ARCHITECTURAL RECORD

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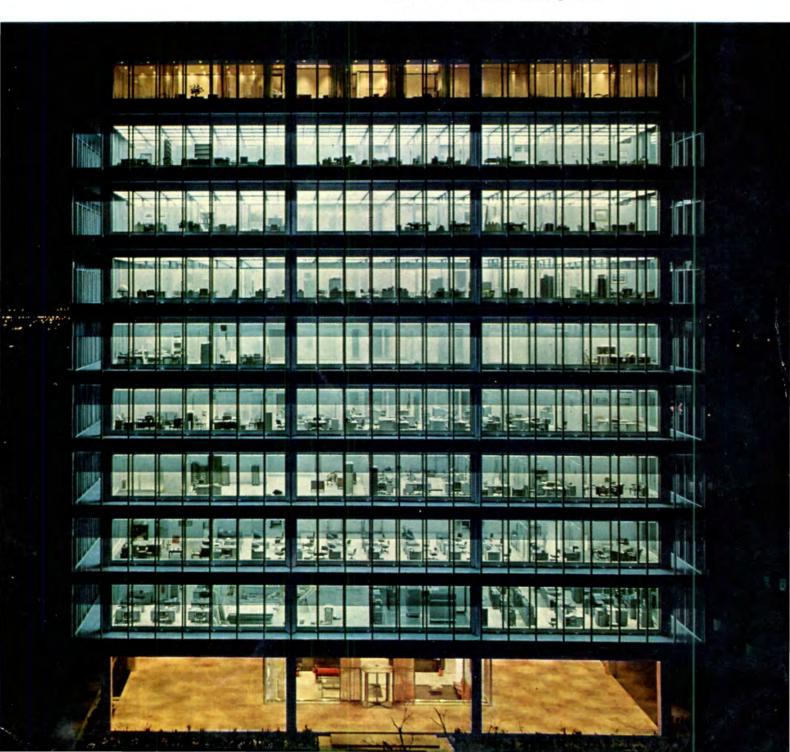
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Fighting Fire...

with Sprinklers

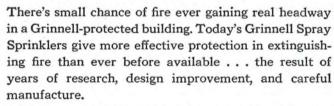
A flash fire occurred over a weekend in basement of J. C. Penney Company, Sacramento, California. Fast action by Grinnell Sprinklers was credited with saving this \$3,500,000.00 department store.



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A national organization to improve and extend the uses of concrete ment projects into a descriptive, promotable idea—new-type Living Concrete. You'll be hearing more about this idea. For nationwide, Living Concrete is gaining favor with important architects, builders, financial people, as well as with home buyers.





GRANCO RE-DESIGNS OFFERS NEW ECONOMY

"New-pattern" Tufcor is 25% stronger... 50% longer!

Completely re-styled tough-temper steel deck for insulating concrete offers greater economy in roof construction.

TUFCOR sheets enable you to space purlins farther apart, help you save on structural framing costs. Longer sheets speed building erection and lower field costs. Tufcor deck with insulating concrete offers a better roof system to designers, builders and owners. Here's why:

GREATER STRENGTH—Fabricated from 80,000-psi steel, new Tufcor supports greater loads, takes construction abuse. Galvanized Tufcor chemically bonds with insulating concrete to form a structural composite deck assembly, has a safety factor of 5 to 10 times live load.

Tufcor roofs are so strong they are approved by the International Conference of Building Officials as diaphragms to resist earthquake forces.

LIGHTWEIGHT - Tufcor plus insulating concrete weighs about

7 psf, which is 4 to 6 psf less than many deck systems! Incorporating the dead load of a Tufcor system in your building design offers savings in cost of framing.

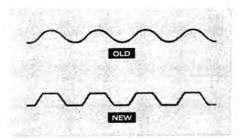
EFFECTIVE INSULATION—Insulating concrete provides excellent resistance to heat. To obtain desired "U" factor, you merely vary the thickness of concrete fill. Slopes for drainage are easily provided. Tufcor's vapor barrier action keeps moisture out of fill, keeps insulation effective.

FIRE-RESISTANT—Exposed deck has UL fire resistance rating. Neither Tufcor nor insulating concrete supports combustion. System saves on insurance rates and on cost of sprinkler system.

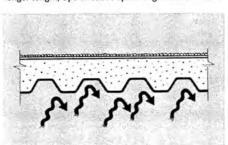
AVAILABLE COAST TO COAST—Investigate Tufcor now! For more facts, consult your Granco district office or mail coupon.



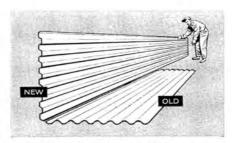
TUFCOR® ROOF DECK, IN ROOF CONSTRUCTION!



STRONGER CORRUGATION—New angular Tufcor pattern increases sheet strength 25%, and, with longer length, ups effective span range from 7' to 10'.



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Our catalogs are filed in Sweets!



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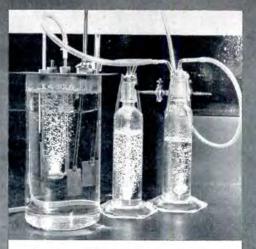


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^{*}In this application no long term test data yet available on 4-D Wrought Iron. Results shown are derived from short term tests.

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Coming in the Record

BUILDING TYPES STUDY: HOSPITALS

Next month's study will be largely taken up with a current report on what's new in operating suites. This critical element in the hospital has seen many forward steps in recent years. The most notable suites in a dozen new hospitals will be evaluated.

SPACE FRAME ET CETERA

A new industrial building for Transistor manufacture, done by O'Neill Ford and Richard Colley, has several points of engineering interest, such as space frame construction, the space in the frame serving as duct space, hyperbolic paraboloid roof umbrellas to give open spaces, and so on.

PARKING GARAGES

The ubiquitous problem of parking downtown leads to further and further construction of parking buildings, and to further refinement of design for best operation. How to design the garage is described in detail by experts at the National Parking Association.

OTHER F. w. DODGE SERVICES: Dodge Reports—Dodge Construction Statistics—Sweet's Catalog Services—Dodge Books—Dodge Mailing Service—The Modern Hospital—The Nation's Schools—College and University Business—Hospital Purchasing File—Chicago Construction News—Daily Pacific Builder—Denver Daily Journal—Real Estate Record & Builders Guide.

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 Continental Baking Company's leadership finds new expression in the streamlined construction of its million dollar headquarters and research laboratories in Rye, New York.

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7

NEW DATA SHOWS HOW TO SAVE

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in a 20,000 sq. ft. 1-Story Building

ROOF HEAT GAIN SLASHED 86% or 268,000 Btu's per hour

Simple roof heat gain calculations just compiled reveal that by installing scientific multiple aluminum Type 4S-LL insulation between either wood or steel ceiling joists of



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An unprecedented 9-2/5" roof insulation value in summer against heat flow downward.

This reduces roof heat gain from 310,000 Btu/hr. to 42,000 Btu/hr. - a slash of 86%.

This means less mechanical cooling capacity is needed; smaller ducts and compressors. With equipment cost at approximately \$550 a ton, a 10-ton reduction saves \$5500. Add a saving up to \$300 a year for electricity. Type 4S-LL insulation costs 8¢ sq. ft. installed, material with labor, between wood joists; (2¢ sq. ft. more between steel joists).

An illustrated Thermal Value Chart and Data Sheet is available which lists thermal factors in ceilings, walls, and floors, winter and summer, of over 40 odd thicknesses of non-metallic insulation, and over 30 types of scientific multiple aluminum insulation.

It enables you to select easily and quickly the insulation required to meet a given "U," "C," or "R" factor, or "inch equivalent." It shows the "C," "R" or thickness needed to attain a desired "U"; and what "U" will result from an insulation with a given "C," "R," or thickness.

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CHART OF BTU ROOF HEAT GAIN CALCULATIONS FOR 20,000 SQ. FT. 1-STORY BUILDING

Assume typical design conditions 2 P.M. August 1. Slag on tar roof on 1" wood deck. 12" masonry walls, furred inside, gypboard finish.

Btu per hour HEAT GAIN for 20,000 sq. ft. ROOF

ROOF	With ROOF	With 9%" ROOF	
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NO	of 1".	of TYPE 4S-LL	
INSULATION	(k value .36)	INFRA INSULATION	
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Btu's	Btu's	Btu's	

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The Record Reports





BIG MOMENTS ON THE AGENDA

1. New president John Noble Richards (right) of Toledo takes over from retiring president Leon Chatelain Jr. of Washington, D. C. 2. A.I.A.'s highest honor, the Gold Medal, is bestowed on John Wellborn Root of Chicago. 3. Allied Professions Medal-new award this year-goes to structural engineer Fred N. Severud of New York. 4. The "old Board" introduced by President Chatelain at the opening session (left to right) Donald J. Stewart of Portland (Northwest); John H. Pritchard of Tunica, Miss. (Gulf States); Bryant E. Hadley, Springfield, Ill. (North Central States); Sanford W. Goin, Gainesville, Fla. (South Atlantic); Bradley P. Kidder, Santa Fe (Western Mountain); Raymond S. Kastendieck, Gary, Ind. (treasurer); Austin W. Mather, Bridgeport, Conn. (New England); Matthew W. Del Gaudio, New York (New York); Edward L. Wilson, Fort Worth, Tex. (secretary); Philip Will Jr., Chicago (second vice president); Mr. Chatelain; Bergman S. Letzler, Louisville (Great Lakes); I. Lloyd Roark, Overland Park, Kan. (Central States); J. Roy Carroll Jr., Philadelphia (Middle Atlantic); U. Floyd Rible, Los Angeles (California-Nevada-Hawaii). The new president, first vice president on the old Board, is hidden by Mr. Chatelain in this picture. All but Mr. Chatelain and directors Del Gaudio, Kidder, Hadley and Mather are also on new Board (see page 16). 5. Major speakers (left to right) Vincent G. Kling, A.I.A., Philadelphia, convention keynoter; Dr. Margaret Mead, anthropologist, and William B. Tabler, A.I.A., of New York. 6. Newly advanced Fellows pose after investiture at annual dinner. 7. Scene at Debate on extension of the East Front of the Capitol. Delegates voted to reaffirm Institute's opposition.

CALL TO PRACTICE: A.I.A.'S CLEVELAND CONVENTION

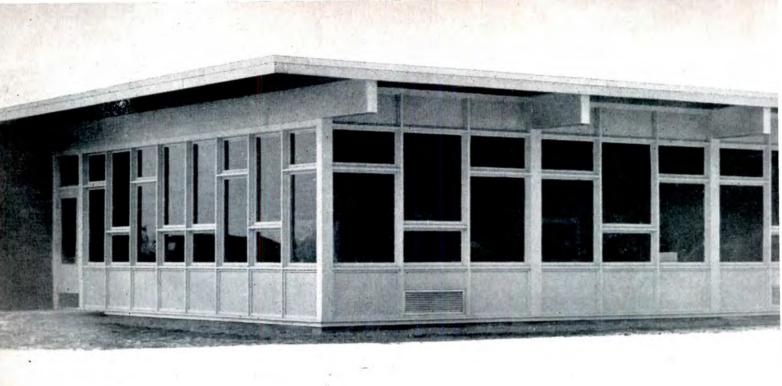
Architectural practice—the business of architecture-was the real theme of this year's annual convention of the American Institute of Architects, July 7-11 in Cleveland. Not as big or as exciting as last year's Centennial convention, but still surprisingly big-over 2000 registered, compared with 4200 in Washington last year and 1800 in Los Angeles in 1956. And if some were wistful after last year's note of high dedication to the great purposes of Architecture, most seemed to be worrying harder about how the architect meets the everyday challenge of serving his everyday client in a world forever more complex, forever wanting him to know more, more, more than he will ever have time to learn. The hunger for information, the yearning for some panacea to solve the desperate problems of communication and assimilation that assault the architect as he confronts increasing responsibilities and ever sharper competition: these made the context and-in a highly acute stroke of timing on the part the Institute-the program and

the more serious off-the-record chatter of the convention.

Richards Named President

John Noble Richards of Toledo became the thirty-seventh president of the Institute in an election in which there nearly were contests for every office for the first time in anybody's memory. It didn't quite happen, because one of the two candidates for treasurer withdrew before the voting. Mr. Richards' opponent was Alexander C. Robinson III of Cleveland. Philip Will Jr. of Chicago was elected first vice president in a contest with Albert S. Golemon of Houston; Henry L. Wright of Los Angeles second vice president after a threeway contest with Austin W. Mather of Bridgeport, Conn., and Herbert C. Millkey of Atlanta as his opponents; Edward L. Wilson of Fort Worth (the incumbent) secretary, over Louis L. Scribner of Charlottesville, Va.; and Raymond S. Kastendieck of Gary, Ind., to succeed himself as treasurer.





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"Andersen windows add warmth, beauty, comfort to school"

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Easy to open. Andersen special design and engineering make Flexivent Windows open smoothly. Choice of underscreen operators optionally available.



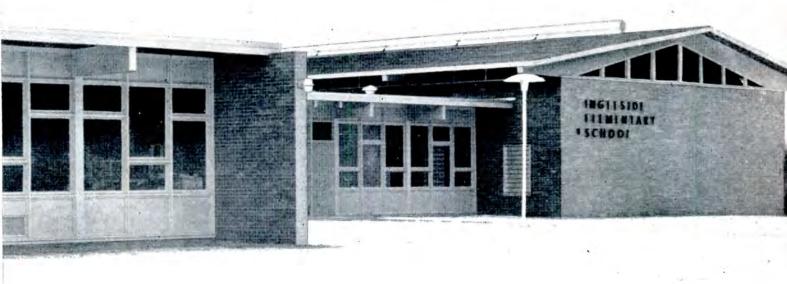
Easy to clean. Andersen Flexivents open easily in all positions to make cleaning a snap. Outside glass can be cleaned easily, safely, economically from inside school.



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Andersen Flexiview and Flexivent Windows provide light and ventilation. Their warm wood helps create a homelike atmosphere.

Andersen Flexivent and Flexiview Windows were selected for our new Ingleside Elementary School to complement the extensive use of wood in the interior," reports W. L. Berkhof, Superintendent of Schools, Mount Clemens, Michigan.

"The installation," continues Mr. Berkhof, "has enhanced the beauty of the building and provided the feeling of warmth which is so desirable in facilities designed for younger children. Our heat loss is small. Limited infiltration assures optimum comfort for our pupils."

Andersen Flexivent and Flexiview Windows adapt perfectly to the low lines of modern buildings. They're remarkably easy to install. Almost 100% trouble free. Penta-treating of sash and frame assures permanent protection against termites and decay. Flexivent's versatility in stacks, ribbons, groupings or with fixed sash permits use in any fenestration plan.

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Mrs. Brush. . . . Student group's president and vice president, Paul J. Ricciuti, Kent State, and Gene Burr, Alabama



Edwin B. Morris Jr., Assistant to the Executive Director of the A.I.A., Mrs. Morris, Mrs. Walter Taylor and A.I.A. Education



and Research Director Mr. Taylor. . . . Industrial Arts Medalist Merle Armitage with Regional Director Floyd Rible, Californians



Charles Kelly of Montgomery, Ala., John T. Kelly and John J. Carr of Cleveland. . . . A.I.A. staffer Marvin Mayhew, assistant to



Administrative Secretary, with Second Vice President—now first vice president—Philip Will Jr. of Chicago



Robert Elkington, St. Louis; Henry Wright of Los Angeles (new second vice president); John Carl Warnecke, San Francisco; Robert



Little, Miami; Dean Arthur Gallion, University of California... Dean Henry Kamphoefner of N. C. State



Above: the then president-to-be, John Richards, with Mrs. Richards and Mr. and Mrs. George Vernon Russell of Los Angeles. . . . Above right: Cleveland Chapter President R. Franklin Outcalt and Fine Arts Medalist Viktor Schreckengost. . . Right: this year's edition of the most special session of any A.I.A. convention-Pittsburgh's (and Carnegie's) Bob Schmertz, with banjo, singing his songs (of architecture and many things)-Mrs. Harris Armstrong of St. Louis is one of his enthralled listeners in upper photo; below-Marvin Mayhew and Clinton Brush in background; Mr. and Mrs. Jack McKee of Pittsburgh, Mrs. Carl Feiss of Washington, D. C., and Mrs. Emerson Goble; and (foreground) Carl Feiss and James Hornbeck of the RECORD







Four new regional directors also were elected, all without contest: Harold T. Spitznagel of Sioux Falls, S. D., North Central States; Frederick H. Porter Sr. of Cheyenne, Wy., Western Mountain; Trevor W. Rogers of Buffalo, New York; and Alonzo J. Harriman, Auburn, Me., New England.

Business and Sentiment

The business of the convention-with one exception-was quickly and expeditiously accomplished. The annual report of the Board of Directors, mailed to the membership in advance of the convention, constituted the basic agenda for the business meetings, and this year it evoked very little discussion. The one point on which there appeared to be some soreness, the reorganization of many of the Institute's committees into "General" (five-man) committees from the prior "Vertical" (12man) setup which gave each A.I.A. region a representative on each committee, was covered in a rather mild resolution instructing the Board "to reconsider its recent action which eliminated full regional representation of some committees after discussion of the effects of such action with the chairmen of all committees." The delegates also passed resolutions reestablishing an Institute Committee on Fees and Contractual Relations and establishing a Committee on Building Codes. Of the three amendments to the by-laws proposed by the Board, the convention approved one which authorizes the Board to establish additional regional districts (there are now 12) this in connection with probable establishment of Florida and California as separate regional districts; referred back to the Board for further study one providing for "Withdrawals of Corporate Memberships when Members are no Longer in Practice of Architecture or Closely Related Professional Activities"; and disapproved one which would have made transfer of corporate membership contingent on the applicant's prior registration in the state or territory of the chapter to which he seeks assignment.

If all of these matters were settled with little or no excitement, the drama surrounding the passage of a resolution reaffirming the Institute's "traditional position" in opposition to extension of the East Front of the U.S. Capitol more than made up for it. This took an entire morning session, the most crowded by far of the convention; it began with a solemn charge by the presiding officer to the assemblage to remember that the

eyes of the nation were upon them and-in effect-that they were architects and gentlemen; and it continued with 45 minutes by the clock assigned to each of the two "sides" to present their views. The vote on the resolution, which was overwhelmingly for opposition, provided the convention with its moment of high suspense. In a later action, the convention resolved "that this action of the convention is in no way to be considered a reflection on the professional integrity and competence of the architects commissioned for the work" and "that the American Institute of Architects has complete confidence in the ability of these firms to successfully carry to completion any revised program that may be developed to provide the necessary facilities without sacrificing the East Front of the Capitol."

Wanted: Information

The convention program was a busy one, with major speeches and business sessions scheduled for mornings and three concurrent panel sessions for each afternoon-not to mention the usual array of tours, exhibits and traditional and special social occasions. The panel sessions were fairly well attended, considering each had two competitors, and taken together they offered a short course in common professional concerns-"How to Set Up an Office"; "Education-Relative Responsibilities of the Profession and the Schools"; "New Fields of Architectural Research"; "Where to Find Construction Money"; "Developing Today's Building Program"; "Working with the Home Builder"; "How to Make Better Cost Estimates"; "Professional Status-Your Most Valuable Asset"; and "Chapter Affairs."

Probably the most provocative of the panel sessions was the one on architectural research, at which Herbert H. Swinburne, A.I.A., newly appointed to the A.I.A. Committee on Research, proposed that the Institute undertake a broad new program of research employing the resources of the behavioral sciences to strive toward a true understanding by the architect of his changing client and its needs.

In his keynote address, Vincent G. Kling, A.I.A., of Philadelphia put the question, "Shall we be architects or technicians?" and suggested the answer is "in knowing, and acting on, the difference. The technician is a man highly competent in a given field, applying himself to one aspect of a larger problem or a larger goal without respect to its broadest dimensions. The architect, on the other







Left: (top to bottom) Harris Armstrong of St. Louis and Mario Ciampi of San Francisco. . . . West Virginia's Cyrus E. Silling with James Edwards of Atlanta and Henry Wright of Los Angeles. . . . RECORD Publishing Director H. Judd Payne (center) and Mr. and Mrs. Ditchy of Detroit



William Stanley Parker of Boston and Samuel Lunden of Los Angeles. . . . Richard Aeck of Atlanta, A.I.A. Research Secretary



Eric Pawley and the new A.I.A. regional director for New England, Alonzo Harriman of Auburn, Maine



Mr. and Mrs. James T. Lendrum of Florida and Herbert L. Smith Jr. of the RECORD. . . .



Charles Porter of New Jersey with Mr. and Mrs. Robert Alexander of Los Angeles



A.I.A. Executive Director Edmund R. Purves; Joseph Ceruti of Cleveland, convention chairman; and Arthur Holden of New



York. . . . Emerson Goble, editor of Archi-Tectural Record, with John Carl Warnecke of San Francisco and Mrs. Goble



Mrs. Raymond Kastendieck of Gary, Ind., with John Richards and J. Roy Carroll, Philadelphia. . . . Howard Barringer, presi-



dent of the F. W. Dodge Corporation; Mrs. Barringer; and Thomas S. Holden, vice chairman of the Board of F. W. Dodge

ere's how I'd use Armstrong Fissured Minaboard to create an interesting multi-purpose interior"

Says J. Gordon Carr, A.I.A.

The sketches on these pages show how I would use new Armstrong Fissured Minaboard to combine wall and ceiling planes to make this auditorium-display area more interesting.

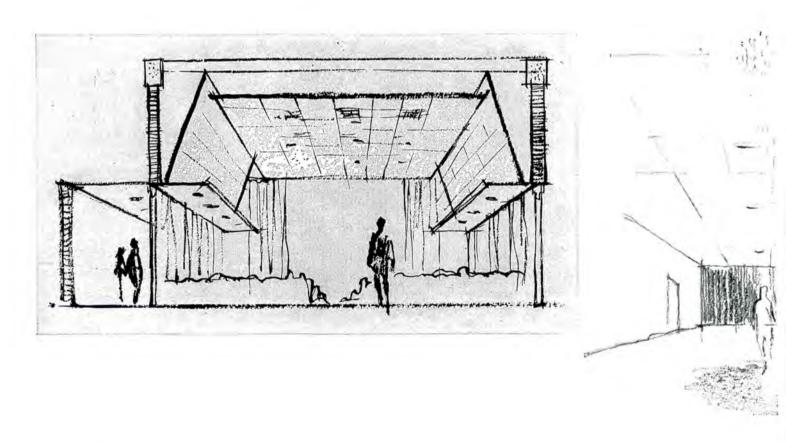
"Notice the striking basket-weave effect on the freefloating ceiling. For contrast, both incandescent and fluorescent lighting are used. The egg-crate fluorescent lighting fixtures are located between the Minaboard lay-in panels to set off the basket-weave design.

"The canted walls use an ashlar arrangement of Minaboard and are held away from the floating ceiling to create an additional plane.

"The design flexibility of new Armstrong Fissured Minaboard encourages more imaginative ideas. This 'ceiling-wall plan' is just one of the ways it can be used to add a more dramatic look to an interior."

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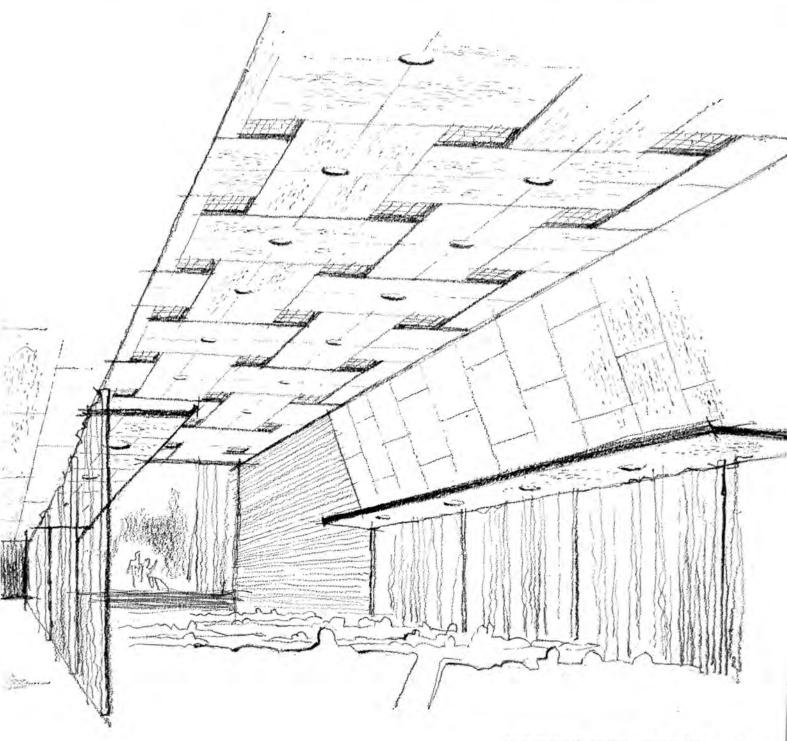
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Distinctive fissured surface • Provides
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The Record Reports



Harrison Salisbury of The New York Times (above left) addressing annual dinner; welcome to Cleveland from Chapter President Franklin Outcalt (center); President Harlan Hatcher of the University of Michigan addressing the opening luncheon





Top: President Chatelain receives the new "President's Medal" from its initiator, Past President Ralph Walker of New York. Above: the new A.I.A. Board holds its organization meeting following the convention







Three of the liveliest convention panels: (top) research—Walter E. Campbell, chairman of A.I.A. Committee on Research, A.I.A. research secretary Eric Pawley, Herbert H. Swinburne and Samuel Lunden; (center) "How to Set Up an Office"—C. F. Bauersfeld, tax attorney, Daniel Schwartzman, Howard Eichenbaum and Douglas A. Russell of Daniel, Mann, Johnson & Mendenhall; (above) "Education—Relative Responsibilities of the Profession and the Schools"—William Wilson Wurster, Alex Cochran (chairman, A.I.A. Committee on Education), Dr. Edwin Burdell, president of Cooper Union, and Cecil A. Alexander

hand, we have come to think of as something quite different. It's no longer a question of being different, it's a question of being more. If we combine our proud professional heritage, our traditionally high standards, and a broad sense of service with a technician's mastery of the intricacies of practical life in the modern world, we will be good, I think, for another century at least."

Another major speaker, William B. Tabler, A.I.A., of New York, pleaded for building code reform, with the A.I.A. taking the lead, so that "buildings could illustrate what we can do instead of, as today, what we can't do."

It was the anthropologist Dr. Margaret Mead who made the simplest and most vivid definition of the modern architect's problem: "how to plan in a way that takes account of change consciously and how to bring into one's consciousness all the things that were once carried on by tradition."

First Report on C.S.I. Sessions

There were strong signs at the annual Construction Specifications Institute convention, July 5-9 in Cleveland, that C.S.I. is determined to accept the responsibilities of a mature professional society. Having mushroomed from 825 members in 1956 to 3000 this year, C.S.I. is having some growing pains which it hopes to solve by these steps:

1. A full-time executive director will be appointed with headquarters in Washington.

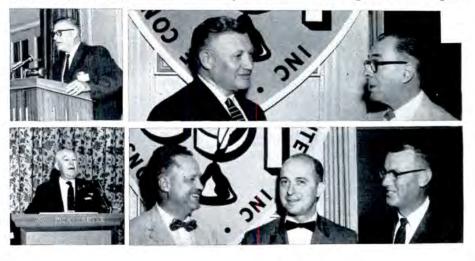
2. The nation has been divided into 12 regions, with a director for each. The board of directors will consist of these 12 plus three alternates, and the three top officers.

3. An executive committee replaces the former administrative affairs committee which will carry out policies established by the board.

The site for next year's convention is Chicago. (A fuller report on the C.S.I. convention and its program will appear next month.)



C.S.I. notables (above at Institute's annual dinner, held in connection with its Cleveland convention. Standing (left to right) Past President Lester Burn of Washington, D. C.; Rolf Retz, director, Sacramento, Cal.; Frank Crouch, director, Detroit; Frank Crimp, director, Boston; R. Redmond Coghlan Jr., director, Los Angeles; J. Stewart Stein, president, Chicago; Harry Plummer, secretary-treasurer, Washington, D. C.; Willard Barrows, vice president, New York City; Glen Abplanalp, director, New York City; and Norvell Hill, director (and convention chairman), Cleveland. Below left: President J. Stewart Stein; below right: President Stein with Secretary-treasurer Harry Plummer. Bottom left: Vice President Willard Barrows; bottom right: Carl Mann, C. S. I. publications; Robert E. Fischer of Architectural Record; and Director R. R. Coghlan of Los Angeles



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Among the hundreds of fascinating exhibits and buildings at the Brussels World Fair (April 17 to October 20, 1958), the "Pan American World," the first air-house to be seen in Europe, is proving to be one of the most popular.

The "world" is a giant 52 foot diameter globe, "the largest earth on earth" made of nylon fabric, with no visible support. It is held up by a continuous supply of low pressure air from blowers. Inside the giant globe, in air-conditioned comfort, an audience of 160 at a time witness a spectacular display of the heavens, huge color pictures, and a historical film of transportation through the ages, from Magellan's time to the Jet Clippers.

Visitors to the big Ball pass through revolving doors serving as airlocks which maintain the pressure within, and permit thousands of people daily, to pass from normal outside pressure to the slightly higher inside pressure without drafts, leakage or any noticeable change in air pressure. This continuous flow of Fair visitors in and out of the big Ball is handled by International Revolving Doors — the *only* entrance which solves the problems peculiar to air-supported structures such as this.

If your entrance is costing you money for any reason . . . then you are already paying for revolving doors. Why not enjoy their advantages? Write for further proof of the economy and efficiency of revolving doors.



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In addition to the gravel stop, facing system and window sill used on this project, Kaiser Aluminum offers a complete line of extrusion products engineered for the functional requirements of today's architecture.

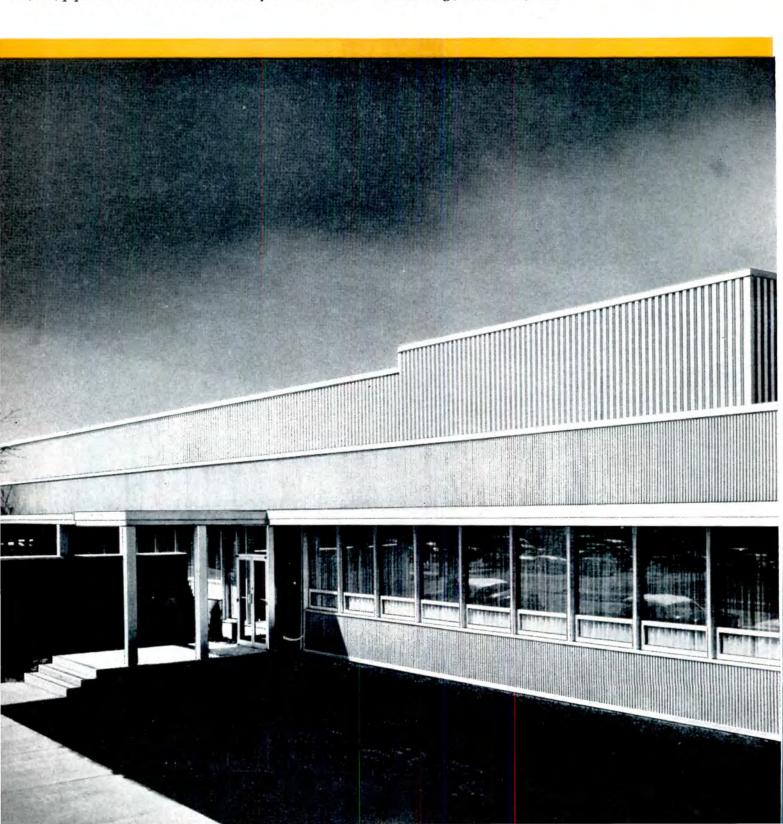
Included in the line are a variety of gravel stops, copings, window sills, thresholds, and handrails as well as fascia expanders, fascia system, architectural and structural shapes, rod, bar, pipe and tube. All are now readily available in a

wide range of sizes from Kaiser Aluminum distributors.

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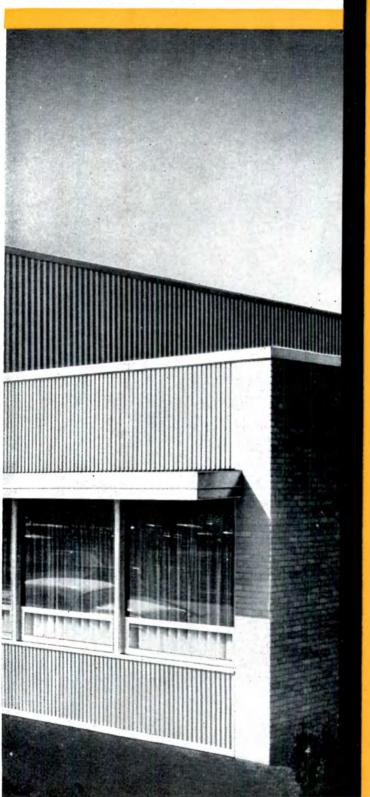
Kaiser Aluminum & Chemical Sales, Inc., General Sales Office, Palmolive Bldg., Chicago 11, Ill.; Executive Office, Kaiser Bldg., Oakland 12, Calif.

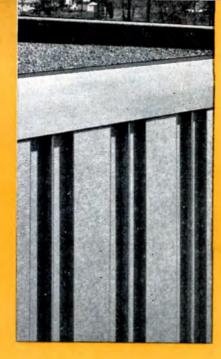




What the architect conceives ... aluminum achieves!

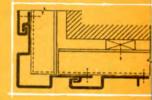
See "MAVERICK" . Sunday Evenings, ABC-TV Network . Consult your local TV listing







Typical detail and photo of Kalser Aluminum's Type K-1 Gravel Stop. Note simplicity and pleasing shadow line that results from the straight drip edge feature.

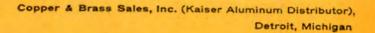


Kaiser Aluminum's standard Facing System may be used for interior or exterior applications. Typical detail shows outside corner components in horizontal section. Photo shows pleasing texture effect of the configuration.





ENGINEERS AND ARCHITECTS:
Giffels & Vallet, Inc., L. Rossetti
CURTAIN WALL FABRICATORERECTOR: The R. C. Mahon Co.
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Buildings in the News

WAYNE CONFERENCE HALL DEDICATED

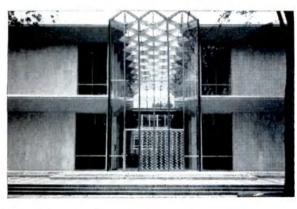
Five photographs of McGregor Memorial Conference Center at Wayne State University, Detroit, Mich.; Yamasaki, Leinweber and Associates, architects; Darrin and Armstrong Company, Incorporated, general contractors





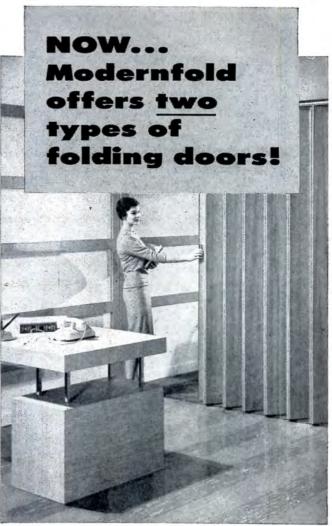
Photos by Ronald Beckman











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NEW WOOD LINE—An "architect's choice" of selected, matched veneers laminated to a solid core for exceptional stability. Quiet, graceful, easy-gliding. And so rich in appearance.

FAMOUS FABRIC LINE—The MODERNFOLD look of luxury in fabulous fabrics and weaves, all washable. Exclusive, double-strength, all-steel inner frame for perfect balance, lifetime service.

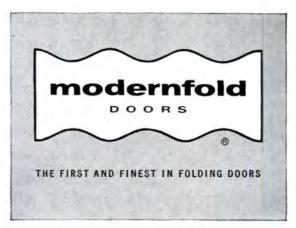
NEW SOUND-RETARDING STANDARDS—An outstanding feature that may surprise you! Rigid and repeated tests prove that MODERNFOLD folding doors have set new standards in sound-retarding ability.

STUNNING HARDWARE—So beautiful! So practical! Modernfold enhances the drama of folding doors with specially designed hardware in a choice of brass or satin chrome finish.

A SPECIAL FEATURE—Dimensional stability is vital to the life and appearance of folding-door fabrics. MODERNFOLD achieves this important "must" with an exclusive back-coating process (patent pending).

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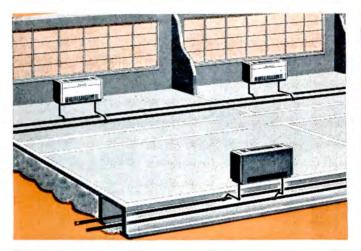


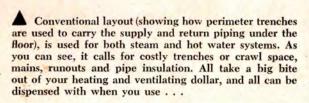
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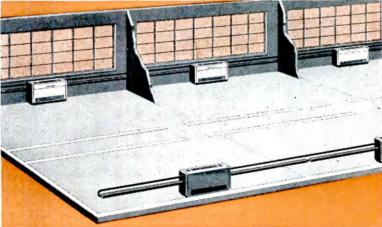


Teacher and pupils are comfortable in any weather . . . in every part of the room with this Nesbitt heating, ventilating and natural cooling system. It combines the use of a Nesbitt Syncretizer unit ventilator in each classroom with Nesbitt Wind-o-line radiation installed all along the window sill (see above). Radiant heat protects teacher and pupils

against excessive loss of body heat; while convected heat along the sill warms chilling downdrafts. Three-way class-room payoff: outstanding comfort, operating economy, good appearance. Layout diagrams below help to show how the Nesbitt Series Hot Water Wind-o-line System provides protected learning environment.







the Nesbitt Series Hot Water Wind-o-line System. The Nesbitt Syncretizer unit ventilator, installed in each classroom on this system, requires only about ½ as much hot water as do conventional systems. As a result, smaller pumps and pipes are used. The only supply and return piping you need in a classroom wing (see above) is the Nesbitt Wind-o-line Radiation itself.

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Some of the Recent Low Costs for Quality Heating and Ventilating Systems:

IN NEW JERSEY \$1.67 sq.ft.

Pennsauken High School, Pennsauken, N. J.

Architect: Faint & D'Anastasio

Engineer: John Knecht Capacity: 1800 pupils Gross Area: 188,000 sq. ft. Total Contract: \$2,844,659

Heating and Ventilating: \$314,986

IN OHIO \$1.91 sq. ft.

Young Elementary School, Springfield Township, Ohio Architect: W. B. Huff & Assoc. Engineer: Paul Fleming Capacity: 300 pupils Gross Area: 22,000 sq. ft.

Total Contract: \$335,071 Heating and Ventilating: \$42,025

IN ILLINOIS \$1.41 sq. ft.

Creve Coeur Elementary School,
Creve Coeur, Illinois
Architect & Engineer:
George Poppo Wearda
Capacity: 256 pupils
Gross Area: 11,800 sq. ft.
Total Contract: \$156,124
Heating and Ventilating: \$16,664

Compared with the installed costs of some other systems, the Nesbitt Series Hot Water Wind-o-line System saves you as much as 20% on construction, equipment and installation costs. Each classroom has its own Nesbitt Syncretizer unit ventilator for heating, ventilating and natural air cooling. And Nesbitt Wind-o-line radiation extends along the sill to protect pupils seated near windows from cold walls and window downdraft.

No other unit ventilator provides controlled heating, ventilating and natural cooling as effectively as the Nesbitt Syncretizer. When used in combination with Nesbitt Wind-o-line radiation, the result is healthful, productive comfort—free of physical distraction—for every pupil in the room whether he sits near the window or at the other side of the room. Only the comfortable student can maintain maximum learning efficiency.

Send for the big book on the value of controlled ventilation, More Learning per School Dollar.



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Photo by George Cserna

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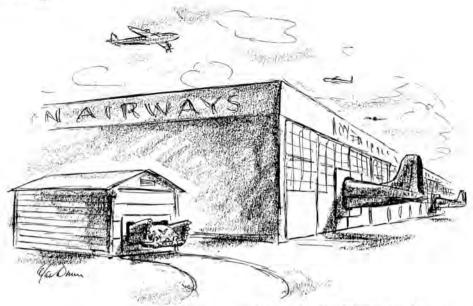
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Meetings and Miscellany



-Drawn for the RECORD by Alan Dunn

Emerson Goble Named Editor

On June 24 Emerson Goble, since 1942 managing editor of ARCHITEC-TURAL RECORD, was named editor.

Mr. Goble's direct contributions to the building of ARCHITECTURAL REC-

ORD as "the workbook of the active architect-engineer" have been constant and numerous over the years.

Major contributions include initiation and handling of the

RECORD's philosophy articles, its series on health and old age facilities, its campaign to improve man-made amenities in our national parks.

An engineer by training, a journalist by profession, Mr. Goble has functioned almost as a gyroscope within the staff in keeping RECORD'S course steady and its sights high over many years.

Supporting Mr. Goble in the editing of Architectural Record is a staff composed of seven graduate architects, three graduate engineers, five experienced journalists, and three specialists in graphic arts design.

Judd Payne, Publishing Director

The State of Construction

There was good news again in the June construction contract totals reported by F. W. Dodge Corporation: for the second consecutive month, the overall total set a new high record for any single month ever reported by Dodge. The June total of \$3.8 billion was 12 per cent above the pre-

vious record set the month before and 18 per cent above the June 1957 figure. For details: page 338.

BRI Schedules Flooring Conference

Common problems in installing and maintaining resilient floors will be delved into at a workshop-conference to be held by the Building Research Institute on September 17-18. According to a survey made to assist in developing the conference program, failure of adhesive bond, nail popping, scratching and indentation of surface finish loom as major problems, with others close behind.

Sessions like this one and a similar conference on paints and protective coatings, scheduled for December 3-4, are now under examination by a special Policy Planning Committee appointed by recently re-elected BRI president Charles H. Topping. It is hoped that the committee's work will, among other things, help to determine the effect that expanding BRI's activity in coordinating basic building research might have on its present program policy.

Owings in Rome

Nathaniel A. Owings of Skidmore, Owings & Merrill is to be architect in residence at the American Academy in Rome from October through Jan-

Department Becomes School

At Clemson College, Clemson, S. C., the department of architecture became the School of Architecture on July 1. Harlan E. McClure, formerly department head, is now dean of the school; the architectural curriculum at Clemson became accredited in 1955.

"Women in Architecture" Meet

The Association of Women in Architecture recently held its national convention in Los Angeles. The national organization of women in architecture and allied arts elected the following officers for 1958-60: Mary Jane Fournier, St. Louis architect, president; Doris Danna, vice president: Jane Godfrey, secretary: Barbara Uthe, treasurer; Betty Lou Custer, administrative advisor; Jane Stuessie, public relations chairman, all from Missouri; Margaret Kinkead. Detroit, publisher; Steinmesch, charter chairman; Lorraine Rudoff, expansion chairman; Rose Connor, information center chairman, all from Los Angeles.

Whittemore Leaves Michigan

Harlow O. Whittemore, chairman of the department of landscape architecture at the University of Michigan since 1934, retired on August 1. Professor Whittemore joined the Michigan faculty in 1914.

Honors

Otto R. Eggers, of Eggers & Higgins, New York, received the Building Stone Institute's 1958 award for "his long and distinguished career in the field of architecture and for his use of natural stone to create noble designs of beauty and durability." . . . The recent international competition for a monument to the Heroes of Warsaw resulted in 24 awards, but no first prize. Wojciech Jastrzebowski, chairman of the 25man jury of members of the Association of Polish Architects and Union of Polish Plastic Artists, announced that 196 entries had been received. Twenty of the prizes (including the

How schools benefit from

A truly gradual acting thermostat—controls unit ventilators and convectors.



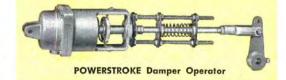
Powers PACKLESS Control Valves are standard for

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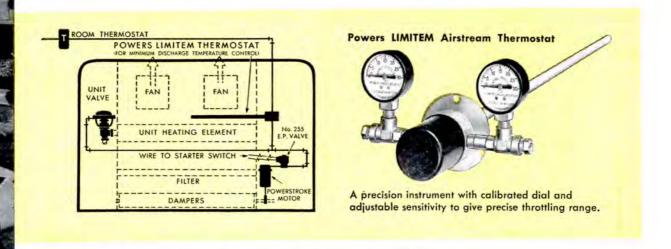


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Powers LIMITEM Airstream Thermostat with its efficient direct control gives precise regulation of unit ventilator discharge temperature without using complicated auxiliary devices.

LIMITEM performance and reliability have been time tested and proven in thousands of schools. Valve and damper operator which it controls are shown on opposite page. Powers Responsibility for correct installation and dependable operation is accomplished by directly employed Powers mechanics with years of unit ventilator control experience.

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Meetings and Miscellany

second and third awards) went to Poles; four models from abroad, which won 10,000 zlotys each, were entered by Z. M. Vajar, Belgrade; Jerzy Jakubowicz and Andrzej Bobrowski, London; I. A. Zubin and A. G. Konstantinov, Moscow; and Wong Chi Chung and five teammates, Shanghai.

Worth the Winning

The Arnold W. Brunner Scholarship will provide \$2400 during 1959 for advanced study in special architectural fields. Eligible are active American architects with advanced professional backgrounds, also members of the teaching profession on sabbatical leave. The closing date for applications, which must include choice of subject and outline of proposed studies, research, and travel, is November 15. Details from: N. Y. Chapter, A.I.A., 115 East 40th Street, New York 16. . . . The American Academy in Rome offers a limited number of fellowships for one year beginning October 1, 1959, with possibility of renewal (the Academy prefers two years). Fellowships, awarded on evidence of ability and achievement, are open to U.S. citizens capable of independent work in architecture, landscape architecture, fine arts, and classical studies. A fellowship carries \$3000 a year (stipend: \$1750; round trip, New York-Rome: \$600: studio supplies: \$150; European travel: \$500) plus free residence and studio at the Academy. Applications and submissions of work, in prescribed form, are due at the New York office by December 31. Query: American Academy in Rome, 101 Park Avenue, New York 17.

R.I.B.A. Conference Held

By Jeffrey Ellis Aronin, A.I.A.

A total of 620 persons, including 356 architects (the remainder being the usual assortment of relatives, press and government officials), from throughout Britain and several overseas countries attended the Conference of the Royal Institute of British Architects from May 14 to 17 in Newcastle-Upon-Tyne. The subject of the Conference was "The Character of Towns," but more stress was laid on the problem of the automobile than on purely architectural matters.

Great Britain, which has not been spoiled by the automobile to the extent that the United States has been affected, seemed to be waking up to the fact that the motor car is here to stay and that architectural provision should be made for the car in architecture and town planning designs.

The thoughts were quite commemorable, and it is encouraging that the British architects are tackling the problem before it has reached the devastating proportions it has assumed in the U.S.A. But it is surprising to an American visitor to find that such phrases as "off-street loading," "expressways" and "flyovers" are only just now coming into the phraseology. One professor was heard to say: "My students are now showing great concern for the provision of car parks and they put them in almost every design."

The Conference opened Wednesday evening, May 14, with a pleasant informal reception in the Old Assembly Rooms. On Thursday morning the Inaugural meeting took place at the Literary and Philosophical Society Lecture Theatre with greetings from the Lord Mayor of Newcastle-Upon-Tyne, Alderman J. W. Telford; Kenneth M. B. Cross, president of the R.I.B.A.; and Donald McIntyre, president of the Northern Architectural Association.

Then the papers were "read." They were not actually read in the true sense of the word because printed copies of the talks were circulated beforehand, to be perused by the participants and to insure that enough time could be devoted to slide showing and question-answering. This is rather an interesting feature which might well be adapted to some Amercontinued on page 286



Clinton E. Brush, III (left), Nashville, nominated as regional director, A.I.A. Gulf States District, being congratulated by the present director, John Pritchard, at a Tennessee Society of Architects meeting with President Zeno L. Yeates (right) presiding

Wanted: New Ideas on Housing

Urban renewal and the closely allied public housing effort came under close scrutiny as more than 300 gathered in Washington in June for the 27th annual meeting of the National Housing Conference. Reviewing the progress of national programs, the Conference turned bitter words on the 1958 housing bill.

Almost unanimously, the delegates opposed "the little effort" in slum clearance and urban redevelopment; they passed a resolution calling for a Federal department of Housing and Urban Development, with cabinet status, of course, to handle "the vastly enlarged programs which will be required to attain the essential goals for housing and community development." The Conference maintained that this betterment in houscontinued on page 294





Two aluminum sculptures by Gertrude Barnstone for the U.S. Green Stamp Building, warehouse-showroom in Houston for a five-state trading-stamp company. The clients and Mrs. Barnstone agreed on non-objective forms allied to the design of the building; Irving Klein was architect. Alum-



inum, chosen for economy, workability, and to harmonize with the showroom's aluminum trim, is used in two forms: 2%-in. tubing and 1-by-5-in. flat bar. The pieces are highly polished to bring out sun effects. Total cost: \$1500, including sculptor's fee, fabrication, alumiliting, installation



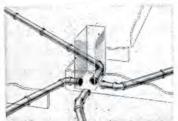
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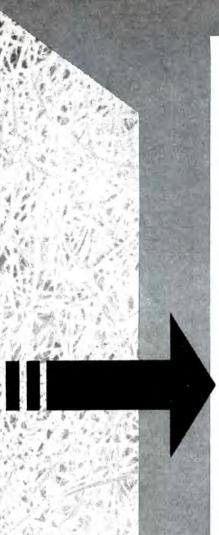
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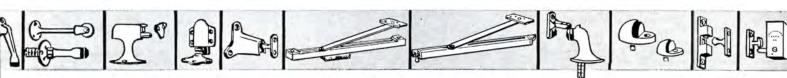


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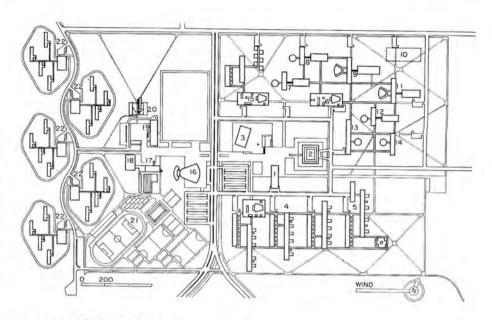






News of Architecture Abroad

Campus Plan. 1. Secretariat; 2. Library; 3. Mosque; 4. Faculty of Arts; 5. Miscellaneous faculties; 6. Faculty of Sciences; 7. Zoology; 8. Botany; 9. Zoology; 10. Applied chemistry (future); 11. Physics; 12. Geology; 13. Mathematics; 14. Geography; 15. Faculty of Islamic Learning; 16. Auditorium (2,500 seats); 17. Sports Club; 18. Gymnasium; 19. Students' Union; 20. International Hostel; 21. Swimming, tennis, badminton, volleyball, soccer, hockey, basketball (cricket field is north of auditorium); 22. Residential unit for 200 students



FRENCH ARCHITECTS DESIGN PAKISTANI UNIVERSITY

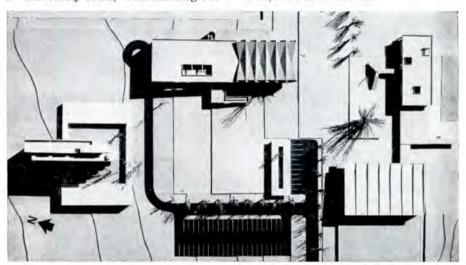
The new University of Karachi is rising on a 1200-acre site eight miles from the city in Pakistan. The architects who worked out the general program and designed all the buildings are M. Ecochard, P. Riboulet, and G. Thurnauer, partners, of Paris, with J. Renaudie as assistant and J. Coignet as representative. The end of the first construction phase in early 1959 will allow the University to start to move from its present overcrowded quarters in the city. The rest of the construction is planned on an eight-year schedule.

The architects list six primary principles that governed their solution of both planning and designing problems: 1) Flexibility for future use: the scheme attempts to allow for either rapid or slow expansion. 2) Climatic protection: double roofs and sunbreakers protect from tropical sunlight. The orientation, the same for all buildings (except the air-conditioned laboratories), takes advantage of the prevailing wind from the sea: also, most of the buildings are only one room wide. 3) Economy: the architects reduced necessary surfaces and used local materials. 4) Separation of building groups: the entrance avenue separates the studies group from the sports, recreation, and residence group. Buildings for common use are grouped along a pedestrian mall. 5) Separation of cars from pedestrians: independent roads and paths lead to each building. 6) Landscaping: the grounds, now desertlike, will be planted and irrigated.

The four faculties shown in the

plan are to have a capacity of 7,000 students. On final completion, the University is to consist not only of all facilities shown here, but also of a "university town," surrounding the

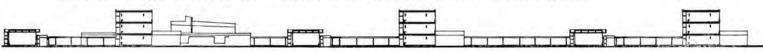
central area, which will include 13 colleges, 280 houses for teachers, assistants, and clerks, housing for servants, additional student housing, and a 10,000-seat stadium.



Model of the recreation group (above) showing, clockwise from north, International Hostel, Students' Union, Sports Club, Gynasium. One end of the swimming pool is at top right.



Model of the Library (above, left) and Secretariat, as they are to look from a point near the Mosque. Longitudinal section (below) of Faculty of Arts.





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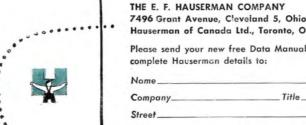
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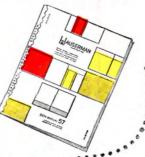
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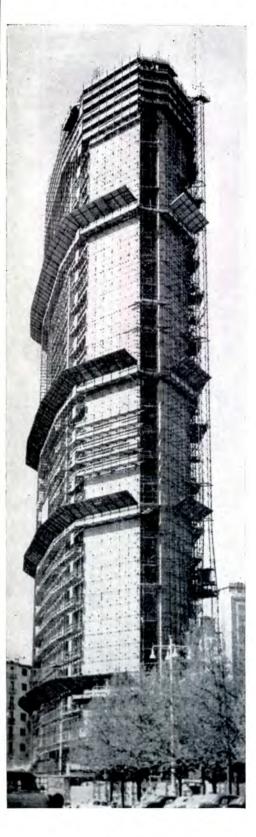


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News of Architecture Abroad



A combination hotel and air-terminal (at right) is being built in Copenhagen, Denmark, for Scandinavian Airlines System from Arne Jacobsen's design. The \$4,300,000 building, the largest in Scandinavia, will be completed in 1960. It will contain a 275-room, completely air conditioned hotel, a passenger terminal for the airline, and a 300-car parking garage

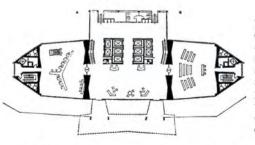




The Tokyo Metropolitan Indoor Swimming Pool, Masachika Murata and Associates, architects, is of reinforced concrete, with sprayed-concrete-coated steel roof trusses spanning 162½ feet. The building was completed this spring for the Third Asian Olympic Games. At left, 20- by 25-meter diving pool, 20- by 50-meter swimming pool, and grandstand seating 4000 people. Below, main entrance and offices.



At right, roof truss and fire stairs



The 32-story Pirelli building in Milan, Italy, is nearing completion. The skyscraper is the work of two Milanese architectural firms: Ponti, Fornaroli, Rosseli; and the Studio Valtolina dell'Orto, with whom Pier Luigi Nervi and Arturo Danusso, structural engineers for the building, worked. Since the four butterfly-shaped piers (see plan, left) diminishing in size toward the top, and the triangular utility stacks (acting as stiffeners), are the only columns in the building, a clear span of over 50 feet on each floor is possible.





"No home is modern without concealed telephone wiring"

—says Mr. F. J. Mallerdino, Builder, of Chicago, Illinois

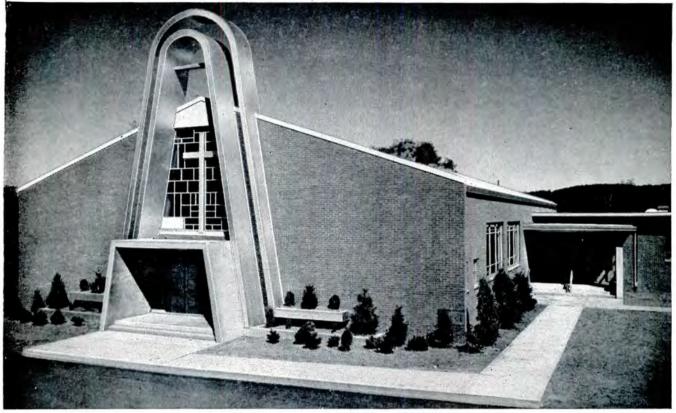
"I'm putting at least five telephone outlets in every house I build," says Mr. Mallerdino. "They're conveniently located, with the wiring neatly and attractively concealed in the walls. I point them out to prospects, and I advertise them.

"In order to be competitive, a builder has to put as many modern features as he can into the homes he builds. And I'm convinced that today no home is modern without concealed telephone wiring."

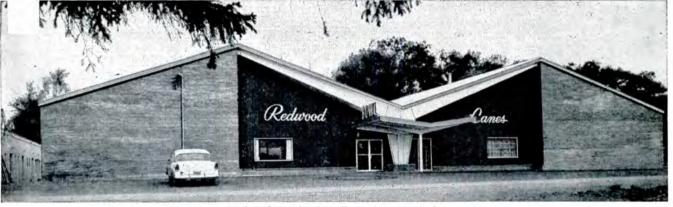
Your local Bell Telephone business office will be glad to help you with concealed wiring plans. For details on home telephone wiring, see Sweet's Light Construction File, 8i/Be. For commercial installations, Sweet's Architectural File, 32a/Be.

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EIGHT PROJECTS COMPLETED, 18 UNDERWAY IN HHFA'S DEMONSTRATION GRANT PROGRAM

Congress considered it wise in 1954 to begin spending substantial sums of Federal money on studies of urban renewal techniques.

The housing law of 1954 authorized the Housing and Home Finance Agency to make grants (up to two thirds of cost) to assist public bodies in developing, testing, and reporting methods and techniques, and carrying out demonstrations and other activities for the prevention and elimination of slums and urban blight.

Objectives of the program were outlined only generally in the law. The administrator must give preference to those undertakings which he judges can (1) contribute most significantly to the improvement of methods and techniques for the elimination and prevention of slums and blight, and (2) best serve to guide renewal programs in other communities.

This Federal effort now is known as the Demonstration Grant Program and is administered by the Housing and Home Finance Agency's Demonstration Program Branch under its Urban Renewal Commissioner.

In launching this part of the overall housing program four years ago, a continuing authorization of \$5 million was established. This means that HHFA's branch can spend Title I funds at the Administrator's discretion for this work until the authority expires.

At present, approximately \$2 million of the authorization has been spent on 18 projects in progress and the eight that have been completed. There are enough applications in the hands of agency personnel to devour another \$1 million if they were all approved.

Expenditure of the full \$5 million will, of course, generate \$7.5 million worth of demonstration grant work since Uncle Sam is paying but two thirds of the final cost. Individual projects already in the works show individual costs ranging from \$5000 (a reporting-only type job) up to as much as \$650,000 where far more detailed study and actual brick and mortar work are involved. Completion can range from a few months to a few years.

These test projects, in execution and in contemplated form, range over a wide spectrum. Those completed and with reports already filed, for example, include new data on code enforcement, rehabilitation, methods for measuring deterioration in commercial and industrial areas, workable program development, and community organization and citizen participation.

For the foreseeable future, the approved demonstration grant projects in progress will stress rehabilitation. URA officials are convinced that this is an extremely important part of clearing and redeveloping American cities and that more should be learned, as rapidly as possible, of the better techniques involved. It leads the list of subjects for projects in progress and in application. And it will be uppermost in the considerations of new proposals.

Application for these demonstration grants can be made by any public body and for this purpose, the URA branch describes the term as including "a State, county, municipality, or other political subdivision, authority, or agency which is a public legal entity." It is explained that other interested public and private agencies may participate in and contribute to a project but responsibility for proper use of grant funds rests with the contracting public body.

In considering a proposal, HHFA officials in the demonstration grant activity are likely to ask themselves first if it is something new that will facilitate the urban renewal process; second, if it does not meet that qualification, does it refine and improve previous methods and techniques that already have been developed; and third, is it something that will be of real value to other communities on a regional or national level. Those bodies submitting proposals for projects that would be limited strictly to local application stand virtually no chance of getting their ideas into the program. The reason is obvious; HHFA is charged with spending public funds to the best advantage for the greatest number. Another test that proposals must meet is that of other financial arrangement. Should they be carried by other Federal aid programs or be financed entirely by the public body?

Important criteria for judging proposed projects are the readiness and suitability of the applicant; can the study contribute effectively to the reinforcement and improvement of urban renewal programs? And of course, the project cannot duplicate a demonstration previously accomplished.

The demonstration projects can

take any of several suggested forms:

Rehabilitation—Its economics, feasibility, financing, cost, debt-carrying capacity, etc.

Programming for urban renewal— Involves development of a long-range program for community renewal; a statement of objectives, the deficiency gaps to be filled in, responsibility.

Coordination of urban renewal and highway programs—What are the problems, including land acquisition, and how should they be handled?

Small city or town expansion—Effects of a population explosion.

State organizations for urban renewal—Machinery and procedures. How can states help, particularly in smaller community development?

Municipal financing for urban renewal—This involves methods of financing the local contribution.

Relocation—Concerned with rehabilitation and how low-income families are re-housed.

University environment and medical institutions—Special problems in prevention or elimination of deterioration of neighborhoods near these urban universities and medical institutions.

Project administration—Involves preparation for and execution of an urban renewal job.

Small business—Aid for small businessmen displaced by urban renewal.

Project standards—General criteria for defining conditions that warrant use of rehabilitation, conservation, use of clearance and redevelopment.

General pattern of project development—Legal matters.

Distribution of the new information garnered in the execution of a demonstration grant project is left largely to the public body sponsoring the work and making the report. HHFA does have a mailing list of libraries, trade associations and others that get the finished volumes regularly, but the flood of inquiries coming into the agency in Washington is, for the most part, forwarded to the public group responsible for execution and report.

With eight undertakings completed, the URA is in a position to test the findings in going urban renewal projects. For example, St. Louis has measured criteria for obsolescence in judging industrial and commercial uses. A future Chicago urban renewal project will test the validity of the conclusions.

URA officials like to cite Puerto Rico's El Embalse demonstration

continued on page 302









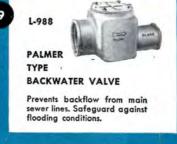


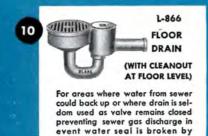


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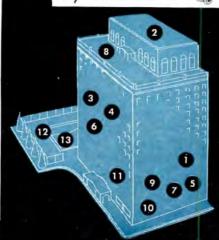
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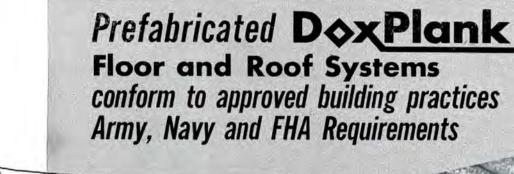
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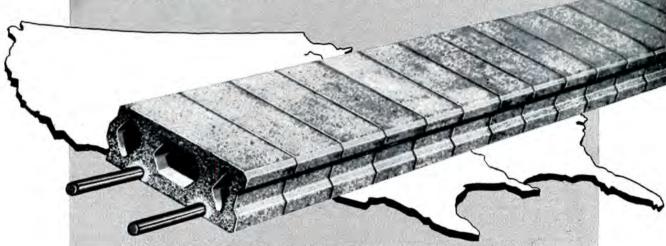
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OWNER: Allegheny County Institution District

ASSOCIATED ARCHITECTS: Button and McLean—Mitchell and Ritchey, Pittsburgh, Pa.

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R.A.I.C. HOLDS 51st ANNUAL ASSEMBLY IN MONTREAL'S NEW QUEEN ELIZABETH HOTEL

The 1958 conclave of what one program participant called "the most challenging profession in Canada" took place in the sumptuous setting provided by the new Queen Elizabeth Hotel, Montreal, June 11-14.

Keynote speaker was Stewart Bates, president of Central Mortgage and Housing Corporation. One of a long list of distinguished guests, Mr. Bates urged architects to play a more active role in the field. He said that. as a group, they should "examine the whole fabric of suburban growth, should find out how the architect can play a more effective role in the design of suburban housing, should examine the legislative and financial framework in which this housing is being built, should try to discover those things that have an adverse effect upon design."

The task outlined was one that the Institute might consider assuming, he suggested.

More Architects

Membership in the R.A.I.C. now stands at 1919, reported retiring president Douglas E. Kertland of Toronto. Enrollment in the five Schools of Architecture numbers 730.

"I feel sure," Mr. Kertland commented, "that our profession is destined to grow as Canada grows, and that we may face the future without pessimism."

Eight Fellows Installed

Architects taking their places in the College of Fellows at installation ceremonies held in conjunction with the assembly were Randolph C. Betts, J. Albert Larue and Pierre Morency, all of Montreal; Frederic Lasserre, Vancouver; John B. Roper, Ottawa; John Stevenson, Calgary; F. Hilton Wilkes and W. Ray Winegar, both Toronto.

Registration at the assembly reached a new high this year with approximately 270 architects and 180 ladies in attendance.

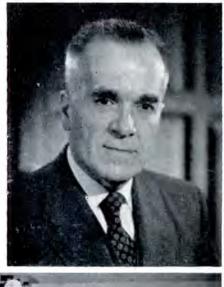
Theme of the sessions was "Urban Redevelopment." Two symposia were devoted to the subject; one took the form of a talk, the other was a panel discussion.

The assembly rejected a proposed national code of ethics. Instead, a brief statement on morals is to be prepared for use as a preamble to provincial codes of ethics.

Closing date for submissions for the next Massey Medals competition will be Nov. 3, 1958. Official opening of the exhibition of entries is scheduled for Ottawa on December 5.

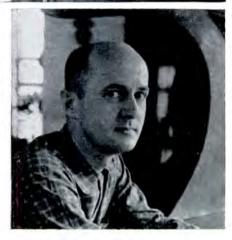
The products exhibition, for which

Right: Maurice Payette, of Montreal, was installed at the assembly as the Institute's president for the coming year. Mr. Payette, who has served as president of the Province of Quebec Association of Architects, received that organization's medal of merit in 1953. He succeeds Douglas E. Kertland in the office. Below: at the opening of the Urban Redevelopment Center and Manufacturers'





Exhibition, Montreal's mayor, Sarto Fournier, doing the honors. He is flanked, on the left, by Paul Brassard and Gerard Venne, on the right by Mr. Kertland and Mr. Payette. Right: Louis Archambault, winner of this year's Allied Arts Medal; for views of Mr. Archambault's sculpture, see p. 48



Allied Arts Medal

This year's winner of the R.A.I.C.'s medal for outstanding achievement in an art related to architecture was Louis Archambault of St. Lambert, Que. A sculptor, he currently instructs at the Ecole des Beaux-Arts, Montreal.

New president of the R.A.I.C. is Maurice Payette, of Montreal, well

35,000 complimentary tickets were distributed to building industry personnel, drew good crowds. Other features were photographs, drawings and models of slum clearance and urban rehabilitation projects, a modular coordination display arranged by the Division of Building Research, National Research Council, and the prizewinning entries in the Pilkington Scholarship competition.



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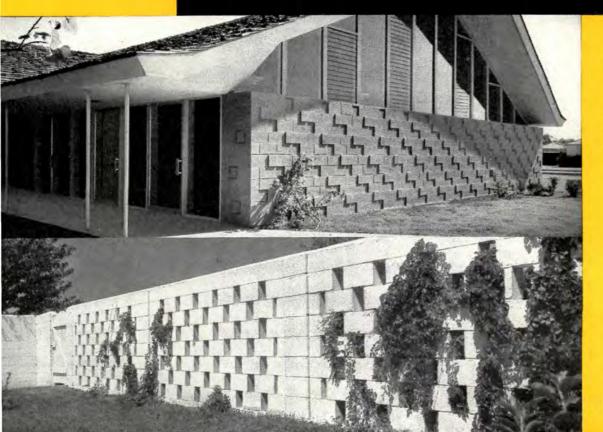
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known for his services to professional organizations. Honorary treasurer is Harland Steele, Toronto, and honorary secretary is John Bland, Montreal.

Date of the next assembly has not been settled, but the location is expected to be Windsor, Ont.

Design Competition Announced For Winnipeg City Hall

Architects in all parts of Canada have been invited to participate in the preliminary design competition for Winnipeg's new city hall. This stage will close December 8, and six finalists will then be chosen for the final competition which ends May 11, 1959. Each of the six will receive \$5000, and the ultimate winner will be appointed architect of the new city hall.

A jury of five eminent architects has been chosen as judges. They are Pietro Belluschi, dean and professor of architecture at the Massachusetts Institute of Technology; Ralph Rapson, head of the school of architecture, University of Minnesota; Eric W. Thrift, director of the metropolitan planning commission of Greater



Two examples of the work which brought this year's Allied Arts Medal to sculptor Louis Archambault: above—Vence, 1954; below—Les Dames Lunes, 1955

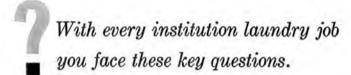


Winnipeg; Alfred Roth of Zurich, Switzerland, distinguished architect, educator and author; and Peter M. Thornton of Vancouver, winner of a 1955 Massey Medal.

Complete information can be obtained by writing to Winnipeg City Hall Competition, Box 254, University of Manitoba, Winnipeg, Man.

