from the enameled facing panels. (The ¼" air gap is for condensate venting.) The lightweight concrete was sprayed in 1" layers, at 24-hour intervals and at a rate of 1,500 sq. ft. per day per machine. ASTM standard fire tests showed the 2½" vermiculite concrete wall has a fire resistance of 3 hours and 15 minutes (when the temperature of the unexposed surface of the panel rceahed 389° F.).

Because the building is erected on 72' long concrete pile foundations (cost: \$190,000 for 236 piles), it was made as light as possible. Further weight-saving measures: 1) Rigid frame welded design, strengthened to resist seismic loadings, saved 112 tons in framing steel (20%); the 900 ton main frame plus another 100 tons in secondary wall framing was built for \$350,000, or \$350 per ton. 2) Cellular steel floor decking (8 psf) is topped with $2\frac{1}{2}$ " lightweight concrete (25 psf). 3) Vermiculite plaster on metal is used as fire proofing around columns and in the suspended ceiling beneath the floor steel.

The building is designed by W. G. Knoebel, chief architect of the Bank building and Equipment Corp., Slack W. Winburn, associate architect.



TAPERED GIRDERS 60' long were built up from steel plate for factory (above). Alternate method (sketched at right) is to flame-cut web diagonally, turn pieces end-for-end and butt-weld them together.



Spans of 60' prove no more costly than ones of 40' by use of wartime steel-saving technique

Twelve years ago when steel was hard to find, many steelmen cut and welded together their own sections out of whatever steel plate or unmatched rolled sections they could get. Today this technique is paying off in the economical framing of repetitive industrial structures where tapered steel sections save considerable steel by closely following the bending moment patterns of the framing.

Striking example of this technique is the new Minneapolis-Honeywell Regulator Plant at Los Angeles, where 60' x 30' bays of builtup tapered steel girders and open web joists proved as economical as standard 40' x 20' bays. Main girders are $59'-1\frac{1}{2}$ " long, tapered from 3'-6" deep at center span to 1'-4" at the supports, and weigh 3,000 lb. each, averaging 50.8 lb. per foot-run. The structure was completed in 39 days including detailing, fabrication, painting and erection.

Because of their huge 60' lengths, tapered girders (pictured above) here were built up from steel plate. For shorter members an alternative method (sketched above) takes advantage of economical rolled sections. A rolled section is cut diagonally along the web and the pieces are turned end-for-end and welded together. The resulting gap at the center can either be filled as shown or the beam cut to fit and rejoined.

WELDED FILLER PLATE

TAPERED BEAMS FROM BOLLED SECTIONS

In Los Angeles recently there have been failures in tapered steel framing due to inadequate lateral bracing during construction. Now both the county and city building departments require that tapered girders shall not be loaded until properly anchored and braced (at not more than 30' intervals) to resist a 1,000-lb. horizontal thrust at either top or bottom flange.

Kenneth H. Neptune is the architect; Richard R. Bradshaw, structural engineer.



7. LUMINOUS PLASTIC CEILING

Bead chains support extra-thin plastic panels, providing 65 foot-candles from shallow 4" ceiling plenum

Because acrylic plastic is usually cast, the sheets are necessarily thick—about 1/4". And, because the manufacturing process is noncontinuous, the sheets are comparatively expensive. The plastic can be extruded in 4' wide, 1/16"-thick continuous lengths, with a saving of 50% in material costs and 40% in manufacturing costs, but the material is so thin that its use is limited.

In a new laboratory building for Rohm & Haas Co. at Bristol, Pa., the thin plastic is used in a 650 sq. ft. shadowless luminous ceiling. It is formed with $3'-9'' \ge 8'$ panels mounted in 6"-deep catenary curves on small bead chains between white-painted sheet metal division strips 3'-8'' o.c. Continuous

fluorescent lamps are spaced 1'-11" o.c., mounted in standard channel fixtures screwed to the ceiling, to give 65 foot-candles of lighting on the desks below. Thanks to the big corrugations in the plastic, glare and shadows are eliminated although the lighting plenum is only 4" high above the division strips. Cost of the 1/16" acrylic sheet: about \$1 per sq. ft. The ceiling was designed by Research Engineer E. M. Linforth.

in all concerned

For better building America needs many trained men besides trained architects and engineers.

Though building is our biggest industry it is the least correlated. It operates through whole series of separate organizations and operations that are interwoven only loosely, each working in its own way.

An influential building industry group has now formally recognized the need for industrywide education, which will serve not only to supply the need of trained men but also men trained as members of a team.

At a conference called by AIA to pursue the findings of its own Survey Committee, there was joint action with representatives of the Association of Collegiate Schools of Architecture, American Society of Civil Engineers, American Society of Electrical Engineers, Associated General Contractors, National Architectural Accrediting Board, National Council of Architectural Registration Boards, National Society of Professional Engineers, and Producers' Council. A resolution was sent back to all these constituent societies.

The need, said they, "embraces men skilled in organization and financing to initiate projects [promoters, realtors, lenders]; men competent to design structures and their component services [architects and engineers]; men skilled in the development production and distribution of materials [manufacturers, scientific researchers, production men, salesmen, distributors, dealers]; men skilled in handling construction labor, materials and equipment [contractors]; in some instances men competent in building for sale or rental [homebuilders, speculative builders of commercial, industrial, governmental space], and engaging in building operation and management [building managers, maintenance engineers]."

Three years ago, thoughtful Tyler Rogers of Fiberglas had already asked how you educate all these men in correlation (AF, Sept. '52). Now Walter Taylor, AIA's educational director, put it formally to the annual meeting of the Association of Collegiate Schools of Architecture.

Many of these educators at once mistook the whole scheme as an effort to popularize and water down architectural education, so those students unable to "make it" as architects might get a degree and find a spot in an occupation less demanding.

Nothing could be further from the intention of the committee. The new education would be primarily for those who not only will never be architects but never wanted to be. Though it is charming that the architectural schools think of architecture as the be-all and end-all of all serious building, and although architecture is the leading index of any civilization, people in general put up buildings not primarily to produce architecture but to use and operate. In this process there are ten distinct phases of which architectural and engineering design is only one. These phases are: 1) discernment of building need; 2) conception of the requirements; 3) drawing up of a financial program and obtaining financing on it; 4) making arrangements respecting the land; 5) architectural and engineering design; 6) design, manufacture, distribution of building materials and components; 7) field assembly of components; 8) building operation and maintenance; 9) renovation; 10) demolition. Then the cycle repeats.

At every one of these steps some new and different member of the building team is the man actually in chief command. For architects to dream of bossing each of these successive steps is to engage in the wildest kind of daydream. For architectural schools to seek to delay the more formal training of the lenders, builders, managers and others until they could manage it all themselves would be narrow and unwise. For these architectural and engineering schools to participate with other schools in our universitiesschools of business, schools of practical arts, would be constructive. It would mean that the entire building team would share the same basic education -in other words, that all would be taught in school those architectural ideals and purposes which some team members of today have never been taught and have never come to understand. And conversely it would mean that architects themselves would have a place to go where they could early learn the rudiments of such subjects as building finance which most architectural schools of today know nothing about, cannot teach at all, and on which they leave their graduate architects in crippled ignorance.

We must hope, however, that this collaborative effort of building-team education, worked out in combination by groups of educators, will remain a deeply liberal education, not narrowly a trade education. If it becomes no more than a series of technical lessons, then it will be open to the criticism that the building industry has simply shifted the burden of training its people from itself to the taxpayers. If it becomes an eyeopener for all members of the team to the sublime meaning that the act of building can have for society, then and then only can we say that through the building industry it serves the people. The architectural teachers had better come aboard and help steer such a course.

Douglas Haskell

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*Nor, may we add, is it surprising to find Moultile Jubilee in virtually every type of installation.

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EXCERPTS

Continued from p. 122

related facility. But at their widely spaced access points, with their concentration of traffic on and off, we naturally find the beginnings of all sorts of slummy uses. You would think somebody could have foreseen this and introduced some creative zoning and land-use provisions at their inlets and outlets. Just that much more of the countryside going to ruin because of one more device planned in isolation.

Urban Renewal is also a single tool that is being relied on to accomplish more than it possibly can. As an adjunct and a pumpprimer for bold and incisive analyses, it could probably do much. But its 100- or 200acre sites are inadequate, and the program has already got into problems and crises of relocation of people and of economic and racial segregation that may well exceed its ameliorating advantages.

