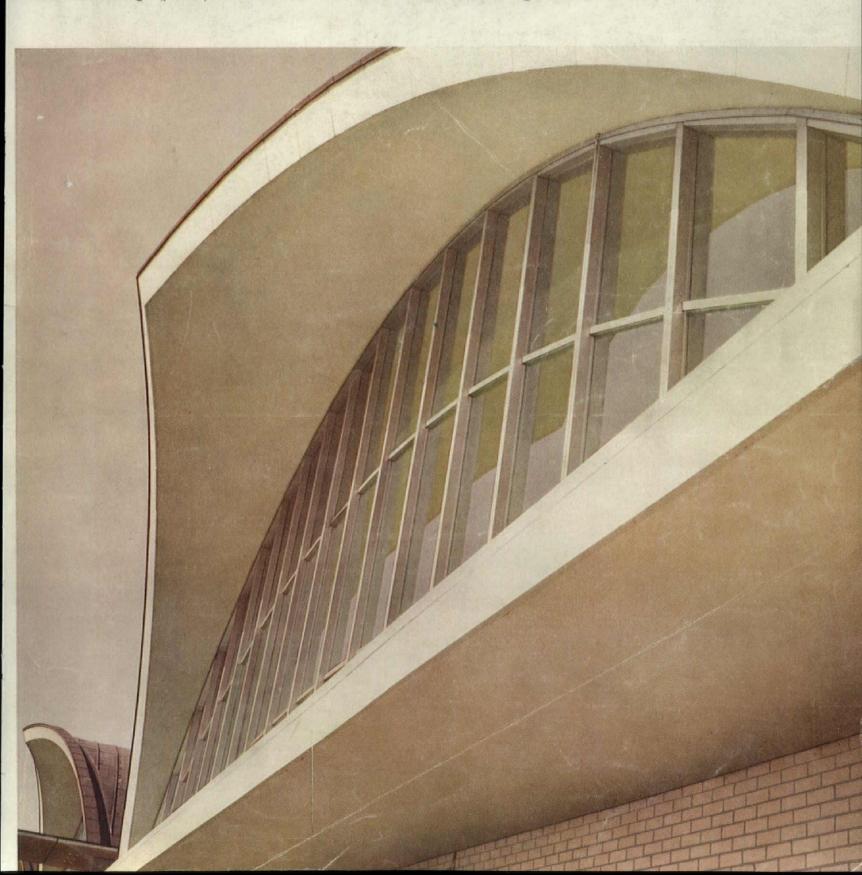
architectural FORUM WHITE BOLD COLLEGE OF ART

the magazine of building

MAY 1956

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Industrial buildings (p. 122). . . . St. Louis air terminal—a new kind of big room (below and p. 106)



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architectural FORUM

the magazine of building

MAY 1956

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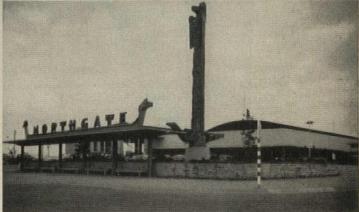
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Photos courtesy Preservative Paint Co., Seattle, Wash.

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for specifying paints bearing this seal-

This large shopping center is located in the State of Washington. The buildings are predominantly stucco. In 1953, they were finished with a masonry paint based on PLIOLITE S-5 — the synthetic rubber resin. At last report, the paint was still in excellent condition, despite its being applied to the relatively "green" stucco and despite the area's above-average rainfall.

This shopping center is another beautiful example of the big reason why architects and builders should specify paints made with PLIOLITE S-5 for all masonry. *It's proved protection* — not only for the surface involved, but also for the reputation and purse of all concerned.

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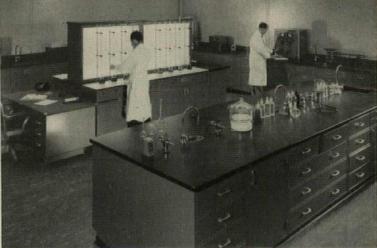
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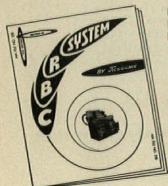
Process Development Section showing Installation of Kewaunee Laboratory Equipment

Kewaunee Laboratory Equipment Selected for G. M. Technical Center

Contributing to the vast research and development program at the new General Motors Technical Center are custom planned installations of Kewaunee Laboratory Equipment in four separate buildings: Isotope Laboratory; Process Development; Service; and Styling. Kewaunee also installed custom planned equipment in Fisher Body and Chevrolet Central Engineering.

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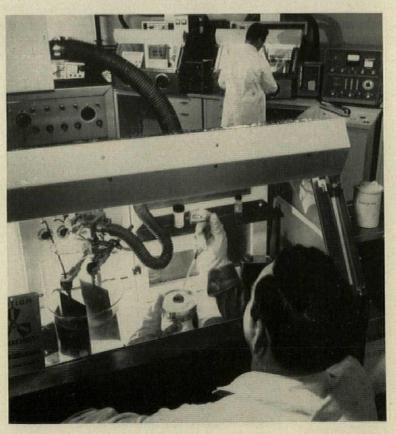
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architectural FORUM / May 1956

THE VAST MAJORITY OF THE NATION'S FINE BUILDINGS ARE SLOAN EQUIPPED



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WORLD'S FIRST ROUND OFFICE BUILDING

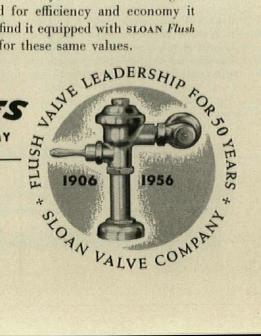
• The new multi-million dollar CAPITOL RECORDS building in Hollywood has given new allure to famed "Hollywood and Vine" intersection. Aside from symbolizing the company's product, the circular design was developed to achieve economies in construction, operation and maintenance, plus maximum utilization of space and efficiency in its use. Service facilities—stairs, elevators, wash rooms, duct shafts—are located in a central core. The heating and cooling supply lines being

equi-distant from outer walls, all-season comfort is provided at lower cost. "Eyebrows," or louvres which overhang the windows, add to exterior attractiveness and serve to protect the interior against heat and glare from the sun. This twelve story "stack of records" is topped by a 100-ft. perforated aluminum trylon. In a building so expertly planned for efficiency and economy it seems logical to find it equipped with SLOAN Flush VALVES famous for these same values.



Another achievement in efficiency, endurance and economy is the SLOAN Act-O-Matic SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. Architects specify, and Wholesalers and Master Plumbers recommend the Act-O-Matic—the better shower head for better bathing.

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HERBERT BRUCE CROSS

Washington report: Cole orders speed on urban renewal; auditorium snagged

HHFAdministrator Albert M. Cole and Urban Renewal Commissioner James W. Follin launched last month a "full-scale reappraisal" of US urban renewal procedures aimed at slashing red tape, reducing needless delays and paper work locally and in Washington. In the vein of the April Forum's Round Table on "How to Make Urban Renewal Work," at which he was an observer, Cole said:

"We have entered a new phase of urban renewal. When this program began there were no guideposts for either the federal government or local communities. . . . But those pioneering days are behind us. Scores of communities today . . . can assume their appropriate responsibility for local initiative and determination and we want to give it to them. . . . We believe that a complete restudy of our procedures, from stem to stern, will result in greater local responsibility and speedier action . . . more efficient administration."

Also announced by FHA Commissioner Norman P. Mason were a series of new rulings intended to simplify procedures for Sec. 213 FHA mortgage financing for multifamily cooperative apartments.

Other newsworthy Washington events:

Anti-monopoly suit. Major league status was accorded two building materials producers last month. The Justice Department filed an antitrust suit against American Radiator & Standard Sanitary Corp. accusing it of violating the law by its January acquisition of stock control of Mullins Manufacturing Corp. The complaint said American-Standard had sales of about \$400 million in 1954 and made approximately 40% of the nation's cast iron bathtubs, 38% of its cast iron sinks. Mullins' \$51 million 1954 business allegedly in-

cluded 30% of the nation's production of kitchen cabinets and 18% of its steel sinks. Joint operation of the two firms, it was charged, would be detrimental to "actual and potential competition." President Joseph A. Grazier of AR-SS said the merger would be defended "vigorously."

Auditorium fiasco. Planning for a national auditorium and cultural center in Washington was at an embarrassing halt last month after an appropriations snafu. When the commission to develop plans for this project was established by Congress last year (including several members appointed by the Vice President and by the Speaker of the House) it was authorized to spend \$25,000 for its work, but no actual appropriation of funds was made. To meet the expense of engaging Pereira & Luckman and other advisors, commission members decided to advance their personal funds, in anticipation of reimbursement after the appropriation presumably would be voted by the current session of Congress. But House appropriations subcommittee chairman Michael Kirwan (D, Ohio), who detests ballet, says "Give me burlesque," knifed the appropriation. On a fine point of principle he protested it would be awful precedent for Congress to assume as an obligation the expenses of any group or agency that spent funds before they were actually appropriated. More specifically he also said it appeared such spending might be a violation of a law that prohibits the incurring of obligations in advance of an appropriation. At month's end there was no telling when the commission, headed by Mrs. Agnes E. Meyer and including New York Realtor Robert W. Dowling (AF, Oct. '55) might get its auditorium show on the road again.



\$5 million Los Angeles construction industry center

With appropriate rezoning approved by the City Planning Commission, the prosperous 2,000-member Building Contractors Assn. of California was ready last month to start the nation's most elaborate construction industry center on a 2½-acre, \$250,000 site beside the Hollywood Freeway only two minutes from the Los Angeles Civic Center.

Special features of this \$5 million, 13story specialty building (see cut) designed by Architect John C. Lindsay:

▶ A 13-story eliptical tower for a permanent public exhibition of building products and other industry displays. This will have a glass-walled spectators' elevator at its core, and glass-walled bridges at each level connecting it to the main building.

Adjacent to the tower and a large parking area will be a separate, conical threestory graphic arts center for the building industry. The main floor will be used as exhibition space; the second floor will house a press room, information bureau, letter service and printing facilities; the third floor, executive suites.

GSA wins battle to build \$46 million CIA headquarters

The General Services Administration was one of Washington's busiest agencies last month, among other activities calling for bids for the financing of its first building to be erected under lease-purchase arrangement (p. 29). Other matters on which it made news for architects and builders:

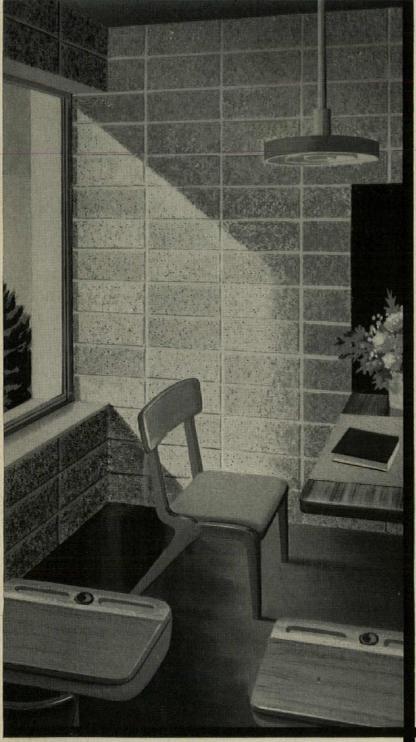
▶ Behind the scenes it won a battle with the Central Intelligence Agency and would have charge of the design and construction of the immense \$46 million building to be erected for that agency at nearby Langley, Va. The CIA lost out in its effort to run its own building operation as a special "security" agency comparable to the AEC, which is allowed to manage its own construction affairs instead of depending on GSA's Public Buildings Administration.

After approval in principle for its south elevation from the Commission of Fine Arts, GSA released the first sketch of the huge State Department headquarters building that will be built in the Foggy Bottom area of the Capital at a cost of \$49.7 million (see cut). This will be the biggest US office building anywhere, except for the Pentagon, and is being designed by Chicago's Graham, Anderson, Probst & White, Inc., Detroit's Harley, Ellington & Day, Inc., and, as Washington associate, the firm of Architect A. R.

After a Boston broadcast reporting two councilmen's suggestion that Boston rent municipal office space in a large \$27 million federal building to be erected there, GSA confirmed it was working on preliminary studies for such a structure to house all US agencies in that city. It was dubious whether any space could be rented to the city, however. No architects would be named until much later.



SOUTH ELEVATION OF STATE DEPARTMENT HEADQUARTERS THAT WILL FACE LINCOLN MEMORIAL



A WAYLITE SURFACE

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A large number of schools are being built these days of Waylite concrete masonry units.

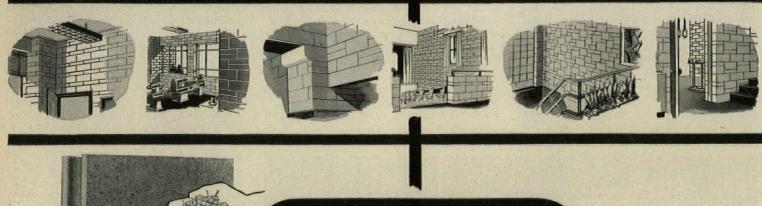
The fact that the exposed surface of Waylite is one of the most efficient acoustical treatments known is in part responsible. Rooms that are comfortable to the ear are equally important in churches, auditoriums, offices, and many other structures.

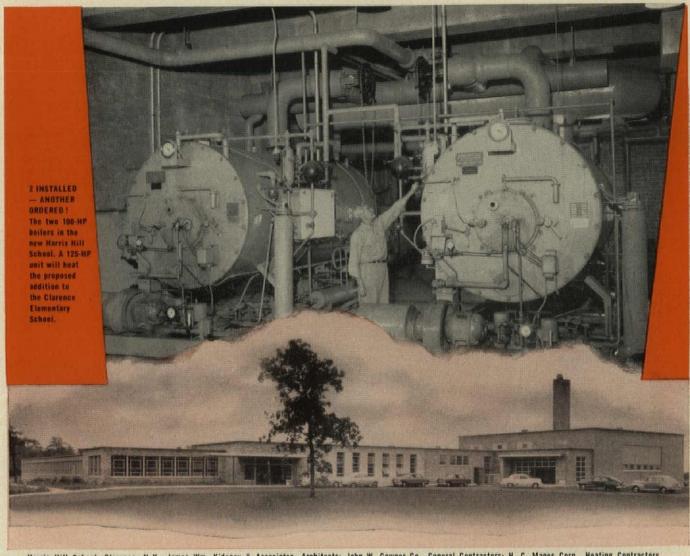
Exposed Waylite is not only comfortable to the ear, but it is pleasing to the eye. The unit patterns shown give some idea of the varied decorative effects that can be easily achieved. The natural surface of Waylite units is attractive in color and texture. Units may be painted—or pigmented during manufacture.

Waylite concrete masonry units are structurally adequate and give a combination of four important factors: (1) high thermal insulative qualities; (2) excellent acoustical values; (3) a wide range of decorative possibilities;

(4) low in cost—and fire-safe.

You will find 24 pages of engineering data on Waylite in Sweet's Catalog. Additional information is available on request. Address the Waylite Company, 20 North Wacker Drive, Chicago, Illinois or Box 30, Bethlehem, Pennsylvania.



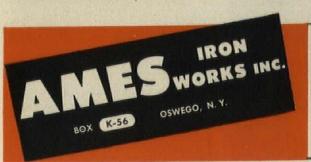


Harris Hill School, Clarence, N.Y., James Wm. Kideney & Associates, Architects; John W. Cowper Co., General Contractors; H. C. Mapes Corp., Heating Contractors.

Another FINE SCHOOL HEATED BY THE BOILERS OF PROVEN QUALITY

The new Harris Hill School of Clarence Central School District is an excellent example of sound planning for educational needs today and tomorrow. Its designers left nothing to chance, including the heating. They selected Amesteam Generators, the automatic package boilers with a 108-year reputation for dependability. Two 100-HP units have been installed in the Harris Hill School; with a 125-HP unit on order for the projected addition to the Clarence Elementary School.

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Towering Chase Manhattan building will let

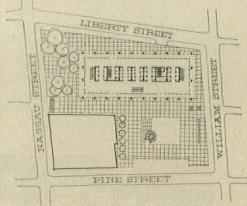


Only 20 metal-sheathed exterior columns and 20 interior columns—16 of them unobtrusively incorporated into the central elevator and utility core—will carry the 60-story tower of the Chase Manhattan Bank building that will take the title as New York's largest and tallest postwar office building. Useable floor area in this "little Rockefeller Center" building for the Wall Street area will total 1.7 million sq. ft., or 400,000 more than in the uptown 42-story Socony-Mobil building (AF, Jan. '55), temporary titleholder as the city's largest new office building.

Equally as fascinating as the design and construction details of the Chase Manhattan building are the economic advantages that were gained when this project was developed on only 30% of a new superblock instead of on 100% of a small single block (about twice the area of the final tower's typical floor).

Less yields more. As explained by Architects Skidmore, Owings & Merrill, the earliest Chase Manhattan plan contemplated a building that would have covered the entire block from Cedar to Liberty Sts., between Nassau and William Sts. (see cut). With normal zoning setbacks, that would have produced about 1,250,000 sq. ft. of new useable space (supplemented by another 150,000 sq. ft. in buildings the bank intended to modernize in the adjoining block—in the area subsequently designated for plaza and pool).

But when the architects studied what might be done with the entire site, if Cedar St. were closed and a perimeter strip of more than equal area ceded to the city for widening the other streets, they made a striking discovery: Assuming that the city would allow unlimited height without setbacks on slightly less than 30% of the site (instead of the usual 25% un-



SITE PLAN shows how streets are to be widened around Chase-Manhattan project to offset closing of one street. Structures to remain on southwest corner of new superblock will be arcaded over sidewalks to permit widening of Pine St., which parallels Wall St., next block south.

light into Wall St. canyon area

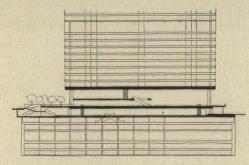
limited tower rule), an economical 60story tower with five broad underground levels could give the bank 1,700,000 sq. ft. of new useable floor area—about one-third more than the earlier plan.

Exact savings will not be known until the structure is up and all bills paid. However, preliminary estimates indicate that the smaller-coverage-but-greater-floor-area tower plan will reduce the bank's own net expense for the space it uses appreciably. David Rockefeller, executive vice president of the bank, also estimates that the expense for the 1 million sq. ft. of new space the bank will occupy will run about 20¢ per sq. ft. below its present payments for space in nine old buildings in which its 9,000 head office workers are now scattered. And, according to Rockefeller, after selling some existing buildings, the bank's real estate holdings upon completion of the new building will only be about \$1 million higher than they are now.

Extra dividends. The immediate economic factor of net space costs alone caused adoption of the superblock-and-plaza plan; none of the additional intangible advantages had to be given any imputed financial value to justify the choice of this type of development.

Extra dividends that will accrue to the bank by developing the larger site will include: better quality space with more natural light; better appearance; better public relations and public acceptance, as the creator of some attractive, sorely needed breathing space in the city's most congested area. Also reaping profits without effort will be all the surrounding properties, which will be able to command better rents, will increase in value and eventually yield the city increased taxes.

Structural details. The main Chase Manhattan tower will rise 60 floors (810') above plaza level, and below that will have another six levels extending 90' into the ground. The tower will be 281' x 107' or a little over 30,000 sq. ft. gross on each



TRANSVERSE SECTION shows how immense underground floors will extend beneath plaza and sidewalks. Ground floor lobby is two stories high.

floor. Four floors will be set aside exclusively for heating, air conditioning and other mechanical equipment, including mechanisms for exterior window-washing platforms.

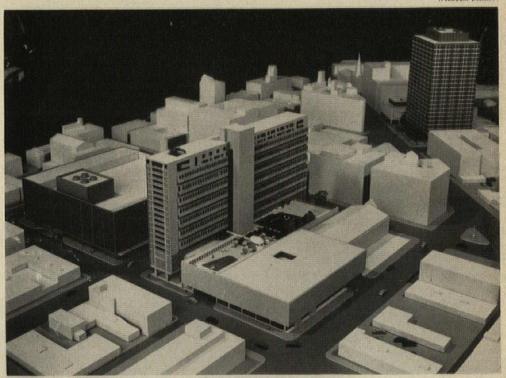
Like an iceberg, the \$75 million structure, on a slightly sloping site, will have an immense unseen part of its bulk under the surface. The 98,000 sq. ft. plaza will be a few steps up from the levels of Nassau and Pine Sts. The main public banking floor will be the first level below the plaza, with sidewalk level entrances from Liberty and William Sts. An opening about 60' x 100' in the center of the main plaza will reveal a sunken garden, fountain and reflecting pool on the main banking floor, and let in extra natural light for the por-

tion of that floor partially below ground.

Under the 94,000 sq. ft. "ground level" banking floor will be four more full-site basement levels of 113,000 sq. ft. each (and a fifth vault level about half that size). These four huge floors will house recreation facilities, kitchens and a 1,200-seat cafeteria for bank employees, off-street loading and garage space, the bank's large check handling, stock transfer and mail departments, purchasing offices and maintenance shops.

Additional capsule building facts: Turner Construction Co, will be the general contractor; exterior metal will be stainless steel or aluminum; structural steel will total about 40,000 tons; there will be 42 elevators, 12 escalators.

WALTER DARAN



STORE (L), HOTEL, CONVENTION BUILDING, MILE HIGH CENTER (R, BACKGROUND)

Denver's two-block Court House Square project started

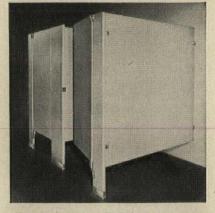
On Denver's Court House Square, a city block away from Mile High Center (AF, Nov. '55), developers Webb & Knapp have just finished digging a giant 400,000 cu. yd. hole and are busy filling it with \$35 million worth of hotel, department store and convention facilities (see cut). The buildings are designed by I. M. Pei & Associates and associated architects Ketchum, Gina & Sharp (department store interiors) and Rogers & Butler, For a landscaping link to Mile High Center, Webb & Knapp will plant the connecting block with trees.

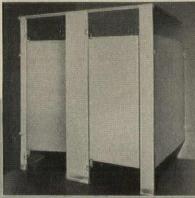
The Court House Square project will cover two huge blocks (about 205,000 sq. ft.) except for the existing, holdout Centre theater. When completed, three out of

four underground levels, billed as "the country's largest finished basement," will park 1,500 cars. The fourth will house mechanical facilities and a central heating, ventilating and air conditioning plant for all buildings.

Overhead will rise an 18-story, 700-room hotel with a connecting two-story ballroom and convention building, and a squat, full-block department store to be occupied by Denver merchants Daniels & Fisher. Shrewd promoter William Zeckendorf claims that all the sand and gravel taken from the excavation is being used as aggregate in the project's concrete, the earth fill for residential housing elsewhere in Denver.

NEWS continued on p. 16



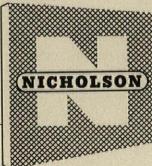




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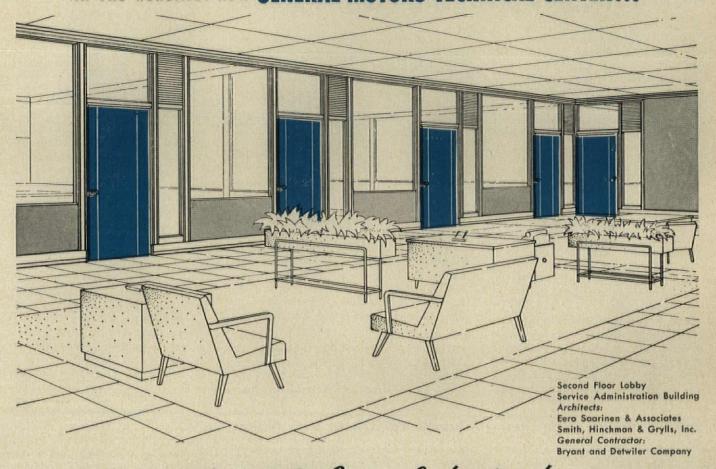
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Bidding for new factories grows acid; Howard Hughes plans big Florida plant

In a Sam Goldwyn manner of speaking, Governor Marland of West Virginia was "invited not to visit Connecticut" last month in his national travels in pursuit of new industrial plants for West Virginia.

Connecticut Governor Ribicoff, who declared he would always welcome a "social visit," telegraphed the Southern executive that his scheduled call in the Nutmeg Capital would be "a waste of time and should be canceled, . . . There would be wide and deep resentment of a trip intended to try and take away our industries." Although it also was announced later that more than 100 Connecticut industrialists had informed Ribicoff they would ignore Marland's invitation to a Hartford luncheon, at month's end the West Virginian still planned to hold the affair during a swing through several New England states.

Marland, only one of several governors using glorified drummer tactics to entice job-providing plants into their respective states (AF, Oct. '55 News), might have mused on one seeming lack of Yankee reciprocity or gratitude. It had availed him

not at all in Connecticut that he had employed a New England industrial consultation organization in planning his plant-seeking campaign—the Arthur D. Little Co. of Cambridge, in neighboring Massachusetts.

Other news-making industrial solicitation and location developments:

- ▶ Howard Hughes announced he intended to build an airplane manufacturing plant in Florida. Del Webb, his contractor associate, said this would require a site of some 30,000 acres, large enough for its own new airport. Hughes credited Governor Leroy Collins (another touring gubernatorial plant solicitor) with selling him on Florida's merits, and the Governor said the Hughes plant—exact site still undisclosed —would "far transcend in importance, payrolls and future development any industrial development now in Florida."
- In New York City in February a union obtained a court order upholding an arbitrator's ruling forbidding a debt-loaded leather manufacturer to move from the area as a breach of union contract obliga-

tions. In March a garment workers union signed a five-year industrywide agreement requiring manufacturers to establish a special severance-pay fund that would give workers one week's wages for each year of employment in the event their employer ceased operation or moved from the city.

Usually esteemed for its subtlety, satire and sophistication, The New Yorker magazine was also acquiring stature as an industrial solicitation medium. In formal dignified invitation format a few months ago it printed a full page announcement of scarcely 50 words: "Governor Orval E. Fabus of the State of Arkansas cordially invites your use of the new Arkansas Industrial Development Commission, Winthrop Rockefeller, chairman, and takes great pleasure in announcing William P. Rock, executive director and William R. Ewald Jr., chief of development. State Capitol, Little Rock."

Last month the magazine also carried another somewhat different relocation advertisement of a slightly ironic nature. Across its two middle pages in full color was an idyllic ocean cove picnic scene, only seven persons on a beautiful crescent shore several miles long. "You can live like this_in Puerto Rico today," its message was headlined. "These carefree people are not on vacation. They are simply having a glorious time after office hours. No scrambling for the 5:45. No battle with traffic. . . ." In short, it said in effect, "come and work and live in Puerto Rico" a message that might make some New York officials pause just a minute while they pondered why so many Puerto Ricans kept immigrating to New York and settling in its crowded, infinitely less beautiful slums.

Columbia campus extension will hurdle road, cost \$17 million

After conferring with New York's Mayor Wagner and Construction Coordinator Robert Moses, Columbia University officials announced plans for a \$17 million superblock campus development program. Harrison & Abramovitz will be architects for three modern major buildings (see cut) on a huge rectangle to be formed by closing 117th St. between Amsterdam Ave. and Morningside Drive (the second street to be given to the university in the last few years). To cushion the contrast with the modified Renaissance style of most other Columbia buildings, however, exteriors would be finished in the university's tradiditional materials-red brick and limestone.

The usually reliable N.Y. Times reported

that the university is negotiating to obtain three apartment houses still held by private owners on the site, on which the most imposing new building will be its new School of Law. In a revealing explanation that would probably redden faces of lawyers and other officials at federal Urban Renewal Administration headquarters in Washington, the Times also related how it was proposed to take these private properties: "If the owners do not sell, the University expects the city to bring Title I proceedings under the Federal Housing Act to acquire the property and turn it over to the university. This has been done in other housing developments connected with educational projects."

COLUMBIA UNIVERSITY CAMPUS development being planned by Harrison & Abramovitz would create a landscaped causeway over Amsterdam Ave. (A) and provide a Law School Building (B), Faculty Office Building (C) and Graduate Residence Hall (D). At left (E) is Low Memorial Library.



Sert says maturing cities face radical transformation

If present prosperity continues long enough "this country may be facing the most radical transformation of cities that the world has ever witnessed," predicted Dean José Luis Sert, keynoting a two-day conference at the Harvard Graduate School of Design last month on urban design roles of the architect, the city planner and the landscape architect.

In recent years, said Sert, urban design has been a "no man's land" that all these professionals avoided. But now, he declared, "I believe it is precisely in this area that we must join hands and do teamwork. Integration of our efforts is a must. We must give the proper shape to urban space for better communities."

More than 200 design and planning authorities attended this invitation conference in the Fogg Art Museum, sponsored by the graduate school and its alumni association. As it ended, Dean Sert found it so popular it was decided to schedule another similar meeting in the fall. Among last month's speakers: Architects Richard Neutra and Victor Gruen, who evoked enthusiastic applause when he

outlined his plans for exclusively pedestrian redevelopment for a large portion of downtown Ft. Worth (p. 146); Executive Director Edmund N. Bacon of the Philadelphia City Planning Commission, and Pittsburgh's Mayor David L. Lawrence,

Quip of the convention by sharp-tongued attorney, author and housing expert Charles Abrams: "In my opinion, under the present redevelopment laws, in New York Macy's could condemn Gimbels'—if Robert Moses gave the word."

St. Louis renewal surveys boosted with \$250,000 Ford grant, URA aid

Urban renewal and redevelopment planning for metropolitan St. Louis (AF, Sept. '55, NEWS) was promised a big push this year, backed up with a wealth of funds for various study projects.

Ford Foundation help. Of major significance was a \$250,000 grant by the Ford Foundation to St. Louis and Washington universities (\$125,000 each) to help finance joint studies of St. Louis—St. Louis County metropolitan area governmental problems and to suggest "possible practical solutions."

Said a joint statement from the heads of the two universities explaining aims and methods of the research program they hoped to complete in about 18 months:

"The educational results should be twofold. First, we will train a group of young social scientists in a field of research which has heretofore been given too little emphasis.

"Second, while St. Louis has its own special complications, many of our problems are similar to those faced by other fast-growing cities. Both the scholars we train and the research techniques developed here should eventually benefit many metropolitan areas wrestling with the difficulties

caused by rapid expansion."

On the executive committee for the program will be Professor Thomas H. Eliot and Associate Professor Carl A. McCandless of Washington's political science department, and Professor Paul G. Steinbicker and Associate Professor Henry Schmandt of St. Louis University's government department. McCandless and Schmandt also will take leaves of absence to devote full time to the survey as associate directors under a director still to be named.

URA planning advances. Within St. Louis proper, the city's \$760 million long range slum clearance and conservation program received a boost last month with federal Urban Renewal Administration approval for a \$454,250 planning advance for a proposed 70-block Kosciusko area commercial and industrial development. A year ago the city obtained a \$685,000 advance for surveys in the Mill Creek Valley redevelopment area; next it plans to request a \$900,000 advance to plan a \$345 million residential redevelopment in the Lafayette area to serve workers who would be employed in industries in the adjacent Kosciusko area.

Nervi sees new synthesis of structure and form (necessity the mother of style)

The AIA South Atlantic District Regional Conference at Durham, N.C. last month, in conjunction with the Southeastern Regional Conference of the Collegiate Schools of Architecture, held at nearby Raleigh, included a jury's selection of current outstanding architecture of the region, and some thoughts on architecture as a whole by the distinguished Italian architectural engineer, Pier Luigi Nervi. Speaking through his translator, fellow engineer Mario Salvadori (professor of architectural engineering at Columbia University), Dr. Nervi crystallized some of the factors present in the continuing arguments of form and structure in architecture.

Likening our period to the Gothic, Nervi said that we may again be entering a time of synthesis of structure and form, developing techniques of structure to meet demands, as the Gothic did. He also predicted the necessity of developing standard, acceptable, direct forms for the great spanning structures of the new architecture—roofing designs comparable in their standardization to the roughly similar hulls of great ocean ships.

Citing what he feels is the isolation of today's architecture from the past, and possibly from the future, Nervi stressed four points: first, that developing theories of structure have brought us to the point where we are able to build unique structures; second, that we have concurrently developed the materials to give life to the theories; third, that architects and the people feel the need for these daring structures; and fourth, that the speed and growth of our time requires and can afford buildings to match them.

Nervi defined the called-for standardizations as a "style of truth," citing them as "almost perfect solutions of technical problems," much as the airplane exists as a design based on materials and the physical problem, and not on a preconceived notion of shape.

The panel awards included a junior high school by A. G. Odell Jr. of Charlotte, N.C., cited with special commendation in addition to the award of merit; a church at Venice, Fla. by Victor A. Lundy (AF, Oct. '54) and two buildings by Atlanta Architect John Portman, one a residence

LEWIS P. WATSON

SOUTH ATLANTIC AIA PANELISTS: (I to r) Mario Salvadori, Pier Luigi Nervi, Moderator George Boas, Jose Luis Sert, Garrett Eckbo.

and the other an institutional building. The only commercial building to win an award was the Gregory-Poole Equipment Co.'s Raleigh showroom by Architects G. Milton Small and George Matsumoto, of Raleigh. Raleigh architect Joseph Boaz won a citation for a building in Oklahoma City, Okla.

Calif. votes \$90 million for buildings, faces design fight

California's legislature appropriated \$90 million for new state buildings, including \$12 million for University of California projects, at a budget and special session that ended last month. Also approved: \$4 million for building facilities at Squaw Valley for the 1960 Winter Olympic Games, supplementing \$1 million voted last year.

Meanwhile a fight was brewing over proposed Constitutional Amendment No. 6 to appear on California ballots in November. This would revise the law that requires the state's Division of Architecture to design all state buildings except state university structures. It would authorize employment of private architects and engineers in cases where the Director of Public Works, with approval of the Director of Finance, certified that state personnel was incapable of doing a specific project within the time required by public interest. A state employees association has launched a campaign against the amendment, claiming it would undermine civil service jobs. In turn the California Council of Architects has asked for contributions for a \$175,000 to \$200,000 campaign fund to secure adoption.

Texas Architects Week honors A. & M. Langford

Texas Architects Week was celebrated last month (April 13-20) on the theme "50 Years of Architectural Education in Texas"—a tribute to the jubilee of the state's first architectural school, the Division (originally department) of Architecture at Texas A. & M. College. As a warm-up for the statewide celebration, A. & M. architectural alumni sponsored a three-day exhibition of their work and a seminar, "Survival through Architecture," at the College Station campus.

Said AIA President George Bain Cumcontinued on p. 21



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mings at this seminar: "In the physical environment of our civilization it is we, the architects, who must have and give the vision, that the people shall not perish Survival is not enough. There must be safety, health and well-being; there must be work and rest; there must be love and worship; there must be beauty and fragrance; there must be compensation. Through our architecture we provide for the safety, health and well-being of our people. We design the shelter for the world's work and for the people's rest and for their loving and their worship. . . . We contrive it for the satisfaction of our own souls and consciences and find our compensation in the contribution we are permitted to make to our day and generation, of our creative ability."

Honored at the final banquet session was Ernest Langford, FAIA, 65 this month, retiring this year after 35 years on the Texas A. & M.



LANGFORD

architectural staff, head of the division since 1929. Over the last 50 years the basic philosophy of teaching architecture has not changed materially, Langford observed, "This may sound incongruous when we

think of all the argu-

ments about what constitutes proper style, good design and correct methods of planning," he added. "After all, the aims and objectives remain the same: the training of men for professional careers in architecture or allied fields; for proficiency in design and construction; to attack their problem in a simple, direct and craftsman-like manner without striving for imitation or forced originality; to be sensitive to those cultural values which give meaning to life as well as to building."

Among other speakers on this seminar, for which FORUM Associate Editor Walter McQuade was moderator, were New Orleans Architect Charles Colbert, who will succeed Langford at Texas A. & M. on Sept. 1; Architects John Lyon Reid, O'Neil Ford, Donald Barthelme, William Caudill and Architectural Record Editor John Knox Shear.

AIA Gold Medal for Clarence Stein salutes planning attuned to people

On May 17, at the annual AIA convention in Los Angeles, the institute's Gold Medal will go to Clarence Stein, architect and planner who, more than anyone else, can be called the father of American planning.

In presenting the award, the AIA will also belatedly acknowledge a concept long held by visionaries but assiduously ignored by the average practitioner: that a building, in the true sense, does not end at the building line; that the total lives of the people who live in, or work in, a building must be dealt with by the architect; that it is also his responsibility to think of cities as living unities, not as aggregates of individual buildings.

Led ploneer band. In an atmosphere where planning is still attacked as "socialistic" by the neanderthal wings of political parties and social or economic pressure groups, Clarence Stein and a small band of companions laid the foundations for American regional planning more than 30 years ago. Frequently ignored, scoffed at by critics, they directed their thinking against the ill-planned high-density projects that culminated in the well-intentioned but bleak towers of Stuyvesant Town and most New York public housing. Fighting reaction and square-foot costs, they had only sporadic opportunities to put their thinking in effect, and even then could seldom see a project finished as it was originally laid out. (Like Le Corbusier, Tony Garnier and Sant'Elia, their best work is still on paper.) But the story of partial physical success is also a story of complete success for an idea-of green towns for America. Thinking like Le Corbusier, Stein planned for the basic human needs of sunlight, fresh air and green spaces-the elementals that always disappear beneath the overlay of block plans, lot lines and the speculator dollar. Although incomplete, his projects are proof of his arguments: surrounded by developer properties, they are still green havens for their residents.





SPACIOUS COURTS SEPARATE BUILDINGS IN CLARENCE STEIN'S BALDWIN HILLS VILLAGE

193

GRETCHEN VAN TASSEL

STEIN

Early milestones. Sunnyside, in Manhattan's neighboring Queens, was never finished as Stein had planned it. Radburn, across George Washington Bridge from New York, had to be built without the necessary green belt surrounding it. The New Deal brought the opportunity to create a wholly new group of towns along the classic Raymond Unwin garden city plan, and Stein and his associates produced Greenbelt, Maryland; Green Hills, Ohio; Greenbrook, New Jersey and Greendale, Wisconsin. None of them ever developed fully into the planners' concept of coordinated residential and industrial areas-partially because the depression discouraged industry from going into the new towns as it had been hoped. But they are built and they are good to live in.

It was 1941, 17 years after his first association with planned housing that actually got built (Manhattan's Lavanburg Homes, 1924) that Stein got the chance to do a complete job-Baldwin Hills Village in Los Angeles (see cut). Even here, the immediate advent of Pearl Harbor and the second world war prevented development of the plans to the fullest, but the basic Baldwin Hills idea was carried out. Of the 80acre site, only 15% is covered by buildings and garages, the rest is a spacious village green with fingers of parkland extending between each group of buildings. Almost every bedroom and living room faces grass and trees, not other buildings. Yet this project, involving extremely low building footage in proportion to total land has paid its way consistently, even at low, fixed wartime rents, and burdened with the extra expenses of operating a central telephone exchange and the project's bus systemboth caused by wartime restrictions. The developer's investment in the project was repaid in 1949, when the New England Mutual Life Insurance Co. purchased Baldwin Hills at a price well above original cost.

Kitimat and new horizons. The early 1950's brought new opportunity north of the border. The Aluminum Co. of Canada planned a giant new smelting plant in the wilds of British Columbia, with an eventual total population of 50,000. The new town was christened Kitimat (AF, July '54 et seq.);



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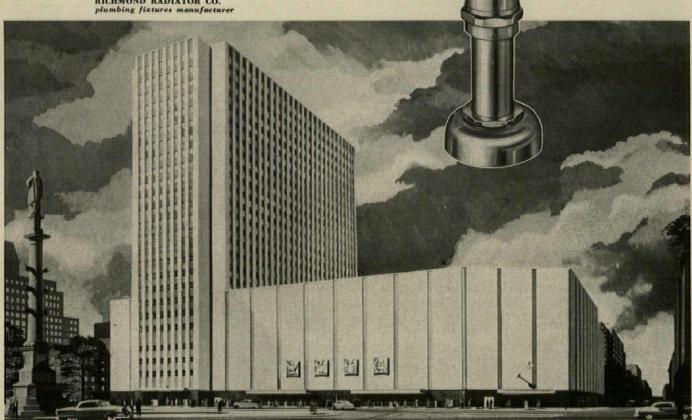


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1879

NEWS

Clarence Stein was picked as planning coordinator. Not completed yet, Kitimat is partially occupied. Based on fundamentals, Stein's plan embraces the purpose of the community, the requirements of the people who are to live there, the laws and customs of British Columbia and the natural potentialities of a wilderness site. There is a planned relationship between homes, schools, open areas and shopping centers; a balance lacking in the majority of developer projects.

Today Stein is at work on a new project, another book which, following his "Toward New Towns for America," further develops the concept of a planned region.

Seattle approves \$5 million library, opens book on design contract row

In March, Seattle voters approved a \$5 million bond issue for a new central library that they rejected in a 1950 election. Last month they learned that their approval also had precipitated a fracas in the library board over selection of an architect, and the structure might bear little resemblance to drawings and models by Architects Jones & Bindon that were used to arouse public support for the bond appropriation.

Said a statement by Librarian John S. Richards, who at one point was reported as favoring Jones & Bindon for the design contract: "Eighteen firms have asked to be considered for the new building. They have been promised interviews by the full board in a letter signed by the president. Subsequently the board has changed its plans and created a committee of two to interview and investigate these firms. This is serious because it eliminates the whole board from these interviews, which would give them information and background on which to make wise decisions. It also removes the librarian from any part of the interviews. . . .

"No architectural firm can plan a functional library building without the help of the library staff, and for this reason it is necessary the librarian be involved in the study and selection of an architect."

In a letter to City Council President M. B. Mitchell to clarify the role of Jones & Bindon in its long association with the library system, Senior Partner John Paul Jones said that while his firm prepared drawings and models for the board that were used in connection with the 1950 and 1956 bond-issue campaigns, no bills for them have been presented to the board since such studies were begun in 1947. "If we are selected as architects for the new library," he added, "we will naturally absorb the cost of these drawings, since they are part of the work for which an architect is paid under the customary percentagefee contract. If, however, we are not selected, we believe we would have a valid claim for the work we have done. Our claim would consist of our costs, plus a reasonable fee for our services. A common way of computing the charge in such a case is to double our out-of-pocket costs." (Since 1947, he added, office outlays on preliminary plans for "the ultimate building" were just over \$7,000.)

As Seattle papers devoted considerable space to the controversy (and several local side aspects that appeared likely to remain unresolved until the political atmosphere cieared, after the new mayor elected in March took office next month), Washington Chapter AIA President Lloyd Lovegren also was quoted on the situation. AIA standards prohibit one firm from attempting to supplant another architect if definite steps have been taken to employ the latter firm, Lovegren explained. "There are involved legal, moral and ethical aspects as to whether the library board is obligated to the firm of Jones & Bindon," said Lovegren. Architects ethically may be interviewed by the board, he added, but they may not seek the work if the board is obligated to Jones & Bindon.

Two groups announce awards for best church designs

For the second successive year no example of Gothic or Colonial design "happened to win an award-but the jury would like to point out that the winning contemporary designs are much more conservative than previously." Added Jury Chairman Dr. Arland A. Dirlam, AIA, of Boston, as he announced the annual architectural awards of the Church Architectural Guild of America at the guild's annual design conference in Atlanta in March (held in cooperation with the Bureau of Church Building of the National Council of Churches of Christ in America): "The designers are not straining at the unusual, not using the stark nakedness of the box type. There's flow-line in their designs, a real sense of beauty. They've gotten away from the factory or commercial sort of thing and have caught the atmosphere of worship so necessary in religious archi-

Highest 1956 guild awards in four classes besides the award for combined religious-educational facilities (see cut):

▶ Church seating under 300 persons: 1st, Vero Beach (Fla.) Presbyterian, by Architect Harold E. Wagoner, Philadelphia.

▶ Church seating over 300 persons: 2nd prize, Navy Chapel, Miramar, Calif., by Architects Richard J. Neutra and Robert E. Alexander, Los Angeles (no 1st prize).
▶ Religious educational facilities: 1st, First Methodist, Honolulu, by Architect

Alfred Preis, of Honolulu.

Major additions or alterations: 3rd, Alhambra, Calif., Friends Community, by Architect Harold D. Zook, of Pasadena (no

1st or 2nd prize).

Also on the jury with Dr. Dirlam were



LANE BROS

CHURCH ARCHITECTURAL GUILD first prize for combined master plan for religious and educational facilities: Jury Chairman Dirlam showing model of Evangelical United Brethren Church, Santa Ana, Calif., by Santa Ana Architect Frederick Hodgdon.

the Rev. Edward S. Frey and the Rev. S. Turner Ritenour, and AIA members Daniel D. Merrill and Edward A. Moulthrop.

Magazine awards. In the 1956 Better Catholic Institutional Design competition of Church Property Administration magazine, 1st awards in four categories in addition to high schools for no more than 1,000 students (see cut) went to:

Church seating less than 400 persons: St. Gabriel's, Chinook, Mont., by Bordeleau-Pannell, AIA, Great Falls, Mont.

Parish convent: St. Brigid parish, Detroit, by Diehl & Diehl, Detroit.

▶ Grade school for 350 or more students: St. Teresa, Trumbull, Conn., by Architect J. Gerald Phelan, of Bridgeport.

Parish rectory: 1st Distinctive Design Award, St. Therese of the Child Jesus, Philadelphia, by Nolen & Swinburne, Philadelphia (no 1st award).

The jury for this competition was composed of Brother Cajetan Baumann, OFM, AIA, of New York; Frank Montana, head of Notre Dame University School of Architecture, and the New York AIA members George S. Beatty, Paul C. Reilly and George J. Sole.



catholic institutional DESIGN first prize for a high school for no more than 1,000 students in the annual "Church Property Administration" magazine competition was awarded to St. Patrick's H. S., Chicago designed by Belli & Belli, of Chicago.

for news about TRENDS-p. 29



FOLDOORS as room divider in American Red Cross Chapter House, Indianapolis. Architect: D. A. Bohlen & Son

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home stadium shown above. Designed for low-cost maintenance, customer convenience and comfort, all public and private washrooms in this modern stadium have American-Standard plumbing fixtures, supported by the Zurn System.

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maintenance, and an always modern look are not the only advantages of using American-Standard wall-type plumbing fixtures, especially when you specify that they be installed on the Zurn System. This combination of superbly designed, handsomely styled fixtures and the Zurn System which rigidly supports them from behind the wall (thus relieving the wall of all the stress), also makes for easy, time-saving installations.

Architect: Harry L. Wagner & Associates.

Consulting Engineer: J. R. DE RIGNE & ASSOCIATES.

Mechanical Contractor for Kansas City Stadium: WALDO PLUMBING & HEATING COMPANY.

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BUILDING MONEY: anti-inflation discount rates will tighten mortgage lending; GSA offers 1st lease-purchase paper

Biggest spot news that would affect building money last month was the boost in discount rates by the Federal Reserve Banks. In view of steadily mounting demands for money and credit that had already sent the price of borrowed money upwards, coupled with high industrial production and trends to increased prices, the Federal Reserve Board decided that inflationary forces were predominant in the economy, and tighter money conditions were the indicated antidote,

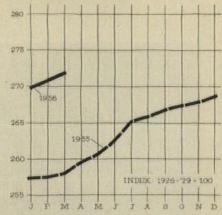
Conventional mortgage money for large nonresidential properties would not disappear, but lenders would be more selective and would be in a position to demand higher yields. (Banks promptly raised their rates on business loans as soon as the reserve banks boosted their rates to banks.) The only projects that would be hard hit or halted: those that were of only marginal quality in the first place, when money was still relatively easy.

First GSA financing. Of particular significance this month would be the May 29 closing of bids on financing for the first building for the General Services Administration to be erected under lease-purchase arrangements. All bids would have to go to the Washington or Chicago GSA offices, and would have to reflect an interest rate of no more than 4% on a 25-year amortization for the purchase and an im-

mediate lease-purchase resale back to the government. In the belief this type of financing on a government building should be virtually as good as a government bond, the Budget Bureau established this 4% interest ceiling several months ago, when money was easier. It also required that the interest rate figure in all bids be calculated to the 3d decimal point. Three alternate types of bids are being sought, covering financing of the building alone, its construction alone, or the total package, both construction and financing. The building-a minor point in such cases: a \$1.6 million Post Office and Court House in Rock Island, Ill. This is the first of 29 GSA lease-purchase buildings to cost a total of about \$91.5 million, already approved for lease-purchase deals. Others under study would raise the total to about \$400 million.

A tidy \$9.3 million loan. No borrowers are the Rockefellers in the ordinary sense of the word. But in the Manhattan mortgage recording tabulations for last December. there was an inconspicuous entry for a \$9.3 million loan at 4% for 17 years by the Equitable Life Assurance Society on the property at the southeast corner of 49th St. and the Ave. of the Americas, which alert observers realized covered the blockfront US Rubber Building in Rockefeller Center and its big new extension completed

TRENDS



CONSTRUCTION COSTS for nonresidential buildings rose 0.4%, from 270.9 in February to 272.0 in March on the index compiled by E. H. Boeckh & Assoc. For the first three months of the year the increase in the Boeckh Index totaled 1.2%. During the first quarter industrial building costs on the index of the Austin Co., of Cleveland, rose 2.4%.

last year on the former site of the Centre Theater, The Rockefeller interests had paid off the original mortgage on Rockefeller Center some years ago and now needed to borrow like an ocean needs more water. But with tax law situations, and a new structure to justify the step, the Rockefellers probably concluded that it would be wise to put some 4% tax-deductible money to work profitably elsewhere-and on a favorable loan-to-value ratio the transaction would make a neat attractive, satisfactory deal for lender and borrower alike.

BUILDING VOLUME: record first quarter expenditures top 1955 outlays by 0.3%

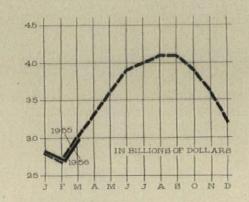
Total construction expenditures this year continued their neck and neck race with 1955 outlays. In March they fell just below March, 1955 spending, but for the first quarter still beat last year's record outlays by 0.3% (see chart and table).

It was the 5% lag in new residential construction that was holding down total expenditures, and the 18% increase in private nonresidential work that was sustaining total construction activity at its same high rate as a year ago.

Public construction was lagging behind forecasts, with educational building up only 4% in the first quarter, highways 8% -greater increases apparently being held back while some sponsors waited, probably vainly, for new US aid programs.

On the new housing outlook for the full year 1956 there were conflicting opinions. Despite the tightening of credit when the Federal Reserve raised rediscount rates last month, HHFAdministrator Cole was still insisting 1956 starts would total about 1,300,000, with a marked increase in activity toward the end of the year, unlike 1955 when starts declined as the year ebbed. His forecast was close to the 1,340,-000 units predicted by FORTUNE, sister magazine of FORUM, after a survey of 290 builders in 35 cities.

NAHB President Joseph B. Haverstick, on the other hand, was insisting vigorously that starts would reach only about 1,200,-000 units, compared with last year's total of 1,328,900. March's 96,000 starts were up 18,000 from February, but seasonally adjusted were at a rate of only 1,140,000 a vear.



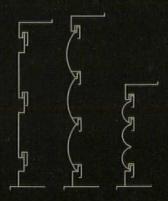
TOTAL CONSTRUCTION expenditures in March turned upwards again seasonally to \$2,983 million, an almost imperceptible \$6 million below outlays in March '55. For the first three months of the year total expenditures were \$31 million ahead of 1955 outlays.

	First 3 months			
Ma	Mar. '56		1955	%±
(1	llars)			
PRIVATE BUILDING				
Residential (nonfarm)	-	3,176	3,356	-5
Nonresidential*	655	1,951	1,649	18
Industrial	226	674	559	21
Commercial	257	759	594	28
Offices lofts; ware-				
houses	96	301	249	21
Stores; restau-				
rants; garages	161	458	345	33
Religious	53	166	161	3
Educational	39	120	122	-2
Hospital; institutions	25	76	84	-10
Public utilities	329	927	932	-1
*PRIVATE TOTAL	2,194	6,339	6,268	1
PUBLIC BUILDING				
Residential	. 19	59	66	-11
Nonresidential	303	875	1,011	-13
Industrial	33	94	243	61
Educational	195	572	550	4
Hospital; institutions	23	65	74	-12
Military	87	251	237	6
Highways	205	535	495	8
Sewer: water	92	251	227	11
*PUBLIC TOTAL	789	2.194	2,234	-2
			-	_
SCRAND TOTAL	2 002	Q 522	8 502	**

*GRAND TOTAL.. 2,983 8,533 8,502 *Minor components not shown, so total exceeds sum of parts.
**Less than one per cent.



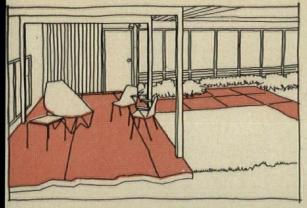
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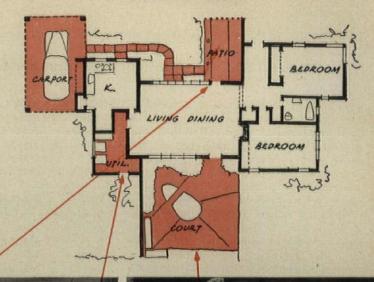


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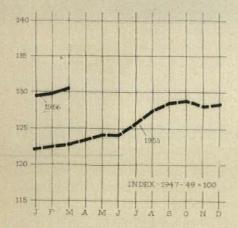
BUILDING MATERIALS: Steel price hike will probably range from \$9 to \$15 a ton; shipments rise, but orders soar faster

With steel workers demanding a "substantial" pay increase (and bucking for a guaranteed annual wage) after their current contract expires the end of next month, and producers hardly disposed to risk a strike in such a boom year, a major boost in steel prices appears inevitable. The only real question is, how much?

Minimum estimates in the trade began at \$9 a ton. To help finance necessary plant expansion programs, as well as labor and other operating cost increases, some industry leaders like President Avery C. Adams of the Pittsburgh Steel Co. spoke in terms of a \$12-to-\$15 increase. Based on current prices, a \$9 to \$15 hike in structural steel costs would range between 10% and 16%.

Shipments mounting. In partial answer to builders' complaints of structural steel scarcities, the industry could take some consolation in the knowledge that its structural shipments have been moving upwards in recent months. Although 1955 shipments were just under 3 million tons, an average of almost 250,000 tons a month, according to American Institute of Steel Construction data, since August they have only fallen below that figure once (in December), and have been averaging 268,000 tons a month. For January and February they totaled 534,877 tons, a 22% increase over the same months in 1955.

Part of the reason for scarcities could also be found in soaring demand. Last year, for instance, contracts signed for structurals totaled almost 3.7 million tons, a 47% increase over 1954. And in January and February this year they totaled 734,-



BUILDING MATERIALS PRICES rose 0.6%, from 129.6 in February to 130.4 in March, on the BLS index of average wholesale prices. During the first three months of 1956 the increase totaled 1.6%. The March average was 6.2% above March, 1955, compared with an increase of only 2.5% in the BLS index of average wholesale prices for all commodities over the same 12-months period. Main cause of the latest March increase over February: a 1.2% rise in average wholesale lumber prices, a component accounting for 20% of the index.

000 tons, a 54% increase over last year.

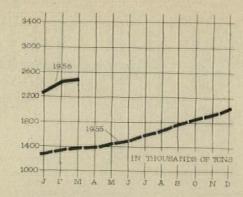
Beyond immediate supply and price problems, however, what were some of the underlying trends in the structural steel picture, and the longer range prospects for stable conditions?

Time lag in plant expansions. In 1954, structural shape fabricators and construction projects received 15.1% of the steel industry's total production. In 1955, with production higher, this percentage dropped to 12.8%. One major reason for this was the lag behind demand in the creation of new production capacity; it takes a long time to project, design, construct and begin operating a steel mill or major mill expansion, A major expansion program announced by US Steel in mid-1954 will not actually start producing steel until late this year. At times, the interval between decision and production may be as much as four years. Further, faced with a boom which may continue to grow or which might collapse overnight, steel producers are unwilling to risk millions of dollars in long-term capital improvements which might stand idle for years if the demand dropped.

Profit rate influence. On the other side of the picture, steel is obviously cocking an eye to profits when it allocates to its customers their various shares of basic ingot production. When construction men suggest that basic capacity figures are useless for projecting structural capacity, steel men are quick to point out that in the ingot stage, they have the choice of sending the raw steel through any of the three basic finishing processes they chooseshapes, bars or sheet. But in doing so, they set themselves up for the question, "Then, why don't you produce enough structural?" When that question goes unanswered, as it goes currently, critics are quick to deduce an answer: the steel producers make more money turning out sheet steel for automobiles and appliances, and that's where their production goes.

As things stand now, architects and builders can look for steel in five to six months after they submit finished steel drawings—if—and it's a big "if"—a mill schedule opening is at hand. If the mill opening is not forthcoming, the job may wait a year for steel. The wise architect tries to absorb the delivery time through reshuffling his schedules—turning out steel drawings and letting steel contracts long before the rest of the drawings are done, often before the general contract is let.

Alternative sources, materials. Recently US builders' eyes have turned toward Europe as a possible steel source. Although total imports for the year—mostly in reinforcing bars—were down in 1955, a year end upsweep in imports bore adequate witness to American building's need for steel—



STRUCTURAL STEEL unfilled orders on March 1 were 2,476,000 tons, a slight increase over 2,407,000 tons a month earlier, according to American Institute of Steel Construction data. In February shipments rose to 283,000 tons, best rate since last October, up 33% over shipments of only 213,000 tons a year earlier.

from any source. At least two New York jobs were going ahead with foreign steel last month, and one builder, in an off-therecord aside, said, "hell, there's foreign steel in half the jobs going up here."

Other builders were turning to concrete, not always with pleasure, but with the knowledge that at least they could get it. Canada House, a major New York office building hit premature headlines this spring with the announcement that its 35 stories would be in concrete instead of steel, in what looked suspiciously like pressure on steel suppliers (AF, March). Last month, presumably after steel had been guaranteed, the reports were deemed "incorrect," it was announced that it would have "an all-steel skeleton as originally planned."

No one could tell for sure just when the present squeeze will end. The steel industry still chooses to maintain that it is a highly competitive industry, and on that basis, will not face the shortage as a united industry. Steel spokesmen report that steel does not know what construction's demands will be in the coming year, that they work from orders on the books and will, in all probability, not have the opportunity to stockpile any steel for inventory (up to 1955, most builders and architects could order from warehouse supplies for quick delivery).

Los Angeles clinches title as nation's third biggest city

Booming Los Angeles, expanding daily with new industries, new residential and new non-residential construction, officially passed Philadelphia last month to become the nation's third largest city. A special Census Bureau count set Los Angeles' present population at 2,241,433, compared with the latest estimate of 2,161,000 for Philadelphia by its own Commerce Chamber.

It was not just civic pride that led Los Angeles to foot the expenses for its special Census Bureau count; for every extra resident officially enumerated the city would receive \$8 a year more under various state financial assistance programs.

for news about PEOPLE-p. 37

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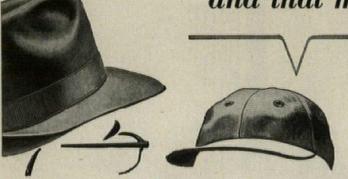
marble

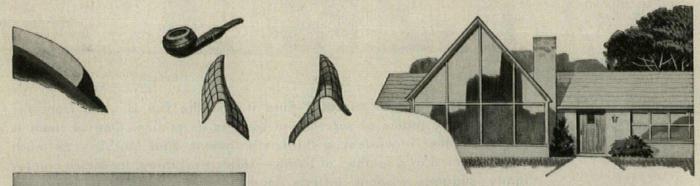


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Dean Buford Pickens given Washington U. development post;

James F. Steiner heads US Chamber construction department



PICKENS

On July 1 Dean Buford Pickens of Washington University School of Architecture, St. Louis, will assume a new post as architectural planner and adviser for the university's Second Century Development Program. Formerly dean of Tulane's College of Architecture, Pickens joined Washington in July 1953, and has been chairman of the committee developing preliminary plans for its initial ten-year building program started in 1954. He is secretary of the Assn. of Collegiate Schools of Architecture, and former president of the Society of Architectural Historians. Succeeding him as acting dean: Joseph R. Passonneau, former TVA design chief, who joined the school as design critic in architecture last year.

North, South and West, the construction industry was patronizing the arts on an ever growing scale.

Late in March, Houston's first biennial International Art Exhibition opened in its Fine Arts Museum, after a month went on the road for museum display in Dallas, Colorado Springs, Pittsburgh, Boston and Utica, N. Y. Patron-sponsors were Engineers Herman Brown, 63, and his brother George R. Brown, 57, president and executive vice president of Brown & Root, of Houston heavy construction contractors in various countries rimming the Caribbean and Gulf of Mexico. This exhibition cost its sponsors about \$15,000, including \$5,000 in prizes. It consisted of some 200 Gulf and Caribbean paintings, sculpture, and ceramics, selected by Directors James S. Plaut, of Boston's Institute of Contemporary Arts; Gordon B. Washburn of Pittsburgh's Carnegie Institute, and Ala Storey, of Santa Barbara's Museum of Art.

In the lobby-arcade of the Tishman Realty & Construction Co.'s newest 38-story N. Y. C.

office tower, said Vice President Robert Tishman, "flowing water, free-form sculpture, carved glass and spot-lighting will be combined in a dramatic union of art and architecture" by Sculptor Isami Noguchi. Water will cascade down a 40'wide section of lobby wall of horizontally carved structural glass. In front of it will be a screen of thin, vertical, floorto-ceiling free-form stainless steel fins, about 1' apart, similar to others running horizontally across the lobby ceiling. Other lobby walls will be red marble; the floor red, black and white marble. Architects for this 5th Ave. blockfront building: Carson & Lundin, resident architects for adjacent Rockefeller Center. (In San Francisco, Noguchi also is doing an East-meets-West sunken-garden lobby for the Crown Zellerbach building designed by Hertzka & Knowles and Skidmore, Owings & Merrill, AF, April NEWS).

Two other artists have been engaged to decorate the lobby of the new 3rd Ave. New York office building Architect William Lescaze designed for Owner-builder William Kaufman. Sculptor Jose de Rivera is making a 9'-wide stainless steel abstract form (titled Continuum), which will be installed on a satin-finish stainless-steel vestibule wall. For the inner lobby around the elevators, Abstract Expressionist Hans Hoffman is designing a huge mosaic.



STEINER

Advanced from assistant manager and urban development specialist to head the construction and civic development department of the US Chamber of Commerce: James F. Steiner, 37. After five years of World War II infantry service, Steiner was graduated from Washington State College (economics and business administration) in 1946. For the next two years he was housing manager on that institution's administra-

tive staff. In 1950 he became Western division program manager for the US Chamber; in 1953 he was assigned to its Capital headquarters, became assistant to construction deparment Manager F. Stuart Fitzpatrick, who died March 2.