News Notes

Eight finalists have been chosen to proceed to the second and final stage of the TORONTO CIVIC SQUARE COMPE-TITION. David Horne is the only Canadian, others being: I. M. Pei and Associates, New York; Perkins & Will (Albert A. Hoover and James D. Lothrop), White Plains, N. Y.; Frank Mickutowski, and Florence Lane, South St. Paul, Minn.; William B. Hayward, Ann Arbor, Mich.; Vilijo Rewell, Helsinki; Halldor Gunnlogsson and Jorn Neilsen, Copenhagen; John H. Andrews, an Australian, now a graduate student at the Harvard School of Design. . . . Councils of the NOVA SCOTIA AND NEW BRUNS-WICK ASSOCIATIONS OF ARCHITECTS met recently in joint session at Saint John. Mutual problems pertaining to professional practice and education were discussed. . . . D'Arcy G. Helmer is the newly elected president of



1 How big should it be?

2 What type equipment is needed?

3 How should equipment be arranged?

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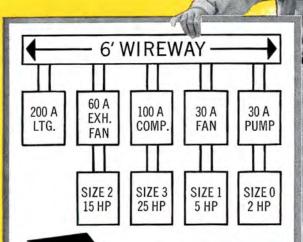
You can get helpful answers to these and any other questions, including the vital question of laundry location in relation to other departments, from The American Laundry Machinery Company's laundry planning service. This service is available to architects without obligation. Call your nearby American Man from the Factory, or write for complete information.



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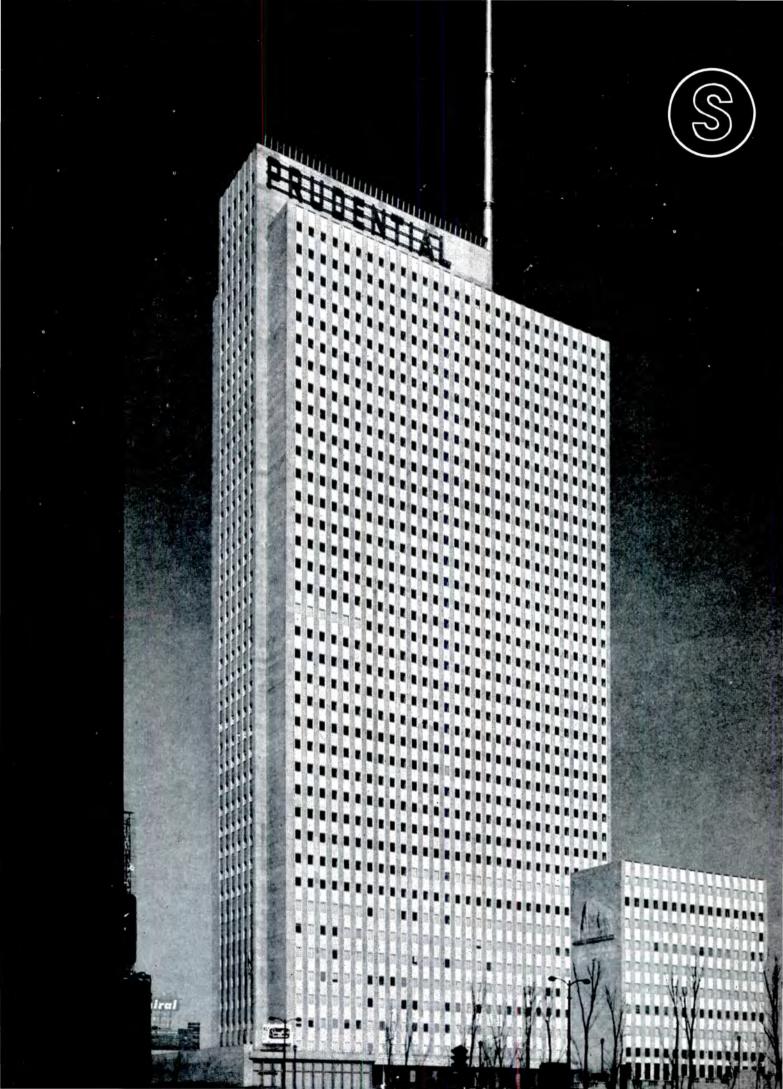
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the OTTAWA CHAPTER, O.A.A. Vice chairman is M. G. Dixon, secretary, Norman Sheriff and treasurer, George E. Bemi. Other members of the executive are Earl Ingram, Ian R. MacLennan and Antony Johnston. . . . Value of construction undertaken in Canada in 1958 will amount to \$7.1 billion, an increase of 1.3 per cent over last year, estimates the Dominion Bureau of Statistics. By categories, industrial building will be down, commercial relatively unchanged, and housing, hospitals and public utilities up. . . . Montreal is

assured that, at long last, it will get its badly needed concert hall. The St. Georges-Etienne Cartier Corporation, backer of the project, has begun to acquire the necessary land, and has named Affleck, Desbarats, Dimakopoulos, Lebensold, Michaud & Sise architects for the building. Raymond Loewy Inc. of New York is acting in an advisory capacity. . . . Prof. W. O. Richmond of Vancouver has been elected president of the 30,000-member Canadian Council of Professional Engineers. He succeeds C. N. Murray of Sydney, N. S. . . . Hono-

rary degrees were awarded at the University of B.C. spring convocation to Charles J. Thompson, senior partner in the architectural firm of Thompson, Berwick and Pratt, and to Ralph C. Pybus, graduate of the School of Architecture, University of Manitoba, and current president of the Canadian Chamber of Commerce. . . . C. J. G. Carroll, former secretary of the R.A.I.C., has resumed architectural practice in Ottawa in association with Colin H. Copeman and C. M. Drewitt, Montreal architects. . . . 'Session 58', to be sponsored by the Alberta Association of Architects at the Banff School of Fine Arts, October 5-11, will have as its chairman Paul Rudolph, chairman of the Department of Architecture, Yale University. Details may be obtained from the association's secretary at 312 Northern Hardware Building, Edmonton, Alta. . . . Headed by Icaro de Castro Mello, chairman of the Sao Paulo Chapter, Brazilian Institute of Architects, eight ARCHI-TECTS FROM BRAZIL recently toured Toronto. . . . ROBERT F. LEGGET, director of the Division of Building Research, National Research Council. Ottawa, and an honorary member of the R.A.I.C., was scheduled to address a meeting of the U.S. Building Research Institute at Washington on April 21. . . . The council of the AR-CHITECTURAL INSTITUTE OF B.C. will set up a special committee to improve specifications and standardization of windows. The committee will comprise window manufacturers and A.I.B.C. representatives. . . . Capital spending will be less in 1958 than in 1957, according to the ANNUAL FORECAST OF THE DEPARTMENT OF TRADE & COMMERCE, Ottawa, Amount involved is \$8.5 billion, compared with \$8.7 billion last year. Construction is expected to run about \$5.9 billion, a slight increase.



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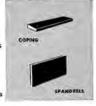
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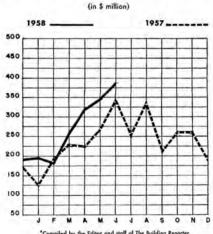








Contracts Awarded: Comparative Figures'



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PERMANENTLY ANCHORED IN THE KNUCKLE WITH CASE HARDENED STEEL—NOT BRASS

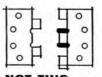
In the wear-away zone (zone of bearing anchorage) soft brass rubs steel in other leading hinges and they sometimes fail. Not so with Hager!

Hager's advanced, two-knuckle-bored construction puts steel against case hardened steel in this failure zone.

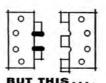
The result is flawless ball bearing performance—life-time performance.

Yet you pay no premium for Hager's superior design and material. Compare and discover: Hager 2-ball-bearing hinges are unequalled in the industry!

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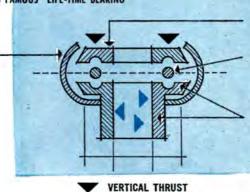
not one-knuckle-bored with wear-away brass to anchor the bearings. (Bearings finally fall out when pin is removed)



two-knuckle-bored construction with bearings anchored with case hardened steel.

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Case hardened steel top raceway.
Knuckle rides on this.

Case hardened carbon steel balls.

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(Both stainless steel raceways and balls are available on stainless steel ball-bearing hinges.)

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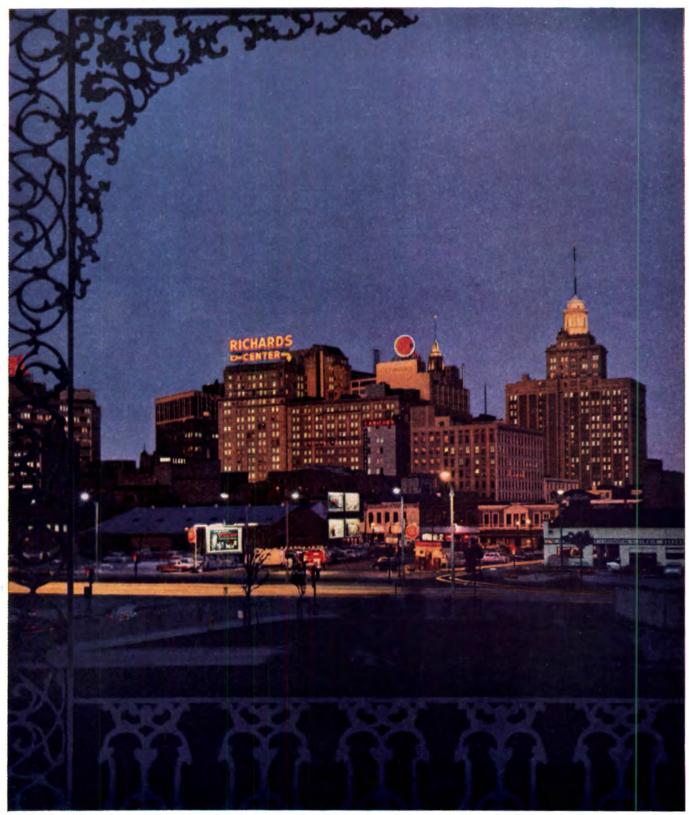
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NEW ORLEANS, Louisiana, a city long famed for its old world charm, is in a quandary. Can the native regional beauty of its architecture withstand the onslaught of the greatest commercial boom in its history? How to retain a city's historical character during urban renewal or expansion is a topic of widespread interest. Naturally, the answer lies with architects, civic leaders and industrialists. OTIS has an intimate knowledge of the elevator requirements of New Orleans. It has installed 67% of the elevators. OTIS is ready to work with planners to make it possible—for new and modernized buildings alike—to have the world's finest elevatoring.



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Emphasis in Military Construction Shifts to Missile-Related Types

Architects, engineers and contractors whose interest lies primarily in the field of military construction are watching a profound change in the project mix. This is just beginning and will become more pronounced during the years just ahead, in the opinion of military construction experts in the Pentagon.

The shift in relative importance among types of construction in the Army and Air Force programs from conventional airport pavements, housing, and all the more familiar kinds of building to missile-related construction is something to be studied closely by material producers, said one high-placed Army Corps of Engineers official.

Some estimates of the proportion of fiscal 1959 funds to be apportioned to the newer types run as high as "nearly 60 per cent," while the outlook over a longer range—the years immediately beyond-is for a more decided boost in the allocations.

In fact, the entire concept in mili-

tary construction is changing very rapidly, faster than many in the field realize. Some Air Force officials are predicting that the period of need for new airfield pavement construction is ending. These officers look for the requirements program in this type to be completed in a year or two as the emphasis shifts to missiles and related construction. All ranking Pentagon brass does not agree with this view, however. Some Corps of Engineers spokesmen look for the airport pavement era to extend indefinitely.

It is certain, however, that an increasing volume of construction money will pour into missile launchsites and similar building projects each fiscal year in the foreseeable future. Building for the missile age seriously is underway.

From now on, the larger share of attention will go to building structures to house detection equipment, for example, and the many other instruments connected with a highly technical missile age. These buildings housing delicate instrumentation must all be air conditioned, by the way; and for the most part they are not being built in populated areas.

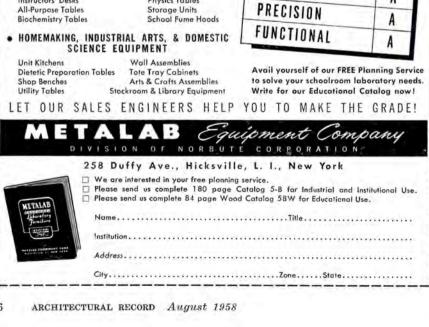
Military construction men are beginning to talk in terms of greatly increased demand for the heavier materials-cement, structural steel, etc.-with less and less call in their programs for the more common items—plumbing equipment, conventional builders' hardware, etc.

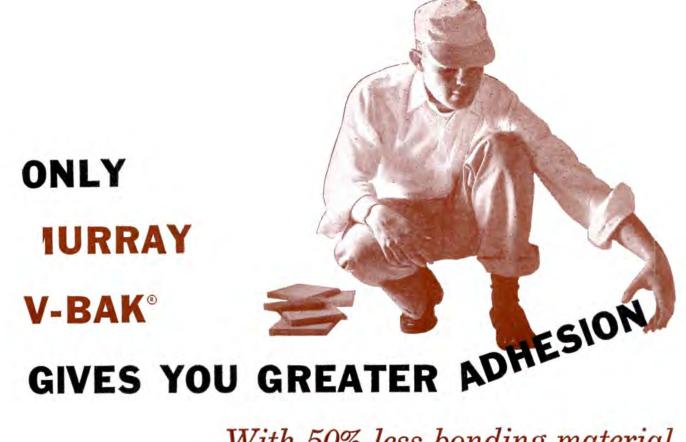
Hill-Burton Hospital Program Gets Three-Year Extension

The Hill-Burton hospital construction act was given a three-year extension beyond its June 30, 1958, expiration, thus assuring its continuance at present financing levels.

A report from the House Committee on Interstate and Foreign Commerce, which handled the legislation in the House, indicated committeemen were well aware of a need for other amendments to the program. but they judged the simple extension to be most expedient at this time and said the other proposed changes would be taken up with Health, Education, and Welfare Department officials at a later date.

Nine House members spoke on the amendment when it was up on the floor, none opposing. As extended, the program would continue to provide (1) grants to states for surveys and comprehensive planning and (2) grants to local sponsors to assist in the construction of public and voluntary nonprofit hospitals, public health centers, and related facilities. continued on page 320





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TRAMRAIL Speeds

Window Washing at University





The Cleveland Tramrail window-washing system on this building is hand operated. When not in use the cage is detached and rolled inside. The track does not detract from the building appearance, in fact, it usually is not observed unless special attention is called to it.

THE track of a Cleveland Tramrail window washing system practically encircles the beautiful Biological Sciences and Pharmacy Building of the University of British Columbia, Vancouver, B. C. A hoist carrier supporting a special cage operates on the track. A man in the cage can travel laterally or vertically and thus quickly position himself at any window.

Obviously the equipment greatly simplifies the window washing job. It is not necessary to handle heavy ladders or work from dangerous window ledges. Nor do window washers have to track through busy offices and rooms to reach windows. The entire job of washing external window areas is done from the outside without disturbance to anyone.

Moving from window to window by means of the overhead track system eliminates a large amount of climbing, walking and carrying. Therefore, a man can wash far more windows per day with less effort. And of importance, he is much safer in a Tramrail cage which is provided with a sturdy guard rail.

Cleveland Tramrail window washing systems offer real advantages and are practically a "must" for air-conditioned buildings, because opening windows during washing is apt to unbalance a cooling system and cause widespread discomfort. For further details write for Booklet No. 2022-A.

The cage will accommodate two washers. Buckets supports are provided at convenient heights on both sides. A washer can lower or raise himself with a chain hoist. Other Cleveland Tramrail window washing equipment is available with electric drives for both hoist and carrier travel.



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Tangerine Red 5035

ORSAN Light Green Dark Green

School buildings can be made more practical, more attractive with Romany• Spartan ceramic tile indoors and out

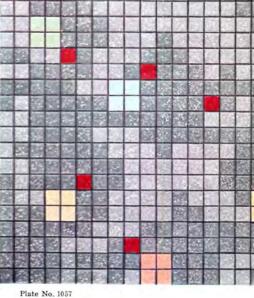


While Romany Spartan tile is well known as a superior floor and wall finish for use throughout school buildings, its versatility does not stop there.

For example: Bates Elementary School, Brownstown Township, Michigan, primarily a single-story structure, contains a two-story all-purpose room. On two of the walls extending above the main roof line, panels of Romany Spartan "certified frost-proof" tile, expertly designed and skillfully blended with surrounding materials, provide an interesting change of pace in exterior finish.

Here's just one of many ways Romany• Spartan's complete line of ceramic tile can be used in creating handsome, low-cost schools. For design help or information, contact your nearby Romany• Spartan sales representative. If you'd like a copy of "The Talents of Tile", a color brochure of Romany• Spartan school and college installations, write United States Ceramic Tile Company, Dept. R-22, Canton 2, Ohio.





BATES ELEMENTARY SCHOOL Brownstown Township, Michigan

Architect: WALTER J. ROZYCKI

Detroit, Michigan

Tile Contractor:
MICHIGAN TILE & MARBLE CO.
Detroit, Michigan

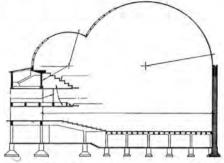


Genuine Clay Tile

UNITED STATES CERAMIC TILE COMPANY THE SPARTA CERAMIC COMPANY

An Engineer Views His Own Work

By Fred N. Severud



Fronton Recoletos (1935): stands and pitch for pelota spectators and players

Madrid Racecourse (1935): roof withstood bombardments during Spanish Civil War





Dodecahedral Coal Silo (1951): in use at Torroja's Costillares research institute

The Structures of Eduardo Torroja. By Eduardo Torroja. Foreword by Mario Salvadori, F. W. Dodge Corp. (New York), 1958. 198 pp., illus. \$8.50.

This book is a clear and lucid expression of the personality of its author. He has had the advantage of having created and directed one of the world's outstanding testing lab-The results are felt oratories. throughout the book. He has acquired the capacity for a very sensitive "feel" of the actual stress flows and has usually applied it logically and

His Madrid Racecourse is one of the modern classics. To follow his step-by-step development of this majestic structure is a fascinating experience. In expounding his line of thought he makes this remark: "To me it seems clear that the imagination can operate successfully only in conjunction with the basic principles that a long experience of technical creative work leaves in the unfathomable depths of our personality, so that these may later subconsciously condition our own intuitive thought. But those basic principles are not enough in themselves to create, critically and deductively, a new form. For this to emerge, a spark of imagination is required. Indeed, it often appears at the most unexpected moment, when we are least trying to create."

continued on page 64

Encyclopedia Of Building Has Many Authors

By Seymour Howard

Building Construction Handbook. Edited by Frederick S. Merritt. Mc-Graw-Hill Book Co. (New York), 1958. 906 pp., illus. \$15.00.

Each time a new handbook is published, an architect hopes that he will at last find the one book that will answer his encyclopedic need for information. Of course such an expectation can never be completely realized, but this book approaches it.

Frederick S. Merritt, senior editor of Engineering News-Record, has had the cooperation of many specialists to provide an unusually complete survey of present-day construction materials and theory. The information has been selected for its usefulness to a relatively large group

and architects, of -engineers course, but also contractors, manufacturers, real estate managers, and clients.

Construction materials-including plastics, laminates, rubber, and bituminous products-are described and analyzed very competently; the incorporation of these materials into building elements is covered by chapters on walls, doors, lath and plaster, windows, floor coverings, roof coverings, and builders' hardware. There is a special section on water permeability of masonry.

The theory of structures is treated succinctly by the general editor, with easily understood analyses of arches, domes, thin-shell structures, and moment distribution methods for continuous beams and frames. Among other topics discussed by various authors are: structural materials, soil mechanics and foundations, acoustics, heating and air conditioning, insulation, water supply and waste disposal, plumbing and sprinkler systems, electric power and lighting, and vertical transportation. Each section is a good guide to its aspect of building construction.

There are a few important points which I would like to have seen included or strengthened. In the first section a much more positive plea for creative city planning should have been made. In the same section the reader is given the concept of a plan continued on page 64

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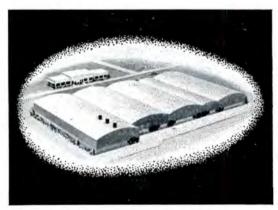
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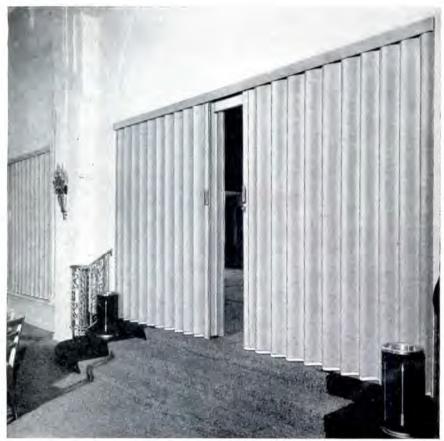
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Required Reading

continued from page 60

Torroja . . .

The Fronton Recoletos building is also followed through in progressive steps from the trite to the spectacular. The resulting shape of two lobes of greatly differing shapes, supported at their outer perimeters and intersecting without support in the center, makes one shudder a bit at the complexity of the stress flow. Add to this the tendency of the construction to span the short way as an arch with a kink in it, for which it is evidently not proportioned, and a maze of conflicting stress paths has resulted.

Although the forms created are impressive, the inherent conflict between three elements of such dissimilar behavior, which must live together for better or for worse, is, in my opinion, questionable. The selection of such a combination shows, however, that Torroja has rare courage. It is unfortunate indeed that the structure collapsed, presumably as the slow aftermath of a bombing raid, because a long-term observation of such an unusual structural combination would have been very interesting.

That Torroja is aware of the hvpersensitivity of such a structure is evident from his remark that "Had I to build it again I should provide such reinforcement ribs," that is, in the direction of the arches. (I am not convinced these ribs would do the trick. It would increase the arch tendency and attempt to carry such great loads transversely that something might give way suddenly, throwing impact loads on the longi-

tudinal barrel system.)

In his testing laboratory the dodecahedral shape of the coal silo stands out as one of his greatest contributions. It is an inspiring metamorphosis from a drab coal bin to beautiful sculpture. It makes one wonder how many similar opportunities one has missed. The playful pergola over the peripheral pathway is another example of a pleasing sculptural form.

In closing the book, you will be glad you have made the acquaintance of one of the truly great.

Building Construction . . .

efficiency ratio by which to compare the merits of various plans, but there is no list of the plan efficiency ratios of typical existing buildings. In the sections dealing with glazing compounds and with sealants for curtain walls the use of Thiokolbased compounds is unfortunately

ARCHITECTURAL RECORD

Western Section®

EDITOR: Elisabeth Kendall Thompson, A.I.A. 2877 Shasta Road, Berkeley 8, California

Lessons from a Backward Look There may be a Ferry Park in San Francisco after all. But it won't be the beautiful open space that was envisioned two and a half years ago by the joint committee of architects and landscape architects of the Bay Area. Nor will it be the thing of joy planned by architect Mario Ciampi at the request of the city's planning department. Nor will it have state funds to help finance it, or as much land as once might have been available. For the proposed freeway has become an all-too-solid reality, and the dreamed of open area has shrunk to a small plot of grass and colored pavement around a fountain.

There is no simple, easy answer as to why all these things will be as they will be. In the end, too many groups were involved, too many interests—vested and otherwise—were implicated. But two things stand out clearly from the sorry story.

First, that it is not enough for architects to enter such frays after basic decisions have been made. And second, that the people wanted the park at the foot of Market Street; the people caught the vision that the architects belatedly offered, because for once the architects were talking in their own language: space for leisure use; vistas toward a familiar landmark; open land, with trees and plants; a rare chance to use the beloved Bay's waterfront for a recreational purpose.

And now it will be the people who will finally determine whether there will be even a remnant of open space at the foot of Market Street. The ballot for San Francisco's November election will ask a vote on a \$38,600,000 bond issue which will include \$2,700,000 for planning and developing a four-acre park (considerably smaller than originally planned) which would be a part of the Golden Gateway redevelopment project.

The issue of Ferry Park is not just a local one for San Franciscans, or even for Bay Area residents who come and go, or for tourists. It is a case in point for any city, especially now when freeways and a trend to greater popular densities threaten the already small amount of open space in cities. What Rome did centuries ago, we have yet even to want to do—to make of city life a particular kind of experience, to give it delight as well as commodity.

But the most telling lesson that the debacle at Ferry Park teaches is that architects are going to have to show that they care about environment—in time to do something about it—before they are going to be entrusted with the design of environment. It is good that today we talk about the necessity for planning more than the isolated, single building; but we will have to prove that this is more than long-hair dream-talk before environmental projects reach the drawing boards of architects. Along with the dream will have to go the concern; and if the concern is real, it will include the practical means of accomplishment; and if the dream is practical, it must be presented early enough to have a chance of realization.

E.K.T.



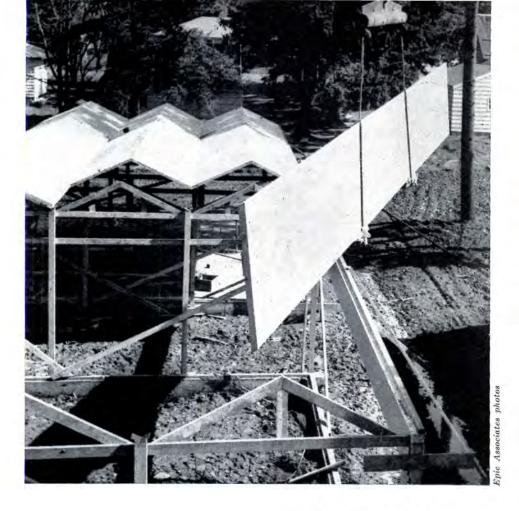




At center, library and cafeteria; around it are curved laboratory buildings. At right, experimental labs and administration-engineering building (also shown)

Laboratories for Research in Nuclear Fission and Fusion

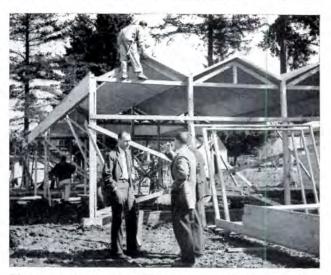
When the John Jay Hopkins Laboratory for Pure and Applied Science-a "thing for the mind and spirit, devoted to man's progress," as its dedication reads—is completed this month, it will house all of General Atomic's present nuclear research and development operations. Located at Torrey Hills Mesa north of San Diego, the laboratory includes General Atomic's prototype 10 kw TRIGA reactor, an electron linear accelerator, and facilities for controlled fusion experimentation. Besides these larger tools of research, there are 80 smaller labs, an administration-engineering building and, at the center of the complex, a library and cafeteria building. Construction was begun in January 1957 on the first of the \$10,000,000 group of buildings for which Pereira and Luckman are architects and engineers.



Folded Plate Plywood Roof for Residence

The wood and plywood folded plate roof on this house in Portland, Oregon, is the first application to the residential field of this kind of construction. The roof structure—a series of stressed skin panels 4 ft wide and up to 31 ft long-is carried on plywood box beams supported by wood posts spaced 15 ft in one direction, 7 ft 3 in. in the other. The plates function in pairs as inclined self-supporting diaphragms. The bottom skin of the panels acts as ceiling surface. Both folded plates and box beams were shop fabricated, and although cost for this prototype house was high—\$2000 for beams and panels—further experience in component production is expected to reduce this amount considerably. The framing and roof were erected in 25 man-hours. Aluminum sheet siding with baked enamel finish was applied directly to the plywood wall panels as exterior surfacing. William L. Fletcher and Donald Blair of Portland were architects; Dwight Haugen was the builder. The roof was engineered in consulation with the technical department of Douglas Fir Plywood Association.





Plates for roof were positioned over temporary form during fabrication offsite. Box beams, up to 46 ft in length to span a maximum of 22 ft, were also shop fabricated. This system makes possible open, flexible plan with privacy. Below, architects Fletcher and Blair on job

WESTERN BUILDINGS IN THE NEWS



LONG BEACH, CALIFORNIA: Public Safety Building will be first major structure in a \$30,000,000 modernization and expansion program for Long Beach's civic center. Six-floor building will contain administration offices for municipal services on first three floors, jail facilities on upper three. Two-story wing on west houses central fire station. Under construction now and due for completion early next year, building will cost \$3,750,000. Francis J. Heusel, architect; Killingsworth, Brady and Smith, associated architects; Twaits-Wittenberg Company, constructors and engineers



DENVER, COLORADO: Folded plate roof on Denver-Chicago Trucking Company's new office building is of thin-shell concrete. Toll and Milan, architects; Ketchum and Konkel, structural engineers



INGLEWOOD, CALIFORNIA: Five-inch folded plate prestressed concrete forms roof of Good Shepherd Lutheran Church. The \$196,000 building will seat 672 persons. Gene Verge and R. N. Clatworthy, architects; John J. Driskell, structural engineer; J. Marx Ayres, mechanical engineer; J. F. Reardon & Associates, electrical engineer



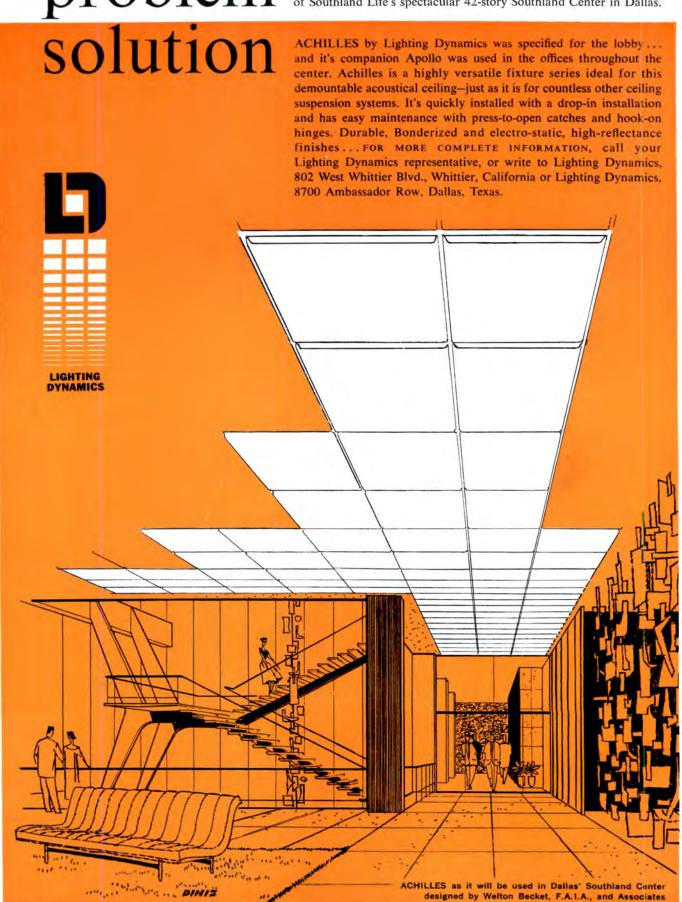
YAKIMA, WASHINGTON: First Christian Church was designed by Durham, Anderson and Freed, Seattle architects

SANTA ANA, CALIFORIA: Awarded a Merit Award by Pasadena chapter, A.I.A., for "outstanding architectural achievement," the new building for BJ Electronics, Borg-Warner Corp., was designed to permit easy expansion as needed. Exterior walls of aluminum sandwich construction and temporary steel columns and sash can be moved without disturbing building's basic structure. John Kewell and Associates, architects and engineers



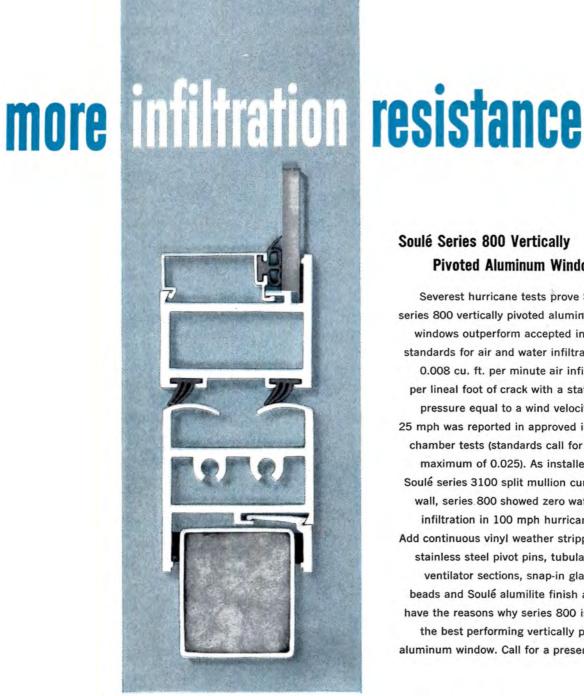
problem solution

An easily maintained, integrated fixture was needed for Welton Becket's dramatic "squares of light" ceiling in the lobbies and offices of Southland Life's spectacular 42-story Southland Center in Dallas.





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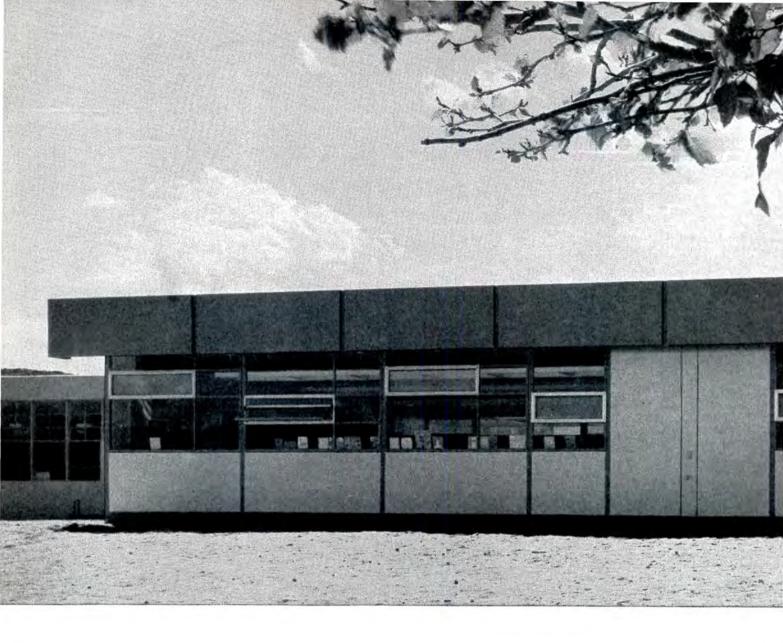
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STEEL MADE POSSIBLE high-style design at low-level cost. Steel was fast... the frame (10" WF 21 beams and 3"x3" x 3/16" columns of USS Steel) went up in a day! And the school bell summoned students into the finished building 89 days later! Steel met and mastered the varied building and maintenance problems of the desert. The walls, durable, double panels of USS Sheets, hide built-in sound-proofing and thermal insulation to minimize noise and heat. The roof,

a corduroy pattern of steel decking, covers 35 feet, with a 10-ft. clear span between purlins. Standing seams richochet the sun's rays to help keep classrooms cool.

DESIGN VERSATILITY was all but limitless with steel. The 8-ft. module offers versatile arrangement of doors and windows. Classrooms may be expanded four or eight feet with minor framing changes. And all exposed steel is attuned to the desert site in warm tones of sienna, sand and umber.

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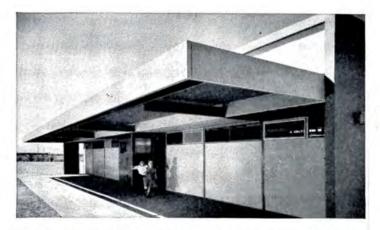


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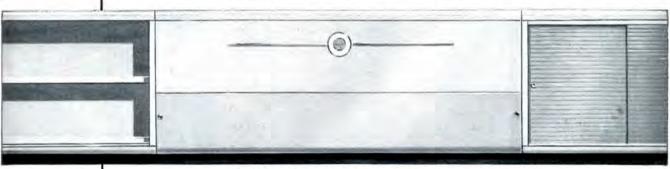
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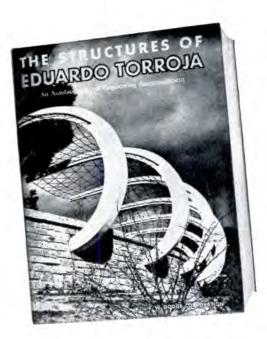
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Written by Torroja himself, it follows his reasoning during the design of each of the 30 structures. Engineering details are given. In some cases, alternate designs which were later discarded are shown. The excellent photographs show models, projects under construction, details, and completed projects. The book contains a total of 275 illustrations.

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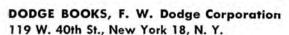


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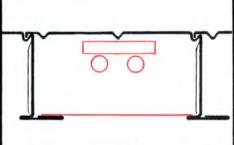






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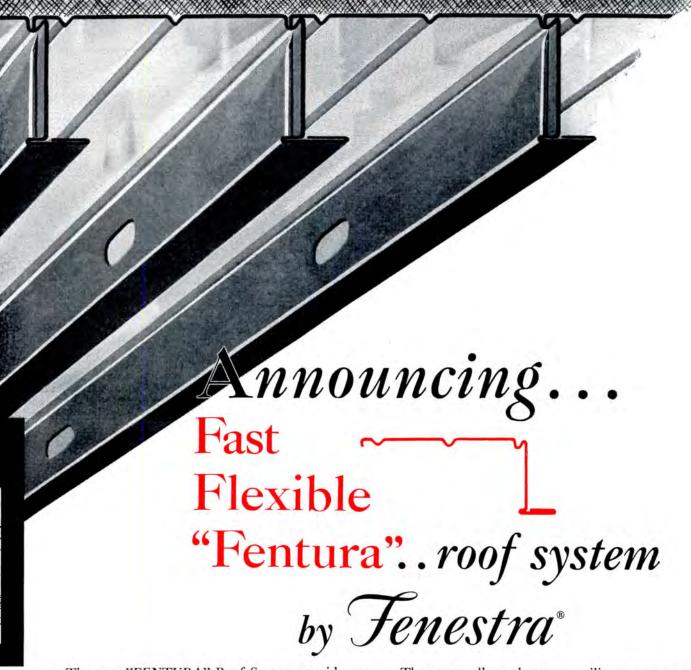




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Waste Space

What is this world? What asketh man to have?

No doubt of it: June and July were certainly "talky" months. It seems as if somebody was saying something every day—mostly at conventions, conferences or meetings. And though none of the meetings happened to be of architects or even for architects, a good deal of what was said could have pertained to architects and architecture.

Dr. Mortimer Adler, for instance, told the Design Conference at Aspen, Colo., that man has embarked on what is his second great revolution (the first was in 6000 B.C. when cities and civilizations began to develop) and that the big result of this revolution will be to make possible the good life for *all* people. The first revolution made the joys of city life and the pleasures of civilization available only to the few. But automation and scientific progress could eliminate all "service work" and this, he felt, would "make a better world." It may take a thousand years, he declared, but this is what he sees ahead for us.

Goodbye, old T-square; farewell, pencils, hard and soft, the boards over which I broke my back! Farewell? Is the good life a life where effort—especially individual effort—has no place? Adler says yes; but all that architecture has done for mankind through the ages denies his premise. The promised land for architects would not be a world in which there is no toil, but one in which meaningful toil

is appreciated by an understanding people.

As if to refute Dr. Adler, though he spoke a thousand miles away from him, Professor Max Lerner of Brandeis University pointed up a problem (at a library conference in Berkeley, Calif.) which this country's librarians must deal with: "the terrible burden of leisure" now being laid upon large numbers of people "unprepared to cope with it." If no toil, more leisure; if more leisure, more necessity for occupation. But of what sort? Will all occupation be "recreation"? Dr. Lerner looked rather for a world in which there would be an "egghead renascence"—a movement he says has, like Adler's second revolution, already begun in this country. He pins his hopes for fostering of the movement on our educational system, urging that more and larger opportunities and greater help be given those whom he termed "carriers of promise." This would lead to a "democratic elite"—and he emphasized that to recognize and reward the especially gifted for their creativity rather than because of their "birth, position or money" is a completely democratic idea.

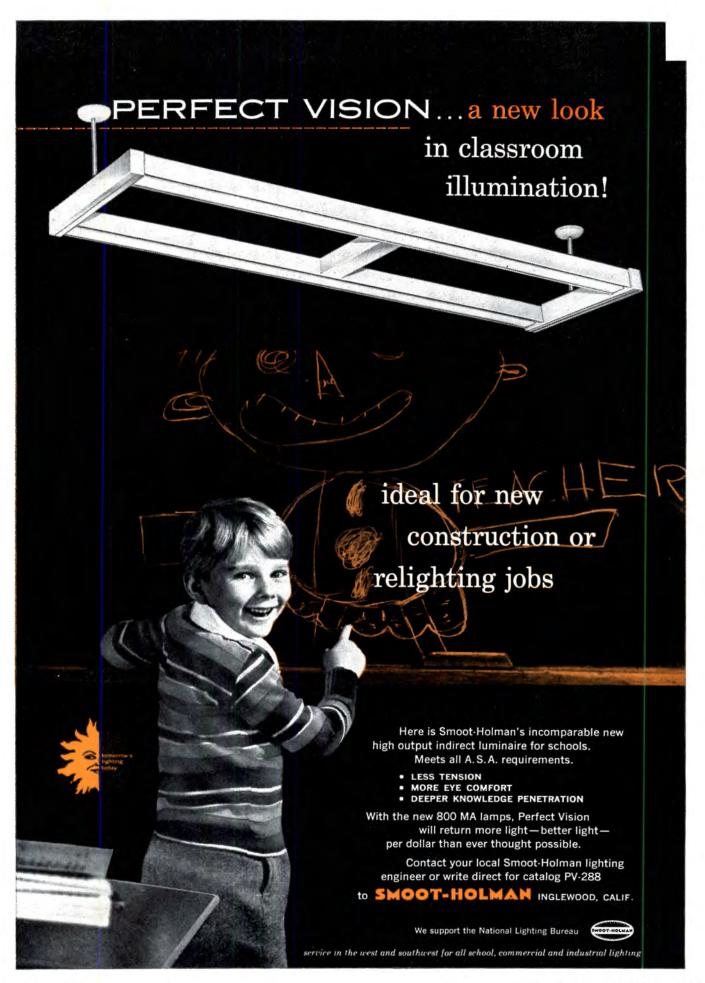
The same library conference brought forth other speakers bewailing the "harrassed humanities" and the "harassed and strained professional class." Mark Shorer, professor of English at the University of California and a writer in various literary forms, reminded the librarians that, although science and technology are in the forefront today because they seem to be the means to solve such pressing human problems as "recession and unemployment, cancer and leukemia, juvenile delinquency, mental health, political corruption, narcotics and alcoholism," when these problems are all solved the question will re-

And who would ask such a question? Not science; only the humanities could be concerned with such a question.

main: For what end did you solve them?

This, indeed, is a question with which architecture—standing at the crossroads between the humanities and technology, partaking so deeply of each—must be concerned. For who will care whether the structure does more than shelter from wind and rain, sun and snow? Who will say what man's soul needs when he has forgotten to ask, wrapped in a cocoon of technological comfort? Who? It had better be you.

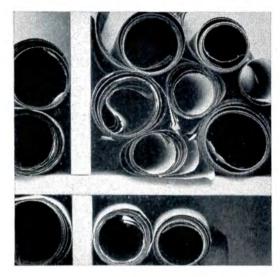
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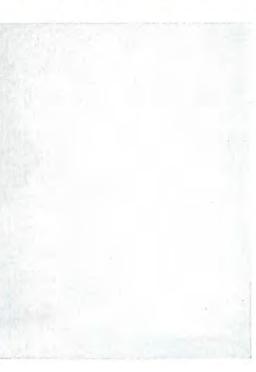








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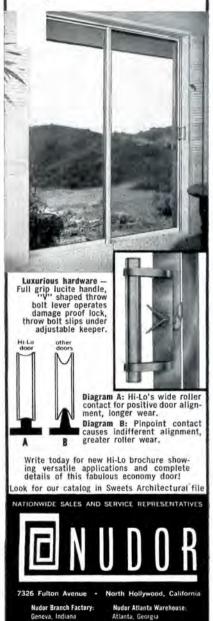


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Rainier Park Bridge Under Way

What might have been one of the Northwest's notable achievements in the field of prestressed concrete construction is now being constructed of steel. The bridge across the Nisqually river in Rainier National Park, Washington, was designed in both prestressed concrete and in steel, and bids were taken on both designs. The bid on the steel design came in low and was accepted.

Construction, begun last summer but shut down in November by winter weather, is being resumed.

News of the Profession

ELECTIONS, APPOINTMENTS: Sidney Wahl Little, dean of the University of Oregon's School of Architecture and Allied Arts until his recent resignation, has been named dean of the College of Fine Arts and head of a new department of architecture at the University of Arizona. Paul Thiry, Seattle architect, has been reappointed to the Seattle Planning Commission, of which he has been a member since 1952. He was Commission chairman in 1955. James R. McCarthy, senior planner in San Francisco's department of planning, has been named director of planning for the city, succeeding Paul Opperman who resigned in March to go to Chicago. McCarthy, a member of the department's staff since 1941, had been acting director since Opperman's departure. Dr. Chauncey Starr, vice president of North American Aviation, Inc., and general manager of its Atomics International Division, has been elected president of the American Nuclear Society, a 3000-member organization which includes researchers, consultants, administrators and teachers in the nuclear field.

HONORS, AWARDS: John Carl Warnecke, San Francisco architect, is one of five U.S. architects to be named to associate membership in the National Academy of Design. Charles Luckman, partner in the Los Angeles firm of Pereira and Luckman, received the honorary degree of Doctor of Fine Arts at the 51st commencement of the California College of Arts and Crafts, Oakland.

office changes: George B. Allison and Ulysses Floyd Rible of Los Angeles announce the admittance to partnership of Rodney T. Robinson and Raymond Ziegler, architects. William R. Hawley, architect, has joined the firm of Sigal and Johnson, Palo Alto, Calif., as a partner. Eivind W. Nilson, architect, has opened offices at Cortez, Colo.



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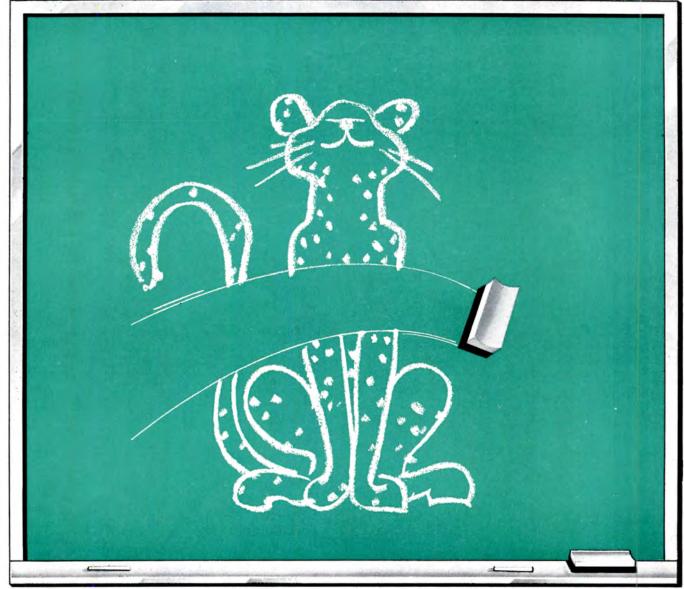


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Big Projects In Prospect for West

SAN FRANCISCO: The architectural side of a \$10,000,000 improvement program at the airport, part of the city's intended "jet-age development" there, will be handled by Welton Becket and Associates, selected as architects for the work from a list of 29 San Francisco architects who had signified interest in the job. The work consists of a new passenger terminal, concourses, a cargo terminal and a double-deck garage. Dudley Deane and Associates will be mechanical engineers; John A. Blume and Associates, structural engineers; and Wilsey and Ham, civil engineers. The funds for these new structures are from a \$25,000,000 bond issue voted in 1956. The remaining money will be used to prepare the field to handle jet planes.

Conrad Hilton's new 1000-room, downtown San Francisco hotel will get under way this year, the hotelman announced recently, squelching rumors that he had given up his plans for a hotel in the city. This will be his second hotel project in the Bay Area. The first, now under construction, is the Hilton Inn at the airport. The downtown hotel, a \$23,000,000 luxury hostelry, will be located on a two-acre site next to the airline terminal now under construction at Taylor and O'Farrell Streets. For both the hotel and Hilton Inn, due for completion around the first of next year, William Tabler, New York, is the architect.

The final structural steel work on the Crown Zellerbach headquarters building has been done, and concrete pouring was begun last month. Next month the operation of attaching the outer skin of the office tower section of the building will be begun. By early spring this part of the construction process is expected to be complete.

San Francisco's finest sidewalk superintendent's facilities are at the site of the new Bank of America service building at Market and South Van Ness streets, where a glass-enclosed grandstand has been erected on a 10-ft elevation above the street level. The stand is equipped with swivel chairs for a full-sweep view of construction. When the building begins to rise, a worm's eye view of its progress can be had through clear plastic bubbles in the roof. For those whose business keeps them on the run, four waist high windows in a fence on the Market street side provide a vantage point. Wurster, Bernardi and Emmons are architects for the 8-story service center whose usable floor area will be the largest of any office building in the city.

LOS ANGELES: Now that the Dodgers seem assured of a home in Chavez Park, the city can settle down to consider the immediacy of a problem it had had on its collective mind before the West Coast became the baseball capital of the country: building a new zoo.

The zoo is a project close to Los Angelenos' hearts. Last year they voted \$8,000,000 for preparing the site (in Elysian Park) and constructing new buildings, with the intention of having "the finest zoo in the world."

COALINGA, CALIF.: A water desalting plant, the first in the U.S., was recently approved for the city of Coalinga, a prosperous oil and farming center in the San Joaquin Valley of California. The city's wells produced plenty of water, but it was too salty to drink and fresh water had to be hauled 45 miles to supply the 17,000 gallons it needs daily. With the new desalting plant, built by Ionics, Inc., the supply will be increased by 50 per cent. The plant will electrically remove the excess minerals, "straining" them out through a special plastic membrane and retaining the desalted water, which is then pumped to a water tower for distribution. Hailed as an "important contribution to solving the world's increasing water supply problem," the Coalinga installation will save the city over \$400,000 in the next 10 years.

Calendar of Western Events

- August 11-13: Western Packaging and Material Handling Exposition, San Francisco
- August 18-19: Urban Renewal Conference, sponsored by University of California Extension and U.C.L.A. Graduate School of Business Administration, Beverly Wilshire Hotel, Los Angeles
- September 25-27: Seventh annual conference, Western Mountain region, A.I.A., Continental-Denver Hotel, Denver
- October 2-4: Structural Engineers Association of California annual convention, Ahwahnee Hotel, Yosemite National Park, Calif.
- October 9: Departure date, Architects Tour of Japan. Information from Kenneth Nishimoto, 263 South Los Robles Avenue, Pasadena, Calif.
- October 9-12: Sixth annual conference, Northwest regional conference, A.I.A., Harrison Hot Springs, B. C.
- October 15-17: National Resources Council, Energy Resources Conference, "Energy and Energy Sources, Their Impact on Society," Brown Palace West, Denver
- October 15-19: Eleventh annual convention, California Council, A.I.A., "Creativeness in Architecture," Monterey Peninsula, Calif.
- October 16-19: annual convention, California Council of Landscape Architects, El Mirador, Palm Springs, Calif.
- November 7-9: Pacific Arts Association, Northern California Section, Annual fall conference, Asilomar, Calif.

WESTERN SECTION

Index To Advertising

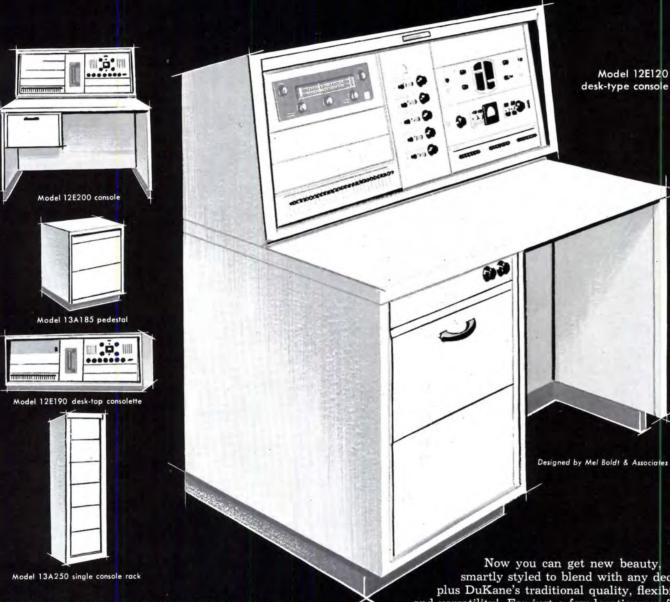
Manufacturers' Pre-Filed Catalogs of the firms listed below are available in the 1957 Sweet's Catalog Files as follows:

a Architectural File (green) ic Industrial Construction File (blue)

le Li	ght Construction File (yellow)	
ic	American Air Filter Co. Inc	64-12
	Bestile Manufacturing Co	64-21
a-ic	Columbia-Geneva Steel	8-9
	Dodge Books	64-13
	Fenestra Incorporated	64-14-15
	Fir-Tex	64-11
	Kaiser Gypsum Company, Inc	64-11
	Kraftile Company	64-16
	Lighting Dynamics	64-5
	Nelson Herman, Unit Ventilator Products	64-12
a-lc	Nudor Manufacturing Co	64-20
	Olympic Stained Products	20
	Smoot-Holman Company	64-17
a	Soule Steel Company	64-6-7-18-19
a-ic	United States Steel	64-8-9
	Weber Showcase & Fixture Co., Inc.	64-10

Western advertising offices: LOS ANGELES, Bob Wettstein, 672 S. Lafayette Park Pl.; PORTLAND, Bob Wettstein, 921 S. W. Washington St.; SAN FRANCISCO, Bob Wettstein, Howard Bldg., 209 Post St.

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Series	Shape Catalogs	Tile Face Size	Nominal Thickness
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"6T"	6T-657	51/16" x 113/4"	2", 4", 6", 8"
"4D"	4D-1255	51/16" x 73/4"	2", 4", 6", 8"

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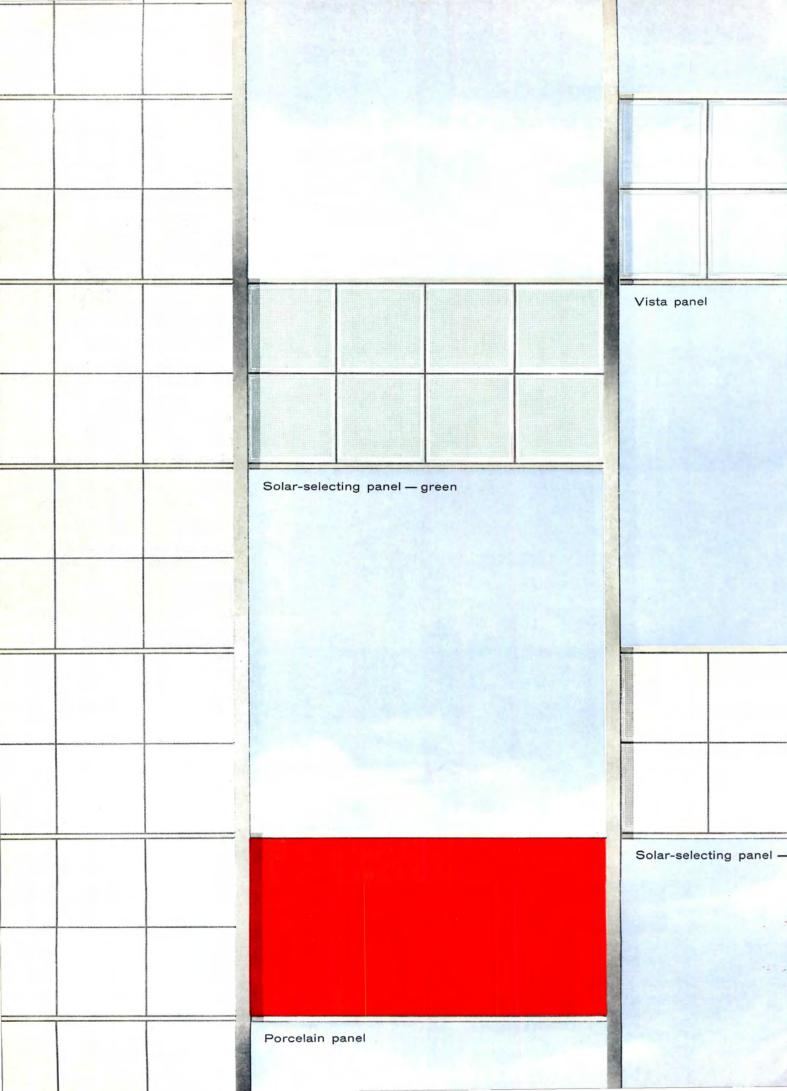
White Sewing Machine Corp. Cleveland, Ohio



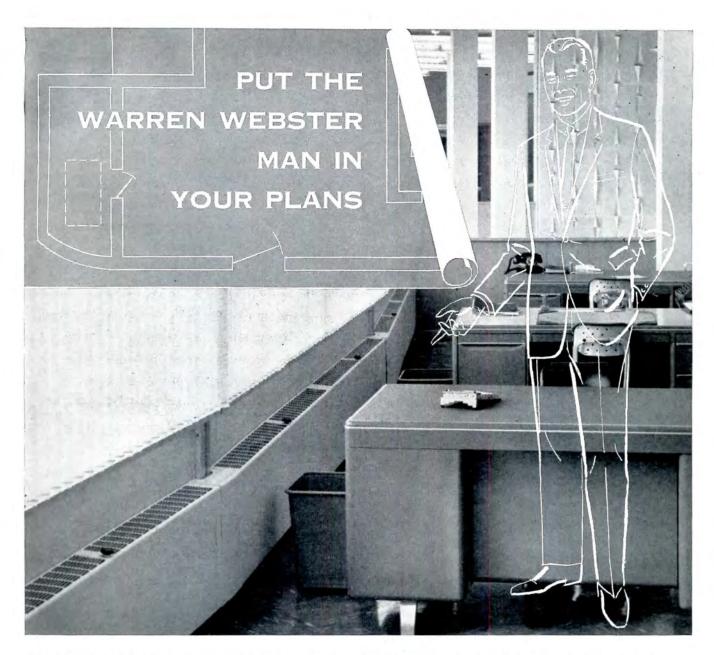
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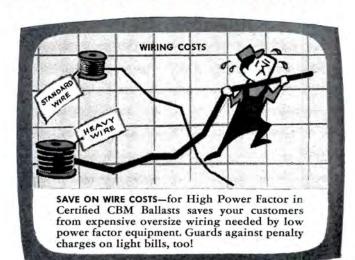
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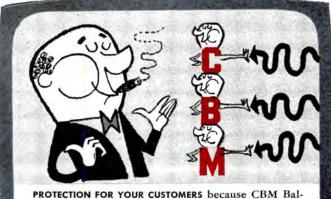




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PERIOD	Brick	Frame	Concrete	Concrete	Steel	Brick	Frame	Concrete	Concrete	Steel
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1946	181.8	182.4	177.2	179.0	174.8	148.1	149.2	136.8	136.4	135.1
1947	219.3	222.0	207.6	207.5	203.8	180.4	184.0	158.1	157.1	158.0
1948	250.1	251.6	239.4	242.2	235.6	199.2	202.5	178.8	178.8	178.8
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320,1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.
Mar. 1958	320.1	308.5	338,4	352.5	347.3	241.6	237.9	252.5	258.2	259.0
Apr. 1958	319.5	307.9	337.6	351.9	346.7	241.2	237.5	252.0	257.8	258.6
May 1958	319.5	307.9	337.6	351.9	346.7	241.2	237.5	252.0	257.8	258.
		-	% increase over 193	9		100	%	increase over 1939	The proper	-
May 1958	158.7	151.5	158.3	163.8	166.5	179.5	185.8	165.0	164.7	173.1

	ST. LOUIS					SAN FRAN	NCISCO			
1930	108.9	108.3	112,4	115.3	111.3	90.8	86.8	100.6	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1946	167.1	167.4	159.1	161.1	158.1	159.7	157.5	157.9	159.3	160.0
1947	202.4	203.8	183.9	184.2	184.0	193.1	191.6	183.7	186.8	186.9
1948	227.9	231.2	207.7	210.0	208.1	218.9	216.6	208.3	214.7	211.1
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219,8	216.1
1950	232.8	230.7	221,9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1953	263.4	256.4	259.0	267.0	259.2	255.2	257,2	256.6	261.0	259.7
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.6
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
Mar. 1958	293.3	284.4	300.3	313.8	308.8	286.3	271.8	306.7	321.1	315.8
Apr. 1958	296.6	287.3	304.9	319.0	314.0	285.7	271.2	305.9	320.5	315.2
May 1953	296.6	287.3	304.9	319.0	314.0	288.9	273.0	310.9	327.7	321.0
		%	increase over 1	939			% i	increase over 1	939	
May 1958	169.1	168.5	156.9	166.3	163.9	173.6	174.9	164.8	168.8	175.5

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110 index for city B = 95 (both indexes must be for the same type of construction). Then: costs in A are approximately 16 per cent higher than in B.

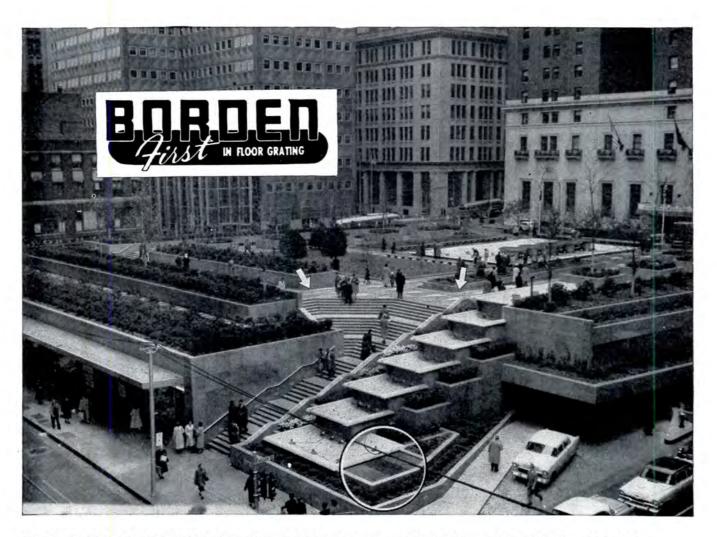
$$\frac{110 - 95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

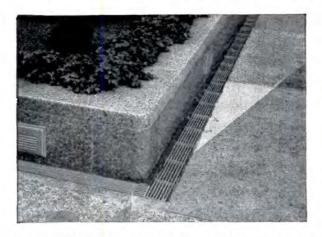
$$\frac{110 - 95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.



BORDEN ALUMINUM GRATING IN MELLON SQUARE PARK . . .



PITTSBURGH, PENNSYLVANIA

Encircled in the picture above is one of several aluminum grating air vents in use throughout the park as air exhausts for the multiple-level parking area below ground.

The arrows indicate two of the locations of a system of drain trenches in existence throughout the park.

The grating installed is Borden Pressure Locked Aluminum Grating. This was an exacting job, one where only standards of quality equal to Borden's would do. Functional beauty and low maintenance are but two of the many advantages of Borden's Pressure Locked Aluminum Grating.

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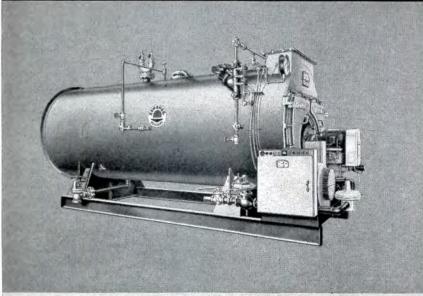
Write for complete information on BORDEN All/Weld, Pressure Locked, and Riveted Floor Gratings in this FREE 8-page catalog

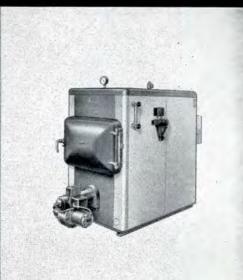
BORDEN METAL PRODUCTS CO.

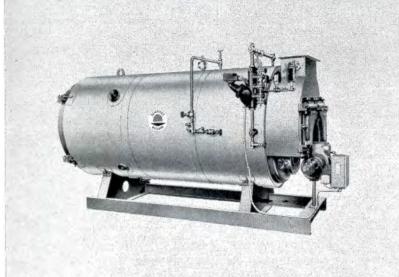
822 GREEN LANE Elizabeth 2-6410 ELIZABETH, N. J.
PLANTS—UNION, N. J., LEEDS, ALA., CONROE, TEXAS,
BEETON, ONTARIO

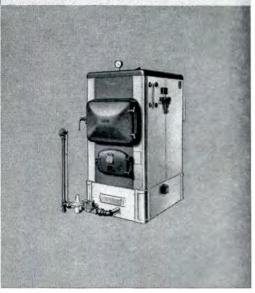
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DEERING MILLIKEN BUILDING FEATURES

WINDOWS AND ARCHITECTURAL METALWORK

by GENERAL BRONZ

Here's a striking effect in exterior design that accentuates the vertical in an eight story office building. Carson & Lundin, the architects, have effectively designed narrow bays of stainless steel window frames with fixed sash and glass spandrel panels between mullion columns of white marble.

> In addition to fabricating the stainless steel window frames General Bronze has also supplied the stainless steel revolving door entrance, the lower floor store fronts and other architectural metalwork.

> > As the country's foremost producer of curtain walls, windows and architectural metalwork in either aluminum, bronze or stainless steel. General Bronze is anxious and ready to serve you, too. See our catalogs in Sweet's.

Deering Milliken Building, New York, N. Y. Architects: Carson & Lundin Contractor: Turner Construction Co.



eneral Bron CORPORATION . GARDEN CITY, N.Y.

SALES OFFICE: 100 PARK AVE., NEW YORK, N.Y.



ONLY YORK FAN COIL UNITS GIVE YOU A

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Twenty powerful, packaged models—the longest line-up in the industry—save space, installation and maintenance costs!

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YORK



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Millions Live Better with YORK... the quality name in air conditioning

Manufacturers of Residential and Commercial Heating and Cooling Systems • Air Conditioning and Refrigeration Equipment for Industrial and Commercial Installations • Room Air Conditioners • Ice Makers • Refrigeration Units and Systems



BLOK-JOINT Permits Contraction AND Expansion In Control Joints BLOK-MESH Reinforcing Has Deep Swedges For Better Mortar Bond

Today's accepted method of building masonry walls includes reinforcing and control joints. Control joints relieve stresses and strains and reinforcing adds strength and resistance to cracking. Use both to provide maximum strength and protection.

BLOK-JOINT is a cross shaped rubber extrusion for making fast, effective control joints in masonry walls. It is used with ordinary metal sash blocks. No special blocks or building paper and mortar fill is needed. Blok-Joint forms a secure interlock for lateral stability—allows both contraction and expansion. It can be used in single walls, block walls faced with other masonry, cavity walls and at pilasters or columns. Molded of

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BLOK-MESH is the masonry reinforcing with the exclusive deep swedged deforming. The well-defined, squared notches give more gripability with the mortar than conventional reinforcing with superficial nicks or burrs. Blok-Mesh provides effective dovetailing—yet requires no more area in the joint than other types.

For Further Information See



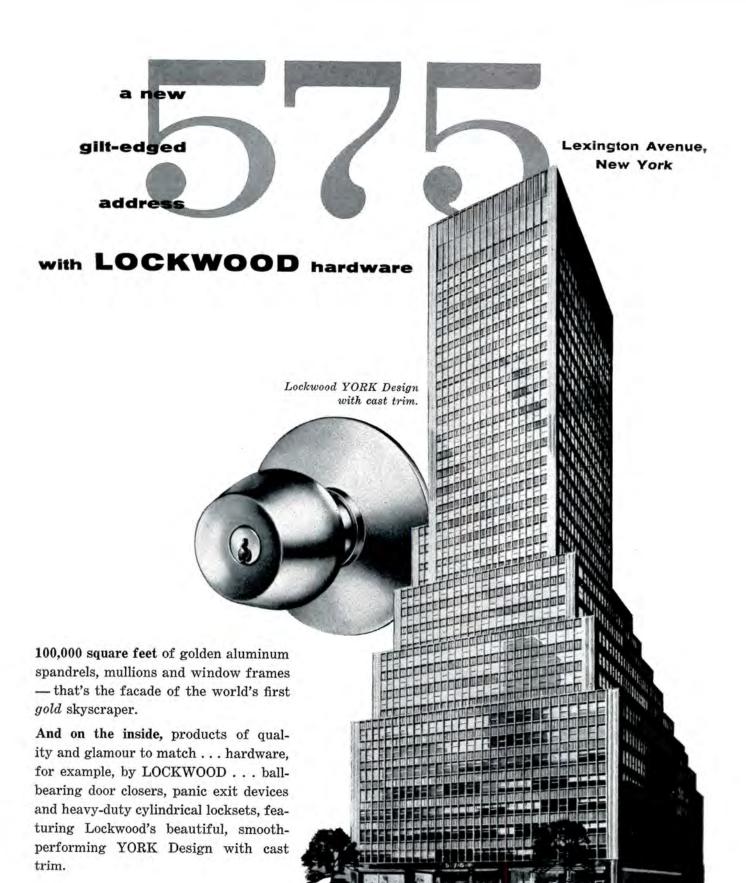
4h Car Architectural

Car Industrial Construction File



Blok-Joint and Blok-Mesh are products of The Carter-Waters Corp., 2440 Pennway, Dept. AR Kansas City 8, Missouri

Available in the U. S. through Concrete Block Manufacturers and Building Material Dealers. Blok-Joint is distributed in the Canadian Provinces of Alberta, Saskatchewan and British Columbia by CONSOLIDATED CONCRETE INDUSTRIES, Ltd., 9th Ave. & 24th St. East, Calgary, Alberta, Canada.



Architects: Sylvan and Robert Bien Builder: Sam Minskoff & Sons, Inc.

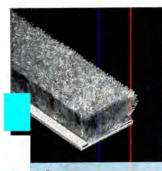
LOCKWOOD

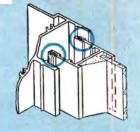
Lockwood Hardware Manufacturing Co., Fitchburg, Mass.