The general approach to the community problem so far has been to assume that what we have must pretty well stay and continue to grow, and to see what we can devise to make it more or less do. This we do, no matter how often we fail (as we are now), no matter how costly it may be to apply our remedies. The most admired aspect of America in the twentieth century is its successful industry. Industry's success is not due to patching up old plant, but to analyzing its problems and then, if necessary, building entirely anew. I am not suggesting we can do so drastic a job on human environment. But I do suggest this: present approaches assume that we must preserve our present structure, and year after year we spend many, many millions fruitlessly trying to achieve this by expensive supertraffic systems and far-flung water supply systems of tremendous complexity. Instead, let us make a bold approach the other way. Let us analyze and visualize what we would do if we could start from scratch now, in the midst of our new technological opportunities, and see what we can salvage from what we have in the light of that. In other words, we can no longer afford to grow by continuous accretion.

Let us plan by combined operations and "expertise," and let not the single solution or the single project fascinate us and pose as the answer. We must use creatively and jointly the very same tools we now use piecemeal and futilely. We will indeed need to add some, but mostly we need to use better those that we have. We will not solve traffic only in terms of traffic. If we first explore by drastic functional and land-use rearrangement what minimum of traffic is needed to do everything that we need to do, then our ingenious and brilliant solutions will need to be used only sparingly to make a good plan even better; and not, as now in a continued on p. 172 Workmen of the Johnson Insulation Co., Detroit, installing Super-Fine on heating ducts at the People's Outfitting Company's new store. The soft-textured blankets were quickly and easily wrapped around the large ducts and secured with light-gauge wire.



In big, new department store duct job-

L·O·F Super·Fine cuts heat lossreduces installation cost

In specifying duct insulation for the new People's Outfitting Company store, in Lincoln Park, Michigan, highly efficient insulation and low-cost installation were basic considerations.

The architects, Wiedmaier & Gay & Maxwell Wright, selected ½-pound 1-inch Super Fine to cover the store's 45,000 sq. ft. of concealed hot-air ducts.

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EXCERPTS

Continued from p. 170

wholesale way, to make up for bad planning.

We require a thorough-going and unprejudiced regional-metropolitan approach and plan and authority and execution. The city plan is too small a basis, because the automobile has made the political boundary meaningless. The disorder is regional. The new order must be regional. This must be real and operative and not just a lick and a promise to coax money from the federal government to subsidize a single 100-acre or 500-acre redevelopment. And we must start at the other end too, with the small neighborhood, the superblock, the architectural and living texture out of which the grand new plan will be built. For only by constantly thinking and weighing in the intimate scale, and on the grand scale, can we achieve both the over-all requirement, the continuity of texture and pattern and the lift of architecture.

What other tools must we put together and create?

▶ We need drastic density reductions especially at the center of the city, where opposition will be greatest, not only for more humane conditions that are acceptable to those who are now abandoning it for distant points, but to avoid choking the city to death with excessive traffic. In other words, a vital new zoning dimension and concept.

▶ We need a public land acquisition policy that is not just a hand-to-mouth affair making purchases for each separate project as it arises. Only in that way can we plan ahead, can we have continuous, open, green breathing spaces that separate one built-up area from another, instead of the deadly continuous metropolitan build-up that drives us farther and farther afield for release.

▶ We have got to exercise much more than minimal control on the private developers who can build just about anywhere they please, still further stretching and confusing and exacerbating our traffic requirements; and they unbearably stretch our utility requirements. Our tool of FHA could be of commanding help in this because it makes these operations possible.

▶ We have got to see to it that the industrialist who decentralizes has more definite civic and social responsibility in his new location than merely to buy land and build his factory.

▶ We need planning bodies regional in scope, but we need also to give them strength and guts to plan boldly and, above all, to be really in control. This requires the backing of citizens who are on fire and who also closely understand.

Obviously, if we can achieve a less helterskelter environment, a sense of serenity and of community, varied and integrated funccontinued on p. 178


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EXCERPTS

Continued from p. 172

tional requirements, green open spaces and less density that will permit buildings to stand out as really three-dimensional, the stimulus to creative architecture is enhanced. And in every phase of the architect's participation, it is his sensitivity to space in three dimensions which will be his special contribution whether as individual creator, as corporate advocate, or as interested citizen. For this criterion, and the criterion of quality or of excellence, is not one that citizens or officials yet regard highly. However good and effective over-all planning may become, unless there is stirring quality in the detailed development and in the visible texture, our cities will continue dull, stirring and exciting mainly at night with the buildings alight, and the ridiculous but gaily colored signs and displays giving life and movement.

The individual architect can make another important contribution. Within limits he can affect his client's program more than he generally does. He can propose and prove out elements and functions that the client does not visualize. However radical zoning laws may become, they will never be as stringent as good architecture and good urbanity require. I know from experinece that one can get some hard-boiled clients, even in hard-boiled New York, to make some sacrifice in coverage in favor of a green space or a private park. And one can do it in the client's own economic terms, in terms of enhanced prestige of the enterprise, in terms of better rent and less turnover.

The architect as a citizen has two obligations. 1) He should put his weight behind those organizations which are actively interested in community development; to help create one if it does not exist; to add this vital matter to the orbit of interest of organizations he does belong to. 2) He is a citizen with specialized understanding and sensitivity in this field. One of the serious frustrations I find in civic life is that even in those citizens' housing and planning organizations which are on the side of the angels, there is a disappointing insensitivity to architectural quality. They are strong on quantity, strong on bathrooms, strong on square feet per room, but not aware of the need for emotional lift or stirring experience.

The whole set of issues locked up in community building is of burning immediacy; the pace of deterioration is fast and on many fronts; the remedies and solutions are often ill-advised and even tend to freeze obsolescence in a new, shiny and expensive deep freeze; there are wonderful new technological tools and increases in social understanding that permit far better answers and lives; there are some positive developments here and abroad that give great promise and already show important performance.

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THE BOMB, SURVIVAL AND YOU. BY Fred N. Severud and Anthony F. Merrill. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. 264 pp. 6" x 91/2". Illus. \$5.95. Technical Supplement by Fred N. Severud and Kurt Bernhard. 43 pp. 7" x 10". With diagrams. \$2.50

On the principle that one should hope for the best but prepare for the worst, anyone planning to build a new structure in this day and age should bear in mind the possibility of its being subjected to atomic attack. In this realistic study, Fred Severud, one of the top US structural engineers, examines the newly declassified two three-volume reports by the US Strategic Bomb Survey on the effects of the bombs dropped at Hiroshima and Nagasaki, and comes up with some encouraging conclusions:

"Existing structures can be strengthened to withstand atomic blast. People, at home and at work, can find safety. Equipment serving the functions of a building can be protected." Moreover, since the inclusion in new buildings of a certain degree of design protection against atomic loads costs little or nothing, it is practicable to design against atomic loads-and the resultant dynamically designed structures will be better able to withstand severe earthquake and hurricane forces.

Although the 1945 bombs were primitive compared to today's giants, they do show the nature of atomic bomb damage. The radius of "total damage" has vastly increased, but so has the radius of partial damage in which proper design could prove of inestimable value in the event of any such ghastly catastrophe. Although no one can be given full protection, the scope of damage and loss can be limited.

The effects of an atomic burst are twofold: 1) those which travel at the speed of light-the light flash, the gamma-ray flash and the primary-heat flash; and 2) those which travel at the speed of sound-the shock wave, the ultraviolet and infrared waves and the opposing drag force following the shock wave.

Of the first group the gamma ray is lethal. Those directly beneath the Hiroshima bomb would have needed a 30" concrete covering to survive. US civil defense authorities recommend 20" of concrete as a practical average protection for bomb shelters and, since the outside walls and floors of a building would continued on p. 186

HERE'S WHERE YOU







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ARCHITECT'S AND ENGINEER'S FACT SHEET



Corning uses pyramidal and linear prisms to get maximum light control in this interesting new low-brightness lens panel.

ANNOUNCING...

Corning's New Low-Brightness Curved Lens Panel

Corning has put two kinds of prisms and a curve in one new panel to give you a new combination of beauty and utility in your lighting design.

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To get complete information on Corning's Low-Brightness Curved Lens Panel, simply mail the coupon. Or, contact your Corning lightingware representative.



Pyramidal prisms in the center portion concentrate light from the tubes and reflector so that it leaves the fixture at angles below the glare zone. The linear prisms have a uniform down-bending action controlling the light which might otherwise escape at higher angles from the slanted sides.