GRIMM

Three of New York's best known realtors stepped into new posts last month. Venerable Peter Grimm, 70, former president of the N. Y. Real Estate Board and the N. Y. State Chamber of Commerce, was appointed director of the operations mission in Italy of the International Cooperation Administration, to supervise the economic portion of the mutual security program there under Ambassador Clare Boothe Luce. Henry J. Davenport, 76, president of the Home Title Guaranty Co., which he founded with his father in 1906, was elected board chairman on the firm's 50th anniversary, with Vice President Milton T. Vander Veer, former head of the N.Y. chapter of the American Institute of Real Estate Appraisers, advancing to the presidency. Arthur D. Koppel, for the last seven years first vice president and manager of the mortgage department of Ivor B. Clark, Inc., previously a partner of Shroder & Koppel, which erected the Sherry Netherland Hotel, Squibb Building and other large N.Y. structures, opened his own office as a broker specializing in the financing of major new and existing buildings.

As a tribute to Retiring Director Harold Bush-Brown, and his predecessors, Georgia Institute of Technology's School of Architecture has organized a photo exhibition of works of alumni and former students, "A Half Century of Architectural Education," which will be inaugurated during a symposium at the school May 27

and 28. Almost 500 submissions were reviewed by a jury composed of Joseph M. Hudnut, former dean of Harvard's Graduate School of Design; Francis P. Smith, former director of the Georgia Tech school, and Professor Paul M. Heffernan, who is expected to succeed Bush-Brown as director. Seventy-five entries, covering the styles of 50 years, were chosen for the exhibition.

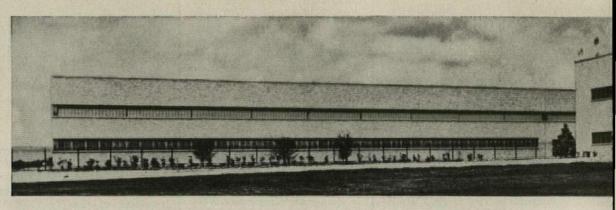
NAMED: AIA Regional Director Donald Beach Kirby, as a member of the San Francisco City Planning Commission, the first architect it has had in some years; industrial and commercial Builder Ray S. Marvin, former president of the Los Angeles chapter, Building Contractors Assn. of California, as a member of the Los Angeles Planning Commission; Mrs. Faye Hartman, 42, who has been in charge of disposing of defense housing in San Diego for PHA, as FHA's first female district director, succeeding San Diego District Director Walter L. Forward Jr., who resigned to join a San Francisco private enterprise firm; Eugene Baughman, resigned April 1 after nine years as planning director of the St. Louis Planning Commission, as a consultant with Evert Kincaid & Assoc., Chicago; David Schackne Jr., as the new director of the Columbus, Ohio, Education Board's construction department, succeeding Edward Kromer, retired after 35 years.

DIED: Edmond Borgia Butler, 59, chairman of the N.Y.C. Housing Authority, 1942-47, March 21 in New York; Robert von Ezdorf, 67, architect associated with the design of the Wharton School of Commerce and Finance in Philadelphia, the 57th St. Tiffany Building in New York, and the interior design and decoration of the Waldof-Astoria Hotel, while affiliated with such firms as Warren & Wetmore, Fellheimer & Wagner and McKim, Mead & White, March 24 at Summit, N.J.; Engineer Francis Blossom, 85, a senior partner of Sanderson & Porter, engineers and constructors, March 12 in New York.

HOW WESTERN ELECTRIC GETS PRECISION TEMPERATURE CONTROL FOR ONE ROOM-or ACRES OF ROOM!

New 625,000 sq. ft. Lexington Road Plant of Western Electric Company, Inc., Winston-Salem, N. C.

Western Electric Company, Inc., and Walter Kidde Constructors, architects and engineers, New York; Rowe-Goodin-Jones, Inc., and Piedmont Air Conditioners, Inc., mechanical contractors, both of Durham, N. C.



Johnson Control System Meets Varied Control Needs, Insures Waste-Free Heating, Cooling and Ventilating Performance.

At Western Electric's new Lexington Road Plant, automatic temperature control is a major consideration. The comfort and efficiency of 4,000 employees are directly involved. So are sensitive processing operations. And, in a building this size, the potential savings in heating, cooling and ventilating costs are tremendous.

To satisfy each of these important requirements, Johnson furnished and installed a complete system of automatic temperature and air conditioning control.

MANUFACTURING BUILDING

Actually, the plant consists of two separate structures—a manufacturing building and an office building. The main floor manufacturing area, 620 by 280 feet, is surrounded by an 80-foot periphery partitioned for offices, special process rooms, laboratories, employees' club, cafeteria and locker rooms.

In the general manufacturing area, Johnson Thermostats, Valves, Dampers and related apparatus accurately regulate the operation of 13 large central heating and ventilating systems. Other units serving a partial lower floor are also controlled.

Special process rooms and laboratories are air conditioned. Here the Johnson System rigidly maintains uniform protective temperatures and humidities to safeguard sensitive products and processes.

Office spaces, the cafeteria and employees' club are air conditioned and controlled at ideal comfort levels.

OFFICE BUILDING

The 444-ft. by 103-ft. two-story office building is completely air conditioned. Johnson Air Conditioning Control regulates 12 central air handling units that supply perfectly conditioned air for private offices as well as general offices. Strategically located Johnson Thermostats insure constant comfort, regardless of outdoor conditions, occupancy levels or the heat-producing effects of lighting and office machines.

OPERATING ECONOMIES

Throughout both buildings, Johnson Control produces exactly the desired conditions at a substantial saving in operating costs. The entire installation, like every Johnson System, was engineered to fit the specific control requirements of the plant's particular mechanical equipment. The result is virtually wastefree operation of heating, cooling and ventilating equipment.

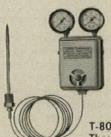
The techniques and engineering skill applied by Johnson to this modern plant, and countless other buildings of all types and sizes, can also be applied to your control problems. Talk to a Johnson engineer soon. His recommendations are yours without obligation.

JOHNSON CONTROL

PLANNING . MANUFACTURING . INSTALLING



R-1051 Static Pressure Indicator-Controller



T-400 Room Thermostat

T-800 Remote Bulb Thermostat





T-432 Heating-Cooling Thermostat

V-108 Three-Way Mixing Valve



D-225 Louver Damper







LET JOHNSON HELP YOU SIMPLIFY YOUR PLANNING

Johnson knows and understands thoroughly the highly specialized temperature and humidity control problems of industry. More important, Johnson has the right answers!

You can make your planning on industrial projects easier, surer, more successful by calling in a Johnson engineer early. He can give you-and your clients-the benefit of Johnson experience gained in engineering and installing automatic temperature, humidity and air conditioning control systems for thousands of important industrial buildings.

V-153 Sylphon Diaphragm Valve

T-1000 Recorder-Controller



D-251 Piston **Damper Operator**



One talk with a Johnson engineer will quickly demonstrate how helpful this experience can be to you. No obligation, of course.

Complete sales, engineering, installation and service facilities are available through 98 direct branch offices in the United States and Canada.

JOHNSON SERVICE COMPANY

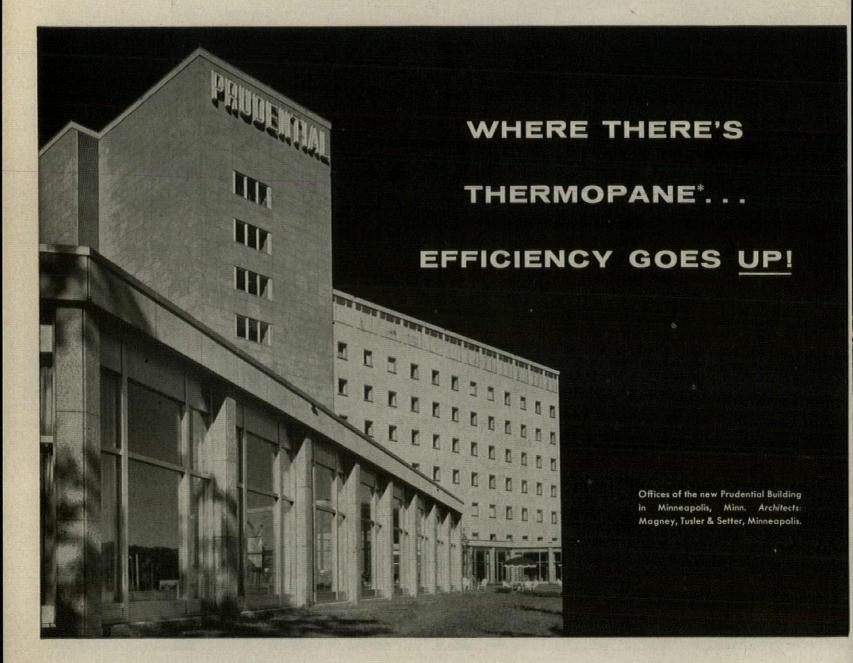
507-E East Michigan St., Milwaukee 1, Wisc.

- Please have a Johnson engineer call on me.
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CITY & STATE_





Thermopane INSULATING GLASS

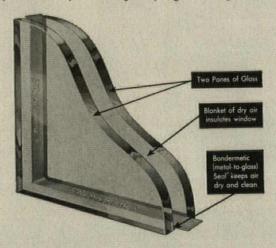
LIBBEY · OWENS · FORD ... a Great Name in Glass

Architects and builders who have had a long and profitable experience with *Thermopane* insulating glass emphasize two major reasons why they specify it for office buildings:

Employe Benefits . . . In summer, Thermopane insulates against outside heat. In winter, office personnel enjoy extra comfort because drafts near windows are reduced . . . better health, since with Thermopane a higher humidity can be maintained. And the year 'round, Thermopane deadens outside noises to improve employe concentration.

Owner Benefits . . . In addition to better working conditions for maximum output, owners can calculate dollar savings because operating costs for heating and cooling units are reduced.

When your clients experience these comforts and economies, they'll thank you for specifying *Thermopane*.





Mile High Center Building in Denver, Colo. Architects: Webb & Knapp, New York, N.Y.



Offices of The Jewel Tea Co., Inc., Melrose Park, III. Architects: A. Epstein & Son, Chicago.

Thermopane FACTS

Much technical information is available to help the architect and engineer design for the most effective and most economical use of *Thermopane* insulating glass. It is all in our *Thermopane* Manual which will be sent on request. (See coupon below.)

The following brief data are excerpts from the manual:

ADVANTAGES OF THERMOPANE

- 1. Savings in fuel
- 2. Increased usable room space
- 3. Reduction of condensation
- Reduced air-conditioning initial equipment needs and operating costs
- 5. Quieter interiors

INSULATING EFFICIENCY

Thermopane with ½" air space—U=.65 Thermopane with ½" air space—U=.58 Single ½" glazing—U=1.15

KINDS OF GLASS

Thermopane is made with plate glass for maximum clarity, or with sheet glass when economy is main consideration. Units ½" thick have ½" air space, units 1" thick have ½" air space. Thermopane can also be made with Heat Absorbing Glass, Tuf-flex* tempered plate glass, or several types of Blue Ridge Patterned Glass.

STANDARD SIZES

More than 90 standard sizes are made to permit economy in use with most popular types of sash. The *Thermopane* Manual provides a list of sash types and standard sizes for them.

OTHER DATA IN THERMOPANE MANUAL

Heat Loss Data
Warm Side Surface Temperatures
Condensation Points
Sound Insulation
Light and Solar Radiation Transmittance
Reduction of Cooling Load

Strength of Thermopane Wind Load Weight Per Sq. Ft. Glazing Instructions Framing Details Suggested Specifications

Thermopane is sold by local L·O·F Glass Distributors and Dealers (listed under "Glass" in the yellow pages of phone books).



508 Madison A	ve., Toledo 3, Ohio
lease send me	a copy of the Thermopane Manual.
Name	(Please Print)
	(Please Print)
Name	(Please Print)



these doors say "Come In" ...

and eliminate the obstacles!

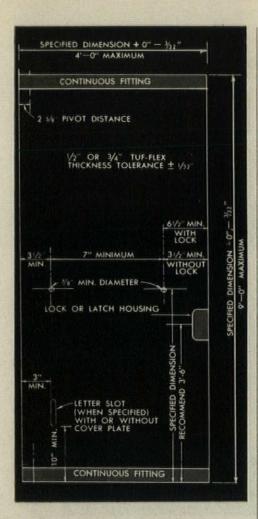
Tuf-flex* Glass Doors shorten the selling distance between prospect and product by eliminating the obstacles. There's no center post or heavy frame to block the view. From outside, Tuf-flex Doors provide visibility to enhance the promotional appeal of products on display...quickly beckon a friendly invitation to come in and buy. They're practical, too; really rugged to take the strain of increased traffic. Made of tempered glass, Tuf-flex Glass Doors are 3 to 5 times stronger than regular plate glass of the same thickness. Now available in good supply, ½" or ¾" thick.

For further information, read the column at the right. To order, call your Libbey Owens Ford Glass Distributor or Dealer (listed under "Glass" in the yellow pages of phone books).



TUF · FLEX DOORS

LIBBEY. OWENS. FORD a Great Name in Glass



TUF·FLEX DOOR FACTS

Here is a typical *Tuf-flex* Door showing design limitations and hardware.

Standard sizes:

30" x 84"	29 ¹³ / ₆ " x 83 ¹¹ / ₆ "	29 ¹³ / ₁₆ " x 83 ³ / ₁₆ "
36" x 84"	35 ¹³ / ₁₆ " x 83 ¹ / ₁₆ "	35 ¹³ / ₆ " x 83 ³ / ₆ "
42" x 84"	41 13/6" x 83 11/6"	41 ¹³ / ₁₆ " x 83 ³ / ₁₆ "

For	complete	information,	mail	the	coupon
hel	ow				

Dept 3456

Libbey Owens Ford Glass Company 608 Madison Avenue, Toledo 3, Ohio

Send me Tuf-flex Door Booklet-TF-1.

Name	(Please Print)
Address	
City	State

DATES

Smithsonian Institution, traveling exhibitions: "Contemporary Finnish Architecture," through May 22, Barnsdall Gallery, Pasadena, Calif.; "Venetian Villas," thru May 22, Fine Arts School, University of Pennsylvania, Philadelphia.

American Institute of Planners, annual meeting, May 7-9, Sheraton-Biltmore Hotel, Providence, R. I.

Producer's Council, Inc., annual spring meeting, May 14, Hotel Biltmore, Los Angeles.

Mortgage Bankers Assn. of America, western mortgage conference, May 14-15, Mark Hopkins Hotel, San Francisco.

American Institute of Architects, annual convention, May 14-18, Hotel Biltmore, Los Angeles.

Prestressed Concrete Institute, annual convention, May 16-18, Hollywood Beach Hotel, Hollywood, Fla.

Society for Experimental Stress Analysis, spring meeting, May 16-18, William Penn Hotel, Pittsburgh.

Building Research Institute, annual meeting, May 20-22, Sheraton-Brock Hotel, Niagara Falls, Ont.

National Society of Professional Engineers, annual meeting, May 23-26, Ambassador Hotel, Atlantic City, N. J.

American Society of Civil Engineers, Structural division, spring convention, June 4-8, University of Tennessee, Knox-

Forests Products Research Society, national meeting and exhibit, June 4-7, Municipal Auditorium, Asheville, N. C.

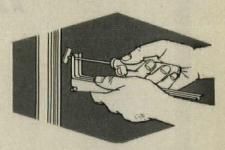
American Society of Heating and Air-Conditioning Engineers, semi-annual meeting, June 18-20, Shoreham Hotel, Washington, D. C.

School Plant Planning Workshop, Department of Architecture, University of Colorado, June 18-July 20, Boulder, Col.

American Society of Landscape Architects, 57th annual meeting, June 24-27, Cleveland Hotel, Cleveland, Ohio.

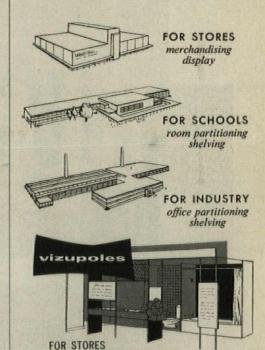
National Assn. of Building Owners and Managers, annual convention, June 24-28, Biltmore Hotel, Los Angeles.

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With the simple twist of a screwdriver—
L. A. Darling's revolutionary Vizusell system combines channels, brackets, panels and accessories to give modern distinctive styling and the ultimate in functional space control.



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Please send	full information	on Vizusell and	l Vizupole
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E SAVED \$50



Shown directly above is one of the homes erected GRANT-HOLLADAY in Newcom Knolls, a suburb of Dayton, Ohio. These homes are prefabs with an option of 4 bedrooms or 3 bedrooms and a dining room. Lots average 60' x 125'. Full price is \$10,750. This house is typical of the more than 1,100 which GRANT-HOLLADAY plans on erecting in Canton, Youngstown and Piqua, Ohio.

When you consider that GRANT-HOLLADAY saves When you consider that GRANT-HOLLADAY saves \$50.00 per home by using Revere Copper Water Tube and then multiply this saving by the 1,700 homes they have completed and plan to erect, you have a saving of \$85,000! And that, Mr. Architect, Mr. Builder and Mr. Contractor, "ain't hay!"

If that kind of money can be saved in homes within this price range, think of the savings that can be realized when you get into the higher price brackets, That's why it will pay you to plan on copper in all your future homes

it will pay you to plan on copper in all your future homes
. . . for underground service lines, hot and cold water lines, radiant panel heating, air conditioning, drainage, waste and vent lines. See your Revere Distributor. And if there is anything involving the installation of Revere Copper Water Tube that's bothering you, he'll be glad to put you in touch with Revere's Technical Advisory Service.

Revere Copper and Brass Incorporated

Founded by Paul Revere in 1801 230 Park Avenue, New York 17, N. Y

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angelesand Riverside, Calif.; NewBedford, Mass.; Newport, Ark.; Rome, N. Y. Sales Offices in Principal Cities, Distributors Everywhere.

PER HOUSE by using REVERE COPPER WATER TUBE in our plumbing and drainage lines"

"To enable us to construct these houses in Newcom North and Newcom Park and sell them at the low sale price of \$10,750 and still make a profit, it has been necessary to incorporate any and all time-saving devices available. With this pre-cut and pre-assembled type of construction, the use of copper with its ease and speed of installation was dictated. It soon became apparent that the \$50.00 saving per house effected through the use of Revere Copper Water Tube, coupled with the added sales appeal, made copper the logical choice."

Says, Wallace F. Holladay, President GRANT-HOLLADAY CORPORATION Dayton, Ohio



"This business of contractors saying that copper is expensive to install is being disproved every day. Our experience has proved just the opposite. Copper water tube not only does not cost more to install than rustable materials, it actually costs less . . . in the case of these homes that GRANT-HOLLADAY built it was \$50.00 less, per home! The reasons are obvious: solder fittings, fewer fittings, long lengths, ease of handling and bending, and the prefabrication of certain assemblies in the shop."

Says, Charles Claypool, President CLAYPOOL PLUMBING & HEATING COMPANY Kettering, Ohio

"We have furnished CLAYPOOL PLUMBING & HEATING COMPANY with approximately 160,000 pounds of Revere Copper Water Tube for the 1,700 homes that GRANT-HOLLADAY is building. Handling Revere Copper Water Tube is good for us, not only from a prestige standpoint, as contractors and builders know it is of the highest quality, but I've found that when Revere says they'll deliver on a certain date, they deliver . . . and that's mighty important to a distributor."

Says, R. J. Makarius, President ACME PLUMBING SUPPLY COMPANY Dayton, Ohio



Modern architecture at Yale . . . art gallery

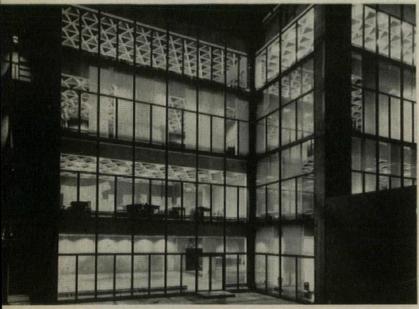
and design center by Douglas Orr, F.A.I.A. - Louis I. Kahn, F.A.I.A.

YALE UNIVERSITY ART GALLERY and Design Center is a remarkable dedication to honesty and uncompromising structural-design expression. It is an infinitely flexible, open-loft structure with almost total integration and disciplined order. Most extraordinary is the 2 ft. 4 in. deep tetrahedral, ceiling-floor diaphragm which contains most wiring, air-distribution lines and trolley duct for lighting units. Concealment of these was not necessary as the structure provided its own ornament. And, with Tectum on the job, sound control was well in hand.

Here, Tectum was used as an acoustical plank-the form for, and integral with, each surface floor slab (see detail to the right, below). Four factors determining

selection of the material were met by Tectum. Structural strength, a basic consideration, was more than adequate since Tectum is engineered to carry minimum loads of 200 pounds per square foot on economical spans. A noise reduction coefficient of .75 in the 2-inch plank helps to provide a quiet atmosphere in the galleries. As a natural insulator, Tectum contributes to greater interior comfort. And, safety is assured since Tectum is noncombustible.

If you are not familiar with Tectum, or its uses as a roof deck and finished ceiling, contact your nearby Tectum dis tributor for complete information-or see Sweet's files, 2e/Te. Tectum Division, Peoples Research and Manufacturing Company, 308 South Sixth St., Newark, Ohio.



Yale University Art Gallery and Design Center at night. Note how the breathing ceiling" is used consistently throughout the building. Bolt, Beranek & Newman, Boston, Acoustical Engineers; Richard Kelly, Consultant of Lighting; Edison Price, Fixture Designer.



Paintings are exhibited here on remarkable "pogo stick" panels. Easy to install and remove, they provide completely flexible partitioning. Used singly or in groups, they may form the entirety or partial background of a show.

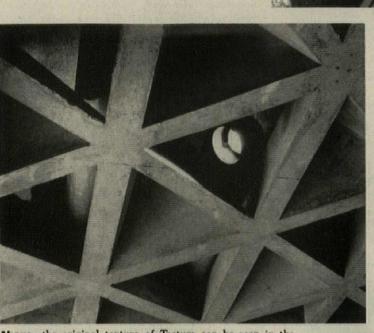


why lay a roof deck ...

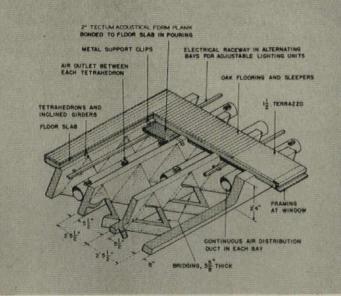


cover it with insulation...





Above, the original texture of Tectum can be seen in the triangle to the upper left. Tectum, like the framing members, was not painted—nor will it ever need be. If, at a later date, Tectum should be spray painted, its acoustical value will not be impaired.



South facade and entrance area. Douglas Orr, New Haven, Louis I. Kahn, Philadelphia, Associated Architects; George B. H. Macomber Company, Boston, General Contractors; Meyer, Strong & Jones, New York, Mechanical and Electrical Engineers; Henry Pfisterer, New Haven, Structural Engineer.

and add acoustical material...

when you get all 3 with the



NOW . . . an accurate, dependable

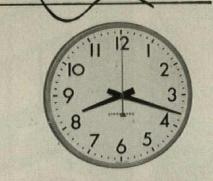
ELECTRONIC TIME and SIGNAL SYSTEM

Architects everywhere recognize the great need for time signals to regulate heavy student traffic, especially in today's burdened secondary schools. They know, too, that dependability and accuracy are essential to the success of the system they choose.

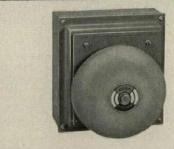
System Suits Varied Needs

This new electronic system - by Stromberg - has many advantages, some of them unique. Here are a few: incorporates latest developments in electronic components; highly flexible program permits timing of several different signal schedules; manual signals, if needed, can be sounded instantly; automatic synchronization of all clocks every hour. Power interruption? The jeweled master clock movement, a superb example of technical craftsmanship, operates from its spring power reserve. Upon power resumption, program unit is immediately and accurately reset; 12-hour correction feature is standard-correction completed within one minute. Inherent throughout this new electronic system is the reliable, precision construction for which Stromberg has gained widespread recognition.

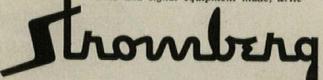
Ask, too, about Fire Alarm Equipment Attendance Recorders Time Stamps







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SUBSIDIARY OF GENERAL TIME CORPORATION

TIME CORPORATION—

(WASHINGTON)

Our capital city seems to be a watched pot that nevertheless bubbles and boils in a fine democratic way, frequently making it very tough for architects who want to program improvements.

Take one problem posed in construction of the new Senate office building. The senators, who are accustomed to riding to the capitol from their old office building on their famous little underground trolley, are insisting that similar facilities be provided between the new building and the capitol. Once trollied, always trollied, sir.

There are two complications: a) some railroad tracks which are in the way of the proposed tunnel; b) the House of Representatives, who never have had a trolley in their own tunnel owing to lack of appropriated funds. Some doubt has existed whether pedestrian representatives will vote funds to further motorize the senators.

The first objection, the RR tracks, can be overpassed or underpassed, but can the House of Representatives? The senators have pleaded greater age (average age of 96 senators, 57.2 years; of 435 representatives, 51.3 years) but some representatives naturally are somewhat jealous of the respective dignity of their own wing. Solution? The obvious one is to motorize everyone at once, including the Supreme Court and Bureau of the Budget, and get on with the programming.

(WHO, ME?)

Portrait of the month, from Buildings magazine: "FIREPROOF"



"To fireproof the steel in the Prudential Building, Zonolite vermiculite plaster is sprayed on by machine. Extremely light in weight, vermiculite plaster saves tons..."

(SPACE)

A year ago on April 1, someone in the art department of the Cincinnati Enquirer

PARENTHESES

had a little fun making a montage of a site photograph and model photo of the spacious new Proctor & Gamble office building now being completed in that city:



Proctor and Gamble are the makers of Ivory Soap, Camay, Crest, Ivory Flakes, Ivory Snow, Oxydol, Duz, Cheer, Tide, Dreft, Joy, Spic and Span, Lava, Crisco, Drene, Prell, Shasta, Lilt, Gleem and P & G White Naptha.

(ANNIVERSARY)

This department, Parentheses, this month lumbers into its second year of existence in the Forum. A good deal of doubt still exists concerning what it really is, and why; we share the doubt but are enjoying the birthday anyway. Among the pleasant dividends of filling this space every issue for a year has been the mail response. There are a good many people in building who take a parenthetical view now and then, and report in.

A prime recent example is a reaction to a paragraph quoted in this department two months ago from Edwin Gilbert's novel about architects, "Native Stone." The paragraph described a beautiful, fictional girl named Nina—in terms of architecture of Mies Van der Rohe at Illinois Institute of Technology. Reaction: "Dear Mr. McQ.,

"Shades of The Fountainhead, what have we here! Your quote of 'Native Stone' has upset me no end. . . . re: the silver-blonde heroine, named Nina, who is stacked like a Mies brick curtain wall. It so happens that my name is the same, my hair is definitely silver-blonde when viewed under fluorescent light (never mind the complexion color), my shoulders do not slope, nor do I laugh excessively . . . far be it from me to say whose architecture I reflect, but somehow I had always thought of myself more as the FLLW Falling Water type [a small cantilever here and there, you know]. It grieves me to think that I may inspire thoughts of IIT instead of

Taliesin, which I'm much fonder of . . . what shall I do, dye . . . or diet?

Most urgently, NINA PENCE, architect
Klamath Falls, Ore."

Thank you, Miss Pence. Leonardo Da Vinci said it with proper fervor centuries ago: "Feathers shall raise people towards heaven even as they do birds—that is by letters written with their quills."

Another witty communication:

"Here is possible material for your (PARENTHESES) column. Somebody's been seeing trees and no forest, or viceversa.

"Robert Woods Kennedy writing in Forum, Sept. '53, p. 190: 'A satisfactory environment is like a forest. All its aspects are interrelated. The building which is one with its environment might be described as of its time.'

"Then, Frank Lloyd Wright about his Price Tower: 'As trees crowded in the forest have no chance to become themselves, so the skyscraper needs to be freestanding to become a human asset.'

"These great minds leave me confused.

(Another Martini, Jeeves). Cordially, and tongue-in-cheek,

FREDERICK H. KOCK Architect, Cincinnati, Ohio."

And from Ireland, a forthright letter, with pictures:

"Not being an architect and being in my 83rd year, I do not propose to subscribe to FORUM.

"Enclosed are three snaps of a granite block here, the shape of which, I should fancy, will appeal to architects. The point about it is that the half block is similar to the whole. The width is 32", the length is 32" times the cube root of 2 and the depth is 32" divided by the cube root of 2.

$$\frac{L}{W} = \frac{W}{D} = \frac{D}{\frac{1}{2}L} = \sqrt{2} = 2^{1/3}$$

"The geometrical figure on the top surface, though discovered by me as a way of finding the cube root of 2, was known to the Greek Geometers about 2,000 years ago! Yours truly,

ARCH H. FINLAY



(ONLY GOD . . .)

Trees come and go. High in the White Mountains, near the California-Nevada border, Natural History magazine has noted an unusual growth of rare bristle-cone pines which may surpass the famous Sequoias in age. More than 900 annual rings were counted on a 27" cut from one dead tree.

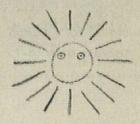


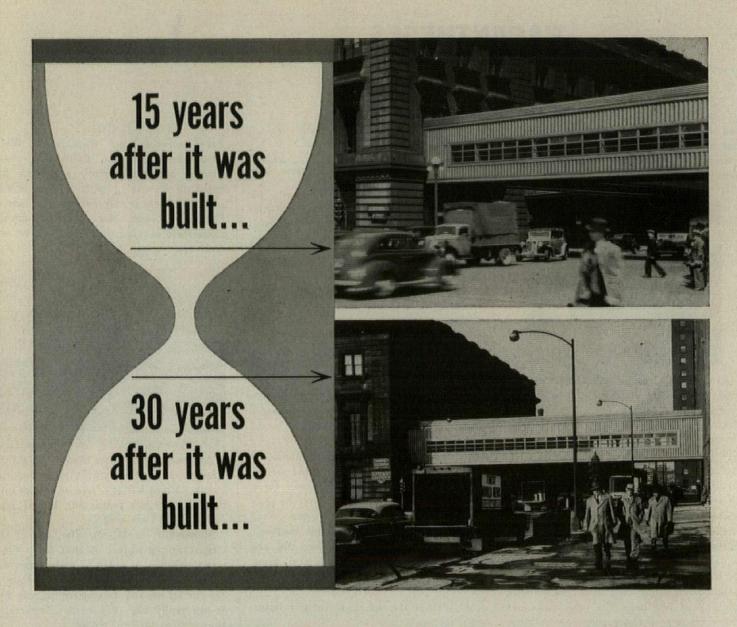
Another of the pines nearby is 36.7' in circumference, the largest of its species known. From borings, tree scientists estimate it is 1,500 years old. It has been named "The Patriarch."

Meanwhile, in Miami, Fla., one of the largest and grandest of that city's trees was destroyed in order to make room for six or eight more parking spaces on a 338-car lot around it—or perhaps only five or six really big 1956 cars. The tree, a banyan, was an 1897 model.



May the man responsible for this destruction be trapped in a locked car, with all windows closed, on the anonymous macadam spot where that great tree grew! Make it a sunny Miami day, in August. Let him sit there in the car a couple of hours and think.—W. McQ.





This STAINLESS "Covered Bridge" is **EVER-NEW**

"INFO" for Architects and Builders

- 1 "AL Structural Stainless Steels"—12 pages on stainless grades, properties, forms, finishes, standard "specs," uses and advantages.
- 2 "Stainless Steels for Store Fronts and Building Entrances"—40 pages of valuable data on examples and details. A1A File No. 26D.
- 3 "Stainless Steel Curtain Walls"—A 24-page progress report on methods. A1A File No. 15-H-1.

Write for Details
Address Dept. B-77

The top photograph of the AL Stainless Steel-surfaced concourse that connects the Chicago Daily News building with the North Western station was taken about 1939-40. The lower picture was made early in 1955. There's no discernible change.

Another 30 years—50 years—100 . . . the bridge's stainless shell will still be just as good as new. No one knows how long AL Stainless actually will last, but it could be for centuries, if required. And all the time it requires no particular maintenance,

no painting or refinishing—just occasional washing to remove the grime that isn't carried away naturally by wind and rain.

No other architectural metal can match stainless steel in these properties. Not one can last as long, cost as little to maintain, and prove as economical in the long run.

• Use AL Stainless in your projects, for maximum service and lasting beauty, both in exteriors and interiors. Ask us for any help you need. Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.

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CERAMIC GLAZED BRICK AND TILE

IN THIS MAGNIFICENT NEW GENERAL MOTORS
TECHNICAL CENTER THE ARCHITECTS AND
OWNERS HAVE COMBINED ADVANCED TECHNOLOGY WITH THE INSPIRED USE OF COLOR.
A LARGE PORTION OF THE BRILLIANT COLOR
ORCHESTRATION EMPLOYED DEPENDS ON THE
IMAGINATIVE USE OF CLAYCRAFT BRICK AND
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CLAYCRAFT IS RIGHTFULLY PROUD OF THE MORE THAN FOUR MILLION CERAMIC GLAZED BRICK AND TILE (B.E.) IT FURNISHED EXCLUSIVELY FOR THIS EXCEPTIONAL BUILDING PROGRAM.



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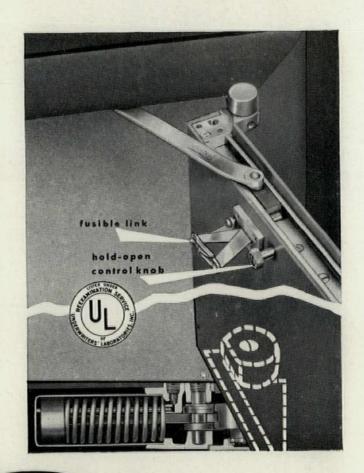
a floor type closer with Underwriters' Laboratories Approval

RIXSON Uni-checks, N.H.O.(no hold open), the smooth functioning door closers that are installed in the rigid floor... have the approval of the Underwriters' Laboratories for fire doors, when furnished with a special iron ball bearing top pivot.

RIXSON UNI-CHECKS with no. 36 fusible link hold-open arm ideal for interior fire doors

The special U.L. approved RIXSON Uni-check can be supplied with a hold-open that also has Underwriters' Laboratories approval. The RIXSON no. 36 hold-open arm (illustrated) holds the door at 90°. In case of fire the fusible link releases at 160°F and the door closes automatically. A firm push will also close the door. The hold-open is easily engaged or disengaged by a turn of the control knob.

specify RIXSON throughout



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Some materials never seem to grow old. That's especially true of concrete reinforced with American Welded Wire Fabric. Thirty-five years ago it was the best material for building floors. It still is, today. With labor costs increasing, this high yield strength prefabricated material reduces costs.

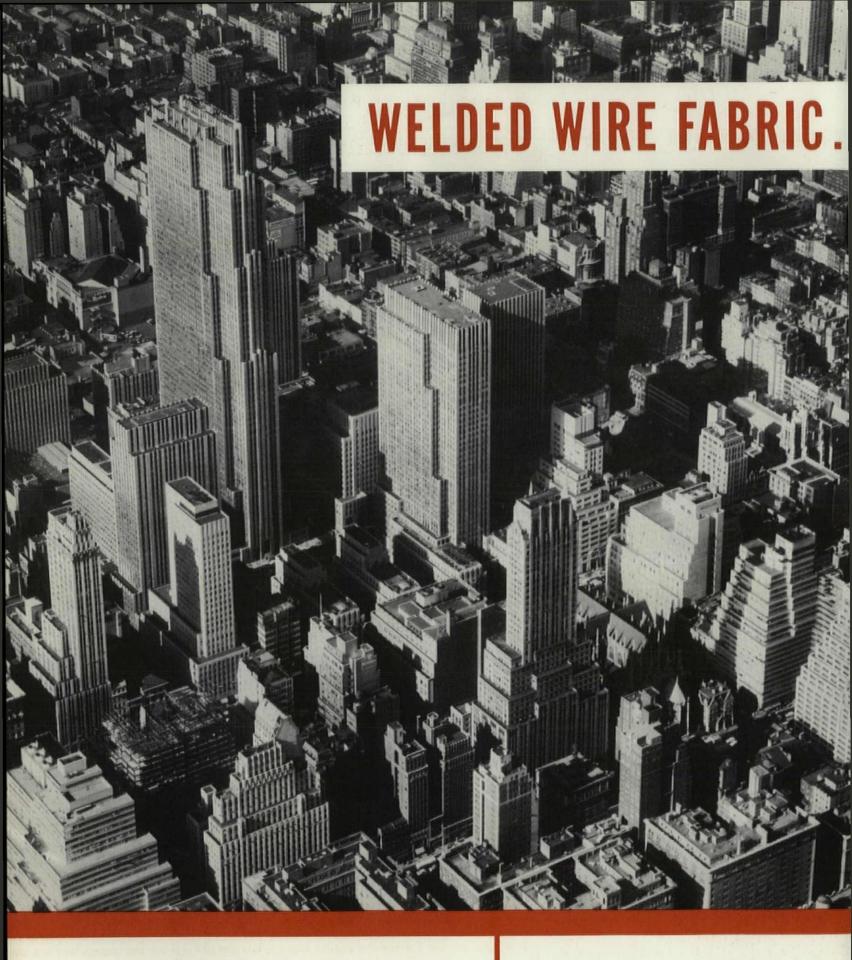
American Welded Wire Fabric strengthened and improved the Empire State Building, the Chrysler Building, the RCA Building in New York . . . Merchandise Mart, and the Conrad Hilton Hotel (formerly the Stevens) in Chicago. Today, you find it in the concrete over metal deck floors of Lever House, and in the beam and slab floors of the new Socony-Mobil Building. You find it in precast roof decks and walls. You find it in ground slabs in schools, churches, auditoriums and modern shopping centers like the new \$23 million Roosevelt Field Shopping Center in Hempstead, Long Island. You find it in factories of the Ford Motor Company, and Chrysler Corporation.

With today's high building costs, the advantages of American Welded Wire Fabric are more important than ever. It costs less to handle, ship, and install than other types of reinforcement. It is allowed higher working stresses. It effectively controls cracking and adds years of life to concrete.

More about this old reliable material and its use in modern buildings on the next few pages.

Municipal Parking Garage Number One, Chicago. Shaw-Metz-Dolio, Chicago, architects. Ground slab and pan-andslab floors reinforced with American Welded Wire Fabric.





Big, Old New York is a showplace for American Welded Wire Fabric Reinforcement. Fourteen buildings in Rockefeller Center were strengthened and made durable with it. It is still the best floor reinforcement for new buildings, like the Socony-Mobil Building.

Behind The Glass of Lever House, American Welded Wire Fabric Reinforcement was used throughout.

the best floor reinforcement 35 years ago...and today

To Reinforce A Renaissance, the designers of Pittsburgh's Gateway Buildings used short-span concrete floors reinforced with American Welded Wire Fabric. American Fabric comes in long, wide rolls and, because it is prefabricated, can easily and quickly be unrolled into place.



You NEED 28% less reinforcing steel, compared to other types of reinforcement, when you specify American Welded Wire Fabric. That's because American Fabric is made from high strength cold drawn wire that is allowed a working stress of 30,000 psi., compared to only 20,000 psi. for other types.

American Welded Wire Fabric meets ASTM Specification A185-53T, and is now available in wire sizes up to and including ½" in diameter, at 2", 3", 4", and 6" on centers.

Send the coupon for complete technical design data on American Welded Wire Fabric.

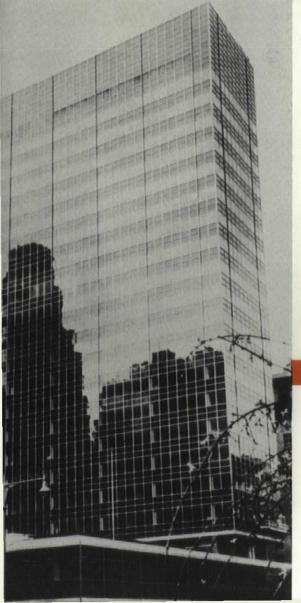
Every type of reinforced concrete construction needs

USS American Welded Wire Fabric



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With American Welded Wire Fabric



COSTS LESS THAN 10%

In concrete slabs built on the ground, American Welded Wire Fabric increases the strength of the slab 30%. Yet, it costs less than 10% of the cost of non-reinforced concrete. For this small investment, it retards cracking, keeps concrete smooth and attractive years longer. Use American Fabric for slabs in homes, shopping centers, factories, warehouses.



AND STRENGTH

Architect H. G. Allen, in association with Scott & Eesley, Marietta, Ohio, made good use of precast concrete panels in this building at the Ohio State Fair Grounds. The precast panels, manufactured and erected by The Marietta Concrete Corporation, incorporate insulation and window openings right in the panels. They made it possible to close this 74,000-sq. ft. building at a rate of about 2,500 sq. ft. a day. Wire Fabric Reinforcement makes precast concrete possible, gives it strength and resistance to cracking.

"is it Reinforced"

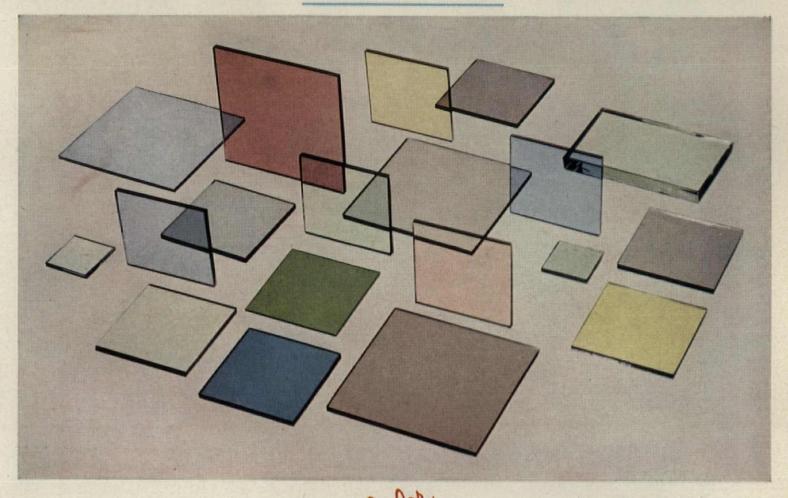
CLIENTS WILL ASK

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Every type of reinforced concrete construction needs

USS American Welded Wire Fabric

THIS IS PLATE GLASS!



and there's lots more where this comes from

This challenging new fenestration is not only supremely beautiful — it performs solid engineering functions. It permits the architect to control the benefits and the disadvantages of solar radiation. By reducing glare and infra-red transmission, it provides sources of pleasing, controlled sunlight which might otherwise be inadmissible. Franklin's colored plate glass, with its tremendous range of color and light-heat factors, offers a flexible new technique for integrating natural illumination with the solution of heating and air conditioning problems.

This beautiful glass is now being specified by outstanding architects. It will soon be seen in the fenestration of important new landmarks.

For information, including spectrum analysis charts, please write to

FRANKLIN GLASS CORPORATION

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Franklin Colored Plate Glass is available in any color, tint or shade — to your specifications — in sizes up to 158" x 280", and any density within accepted commercial tolerances.

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EXCLUSIVELY IN GOLD SEAL "VENETIAN"... A MARBLE DESIGN IN THE LUXURIOUS ITALIAN MANNER

NEW GOLD SEAL NAIRON* CUSTOM

"Nairon" Custom Venetian is a remarkably beautiful resilient tile flooring for modern business interiors and luxury homes. Colors in these 1/8" homogenous plastic tiles are maintained in full value through the entire thickness. The tiles are reminiscent of the memorable floors in the world's architectural gems.

Highly resistant to abrasion and the weight of heavy loads, "Nairon" Custom Tile is both flexible and tough. A superior plastic product, it is grease, oil and chemical resistant-a "natural" in heavy

traffic areas where beauty and styling must appear. The design lends itself to use with brass, copper or stainless steel feature strips. Write to Architect's Service Department, Congoleum-Nairn Inc., Kearny, N. J. for information and samples.

SPECIFICATIONS: Install over on-grade concrete, suspended wood or suspended concrete.

"Venetian"—5 colors—1/8"
"Sequin"—19 colors—1/8" and .080"
"Marble"—7 colors—1/8" and .080"
All 1/8" tile available in 9"x 9", 12" x 12" and 18" x 18".
The .080" tile offered in 9" x 9" only.

FOR HOME OR BUSINESS:

INLAID BY THE YARD-Linoleum • Nairon* Standard • Nairontop* RESILIENT TILES — Rubber • Cork • Nairon Custom • Nairon Standard Vinylbest • Linoleum • Ranchtile® Linoleum • Asphalt PRINTED FLOOR AND WALL COVERINGS Congoleum® and Congowall®
RUGS AND BROADLOOM — Loom Weve*





Architects: Harrison & Abramovitz, New York, N. Y.; Gill & Harrell, Dallas, Texas General Contractor; J. W. Bateson Company, Inc., Dallas, Texas Panel and Window Manufacturer: Flour City Ornamental Iron Co., Minneapolis, Minn. Date of DEL Glazing and Caulking Job: Summer, 1954

3000 windows glazed and metal-to-metal joints caulked with DEL Synthetic Rubber Compound which sets without shrinkage to a resilient rubber

The Republic National Bank Building, Dallas, Texas, is clad on 3 sides with 1/4" aluminum sheet backed with 11/2" Fiberglas. The fourth side is similarly constructed; a Perlite back-up wall is installed behind the aluminum panels.

behind the aluminum panels.

To keep this building weathertight despite rain and high winds, DEL Synthetic Rubber Compound was used. Approximately 3000 windows were glazed with this product, which was also applied at the joints to seal the inner face of the reversible window frames in the wall panel construction.

Provides tenacious adhesion

DEL Synthetic Rubber Compound was chosen for glazing and caulking because it is readily applied in paste form; it sets without shrinkage to a resilient rubber; it adheres well to metal, glass, masonry, wood and most building materials. The rubber seal thus obtained provides tenacious adhesion under extreme expansion and contraction, vibration, wide temperature extremes and resistance to aging!

and contraction, vibration, wide temperature extremes and resistance to aging!

The DEL compound was applied by caulking gun. For glazing, the windows were bedded in a conventional compound and a 1/8" to 3/16" bead of DEL compound was applied on the exterior side of the sash. Caulking application consisted of gunning a bead of material into clean metal-to-metal joints. The DEL compound was applied during the Summer of 1954.

Check these advantages of DEL Synthetic Rubber Compound

- · Waterproof and non-shrinking
- Resilience over a wide temperature range (Plus 250°F. to minus 65°F.)
- · Adhesion to most materials
- Stretch and recovery with joint movement
- Inertness to weathering and corrosive atmospheres



DAVID E. LONG CORP.

220 East 42nd St., New York 17, N. Y.

FREE!

Take advantage of our many years of in-the-field experience with DEL Synthetic Rubber Compound and the full line of DEL Protective Coatings. We will gladly assist you with your building sealing and protective coatings problems. Write for free literature today!

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Gentlemen: Please send me free literature on your DEL Synthetic Rubber Compound and DEL Protective Coatings.

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RUBBER EXTRUSION

- No Cutting or Sawing. No Need for Special
- Use with Any Standard Metal Sash Block.
- No Building Paper or



BLOK-JOINT'S "cross-shaped" rubber extrusion design simplifies construction of masonry wall control joints. Use BLOK-JOINT with any standard metal sash block!

"100 Year Life" rubber assures maximum effectiveness for the lifetime of the building. BLOK-JOINT forms a secure interlock, actually adds stability to the wall.

Use BLOK-JOINT for all types of masonry wall construction!-Block walls, brick veneer over blocks, cavity walls and many other types!

Simplicity, Versatility and maximum effectiveness are yours with Carter-Waters BLOK-JOINT.

NOW! See For Yourself how BLOK-JOINT fits masonry wall construction!

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KANSAS		8 MISSOURI
2440 Penny	vay	Phone GRand 1-25

LETTERS

ART TOMORROW

Forum:

The article "Art in American Life" by Henry R. Luce (AF, Jan. '56) was a very clear, forceful statement sensing the prospects of a most wonderful era ahead. More important, Mr. Luce was able to pose the problem in terms that have immediate meaning to our leaders in the world of commerce, as well as to the architect who has been timid about advocating such a concept to his client. I don't want to seem to exaggerate, but I do feel Mr. Luce's statement at this particular time probably has accelerated progress in this field by five

Most naturally, the professional architect and artist, who have so long advocated this view, now would hope that your publication will be able to expand your policy of featuring notable examples of integration of the allied arts within architecture.

> JOE YOUNG Los Angeles, Calif.

MILE HIGH

Forum:

Many of us have been greatly impressed over here by the care taken in the management of the outer skin of Pei's Mile



High Center in Denver (AF, Nov. '55), not only in respect to the elegantly dead-pan, two-tone grid of horizontals and verticals, but also in respect to his attention to the block's nocturnal aspect when it is lit from inside. However, you don't seem to have published a picture of it in this interesting condition, and so one can't judge how far this care has been repaid by performance -could you oblige with a night view some time? [Right away: above-ED.]

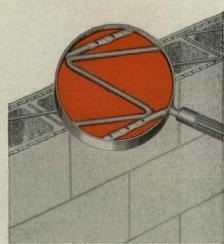
In the same issue I observe a muffled quotation from my article "Facade" in the Architectural Review. I refer to the description of apartment balcony balustrades continued on p. 58

For Better Reinforcing With "Deep-Grip" Swedging

BLOK-MESI

MASONRY WALL REINFORCING

- Exclusive Deforming Provides Large, Well Defined, "Squared Edges"
- Provides "Sure Lock" Between Reinforcing and Mortar
- Requires No More Area in the Joint Than Superficial Deforming
- As Easy to Handle as Other



You can see at a glance the extra "gripability" of Carter-Waters BLOK-MESH. The horizontal and vertical surfaces provide a sure lock even under lateral pressure and shrinkage.

BLOK-MESH Minimizes Cracking above lintels, below sills, at corners.

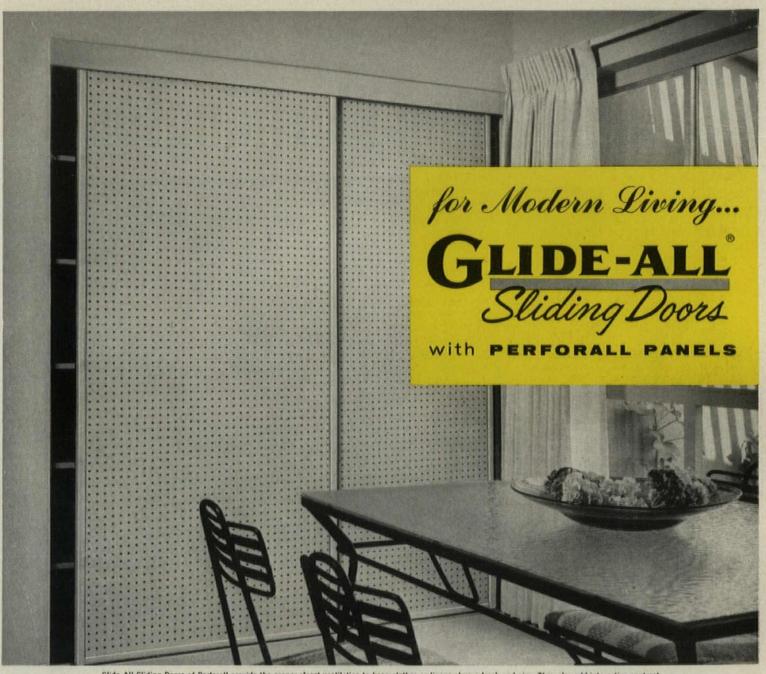
BLOK-MESH Is Best to tie brick to back-up blocks, for cavity wall construction, double walls, ordinary block wall construction.

Remember, BLOK-MESH by Carter-Waters is the only masonry wall reinforcing with the "deep-grip", positive anchor swedging.

SEE The Big Difference In Sweet's File or ...

Write Today for your FREE illustrated brochure on the New Carter-Waters Blok-Mesh! Use This

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-CARTER	R-WATERS.
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Glide-All Sliding Doors of Perforall provide the proper closet ventilation to keep clothes or linens always fresh and airy. They also add interesting contrast in interior decoration as in this modern dining room in Puente, California • Architect is Edward H. Fickett, A.I.A.; builder, McDonald Brothers Co.

You can make your storage space a "show-off" feature with these Glide-All Sliding Door panels in modern Perforall (perforated Masonite Duolux). And, with the decorative versatility of Glide-All Solid Panel Sliding Doors you'll find so many ways to attractively finish them—wallpaper, paint or special treatments to match room walls.

Glide-All Sliding Doors make *more* usable storage space, at *lower* cost, decoratively *handsome*. They are available in standard 6' 8" and 8' floor-to-ceiling heights in a wide variety of widths.

See "Sweet's" or write today for details

Glide-All Doors are available from distributors throughout the United States and Canada • For complete information write to plant nearest you.

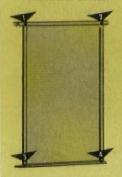
GLIDE-ALL SLIDING DOORS ARE A PRODUCT OF

WOODALL INDUSTRIES INC.

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CHICAGO, 3508 Oakton St., Skokie, Illinois EL MONTE, Calif., 801 West Valley Blvd. FRANKLIN, Ohio, P.O. Box 290 LAUREL, Miss., P.O. Box 673 NEW YORK, Glen Cove Rd., Mineola, N. Y. SAN FRANCISCO, 1970 Carroll Ave.

"GUIDED PLANE" OPERATION— Four Point Contact

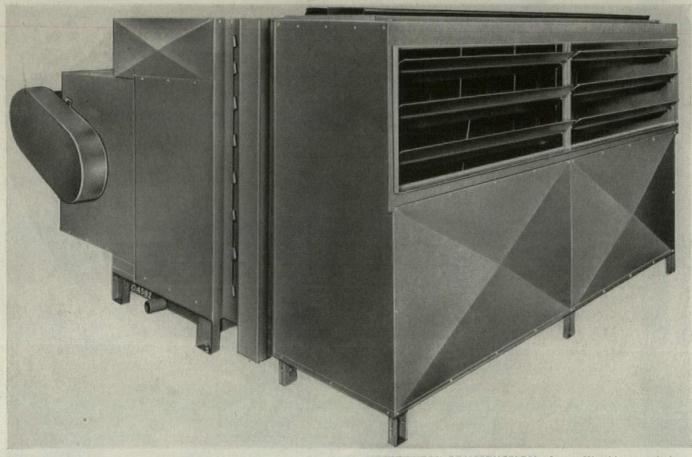


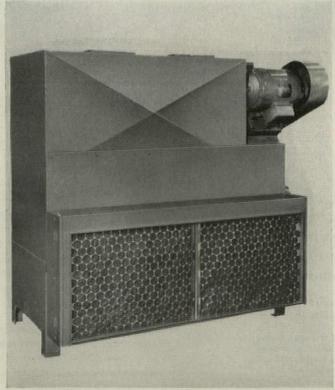
Each Glide-All panel has two adjustable upper rollers and two adjustable lower guides to give each panel four contact points. This assures positive panel stability and prevents racking or twisting during operation.

FLOATING PANEL CONSTRUCTION

Each panel is reinforced on all sides with rolled steel tubing. However, the unique construction permits the panel to "float" to compensate for expansion and contraction, preventing warpage.

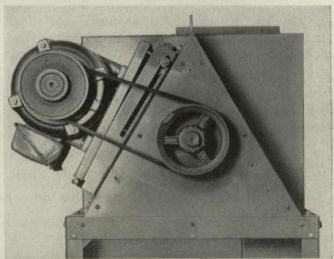
Announcing Worthington's





SMALLER SIZED UNITS are shipped completely assembled for horizontal or vertical arrangement shown above.

HORIZONTAL CONSTRUCTION of new Worthington air handling units allow them to be suspended from platform or ceiling (with hanger lugs.) Here is a large sized unit with damper section. Standard unit consists of fan section, fans, V-belt, drive (with variable pitch pulley), bypass and damper section, direct expansion or chilled water coils, and base section.



ADJUSTABLE MOTOR BASE, exclusive with Worthington, offers a 3½" variation in center distance. Adjusted with a single screw, a locking bolt secures base in proper position. This feature assures positive adjustment, enables you to keep belt tension correct. Belt turns on an adjustable pitch pulley which permits variation of fan speed and air quantity.

complete new line of flexible air conditioning units

Compact units—from 1½ to 106 tons—are easy to install—have many exclusive features

Here's a new line of unusually compact air conditioning units for commercial and industrial use in conjunction with central system air conditioning.

Designed by Worthington for easy installation, the standard unit consists of a base section, fan section and coil section. A bypass and damper section can be bolted directly to the coil face at the factory if desired, adding no height to the unit.

Units are extremely flexible. The fan section may be mounted with front, top or rear discharge. You can adjust speed for desired capacity and static pressures. Adjustable motor base offers 3½" variation in center distance for positive adjustment of belt tension. The motor mounts on the front, top, back or either end. Accessories are interchangeable between horizontal and vertical units.

Engineered by Worthington for long, trouble-free life, all sections are constructed of rugged fabricated steel, Bonderized and coated with a corrosion resistant enamel. Dynamically balanced, forward curved fans give maximum efficiency, quiet operation. (Fan shaft rides on lubricated-for-life bearings.)

For more facts on this new line of air conditioning

equipment, write Worthington Corporation, Air Conditioning and Refrigeration Division, Section FO, Harrison, N. J.

These features add up to flexibility

- Exclusive adjustable motor base assures simple, positive adjustment of belt tension.
- Motor mounts on front, back or either end of unit.
- Fan discharge can be front, top or rear, as you prefer.
- Accessories interchangeable between the horizontal and vertical units.

And look at these extras!

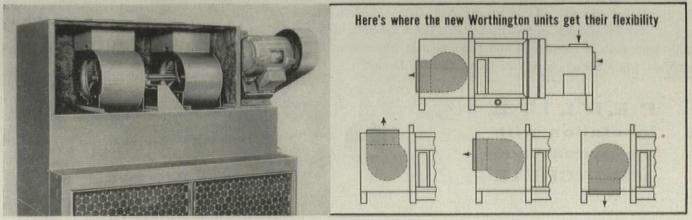
- Up to 19,000 CFM! You get more capacity from compact units.
- Easy installation. Choose either horizontal or vertical units.
- Up to 81 different coil combinations.
- · Lubricated-for-life fan shaft ball bearings.
- Accessibility! Entire fan section can be easily removed.
 Removable panels and casings simplify inspection.

A.6.7

WORTHINGTON

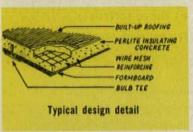


CLIMATE ENGINEERS TO INDUSTRY, BUSINESS AND THE HOME



ADJUSTABLE DISCHARGE. Fan section may be mounted with top discharge as shown above. Or discharge may be directed to front or rear of the unit. See diagrams.





- - Easily placed on pitched roofs

- SIMPLIFIED roof design combines structural deck and insulation at one cost.
- FIRE-SAFE perlite concrete cuts insurance rates, assures durability-can't rot or decay.
- · LIGHT WEIGHT of deck permitted 295-ft. clear span in coliseum building.
- PERMANENT form board provides attractive, light-reflective ceiling.

Perlite insulating concrete adapts to any roof-flat, curved, pitched. Specify it over formboards, metal decks, structural concrete, or over integral forms such as metal lath and paper-backed wire mesh. Write for booklet, "Light Structural Perlite Concrete Roof Decks."

> PERLITE insulation with the permanence of CONCRETE



PERLITE INSTITUTE 45 West 45th Street, New York 36, N. Y

LETTERS contid

as a "filter between inhabitants and observer." In fairness to Tecton, the architects, it should be made clear that these were only ideas put forward by a critic, and not planning principles consciously employed by them.

REYNER BANHAM, assistant editor The Architectural Review Westminster, England

MODERNIZING MAIN STREET

I have read your round table report, "Modernizing Main Street" (AF, Feb. '56), with a great deal of interest. It agrees in large extent with our own thoughts on the downtown subject.

ROBERT J. MAYER Assistant to the executive vice president National Retail Dry Goods Assn. New York, N.Y.

Forum:

The redevelopment of our downtown areas is one of the most serious problems facing the big city today. It cries for discussion, planning and action. You are to be commended on your magazine's activity in this field.

RAYMOND R. TUCKER, mayor St. Louis, Mo.

Forum:

Knowing the difficulties involved in trying to combine small retailers, I feel convinced that some "Citizens' Action Committee" would be necessary, together with active cooperation by the city government and local banking interests, for a fully developed plan of action.

This is one of the really serious problems in the US today, and I think the effort you have indicated in this issue should be carried forward energetically before it is too late.

LESTER C. TICHY, architect New York, N.Y.

Forum:

. . . a very pertinent and challenging article.

IRENE BENDER Associated Merchandising Corp. New York, N.Y.

Forum:

I am very much interested in the ideas contained in your round table report. The fact is that I was able to use the article in a conference in Memphis, in which one of the topics was "Modernizing Main Street in Memphis."

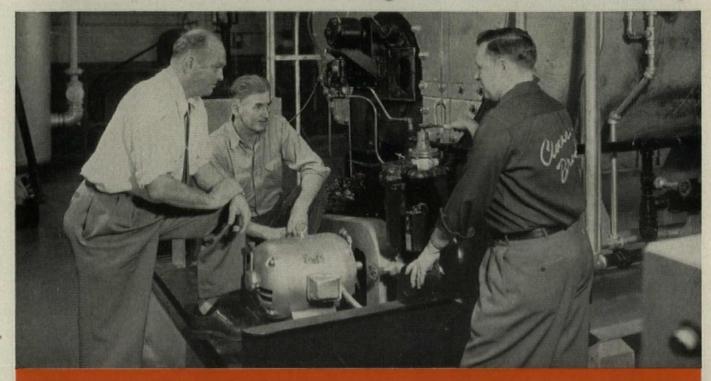
JOHN OSMAN Fund for Adult Education New York, N.Y.

Forum:

I compliment you on many of the fine articles in your magazine-especially your round table reports.

I wonder if reprints of your round table continued on p. 66

Agoodstartis a sure way to maintain highest boiler efficiency



Cleaver - Brooks factory - trained servicemen instruct your operating personnel and adjust your boiler for peak efficiency. This service doesn't cost you a cent.