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for efficient weatherseal around new window series

Two new series of aluminum windows for residential use have been introduced by Ceco Steel Products Corporation. Designed to meet the needs of varying types of architecture and wall construction, these new windows are available in double-hung and single-hung sections in modular sizes.

Standard Products DrafTite solves the problem of sealing around these, as well as all types of metal windows. Pretested DrafTite wool-pile weatherstrip reduces air infiltration to less than ½ cu ft per min. per foot of sash perimeter when subject to

a wind velocity of 25 mi. per hour...a sealing efficiency greater than that specified by the industry.

In addition, DrafTite won't leak, sweat or stick. It insures better insulation with easier window operation—keeps dust, wind, rain and snow out with an efficiency that lasts for years.

Check into DrafTite's many uses. Write for full information, and call on Standard Products engineering service to help solve your sealing problems. See Sweet's Architectural Catalogue, reference 3e/ST.

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BEAUTYWARE
FITTINGS
...PERFECT COMPLEMENT
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Sleek, functional design with color impact

Briggs delivers the most advanced styling possible today in brass fittings! Contemporary lines in complete harmony with the modern look of Briggs Beautyware fixtures. Designed by Harley Earl, Inc., these bright chrome-plated brass fittings are available with interchangeable inserts to match Briggs compatible colors as well as white and chrome. Specify them for residential and commercial uses. Write now to Briggs for complete information.

BRIGGS MANUFACTURING COMPANY WARREN, MICHIGAN

A T-8116. Combination bath-shower fitting, with automatic diverter valve in spout.

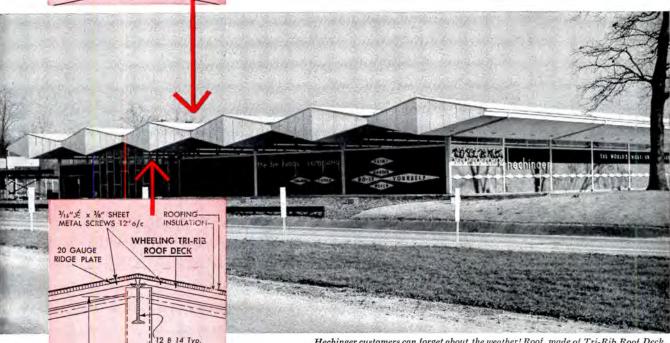
B T-8715-S. Shelf-back lavatory fitting, 5¾" centers, with aerator and pop-up drain.



BEAUTYWARE

METAL SCREWS 12" o/c INSULATION 20 GAUGE VALLEY WHEELING TRI-RIB PLATE ROOF DECK Butt weld trusses together

Unique Building Supply Center features roof of quickly installed Tri-Rib Roof Deck



Hechinger customers can forget about the weather! Roof, made of Tri-Rib Roof Deck, extends out 15 feet over walks on all sides to serve as an all-weather canopy.

Featuring a roof using a series of rhomboid-shaped umbrella trusses joined together and constructed of Wheeling Tri-Rib Roof Deck, the Hechinger Company's Rockville, Md., store is one of the world's most modern building supply centers.

Ideal for many types of construction, Tri-Rib is made of Wheeling Cop-R-Loy® steel — the famous copper-bearing steel that has proved its long-lasting qualities through years of actual field use! And — because Tri-Rib is light and strong — it requires fewer and lighter columns, shallower footings and eliminates the subpurlins required by many other types of roof construction.

On the installation shown above, Mr. Frank Wolfsheimer, president of Hechinger Engineering Corp., builders of the center, reports, "We were very pleased with the way Tri-Rib went on, especially with the speed of installation and the way Tri-Rib and Tri-Rib Accessories are engineered to work so perfectly together."

Find out how Wheeling Tri-Rib Roof Deck can help you, too. See Sweets, or contact our nearest representative. Wheeling Corrugating Company, Wheeling, West Virginia.

WHEELING CORRUGATING COMPANY IT'S WHEELING STEEL



Wheeling Tri-Rib Roof Deck is designed in accordance with specifications adopted by A.I.S.I. Light Gauge Cold-Formed Steel Design Manual, 1956 Edition.

WHEELING WAREHOUSES: Boston

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WHEELING WAREHOUSES: Boston, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis. SALES OFFICES: Atlanta, Houston.

Rubatex weatherstripping never leak



No air, water, snow or dust get by its Closed Cellular structure

POMEROY custom-built hopper hinged windows
—considered "the Cadillac of aluminum windows"
—are weatherstripped with RUBATEX CLOSED
CELLULAR NEOPRENE for the ultimate in efficiency

RUBATEX was specified by Pomeroy, above all other gasketing materials tested, because it is completely impervious to water absorption or transmission, assures lifetime resistance to the elements, is extremely soft and conforms to any irregularity with the minimum of effort.

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RUBATEX DIVISION, Dept.AR-6 GREAT AMERICAN INDUSTRIES, INC. Bedford, Virginia



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LEAKPROOF WEATHERSTRIPPING



WEIRKOTE - THE RIGHT CHOICE BY EVERY MEASURE

No matter what the specifications of your heating or air-conditioning duct work, Weirkote will meet them as only a quality zinc-coated steel can. No other metal can match it.

Take, for instance, the strength and rigidity of Weirkote. It's a natural for spanning large areas without bending or buckling and with a minimum use of supporting brackets. Consider, too, its fire protection. Its higher melting point makes it provably safer than competing metals. Since ducts sometimes carry volatile matter with a low flash point, this protection can be vital.

Important, too, is Weirkote's economy. Made by the continuous process which integrates zinc and steel, Weirkote can be worked to the very limits of the steel itself without flaking or peeling. Permanent corrosion resistance is provided in every seam and surface. Which, of course, all adds up to longer, maintenance-free life for Weirkote ducts. And its ease of installation cuts cost still further.

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Free Weirkote Booklet

Send for the new booklet on Weirkote today. Write Weirton Steel Company, Dept. Q-4, Weirton, W. Va.



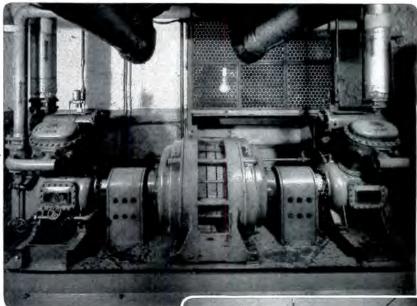
WEIRTON STEEL COMPANY

WEIRTON, WEST VIRGINIA

a division of









"**ECLIPSE**" COMPRESSORS AIR CONDITION TVA OFFICES

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE

Frick Company Waynesboro Pennsylvania

Gentlemen:

We have a Frick central air-conditioning system in our Old Post Office Building which was installed by your engineers in 1940. It consists of four compressors and two evaporative condensers.

As this equipment has been in continuous use throughout each year for seventeen years, we feel that it is time for a thorough check, and repairing or replacing of necessary parts.

To get a complete and competent check, and proper recommendations, we would like to have one of your staff engineers or field representatives examine our equipment and advise on necessary corrections; also to furnish any cost estimates.

If any of your factory personnel is planning on being in this area in the near future, we would appreciate their stopping here and making the inspection. In the event they do, would you advise us as to the date.

Very truly yours,

a. R. Bay &

Eastern District Manager Office Service Branch



TVA OFFICES AT KNOXVILLE, TENN.

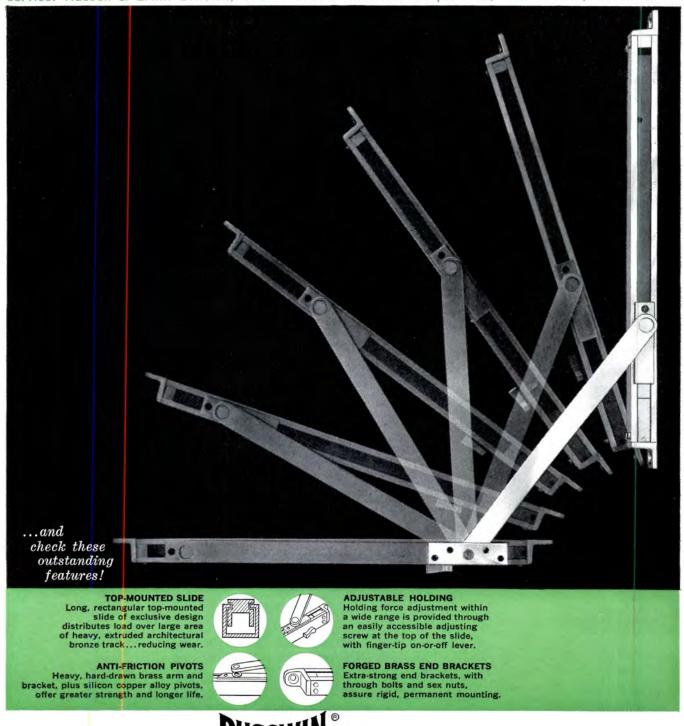
Frick equipment is world renowned for being better-built, more economical, and giving a lifetime of dependable service.

What are your COOLING needs? If you want cool air, cold water, ice, extremely low temperatures, or refrigeration for quick freezing and processing—in any commercial or industrial sizes—call in a Frick representative at the planning stage for recommendations and estimates. They have the specialized knowledge and equipment to solve your cooling problems.



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SCHOOL SERVICE The 1750 Russwin Door Holder is "made-to-order" for school doors—or wherever rugged service calls for solidly built holders. , , , One clue to the holder's long service life is the extra sturdy holding dog. After a million-cycle test, it was almost as good as new! A remarkable endurance record. , , , , Wide-contact latch design distributes the load in the 1750 holder...eliminates concentrated wear. The king-size, deeply case-hardened steel holding dog assures long life. , , , Have your Russwin representative show you the new Russwin 1750 Door Holder. Designed for single-position holding, it is available in six sizes. Your finest choice for lasting service. Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.





Time-Saver. Just 15 minutes to rinse, scour, sterilize, and dry instruments with this all-Monel sterilizer.

How your hospital can handle heavy sterilizing loads

Look at Shreveport's new 325 bed Schumpert Memorial Hospital...22 Wilmot Castle Sterilizers built with Nickel-clad steel and Monel nickel-copper alloy.

In Surgery: 9 sterilizers, including 6 all-Monel* high-speed emergency units.

In Central Supply: a 'round-the-clock processing plant with 2 huge Nickel-clad rectangulars and a Monel cylindrical auxiliary unit.

In Maternity: an automatically controlled autoclave for fast, safe terminal processing of formula.

In Utility Rooms and Laboratory: 9

more all-Monel autoclaves.

In Castle's bulk sterilizer, the inner chamber wall and door is a sheet of Nickel inseparably bonded to a steel shell. For cylindrical autoclaves, Castle uses double walls of Monel alloy.

These nickel containing metals have maximum resistance to corrosive saline solutions, steam, organic debris, cleansers. Surfaces remain smooth and easy to clean. There's no peeling or warping despite repeated temperature extremes. All welded construction virtually eliminates possible leakage.

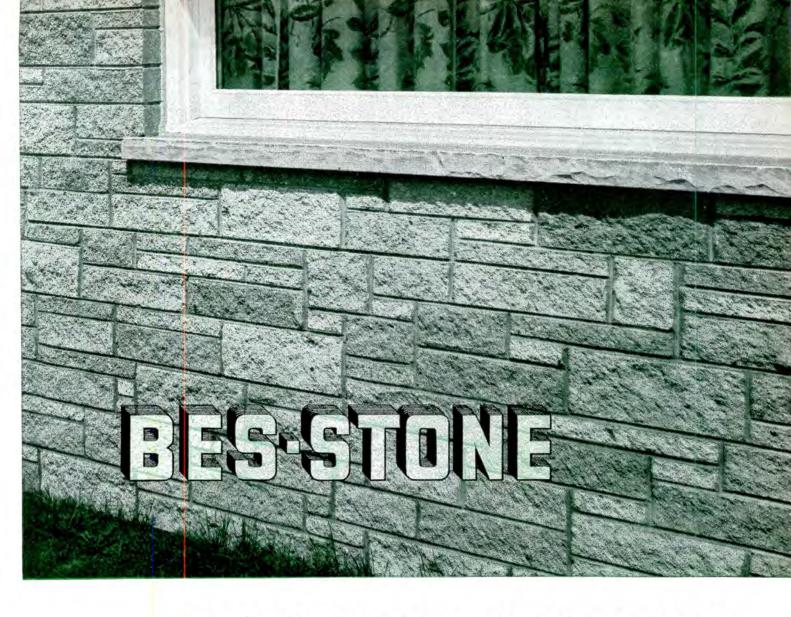
Any way you look at it, Castle's Monel and Nickel-clad sterilizers are built for a lifetime of service... economical service... unfailing service.

Need help in planning? Take advantage of Wilmot Castle's Hospital Planning Service. Write: Wilmot Castle, Inc., Rochester, N. Y.

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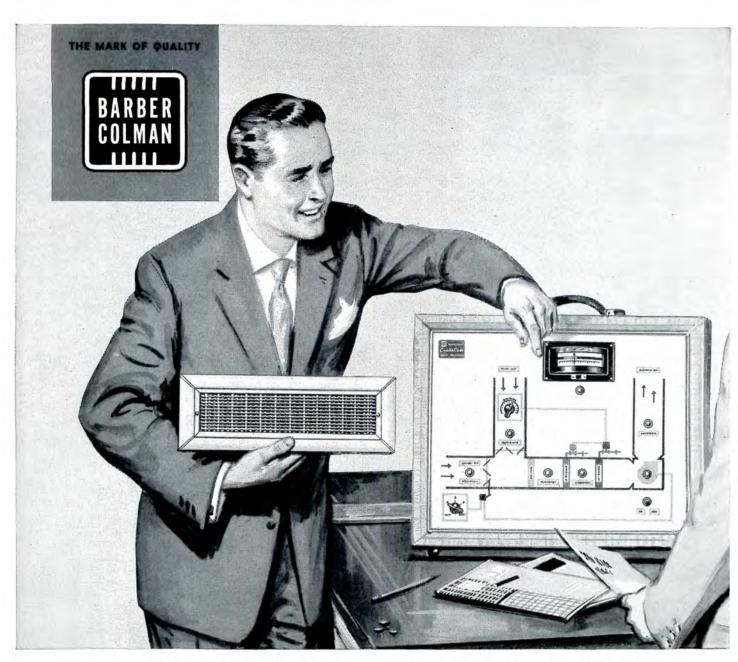
meets all code requirements . . . is adaptable to all types of architecture . . . challenges the creative ability of both architect and builder. Ask your nearby Vibrapac block plant for new Bulletin No. 121 showing BES-STONE applications in natural colors, or write:

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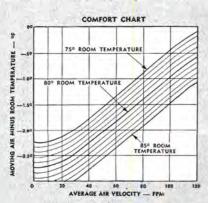
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From first contact until your air conditioning is balanced and checked, your Barber-Colman representative offers co-ordinated products and service on *both* Automatic Controls and Air Distribution.

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This chart developed by Barber-Colman indicates conditions of air movement and temperature in the occupancy zone. Line shown for each average room temperature is limit of satisfactory comfort conditions. Points above the line fulfill Human Comfort Standards. The Barber-Colman "Comfort Engineer" is the one supplier who can assure

proper relationship of temperatures and air velocities as dictated by this chart. Copies available from your nearby Barber-Colman Field Office on request.

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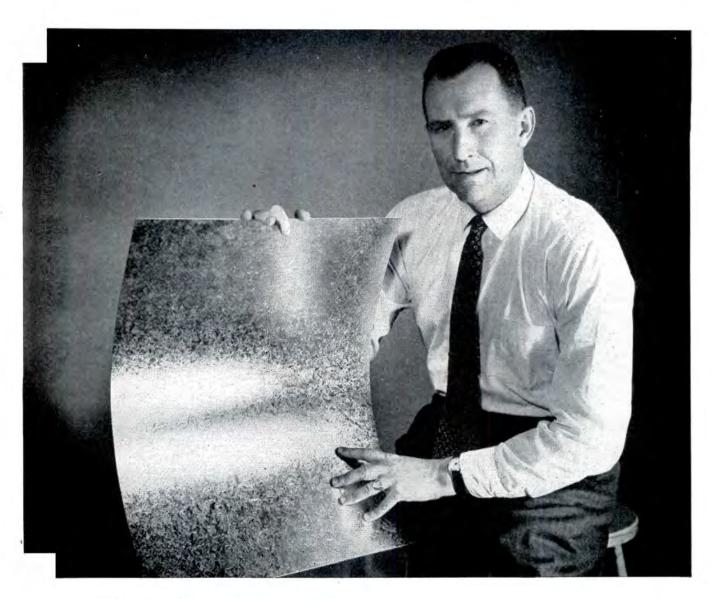
for this new, fully illustrated bulletin detailing advantages of Automatic Controls and Air Distribution system combinations. Just look for the name



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BARBER-COLMAN COMPANY

Dept. H, 1604 Rock Street, Rockford, Illinois



Get the "feel" of Bethcon before you specify your next air conditioning system

Next time you get a piece of galvanized sheet in your hands, flex it back and forth a few times to get the "feel" of it. If that piece of steel is Bethcon, we'll bet it felt just right. Not limp and lifeless, not stiff as a board, but full of the zip and workability so desirable in sheet metal work.

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Bethcon forms up readily on brakes and lock-formers. Your completed duct system will be strong and durable, ready for many years of trouble-free service.

CONTINUOUS GALVANIZING AND ANNEALING

Our continuous galvanizing lines at Sparrows Point, Maryland, are of the very latest design, and include a continuous annealing process which gives the sheet just the right blending of strength and ductility for good results.

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AVAILABLE IN CUT LENGTHS OR COILS

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BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Bethlehem Pacific Coast Steel Corporation

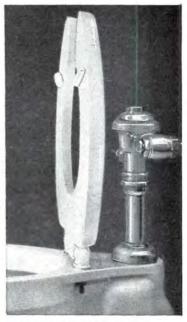
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



new shockproof Olsonite seat





Concealed check hinge prevents seat from rising more than 11° past vertical. It's standard on all Olsonite No. 95's and 97's.

Extra heavy construc-tion with a full 11/4 inches of high impact

Olsonite material.

that allow permanent installation with finger pressure alone.



Snap-in vinyl bumpers with the resiliency of rubber have no metal to corrode. Vinyl will not yellow—has 8 to 10 times the life of rubber bumpers.





Additional strength is provided by the durable heavyduty brass reinforcing plate. No wood filling to crack.

High impact construction and extra strength design makes it ideal for all non-residential installations

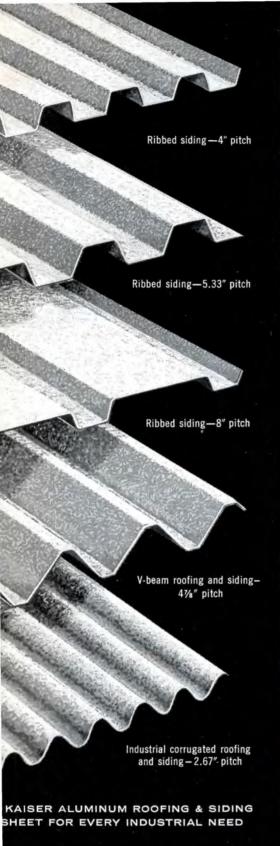
11/4"

Never before has any manufacturer offered a seat more able to "take it" and remain sanitary and attractive. Extra strength, high impact material has been combined with a tough, shock absorbing, brass reinforcing plate to make the Olsonite No. 95 an incomparable choice for all non-residential installations. The Olsonite 95 will not discolor-it looks sanitary and stays sanitary. Available in white or black only, the Olsonite No. 95 is for elongated bowls. No. 97 fits regular bowls.

SWEDISH CRUCIBLE STEEL COMPANY, Plastics Division 8801 CONANT AVE., DETROIT 11, MICH.

ORIGINATORS OF THE SOLID PLASTIC SEAT

89

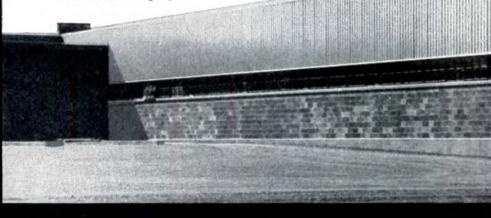


These roofing and siding sheets are available in a selection of thicknesses, finishes, widths, lengths. Flashing sheet, pre-formed flashing, closure strips and other accessories also available. For full information, see Sweet's 1958 Architectural File 8b/Ka or Industrial Construction File 4b/Ka. Complete specifications provided on request.

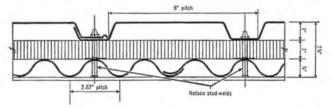
FORM, FUNCTION A

EXAMPLE: LOW-COST INSULATED

The Standard Register Co., Manufacturing Plant, York, Pa. Engineers & Designers: Noonan Engineering Corp. General Contractor: R. S. Noonan, Inc. Insulated Aluminum Wall Sub-Contractor: Carew Steel Company



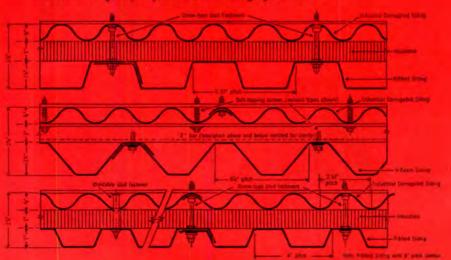
TYPICAL SECTION— STANDARD REGISTER WALL ASSEMBLY



Outer skin: 8" pitch ribbed siding Inner skin: 2.67" pitch industrial corrugated siding Fastening system: Nelson Set-Lock studs

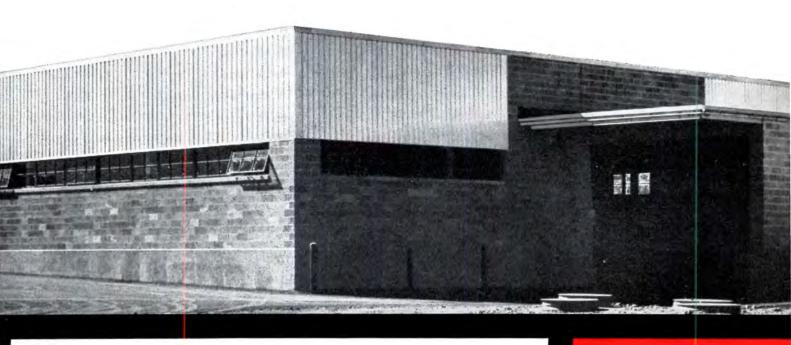
TYPICAL SECTIONS...OTHER INSULATED ALUMINUM WALL ASSEMBLIES

Flexibility of insulated aluminum wall design is made possible by Kaiser Aluminum's wide range of siding sheets in ribbed, corrugated and V-beam configurations — plus its selection of quick, dependable fastening systems.



FLEXIBILITY-CONCEIVED IN ALUMINU

ALUMINUM WALLS FOR NEW STANDARD REGISTER PLANT



Installed at a labor and materials cost of \$1.50 per square foot, Standard Register's new insulated aluminum sandwich walls were quickly fabricated at the site from a layer of 1"-thick rigid glass fiber insulation -flanked by rugged sheets of lightweight Kaiser Aluminum ribbed and industrial corrugated siding.

Extra Economies

Their extreme light weight, from 1 to 1.5 pounds per square foot, reduces dead load-effecting many savings throughout the building.

Their minimum thickness, as little as 23/4" overall, extends usable floor space. And their high insulation value (U Factor of 0.16 with 1" thick glass fiber insulation) by lessening the load on heating and air conditioning equipment, promises reduced operating costs for the life of the structure.

Minimum Maintenance

In addition, because the siding sheets for these sandwich walls are formed of a special clad Kaiser Aluminum alloy, they provide extra resistance to corrosion - will keep their good looks for years with little maintenance, and without the need of paint.

Reliable counsel on insulated aluminum walls is available from a qualified Architect's Service representative through the Kaiser Aluminum sales office nearest you. Consult the yellow pages of your telephone directory; or, write for catalog: Kaiser Aluminum & Chemical Sales, Inc., 919 N. Michigan Avenue, Chicago 11, Illinois.



THE BRIGHT STAR OF METALS

APPROVED APPLICATORS

Additional information on iluminum industrial building products may also be obtained from:

WALTER G. MITCHELL COMPANY

2303 Jefferson Street Torrance, California Mr. W. G. Mitchell, Pres.

CAREW STEEL COMPANY

R. D. 9 York, Pennsylvania Mr. Paul Kohr, Treasurer

DALE BENZ, INC.

1912 West Grant Street Phoenix, Arizona Mr. Dale Benz, Pres.

WM. C. KULZER COMPANY

3340 North 10th Street Philadelphia, Pennsylvania Mr. William C. Kulzer, Pres.

HUGHES STEEL ERECTION CO.

43 Leon Street Boston 15, Massachusetta Mr. John Hughes, Pres.

ALLENTOWN ROOFING & SHEET METAL COMPANY, INC.

Highland & Fenwick Streets Allentown, Pennsylvania Mr. Charles C. Graver, Trees.

CALLERY INDUSTRIES, INC.

130 Hillyue Lane Pittsburgh 37, Pennsylvania Mr. David C. Starr, Pres.

METAL PRODUCTS, INC. 106 Birney Street Greenville, South Carolina Mr. Thomas Burdette, Vice Pres.

FRASER EDWARDS COMPANY

2412 Harrison Street San Francisco, California Mr. J. S. Fraser

THE YOUNG COMPANY

1101 West First Street Charlotte, North Carolina Mr. W. B. Young, Pres.

SOUTHERN FABRICATING, INC

P. O. Box 97 Staley, North Carolina Mr. Forrest A. Paschal Mr. R. F. Paschal, Jr.

See "MAVERICK" Sunday evenings, ABC-TV Network. Consult your local TV listing.



JENN-AIR LAUNCHES



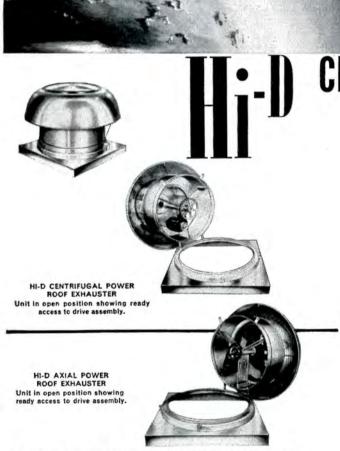
TWO NEW STARS INTO ORBIT



POWER ROOF EXHAUSTERS Now, for the first time, aluminum belt driven units combine high discharge

with low-contour appearance

Since 1947 the power exhauster industry has looked to Jenn-Air for leadership. Now Jenn-Air starts its second decade by introducing two new and useful additions to its line: Hi-Discharge Centrifugal Power Roof Exhauster, Series HCB; and Hi-Discharge Axial Power Roof Exhauster, Series HAB. These exhausters fill the need for general area ventilation and have a clean engineering design that features compactness and serviceability. By locating the wheel at the top you derive the advantage of a high point of discharge which allows low curb construction. Thus, Jenn-Air units offer the lowest overall height of any exhauster on the market. Once you compare, you will decide on Jenn-Air.



Observe These Outstanding Features Shared in Common by 2 New Jenn-Air Hi-Discharge Exhausters:

1-Maintenance-Free all-aluminum housing supplies strength without weight.

2-Bird guard of heavy gauge stainless steel construction comes as an integral part of every unit.

3-Special vibration absorbers reduce noise to an absolute minimum.

4—Totally enclosed full ball bearing, permanently lubricated, motor assures smooth, uninterrupted service. Air cooled application adds years to motor life.

-Tubular drive assembly has permanently sealed, pre-lubricated ball bearings.

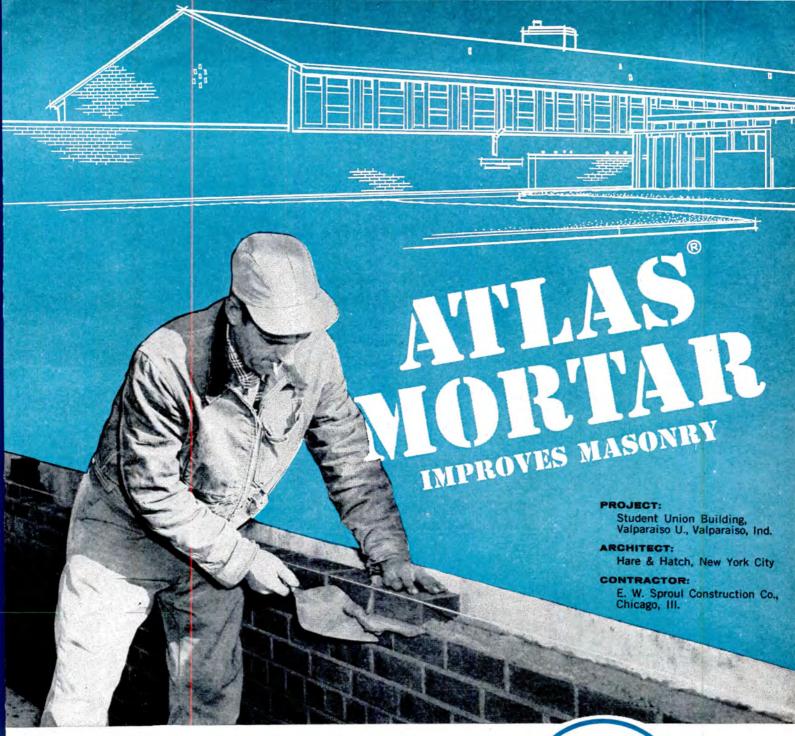
6-Motor and drive can be serviced from interior of building, if desired.

-Specially designed hinge on housing permits ready access to damper and drive. Positive stopping device holds unit in open position. Simple locking mechanism keeps it tightly closed.



1102 Stadium Drive • Indianapolis 7, Indiana

Member of Air Moving and Conditioning Association



"...best in workmanship...best in strength,"

says Henry Gagne, Masonry Foreman, E. W. Sproul Construction Co.

- Mortar in masonry construction must resist the destructive effects of weather in any climate.
- Because ATLAS MORTAR is an air-entraining masonry cement, it produces a durable mortar that strongly resists deterioration due to weather.
- Quality-controlled manufacture of ATLAS MORTAR cement maintains high product standards, assures uniform performance and appearance on every project.
 (Complies with ASTM and Federal Specifications.)

Write for your copy of "Build Better Masonry," Universal Atlas, Dept. M, 100 Park Avenue, New York 17, N. Y. UNIVERSAL ATLAS CEMENTS

Universal Atlas Cement Company

Subsidiary of United States Steel



three progressiv

select MUELLER BRASS CO. <u>Streamlines</u> copper tube and fittings for three magnificent new buildings

There are many good reasons why leading architects and builders everywhere are specifying STREAMLINE copper tube and solder-type fittings for modern construction piping. They know that an all-copper plumbing system gives a lifetime of dependable service. Valuable floor space is increased because copper is compact and requires less room to install. Copper tube and solder-type fittings are lighter in weight, easier, quicker to assemble and solder, which lowers plumbing costs. The smooth interior bore is rust, scale and corrosion free . . . which permits the clean, unrestricted flow of liquids with minimum friction-loss. This actually reduces the work-load on circulating pumps, and often allows the use of smaller capacity units. You, too, can take advantage of all of these desirable features at no extra cost , . . by specifying the best . . . copper tube and fittings that bear the tradename STREAMLINE.



25 YEARS OLD and still like new!

The giant new Milwaukee County General Hospital was designed by Schmidt, Garden and Erikson, architects, Chicago, in association with Brust and Brust of Milwaukee. Mueller Brass Co.'s STREAMLINE copper tube and fittings for all plumbing and heating were installed by Wenzel and Henoch Company, Milwaukee. 25 years ago, copper tube and fittings were installed in the Civic Auditorium in St. Louis, Missouri, In January, 1958, a section was removed from the line for inspection and found to be still like new!... Positive proof of the durability of copper.



A complete line of tubing, valves, supply and drainage fittings for plumbing and heating are available from Mueller Brass Co.









rchitects...





STREAMLINE tube and fittings were used throughout the new St. Francis Hospital in Milwaukee, Wisconsin, for all supply, waste and vent piping. Francis S. Gurda A.I.A. was the architect and plumbing was installed by Joseph Wittig Company.

Architects Grellinger and Rose of Milwaukee designed the Dominican High School, one of the newest schools in Whitefish Bay, Wisconsin. STREAM-LINE copper tube and fittings were installed in this building by Joseph Wittig Company.





24



*Owners and Builders: Uris Bros., New York, New York Architects: Emery Roth & Sons, New York, New York Glass & Glazing: David Shuldiner, Inc., Brooklyn, New York

Ageless no city pall will ever mar its freshness

Some day many of New York's newest buildings will shroud their newness in grime or corrosion . . . and decline to time-blackened hulks in the skyline.

And when that happens . . .

The new Uris Building at 750 Third Avenue will still look lustrous, freshly colored, clean . . . its beauty ageless, permanent as pyramids.

Because age doesn't mar the attractiveness of glass.

And the Uris Building is clad in glass . . . curtain walls of Huetex® by Blue Ridge. The lifetime, carefree spandrel material, with rich color of ceramic enamel fused to the back of the glass and protected by aluminum to add insulating value.

Uris Building*, including its recent expansion, has over a million and one-quarter square feet of office space which make it one of the largest buildings ever constructed of glass curtain walls.

Either inside or outside, design for life with Blue Ridge—where you see creative ideas in glass . . . in HUETEX spandrels for building walls . . . in patterned glass for home and office . . . in heat absorbing and wired glass for industrial buildings.

For additional information on Blue Ridge Glass, look in Sweet's Architectural Files 3c/BL and 16d/BL. Or write direct.

Juttex by Blue Ridge Glass

KINGSPORT, TENNESSEE

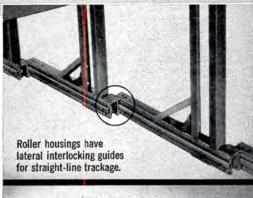


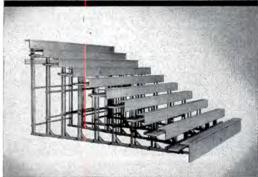
Sales Agents in United States and Canada: Libbey • Owens • Ford Glass Company • Toledo 3, Ohio

MEDART GYM SEATS place all the load on floor, not on casters or walls



With no spectator load on seats, roller housings and uprights are raised leaving casters "free" for smooth, easy operation.





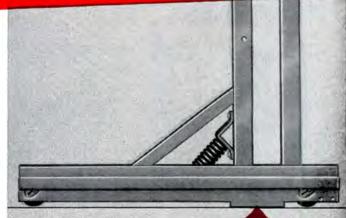
Medart Telescopic Gym Seats can be furnished with $10\frac{1}{2}$ " or $11\frac{1}{2}$ " row rises and 22" or 24" row spacing.

EXCLUSIVE FULL-AUTOMATIC POWER OPERATION IS AVAILABLE AT SMALL COST. (PATENTS PENDING)



ASK FOR YOUR COPY!

Medart's Gym Seat Catalog tells how to get better, safer seating with minimum investment. It's yours for the asking.



Under spectator load, casters retract and let housing shoes transmit weight to floor. No weight on casters means no depressions in floor.

Each seatboard in a Medart Gym Seat section has eight vertical steel angle uprights—four pair of strong supports, each mounted on a steel roller housing with two retractable rubber casters. This construction gives Medart Seats several important advantages:

- With seats in use, casters retract and place all weight on steel housing shoes. Floors can't be dented or marred by casters.
- Entire spectator load bears directly on floor through vertical uprights. There are no diagonal braces, hinged rods or similar stress-bearing devices. No weight is borne by casters or wall fastenings.
- Interlocking of telescoping members at top of supports, and roller housings at bottom, insure easy, straightline, non-binding operation.

MEDART SEATS ARE SAFER, NEED LESS UPKEEP

- Free-standing, self-supporting understructure carries loads 3 times recommended standard.
- 2. Tough, smooth, most abrasion-resistant wood finish on market.
- 3. More leg and foot room—better visibility.
- 4. Vertical fronts are safer, look better, permit flush recessing.

MEDART

TELESCOPIC GYM SEATS

SPECIFY the best, then INSIST on it!

FRED MEDART PRODUCTS INCORPORATED 3540 DE KALB • ST. LOUIS 18, MISSOURI



BOLD NEW CRANES

Now Crane offers the graceful new CROWN Round Lavatory designed for easy installation in any type countertop as well as marble

You know the big problem with oval lavatory basins up to now. They had to be mounted under the counter. Which meant using a finished material like marble. And making an exact cut to match the rim.

But now you can specify an even more beautiful round lavatory in any type of countertop. The new Crane Crown with its metal frame fitted into a simple round cut provides today's newest, easiest, and smartest countertop installation! (Easier to clean and keep clean, too!)

Another Crown advantage: it has Crane's new Singl-ese faucet mounted right on the lavatory. No extra cuts for the supply fittings. The Singl-ese controls water volume and temperature at the touch of a single lever. It represents more than 10 years of research—a convenient, one-handle faucet with all the quality and dependability of Crane's Dial-ese control.

The new Crown is designed by Henry Dreyfuss and features a hidden front overflow and deep oval basin. It's made of hand-finished vitreous china in all 7 Crane colors and white. Overall size, only 18 inches. Call your Crane Architects' Representative for more information now.

VERSATILITY



Masland Duran upholstery beautifies all types of furniture. Distinctive colors and patterns. Easy to keep clean with a damp cloth. All-vinyl—or vinyl with elastic fabric back.



Masland Duran flexible wall covering. Elastic fabric backed. Colors from deep, rich tones to delicate pastels—all easy to keep clean. Easily applied with paste, primer and ordinary paperhanging tools.

Masland Duran Clad-On. Vinyl sheeting with coated adhesive backing. Can be pressed on to any horizontal or vertical surface, flat or curved. Practical beauty for walls, desk tops, and many other decorative uses.



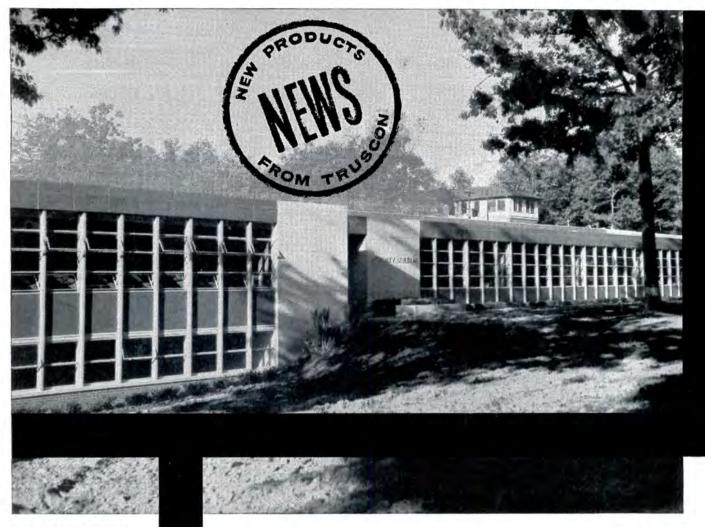
Masland Duran Clad for laminating to metal or hardboard. A new and integral textured finish for cabinets, doors, counter panels, fixtures, etc. Resists peeling, abrasion or chipping.



IN VINYL Masland Duran

- Elastic fabric backed or all-vinyl for upholstery.
- · Elastic backed for colorful, practical wall covering.
- New semi-rigid Clad and Clad-On for flat surfaces.

You can probably think of dozens of places where these Masland Duran products can be used in your plans with outstanding results. Naturally, you'd like to see samples. They're yours for the asking. Write. The Masland Duraleather Co., Dept. 36, Philadelphia 34, Pa.



Vision-Vent installations such as this now can be specified with exclusive new Truscon Supercoat Finish to eliminate field painting. Pictured is Activities Building, Georgia Training School for Girls, Adamsville, Ga. John J. Harte, architect. Abco Builders, contractor.

Install without painting!

Stave off maintenance painting!

7 Colors!

New...Truscon Vision-Vent Window Walls with Sensational Supercoat Finish

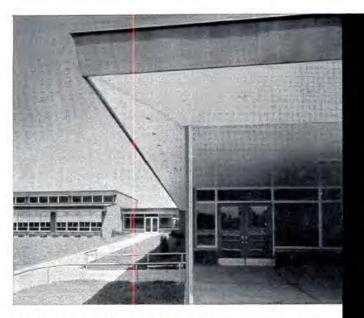
Now, you can get the solid strength of steel for curtain walls and windows and save field painting costs, too. New Truscon Supercoat Process is factory-applied to eliminate all field painting . . . both at installation and during the years.

This outstanding Truscon development has been thoroughly laboratory tested—for weather, atmosphere, time, and abuse. It has successfully met each challenge.

Vision-Vent brings you all the mass-production and installation economies of standard steel windows. It's an insulated wall section, complete with window. It goes up fast.

With Truscon Supercoat and Vision-Vent Window Walls, there is no need to sacrifice strength and solidity in walls and windows simply to avoid painting. Supercoat Process can be furnished now on specification for all Vision-Vent types . . . as well as in factory shipment on all Truscon Steel Windows for commercial, institutional, and industrial construction. Choice of seven colors.

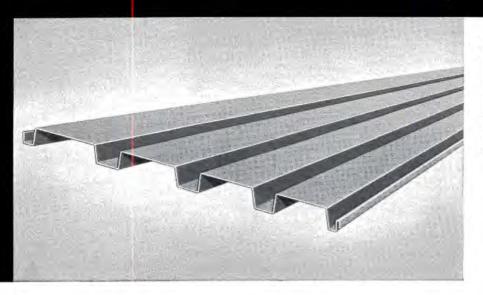
See Sweet's (17b/Tr) or send coupon for Supercoat booklet. Supercoat sample on request.



IDEA! CONSIDER SQUARE WELDED STEEL TUBING. For columns, supports, mullions, rails. Pound for pound, tubing is strongest of all structural shapes. And, square tubing gives a handsome, contemporary architectural effect. Republic's Steel and Tubes Division pioneered the manufacture of electric resistance welded steel tubing—can supply ELECTRUNITE® brand in squares up to 4 inches . . . and innumerable combinations of rectangular sizes in peripheries up to 16 inches in various wall thicknesses . . . out of local distributor stocks. Send coupon for reference data. NOW . . . TRUSCON CERTIFIES EVERY "O-T" STEEL JOIST. For your protection, Truscon now offers you, upon request, written certification that the "O-T" Steel Joists you specify are manufactured in accordance with the standards of the Steel Joist Institute and are fully qualified to bear the SJI Seal of Approval.

This certification covers each building for which the joists are engineered. It is further assurance of predictable, dependable loadbearing. No extra cost for this protection. Send coupon for facts.





SPEED COMPLETION WITH 24-INCH FERROBORD® STEEL ROOFDECK. New, wider Truscon Ferrobord is available in lengths up to 32 feet, 6 inches. It roofs large areas quickly. Straight lay means that several crews can roof without delay. All work is done from above—Ferrobord is quickly welded to top chords of joists or purlins. Ferrobord is light, strong, fireresistant. Available now. Send coupon for specs.

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World's Widest Range of Standard Steels and Steel Products



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For institutional buildings.. round columns add dignity yet lower construction cost



Le Bonheur Children's Hospital, Memphis, Tenn. Architect: J. Frazier Smith

Our Lady of Fatima Church, Albuquerque, N. M. Architect:



Specify round columns of concrete formed with

onotube.

FIBRE FORMS

See our catalog in Sweet's-for additional information, write

Construction Products

SONOCO PRODUCTS COMPANY

. HARTSVILLE, S. C. . LA PUENTE, CALIF. . MONTCLAIR, N. J. AKRON, INDIANA • LONGVIEW, TEXAS • ATLANTA, GA.
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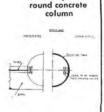
For schools, hospitals and churches, natural dignity in design is an architectural quality to be desired. Specify round columns of concrete for such structures to help fulfill this requirement. Specify that the columns be formed with Sonotube Fibre Forms and you assure your client of lowest construction costs. That's because low-cost Sonotube Fibre Forms provide the fastest and most economical method of forming concrete columns . . . they save the contractor time, money and labor!

Sonoco Sonotube Fibre Forms are available in three types, Seamless, "A" coated and "W" coated in sizes from 2" to 48". I.D. Standard shipping lengths—18'. Your contractor can order in other lengths if required.

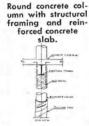
Specify the Seamless Sonotube Fibre Form (pat. pend.) or the patented "A" coated type for exposed columns.

3288

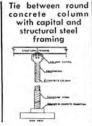
Typical forming details (not to scale)

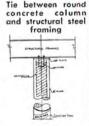


Window joint at









Round concrete colwith concrete and concrete with slab







in hospitals noise is measured by the foot



Address

COUPON



Morton Salt Company Building, Chicago Architects: Graham, Anderson, Probst & White, Inc.

Stainless Steel Fabricators: Rippel Architectural Metals General Contractor: Sherman Olson Co.





New steels are born at Armco

Where beauty <u>must</u> be durable ...specify Armco Stainless Steel

To insure lasting beauty for the new and distinctive Morton Salt Company building in Chicago, architects selected stainless steel for the curtain walls, entrance and lobby. Its sparkling luster contributes to the basic richness of the design and blends harmoniously with the other materials. Its hard impervious surface assures low cost, lifetime beauty.

DURABILITY AND ECONOMY

Armco Stainless Steel is widely used in modern architecture because architects know it will preserve the original appearance of their buildings and save their clients money in the long run. Stainless doesn't tarnish or gray with age, has no plated or chemically treated surface to wear off. It keeps its lustrous good looks with little or no maintenance. Due to its strength and

toughness, stainless resists scuffing, abrasion and denting in severe service.

More than a quarter-century of extensive use in architecture has demonstrated stainless steel's utility, economy and ageless beauty.

MANY APPLICATIONS

Consider the many advantages of durable stainless for entrances, wall panels, mullions and interiors as well as doors, windows, hardware and other standard units in the buildings you design.

For complete information on Armco Stainless Steel and assistance in selecting the most economical grade, finish, gage and size for specific applications, write to Armco Steel Corporation, 2578 Curtis Street, Middletown, Ohio.

ARMCO STEEL

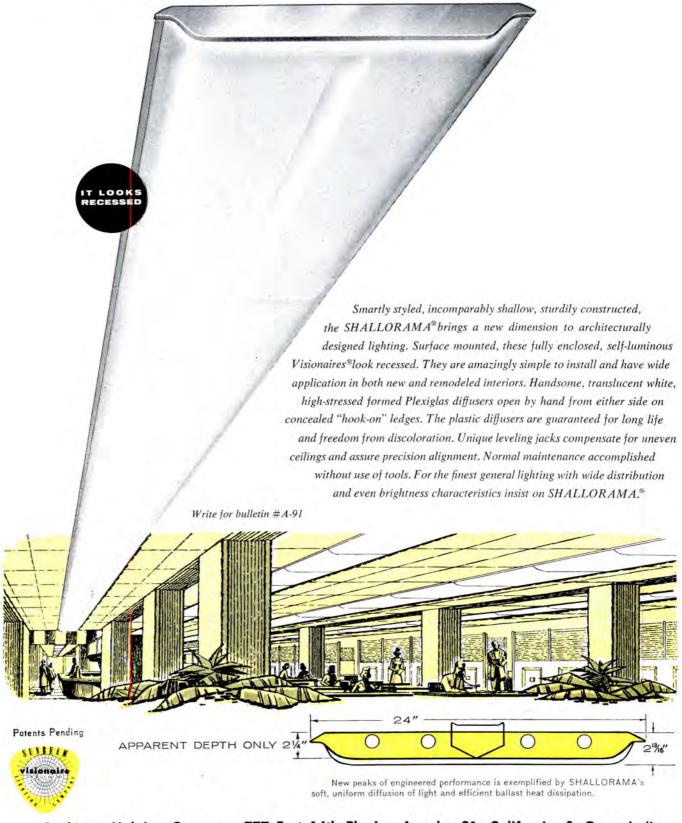


Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

insist on wafer-thin

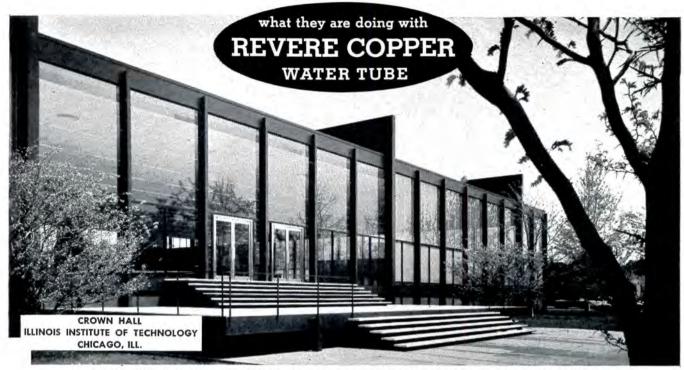
SHALLORAMA

for modern, custom-styled lighting



Sunbeam Lighting Company, 777 East 14th Pl., Los Angeles 21, California & Gary, Indiana

115



Architect: MIES VAN DER ROHE. Associate Architect-Engineer: PACE ASSOCIATES. Structural Engineer: FRANK J. KORNACKER. General Contractor: DAHL-STEDMAN COMPANY. Landscape Architect: ALFRED CALDWELL, all of Chicago.

UNIQUE SPLIT SYSTEM meets air change requirements and at the same time gives occupants the many benefits of RADIANT PANEL HEATING

In this split system, ventilation ducts in the ceiling provide the necessary air changes per hour as required by the Chicago Building Code. In the winter the air is heated, supplemented by the radiant panel system in the floor. The warm air system carries the principal heat loss while the radiant panel system offsets the heat loss of the large glass areas.

Revere Copper Water Tube was used for radiant heating panels because the standard 60' lengths mean fewer fittings, the sure soldering of copper means tight joints and its non-rusting qualities mean no clogging or reduction of flow. In addition, contractors are finding out that when properly applied, copper water tube not only is dependable and easier to work, but actually costs less than rustable materials.



13,580 FEET OF TYPE "L" Revere Copper Water Tube were supplied the Heating Contractor, CHICAGO CONDITIONAIRE COMPANY by the Revere Distributor, COLUMBIA PIPE & SUPPLY CO., both of Chicago.

The inherent qualities of Revere Copper Water Tube also make it the first choice for hot and cold water lines, underground service lines, processing lines, drainage and waste lines, vent stacks. See your Revere distributor for your needs.

REVERE COPPER AND BRASS INCORPORATED



AN IDEAL HEATING COMBINATION—Air ducts in the ceiling and radiant panel heating coils in the floor. Note that, due to greater heat loss, panels near the windows are spaced on 12" centers, while the remainder are on 24" centers.

A NEW and IMPROVED Design:-Aluminum NARROW STILE DOORS

- · stronger
- · quality finish
- · more versatile
- · more competitively priced

If you require strength, versatility and quality finish, Alumiline doors are designed to meet your needs:-

STRENGTH -- Only Alumiline has R-W6 -- "The exclusive method of fusing a machined corner reinforcement to the stile and rail with 6 high-tensile welds."

Exhaustive tests prove this door is two to four times stronger than other current designs.

VERSATILITY - Alumiline's new door design

- features a unique glazing principle, eliminating screws and permitting faster installation.
- accommodates glass up to 3/8" thick.
- accommodates a wider range of hardware.
- enlarges scope of hardware modifications.
- enlarges scope of design modifications.
- can be custom-built to meet architect's specifications.

ALUMILITED FINISHES

- Alumiline's Polished Alumilite: 204 A1-R1
- Alumiline's Satin Alumilite: 204 C1-R1
- Alumiline's Architectural Colors:*

Gold-Lite, Blue-Lite, Black-Lite.

*Available on complete door, or used as colored trim on glazing sections and push, pulls.

At a time when other manufacturers may be tempted to redesign for price - sacrificing strength - Alumiline is very proud of its New and Improved Door Design with R-W6 which incorporates additional strength and versatility factors - at more competitive prices.

You can rely on Alumiline - first in modern design and quality construction.



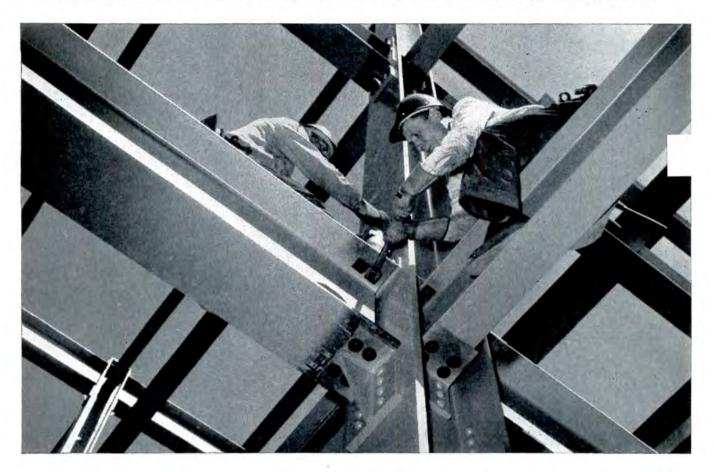
For more details, write Dept. (NSR) for Narrow Stile Brochure and Construction Details.



Steelwork for New Building in Oregon Erected Quickly . . . Quietly



HIGH-STRENGTH BOLTS JOIN ITS STRUCTURAL MEMBERS





The new First National Bank Building, Portland, Oregon. Structure is being built in two stages, to avoid any interruption in banking service. Architects: Stanton, Boles, Maguire & Church. Structural Engineers: Cooper & Rosé. General Contractor: Hoffman Construction Company. Fabrication and erection of steelwork: Bethlehem Pacific Coast Steel Corporation.

The 815-ton steel framework for the new home office building of First National Bank, Portland, Oregon, was erected quickly and quietly with Bethlehem High-Strength Bolts. Some 6,000 of the husky steel bolts, in ¾-in. and 1-in. diameters, join the structural members of the five-story structure.

Bethlehem High-Strength Bolts speed erection time because they can be installed quickly. The nuts are run up by a pneumatic impact wrench. The bolts can also be tightened with hand spanners. Either method provides a tight, sound joint.

Besides saving erection time, highstrength bolting is relatively quiet, ideal for hospital and school zones. And with the bolts installed cold, there is no danger from fire, or injury from tossed rivets.

Bethlehem High-Strength Bolts come in carbon steel in commonly used sizes. They are quenched and tempered to meet the requirements of ASTM Specification A-325. Plan to use them on your next job. BETHLEHEM STEEL COMPANY BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL





When you think of quality, you automatically think of McQuay, because McQuay Means Quality.

Only McQuay units are equipped with the famous and exclusive Ripple Fin coils which create the maximum air turbulence necessary for efficient heat transfer. Expanding the copper tube against the wide, full fin collars, which act as automatic spacers, provides rigid metal-to-metal contact and completely covers the copper coil to form a "tube within a tube".

The complete McQuay product line is constructed of the finest heavy gauge materials—combined with the NEW McQuay Galva-Seal process, bonderized and then finished with a special formula enamel baked on—offering you the finest corrosive resistant assembly available. And, the Dura-Frame "V" channel construction, another McQuay exclusive, provides the strength and rigidity necessary to quiet, trouble-free operation.

There is no substitute for quality, no substitute for the experience and the research and engineering for which McQuay is famous.

Compare McQuay in every way—from the appearance and beauty of the finished product to the heart of each unit, the coil itself—and you will readily see why McQuay Means Quality—and quality means performance and long life. McQuay, Inc., 1605 Broadway Street N.E., Minneapolis 13, Minnesota.



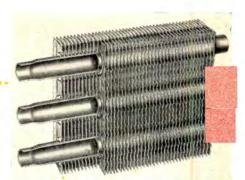
SEASONMASTER AIR CONDITIONER



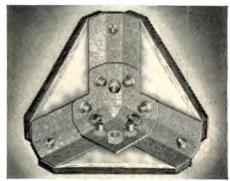
INDIVIDUAL ROOM SEASONMAKER



MULTI-ZONE AIR CONDITIONING UNIT



RIPPLE FIN COIL CONSTRUCTION



DURA-FRAME "V" CHANNEL CONSTRUCTION

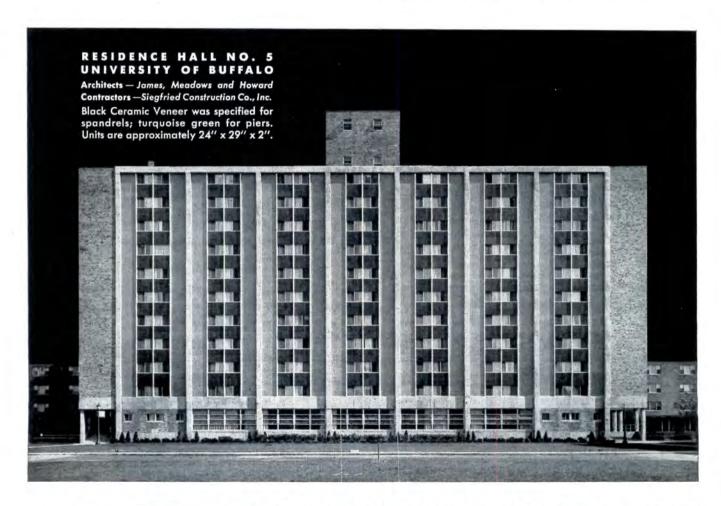






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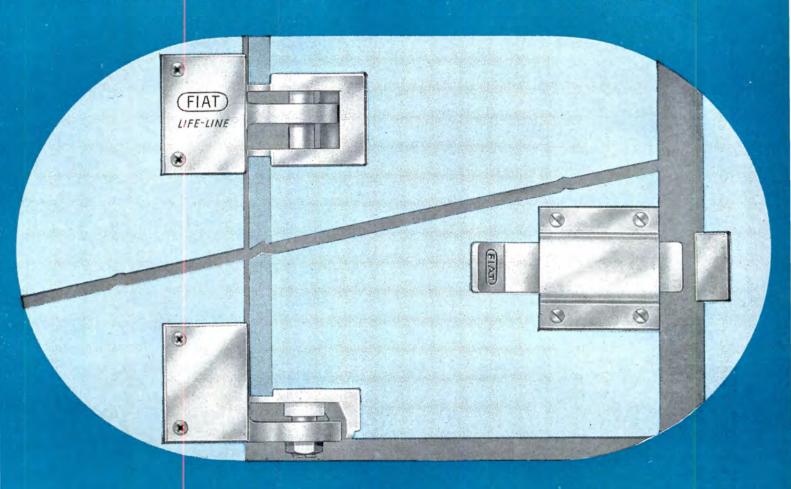




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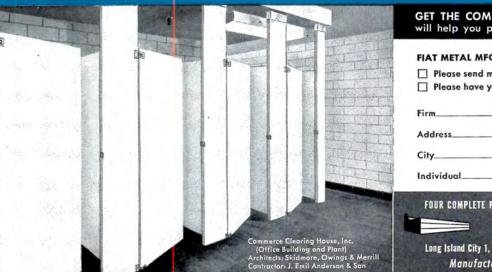
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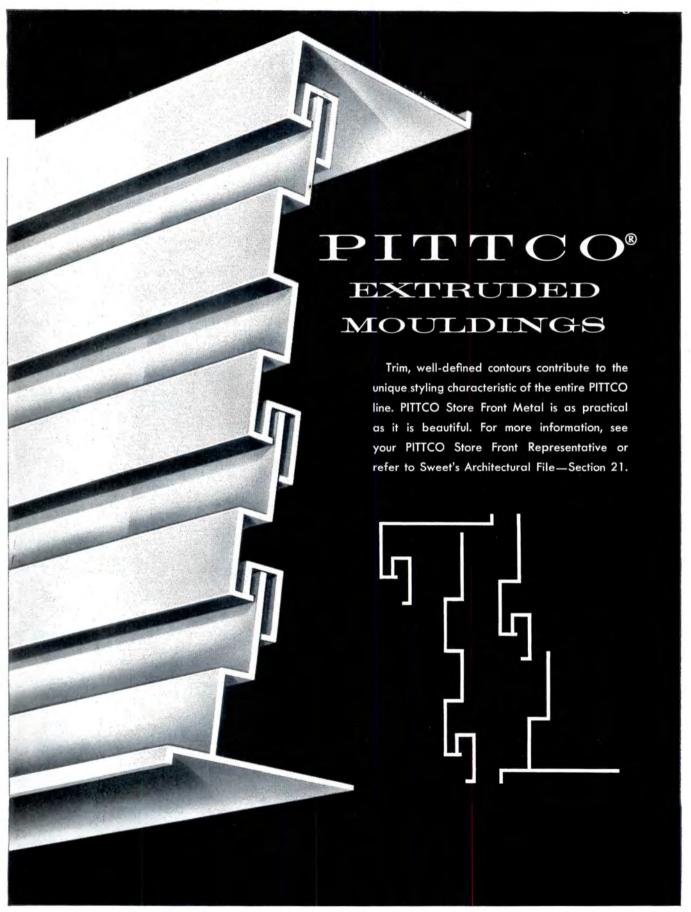
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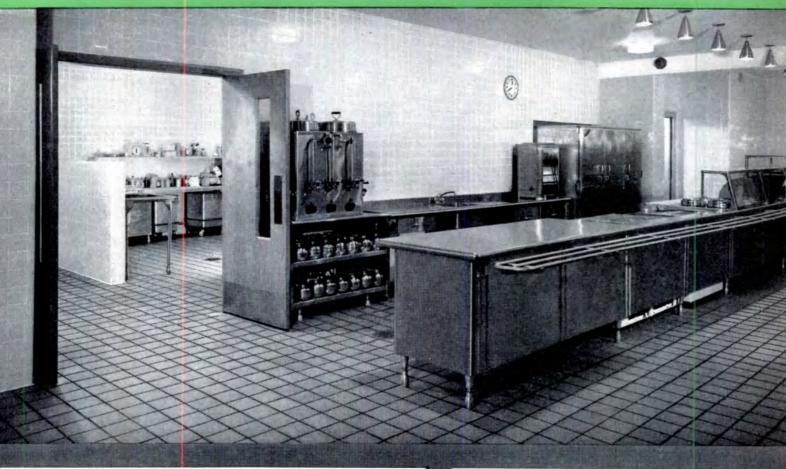


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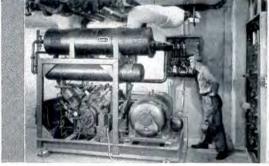
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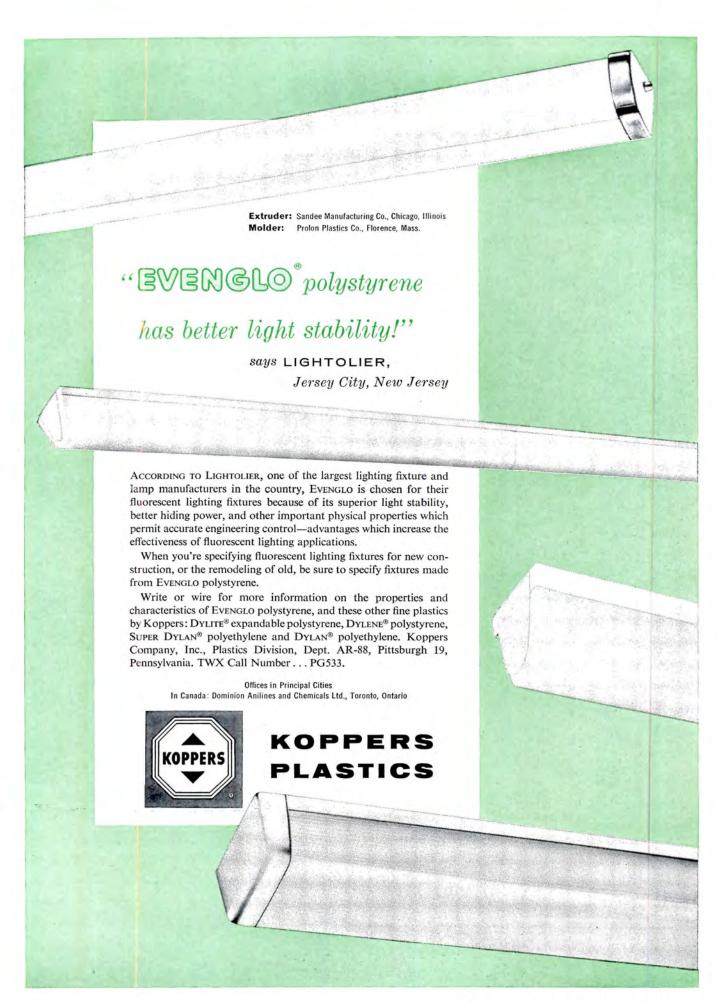
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In seven months, westward around the world from San Francisco, we visited 25 countries for periods from seven weeks in India to 45 minutes in Monaco. Too fast, but the flood of impressions tends to dramatize the links rather than the differences. Greece faced East as well as West. Nepal was a Buddhist bridge from India to China. Wood has the same inherent qualities everywhere. And all architecture seems international. with the great styles following the paths of religious, military and cultural influence, while in everyday building similar conditions produce similar results. A house is a house is a house, whether in Kathmandu or Liverpool.

Row House VERNACULAR and High Style MONUMENT

Travel Notes from a Sabbatical Tour Around the World By William W. Wurster

Photographs by Catherine B. Wurster

We visited the great Asian temples and palaces that all travelers see, and found them fabulous and exciting. But there is also a wonderful low-keyed popular tradition that may have more meaning to-day. Now that we look back, this split between high style and vernacular and the latter's neglect by modern architects, particularly in Asia with respect to housing, seems important.

The row house is a universal building form which continental Europe is trying to revive, England to modify, America to develop anew. And Asia has a rich array of row house traditions.

The Japanese villages were romantic, beautiful, often more irregular than this example—I guess picturesque is the word. But the Chinese villages near Hong Kong have an urbanity that I like and understand better than the picturesque, having always Rothenburg doubted liked Lancaster, Pa. Some Chinese villages are walled; in others brick row houses, enriched at each door, are set in open country, sharing the fields that extend in front.

THE ROW HOUSE VERNACULAR:

Asia and Europe, Old and New



- 1. Village near Kyoto: woven fence gives a regularity unusual in Japan
- 2. Open village near Hongkong: other towns are walled, more formal







- 3. Kathmandu, Nepal: elegant houses on a square. Workroom or shop below, sleeping quarters above, with cooking on open top floor
- 4. Typical Kathmandu street with carved teak shop fronts and balconies. No glass in openings, wood shutters for bad weather
- 5. Houses in Pokhara, Nepal, under Annapurna, are simpler in detail but have same general form as in Kathmandu with family life at top
- 6. Pokhara's gently sloping street, a true pedestrian mall, is lined with row houses of stone and brick set in mud mortar





This beautiful Tahoe-like valley of Nepal, fresh and cool in February, is 5000 feet high, with terraced farms sweeping much higher up the mountainsides. Kathmandu, the capital, is still an unspoiled medieval city of perhaps 250,000 population, not yet commercialized by tourists who have only been allowed in for two years. The people are friendly and smiling, but it is difficult to buy anything!

The first rough road from India is just completed and I only hope automobiles can be kept off the handsome narrow old streets. We spend millions to make pedestrian malls in America, but here they have always been. If only they can be preserved! The fine brick buildings with delicate teak carving, sometimes painted in intricate bright patterns, and the beautiful woodwork openings around and in grilles, are a delight.

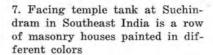
An hour's flight (otherwise, a ten days' walk) from Kathmandu is Pokhara, under the great white Himalayan wall rising to Annapurna and Manisulu. The first wheel that touched here was an airplane's. But Pokhara is anything but primitive or unknowing in design. A linear town, its granite-paved road curves gently upward for several miles, with an ancient stone drain under the slabs (already being broken by the one truck flown in). Stone walls give way to elegant temple squares and urbane brick row houses, painted white or yellow, with fine teak detail. Each house has a shop below with storeroom or animal quarters behind, bedrooms above, and cooking and family living on the top floor.

We drove south from Trivandrum, capital of the new state of Kerala, to Cape Comorin, the bleak southern tip of India where the Arabian Sea, Indian Ocean and Bay of Bengal meet. It is a crowded countryside: coconuts and rice, too little industry. Near the Cape at Suchindram is a fine temple group with carved towers. a green tank with stone walls painted in the lively redbrown stripes so frequent in this region. Along the tank, with stone steps leading to the water, we found a handsome row of masonry houses, with porch.

From Madras we went to Conjeeveram, with the most magnificent temple complexes we saw in India. The many slanted *gopuram* towers, richly carved all over, were visible ten miles out above the palms. We were equally struck with the simple beauty of traditional dwellings in this hot region. Each house has a raised porch (to be above the monsoon mud) with fine teak posts, set back under a roof of tiny tiles.

No one should miss the Ajanta Caves, rediscovered only in 1819, with their brilliant Buddhist paintings from 2000 years ago, comparable to Giotto's murals at Assisi. At the opposite end of the esthetic spectrum, we also liked some pleasant house groups in Ajanta village.

Chandigarh, Corbu's new capital for the East Punjab, has a fine schematic layout but seems too spread out, as does New Delhi. All this unassigned open space in a hot, dry, windy plain can mean dust. But no one here seems to agree, so we could be wrong. House designs vary pleasantly and—particularly those by Jeanneret—use native materials and motifs. Every dwelling has private outdoor space.



- 8. Typical southwest India houses at Conjeeveram have raised porch, inner court and cookroom behind
- 9. Group of houses with airy balconies at Ajanta village, Hyderabad, near the famous caves
- 10. Public housing for government workers, Chandigarh, East Punjab: left, low-rent with enclosed rear yard; right, middle-rent with balconies, roof deck, lattice screens















11. Solid Dutch provincial elegance along a canal at Kampen on the Ijssel. Holland has the old, the beautiful and new with imagination

12. In the new Quartiere Tiburtino, Rome, three-story houses with raised walk designed for *Inacasa*: Quaroni and Ridolfi, architects

13. Houses in Scandinavian vernacular at Tapiola, new community near Helsinki, Finland. Kaija and Heikki Siren were architects

14. Scandinavian row-house prototype with characteristic vertical battens and overhanging second floor, in Lindesberg, Sweden



Holland is probably the great example of man's ability to control his entire environment with efficiency, humane purpose and esthetic imagination. Everything has orderly beauty: old and new architecture, landscape and cityscape, monument and vernacular. The man-made countryside is like a great park, and the towns have a cameo quality with no frowzy edges. En route to the Northeast Polder with its dramatic new development on land reclaimed from the Zuider Zee, we staved at Kampen near the Ijssel mouth of the Rhine, a fine old town with restrained but handsome houses along the canals.