 $\begin{array}{c} \mbox{Information on Corning Low Brightness} \\ \mbox{Lens Panel} \\ \mbox{LENGTH: Code 541371-4734" both ends closed.} \\ \mbox{Code 541372-12", 24", 36" or 48"} \\ \mbox{both ends open.} \\ \mbox{Code 541373-1176", 2375", 3576", 4776" one end closed.} \\ \mbox{LENGTH TOLERANCE: $\pm 1/46".} \\ \mbox{On 541372 only $\pm 0 - 1/6".} \\ \mbox{WIDTH: 1076" $\pm 1/66".} \\ \mbox{DEPTH: $272".} \\ \mbox{THICKNESS: .180".} \\ \mbox{WEIGHT: 2.0 lbs. per running foot.} \\ \end{array}$

SUGGESTED SPECIFICATIONS

The lens panel for the fluorescent fixtures shall be a continuous curved lens made of colorless crystal glass. It shall be of the low brightness type, with configuration of six-sided pyramids in the center section, with linear down-bending prisms in the side areas.

Dimensions and suggested specifications.

| | 2480 L | umens | 2560 L | umens |
|-------|--------|-------|--------|-------|
| | Across | Along | Across | Along |
| Angle | Axis | Axis | Axis | Axis |
| 85° | 302 | 233 | . 312 | 240 |
| 80° | 320 | 252 | 330 | 260 |
| 75° | 295 | 313 | 304 | 323 |
| 70° | 300 | 412 | 310 | 425 |
| 65° | 315 | 532 | 325 | 549 |
| 60° | 375 | 607 | 387 | 626 |
| 55° | 504 | 723 | 520 | 746 |
| 50° | 682 | 841 | 704 | 868 |
| 4.5° | 885 | 967 | 913 | 998 |
| 40° | 1047 | 1077 | 1081 | 1112 |
| 350 | 1137 | 1142 | 1174 | 1179 |
| 30° | 1155 | 1182 | 1192 | 1220 |

Title.

Zone.....State...



184

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BOOKS

Continued from p. 182

provide part of this protection, the additional shelter required in the body of the structure would not have to be impossibly thick to provide the balance.

The shock wave in the second group of effects does the structural damage to a building, so those who have seen the flash might have a few precious seconds to find shelter. This fact is highly important because most deaths are caused by the secondary effects of the shock wave—flying glass, masonry, fire, etc. Practical defense lies in the provision of small, specially protected shelters within a building, preferably on each floor and with, wherever possible, some strengthening of the structure to ensure that the main frame at least will remain standing after the shock wave has passed.

The guiding principle in atomic design is not to fight the shock wave but to allow it

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rapid passage through a structure. Buildings which present a broad impenetrable front to the wave will be smacked down, while those which present a narrow front, or which the wave may easily penetrate, might remain standing. In a multistory building with a basement, for instance, the shock wave passed through the upper floors without damage, but as there was no quick entry into the basement, it stove in the ground floor.

Provided the main frame can be secured against collapse, shelter for the occupants of a building can be provided by strengthening the corridors. Where the frame is weak an independent shelter tower might be built inside the building. Engineer Severud recommends a cylindrical concrete tower standing on its own foundations and with access on every floor. Another solution is to strengthen the strongest part of a structure, such as the intersections of load-bearing walls, by means of prestressing cables.

The after-effects of bombing will include numerous fires, which might easily develop into a severe firestorm. This occurred at Hiroshima where the fire-fighting forces were put out of action and the water supply cut off. Therefore large buildings might include standby water tanks (a swimming pool, for instance). Special attention should also be given to the strengthening of fire houses in order that fire fighters and their equipment might be available after a burst.

Except for some discussion of building distortion and the design of windowless structures this book is largely nontechnical. A separate technical supplement prepared by Engineer Severud with the help of his office staff gives mathematical analyses of blast loadings and shows how dynamic design can help resist much of the tremendous but instantaneous blast forces of atomic bombing.



TWO STAGES in building destruction by blast. Note that roof and first floor suffer most damage due to unequal pressures.



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PRODUCTS

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Cathodized aluminum sliding door frames take on subtle, warm hues





WEATHERFAST, FUMEPROOF dyes applied by negative electrolysis give aluminum extrusions color of untarnished brass, etched bronze, copper or nickel silver. Guaranteed permanent by manufacturer, tint baths add 10% to cost of Trendware's standard sliding doors (detailed above). Imbuing aluminum with colors of unusual richness and subtlety, Trendware's new chemical hardcoat matches beauty with durability. The process, an electrolytic inversion of anodizing, uses cathodes to produce a wide range of fadeproof tints. Unlike most coating techniques, this cathodizing dyes aluminum without altering the surface characteristics of the extrusion or casting. Although highly effective architecturally, the colors were not originally developed for building materials but as protective coats for jet aircraft parts-still its major use. The shadings-pale brass-bronze, copper-bronze, gold, and gray etched bronze, look precisely like those metals. But only the hues of the warm metals are simulated; their inconstancies of oxidation are not shared. In addition to the metallic tinctures, Trendware produces dark green, dark blue, and a lustrous, nonpaintlike black. Designers who wish to maintain aluminum's own color integrity but bolster its resistance to fumes and sea air also can obtain a clear coating. (Testers stopped clocking a salt spray test on aluminum members processed by Trendware after 15,000 hours showed no effects.) Chip-proof and scratch resistant, the cathodized colorings are reported to have the surface hardness of steel.

First stock construction items to get the continued on p. 194



Radiant Heating Used to Provide Maximum Comfort for Cerebral Palsy Patients

A complete radiant heating system of USS National Steel Pipe has been installed at the Walter D. Matheny School for Cerebral Palsy Children, Peapack, N. J., to insure heating comfort for the patients and to keep operating costs of the institution at an efficient low.

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Again this year, the Producers' Council Caravan of quality building products brings you a collection of displays of the most significant building product developments of our time.

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For any detailed information you may require, we suggest that you get in touch with your nearest *Pittsburgh* Architectural Representative. He will be on hand to offer every assistance.

Pittsburgh Plate Glass Company, Room 5329, 632 Fort Duquesne Boulevard, Pittsburgh 22, Pennsylvania.



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GLA

PRODUCTS

Continued from p. 190

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Fireproof, easily cared for and naturally resistant to germs and dirt, the beautiful Markwa tiles should find their way into many modern buildings of all kinds. Manufacturer: Vermont Marble Co., Proctor, Vt.

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CONCRETE BLOCK partially covered with cement paint. Note how voids are filled and the rough texture smoothed to form a bright, clean surface.





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Accepts winter sun

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Other materials which transmit north light and low winter sun also transmit high percentages of light during the hot, summer months. Toplite rejects direct light and heat from hot, summer sun, but transmits much of the cool, north light.



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PRODUCTS

Continued from p. 194

steel or corrug alum





IN COLUMBUS, OHIO ... Unit No. 5-Picway Station Columbus & Southern Ohio **Electric Company** Steel Fabricated by Ingalls Fabricating Steel is our Business IRON WORKS COMPANY THE BIRMINGHAM, ALA. . PITTSBURGH, PA. SALES OFFICES: Birmingham, New York, Chicago, Pittsburgh, Houston, New Orleans, Atlanta

PREFABRICATED TRUSSES packaged with roof skin and insulation

Calculated to span 40', 48', 60' and 80', Brookville's packaged steel roofs are shipped ready to set on top of side walls. Suitable for use with masonry as well as metal walls, the clear span units are practical for many kinds of industrial and institutional buildings. Their bowstring trusses come welded in half-assemblies and are bolted together and to anchor bolts embedded in the top of a masonry wall. (All field connections of the roof's steel frame are bolted, and can be made by untrained crews.) Galvanized or prime-coated 2'-wide roof sheets covering rigid or semirigid insulation board are fastened to the purlins with self-tapping screws, and Tee sections are placed between the insulation panels to prevent sag and dress exposed edges. Side laps of the metal siding are formed with caps and drains.

Meeting requirements of the American Institute of Steel Construction, the superstructure safely sustains a 30 psf live load and 20 psf for a wind velocity of 71 mph acting on walls and roof. Each truss can carry 1 ton at center for light monorail systems, or a 5 psf ceiling load. Trusses are set no wider than 16' so that light-



gage sheet purlins, wood or metal joists can be used to support a finished ceiling. Heat transmission coefficient of the completed roof is .35 and, if a second layer of board is applied to the struts on the bottom chords of the trusses, heat passage can be brought down another 10%. Ventilators, end louvers and plastic skylights will be provided according to design specifications. Roof heights at the center line range from 5'-9" for 40" wide building up to 10'-10" for 80'. F.o.b. prices on Brookville insulated roofs run 95¢ to \$1.25 per sq. ft. of floor area for 40' trusses up to \$1.05 to \$1.50 for 80', depending on the quantity ordered. Manufacturer: Brookville Mfg. Co., Brookville, Pa.

continued on p. 202



but what about the rooms that everybody sees?