OTTO POLZIN is a typical Cleaver-Brooks factory-trained serviceman. He is shown on the job at Oilgear Co., Milwaukee, where he has just given two 125-hp Cleaver-Brooks boilers an initial start. Norbert Husting and Gordon Knischke of Oilgear are getting all the details on boiler operation and maintenance, including boiler blow-down procedure and tube cleaning.

While on his "starting service call", Otto covered all of 32 items on his check list - such as the entire lubrication system, a CO2 reading, inspected and cleaned relay points. In short, he personally made sure both boilers were "tuned" to perfection!

Cleaver-Brooks service is nationwide

This service is "standard practice" everytime a Cleaver-Brooks boiler is put into operation. And, as

thousands of owners know, a phone call to your local Cleaver-Brooks representative brings this and other specialized services when needed.

Factory-supervised starting is just one of many advantages of being a Cleaver-Brooks boiler owner. You get the ultimate in modern boiler design: forced draft with four-pass construction, hinged or davited front and rear doors for fast cleaning, 10-second gas or oil interchange - just to name a few features.

Get the full story on the complete line - sizes from 15 to 600 hp; 15 to 250 psi. Call your nearby Cleaver-Brooks representative or write direct. Cleaver-Brooks Company, Dept. F, 336 E. Keefe Ave., Milwaukee 12, Wisconsin, U.S.A. Cable Address: CEEBEEWEST — all codes. Ask for catalog AD-137.





MODEL CB — Most silent-running boiler on the mark-et. Ideal for schools, hospi-tals. Sizes: 15 to 150 hp.

MODEL LR — Standard of the industry for steam or hot water service in heat-ing or processing applica-tions. Sizes: 200 to 600 hp.





TWENTY-FIVE YEARS OF LEADERSHIP BY THE ORIGINATORS OF THE SELF-CONTAINED BOILER



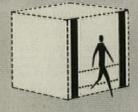
HOW TRAFFIC SENTINEL WORKS WITH SINGLE PASSENGER (ALSO HANDLES 10-15 WITH EQUAL EASE)



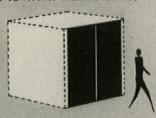
1. Car arrives



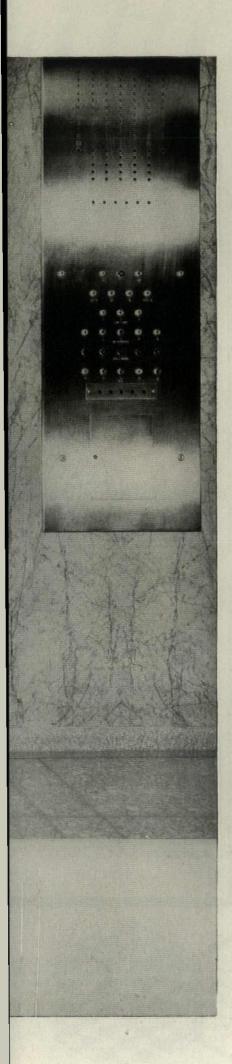
2. Traffic Sentinel beams go "on"



3. Passenger leaves car



4. Doors close almost immediately



Operatorless Elevator Test by Betty Furness and Friend Proves: Westinghouse Traffic Sentinel Holds Doors Open Until Entrance is Clear

Now, Traffic Sentinel, the electronic door control, overcomes the last tenant objection to operatorless elevators. Gone once and for all is any fear of doors starting to close before they should. (Young man in elevator entrance confidently balances blocks—doors held open until doorway is clear.)

PASSENGERS NOT RUSHED

In Westinghouse Operatorless Selectomatic systems, people farthest from any arriving elevator have ample time to walk to that car. BUT, once through the entrance, Traffic Sentinel closes the doors quickly behind them—speeding overall service.

BIG SAVINGS

tion to Operatorless Selectomatic, the Westinghouse elevator system that cuts operating costs up to \$7000* per car per year in heavy traffic buildings—gives fast, efficient tenantpleasing service 24 hours a day. *includes wages, insurance, training, uniforms (and other costs of attendant operation).

Traffic Sentinel is an important addi-

OPERATES WITH 1 PERSON OR 15

With Traffic Sentinel, the lighter the traffic, the shorter the door-open time. During heavier traffic, the doors remain open long enough to permit unhurried loading or unloading of the car... all under conditions that impart a complete new sense of security and freedom from annoyance to all passengers.

NO PREMATURE CLOSINGS— ALL UNNECESSARY DOOR-OPEN TIME ELIMINATED

Traffic Sentinel operates more efficiently than a trained attendant, "sensing" passenger movement and controlling doors accordingly. This precise adjustment to traffic flow does away with all unnecessary dooropen time—speeds elevator service throughout the building.

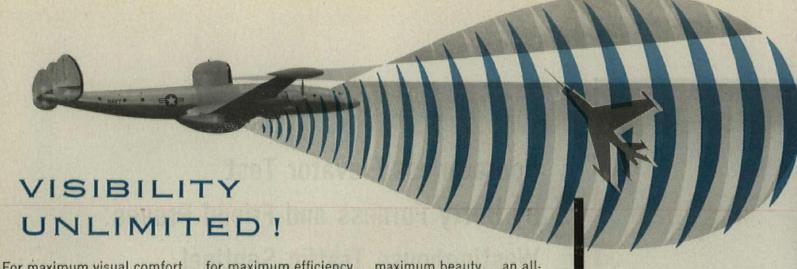
MORE ABOUT TRAFFIC SENTINEL?

Call our nearest office if you are thinking of new building construction or modernization. More detailed information available on request.

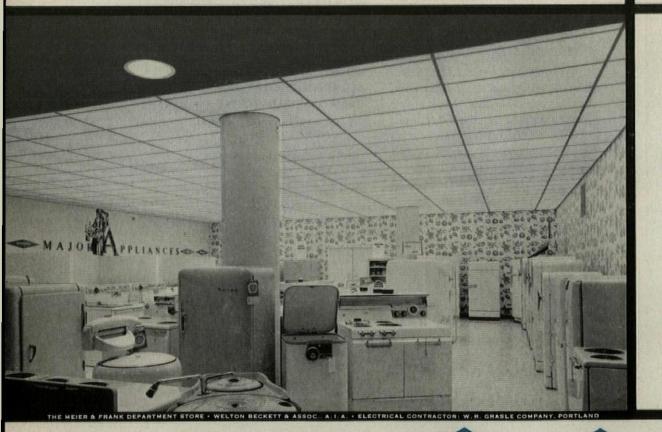
Westinghouse Elevators

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

J-98722



- For maximum visual comfort ... for maximum efficiency ... maximum beauty ... an allaluminum HONEYLITE luminous ceiling is unsurpassed. Made of HEXCEL aluminum honeycomb. HONEYLITE's 14-inch cells diffuse light with a less-than-15%-loss in light "put-through" and provide the lowest surface brightness obtainable. Also, because of its all-metal construction, this louverall ceiling will never crack from heat or discolor with age-an advantage that puts HONEYLITE in a class by itself for long-range operating economy! Compare these and other characteristics listed below before you specify your next full-ceiling lighting installation -and for further information wire, write, or telephone to HEXCEL Products Inc., 951 61st-Street, Oakland 8, California.
 - 45° and/or 60° light cut-off provides effective shielding Free circulation of air prolongs life of light units
 - · Non-flammable and UL approved
 - · Standard panel sizes fit all T-bar suspension systems
- · Non-static and dust resistant
- · Weighs less than three ounces per square foot
- . May be cleaned with ordinary vacuum brush attachment





Through powerful radar, located in huge domes made of HEXCEL® glass fabric honeycomb, giant Lockheed search planes "see" for hundreds of miles to give early warning of approaching aircraft. These Air Force and Navy sky sentries, like many of today's military aircraft, use HEXCEL aluminum and glass fabric honeycomb for greater strength, less weight, in their sandwich-fabricated parts.

HONEYLITE

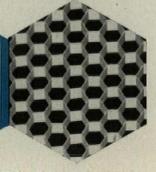
Light-diffusing aluminum honeycomb

A development of HEXCEL PRODUCTS INC.

951 SIXTY-FIRST STREET, OAKLAND B. CALIFORNIA

HONEYLITE

(shown at right actual size) installation is simple. inexpensive. For full ceilings, aluminum T-bars are used to suspend HONEYLITE panels below lighting units. HONEYLITE is also ideal for use in troffers and lighting fixtures





On the new Dallas Statler Hilton Hotel ...

A RUBEROID BUILT-UP ROOF

Engineered to the job!

The Statler Hilton is the newest member of the family of fine Hilton hotels . . . and a striking, colorful addition to the fast-growing Texas skyline. On top of the Statler Hilton-63,000 square feet of Ruberoid Built-Up Roofings!

Here is an excellent example of the versatility of Ruberoid Built-Up Roofings in solving varied prob-lems. The design of the Statler Hilton called for three separate roofs:

- 1. A UNIQUE HELIPORT DECK Ruberoid specification #206 - Coal Tar Pitch and Tarred Felt overlaid with promenade tile — was selected to provide a roof that would stand up under rugged service conditions.
- 2. COURT AND LOWER ROOF AREAS These areas, visible to hotel guests, required roofing that

would harmonize with the over-all appearance of the hotel exterior. Ruberoid Specification #203A Special Roofing Bitumen with green mineral surfacing was selected.

3. HIGH SUPERSTRUCTURE AREAS - Here, Ruberoid Specification #203-Coal Tar Pitch and Tarred Felt with gravel surfacing-was selected for its economy and proven record of long, trouble-free service.

No matter what your built-up roofing problem, there's a Ruberoid specification that will give you the answer. They're all explained in detail in the Ruberoid Built-Up Roofing Specification Book. It's your guide to the best in any type of built-up roofing. For more information write: The Ruberoid Co., 500 Fifth Avenue, New York 36, N. Y.

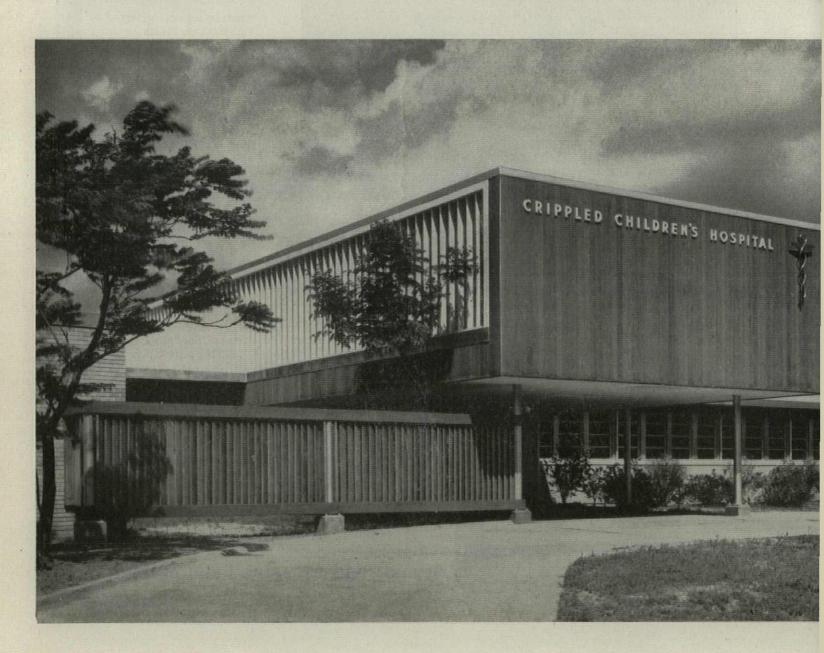
The RUBEROID Co. Asphalt and Asbestos Building Materials

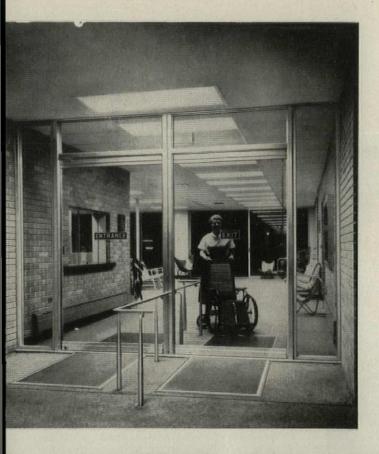
Crippled Children's Hospital in New Orleans

uses Pittsburgh Glass for functional and psychological purposes

THIS HOSPITAL IS THE FIRST IN NEW ORLEANS, LOUISIANA, devoted exclusively to the rehabilitation of crippled children. Marked by advanced planning, design and construction, this modern institution provides every conceivable feature for the safety, comfort, and quickest possible recovery of the patients. Pittsburgh's Solex® solar-heat-absorbing, sun-glare-reducing glass helps to

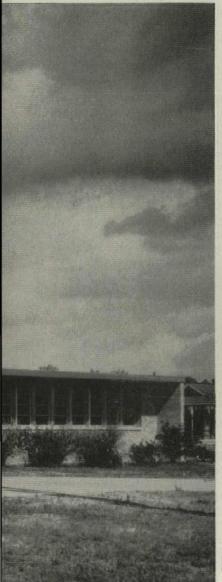
keep interiors cooler and more pleasant, as does Pittsburgh's Twindow®—the windowpane with insulation built in. Other Pittsburgh products installed here include Herculite® and Tubelite® doors, Pittcomatic® automatic door openers, Pittco® De Luxe metal, and copper back mirrors. Architects: Ricciuti Associates, New Orleans, Louisiana.

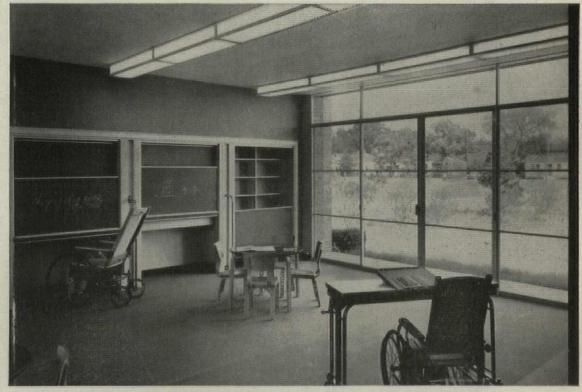




HERCULITE DOORS, equipped with mat-operated Pittcomatic hinges—"the nation's finest automatic door openers"—were selected for the main entrance. These doors make possible extreme ease of operation, with maximum safety—features of the greatest importance to the crippled child.

IN THIS COLORFUL CLASSROOM, a wall of Pittsburgh Polished Plate Glass admits the outside view to produce a more cheerful and brighter interior. Experts agree that "walls of glass" offer many psychological benefits to the children. The installation of sliding glass walls in many of the rooms provides easy access to the attractive outdoor patios, where the children may dine or play in complete privacy.

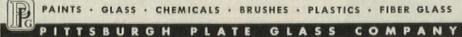




Your Sweet's Architectural File contains detailed information on all Pittsburgh Plate Glass Company products...Sections 7a, 13e, 16a, 16d, 21.

Design it better with

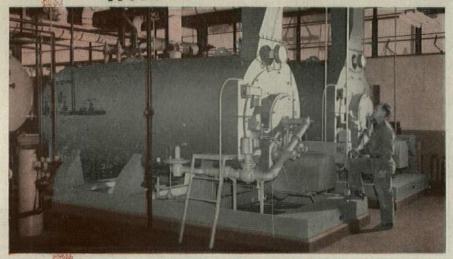
PITTSBURGH GLASS



IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

THERE'S JUNE OF READING

CYCLOTHERM WROTE!



oo high—said the Zion Cooperative Mercantile Institute, Salt Lake City, of its 1953-1954 heating costs. ZCMI is the largest wholesale distributor in the West.

So ZCMI installed two Cyclotherm Steam Generators (150 and 250 hp). And from October, 1954 to June, 1955, even in a colder winter and with additions to the ZCMI plant, Cyclotherm saved ZCMI \$5,949.81.

For full information on how ZCMI saved money with Cyclotherm—together with a month-by-month before-and-after table of ZCMI's heating costs—write to Cyclotherm today. You'll join the thousands of satisfied Cyclotherm users who report more heat with less fuel.

In Cyclotherm Cyclonic Combustion, air combines with fuel to form a vortex of flame, revolving at 200 miles per hour, providing maximum heat transfer. Cyclotherm is a complete parkage steam or hot water generator, 5 connections make it ready to work. From 18 to 500 hp, 15 to 200 psi. Meets all state requirements, A.S.M.E. and National Board Standards, is approved by Underwriters Laboratories, Inc. Write

for complete booklet on Cyclotherm Cyclonic Combustion today.



CYCLOTHERM DIVISION NATIONAL-U.S. RADIATOR CORP. Dept. 2425 Oswego, N. Y.

LETTERS cont'd.

report on Modernizing Main Street are available.

CURRY M. BARTLETT JR.

Executive director

Milford Chamber of Commerce, Inc.

Milford, Conn.

• FORUM'S reprint supply is exhausted, but reprints may be obtained at \$3.50 per 100 copies from the US Chamber of Commerce, 1615 "H" St., N.W., Washington 6, D. C.

Forum:

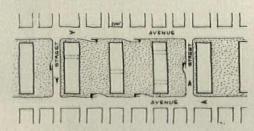
I do not think that the landlord's obligation and opportunity were sufficiently highlighted to bring them into focus. Take for example the graded lease which was suggested in the round table report. Generally speaking, the landlord is in a better position to make the alterations, provided the tenant pays the going rental value of the store. Both landlord and tenant would profit since the tenant's rental would be deductible expense as would also the landlord's amortization of the alteration cost over the life of the lease,

I am very much impressed with your program of round table discussions and am sure that they will all be productive of a great deal of benefit whenever they are held.

> CLARENCE M. TURLEY, president National Assn. of Real Estate Boards Chicago, Ill.

Forum:

I am convinced that the future survival of downtown retail stores depends on emphatic action by civic groups and on improved and farsighted zoning regulations aimed to provide suburban shopping center conveniences and atmosphere. Since the average retailer is slow-moving and conservative, he must be placed in a position whereby he will voluntarily desire modernization. This situaton can only come about when group action is taken and where his entire neighborhood will improve. He must keep up with the Joneses in order to survive!

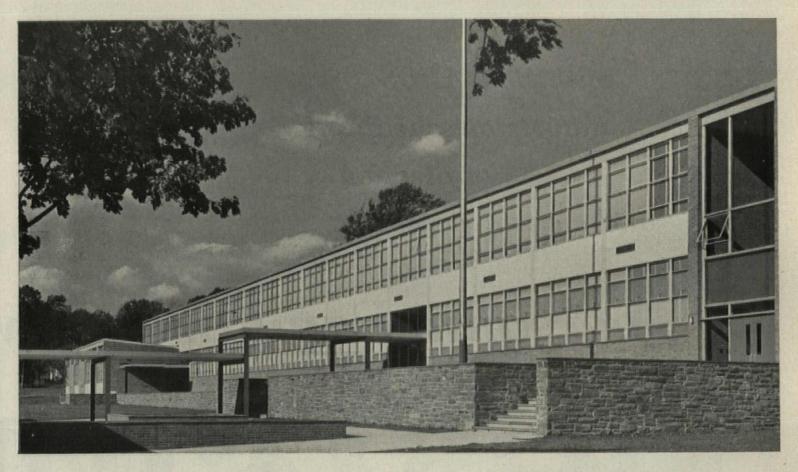


FORUM'S suggestion of closing several cross streets for pedestrian walks and landscaping is excellent and is an idea I have been toying with for quite some time. The accompanying sketch goes somewhat further and attempts to create superblocks by closing streets and providing peripheral traffic circulation with landscaped areas above and parking and service facilities below grade.

SEYMOUR R. JOSEPH, architect New York, N.Y.

continued on p. 70

planned for lowest maintenance



quality approved ALUMINUM WINDOWS

Aluminum Window Manufacturers Association
75 West Street, New York 6, N. Y.

Careful planning of schools, hospitals, and other institutional-type buildings calls for windows that help reduce annual operating expenses, windows that save important maintenance dollars year after year.

"Quality-Approved" aluminum windows—either double-hung, casement, awning, projected or sliding—are rustproof, rotproof... never need painting or expensive maintenance... retain their trim, modern appearance for the life of the building... save money year after year.

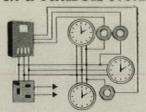
For latest Window Specifications Book, consult any manufacturer listed below, see Sweet's (16a/ALU) or write to Dept. AF-565.



MEMBERS: Alcasco Products, Inc., Detroit, Mich. • The Wm. Bayley Co., Springfield, Ohio • Bourne Products, Inc., El Cajon, Calif. • Ceco Steel Products Corporation, Chicago, Ill. • 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. • Luria Building Products, Inc., Bristol, Pa. • Metal A: • Mfg. Co., Inc., Atlanta, Ga. • Reynolds Metals Co. (Window Division), Louisville, Ky. • J. S. Thorn Co., Philadelphia, Pa. • Universal Window Co., Berkeley, Calif. • Ware Laboratories, Inc., Miami, Fla. • Windalume Corp., Kenvil, N. J.

with EDWARDS
industrial scheduling,
protection
and control systems . . .

EDWARDS SYNCHROMATIC CLOCK & SCHEDULE SYSTEMS



The simplest centrally controlled system. Perfection of the Telechron® motor obsoletes hourly correction or a master clock... provides simultaneous reset instantly after power failure, automatically or by the flick of a switch. Edwards Program Control is ruggedly constructed, easy to set . . . no paper tape, no complicated bars to break, adjust or remove.

personnel and property



BRYERS

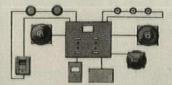
Especially with today's rising costs, you'll want to provide for the virtually maintenance free operation and long service life assured with Edwards quality signaling equipment for every plant need.

From the smallest bell to the most complete system, every Edwards product has been developed through more than three quarters of a century's specialization in electric signaling devices. This experience has produced simplified Edwards designs that make possible

unqualified guarantees of perfection in materials a workmanship.

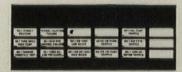
Edwards equipment is first choice with Electrical Cotractors. They know: "It pays to specify the best. make sure it's Edwards." Ask your Edwards Techni Specialist, electrical consultant or write Dept. AF-Edwards Company, Inc., Norwalk, Conn. (In Canac Owen Sound, Ont.)

EDWARDS INDUSTRIAL FIRE ALARM SYSTEMS



Newest of Edwards many UL approved systems has both manual and automatic alarm stations to assure complete 24 hour fire protection. During power interruptions system is automatically switched to batteries. Can be connected to sprinkler system and (or) to municipal fire headquarters. Low voltage operation assures low cost installation.

EDWARDS INDUSTRIAL CONTROL SYSTEMS



Edwards offers all types of Annunciators to indicate high temperature, machinery failure, water level, pressure drop, flow indication, current failure or other process control. Standard annunciator systems are designed to operate on the simplest or most complicated circuits. They are available in lamp or drop-type indications.

EDWARDS SIGNAL DEVICES

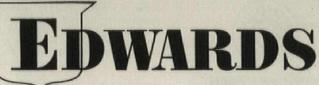




Edwards complete line of bells, horns, and buzzers give the correct tone and intensity to overcome all noise conditions. The "Adaptabel", typical of Edwards specialization, has no contacts or armatures, maintains original tone and intensity for a lifetime.

are in good hands!





Specialists in Signaling since 1872 DESIGN . DEVELOPMENT . MANUFACTURE

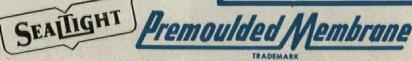


Almost everyone agrees that a basement is a desirable addition to a home .. yet too many basements are merely damp, dark rooms that are not fit for recreation or storage. However, better days are here...for the proper installation of Sealtight Premoulded Membrane, during the original construction, provides permanent protection against vapor migration and thereby completely eliminates dankness. Now basements can provide a warm, dry, liveable area that's ideal for the storage and recreational requirements of a family. Wood or resilient flooring and paneled wall treatments are not only feasible but may be safely and permanently installed. A warm, dry basement not only provides a more liveable home but a home that's also more salable in the

INSTALLATION DETAILS



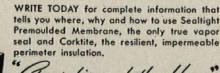
Sealtight Premoulded Membrane applied to the walls and under the slab (as illustrated) prevents any pressure movement of vapor or capillary (wick) movement of free water. It provides the necessary impaction sheet and vapor seal between the footing and wall. Premoulded Membrane need not be bonded to the wall as it can be "hung" from a reglet or masonry.



the industries only TRUE VAPOR SEAL—is your one guarantee of <u>warm</u>, <u>dry</u> basements

The one sure way to "eliminate" the ravages of destructive moisture is with the use of Premoulded Membrane in the original construction. Sealtight Premoulded Membrane has a permeance rating of only .0066 grains per square foot... is resistant to rot, mold, and termites... is strong enough to resist tearing and puncturing... will expand and contract

with the slab above and is quickly and easily installed. We sincerely advise your comparison of Premoulded Membrane against all other vapor barrier 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.





Guardian of the Home"

ARCHITECTS, BUILDERS, DEALERS . . .

W. R. MEADOWS, INC.

6 KIMBALL ST.

ELGIN, ILLINOIS

LETTERS cont'd.

Forum:

In many retail fields the chain operation is the leader, and it is not so cautious as the small independent. It is quite possible, therefore, that Main Street modernization must hinge on the chain, rather than the independent.

PRESTON J. BEIL, editor and publisher Variety Store Merchandiser New York, N.Y.

VICTORY

Forum:

In your report on the appellate court's reversal of my conviction on charges of practicing architecture without a license (AF, March '56), you note that "One member of the architectural examiners board indicated the board will appeal to the state supreme court."

This is a deliberate falsehood made by the member of the board. The appellate department of the Superior Court is the court of last resort in matters of this sort. No appeal lies to the state supreme court of California or any other court from this decision wherein I was acquitted.

We have won!

JOHN LLOYD WRIGHT Del Mar, Calif.

FLLW'S BUILDER

Forum:

It is the rule rather than the exception that the builder as well as the architect is mentioned in your articles. However, as the builder of the Price Tower designed by Frank Lloyd Wright, I was very disappointed that your article on this building (AF, Feb. '56) did not mention the general contractor. As you well know, Wright's buildings are a feather in any builder's cap—as well as a lot of hard work and many headaches for the head that wears the cap.

I do not mean to disparage the architect, as it is well known that Wright is superb in his field, nor do I intend to imply it is the work of a genius to interpret and build from his plans. However, after spending the past 20-odd months putting the building up, I can say "it takes a bit of doing."

HASKELL CULWELL Culwell Construction Co. Oklahoma City, Okla.

• FORUM regrets that it inadvertently made an exception to its rule on credits in a case where the builder deserved particular credit for a difficult job well done. Herewith it gives to Reader Culwell a hard-earned feather for his cap.—ED.

ERRATA

FORUM regrets that it failed to credit the photographers, Gomis-Prats, for the splendid illustrations used in the article on the work of Architect Antonio Gaudi (AF, March '56).—ED.



LAMBERT-ST. LOUIS MUNICIPAL AIR TERMINAL

uses 16 Crawford Industrial Doors to aid in free flow of baggage, freight



Among the most important and socially significant new buildings going up throughout the world today are air terminals and one of the most interesting of these is the Lambert-St. Louis Air Terminal in which function and brilliant design are so effectively combined.

The building is of steel and masonry construction, 412 feet long and 120 feet wide and is crowned by a dramatic "floating dome" which shelters approximately a quarter million square feet of this "Grand Central of the Air".

Inherent in the design of the terminal, of course, are facilities to assure the rapid flow of all kinds of traffic . . . passenger, luggage, express, freight and catering. Included in these facilities, at key locations, are Crawford Industrial Doors, chosen for their good design, good engineering, stout construction and for their quarter-century reputation for delivering top service.

If you have a door problem, we'll welcome your inquiry and it will get quick, intelligent attention. Architects, write for complete file of Crawford literature including the Crawford 60-Second Door Selector, the easiest-to-use door manual ever published. Crawford Door Co., 198-20263 Hoover Road, Detroit 5, Michigan. Plants in 10 cities; Warehouses in 105 cities; Sales and Service everywhere. In Canada, F. Fentiman & Sons Ltd., Ottawa, Ontario.

and catering service to planes

New Terminal Building Lambert-St. Louis Municipal Airport

Architect and Engineer
Hellmuth, Yamasaki & Leinweber, Architects
Detroit, St. Louis

Structural Engineer William C. Becker, St. Louis

Mechanical Engineer Ferris & Hamig, St. Louis Contractors

L & R Construction Company, St. Louis

Crawford Doors sold and installed by Crawford Door Sales Co. of St. Louis



M. R. ZUMWALT,
President,
Crawford Door Sales Co.
of St. Louis

Crawford MARVELLIFT Door

RESIDENTIAL

NDUSTRIAL



Delco-matic GARAGE DOOR OPERATORS



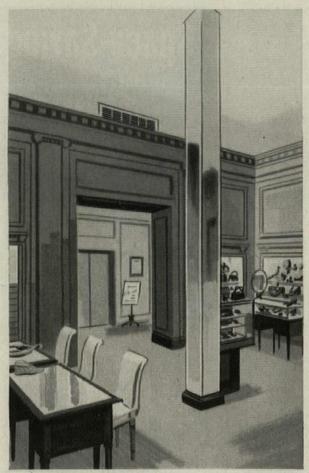
news



▲ Carrier Weathermakers without ductwork cool supermarket

Carrier High-Velocity System is ideal for "interior zones."





▲ Carrier Zoning Weathermaker keeps comfort constant.

Air-Cooled Weathermakers serve smaller stores. ▼



Here are the best ways to air condition a supermarket, a shopping center, a department store

The odds are high that air conditioning will be a factor in any supermarket, shopping center or department store you're commissioned to do.

Your job: select the type of air conditioning that will best fit your plan and the client's requirements.

Here's where knowing the breadth of the Carrier line can save time for you and money for your clients. Carrier has all the ways to air condition any job. A few examples...

New Carrier Weathermaker* (top left). It's the self-contained air conditioner designed for lower installation costs. For small supermarkets, it gives excellent air conditioning results—at low cost. Exclusive design features give the new Weathermaker extreme flexibility of application.

Carrier High-Velocity System (bottom left). Developed by Carrier primarily for the "interior zone" of stores and buildings. It features small cross-section ducts and conduits, all-around compactness, ease of installation, simplified maintenance, quietness, and great flexibility.

Carrier Zoning Weathermaker (top right). You can plan "departmentalized" air conditioning which gives each area of the store or building the climate it orders. Carrier Zoning Weathermakers will keep comfort constant in as many as 14 different zones, regardless of differences or changes in heat loads.

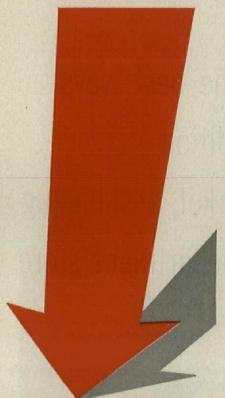
Carrier Air-Cooled Weathermaker (bottom right). It air conditions without water. Location of unit is not dependent on water supply. Fewer connections mean simplified installation. Maintenance costs are appreciably lower than for water-cooled models that require water-saving devices.

All Carrier equipment is engineered to the same high standard of quality. This means you can short-cut hours of selection by (1) using the Carrier line as your shopping guide and then (2) comparing values. Get in touch with your Carrier dealer or distributor—listed in the Classified Telephone Directory. Or write directly to us: Carrier Corporation, Syracuse, New York.

**ROB. U.S. POL. OFF.



air conditioning · refrigeration · industrial heating

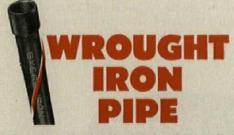


Money Talks ...AND TALKS BACK.TOO!

When budgets are figured close, the pipe that "talks" less money initially is usually heard above the pipe that quietly says, "durability." Unfortunately, the pipe with the low-first-cost talk has a habit of talking back, too. You know this story too well if you've watched a pipe repair job where low-first-cost pipe has failed prematurely. The initial "savings" can be wiped out many times in labor costs.

You can save yourself a lot of headache, a lot of expense if you investigate longer-lasting wrought iron pipe. Write for our booklet, *True Piping Economy*. A. M. Byers Company, Clark Building, Pittsburgh 22, Pa.

Available in Canada and throughout the world.



See our display in booth #6 at the A.I.A. Convention in Los Angeles

EXCERPTS

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

Morality of modern architecture

Excerpts from a talk before the Gold Medal award dinner of the New York Architectural League by Architect Minoru Yamasaki*

The period of discovery and experiment in architecture has long passed. The trial of modern architecture is won. Though new ideas and techniques are ever necessary and desirable, the ultimate end of our architecture must be to satisfy the needs of society.

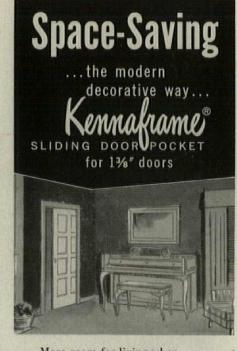
It is evident, however, that a theoretical hangover from this formative period exists even among some of our better architects. An irresponsible abandon to the self-indulgent sport of finding ever more original ideas casts unfortunate distortion on some of our important buildings, regardless of justification or need. Without originality, any creative field cannot exist, but originality only for its sake or for the sake of architectural ambition can do irreparable harm to the cause for which we work.

The misunderstanding of monumentality is another hangover from periods of history in which all architecture was built as monuments, either for religious reasons or to enshrine deified royalty. Today there is little need for monuments, since our democratic beliefs require that our efforts be concentrated on buildings whose characteristics are pleasure and utility instead of grandeur and awe.

Yet there are many clients and architects who wish only to build monuments. Whether there is cause in our society for corporations, banks and other business organizations to enshrine themselves as they do in monuments is questionable. A generation ago, those who espoused the cause of modern architecture decried the marble palaces erected for wealthy corporations, insurance companies and banks. It is our turn now, and most of us have given way to build new business monuments, marble palaces still, but with straight lines instead of entasis and within our technological idioms.

The needs of monuments in our society are few and far between—a memorial, an infrequent cathedral or a building of government, which might symbolize the unity and ideals of a people. On the other hand, the need for pleasant and useful space in which to live and work is paramount to society, which when fully understood might eliminate some of the extravagant spending, both in space and in exotic materials, to create super show pieces for our super continued on p. 82

 One of the architects of the St. Louis air terminal featured elsewhere in this issue,



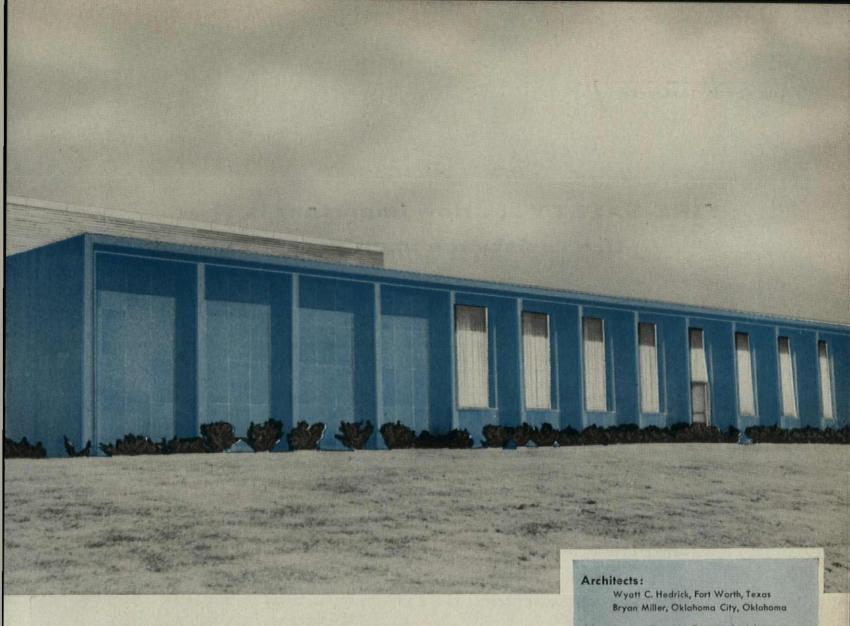


FEATURING REMOVABLE TRACK

- All Steel Frame
- Warp Proof
- 8 Wheels Per
- Door

 Prefabricated
- Fits All 2 x 4 Walls
- Adjustable 3 Ways
- Takes All Wall
 Materials
- Completely Packaged





New Training Center uses unique panel system

... of porcelain-enameled aluminum

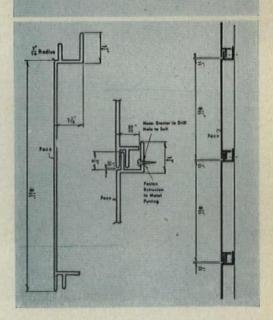
Modern building near Oklahoma City features aluminum extrusions with interlocking edges—basis of the panel system. (See diagram.) This construction assures rigidity for long extrusions that run up to 10 feet in height. All pieces may be attached to structural steel, eliminating the need for special channels or furring strips—and no horizontal joints are required.

Finished in Du Pont-developed Porcelain Enamel, these aluminum members are as attractive as they are durable. It's a good illustration of the many advantages of building with enameled aluminum. First, there's aluminum's light weight and strength. Next, the beauty of any one of an unlimited range of colors in Du Pont Porcelain Enamel.

Finally, you have the many performance benefits of this rugged enamel—it resists corrosion, abrasion, thermal shock and flexing. And enameled sheets can be sheared, sawed or punched with no exposure of the metal. We'll be glad to give you further information and put you in touch with enamelers. Just clip coupon below.

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FIRE SAFETY... How important is fire resistance in an acoustical material?

When it comes to fire safety, the first concern is to satisfy local building codes. Although they vary, most codes offer considerable freedom in the selection of acoustical materials. Unless the codes are closely studied, it's easy to specify incombustible materials where they are not required. This may increase your costs substantially and needlessly.

For instance, a building code in a large eastern city allows up to 2,000 sq. ft. of a combustible wood fiber material to be installed in a fireproof building, provided the area is enclosed by fireproof walls and doors. If the wood fiber tile has a fire-resistant paint finish, which is available with Armstrong Cushiontone, up to 5,000 sq. ft. can be installed.

In the larger, more open areas of public buildings, the safeguarding of human life is never to be minimized. That's why most building codes require that incombustible materials be used in critical areas that might contribute to the spread of fire.

In large areas, you can still realize the economics of wood fiber tile. Fire-resistant Cushiontone can be used in school classrooms. Armstrong Minatone, an incombustible tile that is an identical twin of Cushiontone in appearance, can be used in corridors.

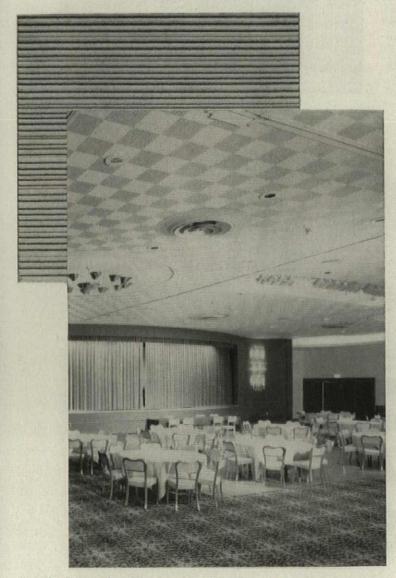
Five Armstrong materials — Travertone, Minatone, Crestone, Arrestone, and Perforated Asbestos Board — are incombustible. While they can't do the entire job of "fireproofing" an area, they can act as a fire stop.

For additional data on fire safety and the many other factors that influence acoustical selection, write for the free booklet, "Armstrong Acoustical Materials." Armstrong Cork Co., 4205 Rooney Street, Lancaster, Pa.

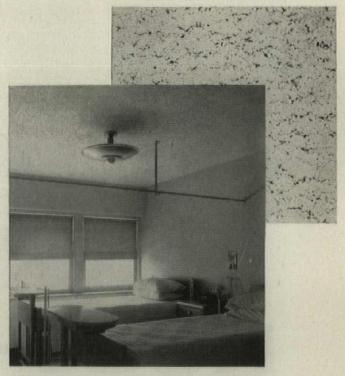


Diners are protected from noise and fire in this cafeteria by an Armstrong Arrestone ceiling. Arrestone is a metal pan unit backed up by a mineral wool pad. Both pan and pad are incombustible and have a noise-reduction coefficient of .85. Installed by mechanical suspension, Arrestone conceals pipes, ducts, and other utilities. . . . Forum Cafeteria, Wichita, Kansas





Completely incombustible, this attractive ceiling of Armstrong Crestone also contributes to the distinctive beauty and acoustical excellence of this convention room.
... Seville Hotel, Miami Beach, Florida



Quiet . . . beauty . . . and fire safety are contributed to this hospital room by the acoustical ceiling of Armstrong Travertone. Travertone's incombustibility, together with its handsome textured surface and high efficiency, makes it ideal for hospital offices, entrance lobbies, and corridors. St. Joseph's Hospital, Lancaster, Pa.

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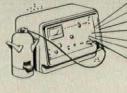
You stop rust, because Rust-Oleum's fish oil vehicle soaks deep down to bare metal and into the tiny pits where it drives out air and moisture that cause rust. You save, because this same *penetration* enables you to apply Rust-Oleum directly over rusted surfaces—usually eliminating costly surface preparations. Attach coupon to your letterhead for your thirty-page report entitled, "The Development of a Method To Determine The Degree of Penetration of a Rust-Oleum Fish-Oil-Based Coating Into Rust On Steel Specimens," prepared

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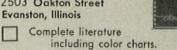
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EXCERPTS cont'd.

organizations. It is not wrong to use fine materials in buildings, but overexcess as seen in some of our buildings is conspicuous consumption of a new kind and, though perhaps excusable because of good design, immoral in the light of democratic ideals.

Fully aware that it is heresy to have misgivings about our modern masters, I nevertheless have some sincere questions about certain qualities present in some of their work. The Johnson Wax laboratory tower by Frank Lloyd Wright-probably the classic example of a monument to advertising and, perhaps, architect-can undoubtedly be justified as greatly furthering the cause of architecture. But whether it is a truly fine environment within which to carry on the work of scientists and office people is open to question. I believe it has difficulty playing both roles, that one characteristic distorts the other. While walking through its spaces, I experienced an uneasy feeling that I would dislike spending my life within the dominating excitement of a twentieth century business cathedral.

The sculptural approach to architecture advocated and practiced in the past decade by another great architect, Corbusier, also merits discussion. I have not seen his church at Ronchamps (AF, Sept. '55) and must also admit at having been often wrong in judging buildings from photographs, but, as I looked at the pictures, the feeling came to me that the basis of my worry was that it was too complete a statement. As a piece of sculpture, it seemed to represent the skill, the strength and power of Corbusier. In contrast, I remembered a temple and garden in Japan where the architecture was so serene that buildings and garden were elegant and sympathetic environment for meditation.

Intellectual and independent man as distinguished from his more subservient predecessor needs in his places of worship a serene atmosphere in which he can quietly think. To thrust upon his subconscious a positive and overpowering statement of architectural sculpture is less than respectful of his spiritual strength and dignity. Is it not a kind of twentieth-century idolatry?

The apartment by Corbusier at Marseilles (AF, March '54) suffers from like characteristics. How housing for the family, the center of our culture and the spiritual values of love and happiness, can be regimented in the pockets of a powerful monument almost brutal in its detail, somewhat baffles me. This almost overwhelming strength of concrete shapes is perhaps more understandable in the Hall of Justice at Chandigarh in India (AF, Sept. '53), also by Corbusier. But I must say that it looked strangely out of place when I saw it-in a land where the elegance of both Indian and Saracenic architecture is the wonderful heritage of their architectural environment.

I do not mean to discredit the great continued on p. 92

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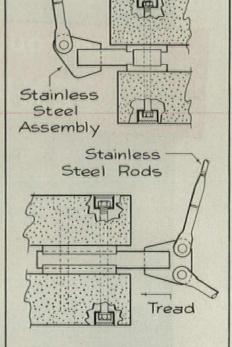
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Typical of the many other applications of stainless steel throughout the Center are the distinctively handsome doorways flanking the stairs. In these, as in a suspended stairway in the Styling Section, elevator doors and cabs, stair railings, building entrances and trim, furniture and the water tower, lasting, notable architecture has been created with stainless.

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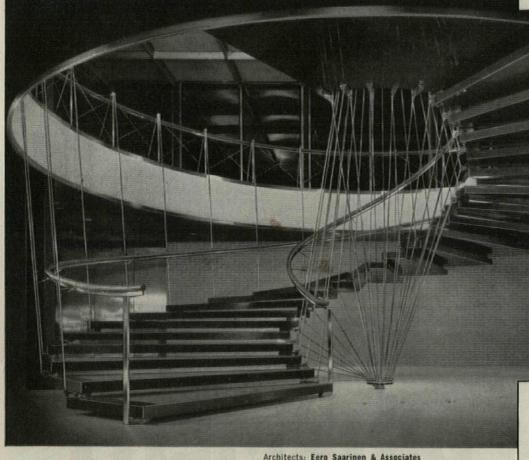
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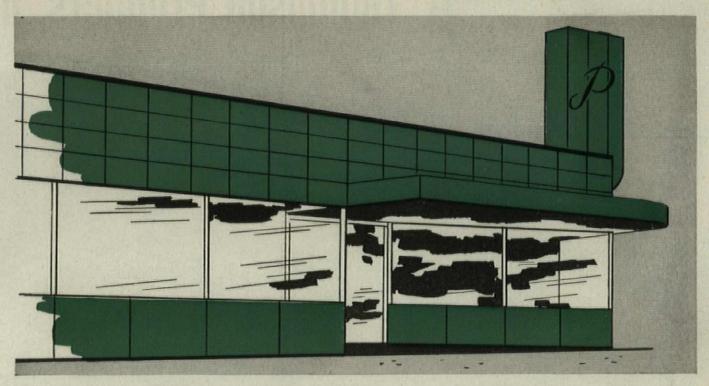
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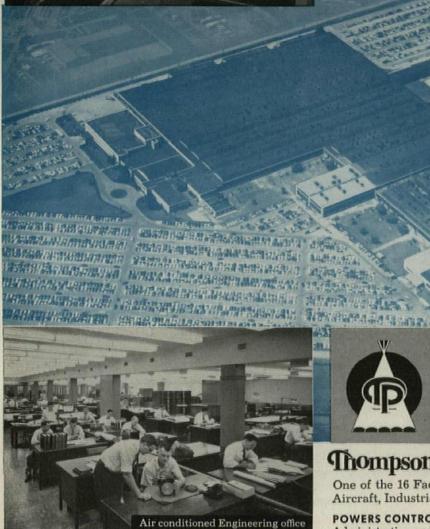


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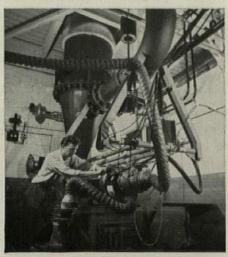
NAME.....

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Thompson Products, Inc.



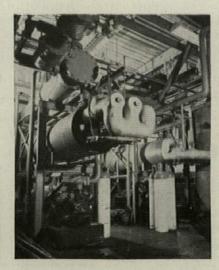
Below: Installation for testing turbine drives

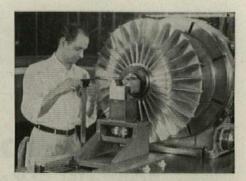




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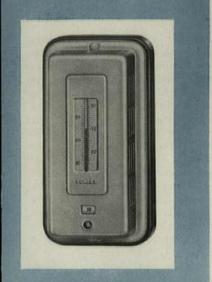




Above: Index head for inspection of vane wheels

Left: Refrigeration system for cooling test fuels

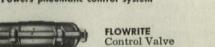
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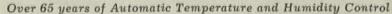
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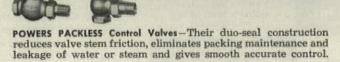
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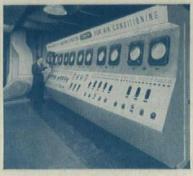






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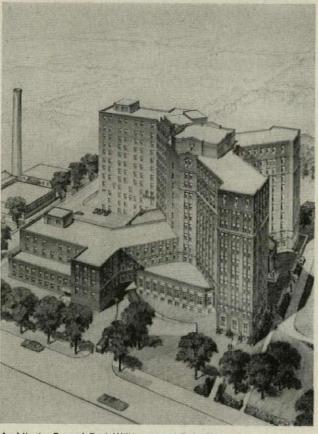


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EXCERPTS cont'd.

leaders of modern architecture, but merely to point out that aspirations for grandeur in architects and in the commissions which are given them are not always compatible, and in instances of such conflict it is imperative that moral responsibility is a primary consideration.

There are other qualities of architecture that we must seek beyond monumentality. Serenity and tranquility, though without the apparent glorification of grandeur in architecture, are direly needed by man in our mechanical age as balance against the energy, unrest and frustrations of our times. We have seen in Wright's best houses these principles embodied in the beautiful spaces and in the presence of them have felt as transported as by the most powerful and positive of monuments. Yet at the same time there is a feeling of peace and security that cannot be gained by the overwhelming emotion of a Gothic cathedral or Corbusier's Hall of Justice in Chandigarh.

The muscular acrobatics of forced monumentality and originality-seeking architecture superimposed on our automobile chaos can only make life more hazardous. Tranquility in environment as respite from the turmoil of mechanization would be a haven to society. It is a deadly mistake to become so engrossed in a particular idea that we lose sight of over-all purpose. Then architecture becomes an end in itself. An esthetic or structural idea which becomes more important than the purpose of a building generally corrupts that building.

A few years ago, I was involved in the design of a large area of public housing in St. Louis. A recent visit to the site again deeply impressed upon me my regret at the deplorable mistakes we had made. Under the pressure of public housing economics and bureaucracy and with an overfascination for a particular site pattern and a novel architectural device, I lost sight of the total purpose, that of building a community. We have designed a housing project, not a community, which is tragically insensitive to the humanist aspects of security and serenity and have multiplied tragedy because of the great number of buildings and extent of site.

Perhaps against the background of man's great achievements in other fields, his maturity in intellectual and political thought, his record in scientfic accomplishment, the greatest monuments in modern terms could be wonderful total environments-cities within which man can fulfill happily the rich experience of life. Cities conceived in the highest terms of esthetics and utility.

Perhaps too, if we architects looked upon our individual efforts as part of this total fabric, our moral course would lead us more truly to the goals we seek: that of service to man in his environment. I believe that this is the humanist morality.

The technology morality is perhaps of continued on p. 96

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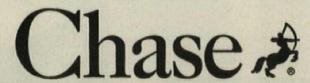
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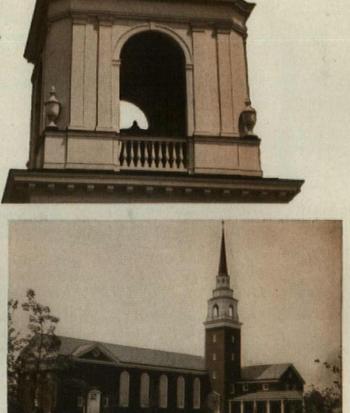


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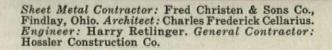
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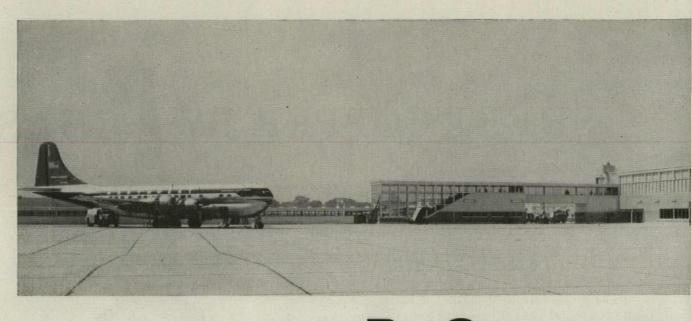
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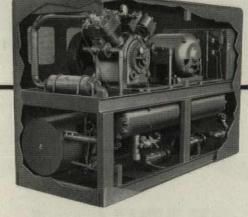
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less noble purpose than that of the humanist morality, but, I believe, of significant importance to the cause of modern architecture. The architecture which truly encompasses technology will be the ultimate tool with which to build our desired environment within the discipline of the economy and techniques of today.

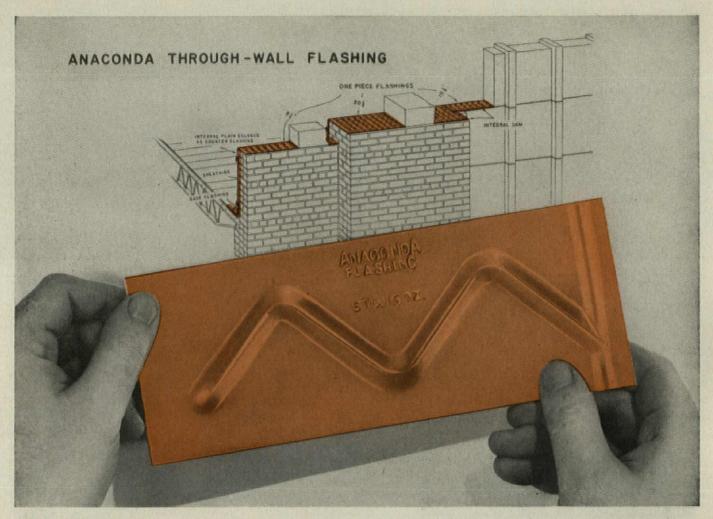
Some of the confusion in the technology morality is brought about by the arguments of those who advocate only the rectangular modular architecture and those who rebel against it. The advocates are sure that all the lessons of modern architecture have been learned and that the architecture of our future must be entirely built from idioms which exist today.

I believe that there is more in the hope of modern architecture than this. That, uncompromisingly, on the basis of these same fundamentals we can build a richer, warmer and more secure environment than looks possible from the glass, steel, and porcelain enamel ideology which is sweeping the country. Inherent in the attempt, however, to bring warmth and richness to the architecture of technology is the dan-ger of retreat to the romantic. The monotonous picture of endless modular architecture is frightening but this retreat to the romantic is unreal and more dangerous.

We should bring more warmth and richness to modern architecture, but the addition of these qualities must never compromise the beliefs of our technological age. Qualities of the wonderful architectures of the past, such as silhouette against the sky, the play of sunlight and shadow, and even ornament can be employed to bring interest to our architecture; but in using them we must ever be conscious and respectful of the discipline of our technology. The line we draw between copying in simpler terms the ideas of the past and interpreting them by enriching our technology without compromise is the test of our understanding of the technology moral-

This I believe to be the case for morality in modern architecture: that there is a humanism morality and a technology morality and that they are sympathetic and not in contradiction as is so often told.

Don't forget that the construction business must operate as a team. Everybody's got to work, and work together: architects, engineers, the general contractors, specialty contractors and labor. To do a good job every part of that team has got to cooperate. With sincere cooperation on everybody's part anything can be builtand there's not a problem I can think of that can't finally be solved .- Excerpts from an interview with Frank J. Rooney, president, Associated General Contractors of America, published in The Florida Archi-



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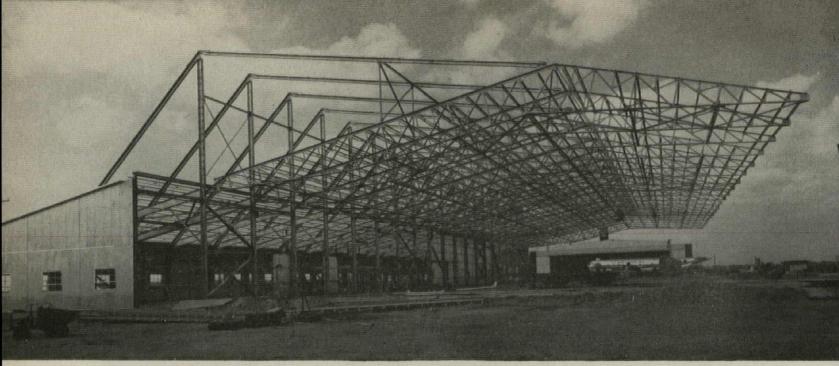
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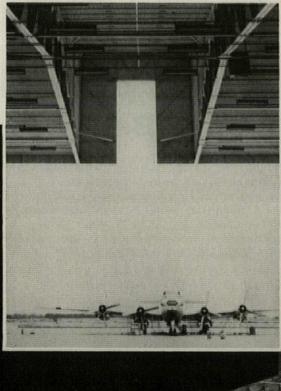


THROUGH-WALL FLASHING

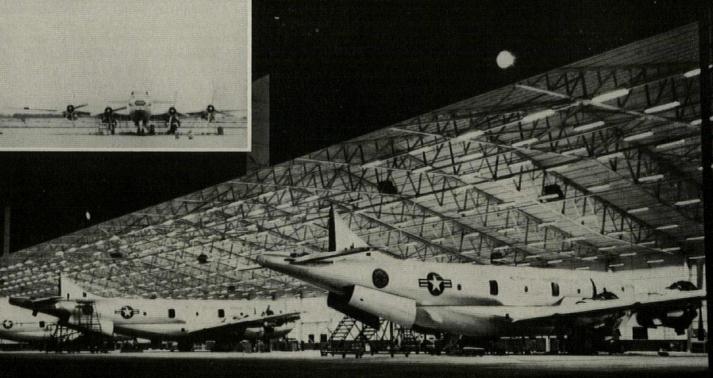


The 76-foot-long member which connects the top ridge of the cantilever to the top of the inner column is designed to act either in tension or compression—supports weight of roof loading, and withstands 30 psf uplift from wind under roof.

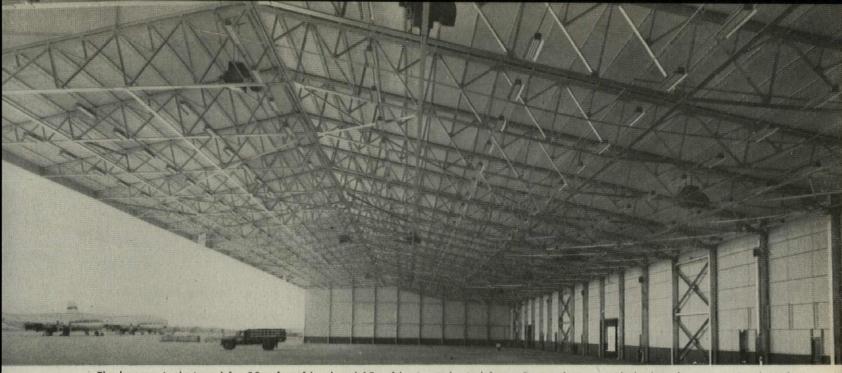
Ingenious hangar



Vertical clearance rises to 45 feet inside the three tail housings which open at the edge of the overhanging roof to admit the tails of these Boeing Stratocruisers.



The unique hangar was designed and constructed by the Erwin-Newman Co., of Houston, Texas, under their patent No. 2,687,102.



The hangar is designed for 25 psf roof load and 15 psf horizontal wind force. Rear columns are bolted to deep concrete piers since they must withstand a pull of 14 tons per column from the weight of the cantilevered roof structure, which amounts to only 11.8 psf.

has no columns...

cantilever construction spans 120 ft. at cost of only \$2.40 per sq. ft.

• The hangar area of this efficiently-designed building of Temco Aircraft Corporation at Greenville, Texas, is completely unobstructed by supporting columns. The clear area measures 120 ft. deep x 432 ft. long x 30 ft. high.

The roof is carried on 120 ft, steel truss cantilevers, connected by means of rocker joints to 56 ft. tall inner columns, which in turn are joined to 19 ft. outer columns placed 40 feet farther back. The space between the two rows of columns is conveniently used for workshops, parts storage, and offices.

The prefabricated Structural Steel

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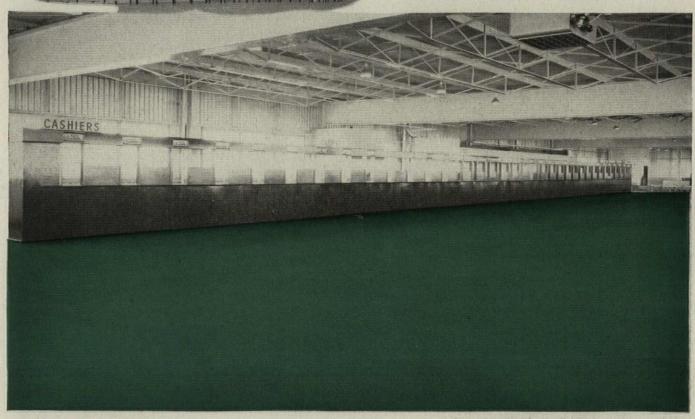
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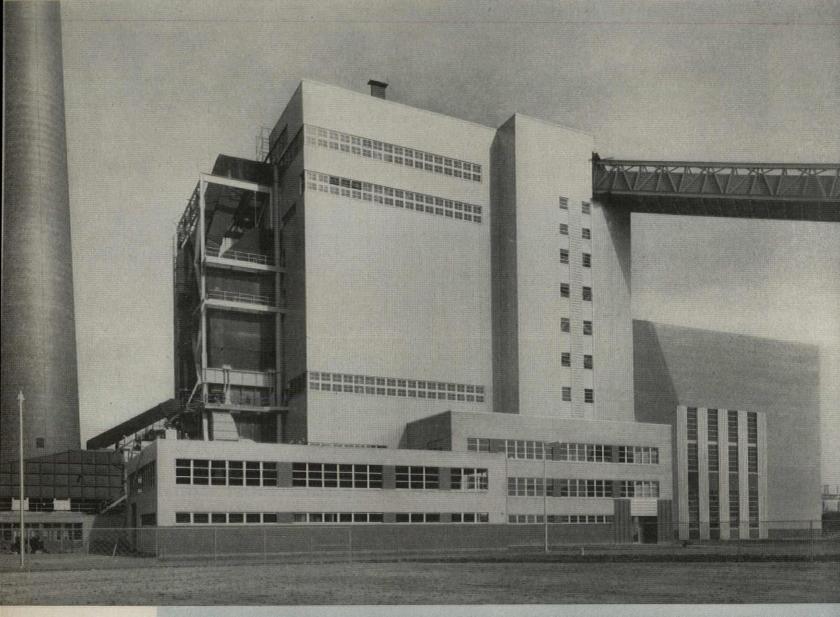


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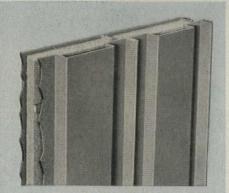


Above is the Bay Shore Station of The Toledo Edison Company. In this new, modern steam generating plant, Mahon Insulated Metal Walls with Aluminum exterior plates were employed for the high structure. The low structure is brick with an aluminum insert over the main entrance, and five aluminum pilasters

dividing the glass areas in the brick section at the right. All of these inserts are constructed with Mohon Aluminum Wall Plates. Engineering Design and Construction by the Engineering Department, The Toledo Edison Company, George A. Saathoff, Consulting Engineer. A. Bentley & Sons Co., Gen. Contrs.