Once again, Rome is a place of booming vitality. It has one very moving postwar structure, the Ardeatine Cave Memorial, which can hold its own with the old monuments. And it has miles of new housing, not always sensible, but livelier and more urbane than the American equivalent. Tall apartments predominate, usually with balconies. But there are some interesting row house experiments too, including an intricate and picturesque group in the Quartiere Tiburtino . . . incredibly, a public housing project! raised walkway. bridges to second-story front doors, steps down the hill with the houses.

In Scandinavia, the Danes are in a surprising wave of glassy Brutalism, while the Swedes have left this behind. Norway seems uncertain, but the Oslo City Hall is, we decided, a great piece of popular architecture, vulgar but vigorous. Meanwhile, Finland maintains its high standard, still seeking vernacular solutions molded by local conditions and personal taste. Like most new north European communities, Tapiola, outside Hel-

sinki, includes all dwelling types, from high-rise to individual houses.

In England, the native habitat of the row house, there are many different species. The quaint story-book cottages at Saffron Walden might be termed a "wild" or primitive type.

Equally British, however, is the eighteenth century formality of the London squares, Edinburgh and Bath. Man has seldom designed a more stately residential group than the Royal Crescent at Bath. It has some of the scale and nobility of a Roman piazza but is still domestic . . . and drenched in greenery, for it rains and rains.

In a postwar version at Harlow there are stilts and a freeform superblock plan but there is still the undulating green lawn, plus a fine sculptured Family Group by Henry Moore.

Meanwhile, the London County Council, trying to save land and prevent sprawl, puts row houses on top of row houses and mixes them with high-rise apartments, at Roehampton and elsewhere.

In many of their glassy new schools and housing projects, the L.C.C. has broken the London mold and I find myself surprisingly sympathetic. To appreciate these bright clean things one must see them in their surround, the great sea of smoky brick that is London. Golden Lane is flashy, but it brightens a grim old district.

With its distinguished postwar work done almost entirely by staff architects, led until recently by Leslie Martin who has just been knighted for it, the L.C.C. has broken still another mold: apparently "bureau architecture" can be good.







- 15. The medieval English vernacular survives in a number of towns and villages. This picturesque row of cottages is at Saffron Walden, Essexshire
- 16. Eighteenth century elegance in the stately Royal Crescent at Bath, designed by John Wood the younger
- 17. "Double maisonettes"—two layers of two-story row houses—by London County Council, at Roehampton
- 18. Housing at Harlow New Town by Fry, Drew and Partners, architects, facing Henry Moore's sculpture, "The Family," in Mark Hall Park



18



BEHIND THE INDIAN MONUMENTS: Many Different Influences Once you have come across Asia to Persepolis, Istanbul, Athens and Crete, the East and West can never seem entirely separate again. The horns of Minos' bull face both ways.

Persepolis seems quite Greek (except the stylized sculpture) in its combination of grandeur and delicacy. The platform, approached by a majestic staircase and supported by a wall of enormous fitted stones, overlooks a great valley and seems part of the mountains behind. Both Greece and Persia influenced India, the Greeks as settlers following Alexander, the Persians later among the Moslem conquerors.

With its mystical, inturning, ascetic quality, the Hindu spirit is basic in Indian architecture. Nothing reflects this better than the Ellora caves, a vast monastery group cut 100 feet down into a hillside of black volcanic rock. The eighth century Kailasa Temple has great pillared halls, connecting bridges, huge freestanding elephants, female figures Greek in feeling, all carved from solid rock with grace and awesome majesty. How was this work planned? Were there drawings? A master designer? Errors could not be tolerated. This is the reverse of construction: it was all sculpted down to the product.

Entirely different is the Islamic influence, at its height after Akbar in the sixteenth century. Nothing mysterious or ascetic here: these elegant military chieftains believed in Order and Authority, wanted grandeur, luxury and worldly perfection in their buildings and gardens. Jaipur, built by Hindus of the warrior castedoers, sportsmen and military men who got along well with both Moslems and British-is







19. Persepolis, Iran: built before 500 B.C., burned by Alexander, 331 B.C., a majestic composite of great scale and delicacy. Propylaea, Apadana, Darius' palace

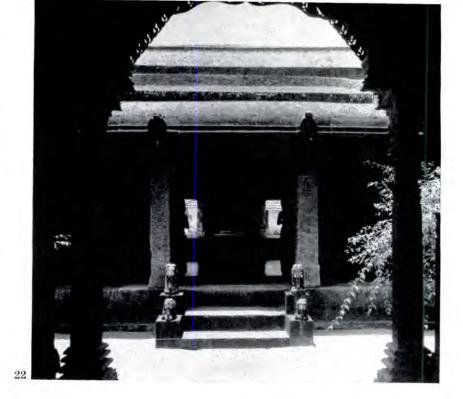
20. Ellora Caves, Hyderabad: lower hall, Kailasa, Brahman temple of Siva. c. 750 A.D.: a great temple carved from solid rock by a sculptural not an architectural process

21. Water pavilion and garden, palace of Maharajah Jai Singh II, Jaipur, have luxury and geometric perfection brought to Indian architecture by Mogul conquerors

a fine example of the Mogul influence.

We were unprepared for the beauty of the Padmanabhapuram Palace, south of Trivandrum, which compares in scale and delicate distinction with the Katsura Palace in Japan. Dating from 1335 to the sixteenth century, it is the finest example of Nair architecture, with its latticed teak galleries whose slatted walls often curve in at the bottom like a corn-crib. The Nairs used another fine trick here to keep out tropical glare, and driving rains also. The buildings are tucked up under sloping overhung roofs, both on exterior elevations and in the numerous small inner courts with an occasional pool to collect rain water. These are buildings designed for the climate, the wood grilles giving privacy but encouraging the easy movement of air. Most structures are quite thin through, also ventilation.

Completely Hindu in feeling, the Nair work also shows Chinese influence—particularly in the roof lines—from the days when southwest India was the trading post between Europe and China. The Palace has a three-story pagoda tower with sophisticated murals from Hindu mythology in its galleried upper hall. The close Hindu relationship between life, art and religion is evidenced in a small palace temple with a magnificent stone hall, the Mandapam, for religious dances. The teak carving in dormers, gable ends, grilles and occasional columns of unbelievable richness, is unsurpassed anywhere. With all its richness and complexity, it seems nevertheless a simple, natural group of structures. Of the buildings we have seen in India, it is the most beautiful, the most human and within understanding of our own orbit.



22. Tranvancore, India: integral parts of Padmanabhapuram palace are temple and Mandapam, religious dance hall. In this relation of life and religion palace is pure Hindu

23. From pagoda-like tower Mandapam's stone roof and massive structure are visible. Hall is open on both sides; its floors are cement darkened by charred coconut shells

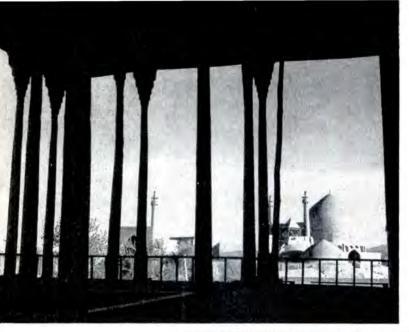
24. Carved teak lattice of flat spindles forms outer wall of long ground-floor gallery, admitting air, cutting glare, heat. Small openings provide views out at intervals





A Wonderful Hindu Palace

4





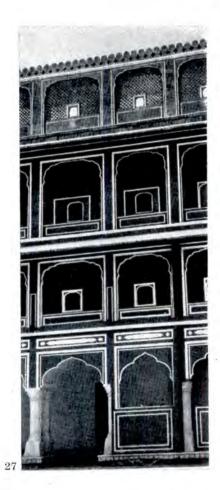
Shah Abbas and Jai Singh II

25. Isfahan, Iran: Ali Qapu pavilion (above, and right center of air view) overlooks Maidan, great plaza for games built by Shah Abbas, and superb blue-tiled dome of Shah's Mosque

26. Jantar Mantar, Delhi: a part of an astronomical observatory built in 1724 by Jai Singh II, founder of Jaipur

27. Jaipur: galleries with latticed screens, each with opening, in pinkand-white palace of Jai Singh II





THE
PERSIAN-MOGUL
LINE TO CORBU:

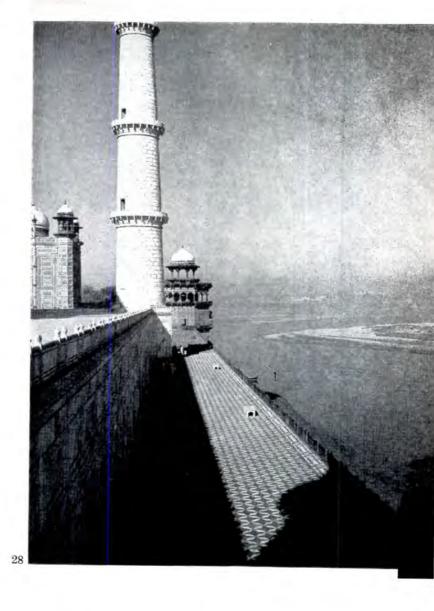
Five Great Builders

In grand-scale civic design we felt a kind of sequence from seventeenth century Persia and Mogul India—the work of Shah Abbas, Shah Jehan and Jai Singh II (their architects' names we do not know)—down to Lutyens at New Delhi and even Le Corbusier at Chandigarh. Despite the difference in purpose and conditions, there is a real kinship.

The Persians have had a gift for doing all kinds of things with a unified, orderly, delicate and exciting kind of beauty-monuments, houses, gardens, streets, cities, villages, paintings-and they have not entirely lost their hand, even in modern Teheran. But Isfahan, built by Shah Abbas, is to us the most beautiful city in the world, not just for its magnificent monuments but as a city. Its unity is quite different from the unity of religion, work, play, love and art of Hindu India, which is spiritual and permits dirt and confusion in the physical aspect of things. The Persians are a visual people who like three-dimensional clarity and drama per se. The clean, straight, tree-lined avenues with channels of rushing water, the neat houses and beautiful gardens behind light brick walls, the river with its splendid bridges and handsome factory district, the great covered bazaar, the parks with trees, water and flowers are not too orderly . . . all reach a climax in the Maidan with its brilliant tiledomed mosques and the elegant Ali Qapu pavilion from which the Shah watched polo games in the plaza below.

Pink Jaipur has some of this gay quality too, but we were struck by two aspects of Jai Singh's work because of their present-day connotations. One was the grilles in the Palace galleries which, as at Padmanabhapuram, have carefully designed openings for an unobstructed outlook. Modern architects have borrowed the Indian grille but sometimes omit the opening even when it might be pleasant to look out. The other was the Jantar Mantar, one of several groups of massive geometrical structures built by the Rajah (who was also a mathematician) for astronomical observation. Here is the dream of modern architects, to translate pure mathematics directly into physical form. And it does make an exciting park.

But the great Mogul builder was Shah Jehan who produced the Delhi Fort and Palace, the Agra Fort and Palace and the Taj Mahal at the same time that Shah Abbas was developing Isfahan. We saw the Taj first quite properly by moonlight, on a Hindu holiday with hundreds of people in flowing saris and dhotis walking quietly on bare feet in and out of the deep shadows on the great platform. And despite the endless views of the front axis, we were astonished at the dramatic site and the splendid river view from the rear of the platform. But the Taj is a fullblown rose in its over-obvious perfection, and I preferred the more stimulating variety-in buildings, gardens, and waterchannels-of the great Delhi Fort. This magnificent complex reflects all the activity that went on there: perhaps that is why it seems to have more vitality.



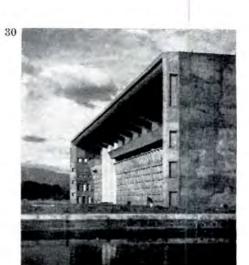
Shah Jehan, Lutyens, Corbu



28. Taj Mahal, Agra: dramatically located on a platform above Jumna River is tomb built (1630-1652) by Shah Jehan for his Persian wife, Mumtaz

29. New Delhi: Sir Edwin Lutyens' red-and-yellow sandstone Viceroy's (now President's) Palace has India's Eastern splendor and strong contrasts

30. Chandigarh: Le Corbusier's recently finished High Court building makes a virtue of imperfections of concrete





31. From roof terrace of High Court building in East Punjab's new capital city, a view of the Himalayan foothills

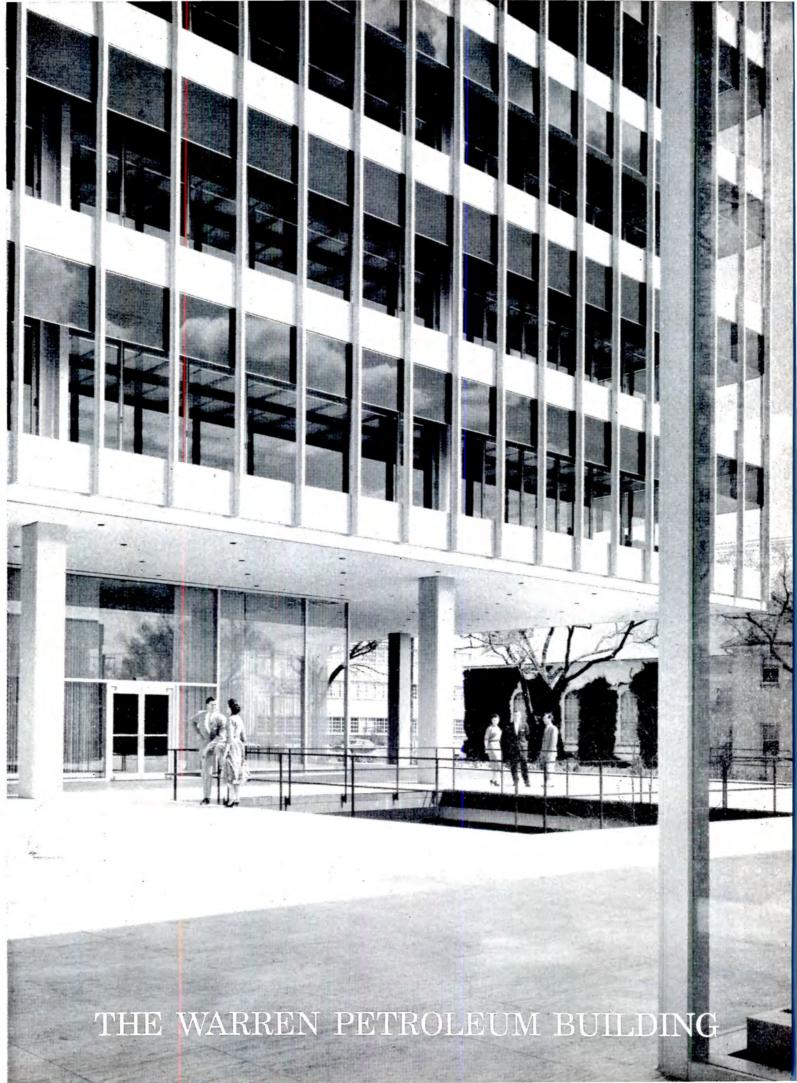
32. New Delhi: Lutyens' red sandstone entrance gatehouse to the President's Palace, reminiscent but not imitative

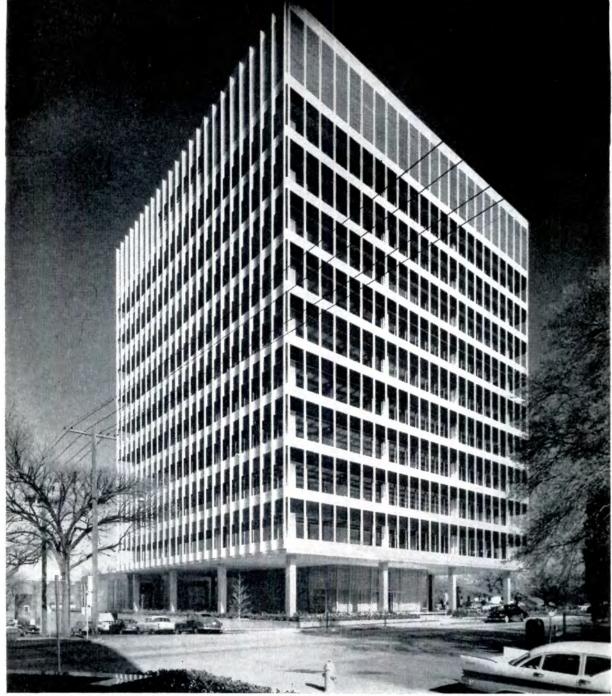


We saw from our plane the great spread-out Beaux Arts scheme of New Delhi, only partially filled in, and Catherine exclaimed, "Why, it's half Washington, half Los Angeles!" But although we expected to be bored by the Government center, we weren't. It may well be the best single product of the Beaux Arts epoch, with its bold and beautifully scaled buildings of rich red and vellow sandstone. Particularly in the Viceroy's Palace and gardens (now the President's house) Lutyens caught the strong contrasts of India. Somehow he threw over British caution and wound up in Asiatic splendor.

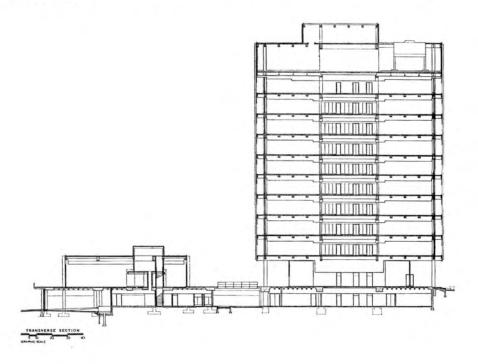
In entirely different modern terms, Le Corbusier has caught something from the proud Indian past as well as the forward-oriented present, above all in the High Court building. It is a romantic structure designed with a bold free hand, and has none of the machine-worship quality that makes the Marseilles housing a piece of brutal technocratic sculpture, however handsome. Later, when we saw Ronchamp, it seemed obvious that he had designed it after he had been to India.

Corbu has also made a thoroughly practical contribution to modern Indian design by using rough concrete as a virtue. in an era when intricate craftsmanship can no longer be relied on to carry the day. In Lutyens' work the costly finish is still an integral part of the design. But LeCorbusier and Jeanneret have embraced the imperfections of poured concrete without trying to cover them up. Paint on concrete or plaster mildews after one monsoon in India, as we noticed from our first day in Calcutta. But the High Court will require minimal upkeep to maintain its original quality.





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Bolt, Beranek & Newman Acoustical Consultants

> W. R. Grimshaw Co. General Contractors

Efficiently air conditioning a structure that stands in the blazing southwest sun appears to demand special exterior treatment. The more usual kinds of sunbreakers tend to build up a pattern of horizontals or verticals or eggcrates that often restricts the vision of the occupants in unpleasant fashion. For this building, however, the architects have devised a unique double skin that reduces the heat load satisfactorily, forms an expressive and well proportioned pattern, and provides interior spaces that open out attractively to the view. The floor slabs extend 5 feet beyond the plane of the sealed glazing and there pick up a series of thin, vertical aluminum I's which in turn support horizontal bands of dark gray, heat-retarding glass placed at ceiling height. Full details follow.

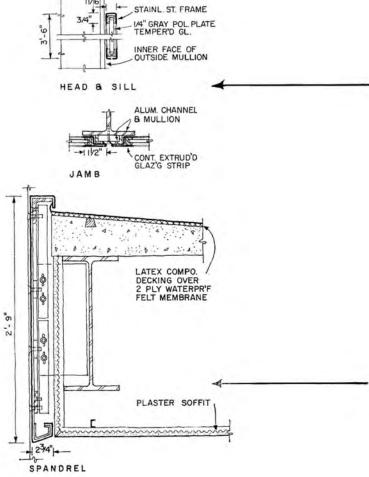
Otherwise, the building is notable for the manner in which the necessary basic elements (office area, public area, cafeteria, service) have been arranged and articulated in space and in relationship to the sloping, 1-acre site. With the building located a mile from the center of the city, complete employee facilities were required. The cafeteria is separated—yet connected to—the 12-story aluminum and glass office block by a travertine and granite terrace which also roofs the lower level garage and service area, easily reached by automobile from the side street or by truck from the rear.

Warren Petroleum's executive and administrative staff occupies the entire building. When expansion is necessary, the north (or side) terrace will serve as a link to a future office unit.

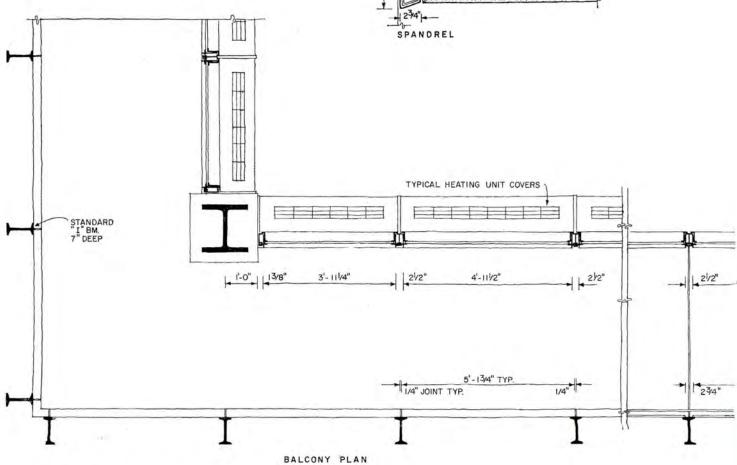
The architects were responsible for the interiors, which are restrained as a result of the wide use of neutral color and natural materials, with accents of bright color, carefully placed. The public entrance lobby is shown in the photograph below.



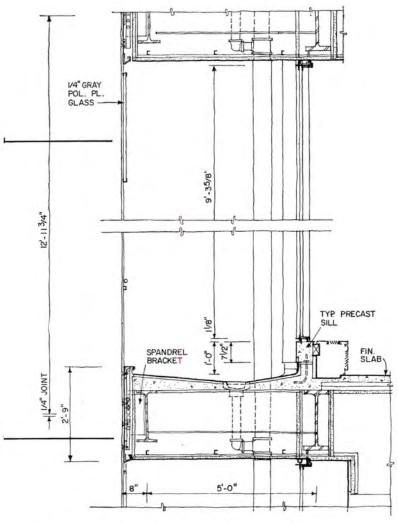




Warren Petroleum Building

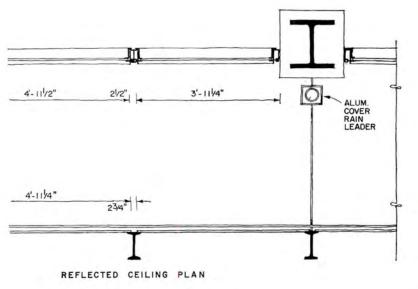


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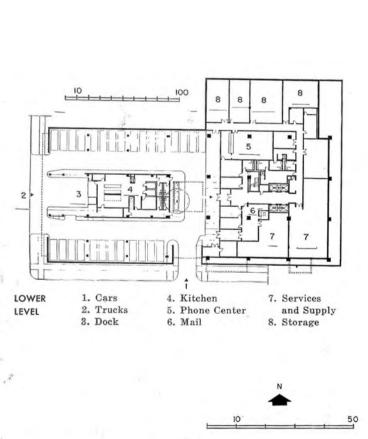
TYPICAL SECTION THROUGH BALCONY & WINDOW

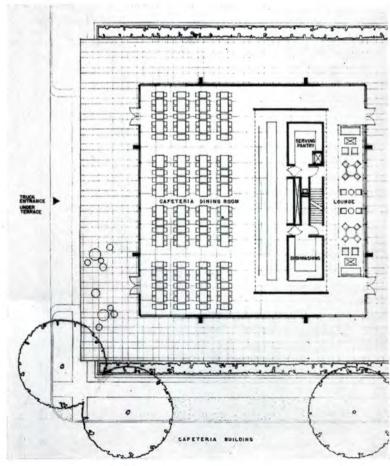
The outer building element is composed of 5 ft wide balconies, with visors of ¼in. dark blue-gray heat-retarding glass supported on aluminum I sections set 5 ft 2 in. o.c. to conform to the glazing and building module. The visors shade the sealed glass and cut sky-glare; the balconies serve for window washing as well as to protect the fixed glass

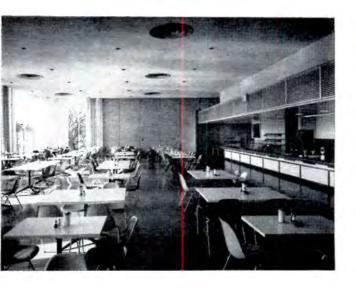




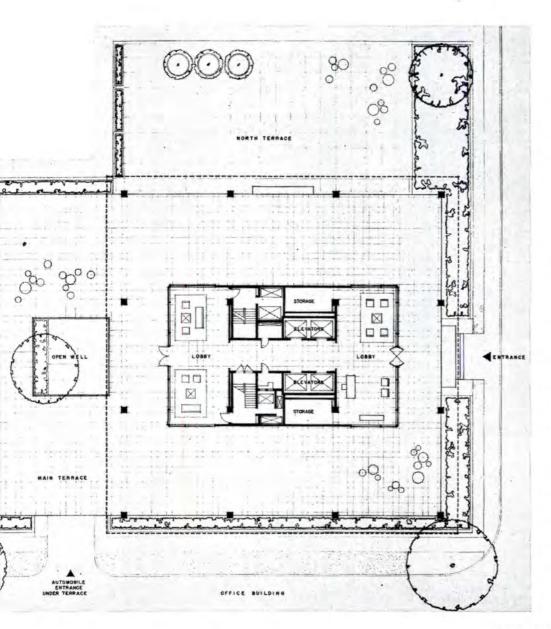












Warren Petroleum

The 12-story office block, containing approximately 120,000 sq ft, is supported on a welded steel frame of 36 ft spans in both directions. Floor to floor height is 13 ft. The square shape—108 ft on a side-furnishes a clear area 36 ft wide about the core. This dimension works nicely for corridor plus inner office plus outer office; or for large clerical areas; or for more luxurious executive quarters (see next page). Exteriors of the office block ground floor and cafeteria are of polished-aggregate precast concrete units, aluminum, and glass.

The cafeteria is framed by two sets of intersecting welded steel bents which span 80 ft. There are 200 seats for the present 400 employes in two shifts; service is by dumbwaiter from the kitchen-dishwashing facility below. The interior has wood paneled and blue-tiled partitions, white plastic topped tables, plastic shell chairs in red and off-white, and curtains of linen casement cloth.

The lower level houses executive parking for 28 cars, a truck dock, kitchen services, mail and supply center, phone center, storage areas, and certain mechanical installations.



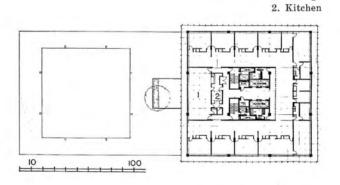
Warren Petroleum Building



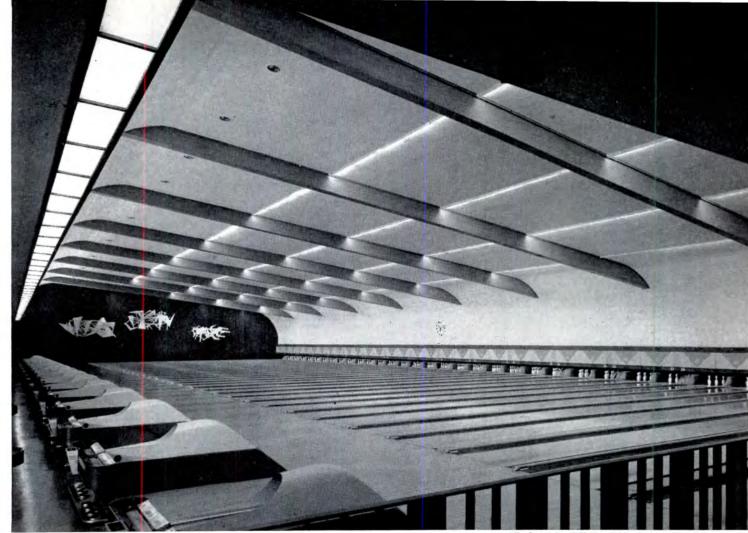




The executive floor is characterized by elegant, simply finished and detailed interior materials—oil-finished walnut, white sand-finished plaster, beige carpeting, unpolished plate glass, travertine table tops, and handwoven fabrics. Executive desks and cabinets of walnut and aluminum were especially designed by the architect. Note the attractive secretarial area and detail of built-in filing, wardrobe, and supply cabinets. On this, as well as typical office floors, partitions, air conditioning, fluorescent lights, and power are arranged on a 5 ft 2 in. module for flexibility



1. Dining



All photos by Bill Engdahl, Hedrich-Blessing

Designed To Lend Glamour To Bowling

All Star Bowling Alleys Stokie, Illinois

Barancik, Conte & Assoc. Architects

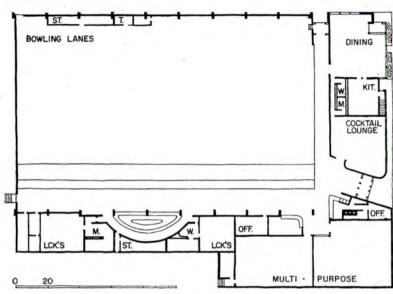
> David Cheskin Structural Engineer

Abramson & Klipp Mechanical & Electrical Engineers Accommodating 34 bowling alleys plus a restaurant, cocktail lounge, billiard room, bar, and locker rooms, this air-conditioned building was designed to bring glamour and respectability to bowling—a sport long associated in many minds with a "pool-room" atmosphere and often housed in a barnlike, industrial type of structure. The venture has been notably successful; has remained open (due to the press of business) 24 hours a day.

The main bowling space, shown above, is framed over by laminated wood bents spanning 130 ft., also visible on the exterior (see next page). The ceiling is finished with acoustical tile, while the end wall is clad in random thicknesses of insulating cork plank (2, 4, 6, and 8 in.) arranged to create an interesting vertical pattern. The white plaster sculpture mounted on this wall was designed and executed by Abbot Pattison, who also did the exterior metal sculpture by the entrance.







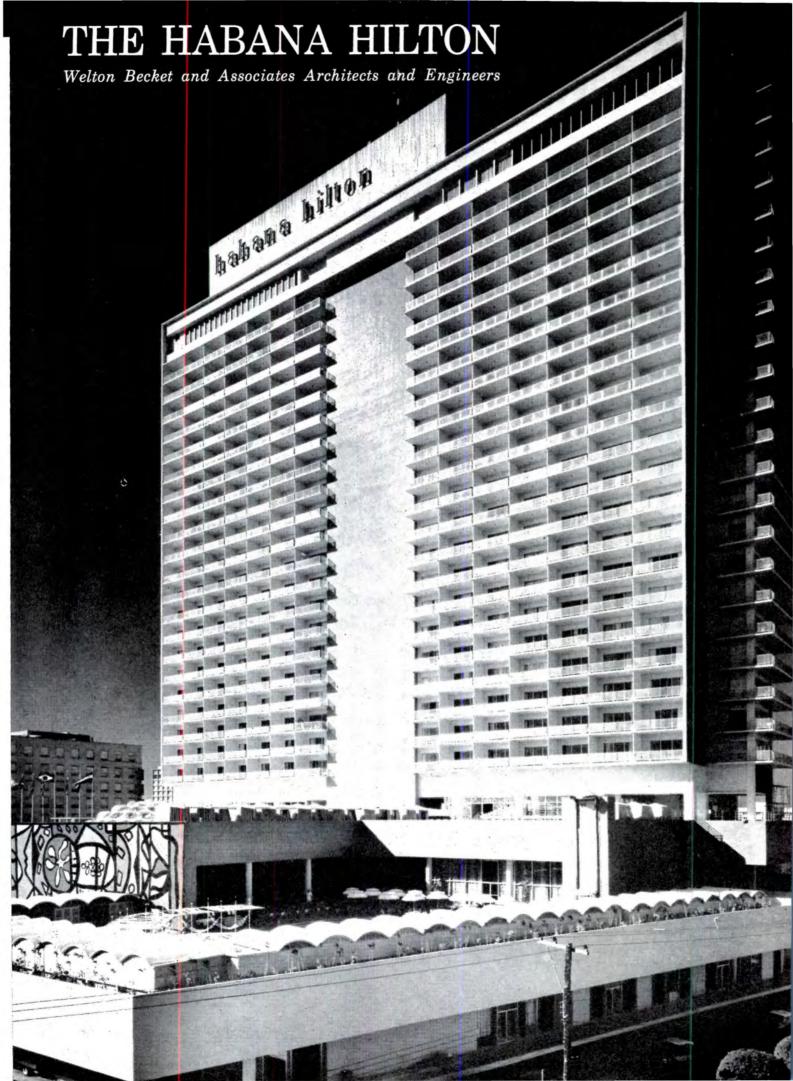


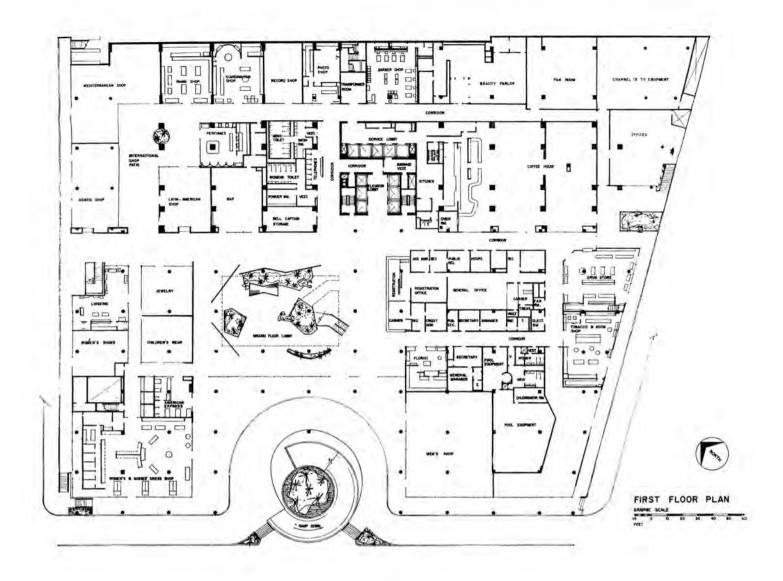


All Star Bowling Alley

The alleys, designed and installed by American Machine & Foundry, are flanked on two sides—see plan—by a gray carpeted corridor. The players area at the rear of the alleys is floored in putty gray vinyl tile, and contains seating—designed by the architects—plastic-upholstered in a variety of colors that serve to identify groupings, further marked by similar colored inserts in the surrounding railing.

Wood paneling for the bar (bottom photo) and billiard room is Philippine pal dao; while stone walls, where carried inside, are untrimmed ashlar in a range from light tan to pink, with spottings of light blue





A thirty story skyscraper of six hundred and thirty rooms, Havana's new hotel is the largest and tallest building in Latin America. Operated by Conrad Hilton, it is owned by the Cuban Catering Workers Union, who partially financed its cost of \$24,000,000 by means of their retirement fund.

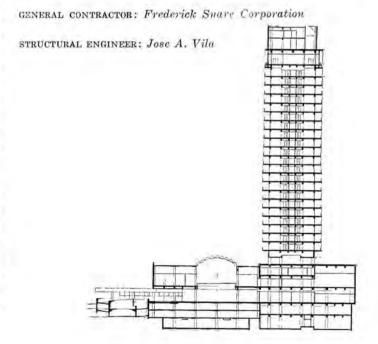
The design consists of two major elements: a structural tower so planned that each hotel room has a balcony, and a low wide base of six levels containing a garage, equipment rooms, public rooms, shops and a terrace swimming pool. The building rests on a concrete "spread footing" foundation based on grouted coral (highly porous coral, pressure-filled with concrete). The main shaft of the structure obtains its lateral strength from a design which provides a concrete stiffening wall at two-room intervals, plus a rigid central service core.

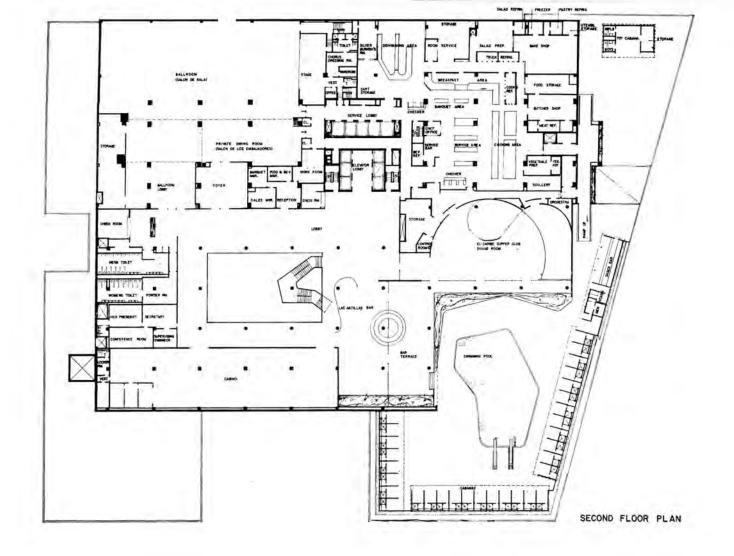
The architects have used many Cuban materials for exterior and interior finish. Generous use was made of native woods. Although the main body of the structure is finished in blue glass mosaic imported from Italy, its lower elements are of native volcanic stone. Cuban artists were invited to cover large areas of the exterior with bold mosaic murals. Paintings and sculpture by Cubans appear in the public rooms and suites.

The Habana Hilton

ARCHITECTS: Welton Becket and Associates

ASSOCIATE ARCHITECTS: Nicolas Arroyo and Gabriela Menendez







TYPICAL FLOOR PLAN



At first floor level (see plan opposite page) the hotel visitor may arrive at the main entrance and turn his car over to an attendant who drives it down an adjacent spiral ramp to the basement garage. The individual room unit (left) is flexibly arranged so that it can be a sitting room by day and a bedroom by night. Intercommunicating doors offer a parlor and bedroom suite combination. Dressing area is well planned

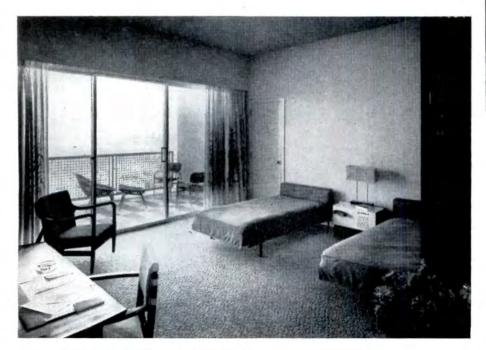




The Antillas Bar on the upper lobby floor is dominated by a ten-panel ceramic tile mural by Rene Portocarrero. Each panel in the mural represents a legend or myth of the Carribean area. Bar and table tops are faced with orange and yellow Venetian glass mosaic. The bar is circular and extends beyond the glass wall to an open terrace overlooking the pool. In the main lobby (right) are lush tropical plants

The Habana Hilton

Sliding screen which separates dressing area from bedroom can be seen on the right in the photograph above. It is of stained mahogany and particle board. Balcony floors are of terrazzo. Railings and sliding windows are of anodized satin aluminum





Lionel Freedman

House in Maryland has living room pool

Residence for Mr. and Mrs. Edward M. Passano Easton, Maryland

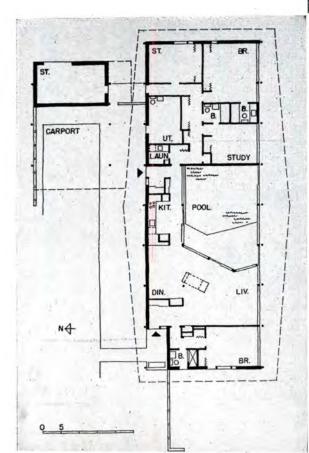
Wilson and Christie Associated Architects

Frank E. Daffin Contractor

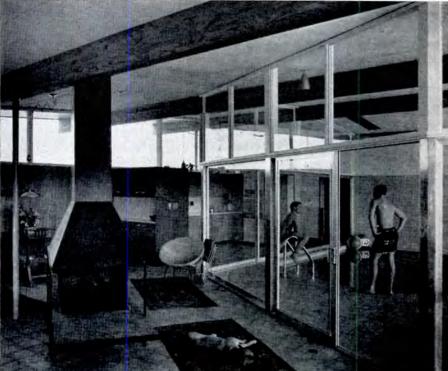
E. Bruce Beetjer Landscape Architect

S. Yeardley Smith Consulting Engineer

Wm. H. Thompson Consulting Engineer





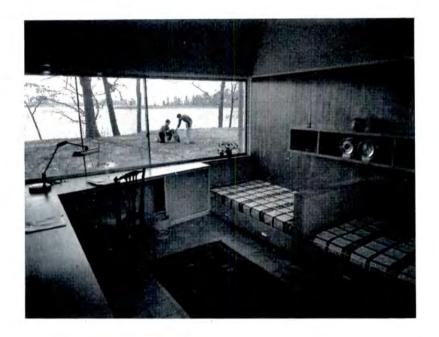


A swimming pool in the living room was the one all-important owner's requirement around which this weekend and vacation house was planned. The pool, roughly 21 by 21 feet in size, with a maximum depth of 7 feet at the center, was intended to be—and obviously is—the focal point for family activity even though the house occupies a water-front site: in Maryland outdoor swimming is out of the question through the winter months, and during the summer the river on which this home fronts is besieged by nettles which plague the swimmers.

The pool has three walls of glass and aluminum sliding doors, and one wall of concrete masonry units faced with glazed plastic tile. Pool ceiling is cork acoustical tile cemented to cement asbestos board; plastic sheeting on under side of joists provides vapor seal. Water comes from 600-ft deep well, is circulated through diatomaceous filter, heated (in winter) and chlorinated. It needs no changing.

House in Maryland







Almost all furniture is built in to simplify maintenance, and flooring throughout house is tough plastic tile with glass silica sand aggregate. Roof is wood joists on exposed laminated pine beams supported by steel columns, providing continuous joist space full length of house and permitting use of strip diffusers over large glass areas. House is air conditioned (two seperate units operated from one exterior tower), and has combination floor radiant and warm air heating system; warm air system only is used until outside temperature falls below 50 F at which point radiant system, controlled by outside thermostat, automatically starts to operate

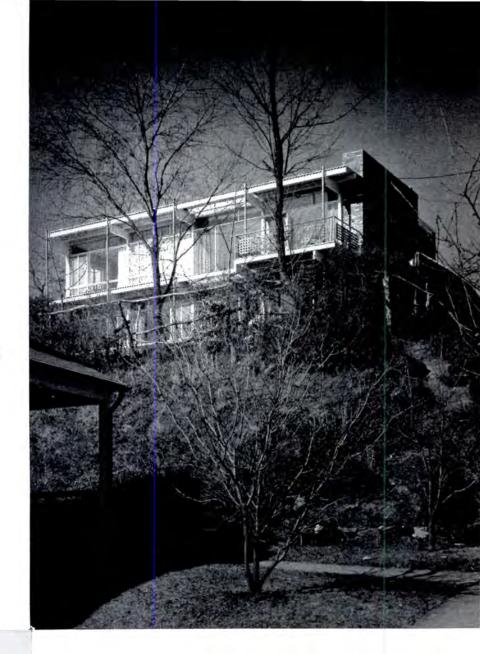
Narrow city lot yields space for outdoor living

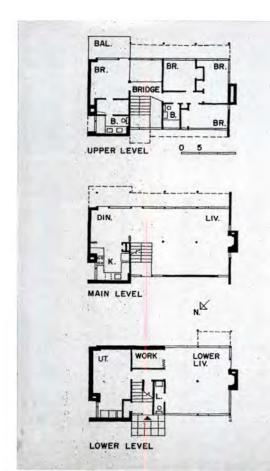
Residence for Mr. and Mrs. Thomas W. D. Wright Washington, D. C.

Leon Brown & Thomas W. D. Wright Architects

Flack and Derrenbacker General Contractor

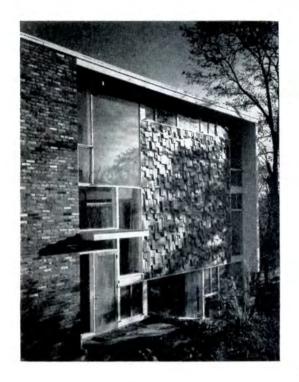
R. G. Picard Heating Engineer

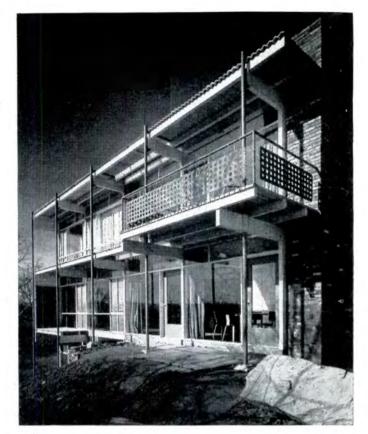




A narrow city lot with a magnificent view of the city of Washington was the main consideration in the design of this year-round residence. For maximum enjoyment of the view (the Washington monument, the Lincoln Memorial, Georgetown University, the Potomac River, the Virginia hills, etc.) the house was built at the top of the site, close to the street but 18 ft. above it, and was made three stories in height; ground coverage was thus kept to a minimum and 100 feet of the 150-ft lot remained clear for a garden, on grade with the lowest level. The main (living room) floor opens to a terrace facing the view, sheltered in part by a balcony off the master bedroom.

Construction is wood and steel pipe frame on a concrete foundation. Exterior walls are used brick and red cedar shingles. Interior walls and ceilings are sheetrock, floors are asphalt-tile. Cost was \$9.50 per square foot of living space.









Exterior of house is colorful with light blue sunshades on vermilion columns; mellow old brick (which eventually will be vine-covered) and 1¼-in.-thick cedar shakes provide interesting textural content with long glass walls. Interior stresses openness and view, particularly in living-dining area on intermediate level. Bedroom area above is divided into two wings, one for the children and the other for the parents, joined by a bridge across the two-story living rooms. Children's rooms are small, but "large enough for overnight guests in trundle beds." Noise isolation is good, the architect-owner reports, and the stairs are "healthy exercise"

THE COST PROBLEM IN SCHOOLS

The cost problem in schools is a two-edged one: cheapness versus elaborately complete facilities for our educational system. Rigid pursuit of either extreme can lead to difficulties. It is each architect's obligation to weigh the factors for a given school, and soundly balance the requirements with the funds available.

The recently released Rockefeller Report on education has a significant title, "The Pursuit of Excellence", and poses a great challenge: "An educational system grudgingly and tardily patched to meet the needs of the moment will be perpetually out of date. We must build for the future in education as daringly and aggressively as we have built other aspects of our national life in the past."



SIX KEYS TO SCHOOL ECONOMY

- 1. Eliminate the unnecessary-justify every item throughout.
- 2. Reduce quantities by imaginative site adaptation, multiple use of spaces and components.
- 3. Judge and balance selection of materials within appropriate cost range.
- 4. Design for Flexibility. Facilitate future space and functional changes and additions.
- Design for easier construction by creating dimensional order with or without modules. Reduce number of different field operations required and call for fewer different sizes and parts that require cutting and fitting.
- Exercise creative administration. Organize and frame drawings and specs to produce most intelligent and informed bids. Be alert to advantages of proper bid timing and use up-to-date knowledge of locally available materials and labor. Conduct all projects on orderly and punctual time schedules.



Ernest Braun

THE ARCHITECT'S PART IN SCHOOL

By Kenneth Reid and James D. Fessenden, Office of Ernest J. Kump

OVERALL economy, from the time the school is planned until it is finally abandoned as obsolete, is a major part of the architectural problem that must be satisfactorily solved. An inappropriately expensive public school, no matter how well arranged or beautiful it may be, is not acceptable as the correct solution today. The architect's responsibility to the public client includes the duty of providing the greatest value for the money available. In each case, the community—not the architect—should determine (according to its needs, desires, and resources) the minimum acceptable content and the maximum price.

To a unique extent, as compared to other building costs, school costs are today under the microscope for dissection, analysis, and comparison—not only among the professionals of architecture and education, but with increasing frequency in lay fora and public prints. The facts, figures, and formulas that have consequently been made available for bandying about by incompletely informed but sometimes extremely vocal individuals have produced at least as much confusion as enlightenment.

True Cost is a Multiple Factor

Strangely enough, or perhaps not so strangely, it often happens that the school which is most success-

ful in combining the virtues of "commodity, firmness, and delight" turns out to be the most truly
economical. To accept this, the "cost" must be regarded as including not merely the initial capital
outlay, but also the costs of operating, maintaining,
adapting, expanding, and insuring the plant over its
effective lifetime. The "values" received in return
must be understood to include not only educational
utility and flexibility, physical comfort and safety,
but the spiritual and emotional educational forces
exerted by an environment.

This is a broad, farsighted view, shared by a proportion of our enlightened citizenry but not always by the more typical taxpayer, whose woes are not easily assuaged by pointing out to him that the part of his school dollar used for new buildings is only a small fraction of the total educational budget.

School Cost Per Child is Stable

Actually, the school cost record over the past twenty years has been remarkable. During that time, in the face of steadily rising dollar cost of everything, the cost per child of school building has remained almost stationary. In terms of square foot costs of construction, school building prices have about doubled, while the unit prices of *all* types of buildings have almost tripled. According to John Lyon Reid of Cali-



MODULAR COORDINATION: Miramonte High School in California (left), is the first consructed example of the use of Ernest J. Kump's Basic Space Module. This is based on the economic advantage of repetitive components: whole buildings of identical structural, mechanical, and electrical design are repeated many times in a large school

MODERN BUILDING METHODS: prefabricated concrete columns and joists used in all two-story portions of this large high school in Allen Park, Michigan, speeded construction and eliminated much expensive formwork. Eberle M. Smith Associates, Inc., Architects

ECONOMY



Lens-Art

fornia, elementry schools erected in the twenties and now being torn down because of obsolescence, originally cost about five dollars a square foot and contained from 120 to 140 square feet per pupil. Their replacements today in California afford better and safer education facilities at 55 square feet per pupil and are costing on the average around \$12.50 a square foot. Thus, the building expenditure per child has remained between six and seven hundred dollars—and the power of the individual dollar has shrunk.

Says John Reid, "If we were to build today a 1930 school, and assumed school construction costs had risen the same as average building costs, we would now be spending \$2050 to house one school child. But instead, while building better school plants to house a more expanded scholastic program, we are spending only a third this amount." In this light, the school building today is a bargain!

Research and Good Management Are Vital

Of course, architects alone have not been responsible for all the improvements and economies. But they have coordinated and effectively applied the results of the group thinking. As a profession they have pooled their experience and shared their researches for the common good. Every serious architect has approached his school building project as a challenge to develop better plant in all respects—and at a cost within the capacity of the community. But he must be constantly on the watch for new ways to apply the principles of true economy.

Biggest economies always come from basic principles adopted by the architect, tested and confirmed by his experience, and consistently applied in *all* phases of his work, including the management of his own office and adminstration of each job. If it is his nature to be orderly and to follow well-organized procedures with each step supporting the next, he is most likely to produce greatest value for money.

Elimination of Frills is The First Saving

The revolution in school design relative to reducing costs really began in the middle or late thirties, with the reduction and elimination of the expensive and unfunctional "architectural embellishments" that used to be favored on public buildings to add to their seeming importance. The depression ended the feeling of public opulence, and it became fashionable to take a good hard look at any extraneous adornments that could be dispensed with. Then materials were studied to see whether less expensive and equally or more durable substitutes could be found to replace the costly decorative outer and inner surfaces long



NEW USE OF EXISTING MATE-RIALS: an available plastic product has been skillfully adapted to roof several playsheds between buildings in the Phantom Lake Elementry School, Bellevue, Washington. Installed cost was substantially less than usual roof. Naramore, Bain, Brady, and Johanson, Architects

Charles R. Pearson

MULTIPLE USE AND REPETITIVE PARTS: in the Parkway Junior-Senior High School, near St. Louis, Architects Hellmuth, Obata, and Kassebaum used three nearly identical classroom buildings to segregate age groups into small schools within the total school. Each unit groups classrooms around a multi-purpose area which serves as corridor, temporary gym, and special projects area

and special projects area
countenanced in many areas. These things made

Smaller, Flexible Spaces Give Better Value

great cost reductions.

Quantities were an obvious cost factor, and architects became more attentive to the matter of allocating and arranging a reduced amount of space for efficient and intensive educational use. Ceiling heights were lowered and intermittently used areas put to double or multi-use, thus saving in many ways. One-story buildings needed no stairs, saved on ceilings, permitted top-lighting and were easier to evacuate in case of fire—so came into favor.

The principle of flexibility was applied to make space changes easier and cheaper and extend the useful life of the buildings. Structural design was simplified to use materials more efficiently. Partitions were made lighter, strip-windows for extended glazing gave way to manufactured standardized wall panels, plywood and other sheet materials found many uses at greatly increased efficiency, and more and more materials and building components became available in larger units for easier handling and quicker assembly on the job.

Modular Design Offers Big Economy

The use of modular dimensioning, as a means of bringing about a more rational relationship between



manufactured products and their use in building design, has steadily increased since about 1933 and has caused product manufacturers to conform to an ever greater degree. If logic and mathematics are not enough, there now exists sufficient empirical evidence to show that its extended use promises much greater savings of time and money than any other presently known factor.

Many of the means used during the last two decades to bring about the paradoxical cost reduction for schools alluded to above have already had their maximum effect and will bring diminishing returns from now on. Buildings have been scraped clean of meaningless excrescences; areas have been reduced to near minima and volumes compressed about as far as is acceptable; structures have been simplified and lightened and made flexible almost to the limits allowed by laws and codes: new materials will continue to be devised, but it seems improbable that they will be very much less expensive than those we now have. The great hope for further general gains in economy from now on lies in the architect's use of the increasing scientific industrialization of the building process, continuing the trend.

Land Use is Part of the Problem

Above and beyond savings that have been and are being accomplished by the design of the buildings MULTIPLE USE OF MATERIAL AND EQUIPMENT ELEMENTS: frankly exposed steel columns, beams, roof deck, free-standing lockers and fixtures provide neat finish for this corridor in Lake Orion High School in Michigan. Eberle M. Smith Associates, Inc., Architects



Lens-Art

themselves, of course, lie a number of areas in which architects can save money for their school clients. Today's philosophy of school architecture fosters savings growing out of flexibility and ingenuity in adapting and using the sites. Since schools no longer attempt to be civic monuments, they can be much more freely shaped and disposed to take full advantage of topography, orientation, exposure, and natural accessibility.

This fresh attitude, made possible by changing times, results in opportunities for reduced expenditures for grading, foundations, drainage, retaining walls and similar costly items in site development. The land may be more efficiently used and less is likely to be wasted. There are often ways to use comparatively low-priced property for school sites, and thus produce a double saving; lower cost construction on lower cost land. The growing practice of depending heavily on the architect's experienced advice on the selection of the best available site is wise, since he is able to appraise not only the cost of the land but the cost of putting the school on it.

Clarity Brings Better Bids

The architect who produces clear, complete, and easily understood working drawings and specifications will, other things being equal, generally bring in better bids—more accurate and more com-



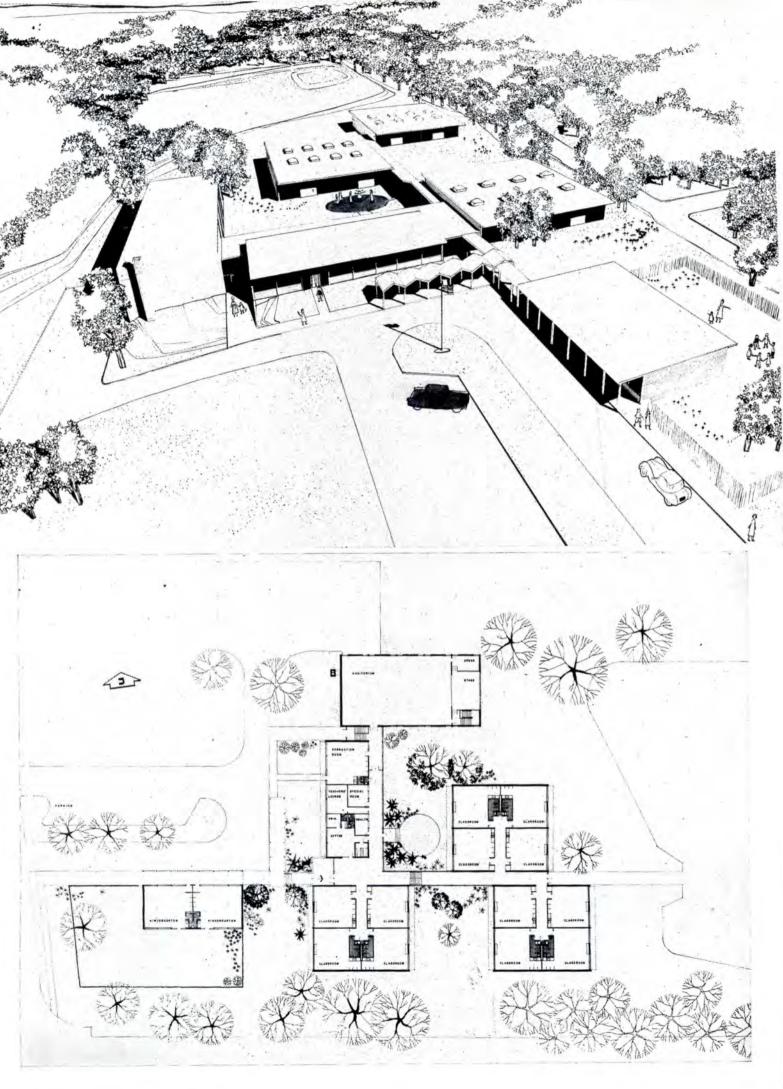
MULTIPLE USE OF STRUCTURAL MATERIAL AND FORM: in the Conard High School, West Hartford, Connecticut, reinforced concrete pan construction enabled exposed structural ceilings throughout for structural, finish, acoustic, and esthetic purposes, and provided built-in light baffles to house inexpensive fixtures. Nichols and Butterfield, Architects

petitive. Unseen and unacknowledged but important savings are made by this factor. After all, the price of the project is determined by what the successful contractor thinks it should be, and any uncertainties, omissions, or ambiguities are allowed for in his cost estimates. Continuing research on ways to refine the scope and organization of bidding documents, so that contractors may determine ever more precisely what is required and how to accomplish it, is our urgent professional duty to our school clients.

Watch Market Conditions

Another important economic opportunity for the architect to reduce the costs of schools lies in his awareness of current market conditions relating to the availability and price fluctuations of common building materials. He should adjust his design to take best advantage of the immediate situation, and by being alert to adapt his design, construction systems, and details to exploit local or regional availability of certain classes of materials and building craftsman.

Significant savings come through good timing of both bidding and construction. Scheduling the building process to dovetail with the seasonal weather cycles is a prime necessity. It is noteworthy that even a few days difference in a bid-opening date will often avoid conflict with current bidding.



The cost problem in this school was less one of stringent economy than of meeting programmatic requirements "at a cost no greater than that for a comparable multi-story single structure." The program required a "campus," separate building pattern, and more than common amenities. All this was provided within the budget through savings made by using a ten-foot module throughout, and by the repetition of identical "classroom clusters" using brick load-bearing walls as interior and exterior finish.

A Campus-Plan Elementary School

This elementary school, designed to accommodate a maximum of 450 children, from kindergarten through sixth grade, includes six separate buildings: kindergarten, administrative unit, two-story cafeteria and auditorium, and three "clusters" of four classrooms each. All are linked by glass-enclosed, heated passageways. The kindergarten, at the front, has two large rooms each with its own entrance, wardrobe, washroom, storage and work sink facilities, and bilateral natural light. A fenced play area is accessible from both.

Each of the classroom clusters has wardrobe and washroom facilities located in the center, and separate storage space and work sinks in each room. A court in the center of the plan is developed as an outdoor area for activities and play. The administration unit includes an entrance lobby for the entire school, office facilities, health room, teachers lounge, a conference and personnel interview room, and a special classroom for handicapped or retarded children.

The two-story unit houses a cafeteria on the lower level, with a combination auditorium-indoor-play-area above. Two levels were used to take advantage of a slope in the site: each has a ground-level entrance.

Construction of the buildings is of light steel frame with brick panels and steel bar joists for all but the classroom clusters. These have load-bearing brick walls, exposed as interior finish. Other interiors are principally painted masonry block. All ceilings are fireproof acoustical plaster except passageways. These are finished in perforated white metal over a layer of glass fiber insulation. Floors are asphalt tile, ceramic tile in washrooms.

Circulating hot water heat is used throughout, with a unit ventilator in each classroom for individually controlled heat and fresh air. Kindergarten floors have radiant heating. Boiler room and major storage adjoin the cafeteria.

Total construction costs for the school were \$419,800. This averages at about \$932 per pupil for the maximum enrollment.

McGrath Elementary School Brentwood, Missouri

Hellmuth, Obata & Kassabaum, Inc., Architects

Leslie J. Bergmeier, Structural Engineer

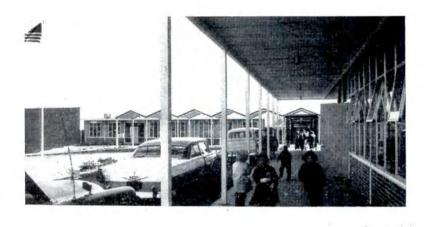
Ferris & Hamig, Mechanical Engineers

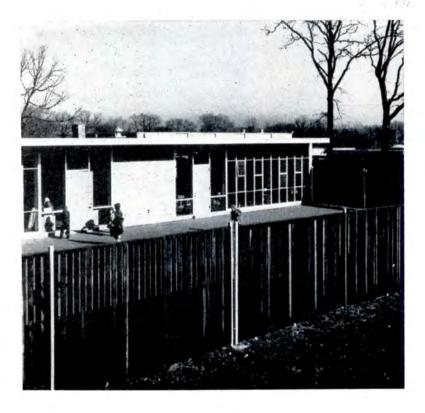
> Frank T. Hilliker, Kitchen Consultant

Layton, Layton & Rodes, Landscape Architects

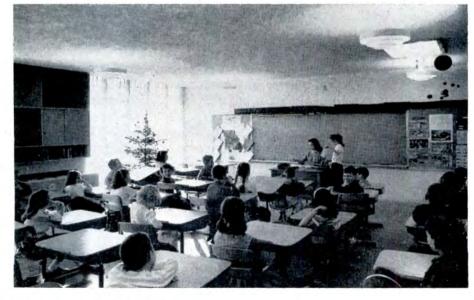
> Ray M. Dilschneider, Contractor

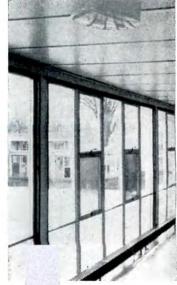
McGrath Elementary School









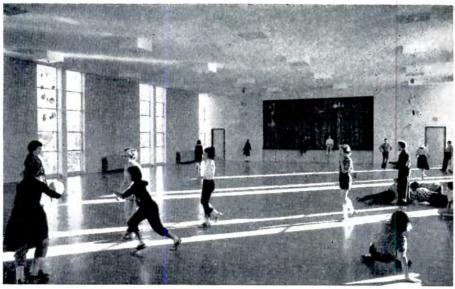


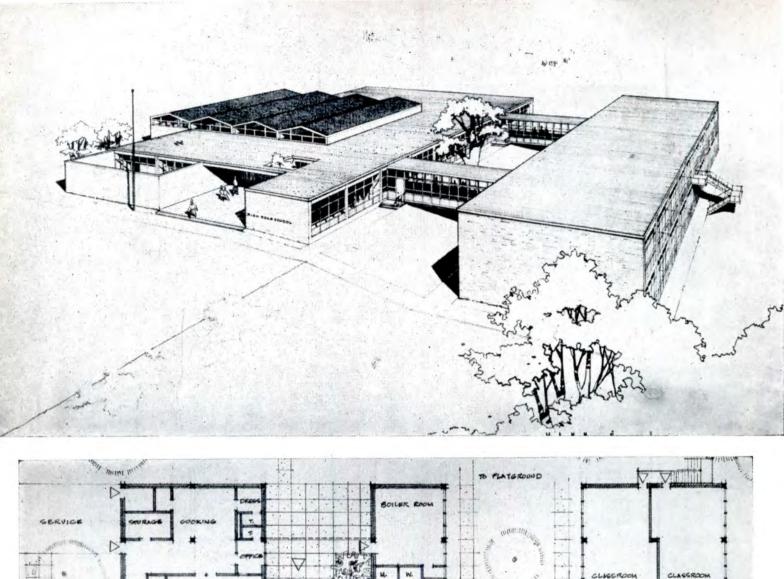


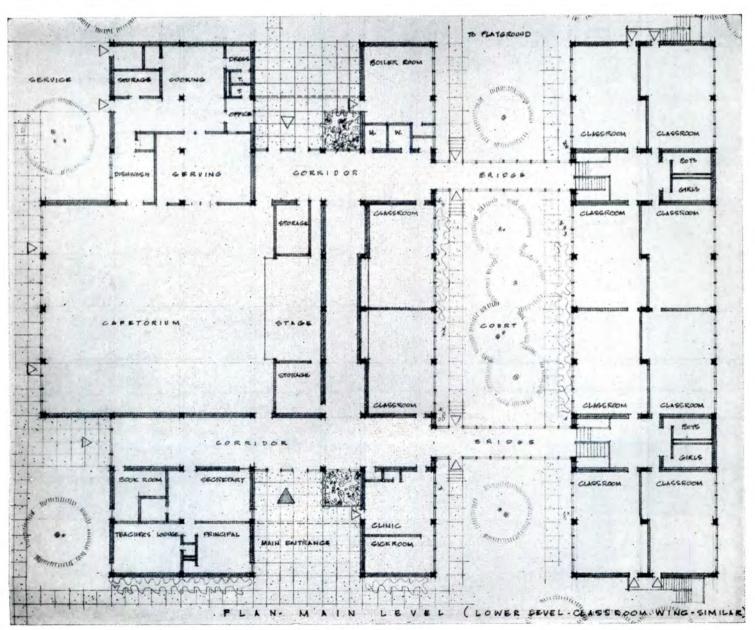
Art Fillmore

The kindergarten building (two photos above left) has access to the drive in front, a play yard in the rear. Other classrooms (below left) have plastic skylights to evenly distribute daylight. Glassed-in corridors (below center) have colored panels set in glazing. The auditorium (below right) doubles as indoor play area









Costs were held to a minimum in this school—about \$600 per pupil—by extremely careful attention to choice of materials and structural techniques. The width and length of classrooms and choice of furniture, lights and hardware were set by the schoolboard. A two-story variant on the cluster-classroom scheme (with access at mid-level) effected considerable saving, as did a regular bay system by giving better use of formwork for the concrete structure.

Elementary School Planned for Expansion

This extremely neat elementary school makes the most of its concrete structural frame, which is left exposed and filled with steel-framed window walls, or with brick panels. The entire structure, with the exception of the multi-use auditorium-cafeteria, is based on a bay system of 15 by 23 feet, established by the per-determined classroom sizes. All columns are carefully shaped to eliminate any cutting and patching of masonry that adjoins them.

The auditorium-cafeteria has a folded plate poured-concrete roof that dominates the building complex. The roof slabs are five inches thick, stressed with post-tension cables, and have a clear span of 62½ feet. It is the first time this type of construction has been used in that part of the U.S., and eliminated interior columns or excessively deep beams that would otherwise have been needed with concrete construction.

The "bridges" connecting the two parts of the school are formed of precast concrete channels, which are low cost, and dropped into place by a crane.

The underside of all roof-ceiling slabs are sprayed with an acoustical material, which also eliminated the necessity for extra finishing and painting. All corridor walls are finished with a gray manganese brick, which has an externely easy-to-keep surface. Gray quarry tile is used in kitchens and toilets. Bright colors are introduced in metal panels beneath the windows, and on doors and stairrails.

The architects estimate that about 3000 square feet of corridor space was eliminated by the variation of the cluster concept in the two-story unit. At the buildings cost of about \$10 per square foot, about \$30,000 was reportedly saved.

One of the prime reasons for the separation of the two units of the school is to facilitate expansion, and community use of the auditorium at night. A junior high school wing will be added shortly. Cafeteria chairs with broad arms double as dining "tables" and as spectator seating without shifting in the combination auditorium cafeteria.