Board rooms and presidential suites get a lot of attention in the plans . . . but the thoughtful architect knows that they do little in forming tenant and public opinion of his buildings. Only a handful of people ever see them.

The places that EVERYBODY sees are the rest rooms. They are usually the *only* areas where the architect can dictate final appearance down to the last detail. Attention devoted to making the rest rooms completely modern, sparkling clean, and attractive in appearance pays off in employee morale. . . in tenant approval . . . and in continuing prestige for the designer.

"Off-the-floor" fixtures are one major means of creating modern, clean, attractive rest rooms . . . and they are used in most of the nation's newest major buildings. It is significant that all such plumbing fixtures are supported by ZURN SYSTEM[®] wall-type fittings and carriers. The special, engineered features of the ZURN SYSTEM assure that all stresses will be carried by the fittings and none by the wall—make it simple and easy to install, align, and replace plumbing fixtures . . and permit changes in floor or wall treatment to be made at any time. There are no regrets when ZURN SYSTEMS are selected, as over 800,000 successful installations already serving can testify.

"Off-the-floor" fixtures carried on ZURN SYSTEMS help to attain the latest and finest in wash room and rest room appearance . . . permit hospital-like standards of cleanliness and sanitation to be easily maintained . . . and play a tremendously important part in making and keeping the building "young." For more complete details on the increasingly important part modern rest room design is playing in modern building fields, ask for our new booklet "Behind Closed Doors." 110-2



The Zurn Zero Zone is created by mounting off-the-floor plumbing fixtures on ZURN SYSTEM behindthe-wall fittings and carriers. This permits the highest degree of rest room sanitation to be attained and maintained. All major plumbing manufacturers make fixtures to fit this system.

See our catalog in Sweet's Architectural File and Industrial Construction File.





near you! Lighting, sound control, air flow combined!

The trend is to allover ceilings of glareless, shadowless light that also provide sound control and a ceilingwide plenum for air conditioning and heating. ACUSTI-LUMINUS CEILINGS are easy to maintain. They're made from unbreakable, corrugated LUMI-PLASTIC and labeled by UL for installation under sprinkler systems. Three essential elements for modern interiors are combined at a cost that's lower than conventional illumination and sound control alone.

over 4500 installations!

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| Please send me your free illustrated by me where I can see an ACUSTI-LUMI installation! | NUS CEILING |
| Name and title | |
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PORTABLE TANK stores fuel at construction site; rolls up like rug

Having seen Air Force service for five years, Goodyear's rubberized collapsible containers are now available to industry for economical storage of liquid and bulk materials and to building contractors for convenient storage of fuel for power equipment on remote construction jobs. Made from a vulcanized laminate of synthetic rubber and gasoline-barrier fabric, the tanks have a minimum number of openings -vent, inlet and outlet-to simplify handling and retard evaporation. Three standard sizes are made currently: a 900 gal. priced at \$800 f.o.b. Akron; a 3,000 gal., \$2,000; and a 10,000 gal., \$4,000. (On special order, the big pillows can be ordered in capacities up to 100,000 gal.) Weighing 150 lb. empty, a 900 gal. container measures (when filled) 9' long, 5'-6" wide and 2' high. A full 10,000 gal. is 40' long, 10' wide and 3' high. Resistance to temperatures of -40° up to 160° F. is more than laboratory proved; the pillow tanks have been toted, used, and recarted around frigid northern Canada and torrid Cocos Island without a mishap.

Manufacturer: Goodyear Tire & Rubber Co., Inc., Akron 16, Ohio.



PLASTIC PUTTY ROLL is quick mend for ailing skylights

A plastic putty for glass skylights, Mend-O-Lastic Adhesive comes in roll-tape form adhered to its own corrosion-protective cap of metal foil. No tools are needed to apply the 1-%" wide strip of nonhardening dark green material. It is simply unwound over a rafter bar and tamped down over both sides of the bar. Pliable enough to give glass its necessary play, Mend-O-Lastic will not bleed at 200° F. nor crumble at 45° below. Its tight seal helps conserve heat and prevent glazing points from rusting. Cut lengths of Mend-O-Lastic can be used to calk door and window frames. A 121/2' roll costs \$2 postpaid; a carton containing 100' is \$12. The easy maintenance material also is available in tubes for sealing water tanks, mending roof leaks, and repairing pipe lines. Manufacturer: Fennia Laboratories, Franklin Park, Ill.

continued on p. 206

FUNCTIONALLY beautiful beautifully functional wayne gymnasium seating

The idea may startle you—but nothing adds more to the appearance of a gymnasium than attractive seating ! Especially Wayne Rolling Gymstands. These easy-rolling, handsome units are architecturally designed to bring you the utmost in lasting good looks and dependable performance. Fine finishing gives carefully selected wood an unsurpassed mellow richness. Fully closed risers assure foot safety and better appearance. Completely vertical front when closed makes Gymstands smart and neat. Exclusive alignment frames insure freedom from jamming, permit smooth, easy opening and closing. No sag, no sway __ Wayne Gymstands meet all and exceed most grandstand safety codes and regulations. Provide maximum visibility, too.

Get Wayne's Rolling Gymstand Catalog No. R-54. Just write on your letterhead. ROLLING GYMSTANDS



WAYNE IRON WORKS . WAYNE, PENNSYLVANIA



Top Executives

They want Flexachrome

in as many areas as possible because of its lasting beauty . . . exceptional durability . . . greaseproofness . . . resistance to acids, alkalis, scuffs, fire and moisture . . . PLUS the fact that it can pay for itself in maintenance savings.

Flexachrome* satisfies practically all demands, for it is top quality vinyl-plastic and asbestos from surface to surface. It is one of the finest all-purpose floorings ever developed, combining the advantages of all types of resilient flooring.

They want Vitachrome

for kitchen and food serving areas because it is greaseproof tile with light, pleasant colors. Colors that have a high degree of light reflectivity. Vitachrome* is one of the most economical plastic-asbestos floor tiles on the market.

They want Tuff-Tex

for those areas needing a heavy-duty flooring to take the beating from greases, oils, traffic, rolling friction (including reasonable trucking abuse). Tuff-Tex* is the tile for warehouses, boiler rooms, machine areas, etc. It is "tough all the way through"—yet it is colorful, comfortable, safe and quiet under foot. Restaurant

Maintenance Engineers

They want Tile-Tex

in those areas where a quality floor is desired, but where price is more important than such features as greaseproofness. Tile-Tex* is the quality low-priced tile. The flooring with a long-established record of satisfactory performance. The pioneer asphalt floor tile!

> Store Proprietors

They want Mura-Tex

for wainscoting and walls because it is easy to keep clean and sanitary. Never needs painting or redecorating. Mura-Tex* is greaseproof . . . resists acids and alkalis. It can be installed over new or old walls.

--- See Our Catalog in Sweet's Files-

*Reg. U. S. Pat. Off. †Trademark of the Flintkote Company

Heads of School Boards

Ask your Tile-Tex Contractor to show you these products... and the two *new* Tile-Tex Flooring Products, Holiday† and Modnar†, designed for special effects.



The Tile-Tex Division, The Flintkote Company, 1234 McKinley Avenue, Chicago Heights, Illinois.

Tile-Tex Pioneer Division, The Flintkote Company, P. O. Box 2218, Terminal Annex, Los Angeles 54, California.

The Flintkote Company of Canada, Ltd., 30th St., Long Branch, Toronto, Canada.

Macomber Did Something About The **Time and Cost of Erecting Steel Buildings**

With V-LOK Steel Framing, an industrial building like this is a real source of pride to the owner, the structural engineer who designed it and the contractor who watched it go together faster than any job he ever erected.

All of these things are fine but COST and EARLIER OCCUPANCY sell V-LOK to School Boards. Shopping Center Owners, Medical and Insurance Building Owners, Parking Facility Owners, etc.

Before you design or build anything-see what V-LOK will do for you and the owner.





BURITEUTS & EVGINEERS REFERENCE MANUAL

Steel Framing DESIGN DETAILS

> STANDARDIZED STEEL BUILDING PRODUCTS **MACOMBER INCORPORATED** CANTON 1, OHIO

NAILABLE STEEL JOISTS LONGSPANS BOWSTRING TRUSSES METAL DECK OK STEEL A M I N G STRUCTURALS

• ENGINEERING • FABRICATING AND ERECTING .