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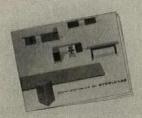
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About this month's FORUM

You can do a pretty good job of covering the theatrical world and its works without ever stirring out of New York; the same with most of the arts. But not with architecture, to its glory. Good, or even great, architecture is created and enjoyed wherever fine clients and fine architects join together, and this is just as likely to be in Seattle or Toronto or Fort Worth or Possuoli, as in New York.

For FORUM's editors, this splendidly healthy distribution of superior architecture and planning means travel far and often, in the course of reporting what's new and why it matters for a broad industry audience of professionals and their clients.

For example, in the course of preparing this one issue, FORUM's editors made ten journeys to eight states and Canada and covered more than 7,500 mi. as the planes fly. Its photographers, operating from their home towns all around the country, traveled another 3,000 mi. The biggest mileage this time was devoted to the industrial buildings which are featured in the issue.

Since its initial preview in our July '49 issue, the General Motors Technical Center in Detroit has received three visits from Writer Walter Mc-Quade, three from Editor Douglas Haskell. And, two days before the deadline for our color pictures, we sent Photographer Ezra Stoller back to Detroit (for the

fourth time) to record what will surely be the most talkedabout staircase of the year (p. 126), which has just been finished. FORUM knows the Technical Center better than most of its occupants, because many of the rooms through which our writers have wandered are normally repositories of the auto industry's bestkept secrets and are open only to vice presidents. Two of these rooms - without their secrets-are shown on pp. 126 and 129. (Incidentally, this month's presentation of the GM Technical Center is something of an event: it is the largest four-color portfolio to appear in this building industry magazine or any strictly architectural magazine.)

To find what's new in newspaper plants-a subject which will appeal to all inquisitive laymen as well as to the owners and designers of such plants-Writer Frank Fogarty spent five days at various newspaper offices in the East plus a few days with William Ginsberg and Lockwood Greene, two of the foremost newspaper plant specialists.

The small but handsome industrial buildings for which Architect John Parkin is noted have drawn two of FORUM's staff up into Canada: Writer Ogden Tanner, who also did an earlier story on Don Mills, Toronto's satellite town (AF, June '54), and Editor Haskell, who combined a visit to several of Parkin's buildings with a speaking engagement at a Toronto architectural assembly.

Even the beautiful Olivetti plant in Possuoli, Italy (p. 142), has attracted a FORUM observer. But his mileage doesn't count; Editor Haskell is in Europe (at the moment, in Italy) enjoying a vacation and scouting buildings worthy of note in future issues.

Two other long hops were made in the process of publishing this issue: Writer Jane Jacobs spent several days in Fort Worth immediately before and after Texas Electric Co. President J. B. Thomas and Architect Victor Gruen made public announcement of Texas-scale plans (p. 146) for rebuilding downtown. And Writer Tanner was the third staff member to visit St. Louis' air terminal during the course of its construction. He was followed by our New York photographer who barely had enough time between the building's completion (March 10) and our color photo deadline to supply the cover picture and the beautifully atmospheric color shot of the terminal at dusk (p. 106).

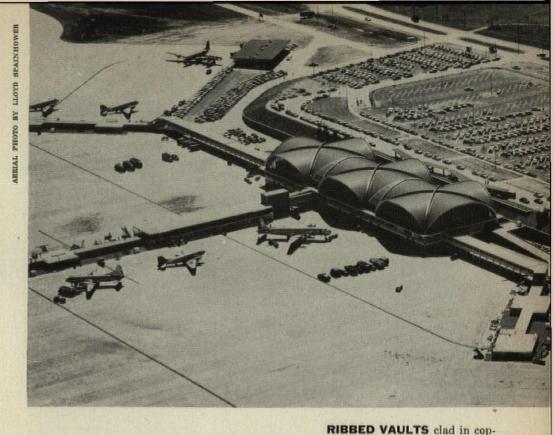
As you travel the pages that follow, perhaps you will give a passing thought to the travel time and tickets that a magazine can save a busy building professional and his client. In any event, we think you will learn something from this trip . . . and we hope you enjoy it. Bon voyage.

THE EDITORS

GRAND CENTRAL OF THE AIR

From the ground and from above, its three sweeping cross-vaults extend an air-age welcome to St. Louis. Inside its great room travelers are treated to efficiency and spectacle





per make the new port a striking introduction to the city. Building can be doubled in size by adding three more crossvaults, one to near end, two to far end. At top is separate cargo building; at right, parking for 1,400 cars.

Not since a bold young man named Lindbergh started out from this field 30 years ago has a city added a more significant chapter to aviation history. St. Louis has now given the age of air travel its first appropriate terminal.

Lambert Field, like other US airports, is trying to keep up with the drama of modern flight. The awkward little monoplane that carried Lindbergh to New York and then to Paris has been replaced by fleets of sleek DC-7's and Constellations. From time to time a needlenosed jet fighter screams off on a test run from nearby McDonnell Aircraft. Soon giant jet transports will race down Lambert's 10,000' runway.

What kind of new terminal building could handle this ever expanding traffic without becoming a burden to passengers, airlines and city coffers? And beyond pure economics, what kind of building could catch some of the sweeping spectacle around it?

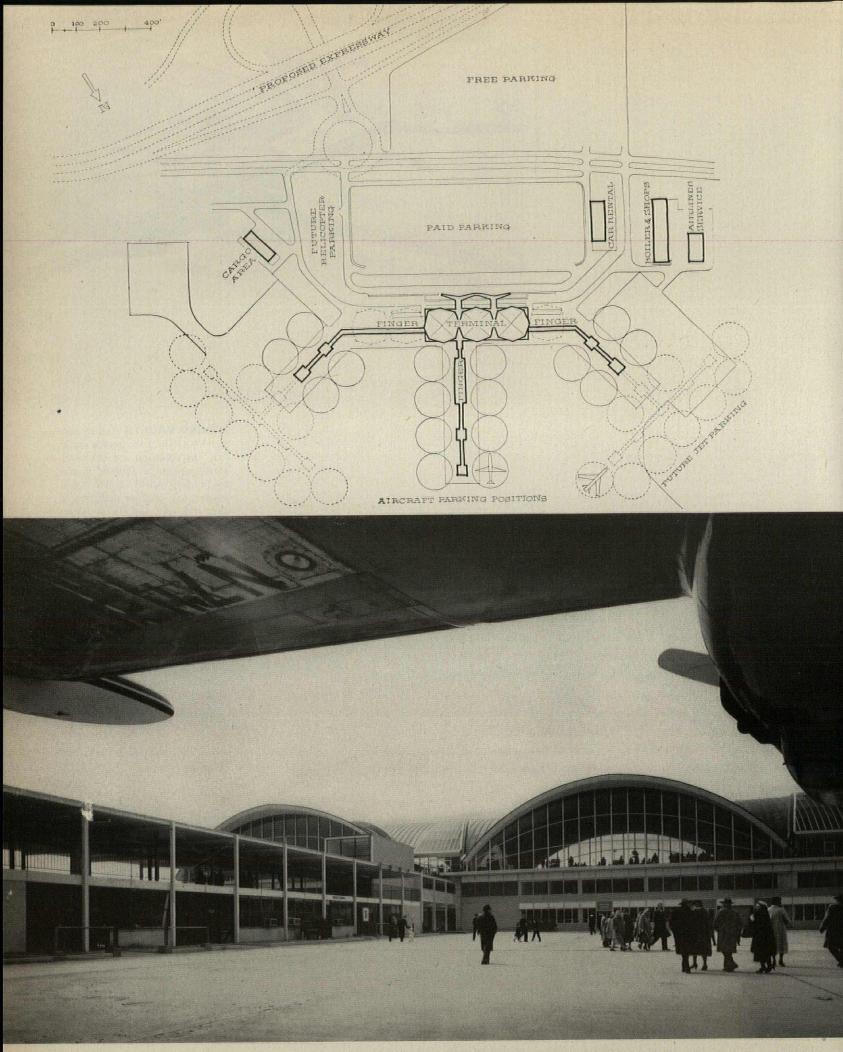
In the heyday of the railroads, travel empires were monumentalized in New York's Grand Central and Pennsylvania stations—great rooms that magnified the sensations of arriving and leaving a great city. Designer Yamasaki freely admits that Grand Central inspired his concept of the new air terminal, which ultimately took the form of three pairs of intersecting barrel vaults. This form is as old as the Baths of Caracalla but is rendered here in thin concrete shells 32' high and 120' across. And, whereas the Caracalla vaults and most of their progeny are raised high on walls or columns, these vaults spring from the floor and thus actually mold the space of the great room. Big windows open the room to the sky and field in all directions.

Sheathed in copper with strongly standing ribs and seams, the shells were designed to create their first impact from the air (photo above). Then, as the plane taxis in to rest, a series of new sensations awaits the visitor (overleaf).

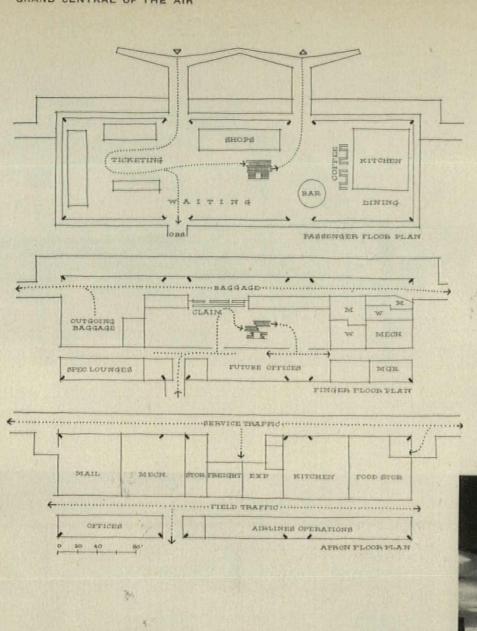
ARCHITECTS: Hellmuth, Yamasaki & Leinweber AIRPORT CONSULTANTS: Landrum & Brown ENGINEERS: William C. E. Becker, structural Ferris & Hamig, mechanical and electrical

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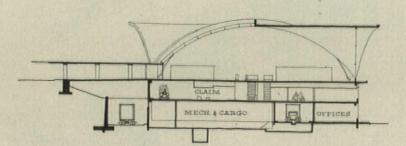


ON ARRIVAL, passengers see bustling concourse silhouetted above, sun-shaded observation deck at left. Planes are neatly fueled and air conditioned by underground pipes.



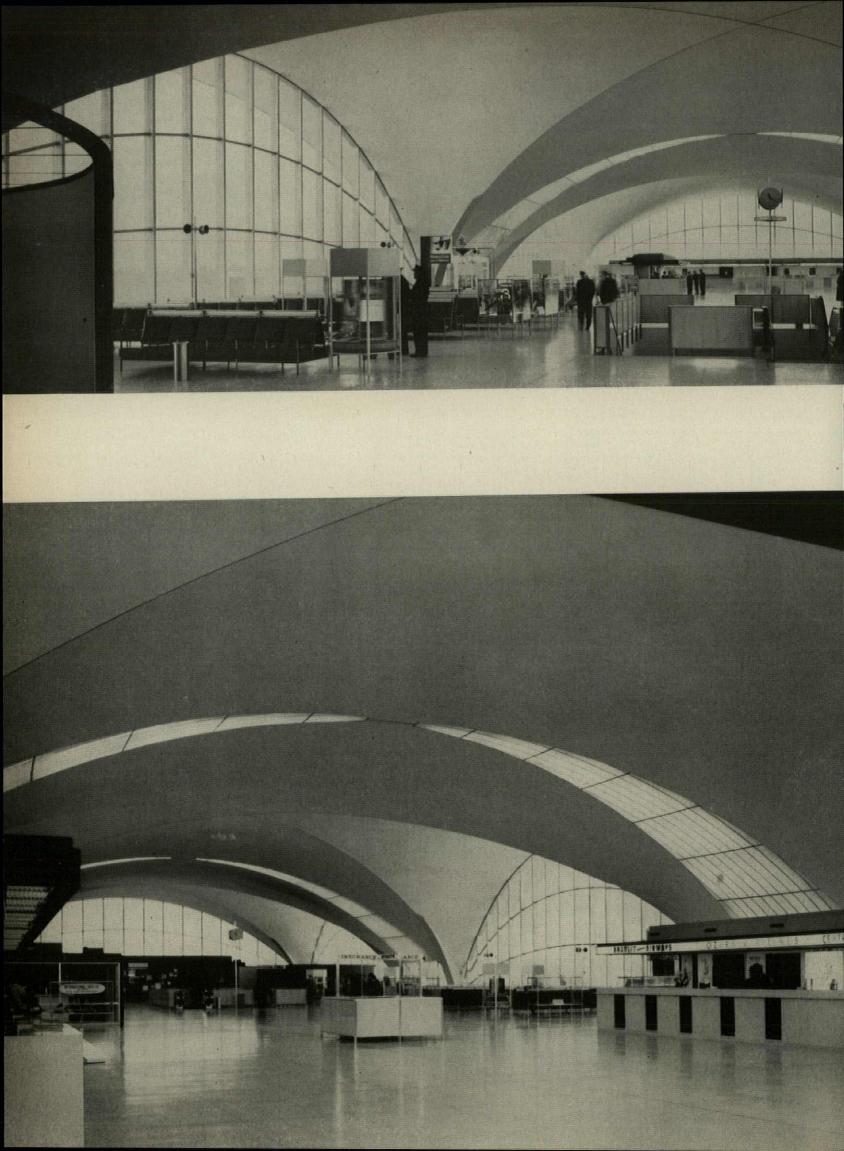
DEPARTING passengers carrying bags enter automatic doors, see ticket counters at right where their bags are chuted to room below. For visitors, information booth and observation deck are directly opposite entrance. Arriving passengers exit quickly on opposite side of moving stair. At middle level departing passengers pass barber, washrooms, nursery, games, post office, Western Union. Arrivals see baggage claim through glass wall, enter separate doors (shown in photo below). At field level, mail, express, freight and flight kitchen have separate service tunnels on city and field sides.

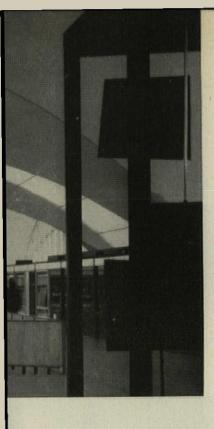






TRAFFIC SEPARATION for maximum efficiency is seen in section and photo (left). Passengers enter on canopied bridge, descend to middle level and out along finger to planes, while their baggage is trucked down the ramp and under the finger to join them. Trucks from the city deliver and pick up in separate tunnel (behind cars in photo). Below field level is pipe tunnel to separate utility building.



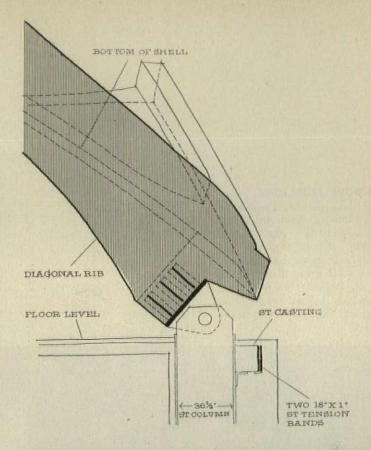


MAIN ROOM is one arching space 412' long and 32' high. Seen from dining area are circular bar at left, lounge on field side with freestanding, animated showcases for St. Louis industries. Stairwell is at center, shops at right beyond corner of metal screen by Sculptor Harry Bertoia.

vault corners (right) spring directly from floor on hinges atop heavy steel columns. Lateral thrust is taken by a tension ring of two 1" x 18" steel bands binding each four columns around their perimeter.

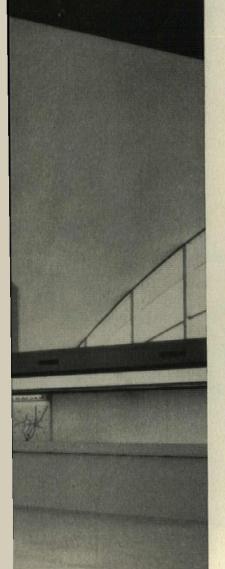
airlines, like newsstand and shops, are grouped in little 7' high "buildings" labeled with neat, quiet signs. At center, opposite entrance, is information-insurance booth. Skylights between the peaked barrel vaults are underglazed with plastic to diffuse light into the space below. At night vaults are indirectly lighted from tops of low "buildings," which also house outlets for 1,000-ton air-conditioning system.

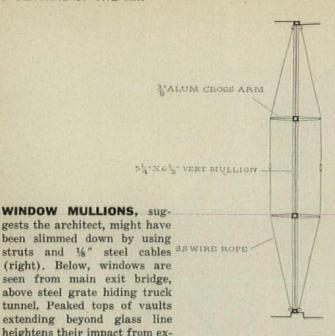
DINING ROOM (right) has 200 front-row seats for the show on the field. Blue-green heat absorbing glass in the big windows helps reduce glare from sky and acres of concrete outside. Coffee shop seating 215 is served by same upper-level kitchen, whose low structure can be glimpsed at left. Tables are arranged here for opening-day banquet. An acoustical plaster ceiling throughout main room deadens echoes.





PHOTOS: © EZRA STOLLER





"FOUR MISTAKES" -a critique

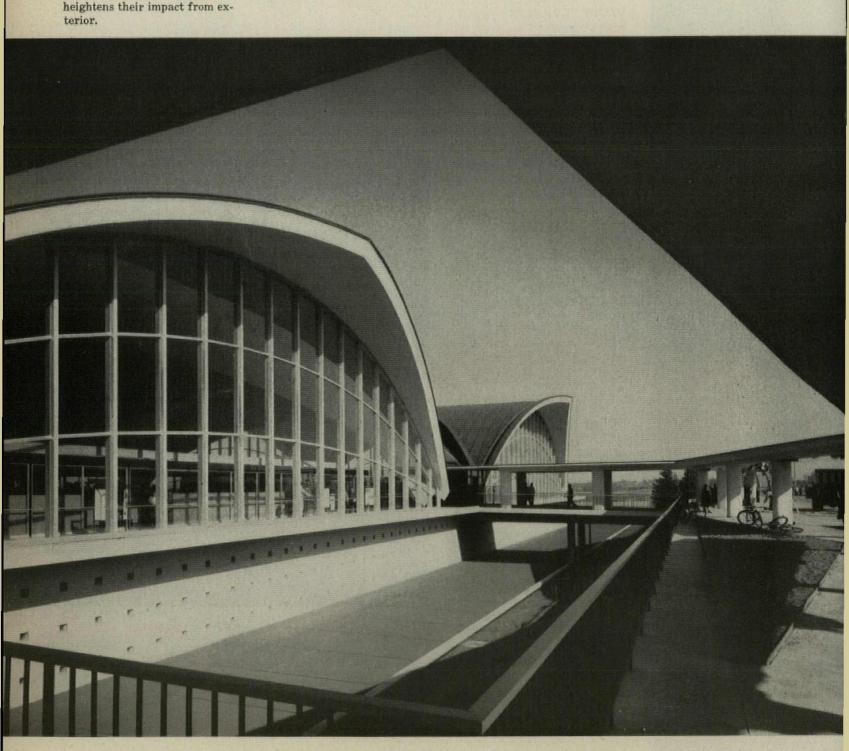
Not often does an architect, looking back at one of his most celebrated works, suggest how it might have been improved. But Minoru Yamasaki, a modest man as well as a talented architect, is his own best critic. He is delighted with the general success of his great room but at the same time is frankly critical of what he calls "four mistakes." If he could do the job over he would:

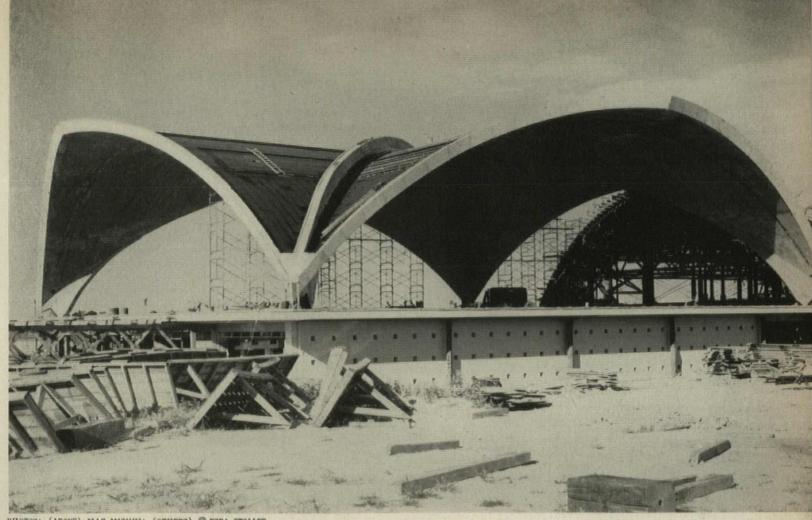
1. Make the roof vaults parabolas of the same height instead of arcs-of-circles. (The engineers talked him into the

latter.) Yamasaki observes that a part-circle always appears incomplete, like a rising or setting sun, but that a parabola always seems complete no matter how far it projects above ground.

2. Express around the exterior of the building the sturdy columns that support each vault at its corners, instead of hiding them behind the skin of the lower floors.

3. Use an alternate windowframing system that had been detailed in working drawings but vetoed to save \$40,000. In





PHOTOS: (ABOVE) MAC MIZUKI; (OTHERS) @ EZRA STOLLER

this system thinner aluminum mullions would be braced by tension cables spread on lateral struts, each mullion resembling a sailboat mast held by stays and spreaders (see detail drawing, opposite). This, says Yamasaki, would a) avoid thick mullions which might appear to be holding up the vaults, b) give the windows curves in plan and section as well as elevation, and c) make a light, "mist" structure.

4. Reshape the flat canopies of the main entrance and exit (which now cut sharply across the building) into a series of delicately curving vaults that would echo the motif of the three big windows behind. Yamasaki studied this inter-

relation of parts in books on Gothic architecture before returning to a more conventional solution.

Inside his great room Yamasaki wanted to create the impression of a twilight sky (about 5 foot-candles) over the bright little shops and ticket counters but feels that the dome lighting is perhaps a little too bright for this effect.

He also wanted people standing in the room to be aware of the roof shape. The vaults spring directly from the floor and are only 32' high at the center; Yamasaki had to do a lot of talking to keep the airlines and concessions structures down to 7' ceiling heights to go with this scheme.

"We had a couple of good breaks with the site," Yamasaki admits. "One was the hill-side, which made it possible to get the service levels underneath and still enter the main room at ground level. The other was the fact that the existing control tower down field was to be preserved; we didn't have to work this ungainly shape into our roof."

On another airport, Yamasaki would try for even greater separation of service from passenger traffic: "Since catered meals and mail as well as maintenance crews and cargo move by truck, why not put them all in a separate, cleanly designed service building and avoid the tangle altogether?" AIRBORNE SWEEP of vaults was fully revealed during construction. Diagonal ribs helped reduce shell thickness to 4½" at crown. When forms were removed (to be stored for eventual re-use) deflection was only ¾".

ENTRANCE SIDE shows how hillside gives ground-level access to waiting room, hides bulk of building from road. The architect first wanted to make the thin line of canopies into curves repeating those of the big windows behind.



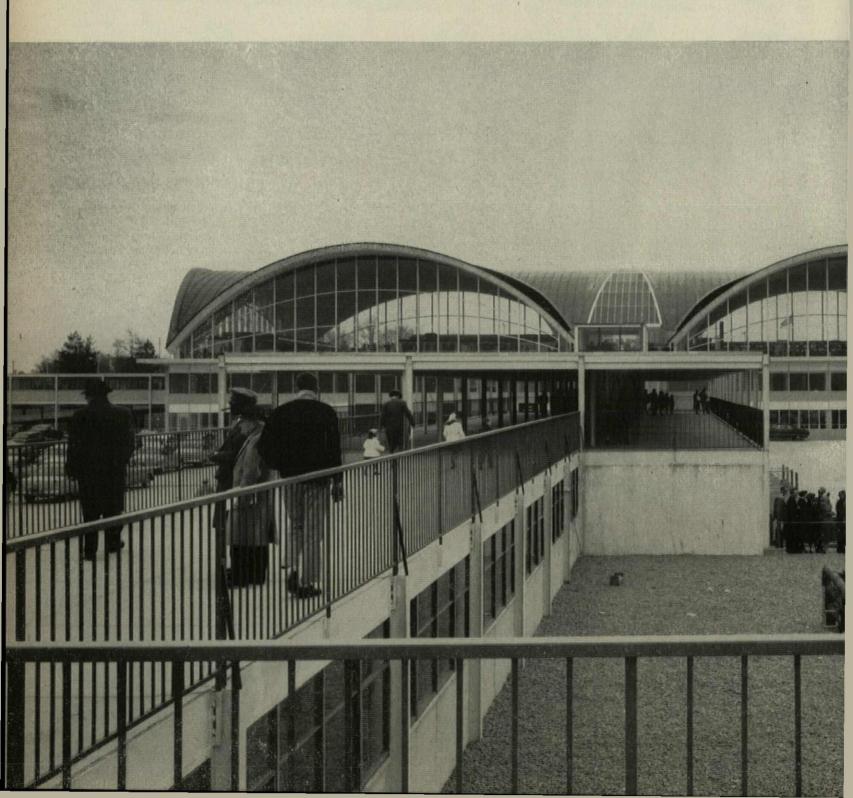
A NEW KIND OF PUBLIC UTILITY

When the new terminal was being studied in 1951, the planners decided to make the building in its first stage big enough to handle 1960 passenger traffic estimates: 600,000 arrivals a year and an equal number of departures (plus 390,000 through passengers and 1.5 million visitors). But by 1955, when the building was nearing completion, arrivals at the old building had already passed 560,000, and the expansion plans for the new one will probably have to be unwrapped sooner than anticipated, Airport Consultant Landrum feels St. Louis now has, at least for another year, a near-ideal ratio of 1 sq. ft. of building to every four arriving passengers per year. The eventual plan (three more cross-vaults) could handle nearly 2 million passengers in each direction.

Construction cost of the 148,-000 sq. ft. main building came to under \$3.6 million (excluding fees), about \$24 per sq. ft. Other buildings and utilities brought this to \$5.9 million; roads, parking and sitework added \$725,000; furnishings, \$150,000. The only federal funds used went for part of the \$973,000 aircraft apron. The city financed almost all of its \$7.7 million project with \$3.8 million from previous bond issues and \$3.4 million of the money paid the city by McDonnell Aircraft for its nearby plant.

Such a large, unprecedented building took teamwork by many men. One was George Hellmuth, who fought for Partner Yamasaki's design and brought it to reality. Others were Conway Briscoe, the city's public utilities director and airport commission chairman, who had the imagination to champion such an unusual scheme. Still others were the half-dozen members of an open-minded airlines committee; Mayor Raymond Tucker, who took up the battle for a new airport left him by his predecessor, the late Joseph Darst.

St. Louis will probably be one of the few US airports to break even—year after year—without trying to lead hurried passengers through a maze of concessions. About half the building is rental space, conveniently located, and over 90% of this is already under lease. Concessions are expected



to bring in 74% of the revenue, airlines 22%, the US government 4%. The terminal will break even almost from the outset, and by the third year should show a slight profit, which will be banked by the airport in its depreciation reserve account. The building is intended not as a money-maker for the city, but as a self-supporting public utility offering travelers "the best possible service" (which may well prove more profitable for St. Louis in the long run). Says Briscoe: "This is no dull monument to civic pride, but an attractive, sound, economic entity operated

on a pay-as-you-go basis,"

In addition to winning a recent first honor award from the AIA, St. Louis' grand new central terminal has received bouquets at home. Said the influential Post Dispatch: "Oldtime, landbound depots have a personality crossed between a mustached, austere railroad conductor and a potbellied stove. This new wild-blue-yonder kind of station is more like a young, fresh-faced and smiling airline hostess being very, very busy. It is a sweeping testimonial to what can be done when a city decides to catch up with itself."



ARCHITECTURE IN AMERICA PART VIII

Another in a series of articles exploring where architecture stands and what is happening to change its future

THE LABOR FORCE

Although hobbled by the legacy of a scarcity-minded economy, labor is developing new kinds of skills for today's new techniques. But its big challenge is to help the industry do a far bigger share of total production

BY FREDERICK GUTHEIM

In the last five years building's labor force has increased 12%. But in this time building's output, valued in constant dollars, has increased 26%. This is the measure of building productivity.

Credit for this gain in productivity is widely shared throughout the industry which FORTUNE once described as "the industry capitalism forgot." Building material manufacturers, contractors, architects, engineers—all had a share in it. But considering what the figures cited mean, it seems particularly relevant to inquire into labor's share in building's productivity gains.

The best explanation is probably the simplest one. At the end of the war building activity had reached its lowest point since the depth of the depression. Shortages of materials and manpower had shrunk the building establishment. Postwar growth was forced—perhaps too fast. By 1950 grumbling and complaining about inefficiency, high costs, technological obstruction had reached their climax. Impressions which many people, particularly outside the industry, formed in those years

have yet to be erased. The stereotype persists of building labor as hastily recruited, poorly trained, fantastically overpaid and brutally demanding. But this is at odds with the record since.

After 1950 (although the peak of postwar employment was in 1953, when 2.8 million were in the building labor force) signs of maturity appeared. Hiring became more selective, craftsmen were better trained, foremen and straw bosses had learned their jobs, management gave up labor hoarding—all this was in sharp distinction to earlier conditions. The people in building were learning to work together, Labor utilization improved. Productivity was the payoff.

But is building's gain in productivity a lot or a little? True, it is only a shade behind the general industrial gain—for whatever such a rough comparison may be worth. But few who are intimately acquainted with building will think that we have traveled a long way. Rather, they look ahead to further accomplishment, with new technological gains, better job organization, stronger contracting organizations. But they look ahead with an eye cocked at building labor. Is labor the limiting factor in building's progress? Let's see.

Under the rules of the game, as construction management and labor alike want to play it, labor is doing its part. These are the tranquil, strikefree years—on the surface. Capable and objective surveys of building labor's famous faults have returned a relatively clean bill of health in such specific charges as technological obstruction, excessive jurisdictionalism, obsolescent hiring and training practices.

Further progress, however, cannot be made by perfecting the old model. It will require a frank facing of such questions as a single industrial union for building trades; the annual wage; incentive payments; group rather than craft organization of jobs, on the British model; a more open approach to technological advance. Most of all it will require a new goal—greater productivity—and a keener sense of what building is losing as it has priced itself toward a smaller share of our postwar prosperity, a share hinted by universally lower space standards in housing and nearly all other building types, by penury in school and hospital building.

What price stabilization

Building's goal has been stabilization, not productivity. Stabilization looked good in a period of boomand-bust. But we've got it today, for all practical purposes, and especially for all labor's practical purposes. Since 1948 building's share in the gross national product has remained relatively constant at about 12%. Regularization of employment through the year (one of the major sources of increased labor output, prob-

ably) has been greatly improved by winterizing construction and improved seasonal job organization.

In short, while much remains to be done, there can be little doubt that the goal of stabilization is within reach as tested methods are more widely applied, as trends firmly established are fulfilled.

In the context of the economy as a whole, building is no longer expected to counterbalance slumps. It is looked to do its part in maintaining a healthy and balanced economy. But no one thinks of building in terms of a public works program, or thinks that we can defer needed public works until unemployment comes around. If the US as a whole is generally busy and prosperous, building should be, too.

This changed state of affairs is slowly pulling the rug on ancient and honorable traditions in building labor. The fears that were solidly grounded in a scarcityminded industry may give way slowly. But it is a reasonable expectation that labor should deal with growing assurance with tomorrow's building management, and that they can work together on the common task of winning a bigger share in the economy. The consumer dollar can go into better housing, or into automobiles. Business can spend its money on new building, or on equipment and refurbishing to offset existing poor buildings. It is possible to keep employees happy by giving them powder rooms, or more take-home pay. This is building's limitless frontier beyond which lies the two-house American family, rebuilt cities, and vistas glimpsed so far only by architects.

By-passed by design

Viewed in the dynamic context of a changing building technology, labor's tendency to obstruct change has been curbed by technology itself. Subtle competitive forces are at work. Entire trades can be by-passed in design. Indeed, this has been a direct objective of design in many instances. Specifications can skirt areas where labor causes trouble. In the accompanying table some of these relationships are suggested. Where labor resists technological innovations, countervailing substitutes allow its resistance to be curbed by some alternative building material or method. In most areas of building there is also the possibility of prefabrication. Thus when masonry costs rise, brick manufacturers and contractors bestir themselves and counter with larger brick sizes, aerated clay bricks, masonry power saws, palletized handling and other improvements. Should labor's resistance to these innovations be determined and extensive, building turns to alternative methods of construction. If it wishes to retain masonry characteristics, there is being developed the masonry curtain wall.

Perhaps the clearest evidence of the operation of

SOME COMPETITIVE FACTORS IN BUILDING TECHNOLOGY

TRADE	TECHNICAL INNOVATION	COUNTERING DEVELOPMENT	PREFABRICA- TION
BRICKLAYING	Improved bricks; power saws	Curtain wall	Chimneys
TILE AND GLAZING	Adhesives	None	Factory sash
PLASTERING	Power mixers; plaster gun	Dry wall; plaster- board	Plasterboard
CARPENTRY	Power tools	Plywood	Precut and preas- sembled millwork
PAINTING	Spray gun; roller	Surfaces needing no paint	Factory prime coating
PLUMBING	Power cutting and threading	None	Preassembly; utility core
SHEET METAL WORK	Power tools	Radiant and perim-Preformed ducts eter heating	

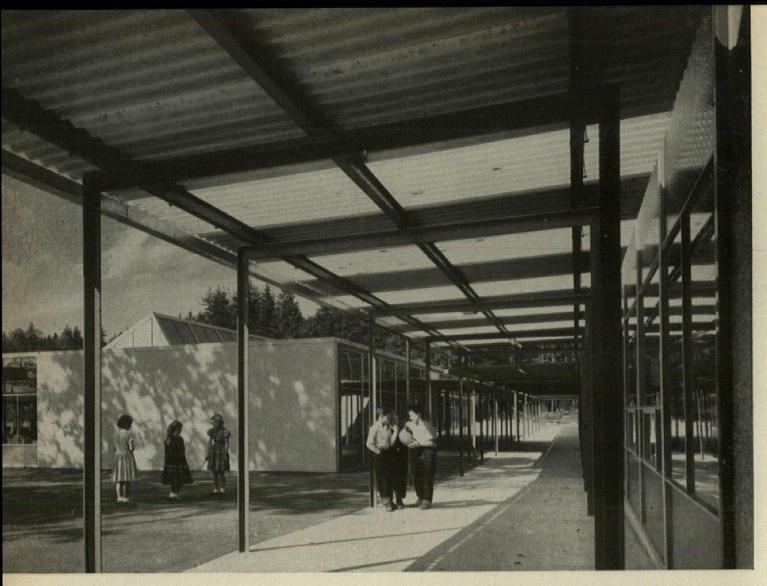
competitive forces is the opposition of the plasterers union in Chicago to the plaster gun. After an initial period of resistance and skepticism following the introduction of the gun, union leaders sensibly concluded that "it will create employment for our membership and it will be a weapon in our hands to counteract the inroads made by substitutes for plastering." This was an appreciation of the fact that less than half of the houses built in the area when this decision was made (1952) were plastered, as opposed to about 95% 20 years before.

Of course, there are classic cases to illustrate the extent of labor's obstructionism and make-work maneuvers. In Chicago electrical unions require rigid conduit wiring. In St. Louis plumbers unions insist on lead drainpipes. But these illustrations have faded. In the decade of the thirties they were prevalent. Plumbers then were objecting to power threading, cutting and other progressive operations. In the forties there was a strong trend toward liberalization, spurred by labor shortages. By the mid-fifties absolute prohibition of power tools was rare. Indeed, except for objections on grounds of health (paint spray), or during a period of introduction when the bugs were being ironed out (stud gun), it is almost impossible to point to any substantial resistance to new building methods or materials on labor's part. Whether this be attributed to prosperity and full employment, to gains in stabilization, or to labor's organizational maturity, it is an undoubted fact.

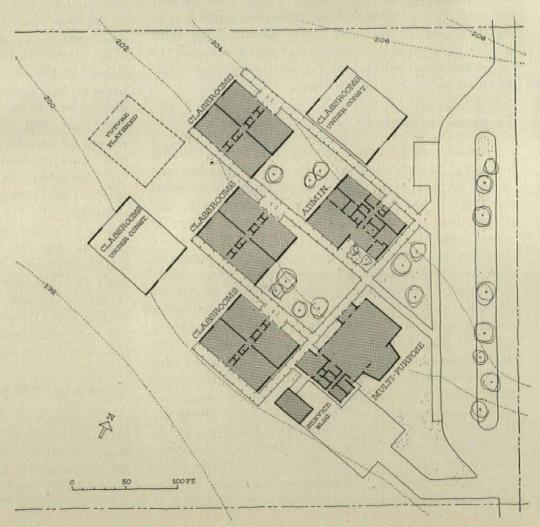
Labor's narrow paint brush

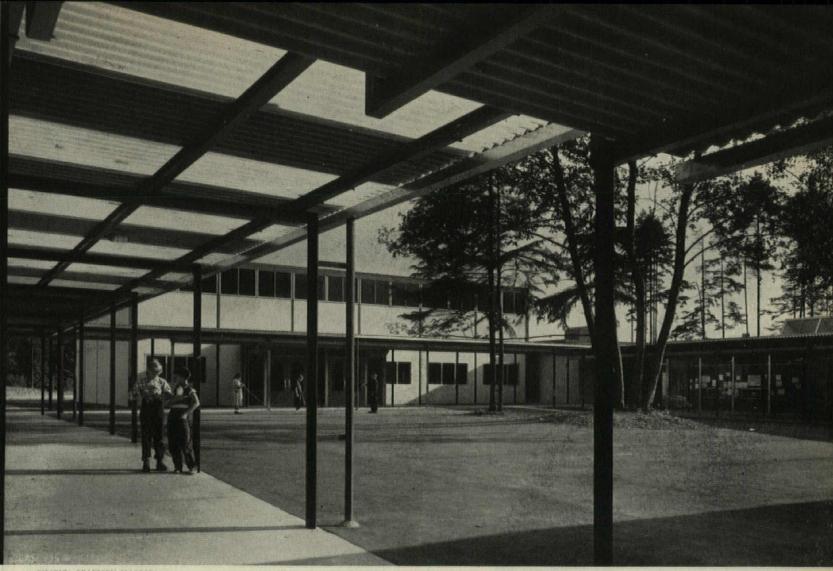
The legacy of scarcity-mindedness prevails to a greater extent in other parts of the building scene. Work limitation, difficult to define, almost impossible to prove, undeniably exists. Probably it always will until some kind of incentive payment is developed. But union

continued on p. 168



Walkways between buildings are wide enough to form fully effective sun screens, light enough to avoid room darkening. View is from outside library, past central classroom cluster.





PHOTOS: DEARBORN-MASSAR

Main court serves main entrances; multipurpose unit is at rear.

SCHOOL BUILT OUT OF LIGHT

ARCHITECTS: Waldron & Dietz

ASSOCIATED ARCHITECTS: Dan F. Miller & Maurice Sullam

STRUCTURAL ENGINEERS: Stevenson & Rubens MECHANICAL ENGINEERS: Stern & Towne ELECTRICAL ENGINEER: Beverly A. Travis

GENERAL CONTRACTOR: O. E. Turnquist Const. Co.

WOODWAY ELEMENTARY SCHOOL, Edmonds, Wash. ▲ 12 classrooms (8 more under construction). ▲ 360 pupils (600 after expansion completed).

CONSTRUCTION: Slab on grade. A Light steel frame. A Exterior walls concrete block cavity except multipurpose unit which is tilt-up slab. A Roof, steel decking on lightweight joists, with rigid glass fiber between corrugations for acoustics and insulation. A Walkway roofing, corrugated cement asbestos board and

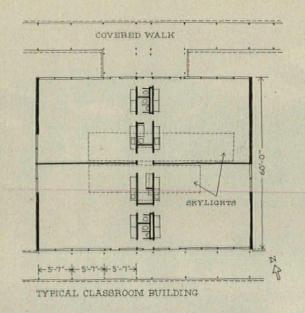
corrugated plastic. A Windows, aluminum; glazing, patterned wire glass, heat reducing blue, and clear. A Partitions, concrete block and glazed structural tile. A Aluminum skylights. A Flooring, asphalt tile and quarry tile. A Heating, volume forced-air unit in each cluster discharging into divided floor plenums; heat supplied from central boiler, in pipes floated under walkway decking; no tunnels.

COST: \$336,954 including fees; \$12.33 per sq. ft. "Light for light's sake is not always the important factor, but light for interest and visual relief is," comment Architects Waldron & Dietz. Because they understand sympathetically these aspects of light, and how to manipulate them, Waldron and Dietz have designed a school which demonstrates that a lot of glass can be anything but a pain in the eyes.

The architects began with what should be elementary but often is not: precise information on sun angles in their locality, from which they fixed skylight slope and orientation (40° E of N). Sun that enters this school is not there by accident.

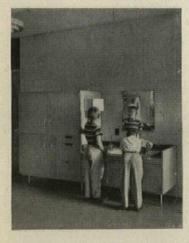
In classrooms and library, natural light enters from one window wall and from one big window next to the interior wall. Covered walkways, with strips of corrugated plastic deck letting in strips of light wherever desired, stand 6' clear of building walls on the north sides, and abut the buildings—as 11' sunscreens—on the south. On south elevations, glazing above the walkway is blue heat-reducing glass; all glazing below the 2' line is patterned wire glass.

What this description of conscientious care does not reveal is the artistry with which the glass was used: the result is an interplay of light, volume and structure that charms users and the many visitors the school is attracting. This quality, combined with a delightful court and cluster plan, makes every turn in this school a new and interesting visual experience.





Classroom with north window treatment has walkway roof standing clear of wall to let in light; clear glass above.



Sinks abut interior partition of glazed tile with janitor's closets, toilets on other side. Tall cabinet is teacher's.



Cluster core includes teachers' small workroom and shelved closet, accessible from all four rooms. It is skylighted.



Multipurpose room is gay with blue and red painted steel framing, warm cork paneling, high blue glazing.



Library has choice corner looking out on two courts. South window wall (left) is shaded by walkway. Classrooms have same three light sources.

Interior ends of classrooms have abounding light. Photo shows lunch service from food cart prepared in multipurpose unit's kitchen; no mass feeding.





Entrance to administration unit is off miniature court formed by library end wall and freestanding canopy. All land-scaping by architects.



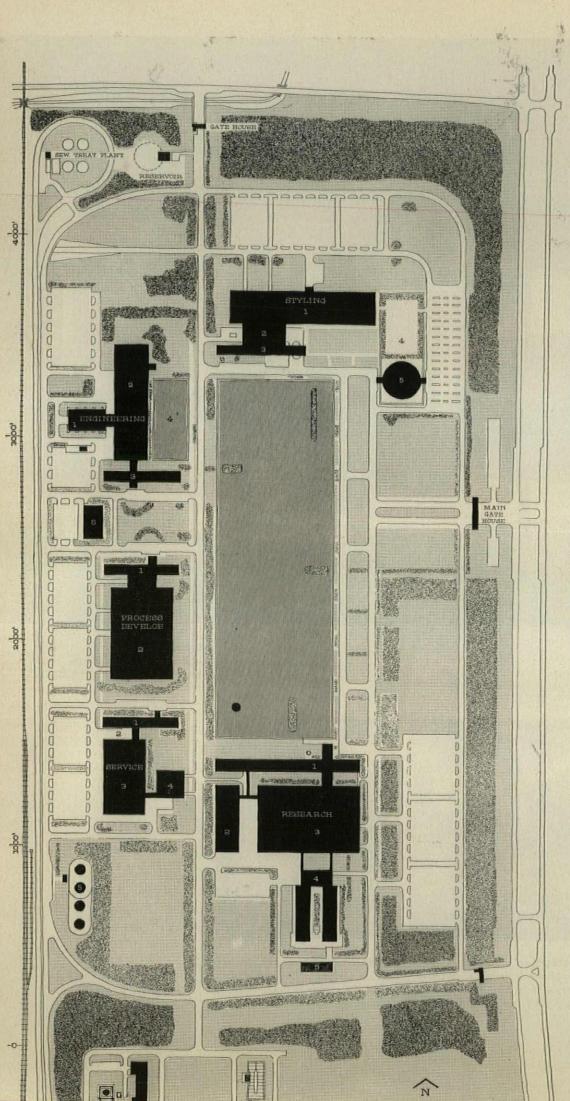
Checking desk in library is stock equipment; shelving and tackboard backed cases were designed by architects.



Reception has neat storage, architect-designed. Windows here and in adjoining office are only ones requiring draping.



Partitions are mostly painted block striped with steel framing. This library wall is light green with yellow steel.



STYLING

- 1. SHOPS AND STUDIOS
- 2. PENTHOUSE STUDIO
- 3. ADMINISTRATION
- 4. PAVED COURT
- 5. AUDITORIUM

ENGINEERING

- 1. DYNAMOMETER
- 2. SHOPS
- 3. ADMINISTRATION
- 4. REFLECTING POOL
- 5. RESTAURANT

PROCESS DEVELOPMENT

- 1. ADMINISTRATION
- 2. SHOPS AND FOUNDRY

SERVICE

- I. ADMINISTRATION
- 2. DELIVERY COURT
- 3. SHOP
- 4. POWERHOUSE
- 5. FUEL STORAGE

RESEARCH

- 1. LABORATORY
- 2. METALLURGICAL
- 3. PROCESSING SHOP
- 4. MECHANICAL
- 5. FUEL BLENDING

Fountain is one of two in big rectangular lake around which the buildings are composed. This wall of water is 115' wide, and shoots 50' into the air, pumping 6,000 gal. per minute. Buildings beyond comprise the Styling Section.

ARCHITECTS

Eero Saarinen & Associates
ARCHITECT-ENGINEERS
Smith, Hinchman & Grylls, Inc.
LANDSCAPE ARCHITECT
Thomas D. Church
GENERAL CONTRACTOR
Bryant & Detwiler Co.

GM's INDUSTRIAL VERSAILLES

In the fact-sheet describing its magnificent Technical Center outside Detroit, General Motors Corp. makes this nice understatement: "The well-made look . . . is a proud characteristic of America and a source of pleasure to its citizens."

And another statement of simple fact: "In the 22-acre artificial lake, with its four islands of weeping willow trees and the tall, shining water tower, are two fountains. . . . Together these two fountains pump more water than all the great fountains at Versailles. The water is recirculated."

This is GM in its actual factual glory. Finally viewed in completion, the inspired architecture of the 25 buildings is a historic symbol of today's industrial progress, also of tomorrow's ambition. It is immense, yet beautifully precise. On these eight pages,* FORUM reproduces some of the sensory witchery of the brilliant colors Architect Eero Saarinen inserted into the proud, well-made GM buildings, crowned finally by the serene, glistening dome of the Styling Center auditorium.

^{*} See also AF, July '49, Nov. '51, Nov. '54, Nov. '55.





Color studio in Styling Section is a round penthouse building—78' in diameter—on the roof terrace. The exterior walls are glass, and inside are two circular "rooms." The one just visible at the left edge of the photo is an artificially illuminated interior color-matching studio, 14' in diameter. The other, also circular, is glass-walled and contains a steam-heated, blue-lined pool. This reflects daylight to the studio interior. Over-all ceiling illumination is from a plastic eggcrate of 1" hexagons.

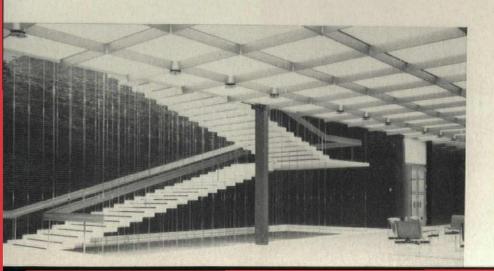


Staircase in Styling Section's administration building is suspended on stainless steel rods over flowing pool cut into travertine floor. Panel ceiling of plastic diffusers in this lobby (right) also contains wiring and air-conditioning outlets, and is typical of the integration of services in the GM design, which has already produced custom prototypes for a number of building elements in mass production.





studio building in Styling Section has typical GM wall with steel structure, aluminum frames and plastic gaskets hugging slick glass or porcelain filler panels. Blank end panels of building are filled with glossy bricks in burning colors, another pattern in materials set by Saarinen & Associates in the design of this group.





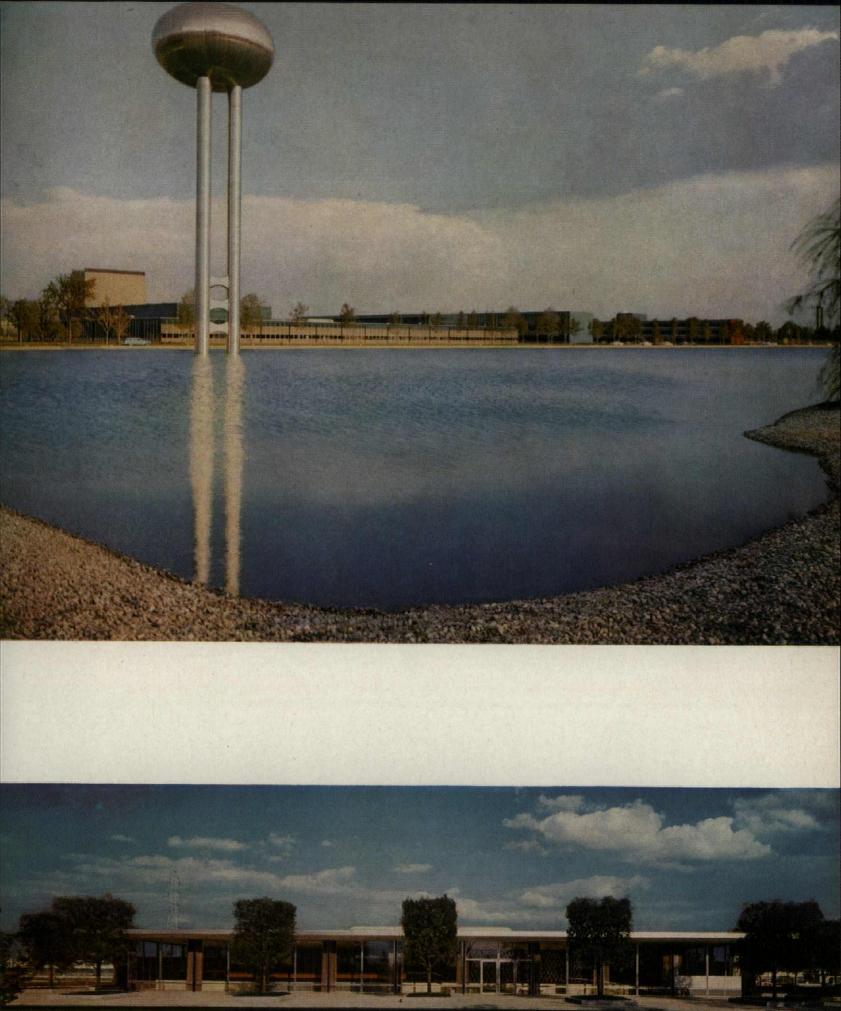
Executive office in a research building is typical of fenestration, furnishing and finishing of offices throughout the Technical Center. The air of lean luxury is consistent. Porcelain enamel panel makes finished interior wall as well as exterior. Ceiling integrates acoustical treatment, ventilating, sprinkling, and also receives flexible partitions.



Water tower, sheathed in stainless steel, rises out of the lake. Glimpse of foliage to far right is typical of the four shaggy islands planted in the man-made pool. The trees standing along the far side of the pool are, however, only a thin hint of how luxuriantly forested this site will be at maturity; 13,000 trees of many varieties have been planted.

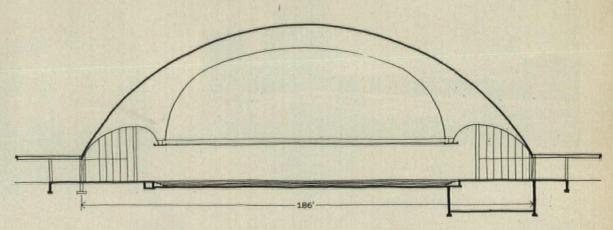


Cafeteria building contrasts with rest of GM group in several ways: it is mostly black and white; it has overhangs; it is markedly lower in silhouette; it straddles a pedestrian court between two building groups of the complex. At the left is the entry hall, a few steps lower than the eating level. Metal screen by Sculptor Harry Bertoia is a partial partition. Photo at the right shows cafeteria in elevation.





Corridor in new styling studio building is the most hypnotic of all the interiors, uncanny in the simplicity and precision of its perfect technique, unnerving in its eerie strength. That is a Corvette peering around the corner down the hall. Each of GM's automotive divisions has design studios off this pale corridor (white ceiling, white brick walls, white tile floor) entered through garage-sized batteries of doors, set back and painted startling, vivid colors.

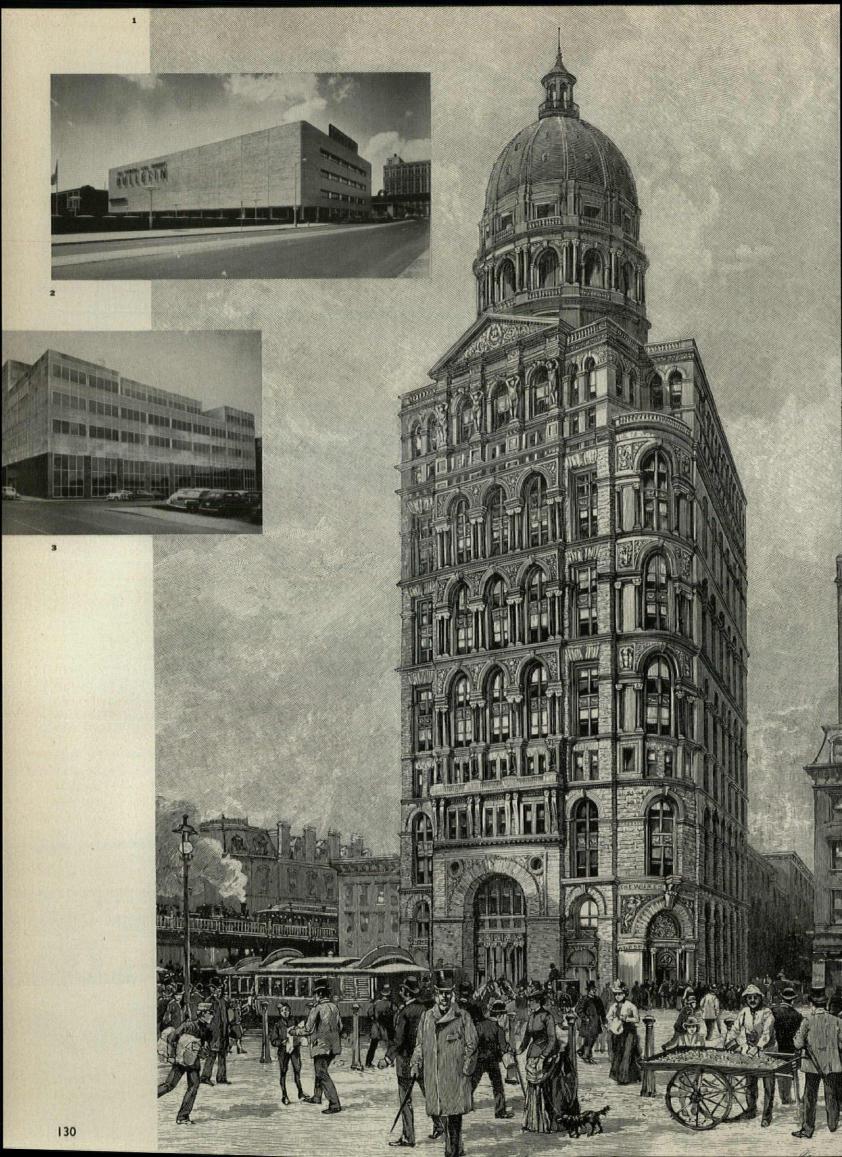


Domed auditorium in styling group is roofed with welded steel plates %" thick, designed on pressure-vessel principle (diagrammatic section upper right; see also p. 162 for details). Finish is gleaming aluminum. Inside the shell is suspended an inner dome of 1/8" thick perforated steel with an enormous cove housing the lighting (140 1,000-w. incandescents, plus 140 500-w. mercury vapor lamps plus four 3,000-w. cannon spots near dome's center). This room is used for display and for movies, banquets, receptions and other large meetings.

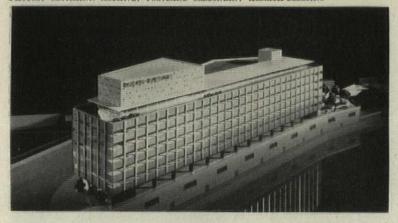


Administration building for the styling division (left) like many other Technical Center administration buildings, has 5' module of aluminum framed glass and porcelain enamel fillers. Structural steel (black) is exposed only on bottom floor façade.





PHOTOS: BETTMANN ARCHIVE: PORTLAND OREGONIAN: HEDRICH-BLESSING







WHAT'S NEW IN NEWSPAPER PLANTS

While the fascinating press room looks much the same, automation has flattened out the building and wrought some important changes in the newsprint warehouse and the mailroom

In the years since World War II, the US newspaper publisher has been a man washing printer's ink off one hand and construction dust off the other. Forced to grow, yet boxed into an old plant by downtown walls, he has fought his way out the only way he could—by scrapping the old plant, building a new one.

Multiplied across the country, this local situation has piled itself into a national boom in newspaper construction. By the end of this year, the trade magazine Editor & Publisher figures that newspaper owners will have poured close to a record \$700 million into new plant and equipment in the decade since 1947. Last year alone their spending hit an estimated \$75 million, with upward of \$20 million of it just for buildings. In city after city—as the figures sum it up—newspapers have paid handsomely to turn a grimy, cluttered past into what they hope is a shiny, spacious future.

What, exactly, have they bought with their dollars? As buildings go, few of the new plants are likely to set any architectural fires. "Safe," and severe, the majority of them owe more to the engineer than they do to the architect's inspiration. The neofactory, in most places, has won

hands down over the editorial monument.

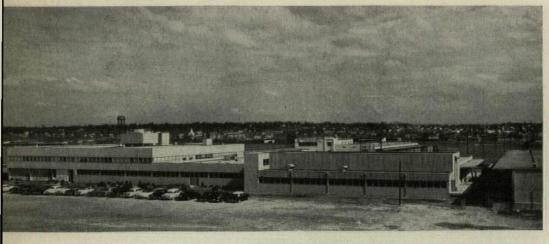
Whether good or bad, this fact is significant. For it means that newspaper plants—always influential neighbors in their communities—are today showing a quite different face to US towns and cities from what their ancestors did. Even more important, they are reflecting a set of changed conditions in publishing—new problems and new attempts to deal with them. And these matter not just to a community, or to newspapering itself, but to the building industry as well.

In an economy that has climbed uphill with only two stumbles since the end of the war, mere growth has ceased to be a distinction for any industry. What makes newspapering unusual is not the fact that it is selling more papers today, but the forces that have been tugging and pulling behind that growth. These, at least in part, account for some of the things that papers are doing with their buildings.

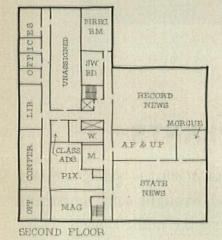
Yesterday's monuments

By the end of last year, the nation's 1,760 daily papers had pushed their overall circulation and advertising linage to the highest points ever. But in the midst of what should be plenty, many papers,

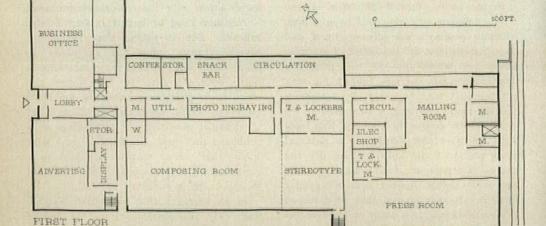
From an age of skyscraping, newspapers have turned earthward to build an impressive array of new, low-swept plants throughout the US. The nowdemolished Pulitzer building (1), home of The World, was a classic of the day when newspapers were more monument than plant. Less pretentious are today's neofactories: the blocklike Philadelphia Bulletin (2) by Robert Montgomery Brown and George Howe; Pietro Belluschi's glass-accented Portland Oregonian (3), Naess & Murphy's model (4) for the Chicago Sun-Times, the Bergen Evening Record (5) by Walter Kidde Constructors; and (6) Lockwood Greene's tidy Sacramento Bee.



Low-lying plant for Columbia State and Record has roughly three acres of floor space, faces on State Fair Grounds. An exceptionally well-thought-out plant, it combines much of what publishers think is essential for efficient newspapering today.

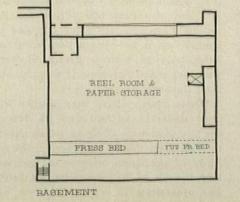


STATE AND COLUMBIA RECORD
Columbia, S.C.
ARCHITECT-ENGINEER
Robert & Co. Associates
GENERAL CONTRACTOR
Daniel Construction Co.



Paper storage in basement holds newsprint at level where it will be used. Rule of thumb: store upward of month's needs.



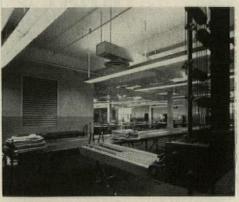




In-line layout moves copy in straight path from composing to press. All mechanical departments are on plant's first floor.



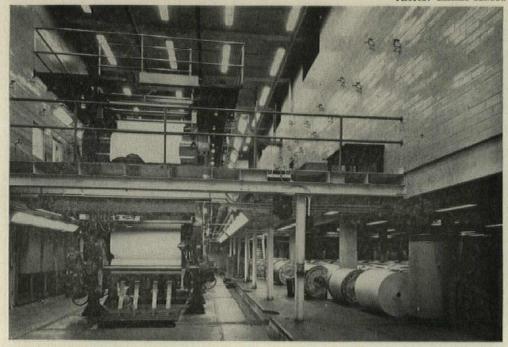
Composing room, directly under editorial departments, is ideally placed next to stereotype foundry. Building is 375' long.



Mail room, key to distribution, faces on courtyard loading platform, is parallel to press room. Conveyors do most of handling.



Rail siding runs width of building, separates plant from older warehouse. Plant can still be expanded in two directions.



Pressroom rises three stories, houses eight rotary units now, with room for four more. Note paper stored next to reels.

notably the big-city ones, are having to struggle to keep on the streets.

As a group, big-city dailies have had only modest circulation gains since 1945 (the dramatic increases have been in the suburbs and small towns). True, the big papers still account for more than 85% of total US circulation, and many individual ones have prospered despite TV and the suburban shift. But more and more of their brothers have been hard pinched to keep operating. Some have had to combine mechanical operations; others have had to merge; still others have sold to chains. Last year again more old dailies gave up the fight than there were new ones to take it on; the ranks are now slimmer by 442 than they were at the peak in 1910.