Richland Elementary School Memphis, Tennessee

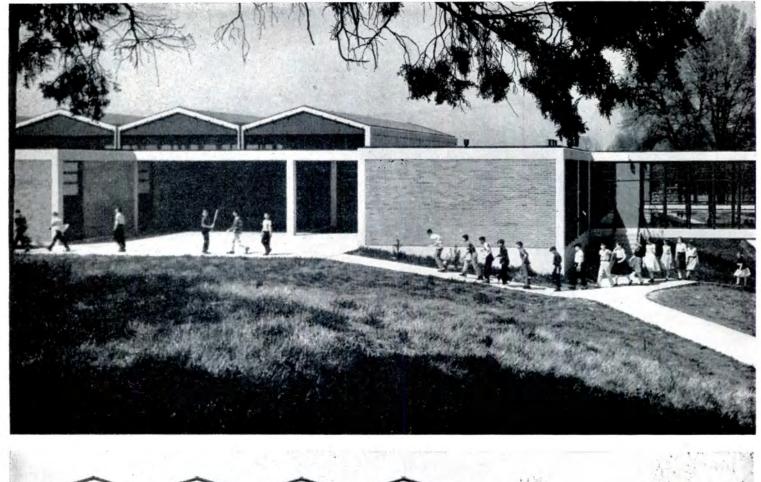
Mann & Harrover, Architects

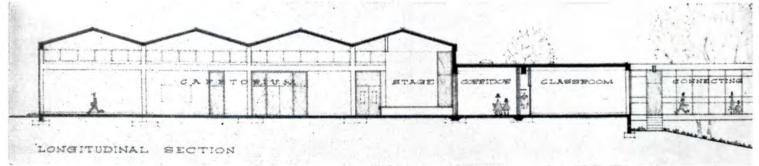
Leigh Williams, Associate Architect

John Brough, Structural Engineer

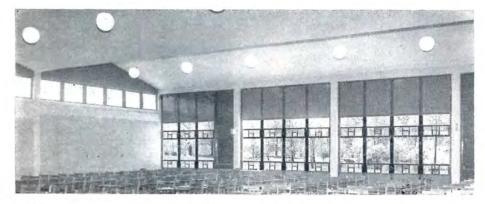
Griffith Burr, Mechanical Engineer

S. & W. Construction Co., Contractors

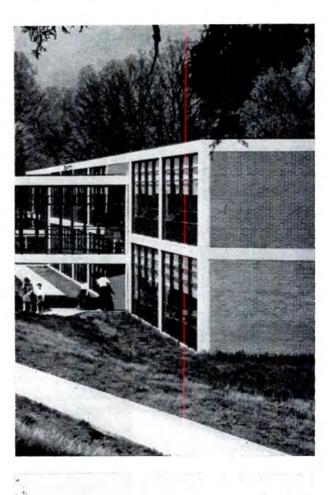


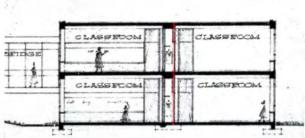


The administration and auditorium unit (at left in photo above) will form the hub of a larger eventual school complex. The three photos below show the "cafetorium" and its special access for use by the community

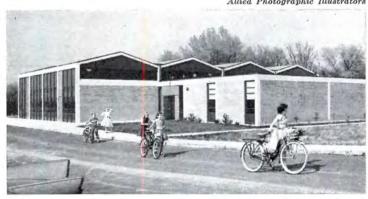


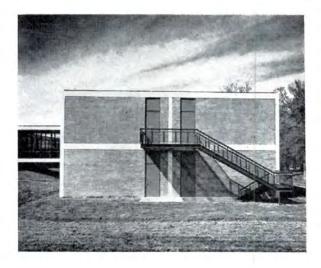






Allied Photographic Illustrators

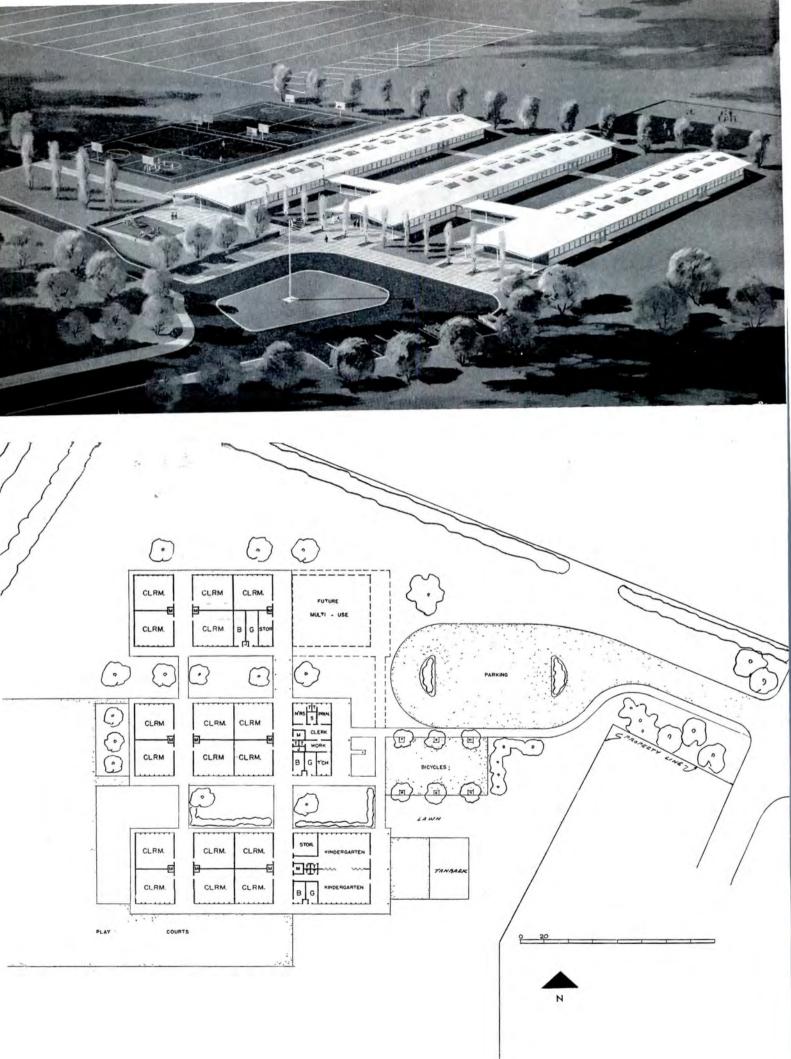








Secondary access to classrooms (top) is provided by decorative fire stairs. Storage walls with special vent shafts separate classrooms (bottom). The main building corridor (above center) has simple niches for coat racks



The principal sources of economy in this school are the exploitation of a dimensional module and repetition of large space units as well as their smaller components. Especial attention was paid to adapting the construction system and detailing to the experience and skills of available residential builders and craftsmen. All was kept simple, orderly and compact.

A Three-Unit Elementary School

When the first two wings of this K-6 school were completed in 1955, the square foot cost of \$9.23 attracted much attention as the lowest recorded in San Mateo County in recent times. The third wing, built in 1956, was equally economical. In spite of its low unit price, it is of higher than prevailing quality level for similar communities, and is marked by many refinements of design leading to easy maintenance, efficient educational use, and comfortable, attractive child environment.

The level site, near the shore of San Francisco Bay, consisted of fine clay soil—originally bay-bottom mud. Foundations were drilled bell caissons and grade-beams with reinforced concrete slab on grade. Buildings are wood frame with bearing walls designed to resist lateral shear. Outside walls are plaster with integral color on metal lath, and steel windows set in wood mullions. The roof extends plaster soffits over outside walks, and is four-ply built-up with tar and gravel finish. Walks are reinforced and tied into slab. The building is modular on a four-foot grid.

The plan is compact but not compressed, and has openness and easy circulation. Rooms are grouped back-to-back in fours to form units which are organized in continuously roofed rows with protected and top-lighted cross corridors between units for access. Covered walks connecting the wings continue the roof slopes and neatly convey roof drainage to catch basins.

Room interiors are finished with stained and varnished plywood over insulating board on wood studs. Asphalt tile floors with rubber cove base make maintenance easy. Ceilings are acoustic tile. Natural fir casework with plastic tops is grouped along wall opposite windows and may be screened with draw curtains as desired. Each classroom has individual thermostatic control of its own gas-fired warm-air furnace. The furnaces are paired in heater closets accessible only from corridors.

Costano Elementary School Ravenswood District East Palo Alto, California

Peter Kump, Architect

Eric O. Moorehead, Structural Engineer

Buonaccorsi, Murray & Lewis, Mechanical and Electrical Engineers

N. A. Lamb, Contractor

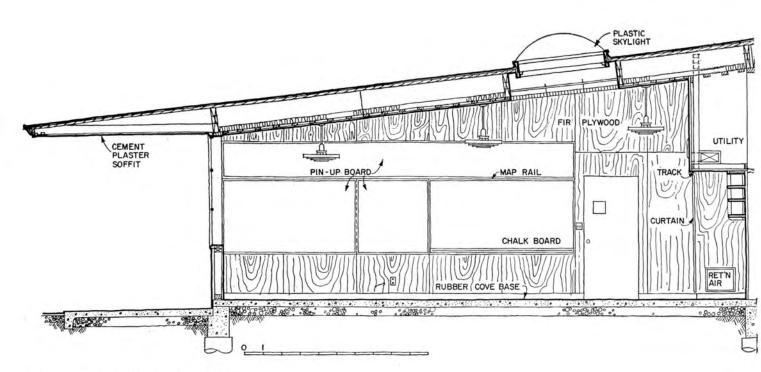
Arthur Cobbledick, Landscape Architect

Costano Elementary School

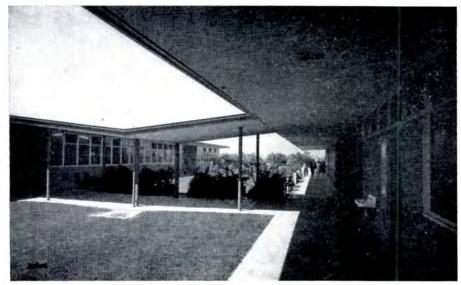


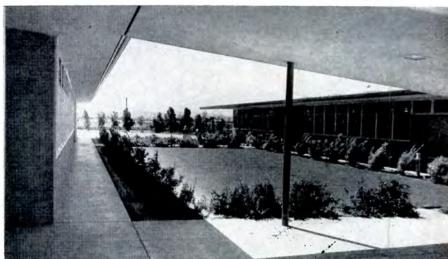




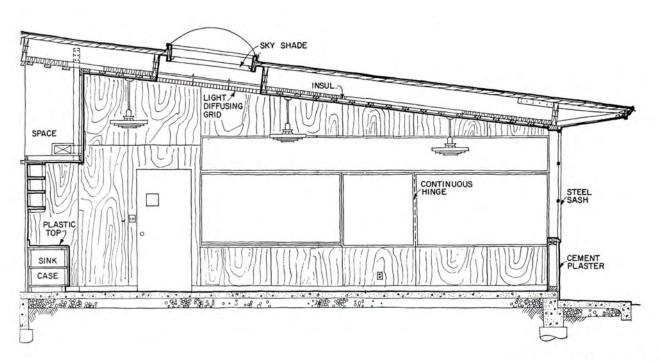




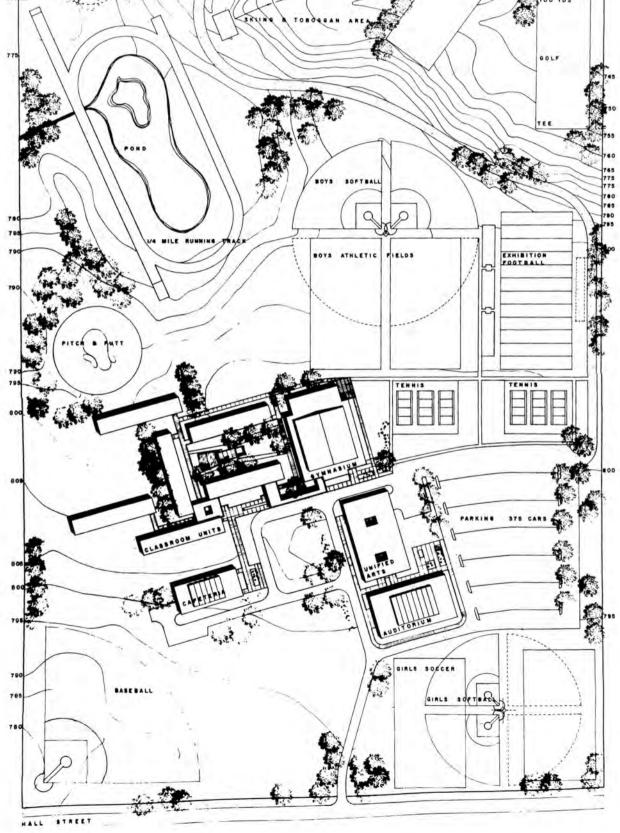




The low, rather domestic quality of the repeated building units gives a pleasant child-scale at low cost. Note plastic skylights to help balance the natural light







For economy and flexibility in this school, a plan was selected with relatively small buildings of light construction which would afford inexpensive lighting, heating and ventilating arrangements. Besides affording less costly construction, the smaller repeated units gave more competitive bidding. Modular design used throughout further reduced costs through repetitive components and assembly operations. There is a rigorous limitation of elements in the buildings, with multiple use of materials, and materials used to maximum functional or structural capacity wherever possible.

Light Construction for a Large High School

This school, now under construction, serves a recently consolidated district several miles east of Grand Rapids. The area is primarily residential and farm land of low assessed value. This limited available funds to under \$1000 per pupil for buildings, and made economy a large factor in the design. The initial stage shown is nearing completion, and is part of a master plan which visualizes an ultimate capacity of 1200 students. Present enrollment is 500 for grades 7 through 12. The area is being built up rapidly and is expected that a junior high will be added within ten years, at which time this school will become a senior high.

The first stage includes a gymnasium-cafeteria building, and three essentially identical classroom structures. These are designed with wall footings, spread foundations, and slab on grade. Structural tees, set 48 inches on center, double as columns and mullions, and support exposed 18-inch bar joists stressed to their maximum efficiency across the combined classroom-plus-corridor width of 36 feet. The roof decking gives insulation, acoustic treatment, and finished ceiling all in one material.

The structural system establishes a modular increment of 4 feet for interior partitioning or future expansion. Partitions between classrooms are non-load bearing, of light concrete block left exposed. Corridors are separated from classrooms by a five-foot-six-inch-high block wall with lockers on the outside and tackboard inside. There are no classroom doors and space above the lockers is left open.

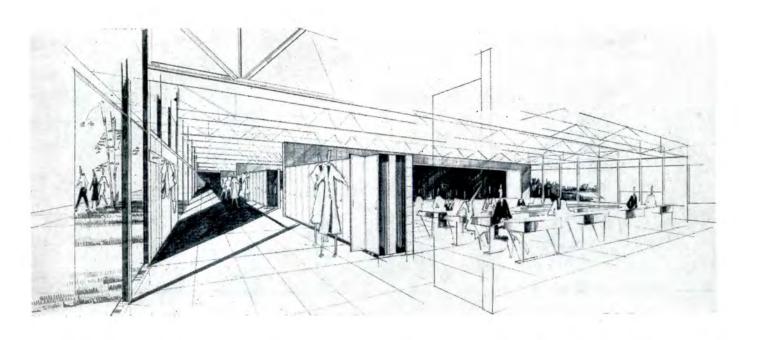
The economies achieved by careful planning and simple, effective structure are reflected in the successful bid, which came in at \$11.90 a square foot for the group of buildings totaling 37,640 square feet. The functional and environmental values are many, with attractive space relationships and durable, pleasant materials of good quality.

Forest Hills High School Kent County, Michigan

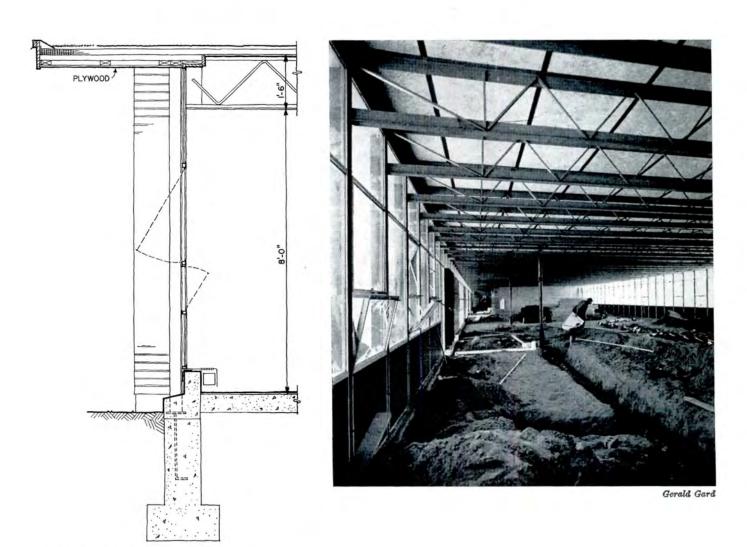
Perkins & Will, Architects and Engineers

J. & G. Daverman & Co., Associated Architects

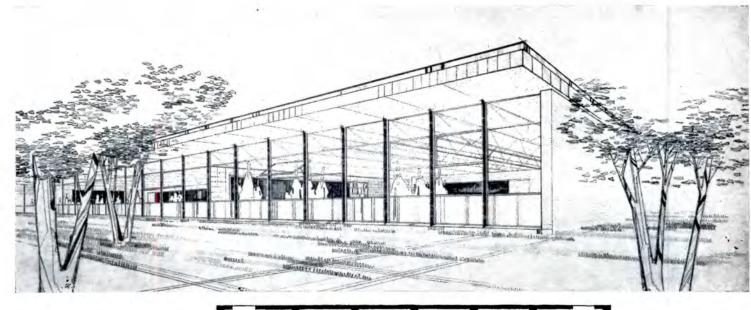
Bert Johnson Construction Co., Contractor

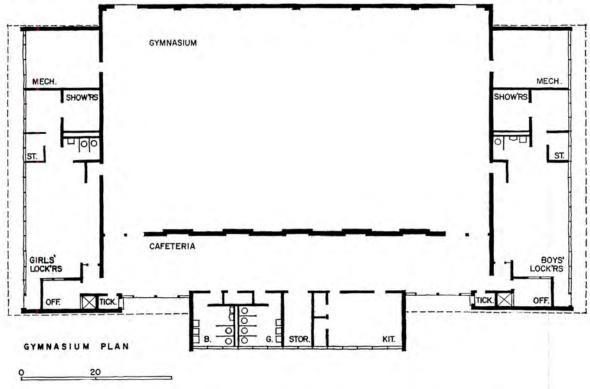


The structure of this school is simply done, frankly exposed. Above: typical classroom and corridor; a similar construction shot is shown below, along with a wall section

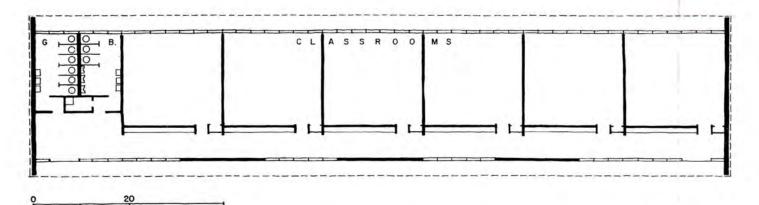


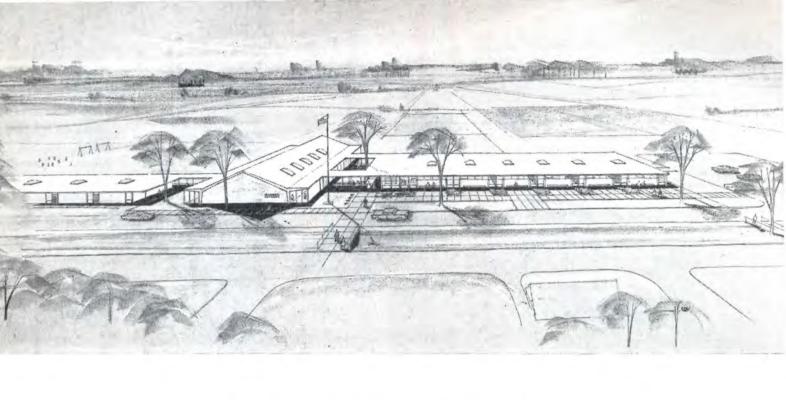
TYPICAL EXTERIOR WALL SECTION CLASSRM. UNITS

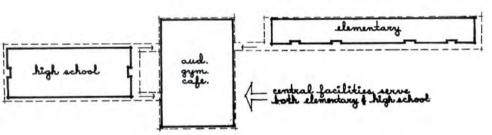




One of the identical classroom structures is shown in the drawing at top, and in the plan below. At center is the plan of the gymnasium-cafeteria



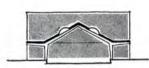




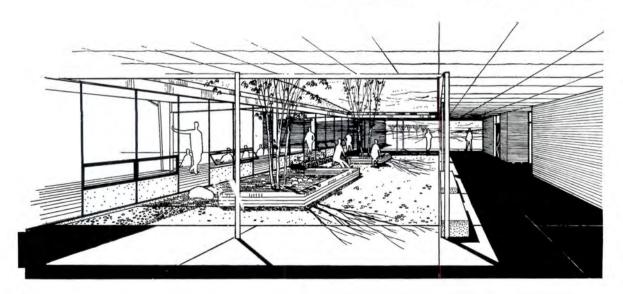
instead of starting with a boxlike gym with high walls and high volume



why not start with a low hovering xoof and dig down for required height



saves 25-30% volume over conventional high wall gym, ceiling ht. same over antix of court, eliminates down spouts & paragest walls.



This school is a solution to the special problem of a small school plant in a small town, and is meant to serve as a community center as well as school. To achieve this at low cost, the multipurpose unit was designed to serve an amazing number of functions, as can be noted on the next page. Costs were generally kept low by open planning, eliminating doors and other closures, and by designing for unusually low volume and perimeter per usable square foot.

School Center for a Small Town

Located in a small rural community about 80 miles north of Oklahoma City, this school was added recently to an existing elementary school built about two years ago by the same architects. The addition includes a single-story classroom wing with double-loaded corridor, plus a gymnasium and cafeteria building which serves several purposes for both school and community. A total building area of 25,338 square feet was bid at \$10.06 a square foot.

The classroom building contains five typical rooms 24 by 28 ft; a library which may be joined to one of these classrooms through a folding partition; special rooms for home-making, science, and typing; administration offices; boys' and girls' toilets.

Many economies stem from simple, orderly plan and structure, well-considered use of a small palette of materials, design attention to coordination of trades during building, provision for dual and multi-use of space, good choice of materials for maintenance, simple and effective detailing, elimination of classroom doors, and exercise of volume control.

The gym, for example, is noteworthy for its sunken play court, which not only reduced volume but allowed the stage area to double as cafeteria and provided an inexpensive way to get bleacher seating along the sides, with activity area for small games or additional seating segregated from the main floor. The excavation, incidentally, provided needed fill for part of the site.

Heavy mechanical facilities are grouped; pipes are run in trenches rather than in tunnels; unit type heaters with fans for forced ventilation are located in classrooms.

Slab on grade with concrete grade beams and piers form the base for a repetitive bay structural system consisting of steel beams on pipe columns, 12 feet on centers. Wood joists support a wood deck with built-up roofing. Exterior walls combine face brick with steel sash carrying glass and cement asbestos panels. Interior finish is kept simple, with plywood and exposed brick walls.

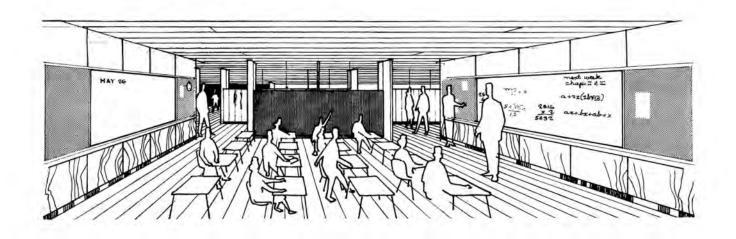
Garber High School Garber, Oklahoma

Caudill, Rowlett, Scott and Associates, Architects

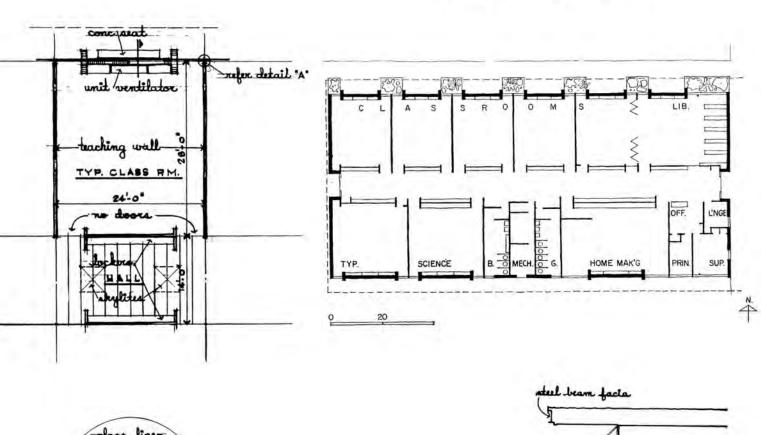
> James M. Sanis, Mechanical and Electrical Engineer

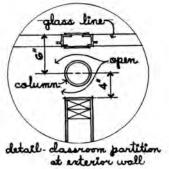
MacDonald & Floyd, Consulting Structural Engineer

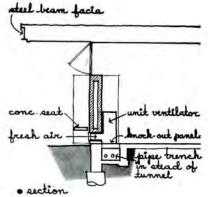
J. J. Reardon Construction Co., Contractor

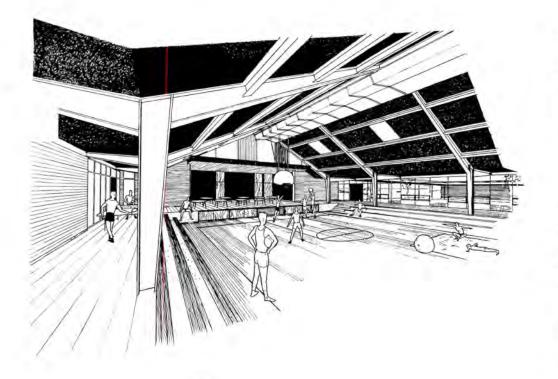


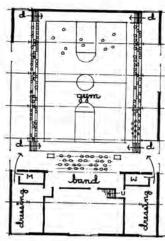
Classrooms borrow light from skylights in corridors to permit short side on outside wall for a low perimeter building



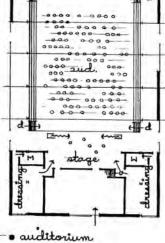






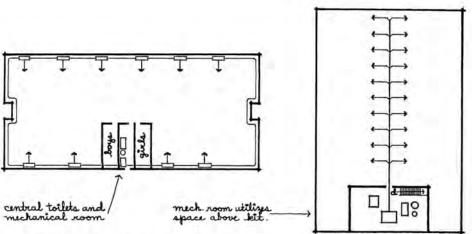


· gymnasuim



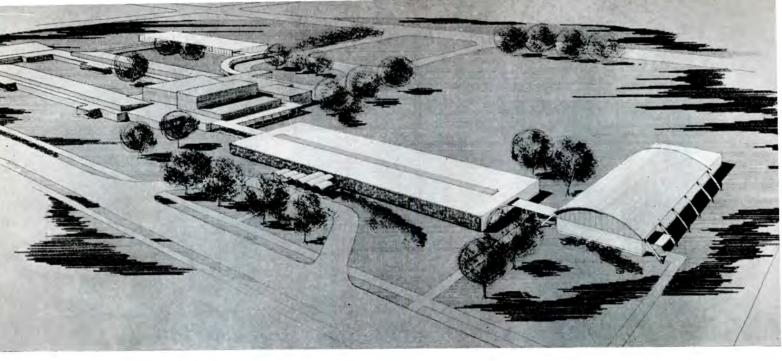
kitchen

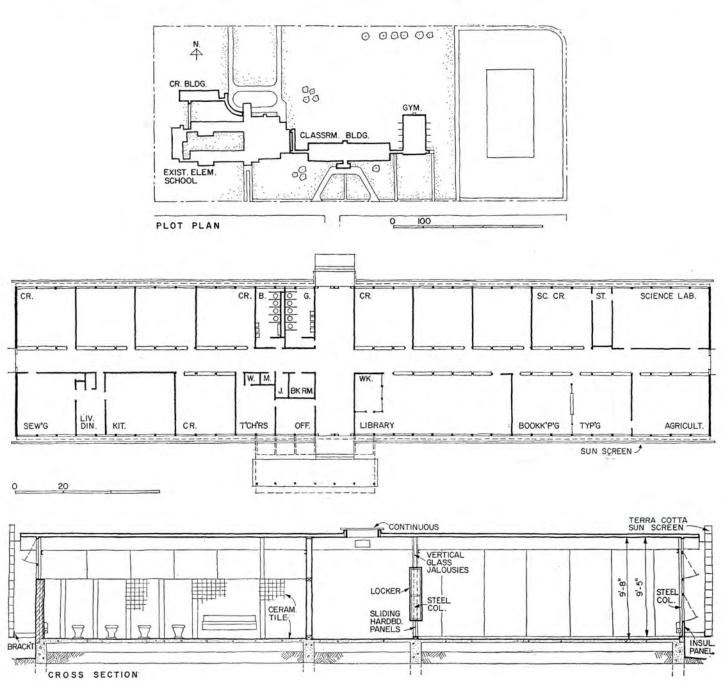
The low volume multi-purpose building includes facilities for gymnasium, auditorium and cafeteria. The architects estimate low perimeter walls save 75 per cent of masonry side walls cost over usual high wall gym. The building is shown in perspective above, and plan arrangements for the different functions at right



Utilities and plumbing are planned for greatest simplicity and direct runs.

· student center





Savings were made in this school addition by striving for great order and simplicity throughout in plan, structure, detailing and finish. Everything is modular and no waste is apparent in either space or materials. Structural materials are frankly exposed where possible and finish materials are few and well chosen for easy maintenance.

High School Added to Existing Elementary School

This handsome school adds a 33,000 square foot high school for 700 pupils to an existing elementary school. Total cost of the new buildings is \$417,545. In the classroom building, rooms are coordinated with the 4-ft module and an 8-foot structural bay system, and are typically 24 by 24 feet, with special rooms larger or smaller by modular increments to suit.

Concrete piers and grade beams support concrete rib slabs laid over fill with disposable forms left in place, with floor level to 2-feet, 4-inches above grade. The building is framed by 4-inch steel columns supporting laminated wood beams. The roof is built-up over 2-inch decking and 1-inch rigid insulation. Partitions are plywood on wood studs, and are non-bearing. End walls are concrete block faced with brick on the exterior; the long sides have continuous steel window panels with two rows of awning type projected sash.

Continuous corrugated plastic skylight over the corridor spills some light through the jalousies into the rooms. Principal dependence is placed upon artificial lighting, which is fluorescent. Heating from an existing boiler plant is distributed through convector radiators along the base of the window walls.

The gymnasium design is just as simple and direct, with concrete for foundations, laminated wood arches for the big span, and steel framed walls with brick panels and projected steel sash above the brick on three sides for ventilation. A continuous plastic skylight admits diffused light from above.

Throughout the design there is a maximum of natural cross ventilation and protection from sun and glare. To shade the glass walls from the heat and intense light, the architects provided outrigged sunscreens of terra cotta tile extending full length along both north and south sides of the 280 foot long classroom building.

High School for Jefferson Davis Parish, Welsh, Louisiana

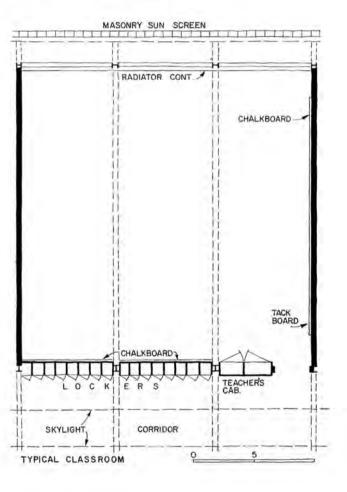
Curtis & Davis, Architects and Engineers

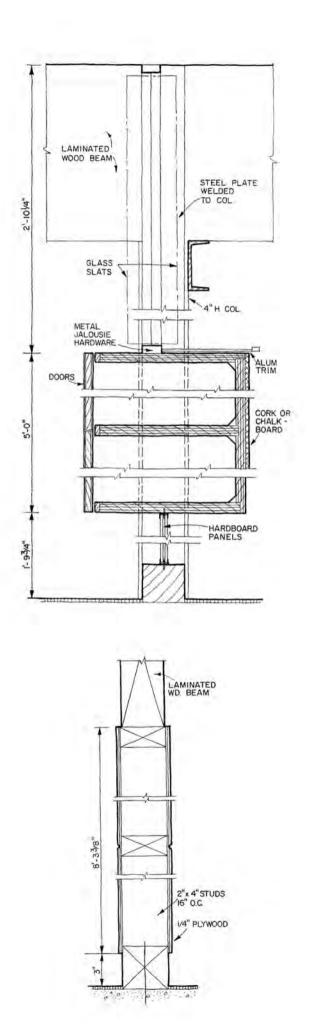
> Murphy & Perkins, Associated Architects

Ogle-Rosenbohm and Associates, Consulting Structural Engineers

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Below: plan of a typical classroom shows multiple use of structure as finish—at corridor wall and window wall. The corridor wall (right) combines space division with student lockers, teacher cabinets, two-level ventilation, and borrowed light. The detail of a typical partition (below right) shows the extreme simplicity of construction used in the building





"CUSTOM" LIGHTING WITH STANDARD EQUIPMENT

Ketchum and Sharp combine standard fixtures, non-standard ideas, to make school lighting functional—and more expressive

Perhaps because they are accustomed to thinking of "light" and "fixtures" interchangeably, architects are prone to attribute uninspired lighting to unsuitable equipment. And it is true that, if the equipment determines the design, lighting is likely to remain little more than a necessary appendage to our buildings. However, when a distinction is made between light—the design element, and lighting equipment—the design tool, good lighting can be achieved with the tools at hand.

A case in point is the consistently

effective school lighting planned by Ketchum and Sharp and illustrated on these pages. Working in a notoriously tight-budgeted area, the firm has not had recourse to extra funds for study and experimentation. Their techniques have evolved not from tests and mockups, but from a painstaking examination of each individual problem, and a willingness to apply to each new project the lessons learned from the last. The fixtures used might, with few exceptions, be found in any school anywhere; but they have been used with imagina-

tion and with a clear understanding of what they are expected to do.

Ketchum and Sharp's goal is well-defined: to provide adequate light, of course; but, more than that, to create an appropriate atmosphere for the activity to be lighted. It has been accomplished for the most part with standard fixtures—and methods no more elaborate than concealed fluorescents in a classroom, "spot" lighting in a corridor, gaily-painted fixtures in a cafeteria, or an occasional incandescent globe dropped from the high ceiling of a commons.

SPECIAL PURPOSE AREAS Cafeterias, lounges and libraries may or may not require less light than do classrooms, but they require a different kind of light if they are to provide the desired contrast to more formal teaching spaces. In many instances, although their uses are quite different, the physical enclosure of such rooms may be so similar that lighting must assume the key role in establishing the character of the space. The challenge lies in providing an appropriate quality of light, as well as an adequate quantity—without resorting to elaborate lighting schemes or expensive custom fixtures.





CAFETERIA for Middleville Road High School, Northport, N.Y., features dropped ceiling panels highlighted by a decorative random pattern of gaily colored "spots" adapted from a standard fixture. Fluorescent tubes mounted atop the panel edges supplement the downlighting by casting an even glow over the bright orange-painted cellular decking; above





At John Jay High School, Cross River, N.Y., a strip of glare-reducing glass is dropped from the overhang to control sky glare on the cafeteria window wall. The semi-recessed downlights that form the base for the interior lighting are accented by low-hanging clusters of vari-sized incandescent globes

LIBRARY at John Jay features a wall detail similar to that used in the cafeteria: a high strip of glare-reducing glass—in this case framed into the wall itself—is used to control sky glare. Where the glass intersects with the solid end wall, the tinted panel is omitted so that maximum light is thrown on bookshelves. Semi-recessed downlights illuminate the periphery of the room; in the center where natural light is less intense, the light level is raised by fluorescent fixtures ceiling-mounted above a birch baffle (not in place when photo was taken)





At the Northport school library, inverted "bay windows" form an overhang that controls sun and glare on the glass at the top of the inset wall and provides shade for the floor-to-ceiling glass side panels that serve as the primary source of natural light. Shielded fluorescent tubes over the bookcases on the inset walls direct light upward to reduce contrast between the ceiling and the top light of glass, downward to light the shelves. Spot fixtures focus on the shelf-lined solid walls between bays; recessed lights scattered over the ceiling accent the room's strong circular form





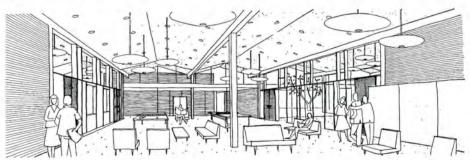
LIBRARY and COMMONS at the Taylor Avenue Junior High School in Greenlawn, N.Y., are separated only by floor-to-ceiling glass. To preserve the visual unity of the two spaces—and at the same time accent the difference in their character and functions—identical fixtures are suspended between the beams in both rooms, but those in the commons are arranged in an irregular pattern and painted bright colors



STUDENT COMMONS and lobby area at the recently completed Baldwin High School in Baldwin, N.Y., features a random arrangement of incandescent globes suspended at varying heights to add a decorative accent in the center of the large open area. Overall illumination is provided by can-type downlights mounted in regular rows on a dark-painted ceiling

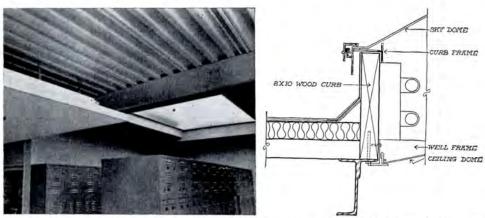


A similar scheme is used for the commons of a junior-senior high school now under construction at Smithtown, N.Y. General lighting will be from recessed fixtures calculated to give sharp definition to the strong form of a folded-plate roof. Dropped incandescent fixtures will again provide accent lighting—but in this case the globes have been flattened into luminous "flying saucers," each forty-five inches across

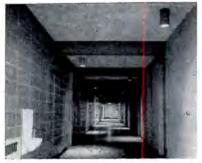


CORRIDORS

Taking advantage of the relatively low illumination level required in corridors, Ketchum and Sharp have used corridor lighting to create a visual, as well as an actual, change of pace between the working areas of the school and the spaces which connect them. Pupils move from the crisp, even brightness of the classroom to the more relaxed atmosphere of a hallway whose, on the whole, dimly-lit length is broken by pools of light at just those places where they are wont to congregate—display areas, bulletin boards, and the open spaces at the ends of the corridors.



Entrance brightness at Northport is achieved by a fluorescent tube concealed above the dropped ceiling, and a double-shelled skylight which admits natural light during the day and uses fluorescent strips mounted between the shells to maintain the same lighting pattern at night



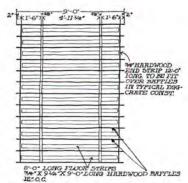
At the Greenlawn junior high school, "can" downlights placed alternately on opposite sides of the corridor brighten a long stretch of hallway with scattered pools of light



The same concept is broadened at the Meadow Drive Elementary School, Mineola, N.Y., where "pools of light" from valances over the bulletin boards do double duty as display lighting



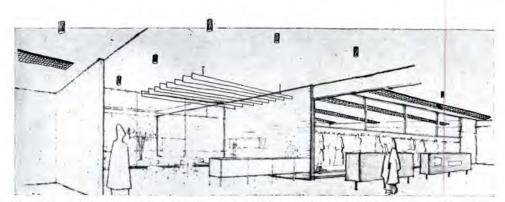
At Northport, a dropped ceiling at the end of the hall conceals mechanical equipment, and heightens the contrast between the uneven light from wood-baffled fluorescents over display boards in the corridor itself and the brightly-lit entrance at the end



PLAN LOOKING DOWN FROM CEILING



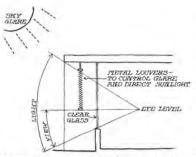
LIGHTING PANEL IN CONFERENCE AREAS



Ketchum and Sharp's design for the new Smithtown High School calls for the classroom lighting to be carried out several feet into the corridor—visually through the use of a glass panel at the top of the dividing wall, and actually through the use of the same fixture—to light a row of leaning-height lockers which the architects hope will be a focal point for between-class conversation. Low-level illumination provided by downlights in the center of the corridor will be intensified as the corridor widens into "conference areas" at several points along its length. Designed for lounging, for teacher-pupil and teacher-parent conferences, and for small meetings, these areas will be lighted by a dropped panel with fluorescent strips mounted between birch baffles

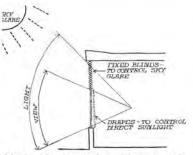
CLASSROOMS: THE WINDOW WALL

"Many devices used to increase and control natural light in the classroom have proved not only to be costly—both in initial cost and maintenance—but have often not been effective because the users did not understand their function and the proper use of artificial light with them. . . . Audio-visual shades are left closed, and the electric lights remain on even when the natural illumination is adequate. . . . Because artificial light gives more constant illumination and can be more easily and economically controlled, expensive control devices for natural light have been eliminated, the glass area reduced to a vision strip, and artificial light used almost exclusively for the working light in the classroom." KETCHUM AND SHARP



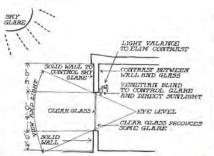


Louvered sunshade outside window wall at Darien (Conn.) Junior High School extends down far enough to control sun as well as glare, not so far that pupils' view is obstructed



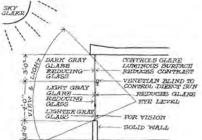


At the Meadow Drive School in Mineola, fixed interior blinds at the top of the windows control sky glare; movable drapes below can be closed to block direct sun, opened for vision





Valance at Greenlawn reduces contrast between "vision strip" and wall. Outer row of fixtures can be cut off when combined light from valance and windows makes them unnecessary





Glass at top of Smithtown window wall is dark enough to control glare, luminous enough to minimize contrast with lighter gray strip below. Lowest section is almost-clear gray glass

Ketchum and Sharp's "vision strip" approach to classroom lighting stemmed for the most part from an effort to reconcile a seemingly irreconcilable set of requirements. They began by following, as do most school planners, the unwritten (and sometimes written) law that classrooms must be illuminated by natural light -from windows, skylights, clerestories and/or a host of other devices for coaxing daylight to enter the confines of the classroom. And, reasoning that those devices which involve structural modifications are often more costly than is justified, they first approached the problem by simply running the classroom windows from sill to ceiling. This provided enough glass area for adequate natural lighting, but the light still had to be made usable by proper control of glare and sunlight.

At the Darien Junior High School, Darien, Conn., a metal louver was installed just outside the window, below a moderate overhang, to block sky glare and direct sun without obstructing a seated pupil's view. This scheme gave adequate, controlled natural light, but it failed to solve a basic problem: sunlight is cheap; the devices necessary for using it ef-

fectively are not.

The obvious answer seemed to be to retain the relatively inexpensive glass wall construction, and find a less costly way to control the sunlight it admitted. At the Meadow Drive Elementary School in Mineola, Long Island, the overhang and the exterior louver were replaced by a fixed interior blind that blocked sky glare visible through the critical area at the top of the window; and by movable drapes that could be closed to control direct sunlight, opened for an unobstructed view.

Further development in this direction halted when Ketchum and Sharp discovered that their efforts to surmount the problems posed by providing and controlling natural light were, in many cases, unnecessary. Regardless of the quantity and quality of natural light available, the artificial lights in the classroom burned all day long.

So another tack was taken. The

attempt to provide natural light via ceiling-high windows and elaborate control devices was abandoned; the window head dropped back to a standard 6 ft height; and artificial light became the working light for the classroom. The advantages gained by this facing of the facts of actual use are obvious. The added electrical cost was negligible since fixtures had to be installed for night lighting in any case. Control devices, often including the overhang, were eliminated entirely. And by the time all factors (wall construction, glazing, heating

plant, blinds) had been taken into account, the total wall cost was reduced by 10 per cent for metal frame walls and as much as 20 per cent for masonry cavity walls.

The new scheme, however, was not flawless. Sky glare had been eliminated—but it was replaced by equally annoying contrast between the window and the opaque wall above. For the Middleville Road High School in Northport, N. Y., one of the first to employ the "vision strip" idea, a switching arrangement was planned which allowed for more light at the

window wall (to reduce contrast), and at the corridor wall (the area farthest from the supplementary natural light source), than in the center of the room. This system was modified slightly at the Taylor Avenue School in Greenlawn, N. Y. where a valance light was used over the windows to reduce contrast, and circuits were so arranged that the exterior row of fixtures could be cut off when the combination of reflected light from the ceiling above the valance and natural light from the wincontinued on page 282

CLASSROOMS: THE FIXTURES

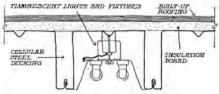
"The artificial lighting used in the classroom for general illumination must always work with the natural light. When it forms the primary source of light, the design of the fixtures and their placement both vertically and horizontally takes on a new importance . . ."



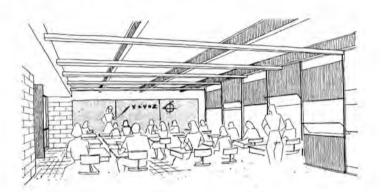
"Suspended incandescent fixtures or spots may be introduced over special work areas to add sparkle and variety to the overall lighting." Library corner of classrooms in Smithtown elementary school is accented by a mobile suspended fixture

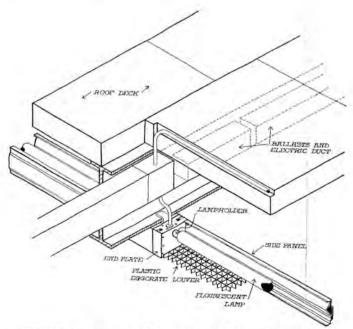


"If fixtures are pendant-mounted, contrast with the ceiling can be reduced, although there may still be light and dark streaks at the spacing commonly used." At John Jay, beamlevel fixtures cast light up on ceiling, down on work surfaces



At the new East Wallingford (Conn.) Elementary School, ceiling-fixture contrast will be eliminated by concealing the light source. Fluorescent strips will be mounted across the line of vision within the corrugations of the cellular roof deck





"Single-tube fluorescent fixtures suspended on 5½ ft centers between exposed beams will give an almost completely luminous ceiling and materially reduce both brightness contrast and consequent eye fatigue." At the new Harborfields Central High School, Greenlawn, N. Y., single-tube classroom fixtures with "egg-crate" bottoms and open tops are hung at beam level. Uplight on ceiling and closer-than-standard spacing add up to even, low-contrast illumination

CODES EASE UP ON CURTAIN WALLS

A survey of 100 major cities shows that nearly 80 per cent of them either now permit, or are considering code amendments which will allow, unrated, non-combustible curtain wall panels.

Of 100 large U. S. cities recently surveyed, half of them now permit noncombustible curtain walls without fire-resistive backup. Twelve per cent more of these cities are considering specific amendments to their building codes which will permit modern curtain wall construction. Another 17 per cent are in the process of adopting the latest edition of one of the national building codes which permit unprotected, non-combustible construction when there is adequate distance between buildings. This was revealed in a survey of 211 cities having a population over 100,000 conducted by the Committee on Building Research and Technology of American Iron and Steel Institute, and announced by William G. Kirkland, Chief-Engineering Division,

Codes of the remaining 22 per cent of these cities either require 1- to 4-hour fire resistance or masonry materials for wall construction regardless of exposure distance. These codes generally would permit either unlimited or large areas of glass installations in such walls in lieu of the fire-resistive construction.

Advocates of curtain wall (or, more aptly, panel wall) construction have long argued that building codes didn't make sense which permitted large areas of glass for windows but required other areas (considered as walls) to have 4-hour fire ratings. The new model codes of the National Board of Fire Underwriters and of the several building code officials' organizations acknowledged this

paradox, and now require only that panel walls be non-combustible, when exposure distances are sufficient.

Apparently this change plus growing curtain wall technology and consumer acceptance have given the impetus for cities to modernize their codes covering this construction.

Following are excerpts from the AISI report:

Many building codes formerly contained outmoded descriptive exterior wall regulations and restrictions based on materials and methods in vogue when the older codes were written. The conventional requirements of older "Specification Codes" dictated the kind and thickness of material to be used instead of specifying the standards of performance to be met by the walls.

A common regulation of these older codes required that exterior walls of fire resistive buildings be constructed of reinforced concrete or masonry having a 4-hour fire resistive rating. Also, no differentiation was made between load-bearing and a non-load-bearing wall. Such outmoded regulations are still in existence in some localities.

Early code writers did not consider the fact that exposure temperatures created by a fire in an adjacent building, although capable of igniting exposed combustible materials over a wide distance, represent a relatively low severity of fire exposure, i.e., only a few minutes duration (severity) of the standard ASTM fire test exposure, which is

the commonly accepted test by which fire-resistance ratings of walls are evaluated. Fire protection authorities now agree that, when adequate separation distances are provided, no prescribed minimum fire resistance is necessary for non-combustible panel walls to provide adequate fire safety.

Provisions for the use of modern panel wall constructions now appear in building code standards which receive national or wide regional recognition. It is estimated that one or another of these code standards is followed in more than 75 per cent of the jurisdictions, including cities, counties, townships and states, in the United States that have building code regulations.

These codes now differentiate between the fire resistance requirements for load-bearing exterior walls and those for non-load-bearing panel or curtain walls. The latter are now generally required to be of "noncombustible construction" and not a specific material. Also, their fire resistance requirements are varied according to the distance of separation from fire exposure. A 2-hour fire resistance is generally required in those locations where the code does not permit wall openings and a 1-hour fire resistance is required in less-exposed locations where protected wall openings are required. Where unprotected wall openings are permitted, exterior panel walls of unprotected noncombustible construction are now permitted.

Following is a list of one hundred cities having a population of 100,000 or more and the status of the requirements for exterior non-bearing panel or curtain walls in those cities. These requirements as listed are only those applying within the First Fire Districts of those cities. Generally, the requirements in the outer Fire Districts are less restrictive. Further, these requirements apply to fire resistive type of construction. References to national building code standards included in this list are:

- 1. Building Officials Conference of America-Basic Building Code
- 2. National board of Fire Underwriters-National Building Code
- 3. Southern Building Code Congress-Southern Standard Building Code
- 4. International Conference of Building Officials-Uniform Building Code

For the codes of BOCA, NBFU, and SBCC, zero fire resistance rating is required when the horizontal separation is 30 ft or more. The Uniform Building code of ICBO has this provision:

Exterior panel walls fronting on streets having a width of at least 50 feet in Fire Zone No. 1 or 30 feet in Fire Zones No. 2 and No. 3 may be of unprotected non combustible construction (Section 1803(a) for Type I (2-hour) and Section 1903(a) for the Type II (1-hour) Noncombustible Fire Resistive Constructions).

- NEW YORK, N. Y.: Exterior panel walls on buildings are required to have a fire resistance rating of 2-hours by the New York City Building Code.
- CHICAGO, ILLINOIS: Exterior panel walls are required to have a minimum of 2-hours fire resistance by the Chicago Building Code. A revision to provide for unprotected noncombustible panel walls is presently under consideration by the City of Chicago.
- 3. PHILADELPHIA, PENNA.: Exterior panel walls are required to be of masonry or other incombustible material having 4-hours fire resistance by the Philadelphia Building Code. A code revision to provide for the use of unprotected noncombustible panel walls was passed in June by

- the city council, and was signed by the mayor in the middle of July.
- 4. LOS ANGELES, CALIFORNIA: The Los Angeles Building Code provides for the use of unprotected noncombustible panel wells when a separation distance of 30 ft. or more is provided.
- DETROIT, MICHIGAN: Unprotected noncombustible panel walls are permitted in the City of Detroit when a separation distance of 30 ft. or more is provided.
- BALTIMORE, MARYLAND: Unprotected noncombustible panel walls are permitted in the City of Baltimore when a separation distance of 50 ft. or more is provided.
- 7. CLEVELAND, OHIO: Exterior panel nonbearing walls are required to have a minimum of 1-hour fire resistance by Cleveland Building Code. A code revision to provide for the use of unprotected panel walls has been approved by the Board of Standards and is being considered by the Cleveland City Council.
- 8. ST. LOUIS, MISSOURI: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the St. Louis Building Code. St. Louis is presently revising its building code and is using the Basic Building Code as a basis for this revision. Unprotected noncombustible panel walls are permitted by the latest revision of the Basic Building Code.
- 9. WASHINGTON, D. C.: Exterior panel walls are required to have a minimum of 2-hours fire resistance by the District of Columbia Building Code. The District of Columbia is presently revising its building code and provisions to permit the use of unprotected noncombustible panel walls have been proposed.
- 10. BOSTON, MASSACHUSETTS: The Boston Building Code permits the use of unprotected noncombustible panel walls in locations where openings in exterior walls are not required to be protected.
- 11. SAN FRANCISCO, CALIF.: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the San Francisco Building Code, A code revision to permit the use of unprotected noncombustible panel walls has been proposed.
- 12. PITTSBURGH, PENNA.: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the Pittsburgh Building Code. A revision to the code to permit the use of unprotected noncombustible panel walls is presently being considered by the City of Pittsburgh.
- 13. MILWAUKEE, WISCONSIN: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the Milwaukee Building Code. A revision to permit the use of unprotected noncombustible panel walls is under consideration by the City of Milwaukee.
- 14. HOUSTON, TEXAS: Exterior panel walls are required to have a minimum of 2-hours fire resistance by the Houston Building Code, Houston is reported to be revising its building code.
- 15. BUFFALO, NEW YORK: The Buffalo Code requires that all exterior walls be of masonry construction and shall have a fire resistance of not less than 4-hours except that panel walls not over 9 ft. in height may be of 4-inch sollid masonry facing with 4-inch hollow masonry backing with plaster on one face. A revision of the code to permit the use of unprotected noncombustible panel walls has been proposed.
- 16. NEW ORLEANS, LOUISIANA: The New Orleans Building Code provides for the use of un-

- protected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 17. MINNEAPOLIS, MINNESOTA: The Minneapolis Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 18. CINCINNATI, OHIO: The Cincinnati Building Code provides for the use of unprotected non-combustible panel walls when a separation distance of 30 ft. or more is provided.
- 19. SEATTLE, WASHINGTON: The Seattle Building Code provides for the use of unprotected panel walls when a separation distance of 25 ft. or more is provided.
- 20. KANSAS CITY, MISSOURI: The Kansas City Building Code is presently being revised. The 1955 Edition of the National Building Code has been used as the basis of this revision and unprotected noncombustible panel walls are permitted by this edition when a separation distance of 30 ft. or more is provided.
- 21. NEWARK, NEW JERSEY: All exterior walls are required to be of masonry construction having a fire resistance of 4-hours by the Newark Building Code. Newark is presently considering revision of its building code to provide for the use of unprotected noncombustible panel walls.
- 22. DALLAS, TEXAS: All exterior walls are required to have a fire resistance of 4-hours by the Dallas Building Code.
- 23. INDIANAPOLIS, INDIANA: The Indianapolis Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 24. DENVER, COLORADO: The Denver Building Code provides for the use of unprotected non-combustible panel walls when a separation distance of 50 ft. or more is provided.
- 25. SAN ANTONIO, TEXAS: The San Antonio Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 26. MEMPHIS, TENNESSEE: Exterior walls are required to have a 4-hour fire resistance by the Memphis Building Code. It has been reported that a variance to permit the use of unprotected noncombustible panel walls may be secured through the Advisory Board of that city.
- 27. OAKLAND, CALIFORNIA: The Oakland Building Code provides for the use of unprotected noncombustible panel walls when a separation tance of 50 ft. or more is provided.
- 28. COLUMBUS, OHIO: The Columbus Building Code provides for the use of unprotected non-combustible panel walls when a separation distance of 50 ft. or more is provided.
- 29. PORTLAND, OREGON: The Portland Building Code provides for the use of unprotected non-combustible panel walls when a separation distance of 50 ft. or more is provided.
- 30. LOUISVILLE, KENTUCKY: Louisville has adopted the 1949 Edition of the National Building Code. Revisions permitting the use of unprotected noncombustible panel walls in accordance with the provisions of the 1955 Edition of the National Code will be proposed.
- 31. SAN DIEGO, CALIFORNIA: The San Diego Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 32. ROCHESTER, NEW YORK: Exterior panel walls are required to have a minimum of 2-hours

- fire resistance by the Rochester Building Code. It is reported that Rochester is considering a revision of its entire building code.
- 33 ATLANTA, GEORGIA: Although the Atlanta Building Code is based on the 1949 Edition of the National Building Code provisions are included to provide for the use of unprotected noncombustible panel walls when a horizontal separation of 50 ft. or more is provided.
- 34. BIRMINGHAM, ALABAMA: Unprotected noncombustible panel walls are permitted in the City of Birmingham when a separation of 30 ft, or more is provided.
- 35. ST. PAUL, MINNESOTA: St. Paul has adopted the 1949 Edition of the National Building Code. Revisions permitting the use of unprotected non-combustible panel walls in accordance with the provisions of the 1955 Edition of the National Code will be proposed.
- **36. TOLEDO, OHIO:** All exterior walls are required to have a 4-hour fire resistance by the Toledo Building Code.
- 37. JERSEY CITY, NEW JERSEY: Jersey City has adopted the 1949 Edition of the National Building Code. Consideration is being given to permitting the use of unprotected noncombustible panel walls in accordance with the provisions of the 1955 Edition of the National Building Code.
- 38. FORT WORTH, TEXAS: All exterior walls are required to be of masonry construction by the present Fort Worth Building Code. A building code committee is currently revising the Fort Worth Code and is using the 1958 Edition of the Uniform Building Code as a basis for the revision. Unprotected noncombustible panel walls are permitted by the Uniform Building Code.
- 39. AKRON, OHIO: All exterior walls are required to be of masonry construction having 3-hours fire resistance by the Akron Building Code.
- 40. OMAHA, NEBRASKA: Unprotected noncombustible panel walls are permitted in the City of Omaha when a separation distance of 30 ft. or more is provided.
- 41. LONG BEACH, CALIFORNIA: The Long Beach Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 42. MIAMI, FLORIDA: The Miami Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 43. PROVIDENCE, RHODE ISLAND: Exterior panel walls are required to have a minimum of 1½ hours fire resistance by the Providence Building Code.
- 44. DAYTON, OHIO: The Dayton Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 45. OKLAHOMA CITY, OKLA.: Oklahoma City Code is based on the 1949 Edition of the National Building Code. The 1955 Edition of the National Code is presently being considered for adoption by that city. Unprotected noncombustible panel walls are permitted by this Edition of the National Building Code.
- 46. RICHMOND, VIRGINIA: Unprotected noncombustible panel walls are permitted by the City of Richmond when a separation distance of 30 ft. or more is provided.
- 47. SYRACUSE, NEW YORK: Unprotected noncombustible panel walls are permitted by the

- City of Syracuse in locations where openings in exterior walls are not required to be protected.
- 48. NORFOLK, VIRGINIA: It is reported that the use of unprotected noncombustible panel walls in accordance with the provisions of the 1957-1958 Southern Standard Building Code is under consideration by the City of Norfolk. The present Norfolk Code is based on a previous Edition of the Southern Code.
- 49. JACKSONVILLE, FLORIDA: Unprotected noncombustible panel walls are permitted in the City of Jacksonville when a separation distance of 30 ft, or more is provided.
- 50. WORCESTER, MASS.: Unprotected noncombustible panel walls are permitted in the City of Worcester in locations where openings in exterior walls are not required to be protected.
- 51. TULSA, OKLAHOMA: Exterior panel walls are required to have a minimum thickness of 6 inches by the Tulsa Building Code.
- 52. SALT LAKE CITY, UTAH: The Salt Lake City Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 53. DES MOINES, IOWA: The Des Moines Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 54. HARTFORD, CONNECTICUT: Unprotected noncombustible panel walls are permitted in the City of Hartford when a separation distance of 30 ft. or more is provided.
- 55. GRAND RAPIDS, MICHIGAN: The City of Grand Rapids is presently revising its building code and is using the Basic Building Code as a basis for this revision. Unprotected noncombustible panel walls are permitted by the latest revision of the Basic Building Code.
- 56. NASHVILLE, TENNESSEE: The Nashville Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 57. YOUNGSTOWN, OHIO: Exterior panel walls are required to have a minimum of 2-hour fire resistance by the Youngstown Building Code. It is reported that Youngstown is considering adoption of the Ohio State Building Code which permits unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 58. WICHITA, KANSAS: The Wichita Building Code permits the use of unprotected noncombustible panel walls when a separation distance of 40 ft. or more is provided.
- 59. NEW HAVEN, CONNECTICUT: The New Haven Building Code requires that exterior panel walls have a minimum of 2-hour fire resistance.
- 60. FLINT, MICHIGAN: Exterior panel walls are required to be of masonry construction having a minimum thickness of 8 inches by the Flint Building Code.
- 61. SPOKANE, WASHINGTON: The Spokane Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 62. SPRINGFIELD, MASS.: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the Springfield Building Code. Amendments to the code to provide for the use of unprotected noncombustible panel walls have been proposed.
- 63. BRIDGEPORT, CONNECTICUT: Exterior panel walls are required to be of masonry construction

- having a minimum thickness of 8 inches by the Bridgeport Building Code.
- **64. YONKERS, NEW YORK:** The use of unprotected noncombustible panel walls is permitted by the City of Yonkers.
- 65. TACOMA, WASHINGTON: The Tacoma Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 66. PATERSON, NEW JERSEY: The Paterson Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 67. SACRAMENTO, CALIF.: The Sacramento Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 68. ALBANY, NEW YORK: The use of unprotected noncombustible panel walls in fire resistive buildings is not covered specifically in the Albany Building Code. It is reported that construction that conforms with nationally recognized good practice can be submitted for approval to the Board of Building and Zoning Appeals.
- 69. CHARLOTTE, NORTH CAROLINA: The use of unprotected noncombustible panel walls is permitted by the City of Charlotte when a separation distance of 30 ft. or more is provided.
- 70. AUSTIN, TEXAS: All exterior walls are required to be of masonry construction having a 4-hour fire resistance by the Austin Building Code. Austin is presently considering adoption of the Uniform Building Code. Unprotected noncombustible panel walls are permitted by the Uniform Building Code.
- 71. CHATTANOGA, TENNESSEE: The Chattanooga Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 72. ERIE, PENNSYLVANIA: The City of Erie is presently adopting the Basic Building Code including amendments through 1957 which permits the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 73. EL PASO, TEXAS: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the El Paso Building Code.
- 74. KANSAS CITY, KANSAS: The Kansas City Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 75. MOBILE, ALABAMA: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the Mobile Building Code.
- 76. SHREVEPORT, LA.: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the Shreveport Building Code. It is reported that consideration is being given to adopting the 1957-58 Edition of the Southern Standard Building Code which permits the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 77. BATON ROUGE, LA.: The Baton Rouge Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 78. SCRANTON, PENNA.: The Scranton Building Code is based on the 1934 Edition of the National Building Code. Revisions to permit the

- use of unprotected noncombustible panel walls in accordance with the provisions of the 1955 Edition of the National Code will be proposed.
- 79. KNOXVILLE, TENNESSEE: Exterior panel walls are required to have a minimum of 1-hr. fire resistance by the Knoxville Building Code. It is reported that consideration is being given to adopting the 1957-58 Edition of the Southern Standard Building Code which permits the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 80. TAMPA, FLORIDA: The City of Tampa has adopted the 1949 Edition of the National Building Code. Adoption of a later standard providing for the use of unprotected noncombustible panel walls is being considered by Tampa.
- 81. CAMBRIDGE, MASS.: It has been reported that the City of Cambridge permits the use of unprotected noncombustible panel walls.
- 82. SAVANNAH, GEORGIA: The City of Savannah has adopted the 1949 Edition of the National Building Code. The 1955 Edition of the National Building Code which provides for the use of unprotected noncombustible panel walls is presently being considered for adoption by Savannah.
- 83. CANTON, OHIO: The Canton Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 84. SOUTH BEND, INDIANA: The City of South Bend is presently adopting the Basic Building Code including amendments through 1957 which permits the use of unprotected noncombustible panel walls when a separation distance of 30 ft, or more is provided.
- 85. BERKELEY, CALIFORNIA: The Berkeley Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft. or more is provided.
- 86. ELIZABETH, NEW JERSEY: Unprotected noncombustible panel walls are permitted in the City of Elizabeth when a separation distance of 30 ft. or more is provided.
- 87. FALL RIVER, MASS.: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the Fall River Building Code.
- 88. PEORIA, ILLINOIS: The Peoria Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 89. WILMINGTON, DELAWARE: Unprotected noncombustible panel walls are permitted in the City of Wilmington when a separation distance of 30 ft, or more is provided.
- 90. READING, PENNSYLVANIA: The City of Reading is presently adopting the Basic Building Code including amendments through 1957 which permit the use of unprotected noncombustible panel walls when a separation distance of 30 ft. or more is provided.
- 91. NEW BEDFORD, MASS.: All exterior walls are required to be of masonry construction having a 4-hour fire resistance by the New Bedford Building Code.
- 92. CORPUS CHRISTI, TEXAS: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the Corpus Christi Building Code. It is reported that consideration is being given to adopting the 1957-58 Edition of the Southern Standard Building Code which percontinued on page 278



Church San Antonio de las Huertas, Enrique de la Mora, Architect, is roofed with three groined vaults. Over the crypt are two star-type vaults of a more complicated nature, formed by combinations of hyperbolic paraboloid sections

Understanding the Hyperbolic Paraboloid: Part 2

STRESS ANALYSIS FOR ANY HYPERBOLIC PARABOLOID

By Felix Candela

Even when the shape for a thin shell can be defined simply, as with the hyperbolic paraboloid, stress analysis involves a quite tedious and boresome process of geometry, trigonometry and arithmetic. For this reason, Candela questions the wisdom of trying to pick just any free shape for a thin shell surface. Nevertheless he still is in favor of, and shows how to analyze, a graceful thin shell in which the outer edges are kept paper thin by thickening the shell at other boundaries

Whoever applies the process of analysis given in this article must confront the hardships of geometry and trigonometry that make it a lengthy and boresome task. After following through the analysis for the hyperbolic paraboloid, the reader will appreciate that it is almost impossible to choose those shapes which have no simple definition and which require the use of higher mathematics to resolve the equations for the basic stresses.

In view of this and in view of the actual existing methods of practical analysis we can employ, I am very pessimistic about the use of entirely free forms in architecture, and I believe architects should consider them a little more soberly, if only to spare themselves much distress and disappointment. Free surfaces defy simple analysis.

Some people claim that if the mathematics are too hard, we can always revert to the testing of scale models or photoelasticity. I have never resorted to such means myself, because the problem is never to discover the in-

ternal stresses in a structure (which are normally very low) but to find the forces at the edges. These determine the dimensions of the edge members. I cannot see how this can be done by means of small scale models. Moreover the material used in models is always different from the real thing, and at the same time the size and disposition of the edge members have a fundamental influence on the distribution of internal stresses; so we enter a vicious circle.

The only way is to calculate the stresses. But we must employ methods on which we can rely, not the vague hypotheses or theories about the deformability of materials. So I personally only believe in statics and geometry. And in order to disregard the deformation of a structure, we must use doubly-curved or compound surfaces.

But the hyperbolic paraboloid is the only compound surface which can be analysed by simple statics. This is its real justification and a far more valid one than the beauty of its form.

Membrane Stress Analysis 1

General equations of membrane stresses a in a surface represented by z=f(xy) in a system of birectangular axes (ω can be any angle) are obtained by expressing the equilibrium along x,y,z of the forces acting in the surface element shown in Fig. 8, neglecting the differentials of second order. [Note: The first part of the article gave Equation (1) as z=kxy where k is a constant representing warp of the surface]. These general equations are:

$$\frac{\delta v_X}{\delta x} + \frac{\delta r}{\delta y} = -X \sin \omega \qquad (2a)$$

$$\frac{\delta \tau}{\delta x} + \frac{\delta v_Y}{\delta y} = -Y \sin \omega \qquad (2b)$$

$$\kappa v_X + t v_Y + 2s\tau = (\rho X + q Y - Z) \sin \omega \qquad (2c)$$
WHERE,
$$\rho = \frac{\delta z}{\delta x}; \quad q = \frac{\delta z}{\delta y}; \quad r = \frac{\delta z}{\delta x^2}; \quad s = \frac{\delta z}{\delta x \delta y}; \quad t = \frac{\delta^2 z}{\delta y^2} \qquad (3)$$

besides, v_x , v_y and τ are projections of real stresses σ_x , σ_y and T upon plane xy (Fig. 8)

$$v_{x} = \sigma_{x} \sqrt{\frac{1+q^{2}}{1+\rho^{2}}}$$
; $v_{y} = \sigma_{\overline{y}} \sqrt{\frac{1+\rho^{2}}{1+q^{2}}}$; $\tau = T$(4)

We will use for this analysis the general formulas of membrane stresses in a surface of any shape at all which were developed by Pucher. Pucher, A. "Ueber den Spannungszustand in doppelt gekrummten Flachen". Beton und Eisen (Berlin) V. 33, no. 19, Oct. 5, 1934.—p. 298.

²It must be understood that stresses in this exposition are, strictly speaking, stresses times the shell thickness.

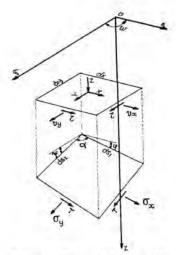


Figure 8: Forces and stress acting on a surface element

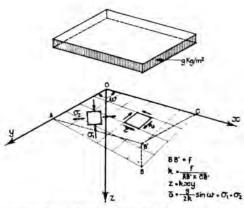


Figure 9: Uniformly distributed load on a horizontal projection

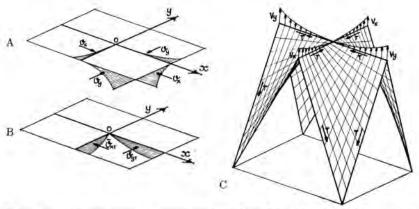


Figure 10: [a.] Basic normal stresses resulting from Eqs. (13a,13b) [b.] Stresses at the ridges after annulling them at the edges [c.] Nonequilibrated vertical forces at the ridges resulting from the stresses at both sides

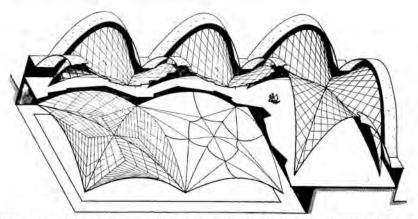


Figure 11: "Exploded" perspective of the Church San Antonio de las Huertas, Mexico

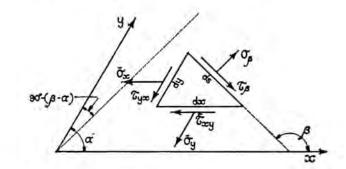


Figure 12

and X, Y and Z are the coordinate components of external forces, measured by unit of surface projection on plane xy. All forces, stresses and directions of coordinate axes represented in Fig. 8 are taken as positive.