PRODUCTS

Continued from p. 202

BLACKOUT AND VERTICAL VENETIANS broaden window blind applications

Easier building maintenance, daytime sleeping comfort and better indoor film viewing are promised by three new Hunter Douglas *Flexalum* blinds. The first, a vertical Venetian called the *Draw Drapery*, is a slender aluminum slat version of the elite group of up-and-down blinds that started with the





DIRECT ADHESIVE ROMANY TILE SETTING

Direct adhesive ROMANY tile setting makes possible the difference of 7/16" wall thickness from rough block to finished tile, as opposed to approximately 1-1/2". This space saving, applied to a long school corridor becomes a very interesting item. Even when figured in terms of an average classroom, say 20 x 30 ft., the area saving amounts to about 8-3/4 sq. ft., a saving which can be applied to additional floor space or to reduce high cubic foot costs in school work.



Every Architect should have our Sample Tile Chart No. 15. It's free.

UNITED STATES CEPANIC TILE COMPANY

Member: Tile Council of America and Producers' Council, Inc. 217-J FOURTH ST., N.E., CANTON 2, OHIO



Thru-Vu (AF, Nov. '49). Costing only 10% more than regular custom commercial blinds, the *Draw Draperies* should appeal to building owners for their lack of dust-catching surfaces and to architects for their easy integration with a contemporary façade—even when blades are set at different angles or pulled open to different widths. The vertical units are available in 15 basic colors and in a group of textured patterns. They can be used as room dividers in restaurant or apartment as well as for window treatment.

A boon to hospital patients and hotel guests, the *Flexalum Twi-Nighter* shuts off the annoying light spill of regular blinds. Cord fittings have been redesigned so that they cause the slats to lap snugly together when closed, yet let air through. Fitted with a special light trap over the top slat, sides and bottom, the *Twi-Nighter* becomes an



Audio Visual blind for complete or partial blackouts in school or conference rooms where slides and films are shown. All the new type blinds boast the *Flexalum* temper-treatment against bending and twisting.

Manufacturer: Hunter Douglas Corp., 150 Broadway, New York, N.Y.

METAL CHANNELS carry asbestos board in low cost, incombustible ceiling

Perf A Best suspension channels, designed to take on weighty asbestos cement board, comprise a rugged but inexpensive and incombustible finished ceiling. Clipped to standard $1\frac{1}{2}$ " steel members 4' o.c., or attached to steel or wood joists, the grooved channels present a wide face for joining tile. No tools are needed to connect channel lengths; special coupling is inserted and interlocking metal tabs bent over both sides *continued on p. 210*



There's extra bustle, these days, in busy midtown Manhattan. It's caused by the construction of a new 42-story, 45-million dollar Socony-Vacuum Building . . . New York's largest in 25 years.

Most distinctive architectural feature of this robust giant will be its stainless steel skin. An armor of .037" thick 18-8 chromium-nickel stainless, type 302, was chosen for very practical reasons. Not only will stainless walls mean lasting beauty, but they'll save many tons of excess weight. For the stainless skin will weigh only 11/2 lbs. per sq. ft., as compared to 48 lbs. per sq. ft.,



... for a New York GIANT!

for a 4" brick exterior wall.

Crucible is one of several leading producers who are supplying the stainless steel for this skyscraper. When completed it will be the largest metal-sheathed office building in the world. In planning your next project consider the advantages of stainless. For helpful sug-gestions, write for your copy of "A Guide to Future Uses of Stainless Steel in Architecture and Building." Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 30, Pa.

first name in special purpose steels

Crucible Steel Company of America

An Architectural Achievement

New Ocean Front Auditorium,

Miami Beach





DOORWAY TO FUNCTIONAL BEAUTY This exterior view of the inviting doorway to the new auditorium shows the careful planning and imagination of the architect. Each detail contributes to the modern feel of this architectural achievement.

Congratulations Leonard A. Glasser to architect

Keyed to modern needs, this handsome structure was designed by Architect Glasser to accommodate the growing number of conventions attracted to Miami Beach each year. The building is advanced in style, modern in its facilities. In addition to the main auditorium, it houses spacious lounges and offices; it's immediately adjacent to the beach, with a large patio for outside dances. Besides being completely air conditioned, it is equipped with Westinghouse Water Coolers. The architect knows that Westinghouse gives his clients more cold water per dollar of investment.


Architect LEONARD H. GLASSER made sure with

Westinghouse. Leading architects specify Westinghouse Water Coolers with Dual Electric Control for both finger tip and toe tip operation on the same cooler . . . at no extra cost. This exclusive two-way control is one of the many features that have made Westinghouse first in the manufacture of water coolers.

Cool, Cool Water. Westinghouse Water Coolers assure a continuous flow of water that stays constantly cool. The patented Pre-Cooler and exclusive Super Sub-Cooler utilize cold waste water to precool incoming drinking water and sub-cool the hot liquid refrigerant.

Superior Performance. Westinghouse Water Coolers help the architect over the

problems created by varying water pressure. The automatic stream-height control built right into the bubbler assembly prevents splash and dribble by compensating for variations in water pressure.

Complete Reliability! The Westinghouse Hermetically-Sealed Refrigeration System

is tamper-proof, service-free and assures a long life of trouble-free operation. All of the 13 models are backed by the Westinghouse 5-Year Guarantee Plan.



architectural FORUM / August 1955

PRODUCTS

Continued from p. 206







There's No SLIPPING HAZARD HERE! The Terrazzo is Made Safe by

A non-slip walking surface, wet or dry

- that's what you get with terrazzo containing ALUNDUM aggregate in the proper proportion. In fact, it makes possible the architectural advantages of terrazzo in many places where regular terrazzo might not be practical – where floors are wet, on stairways, on ramps. ALUN-DUM aggregate also adds durability to terrazzo – an important advantage in places like this where traffic is concentrated.

See Sweets File or write for your own copy of the new edition of catalog 1935-F.

of the channels to hold them in position. The V grooves not only stiffen the channel but also guide screws into the long staggered retaining slots and help keep the bare metal from showing through tile holes. Slots, situated directly behind two of the asbestos board's standard perforations ($\frac{1}{2}$ " apart) are spaced to make tile alignment easy. Thermal and sound insulating blankets can be placed across the chanel tops. *Perf A Best* channels cost about \$60 per M lin. ft.

Sanymetal makes three other highly adaptable, clipped and coupled suspension systems. Nailock, a 1- $\frac{1}{6}$ " wide channel of 18-ga. steel consists of a U section holding a $\frac{1}{4}$ " steel rod. As each special flat nail is driven into the opening, its shank coils into a tight band around the rod, drawing the facing material snugly against the channel, and giving the nail an average holding power of 122 lb. Nails can be plied out, however, at any time without damage to the channel.

Another furring unit, *Screwlock* permits various materials to be fastened to its 2-¾"wide face of 26-ga. perforated metal with either wood or sheet metal screws.

Sanymetal's Utility Nailing Channel, designed for light suspended ceiling construc-



tion, has a slit cut into its V-shaped nailing groove every 3", making each section lock independently as notched nails are driven into the firm, unspread channel.

Manufacturer: Sanymetal Products Co., Inc., 2093 E. 19th St., Cleveland 15, Ohio. continued on p. 214

NORTON

Worcester 6, Mass.



Price Candy Co. lunch room in Cohen Bros. Department Store, Jacksonville, Florida

Bastian-Blessing Food Fountain

Selected for Cohen Bros. Store

The planning and equipment of this newly modernized and enlarged lunch room include many interesting features promoting fast service and step-saving efficiency. One of these is a pass-through refrigerated display case connecting the kitchen with the fountain service area. Another is the use of four self-contained water stations and four coffee stations.

The lunch room is operated by Price Candy Company, Kansas City, Mo., in the Cohen Bros. Department Store, Jacksonville, Fla. There are 75 stools along a four-bay counter approximately 158 feet long. A 15-foot service counter eliminates congestion at the big 50-gallon Twin-Serv fountain unit. Equipment to complete the installation includes two additional refrigerated display cases, two sandwich stands, hot food unit, a shelving and pie cabinet, plus an urn stand, rack storage section, and shelving units.

Units to meet almost every conceivable food fountain requirement, and planning experience to make best use of the line are available to you whether your needs are large or small. Why not send for more information today? Write or phone your distributor, or The Bastian-Blessing Company, 4205 W. Peterson Avenue, Chicago 30, Illinois.