The upshot of all this has been that any paper, lucky enough to have to expand into a new plant, has been imbued with just one thought—to make the plant as efficient a cost-saving factory as possible. And to achieve this, it is willing to junk much of what a newspaper of 50 years ago would have thought indispensable.

If the turn-of-the-century publisher had picked the one adjective he most wanted applied to his building, the word would undoubtedly have been "awesome." A newspaper plant, so he believed, should be something to be gaped at.

When Joseph Pulitzer added the Pulitzer Building to New York's famed Newspaper Row in 1888, it was, indeed, awesome. Its 17 stories made it the tallest building in the city, and its golden dome became the symbol of *The World* for as long as it lived. From city room to press room was a cumbersome gap of 11 stories, but this was a small price to pay for magnificence.

Adolph S. Ochs had to borrow more

than \$2½ million to raise his monument to the New York Times at 42nd St. and Broadway, an unheard-of location for a newspaper in 1905. Second highest in the city (the Park Row Building then held the title), it soared 375′ in a skeletal steel adaptation of Giotto's campanile in Florence. Ochs had to burrow 55′ below street level to anchor his presses, while he perched his newsroom and composing operation on the 17th and 16th floors.

For all its wonders, though, the Times Tower's newspapering career was short. By 1913—a scant eight years after the building opened—the paper had outgrown it, had moved to a new annex on 43rd St., and had left the Tower to make its way by renting office space.

If all publishers could not build skyscrapers—Pulitzer Buildings or latterday Chicago Tribune Towers or New York Daily News Buildings—they could at least strive to dignify whatever stake they had in the Fourth Estate. How well they succeeded shows up in city after city today. The aging newspaper building may resemble a bank, a courthouse or an office building. But it almost never shouts "factory" at downtown passers-by.

William Ginsberg, an Austrian-born engineer who has consulted, or done the architecture and engineering, on about 75 newspaper plants since the early thirties, feels that for years publishers closed their eyes to what newspapering actually is—a manufacturing operation.

"When they put up a building," Ginsberg says, "the old way was to treat it just as though it were any other important downtown structure. Then they left it to the newspaper's production people to figure out how to make the publishing operation work."

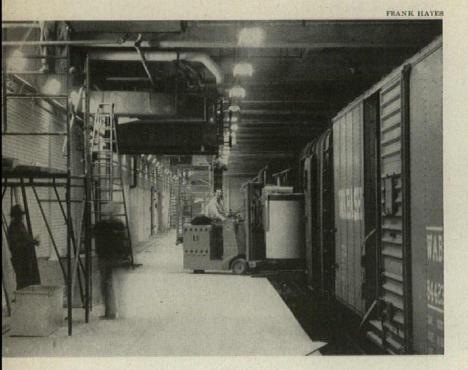
In at least one case, painfully true, the production people arrived too late. A West Virginia publisher, who had succeeded in finishing a new building that could easily have been mistaken for an offspring of the Federal Reserve System. discovered to his embarassment that he had left no space at all for the editorial newsroom. The oversight was hastily corrected; a mezzanine was hung across one side of the open well that was the building's centerpiece. That seemed to solve things. But ever after, no reporter more than 6' tall was able to stand for long at his desk without risking permanent spinal damage for lack of headroom.

Today's factories

Last month, as FORUM looked at new newspaper plants around the country, it found that, whatever papers have tried to be in the past, they are out mainly to be efficient manufacturers today.

Easily the most impressive of these new buildings, and probably the costliest ever built—its price has been estimated at \$15 million—is the plant of the Philadelphia Evening and Sunday Bulletin (photo, p. 130). On a six-acre site, Architects Robert Montgomery Brown and the late George Howe, along with Consultant Ginsberg, laid out a massive "T" of two low-lying blocklike buildings, connected at lobby level.

The crossbar of this "T" is a four-story office building in which the Bulletin goes through almost all of the processes preparatory to printing. (This, incidentally, is the building that was severely damaged in last month's granary explosion.) Behind is a two-story publications building that houses the paper's two 318' press lines, the longest ever built.



Sheer size prevents the *Bulletin* plant from being anything but awesome. But the buildings themselves are shorn of pretence. From copy desk to press room, they are laid out as one giant production line, a spacious and breathtaking factory.

In Camden, N.J., the Courier-Post deserted downtown last July for 66,000 sq. ft. of new plant space in Delaware Township. The building, designed by Louis T. Klauder & Associates, is a single-story, block structure that could be just as easily taken for an electronics factory as it could a newspaper building. It can, in fact, be expanded or converted to other manufacturing operations if the Courier-Post ever decides it has outlived its usefulness.

The Columbia (S.C.) State and Record, two papers sharing a handsome new building by Robert & Co. Associates, have also gone to the outskirts to get nearly three acres of floor space at a cost of \$1½ million (photos, p. 132). The design, again, is horizontal; the plant, two stories high at the front, drops back to a single story behind, except for the superstructure over the pressroom. The complete mechanical department is on the first floor, with work moving in a straight line through composing, stereotyping, engraving, press and finally to mailing.

This same emphasis on streamlined production shows up in other new plants—like those of the Peoria Journal Star (p. 135), the Lorain (Ohio) Journal, the Elgin Courier-News, the Santa Monica Outlook and the Riverside, Calif., Press & Enterprise—and in plans for some of the larger projects still ahead—like those of the Chicago Sun-Times which has broken ground for a \$15 million, nine-story "horizontal skyscraper" by Architects Naess & Mur-

phy (photo, p. 131). Rising on the north bank of the Chicago River, it is the first building in the Fort Dearborn project for rehabilitating the Loop; it will get its newsprint both from a riverside dock and from a rail siding running directly into the plant. With 30 new presses, the Sun-Times will be able to hike its production capacity by more than 50%.

The Chicago Daily News is also building—a five-story, all-glass "greenhouse" to add a new press room to its present plant, as well as a branch printing operation on the northwest side of the city. The News will also put 12 press units into a building it already has on the South Side, will eventually print simultaneously at the three locations to speed distribution throughout the city and suburbs.

The Miami News starts construction this spring on a \$5 million plant, one that will substitute two stories for the 17-story News Tower that has long been a landmark of the southeast coast. Designed by Weed, Russell, Johnson Associates, the new 400' long building will be on a 6\%-acre tract and will be laid out so that all raw materials will enter the building from one end and will then work through progressive stages to the other end.

In Buffalo, the Evening News has just begun work on a 169,000 sq. ft. mechanical building that William Ginsberg & Associates has designed along essentially one-story lines. It will have its own rail siding, a mezzanine mail room that will take papers at the same level they come off the press, deliver them to trucks in an enclosed loading area. Finally, the New York Times, after three expansions of its Annex Building, has said that it is about ready to give up the Times Square opera-

tion. It hasn't announced building plans yet. But it has bought a West Side tract between 62nd St. and 65th St. at a spot that will give it a rail siding. Eventually, it says, it will move its entire facilities out of the jammed-up theater district. The first step: probably a single-story warehouse and mechanical building to be ready in about 2½ years.

Trends for tomorrow

What do these new plants, and some notable other ones of slightly older vintage—the Dallas News, the Bergen Evening Record (photo, p. 131), the Washington Post & Times Herald, the Baltimore Sun papers—say about future newspaper building? Here are some conclusions that seem justified:

▶ Location. Papers no longer feel they have to be on Main Street, in the midst of the downtown swirl. In the smaller cities, and in some big ones, too, there is a definite trek to the fringe where there is room to expand and relief from central-city traffic bottlenecks.

The near impossibility of trucking newsprint through a tangled city hall area was one of the big reasons the Philadelphia Bulletin built where it did—across the Schuylkill River from the city's core. The New York Times, when it moves, will be getting out with much the same thought in mind. Another factor at work, particularly in the smaller cities: the decline of competition. About 94% of the cities with daily papers today have no rival publishers. With less pressure to hit the streets early with editions, an outlying plant becomes even more attractive.

▶ Site. Wherever the land is, the publisher looks for a piece big enough to allow a driveway on at least one side of the build-

Newsprint—getting it, cutting waste in handling it—are big reasons for rebuilding. Siding (far left) is at new Bulletin.

Understreet belt (left) takes newsprint from freight terminal to Akron Beacon-Journal. Plant couldn't build siding.

Track conveyor at Peoria Journal Star moves paper to reel units. Once in position, pasters attach it to end of roll on press.

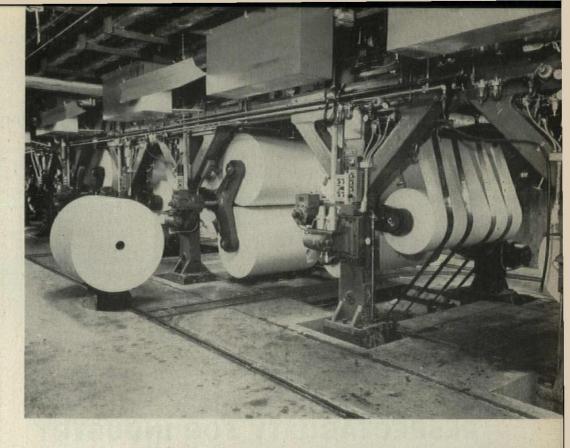
ing, parking and loading space for trucks and cars, and room for future growth. On top of this, he wants space for a rail siding.

David Elwell, vice president of Lockwood Greene Engineers, Inc., which like Ginsberg's firm specializes in newspaper plants, feels that "every publisher's dream of heaven is a site where he can get materials in carload lots." But publishers today are demanding sidings, not just dreaming of them. The Bulletin, for instance, has seen to it that it has an underground one big enough for 14 freight cars (photo above).

▶ Building type. Horizonal designs are hands-down favorities. Their main advantage, of course, is that they make possible a direct flow of work, with a minimum of mechanical fuss and easy communication between departments. Even where publishers are forced to build vertically—as they are in most big cities—the tendency is to squash the buildings as much as possible.

Interior layout. Whether the plant is single- or multistoried, the requirements are the same—assembly line sequence with as short a path as possible between departments. Some key essentials today: paper storage at the level of the reel room, where the newsprint feeds to the presses; editorial and advertising close by to the composing department; stereotyping, where the plates are made for the press, adjacent to the press. Where possible, the presses themselves are placed parallel to the delivery dock.

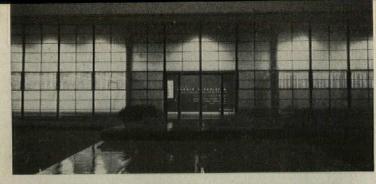
The net effect of all this has been to make newspapering a better manufacturing operation, which after all is what it is. Says William Ginsberg: "It's no different, basically, from making a candy bar."





Good mail rooms like that of Peoria Journal Star (above) can have final paper out within minutes after presses stop. Required items: table conveyors, chutes, tying machines. Highly mechanized mail room of Bergen Evening Record (below) has three tying stations, conveys papers onto trucks with no hand lifting.







DESIGN ATMOSPHERE

The architects' own new office building, in suburban Toronto near three of their clients' factories, is a demonstration of their industrial architecture. The entrance side to the south (left, above) consists of an exposed steel frame and obscure blue glass with a vision strip. The drafting room wall

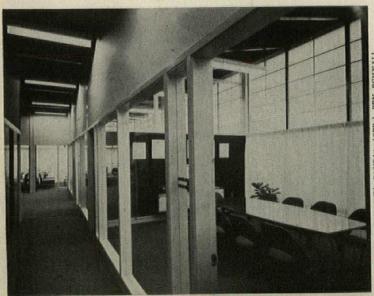
along the rear (left) is all clear glass to give the 120 employees north light and parkland view. Industrial work is done under John C. Parkin, partner in charge of design, and engineering associates Edward R. Wilbee (industrial), J. E. Mews (mechanical) and P. T. Mikluchin (structural).

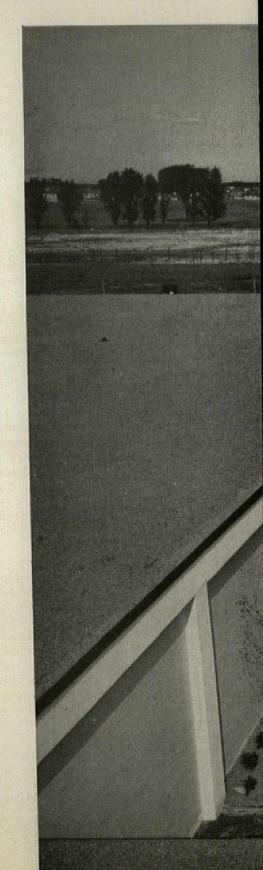
RESPECTABILITY FOR INDUSTRY

From an architect's factorylike office: eight civilized factories

Just across the Canadian border in the suburbs of Toronto and Hamilton, new industry has moved in, washed its face and become a full-fledged member of the community. A surprising number of these new factories and warehouses are quiet and neat enough to be thoroughly welcome near residential areas—and in many cases they are well ahead of the houses in maturity of design. The best of them are by John B. Parkin Associates, one of Canada's biggest and busiest architect-engineer firms. Without sacrificing design or construction quality, Parkin has reduced factory costs to \$5 to \$7.50 per sq. ft. by using stock material sizes, by standardizing details and by keeping detailed cost histories so that even the smallest departures from his typical building systems can be estimated as low and accurate as the most experienced "package" engineering-building firm, Says Parkin: "First you have to convince an industrial client that you can stick to his budget, guarantee sound construction and get it done in a hurry. Only then will he listen to the 'plus factor' of disciplined contemporary design." The following pages show how Parkin gives his low-cost factories valuable extras: coherence, scale, vitality and a handsomely respectable look.

Architect's conference room is near entrance of offices

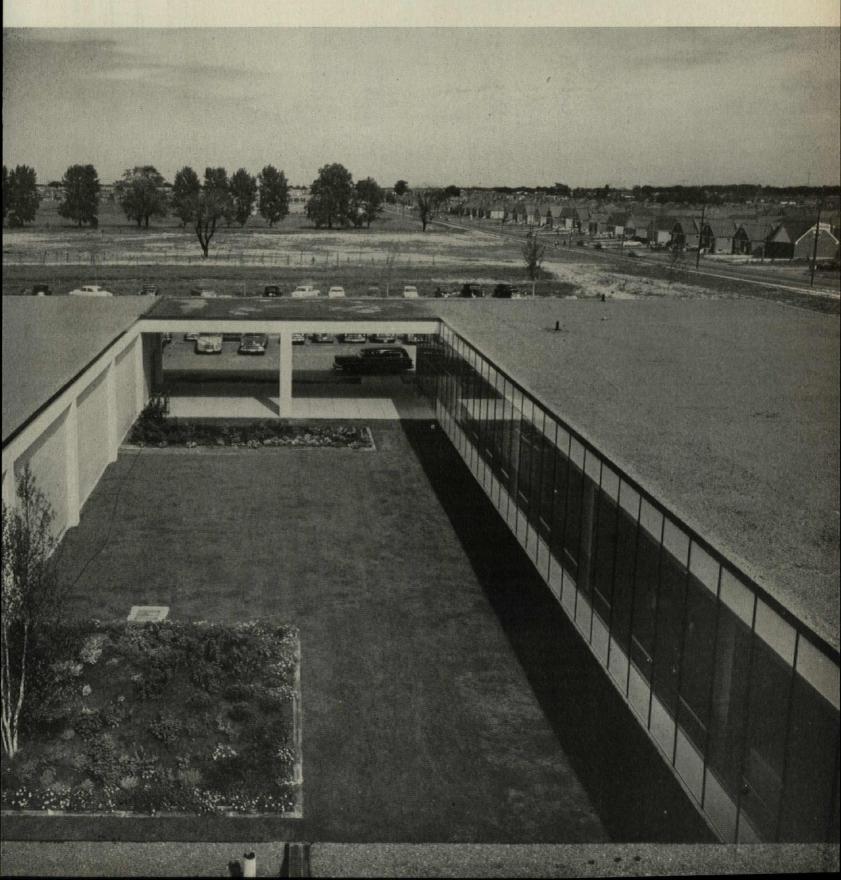


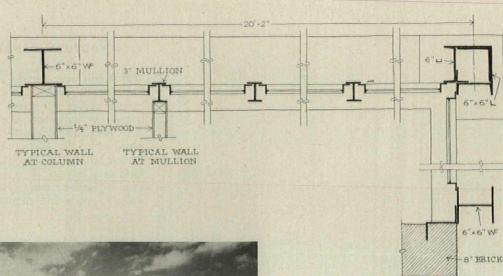


1. A FACTORY GARDEN

Warehouse and service building for Simpson's store sits quietly across the street from houses in suburban Toronto. Air-conditioned employee cafeteria at right looks out on landscaped entrance garden. Cafeteria is part of a larger administration wing, whose walls of glass and enamel set

in slim aluminum sash contrast with the exposed concrete frame of the big warehouse, seen at left. Portico in background gives covered entrance to both wings. Parkin feels the disciplines and esthetics developed in factory design have benefited the firm's nonindustrial work.







2. CLASSIC UNITY

In this plant for Taylor Instrument Co., the factory roof line is carried over to enclose the front offices, for economy and unity of appearance. The entrance lobby is behind a projecting wall of black brick which gives the façade a severe classic symmetry. In the buff brick wall above this, a

panel of copper louvers hides exhaust fans over the low-ceilinged office strip. Copper is repeated in flat panels over the larger factory windows at the sides and rear (bottom photo). Careful design gives the building a neatness and unity not just in front, but all the way 'round toward the neighbors.

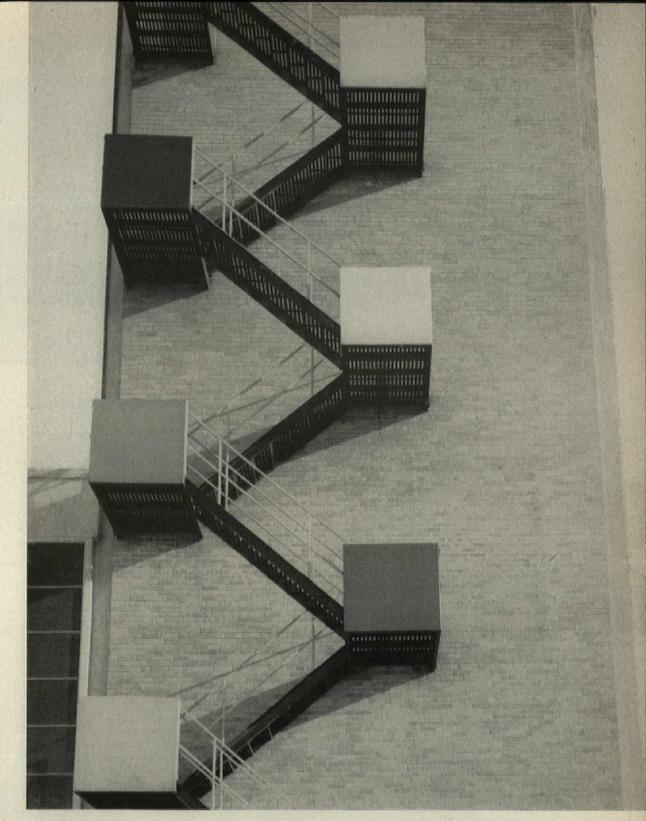
TYPICAL DETAIL

In earlier work Parkin exposed the structure but kept it flush with exterior wall panels and painted it black (photos, left). Gradually, however, the frame has been drawn out of the wall as shown in this detail drawing of the architects' own office building.

3. WHITE STEEL

As their industrial detailing has evolved, the architects have not only expressed structure more strongly on the exterior, but have painted it white to heighten the play of light and shadow across façades that are necessarily long and repetitive. Below is their trim, well-landscaped factory for Mills Steel, a manufacturer of steel scaffolding in Hamilton, Ontario.

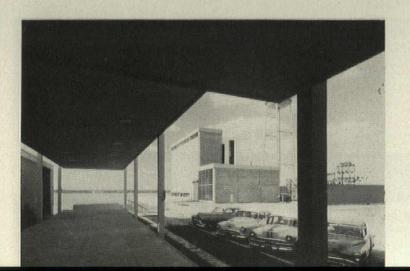


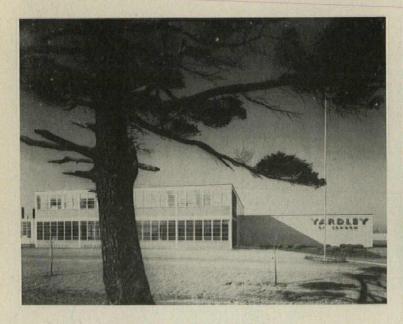


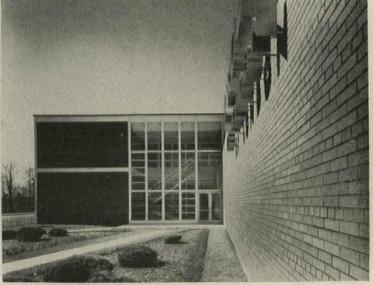
PHOTOS: HUGH ROBERTSON, A.R P.S., PANDA

4. STAIR SCULPTURE

A fire escape from above the coal hoppers of this power plant is lightly hung on the massive brick face of its tower. Porcelain-enameled panels of different colors at each landing advance as bright accents, turning a workaday building into a striking landmark on a road outside Toronto. In the photo below, the opposite side of the coal tower with its power house, substation and water tank is seen from the porch of a huge warehouse. An office building and photoengraving-electrotyping plant complete this industrial development, used by Simpson-Sears for its distribution of mail-order goods.

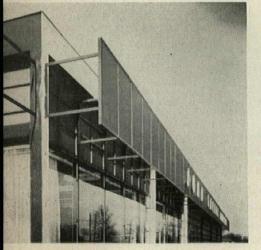






5. POSITIVE-NEGATIVE

For better work flow this cosmetics factory was laid out as a one-story square with a twostory section that emerges as an entrance and office block at one side. The factory structure is enclosed in whitish brick with dark trim. The office portion "reads" like a photonegative of this scheme: dark brick, exposed white structure as trim. A glass stairwell boldly marks the entrance.

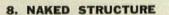


6. SUNSHADE-SIGNBOARD

On the south side of the small canvas-goods factory of John Leckie, Ltd. black steel framework holds panels of blue heatabsorbent glass over the upper part of show and office windows. Projecting 3' from the wall, this sunshade doubles as a backdrop for the white letters of the company's sign.

7. ENGINE PAVILION

Even workshops that rebuild old automobile engines can dress like gentlemen. Three sections of this façade-window, entrance and service doors-are organized within themselves and unified by a slim portico that is an outdoor projection of the building's structure. Varicolored panels back up a trademark designed by the architects.



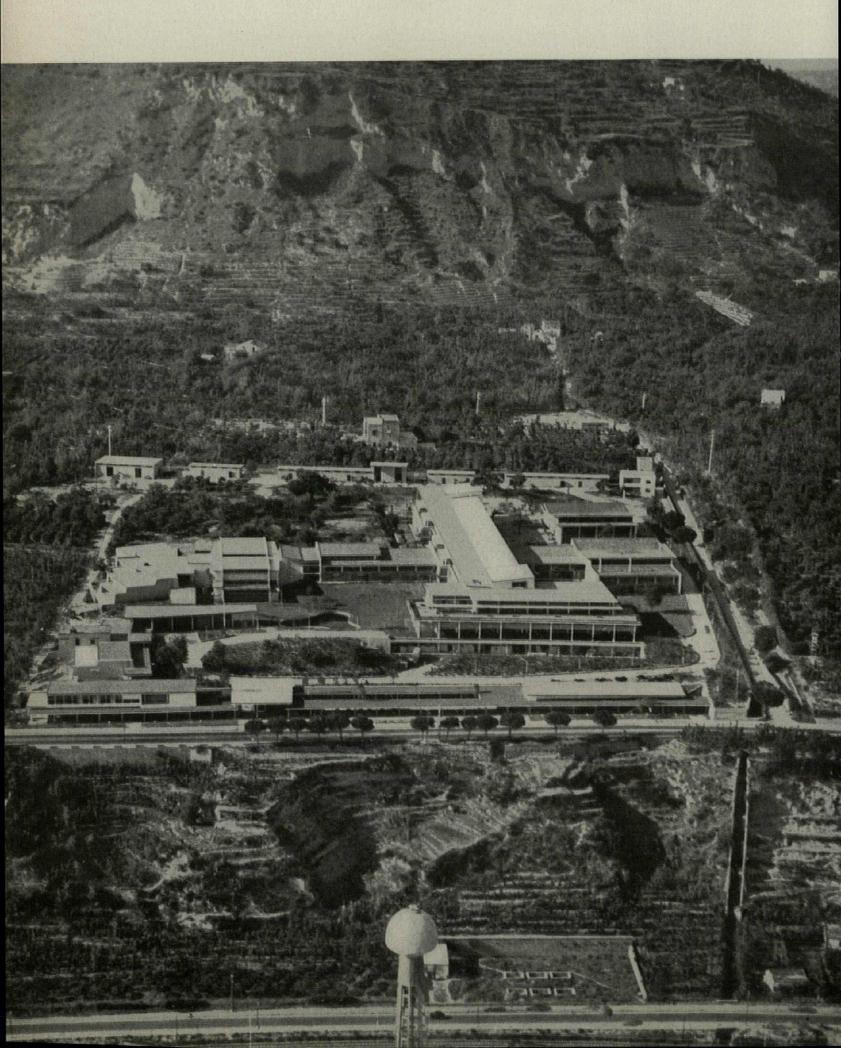
This new plant for Ortho Pharmaceutical is the most strikingly articulate of Parkin's industrial buildings. Here office and factory are two separate but linked masses clearly expressed as two different functions. The factory's concrete frame is clothed in projecting panels of white glazed brick separated by a strip window, giving the onestory building snug horizontal lines. In the two-story office building the rough concrete frame is stark naked. An open ground floor provides a drivethrough and sheltered parking behind a fence. Upstairs, a delicately contrasting skin of glass and porcelain is set back under the roof.







HUMANISM IN FACTORY DESIGN



Olivetti's new plant in Italy has the amenities and appearance of a country school

Sited on a campus below a rocky Italian prominence, Mount Campiglioni, the Olivetti Company's Pozzuoli factory, makes the US term, industrial park, come alive.

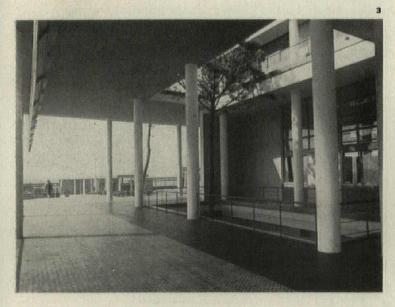
In the US, industrial parks still generally signify more telephone poles and power lines than trees. But Olivetti's architect, Luigi Cosenze, clung to planting, natural contours and long views in a stubbornly scenic way which makes the ample windowing in the factory really significant. There is almost as much emphasis on glazing and daylighting here as in modern US schools. And when the workman raises his eyes from the precise work of making and testing calculators, he has a pleasant view outdoors to the hills or across the gulf to Capri and Ischia. The terrain is rough; the architecture is fine.

Contradicting the usual loft plan of factories, this one is functionally divided into separate buildings or wings for production, heat treating, social services, warehouse, quarters, power station, administration and showroom. Specifications in the program: all work departments should be open toward nature, equidistant from inspection and sorting stations, and easy to enlarge.

A variety of shading devices wards off the hot summer sun and enlivens the design.







OLIVETTI CO. FACTORY AND OFFICES
Pozzuoli, Italy
ARCHITECT: Luigi Cosenze

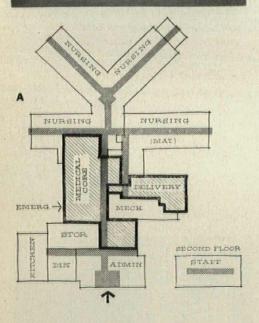
- Interior approach drive to main entrance and executive wing. Left, factory workers' entrance.
- Production wing; dressing rooms and locker rooms project at left.
- 3. Detail of patio
- 4. Wide-aisled, daylighted assembly line



HOW TO BUILD MORE SPACE

INTO A HOSPITAL

and how its appearance
might have been improved
without unbalancing the budget



SINGLE STORY PLAN is the hospital's greatest single economy; it makes most of its other major economies possible. (Small second story shown in photo contains only staff and volunteer rooms, stair.) Hospital has 65 beds with core sized for 100. Plan, shown in diagrammatic form (A) works satisfactorily but

This hospital, unlike most, was not designed as if hospital construction were an isolated problem. Its highly knowledgeable and hard-working trustees and Architect James B. Bell & Associates drew upon all manner of ideas used in other building types but apparently never before applied to hospitals. The reward for their enterprise: Riverside Hospital in Boonton, N.J., is a 65-bed hospital on a 100- to 125-bed chassis costing only \$815,919 including fees and Groups I, II and III equipment; \$20.40 per sq. ft.

Where is the catch—the deplorable hidden skimping? There is none; this is not jerry-building. So far as maintenance qualities are concerned, Riverside is superior to most. Its double-glazed, screened, removable (for washing) windows are aluminum; its interior finishes are permanent; its provisions for sound and temperature insulation and mechanical access are splendid. Mechanical facilities—toilet for every room, radiant ceiling heating with individual controls in each bedroom, full air conditioning in the core—are top grade.

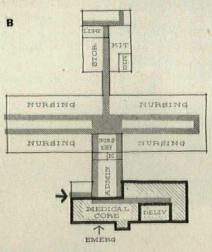
The apparent catch to Riverside's approach—the appearance of the hospital, which is not good—is not inherent in its economies. Its visual clumsiness results largely from lack of clarity in the plan. This plan works well enough and solves many problems nicely. But had it been thought through further, to the point where its amorphous "stuffing" and many

jogs were crystalized out, the result would not only be more appealing but possibly more economical. The jogs, so cheapening in appearance, are probably the hospitals' only extravagance. Another major visual flaw is the insensitive combination of red brick with block stuccoed a namby-pamby green.

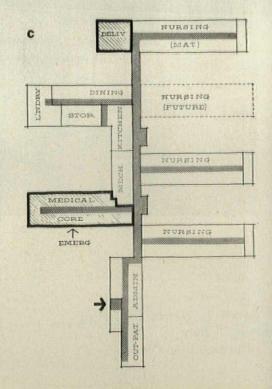
But even with such serious faults, Riverside is surprisingly pleasant to visit and, according to the evidence, to work in. The reason is space—enough space. In the early planning stages, when it was being approached in the orthodox way, Riverside went through the usual process of "ideal" preliminaries pared down to meet costs. Then, when the trustees revised the whole concept of how to construct it, costs proved low enough for them to get everything in the way of space they originally wanted. There is ample elbow room -no inch-pinching-in every work space; plentiful storage with a comfortable margin over; roomy, pleasant shops; a polite spacing between dining tables; locker-lounges and workroom for volunteers; such almost-vanished amenities as a really generous flower-arranging cubicle with sink, counters and tiers of shelving (hugely appreciated by volunteers); and an outside, window position for virtually every bed.

Here are the principal economies:

The one-story plan eliminates elevators, and duplicate circulation. (The enormous

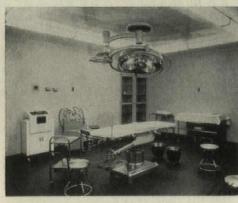


lacks clarity inside and yields a "bumpy" exterior. For comparison, two better approaches to the single-story plan are diagrammed: 50-bed St. Mary's Parish Hospital in Morgan City, La., by Architects Curtis & Davis (B) and 75-bed typestudy by USPHS (C).



inherent economy of the one-story plan has been well analyzed by Architects Isadore and Zachary Rosenfield—AF, Nov. '55).

- ▶ The concrete slab on grade is laid over polyethyline sheeting, most commonly used for pipe sheathing and oceanic cable and familiar in homebuilding where 0.004" thickness is usual. Riverside would probably have been safe with 0.006" sheet but leaned over backward and used 0.01" thickness. As a hedge against cold, 2" of glass fiber went under the outermost 3' of slab. The sheeting cost less than roofing paper, saved almost \$10,000. There has been no trouble with flooring or with damp or cold during a wet fall and cold winter.
- ▶ The lightweight "sheet steel" framing (see photo) was permitted by the one-story structure and by use of lightweight roofing planks over light structural insulating planks. It in turn permitted light footings. This is a factory construction system. Walls are bearing, with mastic sealer to protect framing, and aluminum foil insulation and metal lath.
- There are no hung ceilings. Patients' rooms are plastered with radiant coils embedded (which eliminated perimeter trenching). All other ceilings are 2' squares of glass fiber, set between joists. For appearance, transverse T's are inserted between squares. Access to pipe runs and ducts at any point above simply means pushing out a square.
- ▶ All walls are of sand finish plaster, sprayed with hot vinyl. This cost more than paint (and it took 1,000 gal.) but it saved a finish plaster coat, eliminated all wainscoting and presumably will never need redoing. The wall surface is rough but simple to wash.



OPERATING ROOMS have same wall finish used uniformly throughout building; hot vinyl spray 0.005" thick on rough plaster brown coat. Only maintenance expected for life of building; washing.



CEILINGS throughout, except in bedrooms, are acoustic slabs of glass fiber, dropped between joists at about one-third cost of usual hung ceiling. View shows nursery and maternity nursing station.

- Most hardware is residential; door closers are inexpensive spring devices which one of the trustees noticed worked well in the shipping room at his factory. Whether the residential hardware will hold up, only time will tell; it was adopted after a conference in which everyone confessed he had never heard of a prime coated butt hinge wearing out.
- A 100 kw standby generator is used instead of a 35 kw standby. This sounds as if it should cost more but the 100 kw unit was \$7,500 against \$25,000 for the smaller unit. The reason: the big unit can assume the entire hospital load in emergency and can be operated with simple manual changeover. The smaller unit involves expensive complications because changeover must be selective and automatic. Big hospitals, using many times the power load of Riverside, cannot economically duplicate their total requirements for emergency, and small hospitals seem to have adopted the same policy by analogy. The manual changeover is calculated to take a maximum of 20 seconds after power failure, but in case of flood or storm, Riverside will not wait for failure, will switch over in anticipation.

Riverside was unable to get federal aid because New Jersey's share had been spoken for years ahead. The trustees turned this handicap into an opportunity to experiment. Now that the experiments are panning out, the hospital has been approved by originally skeptical state agencies.

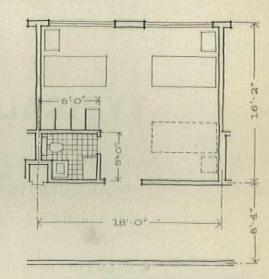
Architects: James B. Bell & Associates. Engineers: Seelye, Stevenson, Value & Knecht (structural) and Slocum & Fuller. Foundation consultant: Porter, Urquehart & Bevin. Hospital consultant: Otis Auer. Contractor: Frank Briscoe Co.



STRUCTURAL FRAME is light steel system formed from sheet stock. Like foundation (see text) frame had been well tested in other building types but never before applied to hospital construction.



BEDROOMS reaped excellent bonus from low-cost space. Almost all are two-bed, but each bed has its own window position. Space for third bed (dotted in plan) raises 65-bed capacity to 90 in emergency.







TYPICAL DOWNTOWN TRANSFORMED

THE ARCHITECTS who designed today's most successful shopping center have come up with a plan for bringing similar success to the dense heart of the city

RESULT: here is the long-dreamed-of pedestrian-island downtown in a version so thoroughly realistic that Fort Worth is already at work on achieving it

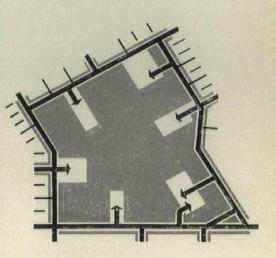
SURPRISE: the cost is lower, the changes are fewer, the plan less authoritarian than the alternative of a car-infested downtown



PLANNERS: Victor Gruen & Associates, architects
Edgardo Contini, associate in charge
Ben H. Southland, chief of planning
R. Simpson, B. Zwicker, project leaders

This plan for downtown Fort Worth is so interesting in itself, so brilliant as a sheer planning solution, that three of its less obvious points may be overlooked. They should be pondered along with the plan.

- ▶ The way the traffic problem was *posed*: this seems to be the first city for which actual dimensions of the problem have been calculated and faced (p. 148). The method shows up usual traffic "planning" for what it is—pursuit of expedients to solve an unmeasured problem.
- ▶ The way the planner's part is conceived: the plan provides a strong skeleton (right); fleshing-out is left to the city's users. Remarkably little of what exists is interfered with. The plan respects the variety of healthy city growth, and provides for it.
- ▶ The way the plan was presented: there was no attempt to force it over or finagle it backstage, no mincing the fact that the citizens must assume initiative. (They have.) Both Architect Gruen and his remarkable client (p. 155) resisted the temptation of confusing their wishes with the will of the citizenry—one reason this "dream scheme" is likely to come true.



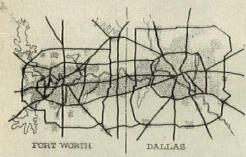
Pedestrian island, with access road and six garages.

architectural FORUM / May 1956

FORT WORTH STAR TELEGRAM



Old Fort Worth had traffic melee too. Modern photo (opp.) shows traffic "progress" to date.



Rivalry between Fort Worth and Dallas, 30 mi, apart, has been going heavily in Dallas's favor; without plan for saving downtown, Fort Worth would inevitably become backwater satellite. Sample reaction to Gruen plan from Dallas newspaper: "Pure inspiration. It can make Fort Worth a unique town. . . . If there is any imitation left to be done, Dallas and Houston and El Paso will have to get at it. . . . This thing Fort Worth is about to do will simply compel [us] to quit planning for bigness and count the cost of greatness. . . . Dallas is figuring what to do with cars so we can have more cars. And we wind up with a rat race." The Gruen plan "unjets the jet age and allows us to be people again."

THE UNDERLYING QUESTION:

how much space does X number of cars take?

X represents the number of cars Fort Worth's downtown will need to accommodate in 1970 if the city is to get its rightful share of downtown trade from a tributary population of 1.2 million persons projected for that date. Unless business is to be lost to the downtowns of Dallas and Houston (a process now occurring) Fort Worth must have 9.6 million sq. ft. of retail floor space by that time, seemingly a perfectly feasible allotment within the present mile-square downtown.

But traffic figures based on shopping-center experience, corrected to allow for city mass transit, indicate that if a downtown of this much retail floor area is to be prosperous, it must permit access to 152,000 cars a day. About 20% of a day's traffic occurs in the peak hour. Ergo: the critical X figure is 30,000 cars.

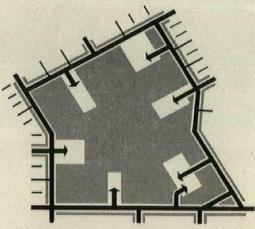
Halted bumper-to-bumper, 30,000 cars occupy 6 million sq. ft.; moving at 15 mph they occupy 12 million sq. ft. Add 60-second traffic lights (1.5 million sq. ft.) and poor drivers and general confusion (1.3 million sq. ft. or 20%), and the total is somewhere over 16 million sq. ft. for downtown streets alone, assuming every car finds off-street parking.

At present Fort Worth has 5 million sq. ft. of downtown streets.

These are frightening figures. (They would be less frightening for a city less ambitious of growth.) For Fort Worth they seem to mean that either: 1) the downtown must be opened up and stretched apart at fabulous cost in construction and convenience; or 2) the downtown cannot reach its trade area potential; or 3) the cars must be taken out. The first possibility is impractical and the second unpalatable.

Working on the third possibility, Gruen's office tried all manner of superblocks and express crossways, found that any system requiring intersections pushed that street area figure way up again and tore the existing downtown open, ruining too much existing value. The only answer seemed to be a one-way, multilaned circle around the downtown, with no vehicular streets inside. But a pedestrian island this large seemed nonsensical. Walking distances were too great.

The answer, as the diagram shows, came along with the answer to "Where would the parking go?" The island is penetrated with six long parking structures, equipped with escalators and moving sidewalks.

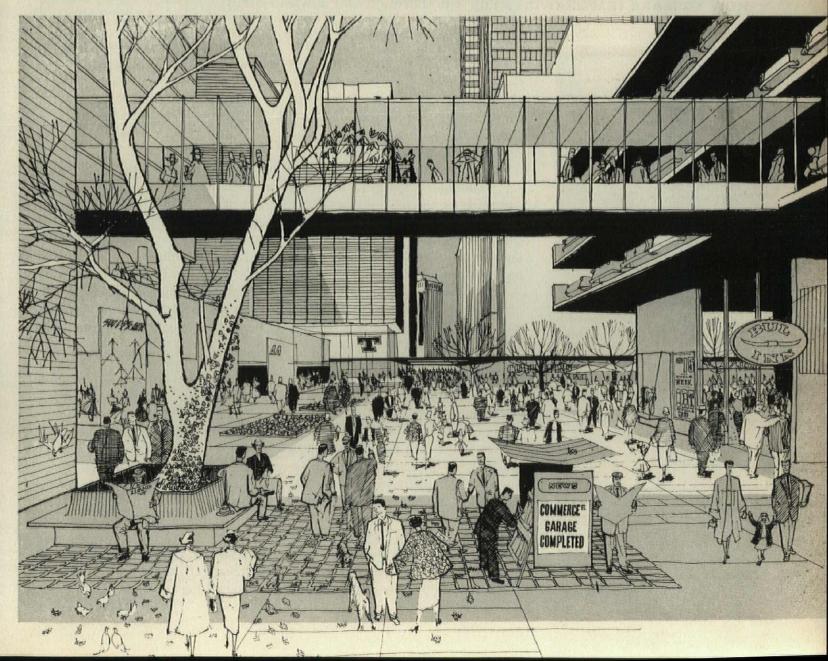


Going back to those figures, why does Fort Worth think that by 1970, some 152,000 individuals or families a day will want to come to their downtown anyway? At present Fort Worth has less than two-thirds the retail trade space (3.8 million sq. ft.) it should to serve the present tributary population, much of which prefers to trade farther away. Why provide for what is really a hope? Fort Worth is betting now that if its downtown becomes prettiest and pleasantest, a pedestrian's delight, and easy to park in to boot, those 152,000 cars are not going to a more distant city. It seems a sound bet.



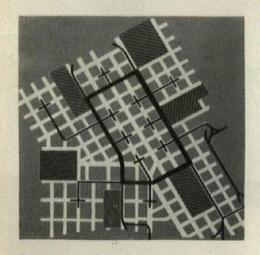
Transformation: photo shows street as it looks now; sketch shows same street as part of pedestrian island. Garage at right is at center of downtown's east side (diagram opp.). View is looking west. Bridge

in foreground links garage to existing hotel. Four-story garages would finally park 10,000 cars each, but would begin as surface parking, grow with the city. This would be first area changed (see p. 154).

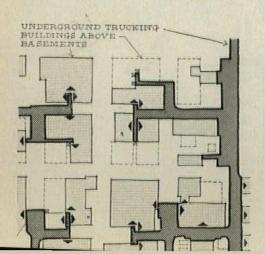




HOW TO MAKE IT WORK: the study was thorough and down-to-earth



Deliveries and service will be sub-surface along one-way tunnel loop with spurs servicing every block; detail is shown below. Feeder routes connect loop with beltline highway to north, railroad and warehousing to south, freight yards to east. All garages are connected for parcel delivery and future heliport freight.



While the traffic study was going forward schematically, a team of Gruen planners surveyed every single building in Fort Worth's downtown, noting use, height, structure, age, condition. Thus guided, the plan places garages and roads for minimum destruction. Not a single major building is touched, with the exception of the old courthouse, already slated for replacement. By far the most land to be condemned is unbuilt (frequently parking) or has no more than two-story structures.

Deliveries (also taxis to hotels and shoppers' parcels to garages) will move by underground tunnel. Offhand, this might seem a formidable expense but financial studies produced surprises:

Item: the tunnel is estimated to cost about \$20 million.

Item: exclusion of vehicles will reduce street area from 5 million to 3.5 million sq. ft. (much of the reduction is in delivery alleys). The 1.5 million sq. ft. released to productive use is worth \$30 to \$40 million at current prices. Who gets the land is a matter for negotiation between city and building owners.

Item: building owners will have

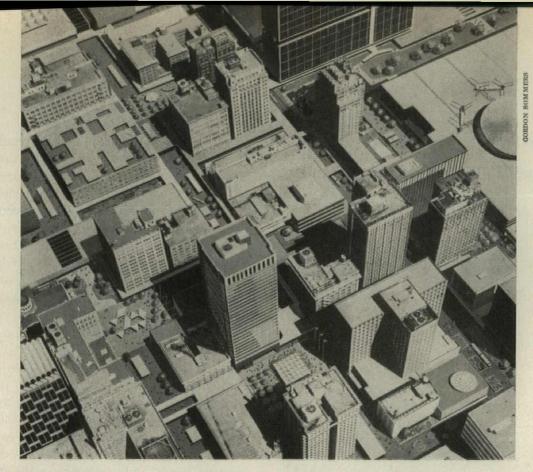
to finance basements and underpinnings if they lack them.

Item: off-street ground space now devoted to shipping exceeds in value the cost of changes.

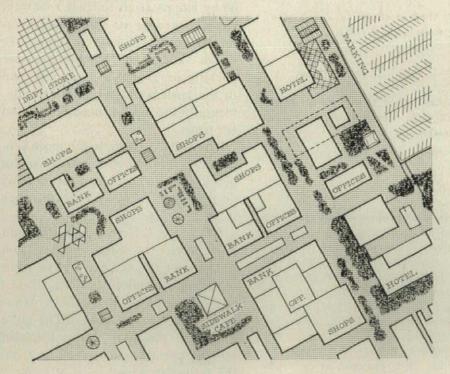
Utility relocation will cost money but by-product will be permanent access to conduits, no longer buried in earth along the tunnel course. Gruen's original client and first sponsor of the plan happens to be president of the largest utility.

Before deciding on a tunnel, Gruen's office carefully studied systems of "post-officing" all incoming deliveries at a central depot. Conclusion: while this may be most feasible for a city where the underground is crammed, it was rejected here as more expensive in operation, as not lending itself well to transformation of the downtown by stages, and—in its ideal form of subsurface conveyors—costing almost as much as the full trailer-truck tunnel.

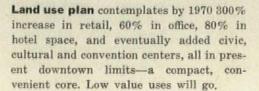
Physically, the plan owes much to shopping-center experience. But perhaps its biggest debt is to the shopping center type of study—the close analysis of the plan's effect on the interests of everyone involved. This is something new for city planning.

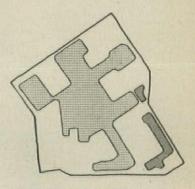


Close-up from air (left), retouched (right) shows how little the existing downtown is disturbed. Vast change is from change in street use. Tallest building now exists; start of steelwork can be seen (left).

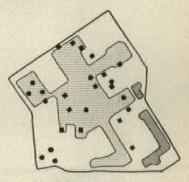


Plan shows portion of downtown photographed above. Gruen suggests variety of walkway treatment, sprinkled with planting, kiosks, little shops ("the salt and pepper of a city") and covered malls where co-operating merchants choose.



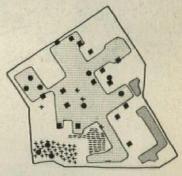


RETAIL MARKETING
WHOLESALE MARKETING

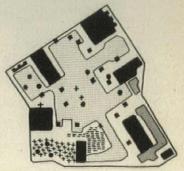


• OFFICE SPACE

• HOTEL FACILITIES



+ CULTURAL & ENTERTAINMENT

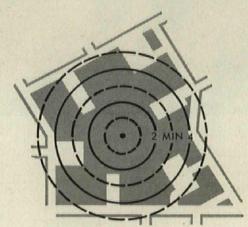


PARKING, BUS TERMINALS & AUTOMOTIVE SERVICES

architectural FORUM / May 1956

INSIDE THE MILE-SQUARE ISLAND:

no building is more than a three-minute walk from bus, taxi and parking

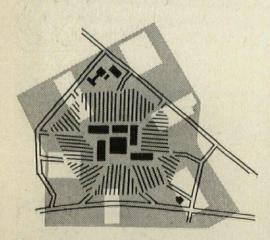


Walking time is shown in sketch above. Minute's walk is about 300'.



< !!!!

Electric carts, like those used at world's fairs, will carry weary, laden, infirm and lazy, probably for a nickel.



Comparison of distances in Fort Worth downtown with Northland Shopping Center (Detroit) is shown by superimposition, left. In some cities, traffic islands are already forcing even longer pedestrian walks than Fort Worth's maximum! For instance, around a New York midtown traffic island, Columbus Circle, pedestrians must now detour 700' to reach a point 440' away. Consider the street furniture accompanying that example of a traffic island: 12 big "Walk" and "Don't Walk" signs; four overhead signs, "Pedestrians Keep Out"; six signs, "Pedestrians Use Crosswalks"; new three-color signal lights; networks of steel pipe on stanchions to bar pedestrians. Talk of city esthetics is futile under such conditions. In Fort Worth's pedestrian island, with the pig out of the parlor, street esthetics are no longer an academic subject.

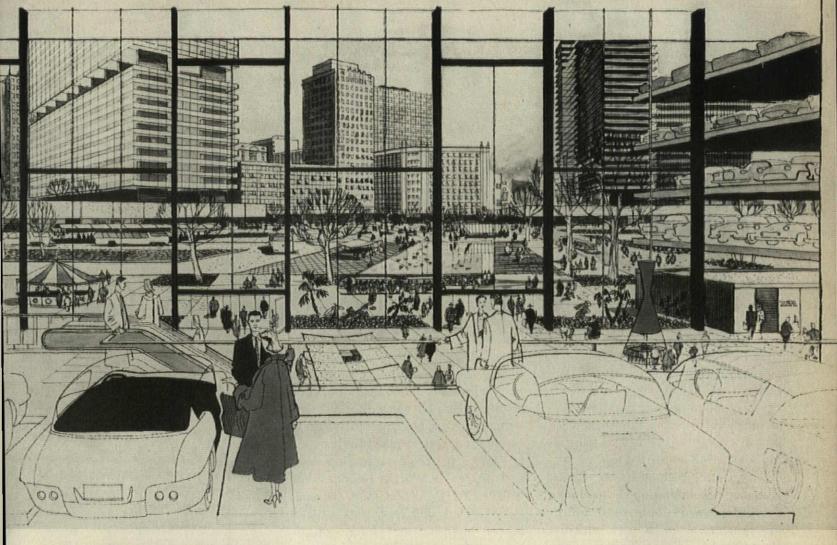
This remarkable feat of pedestrian logistics is made possible by the very ingeniously conceived garage and terminal penetrations into the interior. Farthest distance between any building and the nearest parking penetration is about 600'. This is about the same distance as Fifth to Sixth Aves. in Manhattan; or about the same as from center stores to center part of the parking lot at Northland, Detroit's fabulously successful shopping center, also designed by Gruen & Associates (AF, June '54). It is fair to consider the walk in Fort Worth as beginning at the inner face of the garage because liberally placed escalators will carry passengers between floors, and a first-floor interior moving sidewalk will carry them to the garage front.

The six garages will hold an average of 10,000 cars each when built to their full four floors. Access will be by ramps from the belt roadway. Gruen foresees no rush-hour jamups. "We know how to empty or fill a 10,000-car shopping-center parking lot from off the main road in the rush hour and this is fundamentally the same problem, repeated six times."

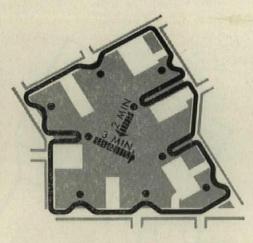
The belt roadway is far more economical than downtown encircling belt highways now being constructed or projected in other cities because it is a surface road.

Of course the whole system could bog down if access roads from throughout the tributary area were not adequate and well placed. "There has already been excellent planning here," says Gruen. "The state highway program is a splendid scheme of expressway feeding from the tributary area."

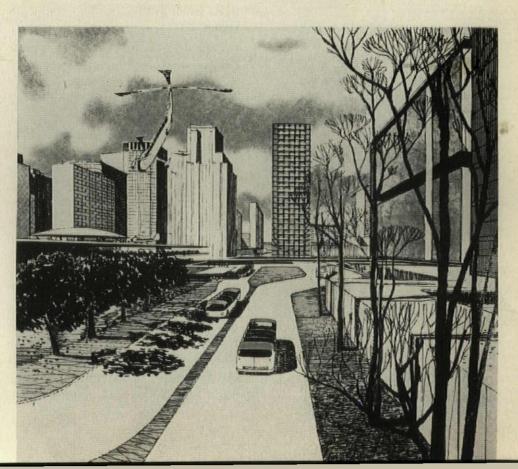
Because downtown and regional planning must work closely together not only in roads but in many matters, if Fort Worth's potential is to be realized, one of the first items on Fort Worth's agenda must be formation of an effective city-county planning commission.

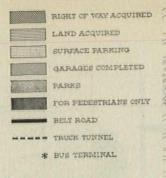


Garages will probably be built by city, leased to operators; they will be selfliquidating. View here is from west garage, across existing park.



Buses will make stops along periphery, penetrate at three points. Loop sketched at right is alongside center-east garage. Bus company president says: "The scheme makes possible the kind of public transportation people will support. I will do everything I can to promote the plan!"—a reaction typical of city's businessmen.





PROGRESS IN A MONTH:

Fort Worth is a fast town on the draw

In most cities, plans far less ambitious or imaginative than this are kicked around for years with progress, if any, measurable in millimeters. Not so in Forth Worth. The proposal was presented in mid-March. One month later a planning committee, formed by 20 leading citizens-bank presidents, retailers, large property owners, newspaper publishers-had been joined with the city planning commission into an official body; subcommittees were at work to get legislation authorizing a parking authority and a citycounty planning commission; Gruen had been commissioned to make detailed garage studies and a firm of engineers hired to work with the Gruen firm on cost estimates of the

WACANT LAND

1 & 2 STORIES

3 STORIES

4,5 & 6 STORIES

Building map indicates relatively small amount of destruction entailed for centereast garage and belt-line section. Most parts of garage and belt system entail still less.

belt road, land acquisition and garages, in preparation for a bond issue proposal. The committee plans to expand its membership to 300, with work for all.

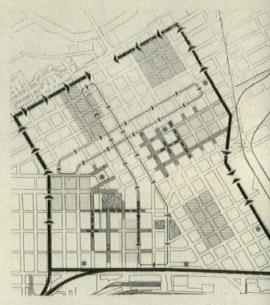
The committee thinks that increased land valuations, not a tax rise, will pay for the belt highway, an opinion in which the city tax attorney concurs. The scheme was planned so it could be done in stages taking about 15 years, but present temper is to work for much faster completion. Gruen plans to disqualify his firm from accepting any private Fort Worth commissions, because he thinks private commissions would not mix well with a master-planning and design-consultant role, and would work against the variety of architectural concept so essential to a lively city.

Public enthusiasm, backing and hard work are no accident. They are the direct result of not underestimating the public. Gruen, Associate Contini and their original client, J. B. Thomas, explained the plan at a series of meetings in a fashion that would do a university course proud. Tens of thousands of other Fort Worth citizens have already had the scheme explained to them at the Home Show or in slide-tape talks supplied by the committee. The newspapers have been model instruments of education, presenting all aspects of the scheme accurately and interestingly in article after article.

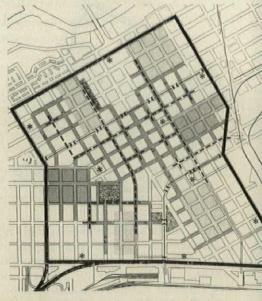
It is actually probable that right now there are more citizens—especially more leading citizens—in Fort Worth who understand what city planning is about than in any other US city—including the largest.



First parking, belt, tunnel building and conversion of streets will likely be in area of highest value; other land acquired meantime.



Successive stages will close off more streets as tunnel is built, with interim interior pattern for vehicular traffic.



Nearing finish, all surface traffic is gone except limited delivery isles pending final tunnel links.

HOW IT ALL STARTED:

a utility man needed to look ahead for his electric business

Texan J. B. Thomas heads an electric company that has doubled its customers and quintupled its generating capacity since the war, in the process spending \$180 million for new construction. Growth like that takes planning, and Thomas has long been accustomed to planning in an unusually creative fashion. A decade ago, for instance, he realized that to plan his plant expenditures in the Snyder-Odessa-Big Spring portion of the 38 West and Northwest Texas counties his company serves, he must know water-the limiting factor on growth in that district. He hired an engineering firm to study the problem. The result was a water resources program adopted by the citizens of the area, which has now solidly rejuvenated a chunk of near-dustbowl and has, of course, caused demands on electric power to burgeon.

When Thomas got around to working on long-term electric-plant planning for the Fort Worth area, he drew an analogy. What was the limiting factor on growth of that metropolitan area? As perspicatiously as if he had been studying cities for years, he put his finger on slow-growing downtown Fort Worth. If downtown withered, if it stopped drawing trade and enterprises, the decay, he reasoned, would infect all Fort Worth and environs.

While pondering this problem and its implications in early '55, Thomas happened to read an article in the *Harvard Business Review* by Architect Victor Gruen. Its subject: saving downtown. The reasoning made so much sense to Thomas that he promptly dispatched a letter to Gru-



en, whom he had never before heard of, asking him to come talk about Fort Worth. During the work that followed, Thomas was a creative and active client.

This spring, about a year after Gruen began his study, the resulting plan for downtown was given by Thomas to the citizens of Fort Worth as a present—to adopt if they wished, to modify if they wished, to discard if they wished. At this point he bowed out, on the sound grounds that a question of this type and magnitude was a public affair. His place as sponsor was promptly taken by an enthusiastic, self-constituted planning committee of leading citizens, which has now been given official status.

If the plan is realized, Thomas explains, his investment in it will be justified many times over by the resulting metropolitan growth—and hence increase in electric business. If it had an apathetic or hostile reception, or enthusiasm were shortlived, his investment would still be worth-while, he explains, because that would tell him Fort Worth was not going to grow much and he could plan accordingly.

Thomas likes to make out that his interest in the plan is just as hard-boiled as this. But if his delight in the scheme, his evident pleasure in the vision of an attractive, clean, gay, magnetic city, did not give him away, his favorite verse, from Kipling, would:

"Whether in toil or fray Under an alien sky, Comfort it is to say 'Of no mean city am I.'" Original client for Fort Worth plan, J. B. Thomas, president of Texas Electric Service Co., left, talks over program with Architect Victor Gruen, center, and Engineer Edgardo Contini, Gruen associate in charge of project.



Leading citizens of Fort Worth study presentation panels and excitedly discuss plan after two hours of explanatory lectures and slides. Whole city appears to be getting involved in pushing the plan through.

TECHNOLOGY

How to create spring weather with indoor air conditioning (right)

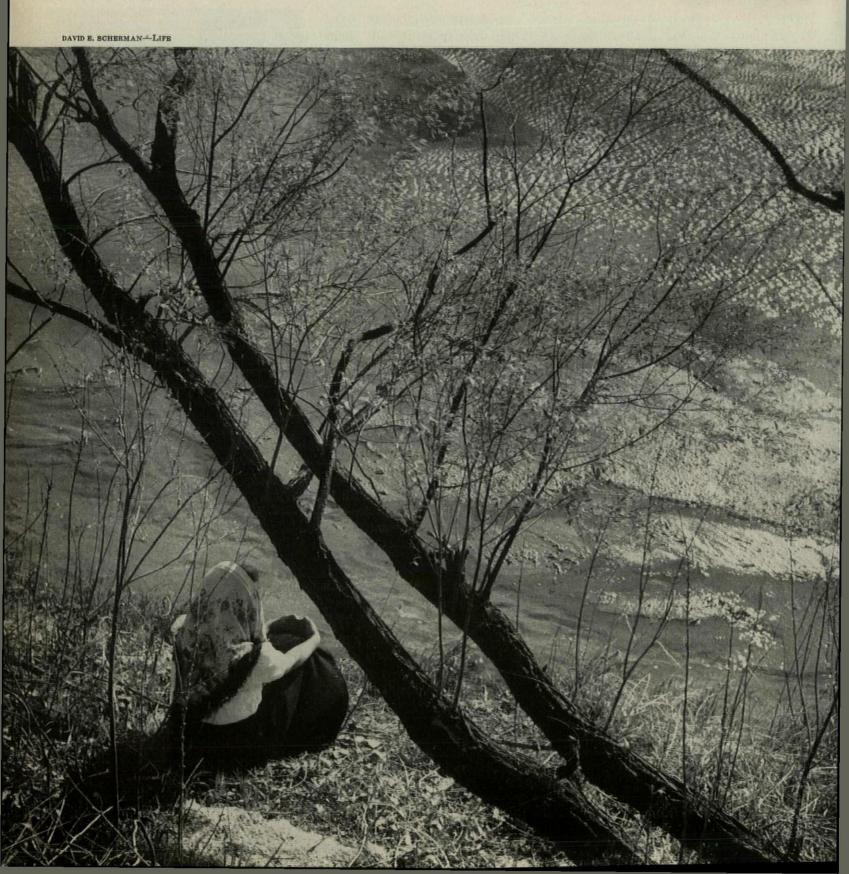
Concrete dome 290' across but only 6" thick (p. 159)

Contilevered space frame of steel for huge Air Force hangar (p. 160)

Slabs lifted six stories high (p. 160)

Technical Notes (p. 162)

SPRING



We can bring spring indoors if we go three simple steps beyond the present-day concept of air conditioning:

- 1. add fresh air ventilation to heating and cooling;
- 2. change the aim of air conditioning from a narrow temperature level to a broader comfort zone;
- 3. supplement the ordinary thermostat with a combined temperaturehumidity control device

ALL YEAR 'ROUND

-BY HENRY WRIGHT

Heating and air conditioning have ad vanced to the point where it is technically possible to have almost any kind of indoor weather we want. And yet, despite this technical virtuosity, the ultimate consumer of indoor space is not notably happier with the result. To be sure, on extremely hot days he breathes an appreciative sigh of relief when, dripping with perspiration, he enters an "air-cooled" office building, restaurant or store. He has begun to buy air-cooling equipment for his personal living space as well. But he tends to regard such equipment not as an adjunct of everyday living, but as an emergency devicethe lesser of two evils. He is rarely so satisfied with artificially maintained indoor conditions that he does not look forward, at least in theory, to the time of year when he can open the windows and live "normally."

This attitude is reflected among architects and other building professionals. Here, it has a special significance, since it means that a considerable simplification of building design is being inhibited—simplification which might take place if we were more disposed to take full advantage

of air conditioning. Should a house that is air conditioned have a sliding living room wall? The architect is inclined to say, "Yes, if the client wants one and can afford it." Need it be planned to lie abreast of cooling breezes? Here, perhaps, he says, "Maybe." Need it, as a matter of fact, have the same kind and number of windows as a house without air conditioning? That "depends." How about air conditioning? That billing to keep out dust and pollen—is this something we hope to benefit from only part of the year?