Applications of General Expressions

Since the hyperbolic paraboloid is represented by z = kxy, (Eq. 1),

p=ky; q=kx;
$$n$$
=t=0; S=k......(5)
and equation (2c) becomes
 $2k\tau = (kyX + kxY - Z) \sin \omega$
or: $\tau = (\frac{y}{2}X + \frac{z}{2}Y - \frac{1}{2k}Z) \sin \omega$(6)

Differentiating Eq. (6) with respect to x and y, substituting both differentials in Eqs. (2a) and (2b), and integrating the resulting expressions, the general solutions for v_x and v_y are obtained, containing, respectively, arbitrary functions of integration of either y or x which must be determined by the boundary conditions.

We can exemplify the method by applying it to the most usual type of loading, that is the dead load of the shell itself.

I am afraid the scope of this paper does not allow me to include the full derivation or justification of the formulas that appear here. (A book on this work is now being prepared by Colin Faber, in which the development of the formulas and the trigonometrical considerations explaining them will be set out in full.)

But I believe it is absolutely essential that these general formulas be made available immediately; because the early French papers on the hyberbolic paraboloid and even the book of Issenmann Pilarski give the impression that one of the simplified formulas, pertaining only to a very special type of loading and surface disposition, can be employed to calculate any paraboloid, no matter what the loading. Nothing has been done to correct this utterly mistaken impression, for all the semi-popular papers persist in it indeed.

Dangerous errors can result from this situation, as inexperienced designers try to calculate stresses indiscriminately, without sound judgment of the scope to which the simplified expressions can be applied and with practically nobody to consult.

Uniformly Distributed Surface Load (Dead Load)

With the z axis in "selected" position (non-vertical)

Let g = load per unit surface with

³ Issenmann Pilarski, L. "Calcul des voiles minces en beton armé." Ed. Dunod, Paris, 1935.

three components X_1 , Y_1 , Z_1 along the axes x, y, z of the paraboloid. These three components of the load are tied to the three forces X, Y, Z (per unit of projection xy) that appear in Eqs. (2a), (2b) and (2c) by means of the relation between the surface element and the area of its projection on plane xy (Fig. 8).

$$Xdx dy \sin \omega = X_{i} ds_{i} ds_{i} \sin \omega = (7)$$
 Angle \times is given by the expression
$$\cos x = \frac{pq + \cos \omega}{\sqrt{(1+p^2)(1+q^2)}} \qquad (8)$$
 or:
$$\sin x \cdot \sqrt{1 + p^2(1+q^2)} \qquad (1+p^2)(1+q^2)$$
 in the first of the first

To obtain v_x, the differential of Eq. (12c) with respect to y is substituted in Eq. (12a) and the resulting expression is integrated with respect to x, giving

Eqs. (12c), (13a) and (13b) give the basic values of the stresses at any point of the surface. It can be seen that these direct integrations of the system of partial differential equations (2a, 2b, 2c) have been made possible by the fact that the equation of the paraboloid is extremely simple. If we try this method with any other equation of second degree, representing any other surface, the system is not directly integrable.

Simplifications of Eqs. (12c), (13a) and (13b) for other dispositions of the axes with respect to the vertical are easily obtained by annulling the corresponding values in the general expressions.

If, for instance, the paraboloid is equilateral $\omega = 90^{\circ}$, sin $\omega = 1$, cos $\omega = 0$ and a substantial reduction of the length of the formulas is obtained.

The most common simplifications

Uniformly Distributed Surface Load, With the z axis vertical $X_1 = 0$; $Y_1 = 0$; $Z_1 = g$ & EQUATIONS (12c), (13a), (13b) ARE SHORTENED TO: $T = -\frac{g}{2K} \sqrt{g}$ (14a)

$$V_{X} = -\frac{2}{2k} \sqrt{\phi} \cos \omega + \frac{2}{2} x \sin^{2} \omega \log_{e} (Kx - ky \cos \omega + \sqrt{\phi}) + f_{1}(y) \qquad (14.6)$$

$$V_{Y} = \frac{9}{2k} \sqrt{\phi} \cos \omega + \frac{9}{2} y \sin^{2} \omega \log_{e} (Ky - Kx \cos \omega + \sqrt{\phi}) + f_{1}(x) \qquad (14.6)$$

Uniformly Distributed Load on Horizontal Projection

With the z axis vertical (Fig. 9)

 $f_1(y)$ and $f_2(x)$ being arbitrary functions of integration can have any value, including 0, which gives $v_x = 0$, $v_y = 0$.

This very particular case is the only one commonly known, but we must remember that it can only be applied in a very limited number of cases, where the axis is vertical and the surface is flat enough to let us consider the real load as uniformly distributed on plane xy. As soon as the rise is increased substantially, or the z axis is not vertical, more complicated formulas must be employed.

It must be noted that in all these cases the value of τ is definitely fixed by Eq. (12c), but values of v_x , v_y and σ_y , σ_x can be variable depending on the choice of values for the arbitrary functions of integration $f_1(y)$ and $f_2(x)$ that appear in Eqs. (13a) and (13b). This means that normal stresses in

an unlimited surface are statically indeterminate or hyperstatic. To freeze them we must recur to the boundary conditions. This property gives us some freedom in the choice of the boundary or support disposition.

Boundary Conditions

Paraboloid limited by straight generators (not necessarily rectangular or equilateral).

By giving convenient values to the arbitrary functions of integration $f_1(y)$ and $f_2(x)$ it is possible to leave two contiguous sides of any warped quadrangle free of normal stresses. But of course the stresses at the opposite two sides are frozen or determinate, and these edges are subjected to normal forces which must be absorbed by providing a continuous support along them. This means that in practice it suffices to find the numerical value

which must be added to the stresses along each generator (of the lattice which we may want to consider) to comply with the support conditions at a certain edge. We may, for in-

stance, cancel the normal stress component along one edge, introducing, as Δv_x or Δv_y , a set of stresses equal and opposite to those resulting at this edge

from Eq. (13a) or (13b), but this involves the introduction of the same additional stresses at the opposite edge, as if each generator were a tie or strut, and it will produce, of course, alterations in the state of stress at the interior points of the surface.

From these considerations it becomes clear that a single warped quadrangle, under this type of load, cannot be in equilibrium, except if at least two contiguous sides have edge members or support elements able to resist loads of any direction. Considerations of symmetry in associations of several warped quadrangles may lead to simplifications of the necessary support conditions, but there will always remain nonequilibrated stress components along certain edges (Fig. 10).

Since the shear stresses along the generators are frozen, the tangential forces resulting from the addition of the shear stresses along the edge must be taken by this edge working in tension or compression.

Paraboloid with "selected" curved boundaries (Fig. 11).

Normal and tangential stresses σ_{β} , τ_{β} on any section forming an angle $_{\beta}$ with the x generator passing through the point under consideration are obtained by expressing the equilibrium in σ_{β} , τ_{β} directions respectively (Fig. 12).

$$\beta = x \frac{\sin^2 8}{\sin \alpha} + 2 \tau \frac{\sin 8 \sin (8 - \alpha)}{\sin \alpha}$$

$$+ \sigma_y \frac{\sin^2 (8 - \alpha)}{\sin \alpha} \qquad (16a)$$

$$T_{\beta} = -\sigma_x \frac{\sin 8 \cos 8}{\sin \alpha} - \tau \frac{\sin (28 - \alpha)}{\sin \alpha}$$

$$- \sigma_y \frac{\sin (8 - \alpha) \cos (8 - \alpha)}{\sin \alpha} \qquad (16b)$$

Angle α formed by the two intersecting generators is obtained by Eq. (8). Since p and q represent the inclination with respect to xy plane (or trigonometrical tangents) of both generators, angle β is obtained by a similar formula in which q is substituted by the inclination or trigonometrical tangent q_{β} of the tangent to the curved boundary, and ω is substituted by the angle ω_{β} formed by the xy projections of the x generator and the tangent to the section.

$$\cos \beta \cdot \frac{pq_{\beta} + \cos u_{\beta}}{\sqrt{(1+p^2)(1+q_{\beta}^2)}}$$
.....(17)
 $continued \ on \ page \ 215$

Epoxy Toppings: New Life for Old Concrete

A pair of new topping materials, said to be among the first to employ a workable, 100 per cent solids, completely reactive epoxy system, offer an effective and economical way of guarding concrete surfaces against chemical attack and traffic wear. The two materials, a trowelling mix and a liquid spray, utilize similar epoxy resins, but differ in the types of curing agents and fillers used. Both reportedly have excellent resistance to abrasion, impact, and corrosive attack by most chemicals and acids: and because of the epoxy's exceptional adhesive qualities, cannot be separated from the concrete surface without tearing up the concrete itself.

The trowelling mix, used primarily where unusually high chemical resistance and impact protection are needed, is applied to either old or new concrete surfaces in thicknesses varying from 1/8 to 1/4 in., depending upon anticipated severity of usage. Its texture, hardness, resilience and color can also be varied to specific needs.

The liquid epoxy material, also highly resistant to chemicals, has the added advantage of curing to a skidand slip-proof "sandpaper" finish. Particularly applicable to large areas of concrete, the spray method is less costly and time-consuming than trowelling.

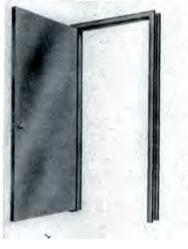
Setting time for both mixes is normally from 12 to 24 hours, but can be cut down by heat curing. Hodges Chemical Co., Redwood City, Calif.



Packaged Steel Doors

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Office Literature

more literature on page 270



PANELFAB Engineering Data for Architects and Engineers, Technical Volume Number 1 "Advance Issue" gives detailed information on the construction, properties, characteristics, and advantages of Panelfab stressed-skin structural panels. The extensive illustrative material includes charts, details, sketches, and photos of typical Panelfab installations. 104 pp. Panelfab Products, Inc., 2000 Northeast 146 St., Miami, Fla.

ACI Concrete Primer

Revised edition, like the earlier one, develops basic principles and logical procedures for proportioning concrete mixtures, and demonstrates the application of these principles to concrete structures. Added emphasis is given to air entrainment, reactive aggregates, cement types and concrete placement, mixing and testing. 72 pp. \$1.00. American Concrete Institute, P. O. Box 4754, Redford Station, Detroit 19, Mich.

Westinghouse Puts Air to Work

Booklet D-5199 covers treatment and distribution of air, with descriptions of applicable products and pertinent application data. 32 pp. Westinghouse Sturtevant Div., Dept. T-189, 200 Readville St., Hyde Park, Boston 36, Mass.*

Creative Playthings Catalog

Features playground items, classroom furnishings, toys, and similar items for pre-school, kindergarten and primary grades in schools and institutions. 80 pp. An eight page leaflet on playground designs and equipment is also available. Creative Playthings, Inc., 5 University Place, New York 3, N. Y.

Electro-Channel Steel Joists

(A.I.A. 13-G) Lists advantages of underfloor electrification with Electro-Channel steel joists, describes typical installations, and gives detailed instructions on E/C joist construction. 25 pp. Ceco Steel Products Corp., 5601 West 26th St., Chicago 50, Ill.*

*Additional product information in Sweet's Architectural File, 1958

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COOLING LOADS DUE TO SOL-AIR* TEMPERATURES: 1

From a report by Princeton University School of Architecture for Committee of Stainless Steel Producers, American Iron and Steel Institute †

A number of interrelated design factors influence the cooling costs due to heat transfer through walls of buildings having various degrees of glass area:

- 1. Building orientation
- Proportion of transparent and opaque wall surfaces
- Extent of sun control in the transparent areas of the wall, either by use of heat-resistant glass or by shading
- 4. Insulation of opaque areas

NOTE: In order to deal with cooling loads on a generalized basis, representative of a national average condition, the comparisons in the graphs are based on the "summer design data" temperatures (for peak conditions—July 21) given in the 1956 Guide of the American Society of Heating and Air Conditioning Engineers. The Guide recommends that these may safely be used for design estimating purposes throughout the United States, and that correction for latitude is necessary only when a high degree of accuracy is essential,

The specific heat gains through several types of glass, both shaded and unshaded are shown in the four charts on this page.

Building Orientation

The direction a wall faces makes a considerable difference in the heat impact it receives. To illustrate these differences, a long narrow building with bilateral glazing may be assumed, and comparison is made in Table 1, Sheet 2 of the cooling tonnage which will be required for optional eastwest or north-south orientation of its length.

These comparisons are based on average sol-air temperature, and would of course involve slightly differing values in each region. The amount of solar heat gain on the east, west and north walls differs little throughout the United States, but the impact on south-facing walls varies considerably.

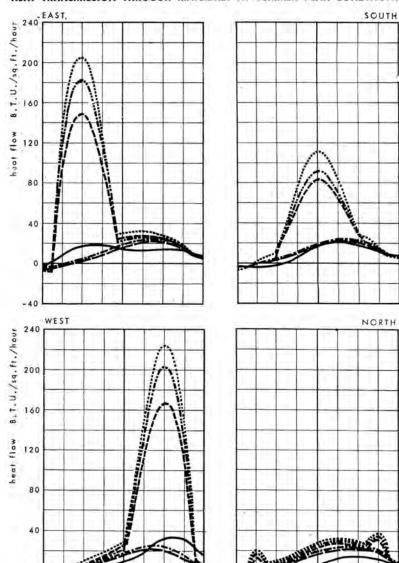
Data shown for the 100 per cent shaded condition might indicate that orientation has little significance when glass is completely shaded. Provision of total shading on east and west walls, however, is a relatively complex and expensive procedure.

Cooling Tonnage

The required cooling tonnage per square foot of wall surface, to counteract the solar heat impact, depends upon:

- a. the cooling loads imposed due to the heat conductivity characteristics of the opaque and transparent materials.
- b. the ratio of areas of these opaque and transparent materials.

HEAT TRANSMISSION THROUGH MATERIALS AT SUMMER PEAK CONDITIONS



LEGEND

single glass, unshaded
double glass, unshaded
hear absorbent glass, unshaded
opaque wall, v=0.13, unshaded
single glass, 100% shaded
double glass, 100% shaded

THERMAL BEHAVIOR OF MET-AL CURTAIN WALLS, Study No. 6 in the investigation of the use of Stainless Steel in Curtain Wall Construction, based on studies by Victor and Aladar Olygay, Research Associates and Associate Professors, Princeton University

Charts on Sheet 2 indicate the cooling tonnages required to offset the heat gains imposed by the summer sol-air design temperatures on walls facing each of the four orientations. For each wall, values are indicated for a variety of transparent areas and a range of transparency ratios.

The ratio of transparent surface area to total wall area is seen as a highly significant

factor in cooling costs, with almost a linear relationship indicated. In general, with any type of unshaded glass, or with shading of any amount up to 50 per cent, a tripling of the transparent area approximately doubles the cooling load.

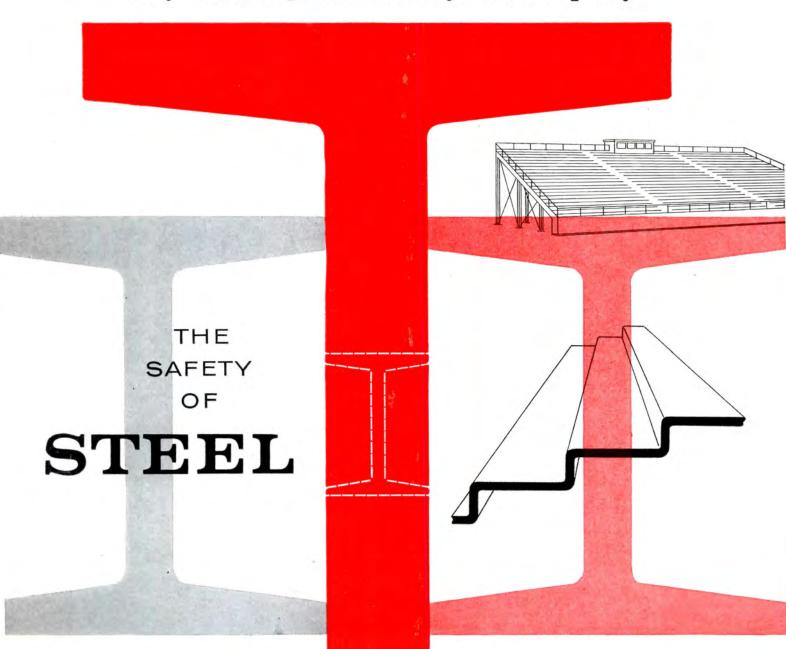
The cooling load contributed by the opaque surface is shown by the trapezoidal shaded area in each of the charts.

^{*}Sol-air temperature reduces joint effect of solar radiation and air temperature to a single value



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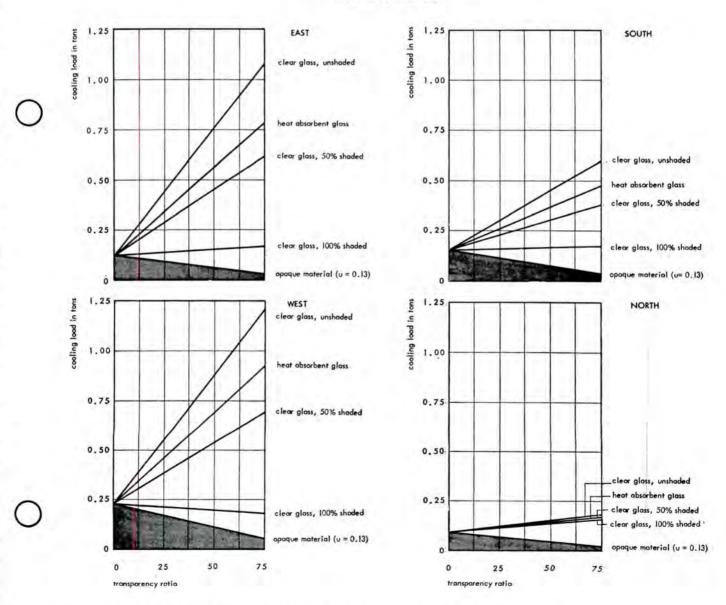
COOLING LOADS DUE TO SOL-AIR TEMPERATURES: 2

		To	ns of	f Refrigerat	ion for 10	0 sq f	t of	wall	
		h-South ong Gla				-West O ong Gla			Preference Ratio of North-South to East-West Orientation
Clear Glass Unshaded	N	.15	s	.45	w	.87	E	.76	2.7 to 1
Heat-Absorbing Glass	N	.14	s	.37	w	.67	E	.56	2.4 to 1
Clear Glass 50% Unshaded	N	.14	s	.30	w	.54	E	.45	2.3 to 1
Clear Glass 100% Unshaded	N	.13	s	.17	w	.21	E	.15	1.2 to 1

Note: Walls with glazing, 50% transparent, 50% opaque. Heat impact on solid end walls neglected

COOLING LOADS ON WALLS AT SUMMER PEAK CONDITIONS

Per 100 sq ft of surface



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- cooling Provides draftless, silent perimeter distribution Lasts a lifetime without repairs Stores solar energy

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STRESS ANALYSIS FOR ANY HYPERBOLIC PARABOLOID

continued from page 207

Since in formulas (16a) and (16b) σ_x and σ_y (obtained from Eqs. (13a) and (13b)) can have any arbitrary value, that is they are variables, it is possible in this case to annul σ_β and τ_β . When σ_β and τ_β are annulled along one edge, it is clear that this edge, being free of stresses, does not require any stiffening member. This can result in an extremely graceful border. The values of σ_x and σ_y to annul σ_β and τ_β are obtained by making Eqs. (16a) and (16b) equal to zero:

$$\overline{Z} = -\tau \frac{\sin(6-\alpha)}{\sin\beta}$$
 (18a)
 $\overline{\sigma_y} = -\tau \frac{\sin\beta}{\sin(\beta-\alpha)}$ (18b)

Once the values of $\overline{\sigma}_s$ and $\overline{\sigma}_s$ at the boundary points have been determined, their values along the generators intersecting this edge are frozen and no longer indeterminate. When these generators intersect another edge, the resultant edge stresses (σ_{β} and τ_{β} , obtained by Eqs. (16a) and (16b)) must be taken care of by means of a complete support, i.e. a support able to resist forces in any direction. Symmetrical arrangements of several paraboloids may lead to simplifications of the necessary support conditions (Fig. 11).

There are some important considerations with regard to the practical analysis. We must bear in mind, for instance, that we are using a method of finite differences in which the real length of each interval changes with its position, but the stresses acting at each point of intersection are unitary stresses or stresses by unit of length. When translating stresses from one to the other end of a generator, the difference of length of the interval on which these stresses are acting at each end must be taken into account.

On the other hand, if we use the projections of the stresses v_x , v_y and the projections of the intervals on plane xy we are dealing with a uniform grid, in which the intervals are constant. To translate the stresses we must first find v_x from σ_x at one end, translate v_x to the other end, and then find σ_x from v_x at this end.

Calculating a Groined Vault

Finally, to illustrate the practical procedure, let us consider the steps we must take to calculate the simple groined vault (formed by the intersection of two paraboloids) seen in Fig. 13.

When the plan of the structure is a square (Fig. 13), our task is much simpler and we need only investigate the triangle 1, 5, 9, 1 (that is an eighth of the structure). The basic steps are: 1. Find the basic values of τ , v_x , v_y at the points 1 to 12, from Eqs. (12c, 13a, 13b).

2. Find the values of $\overline{\sigma_s}$ and $\overline{\sigma_g}$ that annul σ_{β} and τ_{β} at the free edge 5, 9 from Eqs. (18a, 18b). To do this we must know the values of α at every point (Eq. 8) and the values of β_1 , at the edge 5, 9 from Eq. (17).

3. Find the values of the functions of integration $f(y) = \Delta \sigma_x$, $f(x) = \Delta \sigma_y$ at the points 5, 9, as differences between the basic values of σ_x and σ_y and the ones found in step 2.

4. Transform $\Delta \sigma_x$ and $\Delta \sigma_y$ in Δv_s , Δv_y using Eq. (4).

5. Add these values of Δv_y and Δv_y to the corresponding values of v_x and v_y found by step 1 at the points 9, 12, 1.
6. Transform the result of step 5 in $\overline{\sigma_x}$, $\overline{\sigma_y}$ at the points 9, 12, 1, using Eq. (4).

7. Find the values of β_2 at the points 9, 12, 1 from Eq. (17).

8. Determine σ_{β} and τ_{β} at points 9, 12, 1 from Eq. (16).

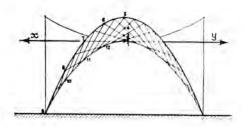
9. Multiply $\tau_{\mathcal{B}}$ in points 9, 12, 1 by the real length Δl of each corresponding interval, in order to find the tangential forces at each point.

10. Solve $\tau_{\beta}\Delta l$ in their horizontal and vertical components.

11. c_{β} is acting along the normal to the parabola 9, 12, 1 in each point, but being a membrane stress must be contained in the plane tangent to the hyperbolic paraboloid at each point. That is, it is acting along the intersection of the plane tangent to the paraboloid with the plane normal to the parabola 9, 12, 1 at each point. This means that in general its horizontal projection will not be normal to the projection of the groin 9, 12, 1.

Once this direction is found (problem of descriptive or analytical geometry) we can solve σ_{β} in its vertical and horizontal components. The latter have in their turn one component normal and another tangential to the projection of the groin. Of these the normal is equilibrated by the forces coming from the contiguous symmetrical part of the structure.

12. Add up the vertical components of τ_{β} and σ_{β} at the points 9, 12, 1 of the groin (by which all the loads are transmitted to the support) and compare



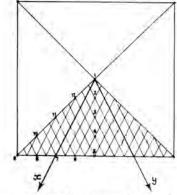


Figure 13: Calculating a groined vault

this with the total weight of the triangle 1, 5, 9, 1, as a first check that the calculations are correct.

13. Calculate the groin 9, 1, 9 with the loads transmitted to it from both sides, i.e. σ_{β} and τ_{β} . In this case the groin can be considered as a three-hinged arch, since its V section becomes almost flat at the crown, producing a practical hinge. It is usually necessary to increase the thickness of the shell at both sides of the groin a small amount, to get a stronger member. In the groined vault of Las Huertas church, the groins increase in thickness to 4 in., in a width of 2 ft on each side.

14. If the vault is very large, it may be necessary to find the values of principal stresses at several points in the shell, so as to check the concrete stresses and provide an appropriate tensile reinforcement.

Once we know the values of $\tau_1\overline{\sigma_x}$ and $\overline{\epsilon_y}$ at the selected points, the expressions for the principal stresses are:

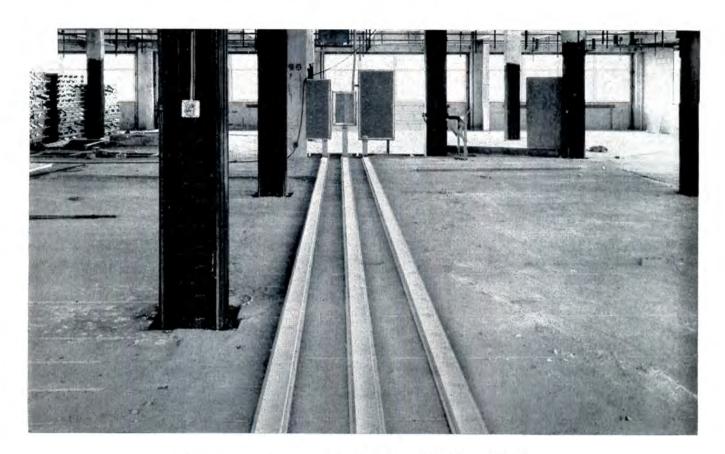
$$\sigma_{L}^{2} = \overline{\sigma_{\chi}} \frac{\sin^{2}\theta}{\sin^{2}\omega} + 2\tau \frac{\sin\theta \sin(\theta \omega)}{\sin\alpha} + \overline{\sigma_{\chi}} \frac{\sin^{2}(\theta - \omega)}{\sin\alpha} + \overline{\sigma_{\chi}} \frac{\cos^{2}(\theta - \omega)}{\sin\alpha} + 2\tau \frac{\cos\theta \cos(\theta - \omega)}{\sin\alpha} + \overline{\sigma_{\chi}} \frac{\cos^{2}(\theta - \omega)}{\sin\alpha} + 2\tau \frac{\cos\theta \cos(\theta - \omega)}{\sin\alpha}$$

$$+ \overline{\sigma_{\chi}} \frac{\cos^{2}(\theta - \omega)}{\sin\alpha} + 2\tau \frac{\cos\theta \cos(\theta - \omega)}{\sin\alpha}$$

$$+ \overline{\sigma_{\chi}} \frac{\cos^{2}(\theta - \omega)}{\sin\alpha}$$

$$+ (296)$$

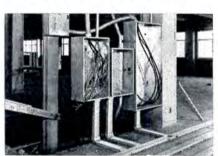
in which $\overline{\sigma_x}$ and $\overline{\sigma_x}$ are the stresses along the generators after we have frozen them by considering the boundary conditions, and angle θ is obtained by the expression:



These Header Ducts Make This Cellular Concrete Floor Electrically Alive



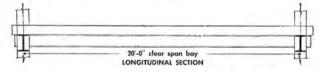
Hollow-cell Flexicore floor with 1½" concrete topping has 3-hour fire rating from national authorities. Needs no fireproofing on ceiling.

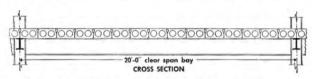


Header ducts install on precast slab floor before topping is poured, and feed into cells in floor. Unlimited electrical distribution is available.



Floor outlets, like telephone outlet above, install quickly at any point above a cell. Electrical fittings manufactured by Conduflor.





Flexicore precast floors permit 20' x 20' clear span bays as shown above. For 32-page manual on Flexicore Electrified Floors write any manufacturer listed below, the Conduflor Corporation, 3338-G Warren Rd., Cleveland, Ohio, or The Flexicore Co., Inc., Dayton 1, Ohio.

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with Conduflor® ELECTRICAL FITTINGS

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American-Marietta Company
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Price Brothers Company

Price Brothers Company
MINNESOTA, St. Paul E-4
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MISSOURI, E. St. Louis, III. St. Louis Flexicore Inc. NEW JERSEY, Camden Flexicore Div. of Camden Lime NEW YORK, Buffalo à Anchor Concrete Products, Inc. NEW YORK, New York 17 Flexicore Precast Inc. NORTH CAROLINA, Lilesville W. R. Bonsal Company, Inc. OHIO, Akron-Cleveland Lake Erie Flex., Kent, Ohio OHIO, Columbus 22 Arrowcrete Corporation OHIO, Dayton 1, PO 825 Price Brothers Campany PENNSYLVANIA, Monongahela Pittsburgh Flexicore Company RHODE ISLAND, Lincoln Durastone Flexicore Corporation TEXAS, Deer Park, LaPorte, Rd. Flexicore of Texas, Inc. WEST VIRGINIA, Wheeling American-Marietta Company WISCONSIN, Beloit, PO 809 Mid-States Concrete Products Co. CANADA—Richvale, Ontario Murray Associates, Limited CANADA—Montreal, Quebec Creaghan & Archibald Ltd. CANADA, Woodstock, Ontario Schell Industries Ltd. CANADA, Supercrete Ltd. St. Boniface, Man.; Regina, Sask, PUERTO RICO, Hato Rey Flexicore Co. of Puerto Rico.

U.S. Navy Solves Costly Maintenance Problem with Alodized Aluminum Roofs

Installs more than 600,000 lb. of ACP ALODINE treated Kaiser Aluminum corrugated roofing and flashing sheet on roofs of two big humpbacked hangars at Moffett Field



Engineering study at Lakehurst recommended industrial corrugated aluminum roofing for three reasons: it is comparatively inexpensive and provides a durable and permanent-type roofing; it requires lowest expenditure for maintenance; it can usually be installed without changes in the existing structural framework.

At Moffett Field, the Alodized Kaiser Aluminum industrial corrugated aluminum sheeting was attached to the asphalt covered wood sheathing of the hangars. It was applied by Dale Benz, Inc., under the supervision of the Navy's Bureau of Yards and Docks and Leo W. Ruth, consulting engineer and general partner of Water, Ruth and Going, with the technical assistance of Kaiser Aluminum & Chemical Corporation engineers.

The ACP ALODINE chemical conversion coating on the aluminum sheeting was recommended for the Moffett Field installation because it increased the already high corrosion resistance of the metal and because its green color materially reduced the reflectivity of the stucco embossed corrugated Alclad alloy aluminum.

Complete information about ACP ALODINE is available upon request. Write us at Ambler.

★ALODINE is a registered trademark of Amchem Products, Inc.



MORE THAN 600,000 lb. of industrial corrugated aluminum sheet was used to roof two huge hangars at Moffett Field. All were treated with ACP ALODINE.

Amchem Products, Inc. Ambler 22, Pa.

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Research House to Test Heating-Cooling Systems for Split Levels

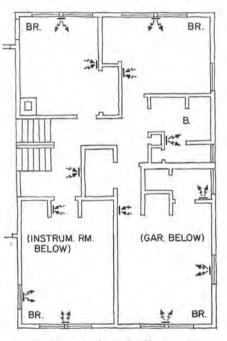
A 2000 square foot research house being built at the University of Illinois by the National Warm Air Heating and Air Conditioning Association will be used to investigate heating-cooling systems for the often difficult to heat split level home. The latest in a series that began with a ten room, warm air heated house built in 1924, Research Residence No. 4 will be a "side-to-side" split with the living-dining-kitchen area located over a crawl space, and four bedrooms over an ongrade recreation room and garage.

A perimeter system will be installed in the living room area, and provision made for heating the crawl space, so that studies can be made to determine the relative comfort conditions produced with the crawl space heated and unheated. The adequacy of, and need for, moistureproofing can also be investigated under both summer and winter conditions. On the upper level of the house, two independent systems—one

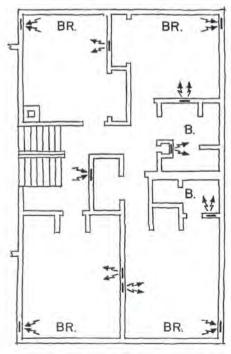
a perimeter system and the other an inside wall supply system with high sidewall and ceiling outlets-will be installed. In addition, individual return intakes in each room and a central return located in the upstairs hall will be installed for use with either supply system.

Studies will focus on the internal movement of air between levels, seasonal load variation on each level, the problem of heating rooms over a garage, and the feasibility of zone control systems for split-level homes.

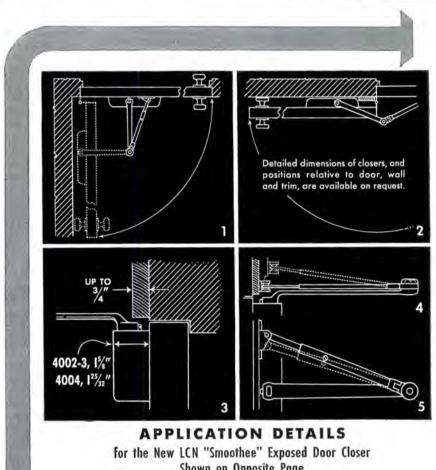
more roundup on page 223



Perimeter Supply System



Inside Wall Supply System



Shown on Opposite Page

As Demonstrated in Drawings Above:

- The LCN "Smoothee" takes less space than most doorknobs between door and wall.
- 2. Degree of door opening possible depends mostly on type of trim and size of butt used.
- 3. Arm of LCN "Smoothee" is curved to avoid conflict with almost any conventional trim.
- 4. Joints in arm and shoe make it easy to vary the height of shoe as needed for beveled trim.
- 5. Power of closer is increased or decreased by simply reversing position of shoe.

May we send a descriptive folder? Or a complete LCN Catalog, if you like? Address

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Canada: Lift Lock Hardware Industries, Ltd., Peterborough, Ontario



INLAND STEEL BUILDING CHICAGO, ILLINOIS

Application Details on Opposite Page

LCN CLOSERS, INC. PRINCETON, ILLINOIS

Skidmore, Owings & Merrill
Architects and Engineers

Long Span M-DECKS Provide

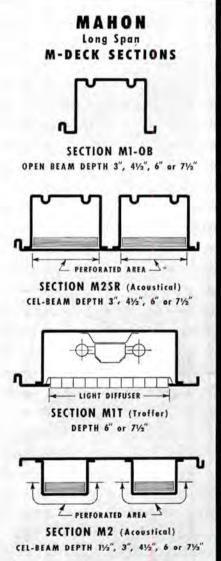


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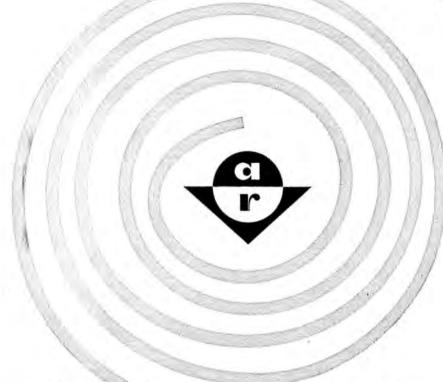
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- Rolling Steel Doors (Standard or Underwriters' Labeled)
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- Acoustical Metal Ceilings
- · Structural Steel Fabrication and Erection
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 - ☆ For INFORMATION See SWEET'S FILES
 or Write for Catalogues

At Left: Cross Section of Long Span M-Deck Combined Roof-Ceiling with Troffer Lighting. THE R. C. MAHON COMPANY • Detroit 34, Michigan
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Representatives in all Principal Cities

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The ADAMS-RITE 1848 Deadlock provides each of these important features to satisfy the needs of architect, manufacturer, contractor and final user alike.



The 1848 Sliding Wall Deadlock shown above measures only $3\%'' \times 1\%'' \times 1/2''$, has a collapsible bolt for protection of door and lock, and operates with positive "feel appeal". To compensate for possible misalignment of door and jamb, bolt projection can be adjusted a full 3%'' by simply turning a screw in the lock face. The 4025 cylinder group is a clean-lined outside pull, offering key control that can be keyed-in with most popular cylinder systems.

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In addition to being the leading manufacturer of narrow stile sliding and swinging door locking devices, ADAMS-RITE also supplies virtually all the locking devices and handles for commercial and military aircraft in the United States—an overwhelming testimonial to the superiority of ADAMS-RITE design and the lasting strength of ADAMS-RITE products.

The sliding door manufacturers listed below are representative of those in the industry who provide ADAMS-RITE extra quality locking devices as standard equipment.

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ADOR THERMODOOR

Ador Sales, Inc. 2345 W. Commonwealth Ave, Fullerton, California

CUSTOM-G

The Alumiline Corporation Pawtucket, Rhode Island

ALUMINAIRE

Aluminaire Company 1743 No. Country Club Drive Mesa, Arizona

PATI-DOR

Aluminum Metals Company 1733 Sebastopol Road Santa Rosa, California

CRESTVIEW

Aluminex, Inc. 2408 Forney Street Los Angeles 31, California

VACOL

V. E. Anderson Mfg. Co., Inc. P. O. Box 430 Bradenton, Florida

NU-VU

Bailey-Kelleher Company 500 Bellevue Detroit 7, Michigan

BELLEVUE DELUX STEEL BELLEVUE DELUX ALUMINUM, RAMONA

Bellevue Metal Products 1314 E. First Street Los Angeles 33, California

GULFSPRAY LONE STAR

Binswanger & Co. of Texas P. O. Box 3051 Houston 1, Texas

BRITT DELUXE

Britt Sliding Door Corporation 2501 Wroxton Road Houston 5, Texas

BELLA VISTA, BELLA'S CHAMP

Bur-Val Mfg. Co., Inc. 1012 No. Lake Street Burbank, California

FLEETLITE

Fleet of America, Inc. 2015 Walden Avenue Buffalo 25, New York

g s n

Glass Shower Door Co., Inc. 105 W. Wacker Drive Chicago 1, Illinois

CORONA

H & D, Inc. 6515 Highway 99 So. Everett, Washington

ARTDOR BY BASCO

Hecker Mfg. Co. 758 Clementina Street San Francisco, California

THE HELLER DOOR, EL PATIO

The Heller Company 715 Francis Street Houston, Texas

CAPISTRANO, MALIBU

Malibu Mfg. Corporation P. O. Box 413 El Monte, California



CONTINUED . . . listing of major sliding door manufacturers who provide ADAMS-RITE locking devices as standard equipment:

MARSHALL PRESTIGE

Marshall Aluminum Products 3400 Fowler Street Los Angeles, California

ARISLIDE

Michel & Pfeffer Iron Works, Inc. 212 Shaw Road South San Francisco, California

MODERNVIEW

Modern Shower Door Company 1804 E. 40th Street Cleveland 3, Ohio

NUDOR, d'COR

Nudor Mfg. Corporation 7326 Fulton Avenue North Hollywood, California

PITTCO

Pittsburgh Plate Glass Company One Gateway Center Pittsburgh 22, Pennsylvania

ROMAN, CHALLENGER

Roman Metal Products, Inc. P. O. Box 4477 Tucson, Arizona

RUSCO DELUXE, RUSCO THERMODOOR

F. C. Russell Company P. O. Box 26 Columbiana, Ohio

TODA VISTA

Samuels Glass Company 221 Newell Avenue San Antonio 6, Texas

VUE LUME, BON AIR, DE VILLE and EL DORADO

Shower Door Company of America 1 Permalume Place, N.W. Atlanta 18, Georgia

SLIDEVIEW

Slideview Door & Window Company P. O. Box 409 El Monte, California

CUSTOM, CUSTOM INSULATED

Smithcary Corporation P. O. Box 596 Magnolia, Arkansas

IMPERIAL, SENIOR & JUNIOR

Sun Valley Industries, Inc. 8354 San Fernando Road Sun Valley, California

SPECIALUME

Specialume Products, Inc. P. O. Box 126 Sarasota, Florida

ALL STEEL QUALITY, STEEL FRAME ALUMINUM

Steelbilt, Inc. 18001 So. Figueroa Gardena, California

SILVERNAIL

St. Petersburg Glass & Mfg. Co. 2201 First Avenue So. St. Petersburg, Florida

VISTA

Vista Sliding Doors 7052 Laurel Canyon North Hollywood, California

CAPRI CONTINENTAL

T. V. Walker & Son, Inc. 217 No. Lake Street Burbank, California

AER-LITE

Wood-Land Mfg. Co. 1510 W. Broadway Phoenix, Arizona

ADAMS-RITE

MANUFACTURING COMPANY

Technical Roundup

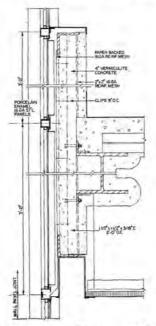
Plaster-Backed Curtain Wall Adds Fireproofing, Cuts Building Costs

By using a machine-applied cement plaster backup in combination with porcelain enameled steel spandrel panels, architects Wolff & Zimmer provided the First National Bank building in Portland, Oregon, with a fireproof curtain wall that cost under six dollars a square foot, added 600 square feet of usable floor space as compared with a standard 8 in. wall, and weighed just slightly over 19 lbs per sq ft.

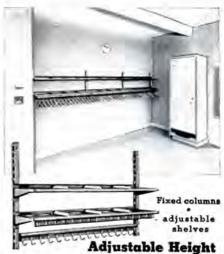
The blue-gray spandrels which form the outer face of the wall are set into aluminum sash and reinforced by 34 in. channels clipped to the back of the panels at 12 in. centers. The backup, a continuous selfsupporting wall of sprayed vermiculite cement plaster extending from the top of the window units on one floor to the bottom of the window sills of the floor above (a total height of 6 ft), also serves as fireproofing for the outside face of the spandrel beams. Four successive coats of the material were sprayed, from inside the building, onto paper-backed wire fabric supported by steel angles attached to the spandrel beams. Wire spacer clips secure the fabric to the outside of the angle, holding the fabric one inch away from the porcelain enamel skin to provide an air space for condensate venting. On the inside of the spandrel, the backup is reinforced with welded wire mesh.

Fireproofing was similarly sprayed onto floors, girders and beams; and applied manually to the columns.

more roundup on page 228



Section thru Exterior Wall



WALLMOUNTS

Schooline B WARDROBE SYSTEMS

Solve the pupil wraps problem efficiently with Wallmount Coat and Hat Racks. Mount on any available wall space. Hat shelves and hanger bar adjustable on permanently attached columns to height for any age group. Double hat shelves and double row of spaced coat hooks accommodate 6 pupils per running foot. Basic 3' 2" or 4' 2" units interlock to make continuous racks to fit any space or capacity requirements.

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Hook and Hanger rails
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4 ft. overshoe shelf.
And, on other side a
50" x 48" chalkboard.
Portable or stationary.

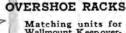
CORKROBE®

Identical to Chalkrobe but with pin-up cork board instead of "Chalkboard". These units permit complete flexibility in use of floor space. Can be anchored to floor, or wheeled about on casters. Hold wraps out of the way in orderly and efficient manner.



CLOSURE UNITS

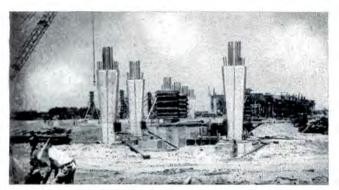
With closure panels (as original equipment or add-on units) Chalk-robe and Corkrobe units serve as flexible room dividers, movable walls or screens. Widely used to enclose temporary class rooms, to "build" cloak rooms, meeting rooms, etc.



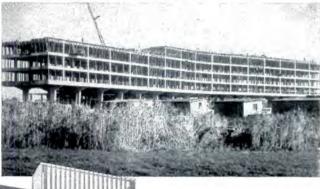
Matching units for Wallmount. Keep overshoes off-the-floor in an orderly manner.

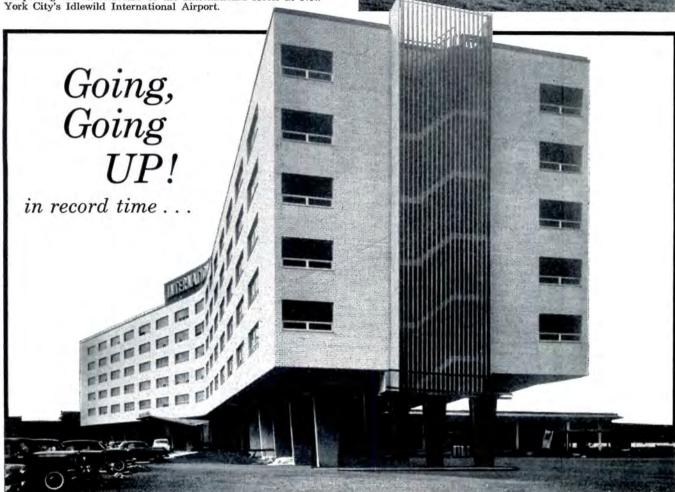
Write for "Schooline" Catalog St.-57

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By July, 1957, several hundred reinforced concrete cantilever piers had been built upon the foundation of reinforced concrete, completing the substructure of the International Hotel at New By September, 1957, the upper frame structure of reinforced concrete was being completed at a fast pace (note illustration below). In March, 1958, the exterior walls of glazed white brick were completed (see large illustration below).





Reinforced Concrete speeds construction

Another notable example of the trend toward reinforced concrete construction is the new International Hotel at New York International Airport. The handsome 320-room hotel, located 2.5 miles from the new Arrivals Building, was built by the Port Authority of New York and designed by Architect William Tabler. The new hotel stands on reinforced concrete piers to give it an "air-borne" appearance. Important among the reasons for utilizing reinforced con-

Concrete Reinforcing Steel Institute 38 South Dearborn, Chicago 3, Illinois crete construction for this new structure were speed of construction, ease of cantilevering, and the inherent fire-proof qualities of reinforced concrete making possible lower insurance rates. The ready availability of reinforcing steel permitted the job to get under way at the earliest possible date. Before you build, investigate this economical, flexible, and timesaving medium of construction. Compare—and you will design for Reinforced Concrete.



INTERNATIONAL HOTEL, New York City Builder: Port of New York Authority Management: Knott Hotels Corporation Architect: William Tabler Contractors: George F. Driscoll Company; Moccia Construction Corporation

You're covered!

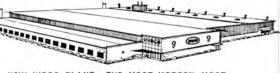


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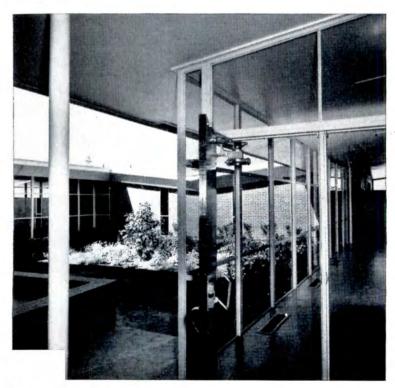
NIBCO INC. Dept. H-2108, ELKHART, INDIANA Gentlemen: I would like to know more about NIBCO. Please have representative call.

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San Andres Elementary School, Andrews, Texas

Architects: Caudill, Rowlett, Scott & Assocs., Bryan, Texas





Glare Reduction

-Notice in photo at left how effectively Lustragray reduces sun's glare reflected by brick wall in background. It does this without disturbing the exterior's true color values.

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Heat Absorption-for greater comfort.

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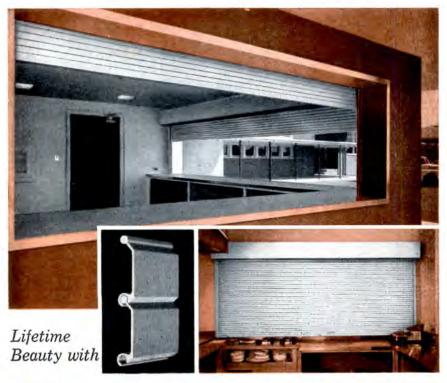


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AMERICAN-SAINT GOBAIN CORPORATION is a merger of the former American Window Glass Company, Pittsburgh, Pa., and the former Blue Ridge Glass Corporation, Kingsport, Tenn. (which was a wholly-owned subsidiary of Saint-Gobain of Paris, France). American Window Glass Division plants are located in Arnold, Jeannette, Ellwood City, Pa.; Okmulgee, Okla. Blue Ridge Glass Division plant is located in Kingsport, Tenn.

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THE COOKSON COMPANY

1527 Cortland Ave., San Francisco, Calif.

"Alumilited" Counter Doors Rolling Service Doors, "Servire" Fire Doors, and Grilles Side Coiling Wood Partitions - Specialty Doors

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DOORS . . . "The Best Way to Close an Opening"

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- Locked-in wool-pile guide stripping* provides for easier operation, eliminates noisy metal-to-metal sliding contact, seals against dust, drafts, weather. *Pat. applied for
- Sturdy, smartly styled "Alumilited" slats of extruded aluminum have a permanent luster, are resistant to scratching, denting, cannot rust or
- Designed to roll up and out of sight for full, unob-structed opening. Lifetime lubricated ball bearings provide effortless operation.



Technical Roundup

Moving Air Absorbs Sound

Armour Research Foundation has completed basic study on a newlydiscovered mechanism of sound absorption. It has been demonstrated that airflow through holes creates acoustic resistance and, consequently, sound absorption.

This disclosure brings to mind several possible commercial applications, including a combined sound absorption and air circulating system with one side of a perforated metal ceiling acting as supply and the other side as return.

Sound is usually thought of as being absorbed when it is converted into heat by being dispersed into small holes and crannies of a material and there losing energy in friction with itself or with the walls of the hole, or by physically moving minute fibers of the material. The several forms of fiberboard and fiber glass use these mechanisms in varying degree. In some cases, notably that of thin plywood, low frequency sound waves will lose some energy to heat by moving the material itself.

The newly-discovered mechanism might be described as friction loss at an orifice through which flows a continuous stream of air. In common terms a surface full of small holes will absorb sound when there is a steady flow of air through the holes. The actual mechanism is not known in detail, but it is known that the effect occurs at the surface and not in the hole so that the thickness of the material behind the surface is not critical. The report of the Foundation does not mention the effect of direction of air flow and directly-usable information on the absorption coefficient is not yet available. According to the report (Project No. A-968) the mechanism was inferred from studies on the pressure loss through an orifice in a liquid me-

New Ballasts May Need Over-Heat Protection To Prolong Life

Ballasts, inherently, are generators of heat. And for many years they were built to handle this heat under normal loads, with a comfortable reserve for abnormal conditions. Now, however the trend toward shallow fixtures has caused a reduction in the size of the ballast. At the same time, the currents handled by the ballast have been increased. The resulting demand for more and more power output from smaller and smaller ballast packages has raised the normal

continued on page 232

COUNT ON

Any action is welcome on Kreolite Gym Floors with the Built-In PTA **Cushioned Flex** Typical gym floors are subject to many kinds of activities, some of which can mar and scar ordinary flooring. But, with Kreolite Flexible Strip End-Grain Wood Floors, you have flooring that welcomes any kind of action and retains its original beauty. Durable Kreolite gym floors are also noted for their extra resiliency which makes them kinder to feet and less fatiguing. Besides being easier on the feet, Kreolite floors are also much easier on school budgets because they require less maintenance and last longer.

Write today about new Kreolite installation or replacement floors.

KREOLITE FLEXIBLE STRIP

END GRAIN FLOORING



CORPORATION TOLEDO 9, OHIO

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Lennox offers the world's most complete line of heating and air conditioning equipment to fit the exacting needs of every type of residential and commercial installation.

SPECIFYING

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REASONS FOR



Lennox Comfort Craftsmen are factory-trained dealers. They know their equipment, how to install it properly, how to deliver maximum comfort. You know the job is handled right.

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compare quoted prices with **REAL COSTS**



w Cleaver-Brooks cost analyzer clears "quotation" confusion — reveals ALL costs

Get all the costs...the real costs...down on paper before you recommend or specify a boiler to your clients. On many boiler installations "quoted prices" seldom agree with the total costs, as you may have learned. This is frequently the case with so-called "built-up" boilers assembled on the site.

Cleaver-Brooks' cost analysis enables you to compare all material costs (boiler, steam trim, burner, refractory, controls and other equipment) and installation labor costs. You'll know the "real costs" on the complete installation before you start.

Real eye-opener

The figures you'll see may be startling. In most cases the cost analysis proves a Cleaver-Brooks costs less. On-job time is dras-

tically reduced because Cleaver-Brooks packaged units are fully assembled, ready to install. Cleaver-Brooks boilers give you more in performance, too . . . each boiler is fully fire-tested at the factory under load, tuned to peak economy. Starting service and on-the-job operator training by authorized field engineers further decreases your over-all costs.

Contact your Cleaver-Brooks agent

Once you add up all the benefits of a Cleaver-Brooks "one-cost" package...the proved trouble-free economy of exclusive four-pass, forced-draft design, you'll find it pays over and over to analyze costs carefully before you buy. See your Cleaver-Brooks agent for details or write Cleaver-Brooks Company, 362 East Keefe Avenue, Milwaukee 12, Wisconsin, Dept. J.



Choose from 19 sizes, 130 models, 15 to 600 hp. Oil, gas and combination oil/gas fired — steam or hot water for heating or processing.



ORIGINATORS OF SELF-CONTAINED BOILERS

Technical Roundup

continued from page 228

operating temperature of the ballast, and cut down its reserve capacity so that many ballasts now run at near maximum temperatures even on normal loading. The margin of safety is slim at best: the insulation used has an operating limit of 105 degrees C. and coil tempereatures range between 90 and 100 degrees C., leaving a maximum reserve of 15 degrees.

Since ballast failure is in almost all cases caused by deterioration of the insulation-and since ballast replacement may cost as much as the fixture itself, some sort of overheat protection seems indicated. Ballast overheating can be traced to a number of causes, among them lamp failure, lamp rectification, failure of ballast components, improper installation, and insufficient heat dissipation. None of these (with the exception of component failure) will materially raise the current, but they will increase temperatures, thus shortening ballast life.

One answer seems to be a built-in protective device, now commercially available, which responds to internal temperature rise caused by either increasing ambient or overload current. In operation, it allows winding temperatures to reach the 105 degree C minimum under normal operating conditions in a 40 degree ambient, then opens the circuit to the primary winding. After the temperature has dropped to 85 degrees C., the protector resets and the ballast resumes normal operation.

Plastic-Coated Wood Won't Rot

Wood coated with reinforced plastic has become a considerable factor in many structural and shelter applications where the plastic has been used as weather protection and skinstrengthening. The most wide-spread use has been in the boat-building industry where plastics with or without wood core material have supplanted wood in a large segment of the industry. The question of wood rot, intrinsic or induced, has been put aside, probably on the basis of "save the surface and you save all."

This question of rot has recently been examined in some detail by a pair of researchers under the auspices of the Balsa Ecuador Lumber Co. of New York. Richard Mark and Dr. Bert Zuckerman, respectively timber engineer and wood pathology consultant, have completed extensive studies of the effects of several strains of rot fungi on coated and uncoated

continued on page 236

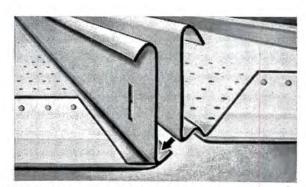


Every major improvement imaginable is built into Eastern's all-new, all-metal, all-in-one "Silent Ceiling" . . . to give you more sound control for less!

This new concept in acoustical ceiling construction is exclusive in every way . . . all panels are actually locked together by a unique "locking lip" which assures a vibration-proof, micro-smooth surface.

Designed to speed and simplify installation . . . to save time, labor and maintenance costs . . . "Silent Ceiling" modules are offered in lengths up to 12-feet—all complete with pre-fitted sound absorbing pads!

What's more, the entire "Silent Ceiling" System is rated Class "A" in flame resistance . . . unequalled in architectural advantages.



Exclusive self-locking panels keep Eastern's all-metal "Silent Ceiling" level-perfect



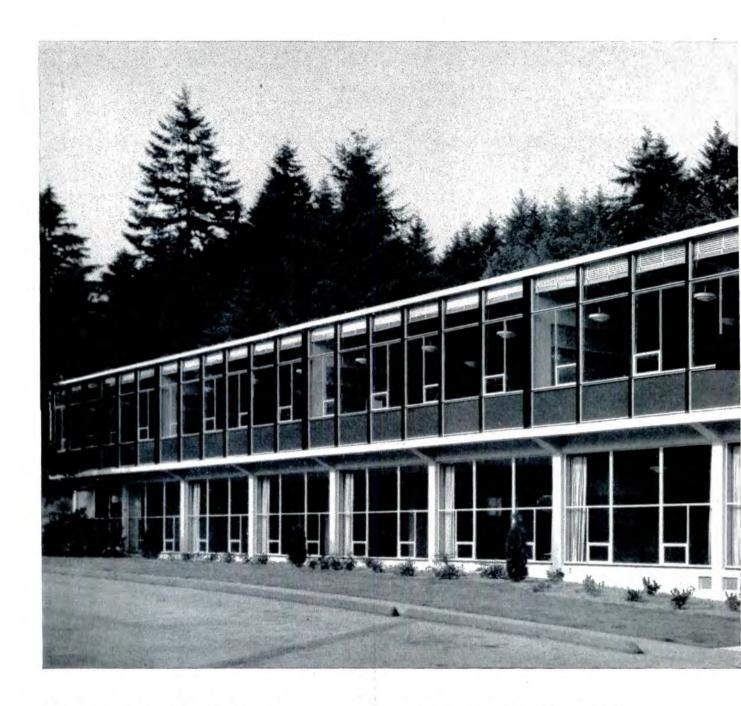
Acoustical Division, Eastern Products Corp. 1601 Wicomico St., Baltimore 30, Md.

Please send, without obligation, full details on the New Eastern "Silent Ceiling."

NAME

STREET

CITY, ZONE, STATE



Can you picture this school without glass?

 $I_{\rm T}$ would still be St. Luke's School in Seattle, Washington. But it wouldn't be the same building by any stretch of the imagination.

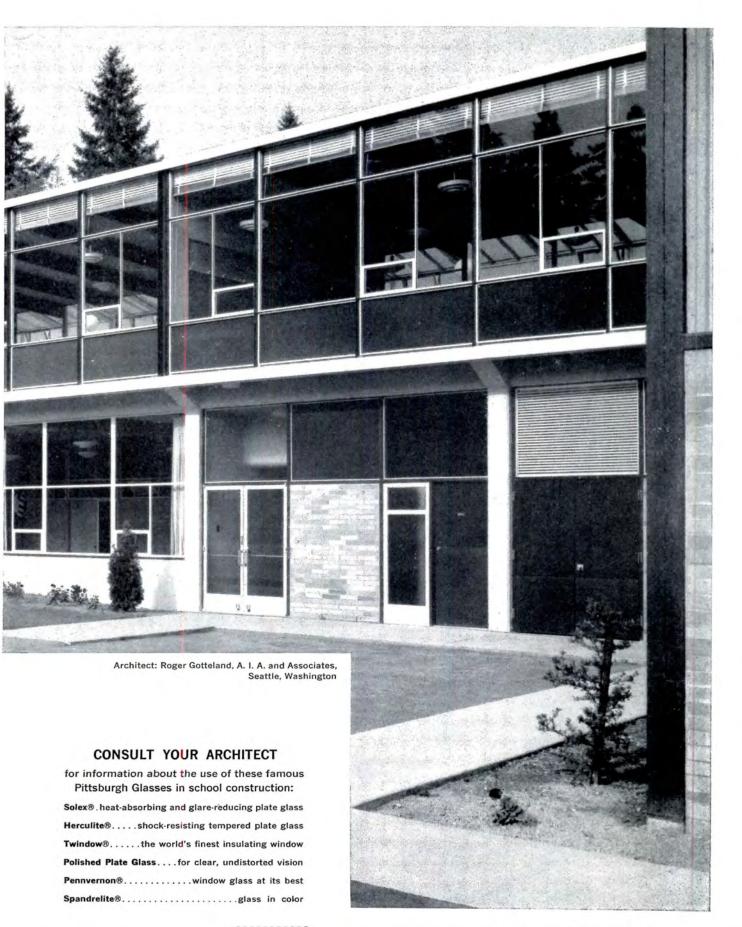
Here's why: The school is glazed with panels of Spandrelite, heat-strengthened glass with an eye-appealing color—Cavalier Red—fused to the back. Spandrelite and the expanses of transparent glass that complement it contribute enormously to the building's appearance—its crisp styling, its splen-

did ability to bring nature into the classroom; while keeping inclement weather outside.

Furthermore, the large areas of clear, heavy-sheet Pennvernon Window Glass improve the over-all natural lighting of the classrooms. The result is a cheerful, spacious atmosphere in which to work.

PENNVERNON and SPANDRELITE are the perfect combination . . . bringing to life the modern educator's dream of light and beauty in the school.

Design your schools better with PITTSBURG



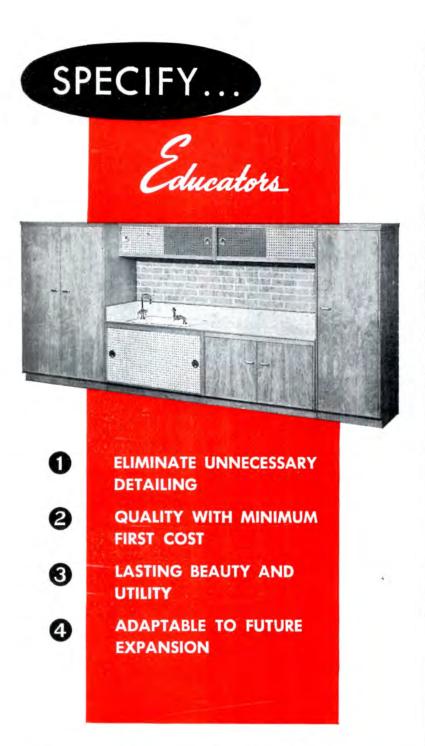
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Educators classroom units are built better to last longer. And, Educators proven design saves planning time because units can be used in any combination to meet specific requirements.

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Technical Roundup

continued from page 232

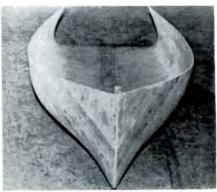
balsa wood. Balsa was chosen because it is often used as a core material and because it has no natural defense against rot. The researchers proved that kiln-dried wood can be protected from the attack of several species of fungus by application of homogeneous coatings of plastic or glass-reinforced plastic. The studies also proved that the fungi in contact with food and air will be either inhibited in their growth or killed by contact with the commonly-used plastics. The implications of this work are plain to the marine construction field and investigations are beginning in connection with pilings and other waterside construction. Building panels and curtainwall materials can be re-examined with these findings in mind. It is possible that soil fungi may be equally repelled, making it possible to use wood in contact with the ground, a hitherto unadvisable step.



St. Joseph School, Ft. Edward, N. Y.—one of the first to use plastic-coated wood



Strong, colorful, and now proved rot-proof, plastic-wood panels are gaining acceptance



Plastic may be used to protect and strengthen molded wood products of all kinds

CHOOSE FROM A RAINBOW

OF COLOR IN LIGHTING!

A wide choice of colors,
diffusing media and shapes
available in one ceiling system
for complete aesthetic
freedom in lighting design

View of test ceiling at our plant.

Electro Silv-A-King LUMENAREA ceiling system

The simplest, most versatile installation system ever developed!

Here is the world's first large area lighting system that gives you practically unlimited variety of form, as well as color and diffusing media. Now you can design lighting layouts, from the conventional to the abstract, curved or straight in any combination of louver, molded forms, glass and accent lighting . . . in soft pastel pink, blue, green and white . . . in a ceiling completely free of any visible screws, bolts or mechanical devices.

And with all that, the new Electro Silv-A-King LumenArea System, incorporates Slide Adjustment and Adjusto-Lok hanging devices which adjust for spacing and depth without tools!

Design of our Overlap Polycube Louver (1/2" cube), on 2-ft. wide modules eliminates the necessity for crossbars, regardless of how long the run . . . also provides 45° x 45° shielding for optimum seeing comfort.







Dished plexiglas ceiling with perimeter of green "Polycube" Louvers helps give this office a distinctive appearance.

For your Free Specification and Data Bulletin, write to:

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Call the man from Fenestra for

Classroom doors at the lowest installed cost!

It looks like a costly custom-made door, but this is a *stock* door by Fenestra®, specially engineered for school use.

These new Fenestra Hollow Metal Doors swing open smoothly, close quietly. There's "quiet", built into every Fenestra door. You save year after year on maintenance because Fenestra Doors can't warp, swell, stick or splinter. They last a lifetime! And in addition, you get the lowest installed cost because:

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- 3. You have a complete selection of door types (13/8" and 13/4") of distinctive designs and features—all mass produced. Custom quality at stock door prices!

Ask your Fenestra representative (listed in the Yellow Pages) to help you in your selection and specification of doors, frames and hardware. Or, write to Fenestra Incorporated, Department AR-8, 2252 East Grand Boulevard, Detroit 11, Michigan.



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YOUR SINGLE SOURCE OF SUPPLY FOR DOORS . WINDOWS . BUILDING PANELS . CURTAIN WALLS

FAMILY-PROOF

a new concept in paneling from GEORGIA-PACIFIC



Designed for today's homes, today's living, new G-P Hardwood Paneling is now protected with a special synthetic finish.

Components in the new formula build in mar resistance, give the prefinished plywood a deep, rich luster that never needs waxing. Crayons, lipstick, hair tonic, ink, nail polish, even alcohol can't penetrate the tough new topcoat. It cleans with a damp cloth. And his practical paneling costs, retail, as little as 39¢ per square foot.

installation is fast and easy with 4'x8' panels for regular nailing or gluing. Clip-on* panels make quick work of modernizing old walls.

V-grooves accent random-plank look in all nine handsome woods.



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Choose from American Black Walnut, American Cherry, Honeytone Oak, Blond Oak, Flame Gum, Adirondack Birch, Greymist Ash, Blond Cativo, Philippine Mahogany.

GEORGIA-PACIFIC, Dept. AR858, Equitable Bldg., Portland, Oregon. Please send complete information on new G-P Family-Proof Paneling.

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continued from page 208

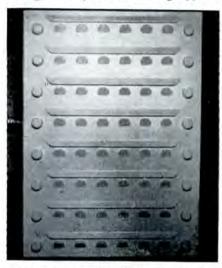


Versatile Components Convert Unused Space to Useful Storage

The new Stratapanel system uses only two simple, standard components to build storage units that combine a high degree of flexibility with low installation cost. A basic unit consists of two vertical slidepanels, cemented to opposite sides or supports of the space to be enclosed, and two or more modular drawers which are supported by, and glide on, the coordinated "slides" on the panels. Both components are made of a

high-impact plastic, molded by a special thermoforming process.

The panels themselves come in only one size-171/8 in. deep by 24 in. high -but may be cut into smaller sizes in any multiple of three inches. Each standard unit will accommodate eight 3 in. drawers or four 6 in. drawers, or any combination. Or, for still greater variety of function and appearance in large units, they may hold glass or sliding shelves as well as drawers. Designed to be interchangeable (no left or right), the



panels can be attached permanently to any stiff material. Because they entirely cover the sides of the unit, no interior coating is needed, and plywood finished on one side only can be used for the backing material. In many cases, an existing wall will serve as one side of the new unit.



The drawers, all 171/2 in. deep and 3 or 6 in. high, range from 161/16 in. to 461/16 in. in width. Standard drawers are trimmed to receive either a stock wood front, available in unfinished yellow birch or walnut, or a custom front supplied by others. However, the drawers are also made for use without wood fronts in particularly economical installations or in cabinets with doors. These drawers come in the same stock sizes as those with fronts, but have a formed pull (photo above). Although the stock drawers, like the slide-panels, come only in beige, special colors may be had on order. Moulded Structures Div., Robt. A. Schless & Co., Inc., Elizabethtown, Essex County, N. Y.

more products on page 244

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to your instructional needs with chalkboard, corkboard or pegboard







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dimensions and materials indicated is chalk troughs are expertly fitted. all we need.

A practical solution to diversified Your units are built in our factory chalkboard and mounting problems. and delivered to you ready to hang You plan each unit according to your and use. All materials of proven, durrequirements. A simple sketch with able quality. Aluminum trims and

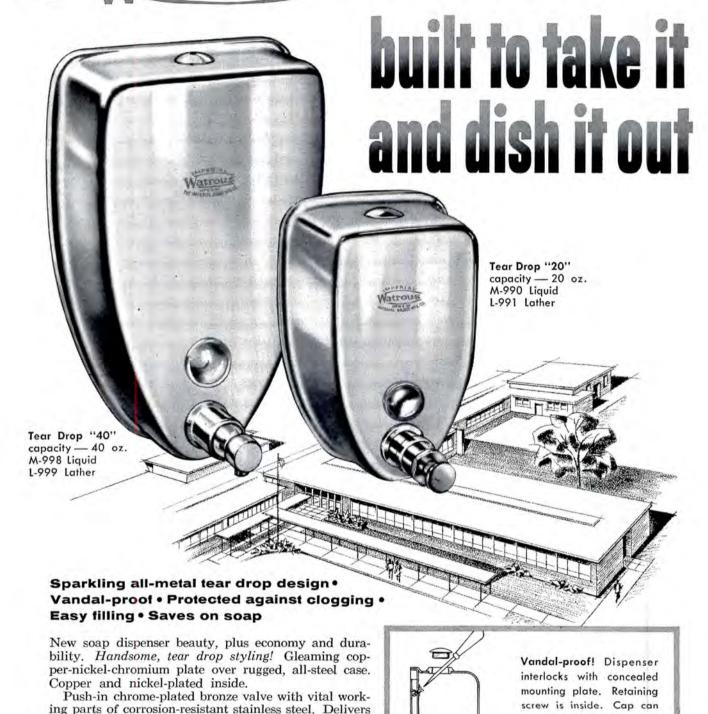
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Always specify Watrous flush valves with the preferred features that win customer confidence.



a measured amount of liquid or lather soap. No waste.