Qualified Sales and Service Outlets in All Principal Cities



EXCLUSIVE FEATURES 1. Dual facilities throughout 2. Easy-reach storage compartment 3. Giant chipped ice pan in center 4. Handy flat work-space lids 5. All ice cream at front and slanted



WORLD'S LARGEST MANUFACTURER OF SODA FOUNTAINS AND COUNTER FOOD SERVICE EQUIPMENT

SURVEY PROVED!

a Hillyard FLOOR TREATMENT PLAN Gives You Longer-Lasting Floor Beauty

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FREE SURVEY OF ANY FLOORS ON YOUR BOARDS

Your nearby Hillyard Maintaineer®, a trained floor consultant, will be glad to make a survey of the floors in your building plans, and prepare specialized floor treatment procedures and suggest specifications. Half a century of Hillyard experience and leadership stand behind his recommendations.

Experience of Architects and their clients, on all types of building throughout the nation, PROVE the superiority of Hillyard floor treatments. They are tailored to give the surface desired for each type of floor and floor traffic—bring out the beauty of the floors —wear longer—and actually lower floor maintenance costs.

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CHEMICAL COMPANY

- "Simple to apply" 1954 Hospital of the Year, Illinois
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- "Floors are non-skid and easy to maintain"
 A Student Union in Utah
- "This gym floor stood up 14 years without removing finish or re-sanding" — College in Texas
- "Hillyard meets the test of providing our plants with the best-looking floors, the most durable finish, and at the lowest cost" — World-famous bottler, New York State
- "In addition to wearing qualities, there is an intangible factor which makes Hillyard products even more valuable to the user. I refer to the service organization" — Institution in Massachusetts

| "on your staff, not your payroll" | HILLYARD CHEMICAL CO. St. Joseph, Missouri |
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Door and Panels of Patterned Glass

CREATE A

DRAMATIC

ENTRANCE

Matching panels and door of beautiful glass make this interior an impressive office suite.

The Blue Ridge Securit* Interior Glass Door is the key point of interest.

It's decorative! Being neutral in tone, the translucent door harmonizes with every décor, giving a fresh, clean, modern appearance. Handsome hardware comes in your choice of bronze or chrome finish.

It's functional! The glass panels and Securit Door lend an air of spaciousness to smaller rooms . . . "borrow" light from one area for another, yet provide adequate privacy.

It's practical! Because it's heat tempered, this door can take hard usage. Installation is simple and there's never a worry about refinishing or repainting. All hardware comes with the door, ready for quick assembly.

Your LOF Distributor or Dealer will be glad to give you all the facts. Look for his name in the phone book yellow pages under "Glass".



BRIEF DATA

Glass-3/8" thick. Muralex patterned on both surfaces. Tempered-three to five times stronger than untempered glass of same thickness.

Reversible-can be used right or left hand.

| Standard Sizes-2'6" x 6'8' | " 2' 5 ¹ /16' | ' x | 6' | 71/16" |
|----------------------------|--------------------------|-----|----|---------|
| 2'8" x 6'8' | 2' 711/16' | ' x | 6' | 71/16" |
| 3'0" x 6'8' | 2'11'1/16' | ' x | 6' | 71/16" |
| 3'0" x 7'0' | 2'1111/16' | ' x | 6' | 111/16" |
| | | | | |

Closers-when specified, the door can be shipped with a Sargent closer or prepared for use with an LCN concealed closer.

> For more complete information, see the Securit Door insert in Sweet's Architectural File.

Securit GLASS DOORS Made by BLUE RIDGE GLASS CORP. Sold by LIBBEY · OWENS · FORD GLASS DISTRIBUTORS

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Please send me your folder, Blue Ridge Securit Interior Glass Doors.

NAME (PLEASE PRINT)

CITY

ADDRESS

ZONE____STATE_



We have a house to put in order...

WE HAVE A HOUSE to put in order . . . and it's the house where America lives.

Think over those figures above. Of our 45,000,000 non-farm homes, better than 10% - 5,000,000 – are out-and-out slums. And another 20,000,000 are in poor to fair condition.

Something *must* be done-both to correct the slums of today and *prevent* the slums of tomorrow.

How do slums start? Usually just one house starts to slide downhill and soon a whole block changes. Pride is lost. Other houses are neglected, decay spreads.

So the 20 million homes in need of basic repair and improvements deserve equal attention. The time to stop the spreading blight of slums is *before it starts*.

What's your stake in stopping slums?

If you think your town is different, just look around you... If you think slums only affect persons who live in them, think again.

Slums raise taxes and lower property values of the whole town. They raise rates of crime, delinquency and disease. *Everyone* has a real stake in stopping slums. And *that includes you as a businessman*.

Your firm is certainly dependent on the welfare of the community where you do business. But it's more than good business—it's good citizenship to take part in efforts aimed at civic improvements. It's the *responsibility* of every business. What can your firm do? The answer to America's housing problems starts with individuals. But to roll back slums is such a big job it's going to take more than individual effort. It will need the cooperation of your business and many others.

Some slums should be torn down and a fresh start made. Others can be remodeled and made to conform to better living standards. So it is up to you to support every sound program which seeks adequate housing for all our people.

New help is now available

There is a new national, non-profit organization called A.C.T.I.O.N. – The American Council To Improve Our Neighborhoods – which is designed to help all individuals or groups interested in putting America's house in order.

Write them for a free copy of "HANDBOOK FOR ACTION." It contains advice and guidance on the fight against slums. Address ACTION, Box 462, Radio City Station, New York 20, N.Y.



American Council To Improve Our Neighborhoods



"Brick backed with structural clay tile met all requirements"

One of the great advantages of brick and tile is their ability to solve simply and economically a whole group of complex building needs. Here is an architect's report on just such a performance:

"One of the primary concepts of the design was to obtain an attractive, colorful exterior having none of the cold, harsh sterility so often found in laboratory buildings. Materials had to fit a tight budget, yet demand a minimum of maintenance. Our studies revealed that all requirements could be met with face brick backed with structural clay tile. Furthermore, this construction gave us necessary thermal insulation as well as fireproofing. All these characteristics naturally led to the use of brick and tile within the building as well as for the exterior.

"The owners were delighted that their buildings could be designed to operate with the efficiency and economy normally associated with factory design yet could be attractive to the public eye."

 \ll This statement refers to the handsome new laboratory shown above-built for the Jefferson Chemical Company in Austin, Texas -at a unit cost of less than \$13.50, including all mechanical and electrical work. Kuehne, Brooks and Barr, Architects and Engineers. \gg

Structural Clay Products Institute

SCDI

1520 18th Street, N. W., Washington 6, D. C.

The natural beauty and variety of brick and tile are

suggested here by only a few of hundreds of types available.



THE COMMITTEE COACHES THE BUILDING TEAM

"I guess you would call me one of the watchdogs responsible for the planning and workability of United States Rubber Company buildings.

"Take, as an example, the new office building now going up in Rockefeller Center. U. S. Rubber does not own this building but, as a major tenant, the company exercises considerable control over the interior construction of the eleven floors it will occupy.

"I work closely with a Building Committee that is made up of a Director, who is Secretary of the company, the Director of Engineering and the Assistant Treasurer. I act as liaison between the Committee and the professional members of the building team (the contractors, engineers and architects). Together we study our requirements and make our decisions – whether it be on types of floors, ceilings, lighting, air conditioning loads or color schemes and furnishings.

"And it is here that I find FORUM of tremendous help. I've been a FORUM subscriber since 1929. It keeps me up to date on the latest developments—advances in structural design, new materials and their use, and the effect of color treatment of space. Yes, I find FORUM very valuable."

> HAROLD A. THORNBURG Manager of Industrial Engineering United States Rubber Company

architectural FORUM the magazine of building

> Harold A. Thornburg, Manager of Industrial Engineering, U. S. Rubber Company, has made major contributions to the successful construction of his company's offices, factories and laboratories since 1942. He is currently working on the U. S. Rubber Building in Rockefeller Center, N. Y., and a research lab in Wayne Township, Preakness, N. J.



GARAGE roof takes 12 hours.

8. SCHOOL ready 1 month earlier.

9. PLANT speeds construction 25%.

HOW FLEXICORE CUTS JOB TIME, SAVES ONE WEEK TO TWO MONTHS!

People moved into these buildings way ahead of schedule, because precast floors and roofs cut construction time.

When the jobs were ready for floors or roofs, the Flexicore slabs were all ready to be installed. Erection was fast, averaging 2500 square feet a day in almost any weather.

Architects, superintendents and owners

reported savings of one week to two months on the jobs pictured above.