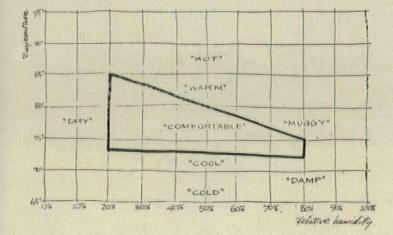
There is no excuse for this halfway acceptance of air conditioning. With very little effort and, when all factors are considered, with very little if any added cost, we can have refreshing, fragrant spring weather inside our buildings all year 'round. All that is needed is a little fresh thinking about three phases of the air-conditioning problem.

1. The need for fresh air

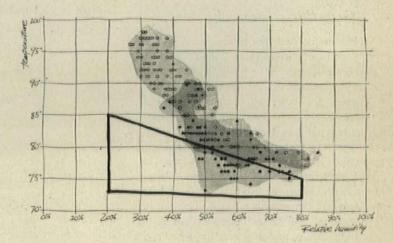
The question of attitudes toward air conditioning is really one of the central design questions of the midcentury. Its resolution will more surely and visibly affect architectural trends during the next 20 or 30 years than any amount of abstract philosophizing, since air conditioning works two ways: it not only relieves the designer of old responsibilities; it poses new ones. And the question must be resolved, first of all, in terms of what people really want.

People want to open windows . . .

The question of what is wanted can be studied by borrowing an approach sometimes used in "selling" modern architecture for schools. To do so, some school architects have been known to declare: "If we could just hold classes outside, under a big tree in fine weather, then we would have the ideal classroom-no walls, plenty of light, lots of ventilation, and so on-everything we need to create a good learning situation." Despite picayune objections which will occur to the more wary, this conception has validity. Its validity lies in the degree to which it approximates a statement of the optimal environmental conditions for teaching. In a benign climate, Socrates, Plato and Diogenes did remarkably well under such circumstances.



COMFORT ZONE for sedentary activity. Lower limit depends almost entirely on temperature, upper limit on temperature-humidity combination. Within comfort zone all temperature-humidity combinations are equally satisfactory, except that there is more "leeway" for physical activity at left-hand portion of zone than at right. Check this chart against your own reactions to pleasant spring weather.



PORTRAIT OF A HOT SPELL—Longest in New York City's history. Black dots represent hourly nighttime temperature-humidity readings, open circles daytime readings. During eight-day period, 97.3% of the daytime hours were outside comfort zone; 62.2% of the nighttime hours were uncomfortably hot. Maximum temperature was 98° at 31% relative humidity; maximum humidity, 85% at 79°.

But it was Diogenes who, when Alexander as an appreciative student offered to grant any request he might make, asked him please to step to one side and stop blocking the sun, became the first historical personage to place a high value on the warming effect of solar radiation.

The "classroom under a tree" is the furthest extension of the open window idea. And open windows-or their mechanical equivalent-have been shown to be a matter of prime necessity in school classrooms even in very cold weather, to prevent overheating. But a simple fan and damper arrangement known as the unit ventilator has been found so much superior to actually opening the windows that its use in many parts of the country is almost universal. In a very real sense, the unit ventilator is an automatic window opener of the utmost controllability and sensitivity. It supplies the real need, which is for outdoor air for winter cooling -a universal problem in crowded roomsand in supplying it, seems to have overcome any incipient tendencies toward claustrophobia on the part of both teachers and pupils.

In nonair-conditioned schools, however, it is erroneous to suppose that unit ventilators eliminate the need for operable windows, as some architects have made the mistake of assuming. Unit ventilators, as normally applied to school classrooms, are capable of supplying the needed quantity of air for cooling, odor and humidity control in cool or cold weather, but not when outdoor temperatures rise above the 60° mark. Thus, they exemplify a form of mechanical ventilation capable of "opening the window," but of opening it only part way. And, virtually all air-conditoining systems are even less capable of supplying the amount of outdoor air needed for the "natural" cooling of modern buildings in mildly cool weather, and must rely instead on refrigeration to accomplish this.

... they criticize air conditioning ...

This simple fact lies behind most of the complaints of "artificiality" made against air conditioning as presently practiced. Every occupant of a "sealed building" (literally sealed, or sealed by management ukase) is condemned to what the air-conditioning art has to offer-which is none too perfect-just when air conditioning's greatest competitor, Mother Nature, is outdoing herself. That is, he must be content with whatever ability to introduce outdoor air the engineer has designed into the system, the control temperature it is set to maintain, and any mustiness or "coil odor" it may generate. If he takes a stroll in the park during his lunch hour, he may find the contrast when he gets back to his office unfortunate. He may even experience a desire to open a window. And if he admits any such subversive urge, he is liable to be accused, usually in absentia, of claustrophobia!

The householder lucky enough to own a room cooler or central air conditioner need not lay himself open to such accusations, because it never occurs to him or anyone else that he should operate his cooling equipment when it is perfectly comfortable outside, and when merely opening the windows makes it equally comfortable—and fragrant—indoors as well. And both he and our hypothetical office worker are happy to ignore any defects in the airconditioned environment (other than its not being cool enough) as soon as the out-of-doors gets really hot.

. . . and thus suggest an obvious solution . . .

Does this, then, dispose of the "sealed building" concept? To assume that it does is to assume that mechanical ventilating equipment is inherently incapable of accomplishing what we accomplish when we open a window. This, of course, is ridiculous. A year or two back, in the course of testing an air-conditioning system in a research house at the University of Illinois, investigators found that if the system was turned off every evening at about 9 P.M., and the windows opened wide, it cost only about half as much to operate than if run continuously. The obvious moral of this experiment was: that what was being done manually by switching off the fan and opening the windows should have been done automatically by leaving the fan running and opening a damper in an outdoor air intake.

The answer to the "I want to open the window" argument is that a properly designed air-conditioning system can be just as capable of admitting lavish amounts of outdoor air as a window, and of doing so automatically and to precisely the degree called for by outdoor and indoor conditions—which in cool and mildly warm weather

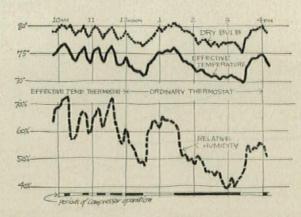
means: to a very great degree. Some central, building-wide systems do this already; most do not. It manifestly makes more sense than the converse, which is operation of refrigeration machinery to cool indoor air in cold weather, which happens in many office-building and hotel systems.

The true year 'round air-conditioning system should thus be thought of as a combined heating-ventilating-cooling system, capable of drawing on outdoor air for cooling whenever this is feasible. Frequently, whenever solar or occupancy or lamp loads are considerable, such "natural" cooling will be needed in cold weather. As winter gives way to spring, ventilation alone will be capable of maintaining optimum temperature conditions simply by regulation of the outdoor air intake. And in summer, in all but the hottest weather, night "purging" of the building with cool outdoor air-as in the case of the test residence already cited-will reduce substantially air-conditioning operating costs.

2. Comfort zone vs. temperature level

While opinion as to the best method of controlling air conditioning varies a good deal, it is a fair over-all statement that the ideal, as visualized by the air-conditioning industry, is a constant temperature of about 75° along with-if you can afford it-a constant relative humidity of about 50%. If people spent all of their time in air-conditioned buildings, they would probably not complain, at least the average office worker and householder wouldn't. For it is a fact that the human organism, as we know it in America today-the Man in the Gray Flannel Suit (sans vest) -can carry on a fairly wide variety of activity and inactivity without discomfort at just about this temperature-humidity level. If any complaint were registered, it would probably be by the Girl in the Transparent Voile Blouse, but since she usually works

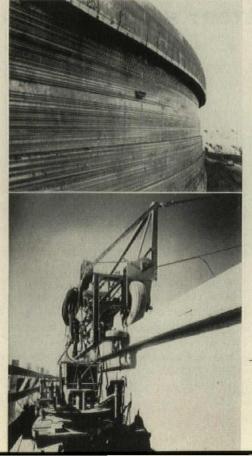
continued on p. 178



THERMOSTATS COMPARED. "Long Cycling" with ordinary thermostatic control of air conditioning compared with control obtained with effective temperature thermostat. With ordinary thermostat, effective temperature varies as much as 6°. With effective temperature thermostat, maximum variation is 3° under difficult control conditions of high outdoor humidity. Long cycling with ordinary control forced relative humidity as low as 40%.

ERECTION PROCEDURE. Before falsework was erected eight hoist towers for concrete placement were installed around the periphery. Two towers were used simultaneously for each 100 cu. yd. per day pour.

WIRE WINDER (below) wrapped 4,000 lb. per day for a total of 58,000 lb. of wire, 1,146 wraps, on the ring beam. Wire is stressed to resist spreading forces from roof loads.



SHELL DOME SPANS 290'

Reinforced concrete dome with prestressed edge ring roofs Puerto Rican sports stadium

Designed as a relatively flat segment of a spherical concrete shell, the 290' span of the Havana Sports Stadium dome sets a record for this type of roof. The dome has a rise of only 40' and thus a height-to-diameter ratio of only 1:7. Flatness of the dome required special supporting techniques: 1) a prestressed ring beam to take the thrust, and 2) rocker columns to take the movement.

Design. The roof is a 6" shell thickened to 12" where it connects monolithically with the 3' x 5' ring beam. Prestressing of the ring, which acts like an elastic belt, absorbs almost all horizontal thrust and thus simplifies column design.

The nearly flat dome has two main advantages: 1) in construction, it permits use of a single (bottom) form, and 2) in design, the membrane stresses are all compressive. Then, by wrapping prestressing wires around the ring beam, ring tension was countervailed and bending stresses near the edge were reduced considerably.

Both shell and ring had to be designed carefully—a thin, comparatively flexible shell connected to a very stiff ring might tend to crack badly.

Rocker columns. The edge ring is supported on 24 columns 8'-10" high and 38' apart. (Prestressing helps the ring span this distance.) The columns absorb all radial movements of the shell's edge due to expansion and contraction (as much ½") and are therefore hinged top and bottom to create true rockers. (The rockers are sufficiently wide to be stable in all but the strongest Cuban winds. As added protection against hurricanes, a

pair of light steel tension members were placed in the shape of an X on either side of each rocker, tying the ring to the stadium wall.)

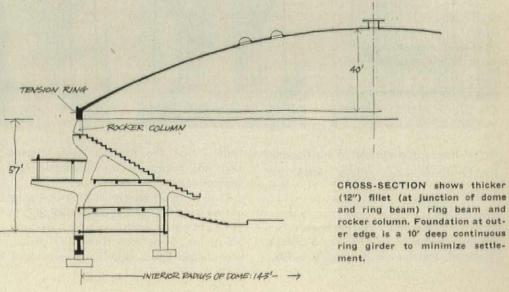
Construction. Several methods of forming the dome were considered; lumber was finally chosen because it was familiar to local labor and had a high salvage value in lumber-short Cuba. About 200 men erected the 750,000 bd. ft. of falsework and forms. A rigid acoustical board was placed over the forms and anchored to the dome reinforcing, which weighed some 450,000 lb.

The ring beam and monolithic portion of the dome were poured in eight sections, each taking about 100 cu. yd. The rest of the dome was poured in segments of concentric rings each 10' to 12' wide, using about 100 cu. yd. per day's pour. At the circumferential edge of each pour a step joint was made to act as a seat for the next higher pour. Between each pour on a concentric ring, a radial shrinkage belt 12" wide was left and filled with the next higher pour. At 28 days the concrete tested at 4,500 lb. per sq. in.

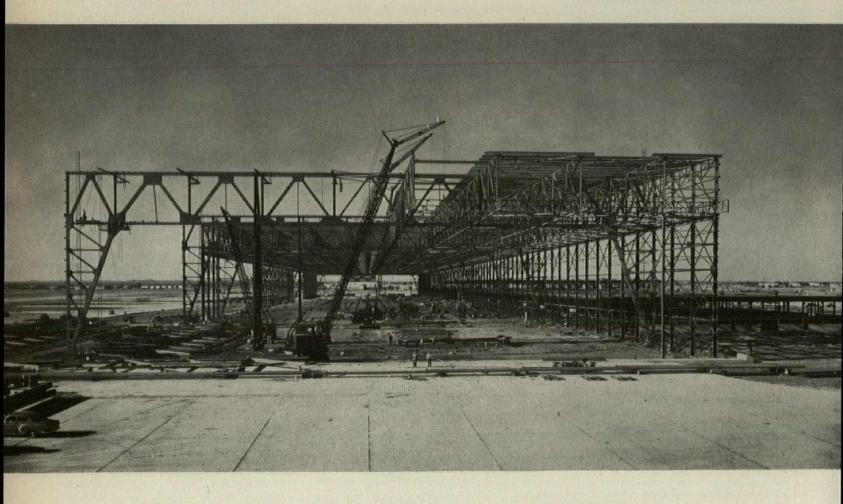
Prestressing. To induce an inward horizontal force of 14,000 lb. per circumferential foot of shell, 58,000 lb. of high tensile wire (1,146 wraps) were applied by a wire winding machine such as used to prestress concrete storage silos and tanks.

The prestressing was applied eccentrically to the rim of the ring beam with maximum force at the top to offset the tendency of the ring to rotate outward. Each layer of wire was given a protective coating of pneumatic mortar and the final covering was ¾" thick.

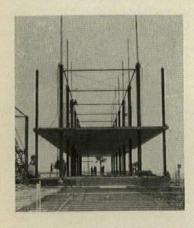
Architects: Arroyo & Menendez; consulting engineer: Jose Villa; general contractor: Construcciones CODECO; dome engineers and contractor: Preload Construction Corp.

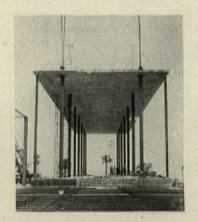


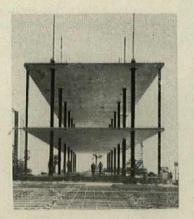
2,000'-LONG HANGAR



SIX-STORY HIGH DORMITORY









After floors are raised to half-mast, 40' columns are spliced with 27' extensions

At first dubious, but now enthusiastic, the architect-engineers on the St. Vincent's School of Nursing in Jacksonville, Fla.,

believe that the lift-slab method saved time and money for the owner, the contractor and the subcontractors.

The floors of the main six-story wing of the building consist of six 26' square bays plus a 9' cantilever at either side. There are seven such floors, the ground floor being lifted only 3' to provide a

utility crawl space. Cavity brick exterior walls are carried by the flat-plate light-weight concrete floors.

Construction began with the erection of the first tier of 40' columns to which caststeel shear heads were threaded. The columns (12" W. F.) were braced and guyed, and the seven slabs formed. (To assure

HAS ONLY 20 COLUMNS

Five independent spaceframes with 74' cantilevers are assembled to form biggest Air Force building

This new Air Force hangar at Kelly Field with adjoining shop and administrative building covers 1 million sq. ft. It is thus the largest hangar in Texas, which automatically makes it the largest in the world. But if its size should ever be threatened (by Oklahoma, for instance), its design will permit easy expansion to regain the

The secret of this expandable structure is in the five independent and basically identical bay structures (398' x 300') which, erected end to end, make up the 300' wide, 2,000' long main structure. To this bulky giant of a building is attached a mammoth shop 250' wide and 1,650' long. Size of the building will permit maintenance of aircraft on a simultaneous "production line" and "stall" basis, taking the biggest aircraft on the Air Force roster.

The problem for the architect-engineer in designing the principal structure was to provide a maximum clear height of 60' over the entire area and to allow a total of four 250' wide door openings-one at each end and two on the side.

After a study of various methods and materials, it was decided to use a rectangular rigid frame of structural grade steel.

Once the spaceframe technique was chosen, comparative studies were made of five different combinations of framing. The economy score between the five-bay system and a continuous truss system (the two finalists) was close, but the thermal and settlement stresses in continuous framing and the ease with which the independent bay system could be expanded, settled the issue.

Structure. The roof framework of each bay consists of ten double-cantilever trusses along the longitudinal direction, 398' long and spaced 36' o.c. They are framed into a pair of two-hinged rigid truss frames set 250' apart. Thus at each end of a bay there is a 74' overhang. This cantilever reduces the center-span deflection by 36% and saves much steel. The abutting ends of the cantilevers are an ideal location for expansion joints at each 398' of length.

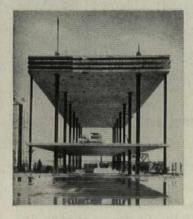
The flat roof area is covered with 20gauge metal decking and four-ply builtup roofing over glass-fiber insulation.

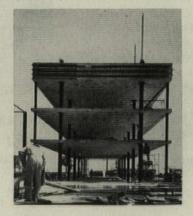
The outside wall of both hangar and shop consists of a 5' high masonry wall topped by a wall of corrugated asbestos cement siding with glass-fiber insulation. There are no windows except in the office and cafeteria areas.

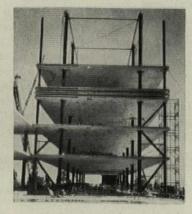
Engineering design: Kuljian Corp.; general contractors: Farnsworth & Chambers, Houston; steel contractor: American Bridge Co.

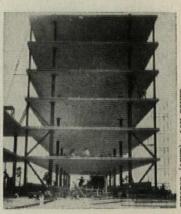


LIFTS ITSELF UP ON COLUMNS









easy separation, a parting compound was painted on each surface before pouring a new slab.)

Four of the slabs were then hydraulically lifted to the columntops by rods threaded into the shear heads. The lowest of these four, the fourth floor, was then wedged and welded into place (pictures

1, 2, 3 and 4). The three remaining slabs were then lifted and the shear heads welded to the columns at the proper heights (pictures 5, 6). Finally the columns were extended 27', the lifting jacks raised to the tops of the extended columns, and the upper slabs raised in place (7,8).

Plywood side forms cost 2.7¢ per sq.

ft. applied; concrete placement, \$1.05 per cu. yd.; making depressions to take panels of tile and terrazzo, 1¢ per sq. ft. of lift slab; lifting and welding slabs in place, 38¢ per sq. ft. of slab.

Architect-engineers: Reynolds, Smith & Hills; contractors: George D. Auchter and Southeastern Lift Slab, Inc.

TECHNICAL NOTES



TALLEST LIFT SLAB

Ten-floor, nine-deck parking garage lifts top deck 73' for record

This ten-story parking garage in Cincinnati is credited with being the tallest (73') lift-slab structure to date, with the added distinction of having the most decks (nine) raised by this method so far. (For pictures of the runner-up, see p. 160.) The garage is an open-deck building (really two tall twin tower buildings) using a patented traveling crane to raise cars to parking shelves.

The parking decks are of reinforced concrete—nine decks per tower—with four columns at the corners of each deck. The columns are made up of two 8" x 8" steel angles welded to form a box section.

After the foundations were poured, a lower tier of columns (43' high) was erected. Then the nine slabs were poured, one on top of the other at ground level. All nine slabs were then lifted, slabs 2, 3 and 4, into final position, the remainder in temporary position above.

Using slab 10 as a platform, another 30' of column was then spliced to the original 43'. The lifting jacks were placed on top of the extended columns and the remaining slabs were lifted.

Designers: Pigeon Hole Construction Co.; structural engineers: R. M. Gensert & Associates; contractor: Central Lift-Slab Co.

COLD CONCRETE

Prestressed and reinforced concrete gets stronger at low temperatures

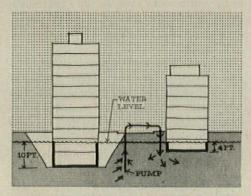
Belgian tests of the strength of prestressed and reinforced concrete beams under very low temperatures show these surprising results:

▶ As the temperature was lowered from 68° F. to −40° F., the modulus of elasticity increased. This was confirmed by a reduction in deflection of the beams.

▶ The tensile strength of the concrete was at least doubled as the temperature was lowered to -40° F.

The compressive strength of the beams also increased considerably at -40° F.

One possible practical use for this property of concrete is in the construction of cold-storage warehouses.



REVERSE WELL POINTS

Simultaneous dewatering and recharging stabilizes sandy excavation

Ordinarily, a contractor can take a below-water-level excavation in stride. The area is usually ringed with well points and the water pumped out and kept out by continuous pumping. But a five-building, 14-story apartment project in Coney Island—requiring excavation 10' below water level—posed a difficult problem.

East of the project site was a 21-story hospital founded 4' below water level. To the northeast a six-story apartment building was founded 1' below water. Numerous other smaller buildings were around three sides of the ocean-front project. The soil is almost pure sand, beach sand at that. Any simple dewatering operation would lower the water level and cause the existing structures to settle, crack or even collapse.

Rejecting a 60'-deep, sheet piling bulk-



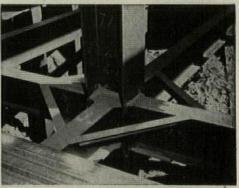
head around the three-block site as too expensive, the contractor's engineers developed a recharging system.

The plan required 300 recharging well-points around three sides of the site roughly paralleling the dewatering system and near the affected buildings. Cross connections permitted some of the water from the 400 well-point dewatering system to be pumped back into the ground through the recharging system. Since just as much damage could result from raising the water level as lowering it, 100 test-well-observation holes were installed and checked hourly.

In the event that the novel system didn't work out as well as the engineers, insurance carriers and soil mechanics experts expected, other precautions were taken. A crack survey recorded (by description, sketch or photo) every existing crack in neighboring buildings and streets and daily surveys were made to check settlement against previously recorded elevations of buildings. But the system worked perfectly.

Architect for the Coney Island Homes project: Harry M. Prince; engineers: Moran, Proctor, Muesser & Rutledge; contractors: John A. Johnson & Sons and Wellpoint Dewatering Co.; soil mechanics consultant: Professor Arthur Casagrande of Harvard.

LINCOLN ELECTRIC CO.



OUAKEPROOF CONNECTIONS

Welded beam-to-column braces resist high joint moments

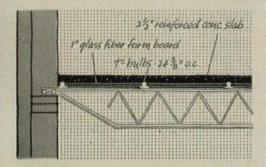
Unusual welded connections were necessary in the design of the \$2 million expansion of the County Community Hospital, San Mateo, Calif. Located in the earthquake zone, beam-to-column connections had to be able to resist the possibility of high lateral loadings.

To solve the problem, the rigid frame design provided heavy slotted cover plates and angle bracing in the beam-to-column connections. Another reason for the cover plates was to increase the amount of weldment—as required by the high joint moments.

Welding the whole structure itself was decided upon for three reasons: 1) Noise suppression was of primary importance to the hospital; 2) the engineers estimated a 12% saving in the weight of steel; 3) since some of the beam-to-column connections were necessarily eccentric, welding eliminated what would otherwise be fairly complicated design.

The three-story structure is designed for the future addition of five more stories. It used 1,200 tons of steel.

Architects: Stone, Mulloy, Marraccini & Patterson; structural engineers: George Washington & Associates.



INSULATING FORM

Glass fiber serves triple use as form, insulator and sound absorber

Insulating an air-conditioned office floor from a manufacturing floor below can be accomplished in a variety of ways. Here's how it was done with an integral insulating form board.

The structural problem arose during the design of a two-story, 24,000 sq. ft. combined building in Watertown, Mass. The proposed second-floor structural system was to be 12" open-web steel joists, 24" o.c., with bulb tees crossing the joists at right angles. A form board was to rest on the flanges of the tees and a wire mesh reinforced 2½" concrete slab poured over the forms. The problem was to find a form board which would serve triple duty as adequate support for wet concrete, insulator and sound attenuator.

The engineers considered many types and finally settled on glass fiber, even though the manufacturer could not assure them that the board would support the concrete load, and that it would retain the water. To make sure that the board would serve the purpose, the engineers and contractor set up test panels which proved successful.

The glass-fiber board deflected about ¼" under load. (Actually this was an advantage since it permitted the mesh reinforcing to act as in a two-way reinforced slab.) The wet concrete did not lose any water through the board.

The board cost the contractor about 15¢ per sq. ft., which compares favorably with other integral forms. A savings estimated at 12¢ per sq. ft. in air-conditioning installed capacity and an operating savings of \$60 per year also accrued from use of the insulating board. The board is said to absorb sound well and to have a pleasant appearance.

Architect-engineers: Vappi & Symmes; contractors: Vappi & Co.

REDUCING SHRINKAGE

How to stop concrete surface cracks caused by rapid evaporation

Rapid evaporation of water from the surface of freshly laid concrete will cause plastic shrinkage and cracking. Under conditions of fast evaporation, the Portland Cement Assn. recommends these procedures:

Apply curing (membrane, wet burlap, sand, etc.) as soon after placing as possible.

In the event of delay between placing and curing, use temporary covering or apply a fog spray.

Use wind breaks to reduce wind velocity over the surface of the concrete.

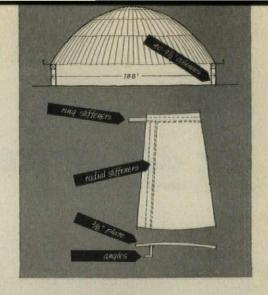
Use sun shades to control surface temperatures of concrete.

SHEET STEEL DOME

Stiffened sheet steel roof without trusses spans 186' GM exhibit area

Substantial steel savings—in weight and thickness—resulted from the ingenious design of the dome of the new General Motors Technical Center in Detroit (also see p. 122). The design provides an exhibit area having a clear span diameter of 186'.

The main dome is made up of shaped steel plates (rolled to a spherical radius of 107') welded in four circumferential ring rows. The lowest row has 80 plates; second row, 60; third, 48; and topmost, 24. The plates are %" thick, weigh 16 lb. per sq. ft. Without stiffeners, the total allowable load would have been some 22 lb. per sq. ft., leaving a scant 6 lb. for live load. But the addition of stiffening angles raised the allowable load to 55 lb. with a



factor of safety of three.

The stiffeners are both radial and circumferential; radial angles are welded to the plates 4" in from the edge of each plate. The stiffening rings are spaced 27' apart along the arc of the dome. The angles are welded with webs against the plates to increase the stiffening effect. Total weight of shell plates and stiffeners is 640,000 lb.

In construction, at first, four plates at a time were preassembled on cradles, butt-welded, and had their stiffening angles solidly attached. The assembled sections were then erected and welded in place. This method was changed when it was found that welding the radial angle to the plate before erection warped the plate (by welding shrinkage) increasing the curvature. For the remaining courses the radial stiffeners were tack-welded during preassembly and welded solidly after the plates had been butt welded into place.

Architects: Saarinen & Associates; structural designer and erector: Chicago Bridge & Iron Co.; general contractor: Bryant & Detwiler; engineers: Smith, Hinchman & Grylls.

SOFT SURFACE CONCRETE

A new hazard in winter work is due to concentration of gases

Soft surfaces on concrete floors which have been adequately protected against cold weather during pouring and curing are sometimes a great puzzle. J. A. Kauer and R. L. Freeman, engineers with American Concrete Institute, have advanced the theory that excessive concentration of carbon dioxide is at fault. Their tests indicate that fresh concrete exposed to CO2 resulting from the use of heating devices. such as unvented salamanders, will have soft surfaces of various depths depending on the concentration of the gas and the temperature and humidity at which concrete is cured. The tests also indicate that chemical hardeners have no appreciable effect under this adversity; surface grinding is the only way to restore or salvage the surface.

for all concerned

PAVEMENT POUNDERS AND OLYMPIANS

Edgardo Contini, one of the authors of the splendid Gruen plan for Fort Worth which is presented on p. 146, had it in mind one Saturday morning a few weeks ago in Fort Worth to buy himself a new pair of walking shoes. When a visitor from FORUM turned up, however, he agreed to postpone his shopping and talk about the city instead.

Talking about the city, it quickly developed over a cup of coffee, also meant walking about the city, and over the next few hours the visitor began to understand why Contini's walking shoes needed replacing. He knew that square mile of downtown, on foot, the way most people know their own block. Between side excursions into back yards, prowls into alleys, sallies into the middle of the street (future domain of the pedestrian) and plunges up stairs (for a different angle of vision), he enthusiastically detailed the history of this store, the activities on that block, the qualities of the restaurant yonder, the potentialities of around-the-corner.

Contini belongs to a breed which seems to be on the increase-the pavement-pounding city planner. Edmund Bacon, Philadelphia's executive director of planning, is another representative. Bacon delights in having figured out, by trial and error, a zigzag route across Philadelphia, from river to river, that never subjects the walker to a dull vista or uninteresting street. The same passion for intimate examination of the city extends right through his staff. A visitor gets the impression

that any one of them chooses his lunchtime restaurant more for the quality of the walk to it (generally long) than the food at the goal. Out in Cleveland, a supposed tour by car with Planning Officials Ernest Bohn and James Lister actually amounts to a series of short automobile hops and long exploratory stops. San Francisco has the tirelessly ambulant and observant Paul Oppermann as director of planning; Carl Feiss will walk anyone's legs off at home in Washington or wherever he happens to be, and there are happily others like them.

We had reason to be especially appreciative of the pavement pounders after a recent talk with a representative of another type of planner-the Olympian. In a city which shall be nameless, this planning official and his colleagues had conscientiously studied, from Olympian heights, their maps, their density patterns, their social statistics, their traffic patterns-then waved their clearance wands. And they were in process of committing economic, esthetic and social outrages on the adjoining neighborhoods because they lacked awareness of such simple things as the distinction between convenience "neighborhood" shops and widely patronized "district" shopping. And on being told there were some good and well-kept streets embedded in a statistical slum area under discussion, the Olympian exclaimed in genuine surprise, "Where?" Bacon and Lister would not only know where, they would know why.

The pavement pounders are

coming up with by far the best planning these days, but we doubt the relationship is simple cause-and-effect, salutary as first-hand knowledge is. More likely, the walking and the good planning are two sides of the same attitude, two sides of the pavement pounder's fascination, on an intimate level, with all details of city life and city relationships, of his consuming curiosity about the way the city develops and changes, of his endless preoccupation with the living city, and-at the bottom of it all-of his affection for the city.

Affection for the city, curiously enough, has not always been an attribute of city planners in the past. The City Beautiful men valued a minute part of the city as a grand showplace, but pretty well ignored and despised "the antheap." Twenty years ago, the most stimulating planners were putting their most stimulating thinking into schemes for decentralizing the city, not rebuilding it. Implicit was a rather hopeless feeling about the city itself. The pavement pounders are a new breed: they are the men who want to change and rebuild the city not out of fundamental disgust with it, but out of fascination with it and love for it. Equally hopeful for the city's future: their ranks are being joined, gradually, by real estate men and financiers and promoters-who are also capable of feeling, influencing and acting either as pavement pounders or Olympians.

We wish Contini and all his kind a long succession of the most comfortable shoes, well worn.

-THE EDITORS



goes into another outstanding building

The Price Tower, combining offices and apartments, captures the view of over 800 square miles of rolling country around Bartlesville,Oklahoma. Overly takes great pride in the part its Hollow Metal Doors and Frames are playing in this triumph of architectural integrity. Thirty-six years ago, Frank Lloyd Wright envisioned a tree-like structure with floors cantilevered from a central stem of elevators and services. Today that vision—given substance with steel, concrete, copper and glass—soars 221 feet into the sky above the prairie town. General Contractor: Culwell Construction Company, Oklahoma City. Overly Sales Representative: Scovil & Sublett, Oklahoma City. For Hollow Metal details and specifications, send today for our Door and Frame Catalog Number 16B-OV.

OVERLY MANUFACTURING COMPANY
GREENSBURG, PENNSYLYANIA
LOS ANGELES 39, CALIFORNIA

Photo by Joe D. Price

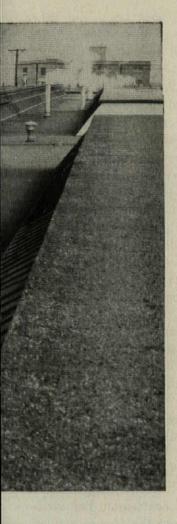


Fenestra Galvanized-Bonderized Industrial Steel Windows ready to replace the old monitor sash on Caterpillar Tractor Co. Building HH, Peoria, Illinois.



Shown here are A. F. Wiedeman, Caterpillar Construction Engineer, and C. Y. Chapman, Construction Superintendent, examining the Fenestra Bend Bar Test that demonstrates the stronger bond of the Fenestra Galvanized-Bonderized finish. Mr. Chapman, holding the Fenestra test bar, calls it "one of the best galvanizing jobs I've ever seen." Your Fenestra Representative will be glad to show you this same test. It will prove the difference between the Fenestra finish and ordinary galvanizing. Ask to see it, today.

The Fenestra Galvanized-Bonderized finish is also available on the complete line of Fenestra Intermediate Steel Windows for schools, office buildings and other fine structures.





Caterpillar Tractor Co.,
Peoria, Illinois, chooses Fenestra
Galvanized-Bonderized Industrial Steel
Windows because they estimate they will

SAVE WINDOW PAINTING COSTS FOR 20 YEARS!

Maintaining nearly five miles of monitor windows on the roofs of Caterpillar Building HH and the foundry at Peoria, Illinois, was an expensive and time-consuming problem. With the ordinary sash originally installed in these buildings, a complete paint job was required every four years. Even with this kind of care, the fixed sash in these monitors needed extensive reglazing and rehabilitation a few years ago.

Under the direction of W. H. Zurhorst, Manager, Plant Engineering, a plan was developed by C. Y. Chapman, Construction Superintendent, and A. F. Wiedeman, Construction Engineer, to completely replace the sash with Fenestra® Galvanized-Bonderized Industrial Steel Windows. Based on careful tests they estimate that these windows will require no maintenance painting for at least 20 years. The saving in

labor and materials will pay for the replacement.

One of the reasons Caterpillar chose Fenestra windows was the Fenestra Galvanized-Bonderized finish. Hot-Dip Galvanizing is recognized as the best protective coating for steel. The zinc surface is actually alloyed with the steel. Fenestra's galvanizing process is completely controlled for a smooth, uniform coating. It's done in Fenestra's specially designed plant. Bonderizing, after galvanizing, gives added protection and an attractive silver-grey finish.

If you are planning a new industrial building or if you are trying to solve an expensive maintenance problem with existing windows, get the facts about Fenestra Galvanized-Bonderized Industrial Steel Windows. Call your local Fenestra Representative—listed in the Yellow Pages—or mail the coupon below.



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practices specifying the width of a paint brush or the number of bricks a man may lay in a day are not so widespread as they are obvious; and they are not necessarily aimed at limiting work. Far more important than any organized effort by unions at work limitation are spontaneously generated slowdowns on the part of workers, most often attributable to factors of morale or insecurity.

So far as efficiency is concerned, building presents especially difficult problems of measurement. Bricklaying today is less an individual than a team operation. This idea of the working party as the fundamental unit in most building work today has been recognized in England where a "budget of task" is set by agreement between management and labor, and the cost of such an amount of work is established. The total wages earned by the individual in any working party are determined by their total output. Craft unionism has not blocked such a method of incentive pay, and it is an augury of the future.

Certain it is that the goal of increased productivity in building must be realized through improved organization of labor on the job as well as through technological advance. The remaining element on labor's side is the labor force itself, its quantity and its quality.

Recent studies of apprenticeship have shown that while this source of trained building craftsmen is capable of great expansion, it has barely supplied the new hands to replace those lost through death and retirement. Apprentice training stepped up rapidly after the war, reaching a peak of 19,750 in the construction trades in 1951. This was three times the total of 1948 and reflects the efforts of unions, contractors, government agencies. Possibly an equal number of craftsmen were being trained outside the apprenticeship system. But the huge growth of the building labor force in the postwar years was not an increase of fully trained craftsmen, but of men with far more limited, specialized skills. In short, there has been a qualitative reduction.

The wist for craftsmanship

Nowhere is the future of building labor more cloudy than in this region of recruitment and training. If building's traditional craft structure is to be maintained, then longer training periods are necessary to produce better and more rounded craftsmen. If a large part of the building force is to be employed in relatively simple, specialized tasks—typically installing assemblies produced in a factory—then long apprenticeship periods are wasteful and unnecessary. Until some clarification on this point is secured, confusion faces the designer.

Architects have traditionally been concerned with the qualitative aspects of building labor. Today architects

are designing for productivity, by and large, but they are deeply concerned with the end product. Much of the detailing of buildings is designed to cover up sloppy workmanship. But the architect wists for the fine craftsman. It is no accident that the West Virginia chapter of the AIA gives an annual award to the best building craftsman in its area, and this form of recognition is spreading. But is it a form of pseudo medievalism, a harking back to Ruskin and Morris, to Ralph Adams Cram and Charles Harris Whitaker? To architects who design to cut labor costs it is. And to demand that building labor acquire craft skills that are deliberately bypassed because they make building too expensive is absurd. Here again we see more clearly the dilemma of labor in building's present-day evolution.

The traditional crafts are disappearing. They are perpetuated only in archaeological terms. Architects concerned with the preservation of historic buildings have jealously guarded lists of iron workers, plasterers and others whose work compares with that on the original structures they are refurbishing. Large restoration projects like Colonial Williamsburg have trained their own labor force.

Pre-industrial craftsmanship worked with organic materials. Much of its skill lay in the selection or rejection of stones or pieces of wood, the handling of the material to make it fit the craftsman's purpose. An architect of understanding and experience in primitive areas, who has designed for such craftsman, has written, "the craftsman is an instrument that for any given task absorbs and redirects the natural forces and economies bearing on it."* This is the philosophy, rooted in organic materials, that Frank Lloyd Wright teaches at Taliesin. But it is a separate world of building from that which prevails today, a world to which we may someday return—at least in part—but which is in limbo.

New kind of skill

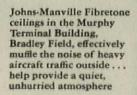
Craftsmanship today is tinctured with efficiency, and for most it is synonymous with the style with which the best workers perform. It is seen in the new skills of the structural ironworker topping off an immense bridge, in the installation of electrical equipment, in the miles of delicately welded nickel pipe in one of the Atomic Energy Commission's gaseous diffusion plants. But these are skills of assembly, of manipulating, of machine handling.

Certainly when we speak of the growing maturity of building labor today, we do not mean that the workmen are becoming more rounded and skilled craftsmen. We mean that they are learning to work together as a team. Probably the best indication of a maturing and increasingly skillful labor force is its accident rate. During the postwar years to 1950, when building labor was being recruited from the farm and the sidewalk,

continued on p. 172

^{*} Maxwell Fry, "Fine Building," p. 119.

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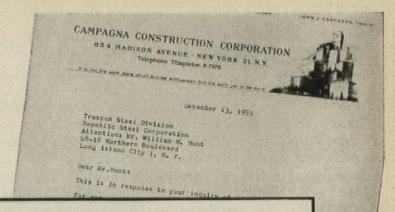


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THE LABOR FORCE cont'd.

the shipyards and the munitions factories, the accident rate grew too. In general building work the injury frequency rate jumped six points. But as the workers learned their job, and learned to work together, the accident rate dropped from its 1950 peak to well below the 1948 levels and is still headed downward. The drop also reflects the growing realization by employers, especially in a time of labor shortage, of their stake in accident prevention, and the increasing effectiveness of these safety efforts.

The unknown mechanic

A maturing, increasingly skillful building labor force—one that works as a team and one that works well with management—that's what we've got today. When it comes to building the buildings of today, it looks pretty good. But what about the buildings of tomorrow?

More flexibility from labor and from union leadership is going to be essential if building is to fulfill the potentialities architects see. Taking the guesswork out of labor's part in building is an essential condition of this adjustment. More data is needed on skills and occupational distribution. Only in a general way do we know that there are more machine operators and fewer men with picks and shovels. The decennial census of employment isn't often enough to keep up with rapid changes. Big, general categories of employment need to be refined. Only against such a factual backdrop will we have the information needed to guide labor away from areas of declining employment and into the more demanded jobs, to move them from one part of the country to another, from one kind of building activity to another, This information is also essential to guide apprenticeship programs and other training efforts, to guide national defense efforts (mobilization and manpower) and to guide other public policy decisions.

Information on the wage scale is also needed. The lack of such information allows labor and management alike to make sweeping claims that cannot be substantiated about the regularity of employment, stabilization and over-all compensation. The Bureau of Labor Statistics is the agency to make good these deficiencies, but repeated efforts to get money for the needed studies have been unavailing.

Cozy partnerships in stabilization

Firming up the picture of building labor that is employed on a year-round basis, whose lost time in passing from job to job is negligible and whose total income is high, ought to allow unions and management to open up some aspects of labor in building that have been safely locked in the closet. It won't happen suddenly, because the cozy partnership in stabilization has

involved contractors and materials manufacturers as well as unions, and it has been written into contracts, agreements, building codes and other devices that are slow to change. But this is the ancient apparatus of a scarcity-minded industry with its legendary insecurity. If the industry means to keep a high general level in the economy, it must recognize that this apparatus is unnecessary and, indeed, a harmful obstruction of productivity.

We need to set our sights on a new high level which building can reach. Organizational rigidity and jurisdictionalism, scarcity-mindedness and fear, lack of confidence of labor and management in labor leadershipthese are some of the things that will have to go. Vestigial survivals from past days of the builders crafts have become anachronisms obstructing technical progress, limiting productivity and stultifying design. Building mechanics who do nothing but install factory-fabricated components are treated (and paid) as if they were performing diversified and highly skilled work. Labor unions conspire with subcontractors to maintain practices, often enforced by building codes, which add unnecessarily to building costs and block design progress. Building workers price themselves out of competition with new industrialized materials. Apprentices endure tedious and meaningless repetitive training, which lingers on in job practices of doubtful value. Foremen are still forgotten men in building, lacking status of their own, distrusted by labor and management, unskilled in the arts of communication. These are some areas in which progress needs to be made.

Architecture for tomorrow

Fortunately, the outlook for progress is good. The growing maturity of unions is well expressed in their architecture. Just as a new generation of union leaders is no longer concerned exclusively with the bare bones of wages, hours and grievances, so, too, their buildings are no longer the lofts and sheds of a former day. New union headquarters buildings in Washington, D. C. tangibly express labor's strength and continuity-and its responsibility as well. Hospitals, health centers, housing and other buildings erected by unions, often paid for with pension funds, reveal labor's concern with welfare and with more general public interests. The hiring functions of unions are improved and dignified in the modern hiring halls. A concern to make the most of labor's hard-won leisure is evidenced in the growing number of labor's camps and recreational buildings. In the design of all of these buildings architects of topflight rank have been chosen.

As those deeply concerned with architecture will appreciate, organizations capable of producing such buildings are capable of more than has been realized in charting a new and more appropriate role for building labor in the bigger and more productive industry being created today.









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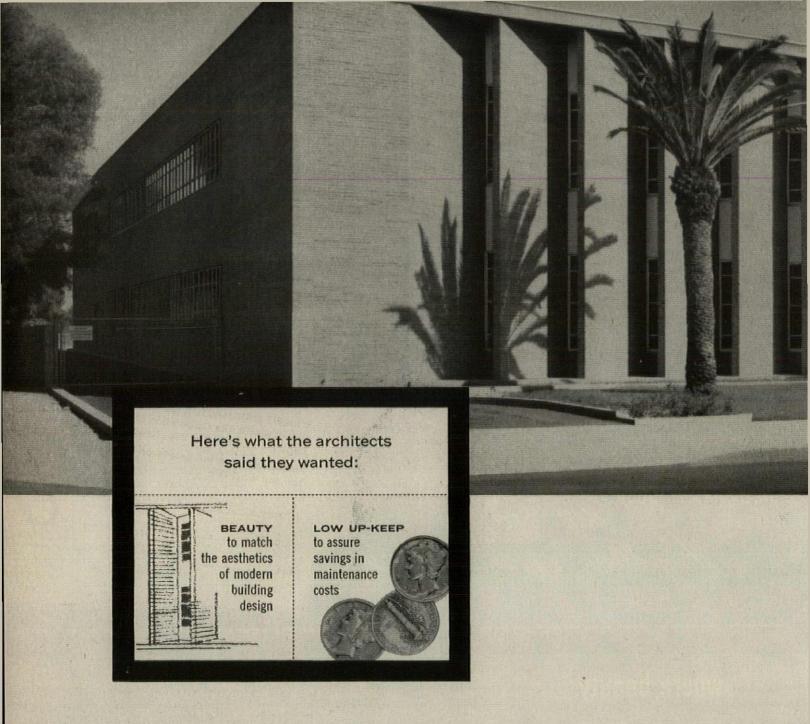
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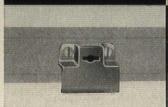
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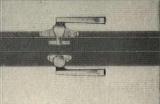


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consists of first painting the sy lar base coat in any shade d Tex, available in a combinati and white, is sprayed on to base coat. The Glid. The proximately 30 per cent ground color. Due to cher three Glid-Tex colors ren the spray process, result, with a custom-styled app One gallon of Glid-Tex rage of 125 to 150 square xcellent patterns obtained ressure and 35 pounds air e size of the Multi-Color Paint

A new, vari-color c which permits three ent colored paints sprayed simultaneously t a single spray gun ha home builders and contractors, it has nounced by A. D. vice president of den Co. and general of the firm's paint
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combination of yells and white, is spraye the background bal Due to sion, the three

VARI-COLOURED permits many colou

A new, vari-colour coating different coloured paints to b a single spray gun, has be home builders and paint require the lacquer coating gives an interior decorating field. App special spray equipment or complex spra technique. In method of procedure consists of first painting the surface with a regular base coat in any shade desired. Then, Gi Tex, available in a combination of yellow, gray and which is sprayed on top of the background base coat, This plication covers approximately 30% of the original bate ground colour. Due to chemical suspension, the the colours remain separated during the spray process. respectively. special spray equipment or complex spra colours remain separated during the spray process, res ing in a speckled finish with a custom-styled appearan nant background can be finished in ad offers unlimited cold and general division.

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ing effects, Reasonab Glid-Tex ha of 125 to 150 show excelle 25 pounds 1 pounds air p size of the co tered to satisl by merely cha pressures. Sixteen hou humidi-

New **Products**

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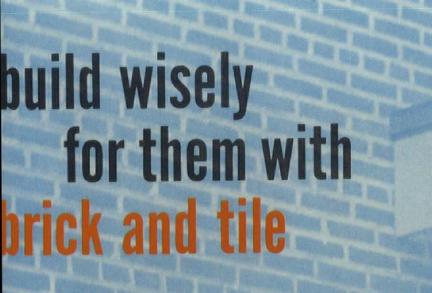
to put the stuff of ple? Here's all you de the surface with a see coat in any shade then spray on Glid-Texton already, go bactor whiteh averaged within the colors permits. to put the stuff on

con colored paints in a colored simultaneously gle gun has been dev Glidden Co., Clevelan sults in a three-tone spe

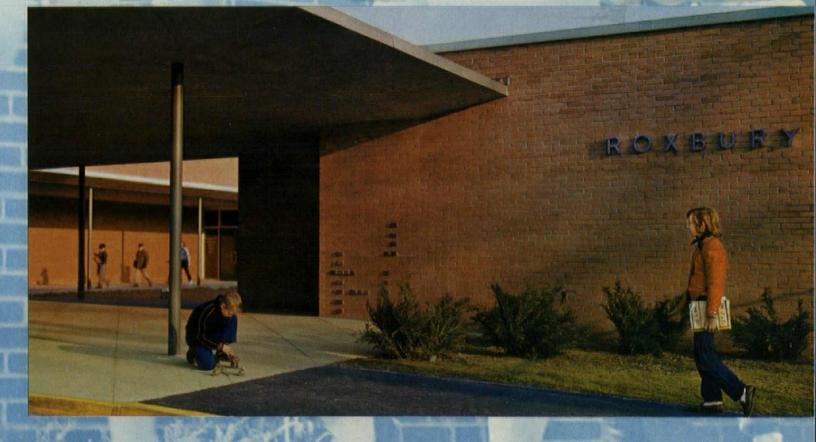
Paint Announced

Paint Announced

A new, multi-color coating product which permits three product which permits all of different colors—paints—all of different colors—paints—all of different colors—from a single spray gun was antrom a single spray gun was announced today by A. D. Dumcan, nounced today by A. D. Dumcan, nounced today by Glidden Co. vice president of the Glidden Co



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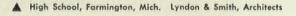
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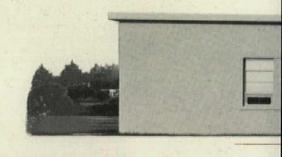
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▼ Crow Island School, Winnetka, III. Eliel Saarinen, Eero Saarinen, Perkins, Wheeler & Will, Architects





Ft. Sam Houston School, San Antonio, Texas Harvey P. Smith & Associates,

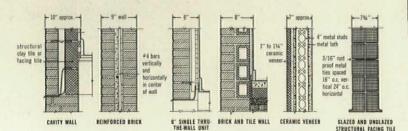


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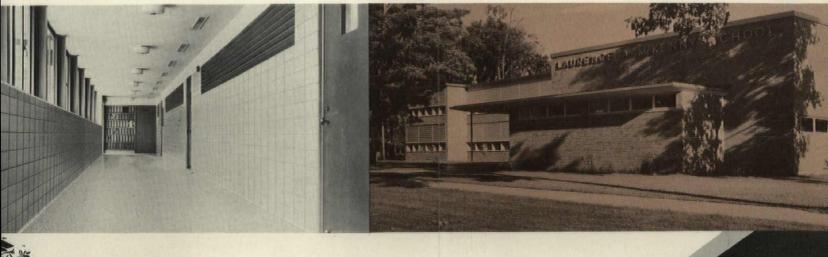
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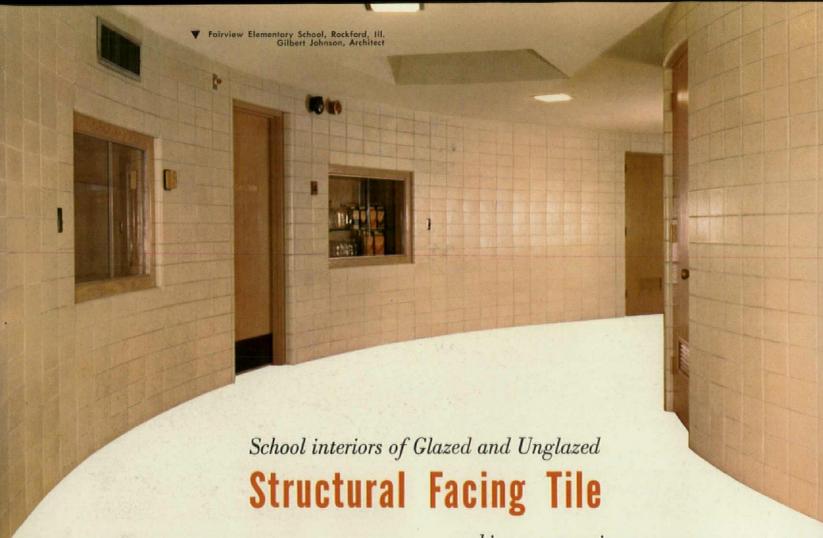
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You can solve so many special school building problems with this single, multi-use material...structural clay with a ceramic finish that resists hardest usage, eliminates painting, makes cleanliness easy.

Facing Tile builds wall and finish in a single operation quickly and economically.

Only your design skill is needed to convert these basic assets into school interiors that children, teachers and parents will be proud of.



▲ Custer High School, Milwaukee, Wisc. Grossold & Johnson, Architects



A Dramatic Use of ReynoCoustic

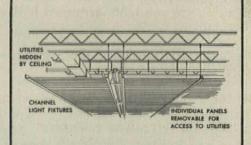


Clean air, precisely controlled for temperature and humidity is essential in aircraft instrument manufacture. Sound conditioning is also important...for worker productivity. Marion Electrical Instrument Co., Manchester, N. H., achieved both objectives by using ReynoCoustic as part of the air-conditioning system.

This provides noise reduction up to .90, high at all frequencies... plus draft-free distribution of clean, conditioned air to all points. Humidity is kept close to 50% at 72° F. Maximum gradient across the room is 1° F. Year-round range is 72°-75° F. This permits a standard reference for measurements and calibrations.

These ReynoCoustic panels are white-enameled. They are also supplied in natural-color aluminum.

A complete installation service is available. For name of nearest franchised acoustical applicator, call the Reynolds office listed under "Building Materials" in classified phone books of principal cities. For literature, write to Reynolds Metals Company, Building Products Division, 2020 South Ninth Street, Louisville 1, Kentucky.



Typical ReynoCoustic application—panels and fiber glass backing rest on aluminum tees and angles. Marion Co. installation by Post Products, Inc., Boston, uses same method to suspend ceiling 3' below insulated roof. This space forms plenum for air conditioning system designed by Marion, engineered by Cobe & Foster, Inc., Manchester. System forces pre-filtered conditioned air into plenum at 24,000 cfm.

See "FRONTIER," Reynolds great dramatic series, Sundays, NBC-TV Network.

REYNOLDS ALUMINUM BUILDING PRODUCTS



BUSH 'BC' Blower-Condensers

Bush 'BC' Blower Condensers permit air conditioning or refrigeration systems to operate *without* condensing water . . . provide the answer to excessive water costs, limited supply, excessive impurities or disposal problems.

Available in capacities up to 20 Tons, new Bush 'BC' Blower Condensers feature low noise level . . . quiet operation.

Patented Inner-Fin coil construction, a Bush exclusive, makes these the most compact units on the market. Units are easy to install, have rugged all-steel cases with durable rust-resistant finish . . . are available arranged with either blower fan or propeller fan.

The BUSH line of water-savers, most complete in the industry, also includes:

'CDT' COPPER DECK COOLING TOWERS with all copper decking which cannot rust or rot. Capacities from 3 to 75 tons.

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'PFC' PROPELLER FAN CONDENSERS — Two basic models, 2.2 Tons and 3.3 Tons, can be combined by mounting in banks to obtain any desired tonnage.

'PS' PRESSURE STABILIZERS which automatically maintain satisfactory head pressure when air cooled condensers operate outside in low ambient temperatures.





Write direct for complete information or contact your experienced BUSH representative for valuable engineering and application assistance.

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SPRING cont'd.

fairly hard at a typewriter, her objections would probably not be serious.

The fact is, however, that people do not spend all of their time in air-conditioned surroundings, nor do their actual reactions conform very well with the assumption that there is a certain "ideal" temperature which "should" satisfy, if not all of the people all of the time, at least most of them most of the time. If we are to build sealed buildings, we must investigate much more thoroughly what their reactions actually are, not just in more-or-less static circumstances, but also upon entering and leaving air-conditioned buildings under widely varying outdoor temperature conditions.

A good beginning can be made by reviewing what we know of winter heating—with which we are more familiar—to discover principles applicable to summer air conditioning.

People have agreed on a minimum temperature

In winter heating, a vast amount of experience has established that in group situations, where a variety of people must be satisfied, an air temperature of 72-74° is usually selected for control purposes. The average figure of 73° is presumably the minimum temperature that will generate such satisfaction and not the "ideal" or maximum level, since no one responsible for the operation of heating equipment has an interest in operating it any more than necessary. This minimum depends, in turn, on a certain minimal level of bodily activity: if we lie down on a couch in ordinary indoor clothing in wintertime, and remain there for some time without taking the normal precaution of covering ourselves with a coat or blanket, we get cold because our bodies are producing less

This influence of the activity level on the tolerable temperature is well illustrated in the other direction by a basketball player. About as active as it is possible to be indoors, he strips down to a sleeveless shirt and a pair of shorts and works up a good perspiration in a gymnasium heated to some 60°. The influence of activity is so considerable that a room which feels cold to a person sitting still or doing pencil work at a desk will be satisfactorily warm to the same person operating a typwriter.

Such long-term thermal reactions are experienced as the delayed result of a given activity pattern rather than as immediate subjective sensations of heat or cold. Thus, it is perfectly possible to enter

continued on p. 182



IN EVERY ARCHITECT'S OFFICE ...

KENROYAL VINYL TILE SAMPLES

You'll want to be sure you have this sample box on hand for quick, easy reference to the full range of high taste colors available in the finest of vinyl tiles. KenRoyal, a luxurious homogeneous vinyl by Kentile, Inc., offers qualities demanded by your most discriminating clients . . . it is greaseproof, easy to maintain. Colors include the much wanted plain black and plain

white as well as 6 matching colors in 1-inch wide Feature Strip for unlimited design scope. Available in Standard tile size: 9"x9". Thickness: Standard (.080") and \%". If you have not yet received a set of these 3"x3" Architect's Specification samples, please write on your letterhead to Kentile, Inc., 58 2nd Ave., Brooklyn 15, N. Y. We will be glad to rush them to you.

179

KENTILE, INC. America's largest manufacturer of resilient tile flooring

KENTILE Asphalt Tile, Carnival Kentile, Corktone Kentile • KENCORK, Cork tile for Floors and Walls • KENRUBBER, Rubber Tile • KENFLEX, Vinyl Asbestos Tile, Carnival Kenflex, Corktone Kenflex • KENFLOR Vinyl Tile, also available by the yard • KENROYAL Vinyl Tile • SPECIAL KENTILE, Greaseproof Asphalt Tile • THEMETILE, KENSERTS, Decorative Inserts • KENCOVE, vinyl wall base • KENBASE, wall base.

TISHMAN BUILDING TEAM DEVELOPS NEW



EDGARDO CONTINI Victor Gruen & Associates

Chief Engineer Contini says: "The Tufcor alternate was selected by the contractor over a conventional forming system, and we're certainly pleased with the way it came through. Instead of conventional forms for casting the building's 13 concrete slab floors, Tufcor was used. The result was a much cleaner job without a lot of shoring. And as we expected, valuable construction time was saved."



H. B. RIGHTMIRE
C. L. Peck Construction & Realty Co.

Project Manager Rightmire says: "Tufcor saved us two months over conventional forming systems. We had no delays for form stripping, and subtrades worked on the deck below when the deck above was laid. Placing the pre-cut, job-sized Tufcor sheets was a fast, easy operation. Special anchorages were provided because of seismic conditions. Our savings and speed with Tufcor were far better than we're able to get with conventional forming."



G. W. BAUER
C. L. Peck Construction & Realty Co.

Job Superintendent Bauer says: "We measured Tufcor against our experience with conventional forming every step of the way. Tufcor saved us quite a bit of clean-up time because there was so little leakage of wet concrete. And on concreting, Tufcor saved at least 60 days. We poured two floors one week, three the next—a floor every other day. We were able to organize crews so much better with no stripping to do and no uneven demands for labor."

IN LOS ANGELES:

New use of TUFCOR® saves two months construction time on new Tishman project

Replacing customary forming for concrete floor slabs, TUF-COR stays in place, eliminates removal of forms, speeds up concreting to a rate of one full floor every other day

If you've always thought of Granco's Tufcor only in terms of strong, fire-safe roof construction, the Tishman Building team's experience proves the profitable use of this tough-tempered, deepcorrugated steel form for floor slabs with spans up to 7 ft.

This noted team of designers and builders used 230,000 sq. ft. of uncoated 24-gage Tufcor as permanent, stay-in-place floor forms. Typical span was 6'8" with a 334" lightweight structural concrete slab. The tough-tempered, corrugated Tufcor sheets gave the finished slab high strength and safety well beyond ordinary requirements.

Tufcor out-performed conventional forming methods right down the line. Pre-cut Tufcor was easy to handle and went in faster, provided an immediate working deck for all trades, eliminated form stripping, reduced

planking and shoring. Concrete placing was completed in an amazingly short time. Over all, Tufcor keyed a 60-day faster construction schedule!

Tufcor-formed floors may well be an equally profitable specification in many of your own projects. For complete information, estimates or costs on your building plan, consult Granco home or district office, Attention Dept. F-63; or, see our listing in Sweet's Catalogue.

USE OF TUFCOR, PRAISES ITS PERFORMANCE!



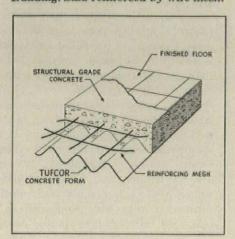
M. WEINGARTEN
Tishman Realty & Construction Co.

Builder's Representative Weingarten says: "Time means money on a construction job like this. The fact that Tufcor doesn't have to be removed once it's placed saved us a lot of time. It was only one of several ways Tufcor helped us keep costs down. Equally important, we'll start realizing tenant revenue earlier because of earlier completion of the building."



The minute it's placed, Tufcor creates a safe, strong work platform.

How Tufcor formed floors in Tishman Building. Slab reinforced by wire mesh.





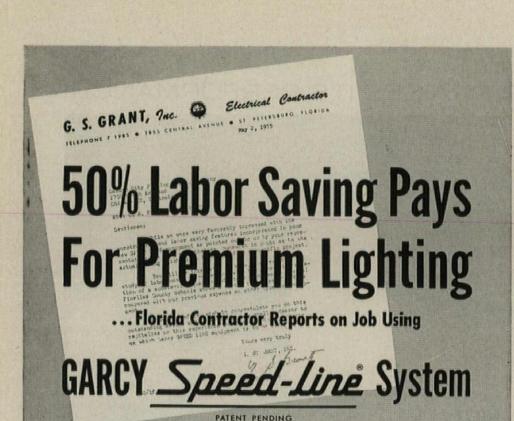
NOW UNDER CONSTRUCTION, the modern, new 13-story Tishman Building at 3325 Wilshire Boulevard in Los Angeles. Architects-Engineers: Victor Gruen & Associates, Los Angeles, California. Owner: Tishman Realty & Construction Co., New York, N. Y. Contractor: C. L. Peck Construction & Realty Co., Los Angeles, California.



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Here is the contractor's report on an installation of lighting fixtures in a number of Florida schools: "A study of labor costs shows a saving in excess of 50% compared with previous expense." Money saved on installation more than paid the difference in cost between standard lighting and the finest commercial fixture available, the Garcy VISUALIER.

Speed-line



FIXTURES ARE PRE-ASSEMBLED AND PRE-WIRED AT FLOOR LEVEL

No separate external mounting channel needed.



ENTIRE RUN IS RAISED TO CEILING
AS A SINGLE UNIT

No straining at top of ladders. Fewer stem hangers needed.

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SPRING cont'd.

a room and decide that it is "slightly warm" simply because it is somewhat warmer than another room you have just been in, and then sit down at a desk and do a half-hour's work and end up feeling "it's a bit chilly in here."

The principal truism to be deduced from these facts is that the best resolution of the argument as to whether man is a simple heat engine or an unpredictable mass of extremely individualistic reactions-which is often the contention of the heating engineer-is that he is both. Recent research has shown that the differences in physiological reaction to temperature, even between persons hospitalized for hypo- and hyperthyroid conditions, are not very pronounced. Temperamental differences are pronounced, especially in the home situation where they have plenty of opportunity to influence activity. Thus, it is comparatively easy to satisfy a large, miscellaneous group of people, temperature-wise, in a movie theater where they are all limited to the same minimal activity-sitting in chairs and craning their necks-and subjected to the same emotional stimuli, even though there may be, in the group, people who keep their home thermostats set anywhere from 68° to 78°.