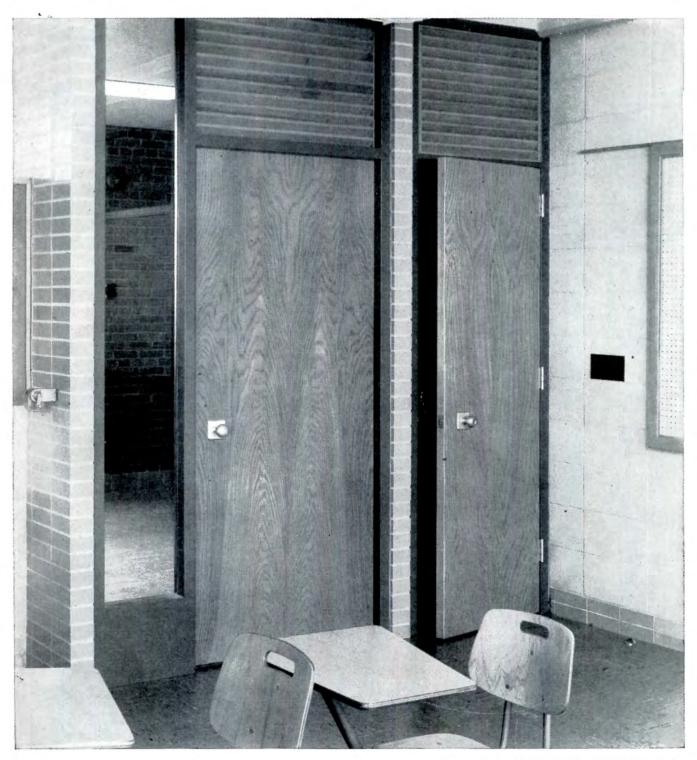
Transparent soap level indicator tells when to refill. Two sizes: 20 or 40 oz. Write for Bulletin 905-WA

on Tear Drop, and Catalog 471.

Products of THE IMPERIAL BRASS MFG. CO., 6300 W. Howard St., Dept. AR88, Chicago 48, Illinois

be removed only with

special wrench provided.



Interior in Brookfield Union Free High School, Brookfield, Wis. Grassold & Johnson Associates, architects.

The natural beauty of wood—in the carefully selected New Londoner door panels shown above—blends perfectly with the warm tints of brick in this modern school interior. Of guaranteed quality, proved in thousands of installations, Curtis New Londoner doors are first choice of many of the nation's top-ranking architects and builders.

CURTIS CURTIS NEW LONDO FLUS

heart of the home



WOODWORK

Chosen for beauty and endurance —Curtis New Londoner flush doors



Whenever you see a wood flush door of outstanding beauty, which deserves the term "picture in wood," chances are that the door is a Curtis New Londoner or Curtis American.

And New Londoner doors are not hard to find! For years architects have specified these superior hollow-core and solid-core flush doors for schools, churches, hospitals and other public buildings throughout the country. In turn, New Londoner doors have justified this confidence by standing up year after year under every variety of public abuse.

The remarkable endurance of Curtis New Londoner doors is due to their special construction. The all-wood hollow core is locked into the stiles and rails to form a dimensionally stable, perfectly rigid unit that does not warp. Slamming, banging, temperature and humidity changes leave Curtis New Londoner doors unaffected. They are made in several woods and take all types of institutional hardware.

See your SWEET'S CATALOG, or send for literature and complete data on Curtis New Londoner and Curtis American flush doors.



Curtis Companies Service Bureau 200 Curtis Building Clinton, Iowa	AR-8-58
Please send me information on Curtis New land Curtis American flush doors.	Londoner
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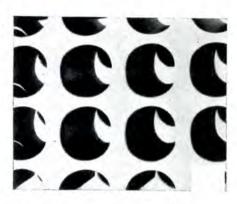


Translucent Insulated Panel
The latest addition to the Prem-Pan

line of insulated sandwich panels is a $1\frac{1}{16}$ in. thick translucent panel which permits light penetration without sacrifice of insulating quality. Like the standard panels in the line, it has an inner core of Styrofoam and comes in sizes up to 4 by 12 ft. Other Prem-Pan panels are available in various combinations of such materials as polyester fiberglass, wood, metal and cement asbestos board, all laminated to an insulating plastic foam core. Standard are the Delta panel, which is faced with polyester fiberglass cloth over $\frac{1}{18}$ in. cement

asbestos board, and the *Beta* panel, which is faced with polyester fiberglass cloth over ¼ in. plywood. *Premier Panels Inc.*, 34 N. *Brentwood Blvd.*, St. Louis 5, Mo.





Sculptured Concrete Blocks

Sculptor Erwin Hauer's designs for intricately convoluted and pierced concrete walls have been translated into a series of sculptured concrete blocks which can be assembled in pairs to form light-diffusing screens like that shown above. Two designs are now commercially available; the pre-cast cement block shown, and a plastic unit originally designed for a screen in the new UNESCO building. The cement module comes in 8 or 12 in. squares with a smooth ready-topaint natural finish, and assembles into 8 by 8 by 634 in. or 1134 by 1134 by 5 in. units. The plastic modules measure 51/4 by 7 in. Murals, Inc., 16 East 53rd St., New York 22, N. Y.



Metal-Pan Acoustical Ceiling

The new Silent Ceiling integrates metal-pan acoustical components into an efficient, easily installed continued on page 248



WATER COOLERS
provide a constant supply of pre-cooled water,
dispensed from a cabinet of striking eye-appeal.
This Model HPT-13DF features a drinking fountain, mounted conveniently low for the children.

ELECTRIC

WALL HUNG



CONVENIENCE
is embodied in Model 61*, in gleaming vitreous
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styling.

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leadership...providing the finest in

sanitary drinking fountains and coolers. There are hundreds from which to choose, for true hospitality that breeds customer good will – a wise

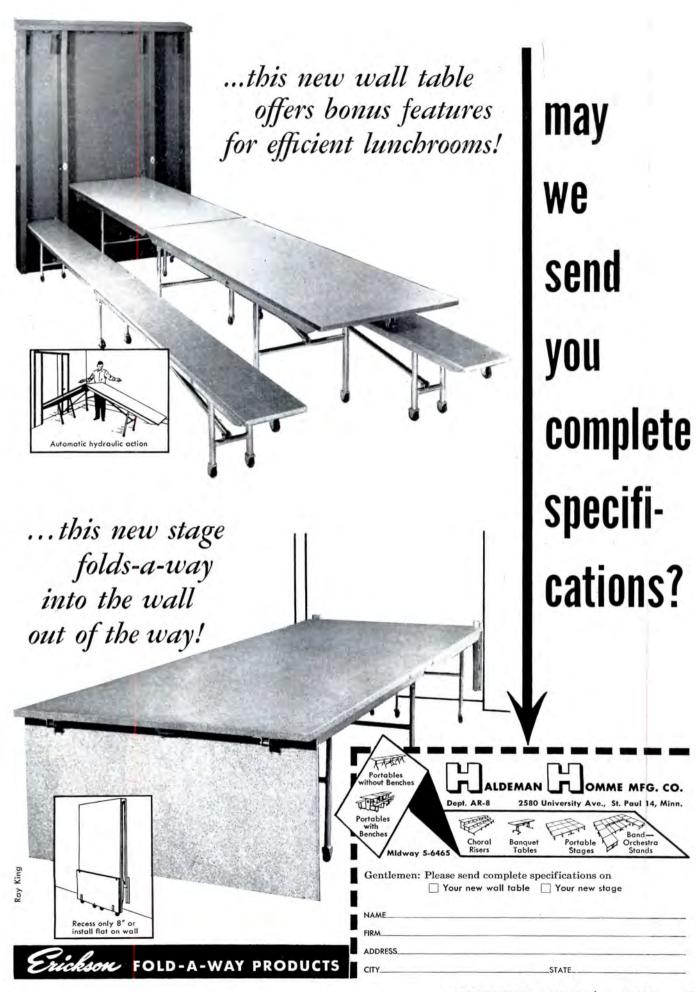
* HAWS fountains may be supplied with pre-cooled water by a HAWS remote electric water cooler. Models available for all capacities.



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investment indeed!

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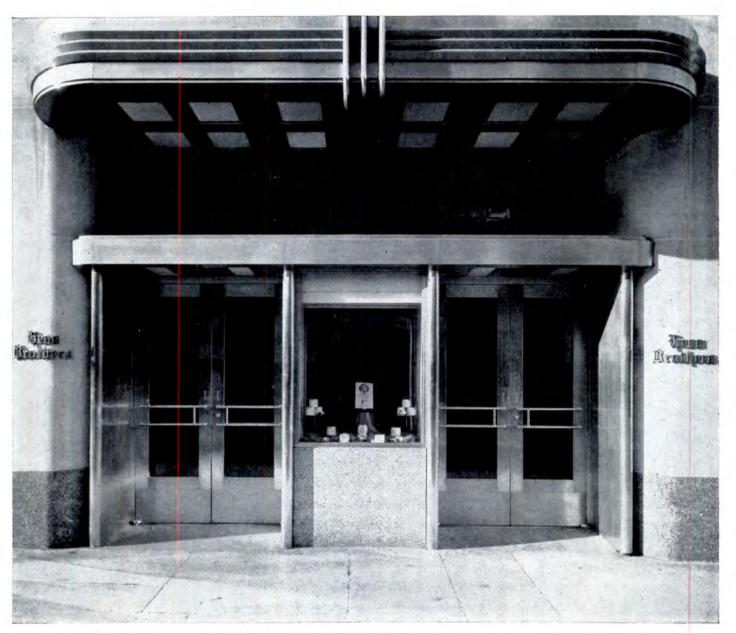
How are you at judging ages?



Lit Brothers Department Store, Camden, N.J.; Architect: Thalheimer & Weitz, Philadelphia, Pa.; Doors fabricated by: George R. Habgood Company, Philadelphia, Pa.

Stainless Steel doors will often outlast the building itself. A thousand shoes a day can kick a Stainless Steel frame but it will stay tight and rigid because (1) the steel itself is so strong and (2) Stainless Steel can be welded into solid joints that can't work loose. It's almost impossible to dent or scratch it unless you use a steel tool. Even then you couldn't chip or peel away the shine on a Stainless Steel door because

Look at the unretouched pictures of these Stainless Steel doors. One set is 21 years old, the other is 3 years old. They've received no maintenance except for an occasional washing. Truly, they all look brand new, but the doors on the right were installed back in 1937!



Hess Brothers Department Store, Allentown, Pa.; Architect: Thalheimer & Weitz, Philadelphia, Pa.; Doors fabricated by: John G. Leise Metal Works, Philadelphia, Pa.

it's solid—the shine is as thick as the door itself. Floor cleansers or sidewalk dirt won't hurt it because Stainless Steel resists corrosion. That's why you never have to polish Stainless...just wash it off with water and it gleams.

A Stainless Steel door costs a little bit more, but how else could you have such an attractive doorway for so long—and only pay for it once.

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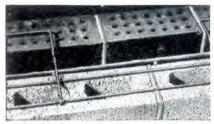
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SEE 1958 SWEET'S ARCH. $\frac{4h}{Aa}$ & IND. CONST. $\frac{3c}{Aa}$



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(For eavity walls of block and brick)

Two parallel reinforcing wires of $\frac{3}{6}$ " high tensile steel wire, control shrinkage cracking in the concrete block backup. Flush-welded rectangular ties, spaced 16" O. C., of $\frac{3}{6}$ " high tensile steel wire (to comply with building code requirements), tie facing to backup; permitting some movement between wythes. Made in 12' lengths and packaged 15 pieces to a bundle.



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(For cavity walls of block and block)

Four parallel reinforcing wires control shrinkage and settlement cracking and add lateral and tensile strength to both inner and outer wythes of a cavity wall. (Flush welded cross ties spaced 16" O. C. tie inner wythe to outer wythe.) Made of all \%6" high tensile steel wire to comply with building code requirements. Made in 10' lengths and packaged 10 pieces to a bundle.



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(For solid walls of block and brick)

Report G-585 from Armour Research Foundation of I. I. T. proves ECONO-LOK tied walls are stronger than two wythe walls using masonry headers. (Write for your copy of the full report.) Available in No. 9 high tensile steel wire, for curtain walls, and all \%6" high tensile steel wire, for bearing walls, per A. S. A. Code requirements for metal bonders. Made in 12' lengths (9 rectangular ties each) and packaged 15 pieces to a bundle.



BLOK-LOK®

(For all masonry walls)

Flush-welded design controls shrinkage, settlement and temperature cracks by the principle of steel in tension and by increasing transverse strength. Also used with glass block and clay brick and to strengthen weak points of masonry walls. Available in various gauges. Made in 10' or 12' lengths; packaged 25 pieces per bundle; endwrapped and marked for easy identification and handling.

ALL OF THE ABOVE AVAILABLE IN THE FOLLOWING FINISHES: All brite basic finish — Brite basic finish on side rods with cross ties of mill galvanized wire — All mill galvanized wire — Hot dipped galvanized after fabrication.

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Product Reports

continued from page 244

sound reduction system. Its modular panels, which come in lengths up to 12 ft, go up quickly and easily because they eliminate the need for time-consuming clipping of individual tiles to a T-bar. Instead, the ceiling is hung directly from 11/2 in. channels or, using panel nailing clips, from wood joists or other flat surfaces. This enables the Silent Ceiling to be installed without unnecessary loss of room height. The panels themselves are washable, noncombustible, and extremely durable. Sound absorbing pads are pre-packaged for easier handling. Acoustical Div., Eastern Products Corp., 1601 Wicomico St., Baltimore 30, Md.



Free-Standing Modular Partitions

The new Mainliner series of metal partitions features complete interchangeability of partition sections and accessories, thus enabling the user to re-route traffic at any time, alter floor layouts quickly or add to existing facilities. Available in panel heights of 42, 54, 68 and 84 inches and in widths from 12 to 66 inches (in 6 in. increments), the partitions can be quickly assembled or rearranged with tools no more complex than a screwdriver. A concealed leveling foot permits a 2 in. adjustment for uneven floors and provides a positive friction-lock to prevent movement. Wiring can be hidden in an integral raceway channel. The panels themselves are 11/2 in. thick units insulated with a rigid honeycomb core. Supplied in six colors, they can (when partitions are over 42 in. high) be combined with matching or contrasting top panels of glass, fiberglass, chalkboard, tackboard or acoustical material. The Mills Co., 980 Wayside Rd., Cleveland 10, Ohio

more products on page 252

new...LPI...VERSATAIRE

BRINGS YOU

different type units

IN ONE FLUORESCENT SERIES

Architects, engineers, and designers can command more than 152 different type units in this new LPI Versataire Series. Versataire offers unlimited possibilities to satisfy most all design and engineering demands and illumination benefits. Whenever you specify or consider fluorescent lighting be sure to consider the versatility of Versataire.

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FACTORY-FINISHED WOOD PANELING

installs direct on studs...no underlayment!

Another Roddis "first"! New, veneered paneling of exceptional strength and rigidity... with a new "solid feel". Gives many of the advantages of 3/4" material yet costs far less!

Now! Many of the characteristics of the finest ¾" plywood paneling . . . at real cost savings . . . with Roddis' new ¾6" Architectural Craftwall!

Sturdy and solid-feeling, Architectural Craftwall is made from choice, hardwood veneers bonded to a 3/8" center of Timblend, Roddis' amazing man-made board.

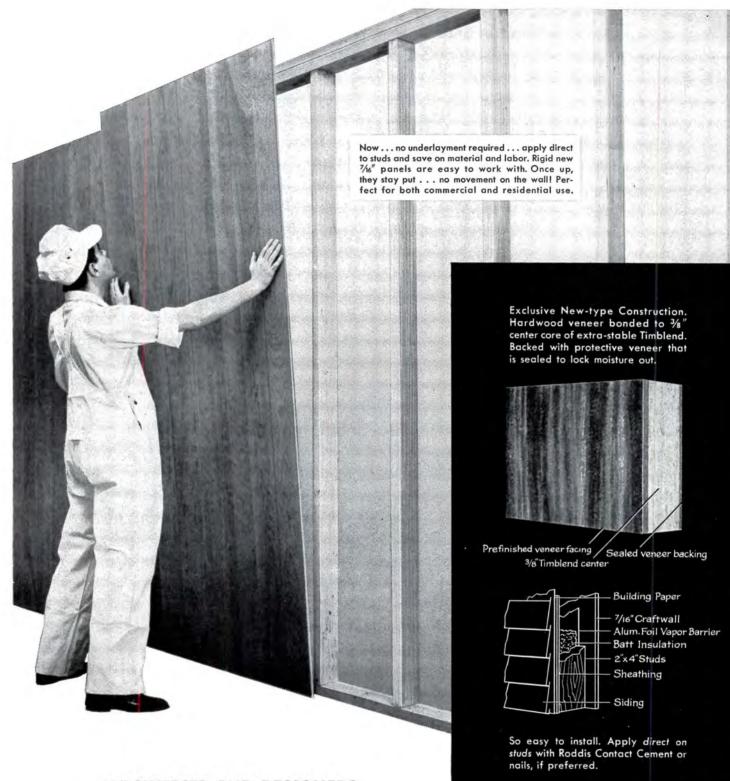
This exclusive Timblend center makes the big difference! A unique, wood blend shavings board, Timblend gives extra strength and rigidity . . . assures maximum freedom from movement after installation. Architectural Craftwall stays put!

Installation is simplicity itself. Architectural Craftwall goes up fast . . . directly on studs or furring strips. No costly, time-consuming underlayment needed. Install with Roddis Contact Cement. Or use nails if preferred. Sound reduction properties are impressive, too. Tests prove acoustical values of Architectural Craftwall are comparable to plaster or drywall construction.

A wide choice of woods and styles enhance your design possibilities. Select from Birch, Silver Birch, Maple, Oak, Walnut, Elm, Cherry or Mahogany. Each is completely factory-finished, ready to install. Available V-grooved at 16" intervals or V-grooved, cross scored and pegged. All panels V-grooved at veneer joints also. In regular plywood sizes . . . plus lengths to sixteen feet.

Architectural Craftwall is also available in standard or special size panels, without grooves, with matched flitches in the wood of your choice.

For free sample and information on how Roddis' $\frac{1}{16}$ " Architectural Craftwall can give any paneling installation new beauty, greater strength—at lower cost, just send the coupon.



ARCHITECTS AND DESIGNERS

Roddis V_{16} " Architectural Craftwall is a NEW kind of wood paneling! There is nothing else like it in the market. You get deep-grooved beauty and true "solid feel" at a price that will please the most cost-conscious client. And remember, this new Roddis product actually works and handles like costly $\frac{3}{4}$ " materials. Send coupon for details and sample.

RODDIS PLYWOOD CORPORATION

Marshfield, Wisconsin

Roddis Plywood Corporation Marshfield, Wisconsin, Dept. AR-958

Please send free sample and information on 1/16" Architectural Craftwall.

FIRM_____ADDRESS_____



ROVIDE MAXIMUM PROTECTION AGAINST FIRE th GAMEWELL FLEXALARM!

Schools and Colleges, like all public buildings, have special requirements for fire alarm systems and fire defense.

No combination or "catch-all" system can really give adequate protection! Maximum fire alarm coverage must provide 24-hour protection, be properly zoned, and engineered to life hazard and fire defense plans.

Flexalarm is the modern, all-in-one fire alarm system that can be precisely tailored to your building and its requirements. It features building-block design and unit type components for simplicity in satisfying all types of construction, fire codes and life hazards. It is easy to specify and economical to buy because of extensive pre-engineering and simplified unit-by-unit installation. Saves money all down the line . . . all from one source, one line of equipment — with complete engineering help if needed.

Send for New Flexalarm Manual. Clients and customers expect the best in fire alarm protection. This specialized, easy-to-use Manual will help you give them maximum protection against fire. Send for your copy, today.

Ask for catalog F249-

Gamewell Fire Alarm Systems For All Types of Life Hazards and Fire Defense Plans Flexalarm

Dualarm Localarm Sprinkler Watchman Master Box Direct Municipal Connections

THE GAMEWELL COMPANY Dept. BB, Newton Upper Falls 64, Mass.



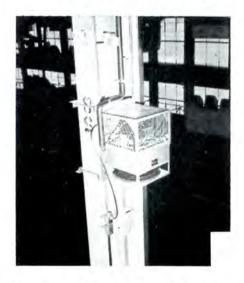
SPECIALISTS IN PUBLIC SAFETY

GA 8-11

Product Reports

Water-Based Vinyl Latex Paint

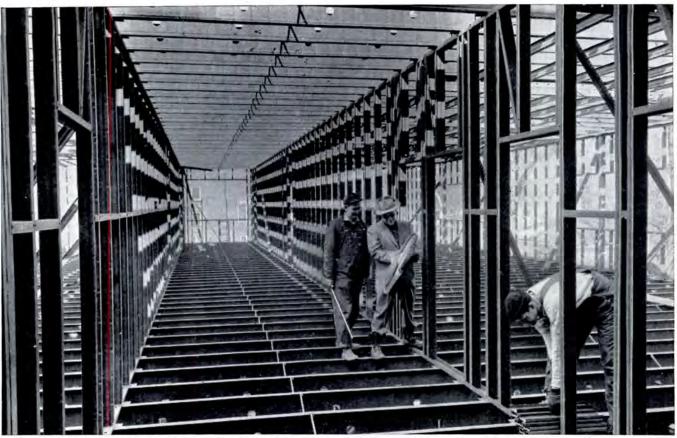
A water-based latex paint for outdoor use is being tested on some 20 houses and buildings across the country to determine its resistance to a variety of climatic conditions. Similar paints based on a *Bakelite* vinyl acetate resin have already gained wide acceptance as indoor coatings: they are easy to apply, quick-drying, fire- and moisture-resistant and easily-cleaned. Preliminary test results indicate that they retain these characteristics even under severe weathering conditions. *Bakelite Co.*, 655 Madison Ave., New York, N. Y.



Overhead-Mounted Water Cooler

A unique method of supplying industrial plants with large quantities of refrigerated drinking water uses a compact remote cooler in combination with any type of bubbler, fountain or dispensing outlet. To save floor space that would otherwise be required to accommodate water coolers, and to prevent the units themselves from being damaged by contact with heavy plant equipment, Sunroc remote coolers can be bolted to a column as above, supported on an overhead shelf, or mounted in any small out-of-the-way location. The refrigerated water line is then run from the unit to the dispensing outlet. Models suited for remote installation are available in sizes ranging from a 5 gph unit which can be built into a wall to a 42 gph unit which can serve as a central cooling system. The 16 gph-capacity model shown features a "chimney effect" condenser that rapidly dissipates heat from the unit to provide maximum cooling efficiency. Sunroc Corporation, Glen Riddle 1, Pa.

more products on page 256



Much of the framing for Friedens Lutheran School, Kenosha, Wisconsin, was shop fabricated ready to be set into place.

With Stran-Steel framing — KENOSHA SCHOOL GOES UP FAST TO SAVE COST

In less than 1,600 man-hours, the 8-room addition to Friedens Lutheran School, Kenosha, Wisconsin, was closed in, ready for interior finishing, according to architect Walter Trapp, A.I.A.

"We selected Stran-Steel nailable joists, studs and wide flange beams partly because of flexibility, but principally because of speed of erection," Mr. Trapp states, "for fast erection means savings many ways. For instance, we can fasten channel runners directly to the joists. Then acoustical ceiling panels just snap into place. It's really easy and saves a lot. And by using the Stran-Steel lightweight framing system we were able to reduce foundation material and labor costs at least 20 percent."

With a Stran-Steel building system you can stay ahead of construction crews by shop fabricating sections and delivering them to the site as needed. At the Friedens School

Stran-Satin curtain walls helped speed erection of this 8-room addition to Friedens School.

all the non-bearing walls were pre-fabricated and dropped into place as the floors were completed. Plumbing and electrical work is simplified, too, because joists and studs are punched to receive piping and wiring.

Save your clients money by saving construction time. Allsteel Stran-Steel components are easy to handle, easy to use. Structures go up fast. And the job you build with a Stran-Steel framing system is durable, fire-safe and flexible in design. Send the coupon for more facts.

Stran-Steel Architectural Products Mean Construction Savings For You



JOISTS and STUDS BEAMS

ROOF DECK C-SECTIONS COLUMNS CHANNELS

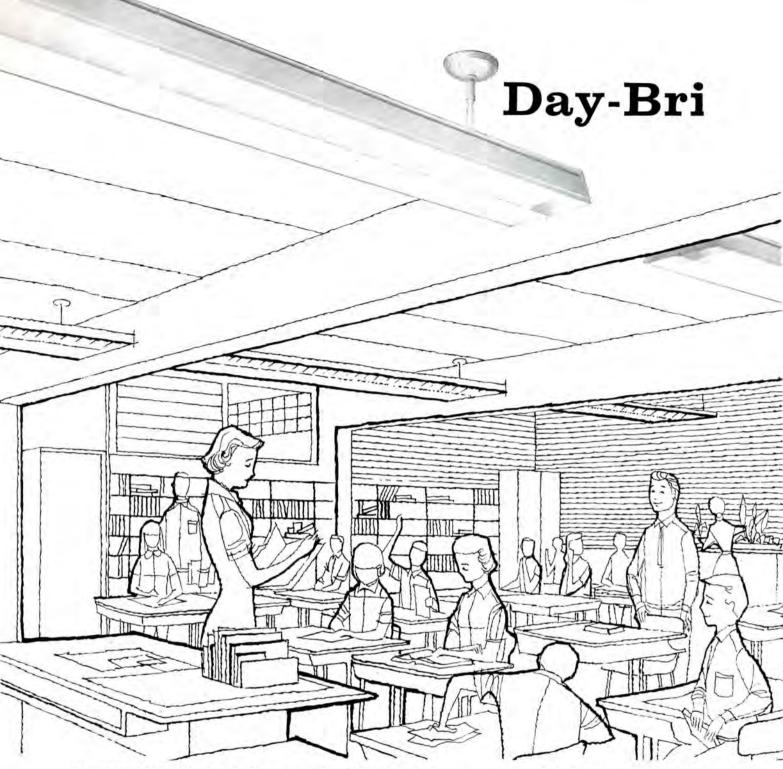
Dept. 23-51



STRAN-STEEL CORPORATION Detroit 29, Michigan Division of

NATIONAL STEEL CORPORATION

Stran-Steel Corpo Detroit 29, Michi	oration, Dept. 23-51 gan
Please send you	r Architectural Products Catalogs.
Name	
Title	Phone
Title	Phone
	Phone_



DAY-BRITE LUVEX®, America's most popular school lighting fixtures, are suspended with patented Day-Brite "A-J" adjustable stem hangers from Tectum Deck slab roof. Furnish 60 footcandles in this typical classroom.

Great for Children ... and Taxpayers, too!

Today there is no reason for compromising on school lighting, regardless of budget limitations.

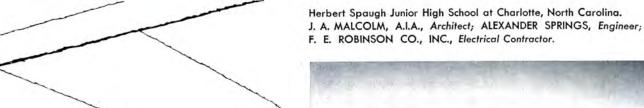
In the school shown here, for example, construction costs were *only \$10.59* per square foot, with *Day-Brite* lighting used throughout!

Factory pre-assembly and simplified installation make Day-Brite fixtures competitive with lighting equipment that only attempts to imitate Day-Brite in name or appearance, but *never* in performance or quality.

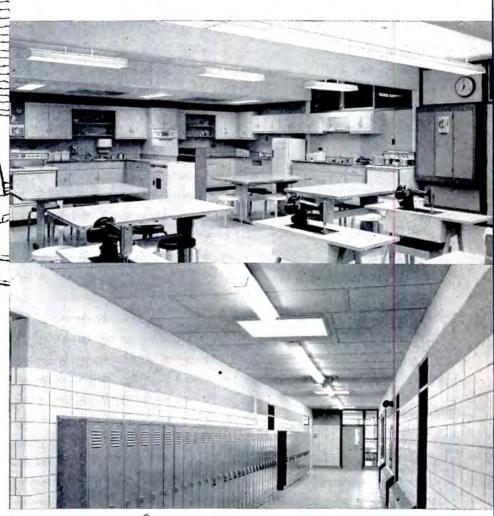
And because Day-Brite fixtures are designed for ease of cleaning and relamping, they keep on saving the taxpayers money throughout the long life of the fixtures.

Call your Day-Brite representative, listed in the Yellow Pages, for the *facts* and the *fixtures*. Compare *installed* costs and maintenance economies. Then you will know why there is no legitimate reason for accepting an "or equal" substitute for Day-Brite lighting.

Lighting for Schools...











Day-Brite Lighting, Inc. 6252 N. Broadway, St. Louis 15, Mo.

Day-Brite Lighting, Inc., of Calif. 530 Martin Ave., Santa Clara, Calif.

ABOVE: DAY-BRITE LUVEX® and recessed Troffers reduce shadows and glare, help future homemakers learn good work habits in this home economics classroom.

BELOW: Here's proof that hallways don't have to look like dark, narrow tunnels. Day-Brite CORRALOUVERS® give corridors a wide, spacious appearance.

Z-379 © 195

NATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT



t Low Type Ventilators, Supply and Exhaust Air for Aluminum Co. America Blow Down Fresh Air to Blanket Floor Area

Wide, low-roofed, modern singlestory plants are often difficult to ventilate properly with conventional methods. Perimeters are comfortable but other areas may not be.

Aluminum Company of America's new Screw Machine Products Plant at Lancaster, Pa., with neither cross ventilation nor natural ventilation, solved this problem with "reverse" ventilation. Forty-nine 48" all-aluminum Burt Low Type Roof Ventilators maintain a year-round pleasant working atmosphere.

Twenty-five of the Burt Ventilators operate in reverse to blow a blanket of fresh air over the entire working floor. Adjustable diffusers circulate the air at floor level to meet seasonal needs. Strategically located over various hot areas, these Burt supply ventilators need no long horizontal duct runs to reach air intakes on outside walls.

The other twenty-four Burt ventilators exhaust the considerable heat and oil mist from production opera-

The cost of these Burt units was less than one-fourth that of a centralized duct system.

For fresh air at low cost in your plants, why not investigate Burt's complete line of modern, efficient roof ventilators now!



Write for Burt Data Book SPV-101-G. It supplies quick data on Burt's complete line of modern Roof Ventilators.

FAN & GRAVITY VENTILATORS . LOUVERS . SHEET METAL SPECIALTIES

Manufacturing Company

AKRON 11. OHIO MEMBER AIR MOVING & CONDITIONING ASSOCIATION, INC.

Product Reports



Radio Remote Control Systems

Designed to provide reliable, inexpensive medium range radio remote control for any electrical device, Perma-Power remote signal systems make it possible to eliminate wires, phone lines or cables wherever they are difficult to install and costly to maintain. Actually a radio-controlled switch, the system operates over distances ranging from a few feet to over one mile (using fixed, roofmounted transmitting antennae). Transmitters or receivers are available for operation from 115v AC sources for fixed station controls, or from 6v or 12v DC storage batteries for mobile control. For special applications, multiple channel units can be had with up to 12 non-interfering channels. Perma-Power Co., 3100 N. Elston Ave., Chicago 18, Ill.



Woodgrained Plastic Laminates

Two new woodgrains, Brown Fiddleback Walnut (above) and Natural Teak, have been added to the Pionite line of plastic laminates. Like others in the line, these new grains are particularly effective for cabinetwork, panelling, and vertical applications of all kinds. Pioneer Plastics Corp., Sanford, Maine

more products on page 260

CANADA HOUSE

is equipped with

POMEROY

MONUMENTAL TYPE DOUBLE-HUNG

ALUMINUM WINDOWS

STEEL DOUBLE-HUNG SELF CLOSING

FIRE WINDOWS

CUSTOM-BUILT AIR-CONDITIONING

ENCLOSURES

The present comprehensive line of Pomeroy Products (custom-built Windows fabricated in aluminum, steel and stainless steel; inside window treatment together with air-conditioning Enclosures) have been selected for many current outstanding buildings including CANADA HOUSE. During the planning stage of your next project, commercial or institutional ask for POMEROY to offer their Engineering Services. Specialized designers and engineers are available to assist you for any size project.



SINCE EROY 1897

For complete specifications See the new '58 SWEET'S CATALOG

S. H. POMEROY COMPANY, 25 BRUCKNER BOULEVARD, NEW YORK 54, N. Y.

manufacturers of

DOUBLE-HUNG WINDOWS

360° REVERSIBLE WINDOWS

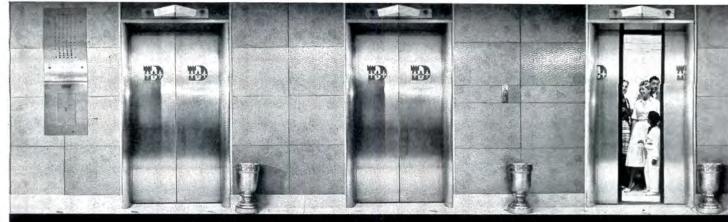
FIXED and HINGED WINDOWS

CUSTOM-BUILT **ENCLOSURES**

CURTAIN WALLS

ACOUSTICAL CEILING SUSPENSION SYSTEMS

FABRICATION IN ALUMINUM — STAINLESS STEEL and COATED STEEL



Elevator doors open quickly and automatically



Guests begin to leave elevator



No threatening door action-doors remain open and motionless



Doors close only after last passenger leaves

THE DEAUVILLE HOTEL

in Miami Beach, Florida, not only provides the finest accommodations but also the finest elevator service for its guests. Next time you're in Miami Beach, visit the Deauville and see for yourself just how Traffic Sentinel controlled doors lend a touch of magic to elevatoring.

Owner-Management: Morris Lansburgh-Sam Cohen

Architect: Melvin Grossman, A.I.A. Contractor: Taylor Construction Co.



MAGIC IN MIAMI

WESTINGHOUSE TRAFFIC SENTINEL

CONTROLS ALL ELEVATOR DOORS
ELECTRONICALLY AT THE DEAUVILLE HOTEL

One of Miami Beach's largest luxury hotels, the Deauville, is the first major hotel in that resort playground to install a completely *operatorless* elevator system. In addition to the sound economics of operatorless elevators, there are so many passenger benefits to be gained. For example, all passenger elevators are equipped with "magic" Traffic Sentinel door controls. This means maximum passenger convenience and safety because doors are controlled entirely by passenger movement—and not by the whim of an operator.

This is how Traffic Sentinel works: an electronic eye "sees" all passengers enter or leave the elevator. It knows just how long to keep doors open for passengers—yet never allows doors to remain open longer than necessary. Doors are thus courteously held open until the last person is safely *in*—or *out*. Only then is the door closed—all by itself, as if by magic.

If you are planning a new construction—or a modernization program—the Westinghouse Elevator Division will be happy to assist you. Just call the office nearest you for help and counsel.

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

WESTINGHOUSE ELEVATORS AND ELECTRIC STAIRWAYS

J:98761-6A

Gnan ELECTRIC PLANTS

NEWS





At the Elizabeth Kenny Institute . . .

nan Standby Electric Plant eps "iron lungs" operating

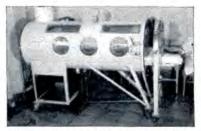
As many as 50 "iron lungs," one elevator, all essential lights, and power requirements for the boiler room are handled by the Onan 50KW electric plant during power outages.

Famed for its polio therapy, the Kenny Institute has patients in respirators at all times. The moment electric power is interrupted these patients will stop breathing . . . which makes immediate automatic starting of the emergency electric plant of vital importance.

An Onan gas-powered electric plant was specified for this extremely critical installation. Onan gas or gasoline-powered plants, coupled with Onan line transfer controls start instantly and take over the power load within seconds.

Sizes for any hospital

Onan Emergency Electric Plants range from 1,000 to 150,000 watts A.C. In smaller hospitals where low initial cost is a factor, Onan air-cooled plants provide instant starting, dependable performance. Onan's Vacu-Flo cooling system eliminates complicated ducting. Automatic line transfer controls are available for all size plants.



50 respirators like this are operated by the Onan Electric Plant during power outages.



50KW Onan Model 50KA-4R8, installed adjacent to the boiler room at the Kenny Institute. Engine operates on natural gas.

Call your Onan distributor or write for information D. W. ONAN & SONS INC.

2652A University Ave. S.E., Minneapolis 14, Minnesota ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS



Product Reports



Multi-Purpose Communication and Signaling System for Schools

DuKane's new MCS (for Multi-purpose Communication and Signaling) system uses an ingenious electronic network to combine many of the communication, signaling and safety devices commonly used in schools into a single flexible system. Every school has a fire alarm of some sort, and most schools also have clocks, class-break signals, public address facilities and intercoms. By reducing such "parallel" services to a single system, operating through one basic set of electrical conduits and controlled from one master "nerve center," the MCS system not only saves on installation costs, but simplifies maintenance and improves the operation of all of its individual services.

The seven basic services combined in the system include: central sound distribution; a private automatic telephone system that permits conversation between the office and any room, or between rooms; a clock and class-break signal system; closed circuit television; a Thermodyne system for fire sensing and detection, humidity sensing or burglar alarm uses; a school-to-home intercom; and a voice warning system that permits an alarm, followed by an announcement, to be transmitted from strategically-located emergency telephones to every loudspeaker in the school.

According to DuKane spokesmen, the basic system can often be incorporated in a new school for the same cost as the installation of an ordinary sound system and clock system. Put together on a "building block" principle, it permits easy and economical expansion to accommodate additions to the school or to add new features and services as funds become available. DuKane Corporation, St. Charles, Ill.

more products on page 264



- Exclusive cam lock compression seal with "down" and "in" action assures positive gasket contact.
- Exclusive shock absorbing chain link absorbs shock of start and stop—minimizes power requirement.
- Exclusive calibrated balancing spring gives cushioned no shock closure and counterbalances weight of door for easy opening.
- Exclusive full height safety edge is sensitive full travel of door.
- Exclusive enclosed reduction gear sealed in oil.

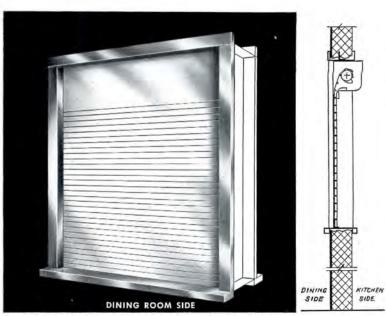
- Emergency controls; padlocking provision; rear emergency release.
- Tough, durable gaskets. All gasket contacts visible.
- Doors are factory assembled and given operating tests before they are shipped in easily erected units.

For descriptive bulletin write today to Jamison Cold Storage Door Co., Hagerstown, Md.

*JAMISON TRADEMARK



for school and institutional use



PEELLE ROLLING ALUMINUM PASS WINDOW UNIT

Combined in the above completely assembled unit are a stainless steel frame, guides and a shutter of extruded aluminum flat-slats which rolls compactly into the head.

PEELLE PASS WINDOWS

...all with integral frames for easy installation

- ARCHITECTS specify Peelle Pass Windows to reduce specification and design time and to assure owner of a quality installation.
- CONTRACTORS like Peelle Pass Windows because they save estimating and buying time and eliminate duplication of installation—when frame is installed—panel is installed.
- OWNERS like Peelle Pass Windows because they give maintenance-free, EASY operation. Quality design and workmanship permit easy cleaning with no cracks and crevices to act as dirt catchers.

These desirable features account for the wide-spread use of Peelle Pass Windows in so many carefully planned school and institutional dining rooms and cafeterias. The three basic window designs shown at the right, allow great flexibility of choice in planning service access between kitchen and dining room.

> Send for complete details on all 3 Peelle Pass Windows



THE PEELLE COMPANY

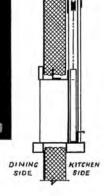
47 Stewart Avenue, BROOKLYN 37, N. Y. 4037 N. Kedzie Ave., CHICAGO 18, ILL. 34 South 17th St., PHILADELPHIA 3, PA.

OFFICES IN PRINCIPAL CITIES



PEELLE ORIGINAL PASS WINDOW UNIT

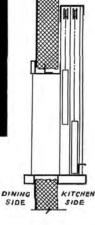
The above completely assembled unit consists of a hollow metal door with steel guides and frame, designed for quick, economical installation. Special extended sills furnished when specified.





PEELLE TELCO PASS WINDOW UNIT

The Telco pass window is designed for low overhead conditions. The two vertical rising panels are arranged so that both leaves arrive at fully open or closed position simultaneously.





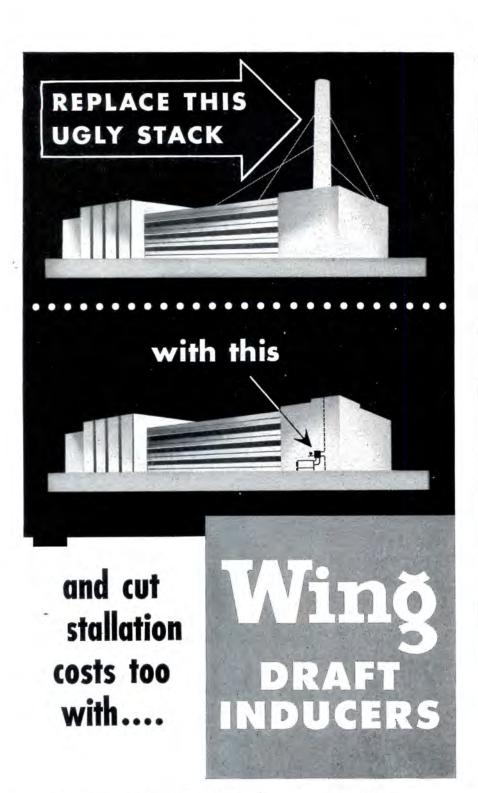
in this Warren Township Elementary School, Indianapolis, Ind. The exposed beams were covered with 3" Tectum insulation, which was topped with roofing. Modular design has windows and columns on 4' centers.

Jones & Laughlin Steel Corporation

Get complete data on these and

other J&L lightweight structurals.

PITTSBURGH, PENNSYLVANIA



Savings of over 25% in installed costs are possible when Wing Draft Inducers replace ugly smokestacks. • Fuel costs are also reduced as much as 15% because you get consistent, proper draft for complete fuel combustion.

WING DRAFT INDUCERS Eliminate Tall Stacks in:

Eliminale full Stucks in

- Schools Apartment Buildings
- Motels Restaurants Churches
 - Industrial Buildings

WRITE FOR BULLETIN 1-57

L. J. Wing Mfg. Co.

DIVISION OF AERO SUPPLY MFG. CO. INC.

151 VREELAND MILLS ROAD, LINDEN, NEW JERSEY

OTHER WING PRODUCTS: Fresh Air Supply Heaters, Unit Heaters, Fans, Turbine and Motor Blowers, Auxiliary Turbines

Product Reports

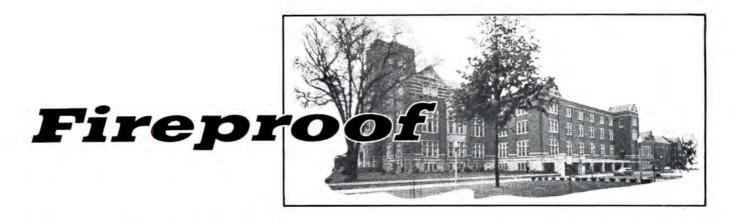


Prefabricated Glass Curtain Wall

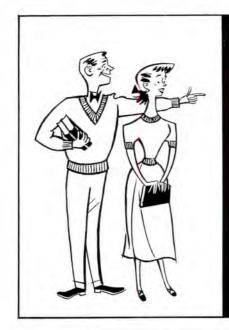
The latest development in prefab curtain walls is a system which uses a thin (2 in.), daylight-controlling glass unit to form a finished wall inside and out. The hollow, 12 in. square Thinlite units are factory-assembled into panels whose extruded aluminum perimeters interlock with each other to permit quick and easy installation. Designed for either a four or five foot horizontal module, the system uses standard panels 2 ft high by 4 or 5 ft wide. Basic daylight panels-soft white for general use, blue-green for severe sunlight exposures and yellow for non-sun exposures—are interchangeable with a variety of special types, including clear panels for vision and porcelain or ceramic-faced panels for non-light transmitting areas such as spandrels or for other veneers.

The panels, which are erected in vertical stacks, are bolted to extruded aluminum struts spaced 4 or 5 ft on center. The vertical struts come equipped with gaskets that form a weatherproof joint when the panels are bolted into place. They may be used on either the inside or outside of the building. The vertical batten strips also carry gaskets which, when used in combination with a strut, form a vertical weather seal on both sides of the panel. According to the manufacturer, the gasketing system is so complete that caulking is necessary only around the perimeter of the entire opening, and so efficient that the wall kept out weather even when subjected to wind and water tests designed to simulate hurricane conditions. Owens-Illinois Glass Co., Toledo, Ohio

more products on page 268



SHERRON STEEL PHONE BOOTHS IN SCHOOLS ARE A MUST FOR Safety!





Above you see Sherron steel booths with tempered, see-thru glass panels. Those shown below are built with perforated, acoustic solid clad steel panels. Either way, these Sherron booths are the last word in fireproof safety. Their installation in school corridors, dormitories, or elsewhere on school premises avoids the ever-present hazards of wood phone booths.

Sherron steel booths are available in single or multiple set-ups, in either stainless steel or zinc-coated cold rolled steel—in desired colors.

Factory assembled, they are ready for service on delivery.



THERE'S A SHERRON BOOTH FOR EVERY LOCATION, INDOORS AND OUTDOORS,

ERRON METALLIC CORPORATION

1201 FLUSHING AVE., BROOKLYN 37, NEW YORK







There is no substitute for safety, and Polished Misco (wired) affords proven protection for youngsters in the new Walt Disney Elementary School, at Tullytown, Pennsylvania.

Architect: John Carver, 2112 Spruce St., Philadelphia, Pennsylvania

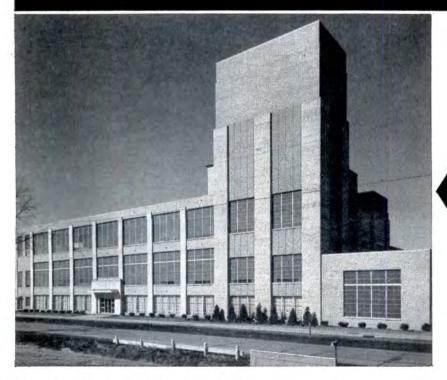
> Heat absorption provided by 38,750 sq. of Mississippi Coolite glass make patients more comfortable in the John J. Kane, Allegheny County Institution District (Hospital for the Indigent Sick).

Associate Architects: Button & McLean—Mitchell & Ritchey, Pittsburgh, Pennsylvania General Contractor: Sherry Richards Company, Chicago, Illinois Glazing: United Plate Glass Company, Pittsburgh, Pennsylvania

At the Philadelphia International Airport, modern vistas are created by 10,000 sq. ft. of 60" wide lights of Polished Misco (wired glass).

Architect: Carrol, Grisdale and Van Allen, Philadelphia, Pennsylvania Glazing: Pittsburgh Plate Glass Company

ROLLED GLASS



New factory of American Chicle Company, Rockford, III. where 14,000 sq. ft. of Coolite Wire glass, Glare Reduced, combines heat absorption with protection.

Architect: William Higginson & Sons, New York, N. Y. General Contractor: Sjostrom & Sons, Inc., Rockford, Illinois Glazing: National Mirror Works, Rockford, Illinois





WORLD'S LARGEST



today's best buy in Daylighting

The versatility of Rolled Glass provides architects with a practical solution to a variety of daylighting problems. Glass for daylight control, glass that absorbs heat, glass that decorates and glass that protects—they're all available in translucent light diffusing patterns, plain or wired (the latter for obscurity or clear vision) to meet every requirement. For utility, beauty, and economy unmatched by any other glazing medium, specify Mississippi Glass. Write today for free catalog. Address Dept. 7.



MISSISSIPPI GLASS COMPANY

NEW YORK • CHICAGO • FULLERTON, CALIFORNIA

88 Angelica St. • St. Louis 7, Mo.

MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

Product Reports



The New Look in Light Bulbs

According to Westinghouse spokesmen, the new cylindrical Eye Saving white bulb represents the first major change in the styling and design of standard light bulbs in more than a quarter of a century. Developed by engineers of the company's lamp division, the new bulb is said to be especially suitable for reading and close seeing tasks. A new process coats the bulb interior with millions of electrostatic silica particles which break up the usual spotlight glare from the filament. The result is soft, glarefree light radiated evenly from the entire

bulb surface so that tiring harsh shadows and sharp cut-off lines of light are eliminated. To permit more silica coating on the inside and obtain better distribution of light, the bulb was reshaped to give more surface area than an ordinary bulb of the same diameter. Westinghouse Lamp Div., Bloomfield, N. J.

Modular Grid Paper

The making of modular drawings can be greatly simplified through the use of a modular grid paper, scale-dimensioned in 4 in. increments both vertically and horizontally, from which dimensions can be read direct. The commonly-used quarter inch scale is printed in rolls 32 in. wide on heavy glazed or unglazed paper for use as an underlay, and on tracing paper. Working drawings made on the tracing paper print without the grid lines. The Palmer Mfg Co., 3237 Arlington Blvd., Arlington 1, Va.

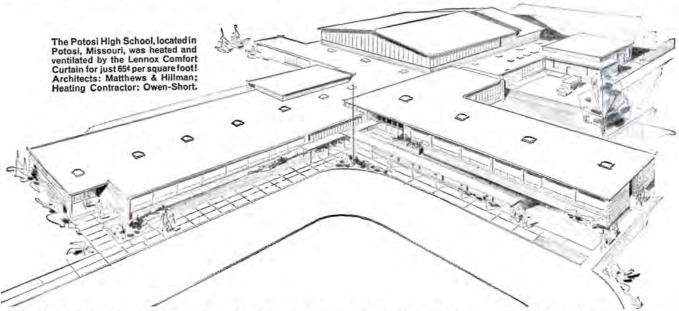


Padded Wainscot for Gyms

Designed for use in gyms, playrooms and other areas where wall crash accidents might occur, the new Safe-Wal padded safety wainscot is built up from an impact-absorbing cushion of polyurethane foam fastened to a strong plywood back and covered with a heavy vinyl-coated fabric. The panels, each 2 ft wide and 5, 51/2 or 6 ft high, can be easily installed over unfinished walls, and cutouts for electric outlets, drinking fountains and other wall elements can be made on the job. The stain-resistant, easily maintained vinyl-coated fabric covering comes in willow-green and buff, with other colors available on special order. Fred Medart Products, Inc., 3535 DeKalb St., St. Louis 18,



otosi school gets the finest in fresh air heating and ventilating—installed complete with automatic controls—for just 65¢ per square foot!

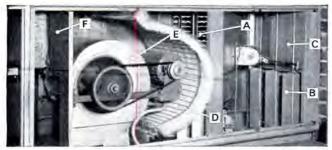


New Lennox Comfort Curtain System automatically draws in fresh air from outside . . . warms, cleans and circulates air quietly and evenly throughout the classroom!

Hard to believe, isn't it?—that after all these years a new and better fresh air heating and ventilating system can be installed for a fraction of the cost of systems used previously. Yet it's true! 65¢ per square foot was the complete cost of the Lennox Comfort Curtain System in the Potosi, Missouri High School. Including fully automatic controls, ductwork, labor—everything!

Of course, 65¢ per square foot is unusually low, even for the Comfort Curtain. But costs of \$1.03 in Indiana, \$1.15 in Montana, and \$1.12 in South Dakota are usual and typical of the amazing savings offered by the Lennox Comfort Curtain.

How is this possible? The Lennox Comfort Curtain System applies to schools the sound, tested principles of warm air heating. It eliminates expensive pipes, boilers



Lennox Air Processing Unit introduces fresh air in adjustable volumes (A); transmits warm air (B) from adjacent or remote heating unit; continuously recirculates indoor air (C); filters air clean (D). Lennox' exclusive floating blower (E) and acoustical lining (F) assure a degree of quietness never before achieved.

and chimneys. Moreover, it saves hundreds of dollars per classroom per year every year it is in use. Fuel is consumed only when heat is required, maintenance is amazingly simple and low-cost. Yet—and this is important—the Lennox Comfort Curtain System does a far better job than costlier systems used previously.

It provides a full, even flow of air throughout the entire length of the exposed classroom wall. It is amazingly quiet. And it holds room temperatures to a variance of six-tenths of one degree, circulates air continuously for perfect distribution, introduces a continuous supply of fresh air into the daytime heating cycle, and provides tons of needed fresh air cooling without the cost of refrigeration!

Get full information on this new low-cost system of classroom heating and ventilating. Send coupon below for free booklet, today!



© 1958 Lennox Industries Inc., Heating and Air Conditioning, founded 1895; Des Moines and Marshalltown, Ia.; Syracuse, N. Y.; Columbus, O.; Decatur, Ga.; Ft. Worth; Los Angeles; Salt Lake City. In Canada: Toronto, Montreal, Calgary, Vancouver, Winnipeg.

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Classroom Comfort PLUS TRIPLE ECONOMY

The **NORMAN** Complete Individual Schoolroom Package Provides Gas-Fired Heating...Fresh-Air Ventilation... plus Important Economies Right From the Start:

no expensive boiler rooms, chimneys, tunnels or costly revamping of central system. Pre-wired, partially-assembled Norman Systems are installed quickly,

Norman Systems are installed quickly, room by room—important economy in school expansion.

school expansion.

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maintains uniform temperature without wasting fuel . . . supplies heat only when needed . . . ventilates automatically. Individual systems—no need to heat entire school for use of few rooms.

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Sturdy construction, finest materials and latest A.G.A. approved controls — standard to industry — assures long, trouble-free performance.

Versatile Norman Schoolroom Heating and Ventilating Systems fit any plan . . . Choice of 85,000 or 100,000 BTU/ hr. inputs; Util-i-Duct Bookshelf (with or without sliding doors) or thin Walli-Duct comfort distribution sections.

HEAT AND VENTILATE YOUR SCHOOL
WITH NORMAN SCHOOLROOM SYSTEMS . . .
COMPLETE COMFORT PLUS TRIPLE ECONOMY

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Photo Illustrates, Mingo School Addition, Tulsa, Okla.; Architect: Koberling and Brandborg A.I.A., Tulsa, Okla.; Mechanical Contractor: Palmer Plumbing and Heating Co., Tulsa, Okla.; Mechanical Sub-Contractor: Sand Springs Sheet Metal Co., Sand Springs, Okla.



NORMAN PRODUCTS CO.

1152 Chesapeake Ave., Columbus 12, Ohio

We want to learn more about Norman Products for School Comfort, Please send complete information to:

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COMPANY NAME

ADDRESS_

CITY

See Sweet's Arch. File 30h/No, American Sch. and Univ. Annual C-1/No

Office Literature

continued from page 208

Raymond Cylinder Piles

. . . of Prestressed Concrete, Catalog CP-3, describes design, construction and installation of prestressed concrete cylinder piles, with illustrations of significant applications. 24 pp. Raymond International Inc., 140 Cedar St., New York 6, N. Y.*

School Construction

. . . With Laminated Wood shows the application of glued laminated wood arches, beams and trusses to the construction of modern, economical schools. 8 pp. A similar catalog deals with laminated timber in church construction. 8 pp. Rilco Laminated Products, Inc., W-818, First National Bank Bldg., St. Paul 1, Minn.*

Protection Against Decay

... and Termites in Residential Construction, Addendum to Publication 448, reports findings on the use of treated wood to protect against termites, and the effectiveness of vapor barriers in preventing decay. 33 pp. \$1.50. Building Research Institute, 2101 Constitution Ave., Washington 25, D. C.

Condensed Lighting Catalog

(A.I.A. 31-F-2) Presents illustrations of, and brief data on, the Electro line of lighting equipment. 8 pp. Electro Lighting Corp., 1535 S. Paulina St., Chicago 8, Ill.

Square and Rectangular Diffusers

Gives details and complete selection data on Titus' Series TMD square and rectangular air diffusers. 20 pp. Titus Mfg. Corp., Waterloo, Iowa*

Industrial Lighting Fixtures

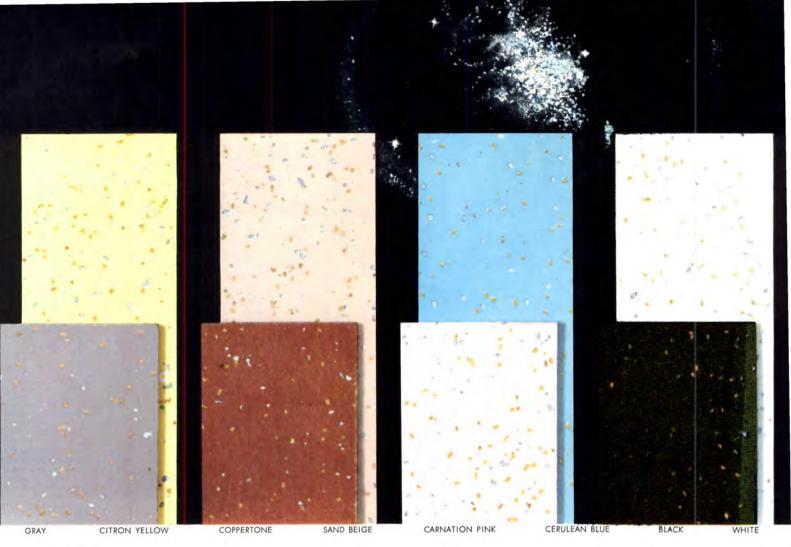
Presents specification and performance data on complete line of incandescent and mercury fixtures for industrial lighting. 4 pp. Abolite Lighting Div., The Jones Metal Products Co., West Lafayette, Ohio

Vampco Aluminum Doors

Gives detail drawings and specifications for the Vampco line of wide and narrow stile doors and frames. 8 pp. Valley Metal Products Co., Plainwell, Mich.**

*Additional product information in Sweet's Architectural File, 1958

more literature on page 274





In New York's new International Airport Hotel

G LAXY PANELYTE OPENS NEW DIRECTIONS IN DESI N

Opposite Idlewild Airport stands this creative example of modern architecture, designed by William B. Tabler. Tastefully modern, too, is the interior where elevator cabs and telephone booths are durably decorated with Panelyte. This new and imaginative use of plastic laminate points up the versatility and adaptability of melamine Panelyte as a surface of enduring luxury. The chosen pattern is *Galaxy*.

Shown here in eight radiant colors, Galaxy was styled by one

of America's leading designers. It is but one of a vast, rich selection of Panelyte patterns, including popular *Princess*, exclusive *Coppertone*, authentic wood grain finishes and marble effects.

See our catalogue in Sweets (14a/Pa) for installation specifications—or write us for samples. Panelyte Division, St. Regis Paper Company, 150 East 42nd Street, New York 17, N. Y.









It's no accident that Rixson door closers require so little attention, maintenance or replacement. Integrity in the selection of raw materials, precision manufacturing, careful assembling and testing... these have been traditional with Rixson for nearly 60 years. But, EXPERIENCE, the important factor in Rixson quality, has been in the making since Rixson produced the original "checking floor hinge." In manufacturing hundreds of thousands of door closers and observing how they

meet the rigors of public usage, an invaluable EXPERIENCE has been acquired. With every product improvement and new product development, this experience is a guiding hand, just as experience guides the trained Rixson representative who serves you in the field. Rixson quality is always identified with smooth, trouble-free door closer performance...through the years. The Rixson door closer you specify is always guaranteed, but...

your best guarantee is quality in the first place



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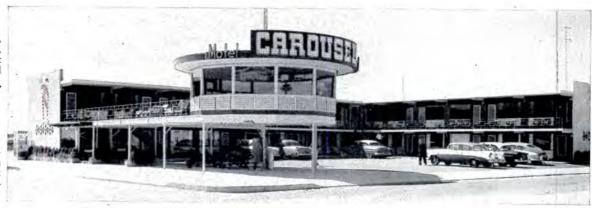
CANADIAN PLANT: 43 Racine Road Rexdale, Ontario



The Fantasy, Wildwood, N. J.: 1700 ft Beth-Co-Weld steel pipe.

The Carousel, Wildwood Crest, N. J.: 1625 ft Beth-Co-Weld pipe.

The Twenty-Fourth St., North Wildwood, N. J.: 1835 ft Beth-Co-Weld pipe.





For these motels, Pipe Jobber: Seashore Supply Co., Wildwood and Atlantic City. P&H Contractor: Harbor Plumbing and Heating, Wildwood.

Steel pipe is economical pipe

Jersey Shore motels save from the word "go" with Beth-Co-Weld steel pipe

Motels, hotels, schools, homes—all get a head start on economy when their plans specify Beth-Co-Weld steel pipe. Beth-Co-Weld installs fast and works easily—and gives years of low-maintenance service.

There's no pipe more dependable than steel—and it's still the lowest-cost pipe you can buy!

Drainage lines, ventilation, water and gas lines—Beth-Co-Weld is ideal for all of these. It's made from high-quality steel by the continuous-weld process, which means

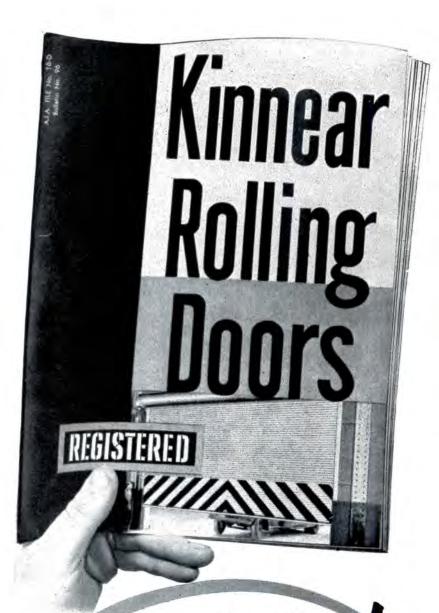
it's uniform pipe, sound and strong for easy handling. It's available, black and galvanized, in sizes from ½ in. through 4 in., and in uniform 21-ft lengths, and random lengths.

When you're ready to specify, consider the advantages of steel pipe. Then ask your jobber for Beth-Co-Weld.

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Get Action

—The upward action of interlocking slats that coil compactly above the opening: That's the action (originated by Kinnear!) that provides an unbeatable combination of lower door costs and higher door efficiency. Kinnear Rolling Doors make all space around doorways usable at all times, open completely out of the way, give you a rugged curtain of all-steel protection against wind. weather, fire, and vandals. Often delivering up to 50 years or more of daily, low-maintenance service, they're also REGIS-TERED — all parts of every door can always be accurately duplicated from master details kept permanently in fireproof vaults. Get all these Kinnear Rolling Door benefits

and more; write for this latest catalog, now . . Take Action!

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Concrete For Radiation Shielding

Office Literature

Compiles seven papers on the use of concrete for shielding nuclear radiation and the calculation of proportions and properties of various heavy concretes. 132 pp. \$1.00. American Concrete Institute, P. O. Box 4754, Redford Station, Detroit 19, Mich.

Tentative Specifications

. . . for Porcelain Enamel on Aluminum as Used for Signs and Architectural Applications, PEI: ALS-105 (57), cite performance standards and give requirements for base metal, finish and thickness of coatings. Porcelain Enamel Institute, 1145 Nineteenth St., N. W., Washington 6, D. C.

Nepcozone Insulation

. . . for Wire and Cable describes the properties and uses of Nepcozone butyl insulation, and gives specification data for individual installation requirements. 28 pp. Advertising Dept., National Electric Products Corp., 2 Gateway Center, Pittsburgh, Pa.*

Plumbing Layouts

. . . That Save Materials, Time and Money details a dozen economical plumbing layouts for residential construction. 8 pp. Dept. 585, Ingersoll-Humphreys Div., Borg-Warner Corp., Mansfield, Ohio*

Adhesives and Sealants in Building

Discusses the present status of adhesives and sealants in the building industry, and predicts future trends. 160 pp. Publications Office, National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C.

Douglas Fir Use Book

New edition contains detailed structural data and design tables on Douglas Fir lumber. \$5. West Coast Lumbermen's Assn., 1410 S. W. Morrison St., Portland 5, Oregon*

Architectural Lighting By Gill

(A.I.A. 31-F) Catalog 58A illustrates and gives selection and specification data on Gill line of lighting fixtures. 16 pp. Gill Glass and Fixture Co., Amber and Tioga Sts., Philadelphia 24, Pa.

*Additional product information in Sweet's Architectural File, 1958

more literature on page 278



LIGHTSTEEL cuts dead-weight loads in five-story seminary

Immaculate Heart Seminary, part of the multi-million dollar expansion program at San Diego University, is one of the largest concrete-block structures in the west. Of Spanish Renaissance architecture, the building contains 141,000 sq. ft. of floor space.

Stanley Burne, structural engineer for the job, says, "We used LIGHTSTEEL studs with metal lath and plaster, throughout the interior, with the object of securing lightness with strength, fireproofing, as well as freedom from deterioration and from dry rot. The open-work pattern of these studs, simplified installation of conduits, piping, etc., as well as the fibreglass insulation.

"In the stepped-back upper stories we also used LIGHTSTEEL studs for the exterior walls, to avoid excessive dead loads at these locations. Out here on the west coast, buildings must be designed to resist seismic forces, which

are based upon a certain percentage of the dead weight of a structure. Hence unnecessary dead weight is an item that should be reduced where conditions permit. At the same time, walls are used as 'shear panels,' resisting lateral forces, and require shear values accordingly. It is relatively simple to install the necessary diagonal tension members in these steel studs, and get a high shear value.

"We are using this same construction in other major buildings at the university."

For full details of versatile LIGHTSTEEL – specifications, physical and structural properties and loading tables – send for 28-page catalog SS-24.

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40 Central Street, Boston 9, Mass.
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IMMACULATE HEART SEMINARY
Architect: Edgar V. Ullrich, A.I.A.
Structural Engineer: Stanley Burne
LIGHTSTEEL Erector: L. A. Lathing Co.
LIGHTSTEEL Supplier: Chambers Steel Co.
General Contractor: L. J. Ninteman
Construction Co., Inc.



a name to remember

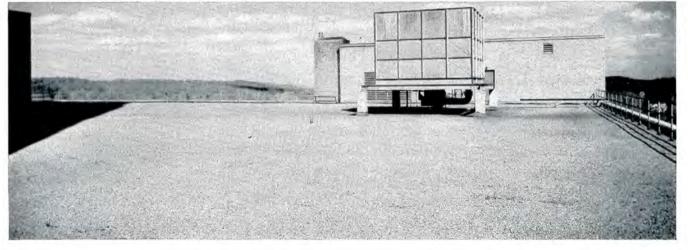
PM-187



New AT&T Long Lines Center where "design for survival" demanded strong, moisture-proof **FOAMGLAS** roof insulation



FOAMGLAS roof insulation forms a strong, firm base under roofing felts...helps prevent damage to the felts from roof traffic during and after installation. Since it can't burn, FOAMGLAS gives important extra fire protection to this AT&T building.



Typical of American Telephone and Telegraph's construction "design for survival" is the new Wayne, Pa., Long Lines center. Of bunker-style, poured concrete, the building will protect delicate electronic equipment in the severest emergency. This design called for roof insulation that was extra strong, fireproof and entirely moisture-proof. Pittsburgh Corning FOAMGLAS roof insulation was selected.

AT&T and their architects, Lorimer and Rose, New York, selected FOAMGLAS because it is strong enough to take all roof loads during and after installation. Still further protection was gained because FOAMGLAS is incombustible. Above all, its sealed glass cells form a natural vapor barrier to guarantee constant, lasting insulating value.

Your good designs deserve FOAMGLAS. Take full advantage of its many benefits. Write for complete information in our latest architectural catalog.

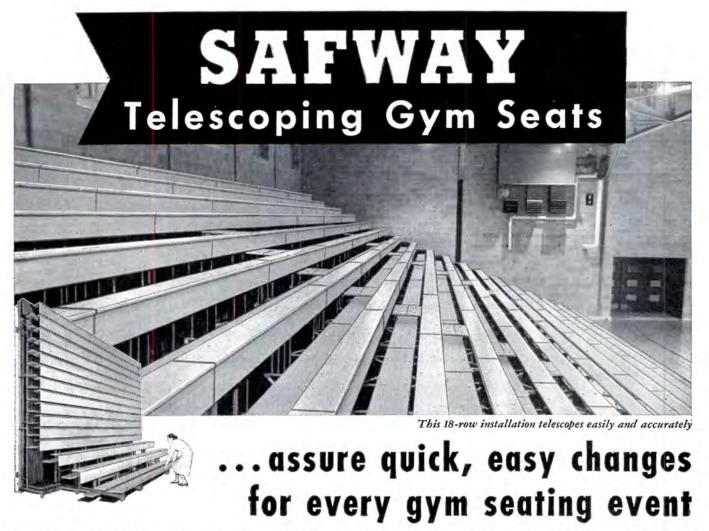
PC Glass Blocks are another outstanding building product of Pittsburgh Corning Corporation.

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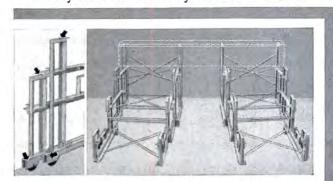
PORAT

Dept. B-88, One Gateway Center, Pittsburgh 22, Pa.



YOUR GYM SEAT SET-UP may be changed several times daily for varied gymnasium events. With frequent opening and closing, easy operation of seats is vital to keep your handling time and costs low.

Safway seats roll smoothly-minimize friction-re-



FRICTION MINIMIZED BY ROLLERS; RIGIDITY INSURES STRAIGHT TRACKING

(LEFT) Rollers eliminate metal-to-metal friction at contact points. Top arrows show horizontal rollers in channel under foot boards; bottom arrows show vertical rollers between wheel assemblies.

(RIGHT) Standard 16-ft. section, showing vertical and horizontal bracing. Rigid structure keeps rows always parallel to insure straight, in-line tracking as rows telescope in or out.

duce effort. Complete 16-ft. sections move straight in and out, without binding or cocking. The simple telescoping designeliminates jointed levers and crossarms.

Advanced Safway engineering also gives you these important advantages:

STRONG, SAFE CONSTRUCTION—8 steel columns under every row; uniform load distribution through vertical and horizontal steel bracing; 3 automatic locking devices.

SIMPLE, EFFICIENT DESIGN—Minimum of moving parts. Stable support with extra-long wheel carriages and 8 self-lubricating wheels under each row.