Flexicore slabs are easy to work with. You can clear-span up to 22' 0" or 26' 0", depending on cross-section sizes ranging from 6" x 12" to 8" x 16". Hollow-casting reduces their dead load. Cores can be used for wiring, piping, even heating and cooling. Smooth under-surface makes finished

ceiling. Saving of on-the-job labor makes the cost low.

See Sweets for more information. For all the facts, phone your nearest manufacturer or write for catalog.



THE FLEXICORE MANUFACTURERS ASSOCIATION - PRODUCERS OF PRECAST CONCRETE FLOOR AND ROOF SLABS

Alabama—Birmingham Alabama Cement Tile Co. Phone 4-8651 Colorado-Denver Flexicore Co. of Colorado MAin 6456 Florida—Tampa Universal Concrete Pipe Co. Phone 4-3931 Illinois-Chicago

Mid-West Concrete Pipe Co. GLadstone 5-0127

Indiana--East Chicago Calumet Flexicore Corp. Phone 940 Michigan-Detroit Price Brothers Company WOodward 5-6376 Minnesota—St. Paul Molin Concrete Products Co CApital 6-8818 New York-Buffalo Anchor Conc. Products, Inc. HUmboldt 3152

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Canada--Quebec, Montreal Creaghan & Archibald Ltd. UNiversity 6-9571 Ontario—Toronto Murray Associates Ltd. EMpire 4-4362 Puerto Rico **Rio Piedras** Flexicore of Puerto Rico, Inc. Phone Rio Piedras 1205

PRODUCTS



Continued from p. 210

CLIMBING BRACKET boosts platform and workmen up scaffold

The tubular steel configuration at left is the new *Mobil Bracket*, developed in cooperation with the Structural Clay Products Research Institute as a means of bringing masonry costs in line with prefab metal and tilt-up construction. With the new ratchet-winch device, a mason literally



And frankly, we're proud of it! Two of Schundler's family of noncombustible building products were prescribed for use in this ultra-modern Rockford, Illinois, hospital. Over 45,000 sq. ft. of CORALUX ACOUSTICAL PLASTER were used to sound condition rooms, lounges and hallways. Some 55,000 yards of "Certified" CORALUX PERLITE PLASTER were used to lighten load on structural members and to provide insulating value and fireproofing. Rely on these contractor-proven products whenever client or plans demand lightweight fireproofing, beauty and efficiency. CORALUX ACOUSTICAL PLASTER and CORALUX PERLITE

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pulls himself up by his own scaffold straps to his most comfortable working height. Saving such \$3.50 per hour energies that otherwise would be expended in stooping and stretching, the handy lift also makes for efficient materials handling, holding a 16" to 24" ledge for masonry and mortar in addition to a 26" working platform. Mobil Brackets can be mounted on standard Safway or other brand of steel frame scaffolding, located about 30" away from the wall to be erected. Each of the high-tensile steel units is secured to a vertical leg of the scaffold by two star wheels and suspended on an 18' length of aircraft cable. As one man works the handle on each bracket, the star wheels rotate up the leg, passing over horizontal members, and cross bracing. Several days of mason work can be turned out before the cables need resetting. A heavy safety latch prevents descent unless held out of engagement manually. To lower the platforms, the ratchet pawl is reversed, and the hand lever worked in the normal direction while the latch is held disengaged.

Each 65-lb. bracket has a loading capacity of half a ton, and its cable breaking stress is 5,600 lb. *Mobil Brackets* are sold for \$120 each f.o.b. Milwaukee, and are also available for rental through Safway distributors.

Manufacturer: Safway Scaffold Steel Products Co., Milwaukee, Wis.

DAMPER DEVICE opens roof ventilators in fire emergency

Propellair's thermally actuated damper spring is one effective way of venting a fire, a problem particularly critical in sprawling one-story structures where trapped smoke prevents fire fighters from getting to the blaze and fires rage radially to consume large areas of plant and equipment. Designed principally for the firm's Sky Blast roof ventilators, the automatic device can be installed on other power units that have free swinging butterfly dampers to make the ventilators double as emergency vents for smoke and fire. Eight bolt connections put the damper opener in service, and because its operation is not dependent on the fan motor or other power source, it cannot be impeded by fire or water damage to electrical lines. In case of fire, a fusible link breaks at a preselected temperature and the high-torsion steel spring arms snap the continued on p. 218

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SHEETS . STRIP . PLATES . BARS . BILLETS

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PRODUCTS

Continued from p. 214

dampers to full open position, allowing heat and fumes to escape. The damper spring can be obtained in temperature ratings ranging from 135° to 360° F in two sizes. The smaller, for use on roof ventilators 24, 30 and 36" in diameter, lists at \$40; the larger, for 42, 48 and 60" ventilators sells for about \$80.

Manufacturer: Robbins & Myers Inc., Springfield, Ohio



DOME LIGHT with scooped lens sheds useful, glarefree illumination

Displaying again their optical mastery of the prism, Holophane engineers have developed the *Paradome*, a high efficiency ceiling light with comfortable low brightness. Suitable for classrooms, offices and stores, the semidirect all-lens luminaire maintains full control of light rays emitted by a 200or 300-w. incandescent lamp placed inside. Concave at bottom, its $15-16^{\circ}$ diameter *Controlens* gives the effect of being tilted away on all sides from the viewer's eye. A glass-fiber cover on the upper dome diffuses



light through the outer shell of the prismatic reflector, helping to reduce brightness contrast. The $12-\frac{34}{}$ "-deep model, *C-5400*, designed for direct attachment to the ceiling lists at \$26, and the rod-suspended (length-to-order) *S-5400* pictured above is \$31. Metal fittings have a satin chrome finish.

Manufacturer: Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.



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continued on p. 222



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PRODUCTS

Continued from p. 218

apart, and slipped into kerfs on two sides of each acoustical tile. These unique hangers and channels are so designed that each 1' square or 1' x 2' tile can be lifed up and rested on the ceiling's topside. Once the first tile is out of the way, a large clear space can be made in a minute by sliding other tiles back or lifting them out so that a maintenance man can get to the utility lines, fixtures and ductwork above. Damaged





Construction

Detail:





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Manufacturer: Accesso Systems, Inc., 4615 8th Ave., N. W., Seattle 7, Wash.

MOVABLE PARTITION carries 21/2-hour fire endurance rating

To provide plant flexibility and fire protection in one package, Detroit Steel's Building Panel Division has developed a demountable light gage steel Fenestra Movable Fire Wall panel with a mineral core for partitioning industrial plants. On the basis of about \$1.75 per sq. ft.



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continued on p. 226



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PRODUCTS

Continued from p. 222





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Filings, nails and other sharp bits of tramp iron are safely whisked up from factory aisles, construction jobs and parking lots with Eriez nonelectric sweepers. Equipped with powerful *Alnico* magnetic tubes, the rolling units can be pushed by hand, hitched to a jeep or—with wheels and handle removed—bolt-suspended from a lift truck. Various models are available, starting with



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the $10\frac{3}{4}$ "-wide rotary Sweeperette. Selling for \$34.50, this 5-lb. light-duty unit operates like a carpet sweeper. Metal accumulated on its tube is pushed off easily with a neoprene wiper ring. Super Sweepers produced in three strengths for use at different speeds range in width from $35\frac{1}{2}$ " to $71\frac{1}{2}$ " and in price from \$303 to \$765. Manufacturer: Eriez Manufacturing Co., Erie, Pa.

TECHNICAL PUBLICATIONS

AIR PURIFICATION

The Philadelphia Story. Trion, Inc., 1000 Island Ave., McKees Rocks, Pa. 8 pp.

BATHROOM EQUIPMENT

Glorifying the American Bathroom. Miami Cabinet Div., The Philip Carey Mfg. Co., Middletown, Ohio. 36 pp.

BRICK AND TILE

Structural Clay Products Catalog No. 55-A. Clay Products Assn., Perry-Brooks Bldg., Austin, Texas. 14 pp.

CONCRETE

Bison Floor Information Book. Vol. 2. Associated Sand & Gravel Co., 2508 Colby Ave., Everett, Wash. 145 pp.

CONCRETE MASONRY

Shrinkage Characteristics of Concrete Masonry Walls. Housing Research Paper 34. Superintendent of Documents, US Government Print-

continued on p. 230

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Northedge Elementary School, Plainedge, L. 1., Architects: Jagow & Heidelberger, Hempstead, L. I. Entrance installed by Store-Craft, Inc., Corona, L. 1. Main entrance consists of Alumiline Entrance Unit with Alumiline Center Panel Doors. Note

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center panel which gives added strength to the door at the point of considerable use, and also serves to hide the inside glass bar of the concealed panic device from outside view.