A temperature of about 73°, then, may be taken as the minimum comfort level for a state of average indoor activity, assuming average indoor winter clothing and a group situation which does not allow much for temperamental differences in behavior-i.e., the typical large office situation. Since this temperature is usually reached only in wintertime, under heating conditions, it is normally associated with a fairly low relative humidity. Modern physiological knowledge has established that under such minimal temperature conditions, variations in the relative humidity have little influence on comfort, since at such times the body is evaporating comparatively little moisture. Low wintertime relative humidity does have the significance, however, of providing a good deal of leeway for increased physical activity, since perspiration generated by overheating is readily evaporated.

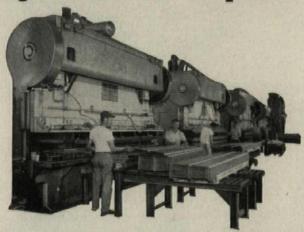
So far, rather elaborate analysis has established the not-very-surprising fact that it is possible to keep people happy in winter provided you keep them warm enough—"warm enough" being about 73° if they are not flat on their backs, or stretched out on the couch reading, and somewhat warmer if they are. Concealed in this seemingly simple formulation, however, are two exceedingly important ideas. The

continued on p 186

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modern buildings...born on the production line...



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Small building budgets can be a headache—especially when coupled with big-budget tastes. But you can give your clients distinctive structures at surprisingly low cost—when you employ the Butler Building System.

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All nine airlines using Cleveland's fine new airport agree that it's the nation's most efficient . . .

First for efficiency... by design! From the ground up, planned by architects Outcalt, Guenther & Associates around the most efficient flow of traffic. Passengers (2½ million last year!) walk a minimum of distance... travel to and from planes in far less time... pick up and check baggage much faster... find quick relaxation in the spacious restaurant, coffee-shop and drug store. And ... looking to the future ... it's designed to efficiently accommodate ever-increasing numbers of planes and passengers.

Beautifully modern . . . it's constructed of aluminum, brick and granite . . . with striking terrazzo floors and liberal use of glazed ceramic-faced brick in various colors. Yet, for all its beauty, the entire terminal is designed for the lowest maintenance possible.

And . . . for the quick refreshment of passengers and airlines personnel . . . the architects specified Westinghouse Water Coolers.

FIRST...by design

Cleveland Hopkins Municipal Airport, Cleveland, Ohio Designed by Outcalt, Guenther & Associates Built by R. S. Ursprung Company

WESTINGHOUSE WATER COOLERS

Were specified by architects Outcalt, Guenther & Associates for Cleveland's great new airport because, by design, they're . . .

First for Efficiency! Deliver up to 60% more cool water at less cost . . . with Patented Pre-Cooler and Super Sub-Cooler that use cold water to pre-cool incoming water and sub-cool the hot liquid refrigerant.

First for Convenience! Only Westinghouse offers Dual Electric Control-both finger-tip and toe-tip control-at no extra cost. Plus Automatic Stream Height Regulator for no-spurt, no-splash drinking. Compact, space-saving design occupies only 14 square inches of floor space. Stainless steel, splash-proof top is sanitary, unbreakable.

First for Dependability! New Solenoid Water Valve eliminates all possibility of leaks . . . Hermetically sealed Refrigeration System assures more years of trouble-free performance . . . plus E-Z Clean Strainer that prevents water stoppage due to pipe scaling. All models backed by Westinghouse 5-Year Guarantee plan.

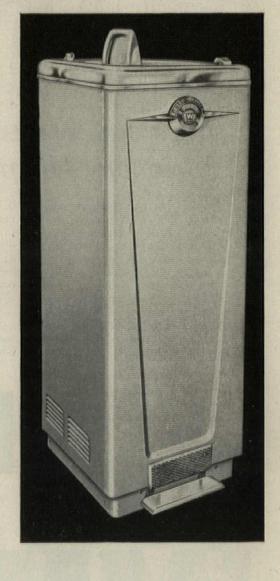
Put Westinghouse in your plans . . . just as more and more leading architects are now doing. Specify the newest and finest of water coolers for your clients. 18 handsome models to choose from. Call your Westinghouse Water Cooler Distributor today. He's listed in the Yellow Pages of your telephone directory. Ask him about the new PAY-WAY PLAN ... and learn how Westinghouse Water Coolers pay for themselves.

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for every Hospital need!

It's a fact that messy garbage cans take up space...slow down the work of cooks and dishwashers ... cost money to buy, empty and clean ... invite loss of silver ...

cause odors and attract vermin.

It's a fact too, that regardless of what garbage problem you have, an automatic Waste King Pulverator can solve it more efficiently and economically than any other method.

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- 1. Dependability. Rugged design and efficient operation proved in over 30,000 commercial installations. Years of trouble-free operation.
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- 3. Experience. Waste King, pioneer and world's largest manufacturer of commercial garbage disposers.
- 4. National Service. Expert factory service agencies in all principal cities. No shut-down worries.

Various models grinding from 200 pounds to over 2,000 pounds per hour. Ask your dealer to estimate your volume and recommend Waste King models needed.

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Dept. AF-5



SPRING cont'd.

first is, that the level at which most of us keep our thermostats, in wintertime, is not an "ideal" level, but a minimum. The second is that any particular figure for this minimum applies only to the limited case of a certain assumed level of physical activity, and is actually influenced by so minor a difference as that between reading and typewriting. Still another important qualification is that the thing which determines this level is not our sensation of heat or cold on entering a room, but our long-term physiological reactions on carrying out, within it, a particular purposeful, or studiously purposeless activity (alternatively, we may adapt to temperature by moving about if we are a little cold, and often do so).

... and a maximum ...

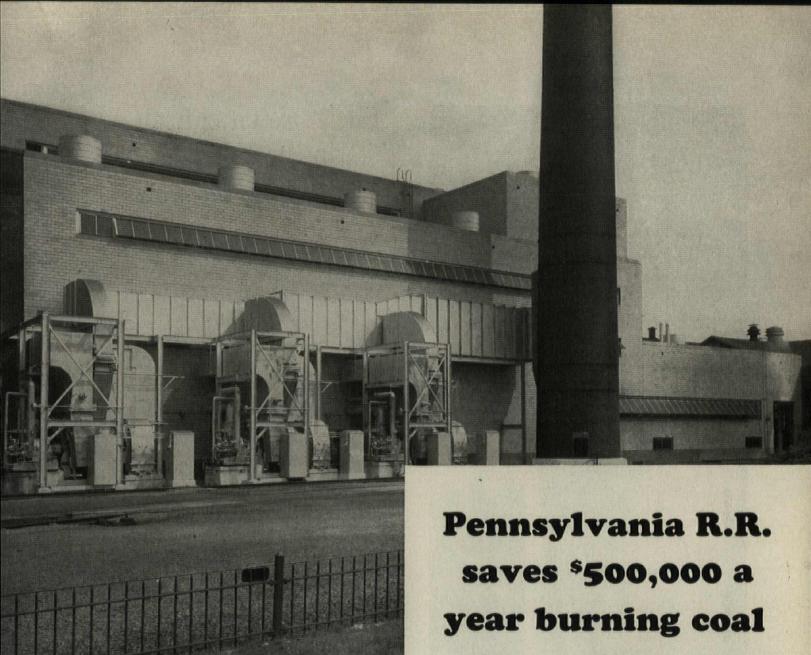
If what has been established is a minimum, then above this point must lie an otherwise-limited comfort zone, and this is exactly so. For, like other warm-blooded animals, we have a capacity to adapt to higher temperatures, by evaporation. By greatly increasing bodily heat loss, evaporation enables us to tolerate temperatures considerably above the minimal level without discomfort, and also to engage in fairly strenuous physical activity under warm conditions without distress. In discussing evaporative heat loss, the physiologist makes an important distinction between what he calls "insensible evaporation"-which takes place without our being aware of it-and "sensible evaporation." Sensible evaporation represents the incipient breakdown of the mechanism of evaporative cooling and is accompanied by discomfort.

Thus, the limits of the comfort zone are delineated, first, by the minimal temperature level, which is largely independent of the relative humidity, and second, by the onset of sensible perspiration, which is very much dependent on humidity as well as temperature conditions. The upper level of the comfort zone is, in fact, a series of combinations of temperature and humidity, each being equally tolerable at a given activity level.

... but it isn't the heat; it's the humidity ...

That this is obvious should not be allowed to detract from its significance, because it runs directly counter to current practice in air-conditioning control. And much current dissatisfaction with the result is traceable to this fact.

What might be called the "fulcrum" of continued on p. 190



Consult an engineering firm

Designing and building hundreds of heating and power installations a year, qualified engineering firms can bring you the latest knowledge of fuel costs and equipment. If you are planning the construction of new heating or power facilities-or the remodeling of an existing installation-one of these concerns will work closely with your own engineering department to effect substantial savings not only in efficiency but in fuel economy over the years.

tacts you should know about coal

In most industrial areas, bituminous coal is the lowest-cost fuel available • Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar • Automatic coal and ash handling systems can cut your labor cost to a minimum. Coal is the safest fuel to store and use . No smoke or dust problems when coal is burned with modern equipment . Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

the modern way

Power was a problem at Pennsylvania R. R.'s Juniata shops, part of its great Altoona Works. Low steam pressure was creating costly production delays; electric power failures meant additional delays; obsolete fueling methods resulted in troublesome flyash emission and other problems.

So Pennsy engineers consulted with Gibbs & Hill, Inc. -designers and constructors for the project-and modernized the power plant. Today three 60,000-lb.-perhr. 600 psi coal-fired boilers supply steam to the shop area at 150 psi after it has driven two 1,500-kw turbine-generators. Between an adequate steam supply and reliable by-product electrical services, production delays have been eliminated. Air pollution is a thing of the past. Modernization of fuel handling has cut manpower costs. And today efficient operation plus lower fuel costs save Pennsylvania Railroad a half million dollars

For further information or additional case bistories showing how other plants have saved money burning coal, write to the address below.

NATIONAL COAL ASSOCIATION

Southern Building, Washington 5, D. C.





LITECONTROL makes Eyeing and Buying Easier in this Drug Store installation

This drug store (part of a large shopping center) is designed to take heavy traffic and the lighting in turn is designed to focus the traffic's attention on the merchandise with maximum eye appeal.

Litecontrol's new series 6000 fixtures which are approximately two feet by four feet were used. This size and type fixture provides a large area of low brightness and transmits a lot of light without specular glare or harmful shadows. Note the evenness of illumination. The fixtures shown were furnished with Albalite #66 glass, but are also available with Plexiglas dish diffusers.

Relamping and cleaning are easy. A light touch on the Trigger Catches opens fixture doors, and an easy push into place closes them securely. This type fixture is also available for Grid type ceilings, and for surface mounting, both two feet by four feet and two feet by two feet. Also comes with two, three or four lamps.

If you want to play up merchandise and play down glare — put it up to Litecontrol. Yes, and you'll find there's a *standard* Litecontrol fixture that will do a quality lighting job for every type of public building. May we help *you?*

INSTALLATION: Bause Super Drug Store, Allentown, Penna.

ARCHITECT-ENGINEER: Supowitz & Demchick, Philadelphia, Penna.

ELECTRICAL CONTRACTOR: The Howard P. Foley Co., Allentown, Penna.

DISTRIBUTOR: Graybar Electric Co., Inc., Allentown, Penna.

FIXTURES: Litecontrol No. 6034RS-66 3 Lamp 40 Watt Rapid Start, recessed fixtures with Corning Albalite #66 ribbed diffusing glass. No. 6000-27 Plaster Frames also furnished.

INTENSITY: Approximately 55 footcandles average in service. (Date of installation, December, 1954).



LITECONTROL CORPORATION
36 PLEASANT STREET, WATERTOWN 72. MASSACHUSETTS

DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS



SPRING cont'd.

the upper limit of the comfort zone is a temperature of 80° at 50% relative humidity. This is one combination of temperature and humidity at which the average office worker, for example, will begin to feel "hot." Another such point is a temperature of 75° at about 80% relative humidity. Still another, if you can picture an office worker in the Arizona desert, not exposed to the sun, is 85° and 20% relative humidity. In other words, the upper limit of thermal comfort, for the activity level specified, is an effective temperature, as defined by the A.S.H.A.E., of 73°-74°.

It is very easy to discover for yourself, in ordinary spring weather, that so long as the temperature-humidity condition falls somewhere between these limits, it makes very little difference what the temperature and relative humidity actually are.

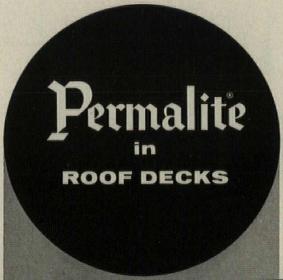
There is a direct connection between the comfort zone concept and popular dissatisfaction with air-conditioning results. Air-conditioned spaces, as comfort air conditioning is presently controlled, invariably feel cooler than the outdoors, whenever the outside temperature is above about 75°. Since much of the time the temperature outdoors is above this point without seeming uncomfortably warm, it is inevitable that continuous air conditioning will be considered "overdone" in such weather.

This, too, can readily be verified. Pick a fine evening in late June, with the outdoor temperature around 75° or 76°, and visit an air-conditioned restaurant. In any such restaurant, under these conditions, the air conditioning will necessarily be operating, to dispose of internally generated heat. Notice your reaction: you will all but shiver on first coming in from outside. After five or ten minutes you will be completely comfortable, but the psychological damage will be done. What you will remember is that the place was "too cold at first," the air conditioning "overdone."

3. The thermostat problem

As though this was not enough, ordinary thermostatic control of air conditioning has another important defect: the thermostat maintains a fixed temperature regardless of the relative humidity, whereas the relative humidity goes up and down through a wide range dependent upon the proportionate time that cooling is taking place. Thus, under light load conditions, the indoor relative humidity is likely to be high—close to that outdoors. Under conditions of heavy load, it is

continued on p. 194



gives these two
pennsylvania schools
BETTER INSULATION



Monroeville Junior High School, Monroeville, Penna. Architect: Walter E. Schardt, Pittsburgh, Penna. Contractor: Guy Miller Co., McKees Rocks, Penna. Permalite Supplied by: Perlite Mfg. Co., Carnegie, Penna.

Moss Side Elementary School, Monroeville, Penna. Architect: Walter E. Schardt, Pittsburgh, Penna. Contractor: Ferraro Construction Co., Pittsburgh, Penna. Permalite Supplied by: Perlite Mfg. Co., Carnegie, Penna.

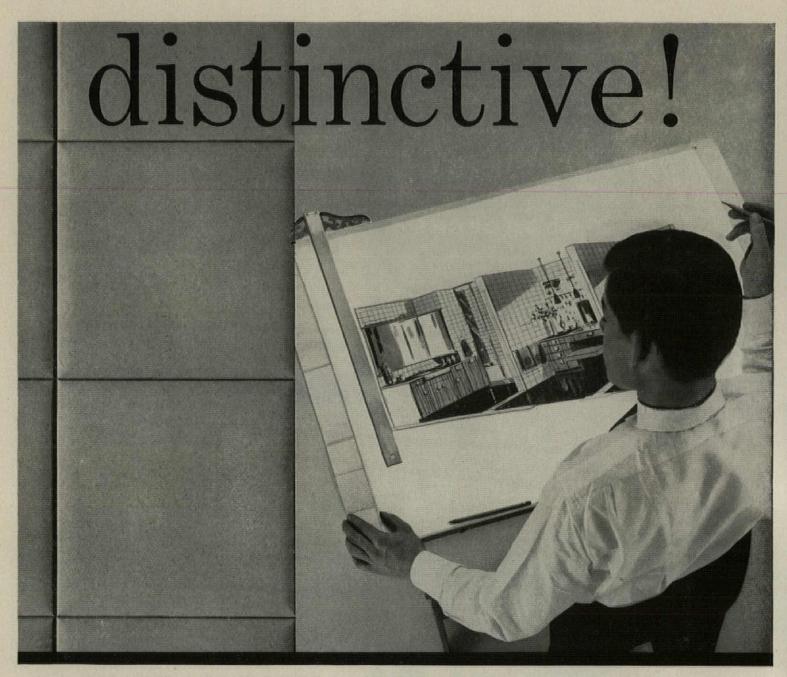
Both schools constructed under the Municipal Authority of the School District of Monroeville, Allegheny Co., Pennsylvania. When these schools were in the planning stage, three different materials were considered for the roof deck. But architect Walter E. Schardt specified Permalite lightweight insulating concrete, after careful calculation showed that Permalite would give the best "U" factor.

On both buildings, Permalite lightweight insulating concrete was poured 3" thick over Steeltex to give a maintenance-free, 20-year bonded roof. The mix was 1:6, with a calculated dry density of 27 lbs. cu. ft. Permalite "K" factor was .59; "U" factor of completed roof .165. Compressive strength tests (28 day) showed a minimum of 141 psi.

Write for information on the many ways Permalite can aid you in your building design problems.

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PERLITE DIVISION
GREAT LAKES CARBON CORPORATION
612 South Flower Street Los Angeles 17, California



Homes look richer when interiors are decorated with styrene wall tile in Granite Tone colors!

Entirely new concepts in building and construction are forecast for plastics in the near future as the result of current research in many areas. Out of this exploratory work may well evolve a broadened functional use of plastics for exterior and interior walls, and even entire housing units.

Meanwhile, exciting new decorating effects are now possible through recent coloring developments in plastic wall tile. Dramatic depth of color and texture, for example, is added to all the well-known advantages of plastic wall tile through these new color tones which are being featured by leading manufacturers of plastic tile in their new lines.

Granite Tone Colors. Plastic wall tile in new coloring effects developed by Monsanto color research has a depth of tone and richness desired by homeowners. Tiles molded in these new "Granite Tone" colors have the textured beauty of

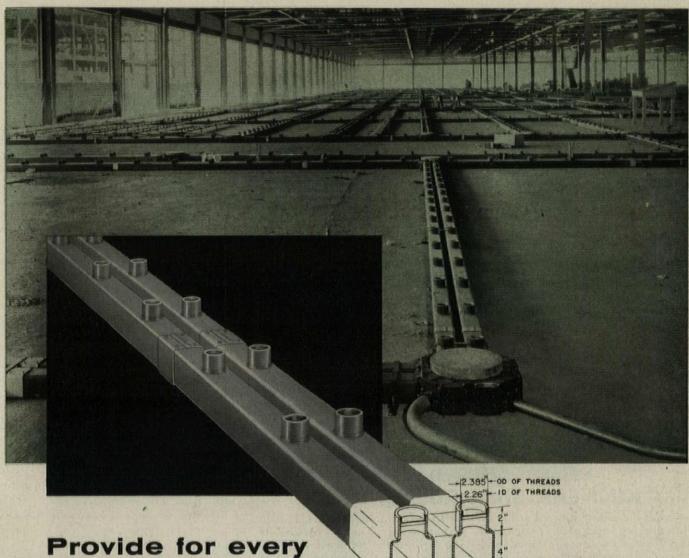
polished granite to create handsome, luxurious bathrooms and kitchens. The development of these "Granite Tone" colors was pioneered by Monsanto, a major supplier of styrene plastic from which guaranteed-quality tile is molded.

Coming soon! Another new Monsanto styling project promises to further extend the decorating uses of plastic wall tile. The design possibilities of tiles molded in unusual shapes—triangles, trapezoids and curved forms—are being explored, and forecast a wider use of plastic tile.

Plastics in construction—Because of the increasing interest in plastics as basic materials in construction, Monsanto has formed a Structural Plastics Engineering Group to study the functional uses of plastic materials. Architects and builders are invited to write for counsel on technical aspects of plastics for building and construction.

A NEW REPORT, "Plastics in Housing," has recently been published by the Department of Architecture of The Massachusetts Institute of Technology. The M. I. T. study was made possible by a Monsanto grant-in-aid. Copies are available at \$2.00 each. Address Monsanto Chemical Company, Plastics Division, Room 220, Springfield 2, Mass.





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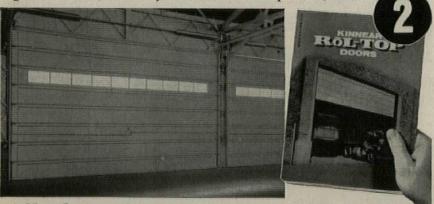
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SPRING cont'd.

driven down—sometimes as much as 20 or 25% below the light-load level. The result is that even though a constant air temperature is maintained, the effective temperature necessarily "cycles."

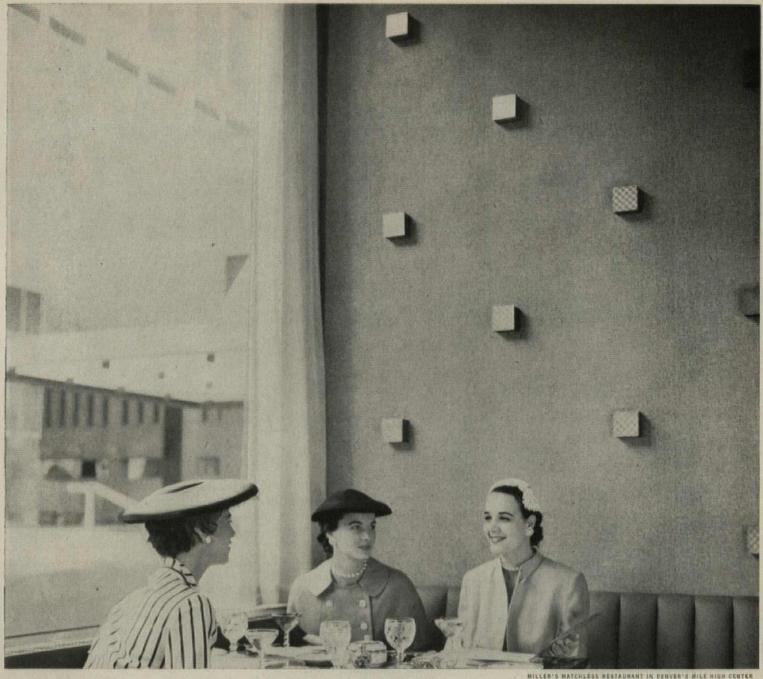
In mildly warm, humid weather this defect is especially pronounced, for once the occupancy load has raised the indoor temperature above the thermostat setting, the cooling equipment starts to operate and runs for a much longer time than is actually needed to restore a comfortable condition. It does so because most of the "work" done by the conditioner takes the form of dehumidification, and the thermostat has no "awareness" that this is taking place. (The thermostat is driving two horses with one set of reins: it waits until the horse it knows about starts pulling before saying "whoa.")

In extremely hot weather, with the thermostat set to produce acceptable results under low-load conditions and the equipment functioning more or less continuously, the relative humidity is driven to the lowest possible level and held there. The resulting average effective temperature is thus considerably lower than normal—a fact which has led to the practice of resetting controls upward to maintain a fixed differential between the indoor and outdoor ambient temperatures—actually a crude way of achieving an approximate effective temperature control.

None of these defects in performance arise from defects in air-conditioning equipment. Rather, they are due to the misguided practice of attempting to control apparatus which alters both the temperature and the moisture content of the air with a device that senses only its temperature-the standard thermostat. In systems which use separate control of temperature and humidity (through the medium of re-heat) the defects do not arise since a constant combination of temperature and humidity is maintained which results in an effective temperature that, at any rate, does not vary from day to day and hour to hour.

There is, however, a simpler and better solution of the problem. This is to use an effective temperature thermostat to control cooling equipment—an instrument simultaneously sensitive to both temperature and humidity. Experiments with such devices prove that they permit, first of all, maintenance of a much warmer summer condition than is ordinarily considered necessary, with a corresponding saving in operating cost. They also eliminate unnecessary contrast between indoor and outdoor conditions on days which are fairly com-

continued on p. 198



Plastic - Metal walls brighten Mile High Center

Behind the lunching trio at Denver's pioneering Mile High Center is an exciting new kind of wall. It is a laminate of Col-O-Vin semirigid vinyl plastic permanently bonded to sheet steel. To the eye and to the touch it has the texture of a fine blue-gray linen.

Inexpensive to erect, this wall is light-weight, fire-resistant, virtually damage-proof. The colorful Col-O-Vin surface will never need refinishing, won't chip, scuff or stain. According to the manager of Miller's Matchless Restaurant,

Col-O-Vin is "easier to clean than any material we've ever used."

This versatile new Col-O-Vin/ Metal Laminate challenges the imagination of every architect and designer. It combines in a single material the structural strength of cold metal with the warmth of color, texture and pattern.

Col-O-Vin/Metal Laminates require no finishing. They can be deep-drawn, drilled, crimped or embossed. They are machined on standard equipment, cost less to fabricate than metal alone.

Whether your specialty is industrial or residential, chances are Col-O-Vin/Metal Laminates can give you a competitive edge in the buildings you design. The information you need is in a 16-page color booklet, "Col-O-Vin Meets Metal," containing color swatches, laminate samples, complete technical specifications. Write us for your copy.

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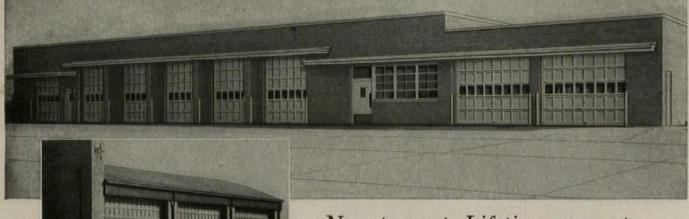
COL-O-VIN

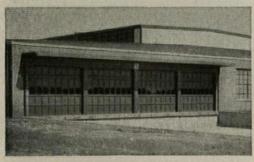
vinyl plastics

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The panels of this door are Exterior Grade Dorlux, a product of Masonite Corporation. Dorlux is a wood product selected by the manufacturer of this door to give you the best in quality, beauty, and service. These panels are guaranteed not to split, splinter, delaminate or crack due to any natural conditions of weathering. If a Dorlux panel fails in any of these ways, notify Masonite Corporation, giving conditions of failure and name of door manufacturer. After verification of the failure, Masonite Corporation will furnish a new door section or an entire new door, depending on the circumstances, at its expense.



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Altec Lansing control consoles are found wherever outstanding quality is required—from more elaborate public address systems to the nation's leading recording and broadcast studios. Like the equally famous Altec amplifiers, preamplifiers, microphones and loud-speakers, Altec control consoles are first choice among discriminating engineers because they are custom-designed to do a specific job best

are custom-designed to do a specific job best. For further information on Altec Lansing sound products, see Sweet's Architect's File (32a/AL) or Industrial Construction File (12j/AL) or write Department 5-F for the Altec Engineered Sound Products Catalog.





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SPRING cont'd.

fortable outside, and greatly reduce the characteristic "long cycling" experienced in humid weather with ordinary thermostatic control. Such instruments are commercially available, but will probably need fundamental improvement and simplification before they achieve widespread use. Their greatest virtue can be stated very simply: they react like people to what an air-conditioning system does to the air. And because they do, they are capable of maintaining a constant comfort condition.

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Here's how it would work:

- ▶ First, heating equipment would be controlled with a standard thermostat set at about 73°, as at present. This thermostat would have no function except to turn the heating element or medium on or off, or modulate its flow within a narrow resulting indoor temperature range.
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 effort would be not to maintain an absolutely constant temperature, but to prevent real overheating—due to solar, lamp
 or occupancy loads—by the admission of
 sufficient amounts of outdoor air whenever this air was capable of doing the
 cooling job. This thermostat would function between about 74° and 76° or 77°.
- ▶ Third, an effective temperature thermostat would control the cooling equipment, operating at a series of combinations of temperature and humidity close to the upper limit of the comfort zone, and thus eliminating the phenomenon of overcooling.

Preferably, these three sensing instruments would be housed in a single case, with some means of altering the setting of the entire series towards "warmer" and "cooler" without disturbing the interrelationship of their separate settings.

With such a control device, air conditioning can be made both more acceptable and less expensive—and it will have some of the temperature variations which make spring weather worth imitating indoors.

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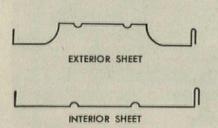
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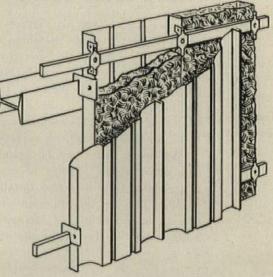


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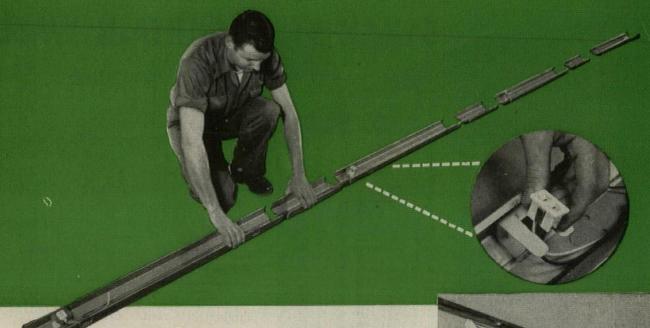
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The new Gibson Ortho Fixtures mount on a special channel called the Uni-Race. In the photo above, the telescoping sections of the Uni-Race are being assembled on the floor in a matter of minutes. The receptacles which come with each 4-foot section are connected as shown in the inset. The light but rigid Uni-Race in 24' to 48' lengths is easily lifted and hung directly on joists, beams or stems. The fixtures simply snap into place on the Uni-Race which holds them in perfect alignment.

An easier, faster and far better job! Is it any wonder that contractors report savings of more than 50% in labor and materials on Gibson Ortho Installations?

Wouldn't you like more information about this totally new concept in industrial and commercial lighting design? Drop us a line today. We'll send you the whole story.



SNAP—IT'S UP • Connection is made through a built-in plug in the fixture which engages the receptacle in the UNI-RACE. Any fixture

out interrupting other fixtures on the circuit

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Fast, easy-to-apply Armaflex pipe covering can be slit lengthwise, snapped in place, and sealed with Armstrong 520 Adhesive on lines already in operation. If applied at the same time as piping is being installed, Armaflex can be slipped on, readily follows bends in copper tubing without cutting or fitting.

New insulation for liquid cooling and heating lines is

flexible for fast, easy installation

Extreme flexibility of Armstrong Armaflex* allows fast insulation of liquid cooling and heating lines. It can be compressed without damage, applied in close quarters, and bent to fit the contour of formed tubing. On the job, Armaflex can be slipped on while pipes or tubing is being installed or slit and snapped over lines that are already in place.

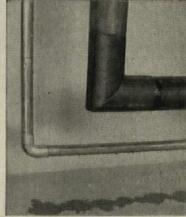
Made of a resilient, foamed plastic, Armaflex will not crumble, chip, or rub off. Waste is negligible. Fitting covers can be made up easily and rapidly from miter-cut pieces.

No separate vapor barrier is needed

on Armaflex installations. The foamed cellular composition is a positive vapor seal. Because Armaflex stays dry in service, its high K factor of 0.28 at 75° F. remains high for the life of the installation.

Armstrong Armaflex is made in $\frac{1}{2}$ " and $\frac{3}{6}$ " thicknesses for pipe and tubing to $\frac{3}{6}$ " I.D. Pieces are 6' long.

For free booklet containing complete data on this remarkable new insulation material, call your nearest Armstrong office or write today directly to Armstrong Cork Company, 2005 Rooney St., Lancaster, Pennsylvania.



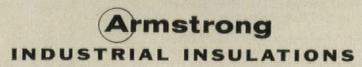
Stops condensation, when used in ½" thickness, under normal design conditions on indoor lines operating at temperatures above 32° F. On heating cycle, Armaflex will withstand 200° F.



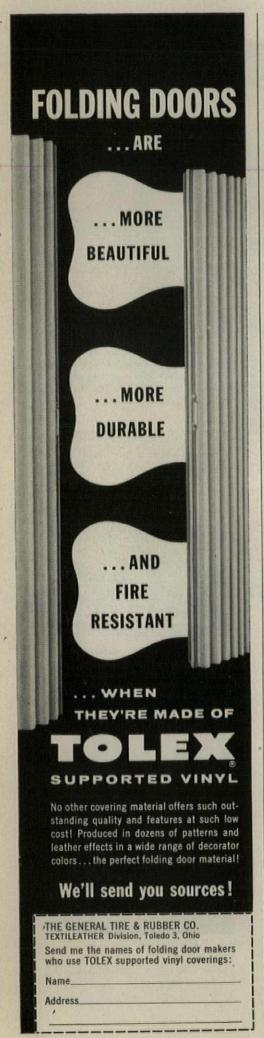
A self-extinguishing material, new Armaflex will not support combustion and may be slipped in place over copper tubing and held back with clamps while sweat fittings are made.



Joints are cemented with Armstrong 520 Adhesive. This easy-to-handle adhesive furnishes a tight, vaporproof bond. No other sundry is required on an Armaflex pipe covering job.



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A spotlight on new tests, new standards, new studies

238 STANDARDS IN 1955

The American Standards Assn. issued 238 standards during 1955, as contrasted with 153 in 1954. The greatest number of new standards in 1955 was in the construction field—55. The Association has been approached by one of the major organizations in the field of homebuilding to discuss providing a program of standardization for material, supplies and equipment that go into residential structures.

WOOD RESEARCH EXPANSION

Holgate Brothers Co., Inc., has announced the formation of a research division to help designers, engineers and manufacturers determine the possible application and practicability of wood for packaging component parts in manufacturing and complete assembled wood product units. Holgate is the world's largest wood working factory.

AMERICAN STANDARDS PUBLISHED:

Cast-Brass Solder-Joint Fittings, B16.23-1955. Revision of B16.23-1953. Sponsors: American Society of Mechanical Engineers; Manufacturers Standardization Society of the Valve and Fittings Industry; Heating, Piping, and Air Conditioning Contractors National Assn.

Conditioning Plastics and Electrical Insulating Material for Testing, ASTM D6 18-54; ASA C58.28-1955. Sponsor: American Society for Testing Materials.

AMERICAN STANDARDS APPROVED:

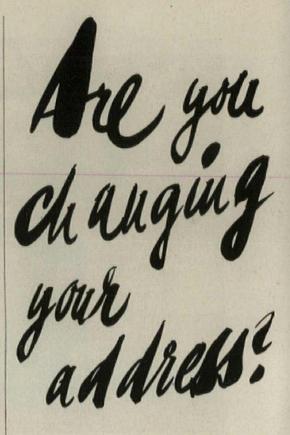
Gypsum Lath, Specifications for, ASTM C37-54; ASA A67.1-1956 (revision of ASTM C37-50; ASA A67.1-1951).

Typsum Sheathing Board, Specifications for, ASTM C79-54; ASA A68.1-1956 (revision of ASTM C79-52; ASA A68.1-1953).

Testing Gypsum and Gypsum Products, Method of, ASTM C26-54; ASA A70.1-1956 (revision of ASTM C26-52; ASA A70.1-1953).

Gypsum Partition Tile or Block, Specifications for, ASTM C52-54; ASA A105.1-1956 (revision of ASTM C52-41; ASA A105.1-1954). Sponsor: American Society for Testing Materials.

Methods of Determining Areas in Office Buildings (other than government buildings), Z65.1-1956. Sponsors: Office of Education, US Department of Health, Education and Welfare; National Association of Building Owners and Managers.



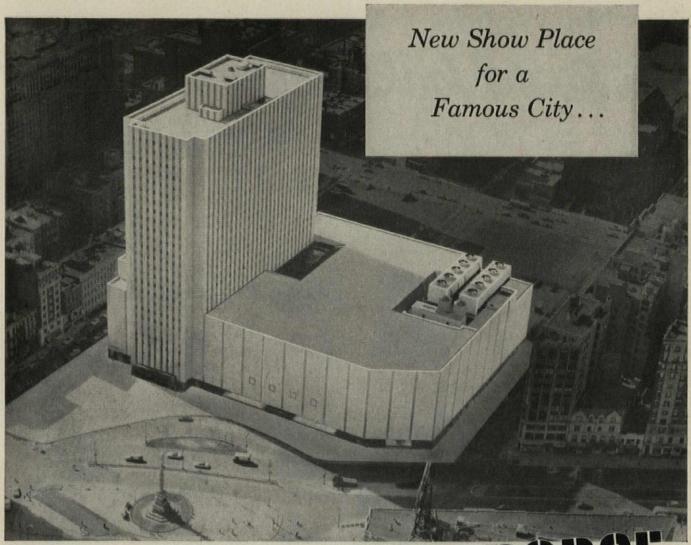
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BOOKS

LATIN AMERICAN ARCHITECTURE SINCE 1945. By Henry-Russell Hitchcock. Published by The Museum of Modern Art, 11 W. 53rd St., New York 19, N.Y. 204 pp. 8½" x 10¾". Illus. \$6.50

A survey in brief text and beautiful pictures of the remarkable achievement in 11 Latin American countries where one of the world's greatest building booms is now underway. The author's preface relates this new important architectural development to the physical, economic and historical background of these countries. University cities, public housing projects, industrial buildings, churches and private houses by more than 50 architects are illustrated by photographs and plans. Forty-seven buildings are included.

The book was prepared under the Museum of Modern Art's International Exhibition Program. An exhibition containing photo-murals and three-dimensonal slides of the same buildings is now touring the US.

SUN AND SHADOW. By Marcel Breuer. Published by Dodd, Mead & Co., 432 Fourth Ave., New York 16, N.Y. 205 pp. 8" x 1034". Ilius, \$7.50

A handsome pictorial review of the work of a leading contemporary architect. The book was designed by Alexey Brodovitch and edited by Peter Blake, architectural editor of House & Home.

THE BUSINESS LAW OF REAL ESTATE. By Gerald O. Dykstra and Lillian G. Dykstra. Published by The MacMillan Co., 60 Fifth Ave., New York 11, N.Y. 852 pp. 61/2" x 91/2". \$10

A textbook for the student of real estate law and a reference book for the real estate operator and mortgage banker. Gerald Dykstra is a professor of law at the University of Michigan.

MODERN REAL ESTATE PRACTICE. A Managerial Approach. By Frederick E. Case. Published by Allyn and Bacon, Inc., 70 Fifth Ave., New York, N.Y. 454 pp. 61/4" x 91/4". \$6.50

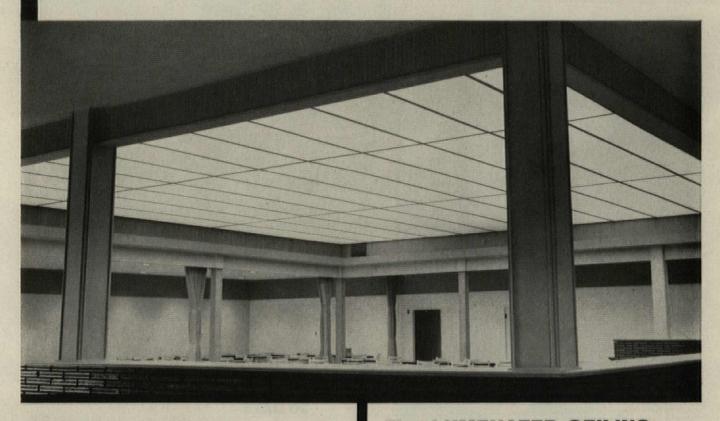
Another text-reference book on real estate. The author is associate professor of real estate and urban land economics at University of California in Los Angeles.

OTHER BOOKS RECEIVED

BASIC INFORMATION SOURCES ON DOWNTOWN SHOPPING DISTRICTS. Business Service Bulletin No. 135. US Department of Commerce, Washington 25, D.C. 12 pp. 8" x 101/2". 10¢

FUNDAMENTALS OF CARPENTRY, Vol. I—Tools, Materials, Practice. Vol. II—Practical Construction. By W. E. Durbahn. Published by American Technical Society, 850 E. 58th St., Chicago, III. 374 and 512 pp. IIIus. \$3.95 and \$4.95

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HELPS SELL HOMES By serving as an assurance of quality construction throughout, lath and plaster boosts sales for builders like Joseph Lupowitz & Sons, Inc., Philadelphia, Pa.

Acoustical Plaster provides quiet, restful surroundings in applications like this new dormitory at Michigan State University, East Lansing, Mich.

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Lath and plaster economically provides the fireproofing needed in structures like Chrysler Corporation's new body paint and finishing plant.

LOW INSURANCE RATES

Substantial savings in insurance rates are made through use of lath and plaster in many buildings like Deerpath School, Lake Forest, Ill.

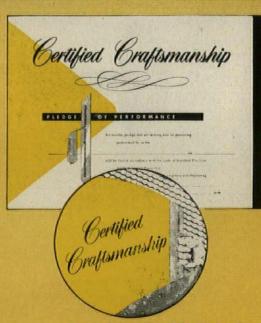
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• The Certified Craftsmanship Certificate is a written pledge of adherence to work schedules, job cooperation, work of craftsmanship caliber and nationally recognized standards of quality. A certificate is yours for the asking from lathing and plastering contractors adhering to the code of Standard Practices for Lathing and Plastering.

We suggest a thorough reading of the Code of Standard Practices which appears on the back of every certificate. Ask your lathing and plastering contractor for a copy, or write National Bureau for Lathing and Plastering, 1401 K Street, N.W., Washington 5, D. C.

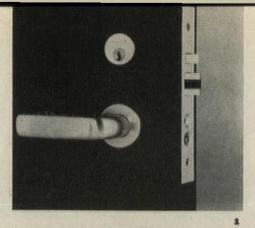
Associated Manufacturers of Lathing and Plastering Materials
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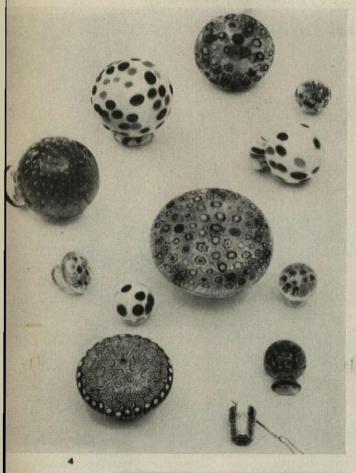
FINISHING LIME ASSOCIATION OF OHIO • GYPSUM ASSOCIATION
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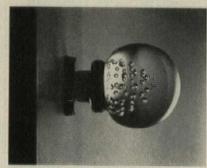


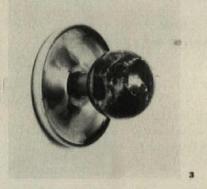
This is the emblem of the National Bureau for Lathing and Plastering. It symbolizes high standards of job performance and responsibility.

PRODUCTS









DOOR KNOBS, plain and fancy, done by architect and artists

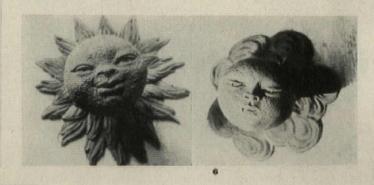
Designers who have singled out the doorknob as the building product most likely to resist style change will have to look for a new symbol of status quoism. Yale & Towne's architecturally hip collection is going places-probably into and onto some of the finest modern buildings. Buffed brass, green tinged blackened bronze, ebony, fine marble and swirls of colored glass-wonderful materials that are nice to grab and a treat to handle-have been used for knobs, levers, escutcheons by the artists, sculptors, ceramists and one architect commisioned by Yale & Towne, Philip Johnson, the architect who was asked to contribute to the first group, fashioned the Bauhausian lever handle (1) with its precise keyhole plate. Perhaps the most adaptable item in the collection, the lever is now in production in aluminum and will soon be available in burnished stainless, brass and bronze. Like the other pieces of art-hardware, Johnson's lever is constructed around Y & T's highly regarded, standard lock mechanisms.

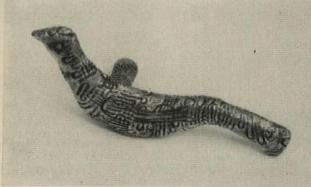
Artists Mirko, Spadini and Enamelist Paolo De Poli, who have been part of the great postwar craft adventure in Italy, have contributed warmth to the cold business of metal hardware. The starred mushroom and Etruscan bird handle (5, 7) are by Mirko. The charming sun and moon pull knobs for double doors (6) are Spadini's.

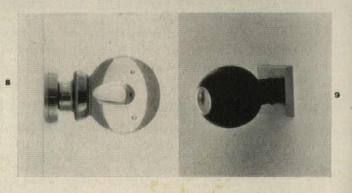
America's crystal palace, the Corning Glass Works, is represented by several pieces. Two have teardrops caught in flawless crystal (2, 8). The ebony and brass elliptical knob (9) and marble sphere (3) are by Designer Van Day Truex, director of Yale & Towne's new hardware styling continued on p. 214











Pontiac City Hall, Pontiac, Michigan Architect: Leo J. Heenan, A. I. A. General Contractor: J. A. Fredman, Inc. Equipped with Adlake Double Hung Windows



Another Adda Ke aluminum window installation



- · Minimum air infiltration
- Finger-tip control
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- Guaranteed non-metallic weatherstripping (patented serrated guides on double hung windows)

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DEPENDABILITY

the one thing in heating you dare not overlook

Petro rotary oil burners are dependable because of their simple design and sound, rugged construction

Sluggish heavy oil (No. 6) is easily controlled by a system that is remarkably free from mechanical "gimmicks." It's like this:

1. A simple oil heater automatically warms the oil to a point where viscosity is constant. (See chart.)

2. A magnetic valve passes the oil to the nozzle when it is warm enough for accurate metering and instant ignition.

That is the basic idea of the Petro Thermal Viscosity Principle. It isn't fancy; it isn't temperamental; but it STAYS ON THE JOB. Petro owners need not be impressed by metering pumps, viscosity compensating valves, or other complicated mechanisms found in many burners.

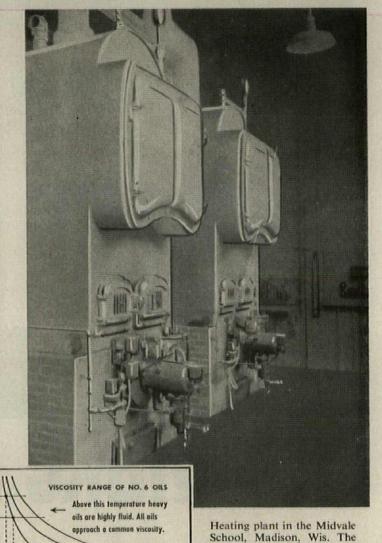
All this and fuel economy too

Petro oil burners have been the steady, reliable work horses in heavy oil firing for over 50 years. They have saved their owners untold thousands of dollars by efficient firing of the viscous industrial oils, which cost less per gallon, and are richer in heat value than the light oils.

Gas-oil models also available

The ability to switch fuels at a moment's notice protects against fuel emergencies and cuts fuel costs. Any Petro rotary oil burner (including those now in use) can be readily combined with the Petro gas burner, providing a dual-fuel firing system in a single integrated unit.

For further information use the accompanying coupon, or look in the yellow telephone directory pages under Oil Burners for name of your Petro dealer.





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Name	
Company	

two Petro rotary oil burners

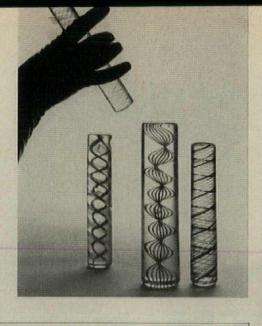
are equipped for automatic

modulating flame control.



department. The playful paperweight knobs and polka-dotted balls (4) (p. 210) and pulls (right) are produced in Italy by Venini.

Proving a building does not have to be a UN headquarters to qualify for a bit of Fernand Leger's work, Yale & Towne asked the machine-oriented painter to state his color and pattern convictions in hardware. The knobs and escutcheons (lower right) he designed before he died





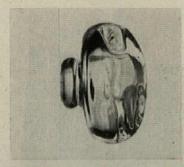
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Mitchell Lighting will continue its basic policies—including an expanded program of product development.

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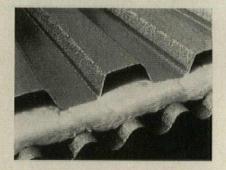




seem to be a perfect inversion of his 1926 statement: "Nowadays a work of art must bear comparison with any manufactured object."

Deservedly pleased with the results of this initial program, the manufacturer plans to expand the collection still further in the next few years, and has announced a custom service for architects who wish to design their own hardware for a building project of reasonable size. Yale & Towne apparently is well aware that door hardware is after all a very real link between a building and people.

Manufacturer: Yale & Towne, Chrysler Bldg., New York, N.Y.



BOX RIB ALUMINUM suitable for siding or sandwich skin

Kaiser's ribbed aluminum panel for industrial buildings is designed both as single sheet siding and as the outside face of a simple field-assembled panel. Providing a net coverage of 32" with one side lap, the sheet is available in lengths of 5' to 12'. Its ribs are 11/2" deep and the surface is embossed to break up reflected light. In insulated wall construction, an interior skin of corrugated aluminum, glass fiber batts and the embossed siding are each, in turn, secured to the structure-either impaled over studs welded to the structural grits or fastened with Z bars (tapeinsulated to prevent metal-to-metal contact) and self-tapping screws (see diagram continued on p. 218



Hospitals build for maximum sanitation, minimum maintenance

by installing
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with built-in window trim

Milcor pioneered the built-in convector enclosure — and now provides Milcor Wall Units with integral enclosures for convectors, radiators, and air-conditioning units. The clean, space-saving designs fit today's interior treatments.

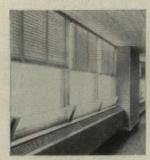
Milcor Wall Units are fabricated to meet individual job details. They are available as factory-welded assemblies or knocked-down for assembly on the job. You can specify width, height, and depth...gauge of steel (either Ti-Co galvanized or regular)...and front-panel construction,

A sales engineer from our nearest branch office can help you put Milcor know-how to work on your next job. Write for Catalog No. 102.

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Milcor Type "A" standard wall uni consists of window stool and convec tor enclosure panels only.



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T-104

New. Hexalum TWI-NIGHTER blind

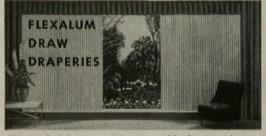




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The new look for your windows . . . with aluminum louvers that rotate. Flexalum brings you the new vertical treatment with light and air control, and exclusive longer-life, lower-maintenance-cost features. Ideal as a room divider too.



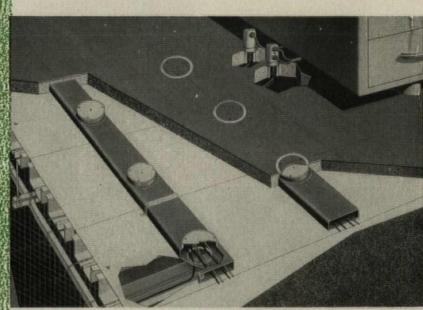
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Listed by Underwriters' Laboratories Inc.

Pittsburgh's State Office Building is an outstanding example of how modern design cuts owners' operating costs by providing for economical alterations in office layout.

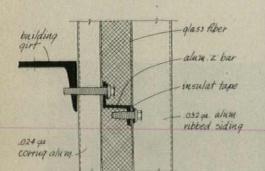
National Electric Header Duct provides easy access to the Fenestra cellular steel floor. The result: a combined raceway system that makes electrical outlets available in any square foot of the floor area.

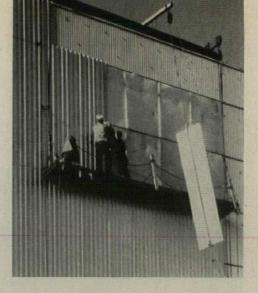
It will pay you to have the details on National Electric Header Duct. Make sure that your plans for cellular steel floor construction include a National Electric Header Duct system. It's the economical way to give owners the cost-cutting flexibility of easy modification in office layout without disrupting office routine.

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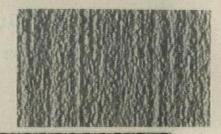
left). The shallow ribs of the outside skin keep the over-all thickness down to 3%" yet the panel's U factor is less than 16—twice as good as a 12" brick and block wall. Cost is another feature. Installed walls run about \$1.10 to \$1.25 per sq. ft.—considerably less than more sophisticated factory-built curtain walls.

Manufactures: Kaiser Aluminum & Chemo

Manufacturer: Kaiser Aluminum & Chemical Corp., Kaiser Bldg., 1924 Broadway, Oakland 12, Calif.

ACOUSTICAL TILE pan baked of perlite to bright white foam

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Manufacturer: F. E. Schundler & Co., Inc., 504 Railroad St., Jolit, Ill.

continued on p. 220

The Client saved \$150,000," says Architect Everett...

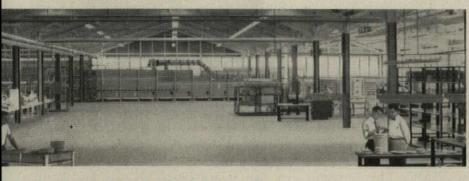


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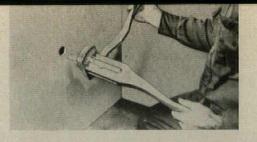


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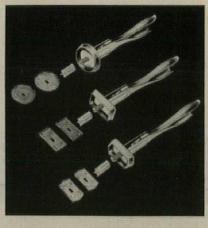
architectural FORUM / May 1956

DRY-WALL TOOL die-cuts clean openings for electric outlets

Putting the bite on gypsum board for a perfect switchbox hole every time its handles are squeezed together, the Quic-Kutter is a convenient, time saving tool in dry-wall work. Without damaging paper facing on either side of 38", 1/2" or 58" board, it cuts precise 2" x 3", 2" x 4" or 4" round openings to fit single or multiple







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Manufacturer: Hartmeister, Room 41, 2020 W. Barberry Pl., Denver 4, Col.

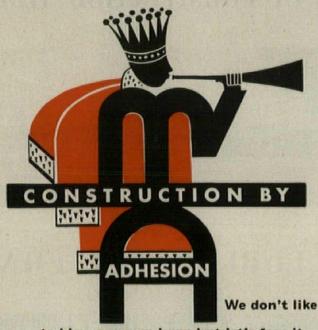


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Manufacturer: American Road Equipment Co., Omaha, Neb.

continued on p. 226



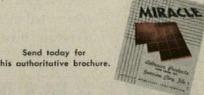
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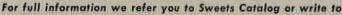
> *Patent #2,597,875 other patents pending

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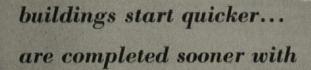
Formerly General Woodcraft Co., Inc.

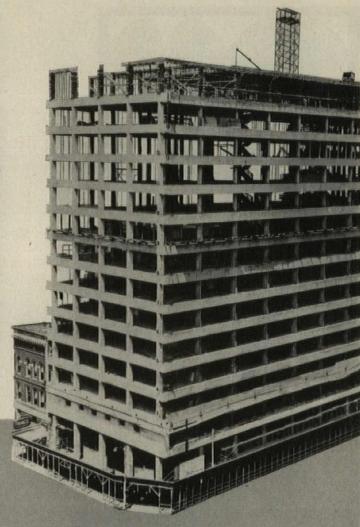
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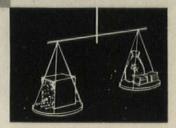
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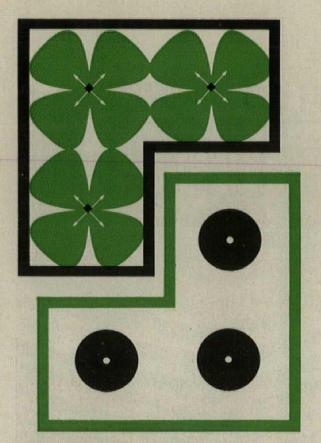
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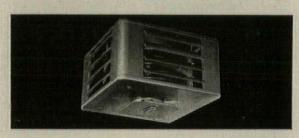
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"Clover leaf" heats 70% more space



Three of Carrier's new 4-way Unit Heaters with "clover leaf" air distribution cover over 80% of this 100-footwide building. Three projection-type heaters of equal capacity with circular air patterns cover 10% of area!

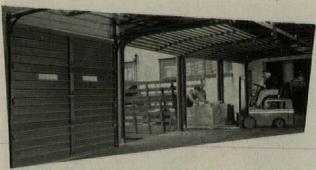
Carrier's exclusive "clover leaf" air pattern discharges heat in four directions over areas up to 108 feet in diameter. Simple adjustments vary air pattern. No outlets to change. No accessories to add. Extra coverage means fewer units, installation and operating savings.

Carrier 4-way Unit Heaters, for use with steam or hot water, come in 8 sizes: 55,000 to 600,000 Btu/hr. Look in your Classified Telephone Directory for the name of your Carrier jobber-distributor.

Complete Line of Unit Heaters. With over 50 years' leadership in temperature control, Carrier knows heating. Carrier Corporation, Syracuse, New York.



industrial heating air conditioning · refrigeration



 The "COMMERCIAL-INDUSTRIAL"—features extra strength, rugged durability and easy operation for every type of non-residential building.



RESIDENTIAL...COMMERCIAL...INDUSTRIAL

CLEAN, MODERN FUNCTIONAL LINES that blend smoothly with all types of architecture are the hallmark of Morrison Roly-Doors.

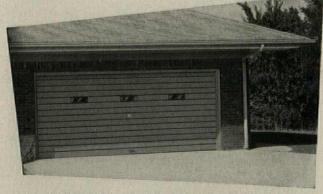
SIMPLIFIED DESIGN ensures safe, easy, trouble-free installation and operation...manual, electrical and by remote control.

BONDERIZED, ALL-STEEL CONSTRUCTION provides lasting good looks and a durability that defies the weather and years of hard use.

ECONOMICAL INSTALLED COST made possible by sound engineering and precise mass production... Morrison Roly-Doors are competitively priced.

OVER 1000 STANDARD SIZES ready for immediate delivery provide a Morrison Roly-Door for every overhead door requirement.

PROMPT DELIVERY AND EXPERT INSTALLATION SERVICE by Morrison Roly-Door Distributors and Dealer-Installers located in all principal cities.



 The "IMPERIAL"—specially designed and built for the finest custom residential installations.



COMPLETE SPECIFICATIONS are available in SWEET'S ARCHITECTURAL FILE or from:

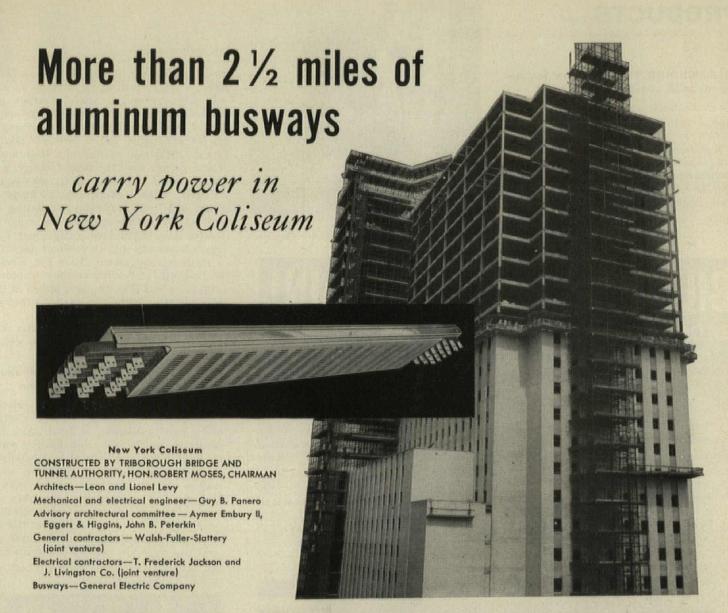
Roly-Door Division

MORRISON STEEL PRODUCTS, INC.

652 Amherst Street, Buffalo 7, N.Y.

Also Manufacturers of MOR-SUN WARM AIR FURNACES AND AIR CONDITIONERS and MORRISON SERVICE BODIES.

In Canada: Overhead Door Suppliers, 1330 Bloor St., W., Toronto 4, Ont.



Important Innovations in Coliseum

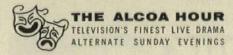
New York City's new Coliseum is modern in every detail, particularly in its electrical distribution system. This 26-story office building, combined with 365,000 square feet of display space, has one of the first major installations of a higher voltage distribution system (480Y/277 volts). More than 2½ miles of busway incorporating aluminum conductors were used to feed power to this huge structure.

Higher Voltage System Saves Money

The higher voltage system provides greater capacity and flexibility than conventional systems. Yet it requires only half as many, or half as large, risers and feeders. Characteristics such as excessive voltage drop or costly power losses present no problems to this system. The use of lightweight aluminum bus bars makes the equipment easier to handle and easier to install.

More and more manufacturers of packaged electrical distribution systems are finding that Alcoa® Aluminum Bus Conductor offers advantages of lower cost, availability, design flexibility. Aluminum distribution bus weighs a third less than a copper system of equal conductivity. Pound for pound, it has greater current-carrying capacity than cable in conduit.





Alcoa Aluminum Is Your Best Bet, Too

Wherever your production requirements demand an efficient, flexible electrical distribution system, it will pay you to specify busways with Alcoa Aluminum Conductors. Write us for the names of manufacturers who specialize in this lighter, better, more economical product. Aluminum Company of America, 2304-E Alcoa Building, Pittsburgh 19, Pa.

Your Guide to the Best in Aluminum Value

WE CHOSE

ALCOA

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ALUMINUM

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ALUMINUM

SELF-WINDING FILTER faces incoming air with constant clean front

The Roll-o-Matic renewable air filter is an inspired adaptation of the old roller towel. As the exposed part of its 70' long, 2"-thick glass-fiber blanket becomes saturated with grime, an automatic timing device (or differential pressure switch) moves it from its compressed 13"-diameter top roll down around a bottom spool. Under nor-



BILDROK SCORES AGAIN!
BILDROK ACOUSTIC SELECTED FOR THE NEW
ST. LOUIS AIRPORT TERMINAL BUILDING



One of the outstanding features of the new \$3,900,000 St. Louis Municipal Airport Terminal Building is the beauty and grace of three huge domes. Helmuth, Yamasaki & Leinweber, architects, wanted a ceiling with excellent acoustical properties, beauty of surface texture, and a material that would easily and gracefully lend itself to the curvature of the three domes. Lath, plaster and Bildrok Acoustic were the materials selected to accomplish these objectives. Harry F. Niehaus, the lathing and plastering contractor, stated: "This is the biggest job we have ever tried with acoustical plaster and it impressively demonstrates the versatility of the material. We machine applied 7,000 square yards, the large areas requiring coverage by single units with no visible lapover joinings."

Architects, Engineers, Contractors — specify Bildrok Acoustic on your next assignment for the satisfaction of a job well done. The smooth flowing qualities of Bildrok Acoustic insure fine texture and easy application. Your finished ceilings and walls will have the right combination of light reflectivity, strength, insulation, maximum sound absorption, and will be absolutely fireproof.

See your supplier or write to Bildrok for complete information.