NO POWER EQUIPMENT NEEDED—With binding eliminated and friction minimized, there is no need for costly power equipment.

HANDSOME, FURNITURE-LIKE APPEARANCE — Seat and boards have a rich, glossy Golden Oak finish.

Submit your seating requirements for recommendations by experienced Safway engineers. There is no charge for this Service.

Write today for free Bulletin 168!



Gulfspray Catalog

Illustrates full line of shower doors, tub enclosures, framed mirrors, poster and showcase doors and sliding glass walls, with detail drawings of shower and tub installations. 16 pp. Binswanger & Co., 207 N. Main St., Houston, Texas

Facts and Data on Resilient Floors (A.I.A. 23-G) Revised edition covers factors to be considered in selecting resilient floors; data on Gold Seal floor, wall and countertop coverings; and pertinent specifications. 52 pp. Congoleum-Nairn Inc., 195 Belgrove Dr., Kearny, N. J.*

Nibco Copper Drainage Fittings

(A.I.A. 29-B-4) Catalogs a group of fittings for use with copper drainage tube DWV and types L, M and K, illustrating installation and including charts and tables. 36 pp. Catalog No. DWV-2, Nibco Inc., H-216X, Elkhart, Ind.

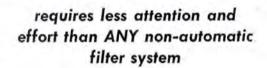
Hospital and Laboratory Casework

(A.I.A. 35-K) Describes, illustrates, and gives general specifications for a complete line of hospital and laboratory casework. A section on hospital planning shows suggested layouts for special-use areas and indicates necessary equipment. 98 pp. Shampaine Co., 1920 Jefferson Ave., St. Louis, Mo.*

*Additional product information in Sweet's Architectural File, 1958

Clear the Air ECONOMICALLY with . . .

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This hand-operated, roll-away type, viscous impingement filter is particularly desirable for schools, and other buildings where use is intermittent . . . where the convenience, economy and cleanliness of roll-away, disposable-media filters are desired—but cost limitations rule out automatic equipment.

With Conomanual, simply turn the wheel a few times and you have a fresh, new filter... no mess... no bother... no panels to wash. When the entire roll is used, a new one is easily inserted. Conomanual is moisture-, fungus- and fire-resistant. Low resistance and unusually high dust-holding capacity extend filter life and add to CONOMANUAL'S amazing economy.

For complete details ask your local Continental Representative for Bulletin No. 850 . . . Or write direct to:



Architectural Engineering

Building Codes

continued from page 204

mits the use of unprotected noncombustible panel walls when a separation distance of 30 ft or more is provided.

93. PHOENIX, ARIZONA: The Phoenix Building Code provides for the use of unprotected non-combustible panel walls when a separation distance of 30 ft or more is provided.

94. ALLENTOWN, PENNA.: Unprotected noncombustible panel walls are permitted in the City of Allentown when a separation distance of 30 ft, or more is provided.

95. MONTGOMERY, ALABAMA: Exterior panel walls are required to have a minimum of 1-hour fire resistance by the Montgomery Building Code. It is reported that consideration is being given to adopting the 1957-58 Edition of the Southern Standard Building Code which permits the use of unprotected noncombustible panel walls when a separation distance of 30 ft or more is provided.

96. PASADENA, CALIFORNIA: The Pasadena Building Code provides for the use of unprotected noncombustible panel walls when a separation distance of 50 ft or more is provided.

97. DULUTH, MINNESOTA: All exterior walls are required to be of masonry construction having a 4-hr fire resistance by the Duluth Building Code. It has been reported that consideration is being given to amending the Duluth Building Code to permit the use of unprotected noncombustible panel walls.

98. WATERBURY, CONNECTICUT: All exterior walls are required to be of masonry construction having a 4-hr fire resistance by the Waterbury Building Code.

99. SOMERVILLE, MASSACHUSETTS: The Somerville Building Code permits the use of unprotected noncombustible panel walls in locations where openings in exterior walls are not required to be protected.

100. LITTLE ROCK, ARKANSAS: All exterior walls are required to be of masonry construction having a 4-hr fire resistance by the Little Rock Building Code. It has been reported that Little Rock is considering adoption of the 1957-58 Edition of the Southern Standard Building Code which permits the use of unprotected noncombustible panel walls when a separation distance of 30 ft or more is provided.

Make sure you get all these features... specify GENERAL ELECTRIC WATER COOLERS



Progress Is Our Most Important Product

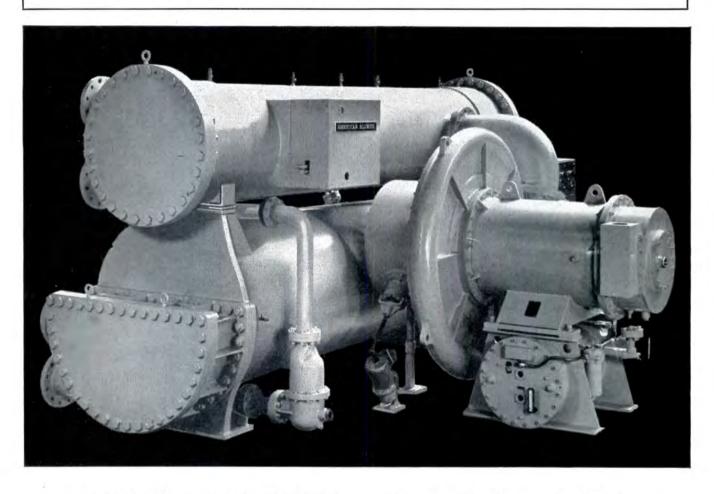


ASK ABOUT Hot and Cold Combinations, pressure and bottle types—also refrigerated compartment models.

COMPLETE AIR CONDITIONING SYSTEM

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CENTRIFUGAL REFRIGERATION MACHINES



American Blower Tonrac® maintains constant chilled water temperature . . . regardless of load. Its advanced single stage design and hermetic construction provide improved

performance and quieter operation. Tonrac comes as a compact, self contained unit, easier and less costly to install with its single level construction.

You can pinpoint responsibility for equipment performance, delivery dates, user satisfaction on any air conditioning system you plan by using American Blower equipment . . . the complete line that's designed, engineered, and manufactured to work together.

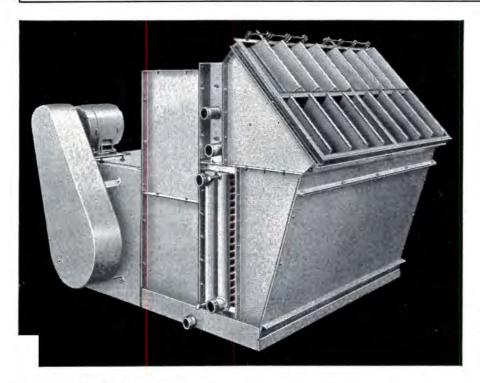
Remember, when you think in terms of American Blower, you think in terms of a manufacturing organization that supplies more of the vital components for air conditioning, refrigeration, heating, and ventilating, than any other in the world.

And 73 branch offices offer local product help or nationwide sales-service coordination. Call *your* American Blower man. In Canada: Canadian Sirocco products, Windsor, Ontario.

OR COMPONENT PART

onditioning equipment for any job.

ALL COMPONENTS FOR ANY TYPE OF SYSTEM



Type AB Multi-Zone Unit is in one arrangement for either horizontal or vertical air flow. A diffusion section is furnished between the fans and coils to distribute the air evenly over the entire face of the cooling and heating coils.

For further information, write: American-Standard,* American Blower Division, Detroit 32, Michigan



New Fancoil Units cool or heat individual rooms in multi-room structures. Operate on "flo-thru" principle. Save space—only 91/4" deep. Vertical or horizontal mountings.



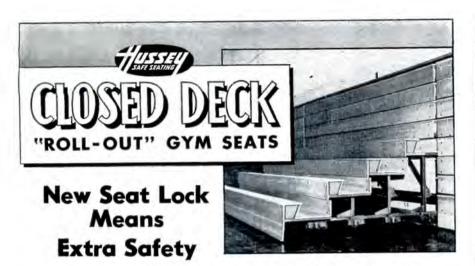
Packaged Air Conditioners — sizes from 3 to 20 tons; sound-insulated — a unit for every business! Air or water cooled models, for use with or without ductwork.



Inductor Units for cooling or heating multi-room buildings. Can be connected in series. Mounted vertically or horizontally (without excessive casing depth). Wide range of sizes.

*American-Standard and Standard are trademarks of American Radiator & Standard Sanitary Corporation.





A new exclusive locking device holds seats firmly in place when extended —one row or all. You can specify Hussey ROLL-OUTS with the assurance that they are *Stronger* and Safer. Their completely Closed Deck (exclusive with Hussey) prevents loss of articles under the stand, reduces fire hazards and makes possible a lower insurance rating. They are also quicker and easier to clean and can be rolled back without first sweeping under the stand. This saves time and reduces janitorial costs. (A.I.A.File 35-F-11)



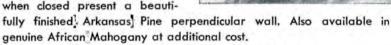
AMPLE FOOT ROOM

In Hussey Closed Deck ROLL-OUT Gym Seats there is 161/4 inches of safe, comfortable foot room. Feet rest on a wide, solid base and the spectator has the comfort of a conventional straight chair. Dangerous narrow footboards and the many hazards of open deck construction are eliminated.

STEEL WORKERS SINCE 1835

Hussey ROLL-OUTS, engineered and guaranteed by seating specialists, incorporate the latest and most improved design for this type of seating. They have a safety factor of 4 and the loading and sway forces as determined by the American Standards Association are used. Hussey ROLL-OUTS more than meet the most rigid safety standards.

They are good looking, too, and when closed present a beauti-



For Specifications See Sweet's Catalog Or Write, Wire or Phone Collect



23J

HUSSEY MANUFACTURING COMPANY, INC.

587 Railroad Avenue

North Berwick, Maine

Architectural Engineering continued from page 201

"CUSTOM" LIGHTING

dows made them unnecessary.

The latest chapter in the saga of the "vision strip" is a user-proof window wall proposed for the Smithtown High School. (Ketchum and Sharp found that, at Northport and Greenlawn, their carefully-planned switching arrangements were virtually ignored by teachers and pupils: all the lights burned all the time.) In the Smithtown scheme, the idea of the vision strip and the accompanying dependence on artificial light are retained, but the wall itself becomes tinted glass, graded from a very dark glare-reducing gray at the ceiling through a lighter gray at mid-section to almost-clear at the sill. The architects feel that this graded glass wall is the most effective lighting control they have developed to date. But, ironically enough, they did such a thorough job of selling the original vision strip-artificial lighting idea for an earlier job in the Smithtown district that, when the new proposal was made, the school board refused to buy it.

Hand in hand with the development of a controlled environment in which to use artificial lighting went a gradual refinement of the light sources themselves. In selecting and locating fixtures, Ketchum and Sharp have tried to provide adequate light without also providing ceiling-fixture contrast, and have moved steadily toward more even overall illumination, with less differentiation between the light source and the ceiling above it.

A translucent-sided flush fixture which gave only a slight spillover onto the ceiling at the Greenlawn junior high school was supplanted at John Jay by a similar pendantmounted fixture which gave uplight as well. For the Harborfields High School, now under construction, a more closely-spaced single tube fixture will be used to create an almostluminous ceiling via uplighting through an open top, diffused downlighting through an "egg-crate" louvered bottom. And at the new Wallingford Elementary School in Wallingford, Conn., the contrast problem will be licked by concealing fluorescent tubes within the corrugations of a cellular roof deck.

PHOTO CREDITS: page 197—Joseph Molitor, Ben Schnall; pages 198-199—Alexandre Georges, Joseph Molitor, Marc Neuhof, Charles Payne, Ben Schnall, Ezra Stoller; pages 200-201—Lionel Freedman, Joseph Molitor, Marc Neuhof, Alexandre Georges



Tilt-A-Front is a new type of factory assembled hollow metal wall framing system which tilts into place like a ladder, fits like a glove. It has gained wide acceptance for exterior and interior use on schools, offices and commercial structures of one to three stories.

Tilt-A-Front's all-welded unit construction eliminates trial-and-error field assembly . . . cuts erection time by 60% under conventional methods of wall framing. It encloses space much more economically, is structurally sound and requires none of the usual exposed plate reinforcements, angles or stiffeners. Tilt-A-Front is available in baked enamel steel (Colorclad), stainless steel or aluminum.

We can provide detailed sections and elevations in Tilt-A-Front design for your requirements. Write us today for complete information.

OVERLY MANUFACTURING COMPANY GREENSBURG, PENNSYLVANIA LOS ANGELES 39, CALIFORNIA



functional beauty \

and "linen" luxury Continuous Cotton Towels



✓ New First American National Bank Building, Duluth, Minn. Architect Thomas J. Shefchik, A.I.A., Duluth. Contractor: Fowler-Veranth Construction Company and Klippen-Holm Company, Duluth.

You provide the finest in hand drying facilities AND MORE when you specify continuous towel cabinets.

Low cost installation and service by a linen supplier . . . Reduced maintenance and janitorial costs . . . Elimination of litter, storage and disposal problems . . . Limits fire hazard and plumbing repairs.

Add to this, the fact that you do not

Recessed continuous towel cabinets with base storage units. End clutter of waste receptacles. Integrate with the modern design of the wash room. (This installation serviced by: American Linen Supply Company, Duluth.)

obligate the owner to any particular service, even when you specify recessed cabinets like the ones pictured above. (Recesses are designed to accept any of a wide variety of cabinets.)

So, why not make sure your clients get the best? Specify the luxury and quality of cotton toweling . . . include continuous towel cabinets in your design.

* Send for this free Planning-for-Cloth kit

Linen Supply

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Association of America

and National Cotton Council • 22 West Monroe Street, Chicago, III.

Illustrated, includes specifications for recessed unit and continuous cloth towel cabinets. Write-to Linen Supply Association on your letterhead.





Sylva-Lume — good lighting with attractive, variable design—strikes up a warm and friendly mood at the central offices of the Hill City Savings & Loan Association, Summit, N. J. Architect: R. O. Peck, Westfield, N. J. Consulting engineers: Nordling-Dean, Inc., Summit.

Sylva-Lume Wall-to-Wall Lighting ...

combines arresting, aesthetic design with finest quality of illumination

An aesthetic ceiling design of square modules that glow with soft, diffused light! That's the impression you get when you see Sylvania's new Sylva-Lume lighting system.

A delight for the designer's eye . . . a lasting pleasure for the man who works under it . . . Sylva-Lume wall-to-wall lighting rediscovers the ceiling as a medium of contemporary expression. Its translucent plastic squares have "sculptured" contour, with varying depth and design. Optional incidental color lends splashes of accent and variety to the pattern. Individual designs can be changed quickly and easily when desired.

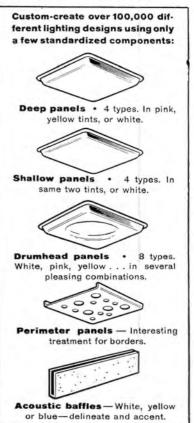
Sylva-Lume enables you to combine unlimited freedom of design with the finest quality of illumination attainable. Its true shadow-free, glare-free effect is ideal for general and private offices, reception rooms, lobbies, department stores . . . wherever good lighting counts. Ask your Sylvania Fixture Specialist for his "live" demonstration, or write direct for FREE folder of complete information and specification data.

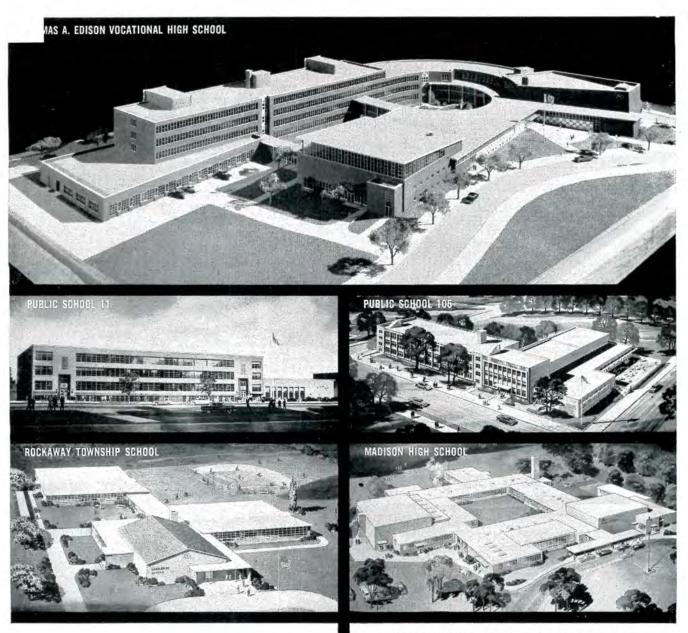
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Best fixture value in every price range





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PUBLIC SCHOOL 11-Brooklyn, N. Y.

Architect: John A. Thompson, New York, N. Y. Contractor: Colmar Construction Corp., Brooklyn, New York

PUBLIC SCHOOL 105-Queens, N. Y.

Architect: H. I. Feldman, New York, N. Y. Contractor: Planet Construction Corp., New York, New York

ROCKAWAY TOWNSHIP SCHOOL-Rockaway, N. J. Architect! Alfonso Alvarez, Upper Montclair, N. J. Contractor: Wortmann Construction Co., Elizabeth, N. J.

MADISON HIGH SCHOOL-Madison, N. J.

Architect: Lawrence C. Licht, Englewood, N. J. Contractor: Thomas Construction Co., Paterson, N. J.

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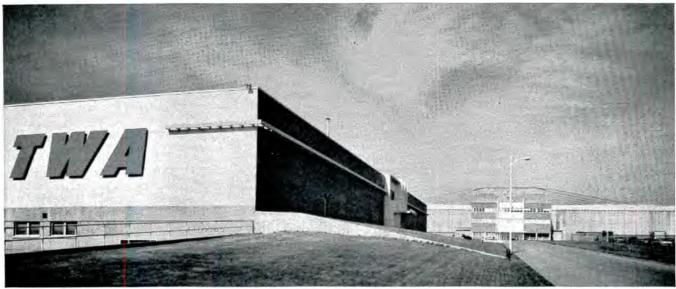
ACOUSTICAL CEILING SUSPENSION SYSTEMS

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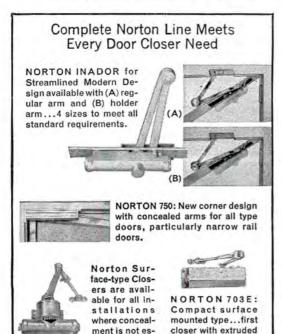


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The door closers used here by TWA are the modern counterparts of Norton Door Closers still in daily use after serving continuously 20 to 30 years and longer. Other Norton models are available as shown at the left, to serve virtually every door closer need with equal dependability. See the new Norton catalog #57 for full descriptions of the complete line, including important new models. Write for it today.

NORTON DOOR CLOSERS

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A Washington Report

continued from page 40

project as a good example of the "brick and mortar" type.

This undertaking, running in concert with a pilot rehabilitation project in San Juan, will develop for future application elsewhere the techniques used in self-help restitution of run-down properties. Methods of financing the improvements will be a part of the demonstration study.

Also pointed to with considerable pride by the URA office is a demonstration grant project now completed. It involved the small Georgia community of Douglas: population, 8200. This town set out to determine how a small community goes about developing a workable program for its renewal. Its report was so thorough and so well done that there have been well over 10,000 requests for it to date.

In Baltimore, the techniques of small area development as applied to large-scale renewal are under scrutiny. In the survey and planning stage is a project involving one representative block in an extensive 40block area. This has been carved out as a demonstration grant project to apply the lessons learned in rehabilitation (involving debt-carrying capacity, raising general economic levels while leaving inhabitants' economic levels relatively undisturbed, etc.) to development of the larger tract. Completion date for the oneblock redevelopment is June, 1959.

Publication of the results is expected to help other large cities as well as Baltimore in the renewal of large congested areas.

On the whole, there is a lively interest in this HHFA program. Lester M. Haddad, the slight, energetic man who is director of the administration's Demonstration Program Branch, reports that requests received by the agency during the past several months, could they all have been honored, would have consumed \$10 million in demonstration grant funds, double the total authority voted by Congress initially.

Mr. Haddad said that three or four pages describing what a public body has in mind is sufficient as the first proposal. If it answers the URA criteria and fits in with the current need, it will be developed.

The industry advisory committee on this demonstration grant program is in the process of being reconstituted. It originally had but five members and Mr. Haddad has sent out letters of invitation to a dozen representatives in the hope that its membership can be increased to from 10 to 15.

Good Design Deserves Sound, Durable

Framing

Architects who are proud of their home designs want their work to endure . . . and to give long years of satisfactory service to their clients. They know that good framing insures structural soundness, thereby providing economical livability for generations. That's why so many architects specify Weyerhaeuser 4-Square Kiln-Dried Lumber for framing their homes.

Precision manufactured, scientifically kiln-dried 4-Square framing lumber offers superior strength, dimensional stability, and firm nail holding properties. The Weyerhaeuser 4-Square trademark helps to assure complete framing satisfaction.



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Wood Sheathing Adds Strength to Frame

The structural skeleton of a home is further stabilized by the application of sheathing. Here again, quality lumber serves as ideal sheathing.

Weyerhaeuser 4-Square Wood Sheathing adds strength to the structure by tying the framing together and holding it securely in place. 4-Square sheathing is available in a variety of species and grades. It also is scientifically kiln-dried for greater stability and increased nail holding power. It is a sound, durable base for exterior coverings and adds a considerable degree of natural insulation.



Architects find that Weyerhaeuser 4-Square Framing and Sheathing work together for sound construction.

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On the Calendar

August

- 17-22 National Technical Conference, Illuminating Engineering Society—Royal York Hotel, Toronto
- 18-21 Annual Convention, American Hospital Association—International Amphitheater and Palmer House, Chicago
- 18-21 19th Annual North American Liturgical Week and exhibit of liturgical arts, crafts, and literature—Music Hall, Cincinnati
- 22-29 First International Seminar on Urban Renewal, co-sponsored by International Federation for Housing and Town Planning and Netherlands Town Planning Institute—Institute of Social Studies, The Hague
- 31ff 24th Bi-Annual Congress, International Federation of Housing and Town Planning; through Sept. 6—Liège, Belgium

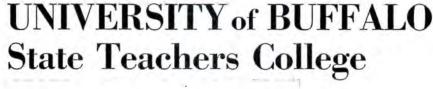
September

1-13 Second International Confer-

- ence on Peaceful Uses of Atomic Energy—Geneva, Switzerland
- 4-5 International Conference on Air Pollution—Hotel Statler, New York City
- 6-14 National Home Week, promoted by the National Association of Home Builders
- 15-19 13th Annual Instrument Automation Conference and Exhibit—Convention Hall, Philadelphia
- 17-18 Conference on Floor Construction Systems, sponsored by the Building Research Institute—Sheraton-Park Hotel, Washington, D. C.
- 21-24 National Planning Conference of Community Planning Association of Canada—King Edward Sheraton Hotel, Toronto
- 22-25 Annual Meeting, Institute of Traffic Engineers—McAllister and Columbus Hotels, Miami
- 22-26 40th National Recreation Congress, sponsored by National Recreation Association and allied organizations—Atlantic City, N. J.
- 25-27 Seventh Annual Conference, A.I.A. Western Mountain District—Continental-Denver Hotel, Denver

October

- 2-4 North Central A.I.A. Regional Conference—St. Paul, Minn.
- 8-10 Gulf States A.I.A. Regional Conference—Biloxi, Miss.
- 9-11 13th Annual Forum, Pennsylvania Society of Architects—Galen Hall, Wernersville, Pa.
- 9-12 Northwest A.I.A. Regional Conference—Harrison Hot Springs, British Columbia, Canada
- 15 New York District A.I.A. Regional Conference—Rochester
- 15-19 California Council, A.I.A., Annual Convention, and (Oct. 17 only) Cal.-Nev.-Hawaii Regional Conference—Mark Thomas Inn, Monterey Peninsula, Cal.
- 22-24 25th Annual Convention, Architects Society of Ohio—Sheraton-Gibson Hotel, Cincinnati
- 25-29 Annual Meeting, American Institute of Planners—New York City
- 30ff A.I.A. Central States Regional Conference; through Nov. 1—Kansas City
- 31ff Annual Meeting, National Trust for Historic Preservation; through Nov. 2—New Orleans







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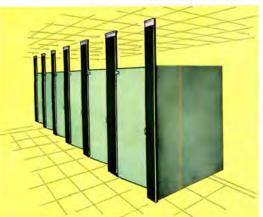
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Sweet's Architectural File, No. 22b/We—or write for complete information.

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Weis Vitre-Steel compartments have been selected for prominent buildings designed by the following architects: Bastille Halsey Assoc., Boston, Massachusetts; Perkins & Will,

Chicago, Illinois; Raymond E. Maritz & Son, Inc., St. Louis, Missouri;
John E. Ramsey, Jr., Salisbury, North Carolina;
Robert E. Alexander, Jr., & Assoc., Dallas, Texas; Richer & Axt,
West New York, New Jersey; C. E. Silling & Assoc., Charleston,
W. Virginia; Raymond Harry Ervin, Denver, Colorado.





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(USS) National Pipe—

Chicago's Field Building

One of Chicago's landmarks, the towering Field Building on South LaSalle Street, recently completed the installation of a new air-conditioning system. USS NATIONAL Seamless Steel Pipe was used throughout the system—a total of 127 tons of it—in sizes from 3" O.D. to 18" O.D.

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Office Notes

Offices Opened

Donald Grier Hannum, A.I.A., and William Arthur Whifler, A.I.A., Architects, announce the opening of offices at 135 University Ave., Palo Alto, Cal.

Harold Keeney, Jr., Architect, has opened an office at 13251 132nd Ave., N. E., Kirkland, Wash.

Martin M. Laibow announces the opening of his office for the practice of architecture at 8 Burning Bush Lane, Levittown, Pa.

Robert George Sauter, A.I.A., and Ben M. Seaborne, A.I.A., have announced the opening of a new firm. Sauter and Seaborne, at 125 W. College Ave., Appleton, Wis.

Firm Changes

George B. Allison, F.A.I.A., and Ulysses Floyd Rible, F.A.I.A., announce the admittance to partnership of Rodney T. Robinson, A.I.A., and Raymond Ziegler, A.I.A.; the firm, Allison and Rible, is at 3670 Wilshire Blvd., Los Angeles 5, Cal. Clas and Riggs, Architects, is the

new name of the firm formerly known as A. R. Clas, Architect-George H. Riggs, Jr., Associate. The principals of the firm in the Wyatt Bldg., Washington 5, D. C., are Angelo R. Clas, F.A.I.A., and George H. Riggs, Jr., A.I.A. Associates are Leroy F. Owens, A.I.A., and Antonio C. Ramos, A.I.A.

Eckbo, Royston and Williams, Landscape Architects and Planning Consultants, announce the reorganization of their partnership with the formation of two new firms for the practice of landscape architecture: Robert Royston, Asa Hanamoto and David R. Mayes in a partnership known as Royston, Hanamoto and Mayes, at 555 Clay St., San Francisco 11, Cal.; Garrett Eckbo, Francis Dean and Edward Williams in a partnership known as Eckbo, Dean and Williams, at 1136 Clement St., San Francisco 18, Cal., and 8942 Wonderland Park Ave., Los Angeles,

Kaestner Associates announces that J. Everett Hoerner, Architect-Engineer, and Allen W. Young, Architect, formerly associates, are now principals of the firm, known as Kaestner, Hoerner & Young, Inc., Architects-Engineers, with offices at 210 N. Encina Ave., Visalia, Cal.

Carl M. Koelb and Associates, architects, announces the selection of Donaldson Ray McMullin Associates as its successor firm, because of the death of Mr. Koelb in May. The successor firm, to be known officially until 1963 as Donaldson Ray McMullin Associates, Successor to the Firm of Carl M. Koelb and Associates, is at 428 Boston Post Rd., Weston, Mass.

John B. Parkin Associates, Architects and Engineers, announces that George F. Eber, M.R.A.I.C., and Roy F. Marshall have been appointed associates. Offices of the firm are at 1500 Don Mills Rd., Postal Sta. J. Toronto 6, Ont.

New Addresses

Rex Whitaker Allen, A.I.A., Architect and Hospital Planning Consultant, 693 Mission St., San Francisco 5, Cal.

Heitschmidt and Thompson, Architects, 617 W. Seventh St., Los Angeles 17, Cal.

Addendum

Pietro Belluschi, F.A.I.A., dean of the School of Architecture and Planning at Massachusetts Institute of Technology, was architectural consultant for the additions to the First Presbyterian Church, Boulder, Colo., for which Hobart Wagener was architect. This church was shown on pages 200-202 in the June RECORD. Omission of Dean Belluschi's name is greatly regretted.



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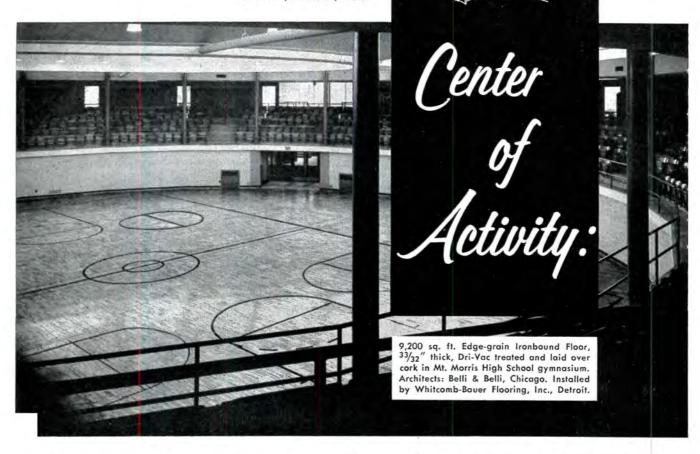
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Mt. Morris High School, "The Magic Circle School of Tomorrow", Mt. Morris, Mich.



IRONBOUND* CONTINUOUS STRIP* HARD MAPLE FLOOR

All activity at the striking new Mt. Morris High School centers around the gymnasium. Surrounded by classrooms and situated between two wings, the gym is the focal point of the entire structure. Therefore the type of gym floor chosen for this area was especially important. A Northern Hard Maple floor was a must because of its bright, natural beauty and smooth splinter-free surface. In addition, the floor had to be shock-absorbent and uniformly resilient. An Ironbound floor not only meets all these requirements, but it offers much more to preserve the original condition of the floor.

Since the gym floor is below grade, edge-grain Ironbound was chosen because it will expand and contract less than other floors under difficult moisture conditions. The individual slats will remain smooth and tight, bound together with long, barbed steel splines. For extra protection against moisture absorption, the flooring was vacuum-treated by the Dri-Vac process. The treatment will also protect the floor against rot, fungus, and termites.

If you have had problems with excessive expansion and "cupping" of gym floors, perhaps an edge-grain Ironbound floor is the solution.

For information and name of your nearest franchised installer, write Robbins Flooring Co., Reed City, Mich., Attention: Department AR-858.

T.M. Reg. U.S. Pat. Off.

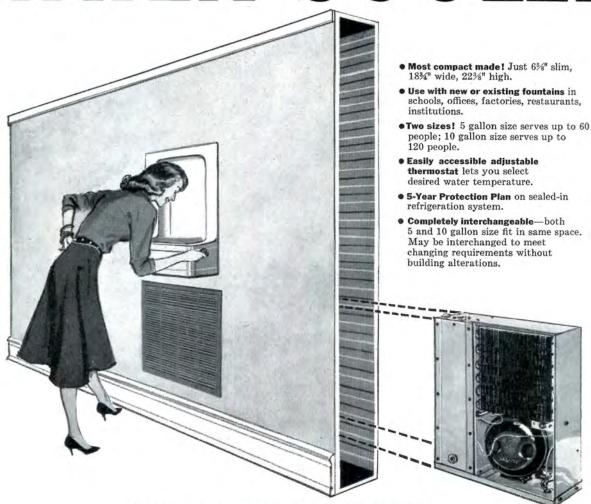
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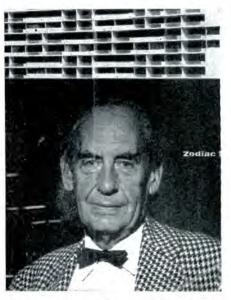
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The Record Reports



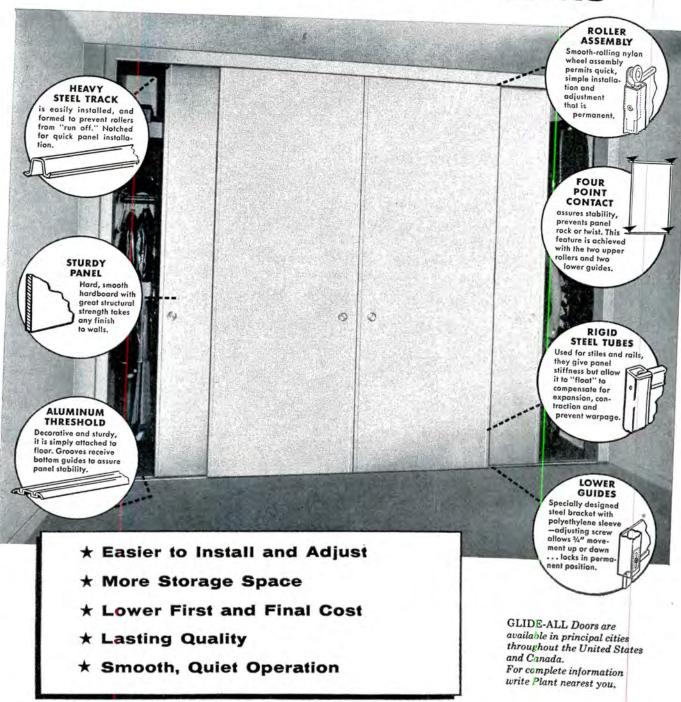
Zodiac: An Architectural Journal With an International Outlook

The newest member of the architectural press is called Zodiac, and is subtitled "an international magazine of contemporary architecture." The ideal of internationality is upheld in the team which sponsors the venture -the Belgian "Association pour la Diffusion Artistique et Culturelle" and the Italian Olivetti Company; backing them up is a staff of editors from Western Europe and the U.S. A policy statement from Adriano Olivetti describes a magazine with an editorial base broad enough to support a broad definition of architecture: "It is necessary to turn to the happy determinant necessity, that which sooner or later is destined to triumph over uncertainties, obstacles and immaturity: the necessity, the need for taking root, for finding again in the earth, in landscape, in traditions, architectonic forms, the love of men for their community, the whole and natural feeling for the place."

The lead article in this first issue is by Walter Gropius, whose face appears on the cover; it is followed by contributions from such international figures as Siegfried Giedion, Peter Blake, Ernesto Rogers, Arthur Drexler, Victor Gruen, Maxwell Fry. In an understandable effort to load this first issue with outstanding architecture, the editors have used examples familiar to most readers of foreign and domestic journals.

The magazine, which will appear semi-annually, is published in this country by George Wittenborn, Inc., 1018 Madison Avenue, New York 21; prices are \$9 per copy, \$17 for a year's subscription.

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Here is a timely new book which brings you the latest information about the design of new buildings needed to house the nation's expanding scientific research program. Prepared by experts in architecture, engineering, and scientific research, this book is guaranteed to bring you up to date with the latest, tested developments in this important field. The book accomplishes this aim in two ways:

- In several illuminating studies, it presents in detail the hundreds of common requirements of good laboratory design — vents, drains, services and utilities, safety measures, modular units, etc. Three of these studies cover the all-important field of nuclear research. These give you a clear picture of atomic processes and equipment, as they affect the design of the building that houses them.
- 2. Shows you how special problems have been solved, using actual examples. Presents 44 separate new laboratory projects, in all areas of scientific research. These buildings are in all areas of the country, and are owned by corporations, universities, and government agencies. Each is thoroughly described in text, photographs, plans and drawings.

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BRIEF SUMMARY OF CONTENTS

1. PLANNING THE LABORATORY

An 18-page outline of fundamentals by Charles Haines of Voorhees, Walker, Smith and Smith. A study of laboratory equipment as it affects design. Analyses of five plot plans of research centers, including RCA laboratories at Princeton, N. J., and Armstrong Cork Co. in Lancaster, Penna. All 5 shown in numerous plans and drawings.

2. NUCLEAR LABORATORIES

Defines CC (concentrate and confine) and DDD (dilute, disperse, decontaminate) theories. Studies architectural requirements of cyclotrons, bevatrons, and other types of reactors and accelerators. Emphasis on shielding and personnel safety. Many AEC and university buildings shown in photographs and drawings. Much of this information only recently declassified by government.

3. INDUSTRIAL LABORATORIES

The largest section in the book. A total of 20 biological, engineering, chemical, and electronic laboratories. Includes a GE laboratory that won congratulations from its residential neighbors, Union Oil's 14-building complex, with all buildings connected by service tunnels, Corn Products' huge research center with complete pilot plant, and many more. All buildings described thoroughly in text, photographs, and drawings and plans.

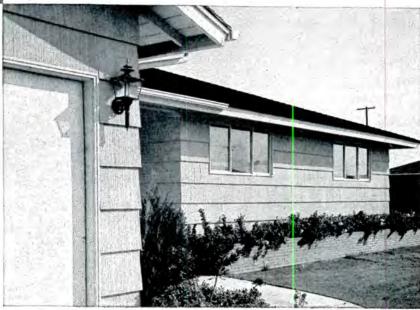
4. INSTITUTIONAL LABORATORIES

Owned by government agencies and universities, with the emphasis on pure research. An entire new postgraduate school of research for the Navy at Monterey, Calif. is shown—maximum sharing of facilities by diverse departments and built on a very tight budget. Also a chemical engineering building at the University of Minnesota built on the modular plan, an engineering building at U.C.L.A. with a floor live-load of 600 lb per sq ft, and a dairy laboratory at the University of Wisconsin where a germ-free atmosphere and ease of cleaning were pressing problems.

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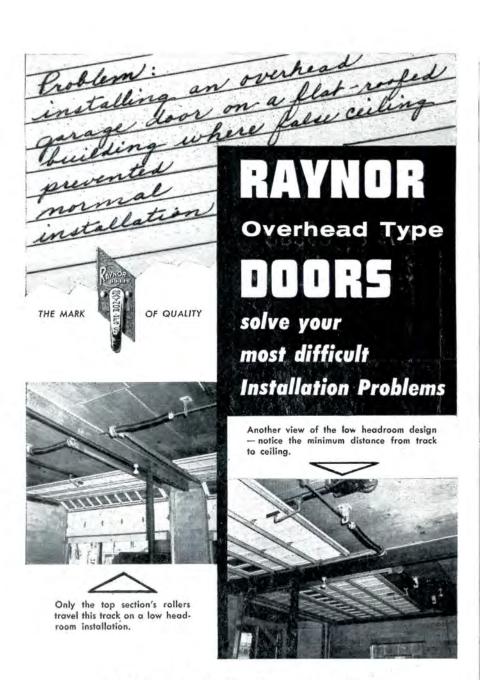












RAYNOR Low Headroom DESIGN REDUCES HEADROOM TO 6½ INCHES

The machinery repair shop housed in this flat-roofed building added a ceiling to create insulation space. This reduced the headroom to less than a foot. A Raynor Low Headroom installation was made, using only $6\frac{1}{2}$ inches for headroom! This modification not only eliminated costly alterations, but also retained the original door opening. If your job presents an installation problem, contact Raynor's Engineering Department for the most economical solution...shop drawings furnished free on request.



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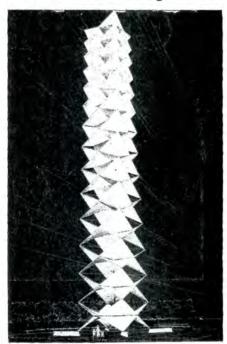


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The Record Reports

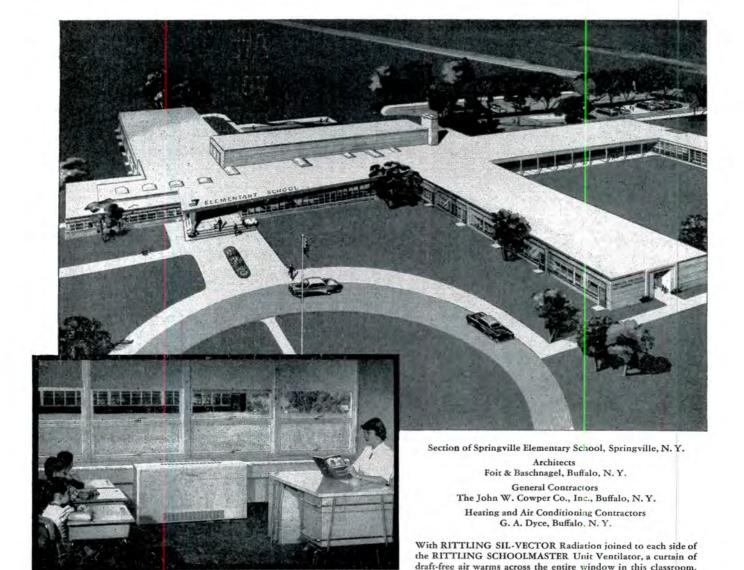


Musical Tower Will Be Added To Cowboy Hall of Fame

At the request of the clients, who felt that it would add "significance and dignity" to the project, the design for the National Cowboy Hall of Fame and Museum has been augmented by a 200-ft free-standing tower. Architects Harold Jack Begrow and Jack W. Brown, winners of the competition described in the RECORD, December 1957 (pp. 10-11). report that the tower will be composed of a stack of hyperbolic paraboloids, the form used for the roof structure of the museum. The precast sections will be held by diagonal tension wires. Electronic sound devices will be hung, in individual chambers, from the supporting cables. When played from a remote keyboard, the device will "emit strumming sounds similar to a guitar or banjo, both reminiscent of Western trail music."

The museum, which will be built on a bluff near Oklahoma City, is sponsored by a non-profit organization dedicated to commemorating the cowboy and cattleman. View of the projected museum appears below.





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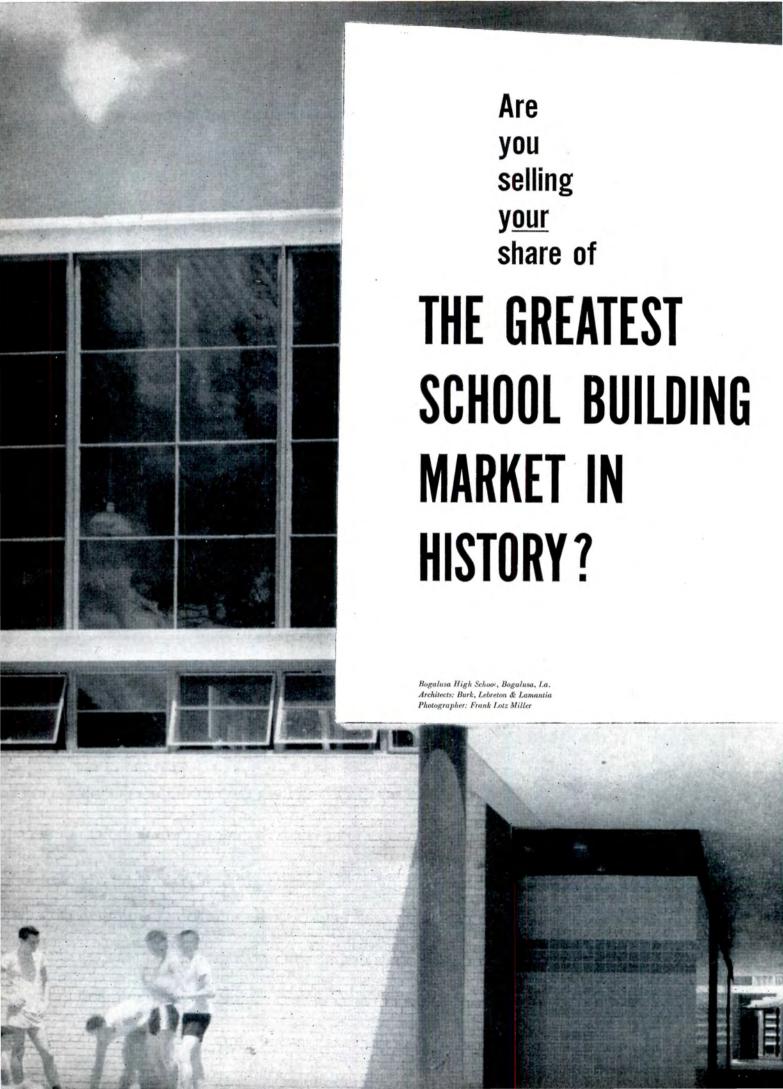
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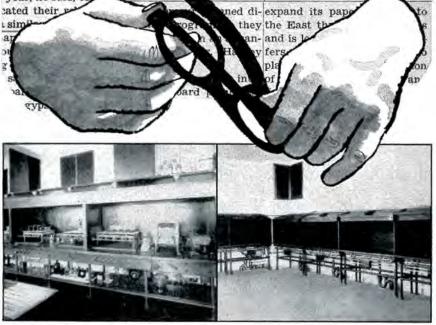
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Washington Topics

continued from page 56

All construction must be in accordance with a comprehensive approved

state plan.

Enacted first in 1946, the law was amended in 1949 to increase the original grant authorization of \$75 million annually to \$150 million. At the same time, this first major amendment provided for variable project matching ratios on the basis of comparative financial need. Federal grants have consisted of one third to two thirds of construction cost.

In 1954 Congress added to the general construction grant section a new authorization bringing four added categories into the program. These were chronic disease hospitals, medically supervised nursing homes, diagnostic or treatment centers and

rehabilitation centers.

Another measure passed recently by the House would enable religious organizations with objections to accepting Federal grants to secure Federal loans for building hospitals and other health facilities. Such loans would be made for periods up to 40 years. Interest charges would be the current average yield on all outstanding marketable U.S. obligations plus one quarter of one per cent.

Continued Uptrend in Apartments Seen in N.A.R.E.B. Survey

The trend toward increased apartment house construction will remain on the increase, according to reports assembled from 211 real estate boards throughout the country. The survey was another in a long series conducted by the National Association of Real Estate Boards.

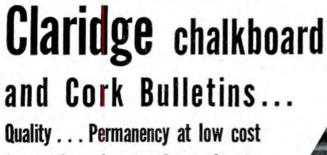
Realtors in most of the large cities of the nation said they expected the volume of apartment building, increasing for the past several months. to continue to increase, perhaps reaching new high levels in the remaining months of 1958. The improved output still is considered relatively low, however, the national association reported.

Seventy-three per cent of those reporting from metropolitan areas foresee a continuation of the current increased level of production or higher rates of apartment construction in the months ahead.

Senate Group Releases New Batch Of Views on the Economy

Public works spending continues to be a feasible method of combatting recession in the opinions of several

Stafford Intermediate School, Stafford, Kansas Architects: Hibbs, Robinson and Petit, Wichita, Kansas



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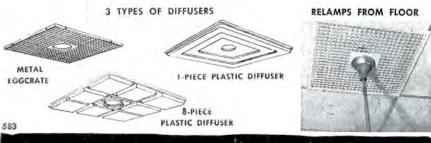
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Washington Topics

economists. The Senate Finance Committee released communications from a number of the nation's leading economists, professors and businessmen giving assorted views on what is wrong with the national economy and how the trouble might be corrected. A majority agreed that a public works program would have some usefulness in stemming and reversing a recession trend.

James W. Angell, professor of economics at Columbia University, for example, urged greatly increased Federal aid to state and local government groups for the construction of schools, hospitals, slum clearance programs, highways and other projects of "high social value." He called for aid in the form of total Federal participation and purchase of state and local government bonds where debt limitation statutes permit. He called attention to relatively large increments of employment locally that such spending would generate.

Arthur Burns, National Bureau of Economic Research, Inc., New York, proposed enlarging the Federal government's planned public works program so that going projects might be "stretched out" during inflationary

periods.

Public works spending also was favored by Gerhard Colm, National Planning Association economist, in times of economic recession. He recognized that a substantial lag is involved timewise, however.

And Howard S. Ellis, department of economics, University of California, told the committee in his reply that he felt public works spending should be considerably increased when unemployment exceeds six or

seven million persons.

On the other hand, public works spending is too slow to be of much value in a recession period, and is inflationary, in the opinion of Edmond H. Leavey of the International Telephone and Telegraph Corporation.

Senate Battle on Housing Bill Starts in Committee Reports

The omnibus housing measure of 1958, with its important slum clearance and public housing provisions, was headed for a stormy session in the Senate as minority members of the Senate Banking and Currency Committee filed their own opposition report to the committee's bill. The fight centered principally on the public housing issue. Senator Homer Capehart (R-Ind.) led those who insisted that the committee's liberalized treatment of this program wan-



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dered far afield from the original Congressional intent.

Objection was focused on the committee bill's liberal treatment of low-rent public housing. Protesters claimed that in committee form the legislation would offer public housing occupancy to middle-income families against the original purpose of the law. They also fought an effort to give local public housing authorities greater flexibility in the handling of profit funds from their projects.

Senator Capehart had promised to try to cut back the committee's slum clearance authorization of \$2.1 billion for slum clearance and urban renewal grants to the \$1.3 billion sought by the Administration. Objections also appeared to a proposed \$250 million in direct loans for use by colleges and universities in constructing classrooms. This, said the opponents, would infringe on jurisdiction of the Senate's Education Committee which rightfully handles such matters.

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A total of 10 objecting amendments were promised at the time the bill cleared committee.

The amendments would not interfere with proposed construction of 105,000 public housing units during the four fiscal years following enactment of the measure as provided by the committee bill.

Other amendments were offered to eliminate an increase in FNMA (Federal National Mortgage Association) purchase authority for cooperative housing mortgages, to knock out the \$150 million for direct home loans to veterans, to substitute a Title III under urban renewal where planning grants could be substituted for advances now made by Housing and Home Finance Agency, thus eliminating loss of these funds when advances are not repaid, and to remove from the committee version "excessive" increases proposed for FHA mortgage insurance ceilings. The last named item would apply to rental housing programs.

New Ruling on Discrimination Covers FHA and VA Housing

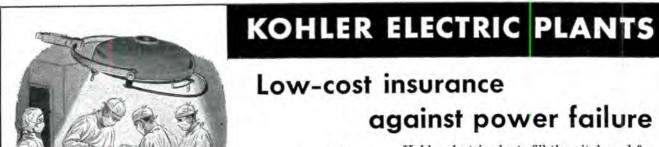
Conditions of sale in regard to minority groups are posing increasingly intense problems for home builders throughout the country.

A state court ruling in California has held that there can be no racial discrimination in the sales of housing units financed with the assistance of Federal Housing Administration or Veterans Administration. This has brought the matter to a head on the West Coast.

In the East attention was focusing on the third city to be constructed by William Levitt, large-scale New York home builder, in New Jersey between Camden and Trenton. He had said in Washington in June that he planned to follow the same conditions prevailing in his other two communities—Levittown, Long Island, and Levittown, Pennsylvania. Those are both all-white developments.

The National Association of Home Builders, confronted with the California situation, said it would stand for the time being on its statement made to Congress in 1955 by its then president, Earl "Flat Top" Smith of El Cerrito, Cal. This expression, delivered to the Senate Banking Committee, placed the association in the position of urging tolerance by everyone—both in and out of government—in regard to the builders' problem. The problem was stated thus:

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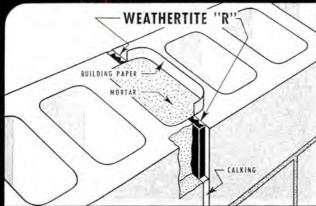
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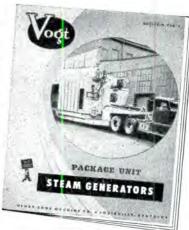
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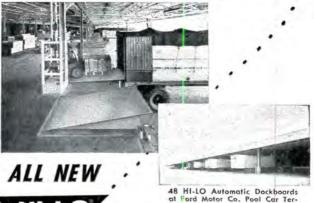
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Washington Topics

building marketplace across this country as they relate to housing for minority families arise from a deep-seated emotional conviction in the minds of people who make up this home buying market. This emotional conviction, held by so many of the American people, cannot be changed overnight by legislative process, administrative directive, or any industry. We hope that one day this attitude will have disappeared through education, understanding and tolerance.

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"We as home builders are dedicated to the task of doing everything possible to build good, sound housing for all people within this country, but such housing must be fitted into the conditions of the housing market—conditions which arise from the attitudes and feelings of people and which are completely beyond the control of our industry."

Weather Delays Completion of Asphalt Test Strip

Completion of the asphalt test strip at Columbus, Miss., was delayed by bad weather this spring; it could not be finished until the end of July. This stretch is an official project of the Army Corps of Engineers, built to test design criteria of flexible pavement in relation to heavy bomber plane use.

One school of thought holds that the heavy "channelized" traffic of the B-52 landing gears makes rigid pavements necessary on taxiways and warm-up pads. Others are just as convinced that flexible pavements, properly installed, will withstand the weight of the bombers.

This argument has been the subject of a Congressional hearing and the present test strip at Columbus is a result of that session. The verbal struggle became particularly intense when the asphalt industry complained to Congress that the Air Force was discriminating against its product. At the conclusion of the hearings before Representative Hebert's House Armed Services sub-

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committee, the Air Force was directed to begin the test of the design criteria in cooperation with the Army Corps of Engineers.

The traffic test lane is about $14\frac{1}{2}$ ft wide and 200 ft long. A cart, equipped with one of the four-wheeled plane's landing gear and weighing 212,000 lb in total, will make 5000 trips on the strip. It is estimated that the weight is about 80 per cent of a B-52, accounting for factors of speed and lift at landing or take-off.

Survey Reports Cheapest House Ranges from \$8990 to \$15,000

Real estate and business editors of 29 daily newspapers report through a survey conducted by the National Housing Conference that the median price for the cheapest new three-bedroom home available in the U. S. is \$10,990.

Less than 30 per cent of the nation's families can afford to buy and maintain a new house at today's prices, the Conference survey indicated. It appears in the *Housing Yearbook* of the Conference for 1958.

Range in minimum prices for new homes was from \$8990 in a New York City suburb to \$15,000 in Rochester, N. Y. Median for northern cities was \$12,000 and for southern cities, \$10,075.

Purchasing power in the conclusion was based on the assumption that a family should not spend more than one-fifth of its income for housing, including utilities, taxes, insurance and maintenance.

FCDA Issues New Bulletins on Fallout and Blast Shelters

A new technical bulletin providing guidance to architects, engineers and contractors in the planning and construction of family shelters for protection against the effects of radioactive fallout beyond the blast range of nuclear explosions has just been published by the Federal Civil Defense Administration.

This guide presents basic standards for fallout shelters and recognizes the new emphasis placed on fallout protection by Federal officials. Covered in brief detail are shielding, ventilation, equipment and supplies and sanitation for three types—outside underground, basement and aboveground.

The bulletin, entitled "Family Shelters for Protection Against Radioactive Fallout," carries a guide to contracts and specifications.



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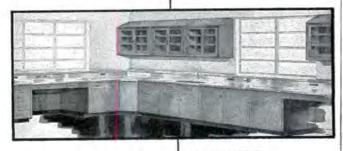
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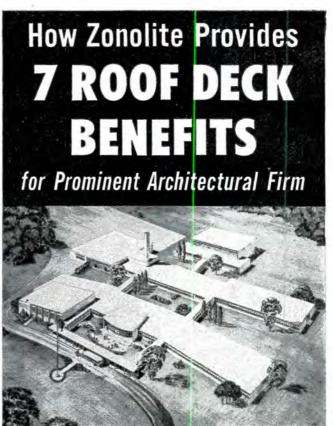
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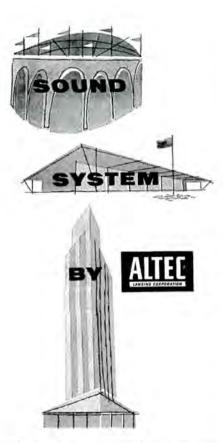
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Required Reading

continued from page 64

omitted, although the properties of Thiokol are listed among the synthetic rubbers. This amazing material has rendered obsolete the formerly correct principle that no calking compound can be relied on by itself for complete waterproofing of joints.

In any book of this kind each reader will find some topics he feels could be better treated, but on the whole this *Building Construction Handbook* is the best and most up to date I have seen. Many sections of it could be used as texts in architectural and engineering schools. It will be a valuable addition to the library of anyone connected with the building industry.

An Abbey And Its Architect

Adventure in Architecture: Building the New Saint John's. Text and Pictures by Whitney S. Stoddard. Plans by Marcel Breuer. Longmans, Green and Co. (New York), distributed in cooperation with F. W. Dodge Corp., 1958. 127 pp., illus. \$8.50.

This is a story of architect-client relationship and sympathy to warm the heart—the tale of how architect Marcel Breuer and the Benedictine community of Saint John's worked together in planning and starting to build a new monastic community near Collegeville, Minn.

It begins with the selection of an architect—a task handled, in this case, with intelligence and understanding. Next, the development of a program and design for a long-range plan embracing 19 buildings, to be constructed in six stages over a period of 100 years.

The monastic wing was the first actual structure to be built; it was completed in the fall of 1955 after 15 months of construction. Twenty percent of the labor was furnished by the monks, who achieved fine quality in their work. The next stage, the building of the Abbey Church, is now under way.

The scope and imaginative design of Breuer's master plan, as well as the cooperative spirit that has grown up between him and the monks, are lessons in creativity and human understanding. Architects can profit from reading this volume, which can serve also to enlighten and guide building committees about to embark on a project, of whatever nature.

-J.S.H.

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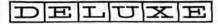
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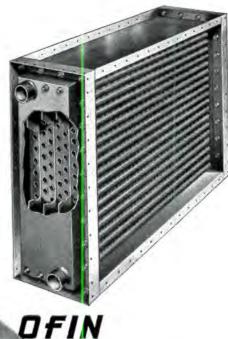
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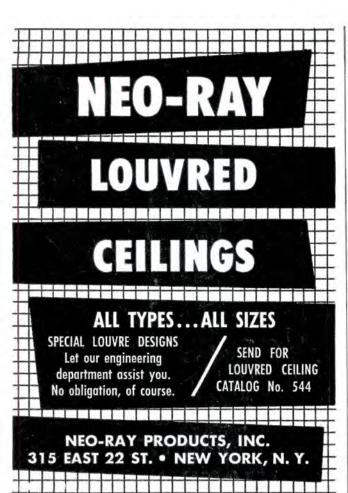
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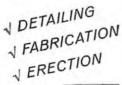






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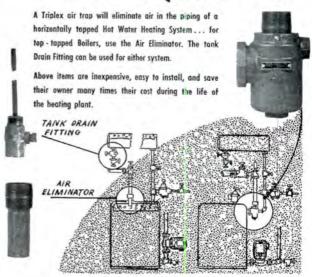
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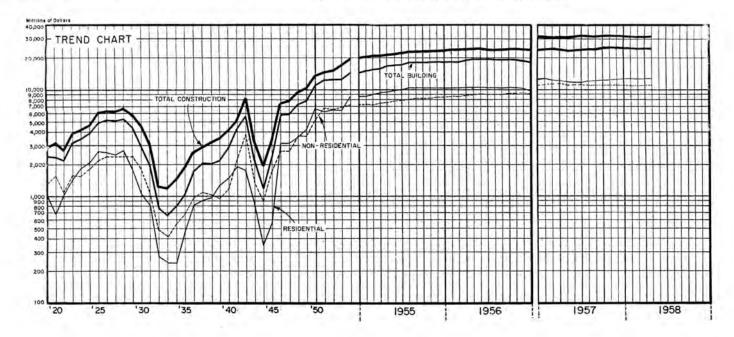


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Current Trends in Construction

As Reflected in Contracts for Future Construction in the U.S. Reported and Tabulated by F. W. Dodge Corporation



JUNE TALLIES ANOTHER ALL-TIME RECORD

For the second consecutive month, the latest construction contract totals reported by F. W. Dodge Corporation set a new high for any single month. The June figures, released on July 30, showed a total for the month of \$3.8 billion; this was 12 per cent above the previous high record set only the month before and 18 per cent higher than June of 1957. The six-months cumulative total for the year was \$16.7 billion, down one per cent from the comparable 1957 period. Large increases in residential, public works and public utility contracts boosted the June total; but Dr. George Cline Smith, Dodge vice president and economist, noted that the gains were general through all types of construction, with only a few exceptions.

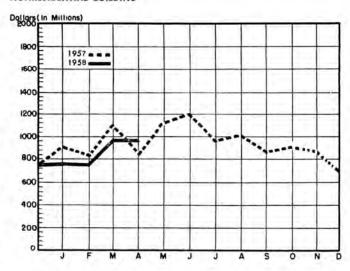
"When signs of an upturn in construction contracts first appeared in April," Dr. Smith said, "we reported that the recovery seemed to have a broad, solid base. This fact has been more than confirmed in May and June, with the dollar figures exceeding all expectations.

"A number of very large utility contracts, particularly in connection with the St. Lawrence Seaway project, helped boost the June total, but the most encouraging feature was perhaps the big increase in housing activity across the nation.

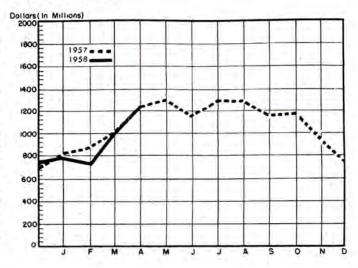
"The effect of government programs was particularly noticeable in June, since public ownership contracts were 30 per cent over the same month of last year. Nevertheless privately owned projects also rose by a substantial 11 per cent. Regardless of ownership, the net effect of this upsurge in the nation's largest industry is bound to be a big boost to the rest of the economy, which will be felt for many months to come as work proceeds on projects now under contract."

Within the nonresidential category, which showed an 18 per cent decline from June 1957, several types actually gained over the 1957 month—public buildings, religious buildings, hospitals and recreational buildings. Sharp declines were registered by manufacturing buildings (down 67 per cent) and commercial buildings (down 27 per cent); educational buildings dropped three per cent. The 20 per cent increase in the residential category included a 69 per cent increase for large residential buildings and a 17 per cent rise for one- and two-family houses.

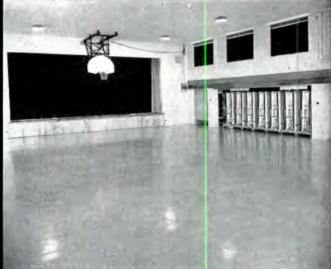
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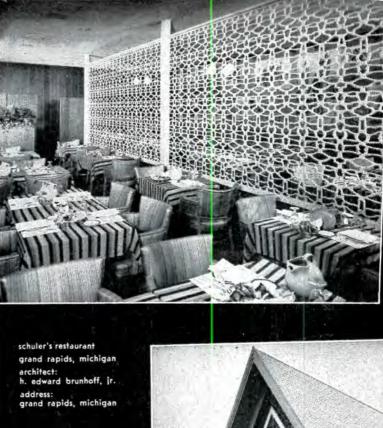


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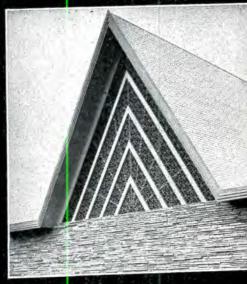
Division — F. W. Dodge Corporation 119 West 40th Street New York 18, N. Y.



*A (Architectural File) IC (Industrial Construction File)
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final "touch of genius" in commercial interiors

You add beauty and originality when you specify truly outstanding IL* fixtures-such as MOE Light's dramatically different Luxwood design shown here in a business conferenceroom setting. Five matched fixtures available. ** Shades beautifully wrought of genuine cabinet-grain wood trimmed in gleaming brass are richly unique by day, gloriously translucent when lighted. Luxwood is but one of a wealth of designs shown in the MOE Light fixture catalog, affording almost unlimited versatility that enables you to light any kind of interior effectively...and with that "touch of genius" that lifts it far above the usual.

> **Inspired LUXWOOD Fixtures by MOE Light

M-1479 Reel-type Pull-down Fixture

M-1471 Round Ceiling-fixture 121/1" diameter

M-1475 Round Ceiling-fixture 181/2" diameter

M-1476 Single Pendant

M-1477 Three-pendant Cluster

THOMAS INDUSTRIES INC.

LIGHTING FIXTURE DIVISION

Executive Offices: 410 S. Third St., Louisville 2, Ky., Dept. AR-8 Leaders in Creative Lighting

*Inspiration-Lighting by MOE Light for Commercial Installations

FREE manual of creative lighting for the discriminating professional only. Dozens of interior sketches, plus MOE Light commercial fixtures...

Just clip this ad to your professional letterhead and mall to us promptly for your copy!

Here's why to specify

FESCO

Roof Insulation Board

For Favorable Insurance Rates: Because Fesco Board is formed of all-mineral perlite, it provides the ultimate in incombustibility, exceeding the maximum code ratings. Even under extreme temperatures Fesco Board remains physically stable, contributing importantly to fire containment. Fesco Board carries the label of Underwriter's Laboratories, Inc.

For Maximum Insulation: Because Fesco Board has no wick-like action (as do fibrous boards) it remains essentially dry on the job and in the job. Fesco Board absorbs only 1.5% water by volume on 24 hours total immersion. Remember, as moisture content goes up, insulation value goes down!

For Faster Laying: It is not uncommon for mechanized crews to place and cover, with 4 plys of roofing, 8 squares of Fesco per day per man. High in compressive strength and scuff resistance, Fesco

withstands the weight and wear of high speed, mechanical roof application.

For Better Workmanship: Smaller (24" x 36") size permits easy handling, accurate placement. And Fesco Board cuts cleanly, quickly and evenly, for shaping to flashings, hatches, monitors, and other deck openings.

For Longer Roof Life: All-mineral perlite is chemically inert, and non-absorptive - will not rot, mildew, deteriorate. This permanent physical stability permits Fesco Board to withstand the heavy roof traffic normal to industrial occupancy. Fesco Board has a compression resistance of 174.8 P.S.I.

For Lighter Weight: Fesco Board weighs only nine ounces per board foot, yet will not expand, shrink or curl. Linear change at 100% R.H. at 10 days is only $+\frac{1}{5}$ of 1%.

F. E. SCHUNDLER & COMPANY, INC. 504 RAILROAD ST., JOLIET, ILL.

Eastern Office: Chatham Phenix Bldg., 29-28 41st Ave., Long Island City, N.Y.

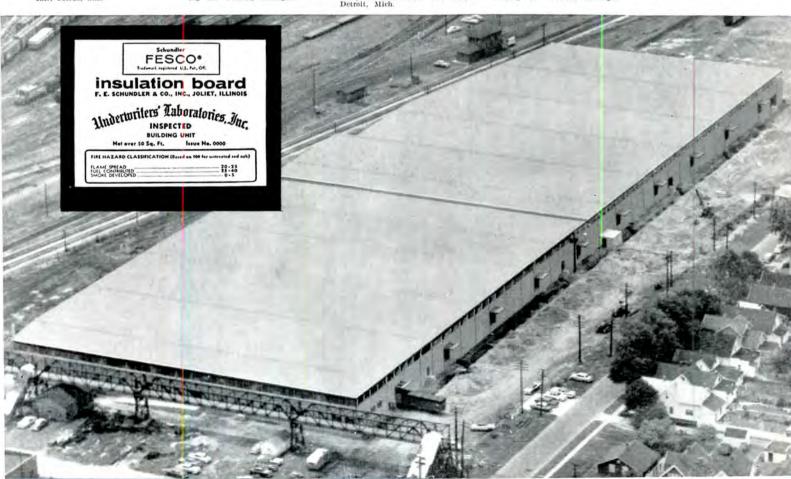
RATED FIREPROOF MATERIALS-ACOUSTICAL & INSULATING
Developers and producers of incombustible mineral products including Ebbtone Acoustical Tile, Fesco Insulation Board, Coralux Acoustical Plaster, Coralux Perlite Aggregates, Mica Pellet Vermiculite, High Temperature Insulating Blocks and Insulating Cement.

ENGINEER: Campbell Engineer-ing Inc. Detroit, Michigan

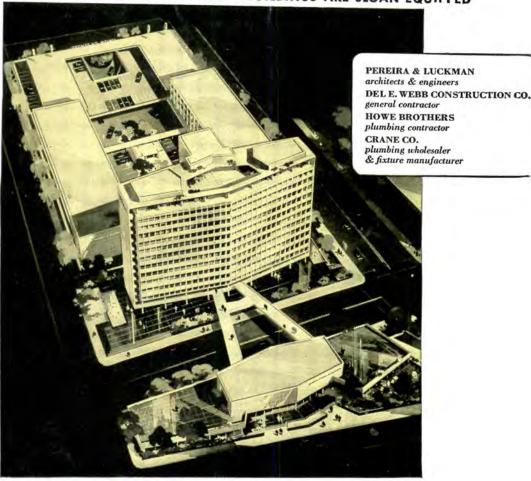
GENERAL CONTRACTOR: H. F. Campbell Construction Co., Inc., Detroit, Mich.

ROOFING CONTRACTOR: Pranis Roofing Co. Detroit, Michigan

ROOF AREA: 225,080 square feet



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



AN ARCHITECTURAL TRIUMPH

• The new \$20-million UNION OIL CENTER, Los teria. In the main building electronically controlled, Angeles, is a complex of four ultramodern office buildings which occupies more than a square block -nearly 5 acres. The three principal buildings, which form a "U," are joined only at lobby and mezzanine levels. The 13-story Home Office, highest structure in the city, forms the base of the "U." Facing it from the opposite side of a cross street and joined by pedestrian bridges, is a 2-story building housing a large auditorium, lounges and cafe-

operatorless elevators serve all 13 floors. High speed escalators serve the lobby and the six floors above, and also all floors in the two 4-story buildings. All buildings are comfortized by a high velocity dual-duct air conditioning system. Facades of all buildings are metal and glass. Windows are tophinged and in-swinging to permit cleaning from inside. For these praiseworthy Union Oil Center buildings SLOAN Flush VALVES were specified.