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In specifying resilient floors, for satisfactory service . . . MAINTENANCE PROBLEMS MUST BE CONSIDERED

Often, the maintenance of resilient floors is considered to be outside the architect's province. There are, however, two very important reasons why familiarity with maintenance problems may materially affect your choice of resilient floors. First, architects are rarely consulted by owners on proper maintenance – and the owner goes ahead with his own methods. If these damage the appearance or shorten the life of the floor, the architect may be thought guilty of improper selection of flooring materials. Secondly, it is important to consider the amount of wear to which the floor area in question will be subjected. Excessive, uneconomical maintenance may result if an unsuitable resilient floor is installed. In his own interest, the architect should therefore be familiar with the amount of maintenance required by each type of floor before specifying one for a particular location.

Apart from their handsome looks, one of the main reasons for the great popularity of resilient floors for both residential and commercial floor installations is their ease of cleaning. They never need costly refinishing. Occasional washing and waxing, along with regular sweeping, are all the maintenance they normally require. However, resilient floors vary in the amount of care they need, and it follows that floors among the easiest to maintain should be specified for areas, such as entrance ways, where frequent cleaning cannot be avoided. Since the maintenance characteristics of the different types of resilient floors overlap, and ease of maintenance is also affected by the color and pattern of the flooring selected, the following ranking is intended as an approximate guide to the amount of maintenance normally required by the various Armstrong Floors.

Best

Linotile Excelon Tile Custom Corlon Tile

Linotile is considered the easiest to maintain of all the Armstrong Floors. Its exceptionally dense, tough composition makes it an excellent choice for heavy-traffic areas. Washing and waxing are usually required infrequently. Both Excelon Tile and Custom Corlon Tile are vinyl plastic floors with exceptional advantages from the standpoint of maintenance. Both provide unusual resistance to the harsh cleaners which are all too often used in spite of manufacturers' warnings. In order to retain the appearance that a lustrous finish gives them, and to provide the added protection that waxing affords, Armstrong has always encouraged and specified occasional applications of a high-quality wax, after washing, as a necessary part of the proper care of plastic floors of all kinds.

Excellent

Corlon Linoleum

Linoleum perhaps best typifies the years of popularity

which resilient flooring materials have enjoyed for their ease and economy of maintenance. Regular sweeping and occasional washing and waxing are all that are required to keep linoleum in good condition. Armstrong Corlon, a sheet-type plastic flooring, offers the additional advantage of excellent resistance to common household reagents.

Good

Rubber Tile Asphalt Tile

The smooth plate finish of rubber tile requires slightly more frequent maintenance than the floors described above if it is desired to retain the high gloss which adds so much to its beauty. Rubber tile also benefits from occasional buffing with No. 00 steel wool. This keeps the rubber in prime condition and helps preserve the finish. For its low cost, asphalt tile provides a floor that is remarkably economical to maintain. Careful cleaning and periodic waxing, especially in the first months after installation, will help assure easy maintenance.

Fair

Custom Cork Tile

Cork Tile

Cork tile is not ordinarily specified for heavy traffic areas and should not be installed where it will be subjected directly to tracked-in dirt. In areas of less severe traffic, cork tile is readily maintained by daily sweeping and occasional washing and waxing. In cases of excessive soiling, machine scrubbing or sanding and refinishing may be necessary.

The following recommendations for resilient floor care have been outlined by the Armstrong Research and Development Center. They are the result of continuing research over a period of many years on all types of resilient floors. In essence, they show that simplicity is the best technique.

Sweeping. Dirt tends to slip off easily from the smooth, lustrous surface of any resilient floor. Daily sweeping with a soft broom or dry mop will keep this type of flooring clean for long periods. Oil mops or oil-type sweeping compounds are not recommended.

Washing. "More floors are washed away than worn away," says an old adage in the flooring industry. Unless they are subjected to unusual amounts of dirt, resilient floors should be washed infrequently. For all types, Armstrong All-Purpose Liquid Cleaner is recommended. This preparation is manufactured especially for resilient floors. New resilient floors should not be washed until the adhesive is thoroughly set—a period of at least four or five days for all resilient floors.

Waxing. As soon as a resilient floor has been allowed to dry after washing, it should be waxed. Most people have a tendency to use too much wax—a practice as expensive as it is inefficient. A thick film of wax forms a crust on top, leaving a soft, gummy mass underneath. Dirt penetrates the crust

Armstrong FLOORS

| LINOLEUM | JASPÉ | DECORAY* |
|-----------|-----------|----------------------|
| PLAIN | RAYBELLE® | CRAFTLINE® INLAID |
| SPATTER® | ROYELLE® | EMBOSSED INLAID |
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and lodges in the soft wax, making the floor appear gray and dirty. It is much better to apply two thin coats than one thick coat.

Paste waxes, which may contain oil, grease, or solvents such as naphtha or turpentine, should never be used on resilient flooring. The ideal wax for all resilient floors is a water-emulsion type such as Armstrong Linogloss[®] Wax, which dries in less than 20 minutes to a hard, colorless finish that is lustrous but not shiny. Linogloss Wax is made especially for resilient floors.

Stain removal. The adjoining chart shows suggested methods of removing stains from all types of Armstrong Resilient Floors. It does not cover all types of blemishes, and the methods outlined may not remove all stains. However, they have proved to be the best and safest way to remove the most frequently encountered stains. Armstrong will always be happy to advise on any particular stain removal problem for which these methods do not prove fully effective.

Protection. An element in the care of resilient floors which is often overlooked, but adds greatly to their life and beauty, is the use of furniture rests. The function of a furniture rest is simply to extend the area over which the weight of furniture loads is distributed, and thus prevent indentation. The following table shows the recommended types of rests for various furniture weights.

| size of rest or cup required (specify by number) | | | | | | |
|--|--|---|---------------------------------------|---|---------------------------------------|--|
| Weight of fully loaded furniture | Corlon and Linoleum | Linotile | Excelon, Asphalt Tile | Custom Corlon, Rubber Tile | Cork Tile | |
| Up to 50 Lbs. per leg | NT-10 CT-100 CFT-300 CFT-301 | NT-10 CT-100 CFT-300 CFT-301 | NT-20 CT-200 CFT-400 CFT-401 | NT-10 CT-100 CFT-300 CFT-301 | NT-20 CT-200 CFT-400 CFT-401 | |
| 50-100 Lbs. per leg | NT-20 CT-200 NDC-6 CFT-400 CFT-401 | NT-10 CT-100 NDC-6 CFT-300 CFT-301 | NT-50 CT-500 NDC-7 | NT-10 CT-100 NDC-6 CFT-300 CFT-301 | NT-35 CT-350 NDC-6 | |
| 100-150 Lbs. per leg | NT-20 CT-200 NDC-6 CFT-400 CFT-401 | NT-10 CT-100 NDC-6 CFT-300 CFT-301 | NDC-225 | NT-10 CT-100 NDC-6 CFT-300 CFT-301 | NT-50 CT-500 NDC-7 | |
| 150-200 Lbs. per leg | NT-35 CT-350 NDC-6 | NT-10 CT-100 NDC-6 CFT-300 CFT-301 | NDC-325 | NT-10 CT-100 NDC-6 CFT-300 CFT-301 | NT-50 CT-500 NDC-225 | |
| 200-250 Lbs. per leg | NT-35 CT-350 NDC-6 | NT-20 CT-200 NDC-6 CFT-400 CFT-401 | NDC-325 | NT-20 CT-200 NDC-6 CFT-400 CFT-401 | NDC-225 | |
| 250-300 Lbs. per leg | NT-50 CT-500 NDC-7 NDC-125 | NT-20 CT-200 NDC-7 NDC-125 CFT-400 CFT-401 | NDC-325 | NT-20 CT-200 NDC-7 NDC-125 CFT-400 CFT-401 | NDC-325 | |

Recommendations for the selection of





Methods of removal

- 1. Wash with Armstrong Liquid Cleaner, rinse, wax.
- 2. Rub with No. 0 dry steel wool, rinse, and wax.
- 3. Rub with No. 0 steel wool dipped in Armstrong Liquid Cleaner, rinse, and wax.
- Remove with putty knife, rub with No. 0 steel wool dipped in Armstrong Liquid Cleaner, rinse, and wax.
- 5. Rub lightly with cloth dipped in paste wax. Buff.

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For helpful information on any flooring question, just call your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, Lancaster, Pa.

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