American BILDROK Company

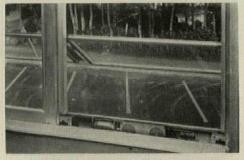
Dept. A-5, 2001 W. Pershing Road, Chicago 9, Illinois

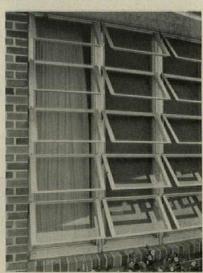
mal operating conditions, the filter can help keep an air-conditioning system at top efficiency for a full year. Average installed cost is about \$65 per 1,000 cfm. served, and annual maintenance averages \$3 per 1,000 cfm. (labor involved: taking out the dirty roll, putting in a fresh one). These prices, says the manufacturer, are half those of disposable filters with equal capacity. Highly effective in all kinds of commercial and industrial ventilating as well as air-cooling systems, the roller is composed of continuous curly glass filaments bonded in a thick resilient pad with a thermosetting plastic. Even the density is graduated for effective dust trapping, with more and thinner fibers placed at the rear to trap minute dust particles that get through the front.

Manufacturer: American Air Filter Co., Inc., 294 Central Ave., Louisville 8, Ky.

AWNING WINDOW opens and shuts at touch of electric push button

All the mechanism for Gate City's aluminum awning windows, including electric motor and switchgear, is fitted inside the standard sill channel. Suitable for many kinds of office and institutional buildings as well as homes, the push button units may be used just for appearance's sake to keep rows of open windows in dress parade order. Windows can be controlled individually or in groups either at the sill or from a remote switch. A hospital patient can close his own window from bed-continued on p. 230







All lumber kiln-dried to specific, and uniform moisture content.



Stiles and rails securely fitted. Stiles are 11/4" instead of 11/8".



A complete coating of resin glue is applied by machine.



Doors pass through a complete conditioning cycle in special kilns.



Special doors are custom-made by experienced craftsmen.

Before and since CS200-55

.. or by any other standard of comparison

PAINE



with air-vented, all-wood grid core is

America's Finest



Hand-matched face veneers; the panels 1/8" thick—instead of 1/0".

Accurate assembly is assured by controlled heat and pressure.



Doors are carefully belt-sanded to a cabinetmaker's finish.



Each door must be painstakingly inspected in oblique light,

The Paine REZO Door is the only flush door manufactured since 1935 backed by 103 years of millwork experience — and 8,000,000 successful installations. Paine's manufacturing standards not only comply with — but they exceed by far — every requirement of the new Commercial Standard 200-55. Step by step manufacturing process photos at left show why, by any standard of comparison, the Paine REZO Door is

Write today for descriptive literature

America's finest!

LUMBER COMPANY, LTD.

G.E. BUILDS THEM

dependable

Equipped with time-tested hermetically sealed compressor for long life and trouble-free operation.

handsome

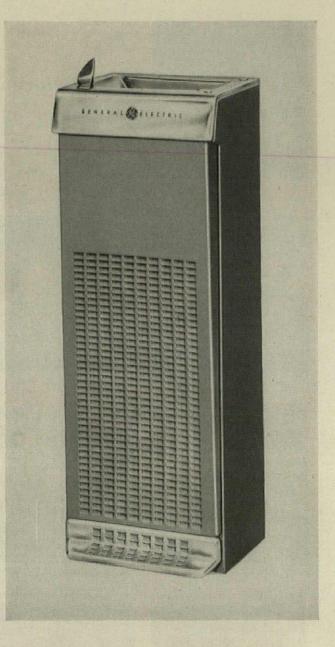
Simple, modern styling with louvered front. Hammered soft gray finish lends itself to every interior.

compact

Take up to 30% less floor space. Fit easily in shallow corners. Over-all depth is up to 5" less than other makes.

and thrifty

G-E engineering for maximum efficiency cuts water and electricity bills. Operating cost is only pennies a day.





WATER COOLERS

for offices, stores, institutions and factories

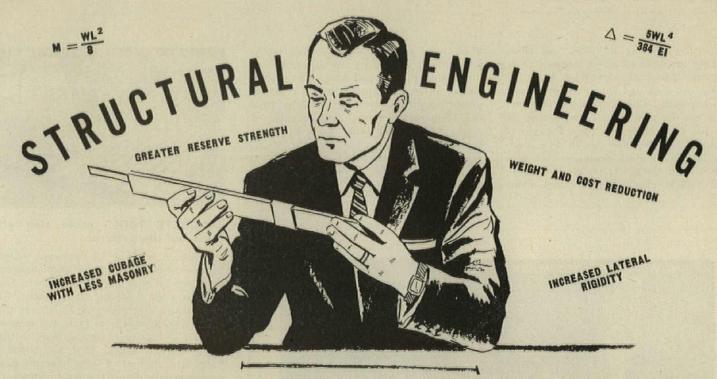
These features make the big difference:

- 1. Full-width foot pedal for easier water control.
- 2. Anti-splash basin prevents splattering.
- 3. Adjustable dial has 8 settings for control of water temperature.
- Extra-large stainless steel reservoir guarantees ample supply on peak demand days.
- 5. Direct rod to bubbler control assures steady stream of water.
- 6. Snap-off front panel for easy maintenance.

Whenever you include water coolers in your floor plans, specify G-E Water Coolers...not only for quality and special features, but because there's a General Electric model to fit your particular requirements. They range in capacity from 2.85 to 21.5 gallons per hour. The standard G-E 5-year protection plan backs up famous General Electric quality. Call your local G-E Water Cooler dealer or write to General Electric, Commercial and Industrial Air Conditioning Department, 5 Lawrence Street, Bloomfield, N. J.

Progress Is Our Most Important Product





HAS A NEW STANDARD OF PERFORMANCE

IN THE STRONGER, LIGHTER, MORE RUGGED



MACOMBER V-BEAM



JUST WRITE
V-BEAM
ACROSS YOUR
LETTERHEAD

PRODUCT ACCEPTANCE in structural engineering is based upon FACT.

1. WHO makes it? 2. WHAT will it do? 3. What are its STRUCTURAL advantages? 4. WILL it actually lower construction costs? 5. What is your performance PROOF?

HERE ARE YOUR ANSWERS: This MACOMBER product is the culmination of 40 years of structural product engineering. It was designed to support floors and roofs with a lighter, shallower structural member whose ultimate strength is over twice its published carrying capacity. In addition to the fact this member weighs less and costs less, it has the time and labor saving NAILABLE feature in both top and bottom chords. And lastly—every size in the various spans was load tested by Pittsburgh Testing Laboratory. YES! The phenomenal success of V-BEAMS is based upon fact. You can specify this structural member with complete confidence.



STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER INCORPORATED

CANTON 1, OHIO

• ENGINEERING • FABRICATING AND ERECTING •

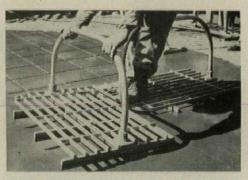
NAILABLE STEEL JOISTS LONGSPANS BOWSTRING ROOF TRUSSES METAL DECK Y-LOK STEEL FRAMING STRUCTURALS

side without calling an aide. An office manager can shut off an entire wall from a central panel at threat of rain. A teacher can open and shut windows easily from her desk. (Clerestory units in classrooms can be planned for ventilation as well as daylighting.) Prices for power operated windows run about \$40 more than for Gate's stock units; a 3' x 4½' window with the electrical mechanism is about \$124.50. Toggle switches are about

\$7.50 each plus installation. The mechanism works on 115 v.; switch connections are ordinary 24 v. bell wire. The system has an automatic shut-off in case of motor overheating (the power cuts back in when the temperature drops) and in case of power failure, the hand crank is always there.

Manufacturer: Gate City Sash & Door Co., 15 S.W. Third Ave., P. O. Box 901, Fort Lauderdale, Fla.





CONCRETE TOOLS score slab with brick and tile patterns

Imprinting brick or tile patterns on any flat concrete surface, these cast aluminum tools make it easy and inexpensive to dress up plain floor slabs and tilt-up walls. The Ornamented Concrete process is more than decorative, however. It gives the masonry natural joints for expansion and contraction. Hairline cracks that are bound to happen in the best of slabs have the grace to occur only along the score marks (as they do along mortar joints in real brick or tile floors) instead of at random. A kit for each pattern-staggered or herringbone brick or 1' squares-includes three platform tools with curved bent handles and single and half blade tools. On annual lease the equipment costs \$1 a day; rented on a daily basis, somewhat higher. Total installed cost averages about half that of brick, one-third as much as tile. The process can be used on almost any shape and thickness of slab and over radiant heating lines. After a pour, color topping is applied to the slab. The finisher then trowels a section of the concrete to a rough or smooth finish, lifts up a platform tool imprinter and walks over it to stamp



in the pattern; puts another platform alongside and proceeds along the surface. Wherever space is too tight to take the whole platform tool, he uses single and half blade tools. After the slab cures three days, the joints may be filled with mortar to play up the pattern. Surface hardness and porosity of *Ornamented Concrete* is the same as any standard concrete—and even better if the richer mix recommended by the tool supplier is used.

Sales Representative: Burbank Wasserman Co., 566 Commercial St., San Francisco 11, Calif.

continued on p. 234







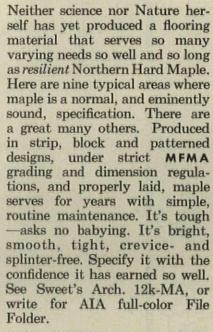


ersatile NODTHEDN

NORTHERN HARD MAPLE











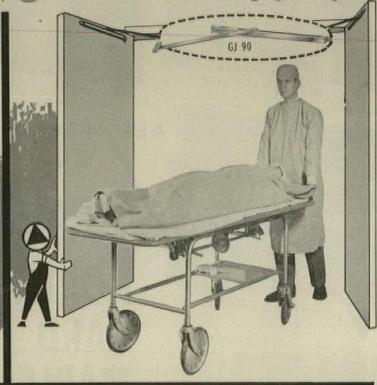
MAPLE FLOORING MANUFACTURERS
ASSOCIATION
Suite 564, Pure Oil Building
Chicago 1, Illinois

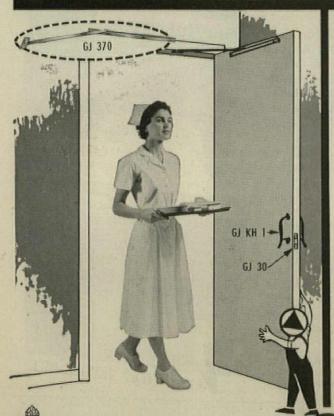


FLOOR WITH NORTHERN

HARD MAPLE BEECH AND BIRCH let HOLD DOORS for these busy people







Be sure it's GJ • the trouble-free hardware maintenance people prefer

a variety of silent, shock absorbing door holders for every hospital door

operating, utility, x-ray, supply rooms and diet kitchens—every door through which the busy staff must pass.

GJ devices go into hold-open silently
... absorb the shock of a hard opening
push. They hold the door securely and
yet the door can be released easily
with a firm push or pull.

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Your source of inspiration for unlimited pattern planning! Keep the great GUTH TROFFER LINE at your fingertips:

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Recessed incandescents from 60 watts to 1500 watts, and GrateLite* Ceilings, too...they're all in this brand-new big catalog.

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TRUSTED name in Lighting since 1902

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Guth

ST. LOUIS 3, MO.

326

LOUVERED CLOSET keeps clothes from getting clammy

To travelers and tenants, as well as home owners, dank storage space can be highly distasteful. The new *Bilt-Well* cabinet line constructed of stain grade Ponderosa pine with ventilated closets is practical for motels and apartments in humid climates and for buildings-on-slab anywhere. Allowing room air to circulate freely, the 6'-8¾"







One BTU is equal to the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit. One ton of coal contains 26,200,000* of these latent heat energy units... but *latent* means that this potent source must be developed.

If it's not developed—if smoke and soot occur, or fuel bed condition results in waste of combustible material—costly heat losses are sustained.

...GET MORE WITH

WILL-BURT STOKERS

> Will-Burt Automatic, Air-Controlled Stokers assure complete, efficient combustion, not only during operating periods, but during critical "off" periods as well.

You get the BTU's you pay for with a Will-Burt Stoker.

BIN-FED STOKERS—for the same fuel capacity range as hopper models. Automatic Air

HOPPER MODEL STOKERS

-open or closed hoppers.

Coal burning capacities range from 20 through

750 lbs. per hour.



*Reference: Bituminous Coal Institute

Write for manual showing suggested stoker installations and specifications.

The WILL-BURT Company

OUR TWENTY-SIXTH YEAR IN THE STOKER BUSINESS P. O. BOX 903, ORRVILLE, OHIO

high, 2'-deep louvered door unit is made in 2' and 4' widths. It can be outfitted with shelves and drawers for general storage or set up as regular clothes closet. The two sizes retail for about \$55 and \$87. Modular cabinets and vanity can be stacked alongside the closet and storage units can be placed on top for complete wall-to-wall, 8'-high floor-to-ceiling storage. Each unit is scribed on sides and back to provide close tolerances, even along irregular wall surfaces.

Manufacturer: Carr, Adams & Collier Co., Dubuque, Iowa

BATH ENCLOSURE folds away flat against side walls

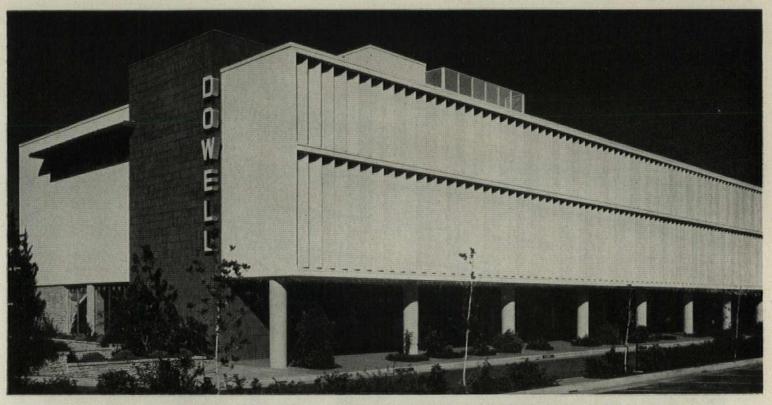
Unfolding into two rigid by-pass doors, the *Modernfold Tubmaster* turns a recessed bath into a neatly enclosed shower. With its fastening bars unhooked, the unit can be accordioned to the sides flat out of the way when not in use. Its panels, made of high impact translucent plastic, are integrally colored and will not chip or peel.

The cross bar on one door is mounted on the inside and acts as a safety hand support; the other on the outside is a con-

continued on p. 238







ARCHITECT: DONALD McCORMICK, A.I.A. BUILDER: DYER CONSTRUCTION CO.



Jalousies which adjust to compensate for movement of the sun protect Dowell Co. offices, Tulsa, from direct sunlight, sky glare and solar heat. Added beauty comes with use of vanes in five pastel shades, scatter-arranged, yet cyclic. See Sweet's or write direct for further evidence of Lemlar Jalousie advantages in air conditioning economies, visual comfort and architectural enhancement.

SEE SWEET'S 35-P OR WRITE LEMLAR CORP., P.O. BOX 352, GARDENA, CALIFORNIA

Cupples



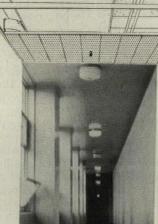
Cupples is one of the nation's largest manufacturers of finest quality aluminum windows. Double hung, projected, ribbon and custom types for commercial and institutional buildings. Double hung, horizontal sliding, picture, view wall and case-slide types for homes. Member, Aluminum Window Manufacturers Association. Write for catalogs,

> Also manufacturers of aluminum doors, curtain walls, extrusions and Alumi-Coustic grid systems for suspended ceilings.



2659 SOUTH HANLEY ROAD, ST. LOUIS 17, MO.

the only acoustical ceiling . . DESIGNED ESPECIALLY for CORRIDORS spans up to 8' without intermediate support-



SIMPLEX wall-hung aluminum

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acoustical ceiling . . .

. . . silences noisy corridors, permits 100% access to services, offers permanent finishes which cut maintenance costs some 90%—and lasts a lifetime! Proven by millions of square feet in leading hospitals, schools and industrial buildings. Manufactured by: SIMPLEX CEILING CORP., 552 W. 52 St., New York 19, N. 7.

Send today for literature, including photographs, details and specifications

SIMPLEX CEILING CORP. 552 W. 52 St., New York 19, N. Y. SEND ME CORRIDOR BOOKLET Name

BOOKLET ON CEILINGS FOR MOISTURE AREAS State



BEAUTIFULLY EFFICIENT... EFFICIENTLY BEAUTIFUL...

Minnesota Mutual Life Insurance Company's gleaming new Home Office Building is the result of the combined efforts of the company's planners, the architects and the builders to couple modern beauty with top efficiency. It is said the now-completed structure is the most efficient physical plant that could be designed for the complex operations of this growing organization.

A significant phase in the effort to obtain the utmost in efficiency and dependability was the installation of USS NATIONAL Steel Pipe for the hot water heating and snow melting systems of the handsome new structure. Over 7000 feet of ¾-inch NATIONAL Pipe were used in the snow melting system, alone.

The consistent selection of NATIONAL Steel Pipe for the "big jobs" is nothing new. For over 60 years NATIONAL has been the accepted pipe for plumbing and heating systems. Regardless of the application, architects, builders and contractors know from long experience that they can put their complete confidence in the uni-

form, dependable performance of NATIONAL Pipe. Plan on using America's Standard Wrought Pipe in your next installation.



The snow melting system being installed. All 3/4-inch lines and 2-inch headers were of NATIONAL Steel

NATIONAL TUBE DIVISION, UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK



NATIONAL PIPE

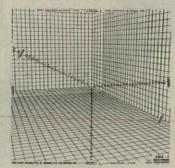
UNITED STATES STEEL



venient towel rack. The *Tubmaster*'s tracks and other metal parts are anodized aluminium. Nylon wheels in the overhead track and nylon guides at the bottom keep the doors gliding quietly and easily. Door edges are fitted with a vinyl gasket for a watertight seal with the jamb posts. The *Tubmaster* retails for about \$80 to \$90.

Manufacturer: New Castle Products, Inc., Dept. B 21, New Castle, Ind.





Experience YOU can use AMERICAN'S **87 YEARS IN** LAUNDRY DEPT. **PLANNING** Specify American Laundry tinuing, undivided responsi-Machinery Company equipbility for performance after ment and you insure lasting installation. client satisfaction. Only Amer-3. Direct service everywhere, from thoroughly trained techican offers you: nical representatives working 1. 87 years of experience, out of 29 offices throughout working with architects on all U.S. and Canada. types of laundry installations.

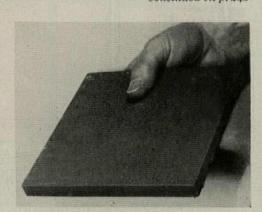
PERSPECTIVE GRIDS take the plod out of plotting

Developed by Electrical Engineer T. O. McCartney, Precision Perspective is a practically foolproof system for setting up mathematically accurate renderings. The kit consists of seven basic grids, each progressively displaced from one another by 20°, and an illustrated handbook with a selector chart. By referring to the chart and rotating the grid indicated, a draftsman can pick any of 81 different positions for his subject. The grids come in graduated sizes of 11" x 11", 22" x 22" and 40" x 40" for either exterior or interior views at prices of \$3.75, \$8.75 and \$22.50. Manufacturer: Perspective, Inc., 402 American Building, Seattle 4, Wash.

RUGGED QUARRY TILE extruded from bluish green clays

While quarry tile's resistance to mud, acid, grit and shoe traffic has kept up its reputation for practibility in lobby and outdoor applications, the ceramic's narrow natural tonal range of buffs, grays and earth reds has somewhat limited its application. To give designers more decorating latitude with the durable vitreous surfacing, Mosaic Tile Co. dug into some unusual clays near its Ironton, Ohio plant and came up with the subtly neutral Bluegrass Green quarry tile. The color permeates the entire unglazed tile and so cannot fade or wear off. Extruded in 1/2"-thick ribbons, the material is cut in four sizes: 6" x 2%", and 6", 4" and 234" squares: Average cost is about \$2 per sq. ft. in place. Manufacturer: The Mosaic Tile Co.,

continued on p. 242



Zanesville, Ohio

American's ARCHITECT'S REFERENCE GUIDE is a catalog of our complete laundry equipment line. Write

turer. This means full, confor your copy.



2. The most complete line of

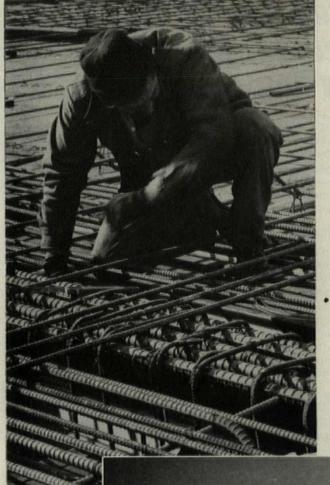
laundry equipment in the

world-from ONE manufac-

The American Laundry Machinery Co., Cincinnati 12, Ohio

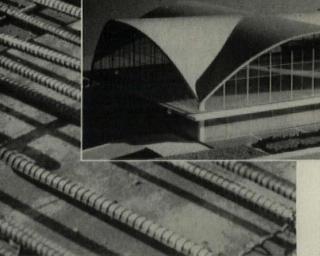
World's Largest, Most Complete Line of Laundry and Dry Cleaning Equipment





Laclede Reinforcing Bars

.. the "backbone" that gives strength and support to St. Louis' amazing new Airport Terminal Building



Hellmuth, Yamasaki & Leinweber, St. Louis Structural Engineer: William C. E. Becker, St. Louis Engineering Consultant: Roberts & Schaefer Co., Chicago Contractor: L. & R. Construction Co.,

A bold new approach to airport terminal design has made the unusual structure pictured above, now being completed at St. Louis' Lambert Municipal Airport, a sensation in the architectural and construction world.

The obvious focus of attention is the massive but graceful roof, formed of huge intersecting cylindrical shells of concrete, 120 feet wide but only 4½ inches thick. The illusion is one of lightness and airiness, belying the roof's actual weight of 3,000 tons.

Because there are no internal supports, inherent strength is of special importance in a building of this type.

Much of that strength is provided by the use of Laclede Multi-Rib Round Reinforcing Bars, not only in the roof but throughout the entire terminal.

These Laclede-designed bars represent the perfect balance between high strength and maximum anchorage, and are enjoying ever-widening use by contractors throughout the nation.



LACLEDE STEEL COMPANY

SAINT LOUIS, MISSOURI

Producers of Steel for Industry and Construction



CS (Counterflow Steel) Tower

MARLEY COOLING TOWERS

As fire codes become more stringent everywhere, the call is for cooling towers that can live by the code—and deliver the top performance so vital to economical air conditioning and refrigeration. And, as always, Marley has the answers.

For intermediate capacities, Marley offers the Steel Double-Flow Aquatower—the original low-silhouette, high-performance tower. Low and clean-cut, harmonious with any building design, and field-proven in hundreds of applications, it is the tower most commonly specified for schools, churches, shopping centers, small office buildings, etc.

For larger capacities, Marley's fire-safe CS (Counterflow Steel) is the first choice of spec writers, engineers and owners alike. Models with steel structures, asbestos cement board casing, and spray or redwood filling conform to fire laws in any city.

For more information and assistance in selecting the proper tower for your job, call your Marley Applica-tion Engineer in any of 55 cities. You'll find that his specialized knowledge of fire codes and cooling towers can save you a world of time and trouble.

the Marley Company
Kansas City, Missouri



HOW TO

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unsightly sumps

ASSURE

dry utility vaults

DESIGN

special liquid transfer systems

The KENCO Submersible 140 Pump is your complete answer



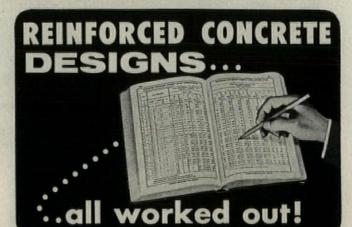
- Multi-use Utility Pump
- All-bronze Case Encloses Motor, Switch
- Exclusive Kenco-GE Switchette Control
- · Built-in Check Valve
- Automatic Air-lock Eliminator
- Thermo-plastic Cord and Cap
- Pumps 2600 GPH at 5' head
- . Only 7" High by 9" Wide

See the KENCO 140 at your Jobber or Distributor!

PUMP

1305 Oberlin Avenue • Lorain, Ohio • Phone 56-826





• No more algebraic formulas or calculations to make. The CRSI Design Handbook has the answer to reinforced concrete design problems. Simply locate the table covering the member you are designing, apply span and load requirements, and then read off directly concrete dimensions and reinforcing steel data. Follows the latest codes and practices. the latest codes and practices. Send check or money order for your copy today.

Prepared by The Committee on Engineering Practice

Concrete Reinforcing Steel Institute, Div. B

38 S. Dearborn St., Chicago 3, III.



NO C. O. D. ORDERS

Good Windows, Yes!

-But A Bayley Specification assures you of MUCH MORE!!

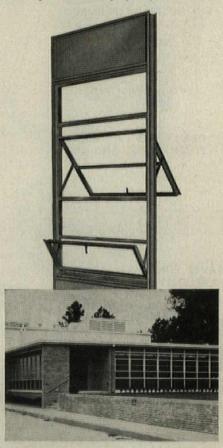
Check these Extra Bayley Services

- Engineering Consultation Based on 77 Years of Reliability and Leadership In Window Development.
- Pre-engineering Collaboration in applying timeproven, basic designs to the specific project.
- Engineering Field and Sales Cooperation with all parties responsible for the project's completion.
- Engineered Detailing specifically for each project—individualized "custom planning."
- Engineering Controlled Follow-through on all manufacturing operations involved in completing a specific contract.
- Engineered Installation Preparation—detailed marking, scheduling and delivery in Bayley's own trucks to the job site.
- Engineered Installation by Bayley's trained and supervised installation mechanics.
- Engineering Inspection of Completed Project to insure a satisfactory, quality finished installation.

PLUS

The over-all reliability of a 77 year old, nationally recognized, financially responsible company with complete, modern manufacturing facilities; supported by a nationwide sales engineering and service organization.

Bayley Projected Windows and Bayley Curtain-Wall system — in aluminum and steel — has had a major influence on today's trend from the old conventional to the modern. If you are not familiar with Bayley Details see Sweet's or write; or call in your local Bayley Representative.



Bayley Curtain-Wall in Clorox Chemical Co., Building, Houston, Texas. Architect, Lloyd and Morgan; Contractor, Schneider Construction Co.





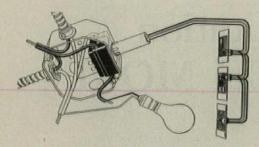
ALCOA B

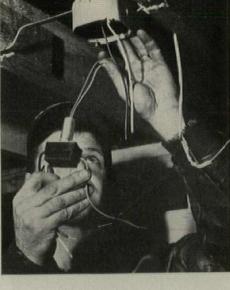
THE WILLIAM BAYLEY CO

Springfield, Ohio

District Sales Offices: Springfield . Chicago . New York . Washington









Private homes, apartments, office buildings, motels...any kind of building can now be equipped with practical, low cost air conditioning that gives you complete freedom of design. The answer is the new Lewyt Built-In Wall Air Conditioner.

It's the most compact standard unit made (15" x 14-5/8" x 32-7/16") and fits easily into any outside wall with no overhang inside or out. The Lewyt is a complete self-contained unit with built-in controls -no ducts or plumbing are needed!

The cost? Less than window units and about half that of a central system for the same cooling efficiency. For figures and complete details write: Lewyt Air Conditioner Corp., Brooklyn 20, N. Y.

built-in WALL AIR CONDITIONER

BY THE MAKER OF THE FAMOUS LEWYT VACUUM CLEANER

TINY TRANSFORMER for low-voltage wiring fits in outlet box

Putting a Remcon relay into each outlet box, Pyramid's new low-voltage system obviates a central transformer with all its cat's cradle wiring. Like other low-voltage systems, this one uses No. 18 bell wire for switching. The 6-v. wire costs less than 2¢ a foot (compared to 9¢ for the BX used throughout conventional systems), making it economically feasible to control single outlets or fixtures from any number of switch plates. Suitable for schools, hospitals, homes and apartments, Remcon devices with their built-in transformers are not only small enough to fit into outlet boxes, they are also inaudible; most others hum. Each independent circuit can be set up right in the work area involved, without running wires to and from a remote gang box. In remodeling when interior partitions are shifted, electric outlets and switches can be relocated easily and inexpensively. Remcon relaytransformers list at \$4.20 each. Wall switches are 45¢ and switch plates, 40¢. Manufacturer: Pyramid Instrument Corp., Lynbrook, Long Island.

P. A. PACKAGE provides continuous background music automatically

Although most store owners, hospital administrators and plant managers realize that music creates a pleasing atmosphere for shoppers, patients and workers, the cost of a system to carry it knocks soothing sound off many building budgets. The Comax automatic record player, retailing at \$375, needs no complex installation. It stands in a 42"-high cabinet and takes up 14" x 17" of floor space. An electrician can hook it up in a few minutes. Once the starter is switched on, it plays each side of 25, 45 rpm records-about six hours of music-then flips the entire stack and replays them until turned off. Comax Model M-405 has a 15-w. amplifier-enough power to handle 15 indoor speakers-and a hand microphone which can be plugged into the unit for use as a public address

Manufacturer: Comax, Inc., 333 W. Excelsior Blvd., Hopkins, Minn.

continued on p. 246

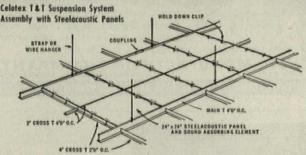




Interior of Gladstone Shoe Store, Grand Rapids, Michigan, with installation of new Acousti-Celotex Stria-Colored Steelacoustic Panels. General Contractor: C. D. Barnes Associates. Acousti-Celotex Contractor: Leggette-Michaels Co.

Corridor of Schuylerville School, Schuylerville, N. Y. showing Acousti-Celotex Steelacoustic* Panels on a T & T* suspension system. Architect: Waasdurp & Northrup, Rochester, N. Y. General Contractor: Christensen & Neilsen. Acousti-Celotex Contractor: Collum Acoustical Co., Inc.





Exclusive NEW Sound Conditioning Product Effective for a Wide Variety of Interiors:

ACOUSTI-CELOTEX STEELACOUSTIC PANELS

Here are two typical new installations utilizing Acousti-Celotex Steelacoustic Panels: In the Schuylerville School as an economical, incombustible suspended ceiling with high sound-absorption value; in the Gladstone Shoe Store as an attractive and unusual ceiling design bringing efficient sound conditioning to a merchandising area.

Note these outstanding Steelacoustic features:

Incombustible—In accordance with requirements of Federal Specification SS-A-118b, Class A Incombustible, as tested and reported by Acoustical Materials Assn.

High Sound Absorption—.70 noise reduction coefficient for less noise, better hearing. Linear openings in the face of each panel permit sound to pass through to a sound-absorbing element laminated to the back.

Easy Maintenance—Maximum washability of baked enamel finish on all exposed surfaces. Panels also may be repainted without loss of sound absorption.

Economy—Low-cost installation through efficient assembly of 24" x 24" Steelacoustic units, Celotex T&T exposed grid suspension system.

Attractive—Steel panels provide an attractive design for wide variety of commercial, industrial, and institutional areas. Available in white and stria-colored green, brown, and black.

Removable—Easy access to ducts, wiring, and other utilities above ceiling through easy removability of Steelacoustic panels.

TRADE MARK



Acousti-Celotex

Sound Conditioning

Products for Every Sound Conditioning Problem—The Celotex Corporation, 120 S. LaSalle St., Chicago 3, Illinois • In Canada: Dominion Sound Equipments, Ltd., Montreal, Quebec

FOR COMPLETE DETAILS on Acousti-Celotex Steelacoustic Panels and other acoustical products, write to The Celotex Corporation, Dept. A-56, 120 S. LaSalle St., Chicago 3, Illinois.



A PRACTICAL SOLUTION to Multiple-use of gymnasiums, halls, classrooms



Nitchell Doubler SET-IN-WALL OR AGAINST-WALL INSTALLATION

Versatile, Safe, Mobile units that can be used attached or detached from cabinet. Tops of Linoleum, Resilyte or Formica plastics. Tubular steel legs. Table tops 13' 10" x 30". Benches 13' 10" x 12". Also made with one or two tables only or two tables and four benches.

MITCHELL MANUFACTURING COMPANY
2758 S. 34th STREET MILWAUKEE 46, WISCONSIN MFRS. of MITCHELL FOLD-O-LEG TABLES, BAND AND CHORAL STANDS, SEATING RISERS



Chargrove Realty, Baltimore, Md.

Bonnett & Brandt

Installed by Southern Plate Glass Co.

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EXTRUDED ALUMILITED ALUMINUM PRODUCTS

Specified by Leading Architects for: HOSPITALS . SCHOOLS . RELIGIOUS BUILDINGS . BANKS STORE FRONTS . OFFICE BUILDINGS . INDUSTRIAL PLANTS HOUSING PROJECTS . SHOPPING CENTERS

Also Furnished in the New, Non-Fading GOLD LITE, BLACK LITE, BLUE LITE and AQUA LITE

Send for these Catalogs "Alumiline" Store Front See our catalog In Construction and "Alumiline" Entrances and Doors

THE ALUMILINE CORPORATION

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another fabulous Color Tool from MARTIN-SENOUR

So easy to use . . . and so complete. Martin-Senour's Color Co-ordinator Charts and Directory in seven different value levels. Now you can select harmonizing colors at a glance. 497 painted color samples right at your fingertips. Send today for complete details on all of Martin-Senour's handy professional color aids.

Pioneers in the Science of Color

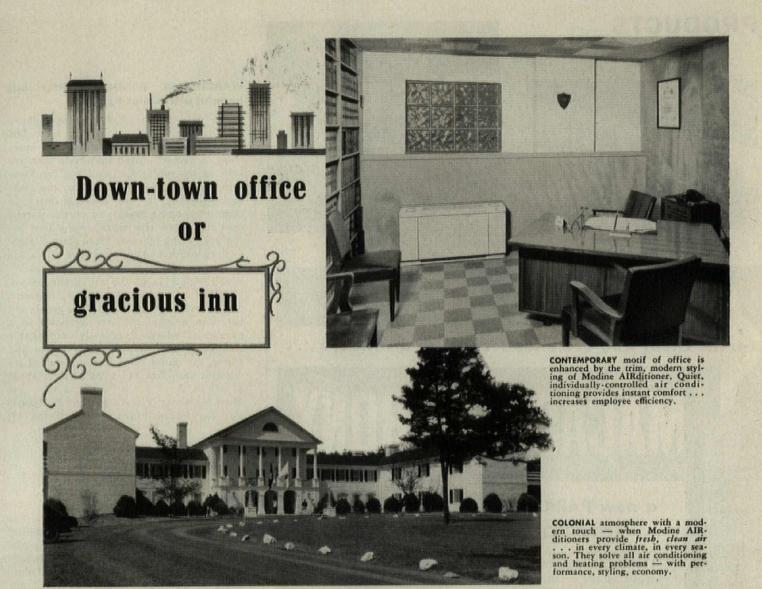
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The Martin-Senour Company

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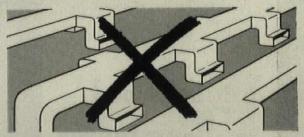
Chicago 8, Illinois

PAINTS



Modine AlRditioners are the quiet way to air condition new or existing buildings

MODINE AIRditioners provide quiet, personalized air-conditioned comfort 365 days a year for any room with a turn of the switch. And this fingertip control enables occupants to feel comfortable instantly—without unpleasant air blasts. What's more, Modine styling blends units with any design . . . be it traditional or contemporary, new construction or remodeling job. In addition, Modine AIRditioners dehumidify, clean and circulate fresh air for maximum enjoyment. They're ideal for air conditioning existing buildings, replacing unsightly radiators with smart heating-cooling units.



NO EXPENSIVE DUCTWORK is needed with Modine AlRditioners. Same water supply and return piping, plus drain, is used for both central boiler and chiller.

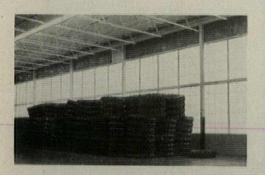


Ask the Modine representative listed in your classified phone book for Bulletin 755—or write Modine Mfg. Co., 1507 DeKoven Ave., Racine, Wis.

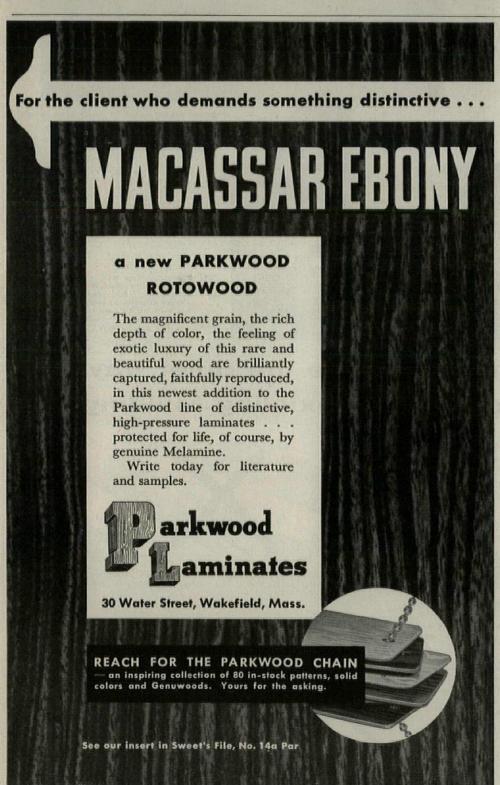
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write Modine
leKoven Ave.,

**TRADEMARK A-1313

PRODUCTS cont'd.







WAREHOUSE WINDOWS filter out harmful ultraviolet light

These pale green plastic window panes pass through 50% of visible light but block off the ultraviolet part of the spectrum to protect stored materials that are affected by sunlight. Developed by Firestone's Reinforced Plastics Div., the glazing proved to be an effective filter in laboratory aging tests and on the parent company's own tire warehouse before being put on the market. Tires stacked right next to south and west window walls for more than a year showed none of rubber's usual symptoms of too much sun. Composed of polyester, glass fiber, pigment, and filtering agents, the glazing panels are baked in a mold and are available in a number of colors. Practically unbreakable and highly resistant to smog, smoke and fumes, the panes come in the standard industrial sash size 14" x 20". Price: about \$1 per sq. ft.

Manufacturer: Firestone Tire & Rubber Co., Reinforced Plastics Div., Akron 17, Ohio

PRODUCT NOTES

Colored glass fiber

Houze Glass Co. of Point Marion, Pa. has just turned out a successful experimental batch of fiber made from cobalt blue glass. The company intends to go into full production of random and one-directional glass fibers in all colors aiming at the plastic laminate market. The new color-stable fibers will make it unnecessary to add pigment to the translucent plastic they reinforce.

Black stainless

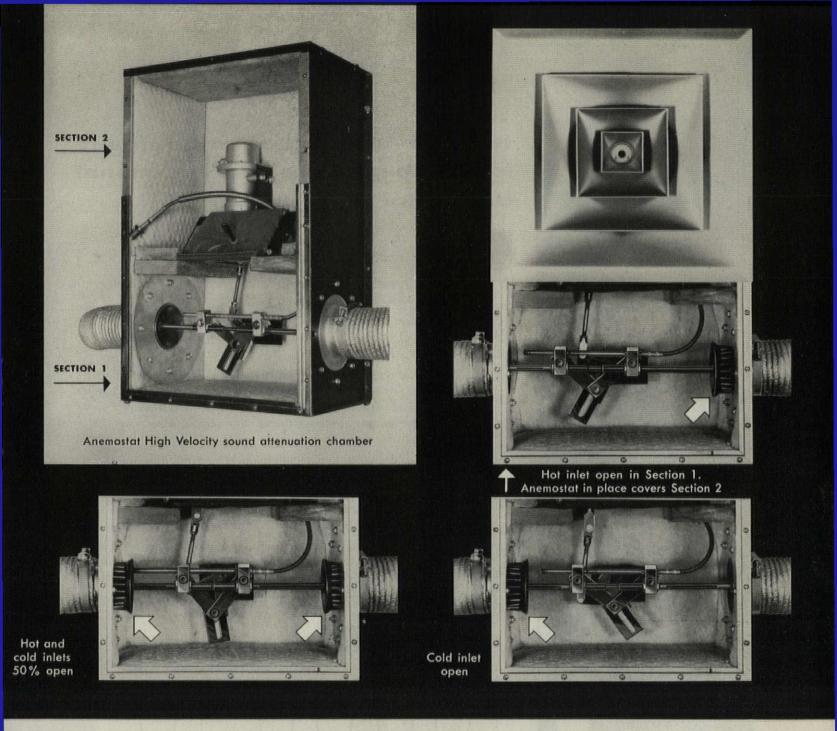
A richly luminous black finish can be applied to chromium-nickel and chromium stainless steel by an Armco chemical process. Developed in World War II to kill the reflection on Garand rifle muzzles, the blackened stainless in highly resistant to salt spray, scratching and weather exposure. Armco licensee Rigidized Metals Co. of Buffalo is producing patterned sheet metals with the black coating. Especially handsome is the two-tone burnished diamond texture.

Chrome-plated aluminum

Now that die-cast aluminum products can be made with a hardware-class finish, direct chrome plating is feasible. In the Hardalume process for aluminum, no intermediate coating of zinc, copper or anodic film is required.

Bright aluminum

Alcoa has developed a $Bright\ Dip$ aluminum finish which polishes the metal continued on $p.\ 250$



How to mix and diffuse high velocity air automatically

The Anemostat High Velocity sound attenuation chamber is divided into two sections. Both hot and cold air from the main risers enter Section 1, which is an acoustically lined blending chamber, in which the volumes of air are controlled by the Anemostat serrated rocket-socket valves. When the thermostat is set, the rocket-socket valves move slowly back and forth, thereby adjusting the volume of air supplied through the hot and cold inlets. The velocity of the air which enters Section 1, at from 3500 to 6000 fpm, is automatically reduced by expansion.

As the blended air meets the temperature

requirements of the thermostat, it passes through a baffle arrangement into the acoustically lined Section 2 of the chamber, further reducing the db rating of the air.

The air then passes through the Anemostat Air Diffusers, where the aspiration effect causes mixing of room and supply air within the diffuser, resulting in further temperature equalization. The diffuser then delivers to the occupants of the room draft-free air at the desired temperature.

The Anemostat All-Air High Velocity distribution system offers other important advantages. It can be used with smaller than conventional ducts. It can be installed faster and at less cost. It requires no coils, thus eliminates leakage, clogging and odors. Furthermore, Anemostat round, square and straightline diffusers with high velocity units blend into a wide variety of architectural designs.

Write for 1956 New Products Bulletin and Selection Manual 50 to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N. Y.

Anemostat: The Pioneer of All-Air High Velocity Systems



No matter how complex the electrical system, Celluflor has ample capacity to handle it. Cells, spaced on 6-in. centers, permit the installation of service outlets at any point on the floor. architects-engineers

112-year-old insurance company looks ahead with new functional design for office building

Uses Milcor Celluflor to get freedom of floor space — and flexibility of electrification

The State Mutual Life Assurance Building in Worcester, Massachusetts is unique in two respects:

- 1. It has private offices located in the center of each floor and general office space in the perimeter. This arrangement provides large expanses of work areas free of all obstructions.
- 2. The building can't be electrically outdated. Milcor Celluflor provides power pathways in the floor to accommodate all of today's wiring and permits easy addition of new services in the future data-processing and office automation circuits, closed-circuit TV hook-ups, and many others.

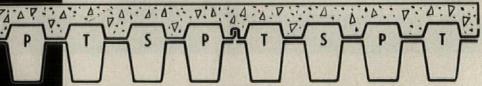
For greater flexibility in placing private-office partitions, the central area of each floor in this building has no columns. Style BC Celluflor—used throughout—is ideally suited to this type of construction. It combines light weight with great strength—and carries floor loads over long spans with fewer structural supports.

Milcor field engineers can help you take full advantage of every opportunity to apply this modern idea in floor construction. Call on us. Write for Catalog 270 or refer to Sweet's File Section 2a/In.

MILCOR Celluflor



Cram & Ferguson, Boston, Mass.



Cross-section showing Celluflor installation in State Mutual Life Assurance Building, P = power; T = telephone; S = signal.



INLAND STEEL PRODUCTS COMPANY

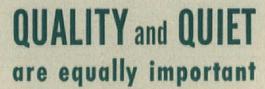
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M-191



Good food attracts customers . . . quietly beautiful sound conditioning brings them back.



FISSURED WOODFIBER ACOUSTICAL TILE*

The first truly attractive acoustical tile -at an economical cost. Forestone is even warmer and richer in beauty than fissured mineral tile-yet in its 9/16" thickness, it costs no more than the popular 3/4" thickness of perforated fiber tile. Forestone is also available in 3/4" thickness, with either beveled or square edges.

For further information, call the Simpson Certified Acoustical Contractor nearest you ... or write to Simpson Logging Company, 1010 White Building, Seattle, Washington.

PATENT PENDING



ALABAMA: BIRMINGHAM — Badham Insulation Company, Inc.; MOBILE—Stokes Incorporated ARIZONA: PHOENIX—Fiberglas Engineering & Supply: Company, INC.; MOBILE—Stokes Incorporated ARIZONA: PHOENIX—Fiberglas Engineering & Supply: Company, Fiberglas Engineering & Supply: Products; SAR FRANCISCO—Tamer Acoustics: Company, Engliaber Misson Construction Company, Francisco Company, Engliaber Misson Construction Company, Inc., ENTAGENCO Company, Engliaber Misson Construction Company, Inc.,

Johnson Acoustical & Supply Co.; SALEM—R. L. Elfstrom Company. PENNSYLVANIA: PHILADELPHIA — Selby, Battersby & Company; PITTSBURGH — Standard Floor Company. SOUTH CAROLINA: COLUMBIA—Bonitz Insulation Co. of South Carolina. TENNESSEE: MEMPHIS — Alexander Marble & Tile Company; NASHVILLE—Nelson Baird Company, Inc. TEXAS: CORPUS CHRISTI—Raymond Rambo Materials Co.; DALLAS—Blue Diamond Company; EL PASO—Houser Resilient Floors Co.; FORT WORTH—Builders Service Company; HOUSTON—General Supply Company, Inc.; LUBBOCK—J. E. Delehanty Company; SAN ANTONIO—Rufus A. Walker & Co. UTAH: SALT LAKE CITY—Utah Pioneer Corporation. VIRGINIA: ALEXANDRIA—Anning-Johnson Company; NORFOLK and RICHMOND—Manson-Smith Company, Inc. WASHING-TON: SEATTLE—Elliott Bay Lumber Company; SPOKANE—Fibergias Engineering & Supply. WISCONSIN: APPLETON and MILWAUKEE—Building Service, Inc. CAN-ADA: CALGARY, ALBERTA — F. Drexel Company Ltd.; Hancock Lumber Limited; VANCOUVER, B. C. and VICTORIA, B. C.—F. Drexel Company Ltd. HAWAII: HONOLULU—Hawaii Builders Supply Co., Ltd.

PRODUCTS cont'd.

chemically and makes hand polishing unnecessary. The acid solution is especially suitable for grilles and other products with intricate surfaces.

Frozen oxides

Another of Alcoa's finishes which is interesting architecturally is Alrok. Originally developed 20 years ago as a means of readying aluminum surfaces for paint, the Alrok coatings are integral natural alu-

minum oxides captured chemically in prescribed stages ranging from greenish gray to charcoal. These permanent color oxides have an excellent protective value as well as pleasing platina and are especially effective on sheet aluminum roofing.

Efficient filament

Burning hotter and brighter than a conventional incandescent filament, General Electric's vertically mounted filament for light bulbs is reported to increase lamp efficiency by 6 to 15%. It does not cut down useful lamp life, however, since tungsten deposits are concentrated in the neck, leaving the rest of the lamp comparatively clear. G-E is now working on some new bulb shapes made possible by the new

Silver and gold light

Sylvania Electric has two new mercury lamps for outdoor illumination. Instead of the familiar ice blue hue, the lamps emit silver white and golden light.

TECHNICAL PUBLICATIONS

BATHROOM EQUIPMENT

The Sloan Act-O-Matic Shower Head. Sloan Valve Co., 4300 W. Lake St., Chicago 24, III. 12 pp.

ELECTRICAL EQUIPMENT

Stabiline Automatic Voltage Regulators. Bul. S 351. The Superior Electric Co., Bristol, Conn. 12 pp.

FLOORING

Conduct-O-Tile for Hospitals. No. 506. American-Olean Tile Co., 1000 Cannon Ave., Lansdale, Pa. 4 pp.

Hexteel Floorsteel, Klemp Metal Grating Corp., 6601 S. Melvina Ave., Chicago 38, III.

Schools with Flexicore Slabs. The Flexicore Co., Inc., 1932 E. Monument Ave., Dayton 1, Ohio. 16 pp.

The Selection of Conductive Flooring for Hospital Operating Suites, Crossfield Products Corp., 140 Valley Road, Roselle Park, N.J.

FURNITURE AND FIXTURES Troy Furniture-1956. Troy Sunshade Co., Troy, Ohio. 48 pp.

GLASS

Glass Fiber Products. Libbey-Owens-Ford Glass Co., Toledo 3, Ohio. 8 pp.

Glass for Industrial Use. Cat. No. 56-1, Mississippi Glass Co., 88 Anjelica St., St. Louis 7, Mo. 12 pp.

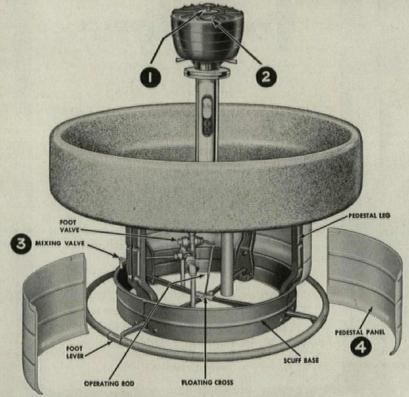
School Glazing Specifications. Libbey-Owens-Ford Glass Co., Toledo 3, Ohio. 6 pp.

HARDWARE

Sliding Door Hardware, Sterling Hardware Mfg. Co., 2345 W. Nelson St., Chicago 18, III. 4 pp.

HEATING AND AIR CONDITIONING Marlo Seazonaire. Marlo Coil Co., 6137 Manchester Ave., St. Louis 10, Mo. 16 pp. continued on p. 254

Bradley Announces NEW FOOT-CONTROL MECHANISM





The tops in sanitationup to 10 wash at one time.

Now no lag bolts or other floor fastenings are required. New "Floating Cross" control mechanism, simple and accessible, provides better foot-control.

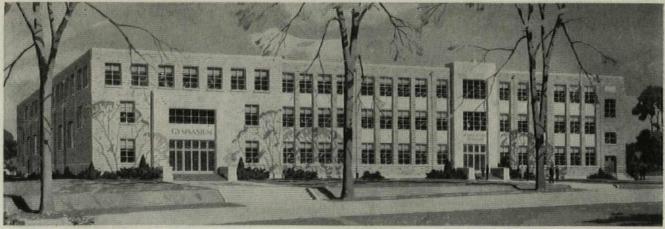
Plus Vandal-Proof Features

- Tamper-proof nuts and coupling nuts lock the tie rod assembly.
- Meddling with contents of Soap Dispenser is prevented by locking type Filler Cap.
- Mixing Valves are concealed inside the metal pedestal on Washfountain with supply lines from below the floor.
- Metal pedestal has removable panels to afford accessibility to valves and fittings-but effectively restrain unnecessary tampering.

BRADLEY 2235 W. Michigan St. Milwaukee 1, Wis.



Write 5601 Distributed Through Plumbing Wholesalers



Mount Assisi Academy, Lemont, Illinois. Leo Strelka, Architect

Now every classroom and office can be comfortable



Iron Fireman SelecTemp heating has

A THERMOSTAT IN EVERY ROOM

The ultimate in heating comfort—a thermostat in every room—is both simple and practical with the Iron Fireman SelecTemp heating system. Occupants of each classroom or office can select any temperature desired, at any time. Rooms stay at the selected temperatures. SelecTemp units automatically compensate for heat gains and losses caused by changes in outdoor temperature, cold winds and warmth from the sun—increasing or decreasing heat output.

SELECTEMP HIGHLIGHTS

THERMOSTAT IN EVERY ROOM. Temperatures can be varied in every room to fit the "activity plan" and personal preference of the occupants.

MODULATED HEAT. Air circulation is continuous. Both temperature and volume of air are automatically modulated, as required to offset heat loss from room.

FILTERED, CIRCULATED AIR. Individual room air circulation prevents transmission of odors or bacteria from other rooms. Air is cleaned by a spun glass filter in each room unit. Filtered outside air can be introduced if desired.

BOILER LOCATION. Boiler can be placed in any desired location, with proper distribution of heat to every room. Year-around domestic hot water coils available.

LOW POWER COST. No electricity required to operate circulating fans, Nonelectric thermostats.

LOW INITIAL COST. Easily installed in either new or old construction. Small soft copper tubing (1/4 inch I.D.) carries steam to individual room heater units. Return lines are 1/8 inch. Substantial savings in installation costs.

LOW FUEL COST. Temperature easily reduced in unused rooms. Overheating is eliminated. Fuels: Oil, gas or coal. Ideal for use with Central District steam.

AUTOMATICALLY BALANCED. No special adjustments of dampers, valves or orifices required to balance heating system. Each unit continuously regulates heat needed for each room. Automatically compensates for external heat sources such as fireplace or solar heat, without affecting temperatures of other rooms.

ECONOMICAL INSTALLATION AND OPERATION

Regardless of the type or size of structure; school, office building, hotel or apartment house, hospital, or house . . . SelecTemp heating can be economically and efficiently installed. Flexible copper tubing, smaller than your little finger, carries low pressure steam to each room unit.

In addition to individualized heating comfort SelecTemp brings substantial operating savings. The fuel waste resulting from overheating (symptom: occupants open the windows), and the unnecessary heating of unused space, is eliminated. A fan in each room unit, operated by a steam turbine, continuously circulates filtered warm air. No electricity is used for fans or thermostats.

ASK FOR FULL INFORMATION

Before choosing a heating system for any building or residence, whether new construction or being modernized, it will pay you to get the facts about the Iron Fireman SelecTemp—a completely new concept in heating practice. Just mail the coupon or write.

Iron Fireman^o



MODULATING ZONE HEATING



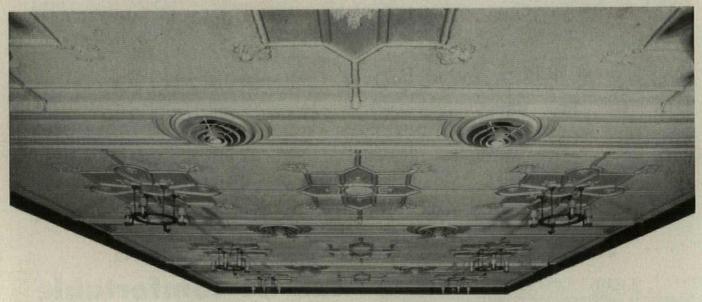
For every size and type of building— Hotels, Motels, Apartment Houses, Schools, Churches, Office Buildings, Institutions, Hospitals.

Send for free booklet



IRON FIREMAN MANUFACTURING CO, 3033 West 106th Street, Cleveland 11, Ohio. In Canada, write to 80 Ward Street, Toronto, Ontario. Send literature on Iron Fireman SelecTemp heating.

Name		
Address		
City	State	



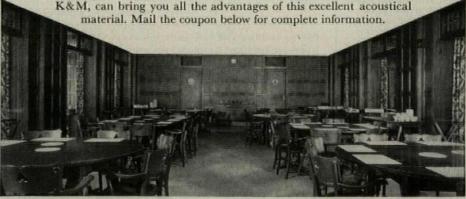
Sprayed "Limpet" Asbestos on the ceiling of the main dining room of the Engineers' Club in Dayton, Ohio, provides a quiet atmosphere for dining. This job, applied over ten years ago, also affords thermal insulation, fire protection, and prevents condensation. Architects: Schenck & Williams, Dayton, Ohio.

Applicator: Myron Cornish Company, Incorporated, Dayton, Ohio.

Keeps the ceiling design, gets rid of noise... Sprayed "Limpet" Asbestos

SOUND CONDITIONING A CEILING that has many curves and recesses presents a problem for most acoustical materials. However, Sprayed "Limpet" Asbestos, while doing an excellent job in controlling sound, retains every design feature of a ceiling. The evenly textured, seamless blanket of asbestos fibers adheres to any clean ceiling surface, regardless of its shape or composition. It does a superior job in deadening sound waves and in preventing the passage of heat.

Sprayed on, "Limpet" Asbestos needs no nailing, clipping, cutting. Special furring strips or other mechanical fastening devices are not required. There's no need to mask or disturb plaster mouldings. The natural color of the finished job blends with most color schemesyet "Limpet" can be spray-painted if desired, with no impairment of its noise-trapping efficiency. Skilled Local applicators, trained by K&M, can bring you all the advantages of this excellent acoustical



KEASBEY & MATTISON

COMPANY . AMBLER . PENNSYLVANIA



KEASBEY	&	MATTISON	COMPANY
	-	***************************************	

Ambler, Pennsylvania

- ☐ Send literature about Sprayed "Limpet" Asbestos.
- Have applicator see me.

Company_

Address

_Zone__ _State_



3,000,000 cu.ft. PACKAGE OF FILTERED DAYLIGHT



These great walls of glass in the Gunners Mate Training School at Great Lakes, Ill., were designed by Skidmore, Owings & Merrill. They are <u>Frosted Aklo*</u> Heat Absorbing Glass.

You see Aklo widely used today in up-to-date factories, schools and other buildings because it reduces sun and sky brightness to cut down direct and reflected glare. And Aklo reduces transmission of the sun's radiant heat energy—as much as 44% when used in 1/4" thickness. Its blue-green color even makes interiors look cooler.

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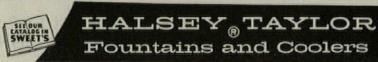
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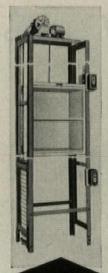
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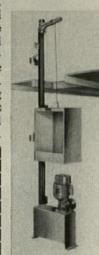
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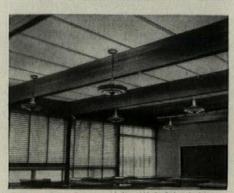
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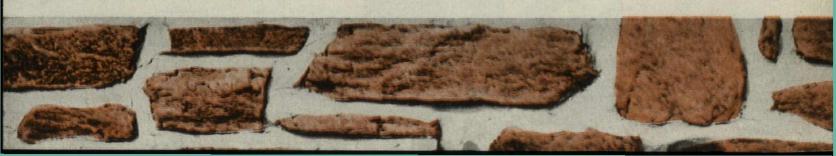
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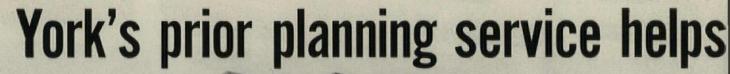
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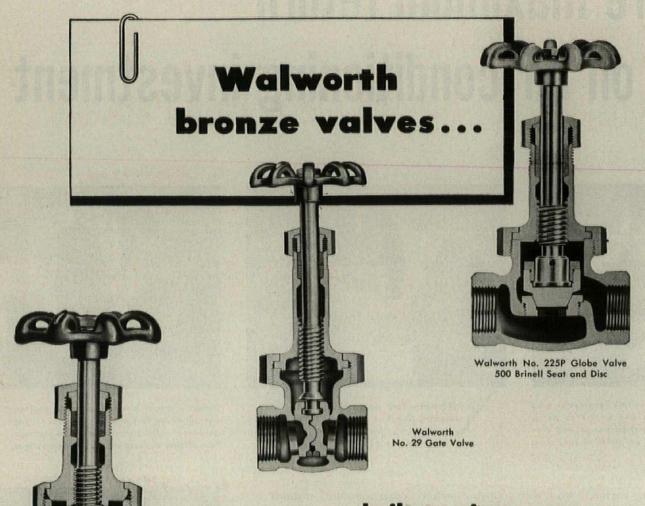
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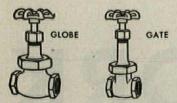
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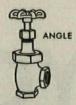
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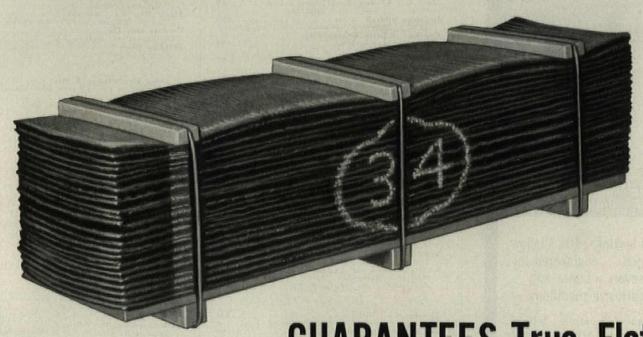
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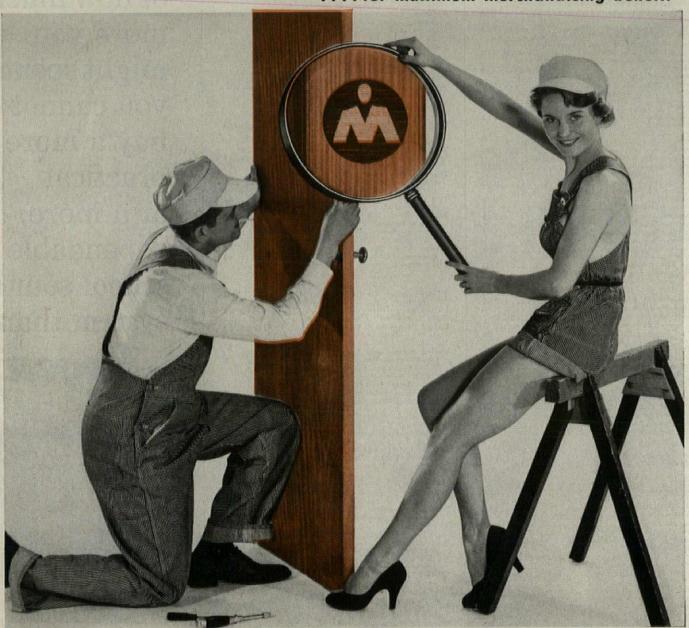
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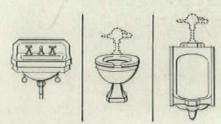
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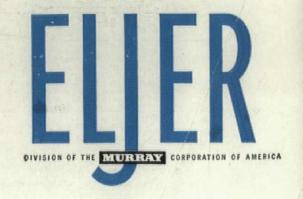


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